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ABSTRACT

Documents announced with VT numbers only in the Volume 6 Number 1 issue (VT 017 802) of "Abstracts of Research and Related Materials in Vocational and Technical Education" (ARM) are included in this microfiche set. Microfiche availability for these documents is shown on the ARM resume as MF AVAILABLE IN VT-ERIC SET. The microfiche set is arranged in the following sequence: (1) a Vocational Technical (VT) number index to documents in the microfiche collection, (2) the subject and author indexes from ARM, and (3) the full text of documents listed in the VT number index. The texts are filmed continuously in VT number sequence. (CD)

Microfiche Collection of Clearinghouse Documents

Reported in Abstracts of Research Materials

in Vocational and Technical Education

(ARM)

Compiled and Indexed by The Center for
Vocational and Technical Education

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Vol. 6, No. 1
1973

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The Center for Vocational and Technical Education
The Ohio State University
1960 Kenny Road, Columbus, Ohio 43210

INTRODUCTION

This collection of microfiche consists of the documents which are announced with VT numbers only in Abstracts of Research Materials in Vocational and Technical Education (ARM), Vol. 6, No. 1, 1973. Microfiche availability is shown in the resume as MF AVAILABLE IN VT-ERIC SET. The documents are grouped in VT number sequence and filmed continuously as a microfiche set. These documents are not available on microfiche as individual items, but are obtainable only through purchase of this set, or from agencies who have this set and have the capability of reproducing microfiche. The microfiche set includes the following sections:

1. Vocational Technical (VT) Number Index to Microfiche Collection of Clearinghouse Documents Reported in ARM, Vol. 6, No. 1, 1973.

2. Selected indexes from ARM, Vol. 6, No. 1, 1973.

   a. Subject Index.
   b. Author Index.

   The documents identified in the indexes with an ERIC Document (ED) number are usually available as separate documents from the ERIC Document Reproduction Service (EDRS). Information about EDRS Service can be found in ARM or Research in Education (RIE).[1] Items not available through EDRS will include a source of availability. The page numbers shown in these indexes refer to the location of the abstracts in ARM, Vol. 6, No. 1, 1973.

3. The full text of documents listed in the Vocational Technical (VT) Number Index to Microfiche Collection of Clearinghouse Documents Reported in ARM, Vol. 6, No. 1, 1973.

[1] Research in Education is published 12 times a year. The first issue was no. 11, November 1966. Subscription: Domestic $38.00 a year; foreign $9.50 additional. Single copy: Domestic $3.25. Send a check or money order (no stamps) to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

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EXPERIMENTAL AND DEMONSTRATION MANPOWER PROGRAM FOR TRAINING AND PLACEMENT OF YOUTHFUL INMATES OF THE YOUTH CENTER, LORTON, VIRGINIA. FINAL REPORT IV.

CATHOLIC UNIV. OF AMERICA, WASHINGTON, D.C.
BUREAU OF SOCIAL RESEARCH.
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IDENTIFIERS - *MANPOWER DEVELOPMENT AND TRAINING ACT PROGRAMS; MDTA PROGRAMS

ABSTRACT - THE FIRST MANPOWER DEVELOPMENT AND TRAINING ACT PROGRAM CONDUCTED WITHIN A PENAL INSTITUTION WAS INTENDED TO PROVIDE VOCATIONAL GUIDANCE, TRAINING, AND PLACEMENT FOR ABOUT 150 SELECTED PROBLEM YOUTHS 16 TO 21 YEARS OF AGE. DURING THE PERIOD AUGUST 1964 TO DECEMBER 1965 TRAINING WAS TO BE PROVIDED IN THE SEVEN OCCUPATIONAL AREAS OF FOOD SERVICE, BARBERING, AUTO REPAIR, CLERICAL, DRY CLEANING, TELEVISION REPAIR, AND PAINTING. THIS FOLLOWUP STUDY, USING INFORMATION FROM FILES, INTERVIEWS, AND OBSERVATION, EVALUATED THE MERITS OF THE PROGRAM AND SUGGESTED REMEDIES FOR ITS LIMITATIONS. IT WAS FOUND THAT THE PROGRAM FAILED TO OFFER SUBSTANTIAL TRAINING OF ANY KIND OTHER THAN BARBER TRAINING FOR SEVERAL REASONS INCLUDING: (1) FAILURE ON THE PART OF CIVIL SERVICE TO ALLOW STAFF ADEQUATE GRADE ASSIGNMENTS AND SALARIES, (2) FAILURE OF THE PROJECT DIRECTORS TO CLARIFY ROLE ASSIGNMENTS AND DUTIES OF STAFF, AND (3) FAILURE BY THE STAFF TO APPRECIATE THE LOW LEVEL OF PREPAREDNESS EVIDENCED BY MOST TRAINEES IN REGARD TO ACHIEVEMENT LEVELS AND SOCIAL SKILLS. TWELVE SPECIFIC RECOMMENDATIONS FOR CHANGE IN THE PROGRAM'S OPERATION WERE MADE. (ET)

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FINAL REPORT IV EXPERIMENTAL AND DEMONSTRATION MANPOWER PROGRAM FOR TRAINING AND PLACEMENT OF YOUTHFUL INMATES OF THE YOUTH CENTER, LORTON, VIRIGINIA

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FINAL REPORT IV.

EXPERIMENTAL AND DEMONSTRATION MANPOWER PROGRAM FOR TRAINING AND PLACEMENT OF YOUTHFUL INMATES OF THE YOUTH CENTER, LORTON, VIRGINIA.

The Bureau of Social Research,
The Catholic University of America,
Washington, D. C.

February 1966

PREFACE

The Experimental and Demonstration Training Program in operation at the District of Columbia Department of Corrections Youth Center was the first MDTA project to be conducted within a penal institution. It consisted of contracts between the District of Columbia government, the U. S. Department of Labor, and the U. S. Department of Health, Education, and Welfare.

The purpose of the project was to demonstrate the effect of vocational guidance combined with job training and job development on approximately 150 selected problem youths, 16 to 21 years of age, housed at the Youth Center. The ultimate objective was to provide better employment opportunities through training in seven occupations: food service, barbering, auto repair, clerical, dry cleaning, television repair, and painting.

The MDTA program was scheduled to begin in April, 1964, and last until June, 1965. Administrative delays in funding and hiring staff postponed the start of the program until August, 1964, necessitating an amendment to extend the contract until December 30, 1965.

Responsibilities were divided between three sponsoring agencies: The District of Columbia Government, the U. S. Department of Labor, the U. S. Department of Health, Education, and Welfare.

1. The District of Columbia Government was to supply training, classroom and office space, major equipment, and some educational, psychological, and counseling services.

2. The U. S. Department of Labor was to provide salaries for the professional staff (Project Director, Administrative Assistant, Vocational Counselor, and Placement Director), office supplies, and travel expenses.

3. The U. S. Department of Health, Education, and Welfare was to provide salaries for the training instructors (7), and minor tools and instruction supplies.

The budget totaled $126,000; $53,000 granted by the U. S. Labor Department and $83,000 granted by the U. S. Department of Health, Education, and Welfare. No additional contribution was required of the District Government.

A major challenge confronting MDT was the establishment of a training program to prepare inmates for employment outside of prison. That is, unlike most prison programs it was not designed to be a work program functioning mainly for the upkeep of the institution, or to keep the prisoners busy.

A second challenge was the actual development of

jobs for inmates who had previously little work experience in skilled and semi-skilled employment. It meant convincing employers that former prisoners properly trained in a trade were good employment risks.

A third challenge consisted in motivating inmates who had previously shown little incentive, even while participating in psychological counseling, school programs, and an on-going work program at the Youth Center. The MDTA staff reasoned that these services were only token if a job were not provided for the inmate after release from incarceration.

This follow-up study was designed to evaluate the merits of the Experimental and Demonstration program and to suggest some remedies for its present limitations. The follow-up was conducted between August 1964, and February 1966. The information contained in the report comes from the following sources:

1. Official records and progress reports from the files of the U. S. Department of Labor, and the Youth Center.

2. Periodic interviews with the Youth Center MDTA staff and other officials of the Youth Center and the U. S. Department of Labor.

3. Interviews with over 50 youths enrolled at Lorton Youth Center during training, and more than 60 graduated trainees, 1 to 14 months after training.

4. Continued observation of the project during the period beginning August 1964, and November 25, 1965.

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INITIAL EVALUATION OF THE MDT PROGRAM

The Follow-Up team believes that the present MDT program at Lorton Youth Center failed to demonstrate that "intensified counseling, vocational guidance and job development" had any significant effect on the enrolled trainees. It further believes that the present program failed to offer intensified counseling, vocational guidance, or job development.

The Follow-Up team also believes that the MDT program failed to offer substantial training of any kind other than barber training. In support of such an evaluation, the BSR staff points out that:

1. The Vocational Counselor hired for the position was not qualified for this position, nor did he attempt to do vocational counseling.

2. The 2 Job Developers hired for this position had little prior experience in this area; subsequently they failed to place the large majority of graduates in jobs related to training. In fact, the majority of trainees interviewed by the BSR staff 2-7 months after release had obtained unskilled jobs on their own, or were unemployed or in prison.

3. Seventeen of the first 66 graduates had already broken parole or had been returned to prison by February, 1966. In fact, the number of recidivists was increasing as the length of time since parole increased. Thus, 5 of the first 10 graduates were in prison again.

4. No assistance was given to the youth by the MDT staff after parole.

5. Evidence of inadequate training: The T. V. training was terminated; the auto mechanics training was suspended for 4 months; the Food Service training was limited to only 2 hours instruction in the afternoon; the painting program lacked sufficient quantities of paint; the Maintenance and Service program performed institutional tasks.

Fundamental reasons for these inadequacies have been:

1) Failure on the part of Civil Service to allow OMAT staff adequate grade assignments and salaries; delays in hiring and screening staff.

2) Reluctance on the part of the D. C. Department of Corrections to provide adequate facilities for training.

3) Failure on the part of the MDT staff to clarify role assignments and duties.

4. Failure by the MDT staff to appreciate the low level of preparedness evidenced by most trainees in regard to

achievement levels, and social skills.

The Follow-Up team believes, however, that the MDT program might still achieve its initial demonstration goals, if specific suggestions recommended in this report are carried out. These suggestions are summarized at the termination of the study.

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[illegible] YOUTH CENTER PROGRAM - BEFORE MOVE

Setting

The District of [illegible] Department of Corrections consists of five Institutional Divisions, five Service [illegible] Office. One of the Institutional Divisions, [illegible] Jail), and the Director's Office are located in Washington, D. C. and the other Divisions are located at a 3500 acre reservation near Lorton, Virginia, 20 miles from the city.

The Department is managed by personnel who came under the requirements of the U. S. Civil Service Commission. The Department is financed largely through taxes from Washington citizens, and appropriations from the U. S. Congress.

The inmates cared for are those convicted in the U. S. Courts for the District of Columbia, the Municipal Courts and those transferred from Federal Institutions.

The Youth Center Division is located on the District's reservation. It is the only institution specifically designed to implement the Youth Correctional Act of 1950 as amended. It has a capacity of over 300 inmates with an average

population of 285.

For all practical purposes, Youth Center inmates come from the confines of the District of Columbia. Those inmates who are released from the Youth Center return, for the most part, to the District of Columbia. All inmates are eligible for parole anytime after arrival at the Youth Center. Records indicate that the average sentence served by those who have been released is about 20 months. The inmates range in age between 18 and 26 years, 50 per cent being over 21. Although the Youth Corrections Act specifically states that treatment should be restricted to first offenders, many of the inmates have prior adult offenses and over 90 per cent have had some contact with juvenile authorities.

Facilities

Administration: The Superintendent is in charge of the entire supervision of the Youth Center and is responsible to the Director of the D. C. Department of Corrections. Three Assistants work directly under him: an Assistant Superintendent of Programs, another of Corrections, and a third of Programs and Corrections. Following is a list of personnel at the Youth Center, indicating staff positions:

a. Professional Staff Members (full time)
   Superintendents (4)
   Psychiatrist (1)
   Psychologists (3)

Professional Staff Members (contd.)
Clinical Social Worker (1)
Classification and Parole Officers (5)
School Principal (1)
Academic Instructors (4)
Vocational Supervisor (1)
Medical Technician (1)

b. Maintenance Staff (supervisors of on-going work crews)
Plumbing (1)
Carpentry (1)
Electricity (1)
Radio and Television Servicing (1)
Masonry (1)
Chief of Maintenance (1)

c. Correctional Staff Members
Senior Captain (1)
Shift Captains (3)
Lieutenants (4)
Sergeants (14)
Junior Correctional Officers (72)

d. Culinary Staff Members
Chief Steward (1)
Assistant Stewards (3)

As is obvious from the above, the Youth Center is a highly complex rehabilitative organization. In fact, before MDTA, it had approximately 125 staff members for a prison population of approximately 285. It is clear, then, that a training program entering such a highly specialized system, must be capable of integrating smoothly into the system without undue friction or duplication of services.

AN EVALUATION OF THE WORK PROGRAM

PRIOR TO MDTA

The Lorton Staff criticized its former program for the following reasons:

1. Trade training was limited to 1 to 2 hours per week, since the maintenance shop supervisors spent a majority of their time in maintenance activity.

2. Instruction was given by non-professional training staff members.

3. The shoe shop and inmate barber shop were both under inmate supervision.

4. With limited professional personnel in the trade areas, vocational counseling was not possible.

5. Only one professionally trained educator was available for administration supervision, and consultation for the training program. Subsequently it was impossible for him to keep a close eye on 16 separate areas of training and work.

The Lorton staff concluded that as a result (a) less than 20 per cent of the parolees were placed upon release in the type of jobs for which they were trained at the Youth

Center, and (b) only a small number of youth (those from barbering and shoe repair), found work in their respective fields. Most went out to work in construction fields, or as janitors, or as semi- or unskilled kitchen workers.

MANPOWER TRAINING ARRIVES

The Vocational Director and Principal of the school conceived the idea of establishing an experimental and demonstration training program at the Youth Center. With the help of the Assistant Superintendent of Programs, the plan was implemented and received approval from the District and Federal Governments. It should be noted, however, that impetus for the project came from staff members low in the echelon of the Corrections Department Staff.

The Assistant Superintendent of Programs was initially elected to head the project, while the Vocational Director was to be Project Coordinator. In the opinion of the BSR staff this was a poor decision since the Assistant Superintendent was not relieved of his former duties, but simply given this function in addition to his already busy schedule. The Project Coordinator meanwhile was responsible for training and supervision of the staff.

The Project Coordinator, then, was responsible for the program's operation but not given administrative control or complete authority for the project. Some examples of the exigencies of his subordinate position might be cited. The

MDT staff was selected by a committee comprised of the Assistant Superintendent, District personnel representatives, and Project Coordinator rather than by the Project Coordinator alone. The Project Coordinator was not routinely informed as to the financial status of the project. In fact, travel checks for his staff were at times delayed several months.

Implications:

1. An experimental project requires a director who has full authority to implement decisions.

2. MDT responsibilities should not be assigned a staff member already engaged in a full time job, e. g., Assistant Superintendent.

3. The Project Director should have the authority and power to control his financial resources.

Problems in Staffing

Although the OMAT project was approved in May, 1964, OMAT and HEW representatives debated for more than two months before they could agree on which agency should sign the contract first. It was finally signed jointly, and the program funded at the end of July, 1964. The uncertainty of a starting date, subsequently hindered effective recruitment of personnel.

Another bureaucratic blow was dealt by the U. S. Civil Service when it informed the Project Coordinator that the grade assignments for the instructional and administrative staffs had to be lowered to conform more closely to other institutional positions. Thus the instructor's assignments were reduced from GS 9's to GS 7's and the Placement Director and Vocational Counselor reduced from GS 11's to GS 9's. Such delays and lowered grade assignments complicated the hiring of qualified staff.

The BSR staff suggests that a short range demonstration project does not permit security to staff members, and that the decision to down-grade staff positions was questionable since similar instructor assignments at the nearby National Training School are GS 9's. Interestingly enough, the maintenance supervisors at Lorton were GS 9's. We also are curious to why OMAT staff could allow such down-grading of instructors and professional staff. Secondly, it seems more feasible that an experimental project should be permitted flexibility in hiring its own staff. This project was subject to an involved civil service procedure, that was unrealistic in view of the projects short duration. The BSR staff feels that it was not beneficial to the project to subject staff members to traditional Civil Service Selection procedures.

A Placement Director, Vocational Counselor, Administrative Assistant, and three instructors were hired in August, 1964. The BSR evaluators believe that the demonstration staff obtained were inexperienced for their assignments, although eager to do a good job. The Placement Director, for instance, was a former insurance salesman with little, if any, experience in job placement. The Vocational Counselor had no prior counseling experience although he had worked at one time as a placement officer for USES. Two of the three instructors were discharged service veterans with no prior prison experience. While conceding that these men could develop into well qualified staffers, the BSR evaluators felt that they were not well qualified when hired. As earlier pointed out, administrative funding delays and lowered staff salaries negated the hiring of more qualified staff.

Implications:

1. Civil Service hiring procedures were not suited for a short term E. and D. project. Subsequently

   a) reimbursement of personnel for a short spanned project should be higher than that normally paid for others in similar positions.

   b) Project Directors should be given authority to screen and hire staff without unnecessary delays.

2. Intensive in-service training should be given new project members in regard to their duties and responsibilities.

3. There were no planned and periodic evaluation visits by the OMAT project officers. There was no consultation with the BSR follow-up study staff.

Problems of Integrating MDT into the Lorton System

MDT was not always permitted the use of proper training facilities in achieving training goals. For instance, the MDT Food Service program was not provided access to meat and other foods needed for proper training. The on-going culinary program, under the supervision of the Lorton stewards, was entirely responsible for the kitchen facilities. Unfortunately there was no clear understanding as to the rights and responsibilities of the Food Service program within the framework of the Lorton establishment.

The problems of integration were apparent in other areas as well. For instance, the Lorton psychological staff tested and counseled trainees, while the MDT vocational counselor only transcribed their test results into MDT records. Ideally vocational counseling should be integrated into a total counseling plan, with the full cooperation of each section.

In the selection of trainees for MDT training, there

was evidence of duplication. Thus, a reclassification board, comprised of various staff members, e. g. school principal, psychologists, parole officers, etc., determined whether a youth was eligible for training. At the same time the MDT vocational counselor was responsible for this function. Ideally the vocational counselor might consider their suggestions, but act independently of their recommendations.

After training, 55 of 85 graduates (July, 1965) were still at Lorton Youth Center. Unfortunately many of these graduates were not working in skill-related jobs after training, or utilized in positions of greater responsibility. Ideally, the BSR staff feels that the youth should be assigned progressively more responsible tasks at Lorton after training, and then referred to the newly established half-way house in D. C. for placement into on-the-job training. Vocational counseling and follow-up help could thus be continued after a youth leaves the center. Such procedures are not currently practised.

Implications:

1. A new-job training program entering an established system should not duplicate existing programs. Rather it should cooperate with such programs, and clarify the role of training within the new system's organization. The BSR

staff feels that the Lorton administration needs to take a more positive role in this integration process. Therefore they should guarantee MDT training (a) the use of proper facilities in all areas (b) assure graduates more responsible work assignments after training (c) coordinate vocational counseling with the psychological service section (d) follow-up youths after leaving the Youth Center.

RECRUITMENT

Contrary to initial indications, recruitment turned out to be a problem for the MDT program. Although average enrollment at the Youth Center is approximately 285 prisoners, only 50 per cent of these prisoners are under twenty-one years old, and eligible for the MDTA program. When one considers that many prisoners might be eliminated for such reasons as disinterest, shortness of time remaining to be served, refusal to respond to training, and low remedial levels, the sources of recruitment are greatly diminished.

Actually the first MDT classes were selected from a population of only 78 available inmates. Had all seven MDT programs been ready to operate in August, 1964 as intended, instead of only two, recruitment might have been an extremely critical problem.

As it was, youth frequently were selected who did not come up to the minimum remedial levels designed for the program. In fact, the clerical instructor indicated that vew few of his youth were ready to profit from training. He noted that while nearly all in his program lacked twelfth

grade reading skills, a similar program at Armstrong School in the District required that a candidate have at least a high school equivalency diploma. The TV program was eliminated, partially because trainees failed to meet entrance requirements.

Only 52 inmates tested on the Stanford Achievement test in verbal skills (April 1965) showed reading levels for eighth grade or better.[1] In fact, because of the shortage of eligible recruits, 27 trainees were accepted into the programs with achievement levels beneath the minimum achievement requirements of their respective program. The BSR staff believes that youth between the ages of 22 and 26 should be eligible for training under MDT.[2]

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[1]See Appendix for Tables.

[2]This suggestion has since been incorporated into the MDT program.

ASSESSMENT AND COUNSELING

A primary purpose of the MDT program at the Youth Center was "to demonstrate the effect of intensified counseling, testing, and vocational guidance," on the enrolled trainees. The Center was to experiment with "new methods" of educational, psychological, occupational, interest, and aptitude testing." Vocational guidance was to be provided in conjunction with specialized pre-vocational or exploratory courses. "Continuous counseling" was to be given.

With these considerations in mind it is surprising to learn that the Vocational Counselor was only listed as a GS 9 the same rank assigned maintenance supervisors at the Center, and less than the Center's social workers and psychologists.

The man chosen for the position (against the advice of the Project Coordinator) was a former United States Employment Service Placement Officer. He was more recently self-employed and wanted to get back into government after an unsuccessful business venture. He had no advanced degrees in counseling or guidance, nor had he prior experience in

counseling prison personnel. He was more properly suited to be a placement officer. (Thus, in the opinion of the BSR staff, MDT never really was capable of determining whether intensified vocational counseling would help these trainees).

The Assessment and Counseling Process

Exhaustive background information was available to the Vocational Counselor on each trainee, including psychological reports, I. Q. and achievement tests, prior work, school, and criminal records. Yet the most important criterion used in determining whether a youth was to be accepted, was his motivation for choosing the particular training area. This was determined in a single interview session, for the most part, between the youth and the vocational counselor! Following the interview, a reclassification board comprised of personnel from all areas of the prison (psychologists, social workers, educators, custodial staff), evaluated the youth's potential for the particular training area.

After assignment to training, the youth was not again interviewed by the vocational counselor, although on occasion, the counselor met with groups of youth to discuss job orientation. (These meetings were discontinued when it was decided the counselor was not able to maintain order.)

When a youth s parole date was determined, he was contacted by the Placement Director who took measures to find him outside employment. After a youth was paroled, he was no longer followed up by MDT personnel. He became officially the responsibility of the Parole Officers to whom he reported once a month. At the end of six months the MDT staff was to be given a report on the trainee s progress by the parole officer. If a youth lost a job and contacted the Youth Center Staff, he was of course, assisted in his difficulty.

Evaluation

1. In the opinion of the BSR evaluators, proper assessment and counseling was not given trainees. It points out that (1) the Vocational Counselor was white, though most of the trainees Negro; (2) he lacked both experience and training in vocational counseling; (3) he offered only brief interview sessions at the beginning of training; (4) he was incapable of handling group counseling sessions.

2. The shortage of trainees for programs necessitated placing inmates into programs even though they were not qualified. For instance, the clerical instructor indicated to the follow-up team that most of his trainees needed more pre-training remediation. He noted that the clerical program at Armstrong required trainees to have high school equivalence

diplomas, while he accepted men below twelfth grade remediation levels. Actually 27 trainees fell below the minimum SAT scores acceptable for training. (See Appendix). The BSR staff believes Vocational Counseling loses effectiveness when youth must be placed prematurely in programs to fill uo quotas, even though the youth are not qualified at that time for training.

3. There seemed to be some duplication in functions between the reclassification committee, the treatment staff and the vocational counselor. The vocational counselor does not test youths entering MDT, nor have new techniques been employed to assess these generally illiterate youths. Rather, he transcribes the testing results of the psychologists from the treatment staff into MDT records. After interviewing a youth and determining that he is ready for training, the reclassification board comprised of staff members from every area in the Youth Center evaluates the youth's potential. Two questions arise at this point. First, why does a reclassification board have to evaluate the youth's potential if the vocational counselor is qualified, and already has done this? And what happens if they disagree? Secondly, if the vocational counselor relies on the testing results of the psychological staff, why is he needed for testing purposes?

4. Vocational Counseling should not be limited to pre-training interviews. Weekly or bi-weekly sessions might be expected so a trainee could reconsider and discuss his career goals. At the same time work supervisor reports may be assessed and discussed with the trainee. More imaginative programs have attempted to let the trainee personally assess his progress and compare this with the assessment of his work supervisor, to determine how closely he perceives employer expectations. Certainly he cannot be left without individual counseling during the entire training period.

5. The trainees lack a significant counseling figure who follows them from the initial interview to eventual job placement. As it is now, a series of people confront the trainee. A significant counselor approach, in the opinion of the BSR evaluators, might be an important innovation to the present penal approach to counseling, parole, and release

6. There are no built in research designs to measure the effect of counseling or to improve the present technique. An experimental project should have internal methods of evaluating its accomplishments.

TRAINING

This BSR report will now briefly review the strengths and weaknesses of the MDT program at the Youth Center.

Food Service

The Food Service program is scheduled for 35 clock hours of training per week, for 14 weeks. Classes are scheduled to meet from 8 a.m. to 3:30 p.m.

Actually, training runs for about two hours each afternoon. At this time, most of the trainees are exhausted from a full morning s work in their institutional assignments under the supervision of institutional staff. The program unquestionably fails to provide the training intended.

Unless the Youth Center provides space, facilities, and the opportunity for the class to provide meals, the program will continue to remain comparatively ineffective. These trainees need a chance to cook in a diet-type kitchen as well as in the large quantity inmate dining room. While doing institutional tasks, they should be guided by the MDT instructor and told the why of their operations, as well as the how. The MDT class might be assigned to take over the

staff kitchen.

That the Youth Center staff could allow the MDT program to continue without the opportunity of preparing meals under their MDT instructor is a glaring inconsistency in their contract commitment.

Although the prerequisites for entrance into this section are 5th grade SAT scores, 16 trainees as of July, 1965) fell beneath this level. Unless they are capable of handling basic math and remediation, much of their training will be of little value to them. It is suggested that remedial-related instruction be formally connected with this training.

Radio and Television Repair

This program calls for 35 clock hours of training per week for 22 weeks of class to run from 8 a.m. to 3:30 p.m. each day. Three basic problems necessitated the termination of this program. The first was the low quality trainee available for the complicated electricity needed in such instruction. The second was the inability of the instructor to control his class. The third was the limited number of machines to work with (2), and limited tools. The institutional radio and T.V. repair program, in the judgment of MDT staff members, was more effective.

Barbering

This program calls for 1050 hours instruction over a 30 week period. Trainees need a 7th grade SAT average and a maximum I. Q. of 90 to qualify.

Eleven of the first twelve graduates (Spring, 1965) passed the barbering examination and completed training in this area. The fact that nearly all trainees who have participated in this program have qualified as apprentice barbers is evidence of success. The BSR team, in addition, was highly impressed by the competence of its instructor, a Master Barber in the District. All barber trainees when interviewed expressed high esteem for their instructor.

One consideration however, should be pointed out. Before MDT began, an institutional barbering program directed by a cadre inmate from the reformatory was also qualifying every candidate who applied for the D. C. barbering test.

The main weaknesses in the program seem to stem from the limited varieties of hair styles available in this largely Negro prison population. Secondly, there is limited opportunity for experience in supplementary activities engaged in some first class shops--shampoos, hair styling, etc.

Service and Maintenance Work

This program is listed for 35 clock hours of training per week. Prerequisite requirements call for 3.5 SAT grade performance. Its instructor, although 63 years of age, seemed reasonably competent and had numerous years of teaching experience. (For the first time in its history GSA has permitted Lorton inmates to qualify for government janitor and maintenance attendants).

Unfortunately the youths spend much of their training time performing institutional cleaning tasks. Additional equipment is needed to permit trainees to learn repair tasks similar to those men might be required to perform on the job.

Painting

This program only began in May, 1965. Its instructor appears well qualified. A graduate of North Carolina A and T, he previously served 8 years as a correctional officer at the Youth Center.

The program's main difficulty is lack of sufficient quantities of paint. No additional paint has been supplied trainees above that available for institutional jobs. An imaginative program might call for trainees to be permitted to paint poverty stricken homes in the area. It might afford trainees the chance to execute work similar to the painting

they would do after being released.

Auto Repair and Service Program

The Auto Repair program calls for 35 clock hours of training per week for 26 weeks. Classes are to meet from 8 a.m. to 3:30 p.m. Classes were terminated between May and September, 1965 when the instructor resigned. During this period, twenty youth applied for training in this area.

The MDT coordinator was not permitted to hire an instructor on a temporary, emergency basis but had to wait until a replacement was cleared by Civil Service. A qualified instructor, with twenty years experience in the area in the armed forces was refused by Civil Service because he lacked a college diploma--even though he had been an Army Captain. Since the grade levels of instructors had since been raised to GS 9's, Civil Service was requiring instructors to meet teacher qualifications. The BSR staff feels that one-year experimental programs cannot tolerate the involved procedure of Civil Service; furthermore, there is little proven relationship between a college diploma and the ability to teach auto mechanics.

Other difficulties were experienced even when the program was in operation. Foremost was lack of sufficient space. Garage space permitted only one vehicle in the

training area with a maximum of eight or nine trainees in a class. Secondly, the training area was located outside the Youth Center in the reformatory, and clearance was needed for trainees to work there; some eligible youth, thus, could not be considered for the program. It also meant that the driving instructor was responsible for bussing the trainees to and from the reformatory each day, for lunch or any other contingency. No course should be started without adequate facilities.

The BSR staff feels that the Youth Center should offer a definite commitment to provide training facilities. Secondly, the Youth Center might allow the trainees to work on institutional vehicles. At present, the Reformatory inmates handle most institutional work.

THE TRAINEES AND THEIR OPINION OF MDT

A questionnaire was administered by 2 BSR evaluators to all MDT graduates (52) confined to the Lorton Youth Center as of November 15, 1965. Each graduate interviewed was informed that his answers would be strictly confidential, and aimed at improving the present MDT program.

The questions asked were intended to arrive at a better knowledge of (1) the general background characteristics of the youth (2) their previous job histories (3) their reasons for entering MDT training (4) their satisfaction with job training (5) their expectations for employment after leaving Lorton (6) their plans for future training, education, and living arrangements.

In addition, 20 parents of the graduated trainees were located and interviewed by various staff members of the BSR. The purpose of these questions were to ascertain knowledge about the trainee's family situation, and support the trainees might expect to receive from their families. Since so much attention has been recently directed toward the inadequacies of the poor Negro family, it was hoped by

this information to determine if inadequate home conditions contributed to the trainees present plight and future chances for rehabilitation.

In addition, all the trainees who had graduated from MDT training, and paroled by November 30, 1965 were interviewed to find out what employment success they had achieved since leaving Lorton Youth Center.

Population Profile:

All (52) the trainees were male, between the ages of 18 and 22; the mean age being 20.2. Nearly all were Negro, 47 (90.3 per cent); nearly all were single, 47 (90.3 per cent), although 16 (30.7 per cent) admitted to having at least one dependent. The majority, 44 (84 per cent) lived either in North East, or North West, Washington, D. C., in areas known for their high crime rates, although a few, 6 (11.5 per cent) came from the South East section of the District, and 2 (3.8 per cent) from outside the District. None came from the South West section of the city. Nearly all of the trainees had entered the Youth Center since January, 1963, and the majority since January, 1964. All but 8 (16.4 per cent) had prior institutional convictions; in fact, half had at least two prior institutional convictions. Nearly all 48 (92 per cent) had been committed for either

burglary, robbery, assault, carrying a deadly weapon, or unauthorized use of an automobile.

All the trainees were school drop-outs. The average grades in school completed was 8.7; their achievement levels as tested on the Standard Achievement Tests upon entering Lorton Youth Center averaged only 6.4 grades (all but 3 had gone to District schools). When tested toward the completion of MDT training, they averaged 7.6 grade level, an improvement of 1.21 grade levels; (many of these trainees had participated in a school program as well as MDT training).

The family situations for the twenty trainees of families interviewed by the BSR staff were considered generally inadequate. The homes were situated in poor neighborhoods; the housing conditions were crowded; the family structure disorganized. The parents were poorly educated; in many cases the parents were separated. Many parents admitted to having little control over their son's activities, ascribing their difficulties to bad companions and bad attitudes.

Fifteen (75 per cent) of the youth lived with one or more parents 16 years or longer; in fact 18 (90 per cent) were living with one or more parents at the time of their arrest. Few of the homes, however, were intact or orderly. Only 12 (60 per cent) of the parents were married at the

time of the interview; the remaining 8 (40 per cent) indicated they were widowed, single, or separated from their spouse. Nine mothers (45 per cent) were only 17 years or younger at the birth of their first child; and 13 (70 per cent) claimed to have at least 2 children during their first 5 years of marriage.

The home situations were generally crowded. Thirteen (65 per cent) of the parents mentioned having 4 children or more to support; 6 (30 per cent) 5 or more children; and actually 4 (20 per cent) 8 or more children to support. Ten parents (50 per cent) indicated that 6 or more persons presently lived in their household. Twelve (60 per cent) of the parents, however, indicated that only 3 or less sleeping rooms were available.

The education level of the mothers was low: 11 mothers (55 per cent) finished only 8 grades or less, although 5 (25 per cent) claimed to have completed high school. The fathers' education level, however, was markedly worse; only one had claimed to have completed high school. Interestingly enough, all the parents indicated that they had lived in Washington, D. C. eleven years or longer. Nine (45 per cent) of these, however, had originally migrated from the rural or urban South.

None of the trainees had any significant work history

prior to their recent criminal conviction. Fifteen (28.8 per cent) indicated they had never worked regularly previous to imprisonment. Thirty-seven (71.6 per cent) others, indicated having worked at some time. Nineteen of these (36.5 per cent) lost their jobs when they were arrested. Eighteen (34.5 per cent) others admitted being laid off or fired from a job immediately prior to imprisonment. Of those 37 youths (71.2 per cent) who indicated they had worked at some time previous to imprisonment, only 10 had worked at the job 6 months or longer, and only 4, for 1 year or longer. Ten of these jobs were in some type of food service position; 7 others were service or maintenance jobs; none were in such skilled fields as auto mechanic, barbering, T. V. repair, or typing. Nearly all had unskilled jobs. Most of the jobs were low paying. Eleven (30 per cent) of these workers earned $1.25 an hour; 10 (27 per cent) $1.25-$1.49 an hour; although 16 (43 per cent) $1.50 or more per hour.

In summary, the typical trainee was a Negro male, 20 years of age with one previous institutional conviction. He had dropped out of school when first arrested in the ninth grade; his achievement level was around the seventh grade. He lived with his mother and several brothers and sisters in a poor neighborhood; he shared his room with two younger brothers. His father was separated from the home, probably

unemployed, and incapable of supporting any of the children or exerting any control over the trainee. The youth might temporarily be working at a low paying, unskilled job; but is probably in danger of losing it for what the employer considers "poor work habits and attitudes." Since crowded home conditions make spending much time at home impracticable, the youth spends most of his time outside with other Negro youth his own age, who are sharing a similar way of life.

Wanting to possess the things other middle class youth his age possess, but not possessing the means to secure them, the youth in the company of a friend attempted a robbery. He was caught and is now serving a 2 year term at the Youth Center.

The question asked by the BSR staff is whether the job training offered at the Youth Center is sufficient to overcome the many disadvantages facing the youth? It seems that such youth require a comprehensive pattern of assistance which would entail (1) suitable living arrangements (2) suitable employment opportunities (3) continued counseling and support (4) opportunities to associate with people that can offer them positive values and interests.

Selection and Enrollment into MDT Training:

The primary reason for selecting job training for

nearly all youths 47 (90.3 per cent) was to learn a trade; forty-seven indicated that they had been told what training would be like prior to enrollment, and 37 (75 per cent) thought this was an accurate description. After training 43 (82.6 per cent) indicated that the specific training received was what they really wanted. Only 7 indicated that the program was not what they really wanted. Two trainees mentioned programs not offered at Lorton; the remaining 5 wanted other training programs being offered, but were barred from these because of educational limitations (2) a physical disability (3) or overenrollment.

Eighteen youths (34.6 per cent) were enrolled in Food Service training; 15 (28.8 per cent) in Service and Maintenance; 3 (5.7 per cent) barbering; 6 (11.5 per cent) auto mechanics; 2 (3.8 per cent) clerical; 3 (5.7 per cent) T. V. repair; 5 (9.6 per cent) painting. Educational prerequisites limited the number of trainees eligible for barbering T V repair, and clerical training. No auto mechanics program was offered when many of these trainees were enrolling; the painting program did not begin until after the enrolling of many others into programs. Subsequently 33 (63.4 per cent) of the trainees were enrolled either in food service or service and maintenance.

The choice of MDT training, then, was largely limited

by the number of programs available at the time of registration and the youth's own preparedness. But, admittedly, there were not many programs these youths could be trained for without further remediation training. The BSR staff, however, felt there was some association between the choice of training area and a youth's previous satisfaction with work in this area--even if he had quit or been fired from the job. Although the majority, 31 (59.6 per cent) had never worked in the training area before, 21 (40.3 per cent) a large minority, had previously worked in the area of training. And significantly, 20 of the 21 trainees indicated satisfaction with the job even though 7 had been fired, 9 quit, and 5 were arrested while working at the job and some had worked at it over 5 months. (Possibly their low level of performance and low pay--11 were receiving less than $1.50 an hour--contributed to their leaving).

Implications:

1. Since some trainees mentioned wanting programs other than the ones in which they were enrolled, they might be allowed, after mature counseling, to switch to alternate programs. Since the present training is the first real vocational training many have ever received it should not be considered unusual for a few to wish course changes.

2. Since several trainees felt the description of training was not entirely accurate, effort might be given to analyzing and communicating exactly what the trainee can expect from training prior to his enrolling.

3. Since several trainees could not take the desired training because of educational limitations, effort should be taken to raising their academic levels prior to training.

4. Previous satisfaction with work in a training area should be seriously considered in determining the training choice of inmates.

5. Trainees might be introduced into other possible trades. Over 60 per cent of the trainees received training either in food service or maintenance.

6. Caution should be taken in enrolling trainees in areas in which their prior criminal offense may bar them from employment opportunities.

Training Experience:

Fifty-three (86.6 per cent) of the trainees indicated their MDT training course was the type training they really wanted; and 44 (84.6 per cent) indicated they would enter the same training again if they had to do it over. All the trainees indicated that training had given them more confidence to seek out and hold a job. Thirty-

five (67.2 per cent) felt very well or well qualified to begin work after training. Fifteen (28.8 per cent) felt fairly well qualified, one did not know, and one felt unqualified.

Implications:

1. Since the trainees indicated satisfaction with the training, and indicated they had received increased confidence from the training, it is clear the program in a modified form should continue.

2. At the same time, the BSR staff feels that there is a danger of building up false expectations among trainees, a danger suggested in the answers of 35 trainees who felt well or very well qualified to begin work after only this short MDT training program.

Plans and Expectations of Employment After Training:

None of the trainees expected to get paid less than $1.25 an hour on their first job. Thirty-two (61.5 per cent) expected to earn between $1.50-$1.75; eight (15.3 per cent) between $1.75-$2.00; and five (9.6 per cent) $2.00 an hour or more. (In contrast, follow-up interviews with 60 graduates indicated that the average pay of employed graduates was only $1.53 an hour).

Seventeen (33 per cent) youths expected their first

raise within 2 months, and 25 others within six months. None expected to eventually get paid less than $1.50 an hour; 24 (46.1 per cent) expected to eventually get between $2.00-$2.99; 26 others (49.9 per cent) expected to eventually get paid over $3.00 an hour. The expectations of the trainees, then, seem to be in line with salaries paid middle class workers; unfortunately the trainee's present preparation and criminal records would bar them from commanding such high paying jobs. (In contrast, follow-up interviews indicated that no trainees were making more than $2.25 an hour).

When asked what abilities you might expect to perform on your first outside job, 2 (3.8 per cent) listed managerial; 31 (59.6 per cent) semi-skilled; and 19 (36.5 per cent) skilled. That so many responded skilled is not surprising when one considers how many considered themselves well or very well qualified for the job. (In contrast, follow-up interviews revealed that 3 graduates were in skilled positions, 16 graduates in semi-skilled positions, and the remainder in unskilled jobs).

Implications:

1. The BSR staff believes that the average trainee has false impressions as to his own qualifications, and expectations of what to obtain from his first job. High

entrance wages, rapid advancement, and skilled duties, unfortunately cannot be expected for youth with the characteristics described earlier in this report. Therefore, during the course of training, vocational counseling should prepare the youth to the reality they might expect to face.

2. The BSR staff feels that when these youths discover, upon release that they are not able to command the type jobs they have in mind, there will be an emotional let down. For this reason there is need for the youth to have accessible vocational counselors, in the community, who are able to assist them.

FOLLOW-UP OF MDT GRADUATES

The BSR staff believes it is not profitable at this time to focus too much attention upon recidivism rates of MDT graduates. Rather, it is more important to develop a sound training program which can prepare trainees for jobs.

Yet, since considerable attention has been given to this matter by press releases on the Lorton program, the BSR staff wishes to point out three considerations: (1) By February 10, 1966, 17 of the first 66 MDT graduates, or 26 per cent, were parole violators or have been returned to jail. (2) Many youth in this follow-up were released less than 6 months, and none more than 14 months. (3) In Glazer's three year follow-up of a report of 1956 releases, parolees had only a 28 per cent failure rate. And in a five year follow-up study of 2747 prisoners released by the U. S. Bureau of Prisons, only 32.6 per cent were sentenced for new terms of imprisonment or returned to prison as parole violators.

In this follow-up study, information was gained through contact with MDT graduates released from Lorton, their parents or relatives, parole officers, pre-release

guidance staff, city prison personnel and MDT staff at Lorton.

The purpose of the study was to determine the effectiveness of MDT training at Lorton. Type of placement, salary and job satisfaction on part of the youths trained under MDT staff were basic areas of investigation. Three norms used to determine the effectiveness of the program were: Placement of the youth once released from prison in jobs related to training, salary; reduction in recidivism.

Results of the follow-up are summarized in the following pages according to area of specific training. The seven MDT courses offered at Lorton were: Barbering, Food Service, Painting, Auto Mechanic, Clerical, Service and Maintenance, T. V. Repair.

Follow-up of 66 youths who received MDT training at Lorton Youth Center indicates that 20 were found to be working in areas related to MDT training. Their average salary was $1.50. The number of those youths who were working in areas where they had little or no vocational training and where the training they received at Lorton was of little value to them was 19.

Out of the 66 MDT trained youths, 17 were back in jail or wanted by the police. Thirteen were in prison because of crimes for which they had been arrested. Two

were parole violators being sought by the police. Two had been returned to Lorton from the Pre-Release Guidance Center for drunk and disorderly conduct.

Breakdown According to Area of Training

Barbering

The most successful group of MDT graduates were the barbers. Seven out of 10 were employed in the field of training and earning an average of $1.50 per hour. One worked in an unrelated field and averaged $1.50 per hour. One was in jail for armed robbery and one was not located.

Food Service

Of the twenty-one youths who received training in Food Service, 6 found work in related areas, 7 were working in unrelated areas, 5 were in jail, 2 were unemployed and one youth had moved to New York.

The average salary of those employed in the field of Food Service was $1.50 per hour, while the average of those in unrelated fields was $1.60 per hour.

Painting

Three of 6 youths who received MDT training were employed as painters. Two worked for relatives and all 3 averaged $1.65 per hour. One youth worked in an unrelated

field and earned $1.55 per hour. One youth was back in jail because of disorderly conduct at the Pre-Release Guidance Center. One was hospitalized because of a gun shot wound he received while attempting to prevent a rape.

Auto Mechanics

Of the 11 youths who took this training, 4 were back in jail and 2 more were parole violators. Four youths were found to be working in areas unrelated to training and averaged $1.35 per hour. None of the MDT graduates were working in areas related to training. One youth moved to Richmond, Virginia and his whereabouts was unknown.

Service and Maintenance

Eleven youths took this training. Of this number, 3 were back in jail. Three were in fields related to MDT training earning approximately $1.50 per hour. Three were working in areas unrelated to training and were paid $1.30 per hour. Two were unaccounted for.

Clerical

Only three youths in the sample took clerical training. One was working in a related area as a counselor's aid for $1.50 per hour. One worked in an unrelated area and earned $1.25 per hour. One was unemployed.

T. V. Repair

Only four of the youths released from Lorton had training in T. V. Repair. One of the three was in jail for robbery. Two others worked at jobs which were unrelated to their MDT training for an average of $1.95 per hour. One youth was unemployed.

TABLE 1

NUMBER OF MDT GRADUATES IN RELATED AND UNRELATED FIELDS

	Employment Outside of Prison			
MDT Training	Related to Training	Unrelated to Training	Unemployed	Unaccounted For
Barbering	7	1	-	1
Food Service	6	7	2	-
Painting	3	1	1	-
Auto Mechanics	-	4	-	1
Service and Maintenance	3	3	-	2
Clerical	1	1	1	-
T. V. Repair	-	2	1	-
Total	20	19	5*	4

*This does not include the 17 recidivists.

TABLE 2

SALARY SCALE FOR THOSE IN RELATED AND UNRELATED FIELDS

MDT Training	Average Salary	
	Job Related to MDT Training	Job Unrelated to MDT Training
Barbering	$1.50	$1.50
Food Service	$1.50	$1.60
Painting	$1.65	$1.55
Auto Mechanics	-	$1.35
Service and Maintenance	$1.50	$1.30
Clerical	$1.50	$1.25
T. V. Repair	-	$1.95

TABLE 3

NUMBER RETURNED TO JAIL OR WANTED BY POLICE:
YOUTHS LISTED ACCORDING TO MDT TRAINING

MDT Training	No. of MDT Grads.	Youths in Jail for Crime(s)	Parole Violators	Youths Returned From Pre-Release Guidance Center	Total Per-centage
Barbering	10	1	-	-	10%
Food Service	21	4	-	1	26%
Painting	6	-	-	1	17%
Auto Mechanics	11	4	2	-	55%
Service and Maint.	11	3	-	-	27%
Clerical	3	-	-	-	-
T.V. Repair	4	1	-	-	25%
Total	66	13	2	2	26%

Follow-up of MDT graduates indicates that the most stable and best paying jobs seem to be in the areas of Barbering and Painting. Overall, MDT graduates can expect to earn between $1.25 and $1.50 per hour during their first year after discharge from prison. In exceptional cases, about 1 in 10 will earn $2.00 or more per hour. There is no indication from this study that MDT training or lack of MDT training are significant factors influencing the salary a youth will receive upon discharge from prison. Status Report #10, MORE, published by the MDT staff at Lorton includes a statistical report (Attachment II) which estimates recidivism among MDT graduates to be at the 4.5% level. The BSR staff follow-up on youths released shows that 5 out of 10 MDT graduates released during the first 3 months of 1965 are now back in jail, and 17 of 66 youths released to the street up to October 31, 1965. This means that 26% of MDT trained youths are back in jail or wanted by the police.

Training in areas such as T. V. Repair and Auto Mechanics does not seem to have value in terms of job placement because of the extensive amount of training required to achieve professional competence. Although some youths initially were placed on jobs such as service station attendants, their chance of advancing to a higher level and

pay scale was limited. As a result, most quit for work which had more appeal and promise. At the time of the follow-up a high number (55%) of youths trained in Auto Mechanics were back in jail and none of those trained in the Auto Mechanics were working in that field.

CASE HISTORIES OF MDT GRADUATES ARRESTED, IMPRISONED, OR WANTED FOR PAROLE VIOLATIONS

As of February 10, 1966, the BSR staff located 17 recidivists among the first 66 graduates. A brief description of each case is presented in order that the reader may appreciate the difficulties these youths face and the inadequacy of the present program in substantially helping them. Some general implications are advanced after examining these case studies.

Jesse N. This graduate is a 19 year old Negro male. He dropped from school in the 8th grade, and was tested at fifth grade achievement level. He has no previous work history. He was arrested for manslaughter. While at the Youth Center he was enrolled in the Food Service program (November 17, 1964 to March 11, 1965). He was paroled on March 11, 1965. After parole he was placed by the MDT Placement Director with a cleaning organization doing general cleaning work in several Washington restaurants ($1.25 an hour), but did not like the work. He obtained his own job shortly afterwards as

a porter in a Waffle Shop ($1.25 an hour). On April 18, 1965 he was picked up for unauthorized use of an automobile.

Implications:

1. This trainee was not placed in the field of training.

2. He was never contacted by the Lorton staff after release to enquire about his job.

3. He lacked necessary and basic remediation skills.

William H. This graduate is a 21 year old Negro male. He dropped from school in the 8th grade and was tested at the 4th grade reading level. He was classified as having dull to normal intelligence. He was committed to Lorton for unauthorized use of an automobile. He had no previous institutional offenses. Psychological reports indicate that he shows signs of rejection, being neglected by his parents. The youth was enrolled in Service and Maintenance training between December 14, 1964 and May 21, 1965. He was paroled on May 21, 1965. After release he had difficulty finding a job, finally getting a porter's job in an apartment building. He was arrested on robbery charges, and is presently in D. C. jail.

Implications:

1. This trainee might have profited by staying at a pre-release guidance center or receiving follow-up counseling.

2. He clearly needed assistance in getting and holding worthwhile employment.

3. Vocational counseling was required, but not given.

Ernest S. This graduate is a 21 year old Negro youth. He was committed to Lorton on grand larceny charges while being sought as an absconder from the National Training School. Psychological reports indicate that he was defiant and uncooperative, and suffered from the effects of a disorganized family; he was raised by his father and "a woman in the house" until the age of 13. While in Lorton he was enrolled in Service and Maintenance training--December 12, 1964 to April 1, 1965. He was paroled July 14, 1965. After parole he held a job in a junk yard and was paid $1.25 per hour. He quit this job because it did not pay enough. He was arrested for robbery in November 1965, and is awaiting sentencing. He claims he committed the robbery because he could not find decent work.

Implications:

1. It is evident that this youth has many

psychological and social problems besides finding work.

2. Once accepted into training he should have been placed in the field of training.

Abel H. This graduate is a 21 year old Negro youth. He completed 8th grade but is reading only at the 3rd grade level. He comes from a disorganized home; father deserted, mother gave birth to three illegitimate children. He migrated to D. C. in 1961 from South Carolina. Here he was arrested for unauthorized use of an automobile. At Lorton he was enrolled in Food Service training between November 17, 1964 and April 4, 1965. He was released to the Pre-Release Guidance Center on October 12, 1965. Here he was enrolled in a remedial work program at a Neighborhood Development Center. On November 11, 1965 he became drunk and failed to return to the guidance center. He was later apprehended by the FBI and returned to Lorton.

Implications:

1. Lack of parental help and stable relationships throughout the youth's life have made adjustment to the community extremely difficult.

2. The youth faces an alcoholic problem.

3. Proper vocational counseling was not offered while

the youth was at Lorton.

Howard C. This graduate is a 21 year old Negro youth. He completed only 9 grades of school, but was tested at the 11th grade level. Psychological reports indicate that he suffers from deep-seated personality problems that stem from parental rejection and disorganized family relationships. He was arrested for auto theft. He was enrolled in Auto Mechanics training between December 18, 1964 and May 7, 1965. Shortly after parole, he absconded and is presently wanted by the police.

Implications:

1. This trainee suffers from problems much more complex than lack of work.

2. As in the case of trainee H., he needs a total rehabilitation program. His high remediation level suggests unusual potential.

Robert U. This graduate is a 22 year old Negro youth. He completed 8 grades at school, but is reading at the 10th grade level. He was committed to Lorton for robbery. He was enrolled in the barber program between August 10, 1964 and January 12, 1965. He was paroled January 15, 1965. During

training, he requested to remain longer than necessary at Lorton to finish training. After training he was employed in a local barber shop but quit when he discovered that the owner took too high a percentage of his money. He was arrested for housebreaking.

Implications:

1. Graduates should not be placed with employers who will take advantage of their limited employment opportunities.

2. Follow-up placement assistance was required, but not offered.

David O. This graduate is a 20 year old white youth. He completed 7th grade, and was tested at the 7th grade reading level. He has a long history of institutional convictions. He is a product of a broken home. Both parents are alcoholics; both parents deserted the youth. David had no significant work history prior to his arrest on robbery charges. While at Lorton, he was enrolled in the painting program. On August 14, 1965 he was admitted to the Pre-Release Guidance Center. During this time, he was employed as a painter in Kensington, being paid $85.00 per week. He was arrested for disorderly conduct (drinking), and returned to the Youth Center on September 20, 1965.

Implications:

1. As in the case of trainee H, the youth suffers from alcoholic problems arising from poor parental example and neglect. He needs additional assistance.

2. The trainee reportedly would spend his $85.00 pay check over the weekend. He clearly needed counseling in respect to budgeting and basic living.

Thomas H. This graduate is a 22 year old Negro. He dropped from school in the 7th grade and was tested at the 7th grade level. He is a product of a highly disorganized family. His parents are separated, and have severely neglected the youth. He was committed for taking property without right from minors. While at Lorton he was trained in Auto Mechanics between September 8, 1964 and January 9, 1965. He was paroled January 19, 1965. After release, he was placed as an auto service attendant but wrecked a tow truck for his employer and later quit. The employer strongly recommends that no future trainee be accepted for City Service programs without a driver's license. This youth did not possess a license, nor was he eligible for one while at Lorton. Later, this youth obtained a job as a janitor in Virginia. During this time he was arrested on an attempted rape charge and served 30 days imprisonment. In November he was arrested for

He was arrested in late Spring, 1965, for entering a store after hours.

Frank H, is a 20 year old Negro youth. He dropped out of school in the 8th grade and is reading at 4th grade level. He was enrolled in the Food Service program at Lorton between November 17, 1964 and April 1, 1965. He was paroled June 14, 1965. He has since been arrested and sent to D. C. Jail.

Joseph A, is a 20 year old Negro youth. He dropped out of school in the 8th grade. He has no previous employment history. He was enrolled in Auto Mechanic training between October 8, 1964 and February 12, 1965. He was paroled February 17, 1965. He was employed at an oil company maintaining trucks. When he was told he would need tools for the job he decided to quit, even though the employer offered to pay for the tools. His parole officer felt the job was too big for him. He was arrested shortly afterwards for armed robbery.

Earl T, is a 20 year old Negro youth. He dropped from Shaw Jr. High in the 8th grade. While at Lorton he was enrolled in the T. V. program between August 27, 1964 and February 12,

Joseph R, is a 22 year old white youth. He dropped from school in the 8th grade, and was tested at the 4th grade reading level. He was sentenced for unauthorized use of an automobile vehicle. At the Youth Center, he was enrolled in Auto Mechanics training (September 8, 1964 - February 12, 1965). He was arrested three days after release for auto theft. He was unemployed at the time of arrest.

Theodore E, is a 22 year old Negro youth. He dropped from school in the 8th grade and was tested at the 5th grade reading level. He was arrested for taking property without rightful ownership. While at Lorton he was enrolled in the Building and Maintenance program (April 19 - June 30, 1965). He was paroled September 7, 1965. He was assigned a job by the Lorton staff with a Maintenance and Service Company but never arrived on the job. He claims he could not find the employer. He subsequently obtained a job repairing roofs which paid $1.55 an hour. Shortly afterwards he was arrested for the theft of a chair at Sears.

Implication:

1. Placement Officers should see that graduates actually are introduced to future employers.

Arthur I, is a 20 year old Negro youth. He dropped from school in the 8th grade. He has experienced a disorganized family life, born out of wedlock and not having any real father. He was committed to Lorton May, 1964 for auto theft. While there he was enrolled in the Food Service program (August 11, 1964 - November 10, 1964). He was paroled June 23, 1965. After release he held several unskilled jobs. He was arrested in February, 1965 for disorderly conduct, and possessing a concealed weapon.

Summary

1. In nearly every instance, follow-up counseling and job placement assistance was required, but not given.

2. The youths were rarely placed in jobs requiring previous training. Frequently, youths were placed with employers who took advantage of their limited opportunities and criminal records.

3. Most of the trainees lacked the basic remediation skills required for training and meaningful work.

4. It was clear that job training was only part of the rehabilitation solution. Many youths suffered from deeper psychological and social problems.

5 In nearly every instance, the graduates demonstrated the need for increased vocational counseling.

6. Careful screening of candidates for training programs was not apparent. Many applicants lacked the prerequisites for work, e. g., a driver's license for auto mechanics training. reading skills for meat cutter positions.

7. In nearly every instance the trainee came from a severely disorganized family environment. Efforts must be made to help these youths during their younger and supportive years. A program such as this is basically too little and too late.

SUMMARY OF SUGGESTIONS

1. The selection of staff should not be limited to Civil Service procedures. Steps should be taken to provide for a salary scale higher than that assigned permanent Civil Service positions, since E & D jobs are for short duration and require the highest level performance. Delays in hiring staff might seriously impair the success of short spanned demonstration projects.

2. The MDT Directr and Lorton Superintendent should clearly define the roles of the MDT staff within the institution. Presently there is role conflict in the tasks of the stewards and food service personnel, vocational counselor and placement director, vocational counselor and classification board, etc.

3. The Vocational Counselor must take an active role in selecting, counseling and guiding these youths in order that the major hypotheses of the program might truly be tested.

4. The D. C. Prison System must examine their goals and determine whether they really want an MDT program. (It should be remembered that the idea for the program was

initiated by staff low on the echelon of authority, i. e., vocational director). It seems unfortunate that the Lorton staff did not allow the Food Service or Auto Mechanics programs proper facilities; it seems unfortunate that the Service and Maintenance program does largely institutional assignments; and the painting and maintenance programs are short of equipment. Presently all the MDT programs gravitate around institutional functions.

5. Remediation training should be fundamental training for the vast majority of MDT youths. This instruction, however, should be oriented toward the training areas in which the youth plan to work.

6. The Vocational Counselor should be responsible for screening youths into these programs. The classification board should not duplicate or obscure his function.

7. The Placement Director should spend most of his time in the field developing jobs for the MDT graduates. Perhaps an office could be secured at the Pre-Release Guidance Center in the District.

8. The Placement Director should follow-up youths after they have been placed on jobs to determine if the youth's adjustment to work is adequate.

9. Perhaps an arrangement might be made with the Bureau of Apprenticeship and Training to contract employers

for on-the-job training assignments. Many of the graduates are not yet prepared to enter full time work without additional training.

10. Individual and group counseling should be given youth after their release from Lorton. Many of the youths appeared to lack sound vocational judgment.

11. Many more youth should be released to the Pre-Release Guidance Center. This rehabilitative center serves as a good transitional institution. While at the Guidance Center youth could be enrolled in on-the-job training and receive additional counseling. At present, the Pre-Release Guidance Center accepts inmates from many more sources than the Youth Center. Ideally only Youth Center inmates should be referred here. Hopefully the Center should be relocated in a lower delinquency area. Presently it is situated in the heart of the Cardozo area of Washington.

12. Prison work programs might also be arranged at Lorton where inmates could actually work in the neighboring communities under supervision. Thus painters might paint poverty-stricken homes in the area, rather than only institutional structures at Lorton. Since the average trainees spend only 20 months in confinement, he should be prepared for work in the free community.

In the opinion of the BSR staff, the Lorton program

has not demonstrated any new vocational training techniques that might alter present prison policy.

APPENDICES

APPENDIX I

STANFORD ACHIEVEMENT TESTS AVERAGES FOR MDTA STUDENTS AUGUST 1964 THROUGH JUNE 1965

Clerical

Trainees	Verbal	Arithmetic	Paragraph Meaning
1	12.1	7.0	10.0
2	11.8	8.9	10.7
3	11.4	10.5	10.4
4	11.0	10.4	10.8
5	10.6	9.3	10.0
6	10.0	8.4	9.6
7	9.7	9.5	9.0
8	8.2	6.5	7.2
9	7.1	7.0	7.4
10	6.9	7.7	6.7
11	6.8	5.8	6.8

Television

Trainees	Verbal	Arithmetic	Paragraph Meaning
1	12.0	9.8	10.9
2	11.4	8.6	9.8
3	11.0	7.8	9.6
4	10.3	8.1	9.2
5	10.1	7.6	8.8
6	9.5	7.5	8.7
7	8.7	7.2	8.3
8	8.6	7.7	7.9
9	8.4	10.5	8.8
10	7.6	7.8	6.8

APPENDIX I--Continued

Auto Repair

Trainees	Verbal	Arithmetic	Paragraph Meaning
1	12.0	11.7	11.4
2	11.7	11.0	10.8
3	11.4	10.1	9.8
4	11.4	9.1	9.8
5	10.9	10.0	9.9
6	10.4	8.9	9.0
7	8.4	7.7	7.8
8	7.6	8.3	6.3
9	7.6	5.1	5.7
10	7.3	7.0	7.4
11	6.9	9.7	7.7
12	6.8	5.2	5.6
13	6.7	6.6	6.5
14	5.3	8.3	6.3
15	5.3	6.5	5.4
16	5.0	6.0	5.0

Painting

Trainees	Verbal	Arithmetic	Paragraph Meaning
1	9.5	7.5	8.7
2	9.4	7.4	7.2
3	8.9	6.2	7.2
4	8.3	7.1	7.6
5	8.2	8.0	7.6
6	8.0	6.4	6.0
7	7.5	8.0	2.6
8	6.1	6.2	5.7
9	4.8	5.3	4.8

APPENDIX I--Continued

Barber School

Trainees	Verbal	Arithmetic	Paragraph Meaning
1	12.8	11.6	11.0
2	11.7	9.7	10.1
3	11.0	10.9	10.5
4	10.5	10.3	8.9
5	10.1	7.3	7.8
6	10.1	7.2	8.9
7	9.8	9.6	9.7
8	9.7	9.2	9.0
9	9.6	7.3	6.9
10	9.4	6.2	8.2
11	9.1	6.9	8.4
12	9.0	8.3	8.5
13	9.0	8.0	8.2
14	9.0	6.7	7.4
15	8.2	6.4	9.3
16	8.1	6.0	7.3
17	7.8	7.0	7.9
18	7.3	7.8	8.3
19	6.6	6.8	7.0
20	6.4	4.6	5.7

Building and Service Maintenance

Trainees	Verbal	Arithmetic	Paragraph Meaning
1	6.7	6.3	6.0
2	6.5	4.9	5.5
3	6.4	5.8	9.9
4	6.3	3.2	3.9
5	6.1	6.8	6.1
6	6.1	4.8	5.0
7	5.7	4.7	4.7
8	5.1	6.8	5.3
9	4.7	6.4	4.6
10	4.5	4.4	5.6

APPENDIX I--Continued

Building and Service Maintenance

Trainees	Verbal	Arithmetic	Paragraph Meaning
11	4.4	6.1	4.8
12	4.4	5.2	4.6
13	4.2	5.6	4.4
14	4.2	4.2	3.9
15	4.1	4.8	4.3
16	4.0	4.6	3.8
17	3.9	5.3	3.9
18	3.8	4.2	3.4
19	3.7	4.3	3.4
20	3.6	3.7	4.0
21	2.7	3.2	2.5
22	2.5	3.8	2.8
23	1.8	3.8	2.6
24	1.4	3.2	2.1
25	1.3	3.3	2.0

Food Service

Trainees	Verbal	Arithmetic	Paragraph Meaning
1	9.5	8.6	8.2
2	9.4	6.2	8.4
3	9.0	6.8	7.0
4	8.9	1.4	9.9
5	8.8	6.0	7.2
6	8.2	7.5	7.2
7	7.9	6.9	7.5
8	7.6	6.0	6.8
9	7.5	4.7	6.1
10	7.4	5.1	5.9
11	7.3	5.5	6.1
12	6.8	5.3	6.4
13	6.7	7.0	6.7
14	6.5	4.7	5.1
15	6.3	6.1	5.9

APPENDIX I--Continued

Food Service

Trainees	Verbal	Arithmetic	Paragraph Meaning
16	6.0	6.8	5.5
17	6.0	5.8	6.0
18	6.1	7.2	6.3
19	5.2	4.7	4.5
20	5.1	5.5	4.9
21	5.0	5.9	5.2
22	4.9	6.5	6.1
23	4.7	7.5	4.9
24	4.6	5.7	4.3
25	4.5	6.6	5.2
26	4.3	3.8	4.1
27	4.1	5.5	4.7
28	4.0	6.5	4.2
29	4.0	4.8	3.6
30	3.7	4.4	3.5
31	3.2	4.0	3.8
32	3.2	3.6	3.3
33	3.1	4.6	5.1
34	2.[illegible]	3.2	3.2
35	2.4	5.0	5.0
36	1.6	6.8	6.8
37	1.5	2.9	2.9

APPENDIX II

MINIMUM SAT VERBAL REQUIREMENTS FOR
YOUTH CENTER TRAINING PROGRAMS

Program	SAT Scores to Qualify	Inmates in Training Below Criteria
Food and Service	5.0	16
Service and Maintenance	3.5	5
Radio and T.V. Servicing	8.0	1
Auto Repair Servicing	5.0	-
Painting	3.5	-
Clerical	8.0	3
Barbering	7.0	2

APPENDIX III

YOUTH CENTER INMATES (AGE 22 - 26) NOT ENROLLED IN MDT DURING THE MONTH OF JUNE 1965 BUT WITH EIGHTH GRADE ACHIEVEMENT LEVELS OR BETTER

Trainees	Age	SAT Scores		
		Verbal	Arithmetic	Paragraph Meaning
1	23	11.9	11.2	11.3
2	23	11.8	7.5	10.2
3	25	11.7	7.4	9.5
4	25	11.4	9.1	10.0
5	26	11.4	8.5	10.5
6	23	11.2	8.7	9.7
7	25	11.0	7.1	9.3
8	23	10.8	10.0	9.5
9	24	10.7	8.7	9.5
10	23	10.2	9.2	7.6
11	24	10.2	6.8	8.5
12	24	9.8	8.9	8.6
13	24	9.7	11.1	9.2
14	23	9.7	8.8	9.9
15	23	9.7	7.4	8.1
16	23	9.6	8.5	8.7
17	26	9.6	7.3	8.1
18	25	9.5	8.5	8.5
19	24	9.4	8.2	8.0
20	22	9.4	7.5	8.1
21	24	9.3	8.7	8.2
22	23	9.3	7.8	8.5
23	23	9.1	6.1	8.2
24	23	9.0	7.9	8.6
25	24	8.5	9.4	7.9
26	25	8.1	7.3	7.1

VT 014 918
BARNES, JAMES R.; BAKER, RICHARD A.
EMPLOYMENT TRENDS AND JOB PERFORMANCE ANALYSIS OF WORKERS IN AGRICULTURALLY-RELATED BUSINESSES IN ALABAMA.
ALABAMA OCCUPATIONAL RESEARCH AND DEVELOPMENT UNIT, AUBURN.; ALABAMA STATE DEPT. OF VOCATIONAL EDUCATION, MONTGOMERY.
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ABSTRACT - TO PROVIDE EMPLOYMENT AND TASK PERFORMANCE DATA FOR VOCATIONAL PROGRAM PLANNERS, COUNSELORS, AND OTHERS INTERESTED IN VOCATIONAL EDUCATION, THIS STUDY AIMS TO DETERMINE EMPLOYMENT TRENDS IN AGRIBUSINESSES IN ALABAMA AND THE OCCUPATION-BUSINESS AND JOB-TASK MIX PATTERNS IN AGRIBUSINESSES. DATA WERE COLLECTED BY MEANS OF SURVEY QUESTIONNAIRES ON EMPLOYMENT OPPORTUNITIES AND JOB DUTIES MAILED TO 3,803 AGRIBUSINESS FIRMS IN ALABAMA IN 1971. 19.5 PERCENT OF THESE BUSINESSES, GROUPED UNDER AGRICULTURAL SUPPLIES, HORTICULTURE, FORESTRY, AGRICULTURAL MACHINERY, AND AGRICULTURAL PRODUCTS, RETURNED THE SURVEY INSTRUMENTS. BUSINESSES HANDLING AGRICULTURAL PRODUCTS REPORTED OVER 47 PERCENT OF THE JOBS, AND FORESTRY BUSINESSES INCLUDED 31.3 PERCENT OF THE JOBS. FULL-TIME EMPLOYMENT ACCOUNTED FOR 87.3 PERCENT OF THE JOBS. OVER THREE TIMES AS MUCH EMPLOYMENT WAS REPORTED IN MANUFACTURING AND PROCESSING BUSINESSES AS IN RETAIL, WHOLESALE, AND SERVICES BUSINESSES COMBINED. AGRICULTURAL MACHINERY, HORTICULTURAL, AND AGRICULTURAL PRODUCTS BUSINESSES RANKED FIRST, SECOND, AND THIRD RESPECTIVELY IN EMPLOYEE HIRING RATES. EMPLOYEE TURNOVER WAS HIGHEST IN HORTICULTURAL BUSINESSES. TEN PERCENT OF THE BUSINESSES HAD CONDUCTED JOB TRAINING CLASSES FOR THEIR EMPLOYEES. (AG)

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EMPLOYMENT TRENDS AND JOB PERFORMANCE ANALYSIS OF WORKERS IN AGRICULTURALLY-RELATED BUSINESSES IN ALABAMA

JAMES R. BARNES
RICHARD A. BAKER

Research and Development Report No. 8

Occupational Research and Development Unit

Department of Vocational and Adult Education

School of Education
Auburn University
Auburn, Alabama

In Cooperation With Vocational Division
State Department of Education

816 TUA

The Occupational Research and Development Unit has been established as a service unit to stimulate and activate research and development activities in vocational education.

The major objectives of the unit are:

1. Stimulate activities which will result in increasing interest and improving competence in research through individual consultation and group research and development training programs.

2. Provide assistance for individuals and groups in vocational education with research design and methodology.

3. CONDUCT RESEARCH IN VOCATIONAL EDUCATION.

4. Provide research and program development assistance to local and state level agencies.

5. Disseminate relevant research findings in vocational-technical education.

6. Coordinate research and research related activities in vocational education.

The Unit's efforts are directed toward serving public school programs; however, this will not be its sole concern. The Unit's role necessitates working with businesses, agencies, and organizations outside the formal structure of public education, especially those that conduct program activities that are related to or have implication for program development in vocational education.

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EMPLOYMENT TRENDS AND JOB PERFORMANCE ANALYSIS OF WORKERS IN AGRICULTURALLY-RELATED BUSINESSES IN ALABAMA

James R. Barnes
Richard A. Baker

Occupational Research and Development Unit
Department of Vocational and Adult Education
School of Education
Auburn University
Auburn, Alabama

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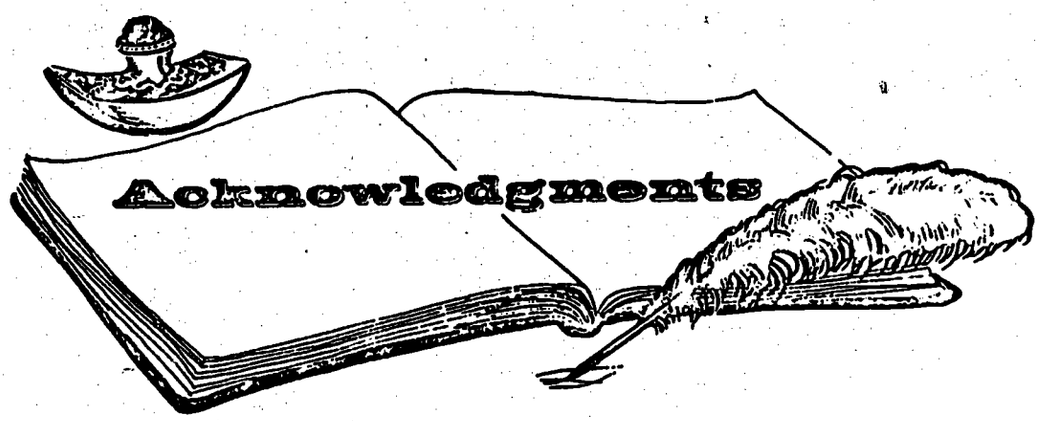

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Alabama Businesses

Cooperative Extension Service

Vocational Agribusiness Service

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Mrs. Alice Morgan

Mr. Raymond Hill

SUMMARY

1. Businesses handling agricultural products reported over 47% of survey employment. Forestry businesses ranked second with 31.3% of reported employment.
2. Of the total employment reported by all businesses 87.3% was full-time employment, with 4.4% and 8.3% reported as part-time and seasonal employment respectively.
3. Employment in manufacturing and processing businesses amounted to over three times the employment in retail, wholesale and services businesses combined.
4. Agricultural machinery businesses reported the highest employee hiring rate during the 12 months previous to the survey, with horticulture businesses and businesses handling agricultural products ranking second and third.
5. Employee turn-over was reported highest in horticultural businesses with businesses handling agricultural products, forestry businesses, agricultural machinery businesses and agricultural supplies businesses following in order.
6. Ten percent of the businesses reporting had conducted formal training classes for their employees at some time in the past.

II INTRODUCTION

Rapid technological and general economic changes necessitate continual adjustments of occupational education programs. Occupational program planners must have current data on employment trends and occupational requirements if occupational programs are to meet the needs of business and industry as well as the interests and abilities of students.

This study was intended to provide employment and task performance data for occupational program planners, counselors and others interested in choosing an occupation.

Purpose of the Study

The specific objectives of this study were:

1. To determine employment trends in agriculturally-related businesses in Alabama.
2. To determine the occupation-business mix patterns for agriculturally-related businesses.
3. To determine the job-task mix patterns in agriculturally-related businesses.

III METHODOLOGY

The data in this report were collected by data gathering instruments (Appendicies O through W) mailed to 3803 business firms in Alabama in 1971. Usable survey instruments were returned by 19.5% of the businesses surveyed. The survey sample consisted of business firms operating in Alabama which perform processing functions for and provide services and/or goods directly to producers of plant and animal products. Horticultural production and service businesses were also included. Projections of employment by Standard Industrial Classification codes were based on Census of Business and County Business Patterns data.

Mailing lists were developed by assigning businesses to one of five business type classifications. The classifications were Agricultural Supplies, Horticulture, Forestry, Agricultural Machinery and Agricultural Products handlers. A classification designated "Other" was provided during tabulation for businesses which could not be assigned to one of the original business type classifications.

The number of businesses in each classification was halved with one-half of each list receiving identical survey instruments. This basic instrument (Appendix O) gathered general employment data and specific employment data by occupational categories. The remaining half of the businesses in each classification received specialized job performance analysis instruments (Appendix R through W) as well as the general employment data instrument (Appendix P). The specialized portion of the instrument was designed to contain job tasks expected to occur in each individual business type surveyed. Responding businesses were asked to classify themselves as retail, wholesale, service or manufacturing and processing firms, and to check their particular type of business operation from a list provided (Appendix Q).

IV PRESENTATION OF DATA

Employment Trends

Table 1 shows that businesses handling agricultural products accounted for 27.1% of the total businesses responding to the survey. These businesses accounted for a much greater proportion of the employment reported than any of the other business types. Agricultural products businesses reported 47.1% of total employment with forestry businesses ranking second with 31.3%. The remaining business types reported substantially less employment than the two leaders. Average employment per business was also highest for agricultural products and forestry businesses. Agricultural products businesses also hired the largest number of seasonal workers per business.

It can be seen from Table 2 that employment in both agricultural products businesses and forestry businesses was predominately manufacturing in nature. Employment in agricultural supplies, horticulture and agricultural machinery businesses was concentrated in either retail, wholesale or service situations. Retail, wholesale and service businesses of these types reported hiring more part-time and seasonal workers than did manufacturing and processing businesses. However, agricultural products manufacturing and processing businesses and forestry manufacturing and processing businesses hired more seasonal workers than did their counterpart retail, wholesale and service businesses.

Table 3 indicates that in all businesses types at the time of the survey 10.4% of full-time employment and 25.4% of part-time employment were hired during the twelve months prior to the survey. Rates of hiring varied considerably among the business types. During the twelve months period, agricultural machinery businesses hired over 16% of their present full-time employee force. This was the highest rate, with agricultural supplies

Table 1 Characteristics of the Survey Sample

Business Type	Usable Returns		Employees							
			Total		Full-time		Part-time		Seasonal	
	No.	%	No.	%	No.	Avg. No.	No.	Avg. No.	No.	Avg. No.
Agricultural Supplies, Sales & Service[1]	125	16.7	1,950	8.0	1,505	12.0	242	1.9	203	1.6
Horticulture	155	20.7	1,233	5.0	759	4.9	257	1.7	217	1.4
Forestry	165	22.1	7,673	31.3	7,316	44.3	135	.8	222	1.3
Agricultural Machinery	56	7.5	553	2.3	495	8.8	38	.7	20	.4
Agricultural Products	203	27.1	11,509	47.1	10,016	49.3	365	1.8	1128	5.6
Other	44	5.9	1,535	6.3	1,251	28.4	54	1.2	230	5.2
Total	748	100.0	24,453	100.0	21,342	28.5	1091	1.5	2020	2.7

[1]Includes stockyards

Table 2 Survey Sample Employment by Business Types

Business Type	Retail, Wholesale and Service Businesses[1]				Manufacturing and Processing Businesses			
	Full-time No.	Part-time No.	Seasonal No.	Total No.	Full-time No.	Part-time No.	Seasonal No.	Total No.
Agricultural Supplies	668	206	175	1049	837	36	28	901
Horticulture	614	217	173	1004	145	40	44	229
Forestry	629	44	32	705	6687	91	190	6,968
Agricultural Machinery	492	38	20	550	3	0	0	3
Agricultural Products	994	135	228	1357	9022	230	900	10,152
Other	365	47	63	475	886	7	167	1,060
Total	3,762	687	691	5,140	17,580	404	1,329	19,313

[1]Includes stockyards

Table 3 Filled Vacancies in Agriculturally-Related Businesses in Alabama by Business Types, 1970

Types of Businesses	Total Employment Sample Survey No.					Vacancies Filled Past 12 Mos. No.			% of Vac Filled			% of Total Employment	
	F-T[1]	P-T[2]	Sea.[3]	Total	Percent	F-T[1]	P-T[2]	Sea.[3]	F-T[1]	P-T[2]	Sea.[3]	F-T[1]	P-T[2]
Agricultural Supplies, Sales & Service[4]	1,505	242	203	1,950	8.0	60	55	141	70.6	85.9	78.8	4.0	22.7
Horticulture	759	257	217	1,233	5.0	112	85	158	65.1	89.5	91.3	14.7	33.1
Forestry	7,316	135	222	7,623	31.3	539	43	184	77.6	71.7	82.1	7.4	31.9
Agricultural Machinery	495	38	20	553	2.3	81	17	11	73.6	94.4	91.7	16.4	44.7
Agricultural Products	10,016	365	1128	11,509	47.1	1311	60	377	91.4	75.9	90.6	13.1	16.4
Other	1,251	54	230	1,535	6.3	125	17	74	94.0	100.0	79.6	10.0	31.5
Total	21,342	1091	2020	24,453	100.0	2228	277	945	84.7	83.2	86.1	10.4	25.4

[1]Full-Time Employees
[2]Part-Time Employees
[3]Seasonal Employees
[4]Includes Stockyards

businesses experiencing the lowest hiring rate with only 4% of their full-time employees being hired during the same period. Agricultural machinery businesses also reported the highest hiring rate for part-time employees. All business types reported a relatively high part-time hiring rate.

It can be noted in Table 4 that horticulture and agricultural machinery businesses indicated the highest full-time employee vacancy rates at 7.9% and 5.9% of current employment respectively. Forestry businesses reported the highest vacancy rate for part-time workers, while agricultural supplies businesses and forestry businesses ranked one and two in vacancy rates for seasonal employees. The greatest number of vacancies at the time of the survey were in forestry businesses, while agricultural products businesses ranked second. However, over the twelve months prior to the survey these two types of businesses switched rank in terms of total vacancies.

At the time of the survey, the vacancy rate for all business types in terms of employment type was 1.9% for full-time, 5.1% for part-time and 8.1% for seasonal.

The survey questionnaire was designed to obtain data on employee mobility, specifically total and job mobility, as shown in Table 5. Total mobility includes job mobility, retirement, death, occupational mobility, and quitters. Job mobility is defined as the change of place of employment within the same occupation. Occupational mobility is defined as a change from one occupation to a different occupation. Over the twelve month period prior to the survey, horticulture businesses reported the highest total mobility rate at approximately 42% of present employment. Agricultural supplies businesses reported the lowest total mobility rate. The job mobility rate was highest for agricultural machinery businesses at 5.1% total employment. Agricultural products businesses

Table 4 Unfilled Vacancies in Agriculturally-Related Businesses in Alabama by Business Types, 1970

Types of Business	Total Vacancies Past 12 Months			Present Vacancies								
				Number			% of Employment			% of Total Vacancies		
	F-T[1]	P-T[2]	Sea.[3]	F-T[1]	P-T[2]	Sea.[3]	F-T[1]	P-T[2]	Sea.[3]	F-T[1]	P-T[2]	Sea.[3]
Agricultural Supplies, Sales & Service[4]	85	64	179	25	9	38	1.7	3.7	36.9	29.4	14.1	21.2
Horticulture	172	95	173	60	10	15	7.9	3.9	6.9	34.9	10.5	8.7
Forestry	695	60	224	156	17	40	2.1	12.6	23.4	22.4	28.3	17.9
Agricultural Machinery	110	18	12	29	1	1	5.9	2.6	5.0	26.4	5.6	8.3
Agricultural Products	1435	79	416	124	19	39	1.2	5.2	3.5	8.6	24.1	9.4
Other	133	17	93	8	0	19	.6	0.0	8.3	6.0	0.0	20.4
Total	2630	333	1097	402	56	152	1.9	5.1	8.1	15.3	16.8	13.9

[1]Full-time employees
[2]Part-time employees
[3]Seasonal employees
[4]Includes stockyards

ranked second with a 5.0% rate. The lowest rate of job mobility, 1.8%, was reported by agricultural supplies businesses and by businesses classified as Other.

Table 5 Mobility of Employees in Agriculturally-Related Businesses in Alabama by Business Type, 1970

Types of Business	Total Mobility		Job Mobility	
	Number	% of Total Employment	Number	% of Total Employment
Agricultural Supplies, Sales and Service[1]	224	11.5	35	1.8
Horticulture	514	41.7	36	2.9
Forestry	1,746	22.8	281	3.7
Agricultural Machinery	81	14.6	28	5.1
Agricultural Products	2,815	24.5	574	5.0
Other	220	14.3	27	1.8

[1]Includes Stockyards

Table 6 shows that employee training by businesses through means of a formal class was reported by only 10% of the businesses responding. A higher percent of the retail, wholesale and service businesses reported formal training classes than did manufacturing and processing businesses.

Employment Projections

Employment was projected for selected agriculturally-related businesses by Standard Industrial Classification codes. Projections for the years 1971, 1972 and 1976 were developed using Census of Business data except in a few instances

Table 6 Formal Employee Training by Business Types in Alabama, 1970

Business Type	Retail, Wholesale and Service Businesses [1]				Manufacturing and Processing Businesses			
	Have ever Conducted Classes		Currently Conducting Classes		Have ever Conducted Classes		Currently Conducting Classes	
	Yes	No	No. of Employees Enrolled	% Current Employment	Yes	No	No. of Employees Enrolled	% Current Employment
Agricultural Supplies	17	97	4	.2	1	8	0	0.0
Horticulture	12	135	4	.3	0	9	0	0.0
Forestry	2	34	0	0.0	12	116	22	.3
Agricultural Machinery	11	45	2	.4	0	1	0	0.0
Agricultural Products	9	100	9	.1	8	83	9	.1
Other	3	25	5	.3	0	16	0	0.0
Total	54	436	24	.1	21	233	31	.1

[1] Includes stockyards

when County Business Patterns data were used. Table 7 contains the projections as well as the percent annual change and total annual employee demand. Total annual employee demand includes additional employees needed each year (if any) due to growth and replacement needs due to death and retirement at the annual rate of 3% of total employment.

Table 8 indicates the distribution of occupational categories for each business type studied. Each business type was further divided into the business activity classifications of retail, wholesale and service or manufacturing and processing.

Projected employment presented in Table 7 was distributed by occupational categories using the ratios determined by the survey for each business type and activity classification. Appendicies A through H contain projected employment for the years 1971, 1972 and 1976. Also contained in these appendicies is the annual percentage change of total employment for each activity classification and the projected total annual demand for each occupational category.

Task Performance Analysis

One half of the businesses surveyed were asked to give the number of employees performing various tasks. Each business type was provided a specialized list containing tasks expected to be performed in the business type. Responses were combined by business type and further subdivided into business activity classifications. Appendicies I through N present job task performance in terms of the percent of all employees in the specific business activity classification performing a specific task.

Table 7 Employment Trends for Agriculturally-Related Businesses in Alabama by Standard Industrial Classification

Classification		Projected Employment[1]				
SIC	Description	1971	1972	1976	Percent Annual Change	Total[2] Annual Demand
201	Meat & meat products (Mfg.)	8099	8235	8776	1.7	387
202	Dairy products (Mfg.)	3926	3917	3880	-.2	118
203	Canned & frozen foods (Mfg.)	1679	1834	2451	9.3	215
204	Grain & feed products (Mfg.)	1817	1797	1720	-1.1	53
2091	Farm crop oil mill (Mfg.)	226	198	86	-12.4	5
2411	Logging contractor (Mfg.)	5399	5542	6116	2.6	315
242	Sawmill or planer mill (Mfg.)	10782	10554	9642	-2.1	308
243	Millwork & related products (Mfg)	2729	2708	2623	-.8	80
244	Wood containers (Mfg.)	787	609	0	-22.6	11
2491	Wood preserving (Mfg.)	644	654	690	1.6	29
2621	Pulp mills (Mfg.)	16212	16313	16714	.6	593
2861	Gum & wood chemicals (Mfg.)	301	298	287	-1.0	9
287	Agricultural chemicals (Mfg.)	3149	3285	3826	4.3	239
3522	Farm machinery & equipment (Mfg.)	1402	1462	1705	4.3	107
4731	Stockyards	1113	1179	1446	5.9	104
542	Meat and meat products (Retail)	117	118	122	.9	5
5047	Meat and meat products (Whsl.)	774	752	663	-2.9	22
545	Dairy products (Retail)	70	73	82	4.3	4
5043	Dairy products (Whsl.)	842	856	913	1.7	40
543	Fresh fruit & vegetables (Retail)	122	113	80	-7.4	3
5048	Fresh fruit & vegetables (Whsl.)	809	786	691	-2.9	23
5044	Poultry products (Whsl.)	507	509	516	.4	17

(continued)

Table 7 (concinued)

Classification		Projected Employment[1]				
SIC	Description	1971	1972	1976	Percent Annual Change	Total[2] Annual Demand
5252	Farm machinery & equipment (Ret.)	1521	1536	1597	1.0	62
5083	Farm machinery & equipment (Whsl.)	160	160	160	0.0	5
7699	Repair shops (Service)	43	37	16	-14.0	1
505	Farm crop products (Whsl.)	1516	1505	1460	-.7	45
521	Lumber & building materials (Ret.)	4839	5180	6545	7.0	510
5251	Hardware businesses (Retail)	1465	1388	1083	-5.3	39
5072	Hardware businesses (Whsl.)	1646	1656	1695	.6	60
596	Farm and garden supplies (Retail)	2100	2158	2393	2.8	125
5992	Florists (Retail)	1566	1592	1693	1.7	74
7342	Pest control (Service)	1041	1066	1163	2.4	58
0722	Animal Hospitals[3] (Service)	1174	1184	1225	8.6	38
0192	Horticulture[3] (Production)	892	892	892	0.0	27
	Total	79,469	80,146	82,951	.9	3731

[1]Base data source: Census of Business
[2]Includes net growth and replacement needs
[3]Base data source: County Business Patterns

Table 8. Percentage Distribution of Occupations by

Occupations	Total Responding Businesses		Agricultural Supplies Sales and Service		Horticulture		Forestry	
	Retail Whsl. & Service	Mfg. and Proc.	Retail Whsl. & Service	Mfg. and Proc.	Retail Whsl. & Service	Mfg.* and Proc.	Retail Whsl. & Service	Mfg. and Proc.
Managers & Supervisors	11.4	6.5	13.7	7.2	10.4		7.4	9.3
Salesmen	12.0	2.1	14.2	.4	11.2		0.0	1.4
Buyers	2.7	1.0	3.3	.2	3.3		5.0	1.4
Stock Clerks	4.2	1.0	5.0	.2	1.8		.8	1.3
Maintenance Mechanics	6.3	3.6	2.4	1.9	1.8		0.0	4.9
Maintenance Men (Construction)	3.2	1.5	4.2	1.1	6.2		1.6	2.5
Electricians	.5	.7	.7	.2	.3		0.0	1.3
Metalworkers (General)	.4	.1	1.9	0.0	0.0		0.0	.2
Stationary Machine Operators	3.7	16.8	3.5	3.8	.9		0.0	19.1
Motorized Vehicle Operators	10.9	28.9	9.2	3.6	6.8		10.7	6.4
Laborers	30.1	25.4	30.0	77.5	40.4		50.4	34.6
Others (Not classified above)	14.5	12.3	11.8	3.8	16.8		24.0	17.5
Total	100.0	100.0	100.0	100.0	100.0		100.0	100.0

*No or insignificant manufacturing and processing responses.

Business Type in Alabama, 1970

Agricultural Machinery		Agricultural Products		Other	
Retail Whsl. & Service	Mfg.* and Proc.	Retail Whsl. & Service	Mfg. and Proc.	Retail Whsl. & Service	Mfg. and Proc.
13.1		12.1	4.2	8.7	6.7
13.8		14.7	2.9	8.9	1.4
1.4		2.5	.8	1.5	.8
9.6		5.8	.7	2.4	1.4
40.4		3.9	2.2	1.3	6.1
0.0		1.2	.8	2.4	1.5
1.4		.7	.2	0.0	.4
0.0		0.0	.1	0.0	.1
.7		11.4	14.4	1.5	26.5
3.9		12.1	54.4	22.2	5.4
7.1		31.9	8.8	21.7	44.7
8.5		3.7	10.4	29.3	5.0
100.0		100.0	100.0	100.0	100.0

Utilization in Curriculum Development

Data contained in Appendicies A through N can be useful in the development of vocational programs designed to prepare workers for the types of businesses surveyed during this study. An indication of the number of workers needed yearly in various occupational categories within each business type is given in Appendicies B through H. Data in Appendicies I through N can be utilized to determine curriculum design and course content of occupational preparatory or extension programs for development of workers for the various business types studied.

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APPENDIX

APPENDIX A

Projected Employment and Employee Demand in Agriculturally-Related Businesses in Alabama by Occupational Categories

Occupations	Projected Employment 1971	1972	1976	Percent Annual Change	Total[1] Annual Demand
Managers & Supervisors	6,040	6,091	6,304		284
Salesmen	3,338	3,366	3,483		157
Buyers	1,113	1,122	1,161		52
Stock Clerks	1,350	1,362	1,410		63
Maintenance Mechanics	3,338	3,366	3,484		157
Maintenance Men (Construction)	1,510	1,523	1,576		71
Electricians	477	480	498		22
Metalworkers (General)	159	160	165		7
Stationary Machine Operators	11,125	11,220	11,613		522
Motorized Vehicle Operators	19,867	20,036	20,738		932
Laborers	20,980	21,158	21,899		985
Others (Not classified above)	10,172	10,259	10,618		478
Total[2]	79,469	80,146	82,951	.9	3,731

[1]Includes net growth and replacement needs
[2]Totals may not equal sum of parts due to rounding

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APPENDIX B

Projected Employment and Demand for Agricultural Supplies Manufacturing and Processing Industries in Alabama by Occupational Categories

Occupations	Projected Employment 1971	1972	1976	Percent Annual Change	Total[1] Annual Demand
Managers & Supervisors	227	237	275		18
Salesmen	13	13	15		-
Buyers	6	7	8		1
Stock Clerks	6	7	8		1
Maintenance Mechanics	60	62	73		4
Maintenance Men (Construction)	35	36	42		2
Electricians	6	7	8		1
Metalworkers (General)	0	0	0		0
Stationary Machine Operators	120	125	145		9
Motorized Vehicle Operators	113	118	138		9
Laborers	2440	2546	2965		187
Others (Not classified above)	120	125	145		9
Total[2]	3149	3285	3826	4.3	240

[1]Includes net growth and replacement needs
[2]Totals may not equal sum of parts due to rounding

APPENDIX C

Projected Employment and Demand for Agricultural Supplies Sales and Service Businesses in Alabama by Occupational Categories[1]

Occupations	Projected Employment 1971	1972	1976	Percent Annual Change	Total[2] Annual Demand
Managers & Supervisors	1529	1584	1802		105
Salesmen	1585	1642	1869		109
Buyers	368	382	434		26
Stock Clerks	558	578	658		38
Maintenance Mechanics	268	277	316		18
Maintenance Men (Construction)	469	486	553		32
Electricians	78	81	92		6
Metalworkers (General)	212	220	250		15
Stationary Machine Operators	391	405	461		27
Motorized Vehicle Operators	1027	1064	1211		70
Laborers	3349	3468	3949		228
Others (Not classified above)	1317	1364	1553		90
Total[3]	11,163	11,561	13,162	3.5	761

[1]Includes stockyards
[2]Includes net growth and replacement needs
[3]Totals may not equal sum of parts due to rounding

APPENDIX D

Projected Employment and Demand for Forestry Products Manufacturing and Processing Industries in Alabama by Occupational Categories

Occupations	Projected Employment 1971	1972	1976	Percent Annual Change	Total[1] Annual Demand
Managers & Supervisors	3427	3411	3355		102
Salesmen	516	513	505		15
Buyers	516	513	505		15
Stock Clerks	479	477	469		14
Maintenance Mechanics	1806	1797	1768		54
Maintenance Men (Construction)	921	917	902		27
Electricians	479	477	469		14
Metalworkers (General)	74	73	72		2
Stationary Machine Operators	7039	7004	6890		208
Motorized Vehicle Operators	2359	2347	2309		70
Laborers	12,751	12,691	12,481		378
Others (Not classified above)	6449	6419	6313		191
Total[2]	36,834	36,678	36,072	-.4	1093

[1]Includes net growth and replacement needs
[2]Totals may not equal sum of parts due to rounding

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APPENDIX E

Projected Employment and Demand for Agricultural Machinery Sales and Services Businesses in Alabama by Occupational Categories

Occupations	Projected Employment 1971	1972	1976	Percent Annual Change	Total[1] Annual Demand
Managers & Supervisors	410	419	456		22
Salesmen	431	441	480		24
Buyers	44	45	49		2
Stock Clerks	300	307	334		16
Maintenance Mechanics	1263	1291	1405		68
Maintenance Men (Construction)	0	0	0		0
Electricians	44	45	49		2
Metalworkers (General)	0	0	0		0
Stationary Machine Operators	22	22	24		1
Motorized Vehicle Operators	122	125	136		8
Laborers	222	227	247		12
Others (Not classified above)	266	272	296		14
Total[2]	3126	3195	3478	2.2	168

[1]Includes net growth and replacement needs
[2]Totals may not equal sum of parts due to rounding

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APPENDIX F

Projected Employment and Demand for Horticultural Sales and Services Businesses in Alabama by Occupational Categories

Occupations	Projected Employment 1971	1972	1976	Percent Annual Change	Total[1] Annual Demand
Managers & Supervisors	256	258	269		10
Salesmen	275	278	290		11
Buyers	81	82	85		4
Stock Clerks	44	45	47		2
Maintenance Mechanics	44	45	47		2
Maintenance Men (Construction)	152	154	160		7
Electricians	7	7	8		-
Metalworkers (General)	0	0	0		0
Stationary Machine Operators	22	22	23		-
Motorized Vehicle Operators	167	169	176		8
Laborers	993	1003	1044		40
Others (Not classified above)	412	417	434		18
Total[2]	2458	2484	2585	1.0	102

[1]Includes net growth and replacement needs
[2]Totals may not equal sum of parts due to rounding

APPENDIX G

Projected Employment and Demand for Agricultural Products
Manufacturing and Processing Industries in Alabama
by Occupational Categories

Occupations	Projected Employment 1971	1972	1976	Percent Annual Change	Total[1] Annual Demand
Managers & Supervisors	661	671	710		31
Salesmen	457	463	490		20
Buyers	126	128	135		6
Stock Clerks	110	112	118		5
Maintenance Mechanics	346	352	372		17
Maintenance Men (Construction)	126	128	135		6
Electricians	31	32	34		2
Metalworkers (General)	16	16	17		-
Stationary Machine Operators	2268	2301	2435		104
Motorized Vehicle Operators	8566	8694	9201		394
Laborers	1386	1406	1488		63
Others (Not classified above)	1638	1662	1759		75
Total[2]	15,747	15,981	16,913	1.4	723

[1] Includes net growth and replacement needs
[2] Totals may not equal sum of parts due to rounding

APPENDIX H

Projected Employment and Demand for Agricultural Products
Sales and Services Businesses in Alabama by Occupational Categories

Occupations	Projected Employment 1971	1972	1976	Percent Annual Change	Total[1] Annual Demand
Managers & Supervisors	576	570	548		17
Salesmen	699	693	665		21
Buyers	119	118	113		4
Stock Clerks	276	273	263		8
Maintenance Mechanics	186	184	177		5
Maintenance Men (Construction)	57	57	54		2
Electricians	33	33	32		1
Metalworkers (General)	0	0	0		0
Stationary Machine Operators	542	537	516		17
Motorized Vehicle Operators	576	570	548		17
Laborers	1517	1503	1444		45
Others (Not classified above)	176	174	167		5
Total[2]	4757	4712	4527	-.95	140

[1]Includes net growth and replacement needs
[2]Totals may not equal sum of parts due to rounding

APPENDIX I

Frequency Distribution of Task Performance Areas for Workers in Agricultural Mechanics Sales and Service and Manufacturing and Processing Businesses in Alabama, 1970

Task Performance Areas	Percent of Total Task Performed by Business Activity Classification	
	Retail, Wholesale and Service	Manufacturing* and Processing
Read schematics.	1.6	--
Operate or maintain power tools.	5.1	--
Electric or gas welding.	3.0	--
Basic electrical work, AC or DC.	1.7	--
Clean, service, or repair electric motors.	.5	--
Use transit or other survey equipment.	0.0	--
Construct farm ponds or terraces.	.3	--
General maintenance and tune-up of gasoline engines.	5.5	--
General maintenance of diesel engines.	3.6	--
General maintenance and repair of butane fueled equipment.	1.8	--
Service new equipment or do warranty service.	4.7	--
Overhaul gasoline engines.	4.3	--
Overhaul diesel engines.	3.4	--
Troubleshoot or repair electrical systems.	3.0	--
Repair radiators or other cooling system parts.	2.0	--
Repair brake systems.	4.2	--
Adjust or repair fuel and carburetion systems.	3.8	--
Service or repair hydraulic systems.	3.5	--
Service or repair transmission and drive trains.	3.7	--
Assemble equipment.	4.0	--

(continued)

Appendix I (continued)

Task Performance Areas	Percent of Total Task Performed by Business Activity Classification	
	Retail, Wholesale and Service	Manufacturing and Processing
Adjust, maintain, or repair tillage, planing, spraying, or fertilizing equipment.	3.8	--
Adjust, maintain, or repair crop harvesting machinery.	3.8	--
Install, adjust, service, or repair stationary or semi-stationary farm equipment.	3.2	--
Adjust, service, or repair heavy machinery.	2.4	--
Calibrate granular applicating or spray equipment.	1.2	--
Calibrate seeding or fertilizing equipment.	1.6	--
Use, maintain or repair power chain saws.	.6	--
Service or repair one cylinder gasoline engines.	2.4	--
Assemble, adjust, maintain, or repair air conditioning equipment.	.2	--
Assemble, adjust, install, maintain, or repair power steering, power brake or other power accessory equipment.	3.1	--
Install glass.	.4	--
Body or sheetmetal work.	.4	--
Paint equipment.	1.9	--
Do machine shop activities.	.8	--
Select fuels and lubricants.	.9	--
Estimate field size to determine acreage.	.4	
Plan shop and job activities.	1.3	--
Make work or parts estimates.	1.6	--
Design or construct special equipment.	.4	--
Order or distribute parts or other stock.	2.5	--

(continued)

Appendix I (continued)

Task Performance Areas	Percent of Total Task Performed by Business Activity Classification	
	Retail, Wholesale and Service	Manufacturing and Processing
Keep books and use basic accounting procedures.	1.7	--
Merchandise new or used equipment and supplies.	2.8	--
Establish credit for customers.	1.6	--
Farm custom work.	.4	--

*No manufacturing and processing returns

APPENDIX J

Frequency Distribution of Task Performance Areas for Workers in Forestry Sales and Service and Manufacturing and Processing Businesses in Alabama, 1970

Task Performance Areas	Percent of Total Task Performed by Business Activity Classification	
	Retail, Wholesale and Service	Manufacturing and Processing
Interpret market trend and outlook information.	2.2	1.2
Prepare seeding areas, plant seeds and seedlings, and perform other reforestation activities.	1.2	1.8
Produce forest tree seedlings.	0.0	.1
Perform fire protection activities.	1.1	1.1
Cruise and measure pulp and timber stands.	3.2	1.4
Perform selecting, cutting, pruning, and undesirable tree control activities.	9.4	1.1
Control insects and diseases in forest trees.	.9	.2
Harvest pulpwood.	15.2	1.1
Harvest sawtimber.	3.9	4.0
Harvest wood products other than pulpwood and sawtimber.	0.0	.2
Perform sawmill or planner mill processing operations.	5.4	25.4
Perform wood preservation operations.	.4	3.2
Perform wood product processing operations other than lumber and wood preservation.	2.8	19.9
Market forest products.	2.4	1.6
Plan and schedule processing operations.	1.2	2.3
Supervise personnel and coordinate their work.	6.3	5.9
Maintain mechanical equipment.	3.8	3.7
Keep physical equipment inventory and maintain a tool room or work area.	1.7	1.7
Read and interpret trade journals.	2.4	1.3

(continued)

Appendix J (continued)

Task Performance Areas	Percent of Total Task Performed by Business Activity Classification	
	Retail, Wholesale and Service	Manufacturing and Processing
Maintain adequate inventories for regular business and seasonal demands.	2.8	1.6
Receive and mark wood products and other merchandise.	2.3	1.8
Assist customers in arranging for credit.	1.9	.7
Measure and weigh wood products and other merchandise.	2.4	2.1
Write sales slips.	3.1	2.2
Use calculator or adding machine.	7.6	4.6
Use cash register.	2.9	.2
Make use of the telephone and mail in completing business transactions.	6.6	4.1
Keep a mileage record and log of deliveries.	1.1	1.0
Keep records of sales, inventories, credit accounts, and deliveries.	3.8	2.6
Provide personnel training.	.9	1.7
Perform game management activities.	.6	..3
Perform forest recreation activities other than game management.	.5	0.0

APPENDIX K

Frequency Distribution of Task Performance Areas for Workers in Agricultural Supplies, Sales and Service and Manufacturing and Processing Businesses in Alabama, 1970

Task Performance Areas	Percent of Total Task Performed by Business Activity Classification	
	Retail, Wholesale and Service	Manufacturing and Processing
Interpret market trends and outlook information.	2.3	1.5
Understand and interpret regulations regarding product tagging or labeling.	2.4	3.5
Understand and interpret formulas and procedures for mixing products.	1.9	7.1
Plan and schedule processing operations.	1.5	2.1
Supervise personnel and coordinate their work.	1.6	7.9
Direct the mixing of ingredients in product production.	1.3	4.1
Adjust machinery to meet product processing specifications.	1.4	11.6
Maintain mechanical equipment.	3.3	6.1
Perform operations such as grinding, mixing, and packaging products.	2.2	11.2
Sample and test products for conformity to specifications.	.8	1.8
Keep physical equipment inventory and maintain a tool room or work area.	2.5	.7
Read and interpret trade journals.	2.2	1.2
Design and develop promotional sales activities.	1.4	.3
Operation of incubators.	0.0	0.0
Maintain adequate inventories for regular business and seasonal demands.	2.8	2.3
Receive and mark merchandise.	3.0	1.0
Assist customers in arranging for credit.	4.4	.3

(continued)

Appendix K (continued)

Task Performance Areas	Percent of Total Task Performed by Business Activity Classification	
	Retail, Wholesale and Service	Manufacturing and Processing
Measure and weigh merchandise.	4.4	3.8
Write sales slips.	6.0	2.6
Use calculator or adding machine.	5.8	8.4
Use cash register.	4.9	1.5
Make use of telephone and mail in completing business transactions.	6.2	4.5
Keep a mileage record and log of deliveries.	3.2	.7
Keep records of sales, inventories, credit accounts, and deliveries.	3.6	3.5
Provide personnel training.	2.0	6.4
Advise customers on proper soil preparation, planting, and tillage practices.	3.1	.8
Advise customers on the quality and quantity of seed to purchase.	3.4	1.3
Assist customers on problems associated with plant diseases, weed, and insect control.	3.1	1.3
Advise customers on harvesting field grain, and forage crops.	2.7	1.0
Advise customers on selection, proper uses (limits and tolerances) of pesticides and other agricultural chemicals.	3.4	1.3
Advise customers on selecting and securing quality poultry and livestock.	1.2	0.0
Advise customers on feed and feedstuff needs for animals.	2.4	0.0
Advise customers on proper animal sanitation and disease control practices.	1.6	0.0
Advise customers on use of records in feeding, breeding and other production efficiencies.	1.8	0.0

(continued)

Appendix K (continued)

Task Performance Areas	Percent of Total Task Performed by Business Activity Classification	
	Retail, Wholesale and Service	Manufacturing and Processing
Advise customers on animal marketing problems and practices.	1.3	0.0
Advise customers on selecting building and hardware supplies.	1.3	0.0
Advise customers on tool selection, care and maintenance.	1.2	0.0
Advise customers on the selection of petroleum and other automotive supplies.	.8	0.0
Advise customers on fence construction and maintenance.	.8	0.0
Assist customers with landscape designing.	.1	0.0
Advise customers on the selection, planting, and care of fruit trees and ornamental plants.	.9	0.0

APPENDIX L

Frequency Distribution of Task Performance Areas for Workers in Horticultural Sales and Service and Manufacturing and Processing Businesses in Alabama, 1970

Task Performance Areas	Percent of Total Task Performed by Business Activity Classification	
	Retail, Wholesale and Service	Manufacturing and Processing
Interpret market trends and outlook information.	2.5	2.6
Understand and interpret regulations regarding product tagging or labeling.	5.2	2.6
Supervise personnel and coordinate their work.	4.6	6.5
Keep physical equipment inventory and maintain a tool room or work area.	3.6	1.3
Read and interpret trade journals.	3.2	2.6
Make use of the telephone and mail in completing business transactions.	7.2	6.5
Keep a mileage record and log of deliveries.	2.5	1.3
Keep records of sales, inventories, credit accounts, and deliveries.	3.6	9.1
Provide personnel training.	1.9	2.6
Identify plants.	7.2	1.3
Identify and control disease and insects of plants.	2.9	2.6
Recognize and correct plant food deficiencies.	2.7	1.3
Prepare soils and mulches for growing plants.	4.1	19.5
Use weed and brush killers.	2.5	1.3
Prune, transplant, brace, and treat wounds of plants.	5.5	1.3
Establish and care for lawns and turf.	3.6	18.2
Develop landscaping plans.	.9	0.0
Prepare floral designs.	7.3	6.5
Install water systems.	1.2	1.3

(continued)

Appendix L (continued)

Task Performance Areas	Percent of Total Task Performed by Business Activity Classification	
	Retail, Wholesale and Service	Manufacturing and Processing
Perform irrigation practices. .	1.5	0.0
Propogate plants.	5.1	1.3
Transplant and grow plants for commercial market.	5.6	2.6
Transplant and grow floral crops for commercial market.	1.8	0.0
Perform building construction skills.	1.8	3.9
Operate, repair and maintain nursery and greenhouse equipment.	3.5	1.3
Operate and maintain large equipment such as tractors, bull-dozers, or field irrigation equipment.	1.7	0.0
Merchandise plants and supplies.	6.6	2.6

APPENDIX M

Frequency Distribution of Task Performance Areas for Workers in Agricultural Products, Sales and Service and Manufacturing and Processing Businesses in Alabama, 1970

Task Performance Areas	Percent of Total Task Performed by Business Activity Classification	
	Retail, Wholesale and Service	Manufacturing and Processing
Interpret market trends and outlook information.	2.6	1.3
Sell products produced or handled by this business.	6.2	5.8
Buy specified kinds, qualities and grades of materials or products used or handled by this business.	3.7	6.6
Plan and schedule processing operations.	1.3	2.1
Supervise personnel and coordinate their work.	3.6	5.9
Direct the mixing of ingredients in product production.	2.7	1.6
Adjust machinery to meet product processing specifications.	2.7	4.7
Maintain mechanical equipment.	3.7	5.2
Perform processing operations such as grinding, mixing, and packaging products, etc.	6.3	23.1
Sample and test products for conformity to specifications.	2.0	1.7
Keep physical equipment inventory and maintain a tool room or work area.	2.4	2.0
Read and interpret trade journals.	2.0	1.8
Design and develop promotional sales activities.	1.8	.9
Maintain adequate inventories for regular business and seasonal demands.	3.1	1.8
Transport products produced or handled by this business.	5.3	6.0
Perform warehousing or other storage activities.	7.7	3.6

(continued)

Appendix M (continued)

Task Performance Areas	Percent of Total Task Performed by Business Activity Classification	
	Retail, Wholesale and Service	Manufacturing and Processing
Receive and mark merchandise.	4.7	2.3
Assist customers in arranging for credit.	2.4	.9
Measure and weigh merchandise.	6.0	3.6
Write sales slips.	6.8	3.1
Use calculator or adding machine.	6.0	4.7
Use cash register.	4.4	.9
Make use of the telephone and mail in completing business transactions.	6.0	4.6
Keep a mileage record and log of deliveries.	1.6	1.4
Keep records of sales, inventories, credit accounts, and deliveries.	3.2	3.2
Provide personnel training.	1.8	1.2

APPENDIX N

Frequency Distribution of Task Performance Areas for Workers in Stockyard Sales and Service and Manufacturing and Processing Businesses in Alabama, 1970

Task Performance Areas	Percent of Total Task Performed by Business Activity Classification	
	Retail, Wholesale and Service	Manufacturing and Processing
Interpret market trends and outlook information.	4.9	--
Understand and interpret state and federal regulations regarding livestock sales.	6.0	--
Supervise personnel and coordinate their work.	3.3	--
Keep physical equipment inventory and maintain a tool room or work area.	3.0	--
Read and interpret trade journals.	4.6	--
Design and develop sales activities.	3.0	--
Receive and tag livestock for sale.	3.8	--
Weigh livestock.	4.3	15.4
Write sales slips.	4.3	15.4
Use calculator or adding machine.	7.4	7.7
Use cash register.	1.1	7.7
Make use of the telephone and mail in completing business transactions.	7.4	7.7
Keep a mileage record and log of deliveries.	1.1	--
Keep records of livestock sales, inventories, credit accounts, and deliveries.	3.8	7.7
Provide personnel training.	1.4	--
Provide general livestock care.	5.7	--
Handle livestock during sales.	29.4	--
Feed livestock.	4.9	7.7
Measure, mix or grind feed for livestock.	.3	30.7
Clip hair and hoofs of livestock.	.3	--

APPENDIX O

Basic Survey Instruments for One-Half
of Surveyed Businesses

SURVEY OF EMPLOYMENT OPPORTUNITIES AND JOB PERFORMANCE AREAS
IN ALABAMA BUSINESSES

Part I - Employment Opportunities

1. What is the county number on the automobile tag for the county in which this business is located?
   County Number_____

2. Which of the following categories most appropriately describes the function of this business? (check only one).
   A. ☐ Retail sales
   B. ☐ Wholesale distributor
   C. ☐ Manufacturing or processing
   D. ☐ Customer service operations

3. Select from the listing on the enclosed yellow sheet the category (only one) which most appropriately describes the activity of this business and enter the item number in this block.
   Item Number

4. Is this business a branch office or plant? (check one).
   ☐ yes
   ☐ no

   If yes, and the home office is in Alabama, please enter county name in which the home office is located.
   County Name_____

INCLUDE IN THE ANSWERS BELOW ONLY THOSE PERSONS EMPLOYED AT THIS LOCATION.
IF ANSWER IS ZERO, PLEASE ENTER ZERO IN THE BLANKS PROVIDED.

5. Have you ever conducted formal training classes for your employees: (Not on-the-job training or a public school supported program). Check one.
   ☐ yes
   ☐ no

6. Do you currently have employees enrolled in formal classes being financed by your business? If so, how many persons?
   Number of persons_____

(continued)

(continued)

SEASONAL WORKERS ARE WORKERS EMPLOYED DURING PEAK BUSINESS PERIODS (PLANTING, SUMMER, HARVEST, ETC.). DOES NOT INCLUDE YEAR-ROUND PART-TIME WORKERS. SEPARATE SEASONAL AND YEAR-ROUND PART-TIME WORKERS IN THE ANSWERS BELOW.

7. How many workers are presently employed in this business?
   Number full-time _____
   Number part-time _____
   Number seasonal _____
   Total number _____

8. How many seasonal workers does this business average hiring each year?
   Number of seasonal workers _____

9. Give the number of employees you hired to fill new jobs during the last twelve months. _____
   Number full-time _____
   Number part-time _____
   Number seasonal _____

10. Give the number of employees needed to fill present vacancies.
    Number full-time _____
    Number part-time _____
    Number seasonal _____

11. Do you plan to reduce the number of employees now in this business?
    Number full-time _____
    Number part-time _____
    Number seasonal _____

12. Estimate the number of employees you plan to add in this business in each of the following years:

	1972	1973	1976
Number full-time	_____	_____	_____
Number part-time	_____	_____	_____
Number seasonal	_____	_____	_____

13. Indicate the number of employees who left your employment during the past twelve months for the following reasons. (Do not count seasonal workers).
    Number
    _____ a. Left to accept a similar job in a similar business.
    _____ b. Total number who left (Include those above and others who left.)

(continued)

(continued)

NOW, CONSIDER YOUR EMPLOYEES IN LIGHT OF WHAT THEY DO MOST OF THE WORK DAY.

CAUTION

DO NOT DOUBLE COUNT EMPLOYEES WHEN ENTERING NUMBERS BELOW. WE REALIZE THAT IN SOME BUSINESSES, PARTICULARLY IN SMALLER FIRMS, IT WILL BE DIFFICULT TO COUNT A PERSON IN ONLY ONE OF THE PERFORMANCE AREAS LISTED BELOW. HOWEVER, ASSIGN EACH EMPLOYEE TO THE ONE MOST APPROPRIATE AREA.

14. Of the total number (Item 7) presently employed, how many spend most of their work day:

	Enter Number Here
Performing managerial or supervisory activities.	
As a salesman selling products produced or handled by this business.	
As buyers who buy specified kinds, qualities and grades of materials or products used or handled by this business.	
As stock clerks who maintain stock inventory either in a warehouse or customer service area.	
Performing maintenance and repairs on machines used, sold or serviced by this business.	
Performing construction or maintenance skills for the business, except electrical skills.	
Performing electrical wiring installation and electrical maintenance skills for this business.	
Performing metalworking skills for the business.	
Operating stationary processing machines used in or by the business.	
Operating a specialized motorized vehicle (other than a passenger car or pick-up truck.)	
Performing common labor skills.	

15. All other personnel not entered in one of categories listed above.

TOTAL NUMBER (SHOULD EQUAL THE TOTAL IN ITEM 7 ABOVE)	

APPENDIX P

SURVEY OF EMPLOYMENT OPPORTUNITIES AND JOB PERFORMANCE AREAS
IN ALABAMA BUSINESSES

Part I - Employment Opportunities

1. What is the county number on the automobile tag for the county in which this business is located?
   County Number _____

2. Which of the following categories most appropriately describes the function of this business? (check only one).
   A. ☐ Retail sales
   B. ☐ Wholesale distributor
   C. ☐ Manufacturing or processing
   D. ☐ Customer service operations

3. Select from the listing on the enclosed yellow sheet the category (only one) which most appropriately describes the activity of this business and enter the item number in this block.
   Item Number

4. Is this business a branch office or plant? (check one.)
   ☐ yes
   ☐ no

   If yes, and the home office is in Alabama, please enter county name in which the home office is located.
   County Name _____

INCLUDE IN THE ANSWERS BELOW ONLY THOSE PERSONS EMPLOYED AT THIS LOCATION.
IF ANSWER IS ZERO, PLEASE ENTER ZERO IN THE BLANKS PROVIDED.

5. Have you ever conducted formal training classes for your employees: (Not on-the-job training or a public school supported program). Check one.
   ☐ yes
   ☐ no

6. Do you currently have employees enrolled in formal classes being financed by your business? If so, how many persons?
   Number of persons _____

(continued)

(continued)

SEASONAL WORKERS ARE WORKERS EMPLOYED DURING PEAK BUSINESS PERIODS (PLANTING, SUMMER, HARVEST, ETC.). DOES NOT INCLUDE YEAR-ROUND PART-TIME WORKERS. SEPARATE SEASONAL AND YEAR-ROUND PART-TIME WORKERS IN THE ANSWERS BELOW.

7. How many workers are presently employed in this business?
   Number full-time _____
   Number part-time _____
   Number seasonal _____
   Total number _____

8. How many seasonal workers does this business average hiring each year?
   Number of seasonal workers _____

9. Give the number of employees you hired to fill new jobs during the last twelve months. _____
   Number full-time _____
   Number part-time _____
   Number seasonal _____

10. Give the number of employees needed to fill present vacancies.
    Number full-time _____
    Number part-time _____
    Number seasonal _____

11. Do you plan to reduce the number of employees now in this business?
    Number full-time _____
    Number part-time _____
    Number seasonal _____

12. Estimate the number of employees you plan to add in this business in each of the following years:

	1972	1973	1976
Number full-time	_____	_____	_____
Number part-time	_____	_____	_____
Number seasonal	_____	_____	_____

13. Indicate the number of employees who left your employment during the past twelve months for the following reasons. (Do not count seasonal workers.)
    Number
    _____ a. Left to accept a similar job in a similar business.
    _____ b. Total number who left (Include those above and others who left.)

(continued)

	Enter No. Here
Maintain adequate inventories for regular business and seasonal demands.	
Receive and mark merchandise.	
Assist customers in arranging for credit.	
Measure and weigh merchandise.	
Write sales slips.	
Use calculator or adding machine.	
Use cash register.	
Make use of telephone and mail in completing business transactions.	
Keep a mileage record and log of deliveries.	
Keep records of sales, inventories, credit accounts, and deliveries.	
Provide personnel training.	
Advise customers on proper soil preparation, planting, and tillage practices.	
Advise customers on the quality and quantity of seed to purchase.	
Assist customers on problems associated with plant diseases, weed, and insect control.	
Advise customers on harvesting field, grain, and forage crops.	

(continued)

(continued)

	Enter No. Here
Advise customers on selection, proper uses (limits and tolerances) of pesticides and other agricultural chemicals.	
Advise customers on selecting and securing quality poultry and livestock.	
Advise customers on feed and feedstuff needs for animals.	
Advise customers on proper animal sanitation and disease control practices.	
Advise customers on use of records in feeding, breeding and other production efficiencies.	
Advise customers on animal marketing problems and practices.	
Advise customers on selecting building and hardware supplies.	
Advise customers on tool selection, care and maintenance.	
Advise customers on the selection of petroleum and other automotive supplies.	
Advise customers on fence construction and maintenance.	
Assist customers with landscape designing.	
Advise customers on the selection, planting, and care of fruit trees and ornamental plants.	

APPENDIX S

Specialized Survey Instrument for Stockyards

14. How many of your employees do this:
YOU MAY COUNT EACH EMPLOYEE MORE THAN ONCE.

	Enter No. Here
Interpret market trends and outlook information.	
Understand and interpret state and federal regulations regarding livestock sales.	
Supervise personnel and coordinate their work.	
Keep physical equipment inventory and maintain a tool room or work area.	
Read and interpret trade journals.	
Design and develop sales activities.	
Receive and tag livestock for sale.	
Weigh livestock.	
Write sales slips.	
Use calculator or adding machine.	
Use cash register.	
Make use of the telephone and mail in completing business transactions.	
Keep a mileage record and log of deliveries.	
Keep records of livestock sales, inventories, credit accounts, & deliveries.	

(continued)

(continued)

	Enter No. Here
Provide personnel training.	
Provide general livestock care.	
Handle livestock during sales.	
Feed livestock.	
Measure, mix or grind feed for livestock.	
Clip hair and hoofs of livestock.	

14. How many of your employees do this.
YOU MAY COUNT EACH EMPLOYEE MORE THAN ONCE.

	Enter No. Here
Interpret market trends and outlook information.	
Understand and interpret regulations regarding product tagging or labeling.	
Supervise personnel and coordinate their work.	
Keep physical equipment inventory and maintain a tool room or work area.	
Read and interpret trade journals.	
Make use of the telephone and mail in completing business transactions.	
Keep a mileage record and log of deliveries.	
Keep records of sales, inventories, credit accounts, and deliveries.	
Provide personnel training.	
Identify plants.	
Identify and control disease and insects of plants.	
Recognize and correct plant food deficiencies.	
Prepare soils and mulches for growing plants.	
Use weed and brush killers.	

(continued)

(continued)

	Enter No. Here
Prune, transplant, brace, and treat wounds of plants.	
Establish and care for lawns and turf.	
Develop landscaping plans.	
Prepare floral designs.	
Install water systems.	
Perform irrigation practices.	
Propogate plants.	
Transplant and grow plants for commercial market.	
Transplant and grow floral crops for commercial market.	
Perform building construction skills.	
Operate, repair and maintain nursery and greenhouse equipment.	
Operate and maintain large equipment such as tractors, bulldozers, or field irrigation equipment.	
Merchandise plants and supplies.	

Specialized Survey Instrument for Forestry Businesses

14. How many of your employees do this:
YOU MAY COUNT EACH EMPLOYEE MORE THAN ONCE.

	Enter No. Here
Interpret market trends and outlook information.	
Prepare seeding areas, plant seeds and seedlings, and perform other reforestation activities.	
Produce forest tree seedlings.	
Perform fire protection activities.	
Cruise and measure pulp and timber stands.	
Perform selecting, cutting, pruning, and undesirable tree control activities.	
Control insects and diseases in forest trees.	
Harvest pulpwood.	
Harvest sawtimber.	
Harvest wood products other than pulpwood and sawtimber.	
Perform sawmill or planner mill processing operations.	
Perform wood preservation operations.	
Perform wood product processing operations other than lumber and wood preservation.	
Market forest products.	
Plan and schedule processing operations.	

(continued)

(continued)

	Enter No. Here
Supervise personnel and coordinate their work.	
Maintain mechanical equipment.	
Keep physical equipment inventory and maintain a tool room or work area.	
Read and interpret trade journals.	
Maintain adequate inventories for regular business and seasonal demands.	
Receive and mark wood products and other merchandise.	
Assist customers in arranging for credit.	
Measure and weigh wood products and other merchandise.	
Write sales slips.	
Use calculator or adding machine.	
Use cash register.	
Make use of the telephone and mail in completing business transactions.	
Keep a mileage record and log of deliveries.	
Keep records of sales, inventories, credit accounts, and deliveries.	
Provide personnel training.	
Perform game management activities.	
Perform forest recreation activities other than game management.	

Specialized Survey Instrument for Agricultural Machinery Businesses

14. How many of your employees do this:
YOU MAY COUNT EACH EMPLOYEE MORE THAN ONCE.

	Enter No. Here
Read schematics.	
Operate or maintain power tools.	
Electric or gas welding.	
Basic electrical work, AC or DC.	
Clean, service, or repair electric motors.	
Use transit or other survey equipment.	
Construct farm ponds or terraces.	
General maintenance and tune-up of gasoline engines.	
General maintenance of diesel engines.	
General maintenance and repair of butane fueled equipment.	
Service new equipment or do warranty service.	
Overhaul gasoline engines.	
Overhaul diesel engines.	
Troubleshoot or repair electrical systems.	
Repair radiators or other cooling system parts.	

(continued)

(continued)

	Enter No. Here
Repair brake systems.	
Adjust or repair fuel and carburation systems.	
Service or repair hydraulic systems.	
Service or repair transmission and drive trains.	
Assemble equipment.	
Adjust, maintain, or repair tillage, planting, spraying, or fertilizing equipment.	
Adjust, maintain, or repair crop harvesting machinery.	
Install, adjust, service, or repair stationary or semi-stationary farm equipment.	
Adjust, service, or repair heavy machinery.	
Calibrate granular applicating or spray equipment.	
Calibrate seeding or fertilizing equipment.	
Use, maintain or repair power chain saws.	
Service or repair one cylinder gasoline engines.	
Assemble, adjust, maintain, or repair air conditioning equipment.	
Assemble, adjust, install, maintain, or repair power steering, power brake or other power accessory equipment.	

(continued)

(continued)

	Enter No. Here
Install glass.	
Body or sheetmetal work.	
Paint equipment.	
Do machine shop activities.	
Select fuels and lubricants.	
Estimate field size to determine acreage.	
Plan shop and job activities.	
Make work or parts estimates.	
Design or construct special equipment.	
Order or distribute parts or other stock.	
Keep books and use basic accounting procedures.	
Merchandise new or used equipment and supplies.	
Establish credit for customers.	
Farm custom work.	

Specialized Survey Instrument for Agricultural Products Businesses

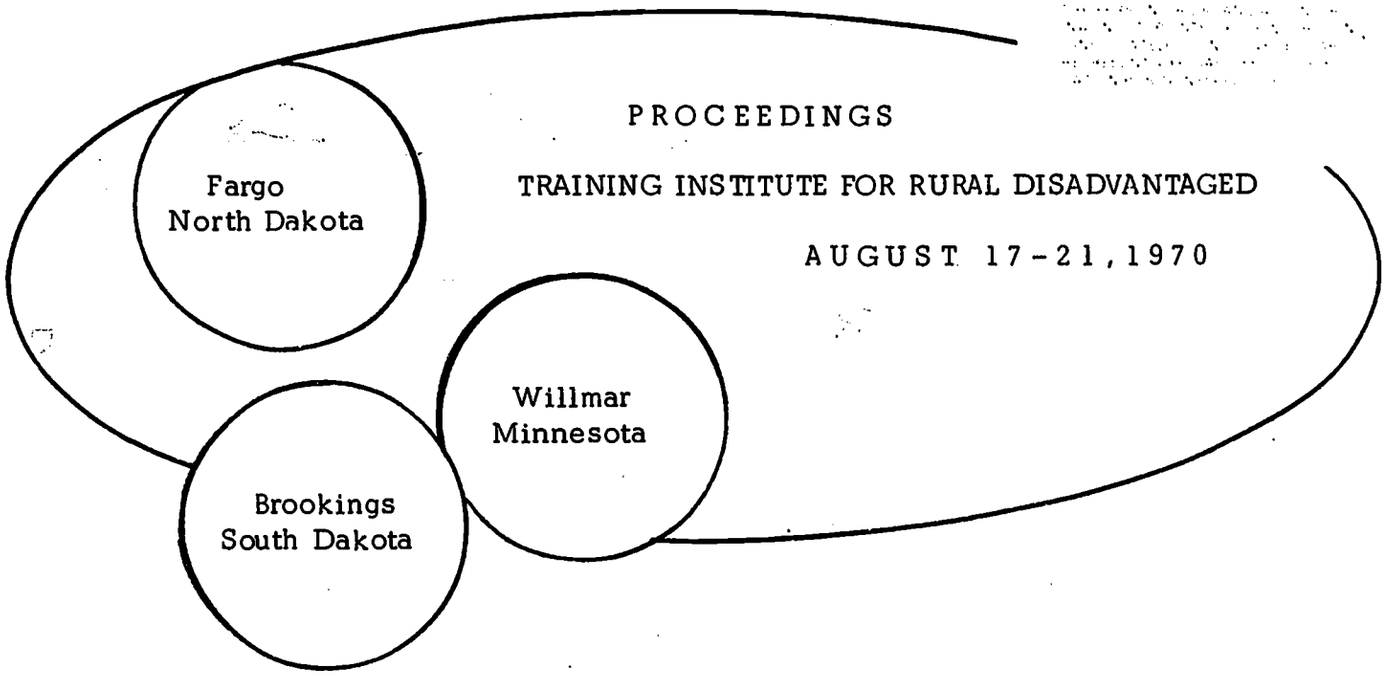
14. How many of your employees do this:
YOU MAY COUNT EACH EMPLOYEE MORE THAN ONCE:

	Enter No. Here
Interpret market trends and outlook information.	
Sell products produced or handled by this business.	
Buy specified kinds, qualities and grades of materials or products used or handled by this business.	
Plan and schedule processing operations.	
Supervise personnel and coordinate their work.	
Direct the mixing of ingredients in product production.	
Adjust machinery to meet product processing specifications.	
Maintain mechanical equipment.	
Perform processing operations such as grinding, mixing and packaging products, etc.	
Sample and test products for conformity to specifications.	
Keep physical equipment inventory and maintain a tool room or work area.	
Read and interpret trade journals.	
Maintain adequate inventories for regular business and seasonal demands.	

(continued)

(continued)

	Enter No. Here
Transport products produced or handled by this business.	
Perform warehousing or other storage activities.	
Receive and mark merchandise.	
Assist customers in arranging for credit.	
Measure and weigh merchandise.	
Write sales slips.	
Use calculator or adding machine.	
Use cash register.	
Make use of the telephone and mail in completing business transactions.	
Keep a mileage record and log of deliveries.	
Keep records of sales, inventories, credit accounts, and deliveries.	
Provide personnel training.	



PROCEEDINGS

TRAINING INSTITUTE FOR RURAL DISADVANTAGED

AUGUST 17-21, 1970

Sponsored by
The State Boards for Vocational Education

in

Minnesota, North Dakota and South Dakota

and

University of Minnesota,
North Dakota State University,
South Dakota State University.

In Cooperation With

The Bureau of Educational Personnel Development
U. S. Office of Education, under the
Education Professions Development Act

Project Director, DR. DONALD PRIEBE

VT014965

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Project Director

Dr. Donald W. Priebe
Professor and Chairman
Department of Agricultural Education
North Dakota State University
Fargo, North Dakota

State Institute Directors

Mr. Shubel D. Owen
Department of Agricultural Education
North Dakota State University
Fargo, North Dakota

Dr. Hilding Gadda
Department of Agricultural Education
South Dakota State University
Brookings, South Dakota

Mr. Hal Birkland
State Department of Education
Centennial Office Building
St. Paul, Minnesota

Cooperating Agencies

Bureau of Personnel Development, United States Office of Education
North Dakota State Board for Vocational Education, Bismarck, N.D.
Minnesota Division of Vocational-Technical Education, St. Paul, Minn.
South Dakota Division of Vocational-Technical Education, Pierre, S.D.

and

University of Minnesota, St. Paul Campus, St. Paul, Minn.
North Dakota State University, Fargo, N.D.
South Dakota State University, Brookings, S.D.

STAFF

Dr. Max Amberson
Montana State University

Mr. Odell Barduson
Minnesota State Department of Education

Dr. George Copa
University of Minnesota

Dr. R. Paul Marvin
University of Minnesota

Mr. Charles F. Nichols, Sr.
Minneapolis Area Vocational-Technical School and
Member National Advisory Council for Vocational Education

Dr. Dean Palmer
Montana State University

Dr. Edgar Persons
University of Minnesota

Dr. Charles Rogers
North Carolina State University

Dr. Gary Leske
South Dakota State University

STATE STAFF MEMBERS

The following State Vocational Education staff members also assisted or participated in one of the state institute sessions.

MINNESOTA

Mr. Hal Birkland
Coordinator of Special Needs

SOUTH DAKOTA

Mr. E. B. Oleson
State Director of Vocational Education

Mr. E. W. Gustafson
State Supervisor of Agricultural Education

Mr. Melvin Beemer
State Supervisor of Distributive Education

Mr. Roy Ziegler
State Supervisor of Trade & Industrial Education and
Assistant State Director

NORTH DAKOTA

Mr. Carrol Burchinal
State Director of Vocational Education

Mr. Larry Selland
Assistant State Director of Vocational Education

Mr. Robert Lamp
State Exemplary Project Staff

Mr. Harry Weisenberger
State Exemplary Project Staff

PARTICIPANTS

Brookings, South Dakota Institute

Mrs. Melba E. Byrkeland
912 W. 15th
Yankton, SD 57078

Mr. Thomas J. Dagel
Box 387
Lake Preston, SD 57249

Mr. E. R. Dobberstein
Baltic, SD 57003

Mr. Laurence Gebur
DeSmet, SD 57231

Mr. Clarence R. Hall
55 10th Ave. NW
Watertown, SD 57201

Mr. Stanley A. Halla
1402 Greenbriar St.
Rapid City, SD 57701

Mrs. Patricia Holmquist
Broadacre Trailer Court
Brookings, SD 57006

Mrs. LaVonne Kurtz
Hawrysh Apt. 2
Brookings, SD 57006

Mr. Jerome Kleinsasser
1011 Circle Drive
Brookings, SD 57006

Mrs. Jeri Kurtz
Rt. 1, Box 186
Northside Trl Ct #11
Volga, SD 57071

Miss Arline Miles
413 5th St. SE
Watertown, SD 57201

Mr. Delmer C. Miller
Elkton, SD 57026

Mr. Larry J. Norton
Mellette, SD 57461

Miss Dorothy Petersen
Box 382
Avon, SD 57315

Mr. Don Reichert
Geddes, SD 57342

Mr. Duane R. Serlet
1045 Circle Drive
Brookings, SD 57006

Mr. Donald Shippy
Rt. 2, Box 88
Canby, MN 56220

Mrs. Frances Smith
Box 196
Alpena, SD 57312

Mr. Richard L. Smith
Box 269
Fort Yates, ND 58538

Mr. Robert Stewart
404 12th Avenue
Brookings, SD 57006

Mrs. Hazel Tonseth
110 5th St.
Dell Rapids, SD
57022

Mr. John Wangberg
Box 415
Willow Lake, SD
57278

Willmar, Minnesota Institute

Mr. Richard W. Amendt
120 Hilltop Avenue
Jackson, MN 56143

Mr. Leo A. Ardolf
Rt. 2, Box 18
Maple Lake, MN 55358

Mr. Charles Asman
124 Hilltop Avenue
Jackson, MN 56143

Mr. Jan H. Bents
Stewart, MN 55385

Mr. Willis W. Black
1106 W. 3rd St.
Willmar, MN 56201

Mr. Donald Brandt
1209 SW 18th St.
Willmar, MN 56201

Mr. Jon Griepentrog
RR #1, Box 106A1
Willmar, MN 56201

Mr. William Guelker
405 5th St. SE
Staples, MN 56479

Mr. Robert G. Halvorson
1109 Quincy Avenue
Willmar, MN 56201

Mr. Delbert Hodgkins
118 Kreig St.
N. Mankato, MN 56001

Mr. Eugene Hundeby
RR #1
Zumbrota, MN 55992

Bernardine Huschle
525 5th Ave. N.
Cold Spring, MN 56321

Mr. Robert Jacobson
1443 Grace Avenue
Willmar, MN 56201

Mr. Wayne Johansen
2345 University Ave.
St. Paul, MN 55114

Mrs. Bette Johnson
213 W. Minn. Ave.
Willmar, MN 56201

Willmar, Minnesota Institute, con't

Mr. Howard Johnson
578 E. Lane St.
St. Charles, MN 55972

Mr. Gary C. Jorgensen
300 N. 17th St.
Willmar, MN 56201

Mr. Thomas O. Kajer
919 N. 5th St.
Staples, MN 56479

Mrs. Dona Koeberl
Rt. 1
Atwater, MN 56209

Mr. Robert J. Krocak
940 Goebel Circle
Hutchinson, MN 55350

Mr. George LaPatka
2333 W. Gorton Ave.
Willmar, MN 56201

Mr. Dennis Lehto
Evansville, MN 56326

Mr. John J. Murray
SW Minn. Voc. School
Jackson, MN 56143

Mrs. Jessie M. Nelson
Box 238
New London, MN 56273

Mrs. Maureen Nelson
303 E. James St.
Paynesville, MN 56362

Mr. Edward O'Connell
Technical H.S. Bldg.
St. Cloud, MN 56301

Mr. Horace J. Olson
134 Circle Drive
Jackson, MN 56143

Mr. Rodger E. Palmer
4032 Robinson St.
Duluth, MN 55804

Mr. Mark Peterson
308 S. 6th St.
Virginia, MN 55792

Mr. Norbert Phillips
705 3rd Ave. NW
Plainview, MN 55964

Mr. J. V. Raine
1404 6th St. NW
Austin, MN 55912

Mr. Donald Rinke
800 Johanna
Willmar, MN 56201

Mr. Eugene Stillwell
RR #1, Box 175A
Fergus Falls, MN 56537

Mr. Jimmy Terhune
700 E. 2nd St.
Willmar, MN 56201

Mr. John L. Thell
1319 Kandiyohi Ave.
Willmar, MN 56201

Mr. Clifford D. Vrieze
235 5th St. NW
Plainview, MN 55964

Mr. Donald B. Walker
719 Olmstead
Winona, MN 55987

Mr. Raymond M. White
2125 12th Ave. E.
Hibbing, MN 55746

Mr. John R. Ziegler
510 Madison N.
Pierre, SD 57501

Mr. John W. Zwiebel
Owatonna, Minn. 55060

Mr. Paul J. Callanan, Jr.
Foley, MN 56329

Mr. Leland Wilken
Box 11
Osakis, MN 56360

Fargo, North Dakota Institute

Miss Stella Aanrud
Box 698
Jamestown, ND 58401

Mr. Jack H. Adams
1015 4th St.
Devils Lake, ND 58301

Miss Dorothy Anderson
Leeds, ND 58346

Mr. Kenneth Anderson
Box 681
New Town, ND 58763

Mr. Maurice Anderson
Twin Valley, MN 56584

Mr. David Bakken
RR #1, Box 192
Barnesville, MN 56514

Mr. Roger Beaver
Box 25
Rolette, ND 58366

Miss Lucy Billy
Lisbon, ND 58054

Mr. Robert Block
822 2nd Ave. SE
Grand Rapids, MN 58744

Mr. J. A. Broton
Box 307
New England, ND 58647

Mr. Robert C. Carlson
Courthouse
Minot, ND 58701

Mr. Quentin Christman
RR #1, Box 126
Rugby, ND 58368

Fargo, North Dakota Institute, con't

Mrs. Margaret Cummings
Enderlin, ND 58027

Mrs. Thordis Danielson
431 2nd Ave. S.
New Rockford, ND 58356

Mr. Robert Dobrenski
315 Broadway
Detroit Lakes, MN 56501

Mr. Don Eklund
Box 688
Hettinger, ND 58639

Mr. Leonard Enander
Turtle Lake, ND 58575

Mrs. Audrey Erickson
Bowman, ND 58623

Mr. LeRoy P. Fettig
Box 144
Mandaree, ND 58757

Mr. Lester Fettig
New Town, ND 58763

Mrs. Milda Gulleson
Rutland, ND 58067

Mr. Lowell Gunderson
708 4th Ave. E.
Ada, MN 56510

Mr. Tom Hanson
Lisbon, ND 58054

Mr. Richard Hauck
McMahon Hall
5th St. N.
Wahpeton, ND 58075

Mr. A.C. Hendrickson
Rugby, ND 58368

Mr. Lawrence Hoffman
Wyndmere, ND 58081

Mr. Curtis Jensen
308 3rd St. N.E.
Garrison, ND 58540

Mr. Gerald K. Johnson
RR #3
Frazee, MN 56544

Mr. Duane Lemmon
Rt. 2, Box 46A
Detroit Lakes, MN
56501

Mr. Elwin Leverington
Rt. 2
Roseau, MN 56761

Mr. Dean McNelly
339 8th St. NW
Fosston, MN 56542

Mr. Donald Matter
RR #2, Box 81
Devils Lake, ND
58301

Mr. Ray Maxson
609 7th St. S.
Moorhead, MN 56560

Mr. Ken Melin
Park River, ND 58270

Mr. Martin L. Nier
Box 5
Fort Ripley, MN
56449

Mr. Gary H. Olson
305 11th St. N.
Wheaton, MN 55296

Mrs. Evelyn Piper
Minnewaukan, ND 58351

Mr. Verdine D. Rice
1301 E. Hillcourt
Williston, ND 58801

Mrs. Connie Robbins
Milnor, ND 58060

Mrs. Phyllis Rydell
Rosholt, SD 57260

Mr. Ivan J. Sand
1007 Riverwood
Little Falls, MN 56345

Mr. Glenn Schimke
Box 452
Hillsboro, ND 58045

Mr. Ed Sisler
824 N. Main
Thief River Falls, MN
56701

Mr. E. J. Shukle
Box 547
Red Lake Falls, MN
56750

Mr. Warren N. Skow
723 6th St.
Devils Lake, ND 58301

Mr. Merlin Skretvedt
Box 3
Ulen, MN 56585

Mrs. Beverly Slotten
2917 Edgewood Drive
Fargo, ND 58102

Mr. Donald Stevenson
1431 N. 7th St.
Wahpeton, ND 58075

Mrs. Dallas Sturlaugson
Minnewauken, ND 58351

Mr. Morris Thingstad
219 2nd St. W.
West Fargo, ND 58078

Mr. George Thomas
636 5th Ave. SW
Perham, MN 56573

Mr. Lyle Thorson
4711 Chestnut St.
Grand Forks, ND 58201

Mr. G. A. Tooley
Box 433
Lisbon, ND 58054

Fargo, North Dakota Institute, con't

Mr. Leo M. Waletich
8th Avenue East
Sisseton, SD 57262

Mr. Westley Wankel
Hillsboro, ND 58045

Miss Karen Botine
1419 21st Street
Apartment 1
Bismarck, ND 58501

Mrs. Merlin (Daphne) Skretvedt
Box 3
Ulen, MN 56585

INTRODUCTION

The Training Institute for Rural Disadvantaged was held during the week of August 17 - 21, 1970. Concurrent sessions were held in Willmar, Minnesota, Fargo, North Dakota, and Brookings, South Dakota. There were 119 participants in the sessions which were conducted by one central staff.

The planning committee met on June 18 and 19 to draft preliminary plans for the Institute. Planning committee members were: Dr. Gordon I. Swanson, University of Minnesota; Dr. R. Paul Marvin, University of Minnesota; Dr. Max Amberson, Montana State University; Professor Shubel D. Owen, North Dakota State University; Dr. Don Priebe, North Dakota State University; Dr. Gary Leske, South Dakota State University; and Dr. Stanley Sundet, South Dakota State University. Dr. Don Priebe of North Dakota State University was Project Director.

The Institute was conducted to better prepare professional workers in Vocational Education to meet the needs of rural disadvantaged through secondary, post-secondary, and adult vocational programs in the states concerned. The intermediate target, or institute participants, consisted of professional workers in the field of Vocational Education, including administrators, counselors, and vocational teachers in rural areas. Participants could attend the Institute in their own state or another state if they wished.

OBJECTIVES

The objectives were divided into two dimensions--long term objectives to provide perspective and short term objectives to assist in making decisions and planning the institute program.

Long term objectives to which this program contributed were:

1. To upgrade the professional personnel involved in vocational education programs in the three states.
2. To illuminate career opportunities open to young people who migrate or who choose not to migrate within or from the three state area.
3. To sharpen the focus of Vocational Education on problems of the disadvantaged and handicapped for the purpose of meeting their needs more adequately.
4. To foster a spirit of cooperation among state institutions and state agencies facing common educational problems.

Short term objectives of the program were:

1. To help personnel in Vocational Education to appraise the needs of the disadvantaged and to design and carry out programs that will meet these needs.
2. To develop a planning rationale for vocational program operation in view of priorities included in the 1968 Vocational Amendments.
3. To assist local agencies in acquiring and using data in developing plans for local programs to more fully meet the needs of persons, especially those disadvantaged or handicapped.
4. To initiate an effort in multi-state cooperation in Vocational Education planning which hopefully may be continued and expanded.

TRAINING INSTITUTE FOR THE RURAL DISADVANTAGED

MEETING AGENDA
North Dakota State University
Fargo, North Dakota

August 17 - 21, 1970 — Rooms 103-106, Engineering Center

MONDAY, AUGUST 17

8:30 - 11:30 a.m.	Registration, Engineering Center
1:30 - 4:30 p.m.	Techniques for Teaching the Disadvantaged MR. CHARLES F. NICHOLS, SR. MINNEAPOLIS AREA VOCATIONAL TECHNICAL SCHOOL

TUESDAY, AUGUST 18

8:30 - 11:30 a.m.	Vocational Education for the Disadvantaged--What Has Been Done? DR. CHARLES ROGERS NORTH CAROLINA STATE UNIVERSITY
1:30 - 4:30 p.m.	Group Guidance and Exploratory Instruction DR. DON PRIEBE NORTH DAKOTA STATE UNIVERSITY and MR. ODELL BARDUSON MINNESOTA STATE DEPARTMENT OF EDUCATION

WEDNESDAY, AUGUST 19

8:30 - 11:30 a.m.	Legislative and State Plan Provisions for the Disadvantaged and Handicapped STATE STAFF REPRESENTATIVES-- NORTH DAKOTA
1:30 - 4:30 p.m.	Adapting Adult Education to the Disadvantaged DR. GARY LESKE SOUTH DAKOTA STATE UNIVERSITY and DR. ED PERSONS UNIVERSITY OF MINNESOTA

THURSDAY, AUGUST 20

8:30 - 11:30 a.m.	Adapting Co-op Education for the Disadvantaged DR. MAX AMBERSON MONTANA STATE UNIVERSITY

1:30 - 4:30 p.m. Evaluating Programs for the Disadvantaged
DR. GEORGE COPA
UNIVERSITY OF MINNESOTA
and
DR. R. PAUL MARVIN
UNIVERSITY OF MINNESOTA

FRIDAY, AUGUST 21

8:30 - 11:30 a.m. Developing Plans for Local Programs for the Disadvantaged
STATE STAFF REPRESENTATIVES

1:30 p.m. Evaluation

The agenda for meetings held in Brookings, South Dakota, at South Dakota State University and at Willmar, Minnesota, at Willmar Area Vocational Technical Institute, contained the same topics but in different order, so that the same staff members could be present to conduct the three concurrent sessions.

Each half-day session included:

1) Presentations by speaker
2) Small group discussion of topic
3) Summarization with total group and topic leader

TECHNIQUES FOR TEACHING THE DISADVANTAGED

Charles F. Nichols, Sr.
Minneapolis Area Vocational-Technical School
Member National Advisory Council for Vocational Education

*The United States has developed into a technological society with no place for the uneducated, unskilled individual. The present educational system works well for the majority, i.e. for the children of the educated who with their talents increase the complexity of society and broaden the gap that separates them from the uneducated.

But a clock is ticking. The human time bomb that is the disadvantaged, the minority, the poor is approaching the moment of fracture. Deeply frustrated, untrained, impatient youth have concluded from their observations of the sixties that the only way to create change is through violence. Their impatience is the mechanism of explosion.

First we have to take a look at who or what we call the rural disadvantaged or the disadvantaged. They can come under several categories, anyone of which seems to set up a problem in definition. So for the purposes of this conference and when we are speaking primarily of the rural disadvantaged, I would like to suggest these descriptions.

The rural disadvantaged is a person who has severe social habit problems. We know that a disproportionate number of these people have had serious difficulties in their former schools. Chief among these has been social isolation; social isolation of two sorts. First, social isolation in the peer group because of

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*Third Report, National Advisory Council on Vocational Education

the lack of ability just to get along with people which is common to the disadvantaged in the rural areas and in our central cities. Secondly, social isolation that is created by the geography of their environment. Too often our rural youth live long distances from each other; their school is the one opportunity for contact. Poor performance in school, or at least the feeling that poor performance is all that is being given, accents this isolation.

The vast majority of those that we choose to call the disadvantaged in our rural areas have cumulative absences in the schools equivalent to one semester or more; a disproportionate number of them have been absent from their schools for up to and including one year. Coupled with this is the school ability factor. Despite the fact that many of our disadvantaged have average general ability as measured by standardized ability tests, most of them have gross deficiencies three grade levels or more in the areas of vocabulary, reading comprehension and basic arithmetic skills. Without intensive and extensive supportive help, these deficiencies will not be overcome and tend to perpetuate the dreary cycle of poor achievement and future poor accomplishment in the world of work. The rural disadvantaged, like their city cousin, are also the victims of poor study habits. These poor study habits are enhanced by the fact that the rural disadvantaged have a considerably different work and recreational day than their city cousins. We find as we examine the students that we are talking about that a large number of them have had major difficulty with school authority figures. Part of the reason for this is that they are young men or young women, restive just as

any other youth, but also unfortunately they are involved with the financial hardships that their parents have much deeper than their city cousin.

Citing some figures from the Work Opportunity Center in Minneapolis, approximately 50% of these students have attended seven or more schools prior to their enrollment at the Center. In individual counseling interviews, these students stated that their frequent changing of schools was a major cause for school social and emotional difficulties. Transferring this to students that we had from the rural areas, we can readily imagine the difficulties encountered, especially if they are children of migrant families. These young people come from multiproblem families. Among these problems are a lack of finances, poor adult models of achievement, and value systems which are detrimental to personal acceptance in middle class oriented schools. Our experience at the Work Opportunity Center leaves no doubt in our minds that a large number of these youngsters have rather severe disabling emotional problems which have been largely responsible for their lack of achievement in the regular school programs. We find that these same problems come with the students to all school situations and prevent them from taking full advantage of the opportunities offered them. As we start devising techniques that will work we find foremost that they require an immense amount of personal attention from the counselors, social workers, school nurses as well as the teachers. To a very great extent most of these youngsters are so preoccupied with personal, social and family problems that they have very little emotional energy left to concentrate on learning. Symptoms of these problems include such things as

alcoholism, narcotic addiction, arson, armed robbery, rape, burglary and a multitude of psychosomatic complaints. Diagnostic categories would include psychotic, neurotic and character disorders, and above all, the tendency in the rural areas for them to isolate themselves from their peers. These students generally demonstrate that they have had severe relationship problems with their parents to the extent that many are often physically separated by court order and most are at least emotionally separated. Often these students are the family and community scapegoats or the family rejects. They often express their hurt, anger and resentment towards parents through delinquent activity and school failure. These students have extremely low self-esteem and have poor impulse controls and they are more apt to identify with the negative "hippy-type cultures" than with the main stream of our society. They see the world, both urban and rural, as a pretty hostile place and certainly as a place where they do not count for much. They are starved for attention, acceptance and a meaningful relationship with adults. Yet they fear it and ward it off because of previous experiences where they have only been hurt. All of these failures have to be dealt with before the student is actually available for learning at anywhere near his capacity.

In talking with the students we have asked them what is wrong with the regular high school and we came up with quite a list of things that we as professionals perhaps have not paid sufficient attention to. This list is in the supplementary paper that will be passed out to you to read at your leisure. I would suggest that you examine closely those things that can be changed immediately and make those changes in your schools during this

school year, because if they are not initiated we stand to lose an even larger number of students with an even more disastrous result than in the past.

Now let's examine what we do as far as teaching and working with these youngsters. First, in our school as presently constituted we have made a set-up for creating dropouts of students who have rejected school. We call this our suspension system which is as prevalent in the rural areas as it is in our urban areas. For if a student is absent from school for some reason or other we find them and then make a quick judgement as to whether this absence was justified or not. If it is justified we allow him back in the school even though he has not mastered the skills needed to perform at the same level as his peers and unfortunately in our school we still require too often that everyone in the class perform at the same level. But if we adjudicate this person as truant then we initiate an entirely different technique called suspension where we suspend them from school with the hope that during this period of time they will have had the opportunity to meditate and consider their sins and return cleansed and ready to go back to work. Unfortunately, this system has never worked because it merely aggravates the problem that created the need or desire for truancy in the first place. So the vicious circle starts: they're truant--we suspend them--they drop back further--they're truant again and we suspend them again. It always winds up that those who can least afford to be out of school are out. After a period of time of this round about, in and out type of situation we finally expel the student by some form of board action. You can cut it any way you want to, but expulsion means

only one thing and that is the school and the educator have failed the student, the student has not of necessity failed them. But nevertheless we label them dropouts and stigmatize them for life starting again the dreary cycle. Our national dropout rate is far too high, in the area of 30% in our inner cities, and in our rural areas even higher. This means that somewhere in the neighborhood of 30 or more of everyone of our youngsters who starts school does not finish and this in a society that's calling for increased technical competence for survival, whether that technical competence is needed in the operation of industrial machinery in the industrial way of life or whether that competence is needed to operate the agricultural machinery and improve the agricultural way of life. So we have set up this vicious circle of suspendee and dropout where we take them in, let them out, and still don't make any changes in our programs. There is a basic truism in education that we all are going to have to face up to and that is that you need to have the body there to educate it; our students are going to learn in the school or in the street.

So what do you do? I would suggest you set up a basic new educational philosophy in working with these youngsters. We have to design an educational facility that operates at the secondary school level that provides occupational training and <u>education</u> for youth from age 16 to 21. This preferably should be in a nonschool setting because the very fact that the building is a school is anathema to some of these people. This program should be designed to meet the <u>special education</u> and <u>vocational</u> needs of these young people who have encountered difficulty that prevented them from succeeding in established educational programs. And, of couse,

the biggest thing about this particular type of facility that we would set up is that it has to accept the student as he is complete with all the previously mentioned handicaps. Upon this acceptance we determine where he would realistically like to go and then take him or her as far along this path as we can, as quickly as possible. To do this we have to provide these youth with vocational guidance and counseling above and beyond that that we've provided for youth in ongoing regular programs. We have to give the guidance and counseling that includes knowledge of work and work roles. Equally important, give them short term skill training so that they have something tangible in a hands-on situation that they know has value in the job market. We have to assist them in getting work experience to use these skills so that they know they are worthwhile. Then provide on-the-job follow-up and assistance because we cannot take these youngsters and say "you are now working" and abandon them. These students have what I call "success rejection syndrone". You have to remember that many of these students are failures or were failing, their parents were frequently failures, their brothers and sisters were involved in failure of some sort. These failures could be of their own making or imposed on them by an ever-changing society. Nevertheless, because they have had so much experience with failure they are completely comfortable with it and are equally uncomfortable with success. So that as we take them into this special type of program and help them get along educationally and vocationally the place where they're going to need the greatest amount of supportive services is not during the start, but when the first glimmer of success appears on the horizon. They are as afraid of

success as you and I are afraid of failure. So this is when our supportive services really must be brought into play.

In addition to this we need to provide needed high school educational opportunities leading toward transfer credit and graduation. Because if they leave the rural areas and move into the urban setting or if they move into urban oriented schools at the post secondary level we know that the high school diploma or the general education development certificate is the passport towards more training. This means then that the whole idea of this facility or program is to help them prepare for the future education or work and become as independent as possible, to become tax payers rather than tax consumers. For this reason skill training at entry levels especially should be our main emphasis, not just on the three R's of reading, 'riting and 'rithmetic but on the three P's of preparation, placement and progression. Now to do this we are going to need a special teacher. This person is going to have to be a professional educator with all that implies, preferably with dual certification--both academic and vocational. We find that in working with this type of youngster we have a definite advantage when the instructor that's working with him knows the sight, the sound, the taste, the feel, the smell of the world of work. I know that this person is not easy to find but nobody said that any of this was going to be easy. We need a full time teacher--twelve months, not ten. In working with these youngsters learning and school association has to be a continuous program. There can no more be "halting for the planting of crops" type of thing. This educator also has to have a good base in counseling skills because counseling with this particular

type of student is not just a matter of a certified guidance counselor sitting and talking but a matter of what we call corridor counseling where the student gets support from the instructor, the counselor, from adults involved in the school program, from whoever can help him at that instant when he needs it, because, too often with these young people it is not the fact that they can get help, but that they get help immediately when needed. You will then find that they do not need as much nor do they need it as often. This teacher is going to have to have acceptance and warmth, be healthful, eager and above all, enthusiastic because as mentioned earlier, we do not expect this to be easy work. This person is going to have to be flexible, able to change not only their own feelings but the way they present the material, their attitude towards students, their attitude towards parents, their attitude towards the society that these students have to live in. This teacher is also going to have to be able to absorb and use continued inservice work. Staff meetings are going to have to be more than announcement sessions because they need to learn, practice and polish above and beyond what the regular teacher is called upon to do. They also have to learn to change attitudes, to affect attitudinal change in people, because they are working with adults and children who come in with a pre-set notion that the school or the educational system was not for them. I would suggest a program of this sort: that we re-examine our block scheduling and block periods of time that we have set aside for our students. I would suggest that thirty minute modules be the maximum amount of time allocated to an area unless it is a technical area where there is normally a high interest factor, and

there you allow the student to participate up to three hours, but we would suggest not much more. We would also suggest that they spend at least a disproportionately significant amount of time in the technical areas before the work in related areas is started. This can help them understand why they should have arithmetic, why they should be going into these related areas, and once they make sense to them you will be amazed at the amount they can absorb.

The next thing that we have to consider in working with these rural disadvantaged is curriculum development. Because of the nature of the home situation that the students come from, the course content should be broken down into small, short instructional units providing flexibility for the teacher and for the student, using a success factor as reinforcement. Also, using what we choose to call a performance oriented approach, that is, when the student completes a task he is moved on to the next, but completion of the task is the important thing, not a grade level of A, B, C, D or F with movement on to the next one whether the student is ready or not. We also have to consider carefully the supportive services that we provide for these youngsters. Social workers should be one of the strongest parts of your team in time and effort spent with students. These social workers should be involved in what we choose to call personal supportive service. This personal service involves not only the social economic problems that the students are involved in but also their health problems. We have found in a research project done at the Minneapolis Work Opportunity Center that over 43% of the students who fall into what we call the category of the disadvantaged had physical handicaps that prevented them from functioning in the

learning environment and until those physical handicaps were identified and we started eliminating them we knew we could make no progress with the individuals. It is quite possible and quite practical for a school system to set up a program whereby all these students could be given physical examinations prior to or during the immediate entry into the school program. I would hazard the guess that the investment in physical examinations would be considerably less than our investment in rejection of these students and subsequent support of them with their various social problems in the future. Another thing that we will have to understand in working with this particular type of student is the need for school orientation. In bringing them into a special program we do not want to separate it too much from existing programs because we already know from psychological studies with southern states' desegregation problems, that separate facilities are inherently unequal facilities and the people that are most aware of these inequalities are those involved as participants. If we can take these youngsters and bring them in through an orientation program that gives them the answer to what they should be doing and what we are doing plus instant involvement in the program, we can eliminate this feeling of separateness and the lack of equality that comes along with it. I would feel what couples with all of this is something that we have not been doing in our school systems in working with this type of youngster that we had better get on with immediately, and that is research; finding out if what we are doing, is it effective or isn't, and if it is not effective, even though it has been traditional, we drop it. When we find something that is ineffective our research can show us

where we should make changes to make it effective or how we can best dispense with it with the least amount of effort and damage to other programs. So with research we find out what works, what does not, and why, and then we make changes accordingly. In these programs for the disadvantaged as I've mentioned earlier, skilled training is something that has to be emphasized. We immediately get into the idea of what areas of skill training we should include. Our area vocational schools are scattered all over the country, but unfortunately these students cannot or do not get into them. The conventional schools have too often felt that the only training proper for rural students was agricultural training, forgetting the fact that this young man or lady can get in jet aircraft and be in another section of the country thousands of miles removed in as short a time as three hours. I feel that we are going to have to coldly and objectively examine our training programs not only for the immediate geographic area but for the area that these youngsters are going to be operating in during their life span. I know that this is not popular with some rural educators but, nevertheless, the fact exists, we do have migration of our youth. This migration is not going to be stopped, if anything it will probably be increased because as fewer and fewer people are becoming more and more productive it is becoming less necessary for large numbers of people in some agricultural areas. I would suggest that in setting up programs for these disadvantaged consider areas such as food preparation and service, child care, the health occupations, the homemaking skills, the machine operating skills, electronic skills, typing and business machine skills, things such as photography and graphic arts, offset

printing, auto service station work (and you notice I did not say auto mechanics), small engine repair, sales in all areas, because there will be a rural as well as urban need for these skills.

Lastly, we need to provide some additional services. The outreach where we go out to the students wherever they might be located and sell them on the idea of education and training and their return to it. Testing both psychologically and vocationally when the student is ready, based on individual and group counseling with students and his peers. We need to provide short-term skill training, and also, the long-term specialized training that perhaps has transferability to post secondary vocational programs, developmental and related work in reading and arithmetic, communication skills, social studies and special courses designed for individual student needs--any course that can get him or her sold on school again. An additional part of these services should be job development, job placement, job follow-up. From its inception our nation has been committed to the proposition that all men are created equal; our striving to make this proposition an accomplishment as well as a goal has thus far achieved only partial success. Our poor and disadvantaged do not today have an equal opportunity to obtain an education which will equip them to be self-sufficient in our society for a job which is open ended into a career. The primary reason why we have not yet established a society in which there is equal opportunity to learn and work is because we have not yet tried. Early in the sixties we resolved to put a man on the moon and we were successful. We accomplished our objectives because we devoted to it

the resources and the attention which it required. In the seventies we are going to have to devote with equal fervor the attention that is needed to this problem of our rural disadvantaged.

By enacting the 1968 vocational amendments, Congress declared its intent that a better society, based upon educational opportunity, should be built. Intent, however, even when it is the law of the land, does not alone bring action. The disadvantaged of this country have made it clear that they are tired of intentions which are not backed by adequate funds or by a genuine national concern. Eighteen months have gone by since the passage of the vocational amendments, and progress has been slow. Strong executive leadership designed to translate intent into concrete, workable programs is due. The disadvantaged will no longer accept promises.

VOCATIONAL EDUCATION FOR THE DISADVANTAGED: WHAT HAS BEEN DONE

Charles H. Rogers, Associate Professor
Center for Occupational Education
North Carolina State University at Raleigh

Introduction

With the passage of the Vocational Education Act of 1963, attention to the special needs disadvantaged and handicapped was emphasized by Congress for the first time. Two basic conceptual changes from earlier legislation that were recommended by the Panel of Consultants on Vocational Education were embodied in this Act:[1]

1. that vocational education must be redirected from training in a few selected occupations to preparing all groups in the community for their place in the world of work, regardless of occupation, and

2. that vocational education must become responsive to the urgent needs of persons with special difficulties that prevent them from succeeding in a regular vocational program.

In 1968 the Advisory Council on Vocational Education reported that "There is little evidence that either of these major purposes has been accomplished thus far." It further stated that "The second main objective--to serve youth with special needs--has hardly been touched."[2] Thus, the authors of the 1968

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[1]Panel of Consultants on Vocational Education, Education for a Changing World of Work (Washington, D. C.: U.S. Government Printing Office, 1962).

[2]Subcommittee on Education of the Committee on Labor and Public Welfare, U.S. Senate, Notes and Working Papers Concerning the Administration of Programs Authorized Under Vocational Education Act of 1963, Public Law 88-210, As Amended (Washington, D. C.: U.S. Government Printing Office, 1968). (Parts of this report were later published as: General Report of the Advisory Council on Vocational Education, Vocational Education: The Bridge Between Man and His Work.)

Amendments to the Vocational Education Act of 1963 strengthened this part of the act to provide for the expenditure of 25 percent of the Federal Grants to the states for programs designed to meet the special needs of the disadvantaged and handicapped--15 percent for the handicapped and 10 percent for the disadvantaged.[3] No longer is it left up to state and local educational agencies to decide whether or not it will provide special assistance to the disadvantaged and handicapped. No longer can we ignore the problem or rationalize our lack of effort because of the difficulties involved in serving them. The Congress has mandated that 25 percent of our occupational education effort be directed toward the disadvantaged and handicapped. Your presence at this institute is evidence that you are concerned about this mandate and are ready and willing to tool up to meet this challenge.

In preparation for this assignment, a large number of State Plans were reviewed. Without exception each state educational agency has established a section in the Vocational Education Division to provide leadership to programs for the disadvantaged. The vast majority of them were established since 1968.

During the fall of 1969, members of the Rural Multiple Institutes on Vocational Education Staff[4] visited the State

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[3]Amendments to the Vocational Education Act of 1963, Public Law 90-576, 90th Congress, H.R. 18366, October 16, 1968.

[4]National Inservice Training Multiple Institutes for Vocational and Related Personnel in Rural Areas, conducted by the Southwide Research Coordinating Council through the Center for Occupational Education, North Carolina State University, Raleigh, N. C., Contract No. OEG-0-9-430472-4133 (725).

Directors of Vocational Education and their staffs to orient them to this inservice program. On these visits the Directors were questioned about the problems they faced in implementing the 1968 Vocational Education Amendments. The most overwhelming problems expressed were related to the initiation of programs for the disadvantaged. They were faced with the problem of immediate establishment of programs for the disadvantaged which caught them unprepared. Especially critical were the problems related to planning disadvantaged programs for the rural areas. They were baffled by problems such as: How do we define rural disadvantaged? What environmental forces are acting upon the rural disadvantaged? How do they differ from the urban disadvantaged? What are the characteristics of the rural disadvantaged? How do we identify, recruit and motivate disadvantaged rural youth and adults to enroll in occupational education programs? What other services are needed for the disadvantaged and how may they best be provided? What kinds of curricula and materials are needed? What structure and organizational arrangements are needed to adequately accommodate programs for the disadvantaged? How do we acquire trained professionals to provide leadership and teach in these programs? And, how do we find job placement for those trained in these disadvantaged programs?

These problems have been presented to you for the purpose of demonstrating the magnitude of the problem and to show that State Directors, like those of you here, are looking for answers, solutions and patterns for initiating programs for the rural disadvantaged.

Because of these problems that were expressed by the Directors of Vocational Education across the country, the Center for Occupational Education at North Carolina State University became concerned about the problems involved in providing occupational education programs in rural areas, especially those for the disadvantaged. We then decided that a research and development program should be inaugurated to seek solutions to problems plaguing rural communities in their efforts to provide appropriate and adequate occupational training. The number one priority in this research and development program was for the problems associated with programs for the rural disadvantaged.

Because of my interest in this area, I was assigned to develop the research and development program. For almost a year, I have been searching the literature and surveying programs for the disadvantaged across the nation to establish a base from which to operate. It is because of this work that I accepted this assignment to discuss with you what has been done in programs for the rural disadvantaged. Or, to put it more appropriately, "What has been done in occupational education for the disadvantaged that is applicable to programs for the rural disadvantaged?"

A question that is foremost in your minds, I'm sure is: What research and development or exemplary programs have been conducted for the rural disadvantaged? On the basis of my review of literature and survey of programs, I regret that I must report that very little significant work has been done! Perhaps I should conclude my presentation at this point. But, on the other hand, this very statement provides us a reason for exploring what has been done in other areas that is applicable to programs for the

rural areas. Furthermore, when I said there was very little done in rural areas, I did not mean to infer that nothing of value had been done. On the contrary, there have been several rural disadvantaged projects that have far-reaching implications for our deliberation here this week.

For the next few minutes I would like to explore (1) the status of research and development for disadvantaged and handicapped, (2) a review and synthesis of research on the rural disadvantaged, (3) a description of selected projects for rural areas, (4) a sampling of other projects having implications for the rural disadvantaged programs and (5) some conclusions and recommendations relative to planning programs for the rural disadvantaged.

Status of Research and Development

In searching the literature between 1500 and 2000 research abstracts or bibliographical references were reviewed. Of these, over 60 percent were concerned with the problems of mentally and physically handicapped. Of those remaining, approximately 35 percent were concerned with the urban disadvantaged and less than 5 percent with the rural disadvantaged. A rather vivid example of the lack of work being done with the rural disadvantaged is demonstrated by a 1969 ERIC Annotated Bibliography on "Occupational Training for Disadvantaged Adults." A review of the 260 item bibliography produced only five programs for rural disadvantaged adults, and they were primarily concerned with the training of migrant farm workers.

Recent attention that has been given to the disadvantaged has been concerned basically with the problems of the urban,

inner-city disadvantaged. This is due to the concentration of the disadvantaged in the inner-city ghettoes and because the problems of poverty have been dramatized recently by demonstrations, riots and destruction. More attention has been given to programs for urban disadvantaged than to programs for the rural, not because there is greater need but because greater pressure has been exerted upon government by organized civil rights and poverty groups.

Because we hear much less about the rural disadvantaged does not mean that there are fewer in this classification or that their problems are any less critical. The President's National Advisory Commission on Rural Poverty in its report referred to the invisible poor, that is, to the poor people who live in pockets of poverty and who are so widely dispersed that their plight is not as visible as in the urban improvished areas. The Commission reported that in 1964 the population of rural poor was estimated at 13.8 million or 40.9 percent of the total poor population in the United States. Thus, although the rural population constituted 29.1 percent of the total population, the rural poor population accounts for a disproportionate 40.9 percent of the total poor population.[5] The invisible nature of the rural disadvantaged has most likely accounted for the small amount of work that has been done.

But, perhaps we are not as far behind in programs for the rural disadvantaged as the small amount of work reported might indicate. There is strong evidence that a large majority of the

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[5]President's National Advisory Commission on Rural Poverty, The People Left Behind, (Washington, D. C.: U.S. Government Printing Office, 1967) p. 3.

programs for the disadvantaged that have been recently established have been hurriedly conceived and based on little or no valid research. Edmund W. Gordon, in a recent bulletin from the ERIC Information Retrieval Center on the Disadvantaged made the following statement concerning current status of programs for the disadvantaged:

> Having recently reviewed much of the research and most of the current programs concerned with the disadvantaged, I am impressed by the pitifully small though growing body of knowledge available as a guide to work in this area. The paucity of serious research attention to these problems has left us with little hard data, many impressions and few firm leads. What is distressing, however, is the slight representation of even this research in the rapidly proliferating programs. Much of what is being done for and to the disadvantaged seems to be guided by the conviction that what is needed is more of those things we feel we know how to do. Despite the fact that much of our knowledge and techniques of behavioral change have proved to be of dubious value in our work with more advantaged populations, these same procedures and services now are being poured into the new programs. Although service to the disadvantaged has become popular, there remains a serious lack of basic research on the developmental needs of such children as well as on the applicability of specific techniques of behavioral change to their directed development.[6]

Evidence such as this should caution us that as we develop programs for the rural disadvantaged, they must be based on sound research and tested theoretical concepts. Instead of being in a disadvantaged position because of small amount of work that has been done in the rural areas, we should be in a position to benefit from some of the mistakes made in urban areas, utilize that which has proved successful and whatever programs that are developed will stand a much greater chance of success.

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[6] Edmund W. Gordon, "Education, Ethnicity and Intelligence-Jensenism: Another Excuse for Failure to Education," IRCD Bulletin, Vol. V, No. 4, p. 14.

Review of Research on the Rural Disadvantaged

There are two items of literature that have come out during the past year that should be studied and utilized by anyone embarking upon the development of vocational education programs for rural areas, especially programs designed for the disadvantaged. The first is a Review and Synthesis of Research on Vocational Education in Rural Areas, prepared by Griessman and Densely.[7] This document synthesizes from both an educator's and sociologist's point of view the research and development that has been done in vocational education in rural areas. It points up both the strengths and weaknesses of vocational education of former years in rural America and recommends research and program development needed to overcome some of the problems of limited occupational education in rural areas. This document depicts very vividly the limited programs available for the rural disadvantaged. Griessman[8] points to the high dropout rate of 28 percent in rural schools and relates that to the limited nature of occupational programs to provide relevant entry level skills for the labor market. He further asserts that a contributing factor is the obsession of rural educators to the notion that occupational education should focus upon narrowly perceived employment needs of one geographical area. Another major point that he makes is that personality adjustment of rural youth is poorer than that of urban youth, suggesting that there is a "rural factor" that is linked with

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[7]B. Eugene Griessman and Kenneth G. Densley, Review and Synthesis of Research on Vocational Education in Rural Areas, ERIC Clearinghouse on Rural Education and Small Schools, New Mexico State University, Las Cruces, New Mexico, 1969, p. 1-84.

[8]B. Eugene Griessman and Kenneth G. Densley, op. cit., p. 15.

poverty that effects personality adjustment. This, conceivably, may be attributed to the inability of the educational system to provide occupational training relevant to the aspirations of rural youth, creating a frustrating dichotomy between what the youth desires and what he can expect to obtain.

In the same publication Densley[9] documents the limited scope of occupational training in both the small high schools and in post high school institutions. Densley,[10] in his analysis of special needs programs documents very little other than MDTA programs and the Neighborhood Youth Corps that have been available to the rural disadvantaged. And, even these programs suffer greatly from low population density problems.

The second item that I wish to call to your attention is a review of research on "Disadvantaged Rural Youth," by Everette D. Edington, which was published in the January, 1970, edition of Review of Educational Research.[11] This article is a "must" for those planning programs for rural disadvantaged youth. I shall not try to summarize the review in this paper, but I will relate his conclusions relative to the characteristics of disadvantaged rural youth. They are certainly relevant and should be kept constantly in mind when planning any educational program for rural disadvantaged youth. Edington concluded that disadvantaged youth are affected in seven general areas:

1. their low socioeconomic status is of prime importance in view of the high relationship between socioeconomic status and educational achievement for rural as well as urban children,

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[9] Ibid., p. 47-48.

[10] Ibid., p. 52.

[11] Everette D. Edington, "Disadvantaged Rural Youth," Review of Educational Research, 1970, 40 (1), 69-85.

2. their educational and occupational aspirations appear to be negatively affected by their socioeconomic status, possibly further depressed by geographic isolation. Many who will not be able to make a living by farming do not aspire to any high skilled urban occupation nor to the educational level which would prepare them for such work,

3. they are characterized by attitudes which are nonsupportive of educational progress: low self-esteem, feelings of helplessness in face of seemingly inconquerable environmental handicaps, and impoverished confidence in the value and importance of education as an answer to their problems.

4. the educational achievement of disadvantaged rural students, like their urban and suburban counterparts, is below national norms,

5. higher dropout rates are found among rural than urban pupils,

6. curricula in rural schools are frequently inadequate for and irrelevant to the needs of these students,

7. the cultural experiences of disadvantaged rural youth are limited. Isolation and poverty are major conditions which limit the rural youth's cultural experiences to his own group and contribute to low level educational progress.

Edington further concluded that unfortunately, disadvantaged rural youth have not been the subject of interservice longitudinal and developmental process investigations because they tend to be removed from the major research centers. Therefore, the research that has been done involves primarily status studies. Qualitative studies of the rural disadvantaged are

absent. Status studies, he insists, are not very helpful in terms of educating such youth. Edington emphasizes the weakness of research on rural disadvantaged youth in the following statement:

> . . . We know they are poor; we know they are disadvantaged. We know that they are deficient in some of the areas where more privileged students are strong. What we need is examination of critical issues having to do with fundamental relationships between the functional characteristics of rural disadvantaged children and educational development. Too often the analysis of educational disadvancement tends to be approached quantitatively. This work contributes to classification and serves some administrative functions, but before we can develop really effective correctional compensatory and developmental programs which circumvent some of the handicaps, which provide alternative routes to learning, or which build upon special characteristics, we need more detailed appraisal research with a greater qualitative emphasis.[12]

Another conclusion drawn by Edington that is relevant to our deliberation here, is embraced in the final paragraph of his article where he relates that:

> The movement of sub-populations in the United States today is such that rural areas feed their problems and special characteristics into urban and suburban population. Although the problems of rural disadvantaged children, as this survey has shown, are not unlike those of other youngsters, rurality does impose certain conditions which exacerbate educational problems. Future research relating to disadvantaged rural students must be coordinated with other major educational research programs in the nation. Educators can no longer afford to study each segment of the society in isolation from any other. The problems and their solutions are overlapping and interrelated.[13]

This review of research on the rural disadvantaged as well as a review of research on the disadvantaged, in general, points to some rather wide gaps in research that need to be closed before effective programs for the disadvantaged can be implemented. The research to date tells us who the disadvantaged are, the number of the disadvantaged and some of their characteristics. What it does

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[12] Ibid., p. 81-82.

[13] Ibid., p. 82.

not tell us is what educational concepts, program structures, curricula materials, techniques and strategies are likely to be effective in solving the problems of the disadvantaged.

Description of Selected Occupational Education Projects for the Rural Disadvantaged

Project REDY[14]

Probably, the one study that has yielded the most useable information and ideas for providing occupational education for the rural disadvantaged if Project REDY (Rural Education--Disadvantaged Youth) which was conceived by members of the Department of Vocational and Technical Education, University of Illinois. This five-year project sponsored by the U. S. Office of Education, and which ended June 30, 1970, focused upon the development of a family-centered, vocationally oriented educational program that would bring about the full utilization of the present and potential capabilities of severely disadvantaged youth living in economically depressed rural areas. Its major thrust was the elimination of the barriers to vocational education and the providing of effective freedom for vocational education.

Rationale. The programs developed in the project was based on the belief, supported by previous research, that the primary "bottlenecks" to the development of vocational competence for gainful employment among disadvantaged youths and adults in rural areas were fivefold:

1. Failure to obtain the effective attention of deprived rural family members. Instead of involving them in planning

[14]Based on a paper entitled "Personalized Vocationally Oriented Ecucation for Rural Disadvantaged Families" presented by Dr. David Williams of the University of Illinois, July 24, 1970, at an Institute on Expanding Vocational Education to Meet the Needs of Disadvantaged Youth and Adults in Rural Areas at Mississippi State University.

programs to meet their own needs, programs have been imposed upon them and innovations issued in which they are to participate.

2. Failure to create readiness for learning. Activities have not encouraged the disadvantaged to "start-where-they-are" in analyzing their present situation and developing realistic individual and family goals.

3. Failure to recognize the importance of family ties. Educators have not recognized the family as the basic educational unit.

4. Failure to involve the disadvantaged family members in assessing their problems, defining their objectives, identifying possible alternatives for solving their problems, selecting definite objectives, and planning a program for obtaining these objectives.

5. Failure to involve lay citizens, at all economic levels, in developing educational programs.

Project REDY was divided into the following five correlated phases:

Phase I. Community Study. Twenty economically depressed rural areas were identified in Illinois. From these areas a typical rural area was selected for detailed study of the anthropological, economic, psychological and sociological data about the area and its inhabitants.

Phase II. Study of Sample Population. To gain an understanding of the values, beliefs, attitudes, and behavioral patterns of severely disadvantaged families, selected characteristics were compared between a random sample of the severely disadvantaged families residing in the depressed rural area and a random sample

of the total population of families.

Phase III. Model Educational Program. A model educational program was developed which focused upon three major units: (1) determining realistic career choices and plans for the children, (2) improving family financial management, and (3) improving family income. A single school district in a depressed rural area was utilized to initially try out the educational program. Families in the community with special needs were identified. These families were randomly assigned to an experimental group and to a control group. Various instruments were employed such as a pretest-posttest measure to gather data that afforded an objective evaluation of the REDY educational program.

Phase IV. Evaluation and Demonstration. The model program was expanded to include five additional communities. The research design employed was a pretest-posttest control group design with five replications. A random sample of ten or more families was drawn from the disadvantaged population in each of the ten research communities. Instruments were employed to gather information in the following areas:

1. Parental desires for their children
2. Occupations and organizations of parents
3. Situation and goals of children
4. Situation and goals of the family
5. The home and its surroundings
6. The family and community

Phase V. Final Analysis and Reports. Based on the findings of this study, the following conclusions were made which appear worthy of consideration by educators who are responsible for

developing education and community action programs for the socially and economically disadvantaged:

1. Socially and economically disadvantaged families can be identified in a geographical area, their characteristics and needs determined, and educational programs developed that are responsive to the needs of individuals.

2. When teaching adults and children who are disadvantaged, the educator should plan a program that gives primary attention to the needs of his students.

3. The formerly unreachable severely disadvantaged rural families can be motivated to improve their social and economic situation through a sincere interest by educators in the future of youth.

4. Educational programs that will acquaint the disadvantaged with the world of work, jobs available, nature of the work, and training required, is needed by children and parents alike.

5. The disadvantaged can be motivated by the use of "goal seeking" techniques; however, the goals must be molecular and not global in nature.

6. Disadvantaged people are aware of their problems, but desperately need a systematic approach to their solution.

7. Effective education for the disadvantaged requires personalized instruction. Individuals living in a depressed area require constant reinforcement if they are to continue action to accomplish goals established and improve their situation.

8. Since some families cherish living in the rural environment, upgrading and retraining for adults must be provided for occupations available within their community.

9. The needs of disadvantaged families make them very responsive to education related to family financial management, family goals, and the choice-making process as it pertains to consumer goods and services.

10. The vocationally oriented, family-centered educational program developed and evaluated in this research project has potential use, in whole or in part, in rural and urban areas that have concentration of disadvantaged families.

Project REDY which focused on the needs of youth, served effectively as a vehicle to reach a small segment of the disadvantaged rural families in Illinois. The warm response given by a majority of the participating families to the sincere interest shown in them by the local educator indicated that rural disadvantaged families wanted and needed assistance. With proper motivation and a personalized educational program, many rural disadvantaged family members may establish realistic educational and occupational goals to take action to accomplish these goals as a means of breaking out of the chains of poverty.

Concerted Services

Another project that promises quite a bit for the rural disadvantaged is the Concerted Services Project.[15] The concept underlying the project developed by the Interdepartmental Task Force on Concerted Services in Training and Education in Rural Areas can be expressed in a relatively simple question: Can existing resources and programs available to people in

[15] B. Eugene Griessman, The Concerted Services Approach to Developmental Change in Rural Areas, Center Research and Development Report No. 1, Center for Occupational Education, North Carolina State University at Raleigh, Raleigh, North Carolina, 1968.

impoverished areas be mobilized, channeled, and coordinated to produce increments in the many variables of interest? But the simplicity of the concept is somewhat misleading. The execution is relatively complex. At the federal level, the planning and administration of the program has involved the time and experience of a relatively large number of professional representatives of several departments and agencies, including representatives from the Department of Agriculture; Commerce; Health, Education and Welfare; Interior; Labor; Housing and Home Finance; and the Small Business Administration.

In the quest for solutions to the penetrating and crucial problems that confront contemporary rural American society, institutions and agencies have encouraged the design and establishment of pilot, developmental and experimental programs by which innovative ideas, practices, and procedures may be tried out and tested.

Pilot projects in three rural counties in Arkansas, Minnesota, and New Mexico have demonstrated that government agencies working together can substantially improve the education and increase the employment opportunities for residents of rural areas. Six federal agencies joined hands with state and local groups to bring new educational and training opportunities to St. Francis County, Arkansas; Todd County, Minnesota; and Sandoval County, New Mexico. These new programs made it possible for hundreds of persons to obtain worthwhile jobs. Steps are now being taken to expand the program within these counties and to extend this promising new approach to other rural communities.

Objectives of Pilot Projects. The Task Force established the following major objectives for the pilot projects:

1. Develop general operational patterns for concentrating the efforts of all of the available agencies and resources on the alleviation and ultimate solution of occupational education problems; and, as necessary, on the health, welfare, socio-economic, and related problems of those residing in the three communities.

2. Identify existing, as well as potential employment opportunities and occupational education programs available to youth and to adults who are unemployed or whose income is insufficient to maintain a respectable standard of living.

3. Develop ways through which these rural communities can provide education, vocational guidance, training and other services needed to help people become employable. This would include development of plans for:

--increasing basic educational skills
--improving general conditions of health
--improving appearance and personnel characteristics
--providing vocational counseling
--developing occupational competency

4. Demonstrate that occupational education programs, in conjunction with other economic development activities, can significantly increase employment opportunities.

5. Demonstrate that a cooperative occupational education effort based on local involvement will develop indigenous leadership, individual dignity, initiative, and community awareness resulting in continuing community development.

6. Determine the relationship of the traditional educational and occupational patterns of people in the communities to their present and emerging needs, and if warranted, make recommendations for necessary adjustments.

Approach Used. In developing plans for a Concerted Services approach, the Task Force placed heavy emphasis on developing flexible arrangements that could be adapted to meet local needs and, at the same time, could be implemented within the existing budgets of the participating agencies. It was agreed to observe the following principles:

1. Education and training programs were to be designed to meet specific needs identified by a survey carried out by the public employment service in collaboration with local advisory committees.

2. Every resident of the pilot counties was to be considered a potential participant. However, preference was to be given to persons needing additional education and training in order to obtain employment.

3. The right of each individual to decide the nature and extent of his own participation was to be respected. Persons desiring education and training in order to qualify for employment outside the county would receive the same consideration as persons who plan to remain in the county.

4. Each agency's normal channels of communication, administration, and project funding were to be followed to the fullest extent possible.

5. A coordinator under the general supervision of the Task Force was to be employed in each county.

In order to assure the necessary coordination and to give the needed "spark" to the project it was deemed advisable to select a coordinator who had a high degree of familiarity with the particular county. Arrangements for employing the county coordinator in

Arkansas were handled by the Federal-State Employment Security System; in Minnesota by the Agricultural Extension Division; and in New Mexico by the Vocational Education System.

Outcome. Although this project was not 100 percent successful in achieving its objectives in every locality, it did demonstrate an effective approach to assisting deprived rural counties in utilizing the available governmental resources to overcome some of its manpower and training problems.

Rich Square Project

Another project of interest is a project being conducted by Manpower Development Corporation in Rich Square, North Carolina.[16] The purpose of this project is to provide training for unemployed and underemployed farm workers for known jobs that are available within the state and in neighboring states. It is an MDTA type of program with several unique features.

Those persons selected for training are men who indicated that they are willing to move to acquire employment. They and their entire family are moved to the training site which is equipped with mobile housing units of varying sizes to accommodate each family. Each family is given a subsistence allowance during the period of training.

The men are provided counseling services and placed in appropriate training programs such as welding, mechanics, masonry and carpentry. While the men are being trained for skilled jobs, the wives are taught home management. They are given intensive help in budgeting and buying to get the most out of their subsistence

[16]This Project description is based on an interview with a representative of the Manpower Development Corporation.

allowance. Day-care facilities are provided for pre-school children so that the women may participate in the home management class. Some of the mothers are trained to work in the day-care centers. In the day-care center the pre-school children are provided a program much like Head-Start. The children of school age are enrolled in the local school system.

This approach has been quite successful in keeping the family together during the training period and provides upgrading of educational and cultural experience for the whole family. The biggest problem has been in finding adequate housing for the families once the men are placed in jobs. Housing, which is of comparable quality as the mobile homes has not, in many cases, been available to trainees in areas where they are employed.

Rural Drop Out Study

The Department of Labor sponsored a project in northern Michigan which was entitled "A New Attack Upon Rural Poverty, An Experimental and Developmental Project."[17]

Project Objectives. It was a project for the culturally and economically disadvantaged which was undertaken for the purposes of training a population of 100 rural dropouts ages 17 through 25 in salable work skills. The program was oriented toward experience rather than success. It was an effort to learn more about an identified social problem and how the university can help communities solve the problem. Three counties in the upper Michigan peninsula were selected as the area from which trainees were selected;

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[17]Based on a study entitled A New Attack on Rural Poverty, An Experimental and Demonstration Project. Final Report. Marquette, Michigan: Northern Michigan University, Public Services Division, August 31, 1966, 141 pp.

economic conditions of the area were in a decline; the counties were classified as (1) rural, (2) poor, and (3) had a known pool of unemployed workers under age 25.

Project Approach. The project staff received training in community activation; met with community leaders and lay citizens to obtain involvement; and a county committee was formed to help recruit rural dropouts and provide personal and financial services to those enrolled.

Those not eligible for regular MDTA programs and not acceptable for on-the-job training were enrolled in the program. It included direct job placement, referrals to other agencies, and referrals to regular MDTA training programs.

Area training Centers provided training for rural dropouts in one of 15 possible occupational areas over a 15 month training period in the following occupational areas: welding training, machine tool training, auto mechanics, food service, auto body repairman, refrigeration and air conditioning, nurses aid, stenography and custodian.

The revolving group concept was used to carry out the following: (1) made recruitment an ongoing activity, (2) offered a wide variety of training opportunities, (3) forced individualized instruction, (4) enabled the project to use veteran trainees as "role" leaders for new students, and (5) provided flexible training programs whereby students could enroll at any time and progress at their own speed.

A training day included (1) two hours of remedial instruction and orientation to the world of work, (2) two hours of vocational and related instruction, and (3) four hours of vocational training.

The following ancillary support was provided by the community at reduced or at no cost: (1) medical or dental services, (2) major dental work, (3) major clothing donation, (4) psychological help, and (5) loans.

Outcome. Over the 18 months training period 64 percent reached their training objective and were classified as having completed the program. The remainder, 36 percent, were classified as dropouts. Sixty-nine percent were trained to the point where they were sufficiently skilled to enter employment. Over half of the trainees entered regular MDTA training programs at a point in the training schedule other than at the beginning of the course. Cost per trainee excluding subsistence and allowances was estimated at $1490.00. Individualized effort and a humanized approach, regardless of technique or methodology, was given as the key to the success of the trainees.

Other Rural Projects

I have highlighted four major projects that are representative of the best research and development projects that have been completed. There are, of course, many other projects that deserve attention, but time does not allow for their exploration here. I do, however, want to mention a few other things that are being done that you may wish to explore later. For example, some states are using mobile units on a pilot basis to provide counseling services and some occupational training to small isolated rural schools. In other states multiple occupational education programs are being conducted through the Vocational Agricultural programs. They are expanding their offerings to provide basic skills training to students that would not ordinarily enroll in Vocational Agriculture.

I would also call your attention to the work of the Rural Task Force on Occupational Education in Rural America. The Task Force is sponsored by the Division of Vocational and Technical Education in the U.S. Office of Education and is chaired by Dr. A.W. Tenney. Its purpose is to stimulate the development of more comprehensive occupational education opportunities for rural people. The number one concern of the Task Force is the establishment of programs for the rural disadvantaged. They are also encouraging State Task Forces which are needed to intensify their effort. Several states have already established a Task Force. Therefore, some of you may already be familiar with their program.

Finally, the Center for Occupational Education is in the process of preparing a catalog of program ideas and concepts for the establishment of occupational programs for the rural disadvantaged. This publication will be a handy reference for program planners, and should be available within a year.

A Sampling of Other Projects Having Implications for the Rural Disadvantaged

Interpretive Study on Preparing the Disadvantaged for Jobs

Probably the most important piece of research that has been done recently on occupational education for the disadvantaged is a study done at the University of Tennessee by Dr. Trudy Banta and Dr. Douglas Towne entitled Interpretive Study on Preparing the Disadvantaged for Jobs. This study is a complete review of the literature and research on programs for the disadvantaged. It is interpreted in terms of what is now being done by all private and public agencies to train the disadvantaged for jobs. It evaluates such programs as those sponsored by USOE, MDTA, Economic

Opportunities, Job Corps, and Neighborhood Youth Corps. It then recommends policies, programs and procedures for more adequately training the disadvantaged for jobs. The major concern of the study was, however, the exploration of cooperative efforts of private industry and the schools.

This is a very good reference for anyone who wants to become familiar with programs that have been used with the disadvantaged. It also provides a good bibliography for additional study.

Program for the Disadvantaged in New Jersey[18]

Mobile Units. Mobile units are being used to bring occupational education to the disadvantaged. A vocational training model which is commanding widespread attention is that of mobile training units. Such units are utilized in New Jersey for specialized vocational training in industrial occupations and office occupations. Other units have been instituted for diagnostic and remedial learning processes as well as the provision of health services.

The Mobile Industrial Training Unit is a pilot project sponsored by the State of New Jersey, Department of Education, and funded jointly by the Divisions of Vocational Education and Curriculum and Instruction through its Educational Programs for Seasonal and Migrant Families. It is designed to provide exposure, training and evaluation for students with special needs (those having academic, socio-economic or other handicaps), for adults and for school dropouts.

The mobile unit is a custom designed trailer, 60 feet long and 10 feet wide, containing its own air conditioning and heating

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[18]Adapted from a paper presented by Christine R. Shack, New Jersey Urban School Development Council at an Institute on Expanding Vocational Education Curriculums to Meet the Needs of Disadvantaged Youth and Adults in Rural Areas held at Mississippi State University, July 20-31, 1970.

system. The unit can be moved throughout the State and be put into operation in one day. It contains a complete conveyor system and equipment including a time clock, automatic tape dispenser, quality control scales, and a built-in Am/Fm radio and intercom system. The same area is converted into a classroom within fifteen minutes for general instruction.

The classroom is equipped with all types of instructional materials such as closed circuit TV, a movie projector, screens, record players, film strip and slide projectors, blackboards, bulletin boards, calculating machines for solving work production problems, and other classroom equipment. In addition to the working-classroom, there is space for interviewing, counseling, and program preparation.

During the regular school year the unit travels to ten different school districts serving as many as 36 individuals at each location for a period of one month. During the summer months, it travels to five different locations serving as many as 36 individuals at each location for a period of two weeks. The students are trained in industrial procedures, techniques, and practices. All of this training is conducted by one coordinator/instructor and one assistant.

The first phase of training deals with the job application. In this phase the students learn how to obtain information about jobs and sources of jobs.

The second phase deals with the simulated interview. This is a true-to-life situation because the students are interviewed in the office area of the trailer and are asked pertinent questions concerning their application.

The third phase is the performance of assigned duties at the mobile industrial site. The practical work experience is made possible through the fulfillment of contract agreements with co-operating companies.

The fourth and final phase is that of evaluation. Each student is evaluated on a daily basis. Counseling sessions are held periodically, during which the students are allowed to express themselves and relate any problems that might be confronting them, or offer suggestions that might make the program more meaningful to them.

Distributive Education Project for the Disadvantaged

Another unique training operation for the in-school youth can be cited. This program's uniqueness is characterized not by program content, but by the collaborative approach it employs. In ghetto ravaged Newark, a large department store, Bamberger's, is making available training facilities to prepare distributive education students. Basic education subjects are taken in the local high school while both theory and laboratory work in distributive education are present in the store facility. In essence, the store becomes a dual classroom and lab facility. The projection is that some 90 students will be enrolled with approximately one-third of this enrollment remaining in the employ of Bamberger's and the remainder prepared for an infinite labor market. Here, questions may be raised as to the accessibility of the commercial facility. The same weakly based interrogations and arguments have been largely responsible for the perpetuation of the restrictive organizational patterns, the administrative heirarchy and the fragmented departmental lines. There is a need for diligent effort being

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exerted to foster and develop cooperation between education, business and industry. The trend toward the location of business offices and mercantile operations in suburbia or the urban outer perimeter has long since emerged.

Multi-Skill Centers

Not to be overlooked is the stationary facility such as the county or regional vocational multi-skill centers. Several models of the multi-skills center have evolved. A trioka, comprised of the State MDTA, the Vocational Division, and a local education agency, serves as the vehicle for the implementation of this program in New Jersey. The multi-skills center provides training programs in some forty plus occupational areas for out-of-school youth, non-school age learners and adult citizens. These centers have been operating successfully for several years and are a supplement to vocational training in the public secondary schools as well as that provided at the thirteenth and fourteenth year levels in county vocational schools.

Residential Center

A development of recent vintage is the New Jersey Manpower Residential Center. Formerly, one of the nation's several Job Corps Centers, the Manpower site now accommodates school age boys from within the state of New Jersey with an intent toward equipping them socially, educationally and vocationally for productive citizenship. Although the program designs have been punctuated with reference to in-school youth; no single program descriptive has placed limitations on its usage with other audiences; those requiring compensatory training, the non-school age learner, the dropout, or the adult needing supplementary training.

Educational Cooperative Program

Benjamine Carmichael, Director of the Appalachia Educational Laboratory believes that a renaissance for rural education could be the outcome of an organizational structure being successfully developed in Virginia, Kentucky, Tennessee. A model of the new approach, which combines a group of small school districts, a college, and the State Department of Education is being prepared by the federally supported Appalachia Educational Laboratory. The model will make it easy for districts to adopt the concept which is called the Educational Cooperative Program. It "will enable a small school which lacks resource to perform on a par with the most advanced districts in the country and will provide the vehicle through which a district can alter its whole approach to teaching and thereby get away from the outmoded system of one teacher, one classroom and twenty-five students."

The cooperative is administered by a board consisting of the participating district superintendents, representatives of the participating college and State Department of Education. The latter two agencies join the cooperative in sharing funds, personnel and equipment. Instruction is taken to children by all the modern means of communication and various kinds of mobile facilities. Local school districts effect multi-district cooperation without suffering the loss of autonomy. Students remain in their local schools with their curricula being supplemented through telelecture, electrowriter, television, radio, computers and mobile facilities. The cooperatives boast of numerous achievements: e.g., all 16 year old students in the three county Tennessee area now have access to driver education, compared to only forty percent

prior to the formation of the cooperative and the cost is only two-thirds of the previous per-pupil cost; vocational education courses are being shared in the same three-county area and vocational guidance equipment has been installed in six high schools; teachers with expertise in single subject areas are now being shared between schools as well as other benefits to gifted, pre-school and early childhood pupils.

Although the projects which have been described in this part of the paper are not all rural in nature, they do provide some ideas and approaches which may work equally well in rural areas.

Conclusions and Recommendations

There is at best a scarcity of substantial research and developmental activity directed at the problems of the rural disadvantaged. That which is available gives us few leads for the development of exemplary programs. Out of the few studies that have been done that are relevant to the rural disadvantaged the following conclusions and recommendations can be drawn which should be considered when planning and initiating programs for the rural disadvantaged:

1. Education alone is not the answer to the problems of the disadvantaged. There are health, psychological, social and economic problems that must also be dealt with. Therefore, programs for the rural disadvantaged should be designed which draw upon the total governmental resources in the community.

2. Programs of occupational education for the disadvantaged should be directed toward the entire family unit rather than individual family members--be they youth or adults. Working with all members provides reinforcement to the member who is the focus of

the training program.

3. Economic development is an essential prerequisite to overcoming the problems of the disadvantaged in rural areas. Jobs must be available to employ the available manpower supply. Therefore, the natural based industry in a community should be fully developed and additional small industry sought to provide necessary employment. Furthermore, there should be training designed to aid the disadvantaged on migrating to urban centers for employment. When training for migration, additional services should be made available to assure the disadvantaged trainee is placed in an appropriate job and that his family is settled in adequate housing.

4. In developing programs for the disadvantaged, advisory committees made up of members of all socio-economic strata should be used in the planning process. The disadvantaged need to be a part of the process rather than having programs imposed upon them.

5. Occupational education programs for the rural disadvantaged should be build around attainable objectives. Students need to achieve success in order to improve their self-concept and raise their aspiration level. Therefore, objectives should be molecular rather than global.

6. Where possible the disadvantaged should be enrolled in regular occupational education programs, giving them special assistance over and above the regular program to treat their particular problems of disadvantagement. To have separate disadvantaged classes tends to accentuate the problems of the disadvantaged. If we work with them within their peer groups they are less likely to be made to feel inferior.

7. Since there is limited theoretical basis for establishing programs for the rural disadvantaged, it is imperative that we build into every new program objective evaluation procedures. And furthermore, we must not be ashamed to admit that some things that we try are not successful. This is the only way that we learn what ideas, concepts and techniques really work and which ones do not.

GROUP GUIDANCE AND EXPLORATORY INSTRUCTION

Dr. Donald Priebe
North Dakota State University

The 1968 Advisory Council Report, Vocational Education--The Bridge Between Man and His Work, contains this observation: "Vocational guidance and vocational-technical education are interdependent. One needs the other. Each ceases to be effective if the other is left out, is inadequate, or is of poor quality." Group guidance and exploratory instruction comprise a critical element in vocational education.

Guidance may be provided through instruction in the classroom, both large group and small group. Each day in each class the teacher must accept and meet a guidance responsibility. Although many guidance activities require a one to one ratio; many can be carried out in group settings provided by a classroom environment.

Much valuable guidance is provided through youth organizations such as F.F.A., F.H.A., D.E.C.A., and V.I.C.A. Well planned activities in such groups provide opportunities to learn sharing and cooperation. These organizational activities provide an excellent chance to build a worthwhile self-concept in students by providing worthwhile, enjoyable and successful experiences. Let us use youth organizations for the excellent guidance tool that they can be.

Group guidance opportunities are also present in many small group situations such as field trips, committees, and student projects. The use of such opportunities is often neglected. The wise teacher, aware of guidance responsibilities, will find here a useful tool.

These ideas concerning group guidance and exploratory instruction apply to education for all but are especially crucial for the disadvantaged. But let us not forget "Joe Average" and the "advantaged". Perhaps all youth are "disadvantaged" in some way.

For purposes of clarity and organization, we will "dissect" this topic somewhat and hang it on five pegs to take a better look at the component parts.

I SELF WORTH CONCEPT

For good mental health, for success in school, for social success each person--boy or girl, man or woman--must feel, 'I am worthwhile; I count for something in this world, too.' The boy or girl must feel that he or she is important--a person of worth. Each person needs a feeling of acceptance and a feeling of self-esteem.

We know full well what kinds of behavior often follow when this concept is not present. Vandalism, crime, and suicides are stern reminders of something that has gone amiss.

Too often teachers and others have reinforced a negative concept. Basically the child says to himself, "Everyone keeps telling me I am a failure so I must be." Everyone may include teachers, parents and peers. Eventually the child is likely to assume and play the assigned role of failure. Each person--boy or girl, man or woman--must have dignity; such as that afforded by:

a) respect from teachers
b) respect from peers
c) good grooming
d) decent clothes
e) a measure of success socially and in school

To develop this sorely needed concept of self-worth, we must develop success patterns in students.

II SUCCESS PATTERNS

Disadvantaged students so often have, not success patterns, but "failure patterns". So much of what they do turns out wrong.

We must provide a setting in which success is: 1) possible 2) at first easily achieved, and 3) is repeatable! We need to start with possibilities for success and build on a progression of many successes.

Success breeds success and the building process begins! But--early, very early, success is crucial. Early and continued failure tends to lock the student into a failure cycle. We must help the student find the successes which will break this depressing cycle of failure.

If success is to continue in a desireable way another ingredient is necessary. Goals must be developed.

III GOALS

We as teachers must have suitable goals to know what we want to achieve. We must have goals to know where we are aiming or where we are going. Even when you got up this morning, you had some goals such as eating breakfast or getting to this meeting on time.

What are your goals as a teacher? Are they to teach how and why? Or are they just to teach "about" things? Or are they like the teacher whose goal was to teach about 50 minutes in one class period? We must have worthwhile goals for our teaching; but the goals must be properly centered.

What is the "center" of your teaching? Let's all provide student-centered teaching and not teaching centered around subject matter, program, or self. If we serve our students well, our programs and careers will benefit also. If our teaching is to be really "student centered", we must accept the idea of teaching individual students in classes rather than teaching classes. If we are to teach individuals, we must learn to know our students. We can learn from records and visits. We must give them a chance to talk and express themselves, and we must practice being alert and observant.

We must also shy away from faulty and dangerous assumptions which prevent us from knowing and understanding each student. Rather than make assumptions we find the answers to such questions as:

a) How well can he read?

b) Is he in good health?

c) What is his home life like?

We must remember, however, that for really effective learning and development, the student must have his own goals. So often we mistakenly assume that our goals are the student's goals. Frequently they are not. This might be good. Sometimes our goals are not appropriate for our students. Student goals in a class vary greatly. But each student does need to establish worthwhile goals.

We must help the student formulate goals. The establishment of goals for disadvantaged students is to some extent different than for more advantaged students. First of all, goals must always make sense to the student in light of his experiences and attitudes. At first the goals for him must be:

1) Short term goals, not something for next year or when you grow up, but for today or this week or this month. Some such short term goals might be a part-time job for money to buy a suitable dress or shoes. It may be money for a date. It may be learning a simple motor skill.

2) Easily achievable. Please don't provide students with false hopes toward reaching goals they cannot reach. Help them set "reachable" goals.

In order to develop goals and inspire disadvantaged students we must often work with the environment, not just the student.

IV ENVIRONMENT, WHAT ENVIRONMENT?

School is obviously one big slice of the environmental surroundings of the student over which teachers exercise considerable control. We can help to make school a place where the boy or girl can live and work happily. We can develop the attitude among students that this is "my" school and not just "the" school.

The family is a key portion of the environment of the student. Sometimes parents are against or at least do not actively support school attendance and achievement for their children. Sometimes the disadvantaged student does not have a suitable family relationship. Teachers do have opportunities to influence the family environment. We can confer with and inform parents. We have an excellent opportunity to influence parental attitudes through student success in projects, youth organizations, school work, and work experience programs. Maximum success in working with disadvantaged students requires family involvement and family support of the goals and aspirations of the student.

Another environment of the student over which we often have some influence is the community. Through taking part in civic and community action programs we may be able to provide more favorable conditions in which our students will be more successful.

V EXPLORATORY INSTRUCTION

We as vocational educators have a unique role to play in exploratory instruction regarding career opportunities. We have much contact with our students through classes, youth organizations, occupational experience programs and home visits. We have considerable knowledge of job opportunities and characteristics as well as the requirements for entering these jobs. How can we expect the guidance counselor to be acquainted with job opportunities in all fields? We have a big role to play in providing this kind of information.

We must somehow develop in our students a view of what jobs are really like. Just what do people in food service, retail business, or the farm implement business do each day? A realistic job concept is critical for realistic exploration and appraisal by students.

The student must be helped to see what are realistic job possibilities in certain fields. What are the chances to get the job? What are earning possibilities and working conditions?

Students must be helped to examine themselves in light of possible career choices. What do I like? What are my strong points? What are my limitations? What are my interests? These are all questions that each student must consider in making even the early and tentative occupational choices.

The question of what is needed to get the job must be examined. What personal characteristics are required? What preparation is needed? Will I be able to get this preparation and training?

We as vocational educators have an obligation to provide exploratory instruction. How can this be done? My principal suggestion is: teach careers with each unit of instruction! When teaching a soils or welding unit in Vocational Agriculture, examine the associated career opportunities. When teaching a foods or clothing unit in Home Economics, an excellent opportunity is afforded to provide real reaching concerning careers. When students develop serious occupational interests, provide opportunities to secure occupational experiences in that area.

Such placing of career instruction in the curriculum will be much more effective than just providing an isolated "careers unit" in some course. Here is an enormous opportunity to really "teach"--not just to provide information.

Let's review our opportunities and responsibilities in group guidance and exploratory instruction. We need to provide good teaching, group guidance and exploratory instruction for all--but especially for the disadvantaged. We must help students achieve a desireable self-worth concept and a measure of dignity. As concerned teachers we are obligated to help students set and achieve goals. We must help to create success patterns in students. In part we will achieve these goals through our influence on the environment of the student, especially his family. Realistic and effective exploratory instruction is a vital and integral part of vocational education.

Let us really "teach"--not look upon ourselves as a faucet or pipe through which information flows--but as engineers who set up situations in which students, through their own activities, learn, become changed, and succeed.

It takes real educators--educators who are capable, patient, and dedicated to do this. You are such people. You can do the job!

GROUP GUIDANCE AND EXPLORATORY INSTRUCTION

Odell T. Barduson
Minnesota State Department of Education

It is indeed a pleasure to be in your midst and an honor to have a part of your program. These are exciting days for vocational education as Representative Rod Searle, of Minnesota, told 2,000 of us at vocational education conferences last week. He stated that the time is now ripe for the biggest advancement financially and program wise that we have ever had. Congressman Quie indicated that this is also true nationally. Congressman Quie, at our Chicago meeting, went on to say that funding can be increased for the 80% that need vocational education. There is need for a long term change in the whole attitude of educators. Now we train for college and consider a Bachelors Degree as a mark of success. We need to look forward to a successful vocational choice, even for the many who will not enter college. We must return dignity to honest work.

Quie states that there is need to move education and manpower to cabinet status. This proposal is gaining friends in industry but there is some fear of excessive federal control.

The second report of the National Advisory Council on Vocational Education lists concerns and recommendations which must be kept in mind as we plan for the year ahead. Let me list them for you.

Concerns:

1. A concern for persons who are flowing into the pool of unemployed as strong as our concern for those already among the unemployed and the underemployed.

2. A concern for directing the disadvantaged into the mainstream of vocational and technical education as career preparation, rather than into separate programs.

3. A concern that Federal funds be used primarily to cover the additional costs of vocational and technical education rather than total costs.

4. A concern for coordination of vocational education as well as manpower programs.

Recommendations:

1. Require that communities develop coordinated plans for reducing both the flow of untrained youth and the pool of unemployed adults.

2. Focus Federal support for community colleges and other two-year post-secondary institutions on vocational and technical programs as career preparation.

3. Overhaul the Federal Administrative organization to permit the Federal Government to exercise leadership in vocational education as well as manpower training through a Federal Department of Education. (Inside sources say this is not a dream any more, but reality.)

Victor Hugo once said, "Stronger than all the armies is an idea whose time has come." M. D. Mobley, past executive secretary of AVA, stated in 1966 that vocational education would be emphasized more in the next ten years than in the past fifty. I believe all of us can feel the revolution. It is sweeping our

state, I know. This feeling is mutual, I believe, after the 13 Central States Regional Conference we just completed in July this year.

Review Key Facts:

Review items 3, 6, 8, 9, 10, 12, 13, and 15. All of these facts are found in the review of literature listed in the hand-out you will receive later today. This also includes the report of the rural task force on vocational and technical education in rural America, April 1970.

The first phase of our presentation on group guidance and exploration of rural disadvantaged is as follows:

Self Worth Concept

Dignity - Environment - Family

The state of Virginia has an excellent program that zeros in on rural disadvantaged youth who live on farms and small towns. They have a program to restore dignity for each individual. They give him a portion of an acre to grow vegetable crops on from which they net about $150.00 each. This buys them clothes and spending money for social functions such as dates. This new found dignity and confidence is what a 9th to 11th grade boy and girl need. A black supervisor explained the program beautifully indicating that a black man and white woman shared the teaching duties of this group of 27 students.

Lambert Schilling, of Detroit Lakes, Minnesota, has a specialty crops adult farm management class. In this class of 40 families he has 12 families who were on welfare two years ago. They are now paying taxes. They now feel this life is worth living. The brother of one of these men said that the attitude

of his brother had turned 180°. This has stimulated positive goals for their children. This means love and charity for all.

The REDY project just completed in Illinois brings out the same general conclusion. That is that the disadvantaged family and student all need to be involved in order for there to be a permanent change in the attitude of the young students. The environment must be changed as the root cause before this type of student will significantly change.

Another research project in Indiana proves that innovative programs, geared specifically to the deprived students taught by enthusiastic teachers able to communicate with the students may achieve success in educating the disadvantaged youth in a rural area.

It was also found that the teacher's role is of utmost importance. This has been expressed by Ann Ewalt, a regional D. E. officer, daughter of a vocational teacher. She is quite a girl and impressed all of us at the National Co-op Conference in Minneapolis last winter, both speaking and later in a committee meeting with her. She says: "I have many pet peeves. Perhaps number one is the teacher-coordinators. It is such a sad, sad thing for me to see a teacher-coordinator come into the classroom and ruin thirty students. I've seen it wherever I've gone. I've seen it; no matter where you turn, you see it. The first thing you have to realize is that the teacher-coordinator is the backbone of a cooperative program. You have to be willing to give them. . .the extra special training because they have to care. They have to care so much that it hurts; that they are willing to work the extra hours, that they are willing to go the extra mile,

because you can't inspire students, you can't make them enthusiastic, you can't do a darn thing with the student unless you've got a teacher . . . you've got to have top-grade teachers."

Superintendent Willet of Richmond, Virginia, also mentioned that sometimes we may need to hire paraprofessionals who can communicate with these high school dropouts better and thus help our educational process. These items are important for each of you who are here in planning the programs back home and the teacher whom you may approach to help you in reaching some of the disadvantaged people.

Then one of the very best examples of motivating the disadvantaged students is the T.C.O.I.C. in Minneaplis. This was formerly administered by Mr. Charles Nichols whom you heard Monday or Tuesday. They start with a personal approach and use personal approach and guidance until the student feels safe in this new type vocational education school. They were to be closed and the students went on strike to keep the school open. That is trust, confidence, and dignity that the disadvantaged individuals had acquired in that loving and caring type of environment.

We feel that our high schools have made close to 80% of our students disadvantaged. The reasoning behind this statement is that our curriculums and teachers have directed their efforts toward the 20% that finish college. This leaves the other 80% poorly guided and trained for their first step in the real world of work. Maybe when the Good Lord says we need to forgive (77 x 7) he meant us too??? Remember, when Joseph was disadvantaged no effort was spared.

We need to reach all students and keep them in the mainstream of life especially those that are disadvantaged with a program that will be student centered, develop a success pattern and must meet the relevant needs of people and the job opportunities in the world of work.

We have attached a suggested plan that we think will do the job of orientation and exploratory instruction. You may implement this plan in your school and it will reach every student in your school including the disadvantaged students. This plan will involve K through 9 specifically. It has two major parts: 1) K through 5 and/or 6, and then 2) Cluster pinwheel concept for grades 6 or 7 through 9. This will prepare the boy or girl with a more appropriate interest, attitude and intelligent bank of knowledge from which to make a more mature and accurate selection of a career.

A plan presented by Task Group C of the Multi-Service Institute on Career Orientation at Raleigh, North Carolina, on June 21-26, 1970, is presented herein as a model to use in helping students in exploratory preparation in helping to select their future occupation.

A similar plan had been discussed and adopted by Minnesota Vocational-Technical Division and is part of its publication of August 1970 called "Establishing and Operating a Secondary Vocational Center". This pinwheel cluster concept in grades 6 through 9 and K through 5 when carried out with high quality, relevant career development programs will practically eliminate dropouts.

It will inject a positive note for all of education and again restore education to its proper level of respect that it has traditionally held in this country except for the 1960's and now.

ADAPTING ADULT EDUCATION TO THE DISADVANTAGED

Dr. Edgar Persons, University of Minnesota, St. Paul
Dr. Gary Leske, South Dakota State University, Brookings

August 17, 18, and 19, 1970

Efforts at voluntary adult education have sometimes been criticized because such programs are said to serve best those persons who need it least. There is some truth in that statement. Up until very recent years, the adult education efforts of many rural communities have been only for volunteer groups. Programs for farmers, for example, have been utilized by those who sought the services of the school. Others who may have greater need have not voluntarily sought such help nor have they in most cases been actively recruited to attend. Similar circumstances prevail in the other vocational fields as well. Conscious efforts through the regular vocational education programs at promoting education for adults who need it most have not been common.

Recent efforts under the auspices of the Manpower Development Training Act and the Office of Economic Opportunity have been aimed at those with greater need. Not only have persons been actively recruited, they have been provided other strong motivators such as stipends to encourage their attendance. The results of such efforts have been rewarding. Not only have the participants been able to improve their economic plight, but for some it has been the first experience where education and some measure of success have been associated. The programs have been too few however, to serve the large numbers of adults that reside in the rural communities.

Where are the rural poor? Statistics show close to 14 million rural Americans are poor and a high proportion are destitute.[1] Some reside in areas of general disadvantage and are easy to observe. You see them in Appalachia, the Ozarks, the costal plains of the East and the reservations of the Southwest and the great plains. But poverty does not respect the imaginary boundaries of these areas. It is everywhere. A high proportion of the poor are in rural areas--but only one out of every four lives on a farm. The towns, villages, and hamlets scattered throughout rural America and prevalent in the States conducting this workshop have their share of the poor, the poorly educated, the under-employed and others whom society claims to have less advantage than their peers.

Somehow or other, the notion has grown that education, like one of the popular breakfast cereals, is just for kids. Yet, a high proportion of the disadvantaged are not children; they are adults--they are the mothers and fathers of the disadvantaged children to which we have directed so much of our attention. They are the ones who most directly influence the attitudes of their children, set the rules for family conduct, and provide in their own way for the health and happiness of their families. Is it logical that a group of citizens with such an important impact on the future welfare of youth and upon the eventual welfare of the nation should be ignored by the schools?

Hoerner was realistic as he examined the role of vocational education in Nebraska. He stated ". . . schools that continue to educate youth alone are doing little more than playing at

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[1]A Report by the President's National Advisory Commission on Rural Poverty, The People Left Behind (Washington, D. C., 1967).

occupational education. Any serious effort at improving the economy of a community and the lot of its people must include adult education."[2]

The average employee or self-employed rural resident has about twenty years to actively contribute to his community by gainful employment. If he is disadvantaged today because of the lack of training or inability to make the decisions necessary to rise in economic stature, it seems inappropriate that he should continue in his plight for the next twenty years simply because he is now an adult.

Identifying the Tasks

The tremendous influence parents have upon their children cannot be treated lightly. As one studies ways to improve the education of rural youth, this parential influence should not be ignored. Even if schools are successful in creating a good environment for learning, the student still returns to the influence of his friends and family for the remainder of the day. This is not to suggest that the influence of the family and peer group is undesirable. It is rather to suggest that changing the attitudes, habits, and environment of the family may be as important in influencing the development of youth as is the effort expended in his education.

Youth will escape from the disadvantaged situation only if they want to, and if they see the opportunity to do so. The goals to which youth aspire are tempered a great deal by the aspirations parents hold for their children. Since disadvantaged parents often have a very limited frame of reference regarding occupational

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[2]Hoerner, James, "Report on the Need for Vocational-Technical Schools in Nebraska," Nebraska Legislative Council, Lincoln, 1969.

choice, it is very difficult for them to be of any assistance in helping their children examine the multitude of higher level occupations to which they might aspire. It would appear that at least one of the tasks of adult education for this group is to help build a broader framework of occupational knowledge.

Not a small part of the problem faced by adults is the social class in which they find themselves or in which they perceive themselves to be. Fuller and Phipps report that adults in disadvantaged areas associated their present position in society with other occupations at a low level on the prestige scale.[3] In a comprehensive survey of a depressed area of Illinois, 96% of those interviewed associated themselves with occupations generally assigned to the middle or lower economic classes. These areas lack dispersal of all social classes in their community structure and thus limit the opportunity for families to learn about the activities of higher prestige persons and occupations. The lack of high social class positions and their accompanying occupations contribute to the motivation for those with superior ability and leadership potential to migrate from the rural areas to the city. This movement only adds to the homogeneity of the people left behind.

One may ask why people choose to remain in disadvantaged regions or choose to remain as disadvantaged adults when there are opportunities to participate in the current on-going adult education programs of many schools; programs which at least hold some promise for movement to higher economic and social levels. Certainly the answers to that question will vary from adult to adult,

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[3]Fuller, Gerald R. and Lloyd Phipps: Project REDY - Interim Report No. 2, University of Illinois, 1968.

but in general, these are a few special conditions of which we should be aware.

First, one should consider if the persons in your area whom you have identified as disadvantaged consider themselves to actually be in that category. A person has an ego-defensive mechanism which helps him to rationalize his station in life. This mechanism allows one to protect himself from acknowledging certain truths about himself or certain external realities.[4] Many rural families who by our technical definition are classed as disadvantaged do not consider themselves to be. In spite of low income or inadequate schooling or erratic employment, they find their needs satisfied.

A second consideration is the degree of satisfaction disadvantaged adults may have with their station in life. While others outside their group may see little with which the disadvantaged can be satisfied, those within find a great deal of satisfaction in things they have come to value highly. One study (Project REDY) found three areas for which the rural disadvantaged expressed a high degree of satisfaction.[5] They are:

1. The availability of opportunities for families to satisfy their wishes and interests regarding the welfare of the family and a residence for the family,

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[4]Champagne, Joseph E., "A Conceptual Model for the Evaluation of Changes in Selected Personality Variables Through Occupational Education," North Carolina State University, 1968.

[5]Fuller, Gerald R. and Lloyd Phipps: Project REDY - Interim Report No. 3, University of Illinois, 1968.

2. The amount of social participation activities in which the family as a group and individual family members are able to participate and
3. The quality of the social participation and quality of well being of the family unit and its members.[6]

It may be necessary to discover the facets of the disadvantaged life which are least satisfying or most annoying if these persons are to see benefit in the educational programs of the school.

Thirdly, there are often psychological barriers to movement from one social strata to another. The fear of failure, the unwillingness to accept more responsibility which a higher strata may demand, and fear of unknown expectations in the job or tasks of a higher level may all be significant deterents to the will to advance.

A lack of self confidence to achieve cannot be overlooked as an important fourth characteristic. For few of the disadvantaged have there been events which have contributed to their self-concept. Success has not been their forte. Even as they are described, there are few descriptive terms that are associated with success. If the person in all of his adult and youthful life has achieved only to the point where society can best describe him as disadvantaged, he has not experienced any form of success pattern with which he has a favorable association. It is little wonder then that he is neither eager to participate in nor highly optimistic about the programs which have been available for adult education in the public school.

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[6] Ibid.

Basically, the person who is holding down a part-time job for pay is an employee of the firm for which he is working. Let me emphasize and make perfectly clear that as such, he is subject to all the rules and regulations of a regular employee. This surely includes being subject to termination if the job performance is not up to the standards required by the employer. In qualifying this statement, I would emphasize that the relationship with the employer should be of such a nature that he would inform the coordinator of his intentions of termination at least a week prior to the contemplated action. It has been evidenced that during this week the coordinator may be able to change some work habits and patterns and establish a situation which would forestall the termination. This is a very important part of the job coordination. After all, it is a learning situation and as such the mistakes of the student should be corrected through the work of the coordinator.

In summary, it would be well to emphasize that the basic principles of the cooperative occupational education program are grounded firmly in the vocational concept of preparation for gainful employment. Actually, the gainful employment is occurring during the time when students are enrolled in a cooperative program. Basically, this type of education, which involves a methodology of cooperative work experience, demands the closest cooperation between employers and the schools.

A good text on cooperative occupational education and work experience in the curriculum is published by the Interstate Press, Danville, Illinois, and authored by Ralph Mason and Peter Haines.

In summary Cooperative Vocational Education strives to:

1. Aid student learners in developing skills and job intelligence applicable through a correlated program of classroom instruction and on-the-job training.

2. Develop specific skills, knowledge, and attitudes needed by the learner which are required for successful employment.

3. Provide learning within a controlled supervised setting.

4. Provide earnings for students while they learn in both vocational and general education areas.

5. Provide a means for students to answer the problem of <u>self identity</u>.

As we think together about adopting cooperative vocational education to the rural setting I'd like to set the stage by telling you of the situation in my home state, Montana.

Montana's rural high schools can be characterized as:

1. Having little appropriate vocational education for students except Agriculture, Home Economics and Business courses.

2. There is an unprecedented drive towards preparing students for college even though only 56.7% start and of these only 16% finish.

3. Students upon graduating from the community migrate to Montana's three larger cities and out of state where they are ill equipped for employment.

4. The greatest single deterrent to the growth of vocational education has been the fact that schools are too small to do the job effectively and economically.

5. Two types of curriculum maladjustments stand in the way of their becoming reasonably comprehensive:

   a. An overblown curriculum emphasis on college preparation which is out of proportion to the number of college-bound students.

   b. Lack of a balanced vocational program available to help all students select a realistic occupational goal.

6. The more remote the community and the smaller the school, the more poorly prepared is the youngster for the urbanized technological world.

7. Montana's schools too are characterized by:

   a. Great distances to population centers and from other schools.

priority on those things of high interest.[8] The skillful educator can combine his knowledge of the things with which adults are dissatisfied, with his knowledge of those things in which adults have high occupational need and high interest to set the stage for acceptance of educational programs by the disadvantaged.

The "Homemaker's Morning Out" program operated by the St. Paul, Minnesota, Public Schools for homemakers with special needs was well planned and accepted.[9] Classes were conducted in apartments similar to those of the target population. Emphasis was given to wise buying and use of inexpensive materials. A typical topic was "Decorating on a Shoestring." The classroom-apartment was the showcase for the finished product of many class activities. Cooperative planning and problem solving were encouraged by patient and persistent teachers.

Step 3 - Assisting families to define their goals and to understand the place of goals in the decision process.

The failure to define goals clearly is certainly not an attribute specific to the disadvantaged. Almost all persons having difficulty in defining and expressing goals for themselves and their family. With the disadvantaged, however, the problem is more acute. Their resources are more limited and their knowledge of reasonable alternatives is less complete.

What kinds of goals should they set? That answer depends upon their values, but the goal must have one important characteristic; there must be a high probability of attainment. Some form of success pattern must be achieved if the adult is to

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[8]Morgan, Holmes, Bundy; Methods in Adult Education, The Interstate, 1963.

[9]Hatteburg, Patricia Auble, "Vocational Homemaking Reaches Out to Homemakers with Special Needs," Vocatio: I (May 1968), p. 13.

b. Weather conditions during a part of each school year are extreme.

c. Population is scattered and sparse.

d. Isolation tends to narrow the perceptions held by parents regarding the role of the school and its connecting link to life and work.

8. Small school education is very expensive on a per-pupil basis as compared to schools of larger size.

9. The recruitment and retention of teachers in the small high school is a critical problem.

10. Rarely do schools seek lay advice or counsel from business, commerce, or agriculture about how to make local high school programs more comprehensive.

11. Though there is some controversy about the compared ability level of rural vs. urban students, there appears to be the same range of pupil talent in the small high school as for all high schools. In the small high school insufficient numbers in each group make ability grouping impractical.

12. Inadequate education of rural and small town youth is being cited as causing social problems in large city cultures.

13. Efforts to change vocational education programs in the small high school have in most instances been through the teacher rather than the administrators or school boards, resulting in limited change.

<u>The disadvantaged according to the Vocational Education Amendments of 1968</u>. "...persons who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational education program."

The people in my own state qualify in the above category for the reasons mentioned and in addition for reasons of geographic isolation. Each local school district must of course justify disadvantaged based on some of the following variables:

1) Distance to major cities
2) Weather conditions
3) Type of roads
4) Economic status of area
5) Needs of people served

associate his education and training with something he finds of value (success). The broad general goals with which educators have become so familiar must be cut down to size and must be specific enough so that attainment can be recognized. A goal "to raise the level of living" is inadequate. But to specify, "to increase income by $300" is both specific and allows for measured attainment. It is important to remember that many small successful goal attainments are more important than one larger goal not quite reached. Educators must not overlook the importance of what to them may be an insignificant family goal. For the person who regularly enjoys a 3 week vacation away from the job, for example, a weekend at a lakeside cabin may not be very important. To a disadvantaged family who has never had a vacation, this same weekend may satisfy an unfilled want of long standing.

Another task is examining goals in the proper sequence with other steps in this decision process. Many first examine goals and then look at the problems they have and take inventory of their situation. This procedure results in many false starts since the goals may be relatively unrelated to the inventory of resources as the point from which the family is starting. It is important, especially with families with limited resources, that they first take inventory of the resources at hand. Only then can goals be realistic and offer some probability of attainment.

Step 4 - Aid adults in the decision process so that some progress can be made toward goals.

The decision making process is not long or cumbersome, but it does involve a logical pattern of thinking that many have not practiced.

In Developing Curriculum for Disadvantaged Rural Youth.

The curriculum must concentrate on those elements of instruction that will contribute directly to occupational proficiency needed for initial and sustained employment. Remedial instruction and social skill development may be a dominant consideration in programs for many of these youth since this seems to be the area of greatest deficiency. Such instruction, however, must be coordinated with the primary concern of vocational education--development of those knowledges, skills, understandings and attitudes needed for successful employment.

1. Provide Appropriate Curriculum:

   a. Remove those deficiencies that normally exclude them from receiving productive rewarding employment upon leaving school. This requires instruction that will improve such things as personality traits and other social competencies, basic general education fundamentals and the desire to reach a chosen attainable occupational goal.

   b. Provide marketable skills which make gainful employment possible. This implies a wide range of levels and degrees of skills to be determined by individual ability and shortcomings, interest and motivation.

   c. Offer a diversity of programs geared to specific interest of individuals and occupational opportunities for gainful employment.

Instituting A Cooperative Vocational Education Program.

If the cooperative program is to be successful all publics in the community must be informed of the program and how it operates. Press releases must be made when the decision has been made to institute the program. The coordinator must appear before service clubs, business and professional organizations and tell the cooperative education story. He must personally contact the prospective students of the program and their parents and enlist their aid.

The process itself can be arranged in 10 steps, two of which have already been mentioned. They are:

1. Analyze the present situation and take inventory of the physical and economic resources at hand.
2. Locate the problems.
3. Set up objectives or goals.
4. Size up the resources.
5. Look for various alternatives.
6. Consider probable consequences and outcomes.
7. Evaluate the expected results.
8. Decide on a course of action.
9. Put the plan into effect.
10. Evaluate the results of the decision.

Educators can be most helpful in steps 1, 2, 4, 5, 6, 7, and 10. While educators can assist and guide the family in step 3, setting objectives or goals, they must not try to force their own goals or objectives upon the family. A primary contribution comes in steps 4, 5, 6, and 7. The educator can view more objectively the resources and alternatives available to solve the problem the family may identify. His knowledge of many alternative ways of doing the same task can be a valuable aid in helping families broaden their habits for examining problems. They can assist in evaluating the outcomes of each alternative as they bring into perspective the probable results of each decision.

Making the decisions, however, is the job of the adult and his family. Since he must suffer the consequences of a bad decision or enjoy the success of a good one, he must be aware of his responsibility to act.

Conducting the Community Occupational Survey.

Since the cooperative program is dependent upon the business community to provide the occupational laboratories for the student, the teacher or teachers appointed as coordinators must determine what occupational skills are in demand in the community and what businesses will be willing to cooperate with the school in the operation of the program. In order to do this he must contact all potential employers in the community to determine their needs.

The Community in rural Montana and Minnesota will be defined quite differently. Establishing the Advisory Committee. In order to operate a successful cooperative vocational education program the aid of many people in the community is needed. The appointment and operation of an advisory committee will provide some of this needed aid. Among the functions of the advisory committee are (1) Establishment of a criteria for the selection of occupational laboratories. (2) Determining the occupations for which the training should be provided. (3) Determining the instructional content for the program. (4) Aiding in the establishment of occupational laboratories. (5) Aiding the school in obtaining instructional materials and equipment. (6) Aiding in the public relations program. (7) Evaluating the outcomes of the cooperative vocational program. Employing a teacher-coordinator for the program is probably the most important factor in determining the success of the program. This person must be knowledgeable in the cooperative method and also have the ability to work with disadvantaged youth. Each state's plan provides certain standards for education, and experience.

Step 5 - Providing technology and information necessary to put the decision into effect.

Deciding is not enough--acting is still required. Here the educator can provide technical training, education and counsel to assist the family in putting their plan into effect. As in the example of the okra producers previously cited, once the decision was made to adopt this enterprise, it was the task of the educator through education and counsel to provide the technical skills and abilities necessary to make the decision successful.

Determining Program Content

If the disadvantaged adult is to attend a formal instructional program, he must have a hand in determining what the content of the instruction will be. Adults must be given an opportunity to interject their particular problems into the educational plan. Abstract education will simply not solve their problems. Using the first class session to elicit problems and formulate the activity for subsequent sessions may be the most valuable event of an entire series. If the topics of instruction are derived directly from the problems that they and their friends and neighbors have defined, the instructor will be more effective--even if the final list of topics is by chance the exact same list the instructor would have devised. It is the simple matter of "theirs" versus "yours"; a simple matter that separates intense interest from apathy.

The rules for program content are simple: the content must be specific, concrete, practical, lifelike and related to experiences and interests of the participants. Above all the content must be planned so that the participants enjoy their association with education and the people who serve them.

Helping the Disadvantaged Through Cooperative Vocational Education.

The preparation of disadvantaged youth for the cooperative program presents numerous problems. Not infrequently, these young people aspire to jobs which are beyond their capabilities. Equally significant, are the youth who have no aspiration or who possess efficiencies in their basic general education or no basic vocational subjects; social skills too often are painfully obvious. Many of these youth have rejected the idea of compulsory school attendance. On the other hand, meaningful preparatory program prior to the student's enrollment in the cooperative program may overcome some of his shortcomings which make him unemployable. Some of the outcomes of such instruction would be to:

1. Develop a realistic understanding of and respect for the dignity of work.
2. Develop acceptable work habits, attitudes, and skills.
3. Encourage development of self-confidence and self reliance.
4. Create understandings about the roles of employers, civic and community organizations.
5. Develop an awareness of the importance of education in relation to employment.

Examples of cooperative vocational education programs serving rural youth can be found in rural areas of Montana and Washington.

Fairview, Montana:

Objective:	To institute a cooperative vocational education program in Agriculture at the high school level to provide more appropriate laboratory experience in off-farm-agriculture-occupations for fifteen problem senior boys.
Town:	Population 600 Location - North Dakota-Montana border Business - General mostly serving the rural agricultural area.

CONCLUSION:

This brief paper has but touched on some of the problems disadvantaged adults face as they meet the obligations for day to day living. The problems are grave and of long standing. The consequences of their problems reach out to their off-spring. The cycle of the poor in mind and in material goods repeats and repeats as the youth inherit the things we call disadvantage from their parents. Our task is to break the cycle. A conscious effort at adult education may be one of the keys to accomplishing this task.

The steps in the process are fairly well documented. They are simple, straight forward and have worked successfully in a variety of efforts at education for the disadvantaged. Briefly reviewed, they are:

1. Establish rapport with the family.
2. Motivate families to participate in educational programs.
3. Assist families to define their goals and to understand the place of goals in the decision process.
4. Aid families in the decision process so progress can be made toward goals.
5. Provide technology and information necessary to put the decisions into effect.

The paper does not provide a formula for implementing a specific program for adults within a school area. It does, however, point out some of the characteristics such programs must have if they are to meet the needs of the disadvantaged adults. A dedicated teacher, a school with commitment for adult education, and the knowledge that adults can and will participate in programs structured to meet their needs are the essential prerequisites for successful education of the people left behind.

Placement:	Students were placed according to their occupational objectives in as much as possible.
Pay:	Mutually agreed upon between employer, student and school coordinator.
Related class:	In addition to students being enrolled concurrently in the agriculture class in the area of farm management they were also enrolled in a general occupational preparedness class.
Teacher of related class:	The related occupations class was being taught by five general and vocational teachers who had experience with the world of work in specific areas.
Supervision:	Laboratory experience supervision was carried on by the teacher of agriculture.
Outcome:	The 15 boys completed school, all pursued post-secondary education in areas of vocational-technical education.

Mosey Rock, Washington:

Population:	400
Location:	In the Spokane, Washington, area. Primarily an agricultural area.
Objective:	To involve every high school youth in an out-of-school educational world of work experience in which they will receive both release time and school credit.
Method:	Bring business to school campus. Bring students to local businesses. Bus students to local businesses in the nearby town of Spokane.
Teacher:	Hired a qualified teacher-coordinator for $15,000/yr./one year in advance to plan the program.
Goal:	Develop better self realization, and a positive attitude about the world of work.

More details about the above two programs may be acquired by writing to the above mentioned schools.

ADAPTING COOPERATIVE VOCATIONAL EDUCATION PROGRAMS TO MEET THE NEEDS OF THE RURAL DISADVANTAGED

Dr. Max L. Amberson
Montana State University
Bozeman, Montana

During this discussion I hope to accomplish three objectives:

1. Provide background and understanding of Cooperative Vocational Education and its potential as an educational tool.
2. Identify more specifically the rural disadvantaged.
3. Suggest a means of adapting the Cooperative Vocational Education Program Idea to serve the rural disadvantaged.

Being an educator these past two years and particularly these past few months has not been comfortable.

As educators we face a flood of questionable news. Let's recap just a few of these charges:

1. School curriculums in the main at our present educational systems are not relevant to the world in which we live.
2. School curriculums have failed to keep pace with modern technology.
3. Relevant programs of vocational education that achieve the objective of job preparation are the exception rather than the rule in our public and private schools.

What are the reasons schools failed to fulfill their responsibility during the 1960's? Was it due to the technological eras and man could not possibly keep up with the machines that he created? As we look towards the 1970's, writers are beginning to predict a totally different orientation and emphasis. It would appear that the 70's will be characterized as an era when:

1. People and people problems will be paramount in our society.
2. School curriculums will approach reality by being relevant to the lives of youth and adults. Schools will strive to

Though it is apparent that the cooperative vocational method of instruction is not a panacea for all educational ills, it may provide one of the promising techniques to bring relevance to the consumers of education. Students through this method may see the application of skill and knowledge applied to real life situations. The outcome hopefully will be productive well adjusted citizens.

give particular attention to the under achiever and the potential school dropout. This may be the era that educators have been predicting when we discover the average child and establish appropriate classes for him.

3. Vocational education during the 1970's has a good chance of becoming an integral part of the school curriculum there. These programs will be noted for providing excellently educated and trained people in combination with general education to meet the technological revolution created in the 60's and which will no doubt advance through the 1970's.

4. The paradox existing in the job market will ease, whereas in the 1960's we had a 5% total unemployment figure on the one hand; and on the other, our nation suffered from inadequately trained technical manpower to attend to the available jobs created by the machine age. This imbalance is predicted to come more into balance.

5. Private schools, prevalent in the early 1900's will again become viable institutions which will provide needed education for profit to youths and adults not served by the public school system.

As we look at the problems facing schools and students, I personally feel that Cooperative Vocational Education can help meet the educational challenges of the 1970's. A quote from the Bell Telephone May/June, 1970, states, "Ideally, vocational education should combine formal instruction with learning on the job. Cooperative education provides such a combination by extending vocational instruction into job-related employment. Students alternate between school and work. This alternation can be daily, with students in class one half day and on the job the other half, or it can be blocked, with the students in school for a solid week or a solid quarter and then on the job for an equal time in successive periods.

Cooperative education students receive a wage, although they may receive only 85 per cent of the minimum for any period in which they work under a learner's permit. Also a U.S. Labor

EVALUATING PROGRAMS FOR THE DISADVANTAGED

R. Paul Marvin and George Copa

Evaluation as a process is generalizable between educational programs. The process of evaluation which is presented in this paper is that of locally directed evaluation as developed and tested by Byram.[1] In this process, evaluation is defined as the process of making judgments about the worth of a vocational education program. The worth of a program is determined by comparing program objectives and goals with program attainments.

The critical questions in initiating the evaluation are: (a) what is the purpose of the evaluation, and (b) for whom are you evaluating. Example reasons for evaluating might be to justify a program, to improve a program, to meet state requirements, to make better decisions. Evaluations might be conducted for teachers, administrators, boards of education, communities, or state departments. Whatever the case, decisions concerning "what purpose" and "why" of the evaluation should be clearly stated before beginning.

The answer to the two previous questions should have implication for determining the scope of the evaluation to be implemented. The scope might be the total vocational program in a community or one particular course. In evaluating programs for the disadvantaged, it is recommended that the scope be the total vocational program of a community. This approach is recommended since disadvantaged persons may well be in several courses at the same time.

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[1]Byram, Harold M. and Robertson, Marvin. Locally Directed Evaluation of Local Vocational Programs, A Manual for Administrators, Teachers, and Citizens, Michigan State University: East Lansing. March, 1970.

Department device takes into account and makes provisions for training the physically handicapped. Students generally do not combine work and study in excess of 40 hours a week; in most cases they work 28 hours a week--20 hours a week from Monday to Friday and eight hours on Saturday. Employers participating in this program pay the students' wages, but Federal funds (up to 100 per cent) are available to reimburse them for any added training costs incurred because the students' productivity is low. It goes on to say that:

> The part-time cooperative education plan is undoubtedly one of the best in the field . . . First applied to collegiate engineering, cooperative education has been adapted to high school vocational programs with some success.

The part-time cooperative education plan is undoubtedly one of the best in the field of vocational education. It yields high placement records, high employment stability and high job satisfaction. It trains students very quickly and is popular with them. It may be too popular. Many more students apply than can be accepted in these cooperative plans. For this reason the Federal government is providing grants to encourage school and college administrators, businessmen and educators to increase their participation in cooperative education.

Cooperative education has been especially successful in the field of retailing because stores have always hired part-time workers for peak periods such as the Christmas shopping season, but manpower directors of leading corporations are coming to see its advantages. It gives their personnel departments a far better opportunity to study and assess students and helps build up a pool of prospective workers who are knowledgeable about their companies before they commit themselves to full-time work."

Place of Evaluation

The place of evaluation in the decisions made in operating vocational education programs is shown in Figure 1. The first step in this operation is to interpret state and federal objectives for vocational education in terms of implications for your program. Next, the local needs of your community must be determined in terms of particular educational programs. In the case of the disadvantaged, this would mean identifying the socially, economically, and educationally disadvantaged people in your community and then deciding their educational needs.

Cooperative Education (not a program but a method of instruction) has recently regained recognition by the people of our country, personnel within the United States Office of Education and from members of Congress. This recognition was culminated in the "Vocational Education Amendments of 1968" when, for the first time, it singled out the cooperative method of instruction and provided special funding in order that such programs might begin to flourish at the local school district level.

But is the cooperative vocational education method of instruction successful? As a starting point perhaps the easiest way to define cooperative education is through some comparisons and analysis of what a cooperative occupational education program <u>is not</u>.

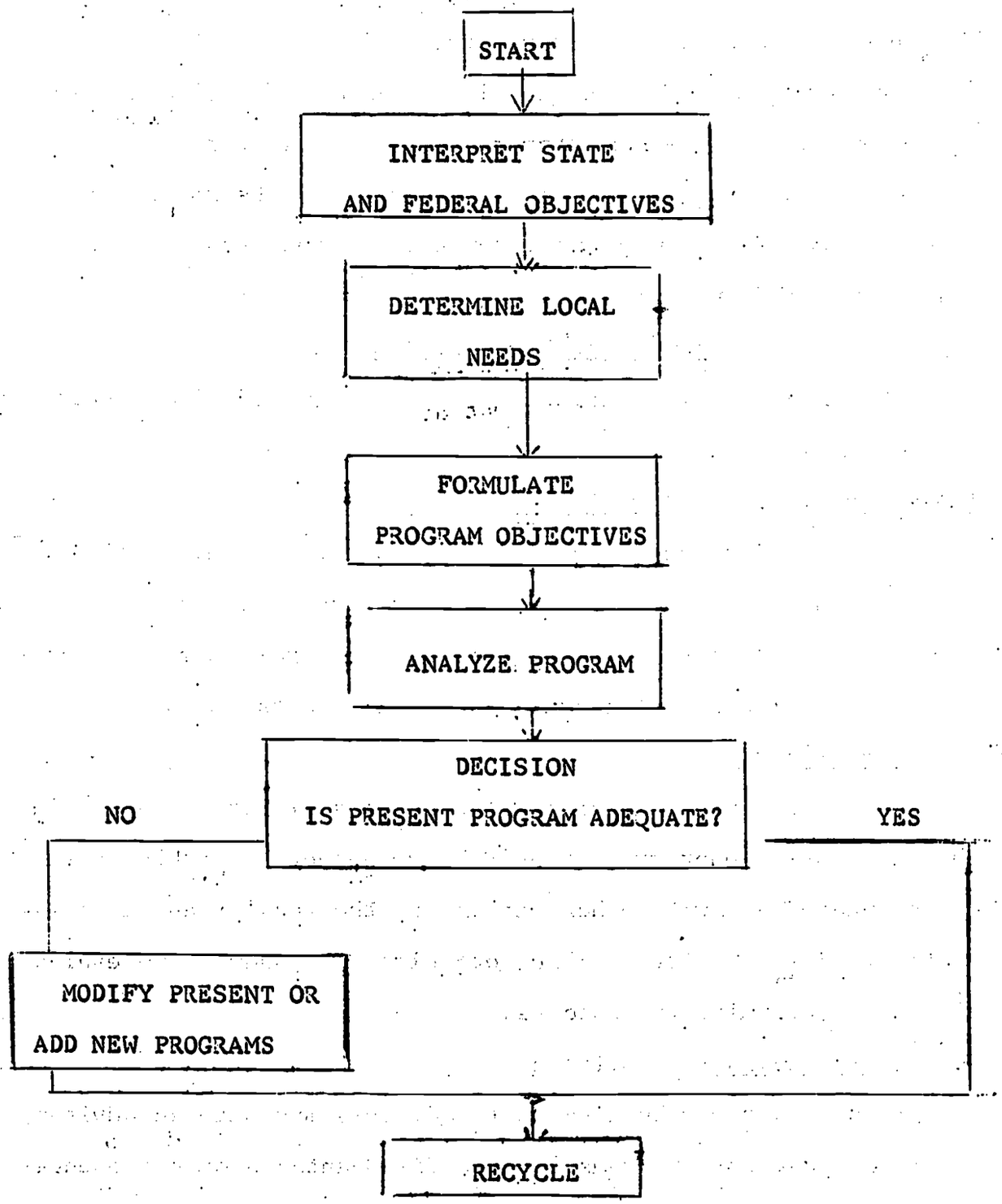
There are many terms used to indicate work while going to school. Some of the more common of these terms are:

1. Cooperative Work Study
2. Work Study
3. Work Experience
4. On-The-Job Training
5. Apprenticeship
6. Work Related Cooperative Education
7. Coupled Programs

None of these terms aptly defines the cooperative occupational education program in that certain elements are missing which contribute to the development of occupational competence. The placement of students for work are certainly legitimate general education tools having as their purpose holding people in school, or in some other way, aid students in getting work which would provide them with needed money to stay in school. This same element is also in the cooperative education program but is secondary when related to its major purpose of vocational education. <u>Basically, in any of the work experience programs, there is no attempt made</u>

Figure 1

Place of Evaluation -- An Overview



to correlate the instructional program in a specific vocational area with the experiences being obtained while on the job. The heart of any quality cooperative education program lies in the instructional program which relates the experiences being obtained in the actual working situation to instruction provided in the classroom by the school. The correlation of the instruction and the activities of the job are based on a student's career objective. The correlation involves both (1) the sequence of learning (2) the application of learning on the job. In addition, the student will have some individual instruction in school; that is, he will study some things not studied by the other students because he has individual job needs and an individual career goal.

Mason and Haines' book entitled Cooperative Occupational Education, available from Interstate Publishers, compare work experience programs with the cooperative occupational education program. They point out the basic essential elements of a cooperative vocational education program are as follows: (1) It has as a primary goal the development of occupational competence. (2) It is based on the student's stated career objective. (3) The student is hired as a learning worker. (4) It places the trainee in a job commensurate with his ability and his career objective. (5) It provides classroom activities directly related to job activities and trainee's occupational goal. (6) It provides the trainee with a variety of job experiences, often involving rotation through different departments of the firm. (7) Students are selected who need, want, and can profit from the instruction. (8) It utilizes as training stations those firms that are responsible and can and will provide training. (9) It underscores the responsibility of the school by employment of an occupationally

Using state and federal objectives and information on local needs, objectives for a total vocational program to meet these needs can be stated. The present program offerings can then be inventoried as to whether or not they are meeting the total program objectives. This decision is the place of evaluation in operating vocational education programs. It is the process of deciding if the present program is adequate in terms of total program objectives and if not, how the present program should be modified or which new programs added.

Elements of Local Evaluation

There are several elements that are required of a successful evaluation effort.

Commitment by Local Administration

Local administrators must be involved in the evaluation process. They should be informed as to purpose of the evaluation and how it will be conducted. A commitment from them in the beginning will insure consideration of the results in the end.

Competent Leader

The person who is assigned the responsibility of evaluating the disadvantaged programs should be competent in working with the disadvantaged and with other members of the faculty and administration. This ability to plan, organize and conduct the evaluation will determine its success.

Functioning Advisory Committee

In the case of the disadvantaged, this may mean an advisory committee just for programs for the disadvantaged or representatives of disadvantaged persons on regular advisory committees. The advisory committees can be very helpful in determining local

competent coordinator with sufficient time to provide consistent program direction. (10) It emphasizes a program of coordinated job visitations and employer conferences to plan learning experiences, evaluate trainee's progress, and aid in the solution of any problem. (11) It requires that the trainee be employed at the "going" rate of pay for trainees in the occupation.

Point 1. Since the primary goal of all vocational education is occupational compentency, this need not be reiterated. There is the second element of the student's stated career objective which may bear a few moments of analysis. The 1963 Vocational Education Act emphasizes that there will be a career objective of record for each student enrolled in a vocational program. This is a part of the vocational program that perhaps has not been followed too closely; however, the fact that the student is enrolled in the program and has been enrolled through guidance and counseling, and other factors, provides a certain amount of evidence that the student has a career objective in mind.

Point 2. Any student enrolled in a cooperative vocational education program should be hired as a learning worker. This indicates that there is an element of learning at the same time as an element of working. It is significant that this be kept uppermost in mind while developing a cooperative program.

Point 3. Placement on the job must be commensurate with his ability and his career objectives. You will specifically note that it says "places the trainee in a job", which does not indicate a haphazard employment of students without correlation by the coordinator and actual establishment of training stations and training sponsors. Special emphasis should be placed on utilizing as a training station those firms that can and will provide training.

needs for programs for the disadvantaged. They are also useful in planning the content of educational programs for these persons and as sources of feedback on the success of the programs.

Training for Procedures

It has been found that help is needed by local educators in the various procedures that can be used to collect and analyze information for evaluation. Workshops are one means of providing this help.

Provision for Time

Evaluation is an activity that requires time from people it involves. Administrators should be willing to provide this release time as part of their commitment.

Evaluation Process

An overview of the activities in the systematic process of locally directed evaluation is presented as an excerpt from Byram (1, p. II:3-6). This process is represented in Figure 2.

Studying the Existing Programs

The next step to be undertaken is a study of the current program of the school contributing to preparation for the world of work. The members of the staff working committee should retrieve and disseminate information regarding specialized courses being offered, with enrollments; related general courses; and the vocational guidance program. Others to be involved in this to a lesser degree, but also on the receiving end of communication, are all serving on organized committees. The information is to be considered in the light of the characteristics of the community and school situation.

Stating Philosophy and Objectives

Evaluation properly starts with objectives, and includes gathering evidences of the extent of attainment of them. All staff members should assist in thinking through and writing down statements of philosophy, and of general objectives of the school program as they pertain to the preparation of youth and adults for entrance to and advancement in the world of work. Objectives of courses and of instructional units contribute to these, but they do not constitute program objectives.

Point 4. Providing adequate coordination is the responsibility of the school. In all cases this coordination should be carried out by the teacher-coordinator.

One of the problems with any cooperative occupational education program is the tendency on the part of the members of all services in vocational education to talk in terms of the development of cooperative education programs without too clearly understanding the total program, particularly as it relates to rate of pay for the work performed while students are at their training station. From the standpoint of Labor's concern with a cooperative program, there is very sound basis for insisting upon pay. If you projected the possibilities of two hundred hours of work per week performed by 20 cooperative students in an occupational field, you would immediately come up with the answer that there were five full-time employees based on forty hours per week. In the event that within a community, there were problems of unemployment and students from your program were performing the work normally done by five full-time people, you would be in a position to get criticized by every unemployed person within that community whether or not these unemployed had the skills to fit the jobs your students are doing. I personally feel this is a prime consideration and must be thought through carefully.

There is also a very sound basis for the receiving of pay by students who are in job-training stations. One of the major considerations is the responsibility of the employer towards a person who is in the organization. When there is a pay situation, the employer has a stronger responsibility to the student than when the student is merely observing. The student himself has a much greater responsibility to the employer when he is receiving compensation for the labor performed.

Formulating Criterion Questions

A criterion question is one which places the objective or a subsidiary objective in such a way that an answer is called for that would help to measure the attainment of the objective. The task is to identify questions and have them worded in such a manner that they may be answered negatively, positively, and/or with degrees of these. It may not be necessary to word such questions for objectives that are narrow and specific. Occasionally a broad objective would suggest several questions relating to it.

Identifying and Obtaining Evidences

The evidences referred to are those data and other information the staff is willing to accept as answers to the criterion questions. It also involves identification of the sources of and the means of obtaining or retrieving such information. Finally, it involves the assembly and classification of information gathered. This may relate to former students, to manpower needs, and to present students and potential other clientele.

Analyzing, Interpreting and Reporting Information

The analysis of information obtained is for the purpose of answering the criterion questions previously set up. Much of this information is to be analyzed by the leadership team, with assistance from the staff and the citizens' committees. Resource persons and consultants may be needed for this as well. Reports would include both interim or progress reports and final reports. Some oral or "capsule" reports will be given to the administration and to the public, as desired.

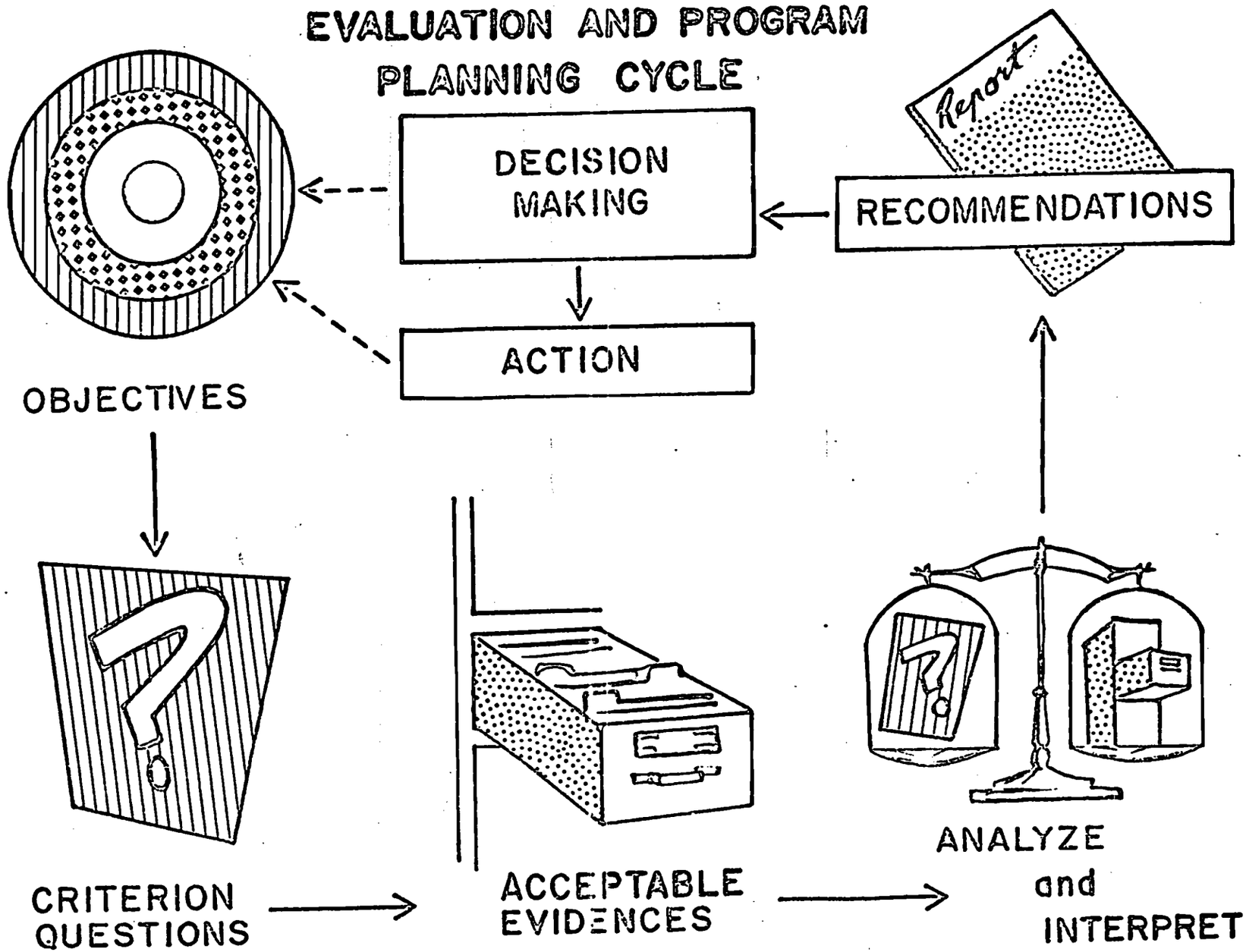
Formulating and Implementing Recommendations

This culminating activity is directed by the evaluation leader but involves, to a greater or lesser degree, all who have helped with the preparation for this step, as well as those who are responsible for carrying out the recommendations. These include the administrators, but may also include the members of the faculty and citizens.

The interrelationship of these steps is illustrated in the accompanying figure. It is obvious that once the cycle has been completed the process is renewed through re-examination of the objectives of the program in the light of the findings and recommendations of the study.

See Figure 2.

Figure 2.


EVALUATION AND PROGRAM
PLANNING CYCLE
DECISION MAKING
ACTION
RECOMMENDATIONS
Report
OBJECTIVES
CRITERION QUESTIONS
ACCEPTABLE EVIDENCES
ANALYZE and INTERPRET

More on Acceptable Evidence

The questions related to acceptable evidence are what kind, from whom, when collected, and how collected. Validity of the evaluation will depend on how these questions are answered.

A number of alternative answers to the questions concerning acceptable evidence are presented in Figure 3. The alternatives listed are not intended to be an exhaustive list--only a sample of the possibilities.

See Figure 3.

Special attention is required of the list answering the questions, "When collected?" An important piece of evidence when evaluating programs for the disadvantaged will be a summary of changes that have occurred as a result of program participation. One method of documenting such changes is the use of before and after measures. A good example of this approach was used by Austin and Sommerfield.[2]

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[2]Austin, John J. and Sommerfield, Donald A., An Evaluation of Vocational Education for Disadvantaged Youth. The Public Schools of the City of Muskegon: Muskegon, Michigan. 1967.

Figure 3.

Acceptable Evidence

WHAT	WHO	WHEN	HOW
AGE	STUDENT	BEFORE/AFTER	FOLLOW-UP
SEX	PARENT	CONTROL/	SELF-EVALUATION
MARITAL STATUS	TEACHER	EXPERIMENTAL	INTERVIEW
RACE	ADMINISTRATION	DURING	QUESTIONNAIRE
EDUCATIONAL STATUS	COUNSELOR	LONGITUDINAL	TEST
INCOME	EMPLOYER		RECORDS
ACHIEVEMENT	AGENCIES		
INTELLIGENCE			
OCCUPATIONAL STATUS			
PERSONALITY			
ATTITUDE			
APTITUDE			
JOB SATISFACTION			
SUPERVISOR'S RATING			
JOB SEEKING TIME			
ADEQUACY OF PREPARATION			
ADDITIONAL TRAINING INTERESTS			
INTENSITY OF INSTRUCTION			
EXCELLENCE OF INSTRUCTION			
COST OF INSTRUCTION			

How the Process Might Work

Evaluation procedures should ultimately determine if the objectives of the program have been achieved. The objectives are often stated in general terms for programs but may require several subsidiary objectives to adequately clarify the goals. An example for a total school program for the disadvantaged might be:

To provide educational opportunity for youth and adults in our school area considered disadvantaged, which will help to place them in an advantageous situation. Such a broad objective immediately suggests some questions which must be answered to determine if the objective is being achieved. Some suggested criterion questions which might be asked are:

1. How many disadvantaged are there in our area?
2. What are their disadvantages?
3. Does our present program provide for the special needs of the disadvantaged?

The next step in a systematic evaluation after determining the criterion question is to decide what evidence we are willing to accept to determine if the objectives have been met.

Question number one from above will require that we have defined the disadvantaged in terms of economic, education and cultural background, realizing of course that some may be disadvantaged in more than one way. If for purposes of illustration we consider the economically disadvantaged, where do we search for information which will identify the number of economically disadvantaged? An established level of a minimum of $3,000/yr. income per family has been used to designate an economic disadvantage. If $3,000 annual income is to be accepted as evidence

of economic disadvantage we must try to identify those below that figure. Some sources of information may be:

1. Welfare agencies
2. Income tax returns
3. Surveys

The criterion question will have several subsidiary questions. The age, the sex and many more specifics will be a part of the information necessary in determining how many disadvantaged are in an area.

After we have evidence as to how many economically disadvantaged, the task is not complete until we determine those who are considered disadvantaged culturally, educationally or in some other capacity.

Answers to the criterion question which will determine the extent to which objectives have been met must be sought from whatever sources are appropriate. In answer to the question of whether our present program is providing for special needs of the educationally disadvantaged, we could study curricula, survey the teachers, possibly conduct a follow-up of former disadvantaged students or involve a citizen committee to name a few of the possibilities.

After answers to questions have been obtained which determine how well the program is meeting the objectives, a report of the findings and recommendations should be made to the decision makers. They will then do one of three things a) determine that the objectives are being adequately reached with no changes, b) change or expand the program to correct discovered deficiencies, or c) change the objectives of the program.

Summary

The purpose of evaluation is to produce and select alternative ways of programming a particular operation. It requires reliable and verifiable evidence as a means of insuring objectivity in production and selection.

Evaluation can be thought of as a process of comparing objectives and results. This process is subjective in nature, however objective information can sharpen its validity. Objectivity is enhanced by using hard data (quantifiable), baseline measures (before and after), control and experimental groups, and longitudinal information.

In warning to the naive, it seems all evaluations have their limitations. Not all variables can be quantified. For educational programs, there are many factors external to the school which may have important bearing on program success. The identification and measurement of these external factors is not always complete. Therefore, it is important to recognize an evaluation for what it is and use it in that perspective.

EVALUATION

Evaluation steps and reports are divided into three parts: 1) Evaluation by participants with summary included herein, 2) Interim Evaluation report by committee with a copy included herein, and 3) Follow-up Study of projects resulting from this project. The results of the follow-up study will be made available in a separate document at a later date.

EVALUATION BY PARTICIPANTS

I. TOPICS OR AREAS COVERED

A. What topics or areas would you like to see if another such program is held?

Participants were usually very well satisfied. Two significant comments appeared. (1) Try to reach more general educators. (2) Use more resource people who are actually working with disadvantaged people in successful local projects.

B. Please comment on the choice of areas or topics.

Participants favorably impressed with area covered. Some expressed need for more work with (1) funding, (2) legal aspects, (3) program writing, and (4) elementary guidance.

II. YOUR PARTICIPATION

A. Did you feel that you got a chance to participate in activities other than as a listener?

Institute members were generally very pleased about being able to take part in small group discussion followed by a summary for each half-day session. More advance preparation of discussion leaders for the small groups would be helpful.

B. Do you have suggestions regarding ways to increase or improve participation?

Few suggestions were given. Those that were given related to group leader preparation and to involving more general educators.

III. APPLICATION TO YOUR WORK

A. In what way do you feel that you can use information or insights developed here in your own work?

Participants listed (1) greater awareness of the problem; (2) change in attitude toward problem; (3) stimulation to try new approaches; (4) new concepts; (5) involving other faculty members; (6) more individualized instruction; (7) special projects. Members felt that Institute related very well to their work.

IV. GENERAL COMMENT

General comments were very favorable. One member stated, "Very good. Most important result of program--change in attitude, and we were exposed to new methods of assisting disadvantaged and handicapped."

INTERIM EVALUATION REPORT

TRAINING INSTITUTE FOR RURAL DISADVANTAGED PROJECT -- BEPD #2529

Introduction

This report is written as an interim evaluation report of the "Training Institute for Rural Disadvantaged", BEPD Project #2529. This one-week institute was conducted for vocational teachers, administrators, counselors, and others who have key responsibilities in educational institutions which serve the rural disadvantaged. The purpose of this institute was to assist these persons to be better able to assess the needs of the rural disadvantaged and to be better able to meet the particular educational needs of these people.

This institute was funded by the Bureau of Educational Personnel Development under the provisions of the Education Professions Development Act. The states of North Dakota, South Dakota, and Minnesota cooperated in carrying out this project. Personnel from the State Universities and State Vocational Education Staff members in the three states joined in the planning and operation of the three one-week institutes, one in each of the three states. These were held during the week of August 17 - 21 with 119 participants.

On October 2, 1970, an evaluation committee representing each of the states met to make a preliminary examination of the effort and its impact. The balance of this report contains that evaluation in two major sections--1) policy or conceptual and 2) implementation or operational.

Policy or Conceptual Evaluation

A major conceptual impact of the project has been in the way the people concerned with the project now view the disadvantaged problem. Many people now visualize this problem to be much larger in scope and more severe in degree. The effect of the institutes has been to sharpen the focus on the disadvantaged and make the problem stand out as much more real and urgent. The sharpened focus on the scope and nature of the problem has illuminated a distinct need for several other steps.

Planning of a highly developed nature will be necessary to deal with the problems of the disadvantaged. There are many agencies concerned with these problems. Many different kinds of professional people are involved in these organizations and are involved in the planning efforts of these agencies. There are different ingredients for planning in these different agencies. A critical ingredient of such multi-agency planning is integration and coordination. Maximum results will not be achieved without such sharing of both the planning and implementation of programs for the rural disadvantaged.

Administration of programs for the disadvantaged and the handicapped contain certain built-in problems. Some of these are legal questions connected with the 15% and 10% fund set-aside provisions. One conceptual question which arises is, "Is the disadvantaged person also handicapped?" The handicapped are identified by clinical criteria. Thus separate groups may be identified for funding and for teaching programs. In the case of the disadvantaged, no such clinical criteria are available

for identification, program design, and funding designation. However, some method of identification is required to operate the program. Much more effort is needed to provide guidelines and to assist in this administrative problem of operating programs for the disadvantaged.

The shortage of voluntary social service agencies in sparsely populated rural areas was brought more sharply into focus as a result of this project. This shortage of such agencies in rural areas presents a unique facet of the problem in rural areas compared to urban areas.

As a result of this group of institutes and the planning efforts required, the institutions involved have begun to generate efforts that could not be generated in other ways. The mounting of a program to meet a common need generated strong and continuing efforts to solve this common problem with local, state and regional efforts. Several local projects have become operational. This newly generated effort will extend to a united effort to solve other educational problems in a similar manner.

Implementation and Operational Evaluation

The efforts of this project have revealed several operational needs involved with implementing programs for the disadvantaged. Much was learned about these needs as they relate either to workshops for professionals or for operating local programs for the disadvantaged.

A new look must be taken at the content of programs for the disadvantaged. A system of codification and sequence of this information is needed. There is a critical need for the further development of a body of literature in the field.

There is a great need to involve many different kinds of professionals, both as staff members and as participants in institutes to help prepare professional workers. There is a need for the expertise of many different professionals in operating programs for the disadvantaged. A system is needed to make more efficient use of professional help to identify the real needs of the disadvantaged. One important question is the identification of those who should be associated with such an effort.

The regional or inter-state approach has distinct benefit because of the nature of the sharing method. This system of joint effort does create some problems of scheduling and timing, but these are overcome with proper planning and cooperation. A very major benefit of this effort has been to enlarge the "territory of sharing". Such sharing has been done previously in regional educational laboratories. This institute has added a new and important dimension to sharing in this region.

There is at present the strong consideration of the use of the former Glasgow Air Force Base facility as a regional base for educational programs for the rural disadvantaged. Cooperation between the states and within the regions has also been sharpened and increased.

Follow-Up Study

A considerable number of local projects for rural disadvantaged have been planned and implemented following the three-state "Training Institute for Rural Disadvantaged". A detailed follow-up study is planned to identify these projects and to examine the impact of this project in detail.

Summary

This project has generated a concerted effort by educational agencies in several states to seek a solution to a common problem. This first year institute has provided the impetus for the beginning of a considerable number of local projects for the disadvantaged. It would be especially advantageous if a renewal of the program could be funded and carried out during the summer of 1971 to continue the impetus generated by this project. It is hoped that further Federal funding assistance will be made available to continue this effort to the point where it becomes programmatic in the vocational education efforts of the states in this area.

EVALUATION COMMITTEE

Dr. R. Paul Marvin, University of Minnesota
Dr. Gordon I. Swanson, University of Minnesota
Dr. Hilding Gadda, South Dakota State University
Dr. Donald Priebe, Project Director
North Dakota State University

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MCCRACKEN, J. DAVID; MILLER, DAVID H.
RESEARCH UTILIZATION.

OHIO STATE UNIV., COLUMBUS. CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 3DEC71 58P.PRESENTATION AT THE AMERICAN VOCATIONAL ASSOCIATION CONVENTION PRESESSION RESEARCH TRAINING PROGRAM (PORTLAND, OREGON, DECEMBER 1-3, 1971).

DESCRIPTORS - *RESEARCH UTILIZATION; *INFORMATION SYSTEMS; *INFORMATION DISSEMINATION; *SEARCH STRATEGIES; *INFORMATION RETRIEVAL; CHANGE AGENTS; MODELS
IDENTIFIERS - ERIC; *EDUCATIONAL RESOURCES INFORMATION CENTER

ABSTRACT - DEVELOPING AN INFORMATION DISSEMINATION SYSTEM IS ONE WAY TO MOVE EDUCATION FROM THE WAY IT IS NOW TO THE WAY WE WOULD LIKE IT TO BE. THE MOST COMPREHENSIVE INFORMATION DISSEMINATION SYSTEM IN EDUCATION IS THE ERIC SYSTEM. THE OBJECTIVES OF THIS PRESENTATION WERE TO PROVIDE TO WORKSHOP PARTICIPANTS: (1) A KNOWLEDGE OF THE COMPONENTS AND PRODUCTS OF EDUCATIONAL INFORMATION DISSEMINATION SYSTEMS, (2) THE ABILITY TO IDENTIFY DOCUMENTS RELEVANT TO SPECIFIC PROBLEMS BY MANUALLY SEARCHING AIM, ARM, RIE, AND CIJE, (3) THE ABILITY TO USE TERMS FROM THE THESAURUS OF ERIC DESCRIPTORS TO DESIGN MANUAL AND COMPUTER SEARCHES OF ERIC PRODUCTS, (4) THE INFORMATION NECESSARY TO PLAN A STATE OR LOCAL EDUCATIONAL INFORMATION DISSEMINATION SYSTEM, AND (5) THE ABILITY TO DERIVE IMPLICATIONS FROM THE LITERATURE AND GAIN ACCEPTANCE OF INNOVATIVE CONCEPTS. UTILIZATION OF RESEARCH INFORMATION WAS DISCUSSED IN TERMS OF A MODEL DEVELOPED BY RONALD HAVELOCK OF THE UNIVERSITY OF MICHIGAN. A SET OF SLIDES AND A SCRIPT CONCERNING THE ERIC SYSTEM WERE INCLUDED IN THE PRESENTATION. (AUTHOR/MF)

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RESEARCH UTILIZATION

J. David McCracken
Research and Development Specialist
The Center for Vocational and Technical Education
The Ohio State University
Columbus, Ohio

and

David H. Miller
Research and Development Specialist
The Center for Vocational and Technical Education
The Ohio State University
Columbus, Ohio

Presented in a three-day workshop at the American Vocational Association Convention Presession Research Training Program, Portland, Oregon, December 1-3, 1971.

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RESEARCH UTILIZATION[1]

Welcome to the presession on research utilization. Most of you are aware, as I am, of the information explosion. Most of us attempt to keep up in our major fields of interest by reading the materials that come through our inbaskets. However, when we have a problem for which we need a solution, most of us fail to do an adequate job of retrieving information. Usually when the amount of references we have stored reaches a number of 100 or more, we are unable to efficiently retrieve them. Some individuals have developed systems to store their personal collections so information can be more easily retrieved. Unless we want to rediscover the wheel, we must find a way to utilize the information that is available to us.

Your presence here is indicative of a desire for what John Gardner would call self-renewal. Most of you are concerned with educational reform. You are a sample of change agents concerned with improvement in education in general and vocational education in particular. We cannot in this presession provide you with all you need to know about finding and using research information. However, we will discuss this topic in terms of a model which has been presented by Ronald Havelock of the University of Michigan in a publication called Guide to Innovation in Education (2). During our presession we will be interested in discussing

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[1]Presented in a three day workshop at the American Vocational Association presession research training program, Benson Hotel, Portland, Oregon, December 1-3, 1971 by J. David McCracken and David H. Miller.

(2)Numbers in parenthesis refer to appended visuals.

how we might move education from the way it is now to the way we would like it to be in the future. In doing so I would like to center our discussions around Havelock's model which involves six stages.

Stage 1 - building a relationship (between change agent and client) - to help others they need to accept you in a helping role.

Stage 2 - diagnosing the problem - the change agent must solve problems at hand. Needs should be articulated as problem statements.

Stage 3 - acquiring relevant resources - the change agent and his clients need to be able to identify and obtain resources relevant to solutions. The major goal here is successful information-seeking.

Stage 4 - choosing the solution - from the information, implications may be derived, alternatives may be generated, and potential solutions may be settled upon.

Stage 5 - gaining acceptance - even good solutions need adapted and reshaped to fit the special needs of different users. We need to consider how initial acceptance of innovations can be generated and how to develop in others attitudes and behaviors supportive of these innovations.

Stage 6 - stabilizing the innovation and generating self-renewal - build a self-renewal capacity in those with whom you work.

As you work with others you can base your advice on the best information or state of knowledge available today. You as a change agent may not be interested in specific changes but in teaching others to use research more effectively. In that case we should also be providing you with relevant information for your needs.

Objectives

At the end of this presession each participant should have (3):

1. A knowledge of the components and products of educational information dissemination systems.

2. The ability to identify documents relevant to specific problems by manually searching AIM, ARM, RIE, and CIJE.

3. The ability to use terms from the Thesaurus of ERIC Descriptors to design manual and computer searches of ERIC products.

4. The information necessary to plan a state or local educational information dissemination system.

5. The ability to derive implications from the literature and gain acceptance of innovative concepts.

An Educational Package On ERIC

During this presession we will be testing for the first time a set of slides and a script which has been developed to meet specific performance objectives concerning the utilization of the ERIC system. The script will be made available to participants at the presession, and following pretesting in this session we hope to redesign these materials and develop them into a marketable package which should be available next summer. The package will include a script, transparency masters, evaluation instruments, slides, and issues of AIM and ARM.

Outline of Presession

In this transparency (4) we are presenting an outline of what we hope to accomplish during these three days. In addition to what is on this transparency, we have a guest with us from the Bureau of Labor Statistics, Mr. Neal Rosenthal, who will be presenting information concerning how we as vocational educators might better use manpower data.

We trust that at the end of this session you will become better able to use research because you can put into practice knowledge that is available from research and the experience of others.

OVERVIEW OF INFORMATION SYSTEMS

Information is found in many sources and many forms. It is recorded and used by individuals and groups in a variety of ways for a variety of purposes. Much of the information concerned with communication of information is also applicable as we consider information systems.

Evolution of Communications Research

A model (5) which symbolically represents the communication system has evolved. This model is reported in The Mathematical Theory of Communication available from the University of Illinois press.

The next model (6) explains the importance of a common field of experience between the sender of information and the receiver of information in order for communication to occur. This model is reported in The Process and Effects of Mass Communication, also available from the University of Illinois press.

A new field called information science is in the process of development. A model of a generalized information system has been proposed where an information is defined as data of value in decision-making. (7) This model is discussed in a publication titled "Generalized Information Systems: Some Consequences for Information Transfer," developed by The Ohio State University Computer and Information Science Research Center.

We now have a model (8) which conceptualizes the flow of information from the point of acquisition through the activities of storing, retrieving, disseminating, decision-making, converting decisions into observable actions through the execution function, and measuring those actions which provides a means of collecting data that are transformations of the observable actions.

Examples of information systems (9) are shown as book and serial systems, document-based systems, instructional materials banks, career data banks, dissertations, management information systems, accounting systems, and raw data banks. Change can be viewed in two ways. In this particular model (10) we see change as an outgrowth of research and development. This might be the administered approach to change or the top-down approach. Problems and needs become priorities for research and development. Solutions to problems are manufactured, pilot tested, field tested, and then disseminated to a user group who adopts them to resolve the problems that were originally stated. This model serves a useful function for those who have an innovation to peddle.

Most of us in this room, however, have problems for which we are seeking a solution. This approach to change is discussed most extensively by Ron Havelock, who we mentioned earlier.

Rational Change Models

In our introduction I stated that each of us might consider ourselves as change agents attempting to apply research to practice. There are several ways that we can view change. In this transparency (11) we note that most change occurs as a result of some type of disturbance. The distrubance may be a student riot, or it may be that graduates of certain vocational programs are not being employed in the occupation for which they were trained. Some activities then occur to deal with the disturbance and correct the problem. The effects of the activity then either lead to satisfaction or dissatisfaction and repeat of the cycle. This is known as a reflex model. The problem with this model is that we often deal with symptoms rather

than the real problems. We would hope that most change agents would view change in a more rational manner. That is, we would hope that they would react to initial pressure for change in more of a problem-solving mode of operation (12). Here we see the disturbance resulting in a feeling of need and then a decision to do something about that need. This felt need is diagnosed as a specific problem. A search is then conducted for solutions to that problem. The search may include searches of literature, and/or visiting with others and gaining from their experiences. The next step is an application of a possible solution to the need. We see that there is satisfaction that the problem is solved or else dissatisfaction resulting in repeat of the cycle.

In our next model (13) we see that there are three ways to be a change agent. Probably each of you can view yourselves as a change agent in one of the following situations. Note here that the inner circle is synomous with the previous transparency that was on the screen. We see here that the disturbance, the decision to act, the diagnosis, the search, and application resulting in either satisfaction or dissatisfaction. Many change agents act primarily as catylsts in their role as change agents. They exert the pressure to change. They in effect, create the disturbance. This is one way to be a change agent.

A second way might be as a solution giver. Your clientele have identified the problem and are now in search of a solution. You then act as a consultant by giving them advice as needed during their solution search. They then apply your advice and either solve or fail to solve the problem.

The third role would be one in which I would hope that many more of you are involved and that is as a process helper. In this particular instance, we see the change agent acting to assist his clientele during all phases of the problem-solving cycle. I would hope that most of you would assume the role of resource linker. Here is a fourth combined method where you would be involved in linking the client system to a larger resource system. This larger resource system might be such things as the ERIC system, occupational information from the bureau of labor statistics, the National Technical Information Service, experience of other school districts, etc. All of these represent ways in which you, as change agents, can act.

BUILDING A RELATIONSHIP

In building a relationship it is necessary to consider what groups you directly work with, and what other groups are influenced by the people with which you work.

In relating to the client system, considerations include: (1) who are the leaders, (2) who are the influentials, (3) who are the gate keepers, (4) characteristics of those with whom you are relating.

It is also necessary (14) to consider how changes you may wish to implement will affect other relationships, such as the relationship of the client with the other people he must interact with. Ideal relationships are characterized by: (1) reciprocity, (2) openness, (3) realistic expectations, (4) expectations of reward, (5) structure,

(6) equal power, (7) minimum threat, (8) confrontation of differences, and (9) involvement of all relevant parties.

DIAGNOSIS

Often need is assumed without further thought because we are eager to move on to solutions. Diagnosis is a systematic attempt to understand the present situation. It is an articulation of need through awareness of symptoms, history, and possible causes. The result of a diagnosis is a defined problem stated in such a way you and those around you can work rationally on its solution. A good diagnosis should identify the problems, identify the opportunities, and consider the client as a system. Problems in diagnosis include:

1. too much diagnosis
2. diagnosis of a pattern of avoidance
3. using diagnosis for distructive confrontation
4. imposing your own favorite diagnosis
5. fire fighting (no complex innovations with long term objectives)

ACQUIRING RELEVANT RESOURCES

Seven purposes for acquiring relevant resources include:

1. diagnosis
2. awareness
3. evaluation before trial
4. trial
5. evaluation after trial
6. installation
7. maintenance

Acquisition is basically a three part problem (15). Those three steps involve resource acquisition and diagnosis, increasing the span of awareness, and homing in on relevant resources so that one may better choose solutions.

An organization needs to build a permanent capacity for resource acquisition. The organization can do this by utilizing the products and service of information dissemination systems. The most comprehensive information dissemination system in education is the ERIC system. (16) The ERIC system has components at the national, state, regional, and local levels. Other information may be provided by the school research information service (17), University Microfilms (18), the National Technical Information Service (19), and other such systems.

Information products may be classified as (20) primary products, secondary products, and access products including printed indexes and computer tapes.

Computer Searching

In manual searching one is generally limited to a small number of terms and he may not search the minor terms which are not in the subject index. Another disadvantage of manual searching is the high labor cost requirement. Computers can search any field in the resume and can search all descriptors listed in the resume whether or not they are in the subject index. Coordinate indexing is much easier with computer searching. Fields which may be searched by computer are shown in this transparency (21). A description of the search logic for computer searching is shown (22). Sample searches may be developed on a form such as this (23).

How to Use ERIC

Information for this unit may be derived from the slide-script that was passed out to the participants of the presession.

BUREAU OF LABOR STATISTICS

One major resource for occupational educators might be information from the Bureau of Labor Statistics in Washington, D. C. As described by Mr. Rosenthal, the major efforts for occupational education include the biennial occupational outlook handbook. This bureau is also working to develop manpower projections and attempting to translate their materials for vocational educators by including the vocational education code on occupational training and manpower needs publications. Some publications which vocational educators might be interested in include Tomorrow's Manpower Needs bulletin 1606 and the Occupational Outlook Quarterly. A bulletin concerning the development of manpower projections is BLS bulletin 1701, at a cost of $0.75 from the Government Printing Office. The long-term goal of the BLS is to provide, by state, openings each year for many occupations.

CHOOSING SOLUTIONS

Now that we have identified our problems and relevant information to meet those problems, we can develop potential solutions (24). Very few are skilled at generating solution ideas and choosing from them. The deriving of implications from research should accompany resource acquisition. One should ask the question, "What does this information say about this setting and this particular problem?" A procedure might be to retrieve

some statements, reformulate and check for understanding, establish relevance to your setting, and state implications for action.

Generate a range of solution ideas from research, from client systems, and from commercial sources. Generate more than one alternative. At this point one should not be too concerned about details of how something works, how much it costs, and how hard it is to install and maintain. Look for "awareness" type of information. One should focus on the opportunities possible or what an ideal model might be rather than being too concerned with the constraints of the current situation. After resources have been examined a good procedure is to use brain-storming in a group setting and then summarize and synthesize the results.

The next step is to test feasibility of solutions by testing, comparing, applying the criteria of: (1) benefit, (2) workability, (3) diffusibility.

Because all criteria have not been met, some adaption will be necessary. A pilot test should be planned.

GAINING ACCEPTANCE

You now have a potential innovative solution. We now need to consider how individuals accept innovations, how groups accept innovations, how to choose a communications strategy, and how to maintain a flexible program for gaining acceptance.

Individuals

A person reaches a decision to adapt through a very complex process. Researchers have identified six stages. Awareness, interest, evaluation,

integration. The change agent might be regarded as a facilitator (25) in this process. There are certain things that he can do during each stage. He should help prevent failure as it may occur at any step. Hazards include skipping steps, changing the order, hurrying to meet a schedule or ignoring individual differences. The change agent should allow and encourage individuals to make personal commitments. They should encourage discussion of doubts. They should acquire and offer relevant resources and provide extra support at the time of trial.

How groups accept innovations

Three types of people play significant roles in group acceptance of innovations (26). These are the innovators, the resisters, and the leaders. A stepping stone strategy might be developed to gain group acceptance, introduce an innovation to a core group of innovators, provide information to potential resisters, bring the innovation to the attention of leaders so that they may observe demonstrations and sound out reactions of potential resisters, allow leaders to lead the way to acceptance by the rest of the system.

Communicate effectively to the group concerning the information and keep the program flexible. Don't be too rigid in demands for its implementation in exact form.

Self-renewal

Here we are concerned with building a capacity for continued use of an innovation for self-renewal and for the client system to operate with little input from the change agent.

Continuance

Continuance may be assisted by: (1) continuing reward, (2) practice and routinization, (3) structural integration into the system, (4) continuing evaluation, (5) continuing maintenance and (6) continuing adaption capability.

Self-renewal capacity

Self-renewal capacity may be developed by building: (1) positive attitudes toward innovations, (2) an internal change agency, (3) an external orientation and aggressiveness to new ideas, and (4) a future orientation. If the self-renewal capacity is built in, then the change agent may gradually become disengaged as the client system will be better able to renew itself without external assistance.

INFORMATION SYSTEM DEVELOPMENT

One way in which a change agent can build a self-renewal capacity in an organization is through development of an information dissemination system. Objectives of an information dissemination system are shown (27). Major functions might include such things as are shown here (28). Staff specialities that are needed in operating an information dissemination system include those of field service, education, search and referral, information analysis, acquisition and processing, document analysis, editing, publications, and computer (29). Some equipment will need to be purchased. Major equipment is shown in this transparency (30). There are two or three good references on microfiche equipment for those of you considering its purchase (31). Probably the best reference on establishing an information dissemination system is this Guide for State Vocational-Technical Education Dissemination Systems (32). In any information

dissemination system it is necessary to remember that what you contribute relates to the quality of what you receive.

Major costs and components of information systems are at Appendix C.

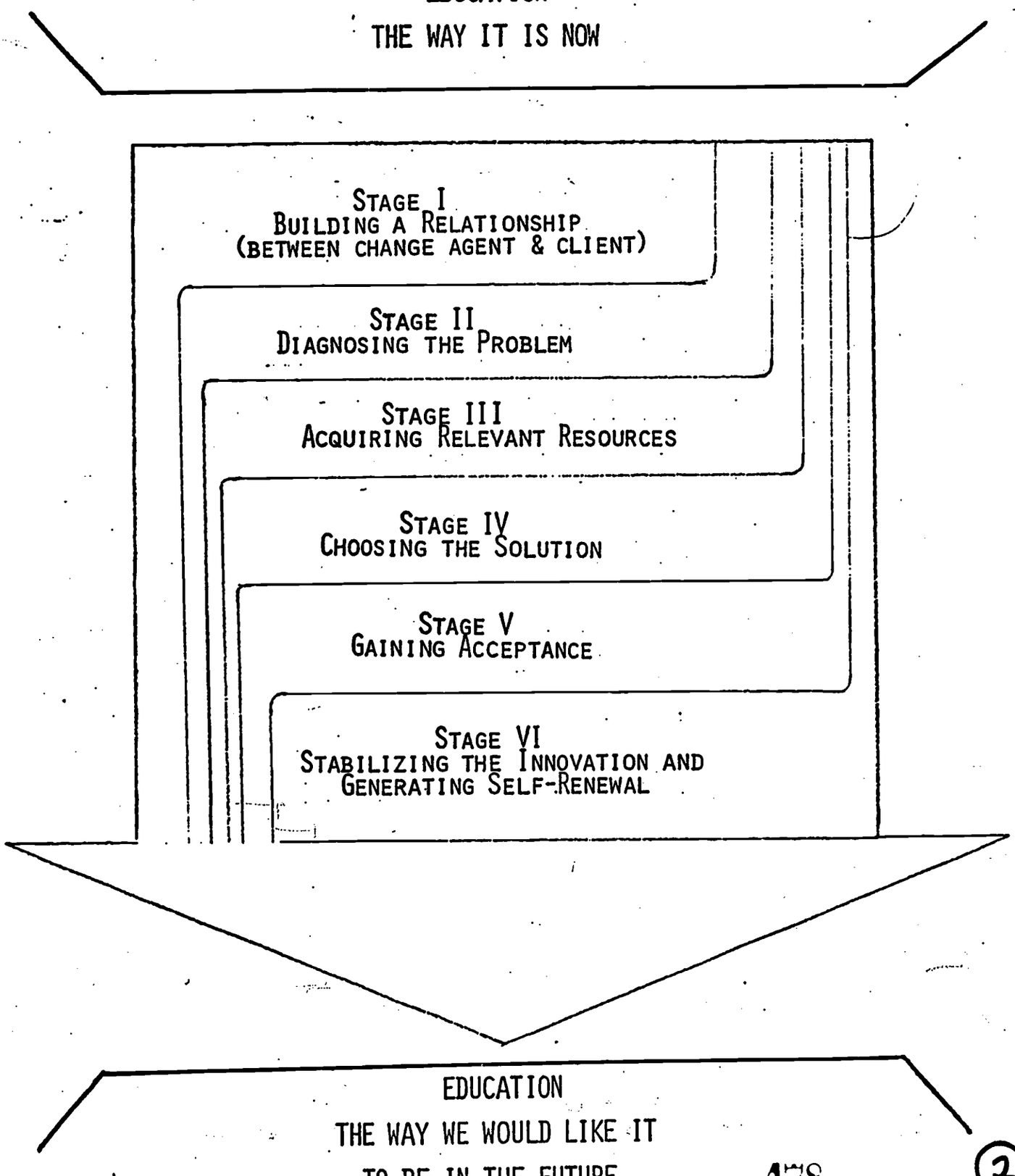
A major function of any change agent would be to educate users in the utilization of services and products of the system (33).

Outcomes of such a program as we have described would include:

1. an efficient system (34)
2. effective interface with users and user groups
3. useful materials
4. adequate equipment, facilities and location
5. educated users
6. use of materials meaningful to user problems and needs
7. current awareness of information concerning specific interests of target user groups

APPENDIX A

CHANGE AGENT AS PROCESS HELPER: HOW THE GUIDE IS ORGANIZED



(2)

OBJECTIVES

AT THE END OF THIS PRESESSION, EACH PARTICIPANT SHOULD HAVE:

1. A KNOWLEDGE OF THE COMPONENTS AND PRODUCTS OF EDUCATIONAL INFORMATION DISSEMINATION SYSTEMS.
2. THE ABILITY TO IDENTIFY DOCUMENTS RELEVANT TO SPECIFIC PROBLEMS BY MANUALLY SEARCHING AIM, ARM, RIE, AND CIJE.
3. THE ABILITY TO USE TERMS FROM THE THESAURUS OF ERIC DESCRIPTORS TO DESIGN MANUAL AND COMPUTER SEARCHES OF ERIC PRODUCTS.
4. THE INFORMATION NECESSARY TO PLAN A STATE OR LOCAL EDUCATIONAL INFORMATION DISSEMINATION SYSTEM.
5. THE ABILITY TO DERIVE IMPLICATIONS FROM THE LITERATURE AND GAIN ACCEPTANCE OF INNOVATIVE CONCEPTS.

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OUTLINE OF PRE-SESSION

I. OVERVIEW OF PRESESSION

II. OVERVIEW OF INFORMATION DISSEMINATION SYSTEMS

III. USE OF KEY INDEXES

- A. AIM and ARM
- B. RIE
- C. CIJE

IV. SEARCH STRATEGIES

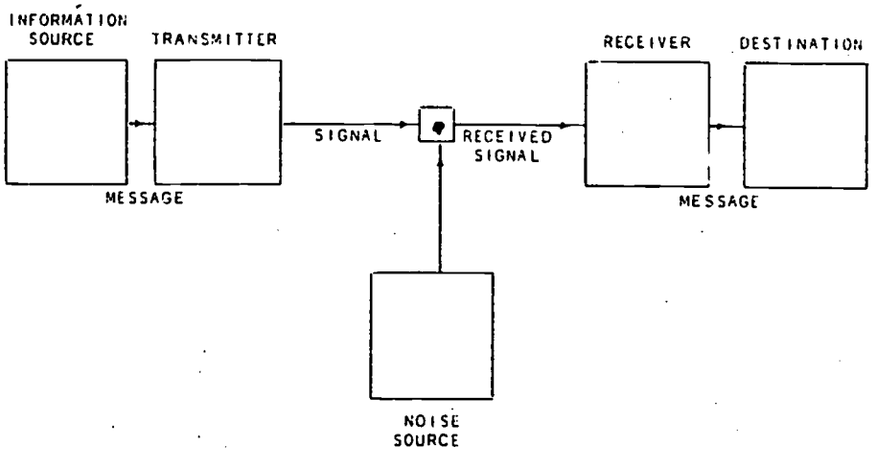
- A. USE OF THESAURUS
- B. SPECIFYING PROBLEMS IN SEARCH LANGUAGE
- C. DESIGNING COMPUTER SEARCHES

V. USING INFORMATION TO EFFECT CHANGES

- A. DERIVING IMPLICATIONS FROM RESEARCH
- B. ADAPTION OF SOLUTION IDEAS
- C. HOW INDIVIDUALS AND GROUPS ACCEPT INNOVATIONS
- D. COMMUNICATION

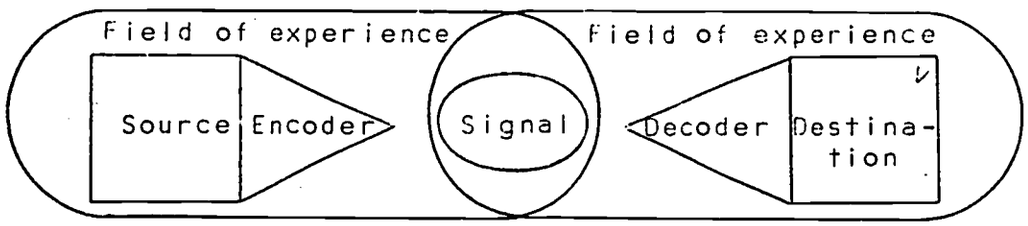
VI. DEVELOPING AN INFORMATION SYSTEM

- A. MISSION AND SCOPE
- B. INFORMATION RESOURCES
- C. EQUIPMENT AND FACILITIES
- D. PERSONNEL



SCHEMATIC DIAGRAM OF A GENERAL COMMUNICATION SYSTEM [1]

[1]Claude E. Shannon and Warren Weaver, The Mathematical Theory of Communication (Urbana: University of Illinois Press, 1949), pp. 98-99.



2

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[2]Wilbur Schramm, ed., The Process and Effects of Mass Communication (Urbana: University of Illinois Press, 1954). p. 6.

GENERALIZED INFORMATION SYSTEM

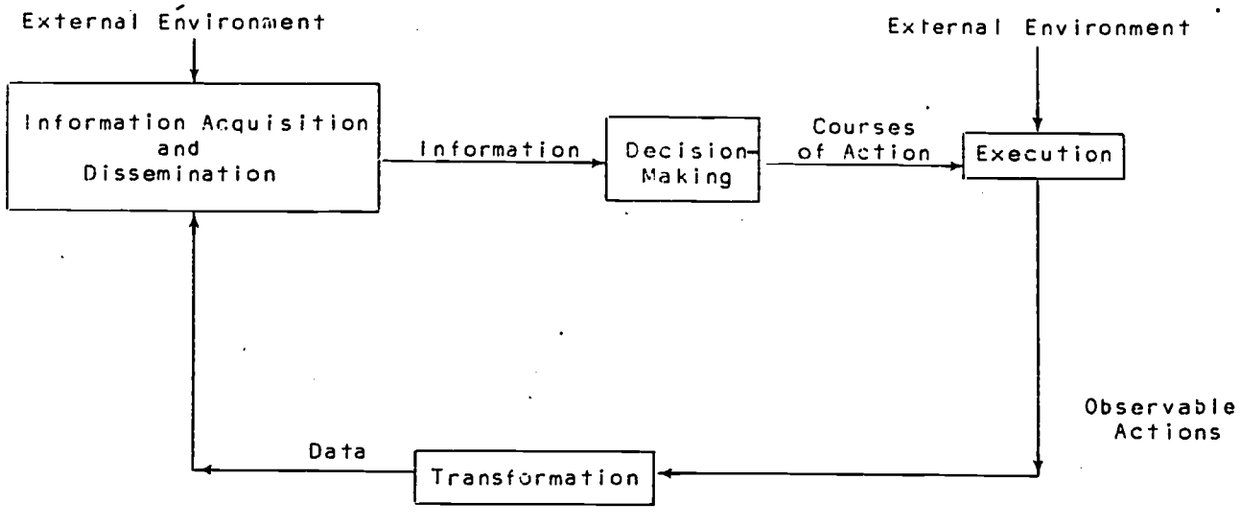
Four Essential Components

1. Information Acquisition and Dissemination

2. Decision-Making (Information to courses of action)

3. Execution (Courses of action to observable action)

4. Transformation (Observable action to collection of data)



A GENERALIZED INFORMATION SYSTEM[3]

[3]M. C. Yovits and R. L. Ernst, Generalized Information Systems: Some Consequences for Information Transfer (Columbus, Ohio: The Ohio State University Computer and Information Science Research Center, 1968), (OSU-CISRC-TR-68-1), p. 42.

INFORMATION SYSTEMS

Book and Serial Systems

Libraries

Document Based Systems

ERIC, NTIS, SRIS

Instructional Materials Banks

Media Centers

Career Data Banks

VIEW

Dissertations

DATRIX

Management Information Systems

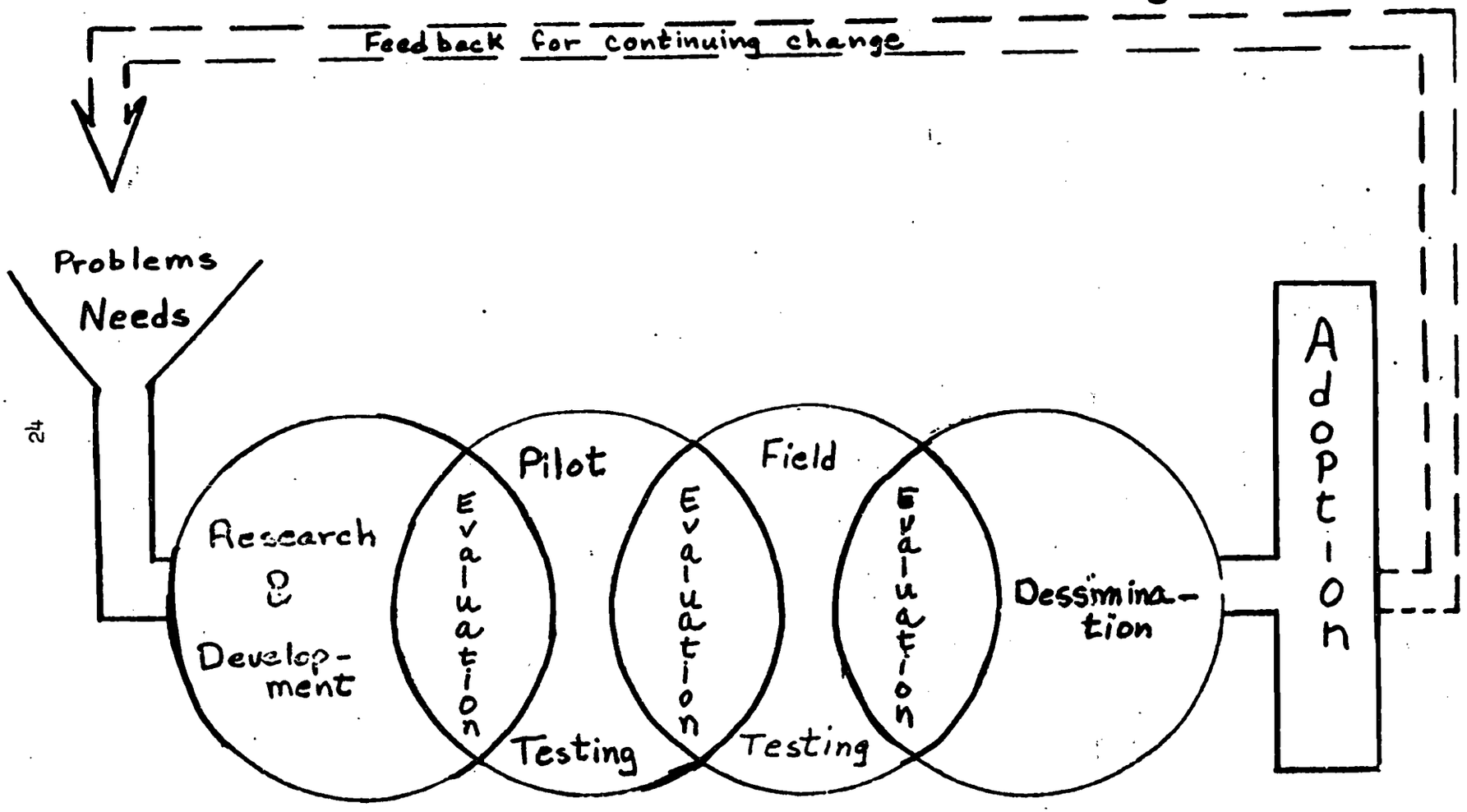
Accounting Systems

Raw Data Banks

Talent, Census

SERVING EDUCATION

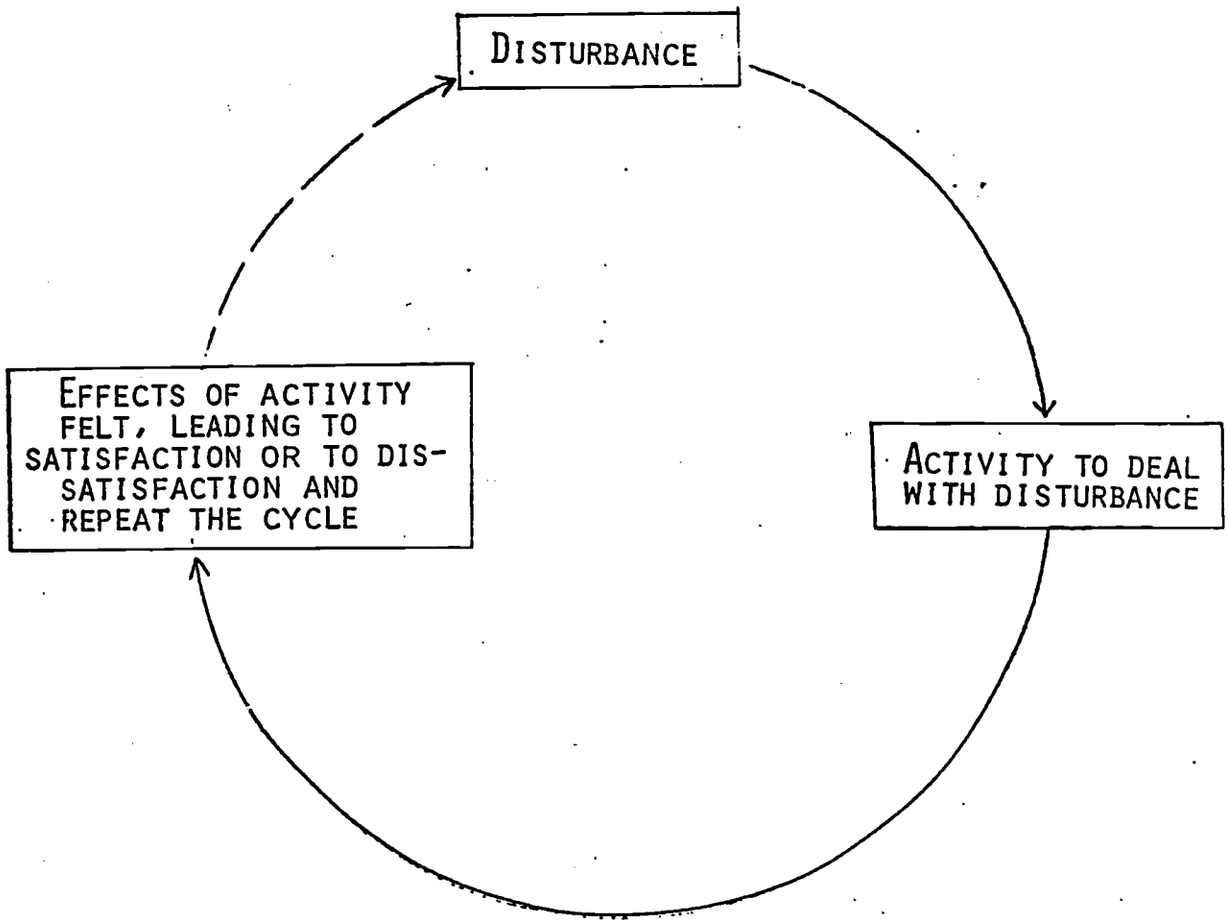
MODEL - Process For Planned Change



NOTES

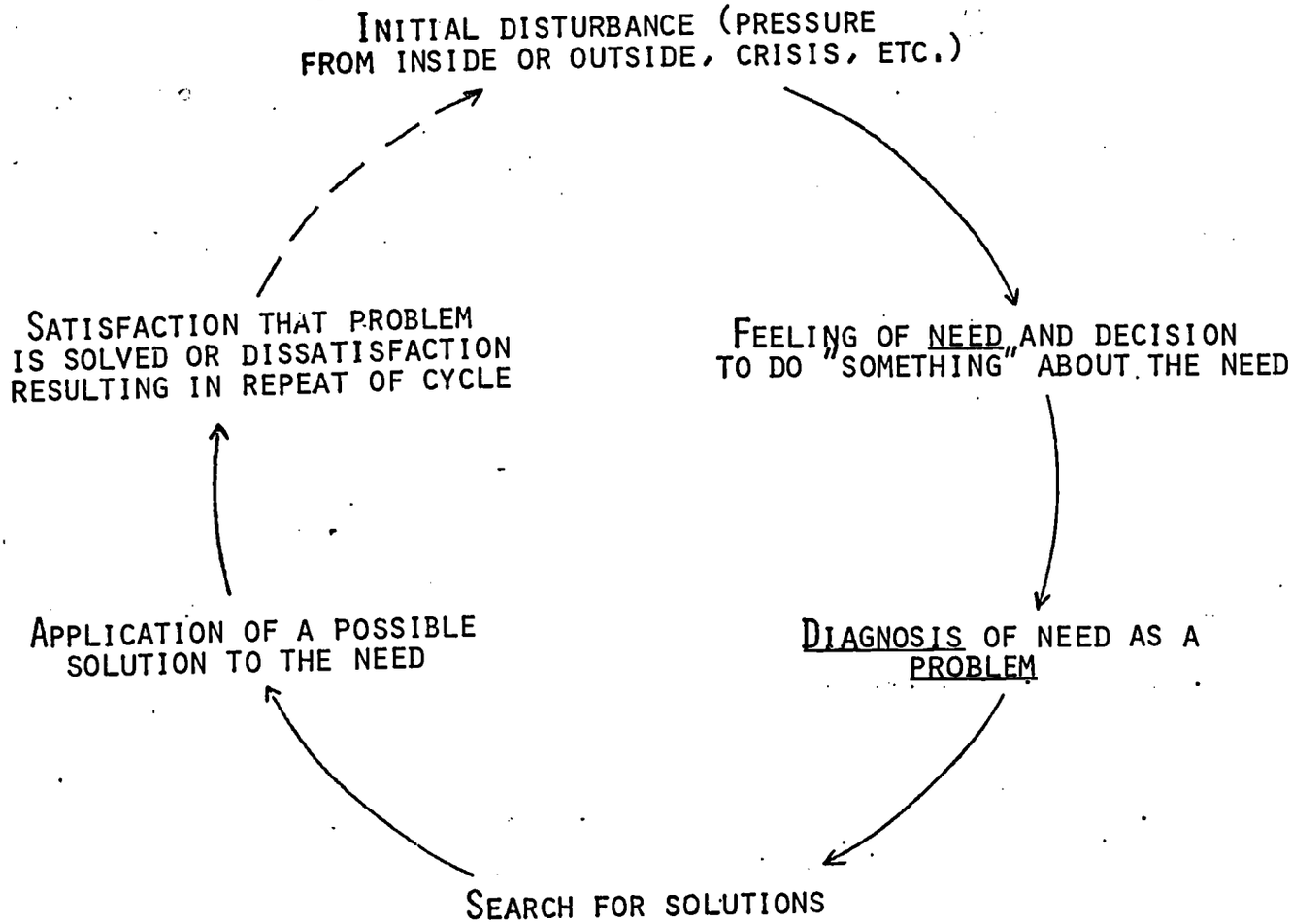
Stages in Innovation from the Point of View of the People Who are Changed (the Client System)

Simple Reflex Model:



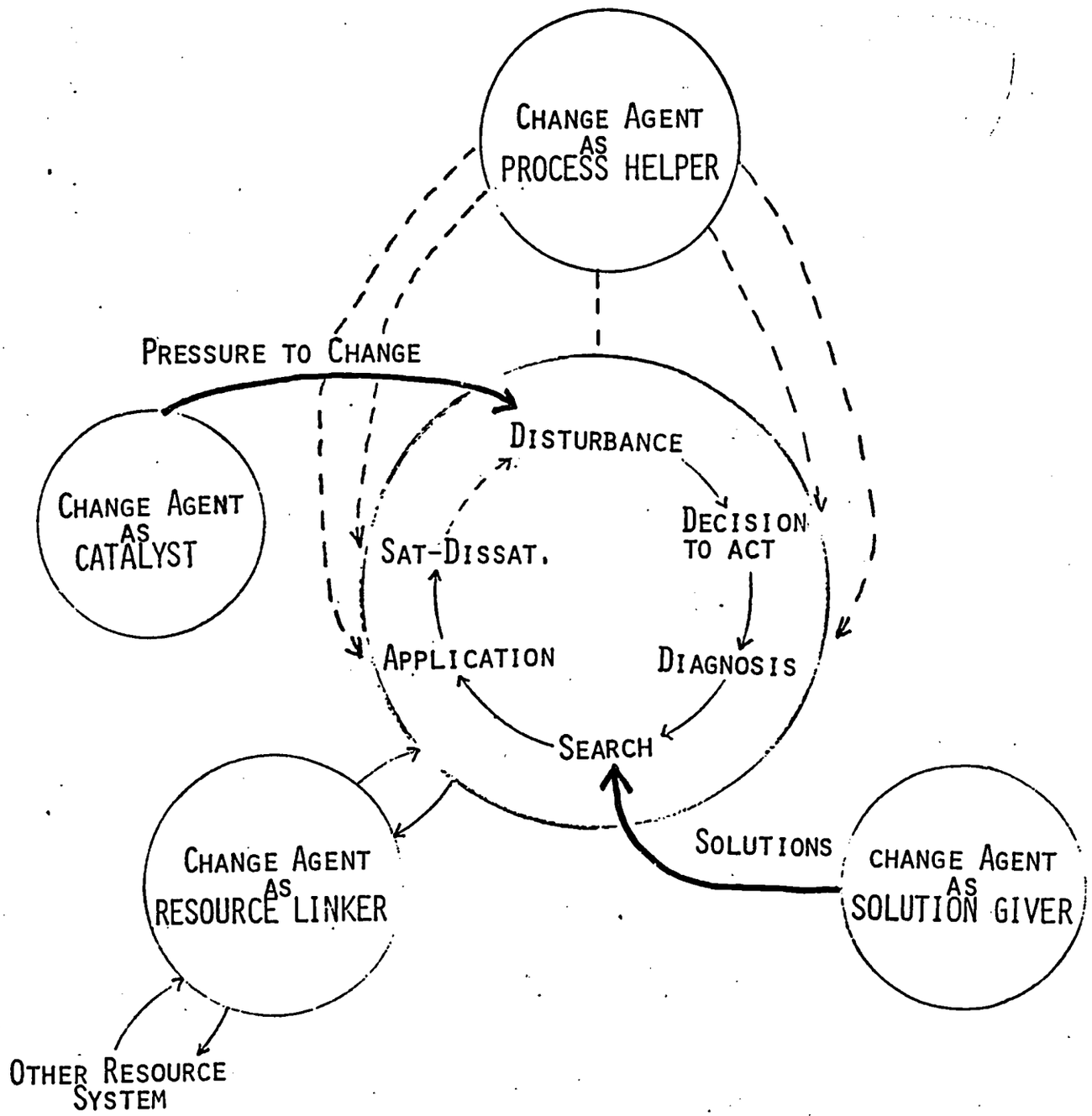
Havelock, Ronald G. A Guide to Innovation in Education, p. 4

RATIONAL PROBLEM SOLVING MODEL:

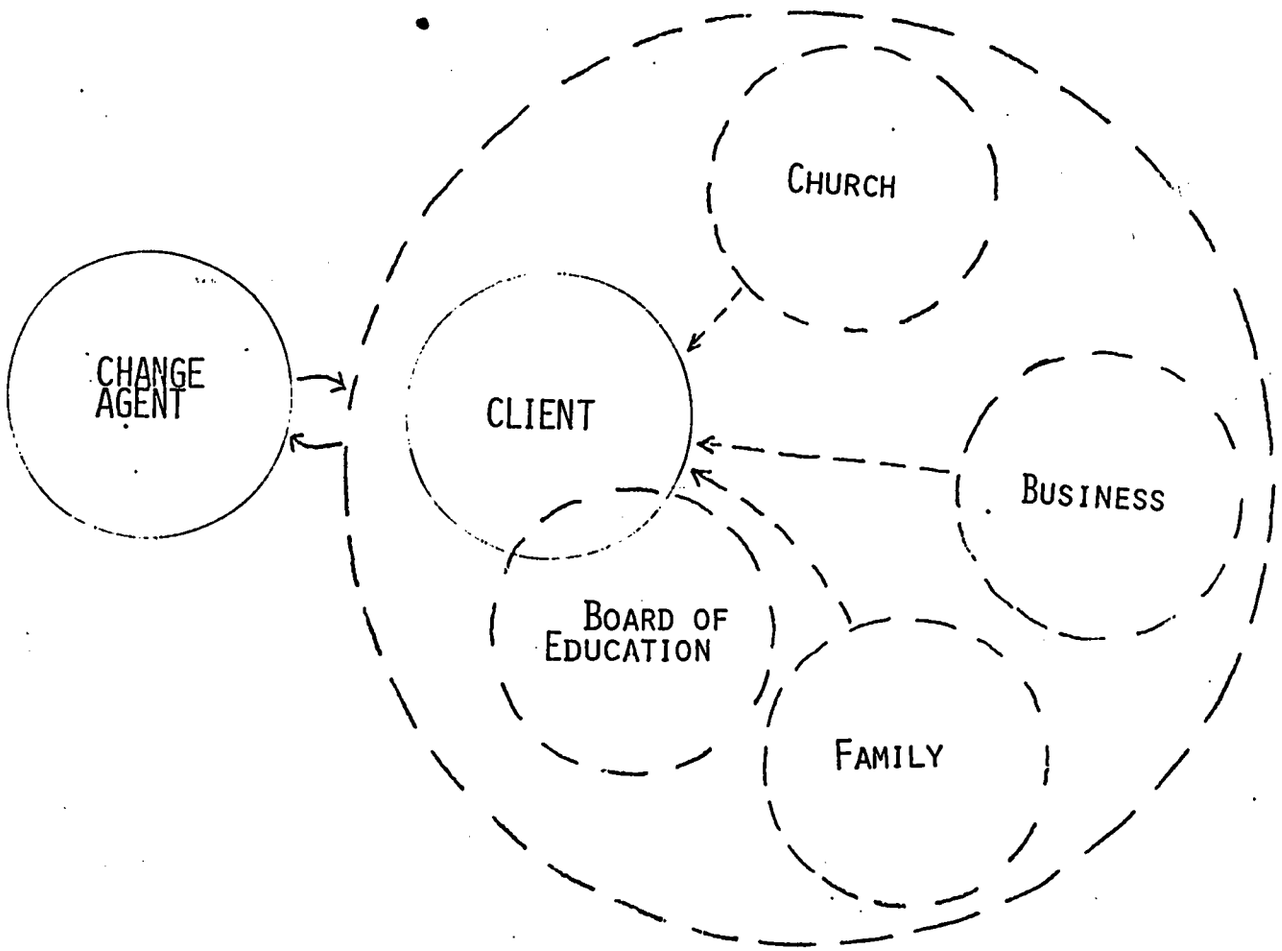


HAVELOCK, RONALD G. A GUIDE TO INNOVATION IN EDUCATION, P. 5

THREE WAYS TO BE A CHANGE AGENT



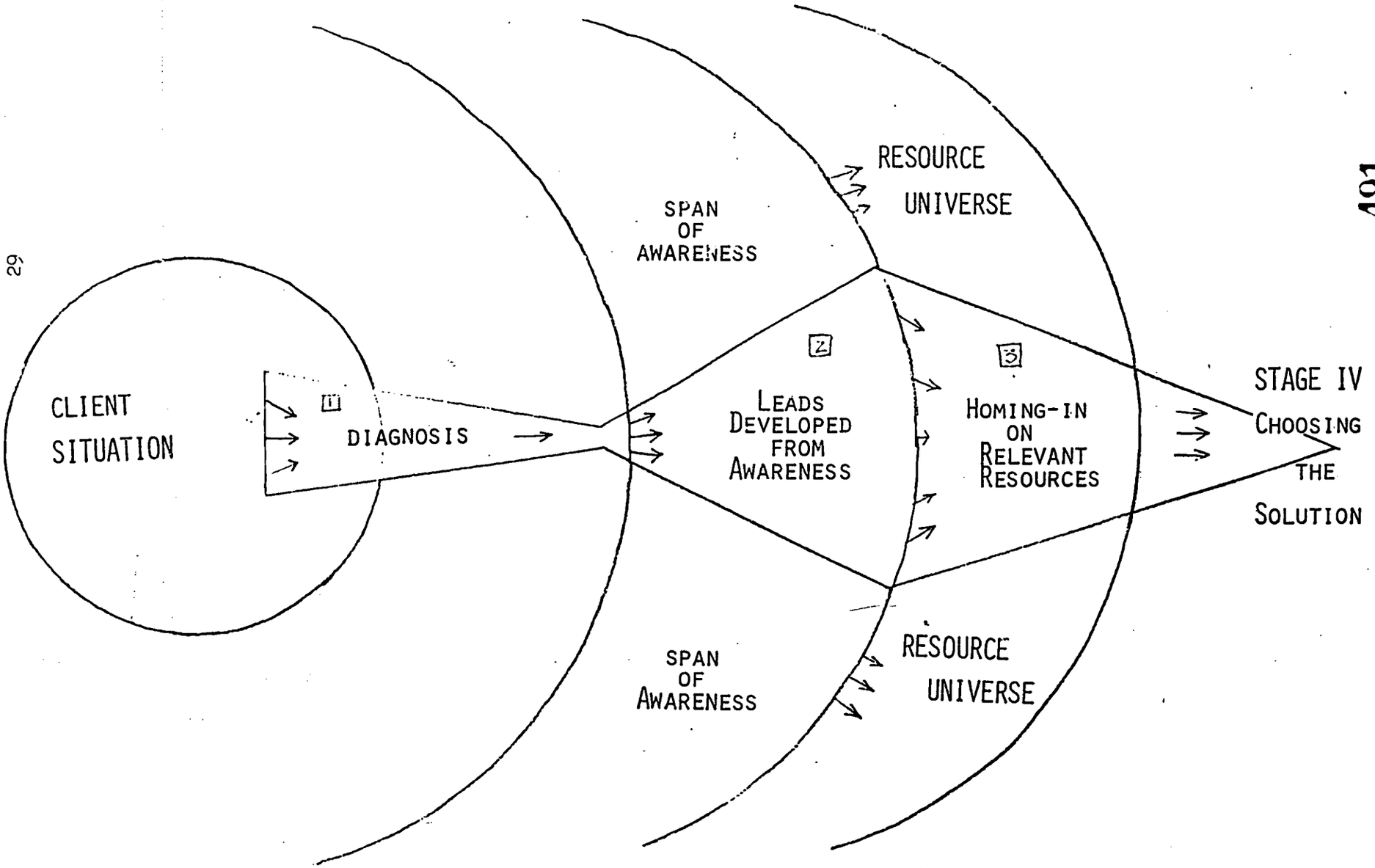
HAVELOCK, RONALD G. A GUIDE TO INNOVATION IN EDUCATION, P. 6



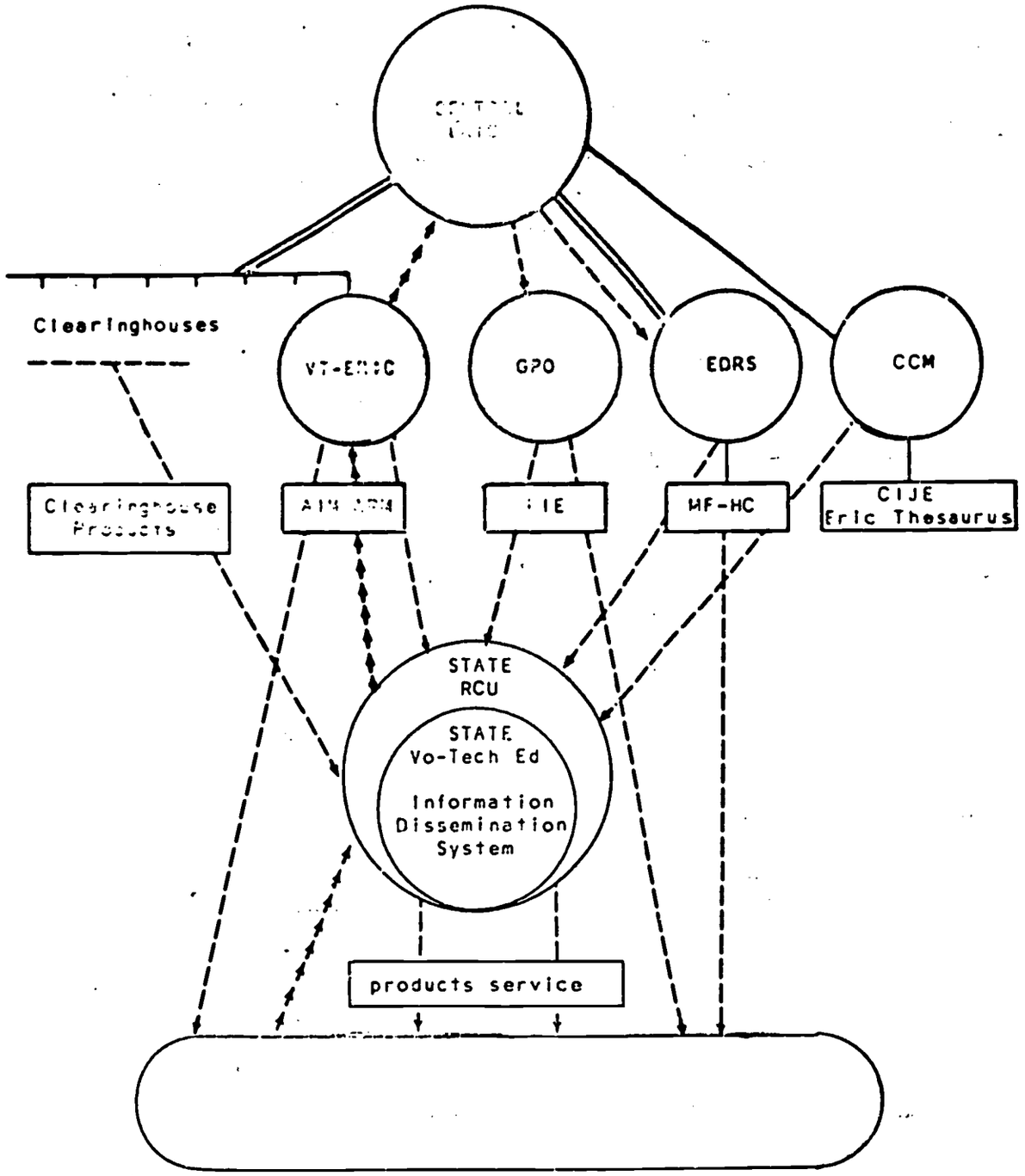
HAVELOCK, RONALD G. A GUIDE TO INNOVATION IN EDUCATION, P. 42

(15)

Resource Acquisition is a Three Part Problem



Havelock, Ronald G. A Guide to Innovation in Education, p. 83


Clearinghouses
VT-ERIC
GPO
EDRS
CCM
Clearinghouse Products
AIM ARM
RIE
HF-HC
CIJE
Eric Thesaurus
STATE
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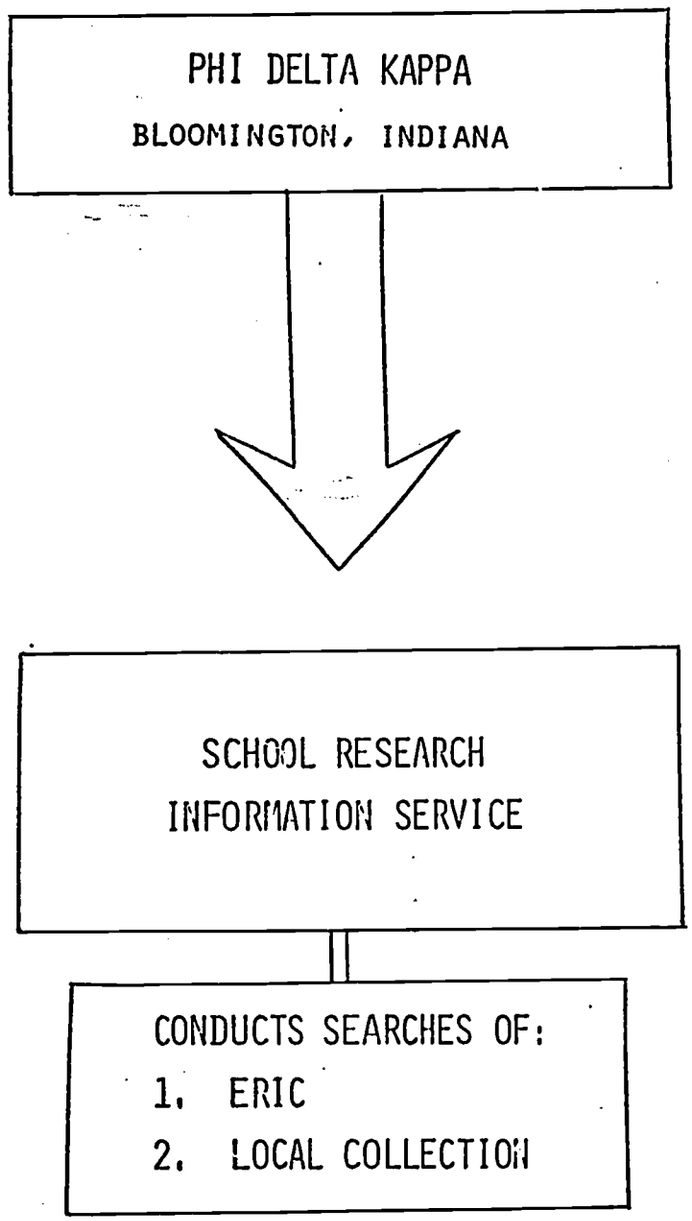
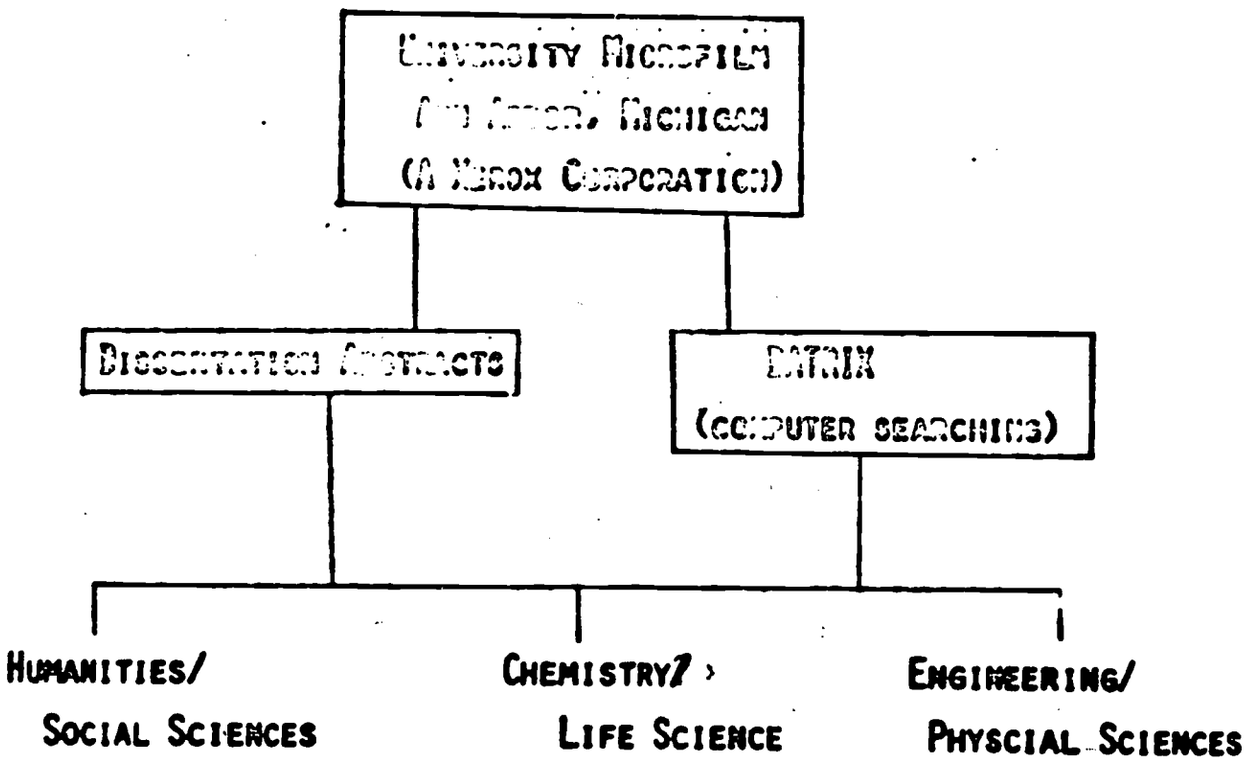
Information
Dissemination
System
products service


PHI DELTA KAPPA
BLOOMINGTON, INDIANA
SCHOOL RESEARCH
INFORMATION SERVICE
CONDUCTS SEARCHES OF:
1. ERIC
2. LOCAL COLLECTION


UNIVERSITY MICROFILM
(A XEROX CORPORATION)
DISSERTATION ABSTRACTS
DATRIX
(COMPUTER SEARCHING)
HUMANITIES/
SOCIAL SCIENCES
CHEMISTRY/
LIFE SCIENCE
ENGINEERING/
PHYSCIAL SCIENCES

NOTES

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SPRINGFIELD, VA. 22151

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MICROFICHE - $0.95

INFORMATION PRODUCTS

(20)

PRIMARY PRODUCTS	SECONDARY PRODUCTS	ACCESS PRODUCTS	
		PRINTED	COMPUTER TAPES
DISSERTATIONS	BOOKS OR MONOGRAPHS	1. INDEXES (ALPHABETICALLY ORDERED) A. SUBJECT B. PHRASES C. KEY WORD D. AUTHOR E. TITLE	ERIC TAPED (EDUCATIONAL RESOURCES INFORMATION CENTER -- EDUCATION) DATRIX TAPES (DIRECT ACCESS TO REFERENCE INFORMATION: A XEROX SERVICE--DISSERTATIONS
BOOKS OR MONOGRAPHS	JOURNAL ARTICLES REVIEWING PUBLISHED WORK OF OTHERS, ETC.	2. CLASSIFICATION CODES A. HIERARCHICAL B. TOPICAL C. CHRONOLOGICAL	
JOURNAL ARTICLES	BIBLIOGRAPHIES		USGRDR TAPES (UNITED STATES GOVERNMENT RESEARCH AND DEVELOPMENT REPORTS -- SCIENTIFIC REPORTS)
	ABSTRACTS	3. THESAURI - TERM ASSOCIATION LISTS WHICH DELINEATE THE LANGUAGE OF DOCUMENTS AND SERVE AS AN AUTHORITY LIST OF TERMS FOR USERS TO GAIN ACCESS TO DOCUMENTS WITH THESE CONCEPTS.	
PROCEEDINGS	REVIEWS		MEDLARS TAPES (MEDICAL LITERATURE ANALYSIS AND RETRIEVAL SYSTEM)
TECHNICAL REPORTS	SUMMARIES		
RESEARCH REPORTS		4. ROTATED DESCRIPTOR DISPLAY - PROVIDES ACCESS TO ALL WORDS IN A COMPOUND WORD	

QUERY Field Identification Code for ERIC

FIELD NAME	FIELD ID FOR QUERY
Accession Number	A
Clearinghouse Accession No.	B, C
Program Area	D
Publication Date	E
Title	F
Personal Author	G
Institution Code	H
Sponsoring Agency Code	I
Descriptor	J
Identifier	K
EDRS Price	L
Descriptive Note	M
Issue	N
Abstract	O
Report Number	P
Contract Number	Q
Grant Number	R
Bureau Number	S
Availability	T
Journal Citation	U
Institution Name	V
Sponsoring Agency Name	W
Not Used	X, Y, Z

SEARCH LOGIC

IN THE FOLLOWING DIAGRAM, THE LETTERS A, B, C, D AND E REPRESENT ARBITRARY NEMBERS OF DESCRIPTIVE TERMS THAT CAN BE SEARCHED BY THE COMPUTER ACCORDING TO A VARIETY OF COMBINATIONS AND INSTRUCTIONS:

DESCRIPTIVE TERMS TO BE SEARCHED AS INSTRUCTED	DEGREE OF SEARCH STRATEGY	RESULTANT HINTS
EXAMPLE 1		
+A /B /C /D /E	BROAD, RELATIVELY NON-RESTRICTIVE, LOOSE	A HIT RESULTS WHEN ANY ONE OF THE TERMS SEARCHED IS FOUND IN A SINGLE CITATION.
EXAMPLE 2		
+A +B +C	NARROW, PRECISE, TIGHT	A HIT RESULTS ONLY WHEN ALL THREE TERMS APPEAR IN A SINGLE CITATION.
EXAMPLE 3		
+A /B /C +D /E	RESTRICTIVE, BUT NOT AS RESTRICTIVE AS EXAMPLE 2	A HIT RESULTS ONLY WHEN ONE OR MORE TERMS IN EACH + GROUP APPEARS IN A SINGLE CITATION. THUS, A OR B OR C PLUS D OR E PRODUCTS A HIT.
EXAMPLE 4		
+A /B + #C + #D	RESTRICTIVE, BUT NOT AS RESTRICTIVE AS EXAMPLE 2	A HIT OCCURS ONLY WHEN A OR B OCCURS IN A CITATION, AND C AND D DO NOT APPEAR IN THE CITATION.

COMPUTER INSTRUCTION CODES: + = AND / = OR + # = AND NOT

Search Strategy

The citations appearing in this computer printout were derived from a search strategy that was based on the following combinations of descriptors:

Group A (1 or more)	Plus Group B (1 or more)	Plus Group C (1 or more)

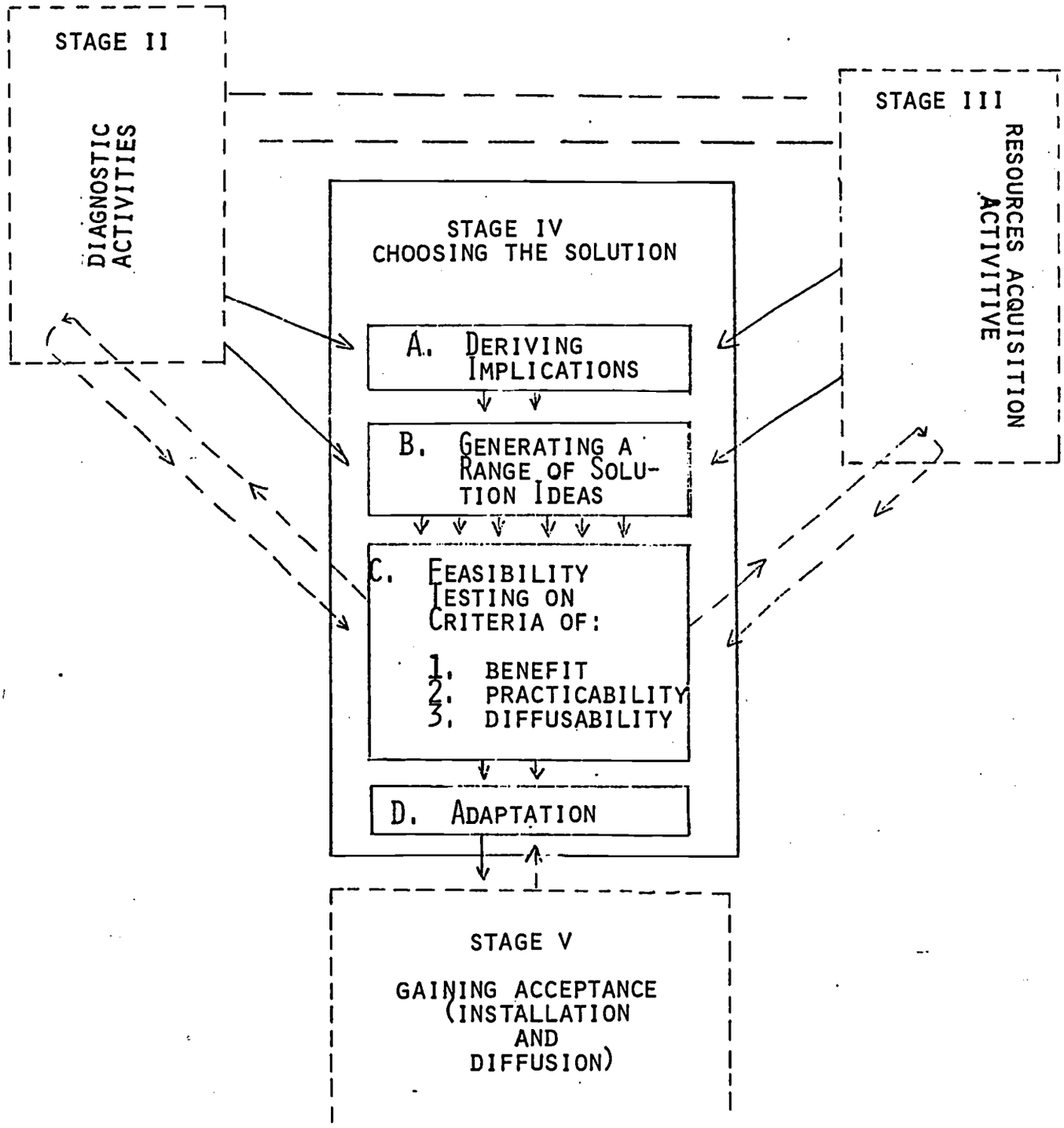
All of the references in the search results contain at least one item from each of the above groups.

Excluded from the search were specific references to the descriptors:

It was felt that the bulk of the material was concentrated within a few clearinghouses. Therefore the search was limited to the Clearinghouses on:

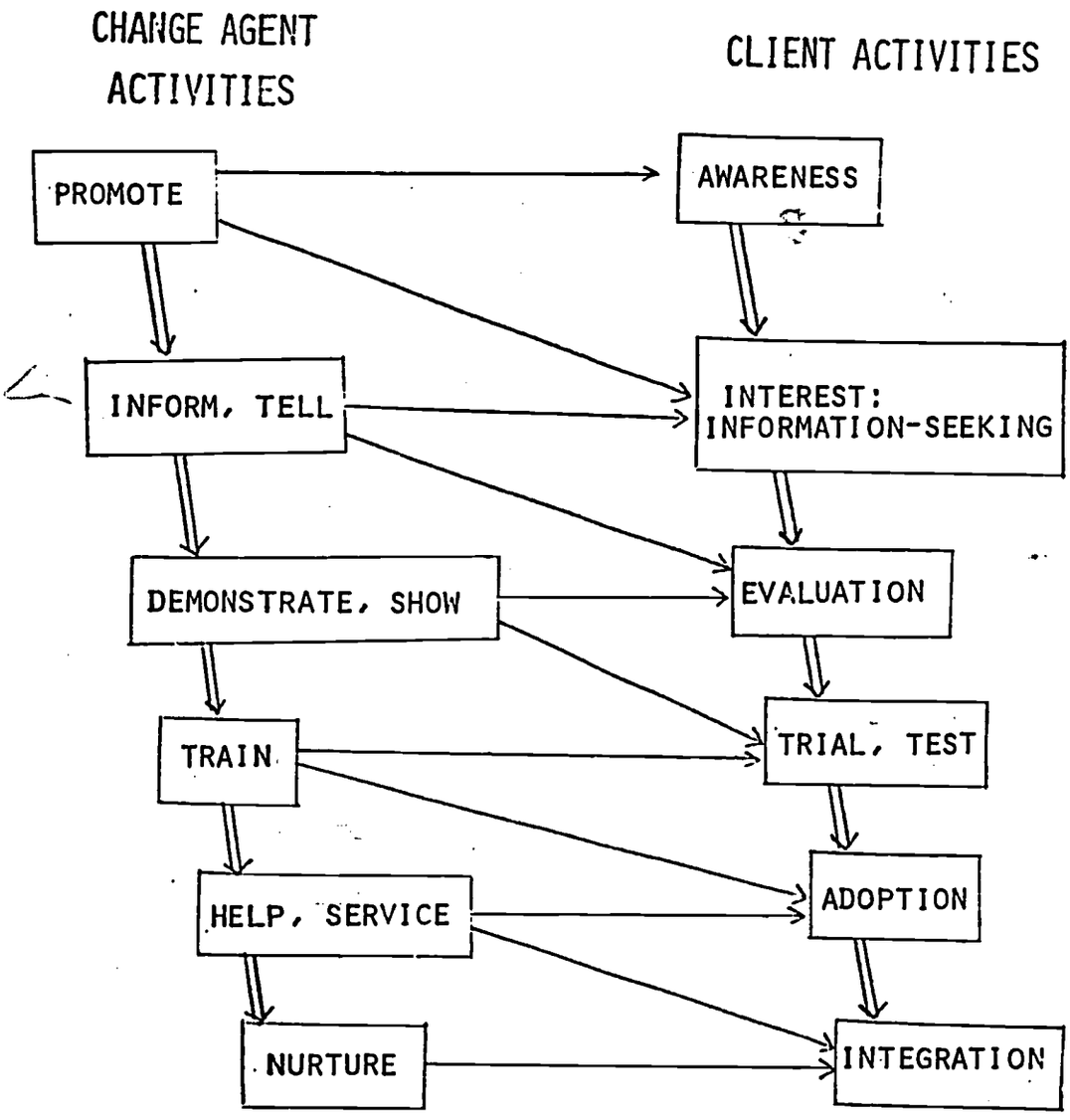
STEPS IN CHOOSING THE SOLUTION

THE FOUR STEPS INVOLVED IN GENERATING AND CHOOSING SOLUTIONS ARE RELATED TO THE OTHER STAGES OF A CHANGE PROJECT AS PARTIALLY ILLUSTRATED IN THE DIAGRAM BELOW.



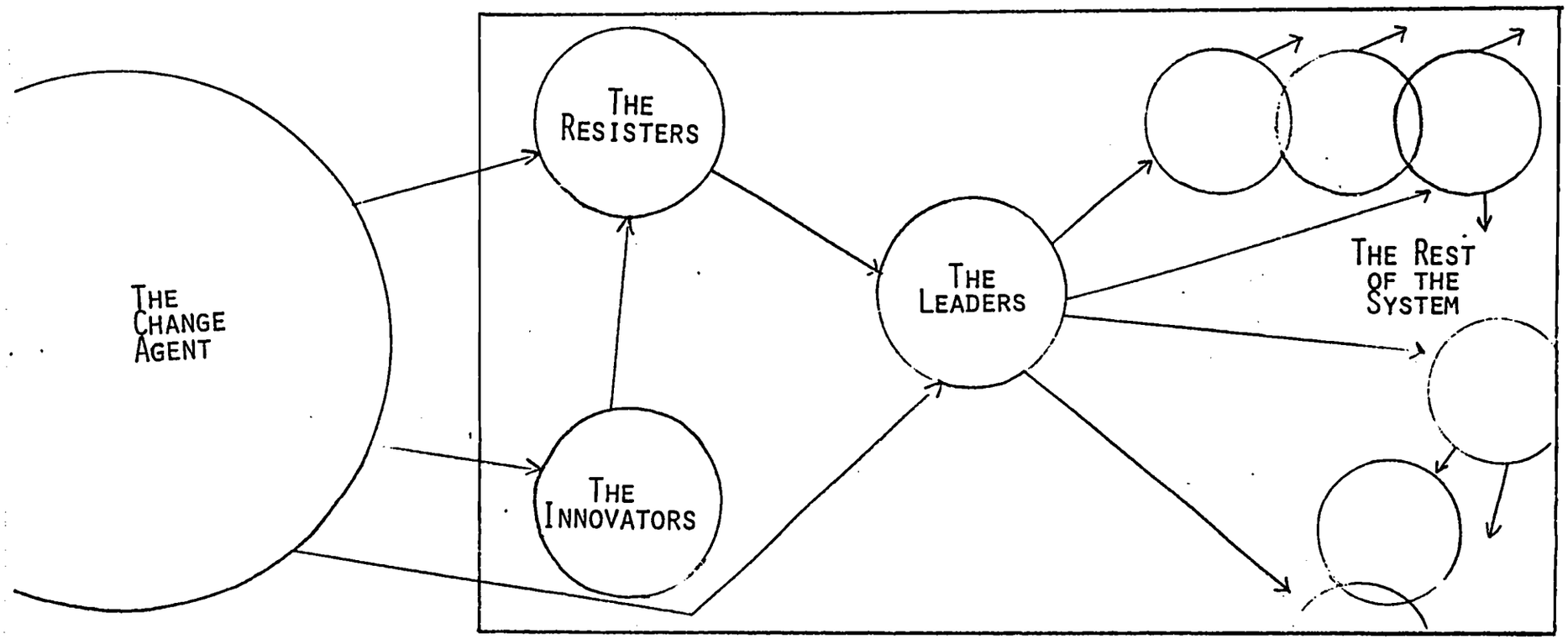
HAVELOCK, RONALD G. A GUIDE TO INNOVATION IN EDUCATION, P. 107

Coordinating Change Agent Activities with the Client's Adoption Activities



Havelock, Ronald G. A Guide to Innovation in Education, p. 125.

A Stepping Stone Strategy for Gaining Group Acceptance



Havelock, Ronald G. A Guide to Innovation in Education. p. 137.

OBJECTIVES OF AN INFORMATION DISSEMINATION SYSTEM

1. TO ACQUIRE APPROPRIATE DOCUMENTS, MAINTAIN A DOCUMENT BANK AND ESTABLISH ACCESS TO OTHER RELEVANT MATERIALS THROUGH COOPERATIVE EFFORTS WITH OTHER AGENCIES.

2. TO DISSEMINATE RELEVANT MATERIALS THAT SERVE THE NEEDS OF IDENTIFIED HIGH PRIORITY USER GROUPS AND INDIVIDUALS.

3. TO ASSIST IN THE DIFFUSION OF EDUCATIONAL CONCEPTS.

4. TO DEVELOP A FEEDBACK SYSTEM AND AN EVALUATION PROGRAM

FUNCTION

1. RESPOND TO QUESTIONS OF LOCAL EDUCATORS
2. PROVIDES TRAINING ON USE OF INDEXES
3. MAINTAINS A LIST OF CONSULTANTS
4. MAINTAINS A LIST OF NEW AND EXEMPLARY PROGRAMS
5. ALERTS KEY PEOPLE AT LOCAL LEVEL TO NEW AND DEVELOPMENTAL ACTIVITIES OF INTEREST
6. MAINTAINS A DOCUMENT COLLECTION

STAFFING THE ORGANIZATION

1. DIRECTOR

2. SPECIALTIES

   FIELD SERVICE

   EDUCATION

   SEARCH AND REFERRAL

   INFORMATION ANALYSIS

   ACQUISITION AND PROCESSING

   DOCUMENT ANALYSIS

   EDITING

   PUBLICATIONS

   COMPUTER

VT 015 029
CREWDSON, ALEX, ED.
VOCATIONAL EDUCATION IN WASHINGTON STATE.
TEST AND APPENDICES.

WASHINGTON STATE COORDINATING COUNCIL FOR
OCCUPATIONAL EDUCATION, OLYMPIA.
OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - JAN72 138P.

DESCRIPTORS - *VOCATIONAL EDUCATION; *STATE
PROGRAMS; *PROGRAM DESCRIPTIONS; PROGRAM
ADMINISTRATION; ANNUAL REPORTS
IDENTIFIERS - *WASHINGTON

ABSTRACT - THIS ANNUAL REPORT DESCRIBES THE
GOALS, ORGANIZATION, AND ACTIVITIES OF
VOCATIONAL EDUCATION PROGRAMS IN WASHINGTON.
ENROLLMENT, ACHIEVEMENTS, AND FUTURE NEEDS
ARE PROVIDED BY PROGRAM AREA. (BH)

EQUIPMENT - PRIORITY I

1. To read and reproduce MF

2. To maintain office operations

3. To provide space for users

4. To provide for shelving and filing of materials

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MF Reader - Printers

Photo Dry Copier

General Office and Library Equipment

PRIORITY II - MF Exposure and Developer Unit

PRIORITY III - MF Filmer Usually not practical

MF EQUIPMENT

AD 701 600 Microfiche Viewing Equipment

R. F. Gordon, DDC, Alexandria, Virginia, March 1970, 55 pp. (Available from NTIS, Springfield, Virginia 22151, MF $0.95 HC $3.00)

Information and Records Management

December/January 1970, and June 1971

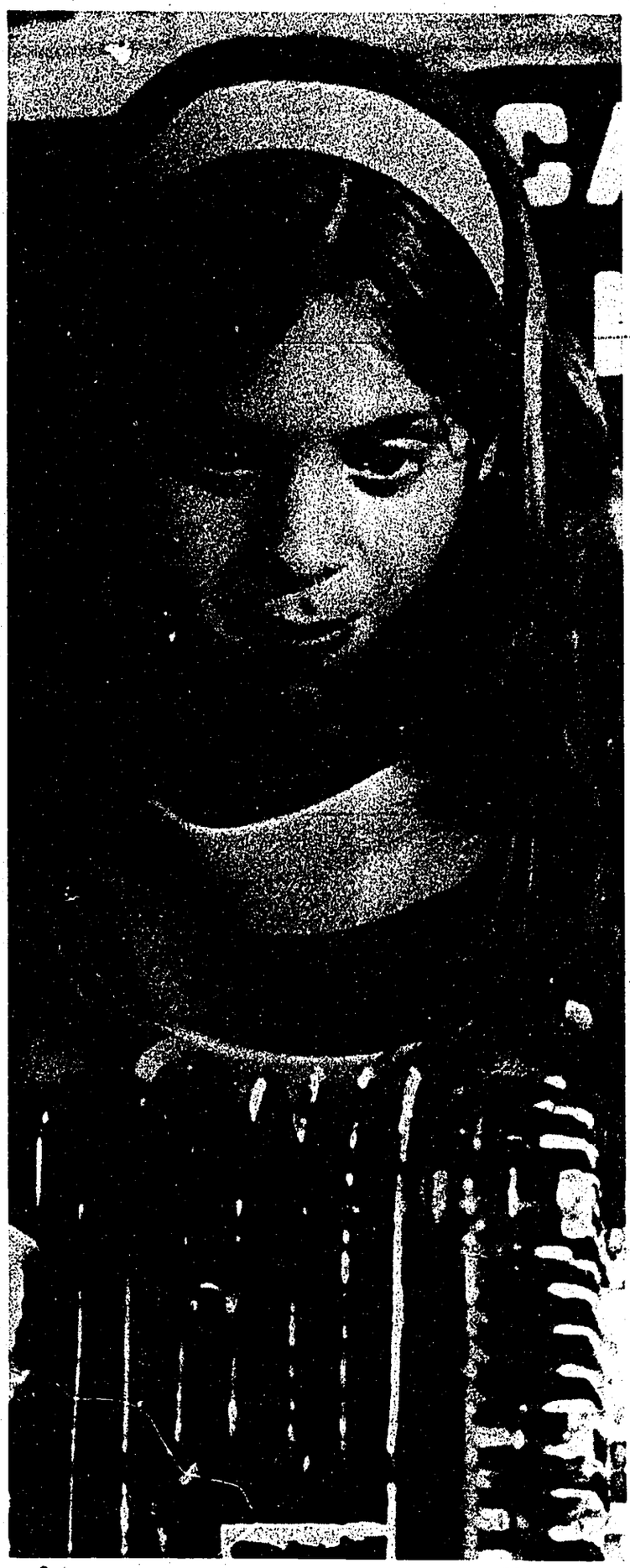
ERIC

Vocational Education in Washington State

An official report by the Coordinating Council for Occupational Education

GUIDE FOR A STATE VOCATIONAL-TECHNICAL EDUCATION DISSEMINATION SYSTEM

ERIC CLEARINGHOUSE
THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY
1900 Kenny Rd., Columbus, Ohio, 43210



January 1972

official report of the

Washington State
Coordinating Council for
Occupational Education

State Office of
Vocational Education

Ernest G. Kramer
State Director and Executive Officer

Old Capitol Building
Olympia, Washington
98504

Editor, photographer
Alex Crewdson

Preparation of this Annual Descriptive Report on Vocational Education is required under the provisions of the Vocational Education Act of 1968 (PL 90-576) for submission to the U.S. Office of Education.

EDUCATE USERS IN UTILIZATION OF THE SERVICES AND PRODUCTS OF THE SYSTEM

IMPLEMENT AN EDUCATIONAL PROGRAM.

USE TRAINING AIDS.

USE PERSONAL CONTACTS, GROUP MEETINGS, AND PRINTED MATERIALS.

PROVIDE INDIVIDUAL ASSISTANCE.

goals of the coordinating council for occupational education

- provide vocational education for all who need it
- assure that programs are of high quality
- assure that programs are consistent with the needs of the people and the manpower needs within the economy
- provide for administrative and professional development for state and local administrators
- evaluate, improve, develop and redirect teacher education for the improvement of vocational education
- conduct overall evaluation to create appropriate change
- provide continuous identification of manpower needs, occupational mobility, job structures, and occupational information

OUTCOMES OF THE PROGRAM

1. EFFICIENT SYSTEM
2. EFFECTIVE INTERFACE WITH USERS AND USER GROUPS
3. USEFUL MATERIALS IN THE SYSTEM
4. ADEQUATE EQUIPMENT, FACILITIES, AND LOCATION
5. EDUCATION OF USERS IN THE SYSTEM
6. USE OF MATERIALS MEANINGFUL TO USER PROBLEMS AND NEEDS
7. CURRENT AWARENESS OF INFORMATION ON SPECIFIC INTERESTS OF TARGET USER GROUPS

Max Benitz

Chairman,
Coordinating Council for Occupational Education

Many people chuckle at the punch line of a recently popular TV commercial. "You shouldn't try to fool Mother Nature." Perhaps most persons like myself who have made agriculture a life's work might go even further and suggest that you "can't" fool Mother Nature. My point in this is that perhaps I represent what many educators have in mind when they use their "favorite" pragmatism. On my farm and in many moments of truth in the halls of the Legislature, there are explicit confrontations with the naked truth. Here's the philosophy I brought to my membership on the Coordinating Council which I've used in its management as Council chairman and which I mean to continue for so long as the relationship to the Council continues: eyeball confrontation with the naked truth.

It isn't in keeping with those beliefs to simply say, in this annual report, that everything's just dandy; no major concerns or problems. But there is also no doubt about a great deal of measurable progress being registered, perhaps chief amongst these is the maturity within the structure of the Council and its staff.

Farmers sometimes joke about putting seeds into the ground and having to jump aside to keep from being carried skyward on the growing plant. Still, time and time again, we seem to find equally incredible kinds of growth not only being "expected", but becoming a real source of complaint if that miracle fails to materialize. Government is no exception to this unrealistic expectation. A number of very current examples of it are plaguing us right now, causing crises from the Governor's Office to the man in the street.

The Coordinating Council has weathered quite a bit of this kind of over-expectation since its seeds were planted in 1967. Fortunately for it and even more importantly for the purposes it was designed to carry out, the building of a workable, working structure has gone on uninterruptedly. Ernest Kramer, an individual uniquely qualified to provide unruffled, positive leadership, has carefully and quietly served with great distinction during this formative period. No small amount of the steady progress toward our present maturity can be credited to Ernie. His decision to seek retirement leaves a void that will be difficult indeed to fill. Of equally critical importance during this period of growth, representation on the Coordinating Council from the tripartite sources of its membership has been by individuals of exceptional calibre; persons with knowledgeability, dedication and great personal integrity. Seldom in my experiences with numerous and diverse committees have I experienced the willingness displayed by the Council members I've been privileged to serve with, to put partisan concerns aside and turn full attention to seeking solutions that will most benefit those in need of vocational education services; wherever and wherever those persons are.

The national administration's policies for the economy have progressed to a second stage of planned activity, Phase II. In my judgment, the Coordinating Council is also embarking on its own "Phase II" in 1972. An important beginning has already been made. The Council acted in December, 1971, to assert a new focus at the state level for vocational education planning and implementation. Heretofore essentially a federally related document, the State Plan for Vocational Education has now become a part of the Washington Administrative Code. Having both the force of law and the capability for much more effective mechanical alteration, this new focus will bring about greater leadership capabilities, geared more closely to locally based needs and concerns. In those issues that bear upon national guidelines, our federal partners will continue to receive our closest possible cooperation. In that sense, the State Plan will remain a federally-oriented document. However, as a handbook for the daily use of vocational educators at every level of every vocational education program, the provisions carried in the Washington Administrative Code assume primacy. Up-dated and made more meaningful on a regular basis, these "handbook" provisions will serve to plainly provide the basic policy guidelines needed for every practitioner to better understand the operating rules.

The role of the Coordinating Council in carrying forth the responsibilities delegated to it under state and federal law, will become more visible under "Phase II". I am confident that the momentum generated within our staff will be maintained and enhanced by whatever new State Director is selected by the Council. I am confident that the excellent relationships to the two operating agencies, the Office of the Superintendent of Public Instruction and the State Board for Community College Education, already established under Mr. Kramer's regime, will be even further solidified and strengthened in the months ahead. More than just a word, "coordinating" will increasingly be our mission. The seeds are sprouted. The roots are firm. The tempo of our activities must and will now increase, in keeping with the purposes implicit in our creation.

Neither as a farmer, nor a legislator, am I tempted to believe that we can "fool Mother Nature". 1972 is a year of great decisions. I assure you that Phase II in the life of the Coordinating Council will find us equal to its challenges.

APPENDIX B

Ernest G. Kramer

State Director of Vocational Education
and Executive Officer

Few persons can approach retirement without some mixed emotions. Concerns about unfinished tasks and the anticipations of new challenges ahead, are not easily shed as one's thoughts begin to linger on fishing trips and leisure time.

Vocational education in the State of Washington has undergone a great many changes in the last decade. Not everyone agrees with each portion of the design which emerged from the creation of the Coordinating Council for Occupational Education in 1967. But few indeed have failed to recognize the great progress that's been made and splendid opportunities for improvement which now exist. It's been exciting and rewarding to be part of a new design for vocational education and to share the responsibility for making it a working success. There will be many moments of satisfaction in reflecting on your continuing progress. Even as recently as the December, 1971, AVA convention in Portland, it struck me how well along toward similar goals we've already progressed, listening to Commissioner Sidney Marland's descriptions of the "new" concepts of "career education".

You who continue to shoulder the daily responsibilities will provide the determining factors which shape the future of vocational education in our state. The foundations are already laid and it is my hope that time will prove the worth of the many pioneering efforts that have occurred in these comparatively few years of the Coordinating Council's existence.

"Career education" . . . or whatever other name it may come to be called . . . is a continuous, unbroken effort at preparing people for their future. Looking beyond this philosophy to the various mechanical systems which exist, I believe one cannot escape the fact that a large portion of bringing career education into being involves COORDINATION. I believe a large and important part of that coordination has already been accomplished in establishing and implementing the concepts of the Coordinating Council. The mission for the immediate future is, in my opinion, clear: build on that framework!

GROUP_____

I GAINING ACCEPTANCE

POTENTIAL SOLUTION _____

A. ACTIVITIES DESIGNED TO:

1. PROMOTE
2. INFORM, TELL
3. DEMONSTRATE, SHOW
4. TRAIN
5. HELP, SERVICE
6. NURTURE

B. WHO ARE POTENTIAL

1. INNOVATORS
2. RESISTORS
3. OPINION LEADERS

C. OUTLINE STRATEGY TO GAIN GROUP ACCEPTANCE

authority

The Washington State Coordinating Council for Occupational Education was established by the 1967 Legislature (Title 28B, RCW) and charged with the responsibility of preparing and administrating the State Plan for Vocational Education within the community college and public school systems of the state. The Council serves as the sole agency of the state for the receipt of federal funds made available by acts of the United States Congress for vocational education.

mission

In meeting its responsibilities the Coordinating Council has designed a system within the State Plan for Vocational Education to facilitate the greatest possible coordination and cooperation between all those agencies interested in vocational education to insure that necessary existing programs are maintained, extended and improved, and new and innovative vocational programs are developed. The State Plan provides for vocational education for all persons of all ages.

services

The Coordinating Council is concerned with providing services to:

- effectively and efficiently serve people with vocational education
- assist individuals in their selection and completion of appropriate programs through various agencies
- encourage educational agencies to provide programs and activities which help people make realistic career choices, develop the skills necessary to enter and maintain employment, assume their multiple role as wage earner, homemaker, and consumer
- provide the disadvantaged and handicapped with programs and activities necessary for success and a place in the world.

ccoe membership

GOVERNOR'S APPOINTEES

Max Benitz, **CHAIRMAN**	Prosser
Thomas W. Anderson	Tacoma
Lloyd Wilson	Seattle

Appointed from the STATE BOARD FOR COMMUNITY COLLEGE EDUCATION

Mrs. John Bakke, **VICE-CHAIRMAN**	Kirkland
Mrs. Robert Shepherd	Pasco
John L. Hagensen	Vancouver

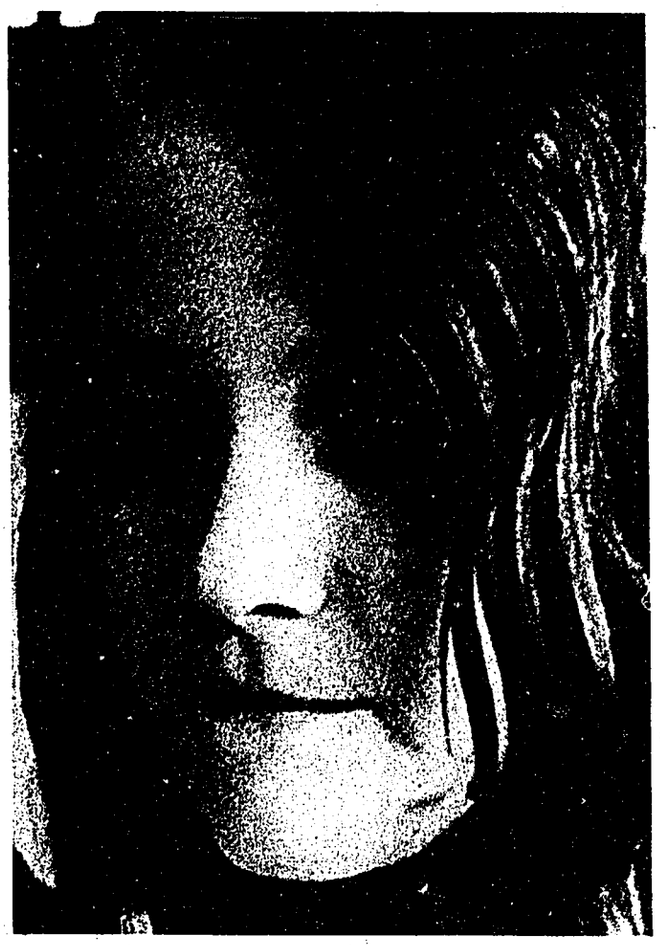
Appointed from the STATE BOARD OF EDUCATION

H. Eugene Hall, M.D.	Seattle
Mrs. Fred A. Radke	Port Angeles
Hiram L. Tuttle	Kirkland

EX OFFICIO MEMBERS

Louis Bruno	State Superintendent of Public Instruction
John C. Mundt	Director, State Board for Community College Education

Ernest G. Kramer
State Director of Vocational Education
and Executive Officer



GROUP_____

II DIAGNOSING THE PROBLEM

TOPIC:_____

I IDENTIFY PROBLEMS

A. SURFACE SYMPTOMS?

B. UNDERLYING CAUSES?

II IDENTIFY OPPORTUNITIES

A. POTENTIAL FOR CHANGE?

B. COMPARE EXISTING SYSTEM WITH OTHER (EXTERNAL) SYSTEMS.

III ANALYZE SITUATION - IS THE SYSTEM ACHIEVING ITS GOALS?

organization of

VOCATIONAL EDUCATION

in Washington state

State Superintendent of Public Instruction

Jim Blue

Line responsibility

State Coordinating Council for Occupational Education

Ernest G. Kramer

Washington state director of vocational education

State Board for Community College Education

Richard Moe

Line responsibility

Services provided by the CCOE

Division of Program Development

Dean Wagaman, director

Maintains expertise in the six services of vocational education (agriculture, business and office, home and family life, trade and technical, distributive education, guidance) for use by operating agencies on the state and local level.

Maintains direct contacts with labor, business and industry to determine the needs of people and the needs of the economy.

Translates information available on manpower needs into needs for vocational programs and the needs in specialized areas.

Responds to the requests by agencies to develop programs.

Combines the efforts of all personnel to develop innovative and special programs of vocational education and to improve overall instruction.

Provides assistance in the development and improvement of curriculum on all levels of educational administration and instruction.

Division of Program Administration

Dennis Roley, director

Provides for fiscal control, accounting, and disbursements to agencies.

Provides all reporting services and data processing.

Serves to administer programs within the Division of Vocational Education including manpower, development and training, fire service training, and approval of programs for veterans.

Provides all general administration for the Division of Vocational Education.

Designs and operates system for retrieval of statistics on all programs.

Continues the activities of the youth groups: Future Farmers of America, Future Homemakers of America, Vocational Industrial Clubs of America, and Distributive Education Clubs of America.

Conducts special division programs of an innovative or exemplary nature.

Division of Professional Services

Archie Breslin, director

Ensures that vocational instructors and administrators needed for the future are trained and available through an extensive teacher education program.

Plans, decides content, and arranges for professional workshops, meetings, and conferences.

Maintains close liasion with the entire educational community to ensure vocational education as an integral part.

Consolidates teacher certification for vocational educators formerly divided among the six services of vocational education (agriculture, business and office, home and family life, trade and technical, distributive education and guidance).

Provides information services for the entire Division and throughout the field of education to keep individuals informed on current events in vocational education.

Division of Program Planning and Research

Frank Wimer, director

Compiles information from many sources to determine the needs of the people, business and industry, and the economy.

Translates information into instructional program necessities.

Prepares and updates State Plan for Vocational Education from information compiled from other Division groups and designated advisory groups.

Prepares budget based on plans submitted by all groups and local agencies receiving money for vocational education.

Maintains the Research Coordinating Unit to develop and stimulate new ideas.

GROUP_____

III ACQUIRING RELEVANT RESOURCES

I IDENTIFY DOCUMENTS WHICH ARE RELEVANT TO YOUR DIAGNOSED PROBLEM. CLASSIFY THE RESOURCES SHOWING WHERE THEY MIGHT BE MOST VALUABLE

A. DIAGNOSIS

B. AWARENESS

C. EVALUATION BEFORE TRIAL

D. TRIAL

E. EVALUATION AFTER TRIAL

F. INSTALLATION

G. MAINTENANCE

II OUTLINE AN ACQUISITION STRATEGY TO OBTAIN NEEDED RESOURCES.

III WHAT KIND OF SYSTEM WOULD YOU PROPOSE SO YOU MIGHT HAVE A PERMANENT CAPACITY FOR RESOURCE ACQUISITION?

scr 23

CCOE staff member Charles Johnson, left, is study coordinator. State vocational director Ernest Kramer, right, is chairman of the SCR 23 steering committee.

by Charles Johnson, study coordinator

Senate Concurrent Resolution 23, mandated by the 1971 Legislature, named the State Coordinating Council for Occupational Education as the agency responsible for carrying out its purpose: produce a comprehensive study of vocational education needs, services, and funding.

The resolution also named a series of groups and agencies to assist in its implementation. The task, in two phases, involves preparing a study model, collecting data identified in the model, analyzing the data, and making recommendations for any legislative action deemed necessary.

The study is on schedule, with four major accomplishments having been made. They are:

- Identification of goals, including the establishing of what data is needed to provide answers, a design by which this is achievable, and the assignments of specific tasks to participants.

- As a management tool, a Steering Committee was formed from representatives of each participating agency/group named by SCR 23, plus a few additional closely concerned agencies. The active counsel of these remarkably cooperative, well informed individuals has contributed in no small degree to maintaining objectivity and strong progress.

- Keeping closely to a planned time sequence, data has been gathered by the "contractors"; those whose function most logically relates to a particular question of fact.

- Frequent reviews of progress, re-assessments of priorities and consensus regarding the validity of achieved goals have all been carefully handled in regular (at least monthly) meetings with the Steering Committee.

- Data collection, under the working direction of the special Project TRIAD group assembled at the University of Washington, is almost completed. Raw data now goes to the Phase II processes of analysis, evaluation, and the formulation of appropriate recommendations to the legislature under the general auspices of the Advisory Council for Vocational Education.

A realistic, objective, comprehensive inventory of the present state of vocational education needs, services, and funding, together with some perceptive and objective recommendations for improvements, are expected to be forthcoming on schedule.

program planning, budgeting

by Frank Wimer, director

The state of Washington responded positively to federal directives, Public Law 90-576 and the Governor's office directives regarding implementation of program planning and budgeting. The best methods of program planning ond the best related information available were researched and studied to provide the best information for the base on which a program planning and budgeting system could be designed, developed, and implemented. The system has been operational for over a year.

This study indicated a need for some organizational change. As a result, this agency responded to those needs with modifications from traditional specialization and line and staff organization to a managed, functional organization, with a change in management style from facilitative and coordinating to planning, organizing and controlling programs to provide educational services to the public.

This agency's 1971-73 biennial budget request was presented to OPP&FM and the Governor's office in a program planning and budgeting format in addition to the traditional format. As a result of this effort, the Coordinating Council was one of the few agencies which did not receive a legislative cut in the budget presented by the Governor.

As a result of these efforts, the Coordinating Council now maintains a single, comprehensive program plan to which all funds received by the agency are allocated. This includes the objectives to be accomplished, deadlines agreed upon, and persons responsible to carry out the program. Parallel with the planning system development was the implementation of a realistic and meaningful accounting system and financial reporting of actual expenditures against planned expenditures. This provides feedback to each program or project manager both in summary and detail, and actual expenditures compared with our budgeted figures. The agency now has an integrated planning, budgeting, managing and accounting system for all funds allocated to the agency.

An additional benefit derived from this activity of working directly with the regional U.S. Office of Education in Seattle and the U.S. Office of Education, Division of Vocational Education, Washington, D.C., was the ability of the state of Washington to be the first state in the nation on a pilot basis to submit its operational plans in its format as a part of the Federal/State Plan, Parts II and III. This action can be assumed to be a positive move in the direction of acceptance of an individual

IIIe. STRUCTURE FOR RESOURCE ACQUISITION

AS A GROUP - AGREE ON APPROX. 4-6 ERIC DESCRIPTORS RELEVANT TO YOUR PROBLEM OR ONE OF ITS SUB PROBLEM.

DIVIDE THE ERIC INDEXES AMONG THE MEMBERS OF YOUR GROUP

EACH GROUP MEMBER SEARCH HIS INDEXES USING THE 4-6 TERMS

READ ABSTRACTS OF POTENTIAL MATERIALS

IF IT APPEARS RELEVANT TO THE PROBLEM, RECORD ED OR VT NO., ISSUE, AND A LITTLE BIT ABOUT THE PUBLICATION.

AS A GROUP, CLASSIFY USES FOR THESE MATERIALS WHICH HAVE BEEN IDENTIFIED IN TERMS OF DIAGNOSIS, AWARENESS, ETC.

state's program plan for these purposes rather than a federalized, non-operational document.

Because of the reputation established by leaders in the state of Washington through some of these activities, leader from this state have been invited to participate in a number of national meetings for the purpose of moving planning and program budgeting systems forward.

management program

by Laurence Flinn, director

The Management Development Program was initiated in 1970 to research, develop and conduct a professional management program for educational administrative and management personnel. The intent of the program is to improve the efficiency and effectiveness of school management by training school administrators to be better managers, in order to provide increased educational and instructional services to students and the public with the same or reduced available resources. The major pay-off and main concern is in improving the delivery of needed educational and instructional services to the public at the most realistic possible cost.

In this cooperative effort between the State Office of Public Instruction, the State Board for Community College Education and the Coordinating Council for Occupational Education, three basic management development services were provided: Management Orientation Seminars, Management Skills Seminars and Organizational Team Development sessions, with approximately 1200 attendees participating in the time period between August, 1970 and August, 1971. This represents approximately 20% of the total state education administrators throughout the state.

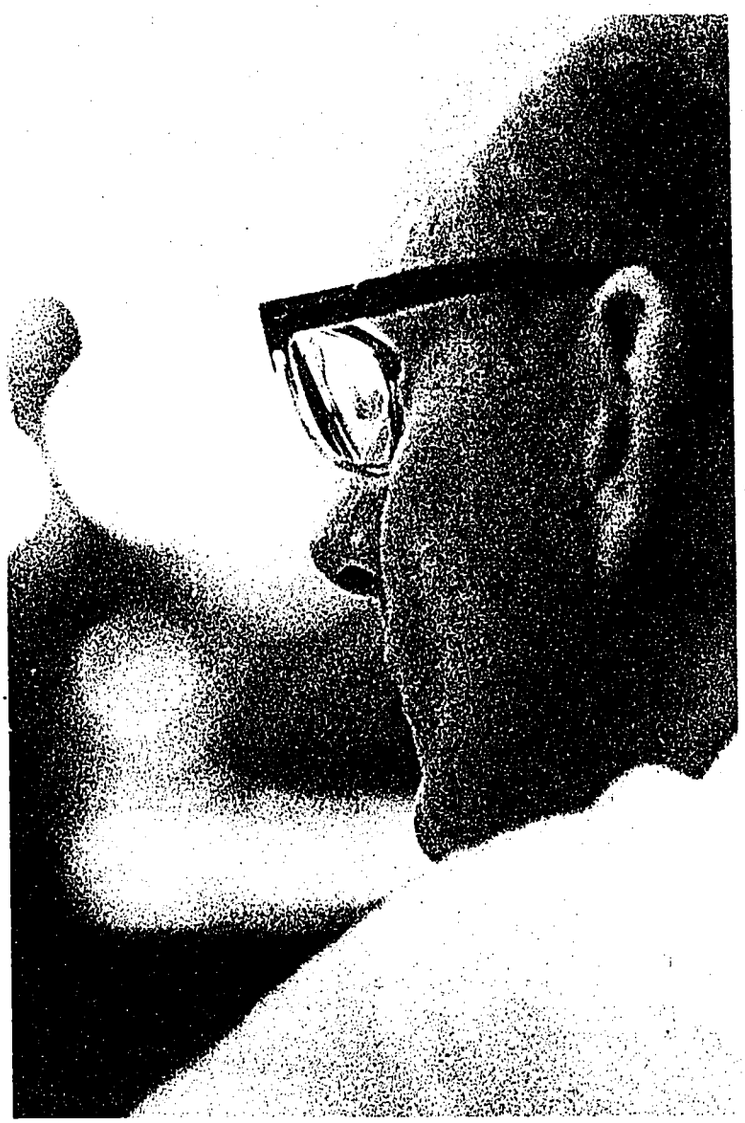
Participants included community college presidents and deans, school superintendents and principals, vocational education directors of the community colleges and the public schools, community college division chairmen and supervisors, secondary school vocational instructors, vocational-technical institute directors, supervisors and instructors, agency administrative staffs and school board members and trustees.

The Management Orientation Seminars were offered through regional meetings and the indication of the need and interest in this training is represented by the fact that the average attendance for the seven seminars held exceeded 100 each session, with one seminar drawing 206 attendees. The purpose of the orientation seminars was to present an overview of the functions and related activities of professional management in order for educational administrators to decide their own further involvement, needs and interest in learning to use the tools of professional management. Steering and advisory committees and survey questionnaires were employed to identify the specific training needs.

The Management Skills Seminars offered training in planning, organizing, controlling and specialized management leadership skills. These sessions resulted in identifying additional training needs as well as obtaining valuable input from participants essential to developing and finalizing curriculum and instructional materials for the subsequently planned program development phase. Average attendance at each of the Management Skills Seminars was over 50.

The Organization Team Development Sessions involved 45 state educational administrators from our three state agencies, along with 80 community college administrators from six local community colleges. The sessions with the three state agency administrators were designed to utilize the existing management resources from business and industry to design and conduct the initial research as to what would be appropriate to public education. The purpose of the Organizational Team Development sessions is to provide professional management skill training to develop the administrative management team and to equip each member of the team with specific skills in order to handle his respective assignment. Upon completion of this action research, the six community colleges were then involved in further efforts to validate and test the research findings, in order to identify which would be relevant and appropriate to local educational administrators.

In addition to the three basic services, five management seminars providing assistance and support to both state and community colleges were conducted in response to special requests for management training services. Four hundred thirty educational administrators received assistance through these programs. The benefit to each organization has been improved management, and in turn, improved instructional and educational services provided to students.



GROUP_____

IV CHOOSING A SOLUTION

A WHAT IMPLICATIONS CAN BE FOUND IN THE RESEARCH?

1. STATE IMPLICATIONS FOR ACTION BASED ON RESOURCES.
2. GENERATE A RANGE OF SOLUTION IDEAS (USE BRAINSTORMING)
3. TEST IDEAS FOR FEASIBILITY IN TERMS OF:
    a. benefit
    b. workability
    c. diffusibility
4. ADAPT AND PROPOSE A RECOMMENDED SOLUTION

business and office

by Hal Anderson, director

The vocational business and office program continued to expand with approximately 75% of the high schools offering approved programs and other programs are being approved each new semester. This percentage was higher for the vocational-technical schools and the community colleges.

Emerging in significant numbers in the state-wide system were activities directed towards career awareness in a multi-discipline setting. Learning-activity-packages (LAP) were developed for use in other disciplines and for the student's early school years. The thrust of these was towards bringing occupational terminology and awareness to the students in the other disciplines as well as to encourage the development of skills prerequisite to the vocational business and office program.

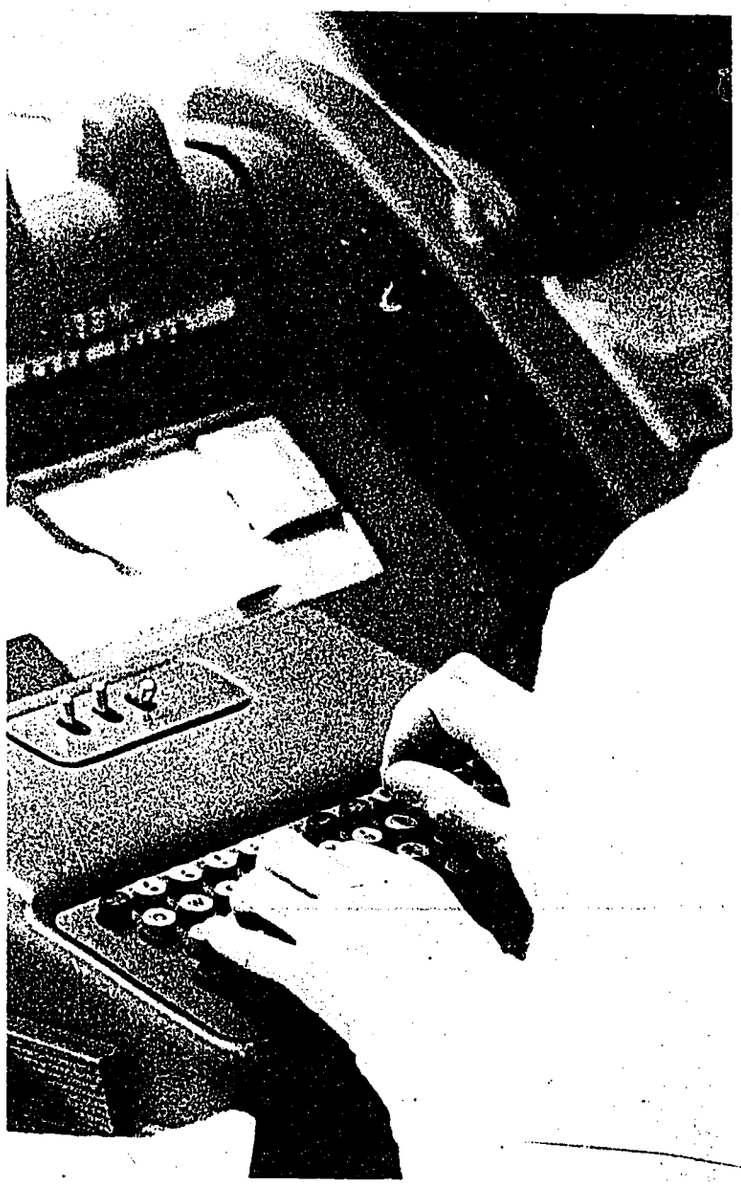
One example of this LAP development is the cooperation between a business teacher and an English teacher in combining their talents to create exercises in business terminology for sixth-grade students.

Other examples of awareness and prevocational programs were the teaching of rudimentary typing skills to nine-year olds and using office procedures as a base for study of the "free enterprise system" by sixth graders. One project took students through the awareness and prevocational phases and culminated with the production and marketing of an actual product.

Business and office education programs have always been directed towards the employability of students. Pre-service (college) and in-service training this year encouraged teachers to give increased attention to the criteria for vocational education and to the effective use of advisory committees. A larger number of programs were designed to meet the specific performance standards needed in the appropriate labor-market areas. Although this consideration was widely implemented, the most striking effort was that of the teacher who used her summer time to completely rewrite her entire business program to reflect these vocational criteria.

Another effort towards more realistic employability was the combining of occupational competencies with student needs. School and departmental counselors (teachers) diagnosed the capabilities and needs of students and developed appropriate skill-development programs. Many less-complicated business occupations are now achieving a "success" status for students unable to progress further up the skill ladder. Although they may progress as they find their "niche" in the world-of-work, the fact remains that students can now consider themselves successful as routine file clerks, inventory clerks, receiving clerks, and similar occupational areas.

The increased attention paid to employability resulted in an expansion of cooperative education in a number of schools. Following the long-standing techniques of effective coordination, business departments continued to expand their enrollment in cooperative work-experience programs. Added to the strictly business and office cooperative, approximately forty-one business students received cooperative experience through diversified occupations programs in eleven schools.



Another job-oriented activity is the office simulation laboratory. Rapidly replacing the traditional office practice laboratory, the simulation provides another technique for more work-related instruction. Starting in Washington as a product of earlier developmental projects, the simulation is being redefined to meet local needs and to be compatible with the local environment. The publication of simulation materials was also a factor in the increased use of this teaching technique. Thirty schools now have simulations to help their business students better understand the world-of-work and to help them adjust their skills and attitudes to meet the requirements of their occupational objectives.

The post-secondary level continued expanding specialized and technical business and office programs. Medical secretaries, legal secretaries, accounting technicians, and junior business management are examples of this specialization.

Space and equipment purchase and utilization reflected the desire of some schools to provide instructional programs designed for the individual. Classrooms were no longer identified by function. Rather, rooms are used as learning laboratories and open to meet the scheduling needs of the students. New auto-tutorial devices and techniques are in the schools, and some old devices are having a re-birth of use.

Reports compiled in the state offices from the local

APPENDIX C

districts indicate that more students were reached during the 1970-71 school year with more programs better designed to meet individual needs. The common schools enrolled approximately 46 percent of their students in vocational business and office courses and programs; vocational-technical institutes 16 percent; and 11 percent in the community colleges. These figures represent a state-wide total enrollment of 33 percent in the vocational business and office area of all students enrolled in secondary and post-secondary public education.

secondary homemaking

Vocational Education for the occupation of homemaking is organized in 207 school districts for 59,638 secondary school youth including 6,643 boys. This is an increase of twelve school districts over last year, 1970. Increasingly, homemaking education is being offered to boys either in separate classes or in co-ed classes. For example, all classes in vocational homemaking at Shadle Park high school in Spokane are open to boys as well as girls. Teachers through their program of work focused on individualizing instruction with college summer school workshops and the teacher training conference was organized to strengthen methods of planning and to implement programs that meet the individual needs of students and their families.

Bridging the communication gap through individualized instruction and devising new ways to involve parents and students in planning content and direction of learning was the focus for fall and spring area meetings. The results of the consumer education survey completed the spring of 1970 were shared with teachers through the newsletter. Related to the survey of the status of consumer education was the development of an inservice training workshop at Washington State University the summer of 1971 for teams of teachers from 7 secondary school districts. The program was planned as a three week institute with one homemaking teacher and one business and office education teacher included on each of the teams. Twenty-one school districts participated in a study with families in their communities for the purpose of making class experiences, extended learnings and Future Homemakers of America relevant to the needs of students and their families. Specifically schools organized to identify concerns of families, determined individual and family concerns related to consumer buying and evaluated present programs as a basis for reorganizing curriculum. The reports indicate that both parents and students are giving top priority to the need for including the study of money management and family relationships in planning curriculum at the secondary level.

Trends that hold promise for strengthening education for home and family living:

- Some schools now have parent advisory committees.
- Teachers are working on planning how to individualize instruction. Many are building individualized learning packages and using HELP (Home Economics Learning Packages).
- Funds from P.L. 90-576 sent homemaking teachers from 21 districts into the community during the summer to gather data from families to use as a basis for program planning.
- Specially designed programs for high school parents are operating in a few schools.
- In an effort to bridge the "generation gap" community college parent education cooperatives are being organized to include observation and/or participation by high school students working along side of parents of pre-schoolers.
- Some schools now have their students study home economics related jobs in their communities as a part of the regular homemaking class to discover their vocational interest and/or aptitude for gainful education in an occupation that uses home economics knowledge and skills.
- Vancouver and Everett now include homemaking taught by a homemaking teacher in their high school special education classes.

home ec

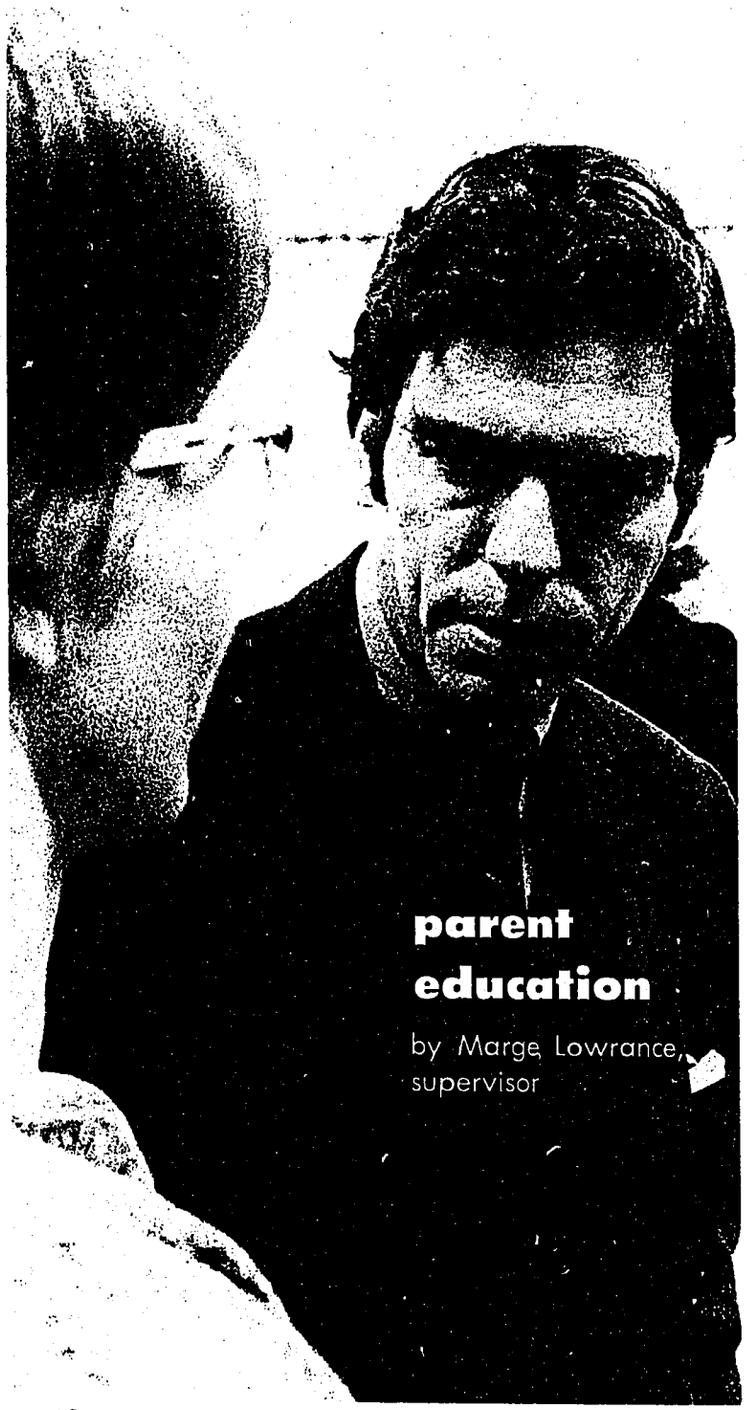
by Marianne Andrews, director

With the four day work week almost a reality it is becoming more important to give emphasis to education for the occupation of homemaking for boys and girls, men and women. Skill in managing resources, relationships and rearing children is directly related to how individuals are able to manage their work role. Education is now a life long process which with the four day work week leaves three days a week, a part of which can in the future give individuals and families an opportunity to study for their homemaking role in each stage of the family life cycle at the point of readiness.

COMPONENTS OF A LOCAL INFORMATION SYSTEM

Components	Costs	
	Initial	Continuing
a. Information Resources		
Local Document Collection		x
ERIC Indexes		
Research in Education (RIE)		$21.00
Current Index to Journals in Education (CIJE)		$39.00
Abstracts of Instructional Materials in Vocational and Technical Education (AIM)	F68 - F71 (13 issues) $29.75	$11.00 ($18.00 for 2 years; $27.00 for 3 years)
Abstracts of Research and Related Materials in Vocational and Technical Education (ARM)	F68 - F71 (13 issues) $29.75	$11.00 ($18.00 for 2 years; $27.00 for 3 years)
Microfiche Collection		
Complete Standing Order	$5,857.00 thru 1971	$120/mo.
(or)		
AIM	$766.44	$200.00
ARM	$512.12	$130.00
(or)		
Individual		$0.65/title

Washington Secretary of State Lud Kramer took time recently to visit parent education program at Everett Community College.



parent education

by Marge Lowrance, supervisor

Parent Education programs are organized through 11 community colleges and 3 vocational technical institutes for approximately 12,000 families. Through special projects, using Part F funding from P.L. 90-576, 11 community colleges and 2 technical institutes designed programs to help families with their consumer problems to assist in improving home environments. Many of the families involved are on aid to families with dependent children.

For a third year the results are still showing that with improved self-image and some success in handling their home and family responsibilities, as high as 25% of the women were either off public assistance rolls totally, partially, or were training for a job.

The Everett Community College program, now in its third year, has been an unqualified success. The three agencies, Law and Justice, Public Welfare and the Bureau of Indian Affairs, that assist in supporting this program have made it possible financially to expand to 8 parent cooperatives with involvement of 160 families in the Everett area. Bellevue has started a similar program with a special grant from Part F funding. Highline Community College developed a listing of resources for consumer information to be used by individuals and groups. Seattle Community College is testing a program for parents of infants from different economic levels to demonstrate the feasibility of providing parent education at a very early time in the family life cycle, to provide the kind of instruction that will help parents be able to make decisions regarding management of resources; and to provide a realistic model for parent-infant education. Seattle Community College, with an advisory committee of parent education coordinators from other community colleges and technical institutes, has been awarded a grant to design and test methods of reaching families with consumer education other than through the usual structured classes. L. H. Bates Vocational Technical Institute's Family Life Division sponsored a consumer education discussion series at lunch time for post secondary students. Topics discussed carried such titles as Consumer Bill of Rights, Do a Better Job with Money, and Buy Now—Pay Later.

Bates Technical Institute also gave a number of series of six sessions each for parents on the topic, "Handling Family Financial Challenge in Time of Crisis".

Clover Park took consumer and homemaking education to families in an economically depressed area of Tacoma. The results observed to date indicate that the women are becoming conscious of providing their families a better diet and are learning buying practices that can accomplish better nutrition within their money limitations and are developing an inquiring attitude toward other spending to obtain family needs.

Planners of homemaking education for adults in the manipulative skills and management areas are restructuring their classes to include consumer education related to the subject area as an integral part of their laboratory classes.

Progress reports on use of Part F Consumer and Homemaking Education by 5 community colleges and 2 technical institutes in Washington state were given to Senator Magnuson at the time the Senate was holding hearings on the appropriation bill.

COMPONENT OF A LOCAL INFORMATION SYSTEM (con't)

Components	Costs	
	Initial	Continuing
b. Equipment		
Facility		x
Microfiche Equipment		
Microfiche Reader	$100 - 300	
Microfiche Reader-Printer	$400 - 1,500	
Microfiche Reproducer	app. $2,000	
Computer Capability		
ERIC Magtapes	$475.00	$475.00/yr
QUERY Software	Travel and per diem expenses for consultant	
c. Personnel		
Information Specialist		x
Clerical		x

teacher education

The four institutions approved for training vocational homemaking teachers, CWSC, U of W, WSU and WWSC, all planned special workshops for the summer of 1971 to assist homemaking teachers in up-dating information and curriculum to include consumer education as an integral part of all vocational homemaking instruction and/or as special units or courses to be added to established programs.

One day of the annual teacher training conference was organized to give assistance to 100 cooperating teachers who participate in the student teaching program with the colleges and universities.

All of the approved colleges and universities for education of vocational homemaking teachers are instituting new practices in Home Economics Education. Changes and additions to existing programs are being designed to give teachers more knowledge, understanding and competence in working with all kinds of families. Promising new practices and experiments by the colleges and universities include:

Providing experiences for potential teachers by adding "Introduction to Classroom Management" and the "September experience" at the sophomore level. The purpose is to give the student an opportunity to determine if she wants to teach.

College credit for "Field Studies in Home Economics" that includes paid work experience.

Addition of community experiences to give opportunity for observation and participation in public and community organizations that provide services to families. One university has developed guidelines for these experiences and duplicated for use by students, cooperating teachers and center supervisors.

Using new media such as video tape in the student teaching experience.

Offering college credit courses for home economics teachers during the school year.

Providing opportunity for prospective teachers to work with FHA.

Participation of home economics teacher educators on college vocational technical education committees.

Methods for individualizing instruction included in both pre-service and in-service programs.

Participation of students on faculty advisory committees.

Joint planning of content, methods and teaching of a course with a teacher educator and a subject matter specialist. Examples include:

- a graduate course planned and taught by a home economics teacher educator and clothing specialist to develop the clothing construction part of the new guidelines for teaching clothing to be published by the Coordinating Council for Occupational Education.
- teacher educators in home economics teamed with business and office education and other subject matter teachers to develop a program to assist teachers from general and vocational education to plan a coordinated approach to consumer education in the school.

research

The experimental project using EPDA funding "Training Aides to Extend Consumer and Homemaking Education" was continued. Emphasis during 1970-71 was placed upon the objective of further identifying competencies and level of competencies needed by aides in secondary homemaking courses. Data was again secured from written records of aides, oral comments and discussion in group sessions which were recorded and transcribed and from the directors' interviews with aides.

Competencies needed which become behavioral objectives for training are derived from job functions. Therefore, instruments used to further validate competencies were designed to provide teachers and aid verification of functions performed. These were administered at the end of the school year.

Coordinating Council member Mrs. John Bakke, left, visited parent education program at Everett Community College.

gainful education

In certain stages in life—the early 20's and the 40's—more than half the women are in the labor force. This means that every girl in school has to make her educational decisions taking into account the likelihood that she will want to work outside the home for some period in her life. To assist young men and women in the preparation for a money making job Home Economics in Washington now offers programs for occupational training that use home economics knowledges and skills in 71 classes in 41 secondary schools, 5 community colleges and 4 technical institutes. Sewing for Profit, Child Care Training, Food Service Training, Institutional Housekeeping, Executive Housekeeping, Fashion Merchandising, and Designers Aide Training are programs presently offered.

The special Food Education and Service Training (FEAST) gained 5 secondary schools the 1970-71 school year making a total of 22 high schools offering this program. FEAST uses a team teaching technique to combine vocational and academic programs into one. It is designed to give the student a broad view of the career ladders in the hospitality and food service industries with entry employment skills. Some go immediately into employment and others go to apprenticeship programs, vocational technical institutes, community colleges and 4 year colleges and universities. A two year Associate of Arts Degree program to train assisting teachers for early childhood education is offered in 4 community colleges.

fire service

by Lyle Goodrich, director

The Fire Service Training Program, state of Washington, is authorized by state law to conduct Fire Service Training courses for paid and volunteer fire departments throughout Washington and to assist the community colleges, vocational-technical institutes, and others in the promotion and development of fire training programs.

The state staff consists of two people—a director and supervisor who are responsible for 100 part-time instructors. They are also responsible for scheduling courses, hiring of the part-time instructors to conduct the courses, development of instructional materials, working with the community college advisory committees and the vocational-technical schools in their programs and as consultants to the state's fire service program. The staff also works with the legislative sub-committees in matters pertaining to fire protection.

Regular classes, including units one through nine, for volunteer departments were given to a total of 2973 students for a total of 84,894. Programs for paid fire departments had an enrollment of 1,111 students for a total of 39,189 vocational hours.

Special schools and workshops were conducted in the following locations: Annual Fire School for volunteer fire fighters in Bellevue, enrollment of 266 students; the Fire Chiefs Management Workshop in Tacoma, enrollment of 34; a Fire Chiefs Management Workshop in conjunction with the Western Fire Chiefs Conference in Seattle, enrollment of 286; the Washington Chiefs Management Seminar in Richland, enrollment of 135; the Fire Prevention Engineering Conference at CWSC in Ellensburg, enrollment of 81; the Fire Commissioner's Management Conference at Tacoma, enrollment of 160; the Oil Fire Control Schools held in Yakima, enrollment of 230; the special sprinkler classes held in Seattle, enrollment of 191; the Annual Command School, which is a management workshop in Yakima, had an enrollment of 293 students and the Annual Fire School for volunteer fire fighters at Ilwaco had an enrollment of 304 students for a total enrollment at the workshops of 1980 students.

Special workshops for associations and other organizations were held at Clark County in conjunction with the Columbia Fire Fighters Association Field Day which had an enrollment of 71 students. In Snohomish County, at Granite Falls (Snohomish County #17), in which a building was burned for training purposes, had an enrollment of 14; the same type of school was held for the Sequim Volunteer Fire Department with an enrollment of 22 students for a total enrollment of these special classes of 107.

In all, from June 1970 to July 1971, the Fire Service Training Program provided training for 6271 fire fighters in the state of Washington.

The Fire Service Training Program also supported the In-Service Associate Degree Program in the following community colleges: Everett Community College for the Everett Fire Department and surrounding departments; Seattle Community College for the Seattle Fire Department and the other paid departments of King County; Fort Steilacoom Community College in Puyallup for the Thurston, Mason and Pierce County paid fire fighters; community college program in Spokane for the Spokane County fire fighters; and the community college program at Columbia Basin for the Benton, Franklin and Walla Walla County Fire fighters.

Also started was the development of a curriculum for para-medics in cooperation with the Seattle Fire Department and the University of Washington teaching hospital. The objective is to prepare a curriculum to develop ambulance operators, ambulance personnel, fire fighter personnel and others to a para-medic level in order to improve medical services. This program consists of the development of the instructional materials, the identifying of the community necessary to conduct this type of program, including hospital, medical and others; and the identifying of the internship needed to provide qualified para-medics throughout the state.

The Fire Service Training Program developed numerous instructional materials, including a new State Fire Suppression Manual and two complete management courses. Also being developed during this period was a new State Rescue and First Aid Manual.

cooperative diversified occupations

by LeRoy McCartney, supervisor

Cooperative Diversified Occupations is essentially a method combining theory and practice. On-the-job training is provided by an employer in the place of employment, while instruction in the occupational area and individual supervised study of selected material is provided by a teacher-coordinator in school.

It is also described as a program designed to provide cooperative vocational education in schools where there are not sufficient students or training stations in any one of the separate vocational programs now offered in Agriculture, Business and Office, Home and Family Life, Distributive Education, or Trade and Industry.

Dean Wagaman, Director of Program Development, Coordinating Council for Occupational Education, said, "For many years we have been paying lip service to the individuality of students, but now the Diversified Occupations Program is bringing home meaningfully to all of us that every student is an individual and has his own work. We have tended to overlook this in many of our programs. This is very pertinent, as it is meaningful to areas we have not been able to serve before. The Diversified Occupations statistics compiled for the past year are impressive. The wide diversity of work, diversity of school districts, bringing small districts together—all this is meaningful." Wagaman added that there are still other people we need to reach. We can't lump everybody in one bag.

Kids like "learning to earn," reports Bob Cole, Diversified Occupations Coordinator at Mount Si high school in Snoqualmie. He also reports that parents are pleased that their children are getting on-the-job training which can help in business careers whether or not they go on to higher education.

"I want to try to show the students that there is a pattern to success," says Jim De Young, Diversified Occupations Coordinator at Central Kitsap high school. "If they can understand that success isn't something that is handed to you, they can probably develop better work habits."

Stan Omdal, Vocational Director at Sedro Woolley covers such topics in class as value of working for a living, filling out application forms, interviewing for a job, work habits and requirements of a job, interaction between employer and employee, organization of business and industry, career opportunities, labor and tax laws, credit and budgeting, and individual occupational competencies and capabilities.

The school year 1970-71 ended with 358 students enrolled in 14 programs. These students worked over 136,000 hours and earned a quarter of a million dollars. This year, 1971-72, there are over 30 programs in operation with student enrollment about three times greater than last year.

veterans approval

by Ralph Dever, director

For five years veterans training in the state of Washington has been approved and closely supervised by full-time staff members of the Coordinating Council for Occupational Education. Functioning as a state approving agency under contract with the Veterans Administration, the staff assigned to inspection, approval and supervision duties in connection with veterans training has increased from one supervisor and secretary the first year to two supervisors and one secretary at the close of the fiscal year. Salaries and travel expenses paid to this staff are reimbursed to the state in arrears by the VA. There is also an allowance for administrative expenses furnished by the VA.

At the close of fiscal year 1971, two 4-year colleges and 22 community colleges, all with occupational programs; 15 barber schools, 50 beauty schools, 22 business schools, 64 flying schools, 8 hospital schools and 39 vocational-technical schools with various occupational offerings were approved for veterans training. Thirty of these operate with public funds and 192 are privately owned. The sum of all the occupational programs approved for veterans training in these schools is 1482. The public schools offer 681 approved programs, and the private schools 801. The veterans training staff made 488 visits during the year to these schools and programs. For new approvals and for revision of already approved courses there were 87 visits. Supervisory visits under the terms of the VA contract numbered 393. Only 8 visits were requested by the VA to determine if approval of a course was to be continued.

Of 22,808 veterans enrolled in education and training programs in the state at the end of the school year, 35% of them, or 7,873, were enrolled in occupational programs in our public and private schools. This was a 39% increase in veterans over the enrollment the year before.

It is expected that the number of veterans enrolled in training programs will continue to increase, though at a slower pace. It is also expected that new school and course approvals, and approval of revised courses, will average about ten each month. As supervision of schools and courses is becoming more detailed and exact, requiring more time by the supervisor at each school, the staff will need to be expanded in the new year.

de

by K. Otto Logan,
director

A quarter of a century ago, distributive education was a comparatively new program and wherever we went, we had to explain and define the program of distributive education. We had to explain why the teacher was called a coordinator and we had to explain what his duties entailed. The fact that a student in the cooperative program spent the morning in school and the other part of the day on the job in a training station downtown was an innovative idea. Many superintendents and principals wouldn't think of it—all education had to be learned in the classroom.

However, progressive and well-informed administrators were willing to try the cooperative education concept. In those days, on the job employment was limited primarily to variety and department stores. Hence, the program was referred to as retail selling and the training consisted primarily of training in salesmanship. The course appealed primarily to girls in the high school program.

When the youth program first started, it began at the local level but because of its appeal, the local centers wanted a state organization and when organized it was called the Washington Retailer's Association. In certain parts of the country the labor unions questioned the motives of the organization believing it to be a competitive organization. The U.S. Office of Education refused to endorse the national association. The distributive education program was looked upon in many communities as terminal, meant only for students who would not be attending college. In fact, in many areas, it was a last resort for students who could not make the academic requirements for going on to college. Coordinators strove to eliminate this image — a dumping ground for all of the misfits.

Educators in the field argued on whether or not the cooperative program was a methodology or whether it had a discipline or an identity of its own. Another point of discussion was whether or not distributive education was a commercial subject under business education or one separate in its concern for free enterprise and the whole idea of distribution and marketing. All of this and more faced many of the vocational teacher-coordinators of that time. When we look at all of these early beginnings we can only conclude that in the year 1971-72 we have come a long way.

Today, instead of 436 students in 12 cooperative programs 25 years ago, we now have 2,581 students in the 117 cooperative programs for high school seniors and a clear call for more in the years ahead. Whereas, in the past, distributive education cooperative programs were offered only in large communities, today communities too small to offer a specialized program are now offering a diversified occupations program which is training for across the board occupations. Last year 11 diversified occupations programs were new to the state and 11 DE programs were added.

Preparatory programs were given impetus by the 1963 Legislature and so today there are approximately 60 preparatory programs offered to juniors in the 40 high schools in the state. In large school districts today, instead of being satisfied with one cooperative program for a senior class of 600 students, the trend is to expand programs to have one cooperative program for each 100 senior students.

Distributive education has changed from the terminal to the career concept. Approximately 40 mid-management program now operate in community colleges and vocational technical institutes which did not exist 25 years ago.

It is now possible for a student to start toward his career by getting preparatory training in the 11th year, proceeding to entry jobs in the senior cooperative program and then continuing to the post secondary level in mid-management programs at both the vocational technical school and the community college.

The mid-management program is focused on students who wish to become department heads, junior executives, or managers of small businesses. For those who wish to specialize in the second year of the program, some centers have highly technical and specialized programs such as, fashion merchandising, purchasing, real estate, insurance, transportation, hotel-motel management, and others. In a few areas there

are occupational programs using the expertise of home economics and distributive education, such as; fashion merchandising and the food trades. The same holds true for combined programs in agriculture and distribution.

The year 1971 brought forth a Food Marketing Institute with headquarters at Fort Steilacoom Community College for western Washington and Spokane Community College for eastern Washington. The Executive Director of the Washington Food Dealers Association said at a recent meeting of the State Advisory Committee, "it is a dream come true."

Along with the growth and expansion of the distributive education program attention has been given during the past year to dealing with the disadvantaged students and students with special needs. In some cases the program has been offered to motivate and keep in school, potential dropouts through the use of specialized courses. Along with the growth of the program is an intensified attention to the youth organization which serves as an integral part of the instructional program.

Today, instead of the Washington Retailer's Association, all programs are listed under the National Organization of Distributive Education Clubs of America (DECA) with the tagline, "Developing future Leaders for Marketing and Distribution." The October 1971 teacher training conference had five student organizations operating simultaneously—the high school cooperative program, the prep program, the alumni association, the mid-management division, and the collegiate program.

The year 1971 saw the addition of a second undergraduate teacher-training program organized at Central Washington State College, Ellensburg. The first teacher-training institution was at Eastern Washington State College, Cheney.

Statistics for the cooperative program in distributive education during 1971 show student earnings of $2,321,406. The diversified occupations program shows a total figure of $249,769. Clover Park Education Center reported $159,235 locally; Shoreline Community College reported $130,959 and Wenatchee, $88,343.

Twenty-five years ago 50 students attended the one state leadership conference, today we find 300 to 400 students at the area mini-conferences. Today we can point with pride to former students who are managing supermarkets, who own their own businesses, operate chains, restaurants, etc. We have 9 teacher-coordinators in Washington state who are former graduates of the DE program, the mayor of Seattle is a DE graduate, and many former students are active members of local advisory committees. The program is no longer limited to the variety and department store occupations. There are sixty-eight distinct areas of occupations in the field of distribution requiring 983 competencies across the entire field of distribution.

During 1971 the curriculum for distributive education was revised. It began as a four page document 25 years ago and today it is a several hundred page volume written in the behavioral objective approach. Recently the state of Washington entered into a consortium with 11 other states to develop the 983 competencies into learning packages with each state developing 100 of the competencies. In the future we look with anticipation to using the computer to give us the selected competencies needed for each of the 68 distributive occupations. In other words, if the student wishes to be a supermarket manager, the competencies in this area will be furnished by the computer and the learning packages used for individual assignments for students in the classroom.

Some of the newer publications now available are: Handy Dandy Kit for administrators interested in promoting DE programs; Handy Dandy Kit for administrators interested in promoting DO programs; A Guide for Cooperative Programs in Community Colleges, a joint project by the CCOE and State Board for Community College Education; A Report of the Proceedings of the Cooperative Education Workshop, a joint project by the CCOE and Superintendent of Public Instruction; District Leadership Conference Planner; Brochures — DE, Here's What It Will Do For You, How To Start a W-DECA Chapter, ACURA-TOUCH Cashier-Checker program.

Looking at these things in contrast to 25 years ago, we really have come a long way.

ag

by Jay Wood, director

The agricultural industry of the future will require increasing numbers of highly trained people; the educational minimums for agricultural employment will continue to increase. There will be an expanding need for technical training and a growing demand for technical services in producing, harvesting, and marketing agricultural products. Occupations providing goods and services to the farmer or assisting in the marketing and processing of farm products will require large numbers of technically trained personnel.

Vocational Education in agriculture should provide training for: secondary school youths, out-of-school youths, and adults who wish full-time vocational and technical training for entry into agriculture; employed youths and adults who need vocational and technical training in agriculture to upgrade their occupational performance; youths and adults who may not benefit from regular vocational and technical education programs in agriculture, but who can benefit from special programs designed to meet their needs. (Kelso, Vancouver, Snohomish, South Bend, and Zillah are examples of school districts where special vo-ag programs are in operation.)

Meeting the changing educational needs of the agricultural sector and serving the clientele outlined above poses a new challenge for agricultural educators. In some instances, these needs can be met through modification of the traditional program of vocational agriculture; in others, a complete realignment of the curriculum may be necessary.

programs

Perhaps the most striking characteristic of the agriculture teacher has been his concern for the individual student, both in classroom teaching and in supervised occupational experience. The traditional farm visits have aided in providing personalized curricula. Parent-teacher-student involvement has been employed in developing educational and occupational goals for the student. The teacher has accepted responsibility for individual counseling and guidance activities. Opportunity for leadership development has been provided through the Future Farmers of America.

Leadership qualities have been stressed as a key to the development of the individual. The spirit of competition, individual achievement and teamwork in FFA have made the instructional program relevant and challenging.

Agricultural educators have been employed on a full-time basis to provide for a year-round program. Summer programs have assisted in making the instructional programs more realistic and in accord with student and community needs by providing time to work with individual students and the community, thereby affording an opportunity for the teacher to update his technical and professional competency.

the future

There is a need to involve more part-time aides, assistants, specialists and other resource people from the community and make it possible to broaden and deepen the curriculum.

Currently, Americans spend over $20 billion a year for outdoor recreation. By 1980, this expenditure is expected to approximate $50 billion, creating 200,000 new full-time jobs in small cities and the countryside. Agricultural education programs must respond to these needs for trained personnel.

Future programs must be designed to attract both boys and girls, students reared in nonfarm environments, dropouts, the disadvantaged, and handicapped students who need retraining — not only students contemplating college or a post-high school technical training.

Vocational agriculture programs will shift from time criteria to performance criteria for assessing student achievement. Performance goals are now being identified, and student success is being evaluated on the basis of how well a student can advance toward identified objectives. (Example Schools are Auburn, Castle Rock, Ferris, Mariner.)

Semester or block courses may become commonplace, making it possible for students to select from a range of courses in designing a program.

Agricultural education will encompass general occupational information in agriculture at the elementary and junior high levels as well as vocational agriculture at the high school level.

teacher education

The ag ed staff at WSU is also involved in other curriculum development activities. Information is being gathered in several subject matter areas in agriculture in preparation for work with teachers of agriculture. Each of the eight districts have selected topics and will make final plans for working on curriculum development at the annual Vo-Ag Teachers Conference to be held in Richland in July. Dr. Oscar Loreen and Dr. Keith Fiscus are coordinating these endeavors.

Vocational teachers in Washington show a growing interest in the course VTE 570, Internship in Vocational Education. Throughout this course teachers can gain valuable professional and occupational experience under realistic working conditions.

For teachers pursuing the M.S. Degree in Vocational and Technical Education at WSU, the non-thesis option was recently approved. This option is expected to greatly expand Master's students opportunities and challenges.

Extension courses offered by WSU continue to reflect the changes and needs of teachers. Courses in Greenhouse Management, Ornamental Horticulture, and Agriculture Power Mechanics were well received by teachers of agriculture.

new and expanded programs

environmental education

Eight environmental units are being prepared for high school agriculture students. These units are being prepared under contract for the Coordinating Council for Occupational Education by Washington State University. Five student resource units have been completed. They are water, air, noise, plants and land use. The unit on animals is nearing completion and agricultural chemicals and radiation and understanding the environment remain to be completed.

Rodney Tulloch, Curriculum Specialist at WSU, is writing these units and is now offering in-service workshops to help prepare teachers to teach these units on the environment. In the workshops teachers will prepare field trips, lists of resources available and prepare teaching aids to be used in teaching these units. The units are to be ready for the 1972 Agriculture Teachers summer Conference.

environmental horticulture

The name is inclusive of all areas such as greenhouse and nursery management, turf management, floriculture, landscape gardening and design, grounds keeper, and sales and services connected with these areas. Environmental is being adopted as more appropriate than ornamental. Example, we can have plants and plant growth conducive to involving the environment and still not be known for their ornamental aspects.

Programs in this area are increasing in our seconclary and post secondary schools. More interdiscipline effort is taking place as vocational programs give meaning and relevancy to basic science, and other general education subject matter. Over 30 schools offer classes and/or programs in Environmental Horticulture and 7 post-secondary schools providing units in this area offering up to a two-year associate degree.

Our environmental horticulture advisory group has given valuable assistance in planning and evaluating our state programs in this area and updating our suggested curriculum guide. Many of our schools, including Vancouver, Snohomish, Sultan, Arlington, Centralia, and Monroe have planned and built their own school greenhouses as a learning experience and found it an essential part of the skill development in this horticulture field. Interdisciplinary efforts in the school, in a cooperative effort provided an assist and learning advantage in the building and use of greenhouse, lath house, and laboratory space.

horse husbandry

More schools are asking for assistance in developing programs connected with horse science. Several workshops to help train teachers and leaders have been conducted this past year. New programs are in operation at Mariner, Walla Walla, and Sedro Woolley high schools.

A ferriers school is in operation this year at Olympia Vocational Technical Institute with an Associate Degree upon completion. A curriculum guide is being developed by the State Coordinating for Occupational Education for use by schools offering horse husbandry.

summary

The high school will continue to play a key role in preparation for employment in agriculture. It can help the student begin to develop an understanding in a practical way the basic biological processes in plant and animal growth. It can provide realistic, practical work experience and can teach many employment skills to a job entry level. Possibly even more important, it can play a vital role in the development of employability skills, so essential to job success.

health occupations

by Dorothy Asplund, supervisor

The story of 1970-1971 in health occupations education emerged with its own personality—different from previous years, the same in many ways, but, also, with something new.

"Different" in the pattern of growth, with the strong changes occurring in program development for nursing aide/orderly courses in secondary schools:

Two programs, established to serve the special needs of dropouts, reported favorable results from the Sidewalk Academy in Yakima and the Continuation high school in Spokane.

The final plans were completed for readiness of three new programs to begin in September, 1971. The unusual feature of these three-mentioned programs lay in the fact that each represented joint effort on the part of several schools banding together to develop a nursing aide/orderly health occupations program for seniors.

"Different" in the method for providing services to the schools throughout the state of Washington:

Staff members from Trade, Industrial, Technical, and Health Occupations joined with the Vocational Education Administration in the Office of the Superintendent of Public Instruction to provide special occupational information and counsel during district-wide planning sessions at various points in the state. Program organization and curriculum guidelines were provided to more than 85 school administrators who attended these meetings and made requests for specific types of information.

The "same" in the need for cooperating with other agencies seeking to solve problems and needs for health manpower:

The most outstanding benefits continued from the Health Manpower Advisory Council relationships. Health careers information charts were distributed by the hundreds as a result of the generous development, printing, and donation through the Woman's Auxiliary to the Washington State Medical Association.

The state of Washington was well represented at a Health Occupations Education Workshop, sponsored by the Department of Health, Education, and Welfare, Region X, June 16, 17, 18, 1971.

"New" in that requests are increasing for curriculum articulation in health careers grades K through 14. Some schools are working on the development of ideas and materials.

trade, technical, and industrial

by Oliver K. Schaer, director

Trade, Industrial, Technical, and Health Occupations Education in Washington state is continuing to change and grow at a rapid rate.

Vocational education, and in particular, Trade, Industrial, Technical and Health Occupations Education are more in the forefront of public interest than they have been at any period in our history.

Currently there is increased emphasis that every secondary T & I student come out of the high school program with a marketable entry job skill. At the same time there is increased emphasis on articulation of secondary students into post secondary programs for further training prior to entering into the world of work. Integral youth leadership development through VICA (Vocational industrial Clubs of America) is strongly recommended by the State Coordinating Council for Occupational Education.

Many of the new occupations continue to emerge in this area. One of the community colleges, on the advice and counsel of both state and local advisory committees, has developed a new program for environmental technicians.

One of the technical institutes, following the advice of a representative committee from the building and construction industry, has developed and started a program to train workers for the prebuilt, modular housing industry.

A metropolitan high school, working with representatives from the industry, has documented the need for and proposed a program to train workers for the construction of campers, trailers, and mobile homes. Planning will be completed and the program will be started in the Fall of 1972.

Working in cooperation with the Department of Public Instruction vocational staff and with six local school districts, the T & I section has implemented a two-year pilot program in the building trades. The common school districts participating are Port Angeles, Everett, Seattle, Wenatchee, Twisp, and Spokane. In each instance, the participating schools agreed to teach the needed leadership development through VICA. Evaluation will be done on a planned basis both at the state and local level. Evaluation will continued through a third year with regard to success of students on the job.

The number one priority project of the Trade, Industrial, Technical, and Health Occupations Education Section will be Project "AREA." Phase I of the project will be carried out through a series of scheduled meetings with local vocational educators at locations near their place of employment. This is a case of a state agency going to the local people to determine from them the services the state office should be providing in such areas as consultive service, inservice teacher education, providing assistance in integrating youth leadership development into the regular vocational program, providing assistance in developing industrial cooperative training programs, developing and updating curriculum, developing and working with advisory committees, developing inter-district vocational programs, and identifying other needed services. This is also an opportunity...for local vocational educators to make input into such areas as program approval criteria and minimum qualifications for T & I, Technical, and Health Occupations Education instructors. To date, in excess of 90 percent of over two hundred vocational educators attending the T & I Project "AREA" meetings have expressed an initial interest in and a desire to continue to participate in a local study of greater depth.

The "spotlight" on vocational education following the reports of the president's panel on vocational education as well as the passage and funding of the Vocational Education Amendments of 1968 at the national level coupled with interdistrict cooperation legislation at the state level has resulted in a terrific upswing in interest in vocational education—particularly T & I, Technical, and Health Occupations Education at the secondary school level.

Trend is toward new, realistic, meaningful educa-

tion based on the needs of business and industry and the needs of the students.

The traditional T & I occupations are becoming more technical in nature as many new materials and techniques are introduced. Instructors regularly need to return to industry in order to keep up with these changes.

There are many exciting, new, technical fields emerging related to ecology, interplanetary travel, advanced communications, underwater explorations, industrial plastics, ceramics, etc. Many of these will become the traditional T & I occupations of the late 70s and 80s.

Coordinating Council for Occupational Education staff members support activities in trade and technical education, concentrate efforts on program evaluation, program needs, occupational analysis, in-service teacher training, and curriculum development. In addition, considerable attention is given to support of special projects, staffing, planning, and improvement of office management.

Trade and technical education supervisors perform a sensitive role of information processing between labor and industry and the education agencies. Typically, many kinds of information are exchanged in a meeting between labor and industry and the trade and technical representative. Supervisors learn of short and long range manpower needs; trends in products and techniques which may change training requirements; new knowledge and skill requirements; and, in some cases, the signal to eliminate a training program.

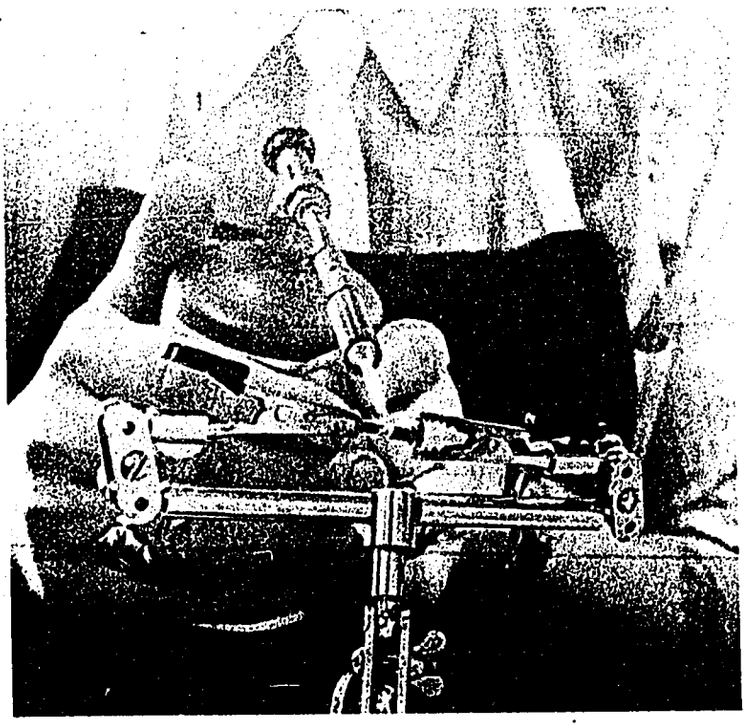
Trade and technical people also keep industry and labor informed on the source of preparatory and supplementary training programs and the approximate number of trainees available at any point and time. They work with education agencies during early planning stages to provide data on program standards, up-dated manpower requirements, and job-related performance standards. This data reflects state-wide requirements, which is correlated with job data supplied by local advisory committees.

The schools provide the State Coordinating Council for Occupational Education staff with necessary program information, including advisory committee recommendations, trends in student job goals, number and kinds of programs planned, and follow-up employment data.

The director of T & I is an ex officio member of the Washington State Apprenticeship Council and attends their quarterly meetings. State office staff members attend meetings of many local joint apprenticeship committees and local school advisory committees. The trade and technical supervisors serve on a panel for a regional Apprenticeship and Training Work Conference and also represent the CCOE throughout the State at apprentice graduations, contests, and various labor and management meetings.

Attendance at these meetings provide close contact with labor and industry and provide timely information on changing manpower requirements, training related problems, and changes in job performance standards.

State-wide advisory committees, functioning for trade and technical programs include an Environmental Technician Training Committee, and an overall representative State Committee Advisory to the T & I Section and to the Washington State Association of VICA. There are regional advisory committees in the areas of industrial plastics, water treatment, carpentry, and cabinet and millwork.



There is also an ad hoc advisory committee to the state office for data processing.

The state T & I, Technical, and Health Occupations Education section has worked with committees to perform "function analyses" of a number of technical occupations including: electronic technology, mechanical design technology, civil highway technology, data processing technology, and waste water treatment technology. A task analysis in plastics production has also been done recently.

Currently a revision of an analysis of the job performed by the data processing programer has just been completed and is being prepared for validation and printing. A staff member is providing consultive services to a group which is revising and updating an analysis in the field of law enforcement. The section is just starting on an analysis in the health occupations education area.

Because of the complex nature of the function analysis our next thrust will be to provide in-service education on how to develop meaningful, relevant curricula from up-to-date, validated analyses.

In addition to continued participation in school surveys, staff members have participated on accreditation teams for the Northwest Association of Secondary and Higher Schools; have evaluated on-going secondary and post-secondary programs in community colleges, technical institutes, and local high schools.

Assistance in starting new trade and industrial programs was given in response to numerous requests from the local level.

An in-service unit to train VICA youth group advisors was developed and offered in cooperation with Central Washington State College.

With the change in format of the CCOE summer conference, a number of in-service teacher education units were offered at the same location a week prior to the conference. These included Techniques of Teaching, Instructional Analysis, Selection and Organization of Subject Matter, Supervision and Administration of Vocational Education, Administration of Cooperative Programs, and Preparation and Use of Audio-Visual Teaching Aides.

guidance and counseling

wave II

by Ron Berg,
supervisor

media

Washington State Coordinating Council for Occupational Education Vital Information for Education and Work (VIEW) Deck is one of many communication systems utilized to provide accurate, up-to-date occupational information about jobs and training institutions in the state of Washington. The CCOE VIEW Deck is composed of 250 aperature cards (a data processing card with a microfilm window), color coded, that provides information about:

- Jobs that people can be trained for in the high schools, vocational-technical schools, private schools and community colleges in the State of Washington.
- Apprenticeship opportunities.
- On-the-job training opportunities (unique to Washington state).
- Public Vocational-Technical Institutes and Community Colleges in the state of Washington.

Two hundred and twenty jobs are described in the Deck. None require a BA for entry level employment.

Workshops were held in September and October to introduce educators to the advantages and uses of this communication concept. Personnel from all school districts and community colleges were scheduled. By December, 1971, 176 of the school districts had received their VIEW decks. Free decks were printed to be distributed to every high school, junior high school, vocational-technical school and community college in the state.

In a symbolic gesture, state vocational guidance supervisor Ron Berg offers a publication to teachers and administrators to assist in programs of career awareness. The publication is part two of a series produced by the CCOE called "What About VOCATIONAL Education?", an effort to encourage a career-oriented curriculum in place of the present heavy emphasis upon college preparation.

Workshop attendance was a prerequisite for receiving the deck.

VIEW is not meant to be a program; rather it is a communications media delivery system. There are other "systems" being piloted.

The CCOE is taking a systems approach to providing citizens with accurate, up-to-date occupational information.

There are no recognized "VIEW Centers" in the state of Washington. Information regarding VIEW or other occupational information systems should be directed to the office of the CCOE, Program Development Division.

curriculum development

Career Awareness Programs in Elementary Schools (CAPES) is a joint effort of the Coordinating Council for Occupational Education and the Office of the Superintendent of Public Instruction to stimulate the development of career awareness curriculum models, grades K-6, in the common schools of the state of Washington. These curriculum models encourage the teaching of career awareness through the existing subject matter disciplines. The models are to be tested in selected school districts beginning in January, 1972.

research coordinating unit

by George Pilant, supervisor

The Vocational Education Act of 1963 provided for the establishment of the Research Coordinating Unit to help meet the special vocational needs of youth and adults in the following ways:

- provide research consultant service to vocational educators throughout the state
- serve as a dissemination center for vocational education research information
- design and supervise research activities aimed at assisting in the improvement of vocational educational programs in the state
- contract with individuals and agencies within the state to conduct vocational research projects.

As a part of the Program Planning Division of the Coordinating Council for Occupational Education, the Research Coordinating Unit works at all levels of public and private vocational education to meet these needs.

The RCU initiated the state ERIC system and still maintains close liaison with the personnel who now operate it. There are in excess of 50,000 documents on microfilm available for use by educators in the library of the Superintendent of Public Instruction.

Closely allied to ERIC is a search service funded in part by the RCU, through which any educator may request a printout of all documents in the system pertaining to a given subject. There is no charge for this service.

The RCU library contains approximately 1,000 research and related documents which are key-word indexed. This computer generated index is updated periodically, and documents are available for loan to all educators in the state.

Files of reports issued by Employment Security, Department of Labor, Department of Commerce, Bureau of the Census, etc., are maintained by the RCU, and uses in manpower predications and writing appropriate parts of the State Plan for Vocational Education.

The U.S. Office of Education allocated funds in fiscal 1971 for vocational research under Part C of P.L. 90-576. Organizing and managing the research grant program was a major undertaking of the RCU. A first step was the determination of priorities by an ad hoc committee. The following priorities were recommended to the State Director of Vocational Education with emphasis on Curriculum Development.

- The image of vocational education — public relations, dissemination of information.
- Curriculum development — emerging / declining occupations, cluster concept, articulation K through post-secondary. The disadvantaged (racial, ethnic, social, educational, economic) and the handicapped (physical, mental, emotional). Cooperative programs and career ladders.
- Identification of labor market/manpower needs and trends.
- Selection, preparation, recruitment and certification of vocational education teachers.
- Student guidance and selection, and
- Evaluation and follow-up — program effectiveness, cost.

The vocational research program took two forms: (1) for grants requiring submission of letters of intent and proposals, without fiscal limits, and (2) discretionary awards limited to $4,000. Letters of intent and proposals were evaluated by a committee of eight selected from the state at large, and discretionary awards were evaluated by state educational agency staff members.

Thirteen major projects were funded with grants to the common schools, community colleges, vocational-technical institutes and intermediate school districts, and 4 year institutions. Some of the projects were experimental, others were developmental and still others involved staff training. Discretionary awards were made to 28 institutions for planning, assessment, developmental and experimental activities.

Commissioner Sidney Marland of the U.S. Office of Education is placing great emphasis on Career Education at the present time. It is significant that several of the projects undertaken this year are directly concerned with this subject, and the Washington state RCU has funded career awareness projects over the past four years.

VIEW Workshops

Dates in 1971	Location	Districts Represented
Sept. 14	Spokane Falls Community College	11
Sept. 15	Big Bend Community College	12
Sept. 16	Columbia Basin College	11
Sept. 17	Yakima Valley College	19
Sept. 21	Wenatchee Valley College	16
Sept. 23	Olympia School District	12
Sept. 24	Grays Harbor College	7
Sept. 28	Clark College	9
Sept. 30	Lower Columbia College	7
Oct. 5	Peninsula College	5
Oct. 7	Olympic College	4
Oct. 8	Renton Voc-Tech School	3
Oct. 13	Skagit Valley College	8
Oct. 14	Everett College	12
Oct. 19	Seattle Central Community College	6
Oct. 20	Green River Community College	8
Oct. 21	Tacoma Community College	13
Dec. 16	Big Bend Community College	13

exemplary

by Dean Wagaman,
director
program development

Exemplary funds for the fiscal year were allocated on a project-proposal basis. The funds available for fiscal '71 were allocated to projects in the common school districts for the development of vocational and career awareness programs in elementary schools, to provide area or regional direction for cooperating school districts, and to assist vocational guidance coordination in Intermediate School Districts. A brief summary of the projects follows.

South Kitsap School District #402, "Occupational Opportunities for Life"

To assist in making intelligent decisions on career choices, high school students must have a greater knowledge of the possibilities available to them. It is generally agreed that career development starts during the elementary grades and an introduction to the world of work would be most vital in the fifth and sixth grades. An instructor-counselor will be added to the staff of the elementary schools. The instructional activities will involve class presentations, field trip arrangements, obtaining resource people, collecting A-V and other materials and to aid the elementary teachers in the six elementary schools. The instructor-counselor will be assisted by the entire Department of Vocational Education in the South Kitsap schools, who shall also be available as resource people.

The project will be under the direct supervision of the Director of Vocational Education, who is responsible to the Superintendent.

Wapato School District No. 207—"Regional Direction"

Continued support for the Lower Yakima Valley Cooperative that was funded in fiscal '70, to provide cooperative efforts of local school districts to expand and upgrade vocational programs.

Lake Washington School District #414—"World of Work—Elementary"

Two elementary schools in the Lake Washington district, Juanita and Benjamin Rush, will each share an instructor who will work closely with the Director of Vocational Education and the building principals. He will assist in the in-service education of the elementary teachers to organize instructional activities, acquire supplies and materials, schedule field trips, scheduling of resource people from business, professional and industrial concerns. This is an elementary vocational guidance project, using a combination of elementary industrial arts education, career orientation, field trips, and resource people from the community.

Intermediate School Districts Nos. 105, 107, 104, 103 — "Vocational Guidance Coordination"

These Intermediate School Districts have certified vocational guidance counselors who act as coordinators for vocational guidance activities for the school districts in their jurisdiction. For many of the smaller school districts they are able to provide the only vocational guidance activities for the school. They are able to provide publications, A-V media materials, testing programs, in-service programs, aids to elementary schools awareness programs, and other services to their district that otherwise would not be available.

Kent Public Schools—"Software for Project GIVE"

Project GIVE (Guidance in Vocational Education) is a vocational guidance project in the elementary schools in the Kent School District. This award will make possible the collection of printed and audio-visual library materials for use in the fourth, fifth, and sixth grades of four of their elementary schools. These materials will meet career awareness and vocational interests needs of students to aid career selection and motivation for learning. The schools will be selected from those areas having the highest incidence of disadvantaged students. Application of the media and materials to the curriculum lies with building principals and the Director of Vocational Education.

Yakima Public Schools—"Project VIEW for Elementary"

Project VIEW (Vital Information for Education and Work) has been developed in the past year for the secondary schools in and around Yakima. The main thrust of this program will involve changes in the attitudes of elementary school children toward the world of work. This program will enable them to investigate many different types of occupations and is aimed at giving each child a more realistic and practical self-concept in relation to his ultimate goals. A primary objective of the program will be to develop an awareness of the many and varied types of occupations available to children today and in the future.

This project will enable the Yakima School District to use the hardware and software of the secondary VIEW program to develop materials to assist in their occupational awareness programs for elementary schools and for use in Intermediate District #105.

Yakima Public Schools—"Regional Direction"

The Superintendents of Highland, Moxee, Naches Valley, Selah, West Valley, and Yakima School Districts have been meeting for two years to provide maximum vocational opportunity to the students while avoiding duplication and unnecessary expense through cooperative vocational efforts. Vocational programs, through this cooperative effort, may be made available to the more than 22,000 students of the involved districts by fully utilizing existing facilities and equipment. This award will assist in providing a Regional Director to work out the problems of transportation, liabilities, the complexities of inter-district schedules, and provide information about course content among the cooperating schools. Advisory committees need to be formed and extended day programs may be offered.

Clover Park Education Center—"The Fix-it Shop"

"The Fix-it Shop" is a film series to promote vocational awareness in early childhood education classes. This award will be used basically for supplies with other sources of funding used to complete the project. It is a series of three 15-minute color films, using a story line concerned with episodes in the work-day of J. M., owner of a "fix-it shop and his friend, a muppet-type character named "Dawg". This format allows presentations of various concepts and incidents intended to help young children develop positive self-concepts and socially responsible behavior. They also introduce young children to different occupations, pointing out the worth of the individuals who contribute their efforts and vocational skills to the benefit of the community.

They will be broadcast on KPEC-TV several times annually and will be made available to audio-visual libraries throughout the state. It is probable that other ETV stations will broadcast the lessons.

The main thrust on projects for the community colleges was for programs of intensive occupational guidance and counseling for students during their terms of attendance and for initial placement at the termination of their program. A brief summary of the projects follows:

Bellevue Community College—"Vocational and Career Exploration for Community College Students"

Funding will permit the expansion of present college credit course of Vocational and Career Exploration serving twenty-four students. This course is designed so that students contract the specific components of their learning experiences in self-assessment units, resource units and project units. Self-assessment units are of a personal inventory nature; resource units expose students to varieties of occupational information; and the project units are developed by the student's contacts in the community surrounding the college. The program will be implemented this summer with approximately thirty Neighborhood Youth Corps and audio-visual materials and software developed to be used to implement courses this fall. It will also permit articulation of the present course with the college's on-going vocational technical education programs and their placement office.

Clark College — "Occupational Information Access System"

The "Occupational Information Access System" (OIAS) is a project that has been developed by the U.S. Department of Labor through the state of Oregon Employment Division. The project was activated by the University of Oregon and tested with five pilot agencies. The project is being transferred to Portland metropolitan area this spring.

The project will include the installation of a remote terminal on the Clark College campus, whereby any person may obtain current occupational information on a local basis. The college will incorporate this system in the summer orientation program for new students after July 1, 1971. During the school year the system will be available to career-planning classes and any other persons who seek occupational information.

The student answers a short questionnaire and, on the basis of his answers, the machine prints out information on several areas or clusters of occupations that appear appropriate. It then prints out current job descriptions, requirements, training opportunities and employment opportunities for the specific programs the student is interested in.

The system will also serve students referred for counseling by other agencies.

Edmonds Community College—"Early Access to Career Guidance and Placement"

Because the disadvantaged youth so often has "one chance" at an education, because of his financial and emotional resources, the problem of early access to career planning and placement is extremely important. The articulation of educational and placement opportunities at the outset of the student's career involves informational services, career guidance and planning, placement, and follow-up and evaluation.

This project at Edmonds will involve the use of para-professionals and student assistants in carrying out its objectives. In this way the student assistants, themselves from the ranks of disadvantaged youth, earn while aiding others.

The program will provide for orientation services, placement publications, seminars on career planning, student assistants working with employers in the community and the Placement Office follow-up, all under the direction of a career-planning and placement director.

Peninsula College—"Vocational Counseling"

The project will involve the employment of a counselor, counselor aides, and secretarial help who, under the direction of and in coordination with the present school staff and various state and community agency personnel, would seek out and contact unemployed persons who were not enrolled in secondary and post-secondary schools within the two-county school district. Strong emphasis would be on the Indian population and disadvantaged persons.

The purpose of this project is to provide occupational guidance and counseling for persons not enrolled in school. Intensive efforts will be made to provide such individuals with meaningful information about the world of work, options available in preparing for various job entries, and in assessing their strengths and weaknesses through tests and measures, help in the decision-making processes, and assistance in taking action designed to implement decisions.

Counselor aides will be trained to assist the counselor in providing services for the population to be helped.

Shoreline Community College — "Vocational Guidance Information Center"

Will provide software, audio-visual materials and some equipment for audio-tutorial centers in the Student Services-Faculty office building. To meet the needs of disadvantaged youth, as well as others, the college will work with various community agencies to provide visual and audio exposure to the many fields of occupational training. The employment outlook for trained personnel will be projected to encourage enrollment and/or completion of occupational programs. Testing services will be provided to help these students learn of their potential strengths. A student may, at any time of the day or evening, stop in the information center and get the information he seeks. Certificated vocational counselors will be offered in the immediate area for individual assistance.

Spokane Community College — "Curriculum Development"

Several program development activities at Spokane Community College merit attention throughout the State. In order to accomplish this, Spokane Community College was requested to develop curriculum guidelines and instructional aids in seven new exemplary areas so that these resources could be made available to the balance of the State in other community colleges. The areas in which this development took place are as follows:

- Research and Development Technology (Electronics)
- Adult Basic Education—Consumer Education
- Law Enforcement
- Farm Management
- Associate Degree Nursing
- Nurse Aide and Practical Nursing (Core Curriculum)
- Dental Assisting

mtda

by Wallace Thoemke, director

The Manpower Development and Training Act of 1962, as amended is implemented in Washington by the cooperative planning, program implementation, and evaluation of the Coordinating Council for Occupational Education and Washington State Employment Service Departments.

In fiscal 1971 64 programs were funded to serve 9,915 disadvantaged adults and youth at a total federal cost of $5,470,235.00. All MDTA programs are requested from local planning groups, made up of state agency representatives and members of the business and industry sector and representatives of the client population.

Requests are forwarded to the Coordinating Council for Occupational Education after the Washington State Employment Service Department has certified the need for training and the reasonable expectation of employment for all successful graduates of the training program.

Although MDTA funds are designed to serve disadvantaged youth and adults for job training, approximately 30% of MDTA trainees are not "disadvantaged"; this statistic is compatible with the human resource development objectives defined in the Manpower Development and Training Act as passed by the U. S. Congress.

from July 1970
to June 1971

vocational education served

235,900 people

in Washington state

116,548 were served in grades K through 12	49%
78,165 were served in the community colleges	34%
41,219 were served in the vocational-technical institutes	17%

youth organizations . . .

vica

Governor Dan Evans receives a "Speak Up for America" campaign button from a VICA state officer.

VICA national winner, Dan Stadler of Davis high school, Yakima.

achievements

• Richard D. Spice, state VICA director for Washington state, attended the four day workshop for VICA directors in Arlington, Virginia on September 21-25, 1970. VICA directors from all over the nation came to Virginia for this training workshop.

• A two-day workshop in Yakima was conducted for state and local VICA officers, October 23 and 24, 1970. The purpose of the workshop was to train state and local officers on various aspects of club management and communication skills.

• From October 25-30, 1970, two students from Washington VICA participated in the State Officers Leadership Conference in Arlington, Virginia. The two officers attended this national meeting on club management and officer training.

• Six Washington state VICA officers traveled to Salem, Oregon to assist Oregon VICA with their constitutional convention, December 18 and 19, 1970. The Washington state officers chaired the meetings and lead group workshops to train the Oregon VICA state officers in club leadership skills.

• Conducted a two-day conference, February 19 & 20, 1971, in Vancouver to elect state officers for the following year (1971-72) and to offer leadership training for the students. During this conference, local labor and management persons came in as a panel to discuss what industry expects from job applicants.

• VICA members visited the state capital March 1, 1971 to observe the legislature in session while the state officers visited with the Governor, as he signed the proclamation declaring March 8-13, 1971 as VICA Week in the state of Washington.

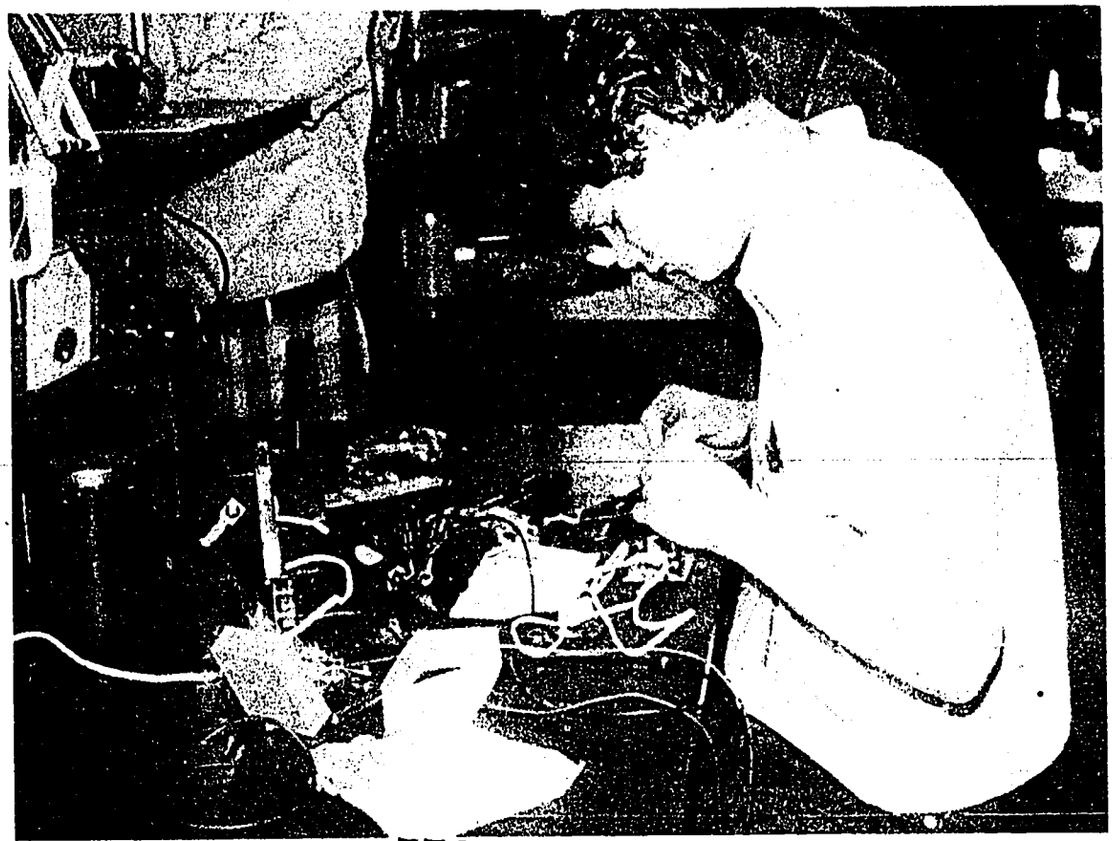
• At the three-day meeting in Pasco, April 18-20, 1971, students competed for trophies and an opportunity to attend the national contests, during the Annual Competitive Activities Conference. Students from all over the state came to Pasco to compete in 18 skill contests and 7 social contests.

• Nineteen persons from Washington state VICA went to Indianapolis, Indiana, June 27-30, 1971, to participate in the National VICA Leadership Conference. Eleven of those persons were students who had placed 1st in Washington state competitive activities and were on their way to compete on the national level. They returned with four trophies: one 1st place, one 2nd place, and two 3rd place.

• Joe Graham, VICA student at Clover Park Education Center in Tacoma, was elected to the post of National Vice President for Region V. Joe attended two national VICA conferences while serving as a national officer; and was acting president of the post-secondary division and chaired the awards banquet attended by over 1,800 VICA students.

• During the 1970-71 school year, four schools became chartered with the Washington state VICA Association. Two were secondary clubs, and two were post-secondary clubs.

A VICA student competes in an electronics contest.



fha

Future Homemakers of America, an organization for secondary students, is a structure in which students focus on improving personal, family and community living. Projects being carried out by 3,700 members in Washington gave special emphasis to Decisions that count; To dare is to care, with the theme "Now Never Waits."

Other projects from the national program of work included:

Our world—a growing heritage
Preparedness—the key to opportunity
Our future as homemakers
Stable home—Stable life

Future Homemakers of America activities relate to the classroom learning, but go beyond—fostering opportunities for learning to make decisions and providing experiences which help students look confidently toward their role as young men and women with homes and perhaps families. They look realistically at a future in which more and more women will be working and caring for homes, too; at a future in which responsibilities for homemaking are shared between man and woman in a partnership that is supportive one of the other and satisfying to each.

The Washington Association was commended by the Washington State House of Representatives in Resolution 71-14 for "twenty-five years of family and community service for the betterment of our communities with encouragement to continue its enthusiastic and dedicated leadership which provides so fine an example for others to emulate."

The State Superintendent of Public Instruction, Louis Bruno, sent a special bulletin to all superintendents and principals in May and again in October encouraging administrators with their staffs to examine carefully the Future Homemakers of America as a sound program. "My plea to you as a school leader is that you and your staff examine carefully the various pressures and duties now facing you and that in this structure you examine the possibility of studying carefully the Future Homemakers of America as a sound program and its possible installation and involvement within the secondary schools of your school system. It seems to me that Public Education would be accomplishing a role that fits it directly to our social patterns," said Supt. Bruno.

The state FHA advisor wrote the feature article "Gear Up For Action—With FHA as a Method of Teaching" published in the August 1970 issue of the National FHA Magazine, Teen Times.

Senator Warren Magnuson was made an honorary member of the Washington Association Future Homemakers of America for his contribution to the welfare of families.

fbla

Thirty-four local chapters of the Future Business Leaders of America served over 1,300 Washington high school students during the 1970-71 school year. Although increasing interest has been shown in Phi Beta Lambda, only one local chapter serves the post-secondary business and office students.

FBLA chapters were quite busy providing opportunities for a variety of leadership and career-preparation activities. Career Days were popular this year with the chapters. The Meadowdale chapter conducted a survey on the occupational interests of members of their student body. After surveying 1,260 students and approximately 600 occupations, the chapter members invited businessmen to come to the school throughout the year and discuss occupations shown by the survey to be of most interest to the students.

Several FBLA'ers had an opportunity to observe people at work during their visits to local businesses and industry. In addition to learning about the duties and responsibilities of a variety of office occupations, members became more acquainted with the businesses located in their community. These employee-for-a-day projects usually ended with an employer-employee banquet.

Preparing their school's literary magazine, typing and editing the school handbook, typing term papers—all are examples of how the local members provide service to others by using their business and office skills. One school cooperated with the local employment office in sponsoring a "Youth Employment Service" for the summer. Those members working in the "YES" project were concerned with maintaining a file of applicants, cross-referencing by job preference, recording job openings, telephone applicants, and doing follow-up work on job performance.

All of the club activities and the in-class work of the members reached a high point at the state and national FBLA leadership conferences. For the first time, the state conference spanned two days and was attended by 415 students representing 32 FBLA chapters. The design of the state conference was to permit members to participate in events which supported activities of their club and vocational business program.

Sixteen students, representing eleven Washington high schools, participated in the national conference held in Philadelphia in June, 1970. In addition to several awards for chapter activities, one Washington delegate was elected Western Region Vice President of FBLA National. The conference was presided over by National President Steven Taylor of Columbia high school, Richland, Washington.

The Coordinating Council for Occupational Education officially joined with the Washington State Business Education Association in joint sponsorship of FBLA in Washington, and the chairmanship of Washington FBLA was established in the Business and Office section of the CCOE. It is hoped that this reorganization will more effectively integrate the activities of this youth group into the vocational programs of all business and office education students.

The Future Farmers of America is an integral part of the vocational agriculture program in the state of Washington. Its motto is "Learning to do; Doing to learn; Earning to live; Living to serve."

There are 135 chartered FFA chapters in Washington and they make up the state FFA association. Approximately 6,000 students are involved in the state FFA program. The FFA program flourishes on the activities that develop student leadership, character, cooperation, and citizenship.

national activities

Seven American Farmer degrees were granted to Washington FFA members. Only one out of every 1,000 FFA members can receive this degree.

Bill Westergreen, Nooksack FFA chapter, was selected as the Regional Forestry winner.

The Deer Park FFA chapter was awarded a gold certificate for a superior chapter safety program. They were also awarded a gold certificate for an outstanding chapter program of work.

Four students were selected for the national FFA band. Larry Benfield, Toledo; Kathy Norris, Springdale; Greg Kaminski, Walla Walla; Lyle Oberg, Tonasket.

Four FFA members were selected for the national FFA chorus. Byron Bobbins, Cheney; Daniel Huffman, Deer Park; Robert Stroh, Castle Rock; Ralph Aiken, East Wenatchee.

The Deer Park chapter was awarded a gold certificate for an outstanding program relating to Building Our American Communities.

state activities

- State Farmer Degrees were awarded to 116 FFA members.
- State FFA Convention was held June 14-17 at Washington State University. Approximately 500 FFA members participated. Awards were granted totaling approximately $7,000. This money comes from FFA dues and agribusiness contributions.
- Fifteen Honorary State Farmers were brought into the Washington State FFA Association.
- Thirteen $400 Union Pacific Railroad Scholarships, four $400 Standard Oil Company of California Scholarships, and 6 $200 Burlington Northern Scholarships were granted to FFA members.
- Forty-five selected FFA members participated in the state band.
- The state association sponsored a new program entitled "Building Our American Communities". This program is intended to help preserve rural America.
- Cash awards were awarded to four FFA members for outstanding citizenship.
- FFA members participated in the state cooperative contest sponsored by the Washington State Council of Farmer Cooperatives.
- An agriculture safety award program was held.
- An outstanding FFA member was selected to represent the State FFA Association at the State Grange convention.
- The Washington Bankers' Association sponsored a chapter program for FFA members.
- The Washington Dairy Cattle Breeders club sponsored expense paid trips for two FFA members to leading farms of the individual breeders and other points of interest.
- State association sponsored seven agricultural leadership training programs for FFA members.

deca

Carol Holcomb

by Carol Holcomb, member, DECA

Free enterprise — two words that I learned way back in fifth grade, but never understood until now. I thought they only had something to do with trading, the importing and exporting of goods, but I've learned different through DECA. Come with me as I retrace my experiences with free enterprise and how DECA has showed me the true meaning.

My first great clue towards the meaning of free enterprise came from the wise words of Mr. Webster. I had a good idea what free meant, but I looked it up anyway. The definition went something like this: Free—loose, at liberty, not restrained or bound. Enterprise was the great stumper of the two words so I paid close attention to the meaning I found. Enterprise—any undertaking or projected task, especially one of importance or risk; the readiness to undertake what requires boldness. So, putting the two definitions together, I came up with a new meaning of free enterprise—the liberty to perform any undertaking at your own risk and boldness.

DECA has been a risk for me and has also taught me to be bold. Another word that ties in with risk and bold is competition and competition is definitely an asset to our free enterprise system. Competition is probably the most important factor in DECA, one that every student in the organization learns to love, hate, believe in, and scorn upon. Each year DECA holds its annual State Leadership Conference and National Leadership Conference and here many students compete in different competitive activities for awards and recognition.

The high school SLC of 1970 brought me face to face with the best competition in the State of Washington for the competitive event of Public Speaking. The definition of free enterprise fits in nicely here—I was undertaking a risk, a risk that I might not win, the personal risk of failing, and the risk of letting my coordinator and fellow students down. It took a lot of boldness to go in front of four judges, who looked like they were bored to tears, and present a speech that had been worked hard on for five long weeks. Competition was the name of the game — confidence and boldness were the weapons.

As it turned out for me and many other DECA members that night at the Awards Banquet, our risks had turned into fruitful undertakings. I came home with a first place trophy, a better understanding of competition, and a greater love for DECA and was headed for the NLC in Minneapolis, Minnesota.

Perhaps I wasn't bold enough or maybe the risk was too great, and I ended up not placing at the NLC. My faith in DECA was not shattered, in fact it grew, because here I saw thousands of students from our nation working together to make DECA the great organization it is today.

Free enterprise was being carried out during the whole convention. There were many booths set up for buying items and each chapter was at liberty to sell their goods and the risk was the outcome of their sales.

Another form of free enterprise took place during the NLC and this was the promoting of candidates for national offices. Each state had the liberty to run a national candidate and took the risk of not getting him or her elected. The candidates had to be bold enough to stand up in front of thousands of DECA members and advisors and be able to prove why he was the right one for the office and what good he could be for DECA. He also had to be brave enough to meet many of the members personally and speak to them about his platform. The main thing he had to remember was the competition was at its peak during the NLC.

I got my second taste of competition at the 1971 SLC which was held in Seattle. Again I entered the public speaking contest and this time I was up against stiffer competition because now I was competing with college students of many different ages. Each person who enters a competitive event goes in with the same strange feeling while being analyzed by the judges and scored on their performances. The same questions run through the contestant's minds—did they like me? Did I go too fast? Was my material accurate and understandable? Did I win? They are all questions that haunt a person in competition.

Amazingly enough, I won first place again, and along with all the other winners, I had more confidence in myself, DECA, and the workings of our free enterprise system.

DECA has helped me to understand what free enterprise is all about and why it is so beneficial in a country like ours. Without the freedom of competition many people would go through life not knowing how great and inspiring competition can be. Competition makes a person reach out for more with the willpower to work harder to get it. Even though there is a risk involved there is usually a goal to be reached, and if that goal is great enough no risk will stand in the way as an obstacle to block the contender's path. DECA has helped me to tear down the obstacles in my path and has let me believe that our free competitive enterprise is the best one ever established. DECA is my free enterprise and I am willing to take all the risks I have to, and display all the boldness I must, to keep it the best youth organization in the world today.

Note: Miss Carol Holcomb served as a state officer of W-DECA's High School Division while a DE student at Shadle Park high school in Spokane. Presently, Miss Holcomb is a DE student at Spokane Falls Community College and state corresponding secretary of Washington DECA's Mid-Management Division.

achievements: 1970-71

- A five-day Officer Training Conference for state officers of the Mid-Monagement Division of W-DECA.
- The election of four National DECA Officers serving in the positions of Notional President, Junior Collegiate Division; Western Regional Vice President, High School Division; National Vice President, Alumni Division; ond Western Regionol Vice President, Junior Collegiate Division.
- The publication of a District Leadership Conference Plonner.
- The publication of three issues of the W-DECA Reporter, the state association's official publication.
- Over 90 representatives of Washington DECA in ottendance at the 25th Annuol DECA National Leadership Conference held in San Antonio, Texas.
- Initiation of a W-DECA Chapter Advisor's Survival Kit.
- Initiotion of a W-DECA's Speakers Bureau.
- Two W-DECA State Leadership Conferences with over 1,000 in attendance.
- Continued participation os one of eight stote associations in a nationol DECA pilot project entitled "Merit Awards Program".
- Continued particpotion os one of 12 state ossociations in a nationol studies in marketing pilot project sponsored by the Retail Jewelers of America, DECA, and the Woshington Retail Jeweler's Associotion.
- Two statewide meetings for W-DECA alumni.
- A one and one-half doy Officer Planning Conference for state officers of the High School Division.

Washington DECA recognizes student achievement and involves local DE teacher-coordinators in award presentations.

- Continuation of Prep, High School, Mid-Monagement, Collegiate, ond Alumni Divisions and o program of activities designed specifically for eoch division.
- Five of seven District Leadership Conferences with a total attendonce of approximately 1,300 DE students.
- Two Board of Director's meetings and a Leadership Developrnent Seminor by the Mid-Manogement Division.
- Representation at the 1970 DECA Western Regionol Leadership Conference with over 90 students and advisors in ottendance from Woshington.
- State Advisor electec Vice President of the Notional Board of Directors of DECA, Incorporated.
- Awarding of W-DECA Honorary Life Memberships to four outstanding contributors of DE ond DECA in the state of Woshington.
- The approval of Don Fisher and Associates, o Washington state bosed firm, os a National DECA opproved sales project company.
- Provided over 300 seporate owards and honors in recognition of achievement and contributions os concerns students ond teochers.

The support of business is demonstrated as a student is awarded a first place by Jack Barker of the Retail Jewelers of America; Sidney Thal, owner-manager of Fox's Gem and Jade Shops; and John Gilmore, past president of the Washington Retail Jeweler's Association.

Material appearing in this annual report was compiled by the state staff of the

Washington State

Coordinating Council for Occupational Education

Max Benitz, chairman

Ernest G. Kramer, state director

January 1972

CAPES PARTICIPANTS

District	Project Director
Cashmere	Mr. Robert Griffith Cashmere School District Cashmere, WA 98815
Olympia	Mr. Milt Mower, Principal Boston Harbor Elementary Route 3, Box 470 Olympia, WA 98501
Everett	Mr. Louis Hendrix Vocational Director Everett School District 4730 Colby Everett, WA 98201
Stanwood Lake Stevens Monroe Snohomish	Mrs. Nancy Borton Coordinator of Vocational Education Intermediate School District #109 Room 328, County Courthouse Everett, WA 98201
Mercer Island	Mr. Jack Barros, Counselor Mercer Island High School 9100 S. E. 42nd Mercer Island, WA 98040
Sedro Woolley	Mr. Gene Johnson Clear Lake School Box 128 Clear Lake, WA 98235
Edmonds	Mr. Wm. T. Moran Edmonds School District 3800 - 196th S. W. Lynnwood, WA 98036
Port Angeles	Mr. Ernest L. Feser Assistant Superintendent Port Angeles School District 216 East Fourth Port Angeles, WA 98362
Oak Harbor	Mr. Ted Knutsen Assistant Superintendent Oak Harbor School District 1250 Midway Boulevard Oak Harbor, WA 98277

Arlington	Mr. Herbert Hower, Counselor Arlington Middle School French Avenue Arlington, WA 98223
Issaquah	Mr. Al Haugerud Curriculum Director Issaquah School District 22211 S. E. 72nd Street Issaquah, WA 98207
Burlington-Edison	Mr. George Frasier Burlington-Edison School District 936 Victoria Avenue Burlington, WA 98233
Anacortes	Mrs. Gladys Chenaur Curriculum Coordinator Anacortes School District 1402 - 24th Street Anacortes, WA 98221
Marysville	Ms. Jan Sweeney Marysville School District 1513 Seventh Street Marysville, WA 98270
Fife	Mr. Gerald A. Lankford Fife School District 5602 - 20th Street E. Tacoma, WA 98424
Pullman	Mr. Dick Worthy Pullman School District Sunnyside Elementary Shirley Street Pullman, WA 99163
Longview	Mr. Don Lowe Longview School District 28th and Lilac Streets Longview, WA 98632
Woodland	Mr. Roger Morris Woodland School District Box 370 Woodland, WA 98674
Highline	Mr. Bill Cox Highline School District 15675 Ambaum Blvd., S. W. Seattle, WA 98148

Kahlotus	Mr. John Manis Kahlotus School District P. O. Box 68 Kahlotus, WA 99335
Auburn	Mr. C. V. Hostetter, Coordinator Vocational Education Auburn School District 915 Fourth Street N. E. Auburn, WA 98002
Central Kitsap	Mr. Paul Linder Director of Instruction Central Kitsap School District Silverdale, WA 98383
Steilacoom	Mr. George Fisher Steilacoom School District Box 100 Steilacoom, WA 98388
Reardan	Mr. John Freeman, Principal Reardan Grade School Reardan, WA 99029
Bethel	Mr. Earl Sollie Spanaway Elementary School Route 1, Box 1012 Spanaway, WA 98387
Pasco	Mr. Merle J. Locke, Principal Robert Frost Elementary School 22nd Avenue N. and W. Pearl Street Pasco, WA 99301
Brewster	Mr. Roger J. Webster, Principal Brewster Grade School Brewster, WA 98812
Spokane	Mr. Jim Hordemann Staff Assistant, Career Education Spokane School District W. 825 Trent Avenue Spokane, WA 99201

1/27/72
HWJohnson:ib

GRADE 2

Teacher:

During the week before the date for each column under Objectives 2-A-1 and 2-A-4, observe especially the criterion behaviors described for those objectives and then enter check marks on Friday.

CHILD'S NAME -- DATE	-- OBJECTIVES -- 2 - A - 1 Assumes responsibility for classroom jobs.				2 - A - 4 Discusses attitudes or feelings about work at home, school, and in the community.			
	3/10	4/7	5/5	6/9	3/10	4/7	5/5	6/9
1.								
2.								
3.								
4.								
5.								
6.								
7.								
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10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
TOTALS								

Date_____

OBJECTIVE 2 - A - 2 [May be done a few children at a time.]

[Teacher, tell the class:]

For the next few minutes I want each of you to stay in your seat and work quietly until I call your name [Give them necessary assignments, materials, etc.] When I call your name, come to my desk (chair, etc.).

[Of each child as he comes to your desk, chair, etc., ask:]

What do you want to do - what do you want to be - when you get big?

[Record answer after name below or check "doesn't know" - "d.k." - if he shrugs or otherwise indicates lack of decision. If he later in the interview makes a choice, record it and cross out check mark.]

[Now ask child:]

Tell me the names of some kinds of jobs you don't want to do when you're big.

[These need not be counted or recorded, except that - as long as he has named fewer than five occupations, when he stops in evident resignation, say:]

Tell me some (or "some more") jobs that people do.

[Be alert for - and record - any occupation he mentions as ones he would like to do, but do not ask for this again]

[Throughout this period, avoid letting other children hear or know what you are discussing with the individual children. Record here a comment if you are unable to observe this precaution.]

Date_____

OBJECTIVE 2 - A - 3

Teacher, tell your class:

I want you to play a game with me. Sit facing me and listen carefully. I am going to read some statements. If you agree with the statement after I have read it, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement: --

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(check for apparent understanding)

Before I read the other statements, close your eyes very tightly, listen to each statement, and raise your hand if you agree.

Close your eyes. Statement 1: All men like to work outdoors.

How many agree? _____

How many disagree? _____*

Close your eyes. Statement 2: Some women can type faster than others.

How many agree? _____*

How many disagree? _____

Close your eyes. Statement 3: Some women like housework, others don't.

How many agree? _____*

How many disagree? _____

etc.....

1/31/72

GRADE 2

OBJECTIVES 2 - B - 1 & 2 - B - 4

[Teacher, tell your class:]

Today I want to play a game with you. Sit facing me and listen carefully. I am going to read some statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(Check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree.

Close your eyes. Statement 1: A "career," or an "occupation" is what a person does with his time.

How many agree?

How many disagree?

Discuss until children agree.

Close your eyes. Statement 2: Your "career" or "occupation" is being a student.

How many agree? _____ *

How many disagree? _____

(2-B-1)

Close your eyes. Statement 3: A hobby is not a "career" or "occupation."

How many agree?

How many disagree?

Discuss until children agree.

Close your eyes. Statement : A hobby may change into a "career" or "occupation."

How many agree? _____ *

How many disagree? _____

(2-B-4)

-- OBJECTIVES --

Teacher:

On each date under the statements of the objectives, go down the column and check the children who have completed the objective.

CHILD'S NAME --DATE	2 - B - 2 Has identified and investigated at least two occupations in the community. 3/10	4/14	5/12	6/9	2 - B - 3 Has identified and noticed the interdependency of at least three interdependent occupations (e.g., doctor nurse, druggist). 3/10	4/14	5/12	6/9
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
TOTALS								

2/7/72
HWJohnson:p

-- OBJECTIVES UNDER 2 - C - 1 --

Teacher:

On each date under the statements of the objectives, go down the column and check the children who have completed the objective.

CHILD'S NAME -- DATE	Can name and use tools and materials necessary to perform required classwork.				Takes care of and puts away tools and materials necessary to perform required classroom work.			
	3/10	4/14	5/12	6/17	3/10	4/14	5/12	6/17
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
TOTALS								

HWJohnson:p
2/7/72

Date _____

OBJECTIVE 2 - C - 2

Teacher:

Write in the spaces below three of the school's standards of behavior which you consider it most important for your children to learn. You may have agreed on these three with other teachers. Some examples might be:

1. Avoid fights (or "Do not fight.")
2. Walk in the halls (or "Do not run in the halls.")
3. Get permission before leaving the room.

Rule 1. _____

Rule 2. _____

Rule 3. _____

Now, after each child's name, check the rules with which he ordinarily complies.

Now, interview individually each child who complies with all three rules or standards. Ask him, for each rule, if he complies ("Do you avoid fights in school?") If he confirms your record (you have made a check mark indicating that he does) say "Good! Why do you? What is the reason?"

[If he gives a satisfactory answer, go on to the next rule or standard - If he gives satisfactory answers to all three rules. So indicate by a check mark under "Gives reasons."]

Child's Name	Complies With Rule or Standard #1	#2	#3	Gives Reasons
1.				
2.				
3.				
. . . . .				
20.				

TOTAL NUMBER COMPLYING WITH ALL RULES OR STANDARDS AND GIVING SATISFACTORY REASONS _____

OBJECTIVE 2 - C - 3

[Teacher, tell the class:]

For the next little while I want you all to work quietly and stay in your places until I call your name.

[Call each one aside individually and ask:]

1. Do you like to do number work?
2. Do some adults have to do number work in their jobs? When?
3. Do some adults have to talk to people and listen to people on their jobs? When?
4. Do some adults have to read and write on their jobs.? When?

[If child can give a valid answer to all of these questions, check Objective 2-C-3 as achieved on the record sheet below.]

	OBJECTIVE 2 - C - 3 Relates basic skills of computation and communication to familiar occupations.	DATE OF TRIAL		
	CHILD'S NAME	#1	#2	#3
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

	OBJECTIVE 2 - C - 3 Relates basic skills of computation and communication to familiar occupations.	DATE OF TRIAL		
	CHILD'S NAME	#1	#2	#3
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
	TOTALS			

2/8/72
HWJohnson:p

Date_____

OBJECTIVES 2 - C - 4, 2 - C - 5 & 2 - C - 8

[Teacher, tell your class:]

Today I want to play a game with you. Sit facing me and listen carefully. I am going to read some statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(Check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree.

Close your eyes. Statement 1: We learn in school.

How many agree?

How many disagree?

Discuss until all agree.

Close your eyes. Statement 2: We learn at home.

How many agree? _____ *

How many disagree? _____

Close your eyes. Statement 3: We never learn outside.

How many agree? _____

How many disagree? _____*

Close your eyes. Statement 4: Adults sometimes learn.

How many agree? _____*

How many disagree? _____

Close your eyes. Statement 5: Babies learn.

How many agree? _____*

How many disagree? _____

OBJECTIVES 2 - C - 4, 2 - C - 5 & 2 - C - 8 (contd)

Close your eyes. Statement 6: Old people never learn.

How many agree? _____

How many disagree? _____*

to here: (2-C-4)

Close your eyes. Statement 7: Some workers are better workers than others.

How many agree?)
)
How many disagree?)
)
)

Discuss until children agree. Emphasize "better worker does not mean better people.

Close your eyes. Statement 8: On some days, a worker will do better than on other days.

How many agree?)
)
How many disagree?)

Discuss until all agree.

Close your eyes. Statement 9: Good health habits will help a worker do better.

How many agree? _____*

How many disagree? _____

(2-C-5)

Close your eyes. Statement 10: At first, all new workers do as well as all others.

How many agree? _____

How many disagree? _____*

Close your eyes. Statement 11: Workers cannot be trained to do better.

How many agree: _____

How many disagree? _____*

OBJECTIVES 2 - C - 4, 2 - C - 5 & 2 - C - 8 (contd)

Close your eyes. Statement 12: A worker who has done something many times can do it better than a worker who has never done it.

How many agree? _____*

How many disagree? _____

Close your eyes. Statement 13: A worker who was absent too much wouldn't be very good.

How many agree? _____ *

How many disagree? _____

Close your eyes. Statement 14: A person who couldn't get along with others would probably be a good worker.

How many agree? _____

How many disagree? _____ * to here: (2-C-8)

2/7/72
HW.Johnson:p

OBJECTIVES 2 - C - 6 & 2 - C - 7

[Teacher, tell the class:]

For the next little while I want you all to work quietly and stay in your places until I call your name.

[Call each one aside individually and ask:]

1. What kind of adult work do you know most about? [Accept any reasonable answer - including "housework." To an "unreasonable" answer - like "Mowing the lawn" - say "O.K. What occupation do you know about?" Keep asking questions until he/she has named an occupation - with as little "leading" from you as possible.]

2. In that occupation, a person must like certain things. What are they?....What else must he/she like?

3. In that occupation, a person must know certain things. What must he/she know?....What else must he/she know?

4. In that occupation, a person must also be able to do certain things. What must he/she be able to do?...What else must he/she be able to do? [To demonstrate achieving this objective, he/she must name two attitudes, two kinds of knowledge, and two skills you can accept. Prompt him/her once, if necessary. The dots (...) above indicate pauses, for child to answer, before prompting as indicated.] (2-C-6)

Listen to this story. Once three children decided to build a play house out of boxes. Each one took one part of the job --one kept bringing boxes, another kept tearing off the lids, and the other kept building the house. They were all very busy. Then one had to go home. What do you think happened next?.....What else might happen?

[If, at least after being prompted once, he has shown an appreciation of the fact that the work of the two remaining children would have to change, check Objective 2 - C - 7 as achieved by him/her.] (2-C-7)

1/26/72
HWJohnson:p

KINDERGARTEN

-- OBJECTIVES --

Teacher:

During the week before the date for each column, observe especially the criterion behaviors and then enter check marks on Friday.

CHILD'S NAME -- DATE	K - A - 1 Assumes responsibility for classroom jobs.				K - A - 2 Chooses work projects in room.				K - A - 3 Talks about occupations in which interested.			
	3/3	4/7	5/5	6/2	3/3	4/7	5/5	6/2	3/3	4/7	5/5	6/2
1.												
2.												
3.												
4.												
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11.												
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13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												
TOTAL NUMBER												

Date _____

OBJECTIVE K - A - 4

Teacher, tell your class:

I want you to play a game with me. Sit facing me and listen carefully. I am going to read some statements. If you agree with the statement after I have read it, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement: --

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(check for apparent understanding)

Before I read the other statements, close your eyes very tightly, listen to each statement, and raise your hand if you agree.

Close your eyes. Statement 1: All men like to work outdoors.

How many agree? _____

How many disagree? _____* (a)

Close your eyes. Statement 2: Some women can type faster than others.

How many agree? _____ * (b)

How many disagree? _____

Close your eyes. Statement 3: Some women like housework, others don't.

How many agree? _____* (c)

How many disagree? _____

etc.....

KINDERGARTEN

Date _____

OBJECTIVES K - B - 1, K - B - 2, & K - B - 3

[Teacher, tell your class:]

Today I want to play a game with you. Sit facing me and listen carefully. I am going to read some statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(Check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree.

Close your eyes. Statement 1: Children like to play.

How many agree? [Check for understanding.]
How many disagree?

Close your eyes. Statement 2: Some people live in your house.

How many agree? [Check for understanding.]
How many disagree?

Close your eyes. Statement 3. Some people work in your house.

How many agree? _____ * (K - B - 1)
How many disagree? _____

Close your eyes. Statement 4: Some people live in your house and work in other places.

How many agree? _____ * (K - B - 2)
How many disagree? _____

Close your eyes. Statement 5: Some people work in this school

How many agree? _____ * (K - B - 3)
How many disagree? _____

1/28/72
HWJ:p

OBJECTIVE K - B - 4 [May be done a few children at a time, if necessary]

[Teacher, say to class:]

For the next few minutes, I want each of you to stay in your seat and work quietly until I call your name. [Give them necessary assignments, materials, etc.] When I call your name, come to my desk (or chair, etc.)

[To each child as he comes to you, say:]

Tell me what jobs are done by grown-ups (or adults) in this school. Tell me as many as you can.

[If he identifies any of the employees below - by giving his/her name, title, or task or in any other way - put a check in the appropriate column.]

[If he stops without giving three or more jobs, say "What others can you think of?" until he clearly indicates that he doesn't know any more.]

Interview of 3/17/72

CHILD'S NAME	SCHOOL EMPLOYEES IDENTIFIED								
	Teacher	Principal	Librarian	Secretary	Cook (incl. food handlers)	Janitor (incl. groundskeeper)	Supervisor (any central office staff)	OTHER (Specify)	
1.									
2.									
3.									
. . .									
20.									

Record sheets will also be needed for

Interview of 4/14/72

" " 5/12/72

" " 6/9/72

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OBJECTIVE 1 - C - 4 (contd)

Close your eyes. Statement 6: Old people never learn.

How many agree? _____

How many disagree? _____*

OBJECTIVE K - B - 5

Teacher:

On each date under the statement of the objective, go down the column and check each child who has completed the objective.

Has explored one or more occupational areas.

CHILD'S NAME -- DATE	3/10	4/14	5/12	6/9
1.				
2.				
3.				
4.				
5.				
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16.				
17.				
18.				
19.				
20.				
TOTALS				

1/27/72
HWJohnson:p

KINDERGARTEN

-- OBJECTIVES UNDER K - C - 1 --

Teacher:

On the date under each objective, go down the column and check each child who has reached the objective named.

CHILD'S NAME -- DATE	Can name and use tools and materials necessary to perform required classwork. 3/10	4/7	5/5	6/9	Takes care of and puts away tools and materials necessary to perform required classroom work. 3/10	4/7	5/5	6/9
1.								
2.								
3.								
4.								
5.								
6.								
7.								
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10.								
11.								
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16.								
17.								
18.								
19.								
20.								
TOTALS								

Date _____

OBJECTIVE K - C - 2

Teacher:

Write, in the spaces below, three of the school's standards of behavior which you consider it most important for your children to learn. You may have agreed on these three with other teachers. Some examples might be:

1. Avoid fights (or "Do not fight.")
2. Walk in the halls (or "Do not run in the halls.")
3. Get permission before leaving the room.

Rule 1._____

Rule 2._____

Rule 3._____

Now, after each child's name, check the rules with which he ordinarily complies.

Now, interview individually each child who complies with all three rules or standards. Ask him, for each rule, if he complies ("Do you avoid fights in school?") If he confirms your record (you have made a check mark indicating that he does) say "Good! Why do you? What is the reason?"

[If he gives a satisfactory answer, go on to the next rule or standard - If he gives satisfactory answers to all three rules. So indicate by a check mark under "Gives reasons."]

Child's Name	Complies With Rule or Standard			Gives Reasons
	#1	#2	#3	
1._____				
2._____				
3._____				
. . . . .				
20._____				

TOTAL NUMBER COMPLYING WITH ALL RULES OR STANDARDS AND GIVING SATISFACTORY REASONS _____.

HWJohnson:p
2/7/72

OBJECTIVES K - C - 3 & K - C - 5
(and record only of K - C - 7, q.v.)

Teacher:

On the date given under the objective, check the children who have completed the objective.

CHILD'S NAME -- DATE	K - C - 3: Gives evidence of communicating with fellow students by speaking, listening, and noticing some non-verbal messages.				K - C - 5: Practices at least two health habits regularly at home or school				K - C - 7: Objective achieved			
	3/10	4/7	5/5	6/9	3/10	4/7	5/5	6/9	3/10	4/7	5/5	6/9
1.												
2.												
3.												
4.												
5.												
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13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												
TOTAL NUMBER												

Date _____

OBJECTIVE K - C - 4 [May be done a few children at a time.]

[Teacher, tell the class:]

For the next few minutes I want each of you to stay in your seat and work quietly until I call your name. [Give them necessary assignments, materials, etc.] When I call your name, come to my desk (or chair, etc.).

[To each child as he comes to you, assign one of the following tasks. Begin by saying:]

I want you to do something for me. I can tell you only <u>one time</u>, so <u>listen carefully</u>.

[Then read the assignment slowly and clearly. After that, answer his questions only by (1) nodding your head, (2) shaking your head (3) saying "I'm sorry, I can't tell you," or (4) saying "That's fine - Go back and sit down."]

Assignment 1: Put this pencil on that chair by the door (point) and bring me the book from that table (point).

Assignment 2: Put this paper in that waste basket (point) and open the door (point).

Assignment 3: Put this book on that table (point) and bring me the sheet of paper from that waste basket (point).

Assignment 4: Close (or shut) the door (point) and bring me that pencil from the chair (point).

[Record by tally marks - ~~𝍸~~ 1 - how many complete or do not complete the task.]

Do complete _____ Do not complete _____

2/8/72
HWJohnson:p

Date _____

OBJECTIVE K - C - 6

[Teacher, tell your class:]

Today I want to play a game with you. Sit facing me and listen carefully. I am going to read two statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(Check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree.

Close your eyes. Statement 1: Everyone wants to be healthy and strong.

How many agree?

How many disagree?

) Discuss until all agree.

Close your eyes. Statement 2: It doesn't make any difference what you eat.

How many agree? _____

How many disagree? _____*

HWJohnson:p
2/7/72

OBJECTIVE K - C - 7

[Teacher, tell the children:]

For the next few minutes I want all of you to work quietly and stay in your places [Give them necessary assignments, materials, etc.]

[Then call them to you one at a time and ask:]

1. What is one kind of work that you know about? [If he(she) seems unable to name one, as him/her:]

   a. Tell me one man or woman you know.

   b. What does he/she do all day [night]?

[If this does not elicit a job identity, go on to next child. If it does, go to question 2.]

2. What does a person do in that kind of work?

3. What kinds of clothes does a person wear doing that kind of work?

4. What kinds of tools does the person use?

[If he/she gives a reasonable reply - for a five-year-old - to all four questions, check the objective as achieved on the sheet for records of K - C - 3, K - C - 5, and K - C - 7]

State of Washington
SUPERINTENDENT OF PUBLIC INSTRUCTION
Olympia

CAPES PILOT PROJECT

TEACHER LOG AND EVALUATION REPORT

TEACHER: Complete one report upon the completion of each objective and submit to your district's CAPES project director.

OBJECTIVE GRADE LEVEL (circle) K 1 2 3 4 5 6

Goal (A B or C) ☐ Objective No. ☐

TIME Indicate total time spent on objective in minutes ☐

PRE-TEST RESULTS No. of Students at or Above Objective ☐ No. of Students Below Objective ☐

ACTIVITY(IES) USED From Guidelines --

#1 Page ☐ Column ☐ No. ☐

#2 Page ☐ Column ☐ No. ☐

#3 Page ☐ Column ☐ No. ☐

Not from Guidelines (describe on back)

POST-TEST RESULTS No. of Students at or Above Objective ☐ No. of Students Below Objective ☐

SUMMARY OF OBSERVATIONS AND TEST RESULTS

Objective: Was objective appropriate for grade level?

Yes ☐ *No* ☐

If no, why not?_____

_____

Activity: Was suggested activity(ies) appropriate for grade level?

#1 *Yes* ☐ *No* ☐

#2 *Yes* ☐ *No* ☐

#3 *Yes* ☐ *No* ☐

If no, why not?_____

_____

Was suggested activity(ies) appropriate for achieving objective?

#1 *Yes* ☐ *No* ☐

#2 *Yes* ☐ *No* ☐

#3 *Yes* ☐ *No* ☐

If no, why not?_____

_____

Do you have any suggestions for revising the guidelines in terms of this objective?

_____

_____

_____

1/27/72
HWJohnson:ib

GRADE 1

-- OBJECTIVES --

Teacher:

During the week before the date for each column, observe especially the criterion behaviors and then enter check marks on Friday.

CHILD'S NAME -- DATE	1 - A - 1 Assumes responsibility for classroom jobs. 3/3	4/7	5/5	6/10	1 - A - 4 Discusses "attitudes" about work in which we participate at home and school. 3/3	4/7	5/5	6/10
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
TOTALS								

Date _____

OBJECTIVES

1 - A - 2 & 1 - A - 5 [May be done a few children at a time.]

[Teacher, tell the class:]

For the next few minutes I want each of you to stay in your seat and work quietly until I call your name [Give them necessary assignments, materials, etc.] When I call your name, come to my desk (chair, etc.).

[Of each child as he comes to your desk, chair, etc., ask:]

What do you want to do - what do you want to be - when you get big? [Record answer after name below or check "doesn't know" - "d.k." - if he shrugs or otherwise indicates lack of decision. If he later in the interview makes a choice, record it and cross out check mark.]

[Now ask child:]

Tell me the names of some kinds of jobs you don't want to do when you're big.

[Count the number he names. Then say]

Can you think of any more?

[Repeat until he says "No" or has named ten occupations. Record the total number he has named, after his name under "Named"]*

Child's Name	Occupation Chosen (1-A-2)	d.k.	Number of Occupations Named (1-A-5)
1.			
2.			
. . . . .			
20.			

*Objective is achieved when seven are named. Record up to ten.

Date _____

OBJECTIVE 1 - A - 3

Teacher, tell your class:

I want you to play a game with me. Sit facing me and listen carefully. I am going to read five statements. If you agree with the statement after I have read it, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement: --

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(check for apparent understanding)

Before I read the other statements, close your eyes very tightly, listen to each statement, and raise your hand if you agree.

Close your eyes. Statement 1: All men like to work outdoors.

How many agree? _____

How many disagree? _____*

Close your eyes. Statement 2: Some women can type faster than others.

How many agree? _____*

How many disagree? _____

Close your eyes. Statement 3: Some women like housework, others don't.

How many agree? _____

How many disagree? _____

etc.....

Date _____

OBJECTIVE 1 - A - 6

Teacher, tell your class:

I want you to play a game with me for a little while. Sit in your chairs and face me. Now - here is a picture of a man (or "think of a man...") who is fixing a car.

I am going to name several things. As I name each thing, raise your hand if you think it would make his work better or faster. Let's try one first, just for fun.

- If I turned out the lights in his shop -

How many think that would make his work better? How many disagree?

While we play the rest of this game, close your eyes tightly until I tell you to open them.

[Before each, say:] Close your eyes tightly, remember.

[After each, say:] How many think that would make his work better? How many disagree?

[Record number agreeing, disagreeing, for each.]

	Number Who --	
	Agree	Disagree
1. If he had fixed the same thing many times.	*	
2. If the car was painted blue.		*
3. If he loved to fix this kind of thing.	*	
4. If he was very good at fixing things.	*	
5. If his wife liked to cook.		*

1/31/72
HWJohnson:ib

Date_____

GRADE 1

OBJECTIVES 1 - B - 1, 1 - B - 2, 1 - B - 6, & 1 - B - 7

[Teacher, tell your class:]

Today I want to play a game with you. Sit facing me and listen carefully. I am going to read statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(Check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree.

Close your eyes. Statement 1: Being a doctor is an occupation. [Check for understanding. Discuss until children agree to these.]

How many agree?

How many disagree?

Close your eyes. Statement 2: Driving a truck can be an occupation.

How many agree? _____* (1-B-6)

How many disagree? _____

Close your eyes. Statement 3: Some mothers and fathers have occupations away from their homes. Do you agree that they are community helpers?

How many agree? _____* (1-B-1)

How many disagree? _____

Close your eyes. Statement 4: Being a student is an occupation.

How many agree? _____* (1-B-2)

How many disagree? _____

OBJECTIVES 1 - B - 1, 1 - B - 2, 1 - B - 6, & 1 - B - 7 (contd.)

Close your eyes. Statement 5: The words "work" and "occupation" mean the same thing.

How many agree? _____

How many disagree? _____* (1

Close your eyes. Statement 6: If you do some work at home this afternoon, that is your occupation.

How many agree? _____

How many disagree? _____* (1-B-6)

Close your eyes. Statement 7: Some people have two jobs.

How many agree? _____* (1-B-7)

How many disagree? _____

OBJECTIVE 1 - B - 3 [May be done a few children at a time.]

[Teacher, tell the class:]

For the next few minutes I want each of you to stay in your seat and work quietly until I call your name. [Give them necessary assignments, materials, etc.] When I call your name, come to my desk (or chair, etc.)

[When he comes to your desk (chair, etc.) ask each child:]

What "goods" are made in...[name local community; i.e., town, suburb, neighborhood, etc., which child is most likely to recognize as his community].

What "services" are sold in...[name local community again. If child has now been able to name correctly at least one or two "goods" and one or two "services" produced in the community, put a check after his name below, under today's date.]

		Names goods and services produced in the community.			
CHILD'S NAME	-- DATE	3/10	4/14	5/12	6/9
1.					
2.					
3.					
4.					
.					
.					
.					
.					
20.					
TOTALS					

-- OBJECTIVES --

Teacher:

On each date under the statements of the objectives, go down the column and check the children who have completed the objective.

CHILD'S NAME -- DATE	1 - B - 4 Has identified and investigated at least two occupations. 3/10	4/14	5/12	6/17	1 - B - 5 Has examined the various rewards for performing work. 3/10	4/14	5/12	6/17
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
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10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
TOTALS								

HWJohnson:p
2/8/72

-- OBJECTIVES --

GRADE 1

--- 1 - C - 1 ---

1 - C - 2

Teacher:

On the date under each objective, go down the column and check each child who has completed the objective named.

Can name and use tools and materials necessary to perform required classwork.

Takes care of and puts away tools & materials necessary to perform required classroom work.

Gives evidence of communicating with fellow students by speaking, listening, and noticing some non-verbal messages.

CHILD'S NAME -- DATE	3/10	4/7	5/5	6/9	3/10	4/7	5/5	6/9	3/10	4/7	5/5	6/9
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												
TOTAL NUMBER												

2/7/72
HWJohnson:p

OBJECTIVES 1 - C - 3, 1 - C - 5, and 1 - C - 6

[Teacher, tell the class:]

For the next little while I want you all to work quietly and stay in your places until I call your name.

[Call each one aside individually and ask:]

1. Do you like to do number work?
2. Do some adults have to do number work in their jobs? When?
3. Do some adults have to talk to people and listen to people on their jobs? When?
4. Do some adults have to read and write on their jobs? When?

[If child can give a valid answer to all of these questions, check Objective 1 - C - 3 as achieved on the attached record sheet.]

[Then, or in a later interview, after you have seen the child use some tools on appropriate materials, ask:]

Can you use any tools that adults use in their work? [Pursue this (1-C-5) question --"Any others?" -- until child names one you have seen him use.]

[Then, or in a later interview, say:]

Listen to this story. Once three children decided to build a play house out of boxes. Each one took one part of the job -- one kept bringing boxes, another kept tearing off the lids, and the other kept building the house. They were all very busy. Then one had to go home. What do you think happened next?.....What else might happen?

[If, at least after being prompted once, he has shown an appreciation of the fact that the work of the two remaining children would have to change, check Objective 1 - C - 6 as achieved by him/her.]

HWJohnson:p
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1 - C - 3, 1 - C - 5 &
1 - C - 6 (contd)

CHILD'S NAME	1 - C - 3 Relates basic skills of computation and communication to familiar occupations. DATE OF TRIAL			1 - C - 5 Names & uses some tools and materials used by workers. DATE OF TRIAL			1 - C - 6 Evaluates the interdependency of workers in a work situation with labor divided. DATE OF TRIAL		
	#1	#2	#3	#1	#2	#3	#1	#2	#3
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
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15.									
16.									
17.									
18.									
19.									
20.									
TOTALS									

2/8/72
HWJohnson:p

OBJECTIVE 1 - C - 4

Date_____

[Teacher, tell your class:]

Today I want to play a game with you. Sit facing me and listen carefully. I am going to read some statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(Check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree..

Close your eyes. Statement 1: We learn in school.
How many agree?
How many disagree?
) Discuss until all agree.

Close your eyes. Statement 2: We learn at home.

How many agree? _____*

How many disagree? _____

Close your eyes. Statement 3: We never learn outside.

How many agree? _____

How many disagree? _____*

Close your eyes. Statement 4: Adults sometimes learn.

How many agree? _____*

How many disagree? _____

Close your eyes. Statement 5: Babies learn.

How many agree? _____*

How many disagree? _____

1/27/72
HWJohnson:ib

GRADE 3

Teacher:

During the week before the date for each column, observe especially the criterion behavior and then enter check marks on Friday.

-- OBJECTIVES --

3 - A - 1

Assumes responsibility for classroom jobs.

CHILD'S NAME -- DATE	3/3	4/7	5/5	6/10
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
TOTALS				

OBJECTIVE 3 - A - 2 [May be done a few children at a time.]

[Teacher, tell the class:]

For the next few minutes I want each of you to stay in your seat and work quietly until I callyour name [Give them necessary assignments, materials, etc.] When I call your name, come to my desk (chair, etc.).

[Of each child as he comes to your desk, chair, etc., ask:]

What do you want to do - what do you want to be - when you get big?

[Record answer after name below or check "doesn't know" - "d.k." - if he shrugs or otherwise indicates lack of decision. If he later in the interview makes a choice, record it and cross out check mark.]

[Now ask child:]

Tell me the names of some kinds of jobs you don't want to do when you're big.

[These need not be counted or recorded, except that - as long as he has named fewer than five occupations, when he stops in evident resignation, say:]

Tell me some (or "some more") jobs that people do.

[Be alert for - and record - any occupation he mentions as ones he would like to do, but do not ask for this again]

[Throughout this period, avoid letting other children hear or know what you are discussing with the individual children. Record here a comment if you are unable to observe this precaution.]

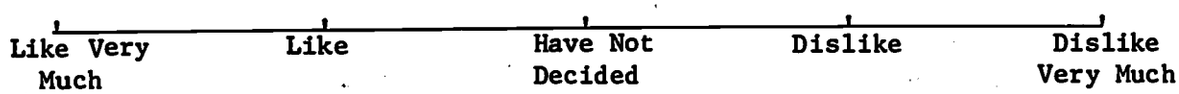
Child's Name	Occupation Chosen (3-A-2)	d.k.	Date Occupation Chosen
1.			
2.			
. . .			
20.			

OBJECTIVE 3 - A - 3 Date_____

[Teacher, tell the class:]

Today I would like you to play a game with me, for a while.

[Draw on a board or large piece of paper:]



[Then say:]

Show me, by raising your hand, how you feel about lettuce as a food. How many like it very much? [Record the number above "Like very much" on the drawing.] How many just "like" it? [If questioned, add "but not very much." Record the number of responses above "Like."] How many have not decided? [Record.] How many dislike it? [Record.] How many dislike it very much? [Record.]

For the next question, close your eyes and tell me (pause until all eyes closed) - How many have ever done something which would be called "work?" [Record number here _____. Record total number present, here _____.]

Open your eyes.

Now, close your eyes (pause) and show me by raising your hands - How many have liked very much most of the "work" they have ever done? [Record above previously recorded number at "Liked very much," and cross out previous number - referring to lettuce as a food.]

Keep your eyes closed and show me - How many have liked most of the work they have done? [Record as before.]

How many have not decided whether they liked or disliked most of the work they have done? [Record.]

How many have disliked most of the work they have done?

Keep your eyes closed. How many have disliked very much most of the work they have done? [Record.] Now open your eyes and look at the chart. [Discuss, if you wish.]

Date_____

OBJECTIVES 3 - A - 4 & 3 - A - 5

[Teacher, say to class:]

For a while, now, I want you to stay in your seats and work quietly until I call your name (Give them necessary assignments, materials, trips to lavatory and pencil sharpener, etc.). When I call your name, please come to my desk (or "chair." Choose a site such that other children cannot overhear your individual interviews. Likewise, prevent communication about interviews. If you are not able to do so - please note the reason in a comment here - --)

[Then, to each child, as he comes to you, say:]

How would you finish this sentence - "Some people prefer certain kinds of work because they like to....."

[In the list below, check or write in each separate reason given. If they stop as if finished, say "Any more?" until they say "No," or until they have mentioned seven separate reasons. If they cannot get started, give "work with my hands" as an example and count it if they accept it for themselves.] (3-A-4)

___be outdoors
___be indoors
___draw pictures
___talk to people
___be by myself
___help people
___work with machines
___do things where I can move around
___work with my hands
___try new things
___make up songs
___build things
___collect things
___other (specify below)

_____
_____
_____

[Then say:]

Now how would you finish these sentences -- "A job would be perfect for me if it let me do all of the kinds of things I like to do. I like to....."

[In the list above, circle each separate liking given. If any are mentioned which are not in the list - including the "write-ins" from the previous question, list them below] (3-A-5)

_____ _____

_____ _____

_____ _____

1/31/72
HWJohnson:ib

GRADE 3

Teacher:

On each date under the statements of the objectives, go down the column and check the children who have completed the objective.

	-- OBJECTIVES --								
		3 - B - 1				3 - B - 2			
		Has identified and studied at least five businesses and occupations.				Has identified at least seven occupations and noticed their interdependency with others.			
CHILD'S NAME	-- DATE	3/3	4/7	5/5	6/10	3/3	4/7	5/5	6/10
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
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17.									
18.									
19.									
20.									
TOTALS									

big fellow agreed to dig all of the clay. Two people agreed to shape all of the dishes. One agreed to bake them all in a big oven. And one agreed to paint and glaze them all. Dishes made in the factory were called "New" dishes. Dishes made before the factory was built were called "Old" dishes.

Now, what do you suppose probably happened?

Close your eyes. Statement 3: The person who was best at painting and glazing got the job of painter and glazer in the factory.

Discuss until all agree.

Close your eyes. Statement 4: The five people in their factory didn't make as many dishes as they had working separately.

How many agree? _____

How many disagree? _____*

Close your eyes. Statement 5: The "New" dishes were more alike than the "Old" dishes.

How many agree? _____ *

How many disagree? _____

to here (3-C-11)

[Optional final question:]

Now - how do you think the five dishmakers felt about their work after the factory began? [Let them discuss this as long as you wish, but accept every comment uncritically and ask no further questions. Purposes: (1) Explore affective factors in work; (2) Make these evaluation sessions more fun."]

Date_____

OBJECTIVE 3 - B - 3 [May be done a few children at a time.]

[Teacher, tell the class:]

For the next few minutes, I want each of you to stay in your seat and work quietly until I call your name. [Give them necessary assignments, materials, trips to the lavatory and pencil sharpener, etc.] When I call your name, come to my desk (chair, etc.).

[Ask each child, as he comes to your desk:]

1. Tell me one hobby, especially one you like or think you might like.
2. Tell me one career which might grow out of that hobby.
3. Could you follow that career and be happy in it?
4. How did you decide that?
5. What training would you need for that career?
6. Where did you get that information?

If child is unable to answer any question, go immediately to end of this form and put a tally (~~Ill~~ 1...) after "has not explored."

[Be sure your words and manner show you accept all of his/her answers.]

If you feel that he has explored that career, ask for another career from the same hobby, repeating questions 2 through 6.

If you now feel that he has explored two careers for that hobby adequately, i.e., that he/she has

(1) identified careers which truly might be said to grow from that hobby,

(2) has made a healthy, thoughtful decision about his own following those careers,

(3) has acquired a reasonable understanding -- for an eight-year-old -- of the job's training requirements,

and (4) has no urgent need for a new understanding which further exploration might yield,

then make a tally (~~Ill~~ 1...) below after "has explored [potential careers from two hobbies]."

has explored _____

has not explored _____

1/27/72
HWJohnson:ib

GRADE 4

Teacher:

During the week before the date for each column, observe especially the criterion behavior and then enter check marks on Friday.

-- OBJECTIVES --

4 - A - 1

Assumes responsibility for classroom jobs.

CHILD'S NAME -- DATE	3/3	4/7	5/5	6/10
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
TOTALS				

Date_____

OBJECTIVES 3 - B - 4 & 3 - B - 5

[Teacher, tell your class:]

Today I want to play a game with you. Sit facing me and listen carefully. I am going to read some statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(Check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree.

Close your eyes. Statement 1: There are some jobs open in [name local community in terms children most clearly understand].

How many agree?

How many disagree?

) Discuss until all children understand and agree -- or disagree.

Close your eyes. Statement 2: There are more jobs open in some communities than in others in Washington.

How many agree? _____*

How many disagree? _____

Close your eyes. Statement 3: The jobs open in this community are the same kinds as those open in the other communities in Washington.

How many agree? _____

How many disagree? _____*

to here (3-B-4)

Close your eyes. Statement 4: In 1982, some of you may be looking for jobs.

How many agree?

How many disagree?

) Discuss until children agree.

OBJECTIVE 4 - A - 2

[Teacher, say to class:]

For a while, now, I want you to stay in your seats and work quietly until I call your name (Give them necessary assignments, materials, trips to lavatory and pencil sharpener, etc.). When I call your name, please come to my desk (or "chair." Choose a site such that other children cannot overhear your individual interviews. Likewise, prevent communication about interviews. If you are not able to do so - please note the reason in a comment here -)

[Then, to each child, as he comes to you, say:]

How would you finish this sentence - "Some people prefer certain kinds of work because they like to....."

[In the list below, check or write in each separate reason given. If they stop as if finished, say "Any more?" until they say "No," or until they have mentioned seven separate reasons. If they cannot get started, give "work with my hands" as an example and count it if they accept it for themselves.]

___be outdoors
___be indoors
___draw pictures
___talk to people
___be by myself
___help people
___work with machines
___do things where I can move around
___work with my hands
___try new things
___make up songs
___build things
___collect things
___other (specify below)

_____
_____
_____

OBJECTIVES 3 - B - 4 & 3 - B - 5 (contd.)

Close your eyes. Statement 5: In 1982, there probably will be careers that don't exist now.

How many agree? _____*

How many disagree? _____

Close your eyes. Statement 6: All the careers which exist now will probably exist in 1982.

How many agree? _____

How many disagree? _____*

Close your eyes. Statement 7: After a teacher graduates from college he/she doesn't need any more training.

How many agree? _____

How many disagree? _____* to here (3-B-5)

OBJECTIVE 4 - A - 2 (contd)

[Then say:]

Now how would you finish these sentences -- "A job would be perfect for me if it let me do all of the kinds of things I like to do. I like to....."

[In the list above, circle each separate liking given. If any are mentioned which are not in the list - including the "write-ins" from the previous question, list them below]

_____ _____

_____ _____

_____ _____

Completed Objective 4-A-2

CHILD'S NAME	3/3	4/7	5/5	6/3	CHILD'S NAME	3/3	4/7	5/5	6/3
1.					11.				
2.					12.				
3.					13.				
4.					14.				
5.					15.				
6.					16.				
7.					17.				
8.					18.				
9.					19.				
10.					20.				
					TOTALS				

HWJohnson:p
2/10/72

GRADE 3

Teacher:

On the date under each objective, go down the column and check each child who has completed the objective named.

	-- 3 - C - 1 --								3 - C - 2			
	Can name and use tools and materials necessary to perform required classwork.				Takes care of and puts away tools & materials necessary to perform required classroom work.				Moves within school facility without supervision.			
CHILD'S NAME -- DATE	3/3	4/7	5/5	6/2	3/3	4/7	5/5	6/2	3/3	4/7	5/5	6/2
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												
TOTAL NUMBER												

GRADE 4

OBJECTIVE 4 - B - 1

[Teacher, tell the children:]

Take out a pencil and a piece of paper. Put your name at the top. Below your name, write the name of a job or career you have thought about as one you might like to work towards.

Then on the paper make a list of the good things -- the rewards and benefits that you would get if you went into that job or career. You will have ten minutes.

[Allow ten minutes. This is not a creative activity but an opportunity to report previous thinking. Then say:]

Now, after each good thing you have listed, write one of these terms [put on chalk board]:

very important to me

important to me

or unimportant to me

[Allow exactly five more minutes, and collect the papers.]

[Go through the papers and put a check mark at the top of each one which has items from at least <u>three</u> of the following eight types <u>and</u> "very important," "important," or "unimportant" after each of the three.]

[Then record here:]

Number of papers with checks _____

Number of papers without checks _____

HWJohnson:p
2/9/72

-- OBJECTIVES --

Teacher:

On each date under each objective, go down the column and check (✓) the names of children who have achieved the objective.

CHILD'S NAME -- DATE	3 - C - 3 Gives evidence of communicating with fellow students by speaking, listening and noticing some non-verbal messages.				3 - C - 5 Has evaluated competence in vocabulary studies.				3 - C - 6 Has made and followed for two weeks a schedule promoting good school performance.			
	3/3	4/7	5/5	6/2	3/3	4/7	5/5	6/2	3/3	4/7	5/5	6/2
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												
TOTAL NUMBER												

OBJECTIVE 4 - B - 1 (contd.)

Types of Benefits

1. money, or much money.
2. pleasure in the activities, themselves, including travel, meeting people, etal.
3. prestige: people thinking and saying nice things about the occupation, looking up to you.
4. pleasure in doing something important.
5. health, safety, security.
6. pleasure in following group or family tradition.
7. attractive working conditions or location, including outdoors, long vacations or other such benefits.
8. other

Number who achieved objective by:

3/3/72 _____

4/7/72 _____

5/5/72 _____

6/3/72 _____

OBJECTIVE 3 - C - 4

[Teacher, tell the class:]

For the next little while I want you all to work quietly and stay in your places until I call your name.

[Call each one aside individually and ask:]

1. Do you like to do number work?
2. Do some adults have to do number work in their jobs? When?
3. Do some adults have to talk to people and listen to people on their jobs? When?
4. Do some adults have to read and write on their jobs.? When?

[If child can give a valid answer to all of these questions, enter Objective 3-C-4 as achieved on the record sheet below.]

	CHILD'S NAME	OBJECTIVE 3 - C - 4 Relates basic skills of computation and communication to familiar occupations. DATE OF TRIAL #1	#2	#3		CHILD'S NAME	OBJECTIVE 3 - C - 4 Relates basic skills of computation and communication to familiar occupations. DATE OF TRIAL #1	#2	#3
1.					11.				
2.					12.				
3.					13.				
4.					14.				
5.					15.				
6.					16.				
7.					17.				
8.					18.				
9.					19.				
10.					20.				
						TOTALS			

OBJECTIVES 4 - B - 2 & 4 - B - 3

[Teacher, tell your class:]

Today I want to play a game with you. Sit facing me and listen carefully. I am going to read statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(Check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree.

Close your eyes. Statement 1: There are several different career possibilities for young people in this community.

How many agree?

How many disagree?

) Discuss until children agree.

Close your eyes. Statement 2: People in some of the careers produce, or will produce, services.

How many agree? _____*

How many disagree? _____

Close your eyes. Statement 3: People in some of the careers produce, or will produce, goods.

How many agree? _____*

How many disagree? _____

Close your eyes. Statement 4: People in some of the careers produce something else.

How many agree? _____

How many disagree? _____*

HWJohnson:p
2/9/72

OBJECTIVE 3 - C - 7

Teacher:

As each child completes his examination of the health & safety standards of an occupation, write the name of the occupation in the first empty column after his name. Objective is to examine three.

CHILD'S NAME	OCCUPATIONS 1.	2.	3.
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			

NUMBER WHO HAVE COMPLETED ALL THREE BY --

3/3/72 _____
4/7/72 _____
5/5/72 _____
6/2/72 _____

OBJECTIVES 4 - B - 2 & 4 - B - 3 (contd.)

Close your eyes. Statement 5: There are over a hundred career possibilities for young people in this community.

How many agree? _____* to here (4-B-2)

How many disagree? _____

Close your eyes. Statement 6: Some of you will probably have jobs by 1982.

How many agree?

How many disagree?

) Discuss until children agree.

Close your eyes. Statement 7: Some jobs that now exist will disappear by 1982.

How many agree? _____*

How many disagree? _____

Close your eyes. Statement 8: Some jobs that do not now exist will be open in 1982.

How many agree? _____*

How many disagree? _____

Close your eyes. Statement 9: Sometimes jobs are created because certain people need certain kinds of jobs.

How many agree? _____*

How many disagree? _____ to here (4-B-3)

HWJohnson:p
2/9/72

OBJECTIVE 3 - C - 8

[Teacher, tell the class:]

For the next several minutes, I want you to stay in your seats and work quietly until I call your name [Give necessary assignments, materials, trips to lavatory and pencil sharpener, etc.].

When I call your name, come to my desk (chair, etc.) and tell me what you have discovered about the qualifications needed for <u>one job</u>. You may bring a piece of paper with your notes on it if you like.

[As each child comes to your desk (chair, etc.) say:]

What job are you going to tell me about?....

All right. What are the qualifications needed by people in that job?

[If he/she has not already answered the following questions, ask each one.]

1. How old must a person be to get that kind of a job?
2. How many years of school must he/she have?
3. How much other education and training must he/she have?
4. What kinds of experience must he have? How much of each kind?
5. What tests or examinations must he pass, <u>besides</u> those in his school work and other education and training?
6. What other qualifications must he have?

[If student answers above questions to your satisfaction, write in the name of the job in the first empty column after his name on the next page.]

Number who have examined three jobs' qualifications by:

3/10/72 _____
4/14/72 _____
5/12/72 _____
6/10/72 _____

GRADE 4

OBJECTIVES 4 - C - 1 & 4 - C - 4 and record only for 4 - C - 2

[Teacher, say to class:]

For a little while now I want you all to stay in your seats and work quietly until I call your name. [Give them necessary assignments, materials, trips to lavatory and pencil sharpener, etc.]

[Call students to your desk--chair, etc.--individually and ask:]

1. Have you made anything lately out of paper, wood, metal, plastic, cloth, or other material? When? Where? What did you make?

2. Did you have to use arithmetic or other mathematics to make it? How?

[If Objective 4-C-1 has been achieved, check off his/her name on next page. Now ask:]

3. Now, imagine that you are an adult and you have that job. Tell me three ways in which that job might change. (If he/she speaks of losing the job or getting transferred or promoted or tells how he/she might change, repeat the question. If he/she mentions kinds of change from three or more of the following categories, mark Objective 4-C-4 as achieved by him/her on the Record Sheet attached. If he/she gives two ways from the same category, say "Those are almost the same. (4-C-4) Give me another way." Give him/her all the time he/she needs in order to answer or say "I don't know."]

A job may change by--

1. Becoming unnecessary.
2. Moving to a new location (new shop, new city, etc.).
3. Going onto new hours.
4. Requiring new skills (inc. using new equipment).
5. Dropping old skill requirements.
6. Adding more work (inc. responsibility, territory, etc.
7. Taking away some work.
8. Getting better pay, benefits and conditions.
9. Getting worse pay, benefits and conditions.
10. Working with different people.
11. Other.

OBJECTIVE 3 - C - 8 (contd)

Teacher:

---- JOB NUMBER ----

After student satisfactorily describes the qualifications needed by one job, name that job in the first empty column following his name.

Objective is to have examined three.

CHILD'S NAME	1.	2.	3.
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			

OBJECTIVES 4 - C - 1 & 4 - C - 4 (contd.)

CHILD'S NAME	4 - C - 1 Has utilized math knowledge to produce an item. (check)	4 - C - 2 Has analyzed the need for good communications skills. (check)	4 - C - 4 Has identified how a job may change. (check)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
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9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
TOTALS Number who have completed each objective by: 3/10/72			
4/14/72			
5/12/72			
6/10/72			

OBJECTIVES 3 - C - 9, 3 - C - 12 & 3 - C - 13

[Teacher, tell the class:]

For the next some time I want you to work quietly and stay in your places until I call your names. [Give them necessary assignments, materials, trips to lavatory and pencil sharpener, etc.] When I call your name, come to my desk (chair, etc.).

[To each child as he comes to your desk, say:]

1. Tell me the name of one job you have been learning about.

2. Now, imagine that you are an adult and you have that job. Tell me three ways in which that job might change. (If he/she speaks of losing the job or getting transferred or promoted or tells how he/she might change, repeat the question. If he/she mentions kinds of change from three or more of the following categories, mark Objective 3 - C - 9 as achieved by him/her on the Record Sheet attached. If he/she gives two ways from the same category, say "Those are almost the same. (3-C-9) Give me another way." Give him/her all the time he/she needs in order to answer or say "I don't know."]

A job may change by--

1. Becoming unnecessary.
2. Moving to a new location (new shop, new city, etc.).
3. Going onto new hours.
4. Requiring new skills (inc. using new equipment).
5. Dropping old skill requirements.
6. Adding more work (inc. responsibility, territory, etc.).
7. Taking away some work.
8. Getting better pay, benefits and conditions.
9. Getting worse pay, benefits and conditions.
10. Working with different people.
11. Other.

HWJohnson:p
2/16/72

OBJECTIVE 4 - C - 2 (Instructions only. Record with 4 - C - 1.)

[Teacher, say to the class:]

For the next little while I want you to work quietly and stay in your seats until I call your name [Give necessary assignments, materials, trips to lavatory and pencil sharpener, etc.]

[As each one comes to your desk, ask:]

1. What are the communication skills? [Discuss until you have made it clear it includes:]

reading,
writing,
speaking,
listening,
use of non-verbal messages (like frowns, gestures, tone of voice)

2. What do adults use communications skills for?.....Anything else?

[If, with one prompting, as indicated, he/she has made an answer suggesting two of the following three uses of communications skills, go on to the next item:

a. in his/her work
b. in being a well informed citizen (inc. reading newspaper, etc.)
c. in personal life (inc. human relations, pleasure reading, personal communication, hobbies, etc.)

[If he/she does mention uses suggesting two of the foregoing categories, for each of the two say:]

3. Tell me two or more ways he/she would use communciations skills for _____ [name whatever he named, using his terms.]

[If he/she can name at least two uses of communications skills for each of the two categories he has mentioned, check him off the Record Sheet as having achieved Objective 4-C-2. The record is on the Record Sheet for 4-C-1 and 4-C-4.]

[Then say:]

Now tell me all of the things you can think of which might help a person get that job....Can you think of any other things that might help?....

Now tell me all of the things that might help him do good work after he got the job....Can you think of anything else?

[On the Record Sheet attached, mark Objective 3 - C - 13 as achieved if he mentions two of the following types of factors for getting the job and two others for keeping it. If he/she has difficulty thinking of two factors for either getting the job or keeping it, ask, "What are some things that might keep him from getting the job?" or "What are some things that might get him fired?" Avoid this negative approach if not necessary.]

Types of Factors Affecting Getting or Keeping a Job

1. getting along with others
2. work habits
3. experience
4. training
5. native ability
6. health habits
7. other (specify) _____

HW.Johnson:p
2/16/72

OBJECTIVES 4 - C - 3, 4 - C - 5, 4 - C - 6 & 4 - C - 7

[Teacher, say to the class:]

Today I'd like to play a game with you. Sit facing me and listen carefully. I am going to read some statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise you hand if you do. How many disagree?

(Check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree.

Close your eyes. Statement 1: Some of the things you are learning now you will be able to use in your work as adults.

How many agree?

How many disagree?

) Discuss until all
) agree, at least by
) including out-of-school
) learning in "now."

Close your eyes. Statement 2: If three of you learn the same thing, you may use it in three different kinds of work.

How many agree? _____*

How many disagree? _____

Close your eyes. Statement 3: If one worker does a poor job, this usually makes it harder for the others he works with to do their best job.

How many agree? _____*

How many disagree? _____

HWJohnson:p
2/10/72

(contd.-3)

Teacher:

Under 3 - C - 9 & 3 - C - 13, record successes in interviews described on preceding pages.

Under 3 - C - 12, record analyses completed, in your judgment.

CHILD'S NAME	3 - C - 9 Has identified three different ways in which jobs can change. (Check or write a job title.)	3 - C - 12 Has analyzed contribution of each worker in-- (Check, or name business or industry.)	3 - C - 13 Has analyzed factors relating to attaining and maintaining job. (Check, or write in job title.)
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
NUMBER COMPLETING EACH OBJECTIVE BY --			
3/3/72.....			
4/7/72.....			
5/5/72.....			
6/9/72.....			

OBJECTIVES 4-C-3, 4-C-5, 4-C-6 & 4-C-7 (contd)

Close your eyes. Statement 4: Experience is no help in making a person's work better or faster.

How many agree? _____

How many disagree? _____*

Close your eyes. Statement 5: Usually, a healthy worker does a better job than an unhealthy worker.

How many agree? _____*

How many disagree? _____

HWJohnson:p
2/10/72

OBJECTIVES 3 - C - 10 & 3 - C - 11

[Teacher, tell your class:]

Today I want to play a game with you. Sit facing me and listen carefully. I am going to read some statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(Check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree.

Close your eyes. Statement 1: Sometimes two people have the same kind of job.

How many agree?

How many disagree?

Discuss until all agree.

Close your eyes. Statement 2: Sometimes people in different businesses have the same kind of job.

How many agree? _____*

How many disagree? _____

(3-C-10)

Now, listen to this story. Once there were five people who made all of the dishes used in a little kingdom. They were call "dish-makers." Every Monday, each dish maker went to a certain valley and dug up some clay and hauled it home. That was the hardest day in the week. On Tuesday and Wednesday they shaped the clay into different kinds of dishes. On Thursday they baked the dishes in big ovens and let them cool overnight. On Friday they painted the dishes and glazed them. Some of the dishes were pretty nice and some were not very good.

One Monday, out in Clay Valley, the dish-makers got to talking. They decided to get together and form a dish company. They built a factory in Clay Valley. One

1/27/72
HWJohnson:p

GRADE 5

Teacher:

During the week before the date for each column under Objectives 5-A-1 and 5-A-3, observe especially the criterion behaviors described for those objectives and then enter check marks on Friday.

-- OBJECTIVES --

5 - A - 1

Assumes responsibility for classroom jobs.

5 - A - 3

Has explored the interrelationship between attitude, ability, experiences, & performance.

CHILD'S NAME -- DATE	3/10	4/7	5/5	6/9	3/10	4/7	5/5	6/9
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								
18.								
19.								
20.								
TOTALS								

Date _____

OBJECTIVE 5 - A - 2

[Teacher, say to class:]

Please take a pencil and a piece of paper and write your name at the top.

[On the board or a large piece of paper write:]

I like to....

1.

2.

3.

Etc...

Some of your interests -- some of the things you like to do -- could be involved in your work, if you had the right job. On your piece of paper write "I like to.... and then make a list of the kinds of things you like to do (your interests). Be sure to number each item.

[Allow 5 minutes. Then say:]

At the top of your paper, just below your name, write the name of the kind of work you <u>now</u> think sounds most interesting to you. [Allow two minutes. Then say:]

Now, listen carefully. I want you to circle the <u>number</u> of every interest you have listed which would be served (used or satisfied to some extent) by the kind of work you have named.

[Allow two more minutes and then say:]

Now go back to your list of interests and <u>cross out</u> the numbers of the interests which would <u>not</u> be served by the kind of work you have named.

[Allow two minutes, then collect papers and record here _____ How many completed every step, so that every number is either circled or crossed out, _____How many did <u>not</u> complete every step.

2/4/72
HWJohnson:ib

GRADE 5

Teacher:

On each of the dates under 5-B-1, go down the column and check the children who have completed the objective.

The columns under 5-B-2 are for dates (see next page).

-- OBJECTIVES --

5 - B - 1

Has identified at least five occupations from at least three job families and noticed their interdependency with others.

5 - B - 2

Reported exploring an occupation on--

CHILD'S NAME --DATE	3/3	4/7	5/5	6/10					
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.									
14.									
15.									
16.									
17.									
18.									
19.									
20.									
TOTALS									

OBJECTIVE 5 - B - 2 [May be done a few children at a time.]

[Teacher, tell the class:]

For the next few minutes, I want you to stay in your seats and work quietly, until I call your name. [Give them necessary assignments, materials, trips to the lavatory and pencil sharpener, etc.]

[Then call them to your desk, one at a time and ask the five questions below. Be sure your words and manner show you accept all of his/her answers.]

1. What is one of the occupations you have explored? [If they seem to need a definition of "explored," use "thought about."
2. Could you go into that occupation and be happy in it?
3. How did you decide that?
4. What training would you need for that occupation?
5. Where did you get that information?

[If pupil answers <u>all five</u> questions satisfactorily - as described below - put the day's date after his name on the preceding sheet. Ask about as many occupations as you wish in each interview. <u>Five</u> occupations explored satisfies the requirements of the objective.]

Consider his answers to your five questions satisfactory if they convince you that he/she has

(1) identified careers with adequate clarity,

(2) has made a healthy, thoughtful decision about his own following those careers,

(3) has acquired a reasonable understanding -- for a ten-year-old -- of the job's training requirements,

and (4) has no urgent need for a new understanding which further exploration might yield,.....

OBJECTIVES 5 - B - 3 & 5 - B - 5

[Teacher, tell your class:]

Today I want to play a game with you. Sit facing me and listen carefully. I am going to read statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(Check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree.

Close your eyes. Statement 1: A hobby is not a "career" or "occupation.")
How many agree?) Discuss until all agree.
How many disagree?)

Close your eyes. Statement 2: A hobby may change into a "career."

How many agree? _____*

How many disagree? _____ (5-B-3)

Close your eyes. Statement 3: In 1982, some of you will be looking for jobs.)
How many agree?) Discuss until all agree.
How many disagree?)

Close your eyes. Statement 4: All of the careers that will exist in 1982 do exist now.

How many agree? _____

How many disagree? _____*

OBJECTIVES 5 - B - 3 & 5 - B - 5 (contd.)

Close your eyes. Statement 5: All of the careers which now exist will probably exist in 1982.

How many agree? _____

How many disagree? _____*

Close your eyes. Statement 6: After an auto mechanic becomes a journeyman mechanic, he will not need any more training in auto mechanics.

How many agree? _____

How many disagree? _____ * to here (5-B-5)

OBJECTIVES 5 - B - 4 & 5 - B - 6

[Teacher, tell the class:]

For the next little while, I want you to stay in your seats and work quietly until I call your name. [Give them necessary assignments, materials, trips to the lavatory and pencil sharpener, etc.]

[Then call them aside individually and ask:]

1. What is meant by contrasting job opportunities? Give me <u>two examples</u> of contrasting job opportunities. [On the attached sheet, enter one tally for each example, up to two, under 5-B-4.]
2. What is meant by similar job opportunities? Give me <u>two examples</u> of similar job opportunities. [Enter <u>one more</u> tally for each example, up to two. Four tallies means achieving Objective 5-B-4.]

[At this time, or at a later interview say:]

1. Name five different job families and, for each one, give one job as an example and tell me how it is different from all other jobs in the job family. [On the attached sheet, put <u>one</u> tally mark for each time student successfully
   a. names a new job family
   b. names one job in the family
   c. tells how that job is different from all other jobs in the family.

   When he/she has performed those three steps for five job families on one interview, you will have five tallies in one column under 5-B-6 and he/she will have achieved the objective.]

-- OBJECTIVES --

Teacher:

See instructions on previous page.

CHILD'S NAME	5 - B - 4 Has defined "contrasting job opportunities" and "similar job opportunities" and given two examples of each.			5 - B - 6 Has named five job families, named one job in each, and defined it.		
	First Try	Second Try	Third Try	First Try	Second Try	Third Try
1.						
2.						
3.						
4.						
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13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						

Number who have completed objective by:

3/10/72		
4/14/72		
5/12/72		
6/10/72		

HWJohnson:p
2/16/72

OBJECTIVE 5 - C - 1 (Instructions only. Record on next page.)

[Teacher, say to the class:]

For the next little while I want you to work quietly and stay in your seats until I call your name [Give necessary assignments, materials, trips to lavatory and pencil sharpener, etc.]

[As each one comes to your desk, ask:]

1. What are the communication skills? [Discuss until you have made it clear it includes:]

reading,
writing,
speaking,
listening,
use of non-verbal messages (like frowns, gestures, tone of voice)

2. What do adults use communications skills for?.....Anything else?

[If, with one prompting, as indicated, he/she has made an answer suggesting two of the following three uses of communications skills, go on to the next item:

a. in his/her work
b. in being a well informed citizen (inc. reading newspaper, etc.)
c. in personal life (inc. human relations, pleasure reading, personal communication, hobbies, etc.)

[If he/she <u>does</u> mention uses suggesting two of the foregoing categories, for each of the two say:]

3. Tell me two or more ways he/she would use communications skills for _____[name whatever he named, using his terms.]

[If he/she can name at least two uses of communications skills for <u>each</u> of the two categories he has mentioned, check him off the Record Sheet as having achieved Objective 5 - C - 1. The record sheet is on the next page.]

OBJECTIVE 5 - C - 1 (contd.)

CHILD'S NAME	Has analyzed the need for good communications skills. (check)
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	
17.	
18.	
19.	
20.	

Number who have achieved Objective 5-C-1 by:

3/10/72 _____
4/14/72 _____
5/12/72 _____
6/10/72 _____

HWJohnson:p
2/10/72

OBJECTIVES 5 - C - 2

[Teacher, say to your class:]

Today I want each of you to work alone and write something for me. So, take a piece of paper and write at the top your name, today's date, and the name of an occupation. Then, on the paper, list as many things as you can think of which a person must do, know, have, or be able to do in order to do a good job in that occupation. [On the board or large piece of paper write -- "a person must do--- know--- have--- be able to---"]

You may use one page of notes that you have made while studying that occupation. You will have fifteen minutes to finish the task.

[At the end of 15 minutes, collect the paper and record on the next page the occupations named by those who succeeded in naming attributes from three of the following six categories:

1. getting along with others
2. work habits
3. experience
4. training
5. inborn ability
6. health habits

HWJohnson:p
2/10/72

OBJECTIVE 5 - C - 2 (contd)

OCCUPATIONS

Teacher:
If child has given evidence of having examined an occupation for "attributes needed," as defined on the preceding page, write the name of the occupation in the first empty column after the child's name below.
Objective is to examine three occupations.

CHILD'S NAME	1.	2.	3.
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			

Number who have achieved objectivity:

3/10/72_____ 5/12/72_____
4/14/72_____ 6/10/72_____

OBJECTIVE 5 - C - 3

[Teacher, say to class:]

Now I want you to write something for me. So, take a piece of paper and write your name and today's date at the top.

Please do not use any references or get help from anyone for this task.

On the paper, write --

[Put on board or chart paper and read aloud:

"An industry would move it's plant or make a major change in its method of production if --"]

Below that, list as many reasons as you can think of. You will have ten minutes.

[At the end of 10 minutes collect the papers and count the number who have named causes from two or more of the following three categories:

1. lack of one or more raw materials.
2. shortage of workers who don't cost too much.
3. shortage of power which doesn't cost too much.]

_____ mentioned two or more of above types of causes on _____.
(number) (date)

OBJECTIVES 5 - C - 4

[Teacher, tell your class:]

Today I want to play a game with you. Sit facing me and listen carefully. I am going to read two statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree.

Close your eyes. Statement 1: Sometimes the same kind of job will be held by many different people.

How many agree?

How many disagree?

Discuss until all agree.

Close your eyes. Statement 2: Sometimes the same kind of job will be held by people in several different businesses.

How many agree? _____ *

How many disagree? _____

OBJECTIVE 5 - C - 5

[Teacher, say to class:]

Now I'd like each of you to work quietly in your place until I call your name. [Give necessary assignments, materials, trips to pencil sharpener and lavatory, etc.]

[Call them to your desk (chair, etc.) one by one and say:]

1. In or around almost every city or town there is at least one of these kinds of organizations serving the world, the nation, or at least a large region.

   [Show card saying:

   1. an industry which produces something.
   2. an industry which provides some kind of transportation.
   3. a business which buys and sells something to the world, nation or region.
   4. a seat of government where laws and legal decisions are made.
   5. an educational institution providing trained people.]

2. Which of these is around here? What does it provide?

   [Whatever his response, continue with:]

3. Does any one of these kinds of organizations have an effect on any other?

   [If he says "Yes," ask for an example. Then say:]

Give me another example. [Continue getting examples until he says he can think of no more or until he has shown relations involving all five kinds of organizations.

Avoid the question "Can you think of any more?" It suggests doubts, which discourage some.

If he gives examples involving all five kinds of organizations, check off his name below.]

OBJECTIVE 5 - C - 5 (contd.)

	CHILD'S NAME	Check (✓)		CHILD'S NAME	Check (✓)
1.			11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Number having completed objective 5-C-5 by:

3/10/72 _____

4/14/72 _____

5/12/72 _____

6/10/72 _____

OBJECTIVE 5 - C - 6

[Teacher, say to class:]

For the next little while, I'd like each of you to work quietly in your seat until I call your name. [Give necessary assignments, materials, trips to lavatory and pencil sharpener, etc.]

[Then call them to your desk - chair, etc. - one by one and say:]

1. What are the major steps in getting a job?..... Anything else?

[If with one prompting, as indicated, he/she gets all four of the steps listed below -- at least mentioning some aspect of each one -- go on to the second question. If he/she leaves out one or more steps, even after the prompting indicated, say "How about _____?", naming the step. Then send him back to his seat.]

Steps in getting a job:

1. Prepare and train
2. Apply
3. Interview
4. Satisfy entrance requirements.

2. What kinds of things determine whether you can do a job well enough to keep it? For example, your natural ability or talent would be one kind of thing. Name as many more as you can..... Any more?

[If, with the prompting and example indicated, he can name four or more, counting Number 1, check him off on the next page as having achieved the objective. If he mentions anything like "a depression," or "the company gets short of money," say "Name only things which determine how good a job you do." If, however, he says something like "The boss doesn't like me" or "I get into a fight with someone," count that under Number 6 -- getting along with others.]

1. Natural or inborn ability.
2. Training.
3. Experience.
4. Good work habits.
5. Good health habits (or good health).
6. Getting along with others.

OBJECTIVE 5 - C - 6 (contd.)

CHILD'S NAME	Has examined the process of (1) getting and (2) keeping a job (check).
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	
17.	
18.	
19.	
20.	

Number who have achieved Objective 5-C-6 by:

3/10/72 _____
4/14/72 _____
5/12/72 _____
6/10/72 _____

HWJohnson:p
1/27/72

GRADE 6

Teacher:

On the date under each objective, go down the column and check each child who has completed the objective named.

-- OBJECTIVES --

CHILD'S NAME -- DATE	6 - A - 1 Assumes responsibility for classroom & school jobs.				6 - A - 2 Analyzed personal interests and aptitudes.				6 - A - 3 Examined occupations with respect to interest & aptitudes (of self).			
	3/10	4/7	5/5	6/9	3/10	4/7	5/5	6/9	3/10	4/7	5/5	6/9
1.												
2.												
3.												
4.												
5.												
6.												
7.												
8.												
9.												
10.												
11.												
12.												
13.												
14.												
15.												
16.												
17.												
18.												
19.												
20.												
TOTAL NUMBER												

2/14/72
HWJohnson:ib

Date _____

GRADE 6 Total number present today _____

OBJECTIVES 6 - B - 1

[Teacher, tell your class:]

Today I want to play a game with you. Sit facing me and listen carefully. I am going to read statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(Check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree.

Close your eyes. Statement 1: In 1982, some of you may be engaged in adult occupations.

How many agree?
How many disagree?

Discuss until all agree.

Close your eyes. Statement 2: By 1982, some of today's occupations will have disappeared.

How many agree? _____*
How many disagree? _____

Close your eyes. Statement 3: By 1982, there will be occupations no one in the world has ever heard of.

How many agree? _____*
How many disagree? _____

Close your eyes. Statement 4: A person who has finished secretarial school, received a diploma, and secured a good job will not have to get any more training.

How many agree? _____
How many disagree? _____*

GRADE 6

Teacher:

The columns are for dates (see next page for instructions).

-- OBJECTIVES --

6 - B - 2

Reported exploring an occupation on--

CHILD'S NAME						
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
TOTALS						

OBJECTIVE 6 - B - 2 (contd)

[Teacher, tell the class:]

For the next few minutes, I want you to stay in your seats and work quietly, until I call your name. [Give them necessary assignments, materials, trips to the lavatory and pencil sharpener, etc.]

[Then call them to your desk, one at a time and ask the five questions below. Be sure your words and manner show you accept all of his/her answers.]

1. What is one of the occupations you have explored? [If they seem to need a definition of "explored," use "thought about."
2. Could you go into that occupation and be happy in it?
3. How did you decide that?
4. What training would you need for that occupation?
5. Where did you get that information?

[If pupil answers all five questions satisfactorily - as described below - put the day's date after his name on the preceding sheet. Ask about as many occupations as you wish in each interview. Ten occupations explored satisfies the requirements of the objective.]

Consider his answers to your five questions satisfactory if they convince you that he/she has

(1) identified careers with adequate clarity,

(2) has made a healthy, thoughtful decision about his own following those careers,

(3) has acquired a reasonable understanding -- for an eleven-year-old -- of the job's training requirements,

and (4) has no urgent need for a new understanding which further exploration might yield,.....

Date _____

OBJECTIVE 6 - C - 1

[Teacher, tell the class:]

For the next several minutes, I want you to stay in your seats and work quietly until I call your name [Give necessary assignments, materials, trips to lavatory and pencil sharpener, etc.].

When I call your name, come to my desk (chair, etc.) and tell me what you have discovered about the qualifications needed for <u>one job</u>. You may bring a piece of paper with your notes on it if you like.

[As each child comes to your desk (chair, etc.) say:]

What job are you going to tell me about?....

Allright. What are the qualifications needed by people in that job?

[If he/she has not already answered the following questions, ask each one.]

1. How old must a person be to get that kind of a job?
2. How many years of school must he/she have?
3. How much other education and training must he/she have?
4. What kinds of experience must he have? How much of each kind?
5. What tests or examinations must he pass, <u>besides</u> those in his school work and other education and training?
6. What other qualifications must he have?

[If student answers above questions to your satisfaction, write in the name of the job in the first empty column after his name on the next page.]

OBJECTIVE 6 - C - 1 (contd.)

---- JOB NUMBER ----

Teacher:

After student satisfactorily describes the qualifications needed by one job, name that job in the first empty column following his name.

Objective is to have examined five.

CHILD'S NAME	1.	2.	3.	4.	5.
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					

Date _____

OBJECTIVES 6 - C - 2, 6 - C - 3 & 6 - C - 8

[Teacher, tell your class:]

Today I want to play a game with you. Sit facing me and listen carefully. I am going to read some statements. If you agree with what I say, raise your hand. Let's do one that doesn't count first, just for fun. Here's a statement.

"Dogs are nicer than cats."

How many agree? Raise your hand if you do. How many disagree?

(Check for apparent understanding.)

Before I read the other statements, close your eyes very tightly, listen to the statement, and raise your hand if you agree.

Close your eyes. Statement 1: When doctors talk to other doctors about their work and their tools and equipment, they use words most people don't understand.

How many agree?

How many disagree?

Discuss until all agree.

Close your eyes. Statement 2: The occupation of medicine has a vocabulary of its own.

How many agree?

How many disagree?

Discuss until all agree.

Close your eyes. Statement 3: Most occupations do not have vocabularies of their own.

How many agree? _____

How many disagree? _____

Close your eyes. Statement 4: Personality traits are ways of dealing with other people.

How many agree?

How many disagree?

Discuss until they accept this definition of "personality traits."*

* If necessary, resolve it by saying "this is how the term is used in the next few statements."

OBJECTIVES 6 - C - 2, 6 - C - 3 & 6 - C - 8 (contd.)

Close your eyes. Statement 5: Personality traits are more important to doing a good job in some occupations than in others.

How many agree? _____

How many disagree _____

Close your eyes. Statement 6: Personality traits are not very important in most occupations.

How many agree? _____

How many disagree? _____

Close your eyes. Statement 7: Usually when a person takes a new job, like clerking in a store, he learns a lot he didn't know before.

How many agree?

How many disagree?

Discuss until most agree.

Close your eyes. Statement 8: Most jobs are simpler than they seem.

How many agree? _____

How many disagree? _____

OBJECTIVE 6 - C = 4

[Teacher, tell class:]

For a little while now I want you to work quietly without coming to my desk (chair, etc.) unless I call your name.

[Call them to your desk one at a time and say:]

1. What occupation have you been studying recently?
2. What basic tools and equipment are needed in that occupation?
3. Is that a complete list or a partial list of basic tools?
4. Where did you get that information?

[If he/she gives answers to all of these questions which you consider adequate, enter the name of the occupation in the first empty column after his/her name. The objective is three occupations.]

OBJECTIVE 6 - C - 4 (contd.)

Teacher:

See preceding page for instructions.	-- OCCUPATION -- #1	#2	#3
CHILD'S NAME			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			

Number who have satisfactorily described tools and equipment for three occupations by:

3/10/72 _____

4/14/72 _____

5/12/72 _____

6/10/72 _____

OBJECTIVE 6 - C - 6

Teacher:

Have children help you assemble and display around the room a variety of tools, each with (1) a label - giving its common name and (2) a small piece of work on which the tool may be used.

Examples:

a. a screwdriver, with a card beside it saying "screwdriver" and 2 pieces of wood with holes drilled and a few wood screws of appropriate size which can be used to screw the pieces of wood together. Screwdriver can also be used for taking apart boards screwed together, of course.

b. a pair of pliers, a card saying "pair of pliers" and a piece of wire which can be cut with the pliers.

Tell the class:

I want you today to examine and use some of the tools around the room and help others to get acquainted with some of these tools. First, make yourself a record sheet and then I'll tell you the rules for this activity.

For your record sheet, take a piece of paper and put your name and today's date at the top. Then divide the sheet of paper into four columns and head them like this [Illustrate on board or chart paper]:

Tool	Examined	Used	Witnessed
1.			
2.			
3.			
4.			
5.			

[When everyone is ready, continue:]

The rules of the activity are very simple. I'll read them to you and then you may ask questions.

ACTIVITY RULES

Rule 1. Examine and use as many tools as you have time for today, working with a partner.

Rule 2. With <u>each tool</u>, work with a <u>different partner</u>.

Be sure not to make your partner feel bad if he or she doesn't know much about the tool he is examining or using. You examine and use <u>one</u> tool, your partner examines and uses a <u>different</u> tool, and then you find a <u>different partner</u>.

Rule 3. <u>Do not tell</u> your partner what tool you want to use. <u>Describe</u> the tool, <u>without using</u> the words on the labels. If your partner can guess which tool you have described, he or she should write the name of the tool on your record sheet and put a check mark (√) under "Examined."

Rule 4. After you have used the tool and your partner has watched you, he or she should put a check mark under "Used" on your record sheet and sign his or her name under "Witnessed." Write as neatly and carefully as you can and handle your partner's record sheet very carefully.

Rule 5. Put the tool, and the piece of work back exactly as you found them - or even more neatly arranged. If your partner does <u>not</u> put things back as he found them - or better - <u>do not mark or sign</u> his paper as "Used."

OBJECTIVE 6 - C - 6 (contd.-3)

Teacher:

Collect record sheets and check off below all who have examined and used five or more tools.

	CHILD'S NAME	Has examined and used five or more tools.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

Number who have completed objective by:

3/10/72 _____
4/14/72 _____
5/12/72 _____
6/10/72 _____

OBJECTIVES 6 - C - 5 & 6 - C - 7

Teacher:

You may wish to enter a date or a check mark (✓) as each student completes each of these objectives. In any case, each month (on the dates indicated*) bring these records up to date by checking off the objectives completed.

CHILD'S NAME	6 - C - 5 Has integrated computation skills and design capabilities with production skills.	6 - C - 7 Has used and put away AV equipment properly.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		
18.		
19.		
20.		

* 3/10/72
4/14/72
5/12/72
6/10/72

VT 015 124

COMMITTED TO
ACTION TO
CATALYZE
VOCATIONAL
EDUCATION

CALIFORNIA ADVISORY COUNCIL ON VOCATIONAL EDUCATION
AND TECHNICAL TRAINING
1500 5th St. SACRAMENTO, CALIFORNIA 95814 (916) 445-0698

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SECOND ANNUAL REPORT OF THE CALIFORNIA ADVISORY COUNCIL ON VOCATIONAL EDUCATION AND TECHNICAL TRAINING

NOVEMBER, 1971

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"COMMITTED TO ACTION TO CATALYZE VOCATIONAL EDUCATION"

CALIFORNIA ADVISORY COUNCIL ON VOCATIONAL EDUCATION AND TECHNICAL TRAINING
1500 5TH ST. SACRAMENTO, CALIFORNIA 95814 PHONE: (916) 445-0698

ROBERT WASHINGTON, CHAIRMAN KARL KOLB, EXECUTIVE DIRECTOR

December 1, 1971

TO: President of the State Board of Education
Chairman of the Board of Governors of the
California Community Colleges

FROM: California Advisory Council on Vocational Education
and Technical Training

SUBJECT: Annual Report

In accordance with Section 102.23(d) Federal Rules and Regulations for the Vocational Education Act of 1963, as amended by the Vocational Education Amendments of 1968, the California Advisory Council on Vocational Education herewith submits its Second Annual Report of its evaluation of vocational education in California.

The Council invites attention to the statutory requirement that this report is to be submitted to the U. S. Commissioner of Education and to the National Advisory Council on Vocational Education through the State Board of Education accompanied by such additional comments of the State Board as the State Board deems appropriate.

This report is submitted with the sincere belief that implementation of its recommendations will result in significant benefits in education and employability for the students of California, and the Council urges both boards to give it their thoughtful attention.

Sincerely,

Robert E. Washington
Chairman

REW:jk

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SUMMARY OF RECOMMENDATIONS

RECOMMENDATION #1: That the California State Plan for Vocational Education be developed with goals, objectives and priorities stated in measurable terms and provide for the development of local district plans that also identify goals, objectives and priorities in measurable terms.

RECOMMENDATION #2: That the State Board of Education and the Board of Governors for the Community Colleges develop a reporting system which will provide information by which progress toward these goals and objectives can be measured at the state and local levels.

RECOMMENDATION #3: That the California State Plan for Vocational Education provide for increased attention to vocational education for the disadvantaged and the handicapped encouraging school districts to combine efforts as appropriate to increase the effectiveness of the limited available resources, and for recording and evaluating the extent to which progress is achieved in serving the educational needs of these persons.

RECOMMENDATION #4: That the State Board of Education, the Board of Governors for the Community Colleges and all educational agencies provide positive leadership and support to area or regional planning and coordination of vocational education.

RECOMMENDATION #5: That the Department of Education with the cooperation of the Department of Human Resources Development develop data sources or procedures for securing manpower projections and for relating these to vocational education output, including the impact of private vocational schools, business and industrial training and military training.

INTRODUCTION

Fiscal year 1970-71 constitutes the basis for this second annual evaluation report using the goals suggested by the ad hoc committee of state council representatives.

The Council made reference in its first annual report to four general areas of vocational education which were of interest to its membership: 1) Funding and Organization; 2) Guidance and Counseling; 3) Teacher Education; and 4) Vocational Education Programs. Four special reports[1] were published and distributed by the Council which provided information and recommendations related to these general areas.

Certain conditions were encountered which made the preparation of a concise evaluation report difficult and consequently this report is more general than the Council desired. These conditions included the lack of availability of accumulated data until beyond the report deadline; differences in reporting systems in use by State Department of Education and the Office of the Chancellor of the Community Colleges; requirements of recent federal and state legislation; the new "entitlement system" for distribution of VEA funds in California; and earmarked funds for special programs for "disadvantaged" and "handicapped."

[1] See p. 18 regarding these and other publications of the Council.

The Council again wishes to call attention to the fact that the California State Plan for Vocational Education is essentially a contract with the U.S. Office of Education concerned primarily with the administration of vocational and technical education. It is not a plan for determining educational programs and services, establishing goals and priorities, or assessing the progress being made in achieving such goals except by implications inherent in the administrative policies and in budgetary provisions.

GOAL I. AN EVALUATION OF THE GOALS AND PRIORITIES AS SET FORTH IN THE STATE PLAN FOR VOCATIONAL EDUCATION

It seems appropriate to determine first if the stated goals and priorities in the California State Plan for Vocational Education are realistic and attainable in terms of the Vocational Education Amendments of 1968 (P.L. 90-576).

It must be recognized that the State Plan was prepared in conformity with detailed "guidelines" of the U.S. Office of Education, applicable State and Federal laws, and the rules and regulations of the State Board of Education and the Board of Governors for the California Community Colleges.

The State Plan is essentially an administrative manual without measurable goals and priorities, however, there are in it implications for goals and priorities to be determined by each school district in preparing its required annual and long range plans. These plans will reflect differences in taxable wealth, and in social, economic, and cultural conditions.

Without measurable statewide goals and priorities no realistic evaluation of the success or failure of the total statewide effort can be made and the search

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for educational goals and priorities must be directed to the individual school districts and the extent to which the plans required for their "entitlements" were carried out. Such information on a statewide basis is not yet available. It may become available when the school district financial claim forms and performance reports are submitted to the State Department of Education.

Even though the goals and priorities are not in measurable terms it is important to determine the extent to which the implied goals of the State Board of Education and the Board of Governors of the Community Colleges in the State Plan were achieved.

There are a number of accomplishments which indicate that some progress may be made in the further development of vocational education and technical training in California:

Financial Entitlements. The present procedure for assisting local school districts with federal funds under an "entitlement system" rather than on an individual project basis is a significant departure from previous practice. The system is being independently evaluated after a little more than two years of experience with a report expected before the end of calendar year 1971.

In connection with financing, the Council was disappointed at the lack of commitment to vocational

education shown by the administrative elimination of the only entry in the 1970-71 state budget specifically identified for vocational education. That item for approximately $800,000 was reduced to about half by the executive branch in budget trimming and the other half was removed by the Legislature. The Council recommended restoration of the funds in its report "A Brief Review of Some Aspects of the Funding Program in California - Vocational Education" (Janaury, 1971).

Area Planning. The importance of area or regional planning for vocational education programs, considered by the Council to be of major importance, has been mandated by state legislation (AB 1820, 1969) which called for the creation of not more than 15 planning areas in the state. Four are currently functioning on a test basis with Planning Committees composed of professional educators and lay persons.

Articulation Model. The Legislature in ACR 128 (1969) requested the Council to make a "study of the feasibility of (a) a statewide Career Ladder transferrable curriculum from the high school level through the community college level and, (b) statewide Career Ladder guidance and counseling from the high school level through the community college level both with the aims of curbing high school droupout rates and capturing the ambitions of youth."

The Council made the proposed study[2] and reported favorably on the idea, recommending the development of Career preparation and urging implementation of AB 1331 (1970) which would provide for individualized instruction and full integration of vocational education with the regular curriculum.

Professional Development. Of significance is the provision in the State Plan for "Professional Improvement."[3] Earmarked funds are provided for this purpose by PL-90-576, Title II, generally referred to as the Education Professions Development Act. The Council review of this provision[4] points out its significant implications and lists 31 current professional development projects, 19 of which have been approved and 12 which are being reviewed (all now operational). Progress reports on these projects are not yet available.

The State Plan, under "Duties of the Supporting Professional State Board Staff", lists more than 40 duties and responsibilities the majority of which are directly or indirectly related to local school district planning and maintenance of vocational education programs. It

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[2]Feasibility Study of Career Ladder Curriculum and Guidance and Counseling."

[3]California State Plan for Vocational Education, Part I, p. 26, Section 1.4.

[4]"A Review of the Education Professions Development Act in California." July, 1971.

may be said, therefore, that goals and priorities of vocational education in California are determined by local school districts with the assistance and supervision of the state educational agencies.

The year-end school district claims for financial reimbursements together with data regarding the educational programs and services that were actually maintained will constitute the primary sources of data for assessing the progress and evaluating the accomplishments of the statewide program of vocational education.

CONCLUSIONS. The State Plan does not include measurable statewide goals and priorities, but progress has been made during fiscal year 1970-1971 in achieving the implied goals and priorities in vocational education. Area planning, curriculum articulation, professional personnel development, and curriculum development have been promoted. In the absence of data these conclusions were reached mainly by interviews and conferences with state and school district personnel, impressions of Council members, and comments by miscellaneous lay persons.

RECOMMENDATION #1. That the California State Plan for Vocational Education be developed with goals, objectives and priorities stated in measurable terms and provide for the development of local district plans that also identify goals, objectives and priorities in measurable terms.

RECOMMENDATION #2. That the State Board of Education and the Board of Governors for the Community Colleges develop a reporting system which will provide information by which progress toward these goals and objectives can be measured at the state and local levels.

Another question relates to the degree to which the State Plan provides educational opportunities for all persons who are interested in or can profit from vocational education programs, especially those students who are identified as "disadvantaged" or "handicapped."

Disadvantaged persons, as defined in the State Plan, are those who live in economically depressed areas where the incidence of unemployment and school dropouts is especially high. A portion (15%) of the available federal funds is earmarked for educational services designed especially for such students. Fragmentary reports and incidental information indicate that these programs have lagged far behind their potential. According to the State Plan approximately $3,585,000 was budgeted for this purpose in 1970-1971, however, educational programs and services for disadvantaged persons have not been provided to the extent needed. Data regarding these educational activities, programs and enrollments are inadequate to permit a reliable evaluation.

Handicapped persons are also the subject of special concern in the State Plan. In this instance there are cooperative arrangements between the Vocational Education Section, State Department of Education and the Division of Special Schools and Services in the State Department of Rehabilitation. Data regarding the nature and extent of the services provided by these agencies are not available.

A portion (10%) of the available federal funds is earmarked for educational programs and services for the handicapped. A total of $2,390,000 was budgeted for this purpose and consultant services were provided to assist local educational agencies in planning educational services. Some students were enrolled and assisted in regular school classes and others were enrolled in special programs designed for them. The estimated enrollments in these programs are far from the estimated potential enrollments.

RECOMMENDATION #3. That the California State Plan for Vocational Education provide for increased attention to vocational education for the disadvantaged and the handicapped encouraging school districts to combine efforts as appropriate to increase the effectiveness of the limited available resources, and for recording and evaluating the extent to which progress is achieved in serving the educational needs of these persons.

A further question arises in reference to the State Plan concerning its suitability, that is, is it sufficiently

flexible to permit vocational education programs and services to meet effectively the needs of people and the manpower needs of the State?

The 1968 Amendments in Section 101, envisioned programs of vocational education for "persons of all ages in all communities of the State" which are of high quality, readily accessible, and realistic in light of actual or anticipated employment opportunities and which are "suited to their needs, interests, and ability to benefit from such training."

Employment opportunities as well as student needs and characteristics vary greatly among the regions of the State. The State Legislature has supported the idea of regional education planning and the State Plan included administrative provisions for planning and maintaining regional occupational centers and programs. A Council study[5] lists 26 regional city and county occupational centers and programs but points out that they are less popular among educators than community colleges because the regional occupational activities tend to attract adults primarily and require additional funds.

It appears that presently the administrative provisions of the State Plan are adequate to provide educational opportunities for all persons "suited to their needs, interests, and ability to profit from such training."

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[5]Assessment of the Current Status of Regional Occupational Centers and Regional Occupational Programs." January, 1971.

The principal limiting factors are available financial resources and the local school district's ability and resourcefulness in planning and administering appropriate vocational education and technical training programs and services.

RECOMMENDATION #4. That the State Board of Education, the Board of Governors for the Community Colleges and all educational agencies provide positive leadership and support to area or regional planning and coordination of vocational education.

All vocational education and technical training must be realistic in terms of present or potential manpower needs. The Department of Human Resources Development (DHRD) is the federally funded state agency specifically charged with the responsibility for making continuous reviews and appraisals of manpower needs.

General and special trade advisory committess have been used extensively in local school districts for planning and maintaining vocational education programs. Represented on such committees are local leaders in business and industry, labor organizations, civic organizations, DHRD, and other civic, state, or professional organizations.

Since great demographic and other differences prevail among the various regions of the State, it is essential for realistic local educational planning, and especially for regional planning, that all information available be utilized. The State Plan for FY 1970-1971 did not include

private postsecondary vocational education output, nor were industrial in-plant training and military training output data tabulated in the Plan. The absence of such data makes manpower forecasting, planning and training unrealistic.

CONCLUSIONS. On the basis of information received by the Council, it appears that manpower data available are not adequate for effective planning and that additional data from the private sector and the military should be included in the State Plan.

RECOMMENDATION #5. That the Department of Education with the cooperation of the Department of Human Resources Development develop data sources or procedures for securing manpower projections and for relating these to vocational education output, including the impact of private vocational schools, business and industrial training and military training.

GOAL II. AN EVALUATION OF THE EFFECTIVENESS WITH WHICH PEOPLE AND THEIR NEEDS ARE SERVED.

AVAILABILITY OF DATA. As previously stated, the State agency responsible for data regarding employment opportunities and manpower needs is the Department of Human Resources Development (DHRD). Much information is available but it seems that this information is not always in its most usable form for purposes of educational planning.

It is encouraging to report that data gathering systems which will permit more meaningful manpower studies for educational planning are currently being developed cooperatively by the DHRD and the State Department of Education as a pilot project.

Considerable manpower information is available to school districts through the local or regional offices of DHRD. Local trade and vocational advisory committees have traditionally provided useful information and advice on a local basis. What seems to be needed is better coordination between the educational agencies, DHRD, and other informed groups. It may be that the Cooperative Area Manpower Planning System (CAMPS), another federally supported activity, will provide an important contribution to this end.

The vocational education planning areas created by AB 1820 (1969) appear to be a step in the direction of more effective manpower information and educational planning. The Veysey Bill (AB 2364, 1967) authorizing the use of community college vocational facilities by high school students appears to be a useful and reasonable element in the promotion and development of regional or area vocational programs.

Private Schools. It is interesting and somewhat surprising to note that no information regarding the contribution being made by private and independent schools

in meeting the manpower needs of the State is presently available. The State Plan makes provisions for private school students, under certain conditions, to attend vocational classes in public schools. No information regarding such enrollments is currently available. AB 1820 (1968) previously referred to, provides for private school representation on the area planning committees and charges these committees to include coordination and articulation between the various levels of education in each of the areas.

COORDINATION AND ARTICULATION OF TRAINING PROGRAMS.

In contrast to the task of coordination and articulation of vocational programs between the school grade levels, there are instances in the operation of Regional Occupation Centers and Regional Occupational Programs which exhibit definite efforts at coordination and articulation.

The "Career Ladder" program may receive additional impetus from the "articulation model" referred to previously. There is also some evidence provided by individual educators that some degree of articulation between secondary, postsecondary, and adult or continuation classes is taking place in a few districts but much more needs to be done to avoid unnecessary duplication of effort and to encourage the establishment of needed programs.

EMPLOYER NEEDS. The extent to which employer needs are considered in vocational program planning is difficult

to determine. It seems that school district trade and vocational advisory committees are effective in keeping the school district informed about employer needs. The further development of area planning committees in connection with the planning areas created by the Legislature should prove to be effective in determining employer needs.

JOB PLACEMENTS. Attempts at securing employment for trainees upon completion of vocational education programs are made in several ways. Some schools now maintain job placement services for students seeking part-time or full-time employment with more effort being made for those who are enrolled in or who are completing vocational education programs. The DHRD also maintains an employment service as one of its major functions. That agency is directly involved also in the referral for training and in the placement of graduates in a number of training programs. Greater effort by schools and other agencies and better coordination between the several agencies engaged in the training and placement of students in jobs are needed.

INVOLVEMENT OF VOCATIONAL EDUCATION IN MANPOWER DEVELOPMENT. There is no coordinated manpower development program in California. Rather, the manpower development effort is fragmented under numerous completely separate efforts. Vocational education has an important role to play

in the manpower development activities of the State since it provides the major share of the trained persons for job placement, but finds itself without reliable directions as to priorities of effort due to the lack of coordinated manpower planning. Consequently, vocational education continues to rely upon localized priorities and doing what it's always done. Reports from DHRD and SDE, though incomplete, show approximately 375,000 job placements for 1970-71 which were projected for vocational education. This amounts to about 98% of all job placements but still over 500,000 short of the total need. Private schools probably provide in excess of 100,000 employees annually. It is obviously imperative that more reliable statistics on manpower be provided and that manpower development programs be brought into a coordinated plan which will provide those statistics, including especially public and private schools. It is hoped that the current DHRD/ SDE attempt to provide a data system, previously referred to, will be of significant help.

EXTENT OF VOCATIONAL EDUCATION OPPORTUNITIES. One frequently hears the complaint by educators that the opportunities for vocational education are numerous but people too often will not take advantage of them. Nevertheless, there appear to be many areas in the State where such opportunities are limited or nonexistent, witness the current efforts to promote area planning, to establish regional occupational centers and programs, and to develop

integrated or articulated and coordinated programs of vocational education and technical training extending from the elementary schools through postsecondary programs. Community colleges, as revealed in their enrollment statistics, provide numerous classes in hundreds of occupations for adult and postsecondary vocational students. Statistics provided by the State Department of Education and the Office of the Chancellor of the Community Colleges indicate that there has been a general increase in the percentage of students enrolled in high school and community college classes.

VOCATIONAL EDUCATION AT THE ELEMENTARY SCHOOL LEVEL. Very limited efforts have been made to develop occupational awareness and orientation at the elementary school level. It is interesting and encouraging to note, however, that the State Department of Education has very recently established a "Career Education Task Force" which will be directly concerned with this problem and which will be occupied with the development of articulated programs of career education extending from kindergarten through community college classes. Career education, of course, includes vocational education as an important part.

CONCLUSIONS. There are significant experiments, studies, and educational activities presently being pursued which will tend to improve the effectiveness of vocational education programs and services in meeting the needs of people. The Council will be interested in observing the progress being made in these educational activities and will attempt to include in its next annual report an evaluation and/or recommendations regarding them.

GOAL III. AN EVALUATION OF THE EXTENT TO WHICH COUNCIL RECOMMENDATIONS HAVE BEEN CONSIDERED.

TO WHOM RECOMMENDATIONS WERE MADE. In addition to a "Report on The California State Plan for Vocational Education" (May, 1970) and the "Annual Evaluation Report for Fiscal Year 1969-1970, the Council has published the following reports during fiscal year 1970-1971:

1. A Brief Review of Some Aspects of the Funding Program in California - Vocational Education. January, 1971.

2. Assessment of the Current Status of Regional Occupational Centers and Regional Occupational Programs. January, 1971.

3. Feasibility Study of Career Ladder Curriculum and Guidance and Counseling. January, 1971.

4. A Review of the Education Professions Development Act in California. July, 1971.

These reports were submitted to the State Board of Education, the Board of Governors of the California Community Colleges, the Legislature, the National Advisory Council and the U.S. Office of Education. Recommendations in this report in some instances may reiterate recommendations in those reports.

ACTIONS TAKEN. Responses to the Council recommendations were not made individually at the time they were submitted but were responded to in a consolidated report prepared by the staffs of the State Board of Education and the Board of Governors of the Community Colleges. Those actions which were taken as a result of Council recommendations were included in the consolidated report.

Most of the recommendations resulted in informal discussions for the purpose of clarification and occasionally for the purpose of future consideration. It is anticipated that future reports by the State Board of Education, the Board of Governors for the Community Colleges, and the Joint Committee on Vocational Education representing those two boards will reveal what other actions have resulted.

Some recommendations have been acted upon or have influenced other action. The Legislature, for example, has accepted several Council recommendations modifying proposed legislation. Several other recommendations have been acted upon as follows:

1. Refinement of community college data gathering procedures resulted in a research project adopted by the Board of Governors.

2. A review and analysis of vocational fund allocations system is presently being made by the State Department of Education.

3. A desired list of definitions used in vocational education was fortunately made available almost simultaneously with the recommendation.

4. Whether or not by design the recommended "Career Ladder Curriculum", inspired by ACR 128, has been followed by the appointment of a Career Education Task Force by the State Department of Education.

REASONS FOR SUCCESSES AND FAILURES. It is too early to attempt to assign responsibilities or reasons for the success or failure to act upon all recommendations made by

the Council. For the past year or two the Council has been concerned largely with becoming acquainted with the purposes and functions of various state agencies and their personnel.

FOLLOW-THROUGH BEING MAINTAINED. Council efforts to follow through on its recommendations have been informal in nature. This situation will now take on a more formal aspect with passage and signature in October, 1971 of AB 576 which requires formal recognition and response to Council recommendations by the State Board of Education and the Board of Governors for the Community Colleges.

VT 015 215
STATE-WIDE MEETING ON VOCATIONAL EDUCATION IN AGRICULTURE IN THE "70'S".

MARYLAND UNIV., COLLEGE PARK. DEPT. OF AGRICULTURAL AND EXTENSION EDUCATION.
MARYLAND STATE DEPT. OF EDUCATION, BALTIMORE. DIV. OF VOCATIONAL AND TECHNICAL EDUCATION
MF AVAILABLE IN VT-ERIC SET.
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IDENTIFIERS - *MARYLAND

ABSTRACT - A STATE-WIDE MEETING ON VOCATIONAL EDUCATION IN AGRICULTURE IN MARYLAND WAS ATTENDED BY REPRESENTATIVES OF FARM ORGANIZATIONS, COUNTY AND STATE SCHOOL SYSTEMS, UNIVERSITIES OFFERING AGRICULTURAL EDUCATION, AND OTHERS INVOLVED IN AGRICULTURE AND IN EDUCATION. THE PROGRAM FOR THE MEETING INCLUDED PRESENTATIONS, REPORTS OF DISCUSSION GROUPS, REACTION PANEL, AND EVALUATION. PRINCIPAL RECOMMENDATIONS OF THE REPRESENTATIVES WERE FOR INCREASED RECRUITING OF PROSPECTIVE TEACHERS FOR AGRICULTURE AND HORTICULTURE AND FOR MANDATORY VOCATIONAL ADVISORY COUNCILS FOR EACH COUNTY IN MARYLAND, WITH AGRICULTURAL ADVISORY COUNCILS AS EXTENSIONS OF THESE ORGANIZATIONS. (MF)

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STATE-WIDE MEETING ON VOCATIONAL EDUCATION IN AGRICULTURE IN THE "70'S"

March 2, 1971

Sponsored by

Division of Vocational and Technical Education
Maryland State Department of Education

Department of Agricultural and Extension Education
University of Maryland College Park, Maryland

VT015215

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INTRODUCTION

Vocational education in agriculture has been a long-time part of the schools of Maryland. The first vocational agriculture programs in the state began in 1909. Since that time, there has been constant change and modification in the programs. This change has come about by federal and state legislation and also from the practioners in the field. The most significant recent legislation concerning vocational education are the 1963 Vocational Education Act and the 1968 Amendments to the Vocational Education Act of 1963.

These acts specifically stated that there shall be systematic evaluation of vocational education. Evaluation has always been a part of a good educational program. However, systematic evaluation is a relatively recent innovation in vocational education. Evaluations of programs before the 1963 legislation often consisted of only numerical tabulations of enrollees and hours of instruction. The public is now demanding that educators do a more thorough job of evaluation.

People in the communities of Maryland are more aware of their responsibilities toward public education and vocational education. It is because of this concern that the March 2, 1971 state-wide Meeting on Vocational Education in Agriculture was called. A county Farm Bureau unit asked the question, "Why is there only one agriculture teacher to serve

the needs of our county?" This question caused Mr. Rankin Lusby, Executive Secretary of the Maryland Farm Bureau to ask the same question of the Maryland State Department of Education. Under the leadership and financial support of Mr. James L. Reid, Assistant State Superintendent for Vocational and Technical Education, and Mr. Glenn W. Lewis, Specialist in Agriculture, a committee was named to study this question and others pertaining to agriculture. Represented on this committee were Rankin Lusby, Executive Secretary, Maryland Farm Bureau; Herb Snyder, Master of the State Grange; O. O. Stivers, President, Maryland Council of Cooperatives; Reese Poffenbarger, President, Maryland Vocational Agriculture Teachers' Association; Dr. Paul Poffenberger, Associate Dean, College of Agriculture, University of Maryland; Dr. Clifford Nelson, Teacher Educator in Agriculture, University of Maryland; Gary Grossnickle, Vice President, Maryland FFA Association; and James Pope, Executive Secretary, Maryland FFA Association.

The committee looked at the current situation in vocational education in agriculture and felt that more individuals should be involved in these types of discussions. Out of this came the plans for the state-wide meeting that was held on March 2, 1971.

It was felt that people representing all of agriculture in the state should be involved as well as those representing

education. Therefore, efforts were made to have representatives of farm organizations, county and state school officials as well as representatives of the university branches offering education in agriculture. In addition, it was the consensus of the group that each person involved in this sort of meeting should be aware of the current situation in agricultural education in their respective counties. Plans were then made through each of the county school systems that visitations would be made at each of the agricultural departments by those planning to attend the meeting. During the month preceding the meeting almost every department in the state was visited by participants in the state-wide meeting with the county supervisor in charge of agricultural education.

There are 24 school systems in Maryland. The superintendent of schools and one other representative of the counties were invited to the meeting. In addition, the president of each county farm bureau as well as one other representative was invited. Representatives of other state-wide agricultural organizations were invited also. Department heads in the College of Agriculture of the College Park Campus as well as the Eastern Shore Branch were included.

The program for the meeting devoted a half-day to assessing the current situation in vocational education in agriculture while the afternoon was devoted to group activities.

A copy of the program is in the Appendix.

Approximately 165 people attended the one day meeting. Among state and national officials in attendance and taking part were:

Mr. H. Hunsicker, Program Officer for Agriculture, U. S. Office of Education
Mr. William Paul Gray, Executive Secretary National FFA
Dr. James A. Sensenbaugh, Superintendent of Schools, Maryland State Department of Education
Dr. Charles E. Bishop, Chancellor, University of Maryland
Mr. George C. Fry, Regent, University of Maryland
Mr. Ross V. Smith, State Board of Education
Mr. Willard Oakley, President, Maryland Farm Bureau
Mr. J. Herbert Snyder, Master, Maryland State Grange
Mr. Ronald L. Johnson, Maryland Agricultural Commission
Mr. Max Jobe, Executive Secretary, Maryland State Advisory Council on Vocational-Technical Education
Dr. Frank L. Bentz, Jr., Vice President for Agricultural Affairs, University of Maryland
Dr. Gordon Cairns, Dean, College of Agriculture, University of Maryland
Dr. Paul R. Poffenberger, Associate Dean, College of Agriculture, University of Maryland
Mr. James L. Reid, Assistant Superintendent for Vocational and Technical Education, State Department of Education

OUTCOMES OF THE MEETING

The results of the meeting were several in number but perhaps most important there was a greater awareness by people in the state about the dynamic nature of vocational education in agriculture. Education officials were made aware of the heavy support given to agricultural education by the rural groups and agricultural organizations. The University of Maryland's commitment to vocational agriculture was strongly demonstrated. In addition more county-wide commitment to agricultural programs was generated. One county supervisor said that the meeting was very good but the most valuable think of all was getting local school patrons into the agriculture departments and the schools.

The group felt that additional efforts should be made to recruit prospective teachers for agriculture and horticulture. There has been considerable opportunity for growth in program offerings state-wide but it has been held up for a lack of teachers. Efforts should be made to increase the numbers of teachers in counties where there is currently only one or two. This is an insufficient number to serve the agricultural needs of any county.

Advisory groups should be mandatory for every agricultural program in the state. The Assistant Superintendent for Vocational Education of the State of Maryland stated

that all counties will be expected to have county-wide vocational advisory councils in the near future and that agricultural advisory councils should be an extension of these groups.

The 1971 Vocational Agriculture Teachers' Conference spent considerable time going over the recommendations of the state-wide meeting. One small group developed Maryland guidelines for working with advisory councils. A less measurable but still evident outcome of the state-wide meeting and agriculture conference has been improvement of morale among professionals in vocational agriculture. A meeting of this sort has some real dangers. However the chances for reward and progress far outweighted the possible problems for the people in Maryland. It was so successful that other groups are considering similar gatherings for their service areas.

POPULATION, RESOURCES, MIGRATION AND JOBS*

Dr. Phillips Foster, Professor
Department of Agricultural and Resource Economics
University of Maryland

I am delighted to have an opportunity to talk with you about population and how it relates to the quality of our lives, especially through its impact on resources, migration and jobs.

Times change. And what you can talk about in public changes. When I was a student at the University I entered a public speaking contest. I brought my completed speech to the speech coach. He looked it over and told me I couldn't give it. It was a speech on the world population problem. I thought it was a good speech. But since "establishment" wouldn't let me give it, I went home and wrote a speech on "Monetary and Fiscal Policy." I lost the contest.

Well, things have changed and I am delighted to be able to be with you to discuss this topic. Today, we do a lot of talking and thinking about population. In fact, the third most important magazine in North America, in terms of circulation, recently carried an article by Dr. Paul Ehrlich, the leading proponent of population control in our country. Population is a popular topic today.

Population Growth

Why are people so worried about too rapid population growth now? They did not used to be. In fact, during the middle ages, when a good deal of our present population policies originated, policy makers were justifiably concerned that population was not growing fast enough. The population of Europe actually declined by one-third between 1300 and 1350![1] There was a valid concern for developing policies which would stimulate population growth. But today's population is growing much faster than population grew in the past.

*Prepared by Dr. Foster after presentation.

[1]Slichter Van Bath, Agrarian History of Western Europe, A.D. 500-1850, (London: Edward Arnold, Ltd., 1966), p. 9.

Some people think we could run out of space. If we wait long enough we will. "In 6,200 years," a U.S. Congressional committee was told, "the present rate of world population growth would produce a mass of human flesh whose radius would be expanding as rapidly as the speed of light."[1] And some people think we are already running out of space around the North American cities.

The present world population is growing at the rate of 2 percent a year. Many Latin American countries are growing faster than this (Table 1).

Population Growth and Natural Resources

Some people worry about population growth because the world seems to be running out of raw materials. Running out of natural resources is a problem, but there is also a problem of pollution generated by increased resource use. You might appreciate what one of our more famous humorists had to say on pollution about this time last year. His article was called, "And God Saw It was Good," Then Mankind Took Over...

> IN THE BEGINNING God created Man, which according to all the latest birth control statistics was a big mistake.
>
> And God said, "Let there be light," and there was light, and Man called this light, fire, and at first it was used to warm him and let him cook his food, and protect him from the wild animals. But then Man discovered you could use fire to burn a forest or burn someone else's hut or tree house, or a witch at a stake, or soft coal or oil, which makes the air turn dark gray and black. And this made Man start to cough and his eyes to run and his sinuses to hurt. And Man finally said, "God, what are you doing to me?"

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[1] Ben J. Wattenberg with Richard M. Scammon, "Our Population The Statistics Explosion," The Reporter, March 25, 1965, p. 40.

> And after God made the rivers and lakes and streams and oceans, Man dumped all the refuse from the earth into the waters and it killed the fish and the plants and even used up the oxygen, and the waters turned muddy and brown, and smelled and no one could drink from them or bathe in them, or even sail in them, and finally Man shook his fist at the heavens and said, "For God's sake, knock it off!"[1]

So, as we use up some of our resources (like coal), we pollute and make less usable or even unusable other resources (like water and air). And with economic growth, the problem of pollution of such vital resources as land and water and air will get harder to solve, not easier to solve.

In North America our average productivity per worker increases about three percent per year. So even with no change at all in labor force, we can expect our output to go on rising in the future by some three percent per year. What does output mean?

--It means electric power produced--and smoke produced.

--It means cans and bottles produced.

--It means steel produced--and unless something is done about it, water and air polluted.

--It means paper produced--with the same result as for steel.

--And so on and on.[2]

Now let's look at what the law of compound interest does to us on pollution. In 1958 (just over 12 years ago) United States Gross National Product (GNP) was $447 billion. In 1970, in constant dollars, it was $725 billion. That's an increase of nearly $300 Billion in tin cans, electric power, automobiles, paper, chemicals and all the rest.

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[1] Art Buchwald, Washington Post, April 21, 1970.

[2] Edwin L. Dale, Jr., "The Economics of Pollution," New York Times Magazine, April 19, 1970, p. 27.

TABLE 1

POPULATION GROWTH DATA SHEET, LATIN AMERICA, 1970

Region or Country	Births per 1000 Population	Deaths per 1000 Population	Current Rate of Population Growth	Population Under 15 Years (Percent)
World	34	14	2.0	37
NORTHERN AMERICA	18	9	1.1	30
Canada	18	7	1.7	33
United States	18	10	1.0	30
LATIN AMERICA	38	9	2.9	42
MIDDLE AMERICA	43	9	3.4	46
Costa Rica	45	8	3.8	48
El Salvador	48	13	3.4	45
Guatemala	46	16	2.9	46
Honduras	49	16	3.4	51
Mexico	44	10	3.4	46
Nicaragua	47	16	3.0	48
Panama	42	10	3.3	43
CARIBBEAN	35	11	2.2	40
Barbados	20	9	0.8	38
Cuba	28	8	1.9	37
Dominican Republic	48	15	3.4	47
Guadeloupe	32	8	3.4	47
Haiti	45	20	2.5	42
Jamaica	39	8	2.1	41
Martinique	30	7	2.0	42
Puerto Rico	25	6	1.4	39
Trinidad and Tobago	30	8	1.8	43

TABLE 1
(continued)

Region or Country	Births per 1000 Population	Deaths per 1000 Population	Current Rate of Population Growth	Population Under 15 Years (Percent)
TROPICAL SOUTH AMERICA	39	9	3.0	43
Bolivia	44	20	2.4	44
Brazil	39	11	2.8	43
Colombia	44	11	3.4	47
Ecuador	47	13	3.4	48
Guyana	40	10	2.9	46
Peru	44	12	3.1	45
Venezuela	46	10	3.4	46
TEMPERATE SOUTH AMERICA	26	9	1.8	33
Argentina	22	8	1.5	29
Chile	34	11	2.3	40
Paraguay	45	12	3.4	45
Uruguay	24	9	1.2	28

Source: Population Reference Bureau, Washington, D.C.

Note: To get your country's annual population growth rate, you subtract the deaths per thousand from the births per thousand and move the decimal point to the left one place. To estimate the number of years it takes your country's population to double, divide 69 by the annual rate of growth of population.

So? So that wasn't the result of an unusually rapid growth rate. But in the previous 12 years (before 1958) our GNP has grown by only $100 billion. We were the same nation, growing at approximately the same rate. But in the first 12 years of this example, GNP rose $100 billion, and in the second 12 years it rose $300 billion.

And in the next 13 years it will probably rise more than $500 billion! That is a rise in GNP greater than the total GNP of 1958![1]

I fear this is not just a North American problem. Look at Table 2 and you will see that GNP in most Latin American countries is growing faster than in the United States. Last year I visited the beautiful cities of Santiago and Rio de Janerio and was surprised to find the air in these cities as bad as in Washington, D.C.

Some of our best thinkers are beginning to question what may happen to the biosphere of the earth if we succeed in our best efforts at economic development.

I would like to quote Lester Brown in a recent article in Scientific American,

> "There is growing doubt that the agricultural ecosystem will be able to accomodate both the anticipated increase of the human population to seven billion by the end of the century and the universal desire of the world's hungry for a better diet. The central question is no longer, "Can we produce enough food? but "What are the environmental consequences of attempting to do so?"[2]

Population Growth and Migration

During the eighteen hundreds (1800's) the Western Hemisphere was able to absorb on its farm land most of its expanding farm population as well as significant quantities

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[1] Edwin L. Dale, Jr., "The Economics of Pollution," New York Times Magazine, April 19, 1970, p. 40, numbers revised to match newer recent GNP estimates.

[2] Lester Brown, Scientific American, September, 1970, Vol. 223. No. 3, p. 170.

TABLE 2

GROSS NATIONAL PRODUCT GROWTH RATES, WESTERN HEMISPHERE, 1966-68

Region or Country	Arithmetic average of percent change of 1967-66 and 1968-67
NORTHERN AMERICA	
Canada	3.6
United States	3.8
MIDDLE AMERICA	
Costa Rica	6.5
El Salvador	4.4
Guatemala	4.3
Honduras	4.5
Mexico	6.8
Nicaragua	4.9
Panama	5.7
CARIBBEAN	
Dominican Republic	3.7
Jamaica	1.6
TROPICAL SOUTH AMERICA	
Bolivia	5.0
Brazil	6.0
Colombia	4.5
Ecuador	5.2
Peru	3.3
Venezuela	5.3
TEMPERATE SOUTH AMERICA	
Argentina	3.2
Chile	2.4
Paraguay	4.5
Uruguay	-2.3

Source: A.I.D. as quoted in New York Times Encyclopedic Almanac, 1970, p. 647.

of immigrants from Europe. But today the situation is different. Practically all of our best farm land is now being used for farms. We can absorb more labor in agriculture, if we have to, but the productivity of the extra laborers absorbed will be rather low.

It is the nature of production that, as you add more of an input such as labor, you get more output. But each successive unit of input gives you a little less output (Figure 1). We economists call the product produced by the last unit of labor the "marginal product" from labor. The marginal product from labor gets less and less as you use more and more labor (Figure 2). Some economists argue that in a labor surplus economy such as we typically find in the less developed world, the marginal product from farm labor approaches zero. Certainly the productivity of an extra man in agriculture in today's world is low.

Not only do economists think that marginal productivity of labor in agriculture is low--rural people seem to agree. For rural people are flocking to the city in ever increasing numbers. Look at the trend toward urbanization in the United States.

In Latin America the rush to the city may have begun later than it did here, but I fear it is proceeding even faster there. I understand you have a special name for the people who have come in from the countryside and have settled down in the suburban slums surrounding the large cities. You call these people "marginal population" or <u>pobulaciones marginales</u>. I like this term because it emphasizes the marginal nature of these people. In large measure, these marginal populations must be the result of population growth in an economy with diminishing marginal productivity from labor applied to agriculture.

But migration to the city doesn't necessarily produce the good life for these marginal populations. There just aren't that many city jobs. And increasingly, education is required for a good job.

Population Growth and Jobs

Our technology, especially our agricultural technology, has enabled us to hold a greatly increased population on this earth. Simultaneously, it has put a premium on education. No longer do we need vast supplies of uneducated, unskilled laborers. We need educated laborers. Getting and holding a job increasingly depends on education. Future supplies of

uneducated, unskilled laborers will be more of a liability than an asset!

Population Growth and Education

I would like to bring you some material from Mauritius, to help illustrate the relationship between population growth and education. Mauritius is a tiny island in the Indian Ocean. Mauritius is interesting to me because it has a rapidly growing population with statistics going back over a long period of time, for it is a former British colony. You may think you have heard of Mauritius. It was once famous because it was the home of the doto bird (now extinct). When you see the population statistics perhaps you will think Mauritius ought to be famous not as the home of the doto bird, but of the stork!

The wildly fluctuating death rate before 1947 is typical of a pre-industrial society, as is the modestly fluctuating birth rate. The death rate went sky high with the influenza epidemic just before 1920 and shot up again with the hurricane and economic depression in the early 30's, and again just after World War II. But then Mauritius' population did what so many populations have done recently. It underwent a baby boom at the same time health campaigns brought the number of deaths down to about 10 per thousand. The result was the population explosion.

During this baby boom, the family size in Mauritius has been much greater than in countries with a much slower population growth, such as the United Kingdom. Having large size families naturally leads to a population profile with a large number of people in the dependent children category.

The dependency load is very important when it comes to educating children. If the U. K. and Mauritius both had the same per capita income, which country would have the more difficult job of educating its children? Education and productivity in today's world relate to each other like a feedback loop in electronics. A good quality of education stimulates productivity of the people in the society, who in turn produce more real goods and services and thus can pay higher taxes to support a better quality of education for their children, and the loop is closed (Figure 3). But population growth acts as a squelch to this feedback loop. The heavier the load of children fed into the system (that is, the heavier the dependency burden), the poorer job of education the system can do, and the slower is the growth of the general level of education and therefore the slower is the growth in per capita

real income which slows still further the growth in quality of education. This is a very important relationship, and is evidently not well understood, perhaps because the analyzing of feedback loops (sometimes called systems analysis) is a fairly new science.

Population Growth and Capital Formation

I want to go back to the concept of resources for a minute to show one more relationship between population growth and the quality of human life. Let's talk about capital, which is such an important resource in economic development. The more capital, the more tools, a man has to work with, the more productive he can be, and the higher valued will be his job. A man who drives a truck to town with a load of farm produce is said to have a higher valued job (with more capital) than does a man (with less capital) who walks to town beside his produce-laden donkey.

Now the availability of capital per person is closely related to population growth. Let's say you live in a country where the ratio of capital to annual value of production (or output) is 3 to 1. If your gross national product (GNP) happens to be 100 then your capital stock will be 300. Let's also say that your current objective is to merely maintain per capita output.[1]

If your population does not grow at all during the year, then you don't have to hold back any current output to maintain the current capital output ratio of 3 to 1 and thus maintain a constant productivity per person.

But if your population grows 1 percent during the year, than you will have to hold back 3 percent of your current output as investment capital in order to maintain GNP per capita the same, for at the end of the year you will have to have an annual output rate of 101 (to take care of the 1 percent increase in population) and a capital stock of 303 to support the new population at the old 3 to 1 capital-output ratio (Table 3).

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[1] We will further assume that there is no depreciation, no change in technology and that the economy has a linear homogeneous production function in which production depends only on population and capital (i.e. our production function shows constant returns to scale).

TABLE 3

POPULATION GROWTH, CAPITAL FORMATION AND THE SAVINGS RATE
WITH A CAPITAL-OUTPUT RATIO OF THREE TO ONE

	Initial Situation	After One Year: If population doesn't grow at all	After One Year: If population grows 1%	After One Year: If population grows 3%
$ Capital	300	300	303	309
$ Output	100	100	101	103
Percent of current output (income) which must be held back (saved) to maintain present per capita income with present capital output ratio, of 3 to 1.[1]		0	3	9

[1]This analysis ignores depreciation and assumes no change in technology and a linear homogeneous production function for the economy in which production depends only on production and capital.

Source: Adapted from Ansley J. Coale and Edgar M. Hoover, Population Growth and Economic Development in Low-Income Countries, Princeton, Princeton University Press, 1958, Chapter III.

If your population grows at the annual rate of 3 percent, then you will have to hold back 9 percent of your current output to maintain per capital productivity, for at the end of the year you must produce income at the rate of 103 (with 3 percent more people). Three times 103 is 309, the amount of capital necessary for an output of 103, with a 3 to 1 capital-output ratio.

So you see, you can get a preliminary estimate of the amount of current output your economy must save just to make it possible to maintain per capital productivity. All you have to do is multiply your population growth rate by the capital-output ratio. (Taking account of depreciation would raise the figure, and allowing for increase in technology would lower the figure, so maybe this estimate is fairly close to the actual case.)

Conclusion

I am increasingly convinced that one of the most important things we can do to maintain and improve the quality of life on this earth is to embark on a vigorous, direct, frontal attack on population growth. Slowing down population growth rates, preferably to zero,

1. Will help us create the capital we need to make people more productive.

2. Will make it more likely that we will be able to provide the education our masses so desperately need in this age of technology--education which is becoming so critical to finding a good job in the modern job market.

3. Will reduce somewhat the pressure that migrating marginal populations put on our already overcrowded cities.

4. Will take some of the pressure off the dwindling natural resource base.

5. Will slow down the rate of increase in the pressure of pollution on the biosphere which maintains this very important animal we call mankind.

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MARYLAND'S IMPRESSIVE AGRICULTURE

Dr. John M. Curtis, Head
Department of Agricultural Economics
University of Maryland

Dr. Bentz mentioned some aspects of Maryland's agriculture. I'd like to talk very briefly about this thing we call agriculture. First we say this about agriculture as agriculturalists and those interested in agriculture. We say that agriculture is the basis for human survival, it ties in with ecology--food, clothing, and shelter. We say also that it does this for humanity. It gives us clean air. It is the green land for living.

And then when someone asks us what is agriculture, we start talking about a farm. This is a part of agriculture, but hasn't been a major part of agriculture for a long time. Farming and agriculture were synonymous in this country around 1800 when about 90 percent of our people lived in rural areas and on farms. It is no longer the major part of agriculture.

About 1850 we started to peel off things from this farm. First of all, we started to improve machinery and in-puts of all types and we began to specialize in the production of these things. Instead of generating our own horsepower, we bought it. We bought our fuel instead of growing it, etc. At the same time, we began to peel off marketing items. We no longer process on our farms to any extent. Other systems take over.

They assemble, they process, they distribute agricultural products. So what was once agriculture centered on the farm is now three basic parts. One is the supply in-put sector, where we purchase a major part of our in-puts going into the farm; the farm operation itself, and then the assembling, processing and distribution of products from the farm to the 69 or 70 percent of our people who live in the cities and the others in the rural areas who buy most of the food, fiber and forestry products. That is what I am talking about when I say agriculture.

We have broken down this thing into four phases. Now, most people who are in agriculture don't recognize what we are talking about and practically all of the 70 percent who live in cities and in urban areas don't recognize it. They are at least one or two generations away from this farm itself.

So we now call this thing an "agricultural complex" instead of agriculture. This is what I think you have to talk to students about and to people who make the laws in this country and those who make the regulations by which we live.

Primary production is the first phase. This is the actual farm operation, the fisheries operation and the forestry operation. In this primary production phase, we now have at the present time about 43,000 jobs (a little over 21,500

operate businesses--including farms); sales around $396,000,000; investment of 3.2 billion, which includes land. We think that by 1976 the number of jobs will be around 34,000, reduced to about 27,000 in 1986--primarily because of a reduction in the number of people working on farms in this state. The number of businesses will be reduced by 1976 to around 15,000 and by 1986 to around 12,000. This means you will have approximately 10,500 farms in this state by 1986. However, it is anticipated that sales will increase to about $470,000,000 in 1976 and $558,000,000 in 1986. The investment will increase to approximately 3.7 billion dollars in 1976 and 5.5 billion dollars in 1986 because of land appreciation and the addition of more sophisticated equipment, machinery, and buildings on the farms and in the fisheries and forestry operations.

Processing and Manufacturing

At the present time in processing and manufacturing related to agriculture we have approximately 59,000 jobs; about 1,000 businesses; 1.8 billion dollars in sales and investment just under 1 million dollars. By 1976 we think the number of jobs in this operation will be up to around 65,000 and 72,500 by 1986. The number of businesses will be reduced a little over 800 in 1976 to 650 in 1986. They will be larger, the management will be more sophisticated, and the bundle of resources will be large to handle the

flow of products--not only from this state--but from other states and other nations. Sales around 2.4 billion in 1970 and 3.2 billion by 1986. Investment 1.3 billion in 1976 and 1.7 billion in 1986.

Wholesale Trade

As you know, we could have processing and manufacturing, wholesale trade, and retail trade of farm products without producing a thing in Maryland. It is unlikely that this would be the case, but it could be. In fact, considerable part of the products that are handled by these organizations, not only today, but in the future, come from other states and other nations. We do not by any means produce all of the products that we process, that we wholesale or that we retail. However, a significant part of them are produced in Maryland and this will remain true in the future.

At the present time, around 13,500 jobs; 1200 businesses; sales 1.8 billion dollars; and investment of 201 million. These will increase. The number of jobs will increase to a little over 21,000 in 1986. Sales will increase to 2.3 billion by 1976 and around 3 billion in 1986. The number of businesses will increase to around 12000 and remain there through 1986. Investment will rise to around 350 million dollars in 1986. Again, as in farming, processing, and manufacturing, this is the section where we will have a slightly larger number of businesses. The businesses will be larger and they will have larger sales.

Retail Trade

Retail trade is the final phase in the total "agricultural complex" we are talking about. We do not include in these figures alcholic beverage sales, although you might well do that--especially beer sales. We did not because of conflicting reporting systems.

In retail operations in the state of Maryland, we now have around 63,000 people working in retail operations. This includes retail grocery stores, lumber yards, restaurants--all of those retail operations that handle agricultural products. Number of businesses 12.5 thousand; sales nearly 2 billion and 1 billion investment. We think by 1976 the number of jobs will increase to 79,000 and by 1986 to 97,000. The number of businesses will increase to 15,000 in 1976 and 18,000 in 1986. Sales will increase to 3.2 billion in 1986 and investment to 1.5 billion. In total, the combination of all of these operations in the state as of now have 178,000 jobs--that is about 15 percent of the total number of jobs in the state. The number of businesses total 32,000; investment 5.2. The income flow thrust, which is in essence the dollars generated directly and indirectly from this industry, is around 2.3 billion, which is a little over 14 percent of our state gross product--a very significant part of the economy of this state. By 1986, the number of jobs will increase to 199,000--12 percent of the total of the state.

The number of businesses will be reduced to about 24,000. The investment will increase from the current 5.2 billion to almost double--9 billion. The income flow generated by this industry will be about 4 billion--still around 12 percent of the state gross product. This is an industry that people relate to the on-farm operation. It is much larger. It provides in total more jobs than any other industry in this country. It provides around 15 percent of the jobs in this state, and people who are interested in the future would do well to look at the many career opportunities in what we call the "agricultural complex."

THE STATUS OF VOCATIONAL AGRICULTURAL EDUCATION

Glenn W. Lewis, Specialist in Agriculture
State Department of Education

I welcome you to our meeting. This is the first state-wide meeting held to discuss, evaluate and plan for a future program for vocational agricultural education in Maryland. I hope most of you have visited the Vo-Ag department in your county and have come ready to present your views.

Agricultural education has been in existence in our state since 1910. Prior to this date, history records that in 1909 at Sparks High School in Baltimore County the first program in Maryland and in the nation was started. One of its purposes and goals was to interest more boys in continuing their educational pursuits further into high school. Agricultural education started in the secondary schools officially in 1918 in our state--many times with poor facilities, meager equipment and few supplies.

Approximately $125,000 was provided by the Smith Hughes and George Bardon Act (Federal Government) to assist in promoting the program in the state of Maryland for the period of 1947-1963. This money was used to pay 90% of the summer salaries of teachers, 100% reimbursement of short term adult classes, 50% reimbursement of supervisor travel, 100% administrative payments and some payments to support the all day

programs where an agriculture teacher was employed full time. This money was ear tagged by law specifically for agricultural education.

Today agricultural education is involved with a different ball game. The Vocational Act of 1963 and the amendments to this act in 1968 removed the allotment of money specified for agricultural education and some other fields. This has obligated agriculture on a county basis rather than state-wide to compete for available federal and state funds. The allocation of funds to different vocational areas is now a county decision.

The new Vocational Act of 1963 specified that no vocational agricultural facility could be improved or built without the establishment of at least four other vocational offerings in the local school system. In areas such as Eastern Shore where there is 5% of the state's student population, this policy had a distinct negative effect upon the number of students taking agriculture.

Please do not mistake what I am saying. I realize that not all students should take agricultural education and the definite needs for many of the new offerings that are being provided. It was believed that under the Vocational Act of 1963 many students taking a general high school course would take a vocational subject to provide that student with salable work skills. In some counties, this has come to pass. In

others, the students have not changed from the general program as much as had been anticipated. Thus, some agricultural students moved into new vocational programs. This was particularly true of many black students who believed that their future was to be found in the areas of masonry, carpentry, and automobile mechanics or the trade skills.

Agricultural education in this state, according to the State Department of Education, is serving but 1% of the students in grades 9 through 12. Approximately 550 students are graduated each year to serve the agricultural needs of this state. In 1968, a survey showed that approximately 26% of the vo-ag graduates go to college, 17% go to the armed services, 35% are placed in production agriculture, 36% employed in agricultural occupations and services, and 22% employed in other occupations. The occupational survey indicated that total employment rate of our graduates over a period of three years varied from 95 to 99%.

We are quite pleased with this record since usually only 16-17% of this age students are unemployed. The educational format that we are proposing for the agricultural education program is as follows:

	1st Semester		2nd Semester
Grade 9		Basic Applied Agricultural Science	
	Animal Science	Agricultural Shops Skills*	Plant Science
	1. Careers 2. Leadership 3. Record Keeping		Agronomy & Vegetable Production
Grade 10		Agricultural Shops Skills*	
	Animal Management		

* Agricultural Shop Skills should utilize 40% of the year's program.

	School Year	School Year
	Production Agriculture Program	Agricultural Business Program
Grade 11**	Agricultural Occupations	Agricultural Occupations
	Agricultural Mechanics	Elective Business Subjects
Grade 12**	Agricultural Economics and Management	Agricultural Economics and Management
	Agricultural Mechanics	Elective Business Subjects

** In Grades 11 and 12, vocational agriculture students interested in attending an agricultural college should be encouraged to elect academic preparatory subjects and select agriculture as an elective when scheduling permits.

Agricultural Post-secondary School Education and Agricultural Technical Training for Adults and Out-of-School Youth.

Advantages of this format:

1. Permits student flexibility in scheduling programs.

2. Permits academic students to take portion of vo-ag courses.

3. Covers the areas of applied animal-plant science, plant-animal production, ag-business and economics and ag-mechanics.

4. Permits the student to prepare for life work by emphasizing ag-business efforts in the junior-senior year.

5. Permits an entry into a program at the time students are interested in the applied sciences.

6. Develops a core approach to the applied sciences in grades 9-10 that will unveil the secrets of life and its environment.

7. Format covers the important areas of agriculture pertinent to developing a successful agriculture career.

8. Create broad base format for self-exploring in helping a student to locate the career of his choice.

9. This format forces a teacher to dilate his teaching course for students from semester to semester through providing a wide range of experience.

10. Provides for a vocational mix such as a business program for these students going into ag-business operations.

11. Provides for cognitive, psychomotes and affective objectives to be designed and developed in the lesson plans.

12. Includes twenty units that relate to the preservation of environment of our state.

Supervised Work Program

1. Production projects
2. Ag-business placement
3. On-farm placement
4. Agricultural work-study program
5. Improvement projects
6. Demonstrational plots
7. School farm placement
8. Ag-service placement

It should be realized that the effectiveness of the vocational agricultural education program is the responsibility of all the people in our state. The production of food and fiber is basic to living. The school administrator who controls the spending of funds can do much to make a program effective. Proper facilities, equipment, supplies, understanding of the goals and objectives of the program and the requirements for accomplishing a good program are essential elements.

To aid and assist our teachers in their efforts, the following items have been done:

1. Developed state-wide curriculum guidelines for vocational agricultural education.
2. Creation of teachers' contest and awards manual.
3. Assembling of 250 transparency masters for all agriculture departments.
4. Developed a students occupational experience record book that includes production ag, agbusiness, improvement and supplementary practices.

5. Established in-service training programs.

6. Operated annual state-wide teacher conferences and seminars.

7. Operated state-wide FFA youth conventions.

8. Operated state-wide judging contests.

9. Sent youth teams to all major events.

10. Worked continually with state, county educational officials to design and develop better programs.

11. Worked with agricultural agencies in programs such as Career Day programs, University of Maryland programs, etc.

FFA is an integral part of the Vo-Ag program. Some of its outstanding achievements this past year were:

1. Produced for the first time for our state, the national FFA public speaking winner.

2. Gold medal livestock judging team at national FFA contests event.

3. Two Maryland students received honors in the national proficiency awards.

4. First place livestock team at the Eastern States Exposition.

5. Second place team in Dairy Cattle Judging at Eastern States Exposition.

6. First place in Land Judging in Tri-State Land Judging Contest.

7. First place poultry team at the NEPPCO Contest held in Cleveland, Ohio.

These are a few of the achievements of our program, but perhaps the most important contribution FFA offers a

student is the creating of a doing situation involving group dynamics, decision making, youth leadership, and the opportunity to take part in an organization where officers and members control and direct the business on an adult level. It is inspiring to see the change in a student from when he enters the program in the beginning of the 9th grade to when he concludes his senior year. In connection with FFA, a state-wide magazine is printed three times a year and forwarded to all departments in the state. This publication shows trends and outstanding achievements of the various programs.

How can we develop a stronger Vo-Ag program? These are my recommendations:

1. Have a supply of well-trained agriculture teachers.
2. Provide twelve months employment with full compensation for Ag teachers where the load and program requires this amount of time.
3. Provide funds for mileage to enable the teachers to visit occupational experience programs.
4. Provide a teaching facility that is adequate to meet the needs of the areas of instruction.
5. Vo-Ag offerings should be available for students during all four years of high school. Limiting offerings to 2 or 3 years does away with student flexibility in exploring possible vocational and

professional directions.

6. Teachers should be aware as to the monies that has been appropriated for his program for a fiscal year in order for him to purchase supplies and equipment needed.
7. Facilities for agricultural education should be submitted to and approved by agriculture personnel aware of the needs of an agricultural program.
8. The program should become more involved in teaching the post high school individual.
9. FFA should continue to be considered an integral part of the agriculture program.
10. Teachers of Vo-Ag should realize that our program is a full-time job.
11. Beginning teachers should be advised to undertake graduate study when their administrators feel it is consistent with the duties of their programs.
12. Establishment of active local county advisory councils for agriculture should be continued. Agricultural businesses and services should also continue to consider employing student graduates from the program.

13. The state plan should reflect the true employment status of agricultural occupations. Current figures available are grossly inaccurate and misleading.
14. Parents and students should cooperatively and fully explore the employment opportunities in agriculture with the aid of the agriculture teacher.

In conclusion, I wish to summarize by saying vocational education in agriculture prepares students for a broad spectrum of employment. Its future and direction should be the concern of all people, since all people use our products. It should be remembered by all that vocational education in agriculture is the only systematic program the secondary school system of our state offers to serve the students' needs in this specialized vocational area and the fact that agriculture is more than farming.

Dr. Clifford L. Nelson
Associate Professor
Department of Agricultural & Extension Education

Mr. Lewis has already given you an overview of vocational education in agriculture in Maryland. As you can see, it is a dynamic viable program. Dr. Curtis and Dr. Foster have given you an overview of the impact of agriculture in the state. I will examine the program at the university level in Maryland, examine some trends I see that are developing in Maryland and the United States, and suggest some directions that might be explored for the future.

One of the critical problems in Maryland in recent years has been a lack of sufficient numbers of graduates trained to meet the changing needs in the field. Dr. Ralph Woodin of The Ohio State University has made a long-term study of the supply and demand for agricultural teachers in the United States. He found that there has been an increase of over 300 teaching positions in the U.S. since 1967; 35% of all agricultural teachers are now in multiple teacher departments. Remarkable growth has taken place in some states. Last year, for example, Ohio added 55 new teachers, Minnesota 42, Texas 23, and Florida 16.

The national figures showed that last August there was a need for 171 more agriculture teachers than were available. In August 1970, Maryland required 5 more teachers than

were available. The rule of thumb that has been followed in recent years for preparation of teachers is that each state needs to graduate approximately 10% of its total number of teachers to meet needs. In Maryland's situation this would mean there would need to be approximately 7 people graduated per year to fill normal requirements of the state. Last year the University of Maryland graduated one senior and the University of Maryland Eastern Shore graduated two. Only one of these individuals went into teaching. The other two were placed in other positions. Two years ago the University of Maryland at College Park only qualified 2 graduates and both entered teaching. This year, however, the picture looks a bit brighter. The University of Maryland expects to qualify 6, and the University of Maryland Eastern Shore expects to graduate 4. This will be the first time in recent memory when a sufficient supply of teachers has been available to meet the needs of the state.

What has the past lack of qualified teachers caused in Maryland? There has been a lack of expansion by schools that wish to make stronger programs available for their students. People with inadequate training have been employed to teach agriculture--some successful and others not so successful. In some cases, qualified men teaching agriculture were not considered for positions of more responsibility in the counties because there were no replacements available.

Another major problem caused by a lack of qualified teachers has been the difficulty of expanding programs into areas as yet unserved by vocational education in agriculture.

The current average age for agriculture and horticulture teachers in Maryland is 41 years. This is somewhat above the expected average and also points to the need of recruiting more younger people for agricultural education.

Even if trained, there is no assurance that these people will go into teaching agriculture. Only 51% of last year's graduates nationally went into agricultural teaching. Armed service obligations and other fields in agriculture take large numbers of graduates. A recent graduate of the University of Maryland College Park program received three offers from industry more lucrative than the teaching position he finally took. It seems the general education in agriculture and the training in working with people is highly desirable in fields other than teaching.

NEW DIRECTIONS

Vocational education in agriculture is changing drastically. As recently as eight years ago, it was limited by federal law to train for only establishment in farming. The Vocational Education Act of 1963 and the 1968 Amendments to this Act removed the bonds from the agricultural field. Maryland was a pioneer in developing new programs to meet

the changing needs of the people of the state. It is now estimated that approximately 2/3 of the enrollment in Maryland is in programs that, before the recent federal legislation, would not have been reimbursable or legal. The method for developing new programs has been identification of needs for a particular school or county and location of a teacher or teachers to conduct the program.

It is my observation that the most prominent current trends in the state are the following:

1. Offering of agricultural programs in junior high schools as pre-vocational training for high school programs in the same district. Last year 2 teachers and over 300 students were added in one area of Montgomery County alone. The course has been titled environmental agriculture.
2. Offering increasing numbers of horticulture courses in comprehensive high schools. The largest growth in enrollment has been in this area.
3. County vocational-technical school programs offering half-day programs in agricultural subjects. These programs have typically replaced agricultural offerings in the other high schools in the county and have cut back total enrollment in agriculture.

4. Rapidly increasing growth of agricultural programs in the more urban areas of the state.

5. Increasingly less emphasis on production areas of agriculture alone. Many schools are offering options where students might select one or two production agriculture courses such as animal science and plant science and concentrating the rest of their offerings in such areas as ornamental horticulture.

Some of the trends noted above are very encouraging while some are not so encouraging for the future of agriculture in the state. The most encouraging trend is the spread and the popularity of the urban agriculture and horticulture offerings. In one nearby urban school 50 to 70 students are turned away each year because of lack of space. Perhaps the least encouraging is the paucity of agricultural offerings in a county in a vocational-technical school. The half day schedule effectively keeps any student who might have aspirations for college from enrollment. Contrast this with the urban school just mentioned above where 8 have gone into post high school education in agriculture this year alone. The ideal would be where students still have a chance to take general agricultural and horticultural subjects in the high

schools that furnish the technical schools with enrollment and that technical school offerings in agriculture be more specialized to fit specific needs.

DIRECTIONS FOR THE FUTURE

Some developments are underway at the university level that might help to alleviate the shortage of teachers in the future. Programs are underway with various departments to allow students such as horticulture majors to qualify for teaching as well as completing requirements for the horticulture curriculum. This year we will qualify the first graduate of this program. There also is a possibility that the same type of agreement will be worked out with the conservation and natural resource curriculum of the university. Discussions are underway with departments offering subject matter courses for prospective teachers to strengthen preparation. There is also underway a study of the undergraduate curriculum to up-date requirements of undergraduates with the assistance of the Teacher Consultation Committee of the Maryland Vocational Agriculture Teachers' Association.

In order to better serve the needs of the people of Maryland, a long-term set of goals must be developed. There is going to be a continuing need for instruction in the area of agricultural production as the earlier presentations this morning stated. There will also be need for expanding opportunities for all of the young people of the state to

learn about the world around them and the contributions of plants and animals to their daily living. Specific training for agricultural occupations and skills will need to be vastly expanded. Adult and continuing education in agriculture will be needed in all areas of agriculture. The farm business management programs in Montgomery and Frederick Counties should be made available to all farmers in the state.

Perhaps the biggest need of all will be the increasing involvement of people with agricultural training in the area of environmental and ecological programs. There is no one person better qualified in the schools today to handle this area than the agricultural teacher.

POSSIBILITIES FOR ACTION

The following are things that I feel might be done to improve and develop agricultural education in the state.

1. Development of a state advisory council on agricultural education for the State Department of Education and the University of Maryland.
2. Development of an advisory council on vocational education in agriculture for each county in the state.
3. Consider strategies for including education in agriculture as general education for all students in the schools of Maryland.

4. Conduct an annual survey of available positions needing people with agricultural training in the state. This research is critical for educators and advisory councils to plan programs that will meet the needs of students and will give them opportunity for jobs after graduation.
5. Consider expansion of agricultural programs to feeder high schools where currently the only agricultural offering is in the county vocational technical school.
6. Encourage groups in each county to take an active and continuing interest in vocational education in agriculture.
7. Have the courage to drop those aspects of programs that are outdated and substitute new and emerging subject material where there is need.

GOALS AND OBJECTIVES OF EDUCATION IN MARYLAND AS SEEN BY THE STATE DEPARTMENT OF EDUCATION

Dr. James A. Sensenbaugh, Superintendent of Schools
Maryland State Department of Education

A point of similarity between Maryland vocational agriculture and the work that the Maryland State Department of Education does generally is the emphasis on evaluation. Let us not delude ourselves of public involvement and evaluation. They are isolated one from another. The emphasis on evaluation is a response to the pressing question: Are people getting their money's worth from the public schools? I strongly suspect that there are some programs where we find that the answer is negative. So be it. Programs are introduced to meet needs. Needs change. When that happens, no matter how well the program is accomplishing what it was originally set out to do, it is a dead branch that must be identified, cut off and destroyed.

Our emphasis on evaluation and efforts in accountability leads to yet another guidepost. It is public economy. The interest that the public is taking in our programs and in our operations does not necessarily mean that it will react in a negative way to our request for funds. We have the evidence of a well organized and deeply dedicated band of parents and professionals in the case of special education. Their efforts have resulted in substantial increase in funds for special

education from the federal government and from the state. The kind of success they have had would have been impossible without dedicated volunteers among the public. I think, though, in the future we educators are going to have to present a much better case for fresh funds than we have in the past. Moreover, the indications that education costs are going to go up sharply over the next few years, in spite of the most rigid economy on our part, suggest increasing public resistance to the size of the bill we will present. We are going to have to watch the spending of every dollar. We are going to have to do a careful value analysis of every program, and it may well be that we are going to have defer action towards some of our goals and objectives.

We see painful budget cuts for education on the local level and on the state level. That is bad news for vocational agriculture and bad news for public education generally. But it is a fact I think we are going to have to come to grips with. It strikes me that the fiscal cloud may have a silver lining. If we have really made up our minds that certain new programs are terribly important, we are just going to have to find the resources, in both people and funds, to get them moving and that means reordering our priorities. These kinds of actions make some people feel uncomfortable because it jolts them out of the warm grove of the familiar.

When I speak of a silver lining, I hope you will not consider that I am simply whistling in the dark. We need to modify our programs as public needs change. I am suggesting nothing more than a reevaluation of public needs and a modification of educational programs to meet those changing needs. We are prone to ask, but slow to eliminate. Why shouldn't we stop, take stock and reorient the resources we have in different directions?

I might say that vocational agriculture is no stranger to the problem of changing public needs or meeting the challenge these changes present. It is an unfortunate fact that so many of the public are unaware of the new face of vocational agriculture. The great boom from the farm to the city has practically depopulated some rural areas. The economics that make it possible for one man with science at his disposal to produce many times what his hard working grandfather produced means to some people that vocational agriculture is the vestige of the dead past. Of course, they are wrong.

The new complexity of agriculture has introduced the need for agricultural specialists and the schools have responded to that need by modifying their programs. Today's vocational agriculture student may be headed for a career in conservation, in food processing, in grading, in horticulture, in farm machinery maintenance and repair, in retailing land and livestock, in farm production, or in any number of other special

tasks associated with the planting, growing, processing, transportation, or sale of foods for the tables of America.

The new public emphasis on the improvement of our environment found vocational agriculture well ahead of the field. Instead of adapting to new needs, it was ready with long established programs to meet them. Vocational agriculture has been in the ecology business for a long time with such concerns as contour farming, farm ponds, water pollution, and general conservation practices.

In the 30's when I was principal of a school in Baltimore County, I well remember Mr. Fred Bull gave me a set of beautiful charts on conservation for my science teaching. When you count back that is well over 30 years ago. Other problems associated with changing public needs are sometimes a little more subtle than those of vocational agriculture, but one can't help wishing that some of those other areas were as neatly attuned to public needs as vocational agriculture.

I began this short talk by discussing some of the ways in which your programs of public education generally are similar and I have let myself get into a discussion of the common problems we face. This may seem a long way from the title of the talk, "Goals and Objectives," but there is a close connection. Problems are obstacles that can make our goals more difficult to achieve.

The school systems most interested in vocational agriculture have not had the troubles of their urban counterparts of militancy--that is, militant teachers, students, and parents--but you will have problems with them. And with them I fear the problems of student drug abuse, the problems of school discipline and polarized parent groups. These kinds of problems, if they come, are going to wreck progress towards some of our goals. I suggest that those of you students, faculty, administration and friends of the schools that wish to minimize this trouble familiarize yourselves with the techniques that have been found to work best elsewhere.

This is just the beginning of discussion, so I wanted to give to you some of the kinds of things we are thinking about.

In five years from now, we would expect that 70 percent of all the 15 year old students in school would have a knowledge of the basic requirements of the work in and the educational preparation required for entry into major occupational fields. And then one year later we would expect 50 percent of all these 16 year old students would have selected either a family of occupations or a specific career goal as a guide to educational concentration in later school experience--in other words, by the time he has picked out the occupational field he wants to enter.

Our next goal would be that 80 percent of all students completing the secondary school program and planning to enter the school job market will be employed at the entry level in their selected occupation.

Another would be that 90 percent of all who entered employment remain continuously employed in an occupation of their choice after six months with no more than two changes of employment.

Why don't we say 100 percent in all of these. Well even soap says 99.44 percent pure, so we can't expect that everybody is going to achieve everything. We want to pick out some realistic goals that we ought to expect the schools of Maryland to achieve. We will be working towards a realization of these objectives. That means not only will we attempt to line up the enthusiasm of students, school professionals, school board members, and the community behind these objectives, but we will offer the educational leadership needed -- we will also work to solve the problems of general public support, of adequate funding, of obstacles within and without the school community. We may be delayed in the attainment of these objectives. We may be forced into contest with other people whose priorities differ from ours. But we will get where we want to go if our destination is in the best interest of our clients. The secret of success is maximum feasible service to the youth of Maryland in what we are trying to

shoot for is maximum feasible service to the youth of Maryland. Nobody has all the answers, but some have found answers to minimize the impact of disruption.

In recent months we have been giving a great deal of thought to what we call the objectives of the State Department of Education. Our executive staff has met many times over these objectives. We have gotten opinions from board members, local people and others and we have individually given them many hours of thought. I am sure our objectives speak to vocational education as directly as they are intended to speak to all school activities. We have set up 11 general big objectives and there are still 10 of these that we are working on. I'm not going to bore you with reading these 11 objectives, but there are several that relate directly to vocational agriculture.

The first one I want to mention is this: "To ensure that each student completing his elementary and secondary school program is prepared to continue his education or to meet the requirements of the job market in a field consistent with his interest and ability." That strikes directly at vocational agriculture or any vocational program.

Another one I think of significance is this: "To assure that each student completing the elementary and secondary school program will exhibit positive attitudes toward and can demonstrate knowledge and skills related to home management, consumer economics, and family relationships."

Another one I think is very real to the vocational field is: "To ensure that each student completing his elementary and secondary school program exhibits a positive attitude toward and demonstrates a knowledge of established safety principles, concepts and practices."

These three relate more to vocational education than some of the others.

How are we going to achieve this matter of being sure that each student who finishes high school is going to be prepared for a career or to continue his education? Will we have worked out what we think are six specific goals that we ought to try to achieve in the next five years? This is just a beginning of discussion, so I wanted to give you some of the things we are thinking about.

I hope that as you continue your conference and your work in the days ahead that you will think in terms of some of the things we are trying to achieve and that we will have success.

Dr. Charles E. Bishop
Chancellor, University of Maryland

Mr. Reid didn't tell you that I have a degree in Vo-Ag and that is what I started out to do and what I did during the early days of my career, so I am particularly pleased to have the opportunity to come here and speak to you briefly. I did want to get to know you a bit and I shall make a few brief comments.

My theme would be this: "That our nation has long recognized that its people are an important part of its wealth." It is not fully understood the means by which this wealth can be enhanced. I suspect that when we look back in the course of history to what happened during the 1960's and when we unravel all the legislation that was passed and the new programs that were developed, we will conclude that perhaps the most significant public policies adopted during the 1960's were concerned with enhancing the nation through development of its people--investing in its people.

We see this in many new programs that evolved not only at the federal level, but for the first time very significant programs in human resource development at the state and county levels. We took a comprehensive view, I think, for the first time in the 1960's.

Now, why is the value of the human resource increasing in our society? First, I think it is increasing because of

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We will be working towards a realization of these objectives. That means not only will we attempt to line up the enthusiasm of students, school professionals, school board members, and the community behind these objectives, but we will offer the educational leadership needed. We will also work to solve the problems of general public support, of adequate funding, of obstacles within and without the school community. We may be delayed in the attainment of these objectives. We may be forced into contest with other people whose priorities differ from ours, but we will get where we want to go if our destination is in the best interest of our clients. The secret of success and what we are trying to

the nature of this society and the significant role that technological development plays in the growth and development of our society. We have had a rapid accumulation of capital that has been put to work in the ever more productive forms so that we need more people to operate the machines, to do the work today, than we did 15 or 20 years ago. These machines, in turn, increased the productivity of the human being. We have seen this manifested in a growing demand for more highly skilled manpower and we have seen the people who possessed lower skills falling further and further behind.

As this emphasis upon skills and new knowledge has come to fore, we have begun to recognize that this nation has a widespread effect upon the value of its people through deliberate forms of investment in education and training. Now it is hard to separate out when we eat a meal what part of it is consumption for personal enjoyment and what part of it represents a form of investment in enhancing our productivity. In like manner, it is difficult to separate out that part of education which goes into making us more productive and that part which helps to contribute to our well being as citizens. I would say that a good deal if not most of vocational education represents a form of investment in the human resource to make us more productive in that which we do. The skills and knowledge we have today are forms of capital that are largely the product of deliberate investments made by us--made by us in ourselves and made by our society in us. These take many forms

of liberal general education but as I mentioned, vocational education, on the job training, health care, housing, nutrition and all the other programs that we have come to know as being interrelated with the productivity of the human being represent a form of investment in the human resource.

Now I want to close by making just two or three points. Although the economic value in the productivity of the human resource in our society is increasing, it is clear that access to education and training determines to a large extent who shall participate in this rising factor. Many people living in rural areas do not have access to the same kinds of investments in education and training that are available to people in other parts of our society. Moreover, in the past people living in rural areas were regarded as needing less education or needing education of a different kind than people in other areas. Today we are challenging those assumptions. Because we have learned that as the returns from education and training have increased, the costs of failing to obtain education and training have also increased. Today, failure to complete secondary school education precludes employment in most occupations. The costs to the individuals who do not complete educational programs is the income that they might have received had they completed those programs--these costs are rising rapidly. They shall continue to rise in the future. In like manner, the

costs of inferior education obtained through poor schools or poor curricula are rising rapidly. When people are denied the opportunity to obtain an education or training that is consistent with their particular abilities, their potential as human resources is unrealized and society itself loses the benefits that it might have reaped from that investment.

In earlier times we were inclined to assume that those who go to school in rural areas would work only in farming. Young men and women living in rural areas now need and obtain vocational education that is agriculturally oriented but that is relevant to a much wider range of employment opportunities than farming itself. Vocational education has been and continues to be reoriented. Because our society is the kind of society it is and it is characterized by vast and rapid technological improvements, it will be necessary to make a continuing evaluation of our vocational education in the years ahead. However, we must not close the doors to rural youth by over-specialization in our educational programs.

I commend you for your determination to provide for the educational needs of rural youth. This institution shares your objectives. It appreciates the privilege of working with you in accomplishing them. Thank you Mr. Chairman.

REPORTS OF DISCUSSION GROUPS

Participants were divided into 10 discussion groups of approximately 15 people. They were asked to examine vocational education in agriculture in Maryland today under the following headings:

Strong Points of Current Programs

Areas that Need Strengthening in Current Programs

Future Directions That Vocational Education in Agriculture Should Take in Maryland

Group #1

Group Reporter: H. Edward Reiley, Supervisor of Federal Programs and Vocational Agriculture

One of the real problems we had was having enough time to come up with all the ideas that this group presented. We had quite a number of them. Under the first strong points of the existing programs we got some things such as land laboratories-- use of natural facilities etc. as teaching laboratories; advisory committees as used in agricultural programs were considered to be very important and something that needs to be strengthened and used more. The type thing we are doing here today involving farm people in planning is excellent. Many non-academically oriented students have an opportunity in Vo-Ag to learn by doing. This will hold a

lot of students that we couldn't hold in other programs, thus preventing drop-outs. A learning by doing situation allows a much faster, more effective teaching method. An extremely strong point mentioned in our group was the FFA. I was glad to hear this. It was felt that the FFA, as a leadership training organization, was an essential part of the program--that students who are involved in the FFA tend to mature more rapidly.

Following are some areas that need strengthening and expansion. The teacher shortage, as Dr. Nelson brought out, is an area that we probably will need some help in. One that we always had a problem with was changes in vocational agriculture. All vocational areas want to attract the good student. Better counseling information needs to be made available to the students. We need to make more job opportunity information available to students. On-farm management and business analysis is needed. Our production agriculture boys especially need emphasis placed in that senior year on how they tie all of the resources together into a productive unit and how they analyze this business to see if it is a productive one. This would be a change in curricula to some extent.

The group came up with the following ideas for the future directions for programs. We felt that we need more two-man departments as we diversify more and get into various areas of production agriculture, horticulture, agricultural

occupations, etc. It is very difficult for one man to really do a good job in all these areas. There is a tremendous advantage to more than a one-man department. With two or three men, departments should be more effective.

We discussed how to make more use of community resources in teaching. Although I think agriculture teachers have made use of community resources for their teaching to some extent, there are a lot of people in the agricultural industry and business plus good farmers who could come into class and have a tremendous input and make things a lot more interesting and meaningful to students.

There needs to be more flexibility of scheduling. We feel that we should not tie a student down to one track where he will be stuck. The student should be able to move in and out of the program and have more flexibility. We had a general comment "Don't make agriculture a dumping ground," but I think if we do some of these things we have talked about here, it won't become a dumping ground because it will attract the good student into the program.

Group #2

Group Reporter: Harold Loughrie, Vocational Agriculture Teacher, Northern Garrett High School

The number 2 group took a little different attack on this and left three questions for the panel. How can vo-ag

be up-dated to keep pace with modern trends? An example of this is that agricultural mechanics needs up-dating from the "horse and buggy" days to something into the 70's? How does a pupil determine whether or not he is too involved in vocational agriculture? The people in my group didn't hedge on this--they simply said there are people being placed in vocational agriculture that should not be there. The third thing that Dr. Nelson pointed out this morning, "Are there real needs for courses in general appreciation and general application of agriculture courses?" -- if so, how can they be implemented and who is to be employed to teach them?

Group #3

Group Reporter: Max A. Smith, Supervisor of Industrial Arts and Vocational Education, Howard County

Good teachers, adequate facilities and equipment, and a demonstration farm were some of the strong points of vocational education that our group came up with. We felt another strong point was the comprehensive high school where a student can take academic subjects there as well as his agricultural subjects.

For the second area, areas that need strengthening, we were more verbal on this. We thought that the centralization of programs in a central vocational-technical center causes

some problems--particularly in transportation and loss of time in students going to and from school. This is something that needs to be looked into.

The next thing noted was the need for facilities for all schools in the county where you have more than one program going on in the county. We need more trained guidance counselors who are vocationally oriented, and right along with that, we need more trained agriculture teachers plus administrators with a feeling for agriculture and vocational programs in general.

There is a need for more resource materials for counselors and teachers. Teacher training needs strengthening. We felt we might be able to take a lesson from the T & I program, the teacher training program that is being carried on here at the University of Maryland, which is a cooperative program between the University and the State Department of Education where teachers are taken from trades and industry who have high school backgrounds and are given certain 18 hours of credits in teaching courses and put on the job teaching their trade or profession. Now this happens in cases of auto mechanics, cosmotology, carpentry, etc. We might be able to pick up something from this program in teacher training for agriculture and agribusiness.

We need career programs starting in the elementary school and the use of vocational agricultural trained people,

We need people from business and industry to help us with our educational programs.

We discussed the future directions of programs to meet changing needs. A change from rural to suburban programs is needed. An example of the suburban programs is the garden and horticultural programs. There is a need for all students to have more supervised home projects. There is also a need for a more practical tie-in with agriculture. We can do this either on a home farm or on a school demonstration farm. More training in agribusiness is needed. More emphasis on the scientific phase of the program such as chemicals, weed killers, etc. is needed. We stress family planning in our programs--boys need this too.

Group #4

Group Reporter: George Lechliter, Vice President, Maryland Farm Bureau

We came up with a few ideas that might be a little different--something that I haven't heard today and something that you don't hear much from agriculture groups. Our group came up with the idea, even though the educators were outnumbered about 2 to 1, that we should ask for more money for these vocational programs in our county school boards and the State Department of Education. I think this is what we have to start looking for. If we want to have a program next year in one of our schools, we want to talk

with our superintendents of schools and our principals and find out what this need might be and how much it will cost. In my experience, if we think it is going to cost $10,000 we might as well ask for $20,000. As you know, I spoke this morning against the guidance counselors and I notice that our group was pretty much in agreement that a lot of the fault was on the guidance counselors. Some of the educators in our group came up with a figure that I think most of you are not well aware of that many times there is only one guidance counselor for 400 students; I think now I won't say as many mean things about them as I have been because no one can do a good job with that ratio. In asking for more and better vo-ag teachers, we should ask for more and certainly better counselors.

In our county we found out that the school principal is the key to a good vo-ag program. If you work long and hard enough to convince the school principal in the school that you want a good agriculture program and the principal has a background in industrial arts and vocational agriculture or auto mechanics, you will find out he will be more receptive and will go to school boards and also get you the counselors you need. He will also attract more and better students. We found out that if we started these programs and set them into the senior high, we'd have more and better students to make a showing in vo-ag. We also feel that in

a county which is urban like Montgomery, Prince Georges, Baltimore and Frederick, or Anne Arundel that we have to have classes in horticulture. We found we have a waiting list of students to get in each of these classes.

We have to change our way of thinking. I think agriculture has the worst public relations of any business in the world. Our group thinks that if we have the right teachers and students in vo-ag that they can be the best public relations people we have. I can get up here and talk all day and not do as much good in the home as one of these students who has been out and done something with his hands with livestock or planted a flower or beautified something around the home. When he reads in the paper that some of his friends in school in the city says that the farmer is getting rich etc., I think the student can speak up then and say it is not true. To close, I think we can use these vo-ag classes to be our public relations people.

Group #5

Group Reporter: Thomas Dolley, President, Prince George's County Farm Bureau

I think that one of the most significant things about our group is that the things we felt were strong points far out-numbered the things that we felt needed mentioning in other areas. In mentioning the strong points, I think the thing that came out the loudest and clearest was the FFA.

No one has to elaborate on this, but there was no question about the feeling with reference to the developments that are made here. Another strong point was some of the junior high programs that are beginning. I am sure this is something that many of us would like to become involved with and it was listed very high on our priority of strong points.

Off the farm specialization is being included in many programs--it is considered good. Another strong point is the year round program and the contacts with the community. Consolidation was considered good in some cases. In some cases it probably has not been good. But in cases where a department may increase in size and possibly more than one teacher to allow flexibility and more variety, it certainly helped in the opinion of our panel.

Flexible programs are one of the things listed as a strong point of vocational agriculture. A person can have varied interests and still be interested in vocational agriculture. One of the other strong points was the broad basic occupational training available in vocational agriculture--and probably more so than any other occupational field.

We discussed items which need strengthening. We need some kind of guidelines which will allow programs within school districts, counties, or possibly the state to have some uniformity as far as facilities--some programs were

observed with very meager facilities--others were quite elaborate.

Education of all the people on the opportunities in agriculture needs strengthening. One of the greatest problems in agriculture is that most people recognize it as still the farm operation. This has been said not only to guidance counselors, but to mom, pop, and the rest of the kids in school. It is a subject that needs to be relayed to everyone.

The agricultural image hasn't changed and the public relations of agriculture has to be improved. It is easy for the public, guidance counselors, etc. to think that agriculture is on the farm when the old tractor is still the one used for the facilities.

In regard to future directions needed, updating programs and equipment and more involvement by advisory and lay personnel is needed.

Group #6

Group Reporter: Robert E. King, Jr., Superintendent of Schools
St. Mary's County

We had a "nuts and bolts" session. This group got down to practical problems we face. We need expanding and better agricultural programs very badly as indicative by the program today. If vo-ag programs are to do the job they should and contribute as they should, then some very practical matters should be considered seriously.

Many of our counties face the more severe budget cuts each year. In many cases, the summer programs are financed by local funding. When budgets have to be cut, summer programs and particularly vocational agriculture programs are hurt severely -- FFA activities, supervisory activities, plus farm projects. We would hope that all boards of education and others would give us a higher priority and try to do much better in the financial picture.

More exploratory work for children at the middle or junior high level is needed. Many programs of vocational agriculture are at 11th and 12th grades. Kids are often not ready, aren't prepared or oriented to agriculture.

Systems which have tried either a good occupational class plan or the actual exploratory courses giving the kids some of the exposure to areas have been most beneficial.

There should be more flexibility of scheduling. Students have problems; if they want to follow the vocational agriculture route, then they have a tough time getting many of the academic offerings they want and need.

Is putting vocational agriculture offerings in vocational-technical centers helping or harming? Could vocational agriculture be kept with the comprehensive high and not put in with the technical center program and suffer accordingly?

We feel that Glenn Lewis needs more help. He is spread

too thin. We also feel that too many counselors are oriented toward helping the college bound and know very little about the vocational areas and particularly vocational agriculture. We also feel that counselors can help but also sympathetic principals can help and superintendents could be more sympathetic particularly in the budget area to help with the program.

Much more parental support should be solicited for vocational agriculture. When advisory committees are formed, we certainly want to see people who realize the importance of vocational agriculture are included on those advisory committees.

Group #7

Group Reporter: Kermit A. Cottman, Supervisor of Instruction, Somerset County

All that our group had to say has already been said. Following are some questions that the committee had to leave for discussion:

1. Should vocational agriculture be offered in vocational-technical schools or in comprehensive high schools?
2. What should schools be doing to expose students and the general public to the new look in agriculture? Is it imperative that agriculture be seen in a new comprehensive light?

3. How can we increase the number of students in some phases of agriculture?

Group #8

Group Reporter: Mrs. Earl Hutchison, President, Talbot County Board of Education

If we have more than one teacher in a school, we hope to have teachers who can work together and that they will apply themselves to the subject as their abilities dictate. We like the flexible schedule. It is easier to meet the needs of the community. We found that some of our counties have enough opportunity to place all of their students. It is a strong point to have a local or county advisory board.

Instead of cutting students back and screening them too closely, we should enlarge the teaching staff and facilities to take care of those who want to go into agri-business. We think agriculture ought to be moving down into the junior high. We shouldn't wait until students reach senior high to have agriculture.

It is hoped that some of the counties will move into program planning budget systems so that you can tell the board of education what you are going to do with the money and then the board can try to get it into the budget. We feel if the board of education really knew what you needed

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the money for, you would get it. We should educate the public to accept agribusiness. We should be prepared to also handle more students.

Group #9

Group Reporter: Willard Oakley, President, Maryland Farm Bureau

We listed the following items under the strong points of the program: 1) FFA should be intra-curricular during school hours; 2) We should have a slogan -- we need it and we have it, let's use it and improve it; 3) It was felt by the committee that biology was really a basic subject that all students should have; 4) Students should have a good work program. They shouldnot just appear for class, but have good instructions and carry the program out; 5)We need good facilities for training. With the foreign buildings we have, let's not just have them there, use them. Years ago when facilities were built they were good facilities, but have they been used to their fullest extent?; We recommend that vocational agriculture work even closer with extension -- learn by doing and growing with it; 7)We should have periodic exhibits of students' work so their interest can be built up and others can learn by seeing and gain interest.

There are several points that need strengthening. There is a need for greater supervision in vocational agricultural instruction. We need more well-qualified teachers. We need to try to change vocational agriculture to the area where it is taking place; why teach dairy in Wicomico County where we only have two dairy farms--why not teach them about vegetable crops. School boards or advisory groups should be informed of benefits, value, and the history of vocational agriculture. This would mean holding a meeting at least once a year with county council personnel or county commissioners. At the meetings, have the following groups all together: superintendent of schools, board of education and county council. There should be more girls involved. Many girls will eventually have husbands who are farmers and agribusinessmen. We should adjust vocational agriculture courses so students can prepare themselves for future education.

The following points were raised about the future directions of vocational agriculture. Agriculture appreciation courses should be made available to all. You hear about music appreciation--why not have an appreciation course for agriculture? We need more emphasis on marketing. We hear so much about education, research, development, experimental things, and pesticides. What about marketing? After all, why are we growing the different things? We are thinking about income. We should drop some courses

and adjust to the time. Maybe we have obsolete courses. Let's update the whole program. We need to adjust to biology courses. We had a vocational agriculture teacher at our table and one item he pushed was biology.

Group #10

Group Reporter: Norman J. Moore, Superintendent of Schools, Talbot County

The history of the program is it's strength. Strengths in leadership have been brought out in FFA and 4-H youngsters. Many have gone on to roles of leadership in related fields.

We talked about the needed strengths. We know it and those related to the field know that farming and agriculture are no longer the same. We need agriculture appreciation. It was brought out in the group that earth science is closely related to agricultural science. One of the best earth science teachers we have in the county is a man who had training in agriculture. On consumer economics, there are very few people today producing in the field of agriculture. Every one of us is a consumer. We need knowledge on what we are consuming.

+5	+4	+3	+2	+1	Topic fully covered	-1	-2	-3	-4	-5
+5	+4	+3	+2	+1	New ideas to me	-1	-2	-3	-4	-5
+5	+4	+3	+2	+1	Useful	-1	-2	-3	-4	-5
+5	+4	+3	+2	+1	Over my head	-1	-2	-3	-4	-5
+5	+4	+3	+2	+1	Take home value to me	-1	-2	-3	-4	-5

Method of Analysis

Means and standard deviations were computed for each of the categories in the Stapel Scale for each topic. Since there was only a maximum of ten negative responses for a total of 73 who filled out the scale, the plus and negative comments were computed separately.

There was confusion in the category: "over my head" judging from the reaction of respondents -- undecided to rate the topic in the plus or minus. Thus, while responses on "over my head" were also counted, this was considered inappropriate for reporting. This category in the Stapel Scale appears to be one major drawback of the scale and therefore must be looked into for possible modifications.

REACTION PANEL

The following men summarized and commented on the activities of the meeting:

Mr. Rankin Lusby, Executive Secretary of Maryland Farm Bureau

Mr. O. O. Stivers, Public Relations, Choptank Electric Company

Dr. John L. Carnochan, Jr., Superintendent of Schools, Frederick County and member, State Advisory Council on Vocational Education

Mr. Alfred Roth, Jr., Supervisor of Vocational and Industrial Education, Washington County

Dr. Paul R. Poffenberger, Associate Dean, College of Agriculture and Acting Head, Department of Agricultural and Extension Education

Mr. James L. Reid, Assistant State Superintendent, Division of Vocational and Technical Education, State Department of Education

Speaker: Mr. Rankin Lusby, Executive Secretary, Maryland Farm Bureau

If I use the word "one-horse" I think there is an image that comes into your mind. If you say a one-horse operation or one-horse town, the image is not very good. Can you transfer this image you are getting to vocational agriculture, because if you can, this is the type of image that the non-farm public has when you talk about vocational agriculture; it isn't good. It is important to realize this. If we look at that one horse in a different light, not as the thing that was only vocational type training in our educational system, but that one horse as a big, able type horse, we begin to take on a different image for vocational agriculture.

I bring up the horse business because things have changed, and today vocational agriculture is not just the one big horse or lead horse; it is part of a team of horses in vocational-technical education. When we start looking at it in this light, we find new challenges and new problems we are faced with. These things were brought out here today. Being on that team we have to realize there is going to be a lot of pressure from the other technical areas. These pressures are going to mean that priorities are going to be set and if we in agriculture aren't concerned about what those priorities are, there isn't going to be vocational agriculture courses offered in our particular area. So when we get this team of horses working together, we are going to accomplish something--but we have to remember the role, we have to know that it has changed. We have to realize what has happened and where we are today.

It is particularly important that you realize that funds are no longer tied to a specific vocational area. It is really amazing when you think that if the vocational

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agriculture teachers in the state were evenly distributed among the counties, we would have approximately three vocational agriculture teachers per county. I think there is a challenge for us to go ahead and approve vocational agriculture courses in areas where there is a strong need and a feeling for increased effort in this whole area.

How does the Farm Organization fit into this? Particularly in the area of the advisory committee, the farm organization can play a very important role. Farm organizations should make sure that at least once a year some type of meeting is held with the superintendent of schools, the vocational guidance people, the principal and the vocational agriculture teacher. It is most important that some type of a meeting be held so the expressed interests of the organized farmers in that county are known to these educational leaders. This type of thing can go a long way in making our future in vocational agriculture strong and an important part of our economy.

Speaker: Mr. C. O. Stivers, Public Relations, Choptank Electric Company

I don't want to limit public relations only to vocational agriculture. At this point I would like to ask you "What is public relations?" Would somebody venture to hold up his hand?

Here in the state of Maryland we have the Farm Bureau, the Grange, Vocational Agriculture, College of Agriculture, Department of Agricultural Engineering, Department of Agricultural Economics, Department of Agricultural Education, Department of Horticulture, Extension Education, College of Home Economics, State Board of Agriculture, the agricultural sector of the Board of Regents, Maryland Council of Farmer Cooperatives, flora culture boys, bee culture boys, State Department of Education, Soil Conservation Service, dairy boys, beef, swine, and poultry. How many more do we have--everybody, and the twain shall not meet in this thing called public relations.

I traveled to Chili during the months of August and September to work with the agricultural sector of Chili on the basic ABCs of public relations. Dean Cairns, maybe we had better have one here in Maryland. Fourteen percent of our state gross income is related to agriculture. Should we have a State Department of Agriculture that combines these forces?

Ladies and gentlemen- let's ask ourselves some questions. Why are we here today? I would venture to make this statement that this meeting today is probably a result of the breakdown of our public relation's program as far as agriculture is concerned in the state of Maryland.

Speaker: Dr. John L. Carnochan, Jr., Superintendent of Schools, Frederick County and member, State Advisory Council on Vocational Education

There are three things that I would like to emphasize here. First, we have to look at the programs in vocational agriculture. Vocational agriculture does have a place in the public school system. Administrators and superintendents have got to be sympathetic to

the public school system. Administrators and superintendents have got to be smypathetic to it. Counselors have to be sympathetic to it and trained to know what it is all about. Teachers have got to put on good programs because it is an elective program and students take programs of most value and where they will receive the most benefit. I hear too much being said today about wanting the good students. I think we have a challenge in our society where we have got to work with students that people consider not so good. We've got to take the kids who do not have the motivation and who do not have the aspiration and try to help and encourage them to find a good way of living in our society. We can't work with just the good kids. There are too many other kids that need our help, and I think that teachers who take kids and try to encourage them have got to be complemented more than the teachers who work with the good kids all the time. The good kids do not need as much help. There is no credit to the teacher who works with only the best kids. Vocational agriculture has to do its share in working with these students who do not have the interest and perhaps abilities to do top notch jobs. We have to train them for better jobs.

We have to look at programs themselves. They have to be flexible. Sometimes I think we are victims of setting up a lot of rules and regulations which make things tough and we are not flexible enough.

Academic students need to be able to take electives in agriculture. Agriculture students need to be able to move in and out of the academic program. We have got to work with this and cut out the "Mickey Mouse" rules and regulations that govern some of these programs.

The second item I would like to look at is financing. You said here today that we want more teachers, we want smaller classes, we want to be able to work with more kids. It takes more money to do these things. I am glad to see that farm groups are interested in more money for education, because frankly that is not the image that school people get from farm groups in general.

Just as agriculture has changed in the past 40 years, education has changed too. We have to look at ourselves. We talk about the image, we talk about counselors guiding people away from agriculture, but let's look at ourselves. What are our attitudes for our kids. Do your kids want to go into agriculture? What do they hear you say -- it is a lousy job, you are tied down to the cows, you can't get away on a vacation, and high taxes. Or are you saying--it is a good living and you don't have to get rich to be a worthwhile human being. What are you saying? We talk about what concerns the state level about vocational-technical education and the image it has. The image comes from us. What are we saying to our kids and to other people's kids about this?

Speaker: Mr. Alfred Roth, Jr., Supervisor of Vocational and Industrial Education, Washington County Board of Education

It has been a privilege the last few days to have four outstanding laymen of our county accompany me and take a look at our agriculture program in Washington County. I am very proud of the program because we stand only second in the state--Montgomery County has us beat by approximately 30 students. I hope if I get to see you again in the next few years that we will be first because in our five year plan for vocational education, we hope to expand programs in other parts of the country. Clear Spring is the garden spot of our county and we hope to have a program there.

Getting back to the old cliché "what do you want, good grammar or good taste," I think we should have both. It is not going to cost any more. Our total program of education of course is like a gem. It has many facets and each facet is important. We don't say vocational agriculture is more important than another program so we have many programs to consider. We believe that a good program must have clear, well defined objectives. Vocational agriculture has these. We think a good program should have a well-structured curriculum and we feel that vocational agriculture has this. One thing I like about the vocational agriculture program is that it deals with "hands-on-learning." We feel that the image of vocational agriculture in the county is improving a great deal. I am all for having more girls in the program. It lends a great deal of dignity to the whole thing. Our public speaking and various competitive contests in the county seem to be about four stages better since we have girls in the program. In Williamsport we have 20 girls in the program this year. We have no girls in Smithburg.

There are two people in the country who have just completed a nationwide study and they are just like you--they are not educators, thank heaven, and they are taking a look at our schools. They have just completed a book entitled Crisis in the Classroom. I hope you will get a thumb nail sketch because it is in the March issue of Reader's Digest and they sum this up.

What makes a good educational program anyway? First of all, in any educational setting you should have a very pleasant atmosphere for learning. Second, you have to have a real teacher. We interview hundreds of teachers at the Board of Education and we are hiring a fellow who really has a flare for teaching--or are we hiring a fellow with his degree and all the courses he gets here at Maryland. It is so important to get a good agriculture teacher. Let's face it, the agriculture teacher is on 24 hour call. These teachers are concerned with developing the youngster's skills and turning the youngster on. And last we have to have people with a program that fits in with the needs of all the youngsters we have.

It gets me when I hear our little agriculture groups say, "look we have to draw in a better quality student--we have to have top students." Boy, wouldn't we all like to have top students, but we have to have the youngsters of the people in our community. Some of our students go on to college, some are middle average youngsters and some may be a little slower. It is our job to try to get the kids "turned-on" and see them develop and go out

into the world and make a success of themselves. Some may drop out, some will go on to graduate, some may take work at the junior college of the University of Maryland. I think we have a commitment to help all the children of all the people. There are some who might go into classes for special disadvantaged. I think of Kenny Ramsburg who is gone and retired now, but when I think of the hundreds of boys that he has helped at Boonsboro complete high school and go out and serve the community as useful citizens--some may be only custodians--while others are successful in business and some could buy out many of the educators who talk to them.

I want to thank you for coming today. I think vocational agriculture has a real future in our county and I hope it will have a future in your county.

Speaker: Dr. Paul R. Poffenberger, Associate Dean, College of Agriculture and Acting Department Head, Agricultural and Extension Education, University of Maryland

Since time has gotten by I will not be able to keep my commitment of permitting some interaction with the reaction panel. I do want to comment. I know that the planning committee had some fears about approaching this type of meeting, but the success of the panels, the groups, discussions and reactions to it far exceed our expectations and you are to be commended for this wonderful action and interaction.

Speaker: Mr. James L. Reid, Assistant State Superintendent, Division of Vocational and and Technical Education, Maryland State Department of Education

Again I want to thank you people for attending this meeting today. It may have been an interesting experience for you. It won't amount to very much if you leave here today and simply say that it was an interesting meeting. You have identified problems today, and I have been facing problems all my life. I am not too much concerned with problems; they are always out there. Any of us can put our finger on them. What I am interested in, however, is finding solutions to these problems. In spite of what Bob Keenan said about needing more assistance and help, I would paraphrase a statement made several years ago--"It is not what vocational agriculture is doing for you, but what are you doing for vocational agriculture." What are you going to do for it when you leave here today. I would hate to see this meeting end on this kind of a note that we are going home and it was an interesting meeting. There are a few things that I would like to see you do. I would like to see an agricultural advisory committee formed in every county. It is not going to be formed by going back and asking somebody else to do it. The purpose of an advisory committee is to focus attention on the needs of vocational agriculture in that particular political subdivision. You are not going to get very far by going in talking to the county superintendent of schools about it. He can help you, but he is not the person who puts up the money to provide the funds by which vocational agriculture can move ahead. There are elected officials. I'll mention three of them. If each one of you would take it upon yourself to communicate your desires

to all three groups of people, I think we will be moving in the right direction. First of all there is the county council or county commissioners. What are they doing for vocational agriculture in your county in providing funds for the support of it? They are your funds, they are your tax funds, and unless you are willing to increase taxes or to change priority of taxes that are going to be raised, the county commissioners are not going to pay much attention to you. We have a delegation in Annapolis. Many of the delegates include such leaders as Senator James from Harford County, Senator Clark from Howard County, and Alexander Bell from Montgomery County. All have expressed a personal interest to me in promoting the field of vocational education. But they are not going to do very much in Annapolis unless they hear from you back home. There has not been one dollar of state funds appropriated for the support of vocational education other than in the construction field. I blame myself, I blame my staff, and I blame people who are concerned with vocational education for not having sold this story to our legislators in Annapolis. I sat with the Governor not too long ago when he said that vocational education is one of the most important phases of education in this state. I have not gone to him and said "Here is a program; this is what we need." I need your support on that because I am only one voice, and when I go to Annapolis to talk to anybody about the needs in vocational education, I need help.

Right now in the National Congress, bills are being considered and appropriations are being considered for vocational education. We have a letter on our desk now from Roman Pucinski who is Chairman of the Subcommittee on Education who wants to know and has written a letter to me asking what the Vocational Education Act of 1963 as amended in 1968 has done for us in Maryland in Vocational Education. He wants to know its strengths and its weaknesses. It would be nice if each of you when you get home tonight would take five minutes and write to the congressman representing your district in the National Congress and tell him you are backing vocational education and you would support his actions in additional appropriations for vocational education in Maryland because it is needed. Now this is what you can do. I can assure you that I and my staff, including the State Board of Education has given whole-hearted support to the field of vocational education.

We will continue to work in this area, but we need help and I will hope this is only the beginning of a series of meetings held on the local level in your own county involving all of the people who can influence the decision making regarding vocational agriculture in your county. I hope that this will be a forefunner of another state-wide meeting at which time we could invite you to be with us.

Dr. Frank L. Bentz, Jr.
Vice President of Agricultural Affairs
University of Maryland

Dean Cairns has very clearly set forth the purposes of this conference. There are only one or two things that I would like to add to what he has said. The opportunities in the field of agriculture are tremendous and I think most of our people don't realize the extent of those opportunities. I am sure you will hear more about this later. Colleges of agriculture graduate only about 7,000 students per year and the opportunities are perhaps three times that great.

Agriculture includes not only production of crops on the farm, but it includes processing, distributing, marketing of agricultural products, service to rural areas, and rural development. All of these things are a part of agriculture and there are opportunities for our students in these areas.

The purpose of this conference, I think, is to focus attention on vocational agricultural education and to help us as we try to meet the needs of the students in the years ahead.

Thank you for the opportunity to be present.

EVALUATION REPORT*

STATE-WIDE MEETING ON VOCATIONAL EDUCATION
IN AGRICULTURE IN THE "70'S"

March 2, 1971

Instrument

The evaluation instrument used was a scale developed by Jan Stapel, Co-director of the Netherlands Institute of Public Opinion. It is a 10-point non-verbal rating scale ranging from +5 to -5 measuring both directions of intensity. The scale has been found useful in direct short time evaluation of conferences and meetings and is considered straightforward and easy to administer. A recent study found the Stapel Scale to show no significant difference compared with the method of Semantic Differential.[1] Below is a sample of the Stapel Scale.

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* Summarized by Sotero L. Lasap, Jr., Graduate Assistant, Department of Agricultural and Extension Education, University of Maryland.

[1] Crispin, Edwin, The Usefulness of the Stapel Scale in Determining Whether Educational Programs for Adults are Effective, Master's Thesis, Department of Agricultural and Extension Education, University of Maryland, 1970.

Findings

In general the conference participants were favorable towards the conference as a whole with few exceptions. A summary of results follows:

		Positive Evaluation			Negative Evaluation		
		Mean	S.D.	Number Reporting	Mean	S.D.	Number Reporting
	Topic: Population, Production and the Environment						
1.	Fully covered	2.62	1.14	63	2.14	0.90	7
2.	New ideas	2.53	1.16	59	2.90	1.73	10
3.	Useful	2.94	1.43	66	4.00	1.00	3
4.	Take home value	2.69	1.28	68	3.75	1.50	4
	Topic: Maryland's Impressive Agriculture						
1.	Fully covered	3.22	1.27	67	1.33	0.58	3
2.	New ideas	2.68	1.16	65	3.00	1.73	3
3.	Useful	3.05	1.25	66	3.00	.00	1
4.	Take home value	3.07	1.22	67	3.00	2.83	2
	Topic: Vocational Agriculture and Agricultural Education: Current Status and Direction						
1.	Fully covered	3.06	1.21	66	1.75	1.04	8
2.	New ideas	2.05	1.26	62	1.33	0.82	6
3.	Useful	2.88	1.32	69	2.33	1.53	3
4.	Take home value	2.84	1.29	68	3.00	2.83	4
	Topic: Panel Discussion						
1.	Fully covered	3.07	1.19	64	2.33	1.32	9
2.	New ideas	2.52	1.17	65	2.83	0.75	6
3.	Useful	3.11	1.25	65	2.40	0.55	5
4.	Take home value	3.21	1.18	66	3.00	1.79	6
	Topic: Overall Evaluation						
1.	Fully covered	3.05	1.18	66	2,00	1.73	9
2.	New ideas	3.00	1.02	64	1.75	1.50	4
3.	Useful	3.06	1.67	64	3.00	2.82	2
4.	Take home value	3.18	1.24	66	2.50	2.12	2

Some Comments

Attitudes and opinions of the participants towards the conference are reflected in some of their comments below:

I. Population, Production and the Environment

"More facts!"
"Well prepared -- so interesting. He was well versed on this topic."
"Failed to tie into the purpose of the conference."
"Availability of material for classroom use?"
"Time did not permit for topic content."
"Good topic, well-presented, but no place in this conference."
"Didn't mean too much to me."
"I felt time did not permit him to develop his topic. I knew he had it, but I didn't get it."

II. Maryland's Impressive Agriculture

"Material for classroom use?" "Would like copy of his presentation."
"Too much identification with farm picture, Agribusiness occupations not fully identified."
"Very good talk."

III. Vocational Agriculture and Agricultural Education: Current Status and Direction

"Have meetings like this for school boards or similar people."

IV. Panel Discussion

"Not enough time on this part of the program."
"I learned a lot!"
"Not enough time!"

V. The conference as a whole

"Would encourage completion of ag. occupation survey."
"Ag. occupation survey is urgent."
"Very well planned. I was glad I could be a part of it."
"Group discussion, light. Time consuming."

V. The conference as a whole (continued)

"Too much ag. teacher oriented. Should have included more looking at ourselves and asking: Where are we? Where should we be? What changes are necessary to get there? Too much protecting of the establishment."
"Very good!"
"We should have another day like this again soon."

APPENDIX

PROGRAM

STATE-WIDE MEETING

Vocational Education in Agriculture in the "70's"

March 2, 1971

* * * * * * * * * * *

9:30 Registration and coffee

10:00 Welcome and Plans for the Day
Dr. Gordon M. Cairns, Dean, College of Agriculture, University of Maryland - Presiding

10:10 Population, Production and the Environment
Dr. Phillips W. Foster, Professor, Department of Agricultural Economics, University of Maryland

11:00 Maryland's Impressive Agriculture
Dr. John M. Curtis, Head, Department of Agricultural Economics, University of Maryland

11:20 Vocational Agriculture and Agricultural Education: Current Status and Directions
Mr. Glenn W. Lewis, Specialist in Agriculture, Maryland State Department of Education

Dr. Clifford L. Nelson, Associate Professor, Department of Agricultural and Extension Education, University of Maryland

12:00 Lunch -- Mr. James L. Reid, Assistant Superintendent, Maryland State Department of Education -- Presiding

Goals and Objectives of Education in Maryland as seen by the State Department of Education
Dr. James A. Sensenbaugh, Superintendent of Schools, Maryland State Department of Education

Remarks
Dr. Charles E. Bishop, Chancellor, University of Maryland

1:15 Group Discussions and Development of Questions for Panel and Other Program Participants -- Dr. Paul R. Poffenberger, Associate Dean, College of Agriculture, University of Maryland -- Presiding

1:40 Comments and Questions from Group Discussions

Reaction Panel

Mr. Rankin Lusby, Executive Secretary, Maryland Farm Bureau
Mr. O. O. Stivers, Public Relations, Choptank Electric Company
Dr. John L. Carnochan, Jr., Superintendent, Frederick County Schools
Mr. Alfred C. Roth, Jr., Supervisor of Vocational and Industrial Education, Washington County Schools

2:30 Closing Remarks
Dr. Frank L. Bentz, Jr., Vice President for Agricultural Affairs, University of Maryland

Letter to all Superintendents of Schools

JAMES A. SENSENBAUGH
STATE SUPERINTENDENT

MARYLAND STATE DEPARTMENT OF EDUCATION
600 WYNDHURST AVENUE, BALTIMORE 21210

January 7, 1971

Dear

Vocational education in agriculture has long been an integral part of the educational system in the State of Maryland. Agriculture is still a most important part of Maryland's total economy. However, both agriculture and vocational education in (vo-ag) have been changing.

Have these changes been in the right direction? Have they been rapid enough? Are we serving all of the community that needs this type of instruction? What will be the needs next year? five years from now?

These are critical questions that need the early and considered attention of the educational and agricultural communities. It is for these reasons that we have called a state-wide meeting on March 2, 1971, to address these concerns at the Center for Adult Education, University of Maryland, College Park, Maryland. It is hoped that each segment of the state-wide community with interests in agriculture and vocational education in agriculture will contribute and take part in this meeting. Please return the attached reply sheet indicating your attendance or that of your representative.

Sincerely,

James L. Reid
Assistant State Superintendent

Gordon Cairns, Dean
College of Agriculture

GWL:vls

Attachment

UNIVERSITY OF MARYLAND
COLLEGE OF AGRICULTURE

DEPARTMENT OF AGRICULTURAL AND
EXTENSION EDUCATION

COLLEGE PARK, MARYLAND 20742
PHONE: (301) 454-3738

February 4, 1971

MEMORANDUM

TO: Participates in the State-Wide Meeting on Vocational Education in Agriculture in the "70's", March 2, 1971

FROM: Dr. Clifford L. Nelson, Associate Professor
Department of Agricultural and Extension Education

Enclosed is a reply card and program for the state-wide meeting on Vocational Education in Agriculture in the "70's" to be held March 2 at College Park. Please return the post card by February 23, 1971, to indicate whether or not you will be able to attend. We need this information so we may plan for the lunch that day. If someone is going to attend in your place please forward this information to him.

CLN:cc

Enclosures

CONFERENCE PARTICIPANTS AND VISITORS TO VO-AG PROGRAMS

ALLEGANY COUNTY

Wayne Hill	Superintendent of Schools, Allegany County Bd. of Ed., 108 Washington St., Cumberland, Md. 21502
Julius Lonnholm	Supervisor of Vocational & Industrial Arts, Allegany County Bd. of Ed., 108 Washington St., Cumberland, Md. 21502
Lester Rice	Route 4, Fairview Road, Cumberland, Md. 21502
Charles McVeigh	1900 Frederick Street, Cumberland, Md. 21502

ANNE ARUNDEL COUNTY

William Otto	Supervisor of Trade, Technical & Industrial Programs, Anne Arundel County Bd. of Ed., P.O. Box 951, Annapolis, Md. 21401
Richard Carlson	Supervisor of Industrial Arts, Anne Arundel County Bd. of Ed. P. O. Box 951, Annapolis, Md. 21401
Ray Chapman	Gambrills, Md. 21054

BALTIMORE COUNTY

William Kohl, Jr.	Supervisor of Industrial Arts, Baltimore County Bd. of Ed., Aigburth Manor, Towson, Md. 21204
Robert Keenan	Agriculture Teacher, Hereford High, Parton, Md. 21120
John Huff	Sparks, Md. 21152
Mrs. Earl Weber	2526 Proctor Lane, Baltimore, Md. 21234
Dr. Richard Tracey	Parkton, Md. 21120

CALVERT COUNTY

Jefferson Dardin	Principal, Calvert Sr. High School, Prince Frederick, Md. 20678
J. Martin Reid	Supervisor of High Schools, Calvert County Bd. of Ed., Prince Frederick, Md. 20678
John Prouty	Huntingtown, Md. 20836
Bruce Stallings	Owings, Md. 20836

CAROLINE COUNTY

George Capel	Supervisor of Vocational Education, Caroline County Bd. of Ed., Law Building, Denton, Md. 21629
Maxwell Thornton	Agriculture teacher, North Caroline High School, Denton, Md. 21629
Thomas Ober	Ridgely, Md. 21660
John Fuchs	Denton, Md. 21629

CARROLL COUNTY

Harold Thompson	Supervisor of Vocational Education, Carrol County Bd. of Ed., County Office Building, Westminster, Md. 21157
Frank Mather	Principal, North Carroll Jr.-Sr. High School, Greenmount, Md. 21072
Myron Wilhide	Detour, Md. 21725
Ralph Schuchart	Westminster, Md. 21157
David Shaw	Westminster, Md. 21157
James Bushey	Sykesville, Md. 21784
John Stiles	Westminster, Md. 21157
Gordon Flickenger	Union Bridge, Md. 21791
Herb Wessell	Hampstead, Md. 21074

CECIL COUNTY

Robert Gibson	Superintendent of Schools, Cecil County Bd. of Ed., Booth Street Center, Elkton, Md. 21921
Luby Weaver	Supervisor of Industrial Arts & Vocational Education, Cecil County Bd. of Ed., Booth Street Center, Elkton, Md. 21921

CECIL COUNTY (continued)

Ralph McDonald	Agriculture Teacher, Cecil County Vo-Tech Center, R.D. 1, Box 50-B, North East, Md. 21901
Grove Miller	North East, Md. 21901
George Fry	Cecilton, Md. 21913
Richard Sutton	White Hall Farms, Cecilton, Md. 21913

CHARLES COUNTY

Genevieve Brown	Director of Curriculum and Supervisory Services, Charles County Bd. of Ed., Health-Education Building, La Plata, Md. 20646
Gerald Davis	Supervisor of Vocational Education, Charles County Bd. of Ed., Health-Education Building, La Plata, Md. 20646
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Wilbur Hancock	La Plata, Md. 20646
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DORCHESTER COUNTY

John Hall	Principal, Cambridge Jr.-Sr. High School, 1300 School St., Cambridge, Md. 21613
Charles Hurley	Supervisor of High Schools, Dorchester County Bd. of Ed., 403 High Street, Cambridge, Md., 21613
Donald M. Newcomb	Route 1, Cambridge, Md. 21613
Theodore Brandle	Woolford, Md. 21677

FREDERICK COUNTY

Edward Reiley	Supervisor of Vocational Education, Frederick County Bd. of Ed., 115 East Church St., Frederick, Md. 21701
John Carnochan (Dr.)	Superintendent of Schools, Frederick County Bd. of Ed., 115 East Church St., Frederick, Md. 21701

FREDERICK-COUNTY (continued)

Reese Poffenberger	Agriculture Teacher, Linganore High School, Route 1, Frederick, Md. 21701
Millard Crum	Walkersville, Md. 21793
Ray Smith	Frederick, Md. 21701
Rodman Myers	Thurmont, Md. 21788
Bernard Ramsburg	Frederick, Md. 21701
Jesse Burall	Monrovia, Md. 21770
Ross Smith	Thurmont, Md. 21788
Leon Enfield	Knoxville, Md. 21758

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James Trickett	Administrative & Supervisory Asst., Garrett County Bd. of Ed., 40 S. Fourth St., Oakland, Md. 21550
Harold Loughrie	Agriculture Teacher, Northern Garrett High School, Accident, Md., 21521
William Umbel	Friendsville, Md. 21531

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Miles Hanna	Whiteford, Maryland 21160
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Vernon Magness	Bel Air, Maryland 21014

HOWARD COUNTY

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Max Smith	Supervisor of Industrial Arts, Howard County Bd. of Ed., Clarksville, Md. 21029
Richard Jones	Principal, Howard County Vo-Tech School, Clarksville, Md. 21029

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KENT COUNTY

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Robert Eckert	Director of Instructional Services, Kent County Bd. of Ed., 400 High Street, Chestertown, Md. 21621
Wickes Westcott	Kennedyville, Md. 21645
Horton Silcox	Kennedyville, Md. 21645

MONTGOMERY COUNTY

Leonard Oass	Supervisor of Industrial & Tehnical Education, Montgomery County Bd. of Ed., 850 No. Washington St., Rockville, Md. 20850
Donald Wilson	Supervisor of Industrial Education, Montgomery County Bd. of Ed., 850 No. Washington St, Rockville, Md. 20850
George Lechlider	Gaithersburg, Md. 20760
Ellis Hood	Damascus, Md. 20750

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Ralph Angel	Specialist in Vocational Education, Prince George's County Bd. of Ed., Upper Marlboro, Md. 20870
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ST. MARY'S COUNTY

Wilbur Dohrman	Supervisor of Instruction, St. Mary's County Bd. of Ed., P.O. Box 343, Leonardtown, Md. 20650
Dr. Robert King, Jr.	Superintendent of Schools, St. Mary's County Bd. of Ed., P. O. Box 343, Leonardtown, Md. 20650
Robert Stevens	Rt. 1, Box 29, Lexington Park, Md. 20653
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SOMERSET COUNTY

Kermit Cottman	Supervisor of Instruction, Somerset County Bd. of Ed., Court Room Annex, Princess Anne, Maryland 21853
J. C. King	Agriculture Teacher, Somerset High School, Princess Anne, Md. 21853
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TALBOT COUNTY

Norman Moore	Superintendent of Schools, Talbot County Bd. of Ed., P.O. Box 1029, Washington St., Easton, Md. 21601
Arthur Higginbottom	Supervisor of High Schools, Talbot County Bd. of Ed., P.O. Box 1029, Washington St., Easton, Md. 21601
Hubert Santucci	Principal, Easton High School, Mecklenburg Avenue, Easton, Md. 21601

TALBOT COUNTY (continued)

Oryst Mandycz	Agriculture Teacher, Easton High School, Easton, Md. 21601
Earl Hutchison	Cordova, Md. 21625
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WASHINGTON COUNTY

Alfred Roth	Supervisor of Vocational Education, Washington County Bd. of Ed., Commonwealth Avenue, Hagerstown, Md. 21740
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Harold Fulton	Asst. Superintendent of Instruction, Wicomico County Bd. of Ed., Long Avenue, Salisbury, Md. 21801
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Irvine Guy	Salisbury, Md. 21801
Donald Wilber	Salisbury, Md. 21801
Willard Oakley	Route 5, Venture Manor, Salisbury, Md. 21801

WORCESTER COUNTY

Robert Gaddis	Superintendent of Schools, Worcester County Bd. of Ed., 107 East Market Street, Snow Hill, Md. 21863
John McDowell	Supervisor of Instruction, Worcester County Bd. of Ed., 107 East Market Street, Snow Hill, Md. 21863
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Max E. Jobe	Suite 304, Jackson Towers, 1123 N. Eutaw Street, Baltimore, Maryland
Henry Kimmey	Baltimore Gas & Electric Lexington & Liberty Baltimore, Md.
Dr. Richard Tracey	Cameron Mill Road, Parkton, Md.
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Warren Smeltzer	State Dept. of Ed., 600 Wyndhurst Avenue, Baltimore, Maryland
Paul Gray	National Executive Secretary Future Farmers of America National FFA Center, P.O. Box 15160, Alexandria, Va. 22309
Rodman Myers	R.F.D. #2, Thurmont, Md. 21788
Bernard Remsburg	R.F.D. #4, Frederick, Md. 21701
Charles Huff	R.F.D. #2, Smithsburg, Md. 21783
Grove Miller	Box 133, North East, Maryland 21901
Harold Wolfe	Box 65, R.F.D. #4, Brandywine, Maryland 20613
Mrs. Beatrice Pfefferkorn	West Friendship,Maryland 21794
James Bushey, Sr.	R.F.D. #2, Box 178, Sykesville, Maryland 21784
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Table 1 Means, standard deviations and significance tests (t) of differences between the means of the student simulator groups with complete data and those with incomplete data †

Variable	Complete Data		Incomplete Data		Significance Test of Differences	
	M	σ	M	σ	t	p
Range (total)	28.07	4.47	29.13	4.65	1.26	n.s.
Prep. to drive	3.80	.66	3.90	.63	.81	n.s.
Left turns	3.38	.65	3.54	.68	1.27	n.s.
Right turns	3.22	.74	3.36	.78	.98	n.s.
Backing	3.13	.73	3.23	.70	.76	n.s.
Speed control	3.49	.76	3.63	.67	1.08	n.s.
Stopping	3.51	.73	3.61	.69	.72	n.s.
Lane change	3.51	.66	3.65	.72	1.09	n.s.
Signaling	4.02	.75	4.14	.81	.80	n.s.
Freeway (total)	31.51	4.11	31.73	5.20	.25	n.s.
Prep. to drive	3.82	.44	3.90	.58	.75	n.s.
Speed control	3.49	.63	3.50	.66	.09	n.s.
Following	3.53	.84	3.55	.71	.09	n.s.
Signaling	3.64	.65	3.56	.68	-.70	n.s.
Lane change	3.42	.62	3.45	.65	.27	n.s.
Steering	3.42	.69	3.48	.70	.43	n.s.
Acceleration	3.42	.50	3.41	.66	-.15†	n.s.
Deceleration	3.47	.63	3.50	.68	.27	n.s.
General Percept	3.29	.51	3.40	.72	.98†	n.s.
City (total)	34.91	5.08	34.79	6.16	-.11	n.s.
Right turns	3.64	.53	3.57	.71	-.68†	n.s.
Left turns	3.49	.73	3.36	.81	-.89	n.s.
Following	3.47	.55	3.55	.70	.67	n.s.
Speed control	3.49	.59	3.55	.68	.48	n.s.
Steering	3.49	.55	3.54	.72	.38	n.s.
Signaling	3.62	.61	3.49	.68	-1.10	n.s.
Hazard Percept	3.36	.61	3.38	.74	.22	n.s.
Lanes selection	3.49	.70	3.45	.65	-.29	n.s.
Traffic cont. percept	3.40	.72	3.44	.66	.33	n.s.
Mirrors	3.47	.63	3.47	.66	.01	n.s.
Deviance pre	2.29	1.60	2.27	1.82	-.06	n.s.
Deviance post	1.93	2.42	2.38	1.92	1.08	n.s.
Faking pre	9.38	3.98	8.90	3.15	-.65	n.s.
Faking post	10.80	3.50	9.26	3.66	-2.22	<.03
X misses pre	4.36	1.75	4.54	1.70	.52	n.s.
X misses post	4.60	1.80	4.80	1.68	.61	n.s.
V violations pre	10.47	2.76	10.65	2.21	.37	n.s.
V violations post	10.31	2.88	10.68	2.49	.72	n.s.
A1 alcohol pre	2.40	1.70	2.41	1.33	.04	n.s.
A1 alcohol post	2.40	1.68	2.76	1.58	1.14	n.s.
A accidents pre	14.44	2.94	14.04	3.03	-.66	n.s.
A accidents post	14.35	2.97	14.11	3.60	-.42	n.s.
Personal Rel. pre	5.91	2.67	6.41	2.21	1.00	n.s.
Personal Rel. post	5.82	2.75	6.56	2.77	1.38	n.s.

VT 015 268
NEEF, PATRICIA, AND OTHERS
PONTIAC DRIVER EDUCATION PROGRAM. EVALUATION REPORT.

PONTIAC CITY SCHOOL DISTRICT, MICH.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 34P.

DESCRIPTORS - *DRIVER EDUCATION; *COURSE EVALUATION; *SIMULATORS; *STUDENT ATTITUDES; *COMPARATIVE ANALYSIS; PILOT PROJECTS; EXPERIMENTAL GROUPS; CONTROL GROUPS; FACTOR ANALYSIS; CORRELATION

ABSTRACT - THIS EVALUATION OF THE PONTIAC DRIVER EDUCATION PROGRAM CONSISTS OF TWO SEPARATE STUDIES TO ASSESS THE VALUE OF DRIVING SIMULATOR USE IN THE SCHOOL PROGRAM. EXPERIMENTAL AND CONTROL GROUPS OF STUDENTS WERE TESTED TO COMPARE THE DRIVER EDUCATION PROGRAM WITH AND WITHOUT SIMULATOR TRAINING. THE MAJOR STUDY SHOWED THAT STUDENTS WITH SIMULATOR TRAINING RECEIVED HIGHER RATINGS ON ROAD TESTS THAN DID STUDENTS WITHOUT THIS EXPERIENCE, BUT THE REPLICATION STUDY ON DIFFERENT SMALLER GROUPS DID NOT BEAR THIS OUT. ON GENERAL DRIVING KNOWLEDGE THE LARGER STUDY FOUND NO DIFFERENCE BETWEEN THE TWO GROUPS, ALTHOUGH THE SMALLER GROUP STUDY SHOWED A GAIN IN KNOWLEDGE FOR THE SIMULATOR-TRAINED STUDENTS. BOTH STUDIES INDICATED A DIFFERENCE BETWEEN THE TWO GROUPS IN STUDENT ATTITUDES TOWARD DRIVING. NO CONSISTENT RELATIONSHIP BETWEEN SIMULATOR DRIVING SKILLS AND ACTUAL ROAD DRIVING WAS FOUND. POSSIBLE EXPLANATIONS OF THE FINDINGS ARE DISCUSSED IN THE STUDIES. (MF)

Table 1 continued

Variable	Complete Data		Incomplete Data		Significance Test of Differences	
	M	σ	M	σ	t	p*
Gen. Know. pre	16.16	2.99	15.99	3.07	-.30	n.s.
Gen. Know. post	20.27	2.06	19.46	2.45	-1.87	n.s.
1 braking	23.00	6.89	24.39	8.68	.90	n.s.
1 steering	6.62	3.91	5.73	2.56	-1.36†	n.s.
1 signals	7.58	3.78	7.43	3.47	-.22	n.s.
1 speed	1.20	1.49	.84	1.15	-1.45	n.s.
2 braking	19.49	6.93	19.87	8.46	.25	n.s.
2 steering	9.16	4.38	10.76	6.48	1.56†	n.s.
2 signals	5.44	2.37	5.88	2.44	.94	n.s.
2 speed	4.56	7.04	4.33	5.94	-.18	n.s.
3 braking	13.91	6.08	15.80	7.03	1.46	n.s.
3 steering	13.93	3.87	14.23	4.92	.34	n.s.
3 signals	7.27	2.77	7.52	2.37	.52	n.s.
3 speed	2.76	3.57	3.74	4.47	1.23	n.s.
4 braking	6.38	4.23	5.58	2.12	-1.17†	n.s.
4 steering	9.11	4.73	10.12	5.64	.99	n.s.
4 signals	6.53	3.88	9.04	8.74	2.09†	<.04
4 speed	3.62	4.06	4.74	5.87	1.20†	n.s.
5 braking	16.07	12.94	19.63	13.98	1.34	n.s.
5 steering	11.89	4.28	11.98	4.64	.11	n.s.
5 signals	4.62	2.89	6.07	2.91	2.52	<.01
5 speed	2.00	2.02	2.61	4.59	.91†	n.s.

†cross identifies comparisons where the assumption of equal variance was not met, that is, F ratios comparing variances were significantly (.05) different. In such cases t based on separate variance estimates rather than pooled variance estimates is reported.

*p<.05 - 2 tailed test

In like manner, but this time for the control groups, comparisons were made between students for whom complete data was available and those for whom only partially complete results were obtained. The comparisons for the control group are shown in Table 2.

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EVALUATION REPORT

Pontiac Driver Education Program

A Comparison of a Simulator Trained Group and Regular Trained Group on Measures of Driving Skills, Attitude Toward Driving, and General Knowledge of Driving.

Office of Evaluation
Pontiac School District

Patricia Neff
William Robertson Ph.D.
Merle Smith Ph.D.

VT015268

Table 2 Means, standard deviations and significance tests (t) of differences between the means of control groups with complete data and those with incomplete data †

Variable	Complete Data		Incomplete Data		Significance Test of Differences	
	M	σ	M	σ	t	p*
Range (total)	24.87	4.48	25.98	4.73	1.25	n.s.
Prep to drive	3.33	.67	3.40	.61	.57	n.s.
Left turns	3.11	.63	3.19	.85	.55	n.s.
Right turns	3.06	.64	3.17	.84	.75	n.s.
Backing	2.81	.62	3.04	.83	1.61	n.s.
Speed control	3.02	.71	3.23	.56	1.75	n.s.
Stopping	3.19	.67	3.32	.66	1.00	n.s.
Lane change	3.18	.69	3.32	.66	1.11	n.s.
Signaling	3.18	.64	3.30	.62	1.01	n.s.
Freeway (total)	28.86	5.06	29.92	5.03	1.09	n.s.
Prep to drive	3.44	.69	3.51	.62	.52	n.s.
Speed control	3.32	.69	3.34	.64	.18	n.s.
Following	3.33	.72	3.30	.66	-.27	n.s.
Signaling	3.37	.68	3.40	.65	.31	n.s.
Lane change	3.24	.71	3.28	.71	.28	n.s.
Steering	3.14	.72	3.34	.73	1.42	n.s.
Acceleration	3.08	.60	3.28	.65	1.64	n.s.
Deceleration	3.00	.57	3.26	.71	2.10	<.04
Gen. percept	2.91	.59	3.21	.66	2.58	<.01
City (total)	31.30	5.42	33.26	5.51	1.86	n.s.
Right turns	3.22	.66	3.32	.63	.78	n.s.
Left turn	3.14	.59	3.28	.58	1.18	n.s.
Following	3.14	.69	3.51	.66	2.82	<.01
Speed control	3.21	.60	3.32	.66	.93	n.s.
Steering	3.19	.69	3.32	.66	.98	n.s.
Signaling	3.27	.68	3.45	.69	1.35	n.s.
Hazard Percept	2.94	.59	3.34	.67	3.35	<.001
Lane selection	3.06	.59	3.27	.62	1.84	n.s.
Traffic cont. percept.	3.03	.57	3.23	.56	1.86	n.s.
Mirrors	3.11	.65	3.28	.65	1.32	n.s.
Deviance pre	2.43	2.07	2.11	1.32	-.78	n.s.
Deviance post	2.12	1.98	2.58	1.84	.90	n.s.
Faking pre	9.76	3.36	9.44	3.60	-.35	n.s.
Faking post	10.27	3.24	8.32	3.82	-2.19	<.03
X Misses pre	4.51	1.83	4.06	1.66	.94	n.s.
X Misses post	4.80	1.74	3.53	1.12	-3.73	<.001
Violations pre	9.92	2.38	11.17	2.94	1.86	n.s.
Violations post	10.28	2.32	10.47	2.01	.32	n.s.
Alcohol pre	2.75	1.44	2.83	1.43	.23	n.s.
Alcohol post	2.78	1.63	3.05	1.51	.64	n.s.
Accidents pre	13.37	2.67	15.00	3.43	2.14	<.04
Accidents post	13.78	3.09	13.79	3.51	.01	n.s.
Personal rel. pre	6.56	2.33	7.50	3.07	1.41	n.s.
Personal rel. post	6.48	2.46	6.00	3.22	-.69	n.s.
Gen. know. pre	15.21	2.77	14.25	1.95	-1.95	n.s.
Gen. know. post	20.83	2.19	19.09	2.28	-3.60	<.001

†cross identifies comparisons where the assumption of equal variance was not met, that is F ratios comparing variance were significantly (.05) different. In such cases t based on separate variance estimates rather than polled variance estimates is reported. *p<.05 2 tailed test.

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The results if Tables 1 and 2 show few differences between complete and incomplete data groups on both comparisons and suggest that data from all students be included in subsequent statistical analyses. In a total of one-hundred twelve comparisons (forty-six control group comparisons and sixty-six simulator group comparisons) it was found that Complete data groups and Incomplete data groups differed significantly ($p<.05$) on eleven. These differences were considered insufficient to warrant rejection of the partially complete data and consequently were used in all statistical analyses.

In addition to tests of the representativeness of the data three different statistical analyses were made. First, comparisons were made between the experimental and control groups on the forty-six variables common to the three and four phase driver education programs. The objective was simply to determine whether there were any consistent differences between criterion performance measures. A formal statement of the null hypothese would be Ho: E=C on the thirty measures of driving success, significance being $p<.05$. The second and third analyses are composed of a sixty-six variable correlation matrix and factor analysis applied to the measures taken on the experimental group. The aim of the correlational and factor analysis is to further specify the role of the simulation should the simulator group surpass the control group on the criterion variables.

If the simulator does, in fact, simulate driving, as represented by the criteria, there should be high correlations between success on the simulator and success on the road. The results of this

Overview

The evaluation of the Pontiac Driver Education Program consists of a major study aimed at determining the effects of simulator training and a smaller study replicating part of the design used in the major study.

The major study was carried out by William Robertson Ph.D. using t tests. Dr. Robertson found that students exposed to simulator training were given higher ratings on road tests than were students not exposed to simulator training. In the replication study carried out by Patricia Neff with smaller different groups of students this difference in favor of the simulator trained group was not evidenced. Both studies indicated that there was difference in attitude toward driving between the two groups. In regards to general knowledge of driving, the Robertson study found no difference in level of knowledge between the simulator group and the non-simulator group; however, the Neff study showed a significant difference in favor of the experimental group.

The relationships between simulator driving skills and actual road driving were explored in the Robertson study using correlation techniques and factor analysis. The analyses indicated that there was no consistent relationship between simulator driving skills and road success. Moreover the factor analysis pointed out that simulator driving is quite different from real driving. Possible explanations of the findings are discussed in the respective reports.

correlational and factor analysis then should be useful in discribing those features of the instructional program that are both interrelated and criterion related. The objective is to identify the specific training, classroom, and simulator variables that are relevant to real driving and those that are repetitious and not significant contributors. Lastly, it is anticipated that some theoretical value might be realized from observing the factors and the variables of which they are composed.

Results and Discussion

Table 3 shows the group size, the differences and significance of differences (t) between the experimental and control groups on measures criteria attitude and general knowledge.

Table 3 Means standard deviations and significance tests (t) of differences between the means of experimental (simulator) and control (non simulator) groups †

Variable	Exp. Group Simulator			Control Group No Simulator			Significance Test of Differences	
	N	M	σ	N	M	σ	t	p
Range (Total)	131	28.76	4.60	110	25.35	4.60	5.74	.0001
Prep to drive	131	3.86	.64	110	3.36	.65	6.00	.0001
Left turns	131	3.48	.67	110	3.15	.73	3.72	.0001
Right turns	131	3.31	.77	110	3.11	.73	2.10	.0376
Backing	131	3.20	.71	110	2.91	.72	3.13	.0021
Speed control	131	3.58	.70	110	3.11	.65	5.35	.0001
Stopping	131	3.57	.70	110	3.25	.67	3.69	.0001
Lane change	131	3.60	.70	110	3.24	.68	4.12	.0001
Signaling	131	4.10	.79	110	3.23	.63	9.51†	.0000
Freeway (Total)	131	31.66	4.84	110	29.31	5.06	3.67	.0001
Prep to drive	131	3.87	.53	110	3.47	.66	5.08†	.0001
Speed control	131	3.50	.66	110	3.33	.67	1.99	.0488
Following	131	3.54	.76	110	3.32	.69	2.38	.0184
Signaling	131	3.59	.67	110	3.38	.66	2.39	.0176
Lane change	131	3.44	.63	110	3.25	.71	2.17	.0313
Steering	131	3.46	.69	110	3.23	.73	2.52	.0126
Acceleration	131	3.41	.61	110	3.16	.63	3.12	.0021
Deceleration	131	3.49	.66	110	3.11	.64	4.50	.0001
Gen. percept.	131	3.36	.66	110	3.04	.63	3.85	.0001
City (Total)	131	34.83	5.79	110	32.14	5.52	3.68	.0001
Right turn	131	3.60	.65	110	3.26	.65	3.95	.0001
Left turn	131	3.40	.78	110	3.20	.59	2.32†	.0220
Following	131	3.52	.65	110	3.30	.70	2.52	.0126
Speed control	131	3.53	.65	110	3.25	.63	3.29	.0011
Steering	131	3.52	.66	110	3.25	.68	3.16	.0021
Signaling	131	3.53	.66	110	3.35	.68	2.18	.0307
Hazard-percept.	131	3.37	.69	110	3.11	.65	3.30	.0031
Lane selection	131	3.47	.66	110	3.15	.61	3.78	.0001
Traffic Cont. Percep	131	3.43	.68	110	3.12	.57	3.84†	.0001
Mirrors	131	3.47	.65	110	3.18	.65	3.38	.0011
Deviance pre	97	2.28	1.71	81	2.36	1.93	.29	.7726n.s.
Deviance post	111	2.20	2.14	79	2.23	1.94	.10	.9234n.s.
Faking pre	97	9.12	3.55	81	9.69	3.39	1.08	.2821n.s.
Faking post	111	9.88	3.66	79	9.80	3.47	.16	.8731n.s.
X Misses pre	97	4.45	1.71	81	4.41	1.79	.18	.9631n.s.
X Misses post	111	4.72	1.73	79	4.49	1.69	.90	.3734n.s.
Violations pre	97	10.57	2.47	81	10.20	2.55	.98	.3324n.s.
Violations post	111	10.53	2.65	79	10.33	2.23	.55	.5836n.s.
Alcohol pre	96	2.41	1.51	81	2.77	1.43	1.62	.1079n.s.
Alcohol post	111	2.61	1.63	79	2.85	1.59	.99	.3262n.s.
Accidents pre	96	14.23	2.98	81	13.73	2.92	1.13	.2641n.s.
Accidents post	111	14.22	3.35	79	13.78	3.17	.89	.3765n.s.
Personal rel. pre	96	6.18	2.44	81	6.77	2.53	1.57	.1188n.s.
Personal rel. post	111	6.26	2.77	79	6.37	2.65	.26	.7945n.s.
Gen. Know. pre	129	16.05	3.03	95	14.88	2.56	3.30	.0030
Gen. Know. post	124	19.75	2.34	95	20.24	2.36	1.54	.1166

†Cross identifies comparisons where the assumption of equal variance was not ment, that is F ratios comparing variance were significantly (.05) different. In such cases t based on separate variance estimates rather that pooled variance estimates is reported. *p<.05 - 2 tailed test.

DRIVER EDUCATION

The general purpose of this evaluation was to compare the effects of a four-phase driver education pilot program with those of a traditional three-phase program. The three phases customarily found in driver education programs in the Pontiac schools are characterized by experiences termed: 1) Classroom 2) Range, and 3) On-the-Street. The four phase program included the activities of the three phase program but added simulator experience which, as a consequence, became the major distinguishing independent variable of the study.

The increasing use of simulators by school-related driver education programs, along with research evidence attesting to the validity of such instruction, suggested it to be a fruitful means for accomplishing driver education objectives. Research evidence points out that the number of costly hours of behind-the-wheel instruction can be reduced through the use of simulators with no reduction of instructional quality. Bernoff (1958), for example, found that students with three hours of simulator experience and three hours of behind-the-wheel experience were adequately or possibly better prepared than students with six hours of behind-the-wheel instruction. He noted that the instructional staff could handle thirty percent more students per school year and thereby reduce the per-pupil cost of driver education instruction. In 1956 a study by Rhum and Woodcock demonstrated similar results and recommended the ratio of simulator to on-the-street driving to be 4:1. In 1958 the National Conference on Driver Education adopted the ratio as standard. Another study by Bishop in 1961 concluded that transfer of learning from simulator to actual driving is not only sufficient

The comparisons show significance was reached ($p<.05$) on the thirty actual driving measures and on the classroom pre test measures (General Knowledge). No significant group differences are found on either pre or post test measures of attitude. The hypotheses of no difference are rejected for all actual driving variables and the general knowledge pre test but accepted for all pre and post attitudes and the general knowledge post test. These data indicate that the simulator group was ranked significantly higher by their examiners on all actual driving variables and had significantly more general knowledge about driving prior to beginning the course of instruction. There was apparently no difference in driving attitude between these two groups at the beginning or end of the program, and in spite of a significantly lower general knowledge score by the control group (no simulator) at the beginning of the program, the groups finished the program with their general knowledge positions reversed but not significantly so. The reversed position of the groups on general knowledge could be the result of greater emphasis in time and/or effort in classroom work by those not exposed to the simulator. Summarizing the results of Table 3 it appears that students with simulator experience did better in actual driving, and had more knowledge about driving at the beginning of the program. These simulator experienced students ended the program with slightly less (but not significantly) general knowledge than the controls, and according to these measures no different in attitude (pre or post) from their control group.

Table 4 is a matrix composed of coefficients obtained from intercorrelating all sixty-six variables. The most striking characteristic of the matrix (table 4) is the preponderance of significant and high

to merit consideration as a substitution for a portion of on-street experience but pointed out that improvements in 1) intersection observance, 2) intersection speed, and 3) speed control in general, appear to be unique instructional capabilities of simulation.

The aim of the evaluation of the Pontiac program was not only to test the general validity of simulator use but to 1) determine the relationship of simulator success and failure to the criteria used by the school district, 2) to modify local simulator use by examining the relationship of specific simulator films to measures of skill, attitude and knowledge as demonstrated in classroom and driving situations, and 3) to provide some discription of the common components of the varied activities presently found in the driver education program. The general aim of the evaluation then was to determine the value of the simulator to the school district, and to suggest how the curriculum might be modified to avoid duplication of training effort and focus on the more critical aspects of driver education identified as relevant to the local criterion.

Method

Procedure: The experimental and control groups used for comparing the four phase (simulator) program with the three phase program were composed of students enrolled in driver education at Pontiac's Northern and Central High school during the spring semester of 1969. Due to the fact that nearly all students take driver education classes the composition of student experimental and control groups is a random mix that demographically speaking approximates the total school. Although the boy-girl ratio is approximately equal, there are group differences

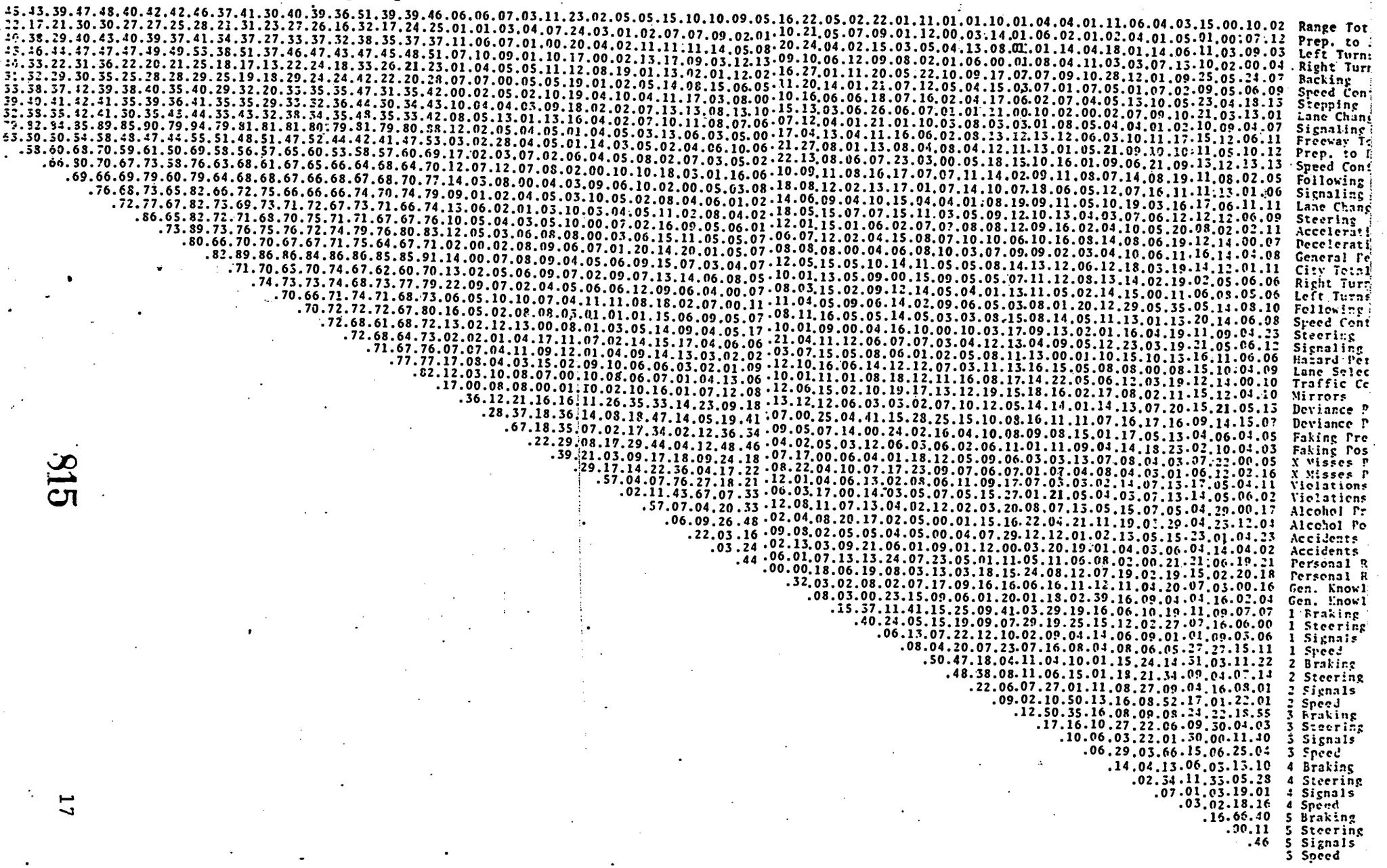
intercorrelations found among the first thirty variables. The total matrix is composed of 4290 coefficients most of which are not found to be significant; however, of the 420 coefficients resulting from the intercorrelation of the first thirty variables (upper left portion of the matrix) only 2 are found to be not significant, at least at the .05 level. Nineteen, of the correlations reach the 5% level of confidence with the remaining 399 showing significance at .01 with strengths of association often reaching a range from .70 to .80. These thirty variables are measured by scores obtained from teachers rankings of students while actually driving on the driving range, the freeway, or in the city. The high intercorrelations maybe a function of the common behavior required in such nearly similar activities but may, on the other hand, be a reflection of the scoring system, the limited range of scores available to the examiner (1 to 5) and the tendency for examiners to score near average (3) and to be consistent in scoring particular known students. No other portion of the matrix showed such consistently high correlation although there are many significant relationships found on simulation scores and many correlations that raise interesting possibilities for speculation. It was decided that the best means for making sense of a matrix of such dimensions was to reduce the complexity through factor analysis to attempt to explain the obtained variance of the measures in terms of a smaller number of variables. The correlation matrix was submitted to a factor analysis and varimax rotation written originally at UCLA as part of the BIMED series and adapted by the Statistical Research Laboratory at the University of Michigan. Approximately 93% of the variance of the sixty-six variables was explained by six iteration cycles and five factors.

in ethnic composition (Northern 86% white, 14% black; Central 57% white 43% black) and although hard data is unavailable regarding the socio-economic status of the schools it is generally believed that Northern would be found to be higher in SES than Central if data were obtained. Four classes of approximately sixty-four students apiece were used as experimental and control groups (n=64; N=256) of approximately equal size (n=64; N=256). Two of the three Pontiac Northern High School classes (where the simulator was located) were used for the experimental group and two of the four Pontiac Central High School driver education classes were used as controls. Members of the experimental and control groups were given pre and post tests on sixty-six measures, forty-six of which were used as dependent variables and criterion measures.

The Program Driver education students received a total of sixty hours classroom instruction, sixteen hours on the range (8 hours driving - 8 hours co-pilot) and eight hours on the road (4 hours driving - 4 hours passenger). Both the four phase and three phase programs received the same kind and amount of instruction in these three features of the curriculum. The four phase program; however, included an additional twelve hours of simulator experience. All classroom and road instruction, supervision and examination in both experimental and control groups was administered by rotating teacher personnel in order to reduce the effects of teacher-examiner differences. (See Appendix A for an outline of the program).

Measures Sixty-six predictor and criterion measures related to the activities of the program were taken from both the experimental and control groups. (Appendix B). Thirty of the measures were of actual

Table 4 Intercorrelations of all criterion, personality and simulator measures taken from the experimental group.



45.43.39.47.48.40.42.42.46.37.41.30.40.39.36.51.39.39.46.06.06.07.03.11.23.02.05.05.15.10.10.09.05.16.22.05.02.22.01.11.01.01.10.01.04.04.01.11.06.04.03.15.00.10.02	Range Tot
22.17.21.30.30.27.27.25.28.21.31.23.27.26.16.32.17.24.25.01.01.03.04.07.24.03.01.02.07.07.09.02.01	Prep. to
38.29.40.43.40.39.37.41.34.37.27.33.37.32.38.35.37.37.11.06.07.01.00.20.04.02.11.11.11.14.05.08	Left Turn
36.44.47.47.47.49.49.53.38.51.37.46.47.43.47.45.48.51.07.10.09.01.10.17.00.02.13.17.09.03.12.13	Right Tur
33.22.31.36.22.20.21.25.18.17.13.22.24.18.33.26.21.23.01.04.05.05.11.12.08.19.01.13.02.01.12.02	Backing
32.29.30.35.25.28.28.29.25.19.18.29.24.24.42.22.20.28.07.07.00.05.05.19.01.02.05.14.08.15.06.05	Speed Con
38.37.42.39.38.40.35.40.29.32.20.33.35.35.47.31.35.42.00.02.05.02.10.19.04.10.04.11.17.03.08.00	Stepping
40.41.42.41.35.39.36.41.35.35.29.33.32.36.44.30.34.43.10.04.04.03.09.18.02.02.07.13.13.08.13.10	Lane Chan
38.35.42.41.30.35.43.44.33.43.32.38.34.35.48.35.33.42.08.05.13.01.13.16.04.02.07.10.11.08.07.06	Signaling
92.94.85.89.85.90.79.94.79.81.81.81.80.79.81.79.80.88.12.02.05.04.05.01.04.05.03.13.06.03.05.00	Freeway T
50.50.54.58.48.47.44.55.51.48.51.47.52.44.42.41.47.53.03.02.28.04.05.01.14.03.05.02.04.06.10.06	Prep. to
.58.60.68.70.59.61.50.69.58.56.57.65.60.53.58.57.60.69.17.02.03.07.02.06.04.05.08.02.07.03.05.02	Speed Con
.66.80.70.67.73.58.76.63.68.61.67.65.66.64.68.64.70.12.07.12.07.08.02.00.10.10.18.03.01.16.06	Following
.69.66.69.79.60.79.64.68.68.67.66.68.67.68.70.77.14.03.08.00.04.03.09.06.10.02.00.05.03.08	Signaling
.76.68.73.65.82.66.72.75.66.66.66.74.70.74.79.09.01.02.04.05.03.10.05.02.08.04.06.01.02	Lane Chan
.72.77.67.82.73.69.73.71.72.67.73.71.66.74.13.06.02.01.03.10.03.04.05.11.02.08.04.02	Steering
.86.65.82.72.71.68.70.75.71.71.67.67.76.10.05.04.03.05.10.00.07.02.16.09.05.06.01	Accelerat
.73.89.73.76.75.76.72.74.79.76.80.83.12.05.03.06.08.08.00.03.06.15.11.05.05.07	Decelerati
.80.66.70.70.67.67.71.75.64.67.71.02.00.02.08.09.06.07.01.20.14.20.01.05.07	General Fe
.82.89.86.86.84.86.86.85.85.91.14.00.07.08.09.04.05.06.09.15.07.03.04.07	City Total
.71.70.65.70.74.67.62.60.70.13.02.05.06.09.07.02.09.07.13.14.06.08.05	Right Turn
.74.73.73.74.68.73.77.79.22.09.07.02.04.05.06.06.12.09.06.04.00.07	Left Turns
.70.66.71.74.71.68.73.06.05.10.10.07.04.11.11.08.18.02.07.00.11	Following
.70.72.72.72.67.80.16.05.02.08.08.03.01.01.01.15.06.09.05.07	Speed Cont
.72.68.61.68.72.13.02.12.13.00.08.01.03.05.14.09.04.05.17	Steering
.72.68.64.73.02.02.01.04.17.11.07.02.14.15.17.04.06.06	Signaling
.71.67.76.07.07.04.11.09.12.01.04.09.14.13.03.02.02	Hazard Per
.77.77.17.08.04.03.15.02.09.10.06.06.03.02.01.09	Lane Selec
.82.12.03.10.08.07.00.10.08.06.07.01.04.13.06	Traffic Co
.17.00.08.08.00.01.10.02.10.16.01.07.12.08	Mirrors
.36.12.21.16.16.11.26.35.33.14.23.09.18	Deviance P
.28.37.18.36.14.08.18.47.14.05.19.41	Deviance P
.67.18.35.07.02.17.34.02.12.36.34	Faking Pre
.22.29.08.17.29.44.04.12.48.46	Faking Pos
.39.21.03.09.17.18.09.24.18	X Misses P
29.17.14.22.36.04.17.22	X Misses P
.57.04.07.76.27.18.21	Violations
.02.11.43.67.07.33	Violations
.57.07.04.20.33	Alcohol Pr
.06.09.26.48	Alcohol Po
.22.03.16	Accidents
.03.24	Accidents
.44	Personal R
.00.00.18.06.19.08.03.13.03.18.15.24.08.12.07.19.02.19.15.02.20.18	Personal R
.32.03.02.08.02.07.17.09.16.16.06.16.11.12.11.04.20.07.03.00.16	Gen. Knowl
.08.03.00.23.15.09.06.01.20.01.18.02.39.16.09.04.04.16.02.04	Gen. Knowl
.15.37.11.41.15.25.09.41.03.29.19.16.06.10.19.11.09.07.07	1 Braking
.40.24.05.15.19.09.07.29.19.25.15.12.02.27.07.16.06.00	1 Steering
.06.13.07.22.12.10.02.09.04.14.06.09.01.01.09.03.06	1 Signals
.08.04.20.07.23.07.16.08.04.08.06.05.27.27.15.11	1 Speed
.50.47.18.04.11.04.10.01.15.24.14.51.03.11.22	2 Braking
.48.38.08.11.06.15.01.18.21.34.09.04.07.14	2 Steering
.22.06.07.27.01.11.08.27.09.04.16.08.01	2 Signals
.09.02.10.50.13.16.08.52.17.01.22.01	2 Speed
.12.50.35.16.08.09.08.24.22.18.55	3 Braking
.17.16.10.27.22.06.09.30.04.03	3 Steering
.10.06.03.22.01.30.00.11.40	3 Signals
.06.29.03.66.15.06.25.04	3 Speed
.14.04.13.06.03.15.10	4 Braking
.02.34.11.35.05.28	4 Steering
.07.01.03.19.01	4 Signals
.03.02.18.16	4 Speed
.16.66.40	5 Braking
.30.11	5 Steering
.46	5 Signals
	5 Speed

driving, fourteen were pre and post measures on seven personality attitude scales, two measures were of general driving knowledge (classroom work) and twenty were obtained from the error scores on four driving variables, (braking, steering, signals, and speed) on five different films used with the simulator. Their description follows:

Range Driving Average (RDA) - is an average of the results obtained on eight abilities. The subjects in the experimental and control groups were rated on each of eight variables (a one [poorest] to five [best] scale) by their instructor at the end of their range experience; five weeks prior to the end of the program. The individual measures that made up the Range Driving Average were termed:

Preparation to Drive
Left turns
Right turns
Backing
Speed control
Stopping
Lane changes
Signals

Freeway Driving Average (FDA) - is an average of the results obtained on nine skills. The subjects in experimental and control groups were rated (one to five) on each of nine variables. The examinations were given as near to the end of the program as scheduling would allow. The specific ratings that made up the Freeway Driving Average were as follows:

Preparation to drive
Speed control
Following distance
Signaling
Lane changes
Steering
Acceleration lane
Deceleration lane
General perceptual skills

City Driving Average (CDA) - is an average of the ratings on ten measures; again on a one to five scale. In light of the fact that city driving

Table 5 shows the five factors and their loadings following a varimax rotation.

Table 5 Rotated factor loadings from sixty-six measures on simulator experienced students.

Variable	Factor I	II	III	IV	V
Range (Total)					
Prep to drive	.40	.05	.67	-.01	.02
Left turns	.23	.01	.66	.06	-.18
Right turns	.35	.04	.76	.02	.03
Backing	.49	.13	.63	.02	-.06
Speed control	.18	.04	.72	-.09	.23
Stopping	.23	.00	.79	-.02	-.06
Lane change	.34	-.01	.77	-.10	.11
Signaling	.36	.04	.77	.00	.02
Freeway (Total)	.37	.07	.68	.02	-.07
Prep to drive	.86	-.01	.21	.02	.07
Speed control	.55	-.00	.38	.11	.12
Following	.72	-.08	.22	.03	.15
Signaling	.80	.02	.15	.02	.06
Lane change	.83	-.10	.10	.03	.02
Steering	.84	-.01	.18	.08	.09
Acceleration	.76	-.02	.18	.01	.06
Deceleration	.86	-.03	.10	-.01	.01
Gen. percept.	.92	.02	.08	-.05	.02
City (Total)	.80	.04	.16	-.07	.04
Right turn	.88	.02	.13	.01	.05
Left turn	.84	.02	.07	-.01	-.04
Following	.77	-.02	.11	.01	.01
Speed control	.88	.13	-.03	.14	-.09
Steering	.85	.03	.07	-.05	.08
Signaling	.84	.06	.08	-.02	.11
Hazard percept.	.85	.09	.06	-.05	.05
Lane selection	.84	.04	.21	-.05	-.01
Traffic Cont. Percep	.83	-.08	.08	.05	.09
Mirrors	.85	-.02	.08	.06	.12
Deviance pre	.81	-.02	.13	-.02	.11
Deviance post	-.18	.41	.15	.27	.09
Faking pre	-.02	.70	.05	-.11	-.04
Faking post	-.07	-.51	-.01	.02	-.13
X Misses pre	-.06	-.41	.01	.10	-.04
X Misses post	-.04	-.35	-.15	.07	.00
Violations pre	.03	-.41	-.31	.30	.15
Violations post	-.03	.21	.03	-.71	-.18
Alcohol pre	-.05	.17	.04	-.74	-.08
Alcohol post	.05	.44	-.01	-.03	.23
Accidents pre	.14	.67	.04	-.08	.05
Accidents post	.08	.11	.11	-.69	-.29
Personal rel. pre	.08	.13	-.20	-.56	-.02
Personal rel. post	.03	.51	.05	-.08	.32
Gen. Know. pre	.04	.67	-.02	-.24	.14
Gen. Know. post	.12	.07	.16	.26	.07
1 braking	-.11	.04	.41	.11	.03
1 steering	.16	.34	.13	.02	-.30
1 signals	.08	.39	-.10	.03	.27
1 speed	.07	.38	-.25	-.17	-.13
2 braking	-.17	-.01	.10	-.02	-.34
2 steering	-.16	.36	.26	.16	-.01
2 signals	-.05	.41	.04	.19	-.09
2 speed	-.09	.27	.05	.06	-.21
3 braking	-.07	.34	-.10	.46	-.42
3 steering	-.10	.07	.00	-.15	-.37
3 signals	-.13	.23	-.12	-.02	-.11
3 speed	-.12	.14	-.00	-.18	-.52
4 braking	.11	.34	-.07	.37	-.47
4 steering	.15	.15	-.25	.03	-.21
4 signals	.20	.41	-.21	.14	-.11
4 speed	.07	.13	-.06	-.03	-.04
5 braking	.23	.46	-.09	.49	-.29
5 steering	.08	.15	.14	.14	.66
5 signals	-.14	.23	.05	.04	.01
5 speed	-.04	.16	.13	-.08	.69
	.09	.25	.05	.27	.63

success as judged by driver education instructors, is presently the pass-fail criterion used in the Pontiac driver education program, it was logical that it act as the primary criterion for the interpretations of this evaluation. The sub skills of CDA were:

Right turns
Left turns
Following distance
speed control
Signaling
Hazard perception
Lane selection
Traffic control perception
Use of mirrors

Driver Attitude Survey - The Driver Attitude Survey (1961) is a test developed by D. H. Shuster and J. P. Guilford to assess attitudes correlated with driver behavior that result in moving violations and accidents. (Appendix C). In composing the survey various accident and violator groups were given a preliminary test of 395 items in order to subsequently obtain the best combination of items for predicting problem drivers. Cross validation of the scale showed that drivers with accidents and those with violations, versus other drivers, and predictable to sixty-four percent and seventy-five percent respectively. In addition to the two major scales (accidents and violations) three validation scales and two experimental scales composed the final form of the test. The Deviance (D) scale is intended to indicate such things as a tendency to make careless mistakes in answering, lying or trouble with reading. The Faking (F) scale is composed of items that were answered significantly differently under faking-excellent-driver instructions. The Misses (X) scale is a scale aimed at predicting problem drivers misclassified (false negatives) by the main scales (A) and (V). The experimental scales Alcohol (AL) and Personal Relations (P) although not fully developed are included for their logical relevance to accidents

The loadings of the sixty-six variables on the five rotated factors reveal several distinct patterns pertinent to the hypotheses and also raise some new questions. Rather than first ascribing names to the factors and then following with a discussion of each, it seems most appropriate to write the interpretation as the logic of the factor names is developed.

The first observation to be made is that "real driving" is quite a separate factor from simulator experience and apparently different attitude. Of the identified five factors, numbers I and III show high loadings from measure of Range, City and Freeway driving but only negligible loadings from attitude measures and/or simulator error scores. Freeway and City driving then appear to be essentially the same, sharing something in common with Range driving success but nearly nothing in common school work. Note a .41 loading from General Knowledge (classroom post-test) on Factor III the factor on which Range driving loads so heavily. It seems reasonable then to term Factor I as "Real Street Driving" and Factor III as "School Driving." Range driving is done at school (in the school parking lot to be exact) and gives evidence of sharing much in common with City and Freeway driving; however, a portion of range driving also seems related to school work, hence the term school driving.

Factor II is probably the most interesting factor for speculation. Loadings found on Factor II are a combination of attitude measures and simulator error scores taken from the first four films. Factor II appears to identify a generally careless test-taker who also makes many errors on the simulator. It appears to be descriptive of a person who is easily recognized by tests as a high alcoholic individual, high in personal relations and possibly a casual, friendly person who breaks

and violations. These seven scales, administered as pre-post measures of attitude change, are listed below:

Deviance Faking Misses Violations	Validation Scales
Alcohol Accidents	Experimental scale
Personal Relations	Experimental Scale

General Knowledge - A teacher-made test of general knowledge pertaining to traffic safety was constructed to assess the effects of text related classroom study. The twenty-five multiple choice items (Appendix D) covering rules and regulations, signs, speed, right of way, etc. was administered at the beginning and end of the program.

Simulation - Student experience on the Link Driver Simulator-SS-6-5 was the major independent variable of the pilot study. The Link Driver is an electronic device that attempts to approximate the experience of driving. In physical appearance it is the driver's side of a current model American Automobile, including an operational dashboard with indicators of temperature, oil pressure, fuel, turn signals, and a speedometer functioning with respect to the gearshift and accelerator. The trainers are also equipped with a seat belt, parking brake, emergency flashers and can be used with either manual or automatic gearshift options. The pilot program that served as the basis of this evaluation used only the automatic gearshift. Sixteen Link simulators were arranged inside a 60 ft. trailer of the type often used as somewhat permanent "mobile' homes. Eight stations were placed along each sidewall facing a screen upon which the films were projected by an instructor located at the back of the trailer. In addition to the projector the instructor's station was equipped with a console that included a

rules and doesn't bother to put up any pretense about it, a sort of "I don't give a damm" style of behavior. Factor II could be then termed the "Friendly, Alcoholic, Careless Errors Personality" factor.

An interesting feature of the loadings comparing Factor II with Factor IV is the characteristic of "Speed" on the simulator. Factor II includes moderate simulator error loadings on Speed implying that speed goes with carelessness. That's not surprising, but the fact that Speed errors also go with high negative loadings on violations and accidents, such as found on Factor IV, is surprising. Interestingly the "Speed" errors on films 2, 3, and 4 are the only significant loadings from the simulator on Factor IV. No other simulator errors from any of the films load very heavily on this factor. Simulator Speed errors are apparently found among those who are identified as Friendly, Alcoholic Casual and Careless (Factor II) and also among those who are least prone toward Violations and Accidents. Speed as measured by the simulator may well be a prediction of the friendly, careless person who maybe an average driver as far as violations and accidents are concerned, and, may also predict the driver who is the very prone to be a violator and/or accident participant. Factor IV could be called a Simulator Speed Error Low Accident-Violation, factor. It suggests there is a driving type who drives fast but has few accidents and few violations citations.

Factor V appears to be a Factor identified by high positive loadings from the last film of the program "Drive in Review" along with a moderate loading from the Personal Relations scale of the Driver Attitude survey, and, in consistent contrast, many negative, moderate loadings from the other four films. Apparently the "Drive in Review" film is something unique and may identify those who fail the requirement of the review but showed few errors on other films. In this regard it could

digital recorder designed primarily to provide instant feedback about student response to the films. The device electronically noted and accumulated the number of student errors for each simulator station on the following categories:

Speed
Brakes
Steering
Turn Signals
Headlights

Error scores were thus obtained for the students of the simulator group on the first four listed categories (headlight errors were not included). Five films from the Allstate Driver Trainer film library were selected as most relevant. Error scores obtained on Speed, Brakes, Steering and Turn Signals on the five films acted as measures of simulator success. The five films used are titled:

Moderate Traffic
Advance City Driving
Hit the Highways
Expressways are Different
Drive in Review

A summary listing of all measures ordered according to their appearance in the tables is as follows:

1. Range Driving Average
2. Preparation to drive
3. Left Turns
4. Right Turns
5. Backing
6. Speed Control
7. Stopping
8. Lane Change
9. Signals
10. Freeway Driving Average
11. Preparation to drive
12. Speed Control
13. Following Distance
14. Signaling
15. Lane Changes
16. Steering
17. Acceleration
18. Deceleration
19. General perceptual skills

function as intended as sort of final "filter" for graduating from the simulator training experience. On the other hand it, "Drive in Review" like the other films seems unrelated to any of the criterion measures. When one adds that knowledge to the negative relationships it bears to the other films it may mean that the "final filter" filters out the wrong students. It would appear logical to refer to the Drive in Review film as a separate and unique experience unrelated to actual driving or to the other films. Factor V might best be described as a "Negative or Unrelated Simulator Experience.

The five factors are then listed as follows:

Factor I Real Street Driving
Factor II Friendly Alcholic Careless Errors Personality
Factor III School Driving
Factor IV Simulator Speed Errors-Low Accident Violations
Factor V Negative or Unrelated Simulator Experience

A general observation of the data especially the data of Table (4) and the Factor Analysis Table (5) suggests that while the group of students who took simulator training were consistently better drivers according to the ratings of their teachers, there is some question as to how the simulator was responsible. A few moments observation of the five factors and the variables that load most heavily on them indicates that the "real driving" measures are quite unrelated to the measures taken from the simulator in spite of the significant differences between simulator trained students and those students without simulator training. The results suggest that high driving success did characterize the simulator group but that their success was not due to the simulator experience for which measures were taken. Errors on simulator scoring categories (braking, steering, signals and speed) did not load on the same factors as "real driving". This does not mean that the simulator

20. City Driving Average
    21. Right turns
    22. Left turns
    23. Following distance
    24. Speed Control
    25. Steering control
    26. Signaling
    27. Hazard perception
    28. Lane selection
    29. Traffic Control perception
    30. Use of mirrors

Driver Attitude Scales pre-post
    31. Deviance pre
    32. Deviance post
    33. Faking pre
    34. Faking post
    35. Misses pre
    36. Misses post
    37. Violation pre
    38. Violations post
    39. Alcohol pre
    40. Alcohol post
    41. Accidents pre
    42. Accidents post
    43. Personal Relations pre
    44. Personal Relations post
    45. General knowledge pre
    46. General knowledge post

In addition to these forty-six measures (taken from both experimental and control groups) an additional twenty measures (four simulator error scores from five films) were taken on the experimental subjects. These variables are listed as follows:

Moderate Traffic
    47. Braking
    48. Steering
    49. Signals
    50. Speed

Advanced City Driving
    51. Braking
    52. Steering
    53. Signals
    54. Speed

is of no value but it may mean that other features of the simulator experience are at work (getting accustomed to sitting at a wheel, always looking ahead, paying attention, etc.) to, it may mean that factors are at work in the criterion measure, that is a tendency for raters to use an internal criterion such as halo effect for those of the experimental group. In any event the criteria were found to be dimensions, quite different from simulation. The fact that Factor I and III share the variance of Range driving but neither of them have much in common with the DAS personality or film variables (that incidentally have a fair measure of validity behind them) lends support to the suggestion that rater bias is the important feature of criterion measures.

Unless it's a matter of training effects and incidental learning it appears that the films do not measure (or train) the same thing. This is not intrinsically good or bad, for a film to be of value should have something unique for training. It would, however, be good to identify the relationship of training experiences to driving criterion other than ratings. Perhaps an experiment could be devised where change scores on a number of variables measured during a sequence of training could be factor analyzed in order to discover which of the experiences show communality. It would seem to be a design improvement that would add a dimension to the examination of training effects that the present study was not equipped to consider. Several other possibilities for dealing with training effects might be devised. One, of course, is to arrange all varied combinations of the sequence of the learning and compare them along the lines of the present research. Another possibility might be to return the students to the simulator after the final driving test

Hit the Highway
55. Braking
56. Steering
57. Signals
58. Speed

Expressways are Different
59. Braking
60. Steering
61. Signals
62. Speed

Drive in Review
63. Braking
64. Steering
65. Signals
66. Speed

Statistical Analysis

All statistical analyses in this research made use of the University of Michigan Computing Center with consultation provided by the University of Michigan Statistical Research Laboratory after tests and measures were obtained and recorded on a student driver checklist (appendix A&B). Cards were punched and appropriate programs were selected from the UCLA BIMED series. In doing a field project with numerous measures there are usually many subjects for whom complete data is not available. Such was the case in this project, and, as a consequence it was decided that the statisticaly analyses should be preceded by tests to determine whether data obtained from students with incomplete results could be used to increase N. The aim was to increase N without distorting the results and still represent the group.

Table 1 is composed of data obtained from the experimental (simulator) groups. It (simulator group) was separated into two subgroups, those for whom scores were available on all variables (referred to as the "Complete Data" group) and those who were missing scores on some variables (referred to as "Incomplete Data")

in order to determine what film variables are most related to the criterion, or, one might even use experienced drivers to discover the relationship of real driving and simulators errors.

In summary, this research was aimed at assessing simulator validity. The findings show:

1. Students with simulator experience were subsequently rated by their instructors as better drivers than those without such experience when road tests were taken.

2. Even though students with simulator experience were ultimately judged better drivers, there was no consistent relationship between simulator success on specific films or simulator driving skills with road success.

3. A factor analysis showed simulator driving to be quite different from real driving as rated by the Pontiac instructors. Either the predictor (simulator) or criterion (ratings) could be all or partially correct. In any event they do not agree as to who is the good driver. Several reasons for this discrepancy were suggested and options for an experimental examination of the question were suggested.

PURPOSE OF STUDY

The purpose of this study was to compare classes of Driver Education students enrolled in the Pontiac City Schools. The results were studied to discern any possible differences in the performance of the two groups which might be attributed to the use of the Driving Simulator Described by Robertson.

SAMPLE

The sample consisted of one experimental group and one control group, each enrolled at different area high schools. Each group was enrolled in the Second Semester Driver Education Class for the 1969-70 school year. The experimental group (1) had 55 students while the control group (2) had 69 students. Both groups received the same instruction with one exception--the experimental class received simulator training. The control group did not use the simulator.

RESEARCH PROCEDURES

The two groups were compared on two overall criteria--the change in attitude toward driving during the class and achievement in driving skills.

Driver attitude was measured by the Guilford Driver Attitude Survey. This scale measures seven (7) variables related to high numbers of accidents and violations in drivers. The scales are designed to predict drivers who will later have high accident and violation records according to present attitudinal traits. A high score on any variable indicates a tendency toward that type of behavior. Consequently, a high

score on violations indicates a high probability of being involved in accidents. The specifics of the seven attitude variables are described by Robertson earlier in this study.

The Driver Attitude Test was administered on a pre-post basis. Each of the seven variables was analyzed statistically using analysis of variance for pre-test and post-test differences between groups. Finally, analysis of covariance was performed to analyze the total difference between the two groups on each variable. The pre-test variable was used as the initial variable and the post-test variable as the final variable. The scores on General Knowledge, which is an achievement variable, are included in the Driver Attitude Tables because the same procedures and statistics were used.

The Driver Achievement criteria of the study was measured on two levels, general knowledge and driving skills. The tests were constructed administered, and scored by the driver education instructors.

The General Knowledge Test was a 20-item paper-and-pencil classroom test. It was scored for number of errors.

The Driving Skills Test consisted of twenty-seven (27) performance variables which were divided into three (3) categories; Range Driving, City Driving and Freeway Driving. The students were rated on each variable on a 1 (poor) to 5 (excellent) scale. The rating was done by instructors during observation of actual driving performance. The instructors were rotated for inter-observer reliability. Driving skills were measured on only a post-test basis. T-tests for uncorrelated samples were used to analyze differences between groups.

RESULTS

Results for Attitude and General Knowledge Scales

Table I presents the pre-test data on the general knowledge and attitude scales. The General Knowledge test results:

Table I Analysis of variance comparing Experimental and Control groups on pretest General Knowledge and Driver Attitude scales.

Variable	Experimental Group (simulator) N=55		Control Group (no simulator) N=69		F - Ratio
	$\bar{X}$	SD	$\bar{X}$	SD	
Gen. Knowledge ($\bar{X}$ errors)	8.91	3.33	10.28	3.47	4.92*
Deviance	2.40	1.88	2.35	1.69	.03
Faking	10.16	2.90	8.30	3.17	11.34**
Misses	4.42	1.36	4.58	1.43	.41
Violations	9.71	2.50	10.65	2.48	4.39*
Alcohol	2.78	1.52	2.91	1.80	.19
Accidents	12.82	3.05	14.23	3.72	5.17*
Personal Relations	6.51	2.91	7.70	3.29	4.40*

*Significant at .05 level
**Significant at .01 level

On the pre-test there are several significant differences between the two groups. The control group showed significantly higher scores in the following areas:

- Violations
- Accidents
- Personal Relations

The experimental group showed significantly higher-scores in the following:

- General Knowledge
- Faking

One interesting fact concerning the pre-test data is that while all other variables mentioned above are significant at the .05 level, the faking variable was significant at the .01 level. This indicates that the students in the experimental group had substantial attitudes toward "faking-excellent-driver". High scores on this index make the Accident and Violations scores suspect. The experimental group mean of 10.16 on the Faking scale, although substantially higher than that of the control group, falls short of the score (16.0) needed to make the Accident and Violations scales invalid.

Table II Analysis of Variance comparing Experimental and Control groups on post-test General Knowledge and Driver Attitude scales.

Variable	Experimental Group (simulator) N=55		Control Group (no simulator) N=69		F - Ratio
	$\bar{X}$	SD	$\bar{X}$	SD	
Gen. Knowledge ($\bar{X}$ errors)	3.18	1.73	4.96	2.26	23.10**
Deviance	3.09	2.37	2.59	2.10	1.53
Faking	10.60	2.82	8.93	3.36	8.73**
Misses	4.95	1.79	4.43	1.25	3.48
Violations	9.75	2.06	10.54	3.21	2.51
Alcohol	3.29	1.80	3.70	2.40	1.08
Accidents	12.65	2.56	14.03	3.28	6.49*
Personal Relations	6.49	3.07	7.39	2.35	3.42

*Significant at .05 level
**Significant at .01 level

The analysis of variance on the post-test results indicates that there were some significant differences between the experimental and control groups in general knowledge and attitude toward driving.

The control group showed a significantly higher score on only the accidents variable.

The experimental group showed significantly higher scores in the following areas:

. General Knowledge
. Faking

The experimental group showed a significantly higher mean score on the General Knowledge and Faking Attitude variables on the pre-test and continued to maintain higher scores on those variables.

The final analysis of the differences between the two groups on the General Knowledge and Driving Attitude Scales was a comparison of the total performance of both groups on the measures. The statistic used was an analysis of covariance. The results are presented in Table III.

Table III Analysis of covariance between Experimental and Control groups on General Knowledge and Attitude scales with pre-test as initial variable and post-test as final variable.

	Adjusted Means		
Variable	Experimental Group	Control Group	F-Ratio
Gen. Knowledge ($\bar{X}$ errors)	3.43	4.76	17.55**
Deviance	3.07	2.61	1.67
Faking	10.24	9.21	3.38
Misses	4.98	4.40	5.31*
Violations	9.93	10.39	.88
Alcohol	3.31	3.68	.94
Accidents	12.95	13.80	2.89
Personal Relations	6.73	7.20	1.12

*Significant at .05 level 3.92
**Significant at .01 level 6.84

The only significant differences indicated in the analysis of covariance were on the General Knowledge and misses (x) variables. After adjusting means for pre-test differences between the two groups, the results indicate that the experimental group made substantial gains over the control group on one variable, General Knowledge, during the driver program. These results indicate that the pre-test differences on the Personal Relations and Accidents variables were eliminated on the post-test.

Results for Driving Skills Scales

This section of the study is concerned with the differences between the experimental and control groups on actual driving skills.

Since only post-test scores were taken, the statistics used in evaluation were t-tests. The results of the driving skills portion of the study are presented in Table IV.

Table IV Comparison of Experimental and Control groups on Driving Skills variables using t-tests.

Variable	Experimental Group (simulator) N=55		Control Group (no simulator) N=69		Significance of Difference (t-test; 2 tailed)
	$\bar{X}$	SD	$\bar{X}$	SD	t-test
Range Driving (total)	25.18	3.90	25.41	4.20	.304
Prep. to Drive	3.63	.49	3.67	.80	.240
Left Turns	3.18	.51	3.10	.60	.790
Right Turns	2.87	.75	3.10	.65	1.828
Backing	2.98	.71	2.83	.77	1.163
Speed Control	3.16	.66	3.19	.58	.220
Stopping	3.15	.67	3.19	.60	.372
Lane Change	3.04	.58	3.13	.59	.890
Signals	3.16	.76	3.20	.61	.318

Table IV - continued

Variable	X	SD	X	SD	t-test
City Driving (total)	33.29	4.78	32.96	4.22	.413
Right Turns	3.40	.53	3.36	.54	.388
Left Turns	3.31	.54	3.28	.54	.345
Following Distance	3.44	.63	3.32	.47	1.188
Speed Control	3.29	.69	3.32	.56	.250
Steering Control	3.26	.67	3.44	.58	1.600
Signaling	3.36	.68	3.38	.62	.112
Hazard Perc.	3.27	.56	3.15	.58	1.243
Lane Selection	3.35	.55	3.30	.49	.437
Traffic Control Perception	3.35	.55	3.22	.54	1.301
Use of Mirrors	3.27	.80	3.20	.44	.615
Freeway Driving (total)	30.84	4.15	31.09	4.05	.339
Prep. to Drive	3.66	.67	3.94	.66	2.386*
Speed Control	3.46	.60	3.48	.66	.221
Following Distance	3.40	.60	3.42	.55	.196
Signaling	3.38	.65	3.41	.60	.212
Lane Change	3.40	.56	3.45	.56	.487
Steering Control	3.36	.52	3.46	.56	1.021
Acceleration Lane	3.29	.53	3.41	.50	1.241
Decceleration Lane	3.36	.59	3.33	.63	.273
Gen. Perceptual Skills	3.53	.77	3.19	.67	2.624**

*Significant at .05 level
**Significant at .01 level

Table IV showed that there were significant differences between the two groups on only two (2) of the twenty-seven (27) variables. Both significant variables fell into the Freeway Driving category. One of the two variables (Preparation to Drive) was significant at the .05 level in favor of the control group. The other variable (General Perceptual Skills) was significant at the .01 level in favor of the experimental group.

CONCLUSIONS

The results of the study indicate that use of the driving simulator had little to do with change in either driving attitude or driving performance skills. The experimental group did, however, show a greater gain in General Knowledge about driving than the control group.

In considering this difference, it must also be noted that the two groups were not matched for intellectual level, socio-economic status, or previous knowledge of driving. Any one or combination of these factors could account for this difference.

There is also the possibility that differences in teaching technique or classroom time spent on General Knowledge material could have affected the scores.

In considering the lack of significant differences on the driving skills variables it must be noted that the narrow rating scale (1-5) may have affected the scores. The majority of scores clustered around the 3 rating. Because of this, there was little discrimination between the variables.

VT 015 290

SYNOPSIS. COBB COUNTY OCCUPATIONAL AND CAREER DEVELOPMENT PROGRAM.

COBB COUNTY BOARD OF EDUCATION, MARIETTA, GA.
OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
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DESCRIPTORS - *CAREER EDUCATION; *VOCATIONAL DEVELOPMENT; *INTEGRATED CURRICULUM; POTENTIAL DROPOUTS; ELEMENTARY GRADES; SECONDARY GRADES; *TEACHER DEVELOPED MATERIALS; JOB PLACEMENT; ACTIVITY LEARNING; *PROGRAM DESCRIPTIONS; HUMANITIES

ABSTRACT - THIS INTEGRATED OCCUPATIONAL AND CAREER DEVELOPMENT PROGRAM FOR THE ELEMENTARY AND SECONDARY GRADES, FEDERALLY FUNDED AS A 3-YEAR EXEMPLARY PROJECT, ORIGINATED FROM A PREVIOUS PROJECT, FUNDED BY THE STATE, TO DEVELOP A MODEL FOR A CAREER EDUCATION PROGRAM. TEACHERS, PRINCIPALS, UNIVERSITY CONSULTANTS, AND A PROJECT STAFF OF VOCATIONAL SPECIALISTS, CURRICULUM WRITERS, AND A DIRECTOR IMPLEMENTED TEACHER DEVELOPED ACTIVITY UNITS FOCUSING ON SELF-EVALUATION, OCCUPATIONAL EXPLORATION, CAREER PREPARATION, THE DEVELOPMENT OF DECISION MAKING SKILLS, AND AN APPRECIATION OF THE VALUES OF WORK. TO IMPLEMENT THESE GOALS, SIX COMPONENTS FOR THE FLEXIBLE UNITS WERE DEVELOPED: (1) "HANDS-ON" ACTIVITIES, (2) ROLE PLAYING, (3) FIELD TRIPS, (4) RESOURCE PEOPLE, (5) SUBJECT MATTER TIE-INS, AND (6) AN INTRODUCTION TO RELEVANT OCCUPATIONS IN THE COMMUNITY. IN GRADE 9, STUDENTS CHOOSE EITHER THE HUMAN SERVICE, INDUSTRIAL ARTS, OR BUSINESS OCCUPATIONS FOR IN-DEPTH EXPLORATION. SPECIAL HELP IS GIVEN TO POTENTIAL DROPOUTS. SPECIFIC JOB PREPARATION IS EMPHASIZED AT THE SECONDARY LEVEL. OCCUPATIONAL GUIDANCE AT ALL LEVELS TO A PLACEMENT PROGRAM FOR JOBS, FURTHER TRAINING FOR A CAREER, OR HIGHER EDUCATION. (AG)

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SYNOPSIS

COBB COUNTY OCCUPATIONAL AND CAREER DEVELOPMENT PROGRAM

Joel Smith - Project Director

422-9171 Ext. 246

P. O. Drawer 'R'

Marietta, Georgia 30060

VT015290

Synopsis

This project grew out of a state grant which funded an Occupational and Career Exploration Program (O.C.E.P.) in Cobb County beginning September, 1969. The O.C.E.P. Project was to develop a model for the program in which we are now engaged. Federal funding for exemplary programs became available sooner than expected and a proposal for such funds was initiated in November, 1969, and submitted December 31, 1969, requesting $130,000.00 per year for three (3) years. The Occupational and Career Development Program was funded July 1, 1970, in the amount of $114,027.00 renewable on the first and second anniversaries.

The Project Staff consists of: Joel Smith, Project Director; Robert E. Cook and Albert Price, Elementary Career Development Specialists; David Taylor, Middle School Career Development Specialist; Farris Foresman and James L. Harrison, Secondary Career Development Specialists; Miss Judy Comer and Mrs. Judi Collins, Curriculum Writers; Miss Pat Carter and Miss Deborah Starnes, Secretaries. The pilot schools within the Cobb County School System which are involved in the project are: Sprayberry High School, and its feeder school J. J. Daniell Middle School, and its feeder schools Bells Ferry Elementary School, Blackwell Elementary School, Elizabeth Elementary School, and Mountain View Elementary School.

Teachers and principals in the aforementioned schools were

involved in all phases of planning prior to implementation. An orientation conference was held in January, 1970 to initiate pre-planning activities and teacher in-service meetings. During the course of those in-service meetings a number of concrete experience activities (units) were developed by the teachers who are now implementing them. Consultants from various colleges and universities within and without this state and strategic support from the State Department of Education in all phases of this project's development are evident in the quality of activities developed.

The program is one of orientation and information at the elementary level, information and exploration at the middle school level and exploration and preparation at the secondary level -- all built around a Career Development theme which includes: (1) the student's evaluation of self-characteristics, (2) exploration of broad occupational areas, (3) introduction to the economic and social values of work, (4) introduction to psychological and sociological meaning of work, (5) explanation of educational avenues, and (6) development of the student's process of decision making based upon the foregoing items.

Analysis of the above goals led to the development of six (6) elements (components) now incorporated into all units on all grade levels. These elements are: (1) hands-on activities, (2) role playing, (3) field trips into the community, (4) resource people into the classroom, (5) subject matter tie-ins, and (6) introduction to occupations in the community that are relevant to the unit. A

unit approach was chosen as a structual framework for implementing the Career Development approach. The concurrent and overlapping nature of these elements encourages individual creativity and permits flexibility within any given unit.

Staff curriculum writers, drawing upon teacher/student interests, ideas and needs, and appropriate grade level concepts develop units on a pre-determined format. Teachers then implement such units and offer suggestions for further development or refinement. The instructional staff curriculum supervisors, representative teachers and curriculum writers working as a team will incorporate Career Development units into the overall Cobb County curriculum guide at appropriate points. This effort to present Career Development units as an integral part of the ongoing curriculum will be instrumental in the implementation of the Career Development approach system-wide.

The Career Development approach serves to: (1) give the student learning by doing (concrete by abstract) experiences, (2) point out the relationship and interdependence of the academic disciplines to one another and to various work roles in the community, and (3) give the teacher a vehicle by which she can present the existing curriculum as opposed to adding on additional subject matter. At the elementary and middle school levels, there is neither intent nor desire to channel students into any occupational decision; rather, the goal is to build a base of experience and exposure upon which the student can most effectively make decisions relating to his next step in the life-

education continuum.

Career Development Specialists work with respective grade level teachers in selecting activity centered projects, in planning the implementation, in procuring materials and supplies, in arranging field trips, and in bringing resource persons into the classroom. The function of the Career Development Specialist is thus one of support to the implementing teacher. She in turn presents her existing curriculum using the Career Development approach.

At the middle school level, the unit approach is more directly related to simulated work experience. Subject matter tie-ins increase as does emphasis on characteristic manipulations and self awareness as applied to exploratory work situations. Seventh grade teaching teams consisting of Math, Science, Language Arts, and Social Studies implement interlocking units with each teacher relating her respective subject concepts and skills to the unit activities.

To give increased emphasis to the exploratory nature of the Career Development approach, a Program of Educational and Career Exploration (P.E.C.E.) is incorporated at the eighth grade level at J. J. Daniell Middle School. The P.E.C.E. Program, initiated by the State of Georgia, is in its second year in Cobb County. A coordinator accompanies students into the business community to observe workers on the job at all levels including semi-skilled, skilled, semi-professional, and professional occupations. Students have the opportunity to observe work settings and job characteristics

and to interview workers about their feelings related to their respective occupations. A flexible schedule is utilized for this program so that ample time is given for such on-site activities. In classroom sessions following field trips to on-the-job sites, students in the P.E.C.E. Program discuss the various jobs which they have observed including such things as skills required, educational requirements, work settings, fringe benefits, work hours and job characteristics relative to self-characteristics.

The first decision-making point in the Career Development approach occurs at the ninth grade level. Students choose one of three (3) broad occupational areas for indepth exploration basing their choices on previous experience, exposure, and exploration through Career Development. These broad occupational areas are: (1) Human Services occupations, (2) the Industrial Arts occupations utilizing construction as a theme, and (3) Business and Distribution occupations. All teachers at the ninth grade level meet periodically for planning and identifying specific ways that English, science, mathematics and social studies can be related to given activities in each of the aforementioned broad occupational areas. A significant part of the Career Development Program in the middle school is the continued community involvement through field trips into the community and resource people into the classroom.

At the secondary level, tenth grade students at Sprayberry High School may choose a class in career exploration, a class in

general business or those classes more specifically relevant to occupational goals in the professions, etc. The student choosing the career exploration class rotates through the six (6) occupational areas of training offered by the Vocational Department at Sprayberry High School. There he is introduced to each of those occupations and subsequently, to similar occupations and to the characteristics, skills, and educational steps pertinent to still a wider range of occupations at varying levels.

The student choosing the general business class is introduced to typing, bookkeeping, office practices and other such activities and, as in the Career Exploration Program, the relativeness of mathematics, English, science, and social studies but, in this case, to business occupations.

Those students pursuing occupational goals in the professions are choosing courses that facilitate preparation for attaining these goals. All students are exposed to the unit approach through their Language Arts, Science, Math, and Social Studies classes. As in the middle school, subject area concepts and skills are presented in such a way that they can be applied to individual career choices. This unit approach is continued through the eleventh and twelfth grade years.

For those students identified as potential dropouts there is a Program of Cooperative Vocational and Academic Education (C.V.A.E.) in addition to those activities previously mentioned. A C.V.A.E. Coordinator meets one hour per day with such students to further strengthen the relationship of the various subject

matters to each other, to the world of work, and to actual job situations in which these students are engaged. The Coordinator works as a liaision between the community and the school in helping the students to obtain after-school employment and to relate that employment to their schooling. At the eleventh grade level, based upon information and exploration as mentioned above, the student may choose to enroll in the Vocational Department of Sprayberry High for job-entry level preparation in drafting, electrical construction and maintenance, graphic arts, radio and television repair or sheetmetal and welding or he may choose any one of a number of cooperative programs such as Diversified Cooperative Training (D.C.T.), Vocational Office Training (V.O.T.), or Distributive Education (D.E.) or he may continue to choose those classes necessary to pursue an occupational goal in the professions.

At the twelfth grade level, the student may continue any one of those opportunities listed at the eleventh grade level and in addition he may choose the Senior Plan in which he attends the Marietta-Cobb Area Vocational Technical School for specific occupational preparation while graduating with his high school class.

At the secondary level, the emphasis is one of preparation for the next step through more specific occupational-skill preparation.

The guidance function is vital at all grade levels in the Cobb County Occupational and Career Development Program with special emphasis at the secondary level to provide <u>every</u> student with information about occupational choices as well as educational

avenues. Culminating the guidance function at the secondary level is a Placement Program drawing upon a Placement Coordinator, Man-Power agencies, guidance counselors, business personnel departments and other community resources in helping each student exiting the school in making his next step whether that be employment, further training, or higher education.

VT 015 292
COOK, ROBERT; PRICE, ALBERT
SUMMER WORKSHOP '71. COBB COUNTY OCCUPATIONAL AND CAREER DEVELOPMENT PROGRAM.

COBB COUNTY BOARD OF EDUCATION, MARIETTA, GA.
OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
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ABSTRACT - THE GUIDING CONCEPT BEHIND THE COBB COUNTY, GEORGIA, CAREER EDUCATION PROJECT WAS TO OFFER EACH CHILD A CHOICE BETWEEN VOCATIONAL AND ACADEMIC PROGRAMS, A CHOICE MADE NOT THROUGH REJECTION OR DEFAULT BUT FROM LOGICAL DECISION-MAKING BEGINNING IN THE FIRST GRADE. A PRESERVICE WORKSHOP TO ORIENT NEW TEACHERS TO THE CAREER DEVELOPMENT APPROACH WAS HELD AT THE BEGINNING OF THE PROJECT'S SECOND YEAR OF OPERATION. PRESENTATIONS WERE MADE BY EXPERIENCED PROJECT TEACHERS AND BY LOCAL, STATE, AND FEDERAL REPRESENTATIVES. THE CONCEPTION, DESIGN, AND IMPLEMENTATION OF THE CAREER DEVELOPMENT PROGRAM ELEMENTS WERE OUTLINED BY THE ADMINISTRATORS AND THEN ILLUSTRATED AT GRADE LEVEL BY THE TEACHERS. DESIGN ELEMENTS OF ROLE PLAYING, RESOURCES, FIELD TRIPS, AND OTHER ACTIVITIES WERE CORRELATED WITH CONCRETE EXPERIENCES FOR THE NEW PARTICIPANTS. THE PRESENTATIONS EMPHASIZED THE IMPORTANCE OF NOT STRATIFYING STUDENTS ACCORDING TO WHETHER THEY WILL BE CAREER- OR COLLEGE-BOUND BUT RATHER ACCEPTING THE PHILOSOPHY THAT ALL TEACHERS ARE CAREER TEACHERS. (MF)

VT 015 292

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SUMMER WORKSHOP '71

COBB COUNTY
OCCUPATIONAL & CAREER DEVELOPMENT
PROGRAM

AUGUST 5-6

VT015292

ACKNOWLEDGEMENTS

Organization and direction for this conference were provided by Robert Cook and Albert Price, Elementary Career Development Specialists, under the guidance of Joel Smith, Program Director. These persons were responsible for the supervision of activities, provision of materials and equipment, and coordination of all elements of the workshop.

Veteran teachers from the project were instrumental in providing information and orientation for new personnel and visitors through the sharing of their personal experiences.

Editing and arranging the text of conference presentations was done by Judy Comer, Elementary Curriculum Writer for the Cobb County Project.

Pat Carter and Deborah Starnes provided vital assistance and secretarial services to the entire project.

INTRODUCTION

August, 1971, marked the beginning of the second year of operation for the Cobb County Occupational and Career Development Program under its three-year Federal grant. After its initial year of operation, the project was expanded to include an additional teacher at each grade level. A pre-service workshop served to orient new teachers to the Career Development approach, to reiterate the mechanics of the project to all teachers; and to disseminate information about the progress of the project to local personnel as well as visitors from outside Cobb County and the state, including those from Michigan and West Virginia.

Prior to the 1971 fall term, this pre-service program of orientation was conducted on August 5 and 6 at J. J. Daniell Junior High School. Directed by the Cobb County Career Development Staff and led by the veteran teachers from the previous year, the workshop was designed as an introduction to the total Career Development Program. All forces influencing the program were represented, with administrators at the Federal, State and local level, supporters from the community, and teachers, counselors and principals in attendance.

An intensive effort was made to include new participants in all phases of project operation. In the general sessions, the administrative representatives explained the conception, design and implementation of the program in terms of its place in the ongoing curriculum guide. Following the general orientation meetings, grade area sessions were held which involved the individual veteran teachers. Each illustrated the actual steps involved in implementing the Career Development elements at grade level. Direct involvement with activities in a total day presentation gave the participants an opportunity to correlate the

design elements (role playing, resource persons, field trips, curriculum tie-ins, occupational introduction, and manipulative activities) with concrete experiences. By assuming the roles of students, teachers and counselors were able to experience the feelings of involvement and participation first-hand, and to be active in the related decision-making processes.

Through this procedure, new participants gained a comprehensive view of the total program and their position in it. By participating directly in the activities, the personnel achieved a greater degree of identification with the students and were able to see the benefit of the "learning by doing" approach to education which emphasizes the relevancy of subject matter to students' needs. Direct personal contact with veteran teachers allowed the new participants to benefit from their accumulated experiences while exposure to the administrative representatives reinforced the concept of Career Development's role in the total curriculum.

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COBB COUNTY OCCUPATIONAL AND CAREER DEVELOPMENT PROGRAM
Summer Workshop
K-12
August 5-6
J. J. Daniell Junior High School

Program

Thursday - August 5

8:30 - 11:30 Opening General Session J. J. Daniell Library

Welcome: Mr. Joel Smith, Director
Cobb County Occupational and Career Development

Invocation: Mr. James Newsome, Principal
J. J. Daniell Jr. High

"Career Education Emphasis in Cobb County Schools"

Dr. Alton C. Crews
Superintendent of Cobb County Schools

"Career Development as an Integral Part of the Cobb County Curriculum"

Dr. Harold Dennis, Associate Superintendent
for Instructional Services

"Federal Viewpoint of Career Development Program"

Dr. M. C. Garr
U. S. Office of Education
Region 4
Atlanta, Georgia

"Career Development and Community Involvement"

Mrs. Ray Dellinger
Cobb County Youth Museum

SPECIAL - "Career Developed"
Gerry Hall - Graham Dellinger

11:30 - 1:00	Lunch
1:00 - 3:30	Group Sessions Elementary - Albert Price - Robert Cook Jr. High - David Taylor Sr. High - Farris Foresman
3:30	Adjourn

Friday - August 6

8:30 - 9:30	Second General Session "Opening Remarks" Joel Smith
	"Career Education: Emerging Concepts and Practices" Dr. James E. Bottoms Associate State Director of Vocational Education Leadership Services State Department of Education
9:30 - 9:45	Break
9:45 - 11:30	Group Sessions Elementary - Albert Price - Robert Cook Jr. High - David Taylor Sr. High - Farris Foresman
11:30 - 1:00	Lunch
1:00 - 3:30	Group Sessions - Continued
3:00 - 3:20	Conference Wrap-Up
3:20	Adjourn

BELLS FERRY: Mr. Milford Turner, Principal

Grade 1	
Miss Barbara Floyd	Mrs. Harriette Elder
Grade 2	
Miss Belinda Bettcher	Mrs. Pam Conner
Grade 3	
Mrs. Willa Bel Caylor	Miss Marietta Adkins
Grade 4	
Mrs. Nelle Bridges	Mrs. Earlene Street
Grade 5	
Mrs. Barbara Ambrose	Mrs. Lynda Cunningham
Grade 6	
Mr. Brooks Butterworth	Mrs. Matilda Gray

MT. VIEW: Mr. J. Dale Pass, Principal

Grade 1	
Miss Kathy Estill	Mrs. Jewell Forrester
Grade 2	
Miss Sue Owens	Miss Mona James
Grade 3	
Mrs. Elizabeth Stewart	Mrs. Janeth Dorsch
Grade 4	
Mrs. Gladys Cantrell	Mrs. Fay Ogle
Grade 5	
Mrs. Vera Grantham	Miss Audrey Bullard
Grade 6	
Mrs. Ruth Hull	Mrs. Patsy Burruss

ELIZABETH: Mr. Charles D. Hardy, Principal

Grade 1	
Mrs. Edna Carr	Mrs. Frances Hume
Grade 2	
Miss H. P. Wellborn	Mrs. Margie Dickey
Grade 3	
Mrs. Essie Dilbeck	Mrs. Doris Dodge
Grade 4	
Mrs. Bonnie Smith	Mrs. Lillian Davenport
Grade 5	
Mrs. Barbara Dunlap	Miss Shields Osborne
Grade 6	
Miss Ann Tipton	Mr. Rex Williams

BLACKWELL: Mr. Robert Corry, Principal

Grade 1	
Mrs. Susie Raper	Mrs. Regina Sandridge
Grade 2	
Mrs. Bernice Thompson	Mrs. Virginia McCann
Grade 3	
Mrs. Carolyn Orr	Mr. David Roberts
Grade 4	
Mrs. Sandra Trahan	Mrs. Betty Tedrick
Grade 5	
Miss Charlene Killian	Mrs. Sarah Foster
Grade 6	
Mr. Hugh Rambo	Mr. Ken Vanderpool

DR. A. C. CREWS, SUPERINTENDENT
Cobb County Schools

"Career Development Emphasis in Cobb County Schools"

Since we have several visitors from outside our school district, I want to tell you something about the Cobb County School System. We are a rapidly growing surburban school district in the metro Atlanta complex. We grow at the rate of 5% a year and expect to enroll next fall about 46,000 students in the Cobb County system of fifty-eight schools. We have some 2,000 professional employees, 1,000 classified personnel with an operational budget of twenty-six million dollars, serving a county of about 200,000 people. This information gives you a capsule background of the kind of community we serve.

Joel, I appreciate your comments about my creating a climate and an atmosphere for change. I suspect this task, other than seeking support for public education, is perhaps the most important role the superintendent performs. I, like many of you, was interested in a recent monograph that John Goodlad and his staff at UCLA called, "Behind the Classroom Door." This was a very brief report of an intensive look at what was happening in the classrooms of America after a "golden decade" of innovation and change in American public education. Doctor Goodlad and a team of fifty or sixty researchers selected some sixty school districts, among them rural, suburban and urban, to determine whether or not the innovations mentioned so prominently in the literature had indeed "caught hold" and taken root in the public school classrooms of America.

He and his staff selected ten changes that we might reasonably expect to find in use and said, "Let's see whether or not these changes have actually occurred or are we still just talking about them." Through intensive, on-sight visits, examinations, interviews and observations, Goodlad and his staff brought back the disturbing findings that we have done a great deal more talking than we have doing about creating new and better programs in education in America. He concluded his report in a somewhat pessimistic vein by saying that this great organization that we call the public schools seems to be more interested with the perpetuation of the status quo than it is with self renewal and improvement. I do not altogether agree with that, but I do agree in part that it is a pretty damning conclusion at which to arrive concerning the status of public education today. It seems that we are more interested after a decade - the golden decade of change - with preserving prevailing conditions than we are in self renewal and change.

Certainly I hope that attitude is not true in the Cobb County School System, because I have found in this community a place where new ideas can take root, and grow and flourish. I think the project in which you are presently involved or about to become involved, is a prime example of this type of innovation program. As we go about the business of providing or placing emphasis on career and occupational education, we are joining many other school systems in America that have a great concern about this matter. This is

one of the "hot issues" in education today. You will find Career Education in many of the educational journals that reflect the concern for this matter of trying to find ways of making Career and Occupational Education an integral part of the child's educational program. I hope here in Cobb County that over a three year period that we can develop and prove to our satisfaction and the satisfaction of our governing board and the people of this community, that this program is worthwhile and does merit consideration for improving the total Cobb County educational program and hopefully education in the whole state of Georgia. This is what we are trying to do and whether or not we can bring it about depends by and large on you and what you do in the next two years.

Why this interest all of a sudden, in career education? Much of our thinking about the role of the school in career education is extremely fussy. Over the years, there traditionally have been two schools of thought about vocational and technical education. One school of thought holds that it is the place of the public school to provide basic skills up through the senior high school and then that it is the responsibility of industry to take these basic skills and develop the technical skills that will insure a youngster's being successful in whatever business or occupation he enters. In other words, the role of the public school in this concept is one of providing basic rather than specific skills to young people. This school of thought has many adherents in public education today. Another school of thought would thrust the public school into the job of preparing youngsters with specific saiable

skills that would enable them to secure employment at the conclusion of their education. This attitude is a different one because it says you not only teach basic skills of communication, computation, and socialization; but you also impart salable technical skills to those who are enrolled in the public schools.

Most of us in this conference subscribe to one of these two theories, or some variation of them. In recent years a series of events in this nation have occurred that are forcing us to make a choice between these two positions. This influence is going to force Cobb County and your school district to make a choice. There are several forces at work at the present that are forcing us to decide which direction we want to choose to try to resolve this age-old, classic, and somewhat academic arguement. One is our concern for bringing realism to students' learning experiences. As we see the restlessness of the student activists in this nation, one of the underlying causes that we must surely recognize (I'm speaking primarily of the upper end of the K-12 spectrum, but also influencing the elementary school) is that the student realized before we have that much of that which we are teaching is of a "hot house", bookish nature; therefore, they are resisting and rebelling against it. In terms of their goals, aims, and aspirations, many students are becoming disillusioned by the lack of realism in what goes on in a classroom and between the pages of a textbook. This somewhat artifical curriculum has caused much of the unrest in secondary education today. This force has pushed us in the direction of Career and Occupational Education, which offers one of the best ways that I know

to provide a kind of education that does take on some degree of realism. That lack of realism is one of the underlying forces that causes our interest in this particular topic. A second force, and closely related to the first, is a situation that I suspect that we school people have had as much to do with as anybody and that is the creation of the artifical dichotomy of labelling children as college prep or vocational students. More and more, it appears to me, one of the biggest problems we have, (going back to Dr. Goodlad's comment about self preservation of the status quo), is the practice of the classroom teacher and administrator labelling the college bound and the work bound. We have painted ourself into a corner from which we are having considerable difficulty extracting ourselves. We have been the culprits in this case, those of us in education, in creating an artifical dichotomy of the college bound, and the work bound student. I recall an incident when the vocational technical unit was established at one of our high schools in Cobb County. We had deep resentment on the part of some of the teachers on that faculty because we dared to place a vocational unit in this college prep, prestigious high school. We are becoming our own worst enemy here in trying to devise a program whereby youngsters that may or may not be going to college can be treated with equal concern with those who are planning to go to college. So this artifical dichotomy is a second underlying force. The third and by far the most pervasive force on the scene today is dichotomy of the haves and have nots in our society. The have nots and non-producer

in our midst demand access to the good things of life we enjoy. These influences then can be identified as three of the most persuasive forces at work creating Career and Occupational Education interest across the landscape in America.

What then can be done about this situation? Over the years we have had technical and vocational education and we generally trace it back, even though there was much activity prior to that date, to the Smith Hughes Act of 1917, which started a program of skill training for youngsters at the senior high school level. Since that day, if we trace the history of vocational and technical education we find that the bulk of efforts designed to improve this educational opportunity have been programs that have been developed and attached to the secondary school program. This practice has developed a top heavy organization. We have done virtually nothing about the matter of preparing youngsters early in their life for careers and occupations because all the programs, funded primarily from the federal government, have been created and attached to the existing framework of the secondary school. Here we have an inverted pyramid arrangement beginning with the Smith Hughes program, consisting of the work study programs, and the vocational guidance services at the secondary level; but during this whole process one very tragic thing has happened -- many youngsters get into career educational programs of the secondary schools by default. They get there because they are first, rejects from that prestigious college bound program. What a devastating effect on one's self-imagine this must have

when a youngster realizes he becomes a vocational education student because he is a reject from the college prep program. This experience stultifies and negates almost any kind of ambition that a youngster could have at a time when self image is so important. In the past, I've been amazed to see how we have ignored this problem. Although we may eventually have the same children in vocational and technical programs, isn't it more logical to offer them a choice in the matter, rather than to allow them to get there by default and rejection from the academic program?

This is the guiding concept behind this project in Cobb County. Through an orderly process beginning in the first grade children may be able to make decisions to move toward occupational education training at the secondary level. By passing through elementary and middle school programs, these youngsters are able to get there, not as rejects, but by choice. They would get there because it would be the area in which they are interested. One of the things I see so frequently in high school youngsters' listing of occupational goals -- 90% of them maintain that they want to be doctors and lawyers, engineers and generally enter the professionals. But what they are doing is telling us what they think we want to hear because we have forced them to think that the prestigious role is the professional college bound; therefore, they "play the game" with the teachers and say just what is expected of them. In reality a great number of these youngsters know, that route is not their's at all. But they end up playing the

game. What, then, we are trying to do is to meet this problem by allowing a youngster, beginning in the first grade, to make logical choices, after exposure, between career and college prep. Also this program will insure that he gets there in a fashion that does not bruise, damage and destroy his self image. This is a very informal description of the concept behind the Occupational and Career Educational Program in Cobb County. You may not agree with this concept nor with this philosophy. One of the most encouraging aspects of this program has been the manner in which our elementary teachers have embraced this concept in four elementary schools in Cobb County. This acceptance has been extremely encouraging because these teachers have demonstrated that they are not interested in maintaining the status quo. They have reached out and embraced and brought in new concepts and new ideas into the elementary program built around the occupational and career aspects. At the same time, to be perfectly candid and truthful about it, at the secondary level where we have specialists who teach subject matter, the job is much more difficult. The elementary teachers teach children but so frequently the secondary teachers teach a body of subject matter and hope that a child can master it. With this we are a victim of our college training program for teaching teachers. We find that it is much more difficult at the secondary level to embrace the total career and educational concept.

In Georgia today roughly 1/3 of all the children in this state who began the first grade will graduate from high school and

go on to college. Roughly 1/3 of those who began in the first grade who will graduate from high school and terminate at that point. Roughly 1/3 will dropout somewhere between the first grade and the 12th grade. All these people have one thing in common -- everyone of them will go on to work. Maybe some will go to work at age 22 with a B.S. Some will go at 18 with a high school diploma. And some will go at 16 when they drop out of the public school. Throughout all their educational experience ought to be the common thread of Career and Occupational Education because this is the common concern of all in terms of what their ultimate goals will be. So we are trying here to interlock learning experiences -- to bring into the process of teaching a child to read an appreciation for careers and occupations in the roles so active in youngsters lives. To interlock into the science program, the math program, the music program --- all our subject matter centered areas, learning experiences relating to Career and Occupational Education is our objective. Our first goal is to weave that into the total fabric of our curriculum and the second is to see that a youngster has the chance to make a decision about enrolling in a skill-training program and does not get there as the result of being rejected from the college prep program. Now here's the big order -- this is what we are trying to do in Cobb County -- having the personnel, materials, and knowledge to transfer this from one cluster of schools consisting of four elementary, one junior

high, and one senior high to 59 schools in Cobb County and make it operational. There is no point in trying to develop a pilot unless we plan to make it system-wide in our own school district, and hope that we can lead others in this state to go in the same direction.

DR. DENNIS
ASSOCIATE SUPERINTENDENT

"Career Development as an Integral Part of the
Cobb County Curriculum"

It is our goal here in Cobb County, as Dr. Crews has already mentioned, that Career Development instruction will be a part of the regular curriculum for every boy and girl within the next two years. We believe that we will achieve this goal. You notice that I said part of the regular curriculum; not something separate, and I said for every pupil, not for a select few. You curriculum planners in the audience might question these statements by asking, "What's new about that?" And I would answer you by saying that there is nothing really new about them. I have heard people in this state, such as Gene Bottoms, espouse these ideas previously. Now let me turn around and ask a question, "Does anyone know a school system in which a school exists that has implemented these ideas?" I think that is the critical question. I do not know any such existing school or system, and I have been involved with curriculum planning for a long time.

Why has this goal not been met? It is a common one that people consider quite frequently. In my opinion, there are several reasons that explain the failure of this goal. Doctor Crews has already mentioned at least two of the reasons, but I will discuss them again briefly. The first is one that he explained in great depth because it is such a critical issue. We still have difficulty ridding our thinking of this out-moded, never practical dichotomy of the academic versus the vocational program, with the fallacy that career inform-

action is needed, for only those pursuing a vocational program. This attitude never made any sence, but we still have the problem of eliminating it from our thinking.

The second problem lies in the fact that we have traditional individual subject matter oriented teachers. We attempted to leave that approach to education in the late 40's and early 50's by substituting the core curriculum, which made good sense. Many of the objectives of the core curriculum can be found in this particular Career Development Project. Why did the core curriculum pass out of existence, or at least, out of favor? I think there are two reasons. One as public school personnel we did not "sell" the public on the exact nature of our objectives. When we taught classes in the elementary schools and integrated the various subjects into an interlocking curriculum, the public was not aware of the purpose of the changes that we made. Dissatisfied and uninformed, the parents urged to return to the fundamentals of reading, writing, and arithmetic. What we were doing was good and sound, but we did not "sell" it well enough to succeed.

The Russians' launch of Sputnik in space in the mid 50's had a startling effect on curriculum planning. We saw curriculum in this country swing back to the subject centered orientation. The decade following Sputnik has been called a curriculum revolution, and it was that, can best be described as a subject centered curriculum revolution. We developed the new chemistry, the physics, the new biology, but we did not emerge with anything that said, "What is the inter relationship of these science disciplines?" Commenting on the decade and its effects Dr.

Goodlad said, "The next decade will bring about the inter-relatedness of these subjects and we'll move back to this." You people in Career Development are in the heart of this movement.

Another reason that I feel has held back this goal has been the segmenting, intra-divison, independence, and to some degree, rivalry within the ranks of vocational education. I have a friend in the area of special education, who frequently says in his talks, "We're killing special education with what we call, 'hardening of the categories'." I think that same criticism is pretty well true of vocational education. We too rigidly categorize these segments of knowledge, with the result that we have had a bad case of "hardening of the categories".

The last item that I will mention here which has prevented us from achieving this goal has been the reluctance on the part of educators to accept the fact that all pupils need career information.

Now, let's move to another question. What do we need to add to the existing curriculum in Cobb County and in your school systems to achieve this goal of appropriate Career Development -- Career Development instruction for all pupils, grades 1-12? In my opinion, very little. It is already in existence in bits and pieces among the school systems represented here today. We simply need to coordinate, to integrate, and to arrange an appropriate sequence, and to interlock this information into a logical program of instruction. I think the bits and pieces are already there. We need to take all our existing alphabet soup programs, and I don't know them all, such as P.E.C.E., C.V.A.E., V.O.T., and D.C.T., to name a few. We need to eliminate the overlaps in these programs to fill in the gaps that are left when we look at them realistically. At the same time, we need to realize that middle grade and high school grades are too late to begin getting this information about

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career opportunities. The program in Cobb County, as planned by Dr. Bottoms, Mr. Smith, and others in the Cobb County School System, can do these things I just mentioned to you. I say this in a boasting fashion; I claim no part in planning the Cobb County Program. The planning was completed when I joined this staff last summer. I do expect to play a part in making this planned program functional. I do expect to help implement it in such a fashion that it will continue on a permanent and economically feasible basis when state and federal support has been withdrawn.

Simply stated, our plan of implementation in Cobb County will consist of the following steps. First, we will need to recognize the emerging organizational pattern of our schools and the instructional goals of these various schools. The emerging pattern in Cobb County similar to many systems in America is the elementary schools, grades 1-5, the middle school, grades 6, 7, & 8, and the high school encompassing grades 9-12. In the elementary grades we need to realize that in the primary sections of those grades major emphasis will continue to be given on language development and computational skills. Grades 4 and 5 will emphasize broadening the content and disciplines with interdisplinary training. As far as career information in the elementary grades, we are talking about primarily information giving and giving this information in the regular school program. In the middle schools grades 6 and 8, we are emerging into a program where we hope to remove restrictions of the traditional high school. We hope to build a curriculum around short-ranged cluster type courses with more exploratory work and a great deal more electives again with the interdisplinary approach. As far as career education, vocational

information or career information exploratory experiences at this level should be in abundance. In our 9-12 program we are rewriting our total curriculum in the quarter courses for this school system and by doing this we hope that the high school in Cobb County in the future will have some change in approaches but basically these - more electives, fewer requirements, more team teaching, more independent study. As far as career development, if we had the basic information given in the elementary schools, the exploratory experiences in the middle schools will be ready for indepth electives and a wide range of these at the high school level. This summer our teachers have just finished writing our new course guide, written to support the type of program that I have just outlined for you. They listed specific skills, knowledges, attitudes, of what we hope the youngsters will accomplish in these schools. The writers that Mr. Smith mentioned to you a few minutes ago will be writing specific career development units, units of work, lesson plans if you please. And next summer our course guides, which are written in loose-leaf fashion in tentative or draft form this year will be revised and we will code into the course guides at specific levels units of work that are appropriate. These curriculum guides will be distributed to every teacher in Cobb County. One brief example is, the third grade social studies program. If we have listed there a desirable aim that the third grade students should study their local community and learn about the contributions of the local fireman, policeman, postman, then these guides, next summer, may be coded to say, "See Career

Development Resource Guide, lesson plans number 13, 28, and 47", which will tell us about career opportunities if we wish to become a policeman, a fireman, or a postal worker. In this way, we are tying it back to the regular curriculum and we're making sure that every pupil in Cobb County will get this information and will get it at the appropriate level as he matures. These resource guides, next summer we hope, will be coded to all the appropriate courses, grades 1-12 in the Cobb County School System. We're studying our existing Career Development Programs in the middle and high schools with the objective of tying them together in a logical fashion. Dr. Bottoms from the State Department, has met with us and has asked that we do this. He says that in spreading our program he sees both overlaps and gaps. We think that he is right. So we are going to look at the existing programs, we're going to attempt to eliminate the gaps as we move, for example, from the traditional junior high school into the middle school with the objectives that I've just listed for you. It may be that some of the exploratory work that we've been saving for the seventh and eighth grade will be moved down into the sixth grade. In fact, it's likely that this will occur. So beginning next summer we'll have these guides coded to the resource guides that the writers will be putting together this year. We hope that we are not only filling in the gaps to eliminate overlaps but that we will begin to give the youngsters in Cobb County a much wider range of opportunities in our system, particularly as it relates to career information.

In conclusion I would like to say this, I've organized my

thoughts around questions to myself and then attempted to answer them. I'm asking one more, "Why do I think we'll be successful at this time in spite of some of the hurdles that I've mentioned to you earlier?" And I have four reasons listed why I think we will be successful today. And to my knowledge none of us have really been successful in the past. The first is due to the planning that has been done in the Career Development Program here in Cobb County is sound. I had no part in it, but I've studied it and viewing it as a curriculum oriented person, I feel that it is a sound program. Second, because we have competent leadership in Mr. Harris, Mr. Smith, and other members of this staff. Third, because we have support within Cobb County. We have support from our superintendent, we have support from the state level, and we have support from the federal level. And the last reason that I believe we will be successful at this time, where we failed in the past, because there is a readiness in this county today for this approach which has not existed before. As I mentioned earlier, the 40's and 50's with our core curriculum, we were moving in this direction and then a series of events lead us away from it. The curriculum revolution of the 60's that I mentioned to you was subject centered and we are now seeing the fallacy of that. In the 70's all of your career specialists are pointing toward interdisciplinary approaches to instruction in Career Development and your interlocking concept fits perfectly. As we look around us, with the over supply of college trained people, with the shortage of technicians, educators have begun to rethink some of their traditional ideas. And as we continue

to emphasize individual needs of the learners when you put all of this together you are talking about a good description of the Career Development Program as it is outlined here in Cobb County. If we can escape the dangers that defeated core curriculum, if we can keep our approach very simple in organizations, if we can reorient the thinking of some teachers and inform them and get them to believe as we do that career information is needed for every youngsters we can achieve our goal of career information integrated in the various discipline of learning grades 1-12 to all our school age population. When we do this, we will have a more relevant, a more functional, more humane curriculum than exists today.

I hope you visitors can come back in about two years and see this program in operation.

DR. JAMES E. BOTTOMS
ASSOCIATE STATE DIRECTOR OF VOCATIONAL EDUCATION

"Career Education: Emerging Concepts and Practices"

I'm delighted again to have this opportunity to be back with you in Cobb County. I think this group keeps growing everytime we meet Joel, and I'm sure that must indicate progress. I've been very pleased with the pace that you have set in Cobb County where you've attempted with much success the process of implementing your exemplary programs. At the national level we have tried to initiate a Career Development Program first grade through grade 12. Anytime you start talking about new ideas in education someone always says, "Well, who's doing it? If nobody else is doing it, why should we start? Can't it be done?" This past year, we have been able to point to Cobb County as the group who's doing it. We have had mixed success in bringing about changes in education the last three years. As I look at the Georgia school curriculum which was the one I had in school; as compared with the curriculum today, I find that we have brought about some changes in this state.

We've brought about some tremendous changes for that aspect of education and rightfully so for we needed this course, that would prepare our young people to go into higher education. The quality of high school programs in that respect are far superior today to the ones of 20 years ago. But I would have to say that in most Georgia high schools, youngsters still have only the same choices of career preparation subjects that they had 20 years ago. So obviously, we're late with the Career Development effort

at this time we should have undertook the other effort in 1958 when Russia sent up Sputnik. Maybe we are 15 years late, but we are doing it now. What you are now involved in, here in Cobb County, is the same kind of directional thrust in education that we made in this state in the late 50's and early 60's when we drastically revamped the academic programs in our schools so that young people from this state could enter into higher education and succeed. You might say, "Well, have we really improved it?" Did you know that the scores made by high school seniors on the college board exams on the average are over a hundred points higher in math and verbal sections today than they were 10 years ago. They're over one hundred points higher, in fact, the average lies between 100 and 150. I gathered this information for Dr. Nix a few years ago when Legislature was saying to him we have not improved the quality of education in our state. These figures I take as evidence that we have done a reasonably good job; if not an outstanding job in improving the aspect of education that moves a young person on to higher education.

Let's contrast this progress if we may with another aspect of the situation. If you recall in 1965 President Johnson aided the passage through Congress of the Elementary, Secondary Education Act, which in my opinion was an excellent piece of legislation with the right intent behind it. I have found, though, that where we have concentrated money in secondary and junior high schools which have been classified primarily as disadvantaged schools, Title One schools, that the dropout rate today, six years later, is higher than if was in 1965. This rate increase

is not uncommon, but you may say, "Well, why?" I think to some extent it's higher for a variety of reasons. As I try to look and see what we've attempted to do to strengthen the educational program for the rest of the young people in our state we have literally taken the college curriculum model approach to learning and tried to make it applicable to all students. We just water it down, and slow it down and lower the standards and teach all students the same way that college bound students are taught. Now, I don't think that all these youngsters want or need a watered down curriculum. They need a new curriculum designed specifically to help them do what they want to do. They do not need a curriculum that is slowed down, they need a curriculum which reflects their own needs and aspirations. They don't need lower standards, they do need new standards; just as they do not need lower standards. They do not need a learning approach for the entire year that is based completely on an abstract approach to learning. They need to have an opportunity to use those math, science, and english concepts and skills as tools in solving some of the kinds of problems that a worker would solve in various occupations.

I would like to relate an experience during which time I had the opportunity to meet a Forsyth County physics teacher who had enjoyed great success in teaching physics to career bound students. Instead of using the Physics text as the sole basis of learning, he had incorporated about ten major physics principles into the automobile and metals lab. By using charts illustrating the principles, he made physics relevant to auto mechanism. At

the end of that year, he felt that class had benefitted more from the course than any other class he taught. That class understood those principles because they were taught in the context of their own terms. Now it seems to me that that is what you're trying to do here in Cobb County - that you are trying to build a career theme into your school and particularly the secondary school, that you are trying to design a curriculum where every kid is in a career curriculum. I think what you do here is going to determine whether or not we can really design a secondary school curriculum in which we move away from the dichotomy of the academic on one side of the aisle and the vocational on the other. Every student in the secondary school is career-oriented in that he is planning for a career. The amount of time he spends in career oriented courses may vary according to his objective upon leaving high school. But you can't tell me that a young man in the secondary school who plans to go on to higher education and then to medical school is not pursuing a career or a young man in the secondary school who plans to go to Georgia Tech to be an electrical engineer is not in a career curriculum, or a student who plans to be a teacher isn't really moving towards a career. So it seems to me that what we're trying to do is enable us to establish a school climate in which we move away from this idea that we have a first class student who's college bound, and then we have a second class student who is non college bound. Something about the term "non" seems to convey a negative feeling. I would like for us to get to the point where we call all secondary students career bound,

not "non something." The patterns that you set here the elementary, and junior high level are serving as models for the rest of the state.

Joel said that he would like for me to take just a few minutes to tell you about what's going on in the rest of the state, so I want to run through very briefly some things that are going on. This coming year there will be fifteen additional elementary schools envolved in the K-6 program. There will be one in every congressional district. In fact, DeKalb County, which is your competitor on the other side of the metro area, has elected to keep up with Cobb. They have four programs this year and are funding three themselves, while we're funding one. I was rather surprised at that because I was always told that all the folks over there where I live go to college. I did not know they wanted to know anything about careers because they are not going to work, they are going to college. We hope that during this coming year with the four here and the other fifteen that we will emerge with a curriculum guide. I hope that we will emerge with fifteen units that teachers in grades 1-3, 4-6 can use. The fifteen units we have in 1-3 will focus on those occupations more immediate in the community, than those in 4-6. For example, you may have a health occupation unit in 1-3, which will focus on the dentist's office or the doctor's office, places that youngsters see. Everytime my little girl goes to the doctor's office, she comes back playing doctor and her little brother is the patient. But she never has come back "playing" a medical lab technician. But I hope the grades 4-6 will be able to carry the youngsters

beyond the doctor's office in behind the scenes and see all the other kinds of medical careers that exist there. So that will be the way we'll break these down. We don't know all that we need to know about K-6, which is one reason I do not want more than 15 programs this coming year. You can move things too fast sometimes. We have asked the legislature to provide us with enough funds to implement a pilot K-6 program in every senatorial district in fiscal '73. I think you understand why every senatorial district is involved since we are trying to get a geographical spread of the state. We will be asking to find out if we can implement these with the minimum of four thousand dollars. So if you have a legislator in Cobb County, get him to vote for this item by having him out to one of your elementary schools to let him see. That exposure will help us in getting the program through the general assembly. The general assembly says that the only thing that school people ask for is an increase in salary. And we all know that we have to ask for those things.

At the junior high level we will have 100 P.E.C.E. programs in the state, all of which will involve about 25 thousand junior high students. This coming fall, we've instituted a plan patterened after the ninth grade program at J. J. Daniell where you had your pre vocational program last year. We've moved this program back to grade eight and in 36 schools this coming fall, these plans will be implemented in what we have termed as mini pre vocational courses. We have had this summer over 80 teachers from those 36 schools for in-service sessions being prepared.

Joel, I don't know whether you have seen it or not but each of those groups of teachers produced a curriculum guide that might have a few new ideas, but I'm sure that they pulled off some of the materials that you use here. So there will be 36 schools trying to duplicate what you've done at the ninth grade level. And as I talked to some of your students here last year at our evaluation, the only negative comment that I received from any student at this senior high school, and I listened to them, was that they wanted the opportunity to sample more than one area during the year, rather than sticking to one course the entire term. That was one of their points. So I picked that up from the students because it was pretty unanimous from those I talked with. Then, at the ninth grade level we will have a number of systems that will have one year pre vocational courses. Out of 400 high schools, we will have some 60 high schools that will offer at least 5 vocational clusters in grades 10-12. At least one of those clusters will be in trade and industrial occupation and at least one will be for girls other than office.

It has been an interesting summer. As I told 100 trade and industrial teachers yesterday, every teacher in the school is a career teacher. Every youngster who plans to be an automotive mechanic when he leaves high school views the math teacher as a career teacher because he needs to know how to use math in the context of that occupation. So is his physics teacher and so is his communication skills teacher-- all teachers are career teachers. We just have to get away from the idea that one group is responsible for one aspect entirely and another group is not at all involved.

All teachers are career teachers. At the end of the week these teachers came up with a interdisciplinary unit on how they could work together. Another program we got the governor to sponsor in late May is project employment for this summer, and he has promised to give special recognition to those schools who have successfully placed every youngster in their next step whether work or higher education or post secondary school. We had 60 secondary schools to agree to participate in this program to assign someone the responsibility of job placement during the summer. You will probably be suprised to know that we will have this coming year over 200 new vocational teachers going into Georgia secondary schools. We have had an institute this summer for over 50 school counselors on job placement on how to organize a job placement program in their secondary schools. We have under contract at this time, and I think some of the teachers at Sprayberry are involved in this, a company who has agreed to develop five programmed math guides. There will be one for each construction occupation, metals, transportation, and so forth, which can be used by the math teacher and they will have a number of problems in which those students will have to go in the laboratories to solve. Very briefly, to let you know a little about what is happening at the national level, Commissioner Marland says that career education is his top priority during his administration. They are funding a series of national workshops for school administrators in this area. Atlanta has applied for one of the five major career education programs for twenty thousand youngsters. They were one of the twelve cities selected

to be in a final group and we hope that Atlanta will come through and receive one of the grants. Marland is proposing to ask Congress for federal funding in this area in the near future. So, it seems things are beginning to move here in the state, and for the first time since I've been in education, I feel that we're on the point of a major breakthrough in designing an educational program that will cut the dropout rate in half in five years.

We have capital, but the one thing that is lacking in our state - half of our people do not complete high school and I have been told by people who work with industrial development that if we're going to get the higher type of industries in Georgia, more Lockheeds, more higher paying industries, that we have to have more of our people who have finished high school and who have industrial orientation - this is an essential. I know a company in Statesboro, which spent about five years in the red before they could ever make a profit. They were a high type manufacturing firm, and paid good wages, but were unable to show a profit for five years simply because the company had to train their personnel from scratch. The people simply did not have the basic industrial skills so necessary. So I'm told that we still do not get a very high type of industry mainly because the employer cannot find the necessary personnel.

With this Career Development Program in Cobb County serving as a model, we hope to expand the project to a statewide basis in the coming years. Hopefully the Career Development approach to the school curriculum will remedy some of the problems that have plagued Georgia schools by stimulating more student interest through emphasizing the relevancy of school activities to the world of work.

DR. GARR
U. S. OFFICE OF EDUCATION

"Federal Viewpoint of Career Development Program"

It is a great privilege to have the opportunity to come here and be with you. We think such opportunities to meet the program personnel add to the statement you made which sometimes helps people to see and realize that we too are real people, trying to do the very same things you are doing, trying to stimulate things that should have already been done. I am pleased to follow Doctors Crews and Dennis, because I feel that they have laid a good foundation for this workshop. Personally, I am interested in this sort of thing and have been for a long time even though , at the Regional Office, I am representing the Office of Education in Washington.

As far as Career Education is concerned it's not new, is it? No, not at all. The virtue of the program is that someone has sparked it--someone in the person of the Commissioner of Education, Doctor Marland. When he first made that speech in Houston, he emphasized Career Education. Such a speech was gratifying to a lot of us because, his message was exactly what we wanted to hear. Someone was trying to define the term, Career Education, at the HEW conference in Atlanta in June. Someone rose during that meeting and asked the question, "Would you please define Career Education?" No one really could. Would someone here like to try it? I feel that it is difficult to define, since it is a concept and concepts are difficult, if not impossible to define. One thing we do know is that teachers, administrators, board members and all educators

throughout the country are extremely interested; therefore, it has gotten off to a rapid start. I'm not going to say a great deal about it here because I feel you already know what Career Education is. What I do say will emphasize the importance the movement has acquired.

I have always felt that it was necessary to teach people how to make a living, as well as how to live. Now that is one function of Career Education. Once again, the virtue of this project is that we have someone actively involved, who is kindling it and giving it a spark, with the result that it is moving very, very rapidly. We find teachers and administrators everywhere across this country who are extremely interested in this program, just wanting to know how it has been implemented. There are three (3) factors necessary for success in this project. First, we have to have teachers who believe in it, you teachers do believe in it. Second, we have to have an administration that believes in it, and here they do. And we have to have curriculum materials--that is a necessity. And so with these elements present in such a combination, we can expect nothing but success.

And so what I have to say this morning isn't really new to you but I would like to emphasize a few things here, but that won't take but a minute. I would like to read a few statements on Career Education. "Career Education provides a broad approach for preparation to life." In the years ahead, and it won't be to far in the future, we will not have this multiplicity of curriculums at the high school level We

will have one program, one educational program that combines these activities. We have had such sad experiences with these curriculums in the past. They do a lot of damage by stratifying students, which is extremely harmful. The psychological implications of the practice are terrible. We are going to learn more and more about the benefits of this new program by observing it's effects in our activities, and in these exemplary projects and programs. There will be no vocational education as such--as we have thought about it for a long time, and have reached the conclusion that it is detrimental to student self-concept. In the future we will have one educational program in which all students will be exposed to the same concepts and will be involved in activities within those areas, depending upon their personal objectives. The chief problem as I see it, is that of providing opportunities for work expeniences for all these high school enrollees. Providing such broad experiences will not be an easy task. Especially when schools are located in an area devoid of business or industry--how then are we going to provide work experiences? That still is a major concern.

With the rapidly changing needs of our modern society, many innovations and new techniques must result. And so we do not know just what the pattern will be for elementary and secondary schools. Now we have an opportunity through this exemplary program to stimulate new activity by giving financial support and what ever additional aid necessary to utilize the imagination, energy and enthusiasm of this group. We are involved in helping students to develop attitudes about the personal, psychological, social and economic significance of work:

and to develop some attitude or idea about work productivity, one of our problems today.

Career Education is a comprehensive educational program which begins in grade 1 or earlier and continues through the adult years. Of all the people in the country who need workshops on living, it is the adults. There is that gap created by the adults. We are not "doing our thing" for the youth of the country, but we are going to do more in the future.

We must consider evaluation, for there must be an evaluation in terms of the goals and objectives that have guided us. Here are the guiding policies as outlined in the beginning:

1. Provision for broad occupational orientation at the elementary and secondary levels so as to increase student awarness of the range of options open to them in the world of work.

2. Provisions for work experiences. Cooperative education and similiar programs make possible a wide variety of offerings in many occupational areas.

We hope at the end of the three year period that there will be a sustaining fund whereby there would be help to provide these work experiences needed in the schools. But a program with the momentum that this one has is sure to provide work experiences of some sort available to the exploratory age period grades 7 through 9.

3. Provisions for students previously enrolled in vocational programs to receive specific training in job entry skills just prior to the time they leave school.

4. Provisions for intensive occupational guidance and counselling during the last years of school for initial placement of all students at the completion of their schooling.

5. Provisions for the grantee or contractor to carry the program on with support from regular funds after the termination of this federally assisted program.

In other words, at the completion of the original three year period, is this project going to spread to other schools? The idea is to enable every school in the state of Georgia and every other state of the Union to implement such a program. Since it is successful, we must disseminate our information through some designated procedure. And so that is what we, as Federal personnel, hope to achieve. How can we do this? You people are making a positive beginning, and we hope that by the end of the three year period you will be on top so that you will be able to go into other areas of the state and inspire them to do the same thing.

Career Education - we think it is good. We are convinced of it, especially when we visit programs of this type.

GRAHAM DELLINGER

"Career Development and Community Involvement"

Cobb County Youth Museum
P. O. Box 78
Marietta, Georgia 30060
Telephone: 427-2563

The Cobb County Youth Museum offers a unique opportunity for visitors of all ages to become better acquainted with Cobb County - its origins, its current modes of living as contrasted with those of 100 years ago, and a change to speculate about its future. The first exhibit, a history of transportation opened in April, 1970, and attracted many visitors from this county and neighboring states. Located on property ajoining the Cheatham Hill section of Kennesaw Mountain Battlefield National Park, the Museum's natural wooded setting encourages visitors to take time to ponder past, present and future.

Trained docents lead school tours during each school day, and this year there will also be tours on Sundays. A volunteer staff maintains the Museum, its puppet shows and the Gift Shop.

In September, 1971, the Museum will offer a new exhibit which closely correlates with the expanding interest in careers and occupations. We will acquaint children with Cobb County as it was a century ago and the immense number of changes that have occurred in life styles and job opportunities. We offer the Museum as a resource center - to enhance and enrich the school curriculum in such a way that all who visit may think, "This is a delightful way to learn." The exhibit is called, CAREERS IN COBB * A CENTURY OF WORK, and will afford teachers many opportunities for relating math, science, language arts, etc. to the information about

various jobs available in this county. Many industries and businessess and individuals have cooperated to make this an exciting, super "field trip". A great deal of student involvement is encouraged and all items can be touched.

Briefly, the tour includes:

AGRARIAN: portrays life in Cobb in 1871 when the major occupation was farming - discussion of the self suffiency of the farmer and his activities - actual interior of a cabin - roles of other family members will be shown - will show dramatic contrast with the large number of occupations which grew out of this one. Children will draw water out of a well outside the building.

PRODUCTION: will have colorful display of some of Cobb's products - show relationship of products with economy - contrast to 1871 when farmer made almost everything himself.

Main feature is a work island where children will partcipate in an assembly line task on a conveyor belt - a time clock will start the role-play activity and "inspector" will check the product (a small wooden airplane).

SALES: Featuring an old peddlar's wagon and mementoes of traveling salesmen days, as well as modern sales techniques. Goods display techniques will be shown in a case - other objects will be used by children as "aids", e. g. a device to measure yard goods.

A closed circuit T.V. will allow the children to see themselves in the role of salesmen as they "sell" a product to a classmate. Questions will lead children to think if they like to work with people.

CONSTRUCTION: Role playing continues as the vast number of people involved in the building trades are introduced. Models of heating, plumbing and electrical work will be explained - contrast of old and new building techniques - children may use drafting equipment, assemble a small house from a blueprint, look through a transit, and experiment with other materials related to construction.

COMMUNICATION: A replica of an old telegraph office and an old newspaper with type that can be set will show the old in Cobb - contrast with new telephone, radio and satellite stations - a manhole that can be climbed down, telephone poles and switchboard - all these will illustrate how many people depend on communications for their livihood.

SERVICES: This area will show teaching in 1871 and 1971, showing the great numbers of activities that are not actually teaching - also others who teach (music, driver education, etc.). This area will also have an assortment of small office machines the children may use in role playing. Other related services will also be displayed with articles that can be manipulated.

FUTURE: This area will stimulate the visitor to speculate what jobs may be available in the year 2070 - what products Cobb may produce, what other dramatic changes will occur in the next CENTURY OF WORK. . .

PUPPET SHOW: Two delightful shows have been especially written to dramatize the lighter side of the world of work.

The entire tour is designed for the elementary grades but can be expanded to include upper grades.

Obviously, a museum setting cannot explore any subject in depth but we hope to arouse interest within our visitors; hopefully the representative types of activities chosen may lead to greater self awarness and further learning.

GOALS AND OBJECTIVES

RUTH HULL MT. VIEW ELEMENTARY SCHOOL

People not familiar with the Cobb County Career Development Program usually have a number of questions concerning it. Among these, two that occur frequently are, "What does such a program hope to accomplish? What are the goals and objectives of this project?"

In answer to these questions, the project at the elementary level seeks to provide orientation and information centered around a career development theme which includes: (1) student evaluation of self characteristics; (2) exploration of broad occupational areas; (3) introduction to the economic and social values of work; (4) introduction to the psychological and sociological meaning of work; (5) explanation of educational avenues and (6) the student's involvement in decision-making processes based upon the preceding items. There is neither desire nor intent to channel students into career or occupational choices; the program seeks to establish a broad base of experience and exposure for students that will enable them to make decisions relating to the next step in their life-education progession.

At the elementary level, the focus is on activity-centered projects—projects that incorporate the academic disciplies into actual, "hands-on" activities. Students participating in these manipulative activities can see more easily the relationship that exists between their academic experiences and the world outside the school. Through this approach the student learns by doing—progressing from concrete experiences to abstract principles. Also, this method serves to point out the inter-relationship among the academic disciplines in an effective way. Thus, the teacher gains a new vehicle, a fresh approach to presentation

of the existing curriculum, rather than an additional subject.

Leadership, direction and assistance are provided by the Cobb County Project Staff which consists of Joel Smith, Project Director; Robert Cook and Albert Price, Elementary Specialists; David Taylor, Middle School Specialists; Farris Foresman and James Harrison, Secondary Specialists; Judi Collins and Judy Comer, Curriculum Writers; and Pat Carter and Deborah Starnes, Secretaries. Six pilot schools are involved in the second year of project operation. They are: Bells Ferry, Blackwell, Elizabeth and Mountain View Elementary Schools; Daniell Junior High; and Sprayberry High School.

There is no one goal that can be identified as the ultimate, overriding goal of the Career Development Approach. Instead, this program seeks to achieve a number of objectives. Providing additional areas of experience for students; giving them opportunities to evaluate personal characteristics through situations involving decision-making and self exploration; pointing out the relevancy of the academic disciplines to the world of work; and introducing students to career choices not previously known—all these are goals of Career Development.

COBB COUNTY OCCUPATIONAL AND CAREER DEVELOPMENT PROGRAM
BARBARA AMBROSE

"Getting on the Wheel SmallGroup Division
and Control Vehicle: The Unit"

The young child as he first learns to express himself says I Do It! with great enthusiasm; the older child says, I Can Do It! This is the feeling engendered by group work in the unitary procedure of learning. A unit gives time for thinking and planning and stresses the A R C triangle: affinity, reality, and communication in a meaningful way for the child, not necessily for the teacher. Learning for the child in the unit method involves an accumulation of understandings, attitudes, appreciations, abilities, skills, and values. It's a doing, "hands on", approach where every child has the opportunity to excel. It teaches the child to adapt and conduct himself in a social way for better interaction in the "now time."

The unit approach requires careful planning in its initiation, most of which should be done in a classroom situation with the children. It's real surprising how much the children know when they are allowed to express themselves in an atmosphere devoid of fear.

A unit that is planned with the children usually is more successful than a resource unit, but either can be worked to good advantage in your classroom.

At the beginning of the school year, if your children are not acquainted with an activity program, a teacher initiated unit has many advantages. Today I will tell about a teacher planned unit related directly to our curriculum.

As I teach in the fifth grade, one of our first areas of study is "The Earth and It's Riches." Bearing this in mind, I have chosen as my first unit title: "The Earth, A Great Depository". This unit lends itself to the study of many careers and occupations, it offers a rich source for activities, it relates well to the total curriculum, it's a "launching pad" for a great deal

at this time we should have undertook the other effort in 1958 when Russia sent up Sputnik. Maybe we are 15 years late, but we are doing it now. What you are now involved in, here in Cobb County, is the same kind of directional thrust in education that we made in this state in the late 50's and early 60's when we drastically revamped the academic programs in our schools so that young people from this state could enter into higher education and succeed. You might say, "Well, have we really improved it?" Did you know that the scores made by high school seniors on the college board exams on the average are over a hundred points higher in math and verbal sections today than they were 10 years ago. They're over one hundred points higher, in fact, the average lies between 100 and 150. I gathered this information for Dr. Nix a few years ago when Legislature was saying to him we have not improved the quality of education in our state. These figures I take as evidence that we have done a reasonably good job; if not an outstanding job in improving the aspect of education that moves a young person on to higher education.

Let's contrast this progress if we may with another aspect of the situation. If you recall in 1965 President Johnson aided the passage through Congress of the Elementary, Secondary Education Act, which in my opinion was an excellent piece of legislation with the right intent behind it. I have found, though, that where we have concentrated money in secondary and junior high schools which have been classified primarily as disadvantaged schools, Title One schools, that the dropout rate today, six years later, is higher than if was in 1965. This rate increase

showing art work and posters, have discussions, experimenting, constructing, and many others. Time for these activities are an integral part of the daily program, and are scheduled.

A unit cuts across academic areas or discipline: language arts, arithmetic, science, art, social studies, and music. In a real activity program it is amazing how children begin to improve in all phases of study. Conduct shows good improvement as it is peer influenced.*

In summation, unit work is a good vehicle for teaching occupations, teaching the importance of self, engaging in activity work, working cooperatively in group situations, providing good organization for classroom control, and recognizing the uniqueness of every person.

TEACHERS DUTIES IN PRESENTING A UNIT

1. Provide an attractive positive environment.
2. Form groups.
3. Make art media, audio-visual aids, and constructional materials available.
4. Correlate or tie-in subject matter in a meaningful way.
5. Conduct field trips.
6. Teach the children to write in a concise way.
7. Teach the children how to make an outline.
8. Show the children how to make bibliographies correctly.
9. Help in the development of skills.
10. Help the children to learn how to write brief resumes of work and activities done.
11. Conduct discussions.
12. Make books, pamplets, and articles available for the children.
13. Bring in resource persons. (Occupations)
14. Have children do activities: bullentin boards, diagrams. booklets, building with wood, making dioramal, constructing puppet stages, doing paper and needle crafts, making papier-mache figures, making game boards, performing experiments, making collections, doing poster work, etc.
15. A teacher should read to the children from many varied sources.
16. All of the children should be exposed to the fine arts.
17. Take your class to an art exhibit or a concert in your community.
18. Visit a museum.
19. Help the children to accept criticism.
20. Teach appreciations and attitudes.
21. Show children how to display objects in an attractive creative way.
22. Let the children do the bulletin boards.
23. Teach the children to label work in a neat, readable style.
24. Provide for individual differences.
25. Sometimes use the lecture method to bring information to the class.
26. Praise the children for their efforts.
27. Dramatization is a good tool for interest development.
28. Make tapes and have children make some also.
29. Help the children to ask pertinent questions.
30. Teach the children to carry on a conversation.
31. Teach the children how to be leaders or participants in group activities.
32. Interest the parents in your school program - invite them in once in a while!
33. Learn how to "set the stage" each day to maintain a high interest level.
34. Have the children give reports and participate in panel discussion.
35. Teach the children how to take tests.
36. Teach your children to look to many sources for information.
37. Do research to help yourself to better conduct your classes - plan ahead!
38. Don't think of yourself as a dispenser of information stay in the background after good planning has been done.
39. <u>Stress occupations</u> and careers in your units of study.

COBB COUNTY OCCUPATIONAL & CAREER DEVELOPMENT PROGRAM

FRITZ CAYLOR - BELLS FERRY ELEMENTARY

"Obtaining Materials"

After deciding the unit, we must obtain materials. The best source to obtain materials is the home. This gets the student excited and concerned. We list all things we think will be needed. Children name things they may be able to obtain or donate. For example, last year as we started the unit on making puppets, the students brought in two huge piles of cloth, 50 spools, or pieces, of spools of thread, broken jewelry, buttons, needles. All this was properly abeled and stored to be used any other time as needed.

Use school materials, such as materials bought with fee money and materials furnished by the school for each classroom. This Career Development is highly approved by the County Office as well as the school principals. So always feel safe in using these materials.

S. R. A. - 400 Occupations. This box will be placed in each library. It has a sheet for free materials along with the 400 occupations. This is mainly for the teachers use. Some students may be able to use them.

Five books - these are in your library too. They will be very useful in helping you answer your many questions and get confidence.

Occupational Handbook - this book is here for you to observe. It, too, will be in your library for use.

Lunchroom - these people are willing to help. They have many useful objects: Gallon cans, milk cartons, ice cream sticks, straws, etc.

Use of libraries - school librarian is a great aid in finding reference books, film strips, etc. Each library has large book of free materials.

J. C. Penny's in Town and Country have materials to be used free. They

They may be checked out in the catalog department.

Chamber of Commerce in any county - students may visit, write, or phone. Good for history of county.

Department of F. B. I. - State Patrol, Sheriff, Police - very willing to give materials. Good to tie-in as our friends.

Telephone - good to call for information on career requirements, salary, etc.

State Capital of any state - good to get free materials of the main resources or main means of survival in each state plus history. Game and Fish Department, Forestry, Poultry, etc.

Newspapers, magazines, etc. - Farmers Bulletin gives many state farming areas, jobs, etc. Daily papers good for training habits of reading papers, many job areas. School buys many magazines to be used for every class. Teachers-Instructor has pages of free materials obtained by request.

Gas and Oil Companies love to give free material. Love to be asked. Very good maps, etc.

Military Service - Tie-in with English. Write to fathers, brothers, uncles, etc. All over the free world. This will bring in mail, etc.

Students and parents - in this area we are lucky to have people from all over the world. They love to be asked. Makes them feel needed or a part.

Builders and Contractors - teachers may go to an area where a building is being constructed. These people will be delighted to give you scrap material of blocks of wood, lumber, carpet, etc. They pile this up and burn it as they clean up the lot when the house is finished.

I kept a very good source for last. This is the Requisition of materials. As quickly as you have learned what you will need in the unit, that must be bought, please list this for Mr. Price and Mr. Cook. The Federal Government has a lot of red tape. Please list the exact name, color, size, price (if

available) of everything needed. It takes ten days at least to obtain this If requisition isn't properly filled out first time this only delays order.

If each teacher will keep a record of extra places they obtain materials during the year, the office will be glad to combine this information for use.

COBB COUNTY OCCUPATIONAL & CAREER DEVELOPMENT PROGRAM

EDNA CARR - Elizabeth Elementary

"Basic Carpentry Tools"

One of the main concepts of the Career Development Program is a "hands - on activity" through which the pupils can relate to different careers. And quite frequently this involves the use of basic carpentry tools. For example, Mrs. Caylor built a stage for her puppets last year. Miss Tipton built a dark room to go with her photography unit.

Don't be a pessimist and think your children can't manipulate these tools. They will surprise you. My class built checker boards last year. They sawed 2 foot lengths of board and I was amazed at their sawing. I had wondered and pondered how the boards would fit together but that was a waste of time. Those first graders could follow the mark and they were using standard size saws.

Before you start a project be sure you have a complete project plan. Involve the children in the planning. Remember this is their project. Help the children to develop a clear concept of the sequence of operation and the importance of planning. A complete plan is essential for overall project success. This holds true whether the project is building a simple bird house or the Tower of Pisa. What made the Tower of Pisa lean? Was is poor planning?

We've completed our plans. What next? Implement the plan! In carpentry we form the raw material. What tools would you use to shape or form the material? Our material is lumber or plywood. The primary tool for shaping is the saw - either hand or power. Other tools that can be used in shaping are planes, routers, shapers, sanders, etc. With the children emphasize the use of hand tools. Remember the carpenter makes his living with his hands. This can be a highly skilled occupation.

If in sawing you need a 45° angle, remember the mitter box. In case you don't relate to a miter box, ladies, think about cutting cloth on the bias and

you'll get the idea.

We've shaped our materials. Next is the joining operation. Name some tools and methods used in joining. Hammers, nails, screws, screwdrivers bolts, hinges, clamps Glue is also used as a joining device. When installing hinges, remember to use screws. During this phase of the project the children will learn the use of levels, squares, plumb bobs and other truing devices.

The final operation is finishing. What does this involve? Sanding, filling, stain and varnish or paint. Be sure to have on hand paint cleaners, rags, newspapers, and smocks or old shirts for the children to wear. The most important ingredient in a finished product is one we haven't mentioned -- grease -- elbow, that is. The children should be encouraged to be patient and not rush this process. The difference between a project that looks good and one that looks great is often a few extra minutes during the finishing operation. The children will be getting eager to see the completed product. Try to hold back. But our main goal is for the children to feel and experience - not a show product.

I think we should make the children realize that these are tools and not toys, and should be treated with respect. You will be talking about the workers who use these tools and can point out some of the precautions and safety practices regular users of these tools employ. Also, discuss how the workers might feel and relate how the children feel about the tools and work.

One resource person that is readily available to us is the school custodian. His appearance in the classroom helps the children to understand that he is an essential part of the school operation, and can give the custodian a sense of belonging and really being an essential part of the school. A little ego inflation never hurts, does it? And quite possibly it might make this resource person more available next time you need him.

This is one way to approach carpentry projects. I'm sure it isn't the only way. If you develop a better technique, give me a call at Elizabeth School. I'd like to know about it. We're all in this together, you know. Just be sure that nail you hit is <u>in</u> the boards - not <u>on</u> your finger.

COBB COUNTY OCCUPATIONAL & CAREER DEVELOPMENT PROGRAM

BROOKS BUTTERWORTH - BELLS FERRY ELEMENTARY

"Use of Camera and Tape Recorder"

We use pictures (1) to motivate students to greater involvement and achievement in the program, (2) to review and improve our procedure in carrying out the project, and (3) we use pictures as a record of the project. We strive in our pictures to maintain correct sequence, closeness and activity in the pictures.

Each school is provided with two cameras. One for the primary grades and one for the upper elementary. We inaugurate the project with an action picture and conclude the project with an activity type picture. During the project we take five to eight sequential learning by doing type pictures.

We will attempt to train a qualified and interested student as a photographer to assist in the program.

We will use the tape recorder during the visits of resource people and for interviews. Any pertinent information secured on field trips will be taped for later review and study. We will, if practical, correlate pictures with tape recordings. Lastly, we will use the tape recorder as a means through self study to review and improve the learning process during the unit of study.

CHARLENE KILLIAN

"Concrete Activities"

Career Development is an excellent program. It enhances the existing curriculum, enlarges experiences and provides meaningful activities. At a workshop conducted last fall, Dr. Hackett from Georgia Southern said, "Schools have traditionally been organized around subject matter and those who teach the subjects rather than the students. As a possible solution to some of the many problems that have developed, it is suggested that the school program in grades K-12 be organized around the world of work. It simply recognizes that school age children are more interested in people and things than in abstraction."

Concrete activities provide new and meaningful activities for each student. It is extremely important that the teacher and students select units that they will enjoy. Each unit should provide meaningful activities for the superior student, the average student, and the slow learner. Units enhance the present curriculum and may serve as a way of introducing a new concept in math, science (etc.) or reinforce concepts previously covered. If you are excited about the unit, boys and girls will also become excited. They learn to organize groups and to direct their own activities in small groups. They will see the need to learn to read or improve their reading and comprehension. Before processing film they must first read the instructions. Failure to comprehend or follow directions results in damaged negatives. They learn to use manipulative materials such as a saw, hammer or a drill. When constructing a workbench, certain math concepts become a reality. They must determine the size of the bench and the amount of materials needed. Accurate measuring is important. They may call several vendors in order to get an estimation. It becomes apparent to them that good work at school or on a public job is performed

by responsible individuals with a willingness to learn. They see the need for self discipline and the importance of using material and not abusing it.

Classroom activities are innumerable. Your classroom may be turned into a grocery store, a photography lab, or a T.V. studio. Children enjoy interviewing their parents and inviting them to visit their class and discuss their occupation. Resource people may be obtained from the community, county, or state.

Concrete activities are not limited to the classroom. Field trips are excellent learning situations. Boys and girls become good observationists and learn to utilize communication skills. A field trip may involve walking to various places of business in the community. Students may go as a class or divide into smaller groups. Small groups may report back to their peers. Trips may be taken to places that require transportation by buses or parents. Most parents are very responsive and are willing to assist in any way.

Activities should never extend beyond the interest of the children. Remember to capitalize on opportunities for concreteness and direct experience rather than abstraction and vacarious experiences.

COBB COUNTY OCCUPATIONAL & CAREER DEVELOPMENT PROGRAM

VERA S. GRANTHAM - MT. VIEW ELEMENTARY

"Role-Playing"

After we get into our unit, one of the most exciting phases that can be used is in the art of role-playing.

As we all know, children are most often natural-born actors and actresses They begin at a very early age acting out the roles of mother, father, teacher, preacher, policeman, cowboys, and Indians, and many others. These are all perfect examples of learning to identify one's self with a particular role in life.

When the child reaches school age, why not capitalize on his experiences of role-playing?

Our Career Development Program provides an excellent outlet for this ability in the child. Too, it will enable the child to develop a positive self-concept based on a knowledge of self- which. in turn, will help the child to develop self-confidence in their own abilities.

Role-playing can be an excellent means of accomplishing many of our goals and objectives in Career Development with the environmentally disadvantaged or emotionally disturbed child, as well as with all our pupils. Right here, I would like to cite a specific case of how role-playing helped such a child in my classroom this past year. Let's call the child Esther. We were developing a unit in T.V. Esther seems to be an emotionally disturbed child - shy and hostile toward her classmates oftentimes. We were working on a variety program. The boy that was to do a Tiny Tim act failed to produce. Esther asked to be permitted to "try out" for the part. We quickly arranged for her to do so. The class was the judge of the accepted acts. Esther made a big hit with the class and she was well accepted all during the unit.

When we began our Protective Services unit we needed an artist to make

wanted posters and to be the artist who draws images of suspected criminals. Having previously observed her artistic ability, the class unanimously decided this should be Esther. Along with her work, she supervised and assisted others in making wanted posters.

Esther had been a decided discipline problem from the lower grades up to the fifth. This hasn't solved all of her problems but there is a very marked improvement in her behavior and attitude

As a culminating activity, we dramatized both the T.V. and Protective Services Units. We invited parents and visitors to attend each. Our hostesses for each program had the visitors to sign our register. We had an average attendance of about fifteen. In the T.V. unit the class dramatized several T.V. personalities, such as Ed Sullivan. the Lennon Sisters, Flip Wilson, Carol Burnett, Liberace, Tiny Tim, and Johnny Cash. We used other pupils acting as producers camermen. lighting director, control board operators, and on down to custodian. Each child was allowed the privilege of choosing their part. We emphasized the importance of each role and a very sweet little girl choose the role of custodian. She performed her duties of dusting and cleaning with much dignity.

In our Protective Services unit we followed the same procedure of each child selecting the role they desired. We had a boy playing the role of J. Edgar Hoover: others were policemen, policewomen, detectives, lab technicians, finger print experts, secretaries, fire chief, firemen, and others.

Most of the units that we have accessible to our teachers have excellent opportunities for role-playing.

We have with us today one of my pupils who portrayed the role of Sports Newscaster on our variety program. He will demonstrate for you his talent in the art of role-playing. I might add, not boastfully but with great pride, that Stephen did an excellent job in his role-playing as Sports News-Caster.

COBB COUNTY OCCUPATIONAL AND CAREER DEVELOPMENT PROGRAM

ESSIE DILBECK - ELIZABETH ELEMENTARY

"Subject Matter - Occupational Tie-In"

I would like to share with you some things my class and I did during the year in a project called "Food Distribution."

In this we set up a grocery store in the classroom. We acquired our stock from another project, "Food Packaging," we did prior to this project.

In Language Arts: We needed some system to stock food on the shelves, so we used the Alphabetizing system. From these foods we made a list of vocabulary words, and kept them in a word file.

In the Library we used the Reference Books, Story Books, Magazines, and the Vertical Files for pictures, and more pertinent information. We also used the Card Catalogue for finding Story Books, on subject matter.

We used film strips, records, and films from the State Department. We wrote stories about field trips and listed duties and responsibilities of job workers.

We made "shopping" lists of foods to buy at the grocery store, wrote poems and riddles about food, learned to spell the vocabulary words, read stories in the Reading text books related to subject matter, used English text books as guides to written work, read and taped the stories in class for individual evaluation, taped the field trips for future information.

In Math we did weights and measures. We labeled milk cartons, and stacked enough ½ pint containers together to equal one gallon, etc.

Linear measure was used in building our grocery store.

Through estimation of cost on buying groceries, we learned to make change, learned to use adding machines, did sets and sub-sets, multiplication, and the undoing of multiplication, using the food containers.

These things were correlated with the Math text book.

Taey learned to write checks; deposit money in the banks on checking account.

and how "not" to overdraw a bank account.

Other things included: making orders to Wholesale Houses, and Dairy Farms for restocking grocery store, also making orders to the Sign Shop.

In Science, we learned some foods are stored in paper containers, others in cans, some frozen, and some kept under refrigeration, others in packages and dehydrated.

We also collected and made a display of seeds on Four Basic Foods. We saw a film on the cutting of pork, beef, and lamb into the different choices of meat. We also learned to choose a variety of the four basic foods from the grocery store.

In Social Studies we took field trips to Dairy Farms, Meat Packing Companies, Wholesale Houses, Poultry Processing Company and Feed Mill, "prior" to this project.

These companies are all located in Cobb County, except the Dairy Farm, and some in walking distance of the school.

When visiting the Grocery Store we also visited a Bank because we had set up a Bank in the classroom for the purpose of having a checking account for each student. When we came back from each field trip, we had a follow-up of our objectives, and each was discussed.

Each student wrote a paper on each trip, some few told about their trips, because they were unable to write!

After our store was set up, we decided it needed a name. Some names were suggested, then a "secret ballot" was held. The store was named "Elizabeth Tip-Top Grocery Store," we also held elections to name the Sign Shop, the Dairy, Wholesale House, and Bank.

In Art, time was spent making plans, to exhibit food in an attractive way. Packaging foods in empty containers, and to make it look as real food, making signs in the Sign Shop, drawing pictures, making place mats from real material,

donated by parents. We also made food from Plaster of Paris and painted them.

In Music we used songs from different song books about foods and occupations and set music to poems, made by students.

In conclusion to give you a general idea of the whole thing, I had 27 students in my class. everyone wanted a job at the same time. This was our set-up: When the grocery store was ready and workers were employed, "shoppers" (other students) began to exhaust the stock of food. First we needed dairy products, we set up a dairy store with volunteer workers, next was the Wholesale House with volunteer workers.

With these three businesses we decided we needed a sign shop. Three workers were employed to erect signs and take orders. Two truck drivers were employed to take orders and deliver for the Wholesale House, Dairy, and the Grocery Store.

When we began learning to write checks we studied and set up a bank with a "Manager" and a "Teller". At this time, each student was given $20.00 to open up an account at the Bank. From the Bank, each student was issued blank checks, with stubs to keep a record of his account. Each student was to make three separate shopping trips to the Grocery Store, writing a check each time. He was to estimate what the groceries would cost each trip, being careful not to overdraw his bank account.

This project was enjoyed by all, including the Kindergarten class, in our school. They came in small groups, bought groceries, wrote their little checks, and carried their groceries back to their classroom.

From this project we advanced to "Food Preparation" as our next project.

COBB COUNTY OCCUPATIONAL & CAREER DEVELOPMENT PROGRAM

CAROLYN ORR

"Subject Matter - Occupational Tie-In"

What is the Career Development Tie-In? Throughout our program we are striving to stress the importance of job . Each child should become aware that his parent or parents contribute an important part in the working world.

The unit approach emphasizes the many occupations involved. In our Gardening Unit we studied about the farmer, the soil conservationist, the horticulturist, the seed store operator, the fertilizer dealer and the salad maker.

You may be thinking "I cannot teach someone else's unit." That isn't the purpose of the program . . . Teach the child. Let the children help in planning your unit. Fit the material to meet the needs of your classroom. Get the children involved in planning, in research, in making field trips. Encourage parent participation. Explain to the parents the purpose of teaching Career Development.

Perhaps you are wondering, "When do you teach arithmetic?" The child learns best when he has a need for learning. This need arises when he begins estimating the amount of seed needed to plant a tomato bed, how much fertilizer will we use? How much lumber will we use to build-construct the tomato boxes? How many nails will we use? Do we buy nails by the box, pound, ounce, keg? These answers will be found in the chapters dealing with Estimating and Measuring. Teach these chapters when the interest is keenest.

Teach the children to use the glossary and the index in the back of the text book before you actually get into the unit, then as the need arises the child can locate the material for himself, or with little assistance. Give ample time for small group work or individual work time. Lead the children to the sources, then, let them discover their own answers.

Within a few weeks you will find the children are discovering the tie-in of their unit with other subjects.

The Youth Museum is an excellent source for materials. The suit case exhibits furnish clothes and costumes which children actually wear. They can play dress-up and really have meaningful role-playing.

Language Arts are correlated into the unit through use of the library. Books, slides film strips, stories in the health text often relate to the gardening unit.

Spelling is taught in needed vocabulary. Flower names, plants, are learned as needed.

Art and Music were covered in planning chapel programs around the seasons, plants, flowers, insects. We designed costumes for a program using green tissue paper to make a human size worm. Poems were written to fit the unit, and set to music. Bulletin boards were planned and designed by the children. Each group or committee could bring in pictures, suggestions, ideas. It changed as the unit progressed.

Science had more meaning when we had our own beans, lettuce and tomatoes sprouted. Measurements for water and fertilizer were studied, and the chemical reaction was shown when the wrong amounts were applied.

Career Development Education is the responsibility of the <u>total</u> school and cannot be limited to a single subject area. These activities are designed to promote total school learning. The specific purpose of occupational information in the elementary grades is to orient children to the world of work.

To arrive at appropriate choices, youngsters need valid information about job functions, job opportunities, and changing job requirements.

Students are developing techniques of intelligent inquiry toward adults and their role in the working world.

Students help plan their units of study, thus developing a personal interest

in their learning activities.

The units are written with flexibility which enables teachers to consider their own physical facilities and individual techniques.

Total involvement carries into all subject areas. Students use skills from other subjects in construction of the products.

Through the use of manipulative tools, students are becoming more familiar with a variety of work roles. Tag board, Elmers glue, glitter or sand are needed to make word cards.

As interests develop - various role-playing areas may be included, thus identifying with a worker.

Each child must be made to feel worth while and his individual interest may be sparked through the channels of the scientist, teacher, horticulturist, or other observable occupations.

The Career Development Program involves teaching self-concepts for the student. He must think well of himself, think well of others, therefore he sees his stake in others. He sees himself as a part of a world in movement. He develops and holds human values. Life means discovery and adventure.

We, as classroom teachers, must revitalize our concept of education and acquire more revelant patterns of operation. We must be able to act as self-reliant individuals in the sense of being able to assess, analyze, modify, and strengthen our school program. We want to aid the youngsters in developing as self-reliant individuals. Small group projects and individualized studies help teach decision-making.

Gradeless schools are moving from memorized learning and simplified explanations to the process of inquiry for each individual.

"Curiosity - linked to action." Philip Coombs says, "What the schools need is not simply more money from the outside but sweeping changes on the inside."

The County Agent explained about analysis of the soil, and each child brought in a sample of soil from his own yard or garden.

Art and Science were combined in the Science Notebooks. The only stipulation was that no two notebooks were to be alike. We tried to encourage variety, special interests, origionality.

Experimentation was a vital part of our Gardening Unit. We tried to root plants in water, soil and with cuttings. We planted bulbs, seeds, tubers, and even tried grafting. We learn about plants needing sunlight in producing green leaves. Photosynthesis takes on real meaning.

Children bring in as many different science books as are available. We are not tied to one particular text, but choose from many to supplement our learning. S R A Reading kits are abundant in stories that correlate with the Gardening Unit. Children tell each other about stories that belong "with our Unit."

The lunch room staff was most cooperative in helping with our study of foods. Nutrition charts are available free for the asking. The dietition talked with us about the preparation of fresh vegetables.

The custodian helped with collecting milk cartons, transporting the extra soil, and even showed patience and understanding on the Monday morning our classroom had worms crawling on the floor from the flower boxes. He became very involved with our projects, and complimented us on our clean room, in spite of the growing plants. Even the bus driver brought us young tomato plants from her garden.

In studying Geography we learned which plants grew best for each climate studied. Maps on rainfall and weather charts became important to us in studying crops.

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Every activity in the classroom takes on more meaning when the children become really involved. Everybody has a job, and every job is important. Work is honorable and desirable.

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[illegible]RB COUNTY OCCUPATIONAL & CAREER DEVELOPMENT PROGRAM

BONNIE K. SMITH

"Field Trips and Resource Persons"

A field trip is an important aid to he instructional program. It can [illegible] and interest to classroom ac ivities and can be very valuable [illegible] the gap between real experiences and the relatively abstract [illegible] the classroom. The effectiveness of the field trip as an [illegible]l aid is directly related to the amount and quality of pre-[illegible].

The [illegible]lue ingredients of a field trip provides concrete and meaningful [illegible].

Reading about a bakery will involve only seeing. A field trip to a bakery will involve every motor sense of each child. The child may smell, [illegible], and possibly taste as he progresses through the bakery.

Children will want to illustrate some of the things they have seen, or do more research on the subject after going on a field trip; at any rate each child is usually very enthusiastic and wants to tell what he saw and to share his experience with the class. All of these trips stimulates occupational interest.

[illegible] the preliminary and follow-up facets of a trip must be well [illegible].

I. A. Teacher can take a trip in advance.

1. Consider weather, transportation, safety route, meal, time expenses and clothing.

2. Secure permission from administration, parents, and officials of place to be visited.

II. [illegible]tructions to Students

1. Objectives of Trip
   a. What is each individual's job?
   b. What materials do they use?
   c. Do the workers sit or stand?

d. Do they use their hands?
e. Do they operate machinary?
f. Do they rotate their jobs?
g. What are their duties and responsibilities?
h. How many hours do they work and do they get overtime?
i. Do they get paid by the hour or piece work?
j. Do they belong to a union?
k. How much education or job training for job?
l. What is the starting pay and how often do they get a pay raise?
m. Do they like their job?
n. Would he (student) like to do this job?

2. Time of departure and return
3. Proper clothing
4. Equipment necessary (as paper and pencil)
5 Finances
6. Safety regulations
7. Expected level of behavior
8. Keeping up with the group.

III. End of the Trip Follow-up.

A. Expression of appreciation

B. Discussion of trips highlights

C. Review of most important points

D. Submission of required reports.

A teacher may get some parents usually two or three are sufficient to go on these field trips and help supervise the children. Most parents like to go and will help in any way.

We get a written permission for each child signed by the parent. These are kept in a file and only has to be done once a year.

"Togetherness" is the key to acceptable behavior so the teacher may employ the "buddy system" or have squad captains to help with the discipline.

Certain rules and regulations are enforced by the Board of Education so one will have to find out their policy on field trips.

We have parents sign a form as to their employment and job if they are available as a resource person. These forms are kept and a list is made from it.

Also a list is made of resource people in our city who would come and visit

a classroom to tell them what they know.

We had an FBI man who came to our class. The children were very impressed with an actually FBI man.

Two resource people per unit should be used.

COBB COUNTY OCCUPATIONAL & CAREER DEVELOPMENT PROGRAM
ELEMENTS OF CAREER DEVELOPMENT

"DECISION MAKING"

H. P. Wellborn
Elizabeth Elementary School

During the year I realized something special was going on at Elizabeth but I couldn't really put my finger on it, so I began going around and peeping into the classrooms that were involved in the program.

During the day I found in Mrs. Smith's room children who were actively involved in weaving. There was a little bit of noise, but each child was busy doing what interested him. In Mrs. Dilbeck's room I found a room bursting with a grocery store. The grocery store was coming out the windows and the doors. I saw the children debating over a mustard jar whether it should be put into the refrigerator section of the foods or into the canned goods section. In Miss Tipton's room I found the children making a red and white striped darkroom and deciding on whether the red and white stripes would match one another. In Mrs. Dilbeck's room I ran into a rather sophisticated child, whom we'll call Jenny Mitchell, and I asked her if she knew what was special about this project and she said, "Well, I feel that I'm almost as smart as Mrs. Dilbeck." This child had so many opportunities for making decisions on her own and with a group that she was actually proud of herself. In Mrs. Smith's room I asked another little girl what she felt was special about the project and she said, "Well, now I know why my aunt gets so upset when I come home with holes in my socks." She had been to a sock factory. She had seen the socks made, she knew how they were put together, and how they were dyed and exactly how much they cost.

The thing that these children and these projects have in common is that each child is placed in a decision making situation. Jerome Bruner in his book,

The Process of Education, tells us that schools must provide decision making situations for children. John Dewey tells us that these decision making situations must be social ones, so that the children have a chance to interact with their peers during decision making time. John Dewey also tells us that schools should be as near to life as possible. When most of the people in our culture were farmers, the son of a farmer learned very early in life how to hoe potatoes. This contribution was needed to get food onto the table.

The more sophisticated our society becomes the further away education moves from life. It is with this project that we can make education and life move closer together even in our most sophisticated society.

Now lets do some decision making. What is it that you feel you need to know about this project to get it moving in your classroom?

- How to use tape recorder and camera
- How are you making careers and jobs work into curriculum
- How team teaching could fit into the program
- How open classrooms could fit into the program
- How do you evaluate the children in the program

COBB COUNTY OCCUPATIONAL & CAREER DEVELOPMENT PROGRAM

BARBARA FLOYD - BELLS FERRY ELEMENTARY

"Developing Units"

After my class and I have decided upon a topic that we would like to study, we start brainstorming ideas - anything even remotely related to the subject is considered. We list as many occupations associated with the study as we can. These thoughts are jotted down to incorporate later into an outlined unit plan. In developing a unit you must have a beginning and an end of the study in mind. (You have to know where you're going and be able to know when you've gotten there.) It is important for those of you not familiar with the unitary method of teaching to have a written outlined unit to follow, it alleviates some of the unorganized wanderings you have otherwise.

There are many good unit outlines, but I have found that the following is easier for me to work with.

I. Objectives and Concepts

A. Objectives

1. General objectives (Very broad)
2. Behavioral objectives

B Concepts

II. Subject Matter

III. Motivation

IV Study Activities

A Initial Activities

B. Research Activities

C Correlating Activities

D Culminating Activities

V. Materials

VI Evaluation

A. Self evaluation (Be hard on yourself)

B Observations of the Child

C Writter Tests (Pre and post)

D Oral Tests (Pre and post)

VII Bibliography

TOTAL DAY PRESENTATION

To illustrate the elements contained in a Career Development unit, a total day presentation was made by Sue Owens, a veteran teacher from the program. Utilizing a restaurant unit, the teacher initiated the activities with two questions to capture group interest. After group interest was established, group members discussed occupations related to restaurants and made plans for activities and the materials necessary for them. Led by Miss Owens, the group decided to dramatize the operation of a restaurant, involving as many phases as possible. Small groups were organized to make all materials involved, with the individual groups making place mats, flowers, aprons, menus, "money" and small tables. Through this group procedure the participants were involved in "hands-on," concrete activities. Following the small group sessions, the members selected the various roles related to the restaurant and role-played them, simulating the work activites appropriate to each. Miss Owens concluded the presentation with a brief summary of activities involved.

By role-playing as the various workers, the participants were able to see the relation of the academic disciplines to work activities. In their roles as teachers, the members saw the practical application of the Career Development approach to subject matter at appropriate grade levels. Through this presentation, the participating teachers realized how the Career Development elements of role playing, concrete activities, curriculum tie-ins, resource persons, field trips and occupational descriptions could be incorporated into the ongoing curriculum model.

STATION 7 - Guidance and Counseling

Directions: After attending the counseling presentation answer the following points.

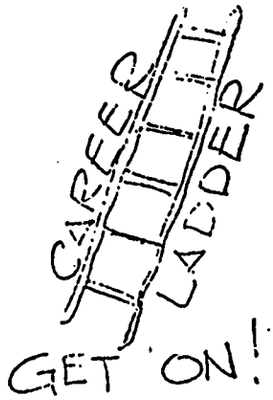
1. What are three (3) ways you can use the counselor in your classes this year? (a)_____ _____(b)_____ _____(c)_____

2. What materials do the counselors have that you would like to use in your classes?(a)_____ _____(b)_____

3. Have you talked with your grade level counselor about planning a time to work with you and your class? YES_____ NO_____

4. What two (?) other ways does the counselor work with students outside the classroom? (a)_____ _____(b)_____

STATION 8 - Resource Materials Selection Center



Directions: Look at pages 81-90 in The Teacher's Role in Career Development; find the chart relating to your subject area; use that chart to answer these questions.

1. What are 3 jobs your students could get if they quit school at the end of this year? (a)_____ _____(b)_____ _____(c)_____

2. Select the job from your subject area chart that you feel is the most desirable._____

3. How can you use the "level" concept in your teaching to help students relate their own abilities and personality to information about occupations? (3rd Paragraph - pg. 82)_____ _____

VT 015 377
THOMPSON, JOHN F.
PILOT PROGRAMS IN VOCATIONAL AGRICULTURE.
REPORT NO. 6, AN ANALYSIS OF GRADUATES 1969
AND 1970.

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IDENTIFIERS - WISCONSIN

ABSTRACT - DATA WERE GATHERED FROM THE
GRADUATES OF THE FIRST TWO YEARS OF A PILOT
PROGRAM IN VOCATIONAL AGRICULTURE TO
REPRESENT THEIR STATUS SIX MONTHS AFTER HIGH
SCHOOL GRADUATION. THE SECOND YEAR DATA
OBTAINED FROM 126 GRADUATES ARE THE PRIMARY
FOCUS OF THIS REPORT. IT WAS FOUND THAT 66
PERCENT OF THE GRADUATES SOUGHT EMPLOYMENT
IMMEDIATELY AFTER GRADUATION, WITH MORE NON-
FARM GRADUATES TENDING TO SEEEK HIGHER
EDUCATION. A MAJOR IN AGRICULTURE WAS CHOSEN
BY 43 PERCENT OF THE GRADUATES WHO WENT ON TO
HIGHER EDUCATION. MOST OF THE GRADUATES GOT
THEIR FIRST FULL-TIME JOBS WITHIN TWO WEEKS
AFTER GRADUATION. THE PILOT PROGRAM PREPARED
STUDENTS FOR THEIR HOME AREAS AS 79 PERCENT
OF THE GRADUATES WORKED WITHIN 10 MILES OF
THEIR HIGH SCHOOL HOME. PERSONAL INTEREST IN
THE WORK WAS MOST FREQUENTLY STATED AS THE
REASON FOR TAKING A JOB. HIGH SCHOOL
EXPERIENCES RELATED TO JOBS WERE RATED GOOD
TO EXCELLENT EXCEPT FOR GUIDANCE, WHICH WAS
RATED FAIR TO GOOD. GRADUATES WITH HIGHER
VOCATIONAL MATURITY SCORES TENDED TO EXPRESS
GREATER SATISFACTION WITH THEIR JOBS AND
PREVIOUS EDUCATIONAL EXPERIENCES AND TO GO ON
TO HIGHER EDUCATION, RATHER THAN TAKING A JOB
IMMEDIATELY AFTER HIGH SCHOOL. RELATED
DOCUMENTS ARE AVAILABLE AS VT 014 255 AND VT
014 256 (ARM VOL. 5NO. 3) AND ED 035 742 (VT
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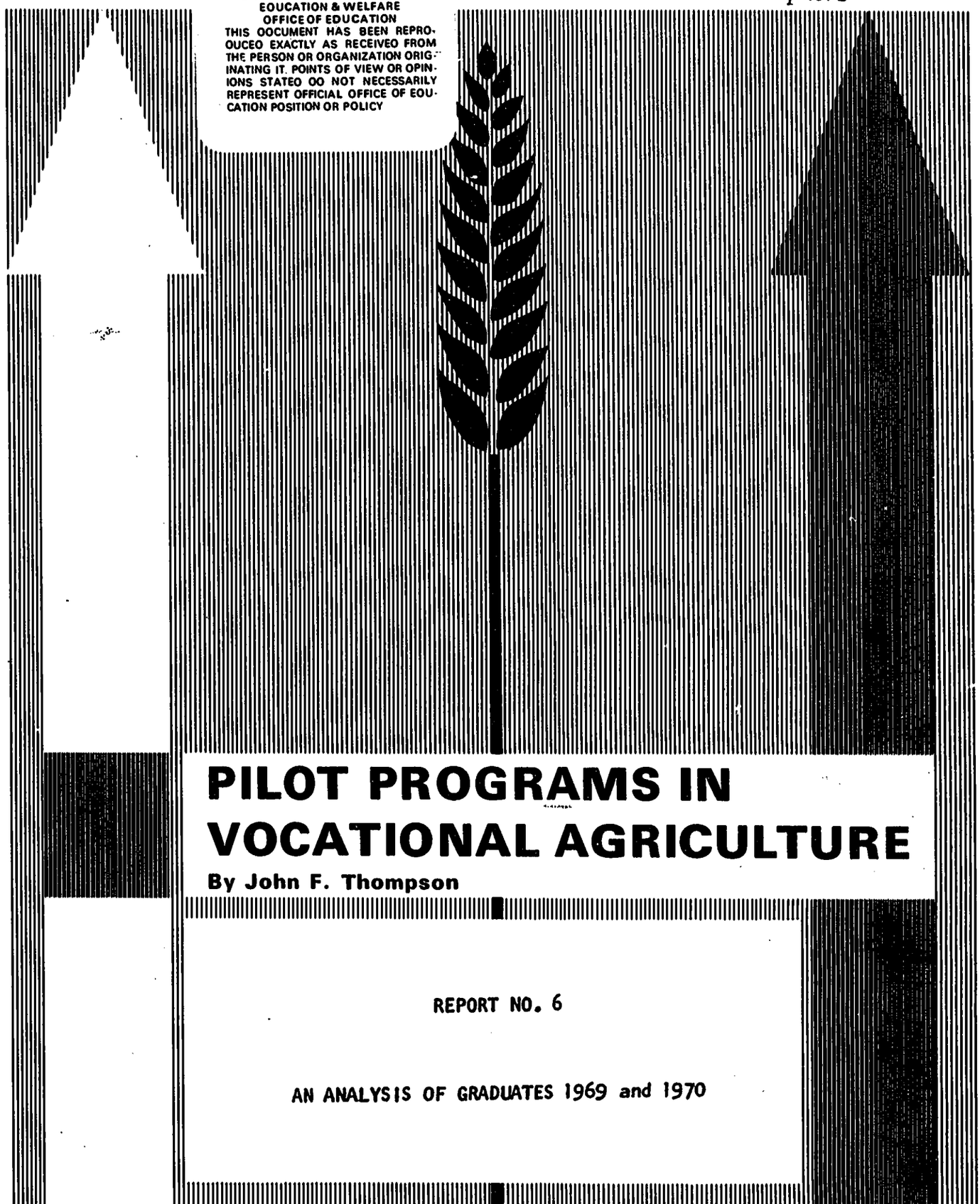

PILOT PROGRAMS IN VOCATIONAL AGRICULTURE

By John F. Thompson

REPORT NO. 6

AN ANALYSIS OF GRADUATES 1969 and 1970

Department of Agricultural
and Extension Education
University of Wisconsin
Madison, Wisconsin 53706

VT015377

THE COMMITTEE FOR

PILOT PROGRAMS IN VOCATIONAL AGRICULTURE IN WISCONSIN

Dr. John F. Thompson, Chairman
Dept. of Agricultural and Extension Education
University of Wisconsin, Madison

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School of Agriculture
University of Wisconsin
Platteville

Mr. Floyd Doering
Supervisor
Dept. of Public Instruction
Madison

Dr. Gerald Matteson
Dept. of Agricultural Education
University of Wisconsin
River Falls

Mr. Don Triebensee
Teacher of Agriculture
Rice Lake

* * * * *

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INTRODUCTION

The first seniors graduated from the pilot programs in vocational agriculture in the Spring of 1969. At that time we reported 107 seniors. When the schools returned the follow-up questionnaires, 64 seniors or 59.8 percent were accounted for. Some of the schools were very cooperative and others did not cooperate at all. In fact two schools (Waterloo and Cameron) did not even send the questionnaires out to the graduates. Of the 179 seniors in 1970, 126 (70.4 percent) returned the questionnaires. Again two schools (Cameron and Rosholt) did not cooperate. These data are shown in Table 1.

The questionnaires were sent to the teacher of the pilot program who in turn sent them to the graduates. Data were gathered to represent the status of the graduates six months after high school graduation. Generally there were little differences between the 1969 graduates and the 1970 graduates. Consequently, nearly all of the data presented in this report will concern only the 1970 graduate. Data of the 1969 graduates will be presented only when the differences between the two groups appear to be noteworthy.

FACTUAL SUMMARY

1. During the first two years of the pilot program in agriculture, 286 seniors graduated. Data on 190 graduates six months after high school graduation were obtained. In 1970, the second year data were gathered on 126 graduates and these data are the primary focus of this report.

2. Nearly all (92 percent) of the graduates were single six months after high school graduation.

3. Eleven percent of the 1970 graduates were in the military service six months after high school graduation.

4. The majority of the graduates (66 percent) sought employment after high school graduation. There was a tendency for the non-farm student to seek post-high school education at a higher rate than the farm student.

5. Eight of the 10 female graduates sought employment after high school graduation.

6. Those graduates who had enrolled in the course for exploratory reasons had a tendency to seek employment after high school graduation.

7. Forty-three percent of the pilot program graduates who went on to college chose a major in agriculture. The non-farm students chose majors in conservation and agricultural services while the farm students chose majors in production agriculture.

8. Six of the 16 pilot program graduates who went on to vocational schools were in an agricultural area of training. The non-farm student chose non-agricultural areas of training when entering the vocational schools.

9. Family and friends are the sources of information about current jobs reported by the graduates. Family was much more important for the 1970 graduate than it was for the 1969 graduate.

10. The graduates tended to get their first full-time job as soon as they expected to. The majority of the graduates were employed within two weeks after high school graduation. Non-farm students got their first full-time job somewhat later than did the farm students.

11. Personal interests in the work dominated the reasons for taking the present job. Beyond this the graduate seemed more interested in present rather than future dimensions of the job.

12. The graduates expected to have quite long tenure in their present job with 40 percent indicating that they expect to make a career out of their present job.

13. Nearly two in three of the graduates were interested in additional training. Farm students were interested in training for their present job. Non-farm students were as interested in additional training for their present job as training for another job.

14. The pilot program in agriculture prepares students for their home area as 79 percent of the graduates worked within 10 miles of their high school home. The graduates were not occupationally mobile during the first six months after high school graduation.

15. The typical graduate made $111.00 or less per week. The graduates with a farm background reported higher salaries than did the non-farm graduates.

16. The graduates rated four of five items concerning their high school experiences as good to excellent in quality. These were (1) their present jobs, (2) their high school education, (3) the courses available to them, and (4) the pilot program course. A fifth item, guidance, was rated fair to good. Students with a farm background rated all five items higher than did the students with a non-farm background.

17. Those graduates who had enrolled because the pilot program fitted into their career plans indicated a higher opinion of the course than did those who had enrolled to explore the career area.

18. There was a general trend for the graduates who had the higher vocational maturity scores to express higher job satisfaction, and a greater degree of satisfaction with his previous educational experiences than the graduates with the lower vocational maturity scores. Those with higher scores also tended to go on to higher education rather than taking a job immediately after high school.

STATUS OF GRADUATES

Marital Status

The majority of the graduates of the pilot program were not married six months after graduation. Of the 126 graduates, only 8 percent were married.

Military Status

As we consider the military status of these graduates, Table 2 shows that 11 percent of the 126 graduates were in the military service. The 21 percent in the "does not apply column" represents those with draft deferrals, as well as the females in the program.

Educational Status

The majority of the pilot program graduates did not continue their education by enrolling in a post high school institution. As can be seen from the data in Table 3, 34 percent of the students entered some type of educational program after high school, with 19 percent entering college, 13 percent entering vocational school, and 2 percent entering a farm short course.

The data also indicates that non-farm students were more likely to enter a post high school educational program than were farm students.

Educational status by sex is shown in Table 4. Male graduates of the pilot program were engaged in more post-high school educational programs than were the females from the group.

When educational status was compared to "why they took the course," the percentages reveal some differences (Table 5). The students who had enrolled in the course for exploratory reasons showed some tendency to seek employment after high school graduation. Conversly those who had enrolled in the pilot program for definite career reasons, that is it fit into their career plans, entered work or post-high school education in relating equal numbers. These trends are shown more directly in Table 6.

Table 7 reveals that of those graduates who entered college 43 percent were majoring in agriculture, and that 21 percent had not yet determined their major. Non-farm students enrolled in a college major in agriculture at higher rate than did farm students. The researcher divided the group of graduates majoring in agriculture into different areas of agriculture,

TABLE 1: PROPORTION OF SENIORS IN FOLLOW-UP STUDY, BY SCHOOL AND YEAR

School	Year 1969 Number of Seniors	1969 Number in Follow-Up	1970 Number of Seniors	1970 Number in Follow-Up
Barron	10	10	8	8
Cameron	6	0	8	0
Janesville	36	23	39	25
Jefferson	8	8	10	10
Oshkosh	3	0	20	12
Plymouth	4	4	X	X
Rosholt	17	3	13	0
Verona	16	16	14	14
Waterloo	7	0	12	9
Bloomer	X	X	16	16
Green Bay East	X	X	11	6
Independence	X	X	13	9
Southern Door	X	X	15	14
Totals	107	64	179	126

TABLE 2: MILITARY STATUS OF THE 1970 PILOT PROGRAM GRADUATES, BY SCHOOL

Military Status	Barron	Janesville	Jefferson	Oshkosh	Verona	Waterloo	Bloomer	Green Bay	Independence	Southern Door	Total Number	Total Percent
In Service	0	1	2	0	0	5	5	1	0	0	14	11
Waiting	8	17	7	9	11	2	9	3	8	7	81	64
Does Not Apply	0	7	1	5	3	1	1	2	1	5	26	21
Other	0	0	0	1	0	1	1	0	0	2	5	4
Total	8	25	10	15	14	9	16	6	9	14	126	100

TABLE 3: EDUCATIONAL STATUS OF THE 1970 GRADUATES, BY RESIDENTS

	Residence					
	Farm		Non-Farm		Total	
Educational Status	Number	Percent	Number	Percent	Number	Percent
In College	5	11	19	24	24	19
In Vocational School	5	11	11	14	16	13
Farm Short Course	3	6	0	0	3	2
Does not apply	34	72	49	62	83	66
Total	47	100	79	100	126	100

TABLE 4: EDUCATIONAL STATUS OF THE 1970 GRADUATE, BY SEX

	Sex					
	Male		Female		Total	
Educational Status	Number	Percent*	Number	Percent	Number	Percent
In College	23	20	1	10	24	19
Vocational School	15	13	1	10	16	13
Farm Short Course	3	3	0	0	3	2
Does not apply	75	65	8	80	83	66
Total	116	101	10	100	126	100

*Percent not equal to 100 due to rounding errors

and found that the non-farm students chose agriculture majors in the areas of conservation and agricultural services. The farm students chose college majors in the production areas.

Of the 16 graduates who entered vocational school six entered in an agricultural area of training. As we compared differences in residence of those in vocational school with agricultural vs. non-agricultural areas of training we note that nearly all of the pilot program graduates who entered a vocational school program in a non-agricultural area of training were non-farm students. These data tend to indicate that graduates with a farm background are preparing for agriculturally related positions more than graduates with a non-farm background, although this is not the trend for those who went on to four-year collegiate programs.

TABLE 5: WHY STUDENTS ENROLL IN PILOT PROGRAM, BY STATUS SIX MONTHS AFTER HIGH SCHOOL GRADUATION

Why Enrolled in Course	Status: In College No.	%	Vocational School No.	%	Farm Short Course No.	%	Working No.	%	Total No.	%
Fits into career plans (definite)	11	46	8	50	2	67	32	39	53	42
To find out what it would be like to follow this kind of work (and other exploratory reasons)	9	37	6	38	1	33	45	54	60	49
Other (no response, etc.)	4	17	2	13	0	0	6	7	12	9
Total	24	100	16	101*	3	100	83	100	125	100

*Percent not equal to 100 due to rounding errors

TABLE 6: WHY STUDENTS ENROLLED IN THE PILOT PROGRAM, BY STATUS SIX MONTHS AFTER HIGH SCHOOL GRADUATION

Why Enrolled In Course	Status: Higher Education Number	Higher Education Percent	Working Number	Working Percent	Total Number	Total Percent
Definite	21	49	32	39	53	42
Exploratory	16	37	45	54	60	49
No Response	6	14	6	7	12	9
Total	43	100	83	100	125	100

TABLE 7: COLLEGE MAJOR OF 1970 PILOT PROGRAM GRADUATES, BY RESIDENCE

College Major	Residence: Farm Number	Farm Percent*	Non-Farm Number	Non-Farm Percent	Total Number	Total Percent
Agriculture	3	34	9	47	12	43
Arts & Sciences	0	0	5	26	5	18
Business	2	22	0	0	2	7
No Major	1	11	5	26	6	21
No Response	3	34	0	0	3	11
Total	9	101	19	99*	28	100

*Percent not equal to 100 due to rounding errors

TABLE 8: HOW GRADUATES OBTAINED THEIR PRESENT JOB, BY YEAR OF GRADUATION

How Obtained Present Job	Year: 1969 Number	1969 Percent	1970 Number	1970 Percent*
Guidance Counselor	2	7	1	1
Vo-Ag Instructor	2	7	2	2
Friends	11	41	25	31
Family	4	15	25	31
Other	7	26	22	27
No Response	1	4	7	9
Total	27	100	82	101

*Not equal to 100 due to rounding errors

JOB HISTORY

The first question in the series on job history was concerned with how the individual obtained his present job (at the time the questionnaire was filled out) (Table 8). Sixty-two percent of the 1970 graduates and 58 percent of the 1969 graduates credited their family and friends with helping them get their present job. Note, however, that family was much more important in getting employment for the 1970 graduates when compared with the 1969 graduates. Very few of the graduates of either year identified their high school counselor or their vocational agriculture teacher with helping them obtain their present job.

The participants were asked how long after graduation did it take to get their first full-time job. As indicated by the data in Table 9, 59 percent of the graduates started to work within two weeks after high school graduation. The non-farm student was delayed in getting a full-time job when compared to the farm student.

The next question asked the graduate if it took longer than he expected to find a full-time job, why was this so. The alternatives on the questionnaire were:

1. I got a full-time job as soon as I expected.
2. No jobs available in the community.
3. Wasn't interested in the jobs that were available.
4. Parents wanted me to stay at home.
5. Lacked necessary skills and qualifications for the jobs available.
6. Was too young.
7. Other.

TABLE 9: LENGTH OF TIME AFTER GRADUATION BEFORE FIRST FULL-TIME JOB, BY RESIDENCE

Length of Time To Get First Full-Time Job	Residence				Totals	
	Farm		Non-Farm			
	Number	Percent	Number	Percent	Number	Percent*
Worked Summer then to College	2	6	1	2	3	4
No Full-Time Job	0	0	3	6	3	4
Less Than 2 Weeks	23	66	25	53	48	59
Less Than 1 Month	1	3	5	11	6	7
1-3 Months	5	14	12	26	17	21
No Response	4	11	1	2	5	6
Total	35	100	47	100	83	101

*Percent not equal to 100 due to rounding errors

The data from the question is displayed in Table 10. Forty-one percent of the graduates with jobs got their first full-time job as soon as they had expected to. We might also point out that no one selected the alternative "lacked necessary skills and qualifications for the jobs available," indicating the graduates felt they were qualified for the jobs applied for.

What were the reasons, chosen by the graduates, that helped them decide on their present full-time job (Table 11)? Personal interest in work and starting salary were the primary reasons for taking the present job. Personal interest in work also headed the list of secondary reasons. The graduates seem to be concerned primarily with present day items. They responded infrequently to such items as future salary, opportunity for promotion and fringe benefits.

The questionnaire proceeded to find out how long each individual planned to stay in the kind of work they were presently in. We can see from the data shown in Table 12 that 40 percent of those persons with jobs were planning to make a career out of their present type of work.

Those graduates working were asked to reply to the question: "Are you interested in taking additional training?" Sixty-one percent of those who were to answer this question reported that they were interested in additional training. Thirty-five percent were interested in additional training for their present job (Table 13). Farm students were interested in additional training for their present job. Non-farm students were interested in both types of training.

TABLE 10: REASONS FOR THE TIME SPENT FINDING FIRST FULL-TIME JOB

Reasons For The Time Spent Finding First Full-Time Job	Number	Percent*
Got job as soon as expected	34	41
No jobs in community	6	7
Wasn't interested in jobs available	2	3
Parents wanted me to stay at home	6	7
Was too young	6	6
Other	5	6
No Response	24	29
Total	83	99

*Percent not equal to 100 due to rounding errors

TABLE 11: WHY GRADUATES TOOK THEIR PRESENT JOB

Reasons For Choosing Present Job	Totals			
	Number		Percent	
	1st Choice	2nd Choice	1st Choice	2nd Choice
Starting Salary	16	4	19	5
Future Salary	5	9	6	11
Working Conditions	4	10	5	12
Job Security	7	7	9	9
Good Supervisor	1	5	1	6
Importance of Work	1	8	1	10
Opportunity for Promotion	6	3	7	4
Good Fringe Benefits	0	2	0	3
Personal Interest in Work	29	18	35	22
Other (including no response)	14	15	17	18
Total	83	81	100	100

TABLE 12: LENGTH OF TENURE EXPECTED AT PRESENT JOB BY 1970 PILOT PROGRAM GRADUATES, BY YEAR

How Long To Stay in Present Type of Work	Year			
	1969		1970	
	Number	Percent	Number	Percent
Career	7	26	32	40
1-3 Years	13	48	23	28
Want to Change Soon	5	19	14	17
Undecided, No Response	2	7	12	15
Total	27	100	81	100

TABLE 13: INTEREST IN ADDITIONAL TRAINING, BY RESIDENCE

Interest in Additional Training	Residence				Total	
	Farm		Non-Farm			
	Number	Percent*	Number	Percent	Number	Percent
No Interest	11	31	12	26	23	28
Additional training for present job	15	42	14	30	29	35
Additional training for another job	6	17	15	33	21	26
No Response	4	11	5	11	9	11
Total	36	101	46	100	82	100

*Percent not equal to 100 due to rounding errors

How far did these people travel to work? They were asked to estimate the mileage from their high school home to their job. Twenty-six percent of those with jobs worked within one mile of their high school home. An additional 53 percent worked from 1-10 miles of the high school home. Seventy-nine percent of the graduates worked ten miles or less from their high school home. This indicates that the pilot program was preparing students for jobs that could be entered within their community (Table 14).

How long had the pilot program graduates stayed at a job before they changed to another job? Seventy-four percent had stayed three to six months on their present job. This was the maximum time possible as the follow up was completed six months after high school graduation. These data indicate that the graduates were choosing jobs that they liked and wanted to stay at (Table 15). Also 80 percent of the graduates had held only one job six months after high school graduation.

TABLE 14: DISTANCE FROM HOME ADDRESS WHILE IN HIGH SCHOOL TO JOB, BY RESIDENCE

Miles to Work	Residence				Totals	
	Farm		Non-Farm			
	Number	Percent	Number	Percent	Number	Percent
Less than 1 mile	7	20	14	30	21	26
1-10 miles	19	56	24	51	43	53
11-50 miles	3	9	2	4	5	6
No Response	5	15	4	9	9	11
Total	34	100	47	100	81	100

The jobs obtained by the reflected graduates varied salaries. Table 16 shows that most of the beginning employees were in the $111.00 or less bracket (68 percent). Graduates with a farm background reported entering higher paying jobs than did the graduates with a non-farm background. Thirty-three percent of the graduates with a farm background were in the $112.00-$182.00 and up categories, while there was 20 percent of the graduates with non-farm backgrounds in these categories.

What did the pilot program graduates think about the jobs that they obtained after high school graduation? Seventy-two percent placed their jobs in the good or excellent categories, indicating they were relatively pleased with their jobs (Table 17).

When we look at residence, it is evident that graduates with a farm background are more inclined to enjoy their work than the graduates with non-farm backgrounds. Seventy-four percent of the non-farm students reported that their jobs were fair to good where 76 percent of the farm students reported that their jobs were good to excellent.

The questionnaire also asked the same information, as has been presented on the first full-time job, on the second and third jobs if there were any. There were 25 graduates with a second full-time job, and six people with a third full-time job. Data on these jobs are not reported due to the small number of people holding second and third jobs.

TABLE 15: LENGTH OF TIME ON PRESENT JOB OF 1970 PILOT PROGRAM GRADUATES, BY YEAR

Length of Time on Job	1969		1970	
	Number	Percent	Number	Percent*
Less than 1 month	1	4	2	3
1-2 months	3	12	8	10
2-3 months	6	24	6	8
3-6 months	14	56	59	74
No Response	1	4	5	6
Total	25	100	80	101

*Not equal to 100 due to rounding errors

TABLE 16: SALARIES OF THE 1970 PILOT PROGRAM GRADUATES, BY RESIDENCE

	Residence					
	Farm		Non-Farm		Total	
Wages/Week	Number	Percent	Number	Percent*	Number	Percent
Less than $75.00	9	26	17	37	26	33
$76.00-$111.00	9	26	19	41	28	35
$112.00-$146.00	7	21	7	15	14	18
$147.00-$181.00	1	3	1	2	2	2
$182.00 and up	3	9	1	2	4	5
No Response	5	15	1	2	6	7
Totals	34	100	46	99	80	100

*Not equal to 100 due to rounding errors

TABLE 17: JOB SATISFACTION OF THE 1970 PILOT PROGRAM GRADUATES, BY RESIDENCE

	Residence					
	Farm		Non-Farm		Total	
Job Satisfaction	Number	Percent	Number	Percent	Number	Percent
Poor	2	6	4	9	6	7
Fair	2	6	10	21	12	15
Good	13	39	25	53	38	48
Excellent	12	37	7	15	19	24
No Response	4	12	1	2	5	6
Total	33	100	47	100	80	100

RATING OF PREVIOUS EDUCATIONAL EXPERIENCES BY PILOT PROGRAM GRADUATES

The graduates were asked to rate the several aspects of the school's curriculum in terms of their adequacy of preparing them for work and life after high school.

High School Education

Table 18 shows that 58 percent of the graduates thought their high school education was good, and 10 percent indicated it was excellent, giving 68 percent of the total that were relatively pleased with their high school education. Students who had a farm background had a higher opinion of their high school education than did the non-farm student. Seventy-seven percent of the farm students rated their high school education good to excellent while 81 percent of the non-farm students rated their high school education fair to good.

Type of Courses Available

The graduates seem to rate the courses that were available to them in high school higher than they did the total high school experience. Table 19 indicates that 74 percent of the graduates rated the courses available to them, good or excellent. This can be compared with the 68 percent in the same categories for the total high school experience. Again, the farm students were more favorably impressed with their courses than were the non-farm students. The rating of the courses available was good to excellent for the farm students and fair to good for the non-farm students.

TABLE 18: GRADUATES' RATING OF THEIR HIGH SCHOOL EDUCATION, BY RESIDENCE

Rating High School Education	Residence				Total	
	Farm		Non-Farm			
	Number	Percent*	Number	Percent	Number	Percent*
Poor	0	0	1	1	1	1
Fair	6	13	22	28	28	22
Good	31	66	42	53	73	58
Excellent	5	11	7	9	12	10
No Response	5	11	7	9	12	10
Total	47	101	79	100	126	101

*Not equal to 100 due to rounding errors

High School Guidance

The graduates thought less of the high school guidance than either of the previous two items--courses available and high school education. Seventy-four percent placed the guidance program in the fair to good category (Table 20). Again the students with a fair farm background had a higher opinion of the guidance that they had received than did the non-farm students. Farm students rated the guidance good and the non-farm students rated it fair to good.

TABLE 19: GRADUATES' RATING OF THE COURSES AVAILABLE, BY RESIDENCE

Rating the Type of Courses Available	Residence: Farm Number	Farm Percent*	Non-Farm Number	Non-Farm Percent	Total Number	Total Percent
Poor	1	2	4	5	5	4
Fair	4	8.5	12	15	16	13
Good	27	57	49	62	76	60
Excellent	10	21	7	9	17	14
No Response	5	10.5	7	9	12	9
Total	47	99	79	100	126	100

* Not equal to 100 due to rounding errors

TABLE 20: GRADUATES' RATING OF GUIDANCE, BY RESIDENCE

Guidance	Residence: Farm Number	Farm Percent	Non-Farm Number	Non-Farm Percent*	Total Number	Total Percent
Poor	0	0	6	8	6	5
Fair	8	17	24	30	32	25
Good	26	55	36	46	62	49
Excellent	8	17	6	8	14	11
No Response	5	11	7	9	12	10
Total	47	100	79	101	126	100

*Not equal to 100 due to rounding errors

Pilot Program Course 1969-1970

The graduates rated the pilot program course they were enrolled in higher than any other item rated. Seventy-three percent of the students placed the pilot program course as good to excellent (Table 21). Both the farm students and the non-farm students rated the item good to excellent but farm students rated it excellent at a higher rate.

TABLE 21: GRADUATES' RATING OF THE 1970 PILOT PROGRAM COURSE, BY RESIDENCE

Rating of Pilot Program Courses 1969-70	Residence					
	Farm		Non-Farm		Total	
	Number	Percent	Number	Percent*	Number	Percent*
Poor	2	4	2	3	4	3
Fair	2	4	8	10	10	8
Good	18	38	38	48	56	44
Excellent	20	43	17	22	37	29
No Response	5	11	14	18	19	15
Total	47	100	79	101	126	99

*Not equal to 100 due to rounding errors

Table 22 indicates that the graduates that had enrolled in the pilot program as a step in their career plans had a higher opinion of the course than did those who were exploring career choices. It can be noted that 45 percent of the "definite" group rated the course excellent and 45 percent of the "exploring" group rated it good.

TABLE 22: GRADUATES' RATING OF THE 1970 PILOT PROGRAM, BY REASON FOR ENROLLING

Ratings	Reason For Enrolling					
	Exploring		Fits into My Career Plans		Other (No Response, etc.)	
	Number	Percent*	Number	Percent	Number	Percent
Poor	4	7	0	0	0	0
Fair	8	13	2	4	0	0
Good	29	48	18	34	9	75
Excellent	11	18	24	45	2	17
No Response	9	15	9	17	1	8
Total	61	101	53	100	12	100

*Not equal to 100 due to rounding errors

VOCATIONAL MATURITY

A vocational maturity score was calculated for each student when he began the course. It was possible for him to accumulate a total of eight points. The following qualifications were based on questionnaire responses, and were necessary to earn points toward his score:

1. Extensive occupational experience in agriculture--award one point.
2. Intensive participation in extra-curricular activities--award one point.
3. Selection of career preparation as a general objective--award one point.
4. Indication of career plans as the basis for their decision to enroll--award one point.
5. Indicate preparation for a career or post-secondary courses as the type of help expected from the program--award one point.
6. Expect an occupation on the same socio-economic level to which they aspired--award one point.
7. All indicated career plans classified as highly related--award two points.
8. All indicated career plans classified as related in some way other than highly related--award one point.

Total possible--eight points

The higher the score the more mature in terms of career processes the individual was thought to be.

OTHER VARIABLES

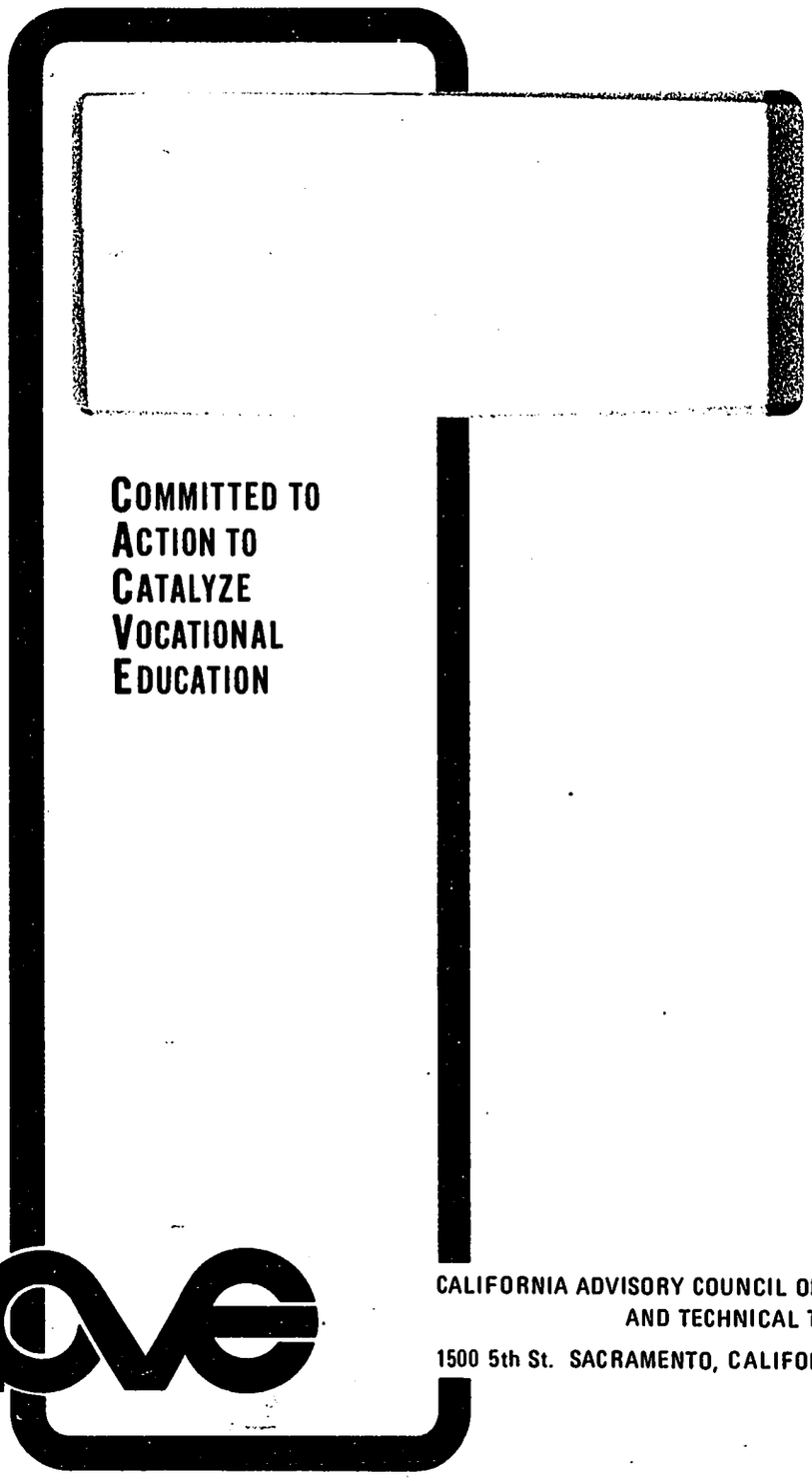
The researcher compared the vocational maturity score with several variables including: 1. Job satisfaction, 2. Educational status, 3. How obtained present job, 4. High school education, 6. High School courses available, 7. High school guidance, 8. Vocational curriculum and 9. First full-time job and found a general trend for all comparisons. As the individuals vocational maturity increased, so did his job satisfaction, his chances for entering a post educational program, and, for the most part, he ranked his previous educational experiences higher on the quality scale. These data, however, were not too conclusive.

VT 015 380
A REVIEW OF THE EDUCATION PROFESSIONS DEVELOPMENT ACT IN CALIFORNIA.

CALIFORNIA STATE ADVISORY COUNCIL ON VOCATIONAL EDUCATION AND TECHNICAL TRAINING, SACRAMENTO.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - JUL71 20P.

DESCRIPTORS - *LEADERSHIP TRAINING; *PROFESSIONAL CONTINUING EDUCATION; *VOCATIONAL DIRECTORS; *VOCATIONAL EDUCATION TEACHERS; TEACHER EDUCATOR EDUCATION; INSERVICE TEACHER EDUCATION; *STATE PROGRAMS; SCHOOL DISTRICTS; FINANCIAL SUPPORT; EDUCATIONAL LEGISLATION
IDENTIFIERS - CALIFORNIA; *EDUCATION PROFESSIONS DEVELOPMENT ACT; EPDA

ABSTRACT - THE CALIFORNIA STATE PLAN FOR VOCATIONAL EDUCATION PROVIDES FOR THE PROFESSIONAL IMPROVEMENT OF TEACHERS, ADMINISTRATORS, SUPERVISORS, AND COORDINATORS THROUGH EXCHANGE PROGRAMS, INSTITUTES, AND IN-SERVICE EDUCATION UNDER THE EDUCATION PROFESSIONS DEVELOPMENT ACT (EPDA). EIGHTEEN PROJECTS WERE FUNDED AND IMPLEMENTED DURING FISCAL YEAR 1971. EACH LOCAL SCHOOL OR SCHOOL DISTRICT PLANNED ITS PROFESSIONAL IMPROVEMENT PROPOSAL, COORDINATED WITH THE STATE MASTER PLAN. THIS REVIEW INCLUDES A LISTING OF PROJECTS IN PROGRESS AND THOSE BEING REVIEWED, WITH LOCAL AND EPDA FUNDS SHOWN FOR EACH PROJECT. THREE OF THESE LOCAL PROJECTS ARE BRIEFLY DESCRIBED AND WILL BE REVIEWED IN DEPTH BY THE COUNCIL. (MF)



CALIFORNIA ADVISORY COUNCIL ON VOCATIONAL EDUCATION
AND TECHNICAL TRAINING

1500 5th St. SACRAMENTO, CALIFORNIA 95814 (916) 445-0698

VT015330

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A REVIEW OF THE
EDUCATION PROFESSIONS DEVELOPMENT ACT
IN CALIFORNIA
JULY, 1971

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A REVIEW OF THE EDUCATION PROFESSIONS DEVELOPMENT ACT IN CALIFORNIA

July, 1971

I. Introduction

Quality leadership is an essential component of quality vocational education programs. The recent surge forward in vocational education in terms of national interest and increased federal funding, has created a driving need for a much more sophisticated and flexible approach to the administration and instruction of vocational education.

Leadership at the federal level has been essential to the development of vocational education. The federal leadership role must be continued in order to enable vocational education to effectively meet the constantly changing challenges.

California has continually exercised a strong leadership role in vocational education. Earlier, most of the action leadership was probably concentrated at the state level. However, developments have somewhat altered the leadership role of the State Department of Education.

These positive changes in the State's role point the way for the State to become motivators of leadership development rather than the major active participant. The State has the responsibility

for the development of a long range leadership development policy. There must be a coordinated plan to prevent the fragmentation or over emphasis of the many and varied aspects of leadership.

Development of leadership at the local level must be coordinated with the State's master plan of leadership development. However, it is incumbent upon each local school, or district to arrange for workshops, training sessions and seminars in order to strengthen the capabilities of personnel charged with leadership responsibilities.

Vocational teachers need to understand the nature of society and its needs in terms of the total educational enterprise. Vocational teachers, coordinators, supervisors, and administrators need to develop the skills of effective leadership.

It is particularly important that leadership in all educational areas be committed to integrating occupational information and skills with general education. If in the final analysis it is the students who are the focal point of education, then quality leadership will guarantee each student successful preparation for the world of work.

It is noted that the terms counselor, or vocational counselor, do not appear in either Section 552 or 553 of the Vocational Education Act. These terms are also not included in the documents of the California program. Section 552 "Leadership Development Awards" requires that vocational counseling and guidance, among other services, be available at the institution of higher education approved for training programs under Section 552.

II. Legislation

Since 1965 leadership training programs have been supported from funds provided by the Vocational Act of 1963. The Higher Education Act of 1965 was amended to provide a leadership training assistance through a more direct contact with the states. Prior to this, some districts and institutions received federal funds for leadership training through direct contact with the U. S. Office of Education.

Public Law 90-576, Title II, is the "Vocational Education Leadership and Professional Development Amendment of Higher Education Act of 1965." Title II, Section 201 states that the Higher Education Act of 1965 was amended by inserting a new part called the "Education Professions Development Act."

Title II, Part F, Section 553, describes the training possibilities available under the Act. It is this portion which forms the basis for the State of California's participation in the training program under federal funds.

The California State Plan for Vocational Education sets forth the guidelines to be followed in program development on page 26. Sections 1.4 through 1.41-3 explain these guidelines in considerable detail.

P. L. 90-576, Title II, Part F, Section 553, states that the Commissioner is authorized to make grants to State boards as defined in the Vocational Education Act of 1963. Costs may be paid to carry out cooperative arrangements for the training or retraining of experienced vocational personnel such as teachers,

teacher educators, administrators, supervisors and coordinators. The purpose of this section is to strengthen education programs supported by this part and strengthen the administration of schools offering vocational education.

Exchange of school staff with skilled technicians or supervisors from industry is encouraged. Inservice training programs for vocational instructors and other staff members will improve the program of instruction and the administration of vocational programs. Workshops, institutes, preservice and inservice training courses are encouraged and will be funded as long as they are a part of a continuing program of inservice and preservice education.

P. L. 90-576, Title II, Part F, Section 553, is also intended to assist school districts and institutions to plan, formulate, implement and utilize programs aimed at leadership training and development. It appears that the original funding may be intended as "seed money" in the sense that it will encourage school districts and institutions to carry on leadership training and development programs on their own.

Title II, Part F, Section 552, deals with leadership development awards. This section is intended to increase the professional ability and efficiency of vocational administrators, supervisors, teacher educators, researchers and instructors.

There are three areas of eligibility. The first requires that personnel selected for awards must have a minimum of two year of experience in vocational education, industrial training, military

technical training, or social science research which is applicable to vocational education.

The second category includes personnel who are currently employed, or who are reasonably certain of employment in vocational education, and have completed, as a minimum a baccalaureate degree program.

The third category includes personnel who have been recommended by their employer, or others, as having leadership potential in the field of vocational education. They must also be eligible to qualify for admission as a graduate student at an institution of higher education approved by the Commissioner.

Stipends may be paid to each person receiving a "Leadership Development Award." Allowances are made for subsistence and other expenses for such persons and their dependents. These actions will be consistent with prevailing practices. The basic stipend is $3,500 per academic year. This is a full-time program.

The University of California at Los Angeles has been selected as the single institution in California to accept students under the "Leadership Development Program." Ten other states have selected an institution to conduct their programs. The program is very new in California and more time and effort needs to be spent on its development in order to bring it to the desired level of excellence.

III. Implementation

The Vocational Education Section of the State Department of Education, under the State Board of Education is empowered to make subcontracts for professional development programs with local school districts and institutions. This is accomplished through federal contracts with the State of California.

Dr. James W. Becket, formerly a teacher/educator at the University of California campus at Davis, has recently been named to coordinate this activity. He is assigned to the Program Services Unit in the Vocational Education Section of the Department of Education.

A local district, in accordance with instructions furnished by Dr. Becket's office, plans and develops an application or proposal. It is studied by a committee with wide representation from community colleges, adult education, private schools, secondary schools and county school superintendents. The committee makes suggestions and recommendations as to possible changes and improvements.

The proposal is then reviewed by the Vocational Education Section. This review is not intended to determine approval or disapproval. It is intended for information and for possible strengthening by additional input. The proposal is then sent to the U. S. Office of Education in Washington D. C. for a similar review and their action.

After a project proposal has been completely studied and approved, the school district, or institution may arrange with a private contractor to carry out the program. This latter action is included in the final approval.

When the proposal is returned to Dr. Becket's office, contacts are made and final arrangements relative to funding, time phasing, accomplishments expected and the reports required is explained. Implementation is then initiated.

Eighteen projects have been funded for fiscal year 1970-71 and were accepted as having met all criteria.

A total of $645,000 was allocated to the State of California for Title II, Part F, Section 553. It was estimated that approximately ten percent of this total would be needed for administrative costs and management. These latter figures are in the process of revision. Currently a budget of $870,000 has been approved by the U. S. Office of Education for fiscal year 1971-72.

Districts or institutions receiving funds under the Education Professions Development Act are not required to provide a specified percentage or matching funds.

Funding may be granted to a district or institution to initiate a pilot program. It is expected that federal funds will be used as a source of supplemental funds rather than to supplant possible district budgetary support.

Evaluation of these projects is important. Earlier in the program it was required that up to three percent of the funded amount was to be spent on evaluation. It now appears that this amount may be increased to five percent.

According to Title II, Part F, Section 555, $25,000,000 was authorized to be appropriated for the fiscal year ending June 30, 1969. The sum of $35,000,000 was authorized for approp-

riations for the fiscal year ending June 30, 1970.

Described below are three programs which were among the first to be organized and implemented under the new Vocational Education Amendments of 1968. Previously, several district programs were financed directly by the Office of Education in Washington.

1. Currently the Alameda County Schools has a project titled "Inservice Training Using Fault Tree Analysis as a Technique for Evaluation and Management of Vocational Education Programs." Approximately 120 people are expected to become involved. Included are participants in the fields of vocational administration, coordination and supervision.

Attendance is on a statewide basis, however some out-of state participation is expected and may include ten percent of the total. If the attendance is lower than anticipated, representatives from Regional Occupational Centers and Regional Occupational Programs may be invited to attend.

The subcontract is between the Alameda County Schools and the Program Services Unit of the Vocational Education Section of the State Department of Education. The local units have subscribed $2,698 to the project. The balance of the funds, $24,015, comes from the Education Professions Development Act (EPDA), for a total of $26,713. This project was expected to terminate on June 30, 1971. However, due to a late start this project and the Ventura County project described below may be extended.

2. The Ventura County Junior College District is conducting

"Project RELATE: Retraining Emphasizing Leadership and Technical Education." Twenty-four people are involved in a seminar type experience for local administrative and supervisory personnel in developing a sensitivity to minority students and their problems.

This is a subcontract between the district and the Program Services Unit of the Vocational Education Section of the State Department of Education. The project is expected to terminate no later than June 30, 1971. However, as explained above it may be extended if necessary.

Local district costs for this project were $10,279. Total project costs were $21,167 with EPDA furnishing $10,888.

3. San Joaquin County Schools has a project underway. It is titled "Development of Guidance and Placement Orientation for Vocational Education Teaching Personnel." Thirty-seven people are participating in the program. It is being conducted under a contract between San Joaquin County Schools and the Eckman Center of Woodland Hills, California, a private contractor.

Total contract costs were $30,468. The San Joaquin county schools allocated $3,055, and EPDA furnished the balance of $27,413. This project is nearing completion. Final reports are pending.

The California Advisory Council on Vocational Education is extremely interested in this total program approach. The significance and possible impact of these projects is tremendous. The Council plans to conduct an in-depth review of the first three projects cited in the following list.

A. Projects Currently Underway

Alameda County (01-10017-EF001-71) "Inservice Training Using Fault Tree Analysis as an Evaluation and Management Technique for Vocational Education"

Local - $2,698 EPDA - $24,015 Total - $26,713

San Joaquin County (39-10397-EF002-71) "Development of Guidance and Placement Orientation for Vocational Education Teaching Personnel"

Local - $3,055 EPDA - $27,413 Total - $30,468

Ventura County Junior College District (56-72660-EF003-71) "Project RELATE: Retraining Emphasizing Leadership and Technical Education"

Local - $10,279 EPDA - $10,888 Total - $21,167

University of California, Los Angeles (19-30049-EF004-71) "Training of Teacher Trainers"

Local - $0 EPDA - $45,000 Total - $45,000

University of California, Davis (57-30023-EF006-71) "Work Experience for Teachers of Vocational Education"

Local - $1,890 EPDA - $20,293 Total - $22,183

California State Polytechnic College (40-30569-EF009-71) "Workshop for Improving the Administration of Multi-Teacher Departments of Vocational Education in Agriculture."

Local - $490 EPDA - '71--$20,869 Total - '71--$21,359
'72--$ 9,660 '72--$ 9,660

California State Polytechnic College (40-30569-EF010-71) "Workshop for Training Teachers to More Effectively Involve all Students (Particularly Disadvantaged) in Effective FFA Programs"

Local - $406 EPDA '71--$20,369 Total - '71--$20,775
'72--$ 8,705 '72--$ 8,705

Shasta-Tehama-Trinity Jr. College (45-70144-EF016-71) "Preparing Career Planners" (Involves the C. C. District of Butte, Lassen, Yuba, Feather River, and Siskiyou, also)

Local - $8,890 EPDA - $60,490 Total - $69,380

San Francisco Community College (38-73536-EF017-71) "California Teacher Training Workshop and Work Experience Program in Hospitality Education"

Local - $24,496 EPDA - $53,854 Total - $80,350

San Joaquin County Schools (39-10397-EF019-71) "Improved Curriculum Design and Implementation Planning for Vocational Education"

Local - $3,760 EPDA - $33,810 Total - $37,570

Los Angeles County Schools (19-10199-EF020-71) "Professional Development Series for Work Experience Education"

Local - $500 EPDA - $22,758 Total - $23,258

Mt. San Jacinto Jr. College (33-67132-EF021-71) "Development of Management Training Program for Deans, Directors, Coordinators, and Supervisors of Vocational Education at the Community College, Secondary and Statewide Level"

Local - $1,725 EPDA - $55,147 Total - $56,872

University of Redlands (36-87001-EF023-71) "Improving the Administration of Manpower Development Programs in Schools, Industry, and Public Service"

Local - $18,690 EPDA - $38,062 Total - $56,752

Ventura County Superintendent of Schools Office (56-10561-EF026-71) "Tri-County Institute: Disadvantaged/Narcotics Problem"

Local - $5,964 EPDA - $24,045 Total - $30,188

University of California, Berkeley (01-30015-EF030-71)"Training Teacher-Coordinators to Implement and Supervise STUDENT ENTREPRENEURS, An Innovative Program"

Local - $0 EPDA - $30, 142 Total - $30, 142

Yuba Community College (58-72777-EF031-71) "Northern California Area Planning Council"

Local - '71--$6,108 EPDA '71--$35,451 Total '71--$41,559
'72--$8,549 '72--$25,518 '72--$34,067

Community College District of North Orange County, Fullerton Junior College (30-66605-EF032-71) "Pilot Program: Television Production for Home Economics Instruction"

Local - 0$ EPDA - $6,581 Total - $6,581

California State College at Long Beach (19-30536-EF033-71) "Training Vocational Guidance Specialists"

Local - $0 EPDA '71--$21,515 Total - '71--$37,989
'72--$16,474

Work Study Dissemination Work Shop -- $3800 was expended to assist in the defraying of expenses incurred in this workshop

B. Projects Being Reviewed

There are 12 project applications currently under consideration. They are described below:

San Diego Unified School District (37-68338-EF034-71) "Application of New Techniques to Improving the Effectivness of Vocational Education Programs"

Local - $8,304 EPDA - $39,708 Total - $48,012

San Mateo County Office Of Education (41-1413-EF035-71) "Extension of Systems Approach to Vocational Education in California"

Local - $4,000 EPDA - $29,046 Total - $33,046

La Canada Unified School District (19-64659-EF037-72) "Career Guidance Training" (This is a consortium involving Arcadia, La Canada, San Marino, South Pasadena, Temple City, and Pasadena Unified School Districts; Pasadena Area Community College District; and Oakhurst School (a Private School)

Local - $4,500 EPDA - $16,000 Total - $20,500

California State Polytechnic College (40-30569-72) "Professional Development Series for Work Experience Education"

Local - $2,786 EPDA - $72,376 Total - $75,162

Coast Community College District (30-66639-EF040-72) "Summer Institute for Programming and Information Systems"

Local - $26,821 EPDA - $8,000 Total - $34,821

Pasadena Area Community College District (19-64899-EF044-72) "A Statewide Consortium to Conduct Inservice Training for Vocational Educators"

Local - $84,486 EPDA - $277,536 Total - $362,022

Coast Community College District (30-66639-EF045-72) "Training a Cadre of Community College Educators to Conduct Inservice Training Programs in Coordinated Instructional Systems Development for Occupational Programs"

Local - $73,064 EPDA - $95,842 Total - $168,906

California State College at Long Beach (19-30536-EF046-72) "Proposal for a Pilot Program for the Development of a Masters Degree in Vocational Education for the California State College System"

Local - $1,000 EPDA - $41,057 Total - $42,057

Sonoma County Office of Education (49-10496-EF047-72) "A Staff-and-Community-Implemented Model Integrating Career Development Concepts in a Total Educational Program, K-12"

Local - $8,500 EPDA - $74,070 Total - $82,570

San Jose State College Foundation (43-30650-EF048-72) "Vocational Development for Schools, Community, and College"

Local - $18,280 EPDA - $49,634 Total - $67,914

San Jose State College Foundation (43-30650-EF049-72) "Vocational Business Education and Multi-Cultural Pupils"

Local - $6,681 EPDA - $27,847 Total - $34,528

University of California, Los Angeles (19-30049-EF051-72) "Inservice Education in the Public Service for College Counselors"

Local - $0 EPDA - $6,750 Total - $6,750

Total Proposals Funded:

Local - $91,392 EPDA - $512,855 Total - $604,247

GRAND TOTAL

Local - $329,814 EPDA - $1,250,721 Total - $1,580,535

IV. Summary

The California State Plan for Vocational Education provides for the professional improvement of teachers, administrators, supervisors and coordinators. The professional improvement is carried out through exchange programs, institutes and inservice education.

The total approach is being made through the Education Professions Development Act which is an amendment to the Higher

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Education Act of 1965. Specifically the above programs are consonant with Public Law 90-576, Title II, Part F, Sections 552 and 553.

A full time Coordinator of Professional Development is available to assist local districts in carrying out the purposes of this activity. He is located in the Program Services Unit of the Vocational Education Section of the California State Department of Education.

Funds may be granted by the U. S. Commissioner of Education under the Vocational Education Act 1968. Costs may be paid for carrying out cooperative arrangements for training or retraining of vocational personnel such as teachers, teacher educators, administrators, supervisors and coordinators.

The training may consist of exchange programs of school staff with skilled personnel from industry, seminars, workshops, and other inservice training programs.

Eighteen proposals have been funded and implemented during fiscal year 1970-71 under this program. Twelve new proposals have been received and are now being reviewed.

A total of $645,000 was allocated to California for fiscal year 1970-71. A new budget of $870,000 has been approved for fiscal year 1972.

Funding for these proposals is intended as "seed money." A continuing program of upgrading and inservice training is being planned.

V. Conclusions

Vocational education programs may well be strenthened through improving the quality of instruction, supervision, coordination and administration. It is extremely important that recognition be given to more sophisticated and flexible approaches to training and retraining all levels of personnel concerned with the planning, developing, implementing, supervising, administering, and evaluating of vocational education programs.

The terms counselor or vocational counselor, do not appear in Part F, Sections 552 or 553, Title II of the Act. They are also not included in documents of the California program. Section 552, "Leadership Development Awards," requires that vocational guidance and counseling be available at the institution approved for training programs.

VI. Recommendations

The California Advisory Council on Vocational Education recommends that the Vocational Education Section of the California State Department of Education continue to expand programs under Title II, Part F, Sections 552 and 553.

It is further recommended that counselors be added to the list of personnel eligible for training in order to provide effective vocational guidance and counseling services to the students enrolled in vocational programs.

The Council also recommends that the Vocational Education

Section of the California State Department of Education give particular emphasis and attention to expanding and improving leadership development programs.

In view of the limited time that this program has been operational the Council recommends that an evaluation of its effectiveness, or any suggestions as to strengthening the program be delayed, until all fiscal year 1971 projects have been completed.

U.S. DEPARTMENT OF HEALTH.
EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY

PILOT PROJECT ON EXTENDED DAY OCCUPATIONAL PROGRAMS

Submitted By

MARSHALLTON-McKEAN SCHOOL DISTRICT

January 4, 1971

VT015399

As corrected by the Department of Public Instruction - 1/19/72

VOCATIONAL EDUCATION
PL 90-576

APPLICATION FOR RESEARCH OR EXEMPLARY PROGRAM FUNDS
FOR INITIAL OR CONTINUATION PROPOSAL

1. Name of Applying Agency Marshallton-McKean School District

2. Title of Proposed Program Pilot Project on Extended Day Occupational Programs

3. Type of Program (check one) Research [xx] Exemplary [ ]

(check one) 1st Year [xx] 2nd Year [ ] 3rd Year [ ]

4. Budget Summary and Project Duration

	Column A Beginning Date Month, Year	Column B Ending Date Month, Year	Column C Federal Funds Requested	Column D State & Local Funds	Column E Total of Columns C and D
A. Initial Application or Resubmission	Jan. 31, 1972	June, 1972			$23,633.65
B. Application for First Continuation Grant					
C. Application for Second Continuation Grant					

5. Project Director _____ _____
Name Official Title or Position

Amended

VOCATIONAL EDUCATION
PL 90-576

APPLICATION FOR RESEARCH OR EXEMPLARY PROGRAM FUNDS
FOR INITIAL OR CONTINUATION PROPOSAL

1. Name of Applying Agency Marshallton-McKean School District/~~Delcastle School Dist.~~

2. Title of Proposed Program Pilot Project on Extended Day Occupational Programs

3. Type of Program (check one) Research [xx] Exemplary [ ]

(check one) 1st Year [xx] 2nd Year [ ] 3rd Year [ ]

4. Budget Summary and Project Duration

	Column A Beginning Date Month, Year	Column B Ending Date Month, Year	Column C Federal Funds Requested	Column D State & Local Funds	Column E Total of Columns C and D
A. Initial Application or Resubmission	Feb. 1, 1972	June 1972			$23,676.83
B. Application for First Continuation Grant					
C. Application for Second Continuation Grant					

5. Project Director Michael J. Donnelly
Name

Director of Instruction
Official Title or Position

Signed Richard A. Linett
Richard A. Linett

-1-

VOCATIONAL EDUCATION
PL 90-576

APPLICATION FOR RESEARCH OR EXEMPLARY PROGRAM FUNDS
FOR INITIAL OR CONTINUATION PROPOSAL

1. Name of Applying Agency Marshallton-McKean School District

2. Title of Proposed Program Pilot Project on Extended Day Occupational Programs

3. Type of Program (check one) Research [ ] Exemplary [xx]

(check one) 1st Year [xx] 2nd Year [ ] 3rd Year [ ]

4. Budget Summary and Project Duration

	Column A Beginning Date Month, Year	Column B Ending Date Month, Year	Column C Federal Funds Requested	Column D State & Local Funds	Column E Total of Columns C and D
A. Initial Application or Resubmission	Jan.31,1972	June 1972			~~$27,481.48~~
B. Application for First Continuation Grant					
C. Application for Second Continuation Grant					

5. Project Director Michael J. Donnelly (Name) Director of Instruction (Official Title or Position)

6. STATEMENTS OF ASSURANCE

We hereby agree that the proposed program will be conducted in accordance with the standards and regulations outlined by the State Board of Education and hereby request that the State Board of Education allocate the requested funds for the purposes indicated on the attached educational program.

We hereby assure the Chief State School Officer that no person will be paid more out of Federal funds than he would normally receive from State and Local funds for a comparable position of responsibility in the district or agency operating the project. All persons will be employed in accordance with regulations of the State Board of Education.

Local Approval: The assurances of compliance with Title VI Civil Rights Act, dated September 28, 1969 applies to this application.

7. Person Authorized to Receive Grant

Name Richard A. Linett Title Superintendent

Authorized Signature Richard A. Linett

Secretary and State Superintendent

ABSTRACT:

At the present time, only approximately 5% of the Marshallton-McKean District students are accepted at the Delcastle Vocational-Technical High School during the regular session. The school district feels that if an extended school day were available at the Delcastle Vocational-Technical High School it would provide the Marshallton-McKean students with an opportunity for exploratory or orientation type occupational courses that would not be available through the regular school offerings at Marshallton-McKean.

This program will enable approximately 100 students to take selected clusters of occupational courses in the afternoon when the Delcastle School facilities are not now being used. Reduced schedules or compensatory time for students enrolled in this late afternoon program will be made possible by McKean High School. The program is expected to start about January 31, 1972, and continue to the end of school in June 1972. Based on this initial attempt it is hoped that an ongoing program can be developed for subsequent years.

The goal of this pilot project is to research the problems inherent therein as to transportation, student interest, staffing and the operation of a program involving two school districts while at the same time meeting the objectives listed below.

OBJECTIVES:

1. Provide an opportunity for occupational exploration through a cluster approach to occupational education, such as: automotive trades, metal trades, construction trades, medical services, etc.
2. Provide students with an opportunity for occupational orientation.
3. Students will gain in knowledge of an occupational cluster enabling them to make basic career decisions about the occupation.
4. Students will develop skills in the occupational cluster that will enable him to obtain an entry level position in the occupational cluster upon leaving school.
5. We will evaluate this pilot project in terms of how well we were able to match student interests with career objectives on the initial selection.

ACTIVITIES:

During the first phase (January 31, 1972 to June 1972) students will be transported from McKean High School or Brandywine Springs School after school, so they can participate in one of the occupational clusters to be offered. Approximately 100 students have been identified who have expressed interest in the program, and who for one or more

reasons were not able to obtain the specific training because it was not presently available in the present high school program and for those students who made no career choice.

COST:

The estimated cost of the project for the first phase (January 31, 1972 to June 1972) is $23,633.65.

Upon the successful completion of this project, the extended school day may be continued by funding in one of the following ways:

1. Raising additional local funds.
2. Assignment of units from sending district to receiving district with a .5 deduction per unit for the sending district.
3. Assignment of units from sending district to receiving district by mutual agreement of said districts.

reasons were not able to obtain the specific training because it was not presently available in the present high school program and for those students who made no career choice.

COST:

The estimated cost of the project for the first phase (January 31, 1972 to June 1972) is $23,676.83.

Upon the successful completion of this project, the extended school day may be continued by funding in one of the following ways:

1. Raising additional local funds.
2. Requiring tuition from patrons.
3. Assignment of units from sending district to receiving district with a .5 deduction per unit for the sending district.
4. Assignment of units from sending district to receiving district by mutual agreement of said districts.

Signed Richard A. Linett

reasons were not able to obtain the specific training because it was not presently available in the present high school program and for those students who made no career choice.

COST:

The estimated cost of the project for the first phase (January 31, 1972 to June 1972) is ~~$27,481.48.~~

The Extended School Day is to be funded by State funds depending success of this Pilot Program.

MARSHALLTON-McKEAN SCHOOL DISTRICT
Wilmington, Delaware

COMMUNITY TO BE SERVED

The Marshallton-McKean School District is located in the north-western portion of populous New Castle County, Delaware. The suburban Wilmington area is a region of continguous sub-divisions and small municipalities extending along each side of the Robert Kirkwood Highway from Wilmington westward to Newark. The Marshallton-McKean School District is part of this populated area and is composed of suburban residence of various economic levels. The latest census of the Marshallton-McKean School District, taken by the Division of Urban Affairs, University of Delaware, revealed 5,310 households and 19,846 persons. The enrollment figures for the 1970-1971 school year show approximately 4,600 children attending grades K-12 in the district's three elementary schools and three secondary schools.

NEED FOR THE PROJECT

At the present time only a small percentage of the Marshallton-McKean School District students are accepted at the regular session of the Delcastle Vocational-Technical High School. A significant number of additional students would like to be able to take advantage of the instruction career training facilities at the Delcastle Vocational-Technical High School. The school district feels that if an

extended school day were made available to these students, it would provide them with an opportunity that is not now available and it would extend the use of the existing facilities of the Delcastle Vocational-Technical High School.

STATEMENT OF THE PROBLEM

The purpose of the project is to provide vocational instruction and facilities for those students who have not been able to obtain the kind of vocational training that they desire. The project will provide this kind of training by making the facilities of Delcastle Vocational-Technical High School available to these students in the afternoon from 3:30 to 5:30 daily.

RELEVANT RESEARCH AND PREVIOUS PLANNING

A general survey of the needs of the students was conducted in the high school and the junior high school. In addition, a conference was held with the staff of the vocational school to determine the availability of the facilities during the time period previously described. Very little academic research was done on the topic because of the practical nature of the problem and the solution to the problem. A comprehensive search of existing material has been made by the Department of Public Instruction, and currently there is no district offering an extended day program.

PROGRAM DEVELOPMENT

The vocational components of the program will be basically the same instructional program that exists now at

Delcastle Vocational High School. Specific courses will be offered determined by the choice of courses from present students who desire to participate.

GOAL OF THE PROJECT

The goal of the project will be to provide students with an opportunity to take the occupational courses that they desire at the vocational school during this afternoon session. Students should, by the time they have completed the project, have developed skills in an occupational cluster that will enable them to obtain an entry level position upon leaving school.

OBJECTIVES

1. Management Objectives
   - A. To utilize the facilities of Delcastle Vocational-Technical High School for providing an opportunity for occupational exploration through a cluster approach to occupational education such as: automotive trades, metal trades, construction trades, para-medical occupation, etc.
   - B. To provide students with an opportunity for occupational orientation.
   - C. Develop a transportation pattern.
   - D. Develop a system of funding.
   - E. Provide a system for evaluation.
2. Behavioral Objectives
   - A. Students will gain in knowledge of an occupation within a cluster, thus enabling them to make basic career decisions about their chosen occupation.

B. Students will develop skills and/or improved skills within the occupational cluster and as a result, this will enable them to obtain an entry level position in the occupational cluster upon leaving school.

DESCRIPTION OF ACTIVITIES

Approximately 100 students who have chosen to participate in this after school program will be bused from McKean High School and Brandywine Springs Junior High School every afternoon to arrive at the Delcastle Vocational-Technical High School by 3:30. The students will attend two-hour class sessions for not less than three weeks in any one cluster of occupations during the five months of the project. This instruction and these classes will be similar to the basic present program offered at Delcastle Vocational-Technical High School. The students at McKean High School will be released from school during their unassigned class periods while attending classes at Delcastle.

This activity will begin during the second semester on or about February 1, 1972 and end approximately June 14, 1972. Following this first phase of the program, it is expected that a better developed, broader ranged program will be put into effect for the following school year.

PERSONNEL

Personnel to be selected for this program will be the existing personnel of Delcastle Vocational-Technical High School District or personnel hired by them for the program.

The present State regulation for employment of part-time instructional personnel will be adhered to:

EVALUATION - ORIENTATION PHASE

Each student at the end of the session will be given an opportunity of making a career occupational choice by using the same instrument that was administered in the beginning.

SKILL DEVELOPMENT PHASE

The Ohio Trade Test will be administered in the beginning and at the end of the course. Based on National Norms, skill development increases will be measured.

OPERATION PHASE

Transportation - Evaluate in terms of transportation problems in regards to scheduling difficulties.

BUDGET

The estimated budget for the program includes the following items:

Testing	$ 150.00
Transportation	5,400.00
Supplies	3,846.48
Clerical Aide	630.00
Teachers & Guidance Counselor @ $7.95/hr.	12,879.00
FICA and Workmen's Compensation	728.17
TOTAL	$23,633.65

Page 8 Amended

The present State regulation for employment of part-time instructional personnel will be adhered to:

EVALUATION - ORIENTATION PHASE

Each student at the end of the session will be given an opportunity of making a career occupational choice by using the same instrument that was administered in the beginning.

SKILL DEVELOPMENT PHASE

The Ohio Trade Test will be administered in the beginning and at the end of the course. Based on National Norms, skill development increases will be measured.

OPERATION PHASE

Transportation - Evaluate in terms of transportation problems in regards to scheduling difficulties.

BUDGET

The estimated budget for the program includes the following items:

Testing	150.00
Transportation	5,400.00
Supplies	3,846.48
Clerical Aide	630.00
Teachers & Guidance Counselor @$7.95/hr.	12,920.00
FICA and Workmen's Compensation	730.35
TOTAL	$23,676.83

Signed Richard A. Linett

The present State regulation for employment of part-time instructional personnel will be adhered to.

EVALUATION - ORIENTATION PHASE

Each student at the end of the session will be given an opportunity of making a career occupational choice by using the same instrument that was administered in the beginnning.

SKILL DEVELOPMENT PHASE

The Ohio Trade Test will be administered in the beginning and at the end of the course. Based on National Norms, skill development increases will be measured.

OPERATION PHASE

Transportation - Evaluate in terms of transportation problems in regards to scheduling difficulties.

BUDGET

The estimated budget for the program includes the following items:

Testing	150.00
Transportation	5,400.00
Supplies	3,846.48
Custodians	~~1,450.00~~
Clerical Aide	630.00
Administration-Asst. Principal	~~2,160.00~~
Teachers & Guidance Counselor	12,920.00
FICA and Workmen's Compensation	~~925.00~~
TOTAL	~~$27,481.48~~

As corrected by the Department of Public Instruction - 1/19/72

CAREER RESEARCH AND EXEMPLARY PROGRAMS

PROPOSAL SUBMISSION BUDGET FOR
INITIAL AND CONTINUATION PROPOSALS

Program Proposal Title Pilot Project on Extended Day Occupational Programs

Submitted by (Agency) Marshallton-McKean School District

Proposal Year (check one) First Year [X] Second Year [ ] Third Year [ ]

Federal Funds Received Previously for this project First Year - Second Year -

Unexpended Balance of Federal Funds for this project from previous year (if applicable) -

Have you requested to use balance? Yes___ No - Have you received approval to use balance? Yes___ No -

Note: To use an unexpended balance the district must submit two copies of a letter expressing such intentions to the Supervisor, Career Research Section. The letter should: state the amount of the unexpended balance; contain an itemized listing of how these funds will be expended for project activities; reasons for using the funds in the manner indicated. Approval is granted by _____.

	Funds for Project Local	Funds for Project State	Federal Funds Requested	Total
1. PERSONNEL (ATTACH LOCAL SALARY SCHEDULE)				
Salaries — Name / Title / Number Man Hours On Project				
To be named. 8 Teachers 180 hrs. ea.			$11,448.00	$11,448.00
To be named. 1 Clerical Aide 180 hrs.			630.00	630.00
To be named. 1 Guid. Counselor-180 hrs.			1,431.00	1,431.00
Employer Costs Related to Salaries				
Social Security			702.47	702.47
Blue Cross			-	-
Workmen's Compensation			25.70	25.70

Amended

CAREER RESEARCH AND EXEMPLARY PROGRAMS

PROPOSAL SUBMISSION BUDGET FOR
INITIAL AND CONTINUATION PROPOSALS

Program Proposal Title Pilot Project on Extended Day Occupational Programs

Submitted by (Agency) Marshallton-McKean School District

Proposal Year (check one) First Year [X] Second Year [ ] Third Year [ ]

Federal Funds Received Previously for this project First Year - Second Year -

Unexpended Balance of Federal Funds for this project from previous year (if applicable) -

Have you requested to use balance? Yes___ No - Have you received approval to use balance? Yes___ No -

Note: To use an unexpended balance the district must submit two copies of a letter expressing such intentions to the Supervisor, Career Research Section. The letter should: state the amount of the unexpended balance; contain an itemized listing of how these funds will be expended for project activities; reasons for using the funds in the manner indicated. Approval is granted by _____.

	Funds for Project Local	Funds for Project State	Federal Funds Requested	Total
1. PERSONNEL (ATTACH LOCAL SALARY SCHEDULE)				
Salaries — Name / Title / Number Man Hours On Project				
To be named. 8 teachers 180 hrs.ea.			$11,520.00	$11,520.00
To be named. 1 Clerical Aide-180 hrs.			630.00	630.00
To be named. 1 Guid.Counselor-180 hrs.			1,400.00	1,400.00
Employer Costs Related to Salaries				
Social Security			704.60	704.60
Blue Cross			-	-
Workmen's Compensation			25.75	25.75

Signed by: Richard A. Linett
Richard A. Linett

CAREER RESEARCH AND EXEMPLARY PROGRAMS

PROPOSAL SUBMISSION BUDGET FOR
INITIAL AND CONTINUATION PROPOSALS

Program Proposal Title Pilot Project on Extended Day Occupational Programs

Submitted by (Agency) Marshallton-McKean School District

Proposal Year (check one) First Year [X] Second Year [ ] Third Year [ ]

Federal Funds Received Previously for this project First Year - Second Year -

Unexpended Balance of Federal Funds for this project from previous year (if applicable) -

Have you requested to use balance? Yes___ No - Have you received approval to use balance? Yes___ No -

Note: To use an unexpended balance the district must submit two copies of a letter expressing such intentions to the Supervisor, Career Research Section. The letter should: state the amount of the unexpended balance; contain an itemized listing of how these funds will be expended for project activities; reasons for using the funds in the manner indicated. Approval is granted by _____.

	Funds for Project Local	Funds for Project State	Federal Funds Requested	Total
1. PERSONNEL (ATTACH LOCAL SALARY SCHEDULE)				
Salaries				
Name / Title / Number Man Hours On Project				
To be named. 8 teachers 180 hrs.ea.			$11,520.00	$11,520.00
To be named. Asst.Prin. 180 hrs.			~~2,160.00~~	~~2,160.00~~
To be named. 2 Custodians 180 hrs.ea.			~~1,450.00~~	~~1,450.00~~
To be named. 1 Clerical Aide-180 hrs.			630.00	630.00
To be named. 1 Guid.Counselor-180 hrs.			1,400.00	1,400.00
Employer Costs Related to Salaries				
Social Security			~~892.00~~	~~892.00~~
Blue Cross			-	-
Workmen's Compensation			~~33.00~~	~~33.00~~

	Funds for Project Local	Funds for Project State	Federal Funds Requested	Total
2. TRAVEL				
Name **Purpose**				
3. CONTRACTED SERVICES (Consultants, Data Processing, Testing, Test Scores, Duplicating, Postage/Freight, Telephone, Etc.)				
Name or Organization **Purpose**				
Ohio Trade Test			$150.00	$150.00
4. EQUIPMENT AND SUPPLIES				
A. Rental				

As Corrected by the Department of Public Instruction - 1/19/72

	Funds for Project Local	Funds for Project State	Federal Funds Requested	Total
B. Purchase				
(See Attached Sheet)			3,846.48	3,846.48
5. OTHER EXPENSES (Describe)				
Bus Transportation			5,400.00	5,400.00
TOTAL			23,633.65	23,633.65

Amended

	Funds for Project: Local	State	Federal Funds Requested	Total
B. Purchase				
(See Attached Sheet)			3,846.48	3,846.48
5. OTHER EXPENSES (Describe)				
Bus Transportation			5,400.00	5,400.00
TOTAL			$23,676.83	$23,676.83

Signed Richard A. Linett

and which met the individual needs of students was the only viable solution. It is related instruction in the very best sense of that word and provides necessary continuity from grades 10-12.

IV. Program of Studies

A. The Academic Program

The academic program, using half of each school day, would include units of English, remedial or developmental reading, mathematics, science and social studies in addition to physical education, art, music, and driver education.

I. English

Prior to the expected implementation of the Occupational Education Program at Pittsfield High School, the students for whom this course is intended have been exposed to what is known as the "General Curriculum", described in the course of studies booklet as one which "aims to provide a broad training and makes it possible to adapt the pupil's program to his individual needs and preferences. It does not provide for college, technical schools, apprentice schools, or schools of nursing." The last sentence is quite accurate--more's the pity! But it is difficult to believe that a course grammar-oriented for twenty weeks and anthology-locked for twenty more weeks can be visualized as adaptable to the "individual needs and preferences" of the pupil.

This, however, has been the picture, and it is this picture that we are trying to ameliorate with an English program for Occupational Education pupils which <u>will</u> meet their needs and preferences.

With the understanding that for most of these pupils year after year has been a frustrating story of failure in English and in many other subjects, mainly because of reading and language problems, we envisage a program which will be implemented in an attractive English Learning Center, where pupils will engage in a multiplicity of learning experiences, each with a short time span.

Physically, the rooms (2) will be equipped with instructional devices for instant utilization when needed: a film projector and screen, an overhead projector, a record player, four cassette-type tape recorders, a mixer with eight headsets, a typewriter and a duplicating machine. At one station in the room there would be open bookcases with a paperback library of about 150 titles, some with

	Funds for Project: Local	State	Federal Funds Requested	Total
B. Purchase				
(See Attached Sheet)			3,846.48	3,846.48
5. OTHER EXPENSES (Describe)				
Bus Transportation			5,400.00	5,400.00
TOTAL			~~27,481.48~~	~~27,481.48~~

Given the materials, the objectives and the methods, the program depends for its full implementation on the acquisition of at least two teachers, creative, sensitive to the needs of students who once wanted to learn but who have become discouraged, overwhelmed and geared to failure; only such teachers, preferably with some training in reading, with patience and positive understanding can make the study of Occupational Education English a rewarding and exciting experience.

II. Mathematics

The concepts and ideas of "modern" mathematics have been given wide attention in the last decade. The curriculum for the college-bound has been under close examination, and the development of an appropriate and up-to-date curriculum for this group seems close at hand. While this important phase of the mathematics program is being studied in great detail, it is ironic that there has been little research or innovation on the mathematics curriculum that pertains to the terminal student. It is strange that students who need the greatest amount of help and who present the greatest challenge to good teaching, should be the ones most neglected.

In the past, we have assigned these disadvantaged pupils to the general math class. This program consisted of a review of arithmetic the student was supposed to have learned in previous grades, followed by work involving social applications and an introduction to geometry and simple algebra. The greatest weakness of this program was in the area of "review". After nine years of failure to learn the basic facts and operations of arithmetic, students understandably rebelled at the theory that practice with more and more examples would overcome their deficiencies in mathematics.

It is our desire to design a curriculum that will reteach the fundamentals that are essential by motivating the student in the subject of mathematics. It is possible to begin a course with topics that are more appealing than the traditional review of arithmetic, no matter how great the need. Such topics as other number bases, systems of numeration, ancient methods of computation and simple probability should appeal to this group when they are introduced with teaching aids like a calculator, abacus, binary counter, etc. It is not our intention to flood the curriculum with unusual or recreational materials in order to entertain the student but to use these materials to arouse a dulled interest and to motivate them toward the study of mathematics.

Materials and Supplies:

Instructional Materials	
Books, @ approximately $8.00 x 100 students	$800.00
Supplies (Approximate cost-similar materials may be substituted due to availability, specific job requirements and current cost).	
1. Construction Trades	
A. Carpenters	
Lumber, framing, assorted 5 M/Bd.ft. @ $21.00	110.00
Lumber, finish, assorted 3M/Bd.ft. @ $25.00	75.00
Nails, bolts, glue, etc. to be selected	55.00
Hardware	60.00
Saw blades, drills, etc. and other expendable carpenter items	75.00
Shop aprons @ $1.90 x 20	38.00
	413.00
B. Plumbing	
Pipe assorted sizes and types	200.00
Lead, joint materials, etc.	50.00
Miscellaneous expendable plumbing items	130.00
	380.00
C. Masonry	
Mortar mix and related supplies	200.00
Masonry saw blades, drills, etc.	60.00
Individual tool kits @ $5.00 x 20	100.00
	360.00
2. Health Services	
A. Dental Asst.	
Assorted plastics and dental materials	80.00
Gas and operational supplies	60.00
X-Ray film, etc.	30.00
Gowns @ $22.50/doz, 3 doz.	67.50
	237.50
B. Nurses Aide	
Miscellaneous Medical Supplies	200.00
Linens, etc. @ $24.89/doz.	24.89
Pillow cases @ $5.59/doz.	5.59
Miscellaneous chemicals and laboratory supplies.	150.00
	330.48

General Objectives and Guidelines

The math program is predicated upon certain basic assumptions:

1. A student must be able to experience some success each day to give him hope for organizing his life.

2. New learning must be related to some phase of life which the pupil thinks is important.

3. The program should provide a variety of classroom activities to counteract the short attention span of the students.

4. Instruction should be short, clear, and simple, using basic vocabulary.

5. Each daily lesson plan must be complete in itself. (This makes it possible for pupils absent the previous day to participate.)

6. Lessons should appeal to as many senses as possible and use materials that pupils will handle.

7. Keeping in mind that success is of utmost importance, pupil papers should be corrected as soon as possible. Pupil's work and test papers should be kept in individual folders and, as the year progresses, bound into book form.

8. It is important to stimulate the imagination of each student. Problems should be selected which he can attack at his own ability level and explore as his insight and ingenuity permit.

9. Extensive use must be made of all available types of teaching aids for mathematics.

III. Science

The present offerings in General Biology, General Chemistry and General Science leave much to be desired in both content and approach. By tradition, these courses are descriptive rather than conceptual, and as indicated in previous statements, we believe that a psychology of learning which takes into account the recent work of cognitive psychologists must be reflected in the curriculum produced for these students.

It is imperative then, that the science program be student centered. For this reason, the materials or activities which the student will encounter in his shop courses serve as the focal points for units of study

3. Auto Cluster	
A. Auto Shop	
Shop aprons - 30 @ $1.90	57.00
Oil, grease, cleaver, etc.	60.00
Tune-up supplies	150.00
Expendable tools and materials	150.00
	417.00
B. Auto Body	
Paint, thinner, etc.	200.00
Plastic and repair materials	200.00
Tape, paper, etc.	20.00
Sandpaper, etc.	40.00
	460.00
Assorted special items and materials for special projects.	200.00
4. Beauty Culture	
Smocks - 15 @ $1.90	28.50
Curlers and other expendable materials	40.00
Coloring, conditioner, etc.	80.00
Assorted special items required for beauty culture	100.00
	248.50
TOTAL	$3,846.48

and thereby ensure relevance of learning to the learner. Metals, woods, fuels, power sources, foods, the living body, interior and exterior plants are among the subjects which boys and girls will be concerned with in their occupational training. The same subjects are among those which students will encounter in this lab-centered science program which does more than tell students about science--it allows them to work as the scientist works--gathering data, formulating hypothesis and testing hypothesis in experiments which preserve the right to fail while enhancing the opportunity to succeed.

For too long, the general student was denied access to the laboratory on the assumption that it is too far removed from his areas of concern or competence. Our response was to remove the qualifier "general" from both the student and the laboratory. If the student will not function in a conventional lab, it is time to equip a new kind of lab, with a new program to produce new interest in science and technology directly related to the broad training for work and living which the program in occupational training is designed to give. Again, the assumption is that certain basic concepts and processes or methods have relevance to many vocational choices.

In order to meet the objectives outlined above there must be both interdisciplinary and interdepartmental activities. As you will note in the accompanying schema, the suggested offerings include elements of chemistry, physics and biology as they relate to the likely work and social needs of the semi-skilled. Since the industrial or institutional setting in which most of these boys and girls will be employed is affected directly by science and technology we will work to eliminate the mysteries which often surround the triumverate science, technology and the work-a-day world. We are convinced that this can be done while conveying to the student the tentative nature of scientific data and conclusions and certain fundamental science concepts. As in the academic areas already discussed and the shop areas yet to be mentioned, the manipulation of many objects and devices will be a large part of the student's problem solving activities. Once again the accent is on transfer through many high interest activities geared to encourage the student to utilize "scientific method" in solving every day problems.

Lab equipment, new printed materials both commercially and locally prepared as well as new facilities will do much to aid the student enrolled in this program, but its ultimate success will depend upon the skill and sensitivity of teachers to the needs, interests, and abilities of the individuals who will make up each class. Above all, teachers involved in this or any other area of the program will have to be convinced that there is no single approach, rate or degree of

accomplishment which is common to the disadvantaged. Failure to provide individual pupil progress will unquestionably produce failure of the program--we do not intend to fail!!

4. Social Studies

Social studies for the academically disadvantaged has all too often followed a familiar pattern--United States History which is "covered" in one year by college bound students becomes a two year program using a different text to cover the same material.

Because of reading difficulties, the social studies class presents another opportunity to read aloud materials slightly less engrossing than the contents listed on this morning's cereal package. The facts and generalization of the social studies material presented are usually far removed from the experiences of the student and have, at best, limited inspirational value for the student. It is a commonplace to say that the teacher should start where the student is if new material is going to be of utility to the student. But if this is true, it is safe to say that very little social studies material covered in the general social studies curriculum is of much utility to the student.

Utility can, of course, be measured in a number of ways. It will do us or the student little good if we succeed in giving him a background designed to make him marketable and a valued member of society and yet fail to convince the student of his own value and of the value of the role he will play in society. The individual who is buffetted with commercials glorifying "a good education" and the "need for college" needs to have an opportunity to consider the definition of the words "good" and "need" as well as the values involved in the definitions chosen. For this reason we propose a social studies program which will allow the student to clarify his own values and at the same time improve his self-image.

The vehicle for this admittedly ambitious undertaking is the student's awareness of his own community. Recognition of the need for relevance has done much to promote the popularity of courses in contemporary affairs as has awareness that newspaper articles and news broadcasts provide an appropriate point of departure for discussion which thereby frees the teacher from the tedium of listening to poor readers struggle with standard text books.

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OCCUPATIONAL EDUCATION

VT 015654

THE PUBLIC SCHOOLS OF PITTSFIELD

PITTSFIELD, MASSACHUSETTS

Unless contemporary problems are viewed in their historical setting, however, they cannot be treated adequately. We therefore propose an attack on the past via the avenues which the present projects as probable targets. Whenever possible, units of contemporary interest will begin with the local scene in order to provide a common frame of reference and more readily bridge the gap between the familiar and the unfamiliar. The impact of technology and the growth of industry will get special attention both because they allow a special opportunity to consider the role of the "worker" in historical development and because they allow an opportunity to visit area industries and thereby become familiar with job opportunities as well as the more general aspects of industrial influence upon society. Field trips, audio-visual materials, objects to manipulate and source readings are integral parts of this program rather than additions to it.

We have stated many times that the teachers will be as important to the success of our programs as will the materials and total concept itself. The social studies program will also demand that the teacher view the student as something other than a receptacle for ideas that the teacher wishes to fill the student with.

As Oliver and Shaver argue so convincingly in Teaching Public Issues in the High School, the teacher must "perceive his students as rational human beings with a right to be involved in decision making. In attempting to shape the students constructions of reality the teachers must start from a basic position that values positively their ways of interpreting reality and approaching the solution of problems."

As in the other subject areas considered, we propose to use commercially and locally prepared material in teaching the social studies. In addition we will rely heavily upon information and techniques learned in other classes and shops to help understand the past and better cope with both the present and the future.

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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OCCUPATIONAL EDUCATION

A PROGRAM FOR THE PITTSFIELD PUBLIC SCHOOLS

Proposed by

JAMES P. REYNOLDS, SUPT. OF SCHOOLS

CURRICULUM DESIGN

by

LOUIS J. HEBERT

ASST. SUPERINTENDENT FOR CURRICULUM DEVELOPMENT

VOCATIONAL CONSULTANT

Daniel J. Donoghue
Assistant Director of Vocational School

The Public Schools
of
Pittsfield, Massachusetts

January, 1969

B. Shop

1. Industrial Blue Print Interpretation and Basic Drafting Practices

A knowledge of Blue Print reading is certainly a basic commodity for workers involved in all phases of industrial manufacturing. Likewise through the use of certain drafting techniques, the ideas of the engineer are placed on a drawing to be later duplicated and translated into work processes by the workers in industry. In considering the limited time allocated to this program and the somewhat limited academic prowess of the students being trained, one must necessarily realize that only a limited amount of progress can be attained in a ten week program. This thought clearly dictates a restatement of our philosophy concerned with all phases of training in this Occupational Education Program--that being the desire to introduce and insist upon a strong emphasis on only the very basic applications of all trade knowledge. An opportunity will be presented for the students to engage in some basic mechanical drawing "on the board" with the majority of the shop time devoted to blue print interpretation. Through the extensive use of visual aids and other innovative devices, we will maintain a high degree of interest in this program.

2. Grounds and Building Maintenance

The basic idea behind this unorthodox program is the thought that we should train students to handle the entire maintenance of a building, both the interior and exterior as well. A real need exists for specialists in the field of turf and shrubbery management and this phase of the program opens up many doors leading to successful job placement. Granted we cannot turn out a "specialist" comparable to one who has graduated from a two year post high school program. We could, however, turn out a trainee sufficiently well versed in grounds work to allow him to handle the basic problems of grounds maintenance found in Berkshire County.

We must again stress the transfer of learning aspect of the entire Occupational Education Program through which students build a storehouse of basic skills transferable to similar situations in unrelated fields of endeavor. The student who might follow this outdoor specialty will be much more valuable to an employer because he will have knowledge of small two and four cycle engines gained through the power mechanics segment of the program. Furthermore, the students who enter the work force as building maintenance personnel will hopefully be under the direct supervision of a veteran employee until the trainee acquires the necessary experience for more direct responsibility.

SCHOOL COMMITTEE

Hon. Donald G. Butler, Mayor
Richard S. Clement, Chairman
James R. Clary
James W. Collins
Basilio Henriques, Jr.
S. Rocco Scullary
Mrs. Anne E. Wojtkowski
Mr. James P. Reynolds, Superintendent

CURRICULUM DEVELOPMENT
by

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Mr. John J. Fiorini
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Mrs. Julia L. Solnica
Mrs. Amy G. West

EDITED
by

Louis J. Hebert
Asst. Superintendent for Curriculum Development

The work experiences connected with the "interior" phase of training will be centered in a shop not entirely unlike the traditional mill carpentry shop. This environment will provide students with the opportunity to operate basic wood-working machines and provide exposure to a comprehensive assortment of mill and construction hardware. Detailed explanations of functions will be presented as will demonstrations of the uses to which the equipment can be put. Students will then be called upon to demonstrate proper usage and installation of such hardware, and to effect minor repairs. An appreciation of the physical properties of a variety of woods and plastic laminates will also be gained from the work experiences offered in this shop and reinforced in the science course the student will take.

3. Automotive and Power Mechanics

Of all the areas of training in the Occupational Education Course, this one will undoubtedly generate the greatest initial and continuing interest. Traditionally, young men have been magnetically attracted to automobiles and small engines. The incorporation of both will have a still further positive effect in creating an even greater desire to participate in this program. The segment of the course outline dealing with automobiles covers only basic problems with which a service station operator would normally be confronted and concerned. The chief emphasis focuses on the maintenance and repair of two and four cycle engines. In recent years our affluent society has seen a tremendous upsurge in the use of work and leisure time gadgetry by the average American homeowner. This trend has created untold problems for these perplexed individuals confronted with equipment maintenance problems. Generally they are subjected to long delays in obtaining service from overburdened specialists. There is definitely a severe shortage of trained service and repair personnel in the small motors field and all forecasts indicate a growing need to remedy this situation. The maintenance of lawnmowers, outboard engines, motor bikes and cycles, snow blowers and skimobiles will provide the chief center of learning in this shop. This shop will undoubtedly provide students with the highest concentration of mechanical manipulations which should prove extremely valuable and readily transferable to other aspects of industrial work.

4. General Machine and Metals

There will be two separate and distinct areas of training in this shop, one in which the student will engage in performing

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Appendix - Plans and sketches for interior and exterior alterations

primary operations on the basic machine tools of industry, and another which will deal with fabrication processes in sheet metal work.

Despite the variety of experiences available to the student, many of the items appearing in the curriculum outline for this shop will be covered in brief demonstration lessons given by the instructor. It was deemed necessary to give additional breadth of coverage because the work done here has application in a multitude of standard jobs and work procedures in industry.

Students will select or have certain type jobs assigned to them which are carefully screened in advance to assure a variety of interesting work experiences. Mechanical movements, drive mechanisms, lubrication of metals, anti-friction devices and safety in the operation of machinery will be presented by the instructor using the shop based equipment for meaningful visual aids. At the same time, much related information pertaining to the physical properties and characteristics of the various metals "being worked" in this shop will be discussed.

5. Institutional Care and Service Occupations

Although the shops for boys will be located in the Pittsfield High School Annex and the core academic facilities for both boys and girls will be located at Pittsfield High School, the practical training aspects of the girls' Occupational Education program will take place in the Household Arts suite at Taconic High School. * This complex consists of a large sewing room, food preparation room, multi-purpose room and ample dressing and storage rooms. The total floor area of this section comprises 3600 sq. ft. In this training suite the girls will receive instruction in basic skills readily transferable to a multitude of job situations.

There are two broad categories for which girls will be trained -- Institutional Care and Service Occupations. Institutional Care will be geared to the training of girls to work as nurses' aides in both hospitals and nursing homes and as preparation for work in the many private educational and tourist-oriented commercial establishments in the area. Service Occupations as we have used the term includes the many opportunities for work in meeting the public as clerks, waitresses, etc.

*CORRECTION Girls will not have to move from Taconic to Pittsfield High School for their academic programs.

As Superintendent of Schools I have long harbored the opinion that some high school graduates have been short-changed in the educational market and my primary aim, when first thoughts of a second Pittsfield high school began to materialize, had to do with the elimination of the general course.

As a substitute a new and unique plan of study, which would supply a stronger background in basic subjects and a fundamental knowledge of various trades, was proposed and organized. Through it we hope to arouse a curiosity for further knowledge by the development of dormant skills, abilities, attitudes, work habits, and appreciations needed by workers to enter and make progress in employment on a useful and productive basis.

At a time when the words "unemployment" and "drop-out" are disturbing and distorting the economic picture, this department feels it pertinent to motivate and encourage the educationally disadvantaged, the heretofore disinterested pupil, and those assigned to special education. We seek, through occupational education, to broaden backgrounds, and to prepare individuals for employment so that they may live more effectively.

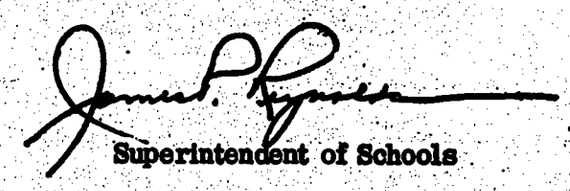
We are grateful to the Association of Business and Commerce and other groups for their supply of information related to the kind and character of manpower needs in this community.

Our gratitude goes also to the Director of the State Department of Vocational Educatation who, back in August, 1966, wrote:

> "This is to acknowledge your letter of July 22 in which you have outlined a proposed plan that would implement a new program in Pittsfield which would take care of the so-called "gray area" students in the present high school after the new vocational high school is erected. I am sure you are on the right track in doing this and as time goes on I, and the supervisors in this office, will work with you to implement this program."

Although justly proud of the accomplishments of our honors people and the college preparatory, commercial, and vocational programs, one is well aware of the need for an occupational education curriculum-one which will renew belief in the dignity of labor, provide flexibility to bring satisfaction to a goodly number, and offer help for the too large percent not now receiving realistic training for job opportunities.

This, then, is our purpose. The following pages reveal plans for renovating the present high school building and the necessary course outlines to initiate the new curriculum. Prosit!



Superintendent of Schools

Training for Institutional Care will be similar in most aspects for those who will be employed as nurses' aides or in one of the other settings mentioned above. The senior year and the cooperative training program will be relied upon to provide the degree of specialization necessary to ensure maximum employment opportunities for those who complete the program. Effective cooperative training which allows some juniors and seniors to earn money for services performed unquestionably holds the key to success of this program. Employer groups in Berkshire County desperately require the services of these trainees and the trainees have a comparable need for valid employment opportunities which will allow them to feel, live and function as valued citizens of our community. We have been in contact with those agencies who would be the most likely participants in a cooperative training program and have found them most receptive to the idea.

Those interested in Service Occupations will be given some of the same training mentioned above in addition to specific elements of a program in distributive education.

It is important to note that due to the dearth of appropriate training materials in this area and the concommitant difficulty of securing qualified instructors, we plan to make extensive use of video tapes, produced locally, to bridge the material and personnel gaps.

OCCUPATIONAL EDUCATION IN THE PITTSFIELD PUBLIC SCHOOLS

I. Philosophy

"When the Willis-Harrington Commission completed its studies in 1965, its report observed that many thousands of non-college bound secondary school students graduated without any preparation for jobs. The general program they had followed was often a watered-down duplicate of the college preparatory program which was irrelevant to their needs as terminal graduates."

The preceding statement is found in the Foreword to Better Options, Better Lives by the Advisory Council on Education. Acceptance of its essential truth was the guiding principle of those of us charged with providing a curriculum capable of preparing disadvantaged students for entry into the job market with attitudes, as well as academic and vocational skills which allow the possibility for success where none existed before.

A key element of the Vocational Education Act of 1963 was its announced intent to reach those who could not, in the past, acquire occupational skills because of various handicaps. Five years later, an evaluation of this Act made it clear that programs given the disadvantaged continued to lack imagination, innovation and relevance. The high-level vocational training which this student was unable to cope with in the past remained beyond his reach as did the academic portion of his curriculum.

What was needed, it seemed to us, was acceptance of the fact that not all students can become highly skilled industrial workers or professional people, and more important, that the dignity and worth of the individual is not diminished in proportion to his ability to theorize, verbalize or specialize. The student who fails to meet conventional standards needs different standards--the conventional program which fails to educate must be made unconventional.....

If the conventional vocational program which seeks to produce the specialist is inappropriate, we speculated that a program geared to produce a generalist who is made conscious of the common concepts and methodology of the working world could be an answer. Speculation about such things in the safety of the academic chamber is one thing, however, acceptance of the concept by prospective employers is something else. Accordingly, in June of 1968, a long series of meetings was begun between members of the Association of Business and Commerce and representatives of the School Department. Thus began a happy, productive and continuing dialogue with the area business community.

V. Course Outlines and Materials

A. Academic

It is not now possible to include a detailed outline of the entire program which will be offered in the academic portion of the occupational education program. We will therefore, present an abbreviated version of some of these outlines at this time.

1. Social Studies

a) Present impact of General Electric on Pittsfield.

b) Reasons for growth of General Electric in Pittsfield.
Implicit in this study is consideration of:
(1) the electrification of the United States and its effects upon industry, the consummer and society at large
(2) the effect of plastics upon industry, the consummer and society at large
(3) weapons systems and their implications for industrial-governmental relationships, the consummer and society.
This topic also requires a consideration of the cold war, its reasons for existence, Korea, Vietnam, etc.

c) The effect of the factors listed above, and of other factors in producing a period of general prosperity.
(1) the reflection of prosperity in the growth and pay of both blue collar and white collar workers
(2) the impetus which prosperity has given to the civil rights movement--those who have "made it" since the 30's and those who have not

d) The effects of local and national policies on the opportunities for employment, housing and general living conditions as reflected in the past and at the present

e) The concept of "freedom":
(1) As related to authority--school, legal, religious, political.
(2) As related to "personal matters"--use of drugs, liquor, tobacco, employment, housing, etc.

Partial List of References and Materials

Excerpts from Smith, J. E. A. The History of Pittsfield, Mass. 1734-1876

Excerpts from Boltwood, Edward. The History of Pittsfield, Massachusetts From the year 1876 to the year 1916.

Excerpts from Willison, George, F. The History of Pittsfield, Massachusetts: 1916 - 1955.

Within weeks, the ABC made available to the Assistant Superintendent for Curriculum Development, replies to a survey conducted by ABC to determine present and projected employment needs in Berkshire County. The hundreds of replies studied made it clear that many well-paying jobs were available to people with some exposure to basic vocational training--particularly if there were an opportunity for some kind of on-the-job training during the school years to cap the knowledge and experience acquired in school. Further dis cussions with area employers made it very clear that broad occupational orientation would not only meet the needs of prospective employers but would also greatly broadon the options of young people who must cope with rapidly changing manpower requirements.

As we have progressed in our creation of a new and more meaningful program for the academically and vocationally uncommitted we, with the Advisory Council on Vocational Education of 1968, have become increasingly convinced that "Vocational education cannot be meaningfully limited to the skills necessary for a particular occupation. It is more appropriately defined as all of those aspects of educational experience which help a person to discover his talents to relate them to the world of work, to choose an occupation, and to refine his talents and use them successfully in employment..." The traditional General Program of the Pittsfield Public Schools, like all General Programs, has generally failed to meet these broadly defined needs and thereby failed both the individual and the community. Pittsfield has decided that it can no longer produce the "general student" who has neither marketable skills nor a self-image conducive to learning them. In September of 1969, a new program in Occupational Education will replace the General Program which will no longer be offered in the Pittsfield Public Schools.

II. Objectives of the Occupational Education Program

Objectives of this program are of course inseparable. For convenience, however, we have divided them into two broad areas--vocational and academic.

A. Vocational

1. To provide boys and girls with useful skills which are likely to lead to placement in semi-skilled occupations.

2. To broaden the experiential background of students and thereby increase their occupational options.

3. To provide exploratory vocational experiences which could lead to entry into unit trade courses offered in the vocational facilities at Taconic High School.

Excerpts from Hawkins, Lawrence, A. William Stanley (1858 - 1916) His Life and Works.

Excerpts from the four volume, The Story of Western Massachusetts

Excerpts from Tague, Kimball and Happel Berkshire, Two Hundred Years in Pictures 1761-1961.

Adaptations of case studies and a yet to be determined textbook.

Locally produced audio-visuals.

2. Mathematics - Grades 10-12
   a. The whole numbers (0, 1, 2...)
      (1) use of calculator for motivation
      (2) addition, subtraction, multiplication and division
      (3) place value, base 10
      (4) place value, base 5, base 2
      (5) introduction to exponents
      (6) estimation, order relations
      (7) commutative, associative, distributive properties
      (8) special properties of one and zero
      (9) individual projects involving these concepts

   b. Decimals and Fractions
      (1) closure
      (2) addition, multiplication, subtraction, division
      (3) primes, factors, sieve of Eratosthenes
      (4) special properties of multiplicative inverse
      (5) commutative, associative and distributive property
      (6) order relation, equal, less than, greater than
      (7) individual projects

   c. Ratio and Proportions:
      (1) simple ratios
      (2) simple proportions
      (3) introduction to variables
      (4) solving equations involving proportions
      (5) equivalence among fractions, decimals and percents
      (6) individual projects involving ratio and proportion

   d. Informal Geometry:
      (1) points, lines, planes
      (2) geometric constructions using compass and protractor
      (3) perpendiculars and parallels
      (4) basic 2 and 3 dimensional geometric figures
      (5) perimeter, area, volume

4. To provide an opportunity for work-study experience which will increase the student's knowledge of particular skills or operations while giving him confidence in his ability to cope with the world of the employed.

5. To help reduce the drop-out rate by giving disadvantaged students learning experiences geared to their employment needs.

B. Academic

1. To give the student sufficient skill in reading, oral and written communication to allow him to function effectively at work and as a member of society at large.

2. To expand the student's knowledge of mathematical concepts and thereby reduce the difficulty of coping with the subject matter. For this purpose, mathematical ideas should be divorced from symbolism and presented in a variety of settings. The math program should also provide the student with the mathematical skills and knowledge needed to cope with employment and a consumer-oriented economy.

3. To give each student a scientific base incorporating elements of physics, chemistry and biology which is geared to the individual's role as producer and consumer.

4. To prepare the student for effective participation in the democratic processes.

III. Time Factors

Time is, of course, a crucial element in the design of this of any other curriculum. In order to allow the wide range of experiences deemed desirable and still allow work-study opportunity, or time for additional specialization, it was quickly apparent that a semester approach was inappropriate. Accordingly, we began to think of the school year in terms of ten-week quarters which could be doubled or halved as required. Our present plans are to offer seven kinds of work experiences for boys in four shop areas, and five kinds of work experience for girls in the Occupational Education suite at Taconic High School. This will leave the final quarter of the eleventh grade free for early admission to a work-study program or for additional training in the area in which the student is most likely to be placed in grade twelve.

The academic portion of the program must, of course, be compatible with the shop work. However, it was clear that the best interests of the students would not be met if the math, science, reading and English programs were fragmented artificially in order to coincide with movement into different shop areas. Instead, we decided that a core academic program which recognized the common needs of all occupations for which we were offering training

e. Measurement:
   (1) use of ruler, micrometer, protractor
   (2) scale drawings
   (3) map reading

f. Statistics and Graphs:
   (1) use of statistics in students present day living
   (2) basic graph construction
   (3) individual projects

g. Word problems:
   individual projects related to students trade and life experiences

Partial List of References and Materials

Unit I. The Whole Numbers
Teacher:
Pamphlet - "The Whole Numbers"
Topics in Mathematics for Elementary School Teachers
Pamphlet - "All About Computing Devices"
Pupil:
Desk calculator
Problem book - "Learning to Compute", book I revised
SRA kit
Abacus
Binary counter

Unit II. Decimals and Fractions
Teacher:
Pamphlet - "The Rational Numbers"
Pupil:
Desk calculator
SRA kit
"Learning to Compute", book I revised

Unit III. Ratio and Proportion
Teacher:
Pupil:
"Learning to Compute", book 2
Developmental sheets from Continental Press

Unit IV. Informal Geometry
Teacher:
Pamphlet - "Paper Folding"
Pamphlet - "Geometric Construction"
Pamphlet - "Topology"
Pupil:
Project work sheets selected by the teacher

several copies--appealing books on which the pupils can get "hooked" or "turned on." [1] At another station would be a magazine rack filled with periodicals of a wide variety of appeal from trade journals to Hot Rod and National Geographic. For discussion purposes and application of basic skills, there would be class sets of a high interest level student newspaper (the student curriculum committee is studying several) as well as sets of Scope/Skills workbooks.

Since the program will be planned cooperatively with the teachers in the reading laboratories, there will be at hand for a sequential reading program sets of the Reader's Digest Skill Builders Help Yourself to Better Reading, Parts I and II, the SRA Manpower and Natural Resources Kit, the Grolier Reading Attainment System, and the EDL Listen and Read Tapes G-L Series with the accompanying workbooks.

Provision has been made for the purchase of prepared tapes and transparencies as well as for creative preparation of these instructional aids by the teacher and pupils. Adequate storage cabinets have been planned for such materials as well as for the recordings and filmstrips library.

Much of the work will be accomplished on an individual basis or in small groups with a weekly log of basic assignments to be covered and a broad list of supplementary optional objectives. For class study materials the Macmillan Gateway Series will comprise the basic texts for the three years. The material in these books, relevant as it is to the lives of the students, can spark extensive language activities, both oral and written. For written skills these texts will be buttressed by workbooks, prepared by the committee and printed by the School Department vocational printing shop, which will set up and illustrate sequential short writing assignments meaningful to the student in the preparation for his future. Many of these will grow out of his needs in the various unit-trade courses through which he will rotate. (This project was inspired by the English for Living Series prepared by Mr. Ghernot Knox while at Haverill Trade School).

[1] See Hooked on Books: Program and Proof, Daniel N. Fader and Elton B. McNeil, New York, Berkley Publishing Company, 1968.

Unit V. Measurement

Teacher:

Pamphlet - "The World of Measurement"

Text - Modern Mathematics

Pupil:

Suitable worksheets selected by the teacher

3. Science

A. Measurement - The objectives of the first unit is to develop a workable understanding of common units of measurement. All of our lives we will be faced with measurement. What is a pint, a quart, a gallon? What is an ounce, a pound, a ton? What is an inch, a foot, a yard? What is a liter, a meter, a kilogram?

(1) English system
Length, weight, volume

(2) Metric system
Length, weight, volume

(3) Correlation of English and metric systems

(4) Correlation of mass, length and volume in the metric system

(5) Field trips
(a) Black top plant
(b) An oil company

(6) Resource people:
(a) State highway engineer
(b) City sealer of weights and measures

B. Scientific Instrumentation and Glassware

(1) Hand magnifiers

(2) Microscopes

(3) Thermometers

(4) Barometers

(5) Glassware

C. Wood

(1) A survey of trees of the world--shape, age, size, life cycle, roots, growth

(2) Characteristics of wood--all determined in lab with use of equipment like the force machine
(a) strength as determined by - compression, tension, bending, twisting, torque, impact resistance, brittleness
(b) workability - drilling, cutting, shaping, planning, bolting, doweling, etc., as well as effects of knots, grain, weathering, etc.
(c) density - term defined followed by lab floating, study of porosity and change in density

(3) Finishes - reasons for paints, varnishes, stains, veneers, plywood, glues as determined by weather, heat, water, etc.

(4) Penetrability

(5) Friction

(6) Combustion

Partial List of References and Materials

A. Measurement

Six foot six inch mounted scale, rulers, yard sticks, tapes, overhead projector and transparencies dealing with fractional subdivision, bathroom scales, containers of various sizes, meter sticks, prepared ditto sheets, volumetric measuring devices.

B. Wood

Sink, spring scales, weights, saw, electric drill, plane, nails, hammers, wedges, bolts, outdoor weathering stand, paints and varnishes, hand drill and bits, reference books, prepared ditto sheets

4. English

(Grade 11)

Unit I. Striving
Unit II. Two Roads to Greatness
Unit III. Creatures in Verse
Unit IV. A Western Sampler

Because of the extremely wide variety of materials and approaches to be used in this program, it will not be possible to here reproduce the same kind of outline we have used above. Each of the units listed is coordinated with the Macmillan Gateway English Series, and accompanied by a locally produced guide which includes detailed statements of:

a) General and specific goals
b) Skills to be developed through
   (1) reading
   (2) thinking
   (3) writing
   (4) speaking
   (5) listening
   (6) dictionary skills
   (7) test-taking skills and practice
   (8) planning
   (9) viewing
c) Attitudes to be developed
d) Evaluative devices
e) Audio Visual materials
f) An annotated list of supplementary readings which indicates if readings are easy, average, advanced, etc.

Sample lesson plans, student's log and worksheets, have also been developed for use with each unit.

B. Vocational

1. Machine Metals
   a) Basic safety procedures
      (1) Need for and use of safety equipment
      (2) Personal safety
      (3) Lifting and moving heavy objects
      (4) General industrial safety practices
   b) Occupations in the metalworking trades
   c) Using bench tools
      (1) non-edge tools
      (2) cold chisel
      (3) files
   d) Hand and power sawing
   e) Metal fasteners
   f) Machining metal
      (1) machine tools
      (2) lathe cutting tools
      (3) mounting workpieces on an engine lathe
      (4) turning between centers
   g) Floor machines
      (1) the shaper
      (2) the milling machine
      (3) drilling machines and drills
      (4) machine grinding

2. Sheet metal work
   a) materials used in sheet metal work
   b) cutting sheet metal
   c) bending sheet metal by hand
   d) bending sheet metal on a bar folder
   e) roll forming sheet metal
   f) sheet metal seams
   g) using a rotary machine
   h) fastening sheet metal
   i) hand polishing with coated abrasives
   j) welding
      (1) arc welding
      (2) industrial welding processes

Partial List of References and Materials

Anderson & Tatro, Machine Shop Theory; Grayson, A., General Metal Work ; Griffin & Roden, Basic Arc Welding.

It is our belief that these shops should be outfitted entirely with new equipment to prevent any inference of second-class status. However, if federal funds are not provided to fund this program in its entirety, we will transfer the following machine tools and equipment from the present Vocational Department.

Two lathes, 2 vertical millers, shaper, surface grinder, drill press, power hacksaw, pedestal grinder, bench grinder, Johnson Heat Treating Oven, assorted sheet metal equipment.

Sheet Metal--including #26 ga. galv. steel and 1/16" body steel sheets: bar stock--assorted diameters 1/8" to 3/4" cold rolled steel, drill rod and high speed steel: copper sheets #28 ga.; perforated sheet steel sheets: rosin core solder spools 5# ea.; emery cloth rolls.

3. Industrial blue print interpretation and basic drafting practices.
   a) Basic drafting procedures
      (1) lettering
      (2) alphabet of lines
      (3) sketching
   b) Practice in interpreting the following
      (1) lines
         (a) the alphabet of lines
         (b) hidden lines, center lines
         (c) extention lines, dimension lines
         (d) projection lines, line combinations
      (2) views
         (a) three-view drawings
         (b) arrangements of views
         (c) two-view drawings
         (d) one-view drawings
      (3) dimensions and notes
         (a) construction, size, location of dimensions
         (b) reading dimensions- dimensioning cylinders, circles and areas
         (c) dimensioning holes and angles
         (d) decimal dimensions
         (e) dimensioning internal and left-hand threads

Partial List of References and Materials

Olivo and Payne, Basic Blueprint Reading and Drawing

Fourteen drafting tables: blueprint and paper cabinet; drafting storage cabinet, trimming board: architect's scales; chalkboard drafting machine; Wiss paper shears: hardwood yardsticks; tape dispenser; speedball pen assortment drawing sets: triangles.

4. Grounds and building maintenance
   a) Study of lumber
      (1) various woods available
      (2) types of wood
      (3) the advantages and disadvantages of each
      (4) how lumber is produced from logs
      (5) lumber for cabinets and interior work
      (6) lumber for building purposes
      (7) how lumber is measured and graded
      (8) how veneers and plywood are produced
      (9) uses of veneers and plywoods
   b) Plans, blueprints and estimating
      (1) interpretations of blueprints and sketches
      (2) estimating materials needed for the job
      (3) size and type of lumber needed for each finished piece
      (4) tools needed to produce finished products
      (5) wood fasteners needed by size and type (nails, screws, dowels, etc.)
      (6) glues and other bonding agents needed
      (7) types and amounts of finish required
      (8) estimating cost of materials
      (9) recording of labor costs
   c) Use of hand tools
      (1) driving tools
      (2) cutting tools
      (3) boring tools
      (4) holding tools
      (5) measuring tools
   d) Power driven hand tools
      (1) power hand saw
      (2) electric hand drill
      (3) router shaper
      (4) belt sander
      (5) oscillatinghand sander
      (6) saber or jig saw
      (7) electric hand plane
   e) Use of woodworking machines
      (1) jointer
      (2) planer or surfacer
      (3) table saw
      (4) radial arm saw
      (5) band saw
      (6) jig saw
      (7) belt sander
      (8) drum sander
      (9) disc sander
      (10) drill press
      (11) wood lathe

f) Basic maintenance jobs
   (1) putty windows
   (2) reset glass
   (3) glue up chairs
   (4) set locks
   (5) fit doors and windows
   (6) install sash cords
   (7) reseat faucet washers
   (8) wall and floor tile repair
   (9) interior and exterior painting
   (10) making minor electrical repairs
   (11) changing fluroscent lights
   (12) replacing small plumbing fixtures
   (13) adjusting various door closers

5. Outdoor maintenance
   a) Lawns
      (1) soils
      (2) preparing the soil for seeding
      (3) drainage and aeration
      (4) seeding
      (5) lawn mowers
      (6) mowing lawns
      (7) watering
      (8) fertilizing
      (9) pest control
      (10) weed control
      (11) sodding
      (12) edging
      (13) treatment of old lawns
      (14) lawns and turf for special areas
         (a) playgrounds and athletic fields
         (b) golf courses
   b) Deciduous trees and their culture
      (1) types
      (2) shape
      (3) when and how toslant
      (4) general care of a newly planted tree
      (5) pruning
      (6) pests
      (7) diseases
   c) Evergreen trees
      (1) selection
      (2) types

d) Shrubs and bushes
   (1) use according to landscaping needs
   (2) types
   (3) when and how to plant
   (4) general care of newly planted shrubs and bushes
   (5) pruning
   (6) pest and disease control

Partial List of References and Materials for Building Grounds and Maintenance
Fundamentals of Carpentry by Durbahn American Technical Society; Woodworking with Machine, McKnight & McKnight; The Planting and Care of Shrubs and Trees by Donald J. Bushey, Cornell Extension Bulletin; Lawn Maintenance, Agronomy Dept., University of Massachusetts.

30" buss planer: table saw-Walker Turner; table saw-Delta blount lathe; Delta band saw 14"; DeWalt radial arm saw; Walker Turner drill press; Famco drill press; two-way panel saw; vertical belt sander; wood benches and vises; Oliver jointer; Rockwell electric hand saw; Rockwell tiger all purpose saw; rip saws 10" dia.; rip saws 10" dia. combination; assorted width band saw blades; router and kit containing set of bits; drill press vise; electric hand drill; heavy duty orbital sander; assorted hand tools; belt sander; finishing sander; tool storage cabinet-wood: quick-set Dado; doweling jig; pull-push rule; zig-zag rule; loping shears; grass shears; fertilizer spreaders; land cultivators; compressor tank sprayer; wheelbarrow; pointed shovels; square faced shovels ; iron rakes; edgers; pole pruner; bamboo rakes; pullman porter vacuum; rotary lawnmowers; garden hoses; pick; axe: hedge trimmer; pails; yard vacuum; brooms.

6. Power mechanics
   a) Power
      (1) general safety practices
      (2) development of power
      (3) simple machines
      (4) power-driven mechanisms
   b) Fundamentals of electricity
      (1) magnetism -poles and fields
      (2) batteries
      (3) circuits
      (4) electromagnetism
      (5) solenoids and relays
      (6) measurements of electricity
      (7) Ohm's law
      (8) wiring electrical circuits
   c) Small engines
      (1) carburetion
      (2) ignition
      (3) fuels and lubricants

(4) service procedures
(5) troubleshooting
(6) disassembly instructions
(7) inspection of parts
(8) mechanical adjustments

d) Cooling systems
(1) heat transfer
(2) types of cooling systems
(3) parts of cooling systems
(4) antifreezes
(5) troubleshooting the system

e) Fuel systems
(1) fuel pumps
(2) carburetors
(3) super chargers
(4) fuel injection
(5) cleaners and silencers
(6) troubleshooting the system

f) Electrical systems
(1) ignition systems
(2) batteries
(3) coils
(4) distributors
(5) spark plugs
(6) starting motors, generators and alternators
(7) lights, switches, relays, horns, motors, etc.

g) Mechanical components
(1) blocks
(2) piston crankshaft, connecting rod assembly
(3) bearings
(4) valve mechanisms and camshafts
(5) timing gears and chains

7. The automobile

a) The automobile engine
(1) cooling systems
(2) lubrication systems
(3) fuel systems
(4) electrical systems
(5) mechanical components

b) Lubrication systems
(1) types of systems
(2) lubricants
(3) types of oil
(4) crankcase ventilation
(5) filters

Partial List of References and Materials

Exploring Power Mechanics - 2nd Edition by H. Glenn-Bennett Book Co.

Tecumseh engine-2 cycle; Tecumseh engine-4 cycle; small engine cylinder hones high pressure lube gun on base gear lubricant dispenser; dranmobile; battery filler; auto spring oiler hydraulic pump oiler, bench oilers; Allen wrench set; double flex ratchet; steel torque wrench universal nut cracker.

Institutional Care - Partial Outline

A. Interpersonal relationships
   (1) with co-workers and staff
   (2) with patients
B. Hygiene
   (1) personal
   (2) environmental
C. The unoccupied room
   (1) furniture and equipment
   (2) cleaning responsibility
   (3) bedmaking
D. The occupied room
   (1) cleaning
   (2) bedmaking
   (3) making the room pleasant
E. Foods
   (1) nutrition
   (2) certain special diets
   (3) serving food in bed
   (4) feeding a patient
   (5) kitchen cleanliness
   (6) preparation of food
F. Temperature, pulse and respiration
G. Entering, transfering within, and departing from the institution
H. Moving and positioning patients
I. The physical examination
   (1) purpose
   (2) equipment
   (3) techniques
J. Equipment and supplies
   (1) linen
   (2) the utility room
   (3) stainless steel
   (4) rubber goods

Partial List of References and Materials

American Nursing Home Association, How To Be A Nurses' Aide In A Nursing Home, Isler, Charlotte The Nurses' Aide In The Hospital; Donovan, et al., The Nurse Aide, McGraw Hill Book Co.

Equipment:

Bed with mattress, 4 sheets, 2 cotton drawsheets, rubber or plastic drawsheet, blanket, pillow, 2 pillow cases, 2 spreads, chair, Mattress pad, footstool, footboard, bedside table, 2 bath towels, mattress cover, 2 washcloths, emesis basin, wash basin,

drinking glass, drinking tube or straw, soap and soapdish, portable scales, small rubber or plastic sheet, nail file or emory board, bandage scissors, mineral oil, shampoo, safety pins, 2 large water pitchers, plastic or rubber covered pillow, large pail, side rails, rubber gloves

Media:

Video tapes (6), transparencies and other media produced by our specialists here and by The Communicable Disease Center, U. S. Public Health Service, Atlanta, Georgia.

9. Service Occupations
   a) Job opportunities
      (1) types of jobs available to young people.
      (2) how to go about looking for a job
      (3) preparing for the job interview
      (4) how to act, what to say on job interview
      (5) important things to consider when filling out application forms i.e. references
      (6) necessary forms needed to start a job (social security work card)
      (7) labor laws affecting store work (min. wage and hour; social security, withholding tax)
   b) Factors that contribute to personal development and occupational success
      (1) Physical health and development
      (2) Mental attitudes
         (a) accuracy, alertness
         (b) imagination, initiative
         (c) knowledge
      (3) Social attitudes
         Tact, courtesy, cooperation, appreciation
      (4) Character traits
         Loyalty, honesty, responsibility
   c) Good business manners and attitudes
      (1) relating to employees
      (2) customers, merchandise
   d) Techniques of selling
      (1) pre-approach
      (2) approach
      (3) greeting the customer
      (4) buying motives
      (5) classifying customer
      (6) presenting merchandise
      (7) overcoming objections
      (8) demonstration
      (9) closing the sale
      (10) suggesting selling
      (11) establishing "good will"
      (12) advertising as a selling technique

e) Merchandise information
   (1) need for study or learning about merchandise
   (2) consumer point of view
   (3) store workers point of view

Partial List of References and Materials

Your Job in Distribution by Beaumont and Langan; Store Salesmanship by Wingate, Gillespie

VT 015 944
FULLER, GERALD R.
A MODEL FOR COLLECTING AND ANALYZING FOLLOW-UP DATA ON GRADUATES AND DROPOUTS OF VOCATIONAL EDUCATION IN VERMONT.

VERMONT UNIV., BURLINGTON. DEPT. OF VOCATIONAL, TECHNICAL AND EXTENSION EDUCATION.
VERMONT STATE DEPT. OF EDUCATION, MONTPELIER. VOCATIONAL AND TECHNICAL EDUCATION RESEARCH COORDINATING UNIT

MF AVAILABLE IN VT-ERIC SET.
PUB DATE - MAR72 36P.

DESCRIPTORS - VOCATIONAL EDUCATION; *EDUCATIONAL RESEARCH; DROPOUTS; GRADUATE SURVEYS; METHODOLOGY; *MODELS; *DATA COLLECTION; *DATA ANALYSIS; FOLLOWUP STUDIES; RECORDS (FORMS); *VOCATIONAL FOLLOWUP
IDENTIFIERS - VERMONT

ABSTRACT - THE PURPOSE OF THIS RESEARCH WAS TO DEVELOP A MODEL FOR THE COLLECTION AND ANALYSIS OF EMPLOYMENT DATA ON GRADUATES AND DROPOUTS OF VOCATIONAL EDUCATION PROGRAMS. PROCEDURES FOLLOWED FOR THE STUDY INCLUDED THE IDENTIFICATION OF NEEDED DATA, THE DEVELOPMENT OF DATA COLLECTION FORMS, THE FIELD TESTING OF THE FORMS, AND THE ANALYSIS OF THE DATA. MAJOR FINDINGS OF THE STUDY ARE: (1) A SYSTEM FOR GATHERING FOLLOWUP DATA ON FORMER STUDENTS IS FEASIBLE, (2) LOCAL EDUCATIONAL AGENCIES CAN PROVIDE NEEDED PUPIL DATA WITH THREE TO FIVE HOURS OF INPUT BY USING THE FORMS DEVELOPED FOR THIS STUDY, AND (3) A RETURN OF APPROXIMATELY 50 PERCENT CAN BE EXPECTED FROM THE 1-PAGE INSTRUMENT DEVELOPED FOR THIS PROJECT. (JS)

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A MODEL FOR COLLECTING AND ANALYZING FOLLOW-UP DATA ON GRADUATES AND DROPOUTS OF VOCATIONAL EDUCATION IN VERMONT

DR. GERALD R. FULLER
Project Director and Principal Investigator
Associate Professor of Vocational, Technical and
Extension Education
University of Vermont

MARCH 1972

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The research reported herein was performed pursuant to contract No. C-71-1 with the Vermont Division of Learning Services, Vocational and Technical Education Research Coordinating Unit. Contractors are encouraged to express their professional judgment. Points of view or opinions stated do not necessarily represent official positions of the Learning Services Division.

VT 015 944

VOCATIONAL, TECHNICAL AND EXTENSION
EDUCATION DEPARTMENT
COLLEGE OF AGRICULTURE AND HOME
ECONOMICS
UNIVERSITY OF VERMONT
BURLINGTON, VERMONT 05401

RESEARCH COORDINATING UNIT
VOCATIONAL AND TECHNICAL
EDUCATION
LEARNING SERVICES DIVISION
STATE DEPARTMENT OF EDUCATION
MONTPELIER, VERMONT 05602

ABSTRACT

A MODEL FOR COLLECTING AND ANALYZING FOLLOW-UP DATA ON GRADUATES AND DROPOUTS OF VOCATIONAL EDUCATION IN VERMONT

OBJECTIVES OF PROJECT:

To develop a model procedure for the collection and analysis of employment data on graduates and dropouts of vocational education programs in area vocational centers and local high schools in Vermont.

FINDINGS/RECOMMENDATIONS:

The use of a coordinated, statewide system for gathering and analyzing information about educational and career activities of pupils after they leave high school vocational programs in Vermont is feasible. Local educational agencies can provide needed pupil data with about three to five hours of input, using forms developed in this project. Nearly 50 percent return from delivered forms can be expected from a one page mailed survey instrument prepared in this project.

It is recommended that a continuing one-year and five-year follow-up survey be initiated and funded by the Vermont Research Coordinating Unit.

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UNIVERSITY OF VERMONT
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FINAL REPORT

A Model for Collecting and Analyzing Follow-up Data on Graduates and Dropouts of Vocational Education in Vermont

INTRODUCTION

A need existed in Vermont for a systematic, reliable and continuing follow-up survey to determine employment patterns of students who participated in vocational education programs and graduated or otherwise left high school. These data were needed for program and budget planning at local and state levels. This problem was given a priority ranking in the Vermont State Plan for the Administration of Vocational Education, 1970.

A model for a data collection and analysis system was developed in this project, using two schools as pilot centers. A total of 845 pupils were identified as having participated in vocational education between 1968 and 1970; the survey population. The project was designed so the Vermont Research Coordinating Unit would be able to initiate a continuing statewide survey, train local school personnel, facilitate continuing data collection and analysis, and disseminate information. The findings of this project were used to conduct a statewide study of 1967 to 1970 vocational pupils, by the University of Vermont.

STATEMENT OF PROBLEM

Vermont has been in the process of initiating vocational education in a system of fifteen area vocational centers, as well as continuing or expanding vocational education in the non-center schools. The first programs were made operational in 1967. Large sums of local, state and federal money are being put into the development and operation of these programs. And this input will continue in support of the operation of these programs.

Vocational education is integrated with the present and future needs of the economic development of the state and region. Data are being collected and analyzed to help forecast employment needs. This project is designed to gather information about the pattern of employment of the product of vocational education programs.

Vocational education has a set of goals and a philosophy for which it is held accountable. The Vermont State Plan for the Administration of Vocational Education implies that a system of program evaluation shall be implemented and that the evaluation shall include an examination of instructional results; including an examination of placement after graduation and a periodic follow-up of employment patterns. These data are a necessary input for program review and evaluation as well as budget management decisions. Notwithstanding the need for program information to be disseminated to the tax-payers of Vermont.

The "State Plan" identified as a priority item, the development of a model for a system to provide follow-up data on vocational students. Present data collected are apparently somewhat unreliable and do not provide information beyond the first few months after graduation. This is an untenable situation.

The emerging system of vocational education in Vermont makes it possible to develop and initiate a data collection system that can be incorporated into the newly opening area vocational center record keeping systems. Starting the collection of data now will allow data to be collected for the graduates of the existing area centers before the majority of graduates can no longer be located. Vermont can begin a data bank which will be unique; one that will cover the total vocational education program from the time the area centers were first opened.

OBJECTIVES

Overall Objective To develop a model procedure for the collection and analysis of employment data on graduates and drop-outs of vocational education programs in area vocational centers and local high schools in Vermont. This model will result in an information collection, analysis and dissemination system which can be implemented on a continuing basis in Vermont by the Research Coordinating Unit.

Specific Objectives

1. Identify specific follow-up data needed for state and local program evaluation and planning.
2. Develop data collection procedures which are acceptable to and easily implemented by schools.
3. Develop data collection procedures which will provide reliable information.
4. Develop data collection procedures which are compatible with Vermont statistical information systems (if appropriate).
5. Develop procedures for initiating a continuing state-wide system of follow-up data collection.
6. Disseminate the results of the project so the Research Coordinating Unit -- Vocational and Technical Education can assume responsibility for the continuation of the follow-up data collection and analysis system.

PROCEDURES

Identification of Needed Data An open ended survey form was developed to identify the types of data local Vermont vocational education directors and State Department of Education vocational personnel felt would be required to evaluate and plan programs (See Appendix 1). Reports prepared annually by The Division of Vocational and Technical Education, State Department of Education were reviewed to determine the data used in completing the forms. Follow-up reports compiled by other selected states were reviewed to identify kinds of information reported. Finally, all these data were synthesized into a format to be used in this project.

Development of Data Collection Forms Mailed survey forms used in other selected states were obtained and reviewed. Reports of follow-up studies were examined to determine reliability and validity of procedures used by other states. The information collection system presently used in Vermont was also examined. A long and short version of a mailed survey form patterned after the one used in Colorado were developed for use in Vermont (See Appendix 2).

The problem of identifying individual pupils after they have left school was discussed with local vocational education directors. A set of data collection forms were developed and reviewed with personnel at a Vermont Area Vocational Center. Modifications were made on the form based upon the recommendations received (See Appendix 3).

Collection of Data An urban area vocational center and a small, rural school were selected for the tryout of the data collection procedures.

1. Pupil identification forms and directions were given to a project coordinator in each school. The project coordinator received a small honorarium for his assistance with this project. A small honorarium was paid to local clerical help for their work in completing the forms.
2. Pupils involved in vocational education in 1968, 1969 and 1970 were identified and appropriate data recorded.
3. The pupils names were numbered and, using a table of random numbers, assigned to receive either a short or a long version of the mailed survey instrument.
4. Mailing labels were prepared using a computer program, and survey forms were mailed to the pupils at their last known address.
5. Survey forms returned as undeliverable were checked against the addresses provided the project. The local educational agency was asked to recheck addresses. When new addresses were identified, forms were remailed.
6. A second mailing was made to all pupils whose forms were delivered but not returned. This was done approximately four weeks after the initial mailing.

Analysis of Data Data from the survey were analyzed by hand methods. Attention was given to the face validity of responses on each survey form, to help assess the survey form format. A simple analysis was completed for the total, and for each of the two schools by service area.

The survey form was designed for ease of keypunching. The responses were reviewed to determine compatibility for keypunching and computer analysis.

Major Activities and Sequence The major activities included in the project, and the sequence in which they were accomplished are listed below.

1. Identified the purposes for which data were needed and determined types of data necessary to accomplish those purposes.
2. Contacted selected states and obtained information regarding their systems for gathering, analyzing and disseminating follow-up information.
3. Gathered information regarding Vermont's data collection and statistical analysis system.
4. Made the selection of two pilot schools and completed contacts to determine their interest. Determined their ability to provide needed data; such as names and addresses of pupils, vocational courses completed, date of leaving school, reason for leaving school.

5. Prepared data collection forms to be used in collecting information at pilot schools. Prepared directions for completing forms.
6. Obtained commitment from pilot schools.
7. Arranged for data collection at pilot schools.
8. Started local school data collection.
9. Prepared mail survey forms for use in collecting follow-up data from pupils. Developed a one-page short form and a two-page long form.
10. Obtained completed pupil data forms from pilot schools.
11. Prepared mailing labels using computer program.
12. Using a table of random numbers, divided pupils into two equal groups. Randomly assigned short form version of mail survey form to one group.
13. Mailed survey forms.
14. Collected and logged-in returns and nondeliverable forms.
15. Obtained remainder of pupil data forms from pilot schools.
16. Repeated steps 11, 12, 13 and 14.
17. For pupils not responding, completed a follow-up mailing.
18. Reviewed data to determine if errors existed in addresses of non-deliverable forms.

19. Provided pilot schools with names of pupils where forms were non-deliverable, and requested they check addresses for accuracy.
20. Mailed forms to pupils whose addresses were corrected
21. Completed second mailing for pupils in step 20 who did not respond.
22. Completed logging-in of data.
23. Completed analysis of data.
24. Prepared statistical tables based upon data received.
25. Provided schools with computer printout of pupil names and addresses.
26. Prepared and published final report.

FINDINGS

Objective 1 Identify specific follow-up data needed for state and local program evaluation and planning.

Local educational agencies desired specific data which would require the use of personal information contained in school records. These type of data were ruled out for this project on the basis that release of personal information would require permission from either each pupil involved or their parents. However, the project was designed so local educational agencies could use the data collected to run local studies involving personal information if they so desired.

It was determined that the mail survey would collect the following data directly from pupils, or their parent or guardian.

1. Number and percent of pupils employed
   a. full-time b. part-time
2. Number and percent of pupils employed part-time because
   a. attending school b. cannot find full-time job
   c. personal reasons
3. Number and percent of pupils not employed because
   a. military service b. attending school
   c. cannot find employment d. personal reasons
4. Average wages per week
5. Average number of hours worked per week

6. Number and percent of pupils employed in Vermont
7. Average number of years with present employer
8. Number and percent of pupils self-employed
9. Number and percent of pupils employed in
   a. field for which trained b. related field
   c. different field
10. Number and percent of pupils employed in a non-related field who feel vocational training helped develop new career interest
11. Number and percent of pupils attending school
   a. high school adult programs b. two-year college
   c. trade school d. four-year college
   e. apprenticeship f. military school
12. Number and percent of pupils who have attended school since leaving high school
   a. high school adult programs b. two-year college
   c. trade school d. four-year college
   e. apprenticeship f. military school
13. Number and percent of pupils studying
   a. same field as vocational training b. a related field c. a field not related to vocational training
14. Number and percent of pupils studying a non-related field who feel their vocational training helped generate the new career interest
15. Number and percent of pupils obtaining schooling in Vermont

16. Number and percent of pupils feeling high school vocational training helped them

a. get a better job b. increase their income

Objective 2 Develop data collection procedures which are acceptable to, and easily implemented by schools.

It was determined that the following data would be collected from the pilot schools.

1. Year pupil left school
2. Name of school providing vocational preparation
3. Secondary or post-secondary school
4. Name of pupil
5. Last known address of pupil
6. Name of parent or guardian
7. Last known address of parent or guardian
8. U.S.O. E. 6 digit code number--occupational area in which pupil prepared
9. Descriptive title of vocational program
10. Sex of pupil
11. Full-time or shared-time classification
12. Shared time pupil's home school
13. Type of exit from school:

Graduated -- completed vocational preparation program

-- started but did not complete vocational preparation program

left -- completed vocational preparation program but did not graduate

-- while enrolled in vocational preparation program

-- started but dropped vocational preparation program

14. Living or deceased classification

Forms were developed on which these data could be collected. These forms were supplied to personnel in the pilot schools. Personnel in the pilot schools were able to, with a minimum of verbal explanation, accurately complete the forms and provide the data required. It was found that in all but a very few instances, the necessary data were available in the school records for the 845 pupils involved.

Objective 3 Develop data collection procedures which will provide reliable information.

A short and long form version of the mail survey form were developed. These forms were randomly assigned to pupils to assess the impact a one-page and a two-page questionnaire would have on the percentage of returns.

TABLE 1

FORMS MAILED AND RETURNED

Description	Number	Percent
Delivered	701	83
Not Delivered, Returned	144	17
TOTAL	845	100

A mailed survey form was sent to 845 pupils at the last known address provided by the schools. These addresses provided a delivery rate of 83 percent; with 17 percent of the forms being returned as not deliverable.

TABLE 2

RETURNS FROM DELIVERABLE FORMS

Description	Number	Percent
Returned Completed	321	46
Not Returned	380	54
TOTAL	701	100

Using only two direct mailings to pupils, 46 percent of the forms delivered were returned to the project with useable data. It can be calculated that the return rate for all 845 forms mailed was 38 percent.

TABLE 5

RETURNS -- SHORT FORM vs LONG FORM

Description	Short Form Number	Short Form Percent	Long Form Number	Long Form Percent
Returned	176	42	145	34
Not Returned	246	58	278	66
TOTAL	422	100	423	100

The short form of the survey form was returned more frequently than the long form. The evidence indicates that the short form, consisting of only one page, tended to be more readily accepted by the survey population than the long form.

Objective 4 Develop data collection procedures which are compatible with Vermont statistical information systems (if appropriate).

The coding of subjects and schools used by the State Department of Education and the U. S. Office of Education were employed in this project. The project data may be searched in a variety of sequences, based upon codes used in the Vermont Statistical Information System.

Objective 5 Develop procedures for initiating a continuing statewide system of follow-up data collection.

A follow-up study of all students leaving vocational

education programs in Vermont high schools from 1967 to 1970 was initiated June 1, 1971. This will result in the development of a data bank on about 6,000 vocational pupils. This data base can serve as the start of a continuing statewide follow-up, which can be updated annually.

Objective 6 Disseminate results of the project so the Research Coordinating Unit of the Division of Vocational and Technical Education can assume responsibility for implementation of the follow-up data collection and analysis system.

The Research Coordinating Unit contracted with the University of Vermont to conduct the 1967-1970 statewide follow-up study, based upon the results of this project. At the time of this report, no additional plans have been consumated.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions: The use of a coordinated, statewide system of gathering data on the educational and career activities of pupils after they leave high school vocational programs in Vermont is feasible.

The collection of standardized data throughout Vermont can provide a sound indication of the trends in career development patterns of pupils, and the relationship of these trends to occupational education. Local educational agencies can collect unique data which they may require for local planning in conjunction with the standardized collection system.

Local educational agencies can provide the information needed for annual follow-up on a statewide basis. The effort required at the local level will be minimal, requiring approximately three to five hours each year. Local educational agencies will have access to a computer address label processing program as well as computer printouts of names, address, and program data. Local educational agencies will receive data printouts on a variety of comparisons of follow-up data for the state as a whole, and for their own school.

Once the initial follow-up survey for 1967 through 1970 completed, an annual follow-up plus five-year follow-ups of pupils will require a minimal effort and produce a critical mass of information in a statewide data bank. With the large dollar input Vermont has put into, and will continue

to lay out, it is essential that sound data be available for state and local planning decisions.

The type of data provided by a statewide, coordinated pupil follow-up will aid vocational education in answering questions related to accountability.

Recommendations: It is recommended that --

1. Necessary funding be made available on an annual basis to conduct a one-year follow-up survey and five-year follow-up surveys of pupils leaving vocational programs offered in Vermont high schools.
2. The collection of names, addresses, and program information for vocational pupils leaving school be incorporated into the existing six month follow-up form used by the Vermont State Department of Education.
3. The Research Coordinating Unit supervise data collection, analysis, and dissemination.
4. A central agency having access to computer facilities, such as the State's statistical information unit or the University of Vermont, be used to conduct the annual surveys, develop information data bank, and prepare reports.
5. The continuing follow-up program be initiated immediately, as an initial data bank is being

developed based upon experiences from the time the first area vocational centers were opened in Vermont.

6. The techniques and forms developed in this project be used in the continuing pupil follow-up program.

APPENDIX 1

TO: Gerald R. Fuller
105 Morrill Hall
University of Vermont
Burlington, Vermont 05401

Survey of Information Needed on Placement and Follow-up of Vocational Education Pupils in Vermont

To help you in program planning, budgeting and evaluation:

What specific data is needed each year?

What specific data is needed each 3 or 5 years?

What data would be "nice" to have periodically (3 or 5 year interv.

Comments:

Signature

(Please return by November 5) School

APPENDIX 2

Survey Forms

1. Mailed Follow-up Survey -- Short Form
2. Mailed Follow-up Survey -- Long Form

VOCATIONAL EDUCATION FOLLOW-UP QUESTIONNAIRE
STATE OF VERMONT

University of Vermont and State Department of Education

Dear Former Student:

YOUR answers are NEEDED -- YOU will INFLUENCE IMPORTANT DECISIONS made in Vermont. YOU have been SELECTED as one of the people who can give your school and the State Department of Education information that will help them make needed changes. PLEASE sit down right now and FILL OUT THIS FORM.

(THIS QUESTIONNAIRE MAY BE ANSWERED BY A RELATIVE OR FRIEND WHO CAN SUPPLY THE INFORMATION)

Return the form to 105 Morrill Hall, University of Vermont, Burlington, Vermont 05401. THANK YOU.

* * * * * * * * * * * * * * * * * *

DIRECTIONS: Your answers will be kept confidential.

A. Make only one answer to each question.
B. Answer only questions that apply to you.
C. Please correct the address label if it is wrong.
D. Refold the form and return it in the enclosed envelope.

* * * * * * * * * * * * * * * * * *

QUESTIONS

(12) 1. Are you employed? Yes___(1) No___(2) (If full-time military service check here ___(3)

2. If you are employed:

(13) a. Is it full-time (35 or more hours per week) ___(1)? Or part-time (less than 35 hours per week) ___(2)?

(14) b. Is your job in the field of your high school vocational training ___(1)? A related field___(2)? A different field___(3)?

(15) c. If a "different" field, did your high school vocational training help you develop this new career interest? Yes___(1) No___(2)

(16,17, 18) d. What is your weekly salary (before deductions)? $_____

(19,20) e. How many hours per week do you usually work? _____hrs.

(21,22) f. In what state are you employed? _____

(more on back)

(23,24) g. How many different jobs have you had since leaving high school ____(number)

(25,26) h. How many years have you been with your present employer? ____years

(27) i. Are you self-employed? Yes___(1) No___(2)

(28) 3. If you are employed part-time, or not employed, is it because you are attending school___(1)? Cannot find a full-time job___(2)? Do not want a full-time job because of personal reasons___(3)?

(29) 4. Are you attending school? Yes___(1) No___(2)

(30) a. Have you attended a school since leaving high school? Yes___(1) No___(2)

(31) b. If you are attending or have attended school, is it a high school adult program___(1)? Two-year college___(2)? Trade school___(3)? Four-year college___(4)? Apprentice program___(5)? Military training school___(6)? Other___(7)?

(Describe_____)

(32) c. Are your studies in the same career field as your high school vocational training___(1)? A related field___(2)? A different field___(3)?

(33) d. If a different field, did your vocational training help you develop this new interest? Yes___(1) No___(2)

(34,35) e. In what state did you last attend school?_____

(36) 5. Has your vocational training lead to a better job or a promotion? Yes___(1) No___(2)

(37) 6. Has your vocational training lead to an increase in your income? Yes___(1) No___(2)

(38) 7. If you have comments you would like to make regarding your vocational training or other parts of your high school program, write them here:

_____

_____

_____

_____

VOCATIONAL EDUCATION FOLLOW-UP QUESTIONNAIRE
STATE OF VERMONT

University of Vermont and State Department of Education

Dear Former Student:

YOUR answers are NEEDED -- YOU will INFLUENCE IMPORTANT DECISIONS made in Vermont. YOU have been SELECTED as one of the people who can give your school and the State Department of Education information that will help them make needed changes. PLEASE sit down right now and FILL OUT THIS FORM.

(THIS QUESTIONNAIRE MAY BE ANSWERED BY A RELATIVE OR FRIEND WHO CAN SUPPLY THE INFORMATION)

Return the form to 105 Morrill Hall, University of Vermont, Burlington, Vermont 05401. THANK YOU.

* * * * * * * * * * * * * * * * * *

DIRECTIONS: Your answers will be kept confidential.

A. Make only one answer to each question.
B. Answer only questions that apply to you.
C. Please correct the address label if it is wrong.
D. Refold the form and return it in the enclosed envelope.

* * * * * * * * * * * * * * * * * *

QUESTIONS

(12) 1. Are you employed? Yes___(1) No___(2) (If full-time military service check here) ___(3)

2. If you are employed:

(13) a. Is it full-time (35 or more hours per week) ___(1)? Or part-time (less than 35 hours per week) ___(2)?

(14) b. Is your job in the field of your high school vocational training___(1)? A related field___(2)? A different field___(3)?

(15) c. If a "different" field, did your high school vocational training help you develop this new career interest? Yes___(1) No___(2)

(16,17, 18) d. What is your weekly salary (before deductions)? $_____

(19,20) e. How many hours per week do you usually work? _____hrs.

(21,22) f. In what state are you employed? _____

(more on back)

(23,24) g. How many different jobs have you had since leaving high school ____(number)

(25,26) h. How many years have you been with your present employer? _____ years

(27) i. Are you self-employed? Yes___(1) No___(2)

(28) 3. If you are employed part-time, or not employed, is it because you are attending school___(1)? Cannot find a full-time job___(2)? Do not want a full-time job because of personal reasons___(3)?

(29) 4. Are you attending school? Yes___(1) No___(2)

(30) a. Have you attended a school since leaving high school? Yes___(1) No___(2)

(31) b. If you are attending or have attended school, is it a high school adult program___(1)? Two-year college___(2)? Trade school___(3)? Four-year college___(4)? Apprentice program___(5)? Military training school___(6)? Other___(7)?

(Describe_____)

(32) c. Are your studies in the same career field as your high school vocational training___(1)? A related field___(2)? A different field___(3)?

(33) d. If a different field, did your vocational training help you develop this new interest? Yes___(1) No___(2)

(34,35) e. In what state did you last attend school?_____

(36) 5. Has your vocational training lead to a better job or a promotion? Yes___(1) No___(2)

(37) 6. Has your vocational training lead to an increase in your income? Yes___(1) No___(2)

7. If you had more than one job since leaving high school, how many have been in your vocational field or a related field?
(38,39) _____(number)

8. If you are now employed in a field not related to your vocational training, which of the following areas best
(40) describes your job: Construction or Maintenance___(1)? Health___(2)? Transportation___(3)? Manufacturing or Fabricating___(4)? Service___(5)?
(41) Recreation or Hospitality___(1)? Marketing___(2)? Agriculture___(3)? Office___(4)? Communications___(5)? Other___(6)?

(Describe_____)

FILMED FROM BEST AVAILABLE COPY

(42) 9. Who provided the most help to you when you were looking for your first job: School guidance department___(1)? A teacher___(2)? State employment office___(3)? A relative___(4)? A friend___(5)? Other___(6)?

(Describe_____)

(43) 10. When you were looking for your first job, did you have an adequate number of chances to work in your field of vocational training? Yes___(1) No___(2)

(44) 11. Did you belong to a vocational youth organization (DECA, FHA, FFA, FBLA, VICA, etc.) while in high school? Yes___(1) No___(2)

If "Yes": a) Did your experiences help you in getting a
(45) job? Yes___(1) No___(2) b) Have your experiences helped
(46) you do a better job? Yes___(1) No___(2)

(47) 12. If you have comments you would like to make regarding your vocational training or other parts of your high school program, write them here: _____

_____

_____

_____

_____

APPENDIX 3

Data Collection Forms

Student Follow-up Study Local Educational Agency

Student Information Report Forms

Vocational, Technical and Extension Education Department
and
Research Coordinating Unit, Vermont State Department of Education

FORM I
STUDENT FOLLOW-UP STUDY
LOCAL EDUCATIONAL AGENCY
STUDENT INFORMATION REPORT FORM

___ Secondary - 1
___ Post secondary - 2 (7)

Report for School Year Ending June 1 9 ___ ___ (1 -2 -3) School Reporting _____ (4-5- 6)

	Deck No.	PUPIL NO.	NAME (Last, First, M.I.)	LAST KNOWN ADDRESS (Street, P.O. Box, RFD)	(City, State, ZIP)
Pupil	1				
Parent	2				
Pupil	1				
Parent	2				
Pupil	1				
Parent	2				
Pupil	1				
Parent	2				
Pupil	1				
Parent	2				
Pupil	1				
Parent	2				
Pupil	1				
Parent	2				
Pupil	1				
Parent	2				
Pupil	1				
Parent	2				
Pupil	1				
Parent	2				
Pupil	1				
Parent	2				
Pupil	1				
Parent	2				

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Page ___ of ___ pages

Student Follow-up Study -- Vocational Education

Vocational, Technical and Extension Education Department, University of Vermont

and

Research Coordinating Unit, Vermont State Department of Education

___ (7) Secondary - 1

___ (7) Post Secondary - 2

Report for School Year Ending June 1 9 (1 -2 -3) School Reporting _____ (4- 5- 6)

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Deck No. (8)	Pupil No. (9-11)	Code No. ___ USOE Area of Employment for which Pupil Trained (see atached list) (12-17)	Descriptive title of Training Program (18-29)	Male - 1 / Female - 2 (30)	FullTime - 1 / Shared - 2 (31)	Shared time pupil School code-- Vocational Center (32-34)	Grad. - Completed Voc. Ed. (35)	Grad. - Dropped Voc. Ed. (36)	Left - Completed Voc. Ed. (37)	Left while enrolled in Voc. Ed. (38)	Left after dropping Voc. Ed. (39)	Left - trans. to another school (40)	Trans. in Vt. (1)Yes ___ (2)No ___ (41)	Deceased (42)

VT 015 998
EVALUATION OF THE EXEMPLARY PROJECT IN VOCATIONAL EDUCATION. TRICULTURAL VOCATIONAL EXPLORATORY CAREER AND WORK EXPERIENCE EDUCATION PROGRAM.

BERNALILLO PUBLIC SCHOOLS, N. MEX.;NEW MEXICO UNIV., ALBUQUERQUE. BUREAU OF EDUCATIONAL PLANNING AND DEVELOPMENT.
OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
OEG-0-71-1025(361)
PUB DATE - JAN72 71P.

DESCRIPTORS - *DISADVANTAGED ENVIRONMENT; ETHNIC GROUPS; *DEVELOPMENTAL PROGRAMS; GOAL ORIENTATION; EDUCATIONAL PROBLEMS; ELEMENTARY GRADES; *PROGRAM EVALUATION; *CAREER EDUCATION; VOCATIONAL DEVELOPMENT; WORK EXPERIENCE PROGRAMS; *PROGRAM IMPROVEMENT; DATA COLLECTION; SECONDARY GRADES; CONTINUATION EDUCATION; JOB PLACEMENT

ABSTRACT - THIS FIRST EVALUATION OF A 3-YEAR FEDERAL EXEMPLARY PROJECT IN VOCATIONAL EDUCATION, INCLUDING A CAREER EDUCATION PROGRAM FOR THE ELEMENTARY AND SECONDARY GRADES, GENERAL WORK EXPERIENCE FOR JUNIOR AND SENIOR HIGH STUDENTS, VOCATIONAL WORK EXPERIENCE FOR SENIOR HIGH STUDENTS, AND JOB TRAINING AND PLACEMENT FOR GRADE 12 STUDENTS AND FORMER STUDENTS, WAS CONDUCTED BY A TEAM OF GRADUATE STUDENTS AND FACULTY IN EDUCATION FROM THE UNIVERSITY OF NEW MEXICO. THIS PROJECT FUNCTIONED AS A CHANGE AGENT IN A DISADVANTAGED AREA WITH A 50 PERCENT INDIAN, 40 PERCENT SPANISH AMERICAN, AND 10 PERCENT ANGLO ENROLLMENT. EACH OF THE 10 GOALS FOR THE PROJECT WAS FULFILLED ONLY TO A LIMITED EXTENT, DUE TO STAFF RECRUITMENT PROBLEMS, POORLY WORDED OR INAPPROPRIATE OBJECTIVES, AND OTHER EXTENUATING FACTORS. RECOMMENDATIONS ARE MADE FOR IMPROVING PROGRAM MANAGEMENT AND ADMINISTRATION, FOR REVISING OBJECTIVES AND PROJECT CONTENT, AND FOR COLLECTING DATA TO EVALUATE THE PROJECT MORE EFFECTIVELY. (AG)

EVALUATION OF THE EXEMPLARY PROJECT IN VOCATIONAL EDUCATION

Bernalillo Municipal Schools

Bernalillo, New Mexico

VT015998

January 1972

1961

ERIC

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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EVALUATION OF THE EXEMPLARY PROJECT IN VOCATIONAL EDUCATION

Bernalillo Municipal Schools

Bernalillo, New Mexico

The University of New Mexico
BUREAU OF EDUCATIONAL PLANNING AND DEVELOPMENT
College of Education-Albuquerque, New Mexico 87106
Richard F. Tonigan, Director, Ph. (505)277-2622

January 1972

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ACKNOWLEDGMENTS

The contractor wishes to commend the project director, his staff, school district administrators, and faculty members who so willingly assisted the evaluation team members in completing this evaluation. All of these persons worked sincerely and diligently. Their help is deeply appreciated.

R.F.T.

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ADMINISTRATIVE CONTROL DATA

PROJECT TITLE:	TRICULTURAL VOCATIONAL EXPLORATORY CAREER AND WORK EXPERIENCE EDUCATION PROGRAM
SCHOOL DISTRICT:	Bernalillo Municipal Schools Post Office Box 158 Bernalillo, New Mexico 87004
SUPERINTENDENT:	Pete Santistevan
FEDERAL PROJECTS CONTRACT OFFICER:	Richard Joseph Kloeppel
PROJECT DIRECTOR:	Raymond R. Gonzales
DURATION OF PROJECT:	Three Years
FEDERAL FUNDING:	Part D of Public Law 90-576; First Year . . . . $103,340 Second Year. . . . 103,340 Third Year . . . . 103,340 TOTAL: $310,020
PROJECT NUMBER:	361040
CONTRACT NUMBER:	OEG-0-71-1025 (361)

THE SCOPE AND NATURE OF THIS EVALUATION CONTRACT

PROJECT COMPONENTS

This Bernalillo Exemplary Project in Vocational Education functions with four primary components:

1. Exemplary Career Orientation and Guidance Education (for all students in grades K-12).
2. General Work Experience (for junior and senior high school students).
3. Vocational Work Experience (for senior high school students).
4. Intensive Job-Entry Training and Initial Placement (for high school seniors and former high school students).

All four of these component areas of the Exemplary Project were examined by the evaluation team.

PROJECT OBJECTIVES

The Proposal which the Bernalillo Municipal Schools submitted to the U. S. Commissioner of Education for the funding of this Exemplary Project in Vocational Education contained a set of ten basic objectives and norms (pages 25-56 of the Proposal) on which the project was to be evaluated. These ten statements, slightly modified, posited the basis for this evaluation:

Objective No. 1: Placement. To successfully place in a job, a post-secondary education training program, a higher education program, or the armed services all, or at least an acceptable percentage, of the students who leave the secondary schools of the Bernalillo Municipal School system.

Objective No. 2: Student Attitudes Towards Work. To help students to develop positive attitudes about work.

Objective No. 3: Business Community Attitudes. To help the business community develop positive attitudes towards training school-age children.

Objective No. 4: Vocational Training-Related Placement. To place high school students in part-time jobs which are closely related to each student's vocational education training program.

Objective No. 5: Occupational Awareness. To help students become more aware of the occupational possibilities available to them.

Objective No. 6: Job Entry Knowledge and Skills. To improve the knowledge and skills which students need to enter the job market.

Objective No. 7: Expanding Vocational Education. To improve the balance between vocational and academic subjects in the total K-12 educational program.

Objective No. 8: Placing Disadvantaged Students. To place students from disadvantaged families in income-producing and meaningful work-experience positions.

Objective No. 9: School Participation. To reduce school absenteeism, truancy, and failures; to improve discipline, and to reduce drop-outs.

Objective No.10: Attract and Hold Industry. To reduce unemployment, and to increase per capita income.

PROJECT BUDGET

The three-year federal grant for this project was in the amount of $310,020. The project budget is included as APPENDIX A. The project's annual expenditures which are federally funded are equally budgeted; local expenditures are budgeted to vary slightly from year to year.

	BUDGETED ANNUAL EXPENDITURES	
	Federal	Local
First 12 months	$ 103,340	$ 73,200
Second 12 months	103,340	82,950
Third 12 months	103,340	91,650
Totals:	$ 310,020	$ 247,800
Summary:	$ 310,020 Federal	
	247,800 Local	
GRAND TOTAL:	$ 557,820	

EVALUATION CONTRACT

This $2,500 evaluation contract was finalized on December 7, 1971. The contractor, UNM's Bureau of Educational Planning and Development, began immediately to perform the contract, and completed it in less than two months' time.

THE BERNALILLO COMMUNITY

An understanding of the Bernalillo community is essential to this evaluation. Although Bernalillo is a suburb of the state's largest city, Albuquerque, it is by no means a representative U. S. suburban village. It is, in fact, a very old, rural, Spanish-American and Indian population center. The community is characterized by large families, high unemployment, low educational achievement, and comparatively low family-purchasing power. Over forty percent of all family groups in Bernalillo are estimated to have an annual income of less than $5,000.

The town of Bernalillo is located seventeen miles north of Albuquerque, and has a population of 4,500 persons. Five Indian Pueblos (San Felipe, Santo Domingo, Sandia, Cochiti, and Santa Ana) are within the

community's school district. The Pueblos also exist on a marginal economy.

Bernalillo, one of the two largest population centers in the County, is the county seat for Sandoval County. For some years Sandoval County has been rated as one of the one-hundred poorest counties in the United States.

> In 1966, with a population of 16,000, Sandoval County had a per capita income of $1,030; in 1965, the per capita income was $953; and, in 1960, it was $684. In 1964, the per capita income for Sandoval County was approximately half that of the New Mexico per capita income, and was the lowest of the 32 counties in the state.[1]

Hanson's doctoral dissertation also documents the scarcity of water, the lack of mineral resources, poor soil conditions, lack of employment opportunities, chronic health problems, and extremely substandard housing.

During the middle 60's when governmental efforts were being exerted to move the War-on-Poverty programs into rural America, Sandoval County was selected as one of the three counties in the United States to deploy a change agent. This change agent's task was inducing rural organizations to utilize federal War-on-Poverty programs for the improvement of social and economic conditions in Sandoval County. The Bernalillo Exemplary Project in Vocational Education being evaluated at this time represents one vocational education project with a similar socioeconomic goal.

Geographically, this project is headquartered in Bernalillo. Functionally, the project area includes metropolitan Albuquerque, since job and work experience opportunities are vastly superior there.

---

[1]Ernest Mark Hanson, Jr., Organizational Change and the Change Agent: a Participant-Observer Study. Abstract of Dissertation. The University of New Mexico. June, 1969, p. 8.

THE BERNALILLO SCHOOL SYSTEM

The Bernalillo Municipal Schools system operates five elementary schools (1,484 pupils), two junior high schools (660 pupils), and one senior high school (553 pupils). Total enrollment is 2,697 students.

The ethnic composition of the student population is estimated at fifty percent Indian, forty percent Spanish-surnamed, and approximately ten percent Anglo. The tricultural mix, linguistic differences, and the financial immobility of the community add greatly to the complexity of the social system in which this project attempts to function as a change agent.

EVALUATION TEAM

The evaluation was conducted by a team of College of Education graduate students and faculty members from the University of New Mexico. The team members were:

Robert Esparza, Assistant Professor, Department of Secondary Education
Paul V. Petty, Professor, Department of Educational Administration
Paul A. Pohland, Assistant Professor, Department of Educational Administration
William B. Runge, Professor, Department of Secondary Education (Vocational Education Specialist)
Richard F. Tonigan, Professor, Department of Educational Administration; Director of the Bureau of Educational Planning and Development (Chairman of this Evaluation Team)
Luciano Baca, Graduate Student, Department of Secondary Education
Flora Ida Ortiz, Graduate Student, Department of Educational Administration

CURRENT STATUS OF THE BERNALILLO EXEMPLARY PROJECT IN VOCATIONAL EDUCATION

Quarterly reports submitted to the U. S. Office of Education by the project's directors on August 15, 1971, and November 15, 1971, reflect the difficulties which the project's directors were encountering in the initial year of this three-year project.

All four of the primary programs funded in this Exemplary Project in Vocational Education have been underway to one degree or another for the better part of this start-up year. None of the four primary component areas, however, is functioning smoothly or fully.

With the exception of one paraprofessional position, all budgeted project staff positions were filled at the time of this evaluation. The project is now guided by its second director. The teacher-coordinator's position only recently has been filled (by the project's initial director). The eight-member staff contains one Pueblo Indian, one Anglo, and six Spanish-Americans. The vacant paraprofessional position will most likely be filled with an additional Pueblo Indian designated by the Governor of one of the Pueblos.

The members of the staff were employed during various periods of 1971. One of the work experience supervisors was employed in May, the second in August; the vocational counselor was employed in April; the teacher-coordinator and the present project director were employed in October. This means that the project had been staffed for about only three months at the time this evaluation was conducted.

As reported in the quarterly reports, the evaluation team found considerable evidence that the project staff has made a concerted effort to begin the orientation of the Bernalillo Municipal School faculty to the nature and the purpose of their vocational project. Likewise, discussions which the evaluators had with numerous employers also verified that the project staff seriously was attempting to contact prospective employers and to orient the Bernalillo and the Albuquerque business industry to the student vocational education and work experience needs of Bernalillo youth. The project staff is to be commended for securing so many career orientation and work experience opportunities for so many of the Bernalillo youth in such a short period of time. It is important to remember that the project has never been fully staffed, and that it has only been staffed relatively completely for three months.

The project staff is housed in the two-year old Bernalillo Vocational Skills Center located on the grounds of the Bernalillo Junior High School. For office space, the staff utilizes space originally designed for a vocational media center. The staff is utilizing chairs, desks, and other equipment of the school system.

Both the team of evaluators and the project administrators feel that this Exemplary Project in Vocational Education is funded adequately to do the intended job. The project staff is just beginning to effectively utilize their funds.

In summary, the project is reasonably well-staffed, financed, and housed. Most of the objectives of the project are meaningful; they are increasingly being understood by staff, school, and business community

personnel. There are satisfactory evidences that most of the objectives of the program can be fulfilled in forthcoming years. Hopefully, the recommendations which appear later in this report will provide the guidance necessary to the attainment of the project's aims and objectives.

Finalized procedures for guiding the daily work of the staff are being developed. Student file folders are maintained on each student in the program. Some guidance and counseling, work experience, and administrative control forms have been designed and are being used; likewise, some student and business community orientation and instructional materials have been prepared and are being disseminated. Project management, planning, implementation, and administrative control systems are items of current interest to the Director. The more immediate goals of the project; namely, securing on-the-job work experiences, and jobs-for-pay were given primary emphasis in the first few months of this project. In-school career orientation efforts now are being stressed. The sociological role of the project as a change agent function is just beginning to be realized. Concerns for the systemic linkage of this project to other school community activities are in the developmental stage.

The four primary component programs of the Exemplary Project in Vocational Education have attained the following status:

PHASE I: Exploratory Career Orientation and Guidance Education

In operation to date: Two elementary schools are working with all students; the Roosevelt Annex is working with fifth and sixth graders; at the Cochiti Elementary (K-8), John Romero goes one day a week to teach a class. Jim Baca oriented all teachers to the project at the beginning of the year.

In the senior high school about one-fifth of all students are involved in an "on-site work experience program" for about six weeks each with one of approximately ten large employers in the Albuquerque area. An upcoming feature to be observed is an arrangement between the Kirtland Base and the Bernalillo School System. This agreement will provide continuing on-site vocational experience positions for many Bernalillo students.

Just now starting to develop materials (tapes, slides, etc.); have purchased some equivalent.

PHASE II: General Work Experience Program

Three classes are engaged in the pilot program; two are taught by John Romero, each class having 20 to 25 students; one is being taught once a week at Cochiti; and the second class is being taught every day at Santo Domingo.

Job placement is involved in this phase. It includes every student looking for a part-time job. Counselors work with work-experience supervisors. Approximately 200 students have been involved to date; 80% of them have been successfully placed. This is a year-round activity. Participants include former students (students who graduated or dropped out during the last several years).

Employment Security Commission "Job Bank Announcements" are secured daily. These are screened, and jobs of particular value to Bernalillo youth are featured in posted position announcements.

PHASE III: Vocational Work Experience

One class is conducted at the Vocational Skills Center. This class is composed of high school students possessing educational training in at least one skill. All of these students are placed one day a week on a job in Bernalillo or the Albuquerque area without pay; some work additional hours for their respective vocational field. The class is designed to give these students training in job entry skills.

It is intended that the project staff will soon be working with teachers, helping them to identify students already having had skill training and needing jobs.

PHASE IV: Post-Secondary Placement

This is an in-school activity for seniors. Students are given one-week intensive job entry training. This includes job sources, how to apply for a job, and interviewing techniques. The program intends to cover 100% of those students not intending to go to college. The program also seeks to have 100% follow-up on all high school students, including those who go to the service or to college. This program provides assistance to college students needing financial aid. The vocational counselor, Carol S. Nordengren, works with high school students one-half time in this program. During the current year she has talked to date to all non-college seniors. This program will provide career affairs, vocational-technical days, etc., for high school seniors.

Advisory Committee

An Advisory Committee has been formulated and is an operative entity. The Committee contains two members of the project staff, one member of the Bernalillo Municipal School faculty, a professor of guidance and counseling from the University of New Mexico, a representative of the New Mexico State Department of Education, an administrator of an area technical-vocational institute, a local businessman, and a high school student. The Advisory Committee assisted in the selection of the Contractor performing this evaluation. The members of the Advisory Committee are:

1. Ray Gonzales, Director, Bernalillo.
2. James Baca, Coordinator, Bernalillo.
3. Manuel Toledo, Director of Guidance and Counseling, Bernalillo.
4. Dr. George Keppers, Dept. of Guidance and Counseling at the University of New Mexico, Albuquerque.
5. Sheldon Weissman, Director of Special Needs, New Mexico State Department of Education, Santa Fe.
6. Harold Jackson, Director of Evening Division, Albuquerque Technical-Vocational Institute.
7. Dennis Chavez, President of Bernalillo Branch of First State Bank.
8. Juanita Duran, Bernalillo High School Student.

ATTAINING THE PROJECT'S OBJECTIVES

Each of the project's ten objectives has been fulfilled partially, but none have been fulfilled to the degree initially anticipated. Staff recruitment and other problems interfered with having a rapid start-up operation. Thus, this evaluation reflects a relatively low level of achievement during the first year of operation. On the other hand, the evaluation reveals that efforts are intensifying to upgrade project management and implementation activities. The evaluation team believes that the project staff possess the potential to be fulfilling most of the project's objectives by the middle of the second year.

Members of the evaluation team encountered numerous examples of the staff's efforts which were reflective of a sincere and dedicated concern for the purposes of the project. Evidence exists to reveal that the project is gaining momentum and beginning to be a viable change agent.

In the remainder of this section of the report, the degree to which each of the objectives is being fulfilled will be discussed. In some cases the data incorporated in the discussion of these objectives is incomplete, or even non-existent, reflecting the state or art of collection of data for this project.

Objective No. 1: Placement. To successfully place in a job, a post-secondary education training program, or the armed services all, or at least an acceptable percentage of, the students who leave the secondary schools of the Bernalillo Municipal Schools System.

Data related to Objective No. 1 was obtained from the project's guidance counselor.

Of the 199 students who started their sophomore year three years previously, 149 graduated in June 1971; thus, 50 students dropped out or were pushed out.

No. of Project Inactive* Applicants	81
No. of Project Active* Applicants	33

Inactive Applicant Breakdowns:

"Inactive" applicants (project participants) who graduated from high school in 1971.		66
Placement of these 66 students was:		
.In college or technical school.	30	
.Working	16	
.Placed by Youth Employment Program (YEP)	3	
.Unknown	16	
.Unavailable	1	
"Inactive" applicants (project participants) who were former students (dropouts/ pushouts)		15
Placement of these 15 students was:		
.In college or technical school.	7	
.Working	0	
.Placed by YEP	1	
.Carry on action	1	
.Unknown	6	
TOTAL NO. INACTIVE APPLICANTS:		81

*An inactive applicant is defined as a project participant who was placed or is unavailable for placement and requires no additional placement assistance by the project staff.

*An active applicant is defined as a project participant who has been placed but still requires placement assistance from the project staff.

Active Applicant Breakdowns:

"Active" applicants (project participants) who graduated from high school in 1971. . . . 12

Placement of these 12 students was:

- Placed in jobs with subsequent action requested 4
- Placed in jobs with no subsequent action requested 1
- Attempted to place in jobs; no results to date. 4
- No attempt made to place in jobs to date 3

"Active" applicants (project participants) who were former students (dropouts, pushouts) 21

Placement of these 21 students was:

- Placed in jobs with subsequent action requested 2
- Attempted to place in jobs; no results to date. 14
- No attempt made to place in jobs to date 5

TOTAL NO. ACTIVE APPLICANTS: 33

TOTAL NO. INACTIVE AND ACTIVE APPLICANTS: 114

Considering the difficulty which was encountered in getting the project staffed and underway, these active and inactive applicant figures indicate that considerable effort has been made to place students and former students, and to follow up on their placements. These figures also reveal that a large number of students wanting jobs are unable to secure them, and that the project staff is finding it difficult to keep up-to-date follow-up records on many students.

Objective No. 2: Student Attitudes Towards Work. To help students to develop positive attitudes about work.

Data related to Objective No. 2 was obtained from personal interviews with the Director and each member of his staff, personal interviews with a random sampling of students representing the junior and senior high schools, and from descriptive, statistical and other reportive data found in staff files.

The two questions that were asked of the students interviewed were:

1. Do you want to work?
2. What do you expect to get out of working?

On the basis of the student responses the evaluating team made subjective judgments as to the positive or negative attitudes displayed. In addition to the student interviews, data was also obtained through interviews with members of the staff and written anecdotal records. The general criteria used for the manifestation of positive attitudes toward work centered on the following three factors:

1. One works to earn a livelihood for himself and his family.
2. One works to contribute to the improvement of his society.
3. One works to obtain a sense of self-gratification from the constructive use of his time, talents, and efforts.

Students in the project display a high incidence of positive attitudes toward work. As a group, they recognize the "inevitability" of work in their life style--now, and in the future. They see it as a give-and-take proposition where they gain lucrative results and, at the same time, contribute towards the common good.

In terms of frequency, the most commonly heard comments concerning work and why students would seek work included:

". . . to earn money."
". . . to have something to do."
". . . to get to know people."
". . . to get the most out of life."
". . . to keep from being a drag on your community."

The students with the more positive attitudes are those in the upper secondary grades who are having, or have had, work experience under the program. Students in the lower grades are understandably less articulate in expressing their attitudes, but the majority of these attitudes are positive. Those relatively few negative attitudes come from students in the lower grades who apparently lack experience, maturity, conceptual development, and communicative skills. Since these are the younger students, it is hoped that the efforts of the project will help them in the future.

If observable behavioral changes are to be construed as indications of positive attitudes, then the anecdotal records kept by the staff must be cited. These records point out some of the characteristics among students in the work phase of the project as:

1. A change to more conventional attire; e.g., dress and hair styles.
2. A willingness to obtain and retain a job after experiencing one or more on-the-job failures.
3. A striving for perfection and improvement in job performance.
4. Demonstration of greater interest in the participation of activities of the project.

1. In the Land-Status Section (unless the student is learning to read maps, prepare preliminary drawings and to use parameter maps) learning how to identify and record land uses.
2. In the Range and Wild Life Section assisting with deer counting from maps and assisting in projects for conservation.
3. In the Fire Control Division learning how to organize and control fires and use the special equipment.
4. In the Personnel Division learning how to interview, place, classify, qualification review, security investigations and government procedures.

All students will be given a chance to participate in the agency's Continental Divide Center for training and continue with possible part or full-time employment later.

Students have been highly motivated at this agency by the variety and uniqueness of experiences provided and the possibility of future careers in this type of job. Student appearances and job attitudes have improved in the limited time they have been placed.

All students from the nurse aide skills class at the Bernalillo Center are brought to the Osteopathic Hospital in Albuquerque for limited observation and work experiences after several months of preliminary training. The students are given a trial period, screened, and eventually given permanent jobs if they want one. At least eight have been trained and placed by the nurse aide class instructor. This is not a program started by the

Objective No. 3: Business Community Attitudes. To help the business community develop positive attitudes towards training school-age children.

A sampling of the data related to this objective was collected from members of the project staff and by interviews with eight of the more than seventy employers who have had experience with the Bernalillo Exemplary Project in Vocational Education. These eight employers were:

A. In Albuquerque

1. Kirtland Air Force Base
   Sandia Laboratories
   Secretarial Training Facility
2. Federal Weather Station
   Albuquerque International Airport
3. Osteopathic Hospital
4. Albuquerque City Police Department
5. U. S. Forestry Service, Regional Office
   Training and Development Division

B. In Bernalillo

1. Economy Store (grocery store)
2. Bernalillo Mercantile (department store)
3. First State Bank (a branch bank)

In addition, a member of the team interviewed both the director and the assistant director of the Office of Economic Opportunity in Bernalillo.

The four evaluators conducting these employer visitations included the following six questions in their evaluation discussions:

1. Do you or your firm have any formal programs or activities designed to help students develop a positive attitude about work?

2. Can you recognize in the students who work for you an improvement in their attitude about work?

project but illustrates another successful vocational program with work experiences and job placement potential which is cooperating with the Bernalillo Exemplary Program in Vocational Education. Some instruction is given by the teachers in job information and entry skills. The hospital's administrators have been quite happy with this arrangement.

Objective No. 7: Expanding Vocational Education. To improve the balance between vocational and academic subjects in the total K-12 educational program.

The courses offered in junior and senior high schools for 1969-70, 1970-71 and 1971-72 (See APPENDIXES B & C) were examined to see if the balance between vocational and academic subjects had been improved. This examination revealed the following:

NO. OF COURSES OFFERED IN EACH SUBJECT AREA
(SOURCE: APPENDIXES B AND C)

No.	SUBJECT AREA	1969-70 JR.HI.	1969-70 SR.HI.	1970-71 JR.HI.	1970-71 SR.HI.	1971-72 JR.HI.	1971-72 SR.HI.
A.	Academic Areas:						
1.	Language Arts	2	5	2	7	1	11
2.	Math	3	5	3	5	3	4
3.	Spanish	-	2	-	3	-	3
4.	Social Studies	7	3	7	3	7	4
5.	Science	4	2	4	4	4	5
6.	Physical Educ.	1	3	1	3	1	3
7.	Arts and Crafts	3	5	3	5	3	4
8.	Music	5	4	5	4	5	4
9.	Office Aide	1	-	1	-	1	-
10.	Special Educ.	1	-	1	-	1	-
	Sub-Totals	27	29	27	34	26	38
B.	Vocational Areas:						
1.	Business	-	5	-	5	-	7
2.	Home Economics	1	5	1	4	1	6
3.	Vocational	1	11	1	11	2	16
	Sub-Totals	2	21	2	20	3	29
	GRAND TOTALS:	29	50	29	53	29	67

3. Has your attitude or the attitude of your firm changed towards the training of school-age citizens? Has it become more positive or more negative?

4. How many Bernalillo students are working with this firm, and about how many months have they been in this work experience program?

5. What suggestions do you have for improving the program?

6. Are you willing to take more students from the Bernalillo project?

Only one of the eight firms (the First State Bank of Bernalillo) has not had at least one Bernalillo student during 1971, but the bank's manager stated a desire to participate in the project's general work experience program and in the vocational work experience program.

All of the firms indicated a strong interest in continuing to work with the Bernalillo project. Most expressed interest in increasing the number of students who come to their firms for work experience and on-the-job training. Only the larger firms, e.g., Sandia and the Forestry Service, indicated that students participated in organizational training programs. All employer representatives indicated that their attitudes towards students improved as a result of the experience.

Employers were very concerned about student absenteeism. The Police Department revealed that one of its student trainees stayed only one day; a second student reported only several days before quitting. At the Weather Bureau a similar disappointment was expressed. (Perhaps part of this problem relates to the distance which must be traveled to reach

The foregoing chart reveals that the number of vocational courses in the junior high school increased from two vocational courses in 1969-70 to three in 1971-72, and that the total number of academic and vocational courses available to junior high students stayed constant at 29, thus in 1969-70, seven percent; and in 1971-72, ten percent of all courses were vocational in nature.

The chart reveals that at the senior high school level the number of vocational courses increased from 21 in 1969-70 to 29 in 1971-72. During the same period, the number of academic courses also increased from 29 to 38; correspondingly, the total number of academic and vocational courses also increased from 50 to 67. In 1969, forty-four percent of all senior high courses were vocational in nature, and in 1971-72 the figure had declined to forty-three percent.

In summary, it seems fair to say that the Bernalillo Exemplary Project in Vocational Education has done little to improve the balance between vocational and academic subjects in the junior and senior high schools of Bernalillo. It should be said also that the school district's vocational program had been considerably improved with the earlier introduction of the Bernalillo Vocational Skills Center, making it more difficult for the "Johnny-come-lately" Exemplary Project in Vocational Education to have major impact during its first year of operation.

Objective No. 8: Placing Disadvantaged Students. To place students from disadvantaged families in income-producing and meaningful work-experience positions.

jobs in Albuquerque.) None of the Bernalillo employers indicated student absenteeism was a concern.

Suggestions for improving the program focused on several items:

1. The project staff members need to have more frequent meetings with employers so that employers can secure more information about the current status of project activities and about their student trainees. All but two employers (Orthopedic Hospital and Economy Store) stated that additional communication was needed in the form of personal visits, descriptive literature, and invitations to participate in sessions at the Bernalillo Vocational Skills Center.

2. The project staff needs to work on the absenteeism problem. The failure of students to report for work experience "turns off" employers.

3. The efforts of cooperative employers need recognition. The project staff need to develop additional means to show appreciation for assistance offered by cooperating firms.

4. For some employers Friday is not the best student training day. At least three businessmen indicated that Friday was their busiest day, and therefore, they had little time to train or work with students during the only hours the students were working in their business establishments.

5. Many of the employers reported the student work day was too short. A five to an eight-hour work day should be scheduled to provide the opportunity for better learning experiences.

Dr. Petty's notes on his visits to two Albuquerque offices depict the general nature of these employer visitations:

> Visitation to Work-Experience Employers. Two of the major employers of these high school students were visited: (1) The Federal Weather Station at the airport, and (2) KAFB Sandia Laboratories secretarial training facility.
>
> Both employers were most positive about the program and anxious to cooperate further. At the Weather Bureau Office one negative comment was raised--that of too little actual information about the program and how it operates. Mr. Gregg of the Bureau said that he had had several telephone conversations with program people from Bernalillo

The Bernalillo Exemplary Project in Vocational Education has as its stated target population a variety of school youths (K-12) and former school youths (dropouts and graduates). Each of the four component programs in the project (see page 2) is addressed to a different segment of this audience. Educationally and economically-deprived youths are to be given priority in the "general work experience" and "vocational work experience" components of the project. To date, the project participant selection process has not become sufficiently sophisticated to enable the project staff to positively differentiate disadvantaged students from the non-disadvantaged. All who seek assistance are granted it.

Former students who are to be assisted by the project are intended to be those who have either graduated or left school for other reasons during the previous three years. To the present time this restrictive time covenant has not been implemented in the project participant recruitment process.

Other sections of this report document the work experience positions being fulfilled by project participants. It is not possible to identify those students from disadvantaged families from students or the former students of non-disadvantaged families.

Earlier, attention was called to the fact that there are relatively few job opportunities in the Bernalillo environs. To illustrate this point, the 1960 work force in Sandoval County (Bernalillo is the county seat) was, as follows:

but never talked at length personally with Romero or Sanchez. One of these gentlemen had brought the student at the beginning of the program and introduced him, but a minimum of direct information had been provided. The student assigned at the Weather Bureau had been on duty seven Fridays only during the semester. Mr. Gregg and others in the office were of the opinion that the total work-experience time is too brief for good experience. They hope that another student will be assigned next semester.

A total of eight girls have been assigned to the Sandia Secretarial Training Section. These girls are given instructions in telephone technique, proper grooming, and general office practices. They are not given any drill or instruction in typing or shorthand; they do receive valuable work experience. There is no pay involved.

One disadvantage of this assignment is its work limitations. The supervisor would like to send the girls to various divisions for actual experience, but there is a security problem at Sandia. A regulation requires that all employees beyond the gate must have a clearance. It would not be practical to have these girls cleared for their brief periods of work.

It can be said that the Sandia supervisors were not only interested but are enthusiastic about their involvement in the program. They indicated that Mr. Romero had come in and talked with them at length about the program so they felt that they were well-informed.

The OEO interview was also enlightening. OEO cooperates closely with the Exemplary Vocational Education Project. Through its Neighborhood Youth Center (NYC) programs many Bernalillo youths are provided with interesting and useful summer jobs; school year placements are almost impossible for NYC. The NYC personnel also assist in finding permanent, full-time jobs for students graduating or leaving school.

During the OEO administrators' interview several favorable responses to the program were stated--as was the desire for more current project information. One idea that emerged during this discussion was the need for a local committee to coordinate all youth programs. Another idea centered on finding more civic and recreational jobs for students in training. Needless to say, much could be ecologically performed in Bernalillo to make it a more attractive and healthful community (e.g., demolition of dilapidated buildings). Perhaps federal funds can be found to support such an action program. Likewise, as Albuquerque becomes more populated, suburbs should be able to construct and operate recreational and entertain-

Non-Agricultural		
Manufacturing	418	
Mining	0	
Contract Construction	213	
Transportation and Public Utilities	82	
Trade, Wholesale and Retail	150	
Finance, Insurance and Real Estate	44	
Services and Miscellaneous	679	
Government	652	2,238
All Other Non-Agricultural (not U. S. Classified)		468
Agriculture (Self-employed and wage earners)		250
TOTAL WORK FORCE, 1968:		2,956

Source: U. S. Bureau of Labor, Division of Labor Statistics.

Objective No. 9: School Participation. To reduce school absenteeism, truancy, and failures; to improve discipline, and to reduce drop-outs.

The data related to this objective were collected in personal conferences held with members of the staff and administrators of some of the schools in the project. Student interviews for this objective were used only to the extent of asking a limited number of students if the project was helping them stay in school.

The student participants in the project are in the process of completing their first year in said project; and it is, therefore, too early to pass any concrete judgments concerning the objective in question. Project staff members think that they see a good number of cases where

ment facilities that will bring new jobs to the youth of low income suburbs such as Bernalillo (one such project is now in the planning process).

Objective No. 4: Vocational Training-Related Placement. To place high school students in part-time jobs which are closely related to each student's vocational education training program.

Dr. Runge's observations reveal the following activities and initial results:

A. Mr. Jess Sanchez, work experience supervisor, teaches a junior high "work-study" class with twenty-four students enrolled. These students are placed in local, public, or private businesses or agencies for three hours on Fridays of each week, for observation and participation activities. It is planned that students will be rotated and changed to a new agency each nine weeks.

Placements have been made in organizations that students preferred, and include retail stores, offices, service stations, schools (as aides), and one pet store.

Students in the eighth and ninth grades do not have specialized vocational preparation for such occupations. The work-study class meets four days each week, and has included instruction on occupations, the community, how to apply for a job, applications and interviews, what it takes to succeed on a job, developing a positive attitude about work, making job choices, career planning, and some subjects related to being a consumer. Such basic subjects should be helpful to students in any type of general work experience activity.

Students in this class were requested to answer the following five questions. Replies are summarized:

retention, attendance, and discipline have been improved through involvement in the program. School administrators, on the other hand, hesitate to credit the program with any degree of success in the three areas cited above. They point out that many general factors play a part in altering student behavior. They also voice the opinion that the students in the project would have to be isolated for statistical purposes in any future surveys that attempt to arrive at significant conclusions concerning the matter in question.

On the basis of the students interviewed, the evaluating team sensed that the students at the junior and senior levels credit the project with making school more meaningful to them, thus eliciting from them a more desirable type of involvement in their total school life. This same type of rationale was not evident generally among those students sampled below the junior level.

The staff of the project is aware of the need to formulate a statistical approach to the evaluation of the objective in question. They intend to implement an effective process before the end of the current year, in terms of establishing a data base line from which to evaluate subsequent school years.

Objective No. 10: Attract and Hold Industry. To reduce unemployment, and to increase per capita income.

The evaluation team was unable to obtain current data for evaluating the degree to which Objective No. 10 has been fulfilled. "Size of the Work Force", "Unemployment Rates", and "Per Capita Income Earnings" are not yet available for Sandoval County for 1970 or 1971. Even when

1. What is the Bernalillo Employment and Career Development Program?

   No Answer: 8
   Students get work experience each Friday: 4
   Class where we get work experience: 3

2. What have you been doing in this work-study class?

   Watching movies/films on jobs: 7
   Reading books on jobs: 4
   Interviewing for jobs: 3
   Discussing jobs: 4
   Making posters: 2
   Taking field trips: 2
   Filling out job application blanks: 2
   Planning for the future: 1

3. Describe the work experiences you have had.

   (NYC) Coronado Monument: 2
   Cashiering: 3
   Office: 3
   Teacher Aide: 3
   Sales Work: 3
   Pet Shop: 1
   Service Station: 4
   Orchard: 1
   Babysitting: 3
   Housework: 3
   Delivery Boy: 1
   Custodian: 1

4. What plans do you have to take vocational classes in high school?

   None: 4
   Typing: 5
   Automotive: 3
   Office Education: 3
   Electronics: 3
   Nurse Aide: 2
   Forestry-Ag: 1

5. How do you like this program?

   Has given good job experience: 6
   Chance to meet people: 2
   Like it: 3
   Learned about jobs: 2
   Don't like my job just checking papers: 1
   Helped me make career plans: 3
   Class is boring: 1

these statistics are available, applying them to this project will have to be done on an estimating basis since statistics for the Bernalillo community are not maintained separately.

Discussions which the evaluation team had with local business and government agency representatives did not indicate that the Bernalillo Exemplary Project in Vocational Education had more than scratched the surface in fulfilling Objective No. 10.

EVALUATION SUMMARY

As is evidenced in the above discussion, each of the ten objectives is being partially fulfilled by the project, but none of the objectives is, as of this date, being filled very completely. It is possible, of course, that the objectives are being fulfilled to a greater extent than the evaluation team was, in its brief period of operation, able to determine. As the project's evaluation design and management and record-keeping functions improve, evaluation data will be both more plentiful and more reliable.

Three of the ten evaluation objectives included in the original Proposal are not legitimate objectives for this project (Objective Nos. 7, 9, 10). When the objectives for the project are rewritten, these three objectives should be eliminated from the project's objectives. Two factors contribute to the illegitimacy of these objectives; they are unobtainable and impossible to measure. It is unrealistic to expect this project to attract and hold industry (Objective No. 10); the functioning of this project would have little influence upon a business deciding

Admittedly, the replies are limited in number, but they do indicate that the students pretty much believe the career development project is what they are doing in the class and on their jobs--have been studying about the world of work and career planning, have had the usual type of jobs for their age group, are planning to enroll in vocational classes in senior high school, and like the class and work experiences being provided.

Mr. John Romero, work experience supervisor, spends most mornings at either the Santo Domingo or Cochiti Indian Schools. A limited number of students have been placed on Fridays in work observation and participation activities.

B. At the senior high school a Job Opportunities class of fourteen students was formed. Attendance has been poor, with an average of six students reporting to the class four days per week and spending three or four more hours in non-paying jobs on Fridays.

The original course outline was to provide job entry skills for this group of senior high students, including how to apply for a job, managing an interview, filling out application blanks, and what is needed to keep a job.

Occupational experiences have been provided for all interested students in finance offices, a printing plant, a cabinetmaker shop, automotive repairs, a lumber yard, and a bank.

Student attendance and participation in both the class and in on-the-job posts has been uneven and undependable. Only two students were contacted and they indicated most students had low interest in the program, transportation, or other problems.

In checking to see if student job placements were related to vocational classes being taken, the following list was compiled:

whether or not it should operate in the Bernalillo area. It would be impossible to determine the degree to which the persons in this vocational project influenced a business firm's decision to move to or remain in Bernalillo.

Objective No. 9, "To reduce school absenteeism, truancy, and failures . . ." is likewise an unrealistic objective for this project. It is not possible to objectively measure the degree to which this vocational project might influence the student actions, although, admittedly, the project might have some influence. The data which can be secured, such as that stated earlier in this section of this report, must necessarily be generalized and may be unreliable.

Objective No. 7 calls for improving the balance between vocational academic subjects. It is impossible to measure what improves the balance when the balance itself has never been identified. This objective might be restated so that the objective would be measurable; for example, to increase the number of vocational subjects and to increase the number of vocational units included in academic subject offerings.

Number of Students	Vocational Class	Type of Job
4	None	Cabinetmaker; day nursery aide, lumber company, handyman
4	Business Education	Office work, 3; cashier, 1
1	Graphic Arts	Printing plant
1	Home Economics	Day care nursery
1	Drafting	Metal working
11		

At least seven of the eleven students appear to be having job experiences related to the vocational classes in which they are enrolled.

The Bernalillo Vocational Skills Center has a total of 549 students currently enrolled in classes preparing for entry level jobs in the following occupational areas:

1) Agriculture	39
2) Auto Mechanics	39
3) Building Trades	51
4) Drafting	39
5) Electronics and Refrigerating	57
6) Graphic Arts	43
7) Home Economics	100
8) Nurse Aide	16
9) Health Occupations	24
10) Office Education	79
11) Job Opportunities Class	23
12) Other	39
	549

High School Students	478
Junior High Students	71
Total	549

Over 100 of the high school students are seniors.

RECOMMENDATIONS

Recommendations have been grouped under three categories:

I. Managerial and Administrative Recommendations

II. Programmatic Recommendations

III. Evaluative Recommendations

A few recommendations which were not restated in this section were included within previous sections of this report when it seemed advisable to do so. All major recommendations, however, are included in this section.

I. Managerial and Administrative Recommendations

A. Technical consultative assistance should be secured in the area of educational project management. The director of this project possesses many fine personal and professional characteristics, including what appears to be excellent potential for functioning as the manager of this project. The director and his staff need help rather immediately in project planning, in developing management control procedures, in understanding the system's organizational considerations between the project, the school system, and the community. He needs assistance in developing project management systems, in developing work-flow patterns, in scheduling and utilizing manpower and resources, in developing policies, and in improving relationships between the project which he directs, and school and community personnel. He especially needs help with the establishment of a manually-operated data information system, and in the utilization of the project Advisory Committee and other interested lay citizens and community groups. It is very natural for a locally-staffed, and relatively little-experienced staff to need such technical assistance from an outside source.

C. The Career Development Project has also established a general placement service at the Vocational Skills Center for all students wanting help in finding jobs or to enter college, the armed forces, or other activity. Such placements have been tabulated during the period of May-December, 1971, as follows:

In Part-Time or Full-Time Paying Jobs:	96
To College or Permanent Full-Time Jobs:	41
On Work-Study Program:	5
To CEP for Additional Training:	4
Total	146

Such placements have been in a wide variety of jobs such as in the Neighborhood Youth Corps, food service, construction, hospitals, apple-picking, the Highway Department, service stations, bowling alleys, delivery, tutoring, retail sales, cleaning establishments, and a few trades.

D. The work experience supervisors make a continuing effort every day to list the jobs available from the newspaper want ads and the Employment Security Commission Job Bank announcements. Such lists often number twenty or more jobs of interest to Bernalillo youth and for a variety of reasons the supervisors have difficulty filling these vacancies with students. It is important to note that the supervisors could place many more students in jobs of all kinds if the students were

It is emphasized that the project staff has satisfactorily accomplished many of the project's early steps; for example, it has developed a number of materials during this first year which will be very helpful during the next two years. These materials include a slide film presentation, curriculum guides for grades 3-4, 4-6, and 5-6, junior and senior high school handbooks for getting a job, lists of field trip resources personnel, lists of vocational-technical schools in New Mexico where vocational schools information is available, guidelines for employer subsidies, career development plans, newsletters, and handouts. A library of occupational information incorporating instructional aids for teaching about the world of work has been started at the Vocational Skills Center. As planned, these activities should be continued and further refined. They are steps in the right direction.

B. The project staff should be employed on a fiscal-year basis rather than on a school-year basis. Businesses where students can secure work-experiences either operate continuously or seasonally; project personnel need to give constant attention to both. Often the best opportunity for student work exists when school is not in session, e.g., Christmas vacation. The programs of this project cannot be operated effectively with a "part-time" staff which is not being paid to operate during each school and summer vacation period; most, if not all, of the project staff should take only legal holidays. Without a year-round paid staff, the project necessarily must operate in spurts and/or in crises. Perhaps some of the staff need not work during all of the summer months; but those who maintain employer and student contacts should work during the summer months, as should

available at the right hours, had transportation, etc.

Many of the job openings require very little preparation.

A few do indicate a need for vocational skills training.

E. The supervisors have also had counseling interviews with and registered the following groups of students:

Applicants for Junior High Work-Study Class	18
Applicants for Senior High Job Opportunity Class	13
Applicants for Full-Time Placement or to Enter College	63
Applicants for Part-Time Jobs only	141
Applicants in Vocational Training Programs	8
Miscellaneous Conferences	8
Total	251

This activity has taken up a considerable amount of the time of two work experience supervisors and the vocational counselor.

Objective No. 5: Occupational Awareness. To help students become more aware of the occupational possibilities available to them.

Data related to this objective were collected by conducting personal interviews with students using the following three questions:

1. Name three jobs you would like to have when you start working.
2. What kind of training is needed for each of the jobs you named?
3. Where would you go to find these jobs?

Interviews with members of the staff also yielded information pertinent to the objective in question. Written data in the files were studied and provided yet another source of information.

staff members who are performing major planning, management, and guidance roles.

C. An expanded communications program is needed greatly, and should include the following actions:

1. Increasing the planned contact between project staff members and project participant employers.*
2. Increasing the distribution of useful curriculum guides and information folders which have already been developed.
3. Increasing systemic linkages with the community.
4. Exerting greater effort to develop dialogue with Indian Pueblo representatives.
5. Developing a formal system of employer recognition.

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*Plans are now being finalized to implement the following activities during the Spring of 1972. This will greatly improve communications between the project, the schools, and the community: (1) Collect and centralize more occupational information and instructional materials, (2) Supply more information to publicity media and agencies, (3) Better utilize the services of all staff members in curriculum planning and development, (4) Provide inservice education for teachers, (5) Hold a Career Day, or a College Day for high school seniors, (6) Promote an Armed Forces Career Day, (7) Increase efforts to better prepare businessmen and resource persons to participate in the program, (8) Continue efforts to better involve parents and the community, (9) Coordinate all activities with the State Department of Vocational Education in order to utilize the emerging statewide computerized vocational program reporting and student follow-up system.

The general criteria used to consider this objective had its emphasis on the following questions:

1. Is the student realistic in his job aspirations?
2. Does the student understand the general nature of the training required for the job that he has in mind?
3. Does the student understand the differences between the various categories of job; i.e., unskilled, semi-skilled, skilled, paraprofessional, and professional?

Junior high students, although cognizant of a variety of occupational opportunities, are much less aware of them than sophomore students, who, in turn, are less aware than juniors, and so on, with seniors displaying the highest degree of awareness.

While elementary students were not interviewed, other information relative to this group of students indicates the decreasing degree of awareness from grade six downward to grade one. It is, therefore, obvious that a desirable degree of job awareness exists in the minds of the students in the project, and that the degree of awareness is commensurate with the grade level of the student. Cultural differences can be detected as exerting an influence that places the rural student at a slight disadvantage in terms of job awareness.

Using the information obtained from the sources already cited above, the evaluating team concludes that the conditions listed below exist at Bernalillo:

1. Through the use of field trips, class discussions, and placement for job familiarization, as well as the use

II. Programmatic Recommendations

A. The objectives stated in the original Proposal for this project are in need of revision. Suggestions incorporated in this document should be utilized in the revised objectives. For the sake of clarification, and to be more supportive of effective implementation, the staff should be sure that each restated objective is attainable and measurable.

B. The activities of the project should be much more fully integrated into the ongoing programs of the Bernalillo Public Schools. More of the district's teachers should be incorporating occupational information units in their class programs. Class activities can more frequently focus on such things as student personality development for the world of work, the relationships of mathematics to business functions, and the development of communicative and social skills as they relate to ongoing occupational practices. Job entry skill requirements should be discussed more widely in courses such as social studies and home economics.

C. To stimulate infusion of the project's goals into the school district's ongoing programs, comprehensive inservice education programs should be operated for the school district's administrators and teachers. These inservice education programs should include credit and non-credit workshops and courses. Curriculum development should be one of the focal points. Developing an understanding of the aims and objectives of the project should be another focal point. Teachers and administrators need to know a great deal about procedures, problems, and successes of job placement so that they will be stimulated to encourage student participation.

of counseling and guidance sessions, the students in the project are becoming increasingly aware of the occupational possibilities available to them in the immediate vicinity as well as elsewhere.

2. Students are becoming increasingly aware that job-hunting is a skill that must be developed.
3. Students recognize the school as a training ground for the serious business of job entry and job retention.
4. The efforts of the staff in placing students on jobs has exposed students to an enriched dimension of the world of work in terms of occupational diversity.
5. The weakness of the experiential background of the younger students, especially those from the more rural areas of the district, will constitute a real challenge for the staff of the project.

Objective No. 6: Job Entry Knowledge and Skills. To improve the knowledge and skills which students need to enter the job market.

The two work experience supervisors have been teaching job entry skills such as availability of jobs, properly filling out application forms, conducting a successful interview and holding a job. This classroom instruction has involved students in the junior high work-study class (24), the senior high job opportunities class (14), and the junior high part of the Santo Domingo school; it should also be noted that Cochiti Elementary children join with the Santo Domingo students on career exposure field trips, and that

Teachers and administrators should be involved in both the recruitment and the selection of student participants, and should be working cooperatively with the counselors for this purpose; teachers and administrators need inservice training to be effective in these roles.

D. Additional thought should be given to the utilization of the excellent facilities available at the Bernalillo Vocational Skills Center. For the purpose of making elementary and junior high school students more aware of the world of work and of job opportunities, a variety of activities could be conducted by the Center's and the project's staffs. Orientation and workshop sessions, general visitations, arts and crafts programs--both during and out-of-school hours--visitations to the Center, and field trip experiences all could be incorporated by the Skills Center.

E. Since the placement of students in work experiences and in on-the-job training are foundational components of this project, work experience coordinators and project administrators should plan to spend considerable amounts of their effort fulfilling the role of job developers; it is likely that the project staff could recruit lay citizens and businessmen (active and retired) in the identification and the "contracting" of additional work experience and jobs-for-pay opportunities.

F. Until such time as the project is fulfilling more completely its objectives, the project participant population should be limited to school district residents who are current students, and to residents who left a secondary school system no more than three years previously.

G. Cooperative part-time work-study programs should be organized. Coordinator-teachers could be employed, or some of the project's staff could

twenty-two students in a class at Cochiti spend one hour each week with John Romero improving their job entry skills.

In addition to the class instruction much assistance on these same job entry skills is provided through the vocational counseling interviews held with all students seeking aid in finding and securing jobs. At least 146 formal applications and interviews have been completed. Others have been carried out informally by all of the project staff members located in the vocational complex.

It is also planned that short seminars on job entry skills and information will be organized during the coming year for all high school seniors who will be needing job and other types of placement. Such plans include a five to ten hour block of time and the seminars will be held in the various schools upon request.

The report investigators made on-site visits to eight business and community agencies to determine what was being done in job and work experience placements. The school records list at least fifty different employers or resource persons that are cooperating with the program.

Employers contacted were well satisfied with the students and the activities taking place with a few exceptions. Students generally had been briefed on how to act, what to expect, how to apply and fill out application forms, and their responsibilities to the work station.

One good general work experience station was at the U. S. Forestry Service located at the Federal Building in Albuquerque. The agency took four students on a regular contract basis, had them complete Federal application forms, gave them an orientation to how the Forestry Service is organized, and are providing the Friday experiences for the students as follows:

be used, to help place more students in part-time jobs for pay. These programs could be introduced in any or all of the occupational areas represented in the Vocational Skills Center's program. The vocational Office Education teacher indicated that she would welcome such an arrangement and that she now has at least twenty students ready to go on jobs. These long-term, cooperative part-time work-study programs would greatly assist in assuring that vocational students were placed in jobs closely related to their vocational preparation. The development of these programs also will stimulate teachers to provide terminal vocational classes, and to graduate students possessing saleable skills. Long-term employee relationships can best be supported by such continuing programs.

H. The present practice of keeping anecdotal records on students is good. It should be expanded and improved to include all staff members who come in contact with students. Procedures should be established to channel pertinent student attitudinal information to all members of the staff, and, where appropriate, to employers. While anecdotal records, subjective judgments of the staff and evaluation team, and limited sampling of students are valid evaluative techniques, there is much to be said for strengthening the day-to-day evaluative process; this is discussed in the next session.

I. Currently, employers are informed about the program primarily through visitations of staff members to the employers' establishments; hand-out material is utilized also. A training program for both employers and for students "on-the-job" should be incorporated in the project. Students need to be refreshed about their responsibilities, and they also need assistance in understanding the requirements of responsibilities which

suddenly appear on the job. Employers need to become more fully acquainted with the program of the project, and the relationship of each of their students to the various components of the project; employers also need to better understand what help they can give students who are working in their establishments.

J. The project staff need to be continuously assured that students to whom they have assigned placement slots actually report to work, understand their work assignments, and are effectively participating in their respective employer's business. Staff members can assist on-the-job students with eliminating erratic behavior by helping them to solve such problems as those related to motivation, time-scheduling, transportation, and health.

K. The present system for follow-up on students who enter or leave the project as participants appears to be having difficulty in maintaining up-to-date information on many students. The follow-up system needs to be procedurally re-analyzed. More in person, or at least a system of telephone contact, appears advisable. The monthly postcard follow-up procedure does not appear to be obtaining satisfactory informational results.

Considerable work has been performed to date on the development of the follow-up system, and the participant record folders information which has been gathered is certainly very helpful. The suggestions contained within this report are for further strengthening the system in helping to determine the effectiveness of student job placements, work experiences, on-the-job training, and work experience progress.

L. The evaluation did not find data relative to participation in the armed services. If this data is not being received, contact should be

established with the local draft board and recruitment offices. The need for more follow-up with parents and peer groups is indicated.

M. The value of student work experiences should be systematically evaluated. It is quite probable that not all of the experiences which students encounter are desirable. A planned effort should be exerted to weed out non-meaningful experiences.

N. Throughout the project evidence demonstrates that the school district has genuine concern for its Indian population. The project staff employs Indians; project staff members are working with teachers and students in schools located in the pueblos; and personal concern for the vocational needs of students is frequently discussed. Yet, the needs of Indian youth appear to be less fulfilled than those of other children. The reasons are many, complicated, and at times seemingly beyond understanding (to a non-Indian). The project's staff needs to intensify its demonstrated concern for Indian youth. In order are: more and better inservice education programs for teachers; new processes for creating dialogue with pueblo leaders and parents; a greater variety of interesting and informative student activities.

Perhaps additional work experience activities can be created in the environs of the pueblos. The Vocational Skills Center and the schools, arts and crafts sales facilities*, student stores, cafeterias, school offices,

*An interesting example of this can be seen on the Gila River Indian Reservation. This Indian community has secured federal funds with which it has built and started to operate an Indian management and operated arts and crafts center (including a coffee shop, restaurant, and other facilities for travelers). The attractively designed facility is located within view of I-10 to tantalize travelers driving between Tucson and Phoenix.

operations and maintenance staffs, administrative offices, tribal facilities, and governmental agencies offices and support services should be utilized to the maximum.

O. This report has included few, if any, statements about the guidance and counseling function incorporated in this project. Perhaps this is because the position which has been budgeted has been very ably filled by a Spanish-speaking, employment-experienced, counselor who relates extremely well with high school students; and most, if not all, of the youth participants involved in this project. Working under many handicaps, this counselor has performed commendably in the development of student records and a vocational counseling program.

Like several other parts of this project, however, the counseling function is in trouble. Technical assistance is needed in the selection of interest, aptitude, and attitudinal tests, as well as in the interpretation of results secured from administering these tests.*

Efforts need to be continuously exerted to infuse the career education knowledge being gained from this project into the total school district guidance program. By design, school district guidance counselors should probably be working with all of the students in the district, not just with selected portions thereof, e.g., college-bound versus vocational-oriented. Sharing such experiences will better assure the district that vocational student concerns will be more ably conducted after this project comes to an end.

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*While conducting this evaluation study, the evaluation team encountered a number of tests which should prove helpful to the project. They are included as APPENDIX D.

There appears little doubt that the guidance counselor needs considerable outside technical assistance in developing and conducting inservice education programs and student career education seminars. Likewise, it appears that it would be very advisable for the counselor to join with the project director in spending more time in the field working with employers and work experience students in their on-the-job situations. It might prove helpful to the program to involve regular classroom teachers in some of these field experiences.

III. Evaluative Recommendations

This evaluation has been concerned with, "Is the Bernalillo Exemplary Project in Vocational Education fulfilling its stated objectives?" and, "If not, what might be done to enable the project to more completely fulfill its stated objectives?" The evaluation team discovered that stated objectives were being partially fulfilled and that considerable improvement could still be accomplished. One of the areas requiring considerable improvement is that of project evaluation.

Numerous difficulties interfered with an orderly first year's operation (late funding, staff recruitment problems, directorship turnover, etc.) and thus base line data has not yet been established. This must necessarily be one of the first objectives for project management during the second year of operation. The lateness with which this effort is being accomplished indicates that some compromises will have to be made in determining the scope and nature of the base line data to be established. In an effort to assist the project staff with this task, the following suggestions have been incorporated in this report. The suggestions are stated in relationship to each of the ten originally stated objectives on the basis that this continues to provide a good evaluative approach for this project.

Regarding Objective No. 1: Placement.

Given the general absence of base line data, FIGURE 1 provides an initial model for data collection relative to Objective No. 1. There are several virtues in such a model. First, data collection can be initiated at any point in the program. Secondly, if similar charts are kept for each

leaving period, e.g., January and June graduations, the project's staff can accumulate program growth data both in terms of absolute numbers and component expansion. Thirdly, it should indicate quite clearly at what point and upon which component the project should allocate its resources. Fourthly, by adding columns for secondary and tertiary placements, it suggests the nature of a longitudinal study beyond immediate placement and concurrently provides an initial data base for such a study.

Given the data in FIGURE 1, it should be possible to determine whether or not Objective No. 1 has been met, and to what degree. While such graphic data may be sufficient, more sophisticated statistical techniques could also be utilized in the analysis.

PROJECT COMPONENTS

TARGET POPULATION GROUP	PROJECT YEAR NO.	CAREER ORIENTATION AND GUIDANCE (from Component 1)							GENERAL WORK EXPERIENCE (Component 2)	VOCATIONAL WORK EXPERIENCE (Component 3)	JOB ENTRY TRAINING (from Component 4)	INITIAL PLACEMENT (from Component 4)			
		K	1	2	3	4	5	6				Job	Armed Services	Post-Sec. Ed.Train-ing Prog.	Higher Ed.
IN-SCHOOL PROGRAM PARTICIPANTS	1														
	2														
	3														
IN-SCHOOL PROGRAM NON-PARTICIPANTS	1														
	2														
	3														
GRADUATES a) Program Participants	1														
	2														
	3														
b) Program Non-Partici-pants	1														
	2														
	3														
EARLY LEAVERS	1														
	2														
	3														

FIGURE 1

DATA COLLECTION MODEL FOR ASSESSING OBJECTIVE NO. 1
(Place in each blank space the number of youths served in each target population group by each of the project's components.)

Regarding Objective No. 2: Student Attitudes Toward Work.

The appropriate and standard data gathering strategy is an attitude questionnaire. Some instruments are already available; others could be adopted or constructed. If the latter alternative is chosen, the limiting factor is the degree of rigor desired.

Since there are various populations being served, it should be relatively simple to assess the impact of the program on participants and non-participants. Matched comparison groups could provide good evidence of program effectiveness. Statistical tools, e.g., analysis of variance, are available for analyzing the resultant data.

A secondary source is the case file data accumulated by program counselors. While harder to treat statistically, such data may be significant in detecting shifts in direction and intensity of work attitudes.

Tertiary data sources might include subjective observations of parents, teachers, employers, and significant others relative to their perceptions of students' work attitudes.

What would be more desirable is longitudinal data. Such information might well show the cumulative effects of the program over time. Presumably, the longer the program is in operation and the more it is elaborated in curricular offerings extending from grades K-12, the greater the impact on work-related attitudes and job placement.

Regarding Objective No. 3: Business Community Attitudes.

The standard procedures suggested for assessing the accomplishment of Objective No. 3 are similar to those of Objective No. 2--questionnaires and interviews. Statistical tools are available for analyzing the data if desired.

Objective No. 3, however, poses some special problems. One is, the data will have to be collected from two business community sources, participants and non-participants. The size of the total population clearly indicates random sampling would be adequate.

A second problem focuses on the phrase, "school-age children". This suggests that information must be gathered relative to several subpopulations. The problem is compounded since several of the subgroups will not, in all probability, be influenced by the program.

A general interview/questionnaire population paradigm is sketched out in FIGURE 2.

BUSINESS COMMUNITY RESPONDENTS

I. PROGRAM PARTICIPANTS

A. Program participants (students)

B. Non-program participants (students)

C. Program participants (graduates)

D. Non-program participants (graduates)

E. Program participants (early leavers)

F. Non-program participants (early leavers)

II. NON-PROGRAM PARTICIPANTS

A. Program participants (students)

B. Non-program participants (students)

C. Program participants (graduates)

D. Non-program participants (graduates)

E. Program participants (early leavers)

F. Non-program participants (early leavers)

FIGURE 2

SOURCES FOR ASSESSING BUSINESS COMMUNITY ATTITUDES RELATIVE TO SELECTED POPULATIONS OF SCHOOL-AGE CHILDREN

Regarding Objective No. 4: Vocational Training-Related Placement.

The assessment of this objective is deceptively simple. At its simplest, a file might be kept on each student placed in a part-time job. The file need contain only two kinds of data: (1) the record of the student's vocational educational experiences (courses); and (2) his job placement record.

The "deception" is in establishing the criteria for judging whether or not a particular job is "closely related" to the vocational training. For example, a student whose training has included carpentry but who works as a plumber's helper is in a "closely related" job, if the category is as broad as "building trades". Conversely, a student who has taken auto mechanics and works part-time at a filling station can hardly be considered to be in a "closely related" vocational post if his responsibilities are limited to custodial. In short, a first major task is to establish decision-making rules relative to what does or does not constitute "closely related" job placement.

Regarding Objective No. 5. Occupational Awareness.

Objective No. 5 has semantic problems. Until the concepts of "awareness" and validity" are clarified, one can gain little purchase on the assessment issue. Perhaps if the objective was re-cast in terms of "knowledge of job opportunities", "knowledge of sources of employment", "knowledge of job qualifications", etc., then a more reasoned assessment could be made. If such re-definitions occurred, then it would be a relatively

straightforward matter of constructing a questionnaire, administering it to different subpopulations of students, and comparing the differences in responses. Such data should have a bearing on the general assessment of Components 1 and 4, and should likewise be correlated with job placement (Objective No. 1).

Regarding Objective No. 6: Job Entry Knowledge and Skills.

The most compelling data are job placement records. Presumably, students who have been exposed to Components 3 and 4 (and particularly 4) of the program should experience greater ease of access to the job market than those who have not. Data collected for the previous objectives should be all that are needed for analysis purposes.

A secondary source of data bearing on this objective might be gained from questionnaire responses obtained from comparative student groups. However, if the suggestions made relative to Objective No. 5 are followed, Objective No. 6 may be redundant.

Regarding Objective No. 7: Expanding Vocational Education.

This is an inappropriate objective for the project at this time. Until the data are collected and analyzed, there is no basis in fact for advocating curricular program balance changes. However, the outcome of the program may well warrant some firm recommendations relative to this issue. At that point, decision-makers will have to deal in one way or another with what constitutes an "improved balance between vocational and academic subjects". We note in passing that such decisions include value, economic and political issues as well as educational.

Objective No. 8: Placing Disadvantaged Students.

Two terms embodied in this objective, "disadvantaged" and "meaningful", require definition before any assessment can be made. Once this is accomplished it should be fairly easy to determine how many or what percentage of such students have secured work-experience positions. General school records, counselors' files, and employment files provide initial sources of data; Title I records could be source documents. If there is a reasonably large pool of students from non-disadvantaged families, comparative analyses can be made. In the event that significant numbers of students from disadvantaged families do not secure "meaningful work-experience positions" efforts might well be expended in determining the causes, experimenting with alternate solutions. Clearly, this goes beyond the stated objective, but such data should provide useful input into program development and resource allocation.

Regarding Objective No. 9: School Participation.

There are several problems attendant upon this objective. First, these are general objectives which might equally well apply to any program. They are not program specific. Secondly, there is the problem of "attribution of causality". That is to say, that even if it is possible to show "improvement" on each of the dimensions of this objective, it would be extremely difficult to attribute that "improvement" to this particular program. Even with an extremely sophisticated research design embodying covariants the attribution of causality would still be tenuous.

This is not to say that data on each dimension should not be accumulated. If both "hard" and "soft" data, e.g., attendance records and verbatim comments and/or impressions of significant others respectively, were collected which had a bearing on these issues, one could make comparative analyses and probability statements. Both would be useful in formative and summative evaluations.

Thirdly, it would be advisable to restate the objective (for evaluation purposes) in more precise terms. At present, one can ask, "What constitutes a significant reduction in absenteeism, truancy, etc.? What constitutes 'improved' discipline?" Both questions need to be answered. Given such re-conceptualizations, comparative analyses can be made.

Regarding Objective No. 10: Attract and Hold Industry.

As with Objective No. 7, this is an inappropriate objective for the program at this time. Whether or not the community will be able to attract and hold industry is dependent primarily upon variables not under the control of this program. While it might be reasonable to assume that the institution of this program may contribute to reduced unemployment through the provisions for job-entry training and employment counseling, and may increase the per capita income of the community, general economic factors may be far more powerful. Sorting out the impact of this program on the general economy of the community would be extremely difficult. Beyond that, the life history of this program has been too brief to make such assessment.

CONCLUSION

The project's staff has reached the close of the project's first year having attained a number of measures of success. Notably, many Bernalillo youth have been both vocationally counseled and assisted with gaining work experiences which should be enriching their lives. The first year of the project concludes also with the staff, the school system, and the community having clearer vision of the road ahead. But--

The project's staff needs considerable 1) outside technical assistance, and 2) inhouse guidance and support. Fortunately, adequate funds are available for the former, and the School Board and the administrative staff have a developing philosophy which reinforces the latter. Putting it all together should prove to be possible, but certainly not easy.

The outside technical assistance can be secured from any of several public or private resources. Should it be requested, the Bureau of Educational Planning and Development will be more than happy to submit a proposal for providing what it believes to be the required technical assistance in 1) project management, 2) program implementation, and 3) continuous evaluation. The long-range advantages of working with the University of New Mexico should not be overlooked: little project money will be spent for transportation; assistance is available from a wide variety of educational fields; long-term programs can be established and readily serviced; project staff members can be in constant personal contact with the Bureau's staff; and, most importantly, the particular assistance needed to supplement this project is now available.

Recent discussions held with the superintendent of schools indicate that additional, periodic inhouse guidance and support is already being planned. This will serve to reinforce the district's interest in infusing the benefits of the project into the total curricular program of the district, and to reinforce the project director's understanding of the activities which need to be accomplished monthly to better obtain the project's intended goals.

BUDGET

Title of Project: Tri-Cultural Vocational Exploratory Career and Work Experience Education Program

Name of Project Director: James Baca Applicant Organization: Bernalillo Public Schools

Proposed beginning and ending dates: November 1, 1970 to June 30, 1973

Category	First Twelve Months		Second Twelve Months		Third Twelve Months		Total (all years)	
DIRECT COSTS	Federal	Local	Federal	Local	Federal	Local	Federal	Local
A. Personnel								
Project Director: James A. Baca	12,700		13,200		13,700		39,600	
Teacher-Coordinator: To Be Filled	7,500		7,900		8,300		23,700	
Two Work Experience Sup. To Be Filled	14,000		14,800		15,700		44,500	
One Voc. Counselor: " " "	7,500		7,900		8,300		23,700	
Three Para Professionals: " " "	9,000		9,900		10,800		29,700	
One Secretary: " " "	3,500		3,800		4,200		11,500	
Services of Administrators, Counselor Teachers, Clerical Help.		49,000		56,000		62,000		167,000
B. Employee Benefits	5,420	4,900	5,750	5,600	6,100	6,200	17,270	16,700
Social Security Teacher Retirement Health Insurance								

Budget continued

Category	First Twelve Months		Second Twelve Months		Third Twelve Months		Total (all years)	
	Federal	Local	Federal	Local	Federal	Local	Federal	Local
C. Travel - Travel(Staff) will be paid in accordance with Bernalillo Public Schools and State Regulations.	8,000		7,000		6,000		21,000	
Student Transportation (Field trips, etc.)	4,000	8,900	4,000	9,300	4,000	10,200	12,000	28,400
D. Equipment	3,000	1,900	2,500	2,600	2,000	3,100	7,500	7,600
Rental of audio-visual aids, special equipment, vocational guidance and testing equipment.								
E. Supplies	4,000	3,400	3,900	3,900	3,200	4,100	11,000	11,400
Instructional supplies, Guidance supplies, stationary, Master units, Student supplies, Office supplies Audio-visual aid and Periodicals								
F. Communication	1,500	400	1,400	550	1,300	850	4,200	1,800
Telephone and Postage								
G. Evaluation	2,500		2,500		2,500		7,500	
Sub-contract to independent agency and final report production								
H. Student Services	2,000	2,900	2,000	2,900	2,000	2,900	6,000	8,700
I. Training Subsidy To Employers	11,220		9,390		7,740		28,350	
J. Other Direct Cost	7,500	1,800	7,500	2,100	7,500	2,300	22,500	6,200
Audits, Consultants, speakers, Book-keeping, expenses and Printing								
TOTAL COSTS	103,340	73,200	103,340	82,950	103,340	91,650	310,020	247,800

APPENDIX A (Contd)

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APPENDIX B

HIGH SCHOOL LEVEL

COURSES	1969-70	1970-71	1971-72
1. Language Arts			
a. Humanities			x
b. Creative Writing	x	x	x
c. Adv. Comp.		x	x
d. English II	x	x	x
e. English III	x	x	x
f. English IV	x	x	x
g. German I			x
h. Drama I		x	x
i. Drama II			x
j. Speech I			x
k. Speech II			x
l. Reading I	x	x	
2. Math			
a. Alg. I	x	x	x
b. Alb. II	x	x	x
c. Geometry	x	x	x
d. Trig			x
e. Consumer Math	x	x	
f. Gen. Math	x	x	
3. Spanish			
a. Spanish I	x	x	x
b. Spanish II	x	x	x
c. Spanish III		x	x
4. Social Studies			
a. Stud. Gov't.	x	x	x
b. Pol. Sc.			x
c. Journalism			x
d. U. S. History	x	x	x
e. Soc. Si. Sem.	x	x	
5. Science			
a. Biology	x	x	x
b. Envir. Sc.			x
c. Physics		x	x
d. Chemistry	x	x	x
e. Aerospace		x	x
6. P.E.			
a. P.E.	x	x	x
b. Adv. P.E.	x	x	x
c. Drv. Ed.	x	x	x
7. Arts and Crafts			
a. Jewelry	x	x	x
b. Adv. Jewelry	x	x	x
c. Gen. Art	x	x	x
d. Ceramics	x	x	x
e. Sculpture	x	x	

APPENDIX B (Cont'd)

HIGH SCHOOL LEVEL

COURSES	1969-70	1970-71	1971-72
8. Business			
a. Bkkg. I, II	x	x	x
b. Typ. I	x	x	x
c. Typ. II	x	x	x
d. Per. Typ.			x
e. Bus. Comm.			x
f. Shorthand I	x	x	x
g. Office Ed.	x	x	x
9. Home Economics			
a. Boy's H.E.	x		x
b. Elem. Food	x	x	x
c. Elem. Cloth.	x	x	x
d. Home Lvg. Co-ed.			x
e. Meal Planning	x	x	x
f. Adv. Cloth.	x	x	x
10. Vocational			
a. Voc. Nurs.	x	x	x
b. Health Occp.			x
c. Anto I	x	x	
d. Auto II	x		x
e. Auto III			x
f. Elec. I	x	x	
g. Elec. II	x	x	x
h. Elec. III			x
i. Elect. & Refr. I	x	x	
j. Elect. & Refr. II		x	x
k. Elect. & Refr. III			x
l. Carpentry I	x	x	
m. Carpentry II	x	x	
n. Bldg. Trade II			x
o. Bldg. Trade III			x
p. Ag. I	x	x	
q. Ag. II	x	x	x
r. Ag. III	x	x	x
s. Graphic Arts II			x
t. Graphic Arts III			x
u. Drafting			x
v. Voc. Work Exp.			x
11. Music			
a. Big Band	x	x	x
b. Cadet Band	x	x	x
c. Adv. Band	x	x	x
d. Chorus	x	x	x

APPENDIX C

JUNIOR HIGH LEVEL

COURSES	1969-70	1970-71	1971-72
1. Language Arts			
English 7, 8, 9	x	x	x
Dve. Rdg.	x	x	
2. Math			
General Math	x	x	x
Pre. Alg.	x	x	x
Alg. I	x	x	x
3. Science			
7th Science	x	x	x
8th Earth Sc.	x	x	x
9th Gen. Sc.	x	x	x
9th Res. Bio.	x	x	x
4. Social Studies			
a. Geo.	x	x	x
b. U. S.	x	x	x
c. Civics	x		
d. World His.	x		
e. N. M.	x	x	x
f. Humanities (7th)	x	x	x
g. Soc. St.		x	x
(8-9) non graded		x	x
h. W. E. Classes	x	x	x
5. P. E.			
7, 8, 9	x	x	x
6. Music			
a. Chorus	x	x	x
b. Band	x	x	x
c. Gen. Music	x	x	x
d. Vocal Grps	x	x	x
e. Elem. Inst	x	x	x
7. Vocational			
a. Agric.	x	x	x
b. Explo 9th			x
(1) Printing			
(2) Mechanic			
(3) Electronic			
(4) Elec.-Ref			
(5) Bldg. Trades			
8. Office Aide	x	x	x
A. V.			
9. Arts			
a. Arts and Crafts	x	x	x
b. Home Ec.	x	x	x
c. Gen. Shop	x	x	x
d. Explo Art (7th)	x	x	x
(1) Home Mech.			
(2) Home Ec.			
(3) Art			
10. Spec. Ed.	x	x	x

APPENDIX D

CAREER EDUCATION TESTS

The following are several tests which the project's staff should consider using to assist participants of the Exemplary Project in Vocational Education. They come highly recommended from school districts which have recently started using them.

1. "Hall Occupational Orientation Inventory", 2nd Ed.
   For: High School and Post-High School Participants.
   By L. G. Hall, and others.
   Publisher: Follett Educational Corporation, Chicago.
   (Dr. George Keppers has a copy at his UNM office.)

2. "OVIS"; "Ohio Vocational Interest Survey".
   For students in grades 8-12.
   Publisher: Harcourt Brace Company, Iowa City, Iowa.
   (Jean Hendrickson has copies of this in her Albuquerque Public Schools office; a salesman, Mr. Paul Kullman, has been urged to contact you. His telephone number is (504) 488-7105.)

3. "Differential Aptitude".
   Publisher: Psychological Corporation.
   (Dwayne Smith has copies in his Los Alamos school office.)

4. "Flanigan Aptitude Battery".
   Publisher: Science Research.
   (Dwayne Smith has copies in his Los Alamos school office.)

5. "Kuder Series of Tests".
   Publisher: Science Research Associates, Chicago, Illinois.
   (Catalogs can be obtained from University Book Store-Allied Supply Co., or New Mexico School Products, Albuquerque.)

6. "General Aptitude Battery of Tests".
   (Given through U. S. Employment Security Commission.)

7. Others with which you no doubt are acquainted or using:
   a) Strong Interest Inventory
   b) Kuder Preference

VT 016 009
RECOMMENDATION 27: TECHNICIAN ENGINEERING TRAINING IN DISTRIBUTION.

ELECTRICITY SUPPLY INDUSTRY TRAINING BOARD, LONDON (ENGLAND).
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - MAR72 69P.

DESCRIPTORS - *ENGINEERING TECHNICIANS; *ELECTRONIC TECHNICIANS; *TRAINEES; *TRADE AND INDUSTRIAL EDUCATION; *WORK EXPERIENCE PROGRAMS; ELECTRICAL OCCUPATIONS; EDUCATIONAL CERTIFICATES; CURRICULUM GUIDES
IDENTIFIERS - *GREAT BRITAIN

ABSTRACT - THIS BOOKLET CONTAINS REQUIREMENTS FOR AND CONTENT OF A PROGRAM OF COURSES IN ELECTRIC POWER DISTRIBUTION FOR ENGINEERING TECHNICIAN TRAINEES. THE COURSES LEAD TO DIFFERENT BRITISH CERTIFICATES IN ELECTRICAL AND ELECTRONIC ENGINEERING, ACCORDING TO THE TRAINEES' QUALIFICATIONS. TRAINEES ARE DRAWN MAINLY FROM SCHOOL LEAVERS WITH SUFFICIENT SECONDARY EDUCATION, FROM DRAFT APPRENTICES, AND FROM INDUSTRIAL STAFF SELECTED BY THEIR ELECTRICITY BOARDS. ON COMPLETION OF THE PROGRAM OF 46 WEEKS' FORMAL AND 83 WEEKS' ON-JOB INSTRUCTION, THE TRAINEE SHOULD HAVE SUFFICIENT KNOWLEDGE AND SKILL FOR HIS FIRST JOB AS WELL AS A BASIS FOR FURTHER DEVELOPMENT. SYLLABUSES FOR VARIOUS TECHNICAL AND ADMINISTRATIVE COURSES COMPRISE MOST OF THE DOCUMENT. THESE SYLLABUSES MEET THE REQUIREMENTS OF THE MAJORITY OF ELECTRICITY BOARDS IN BRITAIN. (MF)

Electricity Supply Industry Training Board

Recommendation 27: Technician Engineering Training in Distribution

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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ED016009

foreword

The Board's Recommendation 5, on the training of student engineering apprentices, issued in April 1968 made provision for the training of distribution engineers through a number of alternative patterns of education and training. The education provision led in some cases to a degree or diploma, and in others to a qualification such as a Higher National Certificate. The programmes of practical training were adapted in length to the patterns of "thick" and "thin "sandwich courses and to studies by block or day release, but had a similar content, based on the best current training practices within the industry.

The Board regarded Recommendation 5 as an interim statement of its policy in this sector but decided that a more fundamental and detailed consideration of the training needs of the various categories of engineers within the industry was required, based on an analysis of the duties and responsibilities of each group of engineers, and of the knowledge and skills implicit in carrying out the various elements of their work.

The present recommendation is the result of such consideration applied to distribution engineers who are studying for a technician engineering qualification.

Its provisions are based on an analysis of the work of distribution engineers in its planning, construction, operation and maintenance, and work planning aspects at district level, since it is here that early appointments are normally held.

This recommendation is complementary to Recommendation 21, on professional engineering training in distribution, which was issued by the Board in November 1970 and preserves the opportunities for transfer which have always been part of the Board's schemes. The two together supersede the sections of Recommendation 5 that refer to the education and training of distribution engineers.

In some sectors of the engineering industry, distinction is made between technician engineers and technicians. This distinction is not made in electricity supply and the term "technician engineering trainee" is used for all those covered by the present recommendation irrespective of the course of further education they may have followed.

recommendation on technician engineering training in distribution

the responsibilities of distribution engineers

1. Distribution engineers have responsibility for the planning, construction, operation and maintenance of a distribution network of high capital cost, which supplies large numbers of consumers who take loads of varying characteristics. Certain features of their work are particularly significant in designing their training, and these include the following:

a) Safety of the public and of staff, and reliability of supply are of prime importance. In this context the element of experience as well as of knowledge is particularly essential in making engineering judgements;

b) Distribution engineering, particularly in its construction, operation and maintenance aspects necessarily involves a high proportion of routine technical work carried out by supporting staff. The work of an engineer therefore, in most cases includes a significant component of supervisory responsibility, e.g. controlling the work of staff, planning resources, cost-control and cost-effectiveness, communication, and improving working methods;

c) Since the functions of planning, construction, operation and maintenance are closely interlinked the numbers of engineers required to specialise are limited. The main requirement is for engineers with a sound knowledge of all aspects of distribution engineering;

d) An understanding of the work and responsibilities of other functions within the industry, viz:– commercial, accountancy and secretarial, is essential, to enable the engineer to work efficiently in full awareness of the inter-relationship between all functions, and the importance of their contributions to the achievement of his technical objectives.

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aims

2. The education and training provisions set out in this recommendation are designed to develop suitable entrants to electricity boards for responsibilities as distribution engineers. On completion of the programme, the trainee should have knowledge and skill sufficient to enable him to carry out with competence the duties of his first appointment, as well as to form a basis for further development.

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recruitment and entry qualifications

3. Entrants will be termed "technician engineering trainees" and will be drawn mainly from the following sources:

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a) *School leavers*
Electricity boards will wish to recruit school leavers with a range of qualifications, but all should have reached a sufficient standard of secondary education, particularly in mathematics and a science subject, to qualify them for entry to one of the courses specified in paragraph 8. In selecting, boards will wish to look for evidence of a reasonable standard of spoken and written English in view of the importance of effective communication.

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b) *Suitably qualified craft apprentices*
Craft apprentices who during their training have made sufficient progress towards an appropriate qualification, as well as demonstrating suitable personal qualities, to merit transfer to the category of technician engineering trainee.

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c) *Industrial and other staff*
Industrial staff, usually between the ages of 21 and 35, selected by their electricity boards, and who have reached an appropriate educational standard, as outlined in appendix I. Suitable members of the clerical and technical staff who hold similar qualifications may also be included.

4. Selection procedure should include interview, and a review of educational performance and school record, together with selection tests where appropriate.

length and pattern of education and training

5. Before taking up his first appointment, the trainee must have satisfactorily completed the practical training prescribed in this recommendation, and have reached an acceptable standard of further education in electrical engineering.

6. The overall length of the education and training programme will normally be four years, though there will be some reduction of this time when entrants from the industrial staff or from craft apprentice schemes already have relevant experience.

7. Attendance for further education will be on a day, block or sandwich release basis. The nature of appropriate education courses and the context of training are set out in the following paragraphs.

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educational courses

8. According to their entry qualifications, trainees will normally follow one of the two routes outlined below:

a) A course leading to the Ordinary National Certificate in engineering, normally followed by the Higher National Certificate in electrical and electronic engineering. Those who demonstrate the ability should be allowed to study for a further period to cover additional subjects and so obtain Certificates of Supplementary Study.

b) A course leading to the Electrical Technicians' Certificate (Nos. 280/281, formerly No. 57) of the City and Guilds of London Institute. Those who demonstrate the ability should be allowed to study for a further period after the completion of Part II to cover special techniques and to gain a Full Technological Certificate.

Wherever possible trainees shall follow courses which in addition to normal technical studies, incorporate a more general scientific background. An introduction to supervisory studies should also be provided at an appropriate stage.

9. Electricity boards should consider for transfer to a more demanding course trainees who have shown from their performance that they have the capacity for more advanced work. Such transfers will usually be:

a) From CGLI technicians' courses to ONC/HNC courses

b) From ONC to HND or degree sandwich courses

In case (b) the change is not only of academic course, but also implies transfer to professional training. A transfer between courses often necessitates an extension of the length of time for which the trainee requires to study, and some corresponding adjustment in the duration of his practical training programme will be implied.

10. Young engineers who have the ability and interest should be encouraged to continue to study after the education in engineering associated with their formal training has been completed. Such study may begin during the latter part of their training course and continue into the early years of appointment. Where the engineer has attained a sufficient standard, he may study for a higher engineering qualification. Where this is not appropriate, attention should be directed towards a broadening of knowledge and the industry's correspondence courses will frequently be suitable – particularly the Power System Protection course. Apart from the Supplementary Studies mentioned in paragraph 8, techniques associated with the planning and control of engineering work will also be relevant. Electricity boards should advise on the most appropriate subjects to follow and, where necessary, extend facilities for study beyond the end of the formal training scheme under their provisions for career development.

11. Throughout this recommendation reference is made to courses within the further education system as it stands at present. Changes in the structure and nomenclature of courses may follow the adoption of the report of the Committee on Technician Courses and Examinations under the chairmanship of Dr. H. L. Haslegrave.

training

12. The broad objectives of engineering training in distribution have been stated in paragraph 2. It is to be recognised however that the training of an engineer in the sense of continuing to increase his knowledge, skill and experience, extends throughout his working life and that from time to time during his career, particularly when taking up a new appointment, he should be given facilities to attend courses in new aspects of his work, or refresher courses to enable him to bring his knowledge up to date. It is recommended therefore that electricity boards ensure close integration between initial training as covered by this recommendation and later training provided by their career development scheme. For this reason the recommendation has kept the length of training as short as practicable, recognising that the early appointments of an engineer are necessarily under the close supervision of more experienced engineers.

13. Through a systematic analysis of the work of distribution engineers at technician level, specific areas in which it is essential to provide opportunity for entrants to gain knowledge and experience during training have been identified. These are:

induction and related knowledge

basic workshop technology

distribution plant and equipment

metering, protection, telecommunications and supervisory equipment

system planning, economics and power system costs

job administration

resource control

supervisory and communication skills

work of other organisations and departments (electricity boards concerned with generation and transmission; commercial department; personnel; secretarial and accountancy sections; work study section)

tests, appraisals, projects

14. The content of training for each of these components (both formal and on-job) has been analysed. A set of syllabuses for each formal course and for each period of on-job training is attached as appendix III. These indicate in each case the objectives and content of the aspect of training concerned, the training methods that are appropriate, its length and the location in which it should be given. Implicit in this training is the importance of developing an understanding of human and industrial relationships.

15. The programme for any particular training scheme operated by electricity boards should be compiled by combining these syllabuses in a suitable order to fit in with academic studies, and making any necessary adjustments to the lengths of the periods of on-job training. Appendix II illustrates how this typically might be do-

methods of training

16. A significant feature of the training specified is the proportion of formal training required, which is approximately 35% of total training time. In this way it is possible to utilise the skill the young people concerned will already have developed in acquiring knowledge through formal studies and to keep their programme at the brisk pace which is essential if their abilities are to be extended and their interest maintained. The syllabuses of the majority of the formal training programmes are substantially common with those recommended for professional engineering training. It is preferable that where numbers permit, boards should run separate courses for those undergoing technician and professional training. This will allow for differences in emphasis and in particular for a more descriptive approach in the case of the former. It is appreciated however that in many cases, in order to form viable groups, it will be necessary to hold combined courses. In these circumstances the difference in academic background between the two types of trainee should be kept in mind, particularly in setting exercises or in the case of design projects.

17. On-job training however is an essential complement to formal training. This is partly because certain equipment and processes cannot be satisfactorily simulated; but more particularly because it is essential for the trainee to get the feel of 'real' situations and to have direct contact with staff whom he may expect to supervise later in his career. It is important during such on-job training that the trainee participates in the situation as far as possible rather than watches it, and such participation may frequently be in association with a junior supervisor. It will normally be most effectively achieved by attaching the trainee to an engineer who may allocate him to different jobs.

18. Nonetheless, it is inevitable that some time will be spent in observation and this must be made as purposeful as possible. The trainee's approach should be analytical, i.e. he should find out and record such facts as what is being done and why, the job method used, the sequence of events and the time taken; he should deduce what are the critical points for supervising engineers to check. He should be required to discuss his findings with experienced engineers and from time to time to produce written reports. Individual and group projects may be introduced into the programme at appropriate points.

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safety

19. Safety is a vital aspect of the distribution engineer's work and instruction in the relevant aspects must be built into every phase of his training. The importance of the safety of the public and of craftsmen and others working under his direction, as well as of himself, must become so much a part of his approach to his work as to permeate his thinking and be habitual in his actions. The bearing of physical fitness on safety, particularly for engineers closely associated with field work, should be borne in mind; in this connection trainees should be encouraged to participate in sport and similar activities.

the administration and monitoring of training

20. From the basic programmes in distribution set out in this recommendation, electricity boards should develop an individual programme for each trainee. These individual programmes should be developed in close collaboration between senior engineers and education and training staff, and administered by a nominated person, preferably an engineer, who normally should be on the staff of the education and training officer. His duties will include:

Drawing up an individual programme for each trainee in advance of his needs.

Adjusting these programmes from time to time in the light of the trainee's progress and of local variation in the experience that can be provided.

Keeping in close touch with the training which the trainee is currently undertaking and at intervals of not more than three months, discussing with him the work he has been doing to check that he has a thorough understanding of it.

Receiving reports from the heads of departments of the electricity board in which each of his trainees has been working, from leaders of the formal courses he has attended, and from the college at which the trainee has been undertaking his academic studies, and taking any necessary action.

Preparing an annual written review of each trainee's progress and development, based primarily on reports from the departments in which he has been working, on the engineer's observations of the trainee and quarterly discussions with him, and on college reports of progress in academic studies. The review should include observations on the aims and interests relevant to his future career that the trainee has expressed.

21. At each working unit of the electricity board to which trainees are attached, i.e. each district, area or group, headquarters, control centre or other detachment, management should nominate an engineer to take local responsibility for acting as mentor to the trainees attached to his unit. He should be qualified and of sufficient seniority and experience to cover the whole of the unit's activities. His duties will include placing trainees with appropriate members of his unit's staff, checking that they are gaining the correct experience and preparing reports on progress. Short conferences, held as required, will form a useful means of briefing such engineers in their training duties.

22. It is important that measures are taken to assess and record each trainee's progress through his training so that remedial action can be taken to correct any gaps in his knowledge, and that a systematic feedback of information is established from which the various components of the training programmes can be evaluated.

23. Formal courses will usually include practical exercises, either written or manual, which will in themselves show how the trainee is progressing; and if necessary these can be supplemented by more formal tests. For the on-job training some degree of feedback will be obtained from exercises and written reports from trainees, but the essential source will be reports from engineers under whom the trainee has carried out his on-job training.

educational standards appropriate to applicants for technician engineering traineeships from industrial staff

appendix I

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Applicants should have reached an appropriate educational standard and have demonstrated that they have the ability successfully to complete a course leading to a Higher National Certificate, or a City and Guilds Technicians' Certificate in appropriate subjects. They should therefore have attained one of the standards outlined below:

i) Possession of

a) In England and Wales, a General Certificate of Education at the Ordinary Level or its equivalent in four subjects including mathematics and one of the following: physics, physics with chemistry, mechanics, mechanical science, engineering science, science (building and engineering).

b) In Scotland, a Scottish Certificate of Education at Ordinary grade in three subjects, namely: mathematics, technical drawing, physics or applied mechanics; or equivalent qualifications; or

ii) successful completion of the General Engineering Course at appropriate level; or

iii) successful completion of the Part I Stage (T_2) of the City and Guilds Electrical Technicians' Course No. 280 (formerly No. 57); or

iv) completion of a City and Guilds craft course at a high standard; or

v) such other qualifications as may be established.

a typical programme for technician engineering training in distribution

appendix II

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1. The attached programme illustrates the combination of the various syllabuses set out in appendix III into a training programme. The items have been listed in an order which is logical in presentation, and which should act as a general guide to electricity boards; though in practice such considerations as the necessity of fitting in with college terms and of making a sufficient number of trainees available for a formal course, or as the availability of vacancies for on-job training in small departments, will make some re-arrangement inevitable.

2. It is envisaged that the further educational component will usually be covered by block release of 13-15 weeks per year. Where block release courses are not available equivalent day release should be arranged and corresponding adjustments made in the number of weeks allocated to each item of training.

3. In making any re-arrangement or adaptation of programmes the following points of guidance should be kept in mind:

a) The trainee must be sufficiently advanced in his theoretical studies to gain full benefit from a training assignment.

b) Formal training in a topic should precede on-job training, apart occasionally from short introductory periods on site.

c) The tests, appraisals and projects (item 25) should be interspersed at suitable stages throughout the programme.

d) Where it is necessary to reduce the overall length of the training programme, all the formal elements should be retained, and the reduction made to appropriate items of on-job training.

4. In addition to the general introduction to safety and accident prevention included in the induction course, emphasis should be placed throughout all phases of training programmes on the observation of any rules, e.g. those issued by electricity boards and those covered by legislation, and on the more general safety and health precautions relevant to each stage of training. In this connection the requirements of the Training Board's Recommendation 20, on the electrical training of apprentices to meet Factories Act requirements, must be fully met.

5 In view of the change-over to metric units which, in common with British industry as a whole, will be taking place in electricity supply between the present time and 1975, electricity boards should ensure that all trainees covered by this recommendation are given training in the aspects of S.I. units, metric threads and fastenings, and the consequential changes in specifications and standards of materials and components, that are applicable to their future work. Electricity boards should bear in mind that for many years to come equipment manufactured to both Imperial and metric specifications will be in use, and that trainees must therefore be familiar with both systems and with appropriate methods of conversion.

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		*Time (weeks) Formal	On-job	Syllabus No.
1	Induction	1		DE F1
2	Basic workshop technology	8		DE F2
3	Plant and equipment – cables	4		DE F3
4	– overhead lines	4		DE F4
5	– substation plant	3		DE F5
6	– substation plant		18	DE OJ1 Phase 1 DE OJ2 Phase 1
7	System planning, economics, power system costs		2	DE OJ3 Phase 1
8	Work within other functions – commercial		1	DE F6
9	– commercial		8	DE OJ4
10	– personnel, secretarial, accountancy	2		DE F7
11	System planning, economics, power system costs	5		DE F8
12	System planning, economics, power system costs		10	DE OJ3 Phase 2
13	Plant and equipment – generation & transmission	2	2	DE F9
14	Metering, protection, telecommunications, supervisory equipment	3		DE F10
15	Metering, protection, telecommunications, supervisory equipment		6	DE OJ5
16	Plant and equipment – operations	3		DE F11
17	– control		2	DE OJ6
18	– planning, organisation and control of work		20	DE OJ1 Phase 2 DE OJ2 Phase 2
19	– transport		1	DE OJ7
20	Job administration	3		DE F12
21	Work within other functions – work study		2	DE OJ8
22	Job administration		8	DE OJ1 Phase 3 or DE OJ2 Phase 3
23	Resource control		4	DE OJ9
24	Supervisory and communication skills	2		DE F13
25	Tests, appraisals, projects	5		
	Totals	46	83	

* *The times shown are exclusive of day release or other provision for further education. A week indicates five days' training.*

1151

foreword to syllabuses

appendix III

The content of knowledge and experience specified in the attached syllabuses should meet the requirements of the majority of electricity boards, but some variations to meet local conditions will be necessary. The duration of each element of training is the best estimate that can be made of the time required to cover the ground specified, by trainees of normal background and ability; but they should be regarded as flexible, and mofidication may prove necessary as electricity boards gain experience in operation. Problems of sufficient numbers to form viable groups are likely to arise within an electricity board and may be met by combination with other groups of trainees within the board, by regional arrangements with other electricity boards, or by arrangements on a national basis.

syllabus for a short course covering induction and related knowledge

DE F.1

1. **duration**	5 days
2. **location**	Electricity Board's training centre or similar location.
3. **objectives**	*To give the trainee:* a) a broad appreciation of the electricity supply industry, and in particular the part played within it by the electrical engineer, b) a background to the pattern and content of the trainee engineer's programme of education and training, and possibilities for his initial appointment and later career development.
4. **content**	Outline of sources of energy and orthodox methods of generating, transmitting and distributing energy. Brief history of electricity supply in the United Kingdom; the present structure of the industry; more detailed consideration of the structure of an Area Board. The staff of the industry, their recruitment, training and promotion; negotiating and advisory machinery; status and productivity agreements. The work of electricity supply engineers; their education and training; the professional engineering institutions; Area Board's staff development policy. An introduction to accident prevention and the engineer's responsibilities for safe working; including lifting and handling and first aid. An introduction with typical illustrations to engineering administrative procedures and their contribution to safe and efficient working.

5. method Primarily lectures and discussions with the use of appropriate visual aids, combined with directed reading, programmed learning, and visits to appropriate departments. Since the treatment will necessarily be at an introductory level, tutors should make a particular point of informing trainees of sources of further information, including regulations and other authoritative documents; and provision within the board for further training in such matters as first aid, and accident prevention. The programme to be under the general supervision of the training officer; individual sessions shall be conducted by members of the electricity board's administrative and technical staff.

syllabus
for a formal course
in basic workshop technology

DE F.2

1. **duration**	40 days.
2. **location**	Electricity board's technical training centre, or technical college.
3. **objectives**	*To give the trainee:* a) a working knowledge of the materials commonly used in engineering, and in particular in electrical plant. b) an insight into the workshop processes by which these materials can be shaped, and the associated limits of accuracy. c) a working knowledge of other processes, basic to electricity supply, such as wiring installation work and building construction. d) an introduction to such related aspects of basic practical work as costing, engineering drawings, relevant regulations and safety precautions.

ED 041155

4. content

a) *Knowledge*

Basic materials: use and specification — *understanding*
B.S.I. standards — *familiarisation*
Elementary metrology — *understanding*
Treatment of metals – to harden, temper and anneal — to finish and prevent corrosion — to shape by casting forging, extrusion, pressing, bending and turning — to join by brazing, welding, soldering, and compression methods — *familiarisation, demonstrations and directed reading*
Adhesives; epoxy resins — *familiarisation*
Building construction; concrete work, trenches *familiarisation, visits*
Workshop processes; costing, programming, layout of plant — *familiarisation*
Wiring installations; domestic circuits — *understanding*
Safety and health hazards; precautions and regulations for workshops, factories and on construction sites — *understanding*

b) *Skills*

Hand tools — *exercises*
Metrology — *exercises in measuring and marking out*
Metals — *exercises using drills, lathes and in other processes*
Wiring circuits — *exercises in installation practice*
Drawings — *practice in interpretation, scaling.*

5. methods

To include lectures, demonstrations, tutorial discussions, directed reading, programmed learning and exercises. Emphasis throughout should be on giving the trainee an understanding of the technology of the various processes considered, rather than on the acquisition of manual skill. Some practical exercises should be included however to introduce the trainee to the "feel" of skilled manual work and to enable him better to appreciate the skill of the craftsman.

1156

syllabus for a formal course in plant and equipment (cables)

DE F.3

1. duration 20 days.

2. location Electricity board's jointing school.

3. objectives *To give the trainee:*

a) a sound working knowledge of the construction of all types of cables in general use in his board; and of approved methods of making standard joints, with awareness of the critical points and likely causes of breakdown;

b) practical experience of making joints, sufficient for him to appreciate and appraise a jointer's skill,

c) an understanding of the methods of cable-laying and protection, and of testing and fault-finding.

4. content

a) *Knowledge*

(Whilst treating cables/terminations generally, particular depth should be given to the service joint, MV straight joint, HV straight joint, HV cable box and appropriate cables, which will all be included in the practical exercises given at the school.)

Cables — principles of their design, an understanding of associated specifications and standards

Joints/terminals — principles of their design, an understanding of associated specifications and standards

Installation methods — *demonstrations, visits*

Pre-commissioning tests, fault location — *demonstrations, directed reading*

Other aspects of cable technology, including — cathodic protection, thermal ratings, corrosion, route selection, wayleaves, maintenance procedures and records, Public Utilities Street Works Act and statutory notices, assisted cables and their maintenance — *understanding*

b) *Skills*

Cables — *methods of excavation and laying*

Joints/terminations — *exercises in the jointer's craft including service joint, MV straight, HV straight, HV cable box*

Tests, fault location — *simulated exercises*

Procedures — *practice in completing reports, forms initiating records and requesting wayleaves*

c) *Related aspects*

Developments — *new methods, equipment under trial*

Distribution Safety Rules — *refer to as appropriate but major emphasis in formal course on Plant and Equipment (Operations)*

Organisation of cable/jointing teams — *numbers, output, supervision necessary.*

5. methods

To include demonstrations, practice exercises, lectures and discussion, directed reading, visits to site.

The programme to be under the general supervision of an engineer; individual sessions to be conducted by Area Board engineers and jointing school instructors jointly.

syllabus for a formal course in plant and equipment (overhead lines)

DE F.4

1. **duration**	20 days.
2. **location**	Electricity board's overhead line school
3. **objectives**	*To give the trainee:* a) a sound working knowledge of the design and construction of overhead lines (including services) in general use in his board; and of the range of plant and equipment associated with overhead lines, b) practical experience of erecting lines, making connections, and erecting plant both off-load and under live conditions, sufficient for him to appreciate, and appraise the linesman's skill, c) an understanding of the methods of surveying, erecting and maintaining overhead lines.

4. content

a) *Knowledge*

Overhead line regulations and statutory consents — *understanding*
Overhead distribution systems — *understanding*
Basic principles of the design and construction of lines and line equipment including specifications and standards — *understanding*
Line equipment, supports, stays, insulators, conductors, joints and services — *familiarisation*
Pole top equipment including: transformers, regulators, switchgear — *demonstrations*
Erection methods — *demonstrations*
Other aspects of line practice including: surveys, wayleave procedures, site restoration, maintenance procedures — *understanding*

b) *Skills*

Supports — *erection, use of mechanical aids under field conditions*
Conductors — *erection, pre-stress, sag, bind-in using correct tools under field conditions*
Live-line techniques — *exercises on line erected*
Tests, maintenance — *exercises*
Procedures — *practice in completing reports, forms, initiating records, requesting wayleaves*
Surveys — *practical exercise*

c) *Related aspects*

Developments — *new methods (particularly live-line), equipment under trial*
Distribution Safety Rules — *refer to as appropriate but major emphasis in formal course on Plant and Equipment (Operations)*
Site safety

5. methods

To include demonstrations, practice exercises including the erection of a short line, lectures and discussion, directed reading, visits to site. The programme to be under the general supervision of an engineer; individual sessions to be conducted by Area Board engineers, manufacturer's technical staff and overhead line school instructors.

ERIC

syllabus
for a formal course
in plant and equipment
(substation plant and equipment)

DE F.5

1. **duration**	15 days
2. **location**	Electricity board's training school
3. **objectives**	*To give the trainee an understanding of:* a) the precedures in acquiring sites for distribution substations, b) the layout and installation of plant, in the context of an appreciation of the distribution network as a whole, and the procedures involved in operating and developing the network.

4. content

a) An understanding of statutory procedures, and the relevant acts and codes of practice to be observed in acquiring sites and establishing distribution substations.

b) An understanding of substation plant layout including selection, erection, testing, commissioning and operation of the following:

i) Transformers, balancers, and regulators, single and three phase, pole and ground mounted types.
ii) H.V. switchgear, including oil circuit breakers, auto reclose equipment, oil switches, fused switches and isolators for outdoor, indoor and overhead line equipment.
iii) M.V. switchgear, including distribution feeder pillars, network boxes and pole mounted fuse gear.
iv) Auxiliary equipment.

An appreciation of the function, general construction, and protection of the above equipment should be included.

c) *An appreciation of:*
i) Area Board and BEBS Specifications.
ii) Relevant British Standard Specifications.
iii) The engineering recommendations of the trainee's electricity board.

d) Safety aspects of the layout and installation of substation plant.

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5. methods

To include lectures and demonstrations, directed reading, practice exercises, discussions and visits, where possible, to a major supply point, and an area control room.

The programme to be under the general supervision of an engineer; individual sessions to be conducted by Area Board engineers or instructors.

syllabus for a formal course in the work of the commercial function

DE F.6

1. duration	5 days
2. location	Electricity board's training school
3. objectives	*To give the trainee:* a) a working knowledge of the activities of a commercial function, b) an understanding of the statutory obligations of an electricity board for electricity supply; and of the aims of marketing policies, load development programmes, tariff structures and negotiations for new and increased supplies.

4. **content**	The aims, responsibilities, organisation and functions of a commercial function. Electricity marketing — *the concept of marketing; national promotion; marketing to industrial, commercial and domestic customers.* Appliance marketing. Installation contracting. The place of fuels in the national economy. The economics of an electricity board. Legal obligations of an electricity board. Economic research and load forecasting. Board tariff structure and policy, including terms of supply. Commercial department's profit and loss accounts. Problems resulting from special loads such as arc furnaces, welding plant. The engineer's role in load development.
5. **method**	To include demonstrations, lectures and discussions, directed reading, and practical exercises such as cost comparisons between electricity and other fuels. The programme to be under the general supervision of a senior member of the board's commercial or training staff; individual sessions to be conducted by members of the commercial staff and other appropriate lecturers.

syllabus for a formal course in the personnel, secretarial and accountancy functions

DE F.7

1. **duration**	10 days.
2. **location**	Electricity Board's training centre or other suitable location.
3. **objectives**	To give the trainee an appreciation of the work of and services provided by the personnel, secretarial and accountancy functions.
4. **content**	The aims, responsibilities, and organisation of the personnel, secretarial and accountancy functions. More detailed study of aspects of their work including: Recruitment and interviewing Joint consultation Training Office administration and services Consumer service and records Job costing Management accounting.

1165

5. **method** Lectures, discussions, case studies including conducted visits to relevant departments and short assignments of on-job experience. The programme to be under the supervision of experienced staff from the departments concerned, who in addition to instructing during the formal parts of the course should act as tutors during on-job visits and training-assignments.

1166

syllabus for a formal course in system planning, economics and power system costs

DE F.8

1. duration	25 days comprising 15 days on general theory, followed by 10 days' practical exercises in preparing and planning schemes for new business and reinforcement.
2. location	Electricity board's training school.
3. objectives	*To give the trainee:* a) a sound working knowledge of planning principles and procedures which are related to his board, b) practical experience in preparing and planning schemes for new business and reinforcement, c) an understanding of the policies that affect system design and development

1167

4. content

a) *Knowledge*
Principles of planning—*understanding, interpretation and directed reading.*
System design including schemes for new business and reinforcement—*understanding, interpretation and directed reading.*
System analysis including the application of protection and of load flow and short circuit calculations—*understanding, interpretation and directed reading.*
Other aspects of planning including capital applications and procedures, procedures for budgets, specifications, load forecasting, interest, depreciation charges, etc., tariffs, system losses, project evaluation—*understanding, interpretation and directed reading.*

b) *Skills* Procedures—*practice in completing reports, forms, checking records, liaison with construction/O.M. departments.*
Routine schemes—*preparation of proposals, alternatives, costs.*

c) *Related Aspects*
Organisation—*staff, responsibility, programming and progressing; control, feed-back and appraisal of the effectiveness of planning.*

5. methods

To include demonstrations, practice exercises, lectures and discussions, directed reading.
The programme to be under the general supervision of an engineer; individual sessions to be conducted by Area Board engineers.

1168

syllabus for training in generation and transmission

DE F.9

1. **duration**	20 days.
2. **location**	CEGB or SSEB training centre and selected sites.
3. **objectives**	*To give the trainee:* a) a knowledge of the operation and maintenance of transmission systems including switching procedures sufficient to enable him to liaise with transmission engineers; b) an understanding of the problems of power station operation and system control, to assist him in representing the industry to customers, and in liaison with generation and control engineers.

1169

4. content

a) An outline of the organisation of the CEGB or generation and transmission sides of the SSEB; the main activities at each level.

b) Transmission—an introduction to the national system with particular emphasis on operation and control, and including:
national system—*development of the transmission system; layout and function; operation and control,*
plant/equipment—*function and construction of high voltage substation and transmission system plant and equipment with emphasis on deviations from distribution practice.*
safety rules—*with particular reference to transmission system operation and maintenance.*

c) Generation—*an introduction to power station practice, including function and outline of the construction of the main components of power station plant, and factors affecting their layout and siting.*

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5. methods

Planned on-job experience combined with lectures, discussion and conducted site visits. Throughout the period, trainees should be under the supervision of members of the technical staff of the CEGB or SSEB, who in addition to instructing during the formal parts of the course should act as tutors during on-job assignments.

1170

syllabus for a formal course in metering, protection, telecommunications and supervisory equipment

DE F.10

1. **duration**	15 days.
2. **location**	Electricity board's central meter/relay test station or similarly equipped training school, area departments and/or district.
3. **objectives**	*To give the trainee:* a) an understanding of the basic principles of metering, protection and telecommunications as applied to distribution networks, b) a working knowledge of the methods employed within his own electricity board, together with the types of relays, meters, current and voltage transformers in common use, c) an understanding of the regulations, standards, specifications and test procedures applying to metering, protection, telecommunication and supervisory equipment.

4. **content** Metering

i) The function and application of metering, with reference to tariffs.

ii) An appreciation of the various types of domestic and industrial meters.

iii) Metering standards and test procedures.

Protection

i) The basic principles of power system protection.

ii) The methods of protection in common use.

iii) The various types of relays, voltage transformers current transformers and other associated equipment; their construction and application.

iv) The installation and layout of protective plant and equipment in outdoor and indoor situations, relay and control rooms.

v) The function and general arrangement of cubicle equipment, i.e. relay and control panels and similar equipment.

vi) Standards and specifications.

vii) Instruction and practice in:

a) *reading schematic diagrams, A.C. and D.C.*

b) *plotting relay settings from fuse and relay characteristics, and setting relays.*

c) *standard test procedures.*

Telecommunications

i) The application of telecommunications and supervisory equipment to distribution networks.

ii) The more commonly used forms of telecommunication systems including,

a) *V.H.F. and U.H.F. radio control.*

b) *Limited Selective Control (L.S.C.) and General Indication (G.I.) equipment using G.P.O. and private pilot cables.*

c) *Datafonic Mark I, II, & III (P.O. & P.P. cable) systems.*

d) *Westronic remote control (scanning) equipment.*

iii) Regulations, standards and test procedures.

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5. methods To include lectures, supported where possible by working models of simulated circuits, exhibits of actual equipment such as meters, relays, V/T's and C/T's etc., practical exercises, visits to site, discussions and directed reading. The programme to be under the general supervision of an engineer; individual sessions to be conducted by instructors, Area Board engineers or technical staff.

syllabus for a formal course in plant and equipment (operations)

DE F.11

1. duration	15 days.
2. location	Electricity board's training school or operational school.
3. objectives	To give the trainee: a) a sound working knowledge of the safety aspects, procedures and operations on a typical distribution system, b) practical experience in operating and controlling a distribution system, including test procedures, c) a thorough understanding of: i) the responsibilities of the distribution engineer for the safety of personnel carrying out operations on systems of which he is in charge and the nature of the hazards involved ii) the Distribution Safety Rules, Permit to Work and Sanction for Test procedures.

1194

4. content

a) *Knowledge*

Distribution Safety Rules* and Regulations referred to therein—*understanding and interpretation*

Permit to Work system and Sanction for Test—*understanding and interpretation*

Area Board Codes, Rules—*understanding and interpretation.*

Operation of plant, equipment including: transformers, switch-fuses, switchgear up to and including 11 kV; MV distribution boards and pillars; overhead line switchgear, poleboxes, fuses and fittings, underground network boxes; relays; test and operating gear (including phase sequence meter, test-lamps, fibre-glass rods, test equipment for injection, pressure and oil); earthing gear (and for lines)—*familiarisation with typical distribution system and its components; key points in installation, operation, maintenance; limitations, ratings.*

Operations and procedures: control procedures; normal conditions; fault conditions—*understanding and interpretation*

b) *Skills*

Operations—*familiarity with manual actions; correct methods of operating the system and items of plant; simulated exercises using plant, permits and sanctions.*

Procedures—*simulated exercises in control; simulated exercises in preparation of switching programmes and system alteration notifications.*

Tests and checks—*identification, spiking, phasing-out, insulation testing; oil testing, use of HV test and injection equipment; visual checks*

c) *Related aspects*

Supervisory systems—*alarms, interrogation.*

Faults—*symptoms, reporting.*

First aid—*treatment for shock, burns on site.*

* *May include Transmission Safety Rules at this point if appropriate.*

5. **methods** To include demonstrations, simulated exercises including operations on a 'mock' distribution system, visits to site, lectures and discussions, directed reading.
The programme to be under the general supervision of an engineer; individual sessions to be conducted by Area Board engineers or instructors.

#175

syllabus
for a formal course
in job administration

DE F.12

1. **duration**	15 days.
2. **location**	Electricity Board's training school, or a technical college.
3. **objectives**	To give the trainee: a) a sound knowledge of job administration, b) practical experience in programming, progressing and evaluating, including the use of work measurement and other techniques, c) an understanding of the responsibility attached to controlling jobs and expenditure.

1176

4. activities As appropriate, have explained, observe, record, assist and participate in the following:

a) Negotiations with developers to determine details of new supplies.

b) Procedures for quotations and calculation of financial terms.

c) Aspects of technical selling such as industrial applications of electricity, heating and ventilating, street lighting, agriculture, commercial catering.

d) Contracting work in industrial, commercial and domestic premises.

e) Domestic sales, including experience in board's shops and with outside sales representatives.

5. method The trainee should be under the day to day supervision of an engineer or senior member of the commercial staff, who will arrange his attachment to the various groups within the commercial department.

The trainee should participate as far as possible in the work of the department and should also be given exercises or a project.

The trainee will be expected to use a record book to note relevant information about commercial activities.

1190

4. **content**

a) *Knowledge*

Resource allocation—*understanding and interpretation.*
Evaluation, programming, progressing—*understanding and familiarisation.*
Plant and manpower performance—*understanding and familiarisation.*
Application of incentive schemes—*understanding and familiarisation.*
Critical path analysis—*understanding.*
Work study—*understanding.*
Stock control, purchasing and stores procedure—*understanding and familiarisation.*

b) *Skills*

Procedures—*practice in completing reports, forms*
Schemes—*preparation of programmes, allocation of resources, evaluation of performance*
Work study—*practice examples*

c) *Related aspects*

Organisation of a construction or operations and maintenance unit—*staff, responsibility and authority.*
Organisation of craft teams and labour—*numbers, output and supervision; plant dispersal.*
Organisation and administration of transport, including relevant legislation—*relevant parameters*

5. **methods**

To include demonstrations, practice exercises, lectures and discussions, directed reading, visits to site.
The programme to be under the general supervision of an engineer; individual sessions to be conducted by Area Board engineers, management services staff or consultants as appropriate.

1179

DE OJ.5

syllabus for on-job training in metering, protection, telecommunications and supervisory equipment

1. duration 30 days.

2. location Electricity board's central meter/relay test station and area/group headquarters.

3. objectives

a) To reinforce the trainee's formal training in metering, protection, telecommunications and supervisory equipment by providing opportunities to handle, set-up and test equipment in a testing station and for contact with equipment installed on site.

b) To provide an opportunity, through the attachment of the trainee to an engineer, for personal tuition.

1-91

syllabus for a formal course in supervisory and communication skills

DE F.13

1. duration 10 days.

2. location Electricity board's training centre or other suitable location, which might include a technical college.

3. objectives *To give the trainee:*

a) a foundation of knowledge relevant to industrial relations, from which his practical experience of supervision can be developed.

b) an understanding of the need for, and inherent difficulties of, good communication in industry, and an opportunity to develop essential communication skills.

1178

4. activities As appropriate, have explained, observe, record, assist and participate in the following:

a) Organisation of the department(s) with regard to staff, equipment and range of work.

b) Inspection, testing and repair of standard and special relays.

c) Inspection, testing, installation and repair of communication and supervisory equipment.

d) Testing of current and voltage transformers.

e) Commissioning of protective systems.

f) Block diagrams of typical supervisory schemes.

g) Network diagrams of telecommunications systems.

h) Preparation, maintenance and reference to test certificates and records.

j) Policy for extension and development of protective, telecomunications and supervisory systems.

k) Radio equipment.

l) Safety procedures associated with testing methods.

5. method The emphasis in this period should be on carrying out practical work under the supervision of an engineer or participation as far as possible in the normal activities of the department.
It is expected that the trainee would carry out a sample of the routine tests on relays, current and voltage transformers.
If possible the trainee should accompany an engineer who is carrying out commissioning tests on major plant.
A record book should be used to record relevant data on relay types and characteristics, test procedures and testing methods in general, and equipment and its operation.

1192

4. **content** a) *Supervisory skills*

The organisation of an Area Board with particular reference to the engineering function.
Conditions of employment; the various staff agreements including productivity agreements; advisory and negotiating machinery with particular reference to Works Committees, LACs and consultation at local level; education, training and welfare facilities.
Elementary psychology of people at work; motivation; work satisfaction; working in groups.
The functions and responsibilities of supervisors; styles of leadership.
Safety and health aspects of supervision.
The supervisor's training responsibilities.

b) *Communication skills*

The need for and the problems of good communication within industry; interconnection with organisational structure. Formal and informal means of communication.
Thought and language, the effective use of words, styles of speaking and writing.
Communication by visual means such as diagrams, drawings, charts, tables.
Effective writing, including consideration of reports, letters, minutes, technical instructions.
Effective speaking, especially the verbal presentation of a case to a small group or committee; personal interviews, and interviewing techniques.
Effective reading, including practice in quicker reading.
Job instruction and instructional techniques.

5. **methods** These will include lectures and discussions, case studies (written, verbal, films or role-playing), written exercises, practice oral sessions, practical work in the preparation and use of instructional aids; directed reading.
The programme should be under the supervision of a member of the board's training staff; individual sessions may be conducted by experienced supervisors, engineers and specialists in communication techniques.

syllabus
for on-job training
in a system control centre

DE OJ.6

1. **duration** 10 days.

2. **location** Area or board system control centre.

3. **objectives**

a) To reinforce the trainee's formal training in the control and safety procedures associated with operating plant and equipment.

b) To give the trainee an appreciation of the duties and responsibilities of control engineers and the function of a centralised control centre.

1193

syllabus for on-job training in an operations and maintenance section

DE OJ.1

1. **duration**	16 to 24 weeks.
2. **location**	District and/or area operations and maintenance department.
3. **objectives**	a) To complement the trainee's academic studies and formal training in plant, equipment and job administration by providing opportunities to develop his abilities and increasingly to apply his knowledge of the working situation. b) To involve the trainee within the organisation of the department and develop his understanding of the relationships between all grades of staff. c) To provide an opportunity, through the attachment of the trainee to engineers, for personal tuition.

4. **activities** As appropriate, have explained, observe, record, assist and participate in the following:

a) Organisation of the control centre with regard to staff, communications and diagrams.

b) Procedures for processing switching applications.

c) Procedures for controlling work on the system.

d) Preparation of loading diagrams.

e) Procedures for maintaining the accuracy of the control diagram.

f) Procedures under abnormal and fault conditions.

g) Maintenance of the control log.

5. **method** Because of the safety elements involved, it will not usually be practicable for trainees to act as control engineers, and part of their time will necessarily be spent in observation. The senior control engineer should therefore take deliberate steps to allocate tasks that will involve the trainee in as many of the subsidiary duties of the control centre as possible. Such duties might involve, for example, maintaining the log in conjunction with the control engineer, up-dating control diagrams, checking switching applications and, at times of abnormality, acting as an incident reporter for incoming telephone calls.

4. **activities** As appropriate, have explained, observe, record, assist and participate in the following:

a) Organisation of the department with regard to staff, transport and equipment.

b) Procedure and methods of carrying out preventative and post-fault maintenance on plant and equipment.

c) Fault location and repair.

d) Fault reporting and analysis of statistics.

e) Investigation of system conditions.

f) Liaison and communication with system control, operational engineers, foremen, craftsmen, operatives and contractors.

g) Verifying records and system data.

h) Skills and techniques used by overhead, jointing, fitting and labouring teams.

i) Connecting and supervising mobile generators.

j) Preparation and control of revenue budgets.

DE OJ.7

syllabus for on-job training in a transport section

1. duration 5 days.

2. location Area or district transport depot.

3. objectives

a) To give the trainee an appreciation of the size of the unit's transport fleet and the problems associated with maintaining vehicles.

b) To give the trainee an opportunity to examine purpose built vehicles, mechanical aids and portable generators.

4. activities As appropriate, have explained, observe, record, assist and participate in the following:

a) Size and duty of transport fleet.

b) Control and operation of vehicles.

c) Maintenance programme and loading of garage facilities.

d) Special features of electricity board vehicles.

e) Mechanical aids, portable generators.

5. method The trainee should be under the supervision of the engineer responsible for transport, who will introduce him to the depot staff and facilities available.
The trainee will be expected to use a record book to note relevant information about the transport fleet.

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5. **method** a) The emphasis of the training should be varied in three phases as suggested below.

i) Phase 1, 6 weeks.
Majority of period spent with craft teams and on site, to develop awareness of craft skills and activities, familiarity with plant and knowledge of site conditions.

ii) Phase 2, 10 weeks.
Majority of period spent with engineers and at the district office, to develop awareness of supervisory duties, to apply technical knowledge and learn board procedures.

iii) Phase 3, 8 weeks.
Majority of period spent at the district office carrying out specific duties in connection with job administration. The trainee should be given active responsibility whilst still having the benefit of the supervising engineer 'at his elbow'. (This phase could be spent in the construction section as an alternative. It would not be advantageous to split the period between both sections.)

b) Exercises should be used to stimulate the trainee to observe key points in the section's activities. A record book should be kept by the trainee to record items of value/interest during his training and this will be inspected by the supervising engineer.
Some examples of possible exercises are as follows:

i) Observe routine switchgear maintenance and list the sequence of checks that are carried out.

ii) Examine the statistics on faults and prepare a short summary of the major causes, together with the action that the board is taking to minimise their effect or occurrence.

iii) Find the answers to the following questions (list to be supplied) during your attachment to the department.

iv) Assume responsibility for the programming and control of maintenance on an appropriate item of plant.

syllabus
for on-job training
in the work study section

DE OJ.8

1. **duration**	10 days.
2. **location**	District or other levels as appropriate.
3. **objectives**	To reinforce the trainee's formal training in the work study aspects of job administration.
4. **activities**	As appropriate, have explained, observe, record, assist and participate in the following: a) Organisation and administrative procedures of the work study section. b) Work measurement of a selected task. c) Method study. d) Analysis and collation of data.
5. **method**	The trainee should be attached to a senior member of staff. It is suggested that the period of training be split between observing current work measurement tasks and carrying out a suitable method study project. A record book should be used to note relevant information.

1196

syllabus
for on-job training
in a construction section

DE OJ.2

1. **duration**	22 to 30 weeks.
2. **location**	District and/or area construction department.
3. **objectives**	a) To complement the trainee's academic studies and formal training in plant, equipment and job administration by providing opportunities to develop his abilities and apply his knowledge of the working situation. b) To involve the trainee within the organisation of the department and develop his understanding of the relationship betwaen all grades of staff. c) To provide an opportunity, through the attachment of the trainee to engineers, for personal tuition.

1183

syllabus
for on-job training
in a resource control section

DE OJ.9

1. **duration** 20 days.

2. **location** District or other level as appropriate.

3. **objectives** *To give the trainee:*

a) a sound working knowledge of resource planning and control principles, and of the procedures used within his board,

b) an appreciation of the organisation of the section and its relationship to the work of other departments,

c) personal tuition by attachment to an engineer.

1197

4. **activities** As appropriate, have explained, observe, record, assist and participate in the following:

a) Organisation of the department with regard to staff, transport and equipment.

b) Procedure and methods of job organisation with regard to stocks, ordering, transporting, cost control.

c) Liaison and communication with foremen, craftsmen, operatives and contractors.

d) Supervision/testing of jobs in progress.

e) Recording of completed work, tests, etc.

f) Skills and techniques used by overhead, jointing, fitting and labouring teams.

g) Site conditions, preparation, setting out, reinstatement, etc., as experienced by craftsmen and operatives.

h) Programming of manpower to ensure full utilisation of resources.

1184

4. **activities** As appropriate, have explained, observe, record, assist and participate in the following:

a) The programming and timing of the preparatory stages of proposed engineering works.

b) The preparation of manpower budgets.

c) Ordering and checking availability of operational plant and equipment.

d) Stock control (including idle plant).

e) Monitoring progress of statutory notices.

f) Liaison with allied sections i.e. planning, construction and operations and maintenance.

g) Programming of work.

h) Allocation of specialised transport and equipment.

j) Supervision of supporting engineering clerical staff.

k) Supplying information to management and senior engineering staff regarding the availability of resources in the district.

5. **method** The trainee should be under the day to day supervision of an engineer, who will arrange his attachment to various members within the section.
The trainee should participate as far as possible in the work of the section.
He will be expected to use a record book to note relevant information about resource planning and control.

5. **method** a) The emphasis of the training should be varied in three phases as suggested below. For the first two phases the time spent on fitting, jointing and overhead line activities should be equally divided.

i) Phase 1, 12 weeks.
Majority of period spent with craft teams and on site, to develop awareness of craft skills and activities, familiarity with plant and knowledge of site conditions.

ii) Phase 2, 10 weeks.
Majority of period spent with engineers and at the district office, to develop awareness of supervisory duties, to apply technical knowledge and learn board procedures.

iii) Phase 3, 8 weeks.
Majority of period spent at the district office carrying out specific duties in connection with job administration. The trainee should be given active responsibility whilst still having the benefit of the supervising engineer 'at his elbow'. (This phase could be spent in the operations and maintenance section as an alternative. It would not be advantageous to split the period between both sections.)

b) Exercises should be used to stimulate the trainee to observe key points in the section's activities. A record book should be kept by the trainee to record items of value/interest during his training and this will be inspected by the supervising engineer.
Some examples of possible exercises are as follows:

i) Observe cable laying and list the points at which supervision is essential to ensure that practice and principles tie up.

ii) Observe the activities of a service jointing team and make suggestions for any variations in working practice that might be considered.

iii) Find the answers to the following questions (list to be supplied) during your attachment to the overhead-line gang.

iv) Assume responsibility for the programming and control of a complete capital scheme.

March 1972 .
Published by
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30 Millbank London SW1

syllabus for on-job training in a planning section

DE OJ.3

1. duration 12 weeks.

2. location District or area planning department with attachments of approximately 1 or 2 weeks' duration to area/group/HQ planning sections as appropriate.

3. objectives

a) To reinforce the trainee's formal training and academic studies by providing opportunities to use his abilities and apply his knowledge in the working situation.

b) To involve the trainee in the organisation of the department and develop his understanding of the relationship between the planning function and other sections.

1186

c) To provide an opportunity, through the attachment of the trainee to an engineer, for personal tuition.

VT 016 011

MATTESON, HAROLD R.

THE PROCESS OF EVALUATING VOCATIONAL EDUCATIONAL PROGRAMS IN AGRICULTURE.

WISCONSIN UNIV., MADISON. DEPT. OF AGRICULTURAL AND EXTENSION EDUCATION.
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DESCRIPTORS - *AGRICULTURAL EDUCATION; VOCATIONAL AGRICULTURE; *PROGRAM EVALUATION; *GUIDES; VOCATIONAL AGRICULTURE TEACHERS

ABSTRACT - INTENDED FOR AGRICULTURE TEACHERS FOR THE EVALUATION OF VOCATIONAL EDUCATION PROGRAMS, THIS GUIDE WAS INDIVIDUALLY AUTHORED IN COOPERATION WITH A UNIVERSITY AGRICULTURAL AND EXTENSION DEPARTMENT. IT BRIEFLY DESCRIBES A SERIES OF STEPS A VOCATIONAL EDUCATOR IN AGRICULTURE MAY FOLLOW WHEN EVALUATING HIS EDUCATIONAL PROGRAM. THESE STEPS ARE: (1) PURPOSE OF EVALUATION, (2) APPROPRIATE CRITERIA, (3) COLLECTION OF INFORMATION, AND (4) REPORTING AND USING EVALUATION INFORMATION. (DM)

4. **activities** As appropriate, have explained, observe, record, assist and participate in the following:

a) Organisation of the department with regard to staff, records and equipment.

b) Procedure, methods and preparation of schemes for capital authorisation. Co-ordination of planning/ construction work.

c) System analysis to determine voltage levels, fault levels and load flows.

d) Preparation and use of specifications, technical reports and standards.

e) Load forecasts for secondary and primary reinforcement.

f) Methods and preparation for capital, revenue and resource budgets.

g) Use of estimating schedules and understanding of the factors requiring variation from average conditions.

h) Economic appraisal of alternative engineering schemes.

i) Analysis of completed schemes to determine reasons for variation from estimates.

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DEPARTMENT OF AGRICULTURAL AND EXTENSION EDUCATION

DEPARTMENTAL SERIES

VT016011

The University of Wisconsin - Madison
208 Ag Hall

1201

5. **method** a) The training should be given in two phases as described below.

i) Phase 1, 2 weeks.
The period will be spent in covering activities 4a and 4b and will complete the trainee's connection with the three prime functions of the engineering sector. At this stage he can become familiar with the presentation of information on plant, cables and lines in plan form.

ii) Phase 2, 10 weeks.
As this period immediately follows a formal course in planning, the trainee will be expected to undertake certain types of work without assistance and make a contribution to the normal output of the department.

b) Exercises should be used to bring the trainee into contact with any problems, situations or schemes which may not occur during his period of training. These exercises should be thoroughly worked out, in that the problem must be presented accurately and realistically with background information, and a solution must be available for the trainee to test his own conclusions.
A record book should be kept by the trainee to record items of value during his training and this will be inspected by the supervising engineer.
Some examples of possible exercises are as follows:

i) Using the results of A.C.E. Report No. 13, The Design of Medium Voltage Underground Networks for New Housing Estates, calculate the optimum number of substations and prepare an MV layout for the future estate shown on the plan.
(This type of exercise may be unnecessary if similar exercises are used on the formal course in Planning.)

ii) Design a reinforcement scheme for a medium voltage underground network including provision of a new distribution sub-station. Cost alternative proposals and give reasons for the scheme adopted. Prepare substation layout drawings and MV and 11 kV network diagrams. Provide calculations to show new load distribution, and maximum and minimum system voltages.

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MAY 1972

ROBERT E. TAYLOR
DIRECTOR
CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
OHIO STATE UNIVERSITY

THE PROCESS OF EVALUATING VOCATIONAL EDUCATIONAL PROGRAMS IN AGRICULTURE

Harold R. Matteson

Instructional Series No. 3

February 1972

syllabus
for on-job training
in the commercial function

DE OJ.4

1. duration 8 weeks.

2. location District, and other levels as appropriate.

3. objectives

a) To reinforce the trainee's formal training by providing opportunities to meet and work with staff of the commercial function.

b) To give the trainee an understanding of the day to day activities of the commercial department of an electricity board.

c) To provide an opportunity for personal tuition through the attachment of the trainee to an engineer or senior member of the commercial staff.

THE PROCESS OF EVALUATING VOCATIONAL EDUCATIONAL PROGRAMS IN AGRICULTURE

Introduction

The purpose of this document is to serve as a guide for the evaluation of vocational education programs in agriculture. Although the "Process of Evaluation" described in this document can be employed for any type of evaluation, the examples and the discussion will focus on the evaluation of program effectiveness.

The evaluation of program suitability, efficiency, and importance will be mentioned only to show how this "Process of Evaluation" can be employed to evaluate these program characteristics and to help explain the relationship between these characteristics and program effectiveness.

Definition of Evaluation

Before discussing the process of evaluation, it is necessary to set forth the following definition of evaluation that would guide subsequent discussion of this topic.

"Evaluation is the systematic process of judging the worth, desirability, effectiveness, or adequacy of something according to definite criteria and purposes. The judgment is based upon a careful comparison of observation data with criteria standards. Precise definitions of what is to be appraised, clearly stated purposes, specific standards for the criteria traits, accurate observations and measurements, and logical conclusions are hallmarks of valid evaluation."[1]

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1. Harris, Wibbus "The Nature and Function of Educational Evaluations" Peabody Journal of Education, Central Michigan University, Sept. 1968.

This definition brings into focus the three major elements of evidence, criteria, and judgment which are essential for most types of evaluations.

Process of Evaluation

Administrators and teachers of vocational education programs in agriculture are often confused by the considerable variation in the terminology and the massive quantity of literature covering the subject of evaluation. With this consideration in mind, the writer has formulated the following "Process of Evaluation Model" which will hopefully serve as a guide for evaluating the effectiveness of, components of, and/or entire vocational education programs.

Evaluation Process

1. Purpose
   a. Improving a program or specific component of a program
   b. Proving value and importance of a program
2. Criteria selection

   The criteria used will depend largely on the program characteristics being evaluated. The program characteristics most frequently evaluated are:

   a. effectiveness
   b. efficiency
   c. suitability
   d. importance
3. Preparation for evidence collection

a. Determine program characteristic(s) to be evaluated (mentioned above).

b. Determine what program level or component is to be evaluated

c. Determine program stage(s) to be evaluated

1. program determination

2. program preparation

3. program implementation

4. program evaluation

4. Evidence collection

a. Sources of evidence

b. Evidence collecting methods and devices

c. When to collect the information

d. Who should be involved in collecting evidence

5. Analysis and interpretation

a. Organizing and classifying evaluation data

b. Making comparisons and judgments

6. Reporting and use

a. Identify audience(s)

b. Identify how the report will be used

c. Report format

The remainder of this paper will discuss in more detail each element of the aforementioned model with a primary focus on the <u>effectiveness</u> of a particular program or program component.

Purpose - "Why am I conducting an evaluation?" should be the first question an educator answers as he plans to evaluate his program. The importance of this step in the evaluation process is its influence on the kind of evidence to be collected, criteria to be used, and ultimate evaluative judgment to be made.

Although purposes for evaluation have been classified in many different categories, a vocational educator in agriculture is generally concerned with two types of evaluations.

a. Evaluation for improving a program or a specific component of a program. This could include a comparison of the present program with other programs or other ways of conducting the present program. This could also include the comparison of two teaching methods or two teaching devices.

b. Evaluation for proving the value and importance of a program. The purpose of this evaluation is twofold: (1) Prove to someone the value of your program. (2) Prove to someone that your program is more valuable than some other program.

In the past, a vocational agriculture instructor was primarily involved in evaluation for the purpose of improving his program. Today, most vocational agriculture instructors are also concerned with evaluation data which can prove the value of their program to their school board members and administrators.

Criteria Selection - A criterion is a measure against which something can be judged. It may be a rule, a standard, a norm, an object, or a

condition or behavior which is considered to be "good" or ideal. It is a description or image of what a valuable (suitable, high, quality, effective, important, and/or efficient) program is like.[2]

Criteria used for evaluation are derived from the purpose and objectives of the program or any portion of a program being evaluated.

One of the contemporary issues in vocational education in agriculture is the argument regarding what criteria should be used to determine the success of a local vocational agriculture program. A factor that has complicated this issue is the lack of clearly defined purposes and objectives for many of these programs.

Writing a clear statement of program purpose and objectives is not an easy task. In addition, program objectives generally do not include criteria for evaluation but provide guidance for the development of these criteria. Consequently, developing program objectives and evaluation criteria is generally a two-step operation.

Let us assume an objective for a given vocational agriculture program is to assist students "to comprehend and to appreciate career opportunities in the field of agriculture." What criteria would you use to determine if this objective had been reached?

First, we must recognize that we are dealing with a compound objective. "To comprehend" relates to what we know (cognitive domain) whereas "to appreciate" relates to our feeling (affective domain) about a particular

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2. Dr. Sara Steele, "A Multiple Dimension Concept of Evaluation" 1970 - Department of Agricultural and Extension Education, Class, University of Wisconsin

type of employment.

Criteria for determining students' comprehension of "understanding career opportunities in the field of agriculture" might include:*

a. Students must be able to identify a given number of agricultural occupations and describe any relationship that exists between these occupations.

b. Students should be able to interpret and relate the following factors for each of the occupations identified in objective No. 1.

1. duties and functions of employee
2. salary level
3. work environment
4. educational and/or training needed for entering and promotion
5. advancement possibility
6. probable life style that normally accompanies a particular occupation

Establishing criteria for "developing an appreciation for career opportunities in the field of agriculture" is somewhat a more difficult task. Nevertheless, examples of criteria that might be used are:

a. Students express orally an appreciation for the desirability or undesirability of various occupations or possibly the value or importance of certain agricultural occupations.

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*Note One might observe that these are, in fact, instructional objectives for a unit or lessons on career development. This observation is correct since an instructional or behavioral objective does include criteria for determining the level of performance.

b. Students seek out additional information for agricultural occupations discussed directly and indirectly in class.

c. Students desire exploratory work experience in given agricultural occupations.

d. Students actively seek information regarding how to become employed in a given agricultural occupation.

e. Students become employed in a given agricultural occupation.

Since these criteria reflect a varying degree of student commitment to an occupation in the field of agriculture, an instructor must decide as to what is meant by the statement "appreciation for..." Once an adequate interpretation of the words has been accomplished, appropriateness of each of the aforementioned evaluative criterion can be determined.

We can readily observe from the previous discussion that the selection of evaluation criteria is not an easy task. Generally, it is more difficult to develop criteria for high level (more general) objectives than lower level (more specific) objectives. An example of a high level objective in a local community would be a general objective for a specific school and/or a vocational agriculture program. A lower level objective would be an objective for a specific unit or lesson in a given vocational agriculture program.

In spite of these difficulties, criteria are necessary for evaluating programs or any component of a program. Consequently, before a vocational agriculture instructor begins collecting evidence for evaluation, he must be certain to develop a complete and precise list of criteria for the type of evaluation he intends to conduct.

Preparation for Evidence Collection - Before selecting the type of

methods and/or devices which could be used for collecting evaluation data, an instructor must make a decision regarding the following questions:

1. What program characteristic(s) is (are) to be evaluated. Program characteristics which might be evaluated are effectiveness, efficiency, suitability, and importance.

   "How well did a program achieve its objectives?" is the question an evaluator must answer when evaluating the effectiveness of a program. This would involve a comparison of program output with criteria for program success.

   Since program effectiveness is the focus of the discussion in this section, further comments regarding program suitability, efficiency, and importance will be made later in this document.

2. What program level or components will be evaluated? Will the entire program be evaluated or just one aspect of the program? For example, an instructor may wish to determine the importance of the FFA, supervised work experience, or the lecture - discussion method versus the individualized instruction method.

   If the program level was not clearly identified in step one of the process (purpose for evaluation), then it should be clearly identified at this time.

3. What program stages will be evaluated? Some of the program stages identified in the literature are program determination, program preparation, program implementation, and program evaluation. Again, your purpose for evaluation should provide adequate insight for making a decision regarding which program stages should be evaluated.

Evidence Collection - After having made decisions regarding the first

three steps of this process, a vocational educator is prepared to collect evidence for his evaluation. Although the type of evidence he wishes to collect will be determined by the decision he has made previously, four additional questions must be answered before he begins to collect data. These are: (1) What will be the source(s) of evidence for evaluation? (2) What evidence collecting methods and/or instruments should be employed? (3) When should evidence collecting take place? (4) Who should be involved in collecting evidence?

A. Sources of Evidence

Some of the sources of evidence that are available in most rural communities are:

1. Students presently enrolled in school
2. Graduated students who participated in the program being evaluated
3. Employers
4. Parents of students presently enrolled
5. Advisory committee members
6. Local Vocational Education Coordinator (LVEC)
7. Guidance counselors
8. Wisconsin Employment Service
9. Cooperative Area Manpower Planning Committee (CAMP)
10. Vocational educators conducting similar programs
11. Reports on similar programs

The appropriateness of each of these sources of evidence will once again depend on the purpose of your evaluation, the program

characteristic(s), component and/or program stage you intend to evaluate, the availability of the evidence you are seeking and the amount of time you have available for evaluation. Many vocational agriculture instructors who complain that they do not have enough time to evaluate their programs are not making use of evidence which is or can be made readily available to them. For example, many guidance counselors and/or LVEC's are conducting periodic follow-up studies of their high school's graduates. Generally, a vocational agriculture instructor could acquire considerable information regarding the effectiveness and probably the suitability of his program by spending an hour or two once a month with these individuals. Also, adequate use of an advisory committee in addition to the visits an agriculture instructor normally conducts serves as an excellent source of information with a minimal amount of time and effort.

Lastly, daily observations of students' change in attitude and leadership capability should not be overlooked as a possible source of evidence for evaluation.

B. Selecting Method and/or Instrument for Collecting Evidence

The writer does not intend to embark on an extensive discussion of all possible methods and instruments a vocational educator could use to gather evidence for evaluation, but rather mention some of the methods and instruments which can be employed by an educator to acquire appropriate evidence.

Personal Interview - A distinct advantage of a personal interview is that it provides an evaluator with an opportunity to determine an individual's attitude toward a particular program or activity within a program. For example, an employer who has supervised a student's cooperative education is generally requested to fill out an evaluation form regarding the student's performance. If the vocational educator responsible for the cooperative education program conducts a follow-up interview with the employer, he is generally better able to interpret the intent of the information provided by the employer in his written evaluation.

Besides determining an individual's attitude, a personal interview allows the interviewer to ask additional questions to gain further insight into the areas which were not clearly stated in the questionnaire.

The writer does not wish to leave the impression that a personal interview must follow each written evaluation (questionnaire), but rather that this is one way of using a personal interview.

No matter how a personal interview method is used for collecting evidence for evaluation, care must be taken to record accurately the responses made by the person being interviewed. This can be accomplished during or immediately after the interview. It can be done on a written form and by using a device such as a tape recorder or dictaphone.

Questionnaire - When selecting a questionnaire for collecting evaluation evidence, an evaluator can be guilty of two types of

errors: (1) Deciding to use a questionnaire rather than a more appropriate method for data collection; and (2) Selecting the wrong type of questionnaire for collecting a particular type of data.

Questionnaires are generally classified by the type of questions they contain. Three basic types of questions which can be included in a questionnaire are:

(a) closed form - This type of question prescribes the alternative choices a respondent can make. A classical example of this type of question is a question which calls for a yes or a no response, or questions where the respondent is asked to make one of the following responses: strongly agree, agree, undecided, disagree, strongly disagree.

(b) open form - This type of question does not place any restriction (except the restriction inherent in the question) on the response made by the respondent.

(c) pictorial form - This type of question uses drawings and pictures in place of or to add meaning to words used in the question. This type of question is frequently used for gathering information from youth or adults with limited reading ability.

The two major factors an evaluator must consider when selecting a type of question for his data collecting instrument are:

(1) What type of evidence do I wish to collect? Am I requesting factual information, interpretation, analyses, or application of information or information regarding opinions and attitudes?
(2) How well can I predict a possible response?

Generally, the closed-end questionnaire can be adequately used to obtain specific, factual information; for example, age, education, sex, number of children in the family, income, etc. Also, this type of question can sometimes be used to acquire opinions or attitudes. For example, a student could be asked the value of various educational activities in acquiring employment after graduation from high school. The student could be asked to respond in one of the following categories: very valuable, valuable, some value, no value.

The open-end question is used when the evaluator is seeking information which describes, interprets, analyzes, and gives insight to attitudes and opinions which cannot be acquired in a closed-end question.

Another criterion for using an open-end rather than a closed-end question is when all possible responses for a question cannot be predicted.

After a decision has been made regarding the type of questions to be employed for the type of evidence to be collected, an evaluator is ready to develop and administer the data collecting instrument. The writer does not intend to discuss these two topics at the present time but rather refers the reader to "Method in Social Research" by Goode and Hatt, McGraw-Hill, or any other

good research design book. These texts should very adequately describe procedures to follow for constructing and administering all types of questionnaires.

Other Evaluation Instruments - Besides the previously mentioned evaluation methods or instruments, a vocational evaluator should not overlook or de-emphasize the value of the evidence collected by instruments commonly used in most school systems. Examples of such instruments are: quizzes, examinations, student oral and written reports, term papers, performance tests, and check lists. Since most vocational agriculture instructors are quite familiar with the construction and use of these instruments, the author will not pursue the discussion of them at this time.

C. When to Collect Information

Since evaluation is a continuous process, data collection is also a continuous process. Evaluation data may be collected at various intervals during a vocational program and/or a given number of years after students graduate from a program. Some of the factors which an instructor should consider when making a decision regarding the most appropriate time to collect evidence for evaluation are:

(1) type of student behavior being evaluated - If an instructor wishes to determine how much a student can recall, the best result is usually obtained during or immediately after a learning experience has been completed. If an instructor

wishes to determine how a student felt about a particular activity or program, he may obtain the most positive response from students some time after they have graduated. Often students do not see the value or importance of a particular learning experience until they have had an opportunity to apply what they have learned in a real life (employment) situation.

(2) purpose of collecting information often determines when it should be collected - Generally the purpose of collecting information during or immediately after the completion of a learning experience or activity is to determine how much the experience or activity is contributing to the attainment of one or more program objectives. The purpose of gathering information from students after they graduate is to determine how well their vocational education program prepared them for their present and future employment opportunities.

(3) evidence should be collected from different sources and at different times - A vocational instructor should collect information from a number of sources periodically. Consequently, consistent data collection from appropriate sources will provide the vocational educator with the most adequate information upon which to make program decisions.

D. Who Should Be Involved in Collecting Evidence

Once again, this decision is based on what is being evaluated,

the source of evidence and the methods and/or instruments being employed to collect the evidence.

Individuals and groups who might be involved in the data collecting process, however, are:

1. advisory groups
2. guidance counselors
3. LVEC
4. students enrolled in daily class
5. employers
6. vocational agriculture instructors
7. other teachers
8. adult farmers
9. post-secondary vocational educators

Analysis and Interpretation

A. Organizing and Classifying Evaluation Data

The major purpose of organizing and classifying evaluation data from various sources is to facilitate making comparisons and judgments about the program or program component being evaluated.

Generally, when one begins to develop a classification system for information received from various sources, he is confronted with two major problems:

1. Developing a classification system which will include all types of information or responses regarding a particular program objective. For example, an instructor has collected evidence to determine what effect his program has on developing his students' leadership capabilities. Sources of information might be an employer observing a student on his cooperative

education program or on his job after graduation; the instructor's observation of the student as an FFA member; other teachers' observation of the student conducting other school activities; and observations made by advisory committee members and/or other townspeople regarding a FFA member's activities in the community. Generally, the responses made by each of the individuals or groups mentioned above are different. One response might be, "The student has considerable initiative."; another response, "He expressed great leadership qualities."; still another, "He was very aggressive." The problem is to determine one classification system into which these responses can be included.

2. Being able to reclassify data into a more useable form. For example, information from follow-up studies might only indicate that last year's vocational students are farming or not farming. Using this dichotomy, the data indicated that three out of the ten senior boys in agriculture are presently farming. Further investigation showed, however, that although only three were farming, two were employed in nonfarm agricultural occupations, two were enrolled in the College of Agriculture and three were in Military Service. It is obvious that for the purpose of making comparisons and judgments, the latter rather than the former classification is more meaningful. Consequently, even though data are already classified,

they are not necessarily in a useable form.

B. Making Comparisons and Judgments

1. Comparison

Comparison is defined by Webster as "to view in relation to something or someone else for the purpose of showing or establishing contrast or similarity." Given this definition, one must give consideration to the following key points before he can make the appropriate comparisons.

a. Clearly focus on the program characteristics being evaluated. Although the discussion in this document is oriented to the program characteristic, "effectiveness," one can follow a similar process to determine the "suitability," "importance," or "efficiency" of a program.

b. Identify criteria which will be used to determine the "effectiveness" of your program. Ideally these criteria should be a part of the objectives for the program and its component parts. In reality, however, criteria are often developed just before they are needed in the evaluation process.

c. Make sure that the classification system used for classifying program results is the same as the one used for classifying criteria. For example, you have placed ten senior boys in work stations as a part of your cooperative education program. The criteria you had established for an effective program were that employers' responses regarding

student performance would be as follows: 60 percent, excellent; 30 percent, good; 10 percent, adequate; and 0 percent, poor. It is very possible, however, if you had not controlled the employer responses when you were collecting information from them regarding student performance that they may have responded, "He did a fine job." "Generally, he was a good worker." "Like all kids he likes to fool around; but, in general, he was okay." or "He really didn't do too well." Obviously, in order to compare employer responses to the previously mentioned criteria, the employers' responses must be placed into a more suitable classification system or collected in a more controlled manner.

2. Judgment

After a comparison has been made, one must decide how effective a program really was. One of the major problems in determining the effectiveness of a particular program is determining a true cause-effect relationship between the program and a given result. For example, an instructor would like to have 100 percent of the freshman boys testing milk in the school laboratory. This he has established as a criterion for a successful milk testing program. He determined at the end of the year that 70 percent of the freshman boys were testing milk in the school laboratory while the other 30 percent were testing their herds through DHIA owner-sampler plan. Was the test program successful or not? Were those

boys on the DHIA program using this program because of or in spite of the classroom instruction and encouragement they received from their instructor?

Another area where it is difficult to make judgments regarding the effectiveness of a vocational agriculture program is the type of employment students obtain after graduation. Some instructors believe they should be placing 50 percent of their senior boys on the farms in order to consider their program effective. This criterion also gives rise to many questions which are difficult to answer. For example, are some of the boys who did not go farming employed elsewhere in the field of agriculture? Has military or educational opportunity temporarily interrupted some students' plans to farm? Even though certain boys are farming, did their vocational agriculture program adequately prepare them for their present employment? Are the boys farming or not farming because of or in spite of their vocational agriculture program? Did all boys who wanted to enter farming have an opportunity to do so?

In addition to these problems regarding evaluation "Judgments," a vocational agriculture instructor will have difficulty in determining how effective his program has been in developing attitude, vocational maturity, and leadership capabilities of his students.

Reporting and Use - An appropriately written and disseminated evaluation report can be an excellent public relations instrument for a vocational

agriculture department. Some of the factors an instructor should consider as he prepares this report are:

A. Clearly Identify the Audience

A report which might be suitable for guidance counselors, administrators, teachers and other professional staff would generally not be appropriate for parents, farmers, and employers. The type of language and manner in which data is presented will have to be adjusted depending on the audience selected.

B. Determine How the Report Will Be Used

If a report is mainly used in group discussion, it could be more brief and contain less details than a report which is being prepared for general distribution without any planned meeting to discuss it.

C. Develop a Simple and Clear Report Format

An example of such a format might be:

a. purpose of evaluation

b. what was evaluated

c. how was the evaluation conducted

d. major finding of the study

e. conclusions, implications, recommendations

To what degree each of the above should be discussed in a given report will largely depend on the audience and the intended use of this report.

Evaluation of Program Efficiency, Suitability, and Importance

Although the focus of the discussion in this paper has been on the program characteristic, "effectiveness," an evaluator of a vocational program should also recognize the importance of the other three program characteristics included in the "Process of Evaluation" model. These characteristics are efficiency, suitability, and importance.

Although space does not allow a complete discussion of these program characteristics, the writer hopes the subsequent comments will provide the reader with a better understanding of the relationship between these characteristics and their relationship to the evaluation process discussed in this paper.

Efficiency

Whereas "effectiveness" is primarily concerned with program "output," efficiency is concerned with both program "input" and "output." That is, how much human and material resources were invested to obtain a given program objective. For example, should an instructor teach students how to identify the most common weeds in their community by conducting several field trips or by having students collect weeds on their own time and bring them to class? Should the instructor use the lecture as his primary method of instruction or should he use other methods such as group work, discussion and field trips, which are generally more time consuming?

One of the major problems of determining program efficiency is the difficulty of assigning a given value to various program outputs. Gener-

ally, an instructor must be in a community for a few years before he can determine the value of his program results.

Suitability

Suitability relates to the appropriateness of a given program or program component. Consequently, the type of information for evaluation is quite different from the information used for program effectiveness and efficiency. In most cases, "suitability" is expressed in terms of how individuals "feel" about a program activity. For example, did the student prefer learning activity pacs instead of the lecture-discussion method for learning about the world of work? What may be the most suitable may not be most effective and/or efficient.

Another question regarding suitability is the appropriateness of the objectives from which the program has been developed. This question is particularly relevant in urban communities where the vocational agriculture program is still entirely production oriented. The instructor may be doing a good job conducting a sound production oriented program but this type of program may no longer be relevant for his community. Consequently, an instructor should be continually questioning students, graduates, parents, employers, and advisory groups regarding both the suitability of his program objectives as well as the means he has selected to carry out these objectives.

Importance

The first step in determining the importance of a given program

or program activity is placing a value on that particular program or program activity. Once step number one has been accomplished, then importance is determined by comparing the value of one program with the value of an alternative program.

Some vocational agriculture instructors are presently being questioned regarding the importance of their summer programs. Some of the questions these instructors need to answer are: (1) What effects would it have on my program if I were hired for only nine or nine and one-half months? (2) What has nine or nine and one-half months' employment done to a program similar to mine?

Relationship Between Program Evaluation and Student Class Performance

A very important factor which may not have been too clear throughout this document is the relationship between student class performance and program evaluation. The major source of evidence for determining the effectiveness of English, mathematics, and foreign language programs in a given school system, for example, is the evidence teachers collect regarding student class performance. This situation is not true, however, in most vocational programs in agriculture. Students enrolled in vocational education programs in agriculture generally are involved in as many learning experiences outside of the classroom as they are within a classroom. For example, the secondary school's vocational agriculture programs provide

many learning opportunities for students through the FFA and work experience programs. Post secondary school agricultural programs, particularly the young farmer program, provide a considerable amount of the learning experiences on the student's home farm.

The writer does not wish to de-emphasize the value of evidence derived from students' class performance, but wishes to caution the reader to consider it as only one source of evidence for determining the effectiveness of a vocational education program in agriculture.

Summary

The major purpose of this document has been to present and briefly describe a "process" or series of steps a vocational educator in agriculture may follow when evaluating his educational program.

The first step in the process is determining why (purpose) a particular evaluation should be conducted. At this step in the evaluation process, such questions as, "Am I concerned with improving the program?", "Am I concerned with justifying the value of the program?", or "Am I concerned with the importance of the program as compared to similar and/or competing programs?" must be answered.

The second step in the process involves the development of appropriate criteria which will be used to determine if a program or a program component has obtained its objective. Before criteria can be established, however, an evaluator must determine which program characteristic(s) he wishes to evaluate. Program characteristics most commonly evaluated are effectiveness, efficiency, suitability, and importance.

After the first two steps in this process are completed, an instructor is ready to consider the collection of information for evaluation. Some questions which are important at this point are: (1) Do I wish to evaluate just one component of my program (FFA, Supervised Work Experience program, individualized instructor method) or the entire program? (2) Do I wish to evaluate only program results or various stages of program development (i.e., program preparation, implementation and evaluation)? (3) What is the most appropriate source of information (students, graduates, employers, parents, etc.)? (4) What methods or devices should be used to collect information for evaluation (examinations, observations, personal interviews, questionnaires, etc.)? (5) When should information be collected (during or upon completion of program, a given number of years after the students graduate from the program)? (6) Who should be involved in collecting this information (instructor, advisory groups, students, employers, etc.)? (7) What format should be followed when collecting this information to assist in the analysis and interpretation of these data?

When an instructor has decided on the answers to the above questions, he should be ready to collect evaluation information and be ready to analyze and interpret the information he has collected.

The final step in the evaluation process is reporting and using evaluation information. Too often, vocational education instructors in agriculture do not adequately report their evaluation results to their administrators, the community, and present and prospective clientele. Although it takes some time from an instructor's already busy schedule, an appro-

priately written and disseminated evaluation report can be an excellent public relations instrument for a vocational agriculture department. Some factors an instructor should consider as he prepares this report are: (1) For what major group of individuals (administrators, teachers, parents, students, etc.) should this report be written? (2) How will this report be used -- in group discussion or with individuals reading the report without any interaction? (3) What format should be used in this report?

Concluding Remarks

It is quite possible that those vocational agriculture instructors who read this document without having any or very little prior exposure to evaluation procedures or processes would become fairly frustrated with the size and complexity of this document. When this is the case, the writer hopes that the reader does not get "turned off" by the complexity of evaluation but rather begins evaluating his program at a level at which he feels most comfortable. An instructor will never learn to evaluate his program by just reading literature and watching someone else evaluate his program. Rather, he must apply the vocational education principle of "learning by doing" and begin to conduct an evaluation of his own program. The writer believes that the more experience an instructor has with evaluating his own program, the more meaningful and, hopefully, the more useful this document will be for him.

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BROOKING, WALTER J.
TECHNICIANS AND SPECIALISTS FOR ENVIRONMENTAL CONTROL.

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ABSTRACT - THERE IS A GROWING CONVICTION THAT MORE PERSONS MUST BE PREPARED FOR CAREERS IN WORK WHICH IMPROVES OUR ENVIRONMENT AND CONSERVES OUR RESOURCES. IN ADDITION, AT LEAST SOME ENVIRONMENTAL AWARENESS SHOULD BE PROVIDED FOR EVERYBODY IN OUR SOCIETY, PARTICULARLY FOR CHILDREN IN SCHOOL. "GENERAL ENVIRONMENTAL TECHNOLOGY" PROGRAMS DO NOT SUPPLY SUFFICIENT KNOWLEDGE AND SKILLS TO MAKE THE GRADUATE EMPLOYABLE IN ANY FIELD. THEREFORE, THE CAREER OBJECTIVE WILL NOT BE CALLED "ENVIRONMENTAL" BUT INSTEAD WILL RELATE TO SOME ESTABLISHED BRANCH OF APPLIED SCIENCE--PHYSICAL, BIOLOGICAL, EARTH, AGRICULTURAL, MEDICAL, OR SOCIAL. IN THE FUTURE CAREER EDUCATION FOR ENVIRONMENTAL WORK WILL BE AN OUTGROWTH OF THE GENERAL AWARENESS EDUCATION. IT SHOULD START IN THE ELEMENTARY SCHOOL AND CONTINUE THROUGH HIGH SCHOOL, AND FOR MANY IT WILL EXTEND INTO HIGHER EDUCATION THROUGH COLLEGE AND UNIVERSITY. BOTH GENERAL ENVIRONMENTAL AWARENESS PROGRAMS IN SCHOOLS AND THE EDUCATION OF TECHNICIANS FOR EMPLOYMENT IN ENVIRONMENTAL TASKS ARE DISCUSSED IN THE PRESENTATION. (MF)

TECHNICIANS AND SPECIALISTS FOR ENVIRONMENTAL CONTROL

Public awareness of the need to improve our environment and conserve our resources is both demonstrated and heightened by the recently enacted Federal, State, and local legislation. There continues to be an urgent call for action and involvement of more of our population and institutions to get on with the business of environmental betterment. One result is a growing conviction that more persons must be prepared for employment in work which improves our environment or conserves our resources.

Another growning need is to provide at least a minimum awareness or "environmental literacy" to all persons in our society to instill in them both a feeling of urgency to protect or improve the environment and the knowledge of how they can help in the course of their daily living. This "environmental literacy" is particularly needed for children in school.

More and better programs to prepare skilled workers, technical and supportive specialists, and professional personnel to solve the problems and perform the work which will improve our environment are clearly needed. However, at the outset of any discussion of environmental career education, it must be observed that the environment is affected by so many complicated factors and is the result of such a variety of applied technology that such education programs must reflect a direct relationship to the recognized technological fields of knowledge and work as they relate to the environment. Further, it is likely that the greatest shortage of manpower in the environmental fields is and will continue to be at the technician and similarly specialized worker level.

Presented by Walter J. Brooking, Program Officer, Technical Education, U.S. Office of Education, at the National Technical Education Clinic co-sponsored by the U.S. Office of Education and the American Technical Education Association, Ft. Worth, Texas, March 16, 1972.

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Professional engineers and scientists whose work requires specialized preparation to relate to environmental problems can probably be prepared in a year of specialized graduate study, and probably many can prepare themselves by special study on their jobs.

Skilled workmen can generally be instructed in the special skills and knowledge required for some environmental task related to their field of work in a few months to a year of study or on-the-job learning.

Programs to prepare technicians, however, require the longest lead time of all. It takes from four to give years to plan, initiate, enroll the first class and graduate technicians from a new 2 year post high school technical program.

At the 2 year technician level it is very doubtful that sufficient depth of knowledge and related skills can be taught in a "general environmental technology" to make the graduate employable in any field. Therefore, the career objective for which many persons will prepare themselves at either the technician and supportive level (or even as professionals) to work at improving or conserving our environment will not be called "environmental." Instead, they will relate to some established branch of applied physical, biological, earth, agricultural, medical or social science.

In the future the education of persons for careers in work to improve our environment and to conserve our natural resources is expected to be an outgrowth of the general awareness education. The "environmental literacy"

education may excite some persons to want to prepare for special careers in the environmental field just as general health education courses may stimulate some students to prepare for careers in the health field. Career education for environmental tasks should start in the elementary school, continue through high school, and for many youth and adults extend into the junior colleges, technical institutes, and branches of four-year colleges, which prepare technicians and similar specialists. Obviously for some it will continue through the colleges and universities which prepare the professional leadership in each of the disciplines and fields which have a bearing on environmental matters. A discussion of both general environmental awareness programs in schools and the education of technicians for employment in environmental tasks follows:

GENERAL ENVIRONMENTAL EDUCATION FOR EVERYONE

Under the concept of career education, as it is developing under the leadership of Dr. Sidney P. Marland, U.S. Commissioner of Education, the program will begin as early as kindergarten through revised curriculums that relate reading, writing and arithmetic to the varied ways in which adults earn a living. All of these careers are grouped into families or "clusters" of occupations. Environmental career opportunities is one of the clusters.

As each youngster advances into junior high school, he will select various clusters or broad groupings of related occupations such as manufacturing, marine science occupations, or environment and begin exploring the nature of specific careers in each one. By senior high school, he will concentrate on the group of career opportunities which interests him most and will develop sufficient skill in a specific occupation to qualify for a job.

It is visualized that students will have an opportunity to enjoy actual work experience during their high school years through cooperative arrangements with employers. Yet each student's program will remain flexible enough to enable him to switch to a related occupation later with a minimum of supplementary training. In addition, each student in a career education program will always retain the option of going on to a technical supportive or professional occupational objective beyond high school at whatever stage or time in his employment experience it fits his needs.

The environmental career cluster includes broad headings as follows: soil and mineral conservation and control; space and atmospheric monitoring and control; environmental health services; development and control of physical manmade environment; forest, range, shore and wildlife conservation and control; water resources, development, conservation and control; and all of the logical subheadings involved under each including supportive and professional career opportunities.

The elementary orientation and the prevocational and exploratory informational type of education in the elementary grades and continuing in the junior high grades 7, 8, and 9 is aimed at providing an elementary literacy and familiarity with the field of environment and ecology which will serve to make the individual an informed person. It may quicken his interest in further pursuing some aspect of environmental education as a career.

This elementary education in environmental and ecological information is analagous to the fundamentals of health education, which should provide the individual with the basic information each person needs to maintain his

or her health. Similarly all individuals in their enlightened self-interest need to possess elementary literacy regarding environmental and ecological factors that influence their lives and which they in turn may influence as individuals within society.

The organized information regarding environmental and ecological matters which are required to give an individual a reasonable preparation for life as a citizen and consumer must include considerable information about the world in which he lives. It must stress the natural environment as well as manmade environmental factors and institutions which influence environment.

Biological science factors as they control or affect environmental and ecological concerns need to be emphasized in order to provide each individual with a clearer comprehension of how environmental changes affect his health and his style of living. A broader understanding is needed by most people of the fact that man is himself a living organism sharing the world's resources with all other living things in an inter-related community where the tolerable limits and balances for survival are precariously narrow and delicate. Much of man's manipulation of his physical environment, both intentional and inadvertent, has been by the application of what he has discovered in the physical sciences and applied in engineering. It appears that a greater awareness of the basic biological equations in our total environmental concerns will be needed to insure both survival of man and the

increased advantages of further applications of modern technology.

In the past five years considerable material has been developed which can assist teachers at all levels, and more is being developed. One example of such material starts in the first grade and proceeds through grade 12. It relates to all of the teachers' subjects, so that environmental and ecological information does not displace but provides an interesting and fresh emphasis and heightened student interest and motivation whether the class deals with history, language, general science, health, or social sciences.[1/] This is only one of many examples of materials available to teachers to guide them in teaching general environmental and ecological information, concepts and citizen responsibility.

It is expected that general environmental and ecological information should be well absorbed by the junior high school years. Additionally, it is expected that some specific information relating to some occupational opportunity in the environmental cluster may have excited some students' interest to the point that they may want to prepare for a career in the field. While in high school, these students can study the subjects required to prepare themselves to enter and succeed in a post high school supportive or technician level or professional program of study.

It is also expected that the career education cluster approach will

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1/ People and Their Environment - J. G. Ferguson Publishing Company, Chicago, Illinois, 1968.

provide better educated youth to enter either professional preparation in a four-year college or the post high school programs which prepare technicians or similarly specialized personnel.

TECHNICIANS AND EMPLOYMENT OPPORTUNITIES IN ENVIRONMENTAL CONTROL

Since major shortage of personnel appears most likely to develop among technicians and similar supportive persons in the environmental and ecological field when major programs are implemented to control or abate the effects of some disrupting environmental element, let us examine their work and preparation.

Technicians are needed in a given field when the work to be done is sufficiently specialized to require the services of professionals who delegate a part of their work to technicians who are competent in the field. The technicians or similar supportive workers must have a general understanding of the work of the professional and must be able to do a part of the work under his supervision, including the supervising of specialized workers in the field.

This means that there exists a corps of specialized professionals in the field and commonly recognized clusters or groups of related employment opportunities for professionals, technicians or similar supportive personnel, and skilled workers.

The specialized fields of applied science which affect our environment and ecology include almost all of the bodies of applied science.

The products of applied physical sciences and engineering such as airplanes, automobiles, computers, automated chemical manufacturing plants and all manner of machines that convert energy and do work, are part of the overall environment. Internal combustion engines which produce chemicals as a by-product of

combustion pollute the air. Worn out automobiles clutter the landscape. These all create employment possibilities for technicians in the environmental field.

Biological sciences in the field of agriculture, forestry and oceanography with all of its ramifications of utilizing, culturing, harvesting, conserving and recreationally enjoying natural assets represent another part of the environmental and ecological employment opportunity for technicians and similar specialists.

Biological sciences in the field of health cannot be separately considered from the environment. The conservation of air and water resources and the abatement or prevention of their pollution involve both physical and biological science and constitute an important part of the environmental task which lies before the Nation.

Perhaps less well defined but no less real are social problems arising from technological influences which have caused more than three quarters of our population to be centered in urban areas. The problems of man-made housing, transportation, and delivery of all required material and social services represent a major technological challenge. More subtle and perhaps less understood are the effects of increased noise levels and the tensions and other problems which arise from intimate living and crowdedness in our cities, especially when a significant portion of that population has migrated from uncrowded rural areas and must adjust to supporting themselves and living in an urban center.

With such diverse activities directed by professional scientists and practioners in the various technological fields of modern living, it is clear that many of the specialists in the field of environmental control will not be so labeled. To discover whether an individual is working in the environmental field, it will be necessary to take a closer look at his actual functions within his general field. Because of the diversity of technologies that bear on man's environment, it will be impossible to prepare any one technician or professional to be proficient in all fields. The amount of specialized technical knowledge is simply too great for any one individual to master.

Pursuing this premise, a brief analysis of the major fields of environmental control and concern as they may relate to the need to initiate new or enlarged technician programs beyond high school follows:

Air Pollution Control and Abatement

A small number of two-year programs to prepare air pollution technicians already exists. The experience of these programs indicates that there are growing employment opportunities for well-qualified graduates. It is probable that with the passage of more stringent legislation to control internal combustion engine emissions employment opportunities will increase for specialists who can diagnose and direct the efforts of skilled mechanics in the correction of maladjusted automotive, truck, airplane, or other internal combustion engines.

In light of the progress being made in enforcement of air pollution abatement legislation, it is likely that employment opportunities will increase for graduates of high quality technician programs to be employed by manufacturing establishments or power generating plants to prevent the pollution of air by escaping fumes, poor fuel combustion, excessive dust, or other particulates; or in Federal, State, or local governments to enforce and monitor operations covered under the legislation.

The U.S. Office of Education has undertaken the development of a publication "Air Pollution Technology, A Suggested 2 Year Post High School Curriculum." The contractor and the program model was the Air Pollution Technology Program at Sante Fe Junior College, Gainesville, Florida. The contract for the preparation of the guide is nearly completed. It is believed that there is need for more technicians in this field now, and that this need will be urgent before new programs can begin to graduate technicians.

Water Resource Development, Conservation, and Control

Two-year post-high school programs to prepare water pollution control technicians or water and waste water plant operators have been operative for almost ten years. It appears that more programs are needed because the graduates of some of the present high quality programs do not go to work for water or waste water disposal plants and thereby provide the required operative and managerial staff for the complex plants which are emerging. Instead, they find better employment opportunities with manufacturing concerns, chemical plants, paper mills or other enterprises whose operations might pollute soil or streams and who employ the graduates to help to insure that

company does not violate pollution control regulations. It is evident that more programs to prepare this type of specialized technicians are needed.

Solid Waste Management

Solid wastes are very diverse, and management of most of them presents specific, not generalizable, technical challenges. They may involve soil pollution, and need to be examined very carefully by school administrators who might consider establishing a two-year program in the technology of solid-waste disposal. Soil can be polluted or destroyed by accumulated solid waste, erosion, excessive contamination from chemicals, or from the poisoning effects of alkalinity. Well prepared, water pollution control technicians, or agricultural chemical technicians, or even chemical technicians probably would have the required technical background to interest a potential employer with soil pollution problems of this kind.

Most of the solid waste disposal problems will not be solved by individuals labeled "solid waste" disposal experts or technicians. For example, recycling of paper will involve collection of used paper materials and recycling them through a paper plant. The technicians and professional engineers and managers involved in the process will be chemical or industrial process specialists rather than "solid waste" specialists. Similarly the recycling of glass will involve collection of glass containers and other scrap glass and recycling it through a glass factory. Even the operation of a sanitary landfill probably will require a technician who can supervise the processes required to move the earth, deposit the fill, and cover it. The

whole operation will follow a plan drawn up and supervised by a sanitary engineer or a civil engineer. The technician's preparation will most likely have been in the civil engineering technology field.

The removel and disposal of worn out automobile bodies, refrigerators, and similar cluttering of the landscape is already being accomplished by collection, mechanical crushing, or shredding and separation and salvage of the resulting materials. These programs are operated by mechanical engineers and industrial production engineers and technicians rather than persons labeled "environmental control" or "solid waste disposal technicians."

The scrap metal salvage businesses which have been in operation for hundreds of years have never been considered "environmental" or "ecological" institutions, but rather a prudent and profitable recycling of valuable resources.

The environmental and ecological problems arising from strip or underground mining, the control of the processes to avoid potential chemical contamination of streams from mine waters, waste dumps, ore leachings, or processing materials, and the reforesting or restoring of the land will essentially be solved by civil engineers, mine managers and the related technicians rather than environmental or solid waste disposal technicians.

It is likely that high quality programs in civil engineering technology, highway construction, building construction, mechanical design, industrial production, or chemical technology will be the best preparation for technicians who will be employed in work to control, abate, or prevent much of the pollution of our environment. Hence, the strengthening of such programs or the initiation of new ones might be a much better route toward preparing

needed manpower to improve the environment than attempting to establish "environmental technology programs' which are general in nature, shallow in technical content, and of dubious and undemonstrated value as a valid preparation for the work which will be available when graduates of such programs seek employment.

Forest, Range, Shore and Wildlife Conservation and Control

Forest technicians who assist foresters in culturing, protecting from disease and fire, harvesting and replanting of the forests may well be considered environmental technicians but not capable of being prepared by a short course or a few hours of exposure to the field. Youths looking for outdoor careers contributing toward environmental control will also find opportunities as wildlife management specialists and technicians and as skilled workers required for the administration of fish and wildlife resources. Park and recreation technical assistants and specialized workers probably will be needed in greater numbers in both the public and the private sector.

The fields mentioned here provide important opportunities for environmental technicians but under completely different names; that of the specialty of the field reflecting the applied science and specialties of the professionals and managers with whom the technicians work.

Development and Control of Man-Made Physical Environment

Structures man builds for his homes and institutions and for transportation and other services are major elements in his environment and exert a tremendous influence on the total environmental and ecological balance of the

system within which man lives.

The Nation's new awareness of the need to protect the environmental and ecological balance of the world will probably result in a considerable increase of the number of highly skilled mechanical, civil, architectural and building, electro-mechanical, electro-optical, instrumentation, electronic, computer and other specialized physical science technicians. These personnel will be needed to solve the problems brought about by further applications of scientific principles and in order to maintain a viable living environment and increase the benefits of applied science and technology in the future.

In addition, research and development of more effective accoustical materials and noise abatement methods, better urban planning and development to provide suitable housing, recreation facilities, and all other required services for an increasing population will probably generate employment for a larger number of technicians.

Ornamental Horticulture

The development of large urban centers and the growing awareness of the need for open spaces in cities will bring into focus the need for ornamental horticultural specialists to beautify and improve urban and suburban land. Ornamental horticulture has been practiced for centuries. Evidentally it has been found that ground which is covered with grass, hedges, trees and flowers is less likely to be carelessly littered, and certainly will be more pleasant and restful to the eye than unplanted space. The green foliage also contributes toward maintaining the balance of carbon dioxide and oxygen in the atmosphere. More floriculture, turfgrass, arboriculture, nursery

management, and landscape development technicians will be needed to meet the employment opportunities for technicians in these fields of work.

Community Service

The problems modern man encounters in living with others in his technological society may be considered an important aspect of the environmental and ecological challenges he faces. The social sciences are contributing insights and techniques which must increasingly be a part of the preparation of community service workers. In light of experiences in recent years there can be little doubt that the important social services of maintaining law and order, or caring for the health, and welfare of our population, and of providing recreational services and facilities have much to do with the quality of lives of persons living together in today's world.

A growing number of programs to prepare technical assistants who can work with the various professionals in police science and correctional services, social workers, urban planning, recreation and related endeavors doubtless will be needed to lead our people to understand and to live in and improve the environment they inherit.

Environmental Health and Food Inspection

It is likely that many post-secondary community colleges, technical institutes, or divisions of four-year colleges which have strong biology departments, a nursing program, or perhaps an agricultural program, will find that they already have a part of the staff and facilities required to start programs to meet employment needs in the environmental health, radiological health, food processing control and inspection, rodent and insect

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control, and related sanitation fields. Such programs can be a natural outgrowth of the staff, facilities, and established capabilities of the institution and are a logical extension into the environmental education field. It is likely that well-qualified technicians and specialists in these fields will be needed to respond to the requirements of recent legislation and the greater awareness of the need for monitoring and testing of water, food, and food processing and serving establishments, hospitals, and all public and private institutions which house and feed people.

Agriculture and Related Technologies

A major element in the conservation and utilization of soil resources is in the application of modern agricultural science. Modern machinery permits the tilling of the soil by scientific means to avoid serious dust or water erosion of crop land. Modern agricultural methods are restoring land which has reverted to desert by the use of irrigation, landfill, chemicals, and land cover which prevents further wind and water erosion.

Recycling of agricultural wastes and rotation of crops to restore depleted chemicals from farm crop lands are well utilized scientific methods. Continued research and development of more sophisticated specialized processes in all fields of agriculture, however, will require an additional number of specialized technicians to manage the agricultural productive capability of the Nation, to provide the food and fibre required, and to provide the maximum utilization of land resources consistent with a healthy and improving environment for the present and future generations.

The progress that has been made in the development of agricultural chemicals and especially the use of nutrients and growth agents promises important occupational opportunities. The production of food by hydroponic methods, the reclamation of land by soil transplanting, and the application of specialized farming science to fish culture and aqua culture are examples of areas where technicians may be needed.

These technicians will influence environment and ecology and in most cases will be specialists in some field related to agriculture rather than environmental technicians.

Oceanographic and Marine Technology

The National program for exploration of space in the sixties is well known. Scientific research and development to explore and utilize the oceans and area underlying them represents another major challenge which already requires large numbers of technicians and which increasingly will demand the technical skills and understanding of technicians and similar specialists. Some of these technicians will be involved with engineers and physical scientists in creating a submarine habitat for man, or in learning more about the ocean currents, ocean chemistry, map the ocean floor, etc. The underwater engineering technicians will help to develop structures for underwater habitation. All will influence the oceanic environment.

In the applied biological science realms of oceanographic and marine development, marine life technicians, ocean fish and fisheries technicians, and marine aquaculture technicians will continue to be needed.

Only a few programs exist to educate technicians in any of these fields. Almost all specialties in this category have some scientific knowledge and technical skills in common, but each is sufficiently different to require different technical courses and specialization.

Aquaculture will probably be one of the very important sources of food in the future. Fish culture is already a large industry in inland lakes and waters, but it has not yet begun to be practiced in the ocean estuaries and along the shores as it must be to provide a significant source of food for our growing population. These scientific and technological developments of the future will doubtlessly be intimately dependent on, and exert their own special influence on the environment.

INITIATION OF NEW PROGRAMS TO PREPARE TECHNICIANS FOR ENVIRONMENTAL WORK

There is mounting evidence that more programs to educate technicians will be needed in almost all fields of applied science which impinge on environmental control or improvement.

The decision to start a program to educate any kind of technician or specialist is an important responsibility of the chief administrator of the school and his controlling board. Each technician program requires a separate justification and involves long-term staff and financial commitments which are continuing responsibilities of the institution. No program should be undertaken unless a careful study, made with formal or informal advisory committee support, gives convincing evidence that the technicians are needed and that the need will continue in the foreseeable future. A program should not be started unless there is a good prospect of its being needed for several (perhaps 10) years, with the normal modifications made to meet technological change.

Technician or similar specialist preparatory programs which relate very specifically to a particular environmental concern need to be studied with special care before new ones are launched. The U.S. Office of Education, Division of Vocational and Technical Education, has addressed this special problem by recently having prepared and distributed under contract a publication Administrative Factors and Actions in Initiating Post-High School Environmental Control Technology Programs, A Suggested Guide.[2/]

Studies and surveys to determine the need for a particular technician program must usually involve agencies besides the school. Conferences with employers, the Department of Labor, the State Board for Vocational and Technical Education, and other interested State or regional agencies yield important data on the capability of existing programs to meet the needs and help to describe local, State, regional, and the national requirements for the technicians.

To explore existing programs is probably the least expensive and most rewarding approach to the study of a proposed new program. Most institutions with successful or new programs welcome visits by administrators and staff members who plan to start similar programs. Much can be learned about curriculum, cost, staff, facilities, student recruitment, and placement from the experience of others. Such visits provide invaluable opportunity to see laboratories, farm, or clinical facilities, learn details about the program, locate consultants, learn about clinical or field experience

2/ See Payne, Albert V. in the suggested references, page 21

arrangements and requirements, and study many more important and pertinent matters.

Experience has demonstrated that no program to educate a new kind of technician or specialist should be undertaken without an exhaustive study of established or experimental programs in the field or a closely related field. It is seldom that a justifiable need to prepare a new kind of specialist is so new or novel that no other institution in the Nation has begun to develop a program to meet that need. One or more prototype or experimental preparatory programs exist for most of the non-baccalaureate career specialists which relate to environmental problems. It is too expensive in time, money, and human effort to rediscover what already has laboriously been learned by those who have well-established or even partially proven programs to prepare new kinds of technicians or specialists. This priceless resource should never be neglected in starting new programs.

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OE-81015	Agricultural Equipment Technology - A Suggested 2-Year Post High School Curriculum - $1.25
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OE-80056	Criteria for Technician Education - A Suggested Guide - 45¢
OE-87045	Diesel Servicing - A Suggested 2-Year Post High School Curriculum - $1.25
OE-80009A	Electronic Technology (Revised) - A Suggested 2-Year Post High School Curriculum - $1.00
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OE-81012 Metallurgical Technology - A Suggested 2-Year Post High School Curriculum - $1.25

OE-81017 Ornamental Horticultures Technology; Suggested 2-Year Post High School Curriculum - $1.75

OE-80037 Scientific and Technical Societies Pertinent to the Education of Technicians - 35¢

OE-80057 Water and Wastewater Technology - A Suggested 2-Year Post High School Curriculum - $1.50 (April 1969)

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THOMAS, HOLLIE B.; THOMAS, SUSAN B.
DEVELOPMENT OF A CAREER INTEREST INVENTORY.

NATIONAL COUNCIL FOR MEASUREMENT IN EDUCATION
MF AVAILABLE IN VT-ERIC SET.
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DESCRIPTORS - *CAREER CHOICE; *VOCATIONAL INTERESTS; *INTEREST TESTS; *INTEREST SCALES; ITEM AMALYSIS; *MEASUREMENT INSTRUMENTS; OCCUPATIONAL CLUSTERS; SECONDARY SCHOOL STUDENTS
IDENTIFIERS - *CAREER INTEREST INVENTORY

ABSTRACT - THE STUDY DEVELOPED AN INSTRUMENT TO MEASURE STUDENT INTEREST IN THE VARIOUS VOCATIONAL AREAS FOR WHICH CAREER EDUCATION IS TYPICALLY OFFERED AT THE SECONDARY LEVEL. OCCUPATIONAL AREAS FOR WHICH INTEREST SCALES WERE DESIGNED INCLUDED APPLIED BIOLOGICAL AND AGRICULTURAL OCCUPATIONS BUSINESS, MARKETING AND MANAGEMENT, HEALTH AND HOME ECONOMICS, INDUSTRIAL OCCUPATIONS AND PERSONAL AND PUBLIC SERVICE OCCUPATIONS. ALL ITEMS WERE WRITTEN SO AS TO BE EASILY UNDERSTOOD BY AN AVERAGE NINTH GRADE STUDENT AND PILOT TESTING OF THE INSTRUMENT WAS ADMINISTERED TO A RANDOM SAMPLE. ANALYSES OF THE RESPONSES INDICATED THAT THE SCALES WERE HIGHLY CONSISTENT AND THE CONTENT VALID. INTEREST INVENTORIES OF HOLLAND AND OTHERS WERE REVIEWED AND COMPARED. THE CAREER INTEREST INVENTORY DIFFERS FROM OTHER APPROACHES IN THAT IT ATTEMPTS TO MEASURE STUDENT INTEREST IN SEVERAL AREAS AND TO SHOW THE RELATIVE STRENGTHS OF THESE INTERESTS. (MF)

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DEVELOPMENT OF A CAREER INTEREST INVENTORY*

Hollie B. Thomas and Susan B. Thomas
University of Illinois

The identification and recruitment of students with a sincere interest in the field is a recurring problem for educators conducting career education programs in the secondary schools. Many times a student's reasons for enrolling in these career courses are such things as a sibling's previous enrollment, a friend's concurrent enrollment, or the the fact that there are no other courses that interest him and these career courses "are better than nothing".

Counselors are also at fault for misplacing students in career programs, for often counselors do not take into consideration the interests of the student. A lack of available instruments to measure student interest, as well as a lack of information about the content of the career courses are joint problems in the area. The use of vocational interest inventories has been in vogue for more than half a century as indicated by the works of Strong (1945), Super (1947), and more recently Berdie (1960). The primary focus of the more widely used inventories has been vocational guidance, especially at the college level. Many of the inventories are not appropriate for use until the latter portion of high school (e.g., Strong, 1966).

Until recently, interest inventories have been considered to be more valuable than expressed occupational interest. Holland (1968) questions the superiority of interest inventory scores over the individual's expressed vocational choice based on research indicating that expressed vocational choice was a better predictor of subsequent expressions of vocational choice than was vocational interest as measured by the Vocational Preference Inventory.

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*A Paper Presented to the Annual Convention of the National Council for Measurement in Education, Chicago, 1972.

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This approach, however, ignores the question of whether or not expressed choice, especially for secondary students, is a better predictor of occupational entry than are interest inventory scores.

Cooley (1967), using the same technique as Holland, except using secondary students as subjects, found that expressed vocational choice was a better predictor of 12th grade career plans than was an interest inventory. Arguments for expressed choice are challenged by Dolliver (1969) who concluded that the reliability of the Strong Vocational Interest Blank is greater than that of expressed interest, with the reliability of expressed interest being moderately low. Dolliver (1969) notes, however, that the available evidence does not support a current counseling procedure of not using the information of the client's expressed vocational interest. It is apparent that both measured interest and expressed vocational interest are valid sources of information concerning the vocational interest of students. Thus, although very little research has been done on the predictive validity of expressed vocational choice (Whitney, 1969), it is reasonable to assume that the degree to which expressed vocational choice and measured interest overlap is an indication of concurrent validity.

Based on Holland's research it appears that administering interest inventories so that the counselor may counsel students in order to reduce the ambiguity between his expressed career and his measured interest does not seem appropriate. Rather, interest scores may provide a vehicle for the student to explore occupations which are closely related to his expressed choice to ascertain if in fact other areas might be more desirable and provide a greater opportunity for entry. As noted by Prediger (1971), the rationale for converting test data into counseling information includes the fact that information from tests can play an important role in vocational

development by stimulating and facilitating exploratory behavior. This need for a method of suggesting potential careers related to a client's interests was expressed by Cole, Whitney, and Holland (1971). Whitney (1969) emphasized the need for a place to start with the relatively large portion of adolescents who are unable to express an occupational preference.

The structure of vocational interest has been approached from several points of view. D'Costa (1969) employed a cubistic model defined by the dimensions of data, people, and things as described in Dictionary of Occupation Titles (U.S. Department of Labor, 1965). The classification developed by Roe (1969) encompasses all occupations within eight groups. Each group has six levels ranging from unskilled to professional. This classification system appears to be more applicable to the measurement of interest of secondary students. Roe's (1969) system of classification may be depicted as a cylinder divided into eight categories representing the interpersonal relationships involved in the occupational activity. In addition, the cylinder is further divided into six levels or degrees of responsibilities, capacity, and skill. Osipow's (1966) research of the Roe classification supported the hypothesis that occupations within a category possess a psychological climate with a greater similarity than occupations outside the category.

The classification system based on the psychology of vocational choice by Holland (1966) was found to have a hexagonal configuration (Holland et al, 1969). Cole and Hanson (1971) suggest that the classification by Roe and by Holland are similar. They conclude that the similarities of the many proposed categories of occupational interest and the demonstrated relations among categories suggest that a circular configuration of interest dominates the structure of interest; thus, a structural base for comparing interest inventories is provided.

Objectives of the Inquiry

The primary objective of the present study was to develop and pilot an instrument designed to measure student interest in the various areas for which career (vocational) education is typically offered at the secondary level. The occupational areas for which the scales were developed included applied biological and agricultural occupations; business, marketing, and management occupations; health occupations; home economics occupations; industrial occupations; and personal and public service occupations. If the scale measures adequately those areas for which career education is offered, the need for programmatic knowledge on the part of the counselor is somewhat alleviated. Available instruments have approached the area of career interests either from an overall career choice approach (e.g. D'Costa et al, 1968) or from a single career area approach (e.g. Clark and Campbell,1965). The present instrument differs from these approaches in that it attempts to measure student interest in several areas, and to show the relative strengths of these interests.

Procedures

The Career Interest Inventory (CII) was designed such that the content of the scales within each career area was descriptive of the activities an employee would perform in that area. The basis for the career areas was the description of these areas in the "Standard Terminology for Curriculum in Local and State School Systems" (Putman and Chismore,1970) issued by the National Center for Educational Statistics. All items were written to be easily comprehended by an average ninth grade student. The 282 items on the instrument yield scores on 58 subscales which in turn form six composite scores corresponding to the six areas of career interest. Scores were obtained by summing the weighted response to the items on each scale.

Subjects used in the pilot testing of the instrument included ninth grade students from suburbs of a large metropolitan center. The sample was obtained by randomly ordering the schools and contacting officials of these schools to obtain the cooperation of four of these schools. It was necessary to contact five schools in order to obtain the participation of a total of four schools. A random sample of approximately 60 students was obtained from each school. The CII was administered during school hours, thus, assuring participation of the 248 subjects selected.

Subjects were directed to respond a four-point scale ranging from "strongly like" to "strongly dislike" regarding their feelings about how much they would like to do each activity.

Reliability

Coefficients of internal consistency computed for each of the 58 subscales and the 6 composite scales indicated that the scales were highly consistent. Based on a sample of 248 students, the r's of the subscales ranged from .42 to .96 ($p < .01$). As shown in Table 1, forty-two of the subscales had internal consistency coefficients of .70 or greater. The median r of the 58 subscales was .82. The range of internal consistency coefficients for the composite scales was .91 to .98. The internal consistency coefficients for the composite scales are presented in Table 2.

Item Analysis

An item analysis was computed to determine the percent of students selecting each response for each of the 282 items. Results indicated that all responses were selected by some of the students, with the exception of three items. For these three items, only three of the four possible responses were selected. Perhaps these items should be rewritten or omitted. The distribution of the percentages of responses for most items approached normality. A tendency for some items to be skewed to the strongly dislike

end of the continuum was observed. Those items receiving the fewer "like" and "strongly like" responses were more discriminatory than were the items having fewer "strongly dislike" responses. Despite some observed skewness, the range of standard deviations of the items was relatively small, the range being .60 to 1.11. Thus, in most instances the four point scale was encompassed in the first two standard deviations from the mean.

Scale Intercorrelations

Intercorrelations of the composite scores (the sums of the subscores for each occupational area) indicated that the interests in the various career areas were not completely orthogonal. The average correlation indicated that there was an average of 18% overlap among the six composite scales. Since the $\bar{r}$ of the internal consistency coefficients of the six scales was .96, the 18% overlap was deemed not to be detrimental to the instrument. Some students simply may have interests in more than one occupational area, especially when these areas encompass similar activities.

Table 1 - Internal Consistency Coefficients of the CII Scale

Area	Scale	Number of Items	Coefficient
Applied Biological and Agricultural	Animal Science	11	.87
	Plant Science	6	.80
	Farm Mechanics	3	.88
	Agricultural Mechanics	9	.92
	Agricultural Business Management	5	.86
	Agricultural Supply and Services	7	.88
	Agricultural Products	5	.58
	Ornamental Horticulture	11	.84
	Agricultural Resources	4	.69
	Forestry	6	.82
Home Economics	Child Care	7	.94
	Clothing Management	7	.93
	Food Management	7	.93
	Home Furnishings	6	.83
	Institutional Home Management	7	.82

Table 1 - Internal Consistency Coefficients of the CII Scale (continued)

Area	Scale	Number of Items	Coefficient
Industrial Oriented	Metal Work	9	.93
	Auto Services	9	.87
	Auto Body	6	.91
	Auto Mechanics	6	.96
	Auto Technology	4	.86
	Carpentry Trades	5	.80
	Electrical Work	5	.92
	Heavy Equipment	3	.85
	Concrete Work	5	.87
	Painting and Decorating	6	.83
	Plumbing	7	.91
	Graphic Occupations	7	.72
	Maritime Occupations	4	.86
Business Marketing and Management	Business Marketing	5	.67
	Advertising Services	2	.47
	Apparel and Accessories	2	.75
	Automotive	3	.76
	Finance and Credit	2	.49
	Food Distribution	3	.76
	Food Services	2	.42
	General Merchandising	2	.45
	Hardware	2	.56
	Home Furnishing	2	.67
	Industrial Marketing	2	.77
	Insurance	2	.80
	Real Estate	3	.69
	Recreation and Tourism	4	.71
	Transportation	2	.64
	Office Occupations	5	.77
	Business Data Processing	4	.86
	Filing and Clerical	3	.48
	Information and Communication	8	.89
Health Occupations	Dental Assistant	5	.85
	Nursing	8	.82
	Other Health Related	9	.84
Personal and Public Service	Forestry	2	.66
	Recreation	3	.61
	Water	3	.81
	Air	2	.75
	Hotel and Lodging	2	.90
	Law Enforcement	9	.81
	Recreation and Tourism	4	.57
	Firemanship	4	.86

Table 2. - Internal Consistency Coefficients of CII Composite Scales

Scale	Number of Items	Coefficient
Applied Biological and Agricultural Occupations	63	.97
Home Economics Occupations	34	.97
Industrial Oriented Occupations	76	.98
Business Management and Marketing Occupations	58	.93
Health Occupations	22	.96
Personal and Public Service Occupations	29	.91

Validity

Content validity was established by developing items reflecting the activities involved in each job cluster. Each scale included a sample of activities typically performed by an employee in that occupational area.

An indication of concurrent validity was obtained by comparing the subjects' expressed career aspiration to the corresponding scale on the CII. The subjects were considered to be "hits" if their average item score was =>3 (like), "gray" if their score was <3 but > 2, and "miss" if their score was = < 2(dislike). Subjects whose occupations could not be classified as being within an occupational area or did not indicate an expressed career aspiration were excluded from this analysis.

Seventy-nine percent of the subjects who had an expressed career aspiration which could be assigned to one of the CII scales had an average item score on that scale of 3.0 or greater and thus were classified as "hits". An additional 17.27 percent were classified as "gray" while 3.57 percent were classified in the "miss" category.

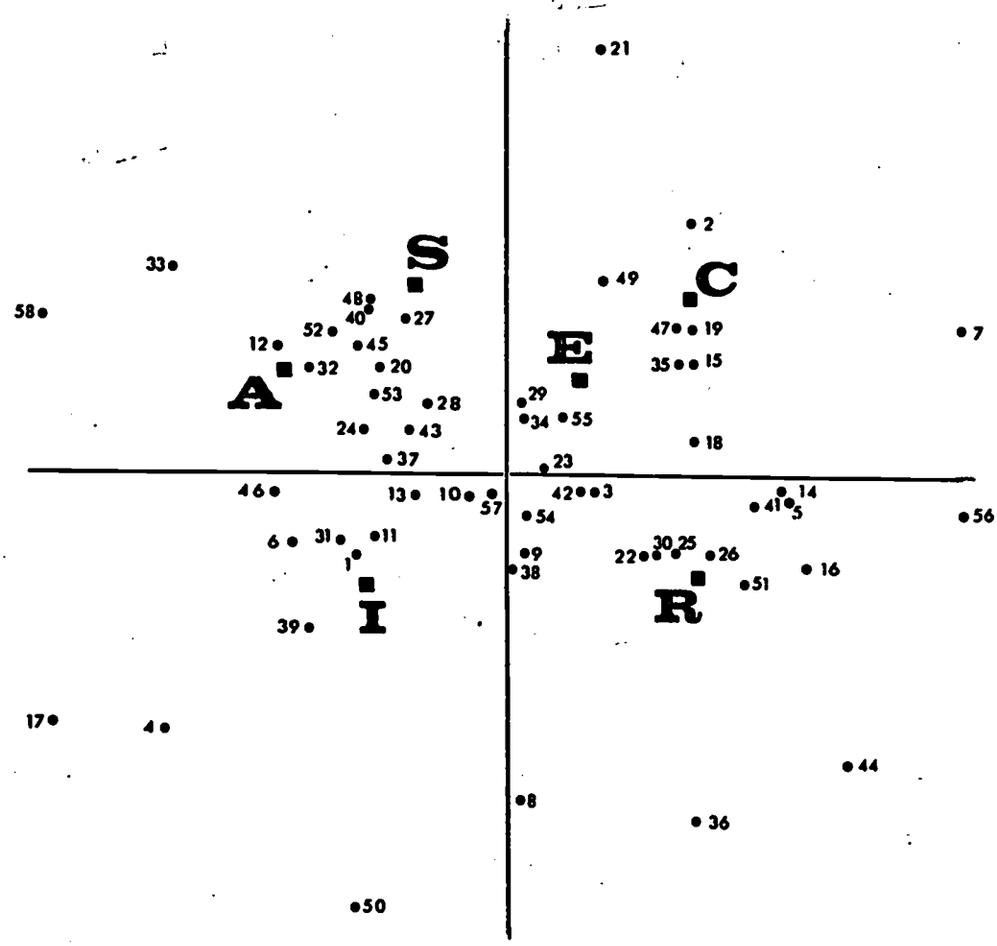
Of the total 248 subjects, 139 (56.48%) had occupational aspirations that could clearly be classified as being an occupation within one of the career scales, twenty-five (10.46%) were unable to identify their occupational aspirations, and 82 (33.06%) had occupational aspirations that could not be classified as being occupations for which the CII scale would measure interest. Nearly two-thirds (65.87%) of those whose occupations could not be classified aspired to be teachers, medical doctors, professional athletes or engineers. Most of the others were professional occupations requiring a college degree.

It may be assumed on the one hand that this procedure will maximize the number of "hits" since the subjects may have had numerous scales on which the mean item score was equal to or greater than three. On the other hand, some subjects may have had no scales on which the average was equal to or greater than three.

As a further indication of validity a configural analysis (Cole and Cole, 1970) was employed in order to compare the planar configuration of the CII to those employed by Cole and Hanson (1971).

This analysis, presented in Figure 1, provides some indication that CII has an internal configural structure similar to those proposed by Roe and found by Holland. When compared to the configural analyses of several vocational interest inventories compiled by Cole and Hanson (1971) it was noted that the scales on the CII which represent clusters of occupations rather than a specific occupation were more difficult to classify into Holland's six classifications. For example, an individual interested in animal science may find a career as kennel keeper or veterinarian. Thus, several Roe levels are represented on a single scale. This limitation, however, did not preclude the identification of clusters of occupations similar in nature to those identified by Holland. As shown in Figure 1,

Figure 1. Configural Analysis of the CII



Applied Biological and Agricultural - 1) Animal Science, 2) Plant Science, 3)Farm Mechanics, 4)Agricultural Mechanics, 5)Agricultural Business Management, 6)Agricultural Supply and Services, 7)Agricultural Products, 8)Ornamental Horticulture, 9)Agricultural Resources, 10)Forestry

Home Economics - 11)Child Care, 12)Clothing Management, 13)Food Management, 14)Home Furnishings, 15)Institutional Home Management

Industrial Oriented - 16)Metal Work, 17)Auto Services, 18)Auto Body, 19)Auto Mechanics, 20)Auto Technology, 21)Carpentry Trades, 22)Electrical Work, 23)Heavy Equipment, 24)Concrete Work, 25)Painting and Decorating, 26)Plumbing, 27)Graphic Occupations, 28)Maritime Occupations

Business Marketing and Management - 29)Business Marketing, 30)Advertising Services, 31)Apparel and Accessories, 32)Automotive, 33)Finance and Credit, 34)Food Distribution, 35)Food Services, 36)General Merchandising, 37)Hardware, 38) Home Furnishings, 39)Industrial Marketing, 40)Insurance, 41)Real Estate, 42)Recreation and Tourism, 43)Transportation, 44)Office Occupations, 45)Business Data Processing, 46)Filing and Clerical, 47)Information and Communications

Health Occupations - 48)Dental Assistant, 49)Nursing, 50)Other Health Related

Personal and Public Services - 51)Forestry, 52)Recreation, 53)Water, 54)Air, 55)Hotel and Lodging, 56)Law Enforcement, 57)Recreation and Tourism, 58)Firemanship

all Holland dimensions including realistic, intellectual, social, enterprising, and conventional were identified, and were found to have the same ordinal relationship on the planar surface.

Educational Significance

The educational significance of the study lies in the potential utility of the instrument by career educators needing to identify students with interests in particular career areas and to counselors placing students into the various career courses. The instrument could also be used to identify those areas of interest among students for which a career course should be instigated. In developing a new career program, the instrument could be used to identify potential students for these courses. In addition, counselors who avail themselves of the results of the CII need less programmatic knowledge of the actual course content to be able to help students identify the type of career education for which the student has a high level of interest.

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VT 016 173
VOCATIONAL EDUCATION AND THE PROFESSION IN THE 70'S AND BEYOND.

NATIONAL EDUCATION ASSOCIATION, WASHINGTON, O.C. TASK FORCE ON VOCATIONAL EDUCATION.
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PUB DATE - 26MAY71 24P.

DESCRIPTORS - *VOCATIONAL EDUCATION; *CAREER EDUCATION; *EDUCATIONAL POLICY; *EDUCATIONAL COORDINATION; PROFESSIONAL ASSOCIATIONS; HUMAN RESOURCES; VOCATIONAL EDUCATION TEACHERS; *EDUCATIONAL ADMINISTRATION
IDENTIFIERS - *NATIONAL EDUCATION ASSOCIATION; NEA

ABSTRACT - THE TASK FORCE ON VOCATIONAL EDUCATION OF THE NATIONAL EDUCATION ASSOCIATION (NEA), COMPOSED OF A GROUP OF CLASSROOM TEACHERS OF VOCATIONAL EDUCATION, RECOMMENDED A TOTAL EFFORT BY THE PROFESSION TOWARD OCCUPATIONAL AND CAREER DEVELOPMENT EDUCATION FOR ALL, FROM EARLY CHILDHOOD THROUGH ADULT LIFE, AS AN OPERATIONAL STATEMENT OF A PHILOSOPHICAL POSITION. THE IMPLEMENTATION OF THIS POSITION WOULD REQUIRE THAT ALL OCCUPATIONAL AND CAREER DEVELOPMENT PROGRAMS BE ADMINISTERED THROUGH ONE COMPREHENSIVE PUBLIC EDUCATIONAL AGENCY AT THE NATIONAL, STATE, AND LOCAL LEVELS. POSITIVE PROGRAMS ARE NEEDED TO INTERPRET AND EMPHASIZE VOCATIONAL EDUCATION, BOTH WITHIN THE NEA AND TO THE PUBLIC. EDUCATORS AND OTHERS MUST CHANGE THEIR PERCEPTION OF VOCATIONAL EDUCATION TO RECOGNIZE IT AS A LIFE-LONG DEVELOPMENTAL PROCESS, REPLACING THE CONCEPT OF TERMINAL EDUCATION WITH ONE OF CONTINUING EDUCATION. THE OVERALL CONCLUSION OF THE TASK FORCE WAS THAT THERE IS A MAJOR NEED TO IMPROVE VOCATIONAL EDUCATION IN OUR SOCIETY AND THAT THE NEA SHOULD ACT TO STRENGTHEN ITS VOCATIONAL EDUCATION EFFORTS WITHIN THE PROFESSION. (MF)

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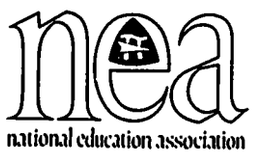
VOCATIONAL EDUCATION AND THE PROFESSION

IN THE 70'S AND BEYOND

THE REPORT OF THE

NEA TASK FORCE ON VOCATIONAL EDUCATION



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PREFACE--A BELIEF SYSTEM

This document is at once both a report and a challenge. It is a report of the Task Force on Vocational Education of the NEA, appointed by President Helen P. Bain following the 1970 convention motion to seek clarification of the profession's position to "strengthen and coordinate" vocational education. It is also a challenge to the profession to create an imaginative program of occupational and career development education which meets in everyday practice the need for the development of human resources in relation to the demands of a modern society.

The Task Force was a "grassroots" group of classroom teachers from various locales--rural to urban. It was reflective of the different institutions offering vocational education, and it was representative of geographic regions. Most important, it was composed of people who sought out advice from every state association, from leaders in the field of vocational education, from the NEA staff, and from national government agencies.

This report has a clear-cut recommendation--that is for a total effort by the profession to create and maintain an educational effort for all, related to man and his occupational role. It asks that the program begin with the child's initial grasp of the world of work, continue with his development toward adulthood, and be responsive to him throughout his adult life as he reacts to economic change and various life-styles.

The Task Force recommendation can be summarized as an operational statement of a philosophical position which it hopes will become a resolution to which every member of the united profession can subscribe.

> We believe that occupational and career development education should be provided from early childhood through adult life, but of a nature appropriate to each individual as he needs it, wants it, and can profit from it; be offered within and beyond the customary school day and year; and be offered at public expense in order to further the development of the human potential and serve the growth and advancement of society.
>
> Further, we believe the profession should pledge itself to the implementation of a comprehensive education program that assures the nation's youth equal opportunity for occupational and career development education suited to their goals and delivered at the time and place needed; and assures similar opportunity to all out-of-school youth and adults through a flexible, continuing education program that provides for entry training, retraining, advancement, and promotion.
>
> In the implementation of this position, it is necessary that all occupational and career development programs should be administered through one comprehensive public educational agency at the national, state, and local levels.

The Task Force on Vocational Education
May 26, 1971

Renetta Heiss, chairman	Professor of Business Education Shippensburg State College Shippensburg, Pennsylvania
Paul Drake	Principal Springdale Elementary School, Memphis, Tennessee (NEA Board of Directors)
Peter G. Haines	Professor of Vocational Education and Program Coordinator, Business and Distributive Teacher Education Michigan State University East Lansing, Michigan
John Louis	Vocational Automotive Teacher Westwood High School Mesa, Arizona
Elton V. Schoenrock	Postsecondary Teacher Mankato Area Vocational Technical Institute Mankato, Minnesota
Kenneth E. Seamon	Job Development Counselor Western Vocational Technical Center Baltimore County, Maryland President of the Teachers Association of Baltimore County
James R. Vaughan	Vocational Agriculture Teacher South Hopkins High School Nortonville, Kentucky

Earl C. Funderburk, NEA Staff Contact

The National Assessment of 1968

The National Advisory Council on Vocational Education reported on the achievements and progress which the 1963 Act had made possible. However, the Council reported that vocational education programs and services under the 1963 Act had not expanded rapidly enough to help students with special needs, the culturally and economically disadvantaged in depressed rural areas, or young people in the slum and ghetto neighborhoods of large metropolitan areas.

The total of federal vocational education funding was judged to have been entirely inadequate to expand and develop programs in accordance with need. In addition, it was reported that all youth did not receive the benefits of vocational guidance in the total education process.

The Council's report included a comprehensive series of recommendations for dealing with these inadequacies and other problems and suggested that all federal vocational legislation administered by the Office of Education be combined into one act. The result was passage by Congress of the 1968 amendments to the Vocational Education Act.

The amendments embodied most of the Advisory Council's recommendations. Highest priority was given to the training and educational needs of the rural and urban disadvantaged, the mentally and physically handicapped, and those seeking training at the postsecondary level.

The legislation also permitted greater flexibility in programs, authorizing large resources which would be at the disposal of state and local educational agencies. It earmarked one-third of the home economics funds for development of special programs to improve the quality of family life in economically depressed areas and placed stress on consumer education in home economics curriculums. It also authorized new and enlarged programs of combined school and work and other promising innovations which, if fulfilled, were judged to aid greatly in building a bridge between school and employment.

The 1968 amendments called for profound changes in vocational education. If Congress makes full appropriations, the public education sector has great resources with which to make the changes. But imposed on them is the equally great responsibility and accountability for developing the vocational and educational potential of all of the nation's citizens.

It is clear that the federal government has and will be a partner in vocational education as a matter of vested interest in the manpower sector. This has enormous significance to the education profession not only nationally but within states where legislative bodies likewise relate and respond to federal actions.

PART III--THE RECOMMENDATIONS: NEEDED PROGRAM THRUSTS AND AN IDENTIFIABLE VEHICLE OF CHANGE

The findings of the Task Force are clear-cut--there is a major need to improve vocational education in our society and an imperative need for

PART I--THE TASK FORCE AND ITS WORK

The NEA and the profession have for decades been involved in the improvement of learning opportunities for young people and adults in our society. The interests in vocational education were accorded attention through the Department of Vocational Education and the organizations within NEA which related to specific occupational fields.

The Task Force was not concerned with an assessment of whether or not the Department of Vocational Education had been effective. Rather, the Task Force accepts the fact that such a Department did exist for many years but became inactive to the point where a decision was required regarding its status and the posture and action of the NEA towards vocational education. This decision came to a head at the 1970 convention when as an order of business the intention to discontinue the Department was announced. This action for discontinuance was received by the delegates with alarm. Faced with the possibility that vocational education might not in the future be represented by a visible unit within the NEA, the delegates asked that a review of the situation be made with a report to the 1971 convention.

It was this action by the delegates which gave birth to the Task Force as a mechanism for expressing the delegates' concern that the NEA take steps to strengthen and coordinate its efforts in vocational education. As indicated by their votes, the delegates refused to abandon the professional investment in vocational education and its future role.

From that point in time in San Francisco in 1970 emerged the Task Force, its work, and its report.

This report begins with a review of the status of the Department of Vocational Education and the work of the Task Force after the action by President Bain to carry out the wishes of the 1970 convention delegates.

The Department of Vocational Education in Retrospect

The NEA's Department of Vocational Education was organized as the Department of Industrial Education in Minneapolis in 1875. A few years later--in 1890--the name of the organization was changed to the Department of Industrial and Manual Training and in 1914 to the Department of Vocational Training and Practical Arts. The organization assumed its present name in 1919. For years the Department conducted a program at the annual NEA convention. Even this was discontinued and for years the Department has not conducted an active program of service.

The Mandate of the 1970 Representative Assembly

In 1969 the Representative Assembly of the NEA was informed that the 1970 Assembly would be required to act on the business of discontinuing the Department of Vocational Education.

A motion for such a discontinuance was presented to the 1970 Assembly

a quick response within the NEA to improve and strengthen vocational education efforts within the profession. There is little doubt that the resources of the NEA must be marshalled into a concerted and focused program of action. Within this major and overriding conclusion of the Task Force, based upon its findings, are embodied the following conclusions:

1. For several years a substantial number of practitioners within vocational education's rank have been developing the concept of vocational education as a broadened and diversified program of activities which fits the term "occupational and career development." The Task Force concludes that there is great need to develop within the educational profession generally as well as within industry groups, parents, students, and the general public an understanding of this concept and to erode the very limited concept held by many that vocational education is only skill training at the rank and file employment levels.

2. There are needs to bring about a program of occupational and career development education at all educational levels, in a variety of institutions, and serving people of all ages.

3. There is need to provide within the NEA an identifiable thrust to improving vocational education to which many organizations outside the NEA can relate.

4. There is need to provide to every state and local association the informational program they require about vocational education and the guidelines for the program of action which their resources can bring about.

5. There is need within the NEA to bring about a coordinated effort for vocational education which brings into concert the efforts now being made by many of its units and affiliated and associated organizations.

6. There is need for the image of the NEA to be projected to the nation as being concerned about vocational education and being willing to invest its resources in a visible demonstration of program improvement.

A Posture for Change

The findings of the Task Force represent many inputs and beliefs. But, the recommendation is rooted in a position which was perhaps enunciated best by a contemporary. The integral nature of occupational development as a part of the nation's need which vocational educators

in San Francisco. However, the delegates reacted to a motion which was intended to clarify their position regarding vocational education within the profession. It was moved and adopted that:

> The NEA President and/or the Executive Committee to appoint a task force to study the whole spectrum of the Department of Vocational Education to develop plans to strengthen and coordinate all vocational education in the curriculum and the profession.

This action by the delegates generated the need to create a study group which would report to the 1971 Representative Assembly. The resultant action was the creation of the Task Force on Vocational Education.

The President's Charge to the Task Force

President Bain and the Executive Committee requested in writing that the Task Force give attention to the following alternatives which would constitute their charge:

1. Reorganize the Department of Vocational Education; consider the investment of NEA funds for this purpose.
2. Recommend discontinuing the Department of Vocational Education.
3. Explore with the American Vocational Association the possibility of a merger and affiliation of the group as an associated organization of the NEA.

This charge was accepted and the Task Force's response is this comprehensive report and recommendations.

The Task Force was confronted immediately with the problem of an organization which in reality has been inactive for many years, with the profession's varying definitions of vocational education, and with what appeared to be a lack of status and image for vocational education within the profession.

Organization and Procedures

The Membership

The Task Force appointments were made by President Bain during the fall of 1970. This action followed the Executive Committee's decision on September 17-19, of Item 21, "Report on the Department of Vocational Education."

President Bain extended invitations for appointments to seven persons.

have been calling for was stated by the federal government's Commissioner of Education.

On January 23, 1971, in his first major address, U.S. Commissioner of Education Sidney P. Marland, Jr. advocated an end to the general education curriculum in U.S. high schools and labeled it as "neither fish nor fowl" and "neither truly vocational nor truly academic." He also pointed out that "vocational training is being treated as 'education's poor cousin.' Further, Commissioner Marland proposed immediate adoption of a goal for American education: "that every young person completing our school program at grade 12 be ready to enter higher education or to enter useful and rewarding employment." As a first step in eliminating what he calls "the false dichotomy between things academic and things vocational," he suggested disposal of the term vocational education in favor of the term career education. "All education is career education, or should be," he said. "And all our efforts as educators must be bent on preparing students either to become properly and usefully employed immediately upon graduation from high school or to go on to further formal education. Anything else is dangerous nonsense."

Commissioner Marland also emphasized that the approach to effective career education required a new unity. He stated his firm intention "that vocational education will be one of a very few major emphases of the U.S. Office of Education, priority areas in which we intend to place the maximum weight of our concentrated resources to effect a thorough and permanent improvement."

The Recommended Vehicle of Change

The Task Force believes that the evidence is overwhelming that the NEA must act swiftly and with defined actions to meet the imperative needs in vocational education. What is obvious throughout the evidence is that change must be brought about now.

Change is a process of involvement which brings about understandings as well as organized and unified effort directed to goals. Because change is a process of people who are involved, it requires an organization to provide the leadership role. Without this, there can be gaps in the effort, a lack of focused goals, and wasteful duplication of services.

It should be clear to all that the improvement of vocational education, or what is now seen as occupational and career development education, requires the pulling together of the resources of the NEA and the unified efforts of the state and local association. At once there must be the grass roots level thrusts as well as the national effort.

The Task Force recommends in light of its charge and the accumulated evidence the following actions:

Recommendation 1

Within the NEA there should be created immediately a major operational unit to give visibility to a concerted program of action for occupational

Six are classroom teachers--two in high schools, one in a county school district, one in a post secondary area vocational school, and two at the collegiate level including vocational teacher education. All have been active and have held offices in local and/or state associations; one is a member of the NEA Board of Directors. A majority are active members of the American Vocational Association, and two have held offices within its state and national structure.

The Procedures

The Task Force met initially on December 14-15, 1970 at the NEA Headquarters. President Bain opened the meeting with a welcome to the group and pointed out the significance of the task ahead. She pinpointed the fact that the work of the Task Force was most timely since the NEA was seeking a Cabinet post for education and is concerned with federal legislation and manpower development.

In clarifying its procedures the Task Force initially identified all NEA affiliated or associated organizations involved with some special phase of vocational education. These are the American Industrial Arts Association, National Business Education Association, Home Economics Education Association, and the Adult Education Service Division. Representatives from each of these associations gave testimony. Next, testimony was taken from the official representatives of the NEA's Associations as well as the Federal Office of Economic Opportunity and the American Vocational Association.

As its next course of action, the Task Force decided to schedule hearings with representatives of various associations and government agencies related to vocational education. First priority was placed on hearing from all groups and units within the NEA that relate to occupational and career development. Next, affiliated and associated groups of the NEA and related professional groups and government agencies were scheduled, because the Task Force considered their inputs as vital in obtaining a clear picture of imperative needs and current efforts in vocational education. At this point, preliminary plans were prepared for a survey of state associations to determine their needs and current activities in vocational education. It was also decided to clarify the history of the Department of Vocational Education as well as the events and circumstances which might have led to its years of inactivity.

As a result of this first meeting, the Task Force members were unanimous in their belief that the implications of their report could be significant in identifying a program of action for vocational education within the total profession. They accepted the mandate of the Delegate Assembly in San Francisco with great enthusiasm and sense of responsibility and visualized what could lie ahead for vocational education with the resources of the NEA in full support. Between the first and second meetings, members read and analyzed many documents and reports related to the problems.

The second meeting of the Task Force was held in Washington, D. C., January 31--February 2, 1970. Major consideration was given to the hearings

and career development education (vocational education). The unit should have the accountability and responsibility of a division. But as an alternative, consideration should be given to a unit--

a. Entitled The Coordinating Unit for the Improvements of Occupational and Career Development Education.

b. Headed by a vocational educator of national repute with the title of associate director within the Division of Instructional and Professional Development, as proposed recently in a restructuring of the NEA Headquarters units by the Board of Directors.

c. Armed with an Advisory Council made up of the NEA membership involved in the teaching and administration of vocational education programs at all levels and supplemented by representatives such as the following: resource people from the staff of NEA Headquarters units, NEA affiliated and associated organizations, and organizations and agencies outside the NEA but related to vocational education and manpower development.

A unit such as that envisioned would have ready access to every facility and service of the NEA, be able to provide an integrated and unified thrust, strengthen and gain recognition for vocational education within the total framework of education, and be able to relate integrally with outside groups, agencies, and employer associations.

The unit is a vehicle of change which is practical and within the present capability of the NEA--facts which the Task Force kept in mind.

Initially, the Task Force generated a global response to the charge to strengthen and improve vocational education within the profession. Later, this gross response was reduced to what is believed to be a practical method for the NEA to promote change through an organizational structure. This structure as outlined is consistent with the internal reorganization announced in May 1971 and can produce, if adequate resources are provided, the necessary program of action that projects NEA into vocational education as a leader.

Recommendation 2

The Department of Vocational Education should be discontinued concomitantly with the establishment of the new leadership unit for occupational and career development education. Reasons for the recommended discontinuance are that the newly established single unit, rather than a department, would--

a. Identify a broad-scoped effort of the NEA to strengthen and improve vocational education within the curriculum and the profession based on the emerging concept defined earlier.

b. Eliminate any criticism or charges that the NEA is creating a membership organization which will compete for the membership dollar or duplicate services offered to the vocational educator by the AVA.

requested at the first meeting. Persons who presented testimony represented the following groups and organizations within the NEA:

-- The inactive Department of Vocational Education

-- The Office of Professional Development and Instructional Services

-- The American Association of School Administrators, the National Business Education Association, the National Council of State Education Associations, the Adult Education Service Division, and the American Industrial Arts Association

-- The Office of Government Relations and Citizenship.

Also heard were representatives from the National Advisory Council on Vocational Education, the Bureau of Adult Vocational and Technical Education of the U.S. Office of Education, and the American Vocational Association.

The proposed format for the report of the Task Force was prepared, as well as possible approaches to a structure which would put the full force of the NEA behind the search for solutions to the imperative problems of career education, vocational education, and manpower education in our society. Following the meeting, each member was asked to prepare written statements in response to basic questions and submit them prior to the third meeting.

The third and final meeting of the Task Force was held May 1--3, 1971 at the NEA Headquarters. Members brought written drafts of answers to major questions. The major findings were reviewed and conclusions reached. From these, the recommendations were generated after reanalyzing major issues of organizational structure. Through subgroups the Task Force engaged in writing the first draft of the final report. It was agreed that the draft would be rewritten and edited into a final report by one member, after each member submitted written criticisms of the first draft.

PART II--THE FINDINGS: A CRUCIAL NEED FOR THE PROFESSION TO INVEST IN THE PROMOTION AND IMPROVEMENT OF OCCUPATIONAL AND CAREER DEVELOPMENT EDUCATION

The Task Force faced the very great problem of attempting to assess the contemporary needs in our society for the development of human potential in relation to a manpower development situation. It was apparent that this assessment should also include a review of the current inputs of the NEA and the state associations into resolution of the problems.

With a limited membership and budget resources, the Task Force sought to investigate the problem through the review of reports and the testimony of practitioners in the field. Aid was forthcoming through the cooperative efforts of many associations and government agencies

c. Create a new image for the NEA in its service to the united teaching profession through its contemporary recognition of Vocation Education as an integral partner in a total educational effort.

Recommendation 3

The NEA should provide the necessary effort to engage in further dialogue with the AVA to bring about a closer relationship between the two organizations. An immediate liaison officer or group is suggested to build upon the initial contact of the Task Force.

Such a relationship could provide a more united thrust and a greater range of impact and service to such programs as legislative action, instructional improvement, professional standards, publications, research and development projects, in-service teacher and administrator education, and public information programs.

In a letter of February 2, 1971 to the chairman of the Task Force, the president of the AVA indicated the following five major areas in which informal relationships might be carried on immediately by the AVA and the NEA: convention and special program planning, improvement of communications on legislation, curriculum planning, public relations, and organizational relationships.

Needed Program Thrusts

The Task Force is by its conclusions and its recommendations clearly on record as to the need for the NEA to provide at once and with all its resources a program of action and service to vocational education. What is needed is a set of defined thrusts which with clarity to the profession set upon a course of making real in everyday practice the concept of occupational and career development education. This program must begin now for the creation of a viable program for the 70's and the foundation for the major investment which will be needed in the profession in the 80's.

It will be necessary for this action program to consist of thrusts at the national level as well as at the state and local levels. Therefore the Task Force recommends a twofold attack as follows.

A. The National Level of Program

The Task Force views this program as a series of major thrusts which for sake of brevity are presented here only in their major outlines.

Thrust 1--Curriculum Development and Instructional Systems . . . distributing information from developmental, research, and exemplary projects. . . providing clearinghouse services for curriculum materials from throughout the country . . .

as well as the searching and past experiences of the Task Force members.

The many needs of our society in the area of occupational and career development education are presented as a set of generalizations in this section on findings. These are grouped for easy professional reference into several categories:

A. Testimony of official representatives of organizations and agencies within the NEA family as well as outside

B. State education association beliefs

C. Statements of the needs in developing human resources through vocational education

D. Basic positions based on a review of reports and writings

E. A review of public policy as expressed in federal legislation for vocational education.

The Testimony of Official Representatives of Organizations and Agencies

From the lengthy and face-to-face discussions with official representatives of many of the NEA units as well as outside professional associations and government agencies, emerged the following generalizations which are highlighted as findings:

1. There is great need for vocational education to have visibility as an identifiable unit and force within the NEA. The majority felt that there should be a person on the NEA staff directly charged with responsibility for vocational education. This individual should attend all major meetings and hearings on vocational education and give positive leadership for NEA.

2. It is imperative that the NEA take steps to interpret vocational education to all educators at all levels of instruction.

3. Positive actions must be taken to provide an informational program which informs the public of the scope of vocational education, which persuades and convinces the public to support individual and collective action.

4. The NEA is losing by default by not being present to testify for vocational education at the state and national levels. Its strength is needed in support of legislation to further the development of career education opportunities and programs. The NEA must move vigorously in support of retention of leadership for career development within the federal agency responsible for the educational development.

planning adequate vocational facilities to provide for implementation of modern curriculum . . . bringing about development of occupational information and exploration . . . developing "world of work" curriculum materials . . . promoting "hands on" types of curriculum experience for teachers and administrators . . . encouraging teachers to participate in program development in cooperation with colleges and universities, as well as with local, state, and federal agencies . . .participating in cooperative research projects with related agencies.

Thrust 2--Development of the Career Concept of Vocational Education

. . . developing understanding of the process of career development kindergarten through adult education . . . providing career counseling and guidance activities at all levels of education . . . bringing about occupational orientation experiences in the schools at all levels of education . . . making available job development and job placement activities at the senior high school and postgraduate levels.

Thrust 3--Improving the Standards and Welfare of Vocational Education Personnel

. . . encouraging negotiations of welfare items for vocational teachers at local and state level . . . encouraging negotiations of conditions conducive to good career education at local and state level . . . developing and promoting use of desirable professional standards at the state and local level through cooperative activities with local and state certification offices.

Thrust 4--Legislation and Public Policy

. . . promoting legislation favorable to vocational education and career development . . . promoting adequate financing of vocational education . . . promoting an acceptable national policy for manpower development through the public school system . . . encouraging cooperative efforts with related vocational interests.

Thrust 5--Public Relations

Internally through . . . keeping general membership informed of trends in career education . . . promoting use of local vocational advisory committees . . . developing the concept of career development among vocational as well as general membership . . . encouraging vocational educators' involvement in the United Teaching Profession.

Externally through . . . promoting career education in public media . . . promoting development of local, state, and national vocational advisory committees . . . promoting community involvement in work experience programs, in curriculum development projects, and in transition of students to the world of work.

5. No longer can educators and others confine their thinking to a perception of vocational education primarily as a secondary school program and mainly in preparation for entry jobs at the rank and file level. It is necessary to recognize that (a) vocational aspiration and choice, as well as acquisition of occupational competence, is a developmental process extending from early years through adult life, with an individual's problems being markedly different at various stages in the life cycle, and (b) career development education is offered in a pluralistic educational scheme which is available daytime and nighttime, part-time and full-time, short-time and long-time; in public K-12 districts, in area vocational centers, in post secondary technical schools, in junior-community colleges, and in a variety of special manpower and retraining situations.

6. The solutions to improving instruction rest on the involvement of many specialized NEA resources in a team approach through a major coordinating unit.

7. The NEA has the image of having expertise on teacher relationships and should bring it to bear upon pressing problems involving instructor and administrator preparation and certification.

8. There needs to be collaboration and sharing by organizations in developmental research and demonstration projects and in the dissemination of research findings and instructional materials.

9. It is premature to talk about major changes in organizational relationships between the NEA and outside organizations concerned with vocational education. But it is not too early and almost too late to inaugurate supportive relationships among the organizations and implement a direct and consistent liaison.

State Association Beliefs

Any program to strengthen, coordinate, and improve vocational education must involve local and state associations. It was deemed imperative that the Task Force report include data representative of the current dimensions of effort in each state. Therefore, an extensive questionnaire was sent through the Office of the Executive Secretary, National Council of State Education Associations, to the president and executive secretary of each state association. Based on an interpretation of the data from 34 responding states, it appears that--

1. Of 32 state associations 2 have someone on the executive board representing vocational education.

2. One-half of the state vocational education associations function as an official unit of the state education association.

3. One-fifth of the state education associations have a staff member assigned to work on vocational education.

B. What State and Local Association Programs Can Do

1. Keep members informed and support state and national vocational legislation. Encourage the use of local publishing ability to promote vocational education internally and externally.

2. Utilize the services and programs of the NEA.

3. Determine methods for curriculum and vocational development from kindergarten through adult education.

4. Establish criteria for the nondegree vocational teachers for entering, continuing, and advancing in the teaching profession, and review certification and continuing requirements for vocational educators.

5. Disseminate information from exemplary and demonstration projects as well as basic research.

6. Bring business and industry groups into the educational decision-making process.

7. Promote vocational teacher recruitment, accreditation, and certification.

8. Include in the local negotiation package welfare items involving vocational teachers.

9. Promote understandings and goodwill for vocational education in the school district.

10. Demand effective vocational guidance and counseling at all levels.

11. Encourage participation of vocational educators in the planning of vocational schools and departments.

12. Establish state task forces and local advisory committees for vocational areas of study.

13. Encourage vocational teachers to participate in local, state, and national association activities in order to give more visibility to vocational educators and the total education establishment.

The above mentioned activities may be accomplished through the assignment of responsibilities to members and staff of local and state associations. Committees, councils, or commissions may need to be organized within the associations to provide for the input of all.

4. One-third of the state associations have not sponsored any regional, county, or state meetings on vocational education in the last two years.

5. Eighty percent of the state associations stress that there should be some NEA unit on vocational education concerned with and working on behalf of the economic welfare, professional rights, and working conditions of vocational personnel.

6. State associations see the real power and thrust of vocational education as being in all sizes of communities and rural areas, but the most significant area will be in large cities, the urban metropolises. Further, they see the thrust not only in the junior-senior high school but equally in scope and depth in post secondary vocational institutes and centers and junior-community colleges--in net effect, the full range of education--full-time, part-time, daytime, nighttime, long-time, short-time.

7. Eighty percent of the state associations believe that teachers are not informed concerning vocational education and what it offers youth and adults.

8. Of 33 state associations, 28 that responded to the question of adequate public information services indicated that vocational education was not properly presented to students, parents, teachers, or employers.

9. Twenty-eight state associations indicated that all areas of instruction within a school unit should assume more direct responsibility to apply course materials to career and occupational education.

The Need To Develop Human Resources Through Vocational Education

The Task Force found many statements about the need to develop human resources in our society. And there was much discussion of these concerns, which are very real to those on the firing line in the counseling and teaching of those who seek occupational goals.

It seems important therefore to list these many concerns as findings of the Task Force. The statements may appear in one perspective to be in isolation, but in a sense they make up what can be viewed as a list of imperative needs of people who are everyday practicing professionals.

1. School programs need to be developed not just for the average student but for the development and upgrading of significant minority groups. The effective preparation of the disadvantaged for full participation in society must be demonstrated by educational institutions.

2. In an average year, 700,000 young men and women drop out of the nation's schools before graduating. They are in great

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ABSTRACT - AGRICULTURAL EDUCATION'S PLACE IN CAREER EDUCATION WAS THE THEME EXPLORED IN THIS 50TH PACIFIC REGIONAL SEMINAR. THE PROCEEDINGS INCLUDE BRIEF REPORTS ON PROGRAMS IN 12 STATES AND PANEL DISCUSSIONS ON SUCH TOPICS AS CAREER EDUCATION, COOPERATIVE PROGRAMS, TEACHER EDUCATION OPTIONS, YOUNG FARMER AND ADULT PROGRAMS, AND CURRICULUM DEVELOPMENT. NEW OCCUPATIONAL CLUSTERS IN AGRICULTURAL SALES AND SERVICES WERE MENTIONED AS JOB OPPORTUNITIES TO MAKE UP FOR THE DECLINE IN FARM WORK. YOUNG PEOPLE WITH A BACKGROUND IN FARMING AND AGRICULTURAL TRAINING PLUS TRAINING IN MARKETING SKILLS CAN FILL MANY POSITIONS IN AGRICULTURAL BUSINESSES AND INDUSTRIES. BOTH THE OPENING AND CLOSING REMARKS EXPRESSED CONCERN THAT AGRICULTURAL EDUCATION MIGHT BE DOWNGRADED THROUGH GENERALIZATION AND ABSORPTION INTO CAREER EDUCATION, AND EMPHASIZED THAT SERVING AGRICULTURAL PEOPLE REQUIRES SPECIALIZATION. (MF)

need of training, or society will continue to support the unemployed with great direct cost and with the indirect cost of their lost contributions to Gross National Product.

3. There is need to enhance the standing of vocational students in relation to that of academic students, thus erasing the national attitude that vocational education is designed for somebody else's children.

4. People at many stages in their life cycle in a technological society need information about broad areas of job opportunities and likewise they need to explore a variety of career areas through participation learning activities in school and in the community.

5. Most individuals need to learn attitudes, responsibility, and cooperation which make them effective workers who relate positively to their roles.

6. Programs are needed which provide for skill acquisition in an occupational area up to acceptable employment standards.

7. Our society requires continuing education for adults rather than terminal education. This continuing process should provide for each, at the time needed, retraining, reentry training, and education for upgrading and advancement.

8. Systematic development is needed for a curriculum which provides for occupational and career development education from kindergarten through adult levels.

9. The failure of our schools to educate to the level of adequate employability is a national problem of great depth. Nearly 25 percent of the young men and women who become 18 each year are without adequate preparation for life's work--a waste of money as well as human resources. Some find jobs--low-paying and human-defeating unskilled jobs--but many of them flow into the pool of unemployed, lacking the skill and preparation which would make them employable and making a vast input to the programs which are society's debts.

10. The nation will never reduce its pool of unemployed until the government at all levels gives as much attention to reducing the flow as it gives to trying to reduce the pool.

11. The vocational student needs more recognition "from the top". As a human being who achieves and displays excellence, he deserves praise and reward for his effort. No task in and of itself is more worthy than any other; what is worthy is the effort of the individual who performs up to standard.

12. Occupational counseling for both youths and adults must be brought up at least to the same level of staffing and priority as is now accorded that for the college bound student and his parents.

U.S. DEPARTMENT OF HEALTH.
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JUN 15 1972

REPORT OF THE FIFTIETH

PACIFIC REGIONAL SEMINAR

FOR

VOCATIONAL EDUCATION IN AGRICULTURE

Owyhee Motor Inn, Boise Idaho

April 19-21, 1972

State Department of Vocational Education
Agricultural Education
Boise, Idaho

VT016174

Basic Positions Regarding Vocational Education Today and Tomorrow

It seemed important to the members of the Task Force to try to convey to their colleagues in the NEA an individual view of the overall concerns in vocational education. This section is designed to relate the positions as the Task Force members see them and in their own words, except as the positions of others are noted by documentation. The sequence of the statements in no way indicates priorities of concern.

1. The need for vocational teachers, it has been estimated, will increase more than 100 percent in the next five years. An active program of recruitment will be necessary with local, state, and federal agencies participating, if qualified instructors are to be obtained and trained for the profession. Colleges and universities will need to expand their offerings and school districts will need to increase their efforts in preservice and in-service education. Those responsible for the certification of vocational teachers need to review their requirements, being careful to maintain high standards while at the same time establishing prerequisites which are realistic in terms of the job to be done.

2. A positive and comprehensive national manpower policy must be developed with education as the basic foundation. Such a policy must be at least as concerned with development of human resources as it is with correction of failures.

3. The concept of terminal education must be replaced with that of continuing education. We must find ways to make it possible for any individual in our society to obtain additional education and occupational skills regardless of his educational level or job competence.

4. The bridge from selection of occupation to competency and self-fulfillment is development of each person from what he is to what he can be. This can be obtained in high school, post-secondary institutions, college, manpower centers, and school-industry training programs. But even having once acquired occupational competency, there is a need for continual updating of ability to function in the world of work as it is.

5. The United States is a"postindustrial"society. The Manpower Report of the President, as transmitted to Congress by the U.S. Department of Labor in January 1969, clearly demonstrated the shift from manual to cognitive work; it noted that in 1900 the number of white collar workers was less than half the number of blue collar workers by 19 percent, and the report projects that by 1975 the number of white collar workers will be 44 percent greater than the number of blue collar workers.

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6. In society today a job is the initiation into an adult role. It is, as some sociologists contend, the single most significant, status-conferring role in our society. The attainment of the goal of individual worth and human dignity for every member of our society is worth whatever price we must pay. To deny any individual the opportunity to realize his fullest potential because of circumstances of birth or consequences of environment is as out of place today as it was during the teaching about such worth and dignity for all men nearly 2,000 years ago.

As the American Association of School Administrators points out in a recent book, "The alarmingly high incidence of delinquency and crime among jobless youth is well documented: less widely appreciated is the tremendous reservoir of idleness, frustration, resentment, and defeat that lies within their burgeoning numbers. Lacking jobs, 'their badge of belonging,' these young men and women represent tomorrow's castoff and chronic dependents, those who will live in poverty of body and mind, and who will bring up their children in their own image."

In spite of the seriousness of the situation for those who finish high school but do not attend college, a more serious tragedy of what is called our "depression aftermath" concept of education is that of the youngsters who "drop out" along the road to a high school diploma. The tragedy is not that they do not have a diploma but that the vast majority leave when they are capable of acquiring much more education than they have received. They were "turned off" by an educational program which was designed for someone else's college degree rather than their own needs and abilities--they enter a labor market in which job requirements demand constantly higher levels of education and skill development. . . a labor market in which the unemployment rate for such youth increased steadily. A small percentage does find jobs. . . which are dead-end. . . jobs which will require less than their actual potential. Those who encounter these youth and who at least try to study the problem know all too well the consequences of such an inadequate education.

Edwin L. Rumpf of U.S. Office of Education, Division of Vocational and Technical Education, has indicated that "It is time to take the initiative in moving toward a career education program that will be responsive to the needs of our people; one that will give each child, youth, and adult assistance in knowing and preparing for careers. Above all, every individual must be afforded opportunities to exercise personal options concerning employment and further education throughout life."

These statements suggest a reorganization of the curriculum to include early exposure to the world of work and career development through a direct correlation of academic preparation to vocational activities. As the student advances from the elementary, to the secondary, to the postsecondary and college levels of education, his program would provide for his progress from an understanding of self and an orientation to occupational and educational opportunities, to

ATTENDANCE AT REGIONAL AGRICULTURAL EDUCATION SEMINAR

STATE STAFF MEMBERS

Arizona
- Carlos Moore, State Supervisor, Phoenix
- Phil Zurbrick, Teacher Education, Tucson

California
- Don Wilson, State Supervisor, Sacramento
- H. H. Burlingham, Teacher Education, San Luis Obispo
- E. M. Juergenson, Teacher Education, Davis
- O. E. Thompson, Chairman, Dept. of Applied Behavioral Science, Davis
- Dennis Hampton, Specialist, Davis
- Paul Peterson, Teacher Education, Pomona
- Jack Lawrence, Specialist, Davis

Colorado
- Darrell Anderson, State Supervisor, Denver
- Harold Anderson, Teacher Education, Fort Collins
- Ramsey Groves, Teacher Education, Fort Collins

Hawaii
- Thomas Hatakeyama, Program Specialist, Honolulu

Idaho
- Ralph W. Edwards, State Supervisor, Boise
- Kenneth E. Hansen, Asst. State Supervisor, Boise
- Dwight Kindschy, Teacher Education, Moscow
- Robert Haynes, Teacher Education, Moscow
- Joe Cvancara, Teacher Education, Moscow

Montana
- Basil Ashcraft, State Supervisor, Helena
- Max Amberson, Teacher Education, Bozeman
- Douglas Bishop, Teacher Education, Bozeman

Nevada
- J. R. Peddicord, State Supervisor, Carson City
- Ronald Squires, Teacher Education, Reno

New Mexico
- Charles Morrison, State Supervisor, Santa Fe

Oregon
- Curtis Loewen, Visiting Professor, Salem
- Burr Fancher, Specialist, Salem
- Howard Brock, Specialist, Salem

an identification of self within job clusters, and finally to employment in a specific occupation. Even then, career education would keep open the options to employment and to further education throughout life. Each community would provide supportive experiences necessary to the realization of these objectives. The implementation of such a curriculum would require coordination at local, state, and national levels in addition to the redesign of teacher educacation programs and the development of curriculum materials.

The Past is but a Prologue--Public Policy and Vocational Education, 1862-1968

The development of trained manpower and the creation of educational opportunities for one's career have been twin threads of national public policy for over a century. It is significant that the nation which created a unique public education system has also passed legislation specifically supporting vocational education as part of a national manpower policy. The highlights of such public policy stages follow.

The Beginnings--1862

As early as the 1860's the industrial potential of America began to emerge and change the nature of work, especially in agricultural and mechanical pursuits. Professional and technical competence and skills were in demand, but the colleges and universities, traditionally confined to educating the elite, had not produced the trained manpower needed. On the other end of the occupational spectrum, the worker usually was unskilled or trained through the traditional apprenticeship route.

To accommodate the era's demand for professional manpower in specialized fields, Congress passed the Morrill Act of 1862. This legislation encouraged states to establish land grant colleges and universities by providing each state with federal land for support of at least one college. These institutions were to teach "without excluding other scientific and classical studies . . . such branches of learning as are related to agriculture and the mechanic arts . . . in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

Federal Policy for Secondary Vocational Programs, 1917-1945

In 1916 vocational education legislation became a "national preparedness factor" in the training of manpower for a war effort. In this setting, Congress passed the Vocational Education Act of 1917. It is more familiarly known as the Smith-Hughes Act.

The Act permanently authorized $7.2 million, an amount that is still being appropriated years, cpecifically earmarked for the occupational fields of agriculture, home economics, and industrial education; no funds for office and marketing occupations were included. The major share of

Utah

Gilbert Long, Teacher Education, Logan
Elvin Downs, State Specialist, Salt Lake City
Von Jarrett, Teacher Education, Logan

Washington

Jay Wood, Ag. Ed. Director, Olympia
C. O. Loreen, Teacher Education, Pullman
Keith Fiscus, " " "
Rodney Tulloch, " " "
Robert S. Corless, Program Supervisor, Sunnyside
Art Nelson, Program Supervisor, Olympia

Wyoming

Percy Kirk, State Supervisor, Cheyenne
Jim Durkee, Teacher Education, Laramie
Jack Ruch, " " "

Others in Attendance

John Lacey, Program Officer, Adult, Vocational and Library Programs
Region VIII, Denver, Colorado
Don McDowell, Ex. Director, Natl. FFA Found. Sponsoring Comm., Madison, Wis.
Roy Irons, State Director, Boise, Idaho
Luther Lalum, Vice President, Pacific Region, NVATA, Kalispell, Montana
Fred Beckman, Vocational Agriculture Instructor, Weiser, Idaho
Harold Parady, Asst. Coordinator, American Assoc. for Voc. Instr. Materials
Engineering Center, Athens, Georgia
Russell Guin, Interstate Printers and Publishers, Danville, Illinois
Wynn Sutfin, E.P.D.A. Intern, Oregon Board of Education, Tangent, Ore.
Joe Hopper, Vocational Agriculture Instructor, New Plymouth, Idaho
Fred Faulks, President, Idaho Vocational Agric. Teachers Assoc., Parma, Idaho
Darrell Empey, Vocational Agriculture Instructor, Driggs, Idaho
William Swenson, Assistant State Director, Boise, Idaho
Ed Strong, Vocational Agriculture Instructor, Payette, Idaho
Robert Curtis, Fiscal Manager, State Board for Vocational Educ., Boise, Idaho
Charles Leihe, Supervisor, M.D.T.A., Boise, Idaho
Robert Day, Idaho Education Association, Boise, Idaho
Charles Williamson, Vocational Counselor, Veterans Administration, Boise, Idaho

the funds went to vocational agriculture and home economics. The grant was one which established the principle of state and local matching of federal dollars. In some ways vocational education as fostered by the federal government perhaps was born "extra educational," and in some ways it has remained outside the mainstream of education. Contributing to this appearance was its preoccupation with training by occupational category; federal funding on this basis until 1968 was a strong influence.

The next important legislative step was the George--Deen Act of 1936 which added $14 million but more significantly recognized the distributive and marketing occupations as vocational fields.

Post World War II and Redeployment, 1946

After World War II, Congress faced new educational and manpower redevelopment problems. In 1946 the public policy towards assisting states in maintaining vocational programs was reaffirmed by the passage of the George-Barden Act. This replaced the George-Deen Act which allocated $14 million with an authorization of $29 million for the same occupational fields.

As a second step in postwar public manpower policy, the Employment Act of 1946 was passed. Its goal was the achievement of "maximum employment, production and purchasing power" a national objective and a specific concern of the federal government, "with the assistance and cooperation of industry, agriculture, labor, and state and local government." But in the years following, government efforts toward its objective took the form of limited fiscal and monetary measures to prevent recessions or stimulate business recovery. There was little public demand for more affirmative action.

The 1950's and Apathy Toward Vocational Education

This period of complacency and inaction about manpower problems continued into the 1950's. The early 1950's were also years of beleaguerment for vocational education. The federal school-aid controversy was at its peak, and vocational education was caught up in the argument. The Korean War began, demanded heavy spending, and the cries for cutbacks in domestic spending grew louder. Some groups believed that the federal government should drop the vocational education program, and it was perceived that labor and business support had become lukewarm. Vocational educators, with the efforts of the American Vocational Association, were able to provide sufficient input during the yearly congressional battles to provide for support which, while minimal, prevented irreparable damage.

In 1958 National Defense Education Act (NDEA) brought the first significant addition to the vocational education program since 1917. Under Title VIII, it made funds available for training persons for employment "as highly skilled technicians in recognized occupations requiring scientific knowledge . . . in fields necessary for national defense."

ANNUAL PACIFIC REGIONAL SEMINAR

PROGRAM

VOCATIONAL EDUCATION IN AGRICULTURE

BOISE, IDAHO

Owyhee Motor Inn - April 19 - 21, 1972

Wednesday, April 19

8:00 a.m. - Registration - Kenneth Hansen
9:00 a.m. - Chairman - Ralph W. Edwards
- Secretary - Dwight L. Kindschy
9:05 a.m. - Welcome - Roy D. Irons, State Director Idaho Vocational Education
9:15 a.m. - Topic: Implementing the Recommendations of the Denver Seminar
John Lacey, Program Officer, D.V.T.E., Denver, Colorado
10:00 a.m. Coffee Break
10:15 a.m. - Topic: Career Education in the Pacific Region

Topic Chairman - Carlos Moore	Arizona (S)
Participants - Don Wilson	California (S)
- Darrell Anderson	Colorado (S)
- Basil Ashcraft	Montana (S)
- Jay Wood	Washington (S)
- Phil Zurbrick	Arizona (TE)
- Curt Loewen	Oregon (TE)

Noon - Lunch
1:30 p.m. - Topic: Cooperative Programs in Agriculture Education

Topic Chairman - Dwight Kindschy	Idaho (TE)
Participants - Dennis Hampton	Calif.-Davis (S)
- Harold "Tex" Anderson	Colorado (TE)
- Joe Hopper	Idaho (T)
- Max Amberson	Montana (TE)
- Keith Fiscus	Washington (TE)

3:00 p.m. - Coffee Break
3:15 p.m. - State Reports (Supervision and Teacher Education)
States by alphabetical order
Maximum time 15 minutes per state
Robert C. Haynes - Coordinator Idaho (TE)
6:30 p.m. - Dinner Meeting
Don Wilson, N.A.S.A.E. President, Presiding
A.A.V.I.M. Annual Report
FFA Foundation Report - Don McDowell, Executive Director

Thursday, April 20

8:30 a.m. - State Reports Continued
9:30 a.m. - Topic: Teacher Education Options
Topic Chairman - Gilbert Long Utah (TE)

The Surge of the Sixties

Vocational education needed a boost forward, but it also needed a stronger base upon which to operate and expand in the complex space age of the sixties. On February 20, 1961, President John F. Kennedy, in his message to Congress on American education, recommended that a panel of consultants submit recommendations for improving and redirecting vocational education. The consultants deliberated from November 1961 through November 1962 and concluded that the national program of vocational education had been insensitive to economic and social change, to labor market demands, to the impact of change on education and education for job preparation, and to the diverse vocational needs of various population segments.

This report was used as a basis for drafting the Vocational Education Act of 1963. Passage of the 1963 Act was spurred by the high levels of unemployment among young people.

The new legislation was a milestone first because it recognized the need for a flexible educational system which could provide prevocational training, salable skills, and work experience to high school students. Second, it focused on services to people without earmarking funds for predetermined occupational fields and, in effect, suggested that funds would be available to take care of all training needs except training for occupations requiring a baccalaureate degree. The Act authorized federal funds to be used for--

1. Training persons attending high school.

2. Preparing high school graduates or dropouts available for full-time study for job entry.

3. Training or retraining persons in the labor market for advancement or job stability.

4. Developing special programs for persons with academic, socioeconomic, or other handicaps which prevent them from succeeding in the regular vocational education programs.

5. Supporting the ancillary services and activities needed for teacher training and supervision, program evaluation, special demonstration and experimental programs, development of instructional materials, state administration and leadership, and the conduct of periodic evaluation of all programs and services in relation to projected manpower needs and job opportunities.

In the Act, two other significant changes were made in public policy. First, health and business occupations were recognized as vocational areas and the use of federal funds in these fields authorized. Second, and perhaps most important, the earmarking of funds for occupational fields was generally eliminated to give the states more flexibility in using funds where they deemed the greatest priorities lay.

Participants - Elwood Juergenson — Calif.-Davis (TE)
- Curt Loewen — Oregon (TE)
- Oscar Loreen — Washington (TE)
- Irving Cross — Colorado (TE)
- Douglas Bishop — Montana (TE)

10:30 a.m. - Coffee Break

10:45 a.m. - Topic: Young Farmer and Adult Programs in Agricultural Education
Topic Chairman - Joseph Cvancara — Idaho (TE)
Participants - Elvin Downs — Utah (S)
- Fred Beckman — Idaho (T)
- Luther Lalum — Montana (T)
- Curtis Loewen — Oregon (S)
- J. F. Lawrence — Calif.-Davis (S)

Noon - Lunch

1:30 p.m. - Topic: Agriculture Education Curriculum Development - (including Cluster Approach)
Topic Chairman - Curtis Loewen — Oregon (S)
Participants - H. H. Burlingham — Calif.-San Luis Obispo (TE)
- Robert Corless — Washington (S)
- Von Jarrett — Utah (TE)
- Phil Zurbrick — Arizona (TE)

3:00 p.m. - Coffee Break

3:15 p.m. - State Reports Continued

6:30 p.m. - State Supervisor's Dinner and Business Meeting
Chairman - Basil Ashcraft, Pacific Region Vice President N.A.S.A.E.
Secretary - Charles Morrison - New Mexico (S)
- Teacher Educator's Dinner and Business Meeting
Chairman - Max Amberson, Pacific Region Vice President A.A.T.E.A.
Secretary - Elwood Juergenson - California (TE)

Friday, April 21

8:30 a.m. - Topic: Areas of Concern in the Pacific Region
Chairman - Kenneth E. Hansen
Program Evaluation - H. H. Burlingham — Calif.-San Luis Obispo (TE)
Three-Year Study in California - O. E. Thompson — Calif.-Davis (TE)
Performance Objectives - Paul Peterson — Calif.-Pomona (TE)
Environmental Education - Rod Tulloch — Washington (TE)
Advisory Committees - Burr Fancher, — Oregon (S)
Special Education Programs - Art Nelson — Washington (S)

10:00 a.m. - General Group Meeting - Chairman - Ralph W. Edwards
Report of FFA Board of Directors - Jim Peddicord-Nevada (S)

Summary Reports - Teacher Educators' Meeting

Summary Reports - State Supervisors' Meeting

Business Meeting

11:30 a.m. Seminar Summary - Percy Kirk — Wyoming (S)

Noon - Adjourn

WELCOME ADDRESS

Roy D. Irons[1]

I would like to welcome you to Idaho and what we think is one of the greatest farming areas in the world. We still have the land, water, and know-how to produce an abundance of food and fiber.

The sale of farm products in 1970 in Idaho was $664 million dollars -- in 1971, 690 million dollars. With these sales, Idaho ranked fourth among the thirteen western states, and 28th out of the fifty states in total sales of farm products.

The percent of total personal income in Idaho accounted for by farming is 12.03 percent. This percentage is the second highest in the U.S. It is only exceeded by South Dakota. It is obvious that the food and fiber sector of manufacturing cannot exist without production agriculture. It has been reliably estimated that agriculture accounts for 70 percent or more of the total economic transaction in Idaho.

As you can see, we certainly do not want to downgrade the importance of production agriculture, and we still believe there are plenty of opportunities on the farm for boys and girls who want to work hard, which is the price of success in any line of endeavor. However, I am not going to dwell long on the technological advancements which have taken place in agriculture during the past 30 years or so, for you know these facts. You also know that along with this revolution in production agriculture, there has developed an entirely new cluster of occupations in agricultural sales and services. While many farm youths have difficulty obtaining gainful employment in farming, agricultural business and industries still have problems finding properly prepared personnel to fill their vacancies.

These occupations are ideally suited to young people with a background in farming and agricultural training, along with training in customer relations and marketing skills.

I notice by your program that the theme of this seminar is agricultural education's place in career education.

I certainly think agriculture education has a big place in supplying the leadership and know-how to help the people on the local level--both the educators and the general public--to accept and implement career development programs. However, we must not misconstrue the idea that career education is the same as vocational education, and we must ever be alert to the fact that general education would like to absorb vocational education into their own bailiwick and call it career education. The Task Force on Career Development listed several indications that education at present has not achieved its objectives:

---

[1] Roy D. Irons, Idaho State Director, Vocational Education, Boise, Idaho.

1. Large numbers of students continue to leave our secondary schools with no salable skills, in fact many of these same students do not know how to go about applying for work and do not have a positive attitude about work or knowledge of how it may enrich one's life;

2. Many of our basic skill subjects such as English and Mathematics show little relevance to the real world in which they are supposedly used;

3. Large numbers of our young people, especially in large urban areas, continue to be unemployed;

4. The dropout rate in many of our schools continues at the 20-30% level despite considerable attention, a multitude of programs, and direct infusion of large sums of money;

5. Many students continue to receive specific vocational or trade training which may soon become obsolete and cause them to be technologically unemployed within a relatively short period of time;

6. Over 80% of all secondary school students are enrolled in either a college preparatory or a general curriculum designed to ready them for college attendance--yet no more than 17% of these students will ever obtain a degree;

7. Our college dropout rate (40% prior to the junior year and 50% prior to graduation) remains the most stable statistic in American education; and

8. Hundreds of thousands of high school students, college students, and adults have no clear-cut vocational goals. There are indications that there is a direct relationship between their lack of goal-direction and the current unrest, disenchantment and discontent that is characteristic of some segments of our campuses and high schools.

These areas of concern have been well documented, not by the traditional foes of education, but by groups and individuals who are sincerely interested in improving and strengthening education, such as the National Advisory Council on Vocational Education, the Congressional Committees on Education and Labor, and several state legislatures.

The concept of career development is generally defined as that aspect of human activity involved in learning about, preparing for, choosing, and benefiting from the series of work-related activities know as one's career.

I could go on and on about career--and vocational education, but I know you folks have quite a program outlined for the next two and one-half days. But, I hope in your deliberations you will be cognizant of the fact that all divisions of vocational education must still strive to update their programs keeping the students in mind and what is best for them in seeking life's work and enjoyments. Good luck to all of you.

IMPLEMENTING THE RECOMMENDATIONS OF THE DENVER SEMINAR

John W. Lacey[1]

Approximately one year ago the National Seminar for Agriculture Education was held in Denver. The theme of that National Seminar was Agriculture Education in Transition. The group attending the Seminar was divided into nine groups, each of which was assigned a major aspect of Agriculture Education in Transition. The groups were asked to state objectives for Agricultural Education in the 1970's and to recommend significant, realistic and specific action steps. Placement of responsibility for implementing the courses of action recommended was also to be given attention. As a result of this part of the assignment, eight different national committees were recommended to be appointed, as well as a number of similar committees to be formed in the States. Three National Seminars were recommended to be sponsored:

1. A committee was to be appointed to study current research efforts, and design a uniform system and appropriate instruments to determine manpower and training needs.
2. A National Committee to discover and desseminate information relative to the provision of occupational experience in Agriculture Occupations.
3. A National Performance Objective Committee was recommended.
4. Several FFA Committees were to be appointed:
   a. Constitution, bylaws, etc.
   b. Post-secondary Youth Organization Committee.
   c. A committee to study PL 81-740 and make recommendations for change.

I believe I have heard more favorable comments about the Denver Seminar than from any other national meeting I have attended in recent years, whether they were Ag Seminars, or one of the other disciplines. Mr. Hunsicker and the program planning committee did a good job planning the agenda.

I thought there was a very good attitude among the participants at Denver. It was a positive attitude. Most of the committees seemed to be saying, "Let's get on with the job that has to be done. Let's not argue about our differences of opinion concerning the less important details. But let's design a program in Agricultural Education which presents a positive aggressive image and then move forward to implement it."

It seemed to me that the Agriculture Educators at the Denver Seminar were ready and willing to agree on a positive aggressive movement, but there was a reluctance to go too far forward until we could go as a group. And by a group I refer to the National Association of State Supervisors, the National Association of Teacher Educators, and the National Vocational Agriculture Teachers Association.

There is a lot of merit in the concept of moving forward as a group. There is strength in numbers. Agriculture Educators are unique in Vocational Education in that we have always presented a strong united approach to our problems. Lead-

---

[1] John W. Lacey, Program Officer, Department of Health, Education, and Welfare, Denver, Colorado.

ership for Vocational Education across the country has in many instances come from the ranks of Agriculture Educators because Agriculture Educators have always been "out in front."

Many of the ideas now hailed far and wide as the correct thing to do in Vocational Education had their beginning in Vocational Agriculture many years ago. I am thinking of Cooperative Vocational Education, Work Experience, Work-Study and, most currently, the concept of Career Education. Good Vocational Agriculture Departments have for a long time been deeply committed to the basic concepts of Career Education, as now expounded upon by Commissioner Marland and other great leaders across the country. As I see it, Agriculture Education has no difficulty at all in supporting the Career Education concept with all the vigor and enthusiasm that we have available.

But it has been very difficult for Agriculture Education across the country to establish a new national image to which we could all adhere. The changing needs in Agriculture and subsequently the changing needs of students; the changing Federal legislation; the changing State legislation; and the ever-changing organization structures involving national leadership. All have been frustrating as we have attempted to restructure the program to meet changing demands from every corner.

The strength of the FFA and the tremendous respect which it maintains among all educators, the lay public and big business and industry, and especially students, has in some ways deterred from the establishment of a new national image of Agriculture Education. I do not say this to be derogatory to the FFA, for it is unquestionably one of the greatest organizations for leadership development ever conceived. It has been difficult for us to make the changes which seem necessary in Agriculture Education and still continue to participate realistically in, and benefit from, the awards and recognition programs of the National Organization of FFA. The FFA has been changed very slowly. It is supposed to be a democratic organization, ruled by the majority, and it is difficult to get a majority vote, or at any rate a two-thirds majority vote, on any major issue which comes up in Kansas City. But I have the greatest respect for all who have maintained that the democratic manner of making changes must be continued. I contend, however, that the Agriculture Education program should not be built around the National Organization or even the State Associations of FFA. I believe that the Agriculture Education program, if it is to be a vocational education program, must be designed to meet the needs of people served in terms of their employment opportunities first of all; that the Agriculture Education program must be designed to provide skilled manpower for the agricultural industry; and then I think the FFA, by whatever name it eventually takes, is so strong, so correct, so good, and so richly supported by everyone that it will make whatever changes are necessary to continue to be an integral and important part of the total program. It has been said that if it were not for FFA there would not be an Agriculture Education program today. I do not agree. The need for trained people for the agriculture industry is real - and somebody is going to do it.

I could cite many instances, and you could too, where local school officials who had no Agriculture Education program have asked to start an FFA program. We have always said no, it can't be started except as a part of a program in Vocational Agriculture. The interest then oftentimes subsides because they do not believe

that the Vocational Agriculture program is consistent with the needs of students, yet they are sure the leadership training program is needed. This may sound contradictory but I don't think so. I believe the reason is that school administrators do not understand the potential of Agriculture Education in its broadest concept. I doubt that it is possible to establish a national Agriculture Education program to which all States can adhere, and I don't suppose any of you would disagree with that. There is plenty of evidence to show that States are moving forward in developing their own programs. What I'm saying is that there is no reason to delay moving forward with the program we feel is best for the State. National leadership will not, in my opinion, ever be as strong as it once was. If the implications of the Denver Seminar are to be implemented, it must be done largely by State leaders. We have much evidence revealing that national leaders want to assist in implementing an Agriculture Education program consistent with the recommendations of the Denver Seminar.

At this point I don't expect to see all of the National Committees that were recommended at the Denver meeting to be appointed, but that doesn't mean, as far as I am concerned, that the recommendations made at the Seminar can't be implemented. I think it does mean that unless you people at the State level put the recommendations into practice, not much will be done. You have the guidelines and recommendations. The kinds of details should be worked out at State level and implemented at the local school. The State Planning process provides a format which I think should be acceptable to all States for basic State Planning for Agriculture Education as well as for any other discipline.

The first step in planning realistic Vocational Education programs is to secure accurate Labor Supply and Demand information (you agreed at Denver). Unless you can document the need for developing new programs, or maintaining the old ones for that matter, in terms of employment opportunities, no one in Vocational Education is going to buy it.

As a contribution to Career Education -- YES.
As a leadership training program -- YES.
As a Vocational Education program -- MAYBE, but most likely - NO

The second step is to develop a State Plan for Agriculture Education based on the Labor Supply and Demand information, which is an integral part of the overall State Plan for Vocational Education.

Long-Range Goals and Objectives.
Annual Activity Plans.
Budgetary Needs.

The third step is to develop criteria and standards for the program within each of the taxonomies in Agriculture Education, including curriculum, facilities and equipment, student selection, and teacher qualifications.

The fourth step is to develop performance objectives for each of the taxonomies included in Agriculture Education.

The fifth step is to devise a plan for the preparation of competent, well-trained instructors.

The sixth step is to sell the entire package to the key decision-makers at the State level, and at the local level, and then begin to implement the plan.

I believe that if such a procedure is followed, the other problems addressed by the committees in Denver will largely solve themselves --

-- Disadvantaged.
-- Occupational Experience.
-- Programs for Post-Secondary and Adults.
-- Leadership Development Program --

for, surely, if there is a need to educate people for employment, it must include Target Groups, and at all levels (secondary, post-secondary, adult).

I think the last step may be to design and develop a reporting system which will reflect appropriately the things you are doing. Unfortunately, the Federal reporting system does not provide a true picture of the progress that has been made.

I believe that States have a right to expect national leadership in carrying out the steps which seem to me to be necessary to implement the provisions of the National Seminar in Denver, and steps have been taken to provide that.

RFP's have gone, or will shortly go out, to invite proposals to prepare curriculum guides, including facilities and equipment, teacher qualifications, teaching aids, and perhaps performance objectives in each of the taxonomies, now including Environmental Protection.

In closing, I want to say that from where I sit it seems to me that Agriculture Education has made tremendous progress in the past six or seven years, in adjusting programs to meet needs. You know the details much better than I. We have fought a lot of battles -- we've won some and lost some, and I don't know for sure how the tally stands right now -- but sometimes it seems to me that we might be further ahead if we'd have spent more time really trying to keep the program up to date and less time in fighting lost causes. I am more convinced than ever that Agriculture Education is a tremendously significant part of the whole program of Vocational Education in this country, and in the concept of Career Education. Most important of all, it is needed by thousands and thousands of people of all ages. We must keep working at it.

CAREER EDUCATION IN THE PACIFIC REGION

Carlos H. Moore,[1] Chairman

What is it
How long will it last
What will it accomplish

We survived the Sputnik scare and the transfer to science education. This period was followed by the greatest move to vocational-technical education that we have ever seen. Today's favorite seems to be career education. Most educators have something to say about it -- they do not always agree.

Lowell A. Burkett states that career education is for all people and transcends all education. Unfortunately, many people look upon it as a reform for vocational education, playing down the historic role of vocational education in preparing students for employment and in emphasizing occupational awareness and exploration.

President Nixon does not see career education as a specific program, commenting that it could more usefully be thought of as a goal for education that could be pursued through many methods. He described it as a plan to "provide people of all ages with broader exposure to and better preparation for the world of work."

Dr. Marland, speaking at the A.V.A. convention in Portland, stressed that vocational education is not career education: Vocational education is only a part of career education.

Kenneth B. Hoyt, University of Maryland, speaking at this same meeting, said: "When we talk about career education . . . we are not talking about adding something more to the curriculum; we are talking about getting rid of what is presently being taught and starting over with an entirely new curriculum."

There is an open question in some Washington circles as to whether children can be manipulated to the extent that the career education scheme contemplates -- whether teachers will buy the program at all -- and if it can obtain adequate finances and leadership.

The Washington cynics point to the bone-pile of programs left over from the 1960s that are now frozen into the bureaucracy. Where, they ask, are the pay-offs from huge expenditures

On Head Start
The Job Corps
The National Alliance of Businessmen's "Jobs" Program
The Neighborhood Youth Corps
And Title I of the Elementary-Secondary Education Act?

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[1]Carlos H. Moore, State Supervisor, Agricultural Education, Department of Vocational Education, Phoenix, Arizona.

CAREER EDUCATION IN CALIFORNIA

Don E. Wilson[1]

There is a lot of activity in California on career education, but most of it is in the planning and developmental stages. There are no on-going operational programs at the present time. Hopefully, some will begin September 1, 1972. We have two large model programs--a school based model in the Los Angeles City Schools and an industry based model being operated or developed by Far West Laboratories in the Bay Area. Neither yet have an operational instructional program. The school based model is ahead of the industry based model in progress.

The State Department of Education has a career education task force funded out of vocational education, but reporting to a deputy superintendent of public instruction and not the director of vocational education. The task force is headed by an individual who did something in career education in the State of Wyoming. The task force is made up of seven or eight people with representatives from the community colleges, elementary schools, secondary schools, counseling and guidance, etc. One person on the task force is from vocational education. The task force has had some problems getting untracked and occasionally seems to get diverted. They are busy monitoring all of the local district activities in career education and attempting to provide some coordination.

In California there are seven or eight funded additional career education programs. For instance, Camino, a small Northern California elementary district; Covina Valley, a unified medium-sized Southern California district; Monterey Peninsula, a combined high school and community college effort; Sacramento Unified Schools, a large urban school district; San Mateo County, a county office of education effort; Grossmont in San Diego County featuring cooperation between a high school district and an elementary school district; Santa Barbara, a K-14 effort; Orange County, cooperation between a community college and two high school districts. You can see that all sorts of combinations and approaches are being tried. Two of these models have some involvement with vocational agriculture.

Career education in California is still in the very formative stage. Little money, except what has been extracted from vocational education, is being expended.

As far as agricultural education is concerned, there are requests, of course, as to how we should, can, and will be involved. As a starting place I have taken the outline for career education in agriculture that was developed in Denver and revised it so that the terminology made sense and found that this was quite a lot more than was available in other subject matter areas. Wherever the words agribusiness and natural resources has appeared I have substituted agricultural education or agriculture.

K through 6 is, of course, orientation to the world of work; grades 7-8 and sometimes 9 are involved in career orientation; grades 9 and sometimes 10 are involved in the basic principles and skills of agriculture; and grades 11 and 12

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[1]D. E. Wilson, Chief, Bureau of Agricultural Education, State Department of Education, Sacramento, California.

and sometimes 10 are involved in specialized curricula in one of the seven USOE areas. All of this is contingent upon a system where, by the the end of grades 9 or 10, a tentative career or occupational choice is made and the student's "program" is developed to include specialized instruction, supervised practice, and FFA activities.

We may be critized in California for not moving vocational agriculture rapidly into some pattern of career education, but we are not stampeding off in all directions at once which seems to be the case in some areas.

CAREER EDUCATION IN COLORADO

Darrell Anderson[1]

Career Education! Undoubtedly you have heard the term many times in the last few months.

What is Career Education? For those of us on the State Board who are on the Career Education Committee it means the following:

Career education is the combination of helping the student (1) learn to live, and (2) learn to make a living. It should be available at all levels of education, from kindergarten through the university. A complete program of career education includes orientation to the world of work, broad exploration of occupational clusters, in-depth exploration of select clusters, and career preparation for all students, plus provisions for recycling students when a change of occupational objective is believed advisable.

It should be pointed out, however, that career education is not synonymous with vocational education; but that vocational education is an integral part of career education.

The basic components of a career education plan are:

1. Career awareness (grades k-6)
2. Career exploration (grades 7-10)
3. Career preparation (grades 11-12; post secondary; and adult)

How does career education affect vocational agriculture?

Vocational agriculture programs have always been doing a job of career education for 9-12th grade students. The agriculture teacher, therefore, would be the logical person to work with local committees in making students and teachers of grades k-10 more aware of the vast opportunities that are available in agriculture occupations.

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[1]Darrell Anderson, Supervisor, Agricultural Education, State Staff of Vocational Agriculture, Denver, Colorado.

Colorado will probably be funding programs for the 10th grade students in all areas of vocational offerings. These will probably be used on a cluster concept so students may make a choice of a career and start specializing as soon as possible.

For example: An area vocational technical center may offer turf and horticulture training, production agriculture and agribusiness co-op training.

These would be specialty courses and the students would be bussed to the center from the various high schools in the area.

The instructors of the 10th grade program would travel from the area vocational school to the local high school and offer this program for students who are interested in agriculture as a career.

The course for these 10th grade students would include short blocks in the areas of turf, horticulture, production agriculture and agribusiness, etc., as well as units in other areas of specialization.

During the 10th grade program, a student would be given an understanding of areas in agriculture in which he may wish to choose a career. If the student decides to join the FFA or start an occupational experience program, then he would be encouraged to do so as soon as possible.

In the very near future I will be calling together a committee to develop the 10th grade agriculture curriculum because this plan is being developed for pilot purposes in the area vocational technical centers this year.

This plan may be implemented in DE, Business and Office, Home Economics and the T&I fields in Colorado this year.

The beauty of this program in Colorado is that state vocational education funds may be used to fund the 10th grade programs as well as the 11th and 12th grades.

This program may be the answer to implementing vocational programs in the districts served by area vocational schools.

CAREER EDUCATION IN MONTANA

Basil Ashcraft[1]

At this time all kinds of talk; a relatively new terminology reminiscent of words like "Johnny Can't Read". But, at this point not a great deal happening.

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[1]Basil C. Ashcraft, Supervisor, Agricultural Education, Office of the Superintendent of Public Instruction, State Capitol, Helena, Montana.

Big trouble is that most people equate career education and vocational education as one and the same or the only difference really - bringing vocational education down through the elementary grades to kindergarten level.

PROGRESS - PROGRAMS

1. Fort Benton

In line with a national goal for career education at all grade levels, the Fort Benton public schools last year received a $24,407 grant under the Elementary and Secondary Education Act (ESEA) to extend an ongoing career education program in high school down to elementary level.
Entitled, "Preparation and Counseling for the World of Work," the project employed teachers last summer to write "mini-courses".
Guidance and counseling are emphasized to implement the program that will (1) assist elementary children in developing an understanding about themselves, their values, and an appreciation for all types of work in the world in which they live; (2) develop the affective, psychomotive, as well as the cognitive growth of the individual through the mini-courses; (3) provide the student with a satisfaction of needs which will be necessary eventually for a realistic occupational choice.
The mini-courses and level at which they are taught follow: Arts and Crafts, K-6; Culinary Arts, K-6; Hand Sewing and Clothing Art, 6; Agriculture, K-6; Lettering and Layout, 4; Outdoor Living Education, 6; Personal Banking, 5-6; Photography, 5-6; Practical Home Repairs, 5-6; Woodworking, 2-3.

2. Helena Public Schools

Helena Public Schools has a 3 year exemplary project funded by U. S. Commissioner money amounting to more than $100,000.00 a year. The project called "The Next Step" - A Comprehensive Program in Occupational Preparation and Placement for K-14.
The Helena School District is developing an exemplary comprehensive program specifically intended to provide a broad range of occupational orientation at the elementary, junior high and secondary school levels designed to implement the assumption of responsibility for developing some degree of employability for every student (especially, but certainly not restricted to youth who have academic, socio-economic, or other handicaps), and to improve the placement of all students who leave school (including dropouts as well as graduates).

Occupational clusters involved include:

a. Agriculture and agriculture-related
b. Health occupations
c. Mechanics
d. Building construction
e. Clerical
f. Food services
g. Maintenance
h. Social service
i. Retailing and marketing

3. Northern Montana College

For the 2nd year a 7 weeks workshop called "Career Education for Elementary Counselors" will be conducted this summer. Twenty-five counselors are selected in a geographical mix from schools of varying size. The program is funded by The Office of the Superintendent of Public Instruction. Teachers receive stipend of $90.00 a week.

STAFF CHANGE

A supervisor for Career Education has been named in the Office of the Superintendent of Public Instruction.

PREDICTIONS FOR FUTURE

1. Statewide career education conference for all segments of Montana population - business, industry, agriculture, educators, labor, for approximately 400 persons in the summer of 1972.

2. Guidelines for implementing career education into the curriculum. The process to start the fall of 1972 and to be completed in a three week summer institute for a selected group of 35 educators the summer of 1973.

CAREER EDUCATION IN WASHINGTON STATE

Jay Wood[1]

Understanding Career Education

Career Development Concept
(for discussion purposes)

Career Awareness begins early - in the elementary school, K-6

Goals

1. The beginning of awareness of the many kinds of jobs available to people and how the subjects being taught in school relate to jobs.
2. The beginning of developing a positive attitude toward work. All honest work has dignity and worth.

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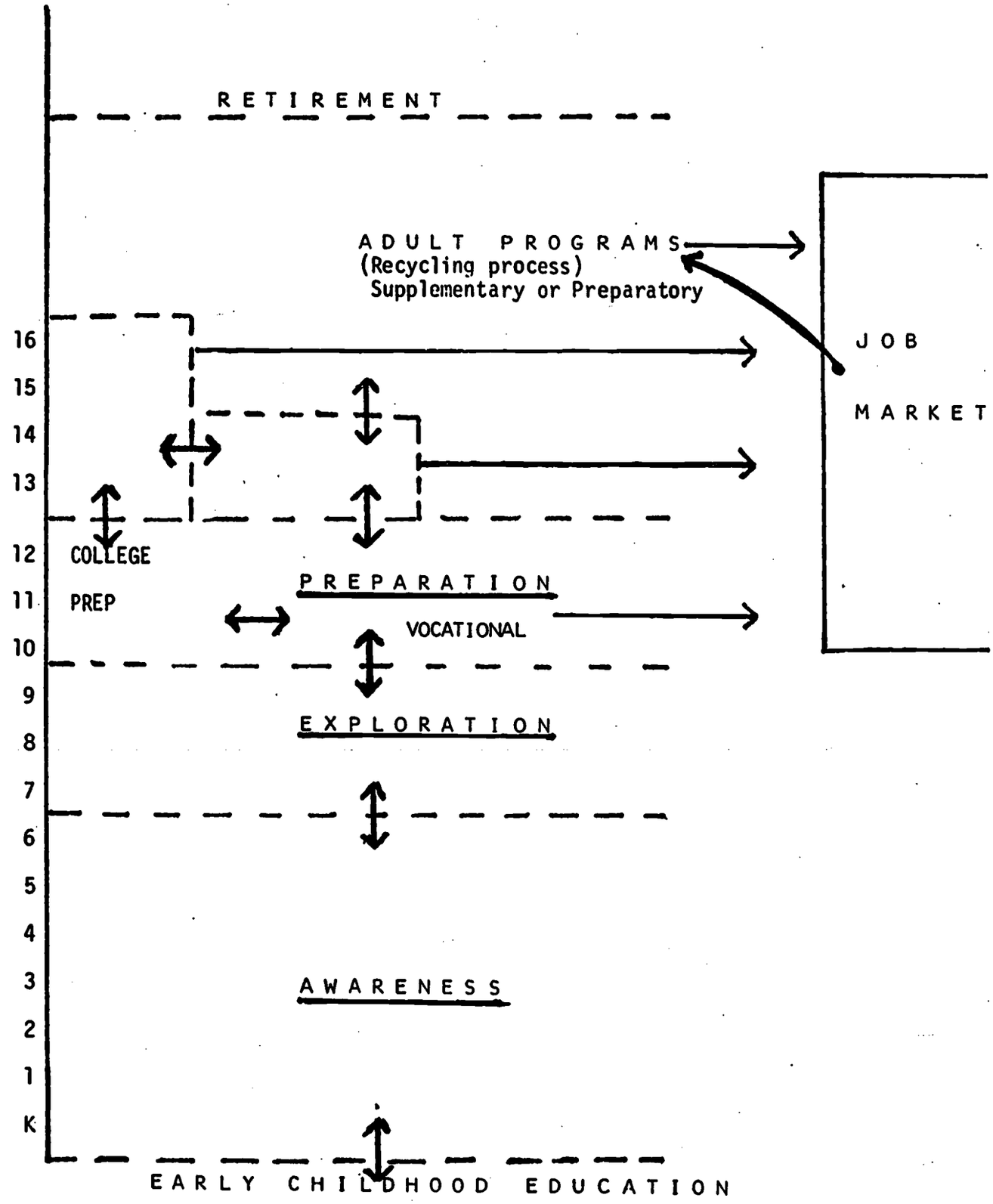
[1]Jay Wood, Supervisor, Agricultural Education, State Division of Vocational Education, Olympia, Washington.



The double-pointed arrows indicate that there are no sharp lines of distinction as to where one activity ends and another begins. Career Development (or Education) is a lifelong process and involves at all times Awareness, Exploration, and Preparation.

3. The beginning of developing a positive self-concept. Every individual has worth and has the right to be loved and appreciated.

Career Exploration begins in approximately the 7-9 grades

Goals

1. An opportunity to begin to explore different occupational areas through hands-on experiences, trips, resource people, etc. Exploration through job families or clusters.
2. Exploration of self -- aptitudes, attitudes, interests, etc. -- and to relate these toward various career opportunities.
3. To begin to learn skills in decision-making. Many decisions are made necessary or forced upon young people in the junior high age. (some of the decisions they are making are not appropriate: sex - drugs - dropout, etc.)

Career Preparation begins in senior high school and continues through adulthood

Goals

1. To make tentative career choices based upon the information and knowledges they have.
2. To become prepared for the next step - whether it be a job or more preparation leading to a job.

CAREER EDUCATION - ARIZONA STYLE

Phil Zurbrick[1]

Let me fill you in on career education Arizona style. First of all, let me say that Arizona, through the efforts of the Superintendent of Public Instruction, Dr. Shofstall, has jumped on the bandwagon with real "gusto". Last year, the State Legislature passed Senate Bill 5, which provided 1.9 million dollars for career education. The goals of Senate 5 were:

1. Increase enrollment in Career Preparation
2. Provide career testing and counseling
3. Develop career information media
4. Provide teacher and counselor retraining
5. Develop W-O-W curriculum and teachers for grades 7-8-9
6. Develop new Coop Programs

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[1]P. R. Zurbrick, Assistant Professor, Department of Agricultural Education, University of Arizona, Tuscon, Arizona.

7. Provide coordination with apprenticeship programs
8. Hold county workshops to share career education leadership with all elementary and secondary teachers
9. Develop and conduct a public information program

This money was used to fund thirteen projects across the State designed to develop and implement career education in support of these goals. This year, the Governor requested 5 million dollars for career education which compares with 4.2 million for vocational education. In addition to these activities on the State level, the Mesa school system was one of the six public school systems in the country selected last year to be developed as a school-based model for career education through the Center for Research and Leadership Development in Vocational and Technical Education.

In February of this year, the State Board of Education created within the State Department a new position of Associate Superintendent for Career Education and Director of Vocational Education. I am not so sure but what this was not a political move, but at any rate, Eugene Dorr is now in that position and Carlos Moore is no longer in the Division of Vocational Education, but in the Department of Career Education.

As far as a definition of career education is concerned, we are using the same strategy as Dr. Marland -- that being that it is much harder to criticize something that is well defined so we have not defined it persay. There is, however, beginning to emerge a concept of career education at least at the intellectual level. Dr. Shofstall says, "Career education is education designed to help a child decide upon and train for his life. It involves learning to live, learning to learn and learning to earn." Some of these terms sound vaguely familiar!

Arizona's model for career education in agriculture has been developed and ties in very nicely with the curriculum development work which we have been conducting the past four years.

Overall, the objectives of career education are to help students start making career decisions at an early age and to rekindle the appreciation for the value of work and pride in doing a good job. So in Arizona, career education is not some new type of educational program but rather an attempt to bring vocational education and general education closer together. Hopefully, this will provide education which is more practical and relevant to the world of work. Certainly, there are few in vocational education, or outside of education, who would not wholeheartedly support these objectives of career education. Only last month, we held a State Agricultural Education Advisory Council Meeting and concern over student attitudes relative to work and their lack of goals were the first two items mentioned when we started discussing outcome of an educational program in agriculture.

The problems of work attitudes and career selection are not new problems. We, in vocational education, have been working on these for years, but many of us have felt that these problems required attention and emphasis at an earlier age . . even down in the elementary grades. This need is even more important today than it was in the past because students are "by-and-large" less goal oriented than their older brothers and sisters.

Idealistically, if we could get teachers at all levels to focus on these two problems, I am sure progress could be made. As a vocational educator, how nice

it would be to have students coming into high school classes with this kind of attitude and dedication. Our vocational classes would be filled to overflowing. If we could then couple this effort on the part of teachers with counselors with something other than a college education orientation, we would have a much more effective vocational program.

Now let's be realistic for a minute. How long will there be an emphasis upon career education nationally? You know the record for people in Dr. Marland's office as well as I do! Secondly, how long does it take to change teacher attitudes and values?

It seems to me that an anology to what we are doing with career education might be for the American music teacher association to decide that everyone needs to be schooled in music and decree that all teachers will teach music as a part of their instructional program. The agricultural teacher will discuss and analyze the rhythm that an engine makes while teaching engine operation and maintenance.

For me, that would be a complete and utter impossibility. The point I am trying to make is...maybe other teachers feel the same about career education.

In summary, we in Arizona are doing a great deal of talking about career education and have appropriated money for its development. As vocational educators, I think we need to support the objectives of career education. However, I don't think we can afford to decrease our efforts in vocational-technical education in deference to career education. This may be the most serious problem as I understand Dr. Marland has said that vocational funds can be used for career education.

CAREER EDUCATION IN OREGON

Curt Loewen[1]

Career Education top priority of State Board of Education.
"The Oregon Way," by Dr. Dale Parnell, is an outgrowth of the "Occupational Clusters" developed by Vocational Education.
Comprehensive statewide manpower analysis in 1968 resulted in the formulation of 14 occupational clusters (a group based on common knowledge and skills.)
Vocational service areas were disregarded in the development of the clusters.
Results: Agriculture was identified as a cluster; Industrial Education wound up with four clusters, metals, mechanics, electrical, and construction.

Occupational clusters designed for 11th and 12th grades has created a need for prior exposure of all students to the "world of work," and subsequent training

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[1]Curtis E. Loewen, Department of Agricultural Education, Oregon State University, Corvallis, Oregon.

opportunities in post-secondary vocational-technical institutions.

Consequently, the four levels of Career Education were conceptualized and are in the process of being implemented on a special grant basis to local school districts.

Presently Career Education is being included in both in-service and pre-service programs.

Limitations -

Funds apart from V.E. to implement Career Education - V.E. personnel are virtually the only ones involved in leadership roles in Career Education.

Other teacher training institutions in Oregon are without Career Education.

Considered a "new fangled idea" that will die in a few years by the products of the college prep era.

University hangups, "tenure" and "academic freedom"

Hope -

Recent conference including School of Education faculty and students.

Asst. Dean, School of Education, assured students that changes are imminent, that resources will be re-allocated, and that some "heads will roll" in the School of Education.

COOPERATIVE PROGRAMS IN AGRICULTURE EDUCATION

Dwight L. Kindschy,[1] Chairman

A forty-five page bulletin entitled, Guidelines and Procedures for Cooperative Education in Agricultural Education, Idaho Vo-Ed No. 116, was developed in the summer of 1971 by graduate students and staff at the University of Idaho. A copy of the bulletin was distributed to each conference participant and the content was discussed by Kindschy. The bulletin is divided into seven sections which are listed as follows:

a. Introduction
b. basic consideration
c. organizing a cooperative program in agricultural education
d. conducting a cooperative program in agricultural education
e. legal requirements for a cooperative program in agricultural education
f. bibliography
g. appendix

The bulletin was written with the cooperation of the Idaho State Department of Labor, and the Office of the Idaho State Insurance Underwriters. Each legal requirement to employ high school students in Idaho was clearly listed and the method of applying for workman's compensation insurance was also included. The appendix of the bulletin included copies of all the necessary forms a vocational agriculture teacher would need from the state at local level in order to conduct a successful cooperative program.

NEW PLYMOUTH CO-OP PROGRAMS

Joe Hopper[2]

Joe Hopper, the vocational agriculture instructor from New Plymouth, Idaho, discussed the successes and problems he experienced conducting a cooperative program under the guidelines of the new Idaho bulletin. As long as his students were issued a state learner's permit and working for a specified wage no problem seemed to result and the Idaho State Labor Commission agreed to a limited learning experience with no wages as long as the student was covered by compensation insurance.

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[1] Dwight L. Kindschy, Department of Agricultural Education, University of Idaho, Moscow

[2] Joe Hopper, Vo-Ag Instructor, New Plymouth, Idaho

COOPERATIVE GUIDELINES FOR MONTANA

Max Amberson[1]

Dr. Amberson discussed the development of a guideline bulletin for his State. Amberson also described several programs in Montana that had made considerable progress towards effective cooperative programs.

COOPERATIVE VOCATIONAL EDUCATION IN AGRICULTURE - CALIFORNIA

Dennis Hampton[2]

Specialist in Cooperative Vocational Education in Agriculture - B.A.E.

A position developed 3 years ago to afford service in the area of Cooperative Vocational Education in Agriculture with statewide responsibilities.

Duties:
- Provide in-service instruction to Vo-Ag teachers and administrators
- Provide pre-service instruction to student teachers of Vo-Ag at the 4 institutions
- Identification and development of relevant material pertaining to Cooperative Vocational Education in Agriculture
- Assist districts to initiate new programs in Cooperative Vocational Education in Agriculture

California Guidelines Regarding Cooperative Vocational Education in Agriculture

Program consists of 2 segments:

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[1]Max L. Amberson, Department of Agricultural Education, Montana State University, Bozeman

[2]Dennis Hampton, Specialist, Bureau of Agriculture Education and University of California, Davis, California.

Related Instruction
On-the-Job experience

Related Instruction Characteristics

Class meets 5 hours per week
Credit is afforded students
15 students desirable in initial stages, and the
Curriculum consists of:

Group instruction - The curriculum consists of units such as how to apply for a job, careers in agriculture, dress and appearance on the job, etc.

Individualized technical instruction - Each student has the opportunity to research the technical skill he is performing on the job.

On-the-job experience - A student is expected to participate on the job a minimum of 2 hours her day, 5 days per week, and may receive a maximum of 10 units per semester for this portion of the program. Minimum wage is required with Workmens Compensation Insurance assumed by the employer.

Schedule (Typical 6-period day)

			Related Class	On-the-job Experience	
1	2	3	4	5	6

Criteria in Selecting Students

1. 16 years of age
2. Parental or guardian approval
3. Approval of Agriculture instructor
4. A vocational goal for which the cooperative program will in the opinion of the Agriculture instructor contribute to job entry skills
5. Student should have 2 years of successful Vocational Agriculture instruction as a pre-requisite

Problems:

Funding
Inappropriateness in arrival of VEA Part G funds
Implementing in one-man departments

Strengths:

Well received by students.
Ties the community to the educational process.
Acquisition of knowledge and work habits from the "real" world of work.

ESSENTIALS FOR A SUCCESSFUL COOPERATIVE PROGRAM IN AGRICULTURE

Tex Anderson[1]

1. Adequate time for supervision.
2. Separate related instruction class.
3. Utilization of an advisory committee.
4. Experienced instructor.
5. Instructor has had course work in planning and conducting cooperative programs.
6. Planned and coordinated public information program.
7. Adequate recognition of all persons involved in the program.
8. Adequate budget for supplies, books, and instructional aids.
9. School time provided for students to work at training stations.
10. Adequate wage paid to all students.
11. Adequate number of potential training stations.

FACTORS ASSOCIATED WITH SUCCESSFUL COOPERATIVE PROGRAMS IN AGRICULTURE

1. Written training plans for each student.
2. Written training agreements for each student.
3. Definite standards for selecting training stations.
4. A definite written policy statement covering the coop phase of the program.
5. A survey of all the ag-related businesses in the community.
6. A definite system for keeping records and reports.
7. A yearly evaluation of the program.
8. A definite plan for teaching related instruction.
9. Definite plans for student selection.
10. Adequate classroom and facilities to conduct program.
11. A definite plan for following-up students upon completion of the program.

FACTORS WHICH MAY CAUSE COOPERATIVE PROGRAMS IN AGRICULTURE TO FAIL

1. Added to curriculum with no adjustment in teachers schedule.
2. Less than 100 percent commitment by teacher-coordinator.
3. No time provided for teacher supervision or related instruction.
4. No long-range plan.
5. Less than 100 per cent support by other teachers, administrators, and the business community.

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[1]B. Harold Anderson, Associate Professor, Department of Vocational Education Colorado State University, Fort Collins, Colorado.

6. Lack of knowledge on how to conduct the program on the part of the teacher.
7. Failure to involve coop students in FFA activities.
8. Inadequate travel budget and lack of money to purchase materials needed for related instruction.

COOPERATIVE EDUCATION PROGRAMS IN AGRICULTURAL EDUCATION

Keith E. Fiscus[1]

Definitions

To establish a base for departure, or a place to begin, perhaps we should define a few pertinent terms that are used in reference to Cooperative Education. These definitions apply specifically to the State of Washington and perhaps generally to the total program of Agricultural Education as well as Vocational Education.

1. Cooperative Education is a method of instruction. It is planned and conducted by school and business personnel in a way that is superior to the efforts of either when undertaken individually. It applies very well to all vocational areas and can be utilized by any vocational area. Cooperative Education is defined very well in Part G, Title I of the 1968 Amendments of the 1963 Vocational Education Acts.
2. Work experience is a general term referring to host of activities resulting from released time from school for the student to do assigned activities in a business. These may be rather poorly structured and they may not be educationally profitable for the student.
3. Work study is simply a program of providing part-time jobs for full time vocational students. It may or may not have any educational value for the student.
4. Other definitions are pertinent to cooperative education programs. Some examples are (1) disadvantaged, (2) handicapped, (3) community laboratory, (4) concurrent work education.

Emerging Trends

There are several trends that are pertinent in view of emerging and unmet needs. I would like to mention a few of these trends. Please keep in mind that cooperative education may well be utilized in meeting the needs from which many trends are evolving.

1. Clientele to be served by vocational programs in Agriculture should be selected from broader based criteria.

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[1]Keith E. Fiscus, Assistant Professor, Agricultural Education, Department of Education, Washington State University, Pullman, Washington.

2. The clientele should be recruited, selected and enrolled into programs on the bases of interest, need, and capability regardless of their background, prior experience, age, sex and place of residence.
3. Vocational programs should direct its clientele toward employment. Each program should include:

   A. Exploration of career choices and personal alternatives of students.
   B. Development of occupational and employment competencies.
   C. Realistic employment and job experiences or simulations.
   D. Placement and initial follow-up into employment.

Many programs may be rated quite well in the development of skills needed on the job, but very few programs adequately fulfill the other three categories of program criteria mentioned.

4. Many educational systems do not foster sound vocational programs.

   A. Many are college oriented.
   B. The grading method may not challenge all the students.
   C. Many activities are not perceived as meaningful and realistic by the students.

5. Redistribution of leadership in the vocational education structure makes it imperative that educators and administrators in local communities take the initiative in planning, developing and evaluating programs.
6. New approaches to funding make it necessary for educators and administrators to plan sufficiently. Funding approaches emphasize financial need and program budgeting instead of pre-determined allowances and financial entitlements.
7. Program evaluation should be based upon:

   A. Behavioral changes in students.
   B. Employment placement and upgrading.
   C. Wise expenditures of funds.

8. Special students (under achievers, disadvantaged, handicapped, adults, others excluded from the educational mainstreams, behavioral deviates) have much to gain from cooperative education programs.
9. A sound and effective program of cooperative education is a partial measure against the present levels of tremendous expenditures for social welfare and unemployment.
10. There are presently considerable employment opportunities in the service and business segments of agricultural occupations.
11. Cooperative education is one of the most effective methods of enabling students to enter agricultural jobs.
12. Cooperative education is an efficient means to partially fulfill the premise that all people in all communities should have the availability of realistic and effective vocational education.

Success Factors

In the State of Washington there have been several attempts to establish cooperative education programs in agriculture. Many of these have been highly

successful. Some have achieved lesser degrees of success. From the experience of cooperative education programs in the State of Washington as well as in other states, there appears to be a prominent set of factors that are associated with successful programs.

I have listed a few of these factors.

1. Characteristics of the teacher.
   - A. Enthusiasm for the program.
   - B. Ability to sell the program.
   - C. Ability to work well with others.
2. Development of specific group activities.
   - A. Survey or study of the need for the program, including a search for funds.
   - B. Development of school policies, schedules, permits, etc.
   - C. Development of recruitment, selection and enrollment procedures.
   - D. Cooperatively working with business men.
     - a. Advisory council
     - b. Program policies
     - c. Training profiles
     - d. Program agreements
     - e. Placement procedures
     - f. Program evaluation

Program Guide Lines

In the State of Washington there are stated criteria for program approval as well as established local procedures. Some of the more pertinent criteria established at the "State Office" are:

1. The student is legally employed.
2. A person is designated as a program coordinator.
3. There is a concurrent related class for essential instruction.
4. Provisions are made for necessary record keeping.
5. The workload of the coordinator allows at least 1/2 hour per student per week for coordination.
6. Number of hours of student employment is determined by the nature of the career goal.

Funding is usually an important consideration by most school districts. Cooperative education programs are encouraged in Washington and the funding procedures are reflective of this fact.

1. Federal monies from Part G funds totalled $116,000 for Washington. Also exempary and Research monies were spent for cooperative programs.
2. State monies were paid on an enrollment entitlement basis. A related class and two hour released time is usually the funding arrangement. A vocational class receives $73.00 per student hour guarantee of which the average of $37.30 comes directly from state sources. Schools also receive an average of $42.74 per student (per FTE) for the experience and education of staff.
3. On the local level, the amount of released time is usually calculated on the basis of vocational monies generated. If a student spends 360 hours in the cooperating business the school receives vocational monies for two student hours, providing the student was adequately supervised.

4. Graduation credit is usually granted on the basis of vocational monies generated by the student.

Uniquenesses of Agricultural Businesses. Effective cooperative education programs must reflect the differences and the uniquenesses of Agricultural businesses. I have specifically noted some of the pertinent uniquenesses of agricultural occupations.

1. Seasonality. Many of the business activities are directly associated with the growing season and the farmers' need for services.
2. Community laboratory arrangement in many rural communities. Many rural schools do not have laboratories that are adequate to teach about many agricultural jobs. Many schools utilize agricultural businesses as vocational observatories for the development of career exploration. Agricultural businesses serve these three educational functions.
3. Technical knowledge that is service related. Many jobs in agricultural businesses require significant technical knowledge in order to perform the function of the business. Selling and salesmanship is the greater function of the business. Selling and salesmanship is the greater function of many businesses. Agricultural occupations are unique in that many functions in addition to selling is required.
4. Variation of agricultural jobs and businesses. There is a great variety of agricultural skills, jobs, and businesses. Greater flexibility in cooperative education programs are needed.

Prospects for the Future

In Washington the state and federal "Money Pie" is being sliced differently. The monies are still earmarked but for different reasons. The new re-organization of our program has probably resulted in greater utilization of agricultural education to meet people needs. We have more cooperative program, specialized programs, disadvantaged, handicapped and career exploration program now than before reorganization. We have an active vehicle. Our number of teachers has grown from 136 to 202 in 4 years.

In summary, Agricultural Education is growing in Washington for three reasons:

1. We are meeting the manpower needs of agricultural occupations.

2. We are meeting people needs by preparing larger numbers for agricultural jobs.

3. We are utilizing agricultural education as a vehicle to solve other needs.

In this growth cooperative education programs are contributing their worthy share.

TEACHER EDUCATION OPTIONS

Gilbert Long,[1] Chairman

The Utah State University Teacher Education efforts have been constrained by preparation for a NCATE review. A council upon which I sit as one member has approved each teacher education program - or sent it back to committee. Thirty six hours of free electives were to be provided for each teacher education major when general university plus department requirements are subtracted from 186 hours (required for graduation.)

Agricultural Education was approved with 30 hours of electives and told to consider a five year curriculum.

Within these constraints an apparent opportunity exists for students to develop a strength in a specialty area. Thirty hours offers a good potential except that it doesn't happen that way. Students typically firm up their vocational plans in their junior year. By this time the mythical 30 elective hours have been used up in the students' "testing of the waters" in various tentative vocational adventures.

My answer to the question is to conduct an organized solicitation campaign not to get more agricultural education majors but to get a major at the freshman level so that we can advise him towards a strength in agribusiness, ornamental horticulture, agricultural mechanics, or ag. resources.

A second phase of the problem or solution lies in the quality and quantity of service courses available for each option. We are limited in the courses available in ornamental horticulture - the development of a one-year vocational program in our plant science department will help.

We have a very strong College of Natural Resources - with a possibility of a strength developed in this area, and our strength remains specifically in Dr. Von Jarrett in our own department. Each of our students gets a strength in the agricultural mechanics area with elective hours to add depth in this area.

In the future I hope to add quality to the individual options by a placement with industry. While this is still in the dream area I am sure that it is potentially valuable and pheasible. In any case, inservice preparation of teachers for specialized instruction offers the best available option even though our university is unable to provide these technical courses as part of a summer school offering. Utah has provided a continuing effort to provide workshops on and off campus to provide this inservice preparation of teachers.

The newest innovation in our program involves an effort to include a planned extension experience as a part of the student teaching experience. The department has for many years offered an extension methods course. The extension experience was coordinated by myself and the associate director of extension. We

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[1]Gilbert A. Long, Assistant Professor and Head, Department of Agricultural Education, Utah State University, Logan, Utah.

met with extension staff and cooperating teachers to plan the best experience possible and to establish the dates for the experience. A handbook was put together and given to each party concerned, student, cooperating teacher, and extension agents and specialists. The experiences will take from five to seven days this first year. The handbook includes an evaluation by the extension agent of the candidate and of the extension experience by the student. Other information is included which you may look at if you are interested as I brought 8 or 9 to hand out.

There is a feeling of cooperation between extension agents and vo-ag teachers already apparent. Hopefully, this feeling will grow.

Boise Regional Meeting

Teacher Education Options

In the development of teaching options teacher educators and state supervisors agree that specialists should be prepared to teach:

Ornamental Horticulture
Agricultural Resources
Production Agriculture
Preparation for Extension and other non-typical forms of professional agricultural education.

The state supervisor in developing new programs needs teachers to man such programs, but the teacher educator has been hesitant to counsel boys towards preparation for jobs that are not yet available for fear that the boy will not be competitively prepared for more traditional production agriculture.

FIRST YEAR TEACHER EVALUATION

Elwood Juergenson[1]

Dr. Juergenson explained how California utilizes school administrators in evaluating first year teachers. This evaluation can be very influential in determining if a first year teacher should continue as a vocational agriculture instructor or if he should choose another option for which his training has qualified him. The conference secretary received no report of Dr. Juergenson's remarks but the following is the evaluation form used by the Department of Applied Behavioral Science, University of California-Davis in obtaining first year teacher evaluations.

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[1]E. M. Juergenson, Professor and Coordinator of Teacher Education, University of California, Davis, Department of Applied Behavioral Sciences, Davis, California.

Teacher Education Options

E. M. Juergenson[1]

1 - Evaluation

Teacher preparation programs should be evaluated regularly by measuring the performance of its product, the new teachers. A simple validated instrument should be used, e.g. Administrative Relationships (Chicago, The Midwest Administration Center)

2 - Recruitment

A shortage of qualified Voag teachers still exists. All avenues of supply should be pursued, especially people from industry, all media should be used even to advertizing in local papers. Other majors within the College of Agriculture are good sources, particularly in those states having a five year teacher preparation program.

3 - Full Pay Interns

The full pay intern program is a desirable way for preparing teachers if the candidate is above average, the school is multiteacher and administration is willing to cooperate with teacher education institution.

4 - Summer Program

Part of the teacher education preservice work should include some experience during summer.

5 - Integrated Approach

New teachers in Agriculture can fit best into secondary schools if part of the preservice work is done cooperatively with teachers from other services, e.g. drug addiction, cultural differences.

6 - Unity in Teacher Education

Use of evaluation instrument by new teacher -- Student shift institutions during preservice preparation -- Use of advisory committee on teacher education.

(See evaluation form on next page.)

[1] E. M. Juergenson, Teacher Educator, University of California, Davis, California.

FIRST YEAR TEACHER EVALUATION FORM*

Department of Applied Behavioral Sciences
University of California, Davis

SCHOOL _____

DATE _____

FIRST YEAR TEACHER _____

PRINCIPAL _____

Form Completed by: TEACHER _____ PRINCIPAL _____

Please check the one statement that best indicates your judgment of the effectiveness of this teacher compared with other new teachers you have observed in the past.

_____1)	It is difficult to imagine a more effective new teacher.	10%
_____2)	I consider this teacher to be among the more effective new teachers under my present or past administration.	25%
_____3)	The effectiveness of the new teacher is only slightly better than that of the average new teachers with whom I have worked.	40%
_____4)	The effectiveness of this teacher is really a little below that of the average new teacher.	55%
_____5)	I consider this teacher to be among the less effective new teachers under my present or past administration.	70%
_____6)	It is difficult to imagine a more ineffective new teacher.	85%

The percentages at the right can be used to further define what each statement means. For example: The 10% would indicate that this new teacher is in the upper 10% of new teachers with whom you have worked. The 85% would mean that the teacher is in the lower 15% of new teachers with whom you have worked or that 85% of new teachers with whom you have worked did a better job.

Additional Comments: (Principals and/or teachers)

*Egon Guba, et al Administrative Relationships (Chicago: The Midwest Administration Center, 1957)

TEACHER EDUCATION OPTIONS

Curt Loewen[1]

Technical course requirements:
1959 - 80 hours (quarter) in 4 year program
1972 - 70 hours (quarter) in 4 year program
(50 hours required + 20 hours optional)
Fifth year program now required totaling 92 quarter hours

Since 1966 Agricultural Education students have been allowed to select a technical specialty, i.e., ornamental horticulture, forestry, mechanics. Few of the students have elected to do so -- preferring the broader based program.

Some 75 percent of Oregon Ag Departments are single man programs, hence the need for broad training and/or experience.

Our half-time teacher intern program allows a student with a major in some area of agriculture, within 30 hours of graduation, to become certified. All technical Ag. hour requirements must have been met before internship. The teaching center may allow the intern to emphasize one or more specialties.

TEACHER EDUCATION OPTIONS AT WSU

C. O. Loreen[2]

We are now in the process at Washington State University of examining means of insuring that our Ag Ed graduates are qualified for the positions opening in Vocational Agriculture.

We believe that we now have sufficient courses available in the area of Ag. Mech. to provide students sufficient depth to meet most needs.

Here is what is available:

AG. MECH. COURSES - AG. ED. EMPHASIS

Ag M 201	3	Metals Shop
203	3	Bldg Const
313	1	Small Eng Repair
402	3	Meth Mat Ag M
403	2	Lab Proj Teach Tech

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[1]Curtis E. Loewen, Department of Agricultural Education, Oregon State University, Corvallis, Oregon.

[2]C. O. Loreen, Professor, Agricultural Education, Department of Education, Washington State University, Pullman, Washington.

OTHER AG. MECH. ELECTIVES

Ag M 210	3	Ag Mech
211	3	Ag Machinery
312	3	Eng and Tract
321	3	Ag Bldg Design
331	3	Ag Electrification
344	3	Irrig Drain

As is true in many universities we do not have options as such but we do have sufficient hours of electives to permit the advising of students into areas of their interest and need.

A look at what is happening in our schools points up the need for immediate attention to Ornamental Horticulture in our training program. Of the 135 high schools offering Vocational Agriculture, 59 or 44 percent offer at least one course in Ornamental Horticulture. Thirty-six schools or 26 percent have greenhouses. We are now urging our students to enroll in several of these classes which are available:

ORNAMENTAL HORTICULTURE ELECTIVES

Hort 134	2	Home Flr Arr
231	3	Orn Plant Mat
232	3	Orn Plant Mat
235	3	Greenhouse Const
251	2	Plant Prop
260	3	Prin Landscape

Since 40 of our schools or nearly one third of them are offering coop-Sup. Exp. Programs we need to explore means by which our students can enroll for more courses dealing with agribusiness.

Here are a few examples of options available at other universities:

Mississippi State
- Ag Ed - Ag. Production Emphasis
  Ag Courses - 45
- Ag Ed - Agribusiness Emphasis
  Same as production except in place of free electives student takes business courses - 18

Rutgers - Three options
1. Ornamental Horticulture
2. Agribusiness
3. Environmental Science

Iowa - Hours required in Tech. Ag. - 81
- Area of specialization - 36
- 2nd area of specialization - 20
- Areas of specialization are: Ag Ec, Ag En, Agron, AS, and Hort.

University of Illinois - Hours in core courses - 11
- Options and Electives - 37
- Ag Production - 20
- Ag Supply - 21
- Ag Products, Plant - 22
- Ag Resources and Forestry - 18
- Ag Mech - 16
- Ornamental Horticulture - 12
- Ag Products, Animal - 12

About fifteen catalogs were examined and only one third specified options.

TEACHER EDUCATION OPTIONS
COLORADO STATE UNIVERSITY

Ramsey Groves[1]

Three options each having 200 quarter hour requirements for graduation as opposed to 192 hours for all other majors in College of Agriculture.

The Production Agriculture and Horticulture options will prepare the graduate to teach in any production oriented vocational agriculture program in Colorado. The Agriculture Distribution option has only 35 hours in technical agriculture which will not qualify graduates in this option to work in production agriculture programs.

The block of 30-36 hours in the biological and physical sciences qualifies all graduates to teach biology in the high schools in Colorado. With the addition of a course in physics the graduates can teach General Science and/or Physics.

The majority of majors are still in the Production Agriculture Option, but as jobs in other options become more available more students will select Horticulture or Agriculture Distribution. Eighty percent of our majors are coming through Community or Junior Colleges who are almost totally production agriculture oriented.

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[1]Ramsey Groves, Assistant Professor, Colorado State University, Fort Collins.

COLORADO STATE UNIVERSITY
MAJOR IN VOCATIONAL AGRICULTURE, Production Agriculture Option, College of Agriculture
Vocational Education Building, Room 108

Name of Student _____ Home Address _____
Agricultural Experience _____

This curriculum indicates the minimum of required courses. Supplementary elective courses will be chosen with the advice of the section head or adviser to meet the required total of 200 credits for the degree of Bachelor of Science in Agriculture. In addition, the elective courses chosen and the required courses must meet the following required specifications: 60 credits in technical agriculture, 12 credits in economics and agricultural economics, 18 credits in Agri. mechanics, 36 credits in biological and physical sciences. Three years of occupational experience in the agricultural industry after the age of 14 is required to qualify for teacher preparation in vocational agriculture. (6 y 6000 hrs. exp.)

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REQUIREMENTS BY AREAS

Tech. Agric. 60 Credits	Profess. Educ. 42 Credits	Biol. & Phys. Sci. 36 Crs.	Ag. Mech. 18 Credits	Econ & Ag. Econ 12crs.
A 100 The Ag. Profess. 1	VE 294 Prin.Voc.Ed. 3	BY 102 Attributes of Living Systems 3	IS 103 Fm.Power 3	EA 100 Ag. Econ 3
AN 100 Intro.An. Sci. 4	VE 220 Orient.FFA & Vo-Ag 2	BY 111 Prin.Plant Bio. 5		EC 100 Prin.of Ec. 4
AV 101 Poult.Sci.& Pract.5	ED 371 Educ.Gr.& Beh. 4	C 101 Fund. Chemistry 5		
AG 100 Crop Production 6	VE 403 Inst.Aids-Voc-Ed 3	C 102 Fund. Chemistry 4		
AG 250 Soils 6	VE 422 Tchg.Prac.Voc-Ag 5	En 201 Fm.& Hm.Insects 5		
AN 212 Feeds & Feeding 4	VE 423 Meth.Tchg. Sup. Occ. Experience 3	AG 330 Prin.of Genetics5		
A 293 Agric.Practicums 1	VE 421 Meth.Tchg.Adult Education 3			
A 293 Agric.Practicums 1	VE 424 Meth.Tchg.Fm.Mech.3			
A 293 Agric.Practicums 1	VE 493 Student Teaching 9			
H 100 Basic Hort. 5	VE 497 Sem. Tchg.Pract. 1			
	VE 497 Sem. Tchg.Pract. 1			
	Py 100 Gen. Psychology 5			

Humanities 8 credits	Univ. Requirements- 12 credits	Electives 12 Credits
JT 321 Ag.Journal. 3	E 102 Intro.to Writ.3	
	E 202 Inter. Writ. 3	
	SP 103 Publ.Speaking 3	
	PE 101 Req.Phys.Ed. 1	
	PE 101 Req.Phys.Ed. 1	
	PE 101 Req.Phys.Ed. 1	

COLORADO STATE UNIVERSITY
MAJOR IN VOCATIONAL AGRICULTURE, Horticulture Option, College of Agriculture
Vocational Education Building, Room 108

Name of Student _____ Home Address _____

Agricultural Experience _____

This curriculum indicates the minimum of required courses. Supplementary elective courses will be chosen with the advice of the section head or adviser to meet the required total of 200 credits for the degree of Bachelor of Science in Agriculture. In addition, the elective courses chosen and the required courses must meet the following required specifications: 60 credits in technical agriculture, 12 credits in economics and/or agricultural economics, 18 credits in Agrl. mechanics, 36 credits in biological and physical sciences. Three years of occupational experience in the agricultural industry after the age of 14 is required to qualify for teacher preparation in vocational agriculture (or 6000 hrs. exp.)

REQUIREMENTS BY AREAS

Tech. Agric. 60 credits	Profess. Educ. 42 credits	Biol. & Phys. Sci. 36 credits	Ag. Mech. 18 credits	Econ & Ag Econ. 12 Crs
A 100 The Ag Profession 1	VE 294 Prin. Voc. Ed. 3	BY 102 Att. of Living Sys. 3	IS 103 Farm Power 3	EA 100 Ag Econ. 3
AG 100 Crop Production 6	VE 220 Orient. FFA & Vo-Ag 2	BY 111 Prin. of Pl. Biol. 5		EC 100 Prin. of Econ. 4
H 100 Basic Hort. 5	ED 371 Educ. Gr. & Behav. 4	C 101 Fund. Chemistry 5		
AG 250 Soils 6	VE 403 Inst. Aids-Voc. Ed. 3	C 102 Fund. Chemistry 4		
H 121 Landscape Plants 3	VE 422 Tchg. Prac. Voc-Ag 5	EN 201 Fm. & Hm. Insects 5		
H 122 Landscape Plants 3	VE 423 Meth. Tchg. Supv.	AG 330 Prin. of Genetics 5		
H 241 Turn Management 3	Occ. Experience 3	B 361 Elem. Pl. Pathology 3		
H 310 Greenhouse Mgmt. 5	VE 421 Meth. Tchg. Adult Ed. 3			
H 321 Nursery Mangment. 5	VE 424 Meth. Tchg. Fm. Mech. 3			
H 331 Elem. Lands. Des. & Theory 5	VE 493 Student Teaching 9			
H 3362 Hort. Prod. Tech. 3	VE 497 Sem. Tchg. Pract. 1			
H 161 Plant Propogation 4	VE 497 Sem. Tehg. Pract. 1			
	PY 100 Gen. Psychology. 5			

Humanities 8 credits	Univ. Require. 12 credits	Electives 12 credits
JT 321 Agric. Journ. 3	E 102 Intro. to Writ. 3	
	E 202 Inter. Writing 3	
	Sp 103 Pub. Speaking 3	
	PE 101 Req. Phys. Ed. 1	
	PE 101 Req. Phys. Ed. 1	
	PE 101 Req. Phys. Ed. 1	

COLORADO STATE UNIVERSITY

MAJOR IN VOCATIONAL AGRICULTURE, Agricultural Distribution Option, College of Agriculture
Vocational Education Building, Room 108

Name of Student _____ Home Address _____

Agricultural Experience _____

This curriculum indicates the minimum of required courses. Supplementary elective courses will be chosen with the advice of the section head or adviser to meet the required total of 200 credits for the degree of Bachelor of Science in Agriculture. In addition, the elective courses chosen and the required courses must meet the following required specifications: 35 credits in technical agriculture, 16 credits in economics and agricultural economics, 9 credits in agrl mechanics, 30 credits in biological and physical sciences, and 35 credits in business. Three years of occupational experience in the agricultural industry after the age of 14 is required to qualify for teacher preparation in vocational agriculture. (or 6000 hrs. exp.)

1994

REQUIREMENTS BY AREAS

Technical Ag. 35 Credits	Business 35 Credits	Professional Ed. 42 Credits	Biol. & Phys. Sci. 30 Credits	Econ & Ag. Econ 16 crs.
A 100 The Ag. Profess. 1	BA 200 Gen. Account. 5	VE 294 Prin. Voc. Ed. 3	BY 102 Attributes of Living Systems 3	EA 100 Ag. Econ 3
AG 100 Crop Production 6	BA 201 Prin. of Acct. 5	VE 220 Orient. FFA & Vo-Ag 2	BY 111 Prin. of Pl. Biol. 5	EC 100 Prin. of Econ 4
AN 100 Intro. An. Science 4	BF 300 Finan. Instit. 4	ED 371 Educ. Growth & Behavior 4	C 101 Fund. Chemistry 5	
AV 101 Poul. Sci. & Prac. 5	BG 260 Business Law 4	VE 403 Inst. Aids-Vo-Ed. 3	C 102 Fund. Chemistry 4	
AG 250 Soils 6	BK 240 Salesmanship 3	VE 422 Tchg. Prac. Vo-Ag 5	EN 201 Fm. & Hm. Insects 5	
H 100 Basic Hort. 5	BK 300 Marketing 4	VE 423 Meth. Tchg. Sup. Occ. Experience 3		
	BK 330 Adv. Managment 3	VE 421 Meth. Tchg. Ad. Ed. 3		
	BK 360 Retailing 4	VE 424 Meth. Tchg. Fm. Meh. 3		
		VE 493 Student Tchg. 9		
		VE 497 Sem. Tchg. Pract. 1		
		VE 497 Sem. Tchg. Pract. 1		
		PY 100 Gen. Psychology 5		

Ag. Mechanics 9 Crs	Humanities 8 Credits	Univ. Requirements - 12 Credits	Electives 13 Credits
IS 103 Fm. Power 3	JT 321 Agric. Journ. 3	E 102 Intro to Writ. 3	
		E 202 Inter. Writing 3	
		SP 103 Pub. Speaking 3	
		PE 101 Req. Phys. Ed. 1	
		PE 101 Req. Phys. Ed. 1	
		PE 101 Req. Phys. Ed. 1	

YOUNG FARMER AND ADULT PROGRAMS IN AGRICULTURAL EDUCATION

THE NEED FOR FULL-TIME TEACHERS IN ADULT EDUCATION

Joseph G. Cvancara[1]

Instruction for adult and young farmers has been an important part of vocational agriculture since the passage of the Smith-Hughes Act. Data from the U.S. Office of Education reveal that enrollment in Adult Education programs has decreased about 20% in the last ten years. This reduction in enrollment is taking place at a time when adults need and want organized instruction more than ever before. It is happening in spite of the fact that state supervisors and teacher educators continue to stress the importance of adult and young farmer education.

The reasons most often given by teachers for not conducting adult education programs include a lack of time and competence required to conduct programs that really meet the needs of adults. We tend to rationalize and say that some teachers have the time and competence to conduct adult programs, so all teachers could conduct adult programs if they really wanted to. We say this without giving serious consideration for the teacher of vocational agriculture and the real world in which he operates.

If a teacher does a thorough job of teaching high school classes and advising the FFA, it is doubtful if he has the time to conduct an adult program that will meet the real needs in the seventies. Agriculture is undergoing rapid and accelerating changes due to technological and scientific developments and improved methods of organization and management. Today a key need is farm business analysis which emphasizes record keeping, summary and analysis of records, and using the analysis as a basis for farm planning and reorganization. This is "where the action is." The high school teacher of vocational agriculture is in an excellent position to provide this kind of instruction either in a local school or in an area vocational center. In order for the teacher to provide in-depth instruction through classroom, small group, and on-the-farm instruction he must have the time and competence.

If we want adult education that helps people and if we really mean what we say about the importance of adult education, we need to have full-time teachers of adults. Teachers express a concern that they are spending time with high school students who do not intend to enter farming. Many teachers contend that their time could be better utilized if a more careful selection of high school students was made and a part of the day spent working with adults. If we are going to meet the real needs in production agriculture and improve adult education, it is imperative that we move in the direction of full- and part-time teachers of adults.

The adult program must be adequately financed and administered and has many implications for supervisors and teacher educators.

Fred Beckman, Vocational Agriculture instructor from Weiser, Idaho, discussed adult programs as they are offered in Idaho and expressed excellent results with all-day programs for adult farmers which may last from one to three days duration.

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[1] Joseph G. Cvancara, Teacher Educator, Agricultural Education, University of Idaho, Moscow.

THE YOUNG FARMER PROGRAM

Elvin Downs[1]

History

1. Suggested by the Smith-Hughes Act of 1917.
2. Great interest on part of California, Utah in this region to organize a National organization from 1948-54.
3. First National Young Farmer Leadership Conference held in Salt Lake City in August, 1951. States present included: Arkansas, California, Colorado, Nebraska, Nevada, Ohio, Oklahoma; Oregon, South Carolina, Utah and Virginia.

Some Facts To Consider

1. If there is no need for a Young Farmer Program, can there be a bonafide need for a FFA Program?
2. Where do FFA members go? 40%+ in Utah go into farming, ranching and related agricultural occupations.
3. Agriculture is a rapidly changing business - need for in-service training.
4. Young Farmers need further leadership development to meet current businesses and community responsibilities.
5. This part of agricultural education is truly vocational without question.

The Young Farmer Program

Generally considered to be a three-phased educational effort:

1. The individual farming program of each member.
2. The instructional program.
3. The Young Farmer Association or chapter and its activities.

Experience has demonstrated the need for balance in all three areas if the program is to remain functional.

The Individual Farming Program

The veterans farm training program in the late 40's and early 50's gave us some good guidelines for the Young Farmer Program.

1. On farm instruction and follow-up is a must.
   a. Problems must be indentified.
   b. Long time goals established.
   c. Immediate plans made.
   d. Improved practices recommended and adopted.
   e. Acceptable record keeping system in operation.
   f. A written farm improvement plan must be developed.

The Instructional Offering

Classroom activities for Young Farmers can be interesting and palatable if there is feed in the manger. A few proven guidelines are helpful in planning the instructional program.

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[1]Elvin Downs, State Specialist, Agricultural Education, State Board of Education, Salt Lake City, Utah.

1. This must be a cooperative effort between instructor and Young Farmers.
2. Methods must be variable with special reports by Young Farmers, panel discussions, symposiums, group discussions, special resource persons, demonstrations, field trips, use all forms of media that are available.
3. Subject matter presented must be of concern for the majority of those present.
4. From late October through March is the best time for classroom activities.
5. The summer fits best for field demonstration, field trips, and small group field discussions.

The Young Farmer Organization

1. Local chapter
   The organization of the Young Farmer group can be patterned after the FFA program. The following suggestions may prove helpful:
   A. Elect a group of officers that have an interest in an educational program and who will give time and talent for its success.
   B. Officers and members should outline a few activities that they would like to carry out during the year.
      (1) Community service
      (2) Cooperative activities
      (3) Recreational activities
      (4) Educational tours
   C. Schedule activities throughout the year with each Young Farmer serving on one or more committees.
   D. Have fun

2. The State Association
   Competition and cooperation are two forces which play an important part in the life of every human being. Personal recognition is a great motivating force for achieving goals. A state association provides the vehicle for Young Farmers to compete and be recognized for worthy achievement. We in Utah carry out two major activities as a part of the state association business.
   A. State convention
      (1) Held in early February (two days)
      (2) Planned and conducted by the Young Farmers
      (3) Meet jointly with the Young Homemakers
      (4) Recognize state winners
         (a) Public speaking
         (b) Young Farmer of the Year
         (c) Young Farmer Chapter of the Year
         (d) Beautification winner
            (Trophies and cash awards)
      (5) Presentation of "Master Farmer Diploma" (5 yr., 10 yr., 15 yr.)
      (6) Awards banquet held.
   B. State tour
      (1) Held in July or August (two days)
      (2) Hosted by local chapters with help from Young Homemakers

(3) Meal functions & tour stops planned by local group
(4) State association assists with expense
(5) 200 - 250 generally in attendance

A few key points

1. County or multi-high school grouping of Young Farmers serves very well in carrying out a good program.
2. Special teacher assigned to the Young Farmer Program other than regular Vo-Ag teacher provides additional time to get the job done.
3. Junior colleges or community colleges are excellent centers for conducting Young Farmer Programs.
4. Teacher must have adequate time for on-farm instruction and follow-up.

FARM MANAGEMENT THROUGH RECORD KEEPING AND RECORD ANALYSIS

Luther I. Lalum[1]

My entry into the area of Farm Management was not due to professional planning, but be realizing the need for converting "Mr. Farm Operator" from the laboring society to the "Man with a Business Suit", society. In addition to this reason, I have felt for many years that the Farm Management course that I offered to my high school vocational agriculture group was not as effective as it should be. The main reason, I assumed, was that they were not involved in the total financial picture of the home farm. In other words, their dollars were not involved. I also questioned my ability to teach a, "down to earth", Farm Management Course without being involved in true management. Making a farm successful with a pencil is not a problem. We can all do this. However, putting this to practice and making it successful always seems to be a different story. For these reasons I directed the major emphasis of Farm Management Education to Adult Farmers.

We had been carrying out the traditional adult education classes on specific subjects such as Fertilizer, Beef Production, Swine Production, etc.

We often questioned the effectiveness of adult education to such large groups. We have been convinced that improvement of practices come within a farming area through what we call "leader" farmers. The "leader" farmers were the group that I wanted in my Farm Management program.

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[1]Luther I. Lalum, Vocational Agriculture Instructor, Kalispell, Montana.

We ear tagged this course, "Farm Management Through Record Keeping and Record Analysis". This seemed to be the most effective way to accompolish the objectives of a sound farm management program and to get the purpose across to the farmers in a simple statement.

The big question is: How successful has the program been? I can only demonstrate this by relating some of the results and attitudes that have developed. Naturally there have been some operators that discontinued the program. They dropped the program because I failed to show them that this type of records could be a benefit to his operation. Some of the individuals refused to accept the facts. They were in more financial stress than they wanted their records to show. Some individuals decided that it was too much work to break down their expenses. These reasons indicate to me that I had not demonstrated to them that the system would be an aid to their farm operation.

The operators that have continued in the program have become convinced that various enterprises, as they were previously managed, were a detriment to the total farm operation. It has made them realize that only through enterprise analysis can they get a true and total picture of their farm operation. When these operators see how other operators have fared, within each enterprise, they realize that there must be controllable reasons for their problems. With this in mind, they start asking, "Why?" Why? was my calf crop so poor, "Why?" was my final weight the lowest of the group, "Why?" are my costs so high in comparison to others. The total list of examples are too numerous to mention.

The desire of individuals to find the answers leads to tremendous discussions during our monthly evening meetings. How much time could be spent discussing a question such as, "What are the reasons that one market hog operation produced 16,954 pounds of pork per death, while other operations produced only 2,632 pounds of pork per death?" These answers can only be developed by facts, true facts based on accurate, fact producing, records.

The effectiveness of an enterprise system of records can probably be expressed most factually by comparing their return to Capital and Family Labor.

YEAR	FARM CAPITAL	RETURN TO FAMILY LABOR	PERCENT RETURN TO CAPITAL
1964	$ 81,879.00	$ 5,366.00	6.6 %
1965	81,537.00	6,763.00	8.3 %
1966	90,944.00	10,786.00	11.9 %
1967	98,584.00	11,133.00	11.3 %
1968	79,374.00	10,124.00	12.8 %

Ideally, I can dream of a much more effective program. This program would consist of a group that are of one type of operation. Examples of this would be to have a group of straight cow-calf operators, straight dairy operators, or operations of similar combinations of enterprises. If this were true then analysis and discussions would be of general interest to the group. The future plans of the program includes this type of group.

An additional condition generally promotes the interest and success of the program. This condition is that the farm operator must be in financial stress or desire a higher standard of living than he is presently obtaining. This condition, as you well know, is not hard to find.

An interesting side-light to the program is the importance of the "other half" of the operation. In my first group of eighteen farmers, fourteen of them were married. Eleven of them brought their wives to the meetings. This was particularly true of the first year when they were learning the record system. After three years eight of the original eleven wives still took in the sessions.

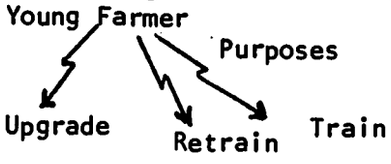
This is a challenging program and a program that can be proven economically solid for a community to sponsor. It is a program that very few agriculture instructors have the background of experience, training and desire to get involved in. Classroom teaching is a lot easier, but I do not think that there is the place to teach Farm Management the most effective way.

ADULT AND YOUNG FARMER

Panel Presentation

J. F. Lawrence[1]

A. Terms used:
1. Adult Education in Agriculture
2. Vocational Agriculture for the Adult
3. Continuing Education in Agriculture
4. Young Farmer



B. Responsibility as state specialist, Bureau of Agricultural Education
1. Promote supervisory training programs
2. Assist local vo-ag teacher with adult classes
3. Assist state advisor for 37 young farmer chapters

DIRECTIONAL IMPLICATIONS FOR ADULT AND YOUNG FARMER EDUCATION

The Agricultural Education Study documents the important role adult education in agriculture occupies as well as projected trends. Certainly, this report confirms the Bureau of Agricultural Education's focus that brought about the current specialist structure in 1969. This report identifies curricular priorities in meeting occupational needs. It delineates, more clearly, educational levels of

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[1] J. F. Lawrence, Supervisor of Adult Education, University of California, Davis, Davis, California.

responsibility and particularly the need for increased effort toward training, retraining and upgrading of personnel employed in both the on-farm and off-farm sectors.

At present I see the need primarily for adult programs which are designed to improve the capabilities of employees to perform on their current job. A future need will encompass the identification of a more formalized career progression where upon adult programs in agricultural education can be designed to move an aspiring employee up to the next job in the progression. I also see the Vocational Education in Agriculture structure based on total program planning necessary for any systematic development of programs for adults. Other funding alternatives such as Adult ADA and ROP/C, however, will perform some role.

I. Curricular

The number of jobs for which agricultural competencies are required is going to increase in the next 5 years.

A. Management - supervision training

NEED
- Skill in supervising other workers was the function ranked first in importance by workers in each of the 13 job clusters.
- The area in which the largest increase in total jobs (as well as the largest year-around jobs) is expected is the managerial-supervision job title group. This is true of both production agriculture and agriculture-business firms.
- A high percentage of managerial personnel come from within the company.

DEMAND
1. Implementation of the 1968 unit of instruction for high school, "Supervision in Agriculture". Initiate through pre-service (5th year) and in-service workshops and provide follow-up procedures.
2. Continue efforts with 1965 instructors guide, "Training Supervisors of Farm Labor". Broaden and expand this program as a viable phase of adult education in agriculture in California.
   a. Pilot FFT courses that are translated for Spanish speaking foremen.
   b. Complete instructors guide for training supervisory personnel in agriculture by means of a short course termed, "Spanish for the Agricultural Industry".
   c. Complete three-day workshop and instructors guide for a second (advanced course for management in agriculture, particularly industry, as well as upgrading the Management-By-Objectives, communicating and motivating skills of vo-ag instructors.
   d. Conduct FFT workshops for potential adult teachers, possibly at skills week, as well as for high school use.
3. Identify and develop instructors for these courses, develop teaching techniques and curricular and audio-visual materials to assist in effective use of time for planning, preparation, teaching, and evaluation.

B. Equipment operation, maintenance, repairs, and construction - second largest group of year-around jobs and second largest group of predicted new jobs.
NEED

DEMAND 1. Increase emphasis for implementing courses on equipment operation, maintenance and minor repairs as a high priority class conducted as a part of the vo-ag department's adult program.
2. Promote more systematic instructional techniques to upgrade quality of agricultural mechanics (shop) adult classes currently being offered in high school vo-ag departments. (The 14-week welding certificate class at Hollister is exemplary.)

C. Landscape and Nursery

NEED - Fastest growing category of jobs.

DEMAND - Liaison with C.A.N. regarding upgrading and retraining needs for this industry as well as need for instructors and facilities.

D. Agriculture Sales

NEED - Predict a growth rate of almost twice that of jobs in equipment maintenance areas in the next five years.

DEMAND - Upgrading and retraining for this area deserves expanded emphasis.

II. School - Industry Relations

NEED - To strengthen and expand communication between education and agriculture and to keep continuously updated the data on the ever changing educational needs of agriculture.
- Lack of qualified workers is regarded by employers as their major personnel problem.
- Training and retraining employees was ranked next most serious among personnel problems.
-Only 2% of all firms indicated they need public education programs to upgrade personnel performance.
-80% of employees believe that on-the-job experience and classroom study is essential for job entry and improvement on the job.
- Communicating the personnel requirement of employers to educational institutions is sorely needed.
- Identify vertical job progression in agriculture and agricultural firms.

DEMAND - Promoting successful courses with firms to help foster company policies regarding on going educational programs.
- Some recent success has been initiated through the Supervisor course, particularly as it has affected the enrolled foremen to more adequately identify their training needs, job description, and job breakdown requirements.
- Promoting liaison with and incorporating industry, and supportive agencies into appropriate adult education workshops with vo-ag teachers.
- Recognize the Young Farmer organization as a viable vehicle for unifying, communicating and developing leadership along educational lines.

III. Young Farmer Program

DEMAND 1. Broaden our Young Farmer member base to recruit off-farm and agribusiness employees as well as management personnel.
2. Recognize the Young Farmer program as a vital link between school and industry.
3. Focus on the Young Farmer program as a sponsoring agent for adult educational activities in agriculture, particularly as a device to promote systematic instruction.

4. Focus on Young Farmer areas that promote both individual and collective leadership development.

IV. Long-range goals to be pursued:

1. Development of a Handbook for Adult and Young Farmer education in California.
2. Development of a Resource Directory to:
   a. apply primarily to Regional-Sectional use.
   b. identify qualified instructors or special teachers actively working with adults in agriculture.
   c. identify qualified guest speakers for use by Young Farmer programs and adult classes.
3. Continue liaison as a member of the Board of Directors for a privately sponsored research project termed "Farm Ladder Demonstration Project," located in Davis and conducted by the Social Development Corporation.

This is a continuum project to extend those concepts reached at the completion of the Agricultural Education Study and is task oriented involving the functions and activities occurring on four demonstration farms. All of this leading up to deveiopment of training sequences and cluster curricula.

EXEMPLARY PROGRAMS FOR THE ADULT IN AGRICULTURE IN CALIFORNIA

I. Year-Around Adult Short Courses:

California has two unique high school district programs that offer vocational adult short courses in agriculture year around. Both Healdsburg in Sonoma County and Nogales High School in Los Angeles County exemplify this concept of meeting the occupational needs of adults in agriculture. Healdsburg offers 10-12 different courses for the orchard and vineyard industry. Some 60% of the vineyard producers and employees have been involved. These short courses average 23 enrollees per class and involve the vo-ag teachers as program coordinators as well as instructors. Ad hoc advisory committees serve to pool the resources of growers, agri-businesses, extension and State Employment to accomplish the specific needs of the courses. Funding has been derived through State Adult ADA and employer contributions.

Nogales High School's vo-ag teacher conducts a vocational grounds and landscaping program that consists of eight courses involving 150 adult students. A certificate of completion for the 9 week course and a Certificate of Vocational Competency for the completion of six of these courses is offered. This program leads to employment in private business and Civil Service type positions. Recognition by employers includes wage incentive adjustments. Basic funding is handled through the La Puente Adult School. This program has also involved both disadvantaged and handicapped students as well as those completing high school diplomas.

II. Welding Certification Course

VEA and district funds are combined to offer an 18-week certification course each year by the vo-ag instructor in Hollister, San Benito County. A total budget of $1600 includes instructional supplies, salaries for two teachers and certification costs by Hales Testing Laboratory. Demand is high but course enrollment is limited to 24 students. Course objectives meet upgrading, retraining and job entry skills requirements.

AGRICULTURE EDUCATION CURRICULUM DEVELOPMENT

(Including Cluster Approach)

H. H. Burlingham[1]

In considering what I might say and contribute to this discussion entitled, "Agriculture Education Curriculum Development - Including Cluster Approach," I immediately found my "think" input being clouded by names and something of a "Milky Way" response. Perhaps this is because we, or at least me, in my beginning consideration - seemed to be very definitely wading through a morass, or sticky mass, of somewhat similar, but also divergent approach to this interesting, if somewhat "gooey" quagmire.

The historical review and limited synthesis of research in the area of "Individualized Instruction in Vocational and Technical Education," December 1971, through Eric Clearinghouse, The Ohio State University, does a good job of identifying many of the approaches to instruction, beginning with Plato and running through Rousseau, Froebel, Francis Parker, John Dewey to Charters, Popham, Mager and Skinner. Of course, the range here is from philosophy, to education, to psychology in education, to systems of instruction, concepts of curriculum, behavioral objectives and individualized instruction.

It is hoped that the next five years may bring forth some reasonable, sound, logical contributions from the many trials, experiments and models dealing with curriculum and instruction. I would not look for a single answer, nor even perhaps two or three answers, no -- I would settle simply for more information which will assist in furthering the increased effectiveness of vocational education and training; information which will assist those responsible for decision making, of course, some worthwhile information already is coming forth, we have done some study and some planning in California relative to curriculum development to meet modern, current and anticipated needs.

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[1]H. H. Burlingham, Professor and Head, Department of Agricultural Education, California State Polytechnic College, San Luis Obispo, California.

We are calling our approach to curriculum planning - toward development of the curriculum - the "Instructional Programs Approach" or concept. Many of you are working on various other - some similar - approaches. I believe that I would be correct in identifying our approach as a rather simple, uncomplicated one as contrasted to the more sophisticated ones such as "systems," conceptual schemes, designs, or clusters. I'm sure you will hear more as to these approaches from the other members of this panel.

In our state, there have been three groups working at this challenge, a committee of teachers working with the leadership of one of my staff members, Dr. Osmund Gilbertson, another a Bureau of Agricultural Education committee chaired by Dr. Gilbertson working on curriculum guidelines and the third, another Bureau committee working on the instructional program structure. The latter two have been somewhat amalgamated now with input both ways.

Other efforts both directly and perhaps indirectly related to curriculum development stem from two EDPA projects we have conducted in 1971-72. One of these is in the area of improving the administration of multi-teacher departments of agricultural education; the other is an effort to make the FFA program more viable for students with special needs. There are many other efforts such as "tasks," or "functions" determinations related to the work an employee does which form a base for course construction. One of the determinations in our curriculum planning is that criteria, or guidelines, or outlines are to be developed for a course or courses of study which will be the "basic" or foundation course(s). In the "Career Education in Agriculture" chart to which Don Wilson referred, a copy of which was distributed yesterday, this course or these courses in the ladder of curriculum would be identified as the Basic Principles of Agriculture I and II. After this course, or these courses, are pretty well developed, the curriculum guidelines development task force will move into the development of guidelines for courses and instructional units in the so-called specialized curricula.

A preliminary edition of "Guidelines for Writing Goals and Performance Objectives for Agricultural Education" has been prepared by the Bureau of Agricultural Education. I would presume that the specific information in this publication, as work proceeds, may have some revision or adjustment within the entire structure of curriculum development.

This pamphlet outlines five levels of effort in accomplishing the total program structure. These steps are related to and based upon the instruction program areas as identified through the USOE Codes.

Level 1 is identified as the Mission-Vocational Agricultural Education, Code 01.0000.
Level 2 is the particular Instructional Program - Example, Agricultural Production, Code 01.0100
Level 3 might be a course titled Plant Science - (there might well be better titles), Code 01.0102
Level 4 would be a Teaching Unit, or a limited area of instruction - Example, Plant Identification.
Level 5 could be: Lesson Plan - Barley Varieties.

This process then will call for the determination of Goals and Objectives in each of the five levels -- What is to be achieved and measured.

Hopefully, this process of curriculum guidelines development will result in materials which teachers will understand, accept, and implement.

Teacher groups will be utilized (as they have in the planning to date) in the development of the materials and in the in-service education efforts necessary to action implementation at the local school instructional level. This may occur at regular sectional meetings of teachers, through special workshops and through other means of getting teacher acceptance and participation.

CURRICULUM DEVELOPMENT IN AGRICULTURAL EDUCATION IN WASHINGTON 1971-72

Robert Corless

A cooperative venture involving teachers of agriculture, vocational education supervisory personnel and teacher educators.

Introduction

There has been keen interest in recent years on the part of teachers of agriculture and others in Washington in the development of curriculum guides, courses of study and teaching units. Many have been developed and are in use, yet there are many areas in which there is a growing need for materials which teachers can use in planning their instruction. The growing interest in horse husbandry, ornamental horticulture and environmental management are but a few of the many areas in which there is growing interest on the part of high school students and their vo-ag teachers.

The need to promote curriculum development was recognized and steps initiated to meet these needs at the State Conference of Vo-Ag Teachers held in Bellingham, Wash. July 26-30, 1971. Teachers throughout the state were assigned topics by district for study and development as follows:

DISTRICT	TOPIC
1	Forestry
2	Agricultural Chemicals and Fertilizers
3	FFA Leadership & Agricultural Occupations
4	Tree Fruit Horticulture, Irrigated Crops and Soils
5	Animal Sciences & Diseases, etc.
6	Field Crops, Soils, Diseases, etc.
7	Agricultural Mechanics
8	Ornamental Horticulture - Greenhouse Management

[1]Robert Corless, Supervisor, Sunnyside, Washington

Jay Wood, State Program Director, has asked C. O. Loreen and Keith Fiscus, Teacher Educators in Agriculture, to develop a plan and to coordinate activities that will ultimately result in making available to teachers of Washington acceptable curriculum guides.

District presidents and teacher members of the Advisory Committee met with the supervisory and teacher education staffs to adopt a plan of action in Yakima, November 12-13, 1971. The following is the plan of action agreed to:

Steps in Curriculum Development

1. The first step will be to assemble curriculum material which is already available from Washington teachers and from other states. A limited amount of reference material will be supplied by CCOE and will be placed in the hands of the president of each district or a special curriculum development chairman if he prefers to appoint one. The person responsible at the district level will prepare a listing of curriculum materials available. The list will show briefly the content of the publication and the source where it can be secured. The state office will duplicate the listings supplied by each district.
2. Time will be spent during the State Vo-Ag Teachers Conference at Richland in July 1972, in identifying the needs for curriculum materials and planning courses of action to meet these needs. The person responsible for curriculum materials at the district level will identify resource people from farm and industry to work with the various interest groups. They will help to identify the need for training in the specific area and the knowledge and competencies needed.

   Interested teachers will make a commitment with respect to:
   a. Working on curriculum material
   b. Enrolling in VTE courses for credit.
3. Each teacher who is interested in being a part of this program will submit a brief, concise plan stating topic and some detail on what he plans to develop in relation to the topic. Date of completion should be included.
4. A teacher whose proposal has been approved by August 1, 1972, may enroll for three semester hours of graduate credit at WSU at the beginning of the fall semester in September 1972.
5. Each teacher who enrolls for credit will be expected to complete his project and submit it to a WSU teacher educator in acceptable form by April 1, 1973.
6. To the extent possible a member of the supervisory or teacher education staff will hold group sessions with teachers enrolled. Two or possible three such sessions are envisioned for each district where enrollment warrants.
7. Decisions with respect to duplicating and distributing teaching materials and curriculum guides will rest with the Program Director.

INTEGRATED SHOP PROGRAM

Von H. Jarrett

The Integrated Shop Program has been operating on a pilot basis for the past two years. The first year the program was in seven high schools, and was expanded to ten high schools the second year . . . "about two or three years ago the Vocational-technical Division of the State Department began a systematic approach toward the development of a program of vocational education which could be implemented in small high schools to provide a much broader and deeper offering than most of them had ever had in the past. This program has come to be known as the Integrated Shop Program."

By the time schools opened in the fall of 1969, this program was ready for implementation in seven of the small high schools of the state. It was organized and structured as a four year examplary program for occupational preparation in selected agricultural and industrial activities for small high schools. The content of the program was drawn from the areas of Industrial Arts, Trade and Industrial Education, and Agricultural Mechanics.

The General Nature of the Program

There are many kinds of vocationally oriented courses which could be offered in a program of this nature. However, it is impossible to offer a great variety of them in a small high school. Even though the interests of students may be many and varied and it would be desirable from their standpoint to have a great variety of offerings, it is not economically feasible to offer all the types of work that students might desire. Recognizing this fact, the committee working in the preliminary phase of this project selected the general areas of drafting, woodwork and building construction, metal fabrication, and power mechanics as the programs to be offered.

The reasons for this selection are as follows:

1. All of these kinds of work are important in modern society. In fact, the total number of jobs related to these four areas of work represent a large and important segment of the labor force, and there are usually ample opportunities for employment.
2. Many of the school shops in small high schools already have a considerable amount of the basic equipment needed to teach these courses. Most of them also have the building space needed.
3. Students generally have interests in one or more of these areas. Of course, some students may have interests and aptitudes in important industrial and agricultural areas not herein represented, but in terms of the limitations which small high schools operate it seems that these particular areas would serve the needs of more students than most others which might be selected.

The first two years of the program, ninth and tenth grades, are largely exploratory in nature although skill training is included. At the conclusion of this part of the program a student who is interested in obtaining additional training selects

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[1]Von H. Jarrett, Associate Professor, Department of Agricultural Education, Utah State University, Logan, Utah.

one of possibly two specialized areas in which he will obtain greater depth of training during the eleventh and twelfth grades . . ."

Objectives of the Program

"The major, over-all purpose of the project is to provide improved programs of occupational preparation in the small high schools of Utah so that students from such high schools may be better prepared than they presently are or have been to enter industry or to continue their education and training at a post-secondary institution. More specific objectives may be stated as follows:

1. To provide a type of vocational training for students in the first two years of high school which will help them to acquire basic skills and knowledge in important industrial and agricultural activities, yet at the same time will allow them to explore the fields of drafting, woodwork, and building construction, power mechanics, and metal fabrication with a possible view towards selecting one of these as his occupational field.
2. To provide students who elect to specialize in one or two of the four major areas of work offered in the Integrated Shop Program with high quality skill training and concomitant knowledge, so that they may be prepared for entry jobs in industry in their chosen field or for more advanced training at a post-secondary institution.
3. To assist students in acquiring those personal and social traits which help them to be worthy citizens and valuable employees.
4. To assist students in finding employment upon completion of their training program and to help keep them employable and employed.

Seven criteria were set up for the schools, school districts, and communities to meet when the original seven schools were selected. The criteria are as follows:

1. The school district superintendent and the high school principal must have a keen interest in trying a new program such as this and in supporting it to the extent that it can be successful.
2. The teachers must be competent to teach the subject areas included in the program or must be willing to prepare themselves so that they will be competent. In addition, they must have an interest in the examplary program and must do everything possible to make it successful.
3. The schedule of classes within a school must be such that students desiring the program will be able to register for it. Also, there must be enough students enrolled in the program to make it a fairly economic unit in the school system.
4. The physical facilities must be of such a nature that the space and equipment are adequate, or can be readily modified so that they are adequate, to accommodate the recommended program.
5. The school district must be in such a financial condition that it can furnish its share of the costs of the program. This would include its portion of:
    A. The teacher's salary
    B. The remodeling of the shop or shops
    C. The tools and equipment
    D. The supplies

6. If it is at all feasible, the community in which the expansion schools are located should have some industry related to one or more of the major areas offered in the training program.
7. The parents of the students who desire to enroll in the program should be willing to have their children engage in such a program and should be interested in supporting it so that it can be successful."

Conclusion

1. It can be concluded that the students who are enrolled in the Integrated Shop Program are achieving more understanding and skills in their training than are students in the control schools, as measured by the pre-test - post-test instrument. (significant at the .05 level.)

2. It can be concluded that the achievement of the students who are enrolled in the 9th and 10th grade Integrated Shop Program was not significantly higher than the students in the control schools in the areas of woods, metals, electricity, and electronics, but was significantly high at the .05 level in the area of drawing as measured by the Cooperative Industrial Arts Tests.

3. It can be concluded that the students enrolled in the 9th grade industrial arts program in the urban junior high schools tested are achieving more understanding and skills in their training than the student in the Integrated Shop Program as measured by the Cooperative Industrial Arts Test in the areas of drawing, metals, and electricity and electronics. (significant at the .05 level)

4. It can be concluded that the curriculum content of the Integrated Shop Program and the curriculum content of the Industrial Arts and Vocational Agricultural Mechanics classes at the control schools are equally good in preparing students in the technical areas of drafting, building construction, metal fabrication, electricity and electronics, and power mechanics, as measured by the Technical Comprehension Test of the Stanford Achievement Test Battery. (not significant at the .05 level.)

5. It can be concluded that the instructors of the Integrated Shop Program need to devote more time and/or put a greater emphasis on developing the safe working attitudes and habits within the shop, especially in the area of eye safety.

6. It can be concluded that the principals of the schools in which the Integrated Shop Program has been tested on a pilot basis are satisfied with the program.

7. It can be concluded that a majority of the students who have been in the Integrated Shop Program are satisfied with the program.

An Integrated Shop Program I - Metal Fabrication Curriculum

Sheet Metal Tools and Safety
Pattern Development
Forming Fastening
Sheet Metal Fabrication
Bench Metal Tools
Bench Metal Sawing
Bench Metal Files and Filing
Bench Metal Grinding
Bench Metal Drilling
Bench Metal Taps and Dies
Bench Metal Bending and Forming
Welding Methods and Cutting Processes
Machine Tool Operations
Measuring Instruments
Engine Lathe

Integrated Shop Program III and IV - Metal Fabrication Curriculum

Measuring Instruments and Layout--Semi-precision
Measuring Instruments and Layout--Precision
Measuring Instruments and Layout--Layout
Heat Treating
Tool Grinding
Cutting Feeds, Speeds, and Depth of Cut
Metal Lathe
Drill Press
Coolants and Lubricants
Drill Press
Metal Lathe
Milling Machine
Shaper
Grinding Machines
Welding
Arc Welding
Resistance Welding
Inertia Welding
Hard Surfacing
Gas Shielded Arc Welding

Integrated Shop Program - Power Mechanics Curriculum

History and Development of Power
Steam
Tools and Safety
Electric Motors as a Source of Power
Physical Principles of the Internal Combustion Engine
Systems and Components of the Internal Combustion Engines
Principles and Types of Internal Combustion Engines
Diesel Engines
Other Heat Engines
Rocket Engines as a Source of Power
Fluid Power

Integrated Shop Program III and IV - Power Mechanics Curriculum

Engine Mechanical Parts
Fuel Systems
Cooling Systems
Lubrication System
Exhaust System
Electrical--Storage Battery
Electrical--Starting Circuit
Electrical--Charging Circuit
Electrical--Ignition System
Electrical--Lighting Circuit
Engine Tune-up
Power Train--Transmissions
Power Train--Drive Lines
Power Train--Rear Axle Assemblies
Power Train--Power Take-Offs
Running Gear--Wheels
Running Gear--Springs and Suspension
Running Gear--Steering Systems and Wheel Alignment
Running Gear--Braking System
Hydraulics--Systems and Components
Air Conditioning

An Integrated Shop Program I - Woodwork and Building Construction Curriculum

- Planning and Layout
- Sawing
- Planing and Jointing
- Shaping and Routing
- Drilling, Boring, and Mortising
- Surface Preparation
- Assembling Operations
- Finishing
- Orientation To Building Construction
- Hand and Machine Tools
- Rough Hardware and Fasteners
- Types of Framing
- Footings and Foundations
- Girders, Beams, and Columns
- Floor Framing
- Wall Framing
- Roof Framing
- Electricity

An Integrated Shop Program III and IV - Building Construction Curriculum

- Orientation to the Building Construction Trades
- New Ideas in Building Construction
- General Safety
- Specialized Tools and Equipment
- Rough Hardware and Glues
- Site Layout and Excavation
- Form Building
- Concrete
- Types of Framing
- Girders, Columns, and Beams
- Floor Framing
- Wall Framing
- Roof Framing
- Plumbing
- Electric Wiring
- Heating and Cooling
- Masonry
- Insulation
- Roofing
- Exterior Finish
- Interior Finish
- Windows and Doors
- Cabinetwork
- Cost Estimating
- New Ideas in Building Construction

Integrated Shop Program I - Planning and Design (Drafting) Curriculum

- Instruments and Their Use
- Geometric Construction
- Lettering
- Multi-views
- Drawing Reproduction
- Dimensioning Practices and Application
- Section Views
- Auxiliary Views
- Pictorial Drawings
- Architectural Drawing

Integrated Shop Program III and IV - Drafting and Design Curriculum

- Freehand Sketching
- Instruments and Their Use
- Geometric Construction
- Multiviews
- Dimensioning Practices and Application
- Precision Dimensioning
- Sectional Views
- Auxiliary Views
- Pictorial Drawings
- Threads, Fasteners, and Springs
- Cams
- Gears

Integrated Shop Program III and IV - Drafting and Design (Cont.)

Welding Representation
Production Drawings
Sheet Metal Development
Electrical and Electronic Drafting
Technical Illustration
Residential Planning And Design
Floor Plan
Plot Plans
Foundation Plans
Elevations
Roof Plan
Floor Framing Plans
Wall Sections
Electrical Drafting
Heating and Cooling
Plumbing
Details
Specifications
Renderings
Models
Scope of the Field of Drafting
Selecting Specialized Area of Drafting

CURRICULUM MATERIALS

Phil Zurbrick[1]

It is a real pleasure to discuss curriculum development in vocational agriculture. We, in the Department of Agricultural Education at the University of Arizona, and with the assistance of Mr. Carlos Moore and the State Department, have put a tremendous amount of effort and time into this activity. You, who attended this seminar two years ago in Phoenix, will recall that Dr. McCormick reported on the plans and progress at that time. To quickly review, let me describe our curriculum model. As you can see, we start with the first two years devoted to the core. The third and fourth years are involved with specialized programs designed to encompass "components" of agricultural clusters. This, we feel, provides us with a multi-tract curricula for an overall broadened instructional program in agricultural education. Further and even more important is that this approach will give us an articulated instructional program between high schools and between secondary and post secondary programs.

The approach used in developing the curriculum has been essentially a two-phase process. We start with the curriculum guide which is built around basic principles or concepts. This guide is built upon units of instruction. Each unit was developed using the following format:

Area of Instruction
Unit of Instruction
Concepts to be Taught
Suggested Subject Matter

This material is then published as the curriculum guide. The second step in the development of the curriculum is the development of resource material to

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[1]P. R. Zurbrick, Department of Agricultural Education, University of Arizona, Tuscon, Arizona.

compliment the units in the curriculum. The resource material is intended for teacher use in planning and constructing lesson plans not as lesson plans per se. Our research and observations showed that a major portion of the teacher's time involved in lesson planning is concerned with identifying educational objectives, formulating questions of study and locating reference material. With these factors in mind, the resource units are designed to minimize the amount of time utilized by the teacher in lesson planning. The resource units contain a series of observable and measurable objectives for each unit. Also included in the resource units are key questions or problems that must be answered or solved to achieve the objectives. Following the question or problem is the most up-to-date and complete answer or solution.

Both the curriculum guide and resource materials have been completed for the core. Acceptance of the material by teachers has been very gratifying. About 80 percent of the teachers are using the core materials. Another project that we have nearly completed is the development of standardized tests for each unit of the core. The tests have been developed and standardization should be completed next year.

We are now using the same procedure just described to develop the specialized curriculum programs. The manpower data, which was generated as part of the experiment station research project on occupations and training needs in agriculture, was used to determine which programs were needed in Arizona. Also, the State Advisory Council for Agricultural Education which Mr. Carlos Moore has formed is being used in the development of the specialized programs.

The five specialized programs are: Agriculture Production and Management; Ornamental Horticulture; Agricultural Mechanization; Agricultural Business-Sales and Service; Agricultural and Renewable Resources. In analyzing the present offering in the state and where we should be relative to specialized programs, we feel that we need to reduce the emphasis on production and increase it in the other areas. We have this chart on display in our classroom and use it with students in planning their college courses. The specialized programs will probably become our vocational offering in agriculture in the future with the core (grades 9 & 10) being used as general agricultural classes. The area of Agricultural and Renewable Resources is a very popular topic at the moment. It is regrettable we do not have it completed.

We have developed a program description, training objectives and a list of associated job titles for each of the specialized programs...plus the core. This material should be helpful in explaining the total program to administrators, parents, counselors and others concerned with instruction programs.

You might also be interested in the units which are planned for the specialized program in Agricultural and Renewable Resources.

1. Career Opportunities in Conservation and Recreation
2. Environmental Ecology and Ecosystems Management
3. Wildlife Management Principles
4. Soil and Water Conservation Principles
5. Forestry Management Principles
6. Range Management Principles

7. Recreational Management and Development
8. Recreation Mechanics
9. Fisheries Management and Principles
10. Fire Arm Safety
11. Water Safety and Boating
12. Solid Waste Accumulation and Disposal

Benefits of Curriculum Development

1. State contests are being built around the instructional programs
2. Is influencing instruction at the University
3. Provides programs other than a bunch of classes without purpose or occupational objective

Looking to the future, we would hope we can get some financial assistance to have the specialized program curriculum completed, along with the resource material, by this time next year. The next challenge will then be to work with the community colleges in developing technician programs which are articulated with the specialized high school programs. Our objective, as stated by Mr. Moore on numerous occasion, is for each department in the State to have an instructional program designed to provide occupational preparation...not just a "bunch" of classes.

CURRICULUM DEVELOPMENT - AGRICULTURAL EDUCATION
State of Hawaii

Tom Hatakeyama[1]

A. Restructuring of Agricultural Education Curriculum
   1. Development and Refinement of conceptual framework
      a. Draft complete being studied by specialist at the College of Tropical Agriculture, University of Hawaii
      b. Draft being reacted to by selected number of agriculture teachers
      c. Refinement to be completed this summer
      d. Guides to be developed from the conceptual framework
      e. Scope and sequence will also be developed from these guides.
   2. Development and refinement of the Agricultural Arts course guide and evaluative instrument
      a. Course guide development and reaction from the field
      b. A battery of fifteen performance tests was developed and being field-tested at four centers
      c. Base line to be established by summer of the 1973, from then on we predict a gain of 1% increase per year.

[1] Thomas Hatakeyama, Program Specialist, Honolulu, Hawaii

B. Innovative Programs

1. Two agriculture departments have started agriculture projects in raising Malaysian prawns, channel catfish and frogs, together with taro, water cress and rice.

2. Agribusiness studies being conducted at one center.

   a. Cost-analysis of raising tomatoes under environment controlled house
   b. Agribusiness aspect being emphasized more than production agriculture where students:

      (a) apply for and pay a gross income license
      (b) lease and pay lease rental of land used
      (c) rent equipment
      (d) make sales agreement
      (e) process produce
      (f) keep records to be used in filing income taxes

AREAS OF CONCERN IN THE PACIFIC REGION

Kenneth E. Hansen[1], Chairman

PROGRAM EVALUATION:

H. H. Burlingham,[2] California

We have only something over an hour to dispose of six topics to be presented by six persons. The two supervisors will handle their topics expeditiously, for this is one of their characteristics. I fear that the four teacher educators do not have this same reputation: Sometimes we are accused - falsely 'tis true - of talking much but saying little.

I am fortunate to have the lead-off spot and may I assure the other speakers that I shall endeavor to limit my descriptive presentation to ten minutes. If there are questions later, I shall be pleased to respond.

It is assumed that no philosophical review of program evaluation is appropriate or needed. It is here - we have it - and we may be in the position of the idiot on TV who wails that "I ate it all."

May I present one facet only of program evaluation - that of California's approach to the evaluation, or appraisal, of the local school's total program of agricultural education including, of course, the instructional phases.

For some forty years, California has more or less consistently applied some formalized, or official, department evaluation. Originally, the process and the resulting measurement was related to reimbursement. Does this sound a little like history repeating itself? Do we really mean payment on the basis of performance results -- What results?

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[1]Kenneth E. Hansen, Assistant State Supervisor, Agricultural Education, Boise, Idaho.

[2]H. H. Burlingham, (See footnote, page 45.)

Following divorce of the evaluation system from reimbursement, the variously applied systems were related to up-grading and improvement, but with no tangible rewards. More recently, the process of evaluation was based upon criteria, or characteristics, of a "good" program of vocational education in agriculture.

Another system and process has recently had its genesis. It has been given some trial runs and teacher input was solicited on its development. The appraisal is made in terms of three major considerations:

1. Provisions made for the program in relation to program goals, objectives and standards.
2. The conduct of the program.
3. Measuring instruction and program results.

The instrument used is designed to assist the local agriculture department, school and district to achieve these objectives:

1. Identification of the strengths which may be used as a basis for continued growth and development.
2. The formulation of plans for improvement, development and extension.
3. Identifying those parts of the total program that warrant specific attention.

There are three major parts of the appraisal - providing for the program, conducting the program, and measuring instruction and program results. Three pages are added to the instrument for "Commendations and Recommendations."
Salient features of the system may be identified as follows:

1. It is planned that each department in the state be appraised every five years.
2. All professional staff members, supervisors, specialists, and teacher educators are to participate.
3. An "appraisal team" is to be formed, to be composed of such other persons as:
   a. A designated representative of the local school administrative staff.
   b. The agriculture faculty.
   c. A visiting agriculture teacher.
   d. A representative of the local school board, advisory committee or community at large.
   e. A representative of the local FFA.
4. The representative of the Bureau of Agricultural Education shall serve as chairman of the team.
5. Each school appraised in a given year will be asked to release, if possible, one of their agriculture teachers to serve on the appraisal team for another school.
6. Teacher (visiting) expenses to be reimbursed by the Bureau of Agricultural Education.
7. One year after the appraisal, the local school administration will be asked for a progress report on forms provided by the Bureau of Agricultural Education.

AGRICULTURE, ENVIRONMENT AND EDUCATION: A BRIEF LOOK AT THE IMPLICATIONS

Rodney Tulloch[1]

In many circles today it is popular to be an environmentalist. But to some people in the field of agriculture, being an environmentalist is about as popular as being a professional hockey referee.

In Population, Resources, Environment: Issues in Human Ecology, Paul and Ann Ehrlich, have the following opening paragraph under the heading - Agriculture and Ecology: "World agriculture today is an ecological disaster area. We carefully breed out of plants their natural chemical defenses. The poisons usually don't taste good to us, although some of our spices, which we use in small quantities, are produced by plants to serve as insecticides. We plant our crops in tight, simple monocultures, inviting pest outbreaks, to which we then respond with synthetic pesticides, often killing a higher proportion of some non-target insect populations than we kill of the target populations of pests. There are a few hopeful signs that ecologically sound agricultural practices may eventually be adopted, but so far the general trend has been in the opposite direction."

From this quote it is obvious that many persons view people in agriculture as serious threats to the environment. In many cases there is a great deal of misunderstanding as to what is being done in agriculture and why it is being done.

What is the environment? I have a very broad definition. I define the environment as all of the external factors which may affect an organism or community either in its development or its existence. With this broad definition you can see that I am talking about an all encompassing, inter-related phenomena. This makes understanding the environment very difficult.

There is no Santa Claus and there are no free lunches in the environment. You choose an option and you pay the price. Unfortunately we often do not know all the options and only seldom do we comprehend the possible effects of choosing such an option. There is a great deal of misunderstanding about the environment. It is somewhat like people's understanding about the operation of an airplane. For example, a lot of people think that the propellor of an airplane is to propel the airplane. Actually, the purpose of the propellor is to keep the pilot cool, and if you don't think so, watch the pilot sweat when it quits.

I would like to mention some of the problems that I feel are important in connecting agriculture, environment and education. Because of the limitation on time, I will take a couple of examples from each of the eight areas on which we are preparing units for high school students.

First, let's look at noise. This I feel is an area that we have long ignored even while some of our teachers may be going deaf in shop situations. In speaking to the Vocational Agriculture Teacher's Conference in the State of Washington this past summer, I pointed out that farmers have a greater hearing loss than the average person. Farmers' hearing tends to be poorer in the left ear

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[1]Rodney W. Tulloch, Assistant Professor, Agricultural Education, Department of Education, Washington State University, Pullman, Washington.

than in the right ear. This is probably due to the fact that a farmer usually turns his head to the right while operating most farm machinery. Thus, the left ear usually receives more of the exhaust noises. When this came out in the next day's paper, it quoted me as saying that the farmer's left rear is exposed to more of the exhaust. When I returned to the University, the Dean sent me a memorandum asking me what type of research I was doing. I responded by telling him that I had no Deans in my study and asked him if he was interested. Many studies have been done and are being continued to find the effect of noise on individuals. While there is a great deal of variation among individuals, it can be said that exposure to noise can produce or contribute to many serious health problems, such as ulcers or heart problems.

To briefly describe some of the kinds of problems involved with noise, I would like to point out the following: The various frequencies of noise affect persons differently. A person exposed to loud noises at one frequency loses hearing at another frequency approximately a third of an octave from the frequency to which he is exposed. A British scientist and noise expert who serves as a consultant on many noise problems was called a factory one day to serve as a consultant, and was met at the door by a young engineer who told him that he did not need an explanation about the problem, that he was an engineer and understood that noise is measured in jezebals. On another occasion he was called to a factory where he was shown microphones that had been set near each of the noisy machines in the factory, by the factory manager. The object was that each of these microphones was connected to an amplifier which in turn was connected to a speaker system in a field a couple of blocks from the factory. The manager was operating on the theory that he would suck the noise away from the big machines and out into the field.

Under agricultural chemicals a discussion of the various kinds of chemicals and their uses would be most appropriate for high school students. Residue and toxicity effects could be studied along with biological control methods. At some point we may have to come to grips with designations of toxicity and even part per billion. We need to understand that what has sometimes been reported as DDT has sometimes been similar materials and not actually DDT at all. Further, we do not know where this material is coming from. At some point the decision will have to be made as to what our highest goal is - wildlife, bugs or people.

Water pollution and water quality is another area of great importance. Although there are many problems in the agricultural unit which relate to water pollution and water quality, sediment is certainly one of the most important. It should, however, also be realized that much of the sediment that is causing problems may come from city and construction areas. Much of the research that has been done on runoff of agricultural chemicals including nitrogen, phosphorus, and a multitude of pesticides is somewhat inconclusive. This is due in part to the great number of variations in such factors as soil type, slope, and many climatic factors.

Air pollution is yet another problem. It has been a particular problem in such areas as forest slash burning and the burning of other crop residues. Wind erosion of soils has been another problem and can be particularly hazardous when the soil that is being blown has been treated with herbicides. The herbicides may then be carried with the soil to another area where they may do extreme damage.

The production of plants and their effect on the environment and the effect of the environment on them is another whole large area of study. How often have we considered the use of plants as noise breaks along highways? Plants may also be used to help prevent erosion and hold soil in place as well as to improve the esthetics of the area. On the other hand, the residues from plants when burned may cause air pollution, when dumped in the water may cause organic pollution in the water, and when left may be the host for diseases and insects. On the other hand, air pollution and even minerals in water may do severe damage to many kinds of plants.

Land use is another area that is becoming increasingly important to people in agriculture. There are many instances where land values have risen too high to be used for agricultural purposes and are then used for other purposes. The zoning, taxation and other methods of land use control need to be covered with high school agriculture students and teachers and potential teachers as well.

Under agricultural chemicals and radiation many topics need to be discussed such as the fact that most states are now requiring an applicator's license for those people applying agricultural chemicals. The liabilities of applying such materials should be stressed and such a fact can be easily pointed out by telling them about the following incident. A recent court case centered on the fact that a farmer had had a chemical applicator apply a defoliant to his cotton crop. As the crop dried up a child entered the field and lit the cotton crop with a match. Because the cotton was now dry it burned vigorously and the child was rather badly burned along with the cotton field. The parents of the child sued the applicator, the farmer and the chemical company on the basis that they had created an attractive nuisance. Certainly one of the most important areas to be covered under agricultural chemicals would be safety and safe use of the chemicals.

One of the areas in which agriculture really has been getting criticism is in the area of animals. This has come in many forms, including the maltreatment of animals as well as from the adverse effects of animal waste in some cases. One incident involving animal waste which I think is somewhat humerous but also pathetic is that in the Los Angeles area a large dairy farm began to accumulate manure at a fantastic rate. Soon this manure amounted to almost a mountain of manure. Incidentally, in some places in the midwest they are using highly heaped solid waste piles as ski slopes. This obviously wasn't a practical use for the manure mountain near Los Angeles. As the mountain grew and decayed there was a putrid slimy run-off, of course, great stuff for city kids to play in so that they may have a fresh country flavor. Flies and other varmen also increased, which in turn increased the chances of diseases being spread from this nearby insurmountable mountain of manure. Odors in hot, damp weather became nearly unbearable.

For a long time no serious action was taken to remove this mountain of manure. What finally made people decide to do something about this intolerable situation? Was it the putrid run-off that kids played in on the streets? Was it the rats, flies, and other varmen? Was it the odor emitted by the mountain of manure? Was it the disease carrying organisms that inhabited the mountain? No, surprisingly enough, it was none of these obnoxious features which ultimately led to the strong public pressure and finally the removal of the mountain. The real concern came when the mountain became so high as to interfere with TV reception.

I am sure that many of us here support some wilderness areas and water areas for water fowl. I am sure that as a group of agriculturists it will come as a great surprise that water fowl carry on biological functions. According to Dr. C. H. Wadleigh, Director, Soil & Water Research Division, ARS, USDA, studies have been done on Lake Chautauqua in Illinois which indicate that the duck population adds 5.6 pounds of phosphorus and 12.8 pounds of nitrogen per acre of lake per year. These are sufficient quantities of plant nutrients to induce eutrophication or dying of lakes.

Finally, we have developed a unit which we have called understanding the environment which we feel should be the first one taught and which should tie the other seven areas together since involvement in the environment is not done in individual areas but as a very complicated, complex, interrelationship where one change can set off a chain reaction.

Solving environmental problems is not going to be simple. It involves economics, yes, but also societial values, politics, religion, and each of us as individuals. Do we have the intestinal fortitude to carry out our part and also to see that others are educated. I believe we do!

I pray that God will give us the wisdom and understanding to solve these problems. Above all, I pray for time, which we will need, to solve these problems.

ADVISORY COMMITTEES

Burr Fancher[1]

Survey of Advisory Council usage was made in Oregon. Results indicate that local departments are not using advisory councils to the degree that they ought to be used.

1. Many departments have a list of names for an advisory council in order to meet reimbursement requirements.
2. 27 out of 100 were found to have active, functioning advisory committees.
3. Only 2 of 100 openly admitted that they didn't have or didn't want to use advisory councils.
4. The teachers indicated their biggest problem to be lack of time.
5. At least 35 of 100 indicated they lack know-how of advisory council use.
6. The biggest use of advisory committees was curriculum revision.
7. As a result of this survey and subsequent inquiries, 17 new advisory committees have become active.

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[1]Burr Fancher, Specialist, Salem, Oregon

SPECIAL EDUCATION PROGRAMS

Art Nelson[1]

Today we are faced with the frightening situation that there are over a million dropouts each year from school, youngsters between 18 and 21 with no marketable skills. There is also a high unemployment rate, especially for persons of minority groups. We have certain programs attempting to cope with this situation, programs in which occupational training is the main component such as the Manpower Development Training (Band-aid type training) program, the Neighborhood Youth Corps, the Job Corps, and the Work Experience and Training Program for persons on welfare, Veterans Rehabilitation programs, model Cities program; OEO programs and other programs for the Special needs area administered by the Dept. of Labor, the Work Incentive Program (WIN) and Total Opportunity Program (TOP) in cooperation with the Dept. of Empl. Security, and other programs. There is a great need for doing a better job inside and outside our regular programs. A State Supervisor of the Dept. of Vocational Rehabilitation recently indicated to me they are 8 years behind in any way meeting the program needs in Special Education. He maintains our regular programs are doing a "lousy" job of meeting the Disadvantaged and Handicapped student needs. Because of these remedial needs it is costing the taxpayer much more and he is rebelling in our State. These emergency programs are really an indication that the educational system is not meeting the needs of most of the youth or the labor market.

The Special needs group are the students who are slow learners compared with the normal school population but do not have the intellectual ability to absorb the material which the educational system is hoping to transmit to them. We should also include those students from low-income families, those with racial or cultural differences, and those whose parents have had little or no educational or employment opportunities. If we concentrate on these groups, which admittedly present the toughest problem, students from more favorable economic environmental situations can also benefit.

Perhaps the most serious problem or concern is that of motivation. We are often dealing with youngsters from an environment where the people are suspicious of education and feel there is no future other than day to day existence, or with youngsters who find among their peers the reinforcements of success, acceptance, and commonality of interests which they do not find among the adults with whom they associate. These adult models with whom they are familiar are persons who have rejected them -- oftentimes their parents or, perhaps, teachers who have considered them failures and below normal or average individuals--or adults who have part-time jobs, unskilled and semi-skilled jobs and are dependent upon welfare agencies. Even though these students try they fall behind in their school work because their teachers may not have offered encouragement. The material which they are given does not relate to their immediate needs. Their visions of the future are limited to what they can see around them. They are seldom encouraged to picture the world of work as one of excitement and self-fulfillment. Their faults are over-emphasized, sometimes in public, which causes embarrassment to them. Seldom has anyone tried to find their strengths.

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[1]Art Nelson, Supervisor, Agriculture Education, State Division of Vocational Education, Olympia, Washington.

Our first concern must be to understand the problems of these students and to help them make the decisions which will stimulate them and make them responsible citizens. We must understand the economic, environmental, social, and psychological problems which these students reflect. Teachers need to know students. They must take an active part in opening up the opportunities and work with the parents, counselors, and school administrators whose ultimate responsibility is to make use of all available human and financial resources for the best possible educational program.

Since teachers are in daily contact with students, cooperation between the faculty and the counselor can result in the recognition of problem areas which skillful guidance can correct.

In working directly with the student, the teacher's and counselor's contributions and objectives should be to help the youth with special needs who have depressed educational aspirations and achievements.

"PEOPLE NEEDS" -- Special Needs

When improving and expanding any of our voc.-ed programs we must accomodate needs of people rather than so much emphasis on subject matter. Being available to students when they are out of school. Learning to know them as individuals -- not depending on tests and past school records alone -- in counseling. Being fully aware of occupational opportunities and the educational qualifications needed -- preparing level of different age groups for distribution, make sure academically poor student is able to participate in youth organization activities. Working closely with parents is a must to do the best job. Improving self image --learning to know himself, improving skills in getting along with others and it takes Team Effort: Agriculture, Distributive Education, English, Industrial Arts, Counselor, and individualized program of studies for each student in the program.

The following are three examples of Special Education Programs or Workshops. A bulletin describing the Vancouver program was distributed to the Conference.

SOUTH BEND HANDICAPPED PROJECT ENTITLED "Greentree", SOUTH BEND SCHOOL DISTRICT

Four groups of 12 students spend six weeks on the tree planting project. These boys are from schools in the area; namely, South Bend, Raymond, Menlo, Elma, Chehalis, Aberdeen, and Hoquiam. The boys live in a vacant 12-man cottage belonging to the Bureau of Natural Resources at a minimal cost. A young man and his wife are dorm parents, cook, recreation supervisors, etc.

The boys are trained to plant trees and are on contract with Weyerhauser on a piecemeal basis. Each boy gets a pay check from the School District and pays for board, room, rain gear, safety hats, etc. At the end of 21 planting days most boys are producing enough to be employed by anyone employing tree planters. The project has a foreman and an assistant who are paid by the District. The project also has an auditor from Weyerhauser who certifies quality of planting and provides a bonus for anything over 95 percent take. Every planting day has been a bonus day, which is better than Weyerhauser's own crews or other contract planting crews.

Plans are already being developed for next school year. Employment for tree planters in the next five years looks good. Weyerhauser, alone, has 13 million

trees to plant in the South Bend area. A good man will plant 750 to 1,000 trees a day on good ground. The average for all conditions is around 500 trees. These handicapped boys are averaging 550 trees per day.

Superintendent Gareth Giles expressed much optimism in respect to the inter-district cooperative efforts, present as well as future. He is also pleased with the Greentree Program and was quick to say it is the best program in the school. He is concerned about how the program is to be financed without Federal Funds in 1972-73, but he expects to find a way.

Mr. Don Lorentsen, supervisor of Special Education, is doing many "Vocational" things with handicapped students from the three districts. He does lawn maintenance as well as greenhouse and nursery work with "his students," not to mention the Greentree Project.

CENTRALIA - CHEHALIS HANDICAPPED PROGRAM

This federal funded program for $21,000 had four phases to be jointly operated by the Centralia-Chehalis School Districts for the Lewis County area. Although one phase was a carry over from previous grants, three of these are new and have not been completed. This slide series shows one of the instructional parts and the advisory committee.

#1. This green house is the end product of the first instructional program.
#2. Ag. teachers, counselors, and local businessmen meet before the meeting to discuss the program. Left to right. Fred Hilpert, Foreman Darigold Implement Chehalis, Jim Beck, Vo Ag Onalaska, John Raup Vo Ag Chehalis, Lee Coumbs Vo Ag Centralia, Dyle Smith Counselor Centralia.
#3. The Advisory committee met each month to plan and present progress reports. To reform their functions smaller sub- groups met monthly to plan programs. Sub- groups met by program.

Phase I. Work Study - Previous program about 30 placements.
Phase II. Writing Instructional Material - Two English teachers were hired to prepare learning packets on basic communication skills.
Phase III. Instruction
Building Construction - This slide series- about 15 boys involved at various times.
Horticulture Now started 5 girls 10 boys
Forestry- Now started 13 boys 2 girls
Farm tractor operation, Maintenance- Failed to start
Phase IV. Job Placement-Looks promising 3 placements already and others developing.

#4. The building was started in November 1971
#5. Centralia School District provided a school carpenter and tools
#6. The carpenter and Ag Instructor worked with a crew of 6-8 boys from 2 pm to 5 pm daily.
#7. The boys were given 3 hours credit and substituted this program for 3 elective classes while maintaining their classes necessary for graduation.

#8. Western Washington has poor weather. A heavy snowstorm after Christmas vacation and 2 floods slowed progress and created miserable working conditions.

#9.- #10 Being behind schedule this group of Math and Science teachers donated a Saturday to help pour concrete. These men became interested in the project and donated many evenings to helping the boys finish their assigned jobs, gather materials, bring out coffee in cold weather and general moral support.

#11 The metal shop instructor was generous with his facilities and tools and helped the boys make pipe supports, table legs and table screens.

#12 The woodshop helped make the table frames, sent them to the metal shop for legs and screen and then out to the Greenhouse.

#13 The end product showing heating, and cooling system. The outside building measure is 25' x 60'.

#14 Inside, there is about 500 ft. of table space, completely automatic and a 12 x 25 head room for storing equipment and work space total cost about $8,000. Included instructors salary for supervision, carpenter, electrician.

#15 The advisory board is still active changing and reviewing programs and planning for next year.

The 3 biggest rewards are!

1. Response of the business community to give time, effort, instruction and materials to our program.

2. Response of total high school staff to support the Ag function science, math, English, industrial arts.

3. The non-ag oriented boys that built the green house and then electing the Hort program to see if the darn thing works.

FORESTRY CLASS - CENTRALIA-CHEHALIS SCHOOL DISTRICTS

I. Introduction - Warren Warfield - April 10th
   1. Evaluations - no test
   2. Background of instructors
   3. Job applications

II. Tree Planting - David Pearsall
   Dates: March 24 - classroom-introduction
   April 11 - field trip-plantations
   April 1, 8, or 15 - tree planting - Saturdays 9 A.M. - 4 P.M.
   Equipment - planting hoes, bags, handouts
   Transportation needed - April 11, and Saturdays

III. Christmas Trees - Ed Golding
   Dates: April 12 - classroom - introduction
   April 13 - shear trees - local plantation
   April 14 - visit to plantations - view trees
   April 17 - visit to Hofert Nursery
   Equipment - shearing knives, pruners, handouts
   Transportation needed - April 13, 14, & 17

IV. Inventory, mapping, photographs - Don Karns
Dates: April 20 - evening class
April 21 - classroom - photos, maps
April 24 - field trip - photos
Equipment - stereoscopes - 1 for every two kids
6" chain scales - Winn
grease pencils - Lee
gum erasers - Lee
dot grids - Winn
Assorted maps - to be ordered
Transportation needed: April 24

V. Plantation Maintenance - Kelly Niemi
Dates: April 27, 28, May 1, 2, - Surveys
May 3 - Seedling care
May 4, 5, 8 - brush, grass problems
May 9--17 - PCT, chain saw, chemicals
Equipment - mistblower, hypo-hatchet (Jack Fisher), hand compasses, photos.
Transportation needed - April 28, May 1, 2, 4, 5, 8, 11, 12, 15, 16, 17

VI. Logging - Ralph Moerke
Dates: May 19 - classroom - introduction
May 20 - Saturday - field trip-all day
Equipment - hard hats - I've taken care of this
Transportation needed - May 20

VII. Industry - Lee Coumbs
Dates: May 23 - visit to local mill
May 24 - visit to local mill
Equipment - hard hats
Transportation needed - May 23, 24

VIII. Minor Forest Products - Callison
Dates: May 26
Equipment - none
Transportation needed - Possibly May 26

IX. Fire Suppression
Dates: May 30, 31, June 1
Equipment - fire tools, hard hats
Transportation needed - May 31, June 1

1367

EMPLOYMENT OPPORTUNITIES RELATED TO AGRICULTURE EDUCATION PROGRAMS

LABOR SUPPLY AND DEMAND

VE Code	Instructional Program	Current Employment	Projected Expansion and Replacement Needs		Projected Supply of Trained Personnel			
					Voc Educ Output		Other Output	
			1973	1977	1973	1977	1973	1977
	Agri. Production Farm Operators Farm Workers, etc							
	Agri Sup/services Grain, Feed, Seed & Farm Supply							
	Agri Mechanics							

1368

State Wide Follow-Up Study of Vo-Ag Graduates

Each year in November there is a state wide follow-up study made of those students who completed two or more years of vo-ag during their enrollment as senior high students. This study includes the graduates of the current year and also those who graduated five years previously. The results are as follows:

Graduates in 1966	=	834
Not available for work	=	274
Available for work	=	560
Number in farming	=	124 = 22%
Other agricultural work	=	152 = 26%
Not related to agriculture	=	216 = 39%

Of those going on to school 46% enrolled in some field of agriculture. Percent of graduates employed in some agricultural field or pursuing a career in professional agriculture = 40%.

State Wide Study of Agricultural Employment

We are in the midst of study being made by the Employment Security Office which we hope will give a more realistic employment figure of persons engaged in production and off-farm agricultural business and industry.

At present no credit is given for agricultural employment opportunities in any off-farm agricultural business or industry and only those on-farm jobs on which social security benefits are paid.

When numbers are properly identified, we must then carry the study a step further and identify the important competencies associated with the job.

At the present, we are being killed by employment projections and job outlook information. We must get credit for our product when placed in business and industry, and in farm ownership.

Membership in the FFA remains high. We are proud of this phase of our program. It continues to bring praise from agricultural leaders and school people throughout the state.

Gilbert Long, Teacher Education, Logan

1. Evaluation of courses
2. Description of an effort to broaden our preparation method was given this morning.
3. Our University is involved in preparation for an NCATE evaluation
   --- free electives seem to assure development of strengths, but this doesn't happen because the students get into the major late, the Jr. year for many.
4. Our Ag. Mechanization program is gaining in strength. We have an Ornamental Hort. program in its first year. We have proposed a meat cutting and processing course --- all coop. courses.

ANNUAL AND LONG RANGE PLANNING AND BUDGETING FOR
AGRICULTURE EDUCATION

OE Code 01.02.00

Level Secondary

Population Served General

Goal: To maintain, extend and improve programs providing knowledge, skills and activities needed by secondary students to gain entry level employment.

Objective: To increase the number of students enrolled in Voc. Ed. programs designed to prepare students for employment in Ag. Services/ Supplies.	Outcomes		
	Current Status	1973	1977
	100	175	450

Activity During Budget Year	Funds Budgeted (Needed)
1. Continue to Fund 5 existing programs in 5 schools offering Vocational Ed. programs in Ag. Supplies and Services. List a. _____ b. _____	$6,000
2. Add one program to provide training in Grain, Feed Seed and Farm supply.	$3,000

Articulated Curriculum workshops in horticulture and Ag. Mechanization are planned for this summer.

Propose that we as a group look more broadly at vocational preparation to include the idea that the school lab may offer a potentially better training situation than a poor or absent coop industry station.

-- D.E. calls this the project method
-- Employment Security

WASHINGTON STATE: Jay Wood, Agricultural Education Director, Olympia

I am sure that a lot of you are aware that our state Coordinating Council for Occupational Education, is about to get a new director. Mr. Ernest Kramer, who has been our director for the last six years, is going to retire May 1 and will be replaced by Art Binney, who has been working in Green River Community College for the last few years as their vocational director. Mr. Binney has a background of vocational technical education. He has also worked for Boeing and a vocational technical school system. He does not have experience in the secondary schools, but we are confident that he is the kind of a man that is going to learn about these schools and will be asking a lot of questions before he starts making decisions.

Structure of State Vocational Staff

Our structure was changed about three years ago when we had a split in our state. Some people have referred to it as a three headed monster. We now have a vocational director in community college working for the community college board for their program. We have a director in the superintendent of public instruction's office and we have the director of the Coordinating Council for Occupational Education. I think I can best show you how this works by sharing with you a diagram of our structure.

State Advisory Committee for Agricultural Education

When one looks back on the things that have happened in our state, we find that probably one of the better things was the formation of our state advisory committee. This committee consists of eight agriculture teachers and eight agriculturalists. The agriculture members represent most of the areas in agriculture. We also have one school superintendent. Last year this committee met four times. This year we may meet five times. We normally meet from 7:00 to 10:00 on Friday evening and from 8:00 a.m. to 2:00 p.m. on Saturday. We move the meetings around over the state and we have been able to get state funds to pay for the travel expense for the state advisory committee. The ag teachers on this committee go back to their districts after we have had a meeting and within a few days, they share with the ag teachers in their district the things that we discussed at the advisory committee. This makes a good communications system and I personally

STATE REPORTS

ARIZONA: Carlos Moore, State Supervisor, Phoenix

Under the new organizational structure in our state Department of Education, vocational education becomes part of the career education division. To go along with these changes, we have had the following appointments and reassignments of personnel:

Mr. J. R. Cullison has been assigned as assistant to the superintendent of public instruction, Dr. W. P. Shofstall, for master plan development and advising on procedures and policies.

Mr. Eugene Dorr has been assigned to the new position of associate superintendent for career education and director of vocational education.

The deputy associate superintendent for evaluation and program planning is Mrs. Shirley Mannion.

The deputy associate superintendent for career education is Mr. Paul Bennewitz.

Another sign of the times is the discontinuance of the Arizona State Fair participation by industrial arts and all divisions of vocational education, including FFA, DECA, VICA, etc. Three factors are involved in this decision.

The first is the increased work load that is being carried by the state supervisory staff having responsibilities for state fair activities.

The second factor is the extension from a typical 11 day fair session to 17 days. This increase in time poses an unreasonable demand upon supervisor's, teacher's, and student's time. We also have the added problem that many exhibits cannot be kept attractive for 17 days and many of our school administrators are so narrow-minded they expect students to attend classes occasionally.

A third factor is the apparent position of the fair board that what the state fair needs is to be more of a commercial enterprise than an educational display. Attention will be given to stronger support of county fairs as a means of providing student and department recognition.

Some time in June, we will be moving from our temporary quarters, where we have been for the past two years, to the new education office building in the state capitol mall. If this operation is typical of most moves to new buildings, we can expect 7 to 10 days of phone, mail, and air-conditioning problems. In fact, some of our staff feel this is an ideal time to schedule their vacation.

feel it has helped to improve the moral and communication of our teachers with the state office. This year for the first time, we are going to have an agriculture teachers state summer conference that will have been planned by the ag teachers. They feel that this is definitely good for agriculture and so do we. They truly enjoy having part of the action.

Funding of Vocational Programs

Our vocational agriculture programs are funded for the basic attendance through superintendent of Public Instruction's office. This funding does not amount to as much as it used to when we had the funding going out of our office. The superintendent of Public Instruction's office pays roughly $76 in vocational money per agriculture student that is in an agriculture class one hour per day for 180 days. These students also generate points towards a part of the federal money that is also dispersed by the Superintendent of Public Instruction's office. The minimum of federal funds that a school can get is $1,000 and depending on the number of points generated, it goes on to higher figures. This system seems to take care of existing programs in reasonably good condition, however, those programs desiring to start up, especially in smaller schools, find it rather difficult to pay their way with this kind of funding. Also keep in mind that the vocational students draw regular school attendance money which is added to the vocational money. The financing of vocational education in our state gets into many complexities as one tries to work with it. Due to the amount of local state monies that are generated, there is a variance in the amount of state funds that are available to the districts. We have some districts that generate enough money at the local level through their taxation base, that they are not eligible for the vocational or regular attendance money from the state. The Coordinating Council for Occupational Education, for which we work, is responsible for the expenditure of the federal funds, even though they are dispersed by the operating agencies. This means that those monies that are put in to the programs that are mixed with federal funds, automatically become our responsibility for evaluation and accountability. We are finding our SPI very easy to work with and we are responsible to them for approving programs and working with schools in developing new programs and keeping the old programs going.

Career Education is receiving top priority in our state at the present time, but this topic was adequately covered by Dr. Phil Zurbrick, during the 2-hour panel Wednesday morning, "Career Education in the Pacific Region." Copies of the publication "Career Education in Arizona" were distributed at that time.

A strong push from the state agricultural education staff at this time is to encourage Vo-Ag departments to offer areas of specialization during the 11th and 12th years and especially to decrease the emphasis we presently have on production agriculture. We can no longer justify this emphasis on the basis of job placement, which probably ranges about 10 percent in our state.

We add a few new programs each year. In 1972-73, we should have about 46 secondary departments and 7 post-secondary departments.

A State Advisory Committee was organized in January 1962 - 15 members from agri-business.

Teacher Education: Phil Zurbrick, Tucson

Enrollment:

17 seniors who are doing student teaching
5 graduate students ready for placement
22 job seekers.

Next year's senior classes look to be even larger than this years. Arizona may become an exporter instead of an importer.

Summer School Plans:

1. Emphasis upon long large program planning. Will offer a two week course the last two weeks in June. Dr. Woodin was planning to be the guest lecturer, but due to a change in his studies at Ohio State was unable to participate. Paul Marvin from Minnesota will direct the course.
2. Also offering an in-service course on artificial insemination for one week in June.

Research Effort:

1. We have, or rather, are completing the state manpower and training needs survey of agricultural occupations. We have one more county report which is being printed now and the State summary.
2. Later this year we hope to begin running some occupational analysis on selected job titles from the manpower research.
3. Another problem is the updating of the manpower data. With the tremendous cost and effort expended it is essential that we update that information and keep it current. Any suggestions on how this might be done simply and inexpensively would be appreciated.

4. Another research effort headed by Dr. C. O. Jacobs has been the development and experimental evaluation of single concept film loops, 8mm., in the areas of agricultural mechanization.

Curriculum:

1. Working on the specialized curriculum -- hope to have resource units developed next year.
2. Development and standardization of test for the core curriculum.
   --- 15 tests have been developed
   --- the tests are being standardized this year with about 4,000 students -- 2,500 students to date.

Others:

1. Department evaluation
2. Dr. Stoller -- teacher educator in extension education

CALIFORNIA: Don Wilson, State Supervisor, Sacramento

Vocational agriculture in California is still expanding rapidly. Our enrollment in 1970-71 was 32,000; this year, 1971-72, it is 36,500--a 14% increase. Included in the 36,500 grade 9-12 enrollment are 28,500 boys and 8,000 girls. The increase is general over the state but with the highest in the Los Angeles-Orange County areas.

Seven new vo-ag programs are opening in schools and districts that did not previously have agriculture, including Davis High School. Thirty-three additional districts upgraded or added agricultural mechanics programs. We have more jobs open now at this time of the year than we have ever had before. We trained 64 new teachers this year and will need about 90. FFA membership increased from 16,500 to 17,500 and a number of new chapters were chartered. We are working hard at restructuring our local program from a mish-mash of courses into an organized program with curriculum guidelines and an individual student data sheet. Cooperative vocational education in agriculture is another of our priority areas.

We will open a new teacher training program at Chico State College in September, giving us a total of 5. The projected output will be 100 new teachers each year.

We, of course, have reorganization rumors, but the best guess is that we will operate in 1972-73 with the same organizational pattern as 1971-72.

I have been very distressed with the USOE adult and vocational education representative out of the San Francisco office making recommendations to deemphasize subject matter and reduce the number of agriculture staff. It is my opinion that the USOE is the very worst of examples for organizational patterns and that they should devote more attention to making their own states more effective, and less attention to making recommendations as to how we should be

organized. If you are from Arizona, Nevada, or Hawaii and have a USOE review team in your state, be careful they don't recommend you out of existence.

The big news in California, of course, is the retirement of our two stalwarts in teacher education--H. H. Burlingham and E. M. Juergenson.

Teacher Education Report, E. M. Juergenson, California-Davis

One new teacher preparation institution (Chico) will be added making a total of five institutions preparing teachers of Agriculture in California.

Two teacher educators, H. H. Burlingham (Cal Poly) and Elwood M. Juergensen (Un. Cal. Davis) will be retiring summer 1972. This makes a total of three new teacher educators to be employed next year.

There is still a teacher shortage. Last year, 1971, there were 48 new teachers prepared and 114 placements.

Currently 1972 (April) 67 new teachers are available -- 12 placements have taken place so far.

Legislation -- California has been operating on the Fisher Bill since 1963. New legislation, Ryan Bill, takes credentially out of the hands of the State Dept. of Education and placed control in the hands of a 15 man committee appointed by the Governor.

Community Colleges now have their own board of trustees and handle their own credentials program. J. C. are no longer under the secondary school system.

Inservice programs include:

EPDA
a. work experience, U.C. Davis
b. FFA special needs, Cal. Poly. Pomona
c. Multiteacher depts., Cal. Poly. S.L.O.

COLORADO: Darrell Anderson, State Supervisor, Denver

66 Vo. Ag. Depts.; 80 teachers; 13 multiple teachers.
Over 3,100 students and 2,900 FFA members

Visit each department annually with written report to superintendent. Comprehensive evaluation instrument has been developed and has been used on five departments this year. Only used at request of local administration.

Annual program planning conference held each year between State Staff and University Staff.

Changes in State Staffing pattern:
Dr. Linson now Director of Occupational Education and Community Colleges
Lloyd Lawson now head of Supervisors

7. Enough state staff to carry out the kind of activities that we feel should be carried out.

Our state at the present time is trying to get a curriculum proposal funded from the department of Health, Education, and Welfare to carry out a program that would help enrich the service areas' curriculum needs. If this proposal is funded, we will get one specialist at least for the field of agriculture working full time this next year and a half on this proposal. I am sure that some of your states have also applied for monies through this project. I would now like to turn the rest of the program over to the teacher educators at Washington State University and let them tell you about teacher education.

Teacher Education at WSU, Oscar Loreen

1. Five year program
2. Opportunity for Ag. Experience Program; credit for Ag. Ed. students
3. Curriculum Development in Environmental Management - Rod Tulloch
4. New offices and facilities - College of Agriculture
5. Will qualify 16 new teachers this year.
6. Looks like shortage of teachers in Washington, but too early to tell

A STUDY OF TEACHER EDUCATION IN AGRICULTURE AT WASHINGTON STATE UNIVERSITY -- Oscar Loreen

This is a very brief report on a rather comprehensive study that was conducted to secure opinions from teachers and students about the Agricultural Education program at WSU.

A sample of thirty-six names was drawn from a list of teachers that had completed the program since 1961. A questionnaire was sent to each of these thirty-six persons and responses were received from thirty-four. Students in Agricultural Education who were completing their work in the spring of 1970 and 1971 were asked to respond to a written questionnaire. Twenty completed questionnaires were returned. Supervising teachers were also asked to respond to another questionnaire.

Teachers and students were asked to express their opinion on the number of semester hours that should be required in the various divisions of the curriculum. Their collective opinions are shown below.

MAJOR DIVISIONS AND CHANGES

Area	Semester hours		
	Teachers	Students	Current Requirement
Natural Sciences	27.5	28	28
English Soc. Sc. and Humanities	15.8	16	19
Technical Agriculture	62.0	58	54
Professional Education	21.2	26.5	31
Elective	23.5	25.5	16
Physical and Health Education	3.2	4.0	4
Total Hours in Five Years	153.2	158.0	152

Little (Jim) full time agr. with FFA responsibility

Youth Supervisor has been eliminated and responsibility for these programs has reverted to respective State Supervisors.

Young Farmer program is expanding and improving; 17 programs with 300+ members. Jack Annan - Exec. Secretary.

Voc-Tech Centers are developing - problems have developed relative to how Vocational Agr. will be operated.

Policy handbook has been developed for Voc. programs to be used by local administrators.

Program reorganization three years ago brought about regional planners who promote new programs and develop budgets and program plans. Some new programs are being developed. They also work in preventing duplication of programs in Community Colleges.

Teacher Education: Harold Anderson, Teacher Education, Fort Collins

Irving Cross sends greetings.

Vocational Education Dept. head position is open.

Enrollment approx. 100; graduating 30; enrollment is now limited in the University.; College of Ag. is a priority #1 segment of University; 23 Ph.D.'s in Voc. Education program (3 in Ag.)

Workshop in 1971 was development of two year core curriculum.

Developing source units for teaching aids available to all in-state teachers. (Can secure one copy on request.)

Developed Supervised Occupational Experience Manual which is available through Interstate.

Developed Colorado Notebook and Filler available through Interstate, also Colorado Vo-Ag Record Book.

Carried out a Multiple Teacher Workshop for all teachers in these departments.

Have developed and used an application for Student Teaching Center for three years; find it very successful.

Have been carrying out In-service workshop on Farm Management for teachers. This year it is being taught to undergraduates.

Summer school program will be organized on 2-3-5 week session for Vo.Ag. teachers. Dr. Gene Love (Missouri) and Dr. Harold Binkley (Kentucky) will be visiting profs.

HAWAII: Thomas Hatakeyama, Program Specialist, Honolulu

A. Status Report of the Agricultural Education at the Secondary Level

1. Restructuring of the total agricultural education curriculum
   a. Development of a conceptual framework from which (1) Agr. Tech. and (2) Ornamental Horticulture will be designed.
   b. Development and refinement of a course guide in Agricultural Art and also a performance test made up of a battery of fifteen.
2. Growth of the Program
   a. There are now 25 Agriculture Departments; a gain of 4 in the last two years.

The study also revealed that students who responded rated 77% of the 38 required courses above the midpoint in anticipated usefulness on a one to ten scale. Rated most useful were: Student Teaching, Metal Shop and Field Crops. Eighty percent felt that they have sufficient freedom of choice of courses. Eighty-five percent favored a five year program.

Teachers and Students thought more courses in Agriculture should be taken and more electives should be available.

Teachers identified Ag Mech 201 Metal Shop and 203 Wood Shop as the most valuable undergraduate courses completed.

Teachers thought greater depth needed in Ornamental Horticulture, Horticulture, Animal Science, Ag Mechanics and Forestry.

The length of the student teaching period (12 weeks) was thought to be "about right" by 66% of the teachers and 64% of the supervising teachers.

Some items in the area of "guidance, counseling and job placement" need attention.

Results of the study indicate that the curriculum in Agricultural Education at WSU is generally satisfactory but that some aspects do need careful study and possible change. The comments made by respondents for improvement will be given careful consideration.

WYOMING: Percy Kirk, State Supervisor, Cheyenne; Jim Durkee and Jack Ruch, Teacher Education, Laramie

Characteristics of Agr. Education in Wyoming:

No. of Departments - 41
No. of Teachers - 47
No. of Voc. Ag. Students - 1980

Events effecting education in Wyoming

1. Development of Career Education concept
2. Redistricting - resulting in less departments, more enrollment
3. Contract supervision by State Department of Education - greater load in teacher education, at the University
4. Priorities at U. of Wyoming demand budget reduction of 15% - resulted in loss of 1/2 time position in Agr. Education

Characteristics of the Teacher Education Program at U. of Wyoming

1. Three basic programs of teacher education are being offered: (1) basic agriculture (2) Agricultural Business, emphasis in C.I. College (3) Agr. Mech.

b. Three of four are pure ornamental horticulture curriculum

3. FFA --- gain of 10% in FFA enrollment noted this year after dropping steadily for three or four years.
4. Effects of cutting back on teacher contracts from 12 months employment to 9 months
   a. low morale
   b. teachers moving into administrators and science teaching

B. Teacher Education

1. There is no teacher education at the University of Hawaii Teachers College
   a. Recruiting teachers who are 4 year graduates in general agriculture
   b. In-service training
   c. Teachers without professional certificate are vulnerable.
2. EPDA Program -- two recent graduates now undergoing teacher training through EPDA grants.
3. In-service training -- summer institute to upgrade competencies in teaching.

IDAHO: Ralph W. Edwards, State Supervisor, Agricultural Education, Boise

The operation of our entire program has not changed under the new laws, except that added responsibilities have added to our work load, and we have less time to work with local schools.

Our enrollment is up and we are planning two or three new departments for the coming year along with adding a second man to some of our overloaded departments.

State Staff time devoted to FFA is constantly being reduced due to additional assignments and responsibilities, although youth group activities are recognized by the State Department of Vocational Education as well as our legislature as a vital part of the total program.

Under the current State plan, each local school district receives funds for vocational programs according to the following formula.

1. State Average General Fund Expenditures per A.D.A.
2. Enrollment Factor - Secondary Schools
3. Vocational Factor
4. Total vocational student contact hours per day
5. Criteria Rating
6. Evaluation Rating

If it sounds complicated, it is. We hope to change it next year. The funding has resulted in an increase of funding to some schools and a decrease in others.

We are expanding our agriculture programs in the six area schools of the State, but we need additional funds and personnel to do the job right.

2. Two student teaching experiences are offered - Freshmen or Sophomore pre-experience and 4th year student teaching experience for nine weeks. (Pilot program in semester internship starting 1972-73.)

3. Scope of Teacher Education Program:
   --- 43 majors are enrolled in baccalaureate program
   --- twelve students student teaching this year
   --- Seven of thirteen placed in state last year with one leaving the state; remaining 5 were not available for employment

4. Ten master degree candidates in program.

Important items accomplished or in progress during the past year

1. Formation of State wide Advisory Committee of Agr. Education
   --- Made up of Agr. industrialists and ranchers and professional workers evaluated State Dept. of Ed., Agr. Ed., 1971, and Teacher Ed. Dept., 1972.
2. Needs assessment program funded and currently in progress in all areas of Voc. Education.
3. Curriculum development started in two weeks short course on campus involving 28 teachers of Voc. Agr.
4. Seminar two weeks in Ag. Mech and Agr. Technology on campus, summer 1972
5. Agr. Industry and Trade held in Sheridan Jr. College involving 40 elementary teachers.
6. State wide assessment of agric. manpower needs, on an effective farm in preliminary stages of development.

All vocational education in Idaho is enjoying the limelight at the present time; this may be because of the Career Education push by the Federal Government.

The vocational education budget passed by the recent Idaho legislature gave us 22 per cent more than what the Governor recommended. We were one of only two State agencies that gained an increase.

We have always had fine support from lay people for our program, but we still have to sell some local administrators that agriculture isn't going out of style.

Industrial Arts is being promoted both in Elementary and Secondary Schools; and if Industrial Arts is funded by National and State funds, local administrators are going to take a hard look at agriculture shops that are not used full time and to summer Ag programs that are not meeting the agriculture needs of the community--also, to Ag teachers that have other outside interests.

We are appreciative of the help and assistance by the Agriculture Education Staff at the University of Idaho. They have conducted many in-service programs and classes for the upgrading of our men in the field. Also, they have in operation a program whereby an Ag teacher can obtain a Master's Degree while being employed by the local district by going to summer school sessions and attending extension and graduate center residence classes in the winter.

Teacher Education Report, Dwight L. Kindschy, Teacher Education, University of Idaho, Moscow

Eleven seniors will receive their B.S. degree in agricultural education at the University of Idaho this June. Although there are seven graduate students enrolled in a Master of Science program only one will complete his degree in 1972.

A Department of Vocational Teacher Education was organized and approved this past year. The new unit was placed in the College of Education. Those vocational teacher educators who hold joint appointments in colleges other than the College of Education will retain their present positions, but will share a joint appointment in the College of Education. Priority of assignments for staff members who hold joint appointments were established in favor of the college in which they were initially appointed. Majors in agricultural education will continue to graduate from the College of Agriculture with a Bachelor of Science degree. Dr. Robert Sprecher, teacher educator in trade and industrial education was elected acting chairman of the new department.

The major advantage of the Vocational Teacher Education Department will be to coordinate the research efforts and graduate course offerings in vocational education and also to implement the cooperation of the State Board for Vocational Education and the University of Idaho.

The mobile hydraulic workshop was tested in the field this last summer and several more workshops are planned for the summer of 1972. Two pickup trucks will be used to transport the equipment to the workshop centers. The hydraulic instruction program was developed through a joint effort of the Department of Agricultural Engineering and the Department of Agricultural Education.

MINUTES OF THE BUSINESS SESSION-PACIFIC REGIONAL SEMINAR

Friday, April 21, 1972

Boise, Idaho

Chairman - Ralph Edwards

Secretary - Dwight Kindschy

Report of FFA Board of Directors - Jim Peddicord

The Pacific Region representative on the FFA Board of Directors, Jim Peddicord reported to the conference in regard to FFA activities on the National level. Peddicord stated that the Board of Directors, National officers, and U. S. Office staff were working very hard to update the FFA organization to meet the needs of our modern day education. Some of the important changes being considered were stressed. The regional representative also expressed his appreciation for the support he has received from teachers, state supervisors, and teacher educators throughout the Pacific Region.

Report of the State Supervisors' Dinner Meeting

The following minutes were read and approved by the conference group:

Basil Ashcraft, Montana, presiding.
Charles Morrison, New Mexico, secretary.
Invocation given by Elvin Downs, Utah.

Special recognition given to Bob Corless, Washington, on his retirement June 30.

Don Wilson, California, President N.A.S.A.E. reported on some of the problems that have arisen.

1. Felt that each area of AVA should have equal role in planning AVA problems that have arisen.
2. Felt that supervisor should be at meeting in July when AVA program is planned and resolutions are discussed that will be presented at convention.
3. Meeting of task force that met in Washington in March 1972 was discussed. Was called to develop objectives for Agriculture Education for next five years.

Membership of ASAE has increased.
Method of assessing membership dues was discussed. Recommended that present amount and system of collecting be continued.

John Lacey discussed selection of proficiency award, safety, and national activities award winners, moved by Elvin Downs, Utah, seconded by Percy Kirk, Wyoming that use same system as last year. John Lacey will get judges.

Discussed Regional Public Speaking contest. Moved by Don Wilson, California, seconded by Percy Kirk, Wyoming, that have two contests at same time in Kansas City, Missouri on Monday night. First and second place winners of each section compete in finals, Tuesday 1:00 p.m. Motion carried.

MONTANA: Basil Ashcraft, State Supervisor, Helena

Secondary Ag. Ed. enrollment is increasing. The reason is not an increase in number of departments (have 60 now), but increase in number of teachers. Perhaps most significant development is increase in multiple teacher depts. Three years ago only two depts. had more than one man and this year ten depts. with at least two men; two schools with three men.

Enrollment of girls going up also. Unique to us at least is one teacher who has an ag. class comprised only of girls.

We have a State Greenhand Contest and our state is divided into 8 FFA districts. Following chapter comes district eliminations until the 8 best Greenhands come to State Convention where a set of three judges using criteria such as the contestants work experience program, knowledge of FFA and Ag. Ed., scholarship, and future potential as an FFA member. This year a girl was named the Star State Greenhand.

Percentage-wise we have fewer FFA members although actually membership numbers are about the same for the last couple of years.

State FFA Alumni Assoc. organized and officers elected at a luncheon held in connection with our FFA convention two weeks ago. We will have the new State Alumni Assoc. President at the National Organizational meeting in Chicago, May 12.

Post Secondary

There will be no new programs until research has determined a need. We are short of federal money, state money and local money to build new post-secondary facilities and to start new programs.

Agr. Mech. program at Helena Vo-Tech. center training numerous young men, but majority are not going into the industry--they are going back to the farm!

Dr. Amberson will describe some of the research now being conducted to help us determine where, how and why we should establish new post-secondary programs.

You may wonder about money for research. Suggest you maintain close contact with your Director and offer concrete plans for research. Last September U.S. Commission allotted $9,000,000 of its money for research. Ag. Ed. got the entire amount of Montana's share of $36,000 for a project in Career Education in Agriculture involving the Great Falls Vo-Tech center and five schools within a thirty mile radius. Others actively involved in the project will be the Ag. Ed. teacher trainers, Amberson and Bishop; the Vo-Ed staff in our office, and the Research section in the State Office.

Teacher Preparation Option : Max Amberson, Teacher Education, Bozeman

Several new courses have been added to the Ag. Ed. Option at Montana State University:

Drawing for two groups. 1-6 is Group I. 7-12 is Group II.

1. Washington	7. Montana
2. California	8. Oregon
3. Nevada	9. Idaho
4. Arizona	10. Wyoming
5. Hawaii	11. Colorado
6. New Mexico	12. Utah

John Lacey and Darrell Anderson, Colorado, will secure judges.

Motion by Elvin Downs, Utah, seconded by Ralph Edwards, Idaho, that Darrell Anderson, Colorado, be elected by acclamation to serve on committee for revising National Contest Bulletin. Will serve for three years and committee meets on Friday following National FFA Judging Contests. Darrell will represent the Pacific region on committee.

Discussed the Dairy Products Judging Contest. Recommended that contest be made more practical.

Discussed eligibility rule that if contestant has participated in national 4-H contest, is not eligible to participate in national FFA judging contest.

Motion by Don Wilson, California, seconded by Ralph Edwards, Idaho that rule not be changed. Motion carried.

Motion by Don Wilson, California, that letter expressing the Pacific Region recommendation be sent to Bob Seefeldt. Motion carried.

Basil Ashcraft, Montana, thanked all for submitting materials for the newsletter.

Dates for next year's Pacific Region meeting to be held in Montana were discussed. Probably dates April 17-20 or April 24-27, 1973.

Jay Woods, Washington, mentioned call he had received from firm in Waco, Texas concerning supplying FFA materials.

Motion by Don Wilson, California, seconded by Percy Kirk, Wyoming - meeting adjourned. Motion carried.

Charles W. Morrison
Supervisor, New Mexico

Report of Teacher Educators' Dinner Meeting

The following minutes were read and approved by the conference group:

Meeting was held at the Gamekeeper Room, Owyhee Motel Inn, Boise, Idaho. Max Amberson, Chairman, called the meeting to order after dinner remarks by Tex Anderson relaxed the group and put them on guard. The ATEA Directory was

1391

1. Orientation to Ag. Ed. and Extension Ed.
2. Cooperative Program in Voc. Ed.
3. Job Analysis in Voc. Ed.
4. Research Design in Ag. Ed.
5. Program Evaluation in Ag. Ed.

No special options are being offered other than the Broadfields and Major-Minor options. However, we were able to obtain a sizeable grant from the State Department of Vocational Education to help the Ag. Eng. Department update their program for training prospective teachers of agriculture.

We are continuing to provide on a limited basis a non-teaching or Extension Option. The option provides for additional sociology and Adult Education courses in lieu of a number of education methodology courses.

NEVADA: Ronald Squires, Teacher Education, Reno

A. The number of departments in Nevada
   1. High School - 15
   2. Community College - 1
   3. Instructors - 18
B. New departments are being considered - about 4 at the present time. Because of small size of schools (50-100) the voc.-ag. instructor must carry other areas, mainly shops, now working on Coop. programs as one of his duties.
C. The Community College system is fairly new
   1. Three areas; Western, Northern and Southern.
   2. Elko has only school with Ag. Program
D. Ag. Ed. students are on the increase
   1. No graduates this year - 7 next year.
   2. To develop student teaching (we now call it intern teaching) centers is difficult.
E. Working on revising certification program. Can see the need for flexible requirements to fit needs of special areas for individuals.
F. Working on development of a graduate program to fit vo-ag and extension.
G. Enrollment in high school vo-ag programs is up some -- not drastic.
   1. FFA about the same (550-575)
   2. All vo-programs in the smaller schools are handled by the vo-ag instructor.
H. Have used EPDA funds for two projects with one other next summer
   1. Summer 1 week session on FFA
   2. Tour of school farm facility in California
   3. This summer a 1 week workshop in California
I. Leadership Training during June -- has become a voc-youth training session
J. University on the move to develop coordination of all voc-programs. Questions to answer:
K. Now have several new hats - at least for the rest of this year.
   1. Coordinator of the two year Associate Degree program.
   2. P.R. for the college of Ag. to all high schools
      a. Scholarships

reported to already have been published with minor corrections. A second AAEA newsletter will be available in June 1972.

Oscar Loreen suggested those approaching NCATE evaluation get a team alerted and prepared to properly evaluate institutions. An instrument is available. Jack Ruch also warned that influence be used to get knowledgeable persons on evaluation team.

The Am. Soc. Agric. Engineers committee meets yearly. Those elected to serve were: Dr. Jarrett, Utah, Area 8; Clinton Jacobs, Arizona, Area 9; John George, Washington State Univ., Area 10.

Elected to Teacher Educators for FFA contest committee was Jim Durkee. Main attraction of the meeting then occurred. Rus Guin, Chancellor of Trails End University, conferred "honorary" degrees in Misapplied Psychology on Jack Ruch, H. H. Burlingham, Oscar Loreen, and E. M. Juergenson. Candidates were misrepresented by Ron Squires, Jim Durkee, Gil Long and O. E. Thompson.

The meeting next year, 1973, will be at Helena, Montana.

Meeting adjourned - 9 p.m.

E. M. Juergenson, Secretary
Teacher Education, Calif.-Davis

1973 Regional Meeting

Basil Ashcraft, State Supervisor from Montana invited the group to Helena, Montana for the 1973 Regional Conference. It was agreed that the conference would again be scheduled for two and one half days and held the third or fourth week in April. Ashcraft extended the hospitality of the Montana staff by inviting any interested participants who wanted to enjoy a real Montana fishing trip prior to the conference to contact him.

Basil Ashcraft was approved as conference chairman and Max Amberson as conference secretary.

Conference Financial Report

Ralph Edwards reported that he had received a check for $142.00 from Carlos Moore, the chairman of the 1970 conference, and after the bills had been paid a check would be forwarded to the Montana delegation. A registration fee of $2.50 was charged conference participants.

Election of National Representatives

A discussion revealed that it was not necessary to elect any regional representatives to the National FFA and foundation boards at this meeting. Jim Peddicord has another year to serve on the National FFA Board of Directors and Jerry Davis, Calif. has not completed his term of office with National FFA Board of Trustees.

The meeting was adjourned by Chairman Edwards.

b. Admissions
c. Calves for College

3. Rodeo Advisor

NEW MEXICO: Charles Morrison, State Supervisor, Santa Fe

1. Reorganization of Vocational Education Division into three areas: Program and Curriculum, Vocational Program Evaluation, and other vocational services. Supervisors in each service area spend most of time on programs and curriculum. Assistant supervisors spend most of time on evaluation.
2. Have added thirteen new programs in the past two years. Four Agri-Business, six Vocational Horticulture, and three combination Production Agriculture and Agri-Business. Will start four more new programs 1972-73 school year. One Vocational Horticulture, one Production Agriculture and two Agri-Business.
3. Enrollment has increased 17% to 4,414. FFA membership has increased.
4. Two pilot exploratory Agriculture Career opportunities programs developed.
   a. Large schools have nine week block -- 80 students.
   b. Small schools semester block -- combined 8th and 7th grades.
5. Post Secondary -- will add one Agricultural Mechanics next year in Technical School.
6. Adult Program in Farm Management -- will add one new program next year.
7. Have developed pre-test for measuring learning of student. Give at beginning of year and spring of year. Now compiling results from pilot schools.
8. Will start developing two year core curriculum this summer.
9. Teacher Education -- Twenty-six graduate Extension - use some and Ag. Ed. use some. Will probably have few surplus.
10. Two Handicap Programs, one in Horticulture and Floral Design in Girls Welfare Home, and one in Horticulture and Farm Work at Mentally Retarded Hospital.

OREGON: Burr Fancher, Specialist, Salem

Model Cluster Program -- Cascade High School

1. Developed to show elements of a cluster program
2. Third year as a developmental center

Teacher Assistance Team (TAT)

1. Made up of six Vo-Ag instructors with special areas of strengths.
2. Meet 5-6 times a year.
3. Give direction to development of model program, evaluate programs and make recommendations.
4. Will be used as trouble-shooting team in 5 to 6 Ag. Departments next year. Purpose will be to assess programs and make recommendations.

SUMMARY

Percy Kirk

Let me begin by commending Ralph, Dwight and their staffs for conducting a very fine conference. It is evident that considerable pre-conference work had gone into our meetings here.

The selection of the site and facility did much to make this a good conference as well as the fine weather we've enjoyed so far.

A strong part of our meeting here was the fact that all states were given the opportunity to participate. Panel discussions gave everyone an opportunity to ask questions, air their own views, and receive information to take home for the purpose of strengthening their work there. I recommend this be considered again next year. It is also recommended State Reports be continued. It gives each state the opportunity to discuss the strong points of their program and, more importantly, it gives other states ideas to go home and work on.

Roy Irons welcomed us by stating that we were in the greatest state in the Union (World). He outlined the concerns of people regarding preparing young people to make a living. He mentioned the new areas in our program, such as Sales and Services, and indicated support of Career Education, but said, "We do not want Career Education to water down Agricultural Education."

We were privileged to hear one of the best talks I have ever heard - this by John Lacey. He told us some things we didn't like to hear, but were true. He said - Agricultural Education should not be developed by the FFA. There was too much emphasis on contests and winning rather than placing boys in an agriculture career. Agricultural Education leaders at the national level will never be as strong as in the past because agriculture is not as important nationally as it was years ago. We used to have ten agriculture people in the Washington office and we know the situation there now. He said it is getting more difficult and that we must develop a plan for training competent and progressive teachers for all programs in agricultural education.

He reminded us that all the "new" ideas in Career Education has been done in agricultural education for fifty years. Also that it is not possible to develop a national image that will fit the whole United States.

(Don McDowell didn't come to the get-together Tuesday night because there was no water and that Ramsey Groves was there from two to nine o'clock.)

The reports from the Career Education committee drove home the point that we are tied to this program, and our job is to cooperate and take care of the interests of those who wish to become involved in an agriculture career. It won't be done right unless we do it.

[1] Percy Kirk, State Supervisor, Agricultural Education, State Department of Education, Cheyenne, Wyoming.

FFA Foundation

State FFA Foundation is organized and functioning. One contribution of $30,000 has been received already.

Skills in-service (Summer Conference)

1. Ag. teachers are lacking in basic skills needed in ag teaching.
2. Two days of summer conference will be devoted to upgrading these skills.
3. Survey was made to determine deficiency areas.

Areas of Emphasis in Oregon

1. More contact with ag teachers -- group basis and individual department visitation.
2. Strengthen Advisory Councils.
3. Strengthen Summer Programs
4. Provide instructors with basic competencies for teaching expanded curriculum areas such as horticulture and forestry.

Forestry - Forest Products --- Howard Brock

1. Forestry has a heavy impact on Ag programs in Western Oregon --- vary 9 week to 2 year programs.
2. Ag. teachers need:
   forestry skills
   curriculum with activities for teaching.
3. Upgrade programs indicated to meet need
   Upgrade utilizing Community Colleges
   O.S.U. Workshop
4. New Forest Products complements beautifully with Ag. Mechanics and forestry --- program is equipment oriented.

Teacher Education (Oregon State University), Curt Loewen, Corvallis

OVATA Advisory Committee to Ag. Ed. Dept.

-- Formed one year ago, has met six times, twice with School of Agric., (Deans & Dept. Heads) for purpose of better preparing Ag. Teachers in performing required skills needed on the job.

-- Lists of competencies were developed in major subject matter areas (plant, animal, soils, ag. bus. mgt. & Ag. Mechanics), and submitted to the Ag. School representatives.

-- Initial resistance to offering credit &/or including basic skills in Ag. courses is breaking down as a result of the interchanges with the Ag. School representatives. Headway anticipated.

Inservice Teacher Education

-- One & two week workshops to be offered this summer
-- Five 2-day short courses to be offered during summer conference
-- Short courses are offered on basis of teachers felt needs. Community College instructors to assist in short courses in their specialized areas.

The one thought that seemed to emerge from the committee on Cooperative Agriculture Programs was to do it right, or stay away from it.

I will not summarize the state reports as well as the panel this morning because of the time element and also we can read them in the complete report of the conference which will be coming to us in the near future.

The banquet Wednesday evening was well prepared and we heard the report from our friend from Georgia, Art Nelson.

Don McDowell gave one of his inspirational talks on the National Foundation and the thinking of the membership of the National Advisory Council as well as the United States office on Agricultural Education. There is a possibility that the contributions to the Foundation this year will reach an all-time high of $400,000.

The panel on Teacher Education Options brought out the fact that these options should be based on identified needs by states in preparing their teachers for a career in Agricultural Education.

In the "Young Farmer and Adult Programs in Agriculture" panel, it was brought out that it was difficult to justify a teacher teaching a non-agriculture course who did not have a complete program including Young Farmer and/or Adult classes. More multiple teacher departments are needed to get the complete job done. Schools should be reimbursed for teacher time in these programs.

The Curriculum Development committee emphasized the fact that teachers should be involved in preparing new curriculums.

Following are some recommendations that came from people at this convention for our meeting next year:

1. Invite a panel of state directors of vocational education, to get their thinking on agri-educ. After all, they make the rules for our work and approve funds (Suggest these might come from other regions.)

2. Have a panel of high school superintendents who would discuss our program from their standpoint. They are the people who affect our secondary teachers mostly.

3. Invite members of advisory committees on school boards to discuss our program from their angle. They certainly are interested in our work or they wouldn't accept membership on the committee or board.

4. Invite a panel of employers who hire our product, especially for off-farm occupation. They are most eligible to tell us whether we are properly preparing our students for employment.

5. Last but not least, see that successful vocational agriculture teachers are given an opportunity to air their views in our discussions. They can speak from current experience.

Let me close with one of my concerns. We work in the most important occupations in our country, Education and Agriculture. There are forces which would like to downgrade and de-emphasize our work. There are those who would like to generalize our program, and there are some who would like to move in on our program to capitalize on our record of good public relations and occupational placement. We are charged with serving the agricultural people in our states, and this can be done best by specialization. When we lost our specialists in the U.S. office, we lost our program. If we submit to generalization in our state offices and teacher education institutions, we will only hurt agricultural education and our students. Let's not generalize our high school programs by approving courses that are not 100% agriculture (Ag Shop - Ind. Arts.) Fellows, the time is shorter than we think.

Teacher Preparation Courses

-- Formerly segregated for service areas, are now integrating with positive feedback from the students involved. Students are interested in other vocational areas.

Teacher Complex for Vocational Teachers

-- Starting in Portland; Directed by Regional Coordinator; General, Professional supervision for vocational student teachers and interns.

Anticipating BLOCK PROGRAM for vocational students:

Soph. year -- 1 term, 1/2 day
Jr. year -- 1 term, 1 day
Sr. year -- 1 term, student teaching

Cooperative Curriculum Project (CCP)

-- Ohio, Mo. and Oregon are developing modules on vocational competencies based on Cantrell's study. Ag. Ed. included in writing and reviewing of modules.
-- Articulated program in Ornamental Horticulture is being developed around competencies (uncovered in Curt Loewen's dissertation) by high school and community college teachers of O.H. A two year common core of instruction will be completed this summer for all horticulture occupations.

UTAH: 'Elvin Downs, State Specialist, Salt Lake City

We, in Utah, have made a real effort during the past five years to shift from the conventional production agriculture to several of the new areas offering employment opportunities in off-farm agricultural occupations. We have met with some success, but we still have a long way to go. Most of our 45 departments are now offering some specialized training in: (1) agribusiness, (2) natural resources, (3) ornamental horticulture, and (4) agricultural mechanics.

The following items are worthy of mentioning and may be of interest to some of you:

Integrated Shop Program

This program is now in its third year of operation and involves 17 small high schools with an enrollment in 9th - 12th grades with less than 300 students. Vocational agriculture is offered in eight of these schools. This program offers in depth training in four major areas - drafting, power mechanics, building construction and metals and welding. A four year program in each of these areas has been carefully developed in terms of student behavioral objectives and is designed to meet the needs of students in industrial arts, trade and industry, and agricultural mechanics. Vo-ag teachers in this program speak well of it as do school administrators. We plan to expand this program to other small schools where there is an expressed interest.

Dates and Places of Pacific Regional Conferences for Vocational Agriculture Since 1922

Originally Compiled by E. J. Johnson

Year	Date	Place
1922	June 5-9	Portland, Oregon
1923	June 4-9	Fort Collins, Colorado
1924	June 2-7	Oakland, California
1925	June 1-6	Spokane, Washington
1926	May 24-28	Casper, Wyoming
1927	June 6-10	Salt Lake City, Utah
1928	April 30 - May 3	Denver, Colorado
1929	May 20-25	Portland, Oregon
1930	May 5-9	Phoenix, Arizona
1931	May 18-23	Boise, Idaho
1932	April 25-30	Santa Fe, New Mexico
1934	June 4-8	Salt Lake City, Utah
1935	May 27-31	Salt Lake City, Utah
1936	June 8-12	Bozeman, Montana
1937	May 18-22	Reno, Nevada
1938	May 30-June 3	Estes Park, Colorado
1939	May 8-12	Berkeley, California
1940	May 6-10	Seattle, Washington
1942	May 4-8	Cheyenne, Wyoming
1943	April 26-30	Portland, Oregon
1944	April 24-28	Phoenix, Arizona
1945	August 13-17	Boise, Idaho
1946	April 29 - May 3	Santa Fe, New Mexico
1947	May 5-9	Bozeman, Montana
1948	May 3-7	Salt Lake City, Utah
1949	May 2-6	Reno, Nevada
1950	May 1-5	Denver, Colorado
1951	April 30 - May	Fresno and San Luis Obispo, Calif.
1952	May 12-16	Bellingham, Washington
1953	May 4-8	Cheyenne, Wyoming
1954	April 26-30	Salem, Oregon
1955	April 25-29	Phoenix, Arizona
1956	April 23-27	Boise, Idaho
1957	April 22-26	Albuquerque, New Mexico
1958	April 28 - May 2	Helena, Montana
1959	March 3-7	Chicago, Illinois (National Conference)
1960	April 25-29	Salt Lake City, Utah
1961	April 17-21	Reno, Nevada
1962	May 14-18	Denver, Colorado
1963	April 22-26	Los Angeles, California
1964	April 27 - May 1	Honolulu, Hawaii
1965	April 26-30	Washington State*
1966	March	Albuquerque, New Mexico
1967	May 15-19	Olympia, Washington
1968	April 16-19	Cheyenne, Wyoming
1969	May 14-16	Portland, Oregon
1970	April 28 - May 1	Phoenix, Arizona
1971	May 11-14	Denver, Colorado (National Conference)
1972	April 19-21	Boise, Idaho

*This conference not held because of National reorganization of the Vocational and Technical Division, U. S. Office of Education.

National FFA Advisory Council Members
(FFA Board of Directors) Pacific Region

Year	Member	State
1931-33	J. A. Guitteau	Washington
1934-35	J. E. Border	Montana
1936	L. R. Davies	Colorado
1937	E. R. Cooley	Oregon
1938-39	L. R. Davies	Colorado
1940	E. R. Cooley	Oregon
1941	Sam Hitchcock	Wyoming
1942-43	S. S. Richardson	Idaho
1944-45	A. W. Johnson	Montana
1946-47	Mark Nichols	Utah
1948-50	B. L. Brown	Washington
1950-52	Elvin Downs	Utah
1952-54	L. C. Dalton	New Mexico
1954-56	J. W. Bunten	Nevada
1956-58	E. M. Howard	Idaho
1958-60	B. J. McMahon	California
1960-62	B. E. Taylor	Arizona
1962-64	T. Horii	Hawaii
1964-67	P. B. Kirk	Wyoming
1967-69	Don Wilson	California
1969-71	Carlos Moore	Arizona
1971-73	Jim Peddicord	Nevada

Board of Trustees Members - FFA Foundation, Inc.
Pacific Region

Years	Member	State
July 1, 1945 - June 30, 1947	L. D. Klemmedson	Arizona
(May 1, 1946 - June 30, 1947	F. E. Wimberly	New Mexico
To fill unexpired term of office of L. D. Klemmedson)		
July 1, 1947 - June 30, 1949	B. J. McMahon	California
July 1, 1949 - June 30, 1951	R. L. Morgan	Oregon
July 1, 1951 - June 30, 1953	A. R. Bunger	Colorado
July 1, 1953 - June 30, 1955	P. E. Kirk	Wyoming
July 1, 1955 - June 30, 1957	J. R. Cullison	Arizona
July 1, 1957 - June 30, 1959	M. G. Linson	Colorado
July 1, 1959 - June 30, 1961	Allen Lee	Oregon
July 1, 1961 - June 30, 1965	R. W. Edwards	Idaho
July 1, 1965 - June 30, 1968	Paul Foster	Colorado
July 1, 1968 - June 30, 1969	Carlos H. Moore	Arizona
*March 5, 1970	Jerry Davis	California

*First meeting of the newly constituted Board of Trustees.

Members of the Board of Directors also serve on the National FFA Board of Trustees.

If there are any questions or additions to this list, please notify Basil Ashcraft, Montana, so they can be included for next year's Seminar.

VT 016 218
MELLADO, RAMON
CAROLINA SCHOOL DISTRICT SEQUENTIAL APPROACH TO CAREER ORIENTATION AND PREPARATION. INTERIM REPORT.

PUERTO RICO STATE DEPT. OF EDUCATION, HATO REY.
OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
OEC-0-71-0654(361)
PUB DATE - MAY72 97P.

DESCRIPTORS - *DEVELOPMENTAL PROGRAMS; OCCUPATIONAL GUIDANCE; JOB PLACEMENT; CULTURALLY DISADVANTAGED; *VOCATIONAL EDUCATION; *VOCATIONAL DEVELOPMENT; ELEMENTARY GRADES; SECONDARY GRADES; BEHAVIORAL OBJECTIVES; *PROGRAM DESCRIPTIONS; *SEQUENTIAL APPROACH; CAREER EDUCATION; INSERVICE EDUCATION; CURRICULUM DEVELOPMENT; COMMUNITY INVOLVEMENT
IDENTIFIERS - *PUERTO RICO

ABSTRACT - THE OBJECTIVES OF THIS EXEMPLARY PROJECT IN VOCATIONAL EDUCATION FOR CULTURALLY DISADVANTAGED STUDENTS IN THE ELEMENTARY AND SECONDARY GRADES ARE TO PROVIDE EXPERIENCES IN OCCUPATIONAL EXPLORATION, SELF AWARENESS, JOB TRAINING, COOPERATIVE WORK EXPERIENCE, AND OCCUPATIONAL GUIDANCE. THIS FIRST ANNUAL PROJECT REPORT DETAILS GENERAL AND SPECIFIC PROGRAM GOALS AND OBJECTIVES, OPERATIONAL PROCEDURES SUCH AS INSERVICE TRAINING, AND PROJECT ACCOMPLISHMENTS SUCH AS CURRICULUM DEVELOPMENT. THE USE OF A JOB PLACEMENT TEAM INVOLVED THE COMMUNITY, AND STANDARDIZED TESTS INCREASED THE STUDENTS' SELF AWARENESS. A SERIES OF EVALUATION REPORTS AND THREE TESTS COVERING STUDENT CAREER INTERESTS MADE UP THE PROGRAM EVALUATION. A BIBLIOGRAPHY, RECOMMENDATIONS FOR THE PROGRAM, AND AN EXTENSIVE LIST OF PROGRAM ACTIVITIES AND PARTICIPANTS IN A 3-COLUMN FORMAT ARE INCLUDED. (AG)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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JUL 1 1972

Interim Report

Project No. 0 - 361 - 0164
Contract No. OEC - 0 - 71 - 0654 (361)

Carolina School District Sequential Approach to Career Orientation and Preparation

Exemplary Project in Vocational Education
Conducted Under
Part D of Public Law 90 - 576

The Project reported herein was performed pursuant to a contract with the Bureau of Adult, Vocational, and Technical Education, Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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Dr. Ramón Mellado
Secretary of Education
Commonwealth of Puerto Rico
DEPARTMENT OF EDUCATION
Hato Rey, Puerto Rico

Petra Díaz
Project Director

May, 1972

VT016218

1399

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SUMMARY OF THE REPORT

This report covers the first year of project operation; from February 25, 1971 to February 25, 1972.

Goals and objectives of the project

The overall objective of this project is to take the child with a cultural background markedly different from that of the industrial and technologicial society which is developing in the area and, through sequence of school guided learning and experiences, place him in that society as a functioning self-fulfilling and contributing members.

Such a complex and ambitious objective will be accomplished through a series of smaller, manageable sub-objectives.

1. To give to the elementary school student an expanded view of the kinds of occupations which exist now and in the forseeable future in his area. To impart a feeling of the worth of these occupations and the knowledge that participation in them cam bring pride and dignity to the individual.

2. To help the junior high student to explore certain relevant occupations in greater depth. To continue the broad exposure and the understanding of the self-fulfilling nature of work.

3. To work with the senior high students on many levels :

   a. To work with the individual to discover his own interest and aptitudes through testing and interviews.

   b. To counsel the student, in the light of the above information, about available and desirable careers and the training patterns necessary. To advice the students of what is locally available within the high school and the area vocational centers for his preparation.

   c. To train the student, either to the point of entry-level skill or to the point of entrance into a postsecondary program, in certain vocational areas.

   d. To work on placing the student with entry-level skills in a suitable position where he may enjoy the fruits of his training.

   e. To provide for many students a cooperative work experience which would serve to reinforce motivation, sills and attitudes.

f. To institute a program in basic culinary arts to prepare students to participate in the residential hotel school.

g. To institute a "crash" program for those students who enter their last year or even their last semester and have not planned or undertaken a course which would lend them direction toward either entry-level skills or further training. This program would involve massive efforts in testing, counseling and training.

4. To provide overall coordination and sequencing through the following :

a. Continuing liaison among all existing and newly-added elements.

b. The development of a placement team which will work equally well with the commercial and educational segments. This team will serve as a resourse for the total labor supply and demand picture, will establish contacts for cooperative slots and supervise their use and will place students with entry-level skills in appropriate positions.

PROCEDURES FOLLOWED

Summarizing the procedures followed described broadly in the body of the report, the follow can be pointed out :

In the initial phase, starting in February, 1971, the project was discussed with the superintendent of Carolina School District and the whole directory staff. By this time, mid march, the recruitment and appointment of personnel had begun. This task extended until the first months of the year. In February 1971 the Department of Education contracted Sierra Planning Research Associates, University of Nevada for evaluation services.

Several visits were made to each school participating in the project to gather information concerning number of teachers, students and other directory personnel involved in the development of the project as well as school facilities that could fit in it. After these initial activities were carried out, special attention has been given to the production of the curricular materials necessary for the program. In addition, in service training activities for project personnel and elementary teachers were initiated.

The World of Work program for elementary level was introduced for 5th. and 6th. grade students in September. The teachers participating in this program are the same teachers who work for the regular school program. They use the McGinley Guide for Career Orientation-curriculum translated and adapted by the curriculum technicians. After the in-service training activities were carried out, the elementary teachers initiated the program with the administration of a pre-test "Awareness of the World of Work". The major activities developed were: interviews with workers in the classroom and in the community; visits to local factories and shopping centers to expose the students to a wider range of occupations; observation and discussion of films and group guidance sessions conducted by the school counselor and teachers.

In the junior high level, guidance and counseling services were provided to a largest number of students. The school counselors coordinated efforts with the school personnel, parents and the community by arranging individual and group guidance activities.

A high percentage of the ninth grade students have had personal interviews with the counselors concerning academic and vocational interests.

Emphasis have been given to the use of questionnaires of personal information and interest inventories. These instruments have been used to help the students in the evaluation of their personal characteristics and how they affect the selection of an occupation.

Some schools have specific time each week for group guidance activities. Others meet in general classroom situations.

As to the use of the Ohio State University career orientation program, it was decided to offer The World of Construction Program to all male 8th. grade students in Salvador Brau and Jesús T. Piñero schools.

From August 24 to September 2, 1971, the industrial arts teachers attended a workshop conducted by Dr. Donal Lux, professor from Ohio State University. The curricular materials of this program were translated and three books were prepared: the teacher's guide, the laboratory manual and the textbook.

Meetings have been held with the industrial arts teachers, principals and counselor to review the lessons and to determine teacher's need to start working with the group of students.

In the senior high level, an additional school counselor was assigned to each school. Special attention have been given to individual interviews concerning vocational plans and to the use of personal information questionnaires and vocational interest inventories.

Several group orientation sessions have been organized with the senior high graders to discuss topics concerning educational and career development.

The counselors requested the services of the Placement Officer and the Cooperative Coordinator who offered talks to the students regarding occupational demands and training opportunities in Carolina area. More over the counselors used informational bulletines, supplied by the Employment Security Service, newspapers, and brochures published by the Vocational and Technical Instruction Area that deal with careers and training for them.

The Placement Task Force have been organized and strategy have been developed for placement of students in the labor force. Special attention have been given to the twelfth and eleventh grade students. At present 35 students are placed in full time jobs and 108 are working part-time. The placement coordinator coordinated efforts between the industry, governmental agencies at the local and state level and the school with the purpose of placing students in jobs. In an effort to help the students make smooth

RESULTS AND ACCOMPLISHMENTS

Following is a biref of the main results and accomplishments for the first year of operation of the Project :

* The in-service training for project opersonnel was donde successfully.

* Community, school personnel and industries were receptive and accepted with enthusiams this innovative program especially for the elementary level.

* The production of curricular materials for classroom use in Puerto Rico in the World of Work field.

* The World of Work Program for the elementary school has been developed with great impact in education as a whole.

* Guidance and counseling services were introduced in the four elementary schools and extended to the secondary level.

* New career orientation and training programs have been established to take care of the needs and interests of the students.

* More frequent use of test instruments as aid in helping the students self-evaluate.

* More attention given to 12th. graders in their progress planning their occupational future.

* Other school districts expressed interest in incorporating some of the components introduced through way of this Program to their regular school curriculum.

EVALUATION

The Commonwealth Department of Education contracted the services of Sierra Planning Research Associates, University of Nevada as the Third Party Evaluators.

During the first visit carried out on March 24 to 31 by Dr. Jack C. Davis, Dr. Len Trout, Dr. Robert McQueen and Dr. Dana Davis, the evaluation strategies for the progress of the Project were determined.

Dr. Jack C. Davis, Dr. Dana Davis, and Dr. Robert McQueen made another on site visit from August 22 to 28, 1971.

Miss Suzanne Brown from the Office of Education in Washington, Mr. John Stalh and Mr. Charles O'Connors from the Regional Office in New York made an on site visit from September 23 to 24, 1971.

A fourth visit was made by Dr. Jack C. Davis and Dr. Len Trout from November 29 to December 1, 1971.

CONCLUSIONS

At the conclusion of the first year of operations of Carolina Project and considering this year experiences we can conclude that :

1. It is necessary to provide broad occupational orientation to all the elementary students, not only to the 5th and 6th graders.

2. The teachers of the regular school program can participate in a career education program if adequate training is given to them.

3. The activities offered at the junior high level need to be reinforced so as to provide the female students direct experiences in occupational exploration and other activities for 7th and 9th graders.

4. It is necessary to continue providing training activities to the whole staff in charged of the direction of the regular program and to the personnel participating in the implementation of this project.

5. It is necessary to provide more curriculum and instructional materials to teachers and counselor.

6. A group guidance program should be reinforced at the secondary level, since the largest number of students make impossible the individual contact by counselor and students.

7. It is necessary to establish a Career Education Center in the district.

RECOMMENDATIONS

1. To continue making efforts for providing more career educational materials to elementary and junior high teachers and counselors.

2. A career resource center should be established in the district to provide ready access for the use of program materials, supplies and personnel.

3. To expand the elementary program to include grade 1 through 6. The school participating in the project does not offer kindergarten. This expansion requires the production of career development curriculum for grades K - 6.

4. Intensification of the training program to principals and teachers regarding integration of career development concepts to the general school program.

5. Discussion with the directors of the academics programs about the need to coordinate the school program focusing around the theme of career development.

6. To introduce a course in "Occupational Orientation for 9th graders".

7. A new 7th grade curriculum material relation to clusters and World of Work will be introduced.

8. Planning will be completed for implementation of the World of Construction and World of Manufacturing in certain schools.

9. Expansion of the Crash Programs should take place to meet needs of the students and the employment demands.

10. To provided specific career orientation activities to the junior high girls through a course in Home Economics.

11. Studies should be undertaken to increase the effective utilization of the Project Placement Officer and Cooperative Education Coordinator.

BODY OF THE REPORT

Problem area toward which the project was directed

Puerto Rico is passing through a process at rapid economic growth. A well trained citizenry is required to fit into this process. The new technological explosion demands the population to get acquainted with the occupational structure of the country as they develop their potentialities in order to participate in it.

The establishment of a great number of industries and commercial enterprises creates new opportunities of employment for the labor force. Neverthesess a great number of youngsters, most of them unemployed, are eager for getting orientation about the variety of jobs available in the world of work.

The specific situation of the students in the schools where the project was developed was as follows :

1. At the elementary level no activities were being carried on to give the students an occupational education.

2. At the junior high school level even though the students had counseling and guidance services, these services were very limited.

3. No formal teaching-learning program had been organized to orient the students about the world of work.

4. Very few vocational courses were offered to the students who were attending the senior high school where the Project was developed.

5. No assistance in job placement was given to them and the guidance and counseling services were also very limited.

Program goals

1. To give to the elementary school students an expanded view of the kinds of occupations which exist now and which will exist in the foreseeable future in his region. To impart, as well, a sense of the worth of these occupations and the knowledge that participation in them can bring security, pride and dignity.

2. To help the junior high student to explore certain relevant occupations in still greater depth. To continue for him the broad exposure to careers with the additional aim of murtiring attitudes concerned with the self-fulfilling nature of work.

3. To provide for many students a cooperative work experience which will serve to reinforce motivations, skills and attitudes.

4. To develop an understanding of the social and economic responsibilities of those engaged daily in a free, but competitive, society.

5. To cultivate an understanding and appreciation of the free enterprise system as the capstone of Puerto Rican democracy.

6. To develop a knowledge of and a familiarity with the tools and materials related to a trade and the application of this knowledge to a career.

7. To make occupational or vocational instruction really meaningful, shaping it so that the student sees its intended purpose and its application.

Process objectives

1. To counsel the students realistically in the light of available information concerning career selection. To advise students of the training requirements of individual career choices and to provide them with information on the availability both of necessary training and employment possibilities within the region following its completion.

2. To develop placement procedures for the student with entry-level skills and to draw this service to the attention of those still in training as a means of maintaining and bolstering student morale and motivation.

3. Continuing the liaison between all parties involved in the exemplary project running from the chief administrative officers of the Commonwealth central education offices through the classroom teachers who will bring the program to the students.

4. Present a Junior High School World of Construction orientation program which is genuinely exploratory while, at the same time, being more comprehensive than has been traditional.

5. Offer an occupational orientation program which centers attention on general activities rather than upon individual project work.

6. Develop a greather measure of sensitivity to the necessary relationship between business and industry and the role played by education in both.

7. To prepare individuals for gainful employment or for advancement in their present field of work.

8. To prepare young people pior to their entry into the labor market with the education that will be most suitable for the additional training contemplated for them by their future employers.

9. To provide students the opportunity to sample several career possibilities, allowing them to judge first-hand both their interests and their aptitudes for different vocations.

Product objectives

1. To train the student either to the point of holding an entry level skill or to that point where he may move easily into a post-secondary vocational training program.

2. To institute a program in basic Culinary Arts to prepare students for appropriate entry level skills.

3. To institute a CRASH Program for those students who are entering their senior year of high school (perhaps even their final semester) and who have not planned or begun a course which would likely place them in the labor market. This program would require coordinated efforts in testing, counseling, and specialized training.

4. Develop an In-Service training program for all staff who are to be involved with the Senior High School CRASH program.

5. Develop a Placement Team which will work smoothly with all commercial and educational representatives. This team will serve as a key resource for all those seeking information both on the availability of jobs and the availability of suitable persons to fill those jobs.

6. Envolve an occupational orientation program which will place primary emphasis upon organizing and diseeminating information touching upon as many instructional settings (both in and out of schools) and employment experiences as are possible within the immediate region.

7. Structure guidance and laboratory learning opportunities for boys and girls so that the relationships between educational and the World of Construction (and other careers) becomes manifest.

8. To offer instruction that will develop accepted skills and knowledge necessary to prepare students generally for the World of Work.

9. To provide instruction tailored as much as possible for both the potential and the actual school dropout, as well as for the handicapped and the disadvantaged.

10. Place students on jobs that are within their competency and skill level regardless of graduation, completion of program or educational level.

Description

The project has been designed with the aim of providing the youngsters of the schools envolved in the program a series of vocational education experiences which will enable them to adapt to the challenge of a world where a technological revolution is taking place. They will as well be placed in the community as productive self satisfied citizens.

The programs effort is directed toward expanding the students self awareness to an occupational structure, starting at the elementary level. This is done by establishing a comprehensive exemplary program in counseling and guidance.

Starting with the fifth and sixth grades and expanding over a three year period time to the fourth and third grades, an extensive exposure to the World of Work is being given through conventional instruction, audio-visual aids, community resources and actual visits to business and industry and the area vocational school.

At the senior high school level the services offered have been continued and expanded. We have intensified the use of tests and questionnaires in order to help the students appraise their interests, abilities, values and needs as well as to facilitate and improve the individual and group counseling.

A new element which has been introduced is the use of "crash" programs. Their final goal is to provide some type of training to students who started the fourth year in the senior high school or who by the end of the last school semester have planned to enter the labor force without mastering the necessary skills.

Some of the accelerated programs were organized in coordination with the vocational schools of the Metropolitan Area.

One of the ways of helping the students explore the world of work in depth was to have them participate in cooperative programs. Through the Cooperative Education Program, the students receives vocational and academic instruction alternating with the work experiences.

Provision for intensive occupational guidance and counseling during the last school years and for initial placement of all students at the completion of their schooling has been considered.

The placement services is carried on in coordination with commercial enterprises and employment service agencies.

PROCEDURES FOLLOWED

The initial activities concerning the development of this Project were carried on in 1971. Immediately after notification of funding, certain priorities were developed. This was done after consultation among the Central Office, the Superintendent of Carolina Schools and the whole directory staff of the school district.

By this time, mid-march, the recruitment and appointment of personnel had begun. This phase of the Project extended until the first months of the year. Part of the delay in staffing was the difficulty in meeting the standards presented in the proposal. However, staffing has been completed and qualified persons are in every position.

Project Personnel

Project director	Miss Petra Díaz
Project coordinator	Mrs. Nérida Padró
Cooperative coordinator	Mr. Daniel Santos
Placement officer	Mr. Juan A. Hernández
Curriculum technicians	Mrs. Georgina Acevedo
.....	Mrs. Luisa Rodríguez
.....	
School counselors	Miss Teresita Salgado
.....	Miss Aida L. Arroyo
.....	Miss Sonia Cangiano
.....	Mrs. Gloria Villegas
.....	Mrs. Blanca Mawad
.....	Mrs. Andrea Figueroa
.....	Mrs. Dominisa Santiago
.....	Miss Marta Villalobos
.....	Miss Ana E. Benítez

Transactions were carried through for the contract of consultive personnel and evaluation services for the Project.

Staff visits were made to the schools participating in the Project to collect data bout the number of students and teachers in the school as well as of the number of other directive personnel involved in the development of the Project. These are presented in Table I.

The selection of schools has been made on three criteria. First, a mixture of rural and urban was sought and achieved. Second, estimation was made of which particular schools might derive the greatest benefit from such a program. Finally, and perhaps of greatest importance, the schools choosen were those wherein the staffs expressed the greatest interest. An enthusiastic and cooperative school staff is the sine qua non for the success of any innovation.

Two rural elementary-junior high combinations, schools consisting of grades one through nine, two urban elementary, grades one through six, two junior high schools and two senior high schools were also included. The urban elementary and junior high schools are so located that children can experience the total sequence, that is the chose elementary schools feed into the selected junior high schools wich in turn feed into the project senior high schools.

Jesús T. Pieñero School was used in place of Clemente Fernández as original plans.

Table I

List of schools - served by the Project by zone, level and enrollment

SCHOOLS	ZONE		Elemental	Junior	Senior	TOTAL
	Urban	Rural				
Salvador Brau		x	359	212		571
Jesús T. Piñero		x	291	175		466
Pascassio P. Sancérrit	x		926			926
Rolling Hills	x		672			672
Dr. Facundo Bueso	x			1,135		1,135
Eduardo J. Saldaña	x			717		717
José M. Lázaro	x			1,081	1,073	2,154
Julio Vizcarrondo	x				1,712	1,712
TOTAL			2,248	3,320	2,785	8,353

One of the basic aspects in the implementation of Career Education Projects is the production of the curriculum materials necessary for the program. In addition it is a must to give training to the people who will be responsible for the different components of the Project. During the first year of operations of the Project special attention has been given to the aspects previously mentioned. Simultaneosly, the scheduled activities for the first year have been carried on.

The following is a table which summarizes the in-service training activities offered. - Table 2

TABLE II

IN-SERVICE TRAINING PROGRAM

Date	Topics Developed	Participants	Person Responsible
March	Description of the project Duties and responsibilities	The Project Coordinator	Mrs. Gladys A. Sánchez
April 20 to 22	The World of Work Program	27 Fifth and sixth grade teachers, 4 elementary school principals and 8 counselors	Under direction and supervision of university professors.
Summer months	The World of Manufacturing Program	2 industrial arts teachers	University professors
August	Description of the Project The Placement Service	The Placement Officer	Miss Petra Díaz
August 13/71	Review project description Mayor activities and accomplishments Evaluation design	13 school counselors	Miss Petra Díaz Mrs. Pura Espada Mrs. Nérida Padró
August 20/71 A.M.	See topics above Operational aspects for this year. In-service training program	8 school principals	Miss Petra Díaz Mrs. Pura Espada Mrs. Nérida Padró
P.M.	Description of the Project	6 newly appointed 5th and 6th grade teachers and 3 counselors	Mrs. Nérida Padró

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Date	Topics Developed	Participants	Person Responsible
August 24/71	Preparation of lessons on The World of Work. Testing program for Elementary level. Student's notebook on occupations. Teacher's log. Techniques to be used in learning the characteristics of various occupations.	16 fifth and sixth grade teachers; 2 school directors 3 elementary school counselors	Project Consultant
August 24/71	The World of Construction Program : -description of the course -objectives -educational materials -adaptation of materials to special needs in Carolina -development of lessons and laboratory activities with teachers and students	13 industrial arts teachers and 2 regional supervisors.	Dr. Donald Lux - from Ohio State University
August 25/71	Duties and responsibilities of each member of the team in the development of the project.	5 senior high school counselors and the Placement Officer	Mrs. Gladys Sánchez
August 26/71	Duties and responsibilities of school counselors in the project development	8 junior and elementary school counselors	Mrs. Gladys Sánchez
September/71	Pre-testing program schedule. Implementation of the World of Work. Discussion of the lessons prepared by teachers.	Elementary school principals teachers and counselors in each school	Miss Petra Díaz Mrs. Nérida Padró Mrs. Marta Angleró

Date	Topics Developed	Participants	Person Responsible
September/71	Instructions for the administration of OVIS and Career Interest Form. Testing Program schedule	10 school counselors	Miss Petra Díaz Mrs. Nérida Padró Mrs. Marta Angleró
October, 1971	The Guidance Program in the elementary school. Duties and responsabilities of curriculum Technicians. Curricular materials that they will prepare and schedule program for submit us this material. Duties and responsabilities of Cooperative Coordinator. Team work with counselors and Placement Officer	2 elementary school principals and 4 counselors Curriculum Technicians Cooperative Coordinator, 5 senior high school counselors, Placement Officer and 2 principals	Mrs. Marta Angleró Miss Petra Díaz Mrs. Nérida Padró Miss Petra Díaz
November, 1971	Career Education - Principles for its implementation and objectives for each level.	All project personnel	Miss Petra Díaz

SPECIFIC OPERATIONS

Elementary level - The World of Work Program

After discussing and explaining the Project and the World of Work Program to the directors and teachers of the elementary level, the next step was to provide training activities to the 5th and 6th grade teachers. This training would help both counselors and teachers to perform their jobs effectively.

The teachers participating in this Project are the same teachers who work for the regular school program. During the first year of the Project only fifth and sixth grade students are participating it it. For the coming year plans have been made for extending the program to go from K level to 12.

TABLE III

Data About Personnel Involved and Enrollment in the Elementary School

Schools	Teachers	Counselors	Enrollment		
			5th.	6th.	Total
Pascassio P. Sancérrit	10	1	139	169	308
Rolling Hills	6	1	122	108	230
Jesús T. Piñero	4	*1	53	49	102
Salvador Braw	4	*1	94	97	191
T o t a l	24	4	408	423	831

In order to attain the goals set up for the elementary school which read"to give the elementary school student and expanded view of the kinds of occupations which exist now and in a foreseeable future in his area and to impart a feeling of the worth of these occupations and the knowledge that participation in them can bring pride and dignity to the individual", the following activities were carried on.

Translation and adaptation of the McGinley Guide for Career Orientation to make it suitable for Puerto Rico. The curriculum guide produced by the curriculum specialist consists of five units which include the concepts and lessons for the development of the units.

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* The counselors served two rural junior high schools (second units) They were in charge of the elementary and junior high school levels.

In-Service Training Activities

Date	Topics Developed	Participants	Resource
April 20 to 22 1971	The World of Work Program for elementary students. Units of work and concepts were discussed.	5th and 6th grade teachers, principals and counselors.	Project Staff
August 20, 1971	The World of Work Program for elementary students. Units of work and concepts were discussed.	Newly appointed 5th and 6th grade teachers.	Miss Petra Díaz Mrs. Pura Espada Mrs. Nérida Padró
August 24 to 25 1971	Preparation of lessons on The World of Work. Testing Program for elementary level counselors. Student's notebook on occupations. Teacher's log Techniques to be used in learning the characteristics of various occupations.	5th and 6th grade teachers school directors and elementary school	Project Staff
August 26, 1971	Duties and responsibilities of school counselors in the project development.	Elementary school counselors.	Mrs. Gladys Sánchez
September, 1971	Elementary school counselors held meetings with teachers participating in the implementation of the World of Work Program to: (a) Review lessons prepared (b) Formulate plans and activities	Elementary teachers	Elementary school counselors

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Date	Topics Developed	Participants	Resource
September/71 (cont...)	(c) Discuss with them their observations on students reactions. (d) Discuss problems met by teachers in the development of the program. (e) Guide them in preparing the occupational notebook for students. In-service training to teachers for the testing program with 5th and 6th grade students.	Elementary teachers	Elementary school counselors
October 22 1971	Follow up of the program	Elementary school counselors	Miss Petra Díaz Mrs. Nérida Padró
November 18 1971	Career Education-Principles for its implementation and objectives for each level.	All project personnel	Miss Petra Díaz

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Other activities developed dealing with the Program at the Elementary Level

After the second in service training, the teachers being already capable to do it, assumed the responsibility of preparing lessons for the World of Work Program.

Counselors visited the classromms to relate the students with the guidance program and its services.

Administering of the awareness of the World of Work test to all the fifth and sixth grade students of the schools participating in the Project and to four control groups-two for each grade, one for each zone.

The students were encouraged to participate actively in the school and the community by interviewing different workers with the purpose of relating themselves with the nature of their work.

Different types of workers such as nurse, medical technologist, beautician, policeman, mailman, fireman, etc., were invited to the classroom by the counselors and teachers in order to expose the students to a wider range of occupations.

Field trips were organized by counselors and teachers to give the students opportunity to visit local factories, shopping centers and other kinds of business.

Group guidance sessions have been held in all elementary school to have the fifth and sixth graders explain the experiences they had through the program to the 3rd. and 4th. graders.

All elementary counselors and school directors have visited the classrooms to observe the development of the lessons on the World of Work and the student's reactions. Follow up is being done.

Periodic meetings with teachers, directors and counselors have been held in order to :

a. discuss the lessons prepared
b. plan activities
c. discuss the teacher's observations about the students' reaction
d. discuss the problems faced by the teachers in the development of the lessons
e. provide opportunity to personnel from different schools to exchange ideas about activities they have developed

The following educational materials were prepared for the development of the program :

1. Translation of the McGinley Guide for Career Orientation . to adapt it to Puerto Rico - 75 copies

2. Test - Awareness of World of Work - 1,000 copies
3. 68 occupational brochures have been designed to be used with elementary school children - 30 have been reproduced and distributed.
4. Ten posters on the World of Work Program and Vocational Guidance were prepared for elementary level.
5. A kit containing occupational information was prepared for teachers participating in the Program - 40 copies

This type of program has been implemented with the full cooperation from the administrative office in Carolina, school director, teachers and counselors.

Parents have been informed individually and through meetings of the program and have expressed their interest and disposition to cooperate with the Program.

Junior High School Level

To take care of the students at the secondary leve, we designed a plan to help them explore in depth relevant occupations, while we provided them intensive guidance and counseling services. In this way we helped them to be self-aware of their interests, abilities, values and needs as they perform their occupational roles. Besides, plans were made to introduce the Ohio State University Career Orientation Program, The World of Construction.

In the five junior high schools 3,320 students were attended. A counselor was assigned to each school lacked of the services and a second counselor was added in those cases where there was the necessity of providing the service to a largest number of students.

In an effort to attain the objectives designed for this level, the school counselors coordinated efforts with the school personnel, parents and the community by arrangining individual and group guidance activities.

A high percentage of the ninth grade students have had personal interviews with the counselors concerning academic and vocational interests.

Group guidance sessions have been held in all junior high schools emphasizing the following topics :

1. Relationships between school subjects and the occupational work.
2. Need and importance of planning for the future.
3. High school programs.
4. School adjustment and academic achievement.
5. Human relationships and job success.
6. Aspects to be considered in the selection of a job.
7. Occupations related with science and medicine.
8. Importance of knowing themselves and ways of doing it.
9. "Exploring the occupational world".

Questionnaires of personal information and inventories such as the Ohio Vocational Interests Survey have been administered. Said instruments have been used to help the students in the evaluation of their personal characteristics and their relation to the selection of an occupation.

Some of the schools have specific time each week for group guidance activities. Others meet in general classroom situations. Other activities developed have been: interviews to workers, observation and discussion of films about occupational orientation and educational opportunities, and lectures given by representatives from the Department of Employment Office about occupational demands in Carolina in neighboring areas.

The ninth grade students have visited the vocational schools as well as the senior high schools of the area in order to know the courses offered and get acquainted with them.

As to the use of the Ohio State University career orientation program, it was decided to offer the World of Construction Program to all male 8th. grade students in the Salvador Brau and Jesús T. Piñero, Rural Junior High Schools.

During the first year of project operation, Carolina's Project was discussed with the director and supervisor of the Industrial Arts Program. Special attention was given to the World of Construction Program. Among the aspects discussed were: schools to be involved, number of students to participate and plans for the implementation of the Program.

In addition from August 24 to September 2, 1971, the industrial arts teachers attended a work-shop conducted by Dr. Donal Lux, professor from the Ohio State University. Among other topics they discussed the description of the course, objectives, educational materials, adaptation of materials to special needs in Carolina and the development of lessons and laboratory activities with teachers and students.

The curricular materials of this Program were translated and three books were prepared: - The World of Construction-Teachers Guide, 165 pages; The World of Construction-Laboratory Manual, 138 pages and The World of Construction-Textbook, 146 pages. The teacher's guide consists of 70 lessons of which 10 copies were produced. The laboratory manual includes 18 activities; 40 copies were printed. An the textbook contains 48 lectures of which 50 copies were printed. First time ever great effort unusual terms requiring great exersice and comprehension on the part of the developing and translators. Upon completion of the translate materials and equipment have been ordered for the implementation of the Program.

Continuing meetings have been held with the industrial arts teachers, principals and counselors to review the lessons, and to find out if the equipment and materials they have on hand can be used for the development of the program. Meetings were also held with industrial arts teachers and principals to determine teacher's needs to start working with the group of students.

Senior High Level

Project Sequential Approach to Career Orientation and Preparation actually was implemented at the beginning of the 1971-72 school year in August 1972. While the planning and staffing was being completed the curriculum and class scheduling had been completed at the district level. In spite of this tremendous progress was made. The following enrollment were reported in vocational courses as indicated in Table IV.

TABLE IV

Enrollment in Vocational Courses at the Senior High Level

Course	Dr. José M. Lázaro		Julio Vizcarrondo	
	Enrollment	Per cent	Enrollment	Percent
Assistant Seamstress			16	1
Business Education	216	20	162	9.5
Cabinet Making	17	1		
Assistant in Food Preparation and Service	21	2	21	1.5
Distributive Education	85	8		
Companion to an Elderly Person or Convalescent	19	2		

In addition the increased counseling and guidance staff is reaching every student in the elementary, junior and high school.

Through way of this Project an additional school counselor was assigned to each school. At present Dr. José M. Lázaro School has 2 counselors and the Julio Vizcarrondo School has 3.

For the secondary school level the following aims had been formulated. The steps followed to attain them are also stated below:

a. To work with the individual to help him discover his interest and aptitudes through testing and interviews.

b. To counsel the students about available and desirable careers and the necessary training patterns. To advise the students of what is locally available for his preparation, that is as to the high school and the area vocational centers.

For the achievement of these goals the school counselors have given special attention to individual interviews concerning vocational plans. Emphasis has been given to the use of personal information questionnaires, and vocational interest inventories such as the Ohio Vocational Interest Form. They have also used the individual interviews and information supplied by the student's school record.

Several group orientation sessions have been organized in the 10th, 11th and 12th grades to discuss the following topics

	GRADES		
	10	11	12
Crash programs			x
Coop. course in cabinet making			x
Planning for the future	x	x	
Vocational post secondary schools	x	x	
College admissions			x
Technical schools			x
How to apply for a job			x
Vocational courses sponsored by the industry in coordination with the Department of Labor			x
Academic achievement and job success		x	x
Series of sessions to discuss Educational Opportunities in Puerto Rico	x		
Educational opportunities - series of conferences conducted by representatives from different educational centers - See project development log Appendices			x

A group of 403 tenth graders and 170 twelfth grade students participated in a series of group meetings held to observe and discuss films that present the interrelation of the academic subject matter with the world of work. Each film was followed by complementary activities about the topic. Among others the following films were discussed :

1. The Language Arts and the Occupations
2. Exploring the World of Mathematics
3. Chemistry and Physics and the Occupational World

The counselors requested the services of the Placement Officer and the Cooperative Coordinator who offered talks to the students regarding occupational demands and training opportunities in Carolina area. More over the counselors used informational bulletins supplied by the Employment Security Service, newspapers, and brochures published by the Vocational and Technical Instruction Program that deal with careers and training for careers.

Other objectives for this level were :

1. To train the students, either to the point of entry-level skill or to the point of entrance into a post-secondary program, in certain vocational areas.

2. To work on placing the students with entry-level skills in a suitable position where he may enjoy the fruits of his training.

3. To provide for many students a cooperative work experience which would serve to reinforce motivation, skills and attitudes.

4. To institute a "crash" program for those students who enter their last year or even their last semester and have not planned or undertaken a course which would lend them direction toward either entry-level skills or further training. This program would involve massive efforts in testing, counseling and training.

Up to the now 68% of the total enrollment of they graduating class have applied for admission to colleges, universities and postsecondary vocational and technical schools. The others are planning to get a job, travel abroad, enter the armed forces and to enter to apprentice training program.

The placement task force have been organized and strategy have been developed for placing students in the labor force. The placement officer has coordinated efforts between the industry, governmental agencies at the local and state level and the school with the purpose of placing students in part time and full time jobs.

Special attention in this aspect has been given to the twelfth and eleventh grade students. At present 35 students are placed in full-time jobs and 108 are working part time. Other activities which have been developed in coordination with teachers, directors and counselors of both schools have been: lectures about employment opportunities and requirements given to the students by representatives from public and private agencies and demonstration on "How to get ready for a job interview" offered by a group of students. In an effort to help the students make a smooth occupational adjustment, the Placement Official visits the Center where the studen has been placed and discusses the student's progress with the employer. The counselors make individual and group interviews.

As to the Cooperative Program, the work done up to the present have been done in coordination with another Project functioning at the José M. Lázaro School. The Project is sponsored by the Trade and Industries Program. It is a cooperative cabinet making program in which 19 twelfth grade students are participating. The Cooperative Education Coordinator has participated in several meetings with students and employers to discuss their progress and determine addtional help within the school.

It should be noticed that the Cooperative Education Coordinator was hired in December and has had a short period of time to organize other cooperative programs.

At present he is working in the organization of a working experience program for 10th graders. A tenth grade group from each school will be selected.

Identification of Centers which can offer varied occupational experiences to the students is being done.

Crash programs were organized of those students who enter their last year or their last semester and still had not planned or undertaken a course which would give them direction toward either entry level skills or further training.

Twenty two high school graduates participated in the first course in Beginning Typing. Instruction began in May, 1971 and continued until December, 1971. A new group in the same program was started in January and will end in June.

Another crash program in business occupations is under way with 30 students at the Julio Vizcarrondo School.

This group meets from 8:00-11:00 a.m. each morning and ends in May.

The Cooperative Education Coodinator has already identified 30 students interested in a drafting "crash program" and 20 in advance sewing. Plans were to start the above "crash programs" in March using funds from the budget assigned to the second year of operations.

Ten high school graduates were enrolled in different programs given at the Miguel Such Vocational School.

TESTING PROGRAM

The testing program for the school year have been carried out. Its purpose was to assist the student in the self appraisal process and evaluate the Project's effectiveness. The program include the 5th., 6th., 8th, 10th., and 12th. grades.

The Project's staff adapted the test on Awareness of the World of Work for elementary level, the Ohio Vocational Interest Form to be used in Puerto Rico. Each of these evaluation instruments included a manual of instruction.

All exept the Student Career Intereset Form required translation into Spanish.

TABLE V

Test Instrument	Schools	Grades	Students Tested
Awareness of the World of Work	Elementary Level		
	Pascassio P. Sancérrit		297
	Jesús T. Piñero	5th and 6th	114
	Salvador Brau		269
	Rolling Hills		203
	Total		783
	Control Groups		
	Pedro Moczó		70
	P. Rodríquez Oquendo		67
	Total		137
Ohio Vocational Interest Survey	Junior High School Level		
	Facundo Bueso		341
	Salvador Brau	8th.	48
	José M. Lázaro		337
	Jesús T. Piñero		46
	Eduardo J. Saldaña		221
	Total		993
	Control Groups		
	St. Just		27
	Julia de Burgos		35
	Total		62

Test Instrument	Schools	Grades	Students Tested
Ohio Vocational Interest Survey and Student Career Interest Form	Senior High School Level		
	Julio Vizcarrondo	10th.	747
	José M. Lázaro		368
	Total		1,115
	Control Groups		
	Antonio Sarriera		73
Future Plans Questionnaire	Julio Vizcarrondo		364
	José M. Lázaro	12th.	118
	Total		482
General Information Questionnaire	Julio Vizcarrondo	12th.	157
	José M. Lázaro	12th.	343
	Total		500

DISSEMINATION ACTIVITIES

Several dissemination activities have been carried out by the project staff. Some of them were the discussion of the project with parents, visits to industries and community agencies by the Placement Coordinator and the Cooperative Education Coordinator to explain the project. Students who are completing their M.A. studies in guidance visited Salvador Brau School to observe the implementation of the program in that school. Meetings were held with members of the supervisor staff of neighboring school districts to explain the project. Posters were prepared with materials available up to this time. An abstract of the proposal was sent to persons interested in out project. Visit to Rolling Hills elementary school was made with educators from Santo Domingo to relate them with the project.

Mail and phone requires from other school districts both those in the Island and rom the states were answered in detail.

RESULTS AND ACCOMPLISHMENTS OF THE PROJECT

The project "Sequential Approach to Career Orientation and Preparation" finishes its first year of operations with the accomplishment of almost all at the activities scheduled for the first year. A few others are still in the initial stage.

It is important to point out that a project of this nature involves the use of innovative ideas which the school staff needs to get acquainted with and accept before implementing them.

As a result of the training program developed, the personnel working in the implementation of the Project-principals, teachers, school counselors and other school personnel have been receptive as to integrate this career education project to the regular school program of the eight schools involved.

One of the main accomplishments of the Project has been the production of curricular materials for classroom use. Even though the production has been limited, it is good to point out that the Media Center has worked hard trying to overcome difficulties such as: organization of a center for the production of materials by the middle of the first year of operations and the lack of curricular materials developed in Puerto Rico in the "World of Work" field.

As a matter of fact, most of the materials to be introduced by way of the Project ought to be translated and adapted.

One of the aspects of greater impact has been The World of Work Program for the elementary school and the guidance and counseling services for this level. Not a single elementary school in Carolina has guidance and counseling services. Principals and teachers have expressed that they have experimented unique experiences with the 5th. and 6th. grade students. They look forward to them as the way through which the student finds significance in education.

At the junior high school leve, outstanding efforts have been made to provide counseling services to the largest number of students. Before the implementation of this Project from among five junior high schools include, only two had guidance services and one was visited by an itinerant school counselor. At present each of these junior high schools has guidance and counseling services with an average of 664 students per counselor. This fact makes possible to have personal interviews with each junior high student.

At present The World of Construction Program (Spanish version) for eighth graders is being revised by the teachers who will implement it. They have shown a genuine interest in the Program.

At it happend in the junior high school level, the senior high school level extended the guidance and counseling services to a largest number of students. The average number of students per counselor lowered from an average of 950 students per counselor to 570. This implies closer as well as largest individual and group contact with the students.

The more frequent use of standardized tests, personal information questionnaires and vocational interest inventories have been an aid in helping the students self-evaluate. Because of the special attention given to the 12th grade students, they became conscious of the necessity of planning their occupational future. Those students who had not previously enrolled in a training program and had plan to start working as soon as they finished the senior high school, had the opportunity of entering the crash program.

The dissemination among 12th grade students of up to date information concerning educational opportunities helped the students have a wider vision of the possibilities for post high school studies and training.

Among the most significant accomplishments of the Project at this level was that placement service was introduced for all the students of all the programs at the Senior High School Level.

The community, industry and business have given the necessary backing to the activities developed by participating actively in them.

Other school districts which have heard of the Project's scope have expressed interest in integrating some of the components introduced through way of this Program to their regular school programs.

A side from a few difficulties faced at the beginning of the Project such as beginning of the Project by the middle of the school year, procedures follow for hiring and appointment of personnel and lack of adequate materials, the activities assigned for the first year were accomplished. Nevertheless, it is important to point out that this is the first year of operations of this Project which implies that many aspects are still in the initial stage and will extend along the coming years.

FIRST YEAR EVALUATION REPORT OF THE

CAROLINA SCHOOL DISTRICT—

EXEMPLARY VOCATIONAL PROJECT

TO

Petra Díaz
Project Director

From

Sierra Planning/Research Associates

January - 1972

1432

INTRODUCTION

The continuing progress of this project has been described in the evaluation reports of Sierra Planning/Research Associates. Evaluation reports were made after each on-site visit of the evaluators.

The basic purpose of each on-site visit has been to observe the extent to which the stated objectives have been achieved, and to evaluate the overall effectiveness of the project.

Briefly the major purposes of these on-site visits have been as follows :

Visit No. 1 - March 24 - 31, 1971

The purposes of Evaluation Visit Number One were as follows:

1. To gain an overall understanding of the day to day working of the project by meeting with the staff at the decision making and implementor level.
2. To clarify the established priorities of the project.
3. To gather details of instruction, administration, and logistics.
4. To visit the facilities and determine resources available at each.
5. To discuss program and operation and determine strategies to best achieve the project objectives and goals.

Visit No. 2 - August 22 - 28, 1971

The purpose of this second evaluation was to note the accomplishments since the first evaluation made in March of this year, as well as to formulate additional recommendations for carrying the project forward.

Specific activities of the evaluators included :

1. Observing workshop sessions with elementary teachers and counselors.

2. Observing a two-week workshop for all District industrial arts teachers to familiarize them with the World of Construction Program.

3. Evaluate planning strategies for testing students in the fifth, sixth, eighth, tenth, and twelfth grades.

4. Observe and evaluate the crash program for graduates in a business occupation class.

Visit No. 3 - November 29, 30 and December 1, 1971

The purpose of this third evaluation was to observe the activities of the "World of Work" program in the elementary grades; observe what program was operating for junior high students; look at high school Co-op program and the recycling of dropout students; check the crash program activities; and review project management personnel activities.

Specific activities of the evaluators included :

1. Group and individual interviews of exemplary program teachers and principals at the elementary level.

2. Individual interviews with principals, teachers, and counselors at the junior high level.

3. Group interview with Co-op Director and high school counselors and principal regarding program activities.

4. Group interview of exemplary project central office staff and Carolina School District Superintendent.

5. Review the recent project staff apointments.

6. Collected the base line pre-test data for the elementary junior high, and high school project students. The purpose for collecting the data was to provide some base and pertinent data concerning attitudes, knoledge, and career interests of project students.

OBJECTIVES

The purpose of this evaluation is to report on the accomplishments of the project sub-objectives as stated in the proposal. Such a review of the status of these objectives will provide guidance in establishing priorities for the second year of the project.

> "The overall objectives of this project is to take the child with a cultural background markedly different from that of the industrial and technoligical society which is developing in the area and, through a sequence of school-guided learnings and experiences, place him in that society as a functioning, self-fulfilling and contributing members. Such a complex and ambitious objective will be accomplished through a series of smaller, manageable sub-objectives".

The attainment of this overall objective will probably not be observable during the term of this project. The progress of this objective may be predicted through a periodic evaluation of the activities and accomplishments of the specific objectives of the project.

Objective 1

> To give to the elementary school student an expanded view of the kins of occupations which exist now and in the foreseeable future in his area. To impart a feeling of the worth of these occupations and the knowledge that participation in them can bring pride and dignity to the individual.

To meet the intent of this objective it was necessary to train teachers to implement a World of Work curriculum. The "McGinley Guide for Career Orientation" was translated into Spanish and adjusted to fit the World of Work of Puerto Rico.

In-service sessions were held to train teachers, counselors, and administrators to utilize this curriculum.

The status of this objective is the implementation of a World of Work program for fith and sixth grade students in four elementary schools of the Carolina School District.

Objective 2

To help the junior high student to explore certain relevant occupations in greater depth. To continue the broad exposure and the understanding of the self-fulfilling nature of work.

In the five project junior high areas a high percentage of the ninth grade students have had personal interviews by counselors concerning academic and vocational interests. Some of the schools have specific time each week set aside for group guidance concerning career education in the homerooms. Others meet in general class situations. There is a good effort to now have personal interviews with each junior high student, grades 7, 8, and 9, and to record the day for active career education guidance. Each school shows good effort toward personal student contact by the counselor.

For two weeks during the month of August all District Industrial arts teachers participated in an intensive worshop to familiarize them with the materials known as the World of Construction. The workshop was fortunate in securing one of the authors of the materials, Dr. Don Lux, to serve as a faculty member. The workshop focused upon adapting the materials in the most efficient means possible to the special needs of the Carolina exemplary project. A major feature of this adaptation lies in translating the World of Construction books into Spanish.

The status of this objective is the implementation of the World of Construction program for all male eighth grade students in the Salvador Brau School and two classes of male eighth grade students from each of the other participating junior high school in the spring of 1972.

Counselors have utilized a number of materials to familiarize students with various occupations. Counselors have interviewed most of the students for personal information data as well as career interest. An exact data file has been developed by the counselor for each student. An attempt has been made this first year by the junior high counselors to bring together a collection of pertinent career education information.

A home economics teacher has developed a junior high program for girls where various articles such as pillows, trash receptacles, dolls, small containers for a variety of articles, and other devices are constructed by the students. This gives the young lady a number of exposures to using different materials to design a variety of articles. It is the first exposure for most of them to explore the use of tools, materials, and constructing something by themselves. This is a major unit of the girls- program for home economics.

Objective 3

To work with the senior high student on may levels.

a. To work with the individual to discover his own interests and aptitudes through testing and interviews.

At present high school counselors have interviewed 293 tenth grade students concerning vocational plans. When all tenth grade students hve been interviewed, the eleventh grade students will then start to be interviewed for vocational plans.

There have been several career group education guidance meetings for eleventh grade students in both high schools. This will continue each semester.

b. To counsel the student about available and desirable careers and the training patterns necessary. To advise the students of what is locally available within the high school and the area vocational centers for his preparation.

A complete dossier on Project VIEW, a fully translated device featuring career information, has been provided to the staff of the Carolina School District. The initial impression was that the Spanish language edition of this instrument was excellent. However, after reviewing the consistency of job requirements reflected in VIEW with those actually being obtained in Puerto Rico, the data are not valid. VIEW in the present form, cannot be used with success in the Carolina Project. Guidance people are utilizing information given by Mr. Hernández, Placement Officer, and Mr. Santos Cooperative Coordinator, to fulfill this objective requirement. Also counselors utilize information provided by area employment security, newspapers, people in industry and brochures from a variety of sources that deal with careers and training for careers.

c. The development of a placement team which will work equally well with the commercial and educational segments. This team will serve as a resource for the total labor supply and demand picture, will establish contacts for cooperative slots, and supervise their use, and will place students with entry-level skills in appropriate positions.

This placement team has been established and is working.

Heavy emphasis has been focused on placement of senior high school students in part-time and full-time jobs.

Mr. Hernández, Project Placement Officer, has interviewed 120 eleventh and twelfth grade students for placement purpose in the Julio Vizcarrondo High School. He has interviewed 113 for work placement purposes in the José M. Lázaro High School.

An advisory Committee has been organized within the District to develop a quality placement program for graduates and dropout. Many businesses have indicated their interest in aiding with the placement of students.

d. To provide for many students a cooperative work experience which would serve to reinforce motivation, skills, and attitudes.

The Cooperative Education Coordinator, Daniel Santos, is moving ahead with the Co-op program in the high schools. There are at present 19 students in the Co-op program. Many others have indicated an interest to enter the Co-op program. It should be noted that Mr. Santos was hired just since December and has just a short period of time to get the Co-op activities operating.

e. To institute a "crash" program for those students who enter their last year or even their last semester and have not planned or undertaken a course which would lend them direction toward either entry-level skills or further training. This program would involve massive efforts in testing, counseling and training.

A crash program was organized for approximately 28 students in Beginning Typing. Instruction began in May, 1971, and continued until November, 1971. Students were high school graduates who needed typing skills as a minimum requirement to assume, at an entry level, available clerical positions in the local labor market. A new class in the same program was started in January, 1972.

Another crash program in business occupations is underway in the Julio Vizcarrondo High School with 30 students involved. They meet from 8:00-11:00 A.M. each morning and the class will terminate in May.

It is anticipated that a crash program for girl secondary students in basic nursing will become a part of the project shortly. Also 25 students have indicated that they would be interested in a "crash program" for drafting. Another 20 students have indicated a great interest for a "crash program" in advanced serving. It is anticipated that funds will be secured shortly to start the above "crash program".

In Summary

Basically, all activities that were to be initiated for the first year of the project have been undertaken.

PROJECT BASELINE EVALUATION DATA

In order to establish baseline information three testing devices were administered to students participating in this research project. The instruments employed were as follows :

1. The McGinley Occupational Interest Survey was administered to students in the fith and sixth grades. This instruments seeks to tap the attitudes that elementary school children have regarding ten common occupations. Each test executed by a student involved 20 separate pages of scaled judgments. These materials were recently shipped from Puerto Rico to the Sierra Planning/Research Associates. Because each must be hand scored and recorded, this process is a lengthy one and is continuing at the writing of this report. Complete tabulation is not expected for approximately two more weeks. Chart A, however, was prepared to show the extent of coverage of this instrument in the four participating schools. Original plans had called for administering this instrument a second time near the close of the present school year. Experience with it, though, has raised doubts of its complete suitability for this project and, as will be noted in the Recommentadions section, changes are now contemplated.
2. The second instrument administered to tenth grade students was the Student Career Interest form developed by the Nevada Research Coordinating Unit. This instrument seeks some

CHART A

MC'GINLEY OCCUPATIONAL INTEREST SURVEY

SCHOOL AND GRADE

	GRADE		
	Fifth	Sixth	Total
Salvador Brau	49	31	80
Jesús T. Piñero	60	53	113
Pascassio P. Sancerrit	177	232	409
Rolling Hills	79	95	174
TOTAL	365	411	776

general information about respondents regarding their occupational and professional interests. Some of the data that was generated by this form is reflected in Tables I through 6.

Table I- includes answers to the question regarding the grade in which students made their career choice. A number of conclusions can be drawn from this information. For example, most tenth graders feel they settled upon a career choice some time during the ninth grade. There are a small number of students who report that they have still not made a career choice. It is, of course, very probable that the students choice will change subsequently, but Table I does give some indication of the tenth graders current thinking.

Table 2 - asks of tenth graders what their after school plans are with respect to work or school. This table suggests that a large proportion look toward completing a four-year college curriculum. This is very likely an unrealistic aspirations level for many. But, once again, it indicates the attitudes that these young people currently hold. The largest number anticipate going to work, therefore it is imperative that the school system provide a realistic career education program of entry level skills.

Table 3 - attempted to determine the person who helped most in determining the student's career choice. As in other studies, parents and teachers are evidently influential in

TABLE 1

GRADE IN WHICH TENTH GRADE STUDENTS PRESENT CAREER CHOICE WAS MADE

SEX	GRADE						
	7th	8th	9th	10th	No yet Made	No Answer	TOTAL
Male	83	72	200	87	49	11	502
Female	116	103	203	78	29	12	541
TOTALS	199	175	403	165	78	23	1,043

TABLE 2

AFTER SCHOOL PLANS OF TENTH GRADERS

PLAN	MALE	FEMALE	TOTAL
Go to Work	276	266	542
On the Job Training	32	30	62
Apprentice Training	22	22	44
Trade School	41	48	89
Technical School	78	52	130
Tow-Year College	59	101	160
Four-Year College	191	228	419
Armed Forces	63	3	66
No Answer	8	2	10
TOTALS	770	752	1,522

TABLE 3

HWO HELPED IN MAKING CAREER CHOICE*

PERSON	HELPED MOST	HELPED SOME	HELPED NONE
Parent	424	165	70
Brother	70	64	146
Sister	81	117	117
Principal	7	27	168
Counselor	70	100	92
Teacher	197	231	72
Friend	101	110	123
Literature	42	44	62
Classes	64	87	48
Other	76	56	109

* Totals not relevant

these decisions, often working a far greater influence than school counselors.

Table 4 - simply asked whether or not the respondent would attend a local vocational-technical school. A majority of those responding indicated that they would attent such a school. This reflects a nation-wide trend in which vocational-technical schools have been gaining more status and respectability among young people.

Table 5 and 6 - reflect the ten most often reported occupations of mothers and fathers respectively. This information, while in no way startling as it is presented, may later prove significant as determining factors in the occupational or professional choices of students.

3. A third instrument administered during the pre-testing period was the Ohio Vocational Interest Survey completed by 1, 880 tenth grade students. Initially the instrument was translated into Spanish after permission to do this was granted by the publisher. Students responded on an answer sheet developed in Puerto Rico. These answer sheets have been received by Sierra Planning/Research Associates. Because scoring must be done by an electronic scanner with a standardized answer sheet it will be necessary to transpose the responses by students on to the IBM answer sheets specifically prepared by the test publisher. Following this, answer sheets may be dispatched to scoring headquarters and results later will include

an individual interest profile for each respondent. A second OVIS testing in May of this year will permit a student by student analysis of shifts in vocational interests occurring in the interval of time between the two testings.

TABLE 4

WOULD YOU ATTEND A LOCAL VOCATIONAL-TECHNICAL SCHOOL?

YES	NO	NO ANSWER	TOTAL
461	452	157	1,070

TABLE 5

THE TEN MOST OFTEN REPORTED OCCUPATIONS OF MOTHERS

CODE	OCCUPATION	NUMBER
30	Domestic Service Occupations	195
20	Stenography, Typing, Filing and Related Occupations	51
78	Occupations in Fabrication and Repair of Textile, Leather and Related Products	39
07	Occupations in Medicine and Health	32
09	Occupations in Education	30
31	Food and Beverage Preparation and Service Occupations	20
38	Building and Related Service Occupations	14
64	Paperworking Occupations	11
21	Computing and Account - Recording Occupations	10
26 27 28	Salesmen and Salesperson	9
	TOTAL	411

TABLE 6

THE TEN MOST OFTEN REPORTED OCCUPATIONS OF FATHERS

CODE		NUMBER
86	Construction Occupations	74
91	Transportation Occupations	47
31	Food and Beverage Preparation and Service Occupations	46
62	Mechanics and Machinery Repairmen	40
25	Salesmen, Services	34
37	Protective Service Occupations	34
18	Managers and Officials	32
16	Occupations and Administrative Specializations	28
22	Material and Production Recording Occupations	24
90	Motor Freight Occupations	23

SUMMARY AND CONCLUSIONS

The project, which was initiated in eight schools of the Carolina School District, has made an impact on the teachers and program of the schools. World of Work and career education have become a part of the program of study in four elementary, five junior, and two senior high schools; a total of 8,429 students are involved in some phase of the program.

All project personnel have been hired and are on the job. The characteristics of those hired meet the personnel requirements of the proposal project.

The addition of these project personnel has been supportive to the total educational endeavors of this school district, and the in-service training sessions have gained teacher commitment to the concepts of career education.

There is a good coordination among the various levels and facets of the project. Project personnel maintain good communication and are supportive of all endeavors. This coordination and open communication have extended to the participating schools as teachers, counselors, and administrators are fully informed on the progress of the objectives of the project.

A major accomplishment of the project staff has been the development of curricular materials for classroom use. It is difficult to secure materials that are appropriate to the realities of the World of Work in Puerto Rico and even more difficult to find materials that

are written in Spanish. The development of the media center and curricular materials has contributed greatly to the success of the project to date.

Projeect personnel are to be commended for the positive public relations they have maintained. The publicity has been appropriate and the development of the task force should gain further public support.

In spite of the obstacles of starting the project in the middle of a school year, difficulties in securing full staffing and appropriate materials, the evaluators feel that the status of the project is good. There is, therefore, no reason to believe that all stated objectives will not be fully and successfully accomplished.

RECOMMENDATIONS

1. Because of the difficulties in translation to an appropriate comprehension level, it is recommended that a content test be utilized as an assessment instrument on the elementary level. It is further recommended that hereafter only sixth grade students be tested at the elementary level.
2. Facility space for the project counselors in the schools is very limited. It is imperative that larger space be provided so that interviews and discussions with students can be enhanced. Storage and display areas for career education materials is very limited and should be expanded.
3. Counselors should have available, for tabulating interview data and minor clerical tasks, hired student help so that counselor may direct his or her effort solely to career education counseling taks.
4. Continued effort must be made by project administrative staff to provide for more career education materials to be placed with elementary and junior high teachers.
5. In-service training for elementary staff should focus on how career education can be integrated into all subjects of the curriculum of the school. To discuss career education for one period a

week, as is happening in one class, will not develop or achieve all project objectives.

6. Project administrative staff should continue to hold frequent briefings concerning project goals, objectives, and ongoing activities for staff at each project school, parents, lay groups, school administrators, and central school district staff.

7. There are a number of pieces of equipment and materials that should be ordered immediately to enhance the second year of the program. They are:

   a. One combination filmstrip-record player machine and screen for career education use for each school. This equipment should be kept by the counselor and used primarily for career education activities.

   b. SRA occupational kits for 39 elementary teachers and six kits for junior schools.

   c. Thirteen legal size file cabinets for counselors to keep career education materials and student data.

   d. Ten occupational handbooks.

   e. Five Dictionary for Occupational Titles

   f. Complete vocational education ERIC microfiche set.

   g. A mimeograph.

   h. One overhead projector for each school.

   i. Two desks and chairs for district media Center.

   j. One microfiche reader printer.

   k. Twelve 5 x 8 card index files for counselors; and

1. Immediate acquisition of stated required materials for the "World of Construction".

8. There has been a great delay in filling purchase orders of materials and equipment. This practice should be stopped and a rapid delivery system should be developed so that project school and central office personnel will not be delayed in carrying out the planned activities of the project.

9. The media center space located in the Carolina School District office is too small to allow the required activities to properly support the project. Nearby space in the same building should be leased or rented so that adequate space can be provided. Media center activities should be rapidly expanded to provide transparencies, reading materials, and career education media requests of school staff.

10. Already a high percentage of crash program students have been placed and retained on jobs. This kind of information should be widely disseminated to students, professional school staff, parents, and the community in general.

11. A few field trips have been undertaken to expose elementary students to the "World of Work". There is a major problem in providing transportation for the field trips. This problem should be alleviated.

12. Weekly meetings of career education elementary teachers should have a defined purpose. More emphasis should be given to providing key activities that teachers can involve their students in to achieve program objectives. Demonstrations by other teachers and socio-drama activities would be useful. Previews of materials and films, tapes, filmstrips, or cassettes would be very helpful.

13. The 60 occupational guides translated into Spanish that were developed primarily for the upper elementary students should also be made available for the seventh and eighth grade students. There must be a wider distribution at the elementary level. Students should be encouraged to take them home to show and discuss contents with other family members.

In Conclusion·

It is recognized that the taks of moving the project ahead is monumental and the responsibility falls heavily upon the shoulders of the project administrative staff. This staff has done an excellent job of organizing teachers, materials and project concepts. As a consequence many new career education activities now exist in the Carolina School District. Another fine accomplishment has been the translation of all project classrrom materials into Spanish. These translation skills will be increasing in importance, with greater time and effort, as a wider array of materials, documents and books become available for the exemplary project.

CONCLUSIONS

At the conclusion of the first year of operations of Carolina's Progject and considering this year experiences we can conclude that :

1. It is necessary to provide broad occupational orientation to all the elementary students, not only to the 5th and 6th graders.

2. The teachers of the regular school program can participate in a career education program if adequate training is given to them.

3. The activities offered at the junior high level need to be reinforced so as to provide the female students direct experiences in occupational exploration and other activities for 7th and 9th graders.

4. It is necessary to continue providing training activities to the whole staff in charged of the direction of the regular program and to the personnel participating in the implementation of this project.

5. It is necessary to provide more curriculum and instructional materials to teachers and counselor.

6. A group guidance program should be reinforced at the secondary level, since the largest number of students make impossible the individual contact by counselor and student.

7. It is necessary to establish a Career Education Center in the district.

BIBLIOGRAPHY OF CURRICULUM AND INSTRUCTIONAL MATERIALS LOCALLY PRODUCED

A. Locally Produced Materials

1. World of Work - Career Development Program for the Elementary Grades - By Gerry P. McGinley, Research Assistant, Research and Educational Planning Center, College of Education, University of Nevada, Reno - 1971 - 72

2. Occupational brochures

Some of the brochures have been adapted from Nevada Employment Security Department, Manpower Information and Research Section. Others have been adapted from the Department of Education, Vocational Educational and Technical Area of Puerto Rico. The brochures have been designed to be used with elementary school children and with seventh graders. The material is mimeographed in colored paper and each brochure has desings illustrating the occupation and a description of the duties, job requirements, salary, working conditions, working hours, where to obtain the training, related jobs and where to go for additional information. The following brochures have been completed and distributed to elementary school teachers, students and counselors :

a. The Fireman
b. The Cadet
c. The Orderly
d. Practical Nurse
e. Programmer
f. Bagger
g. Farm - Equipment Operator
h. Farmer's Helper
i. Maintenance Man
j. Policen Woman
k. Nurse's Aid
l. Architect
m. Electrician
n. Cook
o. Typist
p. Waiter
q. Cabinet Maker
r. Painter
s. Body-Fender Repairman
t. Tool & Dye Maker

3. Other audiovisual aids

(1) Fifteen posters on the World of Work Program and Vocational Guidance for all levels. They have been displayed in the project schools.

4. Testing Materials

a. The Ohio Interest Inventory Survey (OVIS) was adapted for use with Puerto Rican students in the 8th. and 10th. grades. At the same time we modified the Students Career Interest Form to be used with the OVIS in the 10th grade.

b. A pre-testing instrument was administered to 5th. and 6th graders to determine their knowledge on occupations. The post-testing will be administered at the end of the school year to determine amount of information obtained by students after participation in World of Work program. This instrument was provided by project consultants and translated by project staff.

The testing program includes all students attending 5th, 6th, 8th and 10th grades in the project schools and control groups from other schools.

c. A questionnaire on future plans was administered to twelfth graders in both senior high schools.

5. The World of Construction - Teachers guide
The World of Construction - Laboratory Manual
The World of Construction - Textbook

All of these curricular materials were translate for use in Puerto Rico.

RECOMMENDATIONS

1. To continue making efforts for providing more career educational materials to elementary and junior high teachers and counselors.

2. A career resource center should be established in the district to provide ready access for the use of program materials, supplies and personnel.

3. To expand the elementary program to include grade 1 through 6. The school participating in the project does not offer kindergarten. This expansion requires the production of career development curriculum for grades K - 6.

4. Intensification of the training program to principals and teachers regarding integration of career development concepts to the general school program.

5. Discussion with the directors of the academic programs about the need to coordinate the school program focussing around the theme of career development.

6. To introduce a course in "Occupational orientation to 9th. graders.

7. A new 7th. grade curriculum material relation to clusters and World of Work will be introduced.

8. Planning will be completed for implementation of the World of Construction and World of Manufacturing in certain schools.

9. Expansion of the Crash Programs should take place to meet needs of the students and the employment demands.

10. To provided specific career orientation activities to the junior high girls, through a course in Home Economics.

11. Studies should be undertaken to increase the effective utilization of the Project Placement Officer and Cooperative Education Coordinator.

APPENDICES

MONTH	ACTIVITIES	PARTICIPANTS
February 25 to July, 1971	1. Discussion of the project with Carolina School District Superintendent.	School Superintendent Guidance Program Director, 1 Supervisor
	2. Discussion of the project with all the directory staff of the Carolina School District.	80 persons
	3. Recruitment and appointment of personnel for the following positions: Project Director-Miss Petra Díaz Project Coordinator-Mrs.Nérida Padró Project Consultants-Sierra Tahoe Research Associates Placement Officer-Mr. Juan Hernández Project Counselors : - Miss Teresa Salgado Miss Blanca Mawad Miss Aida L. Arroyo Mrs. Gloria Villegas Miss Sonia Cangiano Mrs. Andrea Figueroa Mrs. Rosa Mercado	
	4. In-service training for the project coordinator at the central office level.	Guidance Program Director, Project Coordinator
	5. The evaluation strategies for the progress of the project were determined during the first project evaluation carried out by the consultants from March 24 through March 26, 1972.	Dr. Jack C. Davis, Dr. Len Trout Dr. Robert McQueen
	6. A visit was made to the project schools with the company of the consultants. The purpose of this visit was to gather information concerning the number of students and teachers as well as other members that would be involved in the project. Physical facilities were observed to determine whether they could accommodate the project program.	8 project schools and their directors, 3 Project consultants, Guidance Program Director, Superintendent of schools, 1 Assistant superintendent, 3 Central Office Supervisors and Project Coordinator

MONTH	ACTIVITIES	PARTICIPANTS
February 25 to July, 1971	7. In-service training for 5th and 6th grade teachers was carried out by university professor.	University professor 34 teachers, 4 principals, 2 central office supervisors and 7 counselors
	8. Project staff translated the McGinley Guides for Career Orientation. These materials were used in the in-service training program for elementary teachers.	
	9. Meetings were held between project staff and vocational program directors to coordinate the implementation of the Crash Program.	3 Vocational Program directors Project Director
	10. One course in business education was organized for twenty-two high school graduates. It started in June, 1971.	22 high school graduates
	11. Meeting of project staff and consultants from June 7 thru June 8, 1971 to plan the implementation of the project.	Project staff Dr. Jack Davis
	12. Visit to the Crash Program group for evaluation	Dr. Jack Davis Project Director Project Coordinator
	13. Meeting with program directors and state supervisors to discuss the implementation of the World of Work Program	Mrs. Gladys Sánchez Miss Petra Díaz Social Studies Program Director 4 state supervisors
	14. A group of teachers directed by Project Coordinator worked in the preparation of the following curricula materials : (a) The World of Construction - They translated 64 lessons, 14 laboratory activities and 6 lectures (b) Occupational brochures - 78 occupational brochures were adapted and translated	Project Coordinator 1 counselor 8 teachers

MONTH	ACTIVITIES	PARTICIPANTS
February 25 to July/71	15. Discussion of the project with the director of Industrial Arts Program	Mrs. Gladys Sánchez Miss Petra Díaz Mr. M. Hernández - Industrial Arts Supervisor
	16. Activities for the in-service training program were scheduled and discussed with the school superintendent.	
	17. Attendance of two industrial arts teachers to a three-weeks workshop on the World of Manufacturing Program during the summer of 1971.	2 Industrial arts teachers
	18. Brief workshop for the placement officer to offer orientation about his duties and responsibilities.	Placement officer Project director Mrs. Gladys Abad de Sánchez
	19. Dr. Donald Lux, consultant from the Ohio State University, was contracted to offer a workshop to industrial arts teachers in the World of Construction Program	

PROJECT DEVELOPMENT LOG

MONTH	ACTIVITIES	PARTICIPANTS
I. AUGUST 1. Elementary Level	A. With faculty and other personnel	58 teachers and 3 school directors
	1. Elementary school counselors defined their duties and responsibilities in meetings with school directors and teachers.	Approximately 1,000 students starting with the third grade.
	2. Counselors visited classrooms to relate students with the guidance program and specially with the project.	5 teachers, 3 counselors and Project Director
	3. Newly appointed teachers and counselors participated in in-service training with project director, regional supervisors and project coordinator.	Regional Supervisor Project Coordinator
	4. All elelmentary school counselors and 5th and 6th grade teachers participated in second in-service training directed by Dr. Dana Davis, Project consultant, with the cooperation of project personnel. This training included: (a) pre-and post testing; (b) lessons on the World of Work program.	26 teachers, 3 project personnel, 1 consultant, 1 assistant superintendent and 4 school directors
	5. Meetings held with elementary school directors to review project proposal, bring them up to date with activities done since school closed in May and plans for this school year.	4 school directors, 3 project personnel, 1 assistant superintendent, 4 elementary counselors
	6. Elementary school counselors participated in meeting with the director of the guidance program from the Department of Education regarding their responsibilities in the Career Development Program within their schools.	1 Guidance Program Director, 1 Project director, 1 regular office supervisor, 1 Project coordinator
	B. With students	
	1. Individual interviews	39
	2. Group guidance (6)	215 students (5th and 6th.
	3. Referrals	3

MONTH	ACTIVITIES	PARTICIPANTS
2. Junior High School Level	A. With faculty and other personnel	
	1. Junior high school counselors met with school directors and teachers to define their duties and responsibilities and to organize different activities to implement the program.	103 teachers, 5 school directors and 5 counselors
	2. Meeting with Industrial Arts teachers to discuss the World of Construction and the participation of 8th grade male students in the program.	9 teachers and 3 counselors
	3. In-service training to Industrial Arts teachers on the World of Construction started late in August and continued for 2 weeks. Was directed by Dr. Lux.	13 Industrial Arts teachers, 1 Consultant, 2 Regional supervisors, 6 junior high school counselors, 3 school directors Project director and Project Coordinator
	4. School counselors held a meeting with practice teaching students to inform them about the project and the guidance program in José M. Lázaro Secondary School.	24 teachers, 1 social worker, 2 counselors and Project Coordinator.
	B. With students	
	1. Individual interviews	112 students
	2. Group guidance	2,060 students
	3. Referrals	5 students
	4. Placement (class)	6 students
3. High School Level	A. With faculty and other personnel	
	1. Meetings of counselors with school directors to discuss the project and the guidance program.	3 school directors 4 counselors
	2. Meeting of counselors with teachers and other school personnel to inform them about duties and responsibilities of the counselors and other project personnel and to distribute vocational guidance materials.	All high school teachers, 4 counselors, 2 social workers, placement coordinator, 2 school directors
	3. Meeting of counselors with placement coordinator to elaborate plan of action and to	Placement Coordinator, 4 counselors

MONTH	ACTIVITIES	PARTICIPANTS
High School Level	coordinate activities related to the Career Development Program.	
	4. Meeting with teachers and social workers to discuss questionnaire related to the identification of the potential drop-outs.	20 teachers, 4 counselors, 1 school director 2 social workers
	B. With students	
	1. Individual interviews	303 students
	2. Group guidance	28 students for cabinet making
	3. Other group guidance sessions	30 students
	4. Referrals	4 students
	5. Placements (within the school)	24 students
	C. Other activities	
	1. Interviews with parents	12
	2. Meetings with representatives from the Department of Labor in relation to youth employment norms.	
	3. Individual interviews with teachers, placement coordinator and social worker.	
	D. Placement	
	1. Visit to government and employment agencies to obtain information aobut employment of minors and job opportunities.	
	2. Interviews with students	10
	3. Inteviews with counselors	
II. September	A. With faculty and other school personnel	
1. Elementary level	1. Elementary school counselors held meetings with teachers participating in the implementation of the World of Work program to (a) review lessons prepared (b) formulate plans and activities (c) discuss with them their observations on student reaction	26 teachers, 3 counselors and 2 school directors

MONTH	ACTIVITIES	PARTICIPANTS
September	(d) discuss problems met by teachers in the development of the program	
	(e) guidance them in preparing the occupational notebook for students	
	2. In-service training to teachers for the testing program with 5th and 6th grade students	26 teachers and 3 counselors
	3. All elementary school counselors and school directors have visited the classrooms to observe the development of the lessons on the World of Work and student's reaction. Follow-up is being done.	22 teachers visited by counselors and school director
	4. Meeting with teachers from 1st. to 3rd. grade to explain the project, to relate them with the World of Work program developed in the schools, and with counselors responsibilities and duties.	17 teachers, 2 counselors and 1 school director
	5. Counselors and teachers worked together in preparing the lessons of the World of Work program.	26 teachers and 3 counselors
	B. With students	
	1. Individual interviews	77 students
	2. Group guidance	89 students
	3. Referrals	4
	C. With parents	
	1. Individual interviews	17 parents
	D. Other activities	
	1. Trip to neighboring commercial center to interview different workers: cashier, butcher, barber, pharmacist, secretary	20 students
	E. Pre-testing	
	1. Fifth and sixth graders of 4 project schools	783 students
	2. 4 control groups (from non-participant schools)	137 students

MONTH	ACTIVITIES	PARTICIPANTS
II September 2. Junior H. S. level	A. With faculty and other personnel	
	1. Meetings with faculty and personnel to discuss guidance activities and the World of Construction program.	60 teachers 3 counselors 3 school directors
	2. Industrial Arts teachers, school directors and counselors participated in a workshop on the World of Construction for two weeks.	13 teachers 7 counselors 3 school directors Project Director Project Coordinator 3 Regional supervisors
	3. Junior high school counselors participated in meetings with teams of teachers to discuss student's needs, problems and other aspects.	28 teachers 5 counselors
	4. Meetings with social workers, school psychologist to discuss special cases.	2 social workers 1 psychologist 2 counselors
II September 2. Junior H. S. level	B. With students	
	1. Individual interviews	324 students
	2. Group guidance (13 sessions) a) Adolescense b) Relationship between school and the occupational world. c) World of Construction d) Need to plan for the future e) Guidance services f) High school program g) School adjustment and academic achievement	775 students
	3. Referrals	7 students
	C. With parents	
	1. Individual interviews	32 parents
	2. Meetings with parents in each school	Parents from the schools participating in the project

MONTH	ACTIVITIES	PARTICIPANTS
II September 3. High School level	A. With faculty and other school personnel	
	1. Meetings with vocational teachers to determine which courses can be offered to 12th graders and high-school graduates in the second semester and to prepare questionnaire.	9 teachers 5 counselors Placement Officer
	2. Orientation to practice teaching students on how to prepare a case study and a sociogram.	14 teachers 2 counselors
	3. Meetings with placement officer and teachers of crash program to discuss progress of students in business course and plans for job placement in December.	Placement Officer 2 counselors 1 teacher Project coordinator
	B. With students	
	1. Individual Interviews	323 students
	2. Group guidance sessions a) Crash programs b) Cooperative course in cabinet making. c) Planning for the future d) School adjustment and academic achievement e) Vocational post-secondary schools f) College admissions g) Technical schools	502 students
	C. With parents	
	1. Meetings with parents of high school students	1 meeting in each high school with parents, teachers and school directors.
	D. Placement	
	1. Visit to industries in an effort to secure employment for students	
	2. Individual interviews with students	19

MONTH	ACTIVITIES	PARTICIPANTS
	F. Curriculum materials	
	1. Translation of 6 lectures from the World of Construction.	
	2. Preparation of posters related to the project for display in the schools and office.	
	3. Prepared and organized 26 notebooks for elementary school teachers with the lessons of the World of Work.	
	4. Prepared and organized questionnaire for high school students.	
III October	A. With faculty and other school personnel	
1. Elementary level	1. Presentation and discussion of the film "The Eyes of the Behoulder".	10 teachers 1 counselor
	2. Follow-up of program development through visits to classrooms and meetings to discuss teacher's logs.	Each counselor in her school
	3. Individual help to 6th grade teachers in the World of Work program.	3 teachers
	4. Case conference with 5 teachers counselor and school director.	1 counselor
	B. With students	
	1. Individual interviews	102 students
	2. Group guidance sessions	
	a) Conference: The Policeman and a film	61 students
	b) Conference: The World of Work	197 students
	c) Conference: Civil Defense	100 students
	d) The guidance counselor: class and interview.	132 students
	e) Career choice (conference)	59 students
	f) Visit and conference by a graduate nurse	25

MONTH	ACTIVITIES	PARTICIPANTS
	g) Visit and conference by 2 medical technologists (2 groups)	73 students
	h) Trip to Fruit Nectars Factory	20 students
	i) Good manners- Conference	48 students
	j) Importance of occupational notebook	15 students
	k) Orientation about the project	60 fourth grade students
	C. With parents	
	1. Individual interviews	16
	2. Meeting with parents	1 sheeting
	D. Referrals	13
III. October		
2. Junior H.S. level	A. With faculty and other school personnel	
	1. In-service training to 8th grade teachers on the OVIS (interest questionnaire)	All 8th grade teachers in project schools.
	2. Meeting with teachers to organize activities for the Orientation Week.	8 teachers 1 counselor
	3. Film "The Eyes of the Behoulder"	8 teachers
	4. Meeting with teachers to select students for special vocational program.	15 teachers 2 teachers
	5. Meeting with school resources to plan orientation activities for students.	5 teachers 1 counselor
	6. Meeting with faculty at Jesús T. Piñero school to explain the purposes of the project and the guidance services.	10 teachers 1 counselor 1 school director

MONTH	ACTIVITIES	PARTICIPANTS
	B. With students	
	1. Individual interviews	234 students
	2. Group guidance	
	a) High school curriculum	350 students
	b) World of Construction	175 students
	c) Business and Distributive Education courses	318 students
	d) Visit and conference by an agronomist	80 students
	e) Importance of planning for the future	35 students
	f) The vocational schools	280 students
	g) Trip to a vocational school	20 students
	h) Films: The Decision	200 students
	Who me?	190 students
	i) The World of Manufacturing	190 students
	j) The Occupational World - by Labor Department representative	60 students
	k) Apprenticeship programs	150 students
	l) Vocational and Rehabilitation services	22 students
	m) Group counseling _____	10 students 1 social worker 1 counselor 1 psychologist
	C. With parents	
	1. Individual interviews	19 interviews
	2. Meetings with parents	Parents, teachers and counselors in their respectiv schools
	D. Referrals	19 referrals
	E. Testing - OVIS	
	1. 8th graders of project schools	993 students
	2. Control groups (2 groups from non-participating schools)	62 students
October 3 High School level	A. With faculty and other personnel	
	1. Meetings with two teams of teachers for case conferences	10 teachers 2 counselors 2 social workers
	2. In-service training to 10th grade teachers on the Project 004	12 teachers 3 counselors Project coordinator
	3. Meetings with placement coordinator to discuss follow-up of students in the crash program	3 counselors placement coordinator 1 teacher

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MONTH	ACTIVITIES	PARTICIPANTS
October High School level	4. Meetings with teachers to keep them informed on the progress of the project in all school levels in the district	25 teachers 3 counselors
	B. With students	
	1. Individual interviews	
	2. Group guidance	
	a) Films: The Language Arts and the Occupations	403-10th graders
	Exploring the World of Mathematics	170 - 12th graders
	Chimestry and Physics and the Occupational World	
	b) Nursing (visit)	38 students
	c) Visit and conference by representative from the Banking Business for Business Education students	70 students
	d) Employment opportunities in the Elli Lily Co.	68 students
	Film: How Much is a Miracle	
	e) Film: Consumer's Education and conference	70 students
	f) Graduation requirements	80 students
	C. With parents	
	1. Individual interviews	20 interviews
	2. Meeting	50 parents
	D. Referrals	25 referrals
	E. Testing -OVIS and Student Career Interest Form	
	1. 10th graders from project schools	1,115 students
	2. Control groups	Not available yet
	3. Future plans questionnaire for 12th graders	500 students
	F. Curriculum materials	
	1. Correction and preparation of stencils for brochures on the painter, the fireman, the cook and the farmer's helper.	
	2. Translation of 14 lectures from the textbook The World of Construction.	

MONTH	ACTIVITIES	PARTICIPANTS
October High School level	F. Curriculum materials 3. Designs to illustrate lessons of Unit 11 of the World of Work. 4. Preparation of posters on occupations. 5. Prepartion of 3 posters illustrating activities on each school level to be used by Project Director in a conference to supervisors of neighboring district.	
	G. Placement 1. Visits to industries and commercial areas	55
	2. Interviews with students	173
	3. Students placed in jobs	5
IV November 1. Elementary School level	A. With faculty and other school personnel 1. Check teacher's logs and notebooks.	
	2. Visit to classrooms to observe student's reactions and participation in an interview.	
	3. Explained objectives and development of the projecto to students from the University of Puerto Rico during visit to Salvador Brau school with practice teaching professor.	6 UPR students 1 UPR professor 1 counselor
	4. Individual interviews with teachers to help them prepare test on the first unit and coordinate other activities.	5 teachers counselors
	5. Meeting with school teachers to help them prepare test on the first unit and coordinate other activities	5 teachers counselors
	6. Participation of teachers, Dr. Trout and Central and Regional supervisors in evaluation meeting at Salvador Brau.	6 teachers 3 Central Office supervisors Local Coordinator
	B. With students 1. Individual interviews	155

MONTH	ACTIVITIES	PARTICIPANTS
November Elementary level (cont.)	B. With students (continued....)	
	2. Group guidance	
	a. The World of Work	36 fourth graders
	b. Vocational interests	18-5th and 6th graders
	c. Conference: "Adolescense" by Mrs. Haydeé Dávila	169-5th and 6th grade (girls)
	d. Physical development: conference by 5 doctors	117-5th and 6th grade (boys)
	e. The occupational world	21 students
	f. Relationship between academic achievement and the occupational world	30-6th graders
	g. Guidance services	28-4th graders
	C. With parents	
	1. Individual interviews	19
	2. Conference: Adolescence	25 mothers
	D. Referrals	2
	E. Other activities	
	1. Visit to community agencies to coordinate trips and conferences for the students	Agricultural Extension, Fire Department, Health Department and Mayor's Office
	2. Trip to San Juan	60 - 6th graders
IV. 2. Junior High School Level	A. With faculty and other school personnel	
	1. Participated in orientation meeting with Health Supervisor, school director and teachers	8 teachers, Health Supervisor, School director and Guidance Counselor.
	2. Participated in meeting with teachers to discuss learning problems of students	4 teachers, school director and guidance counselor.
	3. Discussion of cases with teachers and social worker	14 teachers, guidance counselor and social worker
	4. Meeting with teachers for distribution and discussion of occupational materials to be used in homerooms.	6 teachers and guidance counselor

MONTH	ACTIVITIES	PARTICIPANTS
Junior High School Level	B. With students	
	1. Individual interviews	290 students
	2. Group guidance	
	a. Human relationships and job sucess	53 student (9th graders)
	b. Vocational interests and the occupational world	254 students (8th graders)
	c. Vocational courses	40 (9th graders)
	d. Proper use and distribution of time.	32 students (7th graders)
	e. Future plans and academic achievement	369 students (8th graders)
	C. With parents	
	1. Individual interviews	29
	D. Referrals	6
	E. Placement (in other groups)	6
	F. Other activities	
	1. Visit to Labor Department to gather information about job op portunities for students, emploment of minors, and resources for orientation to students.	
	2. Evaluation visit of Dr. Trout to Industrial Arts shop to observe existing facilities.	
	3. Survey of questionnaires on vocational interests.	84 questionnaires (7th grade)
IV - November 3. High School Level	A. With faculty and other school personnel	
	1. Meeting with Dr. Davis, Mrs. Sánchez, Miss Díaz, Mrs. Espada local coordinator, counselors and school director for on site evaluation visit.	15 persons
	2. Meeting with teachers to distribute and discuss with them materials on vocational orientation to be used in homerooms.	15 teachers, Counselor

MONTH	ACTIVITIES	PARTICIPANTS
IV. November		
3. High Schol Level (cont)	3. Individual interviews with teachers on special cases.	9 teachers counselors
	4. Meeting of placement task force	8 persons
	B. With students	
	1. Individual interviews	223
	C. Group guidance	
	1. Vocational courses	100 students (10-12)
	2. How to apply for a job	11 students
	3. With carpentry group	19 students
	4. Conference to students about jockey course	17 students and one representative from racetrack
	5. Academic achievement and job success	73 students (10-12)
	6. How to fill an application from technical courses	60 students
	D. With parents	
	1. Individual interviews	10
	E. Referrals for employment	10
	F. Placement Officer	
	1. Visits to agencies and possible employment centers.	27
	2. Interviews with students	14
	3. Job placement	21
	4. Meeting with Placement Task Force	8
	G. Materials prepared	
	1. Translation of 22 reading lessons from the World of Construction.	
	2. 14 occupational brochures were produced.	
	3. 4 additional stencils were prepared.	

MONTH	ACTIVITIES	PARTICIPANTS
IV. November 3. High School Level (cont)	G. Other activities	
	1. Survey of vocational interests questionnaires	157 (12th grade)
	2. Participation in meeting with supervisors from central and regional offices regarding the cooperative course in cabinet-making.	10 persons
December		
1. Elementary Level	A. With faculty and other school personnel	
	1. Individual interviews with teachers.	6
	2. Check up teacher's logs	3
	3. Meeting with new school director to relate her with the project	1 director counselor
	B. With students	
	1. Individual interviews	79
	2. Group guidance	
	a. The World of Work	40 studens (4th grade)
	b. Guidance service	1 teacher and 40 students
	C. With parents	
	1. Interviews	4
	2. Meeting with parents to explain to them the development of the project.	80 parents
	D. Other activities	
	1. Visit to the newspaper El Mundo to observe duties performed by personnel	30 students, 1 teacher and counselor
	2. Two trips to factories to relate students with the labor force.	100 students, 5 teachers and 1 counselor
	3. Two trips to the television station to observe working conditions, responsibilities of personnel.	70 students, counselor and 2 teachers

MONTH	ACTIVITIES	PARTICIPANTS
December 2. Junior High School Level	B. With students	
	1. Individual interviews	124
	2. Group guidance	
	a. Vocational interests	200 (9th grade)students
	b. Relationship between academic achievement and your future occupation	36 (8th graders)
	c. The business education course	14 students
	d. Occupations related with science medicine, medical technology, etc.	24 students
	e. The world of occupations	30-9th graders
	C. Referrals	3
	D. With parents	
	1. Interviews	17
3. High School Level	A. With students	
	1. Individual interviews	67
	2. Group guidance	
	a. Possible crash programs to be offered	128 students (12th) and 3 teachers
	b. Meeting with students partici pating in the cooperative course in cabinet-making	18 students, Cooperative Education Coordinator
	c. Meeting with 12th graders to explain duties of cooperative educator	200 students, Cooperative Educator
	d. Orientation on the school of jockeys.	15 students, Representatives from the racetrack Cooperative Educator
	B. With parents	
	1. Interviews	3
	C. Activities by other project personnel	
	1. Placement officer	
	a. Visits to industries	10
	b. Follow-up visits to students already employed.	7
	c. Contact with other programs such as Home Economics and course in cabinet-making	

MONTH	ACTIVITIES	PARTICIPANTS
December High School Level (cont)	C. Activities (cont.....)	
	d. Placement of students	11
	2. Cooperative Education Coordinator	
	a. Interviews with vocational teachers	9
	b. Study of 118 questionnaires of 12 graders to identify students interested in taking vocational courses in the second semester. A total of 51 students were identified.	
	c. Participated in meeting with representatives from central and regional offices to coordinate follow-up of students in cabinet-making course.	9 persons
	d. Follow-up visits to Rodfal Industries where students are working to discuss their progress and determine additional help within the school.	
	e.Crash programs selected by students.	
	(1) Business education	35
	(2) Drafting	25
	(3) Advance Sewing	20
	D. Other activities	
	1. Tabulation of 118 questionnaires on future plans administered to twelfth graders.	
	2. Selection of candidates for crash programs.	
	3. Coordination of orientation activities to twelfth grade students about vocational courses in January.	
	4. Visit to the budget offices to coordinate possible placement of students from the accelarated commercial course.	
	5. Participation in meetings with the general and regional supervisors, school superintendent assistant, director, local coordinator and counselor at José M. Lázaro school to clarify cooperative and placement officers reponsibilities in the cabinet-making course.	9 persons

MONTH	ACTIVITIES	PARTICIPANTS
December High School Level (cont.)	C. Material production 1. Continue working in the preparation of the brochures related with the teacher and the shoemaker. 2. Continue working in the translation of materials related to the World of Construction.	
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January		
1. Elementary Level	A. With faculty and other school personnel	
	1. Case conferences on cases to be referred to the Mental Hygiene Clinic and Social Service.	8 teachers and counselor
	2. Conference by psychologists to help teachers understand student problems.	4 teachers, 3 psychologists and counselor
	3. Meetings with fifth and sixth grade teachers to coordinate and organize activities for the World of Work.	10 teachers and counselor
	4. Meeting with teachers and school directors to evaluate progress of the project during the first semester.	26 teachers, 4 counselors and school directors
	5. Meeting with school director to coordinate the following activities: a. evaluate filmstrips related to the World of Work b. organize a group of students as student counselors. c. trips d. meeting with parents e. group guidance and group counseling sessions f. other community resources to be utilized in the development of the program	
	B. With students	
	1. Individual interviews	133 interviews

MONTH	ACTIVITIES	PARTICIPANTS
January	B. With students (cont.....)	
	2. Group guidance	
	a. The world of work	128 students
	b. The value of school subjects	76 students
	c. Guidance Services and the World of Work	37 students
	d. There are a great variety of occupations	36 students
	e. Vocational interest question naire	80 students
	f. Conference: Job Opportunities	79 students
	g. Study habits	40-6th graders
	h. Orientation to fourth graders on the World of Work	43-4th graders
	i. The Practical Nurse-conference	10-5th graders
	j. Teaching of songs related to the World of Work	60 students
	3. Group counseling	
	a. Study habits	1 group of 5 students
	C. With parents	
	1. Individual interviews	10
	D. Referrals	
	1. To rehabilitation services	2
	2. To Mental Hygiene Center	2
	3. To Social Service Department	2
	E. Other activities	
	1. Follow-up on teacher's log	
	2. Preparation of audiovisual materials for teachers and students	
	3. Preparation of study habits questionnaire	
	4. Administration of the questionnaire to 78 sixth graders, 37 fifth graders and 43 fourth graders.	
	5. Administration of test of General Ability to fourth graders.	
	6. Group guidance to 6 new arrivals in the sixth grade on the guidance program and the World of Work.	
	7. Orientation to teachers on the use of the brochures.	

MONTH	ACTIVITIES	PARTICIPANTS
January	E. Other activities (cont.....)	
	8. Prepared and aministered vocational interest questionnaire to 5th and 6th graders.	
	9. Selection and meeting with 12, 5th and 6th grade students who will be members of the students' counselors club at Salvador Brau	12 students, counselor and school director
	10. Participation in the evaluation of the project with N.Y. Officials, supervisors and local personnel.	
2. Junior High School Level	A. With faculty and other school personnel	
	1. Meetings with school directors and teachers to evaluate progress of the guidance program during the first semester.	28 teachers, counselors and school directors
	2. Meeting with school directors and Industrial Arts teachers to check materials to be used in the World of Construction and to select students to be involved	3 teachers, 1 school director, 3 counselors, Coordinator, Program director and Project Director
	3. Orientation to 9th grade teachers for the administration of a vocational interest questionnaire	5 teachers and counselor
	B. With students	
	1. Individual interviews	113 interviews
	2. Group guidance	
	a. Orientation to students that will participate in the World of Construction	15-8th graders (boys)
	b. Vocational interests	12-8th graders
	c. The importance of academic subjects	40-8th graders
	d. Watched and discussed with eighth and ninth graders the program "Ambush"	166 students
	e. Orientation to 9th grade about the high school program and the vocational school	31 students
	f. Exploring the occupational world	70-9th graders

MONTH	ACTIVITIES	PARTICIPANTS
2. Junior High School Level (cont...)	C. With parents	
	1. Individual interviews	15
	D. Referrals	
	1. Medical Center	1
	2. Other School	1
	3. To optometrist	6
	4. For employment	1
	5. To rehabilitation services	1
	E. Other activities	
	1. Helped social workers in the organization of groups to watch television programs.	
	2. Participated in the evaluation of the project with N. Y. Officials, supervisors, and local personnel.	
	3. Coordinated conference for 8th graders with Metropolitan Builders (Construction firm).	
3. High School Level	A. With faculty and other school personnel	
	1. Coordinated new crash program in business education with teacher and school director.	Cooperative Education Coordinator, School Director, Teacher and Counselor
	2. Interviews with teachers to discuss cases of students presenting learning difficulties, need of changes in school program.	51 interviews
	3. Meeting to evaluate the guidance program	20 persons
	4. Orientation about the guidance program to new group of practice teaching teachers.	38 persons
	5. Orientation to teachers on how to deal with students who are undecided in their future plans.	7 teachers of 10th. graders and counselor
	6. Gave orientation to newly appointed counselor about the high school curriculum.	2 persons
	B. With students	
	1. Individual interviews	380 interviews

MONTH	ACTIVITIES	PARTICIPANTS
High School Level (cont.)	B. With students (cont....)	
	2. Group guidance	
	a. Orientation about course in technology to students participating in cabinet-making program	17 students, Counselor Placement Coordinator and Cooperative Education Coordinator.
	b. Orientation to students interested in taking crash program in business education.	30 students
	c. Conference: "Career Academy" by Mr. Enver Azizi	100 students
	d. Orientation about the Puerto Rico Junior College	48 students
	e. Discipline and absences	24 students
	f. Orientation about course in electromechanics	2 teachers, 62 students and counselor
	g. Professional nursing-Conference by representative from the Medical Center	50 students
	C. With parents	
	1. Individual interviews	131 interviews
	D. Other activities	
	1. Administered OVIS interest inventory to 10th graders in neighboring district (control group).	73 students
	2. Interview with social worker to discuss cases of students presenting problems of adjustment.	
	3. Referral of graduating students for college scholarships and economic assistance.	
	4. Guided twelfth graders in filling out admission forms to universities.	
	5. Checked academic records of twelfth graders.	
	E. Cooperative Educative activities	
	1. Follow-up visits to students	7 visits
	2. Organization of crash program	
	a. Business education (started already)	27 students
	b. Advanced sewing	22 students
	c. Technical drawing (These	

MONTH	ACTIVITIES	PARTICIPANTS
High School Level (cont.)	E. Cooperative Educative (cont.....)	
	courses will start in March)	26 students
	3. Job referrals	21
	a. out of school youths	2
	4. Contacts with the industry and vocational centers	6
	5. Interviews with students	20
	6. Professional meetings	6
	F. Placement Officer's Activities	
	1. Interviews with students	26
	2. Professional meetings	3
	3. Visits to the industry and possible job centers	15 visits
	4. Placed in jobs	6
	G. Curriculum materials	
	1. Prepared 4 additional lessons for Unit III of the World of Work.	
	2. Prepared in pamphlet from the following materials for the World of Construction:	
	a. 18 laboratory activities with illustrations	
	b. 38 lessons (guide for teacher)	
	c. 48 readings (for students)	
	3. Prepared sketches for elementary school brochures.	
	4. Reviewd materials to start working in lessons for the grades K through 4.	
	H. Other activities	
	1. Participation in first year evaluation visit with Dr. John Stahl, Senior Program Officer	Project staff, Central office supervisors, school directors, teachers, Regional Office Supervisors.
	2. Visit to Rolling Hills, with educators from Santo Domingo to related them with the project.	Regional Supervisors, Project Coordinator, School Counselors, School principal and two visitors

MONTH	ACTIVITIES	PARTICIPANTS
February/72	A. With faculty and other school personnel	
1. Elementary Level	1. Meeting with fifth and sixth grade teachers to discuss lesson III of the World of Work.	17 teachers and 3 counselors
	2. Meetings with school directors and teachers to coordinate out of school activities.	2 school directors, 12 teachers and 2 counselors
	3. Meetings with fifth and sixth grade teachers to discuss logs and to evaluate progress of lessons.	5 teachers, counselor and school director
	4. Individual interviews with teachers to discuss special cases.	8 teachers and counselors
	B. With students	
	1. Individual interviews	189 interviews
	2. Group guidance	
	a. To organize out-of-school activities.	40 students (fifth and sixth grade)
	b. Group discussion of trip to Veterinarian Clinic	16 students, teachers and counselor
	c. The importance of obtaining satisfactory school marks.	67 students (sixth grade)
	d. Film: Our Friend the Policeman	2 policemen, 200 students (5th and 6th grade) 6 teachers
	e. Why we attend school	21 students
	f. The World of Occupations	210 students and 4 counselors
	g. The school social worker	164 students (5th and 6th grade)
	h. The fireman - conference	40 students and counselors
	i. The typist - conference	40 students and counselors
	j. Meetings with 5th graders to discuss their reactions to the lessons.	89 students, counselor and 2 teachers
	k. Orientation to third and fourth graders about the World of Work.	38 students (third graders) 30 students (fourth grade) and counselor
	l. The policeman, the policewoman and the fireman, duties, responsibilities, nature of work.	74 students (fourth graders) and counselor
	m. The sheet-metal worker	10 students and counselor

MONTH	ACTIVITIES	PARTICIPANTS
Elementary Level	B. With students (cont...)	
	3. Other activities with students	
	a. Trips to Ceramics factory (Isla del Sol) to watch workers sharing responsibilities and to interview some of them (2 schools).	65 students, 2 teachers, 2 counselors and 5 parents
	b. Visit to a Veterinarian Clinic to interview the doctor	16 students
	c. Students learned the song "Work"	35 students (5th. grade)
	d. Trip to the airport to observe the different persons working there. Students interviewed a pilot, a co-pilot and air-hostess and a ground hostess.	20 students, 1 teacher, counselor and 2 parents
	e. Visit to Kodak Company. Students observed the organization of the company and saw a film: Cameras and Careers.	16 students, counselor, teacher and 2 parents
	f. Four students visited the Veterinarian Clinic to watch a cat's surgery (by special invitation from doctor)	4 students and counselor
	g. Acquainted new students and teacher with the World of Work program.	6 students, counselor and 1 teacher
	h. Visited classroom to observe student's reactions to lesson	42 students, counselor and teacher
	i. Explained the development of the project to visitors from Santo Domingo: Dr. Rubiano and Mrs. Olva Hernández, from the State Secretary of Education.	2 visitors, 1 regional supervisor, project coordinator, school director and counselor
	j. Administered short questionnaire on interests to 4th graders.	64 students
	k. Trip to Cardboard factory	15 students
	C. With parents	
	1. Individual interviews	5
	2. Parent's meeting	20 parents
	D. Referrals	
	1. To Medical Center	10
	2. To Social Services	1
	3. For psychometric testing	6

MONTH	ACTIVITIES	PARTICIPANTS
2. Junior High School Level	A. With faculty and other school personnel	
	1. Meeting with teams of teachers to work with students profile.	25 teachers
	2. Orientation to new counselor	
	3. In-service training to teachers on administration of the General Ability Test.	23 teachers and counselors
	4. In-service training to 9th grade teachers for the administration of future plans questionnaire.	9 teachers and counselors
	5. Meeting with teachers to identify students presenting different types of problems.	7 teachers and counselor
	6. Orientation to teachers about courses offered at the vocational schools requirements for admission.	6 teachers and counselor
	7. Worked closely with 8th grade teachers to coordinate future home-room activities and for the distribution of materials.	7 teachers and counselor
	B. With students	
	1. Individual interviews	317 interviews
	2. Group guidance	
	a. The other friend-T.V. programs - discussion with 9th graders.	62 (8th graders) and (9th graders)
	b. Love is..T.V. Program discussion	107 (8th and 9th graders)
	c. Orientation about the academic high school curriculum and the vocational schools.	706 (9th graders)
	d. Importance of staying in school until graduation.	101 (7th and 8th).
	e. The nursing career - by Mrs. Angela Collazo - graduate nurse	21 students
	f. Vocational interests	36 students
	g. Role playing-The Job Interview	8th graders
	3. Group counseling	
	a. Students attitudes	4 students
	b. Exploring students vocational interests	90 students (15 sessions)

MONTH	ACTIVITIES	PARTICIPANTS
Junior High School Level	C. With parents	
	1. Individual interviews	50 interviews
	2. Meetings with parents	41 parents
	D. Referrals	8 (Mental Hygiene Clinic and Social Service Department)
	Out of school youths to vocational programs	3 referrals
	E. Other activities	
	1. Administration of future plans questionnaire to 9th graders.	322
	2. Participated in meeting with Regional Supervisor and local coordinator to discuss different aspects of the guidance program.	
	3. Coordinated and supervised administration of test of General Ability.	921 (7th graders)
	4. Coordinated with the social work department and activity to offer group work techniques to teachers	2 counselors, 2 social work supervisors
	5. Participated in meeting with Health Committee.	11 persons
	6. Received in-service orientation at Miguel Such Vocational School	
	7. Received in-service orientation on the new curriculum in business education.	
	8. Coordinated visit of 9th graders from a rural school to the high school.	2 school directors and 4 counselors
	9. Two trips to a construction work in the neighborhood.	28 students (8th graders), 2 Industrial Arts teachers and counselor
	10. Participated in meeting of local supervisory staff.	
	11. Contacts with community agencies such as Employment Security Office, Vocational and Rehabilitation Services, Mental Hygiene Clinic, Social Service Department and CRUV.	
	12. Checked academic records of ninth graders.	

MONTH	ACTIVITIES	PARTICIPANTS
Junior High School Level (cont...)	E. Other activities (cont...)	
	13. Prepared and distributed educational and vocational materials to teachers.	
3. High School Level	A. With faculty and other school personnel	
	1. In-service training to 9 student teachers on case studies, interviews and home visits.	9 teachers and counselor
	2. Meeting with social worker to organize seminar on the use and abuse of drugs for 11th. graders	
	3. Individual interviews with teachers to help them deal with student's problems and to plan necessary activities.	68 interviews counselors
	4. Individual interviews with other school personnel: social workers, placement coordinator, cooperative education coordinator, school directors.	18 interviews counselors
	B. With students	
	1. Individual interviews	614 interviews
	2. Group guidance	
	a. Occupational opportunities through the army-by Sargent Torres.	104 students (boys and girls)
	b. Study habits	67 students (10-11-12)
	c. Improving your high school marks	235 students, counselor
	d. Requirements for admission to regional colleges and application forms	90 students (12 grade)
	e. Conference: The Institute of Business Education - by Mr. Morales and Mr. Anselmi	102 students, 2 teachers and 2 counselors
	f. Student's behavior and achievement	73 students (11th grade) 2 teachers and counselor,
	g. New graduation requirements for high school students.	129 students (10th. grade)
	h. Ramírez Commercial and Technical School, by. Dr. Junco and Lcdo. Negroni	60 students, 2 teachers and counselor

MONTH	ACTIVITIES	PARTICIPANTS
3. High School Level	B. With students (cont....)	
	i. Meeting to complete applications for admission to Miguel Such Vocational School.	17 students and counselor
	3. Referrals	
	a. For vocational and rehabilitation services.	14
	b. To Employment Security Office and industries for possible job placement.	82
	c. To College Entrance Examination Board.	21
	d. To school social worker	6
	e. For dental services	4
	f. To optometrist	4
	g. To evening school	1
	C. With parents	
	1. Individual interviews	60 interviews
	D. Other activities	
	1. Participated in 3 meetings at Rodfal Industries with Superintendent of Schools, coordinators, school director, students	18 persons, 2 counselors Cooperative education Coordinator
	2. Participated in meeting with local supervisory staff to evaluate the district's plan of work and to inform about the progress of the project.	
	3. Studied student's cummulative record cards to select candidates for summer school.	178
	r. All counselors attend meeting at Miguel Such Vocational School to receive orientation about vocational courses that will be offered in August.	
	5. All secondary school counselors received orientation on the new curriculum on business education.	
	6. Explained the development of the project and the guidance program in the secondary level to visitors from Santo Domingo Dr. Rubiano and Mrs. Olva Hernández, from the State Secretary	2 visitors, 1 Regional supervisor, Project Coordinator, 2 counselors and 1 school director

MONTH	ACTIVITIES	PARTICIPANTS
High School Level	D. Other activities (cont.....) of Education. 7. All counselors attended meeting with Regional Supervisor to discuss activities for the month of March and to receive orientation on the annual report. E. Activities performed by other project personnel 1. Curriculum technicians a. Translation and adaptation of 10 activities of the Laboratory Manual for the World of Construction. b. Preparation of 3 additional lessons for Unit II of the World of Work. c. Initiated work on the first lessons for the K-3 curriculum. d. Read introductions to Elementary Guide for Career Development and the North Dakota Project related o the world of work in preparation for the K-6 curriculum. e. Started revision of the Teacher's Guide of the World of Construction. f. Other activities (1) Curriculum technicians participated in seminar organized by the Department of Education at the Regency Hotel for one week. The following activities were emphasized: (a) how we improve our instruction (b) coordination, planning and organization (c) specific learning objectives based on condition behavior and criteria (d) planning vocational instruction (e) the learning package as instructional media	

MONTH	ACTIVITIES	PARTICIPANTS
High School Level	E. Activities performed (cont....) (f) laboratory work-shop-production of a learning package. Theme: The Importance of Mathematics in the Occupational World 2. Cooperative Education Coordinator a. Visited different industries to discuss with employers the possiblity of obtaining their cooperation in the organization of job experience centers for our students. b. Prepared complete follow-up report of the students participating in the cabinet-making course. c. Follow-up interviews to students enrolled in the crash program on business education d. Follow-up visits to students placed in vocational courses at Barbosa School in the industry. e. Daily visits to Rodfal Industries to observe student's progress and to discuss with their employer their difficulties. f. Participated in 3 meetings at Rodfal Industries with Superintendent of Schools, School director, students, counselors and Central and Regional Office Supervisors. g. Follow-up of students participating in the Work-Study Program in school. h. Visited Julio V. Coronado High School and had meetings with 7 groups of 12th graders to acquaint them with the crash programs to be organized. i. Prepared lists of the 29 students interested in taking course in drafting. j. Gave class on human relations to students enrolled in the crash program on business education.	

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MONTH	ACTIVITIES	PARTICIPANTS
High School Level	3. Placement Coordinator a. Selected 5 students to participate in Work-Study Program at Julio V. Coronado High School and acquainted them with their duties and responsibilities, working hours, salariey, etc. b. Follow-up visits to students already working. c. Contacts with the following agencies: (1) Agricultural Extension Department (2) Department of Labor (3) Department of Treasury (4) Office of Personnel at La Fortaleza d. Visits to the following industries : (1) Pueblo Supermarket (2) Edis Laundry (3) Gem (4) Rodfal Industries e. Referrals	26

VT 016 221
SALVAGIN, CARLTON E.
COMPUTER AND PHOTOGRAPH TECHNOLOGY UTILIZATION IN GRAPHIC COMMUNICATIONS WITH CURRICULUM IMPLICATIONS FOR INDUSTRIAL ARTS.

STATE UNIV. OF NEW YORK, OSWEGO. DEPT. OF INDUSTRIAL ARTS AND TECHNOLOGY.
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DESCRIPTORS - *GRAPHIC ARTS; *COMPUTER GRAPHICS; PHOTOCOMPOSITION; *REPROGRAPHY; *PHOTOGRAPHY; COMMUNICATIONS; INDUSTRIAL ARTS; INDUSTRIAL EDUCATION; ENGINEERING DRAWING; *DRAFTING; TECHNICAL ILLUSTRATION; DATA PROCESSING

ABSTRACT - UNTIL RECENT YEARS DRAFTING WAS A MANUAL SKILL BUT NOW THE VOLUME AND COMPLEXITY OF ENGINEERING DRAWINGS REQUIRE AUTOMATED SYSTEMS INVOLVING PHOTOGRAPHIC AND COMPUTER TECHNOLOGIES. THIS PAPER PRESENTS A RESEARCH AND EXPERIMENTATION PROPOSAL TO DEVELOP A UNIT IN PHOTO-DRAFTING FOR THE DEPARTMENT OF INDUSTRIAL ARTS AND TECHNOLOGY AT THE NEW YORK STATE UNIVERSITY COLLEGE AT OSWEGO. SPECIFIC RESEARCH AND LABORATORY EXPERIMENTATION WERE CONDUCTED IN COMPUTERIZED DRAFTING, DIGITAL PLOTTING, COMPUTER-AIDED DESIGN, AND PHOTOGRAPHIC DRAWING AND PROCESSES. TRIPS WERE MADE TO SEVERAL INSTALLATIONS TO STUDY FACILITIES USING THESE TECHNIQUES. DETAILED DESCRIPTIONS OF THE SCOPE AND SIGNIFICANCE OF COMPUTERIZED DATA PROCESSING AND THE APPLICATION OF PHOTOGRAPHIC METHODS AND PROCESSES IN GRAPHIC COMMUNICATIONS ARE GIVEN, WITH CONSIDERATION FOR IMPLEMENTATION OF PHOTO-DRAWING IN THE INDUSTRIAL ARTS PROGRAM. (MF)

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The State University College
Department of
Industrial Arts and Technology
Oswego, New York

COMPUTER AND PHOTOGRAPH TECHNOLOGY UTILIZATION IN GRAPHIC COMMUNICATIONS . . . WITH CURRICULUM IMPLICATIONS FOR INDUSTRIAL ARTS

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Carlton E. Salvagin
Assistant Professor

Fellowship and Staff Development Program

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INTRODUCTION

The draftsman plays a key role in the stages between product idea and manufacture. It is very important that his job keep pace with the ever increasing developments in technology and that his talents and time be used to the fullest. Consequently, it is very important that the number of ways to speed and simplify drafting procedures be increased to give time for creative planning and assignments.

In the past, drafting has been dependent entirely upon the manual skills of experienced technical people. Until recent years, manual methods were adequate for the volume, complexity, and accuracies involved. Presently, however, the technological explosion and the increasing sophistication of processes and products has created extensive demands on the reservoir of trained manpower. In addition, in many areas there is now a volume requirement for drawings which are so complex and precise that they cannot be accomplished by manual skills.

Due to increased demands, manual drafting costs have increased tremendously. The availability of experienced drafting personnel has lagged far behind the demand. To meet this enormous technical workload, industry has come to depend upon automated systems to increase the effectiveness and capacity of engineering drafting and manufacturing personnel. The application of photographic and computer technologies to drafting has been the result.

This paper is an attempt to avoid professional absolescence by exposing persons to TODAY'S techniques and engineering tools to solve today's problems.

PROPOSAL

After considering the objectives of the Staff Development Program and conducting a graphic communications staff evaluation at State University College at Oswego, the need to undertake a study of the most recent developments in the technical drafting field and the effects of these developments upon people and organizational structures became evident. Because of the rapid and almost daily changes taking place, as well as the inability to keep abreast of knowledge regarding the most recent accomplishments, a study was proposed which would encompass an overview of these developments, as applied in industry, with emphasis upon computerized and photographic drawing and reproduction. A foundation for the aforementioned must, of course, be incorporated.

The study began with an overview of computers and photography; specifically, their definitions, functions, operations, applications, and impacts upon individuals and groups in our society. "What changes have occurred?" How do these technologies effect individuals and organizations?" "What is the outlook for the future?" These questions had to be answered as part of the inquiry in achieving the initial objectives of this research.

There were many other aspects of each technology to which additional time was devoted and budgeted. The more technical study of the topics were undertaken as the second stage of the research. Computer study denotes hardware, but not to be excluded is the entire world of data processing including encoding, storage, retrieval, and dissemination/communication. Photography, on the other hand, involves many facets dealing with lights, chemicals, time, angles, etc. It was expected that many concepts and much understanding would be gained through the in-depth study of this phase.

At the present time, there is no offering in S.U.C.O.'s industrial arts program which provides the students with an opportunity to study and explore these most recent developments and their effects upon our complex industrial society. If industrial arts is to interpret our technological culture, consideration must be made to expose potential teachers of this curriculum to the most recent developments as well as the accepted standards and conventions.

Technical competency alone is not considered a sufficient goal for the acquisition of desired appreciations concerning the impact of these newest technical achievements. A related awareness must therefore be developed encompassing the entire industrial structure including its human and organizational components.

OBJECTIVES:

This research and experimentation proposal had the following objectives:

1. To develop a broad understanding of the function and utilization of the computer in business, industry and education.

2. To develop a broad understanding of the function and utilization of photography in business, industry, and education.

3. To enhance the knowledge of the researcher in the area of industrial organization and management with emphasis upon the effects of photography and computerization upon same.

4. To familiarize the researcher with the most recent developments in the drawing field with emphasis upon the application of photography and computerization.

5. To develop competence in photo-drafting techniques through laboratory experimentation.

6. To develop a unit or course in photo-drafting for the department of Industrial Arts and Technology.

7. To prepare a report for dissemination to the Industrial Arts profession.

PROCEDURES:

Activities undertaken to meet the objectives of this program included:

1. General research of recent publications dealing with the broad effects and utilization of the computer in business, industry, and education.

   a. industrial organization and management.
   b. the human factors of industry.
   c. the effects of innovation and automation upon the human and organizational structures of industry.

2. Specific research involving:

   a. computerized drafting and digital plotting.
   b. computer-aided design.
   c. the broad effects and utilization of photography in business, industry, and education.
   d. photographic drawing.
   e. photographic reproduction.

3. Laboratory experimentation with:

   a. photographic processes-basic
   b. photographic copying.
   c. photographic projection.
   d. photographic reproduction.
   e. photographic drawing.
   f. computerized drawing.

4. Travel to:

   a. General Motors Design Division - Detroit, Michigan

      1) computerized design.
      2) computerized drawing.

   b. Calcomp (California Computer Products, Inc.) - Anaheim, California.

      1) newest developments in computer aided design and drafting.
      2) manufacture of computers and digital plotters.

   c. Syracuse University - Dept. of Engineering - Syracuse, New York.

      1) computer applications to graphic communication.
      2) curriculum implications.

   d. Eastman Kodak Company - Rochester, New York

      1) photographic drawing and reproduction.
      2) equipment and materials for photo-drawing.
      3) newest developments in the field.

Research was conducted on campus, at home, and by visitation. The facilities utilized included personally collected literature, curriculum library materials, campus library materials and services, and the campus computer center.

Experimentation was conducted in the facilities at State University College at Oswego - Ontario B-5 and 357 with consideration for implementation of photo-drawing in our industrial arts program.

TANGIBLE RESULTS:

The following represent the results of this research:

1. Slide series of photo and computer drafting.
2. Photo laboratory data book.
3. Photo laboratory procedure booklet.
4. Prints of photo drawings.
5. Exploded isometric-assembly photo drawing.
6. Photo drawings of various objects.
7. Associated overhead projector transparencies.
8. Collection of computer drawings and computer output.
9. Aerial photographs.
10. Collection of prints showing computer art.
11. Collection of brochures, booklets, pamphlets, and publications by industries dealing with photographic and computer technology.
12. Photo reproduction and restoration samples.
13. A comprehensive report covering the utilization of photographic and computer technology in graphic communications.
14. Foundation for 2 magazine articles on technical illustration and industrial education are included. See App.A&B

This report encompasses items 13 and 14 only. Readers are invited to write to Mr. Salvagin regarding the possible use of other materials listed (items 1 - 12).

Computers in Graphic Communications

General background

Without a doubt, no other development has had more impact upon American industry than the widespread application of the digital computer. Certainly no other single item of capital goods has changed the basic terms of so many human activities in so short a time. Within a few years, it has profoundly altered the techniques of science and has provided a new basis for the strategies of national defense. It has, and will continue to become a powerful instrument for making business more creative and efficient. In industry, it has made possible the handling of enormous amounts of data and the solving of complex mathematical problems at fantastic rates of speed. The range of application of computers and data processing equipment has been extended to almost every field including: computation for scientific research, manufacturing process control, product design, inventory control, quality control, maintenance control, accounting, payroll processing, and many others.

This chapter will attempt to present the scope and significance of data processing.

In our field, it is essential that we be conversant with data processing terminology and techniques even though we may not be directly involved in data processing operations. We must become familiar with data processing consumer aspects for its impact upon our lives is increasing tremendously by leaps and bounds. We must attempt to keep abreast if we are to be knowledgeable in how our technology can aid us in our occupational efficiency and effectiveness.

There are two categories of computers: the analog and the digital. The analog computer represents numbers by some analogous quantity, such as length or size. These computers are limited in their accuracy by the precision with which measurements of length, volume, or other physical quantities can be made. Variation in electrical power causes inaccuracies in output. The analog computer has no memory.

The digital computer is used in many industries, businesses, and government agencies to generate data and solve problems. They have become a necessity where the volume of computations and quantity of data makes manual operations uneconomical or impossible. This computer solves problems by counting precisely and sequentially. There is no question of measuring anything; the only limit to the accuracy of the basic arithmetic process lies in the number of digits that the machine can manipulate. Basically, an analog computer measures, while the digital computer counts.

In the broadest sense, data processing refers to the recording and handling that are necessary to convert data into a more refined and useful form.

Of particular significance is the fact that the objectives of data processing now extend far beyond the routine handling of transaction documents and records of other types. Data processing has assumed new importance. It now fills a greatly expanded need for information that is required in the management of enterprises.

Data, to become useful information, must go through a number of operational steps known as the data processing cycle. This cycle may be divided into the following categories: origination of data, data recording, data manipulation, report preparation, data transmission, and data storage. It is suggested that reference be made to publications presented in the bibliography for further detail regarding the data processing cycle.

Because of the widespread application of new data processing techniques to banking operations, billing, and other financial situations, there is a tendency to assume that the term "data" refers primarily to accounting functions. Actually, data can include any facts, figures, letters, words, charts, or symbols that represent an idea, object, condition or situation. Thus data can include such diverse things as school attendance records, gas meter readings, medical statistics, engineering performance reports and production figures. In fact, this list could continue for many pages because examples of data can be found in every field of activity. The reader may now begin to visualize that the conversion of data to information is a primary function of data processing. Let us consider some of the factors that have created the need for efficient data processing techniques.

Business organizations have grown in size and complexity during the past century, particularly since World War II. The growth has resulted in tremendous amounts of paper work generated by a large volume of transactions. For example, one large insurance company with approximately three million accounts sends out over ten million premium notices each year and processes an equal number of payments. It is apparent that if this mass of data had to be processed manually, the results would be chaotic. The number of people who would have to participate in such a clerical operation would cause confusion, delay and excessive errors.

The rapid increase in the number of clerical workers during the past fifty years is a clear indication of the mounting paper work burden. In 1910, only one in twenty employed persons was engaged in clerical work. By 1940, the proportion of clerical workers had risen to one in ten. Today, about one in seven persons is in a clerical

occupation. This influx of clerical employees has been accompanied by rising wage rates and fringe benefits which have greatly increased clerical costs.

The awareness of rising personnel costs in business and government has stimulated interest in the use of mechanical and electronic devices as a more efficient and economical means of processing data. Although more and more mechanical and electronic equipment will be used to replace human effort, it is expected that new clerical jobs created by the growth of business and government will outnumber the jobs eliminated by automation.

Machines have a distinct advantage over humans in that they can handle large volumes of routine and repetitive data without becoming bored. Since boredom has a tendency to breed inconsistency, carelessness, and inaccuracy in humans, machines are more consistent and are more accurate. Thus, the continuing search for improved techniques which can eliminate the human element and produce more accurate results. With the present trend to eliminate the "manual" functions to produce required production information, the previous drafting function becomes obsolete; the draftsman can become upgraded to either a designer or moves into the areas of digitizing or soft-ware.

Computer application was first made in the data processing of business firms. Subsequent application had been in the fields of automotive and aerospace industries. These are the manufacturing industries where the manufacturing, engineering, and manufacturing systems development groups are the strongest. Electrical manufacturing comes in a strong third place position.

As the application of the computer to manufacturing industries increases, the production arm will profit all down the line. Top management will gain forecasting and simulation capabilities. Middle management will be better able to handle inventory, production, scheduling, and distribution. Those on the factory floor will be exposed to simpler data collection, effective machine cycle checking, less downtime, and reliable time-in-use indicators. All of this should certainly make for more profitable production.

The digital computer has rapidly become an indispensable necessity in our technological world. The rapid strides we are presently making in all fields of endeavor would slow to a near stand-still if we had to revert to humans for the processing and dissemination of information.

Application - design

Computerized drawing and computerized design is used considerably in many industries. This is a very expensive type of operation initially but in the long run the corporation comes out further ahead because of the automated aspect.

Keyboards and control of instrument panels are designed extensively through the use of computers. Human factors must be considered because of the involvement of reaching the various controls. The location of switches that are used most frequently and the ability to reach them quickly are some of the considerations involved that are supplied through the computer.

Visual clarity through cabinetry has been another recent designing innovation through use of the computer. Even though the inside equipment has not changed considerably, the cabinetry, in many cases, has been designed and changed on an annual or model basis. Human factors such as operator safety and convenience are probably the most important elements in the design of many objects. Automobile designers have to consider the human body, its positioning, its safety, and also its limitations and convenience in designing the seating arrangements and control requirements within the automobile. Comfort as well as the safety must be considered to make an efficient, safe driver. Information on human factors such as size of body, limitations of reach, limitations of sight or visibility as well as such factors as the area of the windshield, diameter of the steering wheel, etc. must be considered by the designer. The computer, in many cases, takes automatic regard of all factors. A designer will, on a cathode ray tube (CRT), sketch in his suggested design. The computer will automatically tell him in a matter of seconds whether or not this new design idea will function properly in line with the human and safety criteria. This saves the designer having to consider all the seating and human limitations because the computer will automatically indicate whether or not the steering wheel is the proper diameter, proper distance from the driver, or whether various switches are within convenient reach.

Designing with the CRT appears to be one of the most efficient methods of designing in industry at the present time. Through the DAC-1 system, developed originally by General Motors, or the IBM-2250 display unit, designing of anything can be done in a far shorter time than going through the usual design steps as done by a designer, draftsman, etc. Through a program on the display unit using the CRT and a light pen, the designer can very quickly put into a system a design or redesign. Line direction or curvature changes and even redrawing is accomplished at rates of 200 inches per second. Drawings, tapes for numerical control

systems, and the like can be the output from design. In other words, the designer can automatically skip many stages and go directly from his design to preparation for production by the simple push of a button. During personal visitations, it was seen how a change could be made on an automobile, accepted into the layout, and the computer output would be a perforated tape which would operate the machine to make the design changes. Consequently, many steps in the former operation were bypassed and it is far more efficient.

Application - drawing

One of the biggest problems in the use of computers as an effective management tool is that today's computers ingest, process, and disseminate data at much faster rates then people can assimilate output. Another is that computers normally present their output data in digital form, while humans tend to perceive things in an analog manner. Computer graphics are rapidly closing this "comprehension gap" between the computer's prolific output and man's capacity. Reams of conventional listings are increasingly being replaced by more concise and meaningful maps, charts, graphs and other pictorial presentations which have been drawn automatically. For example, computer graphics can help us analyze markets for products on a nationwide basis as well as regional and local levels. A set of simple bar charts, produced by digital plotters in a matter of minutes, will show at a glance exactly where the largest potential lies in any one area.

The plotter, an ingenious drafting device working in partnership with the computer, is a magical mechanism no less mysterious than the computer itself. This device when combined with a properly programmed computer can produce detailed charts, graphs, maps, musical scores, and complete pictorial and orthographic drawings. Detailed contour maps and sterograms can be compiled using a computer plotter. In addition to regular drawings, perspective type drawings can be made of nearly any type of surface. For example, three dimensional perspective drawings can be made of the ocean bottom so that underwater mountains and underwater valleys can be recorded. Highway contours can also be plotted to observe and spot irregularities which cause driver error and fatigue on superhighways. Maps and sterograms are frequently made from photographs, and excellent maps of the lunar surface have been compiled from Ranger VII photographs.

Geometric definitions in numerical form are prepared by a programmer and usually transferred to punched cards for input to a program loaded computer. The data fed into the computer may be specifically prepared to produce a drawing or, more often, graphic data may be generated by recompiling data developed by the computer for other engineering activities. The result is an output tape, either punched or magnetic, containing coordinate data used to drive a digital plotter. A scale drawing of high accuracy and excellent line quality is often the result, although engravings and exposed film can also be obtained.

All three types of digital plotters: drum, flatbed and electronic microfilming operate on the basic digital increment principle. Decoded input commands from the computer are used to produce increments of movement in either X or Y directions, or at some angle relative to these axes. The plot, of the electro-mechanical ink-on-paper

plotters, is produced by movement of a pen relative to the surface of the recording paper. In the electronic plotters, the plot is produced by movement of a cathrobe ray tube electron beam and recorded automatically on microfilm. Decoded computer commands are used to raise and lower the pen or to blank or unblank the electron beam. The electronic plotter using the CRT, is several hundred times faster than the electromechanical ink-on-paper plotter.

To aid in computerized drafting, macro drawings are often placed in storage. These macro drawings are of standard parts for example, screws, nuts, bolts, cap screws, etc. The designer or draftsman need only make a statement to call a specific macro and this entire subdrawing will be presented by the computer in the location that has been described.

Many flatbed computer plotters are continuous path automatic machines capable of producing a high quality graphic display of digital information on drafting film, paper, vellum, cloth, Mylar, sensitized sheet metal or comparator screen material. Graphic representation can be produced by drawing, scribing, or printing by methods including routing, stylus, and optical light head for photo exposure. Applications vary from ultra high accuracy printed circuit work and high speed designing to lofting of aerospace configurations. Input is received from a photoelectric punched paper tape reader at 300 characters per second on a manual keyboard or directly from computer punched cards or magnetic tape. A vacuum holddown system is available on most models. Drafting speeds vary considerably with many units producing 100 - 200 inches of line per minute. A few models can produce lines up to a present maximum of 1,428 inches per minute with an overall surface accuracy of .001 inches. Electronic plotter output prints microfilm on 8 1/2 x 11 inch sheets at the rate of one page every 4 seconds.

Large flatbed plotters derive some of their accuracy from their 6 inch thick granite surfaces. These tables or "beds" are lazer interferometer calibrated to an accuracy of $\pm$.0025 inch over a 4x6 foot table and maintain an accuracy of $\pm$.0012 inch within any designated 20x20 inch area. A vacuum hold-down system is employed and by using such drafting surfaces as Mylar, dimensional accuracy can be maintained. The newest CalComp plotter, not yet available on the market, has an accuracy of .0005 inch in any respective 20x20 area.

Most plotter increment sizes are adjustable, however, cheaper models have a permanent setting of 1/100 of an inch (.010 inches). Other plotters are adjustable so that increment sizes can be varied down to 1/200 of an inch (.005). Needless to say, the computer increment of the finest setting will produce the most accurate and the most even, smooth lines with a minimum of computer command. Less distortion of plotted lines is available with a new plotter which provides 2,000 increments per inch.

Computerized drafting is used considerably in the layout of printed circuit boards as well as that for integrated circuits. Flat bed plotters as well as drum plotters are used extensively for this type of drawing. Photo-optical application in the manufacture of integrated circuits provides accuracies to ±.0005 inch over the 24x24 work area or accuracies up to ±.0001 inch over a 3 by 3 inch working area. The newest photo-optical heads for the exposing of I C photo negatives has a 1 mil line diameter.

Not only will the computer accept digital information and produce a drawing on paper or film but, introduced this year, an automatic tracer head can be installed in the electro-mechanical plotter that will trace an existing drawing completely automatically and change the drawing into digital information or - "computer input". Previous to this time, digitizing from a drawing had to be done by an operator who would locate the various line end points so that the computer could trace from point to point automatically.

Automatic drafting is actually a very broad term and not just the increasing use of the digital computer in conjunction with the growing availability of automatic drafting machines. It is often the necessity to "automate" the flow to production activity of the manually produced drawing by conceiving the drawing in such a way as to eliminate as many future operations as possible. The objective is speed and economy in the incorporation of repetitive items, putting together of assemblies with minimum actual drawing, and streamlining drawing changing procedures.

So new that its potentialities are still being explored, automated drafting equipment has already become standard to thousands of data processing systems and has inspired a new term in the English language, "Computer Graphics." Using computer languages FORTRAN and COBOL, a computer can readily transfer a program to what human beings have known for centuries to be the fastest way to put an idea across - convert it into a picture.

Application - spectrum

Men have begun to employ computer graphic systems to probe the earth and water. In the search for oil, for instance, geologists can detect probable presence instantly by consulting a map drawn by a computer. Supplied with the appropriate program, the system can produce a three dimensional view of the terrain or a contour map about 30 times faster than is possible with manual drafting, with none of the subtle flaws sometimes found in the latter.

As used in business and industry, computer graphic systems are phenomenal time-saving tools which also do many jobs impossible of the computer alone. At one company, for instance, a digital plotter operating five hours a day with an IBM computer turns out the same amount of work as four full-time draftsmen. Its average daily output is 53 engineering drawings, complete with bill of materials.

At an investment firm, a system using a Calcomp plotter keeps tract of fluctuations on stock prices by means of daily charts which it can update in minutes. Plotters are used in the garment industry as well. They are used to trace original patterns and produce grades of patterns for all sizes in a line. In architectural work, plotter made prospective drawings can be superimposed on films taken at the client's site offering him a view of the proposed building from all angles, inside and out.

In cancer research, where every advance is vital, plotter-drawn pictures of cancer cells are helping in the quest for a cure. Medical science has also put plotters to work producing electrocardiograms as well as pictorial versions of them. The computer plotter is used as an artistic media as well -- working out beautiful geometric designs. In committing an artist's thought to paper, the system is capable of an element of suspense. An art professor experimenting with a plotter once created a series of sketches depicting a woman's face as she matured from youth to old age. Drawings were remarkably lifelike and each facial expression came as something of a surprise.

Estimates of piping construction costs in the chemical and petroleum-processing industries and in electrical-power-generation uses graphic programs run on CRT. The engineer can define the placement of various standard processing components using the light pen to lay out the path of pipes required by the system. When he is finished with the graphic layout, a summary of the length of pipe, an itemized list of fittings, and a total cost may be displayed on the CRT screen upon request. Consequently, in a short time he has designed, drawn and calculated a piping system and its costs of production. Complex copy drawings of this newly designed system and all information can be acquired in a matter of minutes by the simple push of a button.

Two dimensional drafting at a graphic console permits an engineer to design a component on the CRT screen and then store the part geometry in the computer files for further analysis. Drafting in this manner offers two major advantages. First, the part can be drawn and dimensioned much faster by eliminating the need to hand-draw straight lines, arcs, circles, and other shapes and by permitting corrections and revisions to be made instantly. Second, part geometry, either the final shape or an intermediate design, is available for computer storage or immediate analysis of its physical or mechanical attributes.

Even with computer-aided machines in industry, inspection for manufacturing accuracy takes considerable time. Firms are presently working on a computer inspection system where a computer not only directs the machining operation but when the article has been machined, it is verified for accuracy by another computer for quality control. This computer will coordinate measurements from the produced part with those from drawings and indicate whether the production part is within the quality specified. Data points are read and identification is made out of previously specified tolerances.

The Computer Output Microfilmer has made a tremendous contribution to the publication industry particularly when applied to parts lists, customer catalogs, travel schedules, employee lists, production schedules, bank statements, etc. These items must be frequently updated on a monthly basis, and require a fast, efficient system of this nature where computer output results in the generation of offset masters.

Computers are frequently used in industry to produce numerically controlled machine tapes. These N/C tapes are then verified by having a computer plotter draw the path the machine tool will take and the dimensions of the finished part.

Computers are being used considerably in the animation industry. Computers are used in the animation of cartoons as well as the animation of television commercials. The application of the computer to television commercial production has aided this industry considerably and development is continually producing added advantages in the effect of a shorter lead time from inception of the idea to completion and production.

One of the newest soft ware packages is a system which automatically plots sub-division maps complete with compass bearings, distances, and other pertinent information.

Listed below are just a few of the present applications for digital plotting systems:

SCIENCE
- Atomic structure analysis
- Medical and psychiatric diagnosis
- Nuclear explosion seismograms
- Weather data mapping
- Radio telescope studies
- Satellite flight tracking
- Oceanographic research

INDUSTRY
- Automatic drafting
- CPM and PERT scheduling
- Verification of machine tool control tapes
- Ship pattern design

ENGINEERING
- Air traffic recording
- Highway cross sections
- Traffic pattern analysis
- Land survey measurements
- Test data graphs
- Contour mapping
- Hydrographic surveys

BUSINESS
- Financial analysis
- Inventory and budget control
- Advertising and market research
- Profit and loss trends

General computer drafting applications:

- Spooling drawings
- Architectural drawings
- Structural drawings
- PERT charts
- Highway drawings and maps
- Contour maps
- Perspective drawings
- Plant layouts
- Orthographic projections
- Design studies
- Templets
- Production masters
- Skematic diagrams
- Wiring diagrams
- Piping diagrams
- Floor plans
- Automotive cross section and profile applications
- Detail drawings
- Tool drawings
- Floor plans
- Plot plans
- Cartography sheet metal development
- Loft drawings
- Data plotting isometric views

Advantages:

Condensed lead times
Improved accuracy
Improved communication
Reduction of error
Reduced manual skills
Rapid updating
Re-use of stored data

Following is a list of various corporations and how they apply computer graphics to their activities. This selection should provide the reader with a relatively broad sample of application.

Industrial
Computer Drawing Applications

Motorola	electrical measurement; circuit design
Barber - Coleman Company	production drawings; reduce drawing labor costs; save time
Bell Telephone Laboratories	circuit design network
Illinois State Geological Survey	contour mapping of waterways and associated watersheds and levels
National Cylinder Gas Company	plotting of railroad clearances between cars and construction
Miller Brewing Company	marketing volume information
Sorgel Electric Company	preparation of drawings for cabinets to house transformer assemblies
Wisconsin Highway Department	automated drafting
Caterpillar Tractor Company	engine test analysis
Akron Standard Mold	N/C verification
Goodyear Tire and Rubber	tire tread design
Goodyear Aerospace	verification of photographic missions - space modules
General Motors Corporation	automobile generation; steering gear

Fabricators Inc.	automatic drafting of bathroom
Brunswick Company	golf ball trajectory
Whirlpool Corporation	business charts; economic data display
Kellog Company	engineering; business charts
International Harvester	data reduction; wheel well design
Pontiac Motors	data reduction in carboration
Ford Motor Company	contour and 3-D drawings; seat specifications and testing; windshield testing
University of Michigan	human growth and development; charting of skulls over many generations
A. E. Stilson and Associates	civil engineering
St. Louis Police Department	mapping
Kansas Highway Department	highway design
Collins Radio Corporation	integrated circuit design
Butterick, Inc.	drawing cloths patterns (enlargements and reductions) to fit all sizes

It can be seen in this manner how computer graphics application fit in virtually every field - in research, in science, in engineering, in manufacturing, in business and finance - even in motion picture animation.

Trends in computer education

It has become apparent to educators recently that no discipline remains untouched by the revolution in the computer sciences. The use of computers as problem solving tools is being adopted by universities, junior colleges, and high schools throughout the country. Computer extended instruction, relatively new to the education field, will be expended tremendously in the future. Extending the computer concept to such things as computer mediated instruction and guidance testing, however, is being opposed by some because it has a tendency to eliminate the "human element."

Colleges and universities are just beginning to offer courses in data processing and computerization and only a few high schools include computer training in the curriculum. More and more technical schools are offering courses in computer training. Some universities are offering two-year associate degree programs in computer technology, and bachelor's, master's, and doctor's degrees in computer sciences. There is no reason to doubt that the schools offering these programs will be sending forth graduates in sufficient numbers to meet the demand. It is likewise unlikely that many of them will have much manufacturing engineering or industrial processing knowledge to go with their computer talent. There will be an increased need for manufacturing engineers and the managers to whom they report to become more familiar with computer technology.

Assessment of the human resources and organizational environment is necessary prior to the introduction of an electronic data processing system. Priorities for computer application depend upon payroll considerations, and a plan for the systems study and systems design phases must also be included.

Industry, in its attempt to increase efficiency, has found that considerable savings can be accrued in engineering skills, time, and money by renting a computer for $1,000 per month, renting a key punch and reader-printer, and employing only two persons. One of these persons must be a combination programer-operator and consequently very well paid. The other person required would be a key punch operator who would be employed for the minimum wage. Considerable problems result for persons in the unskilled labor force.

Computer development and widespread use has created a vast new industry devoted to their design, manufacture, and operation. New job opportunities exist which are far from dull and routine. Computer manufacturers have openings for electrical engineers, mechanical engineers, industrial engineers, metallurgists, chemists, physicists, plant managers, administrators, salesmen, technicians, and assembly workers. There are well over 500,000 employment opportunities in computer science but most require considerable educational background. The rate of growth in this

field is exemplified by the statistics of computer manufacturers, whose business has doubled in size every two to three years since the computer became a marketable product. Each new computer operation generates approximately 10 new jobs. Because of this, significant unemployment is not likely to result from the use of computers, provided employees are willing to accept retraining and relocation. Our emerging technology has little use for occupations that require no skills or education.

Computers are imposing upon the mediocre draftsman a risk of obsolescence. In turn, however, they are placing enormous demands upon draftsmen who are capable of creative, abstract thinking. Basically, the computer is removing the drudgery from the draftsman leaving him free for more important work. Computers are ideal for drawings consisting of repetitive detail such as schematics, block diagrams, maps, etc. but they lack creative thinking which is essential for the preparation of many machine parts, forgings, castings and similar drawings. The enterprising draftsman who encounters the computer or the automatic drafting machine, probably will find that he is secure as long as he constructively adjusts his thinking. He will be relieved of drudgery and increase his creativity.

Today the "half life" of an employee with an engineering or science degree is approximately 10 years. To cope with this intellectual impermanence, continuing education becomes essential. Constant retraining is necessary to prevent technical obsolescence.

Future - outlook

Computerization relieves the worker of routine and repetitive physical and mental tasks. The worker who does nothing but pull a lever, tighten a bolt, or push a button may no longer be needed when computerization assists in, or takes over, such operations. By the same token, more workers will be required to manufacture the computer and allied equipment, to maintain, operate, and repair them and be ready to perform both manual and mental operations which require experience, skill, judgment, and wisdom. Some authorities predict that, in the long run, the number of workers required by a computerized industry will be greater than the number in those not computerized.

The national economy, except during the immediate national crisis, has been growing and will continue to grow in the future, thus increasing the need for fast and efficient data handling.

Computerized library catalogs will come into their own in a very few years. They are exceedingly effective and economical as well as conserving in large amounts of space. The system operates through a computer-microfilm combination. Selection by the reader are made alphabetically on a computer keyboard. From the management's standpoint, updating is extremely easy because new material can be inserted in a matter of minutes through the use of the master computer keyboard. An example of this would be the use of 16 mm microfilm loaded into cartridges, each containing 100 feet of film, which represents 1,800 pages of computerized catalog text. Each cartridge can be labeled as to contents and the label can be colored coded to provide visual ease in identifying separate sections of the catalog.

A potential computer user need not be discouraged because he does not own a computer or has no programming experience. Information processing centers maintained by major computer manufacturers, as well as some independent companies, offer "time snaring", an arrangement in which a system is put at a customer's disposal. In this complete service, the customer's programs are stored in the system and data is processed and supplied in response to his phone or teletype inquiry.

The next generation of computers, which already are becoming available, will allow the individual to have a terminal tailored to his needs that will put the capacity of the entire system at his service. The effect of this will be to amplify and extend the effectiveness of each individual using such a terminal. Recent reductions in the cost of integrated circuits and subsequent reductions in the cost of computer hardware will produce market penetrations in areas that were formerly prohibitive. If this continues in the future, it will be seen that computers will be available on a time-sharing basis in the home.

In predicting the future of graphic communications, one should expect that the designer and draftsman will both find it necessary to have a deeper comprehension of descriptive geometry and to know more about the preparation of communication drawings for production. The graphic language, so fundamental to the design process, has now become a computer language. As such, it has proven to be a reliable means for a conversational type of man-machine communication.

Increased automation is surely inevitable because of the larger volume of drawings that will be needed. Computer capabilities will be increasingly implemented, and even in the manual drawing functions, these drawings will be easier to complete because of the increasing impetus for more standardization. The emergence of the drafting service center also will have an effect on the amount of detailed in-house drafting that will be done. Service centers now exist that are completely devoted to numerically controlled drafting functions. Computerized design and growth of microfilming inputs as well as the outputs are two channels for the future that will compensate for the increasing complexity and shorter lead times throughout industry.

Photography in Graphic Communication

> "Modern photography is as diverse as the interests and proficiencies of men. It is the eye of the astronomer, in an almost literal sense; it is the guide and fact finder for surgeons, dentists, and metallurgists; it is the scout and map maker for armies - and the tool of cities in the administration of the present and in planning for the future."

As we delve into graphic communications we must consider the many modes used to communicate our ideas. Photography is one of these. A graphic representation or drawing of an object often takes considerable time for study where a photograph will give a more lifelike representation and be an instantaneous type of communication. As we begin our review of photography and its relation to the graphic communications area, we can become very highly involved in all kinds of natural sciences dealing with physics, chemistry, and mechanics. For our benefit here, however, the natural sciences will be limited so that we may get to the practical application of photography. We are not necessarily concerned with the means, but are primarily concerned with the end-communication.

During the past decade there have been many changes in company policies with respect to the manner in which drawings have been handled. These changes have been brought about mainly for economic reasons. The cost of an average size drawing has been estimated to be from $22.00 to $30.00 per square foot. Looking at the situation from this viewpoint, one can readily see why the problem of safeguarding engineering drawings becomes a matter of applying strict drawing-control procedures. Such items as standardization of the paper sizes, simplified drafting procedures, assignment of drawing numbers, filing of drawings, microfilming, disaster files, print making, print distribution, print destruction, drafting costs, drawing change procedures, and drawing retrieval are all important aspects of proper drawing control.

Photography has had several effects upon drawing control in industry. The following are reasons for using photographic materials in regard to graphic communications:

1. To restore old drawings.
2. Speed drawing changes.
3. To save drafting time through the use of photo-drawings.
4. To reduce re-draws through the use of photo-templets.
5. Eliminate retracing of existing white prints or blueprints or old faded tracings.
6. Make better copies possible.
7. Insure workable "blow backs" by microfilm.
8. Simplify changes in circuit layouts.

Drawing and reproduction processes are becoming so economical and so fast that the old blueprint as such is rapidly becoming a thing of the past. Most companies have several methods available to them for making prints, thereby enabling the drawing control group to provide a wide variety of services to the draftsman, designer, customer, production personnel, and top management. Photographic reproduction is used in many of the methods of drawing reproduction as an intermediate step in the process. However, in some cases, the end product from this type of reproduction is a conventional photograph. There are three principal types of photographs that are used: the photostat, the photo-drawing, and the conventional photograph.

Photostat

A photostat machine is used to make enlargements or reductions of original drawings. The result is called a photostat print. The lens in the machine is oriented to permit the focusing of the image directly upon sensitized paper which is then developed and fixed within the machine. The process is relatively slow and expensive and is used when permanent records are desired.

Photo-drawing

The photo-drawing is a combination of the photograph and line drawing. A photo-drawing is used as a supplement to, rather than a replacement of, engineering drawings. It may be used in situations where a plant engineering change is to be made. A photograph is made of the particular area of the plant to be remodeled. This photograph is either cut out and pasted on a sheet of paper or reproduced on a photo sensitized paper. The necessary drawings and corrections are made on both the photograph and the paper.

In addition to the elimination of the tedious, time-consuming redrafting involved in product and plant-engineering changes, photo sensitive surfaces are used considerably in pictorial representation, design and redesign drawings, drawing restoration, copying, enlarging or reducing size, and filing and storage. Photo-drawings are used extensively in making instructional assembly drawings. The assembled product is photographed in a conventional, convenient position. The various component parts are then labeled. This provides an extremely convenient way of showing an assembly drawing for use by management, production planners, maintenance technicians, or the assembly line worker.

Photo-drawings are particularly useful in maintenance and instruction manuals, as vendor or subcontractor drawings, as sub-assembly and installation drawings, and in cartography, where both an actual photograph of the land and its profile can be shown on the same sheet. Basically, photography can be used in most cases where things already exist - not with things that have yet to be created.

Since at least 50% of drafting is involved in making changes and revisions, various media with sensitized surfaces save a considerable period of drafting time. In addition, tracing or redrafting is a very dull job for a creative individual. Cut and paste techniques, along with electrostatic printing, has made it possible for the draftsman to now spend his time on the required changes. Portions of the original drawing or print which normally would have to be traced are now done photographically. The resulting print will show all detail, new and old, in excellent clarity with no indication that it was not made from an original drawing.

Another excellent application of photography for drawings is through the use of overlays. The original drawing could be, for an example, an aerial photograph of a residential area. Overlay transparencies can then be applied to the aerial photograph showing street markers and all kinds of traffic control devices and their locations, electrical distribution patterns and equipment locations, sewage lines and equipment, and water lines, fire hydrant locations, and this type of information.

Conventional photographs

The conventional photograph is used when a permanent record for the file is required. It does not lend itself readily to shop use.

Photography, directly or indirectly, figures in the production of practically all advertising, as it does in all types of exposition. It is a growing medium for the illustration of fiction; it is basic in such matter-of-fact affairs as blueprints, photostats and bank records. The development of new aircraft has been immensely accelerated by the application of photography to the making of patterns and templets. Photography, in some form or other, impinges on a far wider range of human activities than most of us realize. Obviously, the more we understand about it, and how it is used, the better we are equipped for our own special jobs. The squeeze is on physical labor in any form even in drafting, with the result being the improved quality of the product and the increased efficiency of production.

Microfilm applications

A specialized technique known as "microfilming" is used for making greatly reduced copies of documents, newspapers, and similar originals. Developed primarily for espionage and pornography in the early 1880's, microfilm has improved to become useful in current computerized microfiche retrieval and display systems. The copies are usually made on 70 mm, 35 mm, or 16 mm width film and are read by projecting enlarged images onto a screen or by making enlarged prints.

The microfilming of drawings in most industrial concerns began in the early 1940's as a security measure during the war. The drawings, engineering data, and supporting specifications were photographed on 35 mm roll film and stored in a remotely located vault. The roll film method of keeping security files was a rather cumbersome one when frequent reference had to be made to the film file. Such things as the revision of drawings often complicated the maintenance of an updated film file.

Today microfilming has completely revolutionized print making, the making of drawings, record keeping, and retrieval. In the middle 1950's many companies became aware of the need for streamlining their print distribution system and their drawing storage. The shear numbers involved caused management to take a close look at the ways and means of cutting costs. Because guided missiles require approximately 15,000 and jet fighters 18,000 drawings, some of which are 50 inches by 12 feet long, the Department of Defense has been one of the prime movers in the use of microfilm and the development of the various techniques required to produce an efficient, workable system.

Some of the problems facing large companies and in particular the Department of Defense with respect to engineering drawings are such items as the following:

a. The difficulty of locating data in a system of massive volume.

b. The slowness of manual drawing retrieval.

c. The use of large areas for storage files.

d. The damage to originals by handling.

e. The time and expense in reproduction and print distribution.

With the experience of roll microfilming methods, several companies began to study ways and means to adopt microfilming to other uses than merely a security file.

A great many corporations are microfilming sales orders and invoices. One company eliminated the storage accumulation of 20,000 sheets of paper a month. Two southern England towns are using microfiche in their telephone directory assistance. This system eliminates 62 separate volumes - totaling 73,500 pages - and reduces the information to 750 post-card-sized microfiche. The big advantage is, that with film, necessary data can be retrieved in seconds. The system applies space-age electronics and photographic miniaturization combined in an automated microfilm information storage and retrieval system.

Itek Business Products has outlined the advantages of microfilming in their recent brochure as follows:

a. Space Conservation - A typical microfilm system for engineering drawings will save 95-98% of the space consumed by the original drawings.

b. Reduced File Maintenance - With microfilm, less clerical effort is required to file and retrieve information from storage.

c. Reduced Mailing Costs - Because of its size microfilm is easier and less costly to mail than bulky drawings.

d. Records Protection - Having a microfilm copy is the best insurance against loss or destruction of original documents. (security)

e. Decentralized Filing - The work is where the people are. The low cost and compact size of microfilm makes decentralized filing practical.

f. High Quality Reproductions - Any number of copies can be made from microfilm. They can be made on film, translucent prints, opaque paper or offset plates.

g. Constant File Integrity - All the data is available all the time. Original drawings don't have to leave the file.

h. Permanency - Microfilm has withstood the test of time. It's the ideal method of storing permanent documents.

i. Accuracy - Microfilm copies are faithful reproductions of the original.

Other resources have provided these additional considerations:

j. faster print service.

k. faster and easier retrieval.

l. economical reference cards for use in viewers.

m. use of data-processing methods in retrieval.

n. reduced handling of original drawings.

o. more flexibility with aperture cards.

p. reduced costs in printmaking.

q. increased accessibility of data.

r. improved customer service.

Once the drawing is stored on a film strip, it can be retrieved by the use of a specially designed viewing machine. After the particular frame is located, it can be printed on paper by an automatic blow-back machine which provides an enlarged image. However, the process is time consuming, and more recent developments make use of modern data processing methods using punched cards. In making blow-back prints of microfilm photographs, a number of problems had to be solved before good prints could be obtained. Lenses with high resolving power had to be developed for the cameras, and a very fine grained film had to be produced to permit a large amount of detail to be placed on a small space. In addition to the technical problems associated with the photography of drawings, other items such as the weight and spacing of letters and lines had to be considered in the making of the engineering drawings for microfilming.

One of the most important steps in providing rapid and updated print service is the facility with which the microfilm can be retrieved from the filing system. An aperture card is used for this purpose (computer cards containing individual drawings on microfilm). These cards can be punched and filed in specially designed filing units that permit both machine selection and manual, random selection. The aperture cards can be quickly retrieved from a file for making a blow-back print or for use as a reference by a designer. If a designer needs a large number of drawings as a reference for a project on which he is working, it is a relatively simple matter to obtain duplicates of the aperture cards of the drawings he needs. He then uses these duplicate microfilms with a microfilm reader near his work area without requiring a large mass of prints to work from. There is a new reader-printer that provides a print within a few seconds and can also be used as a reader.

One of the greatest advantages of using microfilm systems is the availability of prints to the user on a demand basis. Storing large quantities of prints becomes unnecessary when microfilms are used. The user of the print can place an order at the print-distribution center by giving the clerk the drawing number. The clerk obtains the aperture card, makes the print in a matter of seconds, delivers the print to the user, and then returns the card to the file. Prints can be made on all kinds of equipment.

Either hard copy or film duplicates can be made from the master film at the time of microfilming. User requirements will determine the amount of each. These requirements and the film format will determine

equipment needs. Film packaging involves winding of films on reels or it may involve film editing and splicing operations. Distribution of film to users may be relatively simple or complex as in the case of a large volume of aperture cards requiring processing, sorting and distribution to a decentralized file. Reproduction of legible hard copy from second or third generation microfilm duplicates is one of the troublesome points in today's microfilm system. The evaluation and selection of reader-printers should be performed with care looking for reliable units that can repeatedly produce legible copies at a fairly rapid rate.

One of the newest developments in aperture cards is the addition of up to six smaller frames on the same card. This addition of the 16 mm changes in the microfilm show not only the original 35 mm frame but also the most recent changes on the particular drawing. This also gives a more compact storage system and saves tremendous storage space.

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Modern Photography

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Popular Photography

Proceedings of the I.E.E.E. 1/70

Reproduction Methods

Research/Development

Surveying and Mapping

APPENDIX A

EDUCATION FOR AN AUTOMATED WORLD

(Education Through Industry)

Education for an Automated World
(Education Through Industry)

There is no denying that many routine jobs no longer exist because automatic machines can do them faster and more efficiently than humans. The ways in which men earn their livings have changed drastically in the last twenty years and, without a doubt, greater changes lie ahead. Coming into the adult-age bracket between 1960 and 1970, has been some 26,000,000 youths. Of this group, about one-quarter are school drop-outs and millions of others lack essential skills to train or retrain for new jobs. There is simply no room at the bottom for those who are illiterate, unskilled, under-educated, or otherwise unable to become contributing members of society. Industry is very much aware of these problems and is attempting to deal with them in no small way.

Most industries are involved in the effort of helping their employees keep abreast of current technology. Industrial progress depends upon the ability of an organization's technical manpower to function on the very frontiers of expanding technology. To function effectively, a company's technical manpower must be able to: 1) avoid and overcome technical obsolescence, 2) keep abreast of the current state of the art, 3) gain new information and technical capabilities required to advance the state of the art, and 4) obtain the necessary education at a convenient location at minimum expense.

In many corporations, employees and management agree that such a program conducted after working hours would best meet the need of those not interested in acquiring a college degree but who were interested in improving their job performance and their prospects for professional advancement. Some companies limit their education to management, engineering, and scientific fields, however, other companies attempt to educate a majority of their personnel.

Self-development courses are designed to be applications oriented rather than theory oriented. Student attendance is presumed to be based upon the desire and need to acquire and/or improve knowledge of specific elements of a subject for immediate use and work-related situations.

Students can usually enroll for a course for which they consider themselves qualified, even if their formal educational background does not include the specific prerequisite courses. There is a distinct advantage in this arrangement for capable and talented employees whose educational progress might otherwise be hindered by the formal program requirements of most educational institutions.

Many programs begin with review course work. Review courses are frequently initiated at the beginning of the program so that students may review material that they have had previously but which has become ineffective through lack of use. Upon completion, many students continue on with more advanced subjects. Homework is designed to emphasize the technique of the specific application and is held at a reasonable level. Consideration is made for the fact that students are full time workers with numerous outside obligations. Most important, perhaps, is the progress review approach to testing and the lack of pressure to simply strive for good grades. Students are able to concentrate on course content without undue competitive distractions.

Although the hiring of professional instructors for these programs is often considered, the need to adapt the instruction to company applications dictates that company based technical personnel be recruited. This decision for most companies proves satisfactory because of the discovery of a large number of people with instructor talents within the

employee ranks. Use of present employees also provides the additional advantage of low cost instructor renumeration.

Work-related courses are always taught by employee-instructors who are applications oriented rather than theoretically oriented. Attendance in such courses is usually increased because many students are cognizant of the instructor's abilities in a way not usually possible in formal educational institutions. Courses are generally free, the only charges being those for textbooks and certain supplementary materials. This small charge is frequently required of students because students who spend some money for a course tend to protect their investment by completing the course. Another consideration is that the company is reimbursed for the cost of some of the materials, greatly reducing overall operating costs of providing this method of study. Some corporations, however, pay the entire cost of all the courses for their employees.

Often, courses are taught at local educational institutions rather than in-plant. Although the courses taught or sponsored by the company are generally more immediately useful to employees than those offered by local educational institutions, the company has a real interest in the institutional programs and representatives who participate as members of various college advisory committees help to formulate programs. Employees are encouraged to take college-level courses. Partial or full reimbursement is often provided for certificate programs and undergraduate approved courses. All tuition is generally prepaid for approved advanced degree programs in engineering, science, and mathematics. Full fellowships and work-study fellowships are available to exceptional employees on a competitive award basis.

When formal education is involved, some companies reimburse the employee two-thirds of the tuition fee upon completion of each approved course with a "C" grade or better. Also, educational leaves for full-time study are offered by many companies.

Cooperative educational programs are accepted by many companies. During the cooperative-training years, the companies have an opportunity to observe and aid in the development of promising students who, if they remain with the company, will need little "break in."

Self-improvement can also be greatly enhanced by regular attendance of professional technical sessions and seminars.

Summer employment programs for city youth are aiding today's young people to fully realize their potential. They are, and must, have the opportunity to obtain productive and meaningful work experiences.

Many companies are instituting programmed instruction to aid their course offerings. The advantage of programmed instruction is that the student can proceed at his own pace. Another advantage of this medium is the ability to offer courses of a more elementary nature for beginners and refresher courses, of more advanced material, for the practitioner. The two major disadvantages inherent in programmed instruction are the considerable degree of self-discipline required of the student and that programmed instruction is only as good as the available material.

Home study or correspondence courses are frequently provided and are a welcome solution to the problem of continuing education for employees who lived in locations distant from the company and find it inconvenient to attend classes on company premises. Employees who are assigned to field locations and do not have access to company training facilities or formal educational institutions find this situation very valuable. The popularity of this type of program is shown by the fact that both student population and the number of student hours are increasing at the rate of 50% per month. Furthermore, many wives are studying courses along with their husbands.

Since these are now college credit courses, a certificate presented by the industry is approval of course completion. Direct benefits are gained by the employees through their evidence of efforts to attain more education since these certificates are an aid in considering employees for pay increases and promotions.

The industries contacted during the visitation portion of my research indicated a very strong effort toward consideration of human relations problems. Most corporations have schools for employees and salesmen, as well as potential customers in the field. They have an excellent educational rapport with their constituents. Needless to say, all deal with research in an attempt to keep their company in a favorable competitive position.

Recent efforts to educate and employ the under employed have been extensive, particularly in the larger corporations. Unemployed persons from the street often sign up for courses, and take these courses as an employee. They do not necessarily have to have any kind of formal education prior to this time. They generally sign a contract concerning their committment to be employed following their schooling. They are paid an adequate amount of money during this time of education so that they may support their families while they are going to school. Efforts are being made in the local school districts as well as area schools concerning the education of the here-to-fore uneducable. Special

sessions, special speakers, special classes at the industry are held for people who are interested. Also, money is donated and awarded to the area schools for experimental and research work.

What effect does all this have upon the total employment picture? As indicated to me, there is now greater employment potential than ever before due to the greater capacity to do more and varied work. Education provided by industry has a definite positive effect upon our society. Industry trains these men for specific employment and because of this they will then be able to fit into productive corporate employment.

General Motors in particular has found that when they show interest in the under employed, and pay them a liberal allowance while they are attending their educational sessions, the students have a tendency to be happy and remain employed following their schooling because of the sincere interest expressed in their behalf. Previously, in all too many cases regarding an individual, no one, or no company for that matter, expressed a sincere interest in them. Consequently, when interest is shown and when financial benefit is received for their efforts in this type of schooling, at the conclusion of their training these employees are generally happy with what they have received and the efforts shown them and consequently remain employed. Granted, some do drop out during the course of their education but many through "indoctrination," if you will, see the strong benefits and do continue.

Probably one of the most important aspects of the corporate educational business is that company representatives frequently take the potential students (employees) on a tour of the industrial facility. They show this unemployed person where the employment needs are. In other words, they show the potential employee where a person is needed to fit into the entire complex industrial organization. They show him exactly how this vacant position fits into the entire scheme of production even though it may be a very simple type of operation. In this manner, the candidates can see that they can make a definite contribution to the whole regardless of what may be a very simple, monotonous, repetitive type of operation.

Another advantage that is presented to these potential students is that they will acquire a saleable skill. Many of them have absolutely no marketable skills at all. Many are elementary or secondary school dropouts, so that when the industry, or anyone, gives them something to work for, they frequently accept the challenge.

Industrial training and education in industry serves new employees, management, sales people, and a multitude of other functions.

Re-training is also highly important. Automatic pieces of equipment tend to replace personnel. In many cases, a single piece of automatic equipment may replace two, three, four, five and sometimes more employees. What do companies do with these employees? There are always openings in various departments but the restriction is that these openings are generally in an area which requires a specific skill. Therefore, when persons whose skills have become largely obsolete are replaced by automatic equipment, many companies have a policy of training them for a new position and, consequently, retain and often increase the ability of such employees. Often, because of his increased ability, he commands a greater salary.

At each corporation the question was asked, "Since you are using and increasing the use of automatic equipment, what happens to the employees that are displaced?" In all cases, the company representatives indicated that "yes" these people are displaced but actually they come out further ahead in the long run. Through industrial education these employees are given new positions frequently as operators of the new automatic equipment. Another point which was strongly emphasized was that this new equipment, being so efficient, has a larger production rating. They may now be able to turn out three to four times the quantity of the product line than they were under the manual system. Consequently, more people will be needed in sales, packaging, assembly and other types of operations. The demand for new employees or re-trained employees increases as the quantity of automatic equipment increases. In other words, automatic equipment produces greater production and greater production may demand more employees.

The following synopsis of an article taken from a periodical is worthy of mention:

> Worthy of mention is the job training and remedial education provided today by many industries to the hard core unemployed.
>
> Experience has proved that these people want to work and learn new skills. They can quickly become productive in drafting, especially at drawing restoration and updating.
>
> The enormous importance of training cannot be overemphasized. Corporations expend great quantities of energy and money in the effort to improve the output and quality of work by implementing all kinds of cost saving innovations. They prepare policies, definitions, regulations, rules, and detailed job descriptions galore. They implement in getting the improvement that is essential--raising the competence of the people who do the work. Clearly, by increasing personnel effectiveness, they can significantly raise the level of performance, achievement, and satisfaction.
>
> Industry should provide the training to meet manpower needs, and not rely solely upon training provided by educational institutions, or competitive companies. Industry should offer "in-house" training. Further, industry should assist high schools, junior colleges, and trade schools in developing curriculum that is compatible with the latest technology.
>
> Both the company and the individual benefit from continuing education. The individual gains updated knowledge. The company derives its benefits from increasing technological competence that is essential in a highly competitive market. An adequate educational system is essential to an industrial society - both to expand its technology and to cope with resulting social and human problems.

APPENDIX B

TECHNICAL ILLUSTRATION

Technical Illustration

Technical illustration is similar to advertising but in some respects it is radically different. This work is supported and conducted within industry itself as an integral and necessary part of the design-in-production process. Most of it is done prior to any attempt at public promotion and much of it is unseen by the general public. Nevertheless, it is the largest single category within the total output of industrial art work. Most technical illustrations are essentially an effort to orient and indoctrinate people in the principles, detailed workings, uses, and maintenance of the machines we live by. These illustrations are a necessary corollary of the scientific and technical progress of our times; they are vitally helpful to every phase in the cycle of scientific development, from the initial concept of the new invention to insuring proper use by the public of some mass manufactured end product. From the very beginning of this cycle, technical illustrations are a part of the process of technical creation. They proceed from the invention itself and are continued through the various stages of preliminary development. Many such drawings are helpful and sometimes indispensable for proper visualization, especially of complex devices.

Technical illustrations may be of every possible variety, often including full color group feature product renderings in watercolor, tempra, air brush, oils, and other media. Such drawings, after serving a useful purpose in helping to inform or indoctrinate company non-technical sales and other personnel, are often used in sales promotion advertising and literature aimed at the general public. Photographs could often be used for this purpose but lead time is necessary in advertising - often more time than is necessary for manufacture.

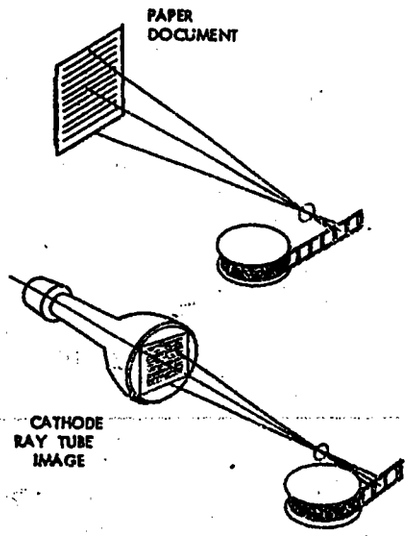
Once the product has been developed and working models proved successful, a succession of production illustrations are planned to coincide with the evolution of the manufacturing processes. They are used in various ways in fabrication, tooling processing, assembly, installation and other steps including, in many instances, the final packaging of the product.

At the same time there is a continuous need for technical manuals, handbooks, and catalogs. These must contain the latest and most detailed information on theory, parts listing, step-by-step operational techniques, and repair.

Technically illustrated information is becoming evermore important as a means of communication as machines become more complex and sophisticated. These devices can be kept operational and be properly maintained only if clear instructions are provided. Clarity calls for pictorialization and illustrations, charts, diagrams, graphs, etc. often make the difference between clarity and confusion. Indeed the old axiom was never more true, "one picture is worth more than 10,000 words."

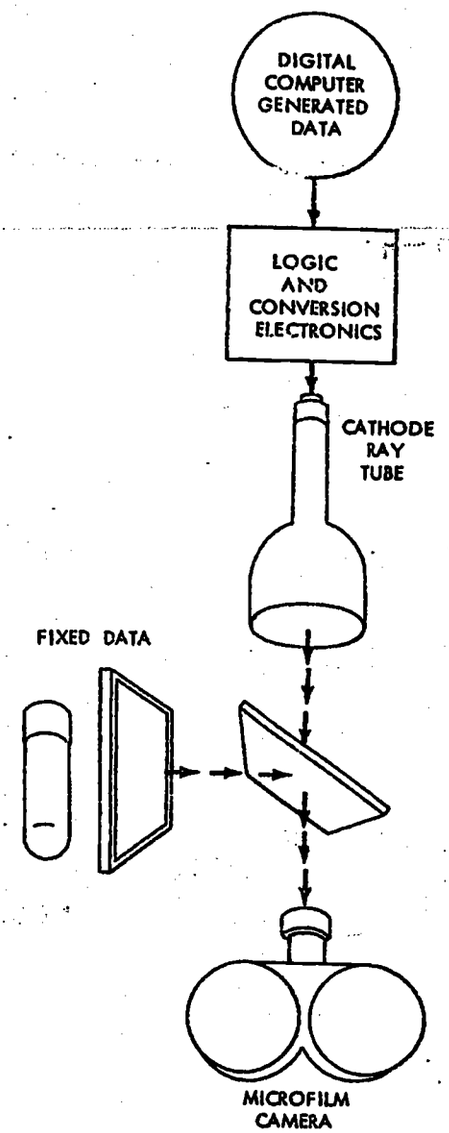
A questionnaire indicated in the Los Angeles area that there would be openings for 1,500 illustrators within the next five years. The survey also indicated that unless more illustrators are trained to enter this field, a potential of 800 to 1,000 unfilled jobs may safely be predicted for this area alone. Here you can see the occupational implications.

Microfilm Systems Layout



Microfilming systems

(Basic)



(Detail)

VT 016 237
SMITH, JOEL
A DEVELOPMENTAL PROGRAM OF OCCUPATIONAL EDUCATION, INTERIM REPORT. (JULY 1, 1970-JUNE 30, 1971).

COBB COUNTY BOARD OF EDUCATION, MARIETTA, GA.
OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
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DESCRIPTORS - *CAREER EDUCATION; *OCCUPATIONAL GUIDANCE; *VOCATIONAL DEVELOPMENT; *DEVELOPMENTAL PROGRAMS; ELEMENTARY SCHOOLS; MIDDLE SCHOOLS; SENIOR HIGH SCHOOLS; *CAREER LADDERS; EDUCATIONAL OBJECTIVES; OCCUPATIONAL CLUSTERS
IDENTIFIERS - GEORGIA; EMPLOYMENT SKILLS

ABSTRACT - THIS INTERIM REPORT FOR THE PERIOD FROM JULY 1, 1970 THROUGH JUNE 30, 1971 DESCRIBES THE OBJECTIVES OF THE COBB COUNTY, GEORGIA, SCHOOL SYSTEM'S EXEMPLARY PROJECT IN VOCATIONAL EDUCATION. THE APPROACH WAS TO COMBINE THE VOCATIONAL PROGRAM WITH THE BROADER CURRICULUM AND GUIDANCE PROGRAM WITHIN THE ELEMENTARY, MIDDLE, AND SECONDARY SCHOOLS IN ORDER TO HELP ALL STUDENTS TO DEVELOP SUITABLE WORK SKILLS, WITH EMPHASIS ON THE HANDICAPPED AND DISADVANTAGED. PROGRAMS IN GRADES K-6 INVOLVED CAREER DEVELOPMENT; IN MIDDLE SCHOOL, CAREER EXPLORATION AND PRE-VOCATIONAL ORIENTATION; AND IN SENIOR HIGH SCHOOL, VOCATIONAL CURRICULUM CLUSTERS. INTEGRATED IN EACH PROGRAM WERE ACADEMIC EDUCATION, GUIDANCE, AND VOCATIONAL EDUCATION AT ALL LEVELS. BOUND WITH THE DEVELOPMENTAL PROGRAM IS THE EVALUATION OF THE COBB COUNTY PROJECT MADE BY THE CENTER FOR OCCUPATIONAL EDUCATION, NORTH CAROLINA STATE UNIVERSITY AT RALEIGH. THE EVALUATION CONCLUDED THAT THE ACTIVITY-CENTERED CAREER DEVELOPMENT APPROACH TO TOTAL EDUCATION WILL WORK IF PROPERLY SUPPORTED. THIS PROJECT SHOULD HAVE ADDITIONAL STAFF, BOTH CAREER DEVELOPMENT SPECIALISTS AND CURRICULUM WRITERS. (MF)

INTERIM REPORT

Project No. 9-361-0063
Contract No. OEC-0-70-4781(361)

A Developmental Program of Occupational Education

Exemplary Project in Vocational Education
Conducted Under
Part D of Public Law 90-576

This project reported herein was performed pursuant to a contract with the Bureau of Adult, Vocational, and Technical Education, Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

Joel Smith
Cobb County Board of Education
47 Waddell Street
Marietta, Georgia 30060

1970-71

VT016237

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SUMMARY

This interim report covers the period from July 1, 1970 through June 30,1971.

Goals and Objectives

The overall goal of this project is to develop and implement a developmental program of occupational education in a cluster of schools within the Cobb County School System. The approach will be to fuse the more promising program and practices of vocational education with the broader curriculum and with the guidance program of the school system within the elementary, middle and secondary schools to enable the system to achieve its objective of education to all its students in developing work skills that are suited to an area of rapid growth in population, industry and technology. The project will place special emphasis on those who are culturally, economically or otherwise handicapped or disadvantaged.

I. Process Objectives

A. Programs in grades K-6: This project will attempt to develop and implement a career development program into the existing curriculum so as to enhance traditional academic learning and accomplish certain career development objectives. Community resources will be utilized by having them come into the schools for identification with the students and by having students visit these resources.

B. Programs in the middle school: This project will attempt to develop and implement programs of career exploration and pre-vocational orientation, into the school in such a manner to enhance traditional academic learning and accomplish certain career development objectives. Community resources will be utilized in in-plant visitation, visits to the schools, utilizing businessmen for identification with students and in work-experience opportunities.

C. Programs in the senior high school: This project will attempt to develop and implement vocational curriculum clusters in the areas of electrical, mechanical, metal-working, graphic arts, drafting and design, electronics, and office occupations within the senior high schools around the area. The academic subject matter will be cored for

many students. This will then enhance the traditional academic learning while providing the students with job entry level skills. The vocational curriculum clusters will be offered in two (2) two-hour classes for students in grades 11-12 and in one (1) one-hour class for students in grade 10. In addition the vocational curriculum will be offered on a twelve months schedule and organized on a quarterly basis, thus allowing new students to enroll each quarter.

D. Job Placement: This project will develop a job placement program which will place the responsibility on the school to help each student make the transition from school to work. Channels of communication between the guidance office of the schools and the community and world of work will serve to direct a workable placement program between these two elements using the resources of business placement offices, the local labor department, the Chamber of Commerce, and any other man power agency in the area.

E. Work Experience: This project will provide an across the board work experience program. At the lower grade levels these experiences will center more on observation and become more concrete to the point of on-the-job work experience at the upper level.

F. Guidance: "This project will provide both direct and indirect assistance to students in the career development process. Direct assistance will be through regularly scheduled individual counseling sessions and group guidance activities. Indirect assistance will be provided through counselor management of school and community resources to facilitate career development."

G. Post-secondary placement: This project will allow early student placement into the post-secondary area vocational-technical school during their senior year; a system of advance placement into the post-secondary area vocational-technical schools will be developed for high school youth who have participated in the cluster program. A systematic exchange of information and orientation will be established between the post-secondary vocational-technical school and the secondary school.

H. Differentiated staffing: A modified version of differentiated staffing will be used to fuse the academic, vocational, guidance and community resources into one educational package.

I. Disadvantaged and handicapped: The school experiences will be organized to insure greater probability of success by disadvantaged and handicapped youth as well as a greater personal concern on the part of school staff toward such youth.

II. Product Objectives

Outcome objectives for students will be developed in this project. Detailed outcome objectives for such a program are not presently in existence. This section is consequently concerned with a description of the global objectives which will be developed for career development activities at the elementary, middle and senior high school levels. More specific outcome objectives will be made during the project.

A. Elementary School Level

The career development program at the elementary school level should be informational and orientational in nature. The effort should be directed toward expanding the student's awareness of self and of the occupational structure.

B. Middle School

At the middle school level we are concerned with orientation and exploration and therefore propose activities divided into two phases. Phase I will offer the student an opportunity to further orient himself with several broad occupational areas and to acquire a base of understanding for future education and occupational decision making.

Phase II will provide students with an opportunity to explore a particular occupational area such as business and distribution, industrial and Human Services in greater depth.

C. Senior High School

Career development programs at this level should be exploratory and preparatory in nature. They should assist the student in converting his vocational preference into reality.

D. All Educational Levels

This project at all educational levels will have the following specific objectives:

a. To enhance student's traditional academic school learning.

b. To increase student's motivation to learn.

III. Expected Contributions

Development of a sequential model for occupational education from the elementary through the secondary level which prepares students to enter either work or post-secondary education. The proposed model would be at the center of the educational process rather than at the periphery, and would subsequently serve as a model for the state of Georgia and other areas of the country.

Integration of academic education, guidance, and vocational education at all levels in order to enable the student to more realistically choose, at any point in his learning process, the next step which will best serve his ambition and abilities.

Procedures

The procedures provide for a systematic approach in the further conceptualization, implementation, modification, evaluation, and dissemination of the model. The procedures will be as follows:

(1) Identify career development objectives at elementary, middle school and secondary levels as derived from student and societal needs.

(2) Review and assess existing research, resources, approaches, and technology within and outside the Cobb County School System in the selection of process and a plan for executing the processes for accomplishing identified career development objectives in a cluster of schools (1 Sr. high school, fed by 1 middle school, and 4 elementary schools).

(3) Provide for implementation, continuous evaluation and modification of the process for accomplishing identified career development objectives within the aforementioned cluster of schools.

(4) Conduct final implementation, product evaluation and dissemination.

Results and Accomplishments

The project showed considerable success in accomplishing goals

and objectives at the elementary level.

Dissemination of project activities and materials was widespread.

Evaluation

The Cobb County Board of Education, Marietta, Georgia, (prime contractor) issued a subcontract to the Center for Occupational Education, North Carolina State University at Raleigh, for the purpose of conducting an evaluation of the project entitled "Cobb County Occupational and Career Development Program", pursuant to the provisions of Contract No. OEC-0-70-4781(361) of the U. S. Office of Education.

This subcontract shall be in force for the duration of the project for three (3) years beginning 1 July 1970 and ending 30 June 1973, provided that the aforementioned project is not terminated prior to 30 June 1973 by the U. S. Office of Education or by the Cobb County Board of Education. In the event of termination by the U. S. Office of Education or by the Cobb County Board of Education, this subcontract shall be terminated upon written notice from the prime contractor to the subcontractor. Except in case of termination under the conditions specified above, this subcontract shall be continued annually for the duration of the project by an addendum to this document, said addendum to include an annual budget and description of services. In the event that the subcontract is terminated, the subcontractor will render a final report on the current status of the project within thirty (30) days after the termination of the annual subcontract term.

The evaluation subcontracted is conducted under the direction of Mr. Robert L. Morgan, Research Assistant, Center for Occupational Education, North Carolina State University at Raleigh and under the direction of Mr. Joel Smith, Project Director. The Project Officer is Mrs. Joyce F. Dechman, Program Officer, Pilot and Demonstration Branch, Division of Vocational and Technical Education, Bureau of Adult, Vocational, and Technical Education, U. S. Office of Education. Changes in the subcontract director are subject to the approval of the Project Director. Revisions to the contract terms and conditions may be made only by the Contracting Officer within the limits of his authority.

The subcontractor agreed to conduct the evaluation in accordance with the provisions of the proposal entitled "A Developmental Program of Occupational Education," subsequently re-titled "Cobb County Occupational and Career Development Program," upon which Contract No. OEC-0-70-4781(361) is based and in accordance with goals and objectives subsequently submitted, both of which were made a part of the subcontract.

The major responsibilities of the subcontractor (Center for Occupational Education, North Carolina State University at Raleigh) are:

a. To provide personnel to design and coordinate the evaluation in accordance with the provisions stated above.

b. To provide all basic materials for data collection.

c. To select existing instruments and develop new instruments needed to fulfill the data collection requirements.

d. To provide scoring services and data analysis services which constitute a part of the evaluation design.

e. To provide on-location consultative services relevant to the design, conduct, and interpretation of the evaluation, as the University deems necessary to discharge its responsibility.

f. To submit on interim report to the prime contractor based on the period of time covered by this subcontract.

g. To submit a final report covering the entire project evaluation at the termination of the project.

Policies and guidelines issued by the U. S. Office of Education with regard to interim and final reports shall be followed in submitting interim and final reports.

Conclusions and Recommendations

Career Development is a sequential process and program efforts at the middle and secondary levels will change as students proceed from the elementary to the middle to the secondary in the Career Development approach.

In-service activities are vital to the success of the Career Development approach. Career Development specialists are needed at the middle and secondary levels to initiate and maintain program activities. Curriculum writers are needed to develop curriculum materials.

BODY

Problem Area

The great majority of our students will enter employment at some time during their lives. Consequently, they need to be able to make informed and satisfying decisions which contribute to a successful transition from school to work. They also need some

specific skills which are in demand. Given the wide range of abilities among students and the almost infinite number of occupational opportunities open to them in a yet unknown future, developing educational programs to prepare them to enter work successfully is a tremendous challenge. To meet this challenge I feel that we need a career development emphasis from kindergarten through the post-secondary level.

Career development is broader than vocational training. A career development emphasis is one which recognizes the interrelatedness of all aspects of the school curriculum.

It has long been an accepted conclusion in many school systems that students fall into one of two categories. One category includes college bound high school students who expect their careers to begin some time in their early twenties. The second category includes the "vocational student" who must be prepared to enter gainful employment upon graduation from high school. Unfortunately it is also a generally accepted principle that these categories involve uniquely different kinds of people; therefore, somewhere along the way, each individual must decide, or have a decision made for him, as to the category for which he is suited.

For the college bound student the curriculum considered appropriate has been heavily laden with science and mathematics with generous helpings of foreign languages and other advanced academic courses. For the vocational student the appropriate curriculum has traditionally included only the required academic courses with ample time spent in a

variety of shops or industrial arts experiences.

There appear to be several reasons for reservation relative to this approach as a school system strives to meet its goal of helping all students to make a successful transition from school to work. Perhaps the first question that emerges concerns the kinds of college opportunities available for the student who selects the vocationally oriented curriculum in high school. A second question, one related to the first, is "What occupational opportunities are available for the college bound student who never makes it to college or who withdraws after his college entrance?" A third question that arises relative to this educational approach has to do with the stigma that is sometimes attached to vocational programs in the schools. This stigma often causes students to shun these programs even though they are individually appropriate and adequate. A fourth question that challenges educators in this area has to do with the individual right of every student to select the course of study he wishes to pursue and the responsibility of the school to advise the student through presenting alternatives for his selection. These and many other questions present a complex situation that must be considered by educators as they attempt to create career development programs.

Existing programs of occupational preparation, for the most part, have been designed to prepare students for entrance into gainful employment upon their graduation from high school. At the present time these programs in our schools are generally limited to the eleventh and twelfth grades in our secondary schools. Students who enter these programs must have met and must continue to meet specified academic requirements in order to qualify for high school graduation. These programs are implemented through the Instructional Division of the school system and are

under the leadership of the coordinator of vocational education. There are four distinct programs presently in operation in the Cobb County Public Schools. These programs include:

(1) Business Education

(2) Trade and Industrial Education

(3) Cooperative Work-Study Programs (DCT, DE, VOT)

(4) Consumer and Home Making Education

The Business Education Program is presently in operation in all of our nine (9) high schools. This program generally includes typing, shorthand, bookkeeping, business machines, Business English, and business mathematics. There are at this time twenty-nine (29) full time instructors serving 2,747 students in Business Education.

The Trade and Industrial Education Program is centered at the Cobb County Vocational High School located on the campus of Sprayberry High School. Students who participate in this program are enrolled in one (1) of our nine (9) high schools and attend the Vocational High School for three (3) hours each school day. Students from each of our high schools participate in the Trade and Industrial Education Program. Transportation for these students is provided by the school system. Students may enroll in one (1) of five (5) specialized courses at the Vocational High School. These courses include electricity which presently has an enrollment of forty-one (41) students, graphic arts and printing with and enrollment of forty (40), drafting with an enrollment of thirty-five (35), sheet metal which now involves thirty-two (32) students. The Vocational High School is administered by a full time supervisor and has a staff of five (5) instructors and one (1) counselor. Students are admitted to the program after the completion of

their second year in high school and are graduated from their parent high school upon completion of their vocational program and required academic courses.

Our Cooperative Work-Study Programs are presently operating in six (6) of our nine (9) high schools. These programs include classroom instruction in the specific jobs for which the students are training plus actual on-the-job work experience for which the students receive a grade and earn a salary. The Diversified Cooperative Training (DCT) Program is now in operation at Pebblebrook, South Cobb and Wills High Schools with one hundred eighteen (118) students participating. This program is designed to prepare students for employment in trades, industrial positions, and service positions. The Distributive Education (DE) Program is presently under way at Wills, South Cobb, Osborne, and Campbell High Schools. Preparation is provided in this program for the distribution and marketing of goods. One hundred seventy (170) students are enrolled in our DE Programs. Vocational Office Training (VOT) is in operation at Campbell, Sprayberry, Wills, South Cobb, and Pebblebrook High Schools. This program presently involves one hundred and forty (140) students. Through the Vocational Office Training Program students are prepared for office and clerical positions. Cobb County's VOT Program is unique in the state of Georgia in that it includes training for jobs in data processing. Students at Wills, Sprayberry, South Cobb, and Pebblebrook High Schools may enroll in key punching and courses in the use of data processing equipment.

All of our high schools and three (3) of our junior high schools presently offer a Consumer and Home Making Education Program. It is specifically intended to offer preparation in home management. Obviously

most of the participants in the program are girls; however, a few boys are enrolled. There are at this time fourteen (14) instructors in this program with 1,333 students.

In addition to these four (4) basic occupational preparation programs, we also have one broader career development program. It is one of twenty (20) pilot programs in Georgia this year and is entitled Program for Education and Career Exploration (PECE). It is a middle school program which includes classroom instruction in career and occupational decision-making as well as extensive concrete experience and field trips to business and industries throughout the area. Our program at Osborne Junior High School is funded for only one (1) year, but it appears at this time to hold definite promise as a valuable educational experience in secondary education.

We also have the Marietta-Cobb Area Vocational-Technical School; it is under the administration of the Marietta City School System, but our system shares the local costs equally with Marietta. Many of our students attend there after finishing high school. Those who finish their academic requirements in three (3) years may spend their entire senior year in the vocational-technical school and then graduate from their parent high school in our system. Some students take advantage of this option, however the Area Vocational-Technical School is basically post-secondary.

We also have Southern Technical Institute, a branch of the Georgia Institute of Technology, which offers two-year engineering technology programs.

This then provides a concise pictorial description of vocational education in our school system. We believe the total program as now established represents a sound beginning. However, we are convinced that we must expand and re-evaluate what we are doing in terms of a realistic assessment of the needs of our students and of our previously stated objective of preparing all students to enter work successfully.

Objective

The primary objective of this project is to plan and implement a developmental program of occupational education in a cluster of schools within the Cobb County School System. The approach will be to fuse the more promising program and practices of Vocational education with the broader school curriculum and with the guidance program of the school system within the elementary, middle, and secondary schools to enable the system to achieve its objective of education to all its students in developing work skills that are suited to an area of rapid growth in population, industry and technology. The project will place special emphasis on those who are culturally, economically or otherwise handicapped or disadvantaged.

Product Goal I:

The student will develop an awareness of the relationship between an individual's self-characteristics (interest, values, abilities, personality traits) and the appropriateness of various occupational areas.

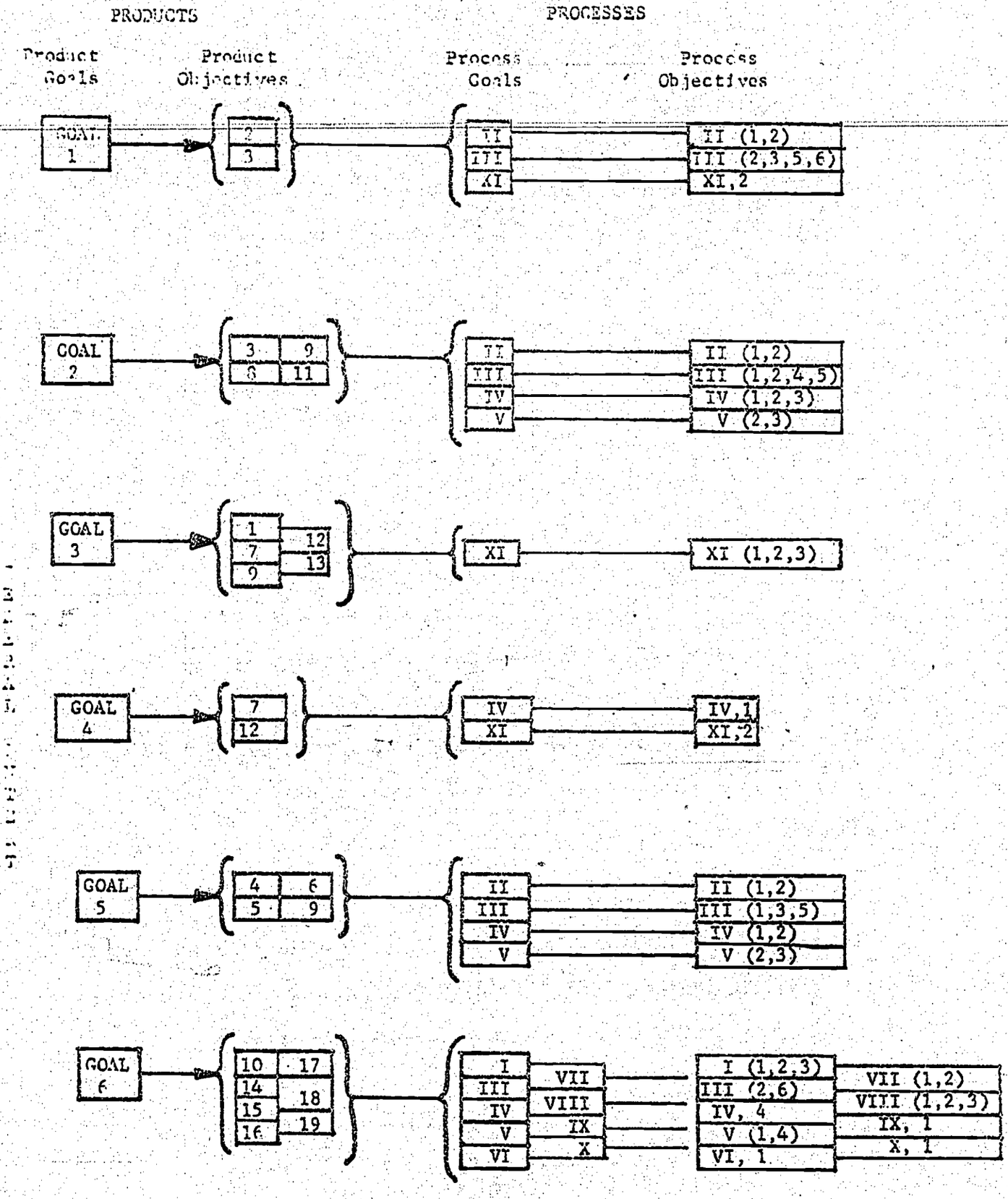

Figure 2

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Relationship Between Goals and Objectives

Product Goal II:

The student will acquire an awareness of the occupational areas within the community, the characteristics and the contributions of each, and will extrapolate to build a frame of reference for occupational areas in the state and nation.

Product Goal III:

The student will acquire an awareness of educational avenues necessary and those available relative to a wide range of occupational areas.

Product Goal IV:

The student will build upon his awareness of self-characteristics, occupational areas, educational avenues, and activity oriented experiences, an ability for decision-making.

Product Goal V:

The student will acquire an awareness of the psychological and sociological meaning of work, and during his achool activities will express a positive attitude toward self, others, educational programs, and different types of work roles.

Product Goal VI (Climate):

To provide a more meaningful and productive educational program with special emphasis on students identified as disadvantaged and/or handicapped.

Product Objectives

Product Objective 1:

To increase student (grades 5-12) knowledge of the educational require-

ments of occupations as measured by the P.E.C.E. Knowledge Test.

Product Objective 2:

To increase student (grades 7-12) knowledge of the abilities required in different occupations as measured by the P.E.C.E. Knowledge Test.

Product Objective 3:

To increase student (grades 7-9) knowledge of occupational areas as measured by the P.E.C.E. Knowledge Test.

Product Objective 4:

To increase the positiveness of student (grades 6-12) attitudes toward themselves and others as measured by an attitude scale.

Product Objective 5:

To increase the positiveness of student (grades 6-12), parent and teacher attitudes toward occupational education as measured by attitude scales.

Product Objective 6:

To increase student (grades 8-12) and teacher satisfaction with curriculum offerings as measured by the 1968 Cobb County Questionnaire.

Product Objective 7:

To increase the percentage of students applying for and entering post-secondary education.

Product Objective 8:

To increase the number of occupations students (grades 2-12) can list in one minute.

Product Objective 9:

To increase the number of high school students enrolled in vocational education programs.

Product Objective 10:

To decrease the absentee rate.

Product Objective 11:

To increase the number of students (grades 10-12) in work experience.

Product Objective 12:

To increase counselor involvement regarding contact with students about career decisions.

Product Objective 13:

To increase counselor involvement regarding contact with teachers to fuse career-oriented activities and information in curriculum.

Product Objective 14:

To increase parental involvement in the education process.

Product Objective 15:

To increase the proportion of students (graduates and dropouts) leaving school with job entry-level skills.

Product Objective 16:

To reduce grade failures.

Product Objective 17:

To increase the percentage of students placed on jobs by the school.

Product Objective 18:

To increase student academic achievement as measured by an achievement test.

Product Objective 19:

To reduce the dropout rate.

Process Goals

Process Goal I:

This program in grades 1 through 7 will enhance the traditional academic curriculum with occupationally oriented activities.

Process Goal II:

This program in grades 1 through 7 will introduce students to community work roles.

Process Goal III:

Through the P.E.C.E. Program this program will develop and implement programs of career exploration in such a manner as to enhance traditional academic learning and accomplish certain career development objectives.

Process Goal IV:

This program will develop and implement programs of pre-vocational orientation into the middle school, ninth grade, in such a manner as to enhance traditional academic learning and accomplish certain career development objectives.

Process Goal V:

This program will develop and implement an exploration program at the tenth grade level.

Process Goal VI:

This program will provide an across-the-board work experience program at the tenth grade level for potential dropouts.

Process Goal VII:

This program will develop and implement vocational clusters within the senior high school around which academic subject matter will be centered.

Process Goal VIII:

At middle and secondary levels teachers will interlock exploration, pre-vocational, and career development with academic curriculum for certain students.

Process Goal IX:

This program will provide students with job entry level skills.

Process Goal X:

This program will develop a job placement program which will place the responsibility on the school to help each student make the transition from school to work.

Process Goal XI:

This program will provide both direct and indirect assistance to students in the career development process. Direct assistance will be through regularly scheduled individual counseling and group guidance activities. Indirect assistance will be provided through counselor management of school and community resources to facilitate career development.

Process Objectives

Process Objectives I:

1. Each teacher will implement at least one concrete experience program per grading period (4 per year).

2. Each teacher will self-evaluate each program implemented and submit a report of successes, failures, and suggestions for further development of that program.

3. Each teacher will work directly with the Career Development Specialists in the implementation of the programs.

Process Objectives II:

1. Each teacher will take her class on at least one field trip (per grading period) to an on-job site.

2. Each teacher will have at least two community resource persons per grading period into her classroom to discuss their work roles with students.

Process Objectives III:

1. The student will be exposed to the actual work settings of all levels within job clusters.

2. The student will perform aspects of the observed jobs that are appropriate in terms of skills and abilities.

3. The student will interview workers in order that he may know how various workers view their jobs.

4. The students will discuss their visitations and will extrapolate information obtained to additional occupational possibilities.

5. Same as II,2.

6. Each teacher in grades 10 through 12 will provide one learning activity with supporting lesson plans per month designed to help students see the relationship between her subject matter and a cross-section of occupations, with occupations at each level in the Dictionary of Occupational Titles (D.O.T.) being given major focus at least one time.

Process Objectives IV:

1. The student will participate in one of the three broad areas of occupations: (a) Business and Distribution, (b) Human Services, and (c) Industrial Arts (based on Construction), and will be exposed in depth to those aspects of each level that will further broaden the experience base for selecting more specific occupations.

2. Same as III,2.

3. Same as II,2.

4. Same as III,6.

Process Objectives V:

1. The student will choose general business, trade, and industrial exploration or an academic program leading toward college programs such as liberal arts, engineering, pre-med., and others.

2. The student will be exposed one hour each day to the working conditions, characteristics and other details of various occupations within the community.

3. Same as II,2.

4. Same as III,6.

Process Objective VI:

1. The student identified as a potential dropout will receive special training in consumer education and job skills one hour each day under a Coordinator of Vocational-Academic Education and if so inclined will be placed in after school jobs, with coordinator-employer liaison for direction and follow-up.

Process Objectives VII:

1. The student will be exposed to the characteristics of one of the following vocational clusters 2 hours each day: electrical, mechanical, metal-working, graphic arts, drafting and design, electronics and office occupations.

2. Same as III,6.

Process Objectives VIII:

1. Teams of teachers organized around vocational offerings with a team leader will meet once each week to develop lesson plans for interlocking.

2. Teachers will report results of last week's lesson plans with suggestions for improvement at each weekly meeting.

3. Students will be interviewed for their views of the interlocking.

Process Objective IX:

1. The student will be provided opportunities of academic offerings at the senior high school for college preparation, vocational offerings at the vocational high school, on-the-job work experience in the community or the senior plan of the specific training at the area technical school.

Process Objective X:

1. The Job Placement Coordinator will establish channels of communication between the school and the community world of work utilizing resources of business placement offices, the local labor department, the Chamber of Commerce, and any other manpower agency in the area.

Process Objectives XI:

1. Classroom teachers at the elementary level will be assisted in building into the existing curriculum such experiences as will provide maximum opportunity for vocation inquiry and awareness of the world of work.

2. At the middle and secondary levels counselors will on a systematic and scheduled basis work directly with students in individual and group counseling sessions to accomplish career development and vocational objectives. The counselor will also work on a scheduled basis to accomplish these goals through teachers, curriculum, peer group, and community resources. At the middle school level the counselor will use pre-vocational laboratory experiences as a basis for counseling students toward career development objectives.

3. Intensive efforts will be conducted by the counselor to assist the non-college bound student in the transition to either enter employment or a post-secondary vocational program. The method will involve both direct and indirect experiences with students through the management of school and community resources to enhance a satisfactory transition from high school.

GENERAL DESIGN

I. OVERVIEW

The overall objective of this project is to plan and implement a developmental program of occupational education in a cluster of schools within the Cobb County School System. The approach will be to fuse the more promising programs and practices of vocational education with the broader curriculum and with the guidance program of the school system within the elementary, middle, and secondary schools to enable the system to achieve its objective of education to all its students in developing work skills that are suited to an area of rapid growth in population, industry and technology.

The procedures provide for a systematic approach in the further conceptualization, implementation, modification, evaluation and dissemination of the model. The program design will consist of these phases: (1) developmental; (2) implementation, review, revision and improvement; and (3) final implementation, evaluation, and dissemination.

A. Developmental phase: September, 1969 - August, 1970

The intent of the developmental phase will be to:

(1) Identify career development objectives at elementary, middle school and secondary levels as derived from student and societal needs.

(2) Review and assess existing research, resources, approaches and technology within and outside the Cobb County School System in the selection of process and a plan for executing the processes for accomplishing identified career development objectives in a cluster of schools (1 Sr. high school, fed by 1 middle school, and 4 elementary schools).

This phase will consist of two sub-phases as follows:

*1. Planning and consultant sub-phase:

The planning and consultant sub-phase will run from September, 1969 through May 1970. The intent of this sub-phase will be to specify objectives and to review, assess existing resources and approaches and make recommendations regarding implementation strategies.

Description of Activities

a. Conduct meeting of project Advisory Committee (November, 1969) to provide for a review of the project, its intent, and proposed procedures and to provide for additional input and modification.

b. Conduct working meeting (November, 1969) with selected consultant to provide them with an orientation in the preparation of the following working papers:

"Program Design for Career Development K-6"

"Program Design for Educational and Career Exploration in the Middle School"

"The Industrial Arts Prevocational Program"

"The Organization and Business Prevocational Program"

"The Human Services Prevocational Program"

"Structuring the Vocational Curriculum on the Cluster Basis in Grades 10-12"

"Job Placement and Post-Secondary Vocational School Placement"

"Guidance as an Integral Part of Career Development at Different Age Levels"

"The Nature of the Learner at Different Age Levels"

*This sub-phase will be conducted by previous grant.

Each working paper will contain the following break-down:

(1.) Conceptual Frame of Reference (General Description of Program)
(2.) Rationale (Why is program needed?)
(3.) Details of Program (Specific Operational Details)
(4.) Implementation Suggestions
  (a.) Principles
  (b.) Tasks to be Accomplished
    1. Short-range (before September, 1970)
    2. Long-range (during 1970-71 school year)

c. Conduct planning conference (January, 1970) at which consultants present working papers to key individuals from the Cobb County School System and from the cluster of schools involved in the project, and to provide a dialogue between conference participants and consultants.

d. Conduct meetings of each different sub-committee (January, 1970 through May, 1970) for the purpose of modifying consultants' working papers into a written "workable model" and "plans" for implementing the models so as to accomplish identified career development objectives. There will be six sub-committees in the following areas which will be composed of individuals from participating schools, consultants, state level, teacher education, etc.

e. Conduct monthly meetings of Executive Committee to review previous month's activities and to plan further activities. (This activity will be carried on through the project but will not be mentioned again.)

2. Staff and material preparation sub-phase: Summer, 1970

The staff and materials sub-phase will run from June 1, 1970 through August 31, 1970. The intent of this sub-phase will be to prepare the staff in the pilot attendance area and to develop and obtain support materials for implementation of the models developed by different sub-committees as part of the planning and consultant sub-phase.

Description of Activities

a. Complete selection and have on the job by July 1, 1970, the project director and other staff within cluster of school who are to work with the project.

b. Conduct seven-day training session for project director and key staff members in the pilot schools for the purpose of orienting the staff to the immediate and far reaching intent of the project to the theoretical concepts underlying the project, to the precedural intent, and to assist in the development of plans including time schedule, communication pattern, responsibilities, curriculum formats, etc. necessary for successfully implementing proposed process. One day of each week from July 1 through August 31 will be devoted to this effort. The Associate State Director of Vocational Education will take the lead for these sessions.

c. Conduct eight-day joint training session for project staff principals from pilot schools, elementary teachers, middle school teachers and senior high teachers. This training session will be for the purpose of orienting staff to intent and nature of the model at different levels; assess curriculum materials and to develop curriculum materials for implementing the model and schedule activities into the curriculum, to develop a procedure for reviewing the project's progress and to modify as needed within the context of each school and within the context of the total project. Consultants will be identified to assist project staff in these training sessions.

d. Utilization will be made of other teacher in-service institutes going in the state that would prepare staff for the project. Each of these institutes will provide specific inputs concerning disadvantaged and handicapped students. The following can be identified.

(1.) The PECE co-ordinator will be enrolled in a special institute to train such individuals.

(2.) The area high school supervisor will be enrolled in a special institute that will be devoted to the major concepts that underlie this project.

(3.) The area high school instructor will attend a summer institute to acquire confidence in those areas within a cluster where they are weak.

(4.) Several of these persons may be handled on an individual basis.

(Available in-service programs will be utilized throughout the duration of the project.)

B. Implementation, review, revision and improvement phase - September, 1970 - May, 1972.

This phase provides for implementation, continuous evaluation and modification of the process for accomplishing identified career development objectives within the aforementioned cluster of schools. This phase will consist of three sub-phases as follows:

1. Initial Implementation sub-phase (August, 1970 - May, 1971)

The aim of this sub-phase is to implement the model as conceived and assess its effect on students. This will necessitate constant review and follow-up in order to overcome problems that may emerge in order to implement the model as developed.

Description of Activities

a. Project director conducts weekly meetings with team coordinators* and principal from each school. This will serve as a monitoring procedure and more specifically (1) to review problems that are emerging and to plan to overcome; (2) to plan, organize and schedule future activities of team coordinators in their particular school; (3) to show ideas and experiences; (4) to review and study available materials and techniques; (5) to learn from experts; (6) to plan and co-ordinate both process and product evaluation. (This activity will not be mentioned again, but it will be continuous through the project.)

b. Team coordinators in each school conduct weekly meetings for staff which will be for the following purposes: (1) to interlock academic and vocational curriculum experiences; (2) plan and schedule activities; (3) develop curriculum materials; (4) assess existing curriculum materials and techniques available through ERIC and other sources; (5) staff utilization; (6) plan and conduct both process and product evaluation; (7) plan and conduct in-service activities; (8) develop a format that each will use in detailing learning activities carried out.
(This activity will not be mentioned again, but it will be continuous throughout the project.)

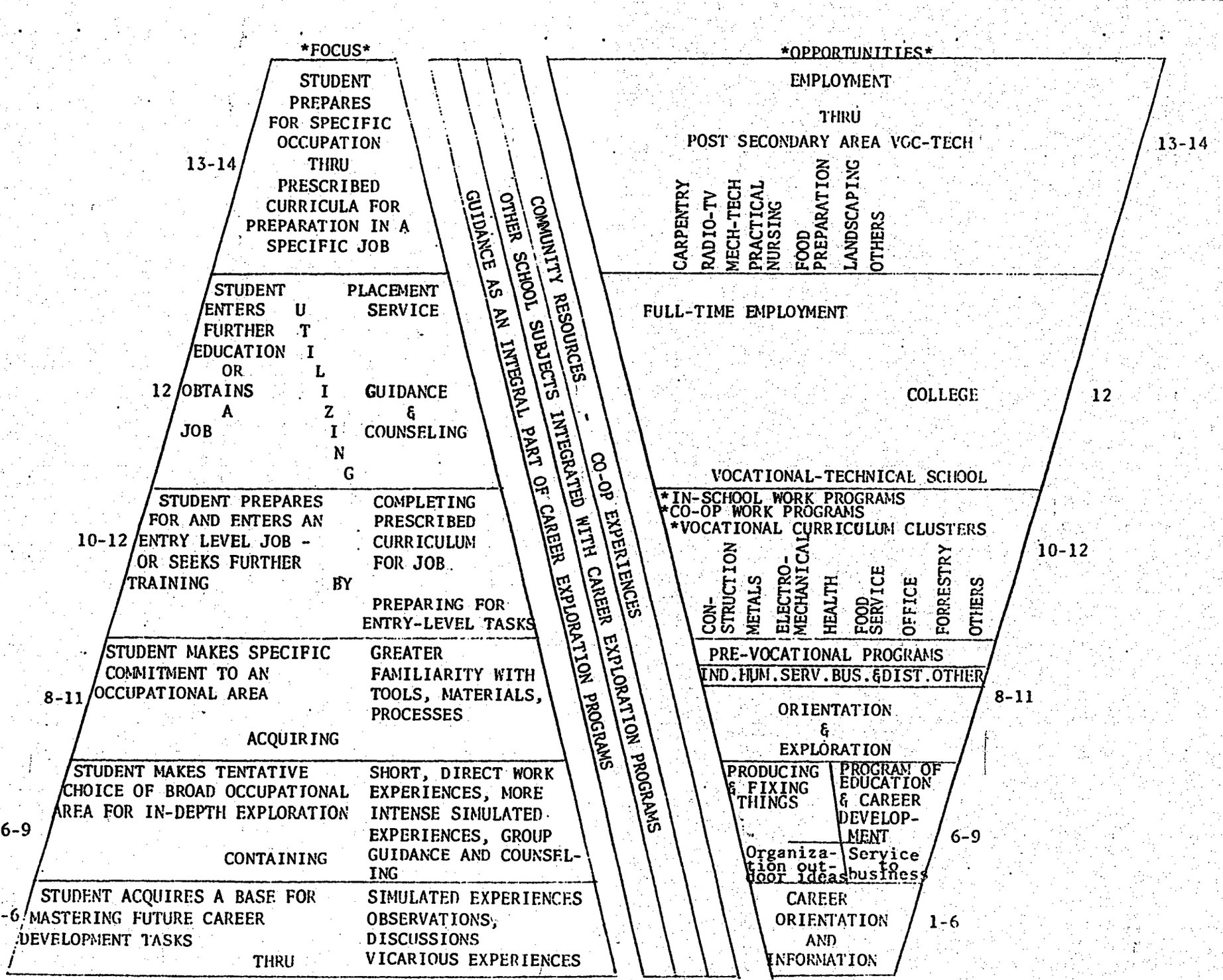
*Team coordinators include career development specialist at elementary level and job placement and post-secondary coordinator.

c. Conduct five-day project-wide in-service training for project staff team coordinators, teachers, and principals, to be scattered throughout the year and designed to add knowledge, ideas, and techniques that could be used to further develop the project. (This activity will not be mentioned again, but it will be continued throughout the project.)

d. All involved teachers will keep a daily diary with comments on process evaluations to be summarized weekly and used as a basis for revision the following summer. (This activity will not be mentioned again, but it will be continuous throughout the project.)

e. Conduct review of the project by an outside Advisory Committee. This will be made in the spring of each year. This Advisory Committee will be composed of individuals from the U. S. Office of Education, State Department of Education, local school level, teacher education and community.

f. Conduct product evaluation to determine the effects the project is having on students.



* A PROGRAM OF DEVELOPMENTAL OCCUPATIONAL EDUCATION *

Schools and Location

The schools participating in this project will be those located in Sprayberry attendance area. Cobb County is divided into nine (9) attendance areas, each composed of one (1) senior high, one (1) or more middle schools, and a number (usually four) elementary "feeder" schools. The aforementioned Sprayberry attendance area includes Sprayberry High School; J. J. Daniell Junior High School; and Mt. View, Blackwell, Elizabeth, and Bells Ferry Elementary Schools.

School Personnel involved in the project will be as follows:

Elementary level: All principals, 24 teachers for the first year; all principals, 30 teachers each year thereafter.

Middle School level: Principal, Counselor, 10 teachers for the first year; Principal, Counselor, and 15 teachers for the second year; and Principal, Counselor and 20 teachers for the third year.

Senior High level: Principal, counselor, 10 teachers for the first year; Principal, Counselor and 15 teachers for the second year; and Principal, Counselor and 20 teachers for the third year. In addition the Vocational Supervisor, Counselor and five (5) instructors of the Cobb County Vocational High School will be involved for each of the three (3) year.

Currently Cobb County Schools offer little or no organized activities at the elementary level which attempt to introduce their respective students to the world of work. However, isolated cases of individual effort toward that end are evident.

Criteria for the selection of the Sprayberry attendance area are:

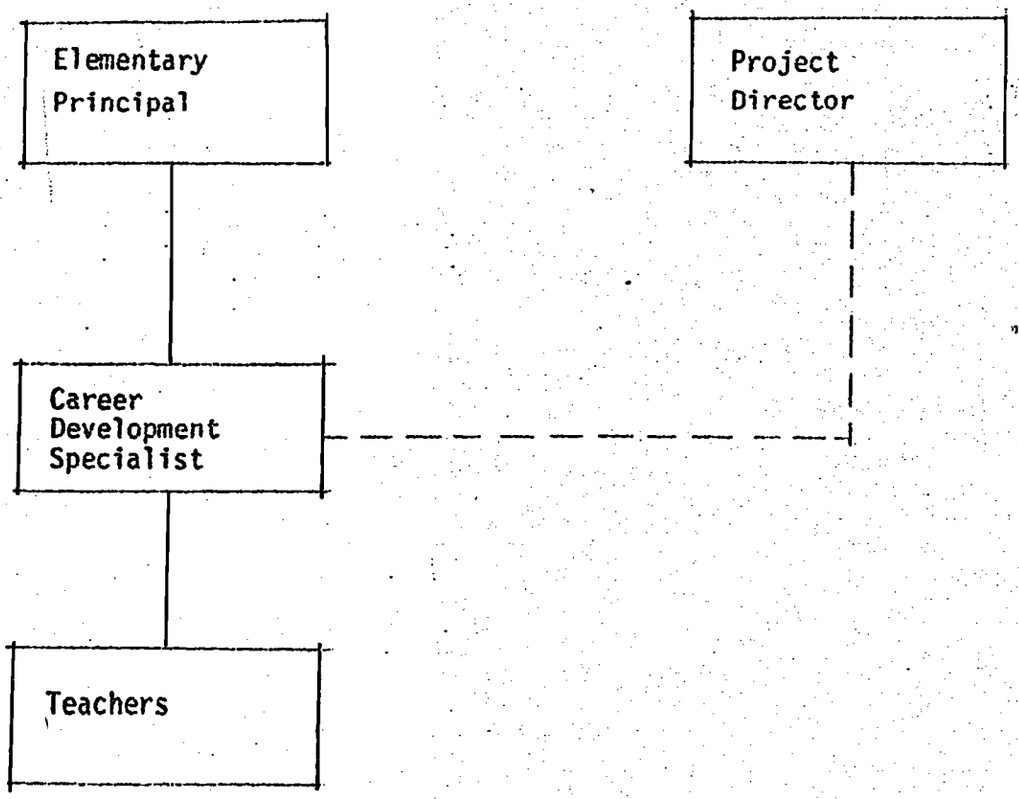
(1) The Cobb County Vocational High School, which will play an important part in this project, is located adjacent to Sprayberry High School.

(2) Each of the elementary principals in this area is outstanding in his own right and all have proven to be receptive of innovation and change.

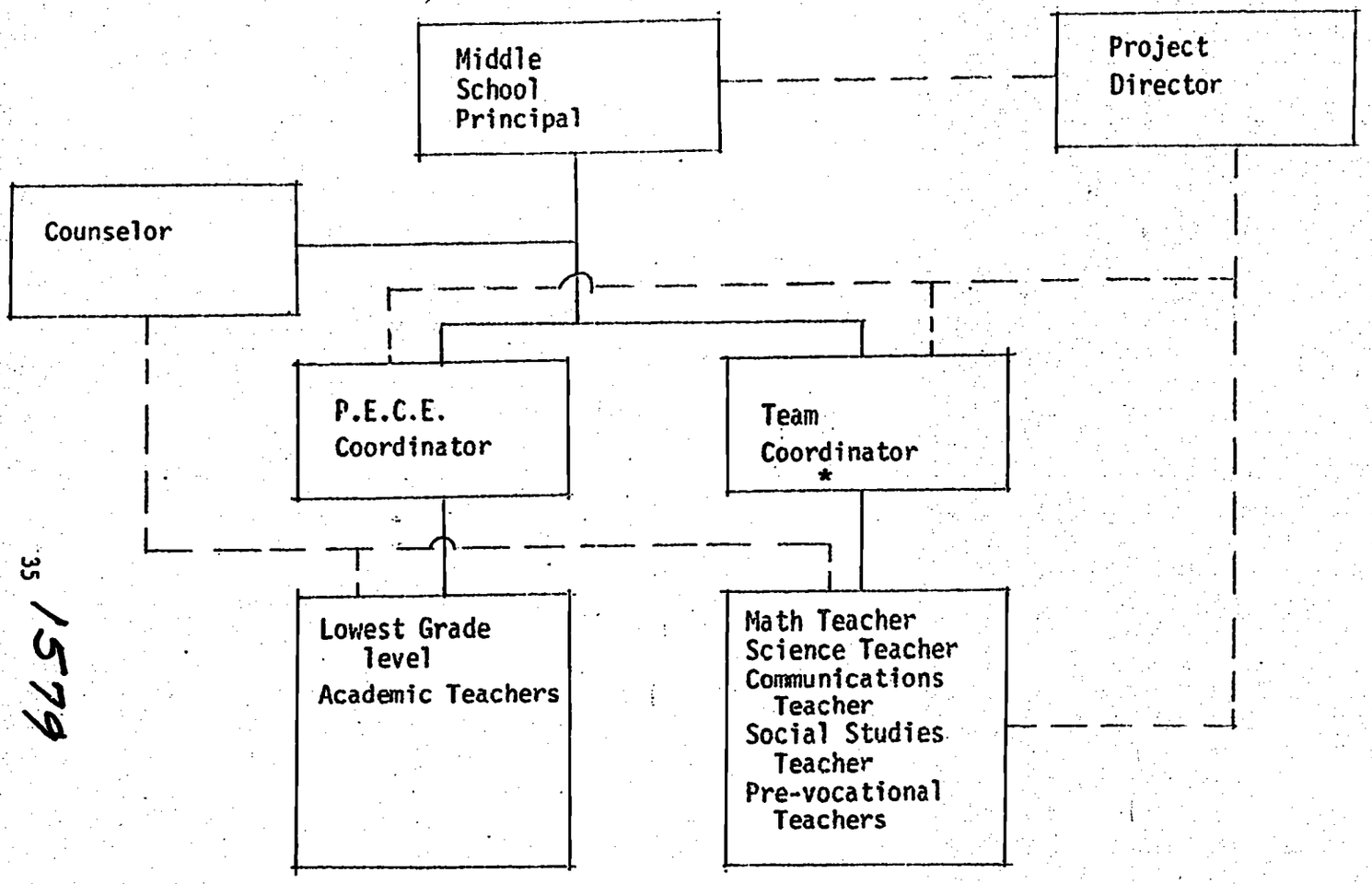
(3) This attendance area represents a good cross-section of Cobb County Students.

(4) The junior high school principal involved has a vocation education oriented background and is a leader among his peers.

Total enrollment in Cobb County School System as of September 1970, was 43,892. Enrollment in the Sprayberry attendance area was 4,894 with approximately 1,650 youngsters in the treatment group.



ELEMENTARY
TYPICAL
EACH SCHOOL

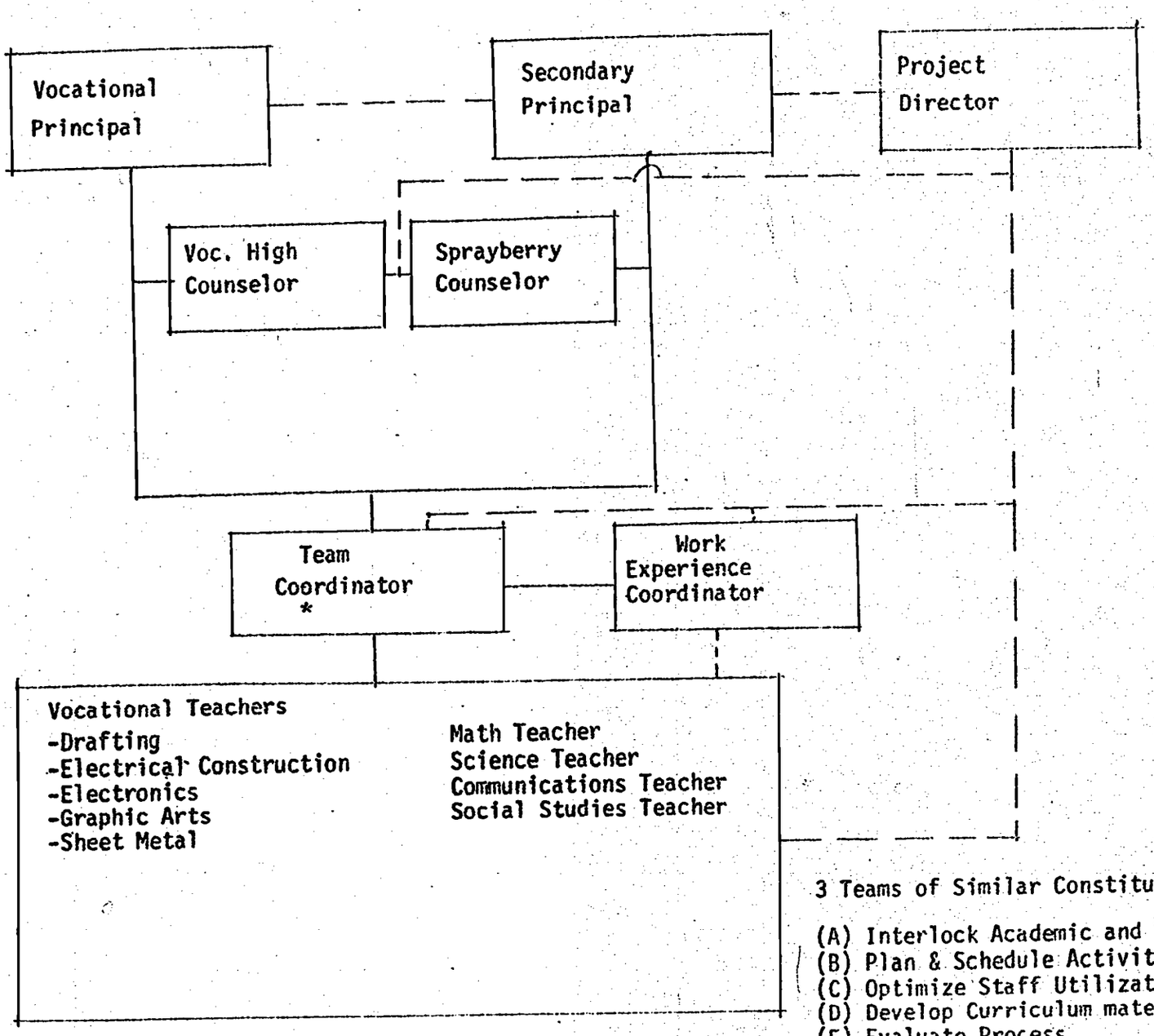


3 Teams of Similar Constitution to:

(A) Interlock academic and vocational curricula
(B) Optimize Staff utilization
(C) Plan and schedule activities
(D) Develop Curriculum materials
(E) Evaluate Process

*One each: Industrial Arts, Human Services, Business & Distribution

MIDDLE SCHOOL



*One Each: Office Occupations, T. & I. Clusters, Pre-vocational

Results and Accomplishments

During the 1970-71 school year, the twenty-four (24) elementary teachers in the project implemented ninety-six (96) Career Development units. Each unit incorporated a hands-on activity, a resource person into the classroom, a field trip into the community, the tie-in of all curriculum areas, role-playing activities and the introduction to occupations in the community.

The eagerness and enthusiasm of the youngsters in this approach to education was most apparent to teachers, parents and visitors to the project.

Numerous in-service meetings and workshops were successful in obtaining committment from elementary teachers to the activity-centered approach to education.

During 1970-71, visitors from the following school districts visited the Cobb County Occupational and Career Development Program: Morgantown, West Virginia; Knoxville, Tennessee; Moberly, Missouri; Minneapolis, Minnesota; Bismarck, North Dakota; Columbia, South Carolina; Lansing, Michigan; Huntington, West Virginia; Hamlin, West Virginia; Memphis, Tennessee; Lexington, North Carolina; Auburn, Alabama; Wake County, North Carolina and from school districts throughout Georgia.

Materials from the Cobb County Occupational and Career Development Program have been sent to other projects, State Departments of Education and universities throughout the United States.

THE EVALUATION OF A DEVELOPMENTAL PROGRAM OF OCCUPATIONAL EDUCATION

Douglas S. Katz
Robert L. Morgan

CENTER FOR OCCUPATIONAL EDUCATION

North Carolina State University at Raleigh
Raleigh, North Carolina

January, 1972

39 1582

ACKNOWLEDGEMENTS

The task of evaluating the Cobb County Developmental Program of Occupational Education, which serves a diverse population of students, parents, teachers and administrators, would not have been possible without the assistance of many persons who have directly contributed to its completion.

The director especially wishes to express his appreciation to Mr. Douglas Katz, who was largely responsible for the evaluation effort. A special note of appreciation is expressed to Mr. W. Darrell Myrick, who assisted in both the data analysis and preparation of the final report. The director also wishes to acknowledge the contributions of Dr. John K. Coster for his assistance in editing and reworking the paper; Dr. John L. Wasik, who aided in the statistical analysis; Mr. Harold Berdiansky and Mr. G. William Porter for reviewing the report, and Mrs. Faye L. Childers, who aided in data analysis.

Special appreciation is given to Mr. Joel Smith, Mr. Robert Cook, Mr. Albert Price and the other members of the Cobb County Program staff who assisted in the data collection and the provision of much of the information contained in this report.

Finally, the director wishes to thank Miss Katherine E. Gruenewald for her excellent work in organizing the data, and Mrs. Betty M. Twiggs for her unfailing good spirit in typing the numerous drafts of the report.

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INTRODUCTION

The development of any approach in education usually engenders speculation about the probable results of the approach. Evaluation has traditionally served as a method for determining the extent to which the desired ends have been accomplished and to discover the causal factors behind the actual results.

The present evaluation effort has two primary intents which take precedence over the more traditional use of evaluation: (1) to assist the decision makers in understanding and improving their program, and (2) to provide a source of information that will facilitate dissemination of successful components of the program. Exemplary programs in vocational education were intended to serve as replicable models of educational systems, therefore, the evaluation of these programs should serve to assist in developing a model that is both worthy and capable of being exported.

To understand and evaluate exemplary programs in vocational education it is necessary to explore the purpose behind the programs. These programs cannot be viewed in isolation from the national goals; for these programs are the result of the needs of the nation as well as state and local conditions. The present evaluation will thus attempt to relate the Cobb County Developmental Program of Occupational Education to the national intent, for unless the latter is taken into consideration the ultimate success of failure of the program cannot be determined.

This evaluation report is the first of three evaluation phases that will be carried out in the Cobb County Public Schools exemplary program. The data base is presently not complete; however, there is sufficient information to identify many of the strong and weak areas of the program and

to make recommendations. As the program matures, its effects on the students will be more readily observable; future evaluations should thus have a more detailed account of the manifest and latent results of the Cobb County exemplary program.

THE FEDERAL ROLE

During the latter part of the decade of the sixties, the high level of youth unemployment precipitated renewed attention to the role of vocational education in providing educational opportunity for individuals in all strata of American society. One of the most significant results of this renewed attention was the inclusion of the concept of vocation education into the more general concept of occupational education, which included both prevocational and vocational education. The thinking which led to the revision of the vocational education concept was expressed most clearly in the House Report 1647 of the 90th Congress, Second Session:

> .... The General Subcommittee on Education has concluded that the following five ideas recommended by the Advisory Council (on Vocational Education) deserve serious consideration: (1) any dichotomy between academic education and vocational education is outmoded; (2) developing attitudes, basic educational skills and habits are as important as skill training; (3) prevocational orientation is necessary to introduce pupils to the world of work and provide motivation; (4) meaningful career choices are a legitimate concern of vocational education; (5) vocational programs should be developmental, not terminal, providing maximum options for students to go on to college, pursue postsecondary vocational and technical training, or find employment. (House Committee on Education and Labor, 1968).

The Vocational Education Amendments of 1968 provided means for implementing the ideas in this House Report by including provisions for developing and administering exemplary programs and projects designed to produce new methodologies in occupational education. Under Part D (Exemplary Programs and Projects) of the Vocational Education Amendments of 1968 (P. L. 90-576, Section 141), Congress defined the purpose of exemplary programs and projects:

> .... to stimulate, through Federal financial support, new ways to create a bridge between school and earning a living for young people who are still in school, who have left school either by graduation or dropping out, or who are in postsecondary programs for vocational preparation, and to promote cooperation between public education and manpower agencies.

Grant Venn, Associate Commissioner for Adult, Vocational and Technical Education (Policy Paper AVL-V70-1, 1969) pinpointed the priorities that should be established for an exemplary occupational education program in light of the 1968 Amendments:

1. Provisions for broad occupational orientation at the elementary and secondary school levels so as to increase student awareness of the range of options open to them in the world of work.

2. Provisions for work experience, cooperative education and similar programs, making possible a wide variety of offerings in many occupational areas.

3. Provisions for students not previously enrolled in vocational programs to receive specific training in job entry skills just prior to the time that they leave the school. (Some of these training programs might be very intensive and of short duration.)

4. Provision for intensive occupational guidance and counseling during the last years of school and for initial placement of all students at the completion of their schooling. (Placement might be in a job or in postsecondary occupational training. Placement should be accomplished in cooperation with appropriate employment services, manpower agencies, etc.)

5. Provisions for the grantee or contractor to carry the program on with support from regular funding sources after the termination of the Federal assistance under Part D of P. L. 90-576. (Federal assistance under Part D cannot exceed three years.)

Grant Venn's statement became the program guidelines for individual proposals from the states. At the onset there was much confusion as to

which took precedence, the proposal preparation guidelines or the Grant Venn Policy Paper. Therefore, the Cobb County proposal generally did not meet the requirements of either document. Proposals were sent in by January 1, 1970. The expected notification date for funding was March 1, 1970; however, notification of contract award for Cobb County did not come until June 30, 1970. This late notification placed a stress on the Cobb County program, since in compliance with Cobb County policy no personnel could be hired until after official notification was received. In August the program budget was reduced by 10%, causing more problems in the early stages of initiation. The program director was hired immediately after notification of funding; other staff was not located until early August.

In August of 1970, U.S.O.E. sponsored a conference on exploratory programs in occupational education. This conference dealt with many of the issues that the program directors would face in the coming year. More importantly, U.S.O.E. and particularly B.A.V.T.E. demonstrated a firm commitment to the programs and set the stage for successful implementation.

The Pilot and Demonstration branch of B.A.V.T.E. provided for feedback on the progress of the program at three levels: (1) on-site visitation by both regional and national officers, (2) required quarterly and annual reports prepared by the program staff, and (3) annual reports prepared by the third party evaluation team as required by U.S.O.E.

It was assumed by U.S.O.E. that an adequate research and curricular base had been previously developed, and that a program staff need only gather together and implement these existing materials and experiences. Within the approved expenditures contained in the Act, this may be true. However, the components stressed in Venn's policy statement have never

before been integrated into a single program. Furthermore, curricular materials were not available in many areas contained in the Cobb County program, causing much staff time to be allocated to the development of these materials.

The first four programmatic thrusts of the Venn policy statement appear to have been conceptualized as a single unit. However, problems have arisen in attempting to integrate the concepts as well as implant these modules into the existing curriculum. In order to assure the program's eventual success, it seems that a reduced scope, increased fiscal resources and an extended time frame is necessary. The fifth thrust of Venn's statement calls for the incorporation of successful aspects of the program into the schools after the termination of federal funds. While on the surface this requirement seems fairly simple to accomplish, the school finances in Cobb County are already severely stressed. Given the large in-service teacher training requirement of the program, in conjunction with the rapid turnover of teachers, continuation of successful aspects of the program seem to require additional finances that have not yet been committed.

The United States Office of Education's request for proposals described the general nature of the exemplary programs which would be federally funded. The Georgia Department of Education and the Cobb County School System wrote a proposal which resulted in a set of process and product goals. These goals were not context free, e.g., they were in part influenced by the specific needs of the local community and the metropolitan area of Atlanta.

Once the goals were established, the program staff was responsible for developing and implementing process and product objectives that would bring

about goal attainment. In the Cobb County proposal, no product objectives were present; therefore, all objectives that were to be measured by the evaluation staff were developed after the U. S. Office of Education had committed itself to funding the program.

The program staff worked with the evaluation staff in developing sets of process and product objectives that were both congruent with the goals and capable of being measured. Process objectives, to a large extent, were dependent upon available resources within the community.

After the process objectives had been developed, the implementors (e.g., teachers and counselors) began implementing the processes. In many cases this required the utilization of community resources, the nature of which occasionally restricted the implementors in their efforts.

It is important to note that the Cobb County Program relies heavily on the utilization of community resources. Field trips, resource people, job placements, and on-the-job training play a major role in the program. All of these activities involve interaction between the school system and the community. Members of the community have given generously of both their time and material supplies.

The observed processes had products represent changes in the students, teachers, parents and curriculum due to the implementation of the program. The observed products are measured within the boundary of the school system and are one step removed from the actual outcome of the program. The observed outcome will result from changes in the students after they leave the school system. Do they obtain employment? Are they able to enter post-secondary education?

(Revised)

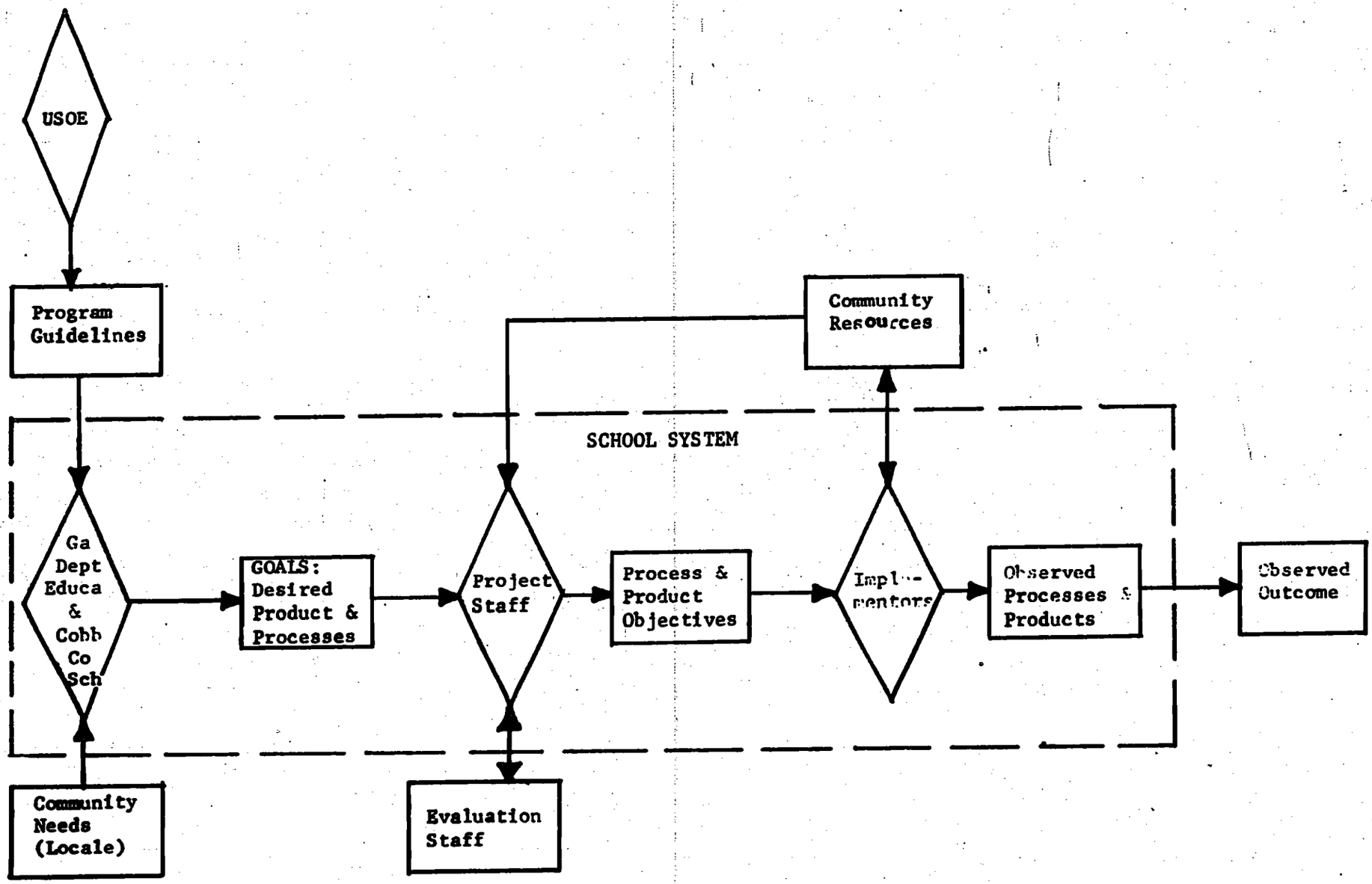

Figure 1

Development of Cobb County Program

The ultimate success or failure of the Cobb County Exemplary Program will not be known until the students who have been through the entire program (K-12) leave the school system.

LOCALE

Cobb County is one of the five counties composing the Metropolitan Atlanta area. It is the third largest in land area and population, with 437 square miles and 196,793 residents, 74 percent urban and 26 percent rural. With an average annual population increase of 8,262 since 1960, its rate of growth among the five counties is second only to Decalb County. Projections are that the population will continue to increase at roughly 8,000 persons annually and by 1980 the population is exptected to be 270,000 (Cobb County School Comprehensive Study, 1970, p.2).

Marietta, the county seat of Cobb County, is located in the central part of the county, 15 miles north of Atlanta on U. S. Highway 41. The Marietta city limits encompass 8.91 square miles, with a 1970 population of 27,216.

Community Characteristics

More than 99 percent of the population in Cobb County is composed of two ethnic groups, blacks and whites. Based on the 1970 U. S. Census, there were 8,180 blacks and 188,160 whites residing in the county. While the whites are fairly evenly distributed throughout the populated areas of the County, the black population is concentrated in specific geographic areas. Almost half of Cobb County's black population reside within the Marietta city limits.

The 1970 U. S. Census reported 61,180 housing units in the county, 1,732 of which lacked some or all plumbing facilities. The average number of persons per housing unit was 3.1 in 1970, as compared to 3.45 in 1960. The median number of rooms per unit was 5.3, with a median value of owner

occupied dwellings of $19,200, and median rental value of $110 per month.

Table 1. 1968 Cobb County U. S. Population by Age Groups

Age Groups	Cobb County	U. S. A. -- Dept. of Census	Cobb Co. Percent	U. S. A. Percent
4 years and under	23,920	18,506,000	13.70	9.20
5-9 years	21,000	20,906,000	12.03	10.39
10-14 years	18,500	20,235,000	10.60	10.06
15-19 years	15,800	18,173,000	9.05	9.03
20-64 years	86,100	104,198,000	49.31	51.81
TOTAL	174,700	201,153,000	100.00	100.00

Estimates of the Population of the U. S. by Age, Race and Sex: July 1, 1969, Current Population Reports (March, 1970), p.25 #441.

Per capita income in Cobb County has increased dramatically over the past ten years. In 1960 the per capita income was $1,549; by 1968 it had more than doubled, increasing to $3,122; and by 1970 it had reached $3,188. Predictions for 1983 show an increase in per capita income to $4,395 (CCSCS, p.5). The average household income in Cobb County for 1970 was $11,382.

Effective buying income per household is often considered to be a more accurate indicator of ability to purchase goods and services than is per capita income. Table 2 presents data for Cobb County as compared to other selected Georgia counties, the state and nation. Table 2 shows that the effective buying income per household unit in Cobb County of $10,596 in 1968 is approximately $2,000 above the state average and $1,000 above the national average.

Table 2. Effective Buying Income Per Household Unit - 1968

	Income Per Household
Bibb County	$ 8,903
Cobb County	10,569
Fulton County	10,373
Muscogee County	8,696
Richmond County	9,219
Georgia	8,556
United States	9,592

Employment

It was estimated that in 1960 the labor force for the county was 35.9 percent of the total population. By 1965 the percentage had increased to 41.2, but by 1968 it had decreased to 40.5 percent (CCSCS, p.6). Of the 15 census tracts in the county, census tract 1 had the lowest per family income in 1968, while census tract 4 had the highest. The percentages of people employed from these two tracts, however, were almost equal: 39.4 percent for census tract 1 versus 39.5 percent for tract 4. Thus, percentage-wise, there are proportionately as many people working in census tract 1 as census tract 4, yet they represent opposite ends of the family income continuum within Cobb County.

The months preceding the implementation of the project (April - June, 1970) showed 6.4 percent of the Cobb County working force unemployed; one year later unemployment had climbed to 8.3 percent. The Metropolitan Atlanta area, however, showed an increase of only .5 percent during this same period (4.0 percent in June 1970 versus 4.5 percent in June 1971). Cobb County's average unemployment for 1970 was 6.0 percent. The differences

between the Atlanta and Cobb County figures were in part due to a large layoff of personnel at the major area employer (Lockheed-Georgia Company).

There are over 77 firms manufacturing products in Cobb County which employ 10 persons or more. The largest single employer is the Lockheed-Georgia Company, which in 1968 employed more than 22,000 people. Current projections show that Lockheed-Georgia will employ approximately 17,000 by the end of 1971, unemployment figures within the county are likely to reflect this company's cutback.

Welfare assistance in Cobb County can be broken into four categories, with the following numbers of recipients as of June, 1971: old age assistance, 1,281; aid to needy blind, 36; aid to disabled, 462; aid to families with dependent children, 849; with a total of 2,628.

The School System

The Cobb County School System is divided into nine attandance areas, each composed of one senior high school, one or more middle schools, and several, usually four, elementary schools. The Cobb County Development Program of Occupational Education is located in the Sprayberry attendance area, which includes Sprayberry High School, J. J. Daniell Junior High School, and Mt. View, Blackwell, Elizabeth, and Bell's Ferry Elementary Schools. This attendance area has an enrollment of 4,894 students, while the total enrollment in the Cobb County School System is 43,892.

The Sprayberry attendance area was selected for several reasons:

1. The Cobb County Vocational High School is located adjacent to Sprayberry High School. It provides facilities for the vocational offering in Cobb County. This school plays an important part in the project.

2. Each of the elementary principals in this area was receptive to innovations and change.
3. This attendance area was representative of a cross-section of Cobb County students. (Cobb County Proposal for Exemplary Program, p.41).

The Cobb County Vocational High School plays an important role at the high school level of this program. The school's facilities include fully equipped laboratories for the study of electronics, electrical construction, drafting, sheet metal and printing. The instructional programs presently being provided in these facilities offer students an opportunity to gain entry level job skills as well as exploratory experiences. The vocational high school was designed to serve all of the interested high school students in the Cobb County System; however, with a capacity for handling only 200 full-time students, it has proven to be inadequate for meeting the vocational training needs of the area.

The average annual increase in school enrollment of 2,173 students over the past ten years has caused a facility shortage. During this period the annual enrollment increase has ranged from a low of 1,388 in 1968-69, to a high of 3,117 in 1966-67. Projections for the next ten years indicate that an average annual increase of approximately 2,000 students is expected.

Data regarding current expenditures per child in Average Daily Attendance (ADA) are shown in Table 3. In evaluating state and local expenditures per ADA child by comparison with data published by the National Education Association, certain other expenditures must be included, as shown below:

$437.70	$468.97	--	shown below
	20.02	--	appropriation to Georgia Retirement System
	8.49	--	federal grant to schools, lunch and milk program
	10.42	--	cost of operating the Department of Education
$476.63	$507.90	--	NEA computation of Cost per ADA Child

Table 3. State and Cobb County Current Expenditures for ADA Child by Years

Year	State Average	Cobb County
1958-59	$214.45	$204.34
1959-60	224.58	207.78
1960-61	236.44	215.83
1961-62	255.51	246.59
1962-63	269.29	253.98
1963-64	281.01	295.34
1964-65	302.81	306.88
1965-66	348.73	370.39
1966-67	409.03	399.27
1967-68	468.97	437.70
1968-69	N.A.	469.98
1969-70	N.A.	496.00
1970-71	N.A.	512.30

Source: "Cost per ADA Child," State Department of Education and Financial Records, Cobb County Schools.

It should be noted that Cobb County expenditures per child exceed the Georgia state expenditures only during the three year period 1963 through 1966. The Cobb County cost per child over this period shows a generally increasing but fluctuating expenditure pattern.

Cobb County's source of local school monies is a property tax. Under the Constitution of the State of Georgia the maximum tax that can be levied for maintenance and operation of the school system is 20 mills on the assessed valuation of the school property digest after homestead and personal exemptions have been deducted. Cobb County is currently levying the maximum millage. It thus appears that if Cobb County is to continue to support education at the current ratio of one-third of the total cost, additional local revenue must be secured through either other additional tax sources or by an increase in the millage. An increase in the millage can only be secured through a constitutional amendment.

Cobb County's bonding capacity available during the next ten years appears to be adequate to meet anticipated schoolhouse construction needs. It is assumed that additional funds will be needed during this period. In particular, additional funds will be needed for the construction of kindergarten facilities, which presently do not exist. In 1969 the county approved a $15,000,000 bond issue. Support was approximately 3 to 1 in favor of the bond.

The Cobb County Schools Comprehensive Study of 1970 points out that about 50 percent of the graduates of Cobb County high schools do not go on to college or other postsecondary schools. In addition, there are many young people who leave school prior to completion of high school. The economy of Cobb County would then depend to a considerable extent on the availability of vocational programs of the right kinds and quality. The Cobb County Study was explicit in stating this: "The best interests of the area require more attention to vocational education programs by the schools," (CCSCS, p.29).

The need for a developmental program of occupational education was made clear in the Cobb County Study:

> Recent research on the nature of career choices has established the validity of career choices as being a process rather than an event. This process starts early in life. The elementary teacher is important in the process. The new middle school has an important role in vocation maturation, since it helps students move into the age of exploration and discovery. The high school program should be based on good work experiences, good attitudes, a broad command of the common elements in vocations and a sound general education insofar as individual student abilities will permit. (CCSCS, p. 30)

The Cobb County School System, in conjunction with the Georgia Department of Education, was well aware of the possible benefits obtainable from a comprehensive program in career development. Prior to the initiation of the proposal submitted the U. S. Office of Education, Cobb County had received a state grant to develop a model of a career development program. The nature of this model was congruent with the guidelines established by the U. S. Office of Education and developed into the proposal sent to U.S.O.E. Dr. Sidney High and Dr. Albert J. Riendeau of the U. S. Office of Education were contacted by Dr. James Bottoms of the Georgia Department of Education, Vocation Education Division, in connection with the development of the proposal.

To a large extent the proposal submitted to the U. S. Office of Education parallels the recommendations of the Cobb County Schools Comprehensive Study. This study had emphasized the importance of a developmental program that coordinated the academic subject matter with related vocational experiences, and this is reflected in the proposal submitted to U.S.O.E.

> The project will attempt to conceptualize and implement a developmental program of career exploration and occupational preparation in grades K-12 with inherent features which enable the program to serve the needs of all youth. Special provisions will be made for disadvantaged and handicapped students. Concrete experiences of vocational laboratories and actual work settings will be fused with the academic program in order to enhance the teachings and learning of basic academic skills by relating them to the world of work. (2, p. 4)

The Cobb County School System serves a population that is economically well above the state and national averages. The rationale for selecting Cobb County as the site for an exemplary program in vocational education was based on the availability of well-equipped facilities for vocational training at both the secondary and postsecondary levels. While these facilities existed prior to the development of the program, a comprehensive vocational program to serve the needs of all students had not been established. Cobb County's Development Program of Occupational Education represents an effort to maximally utilize a well-equipped occupational education program.

It should not be assumed because of Cobb County's relatively high economic status that the students do not need a comprehensive program of occupational education. As previously stated, approximately 50 percent of Cobb County's students do not go on to college or other postsecondary training. After leaving school these students are likely to face many months of job hunting and marginal work. Cobb County and the Metropolitan Atlanta area will continue to need employees of considerable vocational and technical preparation; a comprehensive program in occupational education will assist students in finding meaningful employment rather than marginal employment.

CONCEPTUALIZATION OF THE EVALUATION

The developmental nature of the Cobb County Exemplary Program requires that the products and processes be integrated across grade levels, i.e., the products of one grade level should be well suited to enter the processes of the next grade level. The program can be conceptualized as a series of processes that were designed to eventually lead to the desired products. This section will describe the relationships between specific processes and products of the Cobb County Exemplary Program.

It should be pointed out that the following sets of processes and products were modified during the first year of implementation. The process objectives have remained relatively fixed, while the product objectives were substantially altered in order that they be measureable. Processes and products were not explicitly related at the onset of the program; the present conceptualization was completed several months after implementation. Certainly, more refinement of both products and process objectives is expected in the next year as well as a review of produce and process goals.

The product goals for this project are defined as the desired products of the educational process. Goal achievement was assessed by means of the attainment of product objectives for that goal. If the "set" of objectives for a particular goal is achieved, then it will be assumed in general that the goal has been attained.

The process goals are the general types of activities that will be used to attain the product goals. Process objectives are the specific classes of activities that are considered necessary and sufficient for process goal

actualization. It should be noted that each process goal has a unique set of process objectives that describe the particular types of activities encompassed by that goal.

While process goals have been assumed to lead to product goal fulfillment, there is the distinct possibility of achieving the former without the latter or, less likely, the latter without the former. For this reason it is important to "break out" the relationships between product and process goals and objectives. Figure 2 and the explanation immediately following it presents the present conceptualization of the relationships between the goals and objectives. It should be noted that one product may be produced by many processes, and that one process may produce many products. This lack of isomorphism has led to problems in establishing cause-effect relationships. It also is obvious that other variables may be operating to produce products that are not being taken into account. However, in a program as massive as the Cobb County endeavor, such confoundings are expected. The next section is an attempt to minimize the confounding factors. For simplicity, the product goals, product objectives, process goals and process objectives will be listed separately.

Product Goals

Product Goal I:

The student will develop an awareness of the relationship between an individual's self-characteristics (interest, values, abilities, personality traits) and the appropriateness of various occupational areas.

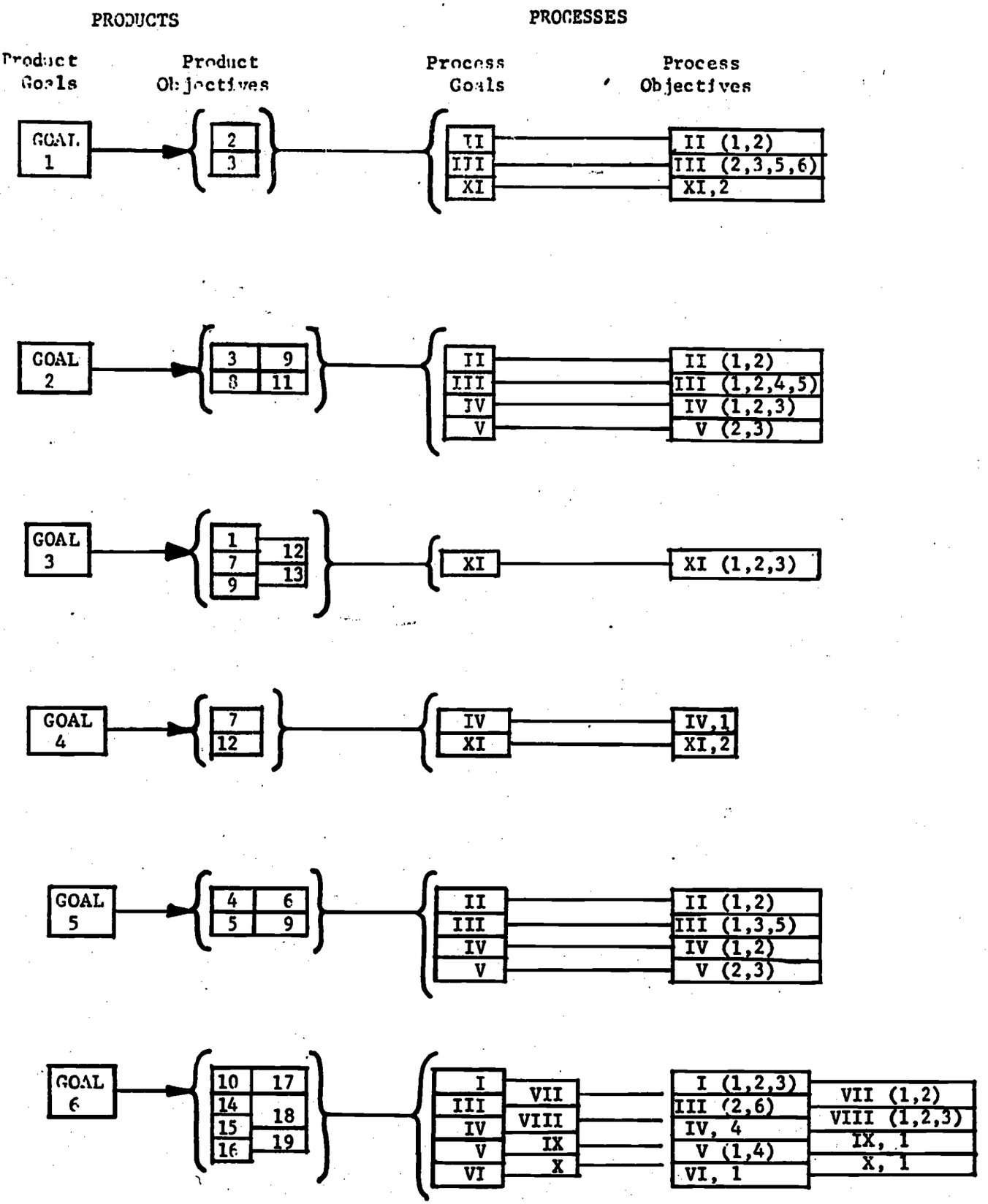

Figure 2

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Relationship Between Goals and Objectives

Product Goal II:

The student will acquire an awareness of the occupational areas within the community, the characteristics and the contributions of each, and will extrapolate to build a frame of reference for occupational areas in the state and nation.

Product Goal III:

The student will acquire an awareness of educational avenues necessary and those available relative to a wide range of occupational areas.

Product Goal IV:

The student will build upon his awareness of self-characteristics, occupational areas, educational avenues, and activity oriented experiences, an ability for decision-making.

Product Goal V:

The student will acquire an awareness of the psychological and sociological meaning of work, and during his achool activities will express a positive attitude toward self, others, educational programs, and different types of work roles.

Product Goal VI (Climate):

To provide a more meaningful and productive educational program with special emphasis on students identified as disadvantaged and/or handicapped.

Product Objectives

Product Objective 1:

To increase student (grades 5-12) knowledge of the educational require-

ments of occupations as measured by the P.E.C.E. Knowledge Test.

Product Objective 2:

To increase student (grades 7-12) knowledge of the abilities required in different occupations as measured by the P.E.C.E. Knowledge Test.

Product Objective 3:

To increase student (grades 7-9) knowledge of occupational areas as measured by the P.E.C.E. Knowledge Test.

Product Objective 4:

To increase the positiveness of student (grades 6-12) attitudes toward themselves and others as measured by an attitude scale.

Product Objective 5:

To increase the positiveness of student (grades 6-12), parent and teacher attitudes toward occupational education as measured by attitude scales.

Product Objective 6:

To increase student (grades 8-12) and teacher satisfaction with curriculum offerings as measured by the 1968 Cobb County Questionnaire.

Product Objective 7:

To increase the percentage of students applying for and entering post-secondary education.

Product Objective 8:

To increase the number of occupations students (grades 2-12) can list in one minute.

Product Objective 9:

To increase the number of high school students enrolled in vocational education programs.

Product Objective 10:

To decrease the absentee rate.

Product Objective 11:

To increase the number of students (grades 10-12) in work experience.

Product Objective 12:

To increase counselor involvement regarding contact with students about career decisions.

Product Objective 13:

To increase counselor involvement regarding contact with teachers to fuse career-oriented activities and information in curriculum.

Product Objective 14:

To increase parental involvement in the education process.

Product Objective 15:

To increase the proportion of students (graduates and dropouts) leaving school with job entry-level skills.

Product Objective 16:

To reduce grade failures.

Product Objective 17:

To increase the percentage of students placed on jobs by the school.

Product Objective 18:

To increase student academic achievement as measured by an achievement test.

Product Objective 19:

To reduce the dropout rate.

Process Goals

Process Goal I:

This program in grades 1 through 7 will enhance the traditional academic curriculum with occupationally oriented activities.

Process Goal II:

This program in grades 1 through 7 will introduce students to community work roles.

Process Goal III:

Through the P.E.C.E. Program this program will develop and implement programs of career exploration in such a manner as to enhance traditional academic learning and accomplish certain career development objectives.

Process Goal IV:

This program will develop and implement programs of pre-vocational orientation into the middle school, ninth grade, in such a manner as to enhance traditional academic learning and accomplish certain career development objectives.

Process Goal V:

This program will develop and implement an exploration program at the tenth grade level.

Process Goal VI:

This program will provide an across-the-board work experience program at the tenth grade level for potential dropouts.

Process Goal VII:

This program will develop and implement vocational clusters within the senior high school around which academic subject matter will be centered.

Process Goal VIII:

At middle and secondary levels teachers will interlock exploration, pre-vocational, and career development with academic curriculum for certain students.

Process Goal IX:

This program will provide students with job entry level skills.

Process Goal X:

This program will develop a job placement program which will place the responsibility on the school to help each student make the transition from school to work.

Process Goal XI:

This program will provide both direct and indirect assistance to students in the career development process. Direct assistance will be through regularly scheduled individual counseling and group guidance activities. Indirect assistance will be provided through counselor management of school and community resources to facilitate career development.

Process Objectives

Process Objectives I:

1. Each teacher will implement at least one concrete experience program per grading period (4 per year).

2. Each teacher will self-evaluate each program implemented and submit a report of successes, failures, and suggestions for further development of that program.

3. Each teacher will work directly with the Career Development Specialists in the implementation of the programs.

Process Objectives II:

1. Each teacher will take her class on at least one field trip (per grading period) to an on-job site.

2. Each teacher will have at least two community resource persons per grading period into her classroom to discuss their work roles with students.

Process Objectives III:

1. The student will be exposed to the actual work settings of all levels within job clusters.

2. The student will perform aspects of the observed jobs that are appropriate in terms of skills and abilities.

3. The student will interview workers in order that he may know how various workers view their jobs.

4. The students will discuss their visitations and will extrapolate information obtained to additional occupational possibilities.

5. Same as II,2.

6. Each teacher in grades 10 through 12 will provide one learning activity with supporting lesson plans per month designed to help students see the relationship between her subject matter and a cross-section of occupations, with occupations at each level in the Dictionary of Occupational Titles (D.O.T.) being given major focus at least one time.

Process Objectives IV:

1. The student will participate in one of the three broad areas of occupations: (a) Business and Distribution, (b) Human Services, and (c) Industrial Arts (based on Construction), and will be exposed in depth to those aspects of each level that will further broaden the experience base for selecting more specific occupations.

2. Same as III,2.

3. Same as II,2.

4. Same as III,6.

Process Objectives V:

1. The student will choose general business, trade, and industrial exploration or an academic program leading toward college programs such as liberal arts, engineering, pre-med., and others.

2. The student will be exposed one hour each day to the working conditions, characteristics and other details of various occupations within the community.

3. Same as II,2.

4. Same as III,6.

Process Objective VI:

1. The student identified as a potential dropout will receive special training in consumer education and job skills one hour each day under a Coordinator of Vocational-Academic Education and if so inclined will be placed in after school jobs, with coordinator-employer liaison for direction and follow-up.

Process Objectives VII:

1. The student will be exposed to the characteristics of one of the following vocational clusters 2 hours each day: electrical, mechanical, metal-working, graphic arts, drafting and design, electronics and office occupations.

2. Same as III,6.

Process Objectives VIII:

1. Teams of teachers organized around vocational offerings with a team leader will meet once each week to develop lesson plans for interlocking.

2. Teachers will report results of last week's lesson plans with suggestions for improvement at each weekly meeting.

3. Students will be interviewed for their views of the interlocking.

Process Objective IX:

1. The student will be provided opportunities of academic offerings at the senior high school for college preparation, vocational offerings at the vocational high school, on-the-job work experience in the community or the senior plan of the specific training at the area technical school.

Process Objective X:

1. The Job Placement Coordinator will establish channels of communication between the school and the community world of work utilizing resources of business placement offices, the local labor department, the Chamber of Commerce, and any other manpower agency in the area.

Process Objectives XI:

1. Classroom teachers at the elementary level will be assisted in building into the existing curriculum such experiences as will provide maximum opportunity for vocation inquiry and awareness of the world of work.

2. At the middle and secondary levels counselors will on a systematic and scheduled basis work directly with students in individual and group counseling sessions to accomplish career development and vocational objectives. The counselor will also work on a scheduled basis to accomplish these goals through teachers, curriculum, peer group, and community resources. At the middle school level the counselor will use pre-vocational laboratory experiences as a basis for counseling students toward career development objectives.

3. Intensive efforts will be conducted by the counselor to assist the non-college bound student in the transition to either enter employment or a post-secondary vocational program. The method will involve both direct and indirect experiences with students through the management of school and community resources to enhance a satisfactory transition from high school.

SCOPE OF THE PROGRAM

During the first year of implementation the Cobb County Development Program of Occupational Education served approximately 1,534 students in the Sprayberry attendance area. At the elementary grade levels twenty-four classes were involved, one class from each of the six grades at each of the four elementary schools. The elementary schools in the project randomly assigned their students to classes within each grade level, thus the 720 students in the program classes can be considered representative samples of students from their respective schools.

The focus of the program at the elementary grade levels was to provide students with "a base for mastering future career development tasks through simulated experiences, observations, discussions, and vicarious experiences," (Proposal, p.56).

Twenty-four teachers and four principals participated in the program at the elementary school level. Two career development specialists worked directly with the teachers to assist in the implementation, coordination, operation, and further development of the program. These two career development specialists were the only additional professional personnel hired at the elementary school level.

At the middle school level (grades 7-9) the focus of the program was on occupational orientation and exploration. One phase of the program was directed toward offering the student an opportunity to orient himself further to several broad occupational areas and to acquire a basis of understanding for future educational and occupational decision making. Another phase of the program attempted to provide students with an opportunity to explore a particular occupational area in greater depth.

The program at the middle school level involved the principal, twelve academic teachers, three vocational instructors, one counselor, a P.E.C.E. Coordinator, (Program of Education and Career Exploration), and three team coordinators. Six hundred students participated in the program during the first year. The Human Services' instructor and the P.E.C.E. Coordinator represent the only staff members added to the middle school level. Other vocational instructors taught Industrial Arts, and Business and Distribution.

The major thrust of the program at the eighth grade level was the P.E.C.E. program. The P.E.C.E. program offered eighth grade students an opportunity to explore occupations in one of six categories: service, business, organizational, expression of ideas, outdoors, and technology. The P.E.C.E. program was described as follows:

> After experiencing a work role, the student shares his observations with other students in small guidance groups where attention is focused on questions such as the following: How did I feel about myself while involved in the work role? What are other jobs in our society that might provide similar satisfaction? What are the different decisions one would have to make in order to enter a particular job? What value does the work role under question have economically as well as socially to society? What educational avenues could prepare one for a particular job? What are the different psychological aspects to be realized in this job? (Cobb County Proposal for Exemplary Program, p.9).

During the first year's implementation 240 eighth grade students completed the P.E.C.E. program. The few students who did not take part in the P.E.C.E. program were unable to do so because of scheduling conflicts, e.g., students enrolled in band could not enroll in the P.E.C.E. program. No seventh grade students participated in the program.

All ninth grade students were enrolled in either Industrial Arts, Human Services, Business and Distribution, or Band. The focus of Human Services, Business and Distribution, and Industrial Arts is:

A. To provide appropriate opportunities for students to explore in greater depth those areas of interest for the purpose of enabling them to convert a generalized choice into a specific choice.

B. To provide the range of experiences and activities necessary to aid students in the clarification and further identification of an area so that a specific choice can be made.

C. To expose students to the content, tools, settings, products, or services of a particular occupation through either direct experiences or through simulated experiences in prevocational areas as well as to the range of opportunities available in order to enable students to further differentiate choices within the area.

D. The experiences provided during this level should be designed to further increase the student's understanding regarding the different dimensions of career development ... for the purpose of assisting the student to gain more toward a particular vocational preference (Cobb County Proposal for Exemplary Program, p.29).

The three team coordinators at the middle school level worked in the areas of industrial arts, human services, and business and distribution. Their primary responsibilities were instructional; team coordinating acti-

vities were an addition to their teaching loads. Team coordinators were "responsible for weekly meetings with vocational and academic teachers jointly and for leading in the development of plans and materials to be used by these teachers," (Cobb County Proposal for Exemplary Programs, p.65). The twelve academic teachers and the three team coordinators would meet for one hour each week. This time was used for interlocking the career development academic curricula.

The focus of the program at the high school level is to "assist the student in converting his vocation preference into reality" (Proposal, p.29). The program continues to be exploratory in nature at the tenth grade level, but this is supplemented by specific preparatory experience in the eleventh and twelfth grades. Work experience programs, on-the-job training, courses leading to entry level job skills, job placement programs, career development counseling, and the interlocking of academic subject matter with vocational clusters are all intended to prepare the students for employment and/or postsecondary education.

Twenty-seven people were responsible for implementing the program at the high school level. The personnel from the vocational high school included the principal, counselor, and five vocational instructors, while Sprayberry personnel consisted of the principal, counselor, three team coordinators, a work experience coordinator, two business education instructors, and twelve academic teachers. None of these positions required the hiring of additional personnel.

Two hundred and fourteen high school students participated in the program during its implementation the first year; this number represents

slightly more than one-fifth of Sprayberry's students. Interlocking of the academic and vocational subject matter, the tenth grade exploratory program, and the eleventh and twelfth grade occupational preparation courses account for the large majority of these students.

Evaluation of the Program

In 1970, the evaluation of the Cobb County Program involved several different endeavors. Likewise, the future evaluation efforts will require new approaches yet to be undertaken. The fundamental intents behind these efforts remain the same: (1) to assist the decision makers in understanding and improving their program, and (2) to provide a source of information which will facilitate dissemination of successful components of the program. Figure 3 represents the three major evaluation endeavors designed for the Cobb County Program.

The first stage of the evaluation (Evaluation 1) was entirely formative in nature and has been described. It was the assistance given the program staff in the development of product objectives which were both congruent with goals and capable of being measured. As the program matures these will likely be modified; as this occurs Evaluation 1 will be repeated.

The second evaluation endeavor (Evaluation 2) will be presented in the following section, which deals with the measurement of observed processes and products in comparison to the process and product objectives. The process evaluation is a direct comparison of the process objectives with the observed processes; no control groups were involved. The product evaluation involved comparisons between students receiving the treatment,

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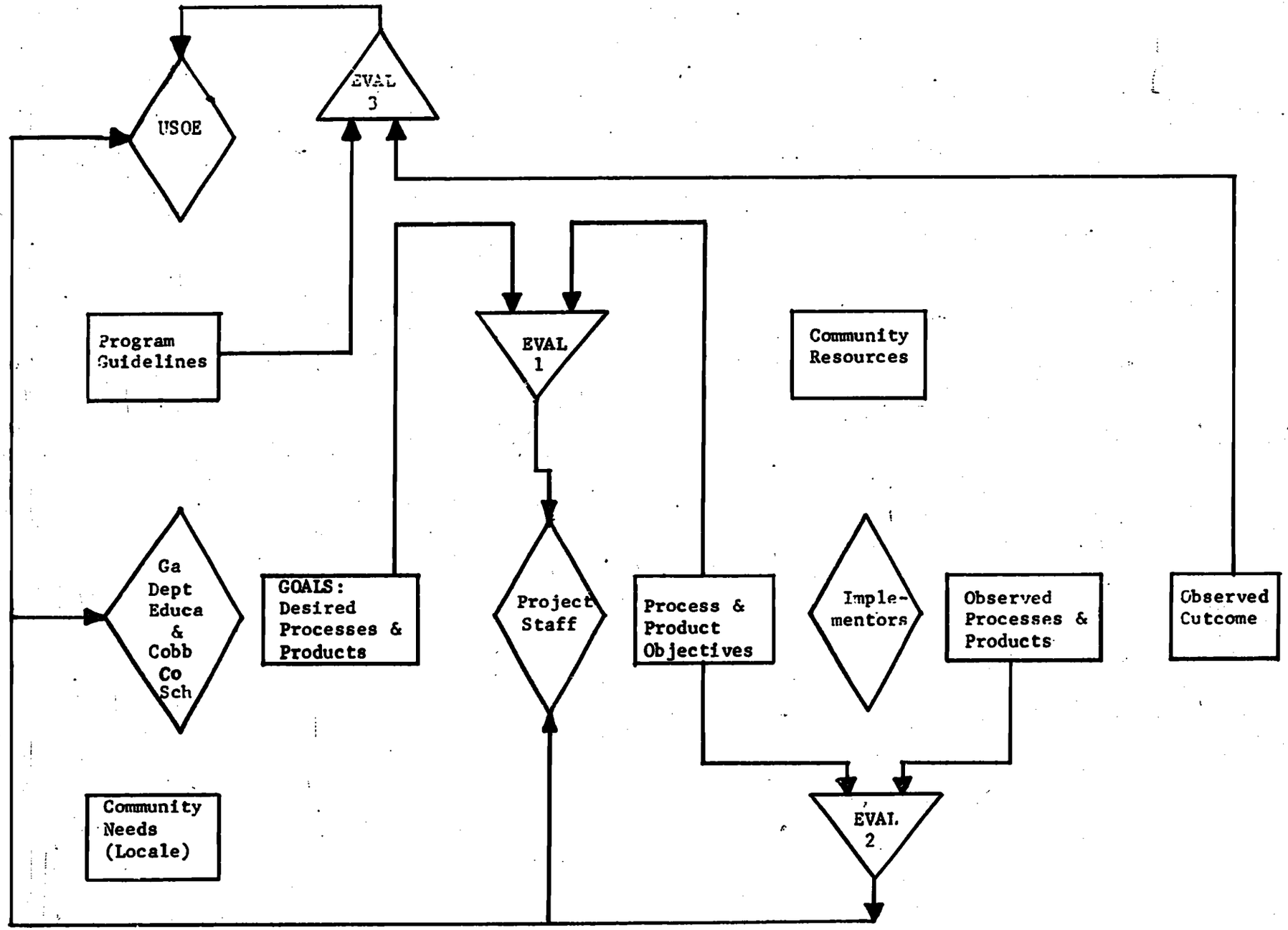

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Figure 3

Evaluation of Cobb County Program

students in the same school and grade level but not receiving the treatment, and students from another (non-treatment) school at the same grade level. Evaluation 2 is thus directed at measuring changes within the school system in terms of both products and processes; this phase will also be repeated each year.

Evaluation 3 cannot be undertaken until the program has been in effect for at least three years, and even then it is likely to be premature. With a developmental program such as Cobb County's, the cumulative effects of twelve years of career development will not be known until students have gone through the entire process, i.e., until last year's first graders exit from the school system. Unlike Evaluation 2, which supplies today's decision makers with information that can be used to modify the program, and is therefore formative, Evaluation 3 is summative in that it will measure the extent to which the desired outcome has been accomplished. Likewise, while this information is important to both the Georgia Department of Education and the Cobb County School System, its greatest impact will be on the United States Office of Education and its future funding decisions.

Problems in the Cobb County Evaluation

The entire field of evaluation has been traditionally replete with problems. The exemplary programs generated problems that were far greater than those previously experienced. The main problems however might be traced in large part to the fact that expected outcomes were not in areas in which standardized tests were available, nor were the outcomes clear either in terms of the proposal or in terms of the federal legislation. Therefore, many of the indices of program performance had to be developed.

A large number of behaviors at various grade levels were to be changed. As such data management alone became a severe problem. Since the students were to be exposed to three years of treatment, the objectives had to be structured so that over a period of time the student could be focused on in terms of the same objective.

Processes had already been accepted as adequate before product had been defined. The evaluation team was not involved in the proposal preparation and much time was taken in determining the expected results of these processes.

Finally, the sheer magnitude of the proposed endeavor created problems in monitoring the treatments.

THE PRODUCT EVALUATION

The product evaluation of the Cobb County Developmental Program of Occupational Education involves two approaches: (1) an "absolute evaluation" was performed to determine if there were statistically significant differences between the observed and desired behaviors, and (2) a "relative evaluation" which compared student behavior in the program schools with student behavior in control schools at the same grade level was performed.

Measuring Changes

The objectives which required measurement by tests or questionnaires were evaluated by randomly selecting student samples from treatment and control classes at each grade level.

Twenty students (10 male, 10 female) per grade per school were randomly selected from within the program classes. These students were compared with two control groups: (1) twenty students per grade per school who attend a program school but are not taking classes treated by the program, and (2) twenty students from each grade level randomly selected from non-program schools. The first comparison group will be referred to as the "inside control," and the second comparison group will be referred to as the "outside control." The outside control group was selected from two elementary, one junior high, and one high school within the Cobb County school system. These schools were all located in the North Cobb High School attendance area.

The results to be presented in the next section are from data collected in May, 1971; one school year after the initial implementation of the program.

Data based on school records, e.g., dropout rates, absentee rates, used exhaustive samples; likewise, teacher questionnaires were administered to all teachers within the project and control schools.

Data Presentation

Product Objectives 1-3:

1. To increase student (grades 5-12) knowledge of the educational requirements of occupations as measured by the P.E.C.E. Knowledge Test.

2. To increase student (grades 5-12) knowledge of the abilities required in different occupations as measured by the P.E.C.E. Knowledge Test.

3. To increase student (grades 5-12) knowledge of occupational areas as measured by the P.E.C.E. Knowledge Test.

The P.E.C.E. Knowledge Test was a 100-item multiple choice instrument that was developed by the Georgia State Department of Vocational Education personnel. The test was originally intended to measure the effects of the P.E.C.E. program, which had been implemented in some Georgia schools during the 1969-70 school year. The instrument appeared to reflect each of the three areas mentioned in the above objectives.

Very little information was available concerning the development of the P.E.C.E. test; nor was there any record of the instrument's reliability and validity. The test was used despite these drawbacks; it was the best instrument available to the evaluation staff at that time. The analysis of the Cobb County students' scores used a 75-item revised version of the test. The reliability of the 75-item test ranged from .86 to .95. Table 4 presents the mean scores on the P.E.C.E. test by grade level and treatment.

Table 4. Mean Scores on P.E.C.E. Knowledge Test by Grade and Condition, May 1971, Total Possible = 75

Grade	Treatment	Inside Control	Outside Control	Main Effects
5	33.038	34.575	31.210	None
6	35.500	39.179	39.925	None
7	None	41.219	34.210	None
8	49.916	50.263	41.550	T=I.C.>O.C. (.05)
9	48.900	53.130	50.500	None
10	47.631	51.095	49.500	None
11	47.666	55.913	56.333	T<I.C.=O.C. (.01)
12	54.944	56.952	58.850	None

The only significant difference that was in the desired direction was at the eighth grade level, and even here there was no significant difference between the treatment and inside control. At the eleventh grade level both the inside and outside control groups did significantly better than the treatment group. This result is believed to be due to poor sampling procedures. The eleventh grade treatment group was comprised of vocational students who have not fared well in academics. In no instance did the treatment group do better on the P.E.C.E. test than both control groups at the same grade level. All statistical tests used the .05 level of significance.

Productive Objective 4:

To increase the positiveness of student (grades 6-12) attitudes toward themselves and others as measured by an attitude scale.

A 64-item untitled attitude scale was developed to assess the positiveness of student attitude toward themselves and others. The scale is a composite adaptation of 41 selected items from the 64-item "Acceptance of Self and Others" scale developed by E. Berger (Shaw and Wright), and 23 selected items from "The Self-Others Questionnaire," a 50-item scale developed by E. L. Phillips (Shaw and Wright). The instrument is essentially a Likert-type scale, except that it uses a modified response mode. Thirty-five items measure attitudes toward self, and 29 items measure attitudes towards others; therefore, two subscores are obtained.

The score for each item ranges from 1 to 5, with a low total subscore indicating a more favorable attitude toward self or others. A total subscore of 29 and 35 on the items measuring attitudes toward others and self, respectively, would indicate the most positive attitude in each case.

Table 5. Mean Scores on Attitudes Toward Self Scale by Grade and Condition, May 1971, Total Possible Score = 175*

Grade	Treatment	Inside Control	Outside Control	Main Effects
6	93.51	93.24	95.24	None
7	None	93.66	95.41	None
8	82.65	82.65	90.05	None
9	85.95	83.45	87.85	None
10	84.11	79.05	83.05	None
11	73.17	80.67	78.38	None
12	76.44	80.79	72.60	None

*Low scores indicate a more favorable attitude toward self, with lowest possible score being 35.

Table 6. Mean Scores on Attitudes Toward Others Scale by Grade and Condition, May 1971, Total Possible Score = 145*

Grade	Treatment	Inside Control	Outside Control	Main Effects
6	73.57	73.57	72.68	None
7	None	72.89	69.94	NOne
8	68.86	75.12	71.65	None
9	69.32	70.95	72.50	None
10	64.52	67.85	72.00	None
11	60.17	59.62	69.00	I.C.= O.C. (0.5)
12	60.83	66.52	60.85	None

*Low scores indicate a more favorable attitude toward others, with lowest possible score being 29.

The scale was administered to grades 6-9 on May 11, 1971, and to grades 10-12 on May 12, 1971. The administration time was approximately 25 minutes, with all students being allowed to complete their scale.

Results of the Self and Others scales are presented in Tables 5 and 6, respectively. All statistical tests used the .05 level for significance.

Product Objective 5:

To increase the positiveness of student (grades 6-12), parent and teacher attitudes toward occupational education as measured by attitude scales.

A 20-item, untitled attitude scale was used to measure the positiveness of student attitudes toward vocational education. The instrument is a composite adaptation of 12 selected items from the 39-item "Opinions

About Vocational Education" instrument (9), one item from the 60-item "Vocational Education Information Inventory" (1,113), and seven items from the 20-item "Attitude Toward Vocational Education" instrument (6).

The scale utilizes the Likert attitude scaling technique, with the response modes being SA: I Strongly Agree with the statement; A: I Agree with the statement; ?: I am Undecided about the statement; D: I Disagree with the statement; and, SD: I Strongly Disagree with the statement.

Ten items are worded positively toward Vocational Education and 10 negatively. The alternative responses are weighted from 5 (SA: I Strongly Agree with the statement), to 1 (SD: I Strongly Disagree with the statement) for those items worded positively; weights are reversed for those items which are negatively worded. The individual's score is the sum of the weighted alternatives chosen by him, with a high score indicating a positive attitude. The total possible score was 100.

The attitude scale was administered to randomly selected groups of students in grades 6-12 during the second week in May, 1971. Table 7 presents the results by grade levels and treatment groups. No significant main effects were found.

Table 7. Students' Mean Scores on Attitude Toward Vocational Education Scale by Grade and Condition, May 1971, Total Possible = 100

Grade	Treatment	Inside Control	Outside Control	Main Effects
6	72.87	72.44	70.89	None
7	None	71.32	71.44	None
8	72.55	74.65	71.50	None
9	72.88	70.32	70.25	None
10	76.94	73.50	76.89	None
11	78.39	76.05	75.62	None
12	77.26	76.00	77.05	None

A 30-item attitude scale was used to measure the positiveness of teachers' attitudes toward vocational education. The scale is a composite of eight items selected from the 39-item "Opinion About Vocational Education" instrument (9); 12 items selected from the 60-item "Vocational Education Information Inventory," developed by Harold Byram (1); and 10 items selected from the 20-item instrument entitled "Attitude Toward Vocational Education," developed by Melville Parker and Richard Baker (6).

This scale utilizes the Likert Attitude Scaling Technique, with the choice of answers being SA (Strongly Agree); A (Agree); ? (Undecided); D (Disagree); and SD (Strongly Disagree). For items which are worded positively towards Vocational Education, the alternative responses are weighted from 5 (Strongly Agree) to 1 (Strongly Disagree). For items worded negatively the weights are reversed. The individual's score is the sum of the

weighted alternatives endorsed by him with a high score indicating a positive attitude toward vocational education.

The attitude scale was administered to all of the teachers in the project and control schools on May 12, 1971. All respondents were allowed one week to complete the questionnaire and return it. None of the teachers were asked to identify themselves. Table 8 illustrates the results on the scale by attendance area. The two groups did not significantly differ on total scores.

Table 8. Results of Attitude Toward Vocational Education Scale, Teachers, May, 1971, Total Possible Score = 150

Area	N	Mean	SD	Range
Sprayberry	164	93.164	6.376	78 - 139
North Cobb	114	92.043	8.203	35 - 109
Total	278	92.705	7.188	35 - 139

The same attitude scale that was used to measure the positiveness of students' attitudes toward vocational education was also administered to a random sample of students' parents from the two attendance areas. The attitude scales were taken home in sealed envelopes by the students, who also carried the scale back to their teachers after their parents had completed it. The scale was distributed to parents on May 12, 1971, and was returned to the school on or before May 21st. A letter of introduction from the project director and an instruction sheet accompanied each scale. Table 9 represents the summary statistics on the positiveness of parental

attitudes toward Vocational Education for parents of students in the Sprayberry Road and North Cobb attendance areas. A significant difference in mean scores was not found.

Table 9. Results of Attitude Toward Vocational Education Scale, Parents, May, 1971, Total Possible Score = 100

Area	N	Mean	SD	Range
Sprayberry	150	78.23	9.57	31 - 100
North Cobb	101	77.38	7.45	48 - 95
Total	251	77.89	8.77	31 - 100

Product Objective 6:

To increase student and teacher satisfaction with curriculum offerings as measured by the 1968 Cobb County Questionnaire.

Student and teacher satisfaction with curriculum offerings was to be measured by administration of a Cobb County questionnaire that had previously been administered within the school district. A misinterpretation of administration instructions made it impossible to identify students or teachers by treatment or school; therefore, this objective cannot be reported on at the present time.

Product Objective 7:

To increase the percentage of students applying for and entering postsecondary education.

Two comparisons were made to measure the attainment of Objective 7:

the percentages of Sprayberry students applying for and entering postsecondary education were compared for the 1969-70 and 1970-71 school years, and the percentages for the 1970-71 school year were compared for the treatment and control high schools. Chi-square tests were performed and two significant results were obtained: (1) Sprayberry High School had a significantly ($\alpha < .05$) lower percentage of students entering postsecondary education than did North Cobb High School in 1970-71, and (2) North Cobb High School showed a significant ($\alpha < .01$) increase in the percentage of students entering postsecondary education when the 1969-70 and 1970-71 school years were compared. The percentage of students from Sprayberry High School entering postsecondary education did not increase over this same two-year period. Table 10 shows the percentages of students entering postsecondary education over the two-year period for both high schools.

Table 10. Percentage of Seniors Entering Postsecondary Education by School and Year

School	1969 - 1970	1970 - 1971
Sprayberry High School	51%	52%
North Cobb High School	46%	62%

Project Objective 8:

To increase the number of occupations students (grades 2-12) can list in one minute.

The number of occupations a student can list in one minute was considered to be a partial index of his familiarity with the world of work.

At the elementary grade levels, one class per treatment condition per school was randomly selected as the sample for measuring this objective. Elementary school teachers administered the test to their classes using a uniform set of instructions provided by the evaluation team. At the middle and secondary grade levels the test was administered along with other scales and tests used to evaluate the program. Table 11 presents the results on this test by treatment condition and grade levels.

Table 11. Mean Numbers of Occupations Listed by Students in One Minute, May 1971, Occupational Listing, 1 Minute

Grade	Treatment	Inside Control	Outside Control	Main Effects
2	5.97	5.97	5.20	None
3	6.63	4.86	2.51	T>IC>OC (.01)
4	8.48	6.54	4.17	T>IC>OC (.01)
5	10.86	6.99	4.85	T>IC>OC (.01)
6	11.19	11.11	8.40	T=IC>OC (.02)
7	None	9.511	6.85	IC>OC (.05)
8	14.42	10.90	8.45	T>IC=OC (.01)
9	12.05	12.09	11.05	None
10	11.736	15.00	14.45	T<OC=IC (.01)
11	12.61	11.91	12.95	None
12	14.37	12.95	14.10	None

No significant differences were found at the second grade level, however, all of the other elementary grades (3-6) did significantly better in the program schools than the outside control elementary schools.

In grades 3-5 the treatment classes also did significantly better than the inside control classes, while at the sixth grade level the treatment class and the inside control class listed essentially the same number of occupations.

At the seventh grade level there was no treatment group, yet the inside control gourp did significantly better than the outside control groups. The eighth grade treatment group, which was composed of students who had taken the P.E.C.E. program, did significantly better than both the inside and outside control groups. There was not a significant difference between these two control groups at the eighth grade level, nor were there any differences between the three groups at the ninth grade level.

At the senior high school level (grades 10-12) there was only one significant difference: the tenth grade treatment groups did worse than both the inside and outside control groups at the same grade level. No significant differences were found between the inside and outside control groups at the tenth grade level, nor were there any significant differences at the eleventh and twelfth grade levels for Objective 8.

It appears that there is a general climate in the program elementary schools that facilitates an awareness of occupations. It should be noted that the inside control groups at the elementary grade levels are not completely isolated from the treatment: they are students in the same school, sharing some of their experiences with each other, and undoubtedly aware of the occupational orientation of the posters that are put up by the treatment classes. It is the opinion of the evaluation staff that the occupational orientation in the program elementary schools accounts for

the difference between the inside and outside control groups with regard to Objective 8 and that the intense efforts of the treatment are responsible for the differences between the treatment and inside control groups.

Product Objective 9:

To increase the number of high school students enrolled in vocational education programs.

Specific data regarding the attainment of Objective 9 was not available at the time of the preparation of this report. An increase is known to exist due to the additional courses being offered at the junior and senior high schools in the program, and the exact number of students will be detailed in a later report.

Product Objective 10:

To decrease the absentee rates (at the middle and secondary school levels).

Two comparisons were made to measure the attainment of this objective: (1) the absentee rates for the control schools were compared with the program schools for the 1970-71 school year, and (2) the absentee rates for the program schools were compared for the school years 1969-70 and 1970-71.

At the senior high school level, Sprayberry High School showed significant increases in absentee rate when compared with North Cobb High School, as well as when compared with the previous year's absenteeism at Sprayberry. Both comparisons were made using Chi-square tests for significance.

At the junior high school level the results of the two comparisons both supported and refuted the attainment of Objective 10. The absentee

rate at J. J. Daniell Junior High School was higher during the 1970-71 school year than it was during the preceding year at Daniell; however, Daniell's absentee rate for 1970-71 was significantly lower than Autrey Junior High School's during the same year. It should be pointed out that the absentee rate at Autrey Junior High School also increased over the two year period. Table 12 presents the absentee rates for the junior and senior high schools during the two school years.

Table 12. Absentee Rates by School Year

School	Year	Absentees	Total Pupil Days	% Absent
J. J. Daniell J.H.S.*	1969-70	14,609	244,131	5.98
J. J. Daniell J.H.S.*	1970-71	16,678	266,304	6.26
Autrey J.H.S.	1969-70	12,908	186,069	6.94
Autrey J.H.S.	1970-71	15,149	204,218	7.42
Sprayberry H.S.*	1969-70	16,073	172,427	9.32
Sprayberry H.S.*	1970-71	20,922	192,226	10.88
North Cobb H.S.	1969-70	11,875	120,315	9.87
North Cobb H.S.	1970-71	12,711	134,268	9.51

*Program schools

Product Objective 11:

To increase the number of students (grades 10-12) in work experience.

Specific data regarding the attainment of Objective 11 was not available at the time of the preparation of this report. The numbers of students involved in work experience will be made available in later reports.

Product Objective 12:

To increase counselor involvement regarding contact with students (grades 11-12) about career decisions.

Data regarding the attainment of Objective 12 was unavailable at the time of the preparation of this report. This data will be collected for the 1971-72 school year and will be included in later reports.

Product Objective 13:

To increase counselor involvement regarding contact with teachers to fuse career-oriented activities and information in curriculum.

Measurement of Objective 13 involved an item analyses of a questionnaire that dealt with the counseling services in the schools. All teachers in the program and control schools were given a twenty-item Likert-type questionnaire describing their school's counseling services, with the response modes being VA: Very Accurate; A: Accurate; ?: Unsure; I: Inaccurate; and VI: Very Inaccurate. The alternative responses were weighted from 1 (VA: Very Accurate) to 5 (VI: Very Inaccurate).

The responses to four items differed significantly between the two groups of teachers. Two of these items were directly related to Objective 13, while one of them was indirectly related to Objective 12:

Item 1: The counseling services help to plan and develop the curriculum in relation to the needs of the pupils.

Teachers in the program schools showed significantly more agreement with Item 1 than did teachers in the control schools ($\alpha < .02$). This item was directed at Objective 13.

Item 11: It serves as a consultant to teachers by assisting them in securing materials and developing procedures for classroom group guidance experiences.

Item 11 elicited significantly more agreement from teachers in the program schools than teachers in the control schools ($\alpha < .05$). This item was also directed at Objective 13.

Item 7: It collects and supplies sutdents with information concerning careers and career training opportunities.

Teachers in the program schools showed greater agreement with Item 7 than did teachers in the control schools ($\alpha < .05$). This item gives some support for the attainment ofattainment of Objective 12.

Product Objective 14:

To increase parental involvement in the educational process.

The primary means for measuring Objective 14 was the extent of parental involvement in P.T.A. Exact measures of P.T.A. attendance were unavailable to the evaluation staff, however, responses from P.T.A. presidents and school principals indicate that the P.T.A. attendance did not change in the middle or secondary program schools between the 1969-70 and 1970-71 school years. In the control schools, the attendance decreased drastically at the middle school level, while it increased tremendously at the high school level. Indications are that Objective 14 was not achieved.

Product Objective 15:

To increase the proportion of students (graduates and dropouts) leaving school with job entry level skills.

The operational definition of "job entry level skill" being used in the evaluation was the completion of specific sets of courses in the vocational high school or sufficient participation in a job ttraining program while still enrolled in school. Data necessary for the evaluation of this objective have yet to be presented to the evaluation staff. This information

should eventually be available. It will be included in later reports.

Product Objective 16:

To reduce grade failures (at the middle and secondary levels).

Objective 16 was restricted to the middle and secondary schools due to the ungraded programs in some of the participating elementary schools.

Two types of comparisons were made at the junior and senior high schools; both comparisons used Chi-square tests for significance. The percentages of grade failures were compared within the program schools for the 1969-70 and 1970-71 school years, and the 1970-71 percentages were also compared between the program and control schools.

At the senior high schools no significant differences were found to exist for either comparisons; i.e., the percentage of grade failures had not changed.

At the middle school level the program school had significantly fewer grade failures when compared to the control school as well as when the 1970-71 school year was compared with the preceding year. Objective 16 was then achieved at the middle school level, but not at the secondary level.

Product Objective 17:

To increase the percentage of students (grades 10-12) placed in jobs by the school.

The two comparisons that were made to measure Objective 17 are similar to those used for the previous objective: (1) the percentage of job placements for the program high school was compared over the 1969-70 and 1970-71 school years, and (2) the 1970-71 percentage of job placements was compared across the program and control schools. Chi-square tests were performed and

no significant interactions were obtained: the percentage of students placed in jobs by the program high school had not increased.

Product Objective 18:

To increase student academic achievement as measured by achievement tests.

Measurement of Objective 18 was to be based on achievement tests administered by the Cobb County School System. Unfortunately, the school system does not have achievement test scores on all of its students, nor were they able to test a representative sample from each grade level within the program schools.

The limited amount of money being spent on the evaluation of the program forbids the inclusion of standardized achievement tests; therefore, Objective 18 will remain unmeasured unless the school system institutes a more complete testing program within the program schools.

Product Objective 19:

To reduce the dropout rate (at the middle and secondary levels).

Two comparisons were used to measure changes in the dropout rates: (1) the 1969-70 dropout rate at the program schools was compared with the dropout rate during the 1970-71 school year, and (2) the dropout rate for the program schools was compared with the control schools for the 1970-71 school year. Table 13 presents the number of dropouts by school and year. Chi-square tests were not significant; the dropout ratio had not changed during the first year of the program.

Table 13. Dropouts by School and Year

School	Year	Enrollment	Dropouts	Percent
J. J. Daniell J.H.S.*	1969-70	1352	15	1.11
J. J. Daniell J.H.S.*	1970-71	1487	18	1.21
Autrey J.H.S.	1969-70	1124	23	2.05
Autrey J.H.S.	1970-71	1168	22	1.88
Sprayberry H.S.*	1969-70	1041	54	5.19
Sprayberry H.S.*	1970-71	1170	63	5.38
North Cobb H.S.	1969-70	743	58	7.81
North Cobb H.S.	1970-71	816	52	6.37

*Program schools

THE PROCESS EVALUATION

The remarks in this section are based on six on-site visitations, as well as two process evaluations directed by Dr. James E. Bottoms (Georgia State Department of Education, Vocational Education), who drew on State Department Personnel and university faculty from the University of Georgia and Georgia State University to more fully explore the changes in the educational processes. It seems necessary at this point to provide a general chronological overview of the program development, even though it may be somewhat redundant.

The staffing of the program was completed in early August, 1970. The program staff under direct supervision of the program director consisted of two professionals who worked in the elementary grades and two clerical staff members. In late August, a one week in-service training session was held for the participating teachers. The training sessions were well-organized, and drew on experts at the various grade levels to help operationalize the program. At that time efforts began to refine the conceptualization of the program, and an attempt was made to produce measureable product goals and objectives to match up to the roughly detailed processes in the proposal.

In September the program staff was to be housed in the junior high school; however, due to an administrative decision at some level, the program staff moved to a location that was neither at the program schools nor the Cobb County Central office. This location was occupied until the early spring. The facility could be described at best as spartan; and at least a few teachers felt that the location demonstrated a lack of central office support for the program. The change in location had other adverse effects.

During the time that the program was located there, little time was spent working with teachers at the junior high school level. Also, equipment and supply procurement proved to be a large problem early in the program.

At the time of the first process evaluation in December, only the elementary portion of the program was reasonably operational. At the elementary level, both teachers and students were enthralled with the program. At the junior high, the lack of coordination due to understaffing kept the efforts of the participating teachers from reaching full fruition. At the secondary level, very little had been done, due largely to the lack of direction and coordination. Furthermore, the guidance aspects of the programs at the junior and senior high schools, Daniell and Sprayberry, showed no evidence of change to meet the specifications of the program.

The presentation of the results of the process evaluation upset many of the teachers, and may lead to difficulties in the 1971-72 school year, since those teachers felt that they were trying but failed to accomplish anything of merit.

The second process evaluation in April, 1971, reflected the same findings with some minor improvements at the middle grades. However, the recommendations seem to have increased central office"s interest in the program. The entire period between September, 1970 and the second process evaluation was marked by a lack of visible central office support; in fact, only token attendance of the central staff was present for either of the process evaluation reports. Just prior to the second on-site visitation, the program was relocated at the central office.

The second process evaluation seemed to be the turning point for the program. It led to planning with and involvement by the central office

staff. It should be noted that the evaluation staff was not invited to the planning sessions, but did work closely with the program director individually in planning the next year's activities.

The remainder of the section is concerned with the extent to which process objectives were fulfilled. For simplicity in presentation the goals will be stated and the objectives under each goal will be treated individually. Pages 27-30 of this report contain a listing of all process objectives.

Process Goal I:

> This program in grades 1 through 7 will enhance the traditional academic curriculum with occupationally oriented activities.

All process objectives under this goal were fulfilled in grades 1 through 6. No attempt was made to fulfill the process objectives in the seventh grade.

Process Goal II:

> This program in grades 1 through 7 will introduce students to community work roles.

All process objectives were fulfilled in grades 1 through 6. No attempt was made to fulfill the process objectives in the seventh grade.

Process Goal III:

> Through P.E.C.E. Program this program will develop and implement programs of career exploration in such a manner as to enhance traditional academic learning and accomplish certain career development objectives.

All process objectives were fulfilled under this goal.

Process Goal IV:

> This program will develop and implement programs of pre-vocational orientation into the middle school, ninth grade, in such a manner as to enhance traditional academic learning and accomplish certain career development objectives.

All process objectives under this goal were fulfilled.

Process Goal VI:

> This program will provide an across the board work experience program at the tenth grade level for potential dropouts.

No process objective under this goal was fulfilled, nor were any attempted.

Process Goal VII:

> This program will develop and implement vocation clusters within the senior high school around which academic subject matter will be centered.

No process objective was fulfilled, nor were any attempted.

Process Goal VIII:

> At middle and secondary levels teachers will interlock exploration, pre-vocational and career development with academic curriculum for certain students.

Teams of teachers organized around vocational offerings with a team leader met once a week to develop lesson plans for interlocking curriculum. None of the other objectives under this goal were fulfilled.

Process Goal IX:

> This program will provide students with job entry level skills.

The objective under this goal was not fulfilled to any degree greater than the previous year.

Process Goal X:

> This program will develop a job placement program which will place the responsibility on the school to help each student make the transition from school to work.

The objective under this goal was not fulfilled, nor was any attempt made.

Process Goal XI:

> This program will provide both direct and indirect assistance to students in the career development process. Direct assistance will be through regularly scheduled individual counseling and group guidance activities. Indirect assistance will be provided through counselor management of school and community resources to facilitate career development.

There was no counselor initiated attempts to reach the objectives; however, at the elementary level curriculum changes were made to increase occupational awareness.

CONCLUSIONS AND RECOMMENDATIONS

An overview of the effects of the first year's efforts suggests that most of the product objectives were not attained. The developmental nature of the Cobb County program is congruent with these results: one cannot expect large changes in student behavior after a one or two year program in career development. Some of the product objectives deal with cognitive skills that are not usually developed in traditional academic education, while others were concerned with modifying attitudes that had previously been supported by the academic community.

A few of the objectives that were not achieved should have at least shown a trend toward achievement after a single year: there was less than a one percent increase in the number of Sprayberry students placed on jobs by the school (Objective 17), with a total of only 9.91 percent of the Sprayberry students placed on jobs. Likewise, the dropout rate at Sprayberry High School showed a slight increase (.19 percent), while intensive efforts were supposed to be made to reduce the number of dropouts (Process Objective VI,1; Product Objective 19).

It is not possible to quantify many of the observations that were made by the evaluation staff during its on-site visits. The elementary school students seemed overjoyed with their program activities; unfortunately no instruments were available to measure their happiness with school. These young students appeared to thoroughly enjoy school, and many of their peers in the control classes verbalized their eagerness to take part in program activities. The program director has already accomplished a great deal in assisting other schools in the development of

similar programs (non-funded) of their own. One of the problems encountered this year (1971-72) was in restraining the spread of program activities to the control classes--the elementary school teachers and principals are eager to have a total program implemented in their schools.

The junior and senior high schools are experiencing some difficulty in implementing the processes outlined in the proposal. Last year's counseling staff at the high school was too small to perform all the duties assigned to it, while the junior high school staff was experiencing some difficulty in implementing the processes outlined in the proposal. Last year's counseling staff at the high school was too small to perform all of the duties assigned to it, while the junior high school staff was experiencing frequent delays in procuring supplies. The location of the program director's office during the initial phase of the program was a continuing source of annoyance to all program personnel who needed his assistance; fortunately, this problem has been remedied.

The ultimate success or failure of the Cobb County program will depend upon the students' behavior after they leave the school system. Will they possess salable job skills? Will they enroll in postsecondary education? Will they find work to be a psychologically and sociologically meaningful experience? Success in achieving program objectives at the elementary or junior high school level is only a first step in achieving the ultimate goals of the program.

Present data suggest that more intensive efforts are needed at all levels and particularly at the junior and senior high schools. The P.E.C.E. programs appear to be shaping some appropirate cognitive skills, but unless

these behaviors continue to be used and developed as the students continue their education, this temporary success at the eighth grade level will become a transient experience rather than an integral part of a developmental process.

There are several specific recommendations that can be made as a result of the data and on-site visitations. Many of these had already been acted upon at the time of writing.

1. There should be an active attempt made on the part of the program staff to move from a teacher-centered unit approach to a curricular approach at the elementary level. While the aforementioned unit approach leads to more teacher enthusiasm, redundancy is already occurring in the units across grade levels. The problems of vertical articulation (sequencing) between units must be solved if the program is to have a long-term effect.
2. The elementary segment also suffers from the lack of a well-defined taxonomy of jobs (or job clusters) to assure that a wide variety of clusters are given consideration. At present, jobs or job clusters that are taught are based mainly on the availability of resource material or on teacher-student interest. The scope of jobs to be covered must be defined and systematically covered.
3. The elementary sequence should be tied directly and formally to the existing Cobb County curriculum. Technical writers should be hired to assure that well-written units keyed to the existing

curriculum are available for future expansion of the program to other schools.

4. A system to monitor program acitvities should be developed because as the program expands a simple reliance on face-to-face communication will not be sufficient. Likewise, long range planning activities should begin in order that successful aspects of the program may be expanded.
5. At the junior high school level, there is a need for considerable rethinking of the focus of the program. At the seventh grade, no program activities were undertaken. At the eighth grade, the P.E.C.E. program seemed to be insufficient, and at the ninth grade, interlocking has created a severe teacher time utilization problem. Obviously, an increased counselor involvement and an increased emphasis on disadvantaged, handicapped, and potential dropouts is a must.
6. At all levels mechanisms for attitude change should be examined. At present, the program activities seem to be focused on the cognitive level. While it is possible that cognitive changes produce attitude changes, a more conscious effort should be made to assure effective change.
7. At the high school level many things must be examined. First, to provide a child with aspirations with no mechanism for fulfilling them may lead to the opposite effects in terms of attitudes than those expected. There is no evidence that any extra skill training options have been made available to students. Likewise, no

pre-professional course offerings have been devised. Exploratory courses have been limited to a rather narrow range of technical course areas. Business courses show little change in either format or method. Counseling involvement with all students has been severely limited. The interlocking activities appear to be a failure. In short, there is very little evidence of any changes whatsoever at the secondary level, even though select teachers spent a large amount of time on the program. No new placement activities were evident. It is recommended that maximum effort be focused on improving counseling, skill training, and placement at the high school level.

8. The organizational structure of the Cobb County school system should be examined. While the program schools are viewed as a unit (an attendance area), in fact, they are seven autonomous units under the direction of seven principals. The program director has no line authority in relationship to any of the principals and his effectiveness depends on their good will in order to perform his role as coordinator.
9. During the last part of the school year visitations began to take up well over one-fourth of the working days for the professional staff. While these dissemination activities are very commendable, restraint seems necessary. It is recommended that visitation be allowed no more than twice a month, and slide presentations be developed to reduce the amount of class disturbance.

10. The inservice education component of the Cobb County program should be documented and made available to interested parties.
11. Achievement tests should be administered this year within all the program and control schools to explore the effects of the program in academic achievement. While one of the product objectives was directed at increasing achievement as measured by achievement tests, no data is presently available to evaluate this objective. Certainly a decrease in academic achievement would have serious repercussions on the program.
12. Little, if any, coordination has been evidenced between the counseling services at Sprayberry High School and the adjacent Vocational High School. The student flow between these two schools should be accompanied by a coordination of counseling services. As was pointed out in the process evaluation (Process Objective XI), the counseling services at the secondary level have shown little change since the implementation of the program. It is strongly recommended that intensive efforts be made by the counseling services at these two schools to implement their process objectives in a coordinated fashion.
13. The program staff should continue to review program activities in relation to the desired products and processes. The utilization of personnel and the strategies for implementation should be objectively examined each year, and special attention should be given to the expenditure of program funds on personnel who are not under the supervision of the program director.

14. Finally, it must be stated that the program director and staff did a remarkable job last year in accomplishing what they did, and in setting the stage for this year. The interest generated in career education by this program's elementary segment should have a long-lasting effect on the Georgia educational community due to the interest expressed by many individuals who visited the program in its first year.

Referring back to the federal intent of exemplary programs in vocational education, the Cobb County program was successful, during its first year, in satisfying only one of the five priorities established by Grant Venn: "Provisions for broad occupational orientation at the elementary and secondary school levels so as to increase student awareness of the range of options open to them in the world of work." Changes have already been made by the program staff in an effort to meet all five of Grant Venn's priorities during the current year.

The more general intent of exemplary programs, as stated in Part D of the Vocational Education Amendments of 1968, has been fulfilled: the Cobb County program has stimulated new ways to create a bridge between school and earning a living for its students. There remains a need for more comprehensive skill training programs at the secondary level, however, the foundation for these programs has already been established. In general, the Cobb County Developmental Program of Occupational Education is well within the boundaries of the federal intent.

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Conclusions and Reccomendations

Based upon a year's continuous in-house evaluation and the reccomendations of the third-party evaluation from North Carolina State University, we have concluded that the activity-centered Career Development approach to total education will work if properly supported; and for the project to be successful at the middle and secondary levels, additional project staff (Career Development Specialists) will need to be employed.

In order to provide better sequencing, adequate coverage of units/occupations, and replicable curriculum guides, curriculum writers (one elementary and one middle/secondary) will need to be employed.

Continued in-service will be provided for all project teachers at all levels.

Dissemination efforts will continue in visitations to the project; articles and other publicity; and exchange of curriculum materials with other projects.

Joel Smith
Project Director

July 6, 1971
Date

Appendices

A. Analysis of Occupations in Elementary School Textbooks.

B. Cobb County Schools Guide to Career Development, K-12 (6 volumes)

Guide to Career Development in the Human Services (Grade 9)

Guide to Career Development in the Industrial Arts (Grade 9)

Guide to Career Development in Occupational Preparation (Grades 10-12)

Guide to Elementary School Career Development (K-6)

Guide to Placement (Grades 10-12)

Synopsis of Cobb County Occupational and Career Development Program (K-12)

C. Elementary Units

TITLE	GRADE LEVEL
Aquarium	1
Communication Careers	1-3
Careers in Transportation	1-3
Gardening	1-2
Post Office	1-2
Television Variety Program	1-2
The Zoo	1
Ecology	3-4
Puppetry	3-4
Meal Planning and Food Services as Related to Occupational Choices	4-5
Building Construction and Maintenance Careers	K-6
Communication Careers - The Newspaper Industry	4-6
Photography	4-6
Construction of Horizontal Bars for the Playground	5-6
Constructing Paper Mache Maracas	5-6
Health and Personal Services Careers	6
Building, Construction and Maintenance	1-6
Business Related Occupations	1-6

TITLE	GRADE LEVEL
Career Development in an Area of Protective Services for Elementary Education	1-6
Restaurant	1-6
Protective Services	1-6
Services in Grooming	1-6
Service Station Operator	1-6
Transportation	Int.
Indiana Resource	Int.
Train	1-3
Checker Board	1
Getting the Garden Ready	
Kite	
Telephone	
Thermometer	
Types of Transportation	
Wind Direction	
Putting a Book Together	
Book Ends	
Cooking a Meal	
Dashiki	
Diorama	
Miniature Stage	
Grocery Store	1-3
Model Community	1-2
Airport	3-4
Oceanography	5-6
Missle Project	5-6
Banks	3-4
Aerospace	5-6
Art Careers	5-6
Building Construction Industry	5-6
Conservation	3-4
Food Packaging	1-3
Food	1-3
Zoology	5-6
Botany	5-6
Learning Episode in Social Studies	
Learning Episode in Science	
Learning Episode in Math	

APPENDIX D

COBB COUNTY OCCUPATIONAL AND CAREER DEVELOPMENT PROGRAM

EVALUATION

OBJECTIVE NO.	MEASUREMENT	ADMINISTER TO:	
1-3	P.E.C.E. Knowledge Test	Grades 5-12	TN=280 IN=280 ON=200
4	Attitude (Morgan)	Grades 6-12	TN=200 IN=200 ON=160
5	Attitude (Morgan)	Grades 6-12	TN=200 IN=200 ON=160
		Parents	TN=480 IN=480 ON=480
	Attitude (Morgan	Teachers (All)	
6	Opinion Question (Cobb County Comp. Study)	Teachers (All)	
		Grades 8-12	TN=100 IN=100 ON=100
7	Post-Second Question (Morgan)	Graduates	TN=All IN=All ON=All
8	Written Job Listing (60 sec)	Grades 2-12	TN=520 IN=520 ON=320
9	Oral Job Listing (60 sec)	Grades 1-6	TN=480 IN=480 ON=120
10	Vocational Ed. Enrollment (Sprayberry Records)	Grades 10-12	TN=All In=All On=All

OBJECTIVE NO.	MEASUREMENT	ADMINISTER TO:
11	Absentee Rate (School Records)	Grades 1-12 TN=All IN=All ON=All
12	Work Experience Program (School Records)	Grades 10-12 TN=All IN=All ON=All
13	Counselor-Student Contacts Questionnaire (Morgan)	Grades 8-12 TN=100 IN=100 ON=100
14	Counselor-Teacher Contacts (Records)	Grades 8-12 All Teachers
15	PTA Membership (School Records	All PTA's
	Parent-Teacher Conference (Question in Obj. 5)	All Teachers Grades 1-12
16	Job Entry Skills (School Records)	Grades 8-12 All
17	Grade Failures (School Records)	Grades 1-12 All
18	Job Placement (Counselor Records)	Grades 10-12 All
19	Achievement (Standard Test)	Grades 1-12 All
20	Dropout rate (School Record)	Grades 10-12 All

APPENDIX E

COBB COUNTY OCCUPATIONAL AND CAREER DEVELOPMENT PROGRAM

RESOURCE FILE QUESTIONNAIRE
Pilot Schools

Sprayberry High	Blackwell Elementary
J. J. Daniell Junior High	Elizabeth Elementary
Bells Ferry Elementary	Mountain View Elementary

The Cobb County School System in its efforts to offer the best education possible to all the children of Cobb County is engaged in many innovative and exciting projects. One such project is the Cobb County Occupational and Career Development Program, a Federally funded program designed to introduce students to occupational opportunities in the community, to illustrate the interdependence of the school subject matters to each other and to the business community and to involve every student more completely in the planning and implementation of his own education.

Parental and community involvement are two vital elements in the Career Development approach to total education and to the success of this pilot program. Your response to the following questionnaire would be especially helpful in making this project a success.

NAME OF SCHOOL_____ TEACHER_____

GRADE LEVEL_____

FATHER'S NAME_____ MOTHER'S NAME_____

ADDRESS_____ WORK ADDRESS_____

PHONE NO._____ PHONE AT WORK_____

ADDRESS AT WORK_____

PHONE NO. AT WORK_____

1. Name and description of your occupation:_____

_____

2. Would you be willing to come to the school as a resource person to explain some of the duties, responsibilities, and training necessary for your particular occupations? YES_____ NO_____

3. Do you have slides, film presentations, or collections that you would be willing to share and discuss with the students? YES_____ NO_____

4. Would you be willing to assist your child's teacher with a field trip? YES_____ NO_____

5. Would your place of business be willing to accept class tours through the facilities? YES_____ NO_____

APPENDIX F

EVALUATION FORM

TEACHER'S NAME: _____ GRADE: _____

PROJECT WORKED ON: _____

DATE BEGUN: _____ DATE ENDED: _____

FIELD TRIP TAKEN TO: _____

RESOURCE PERSONS USED:
(Title, Phone if possible)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

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Use (V) To Answer

OCCUPATION	METHOD OF COVERAGE			EXTENT OF COVERAGE			CHARACTERISTIC OF JOB						
	Resource Person	Field Trip	Class Discussion	Duties and Responsibilities	Educational Requirements	Tools of Trade	Indoor Job	Outdoor Job	Working with People	Writing Job	Working Hands	Thinking Job	Desk Job

NAME OF PROJECT_____ TEACHER_____

SCHOOL_____ GRADE_____

SUMMARY REPORT

CONCRETE ACTIVITIES:

DATE:_____

DATE:_____

DATE:_____

DATE:_____

DATE:_____

DATE:_____

DATE:_____

SUBJECT TIE-INS:

MATH:

DATE:_____

DATE:_____

DATE:_____

DATE:_____

DATE:_____

DATE:_____

DATE:_____

LANGUAGE ARTS:

DATE:_____

DATE:_____

DATE:_____

DATE:_____

DATE:_____

DATE:_____

DATE:_____

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SCIENCE:
DATE: _____

DATE: _____

DATE: _____

DATE: _____

DATE: _____

DATE: _____

DATE: _____

SOCIAL STUDIES:
DATE: _____

DATE: _____

DATE: _____

DATE: _____

DATE: _____

DATE: _____

DATE: _____

FINE ARTS:
DATE: _____

DATE: _____

DATE: _____

DATE: _____

DATE: _____

DATE: _____

DATE: _____

SIGNIFICANT STUDENT REACTIONS: (if any)

_____

_____

SUGGESTIONS (if any):

_____

_____

APPENDIX G

CRITERION FOR STAFF SELECTION OF PUPIL TYPES
IN ACCORDANCE TO PROJECT SUCCESS IN DECEMBER 1970

SCHOOL: _____ GRADE: _____ DATE: _____

Handicapped Student	Type of Handicap CODE	Evidence of Improvement

II SLOW MATURING
1. Shy
2. Withdrawn
3. Babyish
4. Insecure
5. Dependent
6. Lacks Initiative

III SLOW LEARNER
1. Lacks initiative
2. Varying degrees of emotional problems
3. Dull personality
4. Poor performance academically
5. Can learn but requires much longer
6. Responds well to individual instruction
7. Lacks self confidence

IV ENVIRONMENTALLY DISADVANTAGED
1. Family income (under 3,000)
3. Grooming (poor)
4. Neighborhood (poor housing)
5. Free lunch
6. No Siblings

VI EMOTIONALLY DISTURBED
1. Extremely shy/withdrawn for long period of time
2. May be extremely hyperactive and/or aggressive
3. Short attention span
x 4. Achievement lower than expected
5. Erratic behavior
6. Abnormal fears
7. Deeply bitten fingernails

VII NEUROLOGICALLY HANDICAPPED
1. Chronic Reversal
x 2. Lack of development of left-right orientation
3. Usually poor reader and writer
4. Usually clumsy in gross and fine motor movements

VIII EDUCABLE MENTALLY RETARDED
1. May be any and/or all of the listed

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TYPES OF PUPILS WITH DESCRIPTIONS

II. SLOW MATURING CHILD

A child who has an average IQ, but has not developed socially, emotionally, physically, or academically according to his chronological age expectation.

III. SLOW LEARNER

A child who has been evaluated by a psychologist and found to have a below average IQ.

IV. ENVIRONMENTALLY DISADVANTAGED CHILD

A child who, because of home, school, or society, has not attained basic skills necessary for academic achievement in accordance with his potential. This child may have suppressed IQ due to social factors however, should have an average IQ.

VI. EMOTIONALLY DISTURBED CHILD

A child who evidences a significant lag in social and/or emotional development as evaluated by a trained psychologist.

VII. NEUROLOGICALLY HANDICAPPED CHILD

A child who has minimal brain dysfunction to the extent of impeding normal progress in academic achievement. Progress could be impeded in any one area or a combination of the following areas:

1. Visual Motor
2. Visual Perception
3. Auditory perception
4. Motor
   a. Gross
   b. Fine

VIII. EDUCABLE MENTALLY RETARDED CHILD

A child who has been evaulated by a trained psychologist and found to have a IQ score of 50-80.

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VT 016 240
PINSON, NANCY M.; MIETUS, WALTER
THE MARYLAND CAREER DEVELOPMENT PROJECT. THE CAREER EXPLORATION WORKSHOP FOR JUNIOR HIGH TEACHERS AND COUNSELORS. PRELIMINARY REPORT.

MARYLAND STATE DEPT. OF EDUCATION, BALTIMORE.
OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
OEC-0-70-5186(361)
PUB DATE - 70 63P.

DESCRIPTORS - *SCHOOL PERSONNEL; *SUMMER WORKSHOPS; INDUSTRIAL ARTS TEACHERS; HOME ECONOMICS TEACHERS; *VOCATIONAL DEVELOPMENT; JUNIOR HIGH SCHOOLS; *PROGRAM DEVELOPMENT; *CAREER EDUCATION; TEAM TRAINING; DEVELOPMENTAL PROGRAMS; FORMATIVE EVALUATION; INTERDISCIPLINARY APPROACH; EDUCATIONAL OBJECTIVES
IDENTIFIERS - *MARYLAND; CAREER EXPLORATION; VOCATIONAL EDUCATION AMENDMENTS OF 1968

ABSTRACT - IN ORDER TO FULFILL AN OBJECTIVE OF THE MARYLAND CAREER DEVELOPMENT PROJECT, WHICH PROVIDES FOR STATE DEVELOPMENTAL PROGRAMS IN CAREER EDUCATION AS FUNDED UNDER PART D OF THE VOCATIONAL EDUCATION AMENDMENTS OF 1968, TWO ANNUAL PROGRESS REPORTS ON SUMMER CAREER EXPLORATION WORKSHOPS FOR JUNIOR HIGH SCHOOL COUNSELORS, INDUSTRIAL ARTS TEACHERS, AND HOME ECONOMICS TEACHERS PRESENT SEPARATELY DESCRIPTIONS OF THE WORKSHOP PROCEDURES AND PLANNING. TO PROVIDE FOR AN INTERDISCIPLINARY TEAM-TRAINING APPROACH, WORK-SIMULATION TASKS, ROLE-PLAYING, AND ACTION-ORIENTED RESEARCHES WERE CARRIED OUT. SHORT-TERM AND LONG-TERM OBJECTIVES FOR THE WORKSHOP TEAMS ARE GIVEN, AND THREE WORKSHOP INSTRUMENTS TESTED THE STATUS OF CAREER EDUCATION PROGRAMS IN PARTICIPATING SCHOOLS. FORMATIVE EVALUATIONS FOR BOTH WORKSHOPS INVOLVED OPEN-ENDED QUESTIONS, PRE- AND POST-TESTING BY MEANS OF QUESTIONNAIRES, AND SEPARATE EVALUATIONS FOR TEACHERS IN DIFFERENT DISCIPLINES. RECOMMENDATIONS FOR IMPROVING THE WORKSHOPS ARE INCLUDED. (AG)

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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THE MARYLAND CAREER DEVELOPMENT PROJECT (K-Adult)

Career Exploration Workshop (Junior High)

First Progress Report

by

Nancy W. Pinson

and

Dr. Walter Mietus

James A. Sensenbaugh
State Superintendent of Schools

James L. Reid
Assistant Superintendent for
Vocational-Technical Education

E. Niel Carey
Project Director

VT016240

1970

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PRELIMINARY REPORT

THE MARYLAND CAREER DEVELOPMENT PROJECT

Grant No. OEC - 0 - 70 - 5186 (361)

The Career Exploration Workshop for Junior High Teachers and Counselors

_____

Date

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to express freely their professional judgement in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U. S. Department of Health,
Education and Welfare

Office of Education
Vocational and Technical Branch

Acknowledgements

I. PRESENTERS

Dr. Donald Maley, Head
Department of Industrial Education
University of Maryland

Dr. Kenneth B. Hoyt
Counseling and Personnel Service
College of Education
University of Maryland

Dr. Marjorie Stewart
Home Economics Education
University of Kentucky

James L. Reid
Associate Superintendent of
Vocational-Technical Education
Maryland State Department of Education

II. COURSE INSTRUCTOR

Bill McPherson
Department of Industrial Education

III. CONSULTANTS in RESIDENCE

Darryl Laramore, University of Maryland and Division of Instruction
Maryland State Department of Education
Jim Smith, Specialist in Post Secondary Education
Maryland State Department of Education
A. L. Myers, Specialist in Industrial Arts
Maryland State Department of Education
Louise Harmon, Supervisor of Home Arts
Montgomery County
Eleanor Murray, Supervisor of Home Economics
Prince George's County

IV. PROJECT DIRECTOR

E. Niel Carey, Supervisor of Vocational Guidance
Maryland State Department of Education

V. WORKSHOP CHAIRMAN

Nancy M. Pinson, Specialist Pre-Vocational Education and Career Development
Maryland State Department of Education

VI. EVALUATION

Dr. Walter Mietus, Department of Industrial Education
University of Maryland

ADVISORY COMMITTEE

Nancy M. Pinson, Specialist in Pre-Vocational Education,
Maryland State Department of Education - Chairman

E. Niel Carey, Supervisor of Vocational Guidance,
Maryland State Department of Education - Project Director

Dr. Kenneth B. Hoyt, Professor of Education,
University of Maryland

Dr. Donald Maley, Department of Industrial Education,
University of Maryland

Louise Harmon, Supervisor of Home Arts,
Montgomery County

James McCleaf, Supervisor of Guidance,
St. Mary's County

Bill McPherson, Department of Industrial Education,
University of Maryland

Darryl Laramore, Counseling and Personnel Services,
University of Maryland

Karl Gettle, Department of Industrial Education,
University of Maryland

Jerry Davis, Supervisor of Vocational Education,
Charles County

Eleanor Murray, Supervisor of Home Economics,
Prince George's County Board of Education

Evelyn Miller, Supervisor of Home Economics Education,
Maryland State Department of Education

PARTICIPANTS

Tom Britton, Industrial Arts Neva Johnson, Home Economics Barbara Horstmann, Counselor	Charles Carroll Junior High School
Guy Bailey, Industrial Arts Connie Hankins, Home Economics Orvella Queen, Counselor	Lemmel Junior High School
James Robinson, Counselor	Calvert County Junior High School
Esther Haar, Home Economics Wesley McLaurin, Industrial Arts Joseph Wilson, Counselor	Julius West High School
Sandra Dix, Home Economics Barbara Hinze, Counselor Ronald Lewis, Industrial Arts	Cabin John Junior High School
Dean L. Smith, Counselor Joan E. Rohrer, Home Economics Earl J. Hendershot, Industrial Arts	Hancock Junior-Senior High School

CAREER EXPLORATION WORKSHOP
BUDGET OUTLINE

The following line items were established as essential to workshop implementation and were submitted in advance as estimates not to exceed $5000. Line items were shifted to areas where need was indicated as workshop progressed.

Tuition for 24 participants	
12 graduates @ $34 x 2	816.00
12 undergraduates @ $22 x 2	528.00
Matriculation fee @ $10 x 24	240.00
Auxiliary Use Fee @ $4 x 24	96.00
Parking Fee @ $5 x 24	72.00
Rooms: 5 doubles @ $12/wk x 2	240.00
Meals: 10 persons @ $3.75/day for 12 days	450.00
Secretary	200.00
Office supplies	150.00
Laboratory supplies	400.00
Audiovisual supplies, including video tapes, audio tapes, overhead transparencies, etc.	300.00
Transportation for field trips	150.00
Orientation luncheon	60.00
Evaluation and dissemination dinner meeting	150.00
Consultants	700.00
Miscellaneous	328.00
Total	$5000.00

Subsequent to the workshop, the sum of $3000 was set aside to assist with plan implementation. Teams securing county support for half of their inventoried requests up to $500 would be assured of matching funds up to $500 from the Project. An additional sum of $1000 was designated for evaluation. Such amount would be applied toward travel expenses, materials, duplication, etc. incurred by the consultant named by the Project.

Grand Total $9000.00

THE MARYLAND CAREER DEVELOPMENT PROJECT (K-Adult)

The concept of the Maryland Career Development Project originated with the Maryland State Department of Education's Interdivisional Task Force on Career Development. The formation of this Task Force was suggested by the Division of Vocational-Technical Education's operational plan and was approved by the Director's Council of the Bureau of Educational Programs in December, 1968.

The Maryland Career Development Project provides for several programs or activities of an exemplary nature which are designed to facilitate the career development progress. The programs and activities of the project are designed to accomplish or to demonstrate one or more of the following objectives:

1. To help individuals develop a positive self concept and a greater degree of self-understanding.

2. To help students learn about and understand the range of educational and career opportunities presently available and that are likely to be available in the future.

3. To help students develop and use the decision making process more effectively.

4. To help individuals make smoother transitions at key points during their career life, such as the transition from school to further training or to work.

The Maryland Career Development Project will:

A. Provide a resource person in career development to work with the teachers and counselors in five elementary schools in Baltimore City and devise procedures, programs, and materials which will:

   (1) help youngsters learn more about themselves and see themselves positively.

   (2) help youngsters learn more about the world of work and to relate this knowledge to their work at school.

B. Develop a workshop for teams of junior high school counselors, industrial arts teachers, and home economics teachers in which they can learn about the concept of career development, and work together in planning career exploration programs for their own school.

C. Develop an evening or summer program which will provide skill training and placement activities for high school students or dropouts who have not had the advantage of participating in vocational education programs.

D. Produce a television series which can be used throughout the State for career exploration purposes.

E. Develop a State career development resource notebook for educators.

F. Conduct a statewide conference devoted to career development, objectives and programs.

The Maryland Career Development Project was approved by the Maryland State Board of Education in March, 1970 for submission to the U.S. Office of Education. The Project was approved for funding by contract no. OEC-0-70-5186 (361) under the provisions of Part D (Exemplary Programs) of the Vocational Education Amendments of 1968.

CHAPTER ONE

INTRODUCTION

From July 20 to July 31, the first Career Exploration Workshop for junior high school teachers and counselors was held on the campus of the University of Maryland, College Park. This two-week experience involved a nucleus of school personnel who were consider to be representative of both career and development oriented staff.

Rationale for the selection of industrial arts and home economics teachers to form the triad with counselors was supported by the existence and acceptance of experiences unique to these two disciplines which could enhance the guidance dynamic with manipulative activities. Facilitation of a team approach to career exploration for all students was seen as realistically achieved through the pooling of both content philosophy and skill. Explicit objectives were stated as follows:

a. To bring together counselors, home economics, and industrial arts teachers so that they might learn about and develop skills applicable to the career exploration process.

b. To assist these teams in working together to create a plan for their own schools.

c. To supervise plan implementation which might result in model implications for career exploration programs throughout the State.

An advisory committee was formed with a membership of State department specialists, county supervisors, and university personnel. Expertise in each of the three areas was thus assured and employed through three contributing groups. Both tacit and explicit contracts were drawn between the Maryland State Department of Education; the Division of Vocational-Technical Education; and the Department of Industrial Education, University of Maryland, under the funding aegis of the Statewide Career Development Project. In May of 1970, letters over State Superintendent James A. Sensenbaugh's signature were sent

to all county superintendents inviting team applications. Response came from seven schools representing five districts including Baltimore City. Of these, six teams were able to participate, with one of these teams reduced to a membership of one, the counselor, because of certain circumstances.

Responsibility for workshop housing, content, and instruction was jointly assumed through the advisory and physical resources of the State's Vocational-Technical Division headed by Mr. James L. Reid, the Assistant State Superintendent, and the Department of Industrial Education, University of Maryland; headed by Dr. Donald Maley.

Dr. Kenneth B. Hoyt of the Counseling and Personnel Services, College of Education, served as Resident Consultant and Dr. Marjorie Stewart of the Department of Home Economic Education of the University of Kentucky was able to serve briefly as Visiting Consultant.

PLANNING

It was determined by the advisory committee that the participants would become immediately involved in work-simulation tasks, role-playing, and action-oriented research. In a partial departure from traditional lecture format, staff members would assume both keynoting and consulting roles as the workshop progressed. Because the workshop's stated goal was the pooling of three disciplines to effect a workable plan for each school, it was decided that the exposure of all participants to a novel group experience would provide a baseline for team unity and innovation, and also demonstrate one of many techniques which the team might employ in the school setting. The first week was thereby selected to accomplish this group experience, while the second week would contain both additional small group activity and planning sessions for the custom-designed product of each team.

Members of the committee stated the following short-and long-term objectives for workshop participants:

SHORT-TERM OBJECTIVES....TO BE REALIZED AT WORKSHOP'S CONCLUSION

THE TEAM MEMBER WILL.....

1. Acquire a broader understanding of the world of work through the assumption of the multiple roles of today's worker; i.e. producer, consumer, distributor, conveyor, manager, craftsman, designer, assembler, analyst, personnel worker, safety director, cost-accounting, maintenance, etc.

2. Identify the contribution he can make toward the provision of similar role toward this acquisition by playing experiences for his students.

3. Recognize the value of a team approach to career development.

4. Recommend the curriculum changes which would facilitate this team approach.

5. Suggest means which involve the total parent/business/industrial community in this plan.

6. Effectively relate school subjects to broad vocational skills.

7. Justify career exploration for all junior high students.

LONG-TERM OBJECTIVES....TO BE PURSUED IN THE OPERATIONAL SETTING

THE TEAM WILL.....

1. Demonstrate its commitment to career exploration by encouraging total school support through inservice meetings.

2. Open its program potential to all school staff members who wish to become affiliated with it.

3. Find means of motivating students toward self-knowledge through a checks and balances system of interests vs. aptitudes.

4. Provide opportunities to all students for reality-testing in a multi-disciplinary setting which emphasize actual task involvement.

5. Enlist and involve members of the parent and business community in an ongoing process of curriculum enrichment.

6. Develop decision-making skills by permitting students to engage in sequences of wishing, trying, taking consequences, and evaluating their performances.

7. Prepare those students for differentiated skill development while permitting them to delay, change, or postpone declarations of occupational choice.

8. Plan learning experiences which are meaningful to students from a variety of socio-economic and intellectual backgrounds.

9. Evaluate its impact upon the student body, the school staff, and the community at large by assessing its goal proximity in behavioral terms.

Measures of an on site pre/post and course evaluation were designed and assembled, and packets of multi-disciplinary materials were prepared for each participant. A course instructor was appointed as the staff made specific time and task commitments to the workshop, and a university consultant who would serve as expert in evaluation (of the teams' plans as they became operational in the field) was obtained through the Department of Industrial Education. This individual functioned as an impartial observer during the final workshop stages in order to determine framework for field evaluation of each team's plan.

CHAPTER TWO

PROCEDURE:

Participants met with staff to hear keynote addresses by consultants in the three areas. Prior to this, two questionnaires were administered to participants to determine:

1. opinions on career exploration and ranking of priority concerns
2. status of career development programs (if any) in home schools

The next two days were devoted to the formation of a simulated company and the naming and clarification of the associated product. Role assignments were made and researched, and participants interviewed their "counterparts" in industry. Culmination of effort was realized in a line-production schema demonstrating both the interdependence of workers upon one another and a hands-on experience resulting in a tangible product. The first week concluded with review of information acquired, open discussion, and the additional input from teachers in the field who had used still other techniques to involve student groups in exploratory activities.

Second week activities concentrated upon extended periods of team planning, a walking tour of the College Park area businesses, and further demonstrations of human and material resource, which could be applicable in operational settings.

On the last day participants gave both oral and written reports to the group at large. These reports exemplified a team commitment to action and were distinguished by their ingenuity and practicality. In addition, participants reported the professional and personal gains they had realized from the association with members of other discipline areas.

Three evaluative instruments were then administered to all participants. One was a replication of the questionnaire on attitudes and priority concerns. The other measures provided an estimate of cognitive gains, behavioral

changes, and the merits of workshop content from "greatest to least learning."

Staff members then arranged the first scheduled visit to each of the teams' home schools. This initial contact would serve to establish the first link between operation and evaluation of the teams' plans, with the staff members serving as advisors as well as advocates in a continuing relationship.

CHAPTER THREE

I. PREWORKSHOP

Instruments* and Discussion of Findings

Two preworkshop instruments were administered to all participants. The first of these solicited status of career exploration activities in team schools to date. Questions designed to reveal responsibility, frequency and resources utilized in this area were asked. Participants were also requested to make predictions about the reception of the plans they would design. Justification for use was seen as provision of information to the committee which would assist them to:

1) match predictions of success to future operation of plans
2) determine range of resource materials known to participants at preworkshop stage and match this range with additional tools described in plans, and to
3) ascertain participants' view of his individual and collective input to such activities to date

Table I

Summary**

"Preworkshop status of Career Exploration Programs in Participating Schools"

	Existence	Accountability	Tally of Activity and Resource	Predictions of Plan Success
School 1 n=3	no (2)	counselor - 1 faculty - 2	11	low
School 2 n=3	yes (3)	teachers/ counselors 3	10	fair
School 3 n=3	no (2)	teachers/ counselors 2 faculty 1	9	fair
School 4 n=3	yes (3)	teachers/ counselors 3	15	low
School 5 n=3	yes (2)	counselor 1 teachers/ counselor 2	8	high
School 6 n=1	yes	counselor	4	high

* see appendices

** raw data available on request

Data obtained revealed that teams from schools #2 and 4 were agreed that their schools were operating C.E. programs. These two teams also indicated high agreement in their use of a broad range of resource materials. Conversely, these teams were less optimistic about the implementation of their plans. They predicted scheduling, time, and interest as obstacles to the realization of both short and long-term objectives.

Teams from schools #1 and 3 gave a modal "no" response to the existence of such a program in their schools. Of interest is the contrast between these schools in the use of resource materials, i.e. School #1 demonstrated a high team agreement in broad employment of these resources, whereas school #3 revealed activity in this area was exclusive to home economics and industrial arts. Prediction of plan success was mixed in these schools with low team agreement seen. Most of these participants saw problems ahead or did not respond. Only one of these six individuals, an industrial arts teacher, was optimistic about plan implementation.

School #5 indicated majority agreement to the preworkshop existence of a career exploration program. However, employment of resource materials and activities was cited as exclusive to guidance and home economics. In response to predicted success of their yet to be designed plan, these individuals showed disagreement, i.e., the counselor did not respond and the home economics and industrial arts saw "no problems ahead." School #6, was represented by a one-man team, the counselor, indicated a generally positive view of success coupled with indications of a program already underway. All schools emphasized that counselors and teachers were, or should be, involved in such programs. Total school mode of preworkshop teamwork was "occasional," while three counselors emphasized "frequent" contact.

* Schools will not be identified except in their own copies of this report.

Of the three instruments devised to evaluate immediate workshop effect, one was designed to serve a prepost function*. This questionnaire permitted the participant to respond to 19 weighted statements directed toward attitudes about career exploration, to rank his professional concerns and to select his definition of career development from a list of options provided. (The participant was given the latitude to write additional or substituted concerns and definitions.) Through the later replication of this instrument it was hoped that the participants would reflect any changes which might have occured in their preworkshop attitudes toward a concept which was still unfamiliar to most of them, as well as any changes occuring in ranking of professional concerns. As teaching the concept was an implicit workshop goal, post test results would measure the effectiveness of that teaching.

Limitation of such an instrument need not be expounded. Weighting were those ascribed a priori by the questionnaire builder and no statistical analysis was employed. Modal response was considered most appropriate in analysis, and generalizations to populations of counselors and teachers were not implied.

*see appendices

"Attitudes on Career Exploration: Professional Priorities"

TABLE II

key: + on weight
- away from weight

	Pretest Response Modes		Posttest Response Modes	
Discipline Area	Attitudes	Priority Rank	Attitudes	Priority Rank
Home Economics n = 5 items: 19 possible rs: 95	+ = 71 - = 24	P_1: 4 P_6: 6 P_2: 5/9 P_7: 1 P_3: 5 P_8: 0 P_4: 7 P_9: 8 P_5: 2	+ = 73 - = 20	P_1 4 P_6 7 P_2 5 P_7 6 P_3 5/9 P_8 8 P_4 0 P_9 3 P_5 2
Industrial Arts n = 5 items: 19 possible rs: 95	+ = 56 - = 39	P_1: 4 P_6: 0 P_2: 5 P_7: 2 P_3: 3 P_8: 6 P_4: 7/9 P_9: 8 P_5: 1	+ = 64 - = 26	P_1 4 P_5 1/7 P_2 9 P_6 3 P_3 7 P_7 1 P_4 5 P_8 6 P_9 8
Guidance n = 6 items: 19 possible rs: 114	+ = 73 - = 32	P_1: 4 P_6: 9 P_2: 5/4 P_7: 3/7 P_3: 5 P_8: 6 P_4: 1/2 P_9: 8 P_5: 7	+ = 85 - = 29	P_1 4 P_6 7 P_2 9 P_7 3 P_3 5 P_8 6 P_4 5 P_9 8 P_5 1/2

priority options:

1. development of a salable skill
2. matching of known aptitudes with jobs demanding them
3. achievement of technological currency
4. meeting individual needs as they become apparent
5. vocational awareness for all students, K - 12
6. raising professional standards in my field
7. creating more valid measures of skill attainment
8. achievement of equal status with other disciplines
9. teaming my proficiencies with those of other educators in an effort to validate education.

Opinions:

Findings revealed that industrial arts teachers made fewer selections of weighted responses on pretest but demonstrated visible movement toward weights on post test; i.e. eight additional individual selections. Home economics teachers varied least in their prepost responses, maintaining the highest percentage of weighted selections on both tests. Counselors were first on number of weighted choices on pretest and added 12 additional individual items on the post test.

Priorities:

Modal response for all participants in both pre and post tests gave first priority concern to meeting individual needs when they became apparent. Counselors and industrial arts teachers moved from a pretest mode for second priority concern of "vocational awareness for all students, (K through 12)" to a post test mode of "teaming proficiencies with other disciplines to validate education." Home economics teachers moved from a pretest bimodal response to these two options to a post test emphasis on vocational awareness. Counselors and home economics teachers agreed in both pre and post tests that their third priority concerns were vocational awareness (and, in the case of home economics teachers, a bimodal selection of teaming and awareness appeared on the post test.) Industrial arts teachers, on the other hand, moved from "achievement of technological currency" to "creating more valid measures of skill attainment" in their modal view of third priority concern.

Fourth, fifth, sixth and seventh priority modes showed fluctuation between groups on both tests, while priorities eight and nine indicated least variation between groups and tests. Changes in rank order reflected a dramatic increase in support for teaming disciplines while maintaining unity in highest and lowest ranking options; e.g. priority one remained "meeting individual needs as they become apparent" and priority nine continued to be "achieving equal status with other disciplines."

II Postworkshop Measurement:

The instrument* containing the opportunity to rank workshop learning from "greatest to least" for self and student also contained questions determining instructional gains and a five-point scale which solicited participants' affect toward specific roles they assumed in their company and on the line. Seen as an exercise to determine participant recall of particular information and practical experience, this instrument would provide an approximate measure of total workshop content as viewed by the participant.

Five questions dealt specifically with the content of presentations made the first day, and with two of the course instructor's lectures. Participant recall was not high, and demonstrated a selecting-out tendency; i.e. disciplines tended to remember content of their own area's presenters to the exclusion of others. Highest retention was seen in the counselor group with 60% correct responses scored.

Discussion here will treat the ranking of workshop learning. The majority of counselors felt that both employing manipulative skills and working in a group provided the greatest learning. They also indicated that their student would acquire greatest learning through the employment of manipulative skills. Second and third values were ascribed to acquiring knowledge of other roles and to analyzing interpersonal relationships. Second values coincided with student's while third student value was the "demonstration of capacity for work." Least value (rank 12) for counselors and their students was the option of "reporting to a group" to which was added a student bimodal selection of analyzing interpersonal relationships.

Modal response of home economics teachers indicated greatest learning was in forming a company. Their students would also elect such an experience

* see appendices: raw data available on request

in combination with "working in a group." Second value mode was defined as interviewing one's counterpart, while the student would "research his role." Third rank in learning for these teachers was the researching of roles, while their students would elect "reporting to a group." (Fourth rank is mentioned here because of the two items selected bimodally by four out of five home economics teachers; i.e. knowledge of other roles and analyzing interpersonal relationships. This fourth value for students was seen as "interviewing one's counterpart.") Least learning (rank 13) was described as reporting to a group, and, for their students, analyzing interpersonal relationships.

Industrial arts teachers showed a low mode of researching role for their greatest learning, while attaching much stronger emphasis to forming a company and producing something worthwhile as their students' "greatest" learning. Second and third value experiences for themselves were forming a company and acquiring knowledge of other roles. For their students they saw learning manipulative skills as second value and showed no modal third value for them. Least learning (rank 13) for these teachers and their students was the option of reporting to a group.

Highest agreement within value options between adult and student were noted in counselor group, followed by industrial arts and home economics. Agreement between disciplines in ranking learning experiences was generally low, with total agreement noted only in those experiences providing the least learning for self and student. Reporting to a group was considered of lowest value for self, while this activity was designated as lowest value for students as well. Home economics teachers and counselors also elected a bimodal lowest value for their students in the option of "analyzing interpersonal relationships."

CHAPTER FOUR

SUPPLEMENTARY EVALUATION

The following evaluation was conducted by an objective observer who was not a member of the planning or teaching teams of the workshop.

The strategy employed by this evaluator proceeded by 1) making an analysis of the stated objectives built into the workshop goals, 2) extracting elements and sub elements from these objectives, 3) categorizing these elements into cognitive and affective expectations, and 4) constructing reactive type items.

The items required a response on a five-point graduated scale. Twenty-one items required subjective reactions to affective type questions. Twelve items were structured to obtain information pertinent to the role-playing and on-the-line experiences which were major blocks of study in the workshop. (See Table II) One question in this instrument was of the open-end type requiring subjective expression. In addition, several unobtrusive test techniques were employed to obtain further data.

Limitations:

The data collected were of a low inference level since the method of gathering data, the small and selective population sample used, and the obviousness of interaction ruled out the use of refined statistics.

Data derived from the participants was recognized as having serious shortcomings since their perceptions of goal attainment were at variance with those who structured the program. It is felt that the participants would express a feeling that a specific objective was achieved, whereas the workshop leaders would, in fact, feel a shortcoming.

Because this evaluation was formative rather than summative, its purpose was to find directions for improvement and modification. All exceptations were tempered with the known limitation of workshop duration.

Table III

Summary Data Derived from Participant Evaluation of Behavioral Change

Group	N	Items	Total Score	Mean
Guidance	6	21	516	86.0
Home Economics	6	21	495	82.5
Industrial Arts	5	21	341	68.2

Table IV

Summary Data Derived from Participant View of Role Assignment and Live Experience

Group	N	Items	Total Score	Mean
Guidance	5	12	205.5	41.10
Home Economics	5	12	196.0	39.20
Industrial Arts	5	12	208.5	41.70

Findings and Discussion:

From the total test scores and means it was evident that the counselor group saw themselves accomplishing greater behavioral change through the workshop experience. (See Table III)

Of the three groups the industrial arts teachers saw less change in their own behaviors. This seemed to indicate that the familiarity of the experiences did not contribute to gains in learning as it did for those who were drawn from less related areas. This, plus other subjective reactions from the industrial arts group, indicated that more attention and planning should be given to meeting the needs of each group as well as planning for team needs.

When data from each item was analyzed it was found that the industrial arts group emerged feeling most confident of their potential for making a contribution to the team membership. Home economics as a group were most determined to apply the insights and translate the experiences of the workshop into action.

An indirect test to determine the holding power of the workshop upon its participants was made. On two occasions the participants were invited to take the option of pursuing workshop activities or attending lectures presented by guest speakers. The guest speakers were men knowledgeable in recent technological developments and scientific breakthroughs, they were invited by an instructor other than a workshop leader. The workshop participants chose not to attend these lectures but to continue with their workshop activities. Interviews with the participants led this observer to conclude that the participants were highly motivated, and dedicated to pursuing the goals of the workshop.

Responses to the open-end questions are summarized in brief phrases below:

1. Nine responses were totally favorable and reflected positive feelings about the total program.

2. Three individuals failed to make any comments at all.

3. Constructive, or at least formative, suggestions were these:

   a) need more implementation planning time
   b) less time on anthropological approach
   c) less time on research and experimentation
   d) more care and time spent on pre workshop planning

e) more time for team and group planning
f) did not have teammates present at all times
g) more time for study of home economics' contributions
h) more variety of experiences demonstrating industrial production processes
i) more time for group interaction

Several comments were made expressing concern for the implementation of the plans each team made. The need for administrative support and the achievement of community support was mentioned. One individual expressed some apprehension as to the difficulties he foresaw in implementing his plan at the beginning of the school year.

The second scale analysis discussed here was designed to elicit data about the participants' knowledge and feeling concerning his involvement with manipulative, interactive, and role playing assignments. (See Table IV) The highest possible score that could be achieved was 60. Data from all three groups provided evidence of similar profiles. No distinct differences among groups were found. However, the evaluator considered the scores as an indication that the action-oriented experiences did achieve a measure of success.

CHAPTER FIVE

CONCLUSIONS

On September 29, 1970, the Advisory Committee met to review the activities of the workshop and to engage in a formative type of evaluation. Descriptive and quantitative data were studied. Input from committee members included reports on the status of plan implementation at several schools. Numerous problems of communication, scheduling, public relations, and budgeting emerged. Many of these problems were accurate reflections of those predicted earlier by the participants.

Testimony was brought forth to the fact that visible evidence of plan operation had been observed in most schools. A need for real and immediate support from the Advisory Committee members was reportedly expressed by individual team members. Advisory group consensus was thereby stated as an assumption of responsibility for assisting the teams in devising strategies to engage the total school and community. In responsing to the very real concern of the participant teams; how to do it, as opposed to what to do, committee members resolved to:

a. make themselves available to schools during and between scheduled visits whenever possible,

b. recommend specific human and material resource which might apply to individual school team's operation.

and c. plan for subsequent workshops by employing data derived from this experience as baseline for improvement.

Assessment of team plans as they became operational was described as a process involving both the empirical measures designed by the consultant in evaluation and the subjective responses of this committee's members as they observed and worked with the individual schools.

VT 016 250
VOCATIONAL INTEREST SURVEY OF TAYLOR COUNTY. FINAL REPORT.

TAYLOR COUNTY BOARD OF EDUCATION, GRAFTON, W.VA.
WEST VIRGINIA STATE BOARD OF EDUCATION, CHARLESTON. DIV. OF VOCATIONAL-TECHNICAL EDUCATION
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - NOV71 49P.

DESCRIPTORS - *VOCATIONAL INTERESTS; *FOLLOWUP STUDIES; *STUDENT INTERESTS; *COMMUNITY SURVEYS; PARENT ATTITUDES; *ENROLLMENT PROJECTIONS; FAMILY INCOME; POPULATION DISTRIBUTION; TABLES (DATA); OCCUPATIONAL MOBILITY; STUDENT NEEDS; HANDICAPPED STUDENTS; DISADVANTAGED YOUTH; ADULT EDUCATION; OCCUPATIONAL GUIDANCE
IDENTIFIERS - WEST VIRGINIA; TAYLOR COUNTY

ABSTRACT - TO AID IN PROGRAM PLANNING, THIS STUDY SOUGHT TO DETERMINE: (1) POPULATION PROBLEMS AND TRENDS IN TAYLOR COUNTY, (2) MOBILITY AND PRESENT OCCUPATIONS OF FORMER STUDENTS FOR 1969 AND 1970, (3) THE NUMBER OF HANDICAPPED WHO MAY NEED FURTHER TRAINING, (4) PUPIL INTERESTS REGARDING VOCATIONAL TRAINING, (5) INTERESTS OF BUSINESS, LABOR, AND INDUSTRY IN EXPANDED VOCATIONAL PROGRAM OFFERINGS, AND (6) INTEREST IN AND REQUESTS FOR ADULT AND POST-SECONDARY TRAINING PROGRAMS. BASED ON THE DATA COLLECTED FROM STUDENTS, PARENTS, GRADUATES, DROPOUTS, AND OTHER GROUPS, THE SURVEY INDICATED THAT CONSIDERABLE INTEREST EXISTS FOR A VARIETY OF VOCATIONAL PROGRAMS SUCH AS ADULT EDUCATION AND CAREER GUIDANCE. A MAJOR RECOMMENDATION OF THE STUDY IS THAT PROGRAMS SHOULD BE PROVIDED WHICH CAN BE OFFERED ECONOMICALLY AND CAN BENEFIT A GREATER NUMBER OF STUDENTS AND ADULTS. (JS)

MAY 10 1972

Final Report

Project No. WV-71-R-2
Grant No. DVE-10-WV-71-R-2

Vocational Interest Survey of Taylor County

Charles R. Cather, Project Director

Taylor County Board of Education
Grafton, West Virginia 26354

November, 1971

West Virginia
State Board of Education
State Department of Education
Bureau of Vocational, Technical and Adult Education
Division of Vocational Education

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EDUCATION & WELFARE
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Charles R. Cather, Project Director
Taylor County Board of Education

Grafton, West Virginia
November, 1971

The work presented or reported herein was performed pursuant to a grant with the State Board of Education, Division of Vocational Education. However, the opinions expressed herein do not necessarily reflect the position of policy of the State Board of Education, and no official endorsement by the State Board of Education shall be inferred.

West Virginia
State Board of Education
State Department of Education
Bureau of Vocational, Technical and Adult Education
Division of Vocational Education

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CHAPTER I

INTRODUCTION

What are the vocational interests of the graduates, drop-outs, students, and adults of Taylor County? By answering this question the Taylor County Board of Education would be better able to implement the primary function of vocational education, i.e. to equip the student with a salable skill upon graduation or termination of his formal education.

We have attained a high degree of success in preparing those students who pursue their training in colleges and universities, but this accounts for less than thirty percent of the total secondary graduates. Those graduates who have not chosen formal postsecondary education are reaching the age for entering work. However, they lack an adequate and realistic knowledge of job availability, as well as the attitudes and skills necessary for job success. Too often they are unfamiliar with the tools, materials, and process of work; they are without the skills necessary to perform on the job.

The citizens of Taylor County have demonstrated their increased concern for vocational-technical education by their support of the 1966 bond issue, which earmarked $100,000 for vocational education. This local support and the passage of the 1968 Vocational Education Amendments on the national level, made it imperative that the Taylor County Board of Education initiate a countywide Vocational

Interest Survey

In reviewing the literature, including similar surveys, it was found that some type of an interest and needs survey preceeded actual implementation of programs. Having accumulated the pertinent data provided by this study, the Taylor County Board of Education would be better prepared to plan and develop priorities for an immediate and long range program by projecting definite goals, which would be financially feasible and educationally sound.

Objectives of the Study

This study provided data and indicated trends and interests for the purpose of enabling the Taylor County Board of Education to better validate their decisions concerning: 1)the types of possible vocational programs on the local level; 2)the degree to which they should participate in the proposed Regional Vocational-Technical Center to be located at Clarksburg, West Virginia; and 3)the programs that should be added, expanded, continued, or discontinued on the local level.

The purpose of this survey was to determine:

a. population patterns and trends in Taylor County;
b. mobility and present occupations of former students, both graduates and dropouts for 1969 and 1970;
c. number of handicapped who may need further training;
d. pupil interests regarding vocational training;

e. interests of Business, Labor and Industry in expanded vocational program offerings; and

f. interest in and requests for adult and post-secondary training programs.

Methodology

Questionnaires were sent (see Appendices A-D), talks were given, newspaper articles were written, and publicity was given over the local radio station. The data was tabulated and charts and tables were prepared.

Throughout the project, the Project Director was in frequent contact with Dr. Charles I. Jones, Chairman of the Vocational-Technical Education Department, Marshall University; Mr. Glenn E. Smith, Director of the West Virginia Research Coordinating Unit, Marshall University; and Dr. Dave Puzzuoli, Research Consultant, West Virginia University.

Sources of data. This study encompassed the following groups which provided the data for the survey.

1. STUDENTS: All students in grades nine and ten in Grafton and Flemington Schools, including the disadvantaged and handicapped, were given the Student Vocational Interest Survey. (See Appendix A)
2. PARENTS AND INTERESTED CITIZENS: All parents of students, as well as other interested citizens, were given the opportunity to express their interest

on the Parent Interest Survey questionnaire. (See Appendix B)

3. HIGH SCHOOL GRADUATES AND DROPOUTS: The 1969 and 1970 graduates and dropouts of both high schools in Taylor County were sent Follow-Up questionnaires (See Appendix C) to determine their post high school activities, degree of mobility, and their present occupations.

4. BUSINESS AND INDUSTRY: Local businesses and industries were surveyed by means of the Business and Industry Survey. (See Appendix D)

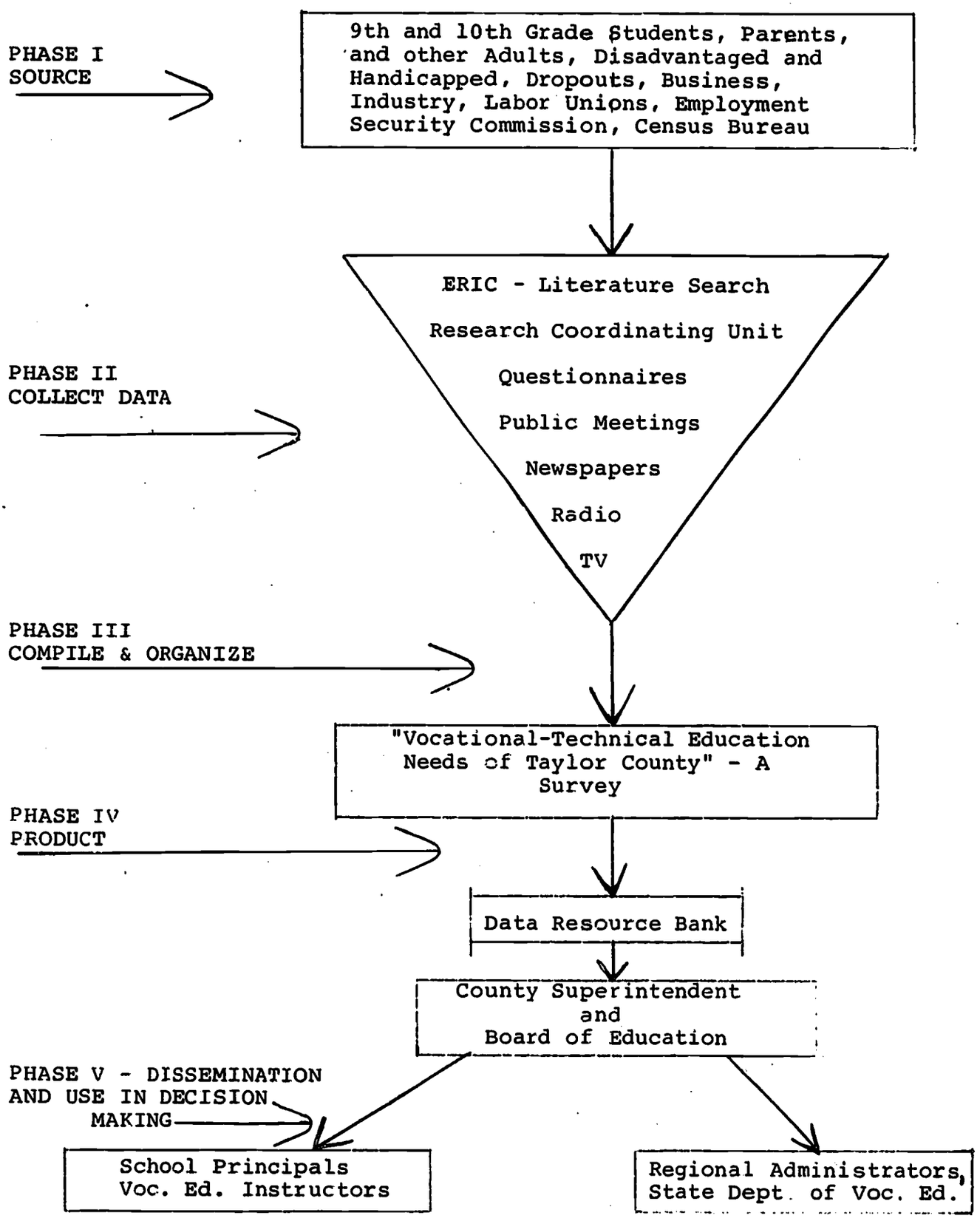
5. LABOR UNIONS: Local persons in labor unions were sent a Labor Union Interest Survey.

No attempt was made for an all-inclusive survey. Such variables as finance, transportation needs, curricula adjustment, and consolidation are other factors which should also be involved in effective educational planning.

The project director, Charles R. Cather, attended an institute sponsored by the West Virginia Research Coordinating Unit for Vocational Education, Marshall University, concerning "Research, Development and Innovations in Vocational Education." During this institute the procedure and related materials for this study were organized. The cycle which this project followed is shown in Figure I: Taylor County Decision Making Model for Vocational Education.

Figure I

TAYLOR COUNTY DECISION MAKING MODEL FOR VOCATIONAL EDUCATION



Definition of Terms Used[1]

Adult vocational education. Instruction offered on a part-time basis during day or evening to adults or out-of-school youth who are engaged in or are preparing to enter an occupation.

Disadvantaged. Refers to persons who have academic, socio-economic, cultural, or other handicaps that prevent them from succeeding in vocational education programs designed for persons without such handicaps. Therefore, they require specially designed educational programs or related services. Disadvantaged youth usually are a result of poverty, neglect, delinquency, or cultural or linguistic isolation from the community at large, but the term does not include physically or mentally handicapped (as defined under "Handicapped") unless such persons also suffer from the handicaps described in this paragraph.

Evaluation. A method for determining the effectiveness of the instruction and the performance of the student.

Follow-up study of vocational student. A survey to determine the status of a student who completed the vocational education program requirements.

Handicapped. Persons who are mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously

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[1]Vocational Education Local Educational Agency Program Guide. (Charleston: West Virginia Department of Education, 1971)

emotionally disturbed, crippled, or other health impaired persons who, by reasons of their handicapping conditions, cannot succeed in a regular vocational or consumer and homemaking education program without special educational assistance or who require a modified vocational or consumer and homemaking education program.

Multi-county vocational-technical center. A facility providing vocational and technical education programs for two or more county school systems. The center is administered by an Administrative Council composed of the county superintendent, one school board member from each participating county, and the State Director of Vocational Education or a designated representative.

Postsecondary vocational education. Vocational education which is designed primarily for youth and adults who have completed or left high school and who are available for an organized program of study in preparation for entering or re-entering the labor market. Such education may be provided in schools or institutions such as business or trade schools, technical institutions or other technical or vocational schools, departments of colleges and universities, junior or community colleges, and other schools offering vocational education beyond grade twelve. The term shall not be limited to vocational education at the level beyond grade twelve if the vocational education needs of the persons to be served, particularly high school dropouts, require vocational education at a lower grade level.

Unemployed. Civilians who have no employment and who are available for work, and who have engaged in any job seeking activity within the past four weeks.

Union apprentice. A worker who is learning a recognized apprenticeable occupation in accordance with a written apprentice training agreement between the apprentice and an individual employer or group of employers which either provides for or makes reference to a document which provides for (a)a given length of planned work experiences through employment on the job, supplemented by appropriate related instruction and (b) other recognized standards and requirements of apprenticeship.

CHAPTER II

PRESENTATION OF DATA

I. POPULATION DATA

The decade between 1950 and 1960 was a period of out-migration when 3,312 persons left Taylor County. This was attributed to the transfer of the Baltimore and Ohio Railroad shops to Cumberland, Maryland, the closing of the Grafton Branch of Continental Can Company, and the closure of some deep mines in the Flemington, Simpson, and Rosemont areas.

As indicated in Table I, the 65 and over age group grew 18.1% between 1950 and 1960, and it continued to increase slightly between 1960 and 1970, while all other age groups lost in population.

TABLE I

DISTRIBUTION OF POPULATION BY AGE GROUPS

Age Group	1950	1960[2]	% Change	1970[3]	% Change
Under 5	1985	1326	-33.2%	1080	-18.5%
5 - 14	3422	2959	-13.5%	2494	-15.7%
15 - 19	1640	1341	-18.2%	1315	-1.6%
20 - 54	7989	5654	-29.2%	5328	-5.7%
55 - 64	1659	1690	+1.9%	1584	-6.7%
65 - Over	1727	2040	+18.1%	2077	+1.8%
Total	18,422	15,010	-18.5%	13,878	-7.5%

[2] U.S. Census of Population. (Washington, D.C.: U.S. Bureau of Census, 1970)

[3] U.S. Census of Population. Advance Report (Washington, D.C.: U.S. Bureau of Census, 1970)

The indication was that Taylor County's median age was on the upward trend. It rose from 28.0 years of age in 1950 to 33.1 years of age in 1960. The total loss in population from 1950 to 1960 was -18.5%; the loss in the decade from 1960 to 1970 was -7.5%. Although loss of population between 1960 and 1970 slowed down, considerable out-migration was still evident.

Additional statistical data about the population is shown in Table II: Population of County Subdivisions, 1960 - 1970. The greatest percent of change in population was a rise of over 100% in the Grafton City part of Fetterman District. Negative changes were seen in Grafton District, Flemington District, and the Court House District.

The population density per square mile of Taylor County was 86 people per square mile in 1960[4]; the figure fell to 79 people per square mile by 1970.[5]

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[4]County and City Data Book. A Statistical Abstract Supplement, 1967, pp. 412-418.

[5]U.S. Bureau of Census, op. cit.

TABLE II

POPULATION OF COUNTY SUBDIVISIONS[6]

1960 - 1970

Magisterial District	1970	1960	% Change
Booths Creek District	1,508	1,496	+0.8
Court House District	1,851	2,065	-10.4
Grafton City (part)	44	.....	.....
Fetterman District	3,253	3,340	-2.6
Grafton City (part)	1,828	891	+105.2
Flemington District	1,620	1,882	-13.9
Flemington Town	458	478	-4.2
Grafton District	4,356	4,900	-11.1
Grafton City (part)	4,356	4,900	-11.1
Knottsville District	1,290	1,327	-2.8
Grafton City (part)	205	.....	.....
TAYLOR COUNTY	13,878	15,010	-7.5

[6] Ibid.

II. EDUCATIONAL DATA

Total enrollments in Taylor County for the 1970-71 school year were 1629 elementary pupils, 403 students in junior high school, and 1018 high school students. There were 72 elementary teachers and 67 secondary teachers. Total facilities included eleven elementary schools, one junior high school, and two high schools.

Slightly less than half of the 1970 high school graduates attended some type of post high school educational program. Twenty-five percent of these graduates entered baccalaureate, i.e. less than four year, programs. Only 2.2% began programs in two year colleges. Those in other postsecondary programs comprised 15% of the 1970 graduates.

The following was the percentage of high school graduates as compared to the ninth grade enrollments of some school years: 81.8% of the 1968 class, 94.5% of the 1969 class, 76.4% of the 1970 class, and 73.3% of the 1971 class. There was an increase in the dropout rate from 5.4% in 1968, to 6.2% in 1969, and then to 8.3% in 1970.

Of adults 25 years of age and older, the following information was found.[7] The level of functional illiteracy, i.e. less than four years of school, in Taylor County in 1960 was 8.4%. This was slightly less than the average of 9% for the United States. Those adults in 1960 completing secondary education comprised 31.1%

[7]Office of Economic Opportunity Information Center. Official Report on Taylor County, 1966.

of all adults in Taylor County, as compared to the higher rate of 41.% in the United States. The number of school years completed in Taylor County was 9.0 years in 1950, and then fell slightly to 8.9 years in 1960. The average number of school years completed the United States was 9.3 in 1950 and 10.6 in 1960; both averages were higher than those of Taylor County.

Expenditures in 1966 for education from local taxes in Taylor County were $51.00 per pupil. The United States averaged $100.00 per pupil in that same year.[8]

Table III shows Enrollment Projections for Taylor County to 1978. The number of graduates predicted shows an increase between 1970 and 1972; then a decrease in number by 1974 and 1975, with a higher number of graduates expected in 1976 - 1978.

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[8] Ibid.

TABLE III

ENROLLMENT PROJECTIONS FOR TAYLOR COUNTY[9]

YEAR	GRADE LEVEL												
	1	2	3	4	5	6	7	8	9	10	11	12	GRADUATE
1966-67	293	273	282	256	253	262	281	253	247	268	220	218	208
1967-68		268	272	269	246	249	274	259	252	238	227	205	195
1968-69			268	259	259	243	261	252	259	245	202	213	203
1969-70				256	249	256	257	239	253	255	208	190	181
1970-71					246	246	272	235	240	251	216	196	187
1971-72						243	263	248	237	241	213	204	195
1972-73							261	239	251	240	215	202	193
1973-74								237	242	257	204	195	187
1974-75									241	250	219	195	187
1975-76										252	214	210	201
1976-77											215	206	198
1977-78												207	199

[9] A Demographic Study for West Virginia Higher Education, Part II. Projections: Elementary-Secondary Enrollment and High School Graduates Through 1977-78. (Charleston, West Virginia: The West Virginia Commission on Higher Education, 1968), p. 71.

Present Vocational Program Offerings and Enrollment

The vocational education course offerings at the time of the study included Welding, Machine Shop, Vocational Agriculture, and Business Education. These vocational education classes were servicing 378 students. Students from Flemington High School were bussed in for afternoon classes in Welding and Machine Shop. There were six vocational education instructors employed. Three instructors were employed on a ten month basis, and three instructors were employed on a twelve month basis.

Table IV shows the vocational education enrollment, which was calculated on the fifth month active enrollment of 1972, when Grafton High School had 723 students and Flemington High School had 147 students. The numbers in parentheses indicate the number of students who were transported to Grafton High School from Flemington High School. The Vocational Agriculture and Business Education program areas included some duplications.

TABLE IV

VOCATIONAL EDUCATION ENROLLMENTS BY PROGRAM AREA

	VOCATIONAL AGRICULTURE		WELDING		BUS.EDUCATION (Secretarial)		MACHINE SHOP	
Grade	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
9	24	-	-	-	-	-	-	-
10	29	-	-	-	-	18	-	-
11	32	-	20 (6)	-	1	56	19 (6)	-
12	17	-	21 (7)	-	-	44	16 (7)	-
TOTAL	102	-	41 (13)	-	1	118	35 (13)	

Table V shows percentages of students enrolled in vocational education in Grafton High School, Flemington High School and in Taylor County.

TABLE V

VOCATIONAL EDUCATION ENROLLMENTS

BY HIGH SCHOOL AND COUNTY

GRADE	GRAFTON HIGH SCHOOL	FLEMINGTON HIGH SCHOOL	TAYLOR COUNTY
9	3.3%	-	2.7%
10	6.5%	-	5.4%
11	17.4%	8.1%	15.8%
12	11.6%	9.5%	13.3%
TOTAL	37.4%	17.6%	34.1%

III. EMPLOYMENT AND ECONOMIC DATA

Taylor County ranked on the unfavorable side of the scale on ten of the twelve Poverty Indicators of the Employment Security Commission.[10] Families were considered to be poor when their incomes are below the poverty cutoff. In 1960 there were 38.3% poor people in Taylor County; this figure dropped to 28.5% in 1966. In 1966 West Virginia had 22.9% people designated as poor and the United States had 15.1%. Thus, Taylor County had a greater percentage of poor people in 1966 as compared to West Virginia or to the United States. However, the 1966 figure for Taylor County dropped, as

[10] Employment and Unemployment in West Virginia Labor Areas. Annual Averages (Charleston, West Virginia: West Virginia Department of Employment Security, 1970)

shown above, from the 1960 poverty level.

In 1970 378 families received welfare and food stamps; 248 people received only food stamps. Following was the distribution of employment in 1969 in Taylor County:[11] mining 63; contract construction 91; manufacturing 443; transportation and public utilities 102; wholesale trade 35; retail trade 399; finance, insurance, and real estate 53; and services 155. Employment figures were not available for government employees, railroad workers, or the self-employed.

In 1960 23% of employed persons residing in Taylor County worked outside of the county.[12] Unemployment rates in Taylor County were 4.7% in 1950, 10.7% in 1960, and 11.9% in 1970.[13] The continuing increase in the unemployment rate is evident. Per capita disposable income in 1966 was $1,518 in Taylor County, and $2,367 in the U.S.

The level of family income in 1966 is shown below.

TABLE VI

FAMILY INCOME IN 1966[14]

INCOME	TAYLOR COUNTY	U.S.
0 to $2,499	26%	13%
$2,500 to 3,999	22%	15%
4,000 to 6,999	32%	31%
7,000 to 9,999	13%	17%
10,000 to Over	7%	24%

[11] County Business Patterns (Washington,D.C.: U.S. Department of Commerce, 1969)

[12] Office of Educational Opportunity 1966 Report (West

[13] U.S. Census Bureau, op. cit.

[14] Ibid.

IV. STUDENT INTEREST SURVEY DATA

A total of 454 high school students (226 boys and 228 girls) were given the Student Interest Survey. They were asked the following three questions:

"Would you like to enroll in a vocational program after you graduate from high school?" Yes 43%, No 57%

"If you had the opportunity, would you enroll in a vocational school and prepare for getting a job?" Yes 65%, No 35%

"Does the school presently offer training in the occupational area in which you are interested?" Yes 42%, No 58%

The survey showed that 58% of the students did not think that the school was offering training in their field of interest. This indicated that more than half of our students were being partially bypassed. It also showed that 65% would enroll in a class giving the type of training they wanted, but that 57% wanted these courses to be offered during the four years of high school rather than at the postsecondary level. See Table VII for Post High School Plan of the Taylor County High School Students.

Further survey results demonstrated that interest in farming was on the decline in spite of the fact that there has been an active Vocational Agriculture Department in Grafton High School for three generations.

With the service occupations growing by leaps and bounds nationally, it should be noted that the group of students surveyed did not show much enthusiasm for that program area. Was this due to lack of career guidance? The students, except for requesting auto mechanics, indicated interest primarily within the program areas

TABLE VII

POST HIGH SCHOOL PLANS OF
TAYLOR COUNTY HIGH SCHOOL STUDENTS

POST HIGH SCHOOL PLANS	BOYS			GIRLS			TOTAL		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
Enter College	75	13	9	73	23	11	148	36	20
Enter Business College	1	12	3	33	26	13	34	38	16
Specialized Vocational School	15	24	21	6	13	3	21	37	24
Nurses Training	0	0	0	17	23	13	17	23	13
Job In Industry	10	34	19	2	3	5	12	37	24
Farming	10	13	12	3	2	3	13	15	15
Other Agriculture Occupation	0	6	8	0	0	1	0	6	9
Armed Forces	23	26	27	3	6	8	26	32	35
Homemaker	2	0	1	21	50	52	23	50	53
Wage Earning Home Ec.	1	5	1	4	10	8	5	15	9
Job In Store or Business	13	17	30	29	31	28	42	48	58
Enter An Apprentice Program Learn A Trade	22	23	13	0	0	1	22	23	14
Other	17	13	2	8	10	5	25	23	7
Undecided At This Time	28	8	38	24	11	52	52	19	90

offered in their high schools. There was close correlation between the occupational selections of Grafton High School students and Flemington High School students. (See Table VIII)

V. PARENT INTEREST SURVEY DATA

The parents of all the 9th and 10th grade students were sent a questionnaire. Of the 454 parents surveyed, only 294 questionnaires were returned. Some of the families had more than one child in the 9th and 10th grades; thus, the numbers do not correspond to total returned. Several parents filled in only a few blanks; the unemployed parents especially failed to return a completed form. Of the 294 responses, 201 parents indicated that they were employed. The following shows the locations where these parents were employed:

Taylor County	152	Lewis County	1
Harrison County	30	Kanawha County	1
Marion County	11	Pennsylvania	1
Monongalia County	3	Ohio	2

The level of education which these parents proposed for their children was as follows. One hundred ten parents proposed only the attendance of high school; 106 desired college for their children; 11 parents checked "other"; and 67 questionnaires were left blank.

Parents desired to have their children enrolled in vocational-technical education courses as follows: enrolled at the high school level: 78% yes and 22% no; enrolled at the post high school level: 34% yes and 67% no.

TABLE VIII

STUDENT INTEREST SURVEY

TWENTY MOST FREQUENTLY CHOSEN OCCUPATIONS

OCCUPATION	FREQUENCY 1ST CHOICE GRAFTON H.S.	OCCUPATION	FREQUENCY 1ST CHOICE FLEMINGTON H.S.
Secretarial Work	38	Secretarial Work	15
Automotive Mechanic	30	Automotive Mechanic	6
Practical Nurse	15	Child Care	5
Homemaking	15	Bricklaying & Masonry	3
Nurse's Aide	13	Office Management	2
Automotive Body Repair	12	Homemaking	2
Welding	9	Commercial Art	2
Bookkeeping & Accounting	8	Plumbing	2
Animal Processing	8	X-Ray Technician	2
Clerical Work	7	Animal Processing	1
Conservation-Forestry	7	Conservation-Forestry	1
Child Care	6	Production Agriculture	1
Engineering Technology	6	Advertising, layout	1
Medical Technology	6	Bookkeeping & Accounting	1
Machine Operator	6	Practical Nurse	1
Advertising	5	Food Service	1
Drafting & Design	5	Engineering Technology	1
Commercial Art	5	Medical Technology	1
Agriculture Sales	4	Appliance Repair	1
Data Processing	4	Automotive Body Repair	1

Responding to the question, "Would adult members of the family be interested in adult classes?", the parents stated: 8% to complete high school, 25% for general personal satisfaction, 25% for experiences to improve trade and industrial knowledge, 12% in homemaking, 27% in business occupations, and 3% in agriculture. Over 90% of the adults surveyed indicated interest in continuing in vocational education classes.

Of the parents who returned questionnaires, it is interesting to note that, while less than 8% held jobs requiring college preparation, 36% of the parents proposed college preparation for their children, 78% endorsed high school level vocational-technical education for their children, and 34% desired post high school vocational preparation for their children. At least 60% of the parents were employed in work situations in which vocational education would have been helpful in job preparation. (See Table IX)

Following are some random comments of the parents who were surveyed.

"I think that we most assuredly do need trade schools; everyone has a right to a chance to learn a trade - both girls and boys - everyone can't afford to send their children away to school."

"I think this would be a wonderful opportunity for those that can't attend college, and would also help those who want to learn a little of their trade before actually getting into it. I also think it would probably keep some children from quitting school."

"I think a vocational school is really needed in this area for children who are not going to college and need to learn a trade, as well as for adults who would like to improve themselves."

"I think a vocational school for this county would be an asset to local education, and it would keep graduates in West Virginia."

TABLE IX

OCCUPATION OF PARENTS
(IN ORDER OF FREQUENCY)

OCCUPATIONS	NO. PERSONS EMPLOYED	OCCUPATIONS	NO. PERSONS EMPLOYED
Homemaker	115	Bus Driver	2
B & O RR	32	Cook	2
Coal Mines	14	Waitress	2
Clerk	11	Contractor	2
Truck Driver	9	Cab Driver	2
Carpenter	8	Insurance Agent	2
Nurses Aide	8	Auto Body Man	2
Retired	5	Shipping Foreman	2
Factory Foreman	5	Pipefitter	2
Teacher	5	Cashier	2
Nursing Supervisor	5	Credit Manager	1
Mail Clerk & Cashier	4	Concrete Technician	1
Manager	4	Project Supervisor	1
Factory	4	Machinist	1
Seamstress	4	Car Salesman	1
Merchant	4	Plumber	1
Machine Operators	4	Western Union	1
Secretary	3	Steelworker	1
Minister	3	St. Safety Inspector	1
Glass Worker	3	Linotype Operator	1
Pharmacist	3	Dentist	1
Beautician	2	Teacher's Aide	1
Telephone Operator	2	Printer	1

"I think a Vocational Training school would be beneficial for many, but I would like for my children to attend college if possible."

VI. FOLLOW-UP SURVEY DATA

Of the 361 high school graduates and dropouts from the 1968-69 and 1969-70 classes who were surveyed, only 90 responses were received. No dropouts returned their questionnaires. Of the graduates who returned the questionnaires, 26 were enrolled in colleges, one was attending a special school, 37 were employed, 8 were unemployed, 10 were homemakers, and 9 were in the military service.

Taylor County lead the list of counties in West Virginia in employment of the 1969-70 graduates; 20% of these graduates remained in the county. The next highest percentage is Harrison County with 8.8%, and then Marion County with 5.5%. This data showed that Taylor County retained less than 25% of its graduates. Needless to say, a great majority were educated for employment in other counties and states. Out-migration was partly due to insufficient employment opportunities locally.

Present Occupation

Of the employed graduates who responded to the survey, there were seven secretaries; three seamstresses; two in each of these occupations: beautician, stock boy, laborer, station attendant, newspaper, and carpenter; and one each in these jobs: overseas operator, construction worker, farmer, miner, engineer, scale operator, shuttle car operator, engineering inspector, mechanic, computer aide, bookkeeper, brakeman, and clerk.

These thirty-seven graduates were employed in the following locations in West Virginia: 18 in Taylor County, 8 in Harrison County, 5 in Marion County, one each in Tucker County, Wetzel County, Monongalia County, and Barbour County. Also, one graduate was employed in Pennsylvania and one in Maryland.

Following are two comments from the returned follow-up questionnaires.

"Our counseling service at G.H.S. needs to pay more attention to the student's needs, more information on higher education, technical schools, and job training opportunities. I found my background in math, science, and English lacking. A course in study habits needs to be devised."

"I understand the problem facing educators, but I see it from the point of view that I was ill-prepared for college as compared to students from other states. Perhaps someday I can help upgrade education in West Virginia instead of just complaining."

VII. BUSINESS AND INDUSTRY SURVEY DATA

Of the 154 persons in local businesses and industries who were surveyed, 27 or 17.5% returned the questionnaires. Most of the businesses surveyed were retail, credit, transportation or sales in function. Persons providing the information were managers, treasurers, chief clerks, and secretaries.

Businesses reported their average number of employees during the year as 31.4 males and 15.9 females. The maximum number of employees during the past year was 1396. There were 137 employees who were with the companies for less than one year.

Seventy-five percent of the employment needs stated required high school graduation as a minimum qualification. The reported age requirements for employment were a minimum of 16 years of age

and a maximum of 60 years of age.

In general, employees were trained or prepared for their current positions in the businesses surveyed as follows: mostly on-the-job training, some from vocational programs, and others by means of college, or by occupational literature or other media.

The businesses were asked the following questions.

"Would representatives from your business or organization serve on committees with school officials to advise the planning and operation of vocational programs?" Yes 21; No 6.

"Would your organization accept students under a cooperative plan to provide them occupational experience in preparation for employment?" Yes 18; No 2.

"Would part-time adult courses be of value in upgrading or retaining your employees?" Yes 15; No 12.

Courses which were mentioned that would benefit employees were: typing, bookkeeping, merchandising, salesmanship, welding, sheetmetal, and advertising.

Employers were asked to check in several occupational areas the number of additional workers who they thought would be needed to meet future expansion needs, considering normal employee attrition. They responded to this question in two ways: their worker needs within one year and their needs within three years. Results of this part of the survey are listed below.

DISTRIBUTIVE OCCUPATIONS	IN ONE YEAR	IN THREE YEARS
Sales-Retailing	2	1
Merchandising	1	0
Small Business Management	0	1
HEALTH OCCUPATIONS		
Dental Technology	0	2
OFFICE OCCUPATIONS		
Secretary	2	4
Stenographer	2	3
Clerk	10	15
Typist	0	2
Clerk-Typist	0	2
Bookkeeper	0	4
Office Management	0	2
SERVICE OCCUPATIONS		
Child Care	1	0
Food Service	6	0
Industrial Sewing	1	0
Clothing Occupations	1	2
TECHNICAL OCCUPATIONS		
Chemical Technology	1	0
TRADE AND INDUSTRIAL OCCUPATIONS		
Auto Mechanics	4	7
Auto Body and Fender Repair	1	3
Auto Service	1	2
Carpentry	5	11
Plumbing	0	1
Industrial Electricity	2	2
Welding Combination	2	6
Sheet Metal Work	1	2
OTHER OCCUPATIONS		
Soft and Hard Surface	1	1
Sewing Machine Operators	10	25
Heavy Equipment Operators	5	10

Part B. Business Survey

The number of persons employed by organizations fell into the following categories: 16 bookkeepers, 7 office machine operators, 20 secretaries, 15 stenographers, 9 typists, 73 other clerical workers, and 38 sales persons.

Employers were asked how they thought sales persons, secretarial and clerical workers should be prepared for employment. Responses were as follows: on-the-job training by the business employing them 17, special schools of business 12, public high schools 16, public post-high schools 3, and other, i.e. factory 1.

Employers in business listed the following general education and special training areas that should be empnasized in the preparation of sales and office personnel:

	Sales Person	Office Worker
English (communication)	25	17
Report writing	8	9
Economics of "free enterprise"	10	6
Good grooming	22	18
Ability to get along with others	23	18
Simple mathematics	23	17
Simple art work	4	2

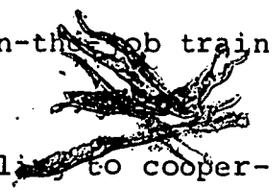
Manual skills to be emphasized in the preparation of workers for business included a)for sales persons: typing, sign painting, building displays, and operation of cash register and b)for office workers: posting machine, handwriting and all business machines.

One employer lists the characteristics and qualities needed for employees as: company loyalty (compliance to company rules), trustworthiness, and dependability. One employer does not want adult course for upgrading their employees because the company trains them.

Employers stated that there was a very great shortage of prepared sales personnel, and an average shortage of prepared persons in office occupations.

Sales Persons:	Very great 11	Average 9	Very small 1
Office workers:	Very great 2	Average 14	Very small 3

Employers were evenly divided as to preferred methods of pre-employment preparation of clerks, secretaries, and sales personnel. One third preferred on-the-job training, one third high school training, and one third post high school preparation. The overwhelming majority of employees received on-the-job training at the time of the survey.



Of those business that replied, 28% were willing to cooperate with the school system in planning the vocational programs, but 90% were willing to provide on-the-job training for secondary students.

Ninty-seven percent of the employment needs mentioned for the next one to three years will require either on-the-job training, or high school or post high school vocational education.

VII. LABOR UNION INTEREST SURVEY DATA

Of the eight labor unions surveyed, only three returned questionnaires; many questions were left unanswered. Members of all three unions worked for the Baltimore and Ohio Railway Company. A total of 380 members were represented. One union provided some secretarial training for its members, while the other two unions furnished no on-the-job training.

The following questions were asked of the union members:

"Should industry accept qualified graduates from vocational schools or classes without actual work experience to fill vacancies in related positions?" Yes 2, No 0, Unanswered 1

"Should industry participate in an apprenticeship or other school-centered work-experience program?" Yes 2, No 0, Unanswered 1

"Would you allow credit for such training by cutting down the length of apprenticeship required?" Yes 2, No 0, Unanswered 1

"If public school courses were available to upgrade your membership, what percentage would attend?" One 50%, One 10% Unanswered 1

One union required high school graduation for eligibility to membership. One large union listed the need for a good background in typing, reading, business management and leadership, and also stated that 50% of their membership would be interested in upgrading their skills through adult education.

Labor unions seemed to depend on the public school system for training of their potential members. This training had been furnished by apprenticeship in the past. The unions surveyed said that they would accept vocationally trained students as members and

give them some form of credit for training experience. The union leaders expressed their willingness to cooperate with the school system in serving on advisory and curricular committees.

CHAPTER III

CONCLUSIONS

There is an overwhelming mandate from students, graduates, adults, labor, business and industry for additional vocational education program opportunities. This survey indicated interest of the above groups in a wide choice of vocational program offerings.

Much interest was shown in adult programs. The great desire of adults to participate in night classes so that they can update or upgrade their skills has been ignored for too long. Adults want all types of academic, vocational, and other specialized training.

There are not enough jobs available at this time. Even so, opportunities for preparing people for work, regardless of job opportunities, must be provided. By the same token, Taylor County can better attract industry if a source of skilled labor were available.

Students need career guidance from a vocationally trained guidance counselor. They must be shown that everyone cannot go to college and that there is just as much honor and satisfaction in being a good plumber as in being a good lawyer. Emphasis must be placed on the diversity of occupational training, in determining student aptitude and interest in a chosen occupation, and in assisting their pursuit of adequate job preparation.

Accurate data concerning handicapped students in the two high schools were not readily available. However, through the West Virginia Department of Rehabilitation we learned that there were five handicapped students on the secondary level, and that more than thirty handicapped youths were dropouts. Handicapped dropouts were being rehabilitated through specialized training in the sheltered workshop.

The dropout rate has steadily increased since 1968. It has now reached 8.3% which is an increase of 65% over a period of three years. It is generally agreed that many of the drop-outs, if they had been given career guidance and directed into a vocational program, would not have been lost from the public school system.

Both labor and business were interested in cooperating with the school system in establishing adequate vocational training facilities.

The median age has increased; the sixty-five and over age group leads all other age groups in percentage of increase. Taylor County is becoming a retirement community -- with the associated reality of limited taxable property and income.

CHAPTER IV

RECOMMENDATIONS

Specific recommendations which resulted from this study are as follows:

1. Sixty-five percent of the students in Taylor County are non-college bound and need vocational education However, they cannot all be transported to the Tri-County Vocational-Technical Center in Gore. Therefore, programs which can be provided economically and benefit greater numbers of students and adults than are presently being served, should be incorporated into the curriculum in Taylor County.

2. There should be a strong emphasis on vocational counseling and training for the disadvantaged and potential dropouts in their most vulnerable school years, i e the ninth and tenth grades.

3. The Secretarial and Clerical program be continued and expanded through addition of cooperative and work study programs.

4. The Welding program be continued, adding the additional equipment needed for more individualized instruction

5. Machine Shop program be up-dated and include Small Engine Repair and Maintenance.

6. The Vocational Agriculture curriculum be renovated to be made relevant.

7. The Industrial Arts program be strengthened and expanded to include grades 6 through 12 countywide. The new Industrial Arts concept of "industrial and occupational career exploration" be emphasized in the curriculum.

8. A one semester course of Household Mechanics be made available to all secondary student.

9. Adult programs and evening classes be expanded to include academic and vocational areas.

10. Students in kindergarten through grade twelve be oriented to the world of work by means of intensive career exploration and occupational guidance.

11. The Board of Education employ a County Coordinator of Vocational and Adult Education whose responsibility would include the following activities.

    a. Coordination of all vocational and adult training programs.

    b. Acting as a liaison between Taylor County and Tri-County Vocational-Technical Center.

    c. Planning and preparing the Local Education Agency (LEA) plan for Vocational Education.

    d. Plan and implementing innovative programs into the county in cooperation with the Tri-County Vocational-Technical Center.

    e. Acting as a liaison between the community, business, industry, and labor in the promotion of vocational education programs.

APPENDIX A

STUDENT VOCATIONAL INTEREST SURVEY

* PLEASE PRINT

STUDENTS NAME_____ DATE_____

SCHOOL_____ AGE_____

COUNTY_____ GRADE_____

SEX - MALE_____ FEMALE_____

NAME OF PARENT OR GUARDIAN_____

ADDRESS_____

(Zip Code)

1. What do you plan to do after high school?
(Check your first three choices and rank 1 - 2 - 3)

A.	Enter college	_____
B.	Enter business college	_____
C.	Enter a specialized vocational or technical school	_____
D.	Enter a nurse training program	_____
E.	Get a job in industry	_____
F.	Enter farming	_____
G.	Enter an off-farm agricultural occupation	_____
H.	Enlist in the armed forces	_____
I.	Become a homemaker	_____
J.	Enter a home economics wage earning occupation	_____
K.	Get a job in a store or business	_____
L.	Enter an apprenticeship program to learn a trade e.g., (bricklayer, carpenter, etc.)	_____
M.	Other (Specify)	_____
N.	Undecided at this time	_____

2. In which curriculum are you enrolled or plan to enroll?

A. College preparatory _____
B. General _____
C. Vocational
_____Agriculture
_____Business and Office Occupations
_____Distributive Education
_____Health Occupations
_____Home Economics
_____Vocational-Technical
_____Vocational Trade and Industrial

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3. Does your school presently offer training in the occupational area in which you are interested? Yes_____ No_____

4. If you had the opportunity would you enroll in a vocational school and prepare for getting a job? Yes_____ No_____

5. Would you like to enroll in a vocational program after you graduate from high school? Yes_____ No_____

6. If you are interested in enrolling in a vocational school to learn the skills necessary to get a job, in what occupations are you most interested? Make three (3) selections and rank them by number in order of preference (e.g. 1,2,3)

A. Agricultural Occupations

_____Agriculture Mechanics
_____Agriculture Sales and Services
_____Animal Processing
_____Conservation-Forestry
_____Horticulture Produce Industry
_____Ornamental Horticulture
_____Production Agriculture

B. Business and Office Occupations

_____Advertising layout and design
_____Bookkeeping and Accounting
_____Clerical work
_____Data processing
_____Office management
_____Secretarial work
_____Advertising
_____Business management
_____Merchandising
_____Sales retailing

C. Health Occupations

_____Dental Assistant
_____Nurse's Aide
_____Practical Nurse
_____X-ray technician helper

D. Home Economics Occupations

_____Diet Kitchen worker
_____Homemaking
_____Child Care
_____Food Service
_____Housing Service
_____Industrial Sewing
_____Clothing Occupations

E. Technical Occupations

_____Chemical Technology
_____Civil Technology
_____Data processing
_____Drafting and Design Tech.
_____Electronic Technology
_____Engineering Technology
_____Medical Technology

F. Trade and Industrial Occupations

_____Appliance Repair
_____Automotive Body Repair
_____Automotive Mechanic
_____Bricklaying & Masonry
_____Carpenter
_____Commercial Art
_____Cook and Baker

_____Drafting
_____Electrical Maintenance
_____Heating, Air Conditioning and Refrigeration
_____Machine Operator
_____Mine Maintenance
_____Office Machine Repair
_____Painting and Decorating
_____Plumbing
_____Graphics
_____Radio and Television Repair
_____Sewing Machine Repair
_____Sheet Metal Mechanic
_____Tool and Diemaker
_____Welding
_____Other (Specify) _____

7. I would like additional information about:

_____Trade and Industrial Occupations
_____Technical training occupations
_____Health, hospital or home nursing occupations
_____Business occupations
_____Office occupations
_____Agricultural occupations
_____Other _____

8. In our school we learn about the world of work and the kinds of jobs that we can be trained for: (Rank in order 1 through 5 the sources from which you receive the most information.)

_____From films that are shown to us
_____By field trips that we make to industries, stores and farms in the area
_____From our guidance counselor
_____From television programs that we watch in school
_____From television programs that we watch at home
_____From the work that we do in school
_____By talking with fellow students
_____By talking with our parents and relatives
_____From books and magazines that we read
_____From the person from the vocational school who comes to talk to us
_____ _____

COMMENTS: _____

_____

APPENDIX B
PARENTS INTEREST SURVEY

NAME_____ ADDRESS_____

YOUR OCCUPATION_____

HUSBAND OR WIFE'S OCCUPATION_____

CHILDREN: BOYS_____ (Number) GRADE IN SCHOOL _____ _____ _____ _____

GIRLS_____ (Number) GRADE IN SCHOOL _____ _____ _____ _____

LIST NAMES OF SCHOOLS ATTENDED BY YOUR CHILDREN_____

_____ _____

1. How much education do you plan for your children? (Check)

   High School_____ College_____ Other (Specify) _____

2. A. Would you like to have your children enroll in a vocational course as part of the regular high school program in order to prepare them for an occupation suited to their interests and abilities? Yes_____ No_____

   B. Would you prefer that your children receive this training or additional training after graduating from high school? Yes_____ No_____

3. Are adult members of the family interested in vocational education classes?
   Yes_____ No_____

Please check the general areas of interest:	Name of Courses Desired
A. _____ Courses to complete high school (not necessarily vocational).	_____
B. _____ Courses for general personal satisfaction	_____
C. _____ Courses to improve trade, industrial or technical skills and knowledge	_____
D. _____ Courses in homemaking	_____
E. _____ Courses in business and office occupations	_____
F. _____ Courses in agricultural occupations	_____
G. _____ Courses in health occupations	_____
H. _____ Other (Specify)	_____

4. List subjects in which you are especially interested_____

_____

5. Please make comments here:_____

_____

_____

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APPENDIX C

TAYLOR COUNTY SCHOOLS

FOLLOW-UP RECORD

Year Graduated_____

Name of Student_____ Male_____ Female_____

Address_____
(Enter last known address, if present address is unknown please indicate)

Parents Name_____

Highest Grade Completed H.S. 9___10___11___12___ College 1___2___3___4___
Grad. Degree_____

Current Status:

Enrolled in a four year college program _____ In a two year_____.

Enrolled in a specialized school (barber, beauth culture, etc.) _____
_____.

Type of specialized school_____

In one of the military services_____ which_____

Employed_____Type of Occupation_____

Place of Employment_____

City and State_____

Unemployed _____ Whereabouts Unknown_____

COMMENTS:_____

_____

_____

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APPENDIX D

BUSINESS AND INDUSTRY SURVEY

1. Name of Firm _____ Date _____

2. Address _____ County _____

3. Main Function of Firm or Business _____

4. Person Providing Information _____

5. Average Number of Employees During the Year: Male _____ Female _____

6. Maximum Number of Employees During the Past Year _____

7. Number Present Employees Who Have Been With Your Company Less than one Year _____

8. What Percentage of your employment needs require high school graduation as a minimum qualification? _____

9. What are the age requirements for employment in your company?
   Minimum _____ Maximum _____

10. In general, how are your employees trained or prepared for their current positions?

    On-the-job training _____ By other methods _____

    Vocational programs _____ _____

11. Would representatives from your business or organization serve on committees with school officials to advise the planning and operation of vocational programs?
    Yes _____ No _____

12. Would your organization accept students under a cooperative plan to provide them occupational experience in preparation for employment? Yes _____ No _____

13. Would part time adult courses be of value in upgrading or retraining your employees?
    Yes _____ No _____ If yes, list specific courses which would benefit your employees.

    _____ _____

    _____ _____

    _____ _____

14. Please indicate on the reverse side and attached sheet your approximate employment needs in the occupational areas listed. If you need workers for occupations not listed, please indicate this need in Part H.

	Number Additional Workers Contemplated To Meet Future Expansion Needs and Normal Employee Attrition	
	Within One Year	Within Three Years
A. Office Occupations		
Secretary		
Stenographer		
Clerk		
Typist		
Clerk-Typist		
Bookkeeper		
Office Management		
B. Agricultural Occupations		
Farming		
Nursery Production		
Greenhouse Production		
Forestry		
Agricultural Sales		
Agricultural Mechanics		
Agricultural Processing		
C. Service Occupations		
Child Care		
Food Service		
Housing Service		
Industrial Sewing		
Clothing Occupations		
D. Health Occupations		
Medical Technology		
Dental Technology		
Practical Nursing		
Nurses Aide		
Companion to Aged and Handicapped		
E. Distributive Occupations		
Sales-Retailing		
Merchandising		
Advertising		
Small Business Management		
F. Technical Occupations		
Chemical Technology		
Mechanical Technology		
Civil Technology		
Electronic Technology		
Engineering Technology		
Data Processing		

G. Trade and Industrial Occupations	Number Additional Workers Contemplated To Meet Future Expansion Needs and Normal Employee Attrition: Within One Year	Within Three Years
Diesel Mechanics		
Auto Mechanics		
Auto Body and Fender Repair		
Auto Service		
Masonry		
Carpentry		
Plumbing		
Building Maintenance and Repair		
Industrial Electricity		
Commercial Electricity		
Welding-Combination		
Welding-Specialist		
Sheet Metal Work		
Cabinet Making		
Business Machine Repair		
Machine Trades		
Printing		
Radio and TV Repair		
Small Appliance Repair		
Vending Machine Mechanic		
Drafting		
Commercial Art		
Air Conditioning and Refrigeration		
Painting and Paper Hanging		

H. Other Occupations (List)

_____		
_____		
_____		
_____		
_____		
_____		
_____		
_____		

Part B

Business Survey

1. Number of persons now employed by your organization in the following categories:

   a. Bookkeeper _____
   b. Office Machine Operators _____
   c. Secretaries _____
   d. Stenographers _____
   e. Typist _____
   f. Other Clerical Workers _____
   g. Sales Persons _____

2. How do you think that sales persons and secretarial and clerical workers should be prepared for employment?

   a. By on-the-job training by the business employing them_____
   b. By special schools of business_____
   c. By public high schools_____
   d. By public post-high schools_____
   e. By private schools_____
   f. Other (please specify)_____

3. What general education and special training should be emphasized in the preparation of sales and office personnel?

	Sales Person	Office Worker
English (communication)	_____	_____
Report writing	_____	_____
Economics of "free enterprise"	_____	_____
Good grooming	_____	_____
Ability to get along with others	_____	_____
Simple mathematics	_____	_____
Simple art work	_____	_____
Other_____	_____	_____
_____	_____	_____

4. What manual skills should be emphasized in the preparation of workers for business?

Sales Person	Office Worker
_____	_____
_____	_____
_____	_____

5. How great a shortage of prepared personnel do you believe there is in the area in the following categories?

a. Sales persons: Very great _____ Average _____ Very small _____

b. Office workers: Very great _____ Average _____ Very small _____

- Comments -

Please give here any additional suggestions you have regarding questions asked in this survey.

Adapted from materials developed by the Department of Industrial and Technical Education - North Carolina State University at Raleigh.

VT 016 251
REIBER, DANIEL J.
DEVELOPMENT OF AN EXEMPLARY PROJECT TO INDIVIDUALIZE INSTRUCTION THROUGH THE USE OF COMPUTER TECHNIQUES. FINAL REPORT.

NASHVILLE STATE TECHNICAL INST., TENN.
TENNESSEE STATE BOARD FOR VOCATIONAL EDUCATION, NASHVILLE.;OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 80P.

DESCRIPTORS - *COMPUTER ASSISTED INSTRUCTION; INDIVIDUALIZED INSTRUCTION; VOCATIONAL EDUCATION; *POST SECONDARY EDUCATION; *REMEDIAL PROGRAMS; *EDUCATIONALLY DISADVANTAGED; *COMPUTER ORIENTED PROGRAMS; PROGRAMING; PROGRAM EVALUATION; PROGRAM DEVELOPMENT; VOCATIONAL DEVELOPMENT

ABSTRACT - THE OBJECT OF THIS FEDERALLY FUNDED PROJECT FOR A POST-SECONDARY STATE VOCATIONAL INSTITUTE WAS TO DEVELOP AN INDIVIDUALIZED EXEMPLARY REMEDIAL PROGRAM IN ENGLISH, MATHEMATICS, AND READING FOR ACADEMICALLY DISADVANTAGED STUDENTS THROUGH THE USE OF COMPUTER MANAGED INSTRUCTION (CMI) AND COMPUTER ASSISTED INSTRUCTION (CAI). SUPPORTING OBJECTIVES INCLUDED THE DEVELOPMENT OF COMPUTER PROGRAMING TECHNIQUES FOR THE COMPUTERIZED ASSIGNMENT OF REMEDIAL READING MATERIALS, THE DISPLAY OF REMEDIAL INSTRUCTION ON VIDEO TERMINALS IN MATHEMATICS AND ENGLISH, MONITORING STUDENT PERFORMANCE, THE ASSESSMENT OF REMEDIAL MATERIALS AND DEVELOPMENT OF MULTI-TASKING TECHNIQUES. FOUR MANUALS WERE WRITTEN TO DEVELOP COMPUTER ASSISTED INSTRUCTION USING A BRANCHING FORMAT. THE AUTHOR GUIDE DEALS WITH LEARNING THEORY AND BEHAVIORAL OBJECTIVES AS APPLIED TO CAI, COURSE CONSTRUCTION AND TECHNIQUES, AND DATA COLLECTION FOR ANALYSIS OF SYSTEM EFFECTIVENESS. THE OPERATIONS MANUAL HELPS AN ORGANIZATION IMPLEMENT A SMALL SCALE CAI ENVIRONMENT. A THIRD GUIDE DESCRIBES THE COMPUTER MANAGED READING PROGRAM, AND A FOURTH MANUAL IS CONCERNED WITH THE COMPUTER PROGRAMS AND FILES DEVELOPED TO IMPLEMENT CMI IN READING. (AG)

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FINAL REPORT

FOR

AN EXEMPLARY PROJECT IN VOCATIONAL EDUCATION

Submitted to the State Board for Vocational Education
Under the Provisions of Part I
of the Vocational Education Amendments of 1968

DEVELOPMENT OF AN EXEMPLARY PROJECT TO INDIVIDUALIZE INSTRUCTION THROUGH THE USE OF COMPUTER TECHNIQUES

NASHVILLE STATE TECHNICAL INSTITUTE
Nashville, Tennessee

VT016251

1747

FINAL REPORT FOR AN EXEMPLARY PROJECT IN
VOCATIONAL EDUCATION

Submitted to the State Board for Vocational Education
Under the Provisions of Part D
of the Vocational Education Amendments of 1968
and the State Plan for Vocational Education

Project Title:	DEVELOPMENT OF AN EXEMPLARY PROJECT TO INDIVIDUALIZE INSTRUCTION THROUGH THE USE OF COMPUTER TECHNIQUES
Applicant Organization:	Nashville State Technical Institute 120 White Bridge Road Nashville, Tennessee 37209
Initiated by:	Daniel J. Reiber Head, Pretechnical and Related Studies Nashville State Technical Institute
Telephone Number:	(615) 741-1221
Project Director:	Daniel J. Reiber
Associate Directors:	Arthur E. Druckenmiller Edward A. Harris John Mc Gregor Margaret A. Wares
Submitted by:	_____ Edward L. Weld, Director Nashville State Technical Institute 120 White Bridge Road Nashville, Tennessee 37209 (615) 741-1236
Funds Requested:	First Year $ 52,265.00 Second Year $ - 0 - Third Year $ - 0 - Total $ 52,265.00
Duration:	June 1, 1971 - December 31, 1971
Time Span:	7 months
Date Transmitted:	April 30, 1972

BACKGROUND DATA

1. The proposal for this project had not been submitted to any other agency or organization other than to the State Department of Vocational-Technical Education, State of Tennessee.

2. The proposal for this project had not been previously submitted to the United States Office of Education or the State Board for Vocational-Technical Education.

3. This project was an extension and an addition to a project supported by the State Board of Vocational-Technical Education.

4. Charlie M. Dunn, Assistant Commissioner for Vocational-Technical Education for the State of Tennessee, was contacted in connection with the development of the proposal for this project.

5. The location of the applicant organization is:

City:	Nashville	Congressional District No.:	5
County:	Davidson	Postal Zip Code No.:	37209
State:	Tennessee		

6. The project was conducted at the location listed in (5) above.

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by: Daniel J. Reiber

II. EPIC System CAI Author Guide
by: Arthur E. Druckenmiller
Edward A. Harris
John D. McGregor
James L. Rawls
Daniel J. Reiber

III. EPIC System Operations Manual
by: Arthur E. Druckenmiller
James L. Rawls
James L. Winters

IV. The Use of the Computer in Individualizing Remediation at Nashville State Technical Institute
by: Margaret B. Wares

V. Operations Manual for Individualized Reading Computer Assigned Instruction
by: Kay Huggins

ERIC

FINAL REPORT

FOR

AN EXEMPLARY PROJECT IN
VOCATIONAL EDUCATION

Submitted to the State Board for Vocational Education
Under the Provisions of Part I
of the Vocational Education Amendments of 1968

DEVELOPMENT OF AN EXEMPLARY PROJECT TO INDIVIDUALIZE INSTRUCTION THROUGH THE USE OF COMPUTER TECHNIQUES

NASHVILLE STATE TECHNICAL INSTITUTE
Nashville, Tennessee

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ABSTRACT

The object of this project was to develop an examplary program in English, mathematics, and reading for remediating academically disadvantaged students through the use of computer managed and computer assisted instruction (CMI and CAI). Supporting objectives included the development of computer programming techniques for the computerized assignment of remedial reading materials, for the display of remedial instruction on video terminals in mathematics and English, for monitoring student performance, for the assessment of remedial materials displayed on the terminal and for the development of multi-tasking techniques to increase the number of terminals used with the existing core storage.

The second area of concentration was the writing of guideline manuals for developing CAI using a branching format. Four manuals were written. The EPIC* System CAI Author Guide and EPIC System Operations Manual are concerned with CAI. The Author Guide deals with learning theory and behavorial objectives as applied to CAI, course construction and techniques for preparing CAI, and data collection for analysis of system effectiveness. The Operations Manual is designed to enable an organization possessing the necessary equipment to implement a small scale CAI environment. Use of the Computer in Individualizing Remediation at Nashville State Technical Institute describes the computer managed reading program. The Operations Manual for Individualized Reading Computer Assigned Instruction directs itself to the computer programs and files developed by the computer center to implement CMI in reading.

*Exemplary Project for Instruction by Computer.

The objectives of this project were extensions of those stated in the remedial project proposal IMPROVING THE LEARNING PROCESS OF ACADEMICALLY DISADVANTAGED STUDENTS THROUGH THE USE OF NEWER MEDIA APPROACHES TO REMEDIAL AND ON-GOING INSTRUCTION submitted March 25, 1970 to the Assistant Commissioner for Vocational-Technical Education. Instructional materials developed under the Remedial Project served as a point of departure for developing the CAI courses. The personnel who developed the Exemplary Project were essentially the same as those who implemented the Remedial Project.

I. Detailed Acccmplishments

Detailed accomplishments are listed below. They closely follow the tasks as spelled out in the project proposal.

June-July

A. CAI for mathematics and English

1. Preliminary computer programming was completed which resulted in
   a. the development of an author coding sheet required for writing each frame of instruction, and for coding evaluation and branching interrelationships.
   b. counting and data retrieval techniques to assess remedial materials frame-by-frame.
   c. counting and data retrieval techniques to score student performance.
   d. frame recall techniques.
2. Completed initial investigation of multi-tasking techniques to maximize core storage capability.

B. CMI for Reading

1. A word analysis program adaptable to computer management was developed which included syllabication, vocabulary and phonics.
   a. The program was written and revised as necessary.
2. A student Interest Inventory was developed and tested.
3. Computer program files were revised and expanded.
   a. To assign remedial materials for the correction of student deficiencies.
   b. To match student ability and interest with the reading selections and materials in the Reading Laboratory.

c. To commit to storage reference to exercises and assignments developed in the word analysis program, and reference to the interest inventory.

August-December 1971

A. CAI for mathematics and English

1. Experimental CAI programs in mathematics and English were written.

a. The branching CAI format was developed.

NOTE: The Branching format was adapted from the outset because if its inherent high level of interreaction between student and console. The linear format of the programmed booklets developed under the Remedial Project was considered less effective for CAI.

2. Multi-tasking techniques for using one or more video terminals were programmed.

a. Maximum usage was made of core storage so that several terminals could be used at the same time while the computer was being used for other operations.

3. The statistical studies were defined which are to be conducted later when the CAI would be used by students in an on-going class setting.

a. The hypotheses to be used, why they were chosen, and what they would show were stated.

b. Data to be collected was defined.

c. The computer programs to be used were chosen and estimates were made ot the programming and analysis required to present statistical conclusions.

B. CMI for Reading

1. The number of CMI comprehension and vocabulary selections were increased.

2. References to interest inventory, exercises and assignments were placed

in computer files.

3. The CMI reading program was tested and debugged.

January 1972

A. The guideline manuals for developing and implementing CAI and CMI were completed.

1. The programming know-how for implementation of the system was documented.

2. The procedures appropriate to developing the CAI courses were documented.

3. Appropriate sections regarding learning theory, behavorial objectives, etc. were written.

4. The strong points and limitations of the EPIC CAI System were examined and recommendations were made.

II. Dissemination of Documentation

Documentation directly resulting from the Exemplary Project is listed below and attached to this report. Special attention was given to writing practical guidelines for the development of CAI in other institutes with similar computer capability. The manuals were specific. They include examples taken from the program development for such items as: (a) logic flow charts for the translation of written narrative into CAI format, (b) the coding sheet for writing CAI frames and instruction in its use, (c) computer program flow charts for data control such as monitoring student performance, (d) work sheets for writing computer programs. The computer files and the functions they perform are also clearly described.

The manuals were published at Nashville State Technical Institute, and will be made available to post secondary schools in Tennessee having access to computer equipment, particularly to the state technical institutes. They will be printed and distributed by Nashville State Technical Institute on a non-profit basis. The titles are:

A. EPIC System CAI Author Guide
   prepared by Druckenmiller, Harris, McGregor, Rawls, & Reiber

B. EPIC System Operations Manual
   prepared by Druckenmiller, Rawls, and Winters

C. Use of the Computer in Individualizing Remediation
   at Nashville State Technical Institute
   by Margaret Bonds Wares

D. Operations Manual for Individualized Reading
   Computer Assigned Instruction
   prepared by Kay Huggins

III. Results

Four CAI courses having a branching format were completed, two in English and two in mathematics. Branching is the automatic presentation of new material which is dependent on student responses to questions presented by the computer terminal. There is a high level of interaction between the student and the terminal. It requires that concepts be developed from two or three points of view to be offered when a student makes wrong responses. The course titles are the following.

English
- Punctuation
- Clear Sentence Structure in Technical Writing

Mathematics
- Exponents
- Linear Equations

The time required to complete any of the courses depends on the students ability to respond correctly to questions spaced periodically through out each course. Students who answered most of the questions correctly were able to complete a course in about 40 minutes. Some students were not able to complete a course. When a student made no headway after having the material presented from several points of view or when he needed additional information to understand sequences of review information, the computer was programmed to ask the student to consult with his instructor.

The computer managed instruction used in the reading program essentially freed the reading instructors from considerable record keeping. Also, receiving a bi-weekly reading assignment sheet printed by computer impressed most reading students. It served as a focal point for additional personalized instruction bringing to students' attention the progress they had made.

Reading

Computer print out of skills profile and bi-weekly assignment sheets. Computer matching of interest and reading level to comprehension selections in the library.

In order to assess the affective responses of students who have worked through the various CAI programs, a questionnaire has been developed which will be administered during the Spring quarter: this instrument is patterned after the types of measurement devices currently used by the CAI laboratories at Stanford, the University of Texas, and the University of Illinois. Moreover, all students who participate in CAI instruction will be interviewed individually in order to gain as much information as possible about the effectiveness of student machine interface.

EPIC SYSTEM
CAI AUTHOR GUIDE

Prepared by:

Arthur E. Druckenmiller
Edward A. Harris
John D. McGregor
James L. Rawls
Daniel J. Reiber*

Nashville State Technical Institute
120 White Bridge Road
Nashville, Tennessee 37209

(615) 741-1221*

January 14, 1972

This document was written under the project DEVELOPMENT OF AN EXEMPLARY PROJECT TO INDIVIDUALIZE INSTRUCTION THROUGH THE USE OF COMPUTER TECHNIQUES, and was funded through the State Board for Vocational Education for the State of Tennessee.

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INTRODUCTION

This manual was written for the purpose of assisting other post-secondary schools to develop CAI. Nashville Tech by no means considers itself to be expert in the field. However, the experience and techniques presented in this manual would be helpful to schools contemplating experimentation. Considerable detail is given to methods and procedures. A separate Operations Manual written by computer programming specialists, and actual computer programs may be made available upon request to schools having similar computer equipment.

The manual is divided into five major sections. Part I, Course Development, was written to acquaint the prospective CAI author with the learning theory and the behavioral objectives associated with CAI. Part II, The EPIC CAI System, is a brief description of the software required to implement the system as well as the hardware involved. Part III, Course Construction, was designed as a reference for an author who is readying a program for the computer. It is a guide to the coding necessary for writing each frame of instruction. Part IV, System Operations, explains the techniques in preparing courses for the computer and data collection for analysis of system effectiveness. Part V, Recommendations, may be the most important section for the school contemplating CAI. This section presents a direction for future endeavor based on the strong points and limitations of current accomplishments.

I. LEARNING THEORY AS APPLIED TO CAI

The growth of two-year institutions of all kinds--community colleges, junior colleges, technical institutes--has given to an unprecedented number of students the chance to continue their education, when they would otherwise be prevented from "going off" to the state university or private schools. The philosophy underlying almost all two-year schools provide for an open-door admissions policy, whether the schools explicitly state such a policy or not. The fact is that there are greater numbers of students in two-year institutions, coming from widely varying backgrounds, with substantial differences in their degree of educational attainment, than there have ever been before. Educators are no longer able to count on homogeneous classes composed of students who rated in the "upper-third" in academic achievement. Recognizing this enormous variability in students, educators have turned to the theme of individualization in instruction. The supporting psychological documentation of significant individual differences in initial abilities, in rates of learning, and even in general approaches to learning, is by now overwhelming.

Various teaching methods and technologies have been employed in attempting to individualize instruction. Programmed instruction, multi-media approaches, "enriched environment" conditions, and computer assisted instruction (CAI)--all these systems have been used in an effort to take the student from where he is, rather than from where the teacher might wish he were, and effect meaningful instruction. The computer has a number of advantages over the other kinds of individualized instructional systems. A programmed instruction book, ideally, would have to be re-written for each student, depending upon the particular student's needs.

Multi-media approaches and enriched environment conditions (utilizing films, slides, audio-systems, televisions, etc.) suffer from the same types of deficiencies: a film is suited to a particular class, a record or tape to a specific subject, a television lecture to a special interest. The computer, by way of contrast, allows the course-author to individualize instructional materials much more quickly and with a far greater degree of flexibility than any of the previously mentioned individualized instruction techniques. This is possible because the actual course material is presented through an electronic medium, rather than through a permanent material medium. Some of the immediate advantages to be gained through implementation of this capability are:

a. A greater variety of materials can be made available from a single source. If one specific instructional strategy doesn't seem to be working well with a single student (or group of students), principles of behavioral analysis can be applied to the system and then alternative strategies can be provided to supplement (or replace) the existing instruction.

b. The hardware capabilities of the computer are such that new information can be continually fed into the system, and maintained at a contemporary level of information flow at all times.

c. Materials and courses of instruction can be prepared by master teachers; these materials can then be disseminated widely and used repeatedly. In effect, CAI provides the opportunity for a higher quality instruction to reach a greater number of students through the ease of presentation and dissemination.

A. Instructional Theory

The computer, when used in instruction, is a symbol-processing device capable of performing well-defined, although very complex, processing. Therefore, any teaching strategy that can be explicitly represented as the manipulation and transformation of symbolically coded information can be implemented by a computer-based instructional system. The first task of the teacher or educational theorist is to reduce the strategy to an explicit algorithm (a set of instructions) so that it can be programmed for implementation by a CAI system. However, in order to devise such a strategy that is capable of being implemented on a computer system, the teacher must first determine what are the specific goals that he wants to achieve with the course of instruction. This necessitates establishing behavioral objectives.

A "behavioral objective" may be defined as an objective conforming to a format for stating an educational goal in terms of the behavior to be elicited. In a curriculum based on a behavioral objectives approach, specific long-range terminal behaviors are analyzed and then broken down into short-range components. These specific short-range behavioral objectives determine the content of the curriculum and the learning activities to be included. The following examples demonstrate the principles to be applied in establishing behavioral objectives:

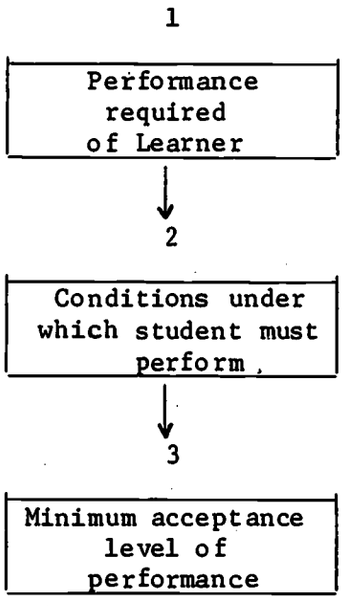
(Long-Range) The student will demonstrate proficiency in the use of FORTRAN language by writing, editing, revising, and running a complete program.

(Short-Range) Given the relevant data, a student will fill out a format card written in FORTRAN language so that the card will correctly identify the operations to be performed in a DO Loop sequence. This task will be done in a single class period, with 100% accuracy.

(Long-Range) The student will demonstrate his ability to write a letter of application for employment.

(Short-Range) The student will demonstrate his ability to write a letter of application for employment by preparing a plan sheet for such a letter: this plan sheet will show the major elements of a business letter--date, heading, salutation, body of the letter, complimentary close, signature. This will be done in a single class meeting, with all the major elements of the business letter being represented on the plan sheet.

The behavioral orientation of this approach lends itself to systematic study and controlled research. Adherents to this approach testify that it provides the key to the development of efficient and effective curricula and methodology. It enables the teacher to identify the learner who does not reach the stated objective, and then to diagnose his difficulties and subsequently prescribe remedial measures. Preparing behavioral objectives may be represented schematically in the following manner. Statements are required which specify:



It will be noted that the key components in the above schemes involve the statement of the goal and the identification of the instrumentation, performance, activity, or behavior with which the learner will be associated. These components thus provide the means for evaluating the success that the learner has achieved as an outcome of the intended goal of a specific objective.

The arrangement of the short-term objectives is a function of:

a. the structure of the subject-matter goals that have been selected

b. the approach of the course-designer to the subject-matter

c. the way in which the student elects (or his performance advises) that instruction should proceed.

Different students may follow different paths through the sub-goals so that for any particular individual the sub-goals may be omitted, added to, recombined or rearranged. Because of its inherent "branching" capability, the computer is uniquely suited to allow for any different instructional strategies and techniques.

The sub-goals can be thought of as nodes (decision points) at which decisions are made by the teacher (hopefully with the aid of an educational psychologist) via the computer. Experience and research data collected can serve to validate sub-goal heirarchies, permissible paths through the program, and the effectiveness of the instruction. Since CAI is based upon a systems approach to instruction, it is necessary that the course designer always bear in mind the requirement that specifying sub-goals involves describing student behavior (stated in operational terms) and the methods of measuring that behavior. Only when these requirements have been met can meaningful and valid revisions be incorporated into the

course of instruction. The entire evaluation and validation procedure will thus depend upon the accurate and methodical accumulation of data: without these data the course designer can only make intuitive judgments about his course design, and intuitive judgments are not consonant with empirically based educational techniques.

The capability of the computer to provide constant and detailed monitoring of a student's performance is one of its greatest assets as an educational device. This is a principal reason why a systems approach to instruction embodying behavioral objectives is so readily implemented in CAI. In an adequately designed CAI system, the computer program constantly monitors and continually assesses the student's performance as he proceeds along the course of instruction: the monitoring and assessment processes are reported as functions of responses at the established decision points. It is necessary to employ techniques for measuring achievement which are different from generally used measurement indices. In the context of an instructional model based on CAI, a student's performance can be measured with reference to the behavior described in each sub-goal. The measure of achievement indicates the degree to which the student has attained or surpassed the described level of competence. The measure gives information about the nature of the student performance and, in addition, gives the relative standing of the student in a group of his peers. Most standardized and generally used measures of achievement assume a distribution of attainment and provide only information about a student's performance in relation to others: for example, grade placement scores or percentile scores. These measures provide information about relative performance but do not provide information about student performance in terms of criterion levels of achievement. In CAI instruction, achievement

measures are criterion-referenced rather than norm referenced in order to assess the outcomes of learning at each selected decision point.

The measures obtained are often similar to those used to assess initial placement, but in addition, new measures are obtained which are specifically related to the student's learning characteristics: for example, how much practice does he require? How well does he retain what he has learned? What kind of instructional alternatives does he enjoy? Is he slow and steady, or impulsive, etc.? Information of this kind, updated as the student progresses, should provide the primary information for the decision making required to guide student learning. This information would incorporate and supercede initial long-term aptitude and placement information.

Implicit in a model of individualized instruction on a CAI system is the assumption that most or all students can master, to a defined criterion of competence, the goals and sub-goals along the path of learning. The basic task in adapting instruction to individual differences is to determine the methods and materials which will enable students to attain mastery. It is no longer assumed, as it is in conventional instruction, that student attainment will follow a normal distribution of grades--some failing, some excelling, with most falling in between. What eventually distinguishes students is their degree of understanding of a subject matter; and this is a function of how much they learn and the extent to which they are taught to use their knowledge to learn new things, to generalize to new situations and solve problems, and to be creative.

B. Course Design: Model

When the computer is used as an educational device, it becomes a teaching mathine, and like any other teaching machine the computer is of little value without a well-designed program. When computers were first adapted to instruction, the programs written were based upon instruction models that followed B. F. Skinner's linear approach; that is, each student covers exactly the same program frames in the same sequence, the assumption being that the material is so organized and structured that all students will learn the criterion behavior by following the same path and making very few errors. Acceptable program frames usually have an error rate of less than 10 percent. In this sense, there is no tolerance for individual differences.

CAI, on the other hand, lends itself to variations of Crowder's scrambled-text principles, properly called intrinsic programming. The scrambled text is so constructed that each student reads some material relevant to the subject under study. This procedure gives the student larger chunks of information at one time than does the linear approach. The information is followed by a question and a number of possible answers. Each answer refers the student to a different page in the text. There he finds if he gave the correct answer, in which case he goes on to more information. If he finds that he was incorrect, he is usually told why he might have made his error, is given additional help, and is again presented with the original question or one very similar.

Today, most CAI programs follow the Crowder (intrinsic) approach for instruction. The material to be programmed is usually structured in such a way that the main core (the material a student encounters if he makes no errors) resembles a linear program. But in addition to

the main core of the program, there are usually many branches that sidetrack the student from the core material when he is having difficulty. Figure 1 is a simplified flowchart of the type that is often adapted to CAI programs. It will be noted from even this oversimplified flowchart that students can be guided through a variety of different sequences in order to achieve the desired learning. For instance, a student can follow the main core, i.e., he is presented with an item that he answers correctly; he is then told that his answer is correct and he is presented with the next item. On the other hand, the student can be presented with an item that may not be immediately clear to him, or that he would like to have some additional information about for whatever reason, before he makes his response. In this instance the student may ask for a "cue" (a formal prompt which provides information for amplifying and/or clarifying the test item), and then make his response. The computer would then check to see if the answer is acceptable, or if it is an alternative answer; if not, the student is informed that he is wrong and the item is placed in an error bucket for future presentation (and for future analysis and, perhaps, revision in terms of the internal program design).

The flowchart represented in Figure 1 depicts the organization of a typical CAI program. The schematic representation gives an indication of the flexibility of design that the course author has at his command.

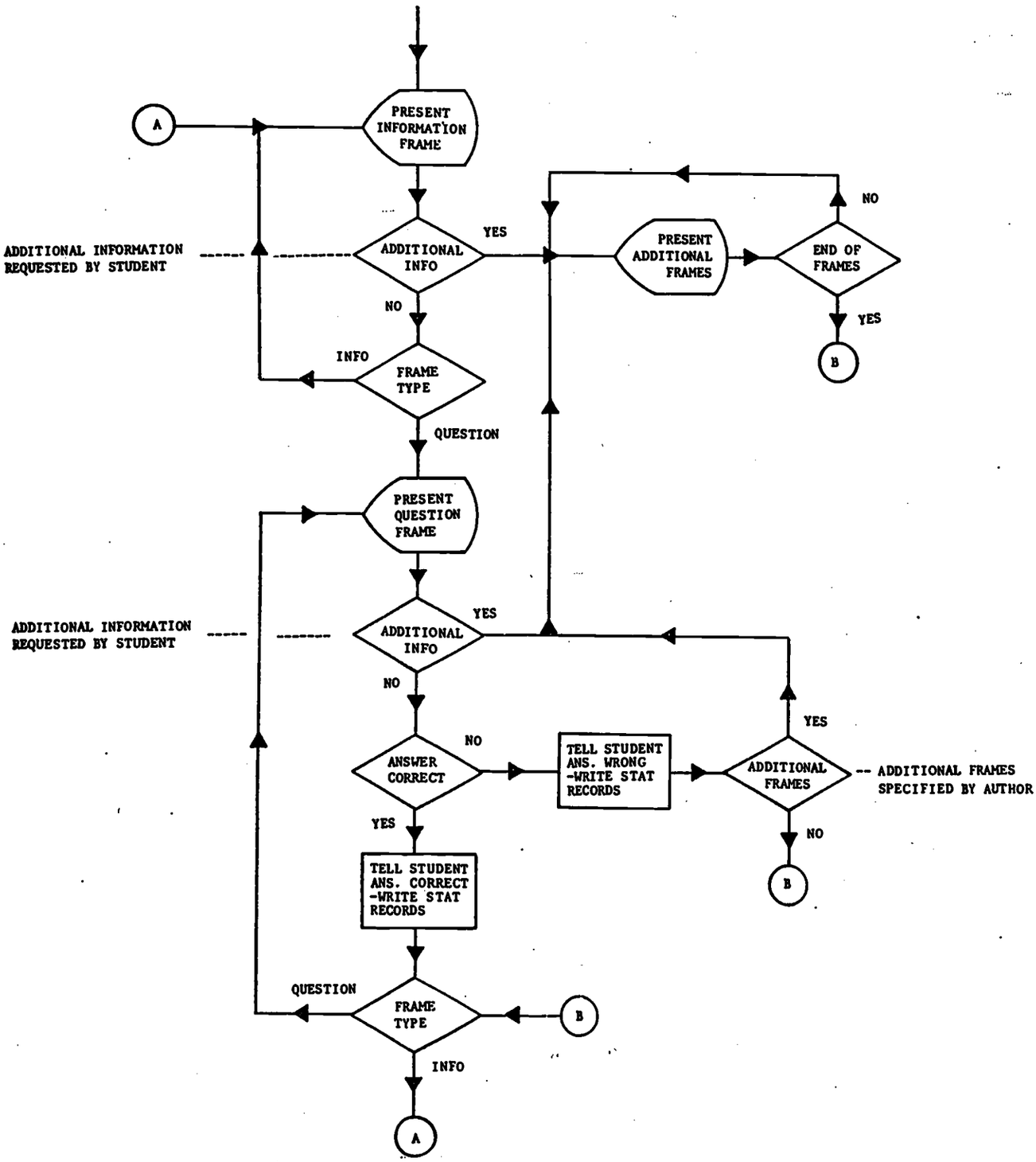


FIGURE 1

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Even the strongest adherents of CAI do not claim that the computer is capable of duplicating the complexity of human thought. On the contrary, CAI is a model of a process; CAI is more like a team-teaching venture than an individual teacher, hence the label "instructional system." But CAI is not simply programmed instruction on a computer. A computer-based teaching system can do more than an unaided teacher; however, the teacher will always remain a significant element in an instructional environment that uses a CAI system. A computer-based teaching system may be a part of a larger process involving a comprehensive manipulation of the cognitive, affective, and motoric environment. Flowcharts representing a CAI course of instruction are merely descriptive analyses at a very general level of a method, strategy, or tactic of instruction. Nevertheless, this is where the process begins in developing CAI materials. Far more crucial to the understanding of instructional processes is the subsequent step of translating the flowchart into an operational program that is a dynamic interaction with the student. This latter step imposes important constraints upon the conception of an instructional process, which frequently produce both significant refinements and necessary definitions. The translation of a concept into a set of instructions for a computer, as has been noted earlier, must be explicit. Typically, theories of teaching have not been sensitive or sufficiently developed to cover various courses of action. A critical test of a theory is its internal consistency; another is its ability to account for the available data. A third is the test of its utility, its ease of translation into action which includes the development of useful prescriptive implications. It is necessary to translate a conception into a set of operations, and in the case of teaching this

means a guide for the manipulation of a learning environment, e.g., the sequence in which information is presented.

Another important aspect of CAI as a systems approach to instruction involves validation. Validation is the step in which data are collected to demonstrate that the procedure for student-system interaction is capable of altering the behavior of students is specified ways. The computer has the capability of keeping records not only of the student's elapsed time and number of sittings, but also of the student's actual performance as he goes through the instruction program. Counters are set as the student begins his daily work at the terminal, and data is captured which can be analyzed to show the precise path and strategies which the student uses in interacting with the course material (Cf. section II, CAI System, P. 5). The CAI system also provides the student with the opportunity to comment upon the material by simply typing evaluative responses upon various frames with which he has trouble. These kinds of data are invaluable to the course author in evaluating, validating, and revising the course. CAI can be compared to other modes of traditional instruction in this respect: as with most instruction systems, teachers are a part of the system and both the student and the system are expected to change as a result of the interaction. While the student is expected to modify his behavior in accordance with the objectives of the course, the system is also to learn about the students so as to produce change in the most effective ways.

The final step to consider in preparing the logic of a CAI program (flowchart) is optimization. Here the purpose is to determine which model of teaching to use: several criteria can be involved in this stage.

One is economy or efficiency in terms of systems requirements for processing interactions; it is the optimization of the internal processing as judged by operational criteria. For example, the course author might decide, based upon validation data, that the course of instruction ought to include more examples and/or illustrations of the course material in order to convey more effectively the material being taught. Optimization might also involve the course-author changing from illustration and example of the material to definition, or to analogy, or to drill and practice routines. These types of decisions and manipulation of instructional variables are the key to the optimization of the changes produced in the student and in the system of teaching.

II. THE EPIC CAI SYSTEM

A. Purpose of System

Two important objectives of any computer based instruction system should be (1) to provide some interactive capability which, to some degree, simulates the student-instructor relationship, and (2) to provide a simple means whereby educators can develop course material without an initial requirement of learning a complex programming language. The current level of development of computer assisted instruction (CAI) is still a long way from providing a truly interactive environment where the student can ask a question or seek help from the computer as a student would from an instructor in a classroom environment. Nevertheless, some interactive facility can be provided in the form of anticipating student responses and helping the student in areas of difficulty. Meeting the second objective is paramount so that authors who are not versed in a computer language can easily code their course material.

The purpose of the EPIC (Exemplary Project Instruction by Computer) system as developed by Nashville State Technical Institute is threefold. The primary purpose is to provide a remediation environment whereby students who are deficient in certain areas of math and English may receive instruction through a video terminal. In providing a system with this capability we have actually developed an instructional environment which can be used to present information to the student which is entirely new to him such as course materials relevant to his major area of study. The second purpose of the EPIC system is to show that a CAI system of considerable complexity can be implemented with existing Institute equipment which is representative of a typical data processing instructional facility. The present system makes use of the

existing Institute computer facilities with the addition of several terminals for specific CAI operations. The third purpose of this project was to design a system which, to some degree, meets the objectives of a CAI system in providing interactive capabilities and a convenient course-author facility.

B. Overview of Hardware

At the outset of this section it is important to note that, for CAI, the most desirable environment from the standpoint of hardware is a dedicated time-shared system. Nevertheless, it was the intention of this project to design a system which would operate in a partition of a machine which is primarily used for other applications. Since the existing system at the Institute was already being used for some local teleprocessing applications, it was further desired to have a CAI system which could be tied into other applications involving teleprocessing equipment. At the cutset of this project the equipment available for use in the CAI system was an IBM S/360 Model 30 with 64K bytes of main storage, one 2319 Direct Access Storage Control Device with two disk modules, and four IBM 2260 Video Display Units; two of which would be used for the CAI system. The first conclusion of those involved in the project was that the 240-character screens on the 2260's then installed were not sufficient to display the information required in the course content. Therefore, 960-character screen terminals were ordered to be used in the CAI project. These terminals would allow authors to display more information per frame and also give them greater flexibility in frame format. Secondly, to provide greater direct access storage facilities for all Institute applications, the disk capacity was increased from two modules to three modules. Since the primary purpose of the S/360 installed

at the Institute is education in data processing, strict limitations were imposed on the CAI system. In order to have sufficient core for compilation of business data processing student programs, a limit of 24K bytes of main storage was set for a partition which would be used by all on-line teleprocessing programs.

C. Overview of Software

The EPIC system software is comprised of some 17 programs divided into three main categories: (1) teleprocessing control, (2) course edit/load and evaluation, and (3) student evaluation and data collection. The teleprocessing control system consists of five control sections; one control section for each of the following areas: system control including system start-up, restart, and shutdown; 2260 reads and writes; disk operations; input analysis and answer checking; and student sign-on/sign-off. This complete system resides in main storage when CAI terminals are on-line, and occupies approximately 10,000 bytes of main storage. The system presently controls two terminals and can easily be expanded for additional terminals. Although an expanded system has not been tested under operations typical of a normal school day at the Institute, it is anticipated that the system could operate four terminals for CAI purposes without noticeable degradation of terminal response time or throughput of student programs in the background partition.

The heart of the teleprocessing control system is an IBM contributed software program called LOTUS (Local Terminal Users System). This program allows multi-tasking of a given partition so that, depending on the size of the partition, any number of terminals can be controlled. Its main advantage is that it handles all multi-tasking and therefore allows the

programmer to write a program for a single-terminal application and then apply the program to the multi-terminal environment.

The teleprocessing control system starts to operate when the student indicates, through the terminal, that he wishes to sign-on. The system allocates core for the particular terminal at which the student is operating, allows the student to sign-on, and checks to be certain that he or she is presently enrolled in the course which he is requesting. The system presents the student with each new frame in the sequence prescribed by the author. It checks student responses to see if they are right or wrong, and keeps track of student progress so that the student's path through the course can be reconstructed later. When the student signs-off voluntarily in the middle of a course sequence, the system updates his record so that the next time he signs-on, he will be re-entered at the late entry point which he passed. Other information such as current date, number of sittings, and total elapsed time is also updated in the student record at student sign-off time.

The course edit and load programs are a series of programs operating in a batched processing environment. With punched cards input containing the author's course material, the programs edit the material thoroughly and provide both a course listing and a listing of author errors which have been encountered. Once the course errors have been corrected, the final program in this series loads the course frames into a direct access file resident on one of the system disk drives. At the present time, one-half of a disk drive has been allocated for the EPIC system. This allows the storage of up to 7,000 frames of course material, plus a system directory containing author and student records, and all statistical and control files. The courses developed so far by the

project authors have averaged approximately 200 frames per course. With present storage facilities this would allow approximately 35 courses to be on-line at any given time.

As well as keeping track of student elapsed time and sittings, enough information is retained to reconstruct the student's path through the series of frames that he has been presented on any given day. This information provides two things: (1) the student's progress can be pinpointed by reviewing his path through the frames, and (2) it allows the system to keep track of the student's responses to frames thereby allowing the author to evaluate his course from actual usage. Students can also enter comments on various frames which they did not understand or with which they have had problems. This information is recorded and printed out on the student progress sheet.

The software developed provides some very extensive facilities for branching, for answer checking and answer anticipation, and for internal student progress checking, which course authors have found fairly easy to implement. There are, however, several important shortcomings which should be noted. First of all, the characters available on the 2260 Video Display Unit severly limit the application of the system in some areas of mathematics. While presentation of exponents is difficult, the presentation of radicals is impossible unless some other convention such as the FORTRAN convention is used. A difficulty experienced in preparing English frames is the fact that to allow students to enter information in the middle of a frame is difficult from the hardware standpoint and not presently part of the programming. Since under the present system, answers are always entered on the last line of the frame, the system is not completely suitable for a course in an area such as punctuation.

A terminal equipped with a lightpen by which a student could indicate where he wanted to enter certain punctuation in a sentence would be desirable. From the standpoint of software, interactive capabilities of the system are severely limited.

In the area of math it would be desirable that a student could enter his own equations and his own parameters and then have the computer check to see if he is correct. In the area of English such as in punctuation it would be desirable to have the system randomly call in sentences which the student would have to punctuate and then have them checked by the computer. Neither of these capabilities has been undertaken in this project mainly because they involve complex programming for specific applications and not for a general CAI system. Some interactive capability is available in frames involving both multiple choice and constructed response question frames. With multiple choice answers, the author can specify a different branch for each multiple choice answer. In the case of constructed responses, the author can specify "anticipated wrong answers" and associate with these answers a specific branch. With these features, the author has the capability to provide the student with frame(s) which deal directly with a student's incorrect response on a previous frame.

III. Course Construction

A. System Features

The EPIC CAI System uses three types of frames. The first category is the information frame which may be used to give instructions or explain a concept. This type of frame does not require the student to make a response. The second category is the question frame which requires the student to answer a question. In constructing the questions, the author has a choice of three types of answers. First, he may choose multiple choice. He is able to present the student with up to five possible answers. To respond, the student types in the letter or number which represents the answer he selects. The second type of answer is the key-word answer which allows the student to answer a question in sentence form. His reponse is then checked for certain "key words" which the author previously designated. The last type of answer is the exact match. When this option is chosen, the student must type in exactly the answer that the author has designated. The third category is the test frame. These frames serve as an achievement test and must be placed at the end of the course. As the student answers each test question, the computer keeps a special record of his responses. At the completion of the test frame sequence, the student is presented with his percentage score. The test frame may utilize any of the three answer types allowed on a question frame.

The author must also designate entry points into the course. The first frame of the course is coded as an entry frame. Other frames located throughout the course enable students to reenter at a convenient point. For example, suppose a student works on a course up to frame 100

and the last frame designated as an entry point is frame 97. When the student resumes working, the computer will start him at frame 97 instead of frame 100. This gives the student a brief review of his earlier work.

Series of information frames are coded to give them a special meaning. On any question frame, the author may choose to designate an information series to be associated with it. When a student types in $$I on this question frame, he will be branched to the first frame of an appropriate information series. The author codes the frame number of the first frame of the series in the box on the coding sheet. A code is used to determine the end of a series as well. The computer presents the entire information series and then returns the student to the question frame that he was on. The code which denotes the end of a series is the signal for the computer to return to the question frame.

The "help" option is another feature of the EPIC system. By coding an H in the proper box on any question frame, the author allows the student to choose the help option. A student may bypass answering the question by typing in $$H on coded question frames. He is then taken through the same path as if he had entered a wrong answer. But, he will not have a wrong answer recorded against him.

Another feature of the EPIC system which gives it versatility is the progress check. It is a decision making feature based on the results of a series of test questions. It can be used to determine the student entry point into the program, or to steer the student into either review or new materials. The progress check feature may be used in the following manner: The first of a series of questions is coded with an R in the progress check box on the coding sheet. The R resets a counter in the computer to zero and prepares it to count correct answers. The remaining

sequence of question frames have no coding in the progress check box except for the last question frame which is coded with a C. The C causes the computer to count all correct answers in the test sequence. A cutoff value and two frame numbers are also coded in the last frame. The computer compares the number of correct answers with the cutoff score. It automatically presents the first frame of the low branch if the score is below cutoff, or the first frame of the high branch if the score is equal to or greater than the cutoff score.

A final feature of the system allows the author to anticipate up to three wrong answers that the student may enter. If the student enters any of the three, he is branched to the corresponding frame or series of frames for review. Anticipated wrong answer responses may be used with key-word or exact match questions.

B. Coding Sheet Definitions

Having outlined the basic features of the system, we turn next to the actual coding of course material. Figure 2 is an author coding sheet. The following is a list of abbreviations used on the coding sheet.

ANS - type of answer

ANS 1, 2, 3, 4, 5 - denotes the first multiple choice answer, second, etc.

AWA 1, 2, 3 - corresponds to first anticipated wrong answer, second, etc.

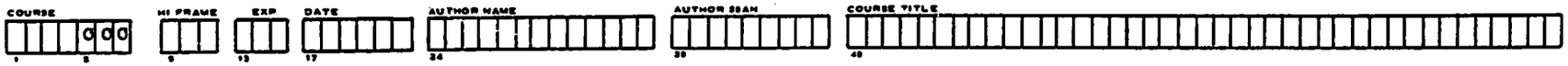
C/O - the cutoff value for the progress check

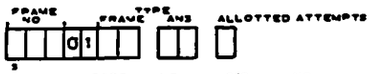
CRB - correct response branch

EXP - number of expansion frames

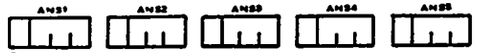
HB - high branch for progress check

AUTHOR CODING FORM





Progress Check (optional) 'Reset' on any frame. 'Check' on Q-frame only

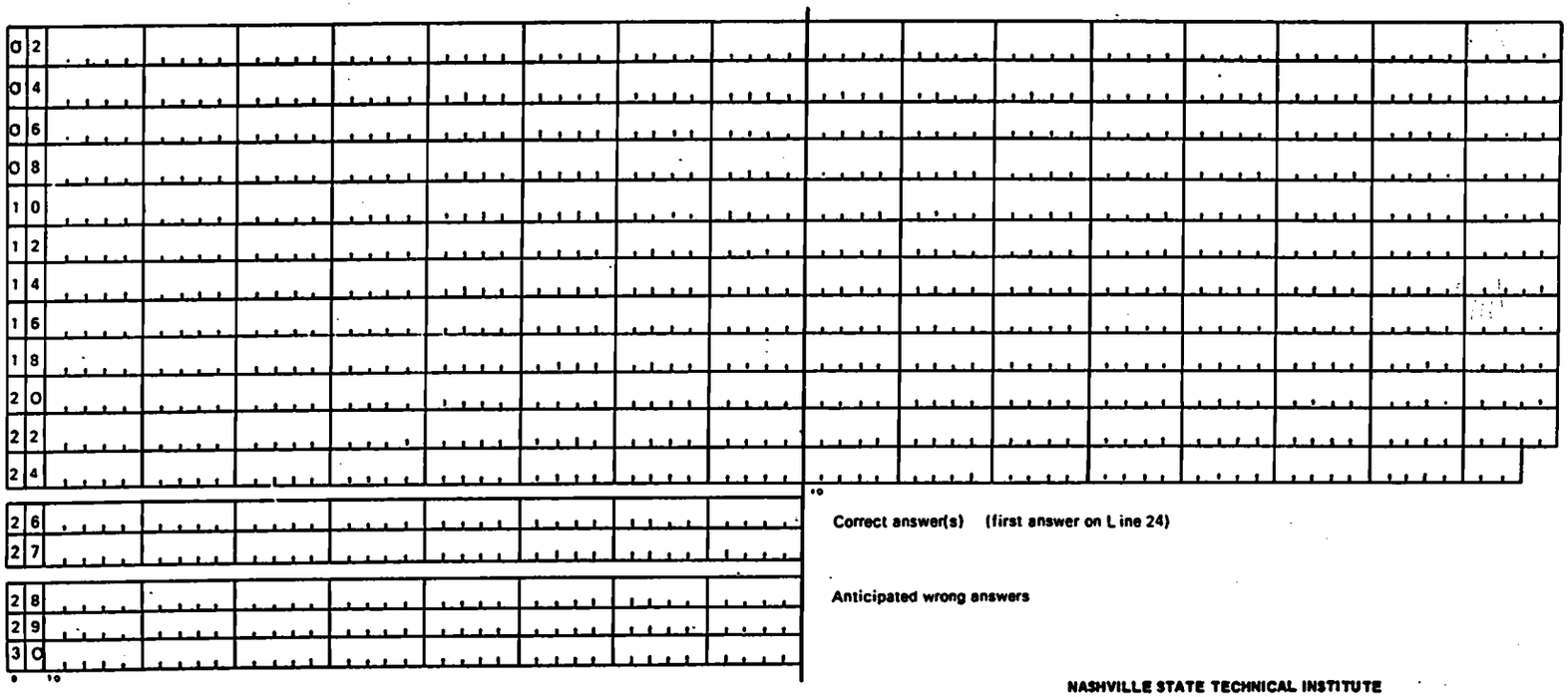


Multiple choice branches (Enter 'C' on correct answer(s)

Branch Data I and T frames - enter CRB frame
Q-frame (non-mc) enter CRB and WRB or use Regression

Information series (optional) Q-frame only

Anticipated wrong answer branches (optional) Q-frame only.
Must be filled in if Lines 28, 29 or 30 are used.



Correct answer(s) (first answer on Line 24)

Anticipated wrong answers

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FIGURE 2

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CAI Coding Sheet, Edition 1, July 9, 1971

HBR - high boundary for regression series

LB - low branch for progress check

LBR - low boundary of regression series

WRB - wrong response branch

C. Use of Coding Sheet

Using Figure 2 as a reference, the complete use of the coding form will be explained. Starting with the first line, the four blocks marked "course" are coded with a course code. The first math course may be coded MA01. The blocks marked HIFRAME should be coded with the frame number of the highest numbered frame in the program. In the blocks under EXP is placed an estimate of the number of frames which micht be added to the course at a later time for changes, additional branches, etc. The date is the date on which the course is submitted for coding. The next 13 blocks are reserved for the author's name. The author's social security number is placed in the next nine spaces. The rest of the line contains the title of the course.

Moving to the second line, the first three blocks contain the number of the current frame. The next blank block contains the frame type: Q for question, I for Information or T for test.

The next block contains one of the following:

i) B - for the first frame of a course or a reentry frame in the course.

ii) S - for the last frame in an information series.

iii) Z - for frame which is reentry point and the last frame in an information series, i.e. a single information frame.

iv) E - for the last frame of the course.

AUTHOR CODING FORM

COURSE: DP01CC0 | HI FRAME | EXP | DATE | AUTHOR NAME | AUTHOR SSAN | COURSE TITLE

FRAME NO: 04001 | FRAME TYPE: Q | ANS: KW | ALLOTTED ATTEMPTS:

***** USE OF THE PROGRESS CHECK *****

CODE: C | LB: 041 | C/O: 13 | NB: 092 — Progress Check (optional) 'Reset' on any frame. 'Check' on Q-frame only

ANS1 | ANS2 | ANS3 | ANS4 | ANS5 — Multiple choice branches (Enter 'C' on correct answer(s)

CRB | WRB | LBR | NBR | EXIT | HELP — Branch Data: I and T frames - enter CRB frame; Q-frame (non-mc) enter CRB and WRB or use Regression

Information series (optional) Q-frame only

AWA1 | AWA2 | AWA3 — Anticipated wrong answer branches (optional) Q-frame only. Must be filled in if Lines 28, 29 or 30 are used.

02	
04	
06	
08	A IS MADE UP OF ALL TRACKS THAT CAN BE READ OR
10	WRITTEN ON IN A SINGLE SETTING OF THE ACCESS MECHANISM
12	
14	
16	
18	
20	
22	
24	CYLINDER.
26	
27	
28	
29	
30	

Correct answer(s) (first answer on Line 24)

Anticipated wrong answers

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FIGURE 3

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CAI Coding Sheet, Edition 1, July 9, 1971

The next two blocks under ANS contain one of the following types of answer:

i) EM - exact match

ii) KW - key word

iii) MC - multiple choice

For explanation of the above, see explanation of the EPIC CAI system. The last space on this line is not in use at this time.

The next line is used only when the progress check option is used (refer to Figure 3). The first box contains a code to reset or to count. The code R resets a counter to zero. The code C denotes the end of the count of responses and initiates the branching. The boxes under LB contain a frame number to which the student is branched if the number of correct responses is below the cutoff value. Under C/O (cutoff) is placed the raw score cutoff value. For example, place 13 in these two boxes. If the student has answered 12 frames correctly between and including the frame with an R and the frame with a C, he will be routed to the frame referenced under LB. Under HB is the number of the frame which will be presented to the student if he scores equal to or above the cutoff value, which is 13 in this case.

Below this progress check is the line which is used only when a multiple choice answer form is specified. There are five separate boxes, each corresponding to a multiple choice possibility in serial order (refer to Figure 4). If less than five possible answers are given, the first boxes are used and those at the end are left blank. In each box the last three spaces are used for the number of the frame to be presented to the student if he chooses the answer corresponding to that box. A "C" is placed in the first space of the box which corresponds to the correct answer.

AUTHOR CODING FORM

COURSE: MA02000 | HI FRAME | EXP | DATE | AUTHOR NAME | AUTHOR SSAN | COURSE TITLE

FRAME NO.: 07401 | FRAME TYPE: EM | ALLOTTED ATTEMPTS:

***** QUESTION FRAME WITH REGRESSION SPECIFIED *****

CODE | LB | C/O | HB — Progress Check (optional) 'Reset' on any frame. 'Check' on Q-frame only

ANS1 | ANS2 | ANS3 | ANS4 | ANS5 — Multiple choice branches (Enter 'C' on correct answer(s)

CRB: 075 | WRB: 102 (LBR) | 120 (HBR) | 076 (EXIT) | HELP — Branch Data: I and T frames - enter CRB frame; Q-frame (non-mc) enter CRB and WRB or use Regression

Information series (optional) Q-frame only

AWA1 | AWA2 | AWA3 — Anticipated wrong answer branches (optional) Q-frame only. Must be filled in if Lines 28, 29 or 30 are used.

```
02  CHEBYSHEV'S THEOREM:
04
06  THE PROBABILITY THAT A RANDOM VARIABLE WILL TAKE ON A VALUE
08  WHICH DIFFERS FROM THE MEAN BY MORE THAN 'K' STANDARD
10  DEVIATIONS IS ALWAYS LESS THAN 1/KXX2.
12
14
16  WHEN APPLIED TO RANDOM VARIABLES HAVING BINOMIAL DISTRIBUTIONS,
18  IT IS often REFERRED TO AS THE LAW OF
20
22
24  LARGE NUMBERS
26  AVERAGES
27
28
29
30
```

Correct answer(s) (first answer on Line 24)

Anticipated wrong answers

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FIGURE 4

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CAI Coding Sheet, Edition 1, July 9, 1971

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The next row is used for question frames using the EM (exact match) and KW (key word) type of answer and for information frames. The first three spaces are coded with the next frame for an information frame or for the frame to which the student is to be branched after giving a correct answer. This first entry is all that is necessary for an information frame. In the case of a question frame, two possibilities arise. If only the next set of spaces is filled in, the computer will branch a student to the frame referenced here in the event of a wrong answer. The computer will allow the student to follow the normal course determined by his right and wrong answers (refer to Figure 5). If, instead, the next two sets of spaces are filled in, a special method is used. The frame number placed under WRS (wrong response branch) now becomes the first frame in a regression series. The frame number placed over HBR (high boundary of regression series) is the last frame in the regression. The computer branches to the first frame in regression when a wrong answer is given. The computer then goes through the frames until he reaches the last frame in the series. The computer will then switch the student to the frame referenced in the spaces over EXIT (refer to Figure 6). The last space in this line is used for the help option. The author chooses to include the help option by placing an H in this space.

Next we have the information series option. By filling in these spaces with a frame number, the author allows the student to review certain information frames. The frame number is the number corresponding to the first frame of the information series.

The last line of control information is used for the anticipated wrong answer option. Each group of spaces corresponds to an anticipated

AUTHOR CODING FORM

COURSE: ENG1000 | HI FRAME | EXP | DATE | AUTHOR NAME | AUTHOR SSAN | COURSE TITLE

FRAME NO: 1C601 | TYPE FRAME: Q | ANS: KW | ALLOTTED ATTEMPTS:

***** QUESTION FRAME WITHOUT REGRESSION *****

CODE | LB | C/O | HB — Progress Check (optional) 'Reset' on any frame. 'Check' on Q-frame only

ANS1 | ANS2 | ANS3 | ANS4 | ANS5 — Multiple choice branches (Enter 'C' on correct answer(s)

CRB: 108 | WRB: 107 (LBR) | HBR | EXIT | HELP: H — Branch Data — t and T frames - enter CRB frame; Q-frame (non-mc) enter CRB and WRB or use Regression

Information series (optional) Q-frame only

AWA1 | AWA2 | AWA3 — Anticipated wrong answer branches (optional) Q-frame only. Must be filled in if Lines 28, 29 or 30 are used.

02	(QUESTION)
04	
06	
08	WHAT MARK OF PUNCTUATION IS PUT AT THE
10	END OF AN INTERROGATIVE SENTENCE ?
12	
14	
16	
18	
20	
22	
24	QUESTION MARK

26	?
27	

Correct answer(s) (first answer on Line 24)

28	
29	
30	

Anticipated wrong answers

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29

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FIGURE 5

NASHVILLE STATE TECHNICAL INSTITUTE
CAI Coding Sheet, Edition 1, July 9, 1971

AUTHOR CODING FORM

COURSE: SPC1000 | HI FRAME | EXP | DATE | AUTHOR NAME | AUTHOR SSAN | COURSE TITLE

FRAME NO.: 052019 | FRAME TYPE: MC | ALLOTTED ATTEMPTS:

***** MULTIPLE CHOICE QUESTION FRAME *****

CODE | LB | C/O | HB — Progress Check (optional) 'Reset' on any frame. 'Check' on Q-frame only

ANS1: 053 | ANS2: 053 | ANS3: C060 | ANS4: 053 | ANS5: 053 — Multiple choice branches (Enter 'C' on correct answer(s))

CRB | WRB | HELP — Branch Data — I and T frames - enter CRB frame; Q-frame (non-mc) enter CRB and WRB or use Regression

(LBR | MBR | EXIT)

Information series (optional) Q-frame only

AWA1 | AWA2 | AWA3 — Anticipated wrong answer branches (optional) Q-frame only. Must be filled in if Lines 28, 29 or 30 are used.

```
02
04    WHAT ARE THE VALID ENTRIES ON AN INFORMATION FRAME ?
06
08    A.)  $$I AND $$E ONLY
10    B.)  $$H , $$I , $$!
12    C.)  $$I , $$! , $$E
14    D.)  ALL FOUR COMMANDS ARE VALID
16    E.)  NONE OF THE ABOVE
18
20
22
24
26
27
28
29
30
```

Correct answer(s) (first answer on Line 24)

Anticipated wrong answers

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FIGURE 6

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CAI Coding Sheet, Edition 1, July 9, 1971

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wrong answer to be coded later. The frame number entered in each set of spaces is the frame to which the student is transferred if he enters the wrong answer which the author anticipated.

The next eleven lines of spaces are used for the text of a question or information frame. In the case of an information frame, the twelfth line of spaces may be used. The twelfth line is used for the first correct answer of a question frame utilizing exact match or key word answers. After the author codes the first eleven lines with the question, he then will enter the correct answer on the twelfth line. If the author wishes, he may have two additional correct answers. These are coded on the next two lines of spaces (denoted by 26 and 27). In coding the text of a frame, it has been found that leaving the top line blank as well as the first and last five spaces on each line blank gives a better picture. Experience also shows that skipping two spaces between words and three spaces between sentences gives a more readable output.

On lines 28, 29, and 30 the anticipated wrong answers are coded. Each wrong answer corresponds in serial order to an anticipated wrong answer branch coded earlier. Up to three wrong answers may be used.

D. Examples of Branches

There are several ways of "branching" a student to different frames. These methods may be broken into two broad classifications. First, the student may be branched to a frame and, from there, he follows a course set by his right or wrong answers. This first classification includes three different branches: branches due to wrong answers when regression is not used, branches as a result of a progress check, and branches determined by multiple-choice responses. For example, a student is presented with a multiple choice question. When the answer is entered,

the student is branched to the frame corresponding to that answer. Then the new frame is presented. The student's response is evaluated and he is branched according to whether his response is right or wrong.

The second classification includes branches due to regression. The student may be branched to a frame, and from there he works through a pre-determined sequence of frames regardless of his response. The author selects the regression method by filling the wrong response branch, but also by filling the high boundary regression frame and exit frame boxes. Suppose a student is working with a frame which uses the regression option. The student answers the question and his answer is evaluated. If his answer is wrong, the regression option takes over. The student is branched to the frame referenced as the low regression boundary. He will now work through a series of frames. His progress through these frames is not influenced by the rightness or wrongness of his answers. He follows a path as though all his answers were correct. This continues until the frame referenced as the high regression boundary is encountered. At this time the student is transferred to the frame referenced as the exit frame.

IV. SYSTEM OPERATIONS

A. Implementation and Testing of Course Material

At the outset of this project, two approaches were considered for authors to build their course frames. The first approach considered was to have an author program whereby the author would actually sit at a terminal and build his course frames at the terminal and then have the system store the course frames in the direct access file. This approach has two advantages: (1) An author can actually see how his course looks as he builds it, and (2) in an environment where the terminals are remote to the system, it allows authors who are located at the terminal site to update and to add courses to the system. But this approach also has two disadvantages: (1) Since an author will generally sit down and design his frames prior to arriving at the terminal, the actual entry of the information on the terminal is time consuming for the author, and (2) course construction through a terminal ties up a terminal which could be used by a student rather than by an author.

The second approach that was considered was to design an author coding sheet, and once the course is coded on coding sheets, the information would be punched on cards. The information contained on the cards would then be loaded into the direct access file to build the frames for the course. This approach has one disadvantage in that the author cannot actually see his course as it is being constructed from a terminal. This approach has several distinct advantages. They are: (1) The author is not tying up a terminal while he is building his course on a coding sheet. (2) Once coded, the information to be presented is prepared for the system by an experienced keypunch operator. And (3) with card loading, we already have a course backup as well as considerable

edit capabilities during the card loading cycle. The card loading approach was taken for this project. The sequence of course implementation is as follows: (1) The author codes the frames. (2) The coding sheets are taken to a keypunch operator who keypunches and verifies the information. (3) The punched cards are loaded into a temporary file with the initial checking to be sure that all cards containing frame content contain valid "2260" characters and that all branch fields contain valid numerical characters. (4) The temporary file is then sorted and edited to be sure that all information required on each frame is present and that all branch addresses are resolved. (5) A course listing and error listing is then printed and returned to the author for corrections. (6) Corrected frames are then punched and reloaded. (7) The corrected frames are transferred from the temporary file to a direct access course frame file. Following these procedures, the possibility that an author has specified a branch to a frame that does not exist or that information required in a given frame is not available is virtually eliminated. The only thing that cannot be thoroughly checked is the acutal frame content for format or for misspelled words. This requires an author to sit down at a terminal and to actually go through his course to visually verify that all frames are the way he has coded them. The author can also review the frames on the course listing.

To help the author, a course review program has been provided. This program gives the author the capability to go to a video terminal and review his course frames. He can choose to see any desired frame or pass through his frames in sequence. He can make corrections to frame content as he views his course. If corrections are made to a frame, the frame record is updated, and a record is added to a temporary file from which frame cards can be punched to update the course card file.

B. Student Data Collection

For each student who is to take instruction through a terminal, a record is added to the EPIC directory file for each course area in which the student is enrolled. For example, if a student is to take instruction in both math and English, a record will be added for each one of these areas. In each record there is room for information on up to five specific courses in a given area. Once a record has been added to the file for a student, his record can be activated for any specific course. This record contains the student's number of sittings and the total time elapsed for that course as well as the most recent date when the student was active in the course. The grade on an achievement test, if given at the end of the course, and course completion date are also recorded. When a student has completed a course, he notifies his instructor in that course area. The instructor then notifies the system monitor who provides information to activate the student for the next course. There is no automatic transfer from one course to another.

In order to keep track of a student's progress through the course material, a data collection procedure has been implemented in the teleprocessing control system which keeps track of the student's path frame by frame. On question frames, a right or wrong response is indicated in this procedure, and if the answer is wrong, the wrong answer is stored. Enough disk storage has been allocated to allow each terminal forty-eight hours of continuous operation before these statistical files must be dumped. For best operation this information should be dumped daily so that an instructor can review the student's progress for that particular day. During the statistical dump and unscrambling procedure, a batched processing operation, the frame counter file is updated. The information

stored in this file is an indication to the author concerning his frame content. Information contained in this file is the number of times the frame has been used and the times it has been responded to correctly and incorrectly. In the case of multiple choice frames, the frequency of answer use is contained.

C. System Security

Some aspects of this area have been already covered. In review, students are allowed to sign-on only to courses in which they have actually been enrolled. To sign-on a student enters his student number, last name, and course number, and system checks are made on each of these entires.

The teleprocessing control provides a check against persons requesting applications for which they do not have the permission of access. For instance, a request for a registration application would be denied a terminal which is strictly used for CAI purposes. Access to courses by means of the author review program is permitted only to the author of the specific course and to the systems' staff. The author alone can make corrections to his course. The concept of a monitor facility whereby the terminal in the computer center can view the operations of any other terminal is being considered.

V. RECOMMENDATIONS

A. Equipment

A major problem encountered by the course authors on this project is the severe limitation of the terminal being utilized. The IBM-2260 Video Display Unit has three major drawbacks. First, the readiability deters use for any reasonable period of continuous concentration. Second, the IBM-2260 severely limits an author in the use of mathematical symbolism. For example, the representation of exponents or radicals necessitates the use of a specialized convention such as the FORTRAN convention. In remediation applications, this presents a serious drawback because it requires a student who is having difficulty in a mathematical topic to learn a specialized convention before he can be exposed to the remediation material. Third, the lack of graphic capabilities limits the use of CAI as on independent instructional medium. It is, therefore, apparent that any general purpose CAI system utilizing a video display device must have a more versatile terminal.

The availability of the newer generation of video terminals will minimize some of these limitations. The announced IBM-3270 Information Display System is expected to have greatly improved readability. The Incoterm SPD 10/20 and the Tektronix 4010 video terminals have noticeably superior screen clearity than the IBM-2260 and have fairly extensive graphic capabilities. Although the quality of presentation can be achieved with newer terminals for approximately the same cost, the matter of graphics also poses the problem of increased core requirements for the graphics software support. It appears that a good compromise between cost and ability to display graphics is the use of a random access slide projector. A unit made by Kodak will display any one of 80 slides within

3 1/2 seconds after selection is made. The video terminal would present narrative, question the student, etc. while the projector would present graphics via a console-size rear projection screen. The instructional frame presented to the video terminal would indicate the appropriate slide number which the student would manually select. The use of slides in conjunction with the video terminal increases the versatility of presentation far beyond that of the terminal alone.

B. Computer Managed Instruction

As additional equipment is introduced in conjunction with the video terminal, the difference between Computer Assisted Instruction (CAI) and Computer Managed Instruction (CMI) becomes less distinct. An approach to overcoming the video limitations is to use the EPIC system as a CMI control medium rather than in the strict sense of CAI for which the EPIC system has been designed. In employing EPIC in a CMI application, an author would first decide upon the topics he wishes to cover in a course. He would then gather instructional material on these topics presented in every instructional media available. Material available in text and reference books, programmed instruction courses, slides, filmstrips, sound-on-slides, audio tape, video tape, movies, etc., would all be considered. The author would develop his own material for topics on which material is lacking. Having gathered the material, the author would then establish a course mainline consisting of one source of material for each topic to be covered. Each source selected for the mainline would be the material to which the student is exposed for initial presentation of each new topic. The mainline so established could consist of one or any number of the media available to the author. The remaining materials available to the author which parallel mainline topics would be designated for use by students who are unable to grasp a topic from the mainline presentation.

With material gathered and classified, the author is now ready to code an EPIC course which will tie all the material together and serve as a control program to give each student individualized instruction in the course material. After coding several frames to serve as a brief introduction, the author would code a frame instructing the student to leave the terminal, study a particular source, and then return to the terminal. Upon return to the terminal, the student would be presented with a series of questions which the author has coded to check the student's knowledge of the topic just presented. If the student's responses are satisfactory, he would be presented with instructions to go to the next mainline source to cover the next topic. If unsatisfactory, the student would be instructed to go to a source which parallels the topic just covered to present the same topic again with a different approach and/or by a different media.

Utilizing EPIC in this manner permits development of a thorough coverage of a subject without imposing any media limitations on the author. The EPIC system performs the functions of instructing, testing, and controlling to effectively guide the student on an individualized basis through the course materials with minimum instructor intervention. The instructor monitors student progress by the daily system printouts and is required to intervene only in extreme cases, while the machine controls the actual path of the student through the course material.

The use of EPIC in this application is limited only to the motivation of the author to gather and develop media to cover the topics necessary. The EPIC system could be used to present an entire course, to supplement course work, or to provide an enriched remediation environment utilizing, but not dependent upon, CAI or PI being used now.

Use of the Computer in Individualizing Remediation at Nashville State Technical Institute

by

Margaret Bonds Wares
Assistant Professor
Nashville State Technical Institute
Nashville, Tennessee

Submitted
December 4, 1971

1802

Nashville State Technical Institute is a coeducational two year college level institution offering Associate Degree programs in five major fields of study. It seeks to prepare students to become technicians in an academic environment knowledgeable of the world of work into which its students will graduate. The technical institute is a recent addition to the array of post high school training programs. It was created for the purpose of "training engineering technicians for industry and preparing the student to earn a living as a technician or technical worker in the field of production, distribution, or service."[1]

Nashville State Technical Institute draws from the upper middle to the low percentiles of high school graduates in Tennessee. The Institute has an "open door policy" meaning that any person who holds a high school diploma or a GED Certificate must be admitted so long as there is physical space available. The range of reading ability in the junior college (and technical institutes) is often ten or more grade levels, from grade four or five for some vocational and technical students to grade fifteen or sixteen for a few bright academic students.[2]

Approximately fifty percent of the student population at Nashville State Technical Institute require some additional training in reading to bring them to the level where they not only can read and understand their daily assignments, but also can become proficient in reading and understanding the highly specialized material in the technology of their choice.

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[1]Faculties and Administration of Tennessee State Technical Institutes and the Staff of the Tennessee Division of Vocational-Technical Education, "Role and Scope of the State Technical Institutes," as quoted from House Bill No. 633 by Tennessee House of Representatives, page B-1.

[2]Delton D. Goodwin, "Measurement and Evaluation in Junior College Reading Programs," Junior College Research Review, Vol. VI, No. 2, Pages 1-2, October 1971.

Due to the variations in academic preparedness of our students, a remedial program had to be developed to provide individualized instruction in the fields of mathematics and English as well as reading. The primary objectives of the program are the same for the three basic areas.

(1) To develop systematic micro-diagnostic techniques for detecting skill inadequacies of entering technical students.

(2) To develop individualized instructional materials which will provide students with the opportunity to effectively remove skill deficiencies.

(3) To increase the level and rate of achievement.

(4) To reduce the attrition rate, and

(5) To develop a computer-based environment in which these results can be implemented.[3]

In developing a remedial reading program, the following points had to be considered and included to make the program function.

(1) A diagnostic reading test would have to be developed which would indicate an individual's proficiency in vocabulary, syllabication, long and short vowels and difficult consonant combinations. The instrument should also diagnose technical reading comprehension in the areas of organization of material, contextual vocabulary, information, and main idea.

(2) A series of comprehension programs would be required which would be multi-level, adult, current and leading directly to the student's vocational and avocational goals.

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[3]Daniel J. Reiber, "Exemplary Project Report," (Unpublished Report), Nashville State Technical Institute, 1970-71, Page 2.

(3) Phonics instruction would be included only in the areas of vowel sounds, consonant sounds and syllabication.

(4) General vocabulary enrichment and specific vocabulary reinforcement would be provided in each student's major technology.

(5) Study skills and techniques would have to be taught on an individual basis.

(6) Reading oriented tutorial assistance would have to be furnished as a supplement to lecture classes in other courses. Tutoring would be provided at the request of the student or any of his instructors.

(7) Personal attention would be given to each student in the program.

In order to meet these goals, additional help was needed to assign materials, to keep records, and to relieve the personnel in the program of the time consuming burden of non-teaching tasks. The IBM 360 Model 30 Computer located on campus was utilized to do these tasks.

The program's first consideration was to diagnostic test. No suitable diagnostic reading test was found to meet the needs of the technical students. Therefore, one had to be developed. It was composed of five parts - vocabulary, syllabication, vowel sounds, difficult consonants and their combinations, and comprehension. The comprehension section of the test attempts to evaluate the student's technical reading comprehension, his organizational retention and his analysis of words in context. This section is weighted more than the others. After extensive field testing on comparable groups of students and subsequent item analysis of test questions and answers, test items were improved and the test was refined. It was determined that any student scoring less than

a composite score of 50% on the five sections of the test would be assigned to remedial reading. Because the program was of experimental nature, the Stanford High School Achievement Test was chosen to administer to those students assigned to reading. Later, the WPJ Diagnostic was shown to have a correlation coefficient with the Stanford of .64.

The second objective was developing or securing comprehension materials. Textbooks that would be interesting to some students would be dull to others. Texts that stressed understanding of technical material were practically non-existent. Paperback books, magazine articles, and professional journals offered an interesting source of reading materials. These offered the additional bonus of introducing a variety of new words whereby a student could enrich his vocabulary. The difficulty of using this kind of material was obvious. If a student had coasted through high school not reading, how could one be sure he was understanding his reading assignments? For this reason, short comprehension tests were developed on each article used. With the exception of those thought to be of limited interest, the exercises and tests were laminated and filed. To supplement the magazines and technical journals, commercial materials such as the SRA Laboratory Kits were added, and certain college level reading improvement workbooks were torn apart and filed.

The objective was to make assignments that would be of interest to the student. If he didn't like to read anyway, it would be difficult to motivate him to read assignments of little or no interest to him. Rather, his distaste for reading would sharpen to the degree of disgust. As an attempt to provide something for everyone, nineteen interest categories were determined. Five of these areas were the technologies offered at Nashville

State Technical Institute. The remaining areas covered a broad spectrum of male* avocational interest. After a reasonable number of articles in each interest category were gathered, the Dale Chall Readability formula was used to determine the level of difficulty of the articles. The formula was applied to representative samples rather than to all articles. Moreover, a computer code number was assigned to each article. This number indicated reading level, interest, and the location of each article in the laboratory. Finally, an inventory of interest had to be developed to indicate the interest areas of each student. Dr. Jim Hogge of George Peabody College for Teachers wrote an experimental inventory. This instrument indicates the reading areas which each student would find most enjoyable. After the interest inventory is given, the results are keypunched, the computer interprets the raw data, and then assigns each student five interest codes. One of these is the student's major field. The student will be assigned material only from the five interest codes. The codes of all the comprehension materials available are recorded on a disk pack in the computer file. The interest codes and reading level of each student is given to the computer. The machine matches student to materials on a two-week assignment sheet which is printed by computer. At the same time, the computer keeps a record of all materials each student has been assigned to avoid any student being assigned the same article twice. During each printout period the computer file can be updated with new information concerning student progress. As the student progresses, the assignments are drawn automatically from more difficult reading materials.

Evaluation of student performance in comprehension is accomplished at the end of each printout period. Because of the time saved through the

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*Only six girls have been through the program to date.

use of the computer, each student is given a private conference every two weeks. These conferences usually last from ten minutes to thirty minutes. All of the student's work which is graded and contained in his personal file is reviewed with him. The grades on all his assignments are averaged to a percentage figure called percentage of achievement which is color coded on a graph in each student's file. This objective evaluation, along with various subjective factors, determines whether the student should move to a more difficult level or remain in his present level.

Reasonable care is exercised to assure that all students are shown progress, no matter how small. Information gained during the conference periods is coded and supplied to the computer center before new printouts are run. New articles are prepared and put on the computer file every quarter. Old, out-dated materials are discarded.

In the Nashville State Technical Institute reading program, vocabulary enrichment comes as a by-product of the comprehension work. In addition to this, vocabulary exercises have been developed that teach suffixes, prefixes, and root words. In addition to these miscellaneous vocabulary exercises, technical vocabulary reinforcement exercises have been and are beind developed. These are computer managed or assigned instructional materials developed by the reading center in cooperation with the instructors of each particular technology. In data processing, for example, many new words were introduced during the introductory quarter that the programmer would need to know for his entire career in data processing. These words were presented in a program using the 2260 Visual Display Unit. Vocabulary exercises are displayed on the screen according to the needs of the student.

Branching techniques enable the computer to present wrong answer responses. Thus, additional drill is given to students who need it. The 2260 display terminals are not located in the reading laboratory. Rather, they are in a centralized location where they are also used by the math and English departments.

Phonics instruction in the program is done on a diagnosis-prescription basis. The diagnostic test subscales are analyzed using a computer printed profile sheet. The incorrect responses indicate which particular lessons in the institute-developed series the individual should be assigned. Later, after he is in a technical laboratory situation, he is given an intensified phonics test. Using the information from this instrument, the computer profile is either verified or modified to further diagnose the student's phonetic deficiencies. For example, if a student is unable to divide a word into syllables between double consonants, he is given the first assignment on that particular rule. There are up to four more lessons teaching the same rule that the student may work if he needs them. After he has mastered a specific skill, he goes to the next one in the series until he has mastered all the areas in which he was found to be deficient.

All through the quarter that the student is in the reading program, he is encouraged to skim written material before reading it for information. As he skims he is encouraged to "second guess" the author to determine the subject, purpose, tone, etc. of the article. Also, he is encouraged to sound out the unfamiliar technical terms that he encounters. Each instructor in the reading program is available at least part of every day to tutor the students in lecture oriented subjects. This program's apparent success is due primarily to instructors being attuned to the needs of the individual student.

The program has been successful and has shown to be an effective means of remediating student deficiencies. At the end of the Spring Quarter, 65% of the students who completed the remedial reading course were still enrolled at the institute. Twenty-five of those students who completed Reading 10 have been on the Director's Honor Roll, meaning that they have made a 3.0 grade point average or above on a 4 point system.

Students in the reading program the Fall Quarter of 1970 showed significant gains in the areas of syllabication, vowel sounds, vocabulary and technical comprehension. The probability that these gains were due to chance occurrences was less than .01. The Stanford High School Battery reading subtest was used to verify results Fall Quarter '70 and Winter Quarter '71. These showed a 5.95 raw point average increase per student. The preliminary results of the program are more effectively shown by examining the post test percentage gains given below:

Test Area	N	X_1	X_2	% Gain	P
Vocabulary	66	13.4	14.6	9.0	<.01
Syllabication	67	12.0	13.4	11.7	<.01
Consonant Sounds	59	4.6	4.6	0.0	.87
Vowels	66	8.3	10.4	25.3	<.01
Tech. Comprehension	67	20.6	24.5	18.9	<.01

N = Number of students with pre-test and post test scores

X_1 = Pretest mean; X_2 = post test mean

% Gain $(X_2 - X_1)$ expressed as a percentage of X_1

P = Probability of chance occurrence

If a remedial program can alter the failure patterns of the students and allow them to develop the motivation and skills needed to become technicians, then it may safely be deemed successful. This kind of a program benefits the student, the institute and society through the development of the most basic of natural resources, the human intelligence.

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Tennessee House of Representatives, "Role and Scope of the State Technical Institute," House Bill No. 633, Tennessee House of Representatives, Page B-1.

OPERATIONS MANUAL

for

INDIVIDUALIZED READING
COMPUTER ASSIGNED INSTRUCTION

by

Kay Huggins

1812

System Description

This system is designed to assist the reading staff in the following two areas:

1. Selection of reading materials for each reading student based on the student's reading level, interests, and major field of instruction. Selections will be made five times each quarter. Each selection run will provide for maintenance including student level and/or interest change.
2. On the basis of the student's performance on the reading diagnostic test, ascertain which lessons are required for the student in each of the following areas:
   a. Syllabication
   b. Short Vowel Sounds
   c. Long Vowel Sounds
   d. Consonant Sounds

Files for the System

1. Student File - Index-Sequential using class Section Number and Social Security Number as key. Includes name, diagnostic test scores, interests, major field, reading level, and all assigned reading selections.
2. Book File - Index-Sequential using book catalog number as key. Includes title and page numbers to be read.
3. Cross Reference File - Direct access file using relative track ID. Used to show availability of selections within interests and levels.

File used for System Initiation

Registration File - In building the student file, the registration file is scanned sequentially to obtain name, social security number, etc., on each student actually enrolled in RD 10.

Requirements of the Reading Department

1. There must be a minimum of 25 students enrolled in RD 10 for this system to be utilized for any given quarter.
2. The interest inventory must be administered the first day of class, and answer sheets returned to the computer center the same day. Answer sheets on students absent the first day or on student adds must be furnished to the computer center by Friday afternoon following registration in order to be included in the first selection run.
3. The Reading Department must specify prior to the beginning of each quarter the four dates other than the initial run on which they anticipate the new reading sections to be assigned to the remedial students. These four dates must fall on a Monday.
4. Any changes in the student's level, interest, or section or any student additions or deletions must be presented to the Data Processing Department in coded form no later than the Wednesday preceding the Monday that selections will be assigned.
5. Reading sources may be added to the selection library at the beginning of any quarter prior to the initial selection run. Maximum assignments for any given source are fixed and cannot be altered except between quarters. Reading sources may be deleted from the book file on any selection run if the source becomes unavailable.

OPERATIONS MANUAL

for

INDIVIDUALIZED READING
COMPUTER ASSIGNED INSTRUCTION

by

Kay Huggins

1815

System Description

This system is designed to assist the reading staff in the following two areas:

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5. Reading sources may be added to the selection library at the beginning of any quarter prior to the initial selection run. Maximum assignments for any given source are fixed and cannot be altered except between quarters. Reading sources may be deleted from the book file on any selection run if the source becomes unavailable.

Requirements of the Computer Center

1. Supply to the reading staff in duplicate the comprehensive profile sheet on each student enrolled in RD 10. This print-out also serves as the interest inventory answer sheet. The sheets will be furnished on the morning of the first day of class in social security number within section order. One copy will be used as the inventory answer sheet and will be returned to computer center.
2. Furnish reading assignments in duplicate on the first Monday following registration and on the other four dates specified by the reading staff.
3. Furnish masters of the following forms for use in the program (the Reading Department is responsible for forms supply):
   a. Book Catalog Form (Form B)
   b. Student Drop Form (Form D)
   c. Student Add Form (Form A)
   d. Student Level Change Form (Form L)
   e. Student Interest or Major Change Form (Form I)
   f. Student Section Change Form (Form S)

Programs (Refer to Operations Flowchart)

A. Series 1000 - Student file creation

1. READ1000 - Build tape file containing students enrolled in RD10

Input - RE65	Output - READ TEMP FILE
Pack - 333333	Pack - 3___3
Drive - 132	Drive - 132

FILMED FROM BEST AVAILABLE COPY

2. READ1100 - Process reading test raw data for phonics profile printout

Input -
Reading test raw data in SSAN order

Output -
Updated READ TEMP FILE

3. READ1200 - Sort temporary file into SSAN within section order

Input -
Output from 2

Output -
READING TEMP
Drive - 180

4. READ1300 - Build initial tape and print profile sheets

Input -
Output from 3

Output -
a. READ010
Drive - 181
b. Profile Sheets

5. READ1400 - Build ISAM student file

Input -
Output from 4

Output -
READING STUD
Pack - 333333
Drive - 132

6. READ1500 - Interest Inventory graded, results printed, and student file updated

Input -
a. Output from 5
b. Interest Inventory raw data

Output -
a. Updated READING STUD
b. Listing of results

B. Series 2000 - Book file construction

1. READ2000 - Build book file on tape from book cards

Input -
book cards

Output -
READ020
Drive - 180

2. READ2100 - Sort book cards into catalog number order

Input -
Output from 1

Output -
READ021
Drive - 181

3. READ2200 - Format and build book files

Input -
Output from 2

Output -
a. REMEBK
b. CRDISK
Both on Pack - 333333
Drive - 132

C. Series 3000 - Reading selection

1. READ3000 - Selects reading materials for each reading student

Input -	Output -
Output from B3	a. Updated READING STUD b. Listing of reading selections

D. Series 4000 - Student file maintenance

1. READ4000 - Performs maintenance on student file including adds, drops, and level, interest, or section changes.

Input -	Output -
Maintenance cards	Updated READING STUD

E. Series 5000 - General Utilities

1. READ5000 - Takes backup of ISAM student file

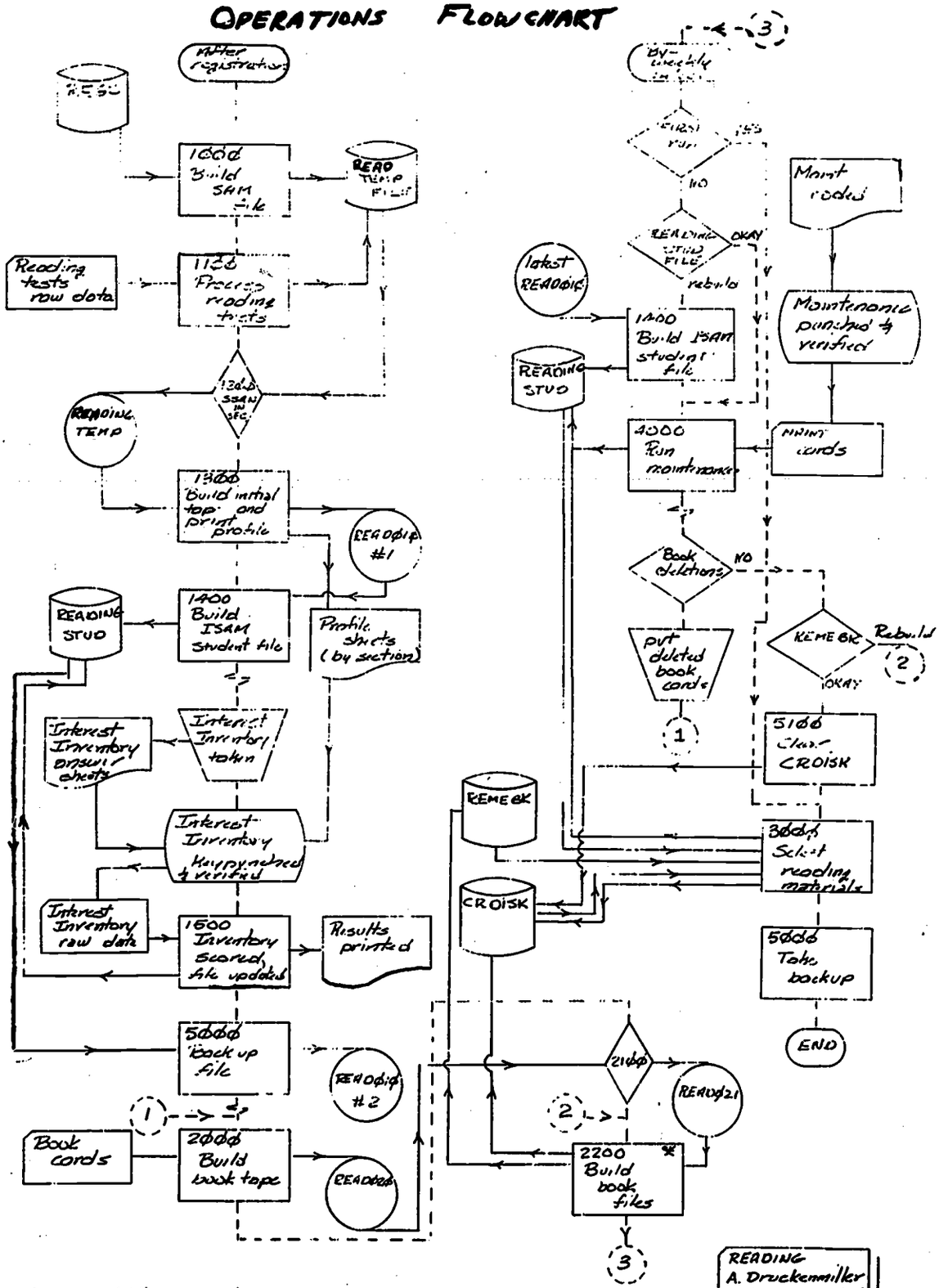
Input -	Output -
READING STUD	READ010 Drive - 180

2. READ5100 - Stand alone format-disk utility to initialize CRDISK

Abbreviations

REGS FILE	Registration File
READ TEMP FILE	Temporary Reading File (disk)
SSAN	Social Security Number
READING TEMP	Temporary Reading File (tape)
ISAM	Index Sequential Access Method
READING STUD	Master Reading Student Record File (disk)
REMEBK	Master Reading Selection File (disk)
CRDISK	Cross Reference File (disk)

NSTI READING SELECTION SYSTEM OPERATIONS FLOWCHART



* Contains utility to clear CROISK

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   c. Student Add Form (Form A)
   d. Student Level Change Form (Form L)
   e. Student Interest or Major Change Form (Form I)
   f. Student Section Change Form (Form S)

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Drive - 132	Drive - 132

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Input -	Output -
Reading test raw data in SSAN order	Updated READ TEMP FILE

3. READ1200 - Sort temporary file into SSAN within section order

Input -	Output -
Output from 2	READING TEMP Drive - 180

4. READ1300 - Build initial tape and print profile sheets

Input -	Output -
Output from 3	a. READ010 Drive - 181 b. Profile Sheets

5. READ1400 - Build ISAM student file

Input -	Output -
Output from 4	READING STUD Pack - 333333 Drive - 132

6. READ1500 - Interest Inventory graded, results printed, and student file updated

Input -	Output -
a. Output from 5 b. Interest Inventory raw data	a. Updated READING STUD b. Listing of results

B. Series 2000 - Book file construction

1. READ2000 - Build book file on tape from book cards

Input -	Output -
book cards	READ020 Drive - 180

2. READ2100 - Sort book cards into catalog number order

Input -	Output -
Output from 1	READ021 Drive - 181

3. READ2200 - Format and build book files

Input -	Output -
Output from 2	a. REMEBK b. CRDISK Both on Pack - 333333 Drive - 132

C. Series 3000 - Reading selection

1. READ3000 - Selects reading materials for each reading student

Input -
Output from B3

Output -
a. Updated READING STUD
b. Listing of reading selections

D. Series 4000 - Student file maintenance

1. READ4000 - Performs maintenance on student file including adds, drops, and level, interest, or section changes.

Input -
Maintenance cards

Output -
Updated READING STUD

E. Series 5000 - General Utilities

1. READ5000 - Takes backup of ISAM student file

Input -
READING STUD

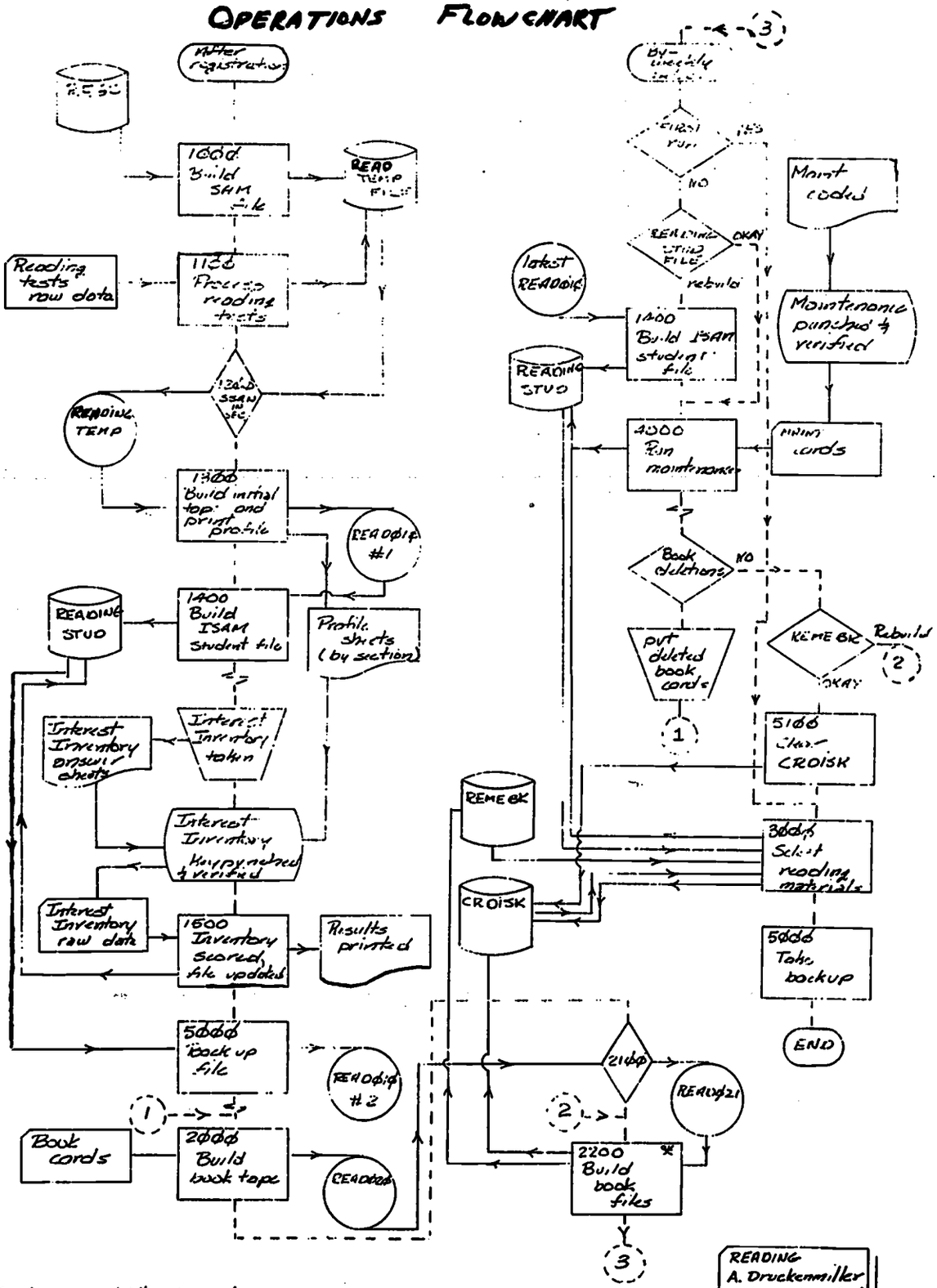
Output -
READ010
Drive - 180

2. READ5100 - Stand alone format-disk utility to initialize CRDISK

Abbreviations

REGS FILE	Registration File
READ TEMP FILE	Temporary Reading File (disk)
SSAN	Social Security Number
READING TEMP	Temporary Reading File (tape)
ISAM	Index Sequential Access Method
READING STUD	Master Reading Student Record File (disk)
REMEBK	Master Reading Selection File (disk)
CRDISK	Cross Reference File (disk)

NSTI READING SELECTION SYSTEM OPERATIONS FLOWCHART



* Contains utility to clear CROISK

AN EXEMPLARY PROGRAM

THE WASHOE COUNTY SCHOOL DISTRICT

RENO, NEVADA

Sequential Approach to Vocational Education

A COOPERATIVE EFFORT OF

- RESEARCH & EDUCATIONAL PLANNING CENTER
  UNIVERSITY OF NEVADA, RENO
- ADULT EDUCATION DIVISION
  WASHOE COUNTY SCHOOL DISTRICT
- PILOT AND DEMONSTRATION BRANCH
  DEPT. OF H. E. W., U.S.O.E., WASHINGTON, D.C.
- VOCATIONAL-TECHNICAL BRANCH
  NEVADA STATE DEPARTMENT OF EDUCATION

VT016256

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EDUCATION & WELFARE
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AN EXEMPLARY PROGRAM

THE WASHOE COUNTY SCHOOL DISTRICT

RENO NEVADA

SEQUENTIAL APPROACH

TO

VOCATIONAL EDUCATION

A Cooperative Effort

Burnell Larson, Superintendent of Public Instruction
Nevada State Department of Education
R. Courtney Riley, Director
Vocational-Technical and Adult Education Branch

Department of Health, Education and Welfare
U.S. Office of Education
Exemplary Program and Service Branch
Sidney C. High, Junior, Chief

University of Nevada, Reno
College of Education
Research and Educational Planning Center
J. Clark Davis, Director

Marvin Picollo, Superintendent
Washoe County School District
V. James Eardley, Director
Adult and Vocational Education

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BACKGROUND

The Director, Adult and Vocational Education, Washoe County School District, had some ideas. His name is V. James Eardley, and he had many things going. In his high schools he had some traditional courses, and in his post-secondary and adult program, he had some excellent courses. But there was some big dissatisfactions. One of his best post-secondary courses prepared people for para-professional positions in the field of Health and Medicine, but due to financial constraints, he was unable to help those who had the greatest need. Also, the traditional secondary program just wasn't good enough. It could be greatly improved with a transition to a cluster approach, improved counseling, guidance and placement services and the addition of training in new occupational fields.

So he took his problem to J. Clark Davis, Director of the Research and Educational Planning Center, University of Nevada, Reno. Dr. Davis suggested that they broaden their concerns to include the junior high and elementary levels and work out a sequential approach. Acting upon this suggestion, staff personnel of both the Adult and Vocational Branch and the Research and Educational Planning Center went to work. They searched the literature, visited other areas and invited experts to consult with them. Out of this grew a proposal; it was submitted for funding under Adult, Vocational and Technical Education Branch, Contracts and Grants Division, Department of Health, Education and Welfare, U. S. Department of Education. With news of the availability of funds, work began in earnest. Objectives which had been

previously stated were refined. Programs were assigned for development. Personnel were hired and roles defined. An agency for outside evaluation was chosen. There was a massive shifting of gears, and Project SAVE was in operation.

OBJECTIVES

The overall objective is to develop a continuum through which the child, as he grows, learns about many occupations, finds that occupational group for which he is suited and in which he is interested, is shown how to prepare for it and, in many cases, is trained for and placed in it. To meet this objective, sub-goals have been developed for each level; programs either have been or are being developed to achieve these goals.

Elementary

1. To familiarize elementary children with a variety of occupations. Points for consideration include the demands and benefits of the different jobs, working conditions, availability, a general view of the requisite training, with emphasis on the relevance of school subjects to the World of Work; and

2 To draw upon all resources, including parental and community, and all techniques to make the program vital and interesting.

Middle School

1. To encourage self-examination by the students with particular reference to the matching of individual characteristics to those required by occupational groupings or clusters;

2. To add depth to students' perceptions of certain areas, such as construction, manufacturing, etc.; and

3. To provide for each student a cycle wherein he has some "hands-on" experience in many occupational clusters.

Secondary

1. To institute a program of training for Health Occupations covering four areas: Nurses Aide or Orderly, Home Health Aide, Practical Nurse and Medical Assistant. These programs would serve to:

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a. Provide entry-level skills in this occupation, or

b. Serve as transition to post-secondary level Health Occupations education, or

c. Serve as exploratory courses for students considering degree programs in health professions;

2. To provide work experience in actual on-the-job situations, e.g., hospitals, doctors' offices, etc., for those enrolled in the Health Occupations curriculum;

3. To provide placement services for those who achieve entry-level skills in Health Occupations;

4. To provide vocational counseling and guidance to all students, including information on occupations and the administration and interpretation of tests of interest and aptitude; and

5. To inform students of what educational patterns are necessary and desirable for any occupation and make them aware of which of these are locally available.

(Included in this information will be analyses of the probable cost, in terms of time, effort and money, of these patterns. In those cases where patterns are not locally available, information will be given on where and how they might best be sought, again with realistic cost appraisals.)

Post-Secondary

1. To continue and expand the training already in effect;

2. To enable those with socioeconomic handicaps to participate in these programs;

3. To expand the cooperative work experience aspects of the program;

4. To expand the existing vocational counseling program;

5. To expand and strengthen the placement services already within the existing program; and

6. To develop a program to train individuals for paraprofessional level occupations in the Dental Health field.

PROGRAMS

There are programs operating or in planning stages at all levels.

Elementary

Last year a program of Career Awareness Development was piloted in the fifth and sixth grades of two elementary schools. This year we have expanded to operation in ten schools and are piloting in some third and fourth grade classes. The District is already anticipating the time when this program becomes an integral part of the elementary school experience in all schools and at all grade levels.

The program seeks to develop the five basic attitudes that:

- There is dignity in the worker and in the work performed.
- Work is important.
- By working, people in a community help each other.
- There is a need for cooperation in work.
- Work is important to the worker and to society.

For each grade there is a unit which is more or less based on a central theme. There are only four simple concepts to be developed at kindergarten. These have to do with parents working, with workers coming to the school and to the home and the child's role as a worker within his class. These are intended to be taught through the techniques, particularly of graphic, verbal and musical art, so widely used at this level. There are also very strong links to be made with health and safety, with

cooperation, in short with all the objectives of a good kindergarten program.

The first grade child, through six concepts, gets a taste of simple economics. The idea that money is the chief form of barter in our society leads to a realization of the necessity of work, both to the worker and to society. In second grade, students begin to learn about specialization and interdependency. By starting with a simple division between the producers of goods and the producers of services, these long words become integral parts of the students' world.

In the third grade, the student learns how occupations are affected by sociological and technical changes, by location, by supply and demand, etc. The fourth grade makes an additional and determined push to link what is learned in school with what is required in the world of work. The variety of occupations resulting from interest and competence in mathematics and science, for instance, is covered, as is the almost universal necesity for finely developed communication skills.

In the fifth grade the student is urged to look at his own characteristics and at the characteristics required by various occupations. There is no intent to force a choice at this point; the student is merely to become aware that a close match of possessed and required characteristics makes for happier occupational choice. The intention is to bring to him a further realization of the kinds of occupational information and self-knowledge he should have before making any career commitment. The final elementary unit, designed for the sixth grade, begins with the concept, "Careers are grouped by job families; positions

are related within job families." From there it explores in some depth each of fourteen clusters, pointing out how, in each and every one, there is some niche into which an interested person can work to fit himself.

It must be emphasized throughout that this program does not seek to place an elementary child in an occupation. Rather it is designed to give him a broad knowledge of occupations and the beginning of self-knowledge, together with an understanding of how these two interact for gratifying career choice.

Many techniques are being utilized to teach the concepts outlined above. A consistent effort has been made to integrate career awareness development into all curricular areas; suggested activities after each concept range through language arts, social studies, mathematics, etc. A variety of printed materials and audio-visual aids is suggested. By far the most effective resource to date has been the field trip. Not only do these show workers in their actual setting, but they have the added advantage of involving many segments of the community. In one sense, it may be said that management and employees of some fifty concerns have been added to the teaching staff of the District through this method. The general response from the business community has been amazing. While the cynical might suggest that a business cannot afford to be averse to being mentioned at twenty-five dinner tables after a class visit, what profit motive can be ascribed to the proprietor of a one-man garage who already has more business than he can comfortably handle? It cannot be a case of wishing to expand; this particular man is nearing seventy

years of age. When asked why he was willing, even eager, to have his premises invaded by a group of children, his reply was that this is what the school should be teaching and he is delighted to assist it to do so. Such feedback as has been received from the community this early seems to run along these lines; parents and businessmen alike are responding that this is a proper function of the school and one which they are quite willing to support.

The student reaction has been quite predictable. Even discounting the "fun" aspects of field trips, speakers and non-text oriented instruction, the feeling appears that this is "real." A written report of some aspect of a trip to a dairy involves writing skills and is perceived by many pupils as being more important than an essay on daffodils, for instance. The mathematics of changing hourly, monthly and yearly earnings into comparable figures provides its own reason for computation in a way that working the examples on a page cannot. For some time the students, even at the elementary level, have been accusing the educational process of irrelevance; this program does work toward refuting that accusation. No one is claiming that this is a total answer. However, it does seem, from early reaction, to be a step in a positive direction.

Middle School

This is at present in transition. The Washoe County School District has for many years followed a 6-3-3 pattern. It is now planning to change to a 5-3-4 pattern. This will be a chance to break in upon those elements of the junior high program which

have been less oriented toward the goals of SAVE and replace them with a more integrated planned set of experiences.

The components among which choice can be made include the present sixth-grade unit, previously described in the section on elementary program, the "Worlds" programs at present in the junior high, and some experience cycles. The two programs, World of Construction and World of Manufacturing, are proving so successful that their incorporation is as necessary as it is desirable. However, as outstanding as these are, they still leave gaps, such as communication and transportation, entertainment and recreation (so vital to the economy of this area), etc. Some work must be done to meet this lack. Experience cycles would make use of available facilities and would take all students, boys and girls alike, through short periods in various clusters. As an example, in the Consumer and Homemaking cluster, boys and girls alike might have a brief experience in fabrics and sewing--how to buy, how to maintain, how to make emergency repairs, etc. While no one is suggesting that boys need to learn to make their own clothes, certainly, in this day and age, they do need to be able to determine which garments can be washed and be able to perform this properly in terms of time, temperature, cleaning agent, etc. It is equally true that, in this period of less well-defined sex roles, girls need to be able to make minor household repairs. No difference should be made between boys and girls in terms of the experiences they should have.

Secondary

The new program in the Washoe County high schools is a Health Occupations curriculum. At present this is both an orientation to the almost infinite number of occupations in the health field and a basic course in the fundamentals necessary to become a Nurses Aide or Orderly, a Medical Assistant, a Home Health Aide or a Licensed Practical Nurse. At the end of the last school year, cooperation from the local Veterans Administration Hospital made it possible for some twenty students to have clinical experience. Both the students and hospital staff members were enthusiastic about the experience, and it is certain that more students would have participated except for financial considerations. No remuneration was involved, and the student with the necessity to take a summer job was unfortunately precluded from profiting from this chance to use the learned skills.

This program is in the process of being revised to fit more closely into the cluster approach. Probably by next fall the Health Occupations curriculum will begin in the tenth grade with a course in orientation to occupations. The eleventh grader will be able to study the facts and skills necessary, and, it is hoped, there will be opportunity for twelfth grade clinical experience for the student who wishes to graduate with entry-level skills.

The only other secondary aspect of Project SAVE is the close liaison being maintained with the counselors and the Cooperative Education staff in the high schools. In addition, as the cluster

approach is developed for the state, Project staff will be keeping in close touch with all that is being done in that area.

Post-Secondary

For some years the Washoe County School District, Adult and Vocational Education Branch, has been doing an excellent job in preparing Medical Assistants, Licensed Practical Nurses and Surgical Technicians. However, it was felt that there was a serious lack in the program; the people in greatest need of this program could not participate, due to the tuition necessitated by the financial structure of the state. Women in minority groups, women on welfare, women greatly in need of marketable skills simply did not have the money it would cost them to learn to earn. Project SAVE was able to remove this barrier. No one now needs to have the resources to afford tuition to apply for this training; perhaps even more important, the screening committee is now able to look at the human being rather than being concerned with evidence that this individual has sufficient financial backing to complete the course. There is no way of knowing how many who had the potential to make great human contributions were previously lost.

Encouraged by the success of this undertaking, the Adult and Vocational staff turned its attention to another long wished for program. Beginning with the Fall semester of 1971, they offered a Dental Assistant training program. They were quickly overwhelmed with applications, and while the first one is largely serving as a refresher for those who were already employed in

this capacity, the program will soon begin to train from the beginning. This is all the more notable for being the first program in the entire state to train for this para-professional position.

Thus it is seen that at all levels, elementary through post-secondary, programs are operating, pilot or full-scale. Some are unique, some are adaptations from other locations, some are continuations on more advantageous terms of pre-existing local ones, but all are working to the betterment of the students.

ARTICULATION

Articulation may, in connection with Project SAVE, be considered in two ways. The first, which might be termed horizontal, concerns articulation among agencies. This horizontal articulation is working in an unprecedented way. Part of the unique quality of this program derives from its resulting from the cooperation of four levels or agencies. The proposal was approved and funded by the United States Office of Education; the Nevada State Director of Vocational-Technical and Adult Education committed all the state's available appropriate funds to the project. The planning, development and implementation of the program have been done cooperatively by the Washoe County School District and the Research and Educational Planning Center, University of Nevada, Reno. Thus Federal, State, University and Local levels are working in harmony, and horizontal articulation is a marked success.

The other type of articulation, vertical, is moving more slowly. As the project name, Sequential Approach to Vocational Education, implies, a major thrust of this program involves a smooth continuous flow from kindergarten through the post-secondary level. The child entering school is given a broad exposure to the world of work. He is led to appreciate the importance of work, both to the worker and to society. He learns the simple economics of work and factors such as location and technological change which impinge upon occupations. Just before he leaves elementary school he learns that knowledge of the characteristics he possesses can be compared with knowledge of the

characteristics required by different areas of work to result in a more reasoned occupational choice. At the middle school level he is made aware of clusters and the wide range of jobs to be found in each. He learns that, whatever his particular aptitudes, there is a niche within any cluster for which he can prepare himself. He is then given a chance to have a brief exploratory experience with several clusters so that he may see which attracts him.

In high school he may find out more about the cluster which seems most compatible to him and be given guidance on what further education and training would be necessary to enter it. He might be enabled to graduate from high school with entry-level skills or acquire the fundamentals on which to build these skills in the post-secondary program offered by the District. If his aspirations are such that these programs do not suffice, he should be advised as to what other alternatives are available and appropriate. This advice should include information as to where the desired education is available, what the cost will be in terms of money, time and effort and what the prerequisites are.

Thus the student should emerge from the local school system with clear-cut and realistic vocational goals based on a sound understanding of all relevant factors. He may leave after the twelfth or fourteenth year prepared for his chosen occupation, or he may go on, trade or technical school, community college or university, locally or elsewhere, but in any case with well-defined plans.

This is the ideal. This is what the entire project is aimed at doing. This is the approach which we envision as being of the greatest possible assistance to our students. It is also unfortunately, the most difficult part to achieve. The elementary program is partially in operation. A new curriculum in Health Occupations is in the second year in the high schools. Some beginnings have been made at the junior high level, but these will be refined and improved at the time of the District's intended move to a Middle School pattern. The post-secondary is operating smoothly. However, the overall smooth coordination and articulation has not yet been achieved. This must be a prime concern of the staff for the remaining months of the project.

EVALUATION

Evaluation consists of two kinds, outside or project and inside or program. The task of looking at the entire effort has been assigned to the Human Resources Research Organization. Dr. John E. Taylor, Senior Staff Scientist of that organization, has been in close touch with the program almost from its inception. He has made quarterly site visits of two or three days each and has sent reports concerning these back to the staff. These include detailed objective appraisals, as well as suggestions for improvements. Standing, so to speak, back from the project as he does, he can get a better perspective than can the staff who see their particular segments of concern more closely, but cannot focus on the whole.

Inside evaluation has been directed at specific portions of the program and has not been coordinated. An intensive design is being used with the elementary phase. Last year, with the eight-week pilot in seven fifth and sixth grades, a three-part instrument was used in a pre- and post-test design and growth was measured against control schools which underwent the same testing program but had no curricular change. In two of the parts, knowledge of the existence of occupations and knowledge of facts concerning occupations, statistically significant gains were made by the pilot classes. This was in sharp contrast to the control classes where no gains were recorded and where, in some cases, there actually appeared a decrease in knowledge. The third part, which attempted to measure attitude shift, proved to be useless, as no statistical procedure yielded any information. However, it

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was felt that there was indeed attitude change, as assessed by anecdotal reports from teachers. It was therefore the staff decision that the instrument was at fault. Anyone who has worked with testing is well aware that measuring attitude is a difficult task at best.

Again this year with the expansion into fifty-six classrooms, a few of which are third and fourth grade, an extensive testing program is being used. The two sections which proved successful last year have been augmented by cognitive tests. These are designed to accompany each unit and test the child's knowledge of the concepts covered in that particular unit. A new attempt is being made to measure attitude shift by using a set of simple statements with true-false responses. Control classrooms are also being used, and testing, as before, is on a pre- and post-basis.

While the testing at the junior high, secondary and post-secondary levels is the product of the individual teacher, a set of instruments has been designed to cover the Health Occupations students after they leave high school. Interviews will be held with students and employers and/or post-secondary teachers to assess the value and efficacy of the new courses. These will be done at intervals, beginning about six months after graduation. It is as yet too early to know how valuable these interviews will be or what they will reveal about the program. However, it should be obvious that every effort is being made to discover what all aspects of the program are doing, with the kinds of evidence necessary for continuing or changing any facet.

PART I. DATA ABOUT THE STUDENTS

PERSONNEL

Few people have actually been added to staff Project SAVE. Rather there has been a shifting, absorption and correlation of assignments already held. The Acting Director of the Research and Educational Planning Center, University of Nevada, Reno, has added the position of Project Director to his other duties. Largely this responsibility consists of coordinating and delegating. One of the Center's Research Assistants has shifted her total efforts to the project and has been largely instrumental in the development of the elementary program and the evaluation scheme.

The Vocational and Adult Branch, Washoe County School District, contributed the services of one of its Coordinators, who became the SAVE Coordinator, one of the prime moving forces. Through his efforts, and those of his subordinates, the operational details have been systemized and implemented. In his office are two coordinators, one for the elementary level, the other to handle the secondary, etc. It is these two latter who must do much of the legwork and make the contacts.

The other new personnel have been the nurse-teachers in the high schools. Last year there were two; this year the project has added one additional and is still looking for a fourth. These young women must meet demanding criteria. They must be registered nurses. They must have a college degree. They must have experience, whether hospital, school, private duty, etd. Above all, they must enjoy and be able to relate well to high school students.

TABLE 1

GRADE POINT AVERAGES AND ACADEMIC APTITUDES OF
VOCATIONAL AGRICULTURE GRADUATES, CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Years	School G.P.A. 1/	Voc-Ag G.P.A. 1/	Other Vocational Courses G.P.A. 1/	Academic Aptitude 2/
1967 N = 17	1.89	2.35	2.03	Average 37.5 Range 5-80
1968 N = 15	2.01	2.30	2.03	Average 26.8 Range 17-49
1969 N = 18	2.13	2.48	1.75	Average 29.7 Range 17-46
1970 N = 28	2.11	2.49	2.26	Average 31.2 Range 20-48

[1]Based on scale of: A = 4; B = 3; C = 2; D = 1; F = 0 (G.P.A. = Grade Point Average)

[2]Based on Differential Aptitude Test Scores

1981

The great part of the staff has merely absorbed this additional responsibility. For instance, the State V.E.P.D. Coordinator and a Research Associate of the State R.C.U. both have their office space in the Research and Educational Planning Center. Thus it is very easy for SAVE staff to profit from the work of these two capable men. Fifty-six elementary teachers have incorporated a program of career awareness into their already full curriculum. Personnel of more than fifty local businesses and industries have become, in a sense, part of the staff as they instruct children, either as field trip guides or as classroom speakers. Parents are involved; they are interviewed, they chaperone field trips and they speak to classes. It might even be realistic to say that SAVE regards anybody and everybody as potential resources.

Basically, the most important consideration concerning personnel is not the size of the staff, nor is it the number of advanced degrees. It is rather a dedication to the underlying concept and a willingness to work and to try something different in order to achieve something we believe will be of benefit to the youth of the community.

TABLE 2

ABSENCE FROM HIGH SCHOOL OF
VOCATIONAL AGRICULTURE GRADUATES, CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Year	First Year[1]	Second Year[1]	Third Year[1]	Fourth Year[1]	Total[1]
1967 N = 17	59 (3.5)	55 (3.2)	112 (6.6)	66 (3.9)	302 (17.8)
1968 N = 15	83 (5.5)	100 (6.7)	80 (5.3)	107 (7.1)	360 (24.0)
1969 N = 18	90 (5.0)	107 (5.9)	64 (3.6)	119 (6.6)	355 (19.7)
1970 N = 28	107 (3.8)	177 (6.3)	353 (12.6)	416 (14.9)	1157 (41.3)
Total = 78	339	439	609	708	2174

[1]Whole numbers equal days absence. Numbers in parentheses represent average number of days absent per student.

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FUTURE DIRECTIONS

The original idea was big. Even though an amazing amount has been accomplished in a year and a half, much remains to be done. One priority, now being worked on, is the development of an administrators' handbook, a step-by-step guide which would enable any district to set up its own elementary career awareness program along the lines of ours. We think we are doing good things with and for our elementary children; much of this benefit would be lost if such a program would only work in this one district.

Another step which is receiving attention is the Health Occupations curriculum. This is being written to be more compatible with a cluster approach and the overall objective of the sequential flow of career awareness development. In line with this is the necessity for reshaping some other high school courses and curricula to fit the pattern.

A third vital concern is the necessity to expand the elementary program until it eventually serves every child in the District. This means holding workshops to train the remaining elementary teachers. This also has very significant implications for the development of modules which can be used in the teacher-training program here at the University of Nevada, Reno, and anywhere else it might be thought appropriate and desirable.

Although much of the burden of evaluation falls of necessity on the shoulders of the individual teachers, there is still a great deal of work for other staff members. As the data come in

TABLE 3

ENROLLMENT OF VOCATIONAL AGRICULTURE GRADUATES
IN VOCATIONAL COURSES
CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Year	Vocational Agriculture	Industrial Arts	Industrial Cooperative Training	Business Education	Distributive Education	Total All Courses
			(number of courses in four years of high school)			
1967 N = 17	60	11	0	7	0	78
1968 N = 15	55	8	0	12	1	76
1969 N = 18	76	2	0	12	0	90
1970 N = 28	133	4	10	24	0	171
Total = 78	324	25	10	55	1	415

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they must be recorded and set up for analysis when post-test results become available. If one considers that this year's elementary work alone can result in some 500 statistical analyses, the magnitude of this task becomes obvious.

With the previously mentioned District transition to the use of a middle school, the need for an excellent program for this level is intensified. The staff has ideas. Ideas, however, do not suffice of themselves. They must be translated into definite courses which will achieve the objectives for these grades at the same time they fit smoothly into the overall sequence.

These are the large concerns. Naturally, the daily work of the project must be kept flowing. Also, operations must be refined to the point where District assumption at the end of the exemplary period can be done smoothly and easily. But we at Project SAVE believe in what we're doing, and so we keep working.

TABLE 4

YEARS OF OCCUPATIONAL EXPERIENCE PROGRAMS
CONDUCTED BY VOCATIONAL AGRICULTURE GRADUATES
CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Years	Farming Program	Placement-employment Non Co-op Program	Other Programs
	(years)	(years)	(years)
1967 N = 17	62	0	5
1968 N = 15	50	0	9
1969 N = 18	64	0	9
1970 N = 28	97	2	17
Total = 78	273	2	40

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CRUNKILTON, JOHN R.; FRENCH, JOHN M.
EVALUATION OF THE JAMES WOOD HIGH SCHOOL'S AGRICULTURAL EDUCATION DEPARTMENT. SUMMARY REPORT.

VIRGINIA POLYTECHNIC INST. AND STATE UNIV., BLACKSBURG. DIV. OF RESEARCH.
VIRGINIA STATE DEPT. OF EDUCATION, RICHMOND. DIV. OF VOCATIONAL EDUCATION
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ABSTRACT - THIS EVALUATION OF A HIGH SCHOOL AGRICULTURAL EDUCATION DEPARTMENT, AS A RESEARCH PROJECT FUNDED BY THE STATE, PRESENTS THE DATA BY MEANS OF 42 TABLES DEALING WITH THE STUDENTS AND THE PROGRAM STRUCTURE. SELECTIVE EVALUATIVE COMMENTS ARE FOLLOWED BY RECOMMENDATIONS SUGGESTING THE STRENGTHENING OF STUDENT ABILITIES IN READING, WRITING, AND MATHEMATIC, THE DEVELOPMENT OF MORE RELEVANT CURRICULUM CONTENT, AND THE EXPANSION OF THIS SUCCESSFUL PROGRAM TO MEET STUDENT NEEDS MORE EFFECTIVELY. (AG)

TABLE 5

PARTICIPATION IN FFA BY
VOCATIONAL AGRICULTURE GRADUATES
CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Year	Member of FFA	Offices Held	Committee Chairmanships
	(years)	(number)	(number)
1967 N = 17	67	6	6
1968 N = 15	59	3	5
1969 N = 18	73	7	5
1970 N = 28	113	7	13
Total = 78	312	23	29

Summary Report of the Evaluation of the James Wood High School's Agricultural Education Department

John R. Crunkilton

Project Number 808366-1
Virginia Polytechnic Institute
and State University
Blacksburg, Virginia 24061

VT016262

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TABLE 6

OCCUPATIONAL CATEGORY OF THE VOCATIONAL AGRICULTURAL GRADUATES
CLASSES OF 1967, 1968, 1969, AND 1970
EMPLOYED DURING THEIR FIRST YEAR
AFTER GRADUATION FROM HIGH SCHOOL

Occupational Category	Number of Jobs Held	Percent of Jobs Held[1]
1967 Graduates N = 13		
Production Agriculture	3	23.0
Other Agricultural	2	15.4
Non-Agricultural	8	61.5
Subtotal	13	99.9
1968 Graduates N = 9		
Production Agriculture	1	11.1
Other Agricultural	1	11.1
Non-Agricultural	7	77.7
Subtotal	9	99.9
1969 Graduates N = 13		
Production Agriculture	3	23.1
Other Agricultural	3	23.1
Non-Agricultural	7	53.8
Subtotal	13	100.0
1970 Graduates N = 22		
Production Agriculture	5	22.7
Other Agricultural	6	27.3
Non-Agricultural	11	50.0
Subtotal	22	100.0

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SUMMARY REPORT OF THE EVALUATION OF THE JAMES WOOD HIGH SCHOOL'S AGRICULTURAL EDUCATION DEPARTMENT

The above research project has been authorized through
Virginia Polytechnic Institute and State University,
Research Division

Project Number - 808366-1
Project Leader - John R. Crunkilton
Principal Investigator - John M. French
Department - Education
Grantor - State Department of Education, Division of Vocational Education
Amount of Award - $18,500
Period of Award - March 16, 1971 to June 30, 1971

TABLE 6 (continued)

Occupational Category	Number of Jobs Held	Percent of Jobs Held[1]
All Graduates N = 57[2]		
Production Agriculture	12	21.1
Other Agricultural	12	21.1
Non-Agricultural	33	57.9
Total	57	100.1

[1]Several columns do not equal 100 percent due to rounding of percentages.

[2]Figure represents those graduates who could be located.

ACKNOWLEDGEMENTS

Appreciation is expressed to those individuals and groups who have cooperated and provided valuable assistance during the conduct of this study:

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James Wood High School Vocational Agriculture graduates, adults in the James Wood High School District, and agricultural businesses in Frederick County;

Other persons who have contributed vital information and assistance during the conduct of this study.

TABLE 7

LENGTH OF TIME TO FIRST JOB AND BETWEEN JOBS
FOR VOCATIONAL AGRICULTURE GRADUATES, CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Year	Total Number of Jobs	Weeks to First Job[1]	Average Number of Weeks Between Jobs
1967 N = 17	31	312 (18.4)[2]	2
1968 N = 9	30	324 (30.0)[2]	5
1969 N = 12	19	156 (13.0)[2]	0
1970 N = 23	44	30 (1.3)[2]	4

[1]Weeks in this column were high because several respondents did not report any occupation until several years after graduation from high school. Most respondents indicated less than one week until they obtained their first job.

[2]Average number of weeks to first job

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STARTING AND ENDING HOURLY WAGE AND NUMBER OF HOURS WORKED EACH WEEK
FOR VOCATIONAL AGRICULTURE GRADUATES
CLASSES OF 1967, 1968, 1969, AND 1970
FOR FIRST YEAR AFTER GRADUATION FROM HIGH SCHOOL

Graduates by Year	Hours Worked per Week Average for All Jobs	Average Hourly Wage	
		Starting	Ending
1967 N = 17	49.8	$2.20	$2.37
1968 N = 9	39.7	$2.13	$2.36
1969 N = 12	48.2	$1.91	$2.02
1970 N = 23	40.4	$1.77	$1.89
Average	43.9	$1.96	$2.11

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TABLE 9

LEVEL OF JOB SATISFACTION AS REPORTED BY VOCATIONAL AGRICULTURE GRADUATES FOR JOBS HELD DURING FIRST YEAR AFTER GRADUATION FROM HIGH SCHOOL CLASSES OF 1967, 1968, 1969, AND 1970

Satisfaction Rating	Number of Jobs	Percent of Each Job[1]	Average[2] Satisfaction
1967 Graduates			
Highly satisfied	3	23.1	
Satisfied	4	30.8	
Non-committal	0	0.0	
Dissatisfied	1	7.7	1.90
Highly dissatisfied	0	0.0	
No Response	5	38.5	
Subtotal	13	100.1	
1968 Graduates			
Highly Satisfied	3	30.0	
Satisfied	1	10.0	
Non-committal	2	20.0	
Dissatisfied	1	10.0	2.10
Highly dissatisfied	0	0.0	
No Response	3	30.0	
Subtotal	10	100.0	

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TABLE 9 (continued)

Satisfaction Rating	Number of Jobs	Percent of Each Job[1]	Average[2] Satisfaction
1969 Graduates			
Highly satisfied	4	20.0	
Satisfied	5	25.0	
Non-committal	1	5.0	
Dissatisfied	1	5.0	1.90
Highly dissatisfied	0	0.0	
No Response	9	45.0	
Subtotal	20	100.0	
1970 Graduates			
Highly satisfied	15	40.5	
Satisfied	10	27.0	
Non-committal	4	10.8	
Dissatisfied	0	0.0	1.90
Highly dissatisfied	3	8.1	
No Response	5	13.5	
Subtotal	37	99.9	

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TABLE 9 (continued)

Satisfaction Rating	Number of Jobs	Percent of Each Job[1]	Average[2] Satisfaction
All Graduates			
Highly satisfied	25	31.3	
Satisfied	20	25.0	
Non-committal	7	8.8	
Dissatisfied	3	3.8	1.95
Highly dissatisfied	3	3.8	
No Response	22	27.5	
Total	80	100.2	

[1] Several columns do not equal 100 percent due to rounding of percentages.

[2] Satisfaction Scale (1 = Highly Satisfied, 2 = Satisfied, 3 = Non-committal 4 = Dissatisfied, 5 = Highly Dissatisfied)

TABLE 10

LEVEL OF SATISFACTION REPORTED BY EMPLOYERS
FOR MOST RECENT JOB FOR WHICH RATINGS WERE AVAILABLE FOR
VOCATIONAL AGRICULTURE GRADUATES, CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Years[1]	Technical Competence	Ability to Learn-Adjust	Personal Characteristics	Competence In: Reading	Writing	Mathematics	Work Habits	Average Rating[2]
1967 N = 7 SE = 3	1.6	1.7	1.9	1.9	1.9	1.9	1.8	1.81
1968 N = 6 SE = 2	2.5	1.9	1.7	2.0	2.0	2.0	1.7	1.97
1969 N = 7 SE = 2	1.5	1.5	1.7	1.8	1.8	1.8	1.7	1.69
1970 N = 11 SE = 6	2.1	1.7	1.8	2.0	2.0	2.0	1.6	1.89

[1]SE = Self-Employed (Individuals not included in the satisfaction rating.)

[2]Code: 1 = Highly satisfied; 2 = Satisfied; 3 = Dissatisfied

1973

TABLE 11

SOCIAL ACTIVITIES, LEISURE TIME ACTIVITIES,
MARITAL STATUS, AND PLACE OF RESIDENCE OF THE
VOCATIONAL AGRICULTURE GRADUATES, CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Year	Memberships in Organizations	Number of Leisure Time Activities	Marital Status[1]			Residence[2]			
			M	S	NR	P	A	S	NR
1967 N = 11	10	73	7	3	1	4	5	1	1
1968 N = 11	6	26	4	6	1	8	1	2	0
1969 N = 15	5	51	5	10	0	10	2	3	0
1970 N = 24	27	93	2	21	1	20	1	3	0

[1] S = Single; M = Married; NR = No response

[2] Residence: P = Live with parents; A = Live in apartment; S = Own residence; NR = No response

TABLE 12

OCCUPATIONS OF THE VOCATIONAL AGRICULTURE GRADUATES,
CLASSES OF 1967, 1968, 1969, AND 1970

Student Number	Job titles in order jobs were taken[1]			
	First	Second	Third	Fourth
1967 Graduates				
01	Service Station Attendant			
02	Mechanic (Garage)			
03	Diesel Mechanic			
04	Grinder Operator (Mfg. Co.)	Self-employed (Nursery)		
05	Farmer (Orchard)			
06	Sales Clerk	Sales Clerk		
07	Labor (Farm)	Labor (Nursery)	Labor	
08	Horticulturist			
09	Labor	Labor		
10	Labor	Labor (Mfg. Co.)	Service Station (Manager)	Labor (Mfg. Co.)
11	Textile Worker (Mfg. Co.)	Color Expert (Mfg. Co.)		
12	Farm Labor			
13	Labor (Mfg. Co.)	Labor (Agricultural Machine Dealer)	Labor	Truck Driver
14	Truck Driver			
15	Farmer (Self-employed)			

1875

TABLE 12 (continued)

Student Number	Job titles in order jobs were taken[1] First	Second	Third	Fourth
1968 Graduates				
16	Machine Operator (Mfg. Co.)	Construction Worker	Farmer (Self-employed)	
17	Bus Driver	Gas Station Attendant	Gas Station Attendant	Labor (Produce)
18	Labor (Mfg. Co.)			
19	Labor (Mfg. Co.)	Labor (Produce Co.)		
20	Labor			
21	Salesman and Truck Driver (Soft Drink Co.)			
22	Labor (Farm)	Labor (Fruit Co.)	Labor	Labor (Mfg. Co.)
23	Mechanic (Garage)			
24	Veterinary Assistant			
25	Egg Farmer (Self-employed)			
26	Mechanic	Mechanic (Garage)		

1976

TABLE 12 (continued)

Student Number	Job titles in order jobs were taken[1] First	Second	Third	Fourth
1969 Graduates				
27	Labor (Tree Co.)	Handy Man (Newspaper)		
28	Department Store Manager	Labor		
29	Labor (Livestock Market)			
30	Truck Driver (Southern States)			
31	Operator (Mfg. Co.)			
32	Mechanic (Garage)			
33	Body & Fender Repairman (Garage)	Machine Operator (Mfg. Co.)	Material Handler (Mfg. Co.)	
34	Clerk	Clerk		
35	Superintendent (Perry, Inc.)			
36	Equipment Operator			
37	Labor (Farm)	Labor (Construction)		
38	Farmer (Self-employed)			
39	Farmer (Self-employed)			
40	Clerk	Labor (Gas Co.)	Labor (Fruit Co.)	Labor

1877

TABLE 12 (continued)

Student Number	Job titles in order jobs were taken[1] First	Second	Third	Fourth
1970 Graduates				
41	Farmer (Self-employed)			
42	Salesman (Fruit Co.)	Salesman	Labor (Mfg. Co.)	
43	Salesman (TV Shop)	Roofer's Helper		
44	Farmer (Self-employed)			
45	Farmer (Self-employed)			
46	Stockroom Clerk			
47	Labor	Truck Driver (Fruit Co.)	Diesel Mechanic (Garage)	Mechanic (Self-employed)
48	Farmer (Self-employed)			
49	Farmer (Self-employed)			
50	Labor (Farm)			
51	Labor (Construction)	Labor (Construction)		
52	Labor			
53	Mechanic (Garage)			
54	Labor (Farm Bureau)			
55	Labor (Restaurant)			
56	Receiving (Mfg. Co.)			
57	Mechanic (Agricultural Machine Dealer)	Sales Clerk (Nursery)	Labor (Nursery)	
58	Stockroom Clerk			
59	Farmhand	Farmhand	Clerk (Produce Sales)	
60	Mechanic (Agricultural Machine Dealer)			
61	Labor (Fruit Co.)	Labor		
62	Labor (Mfg. Co.)			
63	Labor (Agricultural Machine Dealer)	Labor (Construction)	Labor (Fruit Co.)	Labor (Service Station)
64	Labor			

[1] Job titles were listed as given by the graduates.

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TABLE 13

Individual Student: Content - Use Inventory
1967 Graduates
N = 13

Content - Use Inventory Item	Used in/or because of Jobs Held (1)	Used, but not in Jobs Held (2)	Did Not Use (3)	Weighted Score - 1 (4)
Area: Guidance and Leadership				
1. Locating, applying for, and obtaining job	7	0	6	14
2. Becoming established in a business in a "self-employment" capacity	4	0	9	8
3. Serving as an active member of an organization or organized group	2	2	9	6
4. Using parliamentary procedure	2	2	9	6
5. Serving as a member or chairman of an organization	2	2	9	6
6. Serving as an officer of an organization	1	2	10	4
7. Conducting a meeting of a group of people	2	2	9	6
8. Planning and evaluating programs of work for organized groups	3	3	7	9
9. Preparing a display or writing a news article	1	2	10	4

TABLE 13 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
10. Giving a talk before a group of people	2	3	8	7
11. Participating in a public service activity	2	1	9	5
12. Explaining farming to an individual or group of people	0	5	7	5
13. Explaining agriculture to an individual or group of people	0	3	9	3
14. Explaining agricultural occupation to an individual or group of people	0	5	7	5

Area: Livestock and Poultry and Their Products

7 Beef	1 Sheep	0 Ducks
5 Dairy	3 Swine	0 Geese
3 Horses	3 Chickens	0 Turkeys
	1 Wild Life (animals and birds)	

____ Other animal or specialty (list) _____

____ Sales and services related to area

15. Identifying breeds and types	2	3	8	7
16. Judging	1	0	10	2
17. Selecting for purchase	2	2	9	6

TABLE 13 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
18. Determining prices for purchase or sale	3	2	8	8
19. Purchasing	2	3	8	7
20. Feeding and caring for breeding flock or herd (at any age)	2	4	7	8
21. Feeding and caring for the young	3	3	7	9
22. Feeding and caring for the producing flock or herd	3	2	8	8
23. Feeding and caring for the market flock or herd	3	3	7	9
24. Planning, balancing and preparing rations	4	1	8	9
25. Purchasing feed and supplies	3	2	8	8
26. Providing and maintaining housing	4	2	7	10
27. Providing, maintaining, and operating equipment	8	2	3	18
28. Planning for disease or parasite prevention and control	2	0	11	4
29. Treating for diseases or parasites	2	1	10	5

TABLE 13 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
30. Identifying diseases or parasites	2	1	10	5
31. Training and handling	2	2	9	6
32. Preparing for sale	2	2	9	6
33. Selling	2	2	9	6
34. Selecting for sale	2	2	9	6
35. Planning a breeding program and breeding	2	1	10	5
36. Keeping and using enterprise records	3	1	9	7
37. Registering with breed association	2	0	11	4
38. Identifying cuts of meat	2	1	10	5
39. Processing for market	3	0	10	6
40. Storing	2	0	11	4
41. Transporting	4	0	9	8
42. Inspecting	1	0	12	2
43. Grading	1	0	12	2
44. Testing milk	0	0	13	0
45. Milking	3	1	9	7
46. Shearing or clipping	0	0	11	0

TABLE 13 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
Area: Plants and Soils				
7 Field crops		4 Nursery products		
6 Forage crops		3 Greenhouse products		
4 Fruit crops		2 Forest products		
6 Vegetable crops		5 Soils and fertilizer		
1 Turf		5 Water		
		1 Wild life (plants)		
1 Specialty crops (list) _____				
1 Sales and services related to area				
47. Identifying seeds and plants	3	1	9	7
48. Selecting and purchasing	4	1	8	9
49. Judging	2	0	11	4
50. Determining price	3	1	9	7
51. Taking soil samples	2	1	10	5
52. Testing soil	1	1	11	3
53. Interpreting soil tests	1	1	11	3
54. Preparing soil for planting	5	3	5	13
55. Selecting and purchasing fertilizer	4	1	8	9
56. Applying fertilizer	5	1	7	11
57. Blending or mixing fertilizer	2	1	10	5

TABLE 13 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
58. Identifying nutrient deficiencies in plants	2	1	10	5
59. Planting seeds	5	3	5	13
60. Planting seedlings and other plants	4	3	6	11
61. Propagating plants through grafting, layering, etc.	2	1	10	5
62. Identifying weed seeds and weeds	3	1	9	7
63. Selling supplies and materials used for growing plants	3	1	9	7
64. Buying and applying chemicals for weed control	2	2	9	6
65. Drying crops artificially	1	0	12	2
66. Identifying insects	3	1	9	7
67. Buying and applying chemicals for insect control	3	1	9	7
68. Identifying plant diseases	3	0	10	6
69. Treating plants for disease control	3	0	10	6
70. Harvesting	4	2	7	10
71. Storing	4	2	7	10
72. Marketing	3	1	9	7
73. Preparing for market	3	1	9	7

TABLE 13 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
74. Transporting	3	1	9	7
75. Producing hybrid and certified seed	1	0	12	2
76. Conducting plant breeding work	1	0	12	2
77. Processing	1	0	12	2
78. Inspecting	1	0	12	2
79. Grading	2	0	11	4
80. Pruning and training	4	1	8	9
81. Classifying soil	0	0	13	0
82. Controlling brush	3	2	8	8
83. Caring for a woodlot	2	2	9	6
84. Working the soil	5	3	5	13
85. Managing pastures	3	1	9	7
86. Maintaining organic matter in the soil	3	0	10	6
87. Thinning fruit and plants	3	1	9	7
Area: Agricultural Mechanics (including related sales and services activities for each item)				
88. Using safety equipment and practices in mechanics work	10	1	2	21
89. Reconditioning and caring for hand tools	9	2	2	20

TABLE 13 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
90. Performing carpentry or other work with wood	7	3	3	17
91. Maintaining, operating, and caring for power equipment	8	3	2	19
92. Performing cold metal work	6	3	4	15
93. Performing sheet metal work	6	3	4	15
94. Performing hot metal work	5	3	5	13
95. Performing masonry work	4	3	6	11
96. Performing concrete work	6	3	4	15
97. Performing plumbing work	7	1	5	15
98. Performing electrical wiring work	5	5	3	15
99. Servicing and repairing electric motors	7	2	4	16
100. Welding with oxy-acetylene gas (gas welding)	8	0	5	16
101. Welding with electricity (arc welding)	8	0	5	16
102. Adjusting and/or assembling machinery	10	1	2	21

TABLE 13 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
103. Repairing, maintaining, and operating machinery	9	1	3	19
104. Overhauling, maintaining, and using small engines	10	1	2	21
105. Overhauling, maintaining, and using tractors and stationary engines	7	1	5	15
106. Planning, installing and maintaining a drainage system	3	2	8	8
107. Planning and building conservation structures	2	0	11	4
108. Planning, installing, and maintaining an irrigation system	0	1	12	1
109. Planning and installing a water supply system	5	0	8	10
110. Planning and developing a mechanics shop	3	4	6	10
111. Using complex electrical controls	5	3	5	13
112. Planning and using automatic feed handling systems	1	1	11	3

TABLE 13 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
113. Planning and building fences	3	2	8	8
114. Surveying	0	1	12	1

Area: Management and Operation of Agricultural Businesses

7 Farm	4 Agricultural processing and marketing
1 Greenhouse	7 Supplies and services
1 Nursery	1 Recreation and wildlife
8 Machinery and equipment	4 Forestry and conservation

____ Other areas (please specify) _____

115. Keeping and using records	5	2	6	12
116. Preparing income and social security tax statements	4	3	6	11
117. Planning a cropping system	3	0	10	6
118. Planning a livestock system	2	0	11	4
119. Developing and operating an agricultural recreation business	0	0	13	0
120. Planning and using a financial budget	5	2	6	12
121. Making a soil conservation plan	1	0	12	2
122. Working with government agricultural programs	2	2	9	6

TABLE 13 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
123. Determining need for and extending or obtaining credit	2	4	7	8
124. Planning a marketing program	3	0	10	6
125. Using knowledge of agricultural law	4	1	8	9
126. Determining need for and selling or purchasing insurance	3	5	5	11
127. Determining need for and purchasing machinery and equipment	5	1	7	11
128. Determining need for and purchasing land and buildings	3	3	7	9
129. Managing woodlots and forests	2	2	9	6
130. Managing a farm	3	1	9	7
131. Managing a non-farm agricultural business	1	1	11	3
132. Determining soil capability	2	1	10	5
133. Planning a soil fertility program	4	0	9	8
134. Taking an inventory	7	1	5	15
135. Preparing or using a lease or agreement	3	1	9	7

TABLE 13 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
136. Determining need for and securing labor personnel	6	1	6	13
137. Managing personnel	4	1	8	9
138. Contracting for production or other project	2	3	7	7
139. Planning for safety	7	1	4	15
140. Promoting sales	6	1	5	13
Area: General				
141. Planning for and using community services (schools, churches, parks, etc.)	3	2	7	8
142. Raising food for home consumption	5	5	2	15
143. Planning and promoting wild life conservation	2	1	9	5
144. Designing a landscape plan	3	0	9	6
145. Installing a landscape plan	3	0	9	6
146. Other (specify)				

1 - Weighted score: Two times frequency of responses in Column 1, one times the frequency of responses in Column 2, and zero times the frequency of responses in Column 3.

TABLE 14

Individual Student: Content - Use Inventory
1968 Graduates
N = 11

Content - Use Inventory Item	Used in/or because of Jobs Held (1)	Used, but not in Jobs Held (2)	Did Not Use (3)	Weighted Score - 1 (4)
Area: Guidance and Leadership				
1. Locating, applying for, and obtaining job	8	1	2	17
2. Becoming established in a business in a "self-employment" capacity	1	0	10	2
3. Serving as an active member of an organization or organized group	3	2	6	8
4. Using parliamentary procedure	1	2	8	4
5. Serving as a member or chairman of an organization	1	3	7	5
6. Serving as an officer of an organization	1	2	8	4
7. Conducting a meeting of a group of people	1	3	7	5
8. Planning and evaluating programs of work for organized groups	1	3	7	5
9. Preparing a display or writing a news article	1	2	8	4

TABLE 14 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
10. Giving a talk before a group of people	2	2	7	6
11. Participating in a public service activity	2	2	7	6
12. Explaining farming to an individual or group of people	3	2	6	8
13. Explaining agriculture to an individual or group of people	3	3	5	9
14. Explaining agricultural occupation to an individual or group of people	3	2	6	8

Area: Livestock and Poultry and Their Products

7 Beef	4 Sheep	0 Ducks
6 Dairy	8 Swine	0 Geese
2 Horses	5 Chickens	1 Turkeys
	2 Wild Life (animals and birds)	

____ Other animal or specialty (list) _____

2 Sales and services related to area

15. Identifying breeds and types	2	2	7	6
16. Judging	1	1	9	3
17. Selecting for purchase	2	3	6	7

TABLE 14 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
18. Determining prices for purchase or sale	2	3	6	7
19. Purchasing	3	3	5	9
20. Feeding and caring for breeding flock or herd (at any age)	3	4	4	10
21. Feeding and caring for the young	5	3	3	13
22. Feeding and caring for the producing flock or herd	5	3	3	13
23. Feeding and caring for the market flock or herd	5	2	4	12
24. Planning, balancing and preparing rations	2	3	6	7
25. Purchasing feed and supplies	5	3	3	13
26. Providing and maintaining housing	5	2	4	12
27. Providing, maintaining, and operating equipment	5	3	3	13
28. Planning for disease or parasite prevention and control	4	1	6	9
29. Treating for diseases or parasites	4	3	4	11

TABLE 14 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
30. Identifying diseases or parasites	3	1	7	7
31. Training and handling	1	2	8	4
32. Preparing for sale	2	3	6	7
33. Selling	4	3	4	11
34. Selecting for sale	2	4	5	8
35. Planning a breeding program and breeding	0	1	10	1
36. Keeping and using enterprise records	2	2	7	6
37. Registering with breed association	2	0	9	4
38. Identifying cuts of meat	1	0	10	2
39. Processing for market	2	0	9	4
40. Storing	1	0	10	2
41. Transporting	5	0	6	10
42. Inspecting	3	0	8	6
43. Grading	1	0	10	2
44. Testing milk	1	0	10	2
45. Milking	1	4	5	6
46. Shearing or clipping	1	2	8	4

TABLE 14 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
Area: Plants and Soils				
7 Field crops		2 Nursery products		
4 Forage crops		0 Greenhouse products		
6 Fruit crops		3 Forest products		
5 Vegetable crops		4 Soils and fertilizer		
0 Turf		3 Water		
		1 Wild life (plants)		
0 Specialty crops (list)				
3 Sales and services related to area				
47. Identifying seeds and plants	1	1	9	3
48. Selecting and purchasing	2	3	6	7
49. Judging	0	0	11	0
50. Determining price	0	1	10	1
51. Taking soil samples	1	1	9	3
52. Testing soil	0	2	9	2
53. Interpreting soil tests	0	1	10	1
54. Preparing soil for planting	4	2	5	10
55. Selecting and purchasing fertilizer	3	3	5	9
56. Applying fertilizer	4	4	3	12
57. Blending or mixing fertilizer	1	2	8	4

TABLE 14 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
58. Identifying nutrient deficiencies in plants	3	1	7	7
59. Planting seeds	4	3	4	11
60. Planting seedlings and other plants	4	4	3	12
61. Propagating plants through grafting, layering, etc.	3	0	8	6
62. Identifying weed seeds and weeds	2	1	8	5
63. Selling supplies and materials used for growing plants	1	0	10	2
64. Buying and applying chemicals for weed control	3	1	7	7
65. Drying crops artificially	0	0	11	0
66. Identifying insects	3	2	6	8
67. Buying and applying chemicals for insect control	4	0	7	8
68. Identifying plant diseases	3	0	8	6
69. Treating plants for disease control	3	1	7	7
70. Harvesting	4	5	2	13
71. Storing	4	4	3	12
72. Marketing	2	2	7	6
73. Preparing for market	2	0	9	4

TABLE 14 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
74. Transporting	4	0	7	8
75. Producing hybrid and certified seed	0	0	11	0
76. Conducting plant breeding work	0	1	10	1
77. Processing	1	0	10	2
78. Inspecting	1	0	10	2
79. Grading	1	0	10	2
80. Pruning and training	3	0	8	6
81. Classifying soil	1	0	9	2
82. Controlling brush	4	1	6	9
83. Caring for a woodlot	3	0	8	6
84. Working the soil	5	2	4	12
85. Managing pastures	5	1	5	11
86. Maintaining organic matter in the soil	4	2	4	10
87. Thinning fruit and plants	3	2	5	8
Area: Agricultural Mechanics (including related sales and services activities for each item)				
88. Using safety equipment and practices in mechanics work	9	1	1	19
89. Reconditioning and caring for hand tools	8	3	0	19

TABLE 14 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
90. Performing carpentry or other work with wood	5	5	1	15
91. Maintaining, operating, and caring for power equipment	9	1	1	19
92. Performing cold metal work	6	2	3	14
93. Performing sheet metal work	4	3	4	11
94. Performing hot metal work	5	1	5	11
95. Performing masonry work	2	0	9	4
96. Performing concrete work	3	2	6	8
97. Performing plumbing work	5	2	4	12
98. Performing electrical wiring work	7	3	1	17
99. Servicing and repairing electric motors	4	2	5	10
100. Welding with oxy-acetylene gas (gas welding)	6	2	3	14
101. Welding with electricity (arc welding)	6	1	4	13
102. Adjusting and/or assembling machinery	8	2	1	18

TABLE 14 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
103. Repairing, maintaining, and operating machinery	8	2	1	18
104. Overhauling, maintaining, and using small engines	6	4	1	16
105. Overhauling, maintaining, and using tractors and stationary engines	6	3	2	15
106. Planning, installing and maintaining a drainage system	2	0	9	4
107. Planning and building conservation structures	0	1	10	1
108. Planning, installing, and maintaining an irrigation system	0	1	10	1
109. Planning and installing a water supply system	3	2	6	8
110. Planning and developing a mechanics shop	2	0	9	4
111. Using complex electrical controls	2	1	8	5
112. Planning and using automatic feed handling systems	2	0	9	4

TABLE 14 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
113. Planning and building fences	5	1	5	11
114. Surveying	0	0	11	0

Area: Management and Operation of Agricultural Businesses

7 Farm

0 Greenhouse

0 Nursery

5 Machinery and equipment

4 Agricultural processing and marketing

3 Supplies and services

0 Recreation and wildlife

1 Forestry and conservation

____ Other areas (please specify) _____

115. Keeping and using records	4	3	4	11
116. Preparing income and social security tax statements	2	5	4	9
117. Planning a cropping system	2	1	8	5
118. Planning a livestock system	3	1	6	7
119. Developing and operating an agricultural recreation business	0	1	10	1
120. Planning and using a financial budget	2	2	7	6
121. Making a soil conservation plan	1	1	9	3
122. Working with government agricultural programs	2	0	9	4

TABLE 14 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
123. Determining need for and extending or obtaining credit	3	4	4	10
124. Planning a marketing program	2	3	6	7
125. Using knowledge of agricultural law	2	3	6	7
126. Determining need for and selling or purchasing insurance	1	2	8	4
127. Determining need for and purchasing machinery and equipment	4	2	5	10
128. Determining need for and purchasing land and buildings	1	2	8	4
129. Managing woodlots and forests	1	0	10	2
130. Managing a farm	4	2	5	10
131. Managing a non-farm agricultural business	1	0	10	2
132. Determining soil capability	1	1	9	3
133. Planning a soil fertility program	2	1	8	5
134. Taking an inventory	2	0	9	4
135. Preparing or using a lease or agreement	2	0	9	4

TABLE 14 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
136. Determining need for and securing labor personnel	1	0	10	2
137. Managing personnel	2	1	8	5
138. Contracting for production or other project	0	0	11	0
139. Planning for safety	5	2	4	12
140. Promoting sales	4	0	7	8
Area: General				
141. Planning for and using community services (schools, churches, parks, etc.)	1	4	6	6
142. Raising food for home consumption	4	5	2	13
143. Planning and promoting wild life conservation	1	1	9	3
144. Designing a landscape plan	2	0	9	4
145. Installing a landscape plan	0	0	11	0
146. Other (specify)				

1 - Weighted score: Two times frequency of responses in Column 1, one times the frequency of responses in Column 2, and zero times the frequency of responses in Column 3.

TABLE 15

Individual Student: Content - Use Inventory
1969 Graduates
N = 14

Content - Use Inventory Item	Used in/or because of Jobs Held (1)	Used, but not in Jobs Held (2)	Did Not Use (3)	Weighted Score - 1 (4)
Area: Guidance and Leadership				
1. Locating, applying for, and obtaining job	10	0	4	20
2. Becoming established in a business in a "self-employment" capacity	4	1	9	9
3. Serving as an active member of an organization or organized group	1	5	8	7
4. Using parliamentary procedure	1	5	8	7
5. Serving as a member or chairman of an organization	0	1	13	1
6. Serving as an officer of an organization	0	1	13	1
7. Conducting a meeting of a group of people	4	1	9	9
8. Planning and evaluating programs of work for organized groups	3	2	9	8
9. Preparing a display or writing a news article	1	4	9	6

TABLE 15 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
10. Giving a talk before a group of people	3	4	7	10
11. Participating in a public service activity	3	3	8	9
12. Explaining farming to an individual or group of people	3	5	6	11
13. Explaining agriculture to an individual or group of people	6	1	7	13
14. Explaining agricultural occupation to an individual or group of people	3	4	7	10

Area: Livestock and Poultry and Their Products

11 Beef	3 Sheep	1 Ducks
4 Dairy	8 Swine	1 Geese
4 Horses	6 Chickens	1 Turkeys
	5 Wild Life (animals and birds)	

0 Other animal or specialty (list) _____

3 Sales and services related to area

15. Identifying breeds and types	3	5	6	11
16. Judging	2	3	9	7
17. Selecting for purchase	4	4	6	12

TABLE 15 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
18. Determining prices for purchase or sale	3	5	6	11
19. Purchasing	3	3	8	9
20. Feeding and caring for breeding flock or herd (at any age)	5	6	3	16
21. Feeding and caring for the young	5	5	4	15
22. Feeding and caring for the producing flock or herd	3	6	5	12
23. Feeding and caring for the market flock or herd	3	5	6	11
24. Planning, balancing and preparing rations	1	4	9	6
25. Purchasing feed and supplies	4	5	5	13
26. Providing and maintaining housing	1	7	6	9
27. Providing, maintaining, and operating equipment	5	9	0	19
28. Planning for disease or parasite prevention and control	3	3	8	9
29. Treating for diseases or parasites	4	4	6	12

TABLE 15 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
30. Identifying diseases or parasites	2	4	8	8
31. Training and handling	2	3	9	7
32. Preparing for sale	3	1	10	7
33. Selling	4	2	8	10
34. Selecting for sale	3	2	9	8
35. Planning a breeding program and breeding	1	4	9	6
36. Keeping and using enterprise records	1	2	11	4
37. Registering with breed association	0	1	13	1
38. Identifying cuts of meat	1	4	9	6
39. Processing for market	1	1	12	3
40. Storing	1	2	11	4
41. Transporting	3	3	8	9
42. Inspecting	2	0	12	4
43. Grading	2	1	11	5
44. Testing milk	1	0	13	2
45. Milking	0	2	12	2
46. Shearing or clipping	0	1	13	1

TABLE 15 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
Area: Plants and Soils				
10 Field crops		1 Nursery products		
5 Forage crops		2 Greenhouse products		
7 Fruit crops		5 Forest products		
3 Vegetable crops		7 Soils and fertilizer		
3 Turf		6 Water		
		4 Wild life (plants)		
0 Specialty crops (list) _____				
2 Sales and services related to area				
47. Identifying seeds and plants	1	5	8	7
48. Selecting and purchasing	2	5	7	9
49. Judging	1	1	12	3
50. Determining price	2	4	7	8
51. Taking soil samples	1	2	11	4
52. Testing soil	0	1	13	1
53. Interpreting soil tests	1	3	10	5
54. Preparing soil for planting	3	8	3	14
55. Selecting and purchasing fertilizer	3	6	5	12
56. Applying fertilizer	5	6	3	16
57. Blending or mixing fertilizer	0	4	10	4

TABLE 15 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
58. Identifying nutrient deficiencies in plants	0	2	12	2
59. Planting seeds	3	6	5	12
60. Planting seedlings and other plants	4	5	5	13
61. Propagating plants through grafting, layering, etc.	0	0	14	0
62. Identifying weed seeds and weeds	1	2	11	4
63. Selling supplies and materials used for growing plants	1	1	12	3
64. Buying and applying chemicals for weed control	3	4	7	10
65. Drying crops artificially	1	0	11	2
66. Identifying insects	3	5	4	11
67. Buying and applying chemicals for insect control	3	4	5	10
68. Identifying plant diseases	3	1	8	7
69. Treating plants for disease control	3	2	7	8
70. Harvesting	4	6	2	14
71. Storing	1	6	5	8
72. Marketing	3	1	8	7
73. Preparing for market	3	1	8	7

TABLE 15 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
74. Transporting	3	1	8	7
75. Producing hybrid and certified seed	0	0	12	0
76. Conducting plant breeding work	0	0	12	0
77. Processing	2	0	10	4
78. Inspecting	2	1	9	5
79. Grading	2	0	10	4
80. Pruning and training	4	0	8	8
81. Classifying soil	0	1	11	1
82. Controlling brush	2	4	6	8
83. Caring for a woodlot	2	2	8	6
84. Working the soil	3	6	3	12
85. Managing pastures	2	2	8	6
86. Maintaining organic matter in the soil	2	3	8	7
87. Thinning fruit and plants	2	1	10	5
Area: Agricultural Mechanics (including related sales and services activities for each item)				
88. Using safety equipment and practices in mechanics work	8	3	2	19
89. Reconditioning and caring for hand tools	8	1	4	17

TABLE 15 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
90. Performing carpentry or other work with wood	5	3	5	13
91. Maintaining, operating, and caring for power equipment	7	3	3	17
92. Performing cold metal work	5	1	7	11
93. Performing sheet metal work	4	1	8	9
94. Performing hot metal work	4	2	7	10
95. Performing masonry work	3	4	6	10
96. Performing concrete work	5	4	4	14
97. Performing plumbing work	5	3	5	13
98. Performing electrical wiring work	6	1	6	13
99. Servicing and repairing electric motors	3	3	7	9
100. Welding with oxy-acetylene gas (gas welding)	6	4	3	16
101. Welding with electricity (arc welding)	6	3	4	15
102. Adjusting and/or assembling machinery	8	2	3	18

TABLE 15 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
103. Repairing, maintaining, and operating machinery	8	3	2	19
104. Overhauling, maintaining, and using small engines	4	2	7	10
105. Overhauling, maintaining, and using tractors and stationary engines	3	4	6	10
106. Planning, installing and maintaining a drainage system	3	3	7	9
107. Planning and building conservation structures	3	1	9	7
108. Planning, installing, and maintaining an irrigation system	0	0	13	0
109. Planning and installing a water supply system	2	1	10	5
110. Planning and developing a mechanics shop	4	2	7	10
111. Using complex electrical controls	2	1	10	5
112. Planning and using automatic feed handling systems	1	0	12	2

TABLE 15 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
113. Planning and building fences	2	7	4	11
114. Surveying	1	0	12	2

Area: Management and Operation of Agricultural Businesses

8	Farm	5	Agricultural processing and marketing
1	Greenhouse	5	Supplies and services
1	Nursery	2	Recreation and wildlife
9	Machinery and equipment	3	Forestry and conservation

____ Other areas (please specify) _____

115. Keeping and using records	6	1	6	13
116. Preparing income and social security tax statements	4	3	6	11
117. Planning a cropping system	1	2	10	4
118. Planning a livestock system	1	2	10	4
119. Developing and operating an agricultural recreation business	0	0	13	0
120. Planning and using a financial budget	3	2	8	8
121. Making a soil conservation plan	1	1	11	3
122. Working with government agricultural programs	0	1	12	1

TABLE 15 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
123. Determining need for and extending or obtaining credit	3	5	6	11
124. Planning a marketing program	0	1	13	1
125. Using knowledge of agricultural law	3	2	9	8
126. Determining need for and selling or purchasing insurance	3	4	7	10
127. Determining need for and purchasing machinery and equipment	5	5	4	15
128. Determining need for and purchasing land and buildings	5	2	7	12
129. Managing woodlots and forests	2	1	11	5
130. Managing a farm	1	2	11	4
131. Managing a non-farm agricultural business	1	0	13	2
132. Determining soil capability	1	3	10	5
133. Planning a soil fertility program	1	3	10	5
134. Taking an inventory	6	1	7	13
135. Preparing or using a lease or agreement	2	1	11	5

TABLE 15 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
136. Determining need for and securing labor personnel	4	1	9	9
137. Managing personnel	3	0	11	6
138. Contracting for production or other project	2	2	9	6
139. Planning for safety	5	3	5	13
140. Promoting sales	4	1	8	9
Area: General				
141. Planning for and using community services (schools, churches, parks, etc.)	1	3	9	5
142. Raising food for home consumption	3	7	3	13
143. Planning and promoting wild life conservation	0	4	9	4
144. Designing a landscape plan	1	2	10	4
145. Installing a landscape plan	1	1	11	3
146. Other (specify)				

1 - Weighted score: Two times frequency of responses in Column 1, one times the frequency of responses in Column 2, and zero times the frequency of responses in Column 3.

TABLE 16

Individual Student: Content - Use Inventory
1970 Graduates
N = 24

Content - Use Inventory Item	Used in/or because of Jobs Held (1)	Used, but not in Jobs Held (2)	Did Not Use (3)	Weighted Score - 1 (4)
Area: Guidance and Leadership				
1. Locating, applying for, and obtaining job	13	6	5	32
2. Becoming established in a business in a "self-employment" capacity	7	3	14	17
3. Serving as an active member of an organization or organized group	6	4	14	16
4. Using parliamentary procedure	4	8	12	16
5. Serving as a member or chairman of an organization	1	2	21	4
6. Serving as an officer of an organization	1	2	20	4
7. Conducting a meeting of a group of people	2	4	18	8
8. Planning and evaluating programs of work for organized groups	5	3	15	13
9. Preparing a display or writing a news article	2	3	19	7

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TABLE 16 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
10. Giving a talk before a group of people	2	5	17	9
11. Participating in a public service activity	6	5	13	17
12. Explaining farming to an individual or group of people	6	2	16	14
13. Explaining agriculture to an individual or group of people	8	2	13	18
14. Explaining agricultural occupation to an individual or group of people	6	1	16	13

Area: Livestock and Poultry and Their Products

12 Beef	2 Sheep	1 Ducks
5 Dairy	10 Swine	0 Geese
7 Horses	3 Chickens	1 Turkeys
	7 Wild Life (animals and birds)	

____ Other animal or specialty (list) _____

1 Sales and services related to area

15. Identifying breeds and types	3	4	17	10
16. Judging	2	4	18	8
17. Selecting for purchase	4	6	14	14

TABLE 16 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
18. Determining prices for purchase or sale	4	4	16	12
19. Purchasing	3	4	17	10
20. Feeding and caring for breeding flock or herd (at any age)	5	6	13	16
21. Feeding and caring for the young	6	3	15	15
22. Feeding and caring for the producing flock or herd	8	0	16	16
23. Feeding and caring for the market flock or herd	5	2	17	12
24. Planning, balancing and preparing rations	6	3	15	15
25. Purchasing feed and supplies	6	5	13	17
26. Providing and maintaining housing	3	7	14	13
27. Providing, maintaining, and operating equipment	10	7	7	27
28. Planning for disease or parasite prevention and control	4	4	16	12
29. Treating for diseases or parasites	4	3	16	11

TABLE 16 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
30. Identifying diseases or parasites	2	5	17	9
31. Training and handling	2	5	17	9
32. Preparing for sale	3	2	19	8
33. Selling	5	2	17	12
34. Selecting for sale	3	4	17	10
35. Planning a breeding program and breeding	3	3	18	9
36. Keeping and using enterprise records	3	3	18	9
37. Registering with breed association	2	1	21	5
38. Identifying cuts of meat	2	2	20	6
39. Processing for market	3	0	21	6
40. Storing	2	3	19	7
41. Transporting	4	4	16	12
42. Inspecting	3	1	20	7
43. Grading	2	1	21	5
44. Testing milk	0	1	23	1
45. Milking	3	2	19	8
46. Shearing or clipping	3	0	21	6

TABLE 16 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
Area: Plants and Soils				
10 Field crops		7 Nursery products		
8 Forage crops		6 Greenhouse products		
10 Fruit crops		6 Forest products		
13 Vegetable crops		12 Soils and fertilizer		
3 Turf		9 Water		
		5 Wild life (plants)		
____ Specialty crops (list) _____				
____ Sales and services related to area				
47. Identifying seeds and plants	11	6	7	28
48. Selecting and purchasing	8	6	10	22
49. Judging	5	4	15	14
50. Determining price	6	5	13	17
51. Taking soil samples	5	4	15	14
52. Testing soil	2	4	18	8
53. Interpreting soil tests	4	3	17	11
54. Preparing soil for planting	9	7	8	25
55. Selecting and purchasing fertilizer	8	9	7	25
56. Applying fertilizer	8	9	7	25
57. Blending or mixing fertilizer	5	2	17	12

TABLE 16 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
58. Identifying nutrient deficiencies in plants	3	6	15	12
59. Planting seeds	11	8	5	30
60. Planting seedlings and other plants	8	7	9	23
61. Propagating plants through grafting, layering, etc.	3	3	18	9
62. Identifying weed seeds and weeds	6	5	13	17
63. Selling supplies and materials used for growing plants	8	0	16	16
64. Buying and applying chemicals for weed control	5	6	13	16
65. Drying crops artificially	3	0	21	6
66. Identifying insects	5	4	15	14
67. Buying and applying chemicals for insect control	6	6	12	18
68. Identifying plant diseases	3	4	17	10
69. Treating plants for disease control	4	5	15	13
70. Harvesting	8	6	10	22
71. Storing	6	6	12	18
72. Marketing	5	3	16	13
73. Preparing for market	6	3	15	15

TABLE 16 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
74. Transporting	6	4	14	16
75. Producing hybrid and certified seed	2	1	21	5
76. Conducting plant breeding work	1	1	22	3
77. Processing	2	2	20	6
78. Inspecting	1	1	22	3
79. Grading	3	0	21	6
80. Pruning and training	6	2	16	14
81. Classifying soil	3	4	17	10
82. Controlling brush	5	7	12	17
83. Caring for a woodlot	1	7	16	9
84. Working the soil	8	8	8	24
85. Managing pastures	6	4	14	16
86. Maintaining organic matter in the soil	6	5	13	17
87. Thinning fruit and plants	6	2	16	14
Area: Agricultural Mechanics (including related sales and services activities for each item)				
88. Using safety equipment and practices in mechanics work	13	5	6	31
89. Reconditioning and caring for hand tools	13	7	4	33

TABLE 16 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
90. Performing carpentry or other work with wood	13	7	4	33
91. Maintaining, operating, and caring for power equipment	15	6	3	36
92. Performing cold metal work	10	6	8	26
93. Performing sheet metal work	7	5	12	19
94. Performing hot metal work	6	3	15	15
95. Performing masonry work	5	7	12	17
96. Performing concrete work	5	5	14	15
97. Performing plumbing work	8	4	12	20
98. Performing electrical wiring work	10	8	6	28
99. Servicing and repairing electric motors	9	1	14	19
100. Welding with oxy-acetylene gas (gas welding)	10	3	10	23
101. Welding with electricity (arc welding)	10	4	9	24
102. Adjusting and/or assembling machinery	12	5	7	29

TABLE 16 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
103. Repairing, maintaining, and operating machinery	15	6	3	36
104. Overhauling, maintaining, and using small engines	6	6	12	18
105. Overhauling, maintaining, and using tractors and stationary engines	8	5	11	21
106. Planning, installing and maintaining a drainage system	5	5	14	15
107. Planning and building conservation structures	2	5	17	9
108. Planning, installing, and maintaining an irrigation system	2	2	20	6
109. Planning and installing a water supply system	3	4	16	10
110. Planning and developing a mechanics shop	4	5	15	13
111. Using complex electrical controls	4	3	17	11
112. Planning and using automatic feed handling systems	5	0	19	10

TABLE 16 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
113. Planning and building fences	7	5	12	19
114. Surveying	1	3	20	5

Area: Management and Operation of Agricultural Businesses

11 Farm	7 Agricultural processing and marketing
2 Greenhouse	8 Supplies and services
5 Nursery	6 Recreation and wildlife
14 Machinery and equipment	5 Forestry and conservation

___ Other areas (please specify) _____

115. Keeping and using records	8	4	12	20
116. Preparing income and social security tax statements	8	8	8	24
117. Planning a cropping system	2	4	18	8
118. Planning a livestock system	2	3	19	7
119. Developing and operating an agricultural recreation business	1	0	23	2
120. Planning and using a financial budget	3	8	13	14
121. Making a soil conservation plan	3	3	18	9
122. Working with government agricultural programs	1	1	22	3

TABLE 16 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
123. Determining need for and extending or obtaining credit	3	8	11	14
124. Planning a marketing program	1	2	19	4
125. Using knowledge of agricultural law	2	5	15	9
126. Determining need for and selling or purchasing insurance	4	3	14	11
127. Determining need for and purchasing machinery and equipment	5	4	13	14
128. Determining need for and purchasing land and buildings	3	2	17	8
129. Managing woodlots and forests	1	5	16	7
130. Managing a farm	2	1	19	5
131. Managing a non-farm agricultural business	4	2	17	10
132. Determining soil capability	3	3	17	9
133. Planning a soil fertility program	3	5	15	11
134. Taking an inventory	6	4	13	16
135. Preparing or using a lease or agreement	2	3	18	7

TABLE 16 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
136. Determining need for and securing labor personnel	2	1	20	5
137. Managing personnel	3	1	19	7
138. Contracting for production or other project	1	2	21	4
139. Planning for safety	7	7	10	21
140. Promoting sales	8	1	15	17
Area: General				
141. Planning for and using community services (schools, churches, parks, etc.)	2	10	12	14
142. Raising food for home consumption	7	9	8	23
143. Planning and promoting wild life conservation	2	7	15	11
144. Designing a landscape plan	2	2	20	6
145. Installing a landscape plan	1	2	21	4
146. Other (specify)				

1 - Weighted score: Two times frequency of responses in Column 1, one times the frequency of responses in Column 2, and zero times the frequency of responses in Column 3.

TABLE 17

Individual Student: Content - Use Inventory
All Graduates
N = 62

Content - Use Inventory Item	Used in/or because of Jobs Held (1)	Used, but not in Jobs Held (2)	Did Not Use (3)	Weighted Score - 1 (4)
Area: Guidance and Leadership				
1. Locating, applying for, and obtaining job	38	7	17	83
2. Becoming established in a business in a "self-employment" capacity	16	4	42	36
3. Serving as an active member of an organization or organized group	12	13	37	37
4. Using parliamentary procedure	8	17	37	33
5. Serving as a member or chairman of an organization	4	8	50	16
6. Serving as an officer of an organization	3	7	51	13
7. Conducting a meeting of a group of people	9	10	43	28
8. Planning and evaluating programs of work for organized groups	12	11	38	35
9. Preparing a display or writing a news article	5	11	46	21

TABLE 17 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
10. Giving a talk before a group of people	9	14	39	32
11. Participating in a public service activity	13	11	37	37
12. Explaining farming to an individual or group of people	12	14	35	38
13. Explaining agriculture to an individual or group of people	17	9	34	43
14. Explaining agricultural occupation to an individual or group of people	12	12	36	36

Area: Livestock and Poultry and Their Products

37	Beef	10	Sheep	2	Ducks
20	Dairy	29	Swine	1	Geese
16	Horses	17	Chickens	3	Turkeys
		15	Wild Life (animals and birds)		

____ Other animal or specialty (list) _____

6 Sales and services related to area

15.	Identifying breeds and types	10	14	38	34
16.	Judging	6	8	46	20
17.	Selecting for purchase	12	15	35	39

TABLE 17 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
18. Determining prices for purchase or sale	12	14	36	38
19. Purchasing	11	13	38	35
20. Feeding and caring for breeding flock or herd (at any age)	15	20	27	50
21. Feeding and caring for the young	19	14	29	52
22. Feeding and caring for the producing flock or herd	19	11	32	49
23. Feeding and caring for the market flock or herd	16	12	34	44
24. Planning, balancing and preparing rations	13	11	38	37
25. Purchasing feed and supplies	18	15	29	51
26. Providing and maintaining housing	13	18	31	44
27. Providing, maintaining, and operating equipment	28	21	13	77
28. Planning for disease or parasite prevention and control	13	8	41	34
29. Treating for diseases or parasites	14	11	36	39

TABLE 17 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
30. Identifying diseases or parasites	9	11	42	29
31. Training and handling	7	12	43	26
32. Preparing for sale	10	8	44	28
33. Selling	15	9	38	39
34. Selecting for sale	10	12	40	32
35. Planning a breeding program and breeding	6	9	47	21
36. Keeping and using enterprise records	9	8	45	26
37. Registering with breed association	6	2	54	14
38. Identifying cuts of meat	6	7	49	19
39. Processing for market	9	1	52	19
40. Storing	6	5	51	17
41. Transporting	16	7	39	39
42. Inspecting	9	1	52	19
43. Grading	6	2	54	14
44. Testing milk	2	1	59	5
45. Milking	7	9	45	23
46. Shearing or clipping	4	3	53	11

TABLE 17 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
Area: Plants and Soils				
34 Field crops		14 Nursery products		
23 Forage crops		11 Greenhouse products		
27 Fruit crops		16 Forest products		
27 Vegetable crops		28 Soils and fertilizer		
7 Turf		23 Water		
		11 Wild life (plants)		
1 Specialty crops (list) _____				
6 Sales and services related to area				
47. Identifying seeds and plants	16	13	33	45
48. Selecting and purchasing	16	15	31	47
49. Judging	8	5	49	21
50. Determining price	11	11	39	33
51. Taking soil samples	9	8	45	26
52. Testing soil	3	8	51	14
53. Interpreting soil tests	6	8	48	20
54. Preparing soil for planting	21	20	21	62
55. Selecting and purchasing fertilizer	18	19	25	55
56. Applying fertilizer	22	20	20	64
57. Blending or mixing fertilizer	8	9	45	25

TABLE 17 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
58. Identifying nutrient deficiencies in plants	8	10	44	26
59. Planting seeds	23	20	19	66
60. Planting seedlings and other plants	20	19	23	59
61. Propagating plants through grafting, layering, etc.	8	4	50	20
62. Identifying weed seeds and weeds	12	9	41	33
63. Selling supplies and materials used for growing plants	13	2	47	28
64. Buying and applying chemicals for weed control	13	13	36	39
65. Drying crops artificially	5	0	55	10
66. Identifying insects	14	12	34	40
67. Buying and applying chemicals for insect control	16	11	33	43
68. Identifying plant diseases	12	5	43	29
69. Treating plants for disease control	13	8	39	34
70. Harvesting	20	19	21	59
71. Storing	15	18	27	48
72. Marketing	13	7	40	33
73. Preparing for market	14	5	41	33

TABLE 17 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
74. Transporting	16	6	38	38
75. Producing hybrid and certified seed	3	1	56	7
76. Conducting plant breeding work	2	2	56	6
77. Processing	6	2	52	14
78. Inspecting	5	2	53	12
79. Grading	8	0	52	16
80. Pruning and training	17	3	40	37
81. Classifying soil	4	5	50	13
82. Controlling brush	14	14	32	42
83. Caring for a woodlot	8	11	41	27
84. Working the soil	21	19	20	61
85. Managing pastures	16	8	36	40
86. Maintaining organic matter in the soil	15	10	35	40
87. Thinning fruit and plants	14	6	40	34
Area: Agricultural Mechanics (including related sales and services activities for each item)				
88. Using safety equipment and practices in mechanics work	40	10	11	90
89. Reconditioning and caring for hand tools	38	13	10	89

TABLE 17 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
90. Performing carpentry or other work with wood	30	18	13	78
91. Maintaining, operating, and caring for power equipment	39	13	9	91
92. Performing cold metal work	27	12	22	66
93. Performing sheet metal work	21	12	28	54
94. Performing hot metal work	20	9	32	49
95. Performing masonry work	14	14	33	42
96. Performing concrete work	19	14	28	52
97. Performing plumbing work	25	10	26	60
98. Performing electrical wiring work	28	17	16	73
99. Servicing and repairing electric motors	23	8	30	54
100. Welding with oxy-acetylene gas (gas welding)	30	9	21	69
101. Welding with electricity (arc welding)	30	8	22	68
102. Adjusting and/or assembling machinery	38	10	13	86

TABLE 17 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
103. Repairing, maintaining, and operating machinery	40	12	9	92
104. Overhauling, maintaining, and using small engines	26	13	22	65
105. Overhauling, maintaining, and using tractors and stationary engines	24	13	24	61
106. Planning, installing and maintaining a drainage system	13	10	38	36
107. Planning and building conservation structures	7	7	47	21
108. Planning, installing, and maintaining an irrigation system	2	4	55	8
109. Planning and installing a water supply system	13	7	40	33
110. Planning and developing a mechanics shop	13	11	37	37
111. Using complex electrical controls	13	8	40	34
112. Planning and using automatic feed handling systems	9	1	51	19

TABLE 17 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
113. Planning and building fences	17	15	29	49
114. Surveying	2	4	55	8

Area: Management and Operation of Agricultural Businesses

33 Farm

4 Greenhouse

7 Nursery

36 Machinery and equipment

20 Agricultural processing and marketing

23 Supplies and services

9 Recreation and wildlife

13 Forestry and conservation

____ Other areas (please specify) _____

115. Keeping and using records	23	10	28	56
116. Preparing income and social security tax statements	18	19	24	55
117. Planning a cropping system	8	7	46	23
118. Planning a livestock system	8	6	46	22
119. Developing and operating an agricultural recreation business	1	1	59	3
120. Planning and using a financial budget	13	14	34	40
121. Making a soil conservation plan	6	5	50	17
122. Working with government agricultural programs	5	4	52	14

TABLE 17 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
123. Determining need for and extending or obtaining credit	11	21	28	43
124. Planning a marketing program	6	6	48	18
125. Using knowledge of agricultural law	11	11	38	33
126. Determining need for and selling or purchasing insurance	11	14	34	36
127. Determining need for and purchasing machinery and equipment	19	12	29	50
128. Determining need for and purchasing land and buildings	12	9	39	33
129. Managing woodlots and forests	6	8	46	20
130. Managing a farm	10	6	44	26
131. Managing a non-farm agricultural business	7	3	51	17
132. Determining soil capability	7	8	46	22
133. Planning a soil fertility program	10	9	42	29
134. Taking an inventory	21	6	34	48
135. Preparing or using a lease or agreement	9	5	47	23

TABLE 17 (continued)

Content - Use Inventory Item	Used in/or because of Jobs Held	Used, but not in Jobs Held	Did Not Use	Weighted Score
136. Determining need for and securing labor personnel	13	3	45	29
137. Managing personnel	12	3	46	27
138. Contracting for production or other project	5	7	48	17
139. Planning for safety	24	13	23	61
140. Promoting sales	22	3	35	47
Area: General				
141. Planning for and using community services (schools, churches, parks, etc.)	7	19	34	33
142. Raising food for home consumption	19	26	15	64
143. Planning and promoting wild life conservation	5	13	42	23
144. Designing a landscape plan	8	4	48	20
145. Installing a landscape plan	5	3	52	13
146. Other (specify)				

1 - Weighted score: Two times frequency of responses in Column 1, one times the frequency of responses in Column 2, and zero times the frequency of responses in Column 3.

TABLE 18

SUMMARY, BY AREAS, OF KNOWLEDGES AND ABILITIES USED BY VOCATIONAL AGRICULTURE GRADUATES, CLASSES OF 1967, 1968, 1969, AND 1970

Area of Knowledge or Ability	Items in Area	Items Used for Occupational Reason		Items Used for Reason Other Than Occupational		Items Not Used		Total All Items Checked
		(number)	(percent)	(number)	(percent)	(number)	(percent)	
Guidance and Leadership								
1967	14	27	15.3	31	17.5	119	67.2	177
1968	14	31	20.4	27	17.8	94	61.8	152
1969	14	39	21.1	36	19.5	110	59.5	185
1970	14	68	20.3	49	14.6	218	65.1	335
	56	165	19.4	143	16.8	541	63.7	849
Livestock and Poultry and Their Products								
1967	32	74	18.0	43	10.5	294	71.5	411
1968	32	85	24.0	61	17.2	208	58.8	354
1969	32	74	18.0	108	26.3	729	55.7	411
1970	32	118	15.6	102	13.5	535	70.9	755
	128	351	18.2	314	16.3	1266	65.6	1931

1939

TABLE 18 (continued)

Area of Knowledge or Ability	Items in Area	Items Used for Occupational Reason		Items Used for Reason Other Than Occupational		Items Not Used		Total All Items Checked
		(number)	(percent)	(number)	(percent)	(number)	(percent)	
Plants and Soil								
1967	41	121	22.4	42	7.8	376	69.8	539
1968	41	97	21.5	53	11.7	302	66.8	452
1969	41	76	15.4	113	23.0	303	61.6	492
1970	41	218	21.9	184	18.5	592	59.2	994
	164	512	20.7	392	15.8	1573	63.5	2477
Agricultural Mechanics								
1967	27	156	44.6	55	15.7	139	39.7	350
1968	27	122	41.6	45	15.2	129	43.6	296
1969	27	96	29.2	67	20.4	166	50.5	329
1970	27	208	32.1	125	19.3	315	48.6	648
	108	582	35.9	292	18.0	749	46.1	1623

1970

TABLE 18 (continued)

Area of Knowledge or Ability	Items in Area	Items Used for Occupational Reason		Items Used for Reason Other Than Occupational		Items Not Used		Total All Items Checked
		(number)	(percent)	(number)	(percent)	(number)	(percent)	
Management and Operation of Agricultural Businesses								
1967	26	87	26.0	38	11.3	210	62.7	335
1968	26	53	18.5	37	12.9	196	68.5	286
1969	26	60	18.7	49	15.3	212	66.0	321
1970	26	89	14.8	83	13.8	430	71.4	602
	104	289	18.7	207	13.4	1048	67.9	1544
General								
1967	5	16	26.7	8	13.3	36	60.0	60
1968	5	8	14.3	10	18.0	38	67.9	56
1969	5	6	9.2	17	26.2	42	64.6	65
1970	5	14	11.7	30	25.0	76	63.3	120
	20	44	14.6	65	21.6	192	63.8	301
Totals		1943		1413		5369		8725

1941

TABLE 19

AREAS OF KNOWLEDGE IN LIVESTOCK AND POULTRY
WITH WHICH VOCATIONAL AGRICULTURE GRADUATES HAD CONTACT
CLASSES OF 1967, 1968, 1969, AND 1970

Area of Knowledge by Year of Graduates	Graduates Having Contact	
	Number	Percent
1967 Graduates N = 13		
Beef	7	53.8
Dairy	5	38.5
Swine	3	23.1
Chickens	3	23.1
Horses	3	23.1
Sheep	1	7.7
Wildlife	1	7.7
Ducks	0	0.0
Geese	0	0.0
Turkeys	0	0.0
Other Animals	0	0.0
Sales and Service	0	0.0
1968 Graduates N = 11		
Swine	7	63.6
Beef	6	54.5
Dairy	5	45.4
Chickens	4	36.4
Sheep	3	27.3
Horses	3	27.3
Wildlife	2	18.2
Turkeys	1	9.1
Ducks	0	0.0
Geese	0	0.0
Other Animals	0	0.0
Sales and Service	0	0.0

TABLE 19 (continued)

Area of Knowledge by Year of Graduates	Graduates Having Contact	
	Number	Percent
1969 Graduates N = 14		
Beef	9	64.3
Swine	6	42.8
Horses	6	42.8
Chickens	5	35.7
Wildlife	4	28.6
Dairy	3	21.4
Sheep	2	14.3
Geese	1	7.1
Turkeys	1	7.1
Ducks	1	7.1
Other Animals	0	0.0
Sales and Service	0	0.0
1970 Graduates N = 24		
Beef	11	45.8
Swine	10	41.7
Wildlife	8	33.3
Dairy	5	20.8
Chickens	3	12.5
Sheep	2	8.3
Ducks	1	4.2
Turkeys	1	4.2
Geese	0	0.0
Horses	0	0.0
Other Animals	0	0.0
Sales and Service	0	0.0

TABLE 20

AREAS OF KNOWLEDGE IN PLANTS AND SOILS
WITH WHICH VOCATIONAL AGRICULTURE GRADUATES HAD CONTACT
CLASSES OF 1967, 1968, 1969, AND 1970

Area of Knowledge by Year of Graduates	Graduates Having Contact	
	Number	Percent
1967 Graduates N = 13		
Field Crops	7	53.8
Forage Crops	6	46.2
Soils and Fertilizer	5	38.5
Vegetable Crops	5	38.5
Water	5	38.5
Fruit Crops	4	30.8
Nursery Products	4	30.8
Forest Products	2	15.4
Greenhouse Products	2	15.4
Wildlife	0	0.0
Turf	0	0.0
Specialty Crops	0	0.0
Sales and Service	0	0.0
1968 Graduates N = 11		
Field Crops	6	54.5
Fruit Crops	5	45.4
Forage Crops	4	36.4
Vegetable Crops	4	36.4
Soils and Fertilizer	3	27.3
Nursery Products	2	18.2
Forest Products	2	18.2
Water	2	18.2
Wildlife	1	9.1
Greenhouse Products	0	0.0
Turf	0	0.0
Specialty Crops	0	0.0
Sales and Service	0	0.0

TABLE 20 (continued)

Area of Knowledge by Year of Graduates	Graduates Having Contact	
	Number	Percent
1969 Graduates N = 14		
Field Crops	8	57.1
Soils and Fertilizer	7	50.0
Fruit Crops	7	50.0
Water	6	42.8
Forage Crops	4	28.6
Forest Products	4	28.6
Wildlife	4	28.6
Turf	3	21.4
Vegetable Crops	3	21.4
Greenhouse Products	2	14.3
Nursery Products	1	7.1
Specialty Crops	0	0.0
Sales and Service	0	0.0
1970 Graduates N = 24		
Vegetable Crops	12	50.0
Soils and Fertilizer	10	41.7
Field Crops	9	37.5
Fruit Crops	9	37.5
Water	8	33.3
Forage Crops	7	29.2
Nursery Products	7	29.2
Greenhouse Products	6	25.0
Wildlife	5	20.8
Forest Products	5	20.8
Turf	2	8.3
Specialty Crops	0	0.0
Sales and Service	0	0.0

TABLE 21

AREAS OF KNOWLEDGE IN THE MANAGEMENT
AND OPERATION OF AGRICULTURAL BUSINESSES
WITH WHICH VOCATIONAL AGRICULTURE GRADUATES HAD CONTACT
CLASSES OF 1967, 1968, 1969, AND 1970

Area of Knowledge by Year of Graduates	Graduates Having Contact	
	Number	Percent
1967 Graduates N = 13		
Machinery and Equipment	8	61.5
Farm	7	53.8
Supplies and Service	7	53.8
Agricultural Process and Marketing	5	38.5
Forestry and Conservation	4	30.8
Nursery	1	7.7
Recreation and Wildlife	1	7.7
Greenhouse	0	0.0
1968 Graduates N = 11		
Farm	6	54.5
Machinery and Equipment	4	36.4
Agricultural Process and Marketing	2	18.2
Supplies and Service	2	18.2
Recreation and Wildlife	0	0.0
Forestry and Conservation	0	0.0
Greenhouse	0	0.0
Nursery	0	0.0
1969 Graduates N = 14		
Farm	8	57.1
Machinery and Equipment	8	57.1
Agricultural Process and Marketing	5	35.7
Supplies and Service	4	28.6
Forestry and Conservation	3	21.4
Recreation and Wildlife	2	14.3
Greenhouse	1	7.1
Nursery	1	7.1
1970 Graduates N = 24		
Machinery and Equipment	14	58.3
Farm	9	37.5
Supplies and Service	6	25.0
Recreation and Wildlife	6	25.0
Agricultural Process and Marketing	5	20.8
Forestry and Conservation	5	20.8
Nursery	3	12.5
Greenhouse	1	4.2

TABLE 22

GUIDANCE AND LEADERSHIP KNOWLEDGES AND ABILITIES USED BY VOCATIONAL AGRICULTURE GRADUATES CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Year	Items Used for Occupational Reason	Items Used for Reason Other Than Occupational	Items Not Used	Total All Items Checked
		(number of items)		
1967 N = 13	27	31	119	177
1968 N = 11	31	27	94	152
1969 N = 14	39	36	110	185
1970 N = 24	68	49	218	335
Total = 62	165	143	541	849

ERIC

1947

TABLE 23

LIVESTOCK AND POULTRY AND THEIR PRODUCTS KNOWLEDGES AND ABILITIES
USED BY VOCATIONAL AGRICULTURE GRADUATES
CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Year	Items Used for Occupational Reason	Items Used for Reason Other Than Occupational	Items Not Used	Total All Items Checked
		(number of items)		
1967 N = 13	74	43	294	411
1968 N = 11	85	61	208	354
1969 N = 14	74	108	229	411
1970 N = 24	118	102	535	755
Total = 62	351	314	1266	1931

8741

TABLE 24

PLANTS AND SOILS KNOWLEDGES AND ABILITIES USED BY VOCATIONAL AGRICULTURE GRADUATES
CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Year	Items Used for Occupational Reason	Items Used for Reason Other Than Occupational	Items Not Used	Total All Items Checked
		(number of items)		
1967 N = 13	121	42	376	539
1968 N = 11	97	53	302	452
1969 N = 14	76	113	303	492
1970 N = 24	218	184	592	994
Total = 62	512	392	1573	2477

6761

TABLE 25

AGRICULTURAL MECHANICS KNOWLEDGES AND ABILITIES USED BY VOCATIONAL AGRICULTURE GRADUATES
CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Year	Items Used for Occupational Reason	Items Used for Reason Other Than Occupational	Items Not Used	Total All Items Checked
		(number of items)		
1967 N = 13	156	55	139	350
1968 N = 11	122	45	129	296
1969 N = 14	96	67	166	329
1970 N = 24	208	125	315	648
Total = 62	582	292	749	1623

1952

TABLE 26

MANAGEMENT AND OPERATION OF AGRICULTURAL BUSINESSES KNOWLEDGES AND ABILITIES USED BY VOCATIONAL AGRICULTURE GRADUATES CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Year	Items Used for Occupational Reason	Items Used for Reason Other Than Occupational	Items Not Used	Total All Items Checked
		(number of items)		
1967 N = 13	87	38	210	335
1968 N = 11	53	37	196	286
1969 N = 14	60	49	212	321
1970 N = 24	89	83	430	602
Total = 62	289	207	1048	1544

1951

TABLE 27

GENERAL KNOWLEDGES AND ABILITIES USED BY VOCATIONAL AGRICULTURE GRADUATES
CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Year	Items Used for Occupational Reason	Items Used for Reason Other Than Occupational	Items Not Used	Total All Items Checked
		(number of items)		
1967 N = 13	16	8	36	60
1968 N = 11	8	10	38	56
1969 N = 14	6	17	42	65
1970 N = 24	14	30	76	120
Total = 62	44	65	192	301

1952

TABLE 28

SUMMARY OF KNOWLEDGES AND ABILITIES USED BY
VOCATIONAL AGRICULTURE GRADUATES FOR 146 ITEM INVENTORY
CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Year	Items Used for Occupational Reason	Items Used for Reason Other Than Occupational	Items Not Used	Total All Items Checked
		(number of items)		
1967 N = 13	481	217	1174	1872
1968 N = 11	396	233	967	1596
1969 N = 14	351	390	1062	1803
1970 N = 24	715	573	2166	3454
Total = 62	1943	1413	5369	8725

1953

TABLE 29

CONTINUATION OF EDUCATION OF VOCATIONAL AGRICULTURE GRADUATES
DURING FIRST YEAR AFTER GRADUATION
CLASSES OF 1967, 1968, 1969, AND 1970

Related Information	Graduates by Years			
	1967 N = 17	1968 N = 15	1969 N = 18	1970 N = 28
Continued Education				
Full-time student	2	4	3	6
Part-time student	0	0	2	1
Objectives for Continuation				
Preparation for job	2	4	4	5
Up-grading in present job	0	2	0	3
No occupation objective	1	0	0	0
Maintaining present job	0	1	0	2
Other reasons	1	1	1	0
Reason No Longer Enrolled				
Completed program or course	0	2	2	2
Took a job	1	1	0	0

PART II. DATA ABOUT THE VOCATIONAL AGRICULTURE PROGRAM

1955

TABLE 30

RELATED INFORMATION CONCERNING
ADULT EDUCATION IN AGRICULTURE

Adult Courses Offered	Number Enrolled
Farm Machinery Repair Class (Young Farmers)	44
Adult Horticulture	6
Highest Grade Completed	**Number**
8th Grade or less	9
9th - 12th Grade	27
Continued education beyond high school	12
No Response	2
Present Occupations	**Number**
Farming	32
Non-farm but agricultural related	6
Non-agricultural	12
Purpose for Enrolling in Adult Course	**Number**
Improve in present occupation	44
Prepare for new occupation	0
Other reasons	6
Evidence of Accomplishment of Purpose	**Number**
Increase in net income and net worth	28
Increase in job satisfaction	16
Increase in work efficiency	5
Increase in crop and/or livestock production	1
No Response	2

TABLE 31

ADULT ATTITUDES TOWARD VOCATIONAL AGRICULTURE
IN THE PUBLIC HIGH SCHOOLS
N = 268

Statements Reflecting Public Attitudes	Degree of Agreement[1]					Rating[2]
	SA	A	U	D	SD	
1. Vocational agriculture should be available to students preparing for college.	51	145	15	11	5	2.00
2. Vocational agriculture should prepare students to earn a living.	73	132	13	8	2	1.86
3. Every student should take at least one course in vocational agriculture.	38	96	26	55	6	2.52
4. Vocational agriculture should be designed mainly for students of high academic talents.	4	18	17	140	49	3.54
5. Vocational agriculture should include instruction and study about livestock and poultry.	48	162	15	8	1	1.94
6. Only boys should be permitted to enroll in vocational agriculture courses.	3	22	17	131	54	3.93
7. Vocational agriculture is as important as any other high school program or subject.	50	133	18	26	3	2.24
8. Courses in agriculture should be provided for all adults who want such instruction.	64	144	11	5	2	1.84
9. A sense of personal responsibility should be developed in students through participation in FFA activities.	52	153	14	6	2	1.91
10. Vocational agriculture should include instruction in agricultural mechanics.	62	144	17	4	1	1.85

TABLE 31 (continued)

Statements Reflecting Public Attitudes	Degree of Agreement[1]					Rating[2]
	SA	A	U	D	SD	
11. The FFA program of activities should place emphasis on helping students develop attitudes and abilities for good citizenship.	72	126	17	2	1	1.78
12. Vocational agriculture is useful only to students who are preparing for farming careers.	10	37	16	143	34	3.64
13. Vocational agriculture should be available to students in grades nine through twelve.	34	166	15	6	2	1.99
14. Vocational agriculture should include instruction and study about agriculture business management.	55	160	7	5	1	1.85
15. All students in the vocational agriculture program should be required to join the FFA.	11	49	41	112	15	3.31
16. Vocational agriculture should include instruction and study about forestry.	42	147	35	9	1	2.00
17. Some type of project work should be required of all students enrolled in vocational agriculture in order to use knowledges learned in the classroom.	61	148	12	11	1	1.90
18. Vocational agriculture should teach students about job opportunities in the field of agriculture.	49	154	12	3	2	1.89
19. Vocational agriculture should include instruction and study about ornamental plants and landscaping.	27	138	41	20	2	2.26

TABLE 31 (continued)

Statements Reflecting Public Attitudes	Degree of Agreement[1] SA	A	U	D	SD	Rating[2]
20. The agriculture instructor should supervise through home or on-job visits the projects and other agricultural occupation experiences planned as a part of the vocational agriculture program.	41	159	24	2	2	1.97
21. Knowledges and skills learned in vocational agriculture classes should lead to jobs for students.	49	139	28	11	11	2.02
22. The values of vocational agriculture instruction should be made known to parents.	47	136	29	6	0	1.97
23. The vocational agriculture instructor should help students arrange to obtain work experiences in agricultural occupations.	43	156	18	7	0	1.95
24. Vocational agriculture should include instruction and study about crops and soils.	72	155	1	2	0	1.71
25. Vocational agriculture should be provided only for students not planning to attend college.	5	12	27	133	48	3.92
26. Vocational agriculture should include instruction and study about conducting business meetings properly.	8	118	43	38	6	2.61
27. Enrollment in vocational agriculture should be encouraged among all high school students.	18	121	35	44	7	2.56
28. Leadership abilities should be developed in students through participation in FFA activities.	33	175	12	5	2	2.41

TABLE 31 (continued)

Statements Reflecting Public Attitudes	Degree of Agreement[1]					Rating[2]
	SA	A	U	D	SD	
29. Vocational agriculture should be available to students who are preparing for non-farm agricultural jobs.	36	131	39	24	7	2.30
30. Courses in vocational agriculture should be offered as part of the high school curriculum.	48	152	14	4	4	1.94
31. An important responsibility of the high school should be to place its vocational agriculture graduates in jobs.	19	108	47	37	11	2.61
32. Vocational agriculture should include instruction and study about conservation of soil, water, forest, and wildlife.	68	144	5	2	0	1.73
33. The vocational agriculture program should offer adult classes only to farmers.	5	34	26	136	29	3.65
34. Students should not be required to take a course in vocational agriculture.	23	107	29	37	16	2.60
35. The function of a vocational agriculture program should be to help each student develop some saleable job skills.	25	114	51	27	7	2.38
36. The vocational agriculture program should provide instruction in and opportunity for students to build and repair structures and/or equipment in an agricultural shop.	59	141	19	6	0	1.88
37. Vocational agriculture should be offered for the rural non-farm student who has an interest in agriculture.	62	160	13	5	1	1.85

TABLE 31 (continued)

Statements Reflecting Public Attitudes	Degree of Agreement[1]					Rating[2]
	SA	A	U	D	SD	
38. Membership in the FFA should be open to all students in the vocational agriculture program.	44	165	8	9	1	1.93
39. Vocational agriculture should be available to high school girls who are interested in agriculture.	37	171	19	4	1	1.59
40. Vocational agriculture should include instruction and study about how to speak in public.	32	115	40	40	4	2.42
41. The FFA should be a part of the vocational agriculture program.	25	139	47	16	1	2.25
42. Vocational agriculture should be offered to the town student who has an interest in agriculture.	35	175	14	2	1	1.80
43. The vocational agriculture program should be intended mainly for students of limited academic aptitude.	7	22	31	122	27	3.67
44. Agricultural contests should be a part of the vocational agriculture program.	27	148	40	11	2	2.18
45. The student should learn job skills as part of the vocational agriculture program.	47	153	25	1	1	1.93

[1] Scale of Agreement: SA = Strongly Agree; A = Agree; U = Undecided; D = Disagree; SD = Strongly Disagree.

[2] Rating Scale: SA = 1; A = 2; U = 3; D = 4; SD = 5

TABLE 32

AVAILABILITY OF TRAINING STATIONS IN AGRICULTURAL BUSINESSES FOR OCCUPATIONAL EXPERIENCE PROGRAMS IN FREDERICK COUNTY

Agricultural Related Businesses	Availability as Training Station		
	Yes	No	Now Being Used
Agricultural Machinery Service			
Brumback C. I. & Sons		x	
Clems Garage and Implement Co.		x	
Mid-Atlantic Equipment Co.	x		x
Sandy Implement Service	x		
Shade Equipment Co.	x		
Winchester Equipment Co.	x		x
Ornamental Horticulture			
DeHavens Nursery	x		
Fravels	x		
Smalts		x	
Weber and Sons Nursery	x		x
Agricultural Business			
Clearbrook Feed & Supply		x	
Fred L. Glaize		x	
Frederick Farm Bureau		x	
Green Chemical Inc.		x	
Harry Murphy and Bros.		x	
Kerr McGee Chemical Corp.		x	
Old Mill Storage	x		x
P. W. Plumly	x		
Shenandoah Apple Corp.		x	
Southern States	x		
Winchester Animal Hospital	x		x
Winchester Feed & Seed Co.	x		
Zero Pak Co.		x	
Totals	12	11	5

1962

TABLE 33

THE 1971 AND THE PROJECTED 1973 MANPOWER NEEDS
FOR OFF-FARM AGRICULTURAL BUSINESSES IN FREDERICK COUNTY

Farm-Related Businesses	Current Manpower Needs	Manpower Needs by 1973	Total Manpower Needs in Next Two Years
Agricultural Machinery Service			
Brumback C. I. & Sons	3	0	3
Clems Garage & Implement Co.	1	2	3
Mid-Atlantic Equipment Co.	0	2	2
Sandy Implement Service	1	2	3
Shade Equipment Co.	2	1	3
Winchester Equipment	0	0	0
Subtotals	7	7	14
Ornamental Horticulture			
DeHavens Nursery	2	0	2
Fravels	0	0	0
Smalts	2	1	3
Weber & Sons Nursery	0	0	0
Subtotals	4	1	5
Other Agricultural Businesses			
Clearbrook Feed & Supply	0	0	0
Fred L. Glaize	0	0	0
Frederick Farm Bureau	0	1	1
Green Chemical Inc.	0	2	2
Harry Murphy and Bros.	0	0	0
Kerr McGee Chemical Corp.	0	0	0
Old Mill Storage	10	3	13
P. W. Plumly	2	3	5
Shenandoah Apple Corp.	0	0	0
Southern States	0	0	0
Winchester Animal Hospital	1	2	3
Winchester Feed & Seed Co.	0	1	1
Zero Pak Corp.	0	0	0
Subtotals	13	12	25
Grand Totals	24	20	44

1963

TABLE 34

MANPOWER NEEDS IN AGRICULTURE -
SCHOOL PLACEMENT AREA
1970 - 1971

Category	Present Employment Number	Number for Average Yearly Replacement and Growth[1]
Agricultural Production	450	NA
Agricultural Machinery and Service	50	7
Agricultural Business	10	12
Agricultural Processing and Marketing	70	NA
Conservation and Forestry	6	NA
Ornamental Horticulture	30	4
Total agricultural labor force	616	

[1] NA = Not available

TABLE 35

POPULATION SERVED BY VOCATIONAL EDUCATION IN AGRICULTURE
1970 - 1971

Population	Total Number[1]		Present Enrollment in Agriculture[1]	
	Male	Female	Male	Female
1. By age level:				
6 to 14	3045	3149	171	5
15 to 19	1267	1217	100	0
20 to 24	866	1010	4	1
25 and over	7608	6861	55	6
2. By grade level:				
7th Grade	- 611 -		55	5
8th Grade	- 676 -		86	0
9th Grade	- 528 -		30	0
10th Grade	- 462 -		40	0
11th Grade	- 399 -		35	0
12th Grade	- 377 -		25	0
3. By special programs:				
Youth with special needs	NA		NA	
Adults with special needs	NA		NA	
Adult farmers	- 450 -		40	0
Adult (other agriculture)	NA		21	5
4. By location category:				
Frederick County	28,893		342	
Winchester	14,643		0	

[1] NA = Not available

1965

TABLE 36

PERSONS INTERESTED IN ENROLLING IN AGRICULTURAL COURSES
1970 - 1971

Group	Total in Group	Interested in Agriculture[1] Male	Female
1. Secondary school:			
7th grade	611	NA	NA
8th grade	676	NA	NA
9th grade	528	NA	NA
10th grade	462	NA	NA
11th grade	399	NA	NA
12th grade	377	NA	NA
2. Youth with special needs:	NA	NA	NA
3. Adult groups:			
Horticulture	NA	NA	NA
Young Farmers	NA	NA	NA
Adult Farm Mechanics Repair	NA	NA	NA

[1] NA = Not available

1966

TABLE 37

ENROLLMENT OBJECTIVES IN AGRICULTURAL PROGRAMS
1970 - 1971

Program or Course	Enrollment Capacity[1]	Present Enrollment[1]	Projected Enrollment[1]
1. Elementary School:	NA	NA	NA
2. Middle School:			
Exploratory Agriculture	50	58	130
Agricultural Production	100	103	110
3. Secondary School:			
Agricultural Production	75	75	100
Agricultural Machinery Service	20	17	24
Agricultural Business	0	0	0
Agricultural Processing and Marketing	0	0	0
Conservation and Forestry	0	0	0
Ornamental Horticulture	24	15	24
4. Youth with Special Needs:	NA	0	NA
5. Adult:			
Upgrading Courses	100	66	75
Retraining Courses	NA	0	NA
Special Needs	NA	0	NA
Service Courses	NA	0	NA
Total	269	334	463

[1] NA = Not available

1967

TABLE 38

RELEVANT INFORMATION CONCERNING STUDENTS CURRENTLY ENROLLED IN THE AGRICULTURAL PROGRAM AT THE 10TH, 11TH, AND 12TH GRADE LEVEL

Sex	Number
Male	104
Female	0

Race	Number
White	104
American Negro	0
Other	0

Current Grade Levels	Number
10th	39
11th	36
12th	22
Not Available	7

Enrollment in Agricultural Options	Number
Agricultural Production	73
Agricultural Machinery Service	16
Ornamental Horticulture	15

Vocational Course Work	Number Courses Completed	Number Courses Currently Enrolled
Agriculture	205	104
Distributive Education	2	3
Industrial Arts	42	16
Business Education	23	25
Shop	2	0
Industry and Trade	1	2
Mechanical Drawing	1	1

TABLE 39

PLACEMENT OF THE VOCATIONAL AGRICULTURE GRADUATES
DURING FIRST YEAR AFTER GRADUATION FROM HIGH SCHOOL
CLASSES OF 1967, 1968, 1969, AND 1970

Graduates by Year	Number of Graduates	In Jobs	In School	Armed Forces	Unknown	Percent Placed[1]
1967	17	6	4	4	3	100.0
1968	15	7	1	3	4	100.0
1969	18	12	0	2	4	100.0
1970	28	23	0	4	1	100.0

[1] Of those who could be located

1969

TABLE 40

SECONDARY PROGRAM FINANCIAL ANALYSIS -- AGRICULTURE[1]

Item	Present Support		Support Needed	
	Total	Per Student	Total	Per Student
	(Fiscal Year: 1970-71)		(Fiscal Year: 1971-72)	
Staff, instructional	$ 33,500.00	$ 335.00	$ 36,500.00	$ 332.00
Materials and supplies for instruction	$ 2,400.00	$ 24.00	$ 2,600.00	$ 24.00
Equipment	$ 8,000.00	$ 80.00	$ 6,000.00	$ 55.00
Travel	$ 1,400.00	$ 14.00	$ 1,400.00	$ 13.00
Other (specify)_____	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Totals	$ 45,300.00	$ 453.00	$ 46,500.00	$ 424.00
Source of funds:				
Local	Approximately $ 15,100.00	$ 151.00	Approximately $ 15,500.00	$ 141.34
State	$ 15,100.00	$ 151.00	$ 15,500.00	$ 141.33
Federal	$ 15,100.00	$ 151.00	$ 15,500.00	$ 141.33

[1] James Wood only - Junior High programs not included

1970

TABLE 41

ADULT PROGRAM FINANCIAL ANALYSIS -- AGRICULTURE[1]

Item	Present Support		Support Needed	
	Total	Per Student	Total	Per Student
	(Fiscal Year: 1970-71)		(Fiscal Year: 197 -72)	
Staff, instructional	$ 2,640.00	$ 40.00	$ 2,800.00	$ 37.50
Materials and supplies for instruction[2]	$ 0.00		$ 0.00	
Equipment[2]	$ 0.00		$ 0.00	
Travel[2]	$ 0.00		$ 0.00	
Other (specify)_____				
Totals	$ 2,640.00	$ 40.00	$ 2,800.00	$ 37.50
Source of funds:				
Local	$ 660.00	$ 10.00	$ 700.00	$ 9.38
State	$ 1,320.00	$ 20.00	$ 1,400.00	$ 18.75
Federal	$ 660.00	$ 10.00	$ 700.00	$ 9.37

1 James Wood only - Junior High programs not included

2 No money is set aside specifically for this; however, some of the money designed for all-day students is used.

1971

TABLE 42

OCCUPATIONAL EXPERIENCES IN AGRICULTURE: STANDARDS[1]

Type of program	Minimum Required Hours Per Year				
	Work by Student				Supervision by Teacher
	(Fr)	(Soph)	(Jr)	(Sr)	
Farming program	There is NO minimum				
Placement-employment with no school released time (non-cooperative)	None placed in these grades		450	450	
Placement-employment cooperative education program	----- NONE -----				
School laboratory facilities program; (as described in facilities provided)			450	450	This is used only in emergencies when students cannot be placed.
Self-employment					
Other: (specify)					

[1] Standards recorded for each form of program in terms of it being used as the only experience program a student would have.

DATA CONCERNING THE AGRICULTURAL PROGRAM

A. Purposes of Local Education Program

Answers taken from A Self-Study Report, James Wood High School. The context of these purposes are located under the secondary education program.

Total educational program

Elementary education program

Secondary education program

James Wood High School proposes meeting the educational needs of all children in the community by providing each pupil with the means to develop the knowledge, interests, skills, and habits necessary to achieve his potential and contribute to the advancement of society. We feel that the pupil as an individual should be the center of the program, and we offer a wide range of opportunities so that he may develop into a well-rounded person in relation to society and its problems.

To achieve this aim, James Wood High School has a varied curriculum and co-curricular program.

To further achieve this aim, the entire staff -- administrators, guidance personnel, and faculty -- work together to help the pupil develop:

1. a discerning mind in acquiring essential facts and skills
2. acceptable standards of social and moral behavior
3. rational attitudes toward life (past, present, future) and change
4. his capacity for meaningful recreation

We feel the faculty should consist of teachers who:

1. adhere to professional ethics
2. like and enjoy working with young people, and try to understand their interests and problems
3. administer discipline effectively, fairly, and consistently
4. are self-disciplined and are physically, mentally, and emotionally able to perform their duties
5. possess adequate professional preparation and continue to extend their training and widen their interests
6. have high moral standards
7. possess imagination, a sense of humor, and enthusiasm for their work

We further feel that the administration should:

1. adhere to professional ethics
2. adopt policies which provide for welfare of pupils and teachers
3. acquire the best teachers available and create conditions conducive to retaining them

4. provide the procedures for keeping parents informed of school activities and pupil progress and achievement
5. provide for effective guidance of pupils
6. present and carry out a uniform policy concerning pupil obedience to rules and respect for authority

We are striving to accomplish our ideal by employing what we feel to be the essentials of education, responsibility, freedom, and discipline.

The faculty and administration have established the following objectives. These objectives are:

1. To provide a curriculum which
   a. conveys a knowledge of our cultural heritage
   b. stimulates intellectual growth
      (1) by ability grouping which provides the environment for learning
      (2) by offering co-curricular activities which give the students opportunities to explore and develop interests
   c. trains in fundamental skills
      (1) by further developing the students' abilities in thinking, reading, writing, computation and scientific endeavor
      (2) by providing opportunities for developing occupational skills through various vocational courses
   d. develops attitudes, ideals, and habits based on critical individual evaluation
      (1) by emphasizing honesty, fair play, cooperation, industry, and service to the community and society
      (2) by recognizing this as a primary goal of all courses, of the guidance personnel, and of co-curricular activities
   e. develops physical capacities
      (1) by creating an awareness of individual physical capabilities and limitations
      (2) by instilling a lasting desire to maintain a high degree of physical fitness

2. To provide opportunities for the student to pursue individual interests by:
   a. encouraging teacher-student conferences in an atmosphere of mutual respect
   b. providing elective courses in various academic disciplines to meet these needs
   c. sponsoring and organizing planned activities including
      (1) academic and cultural groups
      (2) athletic teams
      (3) publications
      (4) service clubs
      (5) vocation-related groups

3. To provide programs which will care for individual differences by:
   a. offering courses designed to prepare the students for their futures (in the contemporary world)
   b. using various instructional techniques and media

c. providing a broad range of library materials from elementary to adult level on a wide variety of subjects
d. utilizing the services of the guidance department

Vocational education program

Offerings have been planned to prepare pupils for post-high school employment and post-high school education. The vocational programs of agricultural education, business education, distributive education, and industrial cooperative training are so designed as to train for post-high school employment. These pupils are employed by farm equipment and business organizations in our community and elsewhere.

Vocational education in agriculture program

The program in Agricultural Education is designed to teach and train students in rural leadership, agricultural production, and the related fields. Classes are offered to interested students, who have an opportunity to receive actual training (1) on the farm, (2) in a related field, or (3) in our laboratories under simulated conditions. The courses include classroom instruction, skill, manipulation and actual practices in agricultural mechanics, agricultural machinery, farm management, plant and livestock sciences, greenhouse management, nursery culture, and leadership development. The program of instruction is planned according to recommendations of the Department of Agricultural Education, Virginia Polytechnic Institute and State University, the State Board of Education, and in accordance with the needs of the students and community.

Aims of the teaching will be to provide a means for each pupil to develop the knowledge, skills, interests, and habits which will enable him to achieve his potential and contribute to the advancement of the community and society. All instruction shall be realistic, practical, and meaningful to the student.

Students enrolled in basic and production agriculture work on their home farm, or some other farm, to get practical experience in farming operations. The options in Agricultural Machinery Service and Vocational Horticulture are two-year courses taught two periods a day. During the first year, students are taught and trained in our well-equipped laboratories under simulated conditions. During the second year, they continue their training in our laboratories for two periods a day in addition to the training they may receive in a training station outside the school.

The ultimate aim in agricultural education is to have the student become successfully established in farming or the agricultural occupation he trains for. We realize that automation and improved methods reduce the number of full-time workers with the "know-how" as well as those who will be working to fill the many related jobs found in the broad field of agriculture.

During the year, instruction and guidance is also offered to adults of the county through organized classes in Farm Mechanics, Ornamental Horticulture, and Young Farmer. Latest information on improved practices from the experimental stations and other sources are presented to the adults at night meetings during the winter months, or on the farm and related businesses through visitations. Certain counselors and lay people are brought in to help us on special subjects.

All students enrolled in agricultural education are members of the Future Farmer Organization which has as its main objectives the training and development of leadership, citizenship, scholarship, character, and a love for country life within the student. Each member is encouraged to take part in many of the activities and contests: Keep Virginia Green, Christmas baskets for the needy, beautifying school and county building grounds, public speaking and judging contests, cooperating with county and civic projects for the good of the communities.

Our department is well-equipped with teaching aids, projectors, slides, films, transparencies and filmstrips. Each classroom has a library of recently printed books and bulletins. We have one of the best equipped Agricultural Mechanics and Greenhouse Laboratories in Northern Virginia. However, we are limited in space for the teaching and instructing of the Agricultural Machinery Service Option. The community is well acquainted with our program of Agricultural Education. Three hundred slides have been taken of our activities and shown to Ruritan, civic and educational organizations throughout the county. Our public relation program also includes newspaper and radio coverage along with the "Parent-Son Banquet" and "Open-House" activities. A brochure concerning the Agricultural Education program in Frederick County was printed this past summer.

B. Local Policies Relating to Agricultural Education

Clientele

Students are selected on their ability to conduct supervised occupational experience programs, to perform assigned class work, and on their interest shown in Agriculture-related occupations.

Evaluation

No formal evaluation of the Agriculture Department is conducted. Evaluation is conducted as part of the total school's evaluation. This evaluation was directed by the State Department of Education.

Facilities and Equipment

The funding for facilities and equipment is channeled through the Vocational Act of 1963 and its amendments. Money is appropriated on the state level. We submit a list of facilities needed, at which time matching money is appropriated by the county for the purchase of the equipment. Local policy has been to grant the request of the Department.

Finances

Finances for running the Department are handled through three accounts. The school board gives $1500.00 each year for expendable supplies. A revolving account at the school handles the other shop and greenhouse expenses. Students and farmers are charged for materials used from the shop inventory, and the money is recycled through the school account. The FFA has its own separate account.

Organization and Administration

Organization and administration is left up to the department head, Mr. H. M. Davis.

Personnel Training

Personnel in the Agricultural Department have attended many short courses and graduate credit courses for professional improvement. Mr. DeHart has a Master's degree, and Mr. Clark will complete requirements for his Master's degree during the summer of 1971. Mr. Davis has attended many workshops and courses throughout the years for professional improvement.

Policy Formulation

Policy is dictated by the school board; however, they rely heavily upon the recommendations of the Agricultural personnel.

Public Information

The public is informed of the purposes and aims of the department through appropriate newspaper and radio releases. A set of slides about the activities of the department has also been developed for showing to various civic clubs and on local television.

No special projects involving federal funds or other programs in school are currently underway. No active research and development projects are underway at the present time.

Note: No formal written policies were available. The above policies represent the policies of the Department.

LOCAL RESOURCES FOR VOCATIONAL EDUCATION IN AGRICULTURE

Staff for instruction:

A. Hylton Clark:	Agriculture Machinery Service I
	Agriculture Machinery Service II
	Agriculture IV
H. M. Davis:	Agriculture I
	Agriculture II
	Agriculture III
	Agriculture V
Edgar DeHart:	Agriculture I
	Agriculture II
	Ornamental Horticulture
	Vocational Horticulture I
	Vocational Horticulture II

Staff for administration and supervision:

A. Hylton Clark:	Shop Judging Contest
	Shop Supplies
	Farm Machinery Class
	Shop Bills and Receipts
	FFA Picnic
	Troubleshooting Contest
H. M. Davis:	Crops Judging Contest
	Livestock Judging Contest
	FFA and FFA Meetings
	Office Supplies
	Young Farmer Classes
	Reports to State
	FFA Bills and Receipts
	FFA Banquet
	Calendar
	Fair
Edgar DeHart:	Public Speaking Contest
	Forestry Judging Contest
	Degree Team Contest
	Basketball
	Greenhouse Supplies
	Horticulture Bills and Receipts
	Dairy
James C. Gordon:	Principal, James Wood High School
Melton F. Wright:	Superintendent, Frederick County Schools

Local Resources (continued)

Mr. Hutton: Director of Instruction

Mr. Funkhauser: Secondary Supervisor

Physical Facilities: See Appendix

Guidance Services:

a. Three full-time guidance counselors

b. Two teachers who devote several periods of time a day to counseling

c. State Employment Office visits the school each year and meets with the seniors

Research and Development Program:

No research is currently underway, although the agricultural teachers and several other teachers are employed for twelve months and could carry on research as part of their responsibilities.

Public Information Program:

a. A visual aid specialist on the county level serves as a public relations man for the school.

b. The Agricultural Department has developed a brochure and a set of slides for distribution and use at civic meetings. Radio, cable TV, and newspapers are used to inform the public about the program.

Consulting Services:

a. State Supervisor of Agricultural Education

b. Assistant State Supervisor of Agricultural Education for the Northern Area.

c. Staff, Department of Education, Agricultural Education Division, Virginia Polytechnic Institute and State University

Advisory Council:

a. Agricultural Department: Two councils exist -- one is for the total program, but is informal and does not meet. The second is for the Agricultural Machinery Service Option. The latter is organized, holds meetings, but does not have a constitution and operating rules.

b. Vocational Department: None

KINDS OF AGRICULTURAL EDUCATION PROGRAMS:
VOCATIONAL AND NON-VOCATIONAL

	Brief Description of Program
Elementary school program:	Orientation is given in the 6th grade to all students concerning the opportunities in Agricultural Education in the Junior High and High School.
Secondary school program:	Exploratory Agriculture - 7th grade; three options starting in the 8th grade - Agricultural Machinery, Production, Ornamental Horticulture
Program for disadvantaged:	NONE
Post-secondary school program:	NONE
Adult programs:	Horticulture, Young Farmer, and Adult Farm Mechanics
Non-public school programs:	NONE
Other:	

STATE AND FEDERAL CONTRIBUTIONS TO THE VOCATIONAL AGRICULTURE PROGRAM, OTHER THAN FINANCIAL

	State	Federal
Supervisory:	Mr. Crabill - Assistant Supervisor, Agricultural Education	NO
Consultative:	Extension Agent - Agriculture Agricultural Education Division	NO
Personnel Training:	Agricultural Education Division, Virginia Polytechnic Institute & State University	NO
Program Development:	State Vocational - Agriculture Guidelines	NO
Materials Development:	Agricultural Education Division, Virginia Polytechnic Institute & State University	NO
Employment Services:	Mr. Crabill - Assistant Supervisor, Agricultural Education	NO
Research:	Agricultural Education Division, Virginia Polytechnic Institute & State University	NO
Written Policies:	State Department of Education	NO
Evaluation Feedback:	Agricultural Education Division, Virginia Polytechnic Institute & State University	NO

Form 27. Provisions for Evaluating the Vocational Agriculture Program

Records kept:

A follow-up report is maintained on all graduates. This is done in connection with the fifteen year follow-up required by the State Education Department. School records and department files include the home address, pertinent information on the student regarding school work, and occupations held since graduation from high school.

A Self-Study was made of the entire James Wood High School in 1970-1971. This involved different aspects of the school system and program areas.

Finances provided:

a. Agricultural program evaluation - no special finances

b. Self-Study evaluation - State Education Department

Personnel involved:

a. Agricultural program follow-up is conducted by the agricultural teachers.

b. Self-Study involved all the school personnel.

Arrangements for initiating evaluation and for securing data:

None

Arrangements for reporting the results of evaluation:

The follow-up evaluation of all graduates is reported on the appropriate forms to the State Education Department and school officials. No report is made to the community.

The Self-Study was printed in booklet form and made available to school officials.

Annual Program of Agricultural Education
James Wood High School
School Year: July 1, 1970 to June 30, 1971

I. Basic Facts Presenting Needs for the Program

A. Human Resources

1. The number of students anticipated for high school classes in agricultural education is 135.
2. From a survey made (date) 1965 there are 125 young men in farming in the school service area.
3. From a survey made (date) 1965 there are 668 adult farmers in the school service area.
4. From a survey made (date) 1965 there are 30 non-farm agricultural business employees in the school service area.
5. From a survey made (date) No Survey there are _____ high school students who should receive special needs instruction in agricultural education.

B. Farm Resources

1. The latest data available reveal there are 793 farms in the county and the average size of these farms is 199 acres.
2. The predominant types of farms in the county are general, livestock, and orcharding.
3. Major enterprises, with scope, in the county are corn (1600 acres), hay (1600 acres), wheat (1800 acres), cattle (30,000), hogs (6,000), sheep (4,000), apple trees (481,000), peach trees (100,000). Frederick County ranks first in fruit.

4. Sources of agricultural income are field crops ($300,000), fruits ($6,000,000), and livestock ($2,500,000).

5. The number of farm operators in the county is about 700.

6. In identifying these farmers, there are 450 farm owners, 200 part owners, 25 managers, and 75 tenants. The percent tenancy is about 20%.

7. The average age of the farm operators in this county is 52 years.

8. A study of the kind, amount, and condition of farm machinery has been made. Yes ___, or No ___. In progress X .

C. Agricultural Business, Industries, and Services

1. The total number of Agricultural Businesses, Industries, and Services by main product or service category is as follows:

Type of Business	Number of Businesses	Number Employed
a. Agricultural Machinery	7	50
b. Agricultural Supplies and Equipment	10	40
c. Poultry and Livestock Industries	2	10
d. Crops	NA	NA
e. Forestry and Conservation	2	6
f. Ornamental Horticulture	4	30
g. Recreation and Wildlife	1	2
h. Agricultural Service	4	20
i. Professional Occupations in Agriculture	4	10

2. Of the above off-farm agricultural occupations, opportunities exist largely in the following types of businesses in my county or area: Agricultural Machinery; Agricultural Sales and Supply; Ornamental Horticulture; Processing Fruits; and Forestry Products.

II. Facilities Now Available for Carrying Out Program

	Adequate Yes	No
A. Office		
1. Space (144 square feet)		x
2. Equipment	x	
B. Classrooms - two		
1. Size (1400 square feet)	x	
2. Desk and chair	x	
3. Visual aids equipment	x	
4. Reference files (number 10)	x	
C. Agricultural Mechanics Laboratory		
1. Space (4600 square feet)		x
2. Hand tools	x	
3. Power equipment	x	
4. First aid kit	x	
5. Fire extinguisher	x	
6. Equipment, color-coded	x	
7. Bulletin board	x	
8. Chalk board	x	
9. Electrical Cabinet	x	

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	Adequate Yes	No
10. Tractor maintenance kits	x	
11. Eye safety equipment	x	
12. Fumes remover		x
13. Dust removal	x	
14. Noise control		x
15. Minimum light		
a. Classroom, 70 ft. candles	x	
b. Shop, 100 ft. candles		x

D. Food preservation center available: Yes ___, No _x_, equipment adequate: Yes ___, No ___.

E. Land laboratory: Yes _x_, No ___, number acres _1/2_.

F. School forest plot: Yes ___, No _x_, number acres_____.

G. Agricultural Machinery laboratory: same as above

H. Ornamental Horticulture: Greenhouse Yes _x_, No ___.
Size _35 x 72 feet_; Potting room Yes _x_, No ___;
Lathe house Yes _x_, No ___; Storage space Yes _x_, No ___.

I. Other laboratories (specify): _Patio enclosed with fence (2200 square feet), cover over half of it._

J. Number of training stations available: Agricultural Business _2_, Agricultural Machinery _3_, Ornamental Horticulture _2_, Conservation and Forestry _1_, Production Agriculture _10_, and Processing and Marketing Agricultural Products _2_.

III. Facilities Planned

Items	This Year
A. Facilities	
Agricultural Machinery Laboratory - by 1971 or 1972	
B. Instructional Materials	
C. Equipment	
Large exhaust fan	$500.00
Hoods for gas weld	$300.00
20" drill press	$900.00
D. Others	
Carousel (Slide Projector)	$200.00
24 fiber glass chairs	$400.00

IV. Personnel and Qualifications Desired to Carry Out Program

A. Number of full-time teachers presently employed:

Regular 3 ; Special none .

B. Number of full-time teachers needed (specify instructional areas: 1 ; Special qualification desired: Agricultural Production and Agricultural Mechanics.

C. Part-time Personnel: (Kind, Number needed, and Length of Time):

1. Food Preservation _____ Number of Hours _____
2. Agricultural Mechanics 2 Number of Hours 60
3. Others _____ Number of Hours _____

V. Plans for Program of Instruction

A. High School

1. Kinds of classes to be offered and number to be enrolled in each:

a. Agricultural Science & Mechanics: I 12 II 15

b. Agricultural Production: III 30 IV 16 V 10

c. Agricultural Business: III ___ IV ___ V ___

d. Agricultural Machines Service: III 12 IV 8 V ___

e. Ornamental Horticulture: III 26 IV 6 V ___

f. Conservation & Forestry: III ___ IV ___ V ___

g. Processing and Marketing Agricultural Products: III ___ IV ___ V ___

h. Special Needs: I ___ II ___ III ___ IV ___

i. Other (specify): I ___ II ___ III ___ IV ___

2. Projections for new programs the next five years:

	Proposed Year to Begin
a. Agricultural Production	
b. Agricultural Business	
c. Agricultural Machines Service	
d. Ornamental Horticulture	
e. Conservation & Forestry	
f. Processing and Marketing Agricultural Products	
g. Special needs	
h. Other (specify)	

B. Young farmer: (Include off-farm agricultural occupations)

1. Number of groups: 1
2. Number of individuals: 20
3. Number of class meetings: 15
4. Hours of instruction: 30
5. Hours of visitation: 60

C. Adult farmer: (Include agricultural mechanics classes and off-farm agricultural occupations.)

1. Number of groups: 1
2. Number of individuals: 35
3. Number of class meetings: 20
4. Hours of instruction: 60
5. Hours of visitation: 60

D. Food Preservation Program

1. Number of centers _____
2. Number of participants _____

E. Administrative Responsibilities

Area	Teacher responsible
1. Correspondence and reports	H. M. Davis
2. FFA Advisor	H. M. Davis
3. Young Farmer Association Advisor	H. M. Davis
4. Supervision of cannery	Not applicable
5. Securing equipment	A. H. Clark
6. Securing references	Davis-Clark-De Hart
7. Adult Agriculture classes	Clark - De Hart
8. Others	
Ornamental Horticulture	E. H. De Hart

Agricultural Machinery — A. H. Clark

Administration — H. M. Davis

VI. Needs for In-Service Education

Teacher	Work Shop	Credit Course	Subject Area
Davis	No	No	
De Hart		No	
Clark		Yes	6 wks. - VPI

VII. Advisory Committee

A. Number of members 3

B. Number of meetings to be held 2

C. Name of chairman E. W. Adams, Jr.

D. Name of secretary None

PART III. EVALUATION AND RECOMMENDATIONS

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Selected Comments Made by the Advisory Council on June 11, 1971
During the Review of Program Data

1. Either a broader or more selective agricultural program should be developed to help influence more people to stay in the field of agriculture.

2. The absence of the family cow reflects the low use made of the testing milk procedure.

3. The abilities used by students in the area of pastures seemingly should have been higher.

4. Using safety practices should be stressed in the curriculum because students ranked this ability relatively high.

5. The low use made of the abilities in developing and operating an agricultural recreation business could be due to the non-existent facilities for training students in this area.

6. Regardless of what occupation one is in, the ability to operate and maintain machinery will be needed.

7. The summary of the employers' satisfactions with their employees will help stress the importance of reading, writing, and mathematics to students currently in school.

8. The manpower needs should be evaluated each year because of the constantly changing needs and seasonal labor requirements in Frederick County.

Evaluative Comments Made by Consultants
Concerning the Program Data Collected

1. Opportunity for students to succeed in agricultural courses is evident due to the higher grades received in agricultural classes than in the academic courses and other vocational courses.

2. The agricultural program is serving a wide range of students as evidenced by the range of the academic aptitude of the students enrolled in agriculture.

3. In general, students tend to be absent from school more each succeeding school year.

4. Students enrolled in agriculture usually tend to complete a total of four years in the agricultural program.

5. Agricultural students tend to enroll in Business Education courses more than any other vocational courses.

6. Industrial Cooperative Training appeared to be a popular vocational course with the 1970 agricultural graduates.

7. Most students have a total of four years in an occupational experience program.

8. The number of non-farm occupational experience programs is increasing with each year.

9. Most students are members of the FFA for a total of four years.

10. Leadership experiences obtained by holding an FFA office or committee chairmanship are limited to a small portion of each graduating class.

11. One-half of the 1970 graduates obtained an agricultural job.

12. Compared over the last four years, a larger percentage of the graduates have been employed in agricultural jobs each year, with the exception of the 1968 graduates.

13. Most students are able to obtain jobs immediately upon graduation from high school, and the length of time between jobs is low.

14. On the average, all graduates work a typical forty hour week on their first jobs.

15. The starting wage of the 1970 graduates seems to be low in contrast to other jobs in the labor market.

16. A slightly higher wage was received by all graduates at the end of their first year on the job.

17. Most graduates are satisfied with their first jobs.

18. Compared with graduates of previous years, a higher percentage of the 1970 graduates are satisfied with their jobs.

19. Employers are satisfied with the following characteristics of the graduates:
    - Technical competence
    - Ability to learn and adjust
    - Personal characteristics
    - Work habits

20. Employers are less satisfied with the reading, writing, and mathematics abilities of the graduates than any other characteristic.

21. Most of the 1969 and 1970 graduates are still single and live with their parents.

22. The 1970 graduates tend to be actively involved in organizations and leisure time activities.

23. The 1967 graduates used the following six knowledges or abilities the most:
    a. overhauling, maintaining, and using small engines
    b. using safety equipment and practices in mechanics work
    c. adjusting and/or assembling machinery
    d. reconditioning and caring for hand tools
    e. repairing, maintaining, and operating machinery
    f. maintaining, operating, and caring for power equipment

24. The 1967 graduates did not use any of the following knowledges or abilities:
    a. testing milk
    b. shearing and clipping
    c. developing and operating an agricultural recreation business

25. The 1968 graduates used the following seven knowledges or abilities the most:
    a. maintaining, operating, and caring for power equipment
    b. reconditioning and caring for hand tools
    c. adjusting and/or assembling machinery
    d. repairing, maintaining, and operating machinery
    e. locating, applying for, and obtaining a job
    f. using safety equipment and practices in mechanics work
    g. performing electrical work

26. The 1968 graduates did not use any of the following knowledges or abilities:
    a. judging
    b. drying crops artificially
    c. producing hybrid and certified seed
    d. surveying

e. determining need for and securing labor personnel
f. contracting for production or other project
g. installing a landscape plan

27. The 1969 graduates used the following four knowledges or abilities the most:
    a. using safety equipment and practices in mechanics work
    b. providing, maintaining, and operating livestock equipment
    c. adjusting and/or assembling equipment
    d. repairing, maintaining, and operating machinery

28. The 1969 graduates did not use the following knowledges or abilities:
    a. propagating plants through grafting, layering, etc.
    b. producing hybrid and certified seed
    c. conducting plant breeding work
    d. planning, installing, and maintaining an irrigation system
    e. developing and operating an agricultural recreation business

29. The 1970 graduates used the following five knowledges or abilities the most:
    a. repairing, maintaining, and operating machinery
    b. maintaining, operating, and caring for power equipment
    c. performing carpentry or other work with wood
    d. reconditioning and caring for hand tools
    e. locating, applying for, and obtaining jobs

30. The 1970 graduates used the following five knowledges and abilities the least:
    a. testing milk
    b. serving as an officer of an organization
    c. developing and operating an agricultural recreation business
    d. conducting plant breeding work
    e. inspecting in the area of plants and soils

31. Considering all graduates for the last four years, the following ten knowledges and abilities were used the most:
    a. repairing, maintaining, and operating machinery
    b. maintaining, operating, and caring for power equipment
    c. reconditioning and caring for hand tools
    d. using safety equipment and practices in mechanics work
    e. adjusting and/or assembling machinery
    f. locating, applying for, and obtaining jobs
    g. performing carpentry or other work with wood
    h. providing, maintaining, and operating livestock equipment
    i. performing electrical wiring work
    j. planting seeds

32. Considering all graduates for the last four years, the following ten knowledges and abilities were used least:
    a. developing and operating an agricultural recreation business
    b. testing milk
    c. conducting plant breeding work
    d. producing hybrid and certified seed
    e. planning, installing, and maintaining an irrigation system
    f. surveying
    g. drying crops artificially
    h. inspecting plants or soils
    i. serving as an officer of an organization
    j. shearing or clipping

33. Beef, swine, and dairy animals represent the specific areas of livestock and poultry with which graduates had most contact.

34. Experiences with wildlife have increased with each year of graduates.

35. Direct sales and services experiences with livestock and poultry were not used by graduates.

36. Field crops, fruit products, soils and fertilizer, and vegetable crops represent the specific areas in the plants and soils areas with which graduates had most contact.

37. Machinery and equipment and the farm represent the specific areas of management and operation of agricultural businesses with which graduates had most contact.

38. Knowledges and abilities in the Agricultural Mechanics area were used to a greater extent by all students than the knowledges and abilities in the other major areas.

39. Even though the knowledges and abilities with Agricultural Mechanics area have been used to a greater extent, the trend appears to be toward the Agricultural Mechanics skills being used to a lesser extent with each succeeding year of graduates; however, the point must be made that the longer a graduate is out of school, the more opportunity he has to use these knowledges or abilities.

40. Knowledges and abilities in the Management and Operation of Agricultural Businesses area were used to a lesser extent by all students than knowledges and abilities in the other major areas.

41. There appears to be a trend toward the more recent graduates having used the knowledges and abilities in the Plants and Soils area to a greater extent than the 1967 graduates.

42. The agricultural program appears to be meeting the needs of those students continuing their education with about 25 percent of each graduating class continuing their education.

43. Most students continuing their education do so on a full-time basis.

44. Preparation for a job reflected the major objectives most students chose to continue their education.

45. Two adult education courses are currently being offered by the agricultural department.

46. The Adult Horticulture class could be expanded to include more people than the current six members.

47. Over one-half of the adults enrolled in an agricultural adult class have a high school education or less.

48. The major reason adults enrolled in an adult course was to improve themselves in their present position.

49. Adults did not enroll in adult courses for the purpose of preparing for new positions.

50. Over one-half of the adults reported the evidence of accomplishment of purpose in enrolling in an adult course as being an increase in net increase and net worth.

51. About 33 percent of the adults reported an increase in job satisfaction as evidence of achieving purposes of enrolling in an adult course.

52. Adults in the school district expressed attitudes of disagreement with the following:
    a. that only boys be permitted to enroll in agriculture
    b. that agriculture be provided only for those not planning to attend college
    c. that agriculture be provided mainly for students of limited academic aptitude
    d. that agriculture is useful only to those planning to farm

53. Adults in the school district expressed attitudes of uncertainty with the following:
    a. that every student should take at least one agricultural course
    b. that enrollment in agricultural courses should be encouraged among all high school students
    c. that students should not be required to take a course in agriculture
    d. that agriculture should include instruction about conducting business meetings properly
    e. that an important responsibility of the high school should be to place its agricultural graduates in jobs

54. Adults in the school district expressed strong attitudes of agreement with the following:
    a. that agriculture should be available to girls
    b. that agriculture should include instruction in the areas of:
        (1) crops and soils
        (2) conservation of soil, water, forest, and wildlife
    c. that the FFA should place emphasis on helping students develop good citizenship characteristics

55. Agricultural businesses could represent a sizeable source of training stations for occupational experience programs.

56. Agricultural businesses are currently not being used as training stations as much as they might be used.

57. Ornamental Horticulture businesses represent an excellent source of training centers for students in the ornamental horticulture option.

58. Agricultural businesses represent a substantial source of employment opportunities for graduates in the next few years.

59. Seasonal labor requirements in the school district tend to influence the number of employment opportunities throughout the year, and thus will influence the availability of training centers.

60. The number of agricultural businesses and employment opportunities reflect a need for training of graduates in the agricultural business area.

61. Sufficient data to determine the number of workers needed in the agricultural areas of Frederick County were lacking.

62. All students currently enrolled at the 10th, 11th, or 12th grade level are male and white.

63. About 73 percent of the students are enrolled in the agricultural production option, while the agricultural machinery service and ornamental horticulture options each have about 15 percent of the enrollment.

64. Current students have completed on the average, about two courses in the agricultural program.

65. Industrial arts and business education vocational courses have been taken by the current agricultural students more than other vocational courses.

66. No provisions have been made for those with special needs within the school.

67. The number of students with special needs at James Wood High School is unknown.

68. Exploratory agriculture is offered at the seventh grade level.

69. Five girls are enrolled in exploratory agriculture.

70. A large increase in enrollment is expected in the exploratory agriculture course. This would result in the enrollment of 80 students beyond the present capacity.

71. The projected enrollment in agricultural production exceeds the enrollment capacity by 25 students.

72. The financial support needed for program operation in 1971-1972 is about $1200.00 more than in 1970-1971.

73. An increase of $200.00 over last year is needed for materials and supplies.

74. No money is specifically allocated for materials and supplies, equipment, or travel in connection with adult work.

75. No formal evaluation of the agricultural department is made. Records and reports required by the state serve as a follow-up of graduates.

76. The advisory council for the agricultural machinery service option does not have a written constitution or rules for operation.

77. The advisory council for the total agricultural program is informal and does not meet regularly.

78. A planned orientation program concerning the opportunities in Agricultural Education is presented to sixth graders.

79. The last survey made of the number of young and adult farmers in the school district was in 1965.

80. Adequate space is lacking in the classroom and Agricultural Mechanics Laboratory.

81. Adequate lighting is lacking in the shop.

Recommendations for Program Improvement
Made by Consultants

1. A study should be made of students currently enrolled in the agricultural program to determine if absenteeism rates are similar to those found by this study, and if the rates are similar to those of other students in the school. Possible reasons for absenteeism should be obtained from the students and studied to determine what can be done to improve attendance.

2. More opportunity for student participation in FFA offices and committee chairmanships should be provided. The possibility of establishing assistant officers for each office, class officers, using different members for committee chairmen, or some other means whereby more students would have the opportunity to develop leadership ability should be considered.

3. It was indicated that most of the students in Agriculture have been in the FFA all four years. Membership in the FFA should continue to be encouraged of all students enrolled in Agriculture.

4. The high job placement rate of the students indicates that graduates of the agricultural program are highly employable and efforts should be continued to help students locate jobs who are seeking employment upon graduation. This factor indicates agricultural education enrollment should be increased.

5. More effort should be devoted to strengthening the reading, writing, and mathematics abilities of all students. Perhaps the inclusion of these areas in the form of micro-teaching units by the agricultural teachers within each class period would help to improve the reading, writing, and mathematics abilities of the graduates. Another recommendation would be to contact the teachers responsible for these courses and cooperatively work out correlated units of instruction. For example, the mathematics teacher could develop work problems involving the calculation of piston displacement in different engines, calculating bill of materials, finding the volume of a storage bin, etc. The reading teacher can use labels on the containers of pesticides, operator's manuals of equipment, and other agricultural resources to help teach reading.

6. Some of the knowledges and abilities were used by the students very little, or in some cases, not at all. These knowledges and abilities should not become a part of the department curriculum. In special cases, some students may desire assistance with these knowledges and abilities, and individualized instruction could be used by the teacher to provide this instruction for the student. The following knowledges and abilities should not become a part of the overall curriculum:
    a. testing milk
    b. conducting plant breeding work
    c. producing hybrid and certified seed
    d. developing and installing an irrigation system

e. surveying
f. drying crops artificially
g. inspecting plants or crops
h. shearing or clipping livestock

7. The knowledges and abilities involved with the development and operation of an agricultural recreation business were not used by the students. Although, with greater emphasis being placed on leisure time activities in today's society, a study should be made of Frederick County to determine the number of agricultural recreation businesses in the area and to determine if more of these businesses should be established to serve the needs of Frederick County, or if any plans have been made for the expansion of the current recreational facilities of Frederick County.

8. Curriculum content should reflect those topics which would include the knowledges and abilities identified by the students as being used by them since graduation.

9. Regardless of the topics included in the curriculum under livestock, applying the knowledges and abilities to the areas of beef, swine, and dairy should have relevancy and meaning to the student.

10. More instructional topics should be included under the area of wildlife. This is indicated by the trend that with each year of graduates, the wildlife related abilities are being used to a greater extent.

11. Regardless of the topics included in the curriculum under plants and soils, applying the knowledges and abilities to the areas of field crops, fruit products, soils and fertilizers, and vegetable crops should have relevancy and meaning to the student.

12. Emphasis should continue to be placed on the opportunities for continuing education beyond high school.

13. Efforts should be made to expand the ornamental horticulture adult program to include more people. It is realized that the ornamental horticulture adult program has been in existence for only one year, but definite plans should be made for recruiting more adults for this program.

14. Agricultural mechanics should be included as a part of each course.

15. Topics included in the adult education programs should be selected on the basis of assisting adults to improve themselves in their current occupations.

16. The attitudes of the randomly selected adults reflected disagreement with the statement that only boys should be permitted to enroll in agriculture, but the current enrollment in grades 10-12 is all male. Plans should be made to encourage girls to enroll in the agricultural courses, and all girls in the school system should have an opportunity to learn of the career opportunities in agriculture.

17. The agricultural program must continue to serve all students enrolled, regardless of whether the student plans to terminate his formal education with graduation from high school or plans to enroll as a student in a two or four year college.

18. Agricultural businesses in the community should be personally contacted by local agricultural teachers in order that the businesses can become knowledgeable of the goals, scope, and purposes of the current agricultural program.

19. Local businessmen should become active members of the advisory groups for the agricultural program.

20. An advisory group should be established for each program option, and operational procedures should be finalized in writing.

21. Constant contact should be maintained with local businesses in order to establish current and projected employment trends.

22. Seasonal job opportunities must be identified as to job titles, length of jobs, and time during the year that the jobs would be available. This information should be utilized by the local agricultural teachers to direct curriculum content, teaching calendar development, and exploration of possible occupational experience stations.

23. A study needs to be made to determine the number of students who are disadvantaged or handicapped and whose needs are not being served by the current agricultural program.

24. If any students are identified by the study of Recommendation 23, plans should be developed to meet the needs of these students.

25. More girls should be encouraged to enroll in exploratory agriculture.

26. The projected enrollment in the exploratory course exceeds the enrollment capacity. The agricultural department and the school board must jointly begin to develop plans for handling these students who are interested in agriculture.

27. The projected enrollment in the agricultural production option will exceed the enrollment capacity. Immediate plans must be developed to provide adequate facilities, equipment, materials, and teaching staff to handle those students desiring instruction in this option.

28. The school board should be requested to increase the financial support to the agricultural program by $1800.00 for program operation and $200.00 for supplies in order to meet the needs of the program during the 1971-1972 school year. The school board should receive a copy of this report indicating resources needed for their use in developing the school budget.

29. Plans should be developed to establish a set of written policies for the operation of the agricultural department.

30. A systematic evaluation of the agricultural program should be conducted each year.

31. A new survey should be conducted to obtain the number of young and adult farmers in the community.

32. Emphasis within the curriculum should be placed upon career opportunities in agriculture.

33. The Frederick County School Board should continue to give full support to the James Wood High School Agricultural Program.

VT 016 269
FECK, DONALD L.
CONTENT UNIVERSE STRUCTURE OF POLYMER TECHNOLOGY WITH IMPLICATIONS FOR INDUSTRIAL ARTS. STAFF DEVELOPMENT REPORT.

STATE UNIV. OF NEW YORK, OSWEGO. DEPT. OF INDUSTRIAL ARTS AND TECHNOLOGY.
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DESCRIPTORS - *PLASTICS; *INDUSTRIAL TECHNOLOGY; *INDUSTRIAL ARTS; *INDUSTRIAL EDUCATION; OCCUPATIONAL CLUSTERS; PROGRAM CONTENT; RESOURCE MATERIALS; CONSUMER SCIENCE

ABSTRACT - PROJECTED GROWTH FROM 1980 TO THE YEAR 2000 IN PRODUCTION AND MARKETING OF POLYMER-BASED MATERIALS INDICATES THAT PLASTICS WILL BE THE DOMINANT MATERIAL USED IN BUILDING CONSTRUCTION, IN PACKAGING, AND IN TRANSPORTATION. ALTHOUGH PLASTICS HAVE BEEN WITH US FOR MORE THAN 100 YEARS, THERE WAS NO SERIOUS INDUSTRIAL DEVELOPMENT UNTIL WORLD WAR II. IT IS ESTIMATED THAT THE PLASTICS INDUSTRY HAS NOW REACHED ABOUT SIX PERCENT OF ITS POTENTIAL AND IS GROWING ABOUT 400 PERCENT FASTER THAN ANY OTHER MAJOR INDUSTRIAL AREA. YET INDUSTRIAL ARTS EDUCATION HAS SO FAR DONE NEXT TO NOTHING IN POLYMER TECHNOLOGY, AND OCCUPATIONAL EDUCATION IN THIS AREA IS 30 YEARS OVERDUE. THIS STUDY CONSTRUCTS A CONTENT UNIVERSE OF POLYMER TECHNOLOGY WITH EMPHASIS ON MATERIALS, OCCUPATIONS, PROCESSES, AND PRODUCTS. OCCUPATIONS INVOLVED IN THESE STRUCTURES ARE DESCRIBED. A BIBLIOGRAPHY OF TEXTBOOKS OUTLINED IN THE CONTENT UNIVERSE STRUCTURE IS INCLUDED, AS ARE LISTINGS OF TRADE PUBLICATIONS AND OTHER INFORMATION SOURCES, PLUS THE RESULTS OF A SURVEY OF CONSUMER KNOWLEDGE OF PLASTIC PRODUCTS. THE STRUCTURE AND RESOURCE MATERIALS COULD BE USED TO DEVELOP A COURSE OUTLINE FOR INDUSTRIAL ARTS EDUCATION IN POLYMER TECHNOLOGY. (MF)

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State University College
Department of Industrial Arts and Technology
Oswego, New York

Content Universe Structure of Polymer Technology With Implications for Industrial Arts

Staff Development Report

FILMED FROM BEST AVAILABLE COPY

Donald L. Feck

Spring - 1971

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PREFACE

If a person could coin a term for the age in which we live, it could easily be called the "exotic materials" age and of rapidly increasing importance in this age is the role of polymer, in their many forms and types. If the growth of polymer technology continues unabated, the most appropriate terminology for the end of the century will probably be "the plastic age."

Plastics have been with us for over one hundred years, although serious industrial development was not placed on this material area until World War II. The Japanese occupation of Malaysia and the Malay Archipeligo terminated our supply of natural rubber. At this point polymer technology became indispensible to United States industry.

What has industrial arts education done to convey polymer technology as a portion of general education? Basically, next to nothing. It is now thirty years overdue.

The research paper "A Study of Plastics" by Gerald R. Groff, State University College, Oswego, New York Master of Science candidate tabulated these findings. Of 186 New York State schools surveyed 51.7% had no plastics programs, but 66% of these had programs in development stages. Programs at some degree were found to be 48.3%.

There is little doubt that in other material areas some understanding of the material is known by the student before he enters the classroom. For instance, iron rusts and comes from the ground, wood burns and comes from the tree and ceramics are formed with the aid of heat and come from the ground. But what is known about plastics? Very little

is understood about their physical and forming characteristics or the sources from which they are derived.

Before a teacher in the field prepares a course of study in polymer technology, he should have some comprehension of the complete body of knowledge. Many people turn to textbooks for their outlines and answers. But textbooks, when printed, are in many cases already outdated or much too technical for industrial arts practioners. The first industrial arts textbooks for plastics technology was not published until 1965. Prior to that only "carve and buff' procedures were available.

There is a need to compile a content universe structure for polymer technology with implications for industrial arts in order to remedy the lack of past and present information concerning many areas to be included in the study of plastics within industrial arts. A list of manufacturers, processors, associations, organizations, books, magazines, and films, to reinforce each of the outline's major areas, is needed to provide current sources of aid and information.

Consumer and occupational needs are also evident. Overextension of plastics capabilities, because of ignorance or economics on the manufacturer's part, has given the connotation "junk" to many plastic products. This is indeed unfortunate. The need for increasingly useful consumer knowledge is self-evident.

It was recently stated by the Society of Plastics Industry, Inc. that the plastics industry has now developed to about 6% of its potential and is growing about 400% faster than any other major industrial area. These facts, if valid, would indicate the need for occupational education as an important dimension of course content.

INTRODUCTION

About 1980 the production of polymer based materials will equal in volume the production of steel. By the year 2000 this will increase six fold. Polymer based materials could collectively dominate by a wide margin the entire materials market.

Although formative gains have been made in all plastic marketing areas, the largest projected growth is, in order, building construction, packaging, and transportation.

About nineteen years ago a special issue of Modern Plastics asked a number of leading designers to predict plastics design future. At that time they came up with Jules Verne predictions: an all weather stadium completely enclosed in plastic; reinforced plastics in transportation; packaged one-piece bathrooms. The predictions made by these designers have come and passed. What predictions have been made for the remainder of the centrum?

The same panel of designers used in 1952 were asked to predict plastics usages 15 years from now. Here's what they saw: 1980 will bring planned obsolescence in building construction. The idea is to plan the lifespan of kitchens and bathrooms beforehand so they can be designed as a one piece plastics unit slipped into the frame of the house and removed just as easily when components have worn out or have become outmoded. The recycling of materials would be pre-planned.

Before going to bed in the evening, the housewife of the 1980's will press a series of buttons to program on tape all her needs for

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shopping (and via the science of holography, shall be able to see her purchases in three dimensions on a plastic screen), for delivery, and even for payment, and plastics will be the key.

The most revolutionary aspect of all of tomorrow's household design will be a central computer controlling all systems within the house - lighting, entertainment, appliances, communications, and so on. Plastics come in for a big share of this kind of thinking.

A unique packaging application is the "fluidless egg concept" wherein a very thin, hermetically tight plastics sheet that will be formed into multi-shaped balloons and sealed to the inner walls of a holding container. Air or other gas is then pumped into the bathrooms and the entire pakcage is rocked gently to distribute it. In essence, the delicate product rides within a protective cushion of air.

Among ideas in transportation: The formed (cold or hot) ABS car body; plastics skins form core composites for structural elements; improved lighting and communications systems; elastometric bumpers; foam filled interior paneling; lightweight plastics electric cars and air cushion cars.

One example is aerospace: Expandable structures for manned space missions. Composites of nylon film, nylon cloth, polyester adhesives, and closed cell ethylene-propylene tenpolymer foams. In Oceanography: Pressure hulls of filament wound reinforced plastics.

For other designers, plastics showed up as key elements in solving the problems of tomorrow: Problems in water pollution and erosion (via cellulosic or saran filters or polypropylene seaweed); problems in transportation (via lightweight, high speed trains for surburban travel); problems

in instant rehabilitation (in which one piece rooms are fitted into place in basic shells); and problems in agriculture (ranging from styrene foam for soil conditioning to something as far out as making desserts tillable by using plastics films for all controlled atmosphere farming and plastic linings for giant water reservoirs and trenches). Hospitals may even look to plastics for new concepts in maintenance and sanitation via disposability - not only in instruments, but in the entire hospital room --- bedding, wall coverings, bedside accessories, etc.

A projected forecast in new polymer materials during the next ten years will probably number fifty; only about ten will survive. It is obvious that research costs are too high to continue the practice of developing a polymer and then seeking unknown markets. A growth in plastics with heat ranges of 1,000° F for protracted periods is evident.

The real excitement will be in what's happening with existing polymers. The tools that the industry is using to effect these changes are formidable: alloying, blending, copolymerizing, molecular tailoring, reinforcing, filling, cross-linking, and chemical modification. And each in its own way, is as exciting as the idea of combining metals and plastics at the molecular level. More so, when you add in-plant compounding at the processor and end-user level.

The potential of plastics processing equipment must be increased. More reliable controls will be essential. Solid states, fluidics, programming via tape, and centralized control panels. Look to radiation to play a larger role in processing - to speed up cycle time, to short cut current processing systems. Explosive forming, energy molding, multi-purpose

machines that combine two and more compounding and processing steps in the same unit. Plastics may become a vital part of everyone's business. There's even a possibility that the plastics industry as we know it today may disappear completely. Instead, companies may be completely product-market oriented. In other words, they will make, process, and use plastics whenever they offer advantages. Plastics in a sense will then be an integral part of the product divisions of these various companies. And such divisions may be involved with production, marketing, and sales right down to the end consumer.

Also to be considered in future planning is the fact that lower tariff boundaries may change as from an exporter to an importer and our domestic industry will be competing with overseas industries that have a surplus they can sell here at prices below ours.

To venture a prediction that within the next decade virtually all of the major plastics companies will be international. Interests abroad that can range from joint agreements, license arrangements, and part ownership all the way up to complete ownership. It will be a different world, different from anything we've known before. The challenges that will face us as we move toward it will be equally as radical challenges in technology, in scientific management, in governmental regulations, in labor shortages, in training, in image promoting. It's a long, long list, but they are exciting challenges and they cannot detract from the exciting 1980's that lie in front of us.

This introduction was largely condensed from a presentation by the editors of Modern Plastics, Spring 1968.

PURPOSE

The primary purpose of this study is to construct a Content Universal Structure of Polymer Technology with implications for Industrial Arts. While accomplishing this a limitation must be placed on its breadth and depth. The application limits of this field will be applied to industrial arts education as defined by Wilbur "those phases of general education which deal with industry, its organization, materials, occupations, processes, products and with the problems resulting from the industrial and technological nature of society". Concentration will be placed on materials, occupations, processes and products. Consumer knowledge as an inherent part of the preceding specifications.

OBJECTIVES

1. To identify a content universe which best describes the field of polymer technology with dimensions relevant to industrial arts objectives and limitations.
2. To identify present and future employment opportunities in this field.
3. To add to and update a polymer technical file.
4. To identify classroom-applied criteria concerning consumer knowledge related to plastic products.
5. To identify and review current literature related to the field and develop a selected bibliography.

PROCEDURE

1. Review available resources and categorize rough draft of content universe structure.
2. Draft form letter and mail to selected suppliers, manufacturers and processors.
3. Interview Robert Ullery, Director of Plastics Education Foundation.

4. Identify and contact selected representatives aligned with study areas.

5. Finalize content universe structure.

6. Develop a bibliography related to each major area of content universe structure.

7. Compile final report.

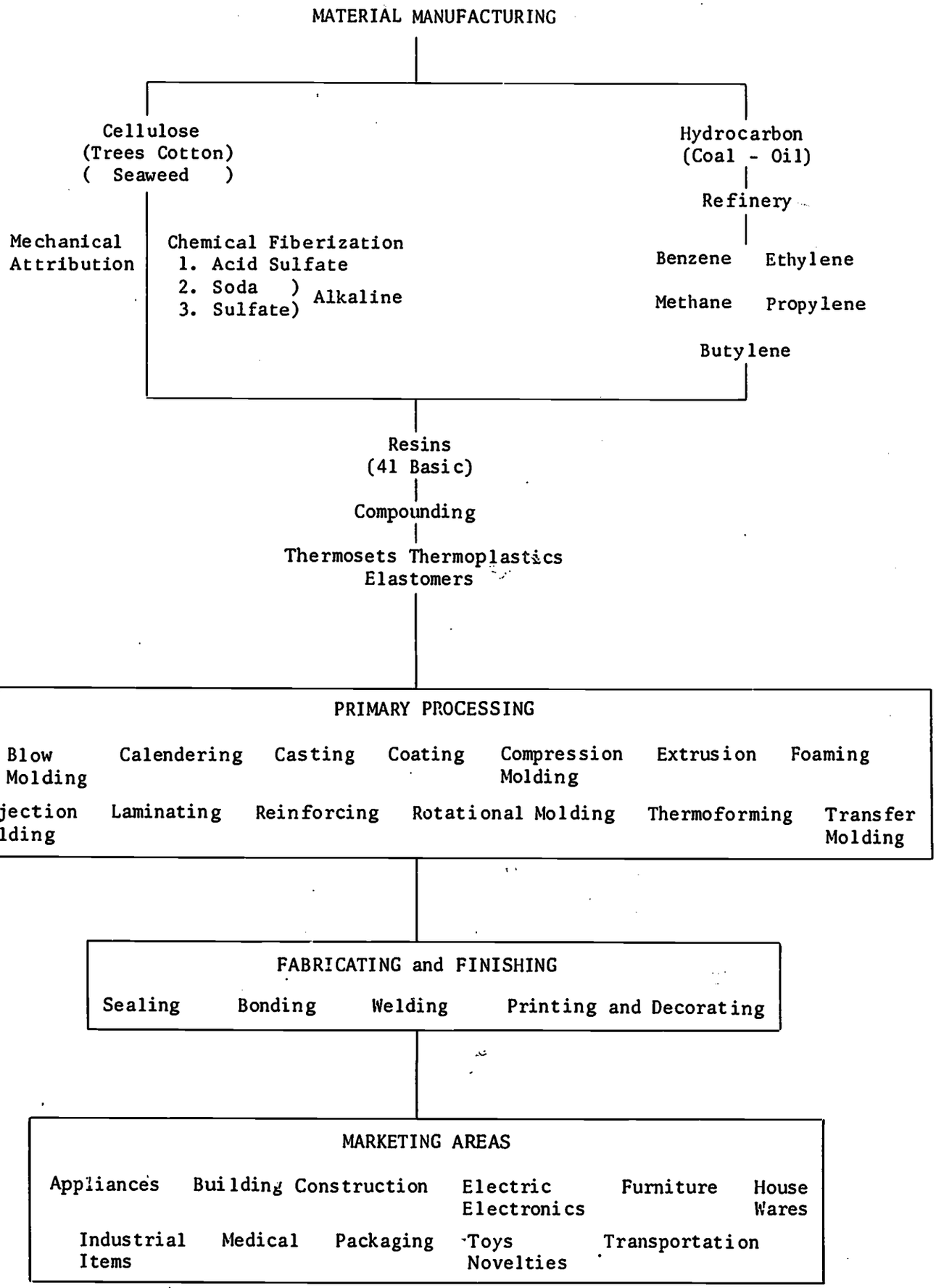
RESULTS

THE CONTENT UNIVERSE

The industrial arts teacher, undertaking the development of a Polymer Technology program, is faced with numerous obstacles. Many industrial arts texts are craft and project oriented and omit major areas of importance. The processing of raw materials is given little merit. Adhesives are usually slighted. Elastomers seldom receive even a token account of their industrial importance. Plastic products are mentioned but usually in only their most profound applications, leaving many general use applications untouched.

The content universe structure has been developed for industrial arts' practioners. It gives a broad view of what constitutes the field of Polymer Technology. It covers materials, processing and product distribution areas. The structure can be used to develop a course outline tailored to the need and limitations of the industrial arts lab. The content universe is depicted in the following chart.

CONTENT UNIVERSE STRUCTURE - POLYMER TECHNOLOGY



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Petroleum Chemicals Industry. Second Edition. R. F. Gondstein. 1958. John Wiley & Sons, Inc.

Phenolic Resins. David F. Gould.. 1959. Reinhold Publishing Corporation 1/.

Phenolic Resins. P. Robitschek & A. Lewin. Temple Press Ltd. (England)

Phenoplasts. T. S. Carswell. Interscience Publishers, Inc.

Physical Chemistry of High Polymeric Systems. H. Mark & A. W. Tobolsky. Interscience Publishers, Inc.

Physical Properties of Polymers. F. Bueche. John Wiley & Sons, Inc.

Physics and Chemistry of Cellulose Fibers. Hermans. American Elsivier Publishing Company

Plastic Analysis of Structures. Philip G. Hodge, Jr. McGraw-Hill Book Company, Inc.

Plastic Pipe. Dr. C. L. Mantell. Noyes Development Corporation.

Plastic Welding. G. Haim & J. A. Neuman. Industrial Publishing Company.

Plasticizer Technology. Paul F. Bruins. Reinhold Publishing Corporation.

Plastics. Frederick John and Harry Dubois. Reinhold Publishing Corporation.

Plastics. 1964 Reference Book. The Penton Publishing Company

Plastics and Building. E. F. MacTaggart and H. H. Chambers. 1955. Philosophical Library, Inc.

Plastics Craft. Ernest S. DeWick & John H. Cooper. MacMillan Company.

Plastics Engineering Handbook. The Society of the Plastics Industry, Inc. 1960. Third edition. Reinhold Publishing Corporation 1/.

Plastics for the Home Craftsman. Rodney Hooper. 1953. J. B. Lippincott Company.

Plastics for Corrosion - Resistant Applications. R. B. Seymour and R. H. Steiner. 1955. Reinhold Publishing Corporation 1/.

Plastics for Fun. A. F. Bick. 1954. The Bruce Publishing Company.

Plastics in Building. Edited by Irving Skeist. Reinhold Publishing Corporation.

Plastics in Building. Editors of Modern Plastics Magazine. McGraw-Hill, Inc.

Plastics in Europe. K. Mienes. Chemical Publishing Company, Inc.

Plastics in Nuclear Engineering. James O. Turner. Reinhold Publishing Corporation.

Plastics Mold Engineering. J. H. Dubois & W. I. Pribble. Reinhold Publishing Corporation.

Plastics Molding. John Delmonte. John Wiley & Sons, Ltd.

Plastics Progress. Philip Morgan. Iliffe & Sons, Ltd.

Plastics Sheet Forming. Robert L. Butsko. 1958. Reinhold Publishing Corporation 1/.

Plastics Technical Dictionary. A. M. Wittfoht. John Wiley & Sons, Inc.

Plastics Technology-Basic Materials & Processes. Robert S. Swanson. McKnight & McKnight Publishing Company.

Plastics, The Story of an Industry. 10th Revised Edition. The Society of the Plastics Industry, Inc.

Plastics Tooling. M. W. Riley. Second edition. 1961. Reinhold Publishing Corporation 1/.

Polyamide Resins. Donald E. Floyd. 1958. Reinhold Publishing Corporation 1/.

Polycarbonates. William F. Christopher. 1962. Reinhold Publishing Corporation 1/.

Polyesters and Their Applications. Johan Bjorksten, Henry Tovey, Betty Harket and James Henning. 1956. Reinhold Publishing Corporation 1/.

Polyester Resins. John R. Lawrence. Reinhold Publishing Corporation.

Polyethylene. T. C. J. Kresser. 1957. Reinhold Publishing Corporation 1/.

Polymer Processes. Schildknecht. Interscience Publishers, Inc.

Polymer Technology. D. C. Miles, J. H. Briston. Chemical Publishing Company, Inc.

Polymeric Materials. Charles C. Winding and Gordon D. Hiatt. 1961. McGraw-Hill Book Company 2/.

Polymers and Resins. Brage Golding. 1959. D. Van Nostrand Company, Inc.

Polypropylene. Theodore O. J. Kresser. 1960. Reinhold Publishing Corporation 1/.

Polystyrene. William C. Teach and George C. Kiessling. 1960. Reinhold Publishing Corporation 1/.

Polyurethanes. Bernard A. Dombrow. 1957. Reinhold Publishing Corporation 1/.

Premix Molding. Robert B. White. Reinhold Publishing Corporation.

Preparative Methods of Polymer Chemistry. Wayne Sorenson and Tod W. Campbell. 1961. Interscience Publishers, Inc.

Principles of Emulsion Technology. Paul Becher. 1955. Reinhold Publishing Corporation 1/.

Principles of Polymer Chemistry. Paul J. Flory. 1953. Cornell University Press.

Processing of Asbestos with Plastics, The. H. Berger, R. E. Oesper. Chemical Publishing Company, Inc.

Processing of Thermoplastic Materials. Ernest C. Bernhardt. 1959. Reinhold Publishing Corporation 1/.

Properties and Testing of Plastics Materials. Chemical Publishing Company, Inc.

Protective Coatings for Metals. R. M. Burns and W. W. Bradley. 1955. Reinhold Publishing Corporation 1/.

Rheology of Polymers. E. T. Severs. Reinhold Publishing Corporation.

Rigid Plastics Foams. T. H. Ferrigno. Reinhold Publishing Corporation.

Runnerless Molding. Ernest P. Moslo. Reinhold Publishing Corporation.

Silicones. Edited by Dr. S. Fordham. George Newnes Ltd.

Silicones and Their Uses. Rob Roy McGregor. 1954. McGraw-Hill Book Company, Inc. 2/.

Sound Control and Thermal Insulation of Buildings. Paul Dunham Close. Reinhold Publishing Corporation.

Source Book of the New Plastics. Herbert R. Simonds. Reinhold Publishing Corporation.

Structure of Polymers, The. M. L. Miller. Reinhold Publishing Corporation.

Surface Coating & Finishes. P. L. Gordon, G. J. Dolgin. Chemical Publishing Company, Inc.

Technical Data on Plastics. 1957. Manufacturing Chemists Association, Inc.

Textbook of Polymer Science. Fred W. Billmeyer, Jr. Interscience Publishers, Inc.

The Technology of Coated and Processed Paper. R. H. Mosher. 1952. Chemical Publishing Company, Inc. (Send orders to: Harlem Book Company).

The Technology of Natural Resins. C. L. Mantell, C. W. Kopf, J. L. Curtis and E. M. Rogers. 1942. John Wiley and Sons, Inc.

Textile Chemicals and Auxiliaries. Henry C. Speel and E. W. K. Schwarz. 1957. Reinhold Publishing Corporation 1/.

Thermal Degradation of Organic Polymers. S. L. Madorsky. John Wiley & Sons, Inc.

U. S. Foamed Mastic and Directory. 1964. Technomic Publishing Company, Stamford, Connecticut.

Vinyl and Related Polymers. C. E. Schildknecht. 1952. John Wiley & Sons, Inc.

Vinyl Resins. W. Mayo Smith. 1958. Reinhold Publishing Corporation 1/.

Vulcanization of Elastomers. Glen Alliger. Reinhold Publishing Corporation.

Welding of Plastics. J. A. Neumann & F. J. Bockhoff. Reinhold Publishing Corporation.

The following book titles and publishers addresses were compiled from U.S. Department of Commerce and The Society of the Plastics Industry, Inc. listings.

Book Publishers

American Elsivier Publishing Company, 52 Vanderbilt Avenue, New New York, N. Y. 10017

American Society of Testing Materials, 1916 Race Street, Philadelphia, Pa. 19103

American Technical Society, 848 East 58th St., Chicago, Ill. 60637

Bennett, Chas. A. Co., Inc., 237 N. Monroe St., Peoria, Illinois.

Bill Brothers Publications, Inc., 630 Third Ave., New York, N.Y. 10017.

Bruce Publishing Company, 400 N. Broadway, Milwaukee, Wisconsin.

Chemical Publishing Co., Inc., 572 Fifth Ave., New York, N. Y. 10036.

Compton, F. E. Co., 1000 North Dearborn St., Chicago, Illinois 60610.

Cornell University Press, 124 Roberts Place, Ithace, N. Y. 14850.

Goodheart-Willcox Co., Inc., 18250 Harwood, Homewood, Illinois.

Harlem Book Company, 221 Fourth Avenue, New York, N. Y. 10003.

Heath, D. C. & Co., 475 S. Dean Street, Englewood, N. J. 07631.

Iliffe Industrial Publications, Ltd., Stamford St., London, S.E. 1, England.

Industrial Publishing Co., 60 E. 42nd Street, New York, N. Y. 10017.

International Textbook Company, Scranton, Pa. 18515.

Interscience Publishers, Inc., 605 Third Avenue, New York, N. Y. 10016.

Iowa State University Press, Ames, Iowa 50010.

Lake Publishing Corp., 311 E. Park Ave., Libertyville, Ill. 60048.

Ludlow Bookman, P.O. Box 7037, N. Haven 19, Connecticut 06473.

Lippincott Company, E. Washington Square, Philadelphia, Pa.

MacMillan Co., 60 Fifth Avenue, New York, N. Y. 10011.

Manufacturing Chemists Assoc., Inc., 1825 Conn. Ave., Washington, D.C. 20009.

Materials Research, Box 172, Wellosley 81, Massachusetts.

McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York, N. Y. 10036.

McKnight & McKnight Publishing Co., Bloomington, Illinois 61701.

Oxford University Press, 417 Fifth Ave., New York, N. Y. 10016.

Newnes, George, Ltd., Tower House, Southampton St., London, W.C. 2, England.

Noyes Development Corp., 118 Mill Road, Park Ridge, N. J. 07656.

Penton Publishing Co., Penton Building, Cleveland, Ohio 44113.

Philosophical Library, Inc., 15 E. 40th St., New York, N. Y. 10016.

Pitman Publishing Corp., 2 W. 45th Street, New York, N. Y. 10036.

Plastics Institute, The, 6 Mandeville Place, London W1, England.

Prentice-Hall, Inc., Englewood Cliffs, N. J. 07632.

Putnam's Sons, G. P., 200 Madison Avenue, New York, N. Y.

Reinhold Publishing Corp., 430 Park Ave., New York, N. Y. 10022.

Riverside Press, Harvard University, Cambridge, Massachusetts.

Silver Burdett Co., 4200 N. Industrial Blvd., Indianapolis, Ind. 46254.

Society of the Plastics Industry, Inc., 250 Park Avenue, New York, N. Y. 10022.

St. Martin's Press, Inc., 175 Fifth Ave., New York, N. Y. 10010.

Temple Press, Ltd., GPO Box 147, Bowling Green Lane, London E.C 1 England.

Van Nostrand, D. Co., Inc., 120 Alexander St., Princeton, N. J. 08540.

Western Business Publications, 274 Brannan Street, San Francisco, California 94107.

Wiley, John & Sons, Inc., 605 Third Avenue, New York, N. Y. 10016.

Trade Publications

Textbooks give a composite view of the topic. Unfortunately textbooks do not provide the most current information. The only way a person can be currently informed is to read trade journals and publications. The following list will provide publication in various polymer areas.

Adhesives Age - 101 West 31st Street, New York, N. Y. 10001.

Canadian Plastics - 1450 Don Mills Road, Don Mills, Ont., Canada.

Chemical Engineering - 330 West 42nd St., New York, N. Y. 10036.

Chemical & Engineering News - 733 Third Avenue, New York, N. Y. 10017.

Chemical Industry Facts Book. 1962. Manufacturing Chemists Association, Inc., 1825 Connecticut Avenue, N.W., Washington, D.C. 20009.

Chemical Processing - 111 East Delaware Place, Chicago, Ill. 60611.

Chemical Week - 300 West 42nd St., New York, N. Y. 10036 (includes annual buyers guide).

Design News - 270 St. Paul St., Denver, Colorado 80206.

Electro-Technology - 205 East 42nd St., New York, N. Y. 10017.

Industrial & Engineering Chemistry - 733 Third Ave., New York, N. Y. 10017.

Insulation Magazine - Box 270, Libertyville, Illinois 60045.

Insulation Directory/Encyclopedia - Box 270, Libertyville, Ill. 60045.

International Foamed Plastic Markets & Directory - Technomic Publishing Co., 750 Summer St., Stamford, Conn. 06902.

Journal of Cellular Plastics - 750 Summer St., Stamford, Conn. 06902.

Machine Design - Penton Building, Cleveland, Ohio 44113.

Materials Engineering - 430 Park Ave., New York, N. Y. 10022.

Modern Packaging - 1301 Avenue of the Americas, New York, N. Y. 10019 (includes modern packing encyclopedia).

Modern Packaging Encyclopedia - 1301 Avenue of the Americas, New York, N. Y. 10019.

Modern Plastics Magazine - 1301 Avenue of the Americas, New York, N. Y. 10019 (includes modern plastics encyclopedia).

Oil, Paint and Drug Reporter. Weekly. Schnell Publishing Company, 100 Church Street, New York, N. Y. 10007. (Subscription includes Buyers Directory issue.)

Plastic Laminating - 7 East 43rd St., New York, N. Y. 10017.

Plastics Design & Processing - Box 270, Libertyville, Ill. 60048.

Plastics Technology - 630 Third Avenue, New York, N. Y. 10017.

Plastics Week - 221 Columbus Avenue, Boston, Mass. 02116.

Plastics World - 27 St. Paul St., Denver, Colorado 80206.

Product Engineering - 330 West 42nd St., New York, N. Y. 10036.

Progressive Plastics - 481 University Ave., Toronto 2, Ont., Canada.

Reinforced Plastics & Composites World Annual - 270 St. Paul St., Denver, Colorado 80206.

SPE Journal - 65 Prospect Street, Stamford, Connecticut 06902.

Western Plastics - 274 Brannan St., San Francisco, Calif. 94106.

Western Plastics Directory - 274 Brannan St., San Francisco, Calif. 94107.

Trade and Professional Associations - Domestic

Adhesive Manufacturers Association of America. 441 Lexington Avenue, New York, N. Y. 10017.

American Chemical Society. 1155 Sixteenth St., N.W., Washington, D.C.

American Institute of Chemical Engineers. 345 East 47th Street, New York, N. Y. 10017.

American Petroleum Institute. 1271 6th Avenue, New York, N. Y.

American Society of Tool and Manufacturing Engineers. 10700 Puritan Avenue, Detroit, Michigan

Chemical Market Research Association. 100 Church St., New York, N. Y.

Manufacturing Chemists Association, Inc., 1823 Connecticut Avenue N.W., Washington, D.C. 20209.

National Association of Plastics Fabricators. 812 Engineers Building, Cleveland, Ohio.

National Paint, Varnish and Lacquer Association. 1500 Rhode Island Avenue N.W., Washington, D.C. 20205.

Plastics Education Foundation. 656 W. Putnam Avenue, Greenwich, Connecticut 06830.

Plastics Engineers Association. c/o Boonton Molding Company, Boonton, New Jersey 07005.

Plastics Food Container Association. 333 North Michigan Avenue, Chicago, Illinois 60601.

Plastics Products Manufacturers Association. 1133 Broadway, New York, N. Y. 10010 (primarily manufacturers of plastic buttons, handbags, accessories, etc.).

Rubber and Plastics Adhesives and Sealants Manufacturing Council. 159 North Dearborne, Chicago, Illinois 60601.

Society of Plastics Engineers, Inc. 65 Prospect Street, Stamford, Conn.

Society of Plastics Industry, Inc. 250 Park Avenue, New York, N. Y. 10017.

The Society of the Plastics Industry, Inc., Western Section. 611 South Catalina Street, Los Angeles, California 90005.

Synthetic Organic Chemical Manufacturers Association. 41 East 42nd Street, New York, N. Y. 10017.

Technical Association of The Pulp and Paper Industry (TAPPI). 360 Lexington Avenue, New York, N. Y. 10017.

Vinyl Fabrics Institute. 60 East 42nd Street, New York, N. Y. 10017.

Periodical Literature Indices and Reference Catalogues

Articles on the plastics industry and trade are indexed in the following publications which may be consulted at many large libraries:

Applied Science and Technology Index

Business Periodicals Index

Reader's Guide to Periodical Literature

Thomas' Register of American Manufacturers. Annual. Thomas' Publishing Co., 461 Eight Ave., New York, N. Y. 10001. Includes names and addresses of U. S. manufacturers of plastics, arranged geographically with capital ratings.

Directory of Newspapers and Periodicals. N. W. Ayer and Son, Inc., West Washington Square, Philadelphia, Pa. 19106.

Standard Rate and Data Service. 5201 Old Orchard Road, Skokie, Illinois 60077.

Industrial Marketing Data and Directory Number. Advertising Publications, Inc., 740 North Rush Street, Chicago, Illinois 60611.

Plastics Education

Numerous schools, colleges, and universities throughout the United States offer courses not only in plastics chemistry, but also in methods of producing plastics materials, shaping materials into finished products, application of plastics in engineering and architecture, design of plastics products, teacher training, and handicraft work.

References to courses may be found in Plastics Education Guide - 1970 prepared under the direction of Commission on Plastics Education - The Society of the Plastics Industry, Inc. and is available free from the Plastics Education Foundation, 656 West Putnam Avenue, Greenwich, Connecticut 06830. Rg 9 P.E. Guide. Information may also be obtained from the Office of Education, Department of Health, Education and Welfare, Washington, D.C. 20202.

The following institutions have specially designed courses to prepare industrial arts teachers to teach plastics. In some cases, these courses would be appropriate to persons aspiring to teach plastics at occupational education levels. Interested persons are encouraged to inquire of the college or university regarding such appropriacy.

Ball State University
Industrial Arts Division
Muncie, Indiana

Industrial Arts Division
State University College
1300 Elmwood Avenue
Buffalo, New York

Department of Vocational Education
New York University
Barney Building
26-36 Stuyvesant Street
New York, New York 10003

Division of Industrial Arts & Technology
State University College
Oswego, New York 13126

Department of Industrial Arts
San Diego State College
San Diego, California 92115

Department of Industrial Education
Southern Illinois University
Carbondale, Illinois 62901

Iowa State University
Ames, Iowa 50010

Morehead State University
Morehead, Kentucky 40351

Murray State University
Murray, Kentucky 42071

Dept. of Industrial Education & Technology
Gorham State College
Gorham, Maine 04038

Montclair State College
Upper Montclair, New Jersey 07043

Trenton State College
Trenton, New Jersey 08625

Stout State University
Menomonie, Wisconsin 54751

Wisconsin State University - Platteville
Platteville, Wisconsin 53818

Industrial Arts Division
Kearney State College
Kearney, Nebraska

Other educational opportunities are included below.

Correspondence Courses:
Design of Plastic Products
Plastic Technicians
International Correspondence Schools
Scranton, Pennsylvania 18515

Programmed Instruction:
Fundamentals of Plastics
Penton Publishing Company
Penton Building
Cleveland, Ohio

Plastik - Lab
A $5,500 program which includes student workbooks, teachers guide, course outlines, audio-visual aids, supplies, equipment, and a one-week teacher workshop.
Write: Plastik - Lab
P.O. Box 18011
Wichita, Kansas 67218

Selected Resources for Initiating a Plastics Program

For immediate application, the following resources would provide a basic resource library for the plastics area.

Modern Plastics - which includes the Modern Encyclopedia of about a thousand pages - $12.00 per year.

Plastics Technology - $10.00 per year.

Excellent classroom aids are:

Giant Molecules - H. F. Mark - Life Science Library - 1966.

Industrial Plastics - R. J. Baird - 1971.

Plastics Technology - R. S. Swanson - 1965.

The N. Y. S. publication "An Experimental Resource Unit in Plastics for Industrial Arts" (the first state syllabus without a plastic binding). The above publication provides classroom activities, lists of equipment and material supplies.

SPI Film Catalog, The Society of the Plastics Industry, Inc., 250 Park Avenue, New York, New York 10017.

EMPLOYMENT AND TRAINING

One objective of most industrial arts programs is to provide students with a degree of occupational education. The industrial arts plastics laboratory could provide, on a small scale, representative jobs in the plastics industry. This section gives a national overview of projected jobs, their description and requirements. The plastics industry is somewhat unique in that it is very diversified and is not required to be located near sources of raw materials. The result is a wide geographic spread of the industry. About one-half of the plastics processing industries are found in New York, New Jersey, Ohio, Illinois, and California.

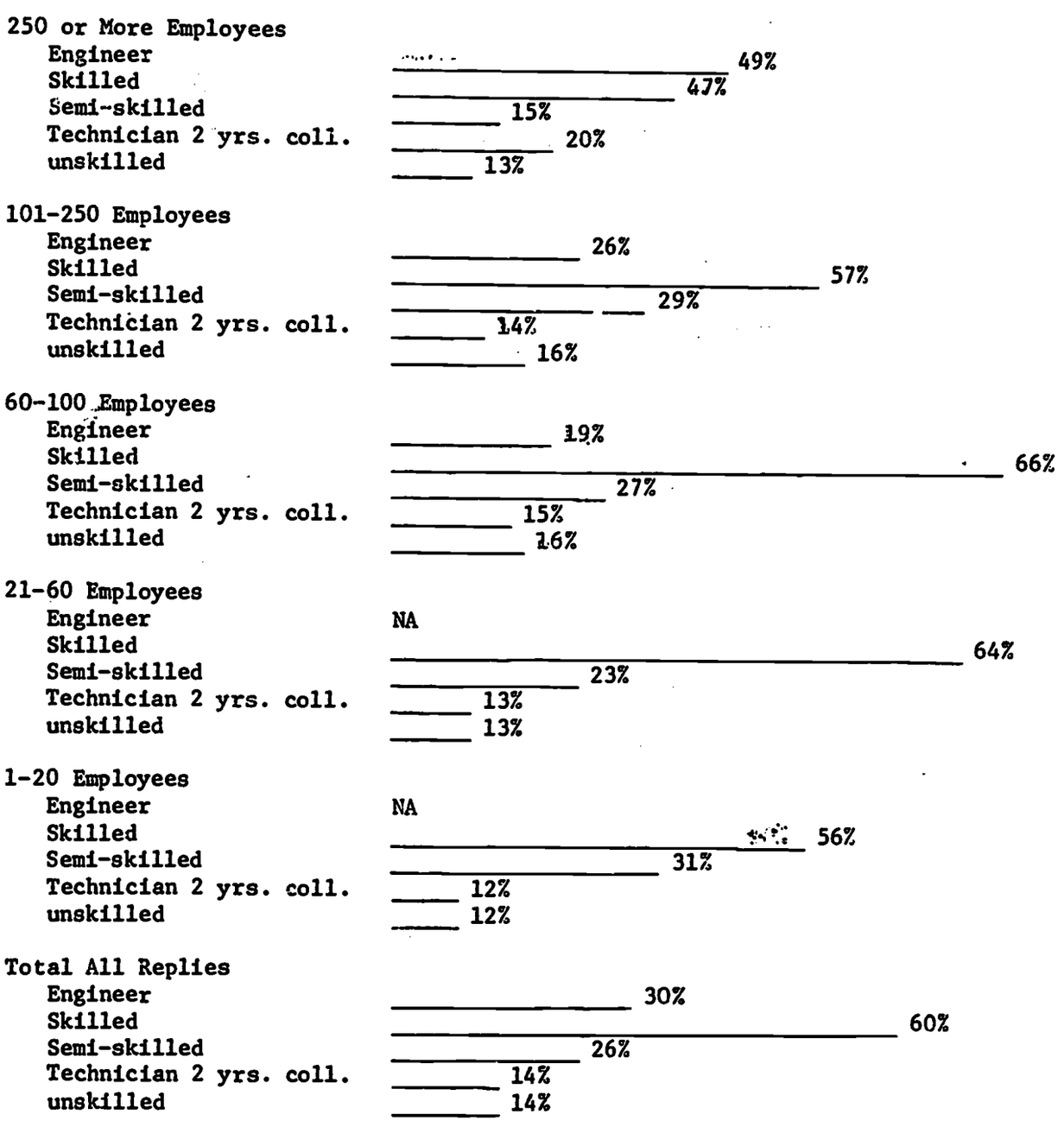
Local employment varies from area to area. The local employment information can best be procured through the area chapter of the Society of Plastics Engineers or the state employment service.

National Survey Results

A nationwide survey of plastics processing firms was conducted in 1967 by a joint SPE-SPI Education Committee. Questionnaires were sent to over 4,000 firms and approximately 25% were completed and returned, which was interpreted to be a good sample and considered a true reflection of the industry. The questions and responses are summarized in tabular form in the following pages.

What Job Level in Your Plastics Operation
Do You Find it Most Difficult to Hire?

Replies by Company Size



Would you pay new pre-trained employees higher salaries than non-trained: Yes 71% No 29%

Replies by Co. Size

No. of Employees	Amount of Extra Pay		
	10-19% extra	20-29% extra	Over 30% extra
250 or More	36%	15%	2%
101-250	48%	17%	2%
1-100	55%	18%	2%
% of Total Replies	52%	17%	2%

Those companies willing to pay extra to new employees with plastics training were overwhelming. 71% indicated they would pay extra for training; and 29% would not pay extra. Those who designated they would not pay extra increased in direct proportion to company size--47% for companies with 251 or more employees. This may be attributed to labor contract arrangements (in effect) with most large firms) which prohibit adjusting starting salary for hourly employees.

Which Would You Prefer to Hire?

	Total Replies	Replies From Companies That Would Pay Extra For Trained Employees
Non-H.S. grads willing to learn	6%	6%
H.S. grads with no spec. pl. training	16%	10%
H.S. grads with plastics training	78%	84%

78% of all replies indicated a preference for high school graduates with plastics training as compared with 16% for high school graduates with no plastics training, and 6% for non-high school graduates willing to learn. These results were fairly uniform in regard to geography and company size.

84% of companies selecting high school graduates with plastics training were willing to pay extra for pre-employment training.

Do you financially support any kind of Plastics Training for your production employees? Yes 42% No 58%

If you do not support a training program for employees now, would you provide financial support if a quality program were to be made available for your employees? Yes -- 55%

Replies by Company Size

over 250 Employees - Yes - - - - - - - - - 53%

100 to 250 Employees - No - - - - - - - - - - - - - - - - 57%

1 to 100 Employees - Yes - - - - - - - - - - - - - 55%

55% of those companies replying stated that they do not now financially support plastics training but would support a program if it were made available. 51% would offer financial support for a company program; 49% would offer financial support for an outstanding program.

Firms that would be willing to provide equipment and/or supplies to educational institutions

	Total Replies	Companies With Over 250 Employees
Equipment	60% - Yes	82% - No
Supplies	89% - Yes	90% - No

Over 70% of the companies replying indicated they would make available to educational institutions surplus equipment, supplies, or both. An average of 60% would make equipment available and 89% supplies. Response was uniform by geography and by company size except for those companies with over 250 or more employees, where 82% would make available equipment and 90% supplies.

The study found that there is a serious shortage of trained personnel in the processing industries. This shortage is not regional but nationwide and exists in direct proportion to the geographical location of present plastics processing plants. This shortage is extensive among processing companies of all sizes (small, medium, and large). The nature of the shortage may be summarized as follows:

1. The most critical shortages are for skilled employees and graduate mechanical engineering personnel.
2. 97% of those replying indicated that there will be a continual shortage of trained plastics personnel for at least the next five years, increasing in direct proportion to the industry's growth.
3. A majority of companies reported that they expected to hire more new skilled and engineering employees in the next twelve months than they did during the previous year.
4. The industry needs and wants specialized and broad plastics training programs at both high school and college levels.

The industry will financially support both company and outside training programs. Approximately 40% indicated they currently support some type of training; of those who do not, most (55%) would financially support a program if it were made available.

About 70% of the companies replying would be willing to make available equipment and/or supplies to educational institutions; over 90% of the larger size companies indicated they would make supplies available.

More than two-thirds of the plastics processing firms replying are willing to pay higher starting salaries to new employees who have had pre-employment training. About 50% would pay 10% to 20% extra; 20% would pay over 20% extra.

Plastics Education Foundation

Because of the critical need for plastics education as revealed by this survey, a Plastics Education Foundation has been created and is jointly sponsored by The Society of Plastics Engineers and The Society of the Plastics Industry.

The objectives of this organization are to cooperate with educational institutions at all levels across the country to alleviate the present shortage of and future demand for trained plastics engineers and skilled personnel. Specific goals are as follows:

1. Increase the availability of plastics educational facilities and courses at high school and post-high school levels.

2. Establishment of four year accredited plastics engineering degrees of a mechanical and industrial engineering nature, at appropriate universities and colleges.

3. Effect the addition of plastics processing technology courses to current (mechanical and industrial nature) engineering school curricula.

4. Induce a substantially greater number of American youth to pursue a plastics career. Effect increased interest of high school and college students as well as potential apprentices at all levels.

The Plastics Education Foundation with funds as well as materials and supplies from industry through donations, grants, trust fund arrangements and other sources will provide financial and material support as well as advisory and other services to schools and universities that offer required plastics educational programs.

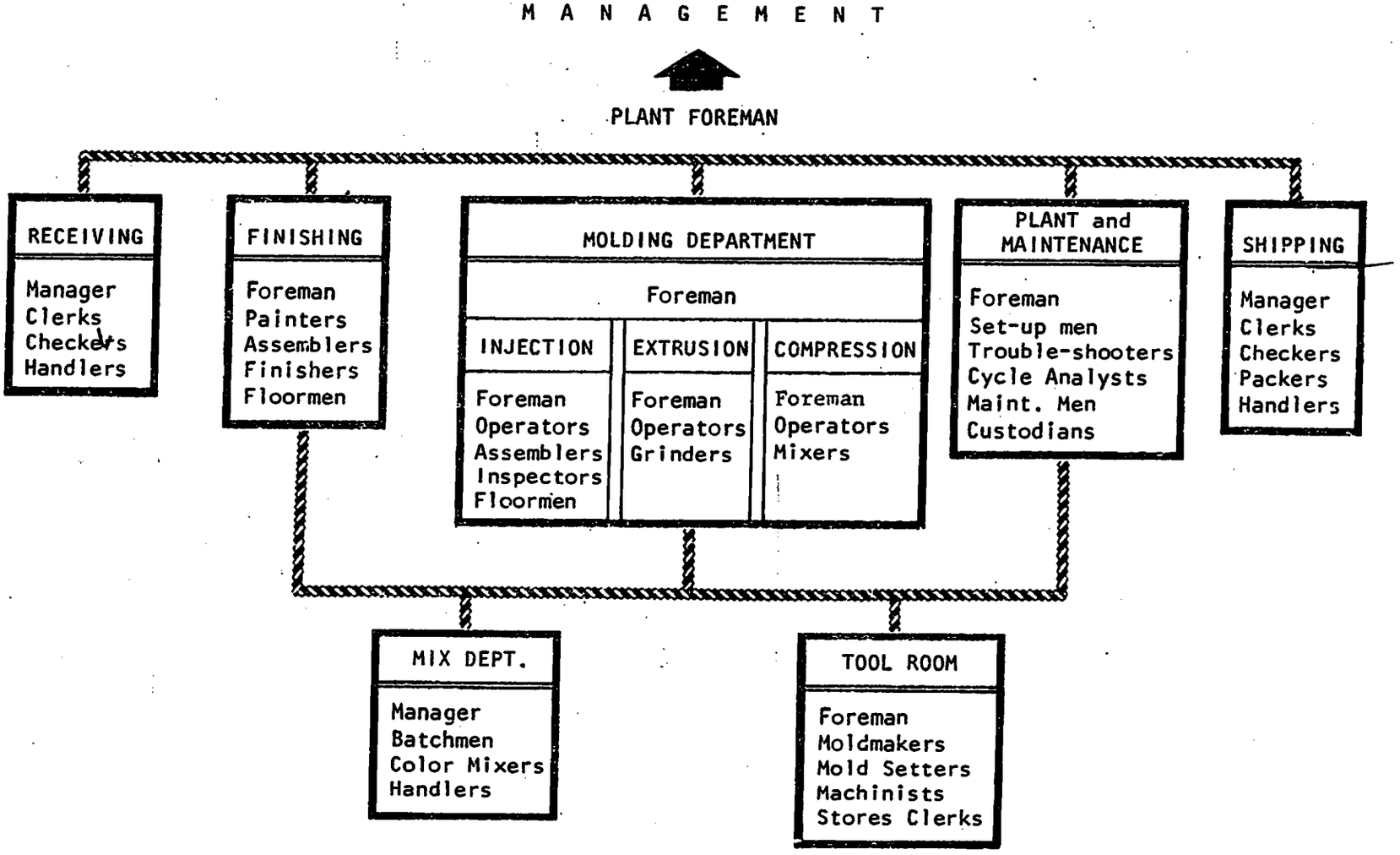
Requests for additional information and/or assistance relative to this survey and recommendations should be addressed to Joseph D. Madden, The Society of the Plastics Industry, Inc., 250 Park Avenue, New York, New York 10017.

Industrial Organization and Career Information

The following five pages which are reproductions that depict a typical organization chart, career sequence, and job descriptions in plastics manufacturing plants. All this information was furnished by SPI.

ERIC

TYPICAL ORGANIZATION CHART



CAREER LADDER

PRODUCTION ENGINEER

MOLD MAKER

QUALITY CONTROL TECHNICIAN

SET-UP MAN

REPAIRMAN

TROUBLE-SHOOTER

CYCLE ANALYST

INSPECTOR

MIXER

MACHINE OPERATOR

FLOORMAN

MATERIAL HANDLER

ASSEMBLER

FINISHER

Note: Titles based in order of typical earnings.

MOLDING AND EXTRUSION

1. WORKING FOREMAN (Hourly Paid Supervisors)

Supervises, instructs, directs and trains Molding department personnel in the proper performance of their duties. Sets and adjusts operating conditions. Diagnoses and corrects problems in set-up and operation of molds, presses and other equipment. Other duties might include routine equipment maintenance, giving relief and lunch breaks, supplying material to the press, housekeeping and performing duties of lower molding classifications, as required.

2. SETUP MAN AND/OR TROUBLE SHOOTER

Sets up molds of all sizes and complexities in a variety of automatic, semi-automatic and hand presses so that presses are ready for production when setup is completed. Removes mold and auxiliary equipment from press, sets next mold, locates and fastens on press, adjusts by shimming, sets ejection, sets pins, sets and adjusts to prescribed pressures, stroke, and temperatures, changing piping as required. Sets and adjusts machine controls. Sets up and prepares auxiliary equipment such as insert loaders, material loaders, shrink frames, pre-heaters, finishing tools and checks operation of press. Operates under detailed instructions and specifications but requires considerable ingenuity to improvise and adapt when necessary. May instruct trainees who assist him in mold and equipment changes and setups.

Works closely with shift foreman and is capable of assuming temporary supervisory responsibilities in the absence of the foreman. Diagnoses and corrects problems in set-up and operation of molds, presses and other equipment. Sets and periodically adjusts machines operating conditions. May perform routine maintenance, give breaks, fill hoppers or set molds as required.

3. COMPRESSION MOLDER

Operates compression and transfer hand molds on more complicated parts involving numerous stripping operations, loose pieces in dies, and inserts with minimum of supervision. Operates other types of compression and transfer molding equipment. Requires ability to vary prescribed operating conditions as necessary to produce quality parts. Works with a variety of molding compounds and operates two or more presses. Utilizes and changes such molding techniques as breathing of the mold, shrink fixtures, preparing and preheating of load, lubrication and cleaning, rate of close, pressures, and temperatures to correct deficiencies in quality. Keeps production records

4. COMPRESSION PREFORM MACHINE OPERATOR

Sets up and adjusts a variety of dies in automatic preform machines to produce pills of proper weight, hardness and dimension. Maintains preform machines by lubrication, cleaning and adjustment. Determines need for die repair. Adjusts dies and machines to maintain proper quality. Works under some supervision. Keeps production records.

5. INJECTION MOLDER

Sets up and operates molds, machines, and auxiliary equipment involving loose pieces in dies, inserts, etc. with little or some supervision. Operates all other types of injection molding equipment. Requires ability to vary prescribed operating conditions when necessary to produce quality parts. Works with a variety of molding compounds. Changes and adjusts molding conditions, such as temperature, pressure, feed and time, as necessary to correct deficiencies in quality. Keeps production records.

6. BLOW MOLDER

Sets up and operates blow molding machinery and auxiliary equipment with a minimum of supervision. Makes frequent quality check on molded items, adjusts and repairs malfunctioning equipment, may mix powders, mounts molds. Loads hoppers with raw material, maintains work area and equipment in proper housekeeping condition. May also keep production records. Performs other related duties as prescribed by foreman.

7. EXTRUSION OPERATOR

Sets up and operates dies, extrusion machines, and auxiliary equipment on any type of die with a little or some supervision. Requires ability to vary prescribed operating conditions as necessary to produce quality parts. Works with a variety of extrusion materials. Changes and adjusts operating conditions such as heat, pressure, screw and conveyor speed, and cooling system to maintain proper quality. Fills hopper and lubricates and cleans machines. Keeps production records.

8. REINFORCED PLASTICS OPERATOR

Operates molds and equipment used in molding reinforced plastics. Prepares molding equipment for operation. May prepare reinforcing medium and resin for molding. Loads reinforcing medium and resin or premix charges of prescribed amount into molding equipment. Carries out prescribed molding cycles. Makes minor adjustments to equipment, charge and/or cycle to obtain a quality product. Unloads parts from molding equipment. May also perform finishing operations such as trimming, sawing, sanding, drilling, etc. Keeps production records.

9. REINFORCED FIBERGLASS PREFORM MACHINE OPERATOR

Operates preform machine after setups are completed. Loads materials to machine. Removes preforms from forming machines and transfers same to drying oven. May also operate automatic preform equipment with integral ovens. Checks weight and uniformity of preform periodically and makes adjustments to feed and spray mechanisms. Removes preforms from oven and inspects. Works under supervision. Keeps production records.

FINISHING

10. FINISHER — GENERAL

Operates a variety of small hand and bench tools to remove flash, clean holes, polish edges, drill and tap holes, remove gates, etc. Performs a variety of simple hand operations such as painting, wiping, assembling, scraping, filing. Equipment includes files, scrapers, drill presses, sanding machines, bench lathes, etc. Follows prescribed methods under supervision. Inspects and gauges parts as prescribed. Makes simple tool changes. May select, count, bulk pack, wrap parts or assemblies. Keeps production records.

11. PAINTER & SPRAYER

Operates spray painting equipment in the coating of plastic parts with a variety of finishes. Adjusts air pressure and nozzle to provide proper quality. May operate with fixtures, jigs, masks as required. Cleans equipment. Inspects work and changes operating conditions to maintain quality. Follows prescribed methods with some supervision. Keeps production records.

12. BUFFING OPERATOR

Performs polishing and buffing operations on a variety of molded parts to remove rough edges, file marks, scratches, etc. and to provide required finish. Makes up and changes wheels and applies proper compound. Follows specific instructions but uses care and some judgement to manipulate work to meet quality requirements. Operates under supervision. Keeps production records.

13. TUMBLING OPERATOR

Operates one or more tumbling barrels or wheelabrators to remove flash from molded parts. Loads parts and wood pegs, balls, sawdust and abrasive or polishing material into barrel. Operates barrels at prescribed speeds and for proper cycle. Removes parts, separating them from tumbling materials. Avoids mixing parts. Moves materials to and from tumbling area. Operates under detailed instructions. Keeps production records.

14. SETUP MAN — FINISHING & PAINTING

Sets up and adjusts a variety of finishing equipment such as multiple spindle drill presses, multiple unit drill presses, tapping heads, attachments, and machines, lathes, sanding and polishing machines, shearing and punching equipment, painting, imprinting, buffing and grinding equipment. Sets up for hand operations such as filing, sanding and scraping. Checks for quality, or sets up and adjusts a variety of paint spraying, coating, and printing equipment. Prepares paints and other coatings to cover various types of plastics. Maintains and cleans equipment. Requires knowledge of paints, lacquers, thinners, oils, and related materials. Requires ability to match colors. Checks for quality. May instruct operators in proper methods.

INSPECTION

15. CHIEF INSPECTOR (Working)

Responsible for the interpretation and enforcement of quality standards as established by Standards Division. Directs and instructs the various inspectors assigned to the pressing and finishing sections. Analyzes complaints and rejections, determines the cause and initiates preventive measures, such as special inspection or, if necessary, stops production until corrective action has taken place. Responsible for special gauges and assists in the design of same. Instructs personnel in their proper use. Checks inter-plant rejects, die inspection reports and approves the acceptance of all inserts and accessories. Prepares statistical reports of the mold and subsequent operations.

16. INSPECTOR

Inspects and gauges a variety of molded, finished and assembled plastic parts. Checks for and diagnoses defects such as blisters, cracks, defective finish, excessive flash, missing or displaced inserts. Inspects and gauges finished parts for proper drilling and tapping, deflashing, polishing, assembling, and machining. May perform 100% inspection or statistical sampling as directed. Follows prescribed methods and utilizes equipment as directed. Refers questionable conditions to supervisors but works with a minimum of supervision. May perform finishing operations to correct rejected parts.

SHIPPING AND RECEIVING

17. FOREMAN (Working)

Exercises overall supervision over operation of department to ship and receive materials and products. Responsible for receiving, inspecting, checking and recording all incoming shipments. Responsible for proper and safe packing, economical and efficient routing, proper marking of shipments, preparation and inclusion of necessary packing slips and bills of lading. Responsible for working conditions, discipline, and morale in his department. Interprets and administers management policies and decisions. Responsible for accurate records.

18. SHIPPER—MATERIAL HANDLER

Moves raw materials and molded parts and packing materials to prescribed departments and locations. Uses hand and power trucks, hoists and other equipment. Loads and unloads trucks or freight cars. He may count, weigh and record when necessary.

19. PACKER

Selects, counts, bulk packs, or wraps parts or assemblies and other materials. Makes up cartons, seals and marks, inserts protective packing material. Trucks parts and packed cartons. Attaches and inserts packing slips, bills of lading, postage, as necessary. Wraps and crates shipments. May unpack and handle incoming shipments. Verifies shipments and receivings against packing slips and bills of lading. Keeps accurate production records.

20. TRUCK OPERATOR

Operates truck to transport raw materials, finished parts, and other materials between plant, warehouses, freight stations and other designated places. Loads and unloads truck. Prepares and checks necessary receipts, records and reports. Observes necessary safety precautions. May make minor repairs and performs minor maintenance on truck and other equipment.

21. CLERK

Receives incoming material, checking, counting, weighing to compare packing slips and bills of lading with purchase orders and requisitions. Records all incoming materials, reports shortages and damages, and routes materials and papers to proper destination. Checks and records outgoing shipments. Prepares and uses proper packing slips and bills of lading. Addresses and routes shipments as directed. Maintains shipping and receiving records.

MAINTENANCE

22. FOREMAN (Working)

Exercises overall supervision over operation of department to maintain buildings and equipment in satisfactory condition, and makes repairs as necessary. Plans and operates preventive maintenance program. Responsible for plant utilities and power plant. Provides janitor service. May act as plant safety coordinator. Responsible for working conditions, discipline, and morale in department. Directs and trains junior supervisors and delegates responsibility and authority. Interprets and administers management policies and decisions.

23. MILLWRIGHT

Keeps machinery, equipment and plant structure in operating condition. Such plant equipment includes plastics processing equipment of all types, machine tools, drill presses, grinders, pumps, boilers and air compressors. Maintains and installs piping, fittings, valves, gauges, traps, and all types of controls for high and low pressure hydraulic systems and steam and air lines. Performs carpentry and sheet metal work in fabricating and repairing benches, guards, boxes, trays, partitions, etc. Prepares locations and foundations. Lubricates machines and equipment, grinds valves and performs other plant maintenance work as required. Works under supervision.

POWER SUPPLY

24. ELECTRICIAN

Installs, maintains, repairs and adjusts a variety of electrical equipment such as motors, lighting circuits, power lines, fixtures, switches and controls. Performs routine maintenance and repairs on high frequency preheaters. Diagnoses and corrects difficulties to minimize production interruptions. Operates under supervision.

TOOL ROOM

25. FOREMAN (Working)

Exercises overall supervision over operation of department to construct, alter, maintain and repair molds, dies, jigs and fixtures, tools and other equipment. Plans work of department to meet production schedules. Controls quality of work in Tool Room and indirectly in production departments. Responsible for working conditions, discipline, and morale in his department. Directs and trains junior supervisors and delegates responsibility and authority. Interprets and administers management policies and decisions.

MISCELLANEOUS

26. PORTER — JANITOR, etc.

Cleans, sweeps, scrubs, mops, and dusts factory areas and offices. Keeps rest rooms in order. Washes windows, sweeps sidewalks, shovels snow, cuts grass, maintains grounds. Removes scrap, waste material and performs other miscellaneous tasks. Works under specified routine or explicit direction.

The Dictionary of Occupational Titles categorize all occupations into nine broad categories, which is in turn, divided into divisions and then groups.

The nine occupational categories of the occupational group arrangement are identified by the number 0-9, reflected in the first digit of the code number, as follows:

0)
1) Professional, technical, and managerial occupations
2 Clerical and sales occupations
3 Service occupations
4 Farming, fishery, forestry and related occupations
5 Processing occupations
6 Machine trades occupations
7 Bench work occupations
8 Structural work occupations
9 Miscellaneous occupations

The second and third digits specify more specific job areas within the first broad digit.

The last three digits of the code number are based on the following findings of the U. S. Employment Service research:

1. Every job requires the worker to function in relation to data, people, and things in varying degrees.

2. The relationships specific to data, people and things can be arranged in each case from the simple to the complex in the form of a hierarchy so that, generally, each successive function can include the simpler ones and exclude the more complex functions.

3. It is possible to express a job's relationship to data, people, and things by identifying the highest appropriate function in each hierarchy to which the job requires the worker to have a significant relationship.

4. Together, the last three digits of the code number can express the total level of complexity at which the job requires the worker to function.

The three-digit hierarchical classification system is presented in the following lists:

Data (4th Digit)	People (5th Digit)	Things (6th Digit)
0 Synthesing	0 Mentoring	0 Setting-up
1 Coordinating	1 Negotiating	1 Precision
2 Analyzing	2 Instructing	2 Operating - controlling
3 Compiling	3 Supervising	3 Driving - operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking - signaling	6 Feeding - offbeating
7) No significant	7 Serving	7 Handling
8) relationship	8 No significant relationship	8 No significant relationship

The D.O.T. code (last three digits) on the following page indicates that most occupations in plastics manufacturing are not demanding as far as working with data and people are concerned. Note that this picture changes for the last five titles. These, as one would expect, are higher on the career ladder. Machine tending work is more completely described on page 42; capacities and aptitudes for typical job titles are described on pages 43 and 44.

JOB LOCATOR

Plant Title	D.O.T. Title	D.O.T. Code 1/
Molding Machine Operator Machine Operator Operator	Injection-Molding Machine Tender	556.885
Finisher	Finisher, Hand	754.884
Assembler	Assembler	754.884
Material Handler	Laborer, Stores	922.887
Floorman	Material Handler	929.887
Mixer	Mixing-Machine Opr.	550.885
Hand Finisher	Laminator, Preforms	754.884
Set-Up Man Cycle Analyst	Mold Setter	556.780
Maintenance Man Trouble-Shooter	Maint. Mechanic 11	638.281
Mold Makers	Tool-And-Die Maker	601.280

1/ U.S. Department of Labor, Dictionary of Occupational Titles, Third Edition, Volume I. Washington: U.S. Government Printing Office, 1965.

Machine Tending Work

Background Information

Employees in Machine Tending Work are concerned with:

1. Starting machines, observing them in operation, and stopping them.
2. Maintaining and making minor repairs to a variety of machines and equipment.

Advantages

Entry jobs are usually available
Steady employment

Disadvantages

Work may be monotonous
Workers may be expected to maintain specified production pace.

Education and Training

1. Many jobs require only up to an 8th grade education.
2. High school or vocational school graduation may provide better advancement opportunities.
3. No experience is required for many jobs.
4. On-the-job training time requires ranges from a short demonstration to 6 months.

Significant Worker Traits

Interests

1. Interest in working with things and objects.
2. Liking for routine and organized activities.
3. Preference for work carried out in relation to processes, machines, and techniques.

Temperaments

1. Capacity to follow set procedures while performing repetitive or short cycle work.
2. Willingness to follow instructions.
3. Capacity to work to set limits, tolerances, or standards.

Physical Demands and Working Conditions

1. Ability to life and/or carry objects weighing up to 20 pounds required for some jobs; then up to 100 lbs.
2. Capacity for stooping, kneeling, reaching, handling, and seeing (involved neon visual activity and depth perception).
3. Exposure to noisy and hazardous work area.

Aptitudes

Occupations in machine tending work:

OAP 19, 22, 28, 32.
SATB 161, 306.

Other Entry Qualifications

1. Applicant must pass manual dexterity, mechanical comprehension, educational or nonverbal intelligence tests in some cases.
2. Union membership may be required for some jobs.
   Note (106 unions represent the field of plastics)
3. Responsibility may be essential if expensive equipment is used.

General Aptitude Test Battery

	D.C.T. Code	G	V	N	S	P	Q	K	F	M
Injection-Molding Machine Tender	556.885					85	85	95		
Finisher, hand	754.884					90			80	95
Assembler	754.884						85	85		85
Laborer, Stores	922.867	80		80			80			
Material Handler	929.887							80		80
Mixing-Machine Operation	550.885	80		80			80			
Laminator, Preforms	754.884					90			80	95
Mold Setter	556.780									
Maintenance Mechanic 11	638.281	90			90				90	
Tool and Die Maker	601.280	95		95	100					

The code letters above refer to capacities and aptitudes which are required of an individual in order to learn or perform adequately a task or job duty. They include:

G - Intelligence: General learning ability. The ability to "catch on" or understand instructions and underlying principles. Ability to reason and make judgements. Closely related to doing well in school.

V - Verbal: Ability to understand meaning of words and ideas associated with them, and to use them effectively. To comprehend language, to understand relationships between words, and to understand meanings of whole sentences and paragraphs. To present information or ideas clearly.

N - Numerical: Ability to perform arithmetic operations quickly and accurately.

S - Spatial: Ability to comprehend forms in space and understand relationships of plane and solid objects. May be used in such tasks as blueprint reading and in solving geometry problems. Frequently described as the ability to "visualize" objects of two or three dimensions, or to think visually of geometric forms.

P - Form Perception: Ability to perceive pertinent detail in objects or in pictorial or graphic materials; to make visual comparisons and discriminations and see slight differences in shapes and shadings of figures and widths and lengths of lines.

O - Clerical Perception: Ability to pertinent detail in verbal or tabular material. To observe differences in copy, to proofread words and numbers, and to avoid perceptual errors in arithmetic computation.

K - Motor Coordination: Ability to coordinate eyes and hands or fingers rapidly and accurately in making precise movements with speed. Ability to make a movement response accurately and quickly.

F - Finger Dexterity: Ability to move the fingers and manipulate small objects with the fingers rapidly or accurately.

M - Manual Dexterity: Ability to move the hands easily and skillfully. To work with the hands in placing and turning motions.

E - Eye-Hand-Foot Coordination: Ability to move the hand and foot coordinately with each other in accordance with visual stimuli.

C - Color Discrimination: Ability to perceive or recognize similarities or differences in colors, or in shades or other values of the same color; to identify a particular color, or to recognize harmonious or contrasting color combinations, or to match colors accurately.

Source - General Aptitude Test Battery
New York State Department of Labor
New York State Employment Service
January 1968

CONSUMER KNOWLEDGE OF PLASTIC PRODUCTS

The consumer of plastic products today has very little basis from which to judge his purchase, even though he has purchased plastic items before. Will his purchase burn, melt, crack, craze, dent, deteriorate when near solvents, acids, etc? These are only a few questions which face the consumer. The consumer is protected by various state and federal agencies, but up to this time these agencies have had virtually no complaints of plastic misuse or misrepresentation. A number of reasons could be provided why complaints are few. Consumers could feel the generally low price of plastic products is synonymous with short life expectancy of the product. Another explanation could be that the industry, through its associations, strives to keep standards high. The few complaints on record by state and federal agencies were lodged in the following areas with the following results:

1. Plastic film manufacturers agreed to place holes in their film, such as garment bags etc. to protect small children against suffocation.

2. Plastic refuse cans that would burn. Federal agencies feel this problem has been eliminated.

3. A large number of complaints concerning plastic containers used for volatile liquids have been lodged. Containers lacked sufficient thickness to protect corners from puncture. Thus during use or storage a hazardous condition could occur. Some state legislatures have passed laws prohibiting gasoline stations from filling plastic containers with volatile liquids. Some states will fill only approved plastic containers.

Consumer Knowledge in the Industrial Arts Lab

A polymer technology program can bring forth many usable facts to aid the student in future plastic product purchases. Instruction concerning

materials, processing and testing could help achieve this goal.

The testing area could provide experiences in plastic identification and determination of physical, chemical and thermal characteristics. The American Society of Testing and Materials (A.S.T.M.) (1916 Race Street, Philadelphia, Pennsylvania 19103) has two publications designed to standardize plastic testing: (1) Part 26 - specifications, methods of testing pipe, film, reinforced and cellular plastics and, (2) Part 27 - general methods of testing nomenclature. Many of the prescribed tests are applicable to the industrial arts laboratory, using existing equipment and materials. The tests could be placed in seven categories:

1. Mechanical
2. Thermal
3. Chemical
4. Permanence
5. Analytical
6. Optical
7. Electrical

These tests are also explained in Volume 47, No. 10A, 1970-71, Modern Plastics Encyclopedia.

SPI Consumer Knowledge and Attitude Study

Recognizing that the ultimate consumer's attitude toward plastic products could greatly affect the status and profitability of the plastics industry as a whole, there was general agreement that resources should be mobilized to positively influence the consumer's acceptance of plastic products. Before undertaking a program as extensive as trying to alter consumer attitudes, a measurement of current awareness and attitude toward plastics was needed.

Accordingly, the SPI commissioned an exploratory research project whose broad objective was to provide information which would indicate the

scope of the problem faced in trying to broaden the consumer's acceptance of plastics. Wagner, Bicking, and Fenwick, Ind. conducted the study which ended in 1970. Through a series of meetings with the SPI, it was decided that the initial research step should be to explore the consumer's level of knowledge of plastics. The objectives of the research project were fourfold:

1. To determine whether the consumer was aware of the use of plastic in the manufacture of a range of familiar consumer products.
2. To determine whether the consumer associated plastic raw materials with plastics in general.
3. To determine how the consumer described plastic.
4. To determine how the consumer evaluated plastic.

The survey covered consumers in Chicago, Atlanta, and Alburquerque. The sample interviewed was half women and half men, half under 35 and half over 35, and included non high school graduates through college graduates.

The study found that classifications of the plastic raw materials as plastic was generally low ranging from a high in the case of vinyl to a low for nylon. Wrong answers were greatest for nylon, cellophane and fiberglass. "Don't knows" were greatest for urethane, melamine and styrene. Respondents had a relatively unsophisticated image of plastic; they felt it was practical, durable, and inexpensive.

Many liked plastic, but an equal number had mixed feelings or disliked it as a material. Respondents liked plastic because it was practical, durable, and inexpensive. They disliked it because it was not durable.

A relative lack of familiarity with the range of raw material options was apparent.

As far as plastics being identified as a product's raw material on a first mention basis, raincoats led the field at 58%. Mixing bowls (32%), radio cabinets (34%) and throw away cups (29%) were clustered at a lower level of recognition. Lowest in recognition were plumbing pipes (5%), watchbands and insides of cushions (3% each) and ashtrays (6%). Interestingly, 24% identified motor boat hulls as being made of fiberglass while only 12% said they were made of plastic. Don't know answers were greatest for power drill casings and motor boat hulls.

"Don't know" answere were typically greatest for plastic subgroups ranging from 64% for urethane, to 45% for melamine, to 40% for styrene. Most other plastic raw materials were not known between 11% to 30% of the time. By contrast, the highest incidence of "don't knows" for a "non-plastic" item was for oilcloth (15%) followed by canvas (6%) and cardboard (3%). Erroneous classifications of plastics were apparent in the cases of fiberglass (37% calling it glass); nylon (48% calling it cloth); cellophane (29% calling it paper); and naugahyde (29% calling it leather).

Recognition of plastics as plastics typically occurs between 25% - 55% of the time. Highest in recognition were vinyl (73%), polyethylene (55%), cellophane (52%) and styrofoam (51%). Least recognized were nylon (14%), acrylic (24%) and urethane (25%).

Descriptions of plastic reveal an unsophisticated image of plastic. Most respondents (51%) called it versatile or practical, some, (25%), called it durable and others, (22%), called it inexpensive. Additional descriptions were that plastic was synthetic (13%), a substitute material (12%), and was hard or rigid (14%).

Relatively infrequent were descriptions that suggested an awareness of the breadth of plastic's forms. Dichotomous descriptions included both hard and soft (9%), both clear and opaque (5%), both smooth and rough (5%) and both thick and thin (2%).

Respondents' evaluations of plastic indicated a split of opinion. Nearly half (46%) liked plastic from their experience with it but an equal number either had mixed feelings -- both like and dislike (23%) -- or disliked it (22%). Reasons given for liking included inexpensiveness (18%), durability (24%), practicality (23%) and that plastic was lightweight (9%). The most frequent reason for disliking plastic was that it was not durable (46%) and it should be noted that only 10% describe plastic as not durable.

Based upon this exploratory research, the following tentative conclusions were offered:

1. Knowledge of plastics is primarily related to personal exposure to plastic products, and people evaluate plastic in terms of their satisfactory or unsatisfactory experience with those products.

2. Association between plastics as a generality and specific plastic raw materials (styrene, vinyl, and so on) is not great.

3. Knowledge of raw materials is less than that of products.

4. Plastic is seen as a down-to-earth, functional material in most respondents' experience, and is judged by whether it does its job.

A number of questions suggested themselves for additional research based upon this exploratory project. Among them were:

1. Since there is a limited degree of association between plastic in general and specific plastic raw materials, does the consuming public have different images of and attitudes toward each specific material?

2. In the purchase of utility products, how important is the raw material used and how does its importance differ in the purchase of expensive or decorative products?

3. Where raw material is a major purchase criterion, on what basis is it evaluated? Based upon each product application or generally?

4. If raw material is evaluated generally, what is the consumer's attitude toward various raw materials?

These questions are of interest to industrial arts practitioners as well as to the SPI's membership.

As for current efforts of the SPI, data from this exploratory project suggest a general lack of information rather than the presence of negative information about plastics. An obvious recommendation for SPI, therefore, was to mount a public relations and advertising effort whose strategy it would be to inform the general public of where and how plastics are used in familiar products. Assuming the products used as examples were made of a high enough quality so that the consumer would not be reminded of an unsatisfactory experience, acceptance of the product could be the level used to gain acceptance of plastic.

VISITATIONS

The time allotted for plant visitations proved to be one of the highlights of the research. Without exception, each manufacturer visited volunteered in a very positive tone, "if we can ever help in any way, be sure to let us know". Noting their willingness, it is difficult to believe that plastics' manufacturers have been approached to any degree for assistance by industrial arts educators. The industry, as a whole, is ready, willing and able to help promote plastics' education. Upon completion of visitations one returns with a wealth of current technical information from observation, discussion and product brochures. A portfolio of product samples at various stages of completion which will serve as invaluable teaching aids for laboratory application was available at most visitations. Usable amounts of materials were offered at about one half of the visitations and others would have assisted if they were asked. Plant tours to groups were acceptable to most manufacturers. Work areas are generally not hazardous, noisy or dirty. A vast resource remains essentially untapped.

VT 016 270
REICH, CAROL M.; ZEIGLER, SUZANNE
A FOLLOW-UP STUDY OF SPECIAL VOCATIONAL AND SPECIAL HIGH SCHOOL STUDENTS.

TORONTO BOARD OF EDUCATION (ONTARIO).
RESEARCH DEPT.
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ABSTRACT - A FOLLOWUP STUDY OF STUDENTS FROM TEN SPECIAL VOCATIONAL SCHOOLS AND SPECIAL HIGH SCHOOLS IN TORONTO AND THE BOROUGH OF YORK, INCLUDING GRADUATES AND DROPOUTS, WAS DESIGNED TO ANSWER QUESTIONS CONCERNING WHO ATTENDS THE SCHOOLS, WHAT HAPPENS TO THESE STUDENTS, AND WHAT STUDENTS FEEL ABOUT THEIR SCHOOL EXPERIENCE. DATA WERE COLLECTED IN 1971 ON THOSE WHO HAD BEEN OUT OF SCHOOL FOR TWO YEARS. TELEPHONE INTERVIEWS REACHED 59 PERCENT OF THE SPECIAL VOCATIONAL AND 62 PERCENT OF THE SPECIAL HIGH SCHOOL STUDENTS ENTERING THE LABOR MARKET. ANALYSIS SHOWED THAT SEX WAS THE MOST IMPORTANT FACTOR IN RESPECT TO SALARY LEVEL. FOCUSING ON OCCUPATIONAL AND EDUCATIONAL SUCCESS, THE STUDY DESCRIBES THE ETHNIC AND ACADEMIC BACKGROUNDS OF THE STUDENTS AND DISCUSSES VARIABLES IN THE AREAS OF EMPLOYMENT STABILITY, SALARY LEVELS, AND OCCUPATIONAL ADVANCEMENT. ABOUT 71 PERCENT OF THE STUDENTS WERE EMPLOYED. THERE WAS LITTLE RELATIONSHIP BETWEEN AREAS OF VOCATIONAL SPECIAIZATION AND JOB PLACEMENT. FACTORS SUCH AS EMPLOYER BIAS, THE TYPE OF SCHOOL, AND SUCCESS IN SCHOOL APPEAR TO INFLUENCE OCCUPATIONAL SUCCESS. TABLES PRESENT THE DATA. (AG)

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A FOLLOW-UP STUDY OF SPECIAL VOCATIONAL AND SPECIAL HIGH SCHOOL STUDENTS

#102

Carol M. Reich
Board of Education for the
City of Toronto

Suzanne Zeigler
Board of Education for the
Borough of York

April, 1972

ACKNOWLEDGEMENTS

Many people contributed to this study at various stages. Dr. R. Keith, research officer for the Borough of York, initiated the idea and outlined the general focus of the study. Heads of Guidance from the various boroughs as well as the Directors of Research made major contributions to details of design and development of the interview schedule. These early meetings were arranged by Dr. D. C. Hambleton, Educational Research Co-ordinator for the Metropolitan Toronto School Board.

The developmental stage occupied a year. Following design of the study, many other people aided in its execution. The study involves students from the central area of Metropolitan Toronto. Both the City of Toronto and the Borough of York have schools included in the study. The two Research and Development Co-ordinators for the Borough of York during the period - Page Westcott and Dr. Suzanne Zeigler - worked directly with the principal investigator at every stage. In addition, the Borough of East York and the Metropolitan Separate School Board are also represented since their two-year and special vocational students use the Toronto schools.

The Principals and Heads of Guidance of the special vocational and special high schools facilitated the collection of data from school records and provided comments which aided in interpreting and writing up the results. The Directors of Research for the various boroughs co-operated in following-up students who transferred to schools in their boroughs. School staffs and the personnel of various training agencies throughout Metro were kind enough to collect the necessary information about transfers.

The research staff was headed by Ms. Susan Kaufman. The Research Department's regular secretarial staff, who had to handle a large number of tasks not normally part of their duties, was in large measure responsible for the success of the data collection and data analysis procedures.

ADDENDUM*

(Please replace the first full paragraph on page 14 of A Follow-up Study of Special Vocational and Special High School Students with the following:)

It is difficult to find suitable data with which to compare these figures. The unemployment rate for Canada as a whole was 8.1 per cent in February of 1971, the month during which most of these data were collected. For all 14 to 19 year olds, the rate was 16.7 per cent (Dominion Bureau of Statistics, 1971). But the government figure includes as unemployed only those who were actively seeking work, while the rate for special students includes everyone who was not actually working. When students who said that they were not looking for a job are excluded, the unemployment rate drops to 18.6 per cent. The rate would probably drop even more if students who had not looked for a job that very week were excluded as is done in government surveys. In other words, this report counts as unemployed people whom the Dominion Bureau of Statistics ignores, people who may have given up looking for work because they are discouraged.

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* The additional material will be incorporated in the text for future editions of this report.

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INTRODUCTION

For many years the Board of Education for the City of Toronto has provided secondary school programmes for students for whom the 4- and 5-year programmes appear unsuitable. These programmes are of two types. The special vocational schools offer vocational training to students who have been performing poorly in school; these programmes run three or four years, depending on the progress of the individual student. Students in the special vocational schools typically come from opportunity classes in the elementary schools. The special high schools offer a programme of job preparation for students of less limited academic ability. These students have either come from the academic vocational classes in elementary school, have failed grade 8 and elected not to repeat, or, although passing grade 8, have expressed a desire to leave school upon reaching the age of 16.

The Board of Education requested a follow-up study of these schools (Board of Education for the City of Toronto, Board Minutes, July 15, 1970). The study is designed to describe the occupational and educational experiences of students after leaving school. This study was planned in co-operation with the Borough of York. Toronto has four 2-year high schools; York has one. Toronto also has four special vocational schools; York again has one. There are, thus, 10 schools in the study. The study, however, also includes students from the Borough of East York and from the Metropolitan Toronto Separate School Board. These two Boards, which do not have their own facilities of this type, send students who could benefit from such programmes to the appropriate Toronto school.

The more recently a student has left school, the easier he is to locate. However, the longer he has been in the labour force, the more

it is possible to observe definite patterns of employment. As a compromise the study was designed to look at students who had been out of school for about two years. The sample was defined as those students whose last day of attendance fell within the school year, 1968-69, and data were collected in February 1971. This sample includes both graduates and drop-outs. The goal was to give a complete accounting of all students who left during a particular year for whatever reason. This included students who moved out of the area, those who transferred to other schools, and those who entered the labour market.

The study was designed to answer the following questions:

1. Who goes to the special vocational and special high schools?
2. What happens to these students when they leave school?
3. What is the relationship between the particular course taken in school and the student's present job?
4. How do students feel about their school experiences?

The report attempts to answer these questions. A companion report, Issues in Evaluating Occupational Programmes, deals with the general problems involved in such an attempt. The two reports should be read together. Ideally, Issues in Evaluating Occupational Programmes should be read first. The background information it provides will help the reader understand the evaluation process and approach the follow-up data with greater insight.

This study was not intended to provide a complete picture of the special student. It has a limited focus -- occupational and educational success. Education has other, more general aims as well, but these have not been investigated here.

WHO GOES TO THE SPECIAL VOCATIONAL AND SPECIAL HIGH SCHOOLS?

The social background of special vocational and special high school students is not too different in general character from the secondary school population as a whole. Data collected in the Spring of 1970 (The Every Student Survey, Wright, 1970) shows that about 50 per cent of all Toronto students are English-speaking Canadians. The same is true for special vocational and special high school students. Non-English-speaking immigrants comprise the next largest group, about 30 per cent. Two remaining groups are much smaller: non-English-speaking Canadians, and English-speaking immigrants (see Table 1).[1, 2]

There are, however, some important differences. Non-English-speaking Canadians are underrepresented in the follow-up schools. The Every Student Survey found that they are the most academically proficient group. Non-English-speaking immigrants are overrepresented. The Every Student Survey found that they are the least academically proficient group. Therefore, some of the academic limitations of the follow-up students stem from cultural and language factors.

The Every Student Survey found that students in the follow up study and students in the total secondary school population were also generally similar in the kind of socio-economic background from which they came. By far the largest group of students have fathers with jobs as

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1 The data on ethnic and occupational background to be discussed here refers only to Toronto schools. York schools may be quite different; comparable data were not available.

2 The terms "Canadian" and "immigrant" are used in this paper to refer to place of birth, not citizenship. "English-speaking" and "non-English-speaking" refer to mother tongue, not present language ability.

TABLE 1

ETHNIC BACKGROUND OF SPECIAL VOCATIONAL, SPECIAL HIGH SCHOOL, AND ALL SECONDARY SCHOOL STUDENTS
(The Every Student Survey Sample, 1970)

Ethnic Background	Percentage of Students in Each Category		
	Special Vocational (N=2018)	Special High School (N=2541)	All Secondary Schools (N=30624)
Canadians			
English-speaking	52.52	48.09	52.38
Non-English-speaking	9.16*	7.47*	15.19
Immigrants			
English-speaking	5.15	5.62	6.37
Non-English-speaking	33.00*	38.44*	25.90
No information	.14	.35	.14
Total	100.00%	100.00%	100.00%

* School percentage differs significantly from the total secondary school percentage (see Appendix A).

unskilled workers (occupational category 2). Skilled workers, clerical workers, business and management positions and the professions are represented by much smaller numbers (occupational categories 3 to 9, see Table 2).

However, again there are differences between the special schools and Toronto secondary schools in general. In both the special vocational and special high schools, the lowest occupational category is over-represented. And the general pattern is for the higher occupational categories to be progressively underrepresented. Therefore, the special schools draw more heavily from the lower income groups in the City.

Statistical tests show that occupational background is more important than ethnic background in leading to placement in a special school.[3] However, the relatively small differences in background do not seem adequate to account for the large differences which are observed in I.Q. and academic performance, differences which exist not only between the special schools as a group and the general secondary population, but between the special vocational and special high schools themselves.

Although I.Q. does not fully describe a person's abilities, it is useful as an index of skills required for school success. Almost all of the special high school students have an I.Q. in the range of C or lower, whereas only 70 per cent of the general population would be expected to score at or below this point. Almost all of the special vocational students

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3 χ^2 was used to assess the significance of the differences between the backgrounds of special vocational and all secondary school students and between special high school and all secondary school students. For ethnic background the respective values are 91.82 and 231.02. For occupational background the respective values are 936.25 and 677.73. All χ^2 values are significant beyond the .001 level. The strength of statistical association was measured using the phi coefficient. The values for ethnic background are .11 and .15. The values for occupational background are .34 and .25 (Hays, 1963).

TABLE 2

OCCUPATIONAL BACKGROUND OF SPECIAL VOCATIONAL, SPECIAL HIGH SCHOOL, AND ALL SECONDARY SCHOOL STUDENTS
(The Every Student Survey Sample, 1970)

Category Number	Category Description	Percentage of Students in Each Category		
		Special Vocational (N=2018)	Special High School (N=2541)	All Secondary Schools (N=30624)
2	labourers, truck drivers, taxi drivers, waiters and porters	51.13*	54.34*	42.74
3	bartenders, sheetmetal workers, mechanics and repairmen	7.43	7.24	7.68
4	sales clerks, jewellers, stationary engineers and machinists	4.60	3.89	4.97
5	pressmen, printing workers, electricians, members of the armed forces and clerical occupations	5.74*	7.31*	9.27
6	actors, tool and die makers, medical and dental technicians, embalmers, real estate salesmen, engravers	3.61*	4.28*	6.09
7	musicians, stenographers, athletes	.89*	1.73*	4.35
8	clergymen, various owners and managers, insurance salesmen, librarians	1.58	2.04	4.68
9	teachers, professional engineers, physicians, lawyers, accountants, computer programmers, air pilots	.59*	1.29*	8.00
unemployed		8.77*	3.73	3.15
housewife		9.76*	8.06*	4.40
other - e.g., retired, welfare, student		2.92	2.12	1.80
no information or unknown		2.92	3.89	2.86
TOTAL		100.00%	100.00%	100.00%

* School percentage differs significantly from the total secondary school percentage (see Appendix A).

2069

have an I.Q. in the range of D or lower, whereas only 20 per cent of the general population would be expected to fall at or below this point (Wechsler, 1949).[4,5]

Over 80 per cent of the special vocational students perform at or below the 6th grade level on standardized achievement tests in mathematics, English, reading, and spelling. Only 2 or 3 per cent score at the 9th or 10th grade level with their age-mates.

Very little is yet known about what leads some students to be successful in school and others to fail. Undoubtedly many factors are involved. It is known that factors contributing to school success are more often present in certain ethnic and occupational groups than in others. But ethnicity and occupational background have been overemphasized as explanatory concepts in themselves, when they are merely crude indicators of other factors which are much more basic.

This study can say nothing about these basic causes of school success or failure, or about the actual potential of students in the special schools. The results do reveal, however, something about the level of occupational success a student actually does achieve, and a little about the nature of the school's contribution to his success.

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4 The difference between the distributions of special vocational and special high school students has an χ^2 value of 391.10, significant beyond the .001 level. The phi coefficient has a value of .40.

5 Student I.Q.s had been tested with a variety of measures, most notably the WISC and the Stanford-Binet. It is felt that the distribution of scores for different tests is sufficiently similar so that the same scores on different tests can be treated as equivalent for purposes of this gross comparison.

WHAT HAPPENS TO STUDENTS WHEN THEY LEAVE SCHOOL?

Based on information from school records, students who left school fell into one of three groups. Some students left because they moved out of Metropolitan Toronto. These students were not followed up. A second group transferred to other schools within Metropolitan Toronto. Students in this group were followed up by asking the school to which they transferred to supply information on the students' dates of entry and withdrawal and some indication of their progress (see Appendix B). The third group of students presumably entered the labour market. These students were contacted for a telephone interview about their occupational and educational experiences since leaving school. Each group will be considered in turn.

Moving Out of Metropolitan Toronto

Seven per cent of the special vocational and 3 per cent of the special high school students in the sample moved to another city, another province, or even another country (see Figure 1). By and large these students withdrew well in advance of the usual term of stay. Special vocational students who moved had attended an average of only 1.2 years, and special high school students an average of .9 years. Since this group was not followed up it is not known whether they re-enrolled in another school or ended their formal education.

Transferring to Other Schools

There is quite a bit of student movement from the special schools to other schools. Figure 1 shows that 29 per cent of the special vocational and 19 per cent of the special high school students in the sample transferred

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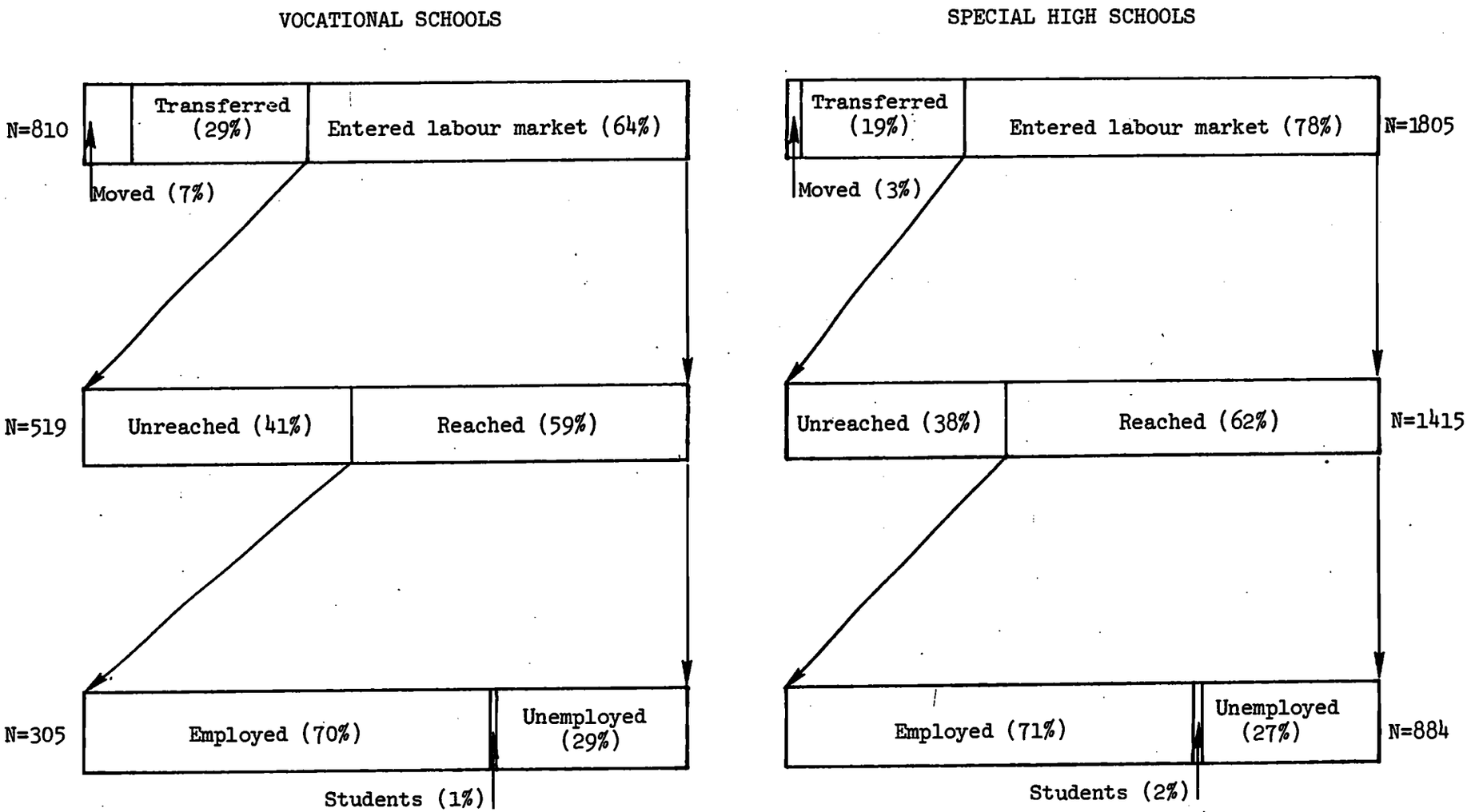

Fig. 1. Status of students leaving the vocational schools and special high schools in 1968-1969.

to other schools throughout Metropolitan Toronto. These students stayed an average of 1.6 years in special vocational schools and 1.4 years in special high schools.

Most transfers from the special high schools reflect academic success and the student's ability to handle a more demanding placement. Eleven per cent of the special high school sample entered a 4- or 5-year programme, and a few entered one of the Colleges of Applied Arts and Technology (CAAT). A large number of transfers from the special vocational schools reflect similar success. Nine per cent of the sample transferred to special high schools, and a few entered 4- or 5-year programmes, CAAT colleges, or private vocational schools. The figures for special vocational schools, however, must be interpreted with caution because of organizational differences between York and Toronto schools (see Table 3).

The higher geographic mobility of special vocational students, seen in the number moving out of Metropolitan Toronto is also reflected in the transfer rate within Metro. The largest group of special vocational transfers merely re-enrolled in another special vocational school. Only 3 per cent of the special high school transfers re-enrolled in another special high school. Such re-enrollments probably reflect nothing more than family movement from one location to another.

The few remaining transfers do not fall into any category. About 1 per cent of the students in each group entered a public school, presumably to successfully complete the regular grade 8. About 1 per cent of the special high school students moved to a special vocational school. A few students in each group went to some type of rehabilitation centre. And some were placed in correctional institutions (4 per cent of special vocational and 2 per cent of special high school students).

TABLE 3

PERCENTAGE OF SPECIAL VOCATIONAL SCHOOL AND SPECIAL HIGH SCHOOL STUDENTS TRANSFERRING TO VARIOUS TYPES OF SCHOOLS

Transfer School	Vocational Schools (N=235)	Special High Schools (N=342)
Public School	1.23	.55
Special Vocational School	11.85	.66
Special High School	9.13	2.99
4- and 5-year programmes	.61	11.24
CAAT	.37	.49
Private Vocational Schools	.61	---
Correctional Institutes	4.07	2.16
Rehabilitation Centres	.98	.16
Unknown	.12	.66
TOTAL	28.97%	18.91%

There is a great deal of variation among individual schools in the total transfer rate. In general, transfer rates are correlated with the proportion of males in the school population. This probably reflects both greater geographic mobility on the part of boys and greater concern with upgrading.

Entering the Labour Market

The body of this report is concerned with the students who did not move out of Metropolitan Toronto and who did not transfer to another school within Metropolitan Toronto. This group, comprising 64 per cent of the total special vocational sample and 78 per cent of the total special high school sample, presumably entered the labour market (see Figure 1). This was the group contacted for an interview.

The attempts to reach all of these students were quite extensive. Addresses and telephone numbers were collected from school records. A letter explaining the purpose of the study was sent to each student in this group, along with a self-addressed, stamped envelope and a card requesting the student to indicate his current address and phone number, and the best time and day of the week to telephone.

All addresses and telephone numbers were given to a market research firm for the actual contacting and interviewing. Students were traced using the phone book, city directory, and even former neighbours. Most students that we found (60 per cent) were located through the telphone numbers listed in school records, although several calls were often necessary to actually reach them. The remaining 40 per cent were traced through two or more different telephone numbers.

Students contacted were interviewed over the telephone, except for a few who had no telephone and were interviewed in person. The interviewers were employees of the market research firm. They were all

mature women, experienced in interviewing, who established good rapport with the students. Of the 1160 students contacted, only 16 refused to be interviewed. Almost all were sufficiently interested in the study to accept an offer for information on its results.

In spite of these efforts, it was possible to contact only 59 per cent of the special vocational and 62 per cent of the special high school students entering the labour market (see Figure 1). The success rate was little improved by a second wave of mailings. It is possible, therefore, that the data are biased because the students that were not reached are different from the ones who were. It is known that the unreached students are more mobile and that they attended school for a shorter period of time. Nevertheless, the figures to be presented here are the best data available and the best estimate of what actually occurred with the group as a whole. The data should be interpreted with some caution, however, probably as representing the most favourable estimate of the success experienced by special students.

The remainder of this report is concerned with the occupational success of the special vocational and special high school students entering the labour market. The study includes many aspects of employment in an attempt to provide a comprehensive picture of the students' occupational experience. To be discussed are employment stability, salary levels, and occupational advancement.

Employment Stability

The most immediate indicator of employment success is employment rate. The data indicate that 70 per cent of the special vocational and 71 per cent of the special high school students were employed. A small group, 1 per cent and 2 per cent respectively, were attending another school full-time. Most of these were attending a CAAT college. The

remainder of those contacted, 30 per cent of the special vocational and 27 per cent of the special high school students were unemployed (see Figure 1). The differences between the two groups of schools are not significant (see Appendix A).

It is difficult to find suitable data with which to compare these figures. The unemployment rate for Canada as a whole was 8.1 per cent in February of 1971, the month during which most of these data were collected. For all 14 to 19 year olds, the rate was 16.67 per cent, still considerably lower than the rate for special students. But the Canadian sample covers all young people, including grade 13 graduates (Dominion Bureau of Statistics, 1971).

The London (Ontario) Board of Education conducted a follow-up study of students from its special high school (Small and Stennett, n.d.). The unemployment rate for these students was 27 per cent, identical to the rate for Toronto special high school students. However, the London study differs from the study reported here in many ways, including a much shorter time between school leaving and the time of follow-up, a much smaller contact rate, and a more favourable employment situation in 1965, the time the data were collected.

The lack of suitable comparison figures means that it is impossible to say whether the follow-up schools are doing a good or a bad job in preparing students for adult life. Certainly an unemployment rate of 30 per cent is undesirable. But whether the schools are doing all that they can or should do is an unanswerable question. We know too little about the inherent potential of this group beyond the fact that they have experienced difficulty in school throughout their lives.

In analyzing employment success in greater detail, sex emerges as an important factor, although not one with consistent effects. Females are as successful or more successful than males in some aspects of employment; males are more successful in others.

Comparative employment rates for males and females are different in the two types of schools (see Table 4). Vocational school females have an employment rate which is significantly lower than vocational school males (see Appendix A). Special high school males and females have employment rates which are not significantly different.

However, employment rates for women cannot be considered apart from marital status. Many women, although not in the labour force, are profitably occupied as housewives and mothers. This is often the case with the unemployed females in this sample who, it is found, are much more likely to be married than any other group of special students (see Figure 2). If these women are considered "employed," the employment rate for special vocational school females rises to the same level as the rate for males, and the rate for special high school females rises to a level significantly higher than for males (see Table 5, and Appendix A).

Two other indices of job stability also show little difference between type of school and between males and females.

One of these is the length of time that students who were employed at the time of the interview had held their jobs. Table 6 shows that the average value for all groups was between 13 and 15 months.[6]

The final index of employment stability is the proportion of time that students have been employed since being out of school. This is called the employment ratio, and is calculated for all students who were interviewed,

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6 Comparisons were made between males and females separately for each type of school and between schools separately for each sex. The statistic used was the student's t-test (Hays, 1963).

TABLE 4

EMPLOYMENT STATUS BY SCHOOL TYPE AND SEX

Status	Vocational Schools		Special High Schools	
	males (N=144)	females (N=161)	males (N=505)	females (N=379)
Employed	76.38%	63.35%	69.10%	73.35%
Attending School	2.09	---	2.77	1.58
Unemployed	21.53	36.65	28.13	25.07
TOTAL	100.00%	100.00%	100.00%	100.00%

TABLE 5

EMPLOYMENT STATUS BY SCHOOL TYPE AND SEX
WITH HOUSEWIVES INCLUDED AS EMPLOYED

Status	Vocational Schools		Special High Schools	
	males (N=144)	females (N=161)	males (N=505)	females (N=379)
Employed	76.38%	79.50%	69.10%	84.69%
Attending School	2.09	---	2.78	1.58
Unemployed	21.53	20.50	28.12	13.73
TOTAL	100.00%	100.00%	100.00%	100.00%

TABLE 6

INDICES OF OCCUPATIONAL SUCCESS BY
SCHOOL TYPE AND SEX (EMPLOYED STUDENTS ONLY)

Index	Vocational Schools		Special High Schools	
	males (N=144)	females* (N=161)	males (N=505)	females* (N=379)
Months at present job	13.24	15.18	13.08	14.26
Percentage of time employed since leaving school	71%	62%	70%	73%
Present weekly salary	$91.05	$75.04	$98.70	$77.22
Starting weekly salary	$73.75	$62.14	$82.08	$66.21
Future Salary	$155.00	$101.70	$176.58	$98.77
Percentage receiving a raise	73%	64%	72%	74%
Percentage promoted to new position	17%	11%	27%	24%
Percentage supervising other workers	14%	3%	17%	8%

* All females included regardless of marital status.

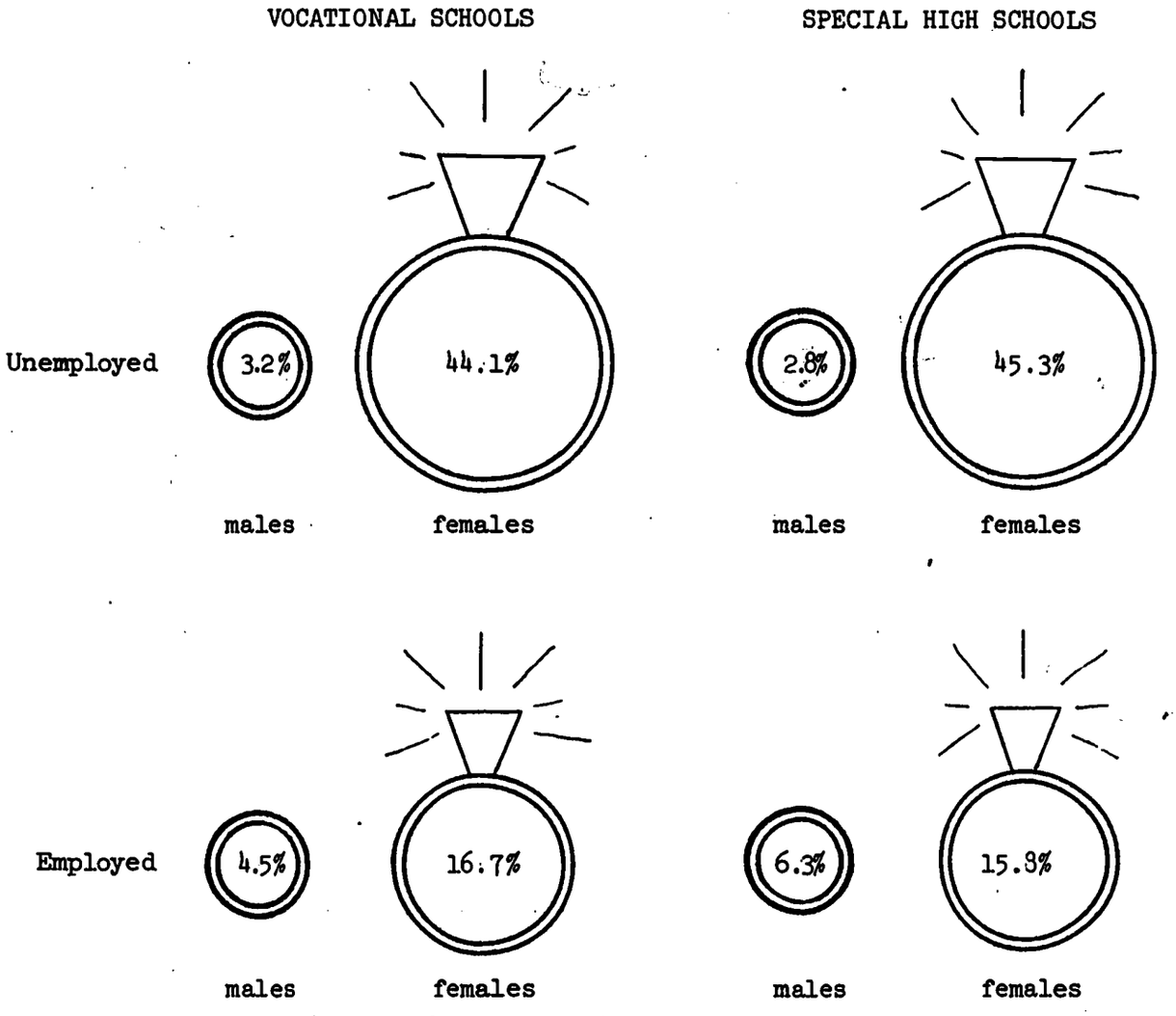

Fig. 2. Marital status of unemployed and employed males and females by school type and sex.

whether employed at the time of the interview or not. In general, the students have been employed about 70 per cent of the time (see Table 6). The exception is vocational school females, whose employment ratio of only 62 per cent is significantly lower than the rate for either special high school females or for special vocational school males (t-test). The ratios for both vocational school and special high school females would undoubtedly rise if marriage rates were again taken into account.

Salary

In contrast to employment stability, salary level shows important differences for school and for sex (see Table 6). The average weekly salary of special vocational school students was $83.24. Special high school students averaged $89.06. Differences by sex were even larger. Combining data from the two types of schools, the average weekly salary for males is $96.87 compared to the females' salary of only $76.63, a difference of about $20.00 a week.

A statistical analysis was done which assesses the relative importance of various factors in predicting salary levels. This was done separately for the two types of schools. Of all the factors that were tested, sex emerged as the most important.[7]

Occupational Advancement

The same pattern occurs with starting salaries. Males from vocational schools and high schools began by earning $73.75 and $82.08 per week, respectively. Vocational school and high school girls earned $62.14 and $66.21 respectively (see Table 6).

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7 This analysis was a linear regression assessing the ability to predict salary of the following variables: sex, language, age, months in the job market, length of school attendance, and possession of a diploma. Among special high school students sex correlated .38 with salary and accounted for 14.2 per cent of the variance. Among special high school students sex correlated .27 with salary and accounted for 7.4 per cent of the variance. The effect of the other variables will be discussed later.

During the period of approximately 14 months that students have held their present jobs, weekly earnings have increased a great deal. This is especially surprising in view of the fact that, while close to 70 per cent of the students reported receiving a raise during this period, only 23 per cent moved to a new position. Promotions to a new position, in contrast to salaries vary more by school than by sex (see Table 6). Differences between males and females within each type of school are not significant. Significant differences are present between school types, with more high school than vocational school students being promoted, for both males and females (see Appendix A).

Employed students were asked how much they expected to earn in the future if they remained in their current job. Over half of the students could not answer, many of them expressing the view that their current job held very little possibility for advancement and they couldn't imagine staying with it for very long. However, for those who did answer, the usual sex difference was evident. Future salaries, for students in each type of school, are significantly higher for males than for females. Type of school makes a difference only for males, where high school males expect to be earning more than vocational school males (t-test).

The percentage of students in supervisory positions also indicates advancement. The number of such students is low, only 3 per cent to 17 per cent. This is not surprising in view of their age. Even so, the familiar sex difference emerges, with males more frequently in such positions than females. There are no differences between the two types of schools (see Appendix A).

Type of Job

Of all the indices of occupational success, the most striking difference between groups is found in salary levels. Are there any job characteristics which can account for them? The data on job advancement are more help. More special high school than special vocational school students had been promoted to a new position. More males than females were supervising other workers.

There are also differences in the type of work the students were doing. Students' jobs were coded according to the scheme used in the United States Labour Department's Dictionary of Occupational Titles (DOT). Each job listed in the index has a six digit code. The first three digits give a very detailed categorization of the type of work that is involved. The last three digits indicate the kinds of skill required by the job. Skill requirements will be discussed later. Only the first digit will be considered here; this digit classifies jobs into very general groups. Table 7 lists the digits, which run from 0 to 9, and gives a short description of each as well as examples. The table also gives the number of employed students whose jobs fell into each of the 10 job types. The students again are divided according to school type and sex.

Table 7 shows that there are differences in job types among the four groups. Boys are more likely to hold jobs in categories 6, 8, and 9. These are machine trades, structural work, and occupations in transportation and heavy industries. Girls are more frequently found in categories 2 and 3, i.e. clerical occupations and sales and service. There are also a few category differences between schools although these are less important than the sex differences.[8] High school boys are more

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8 χ^2 on school differences in type of job held has a value of 18.63, significant beyond the .05 level; phi has a value of .11. For sex differences, χ^2 = 251.94, significant beyond the .001 level, phi equals .39.

TABLE 7

NUMBER OF STUDENTS EMPLOYED IN VARIOUS TYPES OF JOBS
(DICTIONARY OF OCCUPATIONAL TITLES JOB CATEGORIES)

DOT Occupational Categories	Category Examples	Vocational Schools		Special High Schools	
		Males	Females	Males	Females
0-1 -- Professional, technical, and managerial occupations	Assistant Restaurant Manager, Artist, Bank Cashier	1	2	15	1
2 -- Clerical and sales occupations	Salesclerk, General Office Clerk, Mail Carrier	27	49	80	219
3 -- Service occupations	Baby Sitter, Barber, Cook	9	20	29	30
4 -- Farming, fishery, forestry, and related occupations	Grounds Keeper, Livestock Caretaker, Farm Equipment Operator	2	0	2	0
5 -- Processing occupations	Baker, Foundry Worker, Electroplater	8	3	10	3
6 -- Machine trades occupations	Auto Mechanic, Die Cutter, Offset Printer	12	5	63	1
7 -- Bench work occupations	Assembly Worker, Silk Screen Etcher, Sewing Machine Operator	7	6	26	15
8 -- Structural work occupations	Auto Body Repairman, Electrician's Apprentice, Carpenter	10	0	34	0
9 -- Miscellaneous occupations	Stationary Engineer, Packager, Truck Driver	26	14	79	5
TOTAL		102	99	338	274

likely to hold jobs in category 6, machine trades. A rather large difference is found for the girls, with many more high school girls in clerical and sales jobs, and more vocational school girls in service occupations. The jobs held by boys and high school students are ones which are generally more highly paid than the jobs held by girls and vocational school students.

School Achievement and Occupational Success

Students attending the special schools receive a variety of diplomas indicating different levels of achievement. These range from a simple Certificate of Attendance to an Ontario Certificate of Standing, which states that the possessor has achieved a grade 10 standing in both vocational and academic subjects. Students who received any type of diploma were defined as "graduates."

Looking at employment rates, Table 8 shows that graduates are more likely to be employed than non-graduates. Graduates also earn higher salaries. The lone exception is vocational school females, where the higher salary found for non-graduates may be distorted due to the small number of students in that group.

Relative Importance of Student Background Characteristics and School History to Occupational Success

An analysis was done of the relative importance of several factors in accounting for occupational success. The variables included in this analysis were language background, sex, age, possession of a diploma, length of school attendance, and length of time in the job market.

TABLE 8

OCCUPATIONAL SUCCESS OF GRADUATES AND NON-GRADUATES BY SCHOOL TYPE AND SEX

Group		Per Cent Employed			
		Graduates	N	Non-graduates	N
Vocational Schools:	Males	82%	62	72%	82
	Females	72%	120	39%	41
Special High Schools:	Males	79%	291	56%	214
	Females	82%	253	56%	126

Group		Weekly Salary			
		Graduates	N	Non-graduates	N
Vocational Schools:	Males	$93.61	51	$88.80	59
	Females	$74.11	86	$79.94	16
Special High Schools:	Males	$101.82	229	$92.57	120
	Females	$77.99	207	$74.90	71

For both special vocational and special high school students the most important variable in predicting employment ratio is the presence or absence of a diploma.[9] Diploma however, makes no significant difference to salary level where sex is most important. The effect on employment ratio of holding a diploma indicates, that for the special schools at least, education does bear some relationship to occupational success. Some researchers have argued that school success actually interferes with job performance. Berg (1970) found that among people holding the same job, the less well educated were the most productive. For example, considering people employed as chemists, workers holding only the M.A. degree were rated by their superiors as more productive than workers with Ph.D.'s.

Berg's data argue against judging a person's suitability for a job on the basis of his educational attainments. There is some support for this position in the data from this study. Special high school students, as a whole, have no better history of employment stability than special vocational school students, although they have had more success in school. Although high school students earn higher salaries, the difference is not as large as might be expected on the basis of the differences in I.Q. and academic performance which exist between the two groups.

However, employers certainly consider education important. The chemist with a Ph.D. is usually hired before the one with only a M.A. In our study, students from the special high schools were hired for different types of jobs than special vocational school students. Graduates from both types of schools were more successful in finding jobs and in earning

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9 The correlation between diploma and employment ratio is .26 for special vocational schools and .34 for special high schools. The variance accounted for is 6.8 per cent and 11.9 per cent respectively. Both t values are significant.

higher salaries than non-graduates. It is impossible to say how much of this is due to employer bias and how much to actual differences in ability.

The past academic history of these students follows them into the future. Although students who do well in a special school can transfer to a more demanding programme, the route they have taken costs something in the number of years needed to complete their education. In the same way, students from the special schools may eventually attain the same level of success as grade 13 graduates, but they will have had to work harder to overcome employer bias, and not all will succeed.

There is evidence that they can overcome their initial disadvantage to some extent. The longer that vocational school students have been in the job market, the higher their salaries, although this is not true for students from the special high schools. It will also be seen later that older vocational school students were more successful than younger students in finding jobs requiring higher levels of skill in human relationships and in manipulating ideas. It would be profitable to follow these students further into the future to see if differences between the special students and their age mates increase or decrease.

The same employer bias which operates in favour of graduates, also favours males over females. Females are restricted in the types of jobs for which they will be hired, regardless of their actual abilities or employment stability. This results in lower salaries and few opportunities for advancement.

Another variable which emerged as having some inportance for occupational success was language background. There was a tendency for non-English-speaking students to have higher employment ratios.[10] This indicates

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10 Correlations between language background and employment ratio were .13 for special vocational and .16 for special high school students, with 3.4 per cent and 1.3 per cent of the variance accounted for. t values are significant.

that part of the academic handicap of such students results from language and cultural differences. These students probably have higher innate ability than the general population of the special schools, but have had to bear the cost of cultural change.

The final variable with any predictive power was length of school attendance. However, this variable did not act in a straightforward way. Normally, students who stay long in school are more likely to get a diploma and to be successful in finding a job. However, considering only vocational school students who did not get a diploma, those who stayed in school the longest had less occupational success. While this relationship is statistically significant,[11] it is very small and educationally not very important. It does indicate that some vocational school students remain in school although they are not continuing to benefit from the programme in ways which will facilitate their later employment. However, they may benefit in other ways.

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11 The correlation between length of attendance in a vocational school and employment ratio was -.0002 because of the large general correlation between attendance and diploma of .57. However, with the effect of diploma removed, attendance accounted for 2.4 per cent of the variance.

WHAT IS THE RELATIONSHIP BETWEEN THE PARTICULAR COURSE TAKEN IN SCHOOL AND THE STUDENT'S PRESENT JOB?

Previous research has found that vocational school graduates generally do not find employment in the area for which they were trained. For example, in a study by Eninger (1965), graduates of 4-year technical schools in the United States were asked to judge the degree of relationship between the course they had taken and their present job. Four categories were used: present job in the same trade as the one for which they had prepared, present job in a highly related trade, a slightly related trade, or a completely unrelated trade. The percentage of respondents in each category is given in Table 9. As can be seen, only 29.8 per cent of the respondents said they were employed in the same trade as the one for which they had been trained. Since there are four categories of response, each particular category is likely to be chosen by chance 25 per cent of the time. Thus, a response rate of 29.8 per cent for the "same trade" category is not much better than would be expected by chance. It is important to note that these are graduates of 4-year schools and likely to have more success in finding a job in their chosen field than students from the special schools.

It is hard to interpret Eninger's findings because it is not known exactly what his respondents meant by "same," "highly related" or "slightly related." For the study reported here a more objective analysis was designed based on the Dictionary of Occupational Titles (DOT) coding scheme.

TABLE 9

RELATIONSHIP BETWEEN COURSE OF STUDY AND FIRST JOB PLACEMENT
(Eninger, 1965)

Degree of Relationship	Percentage of Replies
Same trade	29.8
Highly related trade	18.4
Slightly related trade	14.5
Completely unrelated trade	37.3
TOTAL	100.0%

Relationship Between Training and General Job Categories

The first digit of the DOT coding scheme was used above to describe the general categories into which students' jobs fell. In order to assess training-placement relationship, each area of specialization offered in the special schools was assigned to one of these same DOT categories, the category which best describes the type of jobs for which students in that area of specialization are trained. Thus, for example, the Junior Commercial course was assigned to DOT category 2, Clerical and Sales, because it prepares students for such jobs as typist, file clerk, and secretary. Likewise the course in Trowel Trades was assigned to DOT category 8, Structural Work, because it prepares students to work as bricklayers and construction workers. These assignments were made after discussions with the Heads of Guidance in the special schools.

Table 10 lists the DOT job categories. Beside each DOT category are the areas of specialization which prepare students for jobs in that category. And beside each area of specialization is the number of students in the sample who took that course.

Looking through the table will give an idea of the range of occupations included in each DOT category. Job category 3 for example, Service Occupations, includes such diverse jobs as baker, barber, and nurse's aid. Job category 8, Structural Work, includes carpenter, electrician, and welder. Although there is great variation in the specific skills required by jobs in the same category, they are related in terms of general product, industry, or purpose.

A student whose present job falls into the same DOT category as his area of specialization is considered to be working in a field related to his training. Surely this is a most generous criteria. According to this scheme, a student who studied welding and later worked as a carpenter

TABLE 10

AREAS OF SPECIALIZATION GROUPED BY DOT JOB CATEGORY

DOT Category	Area of Specialization	Number of Students
0-1 -- Professional, technical, and managerial occupations	Commercial Art	13
	Music	19
	Photography	2
2 -- Clerical and sales occupations	Junior Commercial	81
	Bookkeeping and Business machines	28
	Forkner Shorthand	42
	Keypunch	61
	Merchandising and Display I	8
	Merchandising and Display II	42
	Offset Printing	14
	Warehousing and Stockkeeping	2
3 -- Service occupations	Baking	7
	Barbering	4
	Food Preparation	26
	Hairdressing	12
	Hospital Services	8
	Laundry and Dry Cleaning	8
	Shoe Repair and Leatherwork	14
4 -- Farming, fishery, forestry, and related occupations	Horticulture	7
5 -- Processing occupations		--
6 -- Machine trades occupations	Auto mechanics	36
	Machine shop	5
	Small engine repair	1

...continued

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TABLE 10
(continued)

AREAS OF SPECIALIZATION GROUPED BY DOT JOB CATEGORY (CONTINUED)

DOT Category	Area of Specialization	Number of Students
7 -- Bench work occupations	Power Sewing	5
	Sewing	31
	Upholstery	17
8 -- Structural work occupations	Auto Body	15
	Carpentry	31
	Electrical	14
	Heating Services	32
	Trowel Trades	1
	Welding	2
9 -- Miscellaneous occupations	Auto Service	14
	Printing	6
	Stagecraft and Audio-Visual Aids	3
TOTAL		611

is said to be working in a field related to his training. It is unlikely that any of Eninger's respondents would have judged such a combination as even "highly related." Nevertheless, this crude method of assessing the degree of course-job fit is useful in establishing the most favourable estimate of the relevance of formal training to occupational placement.

Table 11 classifies employed respondents according to both course and job category. Category "9" has been omitted since it is a "Miscellaneous" category. Each cell in the table gives the number of students whose area of specialization falls into the category indicated by the row heading and whose job falls into the category indicated by the column heading. Cells on the diagonal of the table have identical row and column headings and indicate the number of students who are employed in fields related to their training. Adding up these figures and dividing by the total number of students included in the table, reveals that 52 per cent of the employed respondents were working in training-related fields.[12] Since there are eight courses and eight job categories, only about 13 per cent of the students would be expected to find a course-related job by chance. Therefore, the actual figure of 52 per cent is encouraging. However, this seemingly strong relationship is due to the fact that most students taking Clerical and Sales training find related employement (category 2). It is questionable whether this can be attributed to the schools. Students in category 2 courses and jobs are generally female (see Table 7). These are the courses traditionally open to women, and these are the jobs for which they are traditionally hired.

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12 A χ^2 test was also used on these data after omitting categories with too few respondents. The value of χ^2 was 168.8528, significant beyond the .001 level.

TABLE 11

COURSE CATEGORY AND JOB CATEGORY OF EMPLOYED RESPONDENTS

Course Category	Job Category								Total
	0-1	2	3	4	5	6	7	8	
0-1	[1]*	12	3	-	-	9	2	2	29
2	5	[218]	18	-	4	7	8	-	260
3	1	19	[17]	2	6	8	4	5	60
4	-	1	2	[-]	-	-	2	-	5
5	-	-	-	-	[-]	-	-	-	-
6	1	9	4	-	2	[13]	5	6	40
7	3	9	5	-	3	7	[3]	4	34
8	5	24	22	-	5	8	7	[11]	82
TOTAL	16	292	71	2	20	52	31	28	510

* Boxes indicate students whose area of specialization and area of employment fall in the same DOT occupational category.

Another reason for the close relationship between course and job in the Clerical and Sales category is the fact that such training gives skills which are required in large numbers. The final row of the table gives the number of students employed in various categories. It shows that Clerical and Sales jobs is the largest category. More students in fact find work in this area than received training. Clerical workers are required in just about every industry; sales positions are also numerous.

It is perhaps more instructive to assess the relationship of occupational training to placement by looking at the remaining categories. These are largely male. If courses and jobs in category 2 are excluded, it is seen that only 18 per cent of the respondents are employed in jobs related to their course work by even the generous criterion that is used here. About 14 per cent would be expected by chance. Thus, there is little evidence of relationship between courses and jobs.[13]

The totals down the right hand margin of Table 11 give the number of students trained for work in a particular category. The totals across the bottom give the number of students actually finding employment in a particular area. It is interesting to compare the two. For example, it has already been noted that more students find jobs in category 2, Clerical and Sales, than are trained for such work. On the other hand, fewer students find jobs in category 0 - 1, Professional and Managerial, than have been trained for such positions.

One of the important issues in vocational education is how closely the number of students allowed in a particular course should match the likely number of jobs available. The relationship between training and placement is not the only consideration in deciding this

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13. The value of χ^2 with the Clerical and Sales category omitted was not significant, 12.17.

question. Also at issue is the individual's right to choose the course of study which he feels suits him best, and the importance of the individual's personal interests in motivating him to benefit from a course.

Relationship Between Training and General Job Skills

General job categories are not the only way of classifying training and occupations. Vocational training may be successful, not in preparing students for particular industries, but in helping them develop general skills which can be applied in a variety of occupational settings. The Dictionary of Occupational Titles also classifies jobs according to three different skills and abilities which they may require.

The first skill dimension is DATA, the extent to which a worker must process and synthesize information. The extent to which a job requires DATA skill is represented on a nine-point scale, running from eight, no significant DATA skill required, to zero, highest degree of DATA skill required. Occupations like restaurant manager, auto mechanic, and cashier are high on this dimension.

The second skill dimension is PEOPLE, the extent to which a job requires skill in human relationships. PEOPLE skill is represented on the same nine-point scale. Generally, administrative, supervisory and professional occupations are rated at the high end of this dimension. Examples are foremen of various types, teachers, and social workers. Occupations are not rated high on this ability merely because they require frequent contact with the public. Contrary to what might be expected, beauticians, waitresses, and sales clerks are rated very low. These jobs require only that the worker respond courteously to simple customer requests. None of the more complex human relations skills, such as supervising, instructing, or educating are involved. 2099 - 2109

The third skill dimension is THINGS, the extent to which a job requires skill in handling physical objects. Electricians, carpet layers, and lithographers are obvious examples.

It is important to note that the most advanced jobs in the skilled trades require high levels of DATA ability. For example, the job of auto mechanic and auto-mechanic-helper differ more in the requirement for DATA skill. than THING skill. Likewise, the only difference between a rough carpenter and a house carpenter is in DATA skill. The house carpenter must be able to handle blueprints and sketches, to estimate material requirements, and to prepare layouts at a much more complex and precise level than the rough carpenter. There is less difference in the levels of motor co-ordination required.

Because of the variety of specific jobs that different courses prepare students for, and the different ability that various students may demonstrate in learning the material in a course, it is impossible to classify courses according to the DOT skill dimensions as they were classified according to the DOT general job categories. For example, a student from the carpentry course may only absorb enough of the material to work as a rough carpenter, a job rated very low on DATA skill. Another student might learn enough to work as a cabinetmaker, a job requiring very highly developed DATA skills. Because of this difficulty, a different approach was taken to assessing the relationship between skills acquired in school and those required on the job. Although it is impossible to specify in advance what skills a student from a particular course is likely to be exercising if he finds a job in his area of specialization, it is possible to compare the jobs that students from different courses actually hold and see what differences in skill requirements, if any, actually appear.

TABLE 12

NUMBER OF RESPONDENTS FROM EACH AREA OF SPECIALIZATION FINDING EMPLOYMENT AT HIGH AND LOW ABILITY LEVELS

DOT* Category	Area of Specialization**	Ability Level Required in Present Job						Number of Students
		DATA		PEOPLE		THINGS		
		Hi	Lo	Hi	Lo	Hi	Lo	
0-1	Commercial Art	6	7	1	12	3	10	13
	Music	8	11	1	18	7	12	19
2	Junior Commercial	47	34	1	80	10	71	81
	Bookkeeping & Business Machines	21	7	0	28	5	23	28
	Forkner Shorthand	28	14	0	42	4	38	42
	Keypunch	44	17	0	61	8	53	61
	Merchandising & Display II	28	14	1	41	12	30	42
	Offset Printing	5	9	0	14	5	9	14
3	Food Preparation	10	16	1	25	10	16	26
	Hairdressing	3	9	0	12	0	12	12
	Shoe Repair and Leatherwork	5	9	0	14	8	6	14
6	Auto Mechanics	23	13	2	34	22	14	36
7	Sewing	16	15	1	30	20	11	31
	Upholstery	10	7	1	16	9	8	17
8	Auto Body	5	10	2	13	7	8	15
	Carpentry	17	14	2	29	14	17	31
	Electrical	8	6	1	13	6	8	14
	Heating Services	25	7	0	32	22	10	32
9	Auto Service	6	8	1	13	8	6	14
TOTAL		315	227	15	527	180	362	542

* See Table 2 for a description of these categories.

** Courses with less than 10 students in the sample were omitted from this analysis

For this analysis the nine-point ability scales were reduced to two categories. Codes 0 to 4 were classified as High ability ratings, and codes 5 to 8 were classified as Low ability ratings. Table 12 lists areas of specialization and, for each area, the number of employed respondents falling into the High and Low categories on each of the three skill dimensions. For example, a total of 81 employed respondents had specialized in the Junior Commercial course. Of these, 47 held jobs requiring high DATA skill; the remaining 34 held jobs requiring low DATA skill. Of the same 81, only 1 held a job that was high on PEOPLE skill; the remaining 80 held jobs low on this skill.

Looking first at DATA, statistical analysis shows that there is a significant relationship between training and occupational placement. That is, students from different courses find employment requiring different levels of this skill. For example, students taking the bookkeeping and business machines course are more likely to find jobs requiring a high level of DATA skill than would be expected by chance. Students from a hairdressing course are more likely to find jobs requiring low levels of this skill. However, the overall relationship is not a very strong one,[14] and again is mainly due to the Clerical and Sales courses.

A comparison of the two groups of schools shows that special high school students hold jobs requiring significantly more DATA skill than do special vocational school students. Table 13 presents the percentage of students holding jobs at each of DOT's original nine skill levels; scores are not collapsed into high and low categories. Figures are presented for the two groups separately and combined. Average scores

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14 The value of χ^2 is 26.89, significant beyond the .05 level. Phi has a value of only .07.

TABLE 13

PERCENTAGE OF STUDENTS EMPLOYED AT EACH SKILL LEVEL BY TYPE OF SCHOOL

		Ability Score									
		0 High	1	2	3	4	5	6	7	8 Low	Total
DATA SKILL	Special Vocational School	0	3	10	32	4	10	1	5	36	100
	Special High School	1	3	11	38	4	11	0	5	26	100
	Total	0	3	11	37	4	11	0	5	29	100

Special Vocational School average = 5.1

Special High School average = 4.6

PEOPLE SKILL	Special Vocational School	0	0	0	3	0	1	7	12	77	100
	Special High School	0	0	0	2	0	1	13	10	74	100
	Total	0	0	0	2	0	1	11	11	75	100

Special Vocational School average = 7.6
Special High School average = 7.5

THING SKILL	Special Vocational School	1	16	4	2	6	6	2	23	39	100
	Special High School	2	17	8	3	5	4	1	13	47	100
	Total	1	17	7	2	5	5	1	16	45	100

Special Vocational School average = 5.8
Special High School average = 5.6

are also given. A t-test (t = 2.2429) shows the average for special high school students to be significantly further toward the high end of the scale than the average for special vocational school students. Notice that the average scores for both groups fall somewhat toward the low end of the scale.

Turning to PEOPLE skill, Table 13 shows that almost all students were working at jobs requiring very low levels of this skill. Because of this, it was impossible to assess the degree of relationship between courses and jobs. Special vocational and special high school students do not differ from one another on this skill.

The two groups are also similar on THING ability. About two-thirds of each group score at the low end of the scale (Table 13). There is a relationship between coursework and placement for this skill. Table 12 shows that some of the courses associated with jobs high in THING skill are Auto Mechanics, Heating Services, and Sewing.[15] But again the relationship is a weak one.

In summary, there appears to be a modest relationship between the courses students take and the jobs they hold two years after leaving school. The students in this sample hold jobs at moderate levels of DATA ability, somewhat lower levels of THING ability, and very low levels of PEOPLE ability. Differences between special vocational and special high school students are minimal. There are no differences on PEOPLE and THING skills. There is a significant, but small difference on DATA skill favouring special high school students.

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15 χ^2 has a value of 106.60, significant beyond the .001 level. The value of phi is .10.

Student Background, School Achievement, and Job Skill

An analysis was done to see what factors were most important in predicting the skill levels at which students were employed. The same factors were tested as were used previously in accounting for employment ratio and salary: sex, language background, age, number of months in the job market, length of school attendance, and presence or absence of a diploma.

For special high school students, having a diploma was the most important factor in predicting high DATA skill.[16] Diploma had no effect on DATA for vocational school students, nor was diploma an advantage in obtaining jobs requiring the higher levels of PEOPLE or THING skills for students from either type of school.

This relationship between diploma and DATA suggests that the role of the school in vocational training is the same as it is in academic training, namely teaching the ability to handle information conveyed by words, symbols, and numbers, skill in manipulating ideas. The difference between academic and vocational training is in the particular type of ideas that must be dealt with and their level of abstraction. A physician and a chef both need high levels of DATA skill. But the chef is dealing with objects which are directly observable, and the physician is dealing with abstract disease entities which can only be inferred from directly observable events.

It is possible that success in school will have a stronger effect on job skill in later years as students have the opportunity to advance within particular crafts and professions. As yet, the special students surveyed here have had little opportunity to advance within a particular type of job.

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16 The same linear regression model was used here as was used in the analysis of employment ratio and salary. The correlation between diploma and DATA for special high school students was .19. This variable accounted for 3.5 per cent of the variance.

The few other factors found to have an effect on skill levels were all related to student background. Special high school girls were more likely to be employed in jobs high in DATA skill.[17] This is again likely due to their traditional employment in clerical and sales occupations. Sex is also related to THING skill among both special vocational and special high school students; in this case, boys are more likely to be employed at the higher ability levels.[18]

Language background is related to level of DATA skill, where it is found that English-speaking students have the advantage.[19]

Finally, among special vocational school students, age is related to DATA and PEOPLE skill, with older students employed at higher levels. This indicates that these students progress in their ability to handle ideas and deal with people through maturation and experience.

Rationale for Vocational Education

The lack of a strong relationship between training and type of placement, and between school success and job skills does not necessarily mean that the training students receive is either of poor quality or irrelevant. Recall that about 50 per cent of the 4-year technical graduates in Eninger's study found jobs in fields that were only slightly or not at all related to their area of training.

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17 The correlation between sex and DATA for special high school students is .17. This variable accounted for 2.3 per cent of the variance.

18 The correlation between sex and THING skill is .27 for special vocational and .41 for special high school students, accounting, respectively, for 7.5 per cent and 16.7 per cent of the variance.

19 The correlation between language background and DATA is .12 for special vocational and .13 for special high school students, accounting, respectively, for 2.9 per cent and 1.0 per cent of the variance.

Of these students, 36 per cent said they did not get a job in their trade because none was available. This indicates either poor planning of course size, an inadequate flow of information about jobs to new graduates, or such fluctuation in the type of jobs available from year to year so as to preclude adequate planning of course size. Twenty-six per cent of these students said they had developed a preference for other work. It seems unlikely that there is a remedy for such changes in interest among young people.

What the lack of a strong relationship between training and placement does mean is that the nature of vocational education must be carefully conceptualized. The career model is not appropriate for students of this age and character. We must not expect vocational education in the special schools to prepare students for entry to a particular job in the same way that medical training or law school prepares post-graduates for employment as physicians or lawyers.

This is not to say that special students should not be given training in particular crafts, but merely that the possibility of employment in an area of training is not an acceptable rationale for setting up a particular shop or course. There are other possible reasons for giving students specialized vocational training. The desirability of having students study what interests them has already been mentioned. It is also likely that for many students the general information and intellectual skills required to advance in any job can best be acquired through training in some particular craft.

HOW DO THE STUDENTS FEEL ABOUT THEIR SCHOOL EXPERIENCE?

Students interviewed were asked a series of questions about their school programme. In answer to the general question, "How well did you like it there?" special high school students gave a favourable reply somewhat more often than special vocational school students, 78 per cent versus 69 per cent (Table 14). Examples of favourable replies are: "It was OK - it was real nice."

"I thought it was really great."

Unfavourable replies are illustrated by the following:

"I didn't like it at all."

"Didn't like the school. Didn't feel right there."

Responses of the two groups to the more specific question, "Do you think that what you learned at _____ School prepared you well enough for getting a job?" were quite similar. Fifty-six per cent of the special vocational and 57 per cent of the special high school students said they believed their preparation was adequate (Table 14).

Other comments of the students reveal what they consider the strengths and weaknesses of their school (Table 15). Students were asked "What are some of the helpful things you learned there?" and "What are some of the things you wish you could have learned that they didn't teach you?" These two questions allowed the students to make a wide variety of comments. Up to five comments per student were recorded; students from both groups of schools made an average of three comments each. Given the generality of the questions and the freedom allowed in responding, it is not surprising to find great variety in the answers.

TABLE 14

STUDENT JUDGMENT OF SCHOOL PROGRAMME

Replies	Percentage of Replies	
	Special Vocational (305 respondents)	Special High School (884 respondents)
"How well did you like it there?"		
Favourable Replies	69	78
Unfavourable Replies	31	22
TOTAL	100%	100%
"Do you think that what you learned at _____School prepared you well enough for getting a job?"		
"Yes"	56	57
"No"	42	40
No Answer	2	3
TOTAL	100%	100%

TABLE 15

STUDENT COMMENTS ON SCHOOL PROGRAMME

Replies	Percentage of Replies	
	Special Vocational	Special High School
"What are some of the helpful things you learned there?"		
"What are some of the things you wished you could have learned there that they didn't teach you?"		
	(917 comments)	(2468 comments)
Favourable comments	67	66
Unfavourable comments	33	34
TOTAL	100%	100%
	(917 comments)	(2468 comments)
Comments re vocational training	36	47
Comments re academic training	21	15
Comments re other aspects of training	43	38
TOTAL	100%	100%
	(305 respondents)	(884 respondents)
* Area of specialization helpful	73	80
* Dissatisfied with choice of particular area of specialization	33	30
* Dissatisfied with amount of material covered in course	9	14
* Reading and language arts helpful	13	6
* Mathematics helpful	15	9
* Language and mathematics training deficient	11	5

* Percentages of students making comments are approximate due to the possibility that some students made the same comment twice.

Most students made both positive and negative comments. The responses from both groups broke down into similar proportions of these. Sixty-seven per cent of the total comments from special vocational students and 66 per cent of the comments from special high school students mentioned helpful things they had learned in school; the rest were comments on things they felt had been missing.

The programmes of the special schools include vocational and academic training in about equal proportions. It is interesting, therefore, to note that many more of the students' comments concerned the vocational training they received than concerned the academic training. This greater concern with the vocational aspects of training was more pronounced among the special high school than the special vocational school students (47 per cent versus 36 per cent).

Students generally expressed satisfaction with their vocational training. Seventy-three per cent of the special vocational and 80 per cent of the special high school students said they had found their area of specialization helpful, or that they benefited from the general vocational emphasis of the school.

> "Learned a little bit of everything. For me it was very good."
>
> "Lots of shops."
>
> "I feel Business Machines helped me very much."
>
> "I took up Oil Heating as a major and it helped me at (my) present job."

Some students were dissatisfied with their particular area of specialization. About 33 per cent of the special vocational and 30 per cent of the special high school students wished they had taken another course.

"I wish I had taken typing instead of food preparation. The hours are too long and I don't get paid enough."

"I would have liked to go into auto mechanics but it was full up for grade 10."

Many students expressed both satisfaction and dissatisfaction simultaneously, saying that although the course they had taken was helpful, another one would have been even more beneficial. Some students were unable to get into the course they wanted. This is frequently due to the schools' attempts to maintain a reasonable correspondence between course size and job openings. Other students had changed their own minds after working in a particular job for a while. This recalls Eninger's findings that many technical graduates had lost interest in their area of training (p. 28).

Another source of complaint was the amount of material covered in the courses. Nine per cent of the special vocational students and 14 per cent of the special high school students said the course was too short, occupied too little of the school day, or failed to cover all relevant material.

"They should have a 4- or 5-year programme instead of having to transfer after 3 years if they want to go on."

"They shouldstretch courses to 4 years so you could really benefit from your favourite subjects."

"Would have liked to spend more time in some of the shops I was taking. There were too many subjects crowded into the schedule."

Smaller numbers of students mentioned an academic subject as being helpful. This was most pronounced among special vocational students where 13 per cent of the respondents mentioned reading and language arts training and 15 per cent mentioned mathematics. It is significant that even these relatively small numbers of students would mention academic areas as being important, subjects in which they have had a history of

failure. Eleven per cent of the special vocational respondents mentioned these two subjects as areas in which they would have liked more training.

The students' general feelings about the value of their training is reflected in the answers to another question - "If you had a friend going to _____ School, what advice would you give him(her)?". The most frequent response (28 per cent and 21 per cent) was advice to work hard.

> "To learn all he can."
>
> "Make the most of it. That's all."

Next (22 per cent and 23 per cent) was to stay in school.

> "Keep on going. I was sorry after I left."
>
> "Don't quit. Go to school and learn something."

The next most frequent answer reflected the concern of some students that they needed more intensive vocational training. Twelve and 15 per cent of the replies advised transfer to a 4- or 5-year programme.

> "Not to go there if he wants a little more education and a good job. 3 years at school isn't enough these days."

This interest for more vocational training, also reflected in replies to previous questions, is already reflected in the addition of a third year in several of the special high schools.

TABLE 16

STUDENT ADVICE

Replies	Percentage of Replies	
	Special Vocational	Special High School
"If you had a friend going to _____School, what advice would you give him(her)?"		
Work Hard	28	21
Stay in School	22	23
Transfer to a 4- or 5-year programme	12	15
Recommends School	8	7
Other	14	16
Don't Know and No Answer	16	18
TOTAL	100%	100%

SUMMARY AND CONCLUSIONS

The major purpose of this report is to provide basic information on the occupational and educational experiences of students leaving the special high schools and special vocational schools. It was not designed to provide a complete picture of the special student, but only to document his success in these limited areas.

Schools from the City of Toronto and the Borough of York were included. The sample was composed of all students leaving these schools, for whatever reason, during the school year 1968-69. Students who, according to school records had moved out of Metropolitan Toronto, were not followed up further. This group accounted for 4 per cent of the total sample.

Students who transferred to other schools within Metro were followed up by contacting the school to which they transferred. This group accounted for 22 per cent of the total sample. Data from this group showed that it is possible to advance from one of the special schools to a more educationally demanding placement. This is especially true for special high school students. Twelve per cent of the special high school students in the total sample transferred to 4- or 5-year programmes.

The remaining students presumably entered the labour market. These were contacted for an interview about their subsequent employment and educational history.

It was discovered that 71 per cent of these students were employed. Two per cent were attending another school full-time, and the remainder, 27 per cent, were unemployed.

There is really no suitable basis of comparison against which to evaluate these figures. The unemployment rate for 14 to 19 year olds

across Canada was only 17 per cent during that period. However, the two figures are not directly comparable because the groups are so different. The most comparable study is a small research project conducted in London, Ontario, which also found an unemployment rate of 27 per cent.

The unemployment rate of 27 per cent that was found in this study held for special high school males and females and for special vocational school males. Special vocational school females had a somewhat higher rate, 37 per cent. There were no differences in the percentage of time that special high school males and females and special vocational school males had been employed since leaving school, about 70 per cent of the time. Vocational school females were again somewhat less successful, finding employment only about 62 per cent of the time. However, marriage rates must be taken into account when considering the employment history of females. There were also no school or sex differences in the length of time that students had held their present jobs, about 14 months.

Thus, the data on employment stability find minimal differences between schools and between males and females as a whole.

Salary levels, however, are higher for special high school than for special vocational school students. Averages are $89.04 and $83.24 a week, respectively. The disparity between males and females is even greater, $96.87 compared to $76.63. These salary differences can be related to differences in the type of job held and the number of students in supervisory positions.

Students who were more successful in school, as indicated by their receiving a diploma, had higher employment rates and earned higher salaries.

Three factors thus emerge from the data as having some influence on occupational success: type of school, sex, and success in school. However,

it is not known how closely these three factors are associated with differences in student ability. They may merely reflect employer bias. Certainly sex differences in employment history are commonly agreed not to reflect ability differences. It is also interesting to note that the differences between students from the two types of schools are not large. This is surprising in view of the large difference in I.Q. between the two groups (see page 5) and the distinctive school histories they have had.

The data show little relationship between specific areas of vocational specialization and actual occupational placement as measured by the Dictionary of Occupational Titles job coding scheme. By and large students were not employed in fields related to the training they had received. Few students studying carpentry, for example, were actually employed as carpenters, and few studying auto mechanics found employment in that field. The exception is students trained in clerical and sales courses who did frequently find work in related fields.

School and sex differences appeared in the type of jobs that students held. These, no doubt, account for some of the salary differences associated with these two factors.

The job coding scheme included three skills -- DATA, ability to process and integrate concepts and ideas; PEOPLE, skill in human relationships; THINGS, ability to manipulate and work with physical objects. Little relationship was found between a student's area of specialization and the particular level of these three skills that his job required. There was also little difference between students from the two types of schools.

The lack of relationship between a student's training and either his general field of employment or the skills his job requires

means that it is inappropriate to consider the special schools as providing specific training which prepares a student for a particular job or group of jobs. This is not to say that specialization is not important, but only that it cannot be justified in these terms. The students themselves seemed to feel that the vocational parts of the curriculum were the most important. They frequently expressed a desire for more intensive or longer training in their area of specialization.

A relationship did appear between type of school and the level of DATA skill at which students were employed. Although the difference was not very large, special high school students did show somewhat higher levels of this skill than did special vocational school students. It was also found that special high school students with a diploma were employed in jobs with higher DATA skill. Thus, it seems that the major role of the special schools in preparing students for employment is in developing their general ability to deal with concepts and ideas. To the extent that the schools are successful in this task the students are more successful in the jobs they find, as attested to by the fact that special high school students and special vocational school students with a diploma earn higher salaries.

Conceptual ability is also the focus of academic training. Therefore, the uniqueness of vocational education must be in providing conceptual training within a very concrete context as opposed to the more general and abstract context in which learning proceeds in an academic curriculum. Although students may not find work specifically related to their training, specialization in a field of interest may be important in motivating them to benefit from the opportunities for conceptual development that any course provides.

In spite of the lack of relationship between area of specialization and job placement, students seemed to feel that shop work was the most important part of their training. However, only slightly over half felt that school had prepared them adequately for getting a job. Some students wished they could have taken another course. Some felt that the course wasn't long enough or that not enough of the school day was spent in the shops. But overall, most students expressed a favourable attitude toward the school they had attended.

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APPENDIX A

The following table indicates whether or not there is a statistically significant difference between two percentages. The following example will illustrate its use.

On page 3, it is noted that non-English-speaking Canadians are underrepresented in the special schools. Table 1 on page 6 shows that this group comprises 15.19 per cent of the total secondary school population but only 9.16 per cent of the special vocational school population. Since these figures fall closest to the 10 to 90 per cent interval, we must go to the 3rd part of the table. Since Table 1 indicates that there are over 2000 secondary school students and about 2000 special vocational school students we will enter the table on the first line and the first column. A value of 1.9 to 2.4 per cent is listed as required for significance. The 2nd value is the more conservative and will be used as the criterion throughout this report. The actual difference between the two percentages to be tested, 15.19 per cent and 9.16 per cent, is 6.03 per cent. Since this exceeds the required difference of 2.4 per cent, we can say with confidence that the difference between the two groups in the percentage of non-English-speaking Canadians is significant.

Following the same procedure, we find that the difference in percentage of English-speaking Canadians among the general secondary school population and special vocational school population students is not significant. Since the values of 52.38 per cent 52.52 per cent fall within the 35 to 65 per cent range, we enter the first part of the table. Since the number of students is over 2000 for each group, we again enter the table at the first line and the first column. The con-

servative value required for significance is 4.0 per cent. This is much larger than the actual difference of .14 per cent.

APPROXIMATE SAMPLING ERROR* OF DIFFERENCES BETWEEN PERCENTAGES OBTAINED FOR TWO DIFFERENT GROUPS OF STUDENTS**

No. of Students	No. of Students							
	2,000	1,000	700	500	400	300	200	100
For Percentages from 35 to 65								
2,000	3.2-4.0	3.9-4.9	4.4-5.5	5.0-6.2	5.5-6.9	6.2-7.8	7.1-9.2	10-12
1,000		4.5-5.6	4.9-6.1	5.5-6.9	5.9-7.4	6.6-8.3	7.7-9.6	10-13
700			5.3-6.6	5.9-7.4	6.3-7.9	6.9-8.6	8.0-10	11-13
500				6.3-7.9	6.7-8.4	7.3-9.1	8.4-10	11-13
400					7.1-8.9	7.6-9.5	8.7-11	11-14
300						8.2-10	9.1-11	12-14
200							10-12	12-15
100								14-17
For Percentages around 20 to 80								
2,000	2.5-3.1	3.1-3.9	3.5-4.4	4.0-5.0	4.4-5.5	5.0-6.2	5.9-7.4	8.2-9.8
1,000		3.6-4.5	3.9-4.9	4.4-5.5	4.7-5.9	5.3-6.6	6.2-7.8	8.4-10
700			4.3-5.4	4.7-5.9	5.0-6.2	5.5-6.9	6.4-8.0	8.6-10
500				5.4-6.4	5.4-6.8	5.8-7.2	6.7-8.4	8.8-11
400					5.7-7.1	6.1-7.6	6.9-8.6	9.0-11
300						6.5-8.1	7.3-9.4	9.2-11
200							8.0-10	9.8-12
100								11-14
For Percentages around 10 to 90								
2,000	1.9-2.4	2.3-2.9	2.6-3.2	3.0-3.8	3.3-4.1	3.7-4.6	4.4-5.5	
1,000		2.7-3.4	3.0-3.8	3.3-4.1	3.6-4.5	4.0-5.0	4.6-5.8	
700			3.2-4.0	3.5-4.4	3.8-4.8	4.4-5.4	4.8-6.0	
500				3.8-4.8	4.0-5.0	4.4-5.5	5.0-6.2	
400					4.2-5.2	4.6-5.8	5.2-6.9	
300						4.9-6.1	5.5-6.9	
200							6.0-7.5	
For Percentages around 5 to 95								
2,000	1.4-1.8	1.7-2.1	1.9-2.4	2.2-2.8	2.4-3.0	2.7-3.4		
1,000		1.9-2.4	2.1-2.6	2.4-3.0	2.6-3.2	2.9-3.6		
700			2.3-2.9	2.6-3.2	2.7-3.4	3.0-3.8		
500				2.8-3.5	2.9-3.6	3.2-4.0		
400					3.1-3.9	3.3-4.1		
300						3.6-4.5		

* The values shown are the differences required for significance (two standard errors) in comparisons of percentages derived from two different subgroups of a survey. Two values--low and high--are given for each cell. The low value is based on the formula $2\sqrt{p(1-p)(1/n_1 + 1/n_2)}$. The high value is about 1.25 greater than the low value and provides a "safety factor" to allow for departures from "representativeness" of the sample.

** This table was adapted from: Freedman, Whelpton, & Campbell. Family planning, sterility and population growth. New York: McGraw-Hill Book Company, Inc., 1959, pp. 453-459.

APPENDIX B

FOLLOW-UP FORM FOR TRANSFEREES

FOLLOW-UP FORM FOR TRANSFEREES

Student _____

Name of Institution _____

Type of Institution and Programme _____

_____

_____

Date of Entry to Institution: Month _____ Year _____

Date of Withdrawal: Month _____

Year _____ Still Attending ☐

Programme Status on Withdrawal:

If Institution is a School --

☐ Satisfactorily finished course; diploma _____

☐ Unsatisfactorily finished course

☐ Withdrew before completing course

☐ Other _____

If Institution is a Treatment Centre --

Conditions of Withdrawal _____

_____

_____

_____

_____

Other Comments (if any) _____

_____

_____

_____

Most Recent Address _____

_____

Telephone Number _____

APPENDIX C

THE INTERVIEW QUESTIONNAIRE

Hello, I'm calling for the Toronto Board of Education. The Board is doing a study of people who went to _____ School. Did you receive a letter about this study?
(name)

☐ NO

Well, the Board wants to know what happens to students after they leave school. This will help the Board improve the schools. I'd like to talk with you for about 20 minutes to find out about your school and what you have been doing since you left. Can you talk with me now?

☐ YES

Good. Then you know that I'd like to talk with you to find out about your school and what you have been doing since you left. This will take about 20 minutes. What you say will help the Board improve your school. Can you talk with me now?

If "NO," ask: Can I call back when you have more time? When should I call?

Date _____ Time _____

Card 2

Cols.	Code
1 - 4	____ (I.D. NO.)

1. First of all I would like to ask:
(Check one)

☐ Do you have a job now? ——→ Go to BLUE form

☐ Do you go to school full-time? ——→ Go to PINK form

☐ Then you are unemployed? ——→ Go to YELLOW form

5 ____

QUESTIONS FOR RESPONDENTS WHO ARE WORKING AT PRESENT

Card 2

	Cols.	Code

2. Do you have more than one job right now

☐ NO ☐ YES

Well, I'd like to ask you about the job at which you spend most of your time each week. We'll get to the other(s) later.

3. Would you please tell me what work you do? (Probe for a complete answer.)

_____ 6 ____

_____ 7 - 8 ____

_____ 9 ____

4. Are you in charge of any other workers?

☐ NO ☐ YES

How many? _____ 10-11 ____

5. When did you start this job? _____ 12-13 ____
Month/Year

6. How did you get this job?

_____

_____

_____ 14 ____

7. Now I'd like you to think about how much you earn at this job, including any tips you get.

How much is your pay before income tax, medical insurance, or anything like that is taken off? _____ per _____. 15-18 ____

8. How many hours do you work a week at this job? _____ 19-20 ____

9 Have you had any raises in pay since starting this job?

☐ NO ☐ YES

Thinking again of your pay before anything is taken off, how much did you earn when you first started? _____ per _____. 21-24 ____

What work were you doing then? _____

See #10 _____ 25 ____

10. If you decide to stay with your job, what work do you think you would be doing in the future?

_____

_____ 26 ____

11. How much do you think you would be earning? _____ per _____ 27-30 ____

12. Do you have any other jobs right now?

☐ YES ☐ NO → GO TO QUESTION #13

What work do you do?	How much is your pay before anything is taken off?	How many hours do you work each week at this job?		
_____	_____ per _____	_____	31-36	____
_____	_____ per _____	_____	37-42	____
_____	_____ per _____	_____	43-48	____

13. Have you had any other jobs since leaving school?

☐ YES ☐ NO → GO TO QUESTION #16

I'd like you to think about all the jobs you have had.

If at any point during his employment history, the respondent has more than one job, record them one by one.

14. What was your first job?	When did you start that job?	When did you leave it?		
_____	_____ Month/Year	_____ Month/Year	49-54	____
			80	2
			Card 3	
			1 - 4	____ (I.D.NO.)

Continue until all jobs are recorded up to, but not including the respondent's present job(s). Then skip to Question #15.

What was your next job?	When did you start that job?	When did you leave it?		
_____	_____ Month/Year	_____ Month/Year	5 -10	____
_____	_____ Month/Year	_____ Month/Year	11-16	____
_____	_____ Month/Year	_____ Month/Year	17-22	____

_____	_____ Month/Year	_____ Month/Year	23-28	____
_____	_____ Month/Year	_____ Month/Year	29-34	____

15. When did you start the job you have now? _____ 35-36 ____

(If respondent has more than one job at present, record whichever starting date he mentions first.)

16. Now I'd like to ask you about your education.

Since you left _____ (name) School, have you gone to any other school full-time.

☐ NO ☐ YES

What school did you go to? _____

_____ 37 ____

What was the main thing you studied? _____

_____ 38 ____

How long did you go? _____ 39-40 ____

How many hours did you go each week? _____ 41-42 ____

17. Have you taken any other kinds of courses such as night school, apprenticeship training, manpower training, or anything like that?

☐ YES ☐ NO → GO TO FINAL SECTION OF THE QUESTIONNAIRE

What was the name of the course?	Which school gave it?	How long was the course?	How many hours did you go each week?	
_____	_____	_____ Months	_____	43-48 ____
_____	_____	_____ Months	_____	49-54 ____
_____	_____	_____ Months	_____	55-60 ____
_____	_____	_____ Months	_____	61-66 ____
_____	_____	_____ Months	_____	67-72 ____

80 3

GO TO FINAL SECTION OF THE QUESTIONNAIRE

QUESTIONS FOR RESPONDENTS WHO ARE AT SCHOOL FULL-TIME

Card 2

	Cols.	Code
2. What school are you in now? _____	6	
3. What is the main thing you are studying at this school? _____	7	
_____		
4. How long have you been going there? _____ Months	8 - 9	
5. How much longer is the course? _____	10-11	
6. How many hours a week are you there? _____	12-13	

7. Before starting this course, did you take any other educational courses such as night school, apprenticeship programmes, manpower training programmes or anything like that?

☐ YES ☐ NO → GO TO QUESTION #8

What was the name of the course?	Which school gave it?	How long was the course?	How many hours did you go each week?	Cols.	Code
_____	_____	_____ Months	_____	14-19	
_____	_____	_____ Months	_____	20-25	
_____	_____	_____ Months	_____	26-31	
_____	_____	_____ Months	_____	32-37	
_____	_____	_____ Months	_____	38-43	

8. Since you left _____ (name) School have you had any jobs?

☐ YES ☐ NO → GO TO FINAL SECTION OF THE QUESTIONNAIRE

I'd like you to think about all the jobs you have had.

If at any time during his employment history the respondent has had more than one job, record them one by one.

What was your first job?	When did you start that job?	When did you leave it?		
_____	_____ Month/Year	_____ Month/Year	44-49	____
What was your next job?	**When did you start that job?**	**When did you leave it?**		
_____	_____ Month/Year	_____ Month/Year	50-55	____
_____	_____ Month/Year	_____ Month/Year	56-61	____
_____	_____ Month/Year	_____ Month/Year	62-67	____
_____	_____ Month/Year	_____ Month/Year	68-73	____
_____	_____ Month/Year	_____ Month/Year	74-79	____
			80	2

GO TO THE FINAL SECTION OF THE QUESTIONNAIRE

QUESTIONS FOR RESPONDENTS WHO ARE NEITHER WORKING NOR AT SCHOOL

Card 2

	Cols.	Code

2. Since leaving _____ (name) School have you had any jobs?

☐ YES ☐ NO → GO TO QUESTION #3

I'd like you to think about all the jobs you have had.

If at any time during his employment history the respondent has had more than one job, record them one by one.

What was your first job?	When did you start that job?	When did you leave it?		
_____	_____ Month/Year	_____ Month/Year	6-11	____
What was your next job?	**When did you start that job?**	**When did you leave it?**		
_____	_____ Month/Year	_____ Month/Year	12-17	____
_____	_____ Month/Year	_____ Month/Year	18-23	____
_____	_____ Month/Year	_____ Month/Year	24-29	____
_____	_____ Month/Year	_____ Month/Year	30-35	____
_____	_____ Month/Year	_____ Month/Year	36-41	____

3. Now I'd like to ask you about your education. Since you left _____ (name) School, have you gone to another school full-time?

☐ NO

See #4

☐ YES

What school did you go to? _____ 42 ____

What was the main thing you studied there?

_____ 43 ____

How long did you go? _____ 44-45 ____

How many hours did you go each week? ____

_____ 46-47 ____

4. Have you taken any other kinds of courses such as night school, apprenticeship training, manpower training, or anything like that?

☐ YES ☐ NO → GO TO QUESTION #5

What was the name of the course?	Which school gave it?	How long was the course?	How many hours did you go each week?		
_____	_____	_____ Months	_____	48-53	____
_____	_____	_____ Months	_____	54-59	____
_____	_____	_____ Months	_____	60-65	____
_____	_____	_____ Months	_____	66-71	____
_____	_____	_____ Months	_____	72-77	____

5. Are you looking for a job now:

☐ YES ☐ NO → GO TO FINAL SECTION OF THE QUESTIONNAIRE

6. Why is it hard to find one? _____

_____

_____

_____ 78-79 ____

80 2

GO TO THE FINAL SECTION OF THE QUESTIONNAIRE

QUESTIONS ON SCHOOL PROGRAMME

Card 4

Cols. Code

Now I'd like you to think about your programme at _____ (name) School.

1 - 4 _____ (I.D. NO.)

How well did you like it there? _____

_____

5 _____

Favourable answer → **Neutral or unfavourable answer, GO TO A3**

A1. What are some of the helpful things you learned there?

_____

_____

_____

_____

_____

6 - 9 _____

A2. What are some of the things you wished you could have learned that they didn't teach you?

_____

_____

_____

_____

_____

10-13 _____

GO TO A5

A3. What are some of the things you wish you could have learned there that they didn't teach you?

_____

_____

_____

_____

_____

10-13 _____

A4. What are some of the helpful things you did learn there?

_____

_____

_____

_____

_____ 6 - 9 ____

A5. Do you think that what you learned at _____ School
(name)
prepared you well enough for getting a job?

☐ Yes ☐ NO 14 ____

A6. Why do you say that? _____

_____

_____

_____

_____ 15-16 ____

B. If you had a friend going to _____ School, what
(name)
advice would you give him/her? _____

_____

_____

_____

_____ 17-19 ____

C. If you were Mayor, what would you do to improve the City?

_____

_____

_____

_____

_____ 20-21 ____

D. Since you are not the Mayor, is there anything you can do to solve this problem? _____

_____

_____

_____

_____ 22-23 ____

E. Did you speak any other language before you learned English?

☐ YES ☐ NO

24 ____

F. Are you married?

☐ NO ☐ YES

25 ____

When were you married? _____

26-27 ____

G. Would you like a copy of the report on this study when it is finished? Where shall we send it?

Name _____
(please print)

Address _____

City/Town _____ Province _____

Thank you very much for your help.

VT 016 271
KAUFMAN, SUSAN
ISSUES IN EVALUATING OCCUPATIONAL PROGRAMMES.

TORONTO BOARD OF EDUCATION (ONTARIO).
RESEARCH DEPT.
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DESCRIPTORS - FOLLOWUP STUDIES; METHODOLOGY; *EVALUATION CRITERIA; EVALUATION TECHNIQUES; EDUCATIONAL IMPROVEMENT; *VOCATIONAL EDUCATION; VOCATIONAL DEVELOPMENT; *EDUCATIONAL RESEARCH; MODELS; *PROGRAM EVALUATION; SECONDARY GRADES; RESEARCH REVIEWS (PUBLICATIONS)

ABSTRACT - FOCUSING ON ISSUES RELATED TO THE PROCESS, PROBLEMS, AND LIMITATIONS OF EVALUATION RESEARCH, THIS RESEARCH REPORT IS A RESPONSE TO THE TORONTO BOARD OF EDUCATION'S REQUEST FOR A LITERATURE REVIEW IN THIS AREA. AS AN INTRODUCTION TO A REPORT ON A FOLLOWUP STUDY OF A SAMPLE OF STUDENTS FROM THE FOUR SPECIAL VOCATIONAL AND FOUR SPECIAL HIGH SCHOOLS IN TORONTO, EVALUATIVE CRITERIA AND RESEARCH MODELS ARE DISCUSSED. THE NEED TO REFRAIN FROM MAKING UNWARRANTED CONCLUSIONS ABOUT THE VALUE OF VOCATIONAL SCHOOLS AND THEIR PROGRAMS AND THE DESIRABILITY OF IDENTIFYING FACTORS PRODUCING THE OUTCOMES OF EVALUATION ARE STRESSED. VALUES INVOLVED IN DATA COLLECTION AND THEIR IMPACT MUST BE TAKEN INTO ACCOUNT. A BIBLIOGRAPHY IS INCLUDED. (AG)

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ISSUES IN EVALUATING OCCUPATIONAL PROGRAMMES

Susan Kaufman

#101

December, 1971

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PART I

INTRODUCTION

On July 15, 1970 the Board of Education for the City of Toronto approved the following recommendation:

> "The Research Department of the Board of Education undertake a follow-up study of the students who attended the Vocational Schools a year ago to ask about their employment and educational activities since leaving school and to ask for their opinion of Vocational School programmes, and that the Director of Education be authorized to initiate discussions with the Ontario Institute for Studies in Education to explore the possibility of obtaining the co-operation of the Institute in undertaking this study. This study also to include a review of the literature relating to evaluations of vocational schools."
>
> (Board Minutes, July 15, 1970)

Prior to this recommendation, a study had been planned of the special high schools. These schools offer a programme of job preparation for secondary school students who are not prepared for or not interested in the four- and five-year programmes. Their programmes typically last two years, extending in some cases to a third year. The Board's request extended the study of these schools to the special vocational schools. The vocational schools offer vocational training to students of low academic ability in secondary school programmes typically running three or four years, depending on the progress of the individual student. The results from the study of the special high schools and special vocational schools will appear as a separate report.

This paper is a response to the Board's request for a literature review. It is not a literature review as such.

Most of the published reports deal with graduates of four-year technical schools in the United States, and are thus not comparable to our own. The few findings which are pertinent will be presented in the context of our research report.

Nevertheless, a study of this literature proved valuable because it raised many issues that are related to the process of evaluation in any setting, vocational settings in particular. These issues are the focus of this report.

This paper should be read before the research report itself. The information and references it contains will help the reader to understand the evaluation process and approach the research study with greater ease and insight.

The paper has five parts. Parts I and II discuss the social context and consequences of evaluation. Methods of evaluation are introduced in Part III, and the evaluative aspects of our follow-up study in Part IV. The meaning of evaluation will gradually become clearer for the reader throughout these four sections, and will be summed up in Part V.

The Social Context of Evaluation

The authorization of this paper and the follow-up study evolved from a review of special education programmes. At a meeting of the Management Commiteee in September, 1969 questions were raised about the number of children admitted to opportunity classes, the nature of the special education provided for them, and the desirability of reducing the number of opportunity classes or abolishing them altogether. A report on the subject was presented in November, but the conclusions of the report were subsequently challenged by a

a parents' group (Minutes, 1970). The parents' brief charged that the Board's report bore no relation to what really went on in the schools. Their general criticism was that both the schools and the curriculum were developed for children of low-income and low-status families, the poor and the immigrant, as a continuation of the unjust and unequal treatment the children had received in the schools since they entered. The parents saw the vocational schools as the final dumping ground for kids made dumb by the schools themselves. An associate of the parents' group, Martell (1970), suggested community control of the schools as a remedy for the discrimination that was allegedly taking place. The violence of the charges seems to have created general doubt about the schools and a desire to assess carefully the effects of their programme.

These events confirm one researcher's observations about the social context surrounding requests for evaluation studies. Schick (1971) notes that the decision to evaluate as a general public policy reflects the temper of the times. Evaluations of programmes already in operation take place as a consequence of public doubt, often coupled with an hysterical outcry, and limited budgets. These events, he says, indicate that people are no longer rushing headlong into new undertakings, but are hesitating, taking a backward glance, at what has been accomplished. The planning of new programmes is commissioned when the public mood is confident, whereas evaluation of existing programmes is the preferred form of research when the mood is cautious or conservative.

PART II
THE NATURE OF EVALUATION

Evaluation is a tool that is used to see if the job is being done and how well it is being done. For many people, the decision to evaluate implies that a judgement will be made or has already been made; they presume that the judgement will have consequences for the lives and jobs of those involved in the programme.

This impending judgement may cause those involved in the programme to feel personally threatened by evaluation. This is a natural tendency, because many people take their status, identity, and worth as human beings from the moral and social value that their jobs hold in the eyes of society (G. H. Mead, 1934; Parsons, 1951; Garfinkel, 1956; Goffman, 1963). If they think that the work which they value so highly will be discredited through evaluation, they may react defensively; their source of pride and esteem is being threatened. Seen as a form of judgement, evaluation threatens people through the possibility of eliminating or discrediting the jobs in which they have invested so much of their personal identity.

The threat of loss of face, even if it never takes place, can have very disturbing consequences for the individiduals involved. They may feel varying degrees of anxiety, shame or anger (Goffman, 1963; Weiss, 1970). Their reactions to what they feel as a threat can have disturbing effects on the institutions studied as well as society at large.

It is the psychological reality of this threat more than a realistic appraisal of what is actually likely to occur, which causes people who are directly involved in a programme as well as those who are observers to regard evaluation as a political tool that can work for or against them, depending on their point of view about the programme.

A critic of the programme may regard the possibility of change as desirable, while a supporter of the programme may see the same possibility of change as harmful. Irrespective of their personal bias however, each person or group, and this includes the undecided, has a real interest that the research is sound. Only if the facts are gathered in an unbiased way and credible to all parties will the process of evaluation be of real use to anyone. Researchers Tumin (1970), Weiss (1970), and Koopman (1971) concur that studies must be entered into carefully in order to avoid this high threat potential and obtain optimum results.

Weiss (1970) notes that newspaper publicity on research has given increased visibility to social research. As a result of this visibility, more people are aware that such studies are possible, and of the more objective nature of their findings. The public, lacking confidence in its institutions, has seized on evaluation research as an aid to rational decision making.

Even parties with deep vested interests in the status quo are forced to accept the findings of scientific research, although they may try to reinterpret them to their own ends. Public demand to review past programmes is based on an implicit

agreement among all parties that, before judgements and decisions are made, the facts are needed.

The Democratic Process at Work.

It is also based on a recognition of the principle that institutions are accountable to the public at large. In a democracy the final court of appeal is the people, and the people need access to objective information. The subjective knowledge and impressions of the educator, rich as they may be, are basically private and thus inaccessible to the public. Lacking the first-hand experience of the educator, the public needs objective facts upon which to exercise its right of judgement. However, research is designed, not by the public, but by research professionals.

What is evaluated must be chosen carefully...

The choice of what will be measured by an evaluative study often reflects the values of the researchers who designed the study instead of the values of the people participating in the programme (Tumin, 1970). Not taking the values of particular groups into account can result in a study being one-sided. Such an oversight, whether intentional of not, may result in a charge that the findings are distorted. Even if the researchers are not accused of bias, a study carried out in this manner has, in fact, failed to evaluate a programme with respect to the values it is designed to implement.

In the same article, Tumin points out that there are always several points of view to be considered in designing a study. He suggests that everyone involved in a programme should be involved in the evaluation from the start. Koopman (1971) believes that involvement in evaluation should be

community-wide. Not only those involved in the operation of the programme -- teachers and staff -- but those bearing its consequences -- students and parents -- should also be consulted.

...and must not be entered into prematurely.

Weiss (1970) mentions another inadvertent source of research bias. She points out that evaluation is sometimes entered into before the effects of a programme have been felt, or before the programme itself has been refined. This can result in a good programme being scrapped before it has had a chance to work, causing a great deal of bitterness on the part of both teachers and students alike. Teachers may be displaced and disappointed and students may be left hanging with learning experiences that have been devalued.

Money limitations can foster misjudgements.

Money and other limitations don't allow the Board, as representatives of the public, to evaluate all programmes. Weiss (1970) points out that there is a tendency to evaluate only the new programmes, and not the old, established ones. Since there is no measure of the effectiveness of the old programmes with which to compare the effectiveness of a new one, the new programme gets the axe without a fair trial. Weiss observes that this potential consequence may motivate researchers to withhold their findings.

Who are the most trustworthy researchers? Whose findings will be the most credible?

If the body that requests and finances a study is suspected of bias, the public may be reluctant to accept the study's findings, even if the research is carried out by an independent group (Weiss, 1970). A charge of bias is even more likely if the body that commissions the research is the same body that carries it out.

Nevertheless, there is a great advantage to having the research carried out by those who commission it, especially if they are involved in the programme. The advantage is that inside researchers are more familiar with and committed to the process of education, and more familiar with the details of the programme. Their insight into the human element of what is going on may be greater than the outside researcher's and may provide a more accurate picture of what is being accomplished in the school. However, the inside researchers' commitment to the institution may also hamper their objectivity.

Outside researchers are less likely to share insiders' commitments and are consequently more likely to be objective in carrying out the research. However, they may also be more committed to the goals of research per se than to the needs of the institutions under study. Their personal orientation may cause some crucial details to go unobserved or unemphasized.

Which to sacrifice? Since both types of researchers offer advantages, the course to follow in conducting research must be determined for each particular situation. Sometimes a compromise is possible that will combine the advantages of each, and eliminate some of the disadvantages. Each problem to be researched has different features, and the compromises must be appropriate to the individual situation. There are no general rules to follow. Compromises that will obtain optimum results from one situation will not do the same for the next.

An example.

The follow-up study provides an example of such a compromise. Members of the Research Department of the Board, inside researchers, designed the study. This was done jointly with researchers from another Board. They considered what the principals, teachers, trustees and parents wanted to know. They attempted to gain objectivity and expertise by consulting researchers in other institutions doing similar work. Researchers, heads of guidance, and principals co-operated in the construction of the questionnaire which was then given to a market research firm, the outside researchers, who conducted a telephone interview with each former students in the sample. Since the interviewers were unknown to the students and not employed by the Board, we hoped to minimize bias in the data collection and encourage the students to give full, honest answers. It was hoped that a joint undertaking at crucial points in gathering the data would make the findings more valid.

Language and presentation must be understandable to be trusted.

Another problem of evaluation studies is that of being understood. Misunderstanding between the public and the professional can cause the professional to ask the wrong questions and the public to mistrust the findings. The language of the public and the researchers, and their way of looking at things, are often miles apart. Both must work to understand one another.

No study, notes Tumin (1970) can give answers to value-laden political and social questions. He gives examples of unanswerable questions:

Are the children being well-educated?

Are the tax-payers getting what they paid for?

Are the schools functioning adequately?

Is the quality of education at _____ School sufficiently high?

On the whole, is _____ School preparing its children for adequate adult life?

(Paraphrased from Tumin, 1970, p. 98)

It is unlikely that all of us would agree on the meaning of "well-educated," "getting what they paid for," "functioning adequately," "sufficiently high" and "adequate adult life." So researchers try to give the public basic facts which they can use to answer these questions themselves.

Researchers sometimes appear to be avoiding the questions ...

To do this they break the general questions down into parts that are more manageable (Tumin, 1970). For example, the first question given above, "Are the children being well-educated?" can be broken down into the following series of increasingly specific questions:

Q.1. What areas of learning constitute being well-educated?

Q.2. What are standards of good performance in each of these areas?

Q.3. What standards are the children at _____ School reaching?

The researchers then design a study by giving answers to the series of questions.

...but they are analyzing them, not avoiding them.

Let us suppose that the answer given to Q.1. "What areas of learning constitute being well-educated?" is reading, writing and arithmetic. Q.2. is answered either by devising or choosing some measure of performance in each of these areas. Often standardized tests are used; since national norms have been established for these tests according to age

and grade, researchers can compare the group being studied with children in other parts of the country (Q.3.). Thus a partial answer to the question "Are the children being well-educated?" may read:

> The children at _____ School had an average performance of A in reading, B in writing, C+ in arithmetic, as compared with national scores of X, Y and Z.

This is neither a complete nor a direct answer to the question "Are the children being well-educated?" It is a measured "fact" and a comparison. It is a relative statement, not an absolute evaluation of the goodness or badness of that "fact." The researchers have not undertaken to say whether or not it constitutes being "well-educated" -- that is to be determined by the reader.

A person reading the research report may disagree at any point with the way in which the general question has been broken down. He may not agree that reading, writing and arithmetic are the most essential elements of education. He may disagree with the particular choice of test. He may not accept the national average as the appropriate criterion against which to evaluate the performance of the children being studied. Such criticisms are useful for improving subsequent research, but they should not be used to casually ignore the findings of a study when no other objective information is available.

However, they must make this clear.

An evaluation that does not explain the technique of providing parts of the answer rather than the whole answer will lose a lot of readers, including the ones who posed the

questions in the first place, because it does not explain how the findings relate to the original question. The public must understand this relationship or the research that is done may be misinterpreted, charged with bias, or ignored when decisions are made.

Evaluations need not be harsh to be effective.

The way in which research findings are brought to the public's attention can affect the way they are received. Tumin (1970) notes a tendency for research findings to be revealed suddenly, and suddenness can make the presentation seem judgemental and accusing. He recommends that evaluation reports avoid being exposés or having that effect. Findings exposed suddenly and harshly can permanently and unnecessarily damage careers and programmes.

However, there are ways of overcoming strong negative reactions to harsh findings. For instance, if the people directly involved in a programme, e.g., principals, teachers and students, have a chance to read and interpret the research findings before they reach the public, they may be able to accept the findings and deal with them objectively apart from the public's reaction.

The threat evaluations represent can be eased...

Another way to combat the threat of evaluation is to make research an integral part of the educator's job. Fear and defensiveness are a common response to what is unfamiliar (Perls, 1969). Continual and precise measurement of what goes on in the school and its consequences has not been considered a major responsibility of the educational system, and is thus an unfamiliar process.

...by integrating research with education...

Until recently, by and large, educators have taken the success and adequacy of their programmes for granted (e.g., McGivney, 1963). This includes the old ones as well as the new ones that have been developed to meet changing needs. By asking educators to become part of the research process, they will grow more familiar with it and more personally objective about their roles. Under some circumstances, teachers and principals might have complete responsibility for the evaluation. In other situations they might perform the more limited role of consultants to others doing the research.

Ideally, large-scale research should be carried out from the start of a programme with the participation of those involved (Tumin, 1970). The attitude of experimental objectivity that would then accompany its entire operation would help reduce the sense of loss that is often experienced when a programme is not successful.

...and by focusing the research on the process instead of the outcomes.

Evaluations are often unnecessarily threatening because they improperly focus on outcomes and account-taking instead of what goes on in the classroom. Shifting this focus means that entire programmes are no longer subject to criticism or praise, but specific aspects of a programme, such as student-teacher attitudes, classroom behaviour, course content and structure, are identified as either conducive or detrimental to success.

Although it is useful to know how successful a programme has been, it is much more useful to know what

aspects of the programme were responsible for its success. Likewise, if the outcomes of a programme are not satisfactory, it is necessary to know the reason for its failure before changes can be made. However, this shift in focus is only possible when the request for an evaluation provides the time and funds to study the process and content of school experience.

The case for integrating research with the education process.

Daniel Moynihan makes a case for integrating research with the educational process in order to involve the staff and shift the focus from general account-taking to the consequences of specific educational practices. The title of Moynihan's book, Maximum Feasible Misunderstanding, summarizes his analysis of what went wrong with Project Head Start in the United States.

The fate of Project Head Start is an example of what can happen when researchers do not participate in the implementation of a new educational programme and are not able to alter or control aspects of it. The Project was rushed into by teachers and administrators without observation, experimentation, and modification. Implemented on a large scale, the programme failed to produce significant measurable results. Consequently, it was concluded that the programme had been a total failure.

Evaluation is a useful tool from which we can all benefit.

The discussion so far has emphasized the psychological costs of evaluation, the problems of credibility, and the limitations of research. These points were made, not to discourage educators and the public from trying to collect objective information about their activities, but

to help them in making research decisions and in interpreting research findings. In spite of the problems, the public has a lot to gain from evaluation as an habitual undertaking.

Research is cumulative...

Continuous monitoring of the outcomes of our programmes will eliminate some of the problems. The first few efforts at evaluating a programme may present problems of interpretation due to the lack of comparison groups, but the data will become more meaningful as more information is obtained through further studies. Most initial evaluations will at least provide accurate information on outcomes never measured before. Later studies can be compared with initial studies, and we can gain perspective on how well or how poorly our programmes are functioning.

...and will eventually reveal the effect of programme on performance outcomes.

Where studies are undertaken from the beginning of a programme and dealt with it in depth, we can learn how what goes on in school affects the outcomes we are measuring. We can learn which specific aspects of a programme need changing and avoid entirely discrediting or overrating it.

The information can be used to determine what changes are needed.

This information can let us know where money and time are needed, and help us to avoid misspending public money and the children's and teacher's time. The information from evaluations can provide an indicator of how well the schools are serving the public and provide a basis for useful, effective, and democratic change.

PART III

ALTERNATIVE METHODS IN EVALUATION OR HOW TO GET THE FACTS

The question of privacy...

Citizens and educators have decided that objective information is useful in making decisions. The question has been raised by researchers and the public whether or not we are entitled to this information since it is based on data from private individuals. No conclusions are provided in the literature on evaluation; that we are entitled to it is taken for granted.

...can only be rationalized by philosophy.

J. S. Mill's On Liberty (1955) provides a rationale to counter the accusation of "invasion of privacy." His social principle of the "greatest good for the greatest number" permits the gathering of personal data from a sample of individuals if the information is used for the benefit of a larger group.

The principle allows a few individuals to be inconvenienced for the benefit of many. However, it is questionable whether even those in a research sample suffer any real personal harm. Data collection is routinely handled so that the privacy of the individual is not violated. Respondent's names are destroyed once the data collection is complete, and results are reported in terms of groups, not individuals. No one's individual privacy appears to be violated by these procedures.

Once researchers agree that the possible benefits justify this type of limited invasion of privacy, they must

decide how much of the subjects' private affairs it is justifiable to ask questions about. Their decision should be based on a judgement of what is the minimum amount of information they need in order to arrive at answers to the research questions.

What is to be studied.

Before a decision can be made about how to evaluate, researchers must determine what to evaluate or examine. Basically, researchers can choose to focus either on what goes on in the school (researchers call this "process,") or on what happens to students after they leave (called "outcomes"). Or they can choose to study both.

How to get the facts.

Years of experience have enabled researchers to develop certain formulas or models of how to go about getting the information they want (Kaplan, 1964).

There are no really hard and fast distinctions between each of these formulas. Furthermore, in practice researchers find it difficult to follow a "model" exactly because each institution or programme has different features that must be considered so as not to disrupt the programme while studying it (e.g., scheduling), and each research effort has different external limitations (e.g., budget and facilities).

The formulas considered here are not the only models that researchers use, and the descriptions given of them are very general. But the discussion will introduce the reader to different types of research and help him evaluate the usefulness of particular projects.

The experimental model is scientifically reliable...

The ideal model for all research is the experimental model, which is generally accorded the greatest degree of scientific legitimacy and reliability (Weiss, 1970; Tumin, 1970). Using this model, a "before" measurement is taken of where people are. This is called a "pre-measure" or "pre-test." People are then exposed to the programme, and an "after-measure" is taken of where they stand at the end. Comparing the pre-measure and after-measure, researchers can determine the effects of the programme.

...but it does have some limitations.

Using the experimental model in a follow-up study of vocational schools a researcher might devise some measure of a student's "employability" upon entering the programme and compare it with his "employability" upon leaving. However, a young person will be more employable upon leaving any programme simply because he is older and has matured during the time he was enrolled. A comparison of pre-measures and after-measures would be more appropriate in the case of vocational training for adults. It is possible, for example, to compare a man's wages before entering a programme with his salary after graduation.

Problems in the use of pre-measures can be handled within the experimental model by the use of control groups. In the case of vocational schools, a researcher might compare the occupational success of students from one type of school with similar students from other institutions. However, suitable control and experimental groups are not always

available, nor is it always ethical to create them. Some students might be placed at a disadvantage by being assigned to one programme instead of another purely for experimental purposes. This method is also often expensive, since two types of programmes must be maintained simultaneously and studied.

Even when control and experimental groups are obtained and a comparison of "before" and "after" findings shows significant results, researchers using this method cannot always explain for sure why the results occurred, nor can they suggest improvements to a programme (Weiss, 1970; Tumin, 1970). This is because so many things operate at once in a programme that researchers cannot always determine how much of the outcome is due to what specific parts of the process. For example, higher grade achievement for an experimental group may be due to any one of a number of differences in their programme -- student interaction, teacher quality, teaching methods, or perhaps something so trivial as the shape of the room.

The evaluation model is a feasible orientation to gathering data ...

The evaluation model is one of the most feasible approaches to collecting data. No experimental or control groups and no pre-measures need be set up. The main purpose of this research model is to measure a programme's goal achievement or "outcomes" (Koopman, 1971). It is the model that the Board's follow-up study has followed most closely.

There are many different outcomes that can be measured. In evaluating vocational education, the usual

one chosen is some measure of occupational success. Since any one indicator is likely to be incomplete, several are often chosen. This is the strategy used by Eninger (1965) in one of the most comprehensive evaluation studies that has been done. Eninger measured occupational success by looking at present rate of employment, salary levels, proportion of time employed since leaving school, and possibilities for advancement.

This model requires that a programme's goals be analyzed and specified clearly enough to be measured. Disagreement or lack of clarity about goals is one of the major hurdles in using this model. As Koopman notes, the evaluation model is useful only where there is available "a limited set of objectives which are specifiable and measurable...." She also notes that the use of this model limits the study to measuring only those objectives which the programme is specifically designed to achieve, and does not allow the researchers to look at other functions which may be incidental but no less important. The evaluation model can only look at what goes on in the schools in a general way since it does not include the gathering of data on in-school processes. It does, however, evaluate a programme as a package, and is useful for that purpose where the goals are clearly defined.

...and the cost-benefit analysis is a special method of analyzing the information.

The cost-benefit analysis is a specialized sub-type of the evaluation model. Its main purpose is to summarize a programme solely in terms of dollars and cents.

The researchers compute the cost of the programme and the dollar value of its accomplishments. By comparing the two costs, they arrive at a final figure expressing society's rate of return on its investment. It is a monetary expression of what you get for what you put in.

For instance, the precise cost of a school programme is computed by totalling such features as the cost of the school building and its equipment, depreciation, staff salaries, maintenance, and overhead. Costs to students could be measured as the amount of income lost while in school, the cost of books, supplies, carfare, and, in some cases, support. Cost of the school and cost to the student are added together to calculate the total cost of the programme.

The benefits of the programme could be calculated by totalling the increased amount the students would earn as a result of attending the programme, the amount of money they would contribute to the municipality, the amount in welfare and other costs saved by the municipality, and the money that might have been spent on correctional institutes had the programme not existed.

The difference between the cash value of the total benefits and the total costs would be expressed as a percentage of the total costs, i.e. the initial investment. An example of such a study is Corazzini (1966), and a good discussion of the details of the technique is given in Bowman (1966).

Like the general evaluation model, a cost-benefit analysis is easily specified and needs only to be mathematically correct to be considered reliable. However, there is some question as to whether economic benefits adequately represent what the student gets out of the school. Some of the benefits of education, like the amount of satisfaction obtained from acquiring a skill or pride in one's accomplishments, may be more significant than improved earnings. But these cannot be converted to dollars and cents, and seldom enter into the calculation. The cost-benefit analysis represents a singular but perhaps incomplete perspective to educational evaluation (Berg, 1970; Becker, 1964). What has not been measured may be crucial to the evaluation (Tumin, 1970).

The systems model examines what goes on in the school.

The systems model enables researchers to look at the programme under study as if it were a more or less self-sufficient system in which every element has a purpose and an effect on every other element (Etzioni, 1960). An example of such a study is one by Georgopoulos and Tennenbaum (1957). They took ratings of the productivity, adaptability and conflict existing among different groups in an industrial organization, and then examined the interrelationships among these three variables. If such an approach were applied to a school setting, we might, for example, have department heads rate teachers on their adaptability and relate this to the academic achievement of their pupils. Or we could score graduates on the ease with which they found

a job and relate this to ratings of how well they got along with their major shop teacher. Or for an entirely different approach, we could assess how the leadership style of the principal affects the productivity of teachers and pupils and how, in turn, their reactions change the principal's own behaviour.

This model has the advantage of being able to examine both the intended and unintended functions of the school, as well as post-school outcomes like employment and attitudes. The systems research model deals with the educational processes as well as post-school outcomes, but it does not attempt to control "process" like the experiment model does. It also limits researchers to examining and analyzing only in-school "process" factors and fails to consider outside factors like home and environment (Weiss, 1970; Koopman, 1971).

A study which uses a combination of models provides the most complete information about how a programme or school works and what its effects are. Each model has limitations, and the more broadly based the source of information, the more likely we are to approach an accurate picture on which to base decisions. Tumin (1970) and Weiss (1970) note that comprehensive models of evaluation have been developed which combine elements of all of these approaches but the tools, money and skills to operate within them are lacking.

One problem that Tumin (1970) notes is that it is difficult to sum up measurements of discrete parts of the whole process, because the parts often have different qualities. A practical example of this incomparability is trying to sum up the total worth of a school's achievement in various areas, where the different measurements cannot be taken in the same units. The range and types of courses offered are expressed descriptively and as an absolute number; the rate of passing and failing may be expressed in percentages; the student-teacher distribution is expressed as a ratio; and, the rate of return on investment for society is expressed either in dollars and cents or as a percentage. To sum up their total worth is like combining oranges and apples and gasoline and milk. They have independent value, and some have different values for each person. They don't say much when put altogether.

Research findings are necessarily fragmented; they suffer the limitation of being only parts of the whole. Tumin (1970) suggests that it is impossible to overcome this limitation at this stage of social science research. The alternative that he suggests is to use as many fragmented measures as time and money will allow, trying to choose measures that have comparable indices.

Cost-benefit analysts try to do just that; they convert what they measure to the same type of expression, i.e. dollars and cents. However, important by-products of the educational process like self-esteem and satisfaction

cannot be easily expressed in these terms. Any estimate of their value is a personal matter that researchers undertake at great risk.

Time interferes with the effects a programme has...

The effects of time are still another consideration when undertaking evaluative research. As mentioned above, if the programme is studied before it has had sufficient time to develop, an incorrect picture of it may result. The only constant is change; time can enable things to improve -- or deteriorate.

Time also affects what happens to students. The longer the time that has elapsed since students leave a programme, the more difficult they are to contact and interview (Eninger, 1965), the less likely they are to recall their school experiences exactly, and the more likely it is that incidental things have happened to them which modify the changes that a school or programme has made.

On the other hand, the less time that has lapsed since they left school, the less time has had a chance to allow the permanent effects of a programme to surface. For example, time provides either experience with or loss of the skill acquired at school. Time as well eliminates the effects of extreme youth which seem to carry negative weight with some employers (Berg, 1970; Eninger, 1965).

...but it can be partly eliminated.

Researchers in facing this problem have developed methods of study that cope with the effects of time in various ways. None is perfect, but as is the case with models, these approaches can be modified to suit particular situations.

For instance, researchers can study outcomes shortly after the programme has been completed, say one to two years. Our follow-up study used this approach. It eliminates the effects of years of accumulated work experience and increasing age which may interfere with the direct effects of a programme. This approach does not examine the long-term history of people coming out of a programme, an analysis which can provide a more realistic perspective on the lasting effects that a programme has had. Another important feature of the short-term study is that students are easier to contact the shorter the time that has elapsed since they left the programme. Even so, we had a great deal of difficulty contacting the former students in our follow-up sample. Ease of contact varies with different populations, and our students were probably characterized by high geographic mobility.

Another way to handle the time problem is to contact people at the same point in time who have been out of a programme for varying numbers of years. For example, Eninger in 1965 contacted students who graduated from a programme in '53, '58 and '62. This technique has the advantage of allowing us to see both a programme's long-term and short-term effects. However, the group that was out of the programme longest was much more difficult to contact, and the number of usable questionnaires from that group was so small that the results have questionable comparative value. It is also difficult to draw safe

conclusions about the long-term effects of the programme because a variety of post-school experiences affect job success.

A partial solution to the problem of contacting a sufficient number of students is to conduct a longitudinal study. This kind of study follows students for a number of years after they leave school, interviewing them at regular intervals. Students can be asked about their school experiences soon after leaving, while the long-term effects of a programme can be assessed at a later date.

Corazzini (1966), for example, contacted students right out of school and again after eighteen months. The initial contact made it easier for him to keep track of his sample. This method can be extended even further, tracing students through their entire job careers if desired. The longer the tracking, the more informative the results, but the longer it takes for the study to be completed. Continuous tracking is not only time consuming and expensive, but there is also the possibility that changing educational and vocational conditions will have rendered the findings useless and irrelevent by the time they are completed.

PART IV
WITH SPECIFIC REFERENCE TO OUR STUDY

This paper has been an introduction to the report on the follow-up study which the Research Department of the Board of Education for the City of Toronto has undertaken. The study is designed to find out about the educational and employment experiences of former students who attended the four special high schools and four special vocational schools in the City of Toronto. The students who left these schools during one school year, i.e. between September 1968 and June 1969, were selected to represent the students of all years. This sample includes students who graduated as well as those who left before completing their course. The questionnaire was designed by the Research Department in co-operation with principals and guidance teachers in the schools to be studied. The former students, interviewed by an independent research firm, were asked to describe the jobs they had held since leaving school and how long they had worked at each job, what kind of job they held now, the hours they worked, the pay they received, and whether they had had any raises or promotions. They were also asked whether they had received any further education since leaving secondary school and, if so, what kind of courses they had taken and for how long. Finally, they were given the chance to say what they liked and disliked about the vocational or high school they had attended.

The Research Department pretty well followed an evaluative model in gathering the information. As such, the findings are subject to the advantages and disadvantages previously ascribed to this model (p. 20).

The goals for our schools are only vaguely defined.

As noted above, studies which follow an evaluation model have the problem of identifying the goals of the programme. Our study has had to deal with that problem too.

Many competing goals are operating in our complex multi-ethnic, multi-class society (Porter, 1965), and their presence, and lack of articulation make it difficult for researchers to establish what the goals of a programme are.

There is first of all the problem of deciding what schools in general, and not just the ones in our study, should do.

Schools are seen as equalizers ...

Many people see schools as the medium through which students of all backgrounds pass in order to seek their rightful place in society according to innate ability. These people expect the schools to function impartially and treat all students fairly and equally. Implicit in this view is the assumption that all students enter school equally equipped for it.

...or as compensators...

Others see the schools as having an additional function, which is to compensate some students for what are seen as economic, social, academic and physical handicaps. These people see the schools as second chance institutes,

designed to help students compensate for previous academic failure, however, caused.

...but they remain upheld as the only institution that can make democracy real.

But what underlies both these conceptions of the school's function is the general belief that the schools are the cure, the panacea for society's inequalities. Some contemporary writers suggest that, in fact, schools perpetuate these inequalities (Illich, 1971b; Goodman, 1964; Shafer et al., 1970; Holt, 1969). They argue that the lack of effective methods to engage lower-class kids' interest and motivation, teachers' preference for middle-class behaviour and their tendency to punish and discredit all other kinds, early streaming and the resultant social stigma all result in the underachievement of many poor and immigrant kids. Placed in slower classes, expected to achieve less and living up to lower expectations, they finish school at sixteen with a sense of relief. Ending up with the same low social status as their parents, they pass on the same problems to their children and their children's children. They are caught in a self-fulfilling prophecy. The schools do not break the effect of unequal social status, suggest these writers, they reinforce it.

Disagreement also exists about the priorities of vocational schools.

In addition to the problem of defining the goal of schools in general, there is also disagreement about what a vocational programme should do.

Burbidge (1971) and Bruner (1970) support the position that vocational schools should prepare students first and foremost for democratic citizenship, meeting society's primary need for intelligent individuals.

McGivney (1963), on the other hand, argues that skill training comes first, preparing the students to serve the needs of industry and the economy, and thereby, of society. This disagreement may be more than academic. Burbidge suggests that an emphasis on skill training produces qualities of subservience, order-taking, and non-questioning that are incompatible with the qualities of a good citizen. A participating member of a democracy needs a questioning attitude and a desire to participate in the decision-making process. Illich (1970a) also suggests that by encouraging students to accept directions without question, the schools encourage a passive dependence on the existing industrial system, a dependence which is incompatible with freedom.

These are both issues which the reader must resolve for himself. The follow-up study cannot define goals, either for schools in general or for vocational schools in particular. It can, however, help the reader set his own goals by providing some information on what the schools are actually achieving. The reader may then decide either that they should be doing more or that they are functioning adequately, or he may decide that the research asked the wrong questions. But he will be taking a stand from a more informed position.

The goals for our students are unclear as well.

Defining goals for the students in our study presents particular problems. One problem is determining the level of performance to be expected from them. We cannot simply compare this group with other groups that have been studied. The age and characteristics of these students and

the programmes devised for them are very different from other groups and programmes that have been studied. In addition, the findings of other studies are partly dependent on the job market at the time the study was done, and these conditions have changed.

The schools' populations are heterogeneous.

Compounding the difficulty in establishing expectations is the wide range in characteristics and needs of the students within our sample. The vocational school programme was originally designed for students with below D- level I.Q. scores who were considered to be "educable mentally retarded." The special high schools accept on record no one below a D- level I.Q. Many of the students in the special vocational schools have come from pre-vocational programmes in the public schools. Some are professionally diagnosed as mentally, emotionally or physically handicapped. Sometimes problems occur together in combination. Students in the special high schools are by and large all slow learners who either came from academic vocational classes in the public school, failed grade eight, or are likely to drop out as soon as they turn sixteen, and so have been counselled to attend a school which will give them a trade in a short time. Some students attending these schools are late-arriving immigrant children (Wright, 1970).

In response to the unusual composition of this group, the schools offer a number of programmes meeting many needs. In addition to providing trade and commercial courses, they offer remedial classes for the physically handicapped and English as a second language, as well as a full programme

of options like music and gymnastics. The presence of all these programmes, which are often adjusted to the individual student's needs reminds us again that it is necessary to observe and analyze the operation of a programme before we can fully evaluate its outcomes.

It is also possible that expectations of the students and the programmes offered them may differ from school to school within the eight schools studied. And within individual schools, each teacher may be carrying out a slightly different programme which implements his individual expectations of the group. Such differences between schools and within schools makes it even more difficult to explain why the outcomes are what they are.

Background characteristics have a strong effect on how well students do.

There is good reason why the expectations of teachers and administrators in these programmes may be unclear. Research has not concluded to what extent school can affect students' post-school employment and educational experiences. Such factors as the students' previous experience and relatively low self-esteem (Flis, 1965; Goffman, 1963; Shafer et al., 1970), the effects of the home and family, the effects of poverty, the students' previous experience with schools and the attitudes they have acquired toward them, and cultural or ethnic differences all have some effect on what happens after leaving school. Just how much effect, and whether it outweighs the effect of the school, is still unclear (Palmer, 1967).

Figures from a reanalysis of some of The Every Student Survey data (Wright, 1970, Table 17) show that 83% of the students enrolled in the four vocational schools in our study and 67% of the students enrolled in the four high schools come from a background of poverty (i.e. the head of the household is identified as an unskilled worker, retired, on Workman's Compensation, welfare, mothers' allowance, unemployed, or a housewife). This group forms only 54% of the population enrolled in the four-year schools in Toronto, and only 36% of the students in the five-year schools. The clustering of students from economically and socially disadvantaged environments may reinforce rather than alleviate the effects of an economically disfavoured background (Goffman, 1963; Dumka, 1970; Hambleton & Houseley, 1967; Kohl, 1967; Lorimer & Phillips, 1971; McGaffrey, 1970).

Weiss (1970) raises the point that schools, whatever their function, only affect part of a student's life, that part which is intermediate between his personal life and the world of work. Schools do not operate directly on the consequences they hope to affect; they do not actively shape the job market, provide a job, determine a person's job security or his future education. Schools provide the indirect means for the student to affect these things himself; they do not attempt to directly change all the things that have caused his disadvantages in the past or that will cause them in the future. A school programme cannot directly affect the

company a student keeps and the attitudes and economic insecurity of his family, and cannot be seen as a failure if it does not change things that are caused by non-school experiences.

No absolute indicators of this programme's success or failure are available.

Since clear expectations do not exist, researchers can measure how well our former students are doing, but they cannot compare their findings with objective standards of acceptability.

Thinking concretely about our study, we might consider a high rate of employment as acceptable, but what would we consider high enough? We might decide to accept a pay level that allows a former student to support a family. On the other hand, we might be content with a salary at which he can support only himself. Or we might accept anything better than welfare or the Ontario Welfare's official poverty level.

Is rate of employment a useful index of success?

But it is doubtful whether rate of employment could ever be a satisfactory index of a programme's success. There is evidence that the occupational success of vocational school students is limited more by the arbitrary job qualifications that employers set than by the training they have received.

In his book Education & Jobs -- The Great Training Robbery, 1971, Berg suggests that during the last twenty years employers have raised the level of education required for many jobs while the jobs themselves have remained the same. Many people cannot compete for a position, although they have the manual and mental ability to do the job, because

they do not have the educational qualifications. This problem has been recognized before, (Report of the Select Committee on Manpower Retraining, 1963) but it is just now coming to the public's attention. The practice, however, still appears to be accepted unquestioningly (List, 1971).

Job qualifications eliminate many unjustifiably.

The employers' rationale for raising academic standards is that more highly educated people are more promotable. By raising standards, employers also curtail the number of applicants they must screen for each job. Berg's findings, however, suggest that as a result of these hiring policies, over-educated employees leave their jobs before being promoted, and workers having the greatest seniority, although not necessarily the highest level of academic achievement, get the promotions. He also points out that many of the jobs for which qualifications were raised had no positions to be promoted to.

Illich (1971) suggests that North Americans overvalue education and overrate the need for diplomas and degrees. Employers' preoccupation with educational qualifications is not only irrelevant for many jobs, but is also unconstitutional because it discriminates against groups of people who can otherwise do the job.

Berg's data fail to show a relationship between educational achievement and productivity. Some of his findings suggest that education has a mildly negative effect on job productivity: in some cases he found that the more highly educated worker produced less. His data on the armed

services and the Federal civil service demonstrate that performance is not increased by level of education but by environmental conditions and personal characteristics. He also found that the highest rates of job dissatisfaction among blue collar workers were found among low-educated workers in low skill jobs, or highly-educated workers in low skilled jobs (Berg, 1970).

Berg (1970) points out that the American army's training programmes enable all but a few of their educationally underqualified recruits become technicians. This highly effective training takes place on the job, not in the school. The success of the army, he says, demonstrates the folly of schools which remove students from the world of work when their ultimate purpose is to integrate them into it. Illich feels that vocational schools are an unjustifiable expense. Students, he says, can be trained in an industrial setting; educational institutions can rent industrial premises at night if industry is unwilling to do the training itself. Government can legally obligate industries to rent their facilities to the schools if it desires (Illich, 1970b).

The current unemployment situation puts our students at an additional disadvantage.

There is another feature of the job market which puts the students in this study at a disadvantage and makes it difficult to evaluate their performance. This is the present unemployment situation. In May, 1971, the highest rate of unemployment in Canada was found in the age group 14 to 24. Their rate of 11.6% (Dominion Bureau of Statistics, 1971) was almost twice as high as the rate for all ages.

combined. Consequently, it is useful to comapre the students' rate of unemployment with the rate for their age-mates and with the rate for the general population. But again, if the rates are different, it will be difficult to say whether the difference is due to the school programme, the background of the students, or the arbitrariness of employers' hiring policies.

In view of the problems in evaluating any index of job success, the occupational data were supplemented by asking the students themselves how well they think school prepared them for getting a job. Their answers will indicate how the students felt about the programme, and how much they think their post-school experiences are due to the school as opposed to the job market. Certainly the students' feelings about the schools and their degree of satisfaction with the outcomes is as important as the public's, if not more so.

PART V
CONCLUSIONS

This paper was designed to provide the reader with information about the process, problems, and limitations of evaluation research. It was hoped that this will guide him to a better understanding of the forthcoming research report on a sample of students from the four special vocational and four special high schools in the City of Toronto. It should also make it easier for him to understand other studies of this type.

The follow-up study will provide us with raw facts.

The follow-up study will provide us with information which has not been available before. The study will express the outcomes of these students' school experiences in percentages and ratios. Numbers say very little about individuals, but we will learn a lot about groups of individuals. We will know how many students are employed and how much, on the average, they earn. We will know how many jobs they have held, and for how long. We will learn how much further schooling they have had, and of what type.

We will be able to compare the figures on students from the special high schools with figures on students from the vocational schools in order to gain a better perspective on each. We can compare students from different courses. In addition, we can compare students who finished the programme with those who left after only a short time. Students who attended the programme only briefly comprise a kind of control group. By comparing their post-school

experiences with the experiences of students who completed the programme, we have a kind of comparative measure of the programme's effectiveness. We can see if attendance at these schools makes any difference to the jobs and education students get after leaving. This is not a completely satisfactory control group since students who leave school early are likely to be different in other ways as well from students who complete their course.

The data will also tell us how the students feel about their school experiences. Their answers to the interview questions will give us some idea of what they wanted from the programme, what they got, and what they think should be improved.

We may also learn from our findings what it is we still need to know in order to identify the factors producing these outcomes. Looking at the post-school achievement of these students may also tell us some of their strengths and weaknesses. The information may cause us to question some assumptions we have made about them in the past.

This paper has repeatedly emphasized the need to uncover the causes of the outcomes, and to refrain from making hasty conclusions about the worth of these schools and their programmes as a whole. The follow-up study has not looked at what goes on in the school. We have not been able to study such things as the effects of the school's reputation on classroom behaviour and attitudes, or the effect of in-school attitudes on learning, or the effect

of various curriculum practices on achievement. These are among the many internal features of school activities which need to be isolated and examined in order to discover what the effect of schooling actually is.

However, we will always be unable to make wholesale conclusions about the value of this group of students as workers and as people from knowledge of their success in the job market. Post-school history is affected by factors other than school programme. The current unemployment situation and the irrationalities of the selection process place many of these students at a competitive disadvantage, even if they are able to do a job. Some students may be further handicapped by nature, home background, or peer relationships. In addition, the job arena is not a test of the whole person. Thus we cannot assume from the data on post-school history what their actual limitations as a group are and how well the school has served them.

Many critics today fear that educational institutions have become a selection tool that unfairly separates the "winners" from the "losers," a tool that reflects and reproduces the inequalities of society rather than redressing them. But the purpose of evaluation is not to hand out darts and laurels. In view of the lack of clearly specified goals and expectations for any school and for these schools in particular, the most we can do is find out how well our students are doing, and in what areas improvement would be desirable.

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ABSTRACT - THIS WORKING DRAFT OF A HANDBOOK CONTAINING FLEXIBLE GUIDELINES FOR PLANNING AND IMPLEMENTING A VOCATIONAL EDUCATION PROGRAM AT THE HIGH SCHOOL LEVEL INCLUDES A PROGRAM DESCRIPTION, AN OVERVIEW OF STATE VOCATIONAL PROGRAMS, A DELINEATION OF EDUCATIONAL ROLES AND RESPONSIBILITIES FOR THE GUIDANCE ORIENTED PROGRAM, AND SAMPLE INSTRUCTIONAL UNITS. THESE UNITS OF STUDY INCLUDE BEHAVIORAL OBJECTIVES, LEARNING ACTIVITIES, SUGGESTED ADVISORY COMMITTEES, AND STUDENT EVALUATION PROCEDURES. THE APPENDIXES INCLUDE SAMPLE SCHOOL PLANS WITH TIME SCHEDULES, TASK ANALYSIS PROCEDURES, AND RESOURCE LISTS. THIS GUIDE WAS DEVELOPED AT A SUMMER WORKSHOP OF STATE VOCATIONAL SPECIALISTS, HIGH SCHOOL TEACHERS, AND A CURRICULUM SPECIALIST. (AG)

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Mrs. Margaret Oda, Director
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Mrs. Emiko Kudo, Administrator
Vocational-Technical Education

Mr. Thomas Hatakeyama, Program Specialist
Agricultural Education

Dr. Lawrence Inaba, Program Specialist
Industrial-Technical Education

Mr. Frank Kanzaki, Program Specialist
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Business Education

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Handbook Contributors and Participants

McKINLEY HIGH SCHOOL

Edmund Toma
Madelyn D'Enbeau
Joseph Ho
Hiroshi Ige
Clifford Yuen

JARRETT INTERMEDIATE SCHOOL

Richard Matsuwaka

CAMPBELL HIGH SCHOOL

Charles Lennox, Jr.
Carolyn Flood
Robert McKeller
Sione Niu
Janet Ogawa
Ilalo Parayno
John Rabanal, Complex Manager

WAIPAHU HIGH SCHOOL

Louis Baldovi
Edwin Tam
Trudy Zukemura
Yaeko Ono

RADFORD HIGH SCHOOL

George Yamamoto
Eleanor Richardson
George Arakaki

CASTLE HIGH SCHOOL

Claudio Suyat
Michael Chun
Wendy Figueira
Mae Katekaru
Gilbert Mar
Robert Todd
George Shon

KAILUA HIGH SCHOOL

Jack Warriner
Benjamin Daycock
Robert Johnson
Eldora Robertson
George Schumann
Ronald Sing

WAIMEA HIGH SCHOOL

Richard Coffman
Rodney Halstead
James Kimoto
Stanley Shimabukuro
Yoshio Kojima, Complex Manager

BALDWIN HIGH SCHOOL

Donald Gard
Michael Hazama
Harry Shimada
Wallace Ueki
Roy Yonahara
Toshiharu Domae
Jamie Parsons, Jr.

CURRICULUM SPECIALIST, MAUI DISTRICT

Toshio Seki

STATE STAFF

Emiko Kudo, Administrator, Vocational-Technical Education
Thomas Hatakeyama, Program Specialist, Agricultural Education
Lawrence Inaba, Program Specialist, Industrial-Technical Education
Frank Kanzaki, Program Specialist, Industrial Arts Education
Barbara Nakagawa, Program Specialist, Home Economics Education
Florence Sakai, Program Specialist, Business Education

FOREWORD

This handbook is a working draft and represents the work of the summer workshop participants for the Introduction to Vocations Program. It was developed with hopes that the materials included will provide program guidelines for planning and implementation.

The first section includes an overview of the total restructured vocational-technical program for the State of Hawaii followed by a more detailed description of the Introduction to Vocations Program and its primary objectives. This section also discusses the delineated roles of each program participant at the various levels and identifies the specific functions as well. The sample units of instruction, although not a product of the workshop, have been added as an additional guide.

Within the appendix section you will find sample school level plans developed by the teams from each school giving time schedules for tasks that need to be accomplished for program implementation. Informational materials in the way of presentations made by resource persons, standard equipment and tool lists for the various courses of study, and task analysis procedures are also incorporated for reference purposes.

As the Introduction to Vocations Program grows in size and scope, additional materials will be developed to assist the implementors of the program. These program guidelines are flexible to allow administrators, counselors, and teachers to make adjustments that will meet the needs of students in their particular situation.

EMIKO I. KUDO, Administrator
Vocational-Technical Education

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AN OVERVIEW OF HAWAII'S VOCATIONAL-TECHNICAL EDUCATION PROGRAMS IN THE SECONDARY SCHOOLS

The Rationale

The rapid development and impact of technology greatly affect the lives of every person in our society today, but even more so that segment of young people whose skills, intelligence, and judgment have not been adequately developed. Hence, there is an urgent need now, and in the years ahead, to prepare these young people with an adequate education to meet the requirements needed to fill the vast number of jobs spawned by modern technology.

The basic philosophy of the Vocational-Technical programs is to prepare a vast number of young men and women to cope with the extraordinary wide range of responsible jobs that must be filled by technicians--jobs that will not require four years or more of college education. It is to perform this particular mediating task that the Vocational Education programs were developed in our state. The needs of the individuals as well as of society are served simultaneously by making students the beneficiaries of these programs.

Program Description

The Vocational-Technical program is designed to offer three new sub-programs to fulfill the needs, wishes, and potentialities of differing individuals in their preparation for the opportunities that exist today and will exist tomorrow in the working world. Basically, all three programs are designed to increase the options available to high school students. These options are: (1) To take employment at entry-level jobs, (2) To move toward occupational specialization at community colleges and technical schools, or (2) To continue on into preparation for professions.

The Vocational-Technical programs emphasize specific common elements from actual occupational experiences with a balance of academic subjects to go along with these experiences. The three programs and a brief description of each are:

I. Preparatory-Vocational and Technical Education

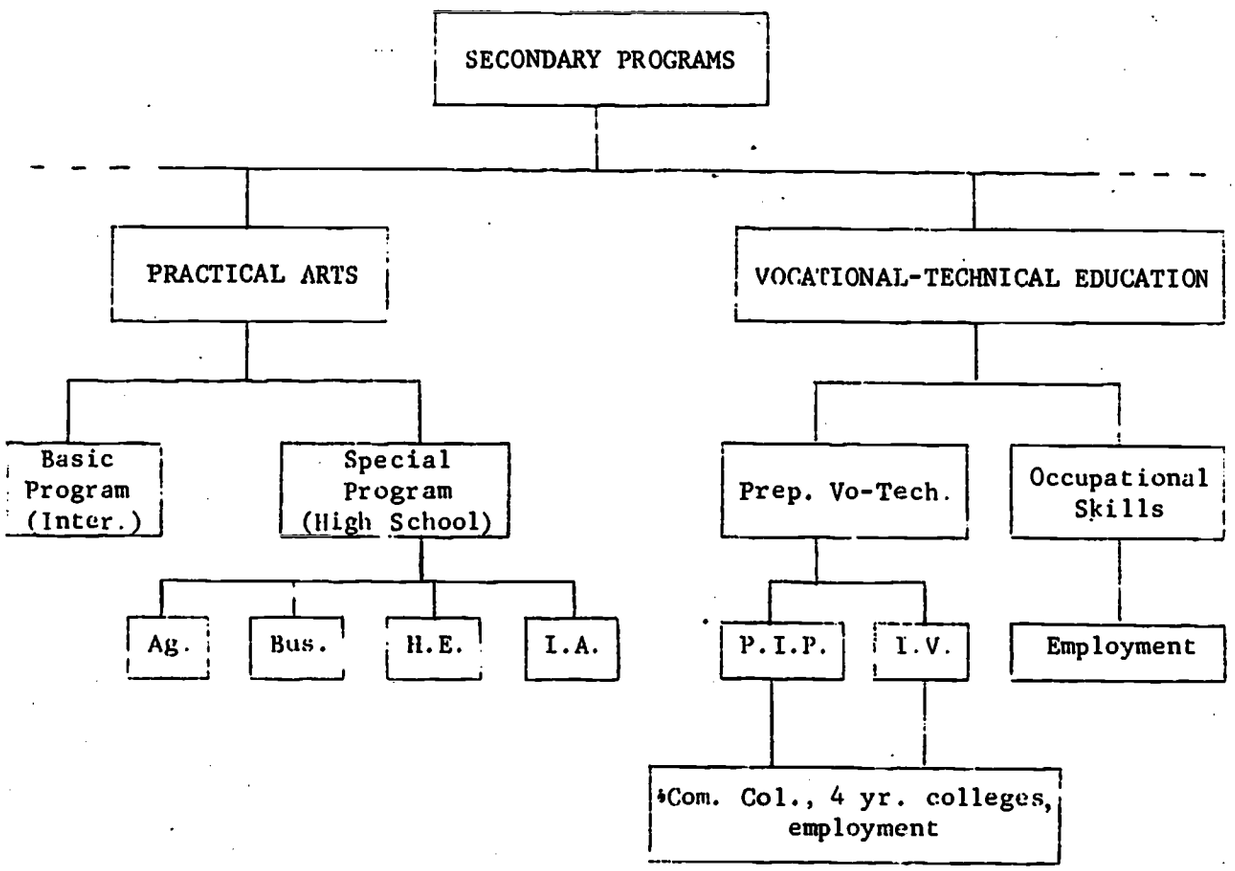
A. The Pre-Industrial Preparation Program focuses on the improvement of basic verbal, mathematical and scientific skills through correlating them with concrete occupational experiences. This program is primarily for the under-achieving, disadvantaged students. It is programmed to help these students to see the importance and usefulness of academic skills for performing job tasks.

B. The Introduction to Vocations Program is guidance oriented and includes knowledge about possible career opportunities as well as experiences in the various clusters of occupations. This program appeals to students with varying abilities, interests, and aptitudes as opposed to any one level of ability. In other words, a student with scientific aptitudes may pursue his interests in a highly technical field of work while another who likes to work with people may explore the opportunities in the social services.

II. Occupational Skills

The Occupational Skills Program is designed for job skill development and will be confined to the mentally retarded educables enrolled in the high schools. The special education teacher and the occupationally competent instructor will work together to help these students become employable.

It must be noted here that the Vocational-Technical program is separate and apart from Practical Arts Education. The Practical Arts program is concerned with helping the individual to respond sensitively to technological developments and to cope effectively with the consequences in his personal life. Hence, its primary aim is general education. The Vocational-Technical program, on the other hand, is aimed at motivating and enabling the individual to proceed purposefully in his occupational pursuit.



Note: The above chart indicates only the program structure and does not reflect program personnel functions nor subject matter.

Guidelines for the Development and Implementation of the Vocational-Technical Education Program at the Secondary School Level

The total Vocational-Technical programs were developed in accordance with the Master Plan for Vocational Education which established the following guidelines:

1. Focus on occupational needs of individuals rather than the categories of occupations; congruence between the two is clearly recognized.
2. Serve persons in all categories of occupational life.
3. Give high priority to those with special needs.
4. Plan and structure to enable individuals to fulfill their personal and social goals at the same time that career goals are being achieved.
5. Treat as total education of the individual rather than training in technical skills.
6. Increase the amount of technical content in preparing workers for technical occupations.
7. Include guidance and counseling.
8. Plan Vocational-Technical Education Program as open-ended and as continuous education with its major responsibility being to develop readiness and capacity for lifetime learning and re-learning of occupational knowledge.
9. Organize for maximum articulation from the secondary level to the community colleges and to four-year institutions.
10. Increase the options available to individuals.
11. Provide basic skills and concepts which apply universally to clusters of occupations.
12. Improve image and prestige through counseling, research, and other techniques.

THE INTRODUCTION TO VOCATIONS PROGRAM

I. Philosophy of the Program

The ultimate goal of every educational institution should be to provide every child with that education which is best for him as he progresses through life. As such, the Introduction to Vocations Program is designed to provide options which will lead to the maximum self-actualization of each individual. Hence the basic philosophy of the Introduction to Vocations Program is to provide students with the necessary qualifications for maximum flexibility in their post-high school activities.

II. Description of the Program

The Introduction to Vocations Program is designed for individuals in high school with different kinds of abilities, interests and aptitudes as opposed to the traditional different levels of abilities. It is basically a systematic and organized program for the exploration of career opportunities in the vocational-technical fields in the present and emerging technological and industrial world, and more especially in Hawaii. This exploration includes knowledge about and actual experiences in families of occupations; teachers with occupational competencies and guidance services are the chief instructional resources. Instructional facilities, equipment, and supplies must be most nearly those of the occupations being explored. Cooperative work experiences in industry in the advanced stages of this exploration are most important.

It is expected that students who enroll in this program have already attained the basic verbal, scientific and mathematical skills to levels required to work with equipment, tools, materials and processes in industry. However, those students who desire to increase their academic competencies further will be encouraged to do so. The occupational aspirations may thus be raised for these students to include those classified as professional and scientific.

The scope of the explorations will be within eight large families of occupations identified through a study of Hawaii's community college and other post-secondary courses of study which qualify students and workers for sub-professional level jobs and for advancement commensurate with their ability, education and experience.

III. Objective

It is the objective of the Introduction to Vocations Program to develop Hawaii's job interested students who have different kinds of abilities, attitudes and interests to be knowledgeable about the career opportunities and career demands in the present and future economic and technological culture through a variety of experiences in the various clusters of occupations. They should be able to apply the knowledge and skills acquired to make informed occupational choices when selecting a post-secondary vocational-

technical course of study. As the result of instruction in this program the individual should be able to:

Comprehend information regarding career opportunities and career demands in the present and future economic and technological culture.

Recognize own aptitudes and interests and make a wise choice in selecting a post-secondary course of study in the vocational-technical field.

Perform entry level tasks within one or more related job families: Business Occupations, Personal/Public Service Occupations, Health Occupations, Food Service Occupations, Electrical/Electronics Occupations, Construction/Civil Technology Occupations, Mechanical Occupations, and Technical Graphics Occupations.

ROLES AND RESPONSIBILITIES OF TEAM MEMBERS OF THE INTRODUCTION TO VOCATIONS PROGRAM

The success of the Introduction to Vocations program depends on the efforts of all participating members. With clearly defined roles and responsibilities, a meaningful program can be developed at the schools. The roles and responsibilities are outlined into four sections.

I. THE STATE AND DISTRICT STAFF

II. THE SCHOOL ADMINISTRATOR

III. THE COUNSELOR

IV. THE VOCATIONAL-TECHNICAL INSTRUCTOR

ADMINISTRATIVE AND STAFF FUNCTIONS FOR PROGRAM IMPLEMENTATION

I. The State and District Staff's Role

The State and District Staff provide direction and support for the implementation of the program.

The State Office of Instructional Services, in cooperation with the district, will provide the following support:

A. Information on Introduction to Vocations Program.

B. Orientation to Introduction to Vocations Program for all department personnel.

C. In-service workshops for participants in Introduction to Vocations Program.

D. Direction and guidance to school administrators and teachers.

E. Consultative service for facilities, equipment, personnel, and instructional program development.

F. Budget development.

G. Monitoring service.

H. Evaluation of program.

II. Administrator's Role

In initiating and developing the Introduction to Vocations Program in any high school, administrative support and guidance are imperative and must be deemed as important factors in the success or failure of the program. Hence, in order to successfully implement the Introduction to Vocations Program, the administrator must consider several important factors such as: coordination of the program; the selection and development of special faculty; scheduling; provisions for counseling and guidance services to students and parents; required physical facilities; budgeting; and the use of advisory committees.

In each of the following, the administrator should:

A. Understand, explain, define, and present the rationale of the program.

1. Disseminate information regarding program.

2. Designate program areas in each school.

B. Coordinate Program

1. Select program coordinator from the following:

   a. Vice principal
   b. Department head
   c. Counselor
   d. Teachers in the program

2. Provide time in school for program coordinator and team members to assess, evaluate on-going program.

3. Select and assign personnel to the program.

   a. Vocational-technical instructors
   b. Counselors
   c. Program coordinator

4. Review, define, and assess roles of members of the program.

In each of the following, the administrator should review:

A. School Needs

1. Determine students' occupational interests and abilities.

2. Provide occupational opportunities information to students.

3. Assess and make available school facilities, equipment and supplies.

B. Teachers' Schedules

1. Program for flexibility.

2. Include preparation period.

C. Budgetary Needs

1. Consider requests and priority -- C.I.P.

2. Select equipment comparable to that used in industry and necessary to meet program objectives -- equipment purchases.

3. Obtain necessary supplies essential to carry out an occupational experience -- supply purchases.

4. Comply with procedures outlined in state guidelines for inventories.

D. Evaluation of Program

1. Evaluate the program continuously.

2. Make formal assessment after the completion of the program.

   a. Utilization of stated objectives for the program as stated in Analytic Document, Vocational-Technical Education.

E. Organization of the advisory committee

1. Select the committee members by occupational areas involved.

2. Recommend student participation.

3. Orient the committee members to the Introduction to Vocations Program.

4. Delineate clearly the responsibilities of the committee.

III. Counselor's Role

The counselor has a vital role to play in the Introduction to Vocations (I.V.) Program. He has the responsibility of helping the student to assess and reassess the many factors which relate to his vocational goals: (a) his individual growth, development, and plans; (b) his values and attitudes toward work; (c) the economic conditions and opportunities; (d) educational and employment requirements; (e) financial and home factors.

The counselor, in cooperation with the vocational teachers and other staff members, has a key role in identifying the needs of the students and informing the administration of these needs so that appropriate curriculum can be provided. This curriculum should provide a wide exposure to the broad fields of work and enough exploratory experiences to enable the student to narrow choices and be able to select one or several appropriate occupations.

The counselor has the responsibility of making the professional personnel of his school aware of the process in making vocational choices and its inclusion of the following factors: (a) choice making is an on-going, continuous, and dynamic process extending over a period of time; (b) choice making is a process of developing and implementing a self-concept; (c) choice making is influenced by many personal and social factors such as abilities, interests, values and conditions.

The counselor has the responsibility of helping each vocational student plan a program of studies to prepare himself for appropriate future education and/or employment.

A. Selection and Identification of Students

1. Students are to be admitted into the Introduction to Vocations program from the general school population.

2. Counselors shall be available to aid in the selection and interpretation of appropriate vocational testing.

3. The counselor, as an Introduction to Vocations team member may consult with students and teachers.

B. Evaluation

1. The counselor may aid and assist in the on-going evaluation of the Introduction to Vocations Program.

2. The counselor may aid and assist in a follow-up study of graduates.

3. The counselor may provide assistance to the Introduction to Vocations team in observing behavioral changes.

C. Some of the roles and duties of the counselor in the Introduction to Vocations Program are delineated as follows:

1. Develop student profiles -- test scores, interests, strengths, weaknesses, etc. -- for counselor, teacher, and pupil use.

2. Have frequent individual counseling and group guidance sessions.

3. Use various means -- surveys, rap sessions, etc. -- to establish informational needs.

4. Make available to the students information on a wide variety of vocations and occupations.

5. Make available information on community colleges and their courses of study.

6. Make available information on private technical schools and their courses of study.

7. Arrange an appropriate schedule with the vocational education teacher for group and individual student counseling and guidance.

8. Attend Vocational Education Department team meetings as a participating member.

9. Assist the vocational education team in arranging for resource speakers, visitations, field trips, etc.

10. Cooperate with the vocational education team in doing a community survey of occupational needs.

11. Assist the vocational education team in conducting a public relations program.

12. Act as liason between the school and the industries in the communities in cooperation with the vocational education team.

13. Disseminate pertinent information and materials to the complete staff of the school.

IV. The Vocational-Technical Instructor's Role

A. Curriculum Planning and Development

1. Prepare individualized units of instruction in behavioral terms.
2. Prepare job task analysis and identify operations for instructional planning.
3. Select and develop occupational and resource materials for instructional units.
4. Prepare test materials for instructional units.
5. Keep records of student's progress (student profile).
6. Recommend new course offerings as community needs and student interest indicate.
7. Identify minimum requirements for entry level attainment.

B. Management

1. Prepare a budget for the "Introduction to Vocations" program including maintenance, equipment, supplies, and instructional materials.
2. Prepare an inventory list of all equipment and update it periodically.
3. Prepare an inventory list of all supplies and update it periodically.
4. Set up control system for laboratory management.
5. Mark federal funded equipment.

C. Coordination

1. Recommend membership for the Advisory Committee at the school level including representatives from the following:
   a. Labor union
   b. Management
   c. Vocational Counselor
   d. Student
   e. Representative from each occupational field.
2. Meet and plan regularly with vocational counselors and labor management representative as directed by the administration.

D. Program Evaluation

1. Participate in an evaluation task force.
2. Student follow-up study.
3. Recommend changes in organization for program improvement.

SAMPLE OCCUPATIONAL

UNITS OF INSTRUCTION

BUSINESS OCCUPATIONS: OFFICE

DESCRIPTION

Office Education is designed for students who are interested in office work as a career. The program content is flexible and partially determined by the needs and interests of the students as they encounter problems in office education. This program also provides actual work experience under school and employer supervision.

MAJOR COURSES

1. Introduction to Data Processing
2. Advanced Typing
3. Beginning Shorthand
4. Advanced Shorthand
5. Beginning Accounting
6. Advanced Accounting
7. Cooperative Office Education

COOPERATIVE OFFICE EDUCATION

OBJECTIVES

As a result of their learning experiences, the students will be able to:

1. Operate some of the more widely used office machines.
2. Follow instructions, both oral and written, plan systematically, and think through ultimate and desirable goals.
3. Increase their production typing through practical application of skills to office work.
4. Describe the necessary procedures in taking telephone calls, greeting office callers, handling mail and petty cash, and preparing commonly used business forms, payrolls and inventories.
5. Develop accuracy, neatness, and thoroughness in meeting the demands of the general office worker.

6. Recognize those personal traits and attitudes which are essential for success in the business world.

7. Describe the proper use and care of office supplies, tools, machines, and office equipment.

8. Identify some of the more commonly used filing systems.

9. Identify some methods of locating, applying, obtaining, and holding a job.

BASIC ENTRY LEVEL KNOWLEDGE AND SKILLS FOR OFFICE WORK

Units of Instruction

1. The Office Worker
2. Business Forms
3. Office Machines
4. Handling of Mail

With the learning experiences provided by the units of instruction as outlined above, the students will be equipped and have an option to enter any of the following occupational areas:

1. General Office Clerk
2. Clerk-typist
3. File Clerk
4. Bookkeeping Clerk
5. Receptionist
6. Mail Clerk
7. Payroll Clerk
8. Messenger
9. Business Machines Operator

SAMPLE UNIT OF INSTRUCTION: Duplicating Machines

Behavioral Objectives

As a result of their learning experiences, the students will be able to:

1. Type masters for fluid and stencil duplicating machines.

2. Identify and demonstrate the use of all operative parts of the fluid duplicator.

3. Identify and demonstrate the use of all operative parts of the stencil duplicator.

4. Select appropriate materials needed for the duplicating job.

5. Care and maintain equipment and supplies as specified by the instructor.

Activities

1. Type a paragraph on a spirit master and correct errors neatly, using appropriate method.

2. Run off the master on a stencil, making corrections as specified.

3. Type a letter on a stencil, making corrections as specified.

4. Run off the stencil on the stencil duplicator.

5. Demonstrate the use of the duplicator to another student, clearly and precisely.

Evaluation for Sample Unit

1. Instructor observations of student behavioral changes as stated in sample unit objectives.

2. Student performance of activities completed.

3. Written examinations.

SUGGESTED ADVISORY COMMITTEE

1. Administrator
2. Subject-Teacher
3. Student Representative
4. Counselor
5. Union Representative
6. Business Representative
7. Office Worker
8. Interested Parent

EVALUATION CRITERIA FOR THE COURSE

1. Instructor observation of student behavioral changes as stated in the course objectives.

2. Student overall performance of task completed.

3. Written examinations.

BUSINESS OCCUPATIONS: DISTRIBUTIVE

DESCRIPTION

Distributive Education is a program which provides students with the opportunity to explore the field of marketing and distribution, and to build a foundation for continuing education related to distribution. It is a cooperative effort requiring the joint interest and efforts of the school and the distributive businesses in the community. The classroom instruction is planned around the competencies required in the field of marketing and distribution.

MAJOR COURSES

Option I

1. Introduction to Sales and Marketing
2. Introduction to Data Processing
3. Cooperative Distributive Education

Option II

1. Introduction to Sales and Marketing
2. Introduction to Data Processing
3. Agricultural Technology I
4. Agricultural Technology II

COOPERATIVE DISTRIBUTIVE EDUCATION

OBJECTIVES

As a result of their learning experiences, the students will be able to:

1. Advance in distribution and marketing careers.
2. Develop operational techniques in distribution and marketing.
3. Develop socio-economic responsibilities and ethical conduct that accompany the right of the individual to engage in distribution, and to maintain a competitive free enterprise economy.
4. Describe the contributions that the field of distribution and marketing makes to the individual and society.

5. Describe the varied career opportunities in distribution.

6. Describe the consumer and the role he occupies in a viable economy.

BASIC ENTRY LEVEL KNOWLEDGE AND SKILLS FOR DISTRIBUTIVE WORK

Units of Instruction

1. Channels of Distribution
2. Techniques of Selling
3. Advertising and Sales Promotion
4. Visual Merchandising/Display
5. Cashiering
6. Use of Telephone
7. Adding and Calculating Machines
8. DECA

With the learning experiences provided by the units of instruction as outlined on the previous page, the students will be equipped and have an option to enter any of the following occupational areas:

1. Sales Clerk
2. Advertising Clerk
3. Cashier
4. Telephone Operator
5. Marketing Clerk
6. Stock Clerk
7. Courtesy Boy
8. Warehouseman
9. Delivery Clerk
10. Gift Wrapper
11. Shipping and Receiving Clerk

SAMPLE UNIT OF INSTRUCTION: Cashiering

Behavioral Objectives

As a result of their learning experiences, the students will be able to:

1. Greet the customer with an appropriate remark and a smile.
2. Handle merchandise with care.
3. Record the sale on the cash register accurately.
4. Receive money and give change according to specified practices.
5. Place merchandise in packages according to specified practices.
6. Select appropriate supplies needed to wrap items according to specified practices.
7. Answer any question, a customer might have, pleasantly and clearly.

Activities

1. Practice the use of the cash register.
2. Practice giving change with another student as the customer.
3. Wrap three different-sized boxes.
4. Demonstrate bagging products of different size, shape, texture, and weight.
5. Demonstrate use of the cash register and give correct change.
6. Demonstrate packaging items of varied sizes.
7. Demonstrate wrapping a package for mailing.
8. Demonstrate wrapping a gift package.
9. Weigh a package on a postal scale.
10. Weigh an item on a produce scale.

Evaluation for Sample Unit

1. Instructor observations of student behavioral changes as stated in sample unit objectives.
2. Student performance of activities completed.
3. Written examinations.

SUGGESTED ADVISORY COMMITTEE

1. Administrator
2. Subject Teacher
3. Student Representative
4. Counselor
5. Union Representative
6. Business Representative
7. Distributive Worker
8. Interested Parent

EVALUATION CRITERIA FOR THE COURSE

1. Instructor observation of student behavioral changes as stated in the course objectives.
2. Student overall performance of task completed.
3. Written examinations.

PERSONAL/PUBLIC SERVICE OCCUPATIONS: PUBLIC SERVICE

DESCRIPTION

This occupational area is designed to offer students the opportunity to acquire job entry experiences in either the Human Services occupations or in the field of Ornamental Horticulture if they are seeking employment. This program will also prepare students to pursue their interests in post-secondary schools if they so desire. Instruction is individualized and related materials are correlated with occupational job tasks.

MAJOR COURSES

Option I

1. Human Services Aides

Option II

1. Ornamental Horticulture I
2. Ornamental Horticulture II

ORNAMENTAL HORTICULTURE

OBJECTIVES

As a result of this program, the student will be able to:

1. Identify by sight, and name orally, at least 100 common ornamental plants.
2. Propagate ornamental plants by sexual (seeds) and asexual (grafting, layering, cutting, budding) means.
3. Demonstrate ability to control ornamental plant pests by physical, mechanical, and chemical means.
4. Demonstrate preparation and use of various propagation media for ornamentals (e.g. cut flowers, anthuriums, etc.).
5. Construct, maintain and use plant growing structures such as savan houses, benches, plant boxes etc.
6. Use horticultural tools and equipment safely.
7. Draw a landscape plan for a typical home.

8. Establish and maintain a lawn.

9. Keep accurate records of projects as specified by instructor.

10. Hybridize orchids, anthuriums, hibiscus, etc.

BASIC ENTRY LEVEL KNOWLEDGE AND SKILLS FOR ORNAMENTAL HORTICULTURE

Units of Instruction

1. Plant classification
2. Plant ecology
3. Plant propagation
4. Plant nutrition
5. Plant regulators
6. Plant breeding
7. Soil conservation
8. Weed control
9. Insects
10. Plant diseases
11. Economics

With the learning experiences provided by the units of instruction as outlined above, the students will be equipped and will have an option to enter any of the following occupational areas:

1. Nurseryman
2. Landscape Gardener
3. Grounds Keeper
4. Horticulturist
5. Landscape Architect
6. Cut Flower Grower
7. Horticulture Supplies Sales

SAMPLE UNIT OF INSTRUCTION: Re-potting Cattleya Orchids

Behavioral Objectives

As a result of their learning experiences, the students will be able to:

1. Re-pot five cattleya orchids in a specified manner.

Activities

1. Gather and prepare materials and equipment.
2. Segregate orchids that need re-potting.
3. Remove orchid from old pot.
4. Clean old potting material and clip off old roots and growth.
5. Place cleaned, chipped orchid into new pot in a specified position.
6. Work potting media tightly around roots.
7. Trim excess potting media.
8. Print data on label and place in pot.
9. Place re-potted orchid in shady area of greenhouse.
10. Clean up bench, put back materials and equipment to storage area.

Evaluation for Sample Unit

1. Instructor observations of student behavioral changes as stated in sample unit objectives.
2. Student performance of activities completed.
3. Written examinations.

SUGGESTED ADVISORY COMMITTEE

1. Administrator
2. Subject Teacher
3. Student Representative or Future Farmers of America Chapter President
4. Counselor
5. Union Representative
6. Business Representative

7. Ornamental Horticulture Worker

8. Interested Parent

9. Extension Service Agent

10. Young Farmer

EVALUATION CRITERIA FOR THE COURSE

1. Instructor observation of student behavioral changes as stated in the course objectives.

2. Student overall performance of task completed.

3. Written examinations.

FOOD SERVICE OCCUPATIONS: FOOD SERVICE

DESCRIPTION

An instructional program to orient students to the hospitality and food service industry. Provides basic learnings and competencies fundamental to the food service area.

MAJOR COURSES

1. Food Service I (Nutrition/Basic Food Preparation)
2. Food Service II (Food Management; Preparation, Service, including Cooperative Work Experience)

FOOD SERVICE

OBJECTIVES

1. Explore the various tasks expected of employees in different areas of food service.
2. Evaluate self in terms of standard qualities which contribute to success as a food service employee.
3. Apply sanitary and safe techniques in handling food, equipment and utensils.
4. Perform housekeeping and maintenance tasks according to recognized procedures.
5. Identify, select, use safely and care for equipment needed in commercial food preparation.
6. Organize food service procedures for optimum accuracy.
7. Prepare foods properly and for specific times.
8. Apply knowledge of basic cooking principles when preparing food.
9. Acquire skill in serving meals using different types of service.
10. Receive and store food efficiently in appropriate facilities at proper temperature.

BASIC ENTRY LEVEL KNOWLEDGE AND SKILLS FOR FOOD SERVICE

Units of Instruction

1. Nature of Work in Food Service
2. Personal Qualities for Job Success
3. Safe Handling of Foods
4. Essential Health Practices
5. Sanitation and Housekeeping Practices
6. Care and Use of Equipment
7. Safety-Accident Prevention
8. Basic Skills in Management of Work)Planning, Preparing and Serving Food)
9. Food Inventory
10. Principles of Storing Food and Supplies
11. Food Service for the Public

With the learning experiences provided by the units of instruction as outlined above, the students will be equipped and will have an option to enter any of the following occupational areas:

- Bakers
- Bus boys
- Cafeteria managers
- Car hops
- Caterers
- Chefs
- Cooks
- Cooks' helpers
- Counter supervisors
- Dietary supervisors
- Dining room managers
- Hostesses and stewards
- Kitchen helpers
- Kitchen supervisors
- Pantry workers
- Store room clerks
- Waiters and waitresses

SAMPLE UNIT OF INSTRUCTION

Behavioral Objectives

As a result of their learning experiences, the students will be able to:

1. Take food orders systematically according to management direction.
2. Describe menu and define terminology upon request.
3. Set table as instructed by management.
4. Serve food according to management direction.
5. Prepare chit as directed by the manager.

Activities

1. Take food order from customer using specified method.
2. Describing menu and defining terms on menu.
3. Write or call orders to be accurately filled.
4. Setting table.
5. Practice serving food to customers.
6. Writing chits.

Evaluation for Sample Unit

1. Instructor observations of student behavioral changes as stated in sample unit objectives.
2. Student performance of activities completed.
3. Written examinations.

SUGGESTED ADVISORY COMMITTEE

1. Administrator
2. Subject Teacher
3. Student Representative
4. Counselor
5. Union Representative
6. Business Representative
7. Food Service Worker
8. Interested Parent

EVALUATION CRITERIA FOR THE COURSE

1. Instructor observation of student behavioral changes as stated in the course objectives.
2. Student overall performance of task completed.
3. Written examinations.

CONSTRUCTION/CIVIL TECHNOLOGY OCCUPATIONS: BUILDING CONSTRUCTION

DESCRIPTION

The study of this occupational area is designed to provide students with basic entry level experiences in the building construction industry, as well as to equip them for further study in post-secondary schools. Instruction is focused on job tasks that are necessary for employment in the field. Problem solving activities associated with the construction industry is characteristic of the type of training the students will receive.

MAJOR COURSES

1. Technical Sketching and Interpretation
2. Building Construction Technology I
3. Building Construction Technology II

BUILDING CONSTRUCTION TECHNOLOGY

OBJECTIVES

As a result of their learning experiences, the students will be able to:

1. Lay out a site, set foundations, construct floor and wall framing, finish, and other job tasks associated with building construction work.
2. Use, care, and properly handle basic hand tools and equipment.
3. Identify and select building materials for the job.
4. Find, interpret, and apply technical and scientific information that deals with building construction industry.
5. Read and follow building construction blue prints.
6. Plan projects to meet building code specifications.

BASIC ENTRY LEVEL KNOWLEDGE AND SKILLS FOR THE BUILDING CONSTRUCTION INDUSTRY

Units of Instruction

1. Course Orientation -- Laboratory Organization and Management
2. Job Orientation in the Field of Construction
3. Construction Safety
4. Orthographic Projection Drawing (Blue Print Reading)

5. Construction Materials and Cost Estimation
6. Surveying and Laying Out Site
7. Seating Foundations
8. Floor Framing
9. Wall Framing
10. Roof Framing
11. Exterior Wall Covering
12. Wiring
13. Plumbing
14. Applying Interior Wall Siding
15. Installing Ceiling
16. Constructing Concrete Slab for Stairway
17. Constructing Stairway and Railing
18. Applying Interior Finish
19. Applying Floor Covering

With the learning experiences provided by the units of instruction as outlined above, the students will be equipped and have an option to enter any of the following occupational areas:

1. General Construction Worker
2. Carpenter Apprentice
3. Cement Mason Apprentice
4. Floor Layer
5. Glazier Apprentice
6. Tile Setter Apprentice
7. Electrician Apprentice
8. Plumber Apprentice
9. Roofer Apprentice
10. Painter Apprentice
11. Plasterer Apprentice

SAMPLE UNIT OF INSTRUCTION: Exterior Wall Covering

Behavorial Objectives

As a result of their learning experiences, the students will be able to:

1. Place and tack a wall siding in position.
2. Measure, cut, and install soffit, fascia, and rake.
3. Completely nail the wall covering to an existing wall frame.

Activities

1. Measure, cut, and install a corner board correctly.
2. Measure, cut, and install vertical siding on the side wall of the structure.
3. Install soffit, fascia, and rake.
4. Bend and install flashing over window.
5. Correctly apply the clapboard siding over sheathing.
6. Construction of bill of materials.
7. Cost estimation.

Evaluation of Sample Unit

1. Instructor observations of student behavioral changes as stated in sample unit objectives.
2. Student performance of activities completed.
3. Written examinations.

SUGGESTED ADVISORY COMMITTEE

1. Administrator
2. Subject Teacher
3. Student Representative
4. Counselor
5. Union Representative
6. Business Representative
7. Building Construction Worker
8. Interested Parent

EVALUATION CRITERIA FOR THE COURSE

1. Instructor observation of student behavioral changes as stated in the course objectives.
2. Student overall performance of task completed.
3. Written examinations.

MECHANICAL OCCUPATIONS: POWER AND MECHANICS

DESCRIPTION

This occupational area offers students related occupational experiences for further study and investigation in post-secondary schools, or as job entry training for those desirous of seeking an occupation in the automotive and power mechanics industry. The theoretical and practical background necessary to service, repair, and adjust automobile and other power machine components are provided in classroom and shop activities.

MAJOR COURSES

1. Technical Sketching and Interpretation
2. Power and Automotive Technology I
3. Power and Automotive Technology II

POWER AND AUTOMOTIVE TECHNOLOGY

OBJECTIVES

As a result of their learning experiences, the students will be able to:

1. Repair, replace and adjust the components of an automobile and other power motors.
2. Use various electrical and electronic devices necessary to make repairs and adjustments on the automobile and other power motors.
3. Use various hand tools and power equipment necessary to repair and adjust the components of an automobile and other power motors.
4. Analyze and solve mechanical and electrical problems in an automobile and other power motors.
5. Find, interpret, and apply technical information necessary to repair automobiles and other power motors.
6. Perform necessary maintenance and service on the various components of the automobile and other power motors.
7. Identify materials, tools, equipment and processes used by the automotive and power motor industries.

BASIC ENTRY LEVEL KNOWLEDGE AND SKILLS FOR POWER/AUTO MECHANICS

Units of Instruction

1. Automobile and Shop Safety
2. Automobile and Power Motors
3. Fuel System
4. Lubrication System
5. Cooling System
6. Exhaust System
7. Electrical System
8. Ignition System
9. Suspension System
10. Brake System
11. Transmission
12. Tune-Up and Troubleshooting
13. Body and Fender Repair
14. Automobile Painting
15. General Care and Maintenance

With the learning experiences provided by the units of instruction as outlined above, the students will be equipped and have an option to enter any of the following occupational areas:

Automotive Mechanics

1. Automobile Mechanic Apprentice
2. Service Station Attendant
3. Automobile Tester and Troubleshooter
4. Automobile Body and Fender Repairman
5. Automobile Painter
6. Tire Recapper
7. Wheel Alignment Worker
8. Automatic Transmission Worker

Power Mechanics

1. Small Motor Mechanic
2. Motorcycle Mechanic
3. Marine Motor Mechanic Apprentice
4. Aircraft Mechanic Apprentice
5. Auxiliary Motor Worker
6. General Mechanical Worker
7. Mechanical Maintenance Man

SAMPLE UNIT OF INSTRUCTION: Brake System -- Removal and Inspection of Brake Drum Assembly

Behavioral Objectives

As a result of their learning experiences, the students will be able to:

1. Remove and inspect the brake drum assembly as specified by the automobile manufacturer.
2. Replace the brake drum assembly.
3. Seek information in various resource books on the brake drum assembly.

Activities

1. Securing tools and equipment for the job.
2. Properly jacking and supporting the automobile.
3. Remove brake drum assembly as illustrated in automobile repair manual.
4. Visual inspection of complete brake drum assembly.
5. Note or replace all defective parts.
6. Reassemble brake drum assembly as illustrated in automobile repair manual.
7. Lower car and remove jack and safety stands.

Evaluation for Sample Unit

1. Instructor observations of student behavioral changes as stated in sample unit objectives.
2. Student performance of activities completed.
3. Written examinations.

SUGGESTED ADVISORY COMMITTEE

1. Administrator
2. Subject Teacher
3. Student Representative
4. Counselor
5. Union Representative
6. Business Representative
7. Tradesman
8. Interested Parent

EVALUATION CRITERIA FOR THE COURSE

1. Instructor observations of student behavioral changes as stated in the course objectives.
2. Student overall performance of task completed.
3. Written examinations.

MECHANICAL OCCUPATIONS: METAL PROCESSING AND FABRICATION

DESCRIPTION

This occupational area offers students the opportunity to extend their knowledge and skills for an occupational pursuit in the metal processing and fabrication industries. Individual instruction in problem solving activities in the areas of sheetmetal, heat treating, welding and machining will be characteristic of the type of training the students will receive through this program.

MAJOR COURSES

1. Technical Sketching and Interpretation
2. Metals Technology I
3. Metals Technology II

METALS TECHNOLOGY

OBJECTIVES

As a result of their learning experiences, the students will be able to:

1. Identify materials, tools, equipment, and processes used by the metal fabrication industries.
2. Find, interpret, and apply technical and scientific information necessary for work in the metal fabrication industries.
3. Use various hand tools, machines, and power equipment associated with the metal fabrication industries.
4. Make a layout, template and develop pattern as performed in the metal fabrication industries.
5. Read blue prints as required in the metal fabrication industries.
6. Perform necessary job task in the various occupational areas of the metal fabrication industries.

BASIC ENTRY LEVEL KNOWLEDGE AND SKILLS FOR METAL FABRICATION OCCUPATIONS

Units of Instruction

1. Orientation

2. Safety Rules and Hazards
3. Types of Metals and Materials
4. Types of Rods
5. Types of Machines
6. Machine Settings
7. Selection of Rod and Material
8. Welding Symbols and Drawings
9. Models and Instructional Materials
10. Gas and Arc Welding
11. Technical Related Information

With the learning experiences provided by the units of instruction as outlined above, the students will be equipped and have an option to enter any of the following occupational areas:

1. Sheetmetal Apprentice
2. Machinist Apprentice
3. Gas Welder Apprentice
4. Arc Welder Apprentice
5. Foundry Apprentice
6. Iron Worker Apprentice
7. Metal Patternmakers Apprentice
8. Tool Machine Setup Operators
9. Tool Maker Apprentice

SAMPLE UNIT OF INSTRUCTION: Arc Welding

Behavioral Objectives

As a result of their learning experiences, the students will be able to:

1. Properly connect the welding leads to the arc welding machine.
2. Select the proper arc welding rod for the job.

3. Set an arc welding machine to the desired heat range for welding.
4. Properly strike an arc.
5. Weld at least five different kinds of beads.

Activities

1. Care and use of arc welder
2. Measurement and layout
3. Grinding and cleaning
4. Machine setting and adjustment
5. Welding techniques
6. Problem solving
7. Welding basic bead patterns
8. Testing of weldment

Evaluation of Sample Unit

1. Instructor observations of student behavioral changes as stated in sample unit objectives.
2. Student performance of activities completed.
3. Written examinations.

SUGGESTED ADVISORY COMMITTEE

1. Administrator
2. Subject Teacher
3. Student Representative
4. Counselor
5. Union Representative
6. Business Management
7. Tradesman
8. Interested Parent

EVALUATION CRITERIA FOR THE COURSE

1. Instructor observations of student behavioral changes as stated in the course objectives.

2. Student overall performance of task completed.

3. Written examinations.

TECHNICAL GRAPHICS OCCUPATIONS: TECHNICAL GRAPHICS

DESCRIPTION

This occupational area offers the students the opportunity to obtain occupational skills in the area of Graphic Arts or Drafting. Job entry experiences in the use of tools, equipment, and processes are pursued in depth. Students are also required to do independent work in relation to the occupational job tasks. Precise and high caliber work is demanded throughout the program.

MAJOR COURSES

Option I

1. Graphic Arts Technology I
2. Graphic Arts Technology II

Option II

1. Drafting Technology I
2. Drafting Technology II

GRAPHIC ARTS TECHNOLOGY

OBJECTIVES

As a result of their learning experiences, the students will be able to:

1. Perform necessary job tasks associated with the graphic arts industries.
2. Identify materials, tools, equipment, and processes used in graphic arts work.
3. Find, interpret, and apply technical and scientific information dealing with the graphic arts industries.
4. Set up printing presses and layout work to be printed.
5. Use of various graphic arts hardware necessary for composing of printed material.

BASIC ENTRY LEVEL KNOWLEDGE AND SKILLS FOR GRAPHIC ARTS

Units of Instruction

1. Small offset press operations

2. Large offset press operations

3. Two and four color offset press operations

4. Quality control

5. Paper, and its uses

6. Safety rules and regulations

With the learning experiences provided by the units of instruction as outlined above, the students will be equipped and have an option to enter any of the following occupational areas:

1. Lithographic Pressman Apprentice

2. Printer Apprentice

   Relief
   Intaglio
   Stencil

3. Photographer

4. Bookbinding Worker

SAMPLE UNIT OF INSTRUCTION: Small Press Operations

Behavioral Objectives

As a result of their learning experiences, the students will be able to:

1. Prepare a press for offset book paper.

2. Prepare the press for a coated cover paper.

3. Adjust and describe the maintenance of the offset blanket.

4. Produce a heavy solid.

5. Produce a fine line job.

6. Select correct inks, driers and varnishes.

7. Set paper for registration.

8. Adjust ink and dampening rollers.

9. Demonstrate paper preparation for press run.

10. Adjust blanket and impression pressure.

11. Identify lubrication points.

12. Adjust feeder and blowers.

13. Mix fountain solution.

Activities

1. Print school programs.

2. Run school forms.

3. Visit a commercial Lithographic Plant.

4. Print school publications.

5. Print posters and brochures.

Evluation for Sample Unit

1. Instructor observations of student behavioral changes as stated in sample unit objectives.

2. Student performance of activities completed.

3. Written examinations.

SUGGESTED ADVISORY COMMITTEE

1. Administrator
2. Subject Teacher
3. Student Representative
4. Counselor
5. Union Representative
6. Former Student Employed by Industry
7. Tradesman
8. Printing Industry Representative
9. Interested Parent

EVALUATION CRITERIA FOR THE COURSE

1. Instructor observations of student behavioral changes as stated in the course objectives.

2. Student overall performance of task completed.

3. Written examinations.

APPENDIX A

SAMPLE SCHOOL PLANS OF ACTION FOR IMPLEMENTING THE INTRODUCTION TO VOCATIONS PROGRAM (1970-71)

BALDWIN HIGH SCHOOL

OPERATIONAL SCHEME FOR THE INTRODUCTION TO VOCATIONS PROGRAM (1970-1971)

INTRODUCTION

The involvement of Baldwin High School in the Introduction to Vocations Program Element of the Preparatory Vocational-Technical Subprogram is enthusiastically regarded by the school administration and participating staff members as an integral component of the total school effort to upgrade the instructional program. Despite the initial limitations within which the program is scheduled to be implemented, our commitment to and endorsement of the rationale of the program element portends the development of a more realistic and relevant instructional program for a broad segment of our student population.

We are confident that the present limitations will not keep us from achieving the initial objectives that we set up for ourselves. Our recognition of these limitations will necessitate the establishment of realistic and attainable objectives on which more sophisticated aspirations might be built for ensuing years.

Among the major limitations we recognize at this point are the following:

1. The absence of valuable lead time between the decision to participate and the date of implementation.

2. The utilization of a substandard physical facility to house the program.

3. The lack of appropriate equipment.

4. A pupil-counselor ratio of 1 to 550.

At this point we do recognize ways in which the above limitations might be coped with to delimit their effect on the effectiveness of the program.

The active participation of five staff members, the principal, and the district curriculum specialist in the orientation workshop has provided us with some background on which to build upon. The development of this operational plan at this work session has broadened our understanding of what it is we are focusing on.

A new facility is scheduled to be available for use by September, 1972. In the meantime the allocation of $10,000.00 for renovations should serve to make our present facility more appropriate.

The allocation of $8,000.00 for equipment will be of tremendous help although we see the need for continued support if our equipment inventory is to be upgraded to replicate that of industry.

Finally, we anticipate the reorganization of our counseling program in such a manner as to make the needed thrust in helping our students become more knowledgeable about career opportunities.

BALDWIN HIGH SCHOOL

The following delineation of responsibilities and the accompanying time table are intended to provide the necessary direction in this year's operations. Because they are not intended to serve as guidelines, they are not to be regarded as rigid agreements; rather they should serve to help the participating staff members informed of their roles as well as responsibilities.

ADMINISTRATOR'S ROLES AND RESPONSIBILITIES

Activity	Primary Responsibility	Participating Responsibility	Target Date
Identification of occupational areas 1. Agricultural Technology 2. Power and Automotive Technology* 3. Office Education 4. Distributive Education 5. Ornamental Horticulture	X		Aug. 15
Selection of personnel for program	X		Aug. 15
Development of school operational scheme		X	Aug. 20
Selection of program coordinator	X		
Agreement on role and responsibility		X	Aug. 27
Agreement on teaching schedules		X	Aug. 28
Total staff orientation	X		Sept. 1
Student orientation	X		Sept. 2
Schedule changes for additional student enrollees		X	Sept. 2-10
Development of plans for community orientation	X		Sept. 15
Development of expenditure plan		X	Sept. 15
Development for plans of facility renovation		X	Sept. 30
Establishment of advisory committee	X		
Initiate community orientation	X		Sept. 30
Development of plans for evaluation	X		Sept. 30
Initiate evaluation process	X		Oct. 15
Initiate planning for 1971-72	X		Oct. 30
Continue evaluation			on-going

*New Program

COUNSELOR'S ROLES AND RESPONSIBILITIES

Using the report "Roles and Responsibilities of the Counselor", the counselor in coordination with the other team members will discuss, develop, and set priorities and a time schedule for the counselor's specific functions in the program.

INSTRUCTOR'S ROLES AND RESPONSIBILITIES

Activity	Primary Responsibilities	Participating Responsibilities	Target Date
Curriculum Planning:			
1. Perform job task analysis and identify operations	X		Sept. 30
a. Select and develop materials	X		Immediately
b. Prepare test materials	X		& continuous
c. Keep record of student progress	X		"
2. Receive information on minimum requirement for entry level attainment from coordinator	X		Jan. 30
3. Prepare and collect individualized units of instruction	X		Continuous
4. Recommend new course offerings		X	Jan. 30
Management:			
1. Set up control system	X		Sept. 2
2. Prepare budget		X	Feb. 15
3. Prepare and update inventory of equipment	X		June 10
4. Prepare and update inventory of supplies	X		Continuous
5. Mark federal funded program			As necessary
Coordination:			
1. Recommend membership for advisory committee	X		Sept. 15
2. Meet with counselor and consultants			As necessary
Program Evaluation:			
1. Participate in evaluating task force		X	Continuous
2. Initiate student follow-up		X	May 1
3. Recommend organizational pattern		X	Dec. 15

RADFORD HIGH SCHOOL

PLAN OF ACTION FOR INTRODUCTION TO VOCATIONS PROGRAM (1970-1971)

A. Programs Offered in 1970-1971

1. Cooperative Industrial Education Program*
2. Office Occupations

B. Personnel for CIEP

1. Administrator
2. Teacher-Coordinator
3. Counselor (Senior)

C. Budget from Program Allotment

1. Equipment
2. Supplies

D. Student Selection

1. Senior students on half-day schedule
2. Students must have transportation
3. Student interest

E. Evaluation of Students

1. Employer
2. Teacher-Coordinator
3. Follow-up survey when possible

F. Time Line on Activities

1. Student selection
   a. 1st -- End of May
   b. 2nd -- Senior registration day -- August 25, 1970
2. Budget completed by July, 1970
3. Testing completed by August 25, 1970
4. Coordinator's selection completed by September 1, 1970
5. Class schedule completed by September 1, 1970
6. Textbook and reference books and materials ordered by August, 1970
7. Equipment ordered by August, 1970
8. Supplies ordered in
   a. 1/2 of allotment -- 1st quarter
   b. 1/4 of allotment -- 2nd quarter
   c. 1/8 of allotment -- 3rd quarter
   d. 1/8 of allotment -- 4th quarter
9. Job placement
   a. 1st completed by end of September, 1970
   b. 2nd continuous throughout the year
10. Evaluation of program -- completed beyond of school year

*New Program

McKINLEY HIGH SCHOOL

PLAN OF ACTION FOR INTRODUCTION TO VOCATIONS PROGRAM (1970-1971)

A. Programs Offered in 1970-1971

1. Power and Automotive Technology*
2. Technical Graphics Occupations*
3. Constructional/Civil Technology Occupations*
4. Cooperative Distributive Education*
5. Cooperative Office Education*
6. Office Occupations

B. Program Administration

1. Principal -- administrator of program

2. Program Coordinator -- Counselor-Coordinator of Federal programs at McKinley High School -- Mr. Hiroshi Ige

C. Program Personnel

1. Power and Automotive Instructor -- Mr. Clifford Yuen
2. Technical Graphics Occupations Instructor -- Mr. Daniel Sison
3. Constructional/Civil Technology Occupations Instructor -- to be selected
4. CDE and COE Coordinator and Instructor -- Mrs. Madelyn D'Enbeau

D. Roles of Personnel (See proposals of Introduction to Vocations Workshop)

E. Student Selection

1. Students selected during regular school registration program.

2. Additional student selections and placement will be done during month of September.

   a. By Counselor-Coordinator
   b. Area instructors
   c. Regular counseling staff

F. Budgetary Needs (Current Year)

1. Facility Preparation -- September 1, 1970
2. Instructional Material Selection -- September 1, 1970
3. Purchasing of Supplies and Equipment -- September 15, 1970

G. Budgetary Needs for next school year -- 11/70

H. Program Evaluation

Counselor-Coordinator and team members will develop program plan for evaluation.

Possible expansion into other areas for 1971-72 school year.

*New Programs

JAMES CAMPBELL HIGH SCHOOL

PLAN OF ACTION FOR INTRODUCTION TO VOCATIONS PROGRAM (1970-1971)

A. Programs for 1970-1971

1. Office Occupations
   Data Processing*
2. Cooperative Office Education*
3. Automotive Technology*
4. Cooperative Distributive Education*

B. Time Line on Activities

1. Student selection

   a. COE and CDE -- September, 1970
   b. Automotive -- Completed

2. Testing

   Pre-test in October; post-test in May

3. Class schedules

   a. COE and CDE -- Completed by October 15, 1970
   b. Automotive -- Completed

4. Instructor selection -- Completed

5. Orientation -- August 17-28
   Early September

6. Facility preparation -- September, 1970

7. Textbook selection -- September, 1970

8. Budget -- Allocation completed
   Plans for 1971-72 -- May, 1971

9. Supplies and equipment -- October, 1970

10. Program evaluation -- Introduction to Vocations Team

*New Programs

WAIPAHU HIGH SCHOOL

PLAN OF ACTION FOR INTRODUCTION TO VOCATIONS PROGRAM (1970-1971)

A. Tentative Selection of Programs

1. Food Service (Boys)
2. Drafting Technology*
3. Office Occupations
4. Building Construction Technology*
5. Distributive Education
6. Agricultural Technology
7. Ornamental Horticulture

B. Tentative Time Schedule of General Operations

September 1, 1970	General faculty orientation to Program
	Selection of Introduction to Vocations staff
	Selection of Introduction to Vocations students
September 15, 1970	Pre-test
September 30, 1970	Selection of Introduction to Vocations advisory committee
October 15, 1970	Community orientation to Introduction to Vocations (P.T.A., newsletter, media)
	Pre-inventory report of equipment, supplies, furniture
October 30, 1970	Deadline for furniture, equipment, supply requests
	Deadline for minor facilities renovation requests
November 16, 1970	Tentative listing of Cooperative Businesses
November 30, 1970	Student's work schedule to job sites
February 1, 1971	Student opinion survey
May 19, 1971	Student opinion survey
May 26, 1971	Post-test
June 2, 1971	Final evaluation report

*New Programs.

CASTLE HIGH SCHOOL

PLAN OF ACTION FOR INTRODUCTION TO VOCATIONS PROGRAM (1970-1971)

A. Programs to be Offered

1. Electronics Technology*
2. Metals Technology*
3. Agricultural Technology
4. Distributive Occupations
5. Ornamental Horticulture
6. Office Occupations
   Data Processing/Key Punch*

B. Introduction to Vocations Staff

1. Principal
2. Department heads involved in program
3. Introduction to Vocations teachers
4. Designated counselor
5. Registrar
6. Librarian

C. Student Selection

1. Agriculture, metals, and electronics will be comprised of advanced students in each area.

2. Business students will be selected through registration.

D. Orientation of Staff

1. Principal of school to explain, define and present rationale of program to entire staff.

2. Chairman of department involved will disseminate detailed information to his staff.

E. Facility Preparation

1. All teachers have room assignments.

2. Minimal supplies and equipment to implement program have been requested.

F. Program Needs

1. Textbooks
2. Visual aids
3. Equipment and maintenance
4. Renovation of physical facilities
5. Supplies

*New Instructional Program Offering

CASTLE HIGH SCHOOL

G. Evaluation

1. Instructional evaluation

   a. Student progress chart

   b. Standardized and teacher made tests

2. Program evaluation

   a. Introduction to Vocations team would continuously evaluate the program through the use of surveys and other devices.

   b. Follow-up study of program participants by the counselor with the help of the Introduction to Vocations staff.

KAILUA HIGH SCHOOL

PLAN OF ACTION FOR INTRODUCTION TO VOCATIONS PROGRAM (1970-1971)

A. Programs for 1970-1971

1. Distributive Occupations
2. Office Occupations
3. Ornamental Horticulture
4. Building Construction Technology I*
5. Power and Automotive Technology I*
6. Metals Technology I*
7. Metals Technology II*
8. Graphic Arts Technology I*
9. Drafting Technology I*

B. Time Line on Activities

1. Testing -- To be built into program
2. Student selection -- Completed (Supplement as needed, September, 1970)
3. Student class schedules -- Completed (Adjusted as needed, September, 1970)
4. Additional personnel needed -- Vocational Construction Instructor
5. Orientation of staff -- First week of September, 1970
6. Plans for renovation -- End of September, 1970
7. Ordering of equipment -- End of September, 1970
8. Instructional materials -- Recommend one year in advance
9. Budget requests -- Second week of September, 1970
10. Program evaluation
    a. Personal contact and response, continuous
    b. Survey evaluation -- students, teachers, and counselor
    c. Follow up of students

*New Programs

WAIMEA HIGH AND INTERMEDIATE SCHOOL

PLAN OF ACTION FOR INTRODUCTION TO VOCATIONS PROGRAM (1970-1971)

A. Programs Offered in 1970-1971

1. Distributive Education
2. Office Occupations
3. Cooperative Distributive Education*
4. Agricultural Technology
5. Ornamental Horticulture

B. School Coordinating Team - To provide decisions, directions, operation, and information of program

1. Administrator
2. Counselor
3. Business Education Chairman
4. Cooperative Distributive Education Teacher
5. Student Representative
6. West Kauai Businessmen's Association Representative
7. Hanapepe Merchants Association Representative
8. Labor Representative

C. Role of the

1. Administrator)
2. Counselor)
3. Distributive Education Teacher) Delineated in the section on Administrative and Staff Functions.
4. Other vocational teachers)

D. Timeline and Responsibilities - See next page

E. Program Evaluation

1. Students' responses - written/verbal
2. Attitude/interest inventories
3. Follow-up testing
4. Practical experience gained
5. Placement and follow-up

F. Recommendations

Expansion:

a. Occupational Skills Program
b. Mechanical cluster
c. Electrical/electronics cluster

*New Programs

WAIMEA HIGH AND INTERMEDIATE SCHOOL

TIME LINE AND RESPONSIBILITIES

Activity	Completed By	Primary Responsibility
Work Stations	4/30/70	Teacher; Team
Student Selection	5/15/70	Teacher; Team, Employer
Purchasing of Supplies and Equipment	7/1/70 - 1/30/71	
Budgeting for 1971-73	9/70	State
Facilities Preparation	9/1/70	Administrator; Teacher
Staff Orientation	9/1/70	Administrator; Team
Students' Schedules	9/11/70	Counselor; Administrator
Teacher's Schedule	9/11/70	Administrator
Instructional Materials Selection	9/15/70	Teacher; Specialist
Testing Attitude/Interest Inventories Narrative/Skills	9/30/70	Teacher; Counselor
Community Orientation	9/30/70	Administrator; Team
Evaluation	5/71	Administrator; Team
Budgeting for 1973-75 Personnel Supplies/Equipment CIP	7/72	Administrator; District

APPENDIX B

INTRODUCTION TO VOCATIONS

WORKSHOP PROCEEDINGS

EMPLOYMENT TRENDS IN HAWAII

By Teruo Yoshida, Chief, Research and Statistics
Hawaii State Department of Labor and Industrial Relations

In order to place this discussion in an orderly perspective, let me give you an outline of my presentation. First off, I will be talking of national trends in employment and forecasts for the future as far as industries are concerned. Secondly, an attempt will be made to give you some idea of the occupational trends and demands for the future. To bring it back home, we shall move on to industrial and occupational trends and demands for the State of Hawaii. Finally, I want to show you some slides on wage rates for a few common occupations.

However, before proceeding, it must be pointed out that making short-range prognostications is a hazardous occupation. Economic situations change from year to year and what may be true today may not be so six months from today. Long-range forecasts on the other hand are not too dangerous because these can and should be revised periodically, annually if feasible, so that a time will never come when projections may be compared with the actual outcome. Also, in many instances the maker of the projections is not around when it is time to make the comparisons. And if we are still around, then the analyst conveniently remains silent or gives some rational reason why projections were not borne out. Only if by luck the analyst if off by 10 percent or so, do you hear from him.

Transparency No. 1

Turning first to national trends and developments, this table shows the rate of increase in employment between 1960 and 1966, the rate of employment change between 1966 and 1975 and to give you an idea of the magnitude, the number of employed persons in the industries anticipated in 1975.

As may be seen, in both comparison periods, the greatest relative change took place in state and local government employment followed by the service industry. I am referring to the numbers shown in ( ) in the table. Both retail trades and finance, insurance and real estate continue to maintain it ranking as the 4th and 5th fastest growing industries. As you can see, construction which is most sensitive to even slight changes in the economy has taken over from durable goods manufacturing as the 3rd fastest growing industry. Overall, the rate of growth is expected to be much slower in the immediate future as compared to the first half of the 60's. Whereas employment increased 18 percent in six years from 1960 to 1966, it is expected to rise by only 19 percent in the nine-year period from 1966 to 1975.

Since we all have some idea of the occupations in each of the industries, it is possible to more or less guess at the demands for different occupations if we are able to place the occupational needs in its perspective to economic, social and technological developments. I'll return to this topic in a few minutes.

Now that I am on the profound statement kick, let me make a few more.

According to the U. S. Department of Labor, opportunities in the professional and technical fields, which usually require college level training, are expected to increase faster than in any other occupational group in the 70's and will

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TRANSPARENCY NO. 1

NATIONAL NON-AGRICULTURAL EMPLOYMENT, BY INDUSTRY

	1960-1966 % Δ	1966-1975 % Δ	1975 EMPLOYMENT (Thousand)
TOTAL NON-AGRICULTURAL	+18	+19	76,030
CONSTRUCTION	+14	+27 (3)	4,190
MANUFACTURING	+14	+ 3	19,720
DURABLE GOODS	+18 (3)	+ 1	11,480
NON-DURABLE	+ 8	+ 4	8,240
TRANSPORTATION, COMMUNICATION UTILITIES	+ 4	+10	4,580
TRANSPORTATION	+ 2	+13	2,935
COMMUNICATION	+10	+10	1,020
UTILITIES	+ 2	- 1	625
TRADE	+16	+21	16,115
WHOLESALE	+14	+20	4,135
RETAIL	+17 (4)	+23 (4)	11,980
FINANCE, INSURANCE AND REAL ESTATE	+16 (5)	+20 (5)	3,725
SERVICES	+29 (2)	+35 (2)	12,915
GOVERNMENT	+30	+30	14,165
FEDERAL	+13	+ 8	2,765
STATE AND LOCAL	+37 (1)	+37 (1)	11,400

show an increase of 50 percent from 1968 to 1980. This compares with an anticipated growth of 40 percent for service workers, a 33 percent increase in clerical workers and a 30 percent jump in sales occupations over the same period. Blue-collar workers will continue to be in demand throughout the period, accounting for about 1/5 of all job openings. Similarly, two out of ten job openings will be for professional and technical jobs.

Let me quote from a news release issued by the U. S. Bureau of Labor Statistics on the need for semi-professional occupations. "As the nation continues to strive for greater progress in such vital areas as housing, transportation, health and environmental control, the demand for professional personnel such as scientists, doctors and engineers will increase rapidly. But to utilize these highly educated people to the maximum, scores of technicians and other support personnel are needed to relieve them of the tasks that can be performed by less highly trained personnel."

Secretary of Labor George P. Shultz, prior to his new assignment, cited the need for better vocational education courses to equip young people with the complex job skills needed in this technological age. He pointed out that, as educational levels continue to rise, young people with vocationally oriented education beyond high school will be in the best position to compete for job openings.

The Occupational Outlook Handbook, published by the U. S. Bureau of Labor Statistics, cites that an expanding economy will spur the construction of industrial plants and commercial establishments, creating a greater need for construction craftsmen. Also, that the application of modern technology to business procedures will create a demand for people to service business machines as well as to operate them. I might suggest that if you haven't already done so, a copy of the 1970-71 edition be made a part of your counselor tool kit and on the shelf of every school library.

I'd like to spend the next several minutes on national and local trends in industrial and occupational employment. I must say that much of the inter-industry and intra-industry developments on the national scene in large degree is duplicated here in the islands.

In Contract Construction approximately 1/2 work for special trade contractors, slightly more than 30 percent are employed by general building contractors and the remainder work for heavy construction firms. The demand for workers in special trade construction has increased rapidly because of the increasing importance in electrical, plumbing, air-conditioning and other types of work usually performed by smaller special contractors.

At the same time, activity in heavy construction has been spurred by an increase in expenditures for highway construction, sewer and water systems, airports, etc. Building construction derives most of their increased business from residential construction and commercial and public buildings.

For the future, construction activity is expected to be stimulated by a rising population and household formation. The growth in suburban living, government expenditures for highways and other public buildings and rising expenditures for industrial and commercial facilities will also contribute to the need for workers.

The complexity of today's construction methods require the use of a wide range of building materials and machines and the services of a specialist who can use them. Labor-saving devices are expected to reduce the proportion of craftsmen and laborers by 1975. For example, the proportion of carpenters is expected to decline due to the growing use of prefabricated components such as roof trusses, floors and wall panels that can be more efficiently produced offsite and lifted into place by cranes. Improved adhesives and nails, new types of power tools and the increasing use of non-wood materials including glass, aluminum and plastics will tend to reduce the requirements for carpenters.

The use of aluminum and plastics are also expected to adversely affect the proportion of painters in the industry. Longer lasting paints, the greater use of spray guns and roller painting are likely to contribute to this reduction.

On the other hand, increases are anticipated for concrete machine operators, crane operators and complex machinery repair and maintenance mechanics as will dry-wall installers, ornamental ironworkers, carpet and floor layers, acoustical tile layers, etc.

The growth in Wholesale and Retail Trades stems from population growth and rising per capita incomes. It is not necessary to dwell in detail on this industry as you can see the tremendous expansion of suburban shopping centers, etc. Factors which will contribute mostly to employment demands include such developments as growth of suburban population, longer store hours, increasing efficiency of retailing operations through improvements in materials--handling and packaging, and use of computers for inventory control and billing operations.

Major occupations which will be in demand include all categories of white collar workers such as sales persons, managers, the whole range of office workers, professional and clerical, and stock-room men. Truck drivers, conveyers and forklift operators, truck driver helpers, and warehouse workers will also continue to be in demand, however, at a slower rate.

In Finance, Insurance and Real Estate recent developments will continue and will contribute to a greater portion of the demand for office workers and white collar professional workers. Again the growing population and the increase in personal and corporate income and financial transactions will provide the impetus.

The complicated financial transactions of today's business world, the use of credit cards and personal checking accounts as well as investments by individuals, and the millions of insurance policies will require more white collar workers. Demand will be for tellers, stenographers, typists, secretaries, bookkeepers, office machine operators, account analysts, telephone operators and messengers.

Electronic data processing is expected to add to the volume of banking business. Here we might mention key-punch operators, control clerks, programmers, computer operators and systems analysts. The increasing use of mark-sense processes may reduce the growing demand for key-punch operators; however, in the Service sector of the economy, the third largest employer in the State, factors which have and will continue to influence the demand for workers include (1) population growth, (2) gains in preventive medicine, (3) rehabilitation of the handicapped, retarded and indigent, (4) more frequent use of beauty parlors and other personal services, (5) increased availability of leisure time, (6) the emergence of management consulting firms, and (7) building maintenance and advertising.

Occupations common to hotels and apartments which will continue to be in demand are waiters and waitresses, cooks, bellmen, bartenders, front office staff, chambermaids, and general building and grounds maintenance men.

The demand for workers will also include such craftsmen in miscellaneous repair services as automobile mechanics and service personnel, household appliance repairmen, air conditioning and musical instrument, and audio-visual equipment repairmen.

Among the fastest growing areas of employment are State and Local governments where manpower needs reflect a whole list of social developments such as population growth, housing, law and order, health and environmental control, social welfare and social insurance. Much of the demand will be for professional workers and clerical personnel.

Transparency No. 2

Let us now look at some local statistics and developments. First on the state-wide picture, this table shows the relative change in employment between 1965 and 1969 and projections from 1969 to 1975. Actual estimates are shown to give relevance to the rates of changes shown. Again referring to the ranking order shown in ( ) for both comparative periods, as may be expected, the service industry has and will continue to offer the greatest employment opportunities in the State of Hawaii. In percentage terms rather than in numbers, during the past four years, the transportation, communication and utilities sector of the economy showed almost similar gains as service. Following in order were wholesale and retail trades, government and finance, insurance and real estate.

A somewhat different picture is predicted for the next five years. Services will continue to provide the greatest number of jobs where employment is expected to jump by a whopping 40%. The trades will take over the second ranking spot from the transportation, communication and utilities industries although the latter will again show a 29% increase. Finance, insurance and real estate and construction follow in rank order.

Let us now look in quick succession the same information for Oahu and the neighbor islands.

Transparency No. 3

Let's just spend a few minutes looking at these tables. As may be expected, services and trades are expected to generate the most jobs.

Transparency No. 4

The picture for the neighbor islands is similar to what we found for Oahu with almost identical percentage increases.

Industry employment and occupational requirements change as a result of many factors. A new machine or a newly automated process may require different occupational skills or may even create an entirely new occupation (i.e., computer operators, programmers, systems analysts with the introduction of

STATE OF HAWAII

	% CHANGE 1965-1969	% CHANGE 1969-1975	EMPLOYMENT ESTIMATE 1975
TOTAL EMPLOYMENT	+18	+22	373,050
CONTRACT CONSTRUCTION	+16	+17 (5)	24,200
MANUFACTURING	+ 1	+ 8	26,700
TRANSPORTATION, COMMUNICATION, UTILITIES	+30 (2)	+29 (3)	27,550
TRADE	+21 (3)	+34 (2)	82,050
FINANCE, INSURANCE AND REAL ESTATE	+20 (5)	+22 (4)	19,350
SERVICES	+31 (1)	+40 (1)	71,350
GOVERNMENT	+21 (4)	+11	78,150
AGRICULTURE	- 7	- 1	15,600

TRANSPARENCY NO. 3

OAHU

	% CHANGE 1965-1969	% CHANGE 1969-1975	EMPLOYMENT ESTIMATE 1975
TOTAL EMPLOYMENT	+20	+22	303,750
CONTRACT CONSTRUCTION	+21	+17	21,450
MANUFACTURING	+ 3	+ 9	19,200
TRANSPORTATION, COMMUNICATION, UTILITIES	+30	+29	23,250
TRADE	+21	+34	70,100
FINANCE, INSURANCE AND REAL ESTATE	+20	+22	17,750
SERVICES	+28	+40	59,300
GOVERNMENT	+22	+11	68,100
AGRICULTURE	-12	- 8	3,800

BALANCE OF STATE

	% CHANGE 1965-1969	% CHANGE 1969-1975	EMPLOYMENT ESTIMATE 1975
TOTAL EMPLOYMENT	+11	+19	69,300
CONTRACT CONSTRUCTION	-14	+12	2,750
MANUFACTURING	- 6	+ 8	7,500
TRANSPORTATION, COMMUNICATION, UTILITIES	+31	+30	4,300
TRADE	+20	+34	11,950
FINANCE, INSURANCE AND REAL ESTATE	+21	+20	1,600
SERVICES	+47	+40	12,100
GOVERNMENT	+17	+17	10,050
AGRICULTURE	- 4	+ 1	11,750

computers); a change in product demand may affect the number of workers needed; an invention may all but eliminate an industry or create a new one. Because of these reasons, to project the shortage and surplus occupations in the economy is a difficult task. Our main indicator in projecting the demand occupations is the anticipated growth in employment in specific industries.

Looking at the immediate future, despite the fact that a larger labor supply is anticipated, employers will experience certain types of manpower shortages. The following occupations discussed in detail were picked as anticipated demand occupations in entry level jobs. Most of these occupations require a high school diploma and a little business school background.

Retail Salesworkers: Among the major factors contributing to the anticipated rise in retail sales jobs are the trend for more stores to remain open for longer hours, the growing number of suburban shopping centers and expansion of others, and the growth in volume of sales. Employers prefer to hire high school graduates. Newly hired sales personnel usually receive on-the-job instruction in making out sales slips and operating the cash register. Most of the sales personnel are part-time students or housewives.

Salesmen, various products: The rise is anticipated because of population growth, business expansion and rising income levels. Most employers regard high school diploma as the minimum educational requirement. Initiative, aggressiveness, self-confidence, ability to express ideas well are some of the desired qualities as well as being well groomed, being able to understand human nature, having enthusiasm for the job and product and making a good impression. Certain salesmen require a State license such as real estate salesmen, brokers and securities salesmen.

Sewing Machine Operators: There has been a shortage for several years because of the unattractiveness of factory-type job which does not seem lucrative to the youthful worker. Most of the job openings are in the garment manufacturing industry. Employers prefer some sewing experience, good eyesight and hand coordination. Education background is of little concern.

Cashier: Expansion in business activities is expected to increase employment in this occupation. Most employers hiring beginners prefer that they have completed high school. Some employers prefer that they have other training such as typing.

Chambermaids, Porters, and Charwomen: More job opportunities because of increasing number of hotels. Education and experience is not necessary. Employers have problems in recruiting because housekeeping duties is not attractive to younger females.

Cosmetologist: Population increase and more frequent use of beauty salons as income levels rise and more women take jobs outside the home were factors contributing to the employment growth. Prerequisites for licensing by the State Board of Cosmetology prior to employment are completion of high school and approved beauty school curriculum.

Short-order Cooks: As new restaurants, hotels, and other food serving establishments are opened, the number of cooks will rise rapidly. The growing number of drive-ins and smaller restaurants has increased the demand for short-order cooks. Completion of a culinary arts course is favorable when seeking employment with large restaurants and hotels.

Waiters, Waitresses and Countergirl and Busboys: The growing number of new restaurants, hotels, drive-ins and other establishments has created more job opportunities for waiters, waitresses, countergirls and busboys. Most newly hired workers without experience go through a period of on-the-job training. Physical stamina is needed because they are on their feet during the working hours. Irregular work hours may account for the high turnover rate. Since busboy is an entry level job, skill, experience and formal education is not necessary.

Nursing Aids and Orderlies: They perform a variety of duties which require relatively little specialized training. High school graduates are preferred. Many employers accept applicants 17 or 18 years of age; however, nursing homes and mental hospitals prefer to hire more mature men and women. Promotional opportunities are limited unless they undertake further training.

Janitors: There are no formal educational requirements for most positions in custodial work. Most learn their skills while working on the job. Advancement opportunities are limited when there is only one maintenance employee in a building; however, where there is a large staff, the janitor can advance to supervisory positions, for which a high school diploma is helpful.

Automobile Mechanics: They are currently in demand. Increase in driving age population, consumer purchasing power and multicar ownership are expected to increase the number of cars in Hawaii, increasing the need for more mechanics to service the automobiles. This shortage is anticipated to continue into 1975. At the entry level employers look for men who understand automobile construction and operation, and have mechanical aptitude. Employers, however, prefer workers who have some experience (service station attendant, training in the Armed Forces or repairing automobiles as a hobby) and have completed a vocational or trade school in automobile mechanic.

Automobile Body Repairmen: The number of body repairmen is expected to increase primarily as a result of the increasing number of motor vehicles damaged in traffic accidents. Most body repairmen learn the trade on the job. Generally 3-4 years of on-the-job training is necessary to become a fully qualified repairman.

Clerical occupations have high turnover rates mainly due to the predominance of women in these fields who leave the labor force to raise families and to re-enter the labor force to supplement the family's income. Technological innovations such as the automatic data processing and other mechanized bookkeeping equipment will limit the growth of workers in these occupations. However, workers to prepare inputs for the new equipment and additional reports will continue to grow and create an increasing need.

Secretary, Clerk-Typist: Employment requirements for these workers will tend to increase because of the expanding economic activity and growth in the complexity of modern business which have increased the volume of paperwork. Shortage of clerk-typist stems from predominance of women in this field who leave for more lucrative job offers toward advancement in higher level jobs.

To summarize, I should like to show you a series of slides showing some probable demand occupations in the State of Hawaii in the next five years.

Transparency Nos. 5-8 on Demand Occupations

In closing, let me show you a few charts listing the current prevailing wage rates for some common occupations, just to give you a perspective of the range of salaries and hourly rates of pay.

TRANSPARENCY NO. 5

PROBABLE DEMAND OCCUPATIONS

CONSTRUCTION

DRAFTSMAN

STENOGRAPHER, TYPIST, SECRETARY

ACCOUNT CLERK

BOOKKEEPER

CONCRETE FINISHER

ELECTRICIAN

PLUMBER AND PIPEFITTER

SHEETMETAL WORKER

TRUCK DRIVER

CRANE, DERRICK AND HOISTMEN

AIR CONDITION AND REFRIGERATOR MECHANIC

PROBABLE DEMAND OCCUPATIONS

TRADE (R)

BOOKKEEPER

OFFICE MACHINE OPERATOR

CASHIER

SHIPPING AND RECEIVING CLERK

COOK

COUNTER AND FOUNTAIN WORKER

STENOGRAPHER, TYPIST, SECRETARY

CUSTODIAN

FINANCE, INSURANCE AND REAL ESTATE

CREDITMAN

BANK TELLER

CASHIER

OFFICE MACHINE OPERATOR

STENOGRAPHER, TYPIST, SECRETARY

PROBABLE DEMAND OCCUPATIONS

TRANSPORTATION, COMMUNICATION & UTILITIES

ACCOUNTANT

STENOGRAPHER, TYPIST, SECRETARY

CASHIER

AIRPLANE MECHANIC

MOTOR VEHICLE REPAIRMAN

REFRIGERATION MECHANIC

DRIVERS, BUS, TRUCK, TRACTOR

TRADE (W)

ACCOUNTANT

PURCHASING AGENT

CREDITMAN

OFFICE MACHINE REPAIRMAN

DELIVERYMEN AND ROUTEMEN

PROBABLE DEMAND OCCUPATIONS

SERVICES

MEDICAL AND DENTAL TECHNICIAN

DRAFTSMAN

STENOGRAPHER, TYPIST, SECRETARY

OFFICE MACHINE OPERATOR

PRACTICAL NURSE

HOSPITAL ATTENDANT

COUNTER AND FOUNTAIN WORKER

WAITER/WAITRESS

GUARDS, WATCHMEN

DELIVERYMEN AND ROUTEMEN

BOOKKEEPER

MOTOR VEHICLE REPAIRMAN

COSMETOLOGIST

WAGE RATES

MEDICAL	RANGE	MEAN
CLINIC NURSE	$ 434 - 744	$ 588
STAFF NURSE	504 - 928	660
PRACTICAL NURSE	348 - 613	493
HOSPITAL ATTENDANT	280 - 555	350
MEDICAL LABORATORY TECHNICIAN	510 - 821	668

SERVICES	RANGE	MEAN
BAKER	$ 1.80 - 4.07	$ 3.20
COOK	1.85 - 4.36	3.24
KITCHEN HELPER	1.60 - 2.90	2.26
BUSBOY	1.60 - 2.40	1.75
BARTENDER	2.20 - 3.35	2.92
WAITER/WAITRESS	1.60 - 2.60	1.68

TRANSPARENCY NO. 10

WAGE RATES

TRADES	HOURLY WAGE	FRINGE BENEFITS
CARPENTER	$ 5.55	$ .55
CABLE SPLICER	7.01	1.52
MACHINIST	6.17	.57
PAINTER	5.80	.43
PLUMBER	6.70	1.60
AUTO MECHANIC	3.61/HOUR	(MEAN)

ENGINEERING	RANGE	MEAN
CIVIL ENGINEER	$ 600 - 1,000	$ 771
CIVIL ENGINEER (LICENSED)	655 - 1,750	1,192
DRAFTSMAN, ENGINEER	420 - 904	708
RODMAN AND CHAINMAN	400 - 780	483
INSTRUMENTMAN	428 - 1,000	722

WAGE RATES

CLERICAL	RANGE	MEAN
ACCOUNT CLERK	$ 312 - 795	$ 524
BOOKKEEPER	305 - 1,088	601
CASHIER	260 - 695	429
CLERK	265 - 725	427
FILE CLERK	255 - 590	316
KEY PUNCH OPERATOR	290 - 625	451
PRIVATE SECRETARY	375 - 915	667
SECRETARY	320 - 775	526
STENOGRAPHER	285 - 747	463
PAYROLL CLERK	275 - 795	501
TYPIST, SR.	305 - 633	497

THE COMMUNITY COLLEGES

By Samson Shigetomi, State Director for Vocational Education

The late President Kennedy once said, "Let us think of education as a means of developing our greatest abilities, because in each of us there is a private hope and dream, which fulfilled, can be translated into benefits for everyone and greater strength for our nation."

The community colleges have accepted the challenge that their ultimate objectives are a better utilization of the nation's resources and the recognition of each individual's worth. Their purpose is to make sure that every person is granted the opportunity to succeed or to fail by his own efforts. The responsibility for choice, for success, for failure, should rest with the student, not with a standardized test nor with the decision of an admissions counselor. The community colleges are especially attractive to those students who need further education but cannot meet the restrictive admission standards of four-year universities.

The five major purposes of a community college are:

1. To provide a two-year college parallel program.
2. To offer occupational programs. Often we find people referring to these two purposes as transfer and non-transfer. The fact that more and more universities including our own University of Hawaii are giving university credits for occupational courses make the term "non-transfer" archaic and obsolete.
3. To offer continuing education courses.
4. To provide community service programs.
5. To provide counseling and guidance.

I will now elucidate on each of the five purposes.

The Two-Year College Parallel Program

A recent study of community college graduates transferring to the University of Hawaii showed that our Associate Degree students do just as well as compared to a similar national study by Dorothy Knoell and Leland Medsker.

Both the local and national studies indicate that the retention rate and the grade point average improved for those students who remained at the community college for two years. In other words, there is a direct correlation between the length of time the student spends in the community college and success in the four-year institution. The studies also showed that the students transferring from the two-year colleges tend to encounter "transfer trauma." This term is used to describe the situation where the grade point drops during the first semester of transfer but climbs back to the grade point maintained at the community college. The grade points earned by the transfer students vary with the different programs at the university.

Occupational Programs

Since the University of Hawaii administers the community colleges, there is concern that the community colleges will emphasize the more "respectable" academic education at the expense of Vocational Education. Occupational education is one of the essential programs in a comprehensive community college.

The community colleges are currently offering over 43 occupational programs. The majority of the programs lead to both the Certificate and Associate Degree. The Certificate programs require 30-40 units while the Associate Degree curricula require 60-64 units. In the business family of occupations, the colleges offer such curricula as Account Clerk, Accounting, Bookkeeping, Business Date Processing, Clerk-Typist, General Business, Secretarial, Stenographic, and Mid-Management.

In the Mechanical Occupations, we have Aeronautics, Automotive Technology, Auto Body and Painting, Heavy Equipment Maintenance, Machine Shop, Diesel Machine, Industrial Technology, and Refrigeration and Air Conditioning.

For Food Services, the programs include Institutional Food Service, Commercial Baking, Commercial Cooking, Dining Room Service, Food Cost Control, Pantry, and Mid-Management.

Carpentry, Architectual Drafting, Civil Engineering Technology, Sheet Metal, and Welding comprise the construction and civil engineering family of occupations.

In the electrical and electronics fields, we have two programs -- Electrical Technology and Electronics.

Under Health Occupations, Kapiolani Community College offers Dental Assisting, Practical Nursing, Nurse's Aide, Medical Assisting, and Radiological Technician programs. Maui Community College offers Technical Nursing or RN Program.

The popular Personal Service Occupations include Cosmetology and Fashion Arts, more commonly known as Commercial Sewing.

One of the new programs is Applied Arts, a first venture in the advertising field.

And finally, there is the family of Public Service Occupations which is expanding quite rapidly. Police Science, Fire Science, Library Aide, Recreational Aide, Teacher Aide are the programs being offered.

The Community College System became involved in the specially funded federal programs such as New Careers, Manpower Development and Training, Model Cities, etc. because it felt that the role of a community college is not merely to serve the post-secondary student but to meet the needs of those students with special needs whose handicaps prevent them from succeeding in the regular occupational programs. If the colleges are to evoke the full utilization of our youth and adults, talented or handicapped; if they are to afford all students from the educationally handicapped to the brightest the opportunity to prepare for jobs of less complicated nature to the highest level of skill occupations; if they are to combat the paradoxical manpower problem; then they must prepare untrained, unemployed, or underemployed persons to fill positions that remain unfilled in our affluent society.

Continuing Education and Community Services

Two of the areas which have not developed as rapidly are continuing education and community services. Continuing education classes are generally held during the evening. The philosophy here is that, even if all men and women had a college education, they would still need continuing education to upgrade their skills and knowledge, achieve their personal and occupational goals, and extend their cultural interests. Continuing education is popular because more adults are finding that supervised education is much more efficient than self-education.

Here are some examples of the community colleges' participation in the area of continuing education: Honolulu Community College is involved in providing related instruction to over 3,000 apprentices and also offering journeymen upgrading programs for various industries and business firms. Kapiolani Community College is presently offering courses in the tourism area and in dietary foods. Leeward Community College emphasizes the cultural, general education, and leisure time activity type of classes. The community colleges on Maui, Kauai, and Hawaii also provide occupational and general education classes in the evenings.

The major purpose of community service is to acquaint the citizens with their community college and to bring the benefits to this type of institution into each area of the many communities which it serves. Community services include such activities as:

1. Establishing a speakers' bureau so that the college can provide speakers with various expertise to speak to community groups.

2. Assisting industry and business in conducting workshops to demonstrate new equipment, processes, and techniques.

3. Sponsoring seminars and forums dealing with topics such as Personal Income Tax, Small Business Management, Advertising and Sales Promotion, Insurance, and Investment.

4. Providing a large meeting room to hold joint service club meetings.

5. Encouraging and promoting an appreciation of the fine arts by sponsoring music or drama programs, and art exhibitions.

6. Identifying community needs and problems which might be met by a joint college-community action. This latter activity is presently being done on Kauai by the Kauai Community College.

Counseling and Guidance

Our present counselor to counselee ratio is approximately 450 to 1. One of our problems here is that as we try to reduce the ratio to 300 to 1, the counselors are assigned additional tasks such as financial aids officer, student activities coordinator, or research. The deans of students tell me that the counselors see each student at least twice a year.

Long Range Master Planning

If the benefits of post-secondary education are to be maximized for the greatest number of individuals, it is essential that the colleges engage in long range master planning. The colleges are not only on the hunt for new occupational programs, but are also seeking better curriculum patterns and more effective learning and teaching processes. It is believed that special attention to new learning techniques can be especially rewarding in occupational education, and far too little experimentation has taken place in this area.

Some of the innovative programs we are planning or are trying to implement this fall are:

1. An occupational program whereby there will be no quarters or semesters.

Students are frequently turned away when they fail to meet registration deadlines. Some students who try to register in October may be told to return in September of the following year. Under the experimental program at Leeward Community College, students may enroll in Automotive and Architectural Drafting courses any time during the school year and progress at their own rate. Students in this program know what is expected of them in terms of the competency level they must perform and the knowledge they must acquire. As they complete one unit of instruction successfully, they progress from the simple to the complex. In order to make this type of program successful, a learning center must be established.

Usually in a traditional program, a lecture or demonstration on how to make a door, window, shelf, furniture is given only once. The student who misses it because of absence or inattention may not get a second chance. I am sure that there are others who need to see it three to four times before they fully comprehend. What happens to these students?

Under this experimental program, the student is directed to a learning center and reviews the process via video tape, film loop, film strip, programmed material, or detailed instruction sheets which illustrate how to make something. Any student who fails a lesson does not repeat the entire course but is required to review only those areas that he is deficient.

The General Education Program for occupational majors will also be undergoing some changes. In reality, many students and faculty members oppose the General Education requirements in the Associate Degree programs. Some of the reasons for their opposition are: (a) A greater desire for specialization; (b) Disagreements in the objectives and kinds of courses which are necessary for vocational students; (c) A belief that high school graduates will have had a good general education, and if they haven't, they'll never learn in the two years at the community college; and (d) It is not essential to Vocational Education.

At one of the community colleges, we are seriously examining the objectives of General Education requirements and are asking such questions as, "What are some of the kinds of courses that should be required?" There is a group of teachers studying the feasibility of employing the interdisciplinary approach. In other words, rather than the student studying Anthropology, he will be enrolled in a course which may be Man and His Society, which will then be a multi-discipline course.

Related to this problem is the need to design and break away from some of the traditional General Education courses. For example, a psychology course taught to students majoring in the occupational areas frequently follows the table of contents of a basic psychology text. Since most students will be getting jobs and eventually getting married and raising families, it is believed that what they need is the offering of a course using the smorgasbord approach. The psychology course should include a healthy serving of basic psychology, an equally healthy offering of marriage and family living, and some understanding and application of industrial psychology. In other words, the psychology course for vocational students or for any non-psychology majors should be a survey type course and not be limited to introductory psychology.

One of the familiar problems in the nursing profession is the absence of a career ladder starting with the Nurse's Aide and leading to the five-year degree professional nurse at the top. A licensed practical nurse completing the training program cannot transfer any credits earned in the licensed practical nursing program toward a Registered Nurse or four-year nursing program. Kapiolani Community College is currently engaged in designing a core curriculum for some of the allied health professions to provide an opportunity for upward mobility.

Speaking of nursing, if the Occupational Employment Trends, which are published by the State Department of Labor, indicate that the training program on Maui has temporarily saturated the field for Registered Nurses, but that a shortage of licensed practical nurses is anticipated, our Nursing Program will be flexible enough to convert its operation to meet the new objectives.

Other developments in Vocational Education include the appearance of Early Admission programs for students with special interests, skills, and knowledge in the high school. The community colleges will be contacting the high schools to offer their equipment and facilities in the afternoons for those students who have received permission from their respective principals. Students completing the courses will receive community college credits and may apply it toward an Associate Degree.

Perhaps it may happen within our lifetime that the community colleges may expand their efforts by the use of remote computer based terminals to monitor or manage a student's progress through a variety of self-study materials. The computer terminal when used to orchestrate the medley of self-study devices available at various locations is far more economical than when used for straight tutorial presentation of material. In addition to the audio capacity of the telephone, these terminals also have the video capacity of the cathode ray tube which now dominates, for better or for worse, most of our homes.

In spite of the rapidity in which changes take place, we are optimistic that we can cope with changes in the future. Some say that an optimist is a man who thinks his wife has stopped smoking cigarettes when he finds cigar butts around the house. I like to think of an optimist as a fellow who takes the cold water thrown on his ideas, heats it with enthusiasm, makes steam, and pushes ahead.

HAWAIIAN TELEPHONE COMPANY'S PLANT TRAINING SCHOOL

By Mr. Wallace Medeiros, Plant Director
Hawaiian Telephone Company

Good morning, ladies and gentlemen. Thank you for the opportunity of talking to you on one of my favorite subjects, Hawaiian Telephone Company's Plant Training School.

Being a former student and instructor at our Plant Training School, I have always had a personal interest in its growth. I have watched over the years the many changes in telephony and in the area of technology relating to telephone equipment. Only one phase has not and will not ever change: the students themselves. Some students want to learn, others try to learn, and the rest have to be motivated.

It is the prime responsibility of the Plant Training School to assure that our students are trained in the many concepts of our telephone industry, and wherever possible, that they be given proper motivation. It is our primary concern that our training programs will aid our Plant employees to do a good job and progress in our company.

It was in 1876 that a very famous man, Alexander Graham Bell, said, "Come here, Watson, I need you", -- and the world of communications has not been the same since. Perhaps if we look back on that historic occasion at the many improvements and changes made to the telephone industry over the years, I believe the greatest challenge has always been: how can we properly train our telephone people to meet the needs of the best people we know, our customers.

As you are aware, the majority of our craft people are locally hired and are products of our Hawaii school system. Some have taken advantage of Hawaii's technical schools and come to us with some prior training. However, the vast majority are trained by our Plant Training School.

I would like to say that we are very proud of our people. Our experience has shown that they are fast to grasp this technical training and many, through various self-improvement courses, have advanced throughout the Company.

In the early days of telephony, with the use of the crank type telephone, or as it was properly known, the Magneto telephone, the main emphasis was on the ability to provide a proper transmission path between various points. While the overall circuitry was rather simple compared to our present day telephone circuits, training requirements were minimal. However, while we still stress the basic transmission circuitry, the methods of signaling for telephone, private line communications, data services, and the sophisticated voice communications required have changed drastically. We have obviously over the years needed to expand our technical training.

Today, another challenge faces us with the new generation of electronic switching equipment in our telephone system. Hawaiian Telephone Company, like most telephone companies across the nation, is experiencing tremendous growth. To meet this challenge and the need to expand the technical knowledge of our people, we have instituted programs to upgrade our Plant craftsmen.

The Plant Training School
(This section was presented with a series of slides.)

I hope that this quick look into our Company's history and growth will give you an insight on the importance of our Plant Training School. The manpower increase realized over the past decade consisted primarily of untrained personnel. Our Plant School has grown right along with this growth. We now have 14 full-time instructors and use the services of 30 supervisors as part-time instructors to instruct the 34 courses in our program.

Usage of part-time supervisors does not only increase the school's ability to present training, it also makes better instructors of the supervisors who are responsible for follow-up or on-the-job training.

Our school is situated in the Moanalua Industrial area. We are located on the second floor of this building and currently have 12 classrooms. Two of our 14 instructors are conducting their courses at our Alakea complex. An additional 10 classrooms will be constructed by the end of the year.

Our planning charts are guides to the training requirements of our various craft positions. Represented on the chart are the course title, course number, and the required number of training days, flowing through the logical sequence of progressive training.

This chart is for distribution facilities personnel, linemen and cable splicers. The top block is the Indoctrination course which requires three days. This is a standard course that is presented to all trainees to familiarize them with the Company's organization, the functions of the respective departments and the role of the Plant Department.

Directly below is our pole climbing course of five days which both linemen and cable splicer trainees attend. The cable splicer training falls through to AC-DC Theory and the courses thereafter. While linemen training branches to your right to the submarine cable placing course. To the left is the basic construction, cable placing-aerial and underground and the buried cable placing courses.

This chart is a guide to the training of installer-repairmen, PBX Installers, equipment installers, and other craft personnel within the scope of Customer Facilities, or I should say telephone equipment.

Here is the training guide for PBX Repairmen, Switchmen, Electronics Technicians, and other craftsmen who require more electronic knowledge.

Because of the introduction of new electronic switching equipment, we are in the process of upgrading the PBX Repairman and Switchman positions. These craftsmen are responsible for the maintenance of our complete switching system.

The Plant Training School is responsible for qualifying the 330 craftsmen by instructing them in five special courses totalling 280 training hours per man.

To possibly reduce the number of training hours, we are presently qualifying these craftsmen by a written exam on each course subject and exempting from training those with qualifying test scores. Our testing results are encouraging and indicate that we may be able to reduce one training requirement by 50%. This upgrading program will require approximately 32,000 training hours in 1971. We are very pleased with the response of these people thus far and feel confident that this program will be a success.

Here is the training program of our Service Center personnel. This group is responsible for assigning and record-keeping of telephone facilities, coordinating and routing of field forces, and testing facilities in use. Some of the courses are AC-DC Theory, Facility Rearrangement, Testboard Operation, and Assignment.

We take full advantage of the standard types of training aids: projectors, viewers and blackboards; and plan to use video in the near future. Video will give us access to the training tapes of the new telephone equipment within the General Telephone System.

Notice the lady in blue. She is an Engineer in the PBX section of our Engineering Department. Our school is open to the entire company and has especially been used by the Engineers. 4,091 training hours in 1969 were logged for them.

Our most important training aids are telephone equipment. The instructors and students have erected the portrayed equipment at the School for our own usage. Whenever possible, the equipment is mounted on portable stands to simplify their relocation. Notice the castor on the equipment to your left.

Actual work conditions are simulated in the classroom. The average class consists of 8 to 10 trainees.

While some of the trainees are doing the work, the instructor may quiz or answer questions of the other trainees. Typical of tell, show, and do.

The broom in the slide is used by the trainees to clean up the area after each simulated job. Good work habits are acquired by the craftsmen through this method, we hope.

Our instructors are former craftsmen and supervisors who are technically qualified in their respective areas. They average 15 years of communications experience. The senior man of our instructors has 30 years of experience.

Here is an example of our instructor's cross-training program. The Installer-Repairman instructor is receiving training in cable pressurization. For your information, we are pumping dry air into the telephone cables at about six pounds per cubic inch pressure to avoid troubles due to moisture. The next slides are of our Installer-Repairmen class.

The trainees are installing the telephones. Please notice that each trainee is wearing safety glasses. Safety is stressed at all times as part of our training program.

Trainees have disassembled the telephone instruments in this slide and are tracing the wiring to correct the trouble condition that the instructor had created, while the rest of the class is having an open discussion.

Here the trainees are hooking up the dropwires to the terminals which link the telephones into the communications system. When the hook-up is completed, the trainee will dial the classroom's telephone number and if he performed his duties properly, the phone will ring.

This slide shows our trainees testing the telephone that is tied to the key equipment which is mounted on the wall. Key equipment serves as a miniature central office within the customer's premises. Installation of key equipment normally requires a two-man crew, so the trainees are paired to complete the simulation of actual work conditions.

This is a switchboard which is a more sophisticated type of miniature central office that is used by hotels and large businesses. It is a completely automatic dial system.

To enable the equipment to work throughout the system, cables must be laid and spliced together. Here an instructor is demonstrating the preparation procedures before splicing.

The splicing machines the trainees are operating enable the craftsmen to complete 250 to 300 splices per hours. After this course, the trainees become cable splicers and apply what they have learned in the field. After a few months of field experience, the craftsmen return to the school for additional training in fault locating and cable acceptance testing.

Here is another course requirement of the cable splicer. Pole climbing is also taught to linemen and installer-repairmen. In this slide, the instructor is explaining the art of turning on a pole safely. Hard hats are required under our Safety program. The poles that are used are situated within the Moanalua Industrial area and are placed by linemen trainees.

The heart of the telephone system is our central office equipment. These slides show our trainees learning their jobs in our central office simulated classroom. Complete dis-assembly, re-assembly, and adjustment of a switch is performed.

A switch is an electro-mechanical device that receives the digital pulses generated by your dialing, registers the dialed digit and links to the succeeding switch in preparation for the next digit.

A series of switches is required to receive and register each of the dialed digits to connect a call. This is called a switchtrain. The equipment in the background is a simulated switchtrain.

Actual trouble conditions are implanted within the equipment by the instructor for the trainees to locate and rectify. An important part in the training of our craftsmen.

Instruction is being given on the 101 Director which is the latest semi-electronic equipment that is presently in service. This equipment enables us to offer touch call dialing to you, through its ability to receive a tone generated by the touch call telephone and converting the tone to digital pulses.

Another form of electronic equipment is our carrier system. It enables the utilization of two cable pairs by 24 users at the same time.

Special courses are presented to better equip our craftsmen in their daily functions. This slide is of the voice frequency transmission course and portrays the usage of a level tracer test set.

Basic electronics is another of the special courses and is the stepping stone to the more advanced courses. Mini-courses are a segment of the special courses. As the term "mini" indicates, it is a brief, condensed course pertaining to any of our 34 major courses or to recently acquired equipment.

A special course is given to our Repair Clerks. Here they learn to keep records of each working telephone number and more important, how to help a customer that calls to inform us of a problem with his telephone. By the way, this course is presented by our first female instructor in the Plant Training School. The feminine touch is made visible by the presence of Rose.

This is a slide of the Centrex Test Center that is almost completely installed and tested. Centrex is our latest answer to meeting the telephone requirements of the governments and large businesses. This equipment enables a customer to have any number of stations with the ability to be called or to call anyone within or out of his company without having to supply us space on his premises to place the equipment. The Test Center is capable of locating trouble within the System and informing the craftsman of the condition by punching out IBM cards.

We have conducted three sessions of 13 weeks each on this equipment and soon will start an appreciation course of 3 days. The initial class was conducted by a mainland instructor that we hired temporarily. Our current instructor was a member of the initial class.

Direct distance dialing is a feature that will be added to your telephone's capabilities in the near future. Here is a slide of the power unit that is installed and ready for use.

And the power unit is backed up by these king-sized emergency batteries that will keep the system in operation during a power failure. Although the operating equipment has not been installed, courses are in progress.

Here is a class of Electronics-Technicians learning everything about the direct distance dialing equipment. This course is nine months long and is in its second session. Our craftsmen are ready for Hawaii's progress, linking our State to the world via your dialing finger.

The following slides are of our Plant Training School graduates performing their duties safely and efficiently.

Testdeskmen coordinating the efforts of installer-repairmen and switchmen.

Linemen mounting a cross-arm on a telephone pole.

Splicers perched up in the air doing their thing.

Equipment installers readying additional central office equipment for use.

And more cable being laid to further improve our service to the people of Hawaii.

Thank you very much for your attention. I hope that this has been informative to you and now, any questions?

STATE OF HAWAII
OCCUPATIONAL AND INFORMATION GUIDANCE SERVICE CENTER

By Mr. Ken Yoon, Project Director
Occupational and Information Guidance Service Center

Purpose

The purpose is to establish an Occupational Information and Guidance Service Center that would function on a statewide basis. The primary activity of the Center is to bring job and training opportunities to the attention of school-age youths. The objective of this program is to effect a closer and immediate relationship among schools, industry and government.

Description

This project, submitted under the provisions of Part D of the Vocational Education Amendments of 1968 and approved by the U. S. Commissioner of Education, will proceed immediately in establishing a Center that would provide resource material to school counselors and agencies working in the area of youth employment; conduct occupational guidance institutes for public and private agency counselors, school guidance counselors working with youth employment in model neighborhood areas; and conduct summer training programs in both neighborhood areas to acquaint youths of the intermediate and high school age with the range of occupations open to them.

Planning Process

The occupational and training data obtained from various sources - such as the Department of Labor and Industrial Relations Data Bank; Hawaii Employers Council; labor unions; City, State, Federal and private training agencies; and other private businesses and industries - would be adopted for and translated into a resource manual which would include general occupational information; field trip planning information about businesses, industries and government agencies which have agreed to participate in the occupational visitation program of the State; a directory of names of individuals who are experts in their occupational fields and who are willing to speak to student groups or individuals; names, locations, and types of occupational training opportunities available; and information on summer seasonal cooperative work experience and work study stations available in businesses, industries and government agencies of the State.

The Center also plans to have a multi-media production capability that would enable guidance counselors and others to present programs about the world of work through slides, tapes, periodic newsletters and reports, booklets, periodicals, etc. These productions would also be made available to public libraries, agencies, etc. Arrangements would be made with the public libraries, agencies and schools - especially in model neighborhood area exhibits and programs - to inform pupils, parents and citizens about jobs and occupational training opportunities in Hawaii.

The third operation of the Center is to conduct summer training programs in both model neighborhood areas to acquaint youths between the ages of 14-21 with

the range of options available to them and to teach them saleable skills. To insure total effectiveness of the Center, plans are being made to provide information and assist vocational technicians and work coordinators in the planning of work experience programs to meet the identified needs of students. In coordination with other existing programs, the Center will further establish and conduct a concentrated training program and a cooperative work experience training program for intermediate and high school age youth during the summer months. The immediate objectives of these programs are to acquaint students with the range of occupations open to them and to provide them with the opportunity to sample practicable skills.

A cooperative work experience training program is scheduled to take place for students attending Waianae and Farrington High Schools during the summer. The occupational areas to be included will be determined by the community and school needs, after employment opportunities and student desires are considered.

The concentrated training program for 40 students, 14 years old and over residing in the model neighborhood area and are dropouts with no intention of continuing school, will be provided intensive classroom training in saleable skills to terminal students with no previous training. It is anticipated that participants will all have developed sufficient skills to enter the job market.

The State Director for Vocational Education and his staff will provide technical assistance and evaluative services to the Occupational Information and Guidance Service Center. Periodic reviews and recommendations will be conducted and issued to assure adequate performance of the program. Since the exemplary project was initiated by the State Vocational Education staff, every effort will be used to replicate the project to other geographic areas within the State based on a priority of need.

APPRENTICESHIP PROGRAMS

By Mr. Walter T. Oda, Executive Secretary
Electrical, Plumbing, and Sheet Metal Industries

Ladies and Gentlemen --

It is indeed my pleasure to serve as a panelist on your workshop conference. Sitting here among such an illustrous group of panelists, I can't help but feel like a Junior Senator in Congress with a message to deliver but yet not sure of himself as to whether it will be accepted in the spirit in which it is presented. Nevertheless, I trust that yours has been a productive session and through conferences like this, there will be a better understanding of the needs of industry and the role the Department can play in preparing the students for the various apprenticeship programs available.

Before I get into the specifics of the trades that I represent, I would like to advise the group of the improved image of the construction worker as well as the opportunities for a career in the construction trades.

I can recall those days in the late forties when public sentiment was that it took brawns, not brains, to be a construction worker. I remember vividly when job opportunities were scarce and the construction worker was laid off when the project was completed. I can also recall my school days when the counselor would first encourage those with the ability to attend college, next choice being commercial school, followed by technical school, and if the individual could not qualify for any of these post-high school training, then he was routed to the construction industry.

During the past two decades the construction industry rose from a 50 million dollar industry to where last year it accounted for over 500 million dollars in construction contracts. The laborer who was at the end of the pick or shovel is scarce today and all the trenching that has to be done is done by an equipment operator that operates a complicated piece of equipment that cost $12,000 or more.

The construction worker today, in most instances, owns his own home, drives around a late model automobile, sends his children to the best of schools and colleges; he is active in community affairs and his church, and is taking his rightful place in society. There is no longer the stigma of being in a lowly trade.

As the construction industry became highly mechanized, with modern technology and labor saving devices, the construction industry is paying more for its skilled help but in turn is demanding more from its mechanics.

The construction industry has adjusted to the change of times. The question I would like to pose is whether the school system has kept up with the changes.

A journeyman electrician today earns $6.37 per hour or approximately $1,100.00 per month. He is gainfully employed throughout the year and can expect to earn

approximately $13,000 per year. However, with the critical manpower shortage, it is not unusual for a journeyman electrician to earn $15,000 per year. I know of several superintendents that earn $20,000 a year.

The electrician is provided with medical benefits for his entire family; life insurance for himself and his spouse; income protection insurance for himself; dental plan for himself and his family; two weeks paid vacation; eight paid holidays per year; pension benefits after 25 years of service to the industry; annuity benefits to supplement his pension. The employer, of course, pays for these fringe benefits which cost 98 cents per hour.

The plumbers and sheet metal trades offer comperable wages and benefits. There may be a few cents difference in the actual wages paid but this is balanced off in the amount of fringe benefits provided.

Yes, the construction worker has a future in the numerous trades. First, he must start as an apprentice at approximately 50 per cent of the journeyman's rate. The apprentice, however, enjoys the same fringe benefits as the journeyman. Within four years for the electrician and five years for the plumber and sheet metal apprentice, the applicant can be assured of becoming a journeyman if he complies with the requirements of the apprenticeship program. Can you imagine a youngster out of high school, without experience, is being offered an opportunity to learn a trade while being compensated approximately $550.00 per month with a 5 per cent increase every 6 months?

Let us compare the apprentice with a school teacher. In one instance we have a student that pays tuition, no income while attending school for four or five years, and graduates with a bachelors or masters degree. The school teacher, however, would then seek employment and be engaged at the initial step under their classification of the Civil Service pay schedule.

Conversely, the apprentice is hired at approximately $550.00 per month, receives an increment pay increase every six months, and upon completion of his four or five years training he will be at the top of the pay schedule.

But the opportunities for a career does not stop at becoming a journeyman. A conscientious journeyman could then become what we call a working foreman and supervise the operations of a crew. He, of course, is expected to work with the tools and be responsible for one project. A working foreman could then be promoted to become a foreman and he will not be working with the tools but will be supervising several projects simultaneously. A foreman's next promotion is to become a superintendent and be responsible for one large project or all of the field operations. Then too, he need not be limited to become a superintendent, he could invest his capital, work twice as hard, worry twice as much, and become a contractor and earn less than a journeyman.

Yes, there is an opportunity for a career in the construction industry. However, as the industry is required to pay more for its skilled mechanics, the industry is also demanding more of its employees.

There was a time when the industries I represent accepted the hard core or high school drop-outs. Let me advise you now that we are no longer interested in anyone without at least a high school diploma.

I have served on numerous Joint Apprenticeship Committees and the problems we are faced with are identical whether it is for the electrical, plumbing, or

sheet metal trades. The apprentices coming into the program lack a knowledge of math. Would you believe me if I would advise you that we have countless number of high school graduates that don't even know their multiplication table? Invariably the first semester of related training is devoted to basic math which we feel should have been taught in high school.

I find it difficult to understand how anyone could graduate high school without knowing his multiplication tables because my youngster was taught her multiplication table in the third grade of a public school. I also find it difficult to understand how a high school graduate would complete all his requirements and not know his basic math.

In construction, the mechanic is provided with a set of plans and specifications and is expected to lay-out the job. The electrician would place his conduits and the plumber would lay his pipes. Hopefully, the conduits and pipes are layed in an area where they will be concealed by a wall or partition. To be able to interpret the blueprints requires a knowledge in math.

In order that this workshop may be productive, I feel that I should relate to you those areas in which the construction industry feel the school system could aid us.

First, we feel that your Career Day Conferences are meaningless to us if you are still continuing the practice of segregating the students according to their ability. The industry is not interested in discussing our trades to only those seniors that cannot pass the entrance examination to enter college, nor could they qualify to attend commercial school. The industry is not interested in investing its time, money and effort in creating work opportunities for the hard-core or high school drop-outs either.

We are interested in competing with the university or college in attacting the most capable graduates and we feel that the wages and fringe benefits that we provide should attract a higher caliber of apprenctice applicants.

Secondly, we feel that math should be a mandatory subject in high school rather than an elective subject. Basic math is but the minimum that we expect. To become a sheet metal worker, an applicant that has taken algebra, geometry, and even trigonometry stands a better chance in being selected.

Third. We feel that the individual who expresses an interest in the construction trades should be counselled in taking not only math, but also mechanical drawing as well.

Fourth. We feel that the high school counselors have na obligation to themselves to know more about the opportunities for a career in the construction trades in order to be more effective in counselling the students. Through our plumbers organization, we had conducted a high school counselors tour which was followed up by a high school seniors tour. We felt that these tours were meaningful and productive.

Fifth. We feel that counselling the students in selecting their vocation should be done in the sophomore year in high school rather than the senior year. In this manner, the students could be counselled in taking those courses that would benefit them in training for the vocation they have selected.

In conclusion, I trust that my comments would be accepted in the spirit in which it is presented. It was not intended to be a criticism of your vocational-technical program but rather, an objective view from the standpoint of those trades that I represent.

Thank you for the opportunity of addressing your workshop. In the event that we could be of any further assistance to you, please let us know.

Thank you.

INDUSTRY'S VIEWPOINT ON MANPOWER TRAINING NEEDS

By Mr. Grant W. Canfield, Vice President, Secretary-Treasurer
Hawaii Employers Council

Mrs. Nakagawa, Mrs. Kudo, Ladies and Gentlemen:

I would like to thank you for the invitation to participate on your Introduction to Vocations Workshop as a representative of business and industry in Hawaii. While I work closely with many employers and personnel executives and believe that I am reasonably cognizant of the manpower and training needs in the private sector in Hawaii, I would like to point out that the observations and remarks that I will make today are my own and do not necessarily reflect the position of the Hawaii Employers Council or the many firms that comprise our membership.

Your program chairmen were kind enough to forward a copy of the report and overview of the restructured vocational-technical education program for secondary schools which was written by Mrs. Kudo. I found the objectives set forth in this paper quite excellent and I would like to extend my compliments to all those persons in the Department of Education who have been involved in the research and development of the total program and specifically the Introduction to the Vocations program that is the topic of this workshop.

Before proceeding to my topic, I would like to comment briefly on the philosophical and theoretical foundations that provide the basis of the Restructured Vocational-Technical Education Program for Secondary Schools.

I believe that all of us who are concerned with education and training recognize the importance of providing adequate avenues so that each and every person will have an opportunity to achieve his potential. Because of my business orientation, in reviewing the master plan guidelines, I would be inclined to place slightly more emphasis on the employment opportunity aspect of preparation than on the personal needs aspect. In the area of coverage, however, I am in complete agreement with the guideline which states that the vocational-technical program must serve persons in all categories of occupational life except the professions. I interpret this to mean that every citizen, perhaps even those in the professions, should have an opportunity to prepare for meaningful employment in terms of his own needs with due consideration to the potential employment opportunities capable of fulfilling those needs.

Now the subject that has been assigned for my presentation today is "Industry's Viewpoint on Manpower Training Needs." In general, I find the needs approach extremely valuable in developing programs whether they be for secretaries, consumers, government employees, executives or practically any element of our population. What I am saying is that if an organization or program is focused on the needs of the individuals that it wishes to serve, the probability of success is far greater. Frequently individuals and organizations rely on insight or interpretation of their own needs in developing estimates of the needs of others. The people in marketing achieved much greater success when they inquired of the consumer what his needs were and then developed products or services which tended to meet these needs. The needs approach should prove just as sound in vocational educational programs as in other sectors of our economy. Thus, it appears that those of you who are professionals in the field, whether you be

an administrator, counselor, or instructor, cannot be exclusively concerned with one set of needs, i.e., your students or trainees, for if the objective of adequate vocational preparation is to be achieved, the student or trainee must ultimately be placed in an employment situation that will best answer his needs since in many cases it will not be possible to answer all his needs.

I guess what I am trying to say is that those of you who are professionals must take a broad gauge view to the answering of needs. Certainly you are concerned with achieving the objective of individual development set forth in the restructured program and yet at the same time you cannot overlook the needs of the employers who are the only ones who can ultimately answer vocational needs and here I use the term "employer" in the broadest sense to include government, private employment, the military, even self-employment.

I see a very vital role for you professionals in that you are a catalyst with the capability of aiding the individual through your guidance and counsel to develop vocational goals that are within his potential and for which there are available employment opportunities. The capability to perform this function would certainly require that those programs involved in the program have a breadth of knowledge of the opportunities available in the community or the particular areas served by the program, that they be competent in translating personal goals into achievable vocational goals and that they understand occupational relationships so that personal vocational goals that are not readily achievable within a given area or time period may be transferred to suitable substitute goals that can be achieved.

A June, 1970 report published by the State Department of Labor and Industrial Relations stated that our total civilian labor force amounted to 351,850 persons. Of the total work force, there were 13,600 unemployed persons, leaving a net employed work force of 338,200. For the same period, it is reasonable to assume that there were probably several thousand job vacancies which employers, both public and private, were anxious to fill. For example, here is the "Help Wanted" section of last night's Star-Bulletin. As you can see there are several hundred advertisements for all types of employees and this section is small compared with the list of job opportunities in the Sunday edition. There are probably hundreds of other positions that are not even advertised. Here on the local scene, we have a great range of employment opportunities, a wide variety of work and a continuing demand for additional employees.

So far in my comments I have been concentrating on our own local employment market which in economic terms represents a micro approach to the subject of the utilization of human resources. To give some perspective to the scope and importance of effective vocational education on a national basis, or to utilize macro tools, I would like to make a few observations about the U.S. labor force.

Our country's national policy on employment was cited quite clearly in the Full Employment Act of 1946. This policy in summary form states that every person in our country who is able and willing to work should have an opportunity to engage in meaningful employment. What this means in terms of the development of a viable work force might best be determined by a review of some current national labor statistics.

The August, 1970 issue of the Monthly Labor Review which includes a number of statistical tables prepared by the U.S. Bureau of Labor Statistics, indicates that in June of this year the total labor force in our country was 85,304,000

people. This includes everyone who is a civilian employee whether he be employed full-time, part-time or unemployed. If we subtract those persons who are self-employed, employed in agriculture, and unemployed, we have a full-time work force estimated at 71.5 million people. Of this figure, approximately 12.5 million are employed in government, leaving a private industry work force approaching 59 million workers. For purposes of our discussion, we can assume that in June of this year there were 71,500,000 jobs currently filled by employees. At the same time there were approximately 4.5 million persons who wanted to be employed, but were presently unemployed and there were probably several hundred thousand job vacancies which private and public employers were urgently trying to fill. Within this mammoth collection of jobs there are many classifications and entire occupations that are declining in importance while others provide great opportunity for present as well as future growth and development. The last edition of the Dictionary of Occupational Titles deleted several thousand job titles that had been included in the earlier edition because the jobs were no longer relevant to the requirements of our economy. On the other hand, several thousand new jobs were added in the new edition. There is great flux in the make-up of the job market, and from industry's point of view, we would charge you professionals with substantial responsibility in giving direction that will lead your vocational students into jobs or occupational clusters that are increasing rather than declining. It seems to me that with due regard to the needs of the individual, the counselor would be remiss to encourage a form of vocational preparation when such preparation may lead to unemployment or perhaps no employment at all.

Based on the additions to the work force in the past 10 years, it appears that our total labor force will increase from 85 million to over 100 million sometime during this decade. There are probably going to be at least 10 million new full-time jobs created and many will provide continuing opportunities for those members of the work force who are displaced by changing technology and the needs of consumers and the public.

Many of the people who will be involved in the restructured vocational program that you have been discussing this week will be beneficiaries of these new and expanded job opportunities. The job of you professionals, monumental as it may seem, is to maintain ongoing research on employment trends, strive for effective dialogue with the employers of "your products," continue the development of techniques for more effective determination of needs, aspirations and capabilities of the persons who will participate in your programs. And then drawing all of your resources and skills together endeavor to guide your human resources towards employment opportunities that are responsive not to just the needs of the individual nor just the needs of the employer, but which recognize the interrelationship and importance of both.

Now I am personally partial to the needs of business and industry because I believe that this is where the syndrome of a healthful, growing economy begins. Employers create employment opportunities, employees fill jobs, both employers and employees purchase goods and services and pay taxes which provide needed government services and in the aggregate this activity creates the greatest national product that has ever been known.

In 1970 it is estimated that this labor force of ours -- 85+ million people -- is going to create $970 billion worth of goods, services and added value for our country. All of us who are employed share in this wealth through our return

in wages, salaries, interest and rent which enable the majority of our people to enjoy one of the world's highest standards of living. A great deal of this income will also be used by our national and local governments to assist other countries, provide services to our population that cannot be readily provided through the private sector, conduct basic research and through transfer payments assist those less fortunate of our citizens who are physically or mentally impaired or unable to compete in today's employment market.

Although I lean towards the importance of business and industry needs, since I am also an employee, I certainly recognize the importance of fulfilling my own needs.

Using myself as an example, I have generally found that I have been able to answer most, but seldom, all of my personal needs through the employment opportunities that I have experienced. Perhaps what is so great about our country is that if you can't answer your personal needs in one particular job classification, industry or area you probably can find an improved opportunity in another. As I view the continuing opportunity in our country, I find only one major problem which concerns me deeply. As a parent, teacher and businessman, I have noticed a growing disrespect for the concept of work. I think many adults and possibly some who are in the teaching profession contribute to the disrespect for work that I see among some of our young people. Each of us has proclaimed the importance of having our children avoid the hardships of physical or manual work and each of us hopes that our offspring will reach new heights in educational, professional or executive employment. I feel that we have emphasized these feelings so greatly that we are producing a generation of people who look with scorn upon many of the occupations that are so essential to the continuity of a viable economy.

Several years ago, Jack Hall, who at that time was regional director of the ILWU, and I were panelists on an employment conference for the Methodist Church. As I recall, Jack Hall pointed out that while it was natural for people to strive for increased education and higher level positions that was a substantial number of the members of his union, particularly some of those employed as longshoremen, who were working shorter hours, earning higher annual incomes and enjoying better employee benefits than many professional and executive people in the State of Hawaii. And yet, if I were to ask for a show of hands as to how many of you would encourage your son to prepare for a career as a longshoreman, I am afraid we would garner very few favorable votes. I am not suggesting that anyone who has the necessary potential should reduce his goals if there are opportunities for employment where these goals can be fulfilled, but what concerns me is the status of affairs where we have so emphasized the importance of college education, white collar and professional employment that we have caused many of our young people to look with disrespect upon any other type of employment.

About a year and a half ago, the Carpenters Union ran a large advertisement for several days in our local newspapers for carpenter apprentices. The training rate for these positions was over $3.00 an hour and the terminal rate at the completion of the program was approximately $5.00 an hour. There were 50 openings. As I recall my discussion with Walter Kupau, they received about 12 applications to enter the program. While many of our young people would decry measuring the worth of a job in terms of money, it is still a rather satisfactory index to parents and to some of our older workers.

If I were to offer an answer to the problem that I have raised and I see it as a major problem from the standpoint of employers with service, unskilled and

semi-skilled positions to be filled, perhaps my answer would be in the form of a recommendation like this:

In our conversations and discussions of work and employment opportunities, we should never derogate any type of meaningful employment by suggesting that such work is generally undesirable or beneath our dignity. Where there is a job regardless of the type or level, there is a need to be answered for someone, some group or perhaps all of our society. While all people are created equal in the eyes of God those of us who work in the fields of education and personnel selection are well aware that there are individual differences and great ranges in aptitude, skill, motivation and attitudes of people.

To you professionals in the vocational education field, I urge that you make every effort to measure as well as you can with the best tools currently available the potential of your students; that you encourage those students with great potential to prepare for greatness; that you counsel those students with reasonable potential accordingly and help them set their course towards employment opportunities that they may reasonably obtain; and that in those cases where your students have limited potential that you guide them into employment avenues where they may achieve some of their personal goals, but more importantly, avoid the frustration of trying to reach unachievable goals.

I would hope that in all our work we practice a philosophy that work is good; that to be employed and make a contribution to society helps raise the living standards and potential for greater accomplishment for all of our people; that looking upon work with disrespect and not contributing to society through meaningful employment results in a reduction of the standard of living of our people and a decrease in the potential for accomplishment of our future generations.

The organization of which I am president, the Hawaiian Educational Council, Inc., has adopted as a statement of basic purpose the "optimum development of our human resources." This is a magnificent challenge to all of us who share an interest in the preparation for employment as well as the actual employment of personnel. I am sure I speak for the majority of business and industry when I say we look for personnel who are prepared for at least the entry level of employment with our firms. You are concerned with the preparation and guidance of the individual so that he can fulfill his needs for a meaningful career. We in turn reply in supporting our needs that we place great value on the human resources employed in our enterprises and we also endeavor to create opportunities that will permit each employee to achieve his greatest potential and the most complete fulfillment of his personal needs. Both of us -- you the professionals in vocational education and we the employers -- share a great responsibility for the optimum utilization of our human resources.

APPENDIX C

TASK ANALYSIS

TASK ANALYSIS

Digested from Developing Vocational Instruction,
by Robert F. Mager and Kenneth M. Beach, Jr.

A task is a logically related set of actions required for the completion of a job objective. A job or vocation includes a number of tasks. For example, one of the tasks that must be performed by the auto mechanic is that of adjusting brakes. All of the steps involved in adjusting a brake go to make up the complete task.

The first step in task analysis requires a listing of all the tasks that might be included in the job. The tasks can probably be identified and listed by just thinking about the job. But a much better list can be done by talking to individuals now working at the job or by watching the tradesman actually performing the job. This should help to refresh your memory and help you to avoid a serious teaching trap -- loading the course with irrelevant content.

Talking to the man on the job will tell you what the job is. Talking to the supervisor will tell you what it ought to be. Judgment will have to be made as to which tasks are reasonable to include in your list based on probability of need.

A note of caution -- You will not be teaching all of the tasks you list in your analysis. Some will be deleted because of its insignificance. But the important thing is to list all the tasks that go to make up the vocation.

It will be useful to list all these tasks on a simple form so that you can easily record the information you need to put down next. (See the sample form on the following page.)

The first column indicates how often each task is performed during the performance of a job. Do not try to think about the importance of the task. Just indicate the frequency with which the task is performed. This information will become very useful in deciding how deeply to go into the subject, how much practice to provide, and how to sequence the course lessons.

All tasks are not of equal importance in the performance of a job. Tasks that are performed frequently may not represent a critical skill. Other tasks, although performed rarely, are vital to job performance. For example, although a waiter must know how to clean off a table and may perform this task frequently, it is not nearly as important to the job as his ability to take orders correctly. Therefore, indicate the judgment of importance. Then, you will be able to determine which tasks must be included in the training and which can be left out if some selection becomes necessary.

The third column of the form requires your best estimate of whether each task is easy to learn, moderately difficult, or very difficult to learn. This information will also help you to determine the length of time that should be spent in teaching the task.

TASK LISTING SHEET

Vocation: Electronics Technician

No.	Task	Frequency of Performance	Importance	Learning Difficulty
1.	Troubleshoots and repairs malfunctioning equipment.	Everyday occurrence	1	Difficult
2.	Reads electronic schematics.	1 to 10 times a day	2	Moderate
3.	Performs chassis layouts.	Once a week	2	Easy
4.	Uses small hand tools.	Continuously	1	Easy
5.	Checks electronic components.	Frequently	1	Moderate to very difficult
6.	Replaces components.	Once in a while	2	Easy to moderate
7.	Solders various components.	Frequently	2	Moderate
8.	Recognizes the applicability of electronic test equipment.	Once in a while	2	Difficult
9.	Interprets test instruments.	Frequently	1	Difficult
10.	Performs calibration of test equipment.	Once a month	3	Difficult
11.	Interprets and records test data.	Once in a while	3	Easy to moderate
12.	Specifies and orders electronic components.	Frequently	3	Easy
13.	Applies first aid procedures.	Very rarely	1	Moderate
14.	Maintains and cleans work areas.	Frequently	2	Easy

Listing Operations

The second step in task analysis is to list the operations involved in each of the tasks on the list in terms of what the person does when performing the task. This step emphasizes what is done, rather than in terms of what must be known.

The following is an example of a task that has been broken down into its main operational steps:

Example I

Job or Vocation: Electronics Technician

Task: Soldering components

Operations involved:

1. Identify joints to be soldered.
2. Select the appropriate iron and solder.
3. Clean joint and tin if necessary.
4. Place the iron on the joint.
5. Apply the appropriate amount of rosin core solder to the joint.
6. Check and examine the joint; seal if necessary.
7. Clean surroundings and replace the tools when finished.

While this may seem to be going into unnecessary detail, it must be stressed that these steps are essential in making intelligent choices of teaching techniques. With the task steps identified in this detail, we can better avoid the teaching trap of including more theory than is necessary or desirable and keep the course performance oriented.

There are probably as many techniques for performing a task analysis as there are people doing it. The technique described here, while not merely as detailed as some, is adequate for the job at hand. If you know of another technique that suits you better, by all means use it. The only large error you can make is not to use any task analysis technique at all.

APPENDIX D

PRIVATE TRADE,

VOCATIONAL AND TECHNICAL SCHOOLS

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PRIVATE TRADE, VOCATIONAL AND TECHNICAL SCHOOLS

SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
Airline Schools Pacific of Hawaii 2270 Kalakaua Avenue Honolulu, Hawaii 96815	Airline Transportation Agent	Day Class-330 hrs./11 weeks Evening-330 hrs./27 weeks	Domestic Reservations and ticket agents.	$895 + tax		Any Monday
	Commercial Communication	Day Class-400 hrs./16 weeks Evening-400 hrs./32 weeks	International Reservations and Ticket Agents. Teletype Communications Agents, and Operations Agents.	$445 + tax		
Practic Airline Schools 1600 Kapiolani Blvd. Honolulu, Hawaii 96815	Airline and Travel Agency	10 weeks	Handling Reservations on air, ship, rail and bus.	$179 $125-full-time travel agency/airline personnel	Registration $10	
Franz Griessler Private Art School 2085 Makiki Place Honolulu, Hawaii 96822	Portrait, Still-Life Life-Class	3 hrs./10 lessons 3 hrs./10 lessons	Art for Avocational and Vocational Interests.	$50		

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PRIVATE TRADE, VOCATIONAL AND TECHNICAL SCHOOLS

SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
Honolulu Academy of Arts Studio Program 900 S. Beretania St. Honolulu, Hawaii 96814	Drawing Studio	3 hrs. studio sessions (5 days a wk)	Developing skilled self-expression in the areas of painting, drawing and commercial art.	$150 per semester	Registration $5 Lockers $1.50 per semester	Sept. 1 Sept. 15
	Commercial Art Studio	3 hrs. studio sessions (5 days a wk)		$150 per semester	Art supplies purchased from studio store	
	Studio Classes for Members	6 hrs. a week		$140 per semester		
	Thursday Evening Life Class	Thursday evenings (15 sessions)		$50 per semester		
	Painting Studio	3 hrs. studio sessions (5 days a wk)		$150 per semester		
Electronics Institute of Hawaii 989 Dillingham Blvd. Honolulu, Hawaii 96817	Electronic Engineering Technology	2,050 hrs.	Provide job entry-level skills for students who wish to become service type technicians.	$18.50 per credit unit per semester	Registration--$5 Students are required to furnish all textbooks and other supplies.	June, August, January
	Electronic Technician's Program	2,050 hrs.			$1.00-For additional copies of transcripts of credits	
	Pre-Technology Courses					

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PRIVATE TRADE, VOCATIONAL AND TECHNICAL SCHOOLS

SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
New York Technical Institute 1375 Dillingham Blvd. Honolulu, Hawaii 96817	Oceanographic Electronic Engineering Technology	2,520 hrs.		$4,043.94	Registration $10	Continuous
	Heavy Equipment Theory of Earthmoving and Diesel Maintenance	1,494 hrs.		$2,082.56		
	Data Processing Automation Accounting	1,310 hrs.				
	Mechanical and/or Architectural Drafting	1,494 hrs.		$2,038.54		
	General Mechanics	1,494 hrs.		$2,038.88		
	Electronics Technician	2,050 hrs.		$3,028.20		
Patricia Stevens Finishing School 413 Pau Street Honolulu, Hawaii 96815	Public Relations Program	9 months	Prepares young women for positions in the business world.	$1,740	Registration $10	3 semesters Begins - Sept. 21 Ends - June 11
	Fashion Merchandising	9 months	Fashion Merchandising	$1,740		

PRIVATE TRADE, VOCATIONAL AND TECHNICAL SCHOOLS

SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
Bartenders Training Institute 830 Ala Moana Blvd. Honolulu, Hawaii 96813	Professional Bartender/Bartendress	6 wks./2 hrs. class	Bartender	$166.40		
	Cocktail Waitress		Cocktail Waitress	$ 25.00		
Cannon's College of Commerce 33 S. King Street Honolulu, Hawaii 96813	Short unit courses in night school		Office and Business Occupations			July September November January
	Stenographic	45 weeks		$ 700	Registration $10	
	Professional Sec.	63 weeks		$ 980		
	Executive Secretarial	72 weeks		$1,120		
	Legal Secretarial	72 weeks		$1,120		
	Medical Secretarial	72 weeks		$1,120		
	Court Reporting	90 weeks		$1,400		
	IBM Key Punch Clerk Typist	45 weeks		$ 700		
	Junior Accounting	45 weeks		$ 700		
	Higher Accounting	72 weeks		$1,120		
	Business Administration	72 weeks		$1,120		
	Nancy Taylor Airline Secretarial	72 weeks		$1,120		
	Nancy Taylor Fashion Secretarial	72 weeks		$1,120		
	Hotel Front Office Management Procedures	36 weeks		$ 560		
	Secretarial Data Processing	63 weeks		$1,000		
	Data Processing	72 weeks		$1,575		

PRIVATE TRADE, VOCATIONAL AND TECHNICAL SCHOOLS

SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
Cannon's College of Commerce 33 S. King Street Honolulu, Hawaii 96813	Accounting-Computer Programming	45 weeks		$1,025		
	Computer Programming	27 weeks		$ 700		
	Fashion Merchandising	27 weeks		$ 500		
	Airline Operations and Reservations	27 weeks		$ 500		
	PBX-Receptionist	27 weeks		$ 420		
	IBM Key Punch	60 hours		$ 125		
Hawaii Bartender's Academy 547 Halekauwila Street Honolulu, Hawaii 96813	Bartender/Bartendress	60 hours	To provide a thorough and comprehensive knowledge in the Art of Mixology.	$195		Saturday 9-12
	Cocktail Waitress	15 hours (morning, afternoon and evening classes)		$ 50		
Honolulu Business College 1111 Bishop Street Honolulu, Hawaii 96813	Card Punch and Verifier Operation	Day Class-4 wks. Night Class-10 wks.	Office and Business Occupations	1 course (3 credit hours-$125) Two or more courses (more than 3 credit hours-$250)	Application Fee $10 Laboratory Fee: Data Processing-$125 Doss Company-$20 Key Punch-$175 Student Gov't.-$2.00 Certificates and Diplomas-$5 A.A. Degree-$7.50	Fall Term September Mid-Fall November Winter February Spring April Summer June
	Automated Data Processing	Day Class-2 terms Night Class-15 wks.				
	Electronic Data Processing	Day Class-1 term Night Class-15 wks.				
	Automated Systems and Procedures	Day Class-1 term				

PRIVATE TRADE, VOCATIONAL AND TECHNICAL SCHOOLS

SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
Honolulu Business College 1111 Bishop Street Honolulu, Hawaii 96813	Data Processing-Business Administration	72 wks.-8 terms		$1,900		
	Data Processing-Business Accounting	45 wks.-5 terms		$1,225		
	Automating-Business Accounting	36 wks.-4 terms		$ 775		
	IBM Key Punch-Clerk Typist	45 wks.-5 terms		$ 875		
	Stenographic Curriculum	45 wks.-5 terms		-		
	Secretarial Curriculum	63 wks.-7 terms				
	Executive Secretarial	72 wks.-8 terms				
	Legal Secretarial	72 wks.-8 terms				
	Medical Secretarial	72 wks.-8 terms				
	Junior Accounting	45 wks.-5 terms				
	Higher Accounting	72 wks.-8 terms				
	Business Administration	72 wks.-8 terms				
	Clerical Filing	45 wks.-5 terms				

PRIVATE TRADE, VOCATIONAL AND TECHNICAL SCHOOLS

SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
IBM Education Center 1240 Ala Moana Blvd. Honolulu, Hawaii 96814	Data Processing Education	2 to 15 days-depending on course	To train IBM customer employees in the use and application of IBM computers in the customer installation.	By arrangement with employer	Included in class fees	Students are enrolled by his employer on a first-come, first-served basis
Kenway School of Accounting 1019-A University Ave. Honolulu, Hawaii 96814	Accounting 234 Accounting 235 Accounting 231	240 hours 200 hours 36 hours	Accounting	$595 $495 $ 75	Registration $20 Supplies $35	
Midpac Training Institute 445 N. King Street Honolulu, Hawaii 96817	IBM Computer Programming IBM Computer Operator IBM Key Punch and Verifier Operator Cashiering Hotel Front Desk Data Processing	750 hours 500 hours 90 hours 90 hours 90 hours 150 hours	To pursue a career in Data Processing as a Computer Programmer. Cashiering	$1,495 $ 995 $ 285 $ 165 $ 185 $ 595		

PRIVATE TRADE, VOCATIONAL AND TECHNICAL SCHOOLS

SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
National Business Training School 1032 Alakea Street Honolulu, Hawaii 96813	General Office Clerk Clerk-Typist Office Machines Office Bookkeeper Typing Retail Cashier Gregg Shorthand Review	320 hours 320 hours 80 hours 360 hours 120 hours 120 hours 80 hours	To train prospective employees in basic skills required for office and store operation.	$ 348 $ 348 $ 150 $ 348 $ 150 $ 174 $ 150		
Exeter Home Study School 2109 Kuhio Avenue Suite G Honolulu, Hawaii 96815	Civil Service Exams		To teach the techniques of passing non-technical civil service examinations.	$ 270	Included in total cost	
Academy Beauty College 315 Royal Hawaiian Ave. Honolulu, Hawaii 96815	Hairdresser and Cosmetology Hairdresser Cosmetologist Manicurist Instructor	1800 hours 1100 hours 700 hours 350 hours 600 hours	To prepare students for a professional career in cosmetology.	$ 475 $ 300 $ 300 $ 175 $ 250	Registration $10	New classes begin every Tuesday.
Gony's Beauty College 4369 Rice Street Lihue, Kauai 96766	Hairdressing and Cosmetology	1800 hours	To prepare students for a professional career in cosmetology.	$ 580		

PRIVATE TRADE, VOCATIONAL AND TECHNICAL SCHOOLS

SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
Hollywood Beauty College 1423 Kapiolani Blvd. Honolulu, Hawaii 96814	Cosmetology	1800 hours	To prepare students for a professional career in cosmetology.	$456.30	Registration $10 Hairdresser's Kit $114.05	
Honolulu Barber School 71 S. Hotel Street Honolulu, Hawaii 96813	Arts and Sciences of Men's Barbering	1,250 hours	Barbering	$425	Registration $10 Books and Equipment $101.66	Continuous
Honolulu Beauty College 1144 Fort Street Honolulu, Hawaii 96813	Cosmetology	1800 hours	Cosmetology	$600	Hairdresser's Kit - $120	Any Tuesday
	Cosmetician	900 hours		$432	Kit-$62.80	
	Manicurist	600 hours		$295		
Royal School of Beauty Culture 295 Alexander Young Bldg. Honolulu, Hawaii 96813	Hairdressing and Cosmetology	1800 hours	Cosmetology	$403.90		

PRIVATE TRADE, VOCATIONAL AND TECHNICAL SCHOOLS

SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
Trend Setter International Beauty College of Hawaii 1413 S. King Street Honolulu, Hawaii 96814	Hairdresser and Cosmetologist	1800 hours	Cosmetology	$400	Human Hair Manikin - $70	
H & R Block Income Tax Institute 666 Ala Moana Blvd. Honolulu, Hawaii 96813	Income Tax Preparation	72 hours	To train individuals to be able to prepare income tax returns.	$40		
Alverson Nautical School 1739 C-1 Ala Moana Honolulu, Hawaii 96815	General and Celestial Navigation	2 months		$125		
	Preparation for Merchant Marine License	3-4 months		$260		
	Radar Endorsement	2 weeks		$50		
Castle Memorial Hospital School of Practiccal Nursing 640 Ulukahiki Street Kailua, Hawaii 96734	Practical Nursing	45 weeks	Practical Nurse	$300	Registration $10	

PRIVATE TRADE, VOCATIONAL AND TECHNICAL SCHOOLS

SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
St. Francis Hospital School for X-Ray Technicians 2260 Liliha Street Honolulu, Hawaii 96817	X-Ray Technology	2 years	X-Ray Technicians	$25--12 or more credits		
Evelyn Wood Reading Dynamics Institute of Hawaii 33 S. King Street Honolulu, Hawaii 96813	Reading Dynamics	24 hours	To learn to read rapidly and efficiently.	$175	Deposit--$25	
Henry Gomes Real Estate School 1030 Alakea Street Honolulu, Hawaii 96813	Real Estate Principles and Practices	35 hours	To prepare students to pass the State Real Estate Exams.	$75 Including books and printed materials		
Hawaiian Real Estate School 2222 Kalakaua Avenue Suite 1214 Honolulu, Hawaii 96815	Real Estate Licensing	30 hours	To prepare students to pass the State Real Estate Exams.	$125		

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SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
Kinji Kanazawa Real Estate School c/o 950 First Hawaiian Bank Building Honolulu, Hawaii 96813	Real Estate Principles and Practices	24 hours	To prepare students to pass the State Real Estate Exams.	$50		
Tara School of Real Estate c/o 49 S. King Street Honolulu, Hawaii 96813	Real Estate	28 hours	To prepare students to pass the State Real Estate Exams.	$75		
Checkmate School of Real Estate 1685 Kapiolani Blvd. Honolulu, Hawaii 96814	Real Estate	28 hours	To prepare students to pass the State Real Estate Exams.	$75		
Walter N. Clark Real Estate School 1210 Auahi Street Honolulu, Hawaii 96814	Law of Real Estate Financing of Real Contracts Basic Fundamentals of Real Estate	Night Class--48 hours.	To prepare students to pass the State Real Estate Exams.	None	Registration $25 Refundable	

PRIVATE TRADE, VOCATIONAL AND TECHNICAL SCHOOLS

SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
Fashion Center 1236 S. King Street Honolulu, Hawaii 96814	Complete Dressmaking	960 hours--1 year	Dressmaking	$35 a month	Registration $5	
Fashion Institute 1540-A Makaloa Street Honolulu, Hawaii 96814	Costume Design, Tailoring and Dressmaking	1075 hours	Dressmaking	$315/year	Registration $5	
Hawaii's School of Fashion Design 1083 S. Beretania St. Honolulu, Hawaii 96814	Costume Design, Dressmaking and Tailoring	1080 hours	Dressmaking	$400	Registration $10	
Honolulu Mary'nette Sewing School 1157 Fort Street Mall Room 3 Honolulu, Hawaii 96813	Dressmaking and Designing	1 year	Dressmaking	$43/month	Registration $3	
Honolulu Practical Sewing School 1302 Young Street Honolulu, Hawaii 96814	Sewing and Dressmaking	960 hours	Dressmaking	$350	Registration $5	Continuous

PRIVATE TRADE, VOCATIONAL AND TECHNICAL SCHOOLS

SCHOOL AND ADDRESS	COURSES OFFERED	LENGTH	OCCUPATIONAL OBJECTIVES	TUITION	OTHER COSTS BOOKS, ETC.	ENTRANCE DATES
Kaimuki Sewing School 3184 Waialae Avenue Honolulu, Hawaii 96816	Dressmaking	960 hours	Dressmaking, Tailoring, Costume Design	$400	Registration $5	
Kalihi Sewing School 1915 Kalihi Street Honolulu, Hawaii 96819	Dressmaking	960 hours	Dressmaking	$40/month	Registration $5	
Kaneohe Sewing School 45-520 Keaahala Road Kaneohe, Hawaii 96744	Dressmaking	2 years	Dressmaking	$300	Registration $5	
Style Center 1350 S. King Street Room 203 Honolulu, Hawaii 96814	Costume Design and Dressmaking	960 hours	Dressmaking and Costume Design	$400	Registration $10	September February June
Tsunoda School of Fashion 619 Kapahulu Avenue Honolulu, Hawaii 96815	Dressmaking, Tailoring and Costume Design	960 hours	Dressmaking, Tailoring and Costume Design	$45/month	Registration $5	September to June
Umemoto Sewing School 3329 Sierra Drive Honolulu, Hawaii 96816	Dressmaking	8 weeks	Dressmaking	$45/8 weeks course	Registration $5	

APPENDIX E

STANDARD EQUIPMENT AND TOOL LISTS

BUSINESS OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Agricultural Technology

Item	Quantity	Approximate Unit Cost
Cabinet, tool, mechanic	1	$100.00
Cabinet, tool, carpentry	1	100.00
Cabinet, display	1	75.00
Cabinet, paint	1	100.00
Bench, demonstration, portable	1	75.00
Heater, hot water, 60 gal. cap.	1	300.00
*Bench, woodworking, 64" x 50" x 30"	1	100.00
*Bench, metal, 84" x 42" x 30"	1	150.00
Oxy-acetylene welding and cutting rig	1	250.00
*Table, gas welding, 4' x 2' x 2½' w/fire brick	1	75.00
*Compressor, air 60 gal. cap. 3H.P. 220V	1	750.00
*Grinder, pedestal, Hv. Duty 110V ½H.P.	1	100.00
*Jointer, 6" long head ½H.P. 110V	1	480.00
*Band saw, wood & metal cutting 3/4H.P.	1	730.00
*Radial arm saw 2H.P. 220V	1	460.00
*Tilting arbor saw ½H.P. 110V	1	530.00
*Drill press, stand & floor model 3/4H.P. 220V	1	300.00
*Anvil Stand	1	50.00
*Anvil 125#	1	100.00
*Arc welder	1	425.00
Grinder-sander, portable, electric ½H.P. 110V	1	100.00
*Tank, quenching	1	50.00
*Hammer, portable, electric ½H.P. 110V	1	100.00
*Drill, portable, electric ¼" - ½" ½H.P.	1	50.00
*Saw, electric, portable 6½" x 5/8" ½H.P. 110V	1	85.00
*Floor crane 1½T cap.	1	700.00
*Shear, electric, cap. 10 gauge ½H.P. 110V	1	150.00
*Hack saw, portable, electric ½H.P. 110V	1	125.00
*Sabre saw, portable, sheet metal ½H.P. 110V	1	100.00
*Jack, hydraulic floor 12T cap.	1	250.00
**Trailer, animal	1	300.00
**Chute, squeeze, portable	1	300.00
**Husker, nut, complete w/electric motor ½H.P. 110V	1	125.00
Sprayer, power, complete w/hose and gun 100 gal. cap.	1	500.00
**Brooder, chick, 5 deck electric 110V	1	150.00
**Battery, growing & fattening, 9 deck	1	125.00
**Feather picking machine	1	500.00
**Heater scalding vat	1	200.00
Refrigerator, walk-in 6' x 8' 8'	1	1,000.00
Table, grading, stainless steel 3' x 10'	1	250.00
Heater, water, electric 60 gal. cap. 220V	1	300.00
Scale, platform 1000# cap.	1	250.00
Merry Tiller, 3H.P. gasoline	2	375.00
Tubs, wash	2	70.00
Sink, poultry dressing, produce washing	1	100.00

*In small high schools equipment and facilities shared with Industrial Technology program.

**Equipment needs of high schools with special needs.

BUSINESS OCCUPATIONS

Cooperative
Distributive Education

STANDARD EQUIPMENT AND TOOL LIST

Item	Quantity	Approximate Unit Cost
Adding machine, 10-key	4	$225.00
Adding machine, full keyboard	1	134.00
Bow machine	1	95.00
Calculator, automatic	2	756.00 + T
Calculator, key-driven, manual	2	325.00
Duplicating machine, stencil	1	376.00
Cabinet, duplicating machine	1	53.00
Duplicator (spirit) & copying machine combination	1	647.00
Mimeoscope	3	67.00
Styli sets	3	54.00
Demonstration stand	1	50.00
Typewriter, electric	3	347.00
Typewriter, manual	6	187.00
Interval timer	1	27.00
Stop watch	1	18.00
Paper cutter	1	25.00
Stapler, long arm, 16"	1	20.00
2-hole punch	1	3.00
3-hole punch	1	14.50
Mirror alcove	1	150.00
Show case	2	225.00
Sales counter	1	200.00
Wrapping counter	1	130.00
Cash register	1	1,253.00
Produce scale	1	375.00
Overhead projector and accessories	1	500.00
Price marketing machine	1	87.50
Mannequins, with stands	4	172.00
Mock merchandise	1 set	100.00
Wrapping paper holder and cutter	2	10.00
Magazine rack	2	30.00
Assorted tee stands (15 to a set)	1 set	31.60
File cabinet, 4-drawer, steel (legal size)	2	124.00
Double-deck desk trays	3	4.00
Bulletin card stand	1	33.75
Combination displayer (3 to a set)	1 set	46.50
Counter mirror	1	9.95
Gun tacker	1	13.00
Hollow half forms (6 to a set)	1 set	30.00
Postal scale	1	11.00
Record player	1	87.00
Tape recorder	1	120.00

BUSINESS OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Cooperative Office Education
Office Practice
Business Machines

Item	Quantity	Approximate Unit Cost
Adding-Listing Machine, 10-Key	6	$225.00
Adding-Listing Machine, Full-Keyboard	1	134.00
Calculator	4	756.00 + T
Calculator, Printing	1	466.00 + T
Calculator, Key-Driven Manual	6	325.00
Transcribing Machine	2	487.00
Typewriter, Elec., Diff. Spacing	2	525.00 + T
Typewriters, Elec., Standard	8	420.00 + T
Typewriters, Manual	8	187.00
Stencil Duplicator with Cabinet	1	601.00
Spirit Duplicator & Copying Machine Combination	1	647.00
Illuminated Drawing Board	3	67.00
Styli and Lettering Guides	3 sets	54.00
Posting Machine (Optional)	1	
Billing Machine (Optional)	1	
Interval Timer	1	27.00
Stop Watch	1	18.00
Collating Rack	1	26.00
Postal Scale	1	11.50
Demonstration Stand	1	52.00
Stapler, Long Arm, 16"	1	8.00
2-Hole Punch	1	3.00
3-Hole Punch	1	14.00
Paper Cutter, 18" w/metal Guide	1	26.00
4-Drawer, Metal File Cabinet, Legal, with lock	1	129.00
Double-Deck Desk Tray	3	4.00
Work Organizer	2	7.50
Overhead Projector and Accessories	1	500.00
Tape Recorder	3	125.00

CONSTRUCTION/CIVIL TECHNOLOGY OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Building Construction

(Page 1)

Item	Quantity	Approximate Unit Cost
EQUIPMENT		
Compressor, 60 gal. tank, 1-1/2 hp., w/belt guard and regulator	1	$ 756.00
Drill, portable electric, 1/4" cap.	1	54.00
Drill, portable electric, 1/2" cap.	1	95.00
Drill press, 15" floor	1	300.00
Grinder, 7" tool, 1725 RPM, w/sharpening attachment	1	265.00
Jointer, 8", w/belt guard & stand	1	635.75
Jointer, 6", w/belt guard & stand	1	480.00
Lathe, 12" wood, heavy duty	2	400.00
Mitre box, w/26" saw	1	75.00
Mortiser, direct motor drive w/hold-down clamps & stop rod	1	700.00
Router, portable electric, 7/8 hp., w/access.	1 kit	150.00
Sander, 12" disc, w/blower	1	293.00
Sander, 6" x 48" belt, w/blower	1	393.00
Sander, portable electric, belt, 3" x 24"	1	160.00
Sander, portable electric, finishing	1	89.00
Saw, band, 20", 1 hp.	1	719.00
Saw, circular, 10", 2 hp.	1	535.00
Saw, jig, 24"	1	290.00
Saw, radial, 10", 1-1/2 hp.	1	460.00
Spray unit, w/cup and 25' hose	1 set	118.00
Surfacer, 6" x 18", 5 hp.	1	1,500.00
Torch, blow	1	24.00
Vise, machinist's, 3-1/2"	1	35.00
Vise, woodworking, 4" x 7", rapid action w/aluminum handle	32	24.00
TOOLS		
Awl, scratch, 6"	3	.95
Bar, wrecking, 36"	1	3.50
Bit, brace, ratchet, 10"	3	12.00
Bit, auger, #4 to #16 by 16ths	1 set	28.50
Bit, expansive, 7/8" to 3"	1 set	6.50
Bit, Forstner, 1/4", 3/8", 1/2"	1	8.50
Bits & chisels, mortiser, 1/4"	1 set	14.50
Bits & chisels, mortiser, 5/16"	1 set	14.50
Bits & chisels, mortiser, 3/8"	1 set	17.30
Bits & chisels, mortiser, 1/2"	1 set	18.25
Burnisher	2	2.50
Can opener, wall type	1	5.25
Card, file	6	.75
Caliper, inside, spring type, 8"	3	5.50
Caliper, outside, spring type, 8"	3	5.50
Chisel, wood, butt, 1/4", 3/8", 1/2", 3/4", 1"	2 each	10.50

CONSTRUCTION/CIVIL TECHNOLOGY OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Building Construction

(Page 2)

Item	Quantity	Approximate Unit Cost
Clamp, bar, 4'	6	$ 6.25
Clamp, bar, 5'	6	8.50
Clamp, bar, 6'	4	8.10
Carving tool set, professional	1 set	30.00
Clamp, C, 3"	4	1.75
Clamp, C, 4"	6	2.25
Clamp, C, 5"	8	2.50
Clamp, C, 6"	6	2.95
Clamp, C, 8"	4	3.80
Clamp, C, 10"	4	4.95
Countersink, rose, 1/2", 5/8"	1 each	1.10
Divider, wing, 8"	1	3.80
Divider, wing, 10"	1	4.75
Dowelling jig	1	6.50
Drill, twist, straight shank, carbon, 1/16", 3/32", 1/8", 5/32", 3/16", 7/32"	6 each	18.00
Drill, twist, straight shank, carbon, 1/4", 5/16", 3/8", 7/16", 1/2"	3 each	16.05
Drill, automatic	2	5.50
Drill, hand, 1/4" capacity	2	8.33
Dresser, wheel, #0	1	3.65
File, auger bit, 7"	2	.60
File, flat mill, bastard cut, 10"	4	.95
File, half-round, double cut, bastard, 10"	2	1.20
File, square, double cut, bastard, 10"	2	.95
File, surform, #296, #295	2 each	6.50
File, slim taper, 7"	2	.85
Gauge, bit	2	1.20
Gauge, marking	2	.90
Glass cutter, turret head	1	.88
Handscrew, #0, 4" opening	12	3.50
Handscrew, #1, 6" opening	12	4.25
Handscrew, #2, 8" opening	12	4.65
Handscrew, #3, 10" opening	4	5.75
Hammer, claw, 16 oz.	12	3.75
Hammer, claw, 13 oz.	6	3.95
Hammer, upholsterer's magnetic, 7 oz.	1	3.25
Hammer, soft face, 16 oz.	2	3.05
Knife, draw	1	3.75
Knife, sloyd	4	.90
Knife, putty	3	.45
Level, 24", 30"	1 each	16.50
Mallet, hickory, 3" x 5"	6	1.10
Nail set, 1/32", 2/32", 3/32"	3 each	.38
Oilstone, crystolin, 2" x 7" x 1"	2	2.30
Oiler	3	1.05
Plane, block	6	6.25
Plane, smooth	6	9.35

CONSTRUCTION/CIVIL TECHNOLOGY OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Building Construction

(Page 3)

Item	Quantity	Approximate Unit Cost
Oilstone, Arkansas, 1-7/8" x 7"	1	$ 3.35
Plane, jack	12	9.10
Plane, jointer	1	18.50
Plane, rabbit	1	2.60
Plane, router	1	9.40
Pliers, side cutting, 7"	1	3.25
Pliers, long nose, 6"	2	2.95
Pliers, combination, 6"	2	1.95
Pliers, combination, 8"	2	2.10
Puller, nail	1	5.25
Rasp, wood, cabinet, smooth, 10"	6	2.10
Rasp, wood, cabinet, bastard, 10"	6	1.80
Respirator	2	4.50
Rule, push-pull, 8'	2	2.50
Rule, bench, steel, 1-1/4" x 12"	12	2.85
Rule, zig-zag, 6'	3	2.50
Saw, crosscut, 8 pt.	4	7.95
Saw, crosscut, 10 pt.	2	8.10
Saw, rip, 5-1/2 pt.	2	8.10
Saw, back, 15 pt., 12"	6	5.95
Saw, coping	6	1.25
Saw, compass, 12"	1	2.50
Saw, hack, 12"	1	3.05
Saw, keyhold, 10"	1	2.60
Scraper, cabinet, #80	4	3.85
Scraper, wood	4	1.20
Screwdriver, 2"	4	1.15
Screwdriver, 4"	4	1.15
Screwdriver, 6"	4	1.20
Screwdriver, 8"	4	1.70
Screwdriver, Phillips, 3"	2	.72
Screwdriver, Phillips, 4"	2	.90
Screwdriver, spiral, w/bits	1 set	4.50
Shield, face, 8"	6	4.40
Stone, slip, gouge	1	2.10
Spokeshave	3	1.45
Square, try, 8"	12	2.20
Square, framing, 24"	2	7.95
Snip, tin, 2-1/2" cut	1	3.95
Square, T-bevel, 8"	4	2.40
Turning tools	2 sets	38.50
Trammel points	1 pair	2.15
Wrench, crescent, 6"	2	2.40
Wrench, crescent, 8"	2	2.60
Wrench, combination open & box, 5/16" x 1"	1 set	48.00
Wrench, Allen	1 set	2.35

CONSTRUCTION/CIVIL TECHNOLOGY OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Building Construction

(Page 4)

Item	Quantity	Approximate Unit Cost
ADDITIONAL EQUIPMENT AND TOOLS NEEDED FOR OCCUPATIONAL EXPERIENCES		
Bandsaw	1	$ 750.00
Drill, electric, portable	2	150.00
Dust collection system	1	10,000.00
Electronic wood welder	1	750.00
Hose, air 25', 3516-1402, w/fittings	1	11.50
Jointer, 8"	1	575.00
Laminating press	1	400.00
Lathe, 14" wood	1	650.00
Mortiser	1	850.00
Plane, portable	1	165.00
Router, portable	1	85.00
Sander, 6" x 48" belt	1	300.00
Sander, 3 x 24", 4 x 27" belt, portable	2	300.00
Sander, 7" disc, portable	1	90.00
Sander, 12" disc	1	425.00
Sander, finishing, portable	2	150.00
Saw, all-purpose, portable	1	105.00
Saw, bayonet, portable	1	115.00
Saw, 6" and 8" circular, portable	2	225.00
Saw, panel, 2-way	1	365.00
Saw, radial, 12"	1	550.00
Saw, 12" table	1	600.00
Spray unit	1	118.00
Surfacer, 6" x 20"	1	1,500.00
Uniplane	1	150.00
Vacuum cleaner or blower system, compl. w/fittings	1	1,540.00
PLUMBING TOOLS		
Pipe vise	1	23.00
Pipe cutter	1	23.40
Pipe reamer	1	
Pipe wrench, 10"	1	
Pipe wrench, 12"		
Tube cutter with reamer	1	
Asbestos gloves	2 pairs	7.95
Melting pot (small)	1	14.10
Ladle (small)	1	7.70
Conduit bender, 1/2"	1	7.15
ELECTRICIAN'S TOOLS		
Cable stripper	1	5.70
Electrician's knife	2	3.25
B & S Wire gauge	2	7.90

CONSTRUCTION/CIVIL TECHNOLOGY OCCUPATIONS

Building Construction

STANDARD EQUIPMENT AND TOOL LIST

(Page 5)

Item	Quantity	Approximate Unit Cost
MASON'S TOOLS		
Funnel	1	$ .60
Tin snips	2	8.90
Brick chisel	2	2.05
Brick hammer	2	4.35
Mortar box or wheelbarrow	1	85.00
Mixing hoe	2	8.45
Shovel	2	5.72
Extension cord, 25'	2	4.05
Hawk (plaster's)	2	3.75
Caulking gun and tube	2	3.50
Step ladder	2	56.50
Sledge hammer	2	10.00
Finishing trowel	4	6.30
Brick trowel	4	6.00
Margin trowel	2	2.10
Pointing trowel	2	2.10
Redwood float	4	1.50
Bricklayer's jointer	2	1.40
Cement edger	2	2.20
Cement groover	2	4.20
Plasterer's apprentice tool kit (option)	1	69.00
Bricklayer's apprentice tool kit (option)	1	47.50

ELECTRICAL/ELECTRONICS OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Electrical and Electronics

(Page 1)

Item	Quantity	Approximate Unit Cost
TESTING EQUIPMENT		
D.C. Milliammeter 0-1	2	$ 11.85
D.C. Milliammeter 0-150	2	12.45
D.C. Voltmeter 0-10	8	12.60
D.C. Ammeter 0-30	8	12.45
Vacuum tube voltmeter	8	75.00
Peak to peak probe kit	1	7.30
R.F. probe kit	1	5.20
Audio generator (sine and square wave output)	1	75.00
Signal generator	4	75.00
Tube checker (transistor included)	4	115.45
Direct reading capacitor meter	1	41.95
Isolation transformer	2	8.39
Battery eliminator (10 amps continuous)	4	70.00
Multimeter with probes	1	75.00
Oscilloscope, 5"	1	150.00
Hydrometer	1	1.25
Speaker, 8" with cabinets	4	11.12
Microphone	1	12.95
Storage battery	1	15.95
Magnet, bar	8	2.20
Resistor decade box	1	26.20
Capacitor decade box	1	20.95
Potentiometer, size to suit experiments	8	1.14
Headphone	8	5.00
GENERAL EQUIPMENT		
Building block kit, electricity (sets)	16*	250.00
Building block kit, electronic (sets)	16*	250.00
Demonstration panel or kit, electric-circuit, instructor's	1	225.00
Demonstration panel or kit, electronic-circuit instructor's	1	595.00
Generator, sweep/marker	1	200.00
Receiver, communication	1	319.51
Transmitter	1	440.55
(* 1 kit per 2 students)		
BENCH TOOLS (A set each for 8 benches)		
Pliers, 6" diagonal	8	2.90
Pliers, 6" long nose	8	2.24
Pliers, 8" side cutting	8	3.23
Pliers, 8" slip joint combination	8	1.62
Screwdriver, 3"	8	.80
Screwdriver, 6"	8	.50
Soldering iron, 125 watts	8	9.95

ELECTRICAL/ELECTRONICS OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Electrical and Electronics

(Page 2)

Item	Quantity	Approximate Unit Cost
TOOLROOM TOOLS		
Alignment Tool kit	4	$ 8.10
Awl, scratch	6	.83
Board, drawing, 18" x 24"	2	3.00
Bit, auger	1 set	22.50
Chisel, 1/2" cold	4	.50
Divider, wing, 8"	2	2.50
Drill, twist, 1 to 60 H.S.	1 set	8.00
Drill, twist, 1/16 to 1/2 H.S.	1 set	40.00
Drill, hand	4	5.20
Drawing set	2	15.00
File card	4	.50
Files, 4" assorted needles	1 set	6.00
Gauge, screw pitch, Starrett #40	1	3.80
Gauge, wire, Starrett #282	1	3.80
Gauge, sheet and plate, U.S.S., Starrett #283	1	3.80
Gun, soldering, 125 watts	6	5.30
Hacksaw, 12"	2	2.04
Hammer, 8 oz., ball pein	4	1.80
Hammer, 12 oz., ball pein	4	1.87
Hammer, 16 oz., claw	1	3.75
Micrometer, 1"	1	19.00
Nippers, 12" cutting	1	3.64
Rule, 12" steel	4	1.85
Saw, rip, 7 pt., 26"	1	6.80
Saw, cross cut, 10 pt., 26"	1	6.80
Scale, architect's	2	.60
Screw plate, 4-36 to 1/4-20	1 set	37.50
Shield, face	2	3.00
Snip, aviation, cut left	2	2.50
Snip, aviation, cut right	2	2.50
Square, 12" combination	1	3.50
Stone, combination oil	1	2.10
Stripper, wire	4	1.80
T-square, 24"	2	3.00
Triangle, 10", 30°/60° plastic	2	1.00
Triangle, 8", 45° plastic	2	1.00
Wrench, Allen	1 set	1.80
Wrench, adjustable, 4", 6", 8", 10"	1 set	8.50
SHOP EQUIPMENT		
Anvil, #50	1	70.00
Brake, 24" box and pan	1	400.00
Drill, 1/2" electric, portable	1	60.00
Drill, 1/4" electric, portable	2	35.00
Drill press, 12" bench	1	225.00
Grinder, 6" bench, w/eye shields	1	200.00

ELECTRICAL/ELECTRONICS OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Electrical and Electronics

(Page 3)

Item	Quantity	Approximate Unit Cost
SHOP EQUIPMENT (continued)		
Shear, 36" squaring	1	$450.00
Vise, drill press	1	45.00
Vise, machinist's, 3"	8	350.00
ADDITIONAL TOOLS & EQUIPMENT NEEDED FOR OCCUPATIONAL EXPERIENCES		
ELECTRICAL EQUIPMENT		
Demonstration Equipment	1 set	
Alternating Current		275.00
Alternating Current Circuitry		280.00
Automotive Electricity		300.00
Chemistry & Electricity		165.00
Direct Current Circuitry		70.00
Electric Circuit		45.00
Electricity & Communications		290.00
Electricity & Magnetism		145.00
House Wiring & Electric Circuits		120.00
Motors & Generators		350.00
Electrical Training Equipment (set/2 students)	12 each	650.00
Oscilloscope	1	250.00
Power Supply	12	80.00
Rotating Electrical Machinery	1	960.00
Science Apparatus	1 set	
Electro Magnetism Demonstrator		65.00
Resonance Demonstrator		150.00
St. Louis Motor		20.00
Tesla Coil Demonstrator		110.00
Transformer Principles		100.00
Van de Graaff Generator, 10" dome		85.00
Vacuum Tube Voltmeter	12	125.00
Volt Ohm Meter	6	85.00
ELECTRONIC EQUIPMENT		
Audio Signal Generator Sine/Square Wave Output	12	100.00
Digital Computer Trainer	1	1,200.00
Electronic Training Equipment	12	850.00
Electronic Demonstration Unit	1	
Amplifiers		200.00
Basic Tube Circuits		160.00
Oscillator Circuits		200.00
Power Supply Circuits		98.00
Radio Receiver Circuits		250.00
Radio Transmitter Circuits		325.00
Reactance Network		130.00

ELECTRICAL/ELECTRONICS OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Electrical and Electronics

(Page 4)

Item	Quantity	Approximate Unit Cost
ELECTRONIC EQUIPMENT (continued)		
Electronic Demonstration Unit	1	
Resistance in Electronics		$110.00
Semi-Conductor Circuits		200.00
Television Circuits		410.00
Oscilloscope	12	250.00
Portable Tube, Transistor and Diode Tester	1	285.00
Power Supply, Tube-type	12	150.00
RF Signal Generator	12	75.00
VOM	12	90.00
VTVM	12	125.00

FOOD SERVICE OCCUPATIONS

Food Service I
Food Service II

STANDARD EQUIPMENT AND TOOL LIST

(Page 1)

Item	Quantity	Approximate Unit Cost
LARGE EQUIPMENT		
Can opener, electric	1	$ 13.95
Cooker, rice, automatic, 5-7 cup	1	16.95
Dutch oven	1	9.00
Food grinder/chopper	1	8.98
Freezer, upright, 12-14 cubic feet	1	309.92
Garbage can, plastic	2	7.95
Garbage disposal/installation	1	75.00
Kettle, open, 5 qts.	1	2.89
Knife sharpener, electric	1	13.95
Mixer, electric, w/juicer & sharpener attach.	1	21.95
Mixer, electric, portable	4	13.95
Food blender	1	22.00
Percolator, electric	1	15.39
Pressure cooker, 4 qt.	1	14.98
Punch bowl with ladle	1	7.44
Range, 30", electric	3	369.20
Range, 30", gas	2	369.20
Refrigerator, 12-14 cu. ft.	2	317.20
Roaster, pan	1	5.19
Skillet, electric, 12", C127	1	16.09
Step stool	2	14.95
Surface cooking units	1 set	84.00
Toaster	1	13.76
Utility cart, ss	2	70.00
Waffle iron combination	1	18.89
Wall oven, P-7	1	256.00
TOOL LIST (1 dept., 5 units)		
KITCHEN UTENSILS, POTS & PANS		
Cake coolers, 10-1/2" square	10	.79
Can openers, long handled	5	.59
Can opener, wall	1	3.98
Cannisters, 4/set; round; plastic or metal	5 sets	2.98
Casseroles with covers, Pyrex, 1-1/2 qt.	5	1.19
Cleavors, chrome, 7-1/2"	5	1.29
Colanders, 3 qt. with handle	5	1.59
Cookie press	2	1.89
Cookie sheets, 17" x 14"		
Cups, measuring, nested, aluminum	10 sets	.98
Cups, measuring, glass, Pyrex, 1 cup	10	.39
Cutters, biscuit	10	.25
Cutting boards, 10" x 16"	10	3.49
Custard cups, Pyrex, 5 oz.	60	.18
Deep fat frying baskets	5	.98
Drainers, dish, plastic, 14-3/4" x 18½" x 6¼"	5	3.98
Drain board, mat, plastic, 18" x 21"	5	2.98

PERSONAL/PUBLIC SERVICE OCCUPATIONS

Ornamental Horticulture

STANDARD EQUIPMENT AND TOOL LIST

(Page 1)

Item	Quantity	Approximate Unit Cost
EQUIPMENT		
NURSERY - HORTICULTURE		
Autoclave	1	$ 359.00
Auger, soil 3" diameter	1	18.65
Axes, standard, heavy duty	2	5.00
Brush cutter, Forrester, heavy duty	1	15.00
Burner, weed, kerosene	1	30.00
Can opener, heavy duty	1	15.00
Caliper, tree	1	10.00
Shredder (compost machine)	1	300.00
Cooker, pressure, 4 qts.	1	25.00
Germinator	1	20.00
Hot plate, 2 burner, electric	1	20.00
Molds, pot, cast aluminum - 4", 6", 8", 10", 12"	1	200.00
Mold, pot, bonsai, aluminum - 5" x 8" x 3"	1	200.00
Ladder, folding, 8'	1	30.00
Lantern melter	1	10.00
Light, fluorescent w/magnifier	1	
Light meter & time clock combination	1	150.00
Motor, 1/2 HP	1	75.00
Mower, lawn, power 21"	1	150.00
Pruner, heavy duty	1	7.00
Pump, general, 350 PSI-126 gpm	1	300.00
Respirator, farm spray	1	3.85
Saw, hand 26", 8 point	1	12.00
Saw, hand, 10 point	1	12.00
Saw, pruning, Disston 12", 14"	3	7.00
Saw, pruning, Disston poled 12"	1	15.00
Shears, hedge, landscaping, hand	2	12.00
Shears, pruning, heavy duty	6	12.00
Shears, lopping	2	10.00
Soil, capillary water demonstration kit	1	25.00
Soil, thermometer	1	6.00
Soil, testing kit, Sudbury deluxe w/refill	1	30.00
Sterilizer, portable, steam pressure 25 qt.	1	325.00
Sprayer, Hudson, 3-gal.	2	12.00
Sprayer, power, mist blower	1	375.00
Sprayer, Knapsack, stainless steel, 5-gal.	1	35.00
Sprayette, 1 qt., hand	1	5.00
Sprinkler heads, brass	20	9.00
Timer, automatic	1	12.95
Torch, kerosene, weed eradicator	1	50.00
Wax pot, grafting	1	3.00
Wheelbarrow, construction type, rubber wheel	2	35.00
Wheelbarrow, standard, aluminum body, rubber wheel	1	50.00
Tiller, Merry	1	375.00
P.H. meter	1	200.00

FOOD SERVICE OCCUPATIONS

Food Service I
Food Service II

STANDARD EQUIPMENT AND TOOL LIST

(Page 2)

Item	Quantity	Approximate Unit Cost
Egg beaters, rotary	5	$ 4.98
Egg beaters, whick, ss	5	1.29
Forks, cooking	5	.98
Gelatine molds, family size	5	2.39
Ice picks	5	.59
Knives, bread, case, ss	5	1.12
Knives, butcher, 7" blade	5	.98
Knives, French, 8" blade	5	.98
Knives, paring, 3" blade	20	.49
Knives, spatula, narrow blade	10	.98
Ladles, 5 oz.	5	.69
Lemon squeezers, plastic	5	.39
Mixing bowls, 4/set, Pyrex	10 sets	2.95
Pancake turners	5	.98
Pans, cake, layer, 8"	10	.49
Pans, dish, plastic, round, 15" x 5-1/2" deep	5	1.69
Pans, drip, 14" x 10" x 2"	5	1.59
Pans, fry, 9"	5 sets	2.29
Pans, loaf, 9" x 5" x 2-3/4"	5	.79
Pans, muffin, medium, 6	10	.98
Pans, pie, 9"	10	.39
Pans, sponge	5	3.59
Pans, utility, 15" x 10" x 1"	10	1.49
Pastry blenders	10	1.49
Pitcher, water, plastic	5	.98
Potato mashers	5	.98
Pots, double boiler, 1-1/2 qt.	5	12.50
Pots, sauce, with covers, aluminum, 1 qt.	5	3.09
Pots, sauce, with covers, aluminum, 2 qt.	5	3.19
Pots, sauce, with covers, aluminum, 3 qt.	5	3.69
Quart measure, glass, Pyrex	5	.69
Refrigerator dishes, 3/set, square, plastic, 1 pt.	5 sets	.98
Rolling pins, ball-bearing	5	2.25
Scooper, 6-1/2"	10	1.19
Scoops, ice cream	5	3.50
Scrapers, rubber	10	.39
Sifters, 1 cup	5	1.19
Sifters, Foley, 5 cup	5	2.25
Skillets, iron, 10"	5	3.39
Skillets, chicken fryer, 10-1/2" x 2" deep	1	7.39
Soap dish	5	.25
Sponges, #2-1/2c	20	.49
Spoons, cooking	10	.98
Spoons, measuring, aluminum	15 sets	.29
Spoons, wooden, 12"	15	.39
Strainers, sink	5	.49
Strainers, wire, 5-1/2"	5	.98
Tea kettles, 2 qt.	5	5.50

PERSONAL/PUBLIC SERVICE OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Ornamental Horticulture

(Page 2)

Item	Quantity	Approximate Unit Cost
Heater, hot water, 60 gal. capacity 220	1	$300.00
Chemical proportioner, HO	1	250.00
Soil mixer, electric, len. yd., 3 H.P., 110	1	350.00
Automatic watering system with time clock, 110	1	300.00
Soil sterilizer, electric, 220	1	900.00
Work bench, Horticulture 3' x 12'	1	75.00
Storage bins	3	150.00
Mister duster motor driven	1	400.00

FOOD SERVICE OCCUPATIONS

Food Service I
Food Service II

STANDARD EQUIPMENT AND TOOL LIST

(Page 3)

Item	Quantity	Approximate Unit Cost
Tongs, 6"	5	$ .79
Towel racks, 18" chrome	5	.89
Trays, cutlery, 14-3/4" x 11-3/4" x 2"	10	1.49
Trays, utility	5	2.95
Vegetable peelers	10	.59
Vegetable shredders and graters, square	5	.59
DISHES, GLASSWARE, SILVER, ETC.		
Dishes, 8 place settings for each, plastic	5 sets	29.95
Butter spreaders	3 doz.	8.28
Forks, ss, cold meat, Oceanic	5	.78
Forks, ss, dinner	3 doz.	3.48
Forks, ss, salad	3 doz.	3.48
Gravy ladles	5	1.19
Knives, ss, dinner	3 doz.	6.60
Knives, butter	5	.69
Spoons, tea	6 doz.	2.28
Spoons, iced tea	3 doz.	3.48
Spoons, soup	3 doz.	3.48
Spoons, serving	12	.69
Spoons, serving, pierced	5	1.19
Tea pots	5	3.00
Juice glasses, 6 oz.	3 doz.	2.76
Sherbert glasses, short	3 doz.	3.00
Water glasses	3 doz.	3.00
Salt and pepper shaker	5 sets	.49
Flower bowls	5	2.95
Flower Kenzans, 1-7/8"	6	.70
Flower Kenzans, 2-1/2"	2	.75
Flower Kenzans, 3"	2	1.20
Flower Kenzans, 4"	2	2.40
Flower shears	1	3.00
Pot holders	30	.29
Hot pads, lauhala	10	2.00
Placemats, lauhala or plastic	36	1.98
Damask cloth (banquet size)	4 yds.	4.25
Dish towels	6 doz.	9.48
Dish cloths, nylon	6 doz.	7.08
ADDITIONAL EQUIPMENT		
Scale (table type - 25 lb. capacity)	1	7.50
Scoops, Nos. 8, 10, 12, 16, 24, and 40	7	3.98
Electric slicing knife	1	19.95
Ladles, 1/3 pt., 6 oz., 4 oz.	3	1.50

TECHNICAL GRAPHICS OCCUPATIONS

Drafting Technology

STANDARD EQUIPMENT AND TOOL LIST

Item	Quantity	Approximate Unit Cost
INSTRUMENTS & TOOLS		
Blackboard set	1	$ 9.50
Board, drawing, 18" x 24" (per student)	200	2.95
Caliper, 6" inside	2	2.30
Caliper, 6" outside	2	2.30
Caliper, vernier	1	11.00
Caliper, micrometer	1	19.00
Chalkboard machine	1	250.00
Compass, 6-1/2"	30	3.70
Compass, 4-1/2" bow	30	3.48
Compass, 9" to 12" beam	1	9.00
Cutter, paper, 24"	1	45.00
Curve, French	1 set	20.00
Dust brushes	30	.76
Drafting machine, 16"	4	65.00
Lettering set	1	60.00
Mobile parallel ruling units	2	25.00
Pencil sharpener, draftsman's	1	6.60
Protractor, circular	2	2.00
Reproducing machine, Diazo, 42", w/developer	1	350.00
Scale, architectural triangular, 12"	30	2.00
Scale, engineer's, 12"	2	1.00
Shears, trimming, 14"	1	10.50
Triangle, 10", 30/60°	30	.56
Triangle, 8", 45/90°	30	.56
T-square, 24"	30	2.95
Board, drawing, 23" x 31"	30	5.50
Divider, 6", F328	30	3.70
Demonstration scale, #2332	1	8.75
T-square, 30"	1	5.50
ADDITIONAL TOOLS & EQUIPMENT NEEDED FOR OCCUPATIONAL EXPERIENCES		
DRAFTING TECHNOLOGY (Option II)		
Chalkboard Drafting Machine	1	350.00
Drafting Machine, 16" and 18"	12	82.00
Drawing Board with Parallel Ruling, Straight Edge	12	25.00
Lettering Equipment	3	120.00
Multi-Student Drafting Table (10-drawer unit, 2 wings)	12	350.00
Overhead Projector, Screen and Portable Stand	1 unit	250.00
Perspective Drawing Board	6	35.00
Reproduction Machine, Combination Printer/ Developer	1	800.00
Transparencies	1 set	250.00

FOOD SERVICE OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Food Service I
Food Service II

(Page 4)

Item	Quantity	Approximate Unit Cost
Measures:		
Cups	6	$ 1.29
Pints	2	2.95
Quarts	2	4.65
Gallons	2	7.90
Meat thermometer	1	3.98
Can opener (heavy duty)	1	14.00
Cash box	1	4.64

TECHNICAL GRAPHICS OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Graphic Arts Technology

(Page 1)

Item	Quantity	Approximate Unit Cost
BOOK BINDING UNIT EQUIPMENT		
Bench, work, 24" x 48"	1	$ 250.00
Board, sewing frame, w/upright & cross bar	1	25.00
Cutter, paper, 30" to 36"	1	1,585.00
Cutter, board, 30" to 36"	1	700.00
Drill, hand	1	12.00
Drill, paper, 1/4 hp.	1	157.00
Folder	1	560.31
Folder, bone (per student)	1	1.00
Hammer, backing	1	6.00
Knife, bending (per student)	1	2.00
Perforator	1	14.00
Pot, steel, dechic, 1 qt., w/brush, 1"	1	31.60
Press, backing	1	1,500.00
Press, gold stamping	1	600.00
Press, standing	1	375.00
Ruler, steel, 12" (per student)	1	3.30
Scissors, 8" to 10" (per student)	1	1.80
Square, steel, 12" x 7"	1	4.00
Stitcher, wire, 1/2 foot operated	1	131.00
SILK SCREEN UNIT EQUIPMENT		
Frame, printing, 12" x 18", #12 silk	2	20.00
Frame, printing, 9" x 12", #12 silk	2	18.00
Squeegee, 8" & 11"	2	10.00
LETTERPRESS UNIT EQUIPMENT		
Cabinet, roller and ink	1	465.00
Cabinet, type, w/double-tier working top: 24 California job case each	4	849.00
Gage, line, 12" 614	12	2.35
Galley, steel, 8-3/4" x 13"	30	1.07
Knife, ink, square ends, 8"	4	3.05
Mallet, printer's, hickory, medium	1	3.85
Mitering machine, hand operated	1	107.80
Planer, proof, 3-1/4" x 8", leather top	1	2.45
Press, platen, 8" x 12", w/rollers	1	1,934.00
Press, platen, 10" x 15", w/rollers	1	2,334.00
Press, proof, 16" x 21"	1	900.00
Quoins, 4-1/2"	24	4.35
Quoin key, T-head	4	3.50

MECHANICAL OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Metal Processing and Fabrication

(Page 1)

Item	Quantity	Approximate Unit Cost
MACHINE SHOP EQUIPMENT		
Arbor press, 3-ton	1	$170.00
Compressor, air, 3 hp.	1	750.00
Drill press, bench, 10"	1	300.00
Drill press, 17" floor model, #3M.T.	1	265.00
Lathe, 9" metal, compl. w/accessories	2	1,500.00
Lathe, 10" metal, compl. w/accessories	1	2,800.00
Power hacksaw, 4" to 6"	1	525.00
Vertical mill, compl. w/accessories	1	1,500.00
Vise, machinist's 3½" swivel	12	65.00
Vise, machinist's 4" swivel	4	82.00
Vise, drill press, 4" to 6"	1	68.00
Grinder, 8" pedestal, w/shields	1	300.00
SHEETMETAL AREA EQUIPMENT		
Bench plate	2	85.00
Bender, 6" radius cap., 1/2"	1	465.00
Brake, box and pan, 24" or 36"	1	550.00
Former, 36" slip roll	1	295.00
Rivet gun	2	32.00
Rotary combination machine w/accessories	1	125.00
Rotary machine, universal, w/accessories	1	157.00
Shear, 36" squaring	1	550.00
Spot welder (resistance)	1	750.00
Spray gun, compl. w/hose & regulator	1 set	150.00
Stake, beakhorn	1	95.00
Stake, blowhorn	1	50.00
Stake, candle mold	1	58.00
Stake, creasing	1	72.00
Stake, conductor	1	54.00
Stake, double seaming	1	68.00
Stake, hollow mandrel, 48"	1	80.00
Stake, squaring	1	37.00
Folder, bar, 30" Pexto #63		375.00
WELDING AREA EQUIPMENT		
Arc welder, AC/DC, 180-200 amp., compl. w/access.	1	425.00
Brush, wire	3	.85
Clamp, C, heavy-duty, 6"	6	2.80
Cleaning tool, welder's	2	1.50
Gas welding unit, oxy-acetylene, compl. w/accessories & cart	2 sets	550.00
Goggles, welder's, w/lenses	6	4.00
Helmet, welding	4	15.00
Spring, clamp, 2"	6	.75
Tip cleaner	2 sets	2.00

TECHNICAL GRAPHICS OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Graphic Arts Technology

(Page 2)

Item	Quantity	Approximate Unit Cost
Stick, composing, 6" x 2", ss	12 sets	10.15
Stick, composing, 10" x 2"	2	12.55
Table, Imposing, 51" x 39", w/storage space for galley, chases and furniture	1	860.00
Table, makeready, 32" x 17", tilt top	1	250.00
TYPE AND SPACING MATERIAL EQUIPMENT		
Font, Modern Gothic, 6 to 30 points	1	139.00
Font, Standard Text, 10 to 36 points	1	117.00
Font, Modern Script, 14 & 18 points	1	48.00
Font, miscellaneous boarders, decoration and initials	1	150.00
Furniture, assorted	1 set	106.00
Lead, 2 points	100 lbs.	70.00
Rule, 2 points size w/1/4" point face	1	.65 lb.
Rule, 2 points size w/1" point face	1	.65 lb.
Slug, 6 points	100 lbs.	70.00
Spaces, assorted, for every size type	100 lbs.	37.00
Type face, standard, complete family, 60 to 30 points	1 font ea.	115.00
OFFSET UNIT EQUIPMENT		
Box, print, 7" x 9"	1	65.00
Camera, 24" x 24", complete lens and copy holder	1	2,400.00
Drafting equipment, complete	1 set	11.50
Frame, vacuum print, 20" x 23"	1	275.00
Enlarger	1	175.00
Lamp, carbon arc, 35 amp.	2	300.00
Lamp, carbon arc, single unit	1	300.00
Press, offset printing	1	3,600.00
Refrigerator, electric, 5 to 7 cu. ft.	1	25.00
Sink, film developing, 3 compartments	1	1,200.00
Sink, place developing	1	600.00
Table, layout, 32" x 42"	1	300.00
Table, utility (for stripping, opaquing, etc.)	1	300.00
Table, drafting	1	106.50
Timer, clock, darkroom	1	28.00
TOOLS		
Can, benzine, pint	3	4.75
Can, benzine, 5 gallons	1	11.50
Can, oil	1	2.50
Can, waste	1	5.50
Gun, grease	1	6.50
Hammer, ball pein, 12 oz.	1	2.20
Hammer, claw, 16 oz.	1	3.80
Hammer, soft fact, 13 oz.	1	2.29
Pliers, combination, 8"	1	1.81

MECHANICAL OCCUPATIONS

Metal Processing and Fabrication

STANDARD EQUIPMENT AND TOOL LIST

(Page 2)

Item	Quantity	Approximate Unit Cost
Torch lighter, w/flints	2	1.40
FORGING AND WROUGHT IRON AREA EQUIPMENT		
Anvil, 70 lb.	2	65.00
Furnace, combination gas	2	52.00
Furnace, heat treating	1	75.00
Tongs, curved	1	6.40
Tongs, flat	1	6.85
Tongs, pick-up	1	6.95
ART METAL AREA EQUIPMENT		
Anvil, round and square head	1	35.00
Buffing machine	1	90.00
Chisels, assorted	1 set	18.00
Hammers, assorted	1 set	32.00
Lathe, metal spinning, compl. w/accessories	1	335.00
Mallets, assorted	1 set	20.00
Saw, jeweler's	2	2.40
PLANNING AND DESIGNING AREA EQUIPMENT		
Board, drawing, 18" x 24"	5	4.00
Compass, bow, 6"	5	4.10
Divider, 6"	5	4.10
T-square, 24"	5	4.10
Triangle, 45°, 8"	5	1.25
Triangle, 30°/60°, 10"	5	1.25
HAND TOOLS		
Awl, scratch	8	1.15
Bar, crow	1	3.00
Brush, wire	3	.90
Caliper, outside, 8"	2	6.25
Caliper, outside, 4"	2	2.85
Caliper, inside, 8"	2	6.20
Caliper, inside, 4"	2	2.50
Caliper, micrometer, outside, 1"	2	25.00
Caliper, micrometer, outside, 2"	1	32.00
Caliper, micrometer, outside, 2"-3"	1	70.00
Caliper, micrometer, inside, 2"-4"	1	68.00
Card, file or wire brush	4	.95
Chisel, cape, 5/16"	1	.95
Chisel, cold, 1/4"	2	.62
Chisel, cold, 3/8"	2	.75
Chisel, cold, 1/2"	6	.90

TECHNICAL GRAPHICS OCCUPATIONS

Graphic Arts Technology

STANDARD EQUIPMENT AND TOOL LIST

(Page 3)

Item	Quantity	Approximate Unit Cost
Pliers, long-nose, 7"	1	2.20
Saw, 8 or 10 pt.	1	6.80
Screwdriver, 4", 6", 8"	1	5.60
Screwdriver, Phillips #1, #2, #3	1	2.11
Snip, tin, combination	1	4.20
Wrench, socket, 1/4" to 1"	1 set	22.75
Wrench, open end, 1/4" to 1"	1 set	2.53
Wrench, socket, Allen	1 set	1.09
ADDITIONAL TOOLS & EQUIPMENT NEEDED		
FOR OCCUPATIONAL EXPERIENCES		
Airbrush	1	45.00
Binding Unit, plastics	1	248.00
Camera, copying	1	7,000.00
Camera, reflex, twin lens	2	150.00
Cutter, lead and slug	1	63.00
Cutter, round corner	1	45.75
Densitometer, photo	1	1,200.00
Drill, electric, portable, 1/4"	1	45.00
Dryer, print	1	227.00
Duplicating machine, stencil	1	430.00
Duplicating machine, spirit	1	250.00
Filter, photo (set)	1	2.50
Folding machine (office)	1	400.00
Hot plate, electric	1	32.50
Imposing stone table	1	935.00
Jogger, paper	1	750.00
Meter, light	1	35.00
Mitering machine	1	95.00
Numbering machine, cleaner box	1	34.00
Numbering machine, hand	1	15.75
Number machine, press	2	25.00
Perforator	1	1,200.00
Planer, type	4	10.00
Plate-maker	1	1,500.00
Press, coyping	1	97.00
Press, hot stamping	1	7,500.00
Press, offset (17" x 22")	1	17,000.00
Press, padding	1	25.00
Press, platen, automatic feed	1	9,000.00
Press proof, reproduction	1	2,000.00
Press, rubber stamp	1	224.50
Printer, contact	1	50.00
Printmaker, graphic arts	1	700.50
Punch, paper	1	31.50
Quoin, Hi-speed	48	9.20
Quoin key, Hi-speed	4	6.95
Sink, platemaking	1	320.00

MECHANICAL OCCUPATIONS

Metal Processing and Fabrication

STANDARD EQUIPMENT AND TOOL LIST

(Page 3)

Item	Quantity	Approximate Unit Cost
Chisel, cold, 5/8"	2	1.15
Chisel, cold, 3/4"	2	1.35
Chisel, diamond point, k/4"	1	.92
Clamp, handy, #3	2	2.95
Clamp, C, 3"	2	1.75
Clamp, C, 6"	6	2.60
Clamp, C, 8"	2	3.95
Clipper, bolt, 36"	1	35.00
Cutter, glass	1	1.10
Dies, pipe, 1/8" to 3/4"	1 set	75.00
Divider, spring joint, 6" or 8"	2	6.40
Divider, spring joint, 4"	1	5.10
Drill, portable, electric, 1/4" cap.	1	54.00
Drill, portable, electric, 3/8" cap.	1	75.00
Drill, portable, electric, 1/2" cap.	1	95.00
Drill, hand	2	6.95
Drill, masonry, 1/4"	1	1.60
Drill, masonry, 3/8"	1	1.85
Drill, masonry, 1/2"	1	2.50
Drill, twist, 1/16" to 1/2" H.S.	2 sets	45.00
Drill, twist, #1 to #60 H.S.	1 set	27.50
Drill, combination countersink	1 set	11.15
Dresser, grinding wheel	1	3.00
File, flat, bastard, 10"	2	1.10
File, flat, bastard, 12"	2	1.30
File, flat, second cut, 8"	2	.75
File, flat, second cut, 10"	2	.95
File, flat, smooth, 10"	6	1.05
File, flat, smooth, 12"	6	1.25
File, flat, half-round, bastard, 8"	2	.85
File, flat, half-round, second cut, 8"	2	.95
File, flat, mill-smooth, 10"	2	.85
File, flat, round, bastard, 8"	2	.65
File, flat, round, smooth, 8"	2	.75
File, slim taper, 6"	2	.50
File, square, bastard, 8"	2	.75
Gage, center	3	4.20
Gage, screw pitch	1	3.20
Gage, surface	1	7.95
Gage, thickness	1	3.35
Gage, tap and drill	1	8.50
Gage, wire	1	6.40
Grinder, disc, portable electric, 7"	1	120.00
Groover, hand, #2, #4	1	4.40
Hacksaw, frame, 10"-12"	6	3.50
Hammer, ball pein, 8 oz.	2	2.50
Hammer, ball pein, 12 oz.	3	2.65
Hammer, ball pein, 16 oz.	6	2.95

TECHNICAL GRAPHICS OCCUPATIONS

Graphic Arts Technology

STANDARD EQUIPMENT AND TOOL LIST

(Page 4)

Item	Quantity	Approximate Unit Cost
Stapler, saddle or side	1	$1,200.00
Glue pot	1	25.45
Tanks, film development	5	25.00
Thermometer, photographic	2	2.50
Timer, photographic, electric	2	25.00
Timer, photographic, spring wound	2	15.00
Tray, photographic	12	10.00
Trimmer, paper	1	129.00
Truck, bindery	1	250.00
Type, assorted		2,500.00
Typesetter, photoheadsetter	1	500.00
Typewriter, electric	1	385.00

MECHANICAL OCCUPATIONS

Metal Processing and Fabrication

STANDARD EQUIPMENT AND TOOL LIST

(Page 4)

Item	Quantity	Approximate Unit Cost
Hammer, ball pein, 20 oz.	1	3.15
Hammer, cross pein, 16 oz.	1	3.75
Hammer, blacksmith, 2-1/2 lbs.	1	3.30
Hammer, soft face, 16 oz.	1	2.75
Hammer, rivetting	4	3.15
Hammer, setting	4	3.50
Hammer, sledge, 3-4 lbs.	1	4.75
Jigsaw, portable electric	1	110.00
Letter, steel, and figures, 1/4" (ea.)	1 set	18.50
Mallet, hickory, 3" face	2	.95
Mallet, rawhide or rubber	2	2.45
Oiler, 1/2 pt., 4" spout	4	.75
Oiler, squirt	2	.75
Pliers, combination, 8"	2	1.72
Pliers, combination, 10"	1	2.05
Pliers, diagnol, 7"	2	2.50
Pliers, side cutting, 7"	2	2.75
Pliers, needle nose, 6"	2	2.40
Punch, center, 3/8" & 1/2"	4	4.75
Punch, prick, 3/8" & 1/2"	3	2.95
Punch, taper, 3/32" x 1/4"	1	6.75
Punch, pin, 1/8" & 5/16"	1	4.15
Punch, hollow, 1/2" & 3/4"	1	9.65
Reamer, pipe	1	24.50
Reamers, hand, 1/4" to 3/4"	1 set	2.50
Rivet set, #3, #4, #5, #6	1	4.95
Rule, steel, 12"	12	3.45
Rule, narrow steel	3	2.10
Rule, circumference, 48"	1	8.95
Respirator	1	4.50
Screwdriver, 1"	1	.72
Screwdriver, 4"	3	1.10
Screwdriver, 6"	4	1.20
Screwdriver, 10"	1	1.50
Screwdriver, stubby	1	1.65
Screwdriver, offset	1	.95
Screwdriver, Phillips #1 to #4	1 set	8.50
Screw plate, NC & NF, #1 to #12	1 set	65.20
Seamer, tinner's, handy	2	5.95
Soldering copper, 1 lb.	3	1.35
Soldering iron, electric, 1/2" tip	3	8.45
Soldering iron, electric, 7/8" tip	1	12.50
Snips, tin, curved	1 pair	7.45
Snips, hawk bill	1 pair	8.50
Snips, compound	1 pair	4.10
Snips, tin, 12-1/2"	4 pairs	3.64
Snips, aviation M-1, M-2, M-3	1	3.75
Square, combination, 12" blade	3	2.05

VT 016 281

HAWKINS, HARRY M.

AN ANALYSIS OF SELECTED AREAS OF COMMUNICATIONS ELECTRONICS WITH IMPLICATIONS FOR INDUSTRIAL ARTS CURRICULUM. STAFF DEVELOPMENT FINAL REPORT.

STATE UNIV. OF NEW YORK, OSWEGO. DEPT. OF INDUSTRIAL ARTS AND TECHNOLOGY.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - MAY69 81P.

DESCRIPTORS - *TELECOMMUNICATION; *LESSON PLANS; *CURRICULUM DEVELOPMENT; *INDUSTRIAL EDUCATION; *ELECTRONICS; INDUSTRIAL ARTS; ELECTROMECHANICAL TECHNOLOGY; STAFF IMPROVEMENT

ABSTRACT - THE PURPOSE OF THIS STUDY WAS TO INVESTIGATE THE AREA OF COMMUNICATIONS ELECTRONICS BOTH TO UPDATE THE RESEARCHER'S COMPETENCE AND TO DEVELOP APPROPRIATE MATERIAL FOR USE IN INDUSTRIAL ARTS CURRICULUMS. MANY NEWER AREAS OF ELECTRONICS ARE IMPORTANT COMMUNICATION TOOLS AND SHOULD BE INCLUDED IN THE INDUSTRIAL ARTS COURSE OFFERINGS. ONLY ONE TECHNICAL AREA, TELEPRINTER COMMUNICATIONS, WAS INVESTIGATED IN DEPTH. MAJOR CATEGORIES OF TELEPRINTER COMMUNICATIONS WERE IDENTIFIED AND LISTED FOR A CLASSIFICATION SYSTEM TO BE USED TO ARRANGE CONTENT IN CURRICULUM MATERIALS, WHICH WERE USED TO DEVELOP A LESSON PLAN OUTLINE. THE RESEARCHER CONCLUDES THAT THE STAFF DEVELOPMENT PROGRAM IS WORTHWHILE FOR BOTH THE COLLEGE AND THE INDIVIDUAL PARTICIPANT AND RECOMMENDS STAFF AND CURRICULUM IMPROVEMENT BY THIS METHOD. (MF)

MECHANICAL OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Metal Processing and Fabrication

(Page 5)

Item	Quantity	Approximate Unit Cost
Square, framing, 24"	2	$ 4.65
Square, T-bevel, 6"	2	2.80
Tap and die, N.C. 1/4" to 1"	1 set	160.00
Tap and die, N.F. 1/4" to 1"	1 set	160.00
Torch, blow or propane	1	6.95
Vise, pipe, 1/8" - 2-1/2"	1	16.50
Vise grips	4	3.85
Wrench, Allen	1 set	2.65
Wrench, crescent, 6"	2	2.10
Wrench, crescent, 8"	2	2.40
Wrench, crescent, 10"	1	2.85
Wrench, crescent, 12"	1	4.50
Wrench, box end, 1/4" - 1-1/4"	1 set	45.60
Wrench, open end, 1/4" - 1-1/4"	1 set	28.75
Wrench, pipe, 10"	2	3.10
Wrench, pipe, 12"	1	5.50
Wrench, pipe, 14"	1	5.95
Wrench, socket, 1/4" to 1"	1 set	32.50
Wrench, monkey, 12"	1	3.95
Bandsaw, metal cutting, 14		435.00
ADDITIONAL EQUIPMENT AND TOOLS NEEDED FOR OCCUPATIONAL EXPERIENCES		
Bend tester	1	140.00
Cut-off shears	1	90.00
Electric welder, 300 Amp AC/DC	1	550.00
Electrical discharge machine	1	2,500.00
Gas welding unit (4 stations) (additional units needed)	2 sets	550.00
Geared head metal lathe, 13"	2	3,500.00
Hand tools (additional needed)	1 set	1,200.00
Hardness tester	1	600.00
Metal bender	1	450.00
Metal cutting bandsaw	1	950.00
Notcher	1	350.00
Portable nibblers	1	160.00
Portable shears	1	135.00
Tig welder, AC/DC	1	1,500.00
Turret punch press	1	1,050.00
Universal Brake, 48"	1	700.00
Universal testing machine	1	1,250.00

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EDUCATION & WELFARE
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The State University of New York
Division of
Industrial Arts and Technology
Oswego, New York

AN ANALYSIS OF SELECTED AREAS OF COMMUNICATIONS ELECTRONICS WITH IMPLICATIONS FOR INDUSTRIAL ARTS CURRICULUM

STAFF DEVELOPMENT FINAL REPORT

Harry M. Hawkins
Assistant Professor

May 1969

This research report is submitted as a description of the activity and findings of the researcher under the fellowship and staff development program conducted during the spring semester 1969 at this college.

VT016281

MECHANICAL OCCUPATIONS

Power and Automotive Technology

STANDARD EQUIPMENT AND TOOL LIST

(Page 1)

Item	Quantity	Approximate Unit Cost
MAJOR SHOP EQUIPMENT		
Air compressor, 3 hp., 80 gal. cap.	1	$ 900.00
Anvil, 50 lb.	1	65.00
Arbor press, 3-ton hand	1	170.00
Battery charger, fast	1	149.00
Cleaning tank, solvent (check safety code)	1	425.00
Can, safety, gasoline	1	8.50
Can, waste, w/cover, 32 gal. cap.	1	21.50
Creeper, universal casters	4	10.00
Drill, 1/4" portable electric	1	54.00
Drill, 1/2" portable electric	1	95.00
Drill press, 15" floor	1	300.00
Flaring tool kit	1	12.00
Grinder, bench w/shields	1	265.00
Grinder, 7" portable disc	1	95.00
Growler	1	65.00
Hoist, portable crane or A-Frame, 2,000 lb. cap.	1	650.00
Hone, cylinder	1	60.00
Hone, wrist pin	1	45.00
Impact wrench, air or electric	1	200.00
Jack, 2-ton floor hydraulic	2	175.00
Jack, 1-1/2 ton portable hand	1	15.60
Lathe, 9" bench metal	1	1,850.00
Lift, two-post hydraulic	1	2,000.00
Lubrication dispenser, air operated	1	315.00
Lubrication, hand and suction gun	2	9.50
Lubrication drain	1	82.50
Micrometer, inside, 2 thru 9-1/8"	1	85.00
Micrometer, outside, 0 thru 5"	3	65.00
Puller, scale and bearing	1	70.00
Spray gun, compl. w/hose & regulator	1	150.00
Stand, 2-ton auto horse	8	27.00
Stand, engine, 360° swing caster mount	4	250.00
Tire changer w/bead breaker & roller	1	180.00
Vise, 4" universal	8	54.00
Vise, drill press	1	38.00
Welding unit, gas, compl. w/access. & truck	1	250.00
Welding unit, elec., compl. w/access., 225 amp.	1	425.00
MINOR SHOP EQUIPMENT		
Battery, storage, 6 and 12 volts	2	20.00
Battery carrier	1	6.50

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MECHANICAL OCCUPATIONS

Power and Automotive Technology

STANDARD EQUIPMENT AND TOOL LIST

(Page 2)

Item	Quantity	Approximate Unit Cost
Battery hydrometer	1	$ 1.50
Battery syringe & water container	1	10.50
Cord, extension, 50 ft., 14/3	4	8.50
Cover, fender	4	10.00
Drill, H.S. twist, fractional, 1/16" to 1/2"	1	45.00
Drill, H.S. twist, numbered, 0 to 80	1	38.85
Gauge, screw thread	2	4.15
Gauge, flat feeler	1	2.50
Gauge, wire feeler	1	1.85
Gauge, cylinder	1	4.50
Gauge, tire, automatic	2	12.50
Gauge, compression	1	8.50
Magnet, permanent bar & u-type	2	4.50
Meter, ammeter, 0-60	1	8.50
Meter, voltmeter, 0-20 volts	1	8.50
Oiler, hand pump	6	2.10
Piston ring remover and installer	6	3.50
Hose, air, 5/6 x 24', w/quick coupling	4	9.50
TESTING EQUIPMENT		
Tester, distributor (points, dwell, spark, coil, condenser, oscilloscope)	1	930.00
Tester, motor analyzer (battery, RPM, vacuum, etc.)	1	2,000.00
Tester, power timing light	1	45.00
Tester, generator regulator	1	150.00
Tester, battery-starter circuit	1	165.00
Tester, spark plug (cleaner & tester)	1	59.00
Valve refacer	1	995.00
Valve seat grinder	1	385.00
Valve spring compressor	1	23.00
Valve spring tension tester	1	48.00
Wheel balancing equipment, portable	1	265.00
HAND TOOLS		
Caliper, 6", 1.0	1	3.95
Caliper, 6", 0.0	1	3.95
Chisel, 1/4" cape	4	3.85
Chisel, 1/2" cold	4	3.50
Chisel, 1/4" diamond	2	1.80
Divider, 6"	2	3.95
Goggle, safety (per student)	2	3.80

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APPENDIX B (TELEPRINTING COMMUNICATIONS THEORY)

MECHANICAL OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Power and Automotive Technology

(Page 3)

Item	Quantity	Approximate Unit Cost
Hammer, 12 oz., ball pein	4	$ 2.95
Hammer, 16 oz., ball pein	4	3.05
Hammer, 16 oz., claw	2	4.35
Hammer, soft face	4	4.85
Pliers, 8" adjustable locking	4	2.95
Pliers, 7" long-nose	4	3.15
Pliers, 6" & 8", combination, slip joint	6	16.50
Pliers, 7" diagonal cutter	4	3.50
Punch, 8" drive pin	4	1.10
Saw, hand hack	4	.75
Screwdriver, 4" regular blade	2	1.15
Screwdriver, 6" regular blade	10	1.35
Screwdriver, 8" regular blade	4	1.60
Screwdriver, 12" regular blade	2	1.95
Screwdriver, stubby	1 set	2.35
Screwdriver, offset	1 set	4.10
Screwdriver, Phillips, #1	1	1.15
Screwdriver, Phillips, #2	1	1.30
Screwdriver, Phillips, #3	1	1.60
Screwdriver, Phillips, #4	1	1.70
Screw extractor (set of 6)	1 set	5.30
Scriber, 10" double point	4	1.95
Shield, face	6	6.50
Snip, aviation	1	4.80
Snip, tin, straight	2	6.85
Snip, curved	2	7.50
Soldering iron, 225 watt	2	16.50
Soldering iron, 150 watt	2	12.50
Soldering gun, 150 to 250 watt	1	15.50
Square, 12" combination	2	16.50
Tap and die, machine screw, NC & NF, #6 to #12	1 set	75.00
Tap and die, National Stand., NC & NF, 1/4" to 1"	1 set	350.00
Tap and die, National Stand., pipe, 1/8" to 3/8"	1 set	50.00
Tape, 25' steel	1	6.50
Wrench, box, double offset, 3/16" to 1"	2 sets	32.50
Wrench, deep socket, 1/2" drive, 9/16" to 1"	2 sets	14.50
Wrench, drive adapter, 3/8" female & 1/2" male	2 sets	1.50
Wrench, elect., open double end, 13/64" to 3/8"	4 sets	10.00
Wrench, elect., socket, 13/64" to 3/8"	2 sets	6.80
Wrench, handle, 3/8" & 1/2" socket drive	2 sets	18.50
Wrench, handle, 3/8" & 1/2" flexible drive	2 sets	7.50
Wrench handle, 3/8" & 1/2" speed drive	4 sets	6.50
Wrench, monkey, 10"	2	4.50
Wrench, open end, 3/16" to 1"	2 sets	14.50
Wrench, pipe, 10"	1	2.65

INTRODUCTION

The purpose of this study was to investigate the area of communications electronics, and selected topics related to this general area, in order to more fully develop the background of the investigator and to develop appropriate material for use in industrial arts curriculum development. This investigator was given one semester to pursue this study. During this time, all normal obligations to the college, and duties not associated with the study, were suspended so that the participant could devote his full time to research.

The following objectives have been identified in the original proposal and were used to direct the activities of the researcher:

1. Survey current literature pertaining to electronics communications and develop appropriate background for continued investigation.
2. Develop sufficient background and competence to successfully pass the federal examination for a commercial radio license.
3. Attend a technical training course offered by the Teletype Corporation and to become adequately trained in the operation and maintenance of specific machines.
4. Develop a taxonomy framework suitable to identify content of a technical nature relative to communications electronics.
5. Develop appropriate course content and curriculum materials based on a systematic taxonomy model for industrial arts communications electronics application.
6. Investigate the implications of the human and organizational aspects of the communications electronics area for possible industrial arts use.

RATIONALE

This study is intended to explore the possibilities of developing structure for communications electronics which should have implications

MECHANICAL OCCUPATIONS

Power and Automotive Technology

STANDARD EQUIPMENT AND TOOL LIST

(Page 4)

Item	Quantity	Approximate Unit Cost
Wrench, socket, 3/8" drive, 3/8" to 3/4"	2 sets	$ 8.95
Wrench, socket, 1/2" drive, 7/16" to 1-1/4"	2 sets	16.95
Wrench, tappet adjusting, 7/16"	2	2.50
Wrench, tappet adjusting, 1/2"	2	2.57
Wrench, torque, 3/8" drive, 0-25 ft./lb.	2	27.95
Wrench, torque, 1/2" drive, 0-150 ft./lb.	2	38.75
Wrench, universal joint, 3/8" & 1/2" drive	1	4.50
Wrench, vise-grip	3	2.45
Wrench, comb. 3/8" - 3/4"	3 sets	14.50
Wrench, socket, 1/4" drive	1 set	14.95
AUTOMOTIVE COMPONENTS & EDUCATIONAL UNITS		
Brake assembly, front and rear	1	25.00
Carburetor, current model	5	15.00
Chassis, passenger car	1	35.00
Cylinder head	1	8.00
Differential carrier assemblies, conventional	2	35.00
Distributor, current model	2	40.00
Engine, 6-cylinder, overhead valve	1	80.00
Engine, 6-cylinder, L-head	1	80.00
Engine, 8-cylinder, V-type	1	80.00
Engine, cut-away	1	80.00
Fuel pump, current model	2	6.50
Generator, D.C., 6 and 12 volts	1	15.00
Generator, A.C., high output self-rectified	1	35.00
Ignition coil, current model	2	8.50
Ignition condenser, current model	2	5.00
Regulator	2	7.50
Starting motor	2	30.00
Steering gear assembly, convention & power	1	35.00
Transmission assembly, conventional, overdrive and automatic	1 each	45.00
ADDITIONAL TOOLS & EQUIPMENT NEEDED FOR OCCUPATIONAL EXPERIENCES		
Air sander, disc	3	85.00
Air sander, orbital	3	75.00
Automotive tools panels	1 set	1,500.00
Battery charger	1	150.00
Clutch coupling	1	150.00
Diesel engine	1	450.00
Differential gear	1	135.00
Distributor tester	1	825.00
Drill, 3/8" portable	2	120.00
Engine stand, universal	3	200.00
Four-stroke engine	1	95.00
Four-stroke diesel engine	1	125.00
Fuel cell test unit	1	100.00

for industrial arts electronics in general. Many areas of electronics are developing rapidly and many specific areas could be investigated in depth. In light of the need to arrange the subject in a manageable form and to realistically pursue a study of appropriate scope, a taxonomic approach was decided upon.

Many areas of electronics such as Teletype, facsimile, and others, are important communication tools used by industry, government, and the military. Industrial arts offerings have not reflected, to any great extent, the theory of operation or the human and organizational implications of these areas. The literature of the profession indicates that these areas of content are not, at the present time, included in any industrial arts teacher training institutions in this country.

Industrial arts leaders, as early as 1947, have indicated that newer areas of communications electronics should be included in the course offerings of industrial arts (1, 15). Recent publications have also noted that these areas should be included in the training of industrial arts teachers (2, 135). A recent national survey of industrial arts indicates that communications, as a technological field of study, should be given more prominence in our total structure (3, 30).

Since time would not allow for an intensive investigation and up-grading of researcher's competence in more than one technical area of communications electronics, and since the researcher would pursue general up-grading on a broad front in studying for a federal license examination, one particular area was decided upon to be investigated in depth. This area is teleprinter communications.

The need for a study of this nature exists at nearly all under-

MECHANICAL OCCUPATIONS

STANDARD EQUIPMENT AND TOOL LIST

Power and Automotive Technology

(Page 5)

Item	Quantity	Approximate Unit Cost
Hydraulic disc brake	1	$250.00
Ignition simulator	1	250.00
Model chassis w/glass motor	1	650.00
Motor dynamometer	1	800.00
Refrigeration & air-conditioning training units (basic unit/test equipment)	1	1,750.00
Service jack	2	200.00
Small engine	6	60.00
Small engine dynamometer	1	400.00
Solar cell test unit	1	100.00
Standard transmission	1	185.00
Starter battery	1	65.00
Steam cleaner	1	550.00
Steam engine	1	125.00
Steering	1	125.00
Thermo-electric generator	1	280.00
Two-stroke engine	1	80.00
Valve refacer	1	650.00
Valve seat grinder	1	280.00
Wankel motor	1	185.00
Wet and dry vacuum unit	1	150.00
Wheel balancing equipment (Dynamic)	1	700.00
Automotive spray booth unit	1	5,600.00
Tire changer (air/electric)	1	600.00
Engine boring bar	1	1,800.00
Wheel alignment	1	2,400.00

graduate industrial arts training institutions. Many contributions by researchers have been made and work by such men as DeVore have adequately provided the structure upon which this research can build. Quite often, the major complaint of major philosophical contributions in developing structures for industrial arts curriculum is that enough detail for implementation is lacking. This researcher has tried to indicate where communications electronics fits into the present taxonomy of technology as well as develop, in some detail, special areas to the extent that implementation can be approached.

REFERENCE

1. The Ohio State University, A Curriculum to Reflect Technology, American Industrial Arts Association feature presentation, (1947).

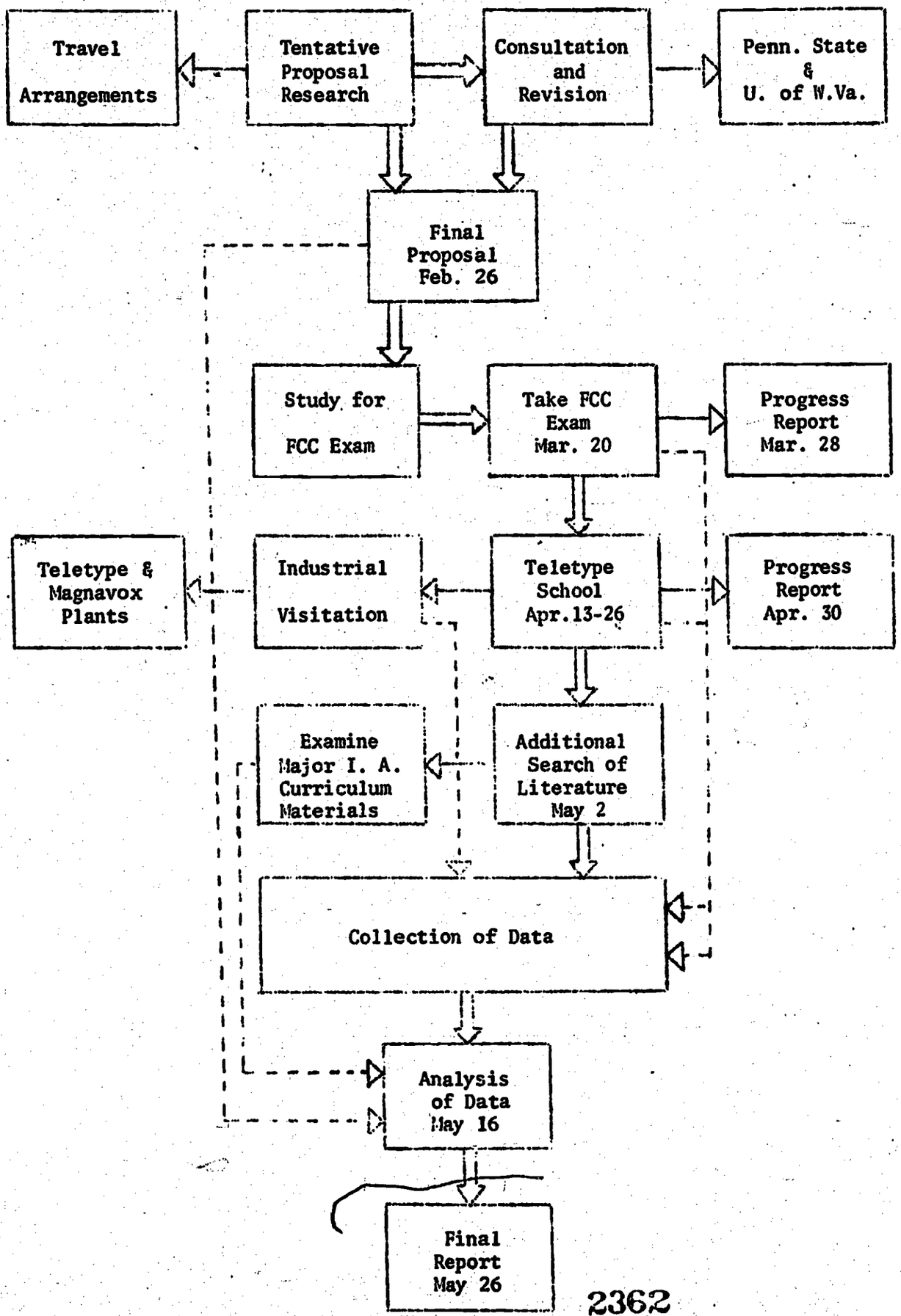
2. The American Industrial Arts Association, Developing Human Potential Through Industrial Arts. Addresses and proceedings of The 27 Annual Convention of the American Industrial Arts Association Convention, Washington, D.C., (1965).

3. Schmitt, Marshall L., Industrial Arts Education, A Survey of Programs, Teachers, Students and Curriculum. U.S. Office of Education, Government Printing Office, Washington, D.C., (1966).

PROCEDURES

The following procedures were followed in conducting this research. The schematic illustration on the following page shows in more detail the actual operation of this procedure. In general, this procedure worked well. All deadlines and dates were met and the total procedure proved to be workable and realistic.

1. Review of literature appropriate to the study and development of a tentative proposal.
2. Coordination of travel, visitations and consultation on major directions of the research.
3. Proposal revision based on consultation and refinement of techniques and procedures.
4. Intensive study of appropriate resource materials in preparation for the federal license examination.
5. Attendance of the course offered by The Teletype Corporation and acquisition of resource materials.
6. Review and analysis of the major curriculum project currently under development for industrial arts at Ohio State.
7. Visitations to industries and discussions with industrial personnel regarding technical and other content appropriate to communications electronics.
8. Review and analysis of all data and development of appropriate resource materials for curriculum planning and use in industrial arts.
9. Writing of final report including conclusions and recommendations.


Travel Arrangements
Tentative Proposal Research
Consultation and Revision
Penn. State & U. of W.Va.
Final Proposal Feb. 26
Study for FCC Exam
Take FCC Exam Mar. 20
Progress Report Mar. 28
Teletype & Magnavox Plants
Industrial Visitation
Teletype School Apr.13-26
Progress Report Apr. 30
Examine Major I. A. Curriculum Materials
Additional Search of Literature May 2
Collection of Data
Analysis of Data May 16
Final Report May 26

RESULTS

Consultation

During the proposal preparation stage of this research, consultation was sought on the approach which was to be used. The development of a taxonomic framework was discussed with Dr. Paul DeVore of West Virginia University, and Dr. Norman Pendered of The Pennsylvania State University. General agreement on the procedures and framework was obtained from these men. Their suggestions have been considered and have been adopted in the subsequent development of the research.

Classification System

In order to identify a system which could be used to classify content in communication electronics, the character of this area of technology was first determined. Research into technical literature brought forth the following fifteen major categories along with major features of each. This list is not intended to be exhaustive or completely descriptive. It serves the purpose of allowing the researcher to pick out common elements which could be used to develop a system for classification which would be used to order content for easier handling in developing curriculum materials.

THE CHARACTER OF COMMUNICATIONS ELECTRONICS

TELEPHONE

1. Dialing and dialing systems
2. Transmission
3. Amplification
4. Central office control
5. Multi-channel operation
6. Satellite operation
7. Reproduction
8. Regulation

RADIO - AM

1. Telegraphy
2. Reception, TRF
3. Superhetrodyne
4. Transmitters
5. Antennas
6. Propagation
7. Regulation
8. Tuning
9. Amplification
10. Detection
11. Broadcast
12. Military
13. Amateur

RADIO - FM

1. Frequency conversion
2. Propagation
3. Antennas
4. Transmitters
5. Multiplexing - Stereo
6. Regulations
7. Discrimination (detection)
8. Tuning
9. Amplification
10. Broadcast
11. Military
12. Amateur

TELEVISION

1. Audio
2. Video
3. Black and white
4. Propagation
5. Antennas
6. Color
7. Transmitters
8. Regulation
9. Syncronization

FACSIMILE

1. Scanning
2. Syncronization
3. Transmission
4. Reception (and regulations)
5. Photographic reproduction
6. Stylus reproduction

TELEMETRY

1. Continuous multiplex
2. Time division multiplex
3. Sensing and syncronization
4. Transmission
5. Frequency multiplex
6. Sub carriers
7. Detection
8. Recording and display
9. Regulations

RADAR - MICROWAVES

1. Transmission
2. Echo
3. Reception (duplexing)
4. Display indicator
5. Antennas
6. Regulations

NAVIGATIONAL AIDS

1. Radio direction finders
2. Antennas
3. Transmission
4. Reception
5. Regulation
6. Guidance systems
7. Visual omnirange
8. Aircraft landing systems
9. Radio beacons
10. Loran

SONAR

1. Transducers
2. Transmission
3. Reception
4. Display and interpretation
5. Regulation

TELECOMMUNICATIONS

1. Telegraphy - Manual
2. Pulse encoding
3. Transmission
4. Reception (detection)
5. Display (print-out)
6. Radio (FSK & AFSK)
7. Regulation

LASER

1. Modulation
2. Transmission
3. Detection
4. Regulation

COMPUTERS

1. Programming
2. Storage
3. Computation
4. Analog
5. Digital
6. Readout - Display
7. Information transmission
8. Regulation
9. Data processing

RECORDING

1. Magnetic tape
2. Disc recording
3. Playback
4. Record cutting
5. Stereo and Hi Fi
6. Storage
7. Standards
8. Regulations

As a result of an analysis of the foregoing character of communications electronics, the following classification system was evolved. Each term is defined in accordance with the researcher's understanding of the term as used in general practice and for the purpose of this study.

CLASSIFICATION

TERM	DEFINITION
Communications Electronics	The conveyance of information through the use of electronic principles and devices.
System	Overall term describing complete method used.
Medium	Specific carrier or means by which information is moved from one place to another such as wire, radiant energy, sound, heat, etc.
Mode	Specific way in which medium is manipulated in order to carry information such as the modification of wavelength in AM, FM, FSK, etc.
Reproduction	Conversion of information into usable form such as print-out, audio, video, display, etc.
Regulation	International and governmental control and licensing as well as self regulation by codes, associations, etc.

A further classification of terms, using the system developed above, resulted in the following ordering of content under the major terms identified:

SYSTEMS

1. Telephone
2. Telegraph (Manual)
3. Telegraph (Teleprinter)
4. Facsimile
5. Television
6. FM Radio
7. AM Radio
8. Stereo Multiplex
9. Telemetry
10. Radar
11. Sonar
12. Navigational Aids
13. Laser
14. Computers
15. Recording (Audio & Video)

MEDIUMS

1. Wire
2. Electromagnetic radiation
3. Aural
4. Visual
5. Hydro (liquid)
6. Temperature
7. Space

MODES

(Amplitude Modulated)

1. Carrier with no information (A0)
2. Telegraphy; on-off (A1)
3. Telegraphy; on-off amplitude modulated tone (A2)
4. Telephony; carrier with double sideband (A3)
5. Telephony; reduced carrier with single sideband (A3A)
6. Telephony; suppressed carrier with single sideband (A3J)
7. Telephony; full carrier with single sideband (A3H)
8. Telephony; with two independent sidebands (A3B)
9. Slow Scan (television) (A4)
10. Television with vestigal sideband (A5C)
11. Telephony or Telegraphy with independent sidebands (A9B)

(Frequency or Phase Modulated)

12. Telegraphy; frequency shift keyed (F1)
13. Telegraphy; on-off; frequency modulated tone (F2)
14. Telephony; frequency or phase modulated (F3)
15. Facsimile (F4)
16. Television (F5)
17. Telegraphy; four-frequency duplex (F6)

(Pulse Modulated)

18. Radar - pulsed carrier without information (PO)
19. Telegraphy; on-off keying of pulsed carrier (P1D)
20. Telegraphy; pulsed carrier tone modulated (P2D)
21. Telegraphy; pulse width tone modulated (2E)
22. Telegraphy; phase or position tone modulated (P2F)
23. Telephony; amplitude modulated pulses (P3D)
24. Telephony; pulse-width modulated (P3E)
25. Telephony; pulses phase or position modulated (P3F)

DETECTION

1. Tuning
2. Detection (demodulation)
3. Discrimination
4. Syncronization
5. Sensing
6. Searching
7. Tracking
8. Filtering
9. Reception

REPRODUCTION

1. Audio
2. Visual display
3. Type print-out
4. Photographic
5. Touch
6. Thermal sensitive display

REGULATION

1. International treaties and agreements
2. U.S. Government rules
3. Federal Communication Commission
4. Licensing
5. Monitoring and inspection
6. Self regulation

Another step useful in identifying content for curriculum planning is that of developing the major headings of the various systems already identified. The following two systems: telecommunications and AM radio have been developed for this purpose and are included here to show the process:

SYSTEM

Telecommunications - Teleprinter

MEDIUM

1. Wire
2. Electromagnetic Radiation (Radioteletype)

MODE

1. Telegraphy; frequency shift keyed (F1)
2. Telegraphy; on-off (A1)
3. Telegraphy; on-off; frequency modulated tone (F2)

DETECTION

1. Filtering
2. Syncronization
3. Tuning
4. Demodulation
5. Discrimination

REPRODUCTION

1. Type print-out
2. Punched tape
3. Magnetic recording - memory

REGULATION

1. Public utilities
2. Federal Communications Commission

SYSTEM

AM Radio

MEDIUM

1. Electromagnetic Radiation

MODE

1. Telegraphy; on-off tone modulated (A2)
2. Telephony; carrier and double sideband (A3)
3. Telephony; reduced carrier and single sideband (A3A)
4. Telephony; suppressed carrier and single sideband (A3J)
5. Telephony; full carrier and single sideband (A3H)
6. Telephony; two independent sidebands (A3B)

DETECTION

1. Antenna reception
2. Tuning
3. Frequency conversion
4. Intermediate frequency amplification
5. Demodulation
6. Audio amplification
7. Tone control

REPRODUCTION

1. Audio

REGULATION

1. Federal Communications Commission
2. Broadcast
3. Two-way operation
4. Military
5. Amateur
6. Self regulation (commercial)

The final step in the process was to develop actual lesson plans or materials for classroom use. The following lesson outline, visual aids, and form, were developed from the information already classified in the previous steps. This step is finally the expansion of the framework so that the necessary detail and sequence can be provided for actual teaching.

LESSON OUTLINE

TITLE: Radioteletype

OBJECTIVES:

1. Present the historical development of radioteletype so that:
   a. Learners will be able to understand the present state of the systems.
   b. Learners will be able to recognize and understand the terms and theory presented.
2. Discuss the overall technical operation of the system to the extent that each learner will be able to:
   a. Answer questions, of a general nature, pertaining to the technical operation.
3. Provide each learner with the opportunity to experience the operation of a radioteletype system. Each learner should be able to:
   a. Tune a radioteletype signal on a communications receiver and recognize this signal from other signals.
   b. Adjust and operate a simple converter so that a hard-copy printout of the signal can be made.

PRESENTATION:

A. Historical Principles
   1. Telegraph principles
   2. Jean Baudot and development of 5 level code
   3. Commercial use - Press
   4. Development of Manufacturer - Teletype Corp.
   5. World War II and developments during this time
   6. Modern data handling and computers (8 level code)

B. Radioteletype System
   1. Transmission of signals
      a. Frequency Shift Keying (FSK)
         (1) below 30 MHZ
      b. Audio Frequency Shift Keying (AFSK)
         (1) above 30 MHZ
      c. Speeds and Codes Used
      d. Regulations FCC & PUC
         (1) commercial
         (2) amateur

2. Reception
   a. Radio
      (1) CW mode
      (2) audio output
   b. Converter
   c. Loop supply

3. Reproduction
   a. Hard copy print out
   b. Tape punch and reader
   c. Re-transmission

CONCLUSION:

1. Summary

2. Questions and Discussions

ACTIVITIES:

1. On-hands operation of system. Tune teletype signal on radio and adjust converter to print signal. Log operations and turn in copy with appropriately executed log sheet.

2. Compile list of uses to which this type of communication can be put.

3. Write brief report on the effect this system may have on the development of children growing up in this society.

4. Library report on articles relevant to the technical operation and application of this system.

5. Send drill messages over wire between two machines using tape and/or regular typing.

6. Develop experimental control system to be operated by programmed tape. Cut and program tape on tape head and use output to control a simple operation or function as is done with numerical control.

ELECTRONICS COMMUNICATIONS OPERATIONS LOG

NAME _____ DATE _____

CLASS _____ SECTION _____ INSTRUCTOR _____

The purpose of this log is to adequately indicate that you have operated certain equipment and are given credit for this work. Complete the form in as much detail as required and turn it in to the instructor. He will give you credit, sign the form, and return it to you for your files.

TYPE OF OPERATION: (Circle one) AM FM SSB FSK AFSK TV FAX CW OTHER _____

LOG (reception only)

TIME	STATION IDENTIFICATION	LOCATION	FREQUENCY	COMMENT

NATURE OF INFORMATION (Brief description or sample of received material or attached copy)

INSTRUCTOR COMMENTS:

DISCUSSION

FCC Examination

In accordance with the objectives of studying electronics in a general manner in order to successfully pass a federal examination for a commercial radio license, the researcher devoted approximately two weeks to this task. The results were that, on March 20, 1969, the examination was taken and a third class radio license was issued. Higher class licenses are available and the researcher intends to take examinations for these licenses. However, the time limitations of this study will not allow for the preparation which would be necessary at this time.

Teletype School

The researcher attended a maintenance school in Chicago, Illinois, from April 14 to 25, 1969. This school consisted of 8 hour days devoted to the disassembly, assembly and adjustment, theory of operation, and troubleshooting of the Teletype model 32-33 machines. Upon successful completion of this school, the researcher was awarded a card certifying satisfactory completion of the course. The technical background of the researcher was expanded considerably and this knowledge will be utilized in subsequent teaching of electronics courses.

Industrial Visitations

During the two week stay in Chicago, the researcher made visits to the manufacturing facilities of the Teletype Corporation at Skokie, Illinois and the Magnavox facilities at Urbana, Illinois.

In both visitations, extensive discussion with industrial personnel provided a considerable amount of information relative to the organizational structure of the concern and the production and marketing functions of each company. In all cases the industrial personnel were very cooperative and helpful.

The Teletype Corporation has made available copies of their sales literature which may be obtained in quantity for instructional use. Several case studies seem to be appropriate for electronics application study and will be used in the future in teaching electronics courses.

Additional visits were made to the Museum of Sciences and Industry in Chicago and to the campus of the University of Illinois. Both visits were rewarding in the exposure to the different viewpoints in the approach to technical education observed by the researcher.

The visit to Magnavox at Urbana explored an associated area of communications; that of facsimile. New developments in this area will soon make this type of communication nearly as common as the telephone. Marketing in this area is growing very rapidly and the estimate for the future indicates that this system will probably be a common office procedure such as thermofax is today.

Taxonomy

In order to more adequately define the body of knowledge this researcher refers to as communications electronics, the need for a system of classification became apparent. Paul DeVore provided some basis for this approach when he wrote:

> There is evidence that more and more of what was once divided into separate categories, with separate functions and purposes, is now being incorporated into total systems such as communication systems, transportation systems or production systems. (1, 12)

DeVore's development of a taxonomic framework for developing content for curriculum consideration provided the basis for the taxonomy used by this researcher. DeVore places communications in a high position as a main subdivision of technology. This researcher can agree with this division but has developed a separate classification system for dealing with the technical elements of at least one specific division under communications, that of electronics.

The system developed for the purpose of this study may indeed not fulfill a broader application such as DeVore has indicated in his structure. However, no attempt is made to deal with the total structure of technology or knowledge in general in this study.

The taxonomy which this researcher has developed is based on current content as reflected in the literature of electronics and, although perhaps not perfect, does provide an adequate framework for ordering content. The system also is open-ended in that new developments can easily be classified and the total content expanded as man increases his electronics knowledge in communications.

Human and Sociological Implications

Much has been written relative to mankind's emphasis on the material and technical elements of his culture. Industrial arts has traditionally based its curricular offerings on these areas of man's store of knowledge and has perhaps not given due attention to the role and situation of the human element in the total framework of society. With the expansion of technology in recent years, the question of man controlling technology has become very real. At least part of the social ills evident today are based on the rejection of the idea that man should be treated as a machine.

In an effort to include some study of the implications of the problems of a social nature which are associated with communications electronics, this researcher has reviewed other work which is being done in industrial arts relative to this problem.

Again, time has not permitted the researcher to study, in detail, the concepts relative to the sociological impact of the area of communications electronics. This is not to say that this problem should not be addressed. The problem becomes one of identification of concepts and then finding ways of treating these concepts as curricular matters. A review of the technical content is needed which can provide a basis for identifying concepts of importance to the social adjustment of our students. Once these concepts have been identified and correlated with the technical content, appropriate activities can be developed to implement them.

Curriculum Implications

In the chapter on results, the researcher developed an example of a lesson outline on teleprinters suitable for a college student in industrial arts. The important aspect of this development is the process which was used. Time would not allow the development of all the systems which were identified in the study. The teacher who would make use of this study could very well apply the same procedure and develop any of the other systems identified. It is important that future developments try to identify appropriate activities which would not only give the learner a clear understanding of the technical aspects of the system but also give him some insight into

how this information or skill affects him as a member of a technologically orientated society.

The work of the Industrial Arts Curriculum Project (IACP) at Ohio State appears to be addressing this problem to some extent. The material now being field tested certainly gives attention to the broader considerations of society as encountered in the construction and manufacturing industries.

REFERENCE:

1. DeVore, Paul W., Structure and Content Foundations for Curriculum Development, Unpublished Presentation to Iota Lambda Sigma Fraternity at University of Maryland, Jan. 1966.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The following conclusions were arrived at by this researcher and reflect his study of the topics under consideration.

1. The staff development program is a worthwhile endeavor for both the college and the individual participant. It allows educators to address themselves to problems more germane to their immediate needs in the classroom as well as pursuit of individual needs and broader general studies.

2. Communications electronics can be more advantageously studied using a systems approach coupled with a valid classification system. This approach has considerable value in the ordering of content for inclusion in existing curriculums as well as developing new content and new courses.

3. The study of communication electronics needs more definition and development in order to adequately identify the total information content for adapting this content to curriculum structure for industrial arts use.

4. The present work being pursued by the Industrial Arts Curriculum Project, even if not accepted completely by individuals in a philosophic sense, represents a major direction which industrial arts will take in the near future. When the IACP developed materials are finally developed and put into use, a considerable impact on the profession will ensue. It should be the business of all concerned with industrial arts to become aware of this force and be prepared to utilize it for the good of the profession.

5. The rewards of consulting industry or industrial personnel are considerable for educators. Industry has much to offer and is usually more than happy to assist educators who are trying to make education more relevant to the students of today. The technical aspects of industrial arts, in particular, can advance more rapidly if more industrial consultation and study is pursued by researchers under programs such as the staff development program.

6. Educators, in studying industry, have an obligation to not only observe and learn but to criticize when the need is evident. This is especially appropriate in the human and sociological effect industry has on the population as well as other associated problems such as pollution, planned obsolescence, safety and others.

7. Industrial arts needs to conduct more experiments with the implementation of new ideas and curriculum approaches to the study of industry both at the college and secondary school levels. More effort is needed in the actual classroom implementation of ideas as well as additional theoretical advancement.

Recommendations

1. Continuation of released time for staff to pursue individual, classroom-related research should be considered in order to provide this capability after the termination of the staff development program. It would be more meaningful if the amount of time available were at least one full semester so that a researcher could devote his undivided attention to his study and not share his time with other activities.

2. Additional investigation ought to be pursued relative to providing staff released time for investigations in the implementation of new programs and approaches in the public schools and development of newer professional training techniques for undergraduate industrial arts majors.

3. Wider dissimination of research findings, conducted under the staff development program and other division research, should be a major outcome of any future research. Adequate recognition should also be accorded any staff who, in the future, undertake such research.

4. Staff involved in research under this project should not maintain, or be required to maintain, any duties which may detract from the pursuit of their study. Thus far, staff have not been required to utilize their time on matters other than their research but this factor must be continually considered in order to avoid the possibility of future utilization of research staff time to perform duties not associated with their studies.

5. Computer assisted instruction has been progressing rapidly in recent years with notable success in the area of elementary education. It would be advisable to undertake research to ascertain the usefulness of this means of instructional assistance to industrial arts instruction. With the use of computers on a time shared basis, industrial arts may be able to assist instruction in laboratories, solve technical problems for students as well as instructors, and involve students in role-playing situations such as management games. A considerable amount of use could also be developed in the administrative operation of departments in such areas as class scheduling, evaluation of tests, data processing, and forecasting of inventories, ordering and supply, and others.

6. This division already owns two Teletype machines which will be used for instructional purposes in future electronics courses. In order to provide more variety, such as speeds and code levels, at least two additional machines should be acquired. The possibility of manufacturer's donation of equipment should be pursued further as one means of accomplishing this recommendation. Future budgeting should also be aware of additional needs relative to radioteletype converters and other equipment expansion which ought to be done in order to fully utilize the equipment we now have.

7. An introductory unit on Teleprinter communications should be included in the basic electronics course as soon as possible. A more detailed examination of this system of communication, along with other systems, ought to be included in the future offerings of the advanced communications electronics course. Present material developed in this research should provide a basis for any instructor in this area to accomplish this aim.

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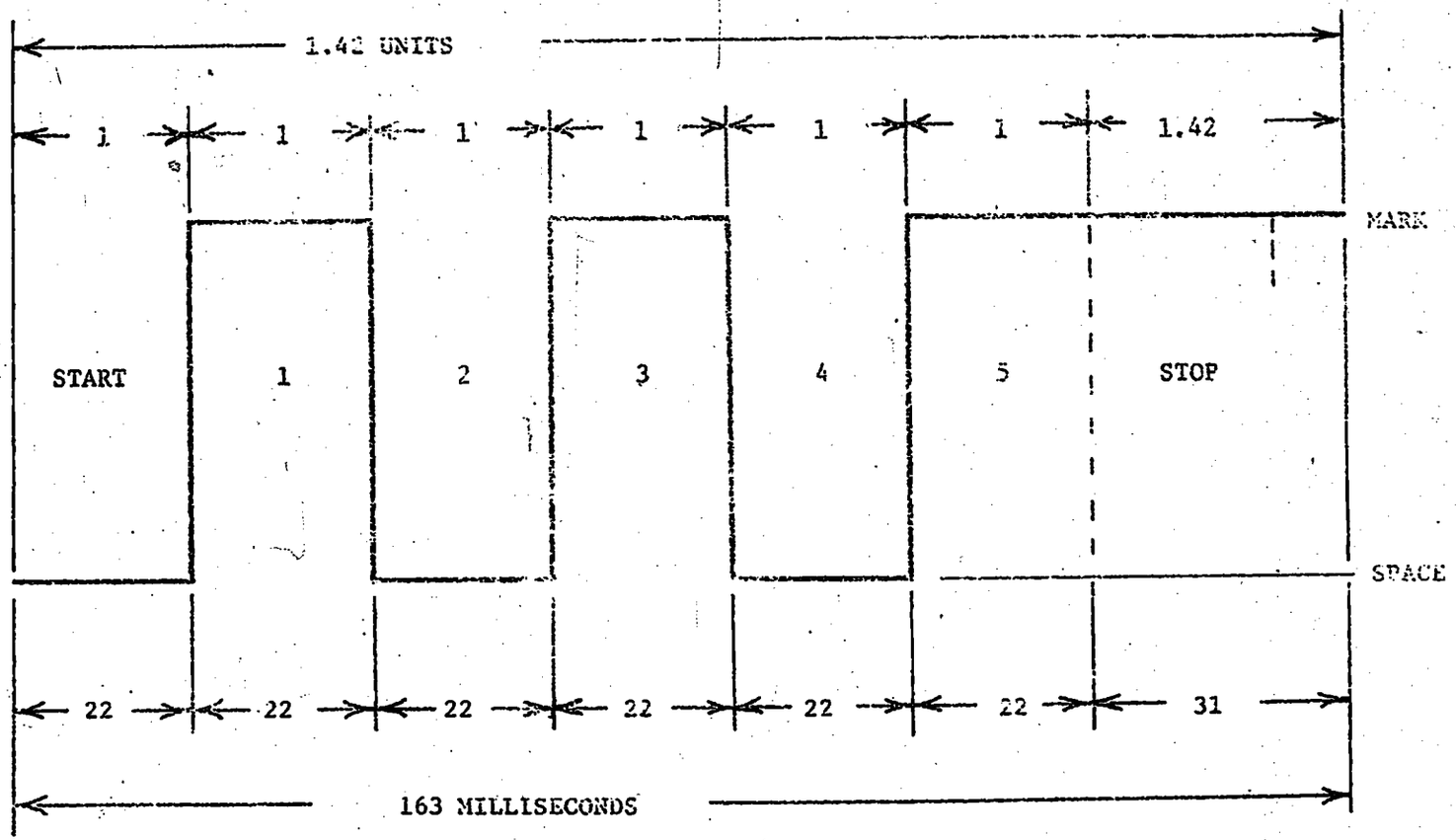
APPENDIX A

LIST OF VISUALS

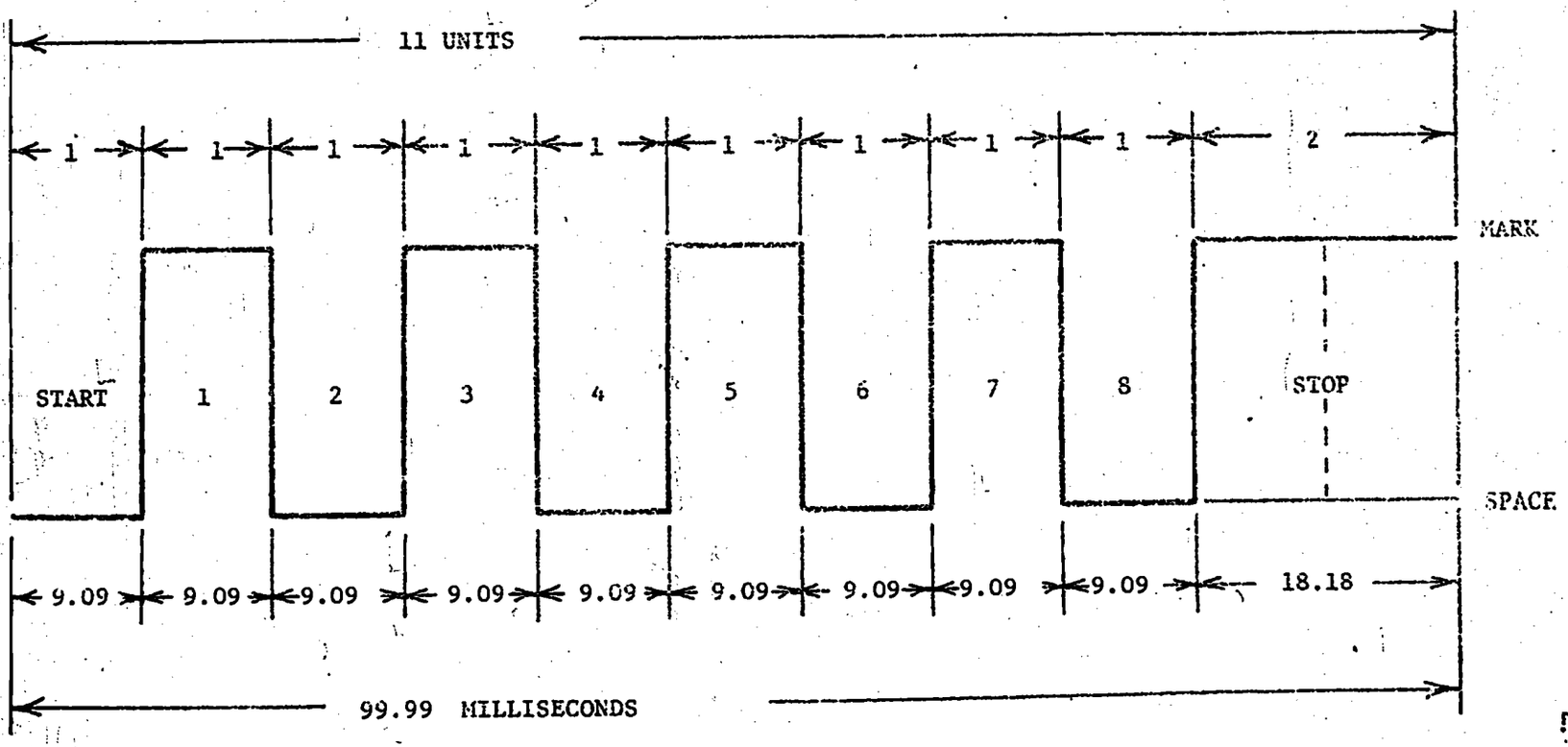
The following list of visuals are intended to be used in teaching the subject of teleprinting. Each visual title is listed along with the page number which can be used to find the actual visual.

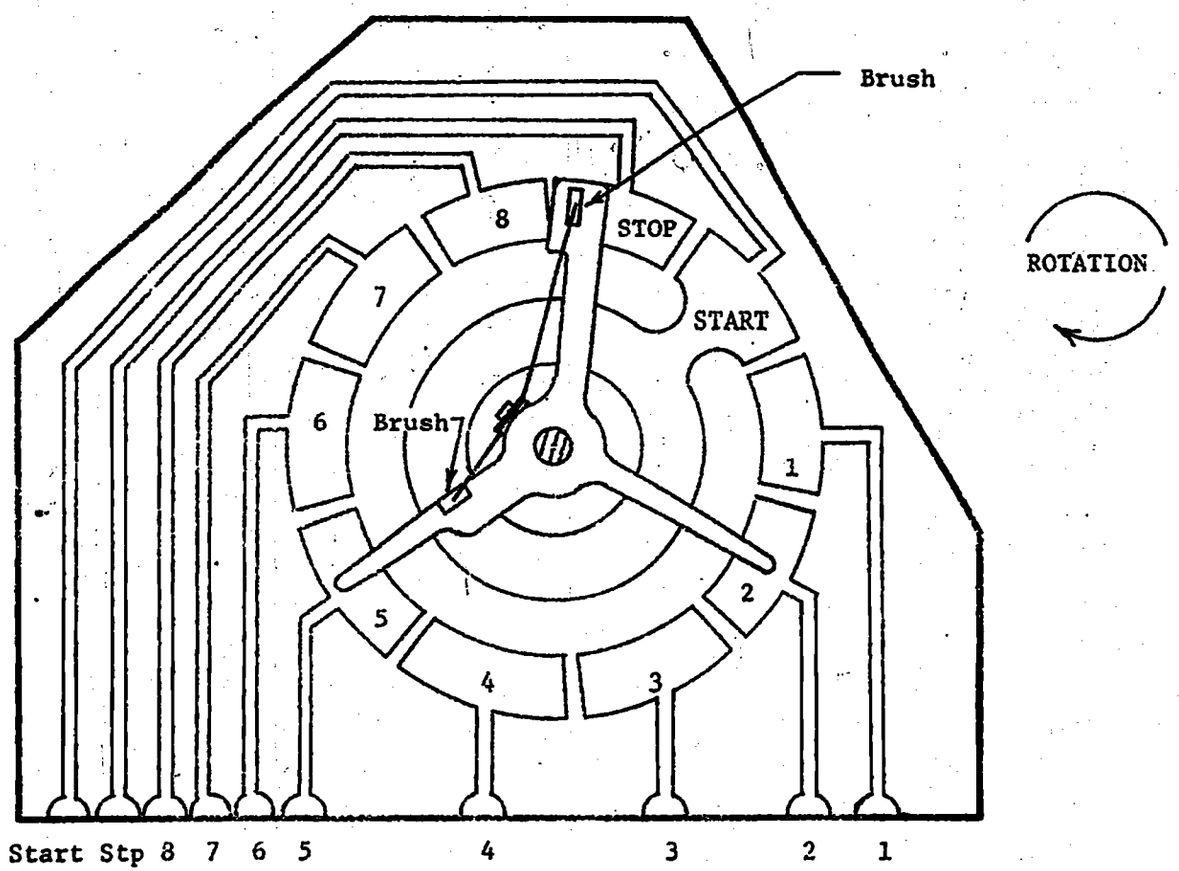
VISUAL	PAGE
5 Level Signal - 60 WPM	1
8 Level Signal - 100 WPM	2
Distributor Operation	3
Key - Codebar Signal Generation	4
Selector Printing Sequence	5
8 Level Code Tape	6
Closed Loop Operation	7
Radioteletype System	8
5 Level Code	9
8 Level Code	10

5 Level Signal - 60 WPM



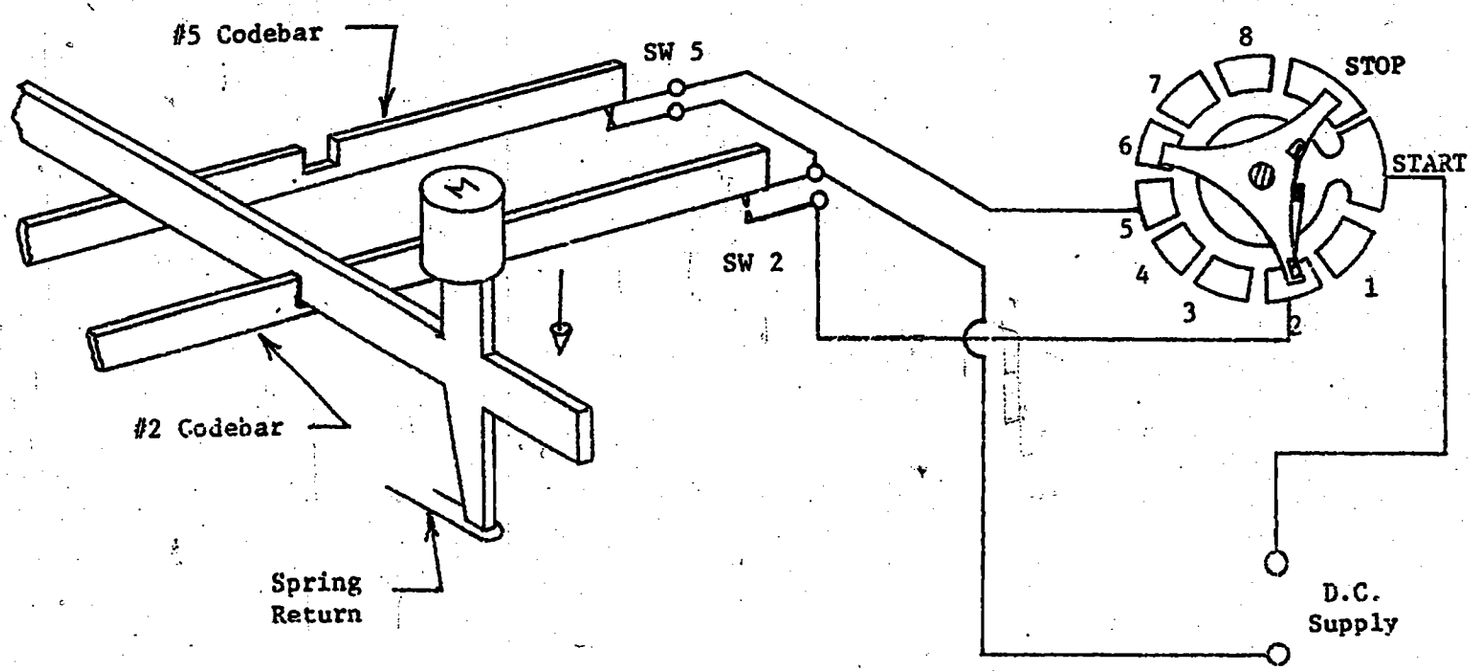
8 Level Signal - 100 WPM





Distributor Operation

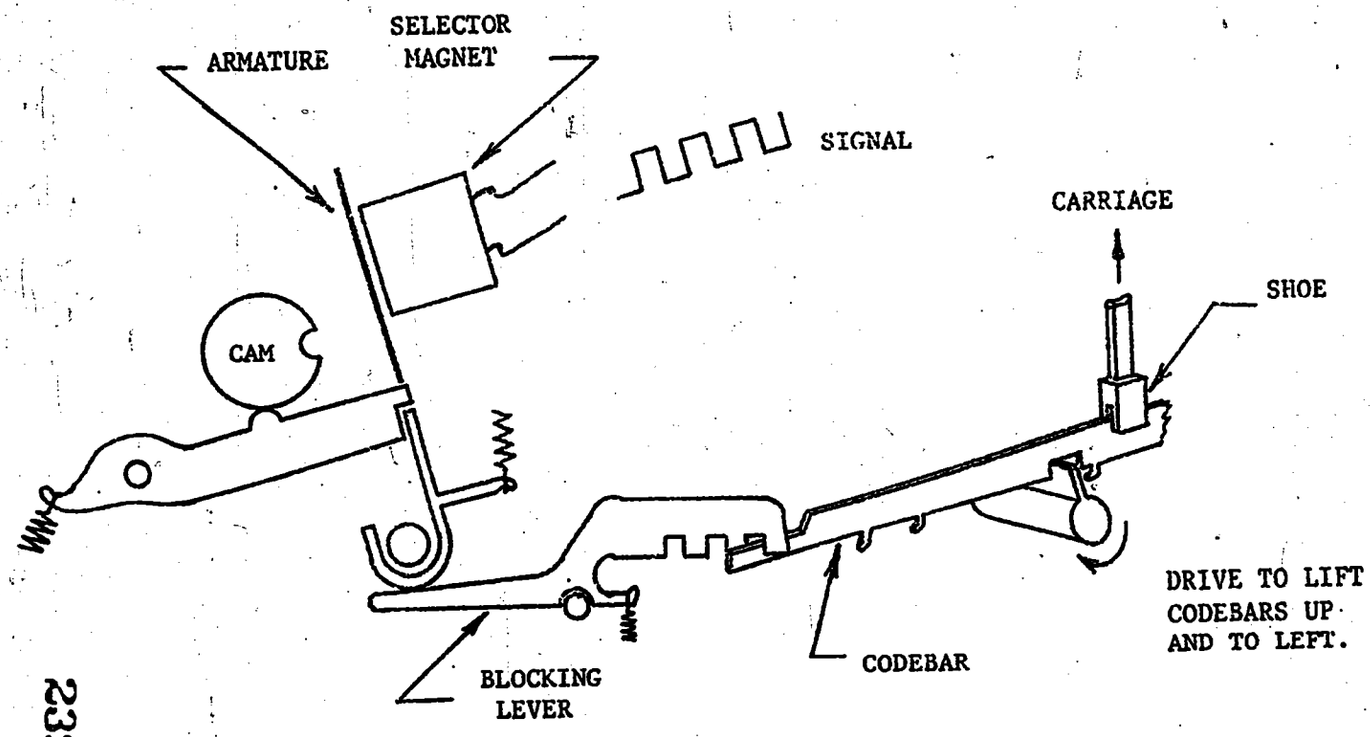
2391



Key - Codebar Signal Generation

2392

Selector Printing Sequence

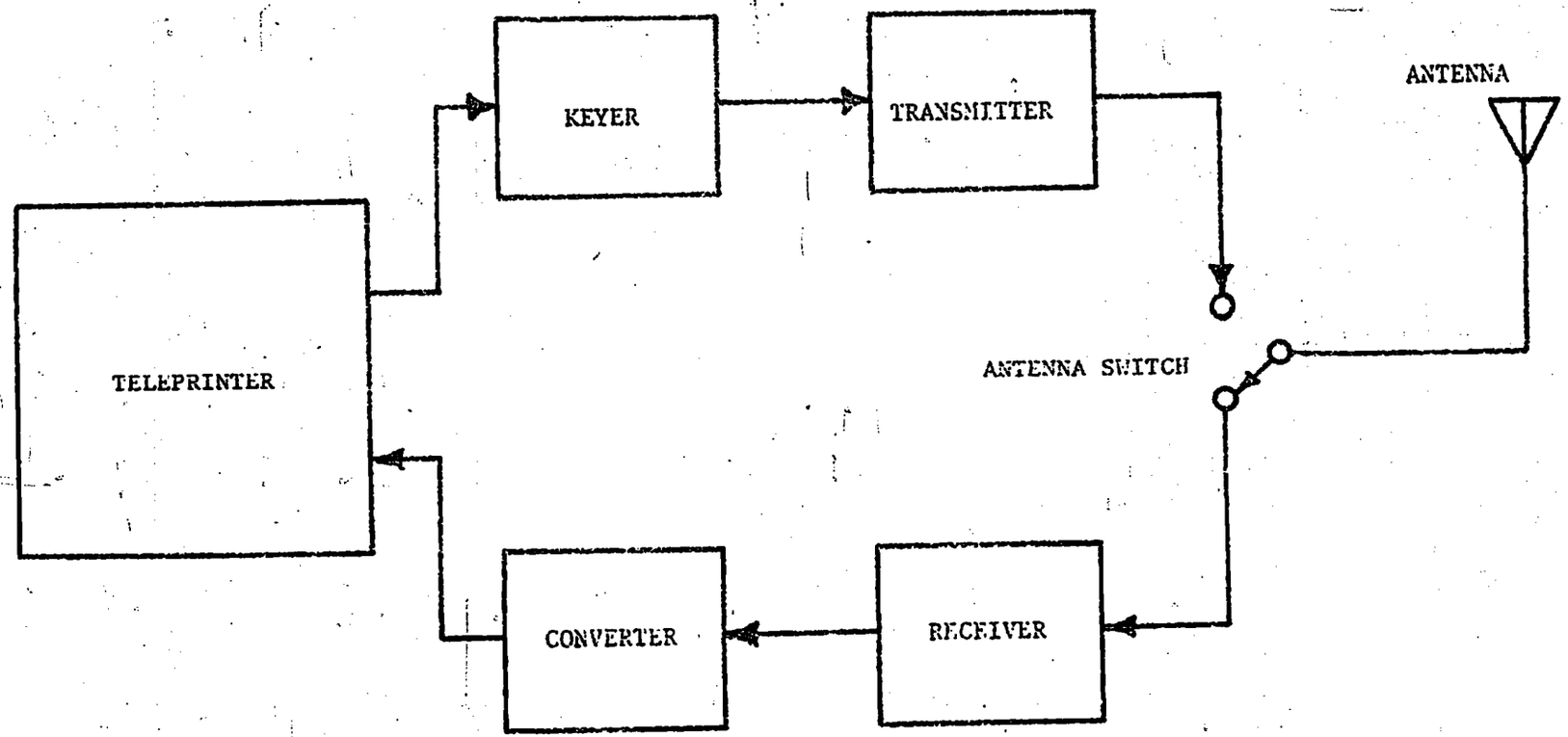


2393

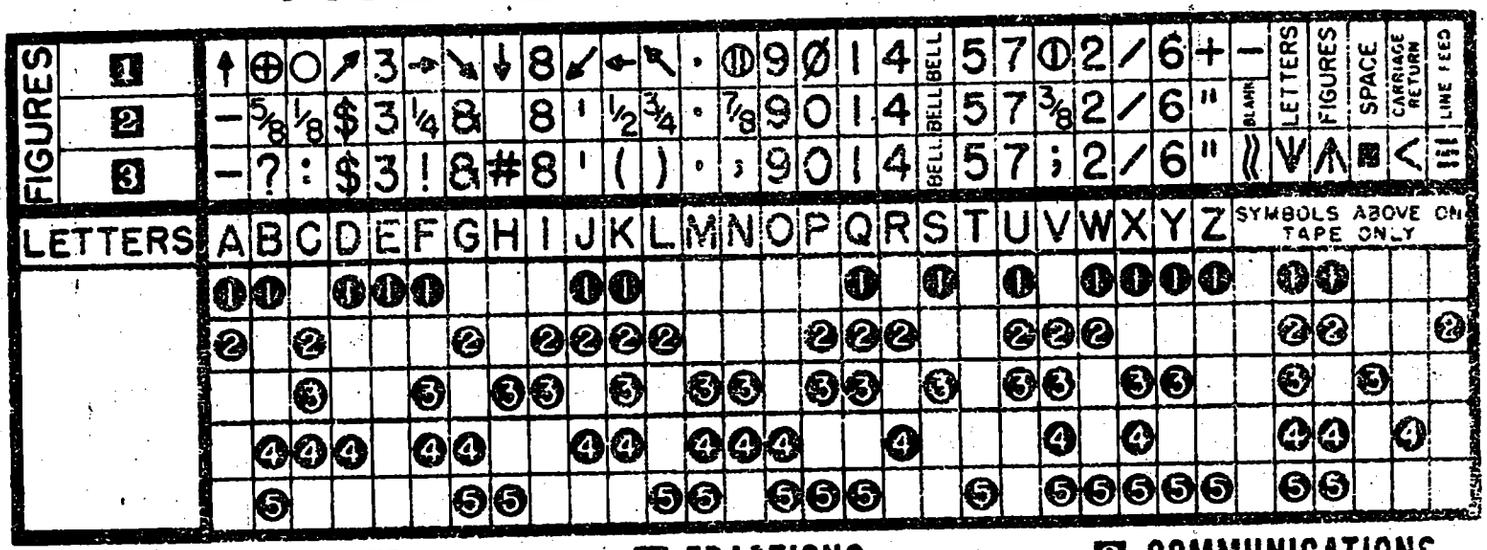
8 Level Code Tape

Closed Loop Operation

Radioteletype System



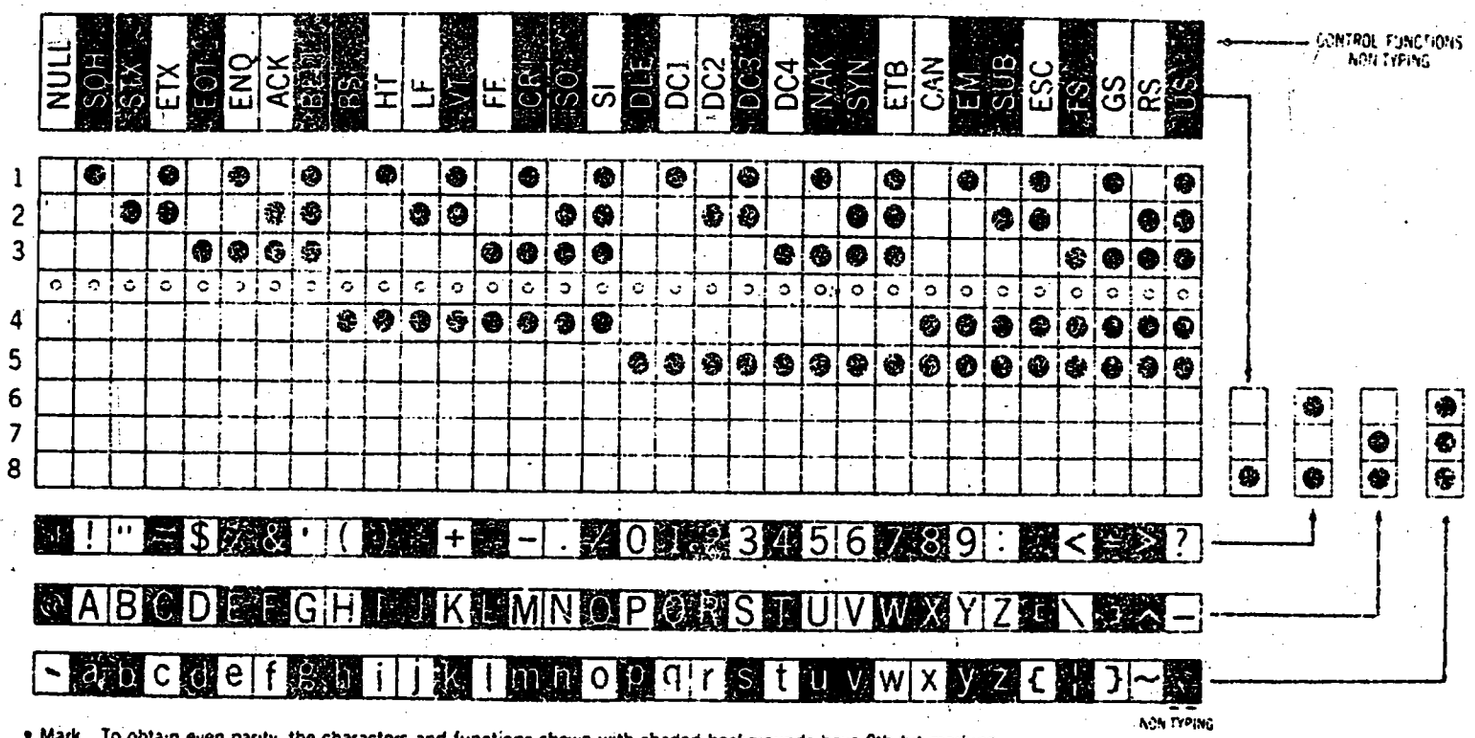
FIVE LEVEL CODE CHART



1 WEATHER 2 FRACTIONS 3 COMMUNICATIONS

2397

USA STANDARD PERFORATED TAPE CODE FOR INFORMATION INTERCHANGE



• Mark To obtain even parity, the characters and functions shown with shaded backgrounds have 8th bit marking

Upon receiving code combinations for ` through —, monocase equipment such as Models 33 and 35 print respective characters @ through ^

2388

APPENDIX B

TELETYPEWRITER COMMUNICATIONS

By

Harry M. Hawkins
Assistant Professor
Division of Industrial Arts and Technology
State University College
Oswego, New York
May 1969

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INTRODUCTION

At the present time nearly all members of our society are familiar with instant communications in the form of telephone, radio and television systems. Methods of transmitting vast quantities of information have been developed and many unique devices handle this information traffic.

One device which plays a major role in the handling of information is the teleprinter machine. This device is used extensively by the various media to communicate data of all kinds. Nearly all newspapers, radio and television stations, and others depend on the teleprinter for acquiring up-to-date details on current news and other data. The military and government use this device to pass messages around the world. Teleprinters also serve as terminal units for communication with computers.

The term Teletype is a trademark of the Teletype Corporation of Skokie, Illinois, the leading manufacturer of teleprinters. Quite often the term Teletype is used to describe all machines which function as teleprinters. Since Teletype is the most widely used machine in this country, our discussions will be centered on this company's machines. When referring to the concept of this method of communicating or to any machine providing this function, the term teleprinter will be used. When referring to machines made by the Teletype Corporation, the term Teletype will be used.

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HISTORY

The teleprinter method of transmitting information was an outgrowth of the telegraph system. The major drawbacks of telegraphy are the slowness of transmission and the need for trained operators. The gnneral limits of this kind of communication is in the order of 60 words per minute although the average operator would probably be able to receive approximately 20 words per minute. Other drawbacks to the use of Morse code cimmunication, which are eliminated or reduced by the use of teleprinters, is that errors of reception are reduced and constant attention by an operator is not needed.

A French signal officer, Jean Baudot, developed a mechanical method of transmitting signals which would activate a printing mechanism. He developed a code, based on Morse code, which controlled the time duration of each pulse. Instead of the dot dash system of telegraphy, Baudot devised a code based on the on (marking), off (spacing) condition of Morse code. Each of the two conditions (on or off) were developed into 5 parts thereby allowing a total of 32 possible combinations. That is, if we have a total of 5 combinations of two conditions, we have a total possible combination of 5 part or coded characters of 32. (2^5 = 2x2x2x2x2 = 32) This makes it possible to assign each character of the alphabet, and numbers, a distinct combination of on-off or mark-space conditions which will represent it. Later, an additional development added the function of uppercase, or figures, thereby doubling the possibilities to 64 combinations.

The early development of printers or machines which would perform the job Baudot evvisioned progressed rather slowly. The chief problem

was in the machanical design. A number of American developers succeeded in producing a commercially successful machine which was in use around 1915 when the Associated Press began to use their machine. In 1925 a merger between twc companies then producing teleprinters and subsequent purchase of this company by AT&T in 1930 saw the beginning lf the Teletype Corporation. This company is by far the largest manufacturer of teleprinters in this country although several other American firms do produce teleprinters at the present.

During the time prior to the second world war, teleprinters were used mainly on land-line types of application by the news media and to transmit messages such as by Western Union. However, the long distance capabilities of radio began to be utilized at this time by the military, and radioteletype was given a developmental boost. The use of radioteletype has been developed to the extent that much of the overseas news and message traffic is now handled in this way. Modern developments in radio communications reliability have allowed for more extensive, and less expensive, use of the teleprinter method of communicating.

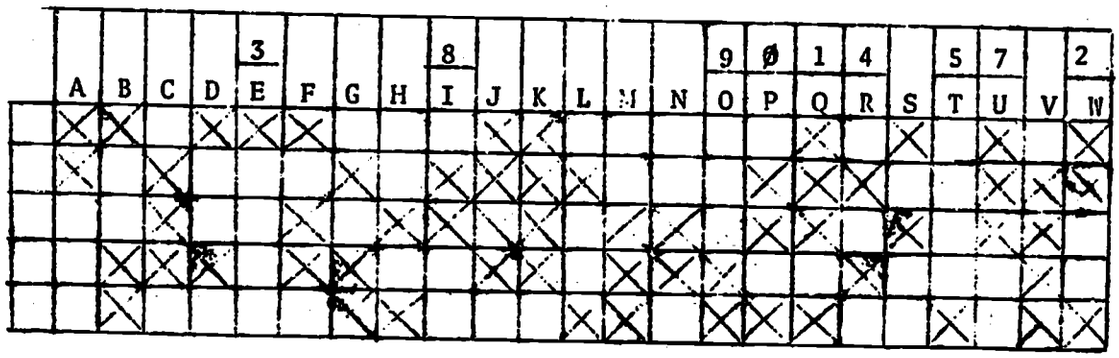
With the vast increase in traffic of recent years, improvements have been made in the speed of transmission. Prior to World War II, most teleprinters used a standard speed of 60 words per minute. There is still a large number of older machines (and some new ones too) which still use this standard. Gererally, new machines run at 75 or 100 word per minute speeds. Very recent developments have brought to the market the Teletype Inktronic machine which runs at a speed of 1200 words per minute with much higher speed capabilities.

With the advent of computers, the need for more possibilities in the code was apparent. The development of the 8 level code

(2^8 =2x2x2x2x2x2x2x2 = 256) allowed a total of 256 combinations. The 8 level code machine can be used for direct connection with computers and other applications such as numerical control of machines.

At the present time, it is estimated that the number of Teletype machines in use around the world is between 300,000 and 500,000, which gives one a general idea of the extensive use of this machine alone. The contribution of other manufacturers would increase the total number of teleprinters in use to a much higher level. The demand for new Teletype machines today is on the increase and it seems that this device will assume a more and more important position in the communications industry of this country and the world.

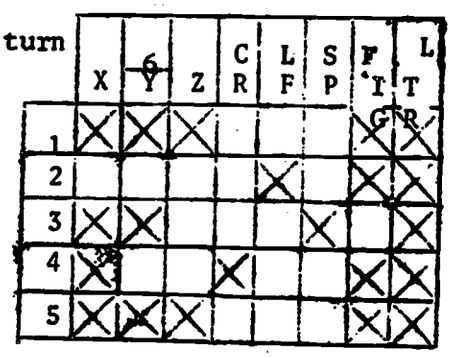
Below is a representation of the 5 level code now in use.



= Mark

= Space

CR = Carriage Return
LF = Line Feed
FIG = Figures
SP = Space
LTR = Letters



THE SIGNALING CODE

There are two code levels, 5 and 8. The difference between the two is simply that 3 more levels of combinations can be included in the 8 level than in the 5 level. If the speed of transmission is the same for both 5 and 8 levels, then it follows that the duration of the 8 level pulses must be shorter in order to include 8 bits of code in the same time space as the 5 level signal.

Let us examine the code for 5 level operation more closely. First of all, we have, at any one time, a condition of either current on (this is referred to as MARKING) or current off (SPACING). We also have a definite shaft speed which will determine the duration of time for a character and also the pulses which make up the character. Common shaft speed in use today are 368 RPM for 60 words per minute, 460 RPM for 75 words per minute and 600 RPM for 100 words per minute. Each rotation of the shaft will generate one character so if we divide the RPM by the average number of characters in a word, (5) plus (1) space for seperating words, we would have, for example, using 5 level, 100 word per minute machine:

$$\frac{368 \text{ RPM}}{6 \text{ characters per word}} = 61 \text{ words per minute}$$

In order to see the difference between 5 and 8 level code it is necessary to find the actual duration of time required for each pulse. If each shaft revolution generates one complete character, we can find how many characters per second are generated by (for 5 level):

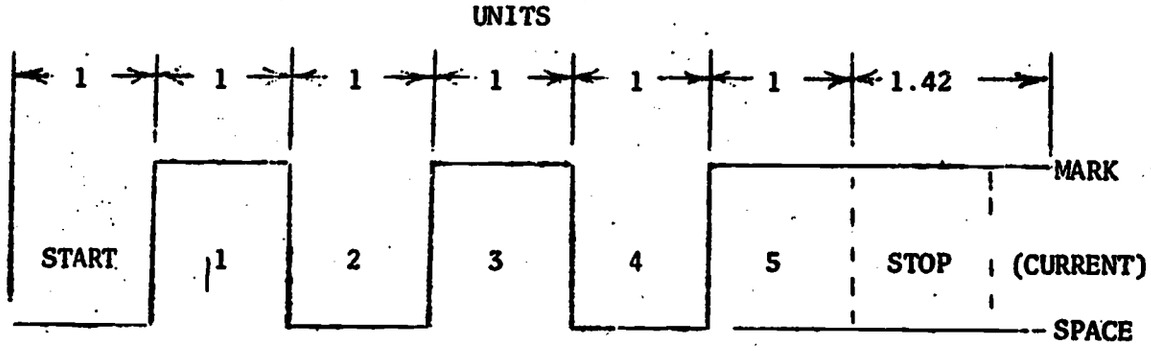
$$\frac{368 \text{ RPM}}{60 \text{ seconds}} = 6.13 \text{ characters per second}$$

Generally the term characters per second is not used. Since there are many functions performed which do not represent characters in the operation of a teleprinter, the term operations per second is more common and correct.

If 6.13 operations occur in one second, then the duration of any one operation must be

$$\frac{1 \text{ second}}{6.13 \text{ ops}} = .163 \text{ seconds or } 163 \text{ milliseconds.}$$

One additional problem associated with the pulse for any operation is that the machine must be able to recognize when a pulse starts and stops otherwise it may mistake the code and perform an error. This is accomplished by adding pulses to each operation to start and stop the machine. These pulses are attached to every operation signal and so are not really information. This does not mean that they are unnecessary. The accepted practice is to have a start pulse which is equal to the duration of one of the 5 information pulses and a stop pulse which is somewhat longer (generally 42%) in order that the machine has time to sense the entire pulse before starting on the next pulse. The following example indicates that we have a total of 7 pulses to each operation with a 5 level code. Actually only 5 are used to convey the information and the rest are to start and stop the machine.



If we add up the units, as shown below, we have a total of 7.42 units.

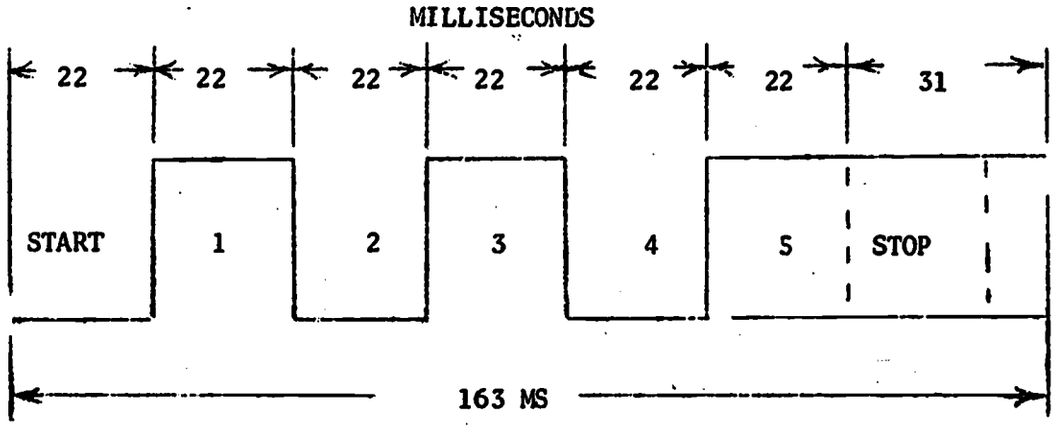
Start = 1 unit.

Information = 5 units.

Stop = 1.42 units.

7.42 units.

7.42 is known as the standard Unit Code for 5 level operation. The start pulse is always a SPACE condition in order to tell the machine that a new character or operation is beginning and the stop pulse is always a MARK condition to make sure the machine knows it is the end of a character or operation. Let us now look at the time for each pulse. Since we know that 60 words per minute, 5 level operation, will give us a total of 163 milliseconds duration for each operation, further investigation shows that if the START and 5 information pulses are each 22 milliseconds in duration and the STOP pulse is 31 milliseconds long, the total of 163 milliseconds is correct. See the following diagram for a graphic view of this relationship:



Suppose we now operate a machine at 100 words per minute using a 5 level code. It is obvious that the units of the code would still be

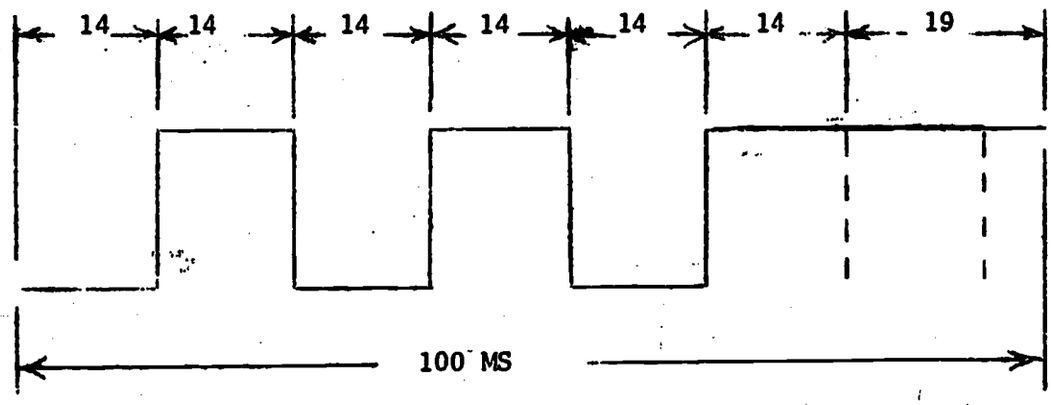
the same -- a start pulse, 5 information pulses and a stop pulse of 1.42 units. The only thing necessary would be to increase the shaft speed to 600 RPM. This would give us 10 operations per second.

$$\frac{600 \text{ RPM}}{60 \text{ seconds}} = 10 \text{ ops}$$

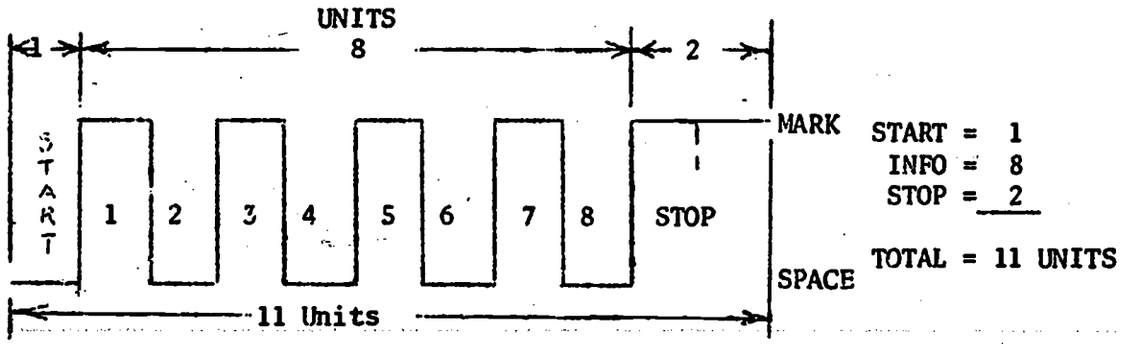
Since we can now transmit 10 operations in each second with the increased speed (as opposed to 6 ops at the lower speed), it follows that each operation would have a time duration of .100 seconds or 100 milliseconds.

$$\frac{1 \text{ second}}{10 \text{ ops}} = .100 \text{ seconds per operation}$$

It is apparent that we have simply decreased the amount of time it takes to produce a character from 163 milliseconds to 100 milliseconds and correspondingly reduced the duration of each pulse so that we are now able to transmit more operations of characters or words for a given amount of time. The example below shows the pulse duration for 5 level, 100 word per minute operation. The only thing that has really changed is the speed at which we can now make each character.



Now let us look at the 8 level code. This code also has a start and stop pulse but we now have 3 additional information pulses included in the total character code. As the example below shows, we now have 11 units rather than the 7.42 units for 5 level code. The stop pulse is 2 units long for safety rather than the 1.42 length for the 5 level.



It is easy to see that the time duration of each pulse must be shorter if 8 level code is to be used rather than 5 level for the same word per minute operation. The actual time duration of the pulses at 100 word per minute operation would be determined the same way as for a 5 level operation. The duration of each operation at 8 level, 100 word per minute operation would again be 100 milliseconds.

$$\frac{600 \text{ RPM}}{60 \text{ seconds}} = .100 \text{ seconds per operation}$$

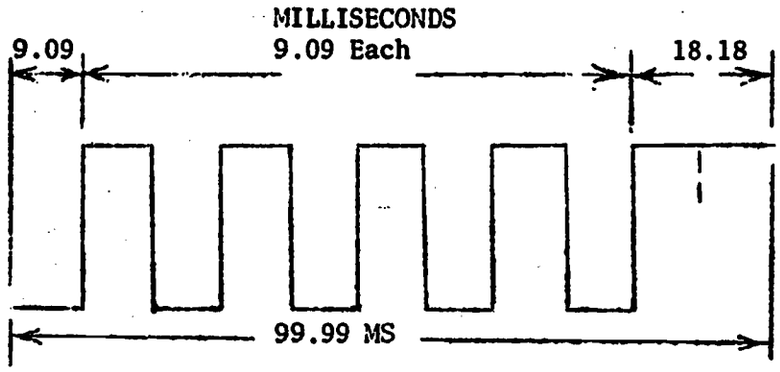
The length of each pulse would be 9.09 milliseconds.

$$\frac{100 \text{ milliseconds (time for each operation)}}{11 \text{ Units}} = 9.09 \text{ MS/Unit}$$

Since the stop pulse is equal to twice a regular pulse, then it must have a time duration of 2 X 9.09 or 18.18 milliseconds.

The following diagram indicates the time duration for the 8 level, 100 word per minute signal. Notice that the total amounts to 99.99 milliseconds and not 100 milliseconds. For practical purposes this is

close enough and the machine is incapable of detecting this slight error.



The major advantage of the 8 level over the 5 level code is that more possibilities are available with the 8 level. This becomes important with modern applications involving computers. In either case, the number of words per minute the machine is capable of handling is determined by the shaft speed and the motor gearing to the shaft.

One additional term often used in teleprinter operation is that of baud rate. The baud rate is a term (derived from Baudot) which is used to compare the compatibility of machines. In order for two or more teleprinters to exchange traffic, they must have the same baud rate. The baud rate is a composite term which combines the shaft speed or operations per second and the unit code being used. It is often referred to as the bit rate but the bit rate is something different and is not the same as the baud rate. The baud rate is calculated by the following formula:

baud = operations per second X unit code

For example, a 60 word per minute, 5 level machine would have the following baud rate:

$$\frac{368 \text{ opm}}{60 \text{ seconds}} = 6.13 \text{ ops X } 7.42 \text{ Unit Code} = 45.5 \text{ bauds}$$

If we had another machine which had a different shaft speed, say 65 words per minute which would give us 390 operations per minute with a 5 level, 7 unit code, the baud rate would be 45.5.

$$\frac{390 \text{ opm}}{60 \text{ seconds}} = 6.5 \text{ ops} \times 7.00 \text{ Unit Code} = 45.5 \text{ bauds}$$

Although one machine operates at 60 words per minute and the other at 65 words per minute, they could be used with each other since they both have the same baud rate. In this case, the stop pulse of the 65 word per minute machine is 1 unit long (.42 units shorter than the 60 word per minute machine); therefore; even if the operations per minute of the faster machine is more, its unit code is less and the product comes out the same. The Western Union machines often use the 7.00 unit code rather than the 7.42 code yet, for the reason of the baud rate being the same, these machines will operate with the 7.42 unit types. Generally, when a difference between machines is, for example, 60 word per minute to 100 word per minute or 5 level to 8 level, the two machines will not have the same baud rate and will not be compatible.

The following chapters will deal with the generation of the signals we have discussed thus far. We will see how these signals are transmitted, received and printed in the teleprinter machine.

THE PRINTER

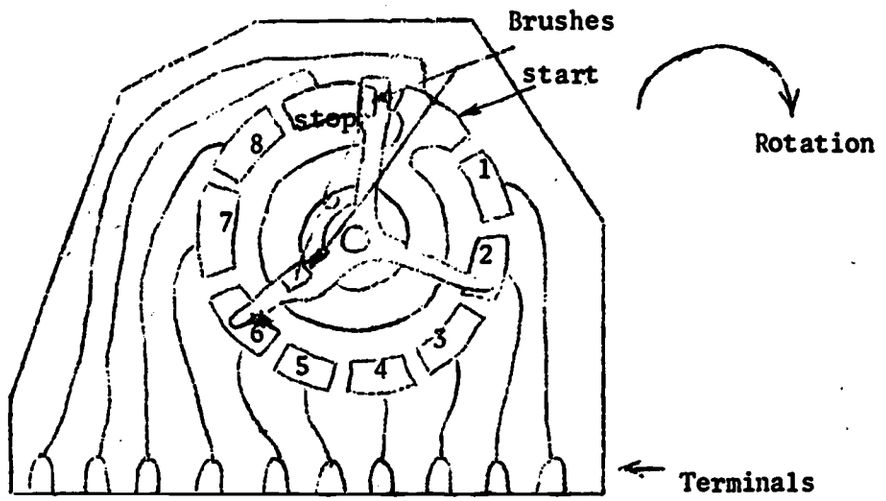
There are numerous makes of teleprinting equipment on the market today. This includes several American firms as well as many firms from other countries. Each manufacturer has several models listed. In general, the product lines make available machines for different applications and variations in code level (5 and 8), speed (words per minute) and functions.

Since the major manufacturer of teleprinters in this country is the Teletype Corporation, we will deal with their machines only. In addition, Teletype offers a variety of models. We intend discussing the operation of the model 32 (5 level- 60 words per minute) and model 33 (8 level - 100 words per minute). Both models are very much the same in operation with the exception of the shaft speed and code level. The machine is a light duty, inexpensive model costing between $500.00 and $800.00 depending on features desired. More durable and heavy duty machines can be obtained in the $2,000.00 and up price range. The model 32-33 is designed for approximately 3 hours daily use.

To develop the theory of operation of this machine, let us first trace the way in which a code is generated to form a character which is to be printed or transmitted to a distant machine.

First of all, when the machine is turned on, the motor runs but the mechanism does not function because a series of clutches on the main shaft are in the latched condition. One of these clutches controls an electrical distributor similar in operation to the distributor on an automobile. This distributor rotates when a key is punched. It rotates once, generating the series of pulses electrically. It does not rotate again until another key is punched.

figure 1

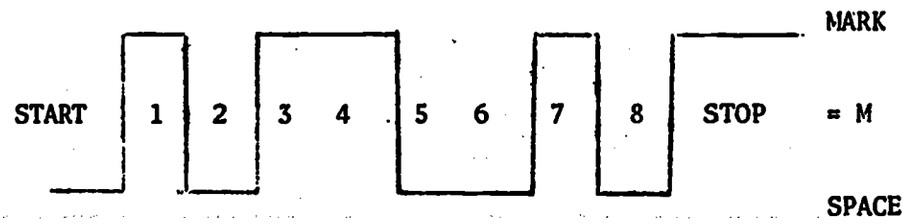


In figure 1 above, the brushes are resting on the stop and inner ring. Current is supplied to the inner ring and, through the brushes, makes contact with the various outer segments. Figure 1 shows the normal stop condition. When the clutch is released (by depressing a key) the shaft, with the brushes, spins one revelution and contact is made, in turn, with each of the segments. In turn, the contact is made with the start, 1, 2, 3, 4, 5, 6, 7, 8, and stop segments. Notice that the start segment is connected to the inner ring so that you will always get a space on the start segment. If any segment makes a complete electrical path, current will flow while the brush is on that segment thereby creating a mark pulse. If no circuit is completed then no current will flow while the brush is on that segment and a space pulse results. For example, suppose we depress the key of the letter M on an 8 level, 100 word per minute machine. The code for this character is:

Segments -- Start 1 2 3 4 5 6 7 8 stop

Code for M -- space mark space mark mark space space mark space mark

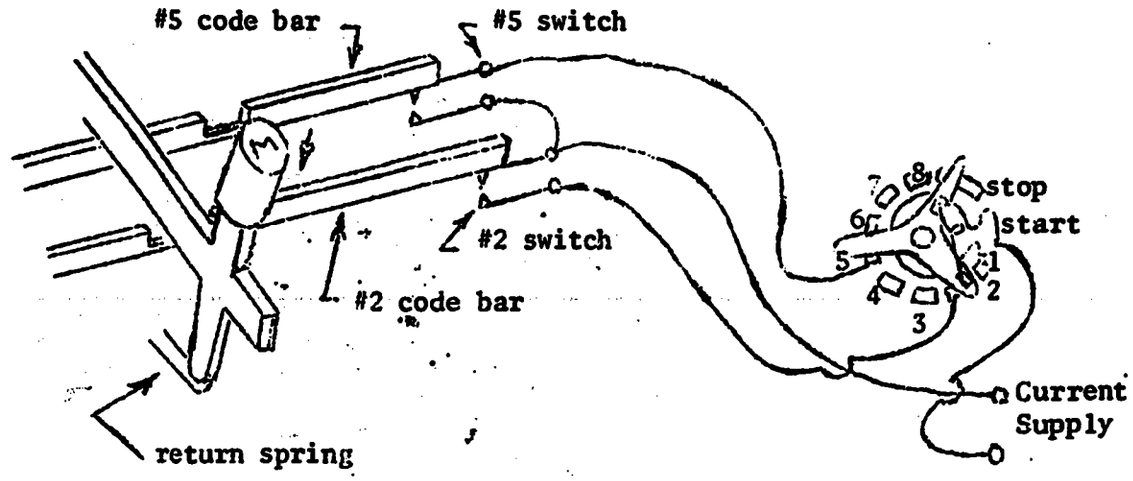
The resultant signal should look like the following:



As the distributor turns it will generate, in order: no current for start, then current for mark on segment 1, space on segment two and so on until a double mark is formed for the stop pulse. The question that now arises is how do we arrange to have the various segments switched into a no current (space) or current (mark) condition so that, when the distributor shaft turns, the correct character will be formed. This is done mechanically and electrically by coding under the keys.

Running under the rows of keys are coded bars. These bars have notches cut out in such a way that when a key is depressed it will miss some bars and contact and depress others. Each code bar is attached to an electrical switch on its end so that all switches (which complete the circuits for the segments on the distributor) are open in the space conditoon (no key depressed). There are 8 code bars for the information and some additional ones for other functions. In the example for the letter M, when this key is depressed, the #1, 3, 4, 7 code bars are depressed and the 2, 5, 6, 8 bars are not depressed. So the depressed bars now switch segments 1, 3, 4, 7 into a current carrying condition electrically (mark) and the rest of the code bar switches remain open so that 2, 5, 6, 8 are spacing.

figure 2



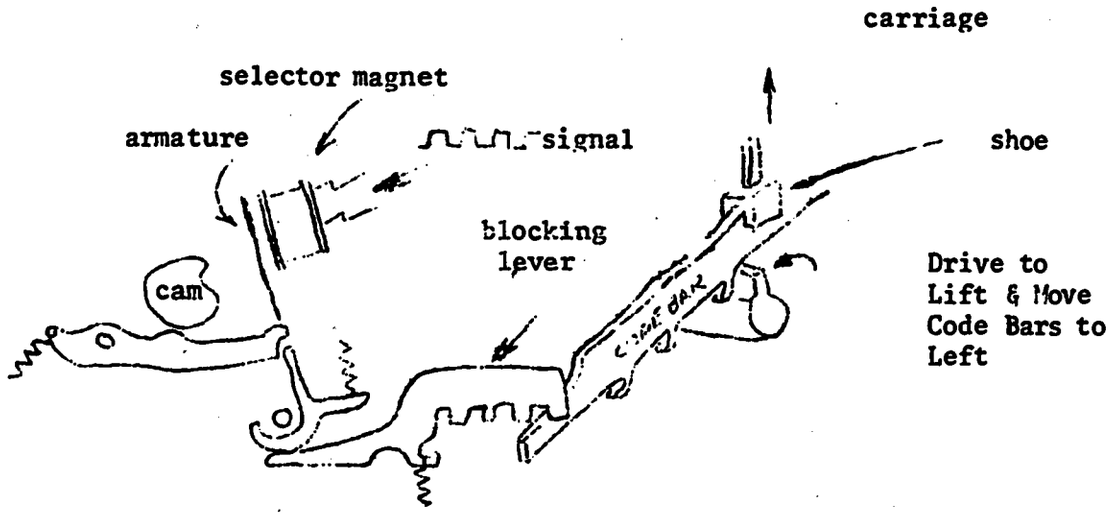
In figure 2 above, notice that 2 and 5 code bars are shown. A cutout in #2 allows the key to be depressed and NOT depress #2 bar so switch 2 is not closed and a space results. But #5 code bar does contact the M key lever and IS depressed thereby closing switch 5 which will make the #5 segment on the distributor mark or carry current.

We have seen how the mechanical key depression (which releases the distributor clutch) sets up switches electrically connected with a distributor and when the distributor rotates one revolution, a coded combination of marks and spaces are generated as an electrical signal representing the character to be printed. We now need to explore how this electrical signal is decoded and sensed in order to tell our own printer, or the printer at a distance with which we are communicating, exactly what character to print and how to print it.

In the case of printing, another set of code bars underlie the main printing carriage. These code bars rise and fall for each rotation of the main shaft when a printable character or function is

received. The printing carriage has slotted shoes which ride on the code bars and will rise and fall with the code bar thereby telling the carriage where to position the typewheel for the character needed. These bars are allowed to rise depending on a selector magnet and cam. The start pulse (on each character, remember) de-energizes the selector magnet which trips off a selector cam clutch. This will allow a cam to turn one revolution and the stop pulse at the end will throw the clutch out or latch it so that all will be in readiness for the next coded signal to start a new cycle. There are lobes on the selector cam for each of the pulses and they are situated so that each is sensed in turn rather than all at once. This is reasonable since the code pulses arrive in a series and not all at one instant. As the cam turns, the selector magnet is fed the signal which consists of marks and spaces. The cam and magnet are so synchronized that levers are either moved one way or another which will either block or allow the code bars to rise and move in one direction or not move in one direction. Figure 3 below gives some idea of this arrangement.

figure 3



A space pulse will block the code bar from rising high enough and a mark pulse will allow the code bar to rise. The signal and can operate before another clutch is released so that the character's code is already coded in the selector so that now the bars are driven and rise (those on mark which are not blocked by a space code) and correctly lift the levers which tell the typewheel where to position and then the hammer is released to print the character. Mechanically, after the character is printed, the carriage is advanced to be ready to print the next character and the coded signal in the selector is automatically stripped off (now all mark) in preparation for the next character signal which will start the cycle again with a space start pulse.

The actual positioning of the typewheel and striking of the hammer is powered by a delayed action clutch and cam which delivers the mechanical motion under the code bars of the printer. The code bars simply provide the correct blocking or open condition so that, when power is delivered to the carriage, the typewheel will correctly position itself and the correct character will print.

The printer will act on both the electrical signal form its own keyboard and distributor as well as a signal coming from another compatiable teleprinter. This means that you will print simultaneously on your printer and the printer(s) with which you are communicating. Obviously this allows you to note and correct mistakes as they happen rather than sending a message "blind".

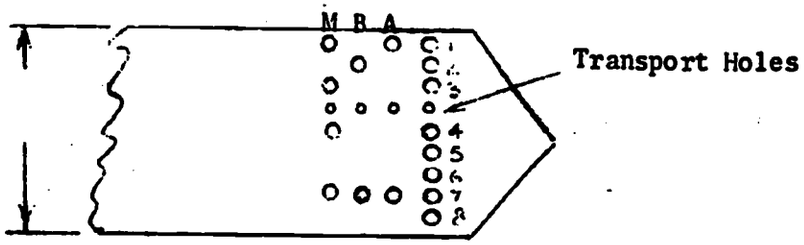
On the model 32 and 33 Teletype machines, the magnitude of the signal from the distributor is not sufficient to operate the selector magnet so a selector magnet driver (SMD) circuitry is built in to develop the necessary power to drive the selector magnet electrically.

TAPE PUNCH

The tape punch is an attachment on some teleprinters which allows one to punch a coded paper tape which may be later transmitted or transmitted several times. An example of this tape, for an 8 level operation, is shown below in figure 4.

figure 4

8 Level Code Tape



A total of 9 holes can be punched in the tape; eight are for the information and one smaller one is for transporting the tape through a reader. When a hole is punched out, this represents a mark condition and when no hole is made, a space will occur.

The tape punch is mechanically attached to the printer code bars so that code bars within the punch either block (space) or allow (mark) each of the eight punches to move upward and punch the tape. Power to drive the punch is taken mechanically from the rocker shaft of the printer which is used for other functions in the printer. The rocker shaft delivers a back and forth motion to the punch which both powers the punches and advances the tape. The transport holes are punched each time a character or function is punched. Some punches completely punch out the holes and the chad is collected in a box on the side of the machine and other machines have a chadless punch.

where the hole is not completely punched out and no residue is left. The chadless types are somewhat more critical in adjustment and can cause some problems in the reader if everything is not properly adjusted. The oiling of the punches is performed by using a special oiled paper tape. If oiled tape is not used, the life of the punches is considerably reduced.

Generally, tape punches may be used to tape any information which is printed on the printer. This allows one to print his copy and cut a tape of it at the same time. Any incoming information can can also be taped by simply turning the punch on. The tape punch is a mechanical device and no electrical connections are usually made to it. It has provisions for turning it on and off, back spacing to correct a mistake (by punching a rub-out key), and tape release used to allow the operator to transport the tape manually.

TAPE READER

The tape reader is used to print or transmit information punched into a tape.

A series of pins are activated in the reader which are either allowed to proceed through the punched hole or are blocked from travel in the case where no hole is punched. There are eight pins for an eight level reader and five pins for a five level machine. The pins, therefore, adjust to the particular mark-space code combination which is punched into the tape. Each pin is attached to a contact which closes (mark) if the pin rises through a hole, or remains open (space) if no hole is available and the pin is blocked from rising. These contacts or switches are wired in parallel with the keyboard contacts so that the reader, in effect, performs the same function electrically as the keyboard does.

The cycle of operation of the reader starts with the operation of the distributor. When the clutch releases, a can closes a contact which activates a reader magnet. The magnet drives the sensing pins and the contacts are set up for whatever character is coded into the tape. The distributor rotates and electrically forms the character code, which, in turn, drives the printer. At the end of the cycle, the reader magnet de-energizes and the pins fall back to their resting position. This action mechanically advances the tape so that the next punched character is positioned above the sensing pins. If no more characters are punched into the tape, the distributor clutch will latch and no further rotation will result until a new tape is inserted or unless a signal is supplied from the keyboard or from another

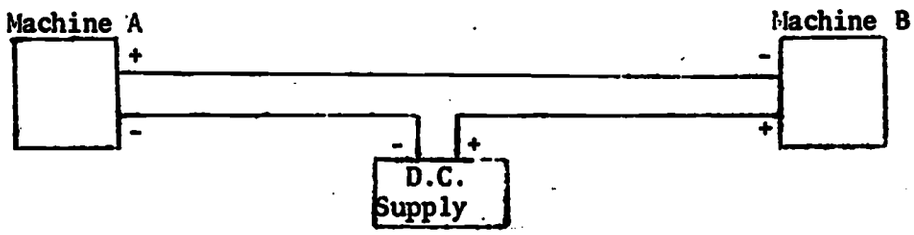
machine. The reader on a model 32-33 machine is primarily electrical and its power is obtained from the reader magnet. All mechanical movements of the reader are caused by the reader magnet.

APPLICATIONS OF TELEPRINTERS

There are two distinct modes of operation of a teleprinter machine. One is by closed-loop wire and the other is by radio. The use of radioteletype will be discussed later. At this time a description of some applications using closed-loop lines will be made.

Landline operations (also known as closed-loop operation) represents the major application of the teleprinter. Use of wires owned by the telephone companies, Western Union, the railroads and others are usually utilized to this end. The electrical operation is similar to that of a telegraph.

figure 5



The example above indicates that the two machines are simply wired together with a complete electrical loop. Signals can travel from either machine to the other. Additional machines can be added to the circuit by wiring them in series, thereby maintaining the loop. Any machine on the line can originate or receive information.

In order to operate the system, a direct current is applied to the loop by the DC supply. This usually consists of 60 milliamperes at 16 to 22 volts. This direct current is keyed by the transmitting machine and the receiving machine senses the variations (the same

current flows in both machines since they are in series) and therefore prints the information. The current is either on (mark) or off (space). Each machine actually acts like a telegraph in the transmission condition. The sending machine also prints what is being transmitted due to its own printer sensing the signal.

In recent years the development of tone dialing and telephone traffic handling, modern systems used on commercial telephone lines, usually have the loop signal converted to tones and this signal is transmitted through the regular traffic handling equipment to the distant machine where it is converted into the correct loop signal to operate the receiving machine. Operations such as this are handled by the telephone companies and are usually done on a rental basis. Each machine has a data set attached to it by the telephone company which makes the necessary signal conversions to properly operate the system.

Some landline uses of teleprinters at the present time are:

1. Invoicing and billing from a central office to regional offices or customers.
2. Ordering for customers from local outlets to a central warehouse. Sears-Roebuck uses this method to speed orders placed by customers at their order stores.
3. Direct access to a computer for solving engineering problems.
4. Computer access to locate railroad cars and give information relative to more efficient utilization of cars.
5. Handling of messages for the public as in the case of Western Union.
6. Distribution of news to newspapers, radio and television stations and others requiring this service.
7. Communication of weather information for general and specific purposes.
8. Communication of information regarding flight of aircraft, such as flight plans, for efficient and safe handling of air traffic.

There are, of course, many more applications of teleprinters but the list above should give some idea of the importance and size of the general application of this communication tool. The area of direct access to computers is growing very rapidly and should become a major area of application of the teleprinter in the near future.

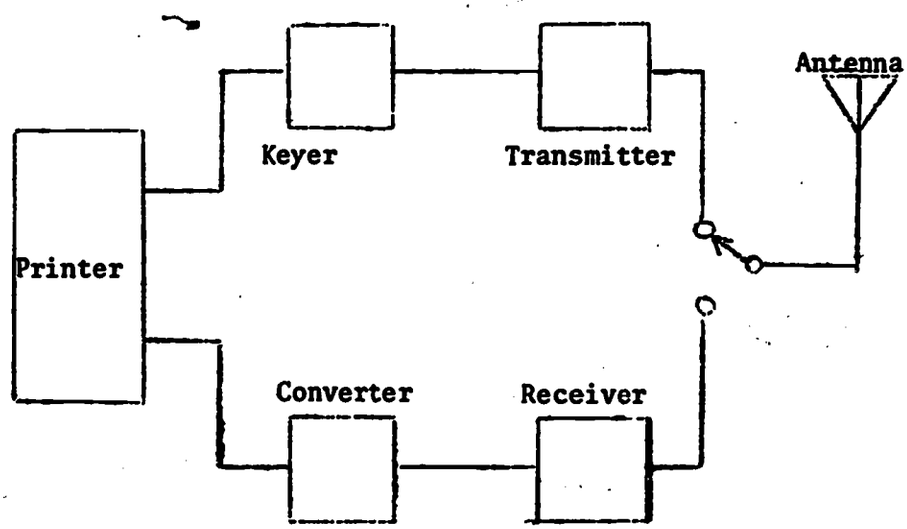
We will now look at the use of teleprinters as they are used in conjunction with radio. This is usually referred to as radioteletype.

RADIOTELETYPE

Because of the expense of landline operation over great distances, especially across oceans, the use of radioteletype has been increasing greatly in recent years. The reliability of this type of communication has been greatly improved with the development of communication satellites and specialized radio systems such as single sideband.

Basically, a radioteletype system involves converting the teleprinter signal into a radio signal and transmitting it through a transmitter, then recovering the information by receiving and converting the signal at the other end so that it can be printed on a teleprinter. Such a basic system is represented in the diagram below in figure 6.

figure 6



In transmitting, the teletype signal is usually one of two kinds; frequency shift keying (FSK), or audio frequency shift keying (AFSK).

Generally, FSK is used below 30 megahertz and AFSK is used in the higher frequency ranges above 30 megahertz.

In using FSK, the teleprinter signal is used to shift the frequency of the transmitter. For example, in amateur use, a common shift frequency is 850 hertz. This means that if a transmitter were using a frequency of 4,000,000 hertz, the output would be at this frequency during the spacing condition but would shift 850 hertz during any marking condition so that, during marking, the frequency would be 4,000,850 hertz. This is usually accomplished by causing the transmitter's oscillator to shift by 850 hertz by using circuits similar to FM. In effect, we are really generating an FM signal when using FSK.

When receiving the FSK signal, the radio tunes and converts the signal into a shifting audio tone. This tone is used to drive an electronic sensing DC supply which completes the job of providing current during mark pulses and no current during space pulses. This signal then drives the printer.

AFSK has been found to work better for higher frequencies. It involves keying a tone (for example 2125 hertz for mark and 2975 hertz for space). The tone shift again is 850 hertz. This shifting tone is treated like any other tone and is fed to a modulator and transmitted, much the same as a voice signal. Again, at the receiving end, the radio receiver tunes and converts the tone into audio which is detected for mark-space conditions and in turn is caused to drive a printer. A considerable amount of experimenting has been done with the amount of shift so that shifts as low as 170 hertz are now being used.

Extensive use of radioteletype is evident in the following applications:

1. Long distance or overseas message handling.
2. Overseas news and weather communications.
3. Amateur radioteletype communications.
4. Government and military message handling over long distances and for backup of landline operations.

The reception of radioteletype signals can be accomplished with the use of any good general coverage radio receiver and the construction of a simple converter for driving the printer. Numerous articles in the bibliography may be consulted for this purpose. For transmission of radioteletype, it is necessary to have a valid amateur radio license before one is permitted to transmit. The only restrictions on receiving, or interception, of radioteletype communications is that the contents may not be divulged or used in any way contrary to the wishes of the sender. This rule applies to all radio communications which are not intended for general public consumption.

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Construction Concentration - - -	a series of complimentary courses directed toward an understanding of the phases of construction and their implications.
Management - - -	supervision and control which results in the successful operation of a construction industry.
Design - - -	to create, fashion, prepare and illustrate a project for execution by the construction industry.
Construction technology - - -	the technical knowledge and skill necessary to execute a construction project.
Manufactured - - -	the construction of an object in a plant removed from the point of actual use.
Project - - -	a physical undertaking by the construction industry.
Proposal - - -	an analysis of the definitions and classifications integrated with the change of relevance resulted in the synthesis of the following patterns and content necessary for a valid representation of the construction industry in the Oswego curriculum.

U.S. Army Signal School, Information Sheets SSTS 55514, Teletypewriter Traffic Engineering, Fort Monmouth, N. J. (N.D.)

_____, SSTS 50012, Reperforator and Transmitter Distributor Fundamentals, SSTS 53401, Fort Monmouth, N. J. (N.D.)

_____, Comparison of D-C and Voice-Frequency Teletype Signals, SSTS 55209, Fort Monmouth, N. J. (N.D.)

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DISCUSSION OF FINDINGS

It is essential to establish a feeling for the trends in construction so as to aid in synthesizing a valid proposal of course content which will fulfill the goals of general education in this area.

The discussion of materials will be organized into the following four categories:

1. The presentation of published articles which reflect learned predictions as to the scope of the construction industry.
2. A presentation of the concerns of the industry as obtained at the Industrial Building Exposition and Congress, Louisville, Kentucky.
3. Present a review of the Industrial Arts Curriculum Project to indicate present developments in the area of curriculum structure and content.
4. Review materials from technical institutions and publishing houses for direction as to course content.

Leaders of industry and even government are a strong indication of a need for new evaluation and understanding of the construction industry. Recent publications such as the following lend credence to the necessity for a sound study of the construction industry and a need to evaluate it in terms of educational goals.

Future requirements are reflected in this statement taken from the Carpenters Magazine (62, p. 4)*:

> Housing is expected to be the fastest growing major construction market of the seventies as we tackle the goal of providing some 26 million dwellings to meet the needs of a growing population and replace more than ten million existing units that are or will become substandard. As in the eighties, the form that this housing will take will continue to change along with the requirements of its buyers and renters.

---

* The first number represents the Bibliography entry, the second the page.

AMATEUR RADIO TELETYPE ARTICLES

CQ Magazine

Title	Month	Year
Know Your QRM	Aug.	1946
Oscillator and Converter	Nov.	1946
Basics of Teletype	Dec.	1951
Diode FSK	Apr.	1952
Polar Relays, FSK	June	1952
Converter (W40CC)	Sept.	1952
709D-1 FSK Exciter	Oct.	1952
Converter (W6AEF)	Dec.	1952
Tone Standards	Jan.	1953
FSK Oscillator	Apr.	1953
AFSK Oscillator	Nov.	1955
Narrow Shift	Dec.	1955
Narrow Shift, FSK	Jan.	1956
Audio Frequency, Turning Fork Stand	May	1956
FSK Tuning Indicator	May	1956
FSK Converter	June	1956
Linear Detector For FSK	Dec.	1956
Audio Tone Filters	Mar.	1957
Tuning Fork Standard	Apr.	1957
VFO For RTTY (W6CQX)	July	1957
RTTY Keying and Patching Circuit	Oct.	1957
RTTY The Easy Way	Nov.	1957
Band Pass Input Filter	Dec.	1957
Notch Filter	Dec.	1957

The Secretary of Housing and Urban Development, George Romney (32, p. 15), declared that:

> We must work to alleviate the increasing critical housing shortage in the United States, where it is expected that the population will grow from the present 200 million to 400 million in the next 50 years.

An article reflecting the changing housing requirements of the people is taken from the U.S. Department of Housing and Urban Development (30, p. 3):

> Looking ahead, housing tastes will change as fewer American families in the coming years will be interested in the traditional dream of a house and lot of their own. More will look toward townhouses, condominium or rental apartments, and other types of cluster living. Scarce land, increasing building costs, commuting problems, and changing life styles will contribute toward this change in attitude. According to Preston Martin, Chairman of the Home Loan Bank Board, "You take all those people who are the so-called swinging singles now. When they get married and turn into swinging doubles, they're going to want the same conveniences they are enjoying now in their apartments. Young people aren't so wild about raking leaves these days."

The National Industrial Conference Board offers insight into the housing shortage through the 1969 Road Maps of Industry (31, No. 1640):

> Residential construction activity varies considerably by census region but generally follows the trend of net household formations within a region. The Northeast region, for example, had 16.8% of the increase in households between 1960-1968, and 17.5% of the new residential construction in the same period. This close relationship between relative shares of net household formations and residential construction holds for the other census regions also.
>
> By 1969, multiple family structures represented over 40% of total residential construction activity in each region. In 1960, however, apartment construction was about 3% in the North Central regions, respectively.

CQ Magazine (Continued)

Title	Month	Year
W2JAV Audio Frequency Meter	Jan	1958
Tone Generator (W2JAV)	Feb	1958
Diode Shifter	Mar	1958
Converter (W2JAV)	Apr	1958
Polar Relay Tester	Apr	1958
Converter, I.F. (W2JTP)	May	1958
Converter, Transistor	June	1958
Auto Start Circuit	Jan	1959
Converter (W2JAV)	Feb	1959
Converter, Transistor	Mar	1959
Converter, Limiter and Filters	Mar	1959
AFSK Detector	Mar	1959
Filter Combination	Apr	1959
AN/FGC-1, Conversion	June	1959
Converter, Transistor (WOACY)	Aug	1959
FSK Code Circuit Identification	Oct	1959
RF Phase Shift System	Nov	1959
Transistorized Electronic Keyer	Feb	1960
A Fork Standard Oscillator	Apr	1960
A Remote Control 80 Meter RTTY VFO	June	1960
An RTTY Station	June	1960
Machine Theory	July	1960
An AFSK Station	July	1960
A Discussion of Page Printers	Aug	1960
Automatic Keyboard Switching	Sept	1960

> The rental vacancy rate varies regionally, and is a good measure of the balance between supply and demand for housing. The total vacancy rate incorporates additional vacant units such as seasonal housing, delapidated units, and shelter held off the market. In the Northeast region, the rental vacancy rate has been consistently below the rate in the other regions. This indicates a relative shortage in the supply of housing. This hypothesis is reinforced by the fact that while 25% of all U.S. households reside in the Northeast region, that region builds only 17.5 of total residential construction. The other regions have been in better balance, as indicated by higher vacancy rate levels. The general decline in all vacancy rates in the last half of the last decade indicates a growing imbalance between housing supply and demand.

Management needs are expressed in relation to the changing social structure as taken from the H U D Challenge, 1970 (30, p. 5):

> Never has the challenge and need been greater than it is today for effective leadership at the Federal and especially at the local level in public housing management. The field of public housing is in a state of great ferment these days. Major changes have taken place in recent years which make this a time of trial.
>
> The forces of inflation have posed severe strains on the public housing program; operating costs have risen more rapidly than tenant incomes and the rents they pay. The aging process of the public housing stock has generated major problems of maintenance and upkeep in many instances. Changing social and economical characteristics of the public housing population have raised entirely new issues and needs, as the program has tended in recent years to serve increasingly large numbers of elderly, handicapped, welfare, and multi-problem families. Changing housing patterns in the community have created changing market demands for public housing, and growing tenant organization has posed important new challenges in the area of tenant-management relations. It seems clear that effective, lasting solutions to the problems facing the public housing program are going to require a judicious and carefully thought-out blend of improvements in three major categories: (1) money, (2) management-reform, and (3) tenant participation and responsibility.

CQ Magazine (Continued)

Title	Month	Year
Tape Equipment	Sept	1960
FSK Discussion	Oct	1960
Heath DX-100 Circuit	Oct	1960
Central CE-458 Circuit	Oct	1960
Diode Switching FSK Circuit	Oct	1960
Polar Relays	Nov	1960
RTTY Station Control	Dec	1960
An FSK Oscillator	Jan	1961
Converter Discussion	Feb	1961
The Twin City TU	Mar	1961
A Band-Pass Input Filter	Apr	1961
RTTY With the KWM-2	Apr	1961
Twin City TU Modification	Apr	1961
AFSK Oscillator for Twin City TU	May	1961
Adjustment of the RTTY Polar Relay	June	1961
Auto Start Discussion	June	1961
Auto Start for the Twin City TU	June	1961
The Clock Unit	July	1961
RTTY Test Equipment and Procedures	Oct	1961
W5BGP Teletype Terminal Unit	Oct	1961
Band Test Tapes	Dec	1961

73 Magazine

Zero Center Meter for RTTY (K5OCU)	July	1961
Transistorized RTTY Converter (W5SFT)	Aug	1961

Construction costs and wage increases have been a continuing influence upon the public as it must absorb the bill for the increased costs of housing. We can use this data from the article "Wage Madness in the Construction Industry" (70, p. 47) as relevant only at the time of writing as construction prices change overnight:

> Department of Commerce indexes reveal that since 1966 construction costs have been climbing at a rate almost double that of the economy as a whole, with some contractors anticipating 14 to 18 per cent increase this year alone. The inflation bill imposed on the nation by this one industry may well reach $10 billion in 1971. According to the Department of Housing and Urban Development, a new house that cost $20,000 in June 1969 cost $22,000 a year later. If that rate of increase continues, this same house will cost $57,000 in another ten years.

These labor rates are taken from the 1970 wages from the 30 largest cities in the United States, as reported by the U.S. Department of Labor. The rates have been rounded out to the nearest 5¢ and include fringe benefits but do not include insurance or taxes.

LABOR RATES 1970

Trade	$/hr.
Foreman (usually 35¢ over trade)	7.20
Bricklayers	7.15
Carpenters	6.95
Electricians	7.50
Hoist Engineers	7.05
Painters	6.20
Plasterers	6.60
Plumbers	7.75
Roofers, Composition	6.30
Steamfitters	7.70
Tile Layers (floor)	6.50

Source: Building Construction Cost Data 1970, 28th Annual Edition Duxbury, Mass.: Robert Snow Means Co., Inc.

73 Magazine (Continued)

Title	Month	Year
Zero-Shift Keying (K5JKX/6)	Sept	1961
KY-65/ARA-26 Automatic Keyer (W4WKM)	Oct	1961
Two-Tone RTTY Oscillator (W5SFT)	Nov	1961
Progress of RTTY in the UK (G2UK)	Dec	1961
Garden City TU (W7CJB)	Mar	1965
Novel AFSK Oscillator (K8ERV)	Apr	1965
FSK VFO (W6TKA)	June	1965
Scope Monitor	Aug	1965
Pattern Distortion	Aug	1965
Teletype Tester	Aug	1965
Improving RTTY Reception (W4EHU)	Feb	1966
FSK Principles (W4EHU)	May	1966
A Simple End of Line Indicator (K8IQY)	May	1966
A Transistorized Oscilloscope for RTTY (K8ERV)	June	1966
Tuning the RTTY Signal (W4EHU)	Nov	1966
Autostart RTTY Gear (W6AYZ)	Jan	1967
Equalizing AFSK Tones (K8ERV)	Feb	1967
Going RTTY: Part Four (W4RWM)	Mar	1967
The Semi-RTTY System (KOJXO/9)	Aug	1967
General Information About Amateur RTTY (WAOBJ)	Dec	1967
RTTY in Holland and Bengium	Jan	1968
The Selcal (WA8PCK & K8ERV)	May	1968
Hybrid RTTY TU (K6JFP)	June	1968
Rejuvenating Old RTTY Ribbons (W5AQN)	Sept	1968
Using an SCR in a Teletype Series Wound Motor(W8NSO)	Nov	1968

The changing habits of the people have altered the requirements of the housing industry. Twenty-six million dwellings to accommodate a projected 4,000 million people presents a need for rapid advancement within the industry. Inflation, labor costs and other factors have generated problems of maintenance and upkeep which rightfully concern people today. It is through sound control and planning within the industry that the necessary directions to lessen the impact upon the public will come.

The researcher was in attendance at the first Industrialized Building Exposition and Congress held. Four hundred different organizations represented Europe and the United States at the convention. A listing of the representatives is found in Appendix A.

Dr. George Cline Smith (56)*, President and Chief Economist, MacKay-Shields Economist Incorporation of New York, in a seminar entitled "Some Hard Looks at Tomorrow's Building Market," commented on the scope of the building industry. Mr. Smith indicated it is indeed the largest industry today and this has created a need for an organization that would build, sell, service and guarantee manufactured homes. He predicted a need for 2.4 million units in 1977 which will represent a peak in the population growth. This need will decrease in the 1980's due to the growing concern for the environment and the population increase. Mobile homes were predicted to decrease in the next ten years as they will be taxed the same as conventional homes. When this occurs many people will purchase the equivalent manufactured home. Mr. Smith stated that one of the advantages of the manufactured home

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*Number (56) in this case represents the Bibliographical source of this information and only acknowledges the source of information.

QST Magazine

Title	Month	Year
RTTY Regulator Circuit	Oct	1955
Filterless Terminal Unit for FSK	July	1958
Radio Teletype Conversion From Receiver I.F.	Jan	1960
Radio Teletype Reception by Tone Conversion	Dec	1960
AFC with Silicon Capacitors for RTTY Reception	Oct	1961
Single Switch RTTY Control	Nov	1961
RTTY Band Pass Filter for 1275/2125 C.P.S.	Aug	1967
RTTY Demodulator, Mark-Hold and Motorstart for the W2JAV (DEDEL)	Nov	1967
Attache Case RTTY	Feb	1968
Filter, RTTY Band Pass	Apr	1968
An RTTY Terminal Unit	May	1968
Teletype at Your Fingertips	Oct	1968
What is RTTY	Dec	1968

is that skilled labor need not be hired to produce the unit. The efficiency of the factory is much greater than on the sight stick build units as there are no weather delays and capital is not tied up in long-term loans. Mr. Smith indicated the construction industry could eliminate all housing problems in a period of two years and because of this capability management should be posed upon the industry which will control the quality of home being manufactured and marketed.

Another seminar which proved quite enlightening and valuable was conducted on solving design problems for these manufactured homes. This seminar was conducted by John P. Ebbrhard (24), Architectural and Environmmntal Design, State University of New York at Buffalo, and Barry A. Berkus (5), President and Associates, Los Angeles, California. The concept presented by these gentlemen in their discussion and presentations centered around the lack of design of the manufactured homes. The industry cannot manufacture a square rectangular module, paint the walls, furnish it, put it on a lot and expect people to live in it. These gentlemen stated that management must become more concerned with what the industry produces and be made to realize a building must be designed for comfortable living. The construction industry must bear in mind people will not live in a pigeon-hole type sterile environment created by convenience of production and not sound design.

The following areas were identified at the convention by T. R. Arnold Associates, Inc. (4, p. 1) as necessary to the construction industry:

1. Management
   a. Directing the manufacturing to realize a profit
   b. Organization skill

VT 016 282
BOYDSTON, WESLEY E.
AN ANALYSIS OF THE AREA OF CONSTRUCTION WITH IMPLICATIONS FOR INDUSTRIAL ARTS TEACHER EDUCATION IMPLEMENTATION AT OSWEGO. STAFF DEVELOPMENT REPORT.

STATE UNIV. OF NEW YORK, OSWEGO. DEPT. OF INDUSTRIAL ARTS AND TECHNOLOGY.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - JAN71 82P.

DESCRIPTORS - *CONSTRUCTION INDUSTRY; *INDUSTRIAL ARTS; RELEVANCE (EDUCATION); *PROGRAM DEVELOPMENT; COURSE CONTENT; EDUCATIONAL NEEDS; POPULATION TRENDS; RESOURCE MATERIALS; CONSTRUCTION NEEDS; *INDUSTRIAL EDUCATION; VOCATIONAL EDUCATION; VOCATIONAL DEVELOPMENT; *TEACHER EDUCATION; MANUFACTURING; INDUSTRIAL TECHNOLOGY

ABSTRACT - THE PURPOSE OF THIS STUDY WAS TO INVESTIGATE THE CONSTRUCTION INDUSTRIES IN ORDER TO FURTHER DEVELOP THE BACKGROUND OF THE INVESTIGATOR, GATHER MATERIALS FOR USE IN INDUSTRIAL ARTS CURRICULUM DEVELOPMENT, AND TO RECOMMEND A CONSTRUCTION CONCENTRATION SEQUENCE FOR THE OSWEGO INDUSTRIAL ARTS PROGRAM. THIS STAFF DEVELOPMENT REPORT, WRITTEN BY AN ASSISTANT PROFESSOR, PRESENTS SPECIFIC OBJECTIVES AND PROCEDURES FOR RESEARCHING AND DEVELOPING CONSTRUCTION CURRICULUMS, AS WELL AS GIVING TERM DEFINITIONS. FOCUSING ON THE SEPARATE TECHNOLOGIES OF CONSTRUCTION AND MANUFACTURING, A PROGRAM PROPOSAL WITH SUGGESTED CURRICULUM OUTLINES, IDEAS FOR IMPLEMENTATION, AND FURTHER RECOMMENDATIONS IS DISCUSSED. A BIBLIOGRAPHY AND RESOURCE MATERIALS ARE INCLUDED. POPULATION TRENDS, CONSTRUCTION NEEDS, AND BUILDING COSTS ARE TOPICS COVERED IN RELATIONSHIP TO CURRICULUM RELEVANCE AND PROGRAM PLANNING. (AG)

2. Marketing
   a. Dealer programs
   b. Advertising
   c. Sales promotion
   d. Public relations

3. Design
   a. Production design
   b. Structural design
   c. Equipment design
   d. Graphics

4. Technology
   a. Talents
   b. Knowledge of manufactured homes
   c. Knowledge of housing methods

5. Manufacturing
   a. Pilot plant operations
   b. Process layouts
   c. In-plant personnel training
   d. Development and operation of production facilities

Curriculum and the needs of youth as characterized by L. H. Cochran (18, p. 1) discusses the relevance of creative curriculum efforts:

> The call for curriculum relevancy focuses attention on meeting the needs of youth by providing meaningful educational experiences. Technological advancement eliminates many occupational categories, produces totally new fields, and releases an explosion of technical knowledges. Federal legislation and foundation financial assistance provided the impetus for creative curriculum efforts. A new research orientation--evidenced by the increase of research articles, the development of research coordinating units, and new research publications--spawn a surge of activity by national research centers at the Ohio State University and North Carolina State University.

Examination of the programs at Ohio State University revealed the nature of the results obtained through these federal subsidies.

I. A. C. P.

A visitation was conducted to Ohio State University at Columbus, Ohio to discuss the Industrial Arts Curriculum Project undertaken and

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STATE UNIVERSITY COLLEGE
DEPARTMENT OF
INDUSTRIAL ARTS AND TECHNOLOGY
OSWEGO, NEW YORK

AN ANALYSIS OF THE AREA OF CONSTRUCTION WITH IMPLICATIONS FOR INDUSTRIAL ARTS TEACHER EDUCATION IMPLEMENTATION AT OSWEGO

STAFF DEVELOPMENT REPORT

Wesley E. Boydston
Assistant Professor

January 1971

Dr. Thomas Jensen, Director

VT016282

developed by the institute. The purpose of the I. A. C. P. was to affect curriculum change in industrial arts. The two objectives as taken from The Journal of Industrial Arts (63, p. 1) are:

(1) To conceptualize a structure of industry as a basis for content in industrial arts.

(2) To translate that structure into a syllabus which outlines a junior high school program for industrial arts.

From the beginning, these assumptions as to the nature of industrial arts were made (63, p. 19):

1. Industrial arts is a study of industry. It is an essential part of the education of all students in order that they may better understand their industrial environment and make wise decisions affecting their occupational goals.

2. Man has been and remains curious about industry, its materials, processes, organization, research, and services.

3. Industry is so vast a social institution that it is necessary, for instructional purposes, to place an emphasis on conceptualizing a fundamental structure of the field, i.e., a system of basic principles, concepts, and unifying themes.

From the three foregoing assumptions the research was undertaken and resulted with the identification of a matrix of industry which indicates that everything that is man-made is either constructed or manufactured, so it was decided to divide the school of knowledge into the technology of construction and manufacturing.

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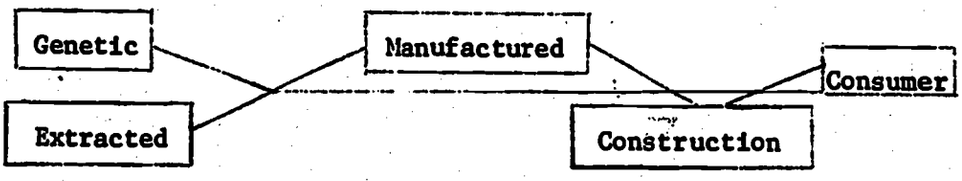
APPENDIX B 47

A MATRIX OF INDUSTRIAL TECHNOLOGY



Source: "The Industrial Arts Curriculum Project," The Journal of Industrial Arts Education, November-December 1969, pp. 1-19.

Investigation of the subject areas included in the I. A. C. P. (74, p. 25) identified the following pattern:

MAN AND TECHNOLOGY

Construction Technology

I. Managing Construction
   - A. Beginning the project
     1. Selecting a site
     2. Buying real estate
     3. Surveying and mapping
     4. Soil testing
   - B. Designing and engineering construction projects
     1. Identifying the design problem
        - a) Developing preliminary ideas
        - b) Refining ideas
     2. Analyzing the design
        - a) Selecting the design
        - b) Making working drawings
        - c) Writing specifications
     3. The designing and engineering cycle
   - C. Selecting a builder
     1. Contracting
     2. Estimating and bidding
     3. Scheduling
     4. Making inspections
     5. Transferring the project

II. Applying Technology to People
   - A. Working as a contractor
   - B. Collective bargaining
   - C. Hiring construction personnel
   - D. Training and educating for construction
   - E. Working conditions

INTRODUCTION

The present population in conjunction with its projected increase in the next decade mandates that the present citizenry provide dwellings in which these people may reside. The types of dwellings being provided are taking many forms and are of various quality. Not only is there a need to understand the problems posed by simply supplying these units for the masses but also to understand proper usage of these units so as to obtain maximum longevity from these dwellings before replacement is required.

Progress is an evolutionary process, but today the pace of the construction industry is very brisk. In the technological world of today in which revolutionary developments are taking place a new type of individual, capable of understanding and controlling these advancements to his advantage, is needed. Many schools profess the use of relevant curriculum materials, some are genuinely attempting, some are only unstructured samplings, and others nonexistent. Lip service is not a means of advancing school curriculums. Indeed, only action can maintain educational pace with the construction industry today.

Industrial arts possesses the potential of providing youth with educational experiences necessary for a knowledge of the construction industry. Recently research has been conducted to identify a body of knowledge inclusive of the construction industry. The use of such a body of knowledge within the organized framework of an industrial arts program would provide experiences necessary for the student to comprehend the structure, requirements and impact of the industry on our culture. The education

F. Advancing in construction
G. Handling grievances
H. Mediating and arbitrating
I. Striking

III. Construction Production Technology
A. Getting ready to build
1. Clearing the site
2. Locating the structure
3. Earthmoving
4. Stabilizing earth and structure
B. Classifying structures
1. Setting foundations
a) Building forms
b) Setting reinforcement
c) Mixing concrete
d) Placing and finishing concrete
2. Building substructures
a) Building mass and masonry superstructures
b) Erecting steel frames
c) Erecting concrete frames
d) Building wood frames
3. Installing utilities
a) Installing heating, cooling, and ventilating systems
b) Installing plumbing systems
c) Installing piping systems
d) Installing electrical power systems
e) Installing electrical communications systems
4. Enclosing framed superstructures
a) Roofing
b) Enclosing exterior walls
c) Insulating
d) Applying wall materials
e) Applying ceiling materials
f) Laying floors
5. Finishing the project
a) Painting and decorating
b) Installing accessories
C. Completing the sight
D. Servicing property

The pilot programs were met with much enthusiasm and success. The materials have been reviewed and the revised third edition of The World of Construction is now being published.

Visitations to State University Agricultural and Technical College,

of the young will be the first major step in solving the housing crisis if they will but exert influence on the construction industry through wise consumer practices. The initiative for disseminating this body of knowledge lies first at the teacher preparation level.

Purpose

The purpose of this study was to investigate the construction industries in order to further develop the background of the investigator, gather materials for use in industrial arts curriculum development and to recommend a construction concentration sequence for the Oswego Industrial Arts program.

Objectives of the Study

The direction for this research was obtained through the identification of the following objectives:

1. Review and order current materials and develop a bibliography to support a construction program.
2. Visit selected central New York industries to develop a bibliography to support a construction program.
3. Investigate the feasibility of scholarship aid and consulting services available from the Eastern New York Construction Employees Association.
4. Investigate the Industrial Arts Curriculum Project at Ohio State University to determine the educational requirements necessary to teach an effective construction program at the teacher education level.
5. To recommend studied deviations from the Industrial Arts Curriculum Project teacher program.
6. Propose a structure which will constitute a construction concentration in the Oswego curriculum.

Delhi, New York and Erie Community College, Buffalo, New York produced the materials found in Appendix B. This material includes the following listings:

Delhi

1. Course outlines for:
   a) Construction I, II, and IV
   b) Planning and Community Development
   c) Utilities
   d) Estimating and Planning
   e) Law and Contracting
   f) Architectural Drawing I, II, and IV

Erie

1. Course outlines for:
   a) Construction Technology
   b) Civil Technology
   c) Utilities

Also contained in the appendix is a course outline for Construction Technology I and II from Ohio State University and an outline for Wood Construction Technology from State University College, Oswego, New York.

Books and materials have been compiled not only to facilitate identifying the direction and impact of the construction industry but to aid in realizing the treatment education is giving to the industry.

Many texts were reviewed to discover the treatment publishers are giving to the industry. Two representative samples are listed here as (A) taken from Modern Carpentry (71, p. 1) and (B) taken from the Small Homes Council publications (53).

A. Modern Carpentry
   1. Hand tools
   2. Power tools
   3. Leveling instruments
   4. Building materials
   5. Plans, specifications codes
   6. Footing and foundations

Procedure

The procedures as numerically listed were followed in conducting this research. In general, these procedures worked well and satisfied the requirements of this report.

1. Identify available education material and develop a tentative proposal.
2. Formulate a visitation schedule.
3. Request materials for evaluation from selected publishing houses.
4. Review available resources.
5. Finalize the visitation schedule.
6. Conduct all visitations and gather available resource materials.
7. Identify a possible construction curriculum pattern for Oswego.
8. Develop basic course outlines for the proposed curriculum pattern.
9. Develop a bibliography and order instructional resource material.
10. Compile and submit the final report.

Consultation

Released time granted for this project allowed for the visitation to technical colleges, universities developing construction curriculums, industrial plants and conventions. These visitations aided in the procurement of course outlines and library materials, related to the construction industries.

The researcher identified the following organizations as being closely

7. Floor framing
8. Wall and ceiling framing
9. Roof framing
10. Roofing materials
11. Windows and exterior doors
12. Exterior wall finish
13. Thermal and sound insulation
14. Interior wall and ceiling finish
15. Finish flooring
16. Stair construction
17. Doors and interior trim
18. Cabinetmaking
19. Chimneys and fireplaces
20. Post-and-beam construction
21. Prefabrication
22. Scaffolds and ladders
23. Carpentry-A Career

B. Small Homes Council
1. Financing the home
2. Maintaining the home
3. Business dealings with the architect and contractor
4. Fundamentals of land design
5. Hazard-free houses for all
6. Split-level houses
7. Housing storage units
8. Kitchen planning standards
9. Separate ovens
10. Laundry areas
11. Garages and carports
12. Selecting lumber
13. Plywood
14. Basements
15. Termite control
16. Wood framing
17. Crawl-space houses
18. Flooring materials
19. Insulation in the home
20. Moisture condensation
21. Chimneys and fireplaces
22. Counter surfaces
23. Window planning principles
24. Selecting windows
25. Insulating windows and screens
26. Roofing materials
27. Brick and concrete masonry
28. Heating the home
29. Fuels and burners
30. Electrical wiring
31. Plumbing
32. Interior design

concerned with the present trends and developments in the construction industry.

1. Bennett Homes Company
   North Tonawanda, New York

2. Delnero Homes
   Baldwinsville, New York

3. National Homes Corporation
   Horseheads, New York

4. The Industrialized Building Exposition and Congress
   Louisville, Kentucky

5. Erie Community College
   Buffalo, New York

6. State University Agriculture and Technical College
   Delhi, New York

7. Ohio State University
   Columbus, Ohio

8. Robert A. Henry, Training Director,
   Eastern New York Construction Employees Association
   Albany, New York

This list is not an exhaustive representation of all organizations involved with the construction industries. It does, however, serve the purpose of allowing for the identification of commonalities between the industry and educational institutions necessary for curriculum development.

Definitions

The following terms are defined by the researcher for use in the context of this study:

Construction Industry - - - an organization involved with the production of super and sub-structures or that alters the terrain in a manner such as bridge building, road building or dam construction.

Knowledgeable people associated with the construction industry have predicted housing requirements which seem insurmountable. The population of our country is predicted to double in the next two decades and thus put demands on the industry for new homes and for replacement of the substandard ones. Complicating the problems of construction and replacement is the changing tastes and habits of the people. These tastes are changing from the desire of security of property ownership to a preference of townhouses, condominiums and rental apartments.

The production and design problems posed by the desire of people to maintain some individuality in their rented dwelling are gigantic and industry is being called upon more and more to solve these problems.

Inflation and the increased costs of operating housing programs, in relation to the small increase in the tenants' income, is forcing improvement in money handling, management and tenant responsibility. It has also brought to focus the need for an organization that will build, sell, service and guarantee manufactured dwellings.

Services which aid the construction industry to attain the desired results of eliminating effectively the housing crisis are identified as management, marketing, design, technology and manufacturing. When these areas are incorporated in the organization of a functioning industry a high degree of success can be anticipated.

Curriculum development on a continuing basis is essential if education is to maintain a pace with the technological advancements of the construction industry and the ever-growing problem of housing requirements. A study of one of the most current and highly funded curriculum projects

(I. A. C. P.) is a prime example of industry and education functioning for the development of the individual's understanding of the construction industry and its effect upon him. This valid and highly publized curriculum identified construction as being divided into the following major topics: (1) managing construction, (2) applying technology to people, and (3) construction production technology. The curriculum elements have been identified in this chapter for the purpose of comparison. Today the curriculum is being accepted and enthusiastically implemented in many school systems.

Discussion with educators and review of course outlines and texts focuses attention on the specifics deemed necessary for an understanding of the modern realm of construction. Through examination and analysis of these materials, elements can be identified which will lead to commonality and relevance necessary for the purposes of general education.

Analysis of the books, educational programs and the organizational aspects of the industry identifies many common elements as seen in the following analytical table.

The analysis clearly indicates the areas of common concern and also the areas that need to be synthesized into each of the respective areas.

ANALYTICAL CHART

Education Programs	Industry	Ed. Books
Financing the home	Directing to realize a profit	Financing the home
Designing and zoning	Design	Plans, specifications and codes
Construction Tools	Equipment Design	Tools
Servicing	Public Relation	Home Maintenance
Labor Organization	Talents	Carpentry as a career
Construction Methods	Knowledge of mfg. homes	Construction techniques
Architectural Drawing	Graphics	Architectural drawing
Labor Training	Personnel training	
Prefabrication	Knowledge of mfg. homes	Prefabrication
Utilities	-	Utilities
Exterior and Interior Finishing	-	Interior and Exterior Finishing
Materials for Construction		Building materials
Excavating	-	Excavating
Concrete Work	-	Concrete work
Managing Technology	Management	-
City Planning	-	-
Estimating	-	-

Content Identification

The following content has been identified as that most representative of the construction universe.

I. Manufacturing Dwelling Units

A. Management
1. Organizing the company
2. Directing the successful operation of the company
3. Labor relations
4. Dealer training and distribution
5. Advertising
6. Employee benefits
7. Public relations
8. Sales

B. Manufacturing Production
1. Designing the product
a. Precut structures
b. Prefabricated structures
c. Sectionalized structures
d. Structural design
e. Architectural renderings
2. Plant operations
a. Tooling and production layout
b. Materials inventory and logistics
c. Operation of production facilities
d. Packaging and transportation
e. Final assembly
f. Employee training

II. The Small Contracting Industry

A. Estimating, bidding and financing the project
B. Designing, drawing and writing specifications
C. Subcontracting
D. Scheduling the subcontractors
E. Inspecting and controlling
F. Labor relations
1. Grievances
2. Arbitrating
3. Striking
G. Transferring the completed project

III. Other Construction Practices

A. Bridge building
B. Dam construction
C. Road construction

IV. Construction Procedures and Practices

A. Private venture
1. Purchasing the property
a. Financing
1) Conventional loan
2) F.H.A. loan
3) G.I. or V.A. loan
4) Private capital
2. Location of property
a. Residential
b. Urban
c. Rural
d. Industrial
e. Services
1) Schools
2) Churches
3) Transportation
4) Utilities
3. Designing
a. Selecting the style
1) Ranch
2) Colonial
3) Oriental
4) Cape cod
5) Spanish
b. Architectural drawings
1) Elevations
2) Floor plans
3) Specifications
4) Detailed drawings
5) Codes

B. Construction Procedures
1. Surveying
a. Tools used
b. Procedure
c. Vocabulary of terms
2. Clearing the property
a. Reasons for clearing
b. Treatment of the trees
c. Equipment used
d. Vocabulary of clearing terms
3. Excavating
a. Equipment used
b. Reasons for excavating
c. Problems encountered in excavating
d. Vocabulary of terms

4. Concrete work, footing and foundations
   a. Form building and block laying
   b. Mixing concrete
   c. Placing concrete
   d. Finishing concrete
   e. The nature of cement
   f. Tools used in concrete work
   g. Vocabulary of concrete work
5. Deck (floor) framing
   a. Girders
   b. Headers
   c. Bridging
   d. Joists
   e. Materials and tools used
   f. Vocabulary of terms
6. Wall framing
   a. Materials and tools used
   b. Framing layouts
   c. Studs
   d. Headers
   e. Plates
   f. Rough openings
   g. Vocabulary of framing terms
7. Roof framing
   a. Tools and materials used
   b. Layout of all types of rafters
   c. Application of materials
   d. Vocabulary of roofing terms
8. Windows and doors
   a. Types available
   b. Installation
   c. Location of
9. Exterior wall finishing
   a. Tools and materials used
   b. Application of materials
   c. Paints, varnishes and stains
   d. Concrete wall finishes
10. Interior wall, ceiling and floor treatments
   a. Available materials
   b. Application of standard materials
   c. Removing of old materials
11. Insulation
   a. R-factor
   b. Types of insulation available
   c. Application of materials
12. Special construction problems
   a. Cathedral ceiling framing
   b. Stair construction
   c. Fireplace construction
   d. Chimney construction

e. Cabinets to purchase or build
f. Sound proofing techniques
g. Fence building

13. Utilities
    a. Water systems
        1) Copper pipe
        2) Plastic pipe
        3) Cast iron pipe
    b. Electrical systems
        1) Wiring
        2) Circuitry
        3) Codes
    c. Sewage disposal
        1) Septic tanks
        2) Dry wells
        3) Leach fields
        4) Inspection
        5) Sewage treatment plants
    d. Heating systems
        1) Forced air
        2) Hydronic
        3) Electric

14. Maintenance of a structure
    a. General repair of the structural components
    b. General repair of the utility hardware
    c. Yard and property care
    d. Interior and exterior finish repair

V. Special Behavior

A. Living with one's peers
    1. Cooperative maintenance
    2. Civic concerns
    3. Social harmony

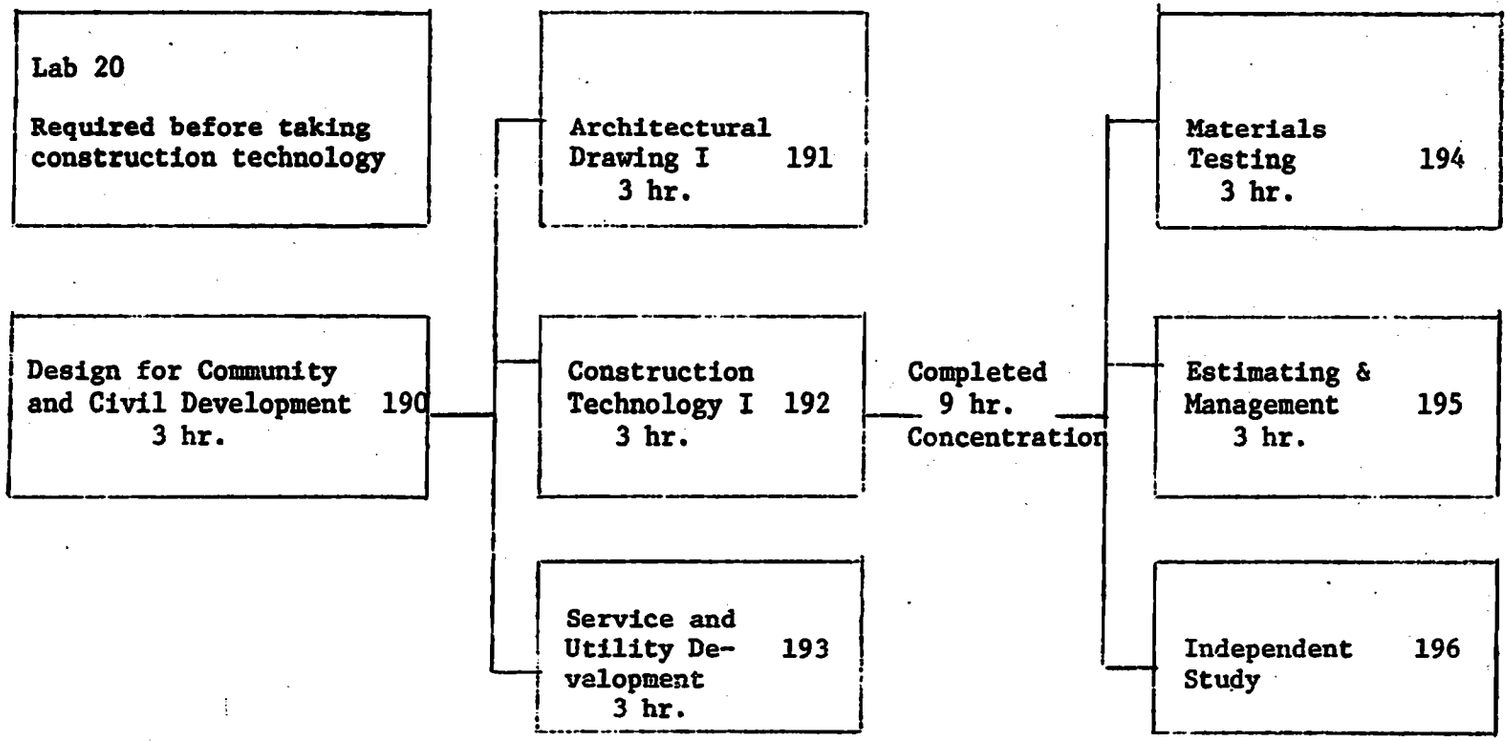
B. Ecology
    1. Community development
    2. Refuse disposal
    3. Beautification

Exposure to these areas will aid individuals in attaining a thorough and complete understanding of the many facets of the construction industry.

Proposal

An analysis of the materials and classifications integrated with the change of curriculum relevance resulted in the synthesis of the following pattern and content necessary for a valid representation of the construction industry in the Oswego curriculum.

Proposal



Required of all choosing a construction concentration

Elect two of these three

Elective Offerings

2464

The final step was to develop major headings for consideration in developing the content and lessons for actual teachings.

I. Design for community and civil development.

Description - a general introductory study of the problems involving residential and industrial design coupled with the civil aspects of environmental alterations caused by the development of roads, bridges and dams.

Topics -
1. Designing for;
   a. industrial use
   b. residential use.
   c. public use
2. Elements of landscaping
3. Zoning
4. Heavy design
   a. bridge
   b. road
   c. dam
5. Ecological effects of construction

II. Architectural Drawing

Description - an area of study which provides a basic background in the principles of home design, modular construction, elevations, floor plans, working drawings, and the planning of commercial buildings.

Topics -
1. Starting to plan
   a. General considerations
   b. Developing the floor plan
   c. Traffic patterns
   d. Basic house types
   e. Vocabulary
2. Individual Room Planning
   a. Living room
   b. Bathroom
   c. Kitchen
   d. Basement
   e. Storage
   f. Bedroom
   g. Dining room
3. Exterior Design
   a. Styles of houses
   b. Weather factors
   c. Location

4. Working Drawings
   a. Drawing to scale
   b. Architectural symbols
   c. Architectural equipment
   d. Specifications
   e. Drawing details
5. Structural members commonly used
   a. Loads and stresses
   b. Joists, rafters, trusses, columns
   c. Vocabulary
6. Planning Commercial Buildings
   a. Merchandising facilities
   b. Office and bank "
   c. Shopping center "
   d. Parking "
7. Construction Industries
   a. Modules
   b. Prefab's
   c. Pre cut
   d. Stick

III. Construction Technology

Description - Theory and application of construction principles and techniques.

Topics -

1. Financing
   a. FHA loans
   b. Veteran loans
   c. Private loans
2. Surveying
   a. Use of instruments
   b. Laying out the foundation
   c. Surveying for grade
3. Masonry
   a. Mason's tools
   b. Concrete types of mixes
   c. Block work
   d. Basement design
   e. Reinforcement work
   f. Forms
4. Wooden Framing
   a. Roof construction
   b. Wall "
   c. Deck "
   d. Exterior finishing
   e. Interior finishing
   f. Manufactured homes
   g. Construction tools and practices

5. Blueprint Reading
   a. Reading for estimating
   b. Reading for construction

IV. Service and Utility Development

Description - A laboratory course dealing with the identification of various utility services connected with the construction industries, their applications and installation.

Units -

1. Heating systems
   a. Hot air
   b. Hydromic
   c. Electric
   d. Tools and equipment used in the trade
2. Air conditioning systems
   a. Types
   b. Ducting
   c. Heat gain calculations
3. Plumbing
   a. Tools and equipment used
   b. Sewers
   c. Hot and cold water
   d. New materials
4. Electric Power
   a. Services
   b. Wiring
   c. Lighting
5. Septic Systems
   a. Tanks
   b. Leach fields
   c. Dry wells

V. Estimating and Management

Description - An advanced course dealing with the principles of estimating, management and scheduling resulting in limited proficiency in the use of software and hardware for these areas.

Units -

1. Estimator
   a. Functions
   b. Qualifications
2. Types of Estimating
   a. Approximate
   b. Complete

3. Estimating Techniques
   a. Print reading
   b. Collection of data
   c. Detailed listing of materials
   d. Final estimate
4. Construction Scheduling
   a. Developing a proper sequence
   b. Scheduling contractors
   c. Controlling construction
5. Management
   a. Inspecting
   b. Contracting
   c. Employee education
   d. Grievance procedure
   e. Union affiliation
   f. Transferring the project
   g. Work regulations and conditions

VI. Materials Testing

Description - Designed to permit the student to identify construction materials, perform tests on the material, and prepare a formal presentation of the research results.

Units -
1. Identifying materials
2. Developing tests
3. Recording specifications
4. Presenting specifications

VII. Independent Study

Description - This course is designed to be taken for one hour credit under the supervision of a staff member working with the construction curriculum. All research will result in the identification of a problem related to the construction industry and development of that problem for application to a school curriculum.

Units -
1. Identification of problem
2. Research problems
3. Form conclusions
4. Present curriculum application

These areas are by no means complete or conclusive. They represent how the researcher feels they best fit the present curriculum without major changes in its structure.

Implementation:

Realizing the importance of implementation with minimum turmoil within the department the recommendations for the content of each specific course were made only after reviewing present course offerings to identify if and where the content at present lies. Consultation with members of the staff has also resulted in a willingness by a few to undertake the development of new course outlines.

Proposal as a concentration

1. The nine hour concentration is considered the most practical as it will limit repetition and offer the student of industrial arts the opportunity to obtain a double concentration of his choice. Two twelve hour concentration offerings would eliminate one choice.

2. The construction concentration as proposed would sufficiently draw from the other areas of our curriculum so as to release instructors from extra sections of present offerings to conduct one of the courses recommended.

3. Transfer students could receive more credit in the industrial arts program for technical courses relating to the construction area.

4. The concentration would commence with the course in community planning. This is basically a design course in which the student would obtain an understanding of many problems confronting the industry today. From this introduction the student would elect two offerings in the area of his interest to complete his concentration. As a result of his choices, the student may wish to return and choose any of the remaining courses as free electives.

   The monitary expenditures for implementing this concentration would be minimal. The equipment present in the design area would adequately facilitate the community planning course. The wood laboratory can adequately offer the construction technology one course within its present facility. With minor content revision, the architectural drafting will very adequately satisfy the proposed drawing offering. The utility course,

with a minimal expenditure for electrical, sheet metal, and plumbing hardware, can be offered from the electrical and metal laboratories. The material testing course is designed in such a way that the responsibility of the student is to identify and obtain various construction materials, devise tests to be performed on these materials, and conduct the same. This eliminates the necessity of stocking materials and procuring elaborate test equipment.

The independent study course is conceived as a device for the development of study units for use in the secondary schools.

The results of the findings suggested the following conclusions and recommendations:

Conclusion:

The Staff Development Program is valuable as a method of identifying and investigating the needs not only of the classroom but of the individual undertaking the program.

Conclusion:

The degree of enthusiasm demonstrated by industrial personnel was most rewarding. Industrialists are aware of our rapidly advancing technology and are more than cooperative in assisting educators in the task of updating their industrial arts programs.

Conclusion:

The major concern of construction today centers around providing housing for a large expanding population. Production capabilities of the industry are so vast that all housing problems, whether they be supplying new ones or replacing old ones, could be eleviated within two years. This presents a need to control this industry so as to obtain not only the housing required, but quality housing which people will utilize.

Conclusion:

A considerable impact has been made on the Industrial Arts Profession with the development and publication of the Industrial Arts Curriculum Project materials. This does not necessarily represent the ultimate advancement for the field. However, it does represent a major direction and trend which industrial arts is taking today.

Recommendation:

The researcher highly recommends that this program be extended to as many educators within the department as possible for the purpose of maintaining relevance within the subject area.

Recommendation:

It is, therefore, recommended that even after the expiration of this Staff Development Program, educators of industrial arts be encouraged to remain in contact and visit industry as much as is feasible.

Recommendation:

Industrial arts educators should be concerned with educating the young to the vast capabilities of our industrialized construction techniques so they, as wise consumers, may help regulate this industry to their advantage.

Recommendation:

Question ourselves as to why we do not consider it of major importance and have construction represent one quarter of our curriculum.

Recommendation:

The researcher recommends this concentration be accepted for consideration, courses developed, and implementation made at the earliest possible date.

In numerous school systems throughout the country and state we see and read of class offerings in the area of construction. We see the federal government allotting monies for the development of curriculums. There is very enthusiastic acceptance of construction curriculums by the industry itself, and yet there is a reluctancy to endorse construction in the Oswego curriculum.

If education is to remain abreast of the construction industry the information presented here must be utilized in the period of time when it is most relevant and that time is past if one considers the four years to train a teacher. We must act at once to bring these materials to the future industrial arts teacher.

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APPENDIX

APPENDIX A

These members of the construction industry were taken from the official directory for the 1970 Industrialized Building Exposition and Congress as sponsored and published by the Cahners Publishing Company, Chicago, Illinois.

Alpine Engineered Products, Inc.
P.O. Box 2225
Pompano Beach, Florida 33061
Truss connector plates, truss fabricating equipment and builders' hardware

Aluminum Company of America
1501 Alcoa Building
Pittsburgh, Pennsylvania 15219
Alumiframe building system. Ridgewall building system, Alcoa Forecast II siding, Alcoa Forecast gutters and downspouts, Vent-a-Ridge ventilation system

Automated Building Components, Inc.
7525 N.W. 37th Avenue
Miami, Florida 33147
Teletype terminal used to receive a-sawing program from ABCom Computer Center, Auto Pan program which gives complete cutting and fabrication details of wall panels for any floor plan, numerically controlled Auto Saw, a high-speed cutter controlled by punched paper tape, Gang-Nail II 40-ton press used in fabrication of half trusses, floor trusses and bowstrings

Behring Corporation
2800 E. Oakland Park Blvd.
Ft. Lauderdale, Florida 33306
Manufacturing single family residences, garden apartments, townhouses, and school buildings

Bennett Modular Highrise Systems
P.O. Box 6523
Long Beach, California 90815
Bennett dynomodular highrise system, Bennett instamatic connector, disposable or relocatable skyscraper, salvageable structural and mechanical system, highrise hotel, license and joint venture agreements

Building Systems, Inc.
3113 Prospect Avenue
Cleveland, Ohio 44115
Total systems approach to building

Burkin Homes Corporation
P.O. Box 626
White Pigeon, Michigan 49099
Vacation type modular home

The Carew Corporation
3495 Industrial Highway
York, Pennsylvania 17402
Carew panelwall factor assembled, insulated modular wall panels; Cornwall precast, prestressed wall panels of dense, high strength concrete and tensioned steel; Carew pre-engineered building systems

Congoleum Industries
195 Belgrove Drive
Kearney, New Jersey 07032
Cushioned vinyl floor covering; carpets by Congoleum; Mobile floor cushionwall and cushion ceiling

Dacor Manufacturing Co., Inc.
H.D. Fuller Company
P.O. Box 1489
Worcester, Massachusetts 01601
Brick and stone panel systems and adhesives

Department of Housing and Urban Development
National Organization Division
Washington, D.C. 20410
Housing and Urban Development Breakthrough housing exhibit

Deus Development Company
135 W. Dorothy Street
Dayton, Ohio 45429
Concrete building system

French Industrialized Building Systems Exhibit
9, Rue Laperouse, Paris, France
Building Systems

Guerdon Industries, Inc.
P.O. Box 1259
Louisville, Kentucky 40201
Mobile homes, sectional homes, modular stacked structures, concrete and steel modules

Hemisphere Development Corporation
P.O. Box 7506
Murray, Utah 34107
Total building concept, building systems, modules, 4'x8' panels finished both sides

Jespersen-Kay Systems, Inc.
2 W. 45th Street
New York, New York 10036
Jespersen-Kay building system for multi-family dwellings

Kellner Lumber Company
P.O. Box 1741
Fresno, California 93717
Computerized wall fabrication system with conventional wood framing

Kohler Company
Kohler, Wisconsin 53044
Kohler Instant Bathroom--a complete modular bathroom or powder room with plumbing and electrical system ready for installation in modular residential home or apartment buildings, hotels, motels, dormitories, nursing homes and hospitals.

Meridian Modules, Inc.
1626 South 11th Street
St. Louis, Missouri 63104
Plumbing modules

Minter Homes Company
240 Third Avenue
Huntington, West Virginia 25713
Plastic vacation home

Modular Housing Systems, Inc.
Northumberland, Pennsylvania 17857
Modular townhouses and garden apartments, modular high rise apartments

Modular Wall Systems, Inc.
4829 Delhaven Blvd.
Charlotte, North Carolina 28214
Brick textured wall systems

Module Communities Incorporated
1561 Central Park Avenue
Yonkers, New York 10710
Concrete high rise multi unit housing, completely prefabricated in the factory

Monarch Industries, Inc.
P.O. Box 1
Goshen, Indiana 46526
Mobile homes, modular homes, apartments and multi-family dwellings.

Morgan Company
601 Oregon Street
Oshkosh, Wisconsin 54901
Modular stair and entrance systems

National Homes Corporation
Lafayette, Indiana 47901
Single and multi family modular housing

Noonan-Laing, Inc.
50 North Duke Street
York, Pennsylvania 17405
Sectra high-rise building construction system

O'Neill Enterprises, Inc.
2007 Earhart Street
Charlottesville, Virginia 22903
Lainewall buildings system

Outinord S.A.
9, Rue Vezelay
Paris, France
Building systems

Pazlex Company
8797 Capital
Oak Park, Michigan
Patented construction for hollow walls assembled by interlocking panels with studs without nails, screws or staples

Rouse-Wates, Inc.
Columbia, Maryland 21043
A total development program for the creation of large scale residential communities utilizing industrialized housing techniques

Salem-House by Americana
Mobile Homes, Inc.
9th and Oak Streets
Berwick, Pennsylvania 18603
Factory built housing: Single Family, Duplex, Town House

Scholz Homes, Inc.
2001 N. Westwood Avenue
Toledo, Ohio 43607
Modular garden apartments, Modular single-family homes

Shelter Industries Div.
Certain-Teed Products Corp.
Modular Sciences, Inc.
Valley Forge, Pennsylvania 19481
Modular home featuring roofing shingles, carpeting, vinyl siding, millwork, fiberglass tub and shower units

Shelter Resources Corporation
750 Third Avenue
New York, New York 10017
Winston modular housing, charter modular houses, townhouses and apartments

The Singer Company
62 Columbus Street
Auburn, New York 13021
Heating and air conditioning equipment for residential, commercial and industrial use

Stahl Industries, Inc.
Reality Building
Youngstown, Ohio 44503
Factory produced wall sub-systems

Stirling Homes Corp.
1150 East River Road
Avon, New York 14414
Stirling Homex low rise town house modular system, hi-rise modular system

Tracoba
18, Boulevard De La Bastille
Paris, France
Building systems

USCO, Incorporated
P.O. Box 6832
Richmond, Virginia 23230
Two story three and four bedroom townhouse

U.S. Department of Commerce
Construction & Building Materials Division
BDSA-645
Washington, D.C. 20230

Services and information available from various agencies of the U.S. Department of Commerce pertinent to the industrialized building industry; a slide presentation of the Business and Defense Services Administration and other elements of the Department of Commerce services to industry; publications relating to the industry

U.S. Plywood
777 Third Avenue
New York, New York 10017

Sidings, doors, prefinished paneling, micarta, facad, grid pattern permaply

The Wickes Corporation
515 North Washington
Saginaw, Michigan 48607

Sectional and modular homes, building materials distribution, metal buildings, forest products, kitchen and bathroom cabinets, furniture, land development

Wheeling Corrugating Company
Division of Wheeling-Pittsburgh Steel Corp.
1134-40 Market Street
Wheeling, West Virginia 26003

Steel framing for use in modular and panel type construction, urethane insulated wall panel for use in conjunction with steel framing

APPENDIX B

The materials included in this appendix have been edited into the content pertinent to this research. Credit is given to the author, if one was listed, and to the institution. All listings are alphabetical by institution and then by course name.

Erie Community College
Buffalo, New York

Ohio State University
Columbus, Ohio

State University Agricultural and Technical College
Delhi, New York

State University College
Buffalo, New York

State University College
Oswego, New York

ERIE COMMUNITY COLLEGE

Curriculum Name: Civil Technology

Prepared by: Donald T. Blair -- January 1970

I. Introduction - Organization

II. Site Investigation
- A. Preliminary Investigation
  - 1. Soil Bearing Capacity
  - 2. Topography
  - 3. Kinds of Soil
  - 4. Subsurface Exploration
  - 5. Nature of Soil
  - 6. Frost Penetration
- B. Secondary Investigation
  - 1. Access to the Site
  - 2. Availability of Services
  - 3. Local Building Bylaws
  - 4. Local Labor Supply
  - 5. Site Conditions

III. Surveying Instruments
- A. Builder's Level
  - 1. Dumpy
  - 2. Wye
- B. Transit Level
- C. Level Rod

IV. Site Layout
- A. Leveling Instruments
  - 1. Levels
  - 2. Transit
  - 3. Leveling Rod
- B. Layout Before Excavation
  - 1. Boundaries
  - 2. Monuments
  - 3. Stakes
- C. Preliminary Layout Problems
  - 1. Setting Batter Boards
  - 2. Building Lines
  - 3. Depth of Excavation
  - 4. Running Grades
- D. Care of Instruments
  - 1. Instruments
  - 2. Tripod

V. Excavations and Excavating Equipment
  A. Effects of Soil Types on Excavating Equipment
    1. Removing Ground Water
    2. General and Special Excavations
  B. Choosing Excavation Equipment
    1. Cranes
    2. Bulldozer
    3. Loader
    4. Scraper
    5. Power Shovel
    6. Pull Shovel
    7. Dragline
    8. Clamshell
    9. Trencher
    10. Trucks

VI. Foundation Layout
  A. Locating Points
    1. Survey Stakes
    2. Batter Boards
  B. Layout for Footing Forms
    1. Building Line
    2. Footing Line
  C. Leveling of Footing Forms
    1. Builders Level
    2. Spirit Level

VII. Piles, Caissons, and Spread Foundations
  A. Types of Piles
    1. Wood Piles
    2. Concrete Piles
    3. Steel Piles
    4. Composite Piles
  B. Caissons
    1. Classification
    2. Use
  C. Spread Foundations
    1. Load Concentration
    2. Grillage
    3. Reinforced Concrete

VIII. Formwork
  A. Form Materials
    1. Wood
    2. Steel
    3. Fiberboard

IX. Formwork (continued)
- A. Form Design
  1. Strength
  2. Tightness
  3. Ease of Use
  4. Reusable

X. Concrete Work
- A. Concrete Design
  1. Cement
  2. Aggregate
  3. Water
- B. Mixing Concrete
  1. Appearance
  2. Consistency

XI. Concrete Work (continued)
- A. Transporting Concrete
  1. Wheelbarrows
  2. Crain-hoisted buckets
  3. Dump Trucks
  4. Transit Mix Trucks
  5. Pipelines

XII. Reinforced Concrete Frame
- A. Cast-in-Place
  1. Size, shape and strength required
  2. Placing of steel rods for reinforcement
- B. Column Forms
  1. Lateral Pressure
  2. Tie Support
  3. Shapes
     a. square
     b. round
     c. rectangular
     d. irregular
- C. Precast Concrete Frames
  1. Reinforced
  2. Prestressed
  3. Erection
  4. Connection

XIII. Structural Steel Frame
- A. Fabrication Shapes
  - 1. I Beam
  - 2. WF Beam
  - 3. H Beam
  - 4. Channel
  - 5. Leg Angles
  - 6. Plates
- B. Erection of Steel Frame
  - 1. Equipment
  - 2. Method of connection
    - a. bolts
    - b. rivets
    - c. welding

XIV. Floor Systems and Industrial Flooring
- A. Wood Floors
  - 1. Laminations
  - 2. Planks
    - a. Tongue and Gooved
    - b. Splined
- B. Concrete Floors
  - 1. Slab-on-Grade
  - 2. Beam and Slab
  - 3. Ribbed Slab
  - 4. Waffle Floor

XV. Stair Construction
- A. Materials
  - a. concrete
  - b. wood
  - c. steel
  - d. stone
- B. Type
  - a. service
  - b. principle

XVI. Cold Weather Construction
- A. Enclosures
  - 1. Materials
  - 2. Method
- B. Heaters
  - 1. Steel Pipe
  - 2. Salamander
  - 3. Hot Water

ERIE COMMUNITY COLLEGE - AMHERST
Main Street and Youngs Road
Buffalo, New York 14221

Curriculum Name: Construction Technology

Prepared by: Donald T. Blair - September 1970

I. Hand Tools
  A. Introduction
    1. Course outline and objectives
    2. Assignments
      a. Texts, reference books
      b. Reports
      c. Projects
      d. Grading
      e. Laboratory Safety
  B. Tools - Type, Size, and Use
    1. Saws
    2. Chisels
    3. Hatchets
    4. Smoothing tools
    5. Measuring tools
    6. Layout and marking tools
    7. Boring tools
    8. Assembling tools
    9. Leveling and plumbing tools
    10. Wrecking tools

II. Power Tools
  A. Types, Size and Use
    1. Table saw
    2. Radial arm saw
    3. Hand electric saw
    4. Band saw
    5. Drill press
    6. Portable electric drill
    7. Portable electric plane
    8. Portable router

III. Building Site
  A. Soil Conditions
    1. Samples
    2. Testing
  B. Building Layout
    1. Corner Stakes
    2. Batterboards

IV. Floor Framing
- A. Type, Size and Application
  1. Post
  2. Sill
  3. Girders
  4. Joists
  5. Bridging
  6. Subfloor

V. Wall Framing
- A. Type, Size and Installation
  1. Exterior Walls
  2. Interior Walls

VI. Ceiling Framing
- A. Size, Type and Installation
  1. Material
  2. Cutting

VII. Roof Framing
- A. Roof Shapes
  1. Plans
  2. Terms
  3. Ridge
  4. Layout and cutting

VIII. Stair Building
- A. Interior and Exterior
  1. Dimensions
  2. Types
  3. Layout and cutting
  4. Assembly

IX. Cornice Work
- A. Construction and Erection
  1. Box cornice
  2. Closed cornice
  3. Open cornice
  4. Cornice return
  5. Rake or Gable end finish

X. Exterior Siding
- A. Materials and Installation
  1. Bevel siding
  2. Shake and Shingle siding
  3. Vertical siding

XI. Insulation and Ventilation
- A. Materials and Installation
  1. Types and size
  2. Where to insulate
  3. Where to ventilate
  4. Precautions

XII. Interior Wall Finish
- A. Materials and Application
  1. Lath and plaster
  2. Dry wall finish
     a. gypsum
     b. wood

XIII. Interior Trim
- A. Materials and Installation
  1. Doors
  2. Windows
  3. Floors
  4. Moulding

XIV. Cabinet Work
- A. Millwork Materials and Installation
  1. Cases
  2. Kitchen cabinets
  3. Shelving
  4. Mantels

XV. Foundation
- A. How, where, type and size
  1. Excavation
  2. Footing forms
  3. Wall forms

XVI. Review and Project Completion
- A. Review main topics of course
- B. Complete all projects in Construction Laboratory

ERIE COMMUNITY COLLEGE
Main Street & Youngs Road
Buffalo, New York 14221

Curriculum Name: Construction Technology

Prepared by: Martin Meidel -- January 1970

I. Tools and Equipment (Metal Laboratory)
   A. Metal Hand Tools
      1. Hammers
      2. Saws
      3. Snips
      4. Measuring devices
      5. Wrenches
      6. Files
   B. Metal Machines
      1. Hand brake
      2. Bar folder
      3. Slup-roll
      4. Rotary machine
      5. Drill press
      6. Horizontal band saw
      7. Grinders
      8. Squaring shear
   C. Portable Power Tools
      1. Drills
      2. Sheet metal cutters
      3. Spot welders

II. Introduction to Structural Steel
   A. Anchor Bolts
   B. Bearing Plates
   C. Fabrication Shapes
      1. I beam
      2. WF beam
      3. Girders
      4. Channels and angles

III. Iron and Steel Manufacturing
   A. Furnace Operations
      1. Blast furnace
      2. Open-hearth furnace
      3. Electric furnace
   B. Chemistry of Iron and Steel

IV. Steel Erection and Equipment
- A. Erection Crews
- B. Operations and Tools
- C. Mobile Cranes
- D. Tower Cranes

V. Excavations and Excavating Equipment
- A. Effects of Various Soils
  - 1. Removing ground water
  - 2. Special excavations
- B. Excavation Equipment
  - 1. Cranes
  - 2. Draglines
  - 3. Clamshell
  - 4. Bulldozer
  - 5. Power Shovels
  - 6. Scrapers
  - 7. Trenchers
  - 8. Trucks

VI. Welding, Riveting, and Bolting
- A. Structural Steel Fasteners
  - 1. Welding (arc and gas)
  - 2. Riveting (hot and cold)
  - 3. Bolting (High strength, machine bolts)

VII. Concrete Work
- A. Concrete design
  - 1. Cement
  - 2. Aggregate
  - 3. Water
- B. Mixing Concrete
- C. Placing Concrete
- D. Finishing and Curing Concrete

VIII. Reinforcing Steel and Concrete
- A. Placing of Rods
  - 1. Size
  - 2. Shape
  - 3. Required strength
- B. Columns and Floors
  - 1. Tie supports
  - 2. Shapes
- C. Precast Concrete Forms

IX. Masonry Construction
- A. Concrete Blocks
- B. Brick Construction
- C. Structural Clay Tile and Facings

X. Rigging - Fiber and Wire Rope
   A. Types and Uses of Fiber Rope
   B. Wire Rope, Cables, and Rigging Equipment
   C. Hitches, Knots and Splices

XI. Curtain Wall Construction
   A. Masonry Walls
   B. Glass Block Walls
   C. Lightweight Curtain Walls

XII. Floor Systems and Industrial Flooring
   A. Wood Floors
      1. Laminations
      2. Planks
   B. Concrete Floors
      1. Slab-on-grade
      2. Beam and slab
      3. Ribbed slab
      4. Waffle floor

XIII. Cold Weather Construction
   A. Enclosures
      1. Materials
      2. Methods
   B. Heaters
      1. Steel pipe
      2. Salamanders
      3. Hot Water

ERIE COMMUNITY COLLEGE
Buffalo, New York

Course Title and Number: Utilities and Services 1451

Curriculum Name: Construction Technology

Prepared by: William F. Jehle -- September 1969

I. Tools and Equipment Used in Sheet Metal Work
  A. Hand Tools
    1. United States Standard Gages
      a. Sheet Metal
      b. Screw
    2. Assembling Tools
      a. Hammer
      b. Screw Drivers
      c. Wrenches
      d. Pliers
      e. Hand Groovers
      f. Rivet Set
      g. Soldering Tools
    3. Cutting Tools
      a. Snips
      b. Chisels
      c. Punches
      d. Saws
      e. Files
    4. Forming Tools
      a. Bench plate
      b. Stakes
      c. Universal holder and stakes
  B. Equipment, Machine and Small Power Tools
    1. Machines
      a. Bar folder
      b. Hand brake
      c. Slip roll forming machine
      d. Squaring shear
      e. Beading machine
      f. Crimping machine
      g. Ring and circle shear
      h. Turning machine
      i. Burring machine
    2. Power Equipment and Tools
      a. Pittsburgh Lockformer
      b. Seams

c. Welding tools
d. Grinders
e. Drill presses
f. Portable hand drill motors

II. Hot Air Heating Systems
A. Types of Systems
1. Gravity
2. Forced Air
B. Sizing a Heating System
1. Heat Loss Claculations
2. Heat Load Calculations
C. Duct Design
1. Round Ducts
2. Rectangular Ducts
D. Selection of Materials and Methods of Fabrication

III. Wet Heating Systems
A. Types of Hot Water Systems
1. Gravity
2. Forced Circulation
a. One pipe
b. Two pipe direct-return
c. Two pipe reversed-return
B. Types of Steam Heating Systems
1. One pipe
2. Two pipe
3. Vacuum Systems
C. Radiant Panel Heating Systems
1. Warm Air
a. Floor
b. Ceiling
2. Warm Water
a. Floor
b. Ceiling
c. Walls
3. Electric
D. Unit Heaters - types
1. Wet
2. Gas Fired
E. Selection of Materials and Method of Installation

IV. Air Conditioning
A. Types of Air Conditioning Systems
1. Air Cooled
2. Water Cooled

B. Sizing A System
   1. Sensible Heat
   2. Latent Load
C. Air Conditioning Incorporated in Heating Systems
   1. Hot Air Systems
   2. Hot Water Systems
D. Selection of Materials and Methods of Fabrication

V. Tools and Equipment Used in Plumbing Work
A. Hand Tools
   1. Threaded Pipe Tools
      a. Vises
      b. Wrenches
      c. Cutters
      d. Reamers
      e. Stocks and dies
      f. Binding tools
   2. Caulked Pipe Tools
      a. Packing irons
      b. Caulking Irons
      c. Pickout irons
      d. Joint runner
      e. Melting furnace, melting pot and ladle
      f. Soil pipe cutter
   3. Copper Tubing Tools
      a. Torch and solder
      b. Cutter
      c. Benders
      d. Flaring tool
      e. Sizing tool
      f. Pinch-off tool
   4. General Purpose Tools
      a. Brace and auger bits
      b. Carpenter's level and plumb
      c. Chisels
      d. Folding rule and steel measuring tape
      e. Hammers
      f. Wrenches
      g. Saws
B. Power Equipment
   1. Pipe Threader
      a. Cutting
      b. Reaming
      c. Threading
   2. Power Hack Saw
      a. Saw blades

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VI. Waste Piping
- A. Codes, National and Local
- B. Fixtures Serviced
- C. Pipe, Types
  1. Cast iron
  2. Copper
  3. Vitrified clay
  4. Plastic
  5. Brass
  6. Lead
- D. Sewers
  1. Main
  2. Lateral
- E. Stacks and Branches
  1. Sizing the stack
  2. Sizing individual wastes
  3. Installing the stack
     a. Running through roof
     b. Installing branches
     c. Supporting the stack and branches
     d. Under basement floor
  4. Testing
     a. Water
     b. Air

VII. Hot and Cold Water Piping
- A. Codes, National, Local
- B. Fixtures Supplied
  1. Bath tubs and showers
  2. Lavatories
  3. Water closets
  4. Laundry
- C. Piping, Types and Size
  1. Copper
  2. Galvanized iron
  3. Brass
  4. Lead

VIII. Gas Piping
- A. Codes
- B. Appliances Supplied
  1. Furnace and Air Conditioning
  2. Hot Water
  3. Cooking
  4. Refrigeration
  5. Laundry

IX. Sprinkler System
- A. Codes
  - 1. Occupancy Classification
- B. Types
  - 1. Wet Pipe
  - 2. Dry Pipe
  - 3. Preaction
  - 4. Deluge

X. Electric Power and Lighting
- A. Codes -- National, Local
- B. Services, Types and Size
  - 1. Sizing
  - 2. Installation
  - 3. Panel
    - a. Circuit breakers
    - b. Fuses
  - 4. Grounding
- C. Wiring -- Types and Sizes
  - 1. Non-Metallic
  - 2. Armored Cable
  - 3. Conduit
  - 4. Circuits
  - 5. Wiring for Heavy Appliances
- D. Electric Motors, Types
  - 1. Split-Phase
  - 2. Capacitor
  - 3. Repulsion - Induction
  - 4. Three-Phase
  - 5. Universal
- E. Lighting
  - 1. Types
    - a. Incandescent
    - b. Fluorescent
  - 2. Lighting Design
    - a. Lumen
    - b. Candle power

OHIO STATE UNIVERSITY
Columbus, Ohio

REVISED SUMMARY OUTLINE

Education 231 - Construction Technology I

Content Outline

I. Getting Ready to Build
   A. Clearing the site
   B. Locating the structure
   C. Earthmoving
   D. Stabilizing earth and structures

II. Building Structures
   A. Setting Foundations
      1. Building forms
      2. Setting Reinforcement
      3. Mixing concrete
      4. Placing and finishing concrete
      5. Completing foundations
   B. Building Superstructures
      1. Building mass and masonry superstructures
      2. Erecting steel frames
      3. Erecting concrete frames
      4. Building wood frames
   C. Installing Utilities
      1. Installing heating, cooling, and ventilating systems
      2. Installing plumbing systems
      3. Installing piping systems
      4. Installing electrical power systems
      5. Installing electrical communications systems
   D. Making inspections
   E. Enclosing Framed Superstructures
      1. Roofing
      2. Enclosing exterior walls
      3. Insulating
      4. Applying wall materials
      5. Applying ceiling materials
      6. Laying flooring
   F. Finishing the Project
      1. Painting and decorating
      2. Installing accessories

III. Completing the site

IV. Transferring the project

V. Servicing property

Education 232 - Construction Technology II

Content Outline

I. Managing Technology
   A. Beginning the Project
      1. Selecting a site
      2. Buying real estate
      3. Surveying and mapping
      4. Soil testing
   B. Designing and engineering the Construction Project
      1. Identifying the design problem
      2. Developing preliminary ideas
      3. Refining ideas
      4. Engineering designs
      5. Selecting the design
      6. Making working drawings
      7. Writing specifications
      8. The design and engineering cycle
   C. Selecting a builder
      1. Contracting
      2. Estimating and bidding
      3. Scheduling
      4. Working as a contractor
   D. Collective bargaining
   E. Hiring Construction Personnel
   F. Training and Educating for Construction
   G. Working Conditions
   H. Advancing in Construction
   I. Handling Grievances
   J. Mediating and Arbitrating
   K. Striking

II. Building Dams

III. Bridge Building

IV. Road Building

V. Building Skyscrapers

VI. Constructing in the Future

VII. Constructing Housing
- A. Selecting and Purchasing a Lot
- B. Planning the Living Space
- C. Preparing Working Drawings
- D. Writing Specifications
- E. Financing and Contracting
  1. Building floors and ceilings
  2. Building walls
  3. Building roofs
  4. Enclosing exteriors
  5. Roughing in utilities
  6. Working on the interior
  7. Completing the house
  8. Landscaping homesites

VIII. City and Regional Planning
- A. Constructing Service Facilities
- B. Housing People
- C. Constructing Flood Protection
- D. Constructing Streets
- E. Constructing Schools
- F. Constructing Shopping Centers
- G. Constructing High Density Housing
- H. Constructing Central Businesses
- I. Constructing Recreation Facilities

IX. The Economics of Community Development
Managing Community Development

X. The Community and its Region

State University
AGRICULTURAL AND TECHNICAL COLLEGE
DELHI, NEW YORK

Course Name: Architectural Drafting I

Instructors: J. Fredericks and R. Hillebrand

Course Outline:

I. Basic Skills and Terminology
   A. Professional drafting techniques
      1. Linework
      2. Lettering
      3. Architectural symbols and conventions
      4. Architectural scales
      5. Dimensioning systems
   B. Architectural nomenclature
      1. Architectural drawing systems
      2. Construction details

II. Architectural Planning
   A. Preliminary steps in planning
      1. Layout coordination
      2. Development of plans
      3. Format and arrangement of drawings
   B. Presentation drawings
      1. Composition and purpose
      2. Media and format
      3. Presentation drawings by students from existing buildings

III. Architectural Working Drawings
   A. Definition and purpose
      1. Relationship of drawings
      2. Drafting styles
      3. Reproduction of drawings
   B. Floor plan
      1. Purpose
      2. Floor plan techniques
      3. Dimensioning
   C. Foundation plan
      1. Types of foundations
      2. Required information
      3. Conventions
   D. Structural Sections
      1. Transverse section
      2. Wall section

E. Exterior elevations
   1. Types
   2. Drafting methods

State University
AGRICULTURE AND TECHNICAL COLLEGE
Delhi, New York

Course Name: Architectural Drawing III

Instructor: J. Fredericks

Topic	Drawing
Introduction to course objectives and procedures assign first drawing topic	Preliminary sketches
The building site Plan development	Final Prelim sketches, single, family house or multiple dwelling
Presentation drawing review various rendering media	Presentation drawing of above
Exterior building design History of residential styles criticism of presentations	Begin working drawing floor plans
Continue with above topic	Complete W.D. Floor plans
Review Structural systems for residences	Begin structural working drawings
Continue with structural drawings, review elevation drawings	Complete structural Start elevations
Plot plan working drawings, zoning and code restrictions	Complete elevations Begin plot plan

Topic	Drawing
Residential lighting. Design theory and W.D. details	Complete elevations Begin plot plan
Small commercial building basic planning considerations Development of preliminary drawings from assigned design sketch and structural system	Start presentation drawing from comm. building
Contemporary structures	Complete presentation drawing
Working drawings foundation plans, floor plans	Floor plan
Working drawings, structural	Cross sections
Coordination of mechanical and electrical drawings with architectural W.D.'s Prelim. Layout for plumbing heating and electrical	Elevations, plumbing, heating and electrical preliminary drawings

State University
AGRICULTURAL AND TECHNICAL COLLEGE
DELHI, NEW YORK

Course Name: Architectural Drawing IV

Instructor: J. Fredericks

Drawing Assignment:

A Presentation: Drawing or drawings which includes plan, plot plan, structural details and rendered perspective.

A scale model

Working Drawings: Including: Floor plans and structural plans.
Building sections
Wall sections
Building elevations
Millwork details
Door details and schedules
Window details and schedules
Interior elevations, details and schedules.

State University
AGRICULTURAL AND TECHNICAL COLLEGE
DELHI, NEW YORK

Course Name: Construction IV

Instructor: J. Miglianti

Course Outline:

1. Theory and Basic Principles of Electrical Construction
   - A. Underwriters and codes
     1. National Board of Fire Underwriters
     2. Underwriters testing and inspection
   - B. Basic Principles and Measurement of Electricity
   - C. Types of Current, Power Factors and Transformers
   - D. Basic Devices and Circuits

E. Theory of Grounding
F. Overcurrent Devices and Fusing
G. Adequate Wiring and Good Lighting Principles
H. Planning an Installation

II. Electrical Tools and Materials
A. Types and Sizes of Wires and Cables
B. Outlet and Switch Boxes
C. Service Entrance Equipment
D. Switches and Convenience Outlets
E. Fastening Devices
F. Finishing Materials and Fixtures
G. Special Equipment, Fixtures and Devices

III. Wiring Techniques
A. Planning an Installation
B. Selection of Proper Wire and Cable Sizes
C. Wire Connections and Joints
D. Wiring Methods
E. Layout and Installation of Branch Circuits
F. Installation of Service Entrance
G. Roughing in the Wiring System
(Installation of outlets and wiring)

IV. Advanced Wiring Technology
A. Special Tools and Techniques Employed in Wiring Old Buildings
B. Special Applications as Applied to Rural and Farm Wiring
C. Wiring in Commercial Buildings and Multiple Dwelling Units
D. Planning Non-residential Installations
E. Miscellaneous Problems in Residential and Non-residential Wiring
F. Non-residential Lighting Requirements
1. Schools
2. Churches
3. Stores
4. Small factory and commercial units

V. A study in Detail of the National Electrical Code and its Application

State University
AGRICULTURAL AND TECHNICAL COLLEGE
DELHI, NEW YORK

Topical Outline
3411 Estimating & Planning

Text: Walker, Frank R., The Building Estimators Reference Book

I. Estimator
   A. Functions
   B. Qualifications

II. Types of Estimates
   A. Approximate
      Wass
   B. Complete or Final Estimate
      TEXT

III. Techniques of Estimating
   A. Collection of data
   B. Preliminary Survey
   C. Approximate Methods
   D. Detailed Estimate

IV. Construction Scheduling

State University
AGRICULTURAL AND TECHNICAL COLLEGE
DELHI, NEW YORK

Course Name: Law and Contracting

Instructor: D. Schug

Subject: Introduction to Course content. The Construction Manager his role in the Industry as an administrator and manager.

Construction Contracting. Major categories of construction; contract method causes of business failures Public relations, ethics, organization.

Contracting business forms. Single proprietorship and partnership. Advantages and disadvantages etc. Legal liability

Business forms - corporation, organization, advantages, disadvantages, stock holders, stocks, legal liability

Organizing a contracting business--basic conditions fundamental principles, organization structure (office and field)

Drawings & Specs - Relationship between architect/engineer and contractor, categories of drawings: function pf specs. Three sections of specs ie Gen. conditions and technical provisions.

Estimating & Bidding procedures etc., use of take off and summary sheets; quotations, sub contractor bids, bonding

Test

Construction Contracts - types, award; content of contract and contract documents

Contract Bonds - types; content, function, surety, premiums, warranties, Miller Act 1935

Purchasing & Stores - purchasing procedures, records purchasing dept. org. & duties, terms, Bills of Materials, etc.

Insurance - types used in contracting - workmen's comp. old age ins. & unemployment ins.

Fiscal Records and Policies types, accounting procedures, income statement, financial statements - cost acc'tg. Deprec.

Cost control and operational planning - use of flow sheets, schedules, time and motion study

Test

Labor Legislation - Evaluation of Labor Mgmt. relations, Leg. acts contracting labs and management and setting labor stds. Union Org. Closed and open shop boycotts

Labor and Personnel Relations - Employer - Employee relationship. Trade Unions AFG-AFL-CIO Collective Bargaining process

Safety - safety programs
Accident statistics

STATE UNIVERSITY COLLEGE AT BUFFALO
Industrial Arts Education Division

I.A. 416 - Wood Construction Industry

Major Units to be Studied:

A. Carpentry
    1. Forms - Concrete work
        a. Layout of foundation
        b. Foundation and footings
        c. Cast concrete walls
            1. Mixing concrete
            2. Placing concrete
            3. Reinforcement
            4. Drainage
            5. Damp-proofing
            6. Insulation
    2. Lumber - measuring and selecting
        a. Yard lumber
        b. Standard sizes
        c. Suitability of various woods
        d. Lumber - measuring and selecting
            1. Framing lumber
            2. Exterior trim
            3. Sub-floors
            4. Wall sheathing
            5. Roof boards
            6. Siding
            7. Flooring
            8. Sash and door frames
            9. Shingles
            10. Lath
            11. Interior trim
    3. House Framing Methods
        a. Balloon framing
        b. Platform framing
        c. Modern braced frame
    4. Floor and Wall Framing
        a. Girders
            1. Steel beam
            2. Laminated wood beam
            3. Girder posts
        b. Sills
            1. Anchoring to foundation
            2. Protection from termites

- c. Joists
  - 1. Figuring spans
  - 2. Nailing
  - 3. Bridging
  - 4. Joist headers
- d. Sub-floors
- e. Studs
- f. Ceiling joists
- g. Graming for partitions
- h. Fire stopping

5. Roof Design and Construction
   - a. Framing
     - 1. Hip
     - 2. Gable
     - 3. Gambrel
     - 4. Shed
   - b. Rafters
     - 1. Hip
     - 2. Jack
     - 3. Valey
   - c. Lay-out of rafters
   - d. Roof pitch
   - e. Framing square - tables
   - f. Roof anchorage
   - g. Cornices
6. Exterior Wall Construction
   - a. Wall sheathing
     - 1. Plywood
     - 2. Fiberboard
     - 3. Strips for shingles
     - 4. Building paper
   - b. Siding
     - 1. Shingles
     - 2. Clapboards
     - 3. Asbestos cement board
     - 4. Asphalt siding
     - 5. Exterior plywood
   - c. Water tables
   - d. Brick veneer
   - e. Stucco
   - f. Stone
7. Roofing Materials
   - a. Asphalt shingles and roofing products
     - 1. Flashings and valleys
     - 2. Rool roofing
     - 3. Stip shingles
     - 4. Use of building paper
   - b. Wood Shingles
     - 1. Stained shingles
     - 2. Shakes

c. Asbestos cement shingles
d. Rile roofing
8. Thermal and Sound Insulation
a. Types of insulation
1. Loose-fill
2. Batts
3. Blanket
4. Rigid board
5. Reflective insulation
b. Insulating values of various materials
c. Condensation control
1. Weatherstripping
2. Air spacing
d. Accoustics and sound control
1. Principles of sound transmission
2. Impact sounds
3. Sound insulation
4. Installation of accoustical units
9. Windows and Doors
a. Window and door frames
b. Casement and double-hung windows
c. Window installation details
d. Screens and storm sash
e. Gliding windows
f. Installing glass units
1. Glazing windows
2. Double-pane glass
g. Aluminum windows
h. Fitting door frames
i. Hanging a door
1. Installation of door hardware
2. Leveling
10. Interior Wall Constructions
a. Plaster or dry walls
1. Wood lath
2. Metal lath
3. Gypsum lath
4. Gypsum wall board
b. Fiberboard
c. Insulating board
d. Paneled wall coverings
e. Furring masonry walls
f. Tiled walls
1. Ceramic tiles
2. Plastic tiles
11. Interior Trim
a. Baseboards
b. Shoe molding
c. Window trim
d. Door trim

12. Kitchen cabinet constructions
13. Finish Floors
    a. Types of hardwood flooring
        1. Plank
        2. Square edge
        3. Tongue and groove
    b. Sound proofing floors
    c. Use of building paper
    d. Pre-finished flooring
    e. Flooring over concrete
    f. Slab floor without sub-flooring
    g. Asphalt floor tiles
14. Protective coatings
    a. Interior
        1. Floor
        2. Wall and ceiling
    b. Exterior
        1. Transparent
        2. Opaque
    c. Application methods
        1. Brush
        2. Spray
        3. Rolling

B. Analysis of Construction Materials
1. Characteristics of imported and domestic wood products
    a. Hardwoods
    b. Softwoods
    c. Wood products
2. Physical properties
    a. Weathering
    b. Decay resistance
    c. Effect of chemicals
    d. Working qualities
3. Strength
    a. Strength values
    b. Elastic properties
    c. Compression strength
        1. Perpendicular to grain
        2. Parallel to grain
    d. Shear parallel to grain
    e. Fatique resistance
    f. Variability in strength
    g. Moisture content and strength
    h. Specific gravity and strength
    i. Strength reducing factors
4. Control of Moisture Content and Shrinkage of Wood
    a. Equilibrium moisture content
    b. Shrinkage of wood
    c. Determination of moisture content

d. Seasoning of lumber
e. Storage of lumber at yards
f. Recommended moisture content
g. Design factors affecting shrinkage in a structure

5. Fire Resistance of Wood Constructions
   a. Fire-retardent treatment of wood
   b. Improved fire-resistance of wood thru design

C. Constructed Members and Fasteners
1. Timber Fastenings
   a. Nails
   b. Spikes
   c. Drift bolts
   d. Wood screws
   e. Lag screws
   f. Bolts
   g. Timber connector joints
2. Solid and Built-up Structural Members
   a. Solid beams
   b. Built-up beams
   c. Solid wood columns
   d. Built-up columns
   e. Built-up wood arches
   f. Tension members
3. Glued Structural Members
   a. Characteristics of glued laminated constructions
   b. Strength of glued laminated members
   c. Design of glued laminated members
   d. Design of wood-plywocd beams and girders
4. Structural Sandwich Constructions
   a. Fabrication of sandwish panels
   b. Structural design of sandwish construction
   c. Stability and bowling of sandwich panels
   d. Termal insulation of sandwish panels
   e. Fire resistance of sandwish panels

D. Protection of Wood
1. Painting and Finishing Wood
   a. Painting characteristics of wood
   b. Paints for exterior wood work
   c. Application of paint
   d. Repainting
   e. Paint wear
   f. Back priming
   g. Natural finish for exterior woodwork
   h. Undercoating exterior woodwork
   i. Interior finishing
   j. Spray finishing

2. Protection from Wood-destroying Organisms
   a. Molds and stains
   b. Decay
   c. Control of molds, stains, decay
   d. Insects
   e. Marine borers
3. Wood Preservation
   a. Wood preservatives
   b. Preservative effectiveness
   c. Preparing wood for treatment
   d. Applying preservatives
   e. Pressure processes
   f. Treating conditions and specifications
   g. Seasoning of lumber after treatment
   h. Effect of treatment on strength
   i. Non-pressure processes

STATE UNIVERSITY COLLEGE
Oswego, New York
Department of Industrial Arts & Technology

Course Title: Wood Construction Technology

Course Description: (catalog) Theory and application of construction principles: practical experience in planning, designing, estimating, building and testing of structures

Course Outline:

A. Planning and Layout
   1. Selecting a site
   2. Building code; zoning laws
   3. Determining load bearing qualities of site terrain
   4. Laying out foundation lines
   5. Types of foundation
   6. Methods of excavating for foundation
   7. Form construction
   8. Blueprint reading
   9. Blueprint reading

B. Framing (outside rough)
   1. Types of frame construction
   2. Sill construction
   3. Setting beams, girders and jack posts
   4. Laying joists
   5. Erecting studs and plates
   6. Framing rough openings - doors, windows, etc.
   7. Sheathing - types and installation
   8. Framing bays and dormers
   9. Laying sub-flooring

C. Roof framing
   1. Types of roofs
   2. Laying out and cutting common rafters
   3. Hip and valley rafters
   4. Ridge boards
   5. Jack rafters for hips and valleys
   6. Purlins
   7. Collar beams
   8. Truss roof construction

D. Roof coverings
   1. Sheathing - type material and how installed
   2. Use of building paper
   3. Protective coverings - types, installation, advantages and disadvantages
   4. Flashing - types, uses and installation
   5. Ridge covering

6. Drip edge - use of and its purpose
7. Safety precautions for roofers
8. Use of toe-boards
9. Installation of scaffolding

E. Inside framing
1. Load bearing partitions
2. Non-load bearing partitions
3. Framing opening for doors
4. Framing opening for stairways, etc.
5. Insulation - types, purpose, and installation
6. Inside wall covering - types and installation
7. Use of furring strips

F. Outside covering and trim
1. Types of covering - siding, shingles, etc.
2. Installation of various types of outside wall covering
3. Trimming doors and windows
4. Cornice trim
5. Installing water table and corner boards

G. Inside trim
1. Setting door jams
2. Casing windows and doors
3. Installing base and shoe mold
4. Cove mold
5. Fitting sash
6. Placing window units
7. Hanging doors
8. Installing pre-hung doors
9. Laying finished flooring
10. Applying hardware

H. Millwork
1. Use and care of basic hand tools
2. Use and care of portable electric tools
3. Use and care of the various woodworking machines, especially the radial arm saw, circular saw, bandsaw and jointer
4. Safety rules for use of the above tools and machines
5. Purchasing information

I. Pre-fab, pre-cuts, etc. advantages, disadvantages, and cost comparison

J. Concrete: Fundamental principles; reinforcement; pre-stressing, pre-casting

K. Principles of house wiring

L. Getting along with other tradesmen on the job - Occupations in the construction industry

M. Plumbing, heating and ventilation

N. Home maintenance and improvements

VT 016 292

PHELPS, WILLIAM; BAKER, ARTHUR

NUCLEAR RADIATION PROJECT STUDY. PHASE I: NORTHEASTERN ILLINOIS MANPOWER SURVEY AND ANTICIPATED EDUCATIONAL NEEDS.

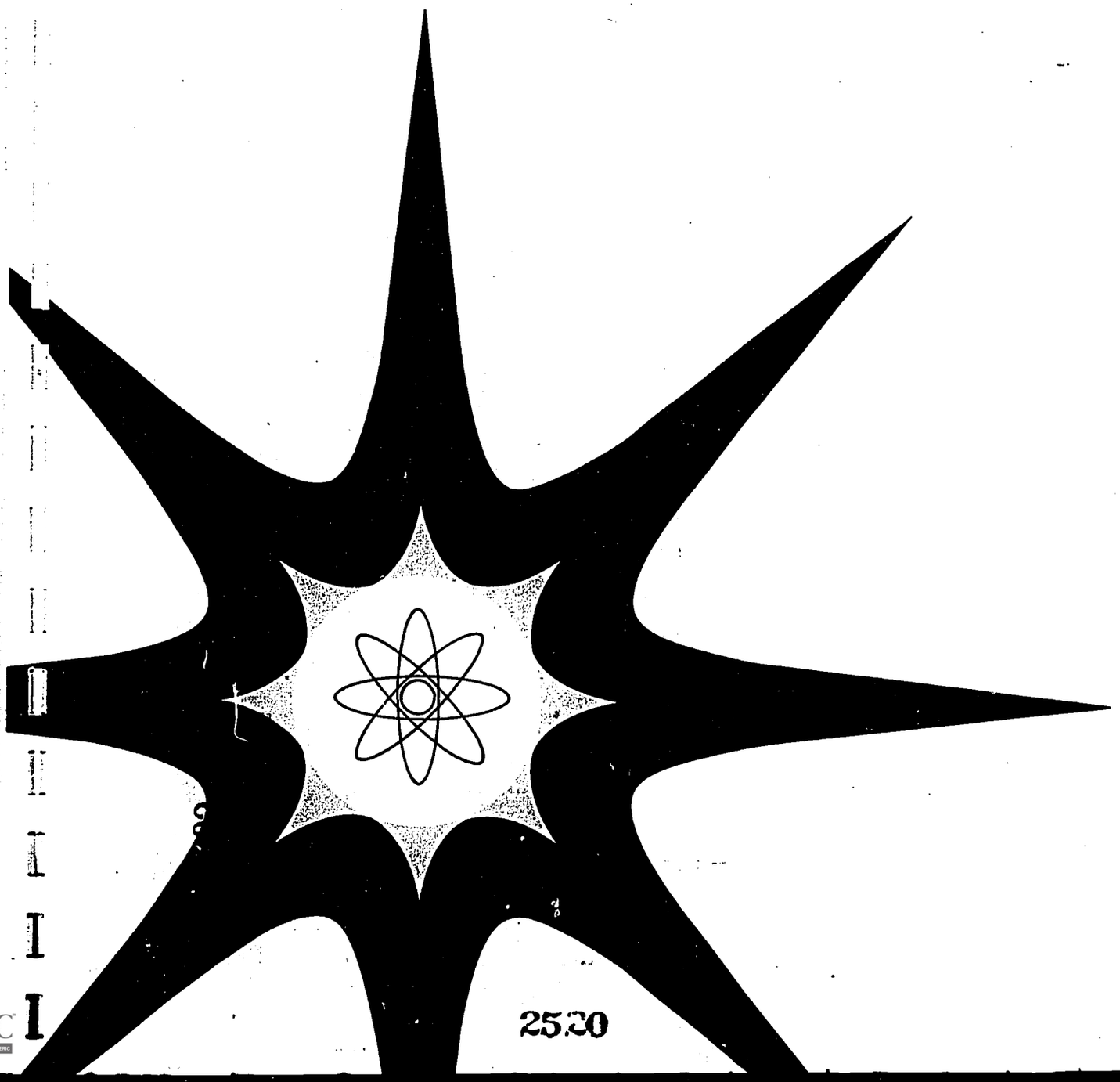
CRYSTAL LAKE COMMUNITY SCHOOL DISTRICT 155, ILL.;CARY-GROVE COMMUNITY SCHOOL DISTRICT 155, ILL.
ILLINOIS STATE BOARD OF VOCATIONAL EDUCATION AND REHABILITATION, SPRINGFIELD. VOCATIONAL AND TECHNICAL EDUCATION DIV.
MF AVAILABLE IN VT-ERIC SET.
MR. ROBERT K. GRAY, COORDINATOR, RESEARCH & DEVELOPMENT UNIT, BOARD OF VOCATIONAL EDUCATION & REHABILITATION, 1035 OUTER PARK DRIVE, SPRINGFIELD, ILLINOIS 62706
PUB DATE - ND 1376P.

DESCRIPTORS - *MANPOWER NEEDS; *EMPLOYMENT PROJECTIONS; NUCLEAR PHYSICS; RADIATION; *RADIOLOGIC TECHNOLOGISTS; *RADIOGRAPHERS; EMPLOYMENT PATTERNS; *EDUCATIONAL NEEDS; EDUCATIONAL PROGRAMS; LABOR SUPPLY; OCCUPATIONAL SURVEYS
IDENTIFIERS - ILLINOIS

ABSTRACT - TO DETERMINE THE ANTICIPATED MANPOWER NEEDS OF THE NUCLEAR INDUSTRY IN NORTHEASTERN ILLINOIS AND TO COMPARE THIS MANPOWER NEED WITH ANTICIPATED SUPPLY, DATA WERE GATHERED CONCERNING SUBPROFESSIONAL NUCLEAR RADIATION TECHNOLOGISTS. INFORMATION PROVIDED INCLUDED STATISTICAL GROWTH OF THE GROUP DURING THE LAST FIVE YEARS, ITS PRESENT STATUS, AND ITS ANTICIPATED GROWTH DURING THE NEXT FIVE YEARS. FIVE INSTRUMENTS WERE DEVELOPED FOR DATA COLLECTION, INCLUDING: (1) INDUSTRIAL SURVEY, (2) HEALTH SERVICE SURVEY, (3) OCCUPATIONAL EDUCATION SURVEY, (4) RADIATION TECHNICIAN, AND (5) RADIOLOGIC TECHNICIAN. THE FIVE SURVEYS PROVIDED DATA CONCERNING (1) PRESENT EMPLOYMENT, (2) FUTURE LABOR SUPPLY AND DEMAND, (3) EXISTING TRAINING PROGRAMS, (4) EMPLOYMENT PATTERNS OF GRADUATES OF THESE PROGRAMS, AND (5) NEEDED IMPROVEMENTS IN TRAINING PROGRAMS. (BH)

NUCLEAR RADIATION TECHNOLOGIST MANPOWER SURVEY

NORTHEASTERN ILLINOIS AREA



2530

"There is, I believe, one aspect of your cooperative efforts which, at least in the short run, could transcend all others. This is in the area of public education leading to public acceptance of this relatively new technology. There is no doubt in my mind that carefully conceived, thoroughly planned educational programs executed by known, respected local and regional organizations represent the best potential means for providing the general public with the facts necessary to dispel what must be recognized as at least a general uneasiness about the use of nuclear energy. In some cases it goes well beyond uneasiness and approaches hysteria."

CONGRESSMAN JOHN B. ANDERSON
Member, Joint Congressional
Committee on Atomic Energy

Cover Design by Michael Scolaro
Student, Cary-Grove Community High School

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The Research reported herein was performed pursuant to a contract with the State of Illinois, Board of Vocational Education and Rehabilitation, Division of Vocational and Technical Education, Research and Development Unit. Contractors undertaking projects under such sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Board of Vocational Education and Rehabilitation position or policy.

STATE OF ILLINOIS
BOARD OF VOCATIONAL EDUCATION AND REHABILITATION
DIVISION OF VOCATIONAL AND TECHNICAL EDUCATION
RESEARCH AND DEVELOPMENT UNIT

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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NUCLEAR RADIATION PROJECT STUDY

Phase I

Northeastern Illinois

Manpower Survey and

Anticipated Educational Needs

A Technical Report Prepared for the
Illinois Division Of
Vocational and Technical Education
Unit of Research and Development

William Phelps *
and
Arthur Baker **

* Chairman, Science Department, Crystal Lake Community High School, District #155

** Chairman, Science Department, Cary-Grove Community High School, District #155

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Mr. Harry Dillon, Business Manager, McHenry Medical Group

Dr. Robert Stein, Nuclear Pathologist, McHenry Medical Group

Office of Director of Regulations, United States Atomic Energy Commission

Mr. J. R. Fine, Manager, Employment Relations, Midwest Fuel Recovery Plant

Mr. Ron Frederickson, Health Physicist, Abbott Laboratories

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Activity Manual for Occupational Program Identification, As Part of the Phase II Report, "The Development of Systems Models for Decision-Making in Occupational Curriculum Development and Evaluation," Joliet, Illinois, June, 1971.

Nuclear Technician Manpower Survey, "Approach to an Information System, A Report of the Southern Interstate Nuclear Board," June, 1971.

Report of the Illinois Commission on Atomic Energy to the Seventy-Seventh General Assembly, 1970.

PROJECT STAFF

Director:

Paul R. Baker, Assistant Superintendent
District #155
Crystal Lake & Cary-Grove Community High Schools

Principal Investigators:

William Phelps
Chairman, Science Department
Crystal Lake Community High School

Arthur Baker
Chairman, Science Department
Cary-Grove Community High School

William Baldwin
Director, Vocational Education
District #155
Crystal Lake & Cary-Grove Community High Schools

DEFINITION OF TERMS

A.E.C. Licensee - (Atomic Energy Commission Licensee) - An organization licensed by the AEC to receive, possess, use, or transfer source material, special nuclear material, or by-product material.

Area (Survey Area) - Cook, McHenry, Lake, Kane, Kendall, DuPage, Grundy, and Will counties of Illinois.

Baccalaureate - The degree of bachelor conferred by universities, usually representing four years of matriculation.

Gamma Rays - High energy, short-wave length electromagnetic radiation. Gamma rays are essentially similar to X-rays, but are usually more energetic, and are nuclear in origin.

Gauging Operations - The measurement of the thickness, density or quantity of material by the amount of radiation it absorbs. This is a common use of radioactive isotopes in industry.

Health Services - Any hospital, clinic, physician's office or other facility the personnel of which specializes in the repair or healing of the human body.

Ionozing Radiation - Any radiation displacing electrons from atoms or molecules, thereby producing ions. Examples: alpha, beta, gamma radiation, short-wave ultraviolet light.

Industrial Radiography - The use of ionizing radiation for the production of shadow images on a photographic emulsion.

Isotopes - One of two or more atoms with the same atomic numbers (the same chemical element) but with different atomic weight.

Linear Accelerator - A long straight tube (or series of tubes) in which charged particles (ordinarily electrons or protons) gain in energy by the action of oscillating electromagnetic fields.

Non-baccalaureate - A training program in a university, college, or technical school which is less than four years and which is not designed to conclude with a baccalaureate degree.

Non-user - An organization that does not use radioactive materials.

Nuclear Medicine Technician - A person who assists the physician in administering the required dose of radioisotopes, given to patients to diagnose and treat disease. The technologist uses specialized equipment that traces and measures radioactivity within patients. The technologist mathematically calculates tracing to aid the physician in making a diagnosis.

Nuclear Power Reactors - Any device, machine, or assembly that converts nuclear energy into some form of useful power, such as mechanical or electrical power. In a nuclear electric power plant, heat produced by a reactor is generally used to make steam to drive a turbine that in turn drives an electric generator.

Nuclear Radiation - Radiation that is emitted from atomic nuclei in various nuclear reactions, including alpha, beta, and gamma radiation and neutrons.

Nuclear Technicians or Radiation Technician - A person who works as a technician in a nuclear related industry. May require a license issued by the U. S. Atomic Energy Commission.

Radiation Technologists - See Nuclear Technician.

Radiation Therapists - Assists the radiologist in treatment of diseases by exposing affected areas of the patient's body to prescribed doses of x-ray or other forms of ionizing radiation. This new specialty requires that the technologist maintain proper operation of the controlling devices and equipment during treatment and be responsible for all treatment records.

Radiographic Operations - See Industrial Radiography.

Radiologic Technicians (X-ray Technician) - A technician that performs x-ray examinations on patients in various stages of health and disease.

Radionuclides (Radioactive isotope) - An isotope or nuclide that is radioactive.

Region VII - Defined by the Illinois State Department of Health, consisting of McHenry, Lake, Kane, Kendall, DuPage, Grundy, and Will counties. Northeastern Illinois excluding Cook County.

Technician - A person who directly or indirectly supports scientists and engineers in designing, developing, producing, and maintaining machines and materials. In general, these technician jobs are technical in nature but more limited in scope than those of the engineer or scientist, and have a practical rather than a theoretical orientation.

User - An organization that uses radioactive materials.

X-ray (X-radiation) - A penetrating form of electromagnetic radiation emitted either when the inner orbital electrons of an excited atom return to their normal state (these are characteristic X-rays), or when a metal target is bombarded with high speed electrons (these are bremsstrahlung). X-rays are always non-nuclear in origin.

X-ray Technician - See Radiologic Technician.

CHAPTER I

INTRODUCTION

Many government, private industry and health services in the State of Illinois are some way involved with nuclear or X radiation. This forms a vast, ever-growing complex. To cite a few examples, there are five medical universities in the city of Chicago. Dresden I, II, and III are nuclear power reactors for the generation of electricity. Another reactor is being constructed at Zion, and still another is being planned. Near us are Argonne National Laboratory and the National Accelerator Laboratory. Illinois boasts the first private nuclear Fuel Recovery Plant. We have ethical pharmaceutical companies such as Abbott Laboratories and G. D. Searle Company, involved with those radioactive isotopes used in medicine. And Illinois has a great number of industries, widely diverse in nature, many of whom use nuclear or X radiation.

As of July 1, 1970, the following facilities utilizing ionizing radiation in health services were registered with the Illinois Department of Public Health:

4,495	Dentists
1,151	Medical Doctors
516	Chiropractors
283	Podiatrists
265	Veterinarians
315	Hospitals
301	Clinics and Medical Laboratories
119	Other Medical Facilities
7,445	Total

Of these, Region VII, defined by the Illinois State Department of Health, consisting of McHenry, Lake, Kendall, DuPage, Grundy and Will counties, (See map, page 2) had 972 medical installations and 30 hospitals, while Cook County had 3,827 medical installations and 105 hospitals.

In industry, 587 facilities were registered with the Department of Public Health. Region VII had a total of 87, eighteen of which were radiographic operations, 7 gauging operations and 51 doing research. Cook County had 239 industrial facilities, with 162 of these being radiographic operations, 28 gauging operations and 224 involved in research.[1]

The excellence of these varied users of radiation, one might assume, would be in direct proportion to the availability of well-trained technicians.

PURPOSE

The overall purpose of this study is to determine the anticipated manpower needs of the nuclear industry in the survey area and to compare this manpower need with personnel being trained for anticipated manpower supply.

The specific objectives of this study follow:

1. To determine the need for nuclear technicians in the near future.
2. To determine the number of nuclear technicians being trained to meet this need.
3. To determine whether a need exists for a course in nuclear radiation at the secondary level.
4. If a need exists, to develop such a course, using information from the surveys as guides to content.
5. To share the information from the surveys with government and private industries, health service centers, counselors and curriculum planners of secondary schools, junior colleges and universities.

An answer to the following questions will be valuable in meeting the above objectives:

1. How many persons in this area are now employed as radiation technologists in industries using nuclear radiation?
2. How many persons in this area are now employed as radiation technologists in health services using nuclear or X-radiation?
3. What is the estimated demand in the next five years for technologists working with industry or health services using nuclear or X radiation?
4. What training facilities and programs exist in this area to train persons to meet these anticipated manpower needs?
5. What is the present supply and future potential supply of trained manpower from existing programs in this area?
6. What are some of the subsequent employment patterns of graduates from existing training programs?

7. What are some characteristics of sub-professional workers presently employed in nuclear related industry and health services?

8. What training program changes will be necessary to adequately meet the sub-professional manpower needs of nuclear related industries and health services?

9. Is there a need for a course in nuclear education at the secondary level?

10. What type of training would industry and health services recommend for their technicians?

11. What are some important characteristics that industry and health services employers would like their technicians to possess?

12. What type of program is offered by schools that train technicians?

13. What are the characteristics of students who enter these schools?

14. What do the technicians think about their training and what recommendations would they make for future training of technicians?

PROCEDURE

Questionnaires were developed to be the tools by which information was gathered to determine manpower needs in the radiological area. They were:

1. Industrial Survey
2. Health Service Survey
3. Occupational Education Study Survey
4. Radiation Technician Survey
5. Radiological Technician Survey

These surveys were designed to give information concerning sub-professional nuclear radiation technologists (the non-baccalaureate employee) manpower. Information provided included statistical growth of the group during the last five years, its present status, and its anticipated growth in the next five years.

Region VII (See map, page 2) was surveyed in depth with follow-up cards or phone calls to those that did not reply. 74% of the industrial returns and 45% of the health service returns have been received. Other surveys were sent outside of Region VII on a random basis. Most of these were in Cook County. Returns were:

Industrial 58%

Health Services 31.5%

Each survey was color coded for ease in tabulating the results. Data tables were prepared to tally the results of the surveys as they were received. The results were then summarized from the data tables.

[1]Lewis V. Morgan, Jr. and Robert J. Hasterlik, M.D., Report of the Illinois Commission on Atomic Energy to the Seventy Seventh General Assembly, 1970.

CHAPTER II SYLLABUS

FINDINGS

Findings, as they relate to research questions posed earlier, are presented as follows:

Research Question One

How many persons in this area are now employed as radiation technologists in industries using nuclear radiation?

Findings

1. Findings of the 42 reporting industrial and governmental facilities the number was 1024 radiation technologists (see item 8, page44). The 42 organizations that reported on this item were selected from a possible 178 licenses taken from the Atomic Energy Commission list of licensees. The sample from Cook County indicated that 17% of the groups responding were not using radioactive materials. Thus, if we can project the 17% non-users to the 178 licensees, then one has about 42 out of a possible 148 or a little over 28% of the possible users responded to the survey. As reported by Southern Interstate Nuclear Board, there was no significant difference existing between the population of firms represented by the list supplied by the Atomic Energy Commission and the non-respondents represented by the bias check sample.[1]

Research Question Two

How many persons in this area are now employed as radiation technologists in health services using nuclear or X-radiation?

Findings

2. Of the 56 respondents, 407 employees were classified as technicians. This number includes X-ray technicians (radiologic technician), nuclear medical technicians, and radiation therapy technicians. About 70% of the respondents reported having X-ray technicians, 64% reported having nuclear medical technicians, and 38% reported having radiation therapy technicians. (see item 11, page 50). The 56 respondents

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[1]Braden, Paul V. and Paul, Kristian K., Nuclear Technician Manpower Survey: Approach to an Information System, (Southern Interstate Nuclear Board, Atlanta, 1971), page 33.

were out of a possible 175 questionnaires mailed. In Region VII of the 23 responses, it was found that 5 (which represents about 22% in this sampling) reported that they were non-users. If we can assume the same response from our total sample, then we could say that the 56 respondents were out of a possible 136. The 407 technicians reported are from about 41% of the possible recording employers.

Research Question Three

What is the estimated demand in the next five years for technologists working with industry or health services using nuclear or X-radiation?

Findings

3. The total demand for industrial radiation technicians estimated by reporting institutions was 11.5 technicians per institution. (see item 8, page 44). Multiplying this number by 42 respondents gives a total demand of 483. Again it must be noted that only 42 institutions responded to this question and if we assume the same as Finding 1, then this represents about 28% of the possible employers. Thus, this could possibly mean a demand of 1725 for industry.

4. The total demand for radiation technicians in the health services was 1.8 per institution. (see item 9, page 50). Multiplying this number by 56 respondents gives a total demand of 101. It must be noted that this figure was from 56 respondents which, by applying our assumption in Finding 2, would represent about .41 of the possible employees. Thus, this could possibly result in a demand of 247.

Research Question Four

What training facilities and programs exist in this area to train persons to meet these anticipated manpower needs?

Findings

5. At the present time, there are no schools in Illinois which offer a program to train radiation technologists for industry or governmental facilities. There is one junior college which reported that it was starting such a program.

6. There are about 34 hospitals and junior colleges that offer training for radiation

technologists in the health service field. A summary of the description of these programs can be seen on pages 53 and 54 .

7. 24 of the reporting industries had on-the-job type programs, while 10 relied on special training from other institutions (see item 16, page 46). About 40% reported that they feel a need for radiation technician schools in the area (see item 17, page 46).

Research Question Five

What is the present supply and future potential supply of trained manpower from existing programs in this area?

Findings

8. At the present time, there are no students completing training for industry and governmental radiation technologists. In five years, one school projects it will be graduating a class of 60 (see item 19, page 57).

9. This year the 13 hospitals and 7 junior colleges that responded to this survey are going to graduate 204 X-ray technicians, 19 nuclear medical technicians and 1 radiation therapy technician. In five years they predict these numbers to be 573 X-ray technicians, 83 nuclear medical technicians, and 25 radiation therapy technicians (see items 12 and 13, page 55).

Research Question Six

What are some of the subsequent employment patterns of graduates from existing training programs?

Findings

10. In the health services, most graduates found jobs within the field of their training (75.6%), while 17% either went on to higher education or entered the military. (see items 8-10, pages 54 and 55).

11. Employing organizations train workers for specific jobs only; therefore, they are expected to utilize all their training output.

Research Question Seven

What are some characteristics of sub-professional workers presently employed in nuclear related industry and health services?

Findings

12. The industrial radiation technicians have, in general, a high school education (58.9%) or one and two years of college (29.4%). 70% received their training on-the-job and have been working about 5.2 years in the nuclear field. 43.8% rate their training for their present job as inadequate; 76.5% are veterans from military service; they have been on their present job an average of 5.2 years; they have changed jobs an average of 0.6 times with reasons given as location, salary, and no opportunity to advance. 58.8% have been promoted since securing their present employment and 76.5% feel satisfaction of accomplishment with their jobs. While only 35.3% feel their job requires them to perform to the full extent of their capabilities, 76.5% feel their employers readily delegate responsibility to them. 75% feel their job provides an adequate chance for promotion. The medium salary range is $8,000 to $10,000 and they have many job titles. (see pages 58 to 63).

13. The health services radiation technicians all have completed high school and have received additional training in colleges, radiation technology schools, or hospital technician schools. Only 11.1% classify their training for their present job as inadequate and have been in the radiation technology field about 5+ years. 23.9% are veterans from the military and 74.3% were radiation technologists, 2.7% radiation therapy technologists, and 21.6% nuclear medical technologists. They have been on their present job about 2 years and 50% have changed jobs about 2.4 times for the following reasons: location, salary, no opportunity to advance, poor working conditions, and transfers (listed in order of priority). 62.9% have been promoted, 97.2% do feel satisfaction of accomplishment, 69% feel their jobs require them to perform to the full extent of their capabilities, 92.6% feel that employers delegate them responsibility, and 69% feel there is adequate chance for promotion in their field. The medium salary range is $6,000 to $8,000. (see pages 64 to 70).

Research Question Eight

What training program changes will be necessary to adequately meet the sub-professional manpower needs of nuclear related industries and health services?

Findings

14. In industry the 40 responding industries are predicting that they will have to increase their technicians by about 47% in the next five years. (see page 44). Only one school in the area has indicated that it is developing a program.

15. In health services, the 42 reporting institutions are predicting that they will increase their technicians by 25% in the next five years. The last five years they had an increase of 78% (see item 9, page 50). They also project a 45.7% increase in the number of employees using radioactive materials in the next 5 years (see item 5, page 49). Thus, we wonder about the validity of the prediction. The 42 respondents represent about 31% of the possible employers in the area. The 42 respondents predict about a 1.8 technician increase per institution. This represents about an increase of 247 technicians in this area. The respondents indicated that they felt a need for trained technicians in the areas of X-ray technicians (58.9%), nuclear medical technicians (80.4%), radiation therapy technicians (50%). (see item 12, page 51). The schools have projected that they will increase their graduates from 224 to 621 in five years.

Research Question Nine

Is there a need for a course in nuclear education at the secondary level?

Findings

16. In industry 46 respondents reported that 4570 employees are involved in the use of radioactive materials now and predict a 33.3% increase in the next five years (see item 5, page 43). 78.1% responded that an adequately trained high school or junior college graduate could successfully perform some technical duties now being performed by degree personnel. (see item 18, page 46). 77.1% felt that their employees working with radiation came to them with inadequate training in radiation and 86.5% felt all employees had an inadequate knowledge of radiation. (see items 20 and 21, page 47).

17. In health services, 55 respondents reported that 446 employees were involved in the use of radioactive materials now and predicted a 45.7% increase during the next five years (see item 5, page 49). 23.2% responded that orderlies or nurses assist when radioactive materials are used in conjunction with a patient (see item 10, page 50). 91% thought that nurses and orderlies came to them with an inadequate knowledge of radiation (see item 17, page 52).

Research Question Ten

What type of training would industry and health services recommend for their technicians?

Findings

18. All of the respondents felt that the training should be a laboratory oriented course. (see items 13 and 17, pages 46 and 51).

19. The health service respondents (87.7%) thought that formal classroom training should incorporate labaratory exercises that have a direct time relationship with the subject matter. (see item 13, page 51). They also stated (92.9%) that the majority of their technicians had received hospital or clinical experience in lieu of classroom laboratory experience (see item 14, page 51). They suggested that the breakdown in the training be as follows: 22.9% of the student's time be spent in classroom lecture/discussion, 22.7% of the student's time in laboratory exercises, and 54.3% of student's time be spent in clinical experiences. These percentages are averages. (see item 15, page 51).

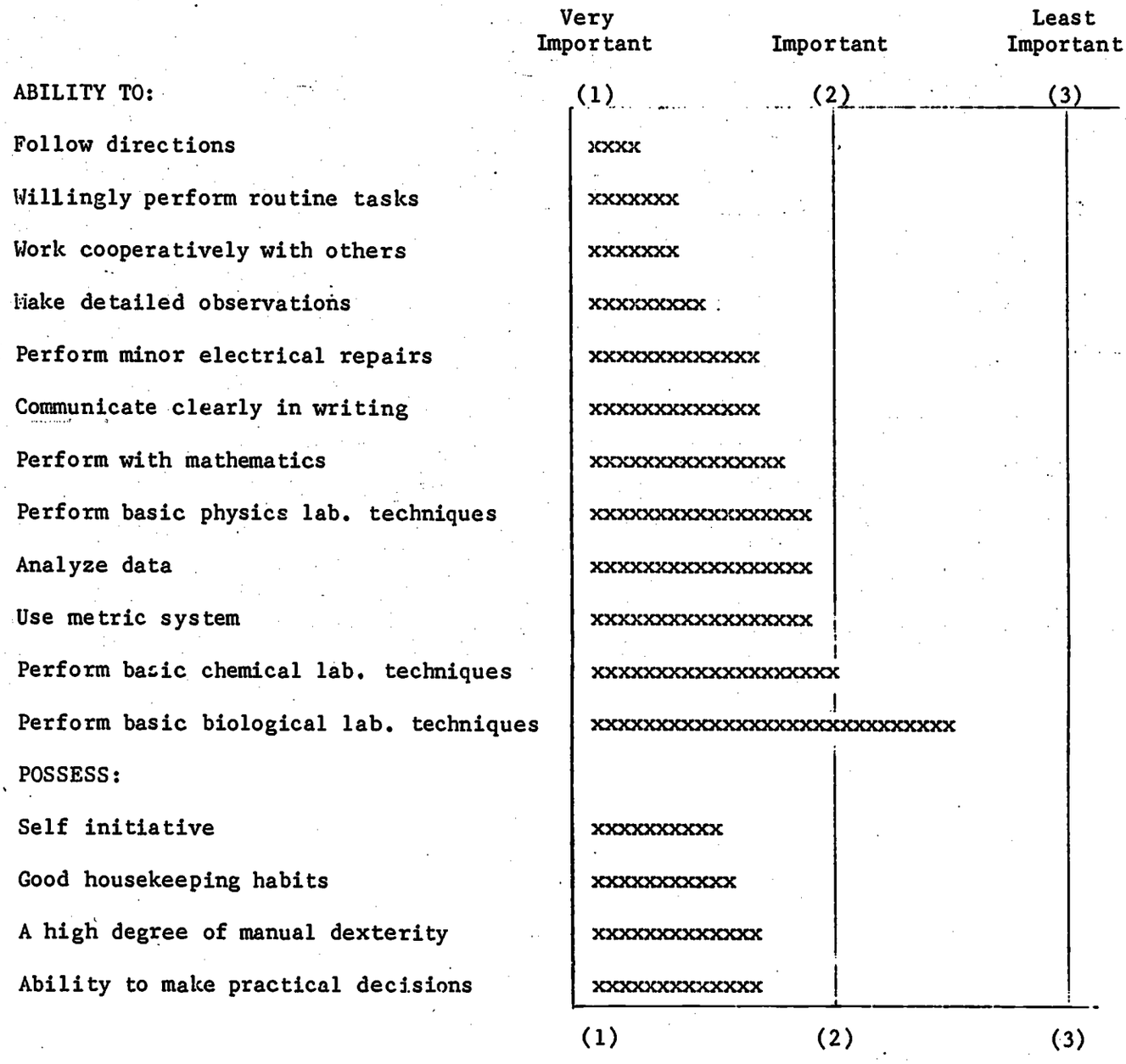
Research Question Eleven

What are some important characteristics that industry and health services employers would like their technicians to possess?

Findings

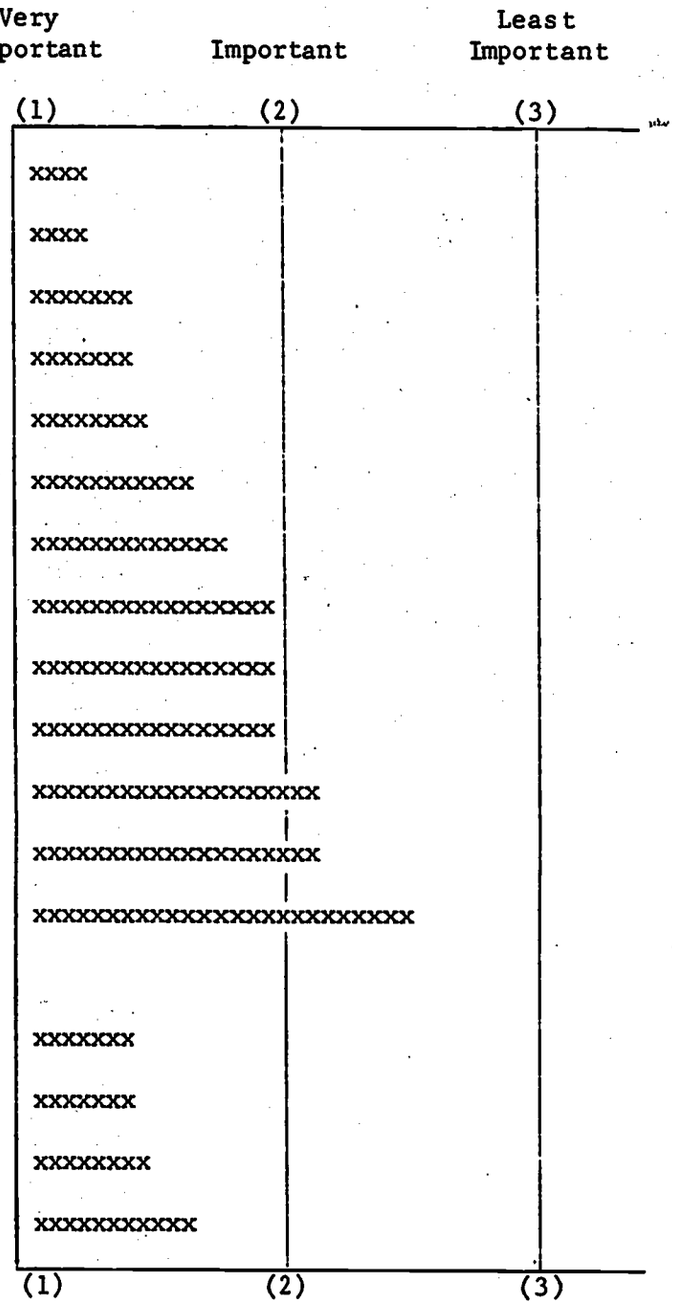
See following pages.

20. Industry
(see item 19, page 47)



21. Health Services

(see item 16, page 51)



Research Question Twelve

What type of program is offered by the schools training technicians?

Findings

22. The schools reported the following average percentage of contact time devoted to each item in courses dealing with radiation (see item 16, page 56).

Lecture-Discussion	24.7%
Laboratory exercises	14.4%
Clinical experiences	59.7%

The kind of laboratory experiences that students have in the 19 schools responding are (see item 17, page 56):

	Schools
Shielding	16
Radiography	15
Monitoring	14
Ionization	12
Instrument calibration	10
Biological effects	10
Remote handling	8
Tracing	8
Heat and power	6
Gauging	4
Instrument repair	4
Air sampling	3

23. No industrial school in operation in our area.

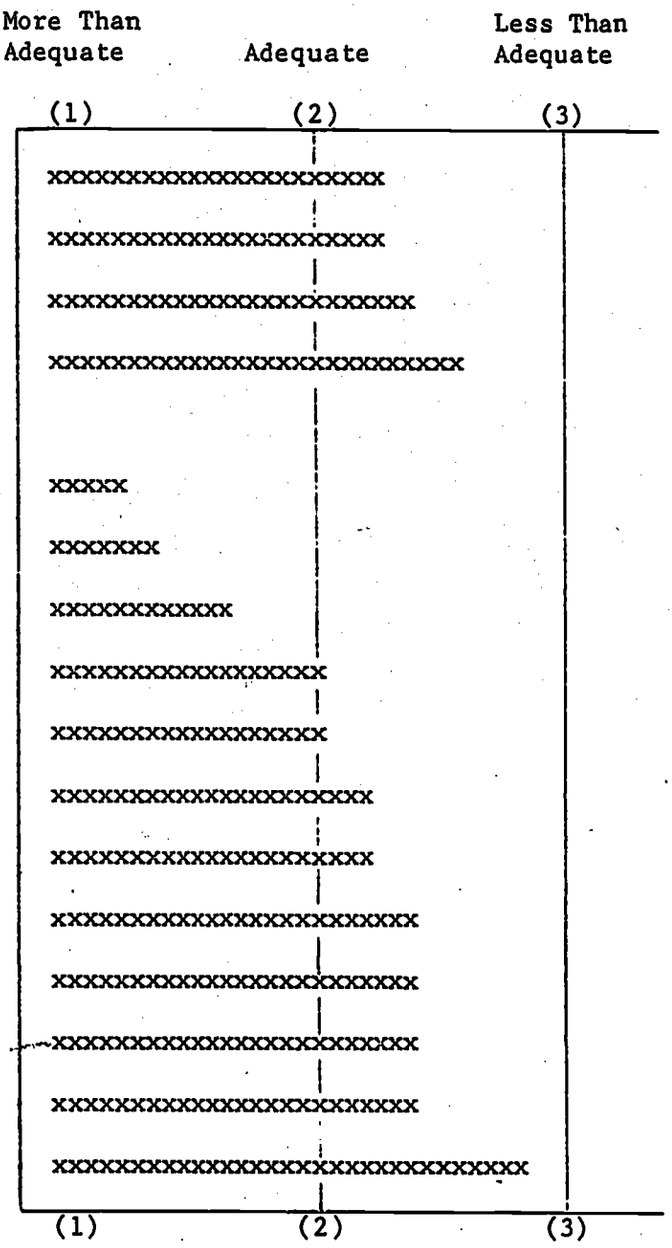
24. Bibliography of materials used in the schools in health services and out-of-state industrial technical schools may be seen on pages 119 through 126.

Research Question Thirteen

What are the characteristics of students that are entering these schools?

Findings

HEALTH SERVICES



Research Question Fourteen

What do the technicians think about their training and what recommendations would they make for future training of technicians?

Findings

26. Industrial technicians responded as follows: (see items 6, 7, 8, and 9, pages 59 amd 60).

	Inadequate	Adequate	More than Adequate
	(%)	(%)	(%)
Training for present job	43.8	43.8	12.4
Laboratory experiences for present job	35.3	41.2	23.5
Lecture, discussion, text experiences for present job	35.3	58.8	5.9

Recommendations:

	More	Less	Same Amount
	(%)	(%)	(%)
Laboratory experience	76.5	0	23.5
Lecture-discussion	75.0	0	25.0
Text materials	64.7	5.9	29.4

27. Health service technicians responded as follows: (see items 6, 7, 8, and 9, pages 65 and 66).

	Inadequate	Adequate	More than Adequate
	(%)	(%)	(%)
Training for present job	11.1	59.7	29.2
Laboratory experience for present job	15.5	59.2	25.4
Lecture, discussion, text experiences for present job	31.4	47.1	21.4

Recommendations:

	More	Less	Same Amount
	(%)	(%)	(%)
Laboratory experience	46.2	1.5	52.3
Clinical experience	42.4	1.5	56.1
Lecture-discussion	60.3	1.5	38.2
Text materials	65.2	3.0	31.8

PROJECTIONS

The projections given in this section are based upon the following assumptions:

1. That the findings and projections of the individual surveys are valid.
2. That the findings and projections of the survey sample are representative of all the users in the area.

These projections are made in an attempt to answer specific objectives of the manpower study.

Projections shown in Figures 1, 2, 3, and 4 are attempts to answer the following objectives:

1. To determine the need for nuclear technicians in the near future.
2. To determine the number of nuclear technicians being trained to meet this need.

EMPLOYEES WORKING WITH RADIATION
IN NORTHEASTERN ILLINOIS

INDUSTRY

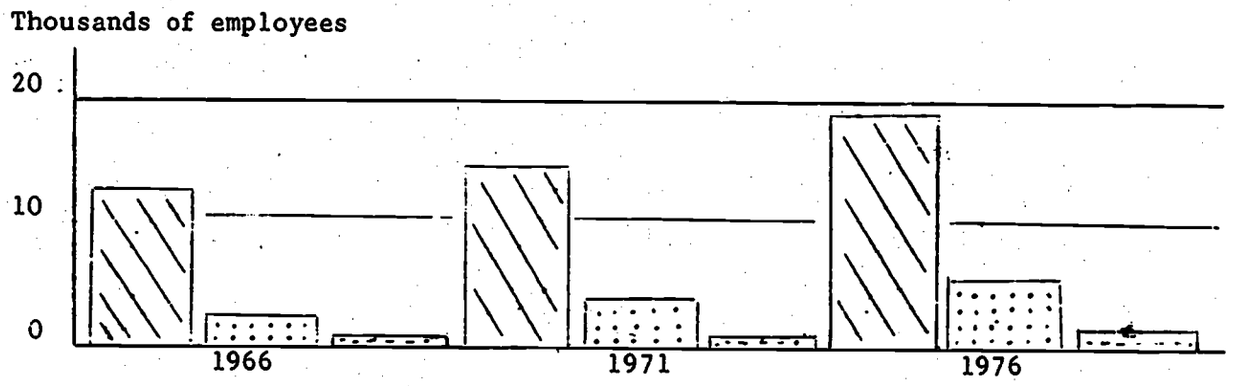


FIGURE 1

All employees working with radiation

Nuclear technicians

Health physicist or equivalent training

HEALTH SERVICE

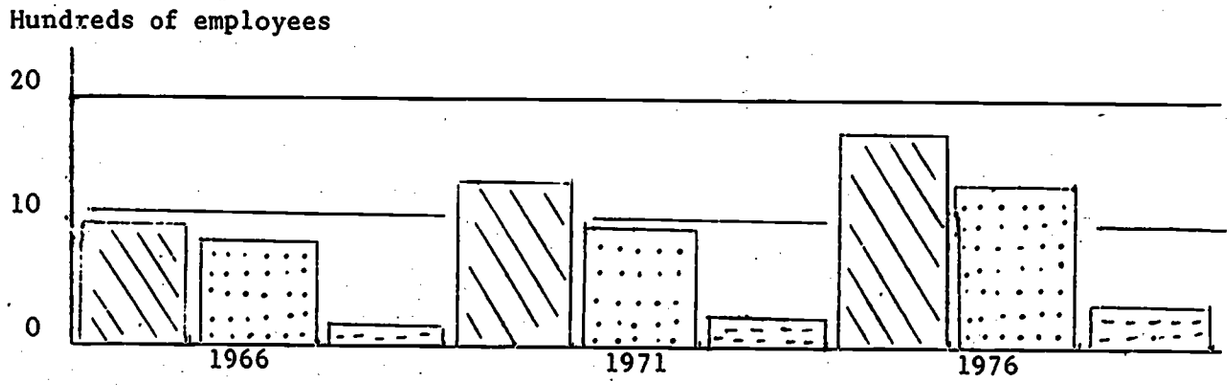


FIGURE 2

SCHOOLS

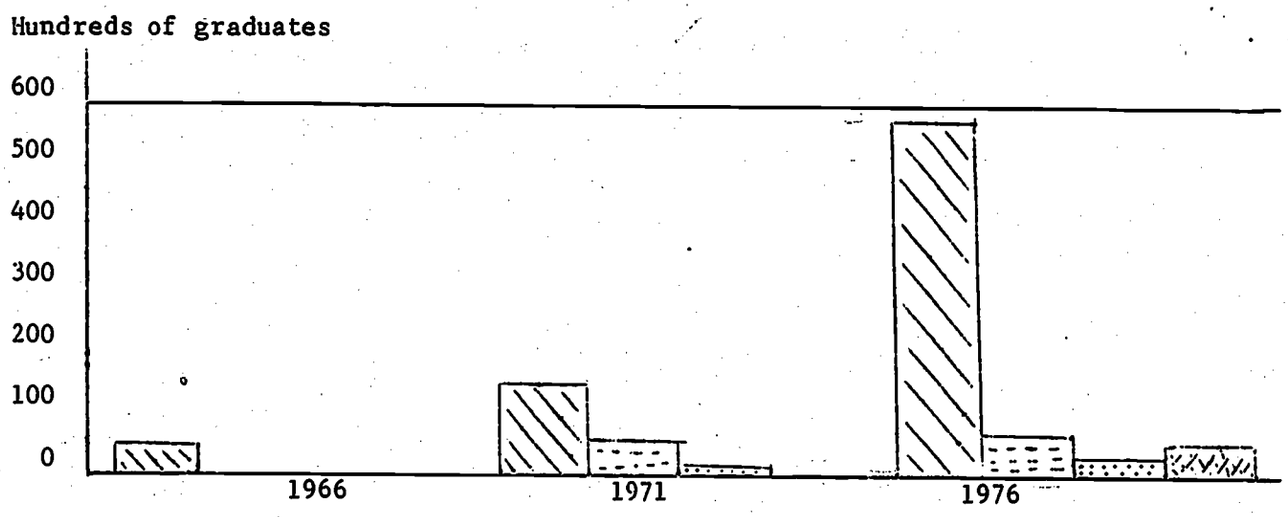


FIGURE 3

Radiologists

Nuclear Medical Technicians

Radiation Therapy Technicians

Industrial Nuclear Technicians

DEMAND VS SUPPLY

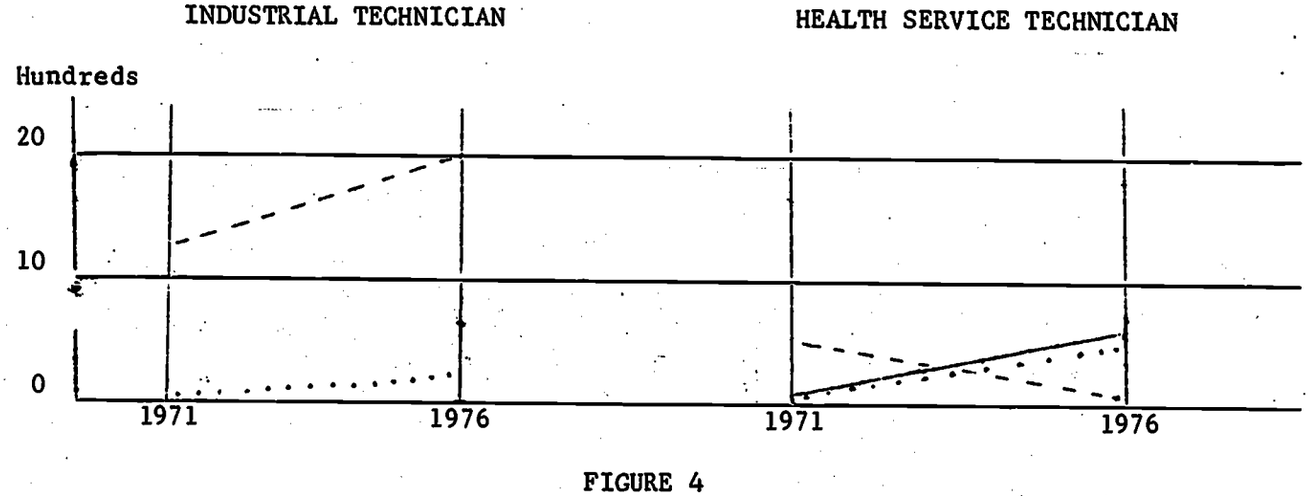


FIGURE 4

- - - - Demand

. . . . Supply

_____ Demand by applying national projections to area sample

We offer projections in figures 1, 4, 5, 6, 7, 8, 9, and 10 to answer the following specific objectives:

3. To determine if a need exists for a secondary course in nuclear radiation.

4. If a need exists, to develop such a course using information from the surveys as guides to content.

PERCENTAGE OF NEW EMPLOYEES WITH INADEQUATE KNOWLEDGE OF RADIATION

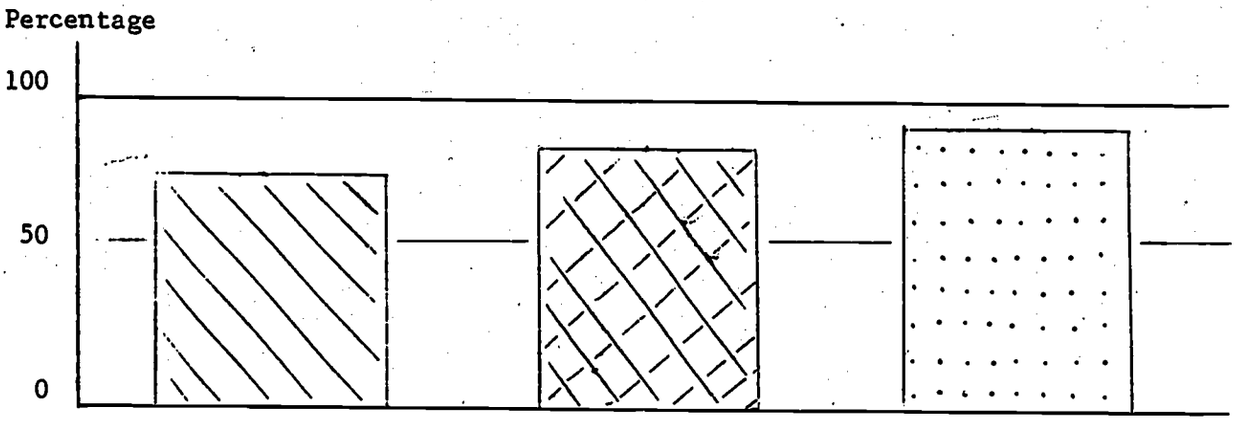


FIGURE 5

Industrial employees working directly with radiation

All employees

Nurses and orderlies

NUCLEAR TECHNICIANS EVALUATE THEIR
TRAINING FOR PRESENT JOB

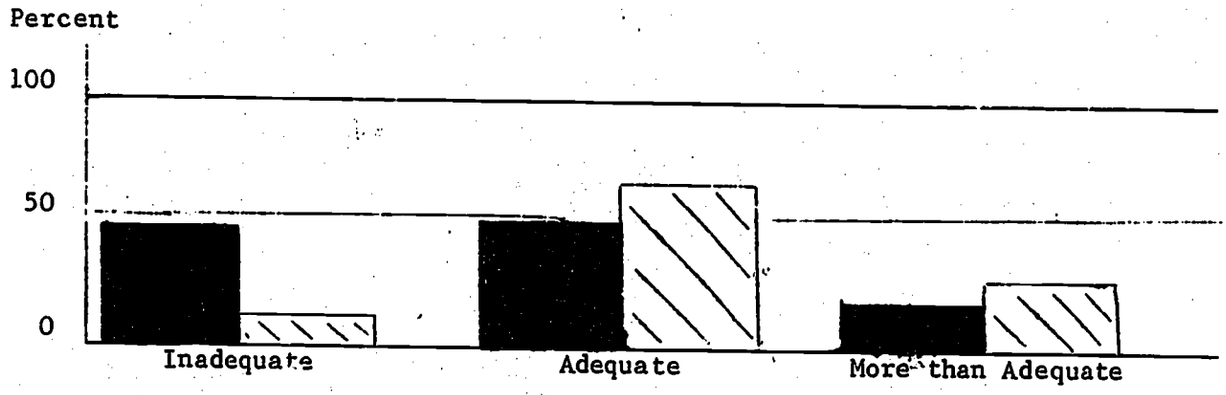


FIGURE 6

Industrial Technicians

Health Service Technicians

RECOMMENDATIONS FOR IMPROVEMENT OF TRAINING

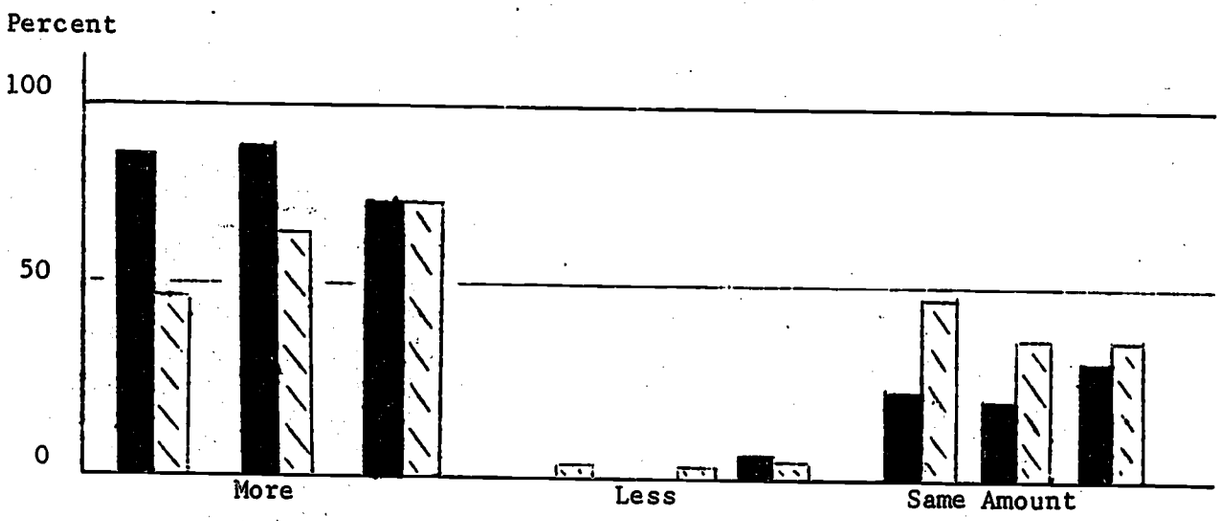


FIGURE 7

Laboratory
Lecture-Discussion
Text Materials
Laboratory
Lecture-Discussion
Text Materials
Laboratory
Lecture-Discussion
Text Materials

1971 SALARIES OF NUCLEAR TECHNICIANS

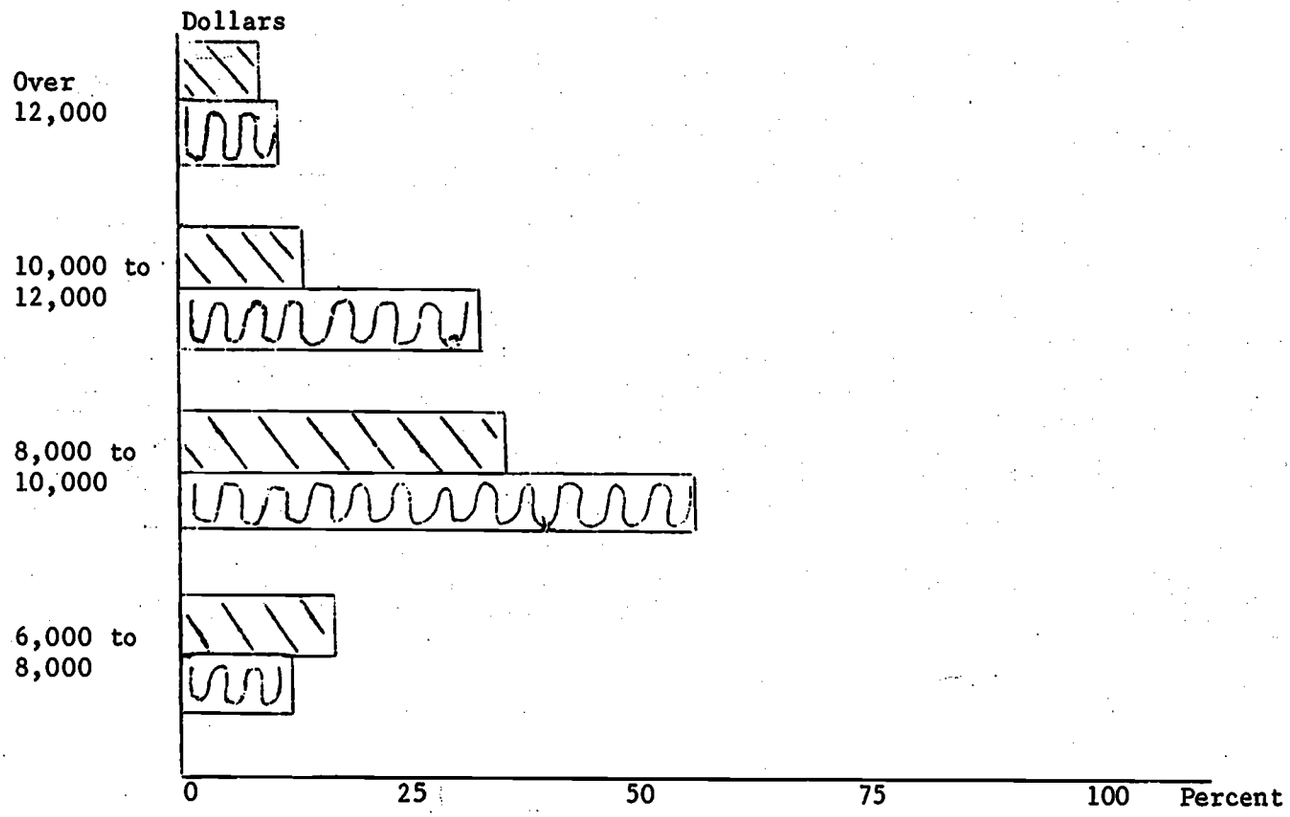


FIGURE 8

2551

CHARACTERISTICS HEALTH SERVICES AND INDUSTRIES
WOULD LIKE TO SEE THEIR TECHNICIANS POSSESS

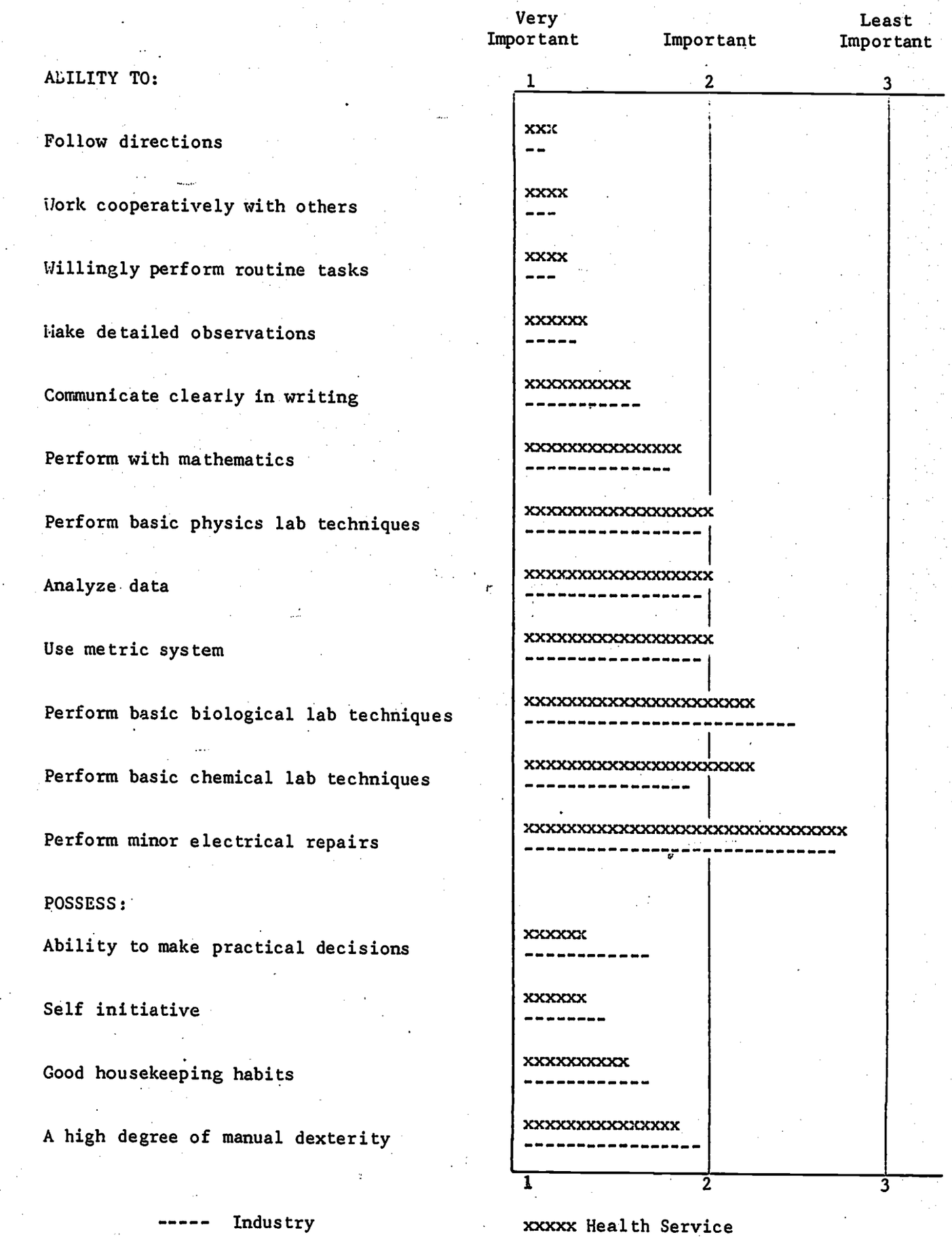


FIGURE 2552

HOW SCHOOLS RANK THEIR ENTERING TECHNICIAN STUDENTS

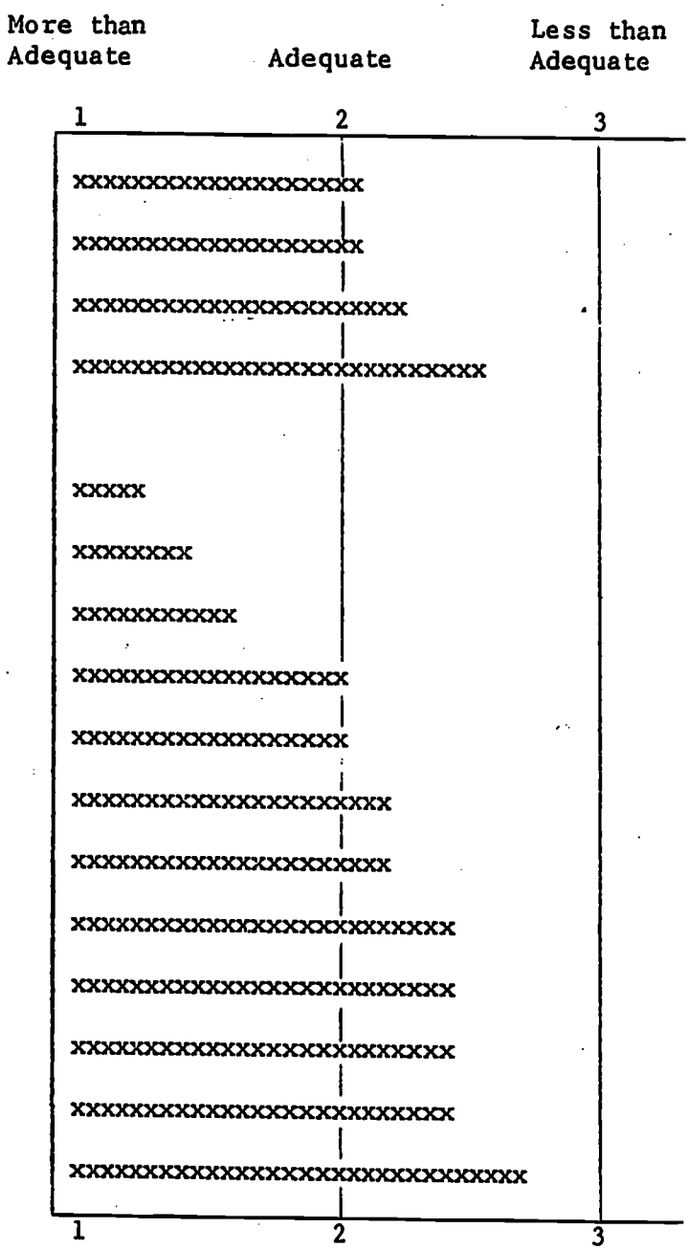


FIGURE 10

CONCLUSIONS

HEALTH SERVICE

1. The number of students in institutions training health technologists as projected in the next five years seems to match quite closely with anticipated demand. This might be due to the fact that, up until now, most health service technicians have received their training in schools which are a part of the hospitals, this forming a tight link between school recruiting and job demand. The following factors must be kept in mind while considering the above conclusion:
    A. There is a rapid drift of training centers from hospitals to new junior colleges. This will break the link between school recruiting and job demand.
    B. Anticipated needs in the next five years fall far short of national statistics for such needs. This might be due to the fact that the majority of our surveys were answered by Chief Technicians, and they are probably less likely to be cognizant of future manpower needs than other supervisory personnel.
2. The health service technicians seemed, on the most part, to be receiving more personal satisfaction in their jobs, in spite of being paid somewhat less than their counterparts in industry. Factors which might affect this attitude are:
    A. Health service technicians are more carefully trained for their jobs.
    B. Health service technicians have a national association to join if they desire.
    C. They share the feeling of helping patients.

INDUSTRY

1. Industry has many job titles for the same job, i.e. health physics technician, RAD protection man, Radiation monitor technician.
2. The Dictionary of Occupational Titles does not list many of the jobs which have emerged due to uses of nuclear energy. This is also true to a lesser degree of The Standard Industrial Classification, and The Occupational Outlook Handbook.
3. Training institutions within this area have not kept pace with the demand for industrial radiation technicians.
4. A high percentage of post-high school training institutions tend to offer two-year programs only, thus often times leaving programs of less than two years to industry. It appears that much of the training needed by industrial radiation technicians could be a shorter time duration.

EDUCATION ON THE SECONDARY LEVEL

1. Almost all of our demand population thought that all of their employees lacked or needed basic knowledge in radiation.
2. In conferences with employers, and in telephone conversations with employers, all had ready examples which illustrated the need for a course on the secondary level in Nuclear Radiation. One doctor in a large Chicago hospital used this example:

> "Radioactive isotopes with a short half-life arrive in the receiving department. Because of the Radiation label, employees in the receiving department fear handling the package. By the time the doctor receives the isotope medication, it has passed its date of usefulness."

A Chief Technician in a hospital told of the reaction of nurses in assisting with the treatment of patients with radioactive medication:

"They usually respond in two divergent ways," he said. "One type would actually leave the scene in fear, while the other reaction was to take bold, unnecessary risks through lack of knowledge."

The population of our nation is faced with making immediate and often grave decisions concerning the quality of our environment. They are forced to make these decisions without the necessary technical judgment. Congressman John B. Anderson states the case for a course in Nuclear Radiation on the secondary level during a speech at a luncheon which was held at the Pick-Congress Hotel on October 15, 1970. His comments may be taken as coming from one knowledgeable in the field, as he is a member of the Joint Congressional Committee on Atomic Energy. His comments follow:

"There is, I believe, one aspect of your cooperative efforts which, at least in the short run, could transcend all others. This is in the area of public education leading to public acceptance of this relatively new technology. There is no doubt in my mind that carefully conceived, thoroughly planned educational programs executed by known, respected local and regional organizations represent the best potential means for providing the general public with the facts necessary to dispel what must be recognized as at least a general uneasiness about the use of nuclear energy. In some cases it goes well beyond uneasiness and approaches hysteria."[1]

3. Of the 4,495 dentists in the State of Illinois, only 5 percent employ trained dental technicians. 95 percent hire young ladies from high schools, with no knowledge of radiation hazards. Many of these young ladies assist with the taking of X-ray pictures.

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[1] Report of the Illinois Commission on Atomic Energy to the Seventy-Seventh General Assembly, 1970, page 67.

RECOMMENDATIONS

The following recommendations are made not only from the five survey results, but from wide reading and meetings with employers of technologists, educators, and research scientists.

1. It is recommended that the data in the report be used by educational planners in Illinois, interfacing the information with national trend data, where available and suitable.
2. It is recommended that several junior colleges in Illinois plan and implement programs to train industrial nuclear technicians. The curriculum planners should consider:
    a. Laboratory-oriented courses
    b. Curriculum of shorter duration than two years
    c. Night classes for on-the-job technicians
    d. Planning courses cooperatively with committees from industry who employ large numbers of radiation technologists
    e. A two-year nuclear technician program designed for health services and industrial technicians, as much of the basic information is the same, differing only in application. See program for Manhattan College Radiological Institute. Article from American Journal of Public Health, Volume 60, Number 11, November, 1970, pages 2102-2109.
3. It is recommended that a pre-vocational laboratory course in nuclear radiation of at least one semester be written for secondary schools and implemented into secondary curricula nationwide.
4. It is recommended that a national association be organized for industrial radiation technologists.
5. It is recommended that the nomenclature of job titles for industrial nuclear technicians be defined and prepared to be used nationally.
6. It is recommended that manpower surveys be refined and periodically used to better facilitate a balance between trained personnel and job demand.

CHAPTER III BACKGROUND INFORMATION AND MANPOWER SURVEY VALUES

In the last decade, more and more young men and women sought baccalaureate degrees, while an increasing number of satisfying and rewarding positions became available at the non-baccalaureate technician level. Parents and counselors, feeling social pressure, have encouraged the higher level of training. The employment opportunities available to the trained technician should be described. One way to provide this information is to make manpower survey results available to educational planners and counselors.

We can assume that meaningful educational planning is aided by accurate job supply and demand data. If this assumption is correct, then it is only fair to question the accuracy of manpower surveys in the assessment of future job opportunities.

One of the difficulties in making meaningful manpower surveys is the lack of a precise definition of the term "technician." The Bureau of Labor Statistics refers to technicians as those "workers who must have training comparable to that obtained in a two-year technical institute." In addition, different employers use many and varied titles for the same work description. National guidelines with titles for specific job descriptions would help this problem.

An economist has cast doubt upon the accuracy of manpower surveys with these words,

> ". . . . The period over which we can usefully forecast the demand for manpower in the present state of knowledge is much more limited than is usually admitted. All the evidence shows that we do not yet know how to forecast beyond three or four years with anything remotely resembling the 10% margin of errors that is regarded as just tolerable in general economic forecasting."[1]

Then why manpower surveys? The answer is clear. Data is badly needed, even if admittedly incomplete. Manpower survey data is preferable to no data at all.

Let us admit that few employers have the background or knowledge to make accurate projections of need and that some may even fear that disclosure of future need might in some way be taken advantage of by competitors. Can we still form valued judgments as to the direction or trend of the projections? We feel we can.

New and varied uses are being found for nuclear energy almost every day. Of the peaceful uses of atomic energy, one which has profound implications for manpower is power generation. The Atomic Energy Commission has reported that there will be 111 nuclear reactors built in the United States between 1969 and 1976. Each of these, the Commission reports, will use 47 highly trained technicians. In 1970, 15 nuclear power plants were in operation, with a total generating capacity of 3,000 megawatts. A projection of expected nuclear power capacity in the United States is 150,000 megawatts by 1980, an increase of 50 fold in one short decade.[2]

Another important use of nuclear energy is in the health service area. Howard L. McMartin, in a speech to a conference on X-ray technician manpower, estimated that hospitals employ eight X-ray technicians per 1,000 beds, with the ratio being higher in smaller hospitals. This does not include the radiation therapists or nuclear medicine technicians. In a Department of Labor report:

> "New techniques are being widely used in the treatment of cancer by various types of radiation devices, providing X-rays and gamma rays; equipment utilizing high speed electrons is used in treating skin lesions. Hodgkin's disease, a type of cancer, is being treated with energy from linear accelerators."[3]

In 1959, radionuclides were used to the extent of 400,000 patient doses per year. This had grown to 1,600,000 doses by 1966. Assuming the present growth rate, the annual patient dose by 1980 could reach 20,000,000.[4]

In Illinois, the following site information was listed by the United States Atomic Energy Commission in their report dated December 31, 1970:

PRESENT AND PROPOSED NUCLEAR POWER STATIONS
IN STATE OF ILLINOIS

SITE	PLANT NAME	NET KILOWATTS	UTILITY	INITIAL DESIGN POWER
Morris	Dresden Nuclear Power Station: Unit 1	200,000	Comm. Ed. Co.	1960
Morris	Dresden Nuclear Power Station: Unit 2	809,000	Comm. Ed. Co.	1970
Morris	Dresden Nuclear Power Station: Unit 3	1,050,000	Comm. Ed. Co.	1971
Zion	Zion Nuclear Plant: Unit 1	1,050,000	Comm. Ed. Co.	1972
Zion	Zion Nuclear Plant: Unit 2	1,050,000	Comm. Ed. Co.	1973
Cordova	Quad-Cities Station: Unit 1	809,000	Comm. Ed. Co. -Ia. Ill. Gas & Elec. Co.	1971
Cordova	Quad-Cities Station: Unit 2	809,000	Comm. Ed. Co. -Ia. Ill. Gas & Elec. Co.	1972
Seneca	LaSalle Co. Nuclear Station: Unit 1	1,078,000	Comm. Ed. Co. -Ia.	1975
Seneca	LaSalle Co. Nuclear Station: Unit 2	1,078,000	Comm. Ed. Co. -Ia.	1976

*From Report on Illinois Commission on Atomic Energy

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Research and development, mostly government-owned, plays an important manpower role. "Out of a total of 25,400 technicians employed in 1968 in all fields of nuclear energy, 11,100 or 43% were involved in research."[5]

The nuclear industry is expanding in oil, exploration, agriculture, industrial radiography, instrument manufacture, waste disposal and many other areas.

Maurice W. Roney and Donald S. Phillips describe three generations of technicians. First and second generations work in support of scientists and engineers, and are highly skilled in their particular field. The third generation, and the one most valuable as a radiation technologist, differs in the math and science base required. The third generation of education will cut across established fields of technology. This generation will provide new combinations of technical skills and knowledge built around a core of the sciences. Applications of the sciences will be drawn from modern industrial activities and the "specialized" content of the instructional program will be systems-oriented, rather than field-oriented.[6] This type of technician must be trained in nuclear physics, radioisotopes, chemistry, electronics, nuclear instrumentation and safety procedures. A number of training programs have been initiated, but their number and output is small as compared to projected need.[7]

These are some of the evidences which make us feel that the results of this survey may be conservative in its estimations of future manpower needs, and that there is concrete evidence in favor of more training of generation three radiation technologists.

FOOTNOTES

[1] M. Blaug, "Approaches to Educational Planning," The Economic Journal, June, 1967, page 279.

[2] Health Physics Society News Letter, May, 1970, page 19.

[3] United States Department of Labor, Technology and Manpower in the Health Services, 1965-1975, (Washington: Government Printing Office, May, 1967), page 43.

[4] Health Physics Society News Letter, May, 1970, page 21.

[5] United States Atomic Energy Commission, Occupational Employment Trends in the Atomic Energy Field, Government Printing Office, 1969.

[6] Maurice W. Roney and Donald S. Phillips, Electromechanical Technology, American Association of Junior Colleges, 1970, pages 9-10.

[7] United States Atomic Energy Commission, Utility Staffing for Nuclear Power, (Washington: Government Printing Office - Pub. #1130, July, 1969), page 23.

CHAPTER IV PROJECT PROCEDURES

Introduction:

The purpose of this chapter is to outline the procedures and instruments used in the nuclear technician manpower survey. Procedures for selection of population, questionnaire development, data collection and data analysis are presented in addition to overall research design.

Selection of Population:

Industry and Health Services

This study began July 1, 1971 and Region VII (See page 2 for map identifying this area) as classified by Illinois State Department of Health was selected as the survey sample. The names of the industries and health services were copied from the registration lists at the Illinois State Department of Health in Springfield, Illinois. 67 industries and 51 health service institutions were identified by this means. (see page 118 for breakdown of registered users in Region VII). Several key industries were contacted so that the survey would be conducted by taped interview in order to test the validity of the questions. This allowed the researchers to revise the survey instrument. When this procedure was completed, the surveys (including return prepaid mailer), along with information card and cover letter (see pages 108 and 109) were sent to the demand industries. During this time, a list of Atomic Energy Commission licensees was received; from this list, it was possible to add five more prospective industrial users in Region VII. After ten days, several of the licensees who had not returned the information card were called; and, from the telephone interview, it was determined that many of these industries registered with Illinois Department of Health used X-ray only. Thus, two letters were sent to the non-responding industries to see if they had X-ray only: (1) to those who did respond negatively (see page 116), and (2) to those who did not respond at all (see page 117).

The result was that 20 were users of industrial X-ray (see item 1, page 42) and 20 stated that they were non-users of industrial X-ray. It took a longer period of time to get a personal interview with a key health service institution, but all of the survey instruments were sent out in early August.

From the list of licensees from the Atomic Energy Commission, a random sample of 79 industries and 124 health service institutions were selected from Cook County. (see map page 2) The survey instrument and cover letter (see page 112) were sent to this demand population.

Schools

A list of all the schools and hospitals offering radiologic training was obtained from the Health Careers Council of Illinois. From this supply, 34 of those from Region VII, Cook County, and the nearby counties were selected and the survey instrument with a card (see pages 92, 111) was sent to each one in this group. 24 responded to the survey. (see item 2, page 53).

A list of schools offering industrial radiation training in the United States was furnished by the Atomic Energy Commission, and it was noted that there were no schools in Illinois named on this list.

Instrumentation:

Five basic instruments were developed for data collection. These were:

1. Industrial Survey (see page 78)
2. Health Service Survey (see page 86)
3. Occupational Education Survey (see page 92)
4. Radiation Technician (Industrial) Survey (see page 98)
5. Radiologic Technician (Health Service) Survey (see page 103)

which were color coded to facilitate separation.

The instruments were developed with the help of personnel from McHenry County College and employers of technicians in both industrial and health service areas. In addition, the Activity Manual For Occupational Program Identification,[1] and a copy of a report of the Joint Sub-committee on Health Physics Technicians by R. L.

Kathren were utilized.[2] The first three instruments were pre-tested at selected schools and employing establishments.

Data Collection:

The principal method of data collection was by mailed questionnaires. The following chronology represents the different phases of data collection and other significant activities related to the study.

1. The State Department of Vocational Education, Research and Development Unit, approved the project July 1, 1971.
2. Initial strategy was outlined and discussed with the Coordinator of Research and Development on July 6, 1971.
3. Region VII was selected as a sample area and a list of registered users was obtained from the Illinois Department of Health, July 7, 1971.
4. The industrial survey was tested with key industries on July 19, 1971.
5. Questionnaires were mailed to industries in Region VII on July 26, 1971.
6. Health service questionnaires were tested on July 28, 1971.
7. Questionnaires were mailed to health services in Region VII on August 4, 1971.
8. Occupational education survey was tested on August 9, 1971.
9. Occupational education survey was mailed on August 12, 1971.
10. Health service and industrial surveys were mailed to Cook County (random sample) on August 16, 1971.
11. Radiation technician surveys were mailed as industries returned surveys granting permission for random technician survey.
12. Radiologic technician surveys were mailed as health services returned surveys granting permission for random technician survey.
13. Data analyzed during November and December, 1971.
14. Report written during December, 1971 and January, 1972.

Technician Instruments:

Two questions were asked of the respondents of each of the employing institutions:

(1) Would you be willing to allow us to survey a sample of your radiation technologists?

(2) If you answered "yes", would you distribute the questionnaires to a random sample of your radiation technologists?

(see pages 84, 85, and 90)

By this method, 100 questionnaires were sent to each group of technicians.

Data Analysis:

The data was tallied on data tables. Percentages and frequency counts have been used to determine the distribution of responses to all questionnaires. The summary and analysis of the data can be seen on pages 39 to 77.

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[1] Illinois Occupational Curriculum Project, Activity Manual For Occupational Program Identification, Joliet Junior College, Joliet, Illinois, 1971.

[2] Kathren, R.L., "Report to the Joint Sub-committee on Health Physics Technicians, Columbia Chapter and Education Training Committee Health Physics Society," October, 1970.

DATA SUMMARY

AND

ANALYSIS

The purpose of this study has been to provide the basis of a nuclear manpower information system by attempting to answer the following research questions:

1. How many persons in this area are now employed as radiation technologists in industries using nuclear radiation?

2. How many persons in this area are now employed as radiation technologists in health services using nuclear or X-radiation?

3. What is the estimated demand in the next five years for technologists working with industry or health services using nuclear or X-radiation?

4. What training facilities and programs exist in this area to train persons to meet these anticipated manpower needs?

5. What is the prcsent supply and future potential supply of trained manpower from existing programs in this area?

6. What are some of the subsequent employment patterns of graduates from existing training programs?

7. What are some characteristics of sub-professional workers presently employed in nuclear related industry and health services?

8. What training program changes will be necessary to adequately meet the sub-professional manpower needs of nuclear related industries and health services?

9. Is there a need for a course in nuclear education at the secondary level?

10. What type of training would industry and health services recommend for their technicians?

11. What are some important characteristics that industry and health services employers would like their technicians to possess?

12. What type of program is offered by schools that train technicians?

13. What are the characteristics of students who enter these schools?

14. What do the technicians think about their training and what recommendations would they make for future training of technicians?

Data pertaining to these research questions are presented in the following sections:

1. Industrial Survey
2. Health Services Survey
3. Occupational Education Study Survey
4. Industrial Radiation Technician Survey
5. Health Services Radiation Technician Survey

Percentages and frequency counts are used to determine the distribution of responses to all questionnaires.

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INDUSTRIAL SURVEY

1. Survey Sample

	Number Sent
Region VII	72
Cook County	79
Total	151

Region VII	Number	Per Cent Responses
Users	13	18
Non-users	20	28
Industrial X-ray	20	28
No Response	19	26
Cook County		
Users	32	41
Non-users	14	17
No Response	33	42
Totals		
Users	45	30
Industrial X-ray	20	13
Non-users	34	23
No Response	52	34

2. Activity of business (could check more than one)

	Number	Per Cent Responses
Metals	7	12.5
Electrical	4	7.1
Transportation	1	1.7
Chemical Process	8	14.2
Consumer Products	14	25.0
Crude Petroleum & Natural Gas	2	3.5
Mining	2	3.5
Utilities	2	3.5
Health Service	6	10.7
Agriculture	4	7.1
Other	6	10.7
Total	56	

3. What phases of industry use radioactive materials? (May check more than one)

	Number	Per Cent Responses
Research & Development	30	46.1
Production	21	32.3
Service	9	13.8
Other	5	7.6
Total	65	

4. What are the general classifications in which you use radioisotopes? (May check more than one)

	Number	Per Cent Responses
Tracing	18	32.1
Gauging	12	21.4
Radiography	9	16.0
Ionization radiation	12	21.4
Heat and Power	1	1.7
Other	4	7.1
Total	56	

5. How many employees are involved in the use of radioactive materials?

	Number	Responses	Average	% Ave. Inc./5 Yrs.
Now	4570	46	99.3	19.6
Five Years Ago	3737	45	83.0	
*Five Years Hence	5296	40	132.4	33.3

* 5 didn't answer but had a total of 79 now.

6. How many of the employees are health physicists? (or equivalent training)

	Number	Responses	Average	% Ave. Inc./5 Yrs.
Now	82	45	1.82	13.0
Five Years Ago	71	44	1.61	
Five Years Hence	91	41	2.22	22.0

7. Per cent of total employees involved in use of radioactive materials who are health physicists or equivalent training.

	Per Cent
Now	1.7
Five Years Ago	1.8
Five Years Hence	1.7

8. How many of these employees would you classify as technicians?

	Number	Responses	Average	% Ave. Inc./5 Yrs.
Now	1024	42	24.4	67.0
Five Years Ago	628	43	14.6	
Five Years Hence	1434	40	35.9	47.1

9. Per cent of total employees involved in use of radioactive materials who are classified as technicians.

	Per Cent
Now	22.4
Five Years Ago	16.8
Five Years Hence	27.0

10. Does your organization use remote handling equipment?

	Number	Per Cent Responses
Yes	15	35.7
No	27	64.2

If "Yes," do your technicians perform this task?

	Number	Per Cent Responses
Yes	12	80
No	3	20

11. Number of employees who work with radiation.

Number of Employees	Number of Industries
0-5	24
6-10	5
11-30	4
31-50	2
51-70	1
71-100	2
101-200	3
300	1
468	1
813	1
2000	1

12. Number of health physicists who work with radiation.

Health Physicists	Industries
0	25
1	6
2	5
3	1
4	2
9	1
14	1
15	2

13. Number of technicians who work with radiation.

Technicians	Industries
0	14
1	7
2	4
3	2
4	1
5	3
6	1
10	1
15	1
20	1
30	1
32	1
70	1
150	1
158	1
225	1
260	1

14. Job Titles of Technicians -- Great variety listed such as:

- Research Technician
- Safety Technician
- Radiation Protection Man
- Nuclear Station Operator
- Nuclear Fuel Handler
- Controls System Technician
- Test Technician
- Electrician Technician
- Mechanical Technician
- Health Physics Technician
- Electronics Technician
- Radiation Chemistry Technician
- Instrument Shop Technician
- Laboratory Assistant
- Radiation Pharmaceutical Technician
- Radiation Pharmaceutical Research & Development Technician
- Science Technician
- Radiographic Operator
- X-ray Operator

15. Of employees you classify as radiation technologists, how do you classify the background training of the majority?

	Number	Per Cent Responses
Radiation Technician School	2	5.5
College Science Courses	12	33.3
Armed Forces Training	6	16.6
Government Facility	3	8.3
High School Science Courses	6	16.6
Previous In-plant Training	7	19.4
	36	

16. Technical employees receiving further training:

	Number	Per Cent Responses
In-service, On-the-Job	24	70.5
Special Training by Other Institutions	10	29.4

17. Do you feel a need for more radiation technician schools in this area?

	Number	Per Cent Responses
Yes	14	38.8
No	22	61.1

If answered "Yes," would such training benefit by incorporation of laboratory exercises?

All 14 responded "Yes"

18. Could an adequately trained High School Graduate or Junior College Graduate successfully perform some of the technical duties now performed by degree employees?

	Number	Per Cent Responses
Yes	25	78.1
No	7	21.9

19. Please grade (1) - very important - through (3) - least important - those general characteristics desirable in the majority of radiation technologists:

	Average
Perform minor electrical repair	1.7
Communicate clearly in writing	1.7
Perform with math	1.8
Perform basic chemical lab techniques	2.0
Perform basic physics lab techniques	1.9
Perform basic biological lab techniques	2.4
Analyze data	1.9
Use metric system	1.9
Make detailed observations	1.3
Follow directions	1.1
Willingly perform routine tasks	1.2
Work cooperatively with others	1.2
POSSESS:	
High degree of manual dexterity	1.6
Good housekeeping habits	1.4
Self initiative	1.3
Ability to make practical decisions	1.6

20. Do you feel that employees working with radiation come to you with adequate training?

	Number	Per Cent Responses
Yes	8	22.9
No	27	77.1

21. Do you feel that all your employees, from janitor on up, come to you with adequate knowledge of radiation?

	Number	Per Cent Responses
Yes	5	13.5
No	32	86.5

HEALTH SERVICES SURVEY

1. Survey Sample

	Number Sent
Region VII	51
Cook County	124
Total	175

Region VII	Number	Per Cent Responses
Users	18	35.3
Non-users	5	9.8
No Response	28	54.9
Cook County		
Users	39	31.5
No Response	85	68.5
Totals		
Users	57	32.6
Non-users	5	2.9
No Response	113	64.6

2. Name of department reporting (may check more than one)

	Number	Per Cent Responses
Radiology	42	50.0
Nuclear Medicine	31	36.9
Pathology	6	7.1
Internal Medicine	1	1.2
Radiation Therapy	4	4.8
Total	84	

3. Estimate total number of employees in your institution.

	Responses	Employees	Average	% Inc. Ave./5 Yrs.
Now	46	36,831	801	25.9
Five Years Ago	42	26,733	636	
Five Years Hence	31	30,715	991	23.7

4. Number of employees per institution:

Employees	Institutions
0-100	10
101-200	5
201-300	2
301-400	2
401-500	2
501-600	6
601-700	0
701-800	1
801-900	2
901-1000	2
1001-1100	3
1101-1200	3
1201-1300	1
1301-1400	1
1401-1500	0
1501-1600	0
1601-1700	0
1701-1800	2
1801-1900	0
1901-2000	2
3000	2

5. How many employees are involved in the use of radioactive materials?

	Employees	Responses	Average	% Inc. Ave./5 Yrs.
Now	446	55	8.1	72.3
Five Years Ago	245	52	4.7	
Five Years Hence	578	49	11.8	45.7

6. Number employees involved with use of radioactive materials per institution.

Employees	Institutions
0-5	36
6-10	7
11-15	2
16-20	3
21-25	1
26-30	3
31-35	2
36-40	1

7. How many of the employees employed are health physicists (or equivalent training)?

	Employees	Responses	Average	% Inc. Ave./5 Yrs.
Now	42.5	52	.82	78
Five Years Ago	23	50	.46	
Five Years Hence	48	45	1.07	30.5

8. Number of health physicists (or equivalent training) per institution.

Health Physicists	Institutions
0	37
1	8
2	2
3	3
4	0
5	1
17	1

9. How many of these employees would you classify as technicians?

	Employees	Responses	Average	% Inc. Ave./5 Yrs.
Now	407	56	7.3	78
Five Years Ago	219	53	4.1	
Five Years Hence	383	42	9.1	25

10. Do orderlies or nurses assist when radioactive materials are used in conjunction with the patient?

	Number	Per Cent Responses
Yes	13	23.2
No	43	76.8

11. Job titles of technician that you employ that work with radiation:

	Responses	Per Cent Responses
X-ray Technician	39	69.6
Nuclear Medical Technician	36	64.3
Radiation Therapy Technician	21	37.5

12. In which area(s) do you feel the need for more trained radiation technologists?

	Number	Per Cent Responses
X-ray Technician	33	58.9
Nuclear Medicine Technician	45	80.4
Radiation Therapy Technician	28	50.0

13. Do you feel that the formal classroom training of technologists should incorporate more student laboratory experiences that have a direct time relationship with the subject matter?

	Number	Per Cent Responses
Yes	50	87.7
No	7	12.3

14. Have the majority of your technicians received hospital or clinical experience in lieu of classroom laboratory experience?

	Number	Per Cent Responses
Yes	52	92.9
No	4	7.1

15. Approximately what per cent of time in the formal training of technologists would you suggest for the following:

	Average	Range
Classroom lecture/discussion	22.9	10 to 50
Classroom laboratory exercises	22.7	2 to 70
Clinical experiences	54.3	15 to 88

16. Grade (1) - most important - through (3) - least important - the following characteristics you wish to have in your technicians.

	Average
Work with patients	1.1
Follow directions	1.1
Work cooperatively with others	1.3
Make detailed observations	1.4
Willingly perform routine tasks	1.3
Communicate clearly in writing	1.7
Perform basic biological laboratory techniques	2.2
Perform basic chemical laboratory techniques	2.2
Perform basic physics laboratory techniques	2.0
Perform with mathematics	1.8

	Average
Analyze data	2.0
Use metric system	2.0
Perform minor electrical repairs	2.4
POSSESS:	
A high degree of manual dexterity	1.6
Good housekeeping habits	1.3
Self initiative	1.2
Ability to make practical decisions	1.2

17. Do you feel that nurses and orderlies come to you with adequate knowledge of radiation?

	Number	Per Cent Responses
Yes	5	9
No	50	91

OCCUPATIONAL EDUCATION STUDY SURVEY

1. Survey Sample

Hospitals	25
Junior or Community Colleges	9
	34

2. Returns

		Per Cent
Hospitals	13	54.1
Junior or Community Colleges	7	29.2
Hospitals no longer have a School	4	16.7
	24	

3. Type of radiation technologist programs offered.

Health:

X-ray Technologist	18
Nuclear Medical Technician	5
Radiation Therapy Technician	3

Industrial:

Health Physics Technologist (program in planning stages)	1

Health Services Technician Program Information

4. Months of training necessary to complete area:

	Number	Per Cent Responses
X-ray Technician:		
24 months	11	61.1
26 months	4	22.2
28 months	3	16.7
	18	
Nuclear Medical Technician:		
24 months	2	40
12 months	2	40
6 months	1	20
	5	

	Number	Per Cent Responses
Radiation Therapy Technician:		
24 months	2	67
12 months	1	33
	3	

5. Number of students enrolled last session:

X-ray Technician	288
Nuclear Medical Technician	19
Radiation Therapy Technician	1

6. Number of students expected to complete training:

	Number	Per Cent Completing
X-ray Technician	204	71
Nuclear Medical Technician	19	100
Radiation Therapy Technician	1	100

7. Number of students who completed last training session:

	Number	Number Increase	% Increase
X-ray Technician	104	100	96
Nuclear Medical Technician	19	0	0
Radiation Therapy Technician	0	1	0

8. Number of students who completed training last session that intend to go on to higher education:

	Number	Per Cent
X-ray Technician	18	17
Nuclear Medical Technician	0	0
Radiation Therapy Technician	0	0

9. Number of students who completed training last session that found jobs in the field:

	Number	Per Cent
X-ray Technician	86	83
Nuclear Medical Technician	7	37
Radiation Therapy Technician	0	0

10. Number of students who completed training last session who entered the military:

	Number	Per Cent
X-ray Technician	1	1
Nuclear Medical Technician	2	10.5
Radiation Therapy Technician	0	0

11. Number of students who completed training five years ago:

X-ray Technician	40
Nuclear Medical Technician	0
Radiation Therapy Technician	0

12. Number of students who complete training this year:

	Number	Increase	% Increase/5 Yrs.
X-ray Technician	204	164	410
Nuclear Medical Technician	19	---	---
Radiation Therapy Technician	1	---	---

13. Number of students you anticipate to complete training 5 years hence:

	Number	Increase	% Increase/5 Yrs.
X-ray Technician	573*	369	180
Nuclear Medical Technician	83	64	337
Radiation Therapy Technician	25	24	2400

*60 represented from schools outside area, but within 100 miles

14. Tuition cost per year:

Cost	Number
$ 0	7
45	1
75	1
100	1
265	4
300	1
980	1
10/hour	1

15. Type of certification given:

AAS
AD
Diploma
Certificate

16. Please list the percentage of contact time devoted to each item in courses dealing with radiation:

	Average	Range
Lecture-discussion	24.7	5 to 35
Laboratory exercises	14.4	0 to 50
Clinical experience	59.7	15 to 90

17. Laboratory experiences students have in courses dealing with radiation:

	Number Schools	% Schools Responding
Tracing	8	42
Ionization	12	63
Gauging	4	21
Radiography	15	79
Heat and Power	6	32
Instrument Calibration	10	53
Instrument Repair	4	21
Monitoring	14	74
Shielding	16	84
Biological Effects	10	53
Air Sampling	3	16
Remote Handling	8	42

18. Knowledge of:

	Average
Chemistry	2.4
Biology	2.2
Physics	2.2
Radiation	2.3

Ability to:

Perform basic chemical techniques	2.2
Perform basic physics techniques	2.2
Perform basic biological techniques	2.2
Communicate clearly in writing	2.0
Apply mathematics	2.1
Use metric system	2.2

	Average
Make detailed observations	2.0
Properly record data	1.9
Analyze data	2.1
Perform minor electrical repairs	2.5
Willingly perform routine tasks	1.5
Work cooperatively with others	1.4

Possess:

A high degree of manual dexterity	1.9
Good housekeeping habits	1.9
Ability to make practical decisions	1.8

19. Industrial:

Only one school in Illinois has indicated that it is planning a course for Health Physics Technologists. It will be a six-month course and they expect 60 students to complete training in the next five years.

INDUSTRIAL RADIATION TECHNICIAN SURVEY

1. Number Sent: 100

   Number Responses* 17 17% responses

   *One union representing one of the largest numbers of technicians refused to let their members complete the questionnaire.

2. Highest grade of school completed:

Grade	Number	Per Cent Responses
10	1	5.9
11	1	5.9
12	10	58.9
1	3	17.6
2	2	11.8

3. Where did you receive your technician training?

	Number	Per Cent Responses
On-the-job	14	70
In-service	2	10
Military service	3	15
Junior college	0	0
University	0	0
Radiation Technician School	0	0
Medical Technician School	1	5
	20	

4. Upon completion of your training, which did you receive?

	Number	Per Cent Responses
Certificate	6	37.5
Associate Degree	0	0
Bachelor's Degree	0	0
Nothing	10	62.5

5. What factors influenced your decision to enter the radiation field?

	Number	Per Cent Responses
Interest	10	34.5
Money	4	13.8
Location	6	20.7
High School Course	0	
High School Teacher	0	
College Course	0	
College Teacher	0	
Working Hours	1	3.4
Prestige	1	3.4
Publicity Brochure	0	
Advancement	4	13.8
Others:		
Scored High on Tests	1	3.4
Type of People I work with	1	3.4
Looking for a Job	1	3.4
	29	

6. How would you classify your training for entrance into your present job?

	Number	Per Cent Responses
Adequate	7	43.8
Inadequate	7	43.8
More than adequate	2	12.4
	16	

7. In your training, how would you rate your laboratory experience in preparing you for your present job?

	Number	Per Cent Responses
Adequate	7	41.2
Inadequate	6	35.3
More than adequate	4	23.5
	17	

8. How would you rate your lecture, discussion, and text portion of your training?

	Number	Per Cent Responses
Adequate	10	58.8
Inadequate	6	35.3
More than adequate	1	5.9
	17	

9. What recommendations would you make for the improvement of your training program?

	Number	Per Cent Responses
More practical laboratory experience	13	76.5
Less practical laboratory experience	0	0
Same amount of practical laboratory experience	4	23.5
	17	
More lecture-discussion	12	75
Less lecture-discussion	0	0
Same amount of lecture-discussion	4	25
	16	
More text materials	11	64.7
Less text materials	1	5.9
Same amount of text materials	5	29.4
	17	

10. How many years have you been in the nuclear field?

Years	Number
1	1
2	4
3	1
4	2
6	2
8	1
10	1
11	3
	16

11. Are you a veteran from the service?

	Number	Per Cent Responses
Yes	13	76.5
No	4	23.5
	17	

12. Did you have prior experience in the radiation field when you secured your first time employment as a radiation technician?

	Number	Per Cent Responses
Yes	1	6.3
No	15	93.7
	16	

13. What is your job title?

	Number
Technician	2
Health Physics Technician	1
Preparation Technician	1
Laboratory Technician	5
X-ray Technician	1
Radiographic Operator	1
Research & Development Technician	1

14. How long have you been on your present job?

Years	Number
1	1
2	4
3	3
4	2
5	1
6	2
10	1
11	1
20	1
	16

15. How many times have you changed jobs since completion of your training?

Times Changed	Number
0	11
1	2
2	1
3	2

16. What factors were responsible for changing employers?

	Number
Salary	3
Location	4
No opportunity to advance	3
Poor working conditions	1
Lay-off	0
Transfer	0

17. Have you been promoted since you secured your present employment?

	Number	Per Cent
Yes	10	58.8
No	7	41.2

18. Does your job provide satisfaction of accomplishment?

	Number	Per Cent
Yes	13	76.5
No	4	23.5

19. Does your job require you to perform to the full extent of your capabilities?

	Number	Per Cent
Yes	6	35.3
No	11	64.7

20. Does your employer readily delegate responsibility to technicians?

	Number	Per Cent
Yes	13	76.5
No	4	23.5

21. Do you feel that there is an adequate chance for promotion in your field?

	Number	Per Cent
Yes	12	75
No	4	25

22. Annual salary range:

Range	Number
$6,000 to 8,000	2
8,000 to 10,000	9
10,000 to 12,000	5
Over 12,000	1

23. Do you feel that you are adequately paid considering your training, experience, and responsibilities?

	Number	Per Cent
Yes	9	52.9
No	8	47.1

24. Do you feel that formal certification would be advantageous?

	Number	Per Cent
Yes	14	82.4
No	3	17.6

25. Do you feel a national technician's organization with a monthly publication would benefit you?

	Number	Per Cent
Yes	10	62.5
No	6	37.5

HEALTH SERVICES RADIATION TECHNICIAN SURVEY

1. Survey Sample

Number Sent:	100	
Returns:	71	71%

2. Highest Grade of School Completed:

	Grade	Number Completed	Per Cent
	12	40	57.1
COLLEGE:	1	8	11.4
	2	12	17.1
	3	2	2.8
	4	6	8.6
	5	2	2.8
		70	

3. Technician training and experience: (May check more than one)

Type Training	Number	Per Cent Responses
On-the-job	23	22.1
In-service	1	1.0
Military service	8	7.7
Junior college	2	1.9
University	7	6.7
Radiation Tech. School	15	14.4
Hospital and/or clinic tech. school	48	46.2
	104	

4. Upon completion of training, which did you receive?

	Number	Per Cent Responses
Certificate	60	82.2
Associate Degree	1	1.4
Bachelor's Degree	3	4.1
Nothing	8	11.0
Diploma	1	1.4
	73	

5. What factors influenced your decision to enter the radiation field? (May check more than one)

	Number	Per Cent Responses
Interest	63	45.7
Money	11	8.0
Location	11	8.0
High School Course	1	.7
High School Teacher	6	4.3
College Course	3	2.2
College Teacher	0	0
Working Hours	6	4.3
Prestige	12	8.7
Publicity Brochure	10	7.2
Advancement	15	10.9
	138	

6. How would you classify your training for entrance into your present job?

	Number	Per Cent Responses
Adequate	43	59.7
Inadequate	8	11.1
More than adequate	21	29.2
	72	

7. In your training, how would you rate your laboratory experience in preparing you for your present job?

	Number	Per Cent Responses
Adequate	42	59.2
Inadequate	11	15.5
More than adequate	18	25.4
	71	

8. How would you rate your lecture, discussion, and text portion of your training?

	Number	Per Cent Responses
Adequate	33	47.1
Inadequate	22	31.4
More than adequate	15	21.4
	70	

9. What recommendations would you make for improvement of your training program?

	Number	Per Cent Responses
More practical lab exercises	30	46.2
Less practical lab exercises	1	1.5
Same amount practical lab exercises	34	52.3
	65	
More clinical experience	28	42.4
Less clinical experience	1	1.5
Same amount of clinical experience	37	56.1
	66	
More lecture-discussion	41	60.3
Less lecture-discussion	1	1.5
Same amount of lecture-discussion	26	38.2
	68	
More text materials	43	65.2
Less text materials	2	3.0
Same amount of text materials	21	31.8
	66	

10. How many years have you been in the radiologic technician field?

Years	Responses
½	2
1	4
2	10
3	7
4	6
5	4
6	7
7	6
8	4
9	2
10	2
11	0
12	1
13	3
14	0
15	1
16	0
17	1
18	2
19	0
20	3
21	1
22	2
23	1
24	0

10. (continued)

Years	Responses
25	0
26	0
27	0
28	0
29	0
30	1
31	1
	71

11. Are you a veteran from the service?

	Number	Per Cent Responses
Yes	16	23.9
No	51	76.1
	67	

12. Did you have prior experience in the radiologic field when you secured your first full time employment as a radiation technologist?

	Number	Per Cent Responses
Yes	14	21.2
No	52	78.8
	66	

13. Check your job title:

	Number	Per Cent Responses
Radiologic technologist	55	74.3
Radiation therapy technologist	2	2.7
Nuclear medicine technologist	16	21.6
Research assistant	1	1.4
	74	

14. How long have you been on your present job?

Years	Responses
less than ½ year	5
½ year	7
1	12
2	12
3	8

14. (continued)

Years	Responses
4	4
5	5
6	2
7	3
8	0
9	1
10	2
11	1
12	1
13	0
14	1
15	1
16	1
17	1
18	0
19	0
20	1

15. How many times have you changed jobs since your completion of your training?

Times Changed	Number	Per Cent Responses
0	34	50.0
1	11	16.2
2	9	13.2
3	9	13.2
4	1	1.5
5	3	4.4
6	0	0
7	1	1.5
	68	

16. What factors were responsible for changing employers?

	Number	Per Cent Responses
Salary	11	22.4
Location	15	30.6
Transfer	6	12.2
No opportunity to advance	9	18.4
Poor working conditions	8	16.3
	49	

17. Have you been promoted since you secured your present employment?

	Number	Per Cent Responses
Yes	44	62.9
No	26	37.1
	70	

18. Does your job provide satisfaction of accomplishment?

	Number	Per Cent Responses
Yes	69	97.2
No	2	2.8
	71	

19. Does your job require you to perform to the full extent of your capabilities?

	Number	Per Cent Responses
Yes	49	69
No	22	31
	71	

20. Does your employer readily delegate responsibility to radiologic technicians?

	Number	Per Cent Responses
Yes	63	92.6
No	5	7.4
	68	

21. Do you feel that there is adequate chance for promotion in your field?

	Number	Per Cent Responses
Yes	49	69
No	22	31
	71	

22. Salary Range:

Range	Number	Per Cent Responses
$ 4,000 to 6,000	12	17.9
6,000 to 8,000	24	35.8
8,000 to 10,000	24	35.8
10,000 to 12,000	5	7.5
More than 12,000	2	3.0
	67	

23. Do you feel that you are adequately paid considering your training, experience, and responsibilities?

	Number	Per Cent Responses
Yes	28	41.2
No	40	58.8
	68	

24. Do you feel formal certification would be advantageous?

	Number	Per Cent Responses
Yes	60	89.6
No	7	10.4
	67	

25. Do you feel a national technician's organization with a monthly publication would benefit you?

	Number	Per Cent Responses
Yes	51	76.1
No	16	23.9
	67	

SELECTED COMMENTS FROM SURVEYS

Industrial Survey

"Our present use of nuclear radiation is small. (8 sources) We feel the use of nuclear radiation can be expanded to other departments of our division of the company."

"Basic need is a one semester course on radiation hazards (doses, rads, rems) and monitoring with discussions of handling, storage, packaging and disposal."

"The secondary education course would be far more beneficial in my view than the junior college course."

"I feel that nuclear technology, except for power generation, is a dying field and that you may be training people for no available jobs."

"Until the radiation of foods becomes an approved process, we will have no jobs for radiation technicians."

"Curricula should minimize basic theory of nuclear physics but stress wide area of applicability, i.e. the technician does not have to worry how it works but just that it works and he can use it. The value of our technicians is that they use measurements of radiation as one of many tools in their day-to-day experiments. Coupling analytical methods involving radiation with other known methods of analysis such as gas chromatography, mass spectrometry, chromatography and electrophoresis, etc. is most desirable."

"We regret that we cannot answer many of the questions contained in this questionnaire, as we have a very limited need for radiation technologists, and we use personnel from outside firms for this purpose, whenever needed. Our company manufactures incandescent gaslight mantles, which contain Thorium, and we work very closely with the A.E.C. to keep it under control and meet their radiation requirements."

"Community High School
District No. 15
45 W. Franklin Street
Crystal Lake, Illinois 60014

Gentlemen:

Your letter and questionnaire was the most refreshing thing to come across my desk in a long while. May I salute your efforts and extend my support.

I have been actively engaged in my chosen field of nondestructive testing, which includes industrial radiography, for the past 18 years. I have been in both the research and development and also in the technical management of this field. During this time, the field has grown three fold and because of this rate of growth, the pressing need for adequately trained technicians has been and is a distinct problem. Those with experience command top salaries, those without are not in the position to reap these rewards until such time as they have established the work experience. As a consequence, an organization such as ours has a high employee turn over ratio. The inexperienced are hired at an entry level, given "on the job" training and work experience to such a point as the individual feels he has gained sufficient knowledge to seek a better paying position elsewhere. It is not economically sound or good practice to raise salaries to match the other companies. This becomes a round robin which can never be stopped if once started. With an approach similar to yours, vocational training at the high school, junior college level, this cycle of lure--train--resign for better money would be stabilized. The raid on other employers would be minimized.

It is an expensive proposition to train an inexperienced employee in nondestructive testing. Actual costs are not known, but we do know the direct cost for our training program in the employees wages, instructor's salary, lost production time and materials average $8,000 per trainee. It would be safe to say the indirect cost would double this figure. If the organization is trying to operate on a 10% profit margin, this means that they must sell $80,000 of product or service just to pay for the direct cost of the training program.

As a manager, I am actively seeking ways to improve our operation, to produce satisfactory results, reduce my costs and increase the profits. This is why I am so enthusiastic about your intentions. If there is anything I can do to help you establish your program, call on me. I will make myself as available as time permits.

My warm and sincere good wishes for your endeavor.

Sincerely

/s/ H. R. Good
Howard R. Good
Chief Radiographer, Crane Co.
4100 S. Kedzie
Chicago, Illinois
20 September 1971"

2600

"1. More detailed classroom instruction in Anatomy for Nuclear Medicine Tech.

2. Emphasis on electronics and specifically radiation detection physics and instrumentation.

3. The above could easily be incorporated in a junior college level with credits for approved hospitals providing practical application with patients, and instrumentation.

4. Provide a level of training which will afford the technologist the ability (from training) to make judgments for himself in problems concerning procedural matters in nuclear medicine.

5. If the paragraph above is accomplished you will remove the situation of a significant number of instances where the person is figuratively taken off the street and given a "cook book" concerning Nuclear Medicine procedures."

"At the present time there is (as far as I know) only one college course in Nuclear Medicine in the evening. I feel that technicians who would like to be eligible for registry but are working during the day would benefit if there were evening courses that would give college credits that could be used as the requirements to take the registry in Nuclear Medicine."

"Training now given in high school and junior college probably appropriate. Need to get older personnel retrained and to get more students into significant scientific courses."

"Faster educational facilities should be available for Nuclear Medicine alone. The prerequisite of other disciplines should be waved. Courses in Nuclear Medical Technology alone should be available."

"Our work consists of radiation therapy for accessible tumors, primarily with radium. We have devised a new unit called a "Pneumatron" which utilizes cobalt 60 in the center of titanium ball bearings which are transmitted pneumatically to and from a pre-fixed applicator. As immediate past President of the Illinois State Medical Society and intimately associated with medical education in Illinois, I am quite sure many workers at all levels will be required for the rapidly increasing field of radiation."

"I am ordinarily willing to cooperate with schools, but this survey seems to be somewhat ridiculous to me. In the first place, X-ray technology is a post-high school training program - either hospital-based or a Junior College program. Secondly, Cary, Illinois is a long way from Hinsdale and Oak Brook, Illinois -- not even in the same county, let alone school district; and thirdly we have already filled out similar forms at our Hospital in LaGrange for Triton College and DuPage College -- There seems to be needless duplication of effort here somewhere! I'd suggest you contact Mr. Jim Peterson at Triton and Mr. Robert Strukoff of the College of DuPage who are the X-ray technology instructors. I am sure they could be more help than 5,000 surveys!"

"(1) Affiliating Radiologic Technician student programs with Junior College is a definite step towards upgrading technologist's education.

Suggestions: (a) Formal (classroom) education should be received at Junior College. Students should not be allowed to perform procedures or be influenced by staff technologists ('over the shoulder instruction') until student has a basic understanding of x-radiation, anatomy, positioning, darkroom techniques.

(b) Laboratory Experimentation in the classroom prior to practicing in an X-ray department.

(c) More emphasis on understanding background of radiation theory; less emphasis on 'learn as you go type training.'

(d) Set higher education qualifications for instructors in Radiologic Technology. The spectrum of instructors extends from R.T. to B.S. degree to M.D."

"Any training program should be instituted in such a way that the student gets as much clinical experience as is possible. With the advent of junior college programs there has been a decline in the confidence level of the graduating students due to the fact that when the didactic requirements of the junior college and course in radiologic technology are met the clinical experience has to suffer somewhat unless the training period is extended. Extension of the program length is of questionable value as this tends to decrease the rate at which new people get into the field. Twenty four months is an adequate training period if the students can get adequate clinical experience in this time."

"I would like to see national training level achieved at 3 years of mixed college and clinical. And also a state license as well as exam given by A.R.R.T. to qualify for job."

"I think in the hospital there is a need for better educated teachers in the training program. In most hospital training programs they take a previously graduated student that is now registered to teach the upcoming students. I don't think this is wise. She can teach them techniques but as far as physics goes you need someone that really knows what's going on and can explain it to you on a simple level. I think the main thing for a person to possess is to have the desire to learn. I was not a good high school student--I hated school but I did have the desire to learn x-ray because I was a nurses aid in the x-ray field and I really enjoyed this -- so I had no B or A average but just the desire to learn and someone who believed in me. I'm not saying that it was easy to learn for me -- it was very complicated but I did make it through."

"Appropriate exposure to stimulate career interest is needed at secondary level . . . . Training opportunities must be expanded in/at the junior college level if tomorrows needs are to be satisfied!"

"A complete energized x-ray lab on campus, with a complete dark room with automatic and hand processing unit. Having the first year student spend more in first semester in laboratory exercises."

"To have had more 'practical' backgrounds in the physical sciences at the secondary level of school."

"Perhaps the greatest technical problem which students in general seem to have within our program (also true in other programs) is that of observing a situation or a set of data in the physical world and describing and/or analyzing that situation by way of an appropriate analytical model. This is a problem largely of weakness in applied mathematics. While students commonly are familiar with required mathematical experesions, formulations, and techniques, they frequently are not able to associate a proper mathematical solution with a technical problem in the laboratory and real world. This is not an easy problem to solve; many students complete college degrees in technical areas and still lack this basic capability. Possibly only prolonged experience in a technical field is sufficient to develop a reasonable ease in the mathematical representation of physical/biological systems, but I do believe that a much greater stress on the approaches to using mathematics as a tool, at all levels of a student's academic training, would be of benefit to him."

"I believe that the vocational counselor at the high school level should be more knowledgeable about the opportunities available in the health field and better informed about the curricula offered in the respective health careers. Only in this way can the student be properly counseled and directed into the proper academic courses that would provide an adequate background for his/her choice of health career. I think that Career Day seminars should be held for freshman and sophomore classes as well as for junior and senior students. If you expose the student to the para-medical specialties early enough in high school, it might prove to be a highly motivational force and an inspiration to pursue their academic program to the highest degree in order to be considered for acceptance into the profession of their choice. I believe that student workshops should be conducted at the hospital level in order to create the proper environment for exposure to the health careers. I think that all four academic levels should actively participate in these workshops in order to get the "feel" of the profession and to clear up any doubts or misconceptions about the program or what is required of the student in this profession."

"The biggest problem with our students is their complete lack of writing skills! They cannot write a simple essay answer to a question nor, heaven forbid, attempt a simple technical report. Even our students who are above average in scientific aptitude find it very difficult to fulfill the English requirements for graduation. Their spelling of words, I might add, is atrocious. Whenever they are told to look the word up in the dictionary for the proper spelling, they always give the same argument, 'If I don't know how it is spelled, I can't look it up in the dictionary.' Poppycock! Whatever happened to the idea of intelligently hypothesizing the spelling and proceeding from there to the dictionary? I have found the students to exhibit minimal reasoning power and initiative. For example, in dissecting a rat, they want

step-by-step instruction before proceeding. The students are able to identify most of the organs correctly, but they have a very vague understanding of the functions of the organs or organ systems, or how they relate to the bodily processes of the whole animal. Although the average student has mastered the basic mechanics involved in mathematics, he cannot reason out how to apply mathematical concepts to a scientific experiment and related data. He normally cannot differentiate between relevant and irrelevant data, nor, once he has the correct data, can he properly analyze it. I would like to see more emphasis on technical writing at the elementary and especially the secondary levels of education. Technical writing could be incorporated into the science programs. Do away with the laboratory workbooks requiring minimal writing of results and observations and let the students explain their experiments in their own words in an essay type report. Also instead of giving the students step-by-step instructions in their science laboratory work, teach them the very basic techniques and then let the student use his own reasoning powers and knowledge to initiate his own experiments and devise his own methods of compiling data."

Radiologic Technician Survey (Health)
and
Radiation Technician Survey (Industry)

"I believe that Nuclear Medicine is a challenging field and that its role in medicine is growing daily."

"I enjoy my field - especially the patient contact aspect. I feel it is an excellent profession for a woman - married or single."

"X-ray is a great field to be in if you enjoy hospital work. It is a diversified occupation and it is immensely rewarding. Along with this occupation, there is a great deal of responsibility to the patient and to the department."

"I think it would be a good idea to have a physicist teach X-ray students physics. The educational curriculum should be extended to devoting more time on therapeutic theory and radioisotopes, since the registry includes many questions in these two areas."

"I would like to see the best possible people in this field. This may mean 2 years of college with emphasis on the humanities as well as human biological sciences."

"With the increased use of radioisotopes in medicine and industry, our field is one of the most interesting and enjoyable that I have been in. A statement I just read I think sums it up more easily than I could, was made by Dr. Seaborg, Chairman of the U.S. Atomic Energy Commission:

> 'In everyday life there are direct and practical applications and benefits of atomic energy. It has become indispensable to medical research, to cancer research in particular,' Dr. Seaborg said. 'Its contributions to new techniques and the alleviation of suffering have been immeasurable.'

Nuclear power reactors which were only a laboratory experiment 25 years ago, are today producing nine million kilowatts of economical, clean electrical power in our country and in the next quarter century, nuclear power will make up 50% of the country's total generating capacity. The chance for advancement in our field is excellent."

APPENDIX

APPENDIX A

CONFIDENTIAL: The information reported in this survey will be used for occupational education planning purposes only and the source of the information will not be divulged to any other agency or party.

NUCLEAR RADIATION PROJECT STUDY
COMMUNITY HIGH SCHOOL DISTRICT #155

INDUSTRIAL SURVEY

INTRODUCTION: The purpose of this survey is to gather information and opinions concerning present and future needs for radiation technologists, and to prepare educational materials that will better equip students for these kinds of positions in radiation technology, along with an understanding of, and a respect for radiation. The Educational program further hopes to develop those kinds of attitudes concerning radiation and its applications, so that if a person with this training is employed by you, in a position other than one directly in radiation, the person would possess attitudes of respect, and knowledges of use without groundless fear.

PART I

GENERAL INFORMATION

1. Name of organization _____

_____

PLEASE CHECK BELOW THE APPROPRIATE LINE THAT REPRESENTS THE EMPLOYEES FOR WHOM YOU ARE REPORTING.

_____ Entire organization

_____ Division of the organization

_____ Department of the organization

2. Mailing address _____
Number Street Town

_____
County Zip Code

3. Name of person completing this form _____

4. Position or title of respondent _____

5. Telephone number of respondent and appropriate extension _____
Area Code

_____
Number Extension

6. Please check the space opposite the description which best identifies the activities of your business. (Check more than one if needed)

_____ Metals

_____ Electrical

_____ Transportation

_____ Chemical Process

_____ Consumer Products

_____ Other (Please Identify) _____

_____ Crude Petroleum and Natural Gas

_____ Mining

_____ Utilities

_____ Health Service

_____ Agriculture

PART II
INFORMATION ON THE USE OF AND NUMBER OF EMPLOYEES
WORKING WITH RADIOACTIVE MATERIALS

A. In what phases of your industry do you use radioactive materials? (Check as many as apply)

_____ Research & Development

_____ Production

_____ Service

_____ Other (Please describe) _____

B. What are the general classifications in which you use radioisotopes? (Check as many as apply)

_____ Tracing

_____ Gauging

_____ Radiography

_____ Ionization radiation

_____ Heat and power

_____ Other (please describe)

C. Estimate the total employees involved in the use of radioactive materials.

_____ Now

_____ Five years ago

_____ Five years hence (include replacement)

Estimate the number of these that are health physicists (or equivalent training)

_____ Now

_____ Five years ago

_____ Five years hence

Estimate the number of these that are technicians.

_____ Now

_____ Five years ago

_____ Five years hence

D. Does your organization use remote handling equipment?

_____ Yes

_____ No

If yes, do your technicians perform this task?

_____ Yes

_____ No

PART III

JOB DESCRIPTION AND BACKGROUND OF TECHNICIAN EMPLOYEES USING RADIOACTIVE MATERIALS

A. In our search of literature we have found that many people have different job titles for essentially the same type of job; hence, we would appreciate it if you would list the job titles of your technician employees involved in the use of radioactive materials and a description of desired educational background and/or desired experience necessary to fill the position. Please list on the next page.

JOB TITLE	BRIEF DESCRIPTION	DESIRED EDUCATIONAL BACKGROUND AND/OR EXPERIENCE NECESSARY
1.		
2.		
3.		
4.		
5.		

B. Educational Background of Technician Employees

Estimate the percent of employees working with radioactive materials who:

_____ Did not complete high school

_____ Completed high school

_____ Completed 1 year college

_____ Completed 2 years college

_____ Completed 3 years college

_____ Are college graduates

C. Of the employees that you classify as radiation technologists, please check the column which matches the background training of the majority.

_____ Radiation technology school

_____ College science courses

_____ Armed forces training

_____ Government facility

_____ High School science courses

_____ Other (Please Describe) _____

_____

_____

D. Of the employees you classify as radiation technologists, do they receive further training by:

_____ In-service classes by your organization

_____ Special training offered by other institutions

E. Do you feel a need for more radiation technology schools in this area?

_____ Yes

_____ No

If answered yes, would such training benefit by incorporation of laboratory exercises?

_____ Yes

_____ No

F. Could an adequately trained high school graduate or junior college graduate successfully perform some of the technical duties now performed by degree employees?

_____ Yes

_____ No

If answered "yes", please cite examples.

_____

_____

_____

_____

G. Please grade (1) - very important - through (3) - least important - those general characteristics desirable in the majority of radiation technologists. Place an "X" under the appropriate number.

Ability to:	Most Important (1)	(2)	Least Important (3)
1. Perform minor electrical repair			
2. Communicate clearly in writing			
3. Perform with mathematics			
4. Perform basic chemical laboratory techniques			
5. Perform basic physics laboratory techniques			
6. Perform basic biological laboratory techniques			
7. Analyze data			
8. Use the metric system			
9. Make detailed observations			
10. Follow directions			
11. Willingly perform routine tasks			
12. Work cooperatively with others			
13. Others (Specify)			
_____			
_____			

Possess:	(1)	(2)	(3)
1. A high degree of manual dexterity			
2. Good housekeeping habits			
3. Self initiative			
4. Ability to make practical decisions			
5. Others (Specify)			
_____			
_____			
_____			
_____			

PART IV

OPINIONS CONCERNING ADDITIONAL TRAINING OF EMPLOYEES
IN THE FIELD OF RADIATION

1. Do you feel that employees working with radiation come to you with adequate training?

   _____ Yes

   _____ No

2. Do you feel that <u>all</u> of your employees, from janitor on up, come to you with adequate knowledge of radiation?

   _____ Yes

   _____ No

3. If you answered "No" in Question No. 2, would your organization feel free to assist educators in preparation of a secondary school course to help overcome this situation

   _____ Yes

   _____ No

4. Would you be willing to allow us to survey a sample of your radiation technologists? (We will furnish you with a copy of the questionnaire)

   _____ Yes

   _____ No

If you answered "Yes", would you distribute the questionnaire to a random sampling of your radiation technologists? (We will mailyyou the appropriate number of questionnaires)

_____ Yes

_____ No

PART V

GENERAL COMMENTS

Please list any comments which you or other officials of your firm may wish to make about the improvement of education and training in nuclear radiation on the secondary or junior college level. Include suggestions as to the kind and level of educational programs which should be provided. Your comments will be of great value to this study.

Please check below your desire for a complimentary copy of the survey analysis.

Industrial and Health Service Survey _____ Yes _____ No

Radiation Technician Survey _____ Yes _____ No

APPENDIX B

CONFIDENTIAL: The information reported in this survey will be used for occupational education planning purposes only and the source of the information will not be divulged to any other agency or party.

NUCLEAR RADIATION PROJECT STUDY
COMMUNITY HIGH SCHOOL DISTRICT #155

HEALTH SERVICE SURVEY

INTRODUCTION: The purpose of this survey is to gather information and opinions concerning present and future needs for radiation technologists, and to prepare educational materials that will better equip students for these kinds of positions in radiation technology, along with an understanding of, and a respect for radiation. The Educational program further hopes to develop those kinds of attitudes concerning radiation and its applications, so that if a person with this training is employed by you, in a position other than one directly in radiation, the person would possess attitudes of respect, and knowledges of use without groundless fear.

PART I
GENERAL INFORMATION

1. Name of institution _____

PLEASE CHECK BELOW THE DEPARTMENT(s) FOR WHICH YOU ARE REPORTING:

_____ Radiology

_____ Nuclear medicine

_____ Pathology

_____ Internal medicine

_____ Health physicists

_____ Other (Please describe)

_____

_____

2. Mailing address _____
Number Street Town

_____
County Zip Code

3. Name of person completing this form _____

4. Position or title of respondent _____

5. Telephone number of respondent & extension _____
Area Code Number Extension

6. Estimate the total number of employees in your institution.

_____ Now

_____ Five years ago

_____ Five years hence

7. How many employees are involved in the use of radioactive materials?

_____ Now

_____ Five years ago

_____ Five years hence (include replacement)

8. How many of the employees employed are health physicists (or equivalent training)?

_____ Now

_____ Five years ago

_____ Five years hence

9. How many of these employees would you classify as technicians?

_____ Now

_____ Five years ago

_____ Five years hence

10. Do orderlies or nurses assist when radioactive materials are used in conjunction with the patient?

_____ Yes

_____ No

PART II

JOB DESCRIPTION AND BACKGROUND OF TECHNICIAN
EMPLOYEES USING RADIOACTIVE MATERIALS AND/OR IONIZING RADIATION

A. Please check the following job titles of technicians that you employ that work with radiation.

JOB TITLE(S)

_____1. X-ray Technician

_____2. Nuclear Medicine Technician (Radiation isotope technician)

_____3. Radiation Therapy Technician

-Continued-

Other Job Titles (Please list)

	Brief Description	Desired Educational Background and/or Experience Necessary
4.		
5.		
6.		

B. In which area(s) do you feel the need for more trained radiation technologists? Please check area(s)

_____ X-ray technicians

_____ Nuclear medical technicians (Radioisotope technician)

_____ Radiation therapy technician

_____ Other (Please list)

_____

_____

_____

_____

_____

C. Do you feel that the formal classroom training of technologists should incorporate more student laboratory experiences that have a direct time relationship with the subject matter?

_____ Yes

_____ No

Have the majority of your technicians received hospital or clinical experience in lieu of classroom laboratory experience?

_____ Yes

_____ No

Approximately what percent of time in the formal training of technologists would you suggest for the following:

_____ Classroom lecture-discussion

_____ Classroom laboratory exercises

_____ Clinical experiences

Please grade (1) - very important - through (3) - least important - those general characteristics in the majority of radiation technologist. Place an "X" under the appropriate number.

Ability to:	Most Important (1)	(2)	Least Important (3)
1. Work with patients			
2. Follow directions			
3. Work cooperatively with others			
4. Make detailed observations			
5. Willingly perform routine tasks			
6. Communicate clearly in writing			
7. Perform basic biological laboratory techniques			
8. Perform basic chemical laboratory techniques			
9. Perform basic physics laboratory techniques			
10. Perform with mathematics			
11. Analyze data			
12. Use the metric system			
13. Perform minor electrical repair			

14. Others (Specify)	(1)	(2)	(3)
_____			
_____			
_____			
Possess:			
1. A high degree of manual dexterity			
2. Good housekeeping habits			
3. Self initiative			
4. Ability to make practical decisions			
5. Others (Specify)			
_____			
_____			
_____			

PART III

OPINIONS CONCERNING ADDITIONAL TRAINING OF EMPLOYEES
IN THE FIELD OF RADIATION

1. Do you feel that nurses and orderlies come to you with adequate knowledge of radiation?

_____ Yes

_____ No

2. Would you be willing to allow us to survey a sample of your radiation technologists?

_____ Yes

_____ No

If you answered "Yes", would you distribute the questionnaire to a random sample of your radiation technologists? (We will mail you the appropriate number of questionnaires)

_____ Yes

_____ No

Please list any comments which you or other officials of your institution may wish to make about the improvement of education and training in nuclear radiation on the secondary, junior college, hospital and/or clinic level. Include suggestions as to the kind and level of educational programs which should be provided. Your comments will be of great value to this study.

Please check below your desire for a complimentary copy of the survey analysis.

Industrial and Health Service Survey _____ Yes _____ No

Radiation Technician Survey _____ Yes _____ No

APPENDIX C

NUCLEAR RADIATION PROJECT STUDY
COMMUNITY HIGH SCHOOL DISTRICT #155

OCCUPATIONAL EDUCATION STUDY

INTRODUCTION: The purpose of this study is to gather information from occupational education and training agencies who train radiation technologists (non-baccalaureate) for employment in industry and/or health services. This information will be used in conjunction with an employment need survey. From these two surveys we hope to develop secondary educational materials directed at stimulating student interest in and enriching student background for your type of institution.

The results will be used for planning purposes only, and your school or agency will not be identified in any published reports.

PART I

GENERAL INFORMATION

Date _____

1. _____
Name of school, college or training agency

_____
City

_____
Street Zip Code

_____
Area Code Phone Number

2. Description of institution or agency:

Public Institution

_____ Junior or community college

_____ College or university

_____ Other _____
Please describe

Private Institution

_____ Parochial

_____ Other _____
Please describe

Governmental Program

_____ Military

_____ Other _____
Please describe

3. Name of respondent _____

4. Title of respondent _____

5. Type of radiation technologists program offered (Check as many as apply)

Health Services

_____ X-ray Technologist

_____ Nuclear Medical Technologist (Radioisotope Technologist)

_____ Radiation Therapy Technologist

_____ Others (Please list)

_____

_____

_____

_____

_____

_____

Industrial

_____ Health Physics Technologist

_____ Radiation Monitor Technologist

_____ Others (Please list)

_____

_____

_____

_____

_____

_____

J. Please check your annual salary range.

_____ 4,000 to 6,000

_____ 6,000 to 8,000

_____ 8,000 to 10,000

_____ 10,000 to 12,000

_____ More than 12,000

K. Do you feel you are adequately paid considering your training, experience, and responsibilities?

_____ Yes

_____ No

L. Do you feel that formal certification would be advantageous?

_____ Yes

_____ No

M. Do you feel a national technicians organization with a monthly publication would benefit you?

_____ Yes

_____ No

PART III
GENERAL COMMENTS

6. Complete the following information as it applies to your students being trained as radiation technologists.

	HEALTH SERVICES TECHNICIAN					INDUSTRIAL TECHNICIAN				
	X-ray Technician	Nuclear Medical Technician (Radiation Isotope Technician)	Radiation Therapy Technician	Other - Please List	Other - Please List	Health Physicist Technician (Radiation Monitor Technician)	Other - Please List	Other - Please List	Other - Please List	Other - Please List
Months of training necessary to complete area										
Number of students enrolled last session										
Number of students enrolled last session expected to complete training										
Number of students who completed training last session										
Number of students who completed training last session that intend to go on to higher education										
Number of students who completed training last session that found jobs in the field										
Number of students who completed training last session who entered the military										
Number of students who completed training five years ago										
Number of students you anticipate to complete training 5 years hence										
Tuition cost per year										
Type of certification given (if any)										

APPENDIX F

COVER LETTER FOR INDUSTRIAL & HEALTH SERVICE SURVEY
FOR REGION VII

Dear Sir:

School District #155 has been awarded a grant by the Division of Vocation and Technical Education, Department of Research and Development.

The purpose of this study is to:

1. Conduct a manpower survey in the field of Radiation Technology.

2. Write appropriate educational materials adapted to the secondary level in the field of Nuclear Radiation; these materials to be aimed at developing interest in and training for Radiation Technology.

We are enclosing three questionnaires in the event that there are several division or department supervisors who have working for them some type of Radiation Technologist.

If you desire, we would welcome the opportunity of visiting your organization, and while there, have an interview with appropriate employees concerning the enclosed questionnaires. The questionnaires need not be filled out in advance. If you prefer to return the completed questionnaires by mail, envelopes for this purpose are enclosed.

In the meantime, would you please fill out and return the enclosed card designating your choice.

Sincerely,

Arthur J. Baker, Research Assistant

William Phelps, Research Assistant

William Baldwin, Research Assistant

AB:WP:WB:lls

Enclosures

PART II

COURSE REQUIREMENTS FOR NON BACCALAUREATE RADIATION TECHNOLOGISTS

1. Please send us a brochure describing the required courses necessary for the completion of training in each area.

2. Please send us a bibliography of texts and laboratory manuals used in courses which cover any phase of radiation.

PART III

GENERAL INSTRUCTIONAL INFORMATION

1. Please list the percentage of contact time devoted to each item in courses dealing with radiation.

Percent

_____ Lecture-discussion

_____ Laboratory exercises

_____ Clinical experience

_____ Others (Please List)

_____ _____

_____ _____

_____ _____

2. Please check the laboratory experiences students have in courses dealing with radiation.

_____ Tracing

_____ Ionization

_____ Gauging

_____ Radiography

_____ Heat and Power

_____ Instrument calibration

_____ Instrument repair

_____ Monitoring

_____ Shielding

_____ Biological effects

_____ Air sampling

_____ Remote handling

_____ Others

_____

_____

APPENDIX G

CARD FOR INDUSTRIAL & HEALTH SERVICE SURVEY
FOR REGION VII

Organization _____

City _____

_____
Street Zip

We prefer interview - Contact: _____
Name

_____
Area Code Number Extension

We will mail out the completed questionnaire _____

If we do not hear from you within ten days, we will call.

PART IV

OPINIONS CONCERNING THE BACKGROUND TRAINING AND EXPERIENCE OF YOUR FIRST-YEAR STUDENTS

(To be completed by a staff member teaching radiation)

1. Please check "1" (more than adequate), "2" (adequate), or "3" (less than adequate) that seem to best describe your first-year student.

	(1)	(2)	(3)
Knowledge of:			
Chemistry			
Biology			
Physics			
Radiation			
Mathematics			
Ability to:			
Perform basic chemical techniques			
Perform basic physics techniques			
Perform basic biological techniques			
Communicate clearly in writing			
Apply mathematics			
Use metric system			
Make detailed observations			
Properly record data			
Analyze data			
Perform minor electrical repair			
Follow directions			
Willingly perform routine tasks			
Work cooperatively with others			
Possess:			
A high degree of manual dexterity			
Good housekeeping habits			
Self initiative			
Ability to make practical decisions			

APPENDIX H

COVER LETTER FOR OCCUPATIONAL EDUCATION STUDY SURVEY

Dear Sir:

School District #155 has been awarded a grant by the Division of Vocational and Technical Education, Department of Research and Development.

The purpose of this study is to:

1. Conduct a manpower study survey in the field of Radiation Technology.

2. Write appropriate educational materials adapted to the secondary level in the field of Nuclear Radiation; these materials to be aimed at developing interest in and training for Radiation Technology.

An integral part of such a study must attempt to correlate the relationship between future demands of employers with the supply anticipated from training organizations.

The success of our study, then, rests largely upon your cooperation.

Please return the enclosed card indicating the date we may anticipate the completed form.

May we express our appreciation for your cooperation.

Sincerely,

Arthur Baker, Research Assistant

William Phelps, Research Assistant

William Baldwin, Research Assistant

AB:WP:WB:lls

Enclosures

2. Please write any other comments which you feel would improve the background of your first-year student.

Please check below if you desire a copy of this survey analysis.

_____ Yes

_____ No

APPENDIX I

CARD FOR OCCUPATIONAL EDUCATION STUDY SURVEY

Organization _____

City _____

_____

Street Zip

You can expect our completed return by _____

Date

APPENDIX D

CONFIDENTIAL: The information reported in this survey will be used for occupational education planning purposes only and the source of the information will not be divulged to any other agency or party.

NUCLEAR RADIATION PROJECT STUDY
COMMUNITY HIGH SCHOOL DISTRICT #155

RADIATION TECHNICIAN SURVEY

PART I

JOB PREPARATION AND EDUCATION

A. Circle highest grade completed

1 2 3 4 5 6 7 8 9 10 11 12 College: 1 2 3 4 5

Other _____

B. Other training and experience

Check one or more of the following as appropriate:

1. Where did you receive your technician training?

_____ On the job

_____ In-service

_____ Military service

_____ Junior College

_____ University

_____ Radiation Technology School

Name of Technology School _____

_____ Other _____

_____

_____

APPENDIX J

COVER LETTER FOR INDUSTRIAL & HEALTH SERVICE SURVEY
OUTSIDE REGION VII

Dear Sir:

There is rapid growth in the nuclear industry. This foretells increased job opportunities for trained technicians below the baccalaureate level. Because of this, the Division of Vocational and Technical Education, Department of Research and Development, State of Illinois, approved a project submitted by School District #155 to make a manpower study.

In this study, answers will be sought to such questions as: (1) Who needs and will need nuclear technicians? (2) What skills and training are required? (3) Where will they be needed? (4) When will they be needed, and in what numbers? (5) How can vocational and technical education facilities meet the needs?

Through the cooperation of the United States Atomic Energy Commission, your organization has been identified as holding a license for use of nuclear materials, and, therefore, one which may benefit from this study. Accordingly, we have included a questionnaire.

We would appreciate it if you would identify a key man from your organization who is most familiar with the employees working with radiation and solicit his cooperation in bahalf of this important study.

Please have him mail the completed questionnaire in the envelope provided at his earliest convenience.

Your cooperation in making this study a success is deeply appreciated.

Sincerely,

Arthur Baker, Research Assistant

William Phelps, Research Assistant

William Baldwin, Research Assistant

AB:WP:WB:lls

Enclosure

2. Upon completion of your training, which did you receive?

_____ Certificate

_____ Associate Degree

_____ Bachelor's Degree

_____ Nothing

_____ Other _____

_____

3. What factors influenced your decision to enter the radiation field?

_____ Interest

_____ Money

_____ Location

_____ High School Course

_____ High School Teacher

_____ College Course

_____ College Teacher

_____ Working Hours

_____ Prestige

_____ Publicity Brochure

_____ Advancement

_____ Other _____

_____

_____

4. How would you classify your training for entrance into your present job?

_____ Adequate

_____ Inadequate

_____ More than adequate

5. In your training, how would you rate your laboratory experience in preparing you for your present job?

_____ Adequate

_____ Inadequate

_____ More than adequate

How would you rate your lecture, discussion, and text portion of your training?

_____ Adequate

_____ Inadequate

_____ More than adequate

APPENDIX K

COVER LETTER FOR INDUSTRIAL & HEALTH SERVICE TECHNICIANS

Dear Sir:

School District #155 has been awarded a grant by the Division of Vocational and Technical Education, Department of Research and Development.

The purpose of this study is to:

1. Conduct a manpower survey in the field of Radiation Technology.

2. Conduct a survey of men working as technologists.

3. Write appropriate educational materials adapted to the secondary level in the field of Nuclear Radiation.

In this study we hope to be able to determine, if any, shortcomings that may exist in the present training of technologists. No one is better prepared to do this than the man working in the field.

For this reason, your help by filling out this questionnaire will be deeply appreciated.

Sincerely,

Arthur Baker, Research Assistant

William Phelps, Research Assistant

William Baldwin, Research Assistant

AB:WP:WB:lls

Enclosure

6. What recommendations would you make for the improvement of your training program?

_____ More practical laboratory experience

_____ Less practical laboratory experience

_____ Same amount of practical laboratory experience

_____ More lecture-discussion

_____ Less lecture-discussion

_____ Same amount of lecture-discussion

_____ More text materials

_____ Less text materials

_____ Same amount of text materials

Other recommendations:

_____

_____

_____

_____

_____

_____

C. Experience Data:

1. How many years have you been in the nuclear field? _____

2. Are you a veteran from the service? _____ Branch _____

3. Did you have prior experience in the radiation field when you secured your first full-time employment as a radiation technician?

_____ Yes _____ No

Where: _____

_____

_____

APPENDIX L

REMINDER LETTER FOR INDUSTRIAL & HEALTH SERVICE INSTRUMENTS

Dear Sir:

You recently received a request of some information pertaining to the number of personnel employed in your organization as Radiation Technologists. This information is very vital toward the establishment of occupational training programs, the graduates of which may be vital to the future of your business.

Won't you please take a few moments and complete the questionnaire and return it to us as soon as possible. In case you have already completed and returned it, we thank you.

Sincerely,

Arthur Baker
Research Assistant

William Phelps
Research Assistant

AB:WP:lls

PART II

JOB INFORMATION

A. What is your job title? _____

B. How long have you been on your present job? _____

C. How many times have you changed jobs since completion of your training?

_____

D. What factors were responsible for changing employers?

_____ Salary

_____ Location

_____ Lay Off

_____ Transfer

_____ No opportunity to advance

_____ Poor working conditions

_____ Other _____

_____

E. Have you been promoted since you secured your present employment?

_____ Yes

_____ No

F. Does your job provide satisfaction of accomplishment?

_____ Yes

_____ No

G. Does your job require you to perform to the full extent of your capabilities?

_____ Yes

_____ No

H. Does your employer readily delegate responsibility to technicians?

_____ Yes

_____ No

I. Do you feel that there is adequate chance for promotion in your field?

_____ Yes

_____ No

APPENDIX M

LETTER TO SUPERVISORY PERSONNEL WHO HAD AGREED TO DISTRIBUTE INDUSTRIAL & HEALTH SERVICE TECHNICIAN INSTRUMENTS

Dear Sir:

We would like to thank you very much for completing the Health Service Survey for our Nuclear Radiation Project Study.

On this survey, you indicated that you would be willing to survey a sample of your technicians. Thus, we are enclosing copies of a Radiologic Technician Survey for this purpose. Would you please distribute the questionnaire to a random sample of your radiation technologists?

We are also enclosing return envelopes for your convenience.

Sincerely,

Arthur Baker, Research Assistant

William Phelps, Research Assistant

AB:WP:lls

Enclosures

J. Please check your annual salary range.

_____ 4,000 to 6,000

_____ 6,000 to 8,000

_____ 8,000 to 10,000

_____ 10,000 to 12,000

_____ More than 12,000

K. Do you feel you are adequately paid considering your training, experience, and responsibilities?

_____ Yes

_____ No

L. Do you feel that formal certification would be advantageous?

_____ Yes

_____ No

M. Do you feel a national technicians organization with a monthly publication would benefit you?

_____ Yes

_____ No

PART III
GENERAL COMMENTS

APPENDIX N

FOLLOW-UP LETTER TO INDUSTRIAL RESPONDENT NON-USERS
IN REGION VII WHO MAY ONLY USE X-RAY

Dear Sir:

You recently returned a survey questionnaire on a Nuclear Radiation Project Study to us indicating that you were not using radioactive materials. The name of your organization was copied from the registry at the Illinois Department of Public Health, Division of Radiological Health.

In the event you did not fill out the questionnaire because you only use X-ray, please fill out the following.

Sincerely,

Arthur Baker, Research Assistant

William Phelps, Research Assistant

- - - -

APPENDIX E

CONFIDENTIAL: The information reported in this survey will be used for occupational education planning purposes only and the source of the information will not be divulged to any other agency or party.

NUCLEAR RADIATION PROJECT STUDY
COMMUNITY HIGH SCHOOL DISTRICT #155

RADIOLOGIC TECHNICIAN SURVEY

PART I

JOB PREPARATION AND EDUCATION

A. Circle highest grade completed

1 2 3 4 5 6 7 8 9 10 11 12 College: 1 2 3 4 5

Other _____

B. Other training and experience

Check one or more of the following as appropriate:

1. Where did you receive your technician training?

_____ On the job

_____ In-service

_____ Military service

_____ Junior College

_____ University

_____ Radiation Technology School

_____ Hospital and/or clinic Technology School

Name of Technology School _____

_____ Other _____

_____

_____

APPENDIX O

FOLLOW-UP LETTER TO INDUSTRIAL NON-RESPONDENTS
IN REGION VII WHO MAY ONLY USE X-RAY

Dear Sir:

The name of your organization was copied from a list of certified users of Radiation registered with the Illinois Department of Public Health, Division of Radiological Health.

In the event you did not fill out the questionnaire because you only use X-ray, please fill out the following.

Sincerely,

Arthur Baker, Research Assistant

William Phelps, Research Assistant

- - - -

2. Upon completion of your training, which did you receive?

_____ Certificate

_____ Associate Degree

_____ Bachelor's Degree

_____ Nothing

_____ Other _____

_____

3. What factors influenced your decision to enter the radiation field?

_____ Interest

_____ Money

_____ Location

_____ High School Course

_____ High School Teacher

_____ College Course

_____ College Teacher

_____ Working Hours

_____ Prestige

_____ Publicity Brochure

_____ Advancement

_____ Other _____

_____

_____

4. How would you classify your training for entrance into your present job?

_____ Adequate

_____ Inadequate

_____ More than adequate

5. In your training, how would you rate your laboratory experience in preparing you for your present job?

_____ Adequate

_____ Inadequate

_____ More than adequate

How would you rate your lecture, discussion, and text portion of your training?

_____ Adequate

_____ Inadequate

_____ More than adequate

APPENDIX P

BREAKDOWN OF RADIATION USERS IN REGION VII

July 22, 1971

Aurora, Illinois
Department of Health
48 W. Galena Boulevard
Phone: 892-4272

Contact: George M. McCann
Health Physics Technician

James F. Neyena
Regional Engineer

Registered Users	Code	Total	Status for Technicians
Veterinary	05	54	not used now, but a good one for the future
Dentists	01	686-95%	(est.) of girls hired are trained by dentists with no college **
Industrial	60, 61, 62	67*	
Doctors	02		
Osteopaths	93	4	take their own X-rays
Chiropractors	04		take their own X-rays
Chiropodists	06	32	take their own X-rays
Schools, Universities and Colleges	40	9	(utilize isotopes for demon.)
Nursing Homes		none	Usually interwoven with hospitals
Civil Defense	08	8	small source for demon.
Hospitals	10	33	
Clinics	20	24	
Private Labs	30	3	mainly X-ray by prescription
	Total	920	

* 67 breaks down - 57 industrial use, 4 use medical, 6 combination

** Colleges have training programs that supply the other 5% for dental hygienists

Includes: Will, Grundy, Kan, McHenry, Lake and DuPage counties.

6. What recommendations would you make for the improvement of your training program?

_____ More practical laboratory experience

_____ Less practical laboratory experience

_____ Same amount of practical laboratory experience

_____ More clinical practicum experience

_____ Less clinical practicum experience

_____ Same amount of clinical practicum experience

_____ More lecture-discussion

_____ Less lecture-discussion

_____ Same amount of lecture-discussion

_____ More text materials

_____ Less text materials

_____ Same amount of text materials

Other recommendations:

_____

_____

C. Experience Data:

1. How many years have you been in the Radiologic Technology field? _____

2. Are you a veteran from the service? _____ Branch _____

3. Did you have prior experience in the Radiologic field when you secured your first full-time employment as a Radiologic technician?

_____ Yes _____ No

Where: _____

_____

_____

APPENDIX Q

BIBLIOGRAPHY OF MATERIALS

USED BY RESPONDING SCHOOLS

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PART II

JOB INFORMATION

A. Check your job title

_____ Radiologic Technologist

_____ Radiation therapy technologist

_____ Nuclear medicine technologist

_____ Other (Please List) _____

B. How long have you been on your present job? _____

C. How many times have you changed jobs since completion of your training? _____

D. What factors were responsible for changing employers?

_____ Salary

_____ Location

_____ Lay Off

_____ Transfer

_____ No opportunity to advance

_____ Poor working conditions

_____ Other _____

_____

E. Have you been promoted since you secured your present employment?

_____ Yes

_____ No

F. Does your job provide satisfaction of accomplishment?

_____ Yes

_____ No

G. Does your job require you to perform to the full extent of your capabilities?

_____ Yes

_____ No

H. Does your employer readily delegate responsibility to radiologic technicians?

_____ Yes

_____ No

I. Do you feel that there is adequate chance for promotion in your field?

_____ Yes

_____ No

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P. O. Box 62
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ROBERT K. GRAY
Coordinator
Research & Development Unit
Board of Vocational Education & Rehabilitation
1035 Outer Park Drive
Springfield, Illinois
62706

VT 016 294
MARKETING TECHNOLOGY. THE NEED FOR A RELATED ASSOCIATE DEGREE PROGRAM WITH EMPHASIS ON SALES AND DISTRIBUTION.

PURDUE UNIV., LAFAYETTE, IND. OFFICE OF MANPOWER STUDIES.
INDIANA STATE BOARD OF VOCATIONAL-TECHNICAL EDUCATION, INDIANAPOLIS
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DESCRIPTORS - *MARKETING; *DISTRIBUTIVE EDUCATION; *ASSOCIATE DEGREES; *SALES OCCUPATIONS; *COOPERATIVE PROGRAMS; SURVEYS; QUESTIONNAIRES; BUSINESS; MANPOWER NEEDS
IDENTIFIERS - *INDIANA

ABSTRACT - THE PURPOSE OF THIS REPORT WAS TO PROVIDE MATERIALS FOR MAKING DECISIONS CONCERNING THE DEVELOPMENT OF A MARKETING TECHNOLOGY CURRICULUM AND THE PLANNING AND OFFERING OF THE 2-YEAR ASSOCIATE DEGREE PROGRAM IN INDIANA PUBLIC INSTITUTIONS. DATA WERE GATHERED FROM A SURVEY OF SELECTED INDIANA WHOLESALE AND RETAIL BUSINESSES AS TO THE NEED FOR AN ASSOCIATE DEGREE IN MARKETING TECHNOLOGY, RELATED MANPOWER REQUIREMENTS, POSSIBLE SALARIES OF GRADUATES, AND THE POTENTIAL EMPLOYERS' WILLINGNESS TO PROVIDE COOPERATIVE WORK EXPERIENCE FOR STUDENTS. ANALYSIS OF THE 336 COMPLETED QUESTIONNAIRES INDICATED THAT MOST OF THE BUSINESSMEN SURVEYED FELT THAT A MARKETING TECHNOLOGY PROGRAM WOULD BE USEFUL, THAT ABOUT 500 MARKETING TECHNICIANS WOULD BE NEEDED EACH YEAR, AND THAT CO-OP ARRANGEMENTS MIGHT BE MADE WITH 211 FIRMS. THE REPORT INCLUDES A DESCRIPTION OF THE SURVEY PACKAGE USED AND A LISTING COMPILED FROM THE SURVEY OF POTENTIAL EMPLOYERS OF PROGRAM GRADUATES AND FIRMS WILLING TO PARTICIPATE IN COOPERATIVE PROGRAMS. AS A RESULT OF THE SURVEY FINDINGS IT WAS RECOMMENDED THAT THE STATE GRANT PROGRAM APPROVAL AND FUNDING FOR THE PROPOSED TWO-YEAR ASSOCIATE DEGREE MARKET TECHNOLOGY PILOT PROGRAM. (MF)

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MARKETING TECHNOLOGY

The Need for a Related Associate Degree Program With Emphasis on Sales and Distribution

FILMED FROM BEST AVAILABLE COPY

MANPOWER REPORT 72–2

15 JUNE 1972

PROF. J. P. LISACK, DIRECTOR
OFFICE OF MANPOWER STUDIES
SCHOOL OF TECHNOLOGY
PURDUE UNIVERSITY
LAFAYETTE, INDIANA 47907

2657

FOREWORD

MARKETING TECHNOLOGY

The Need for an Associate Degree Program in Indiana With Emphasis on Sales and Distribution

Public supported educational institutions should help to meet defined societal needs. Future career opportunities, the desires of students, and the manpower requirements of employers are all important considerations. Before new programs are developed, it is necessary to acquire some related facts.

There are about 350,000 people employed in the more than 20,000 Wholesale and Retail establishments in Indiana -- with more working in kindred activities. With the continuing growth of this sector of the work force, and considering the importance and increasing complexities in sales and distribution, it seems appropriate to examine the need for and nature of related educational programs.

This report presents data gathered from an extensive survey of nearly 1,700 selected Indiana establishments concerning:

1 The need for and the nature of an associate degree program in marketing technology,
2 The related qualitative and quantitative manpower requirements
3 The possible salaries of graduates, and the willingness of potential employers to co-op students.

In addition, high school seniors were surveyed to determine how many would like to become marketing technicians or work in sales types of occupations.

ACKNOWLEDGMENTS

This study was made possible by the support provided by the Indiana State Board of Vocational-Technical Education. It was conducted with the assistance of an advisory committee and the cooperation of a number of Associations and State Government offices. Appreciation is gratefully expressed to:

Members of the Advisory Committee:

James W. Biddle,	Chief Consultant, Distributive Education, Indiana Department of Public Instruction
Moe Ferriter,	Vice-President, Purdue National Bank
Fred McLimore,	Prof. of Industrial Management
George W. McNelly,	Dean, School of Technology
Melvin A. Reily,	Exec. V.P., Greater Lafayette Chamber of Commerce
Gordon Sellers,	Sales Representative, Sears Roebuck & Co.
Charles Van Nuys,	Exec. V.P., Indiana Retail Council Inc., and Kenneth Cragen, his Assistant
Richard Walbaum,	Asst. Dean, Undergraduate Education, School of Industrial Management

Others Cooperating:

Mr. David R. Davis,	Exec. Secy. Indiana Petroleum Council
Mr. C. G. Houghton,	Director, American Meat Institute
Mr. Dwight Kelley,	Chief of Research and Statistics, Indiana State Employment Service
Mr. Warren Spangle,	Exec. Secy. Indiana Meat Packers' and Indiana Canners' Associations

Special appreciation is also expressed to Karen Lee Wells who helped with the questionnaire statistics.

J. F. Lisack, Director
Office of Manpower Studies

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MARKETING TECHNOLOGY ASSOCIATE DEGREE PROGRAM

CHAPTER I

PURPOSES AND DESCRIPTION OF THIS REPORT

1. The Problem

Helping to meet defined societal needs is one of the primary objectives of state-supported higher education institutions. What programs should be offered is a key determination. Considerations include the desires and interests of potential students, the continuing career and advancement possibilities for graduates, the requirements of employers for trained manpower, and the availability of resources and relative priorities.

Among the specific questions that should be answered are:

- Is there a need for the program -- what and where are the current and projected requirements?
- What should the objectives, nature and unique features (if any) of the program be?
- Are the probable salaries for graduates and advancement opportunities commensurate with the training investment and are they competitive with other alternatives?
- Are there students who desire this career area and related educational program?
- What actions should be taken in light of the study findings?

2. Purposes of this Report

The purposes of this report are to:

- Provide the staff and faculty data and materials to assist them in developing recommendations and making decisions concerning the development of the marketing technology curriculum and the planning and offering of the two year associate degree program.
- Compile a list of potential employers of program graduates and of firms willing to co-op marketing technology students.
- Enable the members of the Indiana State Board of Vocational Technical Education and the Indiana Commission for Higher Education[1/] to reach decisions on program approval and resource allocation.

Hopefully, these data and materials will assist in the marketing technology associate degree program related planning, development and decision-making to the end that societal needs will be better served.

[1/] Refers to number in Selected Bibliography beginning on page 26.

3. Rationale and Methods Applied

This study was guided by an advisory committee made up of representatives from trade, bank, educational and civic interests. Recognizing the appreciable numbers of trade establishments and variety of their activities and the large numbers of their employees at all levels, it was determined that data were needed from State-wide operational-level sources. Concentration was given to wholesale and retail firms having 20 or more employees, the 100 largest banks in Indiana, members of selected associations and other specific groups. A mailed questionnaire was decided upon. The mailings were augmented by telephone calls and personal visits to key personnel at higher management levels, particularly of firms having large or extensive and multiple operations.

It was recognized that the marketing technician as proposed was relatively new on the Indiana scene and related educational programs are not commonly known or standard. Therefore, the survey package was designed to provide for these matters. A description of the survey package used is included in the next chapter and a sample copy of the letter of transmittal, description of the marketing technician, outline of the proposed two year marketing curriculum and the questionnaire used are included in this report as Appendix I.

4. Contents and Format of Report

This first chapter outlines the problem and purposes of the report, explains briefly the rationale and methodology applied to acquire data, and the contents of following chapters. The next chapter describes the survey package in more detail, the main parts of the questionnaire and the questions asked. The distribution made and the responses (by geographic region) are also shown. Chapter Three presents the actual data resulting from the survey analyses and interviews, plus comments and suggestions made. Information and data concerning possible student interest in a related career - or enrolling in this program - are included in Chapter Three. Data and information from other sources (e.g., U. S. Department of Labor and Indiana Employment Security Division) are presented in Chapter Four. Finally, summary discussions, conclusions and recommendations are developed in Chapter Five (shown on canary-colored paper for convenience. There is a Selected Bibliography, with a number of appendices and attachments at the end of the report.

CHAPTER II

SURVEY DESCRIPTION

5. The Survey Package

The package was made up of four parts: (1) The letter of transmittal, (2) a description of marketing technology, (3) an outline of the related associate degree program, and (4) the questionnaire. Each is described briefly below. (See Appendix 1 for sample copy of survey package) Also included in every package was a franked, self-addressed returned envelope.

The letter of transmittal was short statement to the effect that in recognition of responsibilities to help provide trained manpower for Indiana employers, the possibilities of starting a marketing technology program, with emphasis on sales and distribution, was being investigated. The letter stated that advice and knowledge of the type of program was needed as well as the number of graduates that might be hired. It was signed by Dr. George W. McNelly, Dean of the School of Technology.

The description of marketing technology activities and recognition of the fact that trained employees might be needed to begin careers in retailing, wholesaling, purchasing and distribution were discussed. The idea was presented that actual job experience, acquired during the educational program, seemed especially meaningful in the marketing field. It was suggested that a co-op arrangement be effected between the student, potential employer and the educator.

An outline of the proposed marketing technology program (two-year associate degree) was given on one page. A brief description of the program and co-op feature was followed by a listing of descriptive course titles, with semester hours for each arranged into four categories: (1) General Education, (2) General Business, (3) Marketing, and (4) Co-operative Work Experience. A footnote explained that marketing electives would provide a degree of specialization in an area selected by the student. These options would include advertising, computer utilization, retailing, retail credit, wholesaling and others.

The Questionnaire was designed to be short and straightforward: five questions were presented on one page. The first question was designed to obtain reactions to the idea of and need for a marketing technology associate degree program. Then, the adequacy of the proposed curriculum was ascertained and suggestions to improve it were asked for. The third question dealt with the manpower aspects to include: whether or not the equivalent of the marketing technician type person was now employed in their firm and if so, how many; if they now had job vacancies or future requirements for such technicians; and if they did, what salary they might offer to the associate degree graduates. Then, after a brief review of what co-op programs might entail, participants were asked if they would provide co-op work experience and training - and if so - for how many students. (It was believed by the advisory committee members that the degree of willingness expressed to co-op might be used to substantiate or refute the stated requirements for trained marketing technicians.) Finally, the questionnaire provided for any other comments or suggestions.

6. Survey Mail-out

Survey packages were mailed to the following establishments:

	# Mailed
Retail and Wholesale Firms having 20 or more employees	1,500
Selected Banks (the largest 100 in Indiana)	100
Petroleum Corporations (marketing managers for major firms)	17
Meat Industry Firms (personnel or recruitment representatives from largest companies)	22
	1,639

In addition, personal interviews were conducted and telephone calls were made to key personnel in some selected larger firms.

7. Questionnaire Returns

There were 336 questionnaires returned of the 1,639 mailed out, a response rate of about 21 per cent. (The rate is actually higher because some companies sent in one return representing a number of their establishments or operations.)

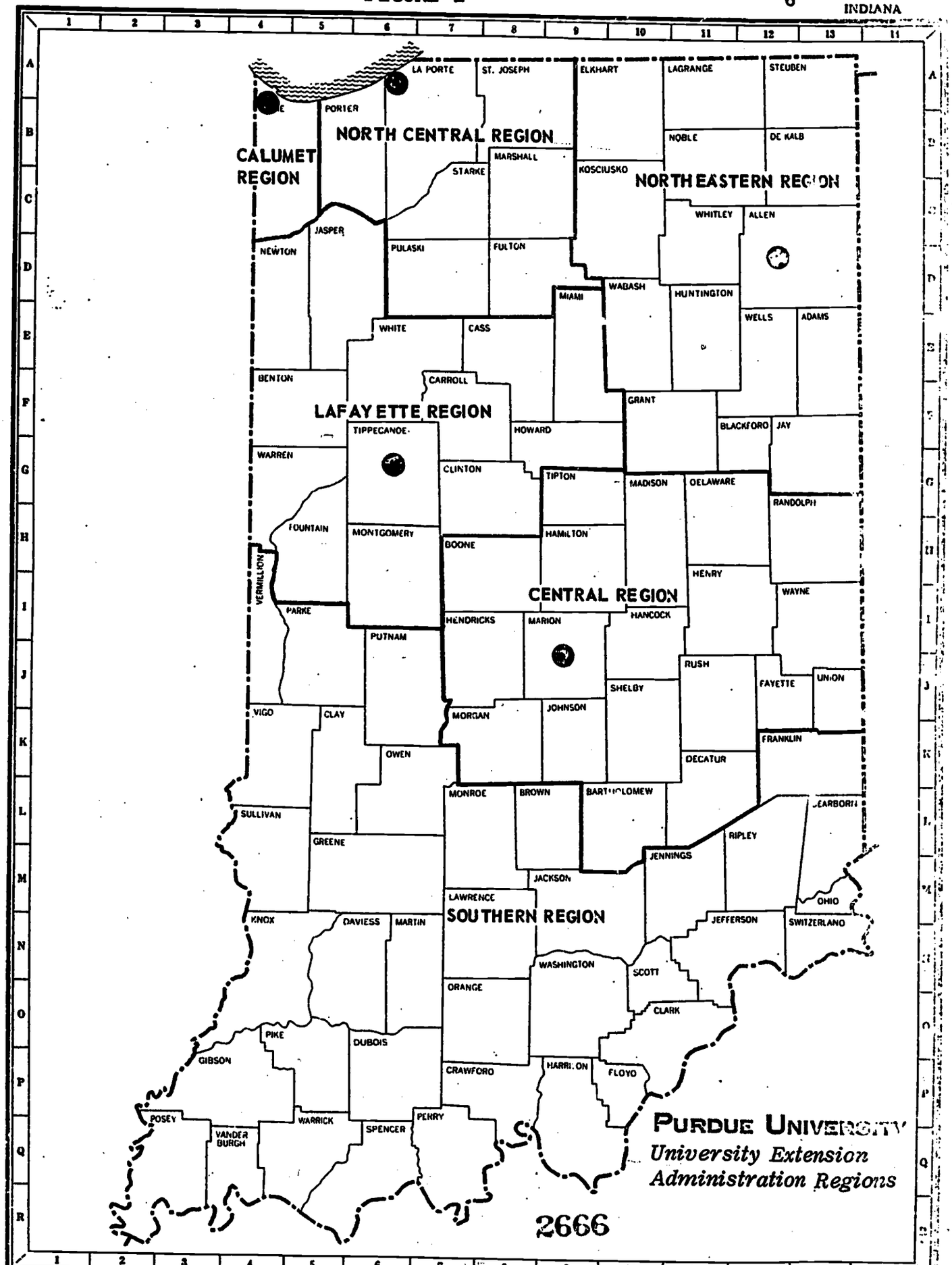
The regional distribution of these responses was:

Region*	Number of Returns
1. Lake County	24
2. North Central Region	27
3. Fort Wayne Area	31
4. Lafayette Area	30
5. Indianapolis Area	105
6. Southern Area	48
Other State Needs (State-wide or area unspecified)	71
	336

The following chapter presents the response data and answer highlights for each question. Data are shown for the State (totals) and for each of the six university extension regions.

*See Figure 1 on next page for map showing Purdue's six university extension regions.

FIGURE 1



PURDUE UNIVERSITY
University Extension Administration Regions

2666

CHAPTER III

ANALYSES OF QUESTIONNAIRE RETURNS AND STUDENT INTEREST

As stated earlier, there were 336 completed questionnaires returned in the survey (a response rate of about 21 per cent). The data in this chapter are arranged for each question in the same order as they appeared in the survey. Questions are quoted verbatim and show the total response data for the State and each of the six university extension regions. Related comments and highlights are summarized in each case.

8. The Need for a Marketing Technology Degree Program

Question 1. "Do you believe that a marketing technology associate degree program, with emphasis on sales and distribution, is needed? 290 Yes 46 No. If no, why not?"

The 336 responses were distributed as follows:

Region	Number Yes	Number No	Per cent favorable
1. Lake County	24	0	100%
2. North Central Area	25	2	93%
3. Fort Wayne Area	29	2	94%
4. Lafayette Area	29	1	97%
5. Indianapolis Area	89	16	85%
6. Southern Area	44	4	92%
State-wide or Area Undesignated	50	21	70%
State Totals	290	46	84%
		Σ 336	

In response to the "If no, why not?" part of the question, nineteen (19) of the write-ins stated they were hiring four year graduates in business or marketing and did not need associate degree people.

Three others answered that they simply had no need for this program in their business.

Two individuals indicated that I. U. and other business schools should be able to handle this need (rather than Purdue).

One individual commented that the program would be better suited for the supermarket business if food retailing were included and another expressed hope that the 'marketing technology associate' meant salesman.

9. Adequacy of Proposed Marketing Technology Associate Degree Curriculum

Question 2. "Do you think the proposed curriculum is adequate? 227 Yes 86 No. What are your suggestions to improve it?"

There were 313 responses as follows:

Region	Number		Per cent
	Yes	No	favorable
1. Lake County	18	3	86%
2. North Central Area	16	8	67%
3. Fort Wayne Area	24	6	80%
4. Lafayette Area	25	5	83%
5. Indianapolis Area	75	23	77%
6. Southern Area	29	14	67%
State-wide or Area Undesignated	40	27	60%
State Totals	227	86	100%

There were many suggestions to improve the curriculum written in on the questionnaire.

Twenty of the comments made concerning the curriculum stressed the importance of salesmanship and the teaching of the basics or principles of selling. Respondents believed more courses related to these activities were needed. Related to this line of thinking were nine other recommendations for courses in psychology of human behavior and personal relations.

Sixteen recommended that more emphasis and training be placed on communications, both oral and written. They recommended more speech classes and business correspondence.

Twelve said that courses in data processing and training with computers was very important to their operations. A computer option was recommended.

Ten asked for more training in management (product, time, financial, inventory and margin).

Seven asked for more courses in advertising and store displays.

Seven said that the courses in public and labor relations were valuable to the curriculum. The student should be taught not only how to motivate the buyer but those working for him as well.

9. Adequacy of Proposed Marketing Technology Associate Degree Curriculum (continued)

Five recommended a course in business law. The concern pointed out was with the increasing complexity of business today, and that more knowledge of tax laws, trade and transportation laws, credits and contracts, employee rights, etc. was needed. There were five others who mentioned the need for knowledge of laws and regulations as they pertain to transportation and warehousing.

Six asked specifically for more marketing classes.

Five people commented that more cost accounting was needed while two others felt that a special course in this subject was not needed.

Some general comments were also made. Four responses made the point that the proposed education should be more specific to smaller firms' operations and not emphasize so much theory at a level for large operations. Another said the curriculum looked like the first two years in a baccalaureate business administration program.

10. Marketing Technician Manpower Requirements and Salary Estimates

Question 3. "We understand the difficulty in making manpower estimates, but please complete the following table as best you can:

A. Do you now have the equivalent of the marketing technician type employee? 158 Yes 134 No. If yes, how many? 757

B. Do you now have job vacancies for trained marketing technicians? 106 Yes 187 No. If yes, how many? 162

C. About how many of these marketing technicians do you estimate you might hire in the next three years? 603

Note: for recap of these data by region, see Table 1.

D. If you did hire one or more graduates from the proposed 2 year marketing technology program, approximately what monthly salary would you pay? x $658.00 per month.

Note: for depiction of the ranges of these salaries, median, and weighted averages, see Table 2.

TABLE 1

MANPOWER REQUIREMENTS FOR MARKETING TECHNICIANS

Region	Technicians Nor Employed	Present # of Job Vacancies	Requirements for Next Three Years	Average* Annual Requirements
1. Lake County	23	8	24	11
2. North Central Area	41	11	24	12
3. Fort Wayne Area	45	11	26	12
4. Lafayette Area	53	13	56	23
5. Indianapolis Area	342	75	296	124
6. Southern Area	68	17	66	28
State-wide or Area not designated	185	27	151	59
STATE TOTALS	757	162	643	268

*Derived: $\frac{\text{Present vacancies} + \text{3 year requirements}}{5} = \bar{x}$ annual recurring requirements

The following special cases of exceptionally large requirements are explained separately due to their significant impact. These data have not been included in Table 1. If they were, the average annual requirements would be increased by about 225 more technicians per year!

In addition to the 162 job vacancies and 643 marketing technicians required in the next 3 years as shown in Table 1, there were 24 firms who reported they "might need" 27 such technicians, and 13 other firms said they would need sales and distribution technicians but did not know how many.

Further, the Zone Personnel Manager of a very large retail company reported they now have about 500 marketing technicians in their stores with about 25 job vacancies: he reported a need for about 100 such technicians in the next three years with a salary of about $500 per month.

Finally, the Manager of Industrial Relations and Personnel of a nationally known manufacturing firm selling well-known products reported they could use about 500 marketing technology graduates in the next three years for their nation-wide operations! The average pay was reported to be $650.00 per month.

N = 182 Firms

TABLE 2

SALARIES OF MARKETING TECHNICIANS

Dollars Per Month

Region	Less than $500	500-549	550-599	600-649	650-699	700-749	750-799	800-849	850-899	$900 or more	Weighted Average* Salary
1. Lake County	-	1	-	4	-	3	1	1	2	1	$ 675
2. North Central Area	-	2	1	2	3	2	4	1	1	2	$ 670
3. Fort Wayne Area	-	2	1	3	3	1	1	2	1	-	$ 650
4. Lafayette Area	1	2	-	7	4	1	1	2	1	-	$ 650
5. Indianapolis Area	1	5	10	13	11	7	7	9	-	2	$ 668
6. Southern Area	5	3	2	7	2	1	-	4	-	-	$ 596
State-wide or Area Undesignated	1	-	1	6	2	7	3	5	1	1	$ 685
Number of firms reporting	8	15	15	42	27	22	17	24	6	6	$ 658

MEDIAN

*Salaries were weighted by the number of technicians reported at that salary by respondent: Both the median and computed weighted salaries fall between $650 and $675 per month.

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The questionnaire had a Note: explaining the planned co-op features and then asked if the respondent was willing to participate. A sample of the way it was presented is shown below:

"Note: Each student would be required to participate in a "co-op" type program which is planned jointly by a potential employer, an educator, and the student. For example, the student completes at least one full semester of the program on campus, he then works a full semester where he is given meaningful experiences and on-the-job training (this could be anywhere in the State). This alternating one semester on-campus then one semester co-op continues for two years. While on co-op, the student receives an entry-level wage from, and is rated on his participation, by the potential employer. All arrangements are agreed to before the co-op training begins. There is no obligation on either the part of the potential employer or by the student, that the co-op program will result in an actual job offer or acceptance.

Question 4. "Would you be willing to provide co-operative work-experience and training in a "co-op type" program? 143 Yes 24 Maybe 146 No. If yes, for how many students? 154 " (Numbers shown are from in-State firms; in addition, 10 out-of-State firms said they would co-op 18 students.)

Included in these 143 firms who said Yes, there were 18 who said they "might" co-op 20 additional students.

Finally, 15 firms said they would co-op students, but did not designate how many. (See Table 3 for details.)

TABLE 3

FIRMS WILLING TO CO-OP MARKETING TECHNOLOGY STUDENTS

Region	# Firms Willing to Co-op			Number of Students That Firms Will Co-op
	Yes	Maybe	No	
1. Lake County	12	3	5	14
2. North Central Area	15	3	6	12
3. Fort Wayne Area	12	2	11	12
4. Lafayette Area	18	2	10	25
5. Indianapolis Area	57	9	41	69
6. Southern Area	16	1	28	16
State-wide or Area Not Designated	13*	4	45	18*
STATE TOTALS	143**	24***	146	154**

*Includes 10 out-of-State firms who said they would co-op 18 students.
**18 of these firms said they "might" co-op 20 students.
***These 24 firms said they might co-op but did not designate how many students.
Not included in these totals are 15 firms who said they would co-op students but did not designate how many.

11. "Co-op" Features (continued)

There were thirty comments written in about co-op matters in connection with this question. Ten of these expressed enthusiasm for the co-op feature and felt that it was mandatory to the success of the program.

Six others said that they needed a full time staff and could not afford the discontinuity of a co-op program.

Five felt it was a good idea but they were simply too small to take part. There were five others who said that they might co-op depending on their needs and financial situation at the time, as well as the type of co-op program worked out.

Two said they simply had no time or people qualified to train students.

It was recommended by two that rather than every other semester of co-op, the student might work half a day and go to school the other half. They felt this would be better for both the employer and student.

SPECIAL NOTE CONCERNING COOPERATIVE WORK PROGRAMS

A very good definition of cooperative work experience is taken from a bulletin prepared by Henry H. Ormsby, formerly Chief of Engineering Education, United States Office of Education.

> "Basically the cooperative plan is defined as an integration of classroom work and practical industrial experience in an organized program under which students alternate periods of attendance at college with periods of employment in industry, business or government. The employment constitutes a regular continuing and essential element in the educational process, and some minimum amount of employment and minimum standard of performance are included in the requirements for a degree.
>
> "The plan requires that the students' employment be related to some phase of the branch or field of study in which he is engaged, and that it be diversified in order to afford a spread of experiences. It requires further that his industrial work shall increase in difficulty and responsibility as he progresses through his college curriculum and in general shall parallel as closely as possible his progress through the academic phases of his education."2/

12. Other Comments and Suggestions

Question 5 simply asked if there were any other comments or suggestions?

This "wrap-up" question netted about eighty write-ins. The majority of these (45) expressed being very much in favor of the program and would like to see it started soon; many said it was long overdue and would like to participate; quite a few were quite enthusiastic. The need for formal education in sales was often reiterated.

Ten wrote that they preferred a four year college graduate -- but would like the co-op feature to be included. (It was noted in the survey package the associate degree graduate might continue to work for his bachelor's degree. Most of these comments may be interpreted as being favorable to that idea.)

Eight respondents reported they needed continuing or extension courses at night for their employees. Three others noted that this program should be very good for the sons or daughters of businessmen.

Five trade firms said they were "too small" to hire college graduates of any kind and four banks reported no needs or "very limited" needs for marketing technicians.

The name should be changed from "Marketing" to "Sales and Distribution" according to four respondents, while another recommended removing the term "technology."

Three respondents said they believe the program was sorely needed in Indianapolis in particular.

Three respondents insisted that instruction and experience for these technicians be practical, applied, and relevant to small and medium-sized firms. In essence, they claimed that too abstract, theoretical or too academic general economic or management principles should not be stressed in a two year program. Such instruction should be emphasized at the baccalaureate level and be designed for operations of larger firms.

It was noted twice that this kind of program was already being offered by IVTC, Indiana University and Northwood Institute at West Baden.

Some sample comments are quoted verbatim in Appendix III.

13. High School Seniors' Interest in Sales and Marketing Careers

A survey of Indiana high school seniors was made in 1969. Students were asked what their professional or occupational choice was -- after completing their post-high school education or training. There were about 1,650 seniors who expressed a choice in some occupation closely related to the proposed marketing technology programs. The report[3] listing showed seniors' choices to include:

N = 75,000

Occupational Goal	High School Seniors Per cent	Number
Retail Managers	.4%	300
Wholesale Managers	.1%	75
Buyers or Department Store Heads	.5%	375
Sales or Kindred Occupations	1.2%	900
Totals	2.2%	1,650

In addition, there were numerous choices for a variety of somewhat related occupations such as bookkeepers, cashiers, clerks and general managers.

SPECIAL NOTE CONCERNING RETAIL TRADE AND WHOLESALE TRADE SALES-WORKERS

The latest issue just off the press of the Occupational Outlook Handbook, (1972-73)[4] describes the nature of work, places of employment, training, qualifications and advancement, employment outlook, earnings and working conditions for these salesworkers. Due to their relevance and recency, these descriptive materials have been reproduced and are included as Appendix II of this report.

CHAPTER IV

TRADES INDUSTRY AND EMPLOYMENT IN INDIANA

14. Wholesale and Retail Trade Establishments in Indiana

There were more than 20,000 wholesale and retail establishments in Indiana in 1971. More than 15,000 were retailers and nearly 5,000 were wholesalers. About 8,000 of these establishments had between 5 and 10 employees, plus about 4,600 firms had between 10 and 20 employees, and more than 4,000 firms had more than 20 employees (26 firms employed more than 500 people in each).[5] See Table 4 for further details.

15. Employment in the Trades Industries in Indiana

Nearly a third of a million people are employed in the wholesale and retail trade establishments in Indiana. More than 260,000 people worked in retail establishments and about 72,000 were employed by wholesalers. About 68,000 people work in retail stores having between 20 and 50 employees -- and more than 21,000 work in wholesale firms of the same size. Although small stores are more numerous ("small" meaning firms with fewer than 20 employees) than are large ones, total employment is much greater in the larger stores. (In fact, six general merchandise firms in Indiana employ more than 10,300 people!)[5] See Table 4 for further details.

Not only is the work force engaged in the trades industry one of the largest components, employment is growing faster in this industry than in the State as a whole. Specifically, the Indiana work force grew 18.8 percent from 1961 to 1971: the employees in Trades industries grew 30 percent during this same time span.[6] See Table 5 for further details.

Of course, employment in wholesale and retail trade firms is concentrated in the larger cities.[7] The approximate employment in selected industries for nine large Indiana metropolitan areas is shown in Table 6. This table shows that about 234,000 people are employed in wholesale and retail trades in these nine areas: the rank order by employment is shown in Table 7.

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TABLE 4

WHOLESALE AND RETAIL TRADE

INDIANA ESTABLISHMENTS and EMPLOYMENT in INDIANA SUBJECT TO EMPLOYMENT SECURITY ACT or PL 767

as of March 1971

Source: Manpower Trends in Indiana, October 1971, Indiana Employment Security Division

	TOTALS	EMPLOYMENT SIZE CLASSES								
		0-3	4-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000
		Number of Establishments								
Wholesale & Retail Trade Totals	20,387	3,688	8,044	4,622	2,981	706	269	51	19	7
Wholesale	4,864	1,304	1,614	989	700	184	62	9	2	-
Retail	15,523	2,384	6,430	3,633	2,281	522	207	42	17	7
Building Materials	1,439	241	739	333	106	15	5			
General Merchandise	1,183	90	330	260	275	100	86	25	11	6
Food Stores	1,701	211	561	379	390	107	37	10	5	1
Automotive	2,857	479	1,367	606	347	95	23			
Apparel	1,103	165	510	296	97	27	7	1		
Home Furnishings	857	150	427	207	60	11	2			
Eating & Drinking Pl.	4,141	761	1,398	1,032	782	130	35	3		
Miscellaneous	2,242	347	1,098	520	224	37	12	3	1	
		Number of Employees								
Wholesale & Retail Trade Totals	332,229	6,155	49,476	62,091	88,915	47,405	38,187	16,908	12,098	11,594
Wholesale	71,821	1,843	9,950	13,339	21,178	12,549	8,607	3,151	*	
Retail	261,008	4,312	39,526	48,752	67,737	34,856	29,580	13,757	10,894	11,594
Building Materials	14,259	449	4,595	4,434	3,007	1,011	763			
General Merchandise	59,296	130	2,145	3,470	8,489	6,951	12,432	8,003	7,345	10,331
Food Stores	41,386	374	3,522	5,236	12,111	7,219	5,243	3,437	2,981	*
Automotive	36,955	836	8,325	8,032	10,232	6,452	3,078			
Apparel	13,492	355	3,090	4,004	2,871	1,778	1,126	*		
Home Furnishings	8,209	299	2,519	2,705	1,643	754	*			
Eating & Drinking Pl.	60,882	1,181	8,534	13,974	23,096	8,336	4,858	903		
Miscellaneous	26,529	688	6,796	6,897	6,288	2,355	1,791	1,146	*	

*Not Published to avoid disclosure of individual establishment data.

TABLE 5

CHANGES IN WORK FORCE COMPONENTS, 1961 TO 1971

	Annual Average 1961	1971	Per Cent of Change
Work Force	1,822,900	2,166,500	+ 18.8
Unemployed	122,900	121,600	- 1.1
Unemployed Rate	6.7	5.6	-
Employment (including individuals involved in labor disputes)	1,700,000	2,044,900	+ 20.3
Agricultural	114,800	57,200	- 50.2
Nonagricultural (excluding individuals involved in labor disputes)	1,582,600	1,983,000	+ 25.3
Self Employed and Domestics	174,200	157,200	- 9.8
In Nonfarm Industries	1,408,400	1,825,800	+ 29.6
Goods Producing	637,800	760,300	+ 19.2
Manufacturing	568,200	679,300	+ 19.6
Contract Construction	60,000	74,400	+ 24.0
Mining	9,600	6,600	- 31.3
Service Producing	770,600	1,065,000	+ 38.2
Transportation, Communication, and Utilities	90,000	99,400	+ 10.4
Trade	283,000	368,100	+ 30.0
Finance, Insurance, and Real Estate	58,800	76,500	+ 30.1
Service and Miscellaneous	144,800	226,000	+ 56.1
Government	194,000	295,500	+ 52.3
Educational Services	79,100	143,600	+ 81.5

(Data may not add by ± .2 because of rounding of tables of origin)

Note that employment in the Trades has grown faster than the State's total average (30% vs. 18.8%).

Source: Indiana Employment Security Division

TABLE 6

EMPLOYMENT IN MAJOR INDIANA LABOR MARKET AREAS, BY NON-FARM INDUSTRY (Jan.-March 1972)

(Employment shown in thousands)

INDUSTRY	Evansville	Fort Wayne	Gary Hammond E.Chicago	Indianapolis	Muncie	New Albany Jeffersonville	South Bend	Terre Haute	Greater Lafayette
ALL NON-FARM	88.2	117.0	208.4	408.0	45.6	35.7	90.5	55.8	48.2
Manufacturing	32.5	42.7	98.0	120.0	16.1	13.4	29.5	15.8	10.8
Durable Goods	21.0	34.2	82.5	83.0	13.4	9.6	21.5	8.1	8.0
Non-durable	11.5	8.5	15.5	37.0	2.7	3.8	8.0	7.7	2.8
Non-manufacturing	55.7	74.3	110.4	288.0	29.5	22.3	61.0	40.0	37.4
Wholesale/Retail Tr.	19.2	27.0	35.2	93.0	9.5	7.5	20.3	13.0	8.6
Service & Miscel.	13.9	15.3	22.7	55.0	5.4	3.4	16.0	6.8	6.2
Government*	8.9	12.6	24.5	70.0	9.5	7.6	11.4	11.4	18.0
Contract Construction	3.8	4.1	8.0	14.9	1.5	1.1	3.4	2.1	1.7
Others	9.9	15.3	10.0	55.1	3.6	2.7	9.9	6.7	2.9

*Includes schools' and universities' employees.

Source of basic data: "Manpower Trends in Indiana," April 1972
Indiana Employment Security Division; Greater Lafayette data
provided thru special report of I.E.S. for latest 9 months.

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TABLE 7

EMPLOYMENT IN WHOLESALE RETAIL FIRMS -- RANK ORDERED

BY MAJOR METROPOLITAN AREAS IN INDIANA

Rank Order	Metropolitan Area	Number Employed in Wholesale and Retail Trades
1st	Indianapolis	93,000
2nd	Gary, Hammond, East Chicago	35,200
3rd	Fort Wayne	27,000
4th	South Bend	20,300
5th	Evansville	19,200
6th	Terre Haute	13,000
7th	Muncie	9,500
8th	Greater Lafayette	8,600
9th	New Albany, Jeffersonville	7,500

The potential employment for qualified job seekers in this large industry area are very impressive, particularly in Northern and Central Indiana.

16. North Central Region (U. S.) Employment Growth[7/]

Nonagricultural employment in the Bureau of Labor Statistics North Central Region* expanded by almost 2 million between 1965 and 1970, and reached a level of 15.9 million in 1970. Among industry divisions, mining, contract construction, manufacturing, and transportation and public utilities declined in importance from 1965 to 1970. In contrast, wholesale and retail trade, finance, insurance and real estate, government, and services increased in their proportion of nonagricultural employment in the region, as can be seen in Table 8.

Note: "North Central" region includes Ohio, Indiana, Michigan, Illinois, Wisconsin and Minnesota.

TABLE 8

NORTH CENTRAL REGION U. S. EMPLOYMENT GROWTH, 1965-70
(Employment Figures in Thousands)

Industry	Employment		Percent Distribution	
	1965	1970	1965	1970
Mining	84	80	0.6%	0.5%
Contract Construction	612	662	4.4	4.2
Manufacturing	5157	5357	36.9	33.7
Transportation and Public Utilities	861	931	6.2	5.9
Wholesale and Retail Trade	2833	3327	20.3	20.9
Finance, Insurance, and Real Estate	596	712	4.3	4.5
Services	1844	2341	13.2	14.7
Government	1979	2494	14.2	15.7
Total Nonagricultural Employment	13960	15903	100%	100%

Source: See reference No. 8 in Bibliography.

The next chapter, printed on canary yellow paper for convenience, contains the summary discussions, findings and recommendations.

CHAPTER V

DISCUSSIONS, FINDINGS AND RECOMMENDATIONS

17. Discussion and Findings

Size of Work Force in Trades Industries

The trades group of industries is one of the largest work force areas in the State. About a third of a million people are employed in more than 20,000 Wholesale and Retail establishments, and the number is growing.

Program Need

Survey results indicate that representatives from these firms believe a marketing technology two year associate degree program, with emphasis on sales and distribution, is needed. Of the 336 respondents, 290 (84%) stated the program is needed. The need for baccalaureate level marketing graduates was also noted by some respondents.

Curriculum

The many comments and suggestions made to improve the curriculum will require a careful review of the course requirements and electives. The most numerous comments suggested more stress be placed on salesmanship, communications, advertising, and the management and marketing principles and practices as pertain to smaller establishments at operating levels. Introduction to computer operations, cost accounting and business law were recommended. Consideration should be given to consider the establishment of options based on students' interests and employers' needs. It will also be necessary to follow-up and evaluate the job success and career progress of graduates later to ascertain if further changes are needed.

Needs for Marketing Technicians

The fact that 158 respondents indicated they now have more than 750 employees equivalent to the proposed marketing technician is noteworthy considering this kind of program is not commonly offered in Indiana.*

Respondents reported they now have 162 job vacancies for trained marketing technicians and estimate they might hire 603 more in the next three years. Therefore, these requirements reflect a need for 268 per year (one third of current job vacancies and one third of the future 3 year needs). These needs alone establish an adequate employers' needs basis to justify offering the proposed program. Further, 37 firms stated they might need these marketing technicians but could not determine the number at this time. Also, a very large retail company and a large manufacturer together estimated their regional and national needs to be about 600 marketing technicians for the next three years. This would make the average annual recurring requirement total to be about 500 technicians per year.

*Somewhat related programs are now being offered by IVTC at South Bend, Vincennes University at Vincennes, and Northwood Institute at West Baden.

The minimum annual recurring requirements, as reported by respondents for each of the six Purdue University Administrative regions, excluding these large regional and national needs, were as follows:

Region		No. Needed Annually
1. Lake County		11
2. North Central Area		12
3. Fort Wayne Area		12
4. Lafayette Area		23
5. Indianapolis Area		124
6. Southern Area		28
Other State Needs		59
	STATE TOTAL	268
Regional or National Needs	SUBTOTAL	235
	GRAND TOTAL	503

(See Figure 1 on Page 6 for map of regions.)

For details of Manpower Requirements for Marketing Technicians, see Table 1 on page 10.

Actual needs for marketing technicians are undoubtedly much higher than the numbers reported, considering the 18,000 trade firms in Indiana that were not surveyed (most of them smaller than the ones surveyed) the possible needs of some non-respondents, and the employment growth being experienced in the Trades area. Further, graduates will undoubtedly find job opportunities in the Regional and National job markets.

Salaries

An analysis of the monthly salaries which might be offered to graduates shows a range from a low of about $450 to a high of more than $900 per month. The median and computed weighted salaries fell between $650 and $675 per month -- which is quite competitive with graduates of associate degree programs in other fields. Averages were quite comparable throughout the State, except for the Southern Area -- where the average was slightly below $600 per month. (Some firms offered a combination salary/commission arrangement.)

For details concerning ranges and weighted averages of salaries, see Table 2 on page 11.

Co-op

There were 143 firms that indicated a willingness to provide co-operative work experience and training for 154 students (some firms were willing to co-op more than one student). This response confirms the worth-whileness of the co-op idea in the view of actual practitioners in trade industries. The names and addresses, comments, and the number of potential co-op students desired, are on record in the Office of Manpower Studies.

The number of co-op students that could be accommodated in the firms willing to cooperate, were distributed by Region as follows:

Region	No. of Students to be Co-oped
1. Lake County	14
2. North Central Area	12
3. Fort Wayne Area	12
4. Lafayette Area	25
5. Indianapolis Area	69
6. Southern Area	16
General State Operations	18
TOTAL	154

In addition, 18 firms said they might co-op 20 students; there were 24 firms said they would co-op but failed to designate the number of students involved, and finally 15 more firms said they would co-op students but did not designate how many. Assuming each of these firms would co-op one student, the grand total of students for whom co-op arrangements might be made with survey respondents becomes 211.

For details on co-op, please see Table 3 on page 12.

High School Seniors' Interests in Sales and Marketing Careers

In a survey of the post-high school educational and employment plans of Indiana high school seniors, about 1,650 expressed their occupational choice to be related to retail or wholesale management, buying, sales and/or distribution. Many of these students have taken business and distributive educational/vocational courses, and are prime candidates for the proposed associate degree marketing program.

18. Recommendations

Based on the findings of this survey, it is recommended that:

(A) Necessary approval be obtained to begin the proposed two-year associate degree Marketing Technology Pilot Program as soon as possible.

(B) Recruitment activities,* public announcements and other necessary actions be commenced as soon as a favorable decision on (A) above is obtained.

(C) Concurrently, analysis of the survey respondents' comments and suggestions be accomplished with the view of modifying the curriculum as needed and incorporating appropriate ideas in the final program.

(D) An advisory committee be formed to assist in matters such as program improvement, recruitment of students, job and co-op placement, awards and recognitions, and other matters.

(E) The list of names and addresses of firms which were obtained thru this survey, that expressed willingness to co-op students, be used for joint planning and making necessary arrangements for students to meet with potential employers.

(F) The list of names and addresses of firms that reported job vacancies (and/or future requirements) for 2 year associate degree graduates of the marketing technology program, be used for future job placement activities of graduates.

(G) A system of evaluation be inaugurated to judge the effectiveness of the co-op program from its initiation. Also, a follow-up evaluation system should be planned to obtain feedback information from program graduates to include:

(1) job placement success -- relevancy and level of work to training program objectives,

(2) salary,

(3) comments of graduates and employers concerning strengths, adequacy or shortcomings of the program,

(4) career progress of graduates, and

(5) any other comments, suggestions or assistance.

*High school students in business and distributive educational/vocational courses would be prime candidates for the proposed marketing program upon graduation. This program is equally applicable to girls -- as well as boys.

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PURDUE UNIVERSITY
SCHOOL OF TECHNOLOGY
LAFAYETTE, INDIANA 47907

OFFICE OF THE DEAN

Sample Copy of Survey Package

Contains:
Letter of Transmittal
Marketing Technology Descriptions
Proposed Two-year Associate
Degree Curriculum
Questionnaire

The School of Industrial Management and the School of Technology are investigating the possibility of starting a marketing technology program with emphasis on sales and distribution. This is being done in recognition of our responsibility to help provide trained manpower for Indiana employers.

The marketing technology project at Purdue University is directed by Professor J. Fred McLimore of the School of Industrial Management. The initial phase of the project is a manpower survey of the need for marketing technicians and reaction to a proposed curriculum. This part of the project is being carried out by our Office of Manpower Studies headed by Professor J. P. Lisack.

Your advice and a knowledge of your requirements would help a great deal. Would you please take a few minutes to complete the attached one-page survey? The data will permit us to determine if a marketing technology program is needed, and if so, what it should be like. We would appreciate your views concerning a tentative two-year associate degree curriculum -- and whether you would be interested in hiring its graduates.

Your answer will be confidential and will be merged with all other respondents so it cannot be identified separately. Copies of the results will be available if you like.

A self-addressed envelope has been included for your reply. We would appreciate the chance to work with you.

Sincerely yours,

George McNelly

George W. McNelly, Dean
School of Technology

GWM/gp
Enclosures

A PROPOSED MARKETING TECHNOLOGY PROGRAM

TWO-YEAR ASSOCIATE in APPLIED SCIENCE DEGREE

PURDUE UNIVERSITY

INTRODUCTION

One of our main responsibilities is to serve the people of Indiana thru offering the best possible educational opportunities in viable career areas. A related responsibility is to help meet the trained manpower needs of Indiana employers. To meet these responsibilities it is sometimes necessary to create new programs -- it is in this context that your advice is requested.

Marketing Technology

The sales and distribution of goods is a key function in our economy. We believe this specialized field needs people who are knowledgeable in business and human relations fundamentals; who are trained in marketing techniques, methods of distribution, sales and service; and who have acquired some communications skills and have a reasonably broad educational base on which to build and progress. A number of people have informed us that a "marketing technician" with such knowledge would be a valuable addition to their staffs.

We are considering a two-year associate degree program designed to prepare students to begin careers in retailing, wholesaling, purchasing, and distribution. In addition, they would learn the basic principles of supervision to enable them to move up the career ladder after obtaining necessary experience.

We are trying to determine if graduates of this proposed marketing technology program are needed -- and if so, what the best training program should be like. The graduates of this program may elect to continue their studies later, part-time or full-time, to the baccalaureate level.

Some preliminary study has resulted in the development of a tentative, quite flexible curriculum which is attached; your views and suggestions concerning it would be appreciated. Also, it is considered very likely that actual job experience while enrolled in the program may be especially meaningful in the marketing field, perhaps obtained through co-operative work and training arrangements with potential employers. These co-op arrangements would be made to include full-time work for a semester, alternating with a semester of academic work on campus. Your idea about this approach would also be helpful.

With this brief introduction, please review the outline of the proposed program on the next page, and then answer the questions on page 3.

Many thanks!

PROPOSED MARKETING TECHNOLOGY PROGRAM

Two Year Associate In Applied Science Degree

Purdue University

The course of study although somewhat flexible will enable students to develop basic skills in communication, gain an understanding of today's business world, learn what marketing is and what role it plays, and finally to profit from on-the-job training.

Students will alternate work sessions with academic periods thus integrating formal education with practical in-service learning. We feel that this facet of the program is essential. Supervision would come from the companies although the project director would assist the students with job placement and direction.

The courses that would be required in the curriculum include:

GENERAL EDUCATION	
English composition	2
Introduction to speech	3
Applied mathematics	4
Basic statistics	3
	12 semester credits
GENERAL BUSINESS	
Introduction to management	1
Basic principles of economics	3
Current economic problems	3
Introduction to accounting	3
Cost Accounting	3
Human and personnel relations	3
Business law	3
	19 semester credits
MARKETING	
Marketing management	3
Consumer buying	3
Salesmanship	4
Marketing electives*	9
	19 semester credits
CO-OPERATIVE WORK EXPERIENCE	
Three work periods - sales or distribution experience	11
	11 semester credits
TOTAL	61 semester credits

*The marketing electives would provide a degree of specialization in an area selected by the student. Examples would include advertising, computer utilization, retailing, retail credit, wholesaling, etc.

QUESTIONAIRE
PROPOSED MARKETING TECHNOLOGY
ASSOCIATE DEGREE PROGRAM

Return this page only to
Prof. J. P. Lisack
Purdue University SCC-A
Lafayette, Indiana 47907

Name _____

Title & Firm _____

Address _____

After review of the Introductory Page and proposed curriculum, your answers to the following questions would be appreciated!

1. Do you believe that a marketing technology associate degree program, with emphasis on sales and distribution, is needed? _____Yes ____No
   If no, why not?* _____

2. Do you think the proposed curriculum is adequate? _____Yes ____No
   Your suggestions to improve it:* _____

3. We understand the difficulty in making manpower estimates, but please complete the following table as best you can:

A. Do you now have the equivalent of the marketing technician type employee?
___Yes ____No. If yes, how many?_____
B. Do you now have job vacancies for trained marketing technicians?
___Yes ___No. If yes, how many?_____
C. About how many of these marketing technicians do you estimate you might hire in the next three years?_____
D. If you did hire one or more graduates from the proposed 2 yr. marketing technology program, approximately what monthly salary would you pay? $_____per month.

Note: Each student would be required to participate in a "co-op" type program which is planned jointly by a potential employer, an educator, and the student. For example, the student completes at least one full semester of the program on campus, he then works a full semester where he is given meaningful experiences and on-the-job training (this could be anywhere in the State). This alternating one semester on-campus then one semester co-op continues for two years. While on co-op, the student receives an entry-level wage from, and is rated on his participation by, the potential employer. All arrangements are agreed to before the co-op training begins. There is no obligation on either the part of the potential employer or by the student, that the co-op program will result in an actual job offer or acceptance.

4. Would you be willing to provide co-operative work-experience and training in a "co-op type" program? ___Yes ___No. If yes, for how many students?_____
5. Do you have any comments or suggestions?* _____

* Use other side for comments if necessary.

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APPENDIX II

RETAIL TRADE AND WHOLESALE TRADE SALESWORKERS

RETAIL TRADE SALESWORKERS

(D.O.T. 260.[illegible] through 298.877)

Nature of the Work

The success of any retail business depends largely on its salespeople. Courteous and efficient service from behind the counter or on the sales floor does much to satisfy customers and to build a store's reputation. Although contact with customers is a part of all sales jobs, the duties, skills, and responsibilities of salespeople are as different as the kinds of merchandise they sell.

In selling items such as furniture, electrical appliances, or some types of wearing apparel, the salesworker's primary job is to create an interest in the merchandise the store has to offer. The salesman or saleswoman may answer questions about the construction of an article, demonstrate its use, explain how it is cared for, show various models and colors, and otherwise help the customer make a selection. In some stores, special knowledge or skills may be needed to sell the merchandise carried.

In addition to selling, most retail salespeople make out sales or charge slips, receive cash payments and give change and receipts. They also handle returns and exchanges of merchandise for the customer. Salespersons usually are responsible for keeping their work areas neat and presentable. In small stores they may assist in ordering merchandise, stocking shelves or racks, marking price tags, taking inventories, preparing attractive merchandise displays, and promoting sales in other ways.

Places of Employment

In 1970, about 2.5 million salespersons -- three-fifths of them women -- were employed in retail businesses. They worked in stores that range in size from the small drug or grocery store, employing only one part-time salesclerk, to the giant department store having hundreds of salesworkers. They also worked for door to door sales companies and mail-order houses. The largest employers of retail salesworkers are department and general merchandise, food, and apparel and accessories stores. Men predominate in stores selling furniture, household appliances, hardware, farm equipment, shoes, and lumber, and in automobile dealerships. Women outnumber men in department and general merchandise, variety, apparel and accessories, and in drugstores.

Sales jobs are found in practically every community in all parts of the country. Most salespersons, however, work in large cities and in heavily populated suburban areas.

Training, Other Qualifications, and Advancement

Employers generally prefer to hire high school graduates for sales jobs. Subjects such as salesmanship, commercial arithmetic, and home economics help to give the student a good background for many selling positions. Some high schools have distributive education programs including courses in merchandising and principles of retailing and retail selling. Many programs also provide an opportunity for students to gain practical experience under trained supervision by working part time in local stores. Such part-time selling experience may be helpful in obtaining full-time employment.

Young people interested in obtaining sales jobs may apply to the personnel offices of large retail establishments. Applicants are interviewed and sometimes given special tests that measure their aptitude for sales work. Employers prefer persons who enjoy working with people and have the tact to deal with different personalities. Among other desirable characteristics are a pleasing personality, an interest in sales work, a neat appearance, and the ability to communicate clearly. Prospective salespersons also should be in good general health and able to stand for long periods of time. Arithmetic skills are an asset for salesworkers who calculate prices and make change.

In many small stores, an experienced employee or the proprietor gives newly hired sales personnel on-the-job instructions in making out sales slips and operating the cash register. In large stores, training programs are likely to be more formal, and beginners may be given specialized training to sell certain products.

Executive positions in large retail businesses often are filled by promoting college graduates originally hired as trainees and assigned sales jobs to gain practical experience. However, retail selling is one of the few fields in which an employee who has initiative and ability may be selected for promotion, regardless of his education. Many stores offer opportunities for persons without a college degree to advance to executive positions. Some salespersons eventually become buyers, department managers, or store managers. Others, particularly in large stores, may transfer to office positions that afford opportunities for further promotion to administrative work in areas such as personnel or advertising. Opportunities for advancement are relatively limited in small stores where one person, often the owner, performs most managerial functions. Retail sales experience may be an asset in qualifying for jobs such as selling for wholesalers or manufacturers.

Employment Outlook

The number of salesworkers employed in retail trade is expected to increase slowly through the 1970's. However, openings created by growth and vacancies that must be filled as salespersons retire or stop working for other reasons are expected to number in the tens of thousands each year; additional thousands of jobs will become available as retail salesworkers transfer to other types of employment.

Among the major factors contributing to the anticipated rise in retail sales jobs are population and economic growth, and the resulting increase in the volume of sales. The trend for stores to remain open for longer hours, while the number of weekly hours worked by salespersons continues to decline, also will contribute to the need for more salespersons. In addition to full-time sales jobs, there will be many opportunities for part-time workers, as well as for temporary workers during peak selling periods such as the Christmas season.

Changes in the way goods are sold are likely to limit the number of salesworkers in some types of stores, and affect the kinds of openings that occur in others. Because self-service -- already the rule in most food stores -- is being extended rapidly to drug, variety, and other kinds of stores, customers will purchase more articles without the help of salesworkers. On the other hand, rising income levels probably will increase the demand for some merchandise that requires the salesperson to spend a good deal of time with each customer. Two examples are electrical appliances and automobiles, which prospective customers may want demonstrated. In view of these developments, sales employment probably will increase more slowly than the volume of sales. Little of the increase is likely to be in routine sales jobs; much of the demand will be for workers who are skilled in salesmanship and well informed about the merchandise they sell.

Some retail salesworkers have more stable employment than workers in many other occupations. When retail sales are affected by downturns in the economy, employers -- particularly in large stores -- can reduce the number of employees by not filling vacancies that result from turnover or by eliminating some part-time jobs. Competition for sales jobs tends to increase when other jobs are scarce, however, because workers in other occupations often can qualify for sales work.

Earnings and Working Conditions

In 1970, young people starting in routine jobs where they were required to do little more than "wait on" customers generally were paid $1.60 an hour (in many establishments, the minimum wage required by law). In stores where salesmanship is more important, starting salaries sometimes were higher than this; in small establishments not covered by the minimum wage law, they were somewhat lower. Salaries usually are lower in rural than in metropolitan areas.

Experienced salesworkers, including those whose pay scales are determined by union contracts, often earn $3 an hour or more. Many are paid on a straight salary basis; some also receive commissions -- that is, a percentage of the sales they make; and still others are on a straight commission basis. Earnings are likely to be highest in jobs that require special skill in dealing with customers, or technical knowledge of the merchandise sold. Among the highest paid are people who sell automobiles, major appliances, and furniture.

Salespersons in many retail stores are allowed to purchase merchandise at a discount, often from 10 to 25 percent below regular prices. This privilege sometimes is extended to the employee's family. Some stores, especially the large ones, pay all or part of the cost of employee benefits such as life insurance, retirement, hospitalization, and surgical and medical insurance.

Some full-time salespersons work a 5-day, 40-hour week, although in many stores, the standard work-week is longer. Some stores are required by law to pay overtime rates for more than 40 hours' work a week. Since Saturday is a busy day in retailing, employees usually work that day and have another weekday off. Longer than normal hours may be scheduled before Christmas and during other peak periods, and employees who work overtime receive additional pay or an equal amount of time off during slack periods. Some salespersons regularly work one evening a week or more, especially those employed by stores in suburban shopping centers.

Part-time salespersons generally work during the store's peak hours of business -- daytime rush hours, evenings, and weekends.

Salespeople in retail trade usually work in clean, well-lighted places and many stores are air conditioned. Some sales positions, however, require work outside the store. A salesman of kitchen equipment may visit prospective customers at their homes, for example, to assist them in planning renovations, and a used-car salesman may spend much of his time working at an outdoor lot.

WHOLESALE TRADE SALESWORKERS

(D.O.T. 260. through 289.458)

Nature of the Work

Salesworkers in wholesale trade play an important part in moving goods from the factory to the consumer. Each salesman may represent a company that distributes hundreds of similar products. A wholesale drug company, for example, may stock its warehouse with many brands of drugs, soap, and cosmetics to supply drug, variety, and other stores that sell directly to the consumer. In much the same way, a wholesale building materials distributor sells hardware and construction materials to builders who would otherwise have to deal with many manufacturers.

At regular intervals, the salesman visits buyers for retail, industrial, and commercial firms, as well as those for institutions such as schools and hospitals. He shows them samples, pictures, or catalogs listing the items his company stocks. The salesman seldom urges customers to purchase any particular product, since he handles a very large number of items; his objective is to persuade buyers to become regular customers. His success depends upon prompt and dependable service to keep customers well supplied.

Wholesale salesmen render a variety of special services that are becoming increasingly important. Retailers sometimes depend on them to check the store's stock and order items that will be needed before the next visit. Some wholesale salesmen assist store personnel in applying electronic data processing systems to their ordering and inventory tasks.

In addition, they often advise retailers about advertising, pricing, and arranging window and counter displays. A salesman of specialized products, such as air-conditioning equipment, may give technical assistance on installation and maintenance.

Salesmen are responsible for some paperwork and other details. They must forward orders to the wholesale house, prepare reports and expense accounts, plan their work schedule, compile lists of prospects, make appointments, and study literature relating to their products. Some salesmen collect money for their companies.

Places of Employment

About 540,000 salespeople, mostly men, worked for wholesalers in 1970. Wholesale houses are located mainly in cities, but the territories assigned to salesmen may be in any part of the country. This territory may cover a small section of a city having many retail stores and industrial users; however, in less populated regions it may cover half a State or more.

Companies that sell foods and food products are leading employers of wholesale salesmen. Other large employers are wholesalers dealing in drugs, dry goods and apparel, motor vehicle equipment, and electrical appliances. Many salesmen also work for establishments selling machinery and building materials to industrial and business firms.

Training, Other Qualifications, and Advancement

In hiring trainees for sales work, most wholesalers seek young persons who are outgoing and neat in appearance. Other traits include self-confidence, enthusiasm for the job, and an understanding of human nature. As in most selling jobs, skills in arithmetic and a good memory are assets. High School graduation is the usual educational requirement, although many companies selling technical and scientific products prefer men who have specialized training beyond high school. In some cases, an engineering degree is required.

Prospective salesmen who are college graduates usually participate in formal training programs that combine classroom instruction and short rotations in various nonselling jobs. By working a few weeks in the wholesaler's warehouse, for example, a new salesman may gain first-hand experience in writing orders, pricing, and locating stock. Through cooperative programs, some college students combine academic study and on-the-job experience. Graduates having this background often begin outside saleswork without further training.

The high school graduate may begin his career with a wholesale firm in a nonselling job, or he may be hired as a sales trainee. In either case, the beginner usually works in several kinds of nonselling jobs before being assigned as a salesman. He may begin in the stockroom or shipping department to become familiar with the thousands of items the wholesaler carries. Later he may learn the prices of articles and discount rates for goods sold in quantities. Next, he is likely to become an "inside salesman," writing telephone orders. In this job and later as he accompanies an experienced salesman on calls, the trainee comes to know some of the firm's customers. The time spent in these initial jobs varies among companies; usually it takes 2 years or longer to prepare the trainee for outside selling. After he has become familiar with the company's products and techniques of selling, he is assigned a territory.

Experienced salesmen who have leadership qualities and sales ability may advance to supervisor, sales manager, or another executive position.

Employment Outlook

Employment opportunities for salesworkers in wholesale trade are expected to be good through the 1970's. In addition to new positions created as a result of growth, thousands of openings will occur each year as salesmen retire, die, or transfer to other kinds of work; turnover among newly-hired salesworkers is high.

The number of wholesale salesworkers is expected to rise rapidly as business increases due to population expansion and economic growth. Although the computer will relieve wholesale salesmen of some duties, an increasing proportion of their time will be spent rendering special services to customers.

As chain stores and other large firms centralize their purchasing activities, the value of the sales made to individual customers becomes larger and competition for sales correspondingly greater. Wholesalers can be expected to meet this competition by emphasizing sales activities.

Earnings and Working Conditions

According to limited information, most beginning salesmen earned around $9,000 a year in 1970. Experienced salesmen averaged $15,000 annually, and many earned considerably more.

Most employers pay a salary plus a percentage commission on sales; others pay a straight commission. Practically all wholesale salesmen have steady, year-round work. However, their sales (and their commissions) vary from month to month because demand for some products -- for example, air conditioners -- is greater during certain seasons. To provide salesmen with a steady income regardless of sales, many companies pay experienced salesmen a "draw" against the commissions they can expect to earn annually. Most companies furnish each salesman a car or allowance if he uses his own car, and reimbursement for certain expenses on the road.

The salesman often works long, irregular hours. Although he calls on customers during business hours, he may travel at night or on week-ends to meet his schedule. However, most salesmen seldom are away from home for more than a few days at a time. They may spend many evenings writing reports and orders. Salesmen generally carry heavy catalogs and sample cases and are on their feet long periods of time.

Depending on length of service with their employers, most salesmen have a 2-to-4-week paid vacation. Many are covered by company benefits, including health and life insurance and retirement pensions.

Source: Occupational Outlook Handbook 1972-73 Edition, U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 1700.

APPENDIX III

SAMPLE COMMENTS OF RESPONDENTS TO MARKETING TECHNICIAN SURVEY

Following are some of the general comments written in on questionnaire returns.

"Sorry a program like this is so long in the making! Hope it gets off the ground!"

"Great! Great! Great! Should be fine program. Hope it works."

"Salesmen motivate people to buy -- it's a great profession. Expand this area of education."

"Great need in this area."

"What you are proposing is very much needed. Co-op approach is right way."

"Excellent program."

"Excellent idea."

"Great idea!!"

"I wish someone had started something like this ten years ago."

"I feel a great potential is in store for this field."

"Retailing has excellent opportunities, but has been given little attention by schools. Hope your program becomes a reality."

"Looks good -- hope you proceed with program."

"The need for more formal training has become more prominent with the increase in laws governing transactions with the public. Add to this the increasing complexity of tax laws, employee working conditions, regulation, etc. & we find training to aid in buying, selling, advertising, and all phases of bookkeeping."

"I feel your plan is very desirable & should be considered as an excellent recruitment factor."

"I think that there is going to be a need for training at a slightly lower level, keyed to individual productivity."

"Our organization is fully staffed in sales & marketing. There is a possibility that graduates with a marketing technology degree would fit into our organization under a training program with the goal of becoming branch managers. The number cannot be accurately predicted."

"Great idea for non-technical retail (consumer) careers."

"Good program -- definite need in industry."

"Appears to be a fine program for retail management development."

"You are on the right track. Program should be offered in Indianapolis--More work opportunities."

"The curriculum & program look adequate as supplemental degree for the salesmanagers of retail auto dealerships. These perform duties of a marketing technologist."

"A great many automotive warehouses today are being gobbled up by the large, sophisticated conglomerates with entire staffs of market managers & experts. So there is certainly a place in our end of industry for some scientific management or employees with AB or BS automotive wholesaling."

"Program should be of great benefit to employer & employee."

"Everything we buy, for whatever use, is by sales, yet we have no schools for sales other than private industry."

"Many employers would have more applicants trained in practical & specific areas with this."

"Concept & program looks good for a non-technical marketplace & small business."

"Program seems viable & quite applicable to own type of operation."

"Would like to see this put in operation."

"Appreciate an educational institution's insight to a real problem."

"Excellent idea -- can forsee a grad from this program would have advantage over 4 year non-business grad in landing a job with our firm. The individual, having been exposed to the firm (or one like it) would know what he was getting in to & consequently be expected to remain with us a longer period of time."

"I feel that a program of this nature is extremely important and should be pursued by your department. There is a great need in industry today for this type of program and I am sure it would benefit many companies."

"Our particular type of retail establishment or business, requires a rather lengthy period of apprenticeship. Those who start in this business while still in school, generally have a more realistic view of the business -- and a 'running start' at the time they obtain their degree. In other words -- it is advantageous to both the individual and the company to have served this period of apprenticeship concurrently with schooling."

"We are small as a company (23 people) & need quality people in order to grow."

"The concept & program looks good for a non-technical marketplace & small business."

"I believe that the 2 year program sounds great. However, I do not believe that our company is of the size or set up to utilize this type of individual. I would be interested to see what develops on the proposed program. My concept of the marketing technician is fuzzy as to his specific intended duties."

"We are small & interested in advancing our own people, so not likely to be interested in students interested solely in marketing."

"We are a small company & I'm afraid we could not allow the time for training."

"Looks like the program has great potential."

"Our business is just not big enough to use and pay a man of this caliber."

"Don't really feel qualified to have responded."

"The financial industry has a very limited need in this yet important field."

"We have people who have this responsibility along with other duties. We are not large enough that this would be full time."

"I doubt if this would fit in the small retail outlet, however, he needs help as badly as the larger outlets."

"Could this be ammended for a Baccalaureate level degree?"

"All our business is wholesale & we will continue with the 4 year graduate. We will be receptive to your proposed program."

"We have a small marketing staff which requires a higher degree of competence than the technician level."

"Our marketing distribution system is such that there would be little if any need for 2 year technology grads."

"All our sales people have college degree -- BS or equivalent."

"Probably a definite need for this program, but we prefer candidates with 4 year degree."

"Interested in possibilities of such training for present employees who would need night classes."

"This curriculum should be offered a night course at extension centers. Employees could continue working & get degree at night."

"Have existing employees we would like to enroll in night school in Gary area."

"Our organization is considered small but we realize the importance of marketing know-how. Perhaps one of our present officers would be interested in the program."

"Great need for this type of course for sons of merchants & wholesalers that will be following in management of family businesses."

"I have a son who would be interested."

"Manufacturers (such as ....) might be interested in this program."

" Use visiting panels & discussion leaders made up of local business men."

"Change name from Marketing Technician to Sales & Distribution."

"Remove term 'technology' from title of program & title of degree."

"This program would be more useful to a large corporation. We have internal promotion policy."

"Difficult to teach a student the problems that arise in trying to operate a large store. Learns more with on-the-job training than in classroom."

"Would prefer trainees in sales or public relations or park management."

"Because of the highly technical nature of our work marketing position (sales & inside) require BA, BS, MA, and MBA."

School of Technology, SCC-A
Purdue University
Lafayette, Indiana 47907

Office of Manpower Studies
Director, Professor
J. P. Lisack

MANPOWER REPORT NUMBER — TITLE AND DESCRIPTION

65-3 - Technician-Level Educational Planning for the Chemical Technology in Indiana, 20 Oct., 1965. Examines industries related to the Chemical technology. Presents scientists, engineers and technicians as a percent of total employment in major industries. Explains methods of computing technician requirements by industry and locale. Includes occupational titles and sample chemical technician occupations.

66-1 - Technician-Level Educational Planning in the Greater Lafayette, Indiana Area, Concerning the Electrical/Electronic Technology, January, 1966. Determines numbers of technicians needed annually in industries employing electrical/electronics type technicians. Examines ten year trends in local employment and projects requirements into future. Discusses occupations concerned, orientation of educational programs, curricula, and collateral items.

66-3 - Occupations, Qualifications, and Areas of Work in Architectural, Construction and Related Fields for Jobs Above the Skilled Craftsman Level, 10 March, 1966. Describes selected occupations to assist faculty concerned with determining requirements for and objectives of related educational programs. Occupational titles, definitions and qualifications are shown with required education, vocational preparation, and aptitudes.

66-4 - Foundry Technicians and the Foundry Industry in Indiana, 30 March, 1966. Examines the foundry industry, manpower requirements, and the kind of educational program needed - for foundry technicians. National manpower factors are corroborated in a survey of 125 Indiana foundries: survey respondents' opinions of educational needs (by subjects and courses) are included.

66-7 - Selected Technical Education Needs in Howard County, Indiana, "The Kokomo Study," 1 August, 1966. Examines manpower, industry and economic factors to identify kinds and levels of post-high school technical educational programs that may be needed. Presents results of survey wherein the needs for these identified programs are verified. Describes methods and instruments used.

66-9 - Region One Manpower Study. (N.W. Sector of Indiana) 18 October, 1966. This report is a projection - ten years into the future - for seven counties. It includes estimated changes in employment by industry and changes within occupational groups. Has special notes on needs for initial and continuing education, and on rising hiring standards.

66-10 - Manpower and Training Needs in Fluid Power, 30 November, 1966. Contains (1) Specific manpower requirements at five occupational levels in fluid power technology - with factors applicable to various major industry groups; (2) Types of educational courses needed; (3) The depth of understandings required at each occupational level in fluid power courses, and supporting technical and other courses; (4) Comments of representatives from Indiana Industries. Includes methods and questionnaire used.

67-1 - (also 67-3 and 67-4) - Manpower Requirements for Industrial Illustrators and Draftsmen, (thru August, 1967). A series of reports for metropolitan areas indicated, containing: (1) Background data re needs, employment, and salaries of technicians and draftsmen; (2) Occupational descriptions, qualifications, education and training for draftsmen and for industrial illustrators; (3) Results of surveys to determine current and future needs and training program information; (4) Discussion of the impact of future technological changes on the drafting processes - and their effects on draftsmen qualifications. The hypothesis is made - and proven - that greater work complexity and advances in technology affecting the drafting processes, have made the utilization of Tracers less profitable; Job entry level is moving to the higher level of Detailer having better educational preparation. (67-1 concerns Indianapolis, 67-3 is for the Calumet Region, and 67-4 is for Fort Wayne.)

67-2 - (also 67-5, 67-6 and 68-1) Computer and Electronic Data Processing Manpower Requirements, (thru March, 1968). Reports results of research and surveys for selected metropolitan areas concerning: (1) Background info re computers; (2) Job descriptions and qualifications of 23 computer and EDP occupations; (3) Numbers of people employed, current job vacancies and projected requirements; (4) Types of equipments and nature of computer applied functions; (5) Training and educational programs; and (6) Ratios of computer jobs to total employment and job categories. (67-2 concerns Indianapolis, 67-5 is for Calumet, 67-6 for Fort Wayne, and 68-1 for Kokomo.)

67-7 - Requirements for Personnel Staff Members and Supervisors, 28 December, 1967. Report contains factors - or ratios - of personnel staff members to total employees by type of industry group. The past, present, and projected ratios and trends are developed for first-line supervisors (viz. foremen):

e.g., In 1952, there were 29 employees under each supervisor,
In the early 60's there were 20 employees per supervisor,
In 1967, there were 18 employees per supervisor, and
by 1972, there may be only 15 employees per supervisor.

The annual recurring losses, growth factors, and educational ramifications are described. Factors are applied to industries in the Northeast Region of Indiana.

68-2 - Indiana's Need for Assistants in Veterinary Medical Practice, 15 May, 1968. Study points out the needs for, identification of, description, education and control of auxiliaries (supportive personnel) to the professional veterinarian. Results of a survey of all practicing veterinarians in Indiana are presented. Report includes: (1) Titles, descriptions, duties and qualifications of animal technicians, small animal hospital attendants, livestock health attendants, and others; (2) The numbers of these auxiliaries now employed, current job vacancies, and future requirements; (3) Salary and training matters; (4) The need for liscensure or registration, and methods to be used; (5) Comments of veterinarians; and (6) Related Conclusions and Recommendations.

68-3 - Study of Computer Use in Medium-sized Manufacturing Firms, 1 August, 1968. This study examines the utilization of computers by medium-sized manufacturing firms engaged in the fabrication of non-durable materials or light weight durable materials. Sampling techniques were used to acquire data from companies throughout the U.S. and a five-state midwest region by mail, plus a telephone interview with a special sample of medwest companies. The study includes: usage of EDP equipment, utilization by functional areas, estimated efficiency and dollar return on computer investment manpower requirements and training and salary matters, major problem areas encountered and summaries of the survey findings. A review of pertinent literature is also reported in the study.

68-4 - A Proposed Land Surveyor Baccalaureate Program and the Need for Land Surveyors in Indiana, 15 September, 1968. The purpose of this study is to provide data and recommendations concerning land surveyors in Indiana. This report contains the types of surveying services performed, present employment, job vacancies, and the projected requirements for land surveyors. Data was acquired through questionnaires sent to all County Surveyors, the State Highway Commission and other government offices, to private practice surveying firms and to select firms in industry. The study establishes that substantial present and projected needs exist for land surveyors, and provides data and information useful for related curriculum development.

A proposed baccalaureate curriculum designed for professional land surveyors is included. Survey respondents indicated a favorable attitude towards the proposed program, gave some constructive suggestions, and indicated they were desirous of hiring graduates at reasonable salaries. The requirements for State Registration of professional land surveyors are also discussed.

69-1 - Manpower Requirements for Pollution Control and Water Resources in Indiana and a Related Pollution Control Technology Curriculum, 24 Feb., 1969. Indiana is no different than most States in the need to cope with mounting problems in air and water pollution control, liquid and solid waste disposal, water resources and allied fields. At the core of many of these problems is the lack of engineers, professionals in physical and life sciences, technicians and operators. this study identifies these occupations and presents current employment, job vacancies, and projected requirements. Manpower data is obtained through an extensive survey of manufacturing industries, water and wastewater plants, government and educational agencies. The hypothesis is made and supported by data that a single curriculum of selected technical courses is common to variety of related technician-level occupations. A proposed two-year associate degree program for pollution control technology and survey respondents' reactions to the curriculum, their willingness to hire graduates, and estimated salary information are included. Related matters of the examination, certification or registration of operators and technicians are discussed.

69-2 - Air Traffic Control and Flight Service Specialists in Indiana, 23 June, 1969. Describes duties and functions of these specialists, working conditions, and current and projected requirements. Discusses need for providing a sufficiently broad educational base to assure continuing job proficiency and professionalism, ability to apply latest technological developments, and to advance or move successfully into other related occupations. Provides recommendations for educational program development.

69-3 - The Case for Library Technical Assistants and Library Clerks in Indiana, 18 September, 1969. The purposes of this study were to identify the roles of these supportive personnel (as approved by the American Library Association), to determine their acceptance by practicing professional librarians, and to ascertain the present and projected needs in the School, public, college/university, and special libraries in Indiana. Study includes estimated monthly salaries, certification matters, courses needed in training programs, and related views of librarians. Data were obtained from extensive surveys: study was conducted under auspices of a professional library advisory committee.

70-1 - 75,000 High School Seniors; Their Educational and Vocational Plans. Results of a Survey of Indiana's High School Senior Class of 1969. 30 April, 1970. This study presents the results from questionnaires returned by more than 46,500 seniors who reported their plans after graduation from high school. Included are the type of high school programs they were enrolled in and their grade average, the size of the communities they live in, the occupation and educational level of the head of household, and the vocation or profession they hope to enter. Also shown are their plans for school or employment immediately after graduation, when they made their choices and who influenced them most. Comparisons of selected variables and inter-relationships (such as grade average vs. educational or employment plans) are included. Highlights are shown.

70-2 - Foremen in Indiana Industries, Their Characteristics, Work Functions and Training Requirements, 30 October, 1970. The purposes of this study are to identify some key characteristics concerning foremen which include:

Their years of experience as foremen, their age and educational level;
Their current areas of work and the most important functions of their job;
The subject areas where they need additional knowledge (training);
The subject areas they believe are essential in the training of new foremen;
What kinds of courses they would participate in, how much time they would be willing to spend, and what portion of costs they would be willing to pay.

The study also verifies ratio of workers to foremen, as well as identifies types of foremen training programs now being used - and new programs needed - as reported by Indiana firms. The willingness of firms to participate in planning and sharing costs for specific types of foremen training programs are presented. The basis for a unique, flexible two year associate degree program for professional foremen is developed in this study. The program recognizes the different requirements of various firms and foremen and provides for joint planning and mutual responsibilities.

Data were acquired thru an extensive State-wide survey with questionnaire answers and suggestions from more than 4,000 individual foremen and 325 firms of various sizes in all types of industries. This study was conducted with the assistance of the Indiana Manufacturers Association, the American Society of Foremen and members of an Advisory committee made up of representative foremen and managers in industry and educators.

71-1 - Trends in Indiana High School Seniors' Education and Vocational Plans; Comparisons of the Classes of 1966 and 1969. 28 February, 1971. There have been two attempts in the recent past to acquire detailed information about the characteristics and plans of high school seniors. One of these is reported on the preceding page as Manpower Report 70-1, 75,000 High School Seniors... Which surveyed the Class of 1969. Another Comprehensive study was completed earlier of the Class of 1966. This manpower report (71-1) compares these classes and among other findings reports that: Most seniors in both classes were enrolled in College Prep. or General Educ. type programs; 6% were A average students, about 35% were B, 48% were C, 4% were D, others reported "unknown"; most of these students planned to continue their education or enter a training program; fewer in the '69 Class planned to enter the military (growing unpopularity with the Viet Nam War perhaps?); more of the '69 Class planned occupations in Health and other human services--fewer in Engineering and skilled manufacturing trades; more planned to work full or part-time (effects of depressed economy being reflected perhaps?) and others. Highlights are presented throughout the report.

71-2 - Veterinary Medical Manpower Trends in Indiana, With Some National Comparisons, 15 July, 1971. This manpower report records the numbers and trends of veterinarians for over a century of time in the United States as a whole and in Indiana. The ratios of dogs & cats, and of horses to people are compiled: the numbers and the ratios of veterinarians to the U.S. Population (human), to dogs & cats, and to livestock (horses & mules, cattle and hogs) are also calculated and charted. The study data indicate that the veterinarian's skills are increasingly used in ways more directly associated with human health. Comparisons are made of the National data and trends with those of Indiana. Sources of information are carefully documented.

Also shown for Indiana are the early colleges of veterinary medicine (circa 1890-1920), the distribution of veterinarians by area (type) of practice, and information about the School of Veterinary Science and Medicine at Purdue and its graduates. Registration is discussed and projections are made.

The highlights of the report are presented in convenient form at the end of the report.

71-3 - Computer and Electronic Data Processing Manpower and Educational Requirements in Indiana, 21 September 1971. This report was designed to provide detailed information concerning manpower and educational needs for computer and electronic data processing (EDP) related occupations in Indiana, as well as data concerning related hardware and software. The seven specific purposes of this report were to: (1) Identify the types of computers, EDP and peripheral equipments, and the operating systems being used by Indiana business and industrial firms, government and educational institutions and hospitals. (2) Ascertain the present (and projected) principle functions performed (utilization) of these computers and equipments, as well as identify the kinds and trends and changing importance of various computer languages and software. (3) Determine the present and projected manpower situation (quantitative, experience and educational level requirements) for computer and EDP managers and supervisors, analysts, programmers, operators and recorders. (4) Obtain opinions as to the levels of understanding needed in specific subject areas, for the occupations listed in (3) above. (5) Determine the relative rank order in importance of curriculum objectives for the two-year Associate in Applied Science and the Bachelor of Science Degree programs in Computer Technology. (6) Present the National employment outlook for these occupations. (7) Formulate conclusions and develop recommendations based on the data and materials in the study.

The information is presented to help improve the presently on-going computer technology educational programs at the associate degree and baccalaureate levels. This report should also be useful for planning the training of computer operating and clerical personnel at lower educational levels, as well as for counseling purposes and other applications.

72-1 - Requirements in Indiana for Physical and Life Science Technicians, 20 January 1972. "Do you concur that an associate degree in physical/life science is a good idea?" "Would your firm hire associate degree-graduates from a _____Biology Option, _____Chemistry Option, _____Geosciences Option, _____Physics Option?" "If so, about how many in the next three years?" The conditions of hiring were also asked.

These questions and others were included in a mailed survey to applicable industry firms and government offices throughout Indiana. Descriptions of applied science technicians and their functions were included as well as outlines of proposed curricula. Respondents were asked to make comments and recommendations. The results of the survey, together with occupational descriptions, national requirements and related materials are included in this report.

72-2 - Marketing Technology, The Need for an Associate Degree Program in Indiana, With Emphasis on Sales and Distribution, 15 June 1972. This report presents data gathered from an extensive survey of nearly 1,700 selected Indiana establishments concerning:

1 The need for and the nature of an associate degree program in marketing technology
2 The related qualitative and quantitative manpower requirements
3 The possible salaries of graduates, and the willingness of potential employers to co-op students.

In addition, high school seniors were surveyed to determine how many would like to become marketing technicians or work in sales types of occupations.

The report describes methods used and includes a copy of the questionnaire.

* * * *

NOTE: Copies of these reports are available for $2.00 per copy (Indiana Government and Educational Offices exempted). Please make check payable to Purdue University.

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PLAN FOR PROGRESS THROUGH THE 70'S.
VOCATIONAL AND TECHNICAL EDUCATION.

OKLAHOMA STATE DEPT. OF VOCATIONAL AND TECHNICAL EDUCATION, STILLWATER.
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IDENTIFIERS - *OKLAHOMA

ABSTRACT - THIS BOOKLET CONTAINS GUIDELINES FOR ADVANCING VOCATIONAL AND TECHNICAL TRAINING IN OKLAHOMA TO 1980, SPECIFICALLY INCLUDING EDUCATIONAL DEVELOPMENT STRATEGIES AND POLICY STATEMENTS GIVING DIRECTION TO FUTURE PROGRAM EXPANSION. FOCUSING ON SEVEN AREAS OF CONCERN, BASIC EDUCATIONAL PROBLEMS ARE DELINEATED AND POLICY RECOMMENDATIONS ARE DETAILED. THESE SEVEN TOPICS ARE: (1) OCCUPATIONAL PROGRAMS, (2) GUIDANCE AND COUNSELING, (3) JOB PLACEMENT, (4) UNEMPLOYMENT PROBLEMS, (5) DISADVANTAGED STUDENTS, (6) PROFESSIONAL PERSONNEL DEVELOPMENT, AND (7) RESEARCH AND DEVELOPMENT. TERM DEFINITIONS AND A BRIEF LIST OF REFERENCES ARE INCLUDED. (AG)

Vocational
and
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Education

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Vocational and Technical Education

PLAN FOR PROGRESS THROUGH THE 70'S

Oklahoma State Department of Vocational and Technical Education
1515 West Sixth Avenue
Stillwater, Oklahoma

June, 1972

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INTRODUCTION

After years of educational experimentation, research, and theory, teachers, administrators, and laymen alike are beginning to recognize that there is no "one best way" to educate people. No longer is education being admonished to find absolute, never-fail answers to all the various problems besetting schools, but rather, its charge is to seek out and develop quality alternative solutions to meet the individual learning needs of students, young and old. The challenge for the 70's is to provide "options for learning" with enough built-in flexibility to allow every student the opportunity to learn in a situation that will encourage maximum development of his abilities and skills.

Vocational and technical education offers a major educational "alternative" to be considered in the 70's, since technical training is the principal option for nearly all students not electing to pursue a baccalaureate degree. Vocational education will continue to serve a growing number of Oklahomans as it proves to be an even more desirable answer for persons interested in semi-skilled, skilled, technical, and sub-professional jobs. Statistics indicate that workers in these positions compose about 86 percent of the total work force in the State, so the "alternative" of skill training should logically be a primary focus for education in the next five to ten years (5, p. 25).

The increasing demands on vocational and technical education have necessitated additional long- and short-range planning efforts. Admittedly, planning for education is risky business, at best, because of the constantly shifting roles schools are forced to play in our evolving society. However, though such planning is made more difficult by multiple changing variables, it is not an impossible pursuit. The plan that follows is designed as a general policies statement for guiding the advancement of vocational and technical training to 1980. Specifically, the purpose of the plan is to map out a strategy for overall development and to help give direction to future program expansion. The guidelines presented have been derived in part from problems and suggested solutions identified by participants of the Delphi study (4). That input, in conjunction with certain established

federal and state priorities, provided the general outline and scope of concern for this Vocational and Technical Education Plan for Progress Through the 70's.

The mission statement for the Oklahoma State Department of Vocational and Technical Education summarizes the general philosophy on which the Plan is based: "To educate, train, and provide guidance for all persons who seek to develop the knowledges, skills, and behavioral characteristics that are necessary for employment." The Department is, of course, concerned with the overall development of students, academically, psychologically, and socially, and to this end seeks to work with other agencies and organizations interested in education. However, vocational and technical training has a specific function--to train people for jobs requiring less than a professional degree. This is the objective for which vocational educators are held totally accountable and towards which the majority of efforts must be directed.

Learning a skill has long been considered a valid educational goal for both the individual student and society. James E. Allen, Jr., former U.S. Commissioner for Education, emphasized the importance of developing a skill in a speech before the National Association of Secondary School Principals in 1970 when he said, "No American should be denied the deep satisfaction of competence; the inner security that comes with knowing how to do something the rest of the community needs and wants." Vocational and technical education is committed to meeting this kind of personal need as well as to meeting the more general needs of industry for trained labor. The purpose of the following Plan is to outline how these kinds of job-training challenges can be met in the 70's.

The Plan is organized into seven areas of concern:

1. Occupational Programs
2. Guidance and Counseling
3. Job Placement
4. Unemployment Problems
5. Disadvantaged Students
6. Professional Personnel Development
7. Research and Development

Under each heading a descriptive text outlines the basic problems, after which specific policy recommendations are detailed. The topics are discussed in an order to facilitate ease in understanding without regard to any possible priority ranking.

OCCUPATIONAL PROGRAMS

First and foremost, vocational-technical education is concerned with training people in specific skills that can be "sold" in the market place. In order to consistently produce a "salable product," vocational educators have to take measures to assure that occupational training programs stay abreast of and reflect current practices and new developments in the business world. Their purpose is to prepare qualified, skilled, responsible workers who can satisfy the employment requirements of industry, business, and government services.

Curriculum Concerns for the 70's

Coordinating curriculum with employment trends is perhaps the main essential for making vocational training practical and beneficial. In times past educators too often structured programs and classes around what skills and information they thought a student should know rather than on what the jobs actually required. This tended to make vocational training ineffective for the students as well as the employers. The result has been a consensus of all concerned on the need for more cooperation and involvement by business, government, and industry in solving the problems of education. Now, there are strong pressures from all sides to structure programs to provide maximum coordination and interaction between educators and the employment sector in order to upgrade the various aspects of occupational training.

Fruitful interaction should be encouraged through formal and informal activities that require cooperation. By utilizing advisory committees, industry-school exchange programs for teachers and students and workers, practicums in industry for teacher trainees, and continuing education courses for practicing teachers in the newest skill and teaching techniques, vocational education should naturally become attuned to and directed toward teaching the types of information and skills currently required by business.

In order to increase curriculum relevance, program offerings should be regularly assessed to make sure that they prepare students with sufficient skill competencies to be employable. Each trainee should be capable of assuming a specific job or entering a more advanced training program upon completion of his studies. Teachers should be encouraged to develop new and/or utilize existing performance standards for all units of instruction so there is an established criteria for evaluating each student's ability to perform

predetermined tasks. Ad hoc crafts committees from business, industry, and government services can provide an excellent source of expertise to help in setting these standards.

The result of the activities discussed above to promote employer-educator cooperation should be the adjustment of specific technical course offerings to mirror proven existing manpower needs at the local, state, and national levels (with primary emphasis on the first two areas). Concurrently, programs in secondary schools should also be initiated to make students aware of the large range of opportunities in vocational-technical education and to afford them the widest choice of courses to fulfill their occupational objectives. Course material should offer the most up-to-date training in the subject area as well as provide a realistic appraisal of actual employment possibilities. In this way, vocational education would be complying with its mandate to meet business and industry needs as well as individual, personal needs.

Policy Recommendations

Recommendation One

Recognizing that the major purpose of skill training is to provide capable manpower to meet Oklahoma's continuing employment needs, the State Department of Vocational and Technical Education should establish a State industrial advisory committee to assist in program planning and organization. Each occupational area should also have an advisory group at the State level to make suggestions regarding plans for their particular training programs. Crafts committees at the local level should be established to help individual teachers determine curriculum content and necessary proficiency levels.

Vocational-technical schools and business, government services and industry can each benefit from a mutual working arrangement. As their interests converge, structured channels for communication and cooperation must be formed. Advisory committees are a logical means for transmitting information and solving common problems between the two groups.

According to "A Descriptive Study of Oklahoma's Vocational and Technical Education Local Advisory Committees," over one-third of the State's vocational teachers currently make use of advisory committees, and an overwhelming majority of these teachers think their advisory groups are helpful and worthwhile (4, p. 10). In formulating program objectives and in finding employment for students the participating teachers feel their committees are of most use. In short, advisory committees are proving to be an effective means by which the business community can make a valuable contribution to vocational and technical training programs.

Recommendation Two

The State Department of Vocational and Technical Education should take immediate steps to satsify critical manpower needs by (1) establishing new training programs in priority areas, and (2) redirecting existing programs that are no longer relevant.

Curriculum innovation and renovation should be continual considerations. The success and progress of vocational education is, to a large extent, dependent upon an active commitment of all concerned to keep training programs updated.

Recommendation Three

The Department of Vocational and Technical Education should encourage the use of performance objectives in curriculum development at local and state levels.

If training programs are to be flexible, meaningful, and practical, curriculum must be planned and understood by all persons involved in the learning process (i.e., administrators, teachers, and students). The use of performance objectives requires that curriculum be well outlined and explicit in detailing the specific results expected. Performance objectives then become useful in program planning, execution, and evaluation.

Recommendation Four

Vocational-technical education should take immediate steps to enrich and expand program offerings for adults and other non-secondary students.

There is a great need for upgrading programs in the 70's, particularly those for non-secondary students. In the past few years much attention has been directed towards improving secondary curriculum, but now the emphasis needs to be widened to satisfy the demands of other vocational and technical students.

In vocational and technical education, post secondary programs include those "designed primarily for youth or adults who have completed or left high school and who are available for an organized program of study in preparation for entering the labor market" (2). In a modern society where most individuals change their occupational direction several times during a life cycle, vocational educators have an obligation to help older persons train for jobs in addition to the high school students they assist. Returning veterans are one of the most obvious groups needing this type of training assistance, but high school and college dropouts, unemployed and underemployed persons, and women wanting to return to the labor market after a long absence are other potential populations for post secondary offerings.

In addition to retraining, reentry training, and initial training demands, many adults need skill upgrading. In a study done for the Occupational Training Information System (OTIS), "Vocational and Technical Skills Upgrading Requirements for Selected Occupations," it was projected that an average of 68 percent (approximately 333,800) of Oklahoma employees represented in the study need some skills upgrading annually (9, p. 18). The employers indicated that the State Department of Vocational and Technical Education could be of assistance in training 44 percent (or 148,340 persons) of those needing upgrading (9, p. 18).

Skill upgrading activities along with other post secondary programs should be greatly expanded to serve a growing population in the 70's. The concept of continuing education is gradually replacing the old idea of terminal education, and as this happens, ways must be found to provide additional education and skill training for any individual desiring it.

Recommendation Five

The State Department of Vocational and Technical Education should take all the necessary steps to make quality skill training available to any Oklahoman desiring it.

Easy access to quality, diverse vocational and technical training programs should be the privilege of every Oklahoman. No one should have to suffer unemployment in this State due to the lack of opportunities to learn, and area vocational-technical schools continue to be the most efficient and effective means for providing a wide choice of occupational offerings for a large, dispersed population. The goal is to establish an area school within 40 miles of every person in the State with even more schools to serve people living in high density regions. Although alternatives to the area school concept may eventually be developed, these schools should prove to be successful vehicles for the massive skill training needed currently and through the 70's.

Recommendation Six

Administrative channels should be developed for providing job-related services to students after they have left vocational-technical training programs. Student follow-through activities should be conducted by personnel assigned to work as liaisons between schools and employers. (This role would correspond with the activities discussed under "Job Placement.")

The advantage of a well-executed follow-through program for students, schools, and participating employers are numerous. Increasingly vocational and technical educators are recognizing a commitment to their students, even after they have been initially placed on a job. There is a growing awareness that schools are a contributing part of the larger community effort towards a productive economy.

Follow-through is important for students because it can provide them with regular updates on industrial innovations, knowledge of new available training courses related to their work, assistance with problems encountered in the school-to-job transition, and job market information should they desire to change positions.

Recommendation Three

Recognizing the ultimate desirability of preventive activities versus remedial programs, vocational and technical educators should take the initiative in working with potential high school dropouts before they leave school rather than waiting until after they have become unemployment statistics. Secondary schools should be encouraged to study possible ways to more reliably identify potential dropouts while they are still a part of the educational system and to provide them with functional, practical career and personal counseling services and training.

About 25 percent of Oklahoma high school students (between 10,000 and 12,000) drop out annually before graduation, and many of them are unable to find employment (9). The problem of unemployed dropouts is getting so large it can no longer be pacified with minimal "stop-gap" solutions and must be met with more radical measures. Research and experimental programs should be directed towards working specifically with students before and/or after they leave the formal school structure so that some effective means can soon be established for helping these young people.

The State Department of Vocational and Technical Education supports the concept that every student should either be prepared to go on to higher education or advanced technical training or be capable of performing a skill that will allow him to obtain a job when he leaves high school. Statistics indicate this is not occurring at present since one out of four dropouts in the United States' labor force between the ages of 16 and 24 was unemployed in 1971 (1, p. 3). If the current educational system and standard curriculum are perpetuating these kinds of employment difficulties, alternative methods must be devised.

Ideally, educators should also be seeking ways to prevent students from dropping out prematurely. It will take a diversified attack to even begin to help the many young people caught in the web of indecision and frustration, but the problem is serious enough to warrant the effort. In any case, vocational and technical education should be in the

From the point of view of vocational and technical educators, follow-through programs should help them to periodically check on the progress of their students and graduates and get suggestions for improvements in current training practices. The contact also should help to keep school officials aware of student as well as employer problems and should function as a continual liaison between educators and people in business, industry, and governmental services.

Finally, this additional service by the schools should benefit employers since, if the system works properly, they would be able to hire better prepared employees to meet their work requirements. The business sector should prosper from utilizing workers who are well-trained, well-suited, and well-adjusted to their jobs. In the end, a mutually advantageous follow-through program should be an asset to vocational and technical schools, students, and the employers they serve.

position of at least being able to give students a realistic look at the world beyond schools and books and, thus, may be able to offer a possible alternative for many young persons who feel the traditional high school program is a waste of time.

GUIDANCE AND COUNSELING

Quality guidance and counseling services that provide students with the fullest opportunity for personal and vocational development are a major concern of vocational and technical education. For this reason, long-range goals include encouraging activities and experiences for decision making that will provide the children in Oklahoma schools with occupational information, alternatives, and probable outcomes and consequences to use as a resource base in their occupational selection. Such career concerns have often been overlooked in the past, but they are fast being recognized as essential inputs to the total educational process.

More recently, professional guidance positions, training programs, and certification requirements have emphasized a knowledge of personal development (personal counseling), problem-solving techniques (social counseling), and college entrance preparation (educational counseling). However, there is a growing awareness that counseling activities should be expanded to provide more meaningful occupational assistance to all students, with special attention to be paid to the non-college-bound individuals who will have little or no further formal education past high school.

Therefore, vocational and technical educators should take the lead in mobilizing a concentrated effort to develop and implement a long-range advancement program for guidance activities. The strategy should stress innovative projects and programs designed to integrate intensified occupational counseling (1) into the general guidance program of all school districts and (2) into the curriculum of college counselor-training courses. Particular attention should be focused on students (at all age levels) with vocational and technical training interests who have been neglected in the traditional push for academic excellence.

Guidance Concerns for the 70's

The primary concern in the area of guidance continues to be upgrading the quality of counseling given to students. The latest estimate from the State Department of Education shows approximately one counselor available for a little more than 500 secondary students and about 900 elementary students. (These figures are somewhat deceiving because they

DISADVANTAGED STUDENTS

A job, some sociologists contend, is the single most significant status-conferring role in our society and, therefore, a major concern of education. Vocational and technical education is committed to giving every individual the opportunity to realize his fullest potential as a human being, regardless of circumstances of birth or environment. The aim is to provide the means for all people to develop a skill that they can use to earn a livelihood.

People in our society who have the most trouble finding jobs (and consequently "status") tend to be the disadvantaged, the persons who are deprived of a good working opportunity for social, economic, or cultural reasons. In education, this group includes students at all levels who are slow learners, academically deficient, or dropouts without a marketable skill.

Disadvantaged Population in Oklahoma

From welfare, education, and census data, it is apparent that Oklahoma has a sizeable disadvantaged population in need of training and employment assistance. Through a series of calculations (based mainly on economic criteria) the Oklahoma Employment Security Commission has estimated the "Universe of Need" (number of persons aged 16 and over needing manpower assistance) in the State to be 314,404 persons, of whom 115,533 are designated as "disadvantaged" (7). This figure represents the following employment-status breakdown:

	Number of Individuals
Unemployed and Underutilized Disadvantaged*	115,533
a. Unemployed	9,324
b. Underutilized	106,209
1. Employed part time for economic reasons	(5,643)
2. Employed full time, but with family income at or below poverty level	(89,095)
3. Not in labor force but should be	(11,471)

*See Addenda for definitions.

include only schools that have a certified counselor, and there are many schools that do not have even part-time guidance personnel.) In view of the fact that the American School Counselors' Association recommends a ratio of one counselor for every 250 secondary school students, the student-counselor ratios for Oklahoma are especially critical. Vocational and technical education should take the lead in developing a definite plan to begin bringing Oklahoma schools nearer the suggested minimum number of counselors.

Current enrollment figures and selected projections for all secondary schools and vocational and technical programs indicate a continuing market for counseling services over and above the need that already exists. However, in order to provide the quality as well as the quantity of professional guidance assistance required, counselor-training programs must be encouraged to offer more counseling courses with a strong vocational emphasis. According to available college and university catalogs listing courses offered, no institution in the State with an approved counselor-training program requires more than one course dealing with occupational information and counseling to fulfill the requirements for a degree in counseling. In fact, this one course is the only specified academic "career orientation" required by the State for counselor certification.

In addition to suggested occupational upgrading, it should be realized that counselors require additional training to serve special groups in the population. Programs must be geared to prepare and retrain professionals to perform the necessary duties required by people in society who most need counseling assistance. Counselors can work to keep dropouts in school or help them find suitable alternatives; they can assist handicapped people in finding satisfying work at which they can succeed; and in the case of adults, they can be a major factor in aiding many who are unemployed or underemployed to acquire skills. The deficiency in these types of counseling services is large, but the potential results should be more than enough to justify the allocation of additional educational resources in this area.

Though improving the curriculum of training programs is important, it will not, by itself, solve all the State's guidance problems. Colleges must produce more counselor graduates, but school systems must also make effective and efficient use of their trained professionals in new and expanding ways. Funds, of course, are another crucial input to any program, and monies are not currently available or anticipated to even begin to approach the cost of a massive guidance effort. Unless teachers, administrators, school

As the above data indicate, a large population of disadvantaged Oklahomans need some kind of skill training--either job entry-level training or skill upgrading. The size of this group and the impact it has on the economy as a whole makes it a top priority concern.

Disadvantaged Students in Vocational and Technical Training Programs

The State Department of Vocational and Technical Education is working steadily towards its goal to "provide the necessary additional effort which is required to overcome the effects of education, cultural, and economic deprivation and the debilitating results of mental or physical handicaps" and is thereby meeting the needs of a large segment of the disadvantaged and handicapped population in Oklahoma. Figures show that 28.7 percent of secondary vocational and technical students during the 1970-71 school year were classified as disadvantaged (10). Handicapped and disadvantaged enrollees together (20,888 students) comprised about 34 percent of the technical training enrollment during that year (10). The percentages were similar for post secondary and adult programs. Thus, vocational and technical education is serving many people in need, but the programs are not nearly numerous or inclusive enough to meet the growing demands. Sufficient fiscal and human resources must be forthcoming if the massive educational needs of the disadvantaged are to be even partially met.

Policy Recommendation

Recommendation One

The State Department of Vocational and Technical Education should assure that superior skill training programs are available for disadvantaged students. Such programs must contain a comprehensive, individualized course of instruction including remedial work, when necessary, supplemental training opportunities, placement services, and assistance from qualified guidance counselors. Also, substantial effort must be given to identifying disadvantaged persons in the

boards, legislators, and citizens become committed to improving counseling services and are willing to adequately fund the necessary personnel and programs, occupational guidance as well as all other guidance services will likely continue to be sub-standard.

Vocational educators recognize the direct relationship between successful career training programs and quality guidance and, therefore, should move forward in a meaningful way to help broaden and strengthen the counseling activities in the State that need assistance. The task of making worthwhile counseling services available to every student in every school at all grade levels, with a student-counselor ratio that permits and encourages optimal use of this service, demands the utmost in dedicated effort on the part of all educators.

Policy Recommendations

Recommendation One

Vocational and technical educators should take the lead in promoting an examination and revision of the whole guidance and counseling picture--what it is, who it serves, how it operates. A plan should be derived to drastically overhaul current counselor-centered and process-centered guidance programs and replace these with student-centered and service-centered activities.

Although guidance and counseling activities have existed for many years, the actual purpose for these educational services has come under much discussion and criticism. As the concept of educational accountability is expanded, all instructional, administrative, and enrichment services will, no doubt, encounter even closer public and professional scrutiny. The time has come for re-examining many of the more traditional approaches to guidance and for perfecting or replacing these practices where necessary.

Educators should encourage constant in-house guidance evaluation and upgrading. Counseling activities should be structured to more consistently produce quality, efficient administrative services; fruitful guidance assistance with at least some tangible, measurable results; and flexible open-ended programs capable of meeting the individual needs of

population and recruiting them for occupational training programs. In short, special designated monies, activities, and personnel must be directed specifically and exclusively towards training the disadvantaged in order to help compensate for existing cultural, economic, educational, and/or physical disabilities.

To help alleviate the pressing problems of the educationally deprived, numerous special technical training programs should be continued and innovative activities encouraged. Teachers should have access to training courses in methods and skills necessary for teaching the educationally handicapped and low achievers. Curriculum must be flexible enough to provide help for students at all levels of development and extended to include remedial and supplemental course offerings.

To effectively help the culturally deprived, teachers must become more sensitive to the cultural and societal variations and needs of students who have not been assimilated into the dominant society. They should develop ways to relate to these disadvantaged groups and change recruitment, curriculum, and guidance practices where necessary.

The Oklahoma Employment Security Commission (OESC) has estimated in its "Manpower Data Summary" that 50,780 minorities in the state need manpower services (7). The 1970-71 school year enrollment for vocational and technical education shows that 12,561 members of minority races received training (10). This latter figure is not necessarily all included in the 50,780 OESC estimate, but the data does show that there are thousands of minority members in need of skill training assistance that current programs are not reaching.

Students who are economically disadvantaged should also be helped with all available resources. A scholarship fund and various subsidized programs for needy adults and post secondary students should be fully activated. In fact, it may be necessary to research the needs of potential vocational and technical students to see if tuition may be keeping some adults away from programs. Ultimately, schools may have to expand their services to recruit members of lower socioeconomic groups and develop means for meeting their special needs (limited transportation, little social mobility, lack of basic skills, etc.).

students. Thus, counseling personnel need to be freed of all non-counseling duties to devote their entire time and energies to strengthening and supporting guidance-related work.

Perhaps the role of guidance in the 1970's must be radically reshaped. However, if drastic redirection is not judged necessary, at least a better explanation of and consensus on counseling goals and objectives should be forthcoming.

Recommendation Two

The State Department of Vocational and Technical Education should redouble its efforts to meaningfully define the heretofore evasive "role of the counselor" and the types of personal and vocational needs of students that ought to be met by such a professional. Then, a statement should be developed on how these needs might be met and what "results" could be considered desirable.

For a long time the counselor has operated in the educational never-never land of the non-administrator, non-instructor. Consequently, his role has evolved as a middleman--a combination disciplinarian, teacher, clerk, mediator, test monitor, hall monitor, listening post, assistant principal, clinical psychologist, part-time parent, and ombudsman. In short, the guidance role has sometimes become the culmination of other persons' cast-off duties, most of which make little use of the counselor's particular expertise. His job often demands either too few abilities or extensive competencies for which he is not trained.

Vocational education must take the lead in overcoming these deficiencies by assisting in defining the specific role guidance personnel should play. Action should then be taken to assure that counselors are allowed and required to perform the functions outlined. With the role thus adequately explained, a reliable list of qualifications for and responsibilities of a counselor should serve to further improve the aggregate output of guidance services.

Recommendation Three

The State Department of Vocational and Technical Education should explore possible ways to institute more

As vocational and technical education commits more effort to meeting the needs of the disadvantaged, it should also work to promote consideration of these people in the work force. Educators must take the initiative in helping to encourage a positive reception for the disadvantaged worker into the ranks of business and industry. Of course, it is recognized that the most influential factors in opening up opportunities for the underprivileged are the graduates of training programs who have overcome their difficulties and found success on their jobs.

course work geared specifically toward occupational guidance in counselor-training programs at state colleges and universities.

The purpose of this recommendation is twofold: (1) to assure that all new counselors (for elementary and secondary schools) possess a solid foundation in career education and occupational counseling sufficient to competently guide students (and their parents) as they make decisions affecting career choice and (2) to provide a specific course of study for training professionals who will counsel students enrolled in vocational and technical education programs. An additional benefit of this change in guidance curriculum should be increased opportunities for all students to take advantage of and be exposed to career counseling at all age levels.

Recommendation Four

All academic and/or technical education institutions should be encouraged to support strong occupational guidance programs for youth and adults. Counseling activities for vocational and technical students should receive the same, if not more, emphasis and priority as those currently directed toward college-bound students. In addition, efforts should be made to raise all guidance staffing to suggested standard student-counselor ratios.

Counseling is an essential ingredient in the educational process, and improved occupational counseling is probably the single most pressing guidance need for the 1970's. Historically, this aspect of education has received relatively little attention, so programs must now be qualitatively and quantitatively accelerated to meet present needs and help correct past mistakes.

Besides major understaffing problems, another basic weakness of guidance work at the secondary level is that students who do not intend to go on to college usually receive insufficient job counseling prior to their leaving school to help them plan for the years ahead. Traditionally, the college-bound students have tended to get the lion's share of assistance in educational and career planning, even though less than 20 percent of Oklahoma's young people ever complete a bachelor's degree (11, p. 26). Obviously,

PROFESSIONAL PERSONNEL DEVELOPMENT

The professional development of all vocational and technical educators is a high priority concern. In the past, many individuals in the general public, industry, and academically oriented educational disciplines have harbored negative attitudes toward vocational education. If these traditional ideas and prejudices are to be eradicated and if society is to afford more respect for workers in the skilled, semi-skilled, and subprofessional occupations, increased "professionalism" among vocational and technical educators is a major prerequisite.

Means of Professional Upgrading

In recognizing the importance of professional upgrading, it is of particular concern that administrators, teachers, and students realize and accept the significant functions they are performing both as individuals and as contributing members of a forward-moving economy. Programs should be encouraged that offer vocational educators opportunities to improve their skills, acquire techniques for good public relations, upgrade their professional educational qualifications, and become more aware of ways and means of dealing with special problems (e.g., delinquent youths, culturally and economically deprived students, etc.).

Other avenues to explore in improving the quality of "professionalism" in vocational and technical education are the possible alternatives to current certification and evaluation practices. Criteria should be developed to ascertain the reliability of present teaching certification credentials and quality of vocational instruction now in operation at the secondary and post secondary levels. Methods should then be devised to establish and/or maintain high, yet realistic, standards for all personnel.

The ultimate aim of professional development is more effective vocational education, yet efforts made in pursuit of "professionalism" should never minimize the importance of actual business and industrial skills. As educators increase all their competencies, they should develop more self-confidence and increased self-esteem, and these attitudes should inevitably transfer to their students. Thus, intensive professional upgrading efforts should gradually help erase the notion that vocational education is inferior to academic education and that such programs are for "someone else's children."

educators can no longer continue to neglect the more than 80 percent who do not complete college. These people have the greatest need for counselor assistance and must be helped before they leave the formal educational system.

In addition to helping these "forgotten" high school students, attention should also be focused on upgrading guidance services for adults and young people not enrolled in regular secondary programs. Quality occupational guidance is an invaluable asset for persons at any age who are trying to decide on a career and acquire job skills, and any student or potential student of vocational and technical training should have the advantage of such counseling assistance. At present, the educational system appears to be society's best hope of a ready-made organization with the capabilities of providing this type of counseling for people in need.

Policy Recommendations

Recommendation One

Recognizing the need for vocational and technical education teachers in Oklahoma, the State Department of Vocational and Technical Education should take immediate steps to help insure an adequate supply of trained, qualified personnel to teach in every area of instruction.

According to Supplement III of the Occupational Training Information System (OTIS) Cycle Three Report, "The Demand For and Supply of Vocational and Technical Teachers in Oklahoma; 1972-1976," there is a projected need for nearly all kinds of vocational teachers in Oklahoma (14, pp. 9-13). The following figures summarize the results of the study:

Teachers of:	Total Needs 1972-76	Net Adjusted Needs 1972-76*
Vocational Agriculture	195	(35)
Distributive Education	36	11
Health Occupations Education	188	188
Home Economics	309	74
Business and Office	38	(47)
Technical Education	105	80
Trade and Industrial Education	190	75

*This column indicates the total number of teachers needed minus the expected supply of teachers who will be available between 1972 and 1976.

Although some areas clearly have greater requirements than others (e.g., health occupations education, technical education, and trade and industrial education), the data show an actual demand for almost all teachers now being trained.

On a national level it has been estimated that the need for vocational and technical education teachers will increase about 100 percent in five years as educational programs expand to meet labor demands (5, p. 9). This figure interpreted in light of the 65 percent increase projected in the OTIS report mentioned above is further evidence of the growing need for trained personnel (14, pp. 9-13). In an attempt to meet these expected demands,

JOB PLACEMENT

Vocational-technical education is committed to training people to a proficiency that qualifies them to be placed on jobs. However, training must be followed by eventual placement in a skill-related job if society as well as the individual student is to realize any actual benefits from the skills learned. The culmination of vocational education must be competent placement.

Job Placement in the 70's

Recognizing the importance of job placement, the State Department of Vocational and Technical Education should take the lead in developing a program to improve and upgrade current activities. During the past years training programs have managed to place about 76 percent of the secondary graduates available for placement in skill-related employment (15, p.10). Finding jobs for this many students amounts to a concerted effort on the part of many teachers and administrators. Nevertheless, there are still many trainees who need additional assistance in finding work and/or finding employment that better utilizes their abilities and skills.

These reasons, added to the fact that teachers are being delegated other responsibilities, make it increasingly urgent that vocational and technical education initiate an organization whereby specific personnel (other than teachers) are given the job of helping students find work in the area in which they are trained. Such persons would work entirely in a liaison capacity between teachers and students and employers, trying to serve the "employment function" in its broadest sense.

Undeniably, placement is a most important last phase of vocational education. Its success or failure is not an adequate measure of the total worth of a training program, but placement is critical. However, merely finding a job for the vocational-technical graduate is not enough; the job must be one that makes use of the skills of the employee and one that he/she can perform with competence. Meeting these two criteria is the challenge for all placement activities.

positive, direct steps must be taken to increase enrollment in teacher-training programs, encourage more teachers to stay in the profession, and/or recruit well-qualified, skilled technicians to consider teaching careers.

Recommendation Two

> *Action should be taken to insure that all vocational-technical teachers are adequately qualified and trained. The State Department of Vocational and Technical Education should take the initiative in working with teacher-training institutions to provide for increased preservice and in-service professional development.*

The heart and soul of the education process are the teachers in the classroom. These people are the largest single determinant of the success or failure of programs. Vocational and technical educators acknowledge that the progress of skill training is dependent largely on the quality of instruction their teachers provide. In fact, the worth and effectiveness of the competent, aggressive teacher cannot be overestimated.

Teacher-training institutions have the major responsibility for preparing qualified professional personnel for vocational and technical education. To a large degree, they can be held accountable for the quality of instruction that exists in schools and, therefore, they must insure that their teacher-preparation curriculum is ready to meet the continually growing demands of education. Colleges and universities should consider the need for defining the necessary qualifications of a good teacher and then developing the evaluative criteria to guarantee that their professional graduates possess these essential capabilities. Selectivity in recruitment of prospective teachers and use of performance objectives for instructional programs are possible ways these institutions of higher learning could begin to improve the quality of their programs.

The urgency and importance of upgrading activities for vocational and technical instructors currently teaching is also apparent. It will require diligent effort on the part of teachers, administrators, and society in general, with a heavy responsibility for providing financial incentives falling on this latter group. In the past, vocational and technical educators have complained of being snubbed and looked down upon by their academic

Policy Recommendation

Recommendation One

The State Department of Vocational and Technical Education should help set up a mechanism whereby a particular person or persons will be assigned the specific responsibility of helping students find work in the occupational area in which they are trained. (Concomitant with this role would be the activity of follow-through as discussed under "Occupational Programs.")

The expanding roles of vocational-technical educators are changing as training programs become more diverse. The teacher in the 70's is more and more involved with curriculum development, instructional accountability, innovative individualized instruction, and staying abreast of industrial trends. Thus, the instructor's role is taking on new and expanding dimensions and, as these additional activities take up more time, job placement will become increasingly difficult. Someone other than the teacher will soon need to serve this function.

The new person charged with the job placement responsibilities should work solely and directly with potential employers and vocational and technical students who: (1) have or will have completed a vocational and technical education training program and are available for placement; (2) have acquired marketable skills; (3) need work experience as an integral part of their educational experience; and/or (4) require part-time or summer employment to remain in school. Such a placement person should serve students currently being trained and those who may have entered a vocational program at some earlier point in time.

Besides providing more effective placement and utilization of trained manpower and relieving the work load of counselors and teachers, it is conceivable that these "job finders" would be able to establish a more responsive and mutually beneficial working relationship with businesses, government agencies, employment firms, etc., and, as a by-product, encourage more students to train for technical careers.

counterparts; yet, they have failed to realize that professional upgrading is probably the most reliable and effective remedy for this undesirable situation.

However, while stressing improvement of professional competencies, it should be realized that increased academic requirements are only one means of upgrading performance output and maintaining high standards. Due recognition and credit should be given for acceptable skills and education acquired on the job or in quality non-credit courses. State certification regulations should be realistic, substantial, and reasonable to insure that teachers are well qualified and competent in their specific occupational skills and knowledges as well as in their general teaching techniques.

One other major input to teacher upgrading should be an attempt to detail in behavioral terms exactly what an instructor should be accomplishing and then holding him/her accountable for specific results. This, along with greater cooperation with business and industry and the activities mentioned above, should promote a more professional core of vocational-technical teachers.

Recommendation Three

The State Department of Vocational and Technical Education should take steps to assist local schools in employing a differentiated staffing system as an alternative to current teacher-hiring practices.

The pressures of educational accountability for efficient, quality output are forcing vocational and technical educators to consider alternatives to the traditional methods of operation. This consideration in addition to the continual problem of finding highly qualified teachers to staff training programs makes the idea of differentiated staffing appealing. Certainly the current trends in some academic classes of using teacher aides and student assistants indicates a need for various levels of competency of personnel in the classroom.

Conceivably, differentiated staffing would allow vocational programs to lower student-teacher ratios, increase salaries for highly trained and capable instructors, provide an avenue for upward mobility for teachers desiring to remain in the classroom, and encourage increased opportunities for more professional activities among teachers. Other administrative changes may eventually have to accompany the reorganization of instructional personnel, but use of staffing options is essential if schools are to keep pace with the multiplying educational demands of society.

UNEMPLOYMENT

Society generally recognizes the undesirability of high unemployment rates and the resulting negative social and economic ramifications. However, people must become as interested in reducing the flow of "unemployables" into the labor market as they are in reducing the present pool of unemployed. Vocational education is particularly concerned about the young people who drift away from school without marketable skills as well as the untrained and unskilled workers who are usually the hardest hit when the economy begins to lag and businesses are forced to cut back.

Reasons for Unemployment

The problem of the young "unemployables" is illustrated by the fact that during the 1970-71 school year alone, 11,910 young Oklahomans in grades 9-12 dropped out of high school before graduation (9). Historically, the data indicate that dropouts in this age group consistently number between 10,500 to 12,000 annually. In other words, about one out of every four students who enters ninth grade fails to finish all 12 years (9). If the reasonable assumption is made that a large majority of the students who do not complete the twelfth grade leave school without a marketable skill, then there exists a sizeable untrained population of concern to all of society as well as employers and vocational and technical educators.

The dropout rate of students in higher education is an equally serious matter. Of the young people who do graduate from high school, about 66 percent enter college or junior college (2, p. 35). Approximately 50 percent of all freshmen entering Oklahoma four-year colleges drop out before the junior year, and only 33 percent graduate with a bachelor's degree (11, p. 26). In the case of junior college enrollments, nearly 46 percent of the students do not return for the second year of training (12, p. 42). Thus, a majority of Oklahoma high school graduates (about 83 out of 100) do not acquire a degree from a four-year college or university and often become likely candidates for the unskilled and/or unemployed ranks of labor if not otherwise trained for employment (11, p. 26).

The fact that the State had an average unemployment rate of 5.0 percent in 1971 is evidence that many people of all ages are without work (8, p. 37). According to the

RESEARCH AND DEVELOPMENT

Teachers and administrators acknowledge the vital role research and development programs play in a progressive vocational and technical education system. Without adequate planning, data gathering, coordination, and research at all levels, educators would lack resources with which to improve course offerings, provide meaningful guidance services, perfect decision-making capabilities, and evaluate programs currently in operation. Some mechanism is necessary to coordinate and disseminate research information and develop ways to utilize newly acquired data. In addition, a central operating body is needed for working with and reporting to federal and state governments.

Policy Recommendation

Recommendation One

> *The State Department of Vocational and Technical Education should intensify efforts in research, planning, and evaluation to provide reliable and usable services for all related occupational training activities that can profit from such assistance. Special attention should be directed toward supplying necessary manpower information.*

The State Department of Vocational and Technical Education should continue to supply leadership in all aspects of research and development. Numerous responses in the Delphi study supported the conclusion that conducting current, reliable research on a state-wide scale is a vital service to vocational educators (3). The data collected, especially regarding manpower supply and demand, furnishes local schools with necessary information on which to base curriculum-related decisions.

In the general area of planning (i.e., establishing goals, determining priorities, and developing implementation programs), the Department should provide advisory services for all local vocational and technical educators who request them. In this way, research, planning, and evaluation should be even more actively integrated into the total vocational and technical education process.

Oklahoma Employment Security Commission (OESC), the unemployment rate of young people is generally estimated to be about triple that of the aggregate population or, in this case, 15 percent. Youth are usually the hardest hit when the job market declines due to their inexperience and lack of seniority, however, skill training appears to greatly improve their employment possibilities. Statistics show that only two percent of recent vocational and technical graduates were unemployed one year after graduation and only one percent after two years (15, pp. 8-9).

Unfortunately, the young are not the only group to experience a disproportionate amount of unemployment; the poor, the elderly, and the non-white people in the population are also subject to excessive unemployment. According to the OESC, an average of 45,300 Oklahomans were unemployed during 1970, with 9,324 of these unemployed also classified as disadvantaged (7). Thus, there are substantial numbers of people in the labor force without work who could be potential trainees for vocational programs.

Positive Steps for the Future

In an effort to combat the critical social and economic situations that have arisen with the growing adult unemployment figures and high school dropout rate, vocational education should provide sufficient training opportunities for these individuals. Although economists generally agree a certain level of unemployment is probably unavoidable, all people deserve an equal chance for skill training to enable them to compete for available jobs. Assuming present activities are continued, special programs by the Department of Vocational and Technical Education should also be initiated to identify, recruit, and further train unemployed persons in areas that can lead to meaningful, desirable work compatible with their basic capabilities.

In addition to quality comprehensive program offerings, extensive counseling and guidance efforts should be provided for these unemployed and underutilized people to assist them in reaching their maximum levels of achievement and in finding appropriate work in their field of training. Since these persons are often individuals who have vacillated on the fringes of the employment force for some time, prompt and suitable placement is especially crucial. Close coordination between the Department of Public Institutions, Social and Rehabilitative Services, Oklahoma Employment Security Commission, Manpower Development Training, and the State Department of Vocational and Technical Education should produce vital input to the overall upgrading activities.

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(12) Oklahoma State Regents for Higher Education. Junior College Education in Oklahoma. Oklahoma City, February, 1970.

(13) Smith, H. Gene, W. W. Stevenson, and J. B. Morton. "Vocational and Technical Skills Upgrading Requirements for Selected Occupations." Cycle Three Report Occupational Training Information System. Stillwater: Oklahoma State Department of Vocational and Technical Education, December, 1971.

One other ingredient essential in furnishing quality job training for the unemployed and dropouts is competent planning for program development. Vocational educators should continue to actively study the trends of the job market, especially developments in technical fields projected for future growth. They should then supply training for jobs currently undersupplied with workers and retraining for individuals who are in declining areas of employment.

Policy Recommendations

Recommendation One

The State Department of Vocational and Technical Education should establish programs necessary to help all unemployed Oklahomans (as defined by the U.S. Department of Labor) who desire job training assistance. Vocational educators should encourage maximum program flexibility, open entrance and exit, use of performance objectives, and open curriculum requirements that will allow increased transfer of credit for related experience and formal training.

As the mission statement for the State Department of Vocational and Technical Education points out, the purpose of vocational and technical education is "to educate, train, and provide guidance for all persons who seek to develop the ... characteristics... necessary for employment." Implicit in this mission is the fact that programs should be provided for anyone who needs them, and the unemployed are undeniably a group "in need." However, the unemployed ranks include more than just adults who are temporarily out of work. Dropouts from secondary school or college, unskilled high school graduates (and even college graduates), returning military veterans, elderly citizens wishing to remain useful to themselves and the community -- all these people and more make up the unemployed population, and vocational and technical education has an obligation to at least strive to help meet their employment needs.

Obviously, the unemployed include a magnitude of divergent interests, problems, and requirements. For this reason, educational programs must be responsive to changing

(14) Stevenson, W. W., et al. "The Demand for and Supply of Vocational and Technical Teachers in Oklahoma; 1972-1976." Cycle Three Report Occupational Training Information System. Stillwater: Oklahoma State Department of Vocational and Technical Education, June 15, 1971.

(15) Stevenson, W. W., et al. "A Follow-Up Study of Oklahoma Vocational and Technical Education Graduates and Dropouts, 1968-69 and 1969-70." Cycle Three Report Occupational Training Information System. Stillwater: Oklahoma State Department of Vocational and Technical Education, August 31, 1971.

employee needs as well as changing employer needs. Educators must be encouraged to depart from rigid regulations, schedules, and traditional instructional criteria if these are not truly essential for optimum learning. Administrators and teachers should be working towards individualizing course work to enable students to acquire maximum skill training for jobs with the minimum investment of time and money. High quality training is a major concern, and this concept must be interpreted to mean not only meeting the requirements of the market place but also satisfying the needs of individual trainees and society as a whole.

Recommendation Two

> *Vocational and technical education should take the responsibility for providing sufficient skill training and employment information for any persons needing occupational assistance in the State.*

Although there are many programs and agencies which serve unemployed Oklahomans, there are still many potential vocational and technical trainees who are not aware of existing training opportunities. The State Department of Vocational and Technical Education should undertake a massive continuing public relations campaign to insure that every person desiring employment is informed of available skill training programs. Persons who are actually unemployed as well as those who are underemployed or employed in undesirable areas of work should have easy access to information on potential opportunities for upgrading and retraining.

The purpose of this policy is not to replace the similar activities of any other agency, but rather to supplement on-going efforts and especially improve the recruiting program of vocational and technical education. It is important that individuals are not missing out on job training due to ignorance or misinformation. It is not enough to serve just the people who come seeking assistance; education must be willing to reach out in a positive way to find the students who could perhaps profit from skill training and at least make them cognizant of such occupational opportunities.

ADDENDA

Following is a summary of definitions used by the Oklahoma Employment Security Commission (OESC) for the population estimates in the "Manpower Data Summary."

Disadvantaged - An individual is regarded as disadvantaged if he is a poor person (or member of a poor family) who does not have suitable employment and is one of the following: (1) a school dropout; (2) a member of a minority; (3) under 22 years of age; (4) 45 years of age or older; or (5) handicapped.

Unemployed - An individual is considered unemployed if he has no work, has made specific efforts within four weeks preceeding the interview to find a job, and is available for work. Also included in this category are people who are not working at all and are waiting to be called back to a job from which laid off or are waiting to report to a new wage or salary job within 30 days of the time interviewed.

Underutilized - An individual is considered underutilized if he is or should be in the labor force but does not have "suitable employment," and comes into the local employment office for manpower and employment assistance.

Employed part-time for economic reasons - A worker is considered employed part time (less than 35 hours per week) for economic reasons if he could accept full-time employment were it offered.

Employed full time but with family income at or below poverty level - A worker is included in this category if he is a family head or unrelated individual employed full time but with earnings which do not raise the family income above the poverty level.

Not in the labor force but should be - A person belonging to a certain group in the population which is under-represented or is not presently included in the U.S. labor force total is included in this category.

VT 016 298

KNOY, ROBBIE; SIMS, GLORIA

INITIATING AN OFFICE SIMULATION PROGRAM AT HAGERMAN AND DEXTER HIGH SCHOOLS IN THE INTENSIVE SECRETARIAL AND CLERICAL TRAINING PROGRAMS.

NEW MEXICO STATE DEPT. OF EDUCATION, SANTA FE. RESEARCH COORDINATING UNIT.
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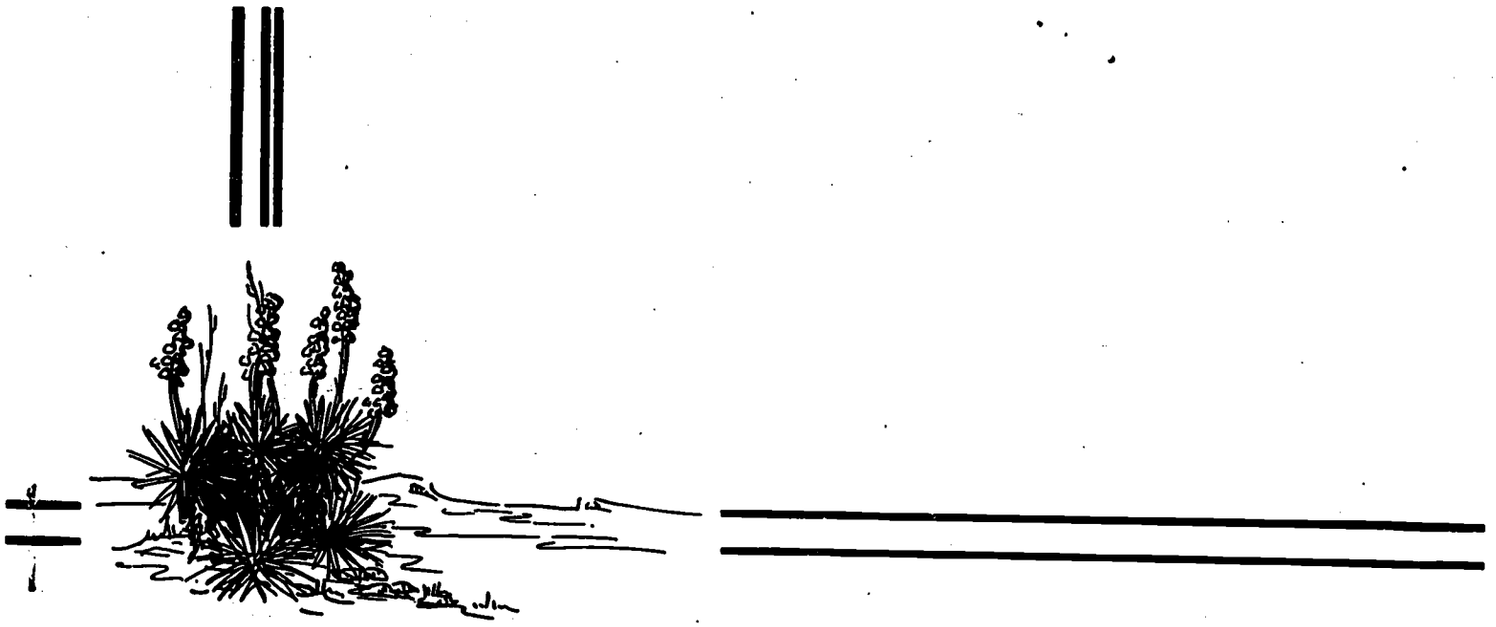
ABSTRACT - AN OFFICE SIMULATION PROGRAM WAS OFFERED TO OFFICE EDUCATION SENIORS IN TWO HIGH SCHOOLS FOR TWO HOURS A DAY, WITH A CLASSROOM IN EACH SCHOOL SET UP TO REPLICATE A REAL OFFICE WHERE SIMULATED COMPANIES CARRIED ON BUSINESS CORRESPONDENCE WITH EACH OTHER. THE STUDENTS COMPLETED SELF-APPRAISAL FORMS AND APTITUDE TESTS, DESIGNED AND PRODUCED OFFICE MANUALS, STATIONERY, AND OTHER BUSINESS FORMS FOR THE COMPANIES, MADE FIELD TRIPS, TOOK JOB INTERVIEWS, AND OPERATED OFFICE MACHINES AND PERFORMED DUTIES SPECIFIED IN THEIR JOB DESCRIPTIONS--ALL IN THE SIMULATED OFFICES. THIS TYPE OF SIMULATION, TO REPLICATE THE REAL WORLD IN THE LEARNING SITUATION, IS RECOMMENDED FOR SMALL SCHOOLS THAT ARE UNABLE TO PLACE THEIR STUDENTS IN ACTUAL WORK EXPERIENCE TRAINING. (MF)



"INITIATING AN OFFICE SIMULATION PROGRAM AT HAGERMAN AND DEXTER HIGH SCHOOLS IN THE INTENSIVE SECRETARIAL AND CLERICAL TRAINING PROGRAMS

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SANTA FE, NEW MEXICO

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INITIATING AN

OFFICE SIMULATION

PROGRAM AT HAGERMAN AND DEXTER HIGH SCHOOLS IN THE

INTENSIVE SECRETARIAL AND CLERICAL TRAINING PROGRAMS

Written By

Mrs. Robbie Knoy, Teacher-Coordinator
Hagerman High School

Mrs. Gloria Sims, Teacher-Coordinator
Dexter High School

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Capitol Building

2747

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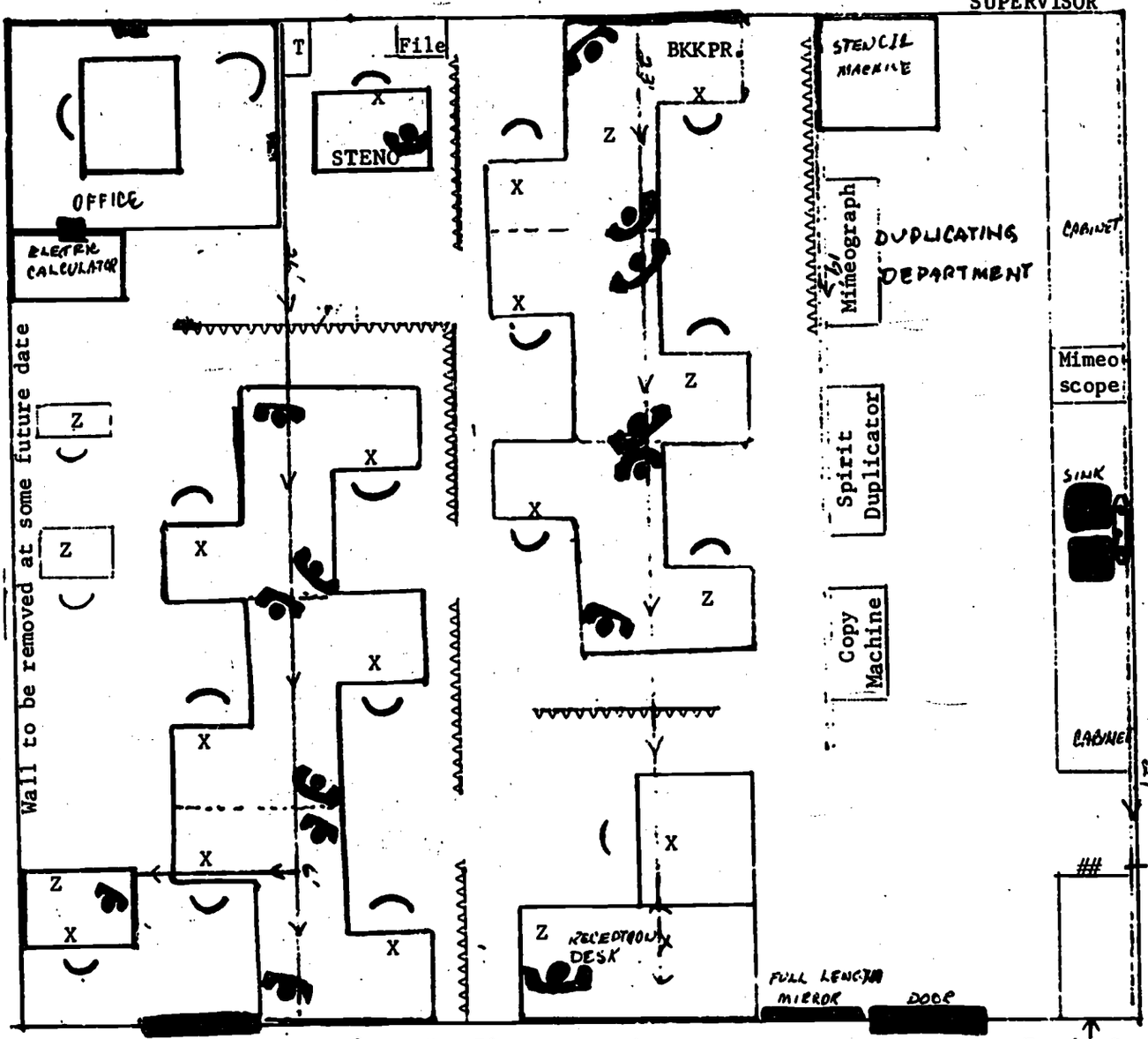
SIMULATED OFFICE AS SUGGESTED TO HAGERMAN HIGH SCHOOL BY MR. JOE SOLANO, ASST. STATE SUPERVISOR



X = Elec. typewriters

= Time clock and card holder

T = Transcribing equip.

vvvv = Portable dividers

Z = ten-key adding or calculator machines

CHAIR

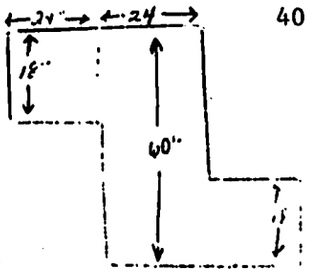
TELEPHONE

DESK PROPS

ELECTRICAL OUTLETS

FLOOR PLAN: 26' x 29'

Z TYPE DESKS:



95' Electro Strip
40 Electro Strip Receps
(6) for cabinet area

In- and Out-baskets provided for Duplicating dept., bookkeeper, Steno, Mgr., and receptionist.

6-button phones installed for 4 stations only

BEHAVIORAL OBJECTIVES SIMULATED OFFICE EXPERIENCE

1. The secretarial students will be able to transcribe five mailable letters from the transcribing machine in one hour--using the final test provided by Dictaphone.

2. The student will be able to demonstrate the proper dress for office.

3. The student will be able to file 30 items in 10 minutes and retrieve 10 items in 3 minutes at 90 percent accuracy.

4. The student will be able to type a letter of application, a resume, and fill in an application form at 100 percent accuracy.

5. The student will demonstrate the proper dress for an actual interview situation and must receive an above average "recommended employment" rating on the interview sheet.

6. The student will demonstrate his ability to type mailable memos, company letters on letterhead with a carbon copy, manuscripts from rough drafts, invoices, purchase orders, statements, tabulated material and legal forms.

7. The student will be able to demonstrate his ability to type the following forms for duplication (using the mimeoscope when necessary) -- stencils, master copies and making masters for the electronic stencil maker.

8. The student will be able to demonstrate his ability to operate the ten-key adding machine, electronic calculator, and ten-key printing calculator with 80 percent accuracy with 100 strokes per minute for 3 minutes as measured by the standardized job entry test.

9. The student will demonstrate his ability to use proper telephone techniques in placing and receiving calls, transferring calls when necessary, screening calls, and taking orders over the telephone.

10. The student will demonstrate his ability to handle incoming and outgoing mail, using the Zip Code directory, typing envelopes, placing correct postage on all classes of mail, and routing incoming mail to proper departments.

11. The student will demonstrate his ability to use the electric mimeograph machine, and spirit duplicator, by using proper placement, proper selection of paper, and proper weight of paper for the job.

12. The student will demonstrate his interest in proper office procedures by clocking-in on time, attending class regularly, working independently with a minimum of supervision until clocking-out time.

13. The student will demonstrate professional office practices: conduct will reflect that he is a business person at all times; keep his work area neat and orderly; finish one job, put it away, and get started on the next job; properly care for machines used and conserve supplies. The student will demonstrate his ability to handle the payroll by figuring time cards, computing deductions and writing checks.

INTRODUCTION

Before school dismissed for the Christmas holidays, December, 1970, a Mini-Grant Proposal was forwarded to the Research Coordinating Unit, Vocational Division, State Department of Education, Santa Fe, New Mexico, under the direction of Mrs. Hilda Majors. This was the beginning of office simulation in the Hagerman and Dexter High Schools!

The proposal title of the project was "Initiating an Office Simulation Program at Hagerman and Dexter High Schools in the Intensive Secretarial and Clerical Training Programs." The description of the proposal read as follows:

> Desirable as it may be, it is not always possible to bring reality into the classroom or into the training situation. Since this is not possible, we will try to replicate in the learning experience the nearest thing we can to the phenomenon of the real world. This is what we mean by initiating simulation into the classrooms at Dexter and Hagerman. We will try to reproduce a situation or experiment in an office situation with actual equipment, process, feeling, etc., that is being studied. It will help to meet the problem of transference of knowledge and skills. We will function as diagnostic consultants concerned with updating the materials, seeing what's going wrong, changing the input, checking on the process, troubleshooting.
>
> In this business game, the learner will work with a set of ground rules and an arbitrator or judge. He is given data about the company, his staff, the product, the market, inventory, etc., and is called upon to make a series of decisions. An effort will be made to simulate all the ramifications of the real office. One of the advantages is that a time span of five years in real life can be compressed into six to eight weeks of gaming. This is what can be referred to as "here and now" experiences as opposed to "there and then."
>
> Some of the techniques to be employed to simulate feelings would include role playing, role reversals, interviews, simulated counseling, sensitivity training, laboratory training, and encounter training. The chief advantage of such a simulation is its similarity to the actual job which the student will perform--concrete reality as distinct from comfortable abstraction.

This simulation program will occupy a two-hour block of time five days a week, offered to office education seniors. The classrooms used for the simulated office program are somewhat larger than standard size. These programs will consist of two companies--The Kim's Office Supply Company and the Snoy's Secretarial Service--business to be carried on between the Hagerman and Dexter High Schools' Business Departments. Correspondence and telephone calls will keep the simulated program going.

A reference manual will be prepared for each company showing hours of work and compensation, office practices to be observed, orientation of job descriptions within each company, fringe benefits, attendance, and job charges.

These programs will enable the students to put the finishing touches on their training for office work by operating a variety of office machines and acquiring the basic knowledge that would otherwise be obtained through textbooks, teacher presentations, and class discussion.

This type of simulation is strongly emphasized by the State Department for small schools that are unable to place their students for "on-the-job" training. The Advisory Committees of both Dexter and Hagerman Schools were in favor of such a program being initiated for the students. Also, the Administration of both schools have expressed a desire that our students get, as nearly as possible, some actual job experience.

BACKGROUND

Early in the school year of 1967, both Hagerman and Dexter schools were approved by the State Department Vocational Division to qualify for Federal funds for an Office Education Intensive program. On the 3rd day of November, 1967, the Hagerman students were granted Charter No. 12 for an Office Education Association. Dexter was granted Charter No. 13 during that same month. State competition in the OEA has always been a part of the programs. A Hagerman student was privileged to be elected State OEA president in 1968, and qualified to run for National president that same year. This past year, 1970-71, the OEA was divided into Regions and the students from Hagerman and Dexter were fortunate to have shared the responsibilities of this venture. Hagerman student, Dennis Campbell, served the Region IV as president, and Dexter student, Linda Bossard, served as vice

president. Both students attended the Leadership Workshop conducted by the State OEA president in Santa Fe in 1970 for all Region officers; and functioned in the first Region Conferences in the State of New Mexico. Hagerman taking seven students on to State Conference and Dexter taking two, they performed in the competitive events and gave the Torch Ceremony for the awards banquet at the close of the Conference.

Constant effort on the part of the teacher-coordinators and the administrative units has been made to expand the Office Education programs, to obtain more and better equipment, and promote innovative projects and field trips. The Hagerman Business Department has grown to two rooms now, and Dexter Department is placed in the largest room in the high school building. A great deal of money was spent wiring the classroom, getting new equipment, and setting up a classroom in the best possible way to obtain maximum use and the greatest efficiency from the situations. The State Department was cooperative in helping us to arrange the equipment and furniture available in the best possible way. Mr. Joe Solano, Assistant Supervisor of Office Education, spent several hours in helping to draw up plans for the best possible model office operation in our classrooms.

Since both Hagerman and Dexter schools are small communities, very few students will ever stay in their home towns and seek employment in the office fields. The offices are small with very limited equipment and facilities available. It is necessary, therefore, to expose students to modern, up-to-date equipment, facilities and procedures. Since our classrooms are equipped with equipment that is not more than two years old, there was very little equipment which was asked for on the mini-grant proposal. The most expensive thing granted was the setting up of the six-button telephones and their installation. These provided a great deal of experience for our students

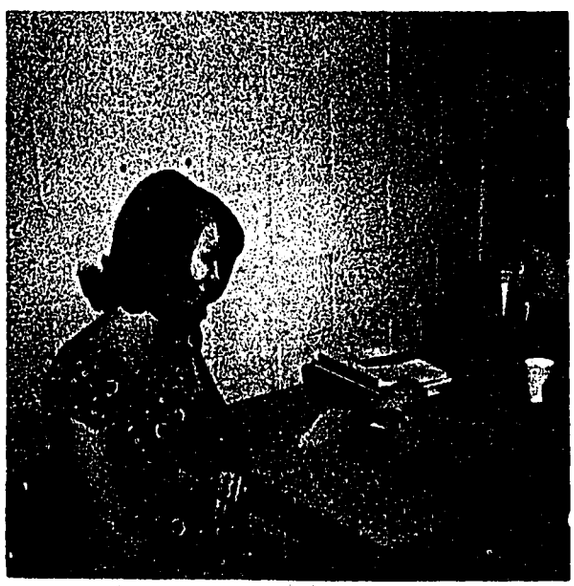
to get used to answering a telephone with outside connections--and especially from one school to another. This was considered our "luxury" item for the programs.

Other equipment obtained was a time-card clock and 25-card holder for students to use in checking in and out of the two-hour block. Used check writers were purchased, and these were used in the bookkeeping class as well as in the office simulation. A 3-M 202 Copy Machine was leased by the Administrative office for our use when needed. Money from the mini-grant made this equipment possible.

P U R P O S E

The simulated office experience was set up to enrich, by special efforts, to relate school work assignments to similar operations and activities performed in the employment market. The students began this simulation by first filling out a self-appraisal form to see where they rated themselves so far as personality and readiness for work were concerned. These also included ratings on dress and attitude. (See Appendix, Self-Evaluation Chart)

Through cooperation with the school counselors, the members of the office education program were given the opportunity to take the General Aptitude Test Battery administered by the staff from the New Mexico Employment Office in Roswell. The picture at the right shows one of the students getting expert advice concerning the results of the GATB by the qualified personnel. We felt this experience was of great value to our students.



The students felt that this was helpful to them, too. The counselor's office was used for these individual interviews.

With the exception of one student, those pictured held part-time jobs--two in Hagerman and the other in an office supply and typewriter repair business in Roswell. The girls were gaining extra experience working at the local paper office and at the City Hall.

The teacher-coordinators felt that this operation would do the job better, and when it is most valuable, at the end of the course where the experience will help to bridge the gap between the schoolroom and the employment market.

METHOD

Even before the mini-grant was final, the teachers felt they should observe a simulated program that was already in operation. They were given professional leave to visit the simulation set up by Mrs. Olive Church at New Mexico Junior College in Hobbs. Her advice and help were appreciated and used in getting the program going. Her enthusiasm, added to that of the

teacher-coordinators, was a help in getting the simulation on its way, when the mini-grant was approved.

GETTING STARTED

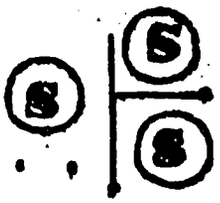
Several class periods were utilized in getting the stationery and other forms to be used "set up" for the printing. The students were very enthusiastic about having a chance to design the various forms to be used for the Snoy's Secretarial Service and the Kim's Office Supply. (These names were the results of the switching of first letters on the last names of the instructors of the program.) Dozens of sample copies from other companies were observed, talked about, and approved. The ones on the following pages were chosen for the letterhead, and show the type of letter which was sent out to every teacher in the Hagerman High School. These were printed before the telephone number was known.

Other forms designed were: Interoffice memos, statements, invoices, Deposit slips for a fictitious bank, purchase orders, checkbooks, and petty cash receipts. Several other forms which did not contain the company's name were chosen for use.

A joint meeting was held for the Hagerman and Dexter Advisory Boards and our simulation progress was reported at this time. The Board members were given a sheet of each piece of business form to be used, as well as an information booklet for each simulation business. Presidents from the local OEA groups were present. Pictures on the following page show some of the Board members following the meeting and presidents from both clubs presiding at the refreshment table which they set up. Also present for the meeting were principals and members of the Boards of Education from both schools.

HAGERMAN MUNICIPAL SCHOOL

SNOY'S SECRETARIAL SERVICE



HAGERMAN, NEW MEXICO 88232 DRAWER B

March 2, 1971

TO: ALL HIGH SCHOOL PERSONNEL

FROM: Office Manager

A new company is being organized in Hagerman High School--

- SNOY'S SECRETARIAL SERVICE -

We invite you to take advantage of our special and excellent services.

SSS can make your office or classroom run more smoothly! All of your correspondence can be answered quicker and more efficiently by our staff of well-trained clerks and typists. We feature all kinds of bookkeeping, duplicating, typing, or any kind of secretarial needs you might have.

If you have any questions concerning the cost of a job, please do not hesitate to call us. Our phone number is 752-3513, and is not yet listed in the telephone directory.

Try the SNOY'S SECRETARIAL SERVICE today!

We sincerely hope that this will be the start of a mutually profitable and friendly association for all of us for many years to come. We are looking forward to hearing from you--soon.

P. D.

Dexter students designing the letterhead for the Kim's Office Supply, left to right:

Eloy Morales

Fernando Sosa

Nancy Salas

They were very pleased to have this opportunity to show off their artistic ability--and besides, this didn't seem like class work.

Elizabeth Smith and Connie Marshall worked hard and many hours coming up with the cover for the booklet. They used partly imagination, partly copied, and partly put several things together to come up with the very attractive piece of work.

Dennis Campbell, president of the Hagerman OEA and Region IV OEA and Linda Bossard, president of the Dexter OEA and vice-president of Region IV OEA. They served coffee and assorted cookies to the group. They also answered questions concerning the simulation when directed to them. This was held in the library at Dexter High School.

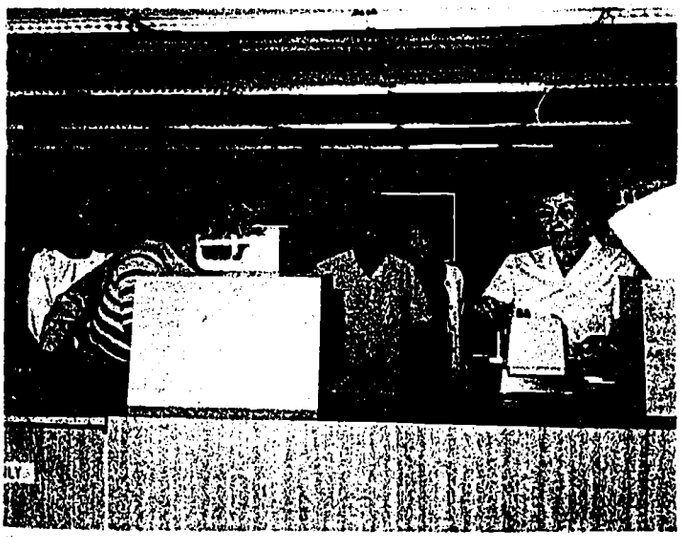
During the more relaxed moments of the meeting, are pictured Board of Education members from Dexter and Hagerman and Mr. Tom Campbell and Mr. Ned John, members of the Hagerman OEA Advisory Board. They were very enthusiastic about the program. Mr. Campbell installed the phones for both schools since he is employed by the Mountain Bell Telephone Company of Roswell.

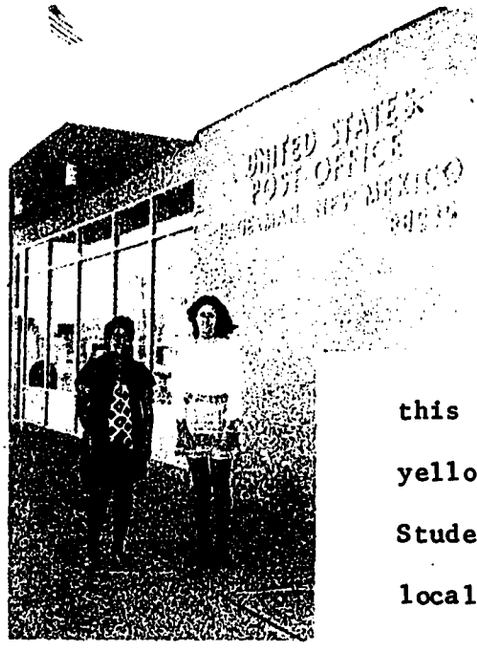
FIELD TRIPS

Since a business cannot exist without communications--especially written communications--the first field trip was planned for the Post Office. The Zip Code was explained and the handling of mail and the sale of stamps, money orders, and mailing of packages were discussed by the postmaster and the clerk on duty. Questions were asked and stress

was placed on correct addressing, use of zip codes and other services of the post office.

Students at the right are being shown how to write out a money order by the clerk, Mrs. Eulalia Campbell. She also explained the correct wrapping and addressing of envelopes and packages.





Equipment used in the post office was shown to the students and an explanation of its use was given. A bulletin board was made on "Wait--Fold That Letter Right" following this field trip, using a signal light caution yellow for the "wait" and 5 steps to be followed. Students at the left were stopped coming out of local post office on our field trip.

PERSONAL DATA SHEETS

Each student was assigned the task of preparing a personal data sheet using any form which he desired. They chose from samples in their typing book, Complete Secretary's Handbook, Secretarial Office Practice, Clerical Office Practice or English books. A sample data sheet follows on the next page.

PERSONAL DATA SHEET

Patricia Sue Dennis
P. O. Box 119
Hagerman, New Mexico 88232

Telephone: 752-6608

PERSONAL INFORMATION

Age: 17
Health: Excellent
Place of Birth: Roswell, New Mexico
Height and weight: 5'3", 95 pounds

EDUCATION

High School: Hagerman High School, Hagerman, N. M. 88232
Graduation: Pending, May 25, 1971
Major: Business, English, and Home Economics
Grade Average: 96.36 (Rank 2nd in a graduating class of 24)

SCHOOL ACTIVITIES

Participated in: Band--Fresh., Soph., and Jr. years; Cheerleader, Sr.

Future Homemakers: Soph., Jr., FHA Play; Jr., Treasurer; Sr., Vice-President

4-H: Member since Fresh. year; Held all offices; Clothing Award, Fresh.; Foods & Nutrition Award, Fresh.; Home Improvement Award, Soph.; Leadership Pin, Sr.; Sweepstakes Winner - Party dress (won silver platter) Dress Review, Jr.; Chaves County 4-H Council Treasurer, Sr.

Girls' Auxiliary of First Baptist Church: Fresh., Queen with a Scepter; Soph., Queen Regent - the first girl ever to attain this high honor in the Hagerman church.

Honors: Governor's Youth Conference, Fresh.; Girl's State Alternate, Jr.; D. A. R. Good Citizen, Sr.

Student Council: Reporter, Sr.

Office Education Association: Secretary, Sr.

WORK EXPERIENCE

Worked in high school office one summer.

REFERENCES (by permission)

Mrs. Robbie Knoy
O E A Advisor
Hagerman High School
Hagerman, N. M.
88232

Mr. Harry Boggs
Principal
Hagerman High School
Hagerman, N. M.
88232

Mr. Randy Lyons
English Instructor
Hagerman High School
Hagerman, N. M.
88232

These data sheets were used when the students were interviewed for the different positions in the simulated offices, stressing the fact that these sheets were designed to give the prospective employer a precise summary of the student's qualifications. They realized that was a necessary part of their permanent file to be kept on themselves, and copies were made for the students to keep. They also realized that the personal data sheet and its contents would make either a favorable or an unfavorable impression upon the interviewer before the student was allowed to see him, since the student would have to wait in the receptionist's office until the interviewer had looked at the sheet. The students were very careful to include all experience, scholarship recommendations and character references who would benefit them.

I N T E R V I E W S

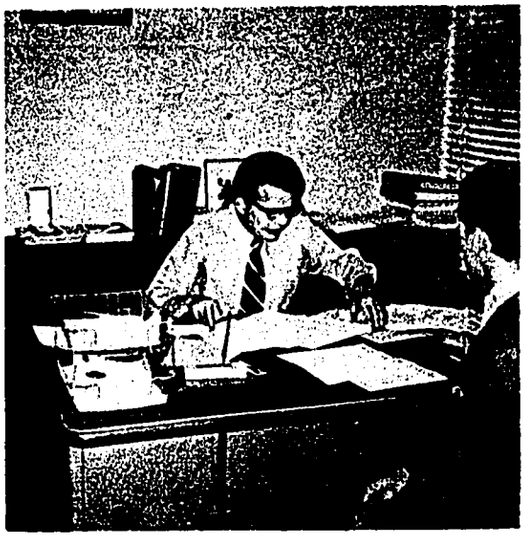
The day and the hour were here! Outside the principal's office stood the students who were to apply for one of several positions in the simulation. They were dressed for the occasion and were prepared for the personal interview after discussion in class for the past two days! Since they were ten minutes early, they didn't need to feel rushed, but that smile they gave the receptionist was a little forced and the "Good morning, I am Danny Harshey. I have an appointment with Mr. Boggs at ten o'clock." had a bit of unsureness about it.

As always in a new experience, the faces show concern for what is unknown! Only one of the girls in the picture at the right had ever been through a personal interview before this day.

Appointments for the interviews were set up ahead of time by the receptionist, trying to work the students in at a convenient time for superintendent and the principal, and still keep it during the class time of Office Education. This proved quite interesting.

Danny Harshey is shown receiving his application form to fill out, while he waited for his time to be interviewed. These were to be filled out in ink so that a sample of the handwriting would be shown--and also because there were not enough typewriters unless they returned to the classroom for this, which we wanted to avoid.

Rodney Adair and Hagerman Principal, Mr. Harry Boggs, during the interview.



Supt. Gordon King, Hagerman, asking Dibrell Andrus a few questions during his interview with him.

OFFICE WORK

AN INTERVIEWER'S WORK SHEET

Date _____

Applicant's Name _____

Position Applied For _____

1. Appearance

- ☐ Neat
- ☐ Well-groomed
- ☐ Slovenly
- ☐ Average build
- ☐ Thin
- ☐ Stout
- ☐ Tall
- ☐ Short
- ☐ .....

2. Dress

- ☐ Good taste
- ☐ Worn
- ☐ Careless
- ☐ Flashy
- ☐ Untidy
- ☐ .....

3. Posture

- ☐ Well-balanced
- ☐ Very erect
- ☐ Slightly relaxed
- ☐ Slightly stooped
- ☐ Round-shouldered
- ☐ .....

4. Facial Expression

- ☐ Radiant
- ☐ Happy
- ☐ Thoughtful
- ☐ Solemn
- ☐ Sullen
- ☐ .....

5. Hands and Face

- ☐ Healthy looking
- ☐ Well cared for
- ☐ Physical impairment
- ☐ Heavy makeup
- ☐ Blemished
- ☐ Dirty
- ☐ .....

6. Approach

- ☐ Poised
- ☐ Alert
- ☐ Forward
- ☐ Timid
- ☐ Awkward
- ☐ .....

7. Volume of Voice

- ☐ Too loud
- ☐ Easily audible
- ☐ Too low
- ☐ Pleasant
- ☐ Shrill
- ☐ Monotone
- ☐ .....

8. Enunciation

- ☐ Very clear
- ☐ Clear
- ☐ Passable
- ☐ Indistinct
- ☐ Omits syllables
- ☐ .....

9. Pronunciation

- ☐ Faultless
- ☐ Occasional mistakes
- ☐ Frequent mistakes
- ☐ .....

10. Grammar

- ☐ Faultless
- ☐ Occasional mistakes
- ☐ Frequent mistakes
- ☐ Bad grammar
- ☐ Extremely bad grammar
- ☐ .....

11. Personality

- ☐ Magnetic
- ☐ Animated
- ☐ Pleasant
- ☐ Tactless
- ☐ Conceited
- ☐ Disagreeable
- ☐ .....

12. Temperament

- ☐ Calm
- ☐ Confident
- ☐ Shy
- ☐ Excitable
- ☐ Phlegmatic
- ☐ Sullen
- ☐ .....

13. Knowledge

- ☐ Clear perception
- ☐ Good comprehension
- ☐ Shrewd
- ☐ Understanding
- ☐ Uninformed
- ☐ Ignorant
- ☐ .....

14. Attitude

- ☐ Cooperative
- ☐ Enthusiastic
- ☐ Attentive
- ☐ Indifferent
- ☐ Arbitrary
- ☐ Argumentative
- ☐ .....

15. Self-Opinion

- ☐ Modest
- ☐ Confident
- ☐ Timid
- ☐ Self-assured
- ☐ Conceited
- ☐ .....

16. Interest in Position: Exceptional ☐ Normal ☐ Below Average ☐

17. Standing in Class: 1st Quarter ☐ 2nd Quarter ☐ 3rd Quarter ☐ 4th Quarter ☐

18. Summary: Superior ☐ Above Average ☐ Average ☐ Below Average ☐

19. Recommend Employment: Yes ☐ No ☐

20. Comments: _____

_____

_____

_____

_____

Interviewed by _____

Dexter student, Miss Judy Monk, being interviewed by the principal, Mr. Jim Derrick.

The same procedure for interviews was used in both schools, same interviewer's sheets, and same pre-interview preparation was given.

Application for Employment

PLEASE TYPE

Date _____

Name _____ (Last / First / Middle)

Address _____ (Street and Number / City / Zone / State) Telephone Number _____

Position Desired _____ Social Security No. _____

How Long Have You Lived at the Above Address? _____ Do You Live with Your Parents? _____ (Yes/No)

Date and Place of Birth _____ (Month / Day / Year / City / State) Citizen of United States? _____ (Yes/No)

Weight _____ (Pounds) Height _____ (Feet / Inches) Right or Left Handed _____

Single ( ) Married ( ) Widowed ( ) Separated ( ) Divorced ( ) No. of Dependents Other than Self _____

EDUCATION

	School Name	Address	Major	From Year	To Year	Grad. Degree
Grammar						
High School						
Business						
Evening						
University or College						
Other						

PREVIOUS EMPLOYMENT

From Mo. Yr.	To Mo. Yr.	Name and Address of Employer	Position	Salary	Reason for Leaving

PERSONAL REFERENCES *

Name	Address	Occupation

* If you have never been employed, give names of two responsible persons (not relatives) to whom we can refer.

Signature _____

The interviewer's evaluation was made on the sheets which precede this page. These were chosen by the teacher-coordinators, and they not only proved helpful to the interviewer, but the comments were helpful in trying to improve personal qualities and qualifications. The students cut these stencils on the electronic stencil maker and ran them off for this particular event--as they did all other forms used.

Also included, preceding this page is a copy of the application blank they were asked to fill out. They had a limited time to fill this out, which gave them a new experience.

SELF-EVALUATION CHART

Shortly before interviews were set up for the students, they were asked to fill out "Self-Evaluation Charts" after each item on the chart was discussed in class. These were placed in the student's folder for the benefit of the teacher and the student--and goals were set to overcome any deficiencies in any area where the student felt he needed help. A copy of the four page chart follows this page.

At the end of the course, the students were asked to fill out another chart and compare with the first one they filled out. There were several areas where the students felt they had improved.

STUDENT HANDBOOKS

The student handbooks were designed by the instructors, but they were reproduced and assembled by the students. These included a booklet cover, a "Welcome" page, a foreword from the Office Education Coordinator, Obligations and Responsibilities, Character Traits Expected, "What Can You Offer?", Salary Schedule and eductions, "The Ten Commandments of Office Manners", Professional Office Practices, Rules for Using the Telephone,

Date_____ Name_____

SELF-EVALUATION CHART

At this time you are to rate yourself according to the following check list. For each quality place a check mark after the description that most nearly fits your case. To determine your score, subtract the total of the minus scores from the total of the plus scores.

This will help to identify those traits and characteristics on which you need to concentrate in your effort to become a first-rate secretary or office worker. Make plans to overcome your deficiencies--and then follow through!

	Score	Check
Personal Appearance		
Taste in Dress		
Almost always clothed in good taste	+3	
Usually dresses in good taste	+2	
Dresses acceptably	+1	
Occasionally dresses inappropriately	−1	
Frequently dresses carelessly	−2	
Cleanliness and Neatness		
Always noticeably tidy, neat, and clean	+3	
Usually neat and clean	+2	
Generally conforms in cleanliness and neatness	+1	
Sometimes negligent	−1	
Sometimes offensive	−2	
Health		
Practically never absent for illness	+3	
Adequate health	+2	
Occasionally absent for illness	+1	
Affects amount of work produced	−1	
Impairs appearance and greatly reduces production of work	−2	
Stamina		
Unusual energy, almost tireless	+3	
Usually energetic and vigorous	+2	
Sustains effort fairly well without loss of efficiency	+1	
Tires rather easily on some types of work	−1	
Tires very easily on all types of work	−2	
Poise		
Self-assured and unusually well-poised	+3	
Usually well-poised	+2	
Occasionally loses poise	+1	
Either frequently embarrassed or too bold	−1	
Either very timid and shy or too aggressive	−2	

	Score	Check
Pearsonal Appearance (Concluded)		
Posture		
Excellent posture, giving fine appearance when standing, sitting, or walking	+3	
Usually good posture, giving good appearance	+2	
Ordinary posture	+1	
Usually poor posture, detracting from appearance	−1	
Posture always poor, detracting greatly from appearance and health	−2	
Personality		
Tact		
Exceptionally tactful and diplomatic	+3	
More tactful than average	+2	
Ordinary tact	+1	
Tendency to say or do the wrong thing	−1	
Frequently abrupt and tactless	−2	
Voice and Speech		
Good diction and an exceptionally clear and pleasant voice	+3	
Few weaknesses in enunciation and diction	+2	
Average voice and speech	+1	
Weak voice and occasional errors in speech	−1	
Irritating voice and frequent errors in speech	−2	
Social Attitude		
Active contributor and harmonious worker in all groups	+3	
Generally works well with others	+2	
Reasonably considerate of others, having little or no difficulty	+1	
Seldom shows consideration for others	−1	
Desires to be alone, hostile to others	−2	
Initiative		
Assumes responsibility and gets cooperation from others	+3	
Often does things on own initiative with moderate success	+2	
Does some things with little or no direction	+1	
Shows some initiative, but often offends others	−1	
Never shows any initiative	−2	
Expression		
Clear and effective expression	+3	
Expression usually good	+2	
Expression ability average	+1	
Some difficulty in expression	−1	
Expression poor and inadequate	−2	
Manners		
Manners invariably reflect a natural ease, grace, and refinement	+3	
Manners good, attract friends	+2	
Reasonably well-mannered	+1	
Sometimes impolite and disrespectful	−1	
Often ill-mannered, crude and offensive	−2	

	Score	Check
Mental Alertness		
Oral or Written Instructions		
Grasps instructions instantly and unerringly	+3	
Usually understands difficult instructions	+2	
Follows ordinary instructions well	+1	
Often misunderstands ordinary instructions	−1	
Generally misses or forgets oral and written instructions	−2	
Judgment		
Good judgment upon most occasions	+3	
Judgment reasonably accurate	+2	
Fair judgment with ordinary problems	+1	
Tendency to make errors in judgment	−1	
Frequently makes errors in judgment, poor judgment	−2	
Sense of Values		
Uncanny insight in distinguishing the important from the unimportant	+3	
Reasonably successful with conflicting values	+2	
Distinguishes between usual values	+1	
Occasionally confuses the important with the unimportant	−1	
Places too much emphasis on the unimportant	−2	
Speed of Mental Reaction		
Very seldom is at a loss for a thought	+3	
Usually a quick thinker	+2	
Thinks with average speed	+1	
Sometimes slow in mental reactions	−1	
Noticeably slow in understanding and thinking	−2	
Dependability		
Punctuality		
Always punctual and prompt in keeping both appointments and work assignments	+3	
Seldom tardy, prompt in completing work assignments	+2	
Often tardy, but prompt in completing work assignments	+1	
Often tardy, a bit slow in completing work assignments	−1	
Habitually tardy, very slow in completing work assignments	−2	
Persistence		
Exceedingly persistent in completing every assignment	+3	
Seldom discouraged with difficult tasks	+2	
Persistent to an average degree	+1	
Leaves many difficult tasks unfinished	−1	
Easily deterred and needs constant encouragement to finish an assignment	−2	
Ambition		
Sees each job as a new challenge	+3	
Enjoys satisfaction of finished work	+2	
Works steadily, but only under supervision	+1	
Requires some prodding	−1	
Lacks evidence of ambition	−2	

	Score	Check
Dependability (Concluded)		
Loyalty		
Considers business with deep possessive pride — can be trusted with strictly confidential matters	+3	
Works faithfully and is interested in the success of the business	+2	
Works steadily until closing time, but has little interest in the success of the business.	+1	
Loyalty to the business sometimes questionable	−1	
Has little or no interest in the business	−2	
Production Ability		
Volume of Work		
Exceptionally large output, steady worker	+3	
Above average output, seldom stops work	+2	
Average output	+1	
Below average output, often wastes time	−1	
Very much below average in output, constantly wastes time	−2	
Quality of Work		
Very high, nearly always free of fault or error	+3	
Above average, usually free of fault or error	+2	
Average, usually free of serious error	+1	
Often unacceptable because of errors	−1	
Usually unacceptable because of serious errors	−2	
Organization of Work		
Exceptionally orderly and systematic	+3	
Above average in orderliness and systematic work	+2	
Average orderliness and systematic work habits	+1	
Disorderly and unsystematic to some extent	−1	
Almost no organizational ability	−2	
Teamwork		
Always cooperates	+3	
Above average in cooperation	+2	
Average in cooperation	+1	
Sometimes fails to cooperate	−1	
Usually uncooperative	−2	
Resourcefulness		
Very resourceful, meets every challenge	+3	
Above average in resourcefulness, faces problems honestly and solves most of them	+2	
Average in resourcefulness, solves average problems	+1	
Easily discouraged	−1	
Generally admits failure with average problems	−2	

Calculation of Score

Total of plus scores _____
Less total of minus scores _____
Net score _____

Proper Use of Equipment, Etiquette, Prices for Secretarial Work to be charged, Self-Evaluation Form For Office Employees, Objective for the Simulation, General Information, Wage Scale and list of employees, Job Classifications, Job Descriptions, Attendance, and Proofing. These several pages were typed on half sheets and stapled into a booklet form. Information on each sheet follows:

SNOY'S

Booklet Cover

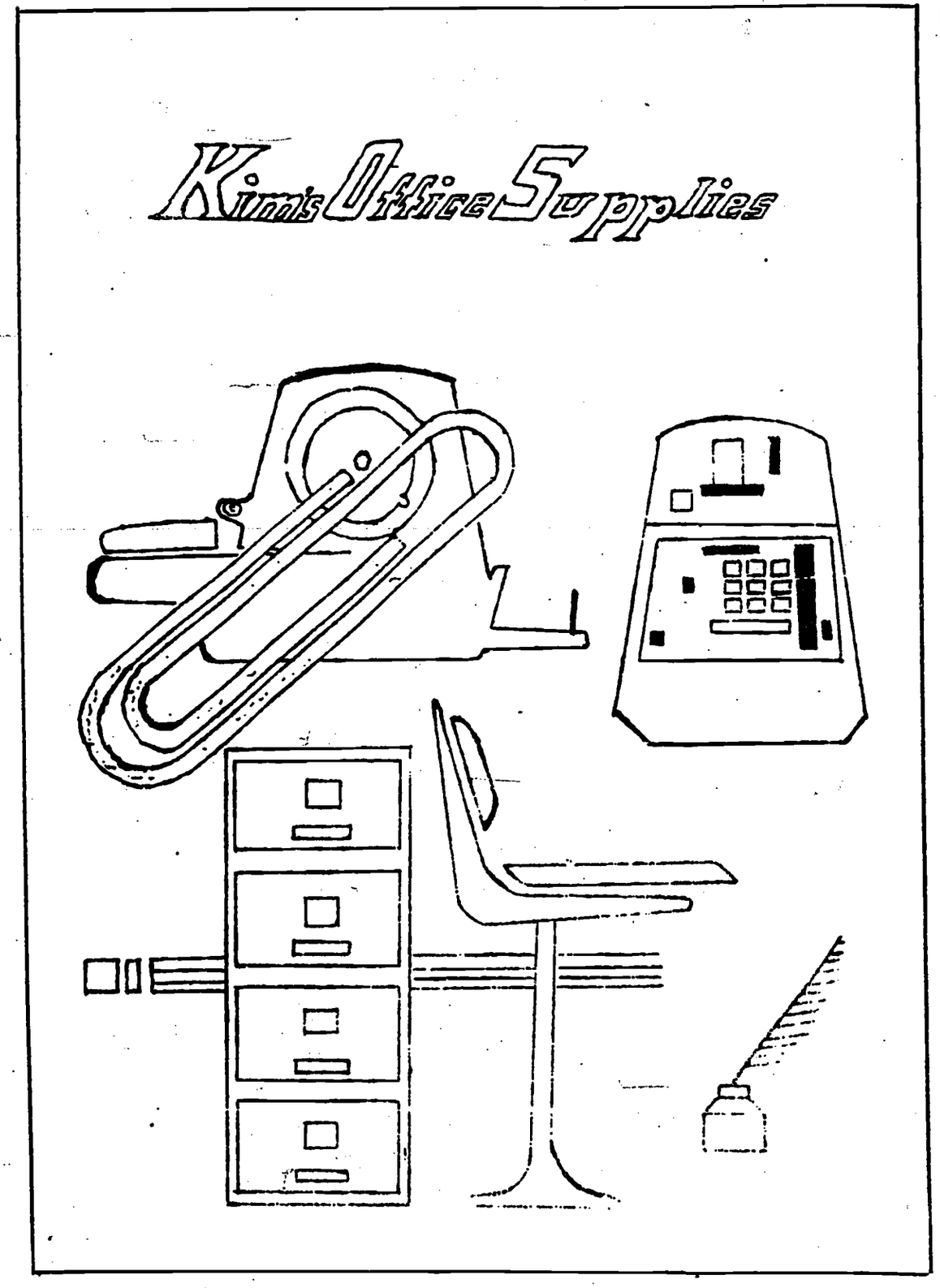
These were run on rainbow colored construction paper

SECRETARIAL

SERVICE

Kim's Office Supply, Student's handbook cover

(run on pink construction paper)



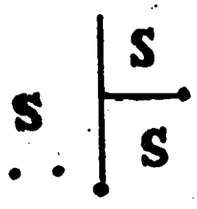
Page 2, Student's handbook (Run on sky-blue paper)

WELCOME

TO

SNOY'S SECRETARIAL SERVICE

Drawer B - Hagerman Municipal School
Hagerman, New Mexico 88232



Kim's Office Supply, Student's handbook

Welcome

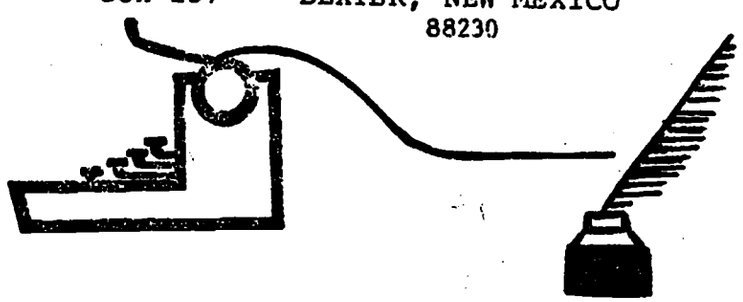
TO

KIM'S

OFFICE SUPPLY

DEXTER HIGH SCHOOL

BOX 157 DEXTER, NEW MEXICO
88230



HANDBOOK FOR THE SIMULATED OFFICE WORKER

TO YOU:

Since you are a beginning worker, or expect to be one soon, this handbook is intended for you.

Most young people look forward to spending productive lives in some type of work. Some of you have already worked outside school hours, some only during school vacations. Some of you are planning and getting ready for jobs after graduation, and some of you possibly know people who have quit school in order to work.

Something you need to remember: Your job will become an increasingly important factor in determining how and where you will live, whether you can afford to own your home, what kind it will be, and whether your children will have a chance to go to college.

This simulated program will be designed to help you think about studying, planning, and working so that your job will be satisfying and productive.

Office Education Coordinator

YOU HAVE
OBLIGATIONS AND RESPONSIBILITIES, TOO:

OBLIGATIONS:

* to do your job well
* to be honest
* not to be late or absent without cause
* to let the boss know in advance, or call in, if you are unable to work

RESPONSIBILITIES:

* to respect the employer's property
* to cause no avoidable damage to buildings, equipment, tools or materials
* to obey rules
* to follow your supervisor's directions
* to learn to take criticism
* to tell your supervisor if you decide to quit
* to give enough time notice to get a replacement
* to be ready, willing, and able

Page 5, Student's handbook for both programs

YOU are evaluated on character traits as well as skill and knowledge:

1. Poise
2. Tact
3. Initiative
4. Self-control
5. Adaptability
6. Perseverance
7. Loyalty
8. Dependability
9. Courtesy
10. Sense of humor
11. Enthusiasm
12. Punctuality
13. Reliability
14. Sincerity
15. Patience
16. Resourcefulness
17. Thoughtfulness
18. Good judgment
19. Efficiency
10. Cheerfulness

WHAT CAN YOU OFFER?

ARE YOU READY?

* with a good education
* with the skills or special training the job requires
* with good work habits: dependability, punctuality, honesty, accuracy
* with desirable personal traits: friendliness, cooperative, courteous

ARE YOU WILLING?

* to devote the necessary time
* to start at the bottom
* to learn
* to do the job as the boss wants it done
* to stick to a task until it is completed

ARE YOU ABLE?

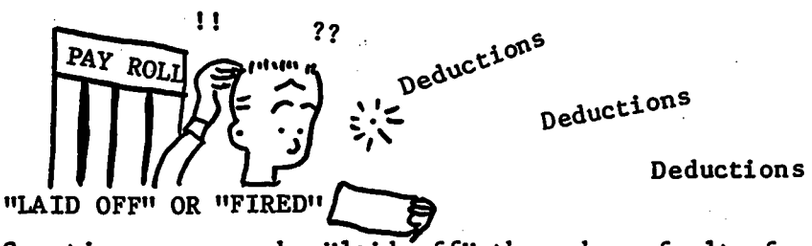
* to spend the necessary time and energies the job may require
* to take on responsibility, accept criticism, and act like an adult
* to be socially poised, to meet a variety of situations and people
* to sense the right thing to do, the correct way to dress
* to show initiative, be mentally alert, and to understand and follow instructions

SALARY SCHEDULE

ABOUT YOUR PAY: Deductions may be made for all or some of the following:

* Federal income tax
* State and/or local taxes
* Social security--unemployment insurance, retirement, survivors and disability benefits
* Group insurance
* Hospitalization insurance
* U. S. savings bonds

Ask at your local bank about opening a savings account. A bank employee can show you how to open a checking account also, and how to balance your checkbook.



Sometimes you may be "laid off" through no fault of yours. This frequently happens to young workers because they have little or no seniority. In a case of this kind, keep busy preparing for, or finding, another job. If "fired," be sure you understand why. Learn from your experiences in which kinds of jobs you can succeed and how to meet an employer's expectations.

HOURS OF WORK AND COMPENSATION

WORKDAY

The workday for Kim's Office Supply is from 1 p.m. to 3 p.m. with one 10-minute break.

WORKWEEK

The workweek for Kim's Office Supply is Monday through Friday, a total of 10 hours.

TIME CARDS

You will be expected to clock in and be in your office by 1 p.m. The time recorder is located in the back of the classroom. You will check out at 3 p.m.

On Monday of each week, the employee and the Bookkeeper will check the individual time card to make sure it is accurate and will total the number of working hours. You will sign your time card when you receive your paycheck to certify that your check is correct. If there is any question, you may check with the Office Manager.

PAYDAY

Friday is payday. You will be paid by check on Friday for work done the previous week. You will be paid on the day before if the payday falls on a holiday or if for any other reason the office is to be closed.

Page 8, Student's handbook for both programs

THE TEN COMMANDMENTS OF OFFICE MANNERS

Barbara L. Teasley
Transylvania's Modern Secretary

- Smile, and be of good cheer; for it promotes goodwill and thus increases efficiency.

- Thou shalt not yell, but speak clearly and distinctly to the person with whom you are talking.

- Thou shalt not pass the buck, but shalt accept thy errors as thine, and endeavor to eliminate such.

- Thou shalt not grumble about thy work, for there is someone else who will do the work cheerfully.

- Thou shalt not consider thyself indispensable; even presidents can be replaced.

- Thou shalt not condescend; for there are no class distinctions among intelligent people, and each is equal to the other.

- Thou shalt not deem thyself superior, and talk down to co-workers; one day you may find thyself looking up to them.

- Thou shalt not take the name of thy co-worker and use it unfairly or maliciously in regard to gossip.

- Thou shalt be responsible for thine own job, and only thine; let everyone take care of his responsibility.

- Thou shalt remember that an office is to be run as a place of business, for employees are adults and should act and be treated accordingly.

ERIC

PROFESSIONAL OFFICE PRACTICES

REMEMBER: All work is strictly confidential.
Do not discuss outside the office.

BUSINESS CONDUCT:

Your conduct should reflect the fact that you are a business person at all times. Refrain from being loud and boisterous, sitting on the desks, constantly leaving your work, or disturbing other workers.

YOUR WORK AREA:

Keep your desk or work area neat and orderly. To do the most efficient job, keep only those materials necessary to do the job at hand on your desk. Girls, your purses do not belong on top of your desk, or in the aisles.

Finish one job, put it away, and then get started on the next job!

PERSONAL APPEARANCE:

Your selection of proper clothing for the office is important; however, frequent cleaning and constant attention to such items as well-polished shoes, well-groomed hands, and a clean body give an office worker top ratings in appearance. Conservative hair styles will prove advantageous in the world of work.

EQUIPMENT AND SUPPLIES:

The equipment and supplies you work with represent a big investment. Proper care of machines is necessary. Careful planning and accuracy will save supplies. Check out only enough supplies for the work order you have. Return all unused supplies to the proper place or person.

RULES FOR USING THE TELEPHONE:

T alk slowly

E mpty your mouth

L isten closely

E nunciate clearly

P ick up phone promptly

H old the phone properly

O btain the right number

N ote down the message

E nd call properly

PROPER USE OF EQUIPMENT:

- Place typewriter cover on back of chair when machine is in use.
- Keep all machines clean, especially the mimeograph, the liquid-process machine, and the typewriters. Cover machines no longer in use.
- Be sure all electrical equipment is off before leaving.
- Report all difficulty with machines to the office manager. Repair of equipment is essential to the smooth operation of an office.

ETIQUETTE

Good etiquette is not only desired but expected of the office worker as in office manners, office dress, and office housekeeping.

FILMED FROM BEST AVAILABLE COPY

PRICES FOR SECRETARIAL WORK

Short letter on letterhead Mimeographed	$ 2.25 per 100
Double spaced, per page	.50
Single spaced, per page	.75
Reports, with tabulations	1.00
Tables	1.00
Master copy for spirit duplicator . .	.75
Copies on spirit duplicator . .	2.25 per 100
Cutting stencils	1.00
Electronic Stencils	2.50
Mimeographing	2.25 per 100
Financial Statements	5.00

DICTAPHONE/TRANSCRIPTION, time rate

Hour	6.00
Half-hour	3.00
Quarter-hour	1.50

Place the exact time you started on the Work Order Sheet--round off to nearest quarter-hour.

ERIC

SELF-EVALUATION FORM FOR OFFICE EMPLOYEES

Yes	No		
_____	_____	1.	Did I interfere with someone's work today by needless interruption, gum chewing, finger drumming, and other annoying mannerisms?
_____	_____	2.	Did I come to the office clean and well-groomed?
_____	_____	3.	Did I leave my working desk and space in order at the end of the working period for the next person?
_____	_____	4.	Did I have 3, 4, 5 or more minutes at the end of the day in which I just waited for the time to pass in order to check out?
_____	_____	5.	Am I willing to stick to a task until it is completed?
_____	_____	6.	Am I able to take on responsibility, accept criticism, and act like an adult?
_____	_____	7.	Am I able to understand and follow instructions?
_____	_____	8.	Am I willing to do the job as the boss wants it done?
_____	_____	9.	Am I friendly, cooperative, courteous?
_____	_____	10.	Am I dependable, punctual, honest, accurate?
_____	_____	11.	Am I willing to learn, listen to instructions, and work carefully?

O B J E C T I V E

IMPROVED EDUCATION FOR EMPLOYMENT IN OFFICE OCCUPATIONS

1. Provide a student with employable office skills

2. To help that student stay on the job as long as he wants to stay

3. Integrate realistic practice through projects in a simulated office environment

4. Allow for flexibility to meet individual student learning needs

Page 14, Student's handbook for both programs

GENERAL INFORMATION

Take care of the Model Office first.

Then take care of classroom assignments.

Pay your bills when requested.

Check with the office manager for model office assignments daily.

Keep adequate files of your own companies.

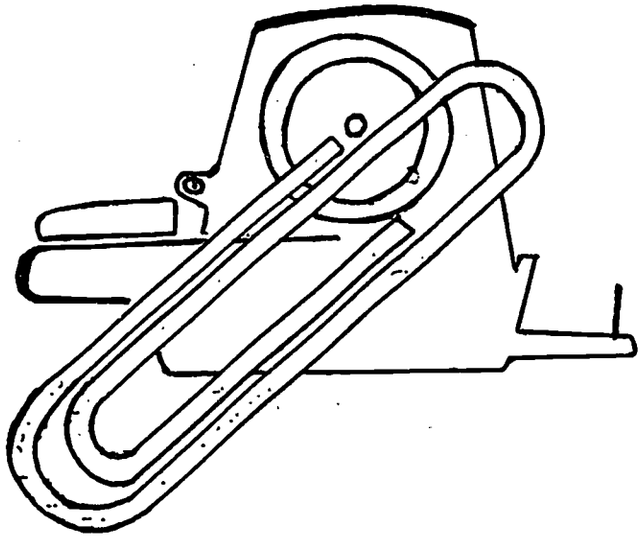
Instructional units:

- Duplicating
- Payroll
- Bookkeeping
- Banking
- Job Procurement
- Grooming
- Mail
- Filing
- Transcription from transcribing machines
- Office Machines
- Human Relations

SNOY'S SECRETARIAL SERVICE

WAGE SCALE, PER HOUR

Office Manager	$5.60
Bookkeeper	4.50
Stenographer	2.60
Clerk-Typist	2.00
Receptionist	1.75



PAY SCALE

Office Manager	- $3.75
Bookkeeper	- 2.25
Receptionist	- 2.15
Stenographer	- 2.05
Clerk-Typist	- 1.75
Stock-Clerk	- 1.65

Each position has a level of responsibility proportional to the pay scale. Merit increases can be earned, as well as promotions, as employees show evidence of competence and productivity. Therefore, it could be possible for clerk-typists to earn as much or more than the Office Manager.

SALARY SCHEDULE

ABOUT YOUR PAY: Deductions may be made for all or some of the following:

* Federal Income tax
* State and/or local taxes
* Social Security--unemployment insurance retirement, survivors and disability benefits
* Group insurance
* Hospitalization insurance
* U. S. savings bonds

Ask at your local bank about opening a savings account. A bank employee can show you how to open a checking account also, and how to balance your checkbook.

ORIENTATION

JOB CLASSIFICATIONS

The job classifications in the Snoy's Secretarial Service are:

Office Manager
Bookkeeper
Stenographer
Clerk-Typist
Receptionist

Training in the duties of your job is the responsibility of your office manager. Periodically your office manager will rate you--on performance and attitude--and this rating will become a part of your personnel record. It will be considered for any salary increases and promotions.

JOB DESCRIPTIONS

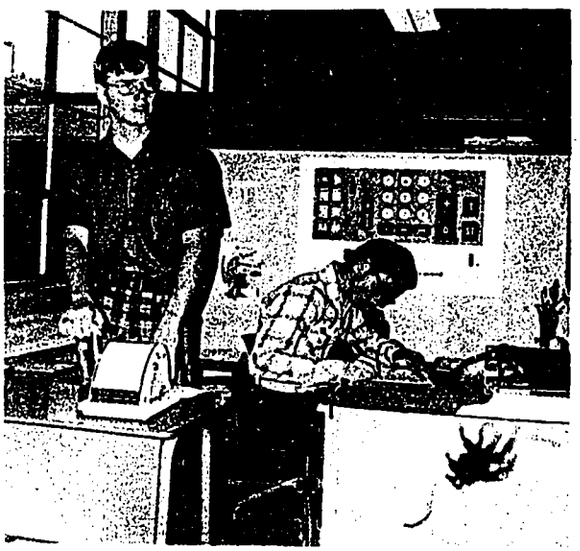
Office Manager

Will oversee all operations
Will distribute work or work-load, as needed
Will check on employees, help with problems, answer questions or direct personnel where to find answers
Will turn out Work Order material
Will proofread material attached to Work Orders before invoice is typed for charges to customer
Will see visitors, clients, salesmen, etc.
Will fill out rating sheets on all personnel
Will recommend salary increases and promotions

The student selected to serve as Office Manager was Miss Patty Dennis, Miss New Mexico OEA, and 5th in National Miss OEA. The station of the Office Manager was near one of the doors into the classroom, and near the desk of the receptionist.

The students painted the manager's desk orange. The in- and out-baskets were beige and blue. A ten-key adding machine, a clock, and a 6-button telephone were other equipment provided.

On page 16 of the student's handbook is the job description for the bookkeeper of the Snoy's Secretarial Service. This station is provided with a beige desk, red and blue in-out baskets, a chair with rollers, an electric typewriter with special type for billing, a check writer, and an electric pencil sharpener. The electronic calculator is a Sony product. This station is divided from the duplicating section of the classroom by the 5-foot portable partition. A 6-button telephone was also at this station.



Shown: Rodney Adair, 2nd in National Clerical Arithmetic
Danny Harshey, 6th in National Chapter of the Year Presentation

Job Descriptions, continued

Bookkeeper

Will post employees' work (pages completed, etc.) to employee's individual ledger sheet
Will post income (from invoices) for previous day
Will keep payroll ledger and individual payroll sheets
Will handle money coming in and going out--writing checks and making deposits and paying all bills
Will compute invoices and send them out

Stenographer

Will receive work orders from office manager
Will plan the job--asking questions, if any, before beginning
Will work accurately and quickly, without unnecessary delays
Will proof own work immediately before removing from typewriter
Will transcribe from the Dictaphone
Will be responsible for any work to be done by the office manager

Clerk-Typist

Will receive work orders from office manager
Will cut stencils or master copies
Will type any kind of work coming into the office
Will make copy on electronic stencil maker when ordered
Will make individual copies on copy maker
Will operate the mimeograph and spirit duplicators when ordered
Will make master copy on the A. B. Dick Copy Maker when ordered

The picture at the right was made of the stenographer's station as Miss Retta Ward transcribes from the Dictaphone. This station is equipped with a blue-green antiqued desk, electric typewriter with carbon ribbon, a cushioned chair on rollers, a 6-button telephone, a ten-key adding machine, in-out baskets, a three-drawer filing cabinet for correspondence, and a file cabinet for reference materials.

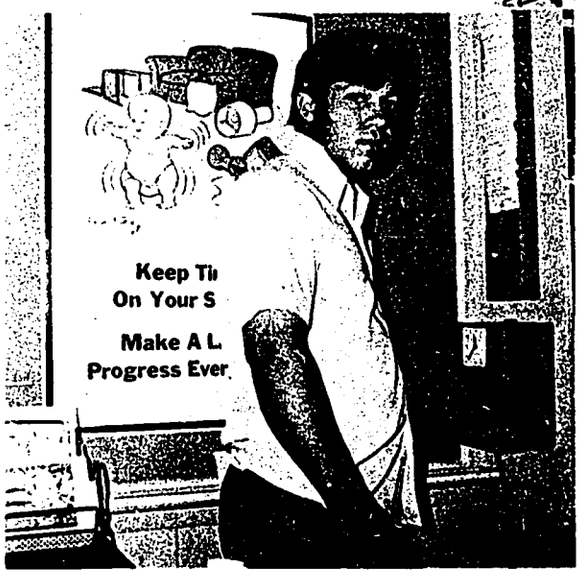
Pictures on the next page and below are those taken of the clerk-typists as they went about the jobs handed in by customers for completion.

Miss Becky McCullough typing a test for one of the teachers in the high school

The "Z"-shaped desks were recommended by Mr. Joe Solano, Assistant State Supervisor of Office Education in New Mexico. Mr. Solano also helped to set up the classroom so that the new furniture could be arranged properly.

John Guevara gets assistance from Miss Elisa Munoz with the job he is typing for a customer. Elisa is employed at the Ray Bell Oil Company in Roswell in the afternoons.

Joe King as a clerk-typist for the Snoy's Secretarial Service. As shown here, he is typing a Last Will and Testament.



David Salas - as he prepares to leave class early in order to get to Roswell for some special reason on the job at John Office Supply, where he is presently working full-time since he graduated.

DUPLICATING

Cecil Medrano making copies from a Master on the spirit duplicator.

The photo above shows a larger portion of the duplicating section. Not shown is the electronic stencil maker and the mimeograph machine.

Miss Elisa Munoz - making a stencil from a copy for the English Department. To her left and slightly behind her is located the mimeograph machine.

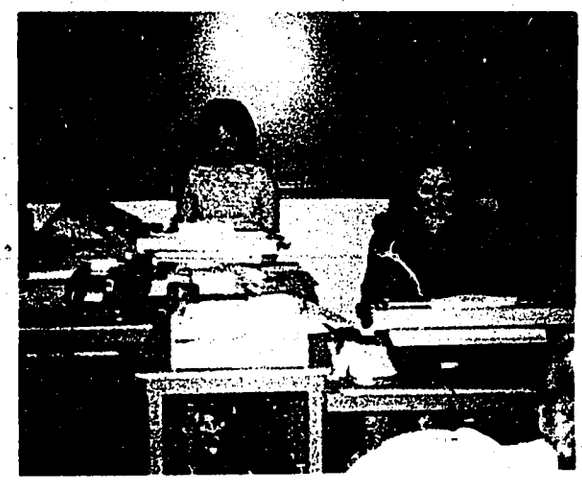
Most students did not enjoy the duplicating as much as Dibrell Andrus. Here he is shown making copies of pages for an elementary teacher.

R E C E P T I O N I S T

Getting some information for a phone call is Miss Peggy Barbe, acting as receptionist for the Snoy's Secretarial Service.

This station is equipped with a fold-away typewriter desk, chair with rollers, a long table with two drawers, reference material, a ten-key adding machine, and a 6-button telephone which she controls for all stations in the company.

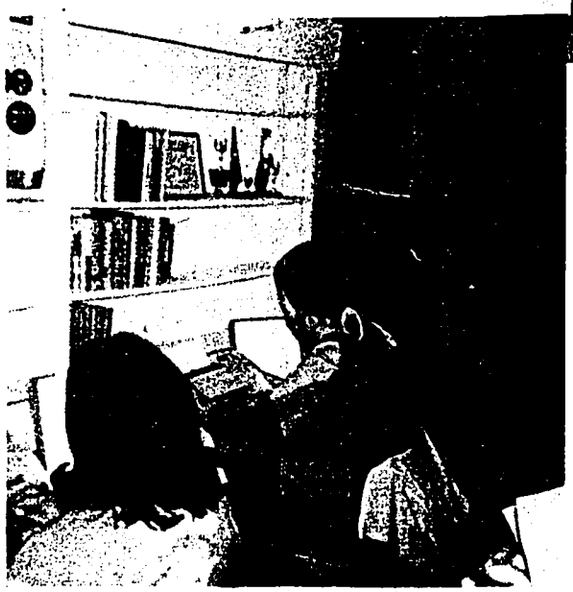
The job description for the receptionist is given on the next page of the student's handbook.



Kim's Office Supply

Cherry Michelet and Donna Steele - Typing letters to customers

Ginger Johnson and Nancy Salas concentrating on a problem in the simulated program



Merlinda Lucero and Nancy Salas - Working on a simulation problem

Job Descriptions, continued

Clerk-Typist (continued)

Will plan jobs, arranging materials to be used, check out necessary items to be needed
Will work as quickly and accurately as possible to finish the immediate job without delays
Will proofread work before removing from typewriter, and will help other typists to proof work finished
Will attach Work Order to job finished
Will type out invoices for jobs done for the bookkeeper

Receptionist

Will greet all visitors and make introductions to office manager
Will handle complaints graciously
Will handle telephone calls--receive all incoming calls, place outgoing calls, and make interoffice calls
Will screen all calls, take messages accurately on "Telephone Message" slips
Will make out all Petty Cash Vouchers and present to bookkeeper
Will act as office housekeeper
Will be responsible for all incoming and outgoing mail--sorting to destination and weighing for postage needed

Kim's Office Supply, Student's handbook

O R I E N T A T I O N

Job Classifications

The job classifications in Kim's Office Supply are:

Office Manager

Bookkeeper

Receptionist

Stenographer

Clerk-Typist

Stock Clerk

Training in the duties of your job is the responsibility of your office manager. You will be rated periodically by your office manager. Your rating will include performance and attitude. This rating will become a part of your personnel record. This rating will be considered for salary increases and promotions.

Job Descriptions

OFFICE MANAGER

Oversees all division operations
Distributes work or workloads
Checks on employees
Helps, answers questions or directs workers where to find answers
Turns out work order material
Quickly proofs carbons attached to work orders from employee's work
Writes letters

BOOKKEEPER

Handles Petty Cash
Handles payroll
Handles money coming in and going out
Takes care of all bills

Kim's Office Supply, Student's handbook

RECEPTIONISTS

Greets visitors
Determines requests and handles complaints graciously
Handles telephone communications system
Routes callers and visitors to the appropriate person
Knows how to use the telephone
Receives incoming calls & fills in "Out" slips
Places outgoing calls
Makes interoffice calls
Gathers information
Screens calls, takes messages accurately
Office housekeeper
Sorts and distributes mail to proper person

STENOGRAPHERS

Transcribes from transcribing machine
Spends most of her time on correspondence
Types reports
Copies documents
Addresses envelopes to accompany letters

CLERK-TYPISTS

Cuts stencils and ditto masters
Picks up or receives work orders from the Office Manager
Plans the jobs, arranging materials to be used understanding instructions, etc., including the asking of questions before beginning the job
Works as accurately and quickly as possible
Proofs own work immediately (on simple jobs), gets someone else to proof with you, and helps others proof
Assembles jobs, attaches work orders to carbon for Office Manager
Makes out invoices

STOCK CLERK

Takes care of supplies and merchandise shipped or sold; raw materials to be used in duplicating process; equipment for running an office
Receives shipments
Unpacks and stores various items
Fills requisitions and orders for the supplies in their custody
Keeps inventory of everything on hand so that reorders may be made when necessary

A T T E N D A N C E

You will not receive your pay if you are not on the job. Sick leave--for every 30 days of work you will be allowed 1 day. Remember, if you are not on the job your company suffers.

The company realizes that your personal life your own business, but remember, if you do not spend your hours away from the office in a well-disciplined manner, your effectiveness on the job will be impaired--and again your company suffers.

Proofreading

Each employee should be able to proof a short simple letter without the help of someone else. If you have a question concerning grammar, word usage, spelling, or the sense the copy makes do not hesitate to ask the supervisor. Try to determine the answer first--then ask.

The typewriters are important tools of productivity and should not be idle more than necessary; thus, two stenographers should not proof together. Ask the bookkeeper or another employee to help proofread. If there are any questions, do not hesitate to take them to the supervisor or Office Manager.

Page 18, Student's handbook (Run on sky-blue paper)

ATTENDANCE

No work--no pay! However, one day sick leave will be given for every 30 work days (or approximately six weeks).

REMEMBER--every hour you are out of the office, your company suffers.

HOLIDAYS--You will be paid for all school holidays authorized by the school administration. You may check the school calendar to verify these days.

PROOFING

Each employee should be able to proof any typing she or he has done or completed, from the Dictaphone, typed copy or from handwritten notes. Nevertheless, do not hesitate to ask your supervisor if there is a question concerning grammar, word usage, spelling, or the sense the copy makes. The employee should try first to determine the answer himself before asking.

Utilize the bookkeeper's or office receptionist's efforts in proofing, but if there are any questions whatsoever, take them to your supervisor or the Office Manager. Contact by telephone if they are not in the immediate vicinity of your working area.

DAY-IN-INDUSTRY

Twelve students in the Intensive Office Education program at Dexter spent a Day-in-Industry learning how an actual office operates.

Three students visited in the Mehlop Insurance office with Mrs. Dorothy Kunkel, secretary-bookkeeper; three visited in the Carl Caruthers Insurance Office with Mrs. Alice West, secretary-bookkeeper; three went to the Dexter Branch of the First National Bank of Roswell with the tellers and three boys visited the Farm and Livestock Supply, Inc., with Mr. Henry VandenBout, Bookkeeper.

The only machine observed that the students had not already used in the classroom was the posting machine.

The Day-in-Industry was held on Friday and on Monday. The students filled in the evaluation form provided in the State Office Education Handbook. The students also wrote "thank-you" letters to the offices they visited.

Most of the students felt that the Day-in-Industry was very interesting and informative.

OFFICE FORMS

USED IN THE PROGRAMS

ERIC

2808

Used in Snoy's Secretarial Service

WORK REQUEST FORM

Work for _____ Date Submitted _____

Date Needed _____

Date work started: _____ Date Completed _____

No. of Copies _____

Carbons _____
Ditto _____
Mimeograph _____
Electronic _____

Type: Pica _____
Elite _____

Kind and Paper Size _____ Margin _____

Sheets numbered: Yes___ No___ Spacing: single_____ double_____

Other Specifications: _____

_____

Put in Sets: yes___ No___ Staple: Yes____ No____

Teacher Comments: _____ Typist: _____

_____ Proofreader: _____

_____ Approved by _____

_____ Delivered by _____

HAGERMAN MUNICIPAL SCHOOL

SNOY'S SECRETARIAL SERVICE

HAGERMAN, NEW MEXICO 88232 DRAWER B

2809

ERIC

SNOY'S SECRETARIAL SERVICE
Drawer B - Hagerman Municipal School
Hagerman, New Mexico 88232

Interoffice Correspondence

To:

Date:

File:

From:

Subject:

2810

TO.

SNOY'S SECRETARIAL SERVICE
Drawer B - Hagerman Municipal School
Hagerman, New Mexico 88239

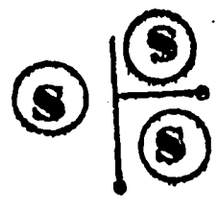
DATE:

INVOICE

FOR SERVICES RENDERED AND MATERIALS SUPPLIED

QUANTITY	DESCRIPTION	RATE	AMOUNT
	DUPLICATE		

TO:



SNOY'S SECRETARIAL SERVICE
Drawer B - Hagerman Municipal School
Hagerman, New Mexico 88239

DATE:

INVOICE

FOR SERVICES RENDERED AND MATERIALS SUPPLIED

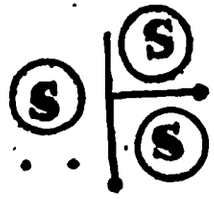
QUANTITY	DESCRIPTION	RATE	AMOUNT

ERIC

Statement of Account

Date

To



SNOY'S SECRETARIAL SERVICE

Drawer B - Hagerman Municipal School
Hagerman, New Mexico 88238

Date	Items	Debits	Credits	Balance Due

36
28112

SNOY'S SECRETARIAL SERVICE

Drawer B - Hagerman Municipal School
Hagerman, New Mexico 88232

PURCHASE ORDER

Mark Order No. on a invoices and packag

ORDER NO.

DATE

TERMS

SHIP VIA

TO

ORIGINAL

QUANTITY	CAT. NO.	DESCRIPTION	UNIT PRICE	AMOUNT

PURCHASING AGEN

SNOY'S SECRETARIAL SERVICE

Drawer B - Hagerman Municipal School
Hagerman, New Mexico 88232

PURCHASE ORDER

Mark Order No. on a invoices and packag

ORDER NO.

DATE

TERMS

SHIP VIA

TO

ORIGINAL

QUANTITY	CAT. NO.	DESCRIPTION	UNIT PRICE	AMOUNT
		DUPLICATE		

PAYROLL REGISTER

FOR WEEK ENDING

DATE OF PAYMENT

EMPLOYEE'S NAME	HOURS WORKED			RATE		EARNINGS			DEDUCTIONS						NET PAY	
	REG.	O.T	TOTAL	HR.	WEEK	REG.	O. T.	TOTAL	F.I.C.A.	INC. TAX WITH.	GROUP INS.	HOSP.	OTHER	TOTAL	AMOUNT	CHECK NO.
TOTAL																

Used in both programs.

15

2827

SNOY'S SECRETARIAL SERVICE

EARNINGS RECORD

Name_____ Address_____

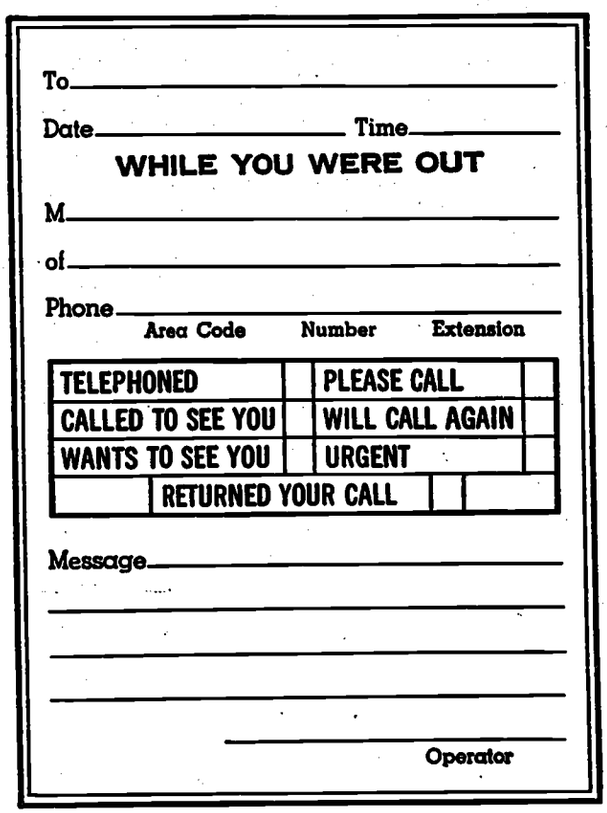
Social Security No._____ Employment Title_____

Withholding Exemptions_____ Earnings Rate_____

No.	Week Ending	Date Paid	Total Hours		Earnings			Deductions			Net Pay
			Regular	Overtime	Regular	Overtime	Total	FICA	Inc. Tax With.	Total	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
	Subtotals										

2814

This form for taking telephone messages was used in both programs.



To_____

Date_____ Time_____

WHILE YOU WERE OUT

M_____

of_____

Phone_____
Area Code Number Extension

TELEPHONED		PLEASE CALL	
CALLED TO SEE YOU		WILL CALL AGAIN	
WANTS TO SEE YOU		URGENT	
	RETURNED YOUR CALL		

Message_____

_____

_____

_____

_____
Operator

2828

19___

To _____

_____

For _____

_____

	DOLLARS	CENTS
BAL. BROT FORWARD		
AMOUNT DEPOSITED		
TOTAL		
AMOUNT THIS CHECK		
BALANCE		

SNOY'S SECRETARIAL SERVICE
Drawer B - Hagerman Municipal School
Hagerman, New Mexico 88232

No. 1-30/210

_____ 19___

PAY TO THE ORDER OF _____ $_____

_____ DOLLARS

CITIZENS NATIONAL BANK
Hagerman, New Mexico

_____

No.

19___

To _____

_____

For _____

_____

	DOLLARS	CENTS
BAL. BROT FORWARD		
AMOUNT DEPOSITED		
TOTAL		
AMOUNT THIS CHECK		
BALANCE		

SNOY'S SECRETARIAL SERVICE
Drawer B - Hagerman Municipal School
Hagerman, New Mexico 88232

No. 1-30/210

_____ 19___

PAY TO THE ORDER OF _____ $_____

_____ DOLLARS

CITIZENS NATIONAL BANK
Hagerman, New Mexico

_____

For Deposit in

CITIZENS NATIONAL BANK
Hagerman, New Mexico

DATE _____ 19___

CURRENCY _____

SILVER _____

1 CHECKS

2

3

4

5

6

7

8

9

10

TOTAL

DEPOSITOR'S NAME

Account No. ___-___-___ TELLER'S CHECK

For Deposit in

CITIZENS NATIONAL BANK
Hagerman, New Mexico

DATE _____ 19___

CURRENCY _____

SILVER _____

1 CHECKS

2

3

4

5

6

7

8

9

10

TOTAL

DEPOSITOR'S NAME

Account No. ___-___-___ TELLER'S CHECK

2815

Used in both programs.

INVENTORY _____ 19____ PAGE _____

SHEET NO. _____ DEPARTMENT _____ PRICED BY _____

CALLED BY _____ LOCATION _____ EXTENDED BY _____

ENTERED BY _____ EXAMINED BY _____

	CHECK	QUANTITY	DESCRIPTION	UNIT	PRICE	EXTENSION

2829

SNOY'S SECRETARIAL SERVICE

PETTY CASH RECEIPT

No._____ Date_____19____

Received of Snoy's Secretarial Service $_____

_____Dollars

For_____

_____

Signed_____

SNOY'S SECRETARIAL SERVICE

PETTY CASH RECEIPT

No._____ Date_____19____

Received of Snoy's Secretarial Service $_____

_____Dollars

For_____

_____

Signed_____

SNOY'S SECRETARIAL SERVICE

PETTY CASH RECEIPT

No._____ Date_____19____

Received of Snoy's Secretarial Service $_____

_____Dollars

For_____

_____

Signed_____

SNOY'S SECRETARIAL SERVICE

PETTY CASH RECEIPT

No._____ Date_____19____

Received of Snoy's Secretarial Service $_____

_____Dollars

For_____

_____

Signed_____

SNOY'S SECRETARIAL SERVICE

PETTY CASH RECEIPT

No._____ Date_____19____

Received of Snoy's Secretarial Service $_____

_____Dollars

For_____

_____

Signed_____

SNOY'S SECRETARIAL SERVICE

PETTY CASH RECEIPT

No._____ Date_____19____

Received of Snoy's Secretarial Service $_____

_____Dollars

For_____

_____

Signed_____

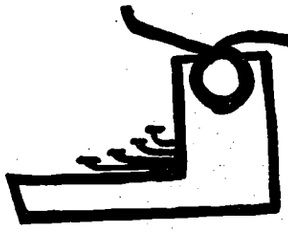
ERIC

to 23816

Used in both programs.

PETTY CASH BOOK

DATE		EXPLANATION	RECEIVED		PAID	



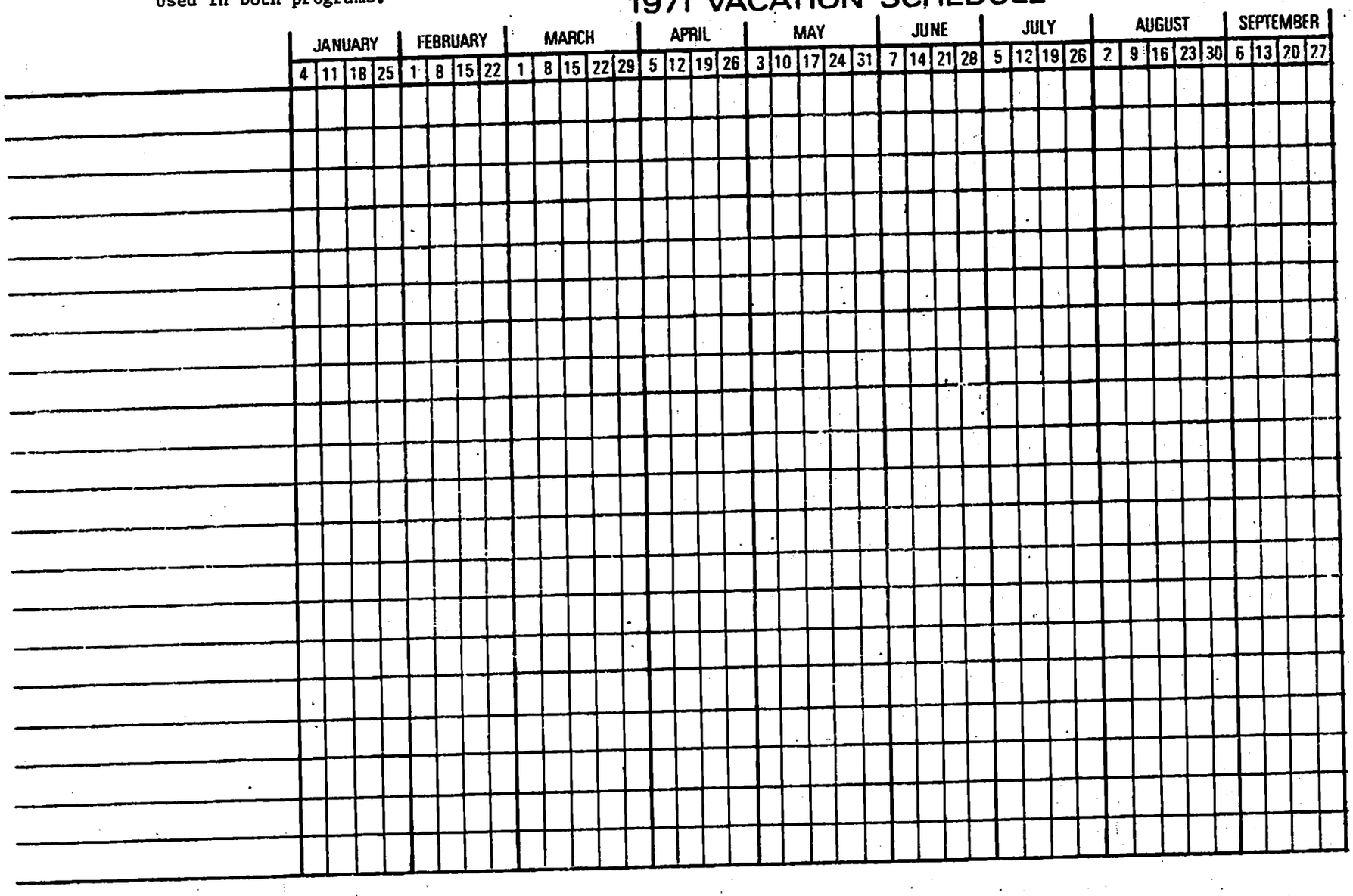
Kim's Office Supplies

Box 157 Dexter, New Mexico 88230

Phone: 734-5411

Used in both programs.

1971 VACATION SCHEDULE



2831

KIM'S OFFICE SUPPLY

P. O. Box 157 Dexter, NM 38230

INTEROFFICE CORRESPONDENCE

To:

Date:

File:

From:

Subject:

2818

VT 016 299
BROWN, MONICA V.; ZIMMERMAN, SYDNEY L.
EQUIVALENCY AND PROFICIENCY REPORT.

HEALTH CAREERS OF OHIO, COLUMBUS.;OHIO STATE REGIONAL MEDICAL PROGRAMS, COLUMBUS.
HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION (DHEW), BETHESDA, MD.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - APR 71 47P.

DESCRIPTORS - MANPOWER DEVELOPMENT; *VETERANS EDUCATION; *ADVANCED PLACEMENT; HEALTH PERSONNEL; VOCATIONAL DEVELOPMENT; *SURVEYS; *VOCATIONAL EDUCATION; *HEALTH OCCUPATIONS EDUCATION; POST SECONDARY EDUCATION; PROGRAM DEVELOPMENT

ABSTRACT - TO ASCERTAIN WHAT PROVISIONS ARE BEING MADE OR PLANNED TO ASSIST THE ARMED FORCES VETERAN WITH MEDICAL EXPERIENCE TO OBTAIN ADVANCED STANDING IN SELECTED HEALTH PROFESSIONAL AND OCCUPATIONAL EDUCATION PROGRAMS IN OHIO, THIS REPORT DESCRIBES THE FINDINGS OF A SURVEY CONDUCTED BY AN ORGANIZATION DEVELOPED FOR HEALTH MANPOWER PLANNING BY THE OHIO REGIONAL MEDICAL PROGRAMS. FOCUSING ON EQUIVALENCY AND PROFICIENCY TESTS, THE REPORT ARRANGES REPLIES FROM 33 HEALTH PROFESSIONAL AREAS AND 163 EDUCATIONAL PROGRAMS ALPHABETICALLY BY CAREER, REPRESENTING A 45 PERCENT RESPONSE TO THE LETTERS MAILED IN THE SURVEY. SUMMARIES OF INDIVIDUAL REPLIES WITH COMMENTS ARE INCLUDED. THE RESPONSES, REPRESENTING A CROSS SECTION OF UNIVERSITIES, COLLEGES, TECHNICAL SCHOOLS, AND HOSPITALS, INDICATE MORE SMALLER COMMUNITY AND TECHNICAL SCHOOLS ARE PLANNING OR IMPLEMENTING TESTING PROGRAMS. MANY UNIVERSITIES OFFER CREDIT AND PLACEMENT EXAMINATIONS FOR CERTAIN COURSES. HOSPITALS WERE CONCERNED WITH NURSING AND RADIOLOGIC TECHNOLOGY PROGRAMS, AND WERE GENERALLY WAITING FOR PROFESSIONAL APPROVAL BEFORE PLANNING ANY TESTING. (AG)

VT 016 299

KIM'S OFFICE SUPPLY

Invoice

P. O. BOX 157 DEXTER, NM 88230

Sales Department

Sold To

Date

Our No.

Cust. Order No.

Terms

Shipped Via

Quantity	Description	Cat. No.	Unit Price	Amt

KIM'S OFFICE SUPPLY

Invoice

P. O. BOX 157 DEXTER, NM 88230

Sales Department

Sold To

Date

Our No.

Cust. Order No.

Terms

Shipped Via

Quantity	Description	Cat. No.	Unit Price	Amt

DUPLICATE

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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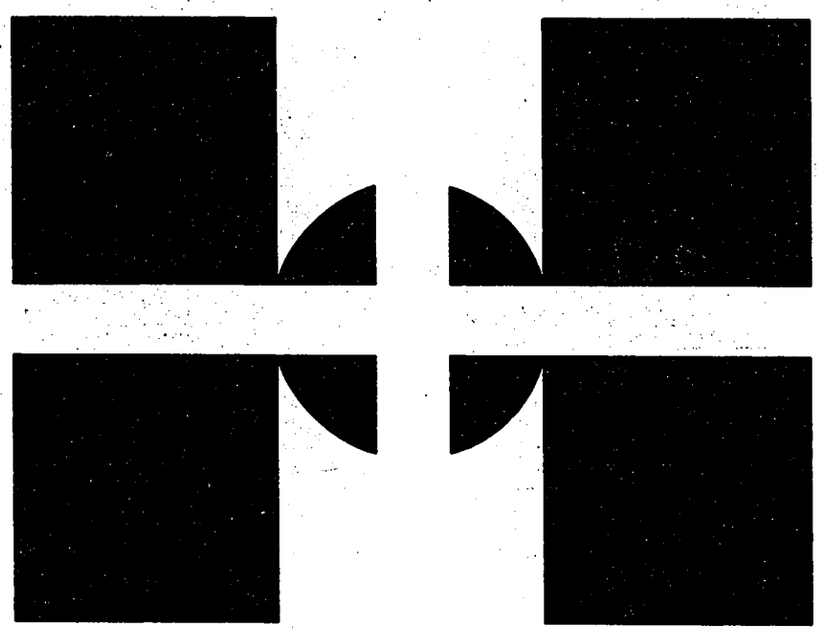
Equivalency And Proficiency Report



Health Careers of Ohio
In Cooperation with the
Ohio Regional Medical Programs

P.O. Box 5574
Columbus, Ohio 43221

April, 1971

VT016299

Credit Memorandum

Date

KIM'S OFFICE SUPPLY

To

P. O. Box 157 Dexter, NM 88230

YOUR ACCOUNT HAS BEEN CREDITED FOR:

uantity	Description	Cat. No.	Unit Price	Amou

No.

Credit Memorandum

Date

KIM'S OFFICE SUPPLY

To

P. O. Box 157 Dexter, NM 88230

YOUR ACCOUNT HAS BEEN CREDITED FOR:

uantity	Description	Cat. No.	Unit Price	Amou

DUPLICATE

2820

ACKNOWLEDGEMENT

Thanks are extended to all those who assisted us by voluntarily supplying the data which made this report possible.

Report published by Health Careers of Ohio in cooperation with the Ohio Regional Medical Programs.

THIS REPORT WAS SUPPORTED THROUGH FUNDS RECEIVED FROM THE OHIO STATE REGIONAL MEDICAL PROGRAMS SERVICE, HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION, DEPARTMENT OF, HEALTH, EDUCATION AND WELFARE. THE FINDINGS AND CONCLUSIONS DO NOT NECESSARILY REPRESENT THE VIEWS OF THE SUPPORTING GOVERNMENTAL AGENCIES.

Monica V. Brown
Director, Health Manpower Program,
Ohio State Regional Medical Program
Coordinator, Operation MEDIHC

Assisted By
Sydney L. Zimmerman, B.Sc.
Ohio State Regional Medical Program

April 1971

No. _____

_____ 19 ___

To _____

_____

For _____

_____

	DOLLARS	CENTS
BAL. BROT FORWARD		
AMOUNT DEPOSITED		
TOTAL		
AMOUNT THIS CHECK		
BALANCE		

KIM'S OFFICE SUPPLIES
P.O. Box 157
Dexter, New Mexico

No. 1-9
210

_____ 19 ___

PAY TO THE ORDER OF _____ $ _____

_____ Do

MIDWAY NATIONAL BANK
Cumberland, New Mexico
88230

_____

⑈0210⑈130⑈ 531⑈15397⑈

No. _____

_____ 19 ___

To _____

_____

For _____

_____

	DOLLARS	CENTS
BAL. BROT FORWARD		
AMOUNT DEPOSITED		
TOTAL		
AMOUNT THIS CHECK		
BALANCE		

KIM'S OFFICE SUPPLIES
P. O. Box 157
Dexter, New Mexico

No. 1-9
210

_____ 19 ___

PAY TO THE ORDER OF _____ $ _____

_____ D

MIDWAY NATIONAL BANK
Cumberland, New Mexico
88230

_____

⑈0210⑈130⑈ 531⑈15397⑈

45

2821

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Date

To

Statement of Account

KIM'S OFFICE SUPPLY

P. O. Box 157 Dexter, NM 8823

Date	Items	Debits	Credits	Balance

Date

To

Statement of Account

KIM'S OFFICE SUPPLY

P. O. Box 157 Dexter, NM 882

Date	Items	Debits	Credits	Balanc

DUPLICATE

2822

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Appendix I

Appendix II

ERIC

47 28823

KEN'S OFFICE SUPPLY
EARNINGS RECORD

Name _____ Address _____

Social Security No. _____ Employment Title _____

Withholding Exemptions _____ Earnings Rate _____

No.	Week Ending	Date Paid	Total Hours		Earnings			Deductions			Net Pay
			Regular	Overtime	Regular	Overtime	Total	FICA	Fed. Tax With.	Total	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
	Subtotals										

EQUIVALENCY AND PROFICIENCY REPORT

I. Introduction

This report describes the findings from a survey conducted by Health Careers of Ohio, December 1970 to March 1971, concerning Equivalency and/or Proficiency Tests and Examinations.

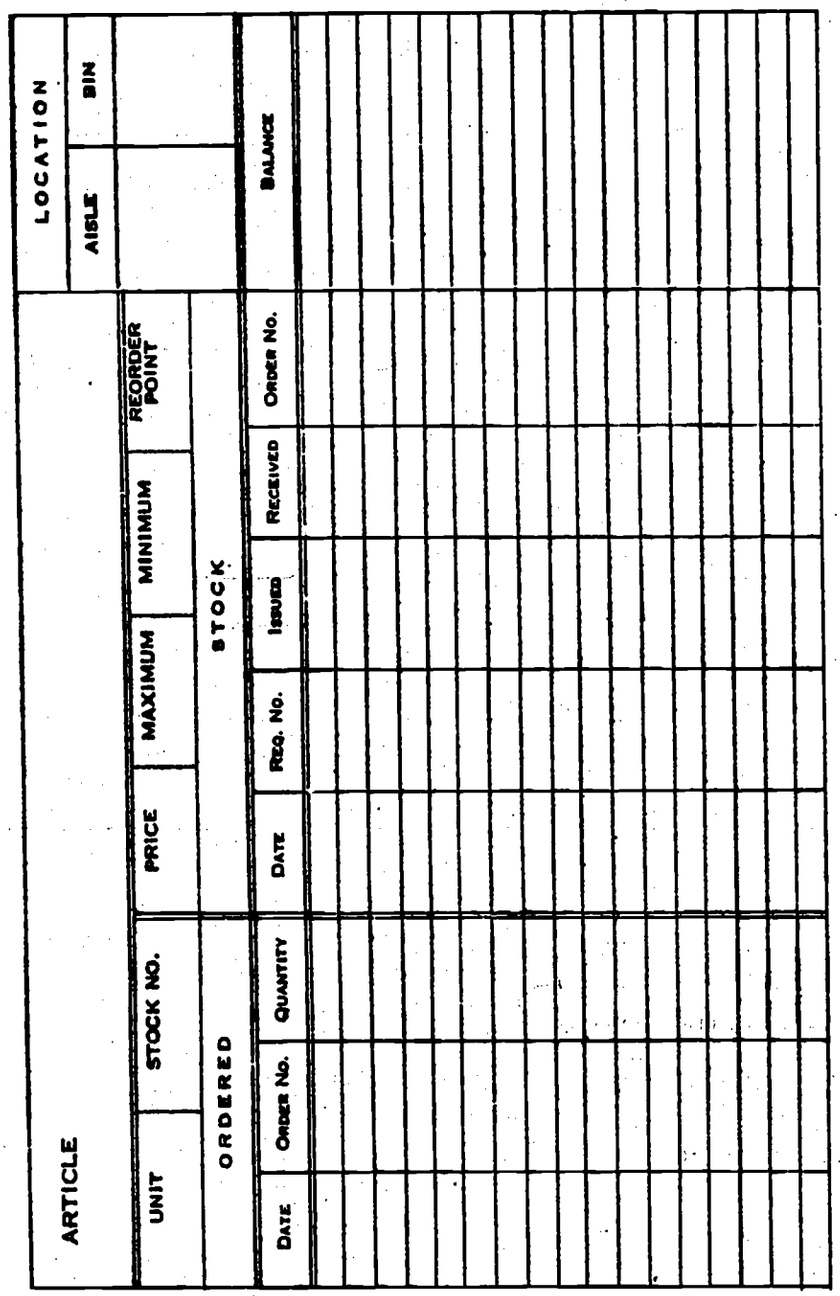
It was undertaken in an effort to ascertain what provisions are being made or planned to assist the armed forces veteran with medical experience to obtain advanced standing in selected health professional and occupational education programs in Ohio. The findings apply equally to civilian health personnel either lacking education or academic qualifications to enter formal programs.

II. National Concern

In view of the National concern about health manpower needs for the delivery of comprehensive health care, the trends shown by this survey should be useful in health manpower planning. The need for greater latitude in horizontal and vertical mobility in the health field is apparent.

The Allied Health Training Improvements Act, P.L.91-519, passed November 2, 1970, includes special provisions for the introduction of programs to develop new types of curriculum and training systems for allied health workers. Specifically mentioned are the development, demonstration and evaluation of techniques for appropriate recognition, including equivalency and proficiency testing mechanisms, of previously acquired training and experience. The armed forces veterans are mentioned. There is a significant section dealing with a report to be submitted to the Congress concerning major problems associated with licensure, certification, registration, accreditation and other qualifications for the licensure and/or employment of health personnel.

Used by Kim's Office Supply for materials and supplies on hand.



The College Entrance Examination Board (CEEB) in 1965, established its College-Level Examination Program (CLEP) "to enable individuals who have acquired their education in nontraditional ways to demonstrate their academic achievement." Many universities now use this test which is also administered by other organizations and groups.

The General Educational Developmental Tests (GED) were established at the end of World War II to provide a way for veterans to obtain a high school diploma and it is still being used.

Additional information about CLEP and GED can be found in "Equivalency and Proficiency Testing", a 1970 publication of the Division of Allied Health Manpower, Bureau of Health Manpower Education, United States Public Health Service, National Institutes of Health.

The report was done by Health Careers of Ohio at the suggestion of the National MEDIHC Coordinators from the Departments of Defense and Health Education and Welfare who asked the Coordinators of the State Agencies for Operation MEDIHC to obtain this information. Operation MEDIHC (Military Experience Directed into Health Careers) is a joint program of the departments of Defense and Health, Education and Welfare, designed to assist discharged medical corpsmen in remaining in the health field.

III. Health Careers of Ohio

Health Careers of Ohio represents Operation MEDIHC in Ohio and is the Statewide organization being developed by the Ohio Regional Medical Programs in cooperation with voluntary and official agencies, organizations, professional associations, educational institutions and individuals interested in health manpower planning, education and employment, to assist in assuring adequate health care for the citizens of Ohio.

UNIFORM STRAIGHT BILL OF LADING **Original—Not Negotiable—Domestic** **Shipper's No.**

Carrier **Agent's No.**

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading.

From **Date** **19**

at

the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), consigned and destined as shown below, which said company (the word company being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its own railroad, water line, highway route or route, or within the territory of its highway operations, otherwise to deliver to another carrier on the route to said destination. It is agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the conditions not prohibited by law, whether printed or written, herein contained, including the conditions on back hereof, which are hereby agreed to by the shipper and accepted for himself and his assigns.

Consigned to

Destination **Street** **City** **County** **St**

Routing

Delivering Carrier **Vehicle or Car Initial** **No.**

No. Packages	Kind of Packages, Description of Articles, Special Marks, and Exceptions	* Weight (Sub. to Cor.)	Class or Rate	Check Column

* If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

NOTE—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding

Subject to Section 7 of conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor.)

If charges are to be prepaid, write or stamp here, "To be Prepaid."

Received $ to apply in prepayment of the charges on the property described hereon.

Agent or Cashier

Per

(The signature here acknowledges only the amount prepaid.)

Charges Advanced:

$

Shipper **Agent, Per**

Permanent address of shipper

This form was used by Kim's Office Supply when making a shipment. Used in Triplicate.

19825

IV. Method

The survey was conducted by mail.

Letters were sent to 383 programs offering education in thirty-three (33) major and allied health disciplines. Sixty-eight (68) State and National health professional organizations were also contacted.

Replies were received from 33 (45%) health professional areas and 163 (45%) educational programs.

The report is arranged alphabetically by career. General information is followed by summaries of the individual replies. In some instances, responses were received from deans and presidents of institutions in addition to individual program directors. These comments are included in the summaries.

The responses represent a cross section of universities, colleges, technical schools and hospitals. More smaller community and technical schools seem either to have testing programs already in existence or have begun planning the implementation of such programs. A possible reason could be that these institutions are oriented to the technician level and the programs generally require less than four (4) years of education.

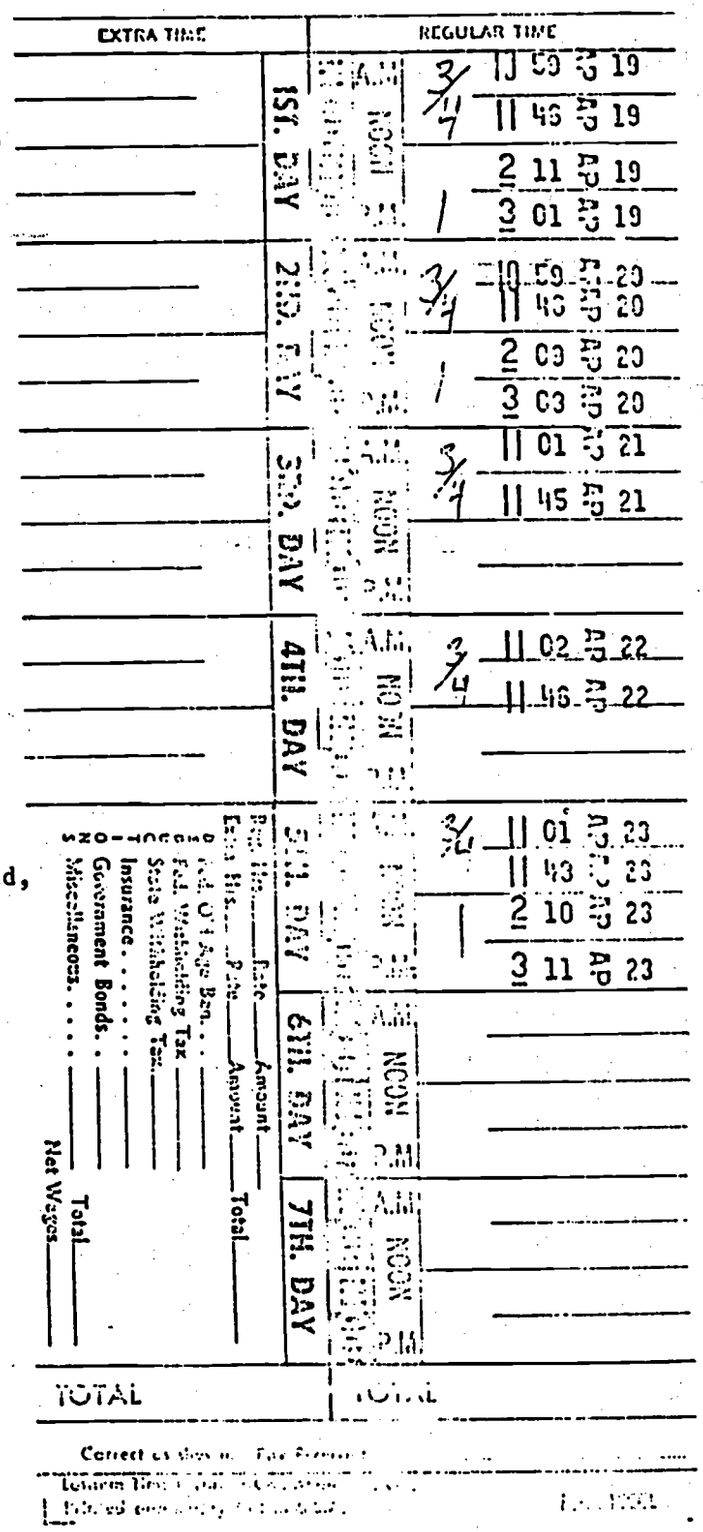
Many universities responding, offer placement examinations for lower-level courses and/or the opportunity to receive credit for certain subjects by examination. These were more a general admissions policy than related to any specific area.

Responses from hospitals were mostly concerned with nursing and radiologic technology programs. They mainly indicated that they were waiting for professional approval before making any decisions or planning any specific tests.

Used in both programs.

These cards were ordered from the Latham Time Recorder Co., Atlanta, Ga., and were used in both programs with the time clock. Students checked in and out of class when in school.

This card, used as a sample, was not completed, but transferred to a payroll register for completion.


NAME Betty Gomez

DATE 4-19-71 NO. 5

EXTRA TIME		REGULAR TIME
	1ST. DAY	3/4 11 59 AM 19 11 46 AM 19 1 2 11 PM 19 3 01 PM 19
	2ND. DAY	3/4 11 59 AM 20 11 46 AM 20 1 2 03 PM 20 3 03 PM 20
	3RD. DAY	3/4 11 01 AM 21 11 45 AM 21
	4TH. DAY	3/4 11 02 AM 22 11 46 AM 22
	5TH. DAY	3/4 11 01 AM 23 11 43 AM 23 2 10 PM 23 3 11 PM 23
	6TH. DAY	
	7TH. DAY	
TOTAL		TOTAL

Rate ___ Amount ___ Extra Hrs. Pay Amount ___ Total ___

Fed. Old Age Ben. ___

Fed. Withholding Tax ___

State Withholding Tax ___

Insurance ___

Government Bonds ___

Miscellaneous ___

Total ___

Net Wages ___

Correct as shown on Tax Statement ___

Latham Time Corporation ___

Authorized Company Representative ___ Date ___

ERIC

SUMMARY OF RESPONSES AND CONTACTS

		PROGRAMS				ASSOCIATIONS			
Career	Contacted	Responses	Have Tests	Do Not Have Tests	Planning or Will Consider Tests	Responses	Have Tests	Do Not Have Tests	Planning or Will Consider Tests
Circulation Technology	1	-	-	-	-				
Community Health Planning	2	1	-	-	1				
Dentistry	2	-	-	-	-				
Dental Assisting	2	1	1	-	-				
Dental Laboratory Technology	1	-	-	-	-				
Dental Hygiene	3	1	1	-	-	1	-	-	1
Dietetics	20	8	6	1	1	2	-	2	-
Home Economics	17	8	6	1	1				
Hospital Administration	2	-	-	-	-	1	-	1	-
Inhalation Therapy	5	5	4	-	1	1	1	-	-
Medicine	4	-	-	-	-	1	-	1	-
Medical Assisting	6	5	4	-	1				
Medical Illustration	2	1	-	1	-				
Medical Records Library Science	1	-	-	-	-				
Medical Records Library Science Technician Personnel	3	3	2	-	1				
Medical Secretarial Personnel	8	5	4	-	1				

SUMMARY OF RESPONSES AND CONTACTS (Continued)

		PROGRAMS				ASSOCIATIONS			
Career	Contacted	Responses	Have Tests	Do Not Have Tests	Planning or Will Consider Tests	Responses	Have Tests	Do Not Have Tests	Planning or Will Consider Tests
Medical Technology	38	16	11	3	2	2	-	-	2
Medical Laboratory Technician Personnel	-	2	1	-	1				
Certified Laboratory Assisting	-	1	-	-	1				
Microbiology	10	4	1	2	1	3	-	-	3
Nursing-Baccalaureate	9	8	3	3	2	1	-	-	1
Nursing-Associate Degree	17	9	6	-	3				
Nursing-Diploma	40	24	4	7	13				
Nursing-L.P.N.	36	16	6	2	8	1	-	-	1
Occupational Therapy	1	1	-	1	-	1	-	-	1
Occupational Ther. Assisting						1	1	-	-
Optometry	1	1	-	1	-	1	-	1	-
Optometric Assisting						1	-	-	1
Pharmacy	4	4	-	4	-	3	-	3	-
Pharmacy Tech. Personnel						1	-	-	1
Physical Therapy	1	-	-	-	-	1	-	1	-
Physical Therapy Assisting						1	-	-	1

SUMMARY OF RESPONSES AND CONTACTS (Continued)

		PROGRAMS				ASSOCIATIONS			
Career	Contacted	Responses	Have Tests	Do Not Have Tests	Planning or Will Consider Tests	Responses	Have Tests	Do Not Have Tests	Planning or Will Consider Tests
Podiatry	1	1	-	-	1	1	-	1	-
Podiatric Assisting						1	-	-	1
Psychology	8	2	2	-	-				
Public Health Education	6	4	4	-	-				
Radiologic Tech.-Baccalaureate	1	-	-	-	-	1	1	-	-
Radiologic Tech.-Assoc. Degree	4	1	-	-	1	1	1	-	-
Radiologic Tech.-Certificate	75	14	-	4	10	1	1	-	-
Environmental Health - Sanitation	7	2	2	-	-				
Social Work	30	9	6	2	1	1	-	1	-
Speech Path.& Audiology	9	2	1	1	-				
Audiometric Assisting						1	-	-	1
Surgical Assisting	4	4	3	-	1				
Veterinary Medicine	1	-	-	-	-	1	-	1	-
Veterinary Support Personnel						1	-	-	1
TOTALS:	383	163	78	33	52	32	5	12	15

COMMUNITY HEALTH PLANNING....2 Programs....1 Response

HAVE TESTS....0

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....1

The program responding wishes to implement equivalency and/or proficiency examinations in community health programs for veterans and others with medical experience. They would appreciate any suggestions and are checking on available testing mechanisms.

DENTAL ASSISTING....2 Programs....1 Response

HAVE TESTS....1

No tests designed specifically for corpsmen. Credit may be allowed for previous academic work or experience, on the basis of a proficiency examination.

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....0

DENTAL HYGIENE....3 Programs....1 Response

HAVE TESTS....1

No assistance or tests designed specifically for corpsmen. Students are permitted 18 quarter hours of credit by special examination. This must be petitioned and either an examination or special assignment for credit is given. Substitution of one course for another may be done through waiver request.

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....0

DIETETICS....20 Programs....8 Responses....2 Association Responses

HAVE TESTS....6

One program gives credit for comparable military courses and offers college credit on the basis of the (CLEP) College Level Examination Program. They have a special adult "PREP" program in the evening division to assist older students to enroll in college. They would consider other methods of determining proficiency and equivalency. Awaiting suggestions.

Two programs allow credit for military service under the recommendation of Turner's Guide to Evaluation of Experience in the Armed Services. Both institutions grant advanced standing and credit for academic work through examination.

Three programs offer advance standing through academic proficiency testing.

DO NOT HAVE TESTS....1 Program....2 Associations

One Program considers equivalency and/or proficiency applies only to graduate programs which they do not have.

Two Associations, State and National do not have tests, but state that some of the military education may be able to apply toward advanced standing, depending upon the program.

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....1

One program is interested in the medical corpsmen and would like information about the development of tests with a view to possible implementation.

HOME ECONOMICS....17 Programs....8 Responses

HAVE TESTS....6

One program gives credit for comparable military courses and offers college credit on the basis of (CLEP) College Level Examination Program. They have a special adult "PREP" program in the evening division to assist older students to enroll in college. They would consider other methods of determining proficiency and/or equivalency. Awaiting suggestions.

Two programs allow credit for military experience under the recommendations of Turner's Guide to Evaluation of Experience in the Armed Services. Both institutions grant advanced standing and credit for academic work through examination.

Three programs offer advanced standing through academic proficiency testing.

DO NOT HAVE TESTS....1

Considers Equivalency and/or Proficiency testing applies only to graduate programs which they do not have.

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....1

One program is interested in the medical corpsmen and would like information about the development of tests with a view to possible implementation.

HOSPITAL ADMINISTRATION....2 Programs....0 Responses
1 Association Response

HAVE TESTS....0

DO NOT HAVE TESTS....1

A National Association considers little possibility for former medical corpsmen to qualify without a graduate degree. It may be possible to develop short term courses on a cooperative basis for middle management positions.

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....0

INHALATION THERAPY....5 Programs.....5 Responses
1 Association Response

HAVE TESTS....4 Programs....1 Association

The American Association for Inhalation Therapy is presently discussing the probability of implementation of equivalency and/or proficiency examinations. The 'grandfather' clause which requires two years experience applies to medical corpsmen.

One program gives consideration to medical corpsmen based on training and experience.

One program is willing to consider the corpsmen on an individual basis.

Two programs offer advanced standing through academic credit earned by special examination, special petition or substitution of one course for another.

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....1

One program currently studying with a view to implementing proficiency and/or equivalency tests for corpsmen and others.

MEDICINE....4 Programs....0 Responses
1 License Board Response

HAVE TESTS....0

DO NOT HAVE TESTS....1

Ohio State Medical Board states there are no provisions for accepting equivalency and/or proficiency tests in lieu of requirements.

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....0

MEDICAL ASSISTING....6 Programs....5 Responses

HAVE TESTS....4

Three programs offer advanced standing through academic credit earned by special proficiency examinations, special petition and/or course substitution. No special corpsmen tests.

One program is willing to consider corpsmen on an individual basis.

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....1

This program gives full consideration to veteran medical corpsmen; Testing procedures are not fully developed. They have corpsmen in their programs.

MEDICAL ILLUSTRATION....2 Programs....1 Response

HAVE TESTS....0

DO NOT HAVE TESTS....1

No equivalency and/or proficiency tests. Applicants must meet set admission requirements.

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....0

MEDICAL RECORD LIBRARY SCIENCE TECHNICIAN PERSONNEL....3 Programs....3 Responses

HAVE TESTS....2

One program offers advanced standing through academic credit earned by special examination, special petition or substitution of one course for another. No special tests for corpsmen.

One program considers corpsmen on an individual basis to provide advanced standing.

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....1

This institution gives full consideration to the veteran medical corpsmen. Testing procedures are not fully developed. They have medical corpsmen in their programs.

MEDICAL SECRETARY PERSONNEL....8 Programs....5 Responses

HAVE TESTS....4

Three programs offer advanced standing through academic credit earned by special proficiency and/or equivalency examinations, special petition and/or course substitution. No special corpsmen tests.

One program offers advanced standing to veterans based on individual qualifications.

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....1

This institution gives full consideration to veteran corpsmen. Testing procedures are not fully developed. They have corpsmen in their programs.

MEDICAL LABORATORY CAREERS - GENERAL

Summary of National Information

1. Department of the Air Force - The Air Force's answer to MEDIHC is to use civilian standards to produce a significant addition to the national health care personnel resource. The laboratory field already has AMA approval and uses civilian registry and certification for the Certified Laboratory Assistant.

2. U.S. Department of Labor has a task force from George Washington University Medical School studying future requirements for clinical laboratory personnel. One principal concern will be developing a career ladder for clinical laboratory personnel. The U.S. Department of Labor is supporting a project to measure competency of an individual who has had some training and experience but no degrees, to enable him to get a job above the bottom rung. Test development will take place in 1970-71, normalizing in 1971-72 and the tests will be offered as part of the CLEP program in time to benefit students enrolling in the Fall of 1972 and possibly even in the Spring of 1972.

3. The U.S. Public Health Service is sponsoring a project to enable such a person to gain academic credit for what he knows and proceed to higher levels that require academic and professional degrees. This proficiency examination will be ready for use in the Fall of 1971.

4. National Committee on Careers in Medical Technology - Proficiency and Equivalency Examinations for academic credit are being prepared by the College Entrance Examination Board and the Educational Testing Service under Contract with the Division of Allied Health Manpower Bureau of Health Manpower Education, National Institute of Health.

   Proficiency examinations; testing skills needed on the job are being developed by Educational Testing Service for the National Committee on Careers in Medical Technology under a Contract with the Manpower Administration of the Department of Labor.

5. American Society of Clinical Pathologists' Board of Schools of the American Medical Association Council on Medical Education - Graduates of military "short course" laboratory programs, followed by a year of supervised experience, are eligible for the Certified Laboratory Assistant examination, according to a recent ruling by the Board of Registry. The ruling is provisional until the Board has some examination experience with the performance of individual graduates. Graduates of military laboratory specialist courses of longer duration, usually 50 weeks, are already eligible for Certified Laboratory Assistant certification or, if they have the necessary 60 semester hours of college credits, may take the Medical Laboratory Technician (ASCP) examination.

6. American Society of Clinical Pathologists - They are vitally interested in the MEDIHC Program. Pathologists have been appointed in each of the states to offer their services in counseling military laboratory specialists into civilian laboratory jobs and/or training programs. Proficiency examinations for clinical laboratory personnel will be ready for use by September, 1971. A brochure is also being prepared which describes civilian and military laboratory careers and certification possibilities.

MEDICAL TECHNOLOGY....38 Programs....16 Responses
2 National Responses

HAVE TESTS....11

Six programs offer proficiency and/or equivalency examinations for academic credit on the basis of individual experience and background. No special veterans' tests.

Two programs give credit for comparable military courses and offer college credit on the basis of (CLEP) College Level Examination Program.

One program offers credit on an individual basis after consideration.

One program has allowed credit for military service under the recommendations of Turner's Guide to Evaluation of Experience in the Armed Services. They participate in (CLEP) College Level Examination Program and also offer academic credit through examination.

One program offers proficiency examinations for academic credit and will consider previous course work and job experience.

DO NOT HAVE TESTS....3

One program has no tests but are planning to expand with allied health programs.

Two programs do not administer tests.

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....2....2 National Groups

One program willing to consider tests when norms have been developed for veterans.

One program willing to consider special tests and if enough applicants, would develop special programs.

Two National Groups....see general summary of Medical Laboratory Careers.

MEDICAL LABORATORY TECHNICIAN PERSONNEL....2 Responses

HAVE TESTS....1

This program offers advanced standing through academic credit earned by examination, special petition or permission for course substitution.

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....1

This program gives full consideration to veterans. Testing procedures are not yet fully developed for corpsmen but they have many in their programs.

CERTIFIED LABORATORY ASSISTING....1 Response

HAVE TESTS....0

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....1

This program is willing to consider examinations on the basis of individual qualifications.

MICROBIOLOGY .... 10 Programs .... 4 Program Responses
1 Association Response

HAVE TESTS 1

This program allows credit for military service under the recommendations of Turner's Guide to Evaluation of Experience in the Armed Services. They also participate in (CLEP), College Level Examination Program and offer advanced standing for academic credit through examination.

DO NOT HAVE TESTS 2

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS .... 1 Program

One program which responded, would be willing to consider tests for veterans. They would like to be kept informed of developments.

GENERAL INFORMATION

The National Registry of Microbiologists and the American Board of Medical Microbiology recognize experience gained in the Armed Forces if duties and responsibilities conform to Board or Registry requirements. In exceptional cases, the Registry has a provision that permits consideration of applicants with extensive experience who have not completed all of the academic requirements. In such cases, training in microbiology, acquired in the Armed Forces, would be given consideration. The Registry has not made a formal statement on acceptance of training gained in the Armed Forces.

The U.S.Department of Labor has a task force from George Washington University Medical School studying future requirements for clinical laboratory personnel. Career mobility is a principal concern. The U.S. Department of Labor is supporting a project to measure competency through experience. Test development is scheduled in 1970-71, normalizing in 1971-72, when tests will be offered as part of the CLEP program to benefit students enrolling in the Spring and Fall of 1972.

The U.S. Public Health Service is supporting a project for clinical laboratory personnel for the awarding of academic credit for work experience. This proficiency examination will be ready for use in the Fall of 1971.

PROFESSIONAL NURSING - R.N.

Summary of General Information

1. Department of the Air Force - The Air Force's answer to MEDIHC is to use civilian standards to produce a significant addition to the national health care personnel resource. Toward this end, the Air Force is restructuring their 902X0 career field into two separate categories; one in support of the clinic and the physician culminating in the physician assistant and one in support of nursing leading through the vocational to the associate degree nurse.

2. Hunter College Work-Study Project provides for upgrading practical nurses to become R.N.'s. Nurses admitted to the program have received appropriate recognition of skills already mastered' as evaluated by practical nursing examinations. On graduation from the twelve (12) month program, they will be qualified to take the State Board examination for Registration.

3. The Association replying stated that many individual schools have developed tests but there are none at present for general use. Limited research has been done. There is much interest in proficiency and/or equivalency testing.

NURSING BACCALAUREATE....9 Programs....8 Responses

HAVE TESTS....3

All three (3) programs grant credit on an academic basis through proficiency examinations. No special veterans tests.

DO NOT HAVE TESTS....3

One program would like to know in what areas equivalency and/or proficiency tests are planned or are available.

Two programs do not have tests.

PLANNING,WOULD OR MAY BE WILLING TO CONSIDER TESTS....2

One program would be willing to consider tests for veterans and if there were sufficient people, would be glad to write a special program.

One program will be implementing educational programs that will allow for equivalency and/or proficiency testing which would include the veteran with medical experience.

NURSING, ASSOCIATE DEGREE....17 Programs....9 Responses

HAVE TESTS....6

Two programs provide tests on the basis of academic credits and course work.

Two programs provide tests on the basis of academic course work and also on work experience evaluated on an individual basis.

One program encourages students to take proficiency examinations on the basis of knowledge gained through work experience.

One program has worked successfully with one veteran and would be pleased to work with others. They have audio-visual materials to assist students.

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....3

One program is attempting to formulate provisions for advancing LPN's to R.N. status.

One program has plans to develop proficiency examinations for the first year.

One program is in the planning process to provide proficiency examinations for people with work experience.

DIPLOMA NURSING....40 Programs....24 Responses

HAVE TESTS....4

Two programs offer tests based on academic achievement.

One program considers applicants based on levels of aptitude and capability.

One program has tests and has had good experience with some veteran medical corpsmen.

DO NOT HAVE TESTS....7

Two programs would be willing to develop examinations to allow credit for military medical experience if enough people requested. One suggested a pilot study in which they would participate.

One program studies all students on an individual basis and has no tests.

Two programs have no tests and one questioned advanced placement for work experience.

Two programs do not have any tests beyond the usual entrance requirements.

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....13

Nine programs would be willing to consider. Some ask for a program to be submitted to them, others would develop their own in accordance with provisions of the State Licensing Board for Nurse Registration and Education.

One program is presently working to provide for LPN entry to the program and hopes to work on tests in the future for medical corpsmen.

Three programs would like to have more information and would be willing to consider special testing for veterans.

LICENSED PRACTICAL NURSING....36 Programs....16 Responses
1 Association Response

HAVE TESTS....6

Three programs offer academically based tests.

One program considers applicants on an individual basis.

DO NOT HAVE TESTS....2

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....8 Programs
1 Association Response

Eight programs willing to consider implementation of testing programs for military medical corpsmen. They recognize the need and would be willing to work with others toward achieving enactment.

One Association stated that schools may grant advance credit if they establish a means of evaluating previous training, but each applicant must attend a minimum of four (4) months in an approved school. Efforts are being made to create opportunities for veteran medical corpsmen.

U.S. Department of Labor funded a work-study program which has enabled nurse aides to become LPN's without having to disrupt their jobs. A spot check of 20 former project participants now working in New York hospitals, reported that all were doing significantly more important work and functioning well.

OCCUPATIONAL THERAPY....1 Program....1 Response
1 National Association Response

HAVE TESTS....0

DO NOT HAVE TESTS....1

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....1 National Association Response

The American Occupational Therapy Association reports that there are discussions for possible future national tests for advanced testing in Occupational Therapy Programs.

Certification is possible for military-trained corpsmen as Occupational Therapy Assistants.

OPTOMETRY....1 Program....1 Response
2 Association Responses

HAVE TESTS....0

DO NOT HAVE TESTS....1 Program....2 Association Responses

The American Optometric Association has received a number of requests from ex-medical corpsmen wishing to enter a career in optometry, and while their background is usually valuable, they still must complete the four (4) year optometric curriculum at one of the twelve (12) optometric schools and meet the pre-optometry requirements established by the schools. On January 1, 1971, AOA began a national Registry of Allied Optometric Personnel in which a returning medical corpsman could be certified as an Optometric Assistant by virtue of experience in the service.

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....0

PHARMACY....4 Programs....4 Responses....2 Association Responses
1 Licensure Board Response

HAVE TESTS....0

DO NOT HAVE TESTS....4....2 Association Responses....1 Licensure Board Response

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....0

PHARMACY SUPPORTIVE PERSONNEL

American Pharmaceutical Association - Medical corpsmen who have completed accredited college courses during their period of service may well be able to have these apply toward their college education. It is possible that the experience and training they receive during their service would be more applicable to their functioning in the capacity of pharmacy supportive personnel. These supportive personnel are widely used both in hospitals and in community pharmacies, but certification for these individuals is a relatively new development.

Ohio State Board of Pharmacy - There is a growing trend to utilize sub-professional persons in certain non-professional procedures and drug distribution and some discharged medical corpsmen would qualify for some of these positions.

The University of Cincinnati is currently engaged in federally funded research which will lead to the formulation of one of the nation's first programs of Pharmacy Technician training and education. They are also working with the Junior College of the University of Cincinnati to develop the combined academic and hospital training curriculum which will lead to a two (2) year Associate Degree. It seems that equivalency and/or proficiency tests could be possible at least to some extent as they consider that the Armed Forces trainees have valuable qualifications for entrance into their planned program.

PHYSICAL THERAPY....1 Program....2 Association Responses
1 National Response

HAVE TESTS....0

DO NOT HAVE TESTS....2 Association Responses

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....1 National Response

U.S. Department of Health, Education & Welfare, United States Public Health Service - A proficiency examination for physical therapy assistant is under development and will be especially suitable for a graduate of an associate degree level program, but may be taken by other persons qualified through experience or education, since it is job-oriented rather than education-oriented. It may also prove useful as guidance to state licensing boards, and it is hoped that the test will be available for use by late 1971.

PODIATRY....1 Program....1 Response
1 Board Response

HAVE TESTS....0

DO NOT HAVE TESTS....1 Board Response

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....1

The matter of equivalency and/or proficiency tests is being brought to the attention of a special committee to see in what manner they could help medical corpsmen remain in the health field.

2869

PSYCHOLOGY....8 Programs....2 Responses

HAVE TESTS....2

One program offers academic tests only.

One program considers credit as recommended by Turner's Guide to the Evaluation of Education Experience in the Armed Services. They also participate in (CLEP) College Level Examination Program and offer examination for academic credit.

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....0

PUBLIC HEALTH EDUCATION....6 Programs....4 Responses

HAVE TESTS....4

One program will waive certain requirements and provide opportunities for proficiency tests for people in the service.

One program occasionally allows credit to students who have attended military schools as recommended by the Guide to the Evaluation of Education Experiences in the Armed Services. They also participate in (CLEP) College Level Examination Program. A student may receive Course Credit by Examination.

Two programs allow credit for previous academic work or experience on the basis of a proficiency examination.

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....0

RADIOLOGIC TECHNOLOGY....80 Programs....15 Responses....1 National Response

HAVE TESTS....1 National Response

Department of the Air Force - The Air Force's answer to MEDIHC is to use civilian standards to produce a significant addition to the national health care personnel resource. The radiology field already has AMA approval and uses civilian registry and certifications.

American Registry of Radiologic Technologists - Training in Army, Navy and Air Force radiologic technology programs is creditable toward the Registry requirements.

DO NOT HAVE TESTS....4

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER....11

All eleven programs willing to consider tests would like more information.

2872

ENVIRONMENTAL HEALTH-SANITATION....7 Programs....2 Responses

HAVE TESTS....2

One program allows credit for previous academic work or experience on the basis of a proficiency examination.

One program has occasionally allowed credit to students who have attended military schools, as recommended by the Guide to the Evaluation of Education Experiences in the Armed Services. They also participate in (CLEP) College Level Examination Program. Students may receive Course Credit by Examination.

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER....0

SURGICAL ASSISTING....4 Programs....4 Responses

HAVE TESTS....3

All three programs offer examinations based on academic achievement for advanced standing.

DO NOT HAVE TESTS....0

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....1

This program is giving full consideration to development of tests. They have veterans enrolled.

VETERINARY MEDICINE....1 Program....2 Association Responses

HAVE TESTS....0

DO NOT HAVE TESTS....2

American Veterinary Medical Association - does not have equivalency and/or proficiency tests for veterinary medicine, but they felt it may be possible to employ ex-medical corpsmen as Veterinary Assistants. The State Veterinary Medical Associations have been encouraged to consider this manpower for possible employment.

Ohio Veterinary Medical Association - reciprocal agreements for licensure to practice veterinary medicine exist with several of the states. They intend to give serious consideration to licensing Veterinary Assistants, technicians and nurses in the very near future.

PLANNING, WOULD OR MAY BE WILLING TO CONSIDER TESTS....0

In cooperation with
the Ohio Regional
Medical Programs

Health Careers of Ohio
P.O. Box 5574
1480 West Lane Avenue
Columbus, Ohio 43221

Ohio State Regional
Medical Program
Health Manpower Program
Director Monica V. Brown

Phone: (614) 422-5995

January 11, 1971

To: Directors of Health Professional Education Programs

From: Monica V. Brown

Re: Equivalency and/or Proficiency Tests

We are the State Operation MEDIHC Agency for Ohio. (Military Experience Directed Into Health Careers). This is the joint program of the Department of Defense and Department of Health Education and Welfare, designed to assist discharged medical corpsmen in remaining in the health field. Their level of experience ranges from two to twenty years and they are a valuable resource of health manpower. Many of these men and women wish to pursue their education in the health professions.

Please advise us if your institution has, is planning to, and/or would be willing to consider equivalency and/or proficiency examinations to give these people, subject to their individual qualifications, advance standing in your health professional education offerings.

We look forward to hearing from you as soon as possible and thank you for your consideration.

MVB:sz

In cooperation with
the Ohio Regional
Medical Programs

Health Careers of Ohio
P.O. Box 5574
1480 West Lane Avenue
Columbus, Ohio 43221

Ohio State Regional
Medical Program
Health Manpower Program
Director Monica V. Brown

Phone: (614) 422-5995

December 9, 1970

To: Health Professional Associations and
Boards of Licensure and Registry in Ohio

From: Monica V. Brown

Re: Equivalency and/or Proficiency Tests

We are the State "Operation MEDIHC" Agency for Ohio (Military Experience Directed Into Health Careers). This is the joint program of the Department of Defense and the Department of Health, Education and Welfare, designed to assist discharged medical corpsmen in remaining in the health field. Their level of experience ranges from two (2) to twenty (20) years and is a valuable resource of health manpower.

Please advise us if your state and/or National Professional Association has, is planning to, or would be willing to consider equivalency and/or proficiency tests for servicemen and women to enable them to become registered, certified, and/or licensed to practice in your profession.

We realize that individual qualifications and experience are major factors but feel sure you will want to work with us to keep these capable people in the health field in positions which match their qualifications.

We look forward to hearing from you as soon as possible, and thank you for your consideration.

MVB:jb

VT 016 301
BROWN, MONICA V.
HEALTH CAREERS PROJECTS MANUAL.

HEALTH CAREERS ASSOCIATION OF GREATER
CINCINNATI, OHIO.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - JAN70 87P.

DESCRIPTORS - COOPERATIVE PLANNING; MANPOWER DEVELOPMENT; *SCHOOL COMMUNITY PROGRAMS; VOCATIONAL DEVELOPMENT; *CAREER EDUCATION; PROFESSIONAL EDUCATION; RESOURCE MATERIALS; PROGRAM EVALUATION; *CAREER OPPORTUNITIES; *HEALTH OCCUPATIONS EDUCATION; *HEALTH PERSONNEL; SECONDARY GRADES

ABSTRACT - THIS BOOKLET DESCRIBES THREE MAJOR PROJECTS OF A HEALTH ASSOCIATION WHOSE PRIMARY PURPOSE IS HEALTH MANPOWER PLANNING, RECRUITMENT MOTIVATION, AND PUBLIC EDUCATION FOR DEVELOPING A SUPPLY OF HEALTH MANPOWER IN A FIVE-COUNTY URBAN AREA. COOPERATIVELY PLANNED BY HEALTH EDUCATORS, EMPLOYERS, AND HEALTH PROFESSIONALS, THE PROJECTS INCLUDED A STUDENT HEALTH CAREERS DAY, EDUCATORS' HEALTH CAREER DAY, AND HOSPITAL JOB DAY. EACH WAS AN OUTGROWTH OF THE PRECEDING PROGRAM, ALL ORIGINATING FROM EDUCATIONAL NEEDS EXPRESSED BY THE COMMUNITY. STUDENT HEALTH CAREER DAY PROVIDED 1,428 GRADE 11 AND 12 STUDENTS FROM 73 AREA HIGH SCHOOLS WITH OPPORTUNITIES TO OBSERVE 26 HEALTH PROFESSIONS IN DEPTH IN 69 PLACES. THE STUDENT COULD EVALUATE WHETHER OR NOT A SPECIFIC HEALTH OCCUPATION WAS SUITED FOR HIM. THE EDUCATORS HEALTH CAREERS DAY IN 1969 PROVIDED 64 COUNSELORS, 10 SCIENCE TEACHERS, AND 12 HEALTH TEACHERS FROM 67 JUNIOR AND SENIOR HIGH SCHOOLS, COLLEGES, AND UNIVERSITIES WITH INFORMATION ON HEALTH CAREER OPPORTUNITIES, FOLLOWING A FORMAT SIMILAR TO THE TWO STUDENT PROGRAMS. HOSPITAL JOB DAY WAS A PILOT PROGRAM FOR 380 NON-COLLEGE BOUND STUDENTS FROM 44 SENIOR HIGH SCHOOLS IN SEVEN COUNTIES, HELD IN 16 AREA HOSPITALS. CAREER MATERIALS WERE DISTRIBUTED TO PARTICIPANTS IN THE PROGRAMS. PROGRAM FORMS AND EVALUATIONS FROM PARTICIPANTS ARE INCLUDED. (AG)

U.S. OEPARTMENT OF HEALTH.
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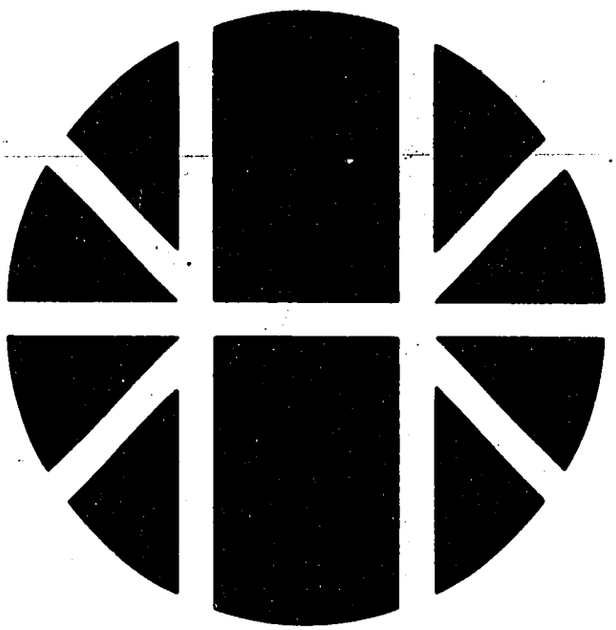
Health Careers Projects Manual



Monica V. Brown, Executive Director
Health Careers Association
Of Greater Cincinnati

2400 Reading Road,
Cincinnati, Ohio 45202
January, 1970

VT016301

INTRODUCTION AND ACKNOWLEDGMENT

Health Careers Association of Greater Cincinnati is a non-profit corporation of which the primary purpose is health manpower planning, recruitment motivation and public education in order to develop a supply of health manpower for the Greater Cincinnati area which is five counties in the states of Ohio and Kentucky. The major support comes from the United Appeal with additional financial help from hospitals, health professional organizations and individuals.

In addition to the step by step 'how to do it' outline of the Association's three major projects which appear in this booklet, the program covers other activities which include:

Acting as the catalyst coordinator and consultant between the educational systems, health manpower employers, health professional organizations, health professionals and the public.

Making the public aware of health manpower opportunities and needs through the integration of health careers recruitment and development of education and training programs.

Identifying health manpower needs and needs for new educational programs, including professional, vocational and on-the-job training.

Establishing and identifying scholarships, loans and other forms of financial aids.

Working toward the design and plan for a comprehensive health manpower program for the area in cooperation with the Health Planning Association of the Central Ohio River Valley.

The projects included herein are Student Health Careers Day, Educators' Health Careers Day and Hospital Job Day. They appear in the order in which they became a part of the Association program. Each project was an outgrowth of the one which it preceded. They all originated from needs expressed by the community. They were initiated and continue to be planned cooperatively with health professional organization representatives, boards of education, counselors, health, and science teachers and employers of health personnel. The success of the program of Health Careers Association of Greater Cincinnati is due to the close working relationship between educators, employers, health professionals and the community, working together toward the common goal of ensuring good community health care through qualified properly educated and trained health personnel.

Sincere appreciation is extended to the Board of Trustees of Health Careers Association under the able leadership of John H. Wulsin, M.D., President. Special thanks go to Robert A. Carney, Chairman of the Association's Careers Committee and its members from health professional organizations, hospitals and school systems. We are also grateful to the many individuals and volunteers whom it is not possible to name. We are deeply grateful to Marvin D. Strauss, Director, Health Planning Program, Graduate Department of Community Planning, University of Cincinnati, who serves the Association in a voluntary capacity as consultant for our major projects and as well as for the compilation of this manual.

Monica V. Brown
Executive Director
Health Careers Association of Greater Cincinnati.

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I. STUDENT HEALTH CAREERS DAY

This major project provides students with the opportunity to spend a full day "on-the-job" with the health career of their choice, receive curriculum information about this career and to learn about opportunities for volunteer work. It also serves as an excellent public relations vehicle to enhance the image of health manpower professional people, their employers and health facilities.

The project, begun in 1959, is especially designed for eleventh and twelfth grade students who profess an interest in a specific health profession. This is NOT a general tour of a facility. It is an in-depth, 'see it as it is' approach where each student is assigned to spend a full school day with a health professional in a working situation. The student is given tasks to perform, meets with students in training and learns the health team concept by example. The program includes general orientation, buzz sessions and provides time for questions and answers. The program enables the student to evaluate whether or not the profession chosen is really 'the' one he wants.

The project is a perfect example of cooperative catalystic teamwork. Health Careers Association sponsors the event. All materials, program outlines, assignments, promotion and publicity are designed, distributed and handled by the Association. The health professional organizations supply literature about their profession. Each site area or profession designates a chairman to work with the Association. The chairmen make arrangements with their own personnel, be they in hospitals, universities, veterinary animal hospitals, individual offices or agencies, to carry through the program of the day. School systems approve the event and allow students free time from school to attend. Counselors screen the student applications which are sent in bulk to the Association office for assignment. Students complete individual evaluations of their experience. These are studied by the site area personnel, discussed at an evaluation meeting and given to health professionals to re-evaluate and make recommendations for the following year. Samples of the materials used follow.

DATE SCHEDULE

1969 STUDENT HEALTH CAREERS DAY
Friday, October 24, 1969

FEBRUARY 1969 — **PREPARE DATE SCHEDULES.**

MARCH 1969

I. For office use

II. For site area personnel..to be sent to:

1. Hospital chairmen
2. Careers Committee Chairman
3. Guidance Dir., Public Schools
4. Archdiocese representative
5. Careers Comm. at meeting
6. Dentistry
7. Dental Hygiene
8. Optometry
9. Podiatry
10. Psychology
11. Public Health Educ.
12. Sanitarian
13. Speech & Hearing
14. Veterinary Medicine
15. Cerebral Palsy Center

MARCH and APRIL 1969

I. GENERAL APPROVAL

1. Greater Cincinnati Hospital Council. (This is now a formal notification. The Council has accepted this annual commitment.)
2. Cincinnati Board of Education. Letter to Director of Guidance Services for confirmation of annual commitment. (Also notify the Supervisor of Science and Supervisor of Health Education.)
3. Archdiocese of Cincinnati High Schools. Actual approval must be received before letters go to Catholic schools. Request letter goes to the Archdiocese representative on the Careers Committee in duplicate, who forwards it to the Superintendent.
4. Diocese of Covington, Kentucky. This is a general letter of notification with trust for approval.

II. SITE AREA NOTIFICATION

A. Hospitals ... letter to hospital administrators
1. Giving date
2. Request name of a chairman for the project
3. Enclose forms to designate numbers of students acceptable in each area and date we need it.
4. Enclose previous year's sheets as a guide and note areas which they might either take more or add as new areas.
5. All hospitals receive hospital letter even if they do not participate. (As of now 19 hospitals do and six do not, due to their being psychiatric...too small, no teaching facilities...)

B. Other Site Areas and Groups
1. Cincinnati Dental Society
2. Cincinnati Dental Hygienists
3. Northern Kentucky Dental Society
4. Cincinnati Optometric Association
5. Southern Academy of Podiatry
6. Cincinnati Psychological Association
7. Public Health Educators Committee
8. Public Health Sanitarian...Cincinnati Health Department
9. Cincinnati Speech and Hearing Center
10. Cincinnati Veterinary Medical Assn.
11. Careers Committee...which represents all the professions.
12. Cerebral Palsy Center

DATE SCHEDULE ... 1969 STUDENT HEALTH CAREERS DAY

MAY 1969

I. HIGH SCHOOL NOTIFICATION .. (Mid-May)

Letter to all high schools in the area (approximately 111) advising them of the student day date to make their next year calendar. Send them anything special you may have. Copies of school letter go to Board of Education...ALL OF THEM. (Club letters...send separately to clubs.)

II. CAREER LITERATURE

Ask every profession for brochures on their career...must be here by September...every student participant receives literature on their specific career and on health careers generally (have given them Pfizer book Hospital Opportunities and "Health Careers - Where the Action Is". (Packets are made up in the office and sent to the areas where applicants are assigned). (Remember to save at least two FULL DAYS WITH AT LEAST TWO OR THREE PEOPLE WORKING TO MAKE UP HOSPITAL AND AREA PACKETS....In September.

JUNE 1969

III. PUBLICITY

1. High School Publicity
   If possible, before school is out send to the Cincinnati Public Schools. They will distribute it with the first lot of material in the autumn. Also send along publicity for the high school papers at this time.

2. Posters ... (a) Order new posters from Westermans. MAKE CHANGES.
   (b) Send posters to the following with cover letter:
   1. Extension Services of the Library for distribution to ALL branch libraries in the counties we serve.
   2. To all school libraries.
   3. Girl Scouts as they reprint the app. forms for bulletin
   4. Camp Fire Girls
   5. Boy Scouts
   6. YMCA's and WYCA's ... see the listings on the letter
   7. Catholic Youth and Jewish Community centers
   8. All other areas that serve youth in any way at all.
   9. Community Action Commission for information, etc.

IV. PREPARATION OF BULK FORMS AND LETTERS ... Forms for office use.

1. September High School letter
2. Application forms
3. Application instruction form
4. Student evaluations
5. Student assignment draft letters for site areas
6. Hospital acceptance sheet
7. Hospital assignment sheet
8. School sheets
9. Envelopes .. have addressograph run.
10. Master Literature list
11. Career lists

DATE SCHEDULE ... 1969 STUDENT HEALTH CAREERS DAY

JUNE 9, 1969

1. Career forms due in Health Careers office showing careers offered and number of students to be accommodated.

JUNE 1969

Compile a list of hospital chairmen.

2. Write to the hospital chairmen and send them the following:
3. Date Schedule ... copies of evaluation summaries from previous year student day ... instruction letter draft.
4. Letter to Hospital Administrators thanking them and naming chairman.
5. Also send student instruction letter draft to:

1. Dentistry
2. Dental Hygiene
3. Psychology
4. Speech & Hearing Center
5. Veterinary Medicine
6. Cerebral Palsy

JULY 1969 — CONTINUE COMPILATION OF FORMS, ETC.

JULY 15, 1969 — Student instruction sheets from site areas due in Health Careers office.

JULY AND AUGUST 1969 — PUBLICITY (Initial contacts in July. Followups in August.)

1. Make Initial Release.
2. "Call the Doctor" program ... prepare spot.
3. For Radio, Television, dailies, suburbans, special interest papers, industry, hospitals, etc. ... get spots ... get before, during and after coverage ... get editorials ... get teen page and teen magazine coverage as much as possible .. check back and through. DON'T FORGET Headlines on Health .. ALL Medical Journals .. Dental .. Veterinary .. Hospital and Industry magazines, etc. .. all are important.

AUGUST 1969 — LITERATURE ... go through book and decide what we will give students.

AUGUST 25, 1969 — PUBLICITY .. Send dailies last week in August .. monthly magazines send first or second week in August.

SEPTEMBER AND OCTOBER, 1969 — 1969 STUDENT DAY ... DATE SCHEDULE

SEPTEMBER 2, 1969 — High Schools open for 1969-70 year.

Have volunteer women from Medical Auxiliaries and anyone else you can muster call each school and speak personally to counselors .. did they receive apps. .. how many, etc. .. then call back again the day after the deadline date that is set.

SEPTEMBER 26, 1969 — Student applications to be in Health Careers office.

CAREER LITERATURE...Remember to save at least TWO FULL DAYS WITH AT least TWO OR THREE people working to make up hospital and area packets.

OCTOBER 1-10, 1969

1. Process applications and assign accordingly.
2. Write high school counselor assignment letter.
3. To Diocese of Covington...send copy of assignment letter and which of their schools participating.
4. Prepare packets for site areas. (See separate sheet for procedure.)
5. Veterinarian instruction letter.
6. Speech and Hearing .. special letter.
7. Publicity...finalize all arrangements by phone and mail.

DATE SCHEDULE ... 1969 STUDENT HEALTH CAREERS DAY

OCTOBER 17, 1969	Site area packets of literature to be completed and out.
OCTOBER 17, 1969	PUBLICITY 1. Suburban newspaper publicity with school names 2. Final release 3. Final television and newspaper picture assignment arrangements.
OCTOBER 17, 1969	Student cancellations from schools due in Health Careers office.
OCTOBER 20, 1969	Phone cancellations to assignment areas.
OCTOBER 24, 1969	STUDENT HEALTH CAREERS DAY ... Please be sure to collect student passes.
OCTOBER 27, 1969	Attendance reports and passes must be back in Health Careers office from ALL areas so that schools can be immediately notified. (Many students are given release time and schools need this information.) Cards and lists must be checked to show cancellations and no-shows.
OCTOBER 29, 1969	Attendance reports to be sent to schools.
NOVEMBER 4, 1969	Evaluations must be in Health Careers Office from all areas.
NOVEMBER 4, 1969	3:00 P.M. EVALUATION MEETING WITH HOSPITAL CHAIRMEN
NOVEMBER 1969	Statistics and thank yous to everyone. Bind into a book.
NOVEMBER 1969	Evaluation summaries of student evaluations. Send evaluations to career representatives.
FEBRUARY 1970	START ALL OVER AGAIN!!!

1969 DATE SCHEDULE FOR SITE AREA PERSONNEL
Student Health Careers Day

PROGRAM OUTLINE: See other side of sheet - Consult 1968 Evaluation Minutes.

March, 1969	General Approval and Notification. 1. Hospital Council 2. Hospitals 3. Other site areas 4. Health professions 5. Universities 6. Secondary school systems
April, 1969	Request letters to individual hospitals for student placement and appointment of chairmen.
June 9, 1969	Career forms due in Health Careers office showing careers offered and number of students to be accommodated.
July 15, 1969	Student instruction sheets from site areas due in Health Careers office: 1. Hospitals 2. Dentistry 3. Dental Hygiene 4. Psychology 5. Speech and Hearing Center 6. Universities 7. Veterinary Medicine 8. Cerebral Palsy Center
September 2, 1969	High Schools Open for 1969-70 year.
September 12, 1969	Telephone follow-up to high schools to check receipt of applications. Notify Medical Auxiliary Chairmen.
September 26, 1969..Friday	Student applications to be in Health Careers office.
October 10, 1969..Friday	Student assignment lists, student passes and student instruction sheets to all high school counselors.
October 17, 1969..Friday	Literature packets ready for all assignment areas.
October 17, 1969..Friday	Student cancellations from schools due in Health Careers office.
October 20, 1969..Monday	Phone cancellations to assignment areas.
October 24, 1969..Friday	STUDENT HEATH CAREERS DAY..PLEASE BE SURE TO COLLECT STUDENT PASSES.
October 27, 1969..Monday	Attendance reports and passes must be back in Health Careers office from ALL areas so that schools can be immediately notified. (Many students are given release time and schools need this information.)
October 29, 1969..Tuesday	Attendance reports to be sent to schools.
November 4, 1969..Friday	Evaluations must be in Health Careers office from all areas.
November 4, 1969..3:00 p.m.	EVALUATION MEETING WITH HOSPITAL CHAIRMEN.

PROGRAM FOR STUDENT HEALTH CAREERS DAY, OCTOBER 24, 1969 ... GENERAL OUTLINE

Please Consult 1968 Evaluation Minutes

1. Student reception.
2. Student orientation to the day.
3. Program of the day.
4. Luncheon to be provided by areas to which students are assigned.
5. Break into buzz sessions with career representatives.
6. Come together in one large group for panel discussion. (See evaluation meeting minutes.)
7. Evaluations to be completed by students.

A. EVALUATION SHEETS

NOTES: We suggest that you distribute the evaluation sheets after luncheon immediately before they are to be completed. PLEASE DISCUSS THE PURPOSE OF THE EVALUATION WITH THE STUDENTS SO THAT THEY FULLY UNDERSTAND WHAT WE NEED.

B. LITERATURE REQUEST CARDS

In accordance with the evaluation from last year's Student Day, it was suggested that these not be stapled to Student Evaluations because too many students completed them before they read the literature.

Please explain to the students the purpose of the literature request cards. If more information is requested from the profession that they saw, ask them to be specific concerning their request. If they want information on any other health career, this should be written on the card.

You may choose either to enclose a reply card with each student packet or hand them to the students who ask for them.

C. CAREER CLINIC

A Career Clinic was introduced at one hospital last year in a special afternoon session so that students would have the opportunity to meet with professional people from other careers that they had not seen. We offer this as a suggestion for inclusion in your afternoon session.

For additional information telephone Monica V. Brown, Executive Director, Health Careers Association of Greater Cincinnati, 721-3160, extension 240.

MVB:pc
4/69
100

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

FINAL REPORT - STUDENT HEALTH CAREERS DAY ... October 24, 1969

From: Robert A. Carney, Careers Committee Chairman
Monica V. Brown, Executive Director

We wish to express our deep appreciation to everyone who worked with us to make the twelfth annual Student Health Careers Day a success. Through cooperative efforts we assigned 1,428 eleventh and twelfth grade students from 73 senior high schools in five counties from Greater Cincinnati, Ohio and Northern Kentucky. They observed 26 health professions in action in 69 different places. There were 15,846 pieces of professional literature and material distributed. The statistics are enclosed. All detail and totals are based on the assignment figures.

The chairmen in charge of the day in the various assignment areas as well as the health professionals to whom they were individually assigned, told us the students were enthusiastic and interested. They were also impressed with the intelligence, decorum and dress of the students. To quote one department head, "We gave it to them straight and they were really great."

Special thanks are due to the high school faculty people who worked so hard to screen and instruct the students. We wish it was possible to personally thank everyone who gave of their time and energy for this project.

MVB:pc
encls.
11/1/69
300

FINAL REPORT AND STATISTICS FOR STUDENT HEALTH CAREERS DAY ... OCTOBER 24, 1969

Career	Total Assgd.	Total Att.	Total Absent	1970 Total Grads.	1970 No. Boys	1970 No. Girls	1971 Total Grads.	1971 No. Boys	1971 No. Girls	H.C. Club	Vol. Work	Fam-ily	Att. Prev.	Saw Same Career
DENTISTRY	17	16	1	10	10	-	7	7	-	-	1	3	2	-
DENTAL HYGIENE	66	43	23	44	-	44	22	-	22	9	27	31	7	2
DIETETICS	21	17	4	9	-	9	12	1	11	1	8	9	1	-
HOSP. ADMIN.	5	5	-	-	-	-	5	2	3	1	-	2	1	-
INHALATION THERAPY	10	9	1	3	1	2	7	1	6	2	3	8	2	-
MEDICINE	111	98	13	70	41	29	41	18	23	23	30	41	17	10
MED. ILLUS.	11	8	3	6	1	5	5	2	3	1	2	5	-	-
MEDICAL RECORDS	1	1	-	-	-	-	1	-	1	-	-	-	-	-
MEDICAL SECRETARY	44	36	8	22	-	22	22	-	22	2	20	23	5	-
MED. SOCIAL WORK	54	50	4	31	-	31	23	-	23	3	22	22	7	-
MED. TECHNOLOGY	115	102	13	68	4	64	47	1	46	8	32	48	22	9
NURSING:														
BACC. DEGREE	127	106	21	75	-	75	52	-	52	18	60	58	23	5
ASSOCIATE DEGREE	64	53	11	38	-	38	26	-	26	11	33	27	11	1
DIPLOMA	227	198	29	119	-	119	108	-	108	40	105	93	28	13
PRACTICAL	88	83	5	64	-	64	24	-	24	12	46	36	13	3
OCC. THERAPY	37	34	3	19	3	16	18	-	18	5	16	20	2	1
OPTOMETRY	3	3	-	2	2	-	1	1	-	2	-	1	-	-
PHARMACY	36	32	4	22	8	14	14	5	9	9	9	17	10	1
PHYSICAL THERAPY	113	93	20	59	8	51	54	1	53	8	36	53	12	4
PODIATRY	1	1	-	1	1	-	-	-	-	-	-	-	-	-
PSYCHOLOGY	93	75	18	53	18	35	40	4	36	13	25	38	17	4
PUB. HEALTH EDUCATOR	7	6	1	6	2	4	1	-	1	1	2	4	5	-
RAD. TECH. (X-RAY)	89	74	15	59	4	55	30	6	24	10	24	23	16	2
SPEECH & HEARING	38	32	6	20	2	18	18	-	18	2	17	8	5	-
VETERINARY MEDICINE	50	39	11	20	11	9	30	14	16	3	7	19	7	4
TOTALS	1428	1214	214	820	116	704	608	63	545	184	525	589	213	59

Continued on next page.

ERIC

TOTAL BOYS ..... 179 (13%) ... TOTAL GIRLS 1,249 (87%)

NOTE #1. Graduate Year Figures: (1) Assignment figures were used in breakdown of 1970 and 1971 graduates.

(2) Figures do NOT measure degree of interest because
(a) some schools limit number of students
(b) some schools limit to juniors
(c) some schools limit to seniors
(d) some schools allow students to attend one career day only.

NOTE #2. A. 1969: 1428 assigned (983 Ohio..445 Kentucky) from 73 high schools (52 Ohio..21 Kentucky)
1214 Attended (85%) ... 214 Absent.
Of those absent 69 Cancelled (31%) ... 145 Failed to notify (69%).

B. 1968: 1272 assigned (854 Ohio..418 Kentucky) from 67 high schools (49 Ohio..18 Kentucky)
1105 Attended ... 167 Absent.
Of those absent 58 Cancelled (35%) ... 109 Failed to notify (65%).

C. 1967: 1206 assigned (784 Ohio..422 Kentucky) from 69 high schools (53 Ohio..16 Kentucky)..23 extras came ... 1027 Attended ... 202 Absent.
Of those absent 85 Cancelled (41%) ... 117 Failed to notify (59%).

D. 1966: 1208 assigned from 68 high schools ... 1030 attended (85%) ... 188 Absent (15%).
Of those absent 75 Cancelled (40%) ... 113 Failed to notify (60%).
Differences were extras that attended.

E. 1965: 1041 assigned ... 962 attended (92.41%) ... 99 Absent (9.5%).
Of those absent 28 Cancelled (28%). 71 Failed to notify (72%).
Differences were extras that attended.

NOTE #3. Site Areas: 69 .... Literature and material distributed: 15,846 pieces.

MVB:pc .. 11/1/69 .. 300

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

October 12, 1969

PROGRESS REPORT

1969 PROFESSIONAL HEALTH CAREERS FOR STUDENT DAY..

On October twenty four
From five United Appeal Counties there will pour
1,428 high school students from homes and 73 schools
To learn and see health professions at work,
Check the education and the tools
that are used in sixty nine different places
Including universities, hospitals and vocational schools.
They'll meet those in the know and learn the rules.
After seeing, we hope they'll read those 7,140 pieces
of professional literature - and let's not forget to mention
The 8,706 additional materials that needed attention.
The lists are done, the passes mailed
Media and T.V. under control
We're all set and ready to roll.
- And later when statistics are done
Onward to other projects that must be run.

November 5, 1969

STUDENT HEALTH CAREERS DAY - OCTOBER 24, 1969

MINUTES OF EVALUATION MEETING - November 4, 1969 - Room 410, Community Chest Building.

To: Board of Trustees, Health Careers Association
Careers Committee, Health Careers Association
Site Area Chairmen for Student Day
Hospital Administrators and Greater Cincinnati Hospital Council

Present: 11 people
Children's Hospital, Mrs. Barbara Moorfield .. Convalescent Hospital for Children, Miss Mildred Ryan .. Good Samaritan Hospital, Miss Harriet Janszen .. Jewish Hospital, Mrs. Alice Williams .. Longview Hospital, Dr. George Cerbus .. Our Lady of Mercy Hospital, Miss Mary C. LaVallee .. St. Elizabeth Hospital, Charles Daniel, Miss Norma Michaels .. Veterans Administration Hospital, Mrs. Helen Orletsky.

Staff of Health Careers Association: Monica V. Brown .. Priscilla Cordell

Comments of those absent are incorporated into these minutes.

MEETING FORMAT

I. Statistics
II. Individual Reports from those present
III. General Discussion
IV. Summary of the Project
V. Educators' Day - Scheduled February 10, 1970
VI. Hospital Job Program Day - Scheduled Thursday, April 16, 1970.

The meeting was called to order at 3:00 p.m. and all present introduced themselves.

I. Statistics were distributed. Absentees will receive them with these minutes. Full report of statistics is on file.

Summary:

1. Assigned .. 1,428 eleventh and twelfth grade students from 73 high schools.
   Attended .. 1,214 - 85%.

2. School Detail:

			Assigned	Attended
Ohio:	Hamilton County	44 out of a possible 51 ..	926	766
	Clermont County	8 " " " " 9 ..	57	37
Kentucky:	Boone, Campbell & Kenton Counties	21 " " " " 24 ..	445	411
	Totals		1,428	1,214

3. Assignment Areas Used: 69

	Number	Number of Students
Hospitals	18	1,188
University Areas	4	131
Speech & Hearing Center	1	21
Dental Offices	17	17
Veterinary Medical Hospitals	22	50
Optometry Offices	3	3
Podiatry Office	1	1
Cincinnati Health Department	1	7
Nursing Home	1	10
Vocational School	1	(Included in hospital figure)
Totals	69	1,428

4. Literature and Materials: 15,846 individual pieces compiled and distributed.

II. & III. Individual Reports and General Discussion followed.

IV. Summary and Recommendations

The general program format should be continued.

1. Career Presentation - The general response by students to all careers was excellent with minor exceptions. The behaviour of the students was excellent and they displayed positive interest in the profession observed.

   A. Medical Secretary-Medical Records Library Science
   In an effort to make students more aware of the field of medical records, this profession was included in the program for those observing medical secretary. The time was divided between medical secretary and medical records areas. This should be continued in 1970. Stress on the medical record technician program at the associate degree level should be stressed in addition to the baccalaureate degree program. Hopefully, there will be a medical record technician option offered at the Cincinnati Technical Institute in the fall of 1970. It was apparent that students are less knowledgeable about the definition and duties of medical secretary and medical records library science than many other careers.

   B. Social Work
   This profession was presented in two places through actual cases. Students were presented with cases to a certain point and were required to evaluate them. They were most enthusiastic and performed as well as graduate students given similar projects. This is recommended for other places where this profession is shown.

   C. Other Professions
   In many other professional areas, students were given the opportunity to assist during the observation period. They were willing and interested helpers and learned a great deal by doing.

2. Literature
   Questions were raised regarding literature and materials. Most of these are either purchased by health professional organizations and given to Health Careers Association or obtained free from national groups. Free literature is becoming increasingly difficult to obtain. The costs are high and range from 15 cents to 45 cents a piece. It is not always possible to provide each student sharing the same career with the identical literature. However, when an individual mails in one of our request cards, we make every effort to fulfill the request.

3. Report Sessions
   A. Buzz sessions should be continued. Some places have students return to the observation area after luncheon and then return again to fill out evaluations which proves most successful.

   B. Student Reports in most cases were very good.

4. Procedures

   A. Area Cards - Eliminate in 1970. The lists suffice and area cards are not used. The application will be re-designed in two parts instead of three.

   B. Passes - Continue. These give the student responsibility and aide in lessening changes. The schools find these useful and the Association uses them for follow-up.

   C. Instruction Letters - Continue with site area letterheads on prescribed format. Specific instructions on site letterheads have eliminated confusion and misunderstanding.

D. Literature Request Cards - Continue to include in packets or site chairman should hand them out to those who request them. The Association received a sizeable number but not the duplication of requests as in former years.

E. Evaluation Summaries by Health Professionals - Definitely continue. Professional summaries are used by site area chairmen, department heads and administrators as a guide to future planning. Return of student evaluations to site areas is not necessary. Professional people may keep them if they wish.

F. Minority Group Participants. There is no way of accurately assessing numbers of minority group participants, but many attended and were most interested.

V. Educators' Health Careers Day - Tuesday, February 10, 1970

The same format and approach will be taken as in previous years. An attempt was made to persuade educational systems to eliminate the career choice approach but this was refused. This project includes both professional and non-professional areas.

VI. Hospital Job Program - Thursday, April 16, 1970

In 1970, eleventh as well as twelfth grade students will be invited. It will serve the double purpose of motivation toward the world of work in health for those graduating from high school in 1970 and consideration for further education for those graduating in 1971. The approval has been received from the school systems. All schools will be in session that day except the Kentucky Public Schools which will be free due to a State Teachers Meeting.

VII. General Comments

Mutual thanks were expressed by the Site Area Chairmen and Health Careers Association. The cooperation, assistance and advice so willingly provided and graciously accepted by all is the reason that this extensive project is not only possible, but rewardingly successful for all concerned.

VIII. Meeting adjourned at 4:30 p.m.

Monica V. Brown
Executive Director
Health Careers Association

MVB:pc
150

2899

8625

One student's actual evaluation.

STUDENT HEALTH CAREERS DAY EVALUATION - 1969
(For Juniors and Seniors in High School ... October 24, 1969)

Please PRINT in INK

Health Career Observed: psychology

Place where health career observed: DRAKE Memorial

Name: _____
(Last name first)

Address: _____ Zip Code 45236

High School: Indian Hill Year of Graduation: 1971

Member of Health Careers Club: Yes ✓ No _____

Worked as Volunteer in Health Area: Yes ✓ No _____

Family Member or Relative in Health Career? Yes _____ No ✓

What did you feel most valuable and why? Observing the patients proved most valuable because it enabled me to realize that an invalid can keep up with life, as long as he doesn't become a victim of self-pity.

Your comments and suggestions for changes and additions: That test we took was really great because it pointed out our weaknesses and strengths in different fields of interest and businesses.

Did today's program help you in your choice of a future career? Yes ✓ No _____

For additional information about:

I. The same career you observed. If, after reading your literature, you want more information about the career you saw, please be specific. For example, if you want lists of schools or curriculum, please write this out.

II. Another health career. Be specific as to what kind of information you want.

III. Complete the [redacted] card and mail to our office.

MVB:pc .. Encl.
5/69 1500

2900

1083

PROFESSIONAL CAREER SUMMARY OF 1968 STUDENT HEALTH CAREERS DAY EVALUATIONS

To: Careers Representatives
From: Monica V. Brown, Executive Director

(One completed Professional Evaluation Summary) These are given to site areas the following year to aid in program planning.

Site Area Chairmen advise us that the summaries you prepare are a valuable and important aide to planning for Student Health Careers Day.

Please complete the form below for summarizing the enclosed evaluations. If necessary, use the reverse side for additional comments.

Please return the evaluations with your summary. Both are sent to assignment areas. Thank you again for your continued cooperation.

PSYCHOLOGY
(Career Name)

Assigned: 108 Attended: 97 1969 Grads.: 71 1970 Grads.: 37

H.C. Club Members: 14 Vol. Work: 25 Relative in Health Career: 43

Most Valuable: Talking to graduate students in training; seeing demonstrations; seeing patients; hearing about psychotherapy and applied works. Personal and informal contact with psychologists.

Experiments in progress - animal laboratory, dream laboratory.

Criticism: Too much explanation and lecture, seeing empty wards, too much professional and vocational qualifications explained.

Please fill in your own professional organization's suggestions for the future:

Participation in demonstrations; role-playing, tests, experiments.

Pictures, films or tapes of applied work therapy, etc.

Entire scope of psychological work explored - industrial, consultation, etc.

Better selection of students - wide range of interest exhibited, with many levels from bored ignorance to enthusiastic understanding.

More use of graduate students for group discussions.

* A microlab experience, non-verbal exercises, etc.

CHANGES IN PROCEDURE FOR 1970 STUDENT HEALTH CAREERS DAY

NEW ... APPLICATION FORMS WILL BE IN TWO PARTS AND NOT IN THREE.

Top section will contain the same information as presently.
Second Section will be labeled "Pass" and the address will be entered by the student.
There will be NO third section as site areas get lists and don't want the cards.

I. When APPLICATIONS come into the office:
Enter the number in each career and total on the school initial entry sheets.
(This is the check list for career and school totals.)

II. File the two-part form in school order. Within each school the cards are to filed - a. by career alphabetically
b. by name alphabetically within the career.
(This file should balance with the initial entry school sheets.)

III. Assignment: When all the application forms are in:
1. Make loose sheets for each career and enter the total numbers the areas are willing to accept. Also write the areas with the numbers each are willing to accept.
2. Assign and make the place on the top section of the form .. use the loose sheets as tallies so you don't overassign to any one area.
3. Stamp the "Pass" section of the form with the assignment area name.

IV. TYPE LISTS
1. Type the school lists from the two-part form -- 2 copies.
2. Cut the cards so there will be two instead of the one single two-part form.
3. Staple the 'passes' to assignment area invitations.
4. Sort the main section which was the top section card into assignment areas keeping them in school-career and alphabetical order.
5. Type the assignment area lists -- 3 copies .. 1 office, 2 site areas.
6. Enter the tally of assignment area numbers on the special assignment sheets.
7. See that the lists and the assignment sheets balance.
8. Keep copies of the school lists and the assignment area lists in office for office use.

V. SEND TO THE SCHOOLS
1. Student assignment Pass cards stapled to assignment area notices.
2. One copy of the school list to each school concerned.

NOTE: School counselors distribute passes to students with instruction sheets.

VI. SITE AREA MATERIALS
1. Lists of people coming -- 2 copies .. 1 to be returned to office with attendance.
2. Current year blank evaluation forms.
3. Professional summary made from previous year's student evaluations.
4. Sheet showing numbers and literature.
5. Final instruction sheet.
6. Literature.

VII. ATTENDANCE ..... Site areas must return to the office:
1. Attendance list. 2. Student passes.

VIII. SCHOOL ATTENDANCE NOTIFICATION ... from site area attendance, mark school sheet. Notify the schools immediately.

2902 17 - 8085

ASSIGNMENT HANDLING FOR HEALTH CAREERS DAY - 1969

I. SEND out 3 copies of application form to schools, with application information.

II. When APPLICATIONS come in:

1. Enter number in each career and total on the school INITIAL ENTRY sheets. (This is the check list for career and school totals.)

III. FILE all 3 cards together by school. Within this school file cards are filed

(a) by career alphabetically
(b) by name alphabetically within career.
(This file should balance with sheets in #II.)

IV. ASSIGNMENT: When all cards are in:

1. Put cards in career order (in school order alphabetically)
2. Enter the career to be seen and the area on all 3 forms.
3. Separate the forms (3).

A. Office file - current form. At this time the file should be put into career order - by school by name.

B. Student Assignment Card - to go to schools .. sort by school .. alphabetically by name.

C. Area Assignment - sort by area (careers .. within school .. within area).

V. TYPE LISTS:

1. Schools ... from IV B cards.
2. Areas .... from IV C cards.

Reason for lists:::::
As a result of consultation with people concerned, it has been decided to continue lists.

1. School lists:

A. Counselors state they are swamped with paper work and feel lists are vital for ready reference for ease of checking changes, cancellations, substitutions, etc. Also, attendance must be reported immediately after Student Day.

B. Office needs lists for additions, substitutions, changes and cancellations, which are numerous after assignments leave the office. Efforts to eliminate the above have been futile since schools cooperate on the basis of service given.

Also...attendance must be immediate and without lists, office file needs constant shuffling.

NOTE::Dentists, dental hygiene, optometry, podiatry, psychology, veterinary medicine, public health sanitarian and public health do own assigning... they must have lists to give us back.

VI. 1. SEND TO SCHOOLS

A. Student Assignment Cards (IV B). These are student passes to be given to students by the counselor. No assignment letters are being sent.

B. Instruction Sheets to be given students by counselors.
1. To students not going to hospitals...general instruction sheet made by office.
2. Students assigned to hospitals...Instruction sheets prepared by hospitals from outline sent to them from Health Careers Assn.

2. SEND TO AREAS

A. Cards of the students coming (IV C file).

VII. AREA PACKETS

1. Cards and lists
2. Evaluation forms
3. Last year's summary of evaluations and evaluations.

VIII. ATTENDANCE ... Areas are to return:

1. Student passes. (If student has no pass, send back the area notice form.)
2. Cards of students who didn't come and assignment cards we sent. Hospitals may keep the remainder of cards or send back.

IX. SCHOOL NOTIFICATION

From item VII ... send student absentee names to schools.

X. HOSPITAL CHAIRMEN'S MEETING ... evaluations back.

XI. WRAP UP.

August 1969

LITERATURE PREPARATION - "HOSPITALS"

STUDENT HEALTH CAREERS DAY

(Make Packets end of August.)

1. Use extra Hospital sheets as work sheets and list the number of students each hospital will accept.

2. Check Assignments from previous year.

3. Make a list of the literature you plan to use and this is the master.

4. Enter on each Hospital sheet and place in the boxes, an assessed number of pieces of literature based on previous year assignments (you must put down names of pieces).

5. Make notes on the lists to the Hospital Chairmen if there is not sufficient of a certain piece of literature for every student in that category.

6. Place in boxes:

   1. Current Year Evaluations - the blanks

   2. Previous Year Evaluations

   3. Previous Year Summaries of evaluations of each career plus the hospitals which will show that specific career (this is the professional person's summary).

   4. Literature itself .. consult the inventory

   5. The lists of the Names & the "area" cards

   6. Adjustment of count.

Health Careers Association of Greater Cincinnati
2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown
A United Appeal Agency

October 10, 1969

Similar letters were sent to Doctors of Dentistry, Psychology, Universities and other Non-Hospital sites where students were assigned.

To: Doctors of Veterinary Medicine

From: John H. Howard, D.V.M.
Monica V. Brown, Executive Director

Re: Student Health Careers Day - Friday, October 24, 1969

Enclosed are the following:

1. Area Card ... shows the name, school and telephone of the student or students coming.

2. Evaluation Sheet ... this is to be given to each student and filled out in your office before the student leaves. Please mail this back to Health Careers Association in the enclosed envelope.

3. Information Request Card ... student should complete and mail to us for additional information.

4. Literature ... this is to be given to the student.

5. Copy of Instruction Sheet the student receives.

Luncheon ... students will be your luncheon guests. Hamburger and cokes will be fine.

Attendance ... we must report the attendance back to the school on October 27, 1969. Please mail the passes brought by students and evaluations to Health Careers Association on Friday the 24th after the student leaves your office.

If a student fails to appear, please either telephone Health Careers office or drop a postcard in the mail so we will know.

Thank you for your cooperation. It is a pleasure to work with you. Should you have any questions, please telephone either Dr. Howard, 731-8569 or Monica V. Brown, 721-3160.

MVB:pc
Encls.
6/69
35

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

October 11, 1969

STUDENT INSTRUCTIONS

TO: Students "NOT" Assigned to "Hospitals"

Used where no letterhead instruction available.

RE: Twelfth Annual Student Health Careers Day
Friday ... October 24, 1969

We wish you a most pleasant career exploration day. Following are your instructions. For further information contact your school counselor.

PASS:	Must be brought with you and given to person in charge.
REPORTING TIME:	9:00 a.m. ... unless notified otherwise.
CLOSING TIME:	2:30 p.m. You are requested to remain for the entire program. Do not leave before the day is over unless you have prior permission through your school counselor to Health Careers Association.
EVALUATION:	The evaluation must be completed before you leave and given to the person in charge. Do not take this home with you.
DRESS:	Wear school clothing. Girls wear low heeled shoes.
LUNCHEON:	You will be the luncheon guest of the assignment area.
CANCELLATION:	Notify your counselor immediately if you are unable to attend.
OTHER QUESTIONS:	Consult your school counselor to relay to Health Careers Association office.

MVB:pc
4/69
100

JOES

Sample of actual instruction letter.

SPECIAL INSTRUCTIONS

TO STUDENTS VISITING GOOD SAMARITAN HOSPITAL ON HEALTH CAREERS DAY

FRIDAY, OCTOBER 24, 1969

REPORT TO: CENTURY ROOM ON B FLOOR AT 9:00 A.M.

(USE MAIN ENTRANCE ON CLIFTON AVENUE)

BUSSES STOP IN FRONT OF THE HOSPITAL (E AND 61)

FREE PARKING IN THE UNDERGROUND GARAGE IN FRONT OF THE HOSPITAL.

(YOUR PARKING TICKET WILL BE STAMPED AT THE CLOSE OF THE PROGRAM.)

SPECIAL NOTE: APPROPRIATE SCHOOL CLOTHING SHOULD BE WORN. GIRLS SHOULD WEAR LOW HEELED SHOES. THOSE OBSERVING DIETETICS MUST WEAR HAIR NETS.

LUNCHEON WILL BE SERVED, BUT YOU ARE URGED TO EAT BREAKFAST BEFORE YOU COME TO THE HOSPITAL.

THE PROGRAM WILL ADJOURN AT 2:30 P.M.

We're looking forward to meeting you and hope that you will find many answers to your questions about health careers.

Harriet Janszen

HARRIET JANSZEN
PUBLIC RELATIONS DIRECTOR
CHAIRMAN, HEALTH CAREERS DAY

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

April 11, 1969

To: Hospital Administrators

From: Robert A. Carney, Chairman, Careers Committee
Monica V. Brown, Executive Director

Re: 1969 STUDENT HEALTH CAREERS DAY for Juniors and Seniors in High School

The twelfth annual student Health Careers Day for juniors and seniors in high schools in Greater Cincinnati and Northern Kentucky is scheduled for Friday, October 24, 1969. We appreciate your continuing cooperation.

Two copies of the form concerning careers being offered are enclosed. By June 9, 1969, please return one copy of the completed form to our office.

1. Number Acceptable. Enter the number of students your hospital will be able to accommodate in each career. It should be the maximum number. We will consult with you should there be any question.

2. Minimum Number. Indicate against the profession if there is a minimum number of students to whom a department head will show their career, e.g., if only three students apply for a career, all three should be sent to one place rather than one to three different places.

3. The name of the chairman for this project from your hospital should be entered on the list.

4. Last year's form is enclosed for your information.

MVB:pc
Encl.s 3
50

1969 STUDENT HEALTH CAREERS DAY ... for Juniors and Seniors in High School
Friday, October 24, 1969

RETURN TO HEALTH CAREERS OFFICE BY JUNE 9, 1969

Assigned 274 Students

NOTES: 1. Maximum number acceptable should be given. We will consult should there be any question.
2. Minimum....indicate against profession if there is a minimum number of students to whom a department head will show their career, e.g., if only three students apply for a career, all three should be sent to one place rather than three different places.

HOSPITAL NAME Good Samaritan HOSPITAL TELEPHONE NO. 872-2666

Chairman's Name for Health Careers Day 1969 HARRIET JANSZEN (MISS)

CAREER	1968 Assigned	NO. STUDENTS ACCEPTABLE	DO NOT FILL IN BELOW: No. Assigned	DO NOT FILL IN BELOW: Literature - give to Stud.
Dietetics	5	12	5	5 educ req. 3 chart course
Hospital Administration		-	—	2 LookAhead 5 Nutrition.
*Inhalation Therapist		-	—	
Medicine	10	10	15	10 Doctor in Making 15 Med. as a Career
Medical Illustration		-		15 Horizons
Medical Records Librarian		6		
*Medical Secretary		-		
Medical Social Work	28	30	18	18 Is this Yourline 18 20 Questions
Medical Technology	21	20	18	18 Med Radioisotope 18 Career Facts
Nursing..Baccalaureate Degree	51	48	58	60 Do You Want to be a Nurse
Nursing..Associate Degree		-		136 Educ Guides 50 Turn You on.
Nursing..Hospital Diploma Program	75	90	78	55 Selma Lagh
Nursing..Licensed Practical		-		
Occupational Therapy	17	10	20	20 Financial aid 20 handbooks
Pharmacy	3	45	5	Pfizer Opps.
Physical Therapy	25	25	25	25 PT schools 25 HCA - PT brochure
Psychology		-		
Radiologic Technology (X-Ray)	10	15	19	19 Educ Guides 19 U.C. brochures
Speech Pathology & Audiology	6	5-10	13	13 Speech books
TOTALS:::			274	

Also: 274 Health Career buttons — 274 Assn brochures — 274 HC Action brochures
187 Horizons
187 Career Opps Hospitals

MVB:pc
4/69..100

Reply cards

* These are possible additions under consideration. 137 Evaluation Blanks

The success of this project, which presents the health field graphically, is evident in greater utilization of the Association services for consultation in planning school curricula, introducing health related and health career topics into the classroom through speakers and audio-visual aids, school organized field trips, increased interest in health careers clubs and better and more careful selection of students for Association projects which result in more strongly motivated and interested students.

Samples of the 'how to do it' materials follow:

Health Careers Association of Greater Cincinnati
2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown
A United Appeal Agency

June, 1969

To: Hospital Chairmen for Student Health Careers Day - 1969

From: Robert A. Carney, Chairman, Careers Committee
Monica V. Brown, Executive Director

Re: PROCEDURE AND DATE SCHEDULE...Please read carefully and keep for reference.

Thank you for the careers listing from your hospital. For your information the hospital chairmen's evaluation meeting minutes concerning the 1968 Student Day are enclosed. We appreciate your cooperation and assistance and look forward to hearing from you.

I. INSTRUCTION LETTERS ... Due in Health Careers office July 15, 1969.

By July 15, 1969 please send us specific instruction letters on your letterhead. Please use the format in the enclosed sample. A copy of your 1968 letter is enclosed. Send enough copies so that each student receives one. NOTE: Student will receive specific instruction letter with PASS from school counselor.

II. ASSIGNMENT CARDS AND LISTS will be sent to you telling you who is coming.

III. PASSES. Please collect student passes from students. (They are duplicates of the assignment cards.) These are to be returned to Health Careers office.

IV. ATTENDANCE...to be reported on Friday, October 24, 1969 to Health Careers office.
1. Return student passes to us.
2. If no pass is brought, return the assignment card and mark on it the student had no pass.
3. If a student is absent, return assignment card and mark the card "absent."
4. If you don't need the assignment cards, return them to us in a separate group.

V. PROGRAM...Buzz sessions. After lunch, please put students into buzz groups with careers representatives - have a career clinic or career panel. Then come together to complete evaluation forms. Please consult flip side of Date Schedule.

VI. EVALUATIONS...The 1968 student evaluations and the evaluation summaries will be sent to you with the 1969 blanks.
1. Please do not give the students their evaluations until after they have been explained.
2. Please go over the evaluation form with the students before they complete them.

VII. DATE SCHEDULE...enclosed. Please mark your calendars accordingly and keep for reference.

MVB:pc
Encls. 3
4/69
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OIES

DATE SCHEDULE

1970 - EDUCATORS HEALTH CAREERS DAY
Tuesday, February 10, 1970

SEPTEMBER and EARLY OCTOBER — PREPARE DATE SCHEDULES

I. For Office Use

II. For General Distribution to be sent out to necessary places.
1. Hospital Chairmen?
2. Careers Committee Chairman
3. Guidance Director - Cinti. Public Schools
4. Archdiocese of Cinti. Representative on Careers Committee
5. Careers Committee - give out at meeting in November.

OCTOBER — GENERAL APPROVAL

1. Greater Cincinnati Hospital Council - this is now a formal notification as the hospitals have agreed to this as annual event.
2. Cincinnati Board of Education:
   A. Director of Guidance Services .. a letter
   B. Supervisor of Science .... a letter
   C. Supervisor of Health Education .. a letter
3. Archdiocese of Cincinnati High Schools
   Actual approval MUST be received BEFORE the letters go to the Catholic Schools. The Request letter is to be in Duplicate and sent to the Archdiocese representative on the Careers Committee who will forward it to the Superintendent of Education. Received July 1969.
4. Diocese of Covington, Kentucky - This letter goes to the Superintendent and is a general letter trusting for approval.

EARLY NOVEMBER

I. SITE AREA NOTIFICATION

1. ?Hospital Administrators Advisory Letter .. prepare and send.
2. Veterinary Medicine - Have General check with Dr. Mattingley.
3. Social Work .. To the Exec. Director advising the date and asking for literature.
4. Psychology .. Ask if we can again show at Veterans and??
5. Optometry ... Ask if we can include if enough interest shown.
6. Podiatry .... Ask if we can include if enough interest shown.
7. Dentistry ... Ask if we can include if enough interest shown.

II. PREPARATION OF BULK FORMS AND LETTERS .. ALSO .. SHEETS FOR OFFICE

1. Letter to be sent to all Schools.
2. Application Forms.
3. Evaluation Sheets.
4. Reply Cards.
5. Careers Committee letters asking for literature-need 200 of ea.
6. Envelopes for All schools and other areas where there are counselors.
7. Envelopes for all hospitals-run addresso. on the envelopes.
8. Participants Assignment Letter.
9. Rule up Sheets for Office Use ... A. Careers
   B. Assignments
   C. Literature
10. Non-Participating Hospital Letter-prepare and date it 1/20/69.

Health Careers Association of Greater Cincinnati
2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown
A United Appeal Agency

October 10, 1969

To: Hospital Chairmen

From: Monica V. Brown, Executive Director

Re: Information and Materials...Student Health Careers Day...October 24, 1969
EVALUATION MEETING..NOV. 4, 1969..COMM. CHEST BLDG..Please mark your calendar.

I. PROGRAM. Please consult flip side of Date Schedule.
1. Buzz Sessions. After lunch, please put students into buzz groups with career representatives, have a career clinic or panel. Then come together later.
2. Evaluations. Please do not give the students their evaluation until after you have explained their purpose.
3. Literature Reply Cards. Please explain and give to students who wish more information.

II. ASSIGNMENTS.
1. Lists. Enclosed are two copies of the lists of students assigned to your hospital.
2. Assignment cards...enclosed.
3. Cancellations. Schools have been asked to report to us. We will notify you.
4. Passes and Instruction Letters. Please collect the pass and return to us. Each student has received an instruction letter and a pass. The pass is a duplicate of the area card.

III. ATTENDANCE.
1. Please report the attendance to us immediately, using the duplicate copy of the list. Return the list. Many schools are in session that day and we are obliged to report attendance to the schools.
2. Passes. Return the student passes. If a student fails to bring a pass, return the assignment card for that student and mark that student had no pass.
3. Assignment Cards. If you have no use for the area cards, please return these as we will use them for follow-up purposes.
4. Absentees. Send us their assignment cards. Please mark 'absent' on the cards.

IV. MATERIALS. Enclosed in boxes are:
1. Materials for students, list of literature and reply cards.
2. Current year evaluation forms. Please go over evaluations with students before they are filled out. Evaluations to be in Health Careers office by November 3, 1969.
3. 1968 Student Day evaluation summaries prepared by career professionals.
4. A copy of "Health Careers - Where to Study in Ohio, Kentucky, Indiana" and "Health Careers - Where the Action Is" for every student.

V. MEETING FOR EVALUATION...November 4, 1969, 3:00 p.m., Rm: 410, Comm. Chest Bldg. Please make plans to attend this meeting. It is ONLY with your help that we can properly evaluate and improve this program. Last, but by NO means least..thank you for your understanding and cooperation. Do call if you have questions or suggestions.

MVB:pc
Encls.
6/69..50

DATE SCHEDULE - 1970 - EDUCATORS' HEALTH CAREERS DAY

DECEMBER 8

Mail the School letters with Applications and also send them to other places that have counselors..see listing.
NOTE: Cincinnati Public Schools distribute their own
Send to: Mr. Rammelsberg for the counselors.
Mr. Vordenberg for the science teachers.
Mrs. Worrel for the health teachers.

DECEMBER 20

Publicity .. 1. Initial Publicity - Prepare and mail to:
A. Dailies
B. Area news media
C. Radio and Television
2. Make Envelopes

JANUARY 8
Thursday

APPLICATION DEADLINE for applications to be in Health Careers office.

JANUARY 12
Monday

START TELEPHONING THE SCHOOLS...if it is needed and it always is!
1. Call Auxiliary Chairman and tell her which schools to phone. (They will only call Hamilton County.)
2. Call balance of the schools from the office - Clermont and Ky.

JANUARY 16
to
JANUARY 19

1. ASSIGN EDUCATORS ... see separate instructions on assignment.
2. LITERATURE .... see separate sheet for instructions.
NOTE::: It takes one to two days so GET SET AND GET HELP.

JANUARY 23
Friday

1. Assignments Out to Schools, with the letter to participants.
2. Assignment Lists in Duplicate for the Participating Hospitals with Instruction letters to the people who are in charge.
3. Non-Participating Hospitals .. send their letter.

JANUARY 28
Wednesday

LITERATURE BOXES TO BE READY AND SENT OR PICKED UP BY THE HOSPITALS

JANUARY 30
Friday

PUBLICITY - Final Release out to all Media
Call and write Television and Newspapers.

FEBRUARY 3
Tuesday

PUBLICITY - Mail individual confirmations of the telephone calls.

FEBRUARY 10
Tuesday

THE DAY ITSELF

FEBRUARY 11
Wednesday

ATTENDANCE to be back in Health Careers Office
Reports to schools send them on attendance.

FEBRUARY 12

MOP UP - THANK YOUS .. Hospitals..Publicity..Chmn..Auxiliary, etc. etc.

FEBRUARY 15

1. Evaluation Meeting with Hospital People who had educators.
2. Evaluations must be in Health Careers Assn. Office.

FEBRUARY 18

STATISTICS .. To: Hosp. Adm., AMWA, AHA, AMA, AC.MED. Pres. and Exec. Sec., Hospital Council, Board and Careers Com.
MAIL THE STATISTICS TO EVERYONE .. CHECK IT ALL OUT.

Bind into a book and end it!

2926

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

May 20, 1969

To: HIGH SCHOOL PRINCIPALS, COUNSELORS AND TEACHERS

From: Robert A. Carney, Chairman, Careers Committee
Monica V. Brown, Executive Director

Re: 1969 STUDENT HEALTH CAREERS DAY for Juniors and Seniors in High School

Deadline for applications to be in Health Careers Office...Sept. 26, 1969

Student Day Date: Friday, October 24, 1969

Please mark your calendars for Friday, October 24, 1969 for the twelfth annual Student Health Careers Day for juniors and seniors in high school. The date has been cleared and approval for the event received.

We look forward to your school participation. Full information will be sent to you at the beginning of the 1969-70 school year.

Please know that we are most grateful for the cooperation and assistance of your faculty. May you all enjoy a pleasant summer.

MVB:pc
4/69
100

2913

SIES

February, 1969

EDUCATORS' HEALTH CAREERS DAY - February 11, 1969 - Sixth Annual Event

STATISTICS AND EVALUATION

Following for your information are the Statistics and Evaluation from Educators' Health Careers Day, February 11, 1969. We gratefully acknowledge the cooperation of the hospitals, schools and health professional personnel. We also recognize with thanks, the fine publicity given by all media as a public service to Health Careers Association as a United Appeal Agency.

Assigned: 108 Educators .. 86 Counselors .. 10 Science Teachers .. 12 Health Teachers

Attended: 80% - 86 Educators .. 64 Counselors .. 10 Science Teachers .. 12 Health Teachers

This event is held on a school day. Permission for attendance is given by the institutions. 67 junior and senior high schools, colleges and universities were represented from Ohio and Kentucky.

EVALUATION - Summarized from participants, hospitals and Health Careers Association.

I. Value of Project. Should be continued annually. Awareness and understanding by educators is needed and appreciated. The "action-visual" approach is the most desirable method of effective communication. Individual literature packets were distributed. 5,583 pieces of materials were used.

II. Non-College Opportunities:
1. The use of workers to tell their "success" stories was most helpful.
2. On-the-job training and advancement opportunity gave useful counseling information.
3. Touring supportive areas appreciated.
4. Panel presentation describing the "team" approach most important.

III. Professional Opportunities:
1. Use of Department Heads, as well as students, and ability to speak with students most meaningful.
2. Explanations in working areas much more meaningful than the straight lecture approach.
3. Health team approach and the unlimited opportunities available were well presented.
4. The value of service plus security in the professions was meaningful.
5. The careful planning, personal approach and informal atmosphere encouraged learning and better awareness.

IV. Conclusion. The consensus of participants that the new knowledge gained was relevant to theirs and their students' needs was most gratifying. There was no criticism of the project, which is excellent testimony to the fine organization and teamwork of the planners, doers and participants.

Monica V. Brown

Monica V. Brown, Executive Director
Health Careers Association
February, 1969
150

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

August, 1969

To: High School Principals and Counselors

From: Robert A. Carney, Chairman, Careers Committee
Monica V. Brown, Executive Director

Re: 1969 STUDENT HEALTH CAREERS DAY for Juniors and Seniors in High School
Deadline for application forms to be in Health Careers office Sept. 26, 1969

In May we invited your school participation and look forward to hearing from you. The twelfth annual student Health Careers Day for eleventh and twelfth grade students will be held Friday, October 24, 1969. There are twenty six career choices. Deadline date for applications to be in our office is September 26, 1969. The procedure will be the same as last year.

I. APPLICATION FORMS AND CAREER DESCRIPTION SHEETS are enclosed. If you need more, please call us.
   1. Applicants must have a scholastic average of the equivalent to college entry and counselor endorsement. Exceptions will be made in Practical Nursing and on special counselor recommendation.
   2. All applications should be sent together at one time from your school to our office.
   3. Counselors need sign only the top section of the form.
   4. Deadline date for applications to be in our office--September 26, 1969. If possible, please send before.

II. ASSIGNMENTS will be mailed by October 11, 1969 to each school for distribution by counselors to their students.
   1. Student passes. Student assignment cards will serve as passes. Students must take passes on student day. They will be sent to counselors for distribution.
   2. Instruction letters will be sent with student passes to school counselors for distribution to students.

III. CANCELLATIONS. Students are to notify counselors concerning cancellations and any other situations which may arise. Counselors are asked to advise Health Careers Association of cancellations no later than October 17, 1969.

IV. ATTENDANCE will be reported to schools immediately after student Health Careers Day.

V. POSTERS AND ANNOUNCEMENTS. Two posters are enclosed. Please post on bulletin board. We also suggest:
   1. A health careers display in school library to help students choose a career and learn more about the career they will see.
   2. Public address system announcement to alert students to student day.

VI. ADDITIONAL INFORMATION. Please call our office. We have literature, films and speakers on all health careers. We are happy to serve you.

MVB:pc
Encls.
6/69
150

CIES

EDUCATORS' HEALTH CAREERS DAY
Tuesday, February 13, 1968 - Fifth Annual Event.

STATISTICS

1968					
Assigned:		83 Educators	from 58 Areas -	Counselors 55	Teachers 28
Attended:	89%	74 Educators	from 50 Areas	Counselors 48	Teachers 26
Literature Distributed for Individual Packets:				4,122 pieces	
1967					
Assigned:		77 Educators	from 53 Areas	Counselors 56	Teachers 21
Attended:	83%	63 Educators	from 46 Areas	Counselors 46	Teachers 17
1966					
Assigned:		77 Educators	from 49 Areas	Counselors 53	Teachers 24
Attended:	84%	65 Educators	from 43 Areas	Counselors 42	Teachers 23
1965					
Assigned:		74 Educators	from 34 Areas	Counselors 28	Teachers 46
Attended:	73%	54 Educators	from 25 Areas	Counselors 23	Teachers 31
1964					
Assigned:		68 Educators	from 42 Areas	Counselors 39	Teachers 29
Attended:	92%	62 Educators	from 39 Areas	Counselors 35	Teachers 27

Note: This event is held during school time and teachers and counselors are given permission to attend by their respective school systems and schools.

GENERAL COMMENTS ON EVALUATIONS - SUGGESTIONS AND RECOMMENDATIONS FOR 1969.
(Summarized from participants' evaluations, hospital recommendations and Health Careers Assn.)

Congratulations to the planners, hospital chairmen and career people. Many personal thankyou notes have been received aside from favorable comments on evaluations.

The reaction of the participants this year, clearly showed how carefully the program was planned. The sensitivity of the hospital chairmen and professional people to the needs of the educators, was obviously appreciated.

I. Need for Continuance of Project is even greater now due to increasing number of new health professions and occupations. The "health team" approach is graphically presented.

II. Non-College Opportunities
1. Should be included in all areas.
2. Listing of non-college jobs was appreciated and should be included in all areas. Please compile now from your hospital and send to office.
3. Tours of non-professional job areas where possible.
4. Panel discussions on non-college should be continued.
5. On-the-job training opportunities. Please send us information from your hospital now.
6. Opportunity to speak with non-professionals if possible.

1969 STUDENT HEALTH CAREERS DAY .. APPLICATION INFORMATION .. For 11th & 12th Grade Students

RETURN completed applications to Your School Counselor by September 22, 1969.

Pre-requisite: Only Juniors and Seniors with a scholastic average equivalent to college entry at the end of the 1968-69 school year may apply.

1. Complete and answer EVERY QUESTION in ALL THREE sections of the attached form.
2. Choose your careers carefully. List both 1st and 2nd choice. We will try to assign you to your first choice wherever possible.
3. Be sure your counselor signs the top section.
4. Do NOT send us your application. Give it to your counselor. ALL applications from one school are to be returned together to us by your counselor.
5. If you have any questions, consult your counselor or teacher.

.....

"CAREERS"

Choose TWO and list them on your application. The number of years stated refers to the study time after high school graduation.

1. DENTIST. A professional man or woman who protects people's health by preventing and treating diseases of the mouth and restoring defective teeth. 6-8 years. Doctoral Degree.

2. DENTAL HYGIENIST. A professionally trained woman who assists the dentist. Main duties include dental prophylaxis and dental education of the patient. 2 to 4 years. Associate or Baccalaureate Degree.

3. DIETICIAN & NUTRITIONIST. A woman or man who specializes in foods and nutrition as they affect the health of the people. 4 years plus 1 year internship. Baccalaureate Degree.

4. HOSPITAL ADMINISTRATOR. A man or woman responsible for the administration of all departments of a hospital, including professional and non-professional staff. 5 to 6 years. Master's Degree.

5. PHYSICIAN. A man or woman devoted to the healing arts; who deals intimately with human well being, both physical and mental. 7 to 8 years plus 1 yr. internship. Doctoral Degree.

6. INHALATION THERAPIST. A man or woman who works under the direction of the physician to improve conditions and abnormalities associated with the respiratory and circulatory systems which affect breathing. 2 years. Associate Degree.

7. MEDICAL ILLUSTRATOR. A man or woman who works with physicians, medical educators, research scientists and others to record facts and progress in the health fields by the use of modeling, drawing and photography. 3 to 4 years plus internship. Baccalaureate or Masters.

8. MEDICAL RECORDS SCIENCE. A man or woman who accurately processes, evaluates and indexes information on all patients and hospital procedures to compile and preserve records. 4 years. Baccalaureate Degree.

9. MEDICAL SECRETARY. A woman who works in hospitals, physicians' offices and other medical settings. In addition to regular secretarial skills, specialized training includes medical terminology and basic laboratory procedures. 2 years. Associate Degree.

10. MEDICAL SOCIAL WORKER. A man or woman who helps eliminate social or emotional problems that stand in the way of good health. 5 years. Masters Degree.

11. MEDICAL TECHNOLOGIST. A man or woman who performs scientific fact-finding tests in clinical pathology, research and nuclear medicine laboratories that help track down the cause and show the way to cure and prevention of disease. 4 years. Baccalaureate Degree.

NURSE. A man or woman devoted to the care of a patient as prescribed by a physician. Specify which of the FOUR programs you want. The first THREE are professional nursing leading to the licensure examination to become an R.N. The Practical Nurse education leads to the licensure examination to become a Licensed P.N.

... please see over for further description ...

III. Career Materials greatly appreciated. It is suggested however, that literature be given to participants during luncheon to eliminate fatigue in carrying.

IV. Use of Health Career Educators and Department Heads. Most necessary to continue. Where possible, include a discussion with students, in addition.

Summary of Participants' Comments concerning the Value of the Program.

1. Enthusiasm of personnel encouraged attention. Personnel were well informed, interested in educators and tried to understand their needs in counseling and teaching.

2. Informal atmosphere of discussions, small groups and personal contact with professionals.

3. Awareness of health manpower needs and vast number of openings in all health occupations was realized, both professional and non-professional.

4. Awareness of unlimited opportunities for high school graduates not college-bound.

5. Gained better ability to guide and instill enthusiasm into pupils.

6. Appreciation of professionals' willingness to tell about support areas in their field.

7. Confusion and Uncertainty pertaining to nursing education cleared now.

8. Learning of pre-requisites necessary to enter courses of study most valuable.

9. The value of service besides the monetary rewards that are derived from health careers.

10. Liked meeting those from professions other than the ones viewed, during luncheon.

11. Panel Discussions on Non-College Opportunities greatly appreciated.

12. Kits of literature for future reference will be used. (They are now.)

13. Excellent organization and execution of program.

Many had been previously who commented that this year's program was not only a supplement to previous knowledge gained but even more beneficial.

Monica V. Brown
Executive Director
Health Careers Assn.

Feb. 1968
300

12. BACCALAUREATE DEGREE PROGRAM. Four years professional nursing course in a university.

13. ASSOCIATE DEGREE. Two year professional nursing course in a Junior College, Community College or University.

14. HOSPITAL DIPLOMA PROGRAM. Two to three years professional nursing program in a hospital based nursing school.

15. PRACTICAL NURSING. One year in an approved school. The Practical Nurse works under the supervision of Professional Nurse trained in the Baccalaureate Degree, Associate Degree and Diploma Programs.

16. OCCUPATIONAL THERAPIST. A man or woman who uses purposeful educational and recreational activity as treatment for physical or emotional disability, to restore good health. 4 to 5 years. Baccalaureate Degree.

17. OPTOMETRIST. A man or woman who examines eyes and related structures for visual problems and other abnormalities. Prescribes and adapts lenses and other optic aids. 6 to 7 years. Doctoral Degree.

18. PHARMACIST. A man or woman responsible for preparing, compounding, distributing and dispensing medical and pharmaceutical supplies to the sick and the injured, under the direction of a physician. 5 years. Baccalaureate Degree.

19. PHYSICAL THERAPIST. A man or woman who gives prescribed treatment by using heat, light, water, sound, massage and exercise to restore physical function. 4 to 5 years. Baccalaureate Degree.

20. PODIATRIST. A man or woman who diagnoses and treats ailments of the human foot by medical, surgical, and mechanical means. 6 to 7 years. Doctoral Degree.

21. PSYCHOLOGIST. A man or woman devoted to the study of behavior and its change, both by scientific study and/or as a practitioner. 7-8 years, including one year or more field training in clinical psychology. Master's and Ph.D. Degree.

22. PUBLIC HEALTH EDUCATOR. A man or woman who helps people learn how to keep and improve their health by combining knowledge of biology, sociology, and psychology, with skills of writing, drawing, photography and community organization. They also work as members of the public health team to help plan, organize and develop community interest toward the solution of the health problems of the community. 5 years. Master's Degree.

23. RADIOLOGIC TECHNOLOGIST (X-RAY). A man or woman who is the radiologist's "right hand." The work includes making and processing x-ray films and assisting with therapy under the guidance of the radiologist. 2 to 4 years. 2 years-Certificate or Associate Degree...4 years-Baccalaureate Degree.

24. SANITARIAN..Public Health Sanitarian. A person, usually a man, trained to detect imminent and potential public health hazards and to take steps to eliminate them, thereby promoting and preserving the comfort, well being and health of the public. 4 to 8 years. Baccalaureate..Master's..Ph.D. Degrees.

25. SPEECH PATHOLOGIST & AUDIOLOGIST. A man or woman devoted to helping people overcome disabilities in speech, language or hearing, and who contributes to our knowledge of human communication processes. 4-5 years. Baccalaureate..Master's Degrees.

26. VETERINARIAN. A man or woman skilled in the diagnosis, treatment and prevention of diseases in animals, who protects the health of the community by: preventing the transfer of diseases from animal to man; conserving our livestock resources; engaging in scientific research; and being dedicated to the relief of pain and suffering in all creatures. 6 to 8 years. Doctoral Degree.

EVALUATION SHEET

Health Careers Day for Educators ... Tuesday, February 10, 1970

Hospital Assignment: _____

School: _____ School Position: _____

Your Name and Address: _____

_____

Careers Observed: _____

_____

What did you feel most valuable and why: _____

_____

_____

_____

_____

_____

Your comments, and suggestions for changes and additions: _____

_____

_____

_____

_____

_____

IF, AFTER LOOKING THROUGH YOUR KIT, YOU WISH MORE INFORMATION, PLEASE COMPLETE AND MAIL THE ENCLOSED CARD.

Even if you choose not to identify yourself, please complete this evaluation to aid us in future planning. Thank you.

Monica V. Brown
Executive Director

MVB:pc
11/69 ... 150

2930

1969

COMPLETE "ALL THREE COPIES OF THIS APPLICATION--PRINT IN INK OR TYPE"

Name:
LAST Name First. Print--NOT Write

Address:

City & State:

Zip Code:

Male Female

Home Phone:

Name of Parent or Guardian:

High School:

Been in a Health Careers Club?

Have you been a volunteer? If Yes, state name of Hospital, Health Agency or other place.

Is a family member or relative in the health field? If Yes, state relationship and career.

Leave Blank:

NAME

Career #1

NAME

Career #2

Yr. H.S. Grad.

Yr. of Birth

1969 Average

Attended Careers Day Before?
If Yes, state below where.

Which career seen?

Counselor's Signature

- -

"PASS" 1969

NAME
LAST Name First

SCHOOL School Home Room No.

HOME PHONE Yr. H.S. Grad.

NAME

CAREER CHOICE #1

NAME

CAREER CHOICE #2

Leave Blank

- -

"AREA" THIS SECTION WILL BE ELIMINATED IN 1970. 1969

NAME
LAST Name First

SCHOOL School Home Room No.

HOME PHONE Yr. H.S. Grad.

NAME

CAREER CHOICE #1

NAME

CAREER CHOICE #2

Leave Blank

DHS

2917

DETAIL OF ASSIGNMENTS FOR EDUCATORS HEALTH CAREERS DAY .. FEBRUARY 11, 1969

	Total		Counselors,	Science,	Health
Senior High Schools - Hamilton County ...	54	... 42		5	7
Senior High Schools - Clermont County ...	4	3		-	1
Senior High Schools-Boone & Kenton Co.'s,Ky.	8	8		-	-
Senior High Schools-Campbell County, Ky.	11	8		1	2
Senior High Schools - Grant Co., Ky.	3	1		1	1
Hamilton County - Junior High Schools	12	11		1	-
Kentucky - Junior High Schools	3	3		-	-
Universities	5	5		-	-
TOTALS:::	100	81		8	11

Cinti. Public High Schools - 8 out of 8

Aiken	2
Courter	3
Hughes	4
Taft	3
Walnut Hills	1
Western Hills	2
Withrow	2
Woodward	3
	20

Public and Private Hamilton County - 14 High Schools

Anderson	1
Colerain	1
Finneytown	2
Hillsdale	1
Indian Hill	1
Loveland	2
Madeira	2
Mariemont	1
Mt. Healthy	1
Norwood	1
Oak Hills	2
Princeton	1
Sycamore	1
Taylor	1
	18

Archdiocese of Cinti. High Schools - 11 schools

Elder High School	1
LaSalle	1
McAuley	2
Moeller	1
Mother of Mercy	2
Mt. Notre Dame	1
Our Lady of Angels	1
Purcell	3
St. Ursula Academy	1
St. Xavier	2
Ursuline Academy	1
	16

Clermont County - 4 schools

Batavia	1
Bethel-Tate	1
Milford	1
New Richmond	1
	4

K E N T U C K Y---13 High Schools

Boone & Kenton		Campbell County	
Dixie	3	Bishop Brossart	1
Holy Cross	1	Campbell Co.	3
LaSalette	1	Dayton	1
Ludlow	1	Highlands	4
S.Kenton	1	St. Thomas	1
Villa Mad.	1	Newport Cath.	1
	8		11

SEE NEXT PAGE for remainder of detail.

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

October 10, 1969

To: High School Counselors

From: Monica V. Brown, Executive Director

Re: Student Health Careers Day ... Friday, October 24, 1969

Assignments. Enclosed are the student assignments for your school. Please give your students their assignment passes and instruction letters. Wherever possible, students have been assigned to their first career choice. Changes may not be able to be arranged. They will be considered only in special circumstances.

NOTES:
1. Instruction letters should be read carefully.
2. Passes must be taken by students to the place where they are assigned and given to person in charge.

Cancellations. Please ask students to notify you. We will appreciate you advising us of any cancellations by October 17, 1969. Cancellations after that date may be relayed directly from student to us. However, we prefer to have all cancellations come through the school.

Attendance. Reports will be mailed to you the week of October 27, 1969.

Special Notes: Dentistry. Students will go to individual Dental offices.

Dental Hygiene. All students will go at 1:00 p.m. to Raymond Walters Branch, University of Cincinnati. You may wish to have students attend school that morning.

Optometry. Students will go to individual professional offices.

Podiatry. Students will go to individual professional offices.

Psychology. Students going to University of Cincinnati, report at 8:30 a.m. Luncheon will not be served. Program ends about 1:00 p.m.

Speech and Hearing Therapy. Students assigned to the Cincinnati Speech and Hearing Center report at 8:50 a.m. Luncheon will not be served. Program ends about 12:30 p.m. to 1:00 p.m.

Veterinary Medicine. Students will go to individual veterinary animal hospitals.

THANK YOU ALL for your cooperation and understanding which is of great help to us.

MVB:pc
encls.
100
9/69

2918

Junior High Schools, Hamilton County - 10 schools	
Cutter	2
Eastern Hills	1
Gamble	1
Indian Hill	1
Princeton	1
Merry	1
Porter	1
Roberts	1
Schwab	1
White Oak	1
Woodward	1
	12

Junior High Schools in Kentucky - 2 schools	
Turkey Foot	2
Holmes	1
	3

Other than High Schools and Junior High Schools - 4 places	
Miami Univ., Middletown campus	1
Univ. Ky. Northern Com. College	2
Univ. Cinti. College of Medicine	1
Jewish Vocational Service	1
	5

BREAKDOWN OF THE DIFFERENT AREAS .. 67 total areas.
100 people.

Hamilton County Area	33
Clermont County	4
Boone and Kenton Counties, Kentucky	6
Campbell County Kentucky	6
Grant County Kentucky	1
Ohio Junior High Schools	11
Kentucky Junior High Schools	2
Miami University	1
University of Ky. Northern Community College	1
University of Cincinnati	1
Jewish Vocational Service	1
TOTAL JUNIOR AND SENIOR HIGH SCHOOLS AND COLLEGES	67
TOTAL NUMBER OF PEOPLE	100

Health Careers Association of Greater Cincinnati
2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown
A United Appeal Agency

TO: High School Principals and Counselors
FROM: Monica V. Brown, Executive Director
RE: Student Health Careers Day .... October 24, 1969

We deeply appreciate your cooperation and assistance with the twelfth annual Student Health Careers Day. The results of our combined efforts in the assignment of 1,428 students from 73 senior high schools in Ohio and Kentucky was most gratifying. Twenty six health professions were observed in 69 different places. There were 15,846 pieces of professional literature and information distributed.

The chairmen in charge of the day in the various assignment areas were most impressed with the interest, intelligence and decorum of your students. We know that this is a result of your careful screening and instructions.

Your school attendance list is enclosed. The comparative assignment and attendance figures for the last five years appear below.

We are grateful for your consideration, without which this vast project could not succeed. Any comments or suggestions you may wish to make will be most helpful to us for future planning.

- -

1969
1,428 Assigned ... 1,214 Attended (85%) ..... 214 Absent (15%)
Of those absent, 69 Cancelled (31%) and 145 Failed to Notify (69%).

1968
1,272 Assigned ... 1,105 Attended (87%) ..... 167 Absent (13%)
Of those absent, 58 Cancelled (35%) and 109 Failed to Notify (65%).

1967
1,206 Assigned (23 Extras) ... 1,027 Attended (84%) ..... 202 Absent (16%)
Of those absent, 85 Cancelled (41%) and 117 Failed to Notify (59%).

1966
1,208 Assigned ... 1,030 Attended (85%) ..... 188 Absent (15%)
Of those absent, 74 Cancelled (40%) and 113 Failed to Notify (60%).
The difference of 10 (.8%) is due to the fact that 10 students appeared, either unassigned, or in areas other than assigned.

1965
1,041 Assigned ... 962 Attended (92.41%) ..... 99 Absent (9.5%)
Of those absent, 28 Cancelled (28%) and 71 Failed to Notify (72%).
The difference of 20 (2%) is due to the fact that 20 students appeared, either unassigned, or in areas other than assigned.

MVB:pc
Encl.
11/1/69
100

2919

EDUCATORS' HEALTH CAREERS DAY

SUGGESTED PROGRAM

9:00 A.M. Greetings ... refreshments.

Orientation to the Health Working world and the scope of the health field ..... Hospital Administrator

9:30 A.M. to 12:30 P.M. See three professional careers of choice.

Meet with department heads ... Emphasize educational requirements ... Type of work procedures - show them.

Meet with students - get their reactions.

Meet with regularly employed professionals.

12:30 P.M. Luncheon as the guest of the hospital.

1:15 P.M. Panel of on-the-job success stories.

Visit to work areas.

General tour if possible.

Evaluation ... Wrapup questions and answers.

Participants are to be asked to be frank on evaluations; they do not have to identify themselves if they do not wish to do so.

Similar announcements were sent to and used by high school newspapers, weeklies, dailies, radio and T.V. stations, internal house organs and so forth.

FOR RELEASE: WEEK OF SEPTEMBER 2, 1969

SUBJECT: STUDENT HEALTH CAREERS DAY...Application Deadline Date September 26, 1969

FROM: Monica V. Brown, Executive Director
(Home telephone 961-0404)

Juniors and seniors in high school are being offered the opportunity to "Explore a Health Career" on Student Health Careers Day Friday, October 24, 1969. Health Careers Association of Greater Cincinnati invites qualified eleventh and twelfth graders from all high schools in Greater Cincinnati and Northern Kentucky on October 24, 1969 to learn about the health career of their choice by "seeing it as it is" in action in a work situation in a hospital, health facility or university. The twenty-six careers include physician, dentist, psychologist, veterinarian, optometrist, podiatrist, hospital administrator, medical social worker, pharmacist, public health educator, dietician, medical illustrator, medical records librarian, medical technologist, medical secretary, public health sanitarian, inhalation therapist, speech and hearing therapist, occupational therapist, physical therapist, dental hygienist, nurse and x-ray technologist.

Application forms and information may be obtained from high school counselors or Health Careers Association, 2400 Reading Road, Cincinnati, Ohio 45202, 721-3160. Monica V. Brown, Executive Director, urges students to apply immediately, since the deadline for applications is September 26, 1969.

Student Health Careers Day, sponsored by Health Careers Association of Greater Cincinnati, a United Appeal agency, is conducted in cooperation with metropolitan Greater Cincinnati area public, private and parochial school systems, universities, hospitals, public and voluntary health agencies and professional organizations representing the careers listed above. Over one thousand participants are expected to be present at this major effort to interest young people in health careers.

Sample of actual program.

GOOD SAMARITAN HOSPITAL

HEALTH CAREERS DAY FOR EDUCATORS
Tuesday, February 11, 1969

MISS VIRGINIA HELD
Dixie Heights High School

SCHEDULE

9:00 - 9:30 a.m.	REGISTRATION AND COFFEE		Century Room
9:30 - 10:30 a.m.	MEDICAL RECORDS	Sister Rose Denise Director, Medical Records Dept.	Medical Records Dept.
10:40 - 11:40 a.m.	SPEECH THERAPY	Miss Sylvia Doherty Speech Therapist	Speech Therapy Dept.
11:50 - 12:50 p.m.	DIETETICS	Sister Lorraine Resident, Dietary Administration	Nutrition Classroom
1:00 - 2:30 p.m.	LUNCHEON AND PROGRAM		Century Room

Panel: Ancillary Personnel

Moderator: Mr. Robert Pfeiffenberger
Assistant Administrator

ADJOURNMENT

Students will watch health teams at work in the Cincinnati Health Department, University of Cincinnati Community Psychology Institute, Xavier University, Veterinary Medical Hospitals, Dental, Podiatry and Optometry offices, Cincinnati Speech and Hearing Center, United Cerebral Palsy Center, Community Chest building and the following hospitals: Bethesda, Children's, Christ, Cincinnati General, Convalescent Hospital for Children, Deaconess, Daniel Drake Memorial, Good Samaritan, Jewish, Our Lady of Mercy, St. Francis, St. George, St. Mary's, Veterans, Wm. Booth Memorial, St. Elizabeth, St. Luke, St. Charles Nursing Home.

The critical shortage of health manpower is the prime concern of Health Careers Association of Greater Cincinnati, which supplements Student Careers Day with a continuous year round program, said Monica V. Brown, Executive Director of the Association. Co-sponsored with the Woman's Auxiliary of the Academy of Medicine of Cincinnati are Health Careers Clubs in junior and senior high schools. Speakers, films and programs are provided free to all schools for in-class sessions, career days and special events. An annual Educators' Day is given for guidance counselors, science and health teachers. A special Hospital Job program is also offered for non-college bound students.

The Greater Cincinnati community continues to have one of the leading health career manpower and recruitment projects in the nation. The annual education requirements to schools of nursing and x-ray are used extensively. However, much more MUST be done to ensure good health care and prevention of disease in our community. We hope that the Greater Cincinnati community will provide the resources to expand health career recruitment efforts. An important way each one of us can help this program is through our United Appeal gift.

MVB:pc
Encl. - "Health Careers Association" brochure
300
6/69

2921

USPS

LITERATURE AND PACKETS FOR EDUCATORS HEALTH CAREERS DAY

Each participant will receive one brochure or pamphlet each of the following. If there are special folders, they will be compiled by the Association and given to site areas in packets with names. If no folders, they will be given in bulk for the site areas to make their own packets.

In addition to the literature, be sure to include reply cards .. evaluation forms and any special material. Site areas also receive copies of tally sheets and assignment sheets. Also include 1969 Annual Activities Report for each person.

Dental Assistant - Accredited program list

Dental Assistant - This could be You

Careers in Dental Hygiene - Mauve booklet

Careers in Dental Hygiene - Blue Folder

Dental Hygiene - A Career with a Future brochure

Dental Hygiene - Aptitude Testing Program and card

Dental Hygiene - Accredited Program list

Dentistry - Careers in Dentistry - brown booklet

Dentistry a Career for Women - brown brochure

Dentistry - Accredited Dental School list

Dental Aptitude Testing Program booklet

Dental Laboratory - Accredited Program list

Dietetics as a Profession - booklet

Dietetics - Food and Nutrition - Institutional Management - Assn. guide to programs

Medical Dietetics at Ohio State University ..? (if enough)

Hospital Administration as a Career .. (if enough)

Hospital Administration - Xavier University .. (ask them for 150)

Hospital Administration - Ohio State University new program-Hosp.& Health Services Adm.

Inhalation Therapy .. (if enough)

Circulation Technology at Ohio State University

Medical Assistant brochures - (if we have them)

Medical Illustration brochures - (if enough and if not check with Univ. of Cincinnati).

Medical Illustration - (list of approved schools)

Medical Illustration at Ohio State University

Medical Laboratory - What Kind of a Career in the Med. Lab. booklet

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

TO: EDITORS OF GREATER CINCINNATI COMMUNITY NEWSPAPERS

SUBJECT: STUDENT HEALTH CAREERS DAY ... Friday, October 24, 1969
"EXPLORE A HEALTH CAREER"

FROM: Monica V. Brown, Executive Director
(Home telephone: 961-0404)

One thousand four hundred and six (1406) eleventh and twelfth grade students from seventy three (73) senior high schools in the five county United Appeal area of Greater Cincinnati and Northern Kentucky have been assigned to view their chosen health career on Friday, October 24, 1969.

Following is a list of the participating schools. If you wish the names of the students from your area schools, please telephone us and we will give them to you.

Hamilton and Clermont Counties, Ohio

Academy of the Sacred Heart	Lincoln Heights	Oak Hills	Walnut Hills
Aiken	Loveland	Our Lady of Angels	Western Hills
Anderson	Madeira	Princeton	Withrow
Colerain	Marian	Purcell	Woodward
College Preparatory	Mariemont	Reading	Wyoming
Courter Technical	McAuley	Regina	Amelia
Deer Park	McNicholas	St. Ursula	Batavia
Elder	Moeller	St. Xavier	Bethel-Tate
Finneytown	Mother of Mercy	Seton	Glen Este
Greenhills	Mt. Healthy	Summit Country Day	Milford
Hughes	Mt. Notre Dame	Sycamore	New Richmond
Indian Hill	North College Hill	Taft	Clermont Northeastern
LaSalle	Norwood	Ursuline Academy	Williamsburg

Boone, Campbell and Kenton Counties in Kentucky

Beechwood	Dayton	Dixie Heights	St. Henry
Bellevue	Highlands	Holmes	Simon Kenton
Bishop Brossart	Newport High	Holy Cross	Villa Madonna Academy
Campbell County	Our Lady of Providence	LaSalette Academy	
Covington Catholic	St. Thomas	Ludlow	
Covington Latin	Boone County	Notre Dame Academy	

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2922

Medical Laboratory - Careers With a Future single color sheet - (maybe)

Medical Laboratory - Career Facts

Medical Technology - List of Approved Schools

Medical Radioisotope Technology at Univ. of Cincinnati, Raymond Walters Branch

Medical Record Librarian folders - blue

Medical Record Technician brochures

Medical Record Librarian and Medical Record Technicians Approved School listings

Medical Secretary - (if we have any left)

Medical Social Work - A Career in Social Work brochure

20 Questions and Answers - Social Work

Is This Your Line - Social Work

Medicine - Horizons Unlimited

Medicine as a Career for Women booklet - (if we have any)

Medicine - This Can Be For You - Girls are Choosing Medicine - (if we have them)

Mental Health - Career Opportunities in the Field of Mental Health & Mental Retardation

Mental Health - Choose a Career In - (if we have enough)

Nursing - Educational Requirements Guide to Accredited Programs in the Area

Nursing - Do You Want to be a Nurse - green booklet

Nursing - Husband, Father Humanitarian-Nurse to those seeing nursing

Scholarships and Loans beginning education in Nursing 41-410

Nursing Can Turn You On - special piece for minority groups

Associate Degree Nursing at Raymond Walters Branch, University of Cincinnati

Occupational Therapy Handbook

Occupational Therapy - Fact Sheet

Occupational Therapy Where to Look for Financial Help sheet

Optometry - Monograph - (if enough)

Optometry - A Career with Vision - (if we have enough)

Pharmacy - The University of Cincinnati bulletin

Pharmacy - Career Opportunities in Pharmacy by Pfizer

Pharmacy - See Your Future In - (if we have enough)

Physical Therapy - our brochures

II. EDUCATORS HEALTH CAREERS DAY

This project is designed to provide the educator with that vitally needed added dimension of understanding through observation of the health professions and jobs in a work setting. It equips the educator with more and better information about health manpower opportunities with which to guide the student considering a future career. It brings those who counsel and teach in an academic setting into close contact with the working world of the health services community.

This program is for counselors, health, and science teachers. It takes place in hospital settings and includes the components of the two student days with added emphasis on needed educational preparation and student motivation. Most participants come from junior and senior high schools, with some from colleges, universities and other educational agencies and institutions. They are given an overview of the health team concept and opportunities in the health field including professional, vocational, technical and other positions. They meet with those who teach the health professionals, students in training and graduates at work. They speak with those people who have achieved vertical and horizontal mobility on the job. Complete literature kits on health careers and jobs are given to all participants. Individual evaluations are completed by all taking part; these are discussed at the Association evaluation meeting and used in planning for the following year.

The project was initiated in 1964 to show health professional areas and expanded to include non-college opportunities in 1967. Greater Cincinnati and Northern Kentucky schools release educators from regular school classes and duties to attend on a school day. Coordination and cooperation between schools, hospitals and health professions is unparalleled.

Physical Therapy school lists

Physical Therapy Sources of Financial Assistance for students

Podiatry as a Career -orange book .. (if enough)

Podiatry Students Considering a Career in - (if we have enough)

Psychology - A Career in Psychology book - (if we have enough)

Public Health - Health Education as Your Career

Sanitarian - Open Door brochures and any other .. (mix them)

Recreation Therapy - Recreation with the Ill and Handicapped

Speech Pathology and Audiology - purple book .. (if we have enough)

A Career in Speech Pathology and Audiology - beige folder

A Career in Speech Pathology and Audiology - black folder

College and University Programs in Speech Pathology and Audiology - blue and gold folder

Veterinary Medicine - Lab and Field .. (only if new supply comes in)

Dimensions of Veterinary Medicine

Veterinary Medicine at Ohio State University

Veterinary Medicine as a Career for Women

Radiologic Technology - our educational guide

Radiologic Technology - Univ. of Cincinnati, Raymond Walters Branch brochure

Radiologic Technology Careers In - (if enough)

Radiologic Technology Approved school list - (if enough)

General Materials

Association Brochure

1969 Annual Activities Report

Reply Cards

More Than 200 Health Career Opportunities for You blue sheet

Help to Grow Wall folder

Help to Grow Wall poster

Health Careers Where the Action Is

Jobs Happen-Careers Don't

Fit Yourself Into a Hospital Job booklet

University of Cincinnati, Raymond Walters Branch 1970-71 bulletin

What About the Future brochure for students

Films & Speakers booklet - (if enough)

Health Careers Association of Greater Cincinnati
2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown
A United Appeal Agency

November 14, 1968

TO: Hospital Administrators

FROM: Robert A. Carney, Chairman, Careers Committee
Monica V. Brown, Executive Director

RE: EDUCATORS' HEALTH CAREERS DAY .... TUESDAY, FEBRUARY 11, 1969

The Sixth Annual Health Careers Day for Counselors, Health Teachers and Science Teachers in a hospital setting will take place Tuesday, February 11, 1969 from 9:00 a.m. to 2:30 p.m.

This program has again been developed in cooperation with educators of the Cincinnati Public Schools, the Archdiocese of Cincinnati and Diocese of Covington. Invitations will be sent to all junior and senior high school educators in the five county area. Educators will be asked to give six career choices and will view at least the first one or two of their choices plus one other, making a total of three areas.

Non-College Opportunities. In addition, panel presentations of non-college opportunities and on-the-job training for high school graduates will be continued in response to the increased interest by the school people and the need by hospitals for employees.

The program will take place on a school day. This means that those educators who attend will have been given special permission by their schools to come. It is of credit to us all that the school systems consider this program so valuable. We therefore look again to the department heads to give the educators authoritative information. The impact of this program is evident in the increasing acceptance of our efforts and the willingness on the part of the school systems to cooperate with us.

As you know, we have no estimate of the number of participants. The deadline date for applications is January 10, 1968. We will advise you further on details no later than January 25, 1969. Due to their limited number and the career choices, not all hospitals will be used. However in publicity - no individual hospital names will be mentioned.

With your permission we will assume that the hospitals will be able to explain those careers offered for Student Health Careers Day, and that the contact person from your hospital will be the same as student day. For your information, the listing of careers and the name of your chairman is enclosed. As you know, we now include Optometry, Psychology and Podiatry in our careers activities. If you feel you will be able to show Optometry, Psychology, Podiatry, Dentistry or Veterinary Medicine in addition to other careers at your hospital, or if you wish to make changes, please let us know immediately.

We thank you for your continuing cooperation in our mutual efforts to stimulate interest in health manpower and inform people of the importance and the need for people to go into the health careers field.

We look forward to hearing from you and to working with you.

MVB:pc
Encl.
75
11/68

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

TO: Principals of Junior and Senior High Schools

FROM: Robert A. Carney, Chairman, Careers Committee
Monica V. Brown, Executive Director

RE: HEALTH CAREERS DAY FOR EDUCATORS ... Tuesday, February 10, 1970
Application Deadline: January 8, 1970

We are pleased to invite your Counselors, Health Teachers and Science Teachers to again participate in Educators' Health Careers Day in a hospital setting. The date scheduled is Tuesday, February 10, 1970.

We appreciate the necessity for release time and that only a certain number of people can attend each year. However, we assure you that the program will justify such release time for some of your staff members, as it has done for those educators who attended in past years. The program has been developed in cooperation with educators of the Cincinnati Public Schools, Archdiocese of Cincinnati and other school boards.

This will NOT be a superficial hospital tour. It will be an observation of health careers at work to aid educators in relating to students a better understanding of health careers and their application in assuring the good health of the community. The day begins at 9:00 a.m. Three careers will be shown. Department heads will explain the careers in detail. Participants will be luncheon guests of the hospital. The program will also include discussion of non-college and on-the-job training opportunities for high school graduates. This will be in the form of panel discussions with department heads and full information will be given. Evaluations and summation will end the event between 2:30 and 3:00 p.m.

Following are the career choices: Dentistry; Dietetics; Hospital Administration; Inhalation Therapy; Medicine; Medical Illustration; Medical Records; Medical Social Work; Medical Technology; Nursing--all four programs (Baccalaureate..Associate Degree.. Diploma..Practical Nurse); Occupational Therapy; Optometry; Pharmacy; Physical Therapy; Podiatry; Psychology; Speech and Hearing Therapy; Veterinary Medicine and Radiologic Technology (X-Ray).

Please give the enclosed applications to your Counselors, Health Teachers and Science Teachers given approval to participate in this program. Should you need more applications, please let us know. Each prospective applicant should complete both sections of the form and return it to us. Applicants should list six (6) career choices in order of preference. They will see three (3) of these, including their first, and in most cases, their second choice. Deadline date for applications to be in our office is January 8, 1970. We will mail confirmation and assignments to the school. Should anyone not be able to attend, please notify us by February 4, 1970.

We look forward with pleasure to your school participation. If your school is not able to participate, we would appreciate you letting us know.

RAC/MVB/pc
Encls...3 apps.
11/69
200

APPLICATION

HEALTH CAREERS DAY FOR EDUCATORS...February 10, 1970

Deadline Date....January 9, 1970

1. Please complete BOTH sections.
2. List 6 CAREER CHOICES. You will see 3 of these including your first and in most instances, your second choice.
3. RETURN APPLICATION INTACT to us no later than JANUARY 9, 1970.

DENTISTRY	MED. RECORDS	OCC. THERAPY	PSYCHOLOGY
DIETETICS	MED. SOCIAL WORK	OPTOMETRY	SPEECH & HEARING
HOSPITAL ADM.	MED. TECHNOLOGY &	PHARMACY	VETERINARY MED.
INHALATION THERAPY	LABORATORY CAREERS	PHYS. THERAPY	RADIOLOGIC
MEDICINE	NURSING (ALL pro-	PODIATRY	TECHNOLOGY (X-Ray)
MED. ILLUSTRATION	grams explained)		

PLEASE PRINT OR TYPE:

School:_____ Assign:_____ (Leave blank)

School Position:_____ School Telephone:_____

Name:_____ Home Telephone:_____
(Last name first)

Attended Educators Day Before? Yes:_____ No:_____

If Yes, where?_____

FILL IN YOUR 6 CAREER CHOICES:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

ASSIGNMENT

PLEASE PRINT OR TYPE

Hospital Contact _____

School:_____ Hospital _____ (Leave blank)

School Position:_____ School Telephone:_____

Name:_____
(Last name first)

_____

_____

_____

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

January 24, 1970

To: Participants

From: Robert A. Carney, Chairman, Health Careers Committee
Monica V. Brown, Executive Director

Re: EDUCATORS' HEALTH CAREERS DAY
Tuesday, February 10, 1970
Reporting Time: 9:00 a.m.
Program Ends: 2:30 p.m.

We are pleased to enclose your assignment for Educators' Health Careers Day.

Please report to the front entrance of the hospital designated on your assignment card. Unless notified otherwise, you will be met there by the hospital personnel.

If you cannot come, please notify the hospital chairman by February 5, 1970. If you have questions concerning directions or parking, please telephone your hospital chairman whose name appears on your assignment card. Please stay for the entire program.

Thank you for your interest and cooperation. We will do our utmost to make your day worthwhile.

MVB:pc
encl.
100

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

Similar announcements were sent to and used by high school and special interest newspapers, dailies, radio and T.V. stations, and so forth.

FOR: IMMEDIATE RELEASE

RE: EDUCATORS' HEALTH CAREERS DAY ... TUESDAY, FEBRUARY 10, 1970

FROM: MONICA V. BROWN, EXECUTIVE DIRECTOR

HEALTH CAREERS DAY FOR COUNSELORS, SCIENCE TEACHERS AND HEALTH TEACHERS, SPONSORED BY HEALTH CAREERS ASSOCIATION OF GREATER CINCINNATI IS SCHEDULED FOR TUESDAY, FEBRUARY 10, 1970.

EDUCATORS FROM AREAS, WHICH INCLUDE JUNIOR AND SENIOR HIGH SCHOOLS AND UNIVERSITIES IN GREATER CINCINNATI AND NORTHERN KENTUCKY, WILL OBSERVE AND LEARN ABOUT THREE PROFESSIONAL HEALTH CAREERS THEY HAVE CHOSEN IN A HOSPITAL WORK SETTING FROM 9:00 A.M. UNTIL 2:30 P.M.

HEALTH JOB OPPORTUNITIES FOR THE NON-COLLEGE BOUND HIGH SCHOOL GRADUATE WILL ALSO BE HIGHLIGHTED IN PANEL PRESENTATIONS AND TOURS DURING AND AFTER LUNCHEON, SAID MRS. MONICA V. BROWN, EXECUTIVE DIRECTOR OF THE ASSOCIATION.

CAREERS TO BE DEMONSTRATED AND EXPLAINED IN MEMBER HOSPITALS OF THE GREATER CINCINNATI HOSPITAL COUNCIL ARE: DIETETICS, HOSPITAL ADMINISTRATION, INHALATION THERAPY, MEDICINE, SOCIAL WORK, MEDICAL ILLUSTRATION, MEDICAL RECORDS, MEDICAL LABORATORY CAREERS, ALL PHASES OF NURSING, OCCUPATIONAL THERAPY, PHARMACY, PHYSICAL THERAPY, PODIATRY, PSYCHOLOGY, RADIOLOGIC TECHNOLOGY, SPEECH PATHOLOGY & AUDIOLOGY, VETERINARY MEDICINE. LITERATURE PACKETS PROVIDED BY THE PROFESSIONAL HEALTH ORGANIZATIONS WILL BE GIVEN TO THE PARTICIPANTS.

THE OPPORTUNITIES FOR JOBS IN THE HEALTH FIELD ARE UNLIMITED. THIS PROGRAM OFFERS THOSE WHO GUIDE AND TEACH OUR YOUTH THE CHANCE TO LEARN ABOUT THE CHALLENGING FUTURES IN CAREERS IN HEALTH.

.....END.....

MVB:pc .. 1/70 .. 100

2942

III. HOSPITAL JOB DAY

Hospital Job Day, sponsored, planned and carried out by Health Careers Association, provides the non-college bound student planning to enter the job market after high school graduation with a special opportunity to spend the day "on-the-job" learning and seeing for himself the challenges, satisfactions and promotional possibilities in employment in the working world of hospitals. The project is designed to be both motivational and educational.

Hospital Job Day was introduced on short notice as a crash pilot program on May 1, 1968 in response to requests from the schools and the community to provide a program for twelfth grade students not planning to go on to higher education after high school graduation. The percentage of disadvantaged, low-achieving, economically depressed and special education students participating in the professional careers day and other activities was low. Hospital Job Day enables these students to learn the range and scope of jobs and how to apply for them. It also motivates the student to think of career mobility and stresses continuing education and on-the-job training for advancement.

In 1969, the program was extended from two hours to a full school day. In 1970, eleventh as well as twelfth grade students will be invited to participate. Greater Cincinnati and Northern Kentucky schools officially approve and support the project. They permit students permission to be absent from regular school classes to attend, since the event takes place on a school day. Counselors screen the applicants and handle the applications which are sent in bulk to Health Careers Association office for assignment. Student attendance is reported back to the schools. Hospital members of the Greater Cincinnati Hospital Council appoint personnel directors as chairmen to work with the Association. They in turn handle the intra-hospital arrangements for the day. Total evaluation of the project is made by student participants, high school faculty observers, hospital personnel and the Association in order to plan for the following year.

Israel Light, Ed.D., in his speech given in February, 1969 to the 65th Annual Congress on Medical Education sponsored by the American Medical Association Council on Medical Education, stated "practically all of the public (especially secondary) education is geared to the 20 per cent of students who are college bound. The other 80 percent must find their way somehow."

The Hospital Job Day was a pilot project for the country and is another instance of positive health manpower action planning conducted by Health Careers Association of Greater Cincinnati.

1970 HOSPITAL JOB DAY .. DATE SCHEDULE
Date of Project: April 16, 1970 .. Full Day
9:00 A.M. to 2:30 P.M. Luncheon provided by Hospitals.

June 1969	Cleared Date and received approval from major school systems.
December 1969- January 1970	Preparation of Materials: 1. Letters to Hospital Administrators 2. Acceptance Forms for Hospitals 3. School Letters 4. Applications 5. Student Instruction Letters 6. School Assignment Letters 7. Student Evaluation Forms 8. Intra-Hospital Evaluation Forms 9. Hospital Chairmen Assignment Letters 10. Literature and other materials 11. Envelope Sets - Hospital, School and Mass Media 12. Rule up work sheets for office use A. Schools B. Hospitals c. C. Assignments D. Literature
January 28, 1970	Hospital Advice Letters to Administrators and Chairmen
February 9, 1970	Acceptance forms from hospitals must be in by this date with numbers of students.
February 9, 1970- March 3, 1970	Finalize all materials .. Letter to all Senior High Schools with applications Cincinnati Public Schools must be taken in their addressed envelopes to the Education Center and they go with cover letters of approval from the Guidance Director .. spot check by phone .. FIRST NEWS RELEASE .. WRITE INDIVIDUAL LETTERS TO DAILIES GENERAL RELEASE FOR WEEKLIES AND SPECIAL INTEREST. SEND TO RADIO STATIONS - "WRITE SPOTS".
March 10, 1970	APPLICATIONS TO BE BACK IN THE OFFICE .. if not phone contact.
March 26, 1970	Office deadline to be finished with assignment and mail passes and assignments to school. Send Cincinnati Public Schools, Archdiocese of Cincinnati details of their school assignment.
March 31, 1970	Hopeful office deadline to have assignments ready for hospitals SECOND NEWS RELEASE .....
April 7, 1970	LITERATURE READY WITH ALL THE DATA FOR THE HOSPITALS AND BOXES IN ORDER.
April 16, 1970	THE DAY ..... BE SURE AND TRY TO HAVE DAILY, RADIO AND TELEVISION COVERAGE.
April 17, 1970	Attendance to be back from Hospitals. WRAP UP AND START THANKING AND PLANNING FOR EVALUATION MEETING
April 20, 1970	SCHOOLS TO BE NOTIFIED OF ATTENDANCE
April 23, 1970	EVALUATION MEETING WITH HOSPITAL AND SCHOOL PEOPLE .. EVALUATIONS TO BE BACK IN THE OFFICE WITH SUMMARIES.
April 24, 1970	STATISTICS AND PROCEED TO "STUDENT HEALTH CAREERS DAY" MATERIALS THE FIRST OF WHICH SHOULD ALREADY BE OUT BY THIS DATE!!!

May 12, 1969

HOSPITAL JOB DAY - MAY 1, 1969

MINUTES OF EVALUATION MEETING - held May 8, 1969, Rm.409, Community Chest Bldg., 2:30 p.m.

Hospital Chairmen Present: 10 — Childrens Hospital, Mrs. Barbara Moorfield .. Cincinnati General Hospital, Mrs. Edna Caywood .. Convalescent Hospital for Children, Mrs. Evelyn Foutch .. Good Samaritan Hospital, Miss Harriet Janszen .. Jewish Hospital, Mrs. Alice Williams .. St. Elizabeth Hospital, Miss Norma Michael .. St. Francis Hospital, Jack Reinstatler .. St. Mary Hospital, Ernest Prater .. Veterans Administration Hospital, Mrs. Helen Orletsky .. William Booth Memorial Hospital, Thomas A. Turner.

Absent: 6 — Bethesda, Harry Kilb .. Christ, Mrs. R.L. Hosick .. Deaconess, Alan Casey .. Our Lady of Mercy, Wilbur Callahan .. St. George, Anthony Carle .. Speers, Fred Dober. The reports of those absent are incorporated into the minutes.

Staff Present: 2 — Monica V. Brown, Priscilla Cordell.

The meeting was chaired by Monica V. Brown, Executive Director, Health Careers Association.

Meeting Format:

I. Statistics.
II. General reaction and comments from chairmen.
III. General discussion and interaction.
IV. Summary and final recommendations.

Assignment: 456 students from 46 senior high schools in 7 counties in Ohio and Kentucky.

Attendance: 380 students .. 83% .. 44 senior high schools in 7 counties in Ohio and Kentucky.

NOTE: This program was held on a school day. Students were granted special permission to attend.

Counselor-Job-Work Coordinators: 5 in attendance
Site Areas: 16 hospitals in Greater Cincinnati and Northern Kentucky
Job Categories: Five .. Business, Dietary, Patient Care, Maintenance and Technical
Literature: 912 pieces plus special materials
Publicity: Full media coverage
Student Reaction: Excellent

NOTE: Full detail of the statistics and final report is attached and to be considered part of these minutes.

The chairmen present individually discussed their programs. There was full general discussion, interaction and critique after which recommendations were made. Following is the meeting summary:

The full day project should be continued. It was a much better program than the half-day. The staff of the hospitals was most enthusiastic and reacted favorably to the participants. This was evident in the students' evaluations. The appearance, behaviour and attitude of the students was commendable. They had been well screened by school counselors. Where vacancies existed, students were invited to make formal job application. Students were shown and completed dummy application blanks. Chairmen were pleased about the ability of some students.

The work tasks given were performed willingly and well. Many students had previous part-time work experience.

The small groups were most advantageous and should be continued. In most cases, there was a maximum of three to one ratio and in many hospitals it was one to one.

More male students should be encouraged to attend all projects.

The project was a valuable public relations image for the hospitals in particular and the health field in general.

Counselors and teachers are now being made more aware of hospital job opportunities through Educators' Day and new literature. Hopefully their knowledge will increase even more in the future.

The "Fit Yourself Into a Hospital Job" booklet describing 36 hospital jobs was well received by everyone. This is the Association's new publication designed and developed cooperatively with hospital personnel directors.

Eleventh Grade students should be included in 1970 as well as twelfth graders. The format need not be changed because the program is primarily educational. For the 11th grader, motivation will be stimulated toward a professional health career. Students who state they are not going to college, change their minds in both the 11th and 12th grades. There have already been enquiries about professional careers from students as a result of Hospital Job Day. The additional students can be accommodated. Everyone agreed they would be willing to have more participants for the day.

March or April was recommended as a better time for Hospital Job Day. The school systems will be approached to see if an earlier date can be cleared. Exchange of dates with other health careers projects would not be practical.

All Health Careers Association programs are open to everyone. There is no method of determining the number of members from racial minority groups. However, it was estimated that for Hospital Job Day there was approximately 50% representation.

It was recommended that adult observers not be included in student projects. In their eagerness to learn, the observers sometimes inhibit the students. Only in very special circumstances, should observers attend. It should be made clear that questions be withheld until students have had an opportunity to react. Observers should remain for the entire period in order to appreciate the scope of the project.

Educators' Day and Student Health Careers Day were briefly discussed.

1. Educators' Day - It was recommended that the present format of three professional careers in the morning and hospital jobs presentation in the afternoon be continued. There were suggestions of two professional careers only and/or a separate job day for educators.

2. Student Health Careers Day - Friday, October 24, 1969 - Plans are completed and the first school mailing is ready. All site areas have been notified.

Influence of Health Careers Association Activities on hospital employees was discussed. A survey in one hospital showed that a large number of the employees had been influenced by Health Careers Association programs while in high school. Other hospital representatives also expressed the influence of Association programs on their employees. Financial information about the Associatic was given. The satisfactory reaction to the Association activities was most gratifying.

Thanks were expressed in behalf of Health Careers Association to all those who worked cooperatively to plan and implement Hospital Job Day. The Association projects prove the value of coordinated community planning and the use of community resources to complement formal education and relate the world of work to our future citizens. The cooperation of the hospitals, schools, public media and health personnel is gratefully acknowledged.

Meeting adjourned at 4:15 p.m.

Monica V. Brown

MVB:pc
5/69 .. 200

Monica V. Brown
Executive Director

May 9, 1969

HOSPITAL JOB DAY - MAY 1, 1969

STATISTICS AND FINAL REPORT

I. NUMBER OF SCHOOLS AND STUDENTS

County	Schools		Students	
	No. Assigned	No. Present	No. Assigned	No. Present
Hamilton	29	28	314	254
Clermont	4	3	45	36
Butler	1	1	6	6
Brown	1	1	2	2
OHIO TOTALS :::	35	33	367	298
Boone & Kenton	8	8	76	71
Campbell	3	3	13	11
KENTUCKY TOTALS:	11	11	89	82
GRAND TOTALS::7 counties	46	44	456	380..83%

NOTE: This Project was held on a school day. All students were given special permission to attend.

II. COUNSELOR-JOB-WORK COORDINATORS

Five counselor-job-work coordinators from the Cincinnati Public School system also attended to learn about the program and the job possibilities for students.

III. JOB CATEGORY DETAIL

I. Business			II. Dietary			III. Patient Care			IV. Maintenance			V. Technical		
No. Assgd.	No. Att.	% Att.	No. Assgd.	No. Att.	% Att.	No. Assgd.	No. Att.	% Att.	No. Assgd.	No. Att.	% Att.	No. Assg.	No. Att.	% Att.
280	233	80%	10	7	70%	75	63	84%	8	7	90%	83	70	84%

IV. SITE AREAS ... Sixteen (16) hospitals in Greater Cincinnati and Northern Kentucky.

V. PUBLICITY ... Full media coverage was given as a public service.

Editorial ... Cincinnati Post Times-Star, April 26, 1969.
Daily Coverage ... Cincinnati Enquirer and Cincinnati Post Times-Star both before and after with pictures.
Suburban & Special Interest Papers ... Coverage before and afterwards.
Radio ... Spot Announcements before.
Television ... Coverage on news with pictures of the event.

... See other side ...

VI. PROGRAM OUTLINE

The program generally followed the recommendations made at the planning meeting. It included:

1. Greetings by administrators and supervisory personnel.
2. Refreshment break and roll call.
3. "See it as it is" small groups visited and 'worked' in assigned areas. Most students were sent to three different areas.
4. Luncheon provided by the Hospital.
5. General tour where possible of entire hospital and different areas.
6. Panel discussions by hospital employees giving their own success stories on the job.
7. Presentation by hospital official on 'where do we go from here' which included job opportunities, how to apply for a job, and so forth .. applications were completed.
8. Completion of evaluation forms and dismissal.

VII. STUDENT REACTION FROM EVALUATIONS

Every participant was enthusiastic and grateful. They were impressed by the excellent program, warmth of employees, the team spirit exhibited by everyone, the smooth running and cleanliness of the hospitals. They were astounded by the number of jobs and the opportunities in the health field. They appreciated what they had learned and loved being able to work and not just watch. Typical comments included:

"After today, a hospital seems a wonderful place to work" ... "This place is really A-OK with me" ... "The day was a success, fun and educational" ..."Today gave me a better feeling toward the world" ... "More and more students should come to know about all the jobs and that a hospital isn't just a doctor and a nurse" ... "Now I am seriously thinking of continuing my education and being a practical nurse" ... "Nurses treat patients more like friends than strangers" ... "Obvious that the main objective is patient care" ... "The medical records and medical library is exciting" ... "Didn't know hospitals were so clean" ... "Good to really work for the day" ... "I think Mr.--- looks like Walter Matthau!, and I liked the way he showed us how to apply for a job and the right approach for a job"... "Have more often" ... "Offer the program to 11th graders to give them a head start on job decision" ... "Helped in my future decision" ... "I expected the usual $2 tour and was pleasantly surprised" ... "I'd love to work in a hospital because everyone is part of a team, is so friendly and there is lots of chance for advancement" ....

VIII. INTRA-HOSPITAL EVALUATION ... Reaction of hospital department heads and other employees to the program. Without exception, there was enthusiasm toward the program. The full day enabled better coordination and more time to observe the overall function of a hospital. The behaviour of the students was commendable. See evaluation meeting minutes for more detail.

IX. LITERATURE ... 912 pieces plus special materials.

1. "Fit Yourself Into a Hospital Job" booklet
2. Jobs Happen - Careers Don't brochure
3. Evaluation form
4. Counseling materials

X. EVALUATION ... See meeting minutes.

MVB:pc
5/69
200

May 13, 1968

PILOT HOSPITAL JOB PROGRAM - MAY 1, 1968

Minutes of Evaluation Meeting held May 8, 1968, Rm.410, Community Chest Bldg.,2:30 p.m.

Hospital Chairmen Present were: (8)	Harry Kilb, Bethesda; Mrs. Edna Caywood, Cincinnati General; Mrs. Evelyn Foutch, Convalescent for Children; Miss Harriet Janszen, Good Samaritan; Elmer Koncel, Jewish; Anthony S. Carle, St. George; Mrs. Helen Orletsky, Veterans; John M. Burt, St.Luke.
Unable to Attend: (5)	Mrs. Barbara Moorfield, Children's; Mrs. R. L. Hosick, Christ; Wilbur F. Callahan, Our Lady of Mercy; Jack Reinstatler, St.Francis; Ernest Prater, St. Mary's.
Observers who attended program. Present were: (5)	Hope S. Daugherty, Ph.D., Asst. Professor ofEducation, College of Education, University of Cincinnati (Bethesda Hospital); Mrs. June Roshone, Health Careers Staff Assistant (Christ); Monica V. Brown, Health Careers Executive Director (Cincinnati General); Wilford F. Clark, Health Educator, Cincinnati Health Department (Jewish); Frank E. New, Coordinator, Work Study Program, Hamilton County Board of Education (St. Francis).
Observer Not present:	James Daiker, Work Study Coordinator, Colerain Senior High School (St. George).

Board of Trustees, Health Careers Association and Cincinnati Public Schools Representative: James O'Hara, Ph.D., Director of Guidance Services, Cincinnati Public Schools.

Staff: Monica V. Brown, Executive Director; Mrs. June Roshone, Staff Asst.

NOTE: Those unable to attend either telephoned or wrote their comments and suggestions concerning the program. These are incorporated in the following minutes.

Meeting Format

I. Statistics

II. General reaction and comments from hospital chairmen.

III. General reaction and comments from observers.

IV. General discussion and interaction.

V. Summary and final recommendations.

I. Statistical Summary:

Assignment: 430 students from 40 senior high schools in six counties.
OHIO - Hamilton, Clermont andButler .. KENTUCKY - Boone, Campbell and Kenton.

Attendance: 292 students from 33 senior high schools in six counties.
OHIO - Hamilton, Clermont and Butler .. KENTUCKY - Boone, Campbell and Kenton.

Detail compiled to date was given to those present and is attached to these minutes.

... see other side ...

II. General comments and reaction from hospital chairmen.

1. Comments

Procedure followed was generally the same in all hospitals and what was recommended at the planning meeting. In most instances students were shown more than the one category they chose. They responded enthusiastically - for example, they had no idea either that clerical staff was used in every area of the hospital or precisely what were the jobs and the nature of the work.

The material provided by the Guidance Services of the Cincinnati Public Schools on how to apply for a job was copied by most hospitals and given to the students. It is an excellent guideline.

One hospital had department heads complete their evaluations of the project. Others spoke with department heads after the program for reaction.

2. Reaction

All hospitals were pleased with the program. However, it covered too short a time to do a complete job. Students from every site area were enthusiastic. There was not a single negative comment from any student. Appearance and behavior of students most gratifying. All were well dressed and well behaved. For student reaction, see VI - Statistical Summary. Good motivation from students. Impressed with students' intelligent questions. Some students were hired. Most were given application blanks to complete for practice. Some hospitals and hospital department heads who questioned the program now are enthusiastically in favor of such projects.

3. Recommendations

a) Definitely repeat and continue this project for a full day..two hours is inadequate. Should be in April, no later than first of May, as students seeking jobs in this period.
b) Continue to use supervisory personnel in addition to department heads.
c) Where practical, young employees should be used.
d) Involve as much staff as possible, particularly those with an "on-the-job success story."
e) Dummy application blanks should be prepared by Health Careers office and given to each student participant to complete under the supervision of the hospital program chairman.

III. General comments and reaction from observers.

1. Comments and reactions

a) This program has been badly needed and was most worthwhile.
b) Hospitals really sold themselves and the entire health field.
c) Felt small groups most profitable.
d) Liked the fact that students were "put to work" in some areas.
e) Students who were reserved interacted well with both hospital personnel and each other as time went on.
f) Length of the program was too short.
g) Impressed with enthusiasm of hospital employees and their willingness to share their knowledge with the students.
h) The educational aspect of this program was important. The fact that there were not jobs for each student was fully explained and understood. The students were impressed with opportunities for advancement. There was no unfavorable reaction.

2. Recommendations

a) Program should be continued and repeated for a full day..two hours is inadequate.
b) Continue to use supervisory personnel in addition to department heads.

2. Recommendations (cont'd.)
   c) Where practical, young employees should be used.
   d) Involve as much staff as possible, particularly those with an "on-the-job success story."
   e) Dummy application blanks should be prepared by Health Careers office and given to each student participant to complete under the supervision of the hospital program chairman.
   f) Salary information should be given.

Comments of James O'Hara, Ph.D., Director of Guidance Services, Cincinnati Public Schools and Board Member, Health Careers Association.

Dr. O'Hara felt that the schools would be interested in continuing this program and that they would again consider release time for students to attend. The schools understand that the program is not to provide a job for each student, but to investigate the opportunities available. Ideally, a Community Wide Development Council where students could select career choices would be desirable and should be kept in mind.

NOTE:

This program speaks highly of excellent team work between the school systems, the health industry, particularly the hospitals, and the health manpower organization in the area, which is Health Careers Association of Greater Cincinnati. The schools relayed their deep concern regarding attendance by students for this program, to the Association. They stated that they would do their best to ensure student attendance despite the fact that the two days prior to the program, as well as the day of the program itself, sit-ins and disturbances were the general pattern in the area. It is of great credit to the students and the schools that so many attended.

It is gratifying that the hard work in planning on short notice for this project resulted in its being an unqualified success for all involved.

SUMMATION

The program should be repeated and continued. Recommendations outlined above should be acted upon in planning for the 1969 program.

Meeting adjourned at 4:30 p.m.

Monica V. Brown
Executive Director
Health Careers Association of
Greater Cincinnati

MVB:jr
Encl.
150

May, 1969

One student's actual evaluation.

HOSPITAL JOB PROGRAM ... MAY 1, 1969

STUDENT EVALUATION FORM

Hospital Job Program for June, 1969 High School Graduates

JOB CATEGORY OBSERVED Secretarial positions

JOBS SEEN General office work and various hospital jobs

NAME OF HOSPITAL VISITED Jewish Hospital

STUDENT NAME _____
(LAST NAME FIRST)

HOME ADDRESS _____ ZIP CODE 47209

HIGH SCHOOL Marian High School

WHAT DID YOU LIKE MOST AND WHY I liked seeing the various departments and how one is operated like their own small business, yet all work together. I wasn't aware of all the secretarial opportunities available at a hospital

OTHER COMMENTS AND SUGGESTIONS I think this program should be continued every year. I felt that it was very helpful and also informative

MVB:pc
600

2953

Hospital Chairmen, please give these forms to your department heads for their evaluation. We would like a composite presented at the evaluation meeting April 23, 1970.

INTRA HOSPITAL DEPARTMENT EVALUATION

To: ALL Hospital Department Participants in Hospital Job Program, April 16, 1970

From: _____

(Name of the chairman from the hospital here.)

Thank you for your cooperation in the Hospital Job Program. Since this was the first time eleventh as well as twelfth grades participated, we ask your comments and suggestions on the day. These will help us and Health Careers Association in future program planning.

Please return this sheet with your comments by Monday, April 20, 1970.

INCIDENTALLY, PLEASE CIRCLE YOUR CALENDARS FOR FRIDAY, OCTOBER 23, 1970 WHICH WILL BE THE ANNUAL STUDENT HEALTH CAREERS DAY.

MVB:pc
100

February 18, 1969

MINUTES ... PLANNING MEETING ... HOSPITAL JOB PROGRAM

Meeting Held: 3:00 P.M. ... Friday, February 14, 1969 ... Room 410, Community Chest Bldg.

Presiding: Monica V. Brown, Executive Director, Health Careers Association

Present: 15 Bethesda Hospital, Harry Kilb ... Children's Hospital, Mrs. Barbara Moorfield ... Cincinnati General Hospital, Mrs. Edna Caywood, Waddell Curtis ... Convalescent Hospital for Children, Mrs. Evelyn Foutch ... Good Samaritan Hospital, Harriet Janszen ... Jewish Hospital, Elmer Koncel ... Rollman Psychiatric, E. W. Wiggert ... St. Francis, Mrs. A. M. Lingg, V. Jordan ... Veterans Administration, Mrs. Helen Orletsky ... Cincinnati Public Schools Guidance, Mrs. Marquita McLean ... University of Cincinnati Graduate Student, Community Health Planning, Mrs. Eddie Sellers ... Health Careers Association, Monica V. Brown, Priscilla Cordell

I. EDUCATORS HEALTH CAREERS DAY - February 11, 1969. This project was discussed particularly with reference to non-college job opportunities.

II. BACKGROUND OF JOB PROGRAM. Copies of the 1968 Evaluation Meeting were distributed. Full discussion followed. The purpose of this program is to acquaint high school graduates not going to college with the broad variety of entry level jobs in the health field and the opportunities for people in these jobs. It is not for summer job seekers. This is an educational approach and not a job employment project. The Health Professions are not covered except in their relationship to the jobs. While it is hoped that some jobs may be available, it is fully understood by the schools that there can be no promise of a job. The 1968 evaluation proved the continued need for this project which broadened the vistas of the students. It was recognized that this program complements the in-school orientation to the world of work through its visual work aspects. This will be held on a school day and has been officially approved by Cincinnati Public Schools and the Archdiocese of Cincinnati.

III. COMMENTS CONCERNING QUESTIONS RAISED.

1. Timing of Program. The question of a date change in the future was raised. Investigation following the meeting concluded that at present due to class schedules and the fact that students would be job oriented at the time, either April or 1st of May were the best dates. Educators Day cannot be changed. May dates have proven unsatisfactory.

2. Transportation. The responsibility of transportation rests with the participant. This applies to all projects.

IV. PROGRAM FOR 1969 JOB DAY - Full day 9:00 A.M. to 2:30 P.M. - Students will be the luncheon guests of the hospitals. Applicants will be screened by their schools. Assignments will be completed by Health Careers office.

1. Welcome and orientation to the world of work.

2. Participants will visit and meet with workers in chosen category work areas. Employees with "on-the-job success stories" and, where practical, young employees should be used. To be emphasized:
   A. Entrance qualifications - promotional possibilities - encouragement of as much school as possible; if not prior to employment, then later opportunities.
   B. Reliability in the job - need for team approach.
   C. How to apply for a job - fill out sample application blank - brief on dress, conduct and so forth.

3. General discussion - evaluation and adjournment.

The program may be varied and more than one job category covered at the discretion of the individual hospitals.

V. DATE SCHEDULE was given to all present and will be mailed to others. PLEASE KEEP AND USE. NOTE ALL DATES ON YOUR CALENDARS.

VI. INTRA-HOSPITAL DEPARTMENT EVALUATION. A copy of a suggested evaluation form was distributed to those present and will be mailed to others. This was used successfully. One hospital obtained this evaluation from their department heads last year. It proved most helpful in evaluating the project.

VII. GENERAL MATERIALS FOR PARTICIPANTS.
1. "Fit Yourself Into a Hospital Job" - will be updated and distributed.
2. Guidance material should be distributed. Samples were provided. Because large quantities are not available, hospital chairmen should use the samples as guides and reprint them where possible.
   A. How to Sell Yourself to an Employer (1 page)
   B. Making the Most of an Interview (1 page)
   C. Ten Ways to Get a Job (4 pages)
   D. Fifty Ways to Avoid Being Hired (1 page)
   E. What Have You Got to Offer (1 page)
   F. Sample Application Blank (2 pages)

VIII. SPECIAL MATERIAL. The need for information on entry jobs had been discussed at previous evaluation meetings of both Student and Educators Health Careers Days. Recommended for inclusion from 1967 and 1968 meetings were:
1. Job Titles
2. Job Descriptions
3. Job Progression and Promotional Opportunities
4. Job Qualifications
5. Possible Salary Range
6. On-the-job training programs available.

The matter of preparation of the data was referred to the Hospital Personnel Directors Committee in November 1968. Although unwilling to accept full responsibility for the project, they expressed willingness to work with Health Careers Association on an individual basis. In order to have materials ready for the Job Program Day, the need for action is urgent. The proposal was presented to those present and full discussion followed.

Conclusion: 1. Material would be general and not specific to any institution.
2. The categories used would be those on the application forms.

Mrs. Moorfield and Mr. Koncel will consult with the Hospital Personnel Directors and obtain the necessary information. Health Careers Association will compile and distribute the material to student participants and to all schools for reference.

Meeting adjourned at 5:30 P.M.

Monica V. Brown, Executive Director
MVB:pc
50

HOSPITAL JOB DAY ..... LITERATURE AND MATERIAL FOR DISTRIBUTION

"Fit Yourself Into a Hospital Job" booklets

Jobs Happen-Careers Don't brochure

Health Careers Association brochure.

Samples only of the following are to be sent and hospitals will have to duplicate... Ask the Guidance Office of the Cincinnati Board of Education for as many as they can let us have and new materials if any in this area.

Fifty Ways to Avoid Being Hired

How to Sell Yourself to an Employer

Making the Most of an Interview

Sample Application Blank to Apply for a Job

What Have You Got to Offer

Return previous year's student evaluations.

Intra Hospital Evaluation Form

Current year blank Evaluation Forms to be completed by Students

Minutes of previous year Evaluation meeting

Instructions to hospital chairmen

Copies of the Instruction Letter sent to the Students.

Sample of an
actual program.

HOSPITAL JOBS PROGRAM - MAY 1, 1969

CINCINNATI GENERAL HOSPITAL

9:00 - 9:30	Greetings Instructions for the Day
9:30 - 12:00	"See It As It Is" - The Hospital Jobs of Your Choice
12:00 - 1:00	Lunch - Logan Hall Roof
1:00 - 1:30	"Do's and Don'ts" of Applying for a Job How to Apply at Cincinnati General Hospital and other hospitals
1:30 - 2:15	"Where Do We Go From Here?" - Promotional Opportunities in Cincinnati General Hospital Employment and other hospitals Meet those who succeeded through 'on-the-job' training.
2:15 - 2:30	Evaluation Dismissal

2958

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

January 28, 1970

To: Hospital Administrators
and Hospital Chairmen

From: Monica V. Brown, Executive Director

Re: HOSPITAL JOB DAY STUDENT ACCEPTANCE FORMS

DUE IN HEALTH CAREERS OFFICE: FEBRUARY 9, 1970

We are pleased to advise that the 1970 Hospital Job Day for eleventh and twelfth grade students entering the job market has been scheduled for Thursday, April 16, 1970. This will be a full day beginning at 9:00 A.M. and ending at 2:30 P.M. Approval has been granted by the Cincinnati Public Schools and the Archdiocese of Cincinnati.

The name of the chairman who worked with us in 1969 is listed below. A copy of this letter, together with two copies of the request form concerning the number of students your hospital can accommodate in the five job categories is being sent to that person. We would like to have the completed form returned to us by February 9, 1970. Should you wish to change the chairman for this project, please advise us.

Your continued cooperation is very much appreciated. We pledge to do our utmost in working with you to make this year's program even more successful than in 1969.

Name of Chairman

Title of Chairman

MVB:ep
1/70
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2959

January, 1970

HOSPITAL JOB PROGRAM

Thursday, April 16, 1970 ... 9:00 A.M. to 2:30 P.M.

RETURN TO HEALTH CAREERS OFFICE BY FEBRUARY 9, 1970.

PLEASE LIST THE NUMBER OF STUDENTS BY CATEGORY YOU WILL BE WILLING TO HAVE COME TO YOUR HOSPITAL ON THURSDAY, APRIL 16, 1970.

HOSPITAL NAME: _____ HOSPITAL PHONE: _____

HOSPITAL CHAIRMAN'S NAME _____

TITLE OF CHAIRMAN _____

CATEGORY I.
Business, Secretarial, Administrative

Bookkeeper _____
Clerical Office Worker _____
Clerk Typist _____
Computer Operator _____
Credit Office Worker _____
Data Processing _____
Dictaphone Transcriber _____
Filing Clerk _____
Key Punch Operator _____
Secretary _____
Statistical Clerk _____
Ward Clerk _____

CATEGORY II. Food Service

Dietary Aide _____
Dishwasher _____
General Food Assistant _____

CATEGORY III. Patient Care

General Assistant _____
Nurse Aide _____
Orderly _____

CATEGORY IV. Maintenance & Service

General Labor _____
Grounds Keeping _____
Housekeeping _____
Janitor _____
Laundry Assistant _____
Maintenance Assistant _____
Power Plant Helper _____
Seamstress _____
Shipping & Receiving _____
Trades Helper _____
Warehousing _____

CATEGORY V. Technical

Animal Caretaker _____
Electrocardiograph Assistant _____
Electroencephalograph Assistant ____
Equipment Assistant _____
Laboratory Helper _____
Pharmacy Aide _____
Sterile Supply Aide _____
Surgical Aide _____
X-Ray Film Processor _____

MVB:pc
100

2960

Health Careers Association of Greater Cincinnati
2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown
A United Appeal Agency

March 31, 1970

To: Hospital Chairmen for Hospital Job Program

From: Monica V. Brown, Executive Director

Re: I. Assignments and Instructions for April 16, 1970
II. Program
III. Evaluation Meeting ... April 23, 1970

I. ASSIGNMENTS:

1. Student List .. two copies enclosed for your hospital.

2. Cancellations: school counselors have been asked to notify us immediately.

3. Passes and Instruction Letters have been given to each student. PLEASE COLLECT THE PASS. You may keep it for your records or return to us as you wish.

ATTENDANCE:

Please report attendance to us immediately, using the duplicate copy of the list. Return the list. Every student attending will have been given release time from school and we are obliged to report.

II. PROGRAM:

Please involve your Personnel Director. Consult your 1969 evaluations. Please be SURE that students MEET with workers IN WORK settings in the category chosen, as well as being briefed by supervisors. Where practical, choose young employees with 'on the job' success stories. Students will be your luncheon guests. To be emphasized:

1. Entrance qualifications - promotional possibilities - encouragement of as much school as possible either prior to employment or during employment.

2. The need for team approach and reliability on the job.

3. How to apply for a job. HAVE THEM FILL OUT A SAMPLE APPLICATION BLANK. Brief them on dress, conduct and so forth.

4. General Discussion - Evaluation.

If time permits, a panel format could be used after lunch - tours of areas not previously seen - question and answer period. Please go over evaluations with students before they are completed. Return evaluations to us by April 23, 1970.

5. Literature: 1. "Fit Yourself into a Hospital Job" - one for each student.
2. "Jobs Happen--Careers Don't" - one for each student.

III. EVALUATION MEETING WILL BE HELD THURSDAY, APRIL 23, 1970 ... Community Chest Building, 2:30 p.m., Room 421. Please make plans to attend.

Thank you all for your cooperation.

MVB:pc
Encls.
30

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

February 17, 1970

To: Principals and Counselors of Senior High Schools

From: Monica V. Brown, Executive Director

Re: HOSPITAL JOB PROGRAM for Eleventh and Twelfth Grade Students
Thursday, April 16, 1970 ... Time: 9:00 A.M. to 2:30 P.M.

DEADLINE DATE FOR APPLICATIONS TO BE IN HEALTH CAREERS OFFICE:
TUESDAY, MARCH 10, 1970.

We are pleased to invite your school participation for the Hospital Job Program. The project has been approved by the Cincinnati Public School System and the Archdiocese of Cincinnati. This is for eleventh and twelfth grade students who do not plan professional and college training after high school graduation.

We invite all interested juniors and seniors from high schools in Greater Cincinnati and Northern Kentucky to participate. Jobs to be discussed and shown in working areas, will range from secretarial and technical positions to food service, maintenance and patient care. There are many openings presently available for the 1970 high school graduate who seeks a good job with opportunity for advancement. The member hospitals of the Greater Cincinnati Hospital Council have generously offered their facilities for the program. Students will be luncheon guests of the hospital to which they are assigned. It is not for summer job applicants or college bound students.

The enclosed applications are self explanatory. If you want more we will send them. Students will be assigned according to the category chosen. Please have applicants complete both sections of the form. Please return all applications at one time from your school. They should reach our office no later than March 10, 1970. Student Assignment letters and passes will be sent to your school counselor for distribution. There will be no direct communication from this office to the student.

We assure you we will do our utmost to make this an interesting, meaningful, educational, motivational and informative experience for your students. Please call us for further information.

We look forward to hearing from and serving you and your students for this most important project.

MVB:pc
encls.
300
1/70

HOSPITAL JOB DAY APPLICATION FOR 11th & 12th GRADE STUDENTS

COMPLETE BOTH SECTIONS OF THIS FORM. LIST "ONE" CATEGORY ONLY, AND UNDER THE CATEGORY YOU CHOOSE, WRITE THE THREE JOBS YOU WOULD LIKE TO SEE.

RETURN THE COMPLETED APPLICATION TO YOUR SCHOOL COUNSELOR BY MARCH 9, 1970.
(Counselors, please have applications in Health Careers Office by March 13, 1970.)
Hospital Job Day date: Thursday, April 16, 1970 .. 9:00 A.M. to 2:30 P.M

==========

CATEGORY I. Business, Secretarial, Administrative

Bookkeeper
Clerical Office Worker
Clerk Typist
Computer Operator
Credit Office Worker
Data Processing
Dictaphone Transcriber
Filing Clerk
Key Punch Operator
Secretary
Statistical Clerk
Ward Clerk

CATEGORY II. Food Service

Dietary Aide
Dishwasher
General Food Assistant

CATEGORY III. Patient Care

General Assistant
Nurse Aide
Orderly

CATEGORY IV. Maintenance & Service

General Labor
Grounds Keeping
Housekeeping
Janitor
Laundry Asst.
Maintenance Asst.
Power Plant Helper
Seamstress
Shipping & Receiving
Trades Helper
Warehousing

CATEGORY V. Technical

Animal Caretaker
Electrocardiograph Assistant
Electroencephalograph Assistant
Equipment Assistant
Laboratory Helper
Pharmacy Aide
Sterile Supply Aide
Surgical Aide
X-Ray Film Processor

Name: _____
(PRINT OR TYPE..WRITE LAST NAME FIRST)

Male _____ Female _____

High School: _____

_____
(leave blank)

Home Address: _____
(Zip Code)

School Home Room Number: _____

Home Telephone: _____

Year of Birth: _____

Category Number in which you are interested - List ONLY ONE category _____

Write out the THREE jobs that interest you most under the Category Number you choose:

1. _____ 3. _____

2. _____

"PASS"

_____
(leave blank)

Name: _____
(PRINT OR TYPE..WRITE LAST NAME FIRST)

Home Telephone: _____

High School: _____

School Home Room Number: _____

Home Address: _____
(Zip Code)

Year of Birth: _____

Category Number in which you are interested - List ONLY ONE category _____

Write out the THREE jobs that interest you most under the Category Number you choose:

1. 2963 2. 3.

ATTENTION::::: HIGH SCHOOL JUNIORS AND SENIORS

WHO DO "NOT" PLAN TO GO TO COLLEGE AFTER HIGH SCHOOL GRADUATION.

You are invited to attend Hospital Job Day on Thursday, April 16, 1970 from 9:00 A.M. to 2:30 P.M. Health Careers Association of Greater Cincinnati is sponsoring this program in cooperation with the hospitals of the Greater Cincinnati Hospital Council. You will be assigned to a hospital and will spend the day 'on the job'-learning and seeing for yourself what opportunities there are in the working world of hospitals.

This is an educational program for eleventh and twelfth grade students who do not plan to go to college after high school graduation, but it does NOT mean there are immediate openings in all of the jobs you observe.

It is NOT for those who are planning to go to college. It is NOT for those looking for summer jobs.

REGISTER NOW WITH YOUR HIGH SCHOOL COUNSELOR!!!!!

CAREFULLY READ AND COMPLETE BOTH SECTIONS OF THE APPLICATION FORM ON THE OTHER SIDE OF THIS SHEET.

GIVE THE COMPLETED FORM TO YOUR COUNSELOR BEFORE MONDAY, MARCH 9, 1970.

MVB:pc

1/70

2964 BOYS

Health Careers Association of Greater Cincinnati
2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown
A United Appeal Agency

March 26, 1970

To: High School Counselors

From: Monica V. Brown, Executive Director

Re: HOSPITAL JOB DAY .... April 16, 1970

Assignments: Enclosed are:

1. Student assignment list.
2. Student passes.
3. Student instruction letters.

Instruction Letters:....Please urge students to read these carefully.

Passes: Students must take these and give them to the person in charge at the hospital to which they are assigned.

Cancellations: Please notify us immediately if a student is not coming.

Attendance Report....Will be mailed to you immediately after the program.

THANK YOU ALL sincerely for your cooperation and assistance. If you have any questions, please telephone our office.

MVB:pc
Encls.
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2965

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

March, 1970

STUDENT ASSIGNMENT INSTRUCTIONS .... HOSPITAL JOB PROGRAM

Thursday, April 16, 1970 .... 9:00 A.M. to 2:30 P.M.

We wish you a most pleasant day and look forward to seeing you. Following are your instructions. For further information, contact your school counselor.

PASS: MUST be brought with you. It shows the hospital where you are assigned. Give it to the person in charge at the hospital.

REPORTING TIME: 9:00 A.M.

PLACE TO REPORT: Inside the front entrance of the hospital.

PARKING: No special arrangements have been made. PLEASE COME EARLY.

CLOSING TIME: 2:30 P.M. PLEASE REMAIN FOR ENTIRE PROGRAM. DO NOT LEAVE before the program is over unless you have received prior permission through your school counselor and it has been reported to Health Careers Association. You must complete your evaluation before you leave and hand it to the hospital person in charge.

DRESS: Wear school clothing. Girls, wear flat-heeled shoes. Girls observing dietary and kitchen areas must wear a hairnet.

LUNCHEON: You will be given luncheon free of charge.

CANCELLATION: Notify your school counselor immediately if you are unable to attend.

OTHER QUESTIONS: Consult your school counselor to relay to Health Careers Association.

MVB:pc
500

2966

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

Similar announcements sent to and used by weeklies, dailies, special interest newspapers, high school publications, radio and television.

March 2, 1970

FOR IMMEDIATE RELEASE

Subject: HOSPITAL JOB DAY FOR HIGH SCHOOL JUNIORS AND SENIORS

Application Deadline Date: March 10, 1970

(Program Date: April 16, 1970)

From: Monica V. Brown, Executive Director .. Office Phone: 721-3160 ext. 298 or 240
Home Phone: 961-0404

Hospital Job Program Day sponsored by Health Careers Association of Greater Cincinnati, a United Appeal Agency, for high school juniors and seniors, will include the full range of hospital jobs from secretarial, patient care and maintenance to food service and technical positions.

Students will spend the day 'on the job' in hospitals in the Greater Cincinnati Area. They will also receive job information booklets specially published by Health Careers Association for this program.

Interested seniors should apply now to their high school counselors. The application deadline is March 10, 1970.

This specially designed project is approved by the hospitals of the Greater Cincinnati Hospital Council, Cincinnati Public Schools and the Archdiocese of Cincinnati. It will take place on April 16, 1970 from 9:00 a.m. to 2:30 p.m., and students will be the luncheon guests of the hospital to which they are assigned.

MVB:pc
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100

2967

Health Careers Association of Greater Cincinnati

2400 Reading Road
Cincinnati, Ohio 45202
Phone 721-3160
Executive Director
Monica V. Brown

A United Appeal Agency

Similar announcements sent to and used by weeklies, dailies, special interest newspapers, high school publications, radio and television.

FOR IMMEDIATE RELEASE SUBJECT: HOSPITAL JOB PROGRAM MAY 1, 1969

From: Monica V. Brown Office Phone: 721-3160 Home Phone: 961-0404

450 Seniors from 45 high schools in 7 counties in Ohio and Kentucky will "Fit Themselves Into a Hospital Job" on Hospital Job Program Day sponsored by Health Careers Association of Greater Cincinnati on May 1, 1969, said Monica V. Brown, Executive Director.

17 member hospital of the Greater Cincinnati Hospital Council will be the "job for a day" site areas. Students will learn first hand from people on the job about the hospital work category of their choice. They will receive briefing as to the best method of obtaining and holding a job.

"Fit Yourself Into a Hospital Job" booklets, describing the job opportunities available in hospitals, have been especially prepared and published for this event. Copies are available from Health Careers Association office in the Community Chest Building.

Schools will release senior students to attend this program designed to show the vast range of hospital jobs where a high school graduate can be employed. Categories range from secretarial and technical to food service, maintenance and patient care.

Health Careers Association of Greater Cincinnati, a United Appeal Agency, operates a year round program in education, information and research in health manpower.

Participating High Schools are: Aiken Anderson Colerain Courter Technical Elder Hughes Indian Hill LaSalle Lincoln Heights Loveland Marian Mariemont McAuley Mother of Mercy Norwood North College Hill Mt.Notre Dame Oak Hills Our Lady of Angels Princeton Regina St.Ursula Seton Sycamore Robert A.Taft Taylor Western Hills Withrow Amelia Glen Este New Richmond Clermont Northeastern Fairfield Eastern Dixie Heights Holmes Ludlow Campbell County Simon Kenton Holy Cross LaSalette Notre Dame Academy Villa Madonna Bellevue Dayton, Kentucky

VT 016 302
PARAPROFESSIONAL CAREER DEVELOPMENT.

CONNECTICUT UNIV., STORRS. COOPERATIVE EXTENSION SERVICE.;CONNECTICUT COMMISSION FOR HIGHER EDUCATION, HARTFORD
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 71 30P. PROCEEDINGS OF CAREER DEVELOPMENT CONFERENCE (STORRS, CONNECTICUT, MARCH 31, 1971).

DESCRIPTORS - *ADULT VOCATIONAL EDUCATION; *VOCATIONAL DEVELOPMENT; PAMPHLETS; *HUMAN SERVICES; *HOME ECONOMICS; *CONFERENCE REPORTS; CAREER LADDERS; COMMUNITY AGENCIES (PUBLIC); BIBLIOGRAPHIES; CAREER OPPORTUNITIES; EDUCATIONAL NEEDS
IDENTIFIERS - *PARAPROFESSIONALS

ABSTRACT - THIS PAMPHLET REPORTS THE PROCEEDINGS OF A CAREER DEVELOPMENT CONFERENCE, SPONSORED BY A COOPERATIVE EXTENSION SERVICE TO IMPROVE VOCATIONAL OPPORTUNITIES FOR PARAPROFESSIONALS IN HOME ECONOMICS AND OTHER HUMAN SERVICES. INTENDED AS A BASIS FOR FURTHER DISCUSSION AND ACTION, THE REPORT AND RELATED ACTIVITIES WERE PARTIALLY FUNDED THROUGH A GRANT FROM THE CONNECTICUT COMMISSION ON AID TO HIGHER EDUCATION. RECOMMENDATIONS RESULTING FROM A RESEARCH SURVEY ON PARAPROFESSIONAL CAREER DEVELOPMENT CONDUCTED AS PART OF A DOCTORAL PROGRAM INCLUDE PRESERVICE AND INSERVICE TRAINING, INVOLVEMENT OF PARAPROFESSIONALS IN THEIR CAREER PLANNING THROUGH PROFESSIONAL LEVELS AIDED BY CITY EDUCATIONAL CENTERS, AND PROFESSIONAL SUPPORT WITH ROLE CLARIFICATION FOR PARAPROFESSIONALS. CHARTS ILLUSTRATE THE SURVEY REPORT. REORGANIZATION OF COMMUNITY HEALTH SERVICES AND THE NECESSITY OF FURTHER EDUCATION FOR PARAPROFESSIONALS CONSTITUTE URGENT NEEDS STRESSED BY THE KEYNOTE SPEAKER, FRANK RIESSMAN. VARIOUS COMMENTS BY THE CONFERENCE GROUP FELL INTO FOUR MAJOR AREAS: (1) EDUCATION, (2) A MEANINGFUL CAREER LADDER, (3) ORGANIZATION FOR PARAPROFESSIONALS, AND (4) PARAPROFESSIONAL VERSUS PROFESSIONAL. A BIBLIOGRAPHY IS PROVIDED. (AG)

71–65

COOPERATIVE EXTENSION SERVICE
COLLEGE OF AGRICULTURE AND NATURAL RESOURCES
THE UNIVERSITY OF CONNECTICUT, STORRS

paraprofessional career development

A REPORT OF THE CONFERENCE SPONSORED BY THE CONNECTICUT COOPERATIVE EXTENSION SERVICE AND PARTIALLY FUNDED BY THE CONNECTICUT COMMISSION ON AID TO HIGHER EDUCATION, HELD AT THE UNIVERSITY OF CONNECTICUT, STORRS, CONNECTICUT, MARCH 31, 1971

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY

ED069104

1970

This publication is dedicated to Connecticut paraprofessionals in Home Economics and Human Service positions.

Constance V. McKenna's report, Frank Riessman's comments, and the concerns expressed in group discussion should stimulate employers, educators, paraprofessionals and professionals to continue the work of establishing career ladders begun at the conference.

The paraprofessional works with the professional, relating agency services to the family and community. Usually a resident of the neighborhood in which the agency's program is conducted, the paraprofessional is trained by the agency, and uses her own special skills to extend and communicate the program to the hard-to-reach family.

Career Development Conference

10:00 MORNING SESSION

Doris A. Lane, presiding Asst. Director Home Economics Extension

WELCOME — Kenneth G. Wilson, Vice President for Academic Affairs

CONNECTICUT PARAPROFESSIONALS IN HOME ECONOMICS AND RELATED SERVICES — Connie McKenna, Title I Grant, Commission on Aid to Higher Education 1

THE CRISIS IN THE EDUCATION OF THE PARAPROFESSIONAL

Keynote Address — Frank Riessman, Director
New Careers Development Center
Prof., Educational Sociology
New York University

12:30 SPECIAL INTEREST OPTIONS

High School Equivalency and Adult Basic Education

Alan Hugg, Consultant, Continuing and Adult Education, State Department of Education

Educational Opportunities Beyond High School: programs, loans, scholarships Mayfield Peterson, Dir. UConn Summer Program Carolyn McDew, Student Personnel, UConn John W. Rapp, Director, Student Aid, UConn David A. Ivry, Director, Connpep, UConn

ERIC

Home Economics Resource Materials related to Human Service Programs
Rhea Lawton, Extension Home Economist, Hartford Noreen Ray, Coord., Hartford Urban Extension Program, Cooperative Extension Service

AFTERNOON SESSION

TALKING TOGETHER ABOUT PARAPROFESSIONAL CAREER DEVELOPMENT

1:30 - 2:30 Discussion Meeting with these leaders:

Janina Czajkowski, Extension Nutritionist, Professor of Nutrition, Storrs

Sister Patricia, School Community Relations Worker, Waterbury Board of Education

Christine Guzowski, Program Developer, New Opportunities for Waterbury

Jean Seckinger, Home Management Consultant State Welfare Department, Hartford

Jacqui Anderson, Coordinator Health Care Department, Hartford Hospital

Doris Morrison, Social Service Aide, Family Service of New Haven

Ruth Rodriguez, Program Aide, Cooperative Extension Service, Bridgeport

Iris Wolfson, Assoc. Prof. Social Work, UConn School of Social Work, Hartford

Beulah Atkins, Supervisor, Homemakers, State Welfare Department, Hartford

Isabella Bick, Housatonic Community College, Assoc. Prof., Coord. Urban Professional Asst. Pgm.

GROUP MEETINGS

Paraprofessionals – Alloyse Allen, Supervisor Homemaking Advisors, Fam. Relocation Serv., N. Haven (Recorder-Betty Fitch, Ext. Program Aide, Bpt.)
Employers — Lloyd Cordwell, Community Renewal Team, Hartford (Recorder-Evelyn Robinson, Dir. Case Work, Dept. of Social Service, Hftd.
Educators — Robert Miller, Acting President South Central Community College, New Haven (Recorder-Alice Clark, Grad. Asst., Dept. of Higher, Technical and Adult Education, UConn).

PLANNING COMMITTEE

Mary E. Jacobson, Coordinator
Tri-City Expanded Nutrition Program
Cooperative Extension Service
New Haven, Bridgeport, Waterbury

Doris A. Lane
Assistant Director
Home Economics Extension

Rhea Lawton
Extension Home Economist, Hartford

Constance McKenna
Project Field Director
Title I Grant, Aid to Higher Education
Paraprofessionals in Home Economics

Luberta W. Sims
Extension Home Economist, New Haven

The Cooperative Extension Service sponsored this Conference to improve career development opportunities for Connecticut paraprofessionals. Our goals were to examine the concerns of the paraprofessional, to provide an exchange of ideas among participants, and explore the direction for change.

The Cooperative Extension Service became interested in improving the career development opportunities for the paraprofessional in Home Economics when 35 program assistants and aides joined its educational team in Home Economics and Youth Development. Extension staff members have also trained paraprofessionals from other agencies in subjects relating to Home Economics.

Progress in implementing effective career ladders depends upon a variety of factors and involves different groups of people. The 400 Conference participants represented many of them, including: Educators, Employers, Professionals and Paraprofessionals.

This Conference is only one of the many activities undertaken by agencies, organizations and individuals to develop the role of the paraprofessional. This report is intended to provide background for further discussion and action. The report and activities relating to it were supported in part through a grant from the Connecticut Commission on Aid to Higher Education.*

Doris A. Lane
Assistant Director, Extension Home Economics

"Career Ladders in Home Economics" Community Service Program 70-120-012 Project conducted by the Cooperative Extension Service, The University of Connecticut from February 1970 to April 1971. The Commission on Aid to Higher Education, State of Connecticut, 340 Capitol Avenue, Hartford, CT. 06115.

2975

CAREER DEVELOPMENT CONFERENCE PROCEEDINGS

2976

Connecticut's Paraprofessionals in Home Economics and Related Services

*Dr. Constance V. McKenna**

In the Fall of 1970, the Cooperative Extension Service conducted a survey to explore the employment and career potential for paraprofessionals who regularly use home economics knowledge and skills on their jobs in Connecticut human service agencies. The programs in which paraprofessionals frequently apply home economics skills include individual and family maintenance, homemaking and nutrition education, child and youth care and education, and community relations.

Paraprofessionals in individual and family maintenance programs help families stay together in crisis situations such as when sudden illness requires hospitalization of a mother who has no one to care for her children while she is away.

**A report of a Cooperative Extension Service study partially funded by Conn. Commission on Aid to Higher Education. This research was also supported by the American Vocational Association, which awarded Dr. McKenna the 1970 Home Economics Education Graduate Fellowship. She conducted this survey as part of her doctoral work on "Employment Career Potential for Paraprofessionals Utilizing Home Economics Knowledge and Skills" at The University of Connecticut. Presently she is Head of the Department of Home Economics at the University of North Dakota.*

They also help the elderly and chronically ill living at home by providing personal care and performing light housekeeping chores.

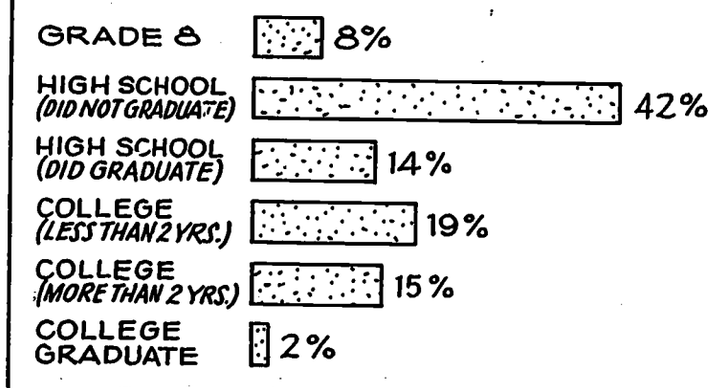
Paraprofessionals in homemaking and nutrition education programs teach low-income families to make the most of limited resources. Improved family eating habits based on better nutrition for better health is stressed.

Most paraprofessionals in child and youth care and education programs work in day care and pre-kindergarten facilities in the Community.

Paraprofessioanls in community relations try to help people understand what public service agencies can and should do. They encourage people to use the services available.

The ages of paraprofessionals in the survey ranged from nineteen to sixty-seven years. The median age was thirty-seven years.

1. Educational Level Achieved by Paraprofessionals



More than one-half of the paraprofessionals had been previously employed in relatively low status, low paying jobs such as domestic, handyman, poultry cutter, tobacco field hand, and factory worker. Several had also worked in stores, restaurants or hospital kitchens.

Most paraprofessionals said they took their present job because they wanted to help others. They felt that the most important characteristic for people working on their job was

relating to people. Although most paraprofessionals had been on the job less than two years, almost one-half of the group had previous employment in other human service agency programs. Their salaries ranged from $57.75 to $125.00 per week.*

Most paraprofessionals felt they had changed since being employed in human service agencies. Most also felt they had become more aware of problems families face. They understood them better and were able to be more objective about dealing with problem situations.

Many paraprofessionals reported they were frustrated bythe way agencies dealt with problems. Others appreciated the efforts that were being made to help people. Several paraprofessionals felt that communities should be doing more.

However, the professionals who employed paraprofessionals viewed the situation somewhat differently. Professionals perceived the major responsibilities for paraprofessionals as job skills. (Chart 2) Professionals saw much more personal change in paraprofessionals than the paraprofessionals saw in themselves. (Chart 3) Professionals also thought that paraprofessionals changed their attitude toward the community more than the paraprofessionals themselves thought they did. (Chart 4) While professionals perceived paraprofessionals' aspirations to be increased education, paraprofessionals perceived them to be personal improvement (Chart 5). However, paraprofessionals did identify several problems which made it difficult for them to acquire more formal education. These included lack of money available for educational purposes, difficulty in combining education with work and family responsibilities, problems in fitting class schedules into time available, providing for a baby sitter, transportation, and fear of failure.

In general, paraprofessionals characterized their position as filling a gap in agency service. They described their function in terms of helping the professionals. Many said they shared information about low income neighborhoods and people with agency staff. Although a few paraprofessionals felt they could function effectively without professionals,

*At time of survey, fall-winter, '70-'71.

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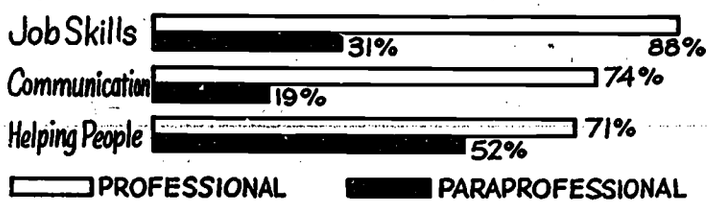
2. Professional and Paraprofessional Perceptions of Paraprofessionals' Major Job Responsibilities



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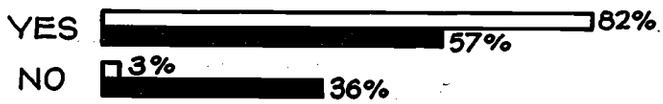
3. Professional and Paraprofessional Perceptions of Personal Change in Paraprofessionals



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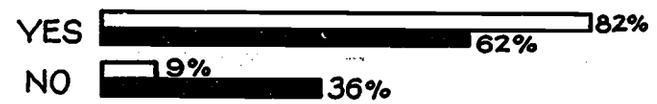
4. Professional and Paraprofessional Perceptions of Change in Paraprofessionals' Attitude Toward the Community



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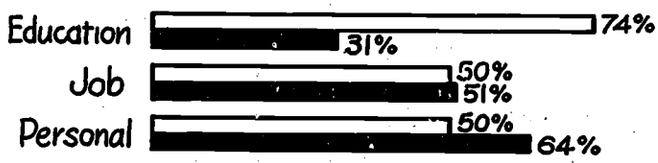
5. Professional and Paraprofessional Perceptions of Paraprofessionals' Aspirations



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most felt that professionals provided needed resources, understanding, and support.

Paraprofessionals did report a variety of problems arising on the job. These could be categorized as those related to the client's home and family, to the paraprofessionals' job adjustment, to the child client and to inadequate communication. Changes in the job suggested by paraprofessionals related to working conditions (40%) and to the agency's service to clients (32%).

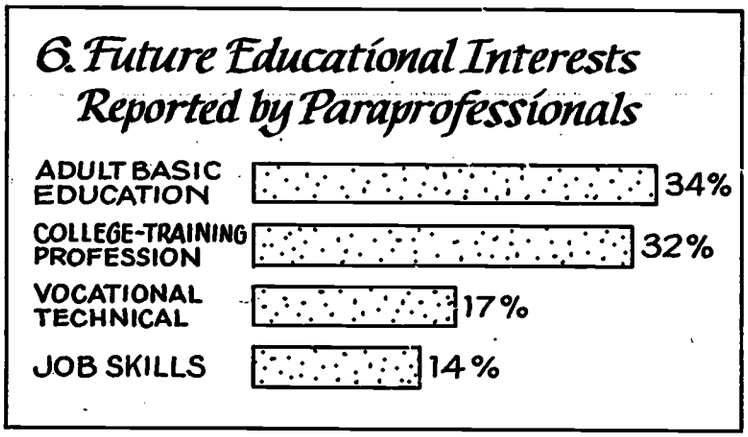
Most professionals reported that their agency began employing paraprofessionals in an attempt to improve services. At the time of the survey, most agencies had been employing ten or fewer paraprofessionals for three years or less. Although less than one-third of the supervisory positions were created concurrently with paraprofessional positions, over three-fourths of the professionals said that their job responsibilities had not changed since paraprofessionals had become part of the agency programs. Of those whose jobs had changed, some reported that they were now more involved with supervision while others noted that their work load had been somewhat relieved.

All of the professionals indicated that the paraprofessionals were accepted by the professional staff and were effective on the job. A few professionals reported some tensions between professionals and paraprofessionals on the staff. Some professionals felt there was not enough contact among the staff members, and others felt that the paraprofessional's job was not well enough understood by professionals who did not have direct contact with them.

Ninety-seven per cent of the professionals surveyed said that the employment of paraprofessionals in their agency would continue. Several indicated that the number employed would be likely to increase.

More than one-half of the agencies provided pre-service training, and all but one provided in-service training for paraprofessionals. However, only slightly more than one-half of the paraprofessionals reported having received either pre-service or in-service training. Both professionals and paraprofessionals agreed that there was a need to change training programs. They also agreed that more formal education was desirable. In descending order of frequency

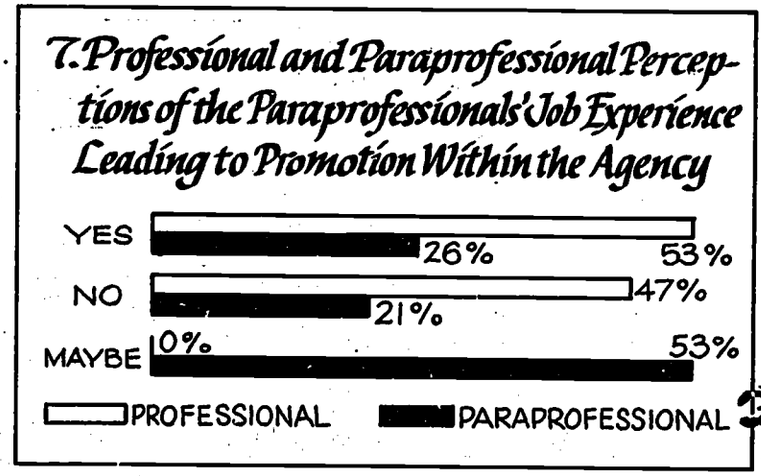
mentioned, paraprofessionals were interested in opportunities for adult basic education, professional education to the Bachelor's degree level or higher, vocational technical education, and skills for immediate job use (Chart 6). Most



respondents were interested in having courses scheduled at the agency as a regular part of the work day, and having paid time off from the job to attend classes in the community.

Many were interested in having paid tuition for classes attended outside of work time. All of the professionals expressed interest in the concept of an educational center to provide comprehensive core training for all paraprofessionals in the municipal areas. Most reported their agency would definitely utilize such service if it were available.

Most paraprofessionals did not expect their present job to lead to promotion within the agency (Chart 7). However,



"...very few [paraprofessionals] could envision extending career development to include the present professional levels in agencies."

they felt that the present job experience would probably help them find another job outside the agency. One-half of the paraprofessionals were satisfied with the job and would not prefer other work.

12 Although most professionals could envision career opportunities for paraprofessionals above entry levels, very few could envision extending career development to include the present professional levels in agencies. Only two agencies had such a career program and only one of those had moved an entry level paraprofessional through its program to the professional level.

Recommendations resulting from the survey include the following:

1. Home economics knowledge and skills should be an integral part of the paraprofessional pre-service and in-service training programs to contribute to improved job performance and personal development.
2. Professional input should be directed at clarifying the paraprofessional role in relation to other positions in the agency.
3. Professional understanding and resources should be used to support and strengthen the paraprofessional's contribution to agency programs.
4. Education, training and career development opportunities should be planned within agencies so as to include entry through professional levels.

5. Special consideration should be given to helping paraprofessionals overcome problems which limit success in undertaking and completing training, education and career development programs.
6. Paraprofessionals should be actively involved in developing and reviewing all training, education, and career programs planned for them.
7. City educational centers for paraprofessionals should be established. The immediate goal for the educational centers should be to help paraprofessionals succeed on the job. A long term goal should be to provide career development opportunity ranging from the paraprofessional's first promotion through professional levels.

Once beyond the early stages of training, the paraprofessional should discuss with professionals those career opportunities available to him/her. Educational and career options should include opportunities for specialized job training, personal development, enrichment, language development in English and/or Spanish, adult basic education leading to the high school equivalency diploma, and coordinated associate and baccalaureate degree programs in community colleges and other institutions of higher education. Ancillary professional services and supplementary activity programs should be included in the programs at the centers.

This survey was part of a Title I project funded by the Conn. Commission for Aid to Higher Education. It provided a multi-faceted description of paraprofessionals, the jobs they did, how they fit into the employing agencies. Both professionals and paraprofessionals contributed to the study to allow a balanced presentation of the paraprofessional situation. The complete study is available on interlibrary loan from The University of Connecticut, or from University Microfilms, Ann Arbor, Michigan.

Constance McKenna: Employment and Career Potential for Paraprofessionals Utilizating Home Economics Knowledge and Skills. (Doctoral Thesis)

The Crisis in the Education of the Paraprofessional

By Dr. Frank Riessman

"To avoid falling into the same bag that other community professionals have, we must be constantly aware of our ultimate goal: to get the Black community on its feet, economically and medically. The only way that we can do this is not to allow ourselves to be sucked into the establishment. We must not allow the establishment to use us to pacify the community. We must always work for the common good of our people, not become flunkies, doing the dirty work of our agency, to cool out the poor."

"We must continually intervene in systems that are not truly concerned about the welfare of our people. We are aware that the war isn't over just because we have won a

*Frank Riessman, Ph.D. *is professor of Educational Sociology, director of the New Careers Development Center, New York University, and editor of* Social Policy. *He is a well-known author on paraprofessionals, and the New Career concept.*

battle. We must continue to fight each new encounter as if it was the first. However, we must not become paranoid in thinking that every confrontation is a fighting situation."

from: *"The Plight of the New Careerist"*
(by four paraprofessionals)
Reported in Newsletter, Spring 1971,
NEW HUMAN SERVICES.

It's a beautiful statement; it puts a lot of things together, and I think it's a jumping off point for some things that I'd like to talk about with you.

I have a couple of problems to put before you, about where New Careers is today. There is no question that paraprofessionals are accepted as entry workers. There's no question that most agencies, most professionals, and most supervisors think that paraprofessionals can do a good job.

But New Careers was not established just to provide jobs for people; it's not a WPA. It was intended to change the practice of agencies and the practice of professionals, to bring new professionals into the ranks, providing new services and new patterns of services.

I'll be specific with some examples I've been working in recently. I haven't been involved in home economics so I can't help you there, but I have been working in health and education, and I'm struck by a number of things. The health field in the United States today is fragmented and in bad shape. They're going to put a lot more money into it, and I'm afraid it's not going to get any better.

During the last few years, a lot of paraprofessionals have been hired in neighborhood health centers developed by the OEO and the Public Health Service.

It strikes me, first of all, that these centers are the hospital and the hospital system brought a little nearer to the community. The service isn't significantly changed.

Also, during the past few years, the concept of preventive health care has grown, because the way to change the health of a nation is not to hire more doctors. There's a basketful of evidence that that does no good. A whole preventive health system is needed so that people will get their teeth examined, will get eyeglasses earlier, will get immunization tests and pap smears, will learn how to treat themselves, how to catch a problem early, and how to get to

a service early. These are the things that really affect health. It's not a question of catching somebody with lung cancer early and getting him to a clinic; it's a question of changing his smoking habits so that he won't have the lung cancer.

To do this, we need a reorganization of the health systems. Instead of one-to-one services where a paraprofessional outreaches into a home, we need a system in which a paraprofessional functioning as a health educator organizes community campaigns and builds health power into the community so that the community talks about health and does things about health as a group. Such an approach can build chains where Mary asks Jane to get a pap smear or a tuberculosis exam. Jane asks Ann, Ann asks Rita, etc. The people in the community get turned on and become major agents in developing health care and preventive medicine.

It's a very different kind of approach. It's making sure that in the schools and outside the schools—because a lot of people don't get to the schools—there are clinics to test people to see if they need eyeglasses and to test their teeth so they don't have to get cavities filled twenty years later when their teeth are all smashed up. It's important to change diet in the community, but not necessarily on a one-to-one basis, but on a large community basis, on an organized campaign basis.

Not only is the present system not changing enough to do this but its not training the workers to do it. We have new paraprofessional manpower in the system, but they're providing the old services. Some of that's good because it reaches some people that weren't reached before; but its not a real reorganization of the health system.

Shouldn't reorganization lead to professionals performing different roles—not just supervisory roles, but consultation, training and the development of their special skills? Wouldn't it also be important to have paraprofessionals move up the career ladder rapidly to become health educators so that they can organize communities, groups and campaigns, and can use principles of persuasion, propaganda and advertising to change community health?

We do excellent advertising to get people to use drugs. All kinds of drugs are recommended to keep your children quieter, to keep yourself calmer—Compoz, asprins at the

drop of a hat, libriums on another occasion, amphetamines if you're a little too quiet. It's no accident that there's a little spin-off that you didn't quite expect, that people get turned-on to drugs in a way that we didn't want them to. We didn't want them to go to heroin or cocaine or speed on a regular basis. We didn't think that was good, but it's happening. Can't we use some of these techniques of persuasion to change some of the very negative habits?

I'm suggesting that in this context the most meaningful, effective, efficient use of the paraprofessional or the new professional is to do new work that needs to be done to really get after the drug problem, the health problem and so on.

You don't want the paraprofessional to do only the entry level tasks. You want him to do more and more sophisticated and advanced tasks. We need the paraprofessional, for example, to do some of those things that I just described to you about health education or some of the things that I will describe to you about work in schools with children. It's going to require formal training and education.

Most training in the United States and throughout the world is very unsystematic, informal, sloppy, and slow. Don't think for a minute that when people say "on-the-job training" they're saying something good. It's a put-on. It is a very slow way of learning. The on-the-job teacher is, first of all, not a trainer. He's a plumber but he's not a teacher of

"You want him [the paraprofessional] to do more and more sophisticated and advanced tasks... It's going to require formal training and education."

plumbing. You're standing next to him and he has to do his job. He doesn't have time to teach you, except occasionally and maybe if he likes you. You don't want learning to be dependent upon the guy liking you, do you? Second, what he teaches you is not organized in a planned sequence. He's doing this today so he teaches you this today. But that's not what you should learn first. You learn on a hit or miss basis.

It's striking that under these negative circumstances paraprofessionals have learned as much as they have. The reason largely is the paraprofessional's desire and motivation. But you've got to have better training. You've got to have training which is carefully planned and under a skilled instructor who knows how to package things in a systematic sequence. He knows how to check whether you're learning what he's teaching. He knows how to use "simulated situations" or "role-playing." He knows how to set up a classroom situation in which you practice various ways of dealing with children, working with them individually, and organizing them into a group.

It's not on the job. It's separate from the job, and you can make mistakes in the protected situation, you can look at yourself, somebody else can play you.

You can do role reversal where you play the client, student, or the patient. You can see how they feel in the situation. You can even take films.

Another very crucial part of the training is overtraining where you try out an easy problem which is made increasingly difficult. For example, a client comes into your neighborhood center and he can't sign his name. It's an easy problem but you practice it slowly and get your style developed. Then the problem becomes more difficult because the client is confused or hostile, or both. You also practice the situation in which a client rushes in demanding attention while you're working with another client. Our trainees tell us that the training is harder than life, which it should be. You should be able to practice in the simulated situation all kinds of things that might happen but probably won't.

This is not just good training for paraprofessionals. It's extremely good training for professionals because it enables them to see what the other guy feels like and that's not an easy thing to do.

Typically, in your work, you deal with problems in a frozen way because they have to be solved rapidly. You settle for a solution.

You need, therefore, a practice place, a friendly place which you share with your fellow workers where you look at various ways of dealing with problems. You discuss the problems and the roleplaying. It's a crucial part of training, particularly in human relations and service fields.

The whole on-the-job training model is a slow, intentionally prolonged, dragged-out training model. There's a favorite story about this that Herbert Hill of NAACP tells. He says it takes eighteen months to train a fighter pilot, but it takes four years to train a plumber's assistant. They train the fighter pilot like I just told you, with simulation, phased situations, overtraining, etc. When we're for real, when we want to train somebody to do something for real, we don't use the old prolonged O.J.T. model. College is another stretched-out model. It wasn't developed for you; it wasn't developed for adults who are motivated, want to learn something, want to do a job.

Let me give you a contrasting model—I don't mean to oversell it—but in the Office of Education today there's a new program, called The Career Opportunities Program—COP. In this COP program, teacher aides—paraprofessionals—at the entry level can go to college while working full time at full salary, and move up to become teacher assistant, teacher associate and teacher in four years, the regular time it takes to go to college.

It's made possible by giving courses at the job location, by giving credit for work experience and training on the job, by using the summers meaningfully, and by integrating courses in different ways. It's very innovative. I'm not suggesting at this moment that it's altogether successful, but it is a very new and accelerated design, whereby paraprofessionals can acquire that college degree rapidly while working full time and can do more advanced jobs as they move along.

Unfortunately, one of COP's problems is that as the paraprofessional moves up the career ladder, the ladder becomes what I call a "college ladder." The parpaprofessional as an aide does a certain series of things in the classroom. He acquires 30 credits in college, and he becomes a teacher

"...don't kid yourselves...that because you can do what a limited teacher can do, that this is good. It's not. It's too bad."

assistant. He acquires 60 credits and he becomes a teacher associate. He acquires 90 credits and he gets some other title; 120 credits and he becomes a teacher. But he has not acquired, as he goes along, different sets of skills to perform different tasks at each of these levels.

As a matter of fact, to tell you something rather bluntly and nastily, in many cases where the paraprofessionals have been well trained, they very quickly do the work of the teacher. It happens because the teacher hasn't been well trained. But don't kid yourselves, paraprofessionals, that because you can do what a limited teacher can do, that this is good. It's not. It's too bad. Don't let your learning stop at that point. The teacher you're imitating and that you may work with, is not a good and effective teacher.

Keep the kids quiet, tell them a few stories, mark a few papers, check on their reading—that's not very good teaching, but it's the kind of teaching that takes place in a lot of schools. I have seen teachers do magnificant work that required great skills, good diagnosis of the learning problems of the child, and ability to change them. I have seen those things happen, but right now they mainly happen for the rich. Don't you become a poor teacher for poor children in poor schools. Don't let anybody con you that that's good enough.

You want to become *new* professionals; you say it all the time. Make it real. Don't become like the average teacher.

Don't get an average union card–that's a college degree–which hasn't taught you much.

I think you're likely to get conned in two different ways. You're likely to get bad training *and* bad education. You're likely to get training which is insufficient to do a professional job whether it's teaching children or in health services, and you're likely to get a watered-down college degree, color it black or brown, from a two-year junior college or a community college.

Oh, I've got some nasty things to say to you. This is not a sweet talk, not a sweet talk at all, because we don't need to convince anybody anymore that paraprofessionals can do the job. We don't need any showcasing; those days are over. What professionals need to be persuaded about now is to break open the ladders, to really let people into the profession, to change the professions, to change the work, to change the training, to change the service and the training for it.

One of the biggest con jobs that's going on in America today is that a lot of people are telling minority group members and poor people that you don't really want advanced college degrees. You don't want to be a Ph.D. They–the Ph.D.'s–learn a lot of fancy mathematics and fancy talk, but they're not real; they don't understand the earth; they don't understand the problems. They have a lot of knowledge which is wasted. And the fanciest word of all is that they have a lot of knowledge that's not "relevant."

They have a lot of knowledge that's not relevant, but they also have some knowledge that's very, very relevant, and you had better acquire it, otherwise you'll get a second-class college degree for second-class citizens. You'll get the union card, but it won't be worth what you think it's worth. They'll give you a union card for second-class technicians.

I've got a Ph.D. and I've studied in a lot of colleges for a long time, and I would say I've learned a lot of irrelevant nonsense–but I also learned an awful lot of things that are extremely valuable. Don't kid yourself for a minute that you learn them on the job. You don't.

I learned how to write. I learned how to communicate. I learned how to analyze. There's nothing unique about doing that, but I acquired a lot of skills in college and graduate

school—not the German for my Ph.D. which hasn't done me any good—but a lot of skills that were extremely useful.

I'm making this point so strongly to the paraprofessionals in this audience, because I'm afraid that you might not know what's happening. Because you're aware that a lot of what you learn in colleges and schools is irrelevant, you might think there's nothing to learn there. You may decide that you only want to learn the skills necessary for your job.

That is important, but there's more to dealing with the world and changing the profession, than just the skill. There's education and you've got to acquire it—and change the college, not the education—while acquiring it.

There's a false trend in education today. People say that the only thing you need to learn is what's useful on the job or what's immediately interesting to you. Everything else should be removed, or downplayed completely. I think that's nonsense.

I learned something which is extremely difficult called "dialectics." It is difficult and written in bad language by a man by the name of Hegel. However, I must tell you that I find it enormously useful in thinking about problems, in analyzing and in developing strategies.

There is a crisis in the education and the training of the paraprofessional. He's losing on both sides. He's not being trained to do much, to move up any significant ladder; the work isn't being reorganized; he's not acquiring skills to reorganize it. Also, he's likely to get a watered-down education and a second-rate union card. And I want to warn you about this.

For further discussion of the education of the paraprofessional, see Social Policy, *May-June 1971, Frank Riessman, Ed., 901 North Broadway, White Plains, New York 10603.*

Talking Together

Discussion of the various groups fell into four major areas of concern. No attempt was made to edit the direct comments made during the discussion.

EDUCATION

Paraprofessionals want education. They want to attend four-year colleges; they want training sessions geared to their specific needs. They also want their education and job experience to count.

Discussion group reports said:

"Paraprofessionals feel that entrance requirements to college should be eased to admit paraprofessionals but standards for graduation should not be lowered."

"The State has an out by setting up special schools for paraprofessionals. Open up the colleges."

It was suggested that a "professional equivalency exam" like the High School Equivalency exam, be established.

The paraprofessionals reject training sessions and workshops for which they don't receive credit. "Credit should be given for job experience and in-service training which is

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transferable from one job to another, from one university to another and from one state to another."

A conflict arises between paraprofessionals. Some questioned why employers were pushing them to college. They felt that dedication to the community is sufficient. Others, along with some professionals, indicate that knowledge of the community and ability to communicate are not sufficient. "No one was suggesting that a degree equated excellence of work, but education gives more scope and knowledge in ways of working with people."

Paraprofessionals should be able to attend school during work hours. They should be trained for specific jobs as well as general tasks.

State-wide coordination of educational opportunities should be established for paraprofessionals.

And also: "We can't train the paraprofessional in a vacuum. He feels that he is not understood by the professional but how can we bring in the professional for training." "The professionals are ignorant of the ways of Black and other minority groups. They need training."

MEANINGFUL CAREER LADDER

The paraprofessional wants a career ladder, job security, and a definition of his role.

"Some people are not interested in going to college but would like their job clearly described. If they were to move to another city or state, they would like their position to have accreditation so they would not have to start at the bottom again."

"The open-endedness of the program is very important. If you have the feeling and motivation, you should be able to move up. Perhaps the greatest need is for counseling."

"Goals for paraprofessionals should be established because you can't make demands unless you know what you want and where you want to go, financially and educationally.

"The group felt that certification and license would be an effective means of maintaining their jobs and experience status should there be a need or desire to relocate."

ORGANIZATION FOR PARAPROFESSIONALS

"Are we all interested in organizing? Do we have aims that are compatible? What are the issues and goals we are organizing for?"

"Some universities are recognizing the problems of the paraprofessional, and have held conferences to discuss the various issues."

"Should the paraprofessional at this point be on the college degree level? Should they perhaps form an association for developing a program on the associate level?"

"Paraprofessionals want literature to do further reading, want to be kept informed of legislation related to the professional and other matters."

Just what does the word "paraprofessional" mean? The participants seemed to feel that there might be another title used, but could not quite reach a decision as to what it might be. Some paraprofessionals would like to be called "new professionals."

PARAPROFESSIONAL vs. PROFESSIONAL

Discussion indicated a need to strengthen professional-paraprofessional relationships. "Both must try harder to listen to each other."

Although both groups recognize the need for each other, "there appears to be a lack of mutual respect for and understanding of each other's role. This leads to anger and a lack of communication."

"The professional needs to get out in the community, visit families with the paraprofessional and learn more about the problems of the people."

"The professional turns to the paraprofessional to pick his brains but fails to see the paraprofessional as a human being."

"If education is filtered into training on the job and college credits are received by paraprofessionals for experience in various fields of work, the group felt that the gap would be somewhat bridged."

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MARYLAND CAREER DEVELOPMENT PROJECT (K-ADULT). VOLUME I (INTERIM REPORT) AND VOLUMES II-III (SECOND ANNUAL REPORT).

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IDENTIFIERS - CAREER EXPLORATION; *MARYLAND CAREER DEVELOPMENT PROJECT

ABSTRACT - THIS SECOND ANNUAL INTERIM REPORT FOR THE PERIOD JULY 1, 1971 THROUGH JUNE 30, 1972 DESCRIBES AND EVALUATES THE SEVEN PROJECT COMPONENTS: (1) ELEMENTARY CAREER DEVELOPMENT RESOURCE, (2) WORK-ORIENTED (COOPERATIVE), (3) INFORMATION AND PLACEMENT SYSTEMS, (4) CAREEREXPLORATION WORKSHOPS, (5) TELEVISION SERIES, (6) MARYLAND CAREER DEVELOPMENT RESOURCE NOTEBOOK, AND (7) MARYLAND CAREER DEVELOPMENT CONFERENCE. THE MOST SIGNIFICANT ACCOMPLISHMENT OF THE PROJECT WAS THAT PEOPLE THROUGHOUT THE STATE AS WELL AS IN THE OPERATIONAL SETTING OF BALTIMORE CITY BECAME AWARE OF THE CONCEPT OF CAREER DEVELOPMENT AND ITS POTENTIAL FOR CHANGES IN EDUCATION. THE POSITIVE RECEPTION TOWARD CAREER EDUCATION PROGRAMS IN BALTIMORE CITY HAS LED TO PLANS FOR EXTENSION OF PROGRAMS IN THAT CITY AND ALSO IN 16 LOCAL SCHOOL SYSTEMS. VOLUME II OF THIS REPORT CONTAINS THE DETAILED PROJECT EVALUATION AND VOLUME III INCLUDES SURVEYS, TESTS, AND RELATED MEASUREMENTS. THE FIRST ANNUAL INTERIM REPORT ON THIS PROJECT IS AVAILABLE AS ED 057 251 OR VT 014 418 (ARM, VOL. 5, NO. 3). (MF)

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Interim Report

Project No.: 0-361-0021
Contract No.: OEG-0-70-5186 (361)

Maryland Career Development Project (K-Adult)

Exemplary Project in Vocational Education
Conducted Under
Part D of Public Law 90-576

VOLUME I

James A. Sensenbaugh, State Superintendent of Schools

James L. Reid, Assistant State Superintendent for Vocational-Technical Education

E. Niel Carey, Specialist in Vocational Guidance and Project Director
Maryland State Department of Education
301 W. Preston Street
Baltimore, Maryland 21201

June 15, 1972

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The project reported herein was performed pursuant to a contract with the Bureau of Adult, Vocational, and Technical Education, Office of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

E. Niel Carey, Specialist in Vocational Guidance
and Project Director
Maryland State Department of Education
301 W. Preston Street
Baltimore, Maryland 21201

June 15, 1972

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Bibliography

(Volume II of this report contains the project evaluation and Volume III of the report includes the instrument surveys, tests, and related measurements used in the project.)

REPORT SUMMARY

The time covered by this report is the period July 1, 1971 to June 30, 1972. There are four goals of the Maryland Career Development Project (K-Adult):

1. To help individuals develop a positive self-concept and a greater degree of self-understanding.

2. To help students learn about and understand the range of educational and career opportunities available now and likely to be available in the future.

3. Help students develop and use the decision-making process more effectively.

4. Help individuals make a smoother transition from education into the world of work and vice versa.

In order to accomplish these goals, the Maryland Career Development Project was organized into seven components, three of which formed the operational setting in Baltimore City: the Elementary Resource Component, the Work-Oriented (Cooperative) Component, and the Information and Placement System Component; two of the components were designed to provide services on a Statewide basis, including the operational setting in Baltimore City: the Career Exploration Workshops, and the Television Series; and two of the components were designed to disseminate information about the concept of career education, including the Maryland Career Development Project throughout the State: the Career Development Resource Notebook and the Maryland Career Development Conference. The specific objectives for each of the components and the procedures followed are described in greater detail in the main body of this report.

There are several direct results and accomplishments of the project, ranging from the improved attendance of the students involved in the Work-Oriented (Cooperative) Component to the acceptance of the concept of career development as reflected in the evaluation of the Maryland Career Development Conference. The most significant results and accomplishments, however, may be the indirect results that have taken place, not only in the operational setting in Baltimore City, but throughout the State of Maryland as many different kinds of people have become aware of the concept of career development and have seen the potential that this concept has for bringing about changes in education.

The evaluation of the project varies, to a degree, from component to component. However, any evaluation of the project would have to recognize the positive reception toward career education that has been brought about as a result of this project in Baltimore City, where the Superintendent of Schools recently announced plans to name a seven person full-time task force to develop a plan for career education in Baltimore City.

In addition, sixteen of the 24 local school systems in the State of Maryland currently plan major programs or activities in the area of career education during the coming school year. Many of these activities have resulted directly from information disseminated about the Maryland Career Development Project; or activities associated with the project, such as the Career Development Resource Notebook or the Career Development Conference; or through the activities of project personnel.

Specific conclusions and recommendations are made for each of the components, but there is increasing evidence which indicates that the concept of career development is an effective "thread" for bringing about changes in education and for causing educational programs to relate more to the needs of people.

THE BODY OF THE REPORT

The Problem

The problem that this project was concerned with is stated in the original project proposal, which points out that ". . . the primary components of this project will be located in Baltimore City, with certain project components designed to disseminate information about the operational components or to provide services to the entire State, including the operational setting." The project was designed in this way primarily for two reasons. First, Baltimore City's student population includes a high percentage of students who can be classified as disadvantaged, unemployed, out-of-school youth, handicapped, or school dropouts. The career development of all individuals is important. However, to individuals who are disadvantaged, this aspect of their development may mean the difference between surviving and not surviving in a complex society. Second, despite the educational and other kinds of problems that are found in Baltimore as well as other cities, Baltimore City has historically provided strong, national leadership in important areas of education such as vocational education, and guidance and placement. This strong leadership continues today. With this educational leadership; the effective working relationships between the City school system, the Maryland State Department of Education, and the University of Maryland; and the creative provisions of the Exemplary Programs Section of the Vocational Education Amendments of 1968, it is hoped that an exemplary project may be developed which will not only demonstrate more effective educational programs in the City, but will provide working models for students for the entire State. This project was designed to show that, given responsible resources and effective leadership, programs can be planned which can solve major educational problems.

The entire project is organized around the concept that much of education may be changed or may be made more relevant by focus on activities or programs which facilitate the career development of individuals. This career development concept has evolved over a period of time, through the ideas and writings of people such as Ginzberg, Roe, Super, Holland and Osipow. The theories put forth by these individuals have been tested and put into practice by a number of people, including Dr. Gene Bottoms of Georgia, and Dr. Ed Herr of Pennsylvania State University. The annotated bibliographies on areas such as career exploration developed at the ERIC Centers at Michigan and Ohio were especially useful in selecting procedures to be used in the project's components.

VOLUME II

SECOND ANNUAL REPORT

Project Number 0-361-0021

Contract Number OEC-0-70-5186 (361)

The Maryland Career Development Project

Phase II

Dr. Walter S. Mietus

Mr. Ted Glenn

Mr. Chris Stilling

June 1972

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U. S. Department of Health,
Education and Welfare

Office of Education
Vocational and Technical Branch

Goals and Objectives of the Project

The goals of the Maryland Career Development Project (K-Adult) are:

1. To help individuals develop a positive self-concept and a greater degree of self-understanding.

2. To help students learn about and understand the range of educational and career opportunities available now and likely to be available in the future.

3. To help students develop and use the decision-making process more effectively.

4. To help individuals make a smoother transition from education into the world of work and vice versa.

The objectives of the project are listed in the description of the project under each of the components. The Maryland Career Development Project (K-Adult) consists of seven components. Three of the major operational components are located exclusively in the West-Central portion of Baltimore City: the Elementary Career Development Resource Component, the Work-Oriented (Cooperative) Component, and the Information and Placement System Component. Two of the components are designed to provide services throughout the State, including the operational setting in Baltimore City: the Career Exploration Workshops and the Educational Television Series. Two of the components of the project provide information about the concept of career development and its implications for education and disseminate information throughout the State of Maryland about the Maryland Career Development Project (K-Adult): the Maryland Career Development Resource Notebook and the Maryland Career Development Conference.

The Project Design

The specific procedures used in each of the components are described in the following section:

A. The Elementary Career Development Resource Component

The objective of this component is to provide a resource teacher and a paraprofessional to work with the teachers and counselors in eight elementary schools and to devise procedures, programs and materials which will

(1) help youngsters learn more about themselves and see themselves positively, and

(2) help youngsters learn more about the world of work and the relationship of education to it.

Introduction

This section of the report was written by a third party evaluation team in accordance with the provisions of the Federal Register Volume 35, Number 143, July 24, 1970, entitled Research and Training, Exemplary and Curriculum Programs in Vocational Education. Under section 103.45 Program Accountability and Evaluation Procedures, a third party shall determine the effectiveness of the program by considering the following points.

a. the extent to which the objectives of the program or project have been accomplished;
b. what factors either enabled or precluded the accomplishment of the objectives; and
c. to promote the inclusion of the successful aspects of the program or project into vocational education programs supported with funds other than those provided under the grant.

Role of the Evaluation Team

The third party evaluation team included a Director of Evaluation, a Research Associate and a Graduate Assistant. A non-directive objective posture was assumed. The team identified and collected performance data and after analysis, reported differences or discrepancies with the objectives set forth by the component leaders and overall project administrators. Input from the evaluation team often led to the problem solving and decision making processes in which corrective actions were developed by consensus of all staff and administrators.

The evaluation team had positive acceptance and assurance that the on-going formative evaluations provided would be considered and that the input, if appropriate and if accepted by consensus, would serve the process of adjustment, change and development. The emotional climate for this function was found to be favorable in most instances. It was experienced that most leaders of components did change actions and intermediate goals where performance was at variance with goals. Known changes have been continuously made by consensus, resulting in new priorities and corrective actions in accord with the objectives.

The multiple objectives of each component were analyzed for congruency with the stated terminal objectives of the proposal

The resource teacher and her assistant have achieved this objective through several kinds of activities. The resource teacher has worked with city-wide curriculum committees and curriculum specialists in order to incorporate information about the world of work and career education into the existing curriculum. In addition, the resource teacher has conducted faculty meetings and inservice programs in order to inform the faculties in eight participating schools of the concept of career development and its implications for education. Finally, the resource teacher, has developed and demonstrated a variety of materials and techniques such as simulated work tasks, gaming procedures, the effective use of community resources and field trips, and the utilization of parents and community members as work-role models. This component and its activities were described in the February, 1972 issue of the Instructor magazine.

B. The Junior High Work-Oriented (Cooperative) Component

The objective of this component is to provide training in employability skills to 65 students in two junior high school settings (General Henry Lee and Rock Glen Junior High Schools). Private employers and small businessmen were recruited for the purpose of providing training in employability skills and in attitude development. The employers were paid a set amount per hour for this training. They, in turn, returned their training allowance to the students in the form of a reward system as the students developed the required employability skills. The interaction between school personnel and businessmen in the community has been very beneficial and very positive. The support of several community organizations such as the Voluntary Council for Equal Employment Opportunity has had an especially positive effect on this component.

C. Information and Placement System Component

The objective of the Information and Placement System Component is to provide students with up-to-date, reliable, and accurate information about career and educational opportunities, thereby increasing the effectiveness of the existing placement system in Baltimore City. The information dissemination vehicle consisted originally of a computerized element. However, at the request of the U.S. Office of Education, this was changed to a micro-film system, commonly known as VIEW.

D. The Career Exploration Workshop Component

The objective of the Career Exploration Workshops is to bring together teams of teachers and counselors, acquaint them with the importance of Career Exploration Programs at the junior high school level, and train them in the use of practices, procedures, and materials with which they would plan a career exploration program for their own school. Teams of personnel from 15 schools representing 11 school systems have participated in the workshops over the past two years.

and those set forth by the U.S.O.E. The third party team recognized the objectives of the components and planned strategies of implementation as appropriate. Appropriateness was determined by continuous interaction with all staff leaders planning strategies of implementation.

The formative and summative evaluation process also included:

A. Identifying and defining needs to meet established goals.

B. Collecting descriptive information and data about field activities. (On site visits)

C. Guiding internal or self evaluation within each component.

D. Conducting liaison activities between the field operations and the administration. Reporting discrepancies and promoting group consensus in deciding corrective actions and alternate strategies.

E. Reviewing and evaluating the process, interim products such as lesson plans, units of study, activities and content of cognitive expectations.

F. Relating the component objectives to:
   Input resources and conditions
   Process treatment and transactions
   Output products and performance

G. Wherever possible, identifying cause of program deficiency, promoting consensus, assuring channels of communication, and also assisting in obtaining authoritative consultants, etc. for making judgments about problems.

H. The development of instruments and implementing various obstrusive and unobstrusive strategies for obtaining summative type data. Ideal research designs were attempted and in most cases, were modified to fit the dynamics of the programs. Extreme caution was taken not to interfere with the creative activities or morale of the program participants.

The teams were provided with funds for implementing their plans, and staff from the career development project have constantly monitored the progress of the teams. The teams have been provided with opportunities to meet with other teams throughout the State, exchange ideas and evaluate progress. This component was described in the December, 1971 issue of the AVA Journal.

E. The Television Series

The objective of the Educational Television Series is to provide a series of 15 television programs, along with a teacher's manual which will provide students in grades four through eight with information about the range of opportunities available in several broad career areas. The entire series has been produced at this point and was telecast on a weekly basis from the first week in February through the third week in May. Each program in the series was telecast five times a week.

F. The Career Development Resource Notebook

The objective of the Career Development Resource Notebook is to acquaint educators with the concept of career development and to provide them with examples of goals, objectives, activities, and resources which may be used in planning and operating programs in career education. A working draft of the notebook was distributed to the 250 educators who attended the Maryland Career Development Conference on October 28, 1971.

G. The Maryland Career Development Conference

The Maryland Career Development Conference had as its objective to bring together key educational personnel from local education agencies, the Maryland State Department of Education staff, and the faculties of institutions of higher education in order to learn about the concept of career education and the ideas and procedures generated by the entire project. This conference was held on October 28, 1971 and was attended by approximately 250 people. Dr. Wesley Tennyson of the University of Minnesota delivered the keynote address. Other speakers included Mr. James L. Reid, Assistant State Superintendent for Vocational-Technical Education and Mr. Fred H. Spigler, Jr., Administrative Assistant to Governor Mandel.

Limitations

The content of this evaluation is based on randomly selected data from a large body of data collected. This was necessary due to the severe time constraints placed on the evaluator when the due date for the document was moved from August, 1972, to June, 1972.

For the third party evaluator to assign students to treatment groups for the purpose of assessing the effects of a single project was an unsurmountable barrier. In some components the problem of student mobility could not be controlled.

Process evaluation was limited due to the obligations of the research team in university teaching and graduate studies. The staffing was inadequate for the task of evaluating a complex, multi-dimensional project.

The instruments developed at best had face validity providing rough estimates for assessing the impact of the programs. The total impact will never really be known. Effects which were not measured were within the realm of self concept, self esteem and decision making.

The impact of some components cannot be fully measured without some means to measure student progress over a long period of time.

The data presented herein by the evaluators is at variance with the real efforts of the project because more action and activity occurred than were validated by the two evaluation staff members working on a part time schedule.

Plan of Presentation

This portion of the report generated by the third party evaluation team is organized in accordance with the listing of the major components of the project presented below.

I. Career Exploration Workshops (Junior High and Middle School)

II. Elementary Career Development Resource Component

III. Information and Placement System Component

Results and Accomplishments of the Project

This section will be devoted to the major results or accomplishments within the project's components. Additional results and accomplishments will be listed and described in the evaluation section of this report.

There are several indications that this project, by itself, or in conjunction with other related activities and projects has had major influence on the educational programs throughout the State of Maryland, including the major operational setting, Baltimore City. First, the present Superintendent of Schools of Baltimore City, Dr. Roland Patterson, recently announced his intent to name a seven person full-time task force on career education. Maryland Career Development Project personnel have already been involved in pre-planning related to this task force. Five of the assistant or area superintendents who will be directly involved in this task force have actively supported and participated in the activities of the Maryland Career Development Project. Second, as part of the evaluation of the Maryland Career Development Conference, over 250 of the top educational leadership in the State who participated i that conference were asked, "To what degree do you agree with the concept of career development as put forth in the project and its activities?" The participants gave a composite response of over 4.7 out of a possible 5 point evaluation (5 indicating complete agreement and 1 indicating complete disagreement). Third, on the survey of career development practices in Maryland which was completed in March, 1972, 16 school systems indicated that they have plans for a major involvement in career education over the next two years.

A. The Elementary Career Development Resource Component

The Elementary Career Development Resource component was changed in two ways during the second year of operation. First, the number of schools involved in the component was increased from five to eight. The three additional schools, unlike the original five schools, each had a counselor assigned, at least on a half-time basis. Second, a paraprofessional was employed to work with the resource teacher. The paraprofessional worker provided clerical assistance and performed other duties related to the setting up of field trips, contacting speakers, and performing other duties related to the project.

The career development resource teacher's primary emphasis has been on demonstrating activities and services and developing and testing procedures and materials for classroom teachers. Fifty teachers from the eight schools involved in the component have received services from the career development resource teacher, Mrs. Audrey Allen. A total of 1,635 students, at all grade levels, including special education classes, have been involved in the component.

IV. The Junior High Work Oriented (Cooperative) Component

V. The Television Series Component, "Calling Careers"

VI. The Maryland Career Development Resource Notebook

VII. The Maryland Career Development Conference

The decision was made that within this evaluation, the names of schools, administrators, teachers and students would be coded and made anonymous.

Due to the large quantity and size of appendices materials, it is necessary to make these available in a separate package.

Mrs. Allen, working with the faculties of the schools involved, has compiled a list of behavioral objectives for primary-aged students after the first year's involvement in the program, and after a second year's involvement in the program. A list of behavioral objectives for the intermediate aged student, after the first year's involvement in the program, and after the second year's involvement in the program was also compiled. In addition, Mrs. Allen has collected, developed, and tested a series of assorted curriculum materials. Mrs. Nancy M. Pinson, the Assistant Project Director, is presently working with Mrs. Allen in having these materials edited, organized, and assembled for future distribution and use.

B. The Work-Oriented (Cooperative) Component

This component was expanded to a second school at the beginning of this school year, a second work coordinator was employed, and approximately 40 students are involved in the second school, Rock Glen Junior High School.

The attendance of the students involved in this component has improved, and the improvement continues to be maintained. School achievement has improved as well. Perhaps the greatest accomplishment of this component, however, is the positive attitude of the employers toward the students and this approach to education, as well as their willingness to continue to participate in this activity.

C. The Information and Placement System Component

After many of the problems related to equipment procurement and delivery were solved, the VIEW System was initiated, first by a City-wide inservice program for secondary administrators on the school's responsibility for providing students with information about the range of opportunities available to them and the ways that the VIEW System could help them in this responsibility. This inservice program was followed by a half-day program for counselors which helped them understand the importance of career information systems within a career education program. Dr. Kenneth Hoyt was the principal speaker and consultant for this activity. In addition, the counselors, librarians and key administrative personnel at Southern High School were involved in a special half day inservice program related to the VIEW System and its role in the total guidance program of the school.

At the same time these inservice activities were being conducted, Mr. Randall Hall, the person responsible for this information system was preparing individual job cards for the VIEW System. At the present time, he has prepared approximately 90 cards based on career information for the Baltimore Metropolitan area. Mr. Hall also completed, as part of this component, a brochure which outlines the objectives of the Career Development Program in Baltimore City, K-12. This brochure outlines the objectives and the activities related to career development at the various educational levels in the school system.

I. Career Exploration Workshops

Background. Teams of personnel from fifteen schools were trained in methods of a multi-disciplinary approach to career education. The content of this training and evaluation of cognitive and affective changes of these participants are presented in other documents. Sufficient evidence was compiled to indicate that the participants changed behaviors towards the goals established. The content of the programs (software) tests and other products have been made available for dissemination. The teams developed plans and strategies to enable field implementation of the various objectives. Each team developed unique activities for their schools on the basis of the needs of the students and community structure. These materials and plans served as a basis for the evaluators to compare performance in the field with stated goals.

Objective: The team will demonstrate its commitment to career education by encouraging total support through in-service meetings.

TABLE I

Frequencies of Motivational Activities for Teachers

SCHOOL	NUMBER OF MEETINGS		TOTAL
	Aug. - Jan.	Feb. - June	
G	3	4	7
H	10	12	22
I	0	4	4
J	6	8	14
K	2	4	6
L	1	3	4
M	0	4	4
N	2	3	5
O	1	4	5
	Total 25	Total 46	Total 71

Grand Total 71

These activities have directly supported the City's placement program which has a national reputation for effectiveness. One of the results of this placement program continues to be the relatively low youth unemployment rate in the City and the positive attitude that the business and labor community in the City has toward the City's students who seek employment. Baltimore City's placement program has received nationwide attention, especially through a recent article written by the coordinator of placement, Miss Lillian Buckingham, which appeared in the American Vocational Association Journal. Miss Buckingham also made a major presentation at the 1972 American Personnel and Guidance Association Convention in Chicago.

D. The Career Exploration Workshops

The teams which have participated either in the first or second summer's Career Exploration Workshop continue to exert positive leadership in career education activities in their own schools and in their school systems. For example, from August, 1971 through January, 1972, the 15 workshop teams had conducted a total of 23 faculty meetings, inservice meetings, or other staff development activities to encourage the participation of other staff members in the career exploration activities.

Several of these teams, including the team at Corkran Junior High School and the team in St. Mary's County provided creative interaction between other projects and activities related to career education. This interaction seems to strengthen each of the interacting projects or activities.

During the coming summer, the Career Exploration Workshops will again be held, but this year they will be conducted for school level administrators and school system-level administrators and supervisors. The funds for this summer's workshops will be provided through the Maryland State Department of Education workshop funds.

Each of the participating schools had the opportunity to conduct a student needs assessment survey. The data gathered through the survey will be utilized for planning purposes in the workshops conducted this summer. Twelve of the fifteen schools participated in the survey.

E. The Television Series Component "Calling Careers"

The initial production of the 15 programs in the television series "Calling Careers" has been completed. This television series was telecast beginning on February 7, 1972 and terminating on May 25, 1972. Each of the programs in the series was telecast five times a week: Monday morning, Tuesday, morning and afternoon; and Thursday, morning and afternoon.

The data indicate that there was an accelerated increase in the tempo and quantity of activities in the last half of the academic year.

Objective: The team will open its program potential to involve all school staff members to become active in career education.

TABLE II

New Members Participating

SCHOOL	NUMBER OF MEMBERS			TOTAL
	Original	Added Aug.-Jan.	Added Feb.-June	
G	5	1	4	10
H	5	Total Faculty	Total	84
I	3	2	6	11
J	5	5	8	18
K	5	4	5	14
L	3	0	5	8
M	5	15	2	22
N	4	3	5	12
O	5	4	6	15
Total	40	34	41	194

Participation increased five fold. The figures presented do not include other teachers and staff playing supportive roles. It is reasonable to believe that more staff participated than are reported here since the evaluators could not be at all places at all times.

Objective: The team will provide opportunities to all students for reality testing by means of a multi-disciplinary setting which emphasizes role playing and task involvement.

An extensive evaluation of the series has been done, from the standpoint of student perceptions and outcomes and from the standpoint of teacher perceptions and utilization. On the basis of these evaluations, certain programs in the series will be revised, and after the revisions have been made, kinescopes of the programs will be produced in order that schools and school systems throughout the State who have not been able to utilize the series because of reception or scheduling difficulties, will have access to the series through the film media.

The feedback obtained from a sampling of approximately 85 teachers is especially interesting.

1. 49% of the teachers used the series as a supplement to the regular curriculum, 22% of the teachers used the series as an integral part of the curriculum, and 28% of the teachers used the series independent of the regular curriculum.

2. On a 5 point scale, from 1 (poor) to 5 (excellent), 21% of the teachers rated the series at 5, 55% of the teachers rated the series at 4, 17% of the teachers rated the series at 3 and 6% of the teachers rated the series at 2.

3. In rating the draft of the teacher's manual accompanying the series, again using a scale from 1 (poor) to 5 (excellent), 28% of the teachers gave a rating of 5, 47% of the teachers gave a rating of 4, 22% of the teachers gave a rating of 3, and 3% of the teachers gave a rating of 2.

F. The Maryland Career Development Resource Notebook

A working draft of the Maryland Career Development Resource Notebook was completed on October 1, 1971 and was distributed to the participants of the Maryland Career Development Conference on October 28, 1971. In addition, the notebook was accepted as part of the ERIC System at the Ohio State Center.

The participants of the Career Development Conference who received the notebook were asked to evaluate its content on the basis of a 5 point scale ranging from 1 (of no value) to 5 (of great value). The mean values assigned to the various sections of the notebook are indicated below.

Section 1 - Introduction - Mean Value 3.0

Section 2 - Planning and Program Development - Mean Value 3.8

Section 3 - Career Development Models - Mean Point Value 3.9

Section 4 - Implementing the Career Development Concept - Mean Point Value 3.1

Section 5 - Resources - Mean Point Value - 2.9

TABLE III

GAINS IN INVOLVEMENT OF TEACHERS AND SUBJECT AREAS

SCHOOL	ORIGINAL TEAMS	SUBJECT AREAS ATTRACTED	TEACHER GAINS
G	Ind. Arts Math Science Counselor	English Math	6
H	Ind. Arts Math Home Econ. Civics Counselor	All subjects involved	84
I	Ind. Arts Career Ed.	Home Econ. Social Studies	7
J	Ind. Arts Home Econ. English Personal Ed. Counselor	Guidance English Science Art	11
K	Ind. Arts Math Home Econ. Art	Work Study Business Ed. English Ind. Arts	8
L	Ind. Arts Home Econ. Guidance	English Social Studies	6
M	Ind. Arts Home Econ. Math English Art	Social Studies English Ind. Arts	10
N	Ind. Arts Social Studies Art Counselor	Home Econ. Ind. Arts Reading Music	12
O	Ind. Arts Math History Guidance	Science English	10
	40 Teachers		154 Teachers June, 1972

It was originally planned that the working draft of the notebook would be revised, utilizing suggestions obtained from the evaluation of the draft. However, in view of the many excellent materials currently available from several sources, including the U.S. Office of Education, project personnel are currently questioning the advisability of spending the time and the money which would be necessary to revise the notebook. A final decision will be made within the next month, in consultation with U.S. Office of Education project monitors.

G. The Maryland Career Development Conference

The Maryland Career Development Conference was held on October 28, 1971 and approximately 250 educational administrators and supervisors throughout the State attended the conference. The conference consisted of a keynote address by Dr. Wesley Tennyson followed by the slide-tape presentation of the Maryland Career Development Project, luncheon address by Mr. James L. Reid, Assistant State Superintendent for Vocational-Technical Education and Mr. Fred H. Spigler, Jr., Administrative Officer for Education. During the afternoon session, the conference participants had the opportunity to listen to presentations made by project personnel, to raise questions and to interact with these personnel.

In evaluating the degree to which the conference had achieved its objectives, two responses seemed to stand out. First, the conference participants were asked to indicate the degree to which they agreed with the concept and philosophy described in the Maryland Career Development Project and a composite point value of 4.26 was obtained, based on a 5 point scale of 1 (complete disagreement) to 5 (complete agreement). Second, when asked the degree to which the participants were ready to implement the concepts and the ideas that they had gained from the conference, a composite score of 4.57 was obtained based on a scale ranging from 1 (unwilling to implement the concept at this time) to 5 (ready to implement the concept and ideas immediately).

Evaluation of the Project

The third party evaluation of this project will be found in Volume II of this report.

The 1971 teams which consisted of 40 teachers influenced or involved an additional 154 teachers. This growth is almost four fold.

In terms of the students involved, the following data will represent numbers known to the evaluators. It was believed that by the inability of the evaluation team to keep continuous contact and interaction with the teams, much data was truncated and these would indicate a lower numerical value from the real count.

TABLE IV

Number of Students Involved

SCHOOL	August - January	February - June	GAINS
G	90	210	120
H	1000	1684	Total School
I	300	1000	700
J	120	260	140
K	456	1000	544
L	380	700	320
M	50	350	300
N	540	750	210
O	235	355	120
	Totals 2,991		10,338

The estimated number of students involved in the programs grew at least four fold from the beginning of the academic year to the end.

Objective: The team will employ means of motivating students toward self knowledge through a system of checks and balances of interests vs. aptitudes.

Conclusions, Implications and Recommendations for the Future

1. Large numbers of educators throughout the State of Maryland endorse the concept and philosophy of career education, including many of the procedures and techniques developed and implemented through the Maryland Career Development Project.

2. The Maryland Career Development Project has, through its method of operating the several components, encouraged the "teaming" of different kinds of people in the operation of the project. Examples of this would include the "teaming"of Baltimore City school personnel and Maryland State Department of Education personnel; the "teaming" of educators and business personnel in the Work-Oriented (Cooperative) Component; and the "teaming" of teachers, counselors, and administrators in the Career Exploration Workshop.

3. The key aspect of the Maryland Career Development Project has been the interaction of the project's components and the project's personnel with other projects and with on-going activities. For example, the interaction between the Corkran Junior High School team who participated in the Career Exploration Workshop and the other personnel in that junior high school who are involved in the Anne Arundel County Career Development Project has been very fruitful, producing new ideas, new approaches, and new procedures for implementing career education.

4. The business-labor-industry community has made vital contributions to several components of this project. These contributions are illustrative of the resources available from this community and of the essential nature of these resources in any Career Education program.

5. Classroom teachers, at all grade levels, and in all subject areas, can make very valuable contributions to career education programs, especially when provided with training and resources.

Recommendations

1. During the school year 72-73, it is recommended that the Maryland Career Development Project operate in close proximity to the Task Force on Career Education presently being established in Baltimore City. In this way, the task force can benefit from the project findings and the project itself can respond to the directions of the task force.

2. In order to accomplish recommendation No. 1, it is further recommended that a full-time person be employed to coordinate the operational aspects of this project which exists in Baltimore City. This person could, in effect, also serve as the "executive secretary" of the Superintendent's Task Force on Career Education.

3. The quality of the television series is such that it should be made readily available, through telecast and kinescopes, to project schools containing grades four through eight.

All schools administered aptitude and interest inventories. Some schools employed only one instrument, whereas others administered as many as seven.

Examples of these instruments are listed below.

1. Self-Directed Search for Educational and Vocational Planning
2. Kuder Preference Record, Vocational, Form CH
3. SCS, Form B
4. METS
5. Career Inventory
6. Vocational Dev. Inventory
7. Adjective Check List
8. Preference Scale
9. Career Development Service Interest Inventory
10. "What I Like to do" (SRA)
11. Occupational Attitude Survey
12. OVIS
13. Local Survey Questionnaire
14. DAT

The tests were used as teaching devices. The data was not used for overall project evaluation.

A descriptive sample of the activities carried out to enable students to better understand themselves include:

1. Filling out of data sheets developed by students
2. Use of film strips and occupational briefs
3. Using learning packages
4. Individual and group counseling
5. Conducting units on personality
6. Having students list abilities, interests, limitations
7. Listing skills
8. Polling students on their career interests
9. Directed Readings (Getting There, Making It, etc.)
10. Writing compositions (Autobiographical essays)
11. Creative writing, drawing, and role playing activities

4. In view of the relatively high rating given to the Resource Notebook, it is recommded that no further efforts be made to modify it.

(Note: Additional specific conclusions and recommendations will be found in the Evaluation Report, Volune II)

Objective: The team will involve members of the parents and business community in an on-going process of career education.

TABLE V

Activities Completed Involving the Community

SCHOOL	COMPLETED	
	August - January	February - June
G	1	8
H	5	15
I	1	10
J	3	12
K	0	8
L	1	12
M	1	11
N	1	14
O	0	16
Totals	13	106

The statistics completed included: P.T.A. Meetings, parent disclosures of occupations, slides, films, guest speakers from business and industry, field trips, special career days, community projects, group projects requiring input from the community, plays, skits, and student role playing in the community. Complete detailed descriptions of these are available from the director of the project.

Objectives which served as a goal for the teachers also included the following.

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Objective A. Develop decision-making skills by permitting students to engage in sequences of wishing, trying, taking consequences, and evaluating their performance.

Objective B. Prepare students for differentiated skill development while permitting them to delay, change, or postpone declarations of occupational choice.

Objective C. Plan learning experiences which are meaningful to students from a variety of socio-economic and intellectual backgrounds.

A description of activities carried out to accomplish the above objectives included the following items.

1. Using commercial motivational programs in the social studies curriculum such as the Job Attitude Series (Guidance Associates) and The World of Work (Educational Resources, Inc.).

2. Developing a tape library of people interviewed in occupations of interest to students.

3. Conducting special math classes where students participate in activities which enable them to relate mathematics to various career fields.

4. Conducting career exploration mini-courses.

5. Writing learning package which incorporates career development into the regular curriculum.

6. Line Production Project in Industrial Arts (silk screen, T-shirts, posters, plastic novelties). Provides opportunities for student to role-play various jobs.

7. Set up small foods enterprise in Home Economics. Students made and sold hard rock candy, ran business themselves, and identified with the variety of jobs which made their enterprise successful.

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Marland, Sidney P., Jr. Career Education: More Than a Name. Speech delivered before Annual Meeting of the State Directors of Vocational Education, Washington, D.C. May, 1971. 14 pp. (ED 050 295 MF $0.65 HC $3.29).

Marland, Sidney P. "Career Education Now!" Speech delivered before the Convention of the National Association of Secondary School Principals, Houston, Texas, January 23, 1971. 15 pp. ED 048 480 MF $0.65 HC $3.29

8. Simulated redevelopment project conducted by students.

9. English set-ups to "play" grocery store, post office, boutique.

10. Interdisciplinary Project (samples), Art-designed, Home Economics-embroidered, Industrial Arts-frames, Personal Development-sales.

11. Industrial Arts -- A simulated manufacturing company line producing and marketing bird feeders.

12. Interdisciplinary Project to open recycling centers, involved English, Social Studies, Science, Math, Shop, Personal Development.

13. Bookkeeping simulated office -- Approximately 3-4 weeks of simulated office work using accounting office as a mode.

14. Directed reading activities -- Unit theme was centered on career development.

15. Simulation game -- Life Careers (Western Publishing) -- Students plan eight years in a person's life. Make decisions about education, training, jobs, leisure.

16. Visits by teachers, parents and students to observe people working. Interviewing such individuals and making photographs which were used in formal and informal classroom presentations.

17. Communication Unit -- During discussions of communication interpretation, class discussed dependency of success of communication on point of view. Class participated in role-playing techniques in order to observe different reactions to set situations.

The above activities are described in detail in software available from the director. The products from the project also include film, slides, tapes, tests and questionnaires.

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Matheny, Kenneth, B. "The Role of the Middle School in Career Development." American Vocational Journal. Vol. 44, No. 9 (December, 1969). pp. 18-21

McCracken, David. "Work Experience for Broadening Occupational Offerings: A Selected Bibliography for Use in Program Development." Columbus, Ohio: ERIC Clearinghouse on Vocational and Technical Education, The Ohio State University. November, 1969. 16 pp. (ED 034 062 MF $0.65 HC $3.29).

New Jersey Division of Vocational Education. The World of Work: Increasing the Vocational Awareness of Elementary School Children. A Guidebook for Teachers and Guidance Counselors. Trenton, New Jersey: New Jersey State Department of Education. July, 1969. 65 pp. (ED 038 511 MF $0.65 HC $3.29).

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Winefordner, David W. Orienting Students to the World of Work Using the Data-People-Things Conceptual Framework and the Ohio Vocational Interest Survey. Paper presented at the American Personnel and Guidance Association Convention, Las Vegas, Nevada, April 1, 1969. Washington, D.C.: American Personnel and Guidance Association. 20 pp (ED 029 343 MF $0.65 HC $3.29).

Evaluative Statement

Evidence was found that the Career Exploration Workshop Component was effective in performing activities which implemented the set goals. The interactive multi-disciplinary approach was particularly effective in changing behaviors of teachers. Often they learned from each other, shared their knowledge to become more purposeful educators than they were when working in isolated classrooms.

The leadership provided by the project administrators and the advisory councils were catalytic in stimulating teachers and students. They accepted feedback from the evaluation team to incorporate into their decision making agents. The project teachers and leaders have become catalytic of institutional change. They have fostered teacher, school, industry and community interaction and have broadened the awareness of extra curricular activities.

The full potential of the project has not been realized but there is evidence to foresee vigorous programs with clearly stated behavioral objectives and evaluation instruments.

Recommendations

Teachers should be awarded activity development time. Evaluators should be included in the development and planning as early as possible.

Longitudinal evaluation designs should be planned with full support of those who schedule and administer programs.

The role of the evaluators needs to be better understood by teachers in order to avoid a role conflict and the expectation that only positive reports are necessary.

Means of communication during process evaluation need refining. Conflict between demands of instructional practice and demands of evaluation and administrators who are not research oriented must be studied.

An organized effort should be made to refine all program software. Professional educators should write objectives with many choices. Behavioral objectives with many choices should be developed and computerized forming a bank for career education objectives with activities and evaluation instruments.

Objectives of a multi-dimensional nature such as those involving the self concept, self perception, self esteem, etc., should be clearly defined.

II Elementary Career Development Resource Component

Participation.

This was the second year of a continuing program in Elementary School Career Exploration, originally involving five urban elementary schools. Three new schools have been included in this second year making the total number of participating schools eight.

The number of participating teachers is as follows:

Teacher Representation (by School)

	Continuing Schools					New Schools		
School	#1	#2	#3	#4	#5	#6	#7	#8
No. of Teachers	8	6	4	6	4	3	11	8
Totals		28					22	
Grand Total		50						

Using reasonable average estimates of per grade population, rounding to five, pupils per grade are 25 for Kindergarten and Special Education and 35 for grades one through six. These estimates yield the following per grade pupil representation:

Pupil Representation by Grade

Grades	K	1	2	3	4	5	6	SE Int.	SE Prim	Total
Pupils	75	105	350	280	195	140	315	100	75	1635

The following chart presents the representation by school and grades, showing the number and distribution of the grades throughout participating schools.

Grade Representation by School

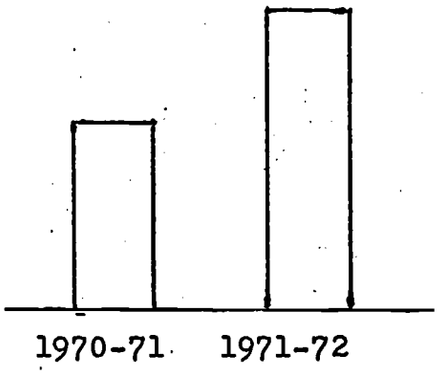
Grades	K	1	2	3	4	5	6	SE Prim	SE Int.	Totals
#1	2			1	1		3		1	8
S 2	1	1	1				1	1	1	6
C 3		1	2		1					4
H 4			3		1	1	1			6
O 5					1	1	2			4
O 6				3						3
L 7			3	3	1	1	1		2	11
S 8		1	1	1	1	1	1	1	1	8
Totals	3	3	10	8	6	4	9	2	5	50

In summary, the program involves 50 teachers in eight schools working with a total of 1635 pupils in grades Kindergarten through Sixth grade and including Primary and Intermediate Special Education Classes. School No. 1, has a total of eight teachers involved in the project, School No. 2, participates with six teachers. The range of participation by teachers is from three (School No. 6) to eleven (School No. 7).

Growth of the Project.

It was recommended at the close of the first year that the project involve a greater number of teachers, largely to take advantage of the high teacher interest rate. The following bar graphs will illustrate the growth of the project during the second operational year.

Growth by Schools. Three additional schools were added to the project making the total eight.



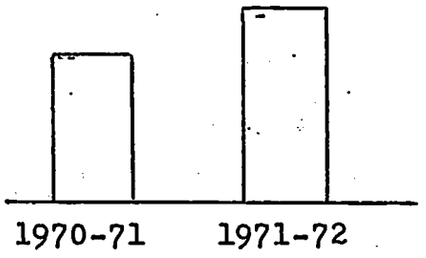
1970-71 Five Schools

1971-72 Eight Schools

Increase: 60 per cent

Growth by Schools

Growth by grades. Eleven additional grades were included the second year raising the total number of individual grades to fifty. One new grade level was included - Special Education, Primary level.



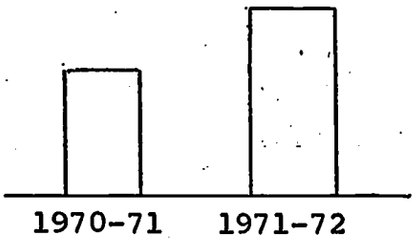
1970-71 Thirty-nine Grades

1971-72 Fifty Grades

Increase: 28.2 per cent

Growth by Grades

Growth by teachers. Sixteen new teachers were included during the second year to raise the level to fifty.



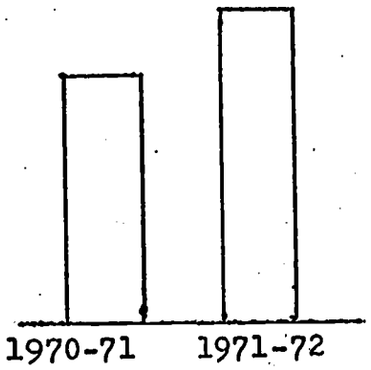
1970-71 Thirty-four Teachers

1971-72 Fifty Teachers

Increase: 47 per cent

Growth by Teachers

Growth by pupils. Two hundred, eighty-five pupils were added the second year raising the total to sixteen hundred, thirty-five.



1970-71 1,350 Pupils

1971-72 1,635 Pupils

Increase: 21 per cent

Growth by Pupils

Distribution of Pupils by Grade Level. The following table illustrates the number of pupils distributed by grade during the 1971-72 year. Numbers are average estimates supplied by the resource teacher and do not represent actual pupil counts.

Grade	No. of Grades	No. of Pupils		Sub Totals
K	3	75		
1	3	105		
2	10	350	Primary	810
3	8	280		
4	6	195		
5	4	140		
6	9	315	Intermediate	825
S.E. (Primary)	5	100		
S.E. (Inter.)	2	75		
Totals	50	1,635		

Duties and Activities: The Elementary Resource Teacher continued the second year to place emphasis on providing services to teachers in the following areas:

1. Providing instructional media and aids to classroom teachers.
2. Arranging for classroom visits by resource persons.

3. Arranging field trips for individual classes.

4. Consulting with individual teachers in participating schools.

5. Developing and disseminating activity sheets (describing classroom activities) to teachers.

Field Trips.

The number of field trips taken by pupils were determined by notes and reports the consultant maintained. In some cases estimates were used, since forms for the recording of activities were developed only late in the year (February, 1972). Field trips were not undertaken in September due to the reluctance of teachers to begin such activities early in the year. Mostly walking trips were scheduled in October, and no estimates were made for this month. In November, approximately 6 trips were scheduled. The consultant was on leave during the month of December and no estimates were made for that period. In January approximately 18 trips were scheduled.

Records available through the week ending May 19, indicate the following trips taken from February through May.

School	FEBRUARY		MARCH		APRIL		MAY	
	No. of trips	No. of pupils	No. of trips	No. of pupils	No. of trips	No. of pupils	No. of trips	No. of pupils
1	7	285	16	688	2	70	3	108
2	1	35	5	172				
3			6	210				
4	1	70	7	246	2	279	2	70
5	3	135	8	285				
6	2	70	4	138				
7	5	205	11	375	5	143		
8	2	70	2	70				
Totals	21	865	59	2184	9	492	5	178

Total number of field trips (February - May) 94
Total pupil visits 3,719
Average field trips, per pupil 2.2

Classroom Visitation. Twenty-nine classroom visitations by people in the community are recorded for the above period.

Examples of resource personnel are:

Specialists from the U. S. Customs Office

Paul Blair, professional baseball player

Owner of a toy store

Personnel from local telephone company and electric company

Television personalities

Policewoman

Councilwoman

Examples of areas visited during field trips are:

Local railroad station

Police department

City Hall

Local plants (Riverside Electric Company, General Motors)

Local businesses (Dental lab, Tropical fish company)

Local museums

Ft. McHenry

Radio and television stations

Baltimore harbor

Neighborhood tour

Assistance to Teachers.

The Resource Teacher developed and compiled a number of activities for teachers (Appendix A). Many were developed in anticipation of teacher needs and a number were responses to teacher requests for

assistance. The Resource Teacher accepted requests for assistance on a form developed for that purpose (Appendix B).

A search in February, 1972, of the consultant's records pertaining to requests for assistance revealed a total of thirty-one requests for assistance dating from September 30, 1971 to February 14. The results are shown in the table below which indicates the grade level, school number, the number of activities requested (they are specific as to the kinds of information requested) and the type of unit to be studied.

Work Sheet for Teachers (Requests for Assistance)

Grade	Name of School	No. of Activities	Unit
5	8	2	Electricity
6	8	2	School
2	7	2	
2	7	2	Great Negroes
3	7	3	
5	7	1	Magnets-electricity
3	7	4	Baltimore
2	7	4	Communication
2	5	3	Great Americans
2	5	2	Flag House
6	5	7	Heat-magnet-electricity
2	5	4	Family
		4	Sound
2	5	8	Social Studies-Science
4	4	6	Sound
5	8	3	To the Stars
1	8	2	
K	1	5	Transportation
6	4	3	Health
6	1	4	People of the World
6	1	4	U. N.
3	1	4	Baltimore
4	3	7	Transportation
1	3	8	Energy
4	4	6	Sound
6	5	1	Democracy
4	4	4	
6	5	2	Social Studies
S.E.	8	3	Baltimore's History
3	7	2	Maryland
5	5	-	Government
2	2	4	Aquarium

Teacher Response to the Project. A small sample of teachers (ten percent) were interviewed concerning program effectiveness and the usefulness of activities planned by the resource teacher. A strong positive reaction from the teachers regarding the program was recorded. In general, teachers considered the following most important to their career exploration objectives: Field trips and Classroom Visits by Resource Personnel. Teachers also expressed favorable comments toward the activity sheets disseminated by the resource teacher and toward her individualized planning assistance.

Teacher Comments: Teachers interviewed were very specific about the value of consultant arrangements for their programs. Samples of their comments follow:

"Mrs. A. arranged for trips that I would not have planned myself." "She made out field trips to places I didn't even think about." "I wouldn't have the time to make all the arrangements and so we wouldn't get out as much. Very beneficial to my children." "She brought such great people for the children, like the zoo people, the police, the electric company, customs, the television people."

"I think the most important thing about the program, as far as the children are concerned are the resource people she brings to the class."

"I think the activity sheets help me the most."

"She has helped me with my planning. I really appreciate that."

There were no negative responses to evaluation team surveys.

Experimental Testing.

Testing for indications of the attainment of program objectives was conducted at both primary grade (one through three) and intermediate grade (four through six) levels. An instrument (Appendix C) was designed and administered by teachers to intact classes at the intermediate grade level since it was not possible to select students randomly for testing purposes. The control group was also an intact class, not participating in the project.

At the primary level, because of the difficulty of eliciting written responses from students, a simple interview technique (Appendix D) was developed and administered by teachers to a small number of subjects grades two and three. Each sample (n=5) was drawn from selected grades by a process of randomization to prevent bias in the selection.

Intermediate level results. Three sixth grade experimental groups (n=23,27,33) and one sixth grade control group (n=31) were selected for analysis of results at this time. Results of a one-way analysis of variance appear in the table below.

Summary of the Analysis of Variance
of Students Scores
on the Intermediate Level Test

Source	Sum of Squares	d.f.	Mean Square	F
Treatments	8511.1443	3	2837.0481	94.9330
Error	3287.3203	110	29.8847	
Total	11798.4646	113		

F, significant

From these data it appears that a difference exists among the groups tested. No post hoc procedures were pursued since an inspection of the group means and standard deviations suggest differences between each experimental group and the control group. It would appear that the experimental group methods produced a greater amount of learning of the program objectives than did the traditional methods of the control group, as measured by the evaluation instrument.

However, we must stress caution in the reading of these results. The evaluation team had only minimal control over the administration of tests and almost none at all over the selection of groups to be tested. It is not unlikely that the evaluators have been too sanguine in assuming the adequacy of their briefings of the test administrator. Replication is, therefore, strongly indicated.

Primary level results. Two second grade and one third grade experimental groups, and one second grade control group were involved in the testing for attainment of program objectives.

A nonparametric measure was applied to the results (Kruskal-Wallis one-way analysis of variance). The results are presented below.

Scored Ranks of Test Scores
for Four Groups of
Primary Grade Students

Group 1	Group 2	Group 3	Group 4(control)
14	19	14	5
11.5	20	6	2
14	17	10	1
8	18	11.5	3
7	16	9	4
$R_1=54.5$	$R_2=90$	$R_3=50.5$	$R_4=15$

H=76.7, significant

We conclude that the groups are different in degree of attainment of program objectives. Group four, as a group, yielded the lowest rankings, reflecting the lowest raw scores achieved, separating itself from the experimental groups taken together.

Again, administrative practice in test administration would dictate a conservative interpretation of results. However, the suggestion of greater cognitive learnings of objectives by the experimental groups exists.

Teachers in the four groups were asked to subjectively estimate the child's prevailing self concept as "good" or "poor" and to estimate his understanding of the concepts of "the interdependence of workers" and "the dignity of all work" and to estimate whether or not the child "believes in" the dignity of all work.

No child in the control group was judged as understanding the concept of the interdependence of workers, while all students in the experimental groups were judged to have some comprehension of the concept, from "slightly" to "very well".

Only one student of all those assessed (20) was judged to have a "poor" self concept and in one case the teacher "couldn't decide". Generally, average to high ratings were given with "good" ratings predominant.

All students in the experiment groups, except three (teacher "couldn't decide"), were judged to understand the concept of the "dignity of all work". Results for the control group were indefinite and could not be interpreted.

Conclusion. From evidence obtained from test samples, teachers' comments, curricular materials developed and from the diversity and scope of activities, it appears that this component is making progress toward the attainment of its stated objectives.

Recommendations. Dissemination of information about the entire component should receive greater emphasis within the school system to encourage adoption of the successful activities of this component.

Because of the high consultant-teacher ratio, ways of increasing the efficiency of resource teacher time should be explored. Greater use of the para-professional seems possible, especially in those areas where consultant time is expended in logistical and administrative activities.

Small group meetings with teachers or workshops during the year might be arranged with administrative support.

There is a need to update the resource teacher's record keeping system.

Once a record system is instituted, it should be faithfully adhered to. Some greater attention to such housekeeping routine is indicated. It appears that services are being provided for which no completed records are available and hence cannot be reported.

Production and dissemination of resource materials both at hand and newly developed should be begun earlier next year.

As stated in an earlier report, the development of a model of the self concept as it relates to program objectives would be

helpful both in developing program activities and in conducting evaluation. Such a model should include the discrete dimensions of the positive self concept.

Further, program activities which develop decision making skills might be encouraged if a model of the decision amking process were provided to teachers in the project. Such a model, again, should include the specific skills involved in, and the dimensions of, the process.

A carefully planned schedule of resource teacher visits to schools seems advisable to improve service to all teachers and pupils participating in the project.

Internal evaluation of the component at specific intervals is suggested to feedback data to the resource teacher.

Finally, a planning agency or advisory committee might give greater support to the project and provide more direction and comprehensiveness to the project.

III. Information System and Placement Component

Overview

The Vital Information for Education and Work System (VIEW) became an active component of The Maryland Career Development Project (MCDP) during the summer of 1971. Provision for this system, which makes use of modern microfilm technology, is specified in the following objective formulated by the Project's directors:

> Develop a comprehensive information system which will utilize various media, along with the computer and microfilm technology in making available various information about education, training, and employment opportunities. This system should strengthen the existing placement process, thereby enabling students to make a smoother transition from school to the world of work or further education and training.

The VIEW System replaces for Project evaluation and reporting purposes the Computerized Placement Information System component. The latter was evaluated and reported on in the Final Report on The Maryland Career Development Project, Phase I, dated August, 1971.

Components

The VIEW System includes a deck of microfilm aperture cards, a microfilm reader-printer and/or microfilm reader, an index which lists the titles of occupational information available, and a rapid select mechanism which enables the user to quickly locate specific cards within the deck. Aperture cards are placed on microfilm reader-printers or microfilm readers to be read or scanned.

The system was designed in 1965 by the San Diego County Board of Education to disseminate accurate, relevant, and timely occupational information.

Objectives

Objectives for this component, developed and submitted to the evaluation team by the VIEW staff are:

1. Furnish counselors and students with a modern, up-to-date system of occupational information, especially tailored to the needs of Baltimore youth.
2. Furnish counselors and students with professional career information:
   a. training needed
   b. where to get training
   c. college expenses
   d. scholarships available
3. Furnish counselors and students with college information:
   a. entrance requirements
   b. course offerings
   c. scholarships available
4. In the near future, to furnish VIEW decks to special education schools on occupational information.
5. In time, to furnish elementary schools with VIEW decks for career exploration.

5. Under consideration: Baltimore City VIEW may become a state-wide VIEW Center.

Operational Setting

The city of Baltimore was selected as the site for employment of the VIEW System. The target population includes all students enrolled in 45 selected junior and senior high schools.

Development and implementation activities relevant to this component are being carried out by a staff of individuals employed by the city's public school system and assigned to the Division of Guidance and Placement.

The Division of Guidance and Placement in its efforts to effect the best possible guidance program accords a high degree of priority to the dissemination of relevant educational and occupational information. Serving an urban population composed of thousands of low income families and disadvantaged students, the Division's primary goal is the establishment of a model career development program. Established in each of the city's senior high schools is an innovative career development center which employs the services of a counselor, a work-study coordinator, and a placement coordinator. These individuals work together as a team to meet the unique guidance, counseling, educational, and occupational needs of Baltimore city youth.

To enhance and help facilitate the accomplishment of the placement coordinator's tasks, liaison has been established between the Baltimore City Public Schools and the Maryland State Employment

Service Job Bank. A full time coordinator has been appointed by the school system to coordinate all activities between the two agencies.

Another unique aspect of the Baltimore City Public Schools guidance program is the implementation of the "School Without Walls" concept. The main objective of this program is the provision of on-site skill training. Program activities are carried out within the framework of existing cooperative work-study programs.

Advantages of VIEW

1. Inexpensive
2. Easily kept up to date
3. Information that is specific to the local labor market
4. Information geared to meet the needs of the students to be served
5. Permits the utilization of the local labor market resources
6. Permits the utilization of findings and statistics available from governmental research agencies and departments
7. Materials that are keyed to the interests and abilities of students

Background

A two-man team composed of one consultant-level writer (coordinator) and a clerk was designated as staff for the Baltimore VIEW System. Primary responsibilities of the team include making necessary business and industry contacts and writing Viewscripts. Supervision of the project is provided by the counselor-coordinator on

he Division of Guidance and Placement Staff. Specific duties of the two-man team are listed below.

1. Duties of the full-time coordinator:
   a. Researches and writes Viewscripts (concise reports tailored to meet the unique occupational training and educational needs of Baltimore City junior and senior high school youth).
   b. Supervises the production of microfilm aperture cards.
   c. Assists counselors in implementing the VIEW program within the Baltimore City Schools.
   d. Revises information contained on microfilm aperture cards to keep it current and relevant to the unique needs of the youth being served.
2. Duties of the full-time clerk:
   a. Types preliminary and final drafts of all Viewscripts.
   b. Types, addresses, mails, and processes occupational information survey questionnaires mailed to businesses in the Baltimore City area.
   c. Operates VIEW processor equipment (processor camera and copier).
   d. Maintains a file on all information compiled, Viewscripts developed, and incoming and outgoing correspondence.

The initial task of the VIEW Staff was to review and analyze the objectives of the component in an effort to determine the

magnitude of their job. It was decided that the staff would devote their energies during the first year to the preparation and dissemination of entry level non-professional occupational information. Relevant information on training and educational opportunities would also be included.

To publicize VIEW's introduction into the guidance and placement program, a letter of introduction with a description of the system, dated September 1, 1971, was mailed to all principals, counselors, and coordinators in the city's junior and senior high schools (see Appendix A). An attractive pamphlet describing the system, its purpose, operation, and use was also designed and distributed.

In addition, the coordinator with the assistance of the Division of Guidance Information Counselor visited each school designated to employ VIEW. Formal orientation sessions were conducted. The team also provided school personnel with guidance in the selection of physical areas where the system could be placed in operation with maximum effectiveness (see Appendix B).

The major task of the VIEW Coordinator is the writing of occupational Viewscripts relevant to employment opportunities in the greater Baltimore area. To ascertain the types of entry level occupations available, the coordinator designed a survey form to be mailed to businesses and industries (see Appendix C). As of

anuary 3, 1972, 65% of the forms mailed within the city had been returned. Information on education and training requirements, in-service training, salary ranges, advancement opportunities, employment trends, etc. was also solicited. To date, three mailings of follow-up letters to dilatory employers have been made (see Appendix D).

Other materials and sources of information utilized by the VIEW Staff include the following.

1. Local organizations and materials
   a. Apprenticeship Handbook (A project of the Mayor's Committee on Apprenticeship Training)
   b. Local Labor Unions
   c. LEAP (Labor Education Advancement Program) sponsored by Baltimore Urban League
   d. Maryland State Employment Commission, Job Bank (An individual is employed by Baltimore City Public Schools as liaison; he maintains an office in Employment Commission Office.)
   e. Civil Service Commission of Baltimore
   f. Maryland State Civil Service Commission
   g. Baltimore City Government, all departments
   h. Businesses and industries supply information via written questionnaires, telephone conversations, personal visitations by VIEW coordinator, or published brochures, pamphlets, etc.

7. Other sources of information and materials

   a. Dictionary of Occupational Titles (Vols. I & II)

   b. U.S. Government Printing Office

   c. Other VIEW Centers (via both written communication and VIEW decks)

   d. Pamphlets and brochures from a wide variety of businesses and industries across the country

   e. Health Careers - A Guide to Health-Related Educational and Training Programs in Maryland

   f. Occupational Information Bureaus from several states

   g. Occupational Information Handbook

   h. Federal Government Civil Service Commission

The VIEW Staff also received valuable assistance and information from the central administrative office's Supervisor of Placement Specialist in Apprenticeable Trades, and the Coordinator of Health Careers.

As of May, 1972, seventy-two (72) occupational Viewscripts had been completed and reproduced on microfilm aperture cards (see Appendix E). Pictures of workers performing selected occupational tasks are included. Occupational information is presented in a format which includes the following broad headings:

1. Occupational Title
2. Description

3. Requirements and qualifications
4. Preparation and training needed
5. Employment outlook and opportunities
6. More about the job
7. Related occupations
8. Sources of additional information

An example of a completed Viewscript is contained in Appendix F. The coordinator, relying on his expertise in the field of counseling and his familiarity with the youth to be served, attempts to write all Viewscripts on a reading level that is generally suitable for all students in grades seven through twelve. Subjective feedback from counselors who review the product is presently being used to modify, correct, and improve completed Viewscripts.

Evaluation

Employment of the VIEW System in the 45 junior and senior high schools was delayed due to delays in the delivery of necessary user and production equipment. Users of the system received microfilm reader-printers in late February. The first VIEW cards were delivered on March 30, 1972, to three user schools. Twenty-nine schools received their cards during the month of April. The remaining thirteen schools received their cards during the month of May. The last delivery of cards to users was made on May 31, 1972 (see Appendix B).

In order to fully evaluate this component, a complex procedure must be followed to obtain permission to collect data in the Baltimore City Public School System. This procedure and the delays in the delivery of VIEW equipment prevented the evaluation team from fully evaluating the VIEW System during this reporting period.

Southern Senior High School was initially selected as one of several primary sites for evaluation of the VIEW System. Counselors, librarians, and key administrative staff at Southern had been formally introduced to VIEW and informed of the contributions the system could make to the school's guidance program. Due to prior commitments and end-of-the-year school activities, the evaluation team was unable to establish an acceptable testing date at Southern during this school year. However, the team was able to evaluate the effectiveness of the VIEW System at a single junior high school by using a modified method of administering an instrument developed for evaluation of this component.

School Setting. The school used to evaluate VIEW is located in a middle and lower-middle class community. The total enrollment in grade levels 7, 8, and 9 at the school is 2,352 students. Fifty percent of the students at School X come from homes with six or more members in the family. Twenty-five percent of the families earn a gross income of less than $5,000.

Tests on basic skills indicate that grade 7 is 1.6 points below national norms in reading and 1.5 points below in arithmetic. Table I below lists the mean scores of students at the 7, 8, and 9th grade levels on the Iowa Test of Basic Skills.

TABLE I

Mean Scores on Iowa Test of Basic Skills

Grade Level	Reading Score	Math Score
7	6.2	6.3
8	6.9	7.0
9	7.8	7.7

Sample. To evaluate the effectiveness of the system in School X, the eighteen item Vital Information for Education and Work System Reaction Form was developed and administered to a sample group of twenty-one black students (see instrument, Appendix G). The group was composed of nine males and twelve females. The age range was fourteen through sixteen years. Within the group, there were eight 14-year olds, eleven 15-year olds, and two 16-year olds.

Findings. Table II below summarizes the number of times the group used the VIEW System. The average number of times that the sample group use the VIEW System facilities was 2.33 times.

TABLE II

VIEW System Utilization

Frequency of Use	Number of Users	Total Usage
1	5	5
2	9	18
3	5	15
4	0	0
5	1	5
6	1	6
	Grand Total	49

Table III below summarizes the number of different Viewscripts reviewed or used by students in the sample group.

TABLE III

Number of Different Viewscripts Used by Students

Number of Viewscripts	Number of Students
1	9
2	3
3	4
4	2
5	0
6	1
7	0
8	0
9	0
10	1
No Response	1

One hundred percent of the group felt that the VIEW System was easy to use and operate. A set of simple instructions on using the microfilm reader-printer is attached to the machine.

The group spent an average of 38.09 minutes using the system to research occupational information. The range of time used was from

five to 240 minutes. The students, as a group, felt that they should have an unlimited amount of time to use the system (total number equal 12). Eight students felt that they should have more time than that permitted by school authorities and only one student expressed a desire for less utilization time. A sample of the reasons given for the students' opinions on utilization time is given below:

1. To obtain copies of Viewscripts.
2. Because the VIEW System is interesting.
3. More time to explore other occupations.
4. To use more than one Viewscript.
5. Because it's interesting.
6. Reports require more time.
7. So that others can use it. (from student who requested less time)
8. Require more time to read and understand completely.
9. More time to get information.
10. More time to study and write down ideas.

Items 5 and 6 on the evaluation instrument gave students an opportunity to express their feeling on the interest level and value of information provided on the Viewscripts. Students rated the occupational information for interest level and value on the following continuum (all rateable items on the evaluation instrument used a similar continuum, 0 - 4 points):

Not at All	Slightly	Moderately	Very Much	Extremely
0	1	2	3	4

The mean interest level of the information was 2.76. This rating indicates that the students as a group felt that the information was very interesting.

The value level of the information contained on the Viewscripts used was given a mean rating of 3.25. It is evident that the student, as a group, felt that the information was quite valuable to them.

As mentioned earlier in this report, the viewscripts are written in a sectionalized format. Items 7a through 7e on the Vital Information for Education and Work Reaction Form were designed to measure the comprehensiveness of the information provided in each section. Listed in Table IV below are the mean ratings students assigned to each section.

TABLE IV

Mean Scores on Comprehensiveness of VIEW Information by Section

Section	Mean Score
Requirements and Qualifications	2.95
Preparation and Training	2.66
Employment Outlook and Opportunities	2.42
Related Occupations	2.00
Sources of Additional Information	2.80

Grand Mean = 2.566

The grand mean rating of 2.566 indicates that the group's opinion of the comprehensiveness of the information provided was favorable. The 2.566 grand mean is very close to the mid-point of the rating continuum.

As a group, students felt that they could readily understand the material presented in the Viewscripts. The reading level was appropriate for this group. A mean score of 3.66 was given to the understandability of the information.

Viewscripts used by the group contained several pictures to enable students to better interpret the occupations. As a group, they felt that the pictures helped them to better understand the nature of the work performed by workers in specific occupations. A mean rating of 3.00 was given by students to the value of pictures in interpreting occupational tasks.

The group, as a whole, (91%) made use of the print-out capability of the reader-printer. A sampling of the reasons given for obtaining print-outs follows:

1. For better knowledge of the job.
2. I wanted to study the copy more.
3. Needed for a report.
4. Others wanted to use the same information.
5. For use in my booklet.
6. Because it had information I would need later.
7. To carry home and let other people have a chance to use it.
8. For an English project and assignment.
9. Needed information on nursing and it was useful.
10. Because I am studying different careers.

Most students in the group had used other sources of occupational information. These other sources are summarized in Table V below.

TABLE V

Other Occupational Information Sources
Used by Students

Source	Total Student Users
Occupational Information Kits	1
Class Work in Careers	15
U.S. Occupational Outlook Pamphlets	12
Information from Employment Agencies	9
Career Days	10
Teachers	8
Counselors	7
School Friends	9
Other Sources (Books, Relatives, Projects, etc.)	8

Students were asked to compare these other sources (as a group) with the VIEW System. The majority rated the VIEW System as being good. The figures are contained in Table VI below.

TABLE VI

Comparison of VIEW
With Other Sources of Occupational Information

Poor	Fair	Good	Excellent	Outstanding
0	2	14	3	2

The over-all rating assigned by students to the correctness of the information contained on Viewscripts was 2.52. One hundred percent of the group stated that they plan to supplement the infor-

nation gained from using VIEW with information to be obtained from the suggested sources given on the Viewscripts.

Nineteen of the 21 students also stated that they planned to use the system again. The reasons given for planning to use the system again are listed below as received.

1. It gives you facts.
2. It's a good machine.
3. Because I enjoy working with it.
4. Because it gave me a lot of information. It can help me again in getting information.
5. Because it really tells you all about the career.
6. Because I think it could always be informative.
7. Because it was an accurate way of getting information quickly.
8. To get more information on my career.
9. To do another report.
10. To find out about something else.
11. It was helpful.
12. Because it's a quick way to get information.
13. It will be very helpful with my other work.
14. The information.
15. To look up recreation jobs.
16. It is a useful method of showing information.
17. It's a very helpful machine to use when you need information not found in other sources of information.

Eleven of the 21 students made suggestions for improving the VIEW System. These suggestions, as received, are listed below.

1. More occupational information but otherwise good.
2. More information. It wasn't enough.
3. Add more careers to it. Some things I looked for, it didn't have.
4. The copying part of the machine. I would fix it so that it would have more than 100 sheets of paper, maybe 400 sheets.
5. More information. It doesn't give any real details.
6. More information and machines. This is a source of information so it should give as much information as possible and as much time.
7. More VIEW cards. There wasn't enough VIEW cards for my report.
8. Printing of pictures. Too slow coming out.
9. Print copies lighter. It was too dark.
10. Speed up output. This would make it quick and easier to deal with.
11. Related occupations. Some of the VIEW cards does not have enough information on related occupations.

Approximately 64% of the suggestions reflect the students' desire for more occupational information. The remainder of the suggestions made were relevant to design features of the microfilm reader-printer.

Students made the following general comments about the system.

1. I like the system because if you want more information about the career, you can go and make a copy and you can also get pictures with the copy and I think it is very helpful.

2. The VIEW machine is very good in getting information that you couldn't get in other books. I was glad that I was able to use the VIEW machine. It was very helpful to me. I hope to use it many times in the future.
3. I hope that we will be able to use the VIEW System because I enjoy working with it. It's lots of fun. Thank you.
4. I think the VIEW System is a good system and source of information, but I think more information should be added to it.
5. I think this is a good system and should be continued not only for occupational outlooks and not only in schools because it is a very convenient way of giving accurate information. The best thing I like about it is the other sources because they are also accurate.
6. I think the machine is very useful to all. Our family has one for the reading and spelling course. It is smaller than yours, but it still has the same purpose. That is why I enjoyed working with it. I hope other young people such as us will get a nice break as we did and get another machine like our school has.
7. a. It is a very good way of finding information.
   b. It's faster than looking for a book.
   c. It will always be there, not taken out by someone else.
8. I think the system is good and very helpful. It's better than reading the information out of the books all the time and I think it's a change.

9. I would like to be able to use this system again in additional areas for quick reference, such as Who's Who information.
10. I think the system is very good because it would be very useful to other students.
11. I think it is useful and worthwhile because of the information it gives you. But I think you should have more cards to choose from.
12. I think it was a good way of getting information. It was very useful except they didn't have enough sources of information to choose from.
13. I feel as though the VIEW System is very helpful to me. It has most information in it as you would probably need. It does not need many changes.

Conclusion. Based upon the information collected and received to date, the third party evaluation team feels that a good start has been made toward the eventual accomplishment of the objectives specified for this component. The data collected and evaluated to date suggests that students have accepted the VIEW System as a useful and valuable means of obtaining occupational information. The following suggestions for improving the VIEW component are made by the third party evaluation team.

1. Re-define objectives to make them more specific.
2. Establish a time table for accomplishing specific objectives.

3. Increase the size of the VIEW staff or find ways to increase production of Viewscripts to meet student demands for a greater variety of cards.
4. Give more detailed information in all sections of Viewscripts.
5. Explore ways of increasing the allowed student usage time without restricting number of users.
6. Implement and carry out an on-going internal evaluation and data collection effort to facilitate modification of the component based upon feedback from users of the system.

IV. Junior High Work Oriented (Cooperative) Component

Overview

One of the major goals of the Maryland Career Development Project is the development of a unique and effective cooperative work-study program for drop-out prone students at the junior high school level. Two programs designed to accomplish this goal are presently being conducted in two different junior high schools in Baltimore. The first was initiated on April 19, 1971, and the second became operational on September 7, 1971. Although the objectives developed for both programs by the project directors are the same, different approaches, organizational patterns, and activities are being conducted to accomplish them.

Objectives

The objectives developed by leaders of the Maryland Career Development Project for this component are:

1. To acquaint pupils with employment opportunities at a job entry level within their local environment (often overlooked by pupils).
2. To utilize the small businessman as an advocate for the student-worker -- to teach that student employability skills and attitudes bearing on that relationship.
3. To utilize the small businessman as a resource to the school -- to assist the school staff to understand employer's needs so that instruction might become more relevant.

4. To help students to relate school experiences to productive work.
5. To provide a means of retaining these highly drop-out prone students within the formal educational establishment.

SCHOOL A

Background (School A)

The work oriented program was established in School A on April 19, 1971. In this program, student participants spend the morning hours in school taking regular and special courses and the evening hours working at selected training stations in the local community. A two-man team consisting of a full-time teacher-coordinator and a counselor are directly responsible for program design and operation. Initially a group of drop-out prone students (21 in number) were identified and selected to participate in School A's program. All subjects were enrolled in the seventh grade at the time of program implementation. To accommodate the original experimental group, the program was shifted to the eighth grade in September, 1971.

Supplemental Objectives (School A)

Objectives developed by the school's team to supplement those developed by the project directors are as follows.

General Objectives

1. To establish desirable habits of regular attendance at school and work.

2. To develop desirable attitudes in regard to tasks required at school and work.
3. To develop abilities to adjust in group situations at school and work.
4. To learn job skills through practical situations.
5. To develop respect of authoritarian figures.

Specific Objectives

1. To improve academically in reading and math areas.
2. To learn to adjust in school and on the job in regard to requirements of school and work.
3. Ability to earn money and utilize funds desirably.
4. Ability to relate skills learned in school and on the job to each other.

Demography (School A)

School A is located in a non-affluent inner-city area. Students attending School A came from a broad geographical area within the city. They are characterized by the program's staff as being generally socio-economically disadvantaged. The racial composition of the school's enrollees is 55% white and 45% black. The group as a whole presents the school's staff with many complex problems relevant to their disadvantaged backgrounds.

The school's environmental setting is somewhat undesirable. It is located in an area characterized by much demolition activity of the urban renewal type. The school buildings are outdated and

in need of immediate replacement. At present, two physically separated buildings are used to house the school's population.

Student Selection (School A)

All students selected for participation in School A's Work Oriented Program are classified as potential dropouts. They have established records of poor academic performance and poor attendance. The age range of the original group at the time of program implementation was 14 to 16 years.

Standardized intelligence tests and achievement exams in reading and math had been administered to the group at the seventh grade level. Intelligence test scores of 55% of the program's present participants were available and ranged from 68 to 109. Reading scores, available on 65% of the participants, ranged from grade level 2.3 to 5.7. Standardized math scores on 50% of the participants ranged from 2.6 to 5.7. The incompleteness of available records prohibits the presentation of score information on the entire group of participants.

The Program (School A)

A single individual (teacher-coordinator) is charged with instructional and coordination responsibilities at School A. During the morning hours, the teacher-coordinator teaches regular courses in English, Math, Science, and Social Studies and a special work-related course. Regular instructional activities are interspersed with special instructional activities which include relevant

formal and informal presentations by members of the local community.

One such special activity was initiated on November 24, 1971. Through coordination, a Plant Training Specialist agreed to lead class discussions on job problems encountered in industry. A series of fifteen such sessions are presently scheduled through June, 1972. In conjunction with these classroom activities, trips to the specialist's job for first hand familiarization and observation of industrial facilities and training procedures have been planned.

Firms and agencies visited relevant to the work-related subject include the following:

Date	Company
October, 1971	Koppers Company of Baltimore
November, 1971	WJZ-TV Station
November, 1971	B & O Transportation Museum
January, 1972	Friendship International Airport

Visits to the Coca-Cola Bottling Company, The Maryland Port Authority, Dundalk Marine Terminal, and The Baltimore Sun Newspapers are also scheduled. The coordinator stated that such visits are used to orient students to the "world of work" and the variety of occupational opportunities available for those who are adequately prepared.

Training Stations

A complete listing of student jobs and their associated working tasks is located in Appendix A.

General Information (School A)

School A reports that very adequate support from administrative and supervisory personnel at the central office level has been received. Funds have been made available and are being used to order instructional materials to enhance classroom instructional activities.

No special testing program is presently planned to ascertain the unique interests of the students. However, the team makes use of test scores obtained from the school-wide administration of standardized intelligence and achievement tests.

On January 18, 1972, a breakfast meeting was held for employer advocates of the work-oriented (cooperative) component, school administrators, and guests. The purpose of the meeting was to thank employers for their contribution to the students, to obtain informal feedback from them about their feelings and opinions on the program, and incidentally, to develop increased motivation for the project.

The meeting yielded only moderate attendance by employers for a variety of reasons. However, there was some exchange of ideas and attitudes amongst the employers. Generally, the comments expressed by the employers were favorable toward the program and warm and helping attitudes towards students were voiced.

Evaluation (School A)

Objective 1 (MCDP): To acquaint pupils with employment opportunities at a job entry level within their local environment.

A small number of students rotated through several jobs and employment bases. Such rotation combined with student group discussions (in the classroom) tends to move students toward realization of Objective 1.

Objective 2 (MCDP): To utilize the small businessman as an advocate for the student-worker; to teach that student employability skills and attitudes bearing on that relationship.

The comments of the few employers present at the breakfast meeting indicated that students were indeed learning employable skills and attitudes bearing upon the student-employer relationship. Scheduled and conducted classroom activities, as already described, enhance the accomplishment of this objective.

Objective 3 (MCDP): To utilize the small businessman as a resource to the school; to assist the school staff to understand employer's needs so that instruction might become more relevant.

Classroom activities which involve the cooperation and participation of community resource personnel suggests that Objective 3 is being realized to some degree. Neither supportive or non-supportive evidence to substantiate this assumption was obtained at the breakfast meeting on January 18, 1972.

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Objective 4 (MCDP): To help students relate school experiences to productive work.

Analysis of taped interviews with selected students provided data which suggests that progress toward the accomplishment of this objective is being made. Students are able to cite during such interviews specific examples of how their school work and work on the jobs were related and reinforced things learned.

Objective 5 (MCDP): To provide a means of retaining these highly drop-out prone students within the formal educational establishment. To objectively evaluate Objective 5 and get an over-all picture of the effectiveness of the work oriented program at School A, data on student participants' retention in the program, attendance, academic achievement, and hours worked were collected.

Between April 19, 1971 (program initiation date) and April 18, 1972, records reveal that 45 students have participated in School A's work oriented program. Twenty-seven students (60%) have dropped out or been withdrawn from the program. Table I below lists student codes, rather than names, and their associated date of entrance into and exit from the program.

Of the 27 students listed who no longer participate in the program, 14 were removed from the program by the instructor because of poor school and/or work records. Eight were withdrawn from the program due to relocation of their families outside the community of the school. Three students were removed from the program at the

TABLE I

Student Dates of Entry to and Exit From the Program

Student Code	Entry Date	Exit Date*
301	4-22-71	
302	4-19-71	
303	6-10-71	
304	9- 7-71	
305	10- 3-71	
306	4-19-71	
307	6-16-71	
308	4-29-71	2- 2-72
309	11- 4-71	4-12-72
310	10-22-71	
311	4-20-71	
312	6-10-71	
313	4-23-71	
314	4-21-71	4-18-72
315	4-20-71	4-12-72
316	4-19-71	2- 2-72
317	12- 1-71	
318	11-20-71	3-15-72
319	11-10-71	
320	12-17-71	1-27-72
321	2-10-72	
322	1-31-72	
323	3- 1-72	
324	3-13-72	
325	3-27-72	

Student Code	Entry Date	Exit Date*
401	4-19-71	6- 7-71
402	4-22-71	6- 7-71
403	4-19-71	8-16-71
404	4-19-71	7-19-71
405	4-19-71	6-18-71
406	6-16-71	9- 7-71
407	6-14-71	11- 5-71
408	6-15-71	11-22-71
409	4-19-71	12-20-71
410	4-21-71	12-17-71
411	11-11-71	12- 6-71
412	6-16-71	1- 4-72
413	4-29-71	7-19-71
414	4-19-71	9-13-71
415	4-19-71	7-19-71
416	4-30-71	6-10-71
417	6-20-71	7-16-71
418	4-29-71	9-27-71
419	1-20-72	3-15-72
420	2- 7-72	3- 2-72

* An Exit Date is given where applicable.

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direction of their parents and two students requested to be removed because they lost interest. It is also important to note that 11 of the 27 program losses occurred during or almost immediately after the summer vacation period (1970-71 school year).

Data on school attendance, academic grades, and hours worked by participants were collected on two occasions prior to the writing of this report. Because of the numerous entry and exit dates, program data presented in tables included in this report reflect the status of the program at the time of data collection.

To obtain some measure of the effectiveness of the program in reducing the absenteeism rate among program participants, average absences per quarter were computed. These figures are presented in Table II.

TABLE II

Average Absences per Quarter of Program Participants
School A

1970-71 School Year				1971-72 School Year		
1st Q.	2nd Q.	3rd Q.	4th Q.	1st Q.	2nd Q.	3rd Q.
18.17	22.50	22.05	17.60	10.94	11.76	6.76

Averages for the 1st, 2nd, and 3rd quarters of the 1970-71 school year reflect the students' performance as a group prior to program initiation on April 19, 1971 (4th quarter). The figures in Table II show that the program has been effective in reducing the absenteeism rate among students who remain in the program.

When the averages in Table II were computed for the first five quarters listed, there were 20 active participants in School A's program. When averages were computed for the 2nd and 3rd quarters of the 1971-72 school year, only 13 of this original group of 20 were still enrolled in the program. However, five new individuals had been placed in the program.

During the first data collection period, average absences per quarter were also computed for those students who had dropped out or been withdrawn from the program. These figures are presented in Table III.

TABLE III

Average Absences per Quarter for Program Drop-outs and Withdrawals

1970-71 School Year				1971-72 School Year
1st Q.	2nd Q.	3rd Q.	4th Q.	1st Q.
8.27	23.82	21.67	10.58	17.9

During the 4th quarter of the 1970-71 school year, the average number of absences among this group (program drop-outs and withdrawals) decreased.

During the second data collection period, May, 1972, the evaluation team collected data on students who had been active participants in the program but became program drop-outs or withdrawals during the 2nd or 3rd quarter of the 1971-72 school year. Figures on the

total number of days missed by each of these students are presented in Table IV below. Six of the seven students listed were removed from the program because of poor work records and/or poor academic performance.

TABLE IV

Days Missed by Program Drop-outs and Withdrawals
During the 3rd and 4th Quarters
(1971-72 School Year)

Student Code	Days Missed 3rd Q.	Days Missed 4th Q.
320	18	41
309	5	11
315	5	2
419	33	8
316	19	not available
420	37	not available
314	6	26

Table V below contains information on the academic averages of program participants in four subject areas (English, Math, Social Studies, and Science). The following rating scales are used in interpreting the data contained in Tables V and VI:

Excellent = 90 through 100

Good = 80 through 89

Fair = 70 through 79

Poor = 60 through 69

Failing = Below 60

TABLE V

Scholastic Averages (School A)

Students Presently in the Program
(Boys and Girls Combined)

	1970-71 School Year				1971-72 School Year
Subject	1st Q.	2nd Q.	3rd Q.	4th Q.	1st Q.
English	55.53	57.10	54.74	64.21	73.42
Math	60.53	62.37	62.50	65.26	72.89
Soc'l Stud.	53.89	58.94	52.89	60.26	67.37
Science	54.74	58.95	55.52	63.06	68.42

The participants improved in academic performance during both quarters of program operation (4th Q. 1970-71 and 1st Q. 1971-72 in Table V). During the 1st quarter of the 1971-72 school year, the subjects' performance in English and Math was rated as fair. In Social Studies and Science, their ratings are poor but border on being in the fair category.

Table VI below contains similar data on program drop-outs and withdrawals. This group received failing scores in all academic areas during the 2nd and 3rd quarters of the 1970-71 school year. Improvement was shown during the 4th quarter of the 1970-71 school year (program implementation). A general drop in academic averages occurred during the 1st quarter of the 1971-72 school year.

TABLE VI

Scholastic Averages (School A)

Program Drop-outs and Withdrawals
(Boys and Girls Combined)

	1970-71 School Year				1971-72 School Year
Subject	1st Q.	2nd Q.	3rd Q.	4th Q.	1st Q.
English	58.75	58.18	57.92	66.25	64.44
Math	62.50	59.58	57.50	66.25	64.09
Soc'l Stud.	60.50	53.64	56.36	64.09	65.55
Science	56.82	53.64	56.82	64.09	60.50

During the second and subsequent quarters of the 1971-72 school year, leaders of the work oriented program decided to use a satisfactory/unsatisfactory rating system instead of the traditional number grades. The overwhelming majority of the students who are still active participants in the program are receiving satisfactory ratings. Among program drop-outs, four students received unsatisfactory ratings because of poor work records. Eight students received unsatisfactory ratings because of both poor work records and poor academic performance.

Students who participate in the program are expected, under normal circumstances, to work 20 hours per week. For the first semester of the 1971-72 school year, work records reveal that the average number of hours worked by individual students ranged from

1.1 to 21 hours per week. The average number of hours worked by the students as a group during the first semester of the 1970-71 school year was 19.51 hours.

Conclusions and Recommendations

Based upon the partial data collected and analyzed to date, the assumption can be made that a good start has been made toward the realization of goals established for School A's work oriented program. Data collected on absenteeism, academic achievement, and total work hours among program drop-outs and withdrawals indicate that program leaders at School A have indeed identified the correct population of students to be served. The large number of program drop-outs also suggests that more innovative and creative learning activities and experiences are needed to attract and hold the sincere interest and participation of a larger proportion of the students who enter the program. The following suggestions are made for improving the program.

1. Obtain greater participation and involvement of school staff, particularly subject matter teachers, in the planning and actual operation of the Work Oriented Program.
2. Develop and use a more flexible, comprehensive, and accurate method of keeping records on the academic and work performance of all students, including those who withdraw and those who are removed from the program by parents or school authorities.

3. Arrange more meetings between program staff, interested teachers, students, and employers to promote idea sharing and effective problem solving.
4. Establish a formal criteria to be used in determining when students can be removed from the program.
5. Establish a policy governing the specific times during the year that students will be enrolled into the program.
6. During the first years of program operation, identify and establish a control group of high risk students who are enrolled in School A's regular academic program. Then comparisons between this control group and the group enrolled in the work oriented program can be made to determine the true effectiveness of the work oriented program in reducing the school drop-out rate among high risk students.

SCHOOL B

Background (School B)

The Work Oriented Program was established in School B in September of 1971. One of the school's several counselors recognized the need for an alternate educational program to meet the unique needs of a small minority of the ninth grade student population. This identified need and a preliminary plan to meet it were communicated to the school's principal. Together, the counselor and the principal, working as a team, developed a blueprint for program implementation. Under the direction of the principal, special curricula were developed in the major subject areas to accomplish the specified objectives of the Component. A teacher coordinator was appointed and given the responsibility for supervising the program.

Students involved are grouped to form two sections of a single ninth grade class. Students in each section, on a rotating schedule, spend one week at school taking the special curriculum and one week working at local public and private firms.

Supplemental Objectives (School B)

Objectives developed by the school's staff to supplement those developed by leaders of the Maryland Career Development Project are listed below.

General Objectives

1. To help our pupils develop attitudes and habits necessary for success in the world of work.

2. To emphasize the relationship between school experiences and career or work experiences.
3. To encourage our pupils to complete their education.
4. Learning about work through working.

Specific Objectives

1. To gain experience and develop certain simple work skills -- learning to do each little task well.
2. To discover one's "self" and learn about other people while on the job.
3. Learning about responsibility (adult style).
4. To help establish and set future goals.
5. Learning to deal effectively with new and sometimes unpleasant situations.
6. Develop self-discipline and a degree of independence.
7. Learning to get along with people.

Demography (School B)

School B is truly integrated with a racial mixture of approximately 50% black and 50% white. The majority of the students enrolled at School B are from upper-middle and lower-middle class families. Only a few were described as being from families above or below this socio-economic range.

School B is located in a middle class neighborhood. However, it is not a neighborhood school. Students are bussed in daily from six outlying communities.

The school is organized and operated under the unit school concept. It is housed in a relatively new building (8 years old) appropriately designed, whether intentionally or unintentionally, to facilitate employment of this administrative and supervisory organizational pattern.

Student Selection (School B)

A group of drop-out prone students identified on the basis of poor attendance and academic achievement were screened for enrollment in School B's Work Oriented Program. Letters outlining the program's objectives and operation were mailed to parents of the group. Those interested were asked to sign a tear-off and return it to the school (see Appendix B).

Forty-two students were eventually designated as participants in the program. The age range of participants was 14.6 through 16.1 years. The average age of males was 15.1. For females, the average age was 15.2 years. Sex composition of the otiginal group was 22 boys and 20 girls.

Standardized reading and mathematics achievement tests had been administered to members of the group at the seventh grade level. In reading, the students' scores ranged between grade levels 3.6 and 8.4. In Math, the range was 3.8 through 8.1.

School personnel reported that few students were classified as discipline problems. Examination of the conduct records of both girls and boys substantiates this observation. However,

approximately 50% of the boys had at one time or another, during the 1970-71 school year, been rated unsatisfactory in this area.

The Program (School B)

One of the first tasks of the teacher-coordinator was to determine the unique job interests of the students to be served. An interest survey, designed by the coordinator, was administered to the group. The results were later analyzed and used, where appropriate, to match students with an available pool of jobs (training stations).

A sampling of the training stations where students are placed is presented below:

shoe store	restaurant
service stations	library
novelty shop	card shops
parking lot	record shop
barber shop	nursing homes
furniture finish establishment	women's clothing store

All job development activities executed by the program coordinator were verbal in nature. To date, no guidelines, checklists, or other types of explanatory materials have been given to employers.

All students are enrolled in a 50-minute work-study class taught by the coordinator. In this class, time is set aside to permit student discussions on general and specific problems encountered on the job. The instructor feels that such activities will foster the development of problem solving abilities. A portion of

:ach period is also devoted to an examination of desirable and undesirable work related attitudes.

The work-study teacher supplements his instructional activities by inviting community workers to the class to give formal and informal presentations. Firemen, nurses, salesmen, social security administrators, tax experts, etc., are examples of the types of individuals who have been invited and participated to date.

In the other academic subjects, numerous activities have been planned and are being carried out to emphasize the relationship between school experiences and the "world of work." In Math, personal budgeting, checking, savings and payroll deduction have been topics of discussions. In English, students have written compositions on their on-the-job work experiences. Other examples of activities being carried out are listed below.

1. Learning to fill in job applications properly.
2. Learning to write letters of introduction for jobs.
3. Doing mock interviews and making employment related telephone calls.
4. Learning how to prepare for an interview.
5. Discovering what an employer expects from an employee and what can be expected of the employer.
6. Introducing and stressing safe work habits.
7. Showing films pertaining to safety and bringing in safety engineers from industry to class.

3. Talking about and learning how to avoid problems and deal with the problems most often encountered by the inexperienced beginning worker.
9. Learning the qualities that one must have to be successful at work.
10. Learning about consumer values and budget techniques.
11. Reviewing and learning about weights and measurements.

School personnel report that the quantity and quality of administrative and supervisory support from the central office staff has been adequate. A desire for assistance in solving payroll and record keeping problems was communicated to the third party evaluation team. Funds had been made available to finance the program's operation and a portion has been used to purchase hardware and software to enhance instructional activities.

Evaluation (School B)

Objective 1 (MCDP): To acquaint pupils with employment opportunities at a job entry level within their local environment (often overlooked by pupils).

Objective 1 has been fully realized as a consequence of program implementation. Classroom activities incorporating student discussions on job related problems and other experience sharing activities already described have enhanced the realization of this goal.

Objective 2 (MCDP): To utilize the small businessman as an

advocate for the student-worker -- to teach that student employability skills and attitudes bearing on that relationship.

Evidence suggesting that Objective 2 is being accomplished has been obtained from analysis of taped interviews with a random sample of the program participants.

The majority of the students indicated that they now recognize the importance of being dependable, courteous, cooperative, and honest. Several students were able to cite specific instances where their attitudes had a direct bearing on their job performance. The majority of those interviewed were happy simply because they were employed.

Work records of students, including their work attendance, are being collected for analysis. Via this process, the evaluation team will be able to determine whether students are developing positive attitudes toward being dependable and reliable. To fully evaluate the realization of this goal, the comments of employers and co-workers will also be solicited and analyzed.

Objective 3 (MCDP): To utilize the small businessman as a resource to the school -- to assist the school staff to understand employer's needs so that instruction might become more relevant.

At present, the evaluation team is not familiar with any specific activities, programs, conferences, etc., that have been conducted at School B to facilitate the accomplishment of

objective 3. However, the utilization of such community resource personnel as firemen, nurses, tax experts, social security administrators, etc., to enhance classroom instructional activities indirectly facilitates accomplishment of this goal.

Objective 4 (MCDP): To help students relate school experiences to productive work.

During taped interviews, students were able to describe the relationship between their school subjects and the world of work.

In one such interview, a student working in a library identified English and Mathematics as important subjects. She felt that English was important because her duties involved reading, writing, and spelling. Mathematics was considered important because of the many computations necessary in figuring late charges on borrowed books.

Two students working in a service station gave other examples of their understanding of the relationship of school subjects to their jobs. One stated that mathematics was an essential requirement in the performance of his duties. For example, he stated that by carrying out mathematical operations such as division, he is able to substitute on-hand auto parts for those that are not available. The second student intimated that his job experiences had enabled him to explore other occupations. In doing so, he became aware of the mathematical knowledge needed by the accountant who performed record keeping tasks at the service station.

Female students employed as nursing aids were able to clearly explain how classroom activities in Science and Home Economics enabled them to understand and perform their assigned job tasks more effectively. One student stated that by working on the job, she became more interested in Science and was able to ask more relevant questions in class.

Based upon the favorable responses made by the majority of the subjects interviewed, the evaluation team feels that Objective 4 is being accomplished at School B.

Objective 5 (MCDP): To provide a means of retaining these highly drop-out prone students within the formal educational establishment.

To evaluate Objective 5, obtaining a general measure of the over-all effectiveness of School B's work oriented program, information and data on student attendance, academic achievement, and hours worked were collected.

Table VII contains figures on the average number of absences by students, as a group, before and after enrollment in School B's work oriented program. Absenteeism data on individual students was calculated for three separate categories (boys, girls, and program drop-outs and withdrawals). It is clearly evident from the data presented that students are missing fewer days since program initiation. However, there is a slight upward trend in the number of days being missed by male students during the 1971-72 school year.

TABLE VII

Average Absences per Quarter
School B

Students Presently in Program
(Boys)

1970-71 School Year				1971-72 School Year		
1st Q.	2nd Q.	3rd Q.	4th Q.	1st Q.*	2nd Q.	3rd Q.
4.53	11.53	9.79	14.05	3.16	5.83	6.16

Students Presently in Program
(Girls)

1st Q.	2nd Q.	3rd Q.	4th Q.	1st Q.*	2nd Q.	3rd Q.
6.07	10.20	7.06	10.46	2.53	4.14	3.80

Program Drop-outs and Withdrawals
(Boys and Girls Combined)

1st Q.	2nd Q.	3rd Q.	4th Q.	1st Q.*
10.67	17.33	17.67	18.67	4.5

* Program Initiation Date: September 7, 1971 (1st Quarter)

Table VIII below contains data on the academic averages of male students in four curriculum areas (English, Mathematics, History, and Science). The four quarters of the 1970-71 year establishes the baseline year for evaluation purposes.

A cursory examination of the figures listed reveals that in all subject areas, the students' academic performances have improved during the period of program operation.

TABLE VIII

Scholastic Averages (School B)

Students Presently in Program (Boys)

	1970-71 School Year				1971-72 School Year		
Subject	1st Q.	2nd Q.	3rd Q.	4th Q.	1st Q.	2nd Q.	3rd Q.
English	68.42	67.37	65.25	66.84	72.37	69.16	73.05
Math	61.84	64.21	64.21	66.57	70.53	67.22	71.66
History	63.68	65.00	65.00	66.32	78.68	71.38	73.33
Science	59.44	60.79	60.00	63.33	68.68	71.38	69.16

Similar evidence of improvement for females is contained in Table IX. In all subject areas, participants showed improvement during the period of program operation. The female students' academic performance in History during the 1st and 3rd quarters (1971-72) is rated as being good. In the other subject areas, their performance is rated within the fair to good range.

TABLE IX

Scholastic Averages (School B)

Students Presently in Program (Girls)

	1970-71 School Year				1971-72 School Year		
Subject	1st Q.	2nd Q.	3rd Q.	4th Q.	1st Q.	2nd Q.	3rd Q.
English	69.64	71.33	69.33	69.00	79.00	78.33	78.66
Math	70.71	69.67	65.33	70.33	79.33	74.66	75.00
History	69.64	70.66	69.67	71.33	81.00	77.66	81.00
Science	60.38	62.00	64.00	67.67	77.33	75.66	77.00

Program drop-outs and withdrawals also showed some improvement in academic performance during the period of program operation

(see Table X). It is essential that follow-up data on the performance of this group, after their removal or self-elimination from the program, be collected to fully evaluate the effectiveness of the program in helping such students even though they become non-participants.

TABLE X

Scholastic Averages (School B)

Program Drop-outs and Withdrawals

(Boys and Girls Combined)

	1970-71 School Year				1971-72 School Year
Subject	1st Q.	2nd Q.	3rd Q.	4th Q.	1st Q.
English	50.00	53.30	68.33	65.00	68.33
Math	50.00	53.33	58.33	56.66	63.33
History	57.50	56.67	56.67	56.67	58.33
Science	50.00	53.33	53.33	53.33	61.66

Some measure of the students' attitudes toward their jobs and the development of appropriate employability skills was obtained by comparing the expected number of work hours with the actual number of hours worked by students during the third quarter (1971-72 school year). As a group, students were expected to work an average 82.94 hours. The actual average number of hours worked was 73.41 hours or 88.5% of the expected number.

Conclusions and Recommendations

Information and data collected to date indicates that School B's

program has had a positive effect on the academic and work performances of program participants. Students are attending school more and have on several occasions expressed approval of the planned learning activities and work experiences.

Based upon the data and information collected and analyzed to date, the following recommendations are made.

1. Develop and use a more effective and comprehensive record keeping system to facilitate the collection of data on the performance of program participants for program improvement and evaluation purposes.
2. Conduct joint meetings with staff, employers, teachers, and students to permit the sharing of ideas in regard to program improvement and problem solving.
3. Establish and carry out a formal internal evaluation to facilitate identifying and solving problems more readily and to provide measures of program accomplishments.
4. Develop guidelines, checklists, or other types of explanatory materials to be used in job development activities.

V Educational Television Component

Objectives. On November 15, 1971, the advisory committee of the Instructional Television Component of the Career Exploration Project met to re-define the goals of this component. At that time the goals as stated in Final Report, Project Number 0-361-0021, entitled "The Maryland Career Development Project, Phase I," and dated August, 1971, on page 95 and 96 were modified as re-stated further in this report. At that time approximately five programs had been fully developed and the production team, writer and the advisory committee agreed to re-formulate the goals of the program, expressing in seven goal statements (as opposed to fourteen, re Final Report, pp. 95, 96) the re-considered program objectives. It was considered also that these goals could be achieved through teacher and pupil utilization of the instructional television series. In other words, the committee deemed the goals could be most likely achieved by teacher utilization of the T. V. program and manual activities rather than through merely viewing telecasts. This modification is consistent with the goals as stated in the original Proposal for Examplary Program or Project in Vocational Education, date transmitted January 1, 1970, and stated specific to the instructional television series on page 5. These seven goals are cited in a memo, "Policy regarding student objectives," to Dr. Edward Beach, Division of Instructional Television, from Gery Burlage, producer, and Sandra Harden, T. V. teacher and dated November 18, 1971. The goals are:

1. Learn about several broad career areas and the many opportunities contained within these areas.
2. Develop an appreciation for and understanding of fields of work and the contribution that each makes to society by observing the interdependence of people and tasks upon one another.
3. Understand that work provides satisfaction in its own right by seeing the pride and pleasure which are visible components of job performance.
4. Observe ways in which school subjects, personal interests, and recreational activities may be related to careers.
5. Observe how people in various work settings display a number of personal characteristics and work habits which exist in a student population.
6. Understand that one's first job choice need not be one to which he is restricted for the rest of his life.
7. Become more cognizant of the influences of the community as one of the factors affecting career choice.

In addition, "objectives" for each television program have been developed by the production team. These objectives are related to the new goal statements. A comparison of these sets of objectives and goals suggests that, in theory, the programs will achieve the goals set by the committee.

Programs Structure. The anatomy of a typical program suggests the relatively standardized structure of the individual programs pertinent instructional content. The program analyzed below was "Health Services (II)."

SEGMENT	TIME (in minutes)
film	5.0
cartoons	1.5
still prints	1.75
slides	5.0

In each of the programs (as in the above) addition screen time is consumed on a standardized opening and closing, logo and credits (approximately 2 minutes), and on less predictable time intervals such as T. V. teacher reactions and student actors interactions (approximately 3 minutes). Additionally, approximately 90% of the programs include personal interviews with an average length of from 1.5 to 2.0 minutes.

The entire 15 programs were completed and aired according to the following schedule:

WEEK		TOPICS
February	7	1. People Are Different
	14	2. The Construction Industry
	21	3. The Communications Industry
	28	4. Medical Services
March	6	5. Health Services
	13	6. Business
	20	7. Merchandising
	27	8. Leisure Industries
April	3	8. Leisure Industries
	10	9. Leisure Industries
	17	10. Agri-Business
	24	11. Gransportation
May	1	12. Social Services
	8	13. Personal Services
	15	14. Manufacturing
	22	15. People Change

Each program was telecast five times a week according to the following schedule:

Monday	Tuesday	Wednesday	Thursday	Friday
8:40-9:00	9:45-10:00 1:50-2:10		9:00-9:20 2:40-3:00	

Manuals: Manuals were mailed to school systems as they were developed and in time for previewing before programs were telecast.

Internal Evaluation. This component conducted a considerable amount of on-going evaluation during the period programs were in production. Evaluation team monitored some of the testing as well as internal communications, where possible, and it appeared that the results of their testing were receiving currency within their organization. Both the testing procedures and the reporting seemed competent.

These evaluations were directed toward users of the programs, viz. teachers and pupils, and concerned the appropriateness of the media, specifically the manuals and program filmtapes.

A group of approximately 30 teachers participated in program evaluation by completing evaluation sheets after each program telecast was viewed by their classroom. Self-addressed feedback forms were included in the manuals at the rate of one for each group of five programs aired. Teachers were encouraged to complete these checklists of program content, presentation, and technical factors.

Also, assemblies of teachers for personal feedback sessions were conducted at least twice during the series. The T.V. teacher made personal visits to a number of classrooms viewing the telecasts to observe student reaction and to meet with teachers to obtain more informal but potentially useful data about program effectiveness.

Teachers were also present at a number of the advisory committee meetings, which were useful in the planning of future and the critique of past programs.

A considerable amount of data acquired during production, which will not be reported here, is available from the Division of Instructional Television, Maryland State Department of Education.

Table I below provides data on the number of participants per category who responded to each of the rateable items (items IA through IIB). It is included to establish a baseline, useful in interpreting other data collected and presented in this report.

It is important to direct attention to the differences between the numbers of individuals who responded to each rateable item (Table I). For example, there are forty (40) individuals in the "Principals and Supervisors" category who reacted to item IA. However, there were only ten (10) individuals in this same category who responded to item ID.

The most likely reason for this difference is that IA was a general item designed to be responded to by all conference participants. Items IC through IG were related to the formal presentations on the five operational components. Due to a time limitation, each participant was asked to select only two presentations to attend.

Some conference participants chose to spend only a part of each designated period at the component presentations. These individuals, in most instances, attended more than two presentations. Consequently, their choices are also reflected in the figures presented in Table I.

The items on the Reaction Form were designed to permit the assigning of values of 0-5 points. Any individual who assigned a

Experimental Testing. The evaluation team worked with two teachers to arrange for the testing of four groups of pupils who participated in a controlled evaluation utilizing instruments developed by the evaluation team. These groups were tested for objectives developed for the first seven programs. The groups received the following treatments:

Group 1

Pre-viewing activities (manual)
View telecast
Post-viewing activities (manual)
Evaluation

Group 2

View telecast
Evaluation

Group 3

Pretest
Pre-viewing activities (manual)
View telecast
Post-viewing activities (manual)
Post test

Group 4 (Control)

Evaluation only

Because of time limitations recently imposed on submission of the final evaluation report, only groups 1, 2 and 4 were utilized in an evaluation of the first seven programs. Only program one ("People are Different") and program four ("Medical Services") were analyzed for this report.

Objectives for these programs are stated below and constituted the basis for examining the learnings stimulated by the television productions.

Medical Services I

1. Pupils will describe the job of one kind of therapist presented in the program.
2. Pupils will identify some of the personal characteristics and work

value of zero (0) to an item indicated a high degree of non-acceptance or disagreement with the inherent concept of the item. The assigning of high values to items indicates the participants' favorable acceptance or agreement with inherent concepts.

Presented in Table II below are the total scores per item. The grand totals assigned by conference participants to the individual items are also presented.

The maximum possible positive value per item can be obtained by multiplying the figures in Table I by five (5). (See Table III.) The resultant figures in Table III can then be compared to those in Table II. By making such a comparison, the reader can develop a feel for the participant's perception of the conference.

Item means were also computed. They are presented in Table IV.

As stated earlier, individuals were given an opportunity to assign values of 0 to 5 points to each item. The 2.5 point on the scale was considered as being the neutral point. Using this as a base, it is evident that the perception of the conference by participants was quite favorable. The lowest mean for an operational component, items IC through IG, was computed for the Elementary Component in the Principals and Supervisors' category. However, the second highest mean score computed for the operational components, 4.60, was also calculated for this component in the Counselors' category.

habits a particular worker shown in the program should have.

3. Pupils will state reasons why health workers who work directly with patients find satisfaction in their jobs.

People are Different

1. Pupils will state how a particular worker in the tele-lesson finds satisfaction in his work.
2. Pupils will give examples of how people work together to achieve a common goal.
3. Pupils will state facts which contribute to the uniqueness of each individual.

Results of the testing are reported below in terms of mean scores only.

Mean Scores for Tests of Program Objectives

	Experimental		Control	
	n	M	n	M
Program #1	16	15.00	20	10.40
	19	10.22		
Program #2	19	12.63	7	9.86
	21	10.47		

Comparison of Mean Scores. The only significant difference occurred between a mean of 15.00 (experimental) and 10.40 (control) when each experimental group was compared with the control group. For Program #1, the table value for significance at

TABLE I

Number of Individuals Responding to Each Item by Category

Item Number / Respondent Categories	IA Speaker I	IB Speaker II	IC Jr. High (Work Oriented)	ID Jr. High (Career Explor.)	IE Comprehensive Infor. System	IF TV Series	IG Elementary Component	IIA Stimulated	IIB Supporting Philosophy
Principals & Supervisors	40	40	11	10	7	11	4	36	34
Specialists & Coordinators	23	23	5	7	6	2	7	17	17
Teachers	11	11	2	7	3	3	3	10	10
Counselors	30	29	9	15	6	3	5	27	27
Others & Anonymous	40	42	16	8	10	7	14	32	32
Totals	144	145	43	47	32	26	33	122	120

the .05 level was 2.045. The calculated t value was 2.92. It was inferred that on the basis of data there was evidence that achievement did take place at a significant level. For Program #4, the table value for significance at the .05 level was 2.042. The t value was 1.972. It was inferred that on the basis of the data there was evidence of achievement but it was not to a significant degree. It is necessary to note that the instruments used were not validated and caution should be taken in drawing inferences from the data.

TABLE II

Total Scores per Item

Item Number / Respondent Categories	I A Speaker I	I B Speaker II	I C Jr. High (Work Oriented)	I D Jr. High (Career Exploration)	I E Comprehensive Information	I F T V Series	I G Elementary Component	II A Stimulated	II B Supporting Philosophy
Principals & Supervisors	140.0	160.5	40.5	37.5	22.0	47.5	11.5	152.5	159.0
Specialists & Coordinators	79.5	91.0	19.5	24.0	21.5	9.0	29.0	72.5	74.5
Teachers	41.5	41.0	8.5	32.0	10.5	12.0	9.5	45.5	46.5
Counselors	123.5	113.5	42.5	56.5	24.5	13.0	23.0	118.5	128.0
Others & Anonymous	144.5	151.0	60.0	28.0	37.5	25.0	47.5	131.5	140.5
Grand Totals	529.0	557.0	171.0	178.0	116.0	106.5	120.5	520.5	548.5

VI Career Development Resource Notebook

This evaluation of the Career Development Resource Notebook was based on data derived from two sources. An internal evaluation was conducted by the staff who worked on the development of the notebook and an external evaluation was conducted by the third party evaluation team.

The internal evaluation was performed in the following manner.

1. A survey form was attached to all notebooks made.
2. At the Career Development Conference of October, 1971, copies were distributed to those who attended.
3. The recipients of the notebook were asked to evaluate the notebook and make forms available to the writers.
4. Forty-three survey forms were returned and made available to the third party evaluation team for analysis and assistance in extracting information for improving and revising the notebook.

The respondents to the survey were classified as presented in Table I.

TABLE III

Total Possible Value per Item

Respondent Categories	I A Speaker I	I B Speaker II	I C Jr. High (Work Oriented)	I D Jr. High (Career Exploration)	I E Comprehensive Information Sys.	I F T V Series	I G Elementary Component	IIA Stimulated	IIB Supporting Philosophy
Principals & Supervisors	200	200	55	50	35	55	20	180	170
Specialists & Coordinators	115	115	25	35	30	10	35	85	85
Teachers	55	55	10	35	15	15	15	50	50
Counselors	150	145	45	75	30	15	25	135	135
Others & Anonymous	200	210	80	40	50	35	70	160	160
Totals	720	725	215	235	160	130	165	610	600

TABLE I

Number of Respondents by Profession

Superintendents and Assistant Superintendents	2
Principals and Assistant Principals	2
Directors	3
Supervisors	20
Counselors	7
Vocational Education Specialists	8
Teachers	1
TOTAL	43

In item IIB of the survey form the respondents evaluated the five major sections of the notebook on a five point scale where zero was the lowest and five the highest value (see Appendix A). The overall reactions are presented in Table II.

TABLE II

Mean Point Value to Sections of Notebook

Section	Mean Value Accorded
I Introduction	3.0
II Planning and Program Development	3.8
III Career Development Models	3.9
IV Implementing Career Development Concept	3.1
V Resources	2.9

TABLE IV

Mean Scores per Item by Categories

Respondent Categories	I A Speaker I	I B Speaker II	I C Jr. High (Work Oriented)	I D Jr. High (Career Exploration)	I E Comprehensive Information	I F T V Series	I G Elementary Component	II A Stimulated	II B Supporting Philosophy
Principals & Supervisors	3.50	4.01	3.68	3.75	3.14	4.30	2.87	4.23	4.67
Specialists & Coordinators	3.45	3.95	3.90	3.42	3.58	4.50	4.14	4.26	4.38
Teachers	3.77	3.72	4.25	4.57	3.50	4.00	3.16	4.55	4.65
Counselors	4.11	3.91	4.72	3.76	4.08	4.33	4.60	4.38	4.74
Others & Anonymous	3.61	3.59	3.75	3.50	3.75	3.05	3.39	4.10	4.39
GRAND MEANS	3.67	3.84	3.97	3.79	3.62	4.09	3.65	4.26	4.57

On the basis of considering 2.5 as average, the data clearly indicates that the overall subjective reactions to the notebook were above average. This was taken as evidence that the notebook has potential and that further improvements should be made.

The developers of the notebook explicitly communicated that it was primarily constructed for local level administrators and supervisors. Accordingly, the data from this group was compiled and analyzed separately. Table III presents a summary of the data.

TABLE III

Summary of Evaluations by Supervisors Only

Section	Mean Value
I Introduction	4.0
II Planning and Program Development	4.2
III Career Development Models	4.6
IV Implementing Career Development Concept	4.4
V Resources	4.0
(for N = 20) Overall Mean	4.24

The highest possible point value that could be achieved was 5.0. Based on this data, it was evident that the supervisors, as a group, recognized the resource book as a valuable document. The counselors and vocational education specialists evaluated the book lower with a mean of 3.4. An inquiry into the reactions of teachers was made at a later date by the third party evaluation team.

The survey form elicited the following comments and suggestions from the respondents.

To permit ranking of the operational components and to provide some measure of the overall response of participants to the conference, grand means were computed. They are also presented in Table IV. Through a cursory examination, the conclusion can be drawn that those participants who chose to indicate their perception of the conference were favorably impressed.

In Item IIIA on the Reaction Form, conference participants were asked to make suggestions on ways to improve future conferences of this type. The participants responses to this item, pro and con, are presented as received in Part II of this report.

1. More resource material with annotated comments.
2. Provide clear specific behavioral changes.
3. Good for overall design but lacks specific curriculum activities to support objectives.
4. Sources of materials should be provided in section on Procedures.
5. What can one do with Ojeman and Rath Materials? Explain.
6. Adams and Pinson model needs more descriptive material.
7. Give clear directions on how to make career education integral part of subject matter courses.
8. It looks like you need two books, one for administrators and one for counselors and teachers.
9. Edit out the historical elements.
10. Provide names of people that would provide knowledge about the activities to implement concepts.
11. Page 28, "the concept of Fiction should be readily available," was challenged as to its value.
12. Page 30, "Where are and what are the checklists and open ended sentences? Tell us. Also what instruments on Page 32?"
13. Include material developed by Dr. Janssen in the three-county workshops.
14. Include more practical application type information.

On the basis of the above information, it becomes clear that the best items of the instrument used was the open-end question at

(Part II)

Maryland Career Development Conference
October 28, 1971

Responses to Open End Question
(Item III A)

Principals & Supervisors

Positive Statements

1. Develop regional conferences for teachers and personnel similar to the participants at this conference to combine and disseminate information about all career exploration programs in the state of Maryland.

2. Present this type of conference for educators in the academic area. Vocational educators are familiar with this notion.

3. Prepare suggested resources for use in program.

4. Visit pilot situations in current operation.

5. Provide in-service training for elementary teachers; specifically, early childhood, primary, intermediate.

6. Develop regional conferences.

7. In-depth coverage of good projects.

8. Another conference to stress why it is important that there be varying components of career education.

9. Well done / An excellent conference.

10. One year follow-up, perhaps regionally, at conference.

11. Involve teachers, counselors, administrators and supervisors on local levels.

12. Present these ideas to the academic community.

13. Closer communication with other career development projects.

the end. The instrument failed to extract a variety of objective quantifiable data built on specifications derived from objectives of the notebook.

Second Evaluation (External)

The primary thrust of the notebook was for use by educational administrators and supervisors at the local level. However, it was stated that it should have value to teachers. It was deemed essential to obtain feedback information from a group of twenty teachers who expressed an interest for information on career development (see Appendix B). Some of the selected comments and suggestions are presented below.

1. It looks good on paper but to implement it is another thing.
2. I don't think a busy teacher could find the time to figure out how to integrate this into their subject.
3. Too general, vague, it would require many workshops to understand what specific things the teacher is to do.
4. Well organized and written for a bureaucratic financed and bent document. Too much word salad.
5. Exact tasks and duties need to be specified.
6. You will have to work with teachers to understand how to implement the concepts of this book.

Some further suggestions are provided in Table IV which follows.

Negative Statements

1. Noise setting table during Tennyson's speech.
2. Test sound equipment before conference.
3. Two groups in same room with one group using sound equipment was "distraction".
4. Component programs too short.
5. Couldn't the Comprehensive Information System be more cheaply reproduced on Xerox machines in school?
6. More space next time.
7. "We do a good job of topic development but implementation is poor."
8. "A clear concise definition of all elements of career education have not been conveyed."

Specialists & Coordinators

Positive Statements

None

Negative Statements

1. Present more "how-to" information.
2. Prepare bibliography for career information.
3. More time for component presentation.
4. In future, use local presenters.
5. Hold conference at more suitable time.

Counselors

Positive Statements

1. Very pleased.

TABLE IV

Some Comments and Suggestions on the Career Development Resources Notebook

Comments	Suggestions
The cover depicts strong male silhouettes; want ads advertise jobs mainly directed to men; and not indicated on the cover are the Grades K-12 for whom it is intended.	If the Resources Book is intended for boys and girls in Grades K-12, the design on the cover must indicate this.
pp. 1-15 too lengthy; not too much concern to the classroom teacher.	This material could be summarized to save space, time and for clarity.
pp. 17-49 are vague and verbose; breakdown of Elementary, Junior High, and Senior High insufficient for teacher. Teacher must spend time searching for grade needed. Content requires too much time to read. Key words and concepts swallowed up in unrationed words. (e.g., "Component of decision, information accrued, ramifications of worker . . .") Some space needed for teacher's comments.	Use language that is simple, clear, direct, concise; spell out Grades K-12. Use of tables, word phrases more expedient; teacher able to see the whole picture at a glance. Provide space for comments by teacher. If the notebook is to be used again, teacher comments could be very valuable the second time around.
pp. 50-62: Would it benefit the teacher if these pages were to precede the Operational Model? Should ethical or moral goals be included?	Although material given not new to teacher, it seems more beneficial to review these basic facts before the actual teaching of the unit. Our interest is in the whole child, not 5/6 of the child.
Stated Objectives: Is it necessary to stretch out some of the objectives to run 3 or 4 lines each? Differentiate between immedicate objectives and long range objectives. How are long range objectives measured?	Key words lost. Specific objectives should be short and stated in behavioral terms.

2. Impressed with wide range of disciplines represented at conference.

3. Provided me with information for development of our program.

4. Stimulating ideas.

5. Preferred the small group sessions. Suggest more of these.

6. More workshops on this level in every county in Maryland.

Negative Statements

1. Could not see screen from rear.

2. Be specific with projects.

3. A conference (needed?) at the local level with teachers who will implement the program.

4. Information needed prior to conference by mail.

5. Human values be included as well as exploration of careers.

Teachers

Positive Statements

1. The conference succeeded to disseminate general information.

2. Prepare and distribute Dr. Tennyson's talk.

3. Keep the ideas flowing.

Negative Statements

1. Involve other people who are implementing programs in the state.

2. Not enough "hands on" experience.

3. Explore reasons career development can be sold to all segments of the educational community.

4. Sometime, apply the principle of experimental learning at these conferences.

TABLE IV (cont.)

Comments	Suggestions
Emphasis given on advantages of jobs.	Point out disadvantages to balance the scene, as well.
Emphasis on advantages, benefits and merits to society.	How about self? What kind of work makes me happy? Why? What else could I do that would make me happy? Where? How?
A resource notebook should be a supply of something to take care of a need. Notebook does not reflect dynamic and new aspect of concept.	Briefly: Here's the problem Here's what has to be done Here's how you can do it.
Actual resources not listed; no specifics.	According to grades: bibliography, list of films and filmstrips, places students could bisit on their own, with family, field trip, (what to look for and where to look for it ideas for field trips) museums, concerts, theatre, puppet shows, explore products and list number of jobs involved in its manufacture; list names and addresses of places that will send free literature on jobs, finger plays, use of puppets, distinguish between job, career, profession, etc.
All work for material reward? Importance of building perseverance, and other abstract qualities necessary in work.	

Comment. In summary, it is apparent that individuals in all categories have certain primary concerns. The most frequently stated is the need for more specific information on how to carry out career development activities. This concern was expressed in several different ways. Suggestions included: (a) the preparation of a bibliography, (b) more small group discussions, (c) more in-depth coverage of good projects, (d) preparation of resources for use in programs, (e) presentation of more"how to" information, (f) more hands on experience, (g) use local presenters, etc.

Closely related to this concern, is the interest in greater involvement of teachers and other local level educational personnel in future career development conferences. In-service training programs, regional conferences, and local conferences were suggested ways of obtaining this involvement of those charged with the responsibility of implementing and conducting career development activities.

Lastly, concern was voiced for more coordination and communication between other school districts or agencies within the state that are also carrying out career development activities. The participants apparently feel that a great deal of beneficial information can be gained from such experience-sharing practices.

TABLE IV (cont.)

Comments	Suggestions
Suggested Procedures: Generally vague and often unrealistic. Asking Parents to come in to discuss jobs, etc., impractical.	Prepare colorful, easily readable brochures which could outline things to do, places to go, things to say that would encourage positive thinking and action about world of work. Suggest attitudes and expectations. Could be season to emphasize importance. Guidelines for toys, games, books, parents may purchase at Christmas, Birthday, etc.
Entire notebook -- too voluminous.	Consider a compact handbook.
Not enough provided for the youngster who has traveled, whose vision spans a wider range than that of the community, the school, the home as far as jobs are concerned. This type of child could become bored. Use of compositions over-emphasized; is a technique that requires great amount of planning writing, revision and rewriting.	Prepare a bibliography; teacher may read a book a week; (all kids love to be read to); discussion, question, answers, exchange of ideas from reading and own background of experiences. Suggest types of questions. Valuable at the <u>end</u> of a unit when student has gathered a sufficient amount of information with which to formulate ideas; also becomes more meaningful. As alternatives to compositions: word collages, crossword puzzles, panel discussions, building their own bibliography on job(s) of their choice.
Encourage ideas at an earlier age: All About Me folder.	All About Me folder should start in Kindergarten, (with the long range objective of a resume later). The idea of retraining on job and continuing education necessary and more demanding in future. That woman's role has changed should be made known in Kindergarten, and not wait till upper grades. (To curb population growth, encourage girls to play with number concepts, tools, blocks, and NOT only dolls, without destroying the idea of marriage and family.)

Appendix Note

Due to the large quantity of appendices, it was necessary to package these separately. These form the package identified as Volume III of the Second Annual Report.

It becomes evident that much work needs to be done with the notebook if it is to be a viable medium in the classroom process of career development. The time when the effects of the handbook on student behavior can be evaluated is far off.

The development staff needs to demonstrate by example that which is being verbalized in the notebook in order to bridge the information gap between the administration and the classroom teachers.

Volume III

Appendices
for
Second Annual Report
Project Number OEC-0-70-5186(361)

Maryland Career Development Project
Phase II

Dr. Walter Mietus
Mr. Chris Stilling
Mr. Ted Glenn

APPENDIX II
ELEMENTARY CAREER DEVELOPMENT

VII. The Maryland Career Development Conference

Overview. On October 28, 1971, leaders of The Maryland Career Development Project conducted a state-wide conference. It was designed to better familiarize State educational leaders with the concept of career development within a broader perspective of career education. A second purpose of the conference was to provide information about the five operational components of the Project (see Appendix A for Program).

Evaluation. During the conduct of the conference, participants were given an opportunity to react to: (a) specific presentations by selected authorities, (b) formal presentations on the five operational components, (c) concepts and practices discussed, and (d) the supporting philosophy of the Maryland Career Development Project. Constructive criticisms and suggestions for future conferences were also solicited.

Tables contained in this report are used to summarize the data generated by conference participants as measured on the Reaction Form, dated October 28, 1971. (See Appendix B for an example.)

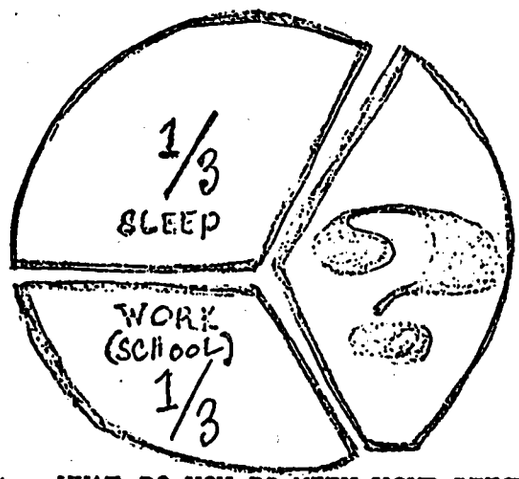
To better facilitate analysis, all conference participants were placed in one of the following categories: (a) Principal and Supervisors, (b) Specialists and Coordinators, (c) Teachers, (d) Counselors, and (e) Others and Anonymous.

Appendix A

LEISURE TIME

The class may discuss how much time per day they sleep and how much time they work or go to school. The teacher may ask the students to list activities that take the remainder of the day. Through class discussion the children can be led to see that the activities done in the remaining period are labeled LEISURE TIME ACTIVITIES.

The teacher can label a pie graph to reveal daily activities.



WHAT DO YOU DO WITH YOUR LEISURE TIME?

LEISURE TIME ACTIVITIES - HOBBIES

To help the students understand that hobbies or leisure time activities sometimes influence career choice, students may interview their parents or other workers.

The class can discuss and summarize the results of their survey.

A sample questionnaire form:

_____

NAME OF OCCUPATION _____

WHAT DID YOU LIKE TO DO WHEN YOU WERE MY AGE? _____

_____

_____

WHAT HOBBIES DID YOU HAVE WHEN YOU WERE YOUNG? _____

_____

DO YOU THINK THAT THE HOBBIES AND INTERESTS YOU HAD WHEN YOU WERE MY AGE HAD ANY INFLUENCE ON YOUR CHOICE OF AN OCCUPATION? _____

_____

The class will want to discuss the following questions:

How can hobbies help me learn more about myself?
How can hobbies help me develop new skills?
Why is it important to try new hobbies?

The class may review, through discussion, the concept that leisure time activities affect career choice. The teacher may reverse the statement, i.e., career choice affects leisure time activities, and ask the students to explain how this is plausible.

The students may write a paragraph on the importance of the worthy use of leisure time. These paragraphs can be read to the class and added to the career folders.

Learning Unit---STEEL FOR BUILDING

Theme

Man works so that he can have what he needs and what he wants. Man also works to satisfy his desire for activity and achievement. Without co-operative effort, man could not attain these objectives.

Concepts

1. Man uses steel for many purposes.
2. Changes in wages and prices in a large industry may affect many other workers in our society.

Background Information

Steel

Steel is not easy to define accurately, but Webster defines it as "commercial iron that contains carbon in any amount up to about 1.7 percent as an essential alloying constituent, is malleable when under suitable conditions, and is distinguished from cast iron by its malleability and lower carbon content." In actual practice, it is very difficult to draw the line between iron and steel, or between steel and alloy steels (to which various elements such as boron, vanadium, or chronium have been added). Different alloy steels have different characteristics, and the use to which the steel is to be put determines the alloy that is used.

Up until about one hundred years ago, iron and wrought iron were the chief metals used in construction. Iron could be made very hard, but then it was brittle. Wrought iron stood shock very well, but it was relatively soft. The discovery of the Bessemer process, by which steel could be produced cheaply, provided industry with inexpensive steel--a metal that is strong, wear resisting, and tough.

As soon as inexpensive mass production of steel was achieved, the market for steel expanded at a very high rate, and steel became the key metal of our industry--and of our lives.

Use a Picture--Worker in a steel mill

Encourage the children to look at the picture and discuss it. To stimulate the discussion, the teacher may ask questions such as the following:

Where is this man?
What special clothing is he wearing? Why?
How can you tell it is hot?
Why do you think steel is made like this?
What might steel be made from?
Do you think steel is a natural resource?
How do you know?

Use a Picture or Drawing--Workers making steel products on an assembly line

The drawing of the workers on the assembly line is included to extend children's thinking about the ways in which steel is used to make many products. The following questions may be helpful in discussing the drawing:

What do you think these men are doing?
Why are they wearing special hats?
Why is the man on the right wearing goggles?
How do you think men make things out of steel?
How could you put two pieces of steel together?
How could you make a piece of steel into a new shape?
Would you like to make things out of steel?
What would you make?

Activity Sentences.

Why do you think steel is important?
What could you use steel for that you could not use tin for?
How do you think steel was being used in each of the situations you heard on the recording?
Who are some of the people who work with steel?
Do you know anyone who works with steel?

Ask them to be thinking about the things in the classroom that might be made from steel.

For what is steel used?

Help them find the answer by developing one or more of the following activities:

Library Visit

Visit a nearby library. Arrange ahead of time for the librarian to assist the children in finding books and magazine articles about steel and its uses. In preparation for their visit, point out to the children that the library houses books with information on many subjects and that the librarian is there to help them find that information.

Home Interview

Point out to the children that often adults in their homes can help them in finding information about subjects being studied at school. Suggest that they copy the question in the Study Triangle to take home as a homework reminder. Give Give the children several days to gather their information. Then let those who have found out something about the uses of steel share their information with the rest of the class. Encourage children to explain how the information was located. ("My uncle used to work in a factory, and they made lots of things from steel." My brother and I took a tour of our house, and we found out about a lot of things made from steel.")

Classroom Display

Display a number of picture books and magazines showing how steel is used. If possible, enrich the display with actual objects made from steel. After the children have had an opportunity to look at the materials and discuss them, answer their questions by reading excerpts from the books or magazines.

When the children have completed their research about the uses of steel, use some questions such as the following to help them summarize their understandings from this lesson:

Why do you think steel is a useful material?
What can steel be used for that other materials cannot be used for?
Do you think there are any substitutes for steel?

Thought Questions---What is a strike?

Suggest that the children sit in a large circle so that they can discuss the meaning of a strike.

Ask for volunteers to tell about what they think a strike is. Questions such as the following may help children contribute to the discussion:

Have you ever known about someone on strike?
Why do you think that people might all decide not to go to work at a place?
How do people on strike let other people know that they are not going to work?
What do you think would be some of the problems of being out on strike?
What are some of the benefits people get from striking?

What happens when steel workers get a raise?

In order to stimulate children's imaginations about the effects of a raise in the steel industry, ask them some questions such as the following?

Where does the money come from to pay the steel workers?
What will happen to the price of steel if steel workers get a raise?
What will happen, then, when another company wants to buy the steel to make something?
What will they need to do when they sell their products?
When your mom or dad buys the steel product and it costs more, what will happen?

Suggest to children that they work as partners to plan a short skit showing one of the situations which could occur if the steel workers got a raise.

Give the children several days to plan their skit and encourage them to discuss its implications with the children. Help them isolate both the cause of the incident that occurred and what its effect will be.

Concomitant Learnings

The Vocabulary Chart--(Suggestions in parentheses are for optional use.)
Discuss the following words and add them to the Social Sciences Vocabulary Chart?
steel--(A highly durable, adaptable metal made from iron and various alloys.)
metal--(An opaque, fusible, ductile material such as gold, copper, etc.)
strike--(A work stoppage decided upon by the workers.)
raise--(An increase in pay. Compare with other denotations of this word.)

Art

Have each child add a page to his "Workers I Know About" booklet, showing three workers whose jobs are dependent upon the steel industry. Suggest that they show how each of the workers uses steel in his job.

Current Events

Have the children add news of strikes or pay raises in their community to the class current events bulletin board.

Science

Help those children who are interested find out from what raw materials steel is made. They may wish to make a chart showing how these raw materials are processed to make steel.

Classroom Display

Have the children make a display of the things that they use every day which are made from steel. Encourage them to label their display items and arrange them in an organized way.

Learning Unit---AIR! AIR! AIR!

Theme

Man works so that he can have what he needs and what he wants. Man also works to satisfy his desire for activity and achievement. Without co-operative effort, man could not attain these objectives.

Concepts

1. Man and other living things must have oxygen to live.
2. The earth's supply of oxygen is being polluted.
3. Man is seeking ways to combat air pollution.

Background Information

Air Pollution

Air pollution, one of our most critical problems, results chiefly from outdoor burning (incinerators and trash piles), industry, and internal-combustion engines (automobiles and trucks. Outdoor burning is the least consequential of these sources of air pollution; in a great number of cities such burning is prohibited by ordinances. And many industries have been pressured into reduction of industrial air pollution. The biggest culprit not is the internal-combustion engine. Legislation has brought about some reduction of this kind of air pollution, but the smog producted by cars and trucks still causes extreme discomfort in many metropolitian areas, and it constitutes a serious health hazard.

Show a picture depicting waste products polluting the air.

Encourage the children to look at the picture and discuss it. To stimulate the discussion, the teacher may ask questions such as the following:

What is happening in this photograph?
What is the smoke from?
Where will it go?
Would you like to breathe that smoke?
What do think happens when hundreds of factories belch smoke into the air?
Do other things, besides factories, make our air dirty?
How do automobiles and trucks pollute our air?

Show a picture of a scientist at work.

The picture of the scientist is included to extend children's thinking about the many ways in which man is trying to combat air pollution. The following questions may be helpful in discussing the drawing:

Who is this man?
What do you think he has to do with the photograph on the opposite page?
Why have scientists already found out about air?
What have scientists already found out about air?
Why do man and other living things need air:
How is dirty, polluted air harmful to us?

Are other people, besides scientists, trying to do something about polluted air?

Who?

What can you do about polluted air?

SUGGESTED ACTIVITIES

Classroom

Point out to the children that often there are people in the community who know a great deal about a specific subject. Arrange for a scientist from a local secondary school or college to come and answer the children's questions about polluted air and its effects on living things.

Library Visit

Visit a nearby library. Arrange ahead of time for the librarian to assist the children finding books that will answer their questions about polluted air. Point out to the children that the library houses books with information on many subjects and that the librarian is there to help them find that information.

Letter Writing

Suggest to the children that information can often be obtained by writing to a particular source. Point out to them that lawmakers are becoming more and more concerned with the problems of polluted air and might be able to answer some of their questions about it. Help them write a group letter to their local congressman, requesting information on air pollution. (As a follow-up to this activity, have the children write a group thank-you letter and include their individual drawings showing some information they have learned about polluted air.)

When the children have completed their research about air pollution, use some questions such as the following to help them summarize their understandings from this lesson?

What are some causes of air pollution?
What will happen if it continues?
How can you help keep our air clean?

Concomitant Learnings

THE VOCABULARY CHART--(Suggestions in parentheses are for optional use.)
Discuss the following words and their definitions.

air--(The mixture of gases that surrounds the earth.)
oxygen--(A gaseous element in our air that is essential for plant and animal life.)
smog--(A combination of smoke and fog in the air.)
pollution--(The process of making dirty or impure.)

Art

Have each child add a page to his "Workers I Know About" booklet, showing three workers who help control air pollution. Encourage the children to title their page and to give each part of their drawing a label.

Science

Have the children grow two of the same kind of plants in separate glass jars. When the plants are growing well, cover one of the glass jars tightly. Have the children observe what happens over a period of time when the plant is deprived of fresh air. Help the children write up their observations and draw some conclusions based upon the evidence they have seen.

Classroom Visitor

Arrange for a mechanic from a local automobile repair shop to come and talk to the children about smog-control devices. If possible, have him show a used one to the children so that they can see how the pollutants are kept from the air.

Learning Unit - WATERPOWER

THEME:

Man works so that he can have what he needs and what he wants. Man also works to satisfy his desire for activity and achievement. Without co-operative effort, man could not attain these objectives.

CONCEPTS:

1. Man and other living things must have water to live.
2. The earths' supply of fresh water is being threatened by pollution.
3. Man constantly seeks ways to control and improve his water supply.
4. Man uses water for many purposes.

Ask for volunteers to tell about how water has been helpful or harmful to them. Questions such as the following may help children contribute to the discussion:

1. What are some of the ways in which you use water?
2. Who are some workers who are dependant upon water for their jobs?
3. How do farmers use water?
4. How do factory workers use water?
5. Are there people who never use water?
6. Can there ever be too much water?
7. What would happen if man had no way to control water?
8. Why does man need to control water?
9. How can water be harmful to man?
10. What causes a flood?
11. How can floods be stopped?
12. Why do people in some places have to be very careful of the amount of water they use?
13. Where does the water we use come from?
14. How did people of long ago get the water they needed?

The discussion may be culminated with an activity such as one of the following:

1. Help the children summarise the discussion by asking them to review the ways in which water can be helpful and harmful to man. List their suggestions on the chalkboard. Help the children make a generalization, based on the list, about how man can control water to assure that it is helpful rather than harmful to him.

2. Help the children summarize their discussions in a group experience story about water. Encourage them to include their ideas about how man can use his knowledge and ingenuity to keep water from being harmful and to increase its usability.

3. Have the children draw pictures showing ways that water is helpful and harmful to a man. Display the pictures on a class bulletin board and help the children decide upon a title for the board.

WHAT IS WATERPOWER?

Help the children to understand this question and find the answers by developing one or more of the following activities:

CLASSROOM REFERENCE BOOKS:

Point out the children that there are often books in the classroom that can be used to look up answers to specific questions. Demonstrate the use of the dictionary definition to the children, and then explain to them in easy-to-understand terms what the definition means.

CLASSROOM VISITORS:

Point out to the children that often older boys and girls work on projects that demonstrate information useful to younger students. Help the children write a letter inviting some upper-grade students to the class to demonstrate how waterpower is used by man. (The teacher may want to make advance preparations for a joint project with an upper-grade teacher). Have the children prepare for the visitors by listing "Some of the Things WE WANT to FIND OUT ABOUT WATERPOWER". Use the chalkboard.

HOME INTERVIEW:

Point out to the children that often adults in their homes can help them in finding information about subjects being studied at school. Help them prepare a list of questions about waterpower to take home for "homework". Give the children several days to gather their information. Then let those who have found some answers to the questions share their information with the rest of the class. Encourage the children to explain how the information was located. ("Daddy drew me some pictures and showed me how the water from a dam makes a generator go".) (Mother helped me find some pictures in an old magazine that show how a waterwheel works).

When the children have completed their research about waterpower, use some questions such as the following to help them summarize their understandings from this lesson:

How can water be made to work for man?
What other kind of power can waterpower produce?
How is water power important to you?

WHAT IS POLLUTED WATER?

Suggest that the children close their books and sit in a large circle so that they can discuss their ideas about polluted water. Ask for volunteers to tell about experiences they have had with water that is not clean. Questions such as the following may help children contribute to the discussion:

Have you ever seen a stream, lake, or other water that was not clean?
How does water get dirty??
Why do people throw waste products into water?
Would you like to drink water from a stream that has old cans and bottles in it?
If water looks, clean, does that mean it is clean?
How can we be sure that the water we use is clean?
What happens to water before it comes out of our water pipes?
Why is clean water important to man and other living things?

The discussion may be culminated with an activity such as one of the following:

1. Help the children summarize the discussions by asking them to review the ways in which water can become polluted. List their suggestions on the chalkboard. Then have class think of a solution to each of the problems listed. Have children work in small groups of two or three, drawing pictures of one of the problems and the possible solutions to it.

2. Help the children write a group experience story comparing the problem of polluted water to the problems of polluted air that they studied in the previous learning unit. Help them make some generalization about the causes and possible solutions to both problems.

3. Have each child draw a picture showing a "do and a don't" that he can practice to help keep our water supply clean. Encourage children to share their work with other members of the class.

ART:

Have each child add a page to his "WORKERS I KNOW ABOUT" booklet, showing three workers who help in the control of water. Encourage them to title their page and to give each part of their drawing a label.

CURRENT EVENTS:

Have the children add news about development of water supply systems in their area to the class current events bulletin board.

STUDY TRIP:

Arrange to take the class to a nearby water-filtration plant. Encourage the children to prepare a list of things "WE WANT TO FIND OUT" before their trip.

MUSIC:

Have the children think of a number of words that remind them of water, such as, "drip", "splash", "falling", "running". Help them write a song, setting the words to a simple tune.

Plumber

Begin a discussion about plumbers and the work they do. Have you ever seen a plumber at work? What does the plumber do? What tools does he use?

What does a person have to know if he wants to be a plumber? When would you call a plumber to your house?

Aside from repairing, plumbers have important jobs in the building of houses. You might talk about a plumber's job in new construction. The children could begin with the digging of ditches for the pipes which will connect the house to the water main and waste lines. They could go on to the installation of pipes, boiler and furnace, and end with the placing of fixtures, sink, showers, stoves and radiators.

Related Activities

1. Building on the plumber and his work, you might want to go into the area of house-hold repairs and the men who do them.

   A discussion about repairmen and their work can center around such questions as:

   What do the different repairmen do?

   What does each have to know?

   What kind of tools does each use?

A display of pictures showing repairmen at work could be set up in the class.

If repairmen come to your school, perhaps the children would be able to meet them. They could talk to the repairmen about their work. Perhaps they could watch them as they work. If one of the fathers of your children is a repairman he could be invited to the class to show his tools, explain his job, and show how it is done.

These activities could be followed up by dramatic play experiences where the children are given the opportunity to act out these roles. Appropriate properties should be provided for dramatic play.

Learning Unit ---HELPING PEOPLE

Theme

Man works so that he can have what he needs and what he wants. Man also works to satisfy his desire for activity and achievement. Without co-operative effort, man could not attain these objectives.

Concepts

1. People sometimes need help in meeting their basic needs.
2. Some people work to help others.
3. Children live in many kinds of families.

BACKGROUND INFORMATION

Social Service

The idea of social service is ancient, but it was not until the industrial revolution that our present concept of social service developed. Industrialization created a new type of family and community life--an urban economy with a greatly increased number of families dependent upon the wage system--a marked contrast with agrarian economy.

The term "social service" embraces efforts made by government and private agencies to help meet income needs and to help provide medical care, housing, and recreational needs of people who, for various reasons, have not met these needs unaided.

The methods of social service include (1) social casework, in which the social worker attempts to help the family, (2) social group work, in which attempts are made to improve the life of a particular segment of society, and (3) community organization, in which the needs of all segments of a community are considered collectively.

Social service includes many different kinds of help for deprived people, such as a day camp for boys. Such camps usually have a counselor, who helps the boys to make their own adjustments to the realities with which they are faced. This process is inductive and time-consuming, but the effort and the time spent may start the boy on the road toward becoming a useful citizen--a goal that is both socially and economically sound.

Use a picture such as a counselor with boys at a day camp

Encourage the children to look at the picture and discuss it before studying anything on the opposite page. To stimulate the discussion, the teacher may ask questions such as the following:

What is happening in this picture?
Who is the man?
Why is he playing with so many children?
How do you think they feel?
What other adults sometimes make children feel happy?
Are there people who earn their living by trying to make other people happy?
Why do you think some people would like to have a job helping others?
Would you like that kind of a job?

Use a picture for example a case worker with boy and mother

The picture of the case worker with boy and mother is included to extend children's thinking about the many ways in which people might need help in meeting their basic needs. The following questions may be helpful in discussing the picture:

Who are the people in this drawing?
Which person might be a social worker?
Why do you think she has come to see the family?
What kinds of help might a family need?
Why do people sometimes need food, a house, or clothes?
What are some of the reasons that people sometimes don't have enough money for the things they need?
Where can someone go for help if his family needs it?

Home Interview

Point out to the children that often adults in their homes can help them in finding information about subjects being studied at school. Help the children prepare a list of questions about foster homes and the meaning of adoption to take home for "homework." Give the children several days to gather their information. Then let those who have found some answers to the questions share their information with the rest of the class. Encourage the children to explain how the information was located. ("My mother knew all about it so she explained it to me." "My sister and I are adopted so I know about what it is.")

Classroom Speaker

Point out to the children that often there are people in the community who know a great deal about a specific subject. Arrange for a foster parent or a social worker in the community to come and answer the children's questions about foster homes and adoption.

When the children have completed their research about foster homes and adoption, use some questions such as the following to help them summarize their understandings from this lesson?

Why might a child need to be adopted?
Why might a child need a foster home?
What workers help find homes for children who need them?

Thought Questions

Why might some people need aid from a social worker? Suggest that the children sit in a large circle so that they can discuss the reasons people would need help from a social worker.

Ask for volunteers to tell about some of the people they feel might need from a social worker. (If children wish to tell about some of their own experiences, guide the discussion carefully so that family confidences are not inadvertently revealed.) Questions such as the following may help children contribute to the discussion?

Are there people who are ill who might need help from a social worker?
What kind of help might a blind or crippled person need?
Do older people sometimes need the help of a social worker?
Do social Workers ever help in hospitals? in schools?
How might social workers help a family?

The discussion may be culminated with an activity such as one of the following:

1. Help the children write a group experience story about the work of a social worker.
   Encourage them to conclude their story with a generalization about why people sometimes need the help of others.

2. Have the children make a "television program" showing the different kinds of work that social workers do. Have children work in small groups of two or three. Each group can make one "frame" or scene of the television show. When the production is completed, encourage the children to present it to another class.

3. Have the children work as partners making diorams which show one aspect of a social worker's job. Figures may be made with pipe cleaners and construction paper. A shoe-box makes a good container for the diorama.

Concomitant Learnings

The Vocabulary Chart--(Suggestions in parentheses are for optional use.)
Discuss the following words and add them to the Social Sciences Vocabulary Chart:
social work--(Professional assistance for people in the community who need financial help or social adjustmanet.)
foster home--(A home in which a child is placed for care, but not adopted.)
adoption--(The process by which a child legally acquires new parents).

Art

Appendix B

WORK SHEET FOR TEACHERS

DATE: _____

NAME: _____ SCHOOL _____ GRADE LEVEL _____

UNIT: _____

PLEASE LIST ANY MAJOR POINTS TO BE STRESSED.

Appendix C

Elementary School Component Questionnaire

Intermediate (1971-72)

1. Name the title of your father's or mother's job and describe the kind of work he/she does. (You may do either or both).

Father_____ _____
Title of job Description of job

_____

_____

Mother_____ _____
Title of job Description of job

_____

_____

2. Would you like to do the kind of work your father or mother does? _____ _____ Indicate whose job you are referring to
yes no
(your father ____ or mother ____). If your answer to number 2 (above) was "yes", why would you like to do this kind of work?

_____

_____

3. Name 5 jobs where people work inside only.

A._____

B._____

C._____

D._____

E._____

4. Name 5 jobs where people work out of doors (or outside) only.

A. _____

B. _____

C. _____

D. _____

E. _____

5. Name 5 "service occupations". Try not to list the ones already listed above. Service jobs are jobs where people provide a service to others rather than a product. For example, a bricklayer provides a service while a production worker in a plant might produce a product like a transistor or a test tube.)

A. _____

B. _____

C. _____

D. _____

E. _____

6. Name an interest you have and name a job or job area related to this interest. (Example, an interest in animals is related to the job of veterinarian).

_____ _____

interest job or job area

7. Name an ability or aptitude you have and relate it to a job or job area. (Example, an ability to run very fast is related to athletics.)

_____ _____

ability or aptitude job or job area

8. Name at least one job that has changed because of scientific or technical changes and tell briefly how it has changed.

_____

_____

9. Can you list some types of jobs in the job areas below? (List as many as you can think of for each).

Job area	Type of job
A. Construction	a. (example) bricklayer
	b. _____
	c. _____
	d. _____
	e. _____
B. Communications	a. _____
	b. _____
	c. _____
	d. _____
	e. _____
C. Transportation	a. _____
	b. _____
	c. _____
	d. _____
	e. _____
D. Banking-Finance-Real Estate.	a. _____
	b. _____
	c. _____
	d. _____
	e. _____

Appendix D

(PRIMARY) CAREER EXPLORATION PROJECT
INTERVIEW GUIDE

(To the teacher)

Please select five children from your class and interview each one separately. In ordrr to select them randomly, use the following procedure. Assign each child a number starting with 1, 2, 3, etc., until each child has been assigned a number. (you may use your roll book or simply number the desks.) Then select the following children for interviews: Numbers--6, 30, 32,(if no child has number 30 or 32, just disregard these numbers and proceed to the next number, which is #3), 3, 23, 7, 20, 16, 11, 31,(if any) 4, 17, 9. You need interview only five children. The additional numbers are available in the event any of the first five children are absent or unable to respond at all to your questions. It is important they be selected in the order assigned to assure randomness.

Interview technique

The child interviewed should be given sufficient time to respond to each question. Your own judgment is the best guide. You should conduct the interview casually (not rigidly) and assist the child in responding to questions with mild coaching or by nodding or replying, "good," "that's fine," etc.

The interview form calls for minimum writing on your part. Experience indicates it is best not to spend too much time on any item of the survey as it does not seem to increase the probability of a correct response and takes up more of your time.

Please return only the completed interview forms (five). Unsuccessful interviews (for instance where the child simply won't respond) should not be returned.

I hope the interview will yield useful information for you. I appreciate your assistance in gathering this information.

(PRIMARY) CAREER EXPLORATION PROJECT

Phrase the following questions so they are understandable to the child. In some cases it may be useful to ask the child if he understands the question.

1. What kind of work does your father (or mother or breadwinner) do?

2. Can the child tell something about this kind of work?
   ___Yes ___No

3. Would you like to do that kind of work too, some day?
   ___Yes ___No

4. Why? or Why not? ___give the number of different responses the child makes.
   Give an example of the child's response:_____
   _____

5. Can you name (or tell about) some:
   Outside jobs: ____ (number named or described correctly)
   Inside jobs: ____ (number named or described correctly)
   Give an example of the child's response: _____

6. Picture Survey: (Show the cards one at a time. Ask the child to name the worker and tell what kind of work he/she does. Place a check in the appropriate column. Some cards may be ambiguous to the child, any correct response (in your judgment) is acceptable.

card #	worker	title	description	card #	worker	title	desc.
1	farmer			10	baker		
©2	mail man			11	scientist		
3	teacher			12	entertainer		
4	dentist			13	minister		
5	cook			14	cameraman		
6	carpenter			15	plumber		
7	athlete			16	clerk		
8	pilot			17	painter		
9	secretary			18	businessman		
				19	doctor		

PART II
Teacher's Estimate of the Child

Your subjective impressions of the child interviewed will be very useful in this survey. The items below call for such estimates. You may use questions, prompts, pictures, etc., in addition to your current estimate based on your observations of the child, to secure the requested information. This part of the survey may be completed at any time, but it is suggested that you wait until the child has completed the preceeding survey.

In your opinion, how well does the child understand the concept of the interdependence of workers?

not at all | slightly | reasonably well | very well

What is your estimate of the child's prevailing (most of the time) self concept.

poor | good . I can't decide ___

In your opinion, does the child understand and believe in the concept of the "dignity of all work"?

child understands the concept ___
child believes in the concept ___ I can't decide ___

What techniques were most successful in teaching the child about the "world of work"? Name several and list in the order of significance, that is, most successful first, then next most successful, down to and including least successful. You may make any comments you wish for each.

_____

_____

_____

_____

_____

_____

You have completed this survey. The time and trouble you took and the professional competencies you dedicated are appreciated. This information will contribute to the development of worthwhile programs for children.

APPENDIX A

Baltimore City Public Schools
DIVISION OF GUIDANCE AND PLACEMENT
2418 Saint Paul Street
Baltimore, Maryland 21218

September 1, 1971

To: PRINCIPALS, COUNSELORS, COORDINATORS - JUNIOR-SENIOR HIGH SCHOOLS

From: A. Barrett Davidson-Dr. Wilmer Bell-Dr. Robert C. Lloyd

Subject: PROJECT VIEW

The Division of Guidance and Placement will have available for use during the coming school year a unique system for the dissemination of pertinent, up-to-date occupational information for junior and senior high students. This program, called "VIEW" (Vital Information for Education and Work), will enable your counselors to have at their fingertips a quick, meaningful method of job counseling with the use of an in-depth system not previously available to them. In addition, "VIEW" will save much time and space.

Here is how "VIEW" works. A central office coordinator, through research and conferences with business and industry personnel in the area, compiles a library of information about jobs in the Baltimore area. This material is then written in a concise, easy-to-read manner which will encourage student initiative in investigating the job market. Care is taken to tailor the material to the needs and interests of Baltimore students. The finalized "Viewscript" for each occupation is microfilmed on film set in a data processing card. A "deck" of such cards will be provided for each participating school. Updated information on colleges and scholarship aid will also be provided in the same format.

In addition, each school guidance office will be equipped with a "reader-printer," an operative into which the microfilm is placed, producing the "Viewscript" on a viewing screen. In this manner the counselor and student may very quickly examine a number of jobs. When the student discovers a job of particular interest to him, he may, by a simple operation, obtain a print-out of the Viewscript which is his to take home. Where the location of the guidance office makes the use of the system feasible for the coordinator's use, it should be available to him.

"View" has received enthusiastic support from counselors and students in many school systems, including the states of California, Wisconsin, and Indiana which operate state wide "View Centers." We feel that "VIEW" will work equally for you.

Early in the semester the counselors and coordinators will have an orientation session on the use of the equipment and system available to them.

/atl

Appendix B

Locations of VIEW Reader-Printers
As of May 5, 1972

School	Equipment Received	Cards Received	Name	Reader-Printer Location
# 1A	2-18	4-20	Edgar Allen Poe Annex	Library
# 17	2-18	4-11	Alicia Crossland	Counseling Office
# 40	2-18	4-13	Lake Clifton	Guidance Office
# 41	2-18	3-30	Hamilton Jr. High	Counseling Suite
# 42	2-18	4-25	Garrison Jr. High	Counseling Office
# 43	2-18	5-11	Hampstead Hill	Counselor's Office
# 46	2-18	4-18	Woodbourne Jr. High	Counselor's Office
# 56	2-18	3-30	Robert Poole Jr. High	Guidance Office
# 57	2-18	4-8	Lombard Jr. High	Dept. Head's Office
# 70	2-18	4-10	Southern Sr. High	Library
# 72	2-18	5-18	General Henry Lee	Counselor's Office
# 75	2-18	5-10	Calverton Jr. High	Safe
# 76	2-18	4-18	Francis Scott Key	R. O. Office
# 77	2-18	4-11	Herring Run Jr. High	Library
# 78	2-18	5-17	Harlem Park Jr. High	Library
# 79	2-18	5-1	William H. Lemmel	Library
# 80	2-18	5-2	Rock Glen Jr. High	Counselor's Office
# 90	2-18	4-24	Clifton Park Jr. High	Mimeo. Room
# 91	2-18	5-2	Gwyns Falls Park	Guidance Office
# 93	2-18	5-1	Northern Pk. Jr. High	Guidance Office
#130	2-18	4-3	Booker T. Washington	Office Safe
#133	2-18	5-31(?)	Paul Lawrence Dunbar	Guidance Office
#180	2-18	5-10	Cherry Hill Jr. High	Guidance Reception Room
#181	2-18	5-31	Houston-Woods Jr. High	Counselor's Office
#222	2-18	5-26	Pimlico Jr. High	Counselor's Office
#230	2-18	5-2	Canton Jr. High	Guidance Office
#233	2-18	3-30	Roland Park Jr. High	Counselor's Office
#239	2-18	4-4	Benjamin Franklin	Guidance Office

3161

Locations of VIEW Reader-Printers
As of May 5, 1972
(con't)

School	Equipment Received	Cards Received	Name	Reader-Printer Location
#294	2-18	4-9	Woodrow Wilson Voc.	Counselor's Office
#296	2-18	4-18	Jane Addams Voc.	Counselor's Office
#298	2-18	4-11	Samuel Gompers	Print Shop
#400	2-18	4-12	Edmondson Sr. High	Guidance Office
#401	2-18	4-11	Northwestern Sr. High	Guidance Office
#402	2-18	4-3	Northern Sr. High	Guidance Office Classroom
#403	2-18	4-12	Baltimore Polytechnic	Guidance Office
#404	2-18	4-13	Eastern Sr. High	Guidance Office
#405	2-18	5-2	Patterson Sr. High	Library
#406	2-18	4-3	Forest Park	Guidance Office
#407	2-18	4-20	Western Sr. High	Guidance Office
#408	2-18	4-10	Baltimore City College	Counseling Office
#410	2-18	4-19	Mergenthaler Voc.	Guidance Office
#411	2-18	4-2	Walbrook Sr. High	Library
#412	2-18	4-25	Southwestern Sr. High	Guidance Office
#450	2-18	4-28	Frederick Douglass	Store Room
#453	2-18	4-10	Fairmount Hill Jr. High	Guidance Suite
#454	2-18	4-21	Carver Vocational Tech.	Guidance Office

APPENDIX C

BALTIMORE CITY PUBLIC SCHOOLS
DEPARTMENT OF GUIDANCE AND PLACEMENT
2418 ST. PAUL STREET
BALTIMORE, MARYLAND 21218
TELEPHONE: 467-4000, EXT. 744 or 307

W. RANDALL HALL
COORDINATOR, VIEW

Project VIEW Job Survey

Type of Industry_____

Job Title_____

Job Description_____

_____

_____

_____

_____

Machines and Equipment Worked With_____

_____

General Education Required: (Check one)

Less than High School_____	High School Required_____
High School Preferred_____	High School, Jr. College Preferred_____
Community College Required_____	4-Yrs. College_____

License or Certificate Required:_____

Length of Apprenticeship Training:_____

In-Service Training Provided: Yes_____ No_____

Salary at Entry Level: Hour_____ Week_____ Month_____

Salary Progression in same job, if any: Minimum_____ Maximum_____

Opportunity for Advancement:

To What Jobs:_____
At What Salary Level:_____
By Seniority, By Merit, Both_____

Working Conditions:

40 Hour Week	Yes_____	No_____	Permanent_____	Seasonal_____	
Overtime Paid	Yes_____	No_____	Retirement Program	Yes___	No_____
Paid Vacation	Yes_____	No_____	Health Insurance	Yes___	No_____
Retirement Plan	Yes_____	No_____	Union Required	Yes___	No_____

Project VIEW Job Survey (continued)

Physical Abilities Required:_____

_____

Any Training Institutions which Provide Candidate with Needed Skills:_____

_____

Books, Pamphlets or Publications with more information about the Job_____

_____

Are the Number of Jobs in Field:

Increasing_____ Declining_____ Holding Stable_____

Your Estimate of Number of Persons Employed in this Type Job in Baltimore Area:

_____

APPENDIX D

BALTIMORE CITY PUBLIC SCHOOLS
2418 ST. PAUL STREET
BALTIMORE, MARYLAND 21218
TELEPHONE HOPKINS 7-4000

DIVISION OF
GUIDANCE AND PLACEMENT

Dear Sir: . .

In reference to the survey form which was sent to you for job infrrmation concerning the _____. We are in dire need of this information in order to compile sufficient data to continue our VIEW Program, Baltimore City Public Schools.

We would appreciate your quick response to this matter.

Yours truly,

W. Randall Hall
Coordinator, Project VIEW

WRH:mlc

APPENDIX E

VIEW Cards in the Schools
As of May, 1972

	Job Title	Abbreviation	D.O.T. #
1.	Airline Stewardess	Arln. Steward.	219.488
2.	Aircraft Mechanic	Aircraft Mech.	621.281
3.	Air Conditioning Mechanic	Air Cond. Mech.	237.368
4.	Accounting Clerk	Account. Clk.	219.488
5.	Airline Ticket Agent	Airln. Tkt. Agt.	912.368
6.	Ambulance Driver	Ambul. Driv.	913.883
7.	Auto Body Repairman	Auto Body Rpr.	807.381
8.	Auto Mechanic	Auto Mechanic	620.281
9.	Auto Parts Salesman	Auto Pts. Sales.	223.387
10.	Auto Sales Person	Auto Sales Per.	280.358
11.	Baker	Baker	526.781
12.	Bricklayer	Bricklayer	861.381
13.	Bus Driver	Bus Driver	913.463
14.	Bulldozer Operator	Bulldozer Oper.	850.883
15.	Bus Boy, Girl	Bus Boy, Girl	311.878
16.	Book Binder	Book Binder	977.884
17.	Barber	Barber	330.371
18.	Bank Clerk	Bank Clerk	216.388
19.	Bank Teller	Bank Teller	212.368
20.	Cabinet Maker	Cabinet Maker	620.280
21.	Carpenter	Carpenter	860.381
22.	Cashier	Cashier	211.468
23.	Cement Mason	Cement Mason	844.852
24.	Child Care Worker	Child Care Wk.	359.878
25.	Clerk-Typist	Clerk Typist	209.388
26.	Commercial Artist	Comm. Artist	141.081
27.	Construction Worker	Const. Worker	869.884
28.	Court Reporter	Court Reporter	202.388
29.	Custodian	Custodian	382.884
30.	Dairy Routeman	Dairy Routeman	292.358
31.	Diesel Mechanic	Diesel Mech.	625.281
32.	Dishwasher	Dishwasher	318.887
33.	Draftsman	Draftsman	017.281
34.	Duplicating Machine Operator	Dup. Mach. Op.	207.782
35.	Electric Appliance Repairman	Elec. Appl. Rep.	723.381
36.	Electric Repairman	Ele. Repair.	829.281
37.	Fireman	Fireman	373.884
38.	Floral Designer	Floral Designer	142.081
39.	Food Service Worker	Food Serv. Work.	315.381
40.	Forester Aid	Forester Aid	441.384

VIEW Cards in the Schools
As of May, 1972
(con't)

Job Title	Abbreviation	D.O.T. #
41. Garbage Collector	Garbage Coll.	909.883
42. Gas Appliance Serviceman	Gas App. Serv.	637.281
43. Get Ready Man (new car)	Get Ready Man	806.381
44. Grocery Clerk	Grocery Clerk	290.877
45. Guard	Guard	372.868
46. Hotel Manager	Hotel Manager	187.118
47. Hotel-Motel Clerk	Hotel-Motel Clk.	242.368
48. Keypunch Operator	Keypunch Oper.	213.582
49. Landscape Gardener	Landscape Gard.	407.181
50. Laundry Work	Laundry Work	361.884
51. Machinist	Machinist	600.280
52. Mail Carrier	Mail Carrier	233.388
53. Meat Cutter	Meat Cutter	316.884
54. Model	Model	961.868
55. Navy	Navy	368.999
56. News Reporter	News Reporter	138.268
57. Office Clerk	Office Clerk	209.388
58. Painter	Painter	740.887
59. Parking Lot Attendant	Park. Lot Attnd.	915.878
60. Pest Control Worker	Pest Cont. Work.	389.884
61. Plasterer	Plasterer	842.781
62. Police, State	Police, State	375.268
63. Police Woman	Police Woman	375.268
64. Policeman	Policeman	375.268
65. Recreation Assistant	Recreation Asst.	195.228
66. Seamstress	Seamstress	785.381
67. Sewing Machine Operator	Sew. Mach. Oper.	787.885
68. Steam Fitter	Steam Fitter	826.381
69. Stock Clerk	Stock Clerk	223.387
70. Telephone Operator	Telephone Oper.	235.862
71. Tool Grinder	Tool Grinder	603.280
72. Truck Driver	Truck Driver	905.883

Appendix F

FILMED FROM BEST AVAILABLE COPY

D.O.T.: 352.878
Revision date: August, 1971
Available in Baltimore: Yes X No

BALTIMORE CITY PUBLIC SCHOOLS
Division of Guidance and Placement
In Cooperation with the
Vocational Division and the
Maryland State Career Development Project

VIVIW

Vital Information for Education and Work

OCCUPATION TITLE: THE AIRLINE STEWARDESS

DESCRIPTION: The Airline Stewardess makes the passenger's flight safe, comfortable, and enjoyable. Among her duties are: taking tickets, checking seat belts, preparing and serving meals, and serving the needs of passengers.

REQUIREMENTS AND QUALIFICATIONS:

You Should Have These:

Personal Traits	Abilities	Physical Traits
* Attractive and neat	* Meet people well	* Excellent health
* Even temper	* Learn foreign language	* Between 5' 2" and 5' 9" tall
* Cheerful manner	* Stand for long periods	* Less than 140 lbs.
* Like to serve others	* Make strangers feel at ease	* Pleasant speaking voice
* Poise	* Good talker	* 20/30 vision in each eye
* Unmarried to begin		* Straight, white teeth

You Must Be Able To:

* Work under pressure at times
* Do unpleasant tasks such as cleaning up after ill passengers
* Remain calm when male passengers become offensive
* Stand for long periods of time, also stoop and climb
* Keep your figure trim and your appearance excellent
* Adjust to new situations well
* Willing to move to another city to live

You Should Know That:

* Only single girls are hired; most companies allow you to marry after you begin work
* You will be required to relocate (move to) another city to begin work
* You will be paid only a minimum supplement while you are training
* You must have at least one year of business experience in dealing with the public
* You will usually be required to purchase you first set of uniforms (the company will replace them when they become worn)

PREPARATION AND TRAINING NEEDED

*The Airline Stewardess:

* Must be a high school graduate
* College is not required, but two years of college or nurse's training is desireable
  - Public speaking and a language are helpful
* At least one year of working with the public in a business is usually required
* Most large airline companies offer training of their own programs
* There are certain private stewardess training schools; check with the airline of your choice to see which one is acceptable
* Training period is from 5 to 5½ weeks
* Serve on probation for 6 months

Special Entry Requirements:

* You must be at least 19 years old
* You must be attractive
* You cannot weigh over 140 pounds
* You must be single
* You must be between 5' 2" and 5' 9" tall

EMPLOYMENT OUTLOOK AND OPPORTUNITIES

*Job Opportunities and Distribution:

* All major airlines expect rapid growth over the next ten years, however, there has recently been a lay-off of stewardesses by most large companies
* There is a very fast rate of "drop-out" among stewardesses because so many of them resign and get married
  - most work only 2-3 years

Opportunity For Advancement:

* Fair, due to the drop out rate
* You may advance to:
  - first stewardess
  - supervising stewardess
  - stewardess instructor
  - recruiting representative (finding girls to become stewardesses)

Salary Information:

* Some large companies pay a starting salary up to $505 per month
  - average starting salary is about $450 per month
  - raises come on regular basis

Hours of Work:

* You will average about 80 hours of actual flight time per month
* You may expect to work some hours on the ground

Fringe Benefits:

* Free and reduced rates for air travel for you and your parents
* Stock purchase plan after one year of service
* Paid life insurance
* Vacation with pay (two weeks per year)
* Paid sick leave
* Employee credit union
* Meal allowances while you are away from home base
* The fun and excitement of meeting new people (sometimes celebrities), visiting foreign cities

MORE ABOUT THE JOB

* Stewardesses perform a wide array of duties:
  - . greet passengers
  - . assist them with their luggage
  - . chat with passengers and make them feel comfortable and at ease
  - . heat food and serve it
  - . mix cocktails and serve them
  - . make special announcements
  - . assist passengers in departing plane
* You should keep in mind that there are certain unpleasant aspects of being a Stewardess:
  - . people sometimes get sick and you must clean up
  - . some passengers are grouchy and make complaints
  - . male passengers can sometimes give you trouble
  - . you must be on your feet for long periods
* On international airlines you must speak appropriate foreign language (French and Spanish are two of the more commonly required ones)
* Most Stewardesses are stationed in large cities; many Stewardesses working international airlines are stationed in foreign countries

Interested In Becoming An Airline Stewardess?

* Then here's what you might do:
  - . talk with your counselor and coordinator
  - . call, write, or visit at any one of several of the addresses listed below
  - . visit a commercial airlines office: for the addresses, look in the telephone yellow pages under "Airline Companies"

Be Sure To Check The Related Jobs Listed Below:

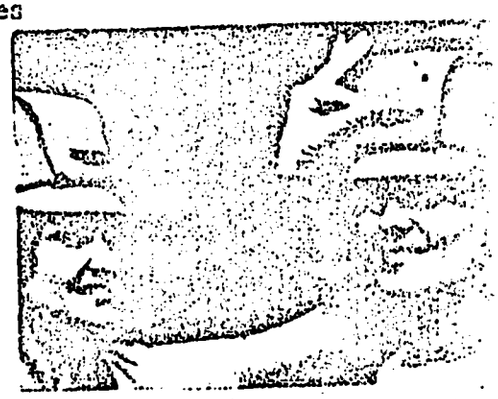
* Stewardess (ships) (D.O.T. #350.878)
* Hostess (train) (D.O.T. #352.878)
* Wardrobe Mistress (amusement and entertainment) (D.O.T. #969.261)

SOURCES OF ADDITIONAL INFORMATION

* State of Maryland
  Department of Employment and Social Services
  Security Administration
  1100 North Eutaw Street
  Baltimore, Maryland 21201

* Air Transport Association of America
  100 Connecticut Avenue N.W.
  Washington, D.C. 20036

* Call or write any airline office
* Ask your school counselor



Appendix G

Vital Information for Education and Work System

Reaction Form

Note: Complete this form after you use the VIEW System.

Name: _____ Age: _____ Sex: _____
Name of School: _____ Date: _____
Race: Black _____ White _____ Other _____

Directions: This is a response form designed to obtain feedback from users of the VIEW System. Your responses to the questions asked will provide the school system with valuable information, useful in evaluating and improving VIEW.

Please respond to all items that apply to you. Most questions require that you place a check mark (✓) to indicate your answers. Others require you to write a short statement.

Remember that there are no right or wrong answers. Consequently, you cannot pass or fail. You will be allowed as much time as necessary to complete the form.

General Questions: Have you used the VIEW System before? Yes ___ ,

No ___ , Number of times used _____.

Have you filled out a copy of this form before? Yes ___ , No ___.

Number of forms filled out _____.

How many Viewscripts (VIEW Cards) have you used to date? (Estimate the number) _____.

VIEW Questions

1. Were you given verbal or written instructions on how to use and operate the VIEW System? Yes ____ , No ____.

2. Do you feel that the equipment was easy to use and operate? Yes ____ , No ____.

   (If your anser to question 2 is NO) Why? _____

   _____

   _____

3. How long were you allowed to use the VIEW System? Number of hours _____ , Number of minutes _____ .

4. Do you feel that more, less, or an unlimited amount of time should be allowed to use the system? More ____ , Less ____ , Unlimited ____ , Why? _____

5. Was the information you reviewed on the VIEW Cards interesting?
   Not at all _____
   Slightly _____
   Moderately _____
   Very Much _____
   Extremely _____

6. Was any of the information you reviewed on the VIEW Cards valuable to you?
   Not at all _____
   Slightly _____
   Moderately _____
   Very Much _____
   Extremely _____

7. Do you feel that enough information was provided in the following sections on the VIEW Cards?

a. Requirements and qualifications:
   Never _____
   Infrequently _____
   Sometimes _____
   Most of the time _____
   Always _____

b. Preparation and training:
   Never _____
   Infrequently _____
   Sometimes _____
   Most of the time _____
   Always _____

c. Employment outlook and opportunities:
   Never _____
   Infrequently _____
   Sometimes _____
   Most of the time _____
   Always _____

d. Related occupations:
   Never _____
   Infrequently _____
   Sometimes _____
   Most of the time _____
   Always _____

e. Sources of additional information:
   Never _____
   Infrequently _____
   Sometimes _____
   Most of the time _____
   Always _____

8. Were the VIEW Cards written on a reading level that is easy for you to understand?

Never _____
Infrequently _____
Sometimes _____
Most of the time _____
Always _____

9. Did the pictures on the Viewscripts (VIEW Cards) help you to better understand what the occupations you reviewed were all about?

Never _____
Infrequently _____
Sometimes _____
Most of the time _____
Always _____

10. Did you obtain a printed copy of any of the Viewscripts you reviewed? Yes ____ , No ____ .

Why? _____

11. Had you been exposed to other types of occupational information before using this system? Yes ____ , No ____ .

12. How many of the following sources of occupational information have you used?

Occupational Information Kits _____
Class work on careers _____
U.S. Occupational Outlook Pamphlets _____
Information from employment agencies _____
Career Days _____
Teachers _____
Counselors _____
School Friends _____
Other Sources (explain) _____

13. How does the VIEW System compare with the sources you checked in Question 12?

Poor _____
Fair _____
Good _____
Excellent _____
Outstanding _____

14. Do you feel that the VIEW information was more correct than other types of occupational information you have used?

Not at all _____
Slightly _____
Moderately _____
Very Much _____
Extremely _____

15. Do you plan to supplement the knowledge you gained from using the VIEW System by seeking and using the other sources of information suggested? Yes ____ , No ____ .

16. Do you plan to use the VIEW System again? Yes ____ , No ____

Why? _____

17. Is there anything you would improve about the system? Yes ____ , No ____, What?_____

Why? _____

18. Use this section for comments.

APPENDIX IV
JUNIOR HIGH WORK ORIENTED COMPONENT

APPENDIX A

Training Station: Food Market*

Address: Baltimore, Maryland 21201

Position: Stock Boy

DUTIES

1. After merchandise is delivered to store it is placed in the proper storage place.
2. As items are needed, prices are marked and put in appropriate shelves, bins and containers.
3. General line of merchandise includes canned goods, dairy products, meat products, bottled goods, sundries, etc.
4. Students help in bagging groceries.
5. Students help customers in locating various merchandise.
6. Students help to keep the store clean by sweeping the floors, washing windows, etc.
7. Miscellaneous duties of running errands.

* Actual names and addresses of employers have been deleted.

Training Station: Furniture Store

Address: Baltimore, Maryland 21230

Position: Store Helper

DUTIES

1. After merchandise is received in store, student helps to put furniture in proper storage area.
2. Student helps to put furniture samples on floor.
3. Student helps to make out orders for delivery.
4. Student helps to consolidate merchandise in warehouse.
5. Student helps to clean warehouse floors.
6. Student helps to assemble bedroom and kitchen furniture.
7. Student helps to polish furniture.
8. Student runs miscellaneous errands.

Training Station: Shoe Store

Address: Baltimore, Maryland 21230

Position: Store Helper

DUTIES

1. After merchandise is delivered to store, students help sort out the shoes in the various sizes.
2. Shoes are then placed on the shelves as to size, style and type.
3. General line of merchandise consists of dress shoes, work shoes, boots, tennis shoes etc.
4. Students help in moving merchandise from one area to another.
5. Miscellaneous duties of running errands.

Training Station: Beauty Shop

Address: Baltimore, Maryland 21230

Position: Beauty Shop Helper

DUTIES

1. Student helps in shampooing of hair.
2. Student helps in taking out pin curls.
3. Student helps in taking cold wave rods out of hair.
4. Student helps in sterilizing of combs and brushes.
5. Student cleans up shop.
6. Student answers phone, takes message.
7. Miscellaneous duties of running errands.

Training Station: Dry Goods Store

Address: Baltimore, Maryland 21230

Position: Stock Boy

DUTIES

1. After merchandise is delivered to store, it is checked and verified against Bill of Lading.
2. Merchandise is then placed in the proper storage place.
3. General line of merchandise includes plastic, paper and glass products used by restaurants, hotels and institutions.
4. Prices are marked and shelves are stocked.
5. Orders are filled as to size and quantity.
6. Students help to keep the store clean by sweeping the floors, washing windows, etc.
7. Miscellaneous duties of running errands.

Training Station: Beauty Academy

Address: Baltimore, Maryland 21230

Position: Beauty Shop Helper

DUTIES

1. Student helps in maintaining the various stations of beauty care as to keeping utensils in place, filling shampoo bottles, replenishing items as they are used, etc.
2. Student cleans up the various stations and beauty shop in general.
3. Student runs miscellaneous errands.

Training Station: Men's Shop

Address: Baltimore, Maryland 21230

Position: Store Helper

DUTIES

1. Student folds shirts in uniform department.
2. Student helps in the packaging of shirts.
3. Student helps in cleaning the store by sweeping the floors, washing windows, etc.
4. Student helps in moving packages from one area to another.
5. Miscellaneous duties of running errands.

Training Station: Small General Department Store

Address: Baltimore, Maryland 21230

Position: Store Helper

DUTIES

1. After the merchandise is delivered to the store, student helps to check and verify the material against a Bill of Lading.
2. Merchandise is then placed in the proper bin, shelf or table as to size and style.
3. General line of merchandise includes all types of bedroom, kitchen, bathroom apparel, yarn, curtains etc.
4. Student helps in moving merchandise from one area to another.
5. Student helps to keep store clean.
6. Student runs miscellaneous errands.

Training Station: Furniture Store

Address: Baltimore, Maryland 21230

Position: Store Helper

DUTIES

1. After merchandise is delivered, students help to place it in the proper storage area.
2. Student helps to assemble various pieces of furniture, including chairs, tables, etc.
3. Student sweeps and mops floors.
4. Students clean glass tops of tables and other furniture.
5. Miscellaneous duties of running errands.

Training Station: Electronics Equipment and Supply Store

Address: Baltimore, Maryland 21230

Position: Store Helper

DUTIES

1. After merchandise is delivered, student helps to place it in proper storage area.
2. As items are needed, prices are marked and put in appropriate shelves, bins and containers.
3. Student helps to keep the store clean by sweeping the floor, washing windows, etc.
4. Miscellaneous duties of running errands.

Training Station: Furniture Store

Address: Baltimore, Maryland 21230

Position: Store Helper

DUTIES

1. Student cleans up parking lot and sidewalk of trash and debris.
2. Student helps to move furniture into display rooms.
3. Student helps to assemble chairs, tables and miscellaneous furniture.
4. Student checks the lights throughout the store.
5. Student washes down sidewalk.
6. Student washes windows.
7. Student runs errands and other miscellaneous duties.

Training Station: Shoe Store

Address: Baltimore, Maryland 21230

Position: Store Helper

DUTIES

1. After merchandise is delivered to store, the student helps sort out shoes in the various sizes.
2. Shoes are then placed on the shelves as to the size, style and type.
3. Student helps in moving merchandise from one area to another.
4. Student helps to clean up store.
5. Miscellaneous duties of running errands.

Training Station: Supermarket

Address: Baltimore, Maryland 21230

Position: Stock Boy

DUTIES

1. After merchandise is delivered to store it is placed in the proper storage place.
2. As items are needed, prices are marked and put in appropriate shelves, bins and containers.
3. General line of merchandise includes canned goods, dairy products, meat products, bottled goods, sundries, etc.
4. Students help in bagging groceries.
5. Students help customers in locating various merchandise.
6. Students help to keep the store clean by sweeping the floors, washing windows, etc.
7. Miscellaneous duties of running errands.

Training Station: Small General Department Store

Address: Baltimore, Maryland 21230

Position: Store Helper

DUTIES

1. After the merchandise is delivered to store, the student helps to check and verify the material against a Bill of Lading.
2. Merchandise is then placed in the proper bin, shelf, or table as to size and style.
3. General line of merchandise includes all types of family clothing, housewares, kitchen and bathroom wares, etc.
4. Student helps in moving merchandise from one area to another.
5. Student helps to keep store clean.
6. Student runs miscellaneous errands.

APPENDIX B

Baltimore, Maryland 21229

June 8, 1971

Dear Parents,

We at are considering plans to begin a work-experience program for selected ninth graders during the 1971-72 school year.

Some goals of the program are:

1. to help our pupils develop attitudes and habits necessary for success in the work world;
2. to emphasize the relationship between school experiences and career experiences;
3. to encourage our pupils to complete their education.

Each pupil enrolled in the program will alternately attend school for one week and work one week for a selected employer. All pupils will be closely supervised on the job by a coordinator who will also counsel and guide them in school.

At the end of the ninth grade these pupils will be ready to move into the senior high school, along with the other ninth graders.

Would you please indicate whether you would be interested in having your child considered for this program and have him/her return the tear-off to his/her counselor.

If you would like additional information about the program please call the following 9th grade counselors:

Unit A -	---	Hopkins	7	-	4000,	extension
Unit B -	---	"	"		" ,	extension
Unit B -	---	"	"		" ,	extension
Unit C -	---	"	"		" ,	extension

Very truly yours,

Principal

_____ We are interested in the work-experience program.

_____ We are not interested in the work-experience program.

Pupil's Signature _____ Class _____

Parent's Signature _____

Appendix A

APPENDIX V
TELEVISION SERIES COMPONENT

MARYLAND CAREER DEVELOPMENT RESOURCE NOTEBOOK

User Survey

Please complete this survey form, detach from the notebook, and return it before December 1, 1971 to:

Mr. Otho E. Jones
Specialist in Career Development
600 Wyndhurst Avenue
Baltimore, Maryland 21210

I. Personal and Professional information

A. Title (check one)

_____ Superintendent or Assistant Superintendent

_____ Director

_____ Supervisor

_____ Other (specify)

B. Primary responsibility (check one)

_____ Total school system

_____ Curriculum or instruction

_____ Pupil Services

_____ Guidance, vocational guidance, or career development

_____ Vocational Education

_____ Other (specify)

C. Size of School System (in terms of total enrollment)

_____ Over 100,000 students

_____ More than 25,000, but less than 100,000 students

Calling Careers Test No. 1

Name:_____ Age:_____ Race:_____

Sex:_____ School:_____ Grade:_____

Test Score_____ Rank _____

General Directions

This test is designed to find out what you already know or have recently learned about the process of selecting a possible career. The score you make will not be used to assign grades. The information collected from the test will be used to find ways to make the job of selecting a career easier for you in the future. Mark or write your answers to the questions directly on the test booklet. Be sure to read and answer each item.

_____ More than 10,000 but less than 25,000 students

_____ 10,000 students or less

II. Your reaction to the notebook

A. Overall reaction (check one)

_____ Very useful

_____ Useful

_____ Not very useful

_____ Of no use

B. Reaction to specific sections. Please rank the following sections using a 1 to 5 scale in terms of their usefulness to you (5 is most useful, 1 is least useful).

_____ I - Introduction

_____ II - Planning and Program Development

_____ III - A Career Development Model

_____ IV - Implementing the Career Development Concept

_____ V - Resources

C. How would you improve the notebook? (Picase be as specific as possible.)

Part I

Multiple Choice Questions

Directions: Each of the questions or incomplete statements listed below is followed by several words or phrases. From these, you are to choose the answer that best answers the question to complete the statement. Place the letter of that word or phrase (A, B, C, D) in the numbered blank space at the left of the item. Be sure to read all the answers.

_____ 1. It is not good to pretend to be something that you are not in order to get a job because your true individual differences

A. will determine whether you will be sa sified.
B. will prevent you from getting along with others.
C. will keep you from getting a promotion.
D. will cause you to loose your job.

_____ 2. In order to make the best decisions about possible career choices, you must

A. have information on only a few good careers.
B. select a pay range that is suitable.
C. decide upon a course of action.
D. be motivated.

_____ 3. Which of the following is a career area in which people with many different needs, interests, and abilities work together to accomplish a common goal?

A. Commercial Art
B. T.V. Production
C. Professional boxing
D. Photography

Appendix B

Part II

Modified Matching

Directions: Listed below are several different occupations with some possible reasons why a person would be satisfied working in them. Place check marks beside the reasons that you feel are correct for each occupation. It is possible to have several check marks (✓) under each occupation.

4. Muffler Mechanic:

____ a. enjoys working with hands.

____ b. likes to meet different people.

____ c. enjoys doing different jobs.

____ d. enjoys working with others.

____ e. enjoys working with things.

5. Commercial Artist:

____ a. seeks self satisfaction.

____ b. enjoys working with things.

____ c. enjoys routine jobs.

____ d. likes solving problems.

____ e. enjoys working with ideas.

6. Factory Foreman:

____ a. enjoys working with people.

____ b. likes doing different things.

____ c. enjoys working alone.

____ d. doesn't like responsibility.

____ e. dislikes problem solving.

EVALUATION FORM FOR RESOURCE NOTEBOOK

Position or Job Title _____ _____

1. Does this notebook help you understand the concepts of career development? Yes ____ No ____
   If No, why not?

2. Do you think this book could help you plan career development activities? Yes ____ No ____
   Comment:

3. Do you feel there is enough information here for you to implement the concepts? Yes ____ No ____
   Comment:

4. Do you feel this book would be of value to you?
   Yes ____ No ____
   Comment

5. Would you recommend others to use this book to implement career exploration concepts? Yes ____ No ____
   Comment:

6. What do you find valuable in this book?
   Describe:

7. What do you see as the shortcomings of this book?
   Describe:

7. Veterinarian Assistant:

____ a. likes doing a variety of things.

____ b. likes to keep hands clean.

____ c. likes working with ideas.

____ d. enjoys working with people.

____ e. enjoys working with animals.

8. Food Preparator:

____ a. likes working with hands.

____ b. enjoys satisfying self.

____ c. enjoys satisfying others.

____ d. likes to make decisions.

____ e. dislikes routine.

APPENDIX A

Part III

Completion

A

B

9. The people in pictures A and B above dress just alike. Can you list below four (4) ways that these individuals may be different from each other.

1. _____

2. _____

3. _____

4. _____

You have completed the test.

Program

IMPLEMENTING THE CONCEPT OF CAREER DEVELOPMENT

Friendship International Hotel
October 28, 1971

The purposes of this conference are two-fold: first, to help educational leaders in Maryland obtain a better understanding of the concept of career development, within a broader perspective of career education; and second, to provide information about the five operational components of the Maryland Career Development Project.

9:00-9:15 a.m.	Registration and Coffee
9:30	Welcome - Dr. Sensenbaugh Introduction of Dr. Tennyson - Mrs. Nancy Pinson Keynote presentation: CAREER DEVELOPMENT--WHO'S RESPONSIBLE - Dr. Wesley Tennyson - University of Minnesota Questions from Audience
10:55	Break
11:00	The Maryland Career Development Project - A Slide-Tape Presentation
11:30	Presentation of the Maryland Career Development Notebook - Mr. Otho Jones Presentation of the Vocational Guidance Week Proclamation - Mr. Fred H. Spigler, Jr. Introduced by James W. Wilson
12:00	Luncheon Luncheon Speaker - Mr. James L. Reid "The Current Status of Career Education"

During the afternoon session, presentations and explanations of five operational components of Maryland Career Development Project will take place simultaneously from 1:45 to 2:30. These presentations will be repeated from 2:45 to 3:30. Therefore, each participant will be able to listen to two presentations during the course of the afternoon.

1:45-2:30 p.m.
- A. Elementary Career Development Resource Component - Crane Ballroom
- B. Television Series - Kennedy Room
- C. Junior High School Work Oriented (Cooperative) Program - Milton Room
- D. Career Exploration Workshop - Crane Ballroom
- E. Comprehensive Information System - Scott Room

2:45-3:30 p.m. The above presentations will be repeated

The conference will end at the completion of the second presentation.

This conference is conducted under the provisions of the Maryland Career Development Project (K-Adult), USOE Grant No. OEG-071-4779 (357).

Appendix B

APPENDIX B

Calling Careers Test No. 4

Medical Services

Name:_____ Age:_____ Race:_____

Sex:_____ School:_____ Grade:_____

Test Score:_____ Rank:_____

General Directions

This test is designed to find out what you already know or have recently learned about the process of choosing a possible career. The score you make will not be used to assign grades. The information collected from the test will be used to find ways to make the job of exploring and making tentative choices of possible careers easier for you in the future. Mark or write your answers to the questions directly on the test booklet. Be sure to read and try to answer each item.

REACTION FORM
Career Development Conference
October 28, 1971

School System _____ Title or Position (Optional) _____

General: This reaction form has been designed to enable you, the participant, to react to specific presentations, components, guiding philosophies, and concepts, as presented at the conference. Please use five minutes of your time to complete and return the form. You are assured that your responses will be read and taken under consideration when future conferences are planned.

Part I

Individual Component Reactions

1. This item is designed to allow conference participants to indicate their reactions to the different components presented and discussed during the conduct of the conference. Each component is listed and a scale is provided for you to assign values to your reactions to each presentation. Please place a check mark over the number on the scale which best reflects your knowledge, feeling or judgment.

A. Career Development: Who's Responsible? (Presenter: Dr. W. Tennyson)

0 1 2 3 4 5

B. The Current Status of Career Education (Presenter: Mr. J. Reid)

0 1 2 3 4 5

Each individual will have an opportunity to visit at least two components. Respond to items on those that you attend.

C. Junior High Work Oriented (Cooperative) Component

0 1 2 3 4 5

D. Junior High: Career Exploration Workshop

0 1 2 3 4 5

E. Comprehensive Information System Component

0 1 2 3 4 5

Part I

Multiple Choice Questions

Directions: Each of the questions or incomplete statements listed below is followed by several words or phrases. From these, you are to choose the answer that best answers the question or completes the statement. Place the letter of that word or phrase (A, B, C, D, or E) in the numbered blank space at the left of the item. Be sure to read all the possible answers.

_____ 1. The health worker who motivates parients to recover from sicknesses and illnesses by teaching them woodcraft, weaving, metalwork, and photography is called a(n)

A. Practical Nurse.
B. Occupational Therapist.
C. Pediatrician.
D. Nurse's Aide.
E. Male Nurse.

_____ 2. A person interested in becoming a doctor in the United States should be prepared to attend college for

A. 2 years.
B. 3 years.
C. 4 years.
D. 9 years.
E. 15 years.

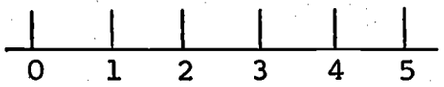
_____ 3. In the health services career field, there is presently a shortage of

A. 5,000 workers.
B. 15,000 workers.
C. 50,000 workers.
D. 500,000 workers.
E. 1,000,000 workers.

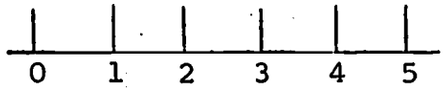
_____ 4. Which of the following careers would <u>not</u> be appropriate for a person who prefers to have direct contact with sick patients?

A. Medical Researcher
B. Dental Assistant
C. Practical Nurse
D. Physical Therapist
E. Registered Nurse

F. Television Series Component



G. Elementary School Component

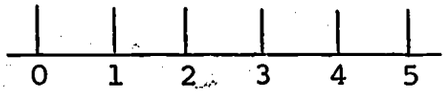


Part II

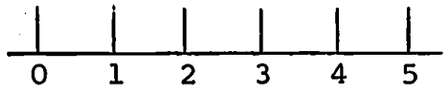
General Considerations

Viewing the conference in a global fashion, what values would you assign to the following items:

A. I am stimulated to adopt or to encourage others to adopt some of the ideas or practices presented today.



B. I am in general agreement with the supporting philosophy of career development as presented (K through Adult) today.



Part III

Suggestions for future conferences or follow-ups of this conference. (Use the reverse of this sheet.)

_____ 5. The health services workers who assist phychologist and psychiatrist in performing their job is a(n)

A. Phrenologist.
B. Dietitian.
C. Mental Health Technician.
D. Dental Hygienist.
E. Optician.

_____ 6. The health worker who employs messages, exercises, and other forms of physical energy in the treatment of diseases is called a(n)

A. Ophthalmologist.
B. Intern.
C. Aide.
D. Taxidermist.
E. Physical Therapist.

VT 016 304
STOERING, CAROLYN, ED.
A COMPUTERIZED STATE-WIDE FOLLOW-UP SYSTEM. DEVELOPMENTAL PHASE, THE FIRST OF THREE PHASES.

KANSAS STATE TEACHERS COLL., EMPORIA.
KANSAS STATE DEPT. OF EDUCATION, TOPEKA
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - JUN71 125P.

DESCRIPTORS - *FOLLOWUP STUDIES; *STATEWIDE PLANNING; *SYSTEMS DEVELOPMENT; *VOCATIONAL EDUCATION; *COMPUTER ORIENTED PROGRAMS; VOCATIONAL DEVELOPMENT; DEVELOPMENTAL PROGRAMS; SAMPLING

ABSTRACT - THE PURPOSE OF THIS PROJECT IS TO DEVELOP THE SYSTEM AND THE FORMS FOR A COMPUTERIZED STATE-WIDE VOCATIONAL-TECHNICAL PUPIL FOLLOW-UP PROGRAM. IT IS ALSO INTENDED THAT THIS EFFORT WILL TEST THE USABILITY OF STATE-WIDE RANDOM SAMPLING OF VOCATIONAL-TECHNICAL GRADUATES AS AN ALTERNATIVE TO AN "EVERY-PUPIL" FOLLOW-UP IN ORDER TO MINIMIZE THE WORK INVOLVED IN OBTAINING FOLLOW-UP DATA. THE TOTAL PROJECT IS PLANNED FOR THREE PHASES - DEVELOPMENTAL, PILOT, AND DISSEMINATION. THE DEVELOPMENTAL PHASE, INCLUDED IN THIS FIRST ANNUAL REPORT, IS SCHEDULED TO LAST FOR 18 MONTHS. THE PRELIMINARY WORK ON THIS PROJECT HAS BEEN INITIATED BY A STATE TEACHERS COLLEGE IN COOPERATION WITH THE STATE DEPARTMENT OF EDUCATION, KANSAS RESEARCH COORDINATING UNIT AND THE U.S. OFFICE OF EDUCATION. INITIAL CONTACTS HAVE BEEN MADE WITH THE INTERNAL REVENUE SERVICE TO INVESTIGATE THE POSSIBILITY OF OBTAINING CURRENT ADDRESSES AND OTHER INFORMATION ABOUT VOCATIONAL-TECHNICAL EDUCATION GRADUATES. A PROJECT ADVISORY COMMITTEE MADE UP OF REPRESENTATIVES OF THE FOUR AGENCIES LISTED ABOVE WILL ASSIST IN THE PLANNING, COORDINATION, AND EVALUATION OF THIS COMPUTERIZED STATE-WIDE FOLLOW-UP SYSTEM. IT IS ESTIMATED THAT THIS SYSTEM WOULD BE OPERATIONAL AFTER THE COMPLETION OF THE PILOT PHASE IN SEPTEMBER, 1972. (AG)

Part II

True-False Questions

Directions: Listed below are a number of statements. Some are true and some are false. If the statement is true, encircle the "T" at the left of the statement. If the statement is false, encircle the "F".

T F 7. There are male and female nurses in the health services career field.

T F 8. The present shortage of workers in the health services career field is expected to decrease by 1980.

T F 9. An optometrist prescribes lenses for the glasses of people who have poor vision.

T F 10. A common characteristic of all health workers is their desire to help their fellow man by providing the best possible medical services.

T F 11. People with many different abilities and talents are needed to work in the health services career field.

"A Computerized Follow-Up System"

DEVELOPMENTAL PHASE

The First of Three Phases

VT011004

3223

Part III

Completion

Directions: The following questions can be answered by listing words, writing short paragraphs, or writing short statements. Partial answers are acceptable for some questions. Write down all that you know.

12. Describe in your own words what people working in the following health careers do on their jobs.

A. Child Care Play Therapist: _____

_____

_____

_____

B. Inhalation Therapist: _____

_____

_____

_____

13. List below the personal satisfactions nurses gain from working directly with patients.

A. _____

B. _____

C. _____

D. _____

14. List below three personal characteristics that people who are interested in being doctors should have?

A. _____

B. _____

C. _____

Thanks

3210

U.S. OEPARTMENT OF HEALTH,
EOUCATION & WELFARE
OFFICE OF EDUCATION
THIS OOCUMENT HAS BEEN REPRO-
OUCEO EXACTLY AS RECEIVEO FROM
THE PERSON OR ORGANIZATION ORIG-
INATING IT. POINTS OF VIEW OR OPIN-
IONS STATEO OO NOT NECESSARILY
REPRESENT OFFICIAL OFFICE OF EOU-
CATION POSITION OR POLICY.

DEVELOPMENTAL PHASE

The First of Three Phases

"A COMPUTERIZED STATE-WIDE FOLLOW-UP SYSTEM"

June 1971

Kansas Department of Education

Vocational-Technical Division

3224

APPENDIX VI
RESOURCE NOTEBOOK

Project Director: Dr. Kenneth E. Hoffman

Research Assistants: James Kestner
Gary Strong
Carolyn Stoering

Editor: Carolyn Stoering

June, 1971

Kansas State Teachers College

Emporia, Kansas

3225

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INTRODUCTION

Vocational education has proven to be a valuable service and aid to the people of Kansas. In the pamphlet, "A Summary of the First Annual Evaluation Report of the Kansas State Advisory Council for Vocational Education," the members of the council evaluated the effectiveness of vocational programs in the state of Kansas. They compiled a list of strengths and weaknesses of vocational programs in Kansas. The data used in this study was collected from a sampling of 100 of the 583 vocational programs offered in the state.

After evaluating the strengths and weaknesses of the vocational programs, the Council submitted a list of recommendations.

The recommendation with which we are concerned in this project is: "The Board should design and implement a plan for systematic follow-up of every student leaving a secondary school in the state (whether by graduation or otherwise) including the identification of why each student leaves and where he went."

The need for a computerized follow-up system in Kansas is evident. The following study provides a solution for follow-up in Kansas. Upon completion of this project, many of the major problems associated with follow-up in Kansas will be solved.

I. PRELIMINARY PLANNING

In October, 1968, an initial planning meeting was held in the office of President John E. Visser, Kansas State Teachers College. In attendance were: Dr. Carl S. Barber, U. S. Office of Education; Mr. Richard Taylor, Supervisor of Technical Education, Kansas State Department of Education; Dr. Raymond B. Russell, Chairman, Department of Business and Business Education, Kansas State Teachers College; Dr. M. Lloyd Edwards, Director of Data Processing and Educational Measurements Center, Kansas State Teachers College; Dr. Glenn Crumb, Director, Research and Grants Division, Kansas State Teachers College; Mr. Walter Clark, Business Manager, Kansas State Teachers College; and Dr. Kenneth E. Hoffman, Kansas State Teachers College.

Dr. Carl S. Barber summarized his concern over the quality of the follow-up studies currently being conducted around the country. Dr. Barber expressed his desire to stimulate some research into development of an "ultimate" follow-up system. He outlined his concept of a follow-up system of vocational graduates which utilizes current addresses, income, and occupational data available from the state and federal Internal Revenue Service.

After a period of discussion and questions, it was agreed that personnel from Kansas State Teachers College would investigate the possibilities of initiating a research effort to develop this ultimate system using the state of Kansas as the prototype.

After this initial follow-up meeting, Dr. Hoffman prepared a draft of a proposal at the Kansas State Department of Education. The proposal was written in close cooperation with Dr. Barber and the State Department

of Education staff. This proposal was submitted in June of 1969. It was approved and funded to begin January 1, 1970.

II. JUSTIFICATION OF A FOLLOW-UP TO VOCATIONAL EDUCATION PROGRAMS

Why is it necessary to do follow-up on students in vocational education programs? One reason, and a very important reason, is that the taxpayer likes to know how his tax dollar is being spent. Sometimes there is an overlap in types of programs; other times students do not use the training they have in the occupation they are now working. As educators, administrators, and taxpayers, we need to know answers to some of the following questions:

Do the graduates continue to work for the same firms, or do they change jobs soon?

Do employed graduates continue in some phase of the job in which they were trained?

Is the student-learner helped or hindered in job selection by the school program with business?

Is the scope of the student-learner's education unnecessarily narrowed by his specific on-the-job training?

Is there sufficient emphasis upon related school course work?

How many students of college calibre continue their studies in the same programs in colleges?

Does work experience aid them in defraying college expenses?

Improvement of a vocational program is based on a systematic program of evaluation involving both informal and formal investigation. One of the tools in evaluating a vocational program is a follow-up study of graduates which helps to determine where students are presently working

and which students have gone on to college or other post high school institutions.

At present follow-up studies in the Distributive Education and Office Education programs are done on a 1-3-5 year basis. The minimum follow-up each year should ascertain the employment status of each graduate, any additional education which he is undertaking, and the relationship of his employment to his career objective and his training station placement. A recent study shows that after three months have elapsed following graduation, the employment picture stabilizes sufficiently so that initial entry employment or entry into further education can be determined accurately. On the other hand, the follow-up made about nine months after graduation provides better information regarding marriage and job changes that have followed temporary first jobs.

Various techniques have been used in first year follow-up studies. A postcard questionnaire has been mailed on the birthday of each graduate. This is a questionnaire technique because information is not comparable in time for each respondent and data connot be summarized for the whole class. Telephone interviews are quite satisfactory in communities where graduates remain in great numbers. An interview is more reliable in ascertaining the exact nature of the graduate's present job or educational endeavor and provides the personal touch in maintaining good relations. In this method the graduates who have migrated can be contacted with a mail questionnaire. Some coordinators use the mail questionnaire exclusively. The problem that arises is that some graduates simply do not respond and must be contacted personally. Whatever the method of contact, the key to follow-up is an

accurate file on each graduate. The file card should be made up before graduation and include names and addresses of relative, a code number showing job title of the student-learner (See Appendix B), his rank in his graduating class, his career goals, and other data to be used later as criteria against which to measure success. In some schools the studies are made by the coordinators alone, and in others in cooperation with alumni groups or with the student club chapters. Students can gain much from participation in a research study by helping frame questions, procuring current addresses, tabulating data, and even sketching rough drafts of tables and charts. The follow-up study should not only ascertain current employment status but should illuminate patterns of advancement and discover relationships between the occupation of original training and the current occupation of original training and the current occupation.

There are many reasons for innovating the computer into our present follow-up system:

1. Follow-up can be made on all vocational programs in the state on a yearly basis.
2. The system would free the teacher-coordinator from doing the follow-up.
3. A more accurate filing list would be able to be kept if the follow-up system were centralized.
4. It is estimated overall cost would be less than what it is presently.

(See Appendix C)

III. DATA FROM OTHER FOLLOW-UP SYSTEMS

What are the states doing in follow-up?

Before computerizing the state wide follow-up in Kansas, other states were contacted in the Fall of 1970 to determine their stages of

development in follow-up and to capitalize upon their experience in computerizing state wide follow-up systems. This is a summary of those experiences and an attempt to pinpoint the lessons to be learned from their efforts.

All fifty states and the territories were questioned by mail. Thirty-eight of the fifty states (76%) and Guam, Puerto Rico, and the Trust Territory answered the inquiry concerning their follow-up efforts.

The questions which were posed about the 1968-69 school year were the following:

1. Is your state follow-up computerized?
2. Who was in charge of your state wide follow-up last year?
3. How many occupational education graduates did your state follow-up?
4. What percentage of returns were received?
5. What was the cost per student return?
6. How much time did it take on the state level to conduct the follow-up last year?

The following is a summary of the answers of vocational education personnel from the thirty-eight states only. Responses from the Trust Territory, Guam, and Puerto Rico are not included.

Number of States with Computerized State Wide Follow-Up

Eleven of the thirty-eight states (29%) had a computerized state wide follow-up in operation in the Spring of 1970. Twenty-six percent (ten states) indicated they were in the process of developing a computerized follow-up system for their occupational education programs. Fifteen states (39%) were using other non-computerized systems. These fifteen states listed systems such as mailing, telephone, and personal interview follow-up which were hand tabulated and recorded. Only two

of the thirty-eight states had no plans for developing a computerized follow-up system in the near future.

Who Directs the Follow-Up Program?

The responsibility for directing the follow-up program differed from state to state. Several follow-up programs were contracted with agencies other than the State Department of Education. Only a very few states utilized the Research Coordinating Unit for follow-up. The remainder of the states indicated certain personnel in the State Department of Education conducted and were responsible for the state wide follow-up systems.

It was common to find that the person in charge of the state wide follow-up was involved in tabulation of returns reported by local school personnel only and that in many instances the sole use of follow-up data was for reporting to the United States Office of Education. The state personnel in charge of follow-up commonly had other responsibilities in addition to conducting the follow-up.

How Many Graduates Were Followed Up Last Year?

Only slightly more than half of the respondents indicated either an exact or approximate number of graduates that had been followed up during the 1968-69 school year. Commonly brought up was the difficulty of separating enroute students from graduates who had completed occupational programs during that year. It is apparent that enrollment data in a portion of the states was inadequate for their follow-up systems. The follow-up effort on the state level is forced to rely heavily upon the regular vocational student information and reporting system which frequently do not identify leavers or provide addresses.

The average number of occupational education graduates followed up by the twenty-one states that provided answers to this question was approximately twenty-one thousand. Most states included only the students who had graduated the previous May in their September follow-up. Several conducted a three year follow-up. Only one state mentioned that a five year follow-up was conducted during the 1968-69 school year.

Percentage of Returns Received

Two states had utilized a sample of graduates rather than attempting to follow-up every single graduate. Sampling was said to reduce the cost and effort involved in contacting a large number of graduates. From those states that contacted every student the percentage of returns varied from a low of twenty-five per cent to a high of approximately one hundred per cent. There were several cases in which it was reported that a one hundred per cent return was obtained. This perfect return was attributed by the respondents to the fact that one person (local administrator or counselor) had completed the return. Answers were provided for every graduate, but job success information was not always available. The average rate of return for the follow-up of the sixteen states that provided this information was seventy-four per cent. From among those states that reported less than perfect one hundred per cent return, the average rate of return was sixty-eight per cent.

What Was the Cost Per Student Return Last Year?

Only thirteen states were able to provide an accurate estimate of the cost per student involved in collecting follow-up data. The cost per student return ranged from a high of $7.00 to a low of twenty cents. The mean cost per student for these thirteen states was $1.47. The average

cost per student among the states which utilized a stratified random sample in their follow-up was fifty-three cents per student questionnaire processed. This figure is slightly misleading because this average cost per student for those states who sampled graduates included the cost of planning and developing this system as well as the current operational costs. One respondent stated that the cost for their state would certainly be reduced in later follow-ups because the planning and development costs would be absorbed as the system is used in subsequent years.

How Much Time Was Involved in Conducting the Follow-Up?

Only seven of thirty-eight state personnel were able to provide estimates of the amount of time spent on the state level in processing follow-up systems. Neither was there any standard means of reporting the time spent.

The reports included such comments as "five minutes of supervisors' time per student," "one hour of time per student," "four hundred man hours," "three thousand man hours," "twenty-two days," "three people two months each," "six months spent on the project."

Conclusions:

1. Most states are developing or already have computerized their follow-up system.

2. The very short time between graduation and follow-up appears to be a limitation of current follow-up efforts. Only a few states followed up graduates on a long term basis such as one, three, and five years after graduation. The states have virtually given up on long term follow-up.

3. The rate of returns which gave job success information was very low.

4. There seems to be only a few accurate cost recording patterns for follow-up systems among state personnel. In many cases the amount of time spent on follow-up and the costs of follow-up efforts were unknown.

5. Little use was made of follow-up results for evaluating and planning on the state level. This may in some cases reflect the low regard among state personnel for the accuracy and reliability of data tabulated by local educational personnel.

6. Student information being collected by the states included in the present study does not provide an adequate basis for follow-up. Enrollment data provided in organizational or closing reports appears to be inadequate for identifying graduates or other leavers of occupational education programs. Addresses of occupational education graduates are not available to state personnel for use in follow-up.

7. Sampling graduates on a stratified bases provides the least expensive and most efficient method for the state wide follow-up.

IV. DEVELOPMENT OF A PROTOTYPE SYSTEM

Three systems were developed to determine the feasibility of the program. All three were developed to utilize information and services of the Internal Revenue Service if the required information should be made available.

SYSTEM NO. 1

This system was designed to utilize current addresses of graduates received from the Internal Revenue Service. Each graduate would be

identified by a social security number. Each student would have a social security number upon entering a specific vocational program, and from the list of social security numbers supplied by the Internal Revenue Service, the current addresses would be obtained. These addresses could be taken directly from the 1040 Income Tax Form. As soon as these addresses are received, Kansas State Teachers College would then mail to each graduate a questionnaire to get the data which is needed. After receiving the questionnaires and mailing computations, Kansas State Teachers College would make the information available to local schools and the state department. (See Page 16, Part A)

1. Updating of Mailing List

After the first selection of graduates is made and addresses are received from the Internal Revenue Service, the list of graduates' addresses could be kept on permanent file and updated through use of a notification system utilized by the Post Office Department. This notification system applies to both first and third-class mail. First-class mail is all mail which has had postage paid at eight cents per ounce or fraction of an ounce per piece (May, 1971).

It would be less expensive for the mailing agency to send the questionnaires at the third-class bulk rate. To send at this reduced rate, 300 identical pieces must be mailed at one time, and a $30 bulk mailing fee must be paid. Although money can be saved by mailing at the third-class rate, there are some disadvantages:

1. Third-class mail cannot be forwarded or returned unless postage due is paid. If a graduate should receive a questionnaire postage due, he might be very apt not to return it.

2. For every graduate who had moved, the questionnaire would be returned postage due. Since there would not be 300 identical pieces to mail again, the postage would have to be paid at the first-class rate.

3. Much time would be lost in the returning and remailing of questionnaires.

4. Third-class mail must be presorted before mailing.

Although first-class mail costs more to send at the initial mailing, there are several advantages to be had:

1. First-class mail can be forwarded or returned at no additional charge.

2. First-class mail requires no presorting as does third class.

2. Address Corrections Procedures

Both first and third-class mail can take advantage of the address correction system used by the Post Office Department. First-class mail primarily uses one procedure for getting an address correction. By putting the words, ADDRESS CORRECTION REQUESTED, below the return address, the sender will receive a P.O.D. Form 3547 if the addresses has moved; and the piece of mail will be forwarded to the addressee. The P.O.D. Form 3547 contains the name, the old address, and the new address of the addressee; and the sender must pay ten cents to receive it. When the sender receives the P.O.D. Form 3547, the mailing list can be brought up to date. The first-class piece will be forwarded as many times as need be. After all avenues of possible delivery are exhausted, the piece will be returned to the sender at no additional charge. Under such a system a current address can be had for ten cents, and the piece of mail can be forwarded at no additional charge to the addressee.

There are several ways to receive an address correction when mail is sent at the third-class rate:

1. ADDRESS CORRECTION REQUESTED
FORWARD AND RETURN POSTAGE GUARANTEED

By putting these words below the return address, the Post Office Department will forward the piece of mail to the addressee postage due and mail the sender a P.O.D. Form 3547 at a charge of ten cents. If the piece of mail cannot be forwarded or delivered, it will be returned to the sender with reason for nondelivery at a cost of ten cents to the sender.

2. ADDRESS CORRECTION REQUESTED

The piece of mail will be returned to the sender at a cost of ten cents. It will show currect address information. It will only be forwarded by the Post Office Department if it appears to be of obvious value. If it was forwarded, the sender would be sent a P.O.D. Form 3547 at a ten cents charge. The addressee would have to pay postage due on the article.

3. RETURN POSTAGE GUARANTEED

This procedure gives the added advantage of the mail being forwarded locally at no cost to the addressee. The sender would receive a P.O.D. Form 3547 at a charge of ten cents. This method allows the addressee to go ahead and receive the mail if he has moved within the city or town. It also enables the sender to receive the current address of his mailing list. If the piece of mail could not be delivered, it would be returned to the sender with reason for non-delivery at a charge of ten cents. This enables the sender to receive the mail in case the contents should be of value.

B. SYSTEM NO. 2

This system was designed to use information which the Internal Revenue Service now has on hand. To utilize such information would take permission from the Internal Revenue Service. The data which could possibly come from the Internal Revenue Service under such a system would include the address, income, job, and number of dependents of the vocational graduate. This system would identify the vocational graduates by means of social security numbers, the same manner as in System No. 1.

After receiving the information from the Internal Revenue Service, Kansas State Teachers College would then mail a supplemental questionnaire to the graduates to obtain more information. The College would then make the compiled data available to the local schools and state department. Such a system would probably yield a high return on the questionnaire, but the data might be clouded. There are several reasons for this:

1. If the graduate had filed a joint return, the combined salary of husband and wife would be shown on the 1040 Form.
2. The graduate might have held more than one job thereby increasing the earned income figure.
3. If a female graduate had married, she could be hard to identify on the joint return because her social security number would be the secondary number on the 1040 Form.

(See Page 16, Part B)

C. SYSTEM NO. 3

This system was called the Ultimate System and the one which would do the best job of following up vocational graduates. Under such a system, the graduate would include in each income tax form filed a form giving all pertinent information. This system would be the best as far as finding out the information which is needed. Permission to include such a form would have to be granted by the Internal Revenue Service and the graduate. After computing the data, the Internal Revenue Service could make it available to the local schools and state department.

In discussions with the Kansas Income Tax Service and the Federal Internal Revenue Service, several obstacles were brought to light in regard to the systems being developed:

1. Not every person files an income tax return.
2. Some disabled workers might be on social security or welfare.

3. The income tax form itself could not be supplied. Information would have to be transferred to an approved edit sheet. The edit sheet would have to be approved by the Internal Revenue Service Office in Washington, D. C.

4. All data which is obtained from the Internal Revenue Service would have to be kept confidential. If it were released to the public, it would have to be summarized in such a manner so that no individual graduate could be identified.

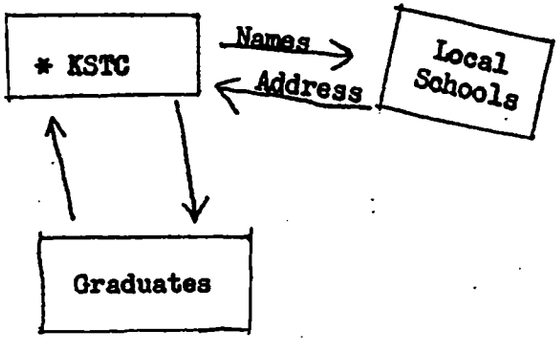
(See Page 16, Part C)

V. INTRODUCTION TO PHASES OF PROJECT

It is the purpose of this project to try and develop a computerized system whereby a sample of the graduates of vocational programs in high schools, vocational-technical schools, and junior colleges could be used instead of an every-pupil follow-up. The total project is planned for three phases: the Developmental Phase, the Pilot Phase, and the Dissemination Phase.

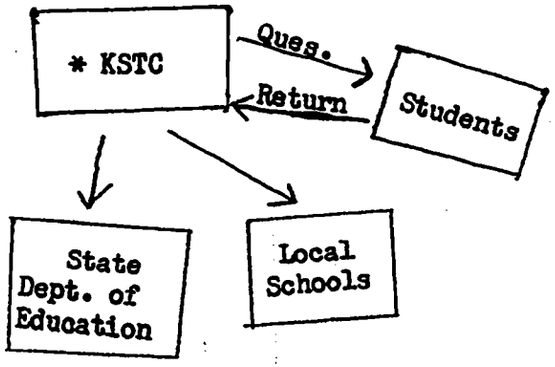
A. THE DEVELOPMENTAL PHASE

The Developmental Phase is scheduled to last for eighteen months from January 1, 1970, to December 30, 1971. This phase will be carried out at Kansas State Teachers College, Emporia. The preliminary work on this project has already been initiated by Kansas State Teachers College in cooperation with the Kansas State Department of Education, Kansas Research Coordinating Unit and the U. S. Office of Education. Initial contacts have already been made with the Internal Revenue Service in an investigation of the vocational-technical education graduates. A Project Advisory Committee made up of representatives of the four agencies listed above will assist in the planning, coordination, and evaluation of this computerized state-wide follow-up system. It is estimated that this system



1

CURRENT ADDRESS ONLY



Low % of Return--

Data you want

Questionnaire 50% - 60%

Sample here

Kansas State Teachers College

2

IRS SUPPLY

DATA--NOW HAVE AVAILABLE

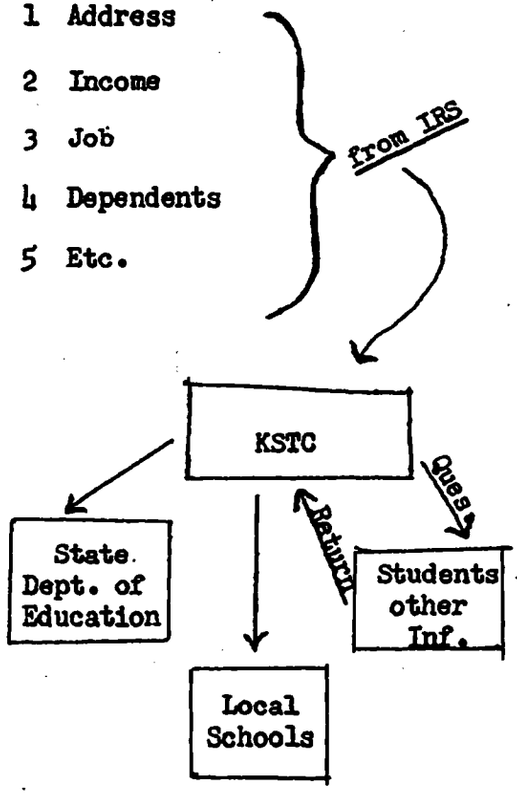
1 Address

2 Income

3 Job

4 Dependents

5 Etc.



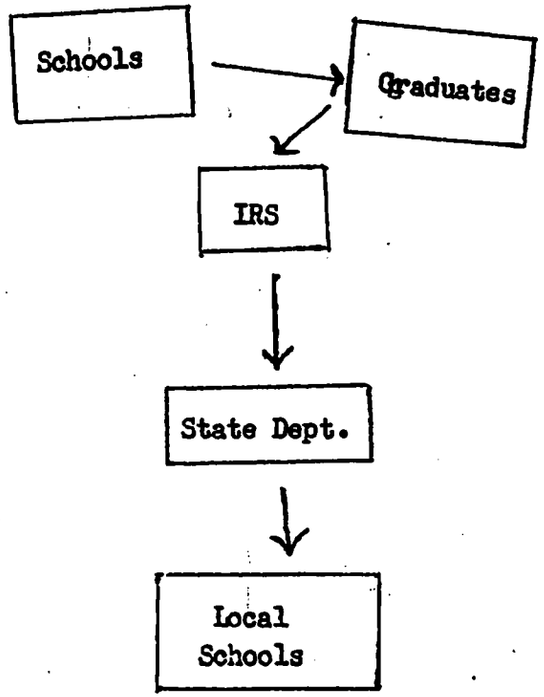
% of Return high

Not data you want

3

ULTIMATE

REVISE FORM TO GET THE DATA WE WANT



Include a form

Approval from graduates

High % of return

Data you want

- 43 -

would be operational after the completion of phase two of this project in September, 1972.

The objectives of this first phase are:

Step (1) The collection of time and efficiency standards for current every-pupil state-wide follow-up system.

Step (2) The development of a prototype system and the forms needed for a computerized state-wide vocational-technical pupil follow-up program.

Step (3) Testing the usability of state-wide random sampling of vocational-technical graduates as an alternate to an "every-pupil" follow-up to minimize the work involved in obtaining follow-up information.

Step (4) Planning and preliminary development of an inter-agency cooperative program between the Internal Revenue Service or the Social Security Administration and the Kansas State Vocational Education Agency for obtaining current vocational-technical graduate information. (See Appendix C)

B. THE PILOT PHASE

The Pilot Phase is a continuation of the project initiated on January 1, 1970, and is scheduled to last for fifteen months from July 1, 1971, to October 1, 1972. This phase will be carried out at Kansas State Teachers College, Emporia. This second phase will test the usability of the state-wide follow-up system which was initiated in the developmental phase. Selected schools throughout the state of Kansas will test the Computerized Follow-Up Systems. In addition to completing the entry, exit, and follow-up forms, these selected schools will make

available current address information for their graduates from the 1969-1970 and 1970-1971 school years. An evaluation of the system will be made using the processed data from the selected schools. The inter-agency agreement between the state of Kansas Income Tax Service and the U. S. Internal Revenue Service will be pursued for continual procurement of information about vocational-technical graduates. A complete assessment of the Computerized State-Wide Follow-Up System will be included in a comprehensive final report. The Project Advisory Committee will evaluate this phase in terms of the overall objectives of both the first and second phases of this research.

The objectives of the second phase are:

Step (1) Testing the Computerized Follow-Up Systems through trial administration in selected schools throughout the state of Kansas.

Step (2) Evaluation of the forms and design of the system in terms of (a) completeness; (b) usability; and (c) adaptability to existing and future computer facilities.

Step (3) Testing the inter-agency agreement between the state of Kansas Income Tax Service and U. S. Internal Revenue Service for continual procurement of information about vocational-technical graduates. (See Appendix D)

C. THE DISSEMINATION PHASE

The Dissemination Phase is scheduled to last for fifteen months from October 1, 1972, to December 31, 1973, and will be carried out at Kansas State Teachers College, Emporia. This third and final phase is a continuation and completion of the project initiated on January 1, 1970,

to develop a Computerized State-Wide Vocational-Technical Pupil Follow-Up Program. A plan will be developed to orient and train the vocational-technical personnel in the state of Kansas on the value and use of the computerized follow-up system. Training materials and information sheets will be developed and used in the series of regional training and orientation sessions. These sessions and the effectiveness of the personnel in carrying out the follow-up system will also be evaluated. This first state-wide follow-up will be closely coordinated with the Kansas State Department of Education. The Project Advisory Committee will continue evaluating this third phase of the project.

The specific objectives of the Dissemination Phase are:

Step (1) Development of a plan whereby local vocational administrators, personnel officers, and teachers will be trained in the use of the computerized follow-up system.

Step (2) Completion of the seminars and training sessions needed to carry out this orientation.

Step (3) Evaluation of the accuracy and completeness with which local and state personnel are able to carry out their part of the follow-up system.

Step (4) Follow through in evaluation of the training and orientation process.

(See Appendix E)

VI. ACCOMPLISHMENTS AS OF JULY 1, 1971

The stated objectives of the first or developmental phase were:

1. To collect time and efficiency standards for current every-pupil state-wide follow-up systems.
2. To develop a prototype system and the forms needed for a computerized state-wide vocational-technical pupil follow-up program.
3. To test the usability of state-wide random sampling of vocational-technical graduates as an alternate to an "every-pupil" follow-up to minimize the work involved in obtaining follow-up information.
4. To plan and preliminarily develop an inter-agency cooperative program between the Internal Revenue Service or the Social Security Administration and the Kansas State Vocational Education Agency for obtaining current vocational-technical graduate information.

OBJECTIVE 1 -- The collection of time and efficiency standards from state directors.

DATA WHICH DEMONSTRATES THE ACHIEVEMENT OF THIS OBJECTIVE --

Before setting up the computerized system, questionnaires were mailed to all fifty states and three U. S. territories. Thirty-eight state directors responded to the questionnaire. The questions which were posed about the 1968-1969 school year were:

1. Is your state follow-up computerized?
2. Who was in charge of your state-wide follow-up last year?
3. How many occupational education graduates did your state follow-up?
4. What percentage of returns were received?

5. What was the cost per student return?

6. How much time did it take on the state level to conduct the follow-up last year?

(See the summary of the states' returns for additional information on Pages 5-10).

OBJECTIVE 2 -- The development of a prototype system and the forms needed.

DATA WHICH DEMONSTRATES THE ACHIEVEMENT OF THIS OBJECTIVE --

Three systems were developed to determine the feasibility of the program. All three were developed to utilize information and services of the Internal Revenue Service if the required information should be made available.

System No. 1 was designed to utilize current addresses of graduates received from the Internal Revenue Service or other sources.

System No. 2 was designed to use information which the Internal Revenue Service has on hand such as address, income, job, and number of dependents.

System No. 3 was called the Ultimate System and the one which would do the best job of following up vocational graduates. Under this system, the graduate would include in each income tax form filed a redesigned form which includes suggested information pertinent to vocational follow-up. (only required minimums)

(See the illustrations of all three systems on Page 16. For further explanations of the developmental phase see Appendix C).

OBJECTIVE 3 -- Testing the usability of state-wide random sampling.

DATA WHICH DEMONSTRATES THE ACHIEVEMENT OF THIS OBJECTIVE --

On March 23, 1971, seventy porta punch cards were mailed to a random sampling of secondary and post-secondary vocational graduates. As of May 11, 1971, fifty-one cards (72%) were returned. The "Change of Address" cards used in this sample were definitely a valuable part of the project.

Of the 12 "Change of Address" cards received, the staff also received all 12 porta punch cards from the students who had changed addresses. Three to four weeks should be allowed for receiving the cards. This small sample proved to be effective in revealing minor problems that might be involved later in a larger sample. These discrepancies are being alleviated, and a larger sample will be the next step in determining the "overall" effectiveness of this computerized system.

For further information as to the specific answers given by students, cost analysis, etc. see the Summary of Results of the Trial of the Porta Punch Card, Appendix Q; and the computer printout, Appendix S.

OBJECTIVE 4 -- Planning and preliminary development of an inter-agency cooperative program between the Internal Revenue Service and the Kansas State Vocational Education Agency.

DATA WHICH DEMONSTRATES THE ACHIEVEMENT OF THIS OBJECTIVE --

On May 27, 1970, a meeting was held with the Kansas State Department of Revenue. This meeting was primarily held for introducing the concept of follow-up to the Internal Revenue Service people and to secure recommendations for the research project from those involved. (See minutes of May 27 -- Appendix H)

On September 3, 1970, a meeting was held with individuals who represented the U. S. Internal Revenue Service. Suggestions for improving the proposed system were discussed and considered for future implementation into the planning and discussion of the computerized system. (See minutes of September 3 -- Appendix L)

On February 17, 1971, a letter was sent to Federal and State Internal Revenue Service Representatives asking for their cooperation in this project. (See letter -- Appendix O)

On June 4, 1971, a meeting was held with the Director of the Kansas State Department of Revenue, Mr. James T. McDonald and the Assistant Director, Mr. Tom Foust, to discuss in more detail the possibility of an inter-agency agreement between the Kansas Department of Revenue and the Kansas State Department of Education. (See minutes of June 4 -- Appendix R)

VII. OVERALL FINDINGS AND CONCLUSIONS

PROBLEMS ENCOUNTERED

1. Inadequate equipment at Kansas State Teachers College--a 557 Interpreter and an IBM 360 computer were not available.
2. Although a high percent of questions on the porta punch card questionnaire were answered, there were still a few questions that were not answered completely by the students.
3. An inter-agency agreement between the Internal Revenue Service and the State Department of Education is not forseeable in the immediate future. However, other sources were discovered for procuring certain needed information about vocational-technical graduates.

CONCLUSIONS AND RECOMMENDATIONS

1. Other sources for procuring current addresses of vocational-technical graduates should be investigated.
2. A short letter should be included with the questionnaire explaining what the porta punch card is and why it should be answered completely.
3. The research staff is satisfied that information obtained on the porta punch card is more than adequate for providing the basis for intelligent decisions concerning the state-wide evaluation of vocational-technical education.

4. The porta punch card should be revised slightly when reordering so that an IBM 1401 computer can process the information contained on the revised card.

5. The coded system for Question 3 "what type of work do you do" should be revised according to current employment trends and common terminology.

6. The U. S. Internal Revenue Service and the Kansas Department of Revenue should be periodically consulted for changes in legislation concerning secrecy provisions in income tax forms.

7. The State Department of Revenue will continue to offer advice and technical assistance into the second phase of the project.

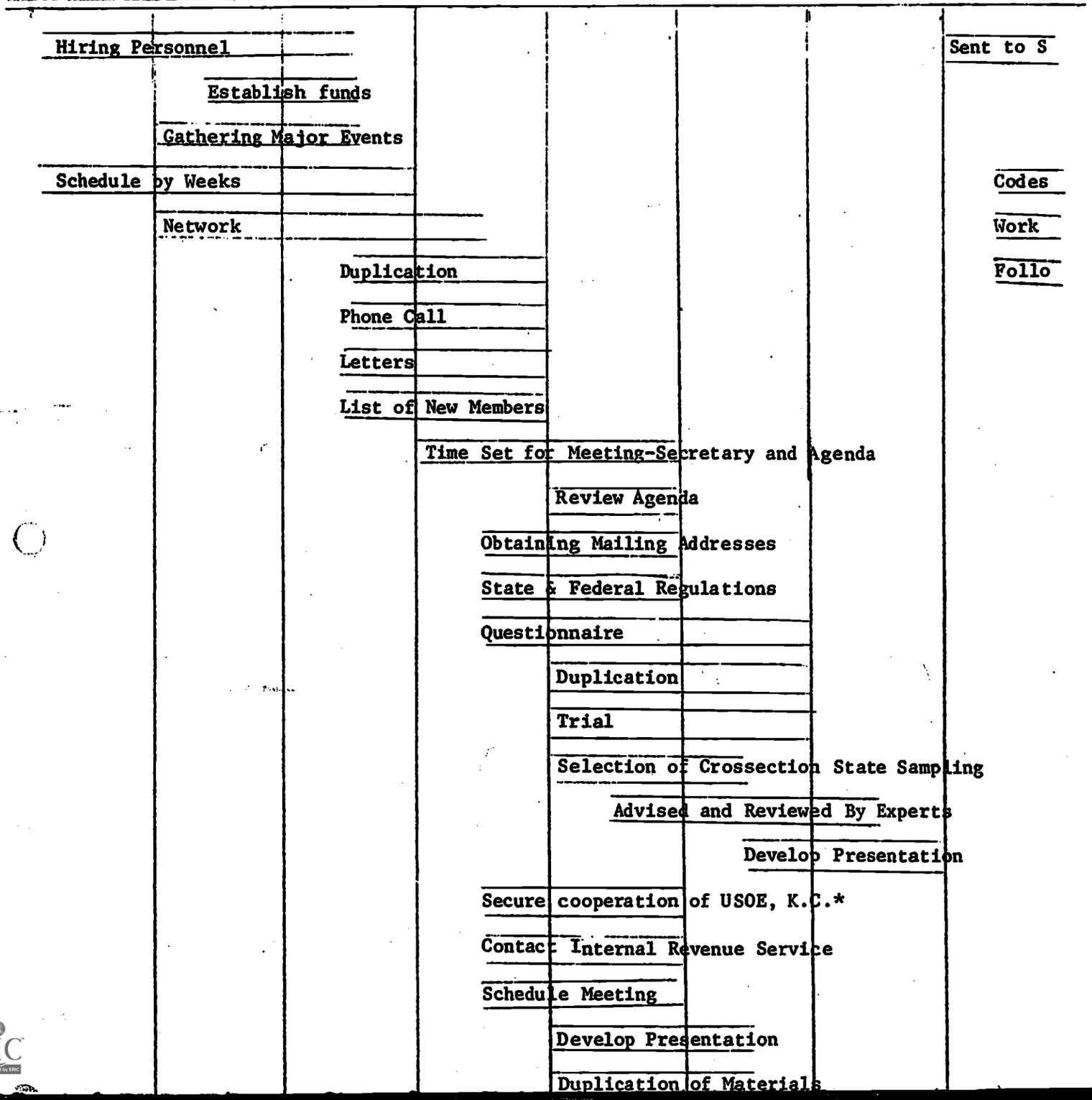
8. The porta-punch follow-up system developed in this phase of the project proved to be entirely satisfactory in securing state-wide follow-up data. It could be initiated on a state-wide basis at a minimal cost. The staff recommends its adoption until the "ultimate system" is available.

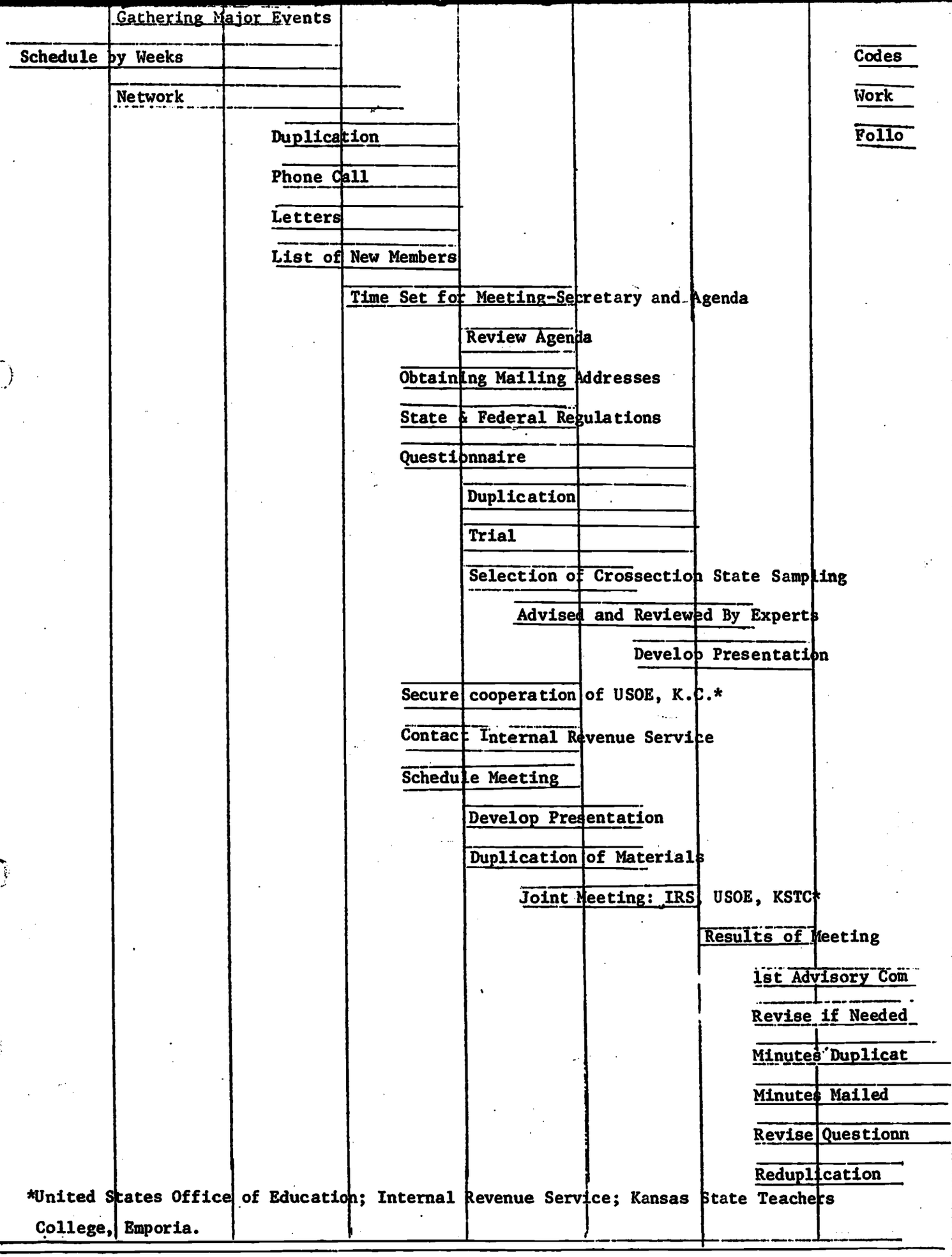
9. The cooperation and technical advice offered by both the Kansas Income Tax Service and the U. S. Internal Revenue Service appears to be sufficient to warrant pursual of the plan for developing an inter-agency agreement for sharing follow-up data.

APPENDIX A

PERT NETWORK FOR FOLLOW-UP RESEARCH PROJECT

(All of these events will be the completed events)





*United States Office of Education; Internal Revenue Service; Kansas State Teachers College, Emporia.

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Summary & Tabulation of Returns

Duplicate Results for 2nd Meeting

& Titles for Forms

With IBM

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Review By Experts

Tentative Sampling Technique

System for Sampling Schools

Application & Trial of System

Review by Experts

2nd Advisory Committee

Duplicated Minutes

Phone Call

Time Set for Agenda, Secretary & Agenda

Follow-up Letter to Committee

Minutes Mailed

Check USOE Requirements on Forms

Cooperation by mail

Schedule Meeting

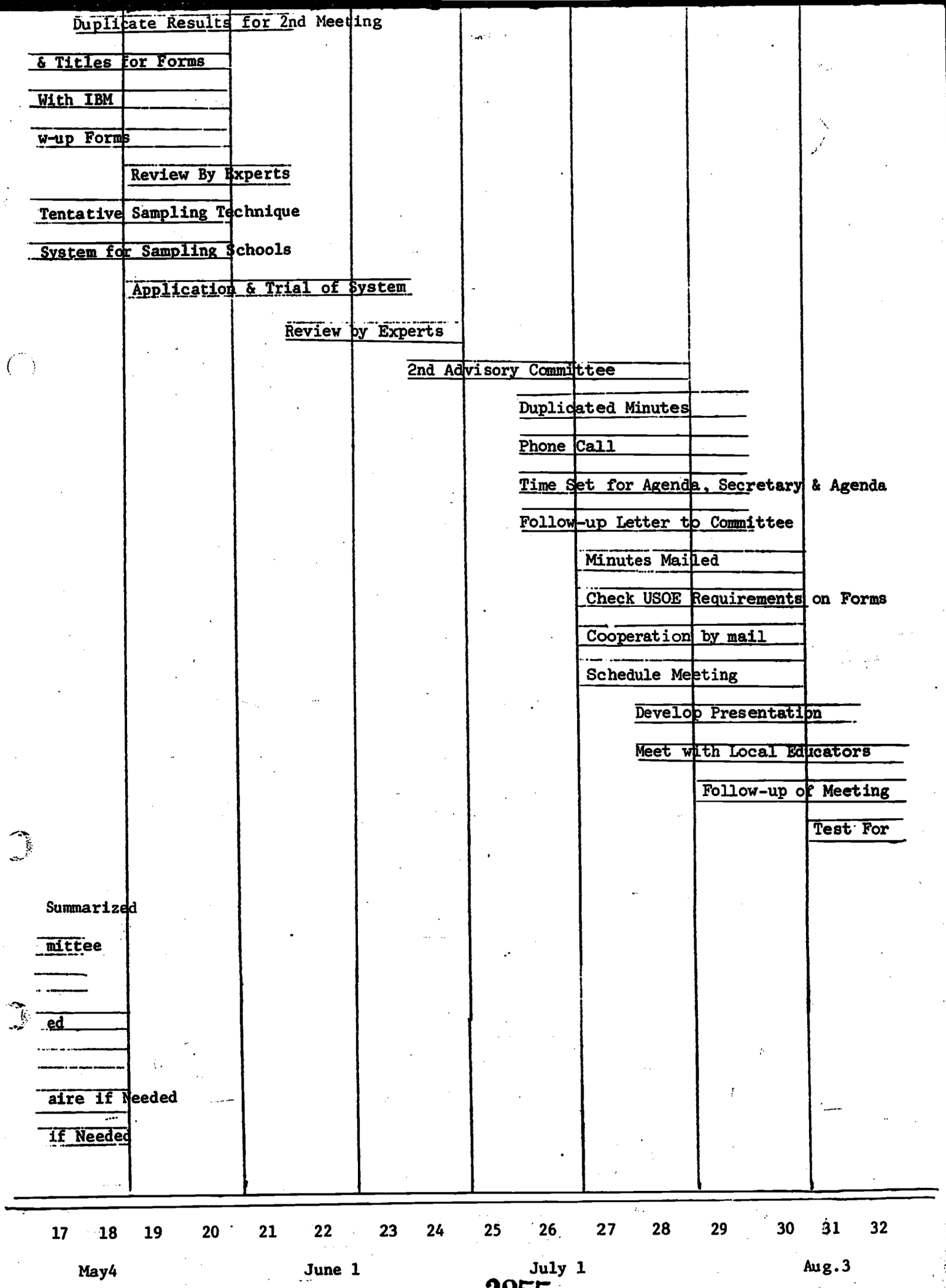
Develop Presentation

Meet with Local Educators

Follow-up of Meeting

Test For

Summarized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Develop Presentation
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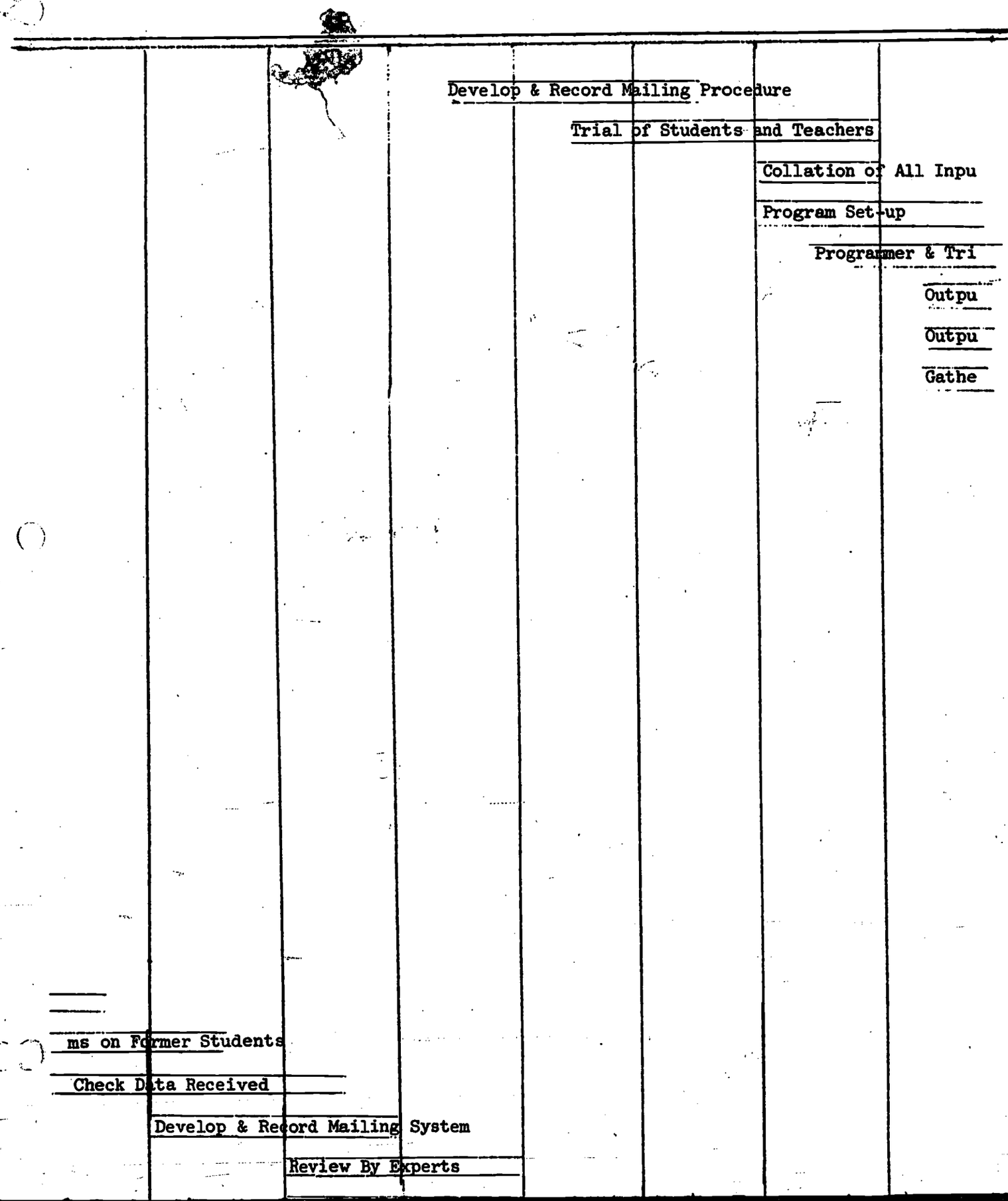
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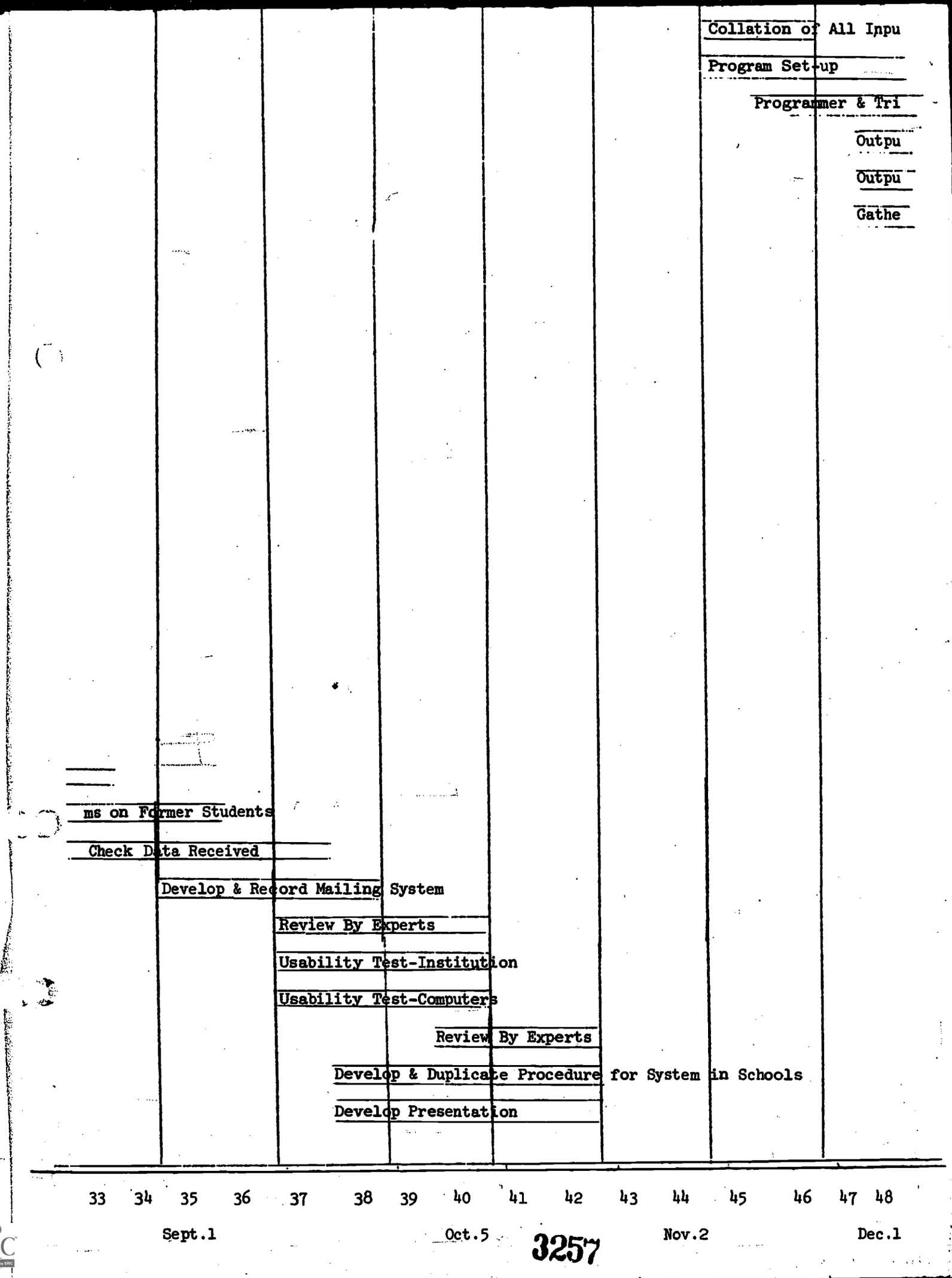
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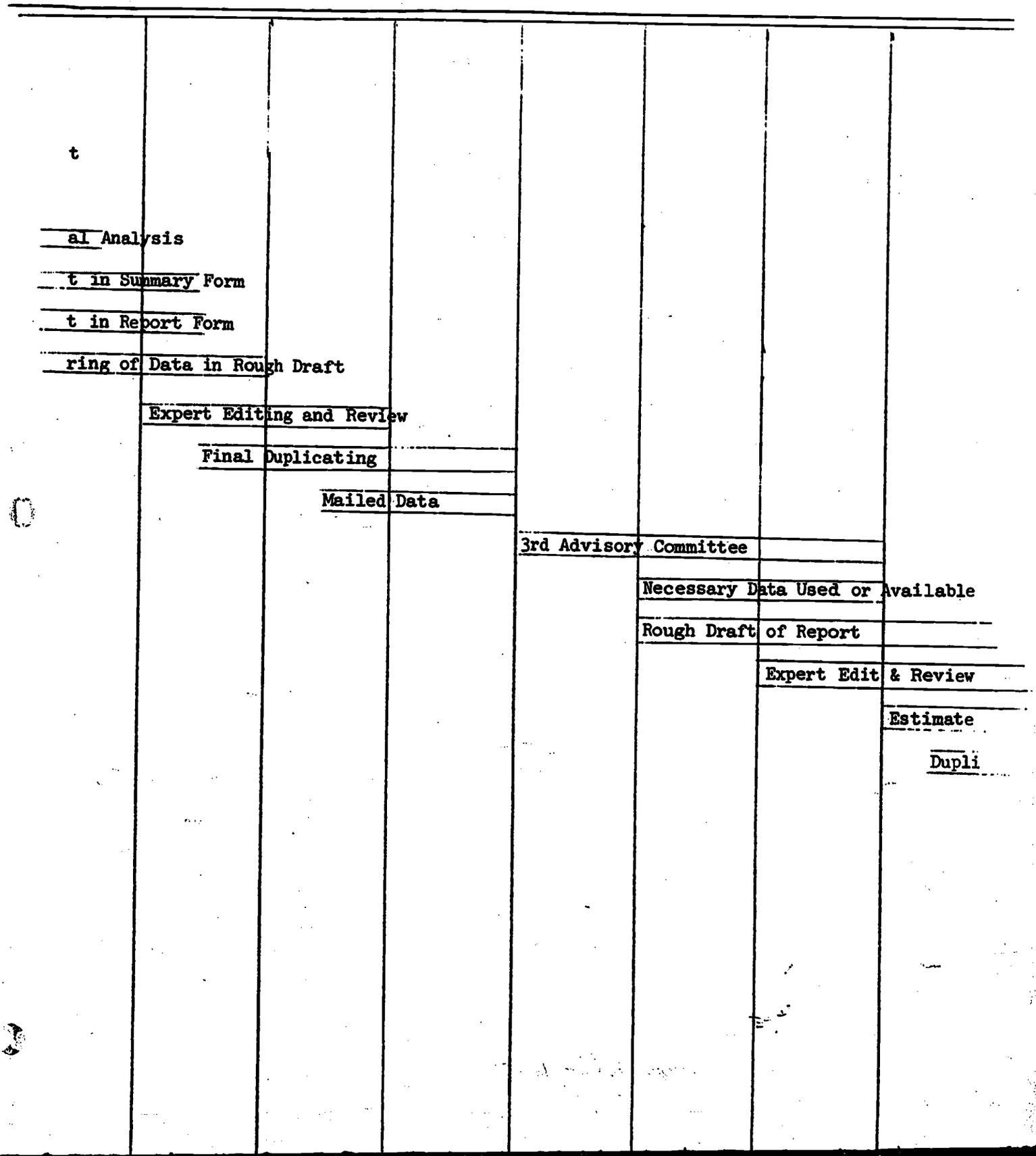
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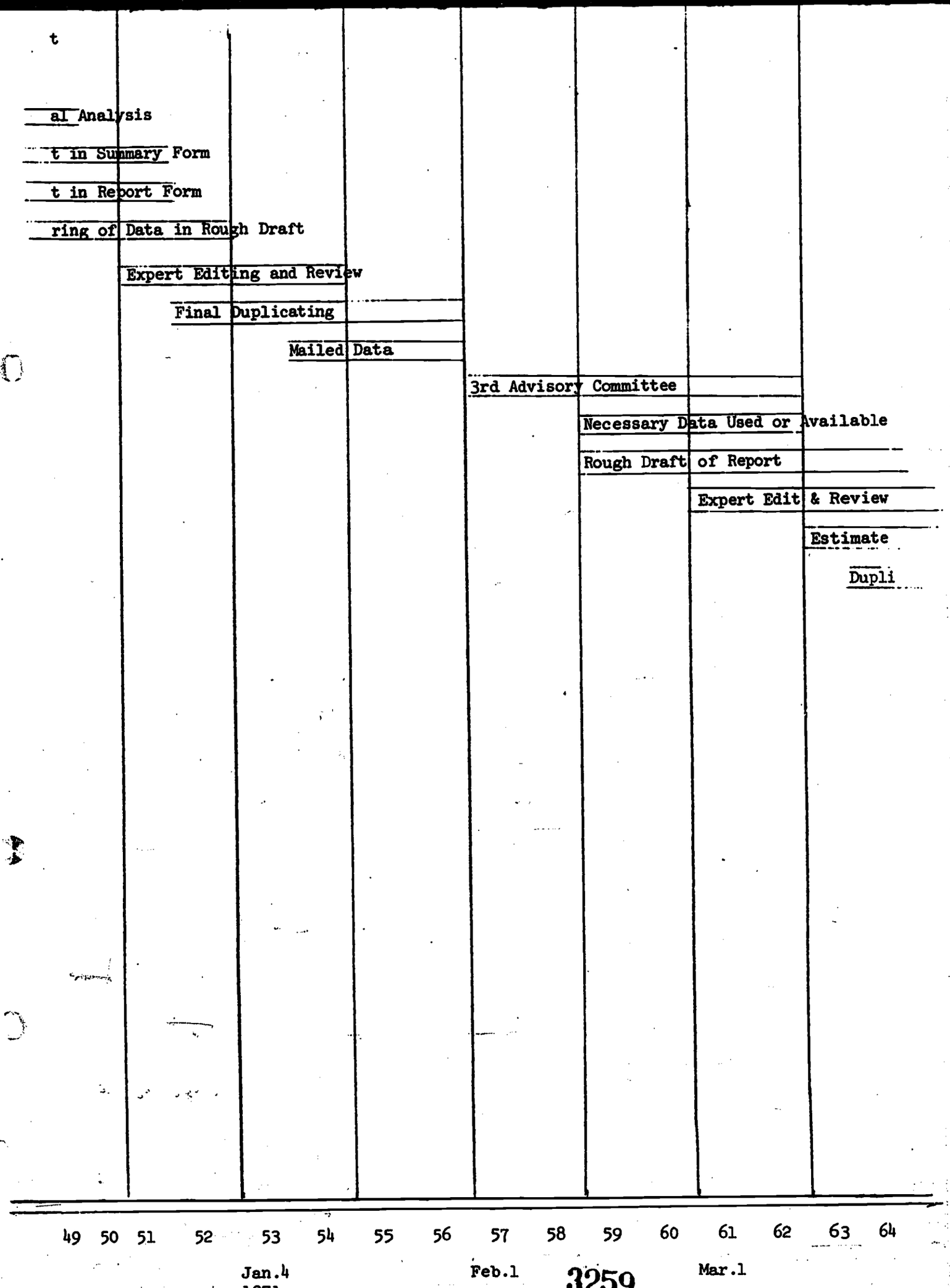
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CODES FOR "WHAT TYPE OF WORK DO YOU DO?"

VOCATIONAL AGRICULTURE

1 Plant Farming
2 Animal Farming
3 Miscellaneous Farming and Related Occupations
4 Fishery and Related Occupations
5 Amusement and Recreation Service
6 Forestry Occupations
7 Processing of wood and wood products
8 Wood machining occupations
9 Logging
10 Fabrication and repair of wood products
11 Hunting, Trapping, and Related Occupations
12 Amusement and recreation service occupations
13 Agricultural Service Occupations
14 Mechanics and machinery repairmen
15 Fabrication and repair of products made from assorted materials
16 Other

DISTRIBUTION AND MARKETING

17 Salesmen, and salespersons commodities
18 Merchandising occupations, except salesmen
19 Domestic Service
20 Food and Beverage preparation and service
21 Lodging
22 Apparel and Furnishings service
23 Other

HEALTH OCCUPATIONS

24 Dental Services
25 Dental Assistant
26 Dental Hygienist (Associate Degree)
27 Dental Laboratory Technician
28 Medical Services
29 Cytology Technician (Cytotechnologist)
30 Histology Technician
31 Medical Laboratory Assistant
32 Nurse, Associate Degree
33 Practical (Vocational) Nurse
34 Nurse's Aide
35 Hospital Food Services Supervisor
36 Inhalation Therapy Technician
37 Medical X-ray Technician (Radiologic Technologist)
38 Optician
39 Surgical Technician (Operating Room Technician)
40 Occupational Therapy Assistant

Health Occupations (Cont.)

41 Physical Therapy Assistant
42 Other Medical Services (Specify)
43 Other Health Occupations Education
44 Electroencephalograph Technician
45 Health Education Assistant
46 Home Health Aide
47 Medical Emergency Technician
48 Medical and Psychiatric Social Worker Assistant
49 Nuclear Medical Technician
50 Orthoptic Technician
51 Orthotist
52 Radiation Therapy Technician
53 Other (Specify)

HOME ECONOMICS

55 Education
56 Miscellaneous Personal Services
57 Domestic Services
58 Textile Occupations
59 Other

OFFICE OCCUPATIONS

60 Education
61 Law and Jurispudence
62 Managers and Officials
63 Stenographic, typing, filing, and related occupations
64 Computing and Account Recording
65 Salesmen, Services
66 Salesmen and Salespersons, Commodities
67 Merchandising Occupations, except salesmen
68 Processing Occupations
69 Machine Trades Occupations
70 Miscellaneous Occupations
71 Health Occupations
72 Other

TECHNICAL OCCUPATIONS

73 Life Sciences
74 Social Sciences
75 Mathematics and physical sciences
76 Architecture and engineering
77 Medicine and Health
78 Education
79 Museum, Library and Archival Sciences
80 Production and Distribution of Utilities
81 Other

TRADES AND INDUSTRY

82 Metal Machining
83 Metalworking n.e.c.
84 Mechanics and machinery repairmen
85 Paperworking Occupations
86 Printing
87 Wood Machining
88 Machining Stone, Clay, Glass, and Related Materials
89 Textiles
90 Machine Trades, n.e.c.
91 Fabrication, assembly and repair of metal products
92 Fabrication and repair of scientific and medical apparatus, photographic and optical goods, watches, and clocks and related products
93 Assembly and Repair of Electrical Equipment
94 Fabrication and repair of products from assorted materials
95 Painting, decorating and related occupations
96 Fabrication and repair of plastics, synthetics, rubber, and related products
97 Fabrication and repair of wood products
98 Fabrication and repair of sand, stone, clay and glass products
99 Fabrication and repair of textile, leather, and related products
01 Bench work occupations
02 Welders, flame cutters and related occupations
03 Electrical Assembling, installing and repairing
04 Painting, plastering, waterproofing, cementing, and related occupations
05 Excavating, grading, paving and related occupations
06 Construction n.e.c.
07 Structural work n.e.c.
08 Motor Freight
09 Transportation
09 Packaging and handling
09 In extraction of minerals
09 Logging
09 Production and distribution of utilities
09 Graphic art work
09 Building and Related Service
09 Processing of metal
09 Ore refining and foundry
09 Processing of food, tobacco, and related products
09 Processing of petroleum, coal, natural and manufactured gas, and related products
09 Processing of chemicals, plastics, synthetics, rubber, paint, and related products
09 Processing of wood and wood products
09 Processing of stone, clay, glass, and related products
09 Processing of leather, textiles, and related products
09 Processing occupations
09 Cosmetology

APPENDIX C

TITLE: A Computerized State-Wide Follow-Up System Which Utilizes Sampling as a Data Collection and Projection Technique. Developmental Phase.

INSTITUTION: Kansas State Teachers College, Emporia, Kansas 66801.

DIRECTOR AND
PRINCIPAL INVESTIGATOR: Kenneth E. Hoffman, Coordinator of Vocational Education, Kansas State Teachers College, Emporia.

DURATION: January 1, 1970 to December 30, 1971.

ABSTRACT: The purpose of this project is to develop the system and the forms for a computerized state-wide vocational-technical pupil follow-up program. It is also intended that this effort will test the usability of state-wide random sampling of vocational-technical graduates as an alternative to an "every-pupil" follow-up in order to minimize the work involved in obtaining follow-up data. The total project is planned for three phases. The Developmental Phase, the Pilot Phase and the Dissemination Phase. The Developmental Phase which is included in this proposal is scheduled to last for eighteen months and will be carried out at Kansas State Teachers College, Emporia. The preliminary work on this project has already been initiated by Kansas State Teachers College in cooperation with the Kansas State Department of Education, Kansas Research Coordinating Unit and the U. S. Office of Education. Initial contacts have already been made with the Internal Revenue Service in an investigation of the possibility of obtaining current addresses and other information of vocational-technical education graduates. A Project Advisory Committee made up of representatives of the four agencies listed above will assist in the planning, coordination, and evaluation of this computerized state-wide follow-up system. It is estimated that this system would be operational after the completion of phase two of this project in September, 1972.

Submitted for partial funding to the Kansas State Department of Education, Vocational-Technical Division, Mr. John E. Snyder, Acting Assistant Commissioner.

Approved:

_____
Kenneth E. Hoffman, Director

_____
John E. Visser, President
Kansas State Teachers College

_____ _____
John E. Snyder, Acting Assistant Commissioner Date
Vocational-Technical Division
Kansas State Department of Education

Addendum:

1. A quarterly report of project expenditures will be provided by the Grantee.

2. Progress reports will be provided on a semi-annual basis by the Project Director, Dr. Kenneth Hoffman.

3. Don Strait, Kansas Vocational Education Department, will serve as liaison person for this program at no cost to the project.

4. For the services rendered the grantee will receive in advance the sum of $7,798. (Seven thousand seven hundred ninety-eight)

5. The starting date will be January 1, 1970. The final report of this phase will be due December 30, 1971.

PROBLEM AND OBJECTIVES

Importance of Follow-up to Evaluation

Follow-up studies of students from vocational-technical education programs have relied primarily on the use of mailed survey instruments. Two important elements are essential for the successful completion of mailed follow-up programs. First, an up-to-date mailing list must be maintained if follow-up questionnaires are to reach former students. Secondly, completed returns must reach preferred levels before any confidence can be placed in these results.

Securing an up-to-date mailing list of students who are just leaving a program as graduates is relatively simple. However, accurate addresses become more difficult to obtain as the years since graduation add up. Since graduate follow-up has been recognized as one of the most important foundations for vocational-technical program evaluation, the level of returns from students becomes critical for the local vocational-technical program. In addition, state-wide follow-ups are only as complete as the returns from local programs which are reported to State Department personnel.

Two known studies, Wyoming[1] and Washington[2], carried out by Research Coordinating Units, have been an exit form for obtaining information to expedite follow-up studies during the first year after a student leaves the vocational school. The State of Washington uses a change of address form, which hopefully, former students will use to keep the State Board for Vocational Education informed of address and job changes. The postage and bookkeeping costs which accompany this system have been reported as being very high in the state of Washington.

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Both the Washington and Wyoming studies require the use of the mail. It has been learned through correspondence conducted by the Kansas Research Coordination Unit that the Washington study, nearing completion, cost the State Board approximately $2.00 per student respondent. During the 1967-68 school year, 27,889 students in Kansas completed training in secondary and post-secondary vocational training programs of less than baccalaureate degree.[3] This total does not include the number of students who did not complete programs (the drop-outs) or the number of persons who enrolled in adult programs. For the approximately 28,000 graduates mentioned above, a very high cost per year would be incurred at $2.00 per student return for the follow-up of Kansas vocational-technical students one year after graduation.

The State Board for Community Colleges and Occupational Education through the Research Coordination Unit in Colorado, is currently designing a model for follow-up of vocational students.[4] The design for this project will be similar to the two listed above (1,2). All use the format for OE - 4-45, "Follow-Up of Enrollees in Cooperative and Preparatory Vocational Education Programs," used by State Directors of Vocational Education in reporting to the Department of Health, Education and Welfare, U. S. Office of Education, Washington, D.C.

The Washington and Colorado state-wide follow-up programs are designed for use at the State level--the Wyoming program at the local level.

Jerome Moss made some suggestions concerning the value of follow-up systems in evaluating vocational education programs.[5] Moss compared the use of follow-up systems for formative evaluation and with the use

of follow-up systems for summative evaluation. The formative evaluation was described as an evaluation used as the basis for suggested program revisions. More frequently, however, Moss suggested that follow-up is used to collect data about the status of former students to serve as program outcome criteria. For instance, information of student work history may be obtained. This data can then provide evidence for use in both formative and summative evaluation provided that the potential differential effects on outcomes of intervening variables and student characteristics are taken into account.

Moss criticized summative evaluation and compared follow-up data with equivalent adjusted data from some alternative program. Too many studies, Moss said, have been reported in which a high placement rate is assumed to be valid evidence of a good Vocational Program without bothering to compare that rate with some alternative program's placement rate or without taking into consideration possible differences between programs in student aptitudes and in labor demand in a geographical area concerned.

A further limitation on follow-up programs is the fact that most follow-up programs hardly ever attain high enough levels of return to represent the group which is being questioned. Questionnaires were sent to 1,201 graduates from a sample of 52 of the 89 high schools in Texas which students had completed one or more years in Vocational Agriculture. Only 56% of the total graduates to which questionnaires had been sent responded. This is one of the highest rates of responses for mailed follow-up studies which were reviewed for this proposal.

Peter G. Haines followed up the 1964 graduates of Michigan high schools. He previewed 5,420 graduates in 1965. Findings of his research were based upon the returns of 55% of the students surveyed.[6]

Max Eninger initiated one of the most comprehensive evaluation studies of the sixties.[7] He mailed survey instruments to over 10,000 Trade and Industrial Education graduates, over 3,000 academic course graduates, in 100 high schools in the United States. His analysis was based on a 49.1% return for vocational graduates and a 50.9% return from academic graduates. Some progress has been made in the computerizing follow-up information and the use of sampling as a data collection technique.

Jerome Moss once again summarized most of the problems concerned with collection graduate data from mailed follow-up studies. Moss's statement:

> "Coster and Ihnen report that there are inadequate data available for program evaluation. A few large scale follow-up studies have been attempted. They showed no marked effects for vocational programs, but they lacked the control that would give reasonable assurance of casual relationships. Some small scale regressional studies were undertaken; the methodology has promises, but so far they must be considered as pilot attempts only. Cost benefit studies are not immune to problems of identifying and measuring individual and social costs and benefits, especially projected costs and benefits.
>
> Self-evaluative or expert opinion of program characteristics are the dominant evaluative techniques. They may serve many useful purposes, such as motivation staff, and improving community relationships; but, as evaluative techniques, they can only be classed as acts of faith.
>
> The years ahead will demand a great deal of effort and patience, beginning with the identification and classification of the potential outcomes of instruction, if we are to move toward objective program evaluation. The completely unsatisfactory alternative is to remain at our present level of judgment of the educational process."[8]

From the preceding studies it has been found that: (1) securing an up-to-date mailing list is time consuming; (2) considerable time is lost while waiting for completed returns so tabulations can be finalized; (3) mail type follow-up studies become expensive; (4) the level of returns are seldom high enough so that reliable generalizations can be made.

To obtain a more exact representation for use in evaluation, follow-ups must be based on graduate studies that continue from year to year for as long as deemed important, e.g., five to ten years.

An efficient and economical system is needed at the State level for providing appropriate state educational agencies with accessible, reliable, and cumulative follow-up data about persons who have completed vocational-technical education programs. The system (method) would serve as the basis for annual updating of State department records and for providing local area, and State educational institutions information to supplement their follow-up efforts.

A few states have initiated follow-up procedures which include standardized student information forms that are key punched and processed by a central computer to obtain state-wide follow-up information. The area vocational-technical schools of Iowa have recommended a state-wide system of student accounting, including follow-up, which utilizes central data processing facilities.[9] The state-wide plans identified in this review are "every-pupil" follow-up systems.

Typically, state vocational-technical education includes several types of programs, e.g., high school, area vocational-technical schools, technical institute, community junior colleges, etc. Because of such a wide variety of educational institutions as well as the many different types of vocational-technical program, an "every-pupil" follow-up system is of necessity diverse and complex. As far as it is known, no state-wide system has been initiated that used sampling as the basis for its student follow-up, nor does any other state integrate existing Federal Internal Revenue or Social Security Administration data to ease the heavy burden of finding the current addresses of vocational-technical graduates.

OBJECTIVES

The purpose of this effort is to develop an efficient, reliable, and somewhat unique state-wide follow-up system using the state of Kansas as the system model. To fulfill this purpose, the following specific objectives are proposed:

Developmental Phase (This proposal)

Step (1) The collection of time and efficiency standards for current every-pupil state-wide follow-up systems.

Step (2) The development of a prototype system and the forms needed for a computerized state-wide vocational-technical pupil follow-up program.

Step (3) Testing the usability of state wide random sampling of vocational-technical graduates as an alternate to an "every-pupil" follow-up to minimize the work involved in obtaining follow-up information.

Step (4) Planning and preliminary development of an inter-agency cooperative program between the Internal Revenue Service or the Social Security Administration and the Kansas State Vocational Education Agency for obtaining current vocational-technical graduate information.

Pilot Phase (A later proposal)

Step (1) Testing the system's use through trial administration throughout the state of Kansas.

Step (2) Evaluation of the forms and design of the system.

Step (3) Working out an inter-agency agreement for continual procurement of information about vocational-technical graduates.

Dissemination Phase - The Use to be Made of Findings (Evaluation) This third phase will be conducted later and involve dissemination to local vocational-technical programs in Kansas.

PROCEDURES

Preliminary planning for this development study has been carried out with the following persons and representatives from the State Department of Education, Vocational-Technical:

John E. Visser, President, Kansas State Teachers College, Emporia;

Carl S. Barber, Technical Education, Program Officer, Vocational and Technical Education Division, Region VI, U.S. Office of Education;

George A. Robinson, Director, Kansas Research Coordinating Unit for Vocational Education;

F. E. Hartzler, Special Consultant to the Kansas State Department of Education, Vocational-Technical Division;

H. D. Shotwell, Kansas State Supervisor of Business Occupations Education;

Glenn C. Crumb, Director of Grants and Research, Kansas State Teachers College;

Raymond B. Russell, Director, Division of Business and Business Education, Kansas State Teachers College;

Lloyd R. Edwards, Assoc. Professor and Director of the Data Processing and Computer Center, Kansas State Teachers College;

Richard Taylor, Supervisor of Technical Education Service, Kansas State Department of Education, Vocational-Technical Division.

The proposal is based upon the unanimous agreement of the persons mentioned above that a state-wide computerized follow-up system which utilizes existing graduate information is highly desirable for the State of Kansas and that Kansas State Teachers College be the institution to develop this follow-up system.

It is proposed that the research and data processing personnel and facilities of Kansas State Teachers College be used to carry out the objectives of this activity. The follow-up system will be developed here in three distinct stages each of which is scheduled to last for eighteen months. Preliminary efforts have already been initiated at Kansas State Teachers College in development of the model system. Sample forms and tentative computer programs have already been developed by Joe DeMichael and are available for this research effort. The first stage which is the subject matter of this proposal, is listed below along with the planned completion dates of the major steps of this first phase.

Project initiated January 1, 1970.

1. Formation of a project advisory committee on January 1, 1970, which will prepare the detailed plans of the project and coordinate the research efforts with the various agencies involved, the State Department of Education, Kansas State Teachers College, and the Kansas Research Coordination Unit by February 28, 1970. This project advisory committee will also participate in the evaluation of the results of the research as well as of the forms and systems developed therein. This committee will be composed of: Dr. Lloyd Edwards, Dr. Raymond B. Russell, Mr. H. D. Shotwell, Mr. F. E. Hartzler, and Mr. Richard Taylor.

2. Appointment of supporting personnel by May 1, 1970, to assist in carrying out the activities of the proposal. This will include a graduate assistant with competency in data processing and a background in vocational-technical education. A computer programmer as well as a coder and another secretarial-clerical worker will be employed for this effort.

3. Selection of existing follow-up standards based upon records and reports of current "every-pupil" follow-up systems. August 1, 1970.

4. Development of pilot forms and procedures for the prototype system of computerized state-wide vocational-technical follow-up. October 1, 1970.

5. Selection of vocational-technical student information from forms that were collected at the beginning of the 1968-69 school year for development of the collection system and trial of the random sampling technique. Student information data work completed January 1, 1971. Data processing, programming, and computer services of Kansas State Teachers College are to be utilized in establishing this data recording and reporting system.

6. Construction of the sampling procedure and format for return of the forms to the local school for collection of follow-up information. January 30, 1971.

7. Collection and analysis of data completed. April 1, 1971.

8. Evaluation by the project advisory committee and written recommendations concerning the prototype system completed. July 1, 1971.

9. Final report written and recommendations published. December 30, 1971.

METHOD

The activities conducted for this project will be coordinated by the Director and utilize the personnel and facilities of Kansas State Teachers College, Emporia. Representatives of the Kansas State Department of Education, Vocational Education Division will be actively involved in an advisory and consultative capacity throughout the duration of the project in planning and coordinating the research effort.

It is planned that the entire list of the names of vocational-technical students from every school and in every type of program within the state during the school year 1968-69 will be recorded and stored on data processing cards at Kansas State Teachers College, Emporia. Student names will be compiled from the existing state report "VE-50" entitled "Enrollment" for all students who were enrolled in approved Kansas vocational education programs as of the 1968-69 date. These state reports are filed with the State Board for Vocational Education. A sampling procedure will be selected and a stratified random sample drawn from the vocational-technical student population. The sample list will then be returned from the college to each of the participating schools along with explanations of the procedure for collecting and reporting follow-up information for only a portion of their graduating class.

Special report forms will have been developed or adapted by the K.S.T.C. research team for use in collecting student follow-up information.

Planning will then be completed and an inquiry directed to the Internal Revenue Service or the Social Security Administration about current address, occupation, employer, and income data for graduates of Kansas vocational education programs.

The graduate social security number which was collected from state enrollment data will serve as the basic locator of vocational education graduates.

Data collected from the sample of 1968-69 Kansas vocational students will be used to estimate the occupation, employment, migration, and income characteristics of the total graduate population. In addition, the sampling technique will be tested as to its usefulness as a tool for state follow-ups involving large graduate populations.

EVALUATION

Time, cost, and efficiency records will be kept for every step of the follow-up procedure (e.g. storing student enrollment data, sampling procedure, mailing and handling costs, data processing and computer time, etc.) for comparison with time, cost, and efficiency records of the conventional "every-pupil" follow-up systems. The comparison will be made by the project advisory committee listed earlier in this proposal.

The efficiency of this data recording and reporting system will be determined through computation of the following figures:

(1) the number of graduate returns required to constitute an adequate sample;

(2) the percentage of sampled student returns required and obtained to make estimates of the total population;

(3) the reliability of the estimates of the characteristics of the total graduate population;

(4) the cost and ease of obtaining current address data for graduates from IRS or Social Security Administration.

The advisory committee will evaluate the total research project in terms of the objectives of the first stage of this research as states on page 6 of this proposal.

PERSONNEL

Director:

Kenneth E. Hoffman, Coordinator of Vocational Education, Kansas State Teachers College, B.A. St. Benedict's College, 1959, M.S.C. Kansas State Teachers College, Emporia, 1960, Ph.D., The Ohio State University, 1968.

Hoffman served for six years as teacher-coordinator of vocational business education, two years as teacher-educator of business education at Kansas State Teachers College, two years as research associate, The Center for Vocational and Technical Education, The Ohio State University. Since September 1, 1969, Hoffman has been the Coordinator of Vocational Education, Kansas State Teachers College, Emporia.

Research Assistants:

These assistants will be students at Kansas State Teachers College who are working toward advanced degrees in vocational education. These persons will have the technical, occupational and professional experience appropriate to the follow-up system to be developed through this effort.

FACILITIES

Data Processing and Computer Equipment will be made available at no cost to the project by the Computer and Data Processing Service at Kansas State Teachers College.

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2. State Board for Vocational Education. A Follow-Up System for Vocational-Preparatory Students for the State of Washington. Olympia: State Department of Public Instruction, 1966. 13 pp.

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6. Haines, Peter G. "How High School Cooperative Trainees Fare in the Labor Market" Phase C. A Follow-Up Study of 1964 Graduates Ten Months After Graduation. East Lansing: Michigan State University, August, 1966.

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8. Moss, Jerome, Jr. "The Post is Prologue" Review of Educational Research. Vol. XXXVIII, No. 4, pp. 434-440.

9. Illingsworth, R.N. Report of the State Director's of Student Personnel Long Range Future Action Committee on Data Processing for Iowa Area Schools. Waterloo: The Data Processing Future Action Committee. September, 1968.

PROPOSED BUDGET

CHECK ONE: RESEARCH ___ TRAINING ___ EXPERIMENTAL, DEVELOPMENTAL, OR PILOT X

INVESTIGATOR: Dr. Kenneth E. Hoffman

INSTITUTION OR AGENCY: Kansas State Teachers College, Emporia, Kansas 66801

BEGINNING DATE: January 1, 1970 ENDING DATE: December 30, 1971

ITEM	AMOUNT REQUIRED	
	GRANT FUNDS	APPLICANT OR OTHER FUNDS
DIRECT COSTS		
Personnel:		
Project Director, 1/10 time on project 18 months. Per annum salary $15,000.		$2,250.00
Secretarial and clerical, 60 hours per month. 18 months @ $1.50/hour	$1,620.00	
Data Processing Research Assistant, 12 months, @ $334 per month. Technician, 6 months, @ $300 per month.	4,008.00 1,800.00	
Retirement Costs:		
TIAA (6.9% of faculty salaries)		155.25
FICA (4.8% of faculty salaries)		74.88
Hospitalization @ $8.32/mo. X 18 months X 1/10		14.97
(No retirement costs are charged for graduate assistants and secretary)		
Supplies and Materials		
Consumable Supplies - Data Processing	50.00	
Services:		
Data Processing & Computer Equipment (65 hours @ $10/hour		650.00
Duplicating and Printing Costs	250.00	
Communication Costs		
Mail	20.00	
Telephone	50.00	
Total Costs $10,943.10	$7,798.00 (71.3%)	$3,145.10 (28.7%)

A COMPUTERIZED STATE-WIDE FOLLOW-UP SYSTEM WHICH UTILIZES SAMPLING AS A DATA COLLECTION AND PROJECTION TECHNIQUE: PILOT PHASE

Objectives:

This project is a continuation of the project initiated on January 1, 1970, to develop the second phase for a Computerized State-Wide Vocational-Technical Pupil Follow-Up System. This second phase will test the usability of the state-wide follow-up system which was initiated earlier in the developmental phase of this project. The specific objectives of this pilot phase are:

1. Testing the Computerized Follow-Up Systems through trial administration in selected schools throughout the state of Kansas.
2. Evaluation of the forms and design of the system in terms of (a) completeness; (b) usability; and (c) adaptability to existing computer facilities.
3. Testing the Inter-agency agreement between the state of Kansas Income Tax Service and U.S. Internal Revenue Service for continual procurement of information about vocational-technical graduates.

Procedures:

It is planned to initiate the project on July 1, 1971, and to complete the project by October 1, 1972. Ten secondary, five post-secondary, and five area vocational technical schools will be selected for trail administration of the follow-up system during the 1971-72 school year. Each of these schools will complete the entry, exit, and follow-up forms for all the vocational-technical students in their schools. In addition, current address information will be made available for their graduates from the 1969-70 school year and the 1970-71 school year.

Through complete processing of this two year's data, an evaluation of the system will be made. The final report will include a complete assessment of the system as it was evaluated on the basis of the trial and the comprehensive report on the use of the system from the state department level. It is planned that detailed time, cost, and efficiency records will be kept for every step of the trial of the follow-up system. In addition, the project advisory committee will evaluate this phase of the research project in terms of the overall objectives of both the first and second phase of this research.

Personnel:

Project Director, Kenneth E. Hoffman, Coordinator of Vocational Education, Kansas State Teachers College, B.A. St. Benedict's College, 1959, M.S.C. Kansas State Teachers College, Emporia, 1960, Ph.D., The Ohio State University, 1968.

Hoffman served for six years as teacher-coordinator of vocational business education, two years as teacher-educator of business education at Kansas State Teachers College, two years as research associate, The Center for Vocational and Technical Education, The Ohio State University. Since September 1, 1969, Hoffman has been the Coordinator of Vocational Education, Kansas State Teachers College, Emporia.

Research Assistants:

It is anticipated that two graduate assistants will be utilized in carrying out this second phase of the research project. One research assistant will work directly with the completion of the second phase of this research. A second research assistant will work with the computer and data processing aspects of the follow-up system.

Secretarial:

It is planned to utilize the equivalent of one half-time secretary for the fifteen-month duration of the project.

Facilities:

Data processing and computer equipment as well as secretarial equipment will be made available at no cost to the project by the Division of Business and Business Education and the Data Processing and Educational Measurements Center of Kansas State Teachers College.

PROPOSED BUDGET: Phase Two

CHECK ONE: RESEARCH ___ TRAINING ___ EXPERIMENTAL, DEVELOPMENTAL, OR PILOT X

INVESTIGATOR: Dr. Kenneth E. Hoffman

INSTITUTION OR AGENCY: Kansas State Teachers College, Emporia, Kansas 66801

BEGINNING DATE: July 1, 1971 ENDING DATE: October 1, 1972

ITEM	AMOUNT REQUIRED	
	GRANT FUNDS	APPLICANT OR OTHER FUNDS
DIRECT COSTS		
Personnel:		
Project Director, 1/10 time on project 15 months. Per annum salary $15,900.		$1,987.50
Secretarial and clerical, 80 hours per month. 15 months @ $1.60/hour.	$1,920.00	
Research Assistant, 15 months, @ $334 per month.	5,010.00	
Technician, 6 months, @ $300 per month.	1,800.00	
Retirement Costs:		
TIAA (6.9% of faculty salaries)		137.14
FICA (5.2% of faculty salaries)		82.68
Hospitalization @ $10.10/mo. X 15 months X 1/10		15.15
(No retirement costs are charged for graduate assistants and secretary)		
Supplies and Materials:		
Consumable Supplies - Data Processing		
Travel:		
To I.R.S. in Washington (2 persons - 2 days)	380.00	
Services:		
Data Processing and Computer Equipment (65 hours @ $10/hour)	150.00	500.00
Duplicating and Printing Costs	400.00	
Communication Costs		
Mail	20.00	
Telephone	50.00	
Advisory Committee Meetings 3 at $40 each (Materials & Meal)	120.00	
Total Costs $12,572,47	$9,850.00 (78.3%)	$2,722.47 (21.7%)

A COMPUTERIZED STATE-WIDE FOLLOW-UP SYSTEM WHICH UTILIZES SAMPLING AS A DATA COLLECTION AND PROJECTION TECHNIQUE: DISSEMINATION PHASE

Objectives:

This project phase is a continuation and completion of the project initiated on January 1, 1970, to develop a Computerized State-Wide Vocational-Technical Pupil Follow-Up Program. This third and final phase will orient the vocational-technical personnel in the state of Kansas on the value and use of the computerized follow-up system developed in Phase One and tried in Phase Two of this study. The specific objectives of this Dissemination Phase are:

1. Development of a plan whereby local vocational administrators, personnel officers, and teachers will be trained in the use of the computerized follow-up system.
2. Completion of the seminars and training sessions needed to carry out this orientation.
3. Evaluation of the accuracy and completeness with which local and state personnel are able to carry out their part of the follow-up system.
4. Follow through in evaluation of the training and orientation process.

Procedures:

It is planned to initiate the project on October 1, 1972, and to complete the project by December 31, 1973. A series of regional training and orientation sessions will be conducted throughout the state of Kansas beginning in January 1973. In order to conduct these training sessions, all the training materials and information sheets will be developed.

In addition, the training sessions themselves will need to be planned, coordinated, and evaluated. It will also be necessary to closely coordinate this first state-wide follow-up effort with the Kansas State Department of Education. The project advisory committee which has been utilized through Phase One and Two will continue its work in evaluating this third phase of the research project in terms of the overall objectives of the project and the objectives involved in the third phase of this research.

Personnel:

Project Director, Kenneth E. Hoffman, Coordinator of Vocational Education, Kansas State Teachers College, B.A. St. Benedict's College, 1959, M.S.C. Kansas State Teachers College, Emporia, 1960, Ph.D., The Ohio State University, 1968.

Hoffman served for six years as teacher-coordinator of vocational business education, two years as teacher-educator of business education at Kansas State Teachers College, two years as research associate, The Center for Vocational and Technical Education, The Ohio State University. Since September 1, 1969, Hoffman has been the Coordinator of Vocational Education, Kansas State Teachers College, Emporia.

Research Assistants:

It is anticipated that one graduate assistant will be utilized in carrying out this third phase of the research project. This research assistant will have a background in vocational education and be competent in coordinating seminars and training sessions.

Secretarial:

It is planned to utilize the equivalent of a half-time secretary for the fifteen-month duration of this project.

Facilities:

Data processing and computer equipment as well as secretarial equipment will be made available at no cost to the project by the Division of Business and Business Education and Data Processing and Educational Measurements Center of Kansas State Teachers College.

PROPOSED BUDGET: Phase Three

CHECK ONE: RESEARCH ___ TRAINING ___ EXPERIMENTAL, DEVELOPMENTAL, OR PILOT X

INVESTIGATOR: Dr. Kenneth E. Hoffman

INSTITUTION OR AGENCY: Kansas State Teachers College, Emporia, Kansas 66801

BEGINNING DATE: October 1, 1972 ENDING DATE: December 3, 1973

ITEM	AMOUNT REQUIRED	
	GRANT FUNDS	APPLICANT OR OTHER FUNDS
DIRECT COSTS		
Personnel:		
Project Director, 1/10 time on project 15 months. Per annum salary $15,900.		$1,987.50
Secretarial and clerical, 60 hours per month. 15/week @ $1.60/hour.	$1,440.00	
Research Assistant, 12 months, @ $350 per month.	4,200.00	
Retirement Costs:		
TIAA (6.9% of faculty salaries)		137.14
FICA (5.2% of faculty salaries)		82.68
Hospitalization @ $10.10/month X 15 months X 1/10		15.15
(No retirement costs are charged for graduate assistants and secretary)		
Travel:		
Two persons, 6 training sessions, 150 quarter days	450.00	
Automobile	90.00	
Supplies and Materials:		
Consumable Supplies	50.00	
Seminar and Training Materials	100.00	
Services:		
Duplicating and Printing Costs	200.00	
Communication Costs		
Mail	60.00	
Telephone	150.00	
Total Costs $8,962.47	$6,740.00 (75.2%)	$2,222.47 (24.8%)

COMPUTERIZED STATE-WIDE FOLLOW-UP SYSTEM

First Advisory Committee Meeting

Minutes

April 16, 1970

Advisory Committee Members Present:

Carl Barber, U.S. Office of Education, Kansas City, Missouri
Loren J. Brinkmeyer, Data Processing, Butler County Community Junior College
Darrell Brensing, Director, AVTS, Manhattan, Kansas
Dr. Raymond B. Russell, Director of Business and Business Education, KSTC
Wilbur Rawson, Supervisor of Technical Assistance (Substituting for Don Strait)
F. E. Hartzler, Business and Business Education, KSTC
Dr. M. Lloyd Edwards, Professor and Director of Data Processing and Computer Center, KSTC
Dr. Ken Hoffman, Coordinator of Vocational Education, KSTC
Jim Kestner, Graduate Assistant

After a welcome by Dr. Ken Hoffman, an explanation of the GANTT Chart was given by Jim Kestner. The framework of the session was a detailed discussion of the planned activities of the first phase of the project.

Mr. Carl Barber pointed out the significance of having this advisory committee meeting. He also mentioned what was learned in his initial contacts with the Internal Revenue Service.

The U. S. Bureau of the Budget is interested in the type of follow-up system being developed through this project. It's a matter of knowing what is wanted in the project activities and being able to explain this to them. The Bureau of the Budget wants to know exactly where and for what the vocational-technical money is being spent. Detailed output is wanted that represents <u>people accountability</u>. It was emphasized that every dollar spent should be for the ultimate system objectives.

The IRS must be able to see the reasons for having a follow-up system. The IRS appears to be eager to help to lift the earning ability of those who have had vocational training. At the same time, follow-up systems improve education in general. It is important to know what graduates are doing on a long term basis after graduation rather than just a few months after leaving a vocational-technical program.

Kansas is fortunate in that it has a direct working relationship with the IRS in Washington.

If we had their permission, the Irs would have available: 1) the address, 2) the salary, and 3) the social security number of vocational-technical graduates. Another item which might need to be available is whether or not a person has had vocational training. We would also like to know his occupation and the name of the company for which he works. (This information is on IRS forms, but is not presently being captured). This brings up the problem of job titles. Coding is difficult because there are many titles for the same job.

Some of the problems that are encountered in a follow-up system were discussed. In any follow-up system there is always going to be a loss of some of the people. To lower the number that are lost, a print-out of current addresses of graduates would be valuable. This would help educators keep track of those people who leave Kansas. In an effort to overcome this problem, the AVTS in Manhattan has designed an Exit Form. The student fills it out after being at the Manhattan school for a very short time. The school then has a permanent record of the student's social security number and other relevant information. However, those who are deceased, or who leave without any indication of where they are going could always be lost.

The random sampling problem also came up. It was said by one member that it is hard to be accurate with sampling when so many factors are involved such as the need for a large population. It is possible, however, to generalize very accurately from a carefully drawn sample to a very large population if data is available for a very high percent of the graduates sampled.

If information is to be taken from the IRS, there is the question of its reliability. How reliable, for instance, is the amount of salary that is captured from the income tax form?

In a short term follow-up, a person is often assumed to be in the same occupation even though he may have changed occupations soon after completing the follow-up form. Usually the person doing the follow-up isn't told of the change.

One of the biggest follow-up problems is the fact that many people do not answer the questionnaires that are sent out. Because of this situation, it is essential to ask only those questions which are pertinent to the study. If the follow-up questionnaire is short, there is usually a bigger response. At the same time, there is not a lot of extra, unnecessary papers floating around that may not be read anyway.

Suggestions for diggerent follow-ups were given. One of these suggestions was to extend the follow-up that is presently coming into Topeka.

Another said we could assimilate a follow-up system as though we were already obtaining information from IRS and make a program of it. Then we would be ready, if and when, the IRS did give us information.

There was unanimous agreement among the committee members that the planned goals and activities of the project be broadened to develop a follow-up system based upon complete data from IRS as well as the development of a

follow-up system designed to be of immediate use to Kansas until the ultimate system will be available.

In the next six months a tape will be coming into Topeka with the names of all those who filed federal income tax forms in Kansas. It was suggested that we work with vocational education students' social security numbers, and cross-check them with the federal income tax data tape received in Topeka.

A critical element in a follow-up system is usability in future years. It was noted that, 1) Future follow-up research grants will go to those with experience and background; 2) The follow-up system should be built up to what is needed in the future (example: five years, ten years); 3) Assimilation or trial is needed to develop what already exists into what is needed.

In the long range view there has to be quality-control and cost-control. The Assistant Commissioner of Vocational-Technical Education would be able to have follow-up information as an aid in local school and state-wide program evaluation. It appears as though it would be the responsibility of the state to give a print-out of follow-up data to the local school.

Some questions which will have to be answered in the completion of the follow-up study were: 1) Exactly what is vocational training? 2) How broad should be the criteria for related occupational placement and success? 3) What type of sampling should be used?

When the members were asked to summarize their opinions on the project, some of their replies were: Have a joint meeting of KSTC, Federal IRS, USOE, and possibly bring in a representative of the State Revenue Service along with a representative of the State Controller for Kansas, Mr. James R. Cobb. In this meeting it is important that the right people from each department be contacted and involved in the meeting.

The necessity of getting only needed information was again emphasized.

The question of the source of the follow-up was discussed. If the source of the name and social security number of vocational-technical students is the enrollment form, will it be captured manually? It was then brought up that if the state can print it, processing will probably have to go through the state. If the state is involved, the state generally has to do it, unless a contract can be arranged with another institution. There is always the fact that the State Department of Education has the final decision on adopting the system after completion.

The latter part of the afternoon was spent discussing the proposals for the second and third phases of the project. It was recommended that the proposals should be presented for review to the entire State Department's vocational education staff. There was agreement among the members on the second phase of the overall project. Some caution was recommended by one member on the third, or dissemination phase, until the results of the second phase are available.

When asked opinions of the proposals, one person said he thought sampling was needed in the second phase. It was pointed out that it was planned to use sampling in selecting the trial schools. Another member had reservations about the accuracy of information collected on follow-up forms.

Mr. Barber said he would call Washington the next day to find out more information about IRS practices. It was also suggested that this follow-up project might be worked into a storage-recall system.

After asking the members, it was found that the last week in June or the first week in July would be the best time to have the Second Advisory Committee Meeting. However, if any problems come up or any major breakthrough occurs, an individual meeting with committee members may be held or communication carried out through correspondence.

APPENDIX G

TERRITORIES AND STATES IN DATA SURVEY

Territories

Puerto Rico

Guam

United States

Alabama
Alaska
Arkansas
California
Colorado
Delaware
Florida
Georgia
Hawaii
Idaho
Iowa
Kansas
Maine
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Mexico
New York
North Carolina
North Dakota
Ohio
Oregon
Pennsylvania
Rhode Island
South Carolina
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming

SCHOOLS PARTICIPATING IN THE SAMPLE

Junior Colleges:

1. Butler County Community Junior College
2. Cowley County Community Junior College

Area Vocational-Technical Schools:

1. Central Kansas AVTS--Hutchinson
2. Central Kansas AVTS--McPherson
3. Central Kansas AVTS--Newton
4. Flint Hills AVTS
5. Kansas City AVTS
6. Liberal AVTS
7. Manhattan AVTS
8. North Central Kansas AVTS--Beloit
9. Northeast Kansas AVTS
10. Northwest Kansas AVTS--Goodland
11. Salina AVTS
12. Southeast Kansas AVTS--Coffeyville
13. Southeast Kansas AVTS--Columbus Division
14. Southwest Kansas AVTS--Dodge City

High Schools:

1. Abilene High School
2. Belleville High School
3. Buhler High School
4. Burlington High School
5. Chapman High School
6. Cherryvale High School
7. Claflin High School
8. Colby High School
9. Council Grove High School
10. Courtland High School
11. Derby High School
12. Ellsworth High School
13. Fredonia High School
14. Garden City High School
15. Goodland High School
16. Great Bend High School
17. Herington High School
18. Hill City High School
19. Holton High School
20. Hugoton High School
21. Humbolt High School
22. Jetmore High School
23. Labette High School
24. LaCrosse High School
25. Leavenworth High School
26. Lebanon High School
27. Liberal High School
28. Marysville High School
29. Medicine Lodge High School
30. Minneapolis High School
31. Moundridge High School
32. Natoma High School
33. Neodesha High School
34. Ness City High School
35. Norton High School
36. Osage City High School
37. Paola High School
38. Pratt High School
39. Blue Valley High School
40. Riley County High School
41. Topeka High School
42. St. Francis High School
43. Uniontown High School
44. Wamego High School
45. Wichita Heights High School
46. Wichita North High School

APPENDIX H

May 27, 1970

Meeting with the Internal Revenue Service

Those in attendance were: Mr. Wayne Baker, Director of the Internal Revenue Service; Mr. Tom Foust, Assistant Director of the Internal Revenue Service; Mr. Carl Barber, U.S. Office of Education; Dr. Ken Hoffman; Mr. Jim Kestner, Kansas State Teachers College.

The meeting started with an introduction and orientation of the overall project by Dr. Ken Hoffman. The people from IRS appeared to be interested and saw some benefits in our proposed new system. This was an indication to us that they appeared to understand what the project was about. These Kansas Income Tax personnel indicated they would serve in an advisory capacity.

IRS stated they would tell us how to obtain information, from where, and from whom. They also mentioned the possibility of using data banks which are already in use on the national level.

The following recommendations were made jointly by the people from IRS, U.S. Office of Education and Kansas State Teachers College.

(1) Any program of this nature should start on the state level, although most of the data which we would be trying to obtain is available from the national level.

(2) One sheet or an IBM card could be included in the income tax return packet.

Some of the following areas were listed as potential trouble areas in terms of information received on the income tax return.

(1) Total income figure could not be used. Many returns are joint returns where both the husband and the wife file on the same return.

(2) Many people will have two or three jobs.

September 3, 1970

Meeting with the Internal Revenue Service

Those attending the meeting at Kansas City, Missouri, were Mr. John H. Stretcher, Internal Revenue Service, Mr. Carl Barber, U.S. Office of Education; Dr. Ken Hoffman and Mr. Gary Strong, Kansas State Teachers College.

The meeting opened with Dr. Hoffman explaining the overall purpose and procedure of the program. It was pointed out how the project was to be developed and how Internal Revenue Service could aid in the project.

After the explanation, Mr. Stretcher made the following points and suggestions in regard to the project.

One item to be given special consideration is the problem involved in identifying a female vocational graduate if she should marry and file a joint return. This person's social security number would not be the primary number on the return.

If a system was developed and approved, it would be impossible to provide the income tax form itself, but it might be possible to transfer data to an approved edit sheet.

In discussing the difficulty in obtaining current addresses, Mr. Stretcher suggested that it might be possible to obtain graduate addresses from their parents if the social security numbers of the parents were available. This would mean that the parents' numbers would have to be obtained from students prior to completion of the program.

It was stressed that any kind of system involving data available from the Internal Revenue Service would have to be officially approved from Washington D.C.

(3) An estimated sixty per cent return for the first year of operation. Approximately forty per cent migrate out of the state.

(4) Not everyone files an income tax return.

(5) It maybe necessary to check the files in the welfare department.

(6) It is possible that some disabled workers will be on social security. Many of those individuals would have at one time been enrolled in vocational programs.

(7) Many of the students will be in the military service.

It was also recommended that an additional educational program be used to inform students of the follow-up procedure. This, of course. would be a teaching unit such as the states of Nevada and New York are presently using. (Get some working income tax forms from both the state and national level.)

Mr. Stretcher reminded us of the great need to keep all the data confidential and to summarize or group data in such a manner that individual students cannot be identified.

Kansas income tax data is stored and processed through the Austin, Texas Office of the United States Internal Revenue Service.

APPENDIX I

1 69 1

FOR OFFICIAL USE ONLY		
Field	Year	Secondary or Post-Secondary

[] []

Dear Former Vocational Student:

It is again time to conduct our annual graduate follow-up study. We would appreciate your help in completing this questionnaire and sending it back to us as soon as possible.

Your response will aid us in improving and expanding vocational programs for future students. The information you furnish is treated as confidential and after the necessary data is obtained the questionnaire is[]destroyed.

Please read the instructions carefully before trying to answer the questions. All questions should be answered.

[]

Thank you for your cooperation in this matter.

Sincerely yours,

Ken Hoffman

To answer the questions below and on the reverse side of this card, push out the appropriate box with a sharp pencil, ball point pen or other pointed object. REMOVE THE PUNCHED TABS FROM THE CARD and enclose your card in the envelope.

3297

My Social Security Number is:

0 0 0 0 0 0 0 0 0
1 1 1 1 1 1 1 1 1
2 2 2 2 2 2 2 2 2
3 3 3 3 3 3 3 3 3
4 4 4 4 4 4 4 4 4
5 5 5 5 5 5 5 5 5
6 6 6 6 6 6 6 6 6
7 7 7 7 7 7 7 7 7
8 8 8 8 8 8 8 8 8
9 9 9 9 9 9 9 9 9

Sex:

Male []

Female []

Race:

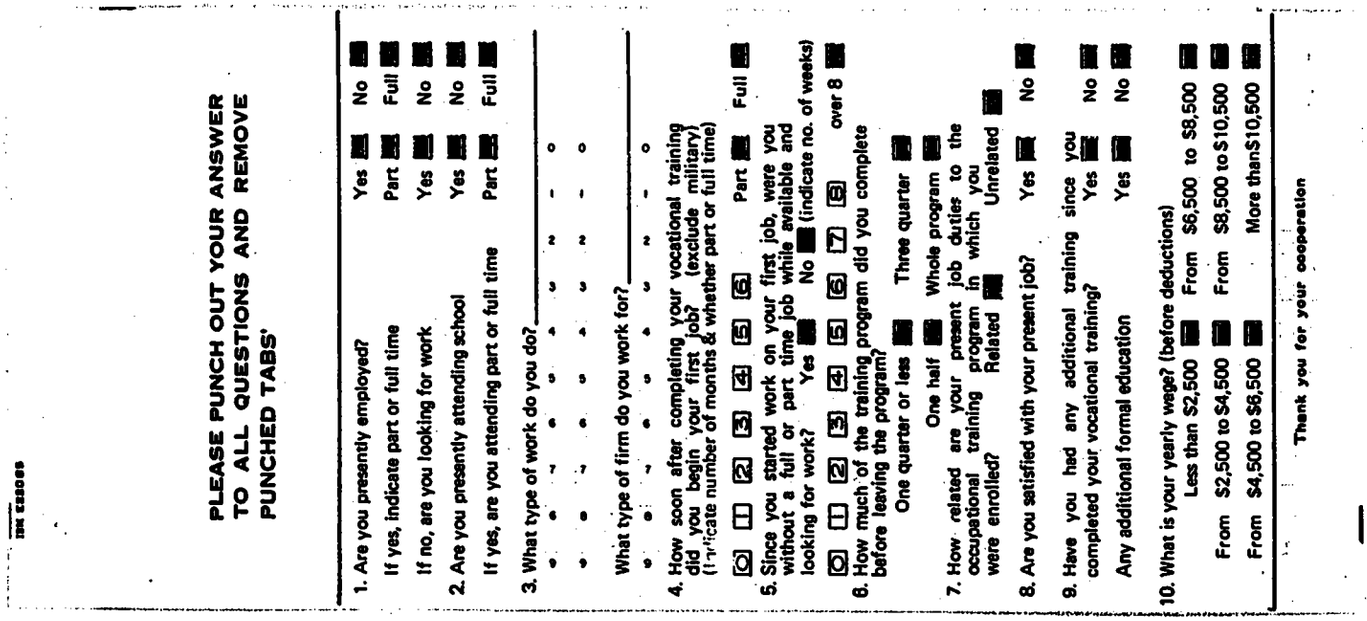
White []

Black []

Other []

Marriage Status:

Single [] Married []



PLEASE PUNCH OUT YOUR ANSWER
TO ALL QUESTIONS AND REMOVE
PUNCHED TABS'

IBM C23006

1. Are you presently employed? Yes No
   If yes, indicate part or full time Part Full
   If no, are you looking for work Yes No
2. Are you presently attending school Yes No
   If yes, are you attending part or full time Part Full
3. What type of work do you do?_____
   What type of firm do you work for?_____
4. How soon after completing your vocational training did you begin your first job? (exclude military) (Indicate number of months & whether part or full time)
   0 1 2 3 4 5 6 Part Full
5. Since you started work on your first job, were you without a full or part time job while available and looking for work? Yes No (indicate no. of weeks)
   0 1 2 3 4 5 6 7 8 over 8
6. How much of the training program did you complete before leaving the program?
   One quarter or less Three quarter
   One half Whole program
7. How related are your present job duties to the occupational training program in which you were enrolled? Related Unrelated
8. Are you satisfied with your present job? Yes No
9. Have you had any additional training since you completed your vocational training? Yes No
   Any additional formal education Yes No
10. What is your yearly wage? (before deductions)
    Less than $2,500 From $6,500 to $8,500
    From $2,500 to $4,500 From $8,500 to $10,500
    From $4,500 to $6,500 More than $10,500

Thank you for your cooperation

Dear Former Vocational Student:

It is again time to conduct our annual graduate follow-up study. We would appreciate your help in completing this questionaire and sending it back to us as soon as possible.

Your response will aid us in improving and expanding vocational programs for future students. The information you furnish is treated as confidential and after the necessary data is obtained the questionaire is destroyed.

Please read the instructions carefully before trying to answer the questions. All questions should be answered.

Thank you for your cooperation in this matter.

Sincerely yours,
Ken Hoffman

IBM C23006

TO ANSWER THE QUESTIONS at the right and on the reverse side of this card, push out the appropriate box with a sharp pencil, ball point pen or other sharp object. REMOVE THE PUNCHED TABS FROM THE CARD and enclose your completed card in the return envelope.

Sex:
- Male 1
- Female 2

Race:
- White 1
- Black 2
- Other 3

Marital Status:
- Married 1
- Single 2

PLEASE PUNCH OUT YOUR ANSWER TO ALL QUESTIONS ON BOTH SIDES OF THIS CARD AND REMOVE PUNCHED TABS

1. Are you presently employed? Yes ☐ No ☐

If yes, Part-time ☐ Full-time ☐

If unemployed, Looking for work ☐
Not looking for work ☐

2. Are you presently attending school? Yes ☐ No ☐

If yes, Part-time ☐ Full-time ☐

3. What type of work do you do? _____

What type of firm do you work for? _____

4. Have you had any additional training since you completed your vocational training? Yes ☐ No ☐

5. Have you had any additional formal education since you completed your vocational training? Yes ☐ No ☐

6. How much training did you complete before leaving the program?

One quarter or less ☐ Three quarter ☐
One half ☐ Whole program ☐

7. What is your yearly wage before deductions?

Less than $2,500 ☐
More than $2,500, less than $4,500 ☐

More than $4,500, less than $6,500 ☐
More than $6,500, less than $8,500 ☐

More than $8,500, less than $10,500 ☐
More than $10,500 ☐

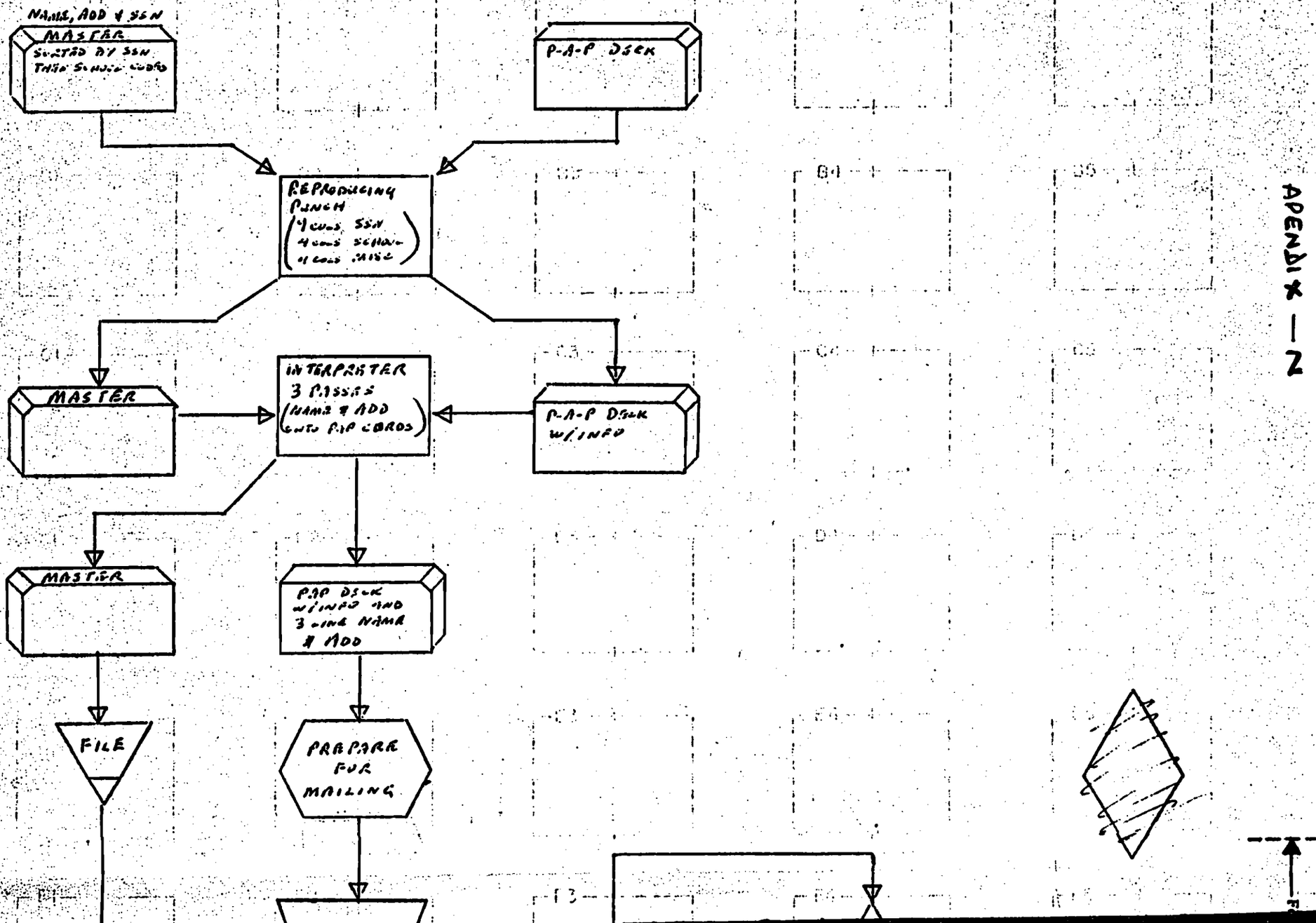
ERIC

IBM Flowcharting Worksheet

PRINTED IN U.S.A.
X20-8021-2 U/M 050

Programmer: _____ Program No.: _____ Date: _____ Page: _____

Chart ID: _____ Chart Name: _____ Program Name: _____



APENDIX — N

3312

PLEASE PUNCH OUT YOUR ANSWER TO ALL QUESTIONS ON BOTH SIDES OF THIS CARD AND REMOVE PUNCHED TABS

1. Are you presently employed? — Yes ☐ No ☐

If yes, Part-time ☐ Full-time ☐

If unemployed, Looking for work ☐
Not looking for work ☐

2. Are you presently attending school? — Yes ☐ No ☐

If yes, Part-time ☐ Full-time ☐

3. What type of work do you do? _____

What type of firm do you work for? _____

4. Have you had any additional training since you completed your vocational training? — Yes ☐ No ☐

5. Have you had any additional formal education since you completed your vocational training? — Yes ☐ No ☐

6. How satisfied are you with your present job? — Satisfied ☐ Unsatisfied ☐

7. How related are your present job duties to the training occupational program you completed? — Related ☐ Unrelated ☐

8. How much training did you complete before leaving the program?

One quarter or less ☐ Three quarter ☐
One half ☐ Whole program ☐

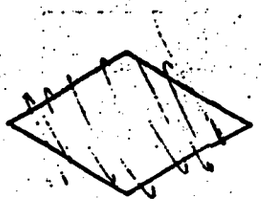
9. What is your yearly wage before deductions?

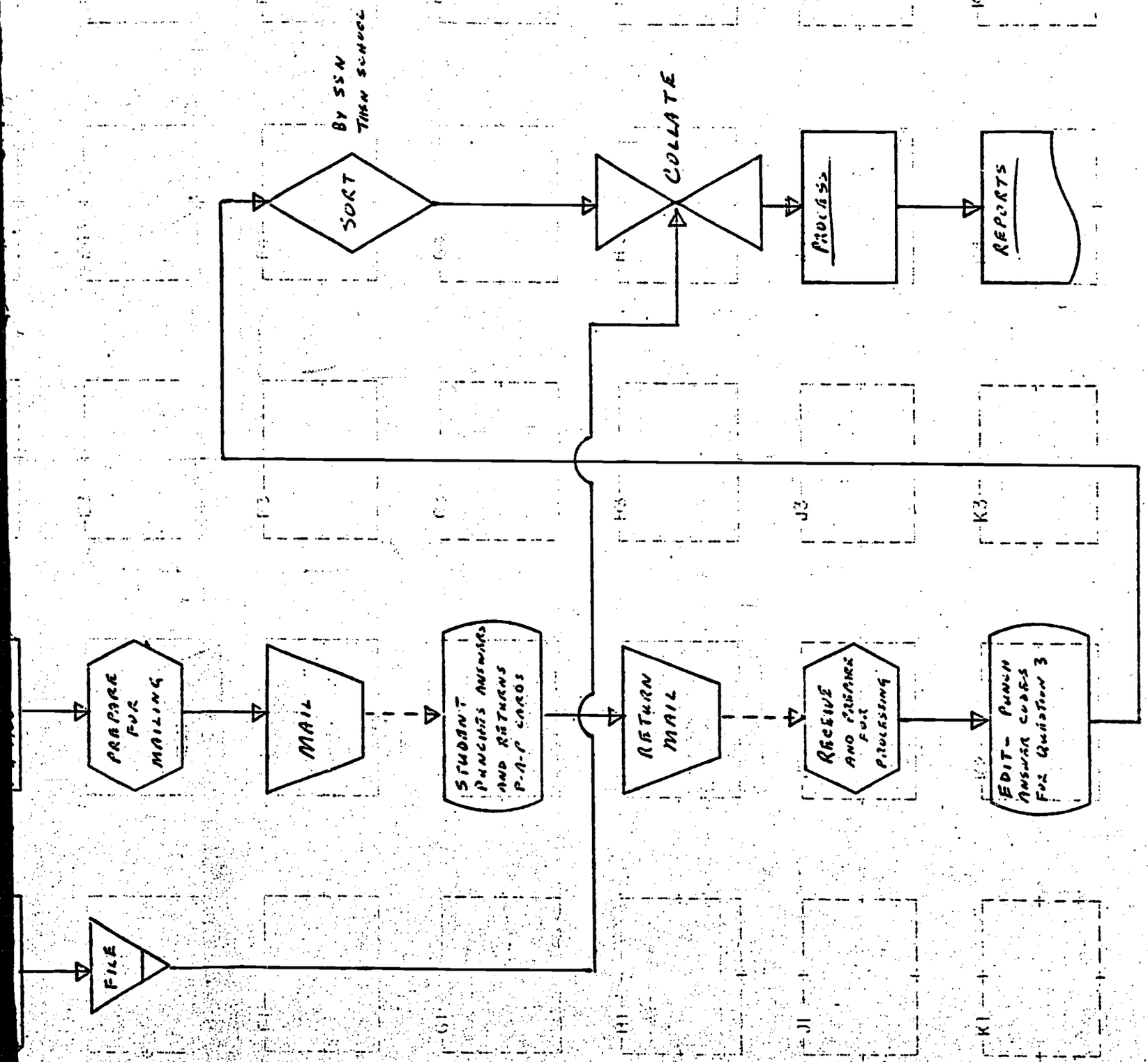
Less than $2,500 ☐
More than $2,500, less than $4,500 ☐

More than $4,500, less than $6,500 ☐
More than $6,500, less than $8,500 ☐

More than $8,500, less than $10,500 ☐
More than $10,500 ☐

Fold under at dotted line.





Fold under at dotted line.

PLEASE PUNCH OUT YOUR ANSWER TO ALL QUESTIONS AND REMOVE PUNCHED TABS

1. Are you presently employed? — Yes ☐ No ☐

If yes, Part-time ☐ Full-time ☐

If unemployed, Looking for work ☐ Not looking for work ☐

2. Are you presently attending school? — Yes ☐ No ☐

If yes, Part-time ☐ Full-time ☐

3. What type of work do you do? _____

What type of firm do you work for? _____

4. How soon after completing your vocational training did you begin your first job? _____ (months) (exclude military) Was this first job — Part-time ☐ Full-time ☐

5. Since you started work on your first job, were you without a full-time or part-time job while available and looking for work? — Yes ☐ No ☐
If yes, about _____ weeks.

6. Have you had any additional training since you completed your vocational training? — Yes ☐ No ☐

Have you had additional formal education since you completed your vocational training? — Yes ☐ No ☐

7. How satisfied are you with your present job? — Satisfied ☐ Unsatisfied ☐

8. How related are your present job duties to the training occupational program you were enrolled in? — Related ☐ Unrelated ☐

9. How much of the training did you complete before leaving the program?

One quarter or less ☐ Three quarter ☐
One half ☐ Whole program ☐

10. What is your yearly wage? (Before deductions)

Less than $2,500 ☐
More than $2,500, less than $4,500 ☐

More than $4,500, less than $6,500 ☐
More than $6,500, less than $8,500 ☐

More than $8,500, less than $10,500 ☐
More than $10,500 ☐

APPENDIX O

February 17, 1971

Mr. Tom Foust, Assistant Director
Kansas State Dept. of Revenue
State Office Building
Topeka, KS 66612

Dear Mr. Foust:

SUBJECT: COMPUTERIZED STATE-WIDE VOCATIONAL EDUCATION FOLLOW-UP SYSTEM

During our meeting of May 27, 1970, you informed us that you would be willing to cooperate with us as consultants on the development of the Kansas vocational-technical follow-up system. We are at a point where we need your consultation and help. Your assistance in the future phases and implementation of the system is vital to the continued success of this project.

The developmental phase of the computerized vocational education follow-up system is near its completion. The second phase of the project, which is the pilot phase, is a continuation of the first or developmental phase. In the second phase, selected schools throughout the state of Kansas will test the computerized system. These schools will complete the entry, exit, and follow-up forms and will make available current address information for their vocational-technical graduates. The enclosed Zerox copy of a porta punch card has been developed by IBM and is ready for trial use in the sampling survey. The data collected from the trial sample will be used to estimate the occupation, employment, migration, and income characteristics of the total vocational-technical graduate population. In addition, the sampling technique will be tested as to its usefulness as a tool for state follow-ups involving large vocational-technical graduate populations.

Reviewing the enclosed illustration of the three prototype systems, you will notice the one thing that would improve the first system would be to receive the current addresses of vocational-technical graduates. Our survey of 38 states revealed that vocational personnel have virtually given up on three-to-five year follow-ups after graduation. This failure to conduct long-term follow-ups is unfortunate. Without long-term follow-up studies, a person cannot adequately evaluate vocational-technical programs as to their effectiveness in training students for future positions. As the project is now set up, we have only the temporary addresses of Kansas graduates at the time of their graduation; and because of migration, these addresses become inaccurate within a short time. We can provide the social

APPENDIX I

Date

Inside Address

Dear:

Will you please help us improve vocational education programs for future students? All you need to do is complete the enclosed questionnaire.

Kansas State Teachers College is working with local school administrators in an effort to improve the present follow-up procedures on graduates. However, before we use a new questionnaire, it is necessary to test it. As a vocational graduate, we hope you will be able to assist us in developing the new questionnaire.

The questionnaire you have received is a proposed questionnaire which we hope will be used for follow-up of vocational graduates. If you have any comments after completing the questionnaire, bring them to our attention. With your help, we hope to make the best questionnaire possible.

Thank you for your cooperation in this project.

Sincerely yours,

Ken Hoffman

rcp

Enclosure

security numbers of a sample of vocational-technical graduates so that their current addresses could be supplied to us. With your help in securing current addresses for vocational-technical graduates, the Kansas State Department of Education would be able to mail the questionnaires to graduates on a long-term basis and obtain one, three, and five-year follow-ups. Thus, the current addresses of graduates are needed to effectively complete the kind of long-term follow-up which is not possible without current addresses.

We understand that information such as current addresses cannot be supplied without the proper inter-agency agreements. It is our hope that you will see the justification for this project and help us to proceed through the proper channels to obtain the needed data. If the data were provided, it would be kept strictly confidential and would be summarized and grouped in such a manner that individual students could not be identified.

Materials are enclosed which will provide a brief overview of the research project to date. We would like you to review this material and let us know your reaction to the three prototype systems.

If possible, in the future, our ultimate dream is to sample and summarize data concerning Kansas vocational-technical graduates' occupational status, employer identification, salary level, and dependents.

We appreciate the time and effort you have given us concerning this research project. If we have not presented a clear picture of our present progress, we would be glad to talk to you personally at a time that would be convenient for you.

Sincerely,

Kenneth E. Hoffman
Coordinator of Vocational Education

CS:jw

Enclosures:
- Report as of February 1, 1971
- Illustrations of Three Prototype Systems
- Porta Punch Card
- First Advisory Committee Meeting Minutes
- Second Advisory Committee Meeting Minutes
- Meeting with Ks. Dept. of Revenue--May 27, 1970
- Meeting with IRS--September 3, 1970

cc: James T. McDonald, Director
Kansas State Dept. of Revenue

APPENDIX I

May 27, 1970

Dear Former Vocational Student:

It is again time to conduct our annual graduate follow-up study. We would appreciate your help in completing this questionnaire and sending it back to us as soon as possible.

Your response will aid us in improving and expanding vocational programs for future students. The information you furnish is treated as confidential and after the necessary data is obtained the questionnaire is destroyed.

Please read the inside instructions carefully before trying to answer the questions. All questions should be answered.

Thank you for your cooperation in this matter.

Sincerely yours,

Ken Hoffman

rcp

COMPUTERIZED STATE-WIDE FOLLOW-UP SYSTEM

Third Advisory Committee Meeting

Minutes

April 7, 1971

Advisory Committee Members Present:

Dr. Carl Barber, National Technology Center, Kansas City, Missouri

Loren J. Brinkmeyer, Data Processing, Butler County Community Junior College

Dr. Raymond Russell, Chairman of the Department of Business and Business Education, KSTC

Wilbur Rawson, State Department of Education, Topeka (substituting for Don Strait)

Dr. M. Lloyd Edwards, Professor and Director of Data Processing and Educational Measurements Center, KSTC

Dr. Kenneth E. Hoffman, Coordinator of Vocational Education, KSTC

Miss Carolyn Stoering, Graduate Assistant, KSTC

After Dr. Hoffman welcomed the members, he introduced the new staff members. He then gave a brief summary of the project to date and a short account of the general areas to be discussed. The areas of discussion were:

1. Sampling procedure
2. Internal Revenue Service
3. Finances
4. Evaluation of first phase
5. Introduction of second phase
6. Advisory Committee

Carolyn Stoering explained the sampling procedure. Seventy porta punch cards were mailed to a random sampling of 1968 and 1969 Kansas vocational graduates. As of April 6, 1971, 21 cards had been returned (30%). The

COMPUTERIZED STATE-WIDE FOLLOW-UP SYSTEM

Second Advisory Committee Meeting

Minutes

July 8, 1970

Advisory Committee Members Present:

Dr. Carl Barber, U.S. Office of Education, Kansas City, Missouri
Loren J. Brinkmeyer, Data Processing, Butler County Community Junior College
Darrell Lensing, Director, AVTS, Manhattan, Kansas
Dr. Raymond B. Russell, Director of Business and Business Education, KSTC
H.D. Shotwell, Supervisor of Business Occupations (Substituting for Don Strait)
Dr. M. Lloyd Edwards, Professor and Director of Data Processing and Computer Center, KSTC
Dr. Ken Hoffman, Coordinator of Vocational Education, KSTC
Jim Kestner, Graduate Assistant

Dr. Hoffman welcomed the members, brought them up-to-date on the project and gave a short account of general areas to be discussed. The areas of discussion were:

1. Trial run of the student questionnaire for the fall, 1970.
2. Summarize visit with the Kansas Income Tax Service, May 27, 1970.
3. Summarize visit with the Kansas State Supervisors, June 26, 1970.

Jim Kestner pointed out on the Gantt Chart the activities covered since the project began and showed that work on the project was on schedule.

Dr. Hoffman explained in detail the three follow-up systems which are being developed simultaneously on the project. (A graphic chart illustrating the three follow-up systems is attached to this report) A summary of the meeting with Internal Revenue Service, Topeka, Kansas, on May 27, 1970 was presented. It was reported by the staff that the Kansas Income Tax Service was willing to cooperate with us as consultants on the development of the follow-up system. It was pointed out by

U. S. Post Office sent 12 "Change of Address" cards. Four envelopes were returned because of "No Such Address," "Address Unknown," and "No Forwarding Address." It is hoped to determine whether or not there is a relationship between the vocational program the graduate took and the type of job he is now holding. Since the staff was unable to secure the use of a 557 Interpreter, Dr. M. Lloyd Edwards suggested earlier that mailing labels which can be reproduced from a master deck on a KSTC interpreter be used. It was suggested that we might be able to find a 557 Interpreter in an accounting office but that it would be extremely expensive to rent.

Discussion then turned to the validity of the small sample. Mr. Brinkmeyer commented that a larger sample should be tested before it will be known whether or not this system will function. It must also be determined whether or not the Internal Revenue Service will provide current graduate addresses. Until IRS information can be incorporated into this system, the success of the project cannot be ascertained. Dr. Hoffman said this was what the second or pilot phase is meant to determine. He mentioned, too, in regard to the percentage of returns that we might expect to receive:

After graduation:	9 months	68 - 70%
	2 years	50%
	3 years	30%

It must be remembered that in the first phase sample students who graduated two and three years ago are being contacted so our percentage of return will be less.

A detailed discussion of the Internal Revenue Service and its role in the project was taken up. Since Larry DuVall from the Federal IRS had been transferred, there was a delay in correspondence. Dr. Barber mentioned that there is a misunderstanding among educators in that they seem to believe that there is something illegal about getting this basic information about vocational graduates from the IRS. They feel that invasion of privacy is involved. The

Dr. Barber that both the State and Federal Internal Revenue Service will cooperate after it knows that we are trying to help people and not just get into their files. Once again it was pointed out that we must know and understand our objectives in relating them to the Income Tax Service.

The Income Tax Service recommended we design a supplement form which could be innovated into the present income tax return packet. This addition into the tax form would indicate if a person was exposed to vocational training, and also state where he received his training.

Dr. Barber suggested that the staff members meet with Mr. Larry DuVall at the Federal Internal Revenue Service in Kansas City. Mr. DuVall is interested in learning more about the follow-up project and may be of some help in the future.

The committee felt that before any further visits with the Income Tax Service a review of the sampling procedure, the questionnaire, and any additional information in regard to this follow-up system should be thoroughly worked out. The three follow-up systems should be better developed and more accurate before the project staff presents it to the Income Tax people in Topeka. The advisory members felt that sometime in October would be a desirable time to present the system to state and possible national Internal Revenue Service for their reaction. It should be pointed out that the Internal Revenue Service can generally provide most of the information that we will need. However, the welfare department and the military are two other sources where we could obtain additional information.

Basically this project is one of dollars and cents. Hopefully the results of this project would aid the government in regard to appropriation of funds for training institutions.

discussion closed with the comment that we must talk on the "national level" before further advances are made.

Dr. Hoffman discussed the financial condition of the project. He mentioned that because of a 60-day delay in receiving the porta punch cards, the staff was a few weeks off schedule; but this time would be recaptured during the next three or four weeks. The cost of the 2,000 cards was $334. The bulk of the expense was for the plates. Total anticipated expenses will be very close to actual expenses.

General discussion then followed about the porta punch card. A member of the research staff punches out Item 3 on the card. A key is used in determining which tab should be punched. Mr. Brinkmeyer asked if we needed to code the instructor. Mr. Rawson asked if this system would be housed in Topeka or if it would remain at Kansas State Teachers College. Dr. Hoffman commented that it wouldn't make any difference as to where the system was located.

An important question on the card is Number 7 "How related are your present job duties to the occupational training program in which you were enrolled?" Mr. Brinkmeyer said that many students who don't graduate still use their vocational training to obtain jobs. Dr. Barber commented that right after graduation we will see bad results; but after a period of time, the students will become more settled and we will see better results from vocational training. Vocational training is going on all the time, not just in the schools. Training is in business and industry. How can this training be adequately measured? The total number of people in vocational education is needed in order to get the total picture. Mr. Brinkmeyer commented again that until addresses supplied to us by the IRS can be used, a complete evaluation cannot be made. One purpose of the first phase is to show the IRS that current addresses for students can be obtained only with great difficulty.

A detailed discussion of the proposed questionnaire and code titles was taken up. In regard to the code titles, it was generally felt by the committee members that the seven major fields or areas were generally good. However, the overall list of the code titles were extremely long. It was recommended that the staff develop a better and more appropriate code system, possibly using a write in type form. In regard to the overall questionnaire, it was felt that the scanning sheet would be the best way to handle the situation of checking the questionnaires. However, some complications may arise with this form of questionnaire. The porta punch card was also discussed and taken into consideration by the staff members. The staff will develop three different types of questionnaires using the porta punch card style:

1. A strictly factual questionnaire.
2. Factual and opinion questionnaire.
3. Factual, opinion, and comparison questionnaire.

It was further sited by the members that the vertical questionnaire would appeal to the students and would be easier to check.

Each item in the questionnaire was taken under consideration with some deletions and additions being made. The project staff will make the necessary changes in the questionnaire and submit them to state supervisors for their approval and/or recommendations. Some of the highlights of corrections were:

1. Rearrangement of questions was necessary in some cases.
2. Some questions were deleted.
3. Modification of certain questions was recommended.

The opinion of the members was needed on comments made by state supervisors in regard to adult education, and questionnaires sent to

Dr. Hoffman asked for an evaluation of the first phase. He explained that there is no format for the results, but that there is a formula to work out a format. The basic concern of the state is to find out how related a student's vocational training was to what his job is now. Dr. Russell suggested that the research staff evaluate the first phase of the project and submit its evaluation to the advisory committee for review and comments. By July 1, 1971, the research staff will submit its evaluation so that the committee may submit recommendations in writing for the final report.

Dr. Hoffman asked each member of the advisory committee if they would be able to continue serving on the committee for the second phase of the project. All committee members replied that they would be willing and able to continue serving in the second phase.

It was decided that the first advisory committee meeting of the second phase would be held late in September, 1971.

people in correctional institutions. In regard to the adult education programs, it was unanimously agreed at this time that no action should be taken by this project to enhance the adult follow-up program. Possibly, at a future date the follow-up of adults could be innovated into the secondary and post-secondary follow-up system. In regard to the correctional institutions, it was recommended that no follow-up be done on these people. It was pointed out that there would be too many problems encountered in trying to follow-up people who have been in and out of these institutions.

Dr. Hoffman explained the vocational output for the years 1968 and 1969; pointed out that there was a high percent of adults for both years and very few graduates in the fields of home economics, health occupations and the technical field. Dr. Hoffman then explained the plan for the sample in the fall. He informed the committee that one hundred and ninety-six letters had been sent to the schools which have vocational programs and at the time of this meeting a forty-six percent return had been received. The cross section of schools for the sample, which include approximately fifty-seven high schools, thirteen area vocational schools, and five junior colleges is considered adequate by the staff. The administrators of these schools have indicated by letter their desire to participate in this project.

The project staff felt that all sampling and communications with the schools involved could be handled through mail correspondence.

In conclusion, the overall opinion of the members was to shoot for the ultimate system, "it looks better all the time." It was decided that the next advisory committee meeting probably should be held in the latter part of February.

APPENDIX Q

SUMMARY OF THE RESULTS OF THE TRIAL OF THE PORTA PUNCH CARD

After the submission and acceptance of our bid for the design and printing of 2,000 porta punch cards on March 19, 1971, the research staff proceeded on March 23, 1971, to mail 70 porta punch cards to a random sampling of 35 Kansas post-secondary vocational graduates and 35 Kansas secondary vocational graduates in all vocational-technical areas. An individual mailing consisted of one porta punch card and a self-addressed, postage-paid envelope. An "Address Correction" notation was stamped below the stamp so that current addresses could be received for the minimal cost of 10¢ per card.

A master card was punched for each of the 70 students. The card included:

Columns	Description
1 - 9	Social Security Number
10 - 18	First Name
19	Middle Initial
20 - 30	Last Name
31 - 49	Street Address
50 - 61	City
62 - 63	State
64 - 68	Zip Code
69 - 70	Year
71	Blank
72	Program
73	Secondary, Post Secondary
74 - 76	School District or Assigned School Number
77 - 79	Student Number
80	Blank

The key punch operator spent approximately 1 1/2 hours punching and verifying the 70 cards.

On March 30, 1971, the research staff mailed 52 cards to those students who had not returned their cards from the first mailing. Fifty-one reminders were mailed on April 5, 1971, to students; and a final mailing of cards was made on April 16, 1971, to 31 students.

Distribution of Sample Taken
From 5,600 1968 & 1969 Vocational Graduates

APPENDIX K

88 Schools Willing To Participate in Follow-Up System

1. High Schools--67
2. Junior College--6
3. Area Vo-Tech Schools--15

68 Schools Were Sent Request For Addresses of These Students

1. High Schools--50
2. Junior Colleges--3
3. Area Vo-Tech Schools--15

5600 Students Graduated from the 68 Schools

These 1278 Graduates Names Were Chosen From the 68 School Forms of the State Department of Education

1. Agriculture--304
2. Distributive Ed.--189
3. Office Ed.--185
4. Health Occ.--108
5. Home Ec.--108
6. T & I--315
7. Technical--69

62 Schools Returning Addresses of the Graduates of the 68 Schools Address Request Were Sent

1. High Schools--46
2. Junior Colleges--2
3. Area Vo-Tech Schools--14

955 Graduates Addresses Returned by 62 Schools

1. Agriculture--250
2. Distributive Ed.--133
3. Office Ed.--152
4. Health Occ.--58
5. Home Ec.--67
6. T & I--242
7. Technical--53

955 Graduates According to Program & Year

1.	Agriculture 68--54	Agriculture 69--196
2.	D.E. 68--66	D.E. 69--67
3.	O.E. 68--57	O.E. 69--95
4.	Health Occ. 68--28	Health Occ. 69--30
5.	Home Ec. 68--39	Home Ec. 69--28
6.	T & I 68--6	T & I 69--236
7.	Technical 68--0	Technical 69--53

955 Graduates According to Whether Programs are Secondary or Post-Secondary

		Secondary	Post-Secondary
1.	Agriculture	205	45
2.	D.E.	67	66
3.	O.E.	89	63
4.	Health Occ.	20	38
5.	Home Ec.	40	27
6.	T & I	94	148
7.	Technical	23	30

Social Security Numbers Available for the 955 Graduates

Number Available: 678
Number Not Available: 277

The cards were mailed and returned as follows:

AS OF MAY 11, 1971

MARCH 23 - MAILED 70 porta punch cards to random selection of students

25 - Received 2 cards - "No Such Number"

Received 10 "Change of Address" cards

Wrote 2 counselors for current addresses

26 - Received 1 "Change of Address" card

Received 4 porta punch cards (6%)

29 - Received 1 "No Forwarding Address" card

Received 1 "Address Unknown"

Received 9 porta punch cards (18%)

30 - Received 1 porta punch card (20%)

MAILED 52 porta punch cards

31 - Received a reply from one counselor giving a current address for a "No Such Number"

APRIL 1 - Received 1 "Change of Address" card

2 - Received a note giving a change of address and sent a new porta punch card to the new address

5 - Received 2 porta punch cards (22%)

MAILED 51 letters - "Reminders"

6 - Received 3 porta punch cards (27%)

7 - Received 2 porta punch cards (29%)

8 - Received 2 porta punch cards (32%)

12 - Received 2 porta punch cards (35%)

14 - Received 8 porta punch cards (46%)
(One sent in 2 cards, did not include both in count)

15 - Received 3 porta punch cards (50%)

APRIL 16 - Received 1 porta punch card (52%)

MAILED 31 porta punch cards

19 - Received 2 porta punch cards (55%)

20 - Received 3 porta punch cards (59%)

21 - Received 2 porta punch cards (62%)

22 - Received 1 porta punch card (63%)

27 - Received 2 porta punch cards (66%)

MAY 3 - Received 2 porta punch cards (69%)

6 - Received 1 porta punch card (70%)

11 - Received 1 porta punch card (72%)

EVALUATION OF MAILINGS

MARCH 23 Mailed 70 porta punch card (marked in black)

Received 18 porta punch cards (marked in black)

MARCH 30 Mailed 52 porta punch cards (marked in red)

Received 20 porta punch cards (marked in red)

APRIL 5 Mailed 51 letters - "Reminders"

Received 21 cards after mailing reminders

APRIL 16 Mailed 31 porta punch cards (marked in blue)

Received 13 porta punch cards (marked in blue)

Over seventy percent of the porta punch cards were received in approximately three weeks. As the cards were received, a member of the staff hand punched Question 3 using a coded system. (See Appendix B)

The total cost of the sample (excluding the staff salaries) was $48.40, broken down as follows.

EXPENSES

Total $48.40

$ .95 per card returned*

2	Rubber Stamps	$ 3.20	
500	Postage-Paid Envelopes	2.85	
100	Window Envelopes	1.37	
153	Porta Punch Cards	24.48	
	*(cost will be much lower since the plates are designed)		$31.90

Postage:

70	Cards @ 6¢	$ 4.20	
52	Cards @ 6¢	3.12	
51	Letters @ 6¢	3.06	
31	Cards @ 6¢	1.86	
12	"Change of Address" cards @ 10¢	1.20	
51	Postage-Paid Envelopes @ 6¢	3.06	
			16.50
	TOTAL		$48.40

*Without the high initial cost of the IBM Porta Punch Card plate, the cost per student should average out to be approximately 40¢ to 50¢. However, due to an increase in postal rates, the above amounts will be somewhat higher for future mailings.

RESULTS

On May 3, 1971, the punched cards were matched with the master cards, and the social security number was reproduced from the master card to the student card. Time involved for key punching, etc. was approximately 1 1/2 to 2 hours.

The cards were then sorted according to each question and the results are shown on the computer printout in Appendix S.

Code for Student Program (column 72)

1 Agriculture
2 Distributive Education
3 Health Occupations
4 Home Economics
5 Office Occupations
6 Technical Occupations
7 Trade and Industry

Code for Question 3, Part 2--"what type of firm do you work for?"

0 Agriculture
1 Manufacturing
2 Transportation, Communication, Other Public Utility
3 Wholesale or Retail Trade
4 Finance, Insurance, Real Estate
5 Business and Repair Service
6 Personal Services
7 Entertainment and Recreation Services
8 Professional and Related Services
9 Other (student, government, etc.)

APPENDIX R

COMPUTERIZED STATE-WIDE FOLLOW-UP SYSTEM

State Department of Revenue Meeting

Minutes

June 4, 1971

Present:

Mr. James T. McDonald, Director, State Department of Revenue, Topeka

Mr. Tom Foust, Data Processing, State Department of Revenue, Topeka

Dr. Ken Hoffman, Coordinator of Vocational Education, KSTC, Emporia

Miss Carolyn Stoering, Graduate Assistant, KSTC, Emporia

A brief overview of the nature of the follow-up project was presented by Dr. Hoffman. The development of a prototype system was explained using the illustration of the three possible systems which might be available in securing needed information about vocational graduates. Dr. Hoffman also explained the sample mailing to 70 vocational graduates. If the results obtained in this small sample are applied to a larger sampling, then we could expect 25-30% of the questionnaires to be unanswered. If the staff could obtain current addresses from the State Department of Revenue, they could see if these addresses are usable in the follow-up study. For example, 16 out of 70 graduates failed to return the questionnaires. Thus, we were unable to determine whether or not the students received this questionnaire or whether or not the students simply failed to return the questionnaires. Mr. McDonald commented that he thought that the percentages we received from our sample were sufficient in determining what we needed to know about these vocational graduates.

After a short discussion, Mr. Foust explained why the State Department of Revenue would not be able to provide current addresses or other information contained on state income tax forms. He said that he had checked with the attorney general concerning the secrecy provisions dealing with the submission of information on state income tax forms. Because of the present secrecy provisions, a group or an individual cannot secure information provided on state tax forms. To secure such information would take an act of Congress. However, the Internal Revenue Service may be more permissible in its releasing of current address information as well as other specific information contained on Federal 1040 Income Tax forms.

Distinct differences exist between the State Department of Revenue and the Internal Revenue Service concerning their individual policies dealing with secrecy provisions. Mr. Foust indicated that secrecy provisions dealing with state income tax forms have narrowed since our last meeting in May, 1970. In order to secure state tax information, the Kansas legislature would have to revise the current secrecy provisions.

Mr. Foust explained that if legislation permitted and if a social security number was provided, the Kansas Department of Revenue would be able to provide current address information for Kansas residents or for individuals who have paid Kansas income tax during the last year.

If permission to obtain information could be secured from Washington, then the State Department of Education would have to pay for the cost of tapes and processing. If the Department of Revenue bore the cost, it would have to be included in the budget of the State Department of Revenue and would have to be submitted and approved by the state legislature one

year before the time needed. Mr. Foust said that the State Department of Education could pay the U. S. Internal Revenue Service for the tapes and processing, but there is no way that the State Department of Education can submit payment to the State Department of Revenue because these funds would be automatically deposited in the General Fund. Thus, currently there is no way for the State Department of Education to pay the Department of Revenue for tapes or processing costs.

If the State Department of Revenue could provide addresses, the Revenue Department would not be able to process the needed information until they have time, which is usually in the early fall. Then it would have to fit into their schedules. In addition, tapes would have to be ordered one year in advance.

Mr. Foust explained that the Internal Revenue Service has a master-data file located in Martinsburg, West Virginia, which houses all the information contained on Federal Income Tax forms. If we could secure permission to obtain current address and other information from this source, we would be able to reach the "ultimate" system.

Two major problems that we may encounter later in the project are:

1. The data processing section of the Department of Revenue may be consolidated into a third agency. If this occurs, they will not have a computer available to process our information.

2. The state government may be reorganized. The reorganization would require six months of planning in order to develop a blueprint which will be submitted to the state legislature.

Mr. McDonald did indicate that the State Department of Revenue would continue to offer advice and technical assistance into the second phase of the vocational follow-up project.

During the latter part of the meeting, Mr. Foust made several suggestions which could help in securing information from sources other than the State Department of Revenue:

1. Addresses are available for licensed people such as nurses, dental assistants, beauticians, etc.

2. Unions also have up-to-date addresses (check regional offices).

3. The Motor Vehicle Registration Department would be an excellent source since Kansas requires that drivers' licenses be renewed every two years, and social security numbers are also required on all drivers' licenses.

Mr. Foust recommended that we should collate out the "No Response" answers from the computer printout of the results obtained from the small sample. He also provided us with several other suggestions which will prove to be quite helpful in the second or pilot phase of the study.

APPENDIX S

All Students

PRESENTLY EMPLOYED	YES	NO	NO RESPONSE
	35	11	5
IF YES, FULL OR PART-TIME	PART	FULL	NO RESPONSE
	9	26	16
IF NO ARE YOU LOOKING FOR WORK	YES	NO	NO RESPONSE
	4	9	38
PRESENTLY ATTENDING SCHOOL	YES	NO	NO RESPONSE
	10	38	3
IF YES PART OR FULL TIME	PART	FULL	NO RESPONSE
	0	8	43

TYPE OF WORK DONE

JOB TYPE	NO WORKING
1	2
3	2
03	1
05	1
09	3
17	2
18	3
20	2
25	1
28	1
33	2
56	2
63	6
64	1
84	2
86	1
96	1
NO RESPONSE	18

TYPE FIRM WORKING FOR

TYPE		NO WORKING
0	AGRICULTURE	4
1	MANUFACTURING	2
2	TRANSPORTATION, COMMUNICATION, OTHER PUBLIC UTILITY	1
3	WHOLESALE OR RETAIL TRADE	7
4	FINANCE, INSURANCE, REAL ESTATE	1
5	BUSINESS AND REPAIR SERVICE	6
6	PERSONAL SERVICES	0
7	ENTERTAINMENT AND RECREATION SERVICES	1
8	PROFESSIONAL AND RELATED SERVICES	5
9	OTHER (STUDENT, GOVERNMENT, ETC.)	12
NO RESPONSE		12

HOW SOON AFTER COMPLETING YOUR VOCATIONAL TRAINING DID YOU BEGIN YOUR FIRST JOB

NO. OF MONTHS	STUDENTS	PART	FULL	NO RESPONSE
		7	23	21
00	24			
01	6			
02	1			
03	1			
04	2			
05	2			
06 OR MORE	1			
NO RESPONSE	14			

SINCE YOU STARTED WORK ON YOUR FIRST JOB, WERE YOU WITHOUT A JOB WHILE AVAILABLE AND LOOKING FOR WORK

YES	NO	NO RESPONSE
11	28	12

NO. OF WEEKS	STUDENTS
00	6
01	2
02	1
03	1
04	0
05	0
06	1
07	0
08	0
OVER 8	3
NO RESPONSE	37

HOW MUCH TRAINING DID YOU COMPLETE BEFORE LEAVING THE PROGRAM

ONE QUARTER OR LESS	1
ONE HALF	3
THREE QUARTER	4
WHOLE PROGRAM	35
NO RESPONSE	8

HOW RELATED ARE YOUR PRESENT JOB DUTIES TO THE OCCUPATIONAL TRAINING PROGRAM IN WHICH YOU WERE ENROLLED

RELATED	UNRELATED	NO RESPONSE
23	16	12

ARE YOU SATISFIED WITH YOUR PRESENT JOB

YES	NO	NO RESPONSE
26	8	17

HAVE YOU HAD ANY ADDITIONAL TRAINING SINCE YOU COMPLETED YOUR VOCATIONAL TRAINING

YES	NO	NO RESPONSE
14	31	6

ANY ADDITIONAL FORMAL EDUCATION	YES	NO	NO RESPONSE
	13	30	8

YEARLY WAGE

LESS THAN $2,500	14
$2,500 TO $4,500	9
$4,500 TO $6,500	12
$6,500 TO $8,500	3
$8,500 TO $10,500	1
MORE THAN $10,500	0
NO RESPONSE	12

RACE	WHITE	BLACK	OTHER	NO RESPONSE
	43	1	0	7

MARITAL STATUS	MARRIED	SINGLE	NO RESPONSE
	35	11	5

SEX	MALE	FEMALE	NO RESPONSE
	29	22	0

Full Time Only

PRESENTLY EMPLOYED	YES	NO	NO RESPONSE
	26	0	0
IF YES, FULL OR PART-TIME	PART	FULL	NO RESPONSE
	0	26	0
IF NO ARE YOU LOOKING FOR WORK	YES	NO	NO RESPONSE
	0	3	23
PRESENTLY ATTENDING SCHOOL	YES	NO	NO RESPONSE
	0	26	0
IF YES PART OR FULL TIME	PART	FULL	NO RESPONSE
	0	0	26

TYPE OF WORK DONE

JOB TYPE	NO WORKING
1	1
05	1
09	2
17	1
18	3
20	1
25	1
28	1
33	2
63	6
84	2
86	1
96	1
NO RESPONSE	3

TYPE FIRM WORKING FOR

	TYPE	NO WORKING
0	AGRICULTURE	1
1	MANUFACTURING	1
2	TRANSPORTATION, COMMUNICATION, OTHER PUBLIC UTILITY	1
3	WHOLESALE OR RETAIL TRADE	6
4	FINANCE, INSURANCE, REAL ESTATE	1
5	BUSINESS AND REPAIR SERVICE	5
6	PERSONAL SERVICES	0
7	ENTERTAINMENT AND RECREATION SERVICES	0
8	PROFESSIONAL AND RELATED SERVICES	5
9	OTHER (STUDENT, GOVERNMENT, ETC.)	4
	NO RESPONSE	2

HOW SOON AFTER COMPLETING YOUR VOCATIONAL TRAINING DID YOU BEGIN YOUR FIRST JOB

NO. OF MONTHS	STUDENTS	PART	FULL	NO RESPONSE
		2	18	6
00	12			
01	6			
02	1			
03	1			
04	1			
05	1			
06 OR MORE	1			
NO RESPONSE	3			

SINCE YOU STARTED WORK ON YOUR FIRST JOB, WERE YOU WITHOUT A JOB WHILE AVAILABLE AND LOOKING FOR WORK

YES	NO	NO RESPONSE
6	18	2

NO. OF WEEKS	STUDENTS
00	2
01	2
02	0
03	1
04	0
05	0
06	1
07	0
08	0
OVER 8	1
NO RESPONSE	19

HOW MUCH TRAINING DID YOU COMPLETE BEFORE LEAVING THE PROGRAM

ONE QUARTER OR LESS	0
ONE HALF	0
THREE QUARTER	3
WHOLE PROGRAM	21
NO RESPONSE	2

HOW RELATED ARE YOUR PRESENT JOB DUTIES TO THE OCCUPATIONAL TRAINING PROGRAM IN WHICH YOU WERE ENROLLED

RELATED	UNRELATED	NO RESPONSE
16	8	2

ARE YOU SATISFIED WITH YOUR PRESENT JOB

YES	NO	NO RESPONSE
19	2	5

HAVE YOU HAD ANY ADDITIONAL TRAINING
SINCE YOU COMPLETED YOUR VOCATIONAL TRAINING

	YES	NO	NO RESPONSE
	7	18	1

ANY ADDITIONAL FORMAL EDUCATION	YES	NO	NO RESPONSE
	5	20	1

YEARLY WAGE

LESS THAN $2,500	2
$2,500 TO $4,500	7
$4,500 TO $6,500	11
$6,500 TO $8,500	3
$8,500 TO $10,500	1
MORE THAN $10,500	0
NO RESPONSE	2

RACE	WHITE	BLACK	OTHER	NO RESPONSE
	23	1	0	2

MARITAL STATUS	MARRIED	SINGLE	NO RESPONSE
	17	7	2

SEX	MALE	FEMALE	NO RESPONSE
	14	12	0

Part Time Only

PRESENTLY EMPLOYED	YES	NO	NO RESPONSE
	9	0	0
IF YES, FULL OR PART-TIME	PART	FULL	NO RESPONSE
	9	0	0
IF NO ARE YOU LOOKING FOR WORK	YES	NO	NO RESPONSE
	1	0	8
PRESENTLY ATTENDING SCHOOL	YES	NO	NO RESPONSE
	5	4	0
IF YES PART OR FULL TIME	PART	FULL	NO RESPONSE
	0	4	5

TYPE OF WORK DONE

JOB TYPE	NO WORKING
03	1
09	1
17	1
20	1
56	2
64	1
NO RESPONSE	2

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TYPE FIRM WORKING FOR

TYPE		NO WORKING
0	AGRICULTURE	0
1	MANUFACTURING	1
2	TRANSPORTATION, COMMUNICATION, OTHER PUBLIC UTILITY	0
3	WHOLESALE OR RETAIL TRADE	1
4	FINANCE, INSURANCE, REAL ESTATE	0
5	BUSINESS AND REPAIR SERVICE	1
6	PERSONAL SERVICES	0
7	ENTERTAINMENT AND RECREATION SERVICES	1
8	PROFESSIONAL AND RELATED SERVICES	0
9	OTHER (STUDENT, GOVERNMENT, ETC.)	1
NO RESPONSE		4

HOW SOON AFTER COMPLETING YOUR VOCATIONAL TRAINING DID YOU BEGIN YOUR FIRST JOB

NO. OF MONTHS	STUDENTS	PART	FULL	NO RESPONSE
		4	0	5
00	6			
01	0			
02	0			
03	0			
04	0			
05	1			
06 OR MORE	0			
NO RESPONSE	2			

SINCE YOU STARTED WORK ON YCUR FIRST JOB, WERE YOU WITHOUT A JOB WHILE AVAILABLE AND LOOKING FOR WORK

YES	NO	NC RESPONSE
2	6	1

NO. OF WEEKS	STUDENTS
00	3
01	0
02	1
03	0
04	0
05	0
06	0
07	0
08	0
OVER 8	1
NO RESPONSE	4

HOW MUCH TRAINING DID YOU COMPLETE BEFORE LEAVING THE PROGRAM

ONE QUARTER OR LESS	1
ONE HALF	1
THREE QUARTER	1
WHOLE PROGRAM	5
NO RESPONSE	1

HOW RELATED ARE YOUR PRESENT JOB DUTIES TO THE OCCUPATIONAL TRAINING PROGRAM IN WHICH YOU WERE ENROLLED

RELATED	UNRELATED	NC RESPONSE
5	4	0

ARE YOU SATISFIED WITH YCUR PRESENT JOB

YES	NO	NO RESPONSE
4	4	1

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HAVE YOU HAD ANY ADDITIONAL TRAINING
SINCE YOU COMPLETED YOUR VOCATIONAL TRAINING

	YES	NO	NO RESPONSE
	3	6	0

ANY ADDITIONAL FORMAL EDUCATION	YES	NO	NO RESPONSE
	4	3	2

YEARLY WAGE

LESS THAN $2,500	6
$2,500 TO $4,500	2
$4,500 TO $6,500	1
$6,500 TO $8,500	0
$8,500 TO $10,500	0
MORE THAN $10,500	0
NO RESPONSE	0

RACE	WHITE	BLACK	OTHER	NO RESPONSE
	9	0	0	0

MARITAL STATUS	MARRIED	SINGLE	NO RESPONSE
	8	1	0

SEX	MALE	FEMALE	NO RESPONSE
	5	4	0

No Response Only

PRESENTLY EMPLOYED	YES	NO	NO RESPONSE
	0	11	5
IF YES, FULL OR PART-TIME	PART	FULL	NO RESPONSE
	0	0	16
IF NO ARE YOU LOOKING FOR WORK	YES	NO	NO RESPONSE
	3	6	7
PRESENTLY ATTENDING SCHOOL	YES	NO	NO RESPONSE
	5	8	3
IF YES PART OR FULL TIME	PART	FULL	NO RESPONSE
	0	4	12

TYPE OF WORK DONE

JOB TYPE	NO WORKING
1	1
3	2
NO RESPONSE	13

TYPE FIRM WORKING FOR

TYPE		NO WORKING
0	AGRICULTURE	3
1	MANUFACTURING	0
2	TRANSPORTATION, COMMUNICATION, OTHER PUBLIC UTILITY	0
3	WHOLESALE OR RETAIL TRADE	C
4	FINANCE, INSURANCE, REAL ESTATE	C
5	BUSINESS AND REPAIR SERVICE	0
6	PERSONAL SERVICES	0
7	ENTERTAINMENT AND RECREATION SERVICES	0
8	PROFESSIONAL AND RELATED SERVICES	0
9	OTHER (STUDENT, GOVERNMENT, ETC.)	7
NO RESPONSE		6

HOW SOON AFTER COMPLETING YOUR VOCATIONAL TRAINING DID YOU BEGIN YOUR FIRST JOB

NO. OF MONTHS	STUDENTS	PART	FULL	NO RESPONSE
		1	5	10
00	6			
01	0			
02	0			
03	0			
04	1			
05	0			
06 OR MORE	0			
NO RESPONSE	9			

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SINCE YOU STARTED WORK ON YOUR FIRST JOB, WERE YOU WITHOUT A JOB WHILE AVAILABLE AND LOOKING FOR WORK

YES	NO	NO RESPONSE
3	4	9

NO. OF WEEKS	STUDENTS
00	1
01	0
02	0
03	0
04	0
05	0
06	0
07	0
08	0
OVER 8	1
NO RESPONSE	14

HOW MUCH TRAINING DID YOU COMPLETE BEFORE LEAVING THE PROGRAM

ONE QUARTER OR LESS	0
ONE HALF	2
THREE QUARTER	0
WHOLE PROGRAM	9
NO RESPONSE	5

HOW RELATED ARE YOUR PRESENT JOB DUTIES TO THE OCCUPATIONAL TRAINING PROGRAM IN WHICH YOU WERE ENROLLED

RELATED	UNRELATED	NO RESPONSE
2	4	10

ARE YOU SATISFIED WITH YOUR PRESENT JOB

YES	NO	NO RESPONSE
3	2	11

HAVE YOU HAD ANY ADDITIONAL TRAINING
SINCE YOU COMPLETED YOUR VOCATIONAL TRAINING

	YES	NO	NO RESPONSE
	4	7	5

ANY ADDITIONAL FORMAL EDUCATION	YES	NO	NO RESPONSE
	4	7	5

YEARLY WAGE

LESS THAN $2,500	6
$2,500 TO $4,500	0
$4,500 TO $6,500	0
$6,500 TO $8,500	0
$8,500 TO $10,500	0
MORE THAN $10,500	0
NO RESPONSE	10

RACE	WHITE	BLACK	OTHER	NO RESPONSE
	11	0	0	5

MARITAL STATUS	MARRIED	SINGLE	NO RESPONSE
	10	3	3

SEX	MALE	FEMALE	NO RESPONSE
	10	6	0

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VT 016 318
OCCUPATIONAL PROFILES 1968-1975. STATEWIDE AND SELECTED AREAS.

LOUISIANA STATE DEPT. OF EMPLOYMENT SECURITY, BATON ROUGE.
MF AVAILABLE IN VT-ERIC SET.
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DESCRIPTORS - *EMPLOYMENT STATISTICS; *EMPLOYMENT PROJECTIONS; *OCCUPATIONAL INFORMATION; TABLES (DATA); *MANPOWER NEEDS; *JOB MARKET; DEMAND OCCUPATIONS
IDENTIFIERS - *LOUISIANA

ABSTRACT - THIS STUDY FOR THE STATE OF LOUISIANA AND SEVEN IMPORTANT INDUSTRIAL AREAS IN THE STATE PRESENTS CURRENT ESTIMATED AND PROJECTED EMPLOYMENT FIGURES FOR 133 SELECTED OCCUPATIONS. INFORMATION ON EMPLOYMENT IN SPECIFIC OCCUPATIONS AND ESTIMATES OF FUTURE EMPLOYMENT REQUIREMENTS BY OCCUPATIONS ARE OF INCREASING CONCERN TO EDUCATORS, ECONOMISTS, AND GOVERNMENT OFFICIALS. FOR ECONOMIC GROWTH AND IMPROVED UTILIZATION OF HUMAN RESOURCES, A BALANCE IS NECESSARY BETWEEN THE SKILLS REQUIRED BY AN ADVANCING ECONOMY AND THE SKILLS POSSESSED BY THE WORK FORCE. THIS STUDY PROVIDES THE SPECIFIC OCCUPATIONAL INFORMATION NEEDED TO ACCOMPLISH THESE AIMS. THE ASSUMPTION OF ECONOMIC BEHAVIOR MADE IN THE OCCUPATIONAL PROJECTIONS TO 1975 SHOULD REMAIN SUFFICIENTLY VALID TO MAKE THE STUDY USEFUL IN DETERMINING FUTURE OCCUPATIONAL EMPLOYMENT NEEDS. (MF)

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OCCUPATIONAL PROFILES 1968 - 1975

STATEWIDE AND
SELECTED AREAS
MAY 1969

VT016318

PREPARED BY:
LOUISIANA DEPARTMENT OF
EMPLOYMENT SECURITY

RESEARCH & STATISTICS UNIT

3347

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Selected Occupations Projected for the Period 1968-1975 to Provide the Largest Number of New Jobs Annually

Louisiana	5
Alexandria	10
Baton Rouge	15
Lafayette	19
Lake Charles	24
Monroe	29
New Orleans	34
Shreveport	41

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INTRODUCTION

The Louisiana Department of Employment Security has the continuing responsibility to provide relevant labor market information to the public, labor, business, government, education and other interested organizations. Occupational information is an important part of the labor market information program; and prior to the completion of this study, the agency was able to provide very little in the way of information on specific occupations. Included in this study are current employment in 133 selected occupations, and projected employment to 1975 for the same occupations. These current estimates and projections cover the state, as a whole, and seven important industrial areas located in the state.

Information on the numbers currently employed in specific occupations and estimates of future employment requirements by occupations are of increasing concern to educators, economists and government officials. If the state and the nation are to maintain a high rate of economic growth and to approach objectives for education, health, improvement of urban life and elimination of poverty, workers must be employed at increasingly productive jobs. In order to avoid waste of human resources, those who wish to work must be able to find jobs that test their abilities. To accomplish these aims, a reasonable balance is necessary between the skill requirements of a rapidly changing technologically advanced economy and the skills possessed by the work force.

It is necessary to anticipate the number of workers likely to be required in important occupations in order to plan training programs and educational curricula and to determine manpower policies. To avoid major differences in the requirements and supply of workers for particular occupations, it is desirable to develop long-term projections of the number of workers that will be needed. These projections, along with information on the current supply, form a source from which to derive the number of workers that should be trained.

In this study, current and projected occupational information is provided for the state; the Alexandria Labor Area, including Avoyelles, Grant and Rapides Parishes; the Baton Rouge Labor Area, which includes all of East Baton Rouge Parish; the Lafayette Labor Area, which includes all of Lafayette Parish; the Lake Charles Labor Area, which includes all of Calcasieu Parish; the Monroe Labor Area, which includes all of Ouachita Parish; the New Orleans Labor Area, including Orleans, Jefferson, St. Bernard and St. Tammany Parishes; and the Shreveport Labor Area, including Caddo and Bossier Parishes.

Estimates of total employment for the state and labor areas, as well as individual estimates for each occupational group, were projected to 1975. These estimates were projected from the 1960 United States Census of Population for Louisiana and resulted from a review of state and area past trends, from judgment and from projected national trends for 1975 with special adjustments for Louisiana. Total employment estimates for 1968, which formed a frame-work for the selected occupations, are from the Research and Statistics Unit's Employment Statistics Program.

National occupational pattern factors (as shown in the Bureau of Labor Statistics publication "Occupational Employment Patterns for 1960 and 1975") were applied to the employment estimates to compute a particular occupational estimate for 1960 and 1975. The 1960-1975 trend factor for the occupation was then computed by dividing the 1975 occupational employment estimate by the 1960 occupational employment estimate.

The base period 1960 occupational employment estimates for the state or area involved were obtained from the 1960 census for Louisiana. The 1975 employment estimate for a specific occupation was then computed by applying the trend factor to the base period 1960 census occupational employment estimate. The 1968 occupational employment estimates were obtained by applying the 1975 occupational employment pattern factors to total 1968 employment estimates with special adjustments for the seven-year time lapse between 1968 and 1975.

These projections were made under the assumption that the federal government will maintain average demand at sufficient levels to insure relatively full employment and that the present long-time period of economic prosperity will continue. It was also assumed that the international situation will not vary too greatly from the present situation.

It is possible that some of the assumptions of economic behavior in Louisiana and the United States may in time prove to be incorrect. In using the occupational projections as time goes by, possibly they should be re-evaluated in terms of current economic developments. However, it is not believed that actual economic behavior will digress from economic conditions assumed to such an extent as to invalidate the

projections. The actual directions and growth of occupational employment should be close enough to the projections so as to make the study of value in determining future occupational employment needs.

LOUISIANA

CURRENT ESTIMATED AND PROJECTED EMPLOYMENT FOR SELECTED OCCUPATIONS, 1968 & 1975

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Engineers, Aeronautical	*	*
Engineers, Chemical	1,700	2,100
Engineers, Civil	4,400	5,200
Engineers, Electrical	2,100	2,500
Engineers, Industrial	1,200	1,400
Engineers, Mechanical	2,500	3,000
Engineers, Metallurgical	100	100
Engineers, Mining	1,200	1,400
Chemists	2,200	2,700
Agricultural Scientists	300	400
Biological Scientists	300	400
Geologists & Geophysicists	2,200	2,600
Mathematicians	100	200
Physicists	100	100
Draftsmen	3,200	3,900
Surveyors	2,100	2,500
Air Traffic Controllers & Radio Operators	1,000	1,200
Dentists	1,400	1,700
Dieticians & Nutritionists	600	700
Nurses, Professional	12,500	14,700
Optometrists	200	300
Osteopaths	*	*
Pharmacists	1,400	1,700
Physicians & Surgeons	5,800	6,900
Psychologists	300	300
Technicians, Medical & Dental	5,500	6,500
Veterinarians	300	300
Teachers, Elementary	25,500	30,200
Teachers, Secondary	15,400	18,100
Teachers, College	7,900	9,400
Economists	100	200
Statisticians & Actuaries	300	400
Accountants & Auditors	8,600	10,200
Airplane Pilots, Navigators	1,300	1,500
Architects	600	700
Workers in Arts, Entertainment	9,100	10,800
Clergymen	4,400	5,200
Designers, Except Design Draft	400	500
Editors & Reporters	1,000	1,200
Lawyers & Judges	4,300	5,100

LOUISIANA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Librarians	2,300	2,700
Personnel & Labor Relations Workers	2,400	2,800
Photographers	500	600
Social Welfare Workers	3,800	4,500
Conductors, Railroad	400	500
Creditmen	1,700	2,000
Officers, Pilots & Engineers, Ship	4,600	5,400
Postmasters & Assistants	500	700
Purchasing Agents	1,800	2,100
Stenographers, Typists & Secretaries	48,300	57,100
Office Machine Operators	5,200	6,100
Accounting Clerks & Bookkeepers	17,400	20,500
Bank Tellers	3,400	4,000
Cashiers	15,700	18,600
Mail Carriers	3,400	4,000
Postal Clerks	3,500	4,200
Shipping & Receiving Clerks	3,400	4,100
Telephone Operators	7,600	9,000
Insurance Agents & Brokers	8,000	9,500
Real Estate Agents & Brokers	3,800	4,500
Carpenters	18,700	22,100
Brickmasons & Tile Setters	3,100	3,700
Cement, Concrete Finishers	1,500	1,800
Electricians	6,100	7,200
Excavating, Grading Machine Operators	7,800	9,200
Painters & Paperhangers	8,000	9,500
Plasterers	500	600
Plumbers & Pipefitters	7,600	9,000
Roofers & Slaters	1,200	1,400
Structural Metal Workers	2,100	2,400
Machinists	3,800	4,500
Blacksmiths, Forgemen & Hammermen	200	300
Boilermakers	700	900
Heat Treaters, Annealers	*	*
Millwrights	1,200	1,400
Molders, Metal, Except Coremakers	100	100
Patternmakers, Metal, Wood	100	100
Rollers & Roll Hands	100	100
Sheet Metal Workers	1,700	2,000
Toolmakers & Diemakers	100	100

LOUISIANA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Compositors, Typesetters	1,300	1,500
Electrotypers, Sterotypers	100	100
Engravers, Except Photoengravers	100	100
Photoengravers, Lithographers	200	300
Pressmen, Plate Printers	700	800
Linemen & Servicemen	6,200	7,300
Locomotive Engineers	900	1,100
Locomotive Firemen	100	200
Airplane Mechanics & Repairmen	700	800
Motor Vehicle Mechanics	15,200	18,000
Office Machine Mechanics	700	800
Radio & Television Mechanics	2,700	3,200
Railroad & Car Shop Mechanics	500	600
Bakers	1,400	1,600
Cabinetmakers	800	1,000
Crane & Derrick Hoistmen	2,300	2,700
Glaziers	500	500
Jewelers & Watchmakers	400	400
Opticians, Lens Grinder	200	300
Inspectors, Log & Lumbers	900	1,000
Upholsterers	800	900
Drivers, Bus, Truck & Tractor	55,500	65,600
Deliverymen & Routemen	15,600	18,500
Brakemen & Switchmen, Railroad	1,800	2,100
Power Station Operators	700	800
Sailors & Deckhands	2,700	3,200
Furnacemen, Smeltermen, Pourers	200	200
Heaters, Metal	*	*
Welders & Flame-Cutters	11,400	13,500
Assemblers, Metal Working	700	900
Inspectors, Metal Working	1,900	2,300
Weavers, Textile	*	*
Sewers & Stitchers, Manufacturing	3,900	4,700
Asbestos, Insulation Workers	700	800
Attendants, Automobile Service & Parking	9,400	11,100
Blasters & Powdermen	200	200
Laundry, Dry Cleaning Operators	8,300	9,800
Meat Cutters, Except Meat Packing	2,900	3,400
Mine Operators & Laborers	11,500	13,500
Private Household Workers	76,200	90,500

LOUISIANA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Firemen, Fire Protection	3,900	4,700
Guards & Watchmen	5,700	6,700
Policemen & Other Law Enforcement Officers	7,700	9,100
Bartenders	3,700	4,400
Cooks, Except Private Household	19,000	22,500
Counter & Fountain Workers	3,300	3,900
Waiters & Waitresses	18,400	21,800
Airline Stewards & Stewardesses	6,000	7,000
Attendants, Hospitals & Other Institutions	14,600	17,000
Charwomen & Cleaners	4,000	4,700
Janitors & Sextons	14,100	16,700
Nurses, Practical	7,300	8,600
Laborers, Except Farm & Mine	51,900	61,400

* Less than 100

Estimates rounded to the nearest 100

TOP FIFTY

SELECTED OCCUPATIONS PROJECTED FOR THE PERIOD 1968-1975

TO PROVIDE LARGEST NUMBER OF NEW JOBS ANNUALLY IN LOUISIANA

OCCUPATIONS	PROJECTED ANNUAL NEW JOBS
Accountants & Auditors	250
Accounting Clerks & Bookkeepers	450
Airline Stewards & Stewardesses	150
Attendants, Automobile Service & Parking	250
Attendants, Hospitals & Other Institutions	350
Bartenders	100
Cashiers	400
Carpenters	500
Charwomen & Cleaners	100
Cooks, Except Private Household	500
Deliverymen & Routemen	400
Draftsmen	100
Drivers, Bus, Truck & Tractor	1,450
Electricians	150
Engineers, Civil	100
Excavating, Grading Machine Operators	200
Firemen, Fire Protection	100
Guards & Watchmen	150
Insurance Agents & Brokers	200
Janitors & Sextons	350
Laborers, Except Farm & Mine	1,350
Laundry, Dry Cleaning Operators	200

TOP FIFTY SELECTED OCCUPATIONS

(Continued)

OCCUPATIONS	PROJECTED ANNUAL NEW JOBS
Lawyers & Judges	100
Linemen & Servicemen	150
Machinists	100
Mine Operators & Laborers	300
Motor Vehicle Mechanics	400
Nurses, Practical	200
Nurses, Professional	300
Office Machine Operators	150
Officers, Pilots & Engineers, Ship	100
Painters & Paperhangers	200
Physicians & Surgeons	150
Plumbers & Pipefitters	200
Policemen & Other Law Enforcement Officers	200
Postal Clerks	100
Private Household Workers	2,050
Real Estate Agents & Brokers	100
Sewers & Stitchers, Manufacturing	100
Shipping & Receiving Clerks	100
Social Welfare Workers	100
Stenographers, Typists & Secretaries	1,250
Teachers, College	200
Teachers, Elementary	650
Teachers, Secondary	400

TOP FIFTY SELECTED OCCUPATIONS

(Continued)

OCCUPATIONS	PROJECTED ANNUAL NEW JOBS
Technicians, Medical & Dental	150
Telephone Operators	200
Waiters & Waitresses	500
Welders & Flame-Cutters	300
Workers in Arts, Entertainment	250

Estimates rounded to the nearest 50

ALEXANDRIA LABOR AREA

CURRENT ESTIMATED AND PROJECTED EMPLOYMENT FOR SELECTED OCCUPATIONS, 1968 & 1975

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Engineers, Civil	150	150
Engineers, Electrical	25	50
Engineers, Industrial	25	25
Engineers, Mechanical	*	*
Chemists & Natural Scientists	50	50
Draftsmen	50	75
Surveyors	25	25
Nurses, Professional	625	750
Physicians & Surgeons	300	350
Technicians, Medical & Dental	200	225
Teachers, Elementary	1,150	1,275
Teachers, Secondary	475	525
Statisticians, Actuaries & Other Social Scientists	25	25
Accountants & Auditors	125	150
Architects	25	25
Lawyers & Judges	75	100
Personnel & Labor Relations Workers	25	25
Social & Welfare Workers	125	150
Stenographers, Typists & Secretaries	1,400	1,525
Office Machine Operators	50	75
Accounting Clerks & Bookkeepers	575	625
Cashiers	525	575
Shipping & Receiving Clerks	100	125
Telephone Operators	200	225
Sales Workers	3,350	3,675
Carpenters	875	950
Electricians	150	175
Plumbers & Pipefitters	200	225
Machinists	50	50
Blacksmiths, Forgemen & Hammermen	*	*
Boilermakers	*	*
Millwrights	25	25
Sheet Metal Workers	50	50
Printing Craftsmen	50	50
Airplane Mechanics & Repairmen	75	75
Motor Vehicle Mechanics	450	575
Office Machine Mechanics	50	75
Radio & Television Mechanics	75	100
Railroad & Car Shop Mechanics	25	25
Cabinetmakers	25	25

ALEXANDRIA LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Crane & Derrick Hoistmen	50	50
Drivers, Bus, Truck & Tractor	1,425	1,550
Deliverymen & Routemen	325	375
Welders & Flame-Cutters	200	225
Assemblers, Metal Working	25	50
Inspectors, Metal Working	*	*
Sewers & Stitchers, Manufacturing	25	25
Private Household Workers	3,650	4,000
Firemen, Fire Protection	125	150
Guards & Watchmen	175	175
Policemen & Other Law Enforcement Officers	275	300
Bartenders	150	175
Cooks, Except Private Household	850	975
Counter & Fountain Workers	125	150
Waiters & Waitresses	700	775
Charwomen, Janitors & Porters	925	1,125
Nurses, Practical	375	425
Laborers, Except Farm & Mine	3,000	3,300

* Less than 25

Estimates rounded to the nearest 25

TOP TEN

SELECTED OCCUPATIONS PROJECTED FOR THE PERIOD 1968-1975

TO PROVIDE THE LARGEST NUMBER OF NEW JOBS ANNUALLY IN THE ALEXANDRIA LABOR AREA

OCCUPATIONS	PROJECTED ANNUAL NEW JOBS
Charwomen & Cleaners	25
Cooks, Except Private Household	25
Drivers, Bus, Truck & Tractor	25
Laborers, Except Farm & Mine	50
Motor Vehicle Mechanics	25
Nurses, Professional	25
Private Household Workers	50
Sales Workers	50
Stenographers, Typists & Secretaries	25
Teachers, Elementary	25

Estimates rounded to the nearest 25

BATON ROUGE LABOR AREA

CURRENT ESTIMATED AND PROJECTED EMPLOYMENT FOR SELECTED OCCUPATIONS, 1968 & 1975

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Engineers, Aeronautical	*	*
Engineers, Chemical	575	700
Engineers, Civil	675	800
Engineers, Electrical	300	350
Engineers, Industrial	150	200
Engineers, Mechanical	425	525
Engineers, Metallurgical	25	25
Engineers, Mining	50	50
Chemists	775	925
Agricultural Scientists	100	125
Biological Scientists	25	50
Geologists & Geophysicists	100	125
Mathematicians	*	*
Physicists	25	25
Draftsmen	475	600
Surveyors	100	125
Air Traffic Controllers & Radio Operators	25	25
Dentists	175	200
Dieticians & Nutritionists	100	125
Nurses, Professional	1,125	1,375
Optometrists	*	*
Osteopaths	*	*
Pharmacists	150	175
Physicians & Surgeons	500	625
Psychologists	75	100
Technicians, Medical & Dental	575	700
Veterinarians	25	25
Teachers, Elementary	2,450	2,975
Teachers, Secondary	1,500	1,800
Teachers, College	2,575	3,125
Economists	50	50
Statisticians & Actuaries	75	75
Accountants & Auditors	1,225	1,500
Airplane Pilots, Navigators	50	75
Architects	125	150
Workers in Arts, Entertainment	1,100	1,350
Clergymen	400	475
Designers, Except Design Draft	75	100
Editors & Reporters	175	200
Lawyers & Judges	500	600

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BATON ROUGE LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT 1968	1975
Librarians	350	400
Personnel & Labor Relations Workers	400	475
Photographers	50	50
Social Welfare Workers	450	550
Conductors, Railroad	25	50
Creditmen	250	300
Officers, Pilots & Engineers, Ships	100	125
Postmasters & Assistants	*	*
Purchasing Agents	275	325
Stenographers, Typists & Secretaries	6,675	8,100
Office Machine Operators	775	950
Accounting Clerks & Bookkeepers	1,950	2,350
Bank Tellers	275	350
Cashiers	1,675	2,050
Mail Carriers	350	425
Postal Clerks	250	300
Shipping & Receiving Clerks	250	300
Telephone Operators	875	1,050
Insurance Agents & Brokers	775	950
Real Estate Agents & Brokers	350	400
Carpenters	1,325	1,600
Brickmasons & Tile Setters	500	600
Cement, Concrete Finishers	175	225
Electricians	900	1,100
Excavating, Grading Machine Operators	400	500
Painters & Paperhangers	675	850
Plasterers	75	75
Plumbers & Pipefitters	1,425	1,725
Roofers & Slaters	150	175
Structural Metal Workers	150	200
Machinists	500	600
Blacksmiths, Forgemen & Hammermen	*	*
Boiler Makers	150	175
Heat Treaters, Annealers	*	*
Millwrights	75	100
Molders, Metal, Except Coremakers	*	*
Patternmakers, Metal, Wood	*	*
Rollers & Roll Hand	*	*
Sheet Metal Workers	125	150
Toolmakers & Diemakers	*	*

BATON ROUGE LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Compositors, Type Setters	150	200
Electrotypers, Sterotypers	*	*
Engravers, Except Photoengravers	*	*
Photoengravers, Lithographers	75	100
Pressmen, Plate Printers	100	100
Linemen & Servicemen	525	775
Locomotive Engineers	100	100
Locomotive Firemen	25	25
Airplane Mechanics & Repairmen	25	25
Motor Vehicle Mechanics	975	1,175
Office Machine Mechanics	75	100
Radio & Television Mechanics	225	275
Railroad & Car Shop Mechanics	*	*
Bakers	150	175
Cabinetmakers	75	100
Crane & Derrick Hoistmen	125	150
Glaziers	75	75
Jewelers & Watchmakers	50	50
Opticians & Lens Grinders	50	50
Inspectors, Log & Lumber	*	*
Upholsterers	50	75
Drivers, Bus, Truck & Tractor	3,075	3,825
Deliverymen & Routemen	1,275	1,400
Brakemen & Switchmen, Railroad	125	150
Power Station Operators	100	125
Sailors & Deckhands	75	75
Furnacemen, Smeltermen, Pourers	25	25
Heaters, Metal	*	*
Welders, Flame-Cutters	1,150	1,175
Assemblers, Metal Working	50	75
Inspectors, Metal Working	100	100
Weavers, Textile	*	*
Sewers & Stitchers, Manufacturing	*	*
Asbestos, Insulation Workers	150	175
Attendants, Automobile Service, Parking	800	1,200
Blasters, Powdermen	*	*
Laundry, Dry Cleaning Operators	825	975
Meat Cutters, Except Meat Packing	300	350
Mine Operators & Laborers	100	125
Private Household Workers	6,925	8,525

BATON ROUGE LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Counter & Fountain Workers	300	350
Waiters & Waitresses	1,625	1,975
Airline Stewards & Stewardesses	625	750
Attendants, Hospitals & Other Institutions	775	925
Charwomen & Cleaners	400	400
Janitors & Sextons	1,225	1,500
Nurses, Practical	550	650
Laborers, Except Farm & Mine	5,550	6,750

* Less than 25

Estimates rounded to the nearest 25

TOP THIRTY-FIVE

SELECTED OCCUPATIONS PROJECTED FOR THE PERIOD 1968-1975

TO PROVIDE THE LARGEST NUMBER OF NEW JOBS ANNUALLY IN THE BATON ROUGE LABOR AREA

OCCUPATIONS	PROJECTED ANNUAL NEW JOBS
Accountants & Auditors	50
Accounting Clerks & Bookkeepers	50
Airline Stewards & Stewardesses	25
Attendants, Hospitals & Other Institutions	25
Attendants, Automobile Service & Parking	50
Carpenters	50
Cashiers	50
Chemists	25
Cooks, Except Private Household	50
Deliverymen & Routemen	25
Draftsmen	25
Drivers, Bus, Truck & Tractor	100
Electricians	25
Engineers, Chemical	25
Insurance Agents & Brokers	25
Janitors & Sextons	50
Laborers, Except Farm & Mine	175
Laundry, Dry Cleaning Operators	25
Linemen & Servicemen	25
Motor Vehicle Mechanics	25
Nurses, Professional	50
Office Machine Operators	25
Painters & Paperhangers	25

TOP THIRTY-FIVE SELECTED OCCUPATIONS

(Continued)

OCCUPATIONS	PROJECTED ANNUAL NEW JOBS
Physicians & Surgeons	25
Plumbers & Pipefitters	50
Policemen & Other Law Enforcement Officers	25
Private Household Workers	225
Stenographers, Typists & Secretaries	200
Teachers, College	75
Teachers, Elementary	75
Teachers, Secondary	50
Technicians, Medical & Dental	25
Telephone Operators	25
Waiters & Waitresses	50
Workers in Arts, Entertainment	25

Estimates rounded to the nearest 25

LAFAYETTE LABOR AREA

CURRENT ESTIMATED AND PROJECTED EMPLOYMENT FOR SELECTED OCCUPATIONS, 1968 & 1975

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Engineers, Civil	150	175
Engineers, Electrical	50	75
Engineers, Industrial	50	75
Engineers, Mechanical	75	100
Chemists & Natural Scientists	850	950
Draftsmen	250	275
Surveyors	125	150
Nurses, Professional	325	375
Physicians & Surgeons	150	175
Technicians, Medical & Dental	225	250
Teachers, Elementary	700	850
Teachers, Secondary	425	500
Statisticians, Actuaries & Other Social Scientists	*	*
Accountants & Auditors	275	350
Architects	50	50
Lawyers & Judges	100	125
Personnel & Labor Relations Workers	50	75
Social & Welfare Workers	75	100
Stenographers, Typists & Secretaries	1,575	1,900
Office Machine Operators	50	75
Accounting Clerks & Bookkeepers	600	750
Cashiers	550	650
Shipping & Receiving Clerks	50	75
Telephone Operators	250	325
Sales Workers	3,275	3,950
Carpenters	775	875
Electricians	125	150
Plumbers & Pipefitters	125	175
Machinists	50	50
Blacksmiths, Forgemen & Hammermen	25	25
Boilermakers	*	*
Millwrights	25	25
Sheet Metal Workers	50	75
Printing Craftsmen	100	125
Airplane Mechanics & Repairmen	50	75
Motor Vehicle Mechanics	425	550
Office Machine Mechanics	50	75
Radio & Television Mechanics	75	100
Railroad & Car Shop Mechanics	25	25
Cabinetmakers	25	25

LAFAYETTE LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT 1968	1975
Crane & Derrick Hoistmen	*	*
Drivers, Bus, Truck & Tractor	1,525	1,750
Deliverymen & Routemen	150	400
Welders & Flame-Cutters	150	200
Assemblers, Metal Working	25	25
Inspectors, Metal Working	*	*
Sewers & Stitchers, Manufacturing	*	*
Private Household Workers	2,825	3,400
Firemen, Fire Protection	75	100
Guards & Watchmen	50	50
Policemen & Other Law Enforcement Officers	150	200
Bartenders	150	200
Cooks, Except Private Household	700	850
Counter & Fountain Workers	125	150
Waiters & Waitresses	700	825
Charwomen, Janitors & Porters	925	1,100
Nurses, Practical	200	225
Laborers, Except Farm & Mine	1,875	2,275

* Less than 25

Estimates rounded to the nearest 25

TOP TWELVE

SELECTED OCCUPATIONS PROJECTED FOR THE PERIOD 1968-1975

TO PROVIDE THE LARGEST NUMBER OF NEW JOBS ANNUALLY FOR THE LAFAYETTE LABOR AREA

OCCUPATIONS	PROJECTED ANNUAL NEW JOBS
Accounting Clerks & Bookkeepers	50
Charwomen, Janitors & Porters	25
Cooks, Except Private Household	25
Deliverymen & Routemen	50
Drivers, Bus, Truck & Tractor	25
Laborers, Except Farm & Mine	50
Motor Vehicle Mechanics	25
Private Household Workers	75
Sales Workers	100
Stenographers, Typists & Secretaries	50
Teachers, Elementary	25
Waiters & Waitresses	25

Estimates rounded to the nearest 25

LAKE CHARLES LABOR AREA

CURRENT ESTIMATED AND PROJECTED EMPLOYMENT FOR SELECTED OCCUPATIONS, 1968 & 1975

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Engineers, Aeronautical	*	*
Engineers, Chemical	225	275
Engineers, Civil	125	150
Engineers, Electrical	75	100
Engineers, Industrial	50	50
Engineers, Mechanical	150	175
Engineers, Metallurgical	*	*
Engineers, Mining	50	50
Chemists	150	175
Agricultural Scientists	50	50
Biological Scientists	*	*
Geologists & Geophysicists	25	50
Mathematicians	*	*
Physicists	*	*
Draftsmen	75	100
Surveyors	100	125
Air Traffic Controllers & Radio Operators	50	75
Dentists	75	100
Dieticians & Nutritionists	*	*
Nurses, Professional	525	600
Optometrists	*	*
Osteopaths	*	*
Pharmacists	50	50
Physicians & Surgeons	150	175
Psychologists	*	*
Technicians, Medical & Dental	200	225
Veterinarians	25	25
Teachers, Elementary	950	1,100
Teachers, Secondary	550	625
Teachers, College	225	275
Economists	*	*
Statisticians & Actuaries	*	*
Accountants & Auditors	275	325
Airplane Pilots, Navigators	25	50
Architects	*	*
Workers in Arts, Entertainment	425	500
Clergymen	175	200
Designers, Except Design Draft	*	*
Editors & Reporters	25	50
Lawyers & Judges	125	150

LAKE CHARLES LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Librarians	100	100
Personnel & Labor Relations Workers	100	100
Photographers	25	25
Social Welfare Workers	125	150
Conductors, Railroad	50	75
Creditmen	50	75
Officers, Pilots & Engineers, Ships	100	125
Postmasters & Assistants	*	*
Purchasing Agents	50	75
Stenographers, Typists & Secretaries	1,800	2,100
Office Machine Operators	75	75
Accounting Clerks & Bookkeepers	775	900
Bank Tellers	200	250
Cashiers	550	675
Mail Carriers	125	150
Postal Clerks	125	150
Shipping & Receiving Clerks	100	100
Telephone Operators	225	250
Insurance Agents & Brokers	300	350
Real Estate Agents & Brokers	100	125
Carpenters	725	850
Brickmasons & Tile Setters	125	150
Cement, Concrete Finishers	75	100
Electricians	350	400
Excavating, Grading Machine Operators	400	450
Painters & Paperhangers	325	375
Plasterers	*	*
Plumbers & Pipefitters	525	650
Roofers & Slaters	50	50
Structural Metal Workers	175	200
Machinists	300	350
Blacksmiths, Forgemen & Hammermen	*	*
Boiler Makers	150	175
Heat Treaters, Annealers	*	*
Millwrights	50	50
Molders, Metal, Except Coremakers	*	*
Patternmakers, Metal, Wood	*	*
Rollers & Roll Hands	*	*
Sheet Metal Workers	50	50
Toolmakers & Diemakers	*	*

LAKE CHARLES LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT 1968	1975
Compositors, Type Setters	50	50
Electrotypers, Sterotypers	*	*
Engravers, Except Photoengravers	*	*
Photoengravers, Lithographers	*	*
Pressmen, Plate Printers	*	*
Linemen & Servicemen	250	300
Locomotive Engineers	75	75
Locomotive Firemen	*	*
Airplane Mechanics & Repairmen	25	25
Motor Vehicle Mechanics	625	750
Office Machine Mechanics	50	50
Radio & Television Mechanics	125	150
Railroad & Car Shop Mechanics	*	*
Bakers	25	25
Cabinetmakers	*	25
Crane & Derrick Hoistmen	75	75
Glaziers	50	50
Jewelers & Watchmakers	*	25
Opticians & Lens Grinders	*	*
Inspectors, Log & Lumber	*	*
Upholsterers	25	50
Drivers, Bus, Truck & Tractor	1,775	2,050
Deliverymen & Routemen	500	550
Brakemen & Switchmen, Railroad	100	125
Power Station Operators	50	50
Sailors & Deckhands	100	100
Furnacemen, Smeltermen, Pourers	*	*
Heaters, Metal	*	*
Welders, Flame-Cutters	575	700
Assemblers, Metal Working	*	*
Inspectors, Metal Working	25	25
Weavers, Textile	*	*
Sewers & Stitchers, Manufacturing	*	*
Asbestos, Insulation Workers	100	100
Attendants, Automobile Service, Parking	450	525
Blasters, Powdermen	*	*
Laundry, Dry Cleaning Operators	325	375
Meat Cutters, Except Meat Packing	100	125
Mine Operators & Laborers	475	600
Private Household Workers	2,600	3,025

LAKE CHARLES LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Firemen, Fire Protection	100	125
Guards, Watchmen	225	250
Policemen & Other Law Enforcement Officers	250	300
Bartenders	100	100
Cooks, Except Private Household	625	750
Counter & Fountain Workers	125	150
Waiters & Waitresses	750	875
Airline Stewards & Stewardesses	100	100
Attendants, Hospitals & Other Institutions	250	300
Charwomen & Cleaners	150	175
Janitors & Sextons	775	900
Nurses, Practical	275	325
Laborers, Except Farm & Mine	2,650	3,075

* Less than 25

Estimates rounded to the nearest 25

TOP EIFTEEN

SELECTED OCCUPATIONS PROJECTED FOR THE PERIOD 1968-1975

TO PROVIDE THE LARGEST NUMBER OF NEW JOBS ANNUALLY IN THE LAKE CHARLES LABOR AREA

OCCUPATIONS	PROJECTED ANNUAL NEW JOBS
Accounting Clerks & Bookkeepers	25
Carpenters	25
Cashiers	25
Cooks, Except Private Household	25
Drivers, Bus, Truck & Tractor	50
Janitors & Sextons	25
Laborers, Except Farm & Mine	75
Mine Operators & Laborers	25
Motor Vehicle Mechanics	25
Plumbers & Pipefitters	25
Private Household Workers	50
Stenographers, Typists & Secretaries	50
Teachers, Elementary	25
Waiters & Waitresses	25
Welders & Flame-Cutters	25

Estimates rounded to the nearest 25

MONROE LABOR AREA

CURRENT ESTIMATED AND PROJECTED EMPLOYMENT FOR SELECTED OCCUPATIONS, 1968 & 1975

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Engineers, Aeronautical	*	*
Engineers, Chemical	50	50
Engineers, Civil	125	150
Engineers, Electrical	75	100
Engineers, Industrial	25	25
Engineers, Mechanical	50	75
Engineers, Metallurgical	*	*
Engineers, Mining	50	50
Chemists	100	100
Agricultural Scientists	75	75
Biological Scientists	25	25
Geologists & Geophysicists	25	25
Mathematicians	*	*
Physicists	*	*
Draftsmen	100	100
Surveyors	100	100
Air Traffic Controllers & Radio Operators	50	50
Dentists	50	50
Dieticians & Nutritionists	50	50
Nurses, Professional	325	375
Optometrists	25	25
Osteopaths	*	*
Pharmacists	75	100
Physicians & Surgeons	175	200
Psychologists	*	25
Technicians, Medical & Dental	300	325
Veterinarians	*	*
Teachers, Elementary	950	1,075
Teachers, Secondary	475	500
Teachers, College	275	300
Economists	25	25
Statisticians & Actuaries	*	*
Accountants & Auditors	175	200
Airplane Pilots, Navigators	25	50
Architects	25	50
Workers in Arts, Entertainment	450	500
Clergymen	275	300
Designers, Except Design Draft	*	*
Editors & Reporters	50	50
Lawyers & Judges	150	150

MONROE LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT 1968	1975
Librarians	125	150
Personnel & Labor Relations Workers	50	75
Photographers	*	*
Social Welfare Workers	175	200
Conductors, Railroad	25	25
Creditmen	75	100
Officers, Pilots & Engineers, Ships	25	50
Postmasters & Assistants	*	*
Purchasing Agents	75	100
Stenographers, Typists & Secretaries	1,750	2,000
Office Machine Operators	50	75
Accounting Clerks & Bookkeepers	750	825
Bank Tellers	125	150
Cashiers	650	700
Mail Carriers	125	150
Postal Clerks	125	150
Shipping & Receiving Clerks	175	200
Telephone Operators	250	300
Insurance Agents & Brokers	300	350
Real Estate Agents & Brokers	50	75
Carpenters	550	600
Brickmasons & Tile Setters	175	200
Cement, Concrete Finishers	50	75
Electricians	200	200
Excavating, Grading Machine Operators	250	300
Painters & Paperhangers	350	375
Plasterers	25	25
Plumbers & Pipefitters	200	225
Roofers & Slaters	75	75
Structural Metal Workers	50	75
Machinists	150	175
Blacksmiths, Forgemen & Hammermen	*	*
Boiler Makers	25	25
Heat Treaters, Annealers	*	*
Millwrights	75	100
Molders, Metal, Except Coremakers	*	*
Patternmakers, Metal, Wood	*	*
Rollers & Roll Hands	*	*
Sheet Metal Workers	50	50
Toolmakers & Diemakers	*	*

MONROE LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Compositors, Type Setters	75	75
Electrotypers, Sterotypers	*	*
Engravers, Except Photoengravers	*	*
Photoengravers, Lithographers	*	*
Pressmen, Plate Printers	50	50
Linemen & Servicemen	275	300
Locomotive Engineers	50	75
Locomotive Firemen	*	*
Airplane Mechanics & Repairmen	*	*
Motor Vehicle Mechanics	675	800
Office Machine Mechanics	50	50
Radio & Television Mechanics	100	100
Railroad & Car Shop Mechanics	25	50
Bakers	50	50
Cabinetmakers	25	50
Crane & Derrick Hoistmen	25	25
Glaziers	25	25
Jewelers & Watchmakers	*	*
Opticians & Lens Grinders	*	*
Inspectors, Log & Lumber	*	*
Upholsterers	75	75
Drivers, Bus, Truck & Tractor	1,750	1,950
Deliverymen & Routemen	625	750
Brakemen & Switchmen, Railroad	75	75
Power Station Operators	50	50
Sailors & Deckhands	*	*
Furnacemen, Smeltermen, Pourers	*	*
Heaters, Metal	*	*
Welders, Flame-Cutters	150	175
Assemblers, Metal Working	25	50
Inspectors, Metal Working	150	150
Weavers, Textile	*	*
Sewers & Stitchers, Manufacturing	50	75
Asbestos, Insulation Workers	*	*
Attendants, Automobile Service, Parking	350	375
Blasters, Powdermen	*	*
Laundry, Dry Cleaning Operators	400	500
Meat Cutters, Except Meat Packing	100	125
Mine Operators & Laborers	125	125
Private Household Workers	3,400	3,750

MONROE LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Firemen, Fire Protection	300	325
Guards, Watchmen	125	150
Policemen & Other Law Enforcement Officers	200	225
Bartenders	75	75
Cooks, Except Private Household	675	800
Counter & Fountain Workers	75	100
Waiters & Waitresses	625	750
Airline Stewards & Stewardesses	200	225
Attendants, Hospitals & Other Institutions	425	550
Charwomen & Cleaners	75	75
Janitors & Sextons	650	725
Nurses, Practical	375	450
Laborers, Except Farm & Mine	2,425	2,675

* Less than 25

Estimates rounded to the nearest 25

TOP TEN

SELECTED OCCUPATIONS PROJECTED FOR THE PERIOD 1968-1975

TO PROVIDE THE LARGEST NUMBER OF NEW JOBS ANNUALLY IN THE MONROE LABOR AREA

OCCUPATIONS	PROJECTED ANNUAL NEW JOBS
Attendants, Hospitals & Other Institutions	25
Cooks, Except Private Household	25
Deliverymen & Routemen	25
Drivers, Bus, Truck & Tractor	25
Laborers, Except Farm & Mine	50
Motor Vehicle Mechanics	25
Private Household Workers	50
Stenographers, Typists & Secretaries	50
Teachers, Elementary	25
Waiters & Waitresses	25

Estimates rounded to the nearest 25

NEW ORLEANS LABOR AREA

CURRENT ESTIMATED AND PROJECTED EMPLOYMENT FOR SELECTED OCCUPATIONS, 1968 & 1975

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Engineers, Aeronautical	*	*
Engineers, Chemical	275	300
Engineers, Civil	1,575	1,800
Engineers, Electrical	850	975
Engineers, Industrial	525	600
Engineers, Mechanical	1,050	1,200
Engineers, Metallurgical	25	25
Engineers, Mining	400	450
Chemists	800	925
Agricultural Scientists	50	50
Biological Scientists	100	125
Geologists & Geophysicists	950	1,100
Mathematicians	50	50
Physicists	25	50
Draftsmen	1,275	1,475
Surveyors	350	400
Air Traffic Controllers & Radio Operators	450	500
Dentists	550	650
Dieticians & Nutritionists	225	275
Nurses, Professional	4,250	4,900
Optometrists	75	100
Ostepaths	*	*
Pharmacists	575	650
Physicians & Surgeons	2,750	3,200
Psychologists	75	100
Technicians, Medical & Dental	2,375	2,750
Veterinarians	50	75
Teachers, Elementary	6,325	7,300
Teachers, Secondary	3,425	3,950
Teachers, College	2,625	3,025
Economists	50	75
Statisticians & Actuaries	125	150
Accountants & Auditors	4,700	5,400
Airplane Pilots, Navigators	600	700
Architects	250	300
Workers in Arts, Entertainment	3,050	3,525
Clergymen	850	950
Designers, Except Design Draft	250	300
Editors & Reporters	375	450
Lawyers & Judges	2,000	2,300

NEW ORLEANS LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT 1968	1975
Librarians	550	625
Personnel & Labor Relations Workers	1,125	1,300
Photographers	200	225
Social Welfare Workers	1,025	1,175
Conductors, Railroad	100	100
Creditmen	800	900
Officers, Pilots & Engineers, Ships	1,350	1,550
Postmasters & Assistants	25	25
Purchasing Agents	700	800
Stenographers, Typists & Secretaries	21,525	24,800
Office Machine Operators	3,300	3,800
Accounting Clerks & Bookkeepers	5,175	5,950
Bank Tellers	1,025	1,200
Cashiers	6,700	7,700
Mail Carriers	1,175	1,350
Postal Clerks	1,550	1,800
Shipping & Receiving Clerks	1,600	1,850
Telephone Operators	2,725	3,150
Insurance Agents & Brokers	2,750	3,275
Real Estate Agents & Brokers	875	1,050
Carpenters	4,300	4,950
Brickmasons & Tile Setters	775	900
Cement, Concrete Finishers	450	525
Electricians	2,100	2,425
Excavating, Grading Machine Operators	1,000	1,150
Painters & Paperhangers	2,875	3,300
Plasterers	275	325
Plumbers & Pipefitters	2,250	2,600
Roofers & Slaters	550	625
Structural Metal Workers	750	850
Machinists	1,175	1,350
Blacksmiths, Forgemen & Hammermen	50	50
Boiler Makers	250	275
Heat Treaters, Annealers	*	*
Millwrights	200	250
Molders, Metal, Except Coremakers	50	50
Patternmakers, Metal, Wood	75	100
Rollers & Roll Hands	25	25
Sheet Metal Workers	1,000	1,150
Toolmakers & Diemakers	50	50

NEW ORLEANS LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Compositors, Type Setters	500	575
Electrotypers, Sterotypers	50	50
Engravers, Except Photoengravers	75	75
Photoengravers, Lithographers	100	125
Pressmen, Plate Printers	325	375
Linemen & Servicemen	1,825	2,100
Locomotive Engineers	325	375
Locomotive Firemen	50	50
Airplane Mechanics & Repairmen	350	400
Motor Vehicle Mechanics	3,525	4,050
Office Machine Mechanics	300	350
Radio & Television Mechanics	875	1,000
Railroad & Car Shop Mechanics	175	200
Bakers	700	800
Cabinetmakers	325	375
Crane & Derrick Hoistmen	1,050	1,200
Glaziers	150	175
Jewelers & Watchmakers	150	175
Opticians & Lens Grinders	125	150
Inspectors, Log & Lumber	50	50
Upholsterers	250	275
Drivers, Bus, Truck & Tractor	12,550	14,475
Deliverymen & Routemen	6,575	7,600
Brakemen & Switchmen, Railroad	825	950
Power Station Operators	150	175
Sailors & Deckhands	1,175	1,350
Furnacemen, Smeltermen, Pourers	100	100
Heaters, Metal	*	*
Welders, Flame-Cutters	2,575	2,950
Assemblers, Metal Working	225	250
Inspectors, Metal Working	875	1,050
Weavers, Textile	*	*
Sewers & Stitchers, Manufacturing	1,875	2,175
Asbestos, Insulation Workers	200	225
Attendants, Automobile Service & Parking	2,150	2,475
Blasters, Powdermen	*	*
Laundry, Dry Cleaning Operators	2,725	3,150
Meat Cutters, Except Meat Packing	900	1,025
Mine Operators & Laborers	850	975
Private Household Workers	17,225	19,850

NEW ORLEANS LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Firemen, Fire Protection	1,800	2,075
Guards, Watchmen	2,125	2,775
Policemen & Other Law Enforcement Officers	2,950	3,400
Bartenders	1,725	2,000
Cooks, Except Private Household	4,450	5,125
Counter & Fountain Workers	1,250	1,450
Waiters & Waitresses	6,750	7,775
Airline Stewards & Stewardesses	2,600	3,000
Attendants, Hospitals & Other Institutions	4,500	5,175
Charwomen & Cleaners	875	1,025
Janitors & Sextons	2,325	2,675
Nurses, Practical	1,900	2,200
Laborers, Except Farm & Mine	23,925	27,550

* Less than 25

Estimates rounded to the nearest 25

TOP FIFTY

SELECTED OCCUPATIONS PROJECTED FOR THE PERIOD 1968-1975

TO PROVIDE LARGEST NUMBER OF NEW JOBS ANNUALLY IN THE NEW ORLEANS LABOR AREA

OCCUPATIONS	PROJECTED ANNUAL NEW JOBS
Accountants & Auditors	100
Accounting Clerks & Bookkeepers	100
Airline Stewards & Stewardesses	50
Attendants, Automobile Service & Parking	50
Attendants, Hospitals & Other Institutions	100
Bartenders	50
Cashiers	150
Carpenters	100
Cooks, Except Private Household	100
Counter & Fountain Workers	25
Deliverymen & Routemen	150
Draftsmen	25
Drivers, Bus, Truck & Tractor	275
Electricians	50
Engineers, Civil	25
Firemen, Fire Protection	50
Guards & Watchmen	75
Inspectors, Metal Working	25
Insurance Agents & Brokers	75
Janitors & Sextons	50
Laborers, Except Farm & Mine	525
Laundry, Dry Cleaning Operators	50

TOP FIFTY SELECTED OCCUPATIONS

(Continued)

OCCUPATIONS	PROJECTED ANNUAL NEW JOBS
Lawyers & Judges	50
Linemen & Servicemen	50
Machinists	25
Motor Vehicle Mechanics	75
Nurses, Practical	50
Nurses, Professional	100
Office Machine Operators	75
Officers, Pilots & Engineers, Ship	25
Painters & Paperhangers	75
Personnel & Labor Relations Workers	25
Physicians & Surgeons	75
Plumbers & Pipefitters	50
Policemen & Other Law Enforcement Officers	75
Postal Clerks	25
Private Household Workers	375
Real Estate Agents & Brokers	25
Sailors & Deckhands	25
Sewers & Stitchers, Manufacturing	50
Shipping & Receiving Clerks	25
Stenographers, Typists & Secretaries	475
Teachers, College	50
Teachers, Elementary	150
Teachers, Secondary	75

TOP FIFTY SELECTED OCCUPATIONS

(Continued)

OCCUPATIONS	PROJECTED ANNUAL NEW JOBS
Technicians, Medical & Dental	50
Telephone Operators	50
Waiters & Waitresses	150
Welders & Flame-Cutters	50
Workers in Arts, Entertainment	75

Estimates rounded to the nearest 25

SHREVEPORT LABOR AREA

CURRENT ESTIMATED AND PROJECTED EMPLOYMENT FOR SELECTED OCCUPATIONS, 1968 & 1975

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Engineers, Aeronautical	*	*
Engineers, Chemical	50	75
Engineers, Civil	450	500
Engineers, Electrical	325	375
Engineers, Industrial	150	175
Engineers, Mechanical	250	275
Engineers, Metallurgical	*	25
Engineers, Mining	175	200
Chemists	75	100
Agricultural Scientists	75	75
Biological Scientists	25	25
Geologists & Geophysicists	400	475
Mathematicians	50	50
Physicists	*	*
Draftsmen	600	675
Surveyors	150	175
Air Traffic Controllers & Radio Operators	125	150
Dentists	100	100
Dieticians & Nutritionists	50	50
Nurses, Professional	1,675	1,900
Optometrists	50	50
Osteopaths	*	*
Pharmacists	75	100
Physicians & Surgeons	575	650
Psychologists	*	25
Technicians, Medical & Dental	625	725
Veterinarians	*	25
Teachers, Elementary	2,300	2,425
Teachers, Secondary	1,100	1,200
Teachers, College	125	150
Economists	*	*
Statisticians & Actuaries	75	75
Accountants & Auditors	1,500	1,850
Airplane Pilots, Navigators	100	125
Architects	75	75
Workers in Arts, Entertainment	925	1,025
Clergymen	400	475
Designers, Except Design Draft	*	*
Editors & Reporters	100	125
Lawyers & Judges	400	475

SHREVEPORT LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Librarians	175	200
Personnel & Labor Relations Workers	225	300
Photographers	50	75
Social Welfare Workers	325	375
Conductors, Railroad	75	75
Creditmen	225	225
Officers, Pilots & Engineers, Ships	*	*
Postmasters & Assistants	50	50
Purchasing Agents	225	250
Stenographers, Typists & Secretaries	5,600	6,600
Office Machine Operators	725	825
Accounting Clerks & Bookkeepers	1,850	2,125
Bank Tellers	350	400
Cashiers	1,700	1,925
Mail Carriers	300	350
Postal Clerks	325	350
Shipping & Receiving Clerks	500	550
Telephone Operators	850	975
Insurance Agents & Brokers	725	850
Real Estate Agents & Brokers	425	500
Carpenters	1,300	1,500
Brickmasons & Tile Setters	225	250
Cement, Concrete Finishers	175	200
Electricians	400	450
Excavating, Grading Machine Operators	350	400
Painters & Paperhangers	875	1,000
Plasterers	50	50
Plumbers & Pipefitters	425	500
Roofers & Slaters	175	200
Structural Metal Workers	100	125
Machinists	375	450
Blacksmiths, Forgemen & Hammermen	*	*
Boiler Makers	25	25
Heat Treaters, Annealers	*	*
Millwrights	25	25
Molders, Metal, Except Coremakers	50	50
Patternmakers, Metal, Wood	*	*
Rollers & Roll Hands	*	*
Sheet Metal Workers	150	175
Toolmakers & Diemakers	*	25

Only about 25% of the total area is in farms and these are usually small part-time ventures, operated more for home consumption rather than for sales. Tobacco, apples, cattle, hogs, and poultry account for the greatest portion of farm incomes.

The climate of the area is temperate, averaging 36° in January and 74° in July, with a high percentage of days with cloud cover. Rainfall is one of the lowest in the Tennessee Valley, but still among the highest in the United States, averaging 49 inches yearly. Surface run-off is drained through numerous mountain streams and fast flowing rivers, the principal ones being the Clinch, Powell, and Holston, flowing southwestward into Tennessee.

The terrain, rivers, and soil of this region have been a great influence on its economic and social organization. The terrain is the foe to development, the barrier to road building and communication and often the source of natural disaster.

The population of the DILENOWISCO area has been declining since 1950 and is usually explained by the replacement of unskilled mine labor with the massive growth in mechanization. The 1970 census age distribution graph shows only a small percentage of the population in the prime working age group of 20 to 34 years. It appears, that at the ages of 18 or 19 there are large numbers of people leaving the area. In most cases this represents a large outmigration of the recently graduated high school student. What this amounts to is a loss of the young, the talented and the ambitious, placing a serious drain on the future economic and social potential of the area. Area schools are spending great amounts of money to educate the young people, but this investment is being lost when they leave. Other than coal, there is simply no industry to supply jobs for these people.

Of the remaining population, it has been estimated that one out of five needs some sort of public assistance. The median school years completed by adults, 25 years and older, is 8.6 grades as compared with 11.5 average grades completed by urban Virginians. Five percent of the school age population would be classified as mentally retarded, while a great many more have varying degrees of learning handicaps. In this area of Central Appalachia, about fifty percent of the youth who turn 18 each year have not reached a level of adequate employability as compared to the twenty-five percent national average. Only one out of two entering the first grade remain in school until formal graduation.

Although only 28% of those entering first grade ever go to college, and no more than 14% of these get degrees, the offerings in the school are by and large for this 14%.

All of these facts and statistics cannot possibly represent the inestimable loss of human talents and resources.

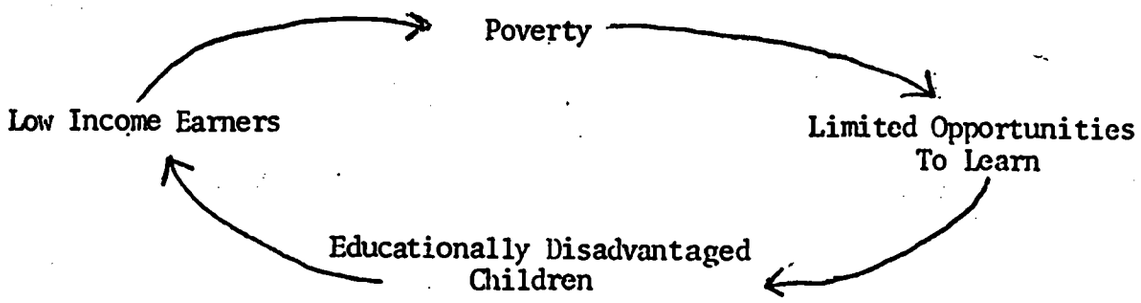
2. The Focal Point of the Four I's Project - The Potential Dropout (The Over-Aged Student)

SHREVEPORT LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Compositors, Type Setters	175	200
Electrotypers, Sterotypers	25	25
Engravers, Except Photoengravers	*	*
Photoengravers, Lithographers	25	25
Pressmen, Plate Printers	75	100
Linemen & Servicemen	550	625
Locomotive Engineers	125	150
Locomotive Firemen	225	250
Airplane Mechanics & Repairmen	75	100
Motor Vehicle Mechanics	1,350	1,525
Office Machine Mechanics	75	100
Radio & Television Mechanics	225	250
Railroad & Car Shop Mechanics	50	75
Bakers	125	150
Cabinetmakers	100	100
Crane & Derrick Hoistmen	100	100
Glaziers	50	50
Jewelers & Watchmakers	25	50
Opticians, Lens Grinders	50	50
Inspectors, Log & Lumber	50	75
Upholsterers	50	75
Drivers, Bus, Truck & Tractor	4,700	5,375
Deliverymen & Routemen	1,400	1,600
Brakemen & Switchmen, Railroad	275	300
Power Station Operators	50	50
Sailors & Deckhands	*	*
Furnacemen, Smeltermen, Pourers	25	25
Heaters, Metal	*	*
Welders & Flame-Cutters	775	900
Assemblers, Metal Working	75	100
Inspectors, Metal Working	125	150
Weavers, Textile	*	*
Sewers & Stitchers, Manufacturing	225	250
Asbestos, Insulation Workers	50	75
Attendants, Automobile Service, Parking	675	775
Blasters & Powdermen	*	25
Laundry, Dry Cleaning Operators	750	850
Meat Cutters, Except Meat Packing	250	300
Mine Operators & Laborers	550	625
Private Household Workers	9,600	10,950

Nationally, nearly 25 percent of the young men and women who turn 18 each year have not reached a level of adequate employability. In this area of Central Appalachia, this is true for about 50 percent of the youth (only about 1 out of every 2 entering first grade remain in school until formal graduation). This is a tremendous waste of money, as well as human resources. The nation supports numerous remedial programs, some of which cost as much as $12,000 for every man or woman placed on the job. Those who remain unemployed may cost as much as $4,000 per year in welfare support for themselves and their children, who will continue the cycle of poverty.



Based on a recent report by the National Advisory Council on Vocational Education, the number of jobs which the unskilled can fill is declining rapidly. The number requiring a liberal arts college education is also decreasing while the number demanding a technical skill is increasing rapidly.

But existing vocational programs fail to reach many students who drop out of school before they are old enough to qualify for the vocational training programs available in the area. In most cases, these are students who are two or more years behind their age group in grade placement; and paradoxically, they are also the ones who are most in need of assistance in devising and planning for an occupation. Educational requirements in all occupations are increasing, and the rate of increase is greatest in those occupations with the lowest qualifications. Accordingly, the chances for a student with less than a high school education and no vocational training to qualify for and succeed in many occupations are dim and growing dimmer.

A long-range solution to this problem requires, among other things, that vocational training begin at an earlier age for all students. This is the problem that the Four I's Program has attempted to solve.

3. The Plan

The problem presented herein was to pilot a program based on the Four I's of

SHREVEPORT LABOR AREA

(Continued)

OCCUPATIONS	EMPLOYMENT	
	1968	1975
Firemen, Fire Protection	450	525
Guards & Watchmen	325	375
Policemen & Other Law Enforcement Officers	650	775
Bartenders	175	200
Cooks, Except Private Household	1,725	1,950
Counter & Fountain Workers	400	475
Waiters & Waitresses	1,575	1,850
Airline Stewards & Stewardesses	350	400
Attendants, Hospitals & Other Institutions	1,700	1,900
Charwomen & Cleaners	400	450
Janitors & Sextons	1,100	1,275
Nurses, Practical	800	925
Laborers, Except Farm & Mine	5,050	5,775

* Less than 25

Estimates rounded to the nearest 25

(a) Intervention

Intervention into the lives of a group of children who appear to be in a vicious cycle of failure and frustration which ultimately would lead to discontinuance of their formal schooling and their premature entry into the world of work. This intervention is designed to demonstrate that a modified curriculum and special supportive instruction and guidance can cause these children to have heightened aspiration along with a real desire for additional vocational training. At the least, it would provide them with minimum entry level skills into the world of semi-skilled work.

(b) Introduction

Introduction into the complex and rapidly changing world of work is an integral part of the Four I's Project. Since these children are potential dropouts, it is the purpose of this program to introduce to them a number of skill occupations and to give them minimum entry level skills in one or two specific jobs. The program hopefully will encourage and stimulate the participants to continue their formal schooling, to graduate from high school, and to take a two- or three-year skilled trade in a vocational school after completion of this program.

(c) Investigation

Investigation and inquiry by the students into occupational skills and opportunities by active participants in the learning process. Information is not enough. These children need to see, hear, feel, taste, and smell; or in other words, manipulate.

(d) Involvement

The involvement of the children into the world of work is seen as a must. It is to be accomplished by actually providing them with on-the-job experiences on a work-study basis. Once again, information is not enough. These children will learn best by actually applying for, getting, and holding a real job, even though part time.

It is then the intention of this program to intervene into the lives of the participants in order to break the cycle of failure and frustration, to introduce them to a number of skilled occupations, to allow them to investigate the world of work to achieve success in gaining manipulative skills, and to actively involve them in actual work experiences.

B. Goals and Objectives of the Project

Due to the difficulty in finding and locating a control group and the cancellation (as recommended by the evaluation team) of the boy's Four I's Program at the Wise location, a few changes were made in the objectives as stated in the original proposal. These changes will be reflected primarily in the number of students participating in the program.

TOP TWENTY

SELECTED OCCUPATIONS PROJECTED FOR THE PERIOD 1968-1975

TO PROVIDE THE LARGEST NUMBER OF NEW JOBS ANNUALLY IN THE SHREVEPORT LABOR AREA

OCCUPATIONS	PROJECTED ANNUAL NEW JOBS
Accountants & Auditors	50
Accounting Clerks & Bookkeepers	50
Attendants, Hospitals & Other Institutions	25
Carpenters	25
Cashiers	25
Cooks, Except Private Household	25
Deliverymen & Routemen	25
Drivers, Bus, Truck & Tractor	50
Janitors & Sextons	25
Laborers, Except Farm & Mine	100
Motor Vehicle Mechanics	25
Nurses, Practical	25
Nurses, Professional	25
Painters & Paperhangers	25
Policemen & Other Law Enforcement Officers	25
Private Household Workers	200
Stenographers, Typists & Secretaries	150
Telephone Operators	25
Waiters & Waitresses	50
Welders & Flame-Cutters	25

Estimates rounded to the nearest 25

Objective #1

To provide a three year program of broad occupational orientation (covering two hundred occupational fields available in the DILENOWISCO area) to two selected groups totaling about two hundred sixteen (216) elementary and secondary students who are, due to various academic, socioeconomic, and other handicaps, two or more years behind their normal grade level in order to enhance their vocational maturity; therefore, increasing their chances for making sound vocational decisions.

Objective #2

To provide work experience to about thirty (30) students (out of the two hundred sixteen (216) elementary and secondary students) in the project with a wide variety of offerings in many occupational areas based on the aptitudes and interests of the participants.

Objective #3

To provide the two groups totaling about two hundred and sixteen (216) students who have not previsouly been enrolled in vocational programs, with specific prevocational training in job entry skills in at least two occupational areas prior to the time they leave school and to provide them with the opportunity to continue their vocational development by attending the regular vocational-technical programs at the conclusion of this program.

Objective #4

To provide the one hundred twenty (120) students in Dickenson with vocationally-related academic training in order to increase basic skills, especially in reading mathematics, and in order to experiment with an alternate method of presenting related academic training to the participants.

Objective #5

To provide intensive occupational guidance and counseling during the three year program and to provide initial placement on all students at the completion of the program (placement in this sense means placement in a job or in the regular vocational-technical programs for senior high youth).

In addition to the above objectives the following objectives have been developed by the project staff.

Second Year Objectives

1. To improve the average daily attendance of all students in the program by ten percent by the end of the second year of the project.

2. As measured by a student questionnaire, 75% of the students will display a positive attitude toward school by the end of the second year.

3. As measured by Henderson's Self Concept Scale, 50% of the students will exhibit a positive self concept by the end of the second year of the project.

VT 016 343
DILENOWISCO FOUR I'S PROJECT. INTERIM REPORT.

DILENOWISCO EDUCATIONAL COOPERATIVE, NORTON, VA.
BUREAU OF ADULT VOCATIONAL, AND TECHNICAL EDUCATION (DHEW/OE), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
OEC-0-70-4753 (361)
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DESCRIPTORS - *POTENTIAL DROPOUTS; *VOCATIONAL EDUCATION; *DEVELOPMENTAL PROGRAMS; SECONDARY GRADES; BEHAVIORAL OBJECTIVES; *WORK EXPERIENCE PROGRAMS; *OCCUPATIONAL GUIDANCE; PROGRAM EVALUATION; EMPLOYMENT; JOB PLACEMENT; PROJECT TRAINING METHODS; RESOURCE MATERIALS; MANIPULATIVE SKILLS; VOCATIONAL DEVELOPMENT

ABSTRACT - TO PROVIDE A GROUP OF 125 OVER-AGE POTENTIAL DROPOUTS IN ONE COUNTY AND A GROUP OF 96 GIRLS IN ANOTHER COUNTY IN THE APPALACHIAN AREA OF VIRGINIA WITH MANIPULATIVE SKILLS, OCCUPATIONAL INFORMATION, GUIDANCE COUNSELING, AND ACTUAL WORK EXPERIENCE, A YEAR-LONG FEDERALLY FUNDED EXEMPLARY VOCATIONAL PREPARATION PROGRAM USED ROTATED PREVOCATIONAL LABORATORY PROGRAMS IN A WIDE RANGE OF SKILL AREAS, 29 FIELD TRIPS, AND 22 RESOURCE PERSONS, IN ORDER TO IMPROVE BASIC READING AND MATHEMATICS ABILITIES. ALTHOUGH STANDARDIZED TESTS AND STAFF DEVELOPED QUESTIONNAIRES SHOW UNEVEN ACADEMIC IMPROVEMENT, POSITIVE ATTITUDES AND APPRECIATION FOR THE PROGRAM WERE EXPRESSED. A PROGRAM EVALUATION INCLUDES RECOMMENDATIONS CONCERNING ITS REFINEMENT AND EXPANSION AFTER FEDERAL FUNDS ARE DISCONTINUED. SPECIFIC BEHAVIORAL OBJECTIVES ARE GIVEN FOR EACH YEAR IN A 3-YEAR PLAN. JOB PLACEMENT, PERSONAL AND OCCUPATIONAL COUNSELING, AND BACKGROUND INFORMATION DETAILING EDUCATIONAL NEEDS ARE TOPICS OF DISCUSSION. RESOURCE MATERIALS ARE INCLUDED IN THE APPENDIXES. AN EARLIER EDITION OF THIS DOCUMENT IS AVAILABLE AS VT 014 727 (ARM VOL. 5 NO. 4). (AG)

4. Eighty-five percent of the parents will exhibit a positive attitude toward the program by the end of the second year.

5. Eighty percent of the students in Dickenson County will improve one-half year academically as measured by pre- and post-test comparisons.

6. In the work placement program, 80% of the students will be able to maintain a job with average or above employer ratings.

Third Year Objectives

1. At the conclusion of the program, the student will have the vocational, social, and personal skills necessary to secure employment.

2. At the conclusion of the third year of the project all students will demonstrate on standardized achievement tests, academic skills of a third grade level or above in all the academic areas measured.

3. In the third year of operation, the holding power of the program will be 50% greater for project students than the holding power of the regular school for a similar group of students as measured by a comparison of drop-out rates.

C. Description of General Project Design and Procedures

1. Prevocational Component

In the first year, Wise County Four I's girls have an opportunity to investigate four occupational areas. These are food services, commercial and domestic sewing, health occupations and cosmetics. These students will spend nine weeks in each of the listed occupational areas.

The second year students spend 18 weeks in one of the occupational areas of their choice. At the end of the first semester, they will choose another area for the remainder of the school year.

The third year students will choose one of the areas that they are most interested in and remain in that area for the entire school year.

It is hoped that many of the students will enter the regular vocational-technical program provided at the Wise County Vocational School at the beginning of or following the third year.

The first year Dickenson County Four I's girls have an opportunity to investigate three occupational areas. These are health occupations, commercial sewing, and cosmetics. The students spend 12 weeks in each of the listed occupational areas. It is anticipated food services will be added as a fourth area in the near future.

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INTERIM REPORT

Project Number 0-361-0050
Contract Number OEC-0-70-4753 (361)

DILENOWISCO FOUR I's PROJECT

Exemplary Project in Vocational Education
Conducted Under
Part D of Public Law 90-576

Wayne Wheatley, Director
Carl Deskins, Coordinator
DILENOWISCO Educational Cooperative
1032 Virginia Avenue
Norton, Virginia 24273
31 July 1972

VT016343

The second year and third year girls in the Dickenson County Program are in a "cycling" system similar to the Wise program.

The first year Dickenson County Four I's boys investigate four occupational areas; carpentry, electricity, masonry, and small engines. These students will spend 9 weeks in each of the listed occupational areas.

The second and third year boys are in a similar "cycling" system to the one used in the Wise program.

Curriculum guides have been completed in all the prevocational areas in Dickenson County. However, the guides need to be revised and refined. Dr. Lester Duenk of V.P.I. will be working with the Coordinator in July on this revision. The Coordinator will conduct a workshop in August for the teaching assistants that will be working in the boy's program.

The curriculum guides have been completed in the Wise program and will be further revised during the year.

2. Academic Program

In the Dickenson County program, the academic instruction is offered in the vocational school in a half-day block of time as an integral part of the program. Students are presented with academic material on their level of ability and in line with their vocational interests. Efforts are being made to relate a variety of academic material to the prevocational area of study.

At Wise, the academic program for the Four I's student is offered in the student's home school.

During the year, the Coordinator of the project worked with principals, teachers, and guidance counselors. Much progress has been made in the relating of the academic program with the prevocational program. A four day workshop for the academic teachers is planned in July. During the workshop a curriculum guide will be developed in the communication and computation skill areas. This guide will be used in the academic component.

3. Guidance and Counseling

a. Scheduling for the Dickenson and the Wise Programs

Due to the increased enrollment in the Dickenson County program and the cancellation of the boys section of the Wise County program, the Guidance Counselor worked three days a week in Dickenson County and two days each week in the Wise program. Further scheduling was accomplished by meeting with the students in groups for the first two periods in Wise and first three periods in Dickenson County and reserving the last period of the morning and afternoon sessions for individual counseling. In Dickenson County, the students were taken from the academic class, and since there were no academics taught in Wise, the students had to interrupt their trade skill classes for the counseling sessions.

The activities of the two programs were planned with the same objectives in mind, and the Counselor's time was spent in working with students and teachers. Because the students in both programs characteristically display what is interpreted to be a poor or low self-concept, the first group meetings were held solely to alleviate their fear of speaking out in a group and to employ their ideas in the guidance activities.

INTERIM REPORT

Project Number 0-361-0050
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DILENOWISCO FOUR I's PROJECT

Exemplary Project in Vocational Education
Conducted Under
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The project reported herein was performed pursuant to a contract with the Bureau of Adult, Vocational, and Technical Education, Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position of policy.

Wayne Wheatley, Director
Carl Deskins, Coordinator
DILENOWISCO Educational Cooperative
1032 Virginia Avenue
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Although occupational guidance was the main thrust of the guidance project, the social problems of many students had to be reconciled before a concentrated effort could begin on obtaining understanding about the world of work. The teaching assistants and supervising teachers were instrumental in bring many of the social problems to the attention of the Guidance Counselor.

The occupational counseling plan (See Appendix G) included activities to help the students discover how their interests could lead to a particular kind of work, gaining information about several occupations, practicing for job interviews and filing job applications, learning about taxes, social security, and how to get along on the job.

b. Personal Counseling

All of the students in the program spent some time in individual and group counseling. The chronological and mental age level of these students is condusive to social conflicts and misunderstandings at school, in the home, and in the community. Therefore, two periods each day, one in the morning and one in the afternoon were reserved for personal counseling sessions were tabulated as to the number of sessions held and students participating, but to evaluate any further accomplishments would necessarily be done in a subjective manner.

Two hundred ninety-six formal personal counseling sessions were participated in by the students of both programs and the Guidance Counselor. Some examples of needs included friction between the student and his parents, student and teachers, student and his peers, unmarried girls who became pregnant, and a desire of some students to leave home.

c. Occupational Counseling

The students were counseled for the most part in small groups with from eight to twelve and sometimes fewer students in the groups. At the beginning of the school year, all of the students completed the Interest Check List from the U.S. Department of Labor. The next step was to discuss each student's list with him using the Dictionary of Occupational Titles, along with the "Interest Check List". After each student had some understandings concerning his occupational interest, he became a part of a counseling group. In these groups the students were provided with an opportunity to obtain more information about a particular occupation. Following the initial introduction to specific job information, the sessions became more informal with discussions that were stimulated by "World of Work" filmstrips and recordings, social security information, job interview information, job applications, our tax system and finally discussions centering around marriage and family living.

Two hundred and seventy-one group sessions were held during the year using a wide variety of occupational information materials. (See Appendix H)

5. Occupational Placement and Work Adjustment

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a. Selection of Students for Occupational Placement

The Work Adjustment Coordinator received a list of students who have been chosen for placement by the teachers, Guidance Counselor, and Supervising Teacher. To be chosen for placement a student must meet the following requirements:

(1) The student must be a second-year Four I's student.
(2) The student must have shown academic success in both his vocational classes and academic classes.
(3) Acceptable social behavior must be shown by the student to classmates and teachers.
(4) Cooperation from student with school personnel.
(5) The student must have the desire to work.
(6) Student should have the economic need to work.

b. Method of Securing Placement

Whenever possible a student is placed in a business which will develop his work skills in his chosen prevocational area. In some cases, however, such a placement is not possible because of the scarcity of available jobs. If a student indicates an interest in a job outside of his chosen vocational area, placement on such a job will be made since project staff feel the development of personal and social skills is equally important (if not more so) than the development of vocational skills. Such skills as the ability to work with others, to accept responsibility and to work under varying degrees of supervision are invaluable.

(1) Approach Used

The Work Adjustment Coordinator calls on local businesses in Dickenson and Wise Counties and introduces the employers to the Four I's Program. Each employer is given a copy of our bulletin, "DILENOWISCO's Four I's Project" and a hand-out of the responsibilities of the Work Adjustment Coordinator. The Coordinator then explains the objectives of the Four I's Program in detail and the benefits the job opportunity could mean to both the employer and the student.

The student obtains vocational training in his classes which he can relate to his actual on-the-job experiences. Also close supervision is provided for the student by the Work-Adjustment Coordinator. The feed-back from employer evaluations allows the teachers and the Coordinator to work with each student individually if he needs further development of skills.

If the employer is hesitant but promising, the Work Adjustment Coordinator will call back on the business later after giving the employer time to read the handouts and reconsider all information.

(2) Cooperation with Other Agencies

(a) Close cooperation has been established with both the Wise County Neighborhood Youth Corp and Dickenson County Neighborhood Youth Corp. Whenever possible the Coordinator will try to "upgrade" the level of the job of one of the

I. SUMMARY OF THE REPORT

A. Time Period Covered by the Report: 1 August 1971 to 31 July 1972

B. Objectives

The objectives of this program was to significantly intervene (Intervention) in the lives of a group of youths by introducing (Introduction) them to a broad range of occupational information, by allowing them to manipulatively investigate (Investigation) several occupational areas, and by enabling them to become involved (Involvement) in actual work and learning experiences.

Current occupational information was presented to the students via modern media and materials. Manipulative skills were provided with a "cycling" system to include masonry, carpentry, small engines, electricity, food services, commercial and domestic sewing, health occupations, and cosmetics. Intensive guidance and counseling was provided through group and individual counseling, guest speakers from the working community, and on-the-job visitations.

The type of child selected to participate in this program was the potential dropout who in the past has dropped out of school without any job entry level or manipulative skills, thus usually becoming a burden on society or, at best, a low income earner. The ages of the children were 14-19 and grades 5-10.

It is hoped that this program will reverse the student's downward spiral in a manner that has wide-spread adaptability, thus making an excellent contribution to education and society. The specific objective of the academic component (Group A) was seven months growth in reading and math for 90% of the students with IQ's of 75 or above.

C. Procedures

Group A (Dickenson County boys and girls)

The procedures followed were to divide Group A (125 boys and girls) into seven prevocational shop areas according to skills they wanted to learn. These were electricity, carpentry, masonry, and small engine repair for the boys; cosmetics, health occupations, and commercial sewing for the girls. Commercial sewing was added this year in the Dickenson County program. Manipulative skills are provided with a "cycling" system. The first year students have an opportunity to investigate the seven areas for nine week periods. The second year students spent 18 weeks in one of the occupational areas of their choice. At the end of the first semester, they will choose another area for the remainder of the school year.

Four I's students who work on the Neighborhood Youth Corp. For example, two students are presently working at the Dickenson County Bus Maintenance but are being paid by the Neighborhood Youth Corp. This position was acquired through the efforts of the Work Adjustment Coordinator who felt that auto mechanics would be more in line with the students' interests than were the janitorial duties which they were performing.

The only stipulation to placing N.Y.C. students is that the business must be a non-profit organization and approved by the Director of the N.Y.C. program.

(b) Virginia Vocational Rehabilitation and the Work Adjustment Coordinator have been working together with the dropouts of the Four I's Program. Extended training of job placement is obtained for interested students.

(3) Number of Student Placements

During the year, there have been a total of forty-nine students under the supervision of the Work Adjustment Coordinator. Thirty-five of the students have been placed in local businesses for on-the-job training. Fourteen of these students have been working through the Neighborhood Youth Corp program and under the supervision of the Work Adjustment Coordinator.

At the present time there are a total of thrity-one students under the direct supervision of the Work Adjustment Coordinator and seventeen of these students have summer jobs in the local businesses.

(4) Types of Placements

Of the thirty-five students that were placed in actual businesses in the community, 50% worked in public service organizations, 20% in building trades, 20% in retail businesses, 8.5% in mechanical establishments, and 1/5% in manufacturing units.

A list of detailed job descriptions are shown in Appendix I.

(5) Follow-Up Procedures

One of the most important responsibilities of the Work Adjustment Coordinator is the follow-up of the student once he has been placed in an actual job situation. At least two times per month the Coordinator visits the place of employment and at the end of each month an evaluation of the student's progress is completed by the employer.

The students in the program in Dickenson County remain at the vocational school for the academic component. They receive 1/2 day of instruction in vocationally-related academics. Skills that are related to the vocational programs are taught by the academic teachers.

Group B (Wise County girls)

Ninety-six girls were divided into four skill areas: food services, cosmetics, domestic and commercial sewing, and health occupations. The first year girls investigated each of the four skill areas for nine weeks. The second year girls investigated two areas of their choice for 18 weeks each.

A program of relating the academic subjects with the prevocational areas was somewhat accomplished during the year. Visitation with home school principals, guidance counselors, and academic teachers, and the sharing of daily lesson outlines resulted in a greater coordination between the programs.

Both Groups - Broad Occupational Orientation

Twenty-nine field trips were made by both groups during the year. All students were involved in these trips. There were 22 guest speakers that participated in the program. (See Appendix A)

Materials Used:

The Guidance Counselor used the following materials in both individual and group guidance situations: filmstrips; "How to Study Occupations", "World of Work", "Careers Unlimited", and "Our Working World" kit and S.R.A. "World of Work", kit. The Reader Printer was used with the Appalachian Educational Laboratory View Deck. The Interest Check List, Chronicle Occupational Library, Turner Guidance Series and the Dictionary of Occupational Titles were used.

Discussions regarding employment, interview techniques, employment applications, employment responsibilities were held with all students.

D. Results

Summary of Compiled Results of Testing, Questionnaires, and Other Findings

After gathering, compiling, and analyzing the data from: standardized tests in reading, mathematics, personality, and vocational maturity, along with staff developed questionnaires for obtaining the attitudes of students, teachers, principals, and parents concerning the success of the program, it appears that the students are making progress in some areas while faltering in others, but at the same time they, their parents and principals are appreciative of the program for its intervention into and modification of their school experiences.

Through the feed-back of the employer's evaluation, the Coordinator is enabled to work individually with the student's problem areas. Also there is a closer coordination between the student's vocational classes and his job experiences.

Due to the lack of proper wording of the evaluation report and many requests from the employers for a more concise evaluation form, a new progress evaluation report has been developed by the Work Adjustment Coordinator. (See Appendix J)

(6) Placement of Program Dropouts

The Work Adjustment Coordinator has been working closely with the Virginia Vocational Rehabilitation Counselor in working with the Four I's dropout students. A letter was sent to each dropout of the program explaining that further training or job placement would be available for interested students. Meetings were held and are still continuing to be held for counseling of these interested students. Work by the Counselor and the Coordinator is presently continuing to make further contacts with the dropouts and assist them in their special needs.

D. Instruments Used

1. Developmental Reading-Lyons & Carnahan
2. California Achievement Test - Math
3. Peabody Picture Vocabulary Test (IQ)
4. California Test of Personality
5. Vocational Development Inventory

E. Results and Accomplishments of the Project

1. Discussion of Test Results

The project proposal has as it's fourth objective the evaluation of the academic component. This evaluation consists of comparisons of students performance on pre- and post-tests in reading and mathematics. The criterion for both subjects in seven months increase in overall skill during each year of the program for 90% of the students with I.Q. of 75 or above. In order to better understand the impact of the program on the various groups of both components of the program, further testing was done using both a personality test and a vocational attitude scale.

The results of the total testing program were as follows: From Table #1, it will be noted that fifty-four students in the academic component who had I.Q. scores of 75 or above on the PPVT regressed

E. Evaluation

The V.P.I. evaluation team's final report is included in Section F of the body of the report.

F. Conclusions and Recommendations

Successes and Failures of the Program to be Derived From:

1. Test Results

   a. In the academic components of the program, there was some success shown by the test results in each subtest area except reading vocabulary.

   b. The regression in the reading vocabulary scores can possibly be attributed to the students "test shyness".

   c. On the average the student's scores improved on the California Test of Personality. This may be indicative of an improvement in self-concept and general personality.

   d. There was no significant change in the student's vocational attitude scale score.

2. Results of Students, Teachers, Principals, and Parents Questionnaires

   a. The students approve of the program as it has been functioning during the past year.

   b. Over half of the students feel that it is necessary for their teachers to constantly supervise their activities. This could be the result of the need for adult attention or a lack of self-confidence.

   c. On the average, the teachers in the Dickenson County program gave more negative responses on the questionnaire than did the Wise County teachers.

   d. The principals expressed positive attitudes toward the program.

   e. The parents of the Four I's students reported that they were satisfied with the program.

3. Other Tabulated Findings

   a. The withdrawal information that was collected shows that a large number of the girls drop out of school because of marriage or health problems.

   b. A disproportionate number of the students who withdrew from the program are reported as unemployed - staying at home.

one month in reading vocabulary while remaining the same in reading comprehension. In mathematics this same group of students scored an average gain of four months. As reported in this same table, Group B (SS 26) who received their academic instruction in their regular school, made three months progress in reading vocabulary while regressing one year in comprehension. In mathematics, Group B (SS 28) showed an improvement of five months.

The students' scores were further divided and studied according to the amount of time they had spent in the program. It was found that in reading vocabulary (See Chart #2) the second year students in Group A (SS 38) progressed four months and in comprehension there was an increase of two months. In mathematics this group (SS 39) showed improved scores of five months.

The second year, Group B students (SS 38) advanced two months in vocabulary, but they regressed four months in comprehension. Their mathematics scores showed an advance of six months. In this same chart it can be seen that the vocational attitude scale scores on the Vocational Development Inventory shows Group A (SS 40) with an improvement of two points while Group B (SS 35) stayed the same.

Those students who spent one year in the program in Group A (SS 69) (See Chart #3) showed no change in either vocabulary or comprehension, but they did score a two month increase in mathematics. First year Group B students (SS 25) advanced two months in vocabulary, but they regressed eight months in comprehension. In mathematics there was a positive change of four months. The Group A first year students (SS 63) regressed one point and the Group B first year students regressed two points on the vocational attitude scale.

All of the students in Group A (SS 108) (See Chart #4) who completed both the pre- and post-tests advanced one month in reading vocabulary and two months in comprehension, while in mathematics they (SS 108) show a three month improvement with a two point increase on the vocational attitude scale.

The Group B students (SS 67) improved their average scores by two months in vocabulary, but they regressed five months in comprehension. Their (SS 63) mathematics scores advanced five months and the vocational attitude scores stayed the same. Also reported in this table are the results of the California Test of Personality. Group A (SS 105) had results of the California Test of Personality. Group A (SS 105) had an average increase of nine percentile points in personal adjustment, five points in social adjustment and a seven point increase in the total adjustment score.

The students in Group B (SS 69) regressed one point in their personal adjustment score, they increased their social adjustment score by six points which gave them an average total adjustment gain of four percentile points.

Recommendations

a. Realizing the importance of reading, it is recommended that more time and effort be expended in discovering reading problems that the students have and helping them to improve their reading skills.

b. The testing program has changed to a diagnostic program.

c. Because the students self-concept is influenced so greatly by his teacher, everyone in the school should agree to a humanistic approach to teaching before they are hired.

d. Weekly faculty meetings should be held to discuss the progress of the program and to give the teachers an opportunity to exchange teaching techniques.

e. Principals of the students' home schools should become more involved in the planning phase of the program and kept more informed on their students' progress.

f. More information about marriage and family living should be taught.

g. More effort should be made to help those students who drop out of school.

Home visits should be made in order to help determine the causes for students dropping out of school and then aided in adjusting to an out-of-school life.

4. V.P.I. Evaluation Report

The Final Evaluation Report offered many commendations for the progress that has been accomplished in the Four I's Program during the year. Some of the commendations were: positive personal growth of the students, equipment recommended was acquired, able leadership of the supervising teachers was noted as well as the interest and enthusiasm of the teaching assistants, close agreement among all parties, assistance for the dropouts, and the planned addition of a boys program at Wise.

Some of the recommendations of the evaluation were: further refinement of the curriculum guides, a teacher in the girls program at Wise be designated as a head teacher, development of stronger occupational attitudes on the part of the students and the number of students in the academic program at Clinchco be reduced to allow for full individualization of instruction.

5. Local Plans for Continuation after the Termination of Federal Funding

Wise County Public Schools have shown a tremendous interest in the Four I's Project. Because the program does seem to be meeting a need which exists in the area, the administration of Wise County Schools have indicated their intent to continue the project after the termination of USOE funding.

2. Impact of Guidance Program

a. Every student spent some time in individual counseling.
b. The students gained understandings about the world of work.
c. As a result of home visits by the Guidance Counselor, there is a better parent-school relationship and better parent-child relationship for those homes that were visited.
d. Two hundred ninety-six formal individual counseling sessions were participated in by the students of both programs.
e. Two hundred seventy-one group sessions involving 1,953 students were held during the year.
f. Every teacher took part in teacher-counselor consultations.

3. Success of Work Placement Program

In the Four I's Project Addendum, a goal was set to provide work experience to about thirty (30) students (out of the two hundred sixteen (216) elementary and secondary students) in the project with a wide variety of offerings in many occupational areas based on the aptitudes and interests of the participants.

At present there have been a total of fifty (50) Four I's students working. Seventeen of these students are working in public service concerns, seven students in building trades, eight in retail businesses, three in mechanical establishments, and one in manufacturing. This gives a total of thirty-six (36) students under the direct supervision of the Work-Adjustment Coordinator. Fourteen students have been working on the Neighborhood Youth Corp which brings the total to fifty (50) Four I's students that have been working this year. The program has also been successful after the student has actually been placed in a business. In the employer's evaluation report of the students total performance, 20% of the students' performance was outstanding, 27% above average, 42% average, and only 11% was below average.

The job placement has not only allowed the student to obtain job experience but also has developed good work habits and job responsibility. Also the student seems to be more "well rounded" at school, home and at social events.

4. Changes in Self-Concept

Our only standardized device for attempting to determine effects of the program on the students self-concept was the "California Test of Personality". According to the results of this test, on the average there was an increase in each type of adjustment with the exception of the personal adjustment score for the girls in the Wise County Program.

A self-concept test was administered by Dr. Douglas Howard, Assistant Professor of Special Education at the University of Virginia, in order to compare the self concept of Four I's with a similar group of non Four I's students. No results have been received on this test.

For the 1972-73 project year, Wise County wishes to expand the program by adding a program for boys which will be paid for by the local school system with the mutual sharing of some services between federal and local funds. The boy's program at Wise was previously discontinued (on a U.S. Office and a V.P.I. evaluation team recommendation) in the spring of 1971 due to inadequate facilities and other administrative-program difficulties. Wise County now has adequate facilities for the boy's program and the other difficulties have been eliminated. Therefore, it is felt by all parties, including the V.P.I. evaluation team, that the boy's program will have high chances of success. (All of the prevocational instructors and prevocational materials and supplies for the boy's program will be purchased by Wise County Schools.)

In addition to adding a boy's prevocational program, Wise County also desires to add vocationally-related academic classes similar to the program in Dickenson County. This change is also in agreement with the recommendations of the V.P.I. evaluation team. Efforts made this year to coordinate the academic program in 16 schools with the Four I's Program has been extremely difficult and virtually ineffective with the personnel available. In providing the academic classes for the boys and girls, one teacher would be employed from Four I's Project funds and two would be employed by Wise County. $1,000 of academic materials and supplies will be purchased through project funds and the remainder will be purchased by Wise County.

Dickenson County Public Schools have indicated that the local systems will continue the program after the termination of USOE funding. It is anticipated that the program will be funded by local and state agencies. Seventy percent of the budget from the state and thirty percent from the local county. This is the regular method for funding for vocational education in Virginia.

II. BODY OF THE REPORT

A. Problem Areas Toward Which the Project is Directed

1. Description of the Area

The DILENOWISCO Educational Cooperative serves the four county area of Dickenson, Lee, Scott, and Wise and the City of Norton. Located in the Southwest tip of Virginia, this area is a mountainous, isolated, coal producing region which shares most of the social and economic characteristics of that thirteen state region known as "Appalachia". In fact, Southwest Virginia lies in that part of the Appalachian Province, often called "Central Appalachia". Isolated, both physically and culturally, the area is literally cut off from the rest of the state, lying closer to seven other state capitals than it does to Richmond.

Other than the tests, the best indication of growth in self-concept can be gained from teacher comments and direct observation by the Counselor. From these methods, we learn that the students have become progressively more open and relaxed in their social interactions. They talk more with their teachers, they tend to be more at ease in both the academic and trade skill classes, and they volunteer their ideas for and concern about the program. At the beginning of the school year there was an obvious behavioral difference between the first and second year students, but by the end of the year the students were a more homogeneous group.

5. Other Tabulated Findings

This program is directed at the potential dropout, therefore a follow-up study was made in order to determine why some students withdrew from the program and in what activities they are currently engaged.

In the Dickenson County program, thirty-seven students withdrew from the program. (See Appendix B) Of these thirty-seven, nine were expelled because of attendance problems, four girls were married, two students gave personal or legal problems as reasons for withdrawing, four were disillusioned with school while one student had a social adjustment problem as explained by the principal at his home school, four students had health problems and two moved out of the district.

The present activity status of these students shows that two are enrolled in schools outside of the state, one is in the military service, one boy is employed on the Out-of-School N.Y.C. program, three were suspended from school and staying at home, four girls were married and housekeeping, three students are working in another state, fifteen are unemployed and staying at home while six are attending the regular school and two students could not be contacted.

Sixty-three girls have withdrawn from the Wise County program. (See Appendix B) Of these sixty-three students, forty-eight are out of school. In determining the reasons for their withdrawal it was learned that eight students had family or personal problems. Seventeen girls were married during the year and twelve had health problems. Twelve students became disillusioned with the program and returned to their regular school while one dropped out of school. Fourteen dropped out of school after trying the Four I's program for a new interest, and four students moved out of the district.

The current activity status report shows that one of the students is enrolled in a school in another state, two joined the Job Corps, one girl is caring for her grandmother while seventeen are married. Twenty-two students are unemployed and staying at home, fourteen are in attendance at their regular school and two students could not be contacted.

6. Results of Student, Teacher, Principal and Parent Questionnaires

During the last month of the current school year the students, teachers, principals, and parents who are directly involved in the program were asked to respond to a staff-developed questionnaire. The purpose of this questionnaire is to determine the attitudes of these special groups toward the program. The results of the questionnaire show that a majority of the students in both the Dickenson (SS 106) and Wise (SS 58) Counties program

Situated almost entirely within the Great Valley of the Tennessee River Basin, Southwest Virginia is characterized by long continuous ridges, running northeast to southwest, separated by medium to wide valleys containing lesser ridges and hills. The area is bordered by large mountain ranges which serve both as physical and economic barriers. Clinch Mountain, the southern boundary of the district, has only one major break in its towering ridge, the Moccasin Gap at Gate City in Scott County which borders Tennessee. The area is cut off from Eastern Kentucky on the northern boundary by the Cumberland, Stone and Black Mountain chains and to the west, the only significant transportation route is the Cumberland Gap, located at the eastern tip of Lee County, near Middlesboro, Kentucky.

By the most direct highway route, it is approximately 120 miles from Breaks Interstate Park, the northern most tip of Dickenson County, to Cumberland Gap, located at the southwestern tip of Lee County and the state of Tennessee. Again, using the Breaks as the northern most part of the area by the most direct highway route, it is approximately 67 miles to Weber City in Scott County, the southeastern most point, bordering Tennessee. In terms of modern travel, these distances seem insignificant, but it should be pointed out that these distances, for the most part, require traveling over twisting mountainous roads, which have caused even the most experienced traveler to grow pale at their sight.

There are 693.77 miles of primary highways in Southwest Virginia and 1943.23 miles of secondary roads, maintained by the State Highway Department. At present, (1972) there are three primary projects under construction and there are five secondary construction projects. Plans for more highways in the area are now being considered which should help allevaite not only interstate isolation, but also inter-regional isolation.

Bituminous coal is the most vast mineral resource shared by the counties of Southwest Virginia and its accounts for most of the income of the region. Deep-mining is still the largest coal producing method, but it is being replaced by a fast growing method called, "strip mining". Due to the deep v-shaped valleys and steep slopes characteristic of the region, most coal beds crop out on hill sides. With heavy machinery, this slight overburden can be removed, exposing the coal seam. This type of mining has resulted in significant conservation problems, there has also arisen a highly publicized, often bitter, controversy over the values of strip-mining.

In addition to coal there are small supplies of natural gas, oil and limestone which contribute to the area's economy. Coke production was once a valuable asset to the area's economy, but now only the empty skills of the once continually, fire-breathing ovens remain.

Nearly four-fifths of Southwest Virginia is wooded. The Jefferson National Forest, which runs through the four counties and touches Letcher and Pike Counties in Kentucky , contains 85,000 acres of public lands. Most of the saw timber of the region was depleted during the 1930's by large, outside, lumbering companies and it has taken the intervening years for the forests to recover.

who responded have positive feelings toward the program. (See Appendix C).

The suggested changes to be made from the students point of view include:

Dickenson County;

A physical education program, driver education program, welding and auto mechanics class, longer lunch period, a more liberal dress code, a place for students who pack their own lunch to eat, water in the nursing and cosmetics classes and change the name of the program.

Wise County;

More breaks, keep the Supervising Teacher and nursing teacher, stay all day at the vocational school, not have academics at the vocational school.

From the teacher attitude questionnaire it can be concluded that those teachers in the Dickenson County program who responded were evenly divided as to positive and negative feelings while the Wise County teachers have positive feelings about the total program. (See Appendix D)

Only one teacher took the opportunity to comment.

There were: 1. Overcrowded classes
2. Special provisions for non-readers are needed.

Responses to the principal attitude questionnaire show that the majority of the principals have positive feelings toward the program with one suggestion for change. They would like to have more information about the progress of the pupils from their particular school. (See Appendix E)

Those parents of the Four I's students who returned the questionnaire were in almost 100% agreement in their positive feelings toward the program. (See Appendix F)

A listing of these comments include:

Dickenson:

1. Skill training with an opportunity to explore several areas is the best thing about the program.
2. Five suggestions for change were given.
   a. Driver education and physical education are needed.
   b. Different arrangements should be made about lunch and busing.
   c. Students should not be required to write a report because they were absent.
   d. More materials should be supplied.
   e. More work experience is needed.

There were no comments from the Wise County parents.

F. Evaluation of the Project

FINAL EVALUATION REPORT
FOUR I'S PROJECT
June 11, 1972

COMMENDATIONS ON PROGRESS

The visiting committee wishes to offer its commendations for progress made in the Four I's program since the last evaluation. Certain observations are offered:

Transition. Definite steps are being taken to effect initiation of the transition of the Four I's funded project to one supported by the school divisions involved. Such action assures continuation of the program without interruption.

Equipment. Some additional equipment recommended by the evaluation committee has been acquired for the laboratory programs. Although procurement has lagged behind need, progress is being made.

Personal Growth. Communication with supervising teachers indicates continued [illegible]able growth in the following respects:

1. Students are not as reluctant to talk to visitors as they were at the beginning of the year.
2. Girls now seek help with personal problems, where formerly they preferred to keep such problems within themselves.
3. Students are developing the ability to solve group problems through cooperative decision making.
4. There is a very noticeable decrease in the amount of arguing and teasing among both boys and girls.
5. There appears to be a greater occupational awareness among students in terms of interest in the future and plans for employment after graduation.
6. Real improvement is noted in terms of responsibility to teacher and employer, i.e., attentiveness, punctuality, cooperation, etc.

Supervising Teachers. Special commendation is due the supervising teacher in both

the Wise and Clinchco programs for providing able leadership. Splendid morale has been maintained; rapport established has enhanced cooperative teamwork among students and staff.

Films. The purchase and use of films for the health aides area increases the effectiveness of the instructional program.

Instructional Personnel. The interest and pleasure which Four I's teachers manifest is indeed outstanding. Teachers and students alike are to be commended for the cleanliness, orderliness, and attractiveness of the laboratories and classrooms. Attention given to the appearance of rooms provides a pleasant environment for learning.

Construction of Needed Articles in Shops. The initiative shown in obtaining certain items needed for the health aides program is commendable. The boys in woodworking at Clinchco constructed the following items: (1) a step stool for use with the hospital bed, (2) an open shelf book case, (3) shelves for linen storage, (4) a partitioned box for first aid supplies, and (5) painting of three stands to be used for general supplies. These items contributed to the convenience and attractiveness of the room.

Teacher Aide Interest in Professionalization. At least one teacher aide is now pursuing work to become fully certified in the occupational area in which she is currently teaching. This interest is highly desirable and commendable.

Achievement in Psychomotor Skills. The abilities acquired by the sewing students in reading and using pattern guide sheets, independently, is a significant achievement and one that will make a decided contribution to employability.

Dropout Rate Being Cut Down. A total of forty-one students in the total program who had attained the legal drop out age have remained with the program. It was estimated by a supervising teacher that normally, over two-thirds of these students would have dropped out by this time.

On-the-job Placements Increasing. Thirty-five Four I's students were placed in the work experience programs during the Spring Quarter. More positions are being located.

Closer Agreement Among Parties. Excellent progress is being made toward a unified approach among all parties involved, including Boards of Education, local school administration, Four I's administration, teachers, and the public.

Occupational Orientation. Many new study materials on the broad world of work were introduced to individual and group guidance situations. Such materials are listed in the Third Quarterly Report, April, 1972.

Assistance for the Drop Out. The Virginia Division of Vocational Rehabilitation is working with the Four I's Administration in seeking job placements for drop outs from the Four I's program.

Food Service at Clinchco. Plans are progressing and the laboratory is being ed for a food service area to be added at Clinchco, to be operational in the fall.

Addition of Boys' Program at Wise. Plans for resuming a boys' program at Wise are now being formulated. Definite policies concerning location, number of students, funding and staff have been outlined in the third quarterly report.

Advisory Committees. Advisory committees are functional and have held two meetings since this last report.

Activities. Luncheons are being served for special groups by food service classes at Wise. Several field trips were taken by both groups. Six guest speakers visited classes to speak on vocational guidance topics.

OBSERVATIONS AND RECOMMENDATIONS FOR TOTAL PROGRAM

The following observations and recommendations relate to the entire program. Specific comments for the Wise and Clinchco programs follow:

Stronger Occupational Attitude Emphasis. Strengthening even more, the occupational attitude focus in the Four I's program, is viewed as a definite need. This aspect becomes particularly important in the thirty-six week program to be initiated next September. Simulation of real work situations, particularly such situations involving attitude development, are recommended. Emphasis on (1) reporting to class on time and regularly, (2) showing interest in class work, (3) practicing good manners, (4) calling in when absence is unavoidable, (5) improving personal grooming and attractiveness, etc., should be tied in with the real work situations in a definite sort of way. Stress on the aforementioned points needs to be very evident in order to achieve success in part time work experience placement next fall as well as preparation for ultimate full time employment.

Prevocational Area Needs. There appears to be a problem developing in terms of supply and demand as related to student occupational selection. Discussion revealed an over-supply of nurses aides in the local area and an acute shortage of persons with training in cosmetics. The possible need for pre-vocational areas in Home Service Occupations and Maintenance and Repair suggested in the last (Winter, 1972) evaluation report is reiterated here, inasmuch as there are a number of students who do not fit into the present curriculum structure. It has been pointed out that Home Service Occupations (domestic help) do not pay enough and that training girls in such an occupational area may, indeed, be channeling students into dead end jobs. However, in defense of organizing such an option for girls are the following considerations:

1. Pay outside of the Wise-Dickenson County area is considerably higher. Girls could earn $1.75 to $2.25 an hour in the cities or in smaller

communities in central and eastern Virginia.

2. Many girls will enjoy this type of a job while they may not be capable of performing or enjoying other more complex types of employment.
3. These jobs are not as low level as they were even a few years ago. Professional corps are appearing who perform housecleaning, etc., on a contract basis. Union organization is bringing the salaries up for these kinds of organized groups.
4. Motels and hotels are very eager to hire competent persons who are able to clean and make beds. Wages there are higher typically, than working for private households.
5. The non-vocational objectives of such a program should not be overlooked. Most girls will eventually marry and any training in cleaning, bed making, child care, meal preparation, sanitation, and grooming will be helpful. The Food Service, Health Aides, and Cosmetics classes include a portion of these desired outcomes, but do not provide for a complete integrated program.

Vocational Guidance. It appears that the work being carried on within the guidance component of the Four I's program has significantly intervened in the lives of the pupils at both Wise and Clinchco by introducing them to a broad range occupational orientation program to enhance their vocational maturity; by enabling them to become manipulatively involved in investigating several occupational areas and by placing them in actual work situations under the supervision of a work-adjustment coordinator. The work experience being provided for the students (at present on a limited basis) appears to be providing a much needed dimension to the program. These work experiences appear to be aiding the students in developing a more positive self-concept and at the same time increasing their chances for making sound vocational decisions.

It is commendable that students are becoming more actively involved in using

the media and materials available to study various occupational fields. However, the problem of providing materials for occupational study which are not too difficult for the student, merits continued study.

In view of the increasing involvement of the pupils in work experiences, it is the opinion of the evaluation committee that consideration should be given to providing additional assistance in the areas of guidance and work-adjustment coordination.

It is the opinion of the evaluation committee that continued effort should be directed toward improving the guidance facilities at both Wise and Clinchco. There is a need for display space where guidance materials and records can be organized, displayed, and stored.

Efforts are being directed toward providing assistance to students who have health problems or psychological problems which are interfering with their educational program. These efforts should be continued and strengthened.

Articulation between the guidance counselor and teaching assistants has improved. Conferences are being held as needed between the guidance counselor, aides, and supervising teachers to discuss problems and to devise ways and means of meeting specific needs of pupils.

Academic Component. At both Clinchco and Wise, excellent progress has been made in improving the vocationally related academic training. It appears that the academic teachers in the home schools of the students in Wise County are making maximum efforts to correlate the academic program with the vocational areas. However, it is the recommendation of the evaluation committee that consideration be given to moving the academic component from the parent schools to the Wise Center as is being done at Clinchco.

Curriculum guides and lesson outlines have been developed at both Wise and Clinchco which assist in making the academic program vocationally related.

Wise use of test results have been made to enable teachers to set a realistic level of expectation for each student. Students with serious learning difficulties have been referred to the DILENOWISCO Special Education Service for diagnostic evaluations and assistance. Students at Clinchco have been grouped according to ability and reading levels as a means of further individualizing instruction. Also, at Clinchco, learning centers have been established within the classrooms which appear to be enhancing the learning progress of the pupils. Students who are non-readers or who have special reading problems have been given special attention in terms of teaching strategies and teaching materials.

Two major problems related to the academic program were observed by the evaluation committee. In the program at Wise, the academic classes are not now being offered in the vocational school. In the program at Clinchco, the academic classes are overcrowded to the extent that full individualization of instruction is difficult to achieve.

Employment of a Head Teacher. With the impending administrative changes ... upcoming in the Four I's program, this committee sees a need to retain the cohesiveness of the girls' program. It is suggested that one of the teachers in each of the girls' programs be designated as a head teacher to (1) coordinate the activities of the program, (2) serve as a sounding board for concerns of teachers' aides, (3) act as a person to whom students may go for help with problems and concerns. This committee points out that impending administrative changes will provide for strong male leadership with the possibility of a consequent drop in cohesiveness for the girls' programs.

Curriculum. In reviewing the curriculum planning for all areas, it was noted that progress is being made in developing the 36-week program. Certain deficiencies were observed, however.

1. At Wise, course outlines were in evidence indicating major topics and sub-topics; however, curriculum guides containing unit guides, lesson plans, job sheets, etc., were not in evidence.

2. At Clinchco, curriculum guides were in evidence; however, numerous improvements are suggested.

A. Typically, lesson plans were quite fragmentary. Each plan should contain perhaps from 3 to 10 key points (to remember to do and say) for each major step or topic listed. These should be tied in with each other.

B. Units should not be treated as individual lessons. Units should be divided up into lessons. The masonry guide, for example, contained 26 units, incorporating only 6 lesson plans.

C. Project, job sheets belong with all the units.

D. Assignment and information sheets should tie in with the units.

E. Progress charts for job assignments were not always in evidence.

Inasmuch as there appeared to be a certain lack of organization and cohesiveness, it was recommended that a one-day curriculum workshop be planned. Dr. Duenk, of this committee, conducted an all day workshop at Clinchco on May 30th, to offer insight into curriculum planning. It is anticipated that further development of curriculum materials will proceed satisfactorily.

Work Adjustment Coordinator-Guidance, Combined. Plans to have one staff member at each location to assume the dual roles of work-adjustment coordinator and guidance counselor is viewed with some concern. It may prove difficult, if not impossible, to find someone equally interested, qualified, and competent in both areas. Furthermore, the difficulties involved in discharging both of these important responsibilities effectively, providing justice to both, may prove to be an insurmountable task. In this committee's last report (Winter, 1972, p. 7 and 8), it is suggested "that a very high priority be given to up-grading the work experience segment of the program at this juncture in the development of the Four I's program." From all appearances, such priority is not being incorporated into next year's plans. Considering that (1) a boys' program is to be re-established at Wise and (2) the

number of Four I's students will swell as a result of the third level to be added, it becomes apparent that shear numbers will overwhelm the staff member delegated to this dual position at each location. Considering all aspects of the program, it is this committee's feeling that the areas of (1) guidance and (2) supervised work experience should be given top priority in terms of staffing assignments.

Need for a Junior VICA Club. The Vocational Industrial Clubs of America serve a vital need among youth in industrial education programs. These clubs foster good character traits as well as the development of desirable social capabilities. Inasmuch as such abilities are sought afer goals of the Four I's program, it would be appropriate to investigate the possibility of organizing a junior VICA club. It would not be in the best interests of the Four I's group to participate in the existing 11th and 12th grade club at Clinton, inasmuch as maturity and social gap could cause problems.

For information on VICA clubs, write for literature to:

Vocational Industrial Clubs of America
105 North Virginia Avenue
Falls Church, Virginia 22046

Boys' Program at Wise

This committee is pleased with the proposed plans to re-establish the boys' prevocational program at Wise. Although this program is to be locally funded, it ties in with the existing Four I's program and, therefore, comments are in order.

The logical sequence presented indicates that students in 10th grade will return to their home schools for academic instruction, after being in a special success oriented basic academic program in grades 8 and 9. Whether or not such an abrupt transition back to a traditional environment can produce desired outcomes is debatable and still remains to be seen. It may be that the half day of occupational instruction will motivate students sufficiently to remain in school. Nevertheless, it may be that some tie in between home school and the Vocational I phase should be effected in order to smooth this transition.

Although this committee was not informed of any definite housing plans for the boys, it is hoped that the Wise County School Board will be able to plan adequate shared facilities with auxilliary classrooms, storerooms and offices, as outlined by the Virginia State Department of Education and as alluded to in this committee's Fall Quarter, 1970 report, pages 2-5.

Problems of Instructing Three Levels. The problem of having three levels of instruction in one laboratory has been of concern to this committee. If possible, it is suggested that a system of Levels I & II, in the morning classes and Levels II and III in afternoon classes might be considered. This would offer a logical distribution of students, although morning classes would probably be larger, considering the attrition factor.

In the basic academic classroom, however, there will still be three levels of capability. Here, reading level should determine placement rather than assigned grade level. Using such a placement criterion will lessen the possibility of status problems in the group.

Possibility of Name Change. With the thought in mind of transition to a locally funded,

integrated part of the school curriculum, it might be wise to consider referring to the Four I's program simply as "prevocational" The following reasons are cited.

1. Pre-vocational programs for the disadvantaged are indeed a regular, accepted part of the school curriculum in Virginia. State Department of Education manual, A Planning Guide for Trade and Industrial Education Programs in Virginia's Public Schools, advocates this type of program and gives recommendations for the goals and structure. There are over 100 such programs presently operating in Virginia. Referring to the program as "Four I's" is confusing, suggesting somehow that it fits some special, different category.
2. Obviously, we do not suggest to Four I's students that they are less capable or "disadvantaged" yet the name of the program connotes that they need some special consideration. It somehow places them in a "different" category than the other students. The Virginia State Department of Education, Trade and Industrial Education Service simply refers to all programs as:
    1. Career awareness
    2. Prevocational exploration
    3. Occupational preparatory

We are moving toward the initiation of prevocational exploration programs for all youth, not only the disadvantaged. Hopefully, the names for these types of programs should reflect the concept that they are good for anyone regardless of present capability or future aspiration. In this sense, a forthright, ordinary name such as "pre-vocational" probably serves the best purpose.

Library Centers. A need is apparent for a library and storage center at both locations. Over $2,000 worth of books have already been ordered at Clinchco.

Work Adjustment Program. The problems encountered in this part of the program were discussed at length in this committee's Winter 1971 report, pages 7 and 8. Of the five problems mentioned, the transportation situation appears to be most vulnerable to immediate solution. If funding were available for transporting students to and from jobs, it was estimated by Four I's staff members that from 70 to 80% of the Level III students could participate in the work experience program. This solution would eliminate most of the other problems heretofore discussed. This committee strongly recommends federal support for this aspect of the program.

A system of rotating students between school and job was suggested, which would allow each student to spend perhaps 2 to 3 weeks on the job. This type of system has both merits and drawbacks.

The merits are obvious: (1) Each student is given equal opportunity to work in a real job situation. (2) Work experience on the job is tied in more closely with the school situation when employment is intermittent rather than when it is a solid block.

The drawbacks are equally obvious: (1) Serious problems are posed for both the academic and laboratory teachers. These teachers have enough problems trying to cope with three levels of instruction in one class without the additional problem of having students miss class for two or three weeks at a time. Continuity in the program and subsequent cumulative learning experiences would suffer as a result. (2) Experience with rotating work experience programs in other parts of the state would indicate that such systems tend to discourage the employer. Instead of being able to train a student to the point where he actually becomes an asset, the employer is constantly breaking in new employees, most of whom never attain productive capability in such a short time. Furthermore, the problem of paperwork involving pay, insurance, etc., for so many short term employees become so much of a burden that employers typically lose interest. (3) Students tend to dislike the rotating systems, also. They like to stay on the job, once assigned.

(4) The problem of who will be selected for the work experience program becomes difficult.

The possibility of paying employers to train low ability students was discussed. Only the merits of such a system were brought out in this committee's last report. One problem of concern here is how the employees will feel about paying these same students at full scale when they leave or graduate from school. One might immediately conclude that the employer will hopefully keep these positions open for ·ve Four I's work experience students. However, if such a course of action were followed, the program would be training students for non-existent jobs upon graduation. It appears that eventually it may become necessary to establish a placement offic· to help st·.e.ts obtain employment outside of the Southwest Virginia area upon graduation or leaving school. If the Four I's work experienc· segment of the program is to be effective, employment positions must be kept open for new students rather than filled by graduates of the program.

Recommendations from Previous Reports

This committee is happy to note that nearly all of its recommendations for the 1971-72 school year have been acted upon, although, not all have reached a stage of completion. It is, therefore, pointed out that the following recommendations from previous reports be reviewed in terms of committment and/or continued progress.

1. Definite plans for a basic education component at Wise, i.e., organization curriculum, etc.
2. Status of 1972-73 supplementary funding through ESEA at Wise.
3. On-going curriculum development at both locations.
4. Definite plans for transition of Four I's program to a special needs prevocational program.
5. Definite decision on jobs, projects, etc., to incorporate in the planning of real employment situations in the laboratory.
6. Improving guidance facilities at both locations. A new guidance office at Clinchco when space in the food service laboratory is relinquished.
7. Continued efforts toward providing special assistance to students who have health or psychological problems which interfere with educational progress.
8. Continued efforts toward providing materials for occupational study and vocational orientation, which are not too difficult and which motivate the students.
9. Greater tie-in between guidance and classroom instruction.
10. Acquiring of audio visual equipment and materials, especially at Wise.

Wise County Only

Equipment, material needs.

Food Service area needs.

1. 4'-0" x 6'-0" chalkboard mounted on wall
2. Soap dispenser near sink (for sanitary reasons)
3. Towel holder at same location
4. Heavy duty dispose-all unit (urgent)
5. Set of baker's scales
6. Small hot plate for short order cooking (present hot plate is too large, meant for quantity cooking)
7. Salad forks
8. Ice tea spoons
9. Containers for salad dressing
10. Large coffee maker (35-cup capacity)
11. Kitchen shears (1)
12. Bread trays (2)
13. Filing cabinet
14. Pencil sharpener
15. Visual aids

Sewing area needs

1. Electric scissors
2. Dress forms (for fitting)
3. Dressing area (urgent)
4. Cutting boards (four more)
5. Seam rippers (4)
6. Filing cabinet
7. Pencil sharpener

8. Visual aids

9. All sewing machines need servicing

Cosmetics area needs.

1. Reclining chair (one more)

2. Combing unit (one more)

3. Manicuring unit (three more)

4. Cabinet for cosmetics, facial supplies

5. Dryer (one more)--Several of the six dryers in the laboratory are in need of repair or replacement.

6. Book case

7. Visual aids

8. Filing cabinet

9. Pencil sharpener

Health Aide area needs.

1. Stainless steel water pitchers with lids (6)

2. First aid case

First aid dressing cart, stainless steel, with racks and jars, adhesive rack, mounted on 3" casters

4. Deep double sink should replace present small, single, shallow sink

5. Visual aids

6. Filing cabinet

7. Pencil sharpener

Clinchco Only

Equipment, material needs.

As indicated in this committee's last several reports, equipment and supply procurement is lagging far behind need. In order to accommodate an increased enrollment and to provide for facilities needed for the thirty-six week program, the following needs are evident:

Health Aides area needs.

1. Two hospital beds
2. Two bedside tables
3. Two water pitchers
4. Baby mannequins
5. Child mannequins (2 yrs. old)
6. Clothing for mannequins
7. 12 flat sheets
8. 3 pair pillow cases
9. 6 pillows
10. 3 rubber sheets
11. 6 yards of muslin
12. Bedpan
13. Adult scales
14. Hot water bottle
15. Ice cap
16. Linen hamper (on rollers)
17. Filing Cabinet

Cosmetics area needs.

1. 2 shampoo units
2. 1 storage cabinet
3. 1 round mannequin table (construction of present tables is not suitable for attachment of mannequins)

4. 1 double roller tray on casters. (This is needed for the third styling station)
5. Filing cabinet

Sewing area needs.

1. 2 machines which make zig-zag stitch
2. 1 machine which makes button holes
3. Filing cabinets

Woodworking area needs.

1. Table saw
2. Jig saw (2)
3. Band saw
4. Jointer
5. Surfacer
6. Drill press
7. Portable belt sander

Small Engines area needs.

1. Testing equipment
2. Oxyacetalene welding outfit
3. Hand tools to supplement present supply

The lack of water facilities in the cosmetics and health aides laboratories has been mentioned in two previous reports. This situation is most urgent and should be taken care of without further delay. A large deep, double sink is recommended.

SUMMATION

This committee is highly pleased with the progress made in the Four I's program during the 1971-72 school year. Probably the most pronounced and commendable progress has been in the transition from a very permissive, laissez-faire atmosphere without well defined goals to a more structured program, which is nevertheless designed to engender the self-concept ideal. Furthermore, the underlying philosophy, which last year ranged all the way from a traditional to a laissez-faire approach among the various staff members and administration, is now being viewed at approximately the same point along the scale by most parties concerned. Such agreement on basic philosophy has done much to solidify thinking and to draw all parties together toward a more unified effort than was apparent last year. The DILENQUISCO and Four I's administration are to be highly commended for effecting the aforementioned direction of philosophy and consequently stabilizing the program.

Another area in which most commendable progress has been attained is in the education component at Clinches. Numerous grouping techniques have been effected, promoting an increase in the individualization of instruction in the face of a higher pupil-teacher ratio. Excellent teaching materials have been added to enrich the program and relate the academic material to the occupational study areas.

The work experience portion of the program has gotten off to a good start, but the problems inherent to this type of a program in an area already faced with unemployment, may mean that expansion will prove difficult.

Curriculum planning has proceeded, but has not really reached the level where it should be at this juncture of the program. It may be that during the summer months, it will be possible to catch up in this area.

The guidance program has proceeded quite satisfactorily. However, a big problem here has been one of counselor-student ratio. This type of program requires much more individual guidance than would be the case in a regular program and there are many important functions which cannot be effected because of lack of time and resources.

It is difficult to establish priorities in a program where all areas are so interdependent. Nevertheless, this committee has attempted to make such a list of program needs for the 1972-73 school year in the order of considered priority.

1. Structuring of boys' program and academic component at Wise, i.e., curriculum, shop planning, etc.
2. Completion of all curriculum work.
3. Rethinking the cooperative work experience program in regard to (A) transportation needs for student, (B) pay for employer and (C) need for a full-time, trained person to handle each location. This program can be only as good as the supervision offered to students.
4. Rethinking the guidance program in terms of (1) the need for a more realistic student-counselor ratio and (2) better facilities.
5. Planning administratively so that a mature woman will be responsible for girls' programs at both locations.
6. Work out equipment and facility needs for all shop and classroom areas.

In summation, this committee wishes to point out that the Four I's program has made much progress in the past year and it is realized full well that budgetary restrictions necessarily prohibit the full accomplishment of all recommendations made. This committee performs its intended purpose of questioning, evaluating, and recommending, but nevertheless, realizes that the Four I's administration must establish priorities based upon financial and personnel limitations.

G. Con lusions, Implications, and Recommendations

1. Student Placements

a. Student placement is difficult in communities already faced with a vast unemployment rate of adults.
b. Distance over difficult roads created a time and scheduling problem of working hours for the students.
c. Transportation was a major problem for most students due to the fact that few students or their parents owned cars.
d. Many students perform at such a low level initially that employers can hardly be expected to pay minimum wages.
e. Students have continued to have difficulty in completing application forms when applying for a job due to their low reading and writing ability.
f. Valuable time was consumed by transportation due to the fact that the Work Adjustment Coordinator worked two counties.
g. A driver's education program could be very helpful in later employment as well as aiding in the school work placement program.

2. Field Trips and Guest Speakers

a. Field trips proved to be a valuable segment of the student's education of the world of work because most students had never had the opportunity to visit such places as the telephone company, clinics, factories, etc.
b. Field trips were limited in Dickenson County because Clinchco, Virginia is very remote from most businesses and the round trip could not be made during the 5-hour school day.
c. Field trips were limited in Wise County because of the two half day sessions which only permitted the Work Adjustment Coordinator to have 2 1/2 hrs. with each session.
d. Since most of the guest speakers were local businessmen, it was difficult for them to break away from their responsibilities to visit the vocational school and give a speech during the day.

3. Recommendations for the Work Placement Program

a. There should be a Work justment Coordinator for each county. It takes approximately an hour each way from the office to the Dickenson County Vocational School. Also student follow-up becomes more difficult when it takes an hour to drive to the place of employment.

b. A reasonable budget should be provided for travel expenses to take students to and from their jobs.

c. Provide a minimum wage reimbursement to employers which will partially support wages for students whose initial production does not meet reasonable levels. Any arrangement made with employers should be in terms of a sliding scale, where the employer agrees after a designated period to assume a greater portion of the wage.

d. A policy should be adopted where all third year Four I's students must volunteer their time in a place of business one day per week as part of their vocational training. On-the-job training is an important segment of the program which only a few are participating in at the present time and should include all third year students if possible.

e. More actual practice should be stressed in the completion of application forms. This is essential due to the first impression that the employer gets from the application form.

f. A program of one all-day session at Wise would enable the Work Adjustment Coordinator to have the entire day to take field trips instead of the usual two 1/2 day trips.

4. Guidance-Work Adjustment Coordinator

a. The reading level for a majority of the students is too low for them to gain occupational information from printed materials.

b. Most of the taped occupational information will not hold the students attention for a period sufficient for them to learn the necessary occupational information to become considered well informed.

c. The students exhibit behaviors that are indicative of a lack of social and sexual understandings.

d. Academic classes are too crowded and the work is overly structured.

e. Most of the students become anxious when they are confronted with a testing situation. This accounts for the regression scores.

5. Recommendations

a. The students should be given an opportunity to share in the planning of the program through "representative council meeting".

b. More pupil time should be used in field trips, visiting work sites and business places.

c. More speakers representing the various type of work found in the area should be encouraged to participate in the program.

d. The program should rely less on study-type materials for teaching occupational information.

e. More opportunity for students to learn social skills should be incorporated into the program. Examples; parties, dances, and class or group excursions.

f. Classwork should be arranged to allow for more individual success experiences than are now occuring.

g. Most of the teaching of occupational information should be accomplished in the academic class, thus releasing the Guidance Counselor to help the students in their personal and social development.

h. If the students are ever to demonstrate any significant progress in reading - perhaps the most important of all the academic areas - every effort must be made to reduce the student-teacher ratio to 20 to 1 or less. A diagnostically-based reading program must be begun.

i. Driver's education and physical education should be added to both locations.

j. More intensive efforts must be made to provide job placement and/or training for program dropouts.

k. More independence should be fostered in students. Independence and self confidence are necessary pre-requisites for job placements.

CHART #I

Four I's Project

90% of students with 75 and above on PIVT (IQ)

WISE				DICKENSON			
Pre-Test		Post-Test		Pre-Test		Post-Test	
Developmental Reading Test (SS 26)				Developmental Reading Test (SS 54)			
Vocabulary	Comprehension	Vocabulary	Comprehension	Vocabulary	Comprehension	Vocabulary	Comprehension
5.5	5.9	5.8	4.9	4.8	4.7	4.7	4.7
Math (California Achievement) (SS 28)				Math (California Achievement) (SS 53)			
Grade Placement		Grade Placement		Grade Placement		Grade Placement	
5.2		5.7		5.0		5.4	

CHART #2

AVERAGE SCORES

SECOND YEAR STUDENTS COMPLETING TESTS
1971-1972

WISE				DICKENSON			
Pre- Sept. 71		Post- May 72		Pre- Sept. 71		Post- May 72	
Developmental Reading Test (SS 38)				Developmental Reading Test (SS 38)			
Vocabulary	Comprehension	Vocabulary	Comprehension	Vocabulary	Comprehension	Vocabulary	Comprehension
5.3	5.3	5.5	4.9	3.9	3.9	4.3	4.1
Math (California Achievement) (SS 43)				Math (California Achievement) (SS 39)			
Grade Placement		Grade Placement		Grade Placement		Grade Placement	
5.0		5.6		4.5		4.9	
(SS 35)	VOCATIONAL DEVELOPMENT INVENTORY					(SS 40)	
26		26		27		29	

ERIC

CHART #3

FIRST YEAR STUDENTS COMPLETING TESTS

WISE				DICKENSON			
Pre- Sept. 71		Post- May 72		Pre- Sept. 71		Post- May 72	
Developmental Reading Test (SS 25)				Developmental Reading Test (SS 69)			
Vocabulary	Comprehension	Vocabulary	Comprehension	Vocabulary	Comprehension	Vocabulary	Comprehension
4.7	4.9	4.9	4.1	4.6	4.7	4.6	4.7
Math (California Achievement) (SS 23)				Math (California Achievement) (SS 69)			
Grade Placement		Grade Placement		Grade Placement		Grade Placement	
4.3		4.7		4.7		4.9	
(SS 25)	VOCATIONAL DEVELOPMENT INVENTORY						(SS 63)
26		24		26		25	

ERIC

CHART #4

AVERAGE SCORES

All Four I's Completing Tests

WISE				DICKENSON			
Pre-Test		Post-Test		Pre-Test		Post-Test	
Developmental Reading Test (SS 67)				Developmental Reading Test (SS 108)			
Vocabulary	Comprehension	Vocabulary	Comprehension	Vocabulary	Comprehension	Vocabulary	Comprehension
5.0	5.0	5.2	4.5	4.3	4.4	4.6	4.6
Math (California Achievement) (SS 63)				Math (California Achievement (SS 108)			
Grade Placement		Grade Placement		Grade Placement		Grade Placement	
4.8		5.3		4.7		5.0	
California Test of Personality (SS 69)				California Test of Personality (SS 105)			
Personal Adj.	Social Adj.	Total Adj.		Personal Adj.	Social Adj.	Total Adj.	
23%ile	12%ile	16%ile	22%ile 18%ile 20%ile	21%ile	19%ile	20%ile	30%ile 24%ile 27%ile

Vocational Development Inventory Attitude Scale			
(SS 61)	(SS 63)	(SS 104)	(SS 108)
25	25	26	28
Possible Score 50		Possible Score 50	

FOUR I's

AVERAGE SCORES

ALL STUDENTS TAKING POST TESTS

POST-TESTS

WISE	DICKENSON
Vocational Development Inventory - Attitude Scale	
Number Correct - Possible 50	Number Correct - Possible 50
All Students (SS 104)	All Students (SS 61)
25	28

May 1972 - California Test of Personality

%ile Scores

Second Year Students (SS 43)			Second Year Students (SS 43)		
Personal Adjustment	Social Adjustment	Total Adjustment	Personal Adjustment	Social Adjustment	Total Adjustment
20	18	20	36	24	30
First Year Students (SS 30)			First Year Students (SS 69)		
26	19	22	27	25	25
All Students (SS 73)			All Students (SS 112)		
21	21	21	30	24	27
Range of Scores			Range of Scores		
1-80	1-60	1-70	1-98	1-80	1-90

FOUR I's

AVERAGE SCORES

GRADE PLACEMENT

May 1972 - California Achievement Test-Math

Wise County			Dickenson County		
Second Year Students (SS 41)			Second Year Students (SS 42)		
Computation	Concepts & Problems	Total	Computation	Concepts & Problems	Total
5.5	5.6	5.6	5.2	4.5	4.9
First Year Students (SS 31)			First Year Students (SS 71)		
5.1	4.7	4.9	5.2	4.5	4.9
All Students (SS 72)			All Students (SS 113)		
5.3	5.2	5.3	5.2	4.5	4.9
Students with I.Q. 75 and Above on PPVT (SS 27)			Students with I.Q. 75 and Above on PPVT (SS 57)		
5.5	5.8	5.6	5.3	4.8	5.0

Lyons Carnahan Development Reading Test

Second Year Students (SS 42)		Second Year Students (SS 42)	
Vocabulary	Comprehension	Vocabulary	Comprehension
5.5	4.8	4.3	4.1
First Year Students (SS 28)		First Year Students (SS 70)	
5.0	4.3	4.7	4.7
All Students (SS 112)		All Students (SS 70)	
5.3	4.6	4.5	4.5
Students with I.Q. 75 and Above on PPVT (SS 57)		Students with I.Q. 75 and Above on PPVT (SS 27)	
6.1	5.4	4.6	4.6

APPENDIX A

FIELD TRIPS

WISE PROGRAM

September	Coeburn Garment Factory	A.M. class in sewing
"	Coeburn Garment Factory	P.M. class in sewing
"	Pangle's Dept. Store	A.M. & P.M. classes
"	Wise County Health Dept.	T.B. Skin Test (A.M. & P.M.)
October	Norton Community Hospital	A.M. & P.M. cooking & nursing
"	Chantilly Beauty Salon	Cosmetology Class (A.M. & P.M.)
November	Wise County School Board	A.M. & P.M. classes
February	Short's Super Market	A.M. & P.M. classes
March	Wise Hospital Cafeteria	A.M. & P.M. cooking classes
"	Wise Applachian Regional Hospital	A.M. & P.M. sewing classes
April	Coeburn Garment Factory	A.M. & P.M. classes
May	Clinch Valley College Picnic Grounds	A.M. & P.M. classes
May	C. & P. Telephone Company	A.M. & P.M. classes

DICKENSON PROGRAM

September	Haysi Cannery	Cosmetology class
"	Cumberland Museum	All classes
"	Clintwood Garment Factory	Sewing class
"	Mountain Ford Sales	Small engines class
"	Dickenson Co. Health Department	Nursing class
October	Norton Housing Project	Masonry & carpentry
"	Wise Regional Hospital	Nursing class
"	Wise Vocational School	All classes
November	Prate Elem. School Construction Site	Electricity class
January	Clintwood Garment	Sewing class
"	Hay's Department Store	Cosmetology class
February	Central Shop	Electricity & small engines
March	Appalachian Power Co. Plant	Electricity class
"	Dickenson Co. Clinic	Nursing class
April	Eastern Isles Factory Outlet	Sewing class
May	Norton Housing Project	Carpentry & masonry classes

GUEST SPEAKERS

WISE PROGRAM

1.	Bob Kelly - Social Security Department	Sept., 1971
2.	Morley Jones - Demonstration AVA to Teachers	Oct., 1971
3.	Dr. John Prince - Dental Hygiene	Sept., 1971
4.	Doris Bailty - Wise County Health Department	Sept., 1971
5.	June Venesel - Wise County Health Department	Sept., 1971
6.	Peggy Crabtree - Home Demonstration Agent	Sept., 1971
7.	Grace Estep - Beauty Shop Operator	Nov., 1971
8.	Nona Cassell - Beauty Shop Operator	Nov., 1971
9.	Captain R. G. Herrman - U.S. Women's Army	Feb., 1972
10.	Allen Gregory - Neighborhood Youth Corp	March, 1972
11.	Peggy Crabtree - Home Demonstration Agent	March, 1972
12.	Patsy Carter - Lonesome Pine Development Corp.	March, 1972
13.	Woodroe Williams - Job Corp	April, 1972
14.	Mona Roberts - Merle Norman Cosmetics Demonstrator	May, 1972

DICKENSON PROGRAM

1.	Trooper Marcus - Virginia State Police	Oct., 1971
2.	Bob Kelly - Social Security Department	Nov., 1971
3.	Victor Molinary - Neighborhood Youth Corp	Nov., 1971
4.	Lowell Huff - Owner at Clintwood Garment	Nov., 1971
5.	Richard Marcus - Virginia State Police	March, 1972
6.	Woodroe Williams - Job Corp	April, 1972
7.	Sgt. Hess - U.S. Army	May, 1972
8.	Sgt. Thomas - U.S. Army	May, 1972

APPENDIX B

WISE COUNTY FOUR I's

WITHDRAWAL INFORMATION

WITHDRAWAL	IN SCHOOL	DROP OUT	TOTAL
Number of Withdrawals	15	48	63
Average Age of Withdrawals	16-7	17-2	
Reason for Withdrawing	--	--	--
A. Family Problems and Personal Problems	--	8	--
B. Married	--	17	--
C. Health Problems	--	12	--
D. Disillusionment with the Program	12	1	--
E. Disillusionment with School	--	14	--
F. Problems with Administration at Home School	1	--	--
G. Moved out of the District	2	2	--
Present Activity Status of Students	--	--	--
A. Enrolled in School Outside of the State	1	--	--
B. Job Corps	--	2	--
C. Caring for Grandmother	--	1	--
D. Married, Housekeeping	--	17	--
E. Unemployed - Staying at Home	--	22	--
F. Attending the Regular School	14	--	--
G. Not Known	--	2	--

No boys were enrolled in the Four I's Program for the school year 71-72 because, the boy's program was discontinued.

DICKENSON COUNTY FOUR I'S

WITHDRAWAL INFORMATION

WITHDRAWAL TOPIC	IN SCHOOL	DROP OUT	TOTAL
Number of Withdrawals	7	30	37
Average Age of Withdrawals	14 1/2	17 1/2	
Average Length of Enrollment	4 1/2 mo.	5 1/2 mo.	
Extremes in Length of Enrollment	5 wk.-1 yr.	1 wk.-2 yr.	
Reason for Withdrawing Expelled-	-----	9	---
A. Family Problems and Personal Problems		4	
B. Married		4	
C. Personal Problems and Legal Problems		2	
D. Disillusionment with the Program	4	2	
E. Disillusionment with School		5	
F. Problems with Administration at Home School		1	
G. Health Moved out of the District	2	4	
Present Activity Status of Students			
1. Enrolled in School Outside of the State	2		
2. Military Service		1	
3. Out of School N.Y.C.		1	
4. Suspended from School-Staying at Home		3	
5. Married, Housekeeping		4	
6. Working out of the State		3	
7. Unemployed - Staying at Home		15	
8. Attending the Regular School	6		
9. Not Known		2	

APPENDIX C

Wise County Four I's

STUDENT ATTITUDES

1. I enjoy school more this year than I have in the past.
54 A. Yes
4 B. No

2. I feel that I am learning
51 A. More
5 B. About the same
2 C. Less than I did in the previous years

3. I feel that
50 A. More responsibility is placed on me for my own conduct.
8 B. Less responsibility is placed on me for my own conduct.

4. I feel that overall discipline is
5 A. Too strict
53 B. About the right amount of freedom
7 C. Not enough freedom

5. I feel that I have
0 A. Too much freedom
51 B. About the right amount of freedom
7 C. Not enough freedom

6. I feel that the teachers show
43 A. More concern
4 B. Less concern
11 C. About the same amount of concern as previous years

7. I feel that I am beginning to use my time more wisely
50 A. Agree
8 B. Dis gree

8. I feel that I am beginning to feel more confidence in myself
57 A. Agree
1 B. Disagree

9. I feel that it is necessary for my teachers to constantly supervise my activities
32 A. Agree
26 B. Disagree

10. I feel that I am getting
49 A. More individual help than in the past
9 B. Less individual help than in the past

11. I feel that the prevocational areas make me like school
48 A. More
2 B. Less
8 C. No change

	YES	NO
I would like to continue in the program.	56	2
The program has helped my attendance.	54	4
Students are given a chance to talk to the Guidance Counselor when they feel a need.	57	1
Your teacher treats you fairly.	58	0
You had enough materials to work with.	52	6
You know the Coordinator (Mr. Deskins) of the program	56	2

I would like to see the following changes made in the program:

More material in the sewing room.

Needs:

More Breaks
2. Keep Mrs. Dorton
3. Keep Mrs. Howell
4. Stay all day at the Vocational School
5. Not stay all day

DICKENSON COUNTY FOUR I's

STUDENT ATTITUDES

1. I enjoy school more this year than I have in the past.
102 A. Yes
4 B. No

2. I feel that I am learning
91 A. More
13 B. About the same
2 C. Less than I did in the previous years

3. I feel that
76 A. More responsibility is placed on me for my own conduct
30 B. Less responsibility is placed on me for my own conduct.

4. I feel that overall discipline is
6 A. Too strict
94 B. About right
6 C. Too easy

5. I feel that I have
4 A. Too much freedom
89 B. About the right amount of freedom
13 C. Not enough freedom

6. I feel that the teachers show
76 A. More concern
7 B. Less concern
23 C. About the same amount of concern as previous years

7. I feel that I am beginning to feel more confidence in myself
98 A. Agree
8 B. Disagree

8. I feel that I am beginning to use my time more wisely
100 A. Agree
6 B. Disagree

9. I feel that it is necessary for my teachers to constantly supervise my activities
40 A. Agree
57 B. Disagree

10. I feel that I am getting
100 A. More individual help than in the past
6 B. Less individual help than in the past

11. I feel that the prevocational areas make me like school
93 A. More
2 B. Less
11 C. No change

	YES	NO
I would like to continue in the program.	103	3
The program has helped my attendance.	98	8
Students are given a chance to talk to the Guidance Counselor when they feel a need.	103	3
Your teacher treats you fairly.	102	4
You had enough materials to work with.	78	28
You know the Coordinator (Mr. Deskins) of the program	62	44

I would like to see the following changes made in the program:

More material in the sewing room.

Needs:

1. Physical Education
2. Driver Education
3. Welding and Auto Mechanics
4. Longer Lunch Period
5. Liberal Dress Code
6. A place to eat lunch for those who carry their lunch from home.
7. Water in nursing and cosmetics classes
8. Change the name from Four I's

APPENDIX D

WISE COUNTY FOUR I's

TEACHER ATTITUDES

CODE

1 Strongly Agree
2 Agree
3 Strongly Disagree
4 Disagree
5 Undecided

Circle one of the following choices that most nearly indicates your response to each of the statements about the Four I's Program.

I. MATERIALS

(1) (3)
1 2 3 4 5 Materials were supplied in sufficient quantities for teachers to do a good job.

(2) (2)
1 2 3 4 5 Teachers should keep an inventory of supplies and order replacements so they will be available when needed.

(1) (3)
1 2 3 4 5 The present method of ordering materials and supplies is satisfactory.

(3) (1)
1 2 3 4 5 The quality of the materials and supplies that are being used in the program is high enough to do an acceptable job.

(1) (3)
1 2 3 4 5 Too much class time is lost due to lack of materials and supplies.

(1) (3)
1 2 3 4 5 Some of the classes have more money allotted for materials and supplies than is needed while others have an insufficient amount.

II. FACILITIES

(1) (3)
1 2 3 4 5 Work area space is adequate for the presently number of students enrolled.

(2) (1) (1)
1 2 3 4 5 The equipment that is available for the students to use meets the needs of the trade skill being taught.

(1) (3)
1 2 3 4 5 Lighting is adequate in all working areas.

(3) (1)
1 2 3 4 5 All of the work areas are provided with adequate ventilation.

(2) (2)
1 2 3 4 5 Each of the work areas is sufficiently isolated from each other to prevent distracting activities.

(1) (1) (1) (1)
1 2 3 4 5 There are provisions and space available for viewing educational films.

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III. ADMINISTRATION

(1)(3) 1 2 3 4 5	Direction from the administration is just and reasonable.
1 2 3 (3)(1) 4 5	Teachers need more direction from the administration than they are now being given.
(3) (1) 1 2 3 4 5	There is a clear understanding of who is responsible for the administration of the program.
(1)(2) (1) 1 2 3 4 5	Personal contact between the teachers and the administration is sufficient for developing a feeling of the "team approach".
(1)(3) 1 2 3 4 5	The working relationship between the administration and teachers is satisfactory.
(2) (2) 1 2 3 4 5	The local principal has been an asset to the program.

IV. PHILOSOPHY

(1)(3) 1 2 3 4 5	The students are given enough freedom to explore their interests.
(1) (2)(1) 1 2 3 4 5	The students are given enough voice in the structuring of the program.
1 (1)(3) 2 3 4 5	The students are given too much freedom to use wisely.
(4) 1 2 3 4 5	The teachers have a clear understanding of the philosophy of the Four I's Program.
(1)(2) (1) 1 2 3 4 5	The major objective of the program is to help the students to develop a more positive self-concept.
1 2 3 (3)(1) 4 5	One of the most difficult aspects of the philosophy is the lack of threat in the area of discipline.
1 (2)(2) 2 3 4 5	Corporal punishment should be incorporated into the program in order to preserve order.

V. STUDENTS

1 (1)(2)(1) 2 3 4 5	The program was developed for the type of student now enrolled.
(1) (3) 1 2 3 4 5	Most of the students that are presently enrolled in the program are capable of learning the skills that are now being taught.
(1) (2)(1) 1 2 3 4 5	Many of the students are lacking in success experiences even at the end of the second year of the Four I's Program.
(1) (1)(1) 1 2 3 4 5	At the time of the enrollment into the program, the students displayed belligerent attitudes.

	(2)(2)	
1 2 3 4 5		Most of the students are basically lazy.
	(1)(2)(1)	
1 2 3 4 5		These students are typical of their age group.
(3)	(1)	
1 2 3 4 5		The Four I's students are capable of controlling their behavior.

VI. SUCCESS OF THE PROGRAM

(4)		
1 2 3 4 5		Progress can be observed from the students' behavior.
(4)		
1 2 3 4 5		The program is successful in helping the students to develop a more positive self-concept.
(3)	(1)	
1 2 3 4 5		Many of the students have been especially successful in all of the trade areas.
	(2)(2)	
1 2 3 4 5		The program makes the students belligerent.
(2)	(2)	
1 2 3 4 5		Some of the students have been completely unsuccessful in the total program.
(1)(1)(1)(1)		
1 2 3 4 5		For many of the students, the program has served only as an escape from the regular school.
(3)	(1)	
1 2 3 4 5		The program has provided an opportunity for the students to display their leadership abilities in a constructive manner.

VII. AID FROM OTHER DILENOWISCO UNITS

(2)	(1)(1)	
1 2 3 4 5		The Media unit made a significant contribution to the Four I's Program.
(2)	(1)(1)	
1 2 3 4 5		The assistance from the media unit personnel was continuous from the time of their introduction to the Four I's Program.
(2)	(2)	
1 2 3 4 5		The Special Education unit made a significant contribution to the program.
(2)	(2)	
1 2 3 4 5		The assistance from the Special Education Unit was continuous throughout the year.
(2)	(1)(1)	
1 2 3 4 5		There was aid given to each area of the Four I's Program from some other unit of DILENOWISCO.

VIII. PREPARATION OF TEACHERS

(1) (1)
1 2 3 4 5 The pre-service training period for teacher aides was sufficient for preparing the Four I's teaching assistants to perform their duties.

IX. GUIDANCE

(2) (2)
1 2 3 4 5 The guidance component of the program was beneficial in helping the students to better understand themselves.

(2) (2)
1 2 3 4 5 Every student was given an opportunity to participate in the guidance activities.

(2) (1)
1 2 3 4 5 The guidance component was beneficial in helping teachers to understand certain student behavior.

(3) (1)
1 2 3 4 5 Students were more belligerent because of certain guidance activities.

(1) (3)
1 2 3 4 5 Students used the guidance activities as an excuse to talk rudely about teachers.

COMMENTS _____

_____

_____

_____

_____

_____

_____

_____

DICKENSON COUNTY FOUR I's

TEACHER ATTITUDES

CODE

1 Strongly Agree
2 Agree
3 Strongly Disagree
4 Disagree
5 Undecided

Circle one of the following choices that most nearly indicates your response to each of the statements about the Four I's Program.

I. MATERIALS

(2) (4)(1)
1 2 3 4 5 Materials were supplied in sufficient quantities for teachers to do a good job.

(3)(3) (1)
1 2 3 4 5 Teachers should keep an inventory of supplies and order replacements so they will be available when needed.

(2)(1)(4)
1 2 3 4 5 The present method of ordering materials and supplies is satisfactory.

(5)(1)
1 2 3 4 5 The quality of the materials and supplies that are being used in the program is high enough to do an acceptable job.

(6)(1)
1 2 3 4 5 Too much class time is lost due to lack of materials and supplies.

(2) (2)(2)
1 2 3 4 5 Some of the classes have more money allotted for materials and supplies than is needed while others have an insufficient amount.

II. FACILITIES

(1)(3)(2)(1)
1 2 3 4 5 Work area space is adequate for the presently number of students enrolled.

(2) (2)(2)
1 2 3 4 5 The equipment that is available for the students to use meets the needs of the trade skill being taught.

(3)(5)
1 2 3 4 5 Lighting is adequate in all working areas.

(6) (1)
1 2 3 4 5 All of the work areas are provided with adequate ventilation.

(5) (2)(2)
1 2 3 4 5 Each of the work areas is sufficiently isolated from each other to prevent distracting activities.

(1)(3) (1)(2)
1 2 3 4 5 There are provisions and space available for viewing educational films.

III. ADMINISTRATION

(4) (3) 1 2 3 4 5	Direction from the administration is just and reasonable.
(1) (3)(2) 1 2 3 4 5	Teachers need more direction from the administration than they are now being given.
(6) (1) 1 2 3 4 5	There is a clear understanding of who is responsible for the administration of the program.
(3) (2)(2) 1 2 3 4 5	Personal contact between the teachers and the administration is sufficient for developing a feeling of the "team approach".
(6) (1) 1 2 3 4 5	The working relationship between the administration and teachers is satisfactory.
(6) (1) 1 2 3 4 5	The local principal has been an asset to the program.

IV. PHILOSOPHY

(6) (1) 1 2 3 4 5	The students are given enough freedom to explore their interests.
(6) (1) 1 2 3 4 5	The students are given enough voice in the structuring of the program.
(1) (6) 1 2 3 4 5	The students are given too much freedom to use wisely.
(5) (1)(1) 1 2 3 4 5	The teachers have a clear understanding of the philosophy of the Four I's Program.
(2)(5) 1 2 3 4 5	The major objective of the program is to help the students to develop a more positive self-concept.
(2) (4)(1) 1 2 3 4 5	One of the most difficult aspects of the philosophy is the lack of threat in the area of discipline.
(4) (1)(2) 1 2 3 4 5	Corporal punishment should be incorporated into the program in order to preserve order.

V. STUDENTS

(5) (2) 1 2 3 4 5	The program was developed for the type of student now enrolled.
(1)(4) (2) 1 2 3 4 5	Most of the students that are presently enrolled in the program are capable of learning the skills that are now being taught.
(1)(2) (4) 1 2 3 4 5	Many of the students are lacking in success experiences even at the end of the second year of the Four I's program.
(1)(6) 1 2 3 4 5	At the time of the enrollment into the program, the students displayed belligerent attitudes.

1 (2) 2 3 (6) 4 5	Most of the students are basically lazy.
1 (4) 2 (1) 3 (1) 4 (1) 5	These students are typical of their age group.
1 (5) 2 3 4 (1) 5	The Four I's students are capable of controlling their behavior.

VI. SUCCESS OF THE PROGRAM

(2)(5) 1 2 3 4 5	Progress can be observed from the students' behavior.
(2)(5) 1 2 3 4 5	The program is successful in helping the students to develop a more positive self-concept.
1 (3) 2 3 (1)(2) 4 5	Many of the students have been especially successful in all of the trade areas.
(1) 1 2 (3)(3) 3 4 5	The program makes the students belligerent.
1 2 (4)(3) 3 4 5	Some of the students have been completely unsuccessful in the total program.
1 (2) 2 3 (5) 4 5	For many of the students, the program has served only as an escape from the regular school.
1 (3)(1) 2 (2)(1) 3 4 5	The program has provided an opportunity for the students to display their leade-ship abilities in a constructive manner.

VII. AID FROM OTHER DILENOMISCO UNITS

(2)(4) 1 2 3 4 (1) 5	The Media unit made a significant contribution to the Four I's Program.
(1)(5) 1 2 3 4 (1) 5	The assistance from the media unit personnel was continuous from the time of their introduction to the Four I's Program.
1 (6) 2 3 4 (1) 5	The Special Education unit made a significant contribution to the program.
1 (6) 2 3 4 (1) 5	The assistance from the Special Education Unit was continuous throughout the year.
1 (2) 2 3 (1)(4) 4 5	There was aid given to each area of the Four I's Program from some other unit of DILENOMISCO.

VIII. PREPARATION OF TEACHERS

(2) (2)
1 2 3 4 5 The pre-service training period for teacher aides was sufficient for preparing the Four I's teaching assistants to perform their duties.

IX. GUIDANCE

(1)(1) (2)(3)
1 2 3 4 5 The guidance component of the program was beneficial in helping the students to better understand themselves.

(1)(7)
1 2 3 4 5 Every student was given an opportunity to participate in the guidance activities.

(1)(3) (2)(1)
1 2 3 4 5 The guidance component was beneficial in helping teachers to understand certain student behavior.

(3)(1)(2)(1)
1 2 3 4 5 Students were more belligerent because of certain guidance activities.

(3)(2) (2)
1 2 3 4 5 Students used the guidance activities as an excuse to talk rudely about teachers.

COMMENTS Academics should be stressed more in the program. With the type of children we are working with, it is very frustrating for both student and teacher to try to work in overcrowded conditions. Also special provisions should be made for our non-readers if they are to continue in the program, I feel.

APPENDIX E

PRINCIPAL ATTITUDES

	YES	NO	?
My knowledge of the program is basically sound. Comments: My knowledge is limited.	17	3	
The students now enrolled in the program are those that are most in need of the services that are offered. Comments: 1. Many are not enrolled who need to be because of age, etc. 2. Need expansion of present program.	18	1	1
The major objective of the program should be to help these students to develop marketable job skills and improve attitudes toward work and school. Comments: Limited knowledge	20	0	
The students that are in the program from my school are more likely to succeed in adjusting to life situations than they were previously. Should turn out to be tax paying citizens. Comments: No measure yet.	16	4	2
The program allows the students too much freedom. Comments: 1. I'm in no position to know 2. Depends on student. 3. Cannot comment	2	18	
The students are more difficult to control after they have had some experience in the program. Comments: 1. Not this year 2. No experience of the program. 3. No experience with this.	1	19	
The grading system used in the program has been satisfactory. Comments: None - evaluation only	17	1	2
Student attendance improved this year over last year. Comments: 1. About the same 2. Unknown at this time. 3. In some cases	16	2	2
Local school personnel were kept adequately informed about the program's on-going activities. Comments: 1. Could be improved 2. Sometimes 3. Could have been more communication	14	4	2
The degree of local school involvement in the program was adequate. Comments:	15	4	1
The program gave the students an opportunity to skip school. Comments: 1. Probably 2. Not significantly 3. All students have this 4. Attendance was better 5. At times the students did use the transfer time to skip.	1	15	4

	YES	NO	?
The program has improved this year.	15	1	4
Comments: 1. Much better 2. Unknown			
There is a clear understanding of who is responsible for the administration of the program.	20	0	
Comments:			
The principals have a clear understanding of the philosophy of the program.	18	0	2
Comments:			
You personally have a clear understanding of the program.	17	1	2
Comments:			
Discipline in the program seems adequate when all factors are considered.	20	0	
Comments: 1. Discipline has been good. 2. Don't know			
Students that are enrolled have had a lack of success experience.	13	2	5
Comments:			
The students have become more capable of controlling their behavior.	15	2	3
Comments: 1. No way of knowing. 2. I can't see any difference 3. Don't know 4. In some cases			
These students are typical of their age group.	5	13	2
Comments: And experience			
Progress can be observed from the students' behavior.	16	3	1
Comments: 1. Not enough contact to know 2. To some degree			
The program is successful in helping the students develop a more positive self concept.	13	1	6
Comments: 1. I think so 4. No fault of the program 2. Do not know 3. Not enough contact 5. Too little, too late			
Some of the students have been successful in the total program.	15	3	2
Comments: 1. I couldn't say since we have not been receiving 6 wks. grades 2. Very few 3. Not known			

	YES	NO	?
For many of the students the program has served as an escape from the regular program. Comments: 1. Probably true, but no fault of the program. 2. Escape good for many students 3. In some cases	10	7	3
The program has provided an opportunity for students to display their leadership abilities in a constructive manner. Comments: 1. Not enough information 2. Do not know 3. Cannot comment	14	2	4
You have visited the Four I's Program. Comments: Not a complete visit.	18	2	
Do you feel that the student's self concept has improved this year? Comments: 1. Uncertain 2. Do not know	14	1	5
Did the student have a poor self concept upon entering the program. Comments: Some did.	15	2	3
The program has provided a useful service. Comments:	20	0	

SUGGESTIONS FOR PROGRAM IMPROVEMENT:

1. Program for the boys
2. Program improved tremendously
3. More students need to get involved
4. Need to provide a form of education for children of a lower mental ability.
5. Need to lower the entrance requirements - such as age and number of years of failure.
6. Suggest periodic meeting of vocational school principal with elementary school principal.

APPENDIX F

PARENT ATTITUDES

	Dickenson Group A		Wise Group B	
	YES	NO	YES	NO
My child has benefited from the program.	83	2	17	2
I would like for my child to continue in the program.	82	3	19	0
Having several skill areas to explore during the first year has kept my child interested.	85	0	19	0
Parents should visit the program.	83	2	17	2
Grades are important.	82	3	18	1
The Four I's Program seems to give the students too much freedom.	2	83	4	15
The program has caused my child to want to attend school more regularly.	80	5	18	1
My child discusses the program at home.	82	3	17	2
My child would like to continue in the program.	83	2	19	0
My knowledge about the program is limited (I know very little about the program).	70	15	15	4
I would like to know more about the program.	75	10	19	0

The best thing about the program is skill training in several things

The thing that I would like to see changed about the program is

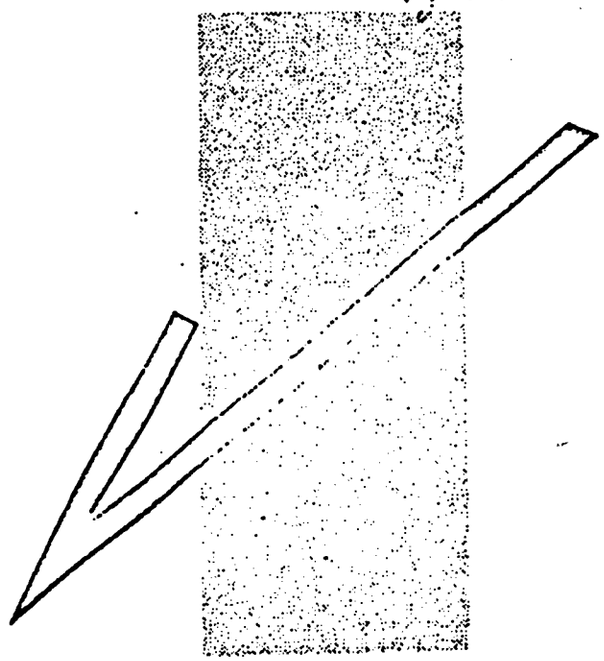
1. Driver Education and Physical Education are needed
2. Study the lunch and busing problem.
3. Students should not have to write reports because they were absent.
4. Need more things to work with.
5. More work experience is needed.

APPENDIX G

10-37

U. S. DEPARTMENT OF LABOR
BUREAU OF EMPLOYMENT SECURITY
WASHINGTON 25, D. C.

Interest CHECK LIST



Name ..... *Date* .....

Address or School .....

It is important to all of us that we like our jobs, because, to succeed, we must be happy and interested in our work.

This Interest Check List may help you decide what kinds of work you would like. It indicates a broad range of activities which are found in most industries and occupations in the United States today.

Read and check each one of the statements carefully. If you think you would "like" to do this kind of activity, make a check √ under the "L"; if you "don't like" the activity, make a √ under the "D"; if you are not certain whether you would like the activity or not, make a √ under the "?".

After you have checked each activity, go back and double check √ √ at least three activities that you think you would most like to do.

You may check an activity even if you do not have training or experience for it, if you think you would enjoy the work. If you check the "?" this shows you are uncertain, either because you don't know enough about the activity or because you cannot make up your mind whether you like it or not.

After you have filled out the Check List, the Counselor will go over your responses with you to help you discuss further your interests and jobs you would like.

Here are items about a wide variety of duties you might find in different jobs. All you have to do is indicate how you feel about that activity by placing a check √ under

L (Like) ? (Uncertain) D (Dislike)

	L	?	D
Sketch or paint pictures of people or objects			
Create artistic designs			
Arrange or decorate interiors to get pleasing effect			
Carve objects from clay or stone			
Take photographs for use in advertising			
Design styles for clothing			
(0-X1)			
Sing as a paid entertainer			
Play a musical instrument			
Compose or arrange music			
Conduct an orchestra or band			
(0-X2)			
Write short stories or books			
Write articles to influence people's opinions			
Report events or activities			
Edit or rewrite news items			
Write TV and radio scripts			
(0-X3)			
Act in a play			
Dance classical or interpretative dances			
Comment on news for radio and TV			
Announce radio and TV programs			
Play professional baseball or other sports			
(0-X4)			
Instruct classes of students			
Show others how to play new sports or games			
Select and catalog books and periodicals			
(0-X6.0)			
Collect and analyze information about community problems			
Advise people about their personal problems			
Interview and counsel people about jobs or schooling			
Conduct public opinion surveys			
Conduct studies on economic problems			
(0-X6.1)			
Direct traffic			
Enforce State and national laws			
Direct fire fighting and prevention in factory			
Inspect machines and working conditions to prevent accidents			
(0-X6.2)			

	L	?	D
Perform nursing duties in hospital or home			
Make chemical or laboratory tests			
Treat animals for injury or disease			
Prepare medicines according to prescription			
Conduct experiments in properties of metals or other materials			
Do medical X-ray work			
Plan menus for hospitals, schools, or hotels			
(0-X7.0)			
Prepare financial statements for a company			
Assist clients in obtaining legal rights			
Purchase supplies for large firm			
(0-X7.1)			
Patrol forest lands			
Observe and report weather conditions			
Explore and chart earth's crust to locate gas and oil deposits			
(0-X7.3)			
Plan and design roads and bridges			
Design tools, machines, and electric equipment			
Pilot an airplane for a commercial line			
Work out high-speed computer problems using mathematics			
Lay out machinery and plan flow of work in a factory			
Observe and plot light flashes on radar scope to report air traffic			
(0-X7.4)			
Draft plans for tools or machines			
Make detailed drawings from specifications for buildings			
Survey land to determine its measurements and contour			
(0-X7.7)			
Direct a crew of workmen			
Supervise clerical staff in an office			
Organize and direct operations of a factory			
Supervise a group of salesmen			
(0-X8)			
Operate office machines such as adding or calculating machines			
Check bills for errors			
Figure commissions and expenses			
(1-X1)			

	L	?	D
Make change and cash checks			
Keep a set of books for a business concern			
Type letters and reports			
Take dictation in shorthand			
Keep inventory of material and equipment			
(1-X2)			
Operate a mimeograph machine			
File reports alphabetically			
Sort and deliver letters			
(1-X4)			
Operate a telephone switchboard			
Make appointments and answer telephone			
Make collections from customers			
Direct customers to proper departments in store			
Talk to customers about complaints			
(1-X5.0)			
Sell furniture in a store			
Sell insurance or real estate			
Sell building and construction equipment			
Demonstrate cosmetics for sale			
Canvass homes to demonstrate and sell products			
Contact buyer for supermarket to get order for merchandise			
(1-X5.5)			
Sell tickets and make change at theater			
Deliver products over an established route			
Sell merchandise in a variety store			
Conduct tours and act as guide			
Sell gas and oil at a service station			
(1-X5.7)			
Interview persons to get census information			
Question motorists to get information for highway planning commission			
Model clothing for customers			
(1-X5.9)			
Cook in a restaurant			
Plan and prepare meals in a private home			
Bake cakes, cookies, and other pastries for customers			
Order food supplies for hotel			
(2-X1)			
Take charge of playroom for children			
Organize games and read to small children			
Take care of and feed infants in a nursery			
(2-X3)			

	L	?	D
Set tables and serve food and drinks			
Give shampoos, manicures, and facials			
Direct patrons to tables in restaurant			
Give service to airline passengers during flight			
Operate passenger elevator			
(2-X5)			
Plant, cultivate, and harvest crops			
Raise and care for cattle, hogs, horses, and chickens			
Cultivate vegetables for market			
Plant and care for flowers, lawns, and shrubbery			
(3-X1)			
Catch large quantities of fish and market them			
Work aboard tugboats, barges, and river boats			
Operate a fish hatchery			
(3-X8)			
Serve as guide for hunting and fishing trips			
Keep lookout for forest fires			
Saw, trim, and chop trees in forest areas			
(3-X9)			
Construct and repair metal machines, parts, and tools			
Work with drills and lathes to cut and shape metal			
Grind lenses for cameras and microscopes			
Operate machines to saw and shape wood			
(4-X2.0)			
Oil, adjust, and repair machinery			
Repair and overhaul automobile engines			
Repair typewriters, calculators, and adding machines			
(4-X2.1)			
Operate textile looms or hosiery-knitting machines			
Operate printing press			
Drive a trailer-truck or bus			
Operate cranes and power shovels to move materials			
(4-X2.4)			
Build and test electronic equipment			
Install and repair telephone switchboards			
Repair radio and TV sets			
(4-X6.1)			

	L	?	D
Paint or do paperhanging in houses or buildings	—	—	—
Fix drains and faucets	—	—	—
Lay bricks to construct walls and chimneys	—	—	—
Build frame houses and other wood structures (4-X6.2)	—	—	—
Assemble and repair watches or cameras	—	—	—
Cut, sew, and fit cloth, leather, or fur articles	—	—	—
Make or repair furniture or cabinets	—	—	—
Cut and shape glass or stone for jewelry and other small articles	—	—	—
Use precision measuring instruments to inspect products for flaws (4-X6.3)	—	—	—
Letter or stencil posters and signs	—	—	—
Set type by hand for printing	—	—	—
Operate machines to set type	—	—	—
Develop and print pictures (4-X6.5)	—	—	—
Make bread, cakes, and other bakery products	—	—	—
Operate furnaces or ovens to heat or melt metals	—	—	—
Pour or dip hot metals into molds	—	—	—
Mix solutions for plastic materials (4-X6.6)	—	—	—
Guard property against fire, theft, or damage	—	—	—
Store explosives	—	—	—
Check people entering factory gate and direct to proper entrance (6-X2.2)	—	—	—
Inspect and test quality of articles by taste, sight, or hearing	—	—	—
Inspect articles by use of simple measuring devices	—	—	—
Sort articles by size and color (6-X2.3)	—	—	—
Lift and move objects with small crane on electric truck	—	—	—
Operate automatic metalworking machines	—	—	—
Operate machine to fill bottles, jars, or cans with liquids (6-X2.4)	—	—	—

	L	?	D
Tend machines which mix or cook foods or drugs	—	—	—
Operate equipment to refine petroleum products	—	—	—
Operate a concrete mixer (6-X2.6)	—	—	—
Weld metal parts together using automatic welding machine	—	—	—
Drill with a jackhammer in ore or rock	—	—	—
Straighten bent fenders and auto bodies (6-X4.2)	—	—	—
Operate power sewing machine to make clothing	—	—	—
Pack fruit or vegetables for market	—	—	—
Assemble metal parts with handtools	—	—	—
Wind electrical coils and armatures (6-X4.3)	—	—	—
Feed metal stock into machine to cut or shape metal products	—	—	—
Tend sawing or boring woodworking machines	—	—	—
Polish marble or granite by machine	—	—	—
Use machines to press, stretch, or pleat fabrics (6-X4.4)	—	—	—
Mix paints according to formulas	—	—	—
Tend tanks to dye or bleach leather	—	—	—
Operate equipment making or treating paper (6-X4.6)	—	—	—
Deliver telegrams by bicycle	—	—	—
Clean and polish shoes	—	—	—
Distribute printed advertising to homes (6-X6.1)	—	—	—
Wash dishes and silverware by machine	—	—	—
Stack bundles of wheat, oats, and barley	—	—	—
Carry and set stakes in a surveying crew (6-X6.6)	—	—	—

NOW, GO BACK AND DOUBLE CHECK AT LEAST THREE ACTIVITIES THAT YOU WOULD LIKE TO DO THE MOST

Pick # 1, 2, and 3 activities

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WORLD OF WORK

ACTIVITIES CHECK SHEET

Students Name - Date Completed

- Daily Time Schedule - -Hour by Hour
- Autobiography
- Experienced Job Interview
- Study of Job Interview
- Filled out Job Application
- Federal Income Tax Return
- Study of Federal Tax
- State Income Tax Return
- Study of State Income Tax
- Obtained Social Security Card
- Study of Social Security
- Study of Related Jobs
  1.
  2.
- Study of Jobs from Interest Inventory
  1.
  2.
- Student-Counselor Interview
- Interest Inventory

PREPARATIONS TO BE MADE BEFORE THE INTERVIEW

1. Find out the exact place and time of the interview.
2. Get the full name of the company, along with its address.
3. Be certain you have your interviewer's full name, and know how to pronounce it.
4. Do some research on the company interviewing you.
5. Prepare any questions you may have before you go in for the interview.
6. Bring a pencil and pen with you.
7. Have some kind of note paper with you.
8. Plan to arrive at the designated place at least 15 minutes early.
9. Wear proper clothes for the occasion.
10. Be neat and clean.

THINGS TO DO DURING THE INTERVIEW

1. Take a deep breath just before you go into the office.
2. Smile as you enter.
3. Give your name distinctly.
4. Men should use a firm handshake; women are not expected to extend their hands, but should give a cordial greeting.
5. State your specific job interest.
6. Never answer "just anything" when asked "In what kind of work are you interested?"
7. Let the interviewer take the initiative.
8. Answer all questions fully, truthfully, and concisely.
9. Avoid using slang.
10. Be poised and relaxed.
11. Look directly at the interviewer when talking with him, not at the walls
12. or out the window.
    Refrain from smoking.
13. Show interest in the job for which you are applying.
14. Never criticize others.
15. Never beg for a position.
16. Do not argue or discuss your troubles.
17. Leave promptly when the interviewer indicates the interview has ended.
18. Express appreciation for the interview.
19. Thank the receptionist or other persons who introduced you.

FILLING OUT APPLICATION BLANKS

Here are some sample application blanks on which I can practice. I must remember to write neatly and legibly and to follow directions.

EMPLOYMENT APPLICATION

Please answer each question on both sides of this application fully and accurately.

Date_____

Name_____
Last First Middle

Address_____
No. Street City State

Male or
Female_____Age____Height___ft___in. Weight____Veteran_____
Date of birth_____Place of Birth_____
Married (yes or no)_____No. of children under 18 yrs.of age_____
No of other dependents_____Citizen of U. S. A._____
Father's Name_____Birthplace_____Living?_____
Mother's Name_____Birthplace_____Living?_____
Married man should give the following information:
Wife's full name_____Birthplace_____
Place of employment_____
Married Woman should give the following information:
Husband's full name_____Birthplace_____
Place of employment_____

EDUCATION

	Name or School	How long attended	Year Graduated	Degree
Grade School				
Senior High School				
College				
Business or Corres School				
Other Training				

Have you ever had heart trouble?_____Have you seen a doctor lately?

Have you had an operation?_____What?_____When?_____
Doctor_____
Describe any physical defects_____Right or left handed_____
Kind of work desired_____
Have you been employed here before?_____If so, in what department?_____Have you filed an application with us before?_____
What is your highest skill?_____
Can you work second shift?_____

APPENDIX H

(EYE GATE)
TYPE OF MATERIAL

NAME _____

DIRECTIONS: Check the materials used.

Medical Assistant
Data Processing Clerk
Automotive Sales Representative
Real Estate Sales
Sheet Metal Worker - Building Trades
Cook
Printer
Tool and Die Maker
Electrician
TV and Radio Repair
Receptionist

CAREERS UNLIMITED

Broadcasting
Restaurant
Computers
Advertising
Hotel-Motel
Beauty Culture
Photography
Transportation
Food Production
Land Scaping-Nursery Business
Architecture
Social Work
Plastic Industry
Clothing and Fashion Design
Librarian
Guidance
Forestry
Drafting
Agriculture
Education
Oceanography
Engineering
Law
Health Education
Printing and Engraving
Repair Service
Air Conditioning and Refrigeration
Scientific Research
Selling
Secretarial Careers
Recreation
Construction
Veterinary Medicine
Textiles
Futniture Industry
Criminology and Penology

WORLD OF WORK

The First Few Days
My Man, My Creep
Don't Blow Your Cool
Excuses
Money, Money, Money
The Fast Exit
A-1
A-2
B-1
B-2
C
D
Getting Help and Information
Too Much Talk
The Magic Words that Get you Fired
Supervisors are Human, Too
Company Rules and Company Customs
Stick up for Your Rights
Promotions
Giving Notice

READER PRINTER INFORMATION LIST:

How to Study Occupations
How to Find a Job on Your Own
The Meaning of Work
Interests Pay Off
New Career Opportunities
Automation
You the Consumer
The Job Interview
Your Job OUtlook
Marriage and Career
Coping with Authority
Your Life of Work
Career Planning in a Changing World
Getting and Using Money
Learning on Your Own

STUDENT_____

QUESTIONS TO FIND ANSWERS FOR:

WHERE TO FIND ANSWERS!

FACTS: Chronicle Library
SRA-Kit
Reader-Printer
Newspaper
Experienced Workers

APPENDIX I

JOB DESCRIPTIONS

Sex

Student #1-M - Placed in November at Mountain Housing Development Corporation, Clintwood, Virginia, as a carpenter-helper. This position involves assisting carpenters and masons in the construction and repair of housing projects. His tasks included carrying materials, mixing mortar, and installing insulation.

Student #2-M - Placed in November at Mountain Housing Development Corporation, Clintwood, Virginia, as a carpenter-helper. This position involves assisting carpenters and masons in the construction and repair of housing projects. His tasks include carrying materials, mixing mortar, and installing insulation.

Student #3-M - Placed in November at Mountain Housing Development Corporation, Clintwood, Virginia, as a carpenter-helper. This position involves assisting carpenters and masons in the construction and repair of housing projects. His tasks include carrying materials, mixing mortar, and installing insulation.

Student #4-M - Placed in November at Mountain Housing Development Corporation, Clintwood, Virginia, as a carpenter-helper. This position involves assisting carpenters and masons in the construction and repair of housing projects. His tasks included carrying materials, mixing mortar, and installing insulation.

Student #5-F - Placed in November at the Wise County Public Library, Wise, Virginia, as a library-aide. This position involved cleaning shelves, arranging and reading shelves of magazines and books, and updating the newspaper shelves.

Student #6-F - Placed in November at the Wise County Public Library, Wise, Virginia, as a library-aide. This position involved cleaning shelves, arranging and reading shelves of magazines and books, and updating the newspaper shelves.

Student #7-M - Placed in November at Miller Funeral Home, Clintwood, Virginia, as a mortician's aide. His tasks include assisting in the preparation of bodies for burial, pall bearer duties, and general clean-up work.

Student #8-F - Placed in December as a shampoo girl at Marquerita's Beauty Salon, St. Paul, Virginia. Her tasks include shampooing hair, preparing equipment and solutions, and general clean-up work.

Student #9-M - Placed in December at the Dickenson County Bus Maintenance Shop, Nora, Virginia, as a mechanic's aide. His tasks include assisting the mechanic in changing oil, greasing, and overhauling engines of the county's school buses.

Student #10-M - Placed in December at the Dickenson County Bus Maintenance Shop, Nora, Virginia, as a mechanic's aide. His tasks include assisting the mechanic in changing oil, greasing, and overhauling engines of the county's school buses.

Student #11-F - Placed in December at the Continental Hair Fashion, Wise, Virginia, as a shampoo girl. Her tasks included shampooing hair, preparing equipment and solutions, and general clean-up work.

Student #12-F - Placed in December at Norton Community Hospital, Norton, Virginia, as a nurse's aide. Her tasks include taking and recording vital signs, care of the open, closed, and occupied beds, and general clean-up work.

Student #13-F - Placed in December at Norton Community Hospital, Norton, Virginia, as a nurse's aide. Her tasks included taking and recording of vital signs, care of the open, closed, and occupied beds, and general clean-up work.

Student #14-F - Placed in December at Hay's Department Store, Clintwood, Virginia, as a clerk. She assisted the store's customers, marked merchandise, and made window displays.

Student #15-F - Placed in January at St. Mary's Hospital in Norton, Virginia, as a nurse's aide. Her tasks included taking and recording vital signs, care of open, closed and occupied beds, and general hospital clean-up work.

Student #16-F - Placed in January at Jerky's Restaurant in Pound, Virginia, as assistant cook. Her duties include preparation of meals, clean-up of tables, and dish washing.

Student #17-F - Placed in February at the DILENOWISCO Educational Cooperative, Norton, Virginia, as an office assistant. Her duties consisted of separating papers, stapling papers, and errands delegated by the secretaries.

Student #18-F - Placed in February at the DILENOWISCO Educational Cooperative, Norton, Virginia, as an office assistant. Her duties consisted of separating papers, stapling papers, and duties delegated by the media department.

Student #19-F - Placed in February at the DILENOWISCO Educational Coooperative, Norton, Virginia, as an office assistant. Her duties consisted of separating papers, stapling papers, and duties delegated by the media department.

Student #20-M - Placed in February at Modern Hardware and Furniture Company in Clintwood, Virginia, as a general delivery boy. His tasks included loading and unloading of merchandise and making home deliveries.

Student #21-M - Placed in March at Curt's Body Shop in Ervinton, Virginia, as an auto body repair assistant. His tasks included straightening fenders, application of bondo, sanding and painting of car bodies.

Student #22-F - Placed in March at the Wise County Public Library, Wise, Virginia, as a library aide. This position involved cleaning shelves, arranging and reading shelves of magazines and books, and updating the newspaper shelves.

Student #23-F - Placed in March at the Big Stone Clinic, Big Stone Gap, Virginia, as a nurse's aide. Her tasks includes determining the weight and height of the out-patients, taking temperatures and blood pressures and reporting this information on the patient's chart.

Student #24-M - Placed in March at the Clinchco Sanitation Department, Clinchco, Virginia, as a collector on one of the trash disposal units for the city of Clinchco.

Student #25-F - Placed in March at Colony Drug, Wise, Virginia, as a clerk. Her duties included waiting on the store's customers, working cash register, and making up the U.M.W.A. report.

Student #26-M - Placed in March at the Mountain Housing Development Corporation, Clintwood, Virginia, as a carpenter-helper. This position involves assisting the carpenters and masons in the construction and repair of housing projects. His tasks includes carrying materials, mixing mortar, and installing insulation.

Student #27-F - Placed in April at the Garment Factory in Coeburn, Virginia, as a cutting-room worker. Her tasks included making and counting labels, sorting different parts of material that had been cut, and helping in the office.

Student #28-M - Placed in April at the Mountain Ford Sales, Clintwood, Virginia. He is responsible for washing the new and used cars on the lots and assisting the maintenance workers.

Student #29-M - Placed in April at the Mountain Ford Sales in Clintwood, Virginia. He is responsible for washing the new and used cars on their lots and assisting the maintenance workers.

Student #30-F - Placed in May at the Mullin's Theater in Clintwood, Virginia, to work in the ticket booth. Her tasks include selling tickets at the door and checking up the money at night.

Student #31-M - Placed in May at the B.P. Service Station in Clintwood, Virginia, as a service station attendant. His tasks include pumping gas and general service to automobiles.

Student #32-M - Placed in May at the Mountain Housing Development Corporation in Clintwood, Virginia, as a carpenter-helper. This position involves assisting carpenters and masons in the construction and repair of housing projects. His tasks include carrying materials, mixing mortar, and installing insulation.

Student #33-F - Placed in May at the Mountain Housing Development Corporation in Clintwood, Virginia, as a carpenter-helper. This position involves assisting carpenters and masons in the construction and repair of housing projects. His tasks include carrying materials, mixing mortar, and installing insulation.

Student #34-F - Placed in June at Doris's Beauty Shop in St. Paul, Virginia, as a shampoo girl. Nina's tasks include shampooing hair, preparing equipment and solutions, and general clean-up work.

Student #35-F - Placed in June at Clinch Valley Manor Nursing Home in Wise, Virginia, as a nurse's aide. This student dropped out of school this year and this is a permanent position. Her duties will entail all the tasks she learned to perform in nursing class.

APPENDIX J

EMPLOYER'S EVALUATION PROGRESS REPORT

ATTITUDE AND INTEREST

_____1. Attitude and interest seem to be at a low level.
_____2. Interest and attitude has remained the same throughout employment.
_____3. Interest and attitude has improved but student hesitates to accept new tasks.
_____4. Seems more willing to accept new tasks and seems to have a genuine interest.

ADAPTABILITY

_____1. Has difficulty working with others and often antagonizes fellow workers.
_____2. Gets along well with most employees, but has difficulty working as part of a team.
_____3. The student has adjusted easily with other employees and is a good team worker.

QUALITY OF WORK

_____1. After close instruction and supervision, the student cannot accomplish the job.
_____2. After close instruction and supervision, the student accomplishes the job.
_____3. After close instruction of a task, the student does a good job.
_____4. Student grasps ideas quickly and does the job well.

DEPENDABILITY

_____1. Unreliable and poor attendance.
_____2. Sometimes neglectful and attendance is irregular.
_____3. Requires little supervision and is usually present.
_____4. Always present - never late and entirely dependable.

STUDENTS TOTAL PERFORMANCE CONSIDERED

_____1. Poor worker.
_____2. Fair worker, but needs more improvement.
_____3. Good worker.
_____4. Very good worker, improved and constantly improving.

VT 016 344
MCMINN, JAMES H.
THE CAREER-CENTERED CURRICULUM FOR THE VOCATIONAL COMPLEXES IN MISSISSIPPI. SECOND INTERIM REPORT.

MISSISSIPPI STATE BOARD FOR VOCATIONAL EDUCATION, JACKSON.
BUREAU OF ADULT, VOCATIONAL, AND TECHNICAL EDUCATION (DHEW/OE), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
OEC-0-70-5177 (361)
PUB DATE - JUN72 90P.

DESCRIPTORS - *CAREER EDUCATION; *OCCUPATIONAL GUIDANCE; WORK EXPERIENCE PROGRAMS; *VOCATIONAL DEVELOPMENT; *DEVELOPMENTAL PROGRAMS; *INTEGRATED CURRICULUM; ELEMENTARY GRADES; SECONDARY GRADES; BEHAVIORAL OBJECTIVES; SELF CONCEPT; POTENTIAL DROPOUTS; CURRICULUM DEVELOPMENT; PROGRAM EVALUATION

ABSTRACT - THIS SECOND ANNUAL INTERIM REPORT ON A 3-YEAR FEDERALLY FUNDED EXEMPLARY PROJECT IN VOCATIONAL EDUCATION DELINEATES THE RESULTS OF AN INTEGRATED CAREER DEVELOPMENT PROGRAM FOR THE ELEMENTARY AND SECONDARY GRADES, STRESSING "HANDS-ON" EXPLORATORY OCCUPATIONAL EXPERIENCES, OCCUPATIONAL GUIDANCE, JOB TRAINING AND PLACEMENT, AND COOPERATIVE EDUCATION. COMMUNITY INVOLVEMENT, CURRICULUM DEVELOPMENT, INSERVICE EDUCATION, TEAM TEACHING, AND PROGRAM EVALUATION WERE SUCCESSFULLY IMPLEMENTED BY THE SECOND YEAR, AND CONTINUATION OF THE PROGRAM WAS RECOMMENDED. CLASSES FOR POTENTIAL DROPOUTS AND REMEDIAL EDUCATION CLASSES ARE EMPHASIZED. THE PROGRAM AIMS TO DEVELOP BASIC SOCIAL, PSYCHOLOGICAL, AND VOCATIONAL SKILLS BY ENHANCING SELF AWARENESS AND PERSONALITY DEVELOPMENT AND STRESSING A COMPREHENSIVE CAREER EDUCATION APPROACH. (AG)

SECOND INTERIM REPORT

Project No. 0-361-0067
Contract No. OEC-0-70-5177 (361)

THE CAREER-CENTERED CURRICULUM FOR THE VOCATIONAL COMPLEXES IN MISSISSIPPI

Exemplary Project in Vocational Education
Conducted Under
Part D of Public Law 90-576

James H. McMinn
Mississippi State Board for Vocational Education
P. O. Box 771
Jackson, Mississippi 39205

VT016344

June 1972

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EDUCATION & WELFARE
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SECOND
INTERIM REPORT

Project No. O-361-0067
Grant or Contract No. OEC-0-70-5177 (361)

THE CAREER-CENTERED CURRICULUM FOR THE VOCATIONAL COMPLEXES IN MISSISSIPPI

Exemplary Project in Vocational Education
Conducted Under
Part D of Public Law 90-576

The project reported herein was performed pursuant to a grant with the Bureau of Adult, Vocational, and Technical Education, Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

James H. McMinn
Mississippi State Board for Vocational Education
P. O. Box 771
Jackson, Mississippi 39205

June 1972

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SUMMARY

Period Covered: July 1, 1971 - June 30, 1972

Goals and Objectives of Project:

The goal of this exemplary program is to provide guidelines and give impetus to the development of career-centered curriculums for vocational complexes in Mississippi. It is designed to develop and demonstrate to teachers, administrators, and to the public a coordinated and integrated program of career development from the first grade through post-secondary vocational-technical education.

Emphasis is being placed upon demonstrating that exploratory occupational experiences are essential ingredients in the educational experience of all students if they are to arrive at sound career decisions. This is being accomplished through relating the exemplary program to existing educational opportunities at the elementary, junior high, secondary, and adult levels.

To attain the goal of the exemplary program the following specific objectives were established:

* To relate occupational instruction and counseling to elementary students and faculty members.
* To establish an intensive program of occupational guidance and counseling in the junior high and secondary schools.
* To implement the Occupational Orientation Program for all students in the junior high schools.
* To provide cooperative education (work-experience) through local businesses and industries.
* To provide a wide variety of occupational training programs through the vocational complex and post-secondary vocational-technical center (community college).
* To provide intensive occupational training programs during the day or evening for those about to leave school without salable skills.
* To establish the career-centered curriculum as an integral part of the school system's curriculum.
* To provide adequate placement and post-training work counseling for students.
* To develop curriculum guides and instructional materials which might be utilized by other career-centered programs.
* To stimulate career-centered curriculum development in other school systems.

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Procedures:

The procedure designed to implement the career-centered concept spans all levels of the educational ladder. It places heavy emphasis upon re-orientation of the traditional school concept about occupational education. During the process students are exposed to occupational education as they enter the elementary school and continue learning about, and preparing for the world of work as they progress through elementary, junior high, secondary, and post-secondary schools in the area.

The procedure views the levels of occupational education as being a pyramid, with students making decisions about careers and needed training based upon broad exploratory experiences and counseling obtained through the program. As students narrow their choices about occupational selections, individual occupational experiences become more sophisticated and intensified.

The process begins with the elementary schools providing students with sufficient occupational information and counseling to meet the needs of all children according to their interests and abilities. To accomplish this basic goal, local exemplary program personnel are providing basic services to the elementary faculties. These services include obtaining occupational information, providing counseling, and providing resource persons to be utilized by the elementary faculties. In addition, workshops, seminars, and field trips are held to assist the elementary faculties to incorporate career development into the regular instructional program.

In the junior high school, students expand and intensify their exploratory experiences in the world of work through a specially designed course, Occupational Orientation. In Occupational Orientation, the students' self-awareness of the world of work is increased by capitalizing upon the introduction to occupational information received at the elementary level. The course is designed to provide exploratory experiences in a broad range of occupational categories and levels, with opportunities for students to make comprehensive educational and occupational decisions rather than being forced into limited choices. In the course, the students are brought to grip with self and society, self and occupation, and self and personality development. Throughout the course the students see career development in logical sequenced steps traversing the entire occupational choice process.

The career-centered curriculum at the senior high school level is a continuation of exploratory experiences received by students in the elementary and junior high levels, with additional emphasis being placed on occupational preparation activities. Students receive assistance in planning for and attaining vocational goals and preferences, either in the form of additional vocational training or work experiences. These experiences are obtained by the students through the vocational programs of agriculture, auto mechanics, building trades, cooperative education, consumer home economics, general metal trades, industrial

electricity, or office occupations, which are offered either in the three high school attendance centers or in the area vocational complex.

A concerted remedial program is operated for students who are identified as potential dropouts in conjunction with the exemplary program. This remedial program is equipping potential dropouts with competence and skills necessary for pursuing further vocational training in keeping with their occupational objectives.

Results:

A total of 25 new professional level staff positions were utilized in the project during the second year. During the year all personnel were engaged in an intensive in-service training program which enhanced the overall effectiveness of the program. In connection with these activities new materials and techniques were developed.

Elementary teachers in the ten attendance centers worked on curriculum committees which integrated career education materials into the ongoing curriculum. Many new occupational songs, games, plays, etc. were developed for use with elementary students.

Occupational orientation course content was revised to include six rotation areas designed around occupational clusters. This facilitated increased use of team teaching, "hands-on" experiences, field trips, and resource persons.

The cooperative education program made much progress in increasing enrollment and training stations during the second year of operation. Remedial education classes continued to serve students in order to assist them in attaining their educational and occupational objectives. Intensive short-term training was made available to students about to leave school (both those about to dropout and those about to graduate) with salable occupational skills. Placement offices were established and functioned in each of the three combination junior-senior high school attendance centers. Placement activities were of both the in-school and out-of-school types.

Community involvement was at a much greater level than in the previous year. A concerted effort at dissemination and public relations was maintained. Dissemination was accomplished through news media, professional meetings, open house, visits from personnel in other school systems (state, region, and nation), in addition to phone calls and correspondence concerning the project.

Evaluation:

The evaluation procedure centers around the use of the program's educational goal and objectives as a standard by which the outcome of the project was assessed. Evaluation activities for the first year of operation were centered around the "process." The procedure included

data collection; analysis of records and reports; judgments of qualified observers; analysis of instructional materials, techniques, and methods; analysis of equipment and supplies, purchase and utilization; analysis of program activities; and analysis of opinions of program staff, State Division of Vocational and Technical Education personnel, consultants, school system faculty and administration, parents, and students.

The evaluation analysis indicated that all recommendations made during the first year of operation by the third party evaluation contractor were implemented during the second year of operation. Approximately 39 percent of all the school system's students (grades 7-12) were enrolled in occupational preparation programs (agriculture, building trades, business and office, etc.).

During the second year of operation, progress was made in "fusing" the career-centered concept into the ongoing curriculum at the elementary level. Inservice activities continued at a high level for all project personnel. Changes were made in the occupational orientation course which provide for greater use of team teaching. This resulted in the increase in the number of "hands-on" occupational experiences students received. The use of pre-test and post-test instruments indicated approximately a 40 percent increase in occupational knowledge in a six weeks period. Exemplary program students consistently rated higher in occupation knowledge than did comparison groups.

Placement centers were established at each of the junior-senior high school attendance centers, and in-school and out-of-school placement occurred.

Remedial courses contained maximum enrollments. An intensive short-term skill training program for those about to leave school (both by graduation and dropping out) without occupational skills was implemented during the second year of the program's operation. Special emphasis was placed on dropout-prone students by this intensive skill training program.

Upon analysis of evaluative data, it was concluded that the project was making progress toward the attainment of its goal and objectives and should be funded for the third year of operation.

Conclusions and Recommendations:

By the end of the second year of the project's operation, additional insights into the operational facet of the career-centered concept had been gained. Information provided by the first and second year of operation provided for a smooth implementation of the career-centered concept in four additional school systems in the State. The most successful components of the project enhanced the immediate accomplishment of objectives established by the other school systems.

It was concluded that important progress was made by the project during the year in assisting students in developing skills which would enable them to adjust to changes within the world of work. In addition, progress was made in assisting students in developing psychological skills and occupational skills which will serve as a base for continuous growth and advancement in chosen careers.

Satisfactory progress was made during the second year of operation toward meeting the project's objectives. Two objectives, (1) implementation of short-term intensive skill training for students about to leave school without salable skills and (2) establishment of placement offices, which had not been implemented during the first year of operation were implemented during the second year. All phases of the project are in operation and making satisfactory progress toward fusing the career-centered concept into the school system.

Recommendations resulting from the second year's report are as follows:

* Funding should be contineud for the third year of operation.
* Continued emphasis should be placed on providing remedial education classes for all students needing this service.
* Continued emphasis should be given to making the project an integral part of the ongoing school system's activities.
* Curriculum guides (grades 1-12) should be refined and printed in sufficient quantities to provide copies for other school systems.
* Additional student recruitment activities for all vocational courses should be conducted.
* A feasibility study on providing additional vocational offerings for the school districts should be conducted.
* Continued emphasis should be placed on providing short-term intensive skill training for dropout-prone students.
* Placement services should be continued and expanded.
* Public relations activities connected with the program should be continued.
* Intensive inservice training for project personnel should be continued.
* Plans should be finalized for the continuation of the program as Exemplary Funds are phased out.

I. PROBLEM

The exemplary project propsed herein views the student's total school experiences as preparation for life, with earning a living as the prime focus. This view can be slightly extended by stating that people need at least three types of skills, namely: (1) sociological skills in order to adjust to and participate in determining the direction of change, the interactional involvement in local community, state, national, and international concerns; (2) psychological skills to enable the individual to achieve self-awareness, to develop certain self-perceived desirable personal characteristics as opposed to the mere expression of those which one might accidentally possess; and (3) occupational skills which afford the individual an opportunity to earn a living and which serve as a base for continuous growth and advancement in a chosen career.

To provide students with these minimal skills is the general aim of the career-centered curriculum. The implication is that the components of the entire school system could be focused on the career development concept. There is ample evidence that traditional curriculums do not necessarily provide the desired percentages of persons with these minimal skills (Shill, 1968A, 1968B, 1968C; Boykin, 1968; see Appendix A). For example, approximately 30 percent of all U. S. students leave school before high school graduation (Grant, 1965). Statistics in the Mississippi State Plan for Vocational Education indicate that the percentages of students who do not complete high school are greater for Mississippi than the national averages, and dropouts exceed 50 percent in some counties. In addition to the dropouts are those students who, after completion of high school, face career choice decisions as they enter the world of work. Similarly, those students who choose some type of post-secondary education also need help in the development of their individual careers. So it is that the career-centered curriculum is for all students, and should be designed so that various aspects of it are well articulated at various levels.

There is ample evidence to indicate that students are vitally interested in their career development at early ages and this interest continues as they mature (Slocum and Bowles, 1967; Campbell, 1968). Evidence also indicates that traditional curriculums do not emphasize career planning, i.e., students receive more career information from sources outside than inside the school system (Shill, op. cit.).

Recent consensus seems to support the premise that work has potential for meeting more than just economic needs. Among other things, it also provides for social interaction, personal dignity, self-identity, and an entree into adulthood. Traditional curriculums have not assisted individuals to perceive work as having personal relevance, as being critical to one's determining his own life style, or as being a means that contributes to self-fulfillment.

Many youths have a limited awareness of the career choices that may be open to them. This seems especially true for those who have been reared in so-called disadvantaged environments. Social class restrictions, much like traditional curriculums, have tended to limit opportunities for career development.

The career-centered curriculum in this project is designed to alleviate some of the problems just mentioned.

II. GOALS AND OBJECTIVES

The Mississippi Occupational Orientation Program (OOP) is one concept stressed in this exemplary project. The OOP was initiated in 165 Mississippi schools in the fall of 1969. The program consists of six units. The OOP is designed primarily for grades 7-9. Students at the junior high level become informed about and oriented to the world of work. The concept of self-awareness is expanded and continued from activities gained in the elementary levels. Self-esteem receives prime consideration in the OOP.

The OOP provides activities and exploratory experiences which enhance self-understanding as a person in the world of work. For the inevitable dropout these activities and experiences will need to be compressed into a shorter time span than would otherwise be desirable for the college bound and terminal high school graduates. Entry level occupational and adjustment skills are essential for the prospective dropout. For students who terminate their education with high school graduation, the OOP provides opportunities for exploration of a broad range of occupational categories and levels. The OOP provides the college bound students with opportunities to make educational and occupational decisions instead of forcing them into limited choices.

The self concept is integrated throughout the OOP because of its importance in shaping individual behavior. The student is brought to grips with self and societal institutions, self and environment, self and occupation, and self in the personality development process. The OOP aids the student to see career development in logically sequenced steps, the route through which forms a pyramid with the broad informational and orientational base being gained in earlier years and the apex or final career being realized after traversing the entire choice process. Experiences in the OOP aids students in the following ways:

(1) Evaluation and assessment of personal characteristics--interests, abilities, values, needs, and the progressive synthesis of such characteristics when related to occupational roles.

(2) Exploration of occupational areas--to develop the student's concept of occupations, not only of the occupational requirements in terms of necessary education and training, but also the social and psychological requirements of jobs.

(3) Appreciation of economic and social values of work-- the contributions to society that one makes through his occupation, the economic importance of individual earning power.

(4) Appreciation of the psychological and sociological meaning of work--self-fulfillment as a significant result of meaningful work, development of interactional relationships through occupations, status roles gained through occupations.

(5) Recognition of interrelationships between education and occupations--the continuous nature of education as related to occupational advancement.

(6) Involvement in the decision-making process--the sequential nature of decisioning, factors and abilities which facilitate decisioning.

The career-centered curriculum at the senior high school level should include a continuation of exploratory experiences, with additional emphases being placed on occupational preparation activities. Students would receive assistance in planning for and attaining vocational goals and preferences, either in the form of jobs or additional training. Elements of work-experience and cooperative education programs would be used at this level. These activities provide the "hands-on" experiences which allow students to analyze work in relation to self.

The vocational development framework posited by Havighurst (Havighurst, 1964) provides a theoretical base from which to operationalize the curriculum at this point. The third stage of this framework emphasizes choosing and preparing for an occupation, and getting work experience as a basis for occupational choice and for assurance of economic independence. In addition the following principal developmental tasks need to be accomplished during the ages of 15-25 years:

(1) Achieving new and more mature relations with age mates of both sexes.
(2) Achieving a masculine or feminine social role.
(3) Achieving emotional independence of parents and other adults.
(4) Achieving assurance of economic independence.
(5) Selecting and preparing for an occupation.
(6) Acquiring a set of values and an ethical system as a guide to behavior.
(7) Preparing for marriage and selecting a mate.

(8) Starting a family.
(9) Getting started in an occupation.

In order to complete the career development process, a placement office will be initiated. The coordinator will establish relationships with the local Mississippi Employment Security Office as well as develop close contacts with local businesses and industries. Detailed planning of various aspects of the curriculum at this point will demand the combined thinking of the placement coordinator and the cooperative education coordinator. Systematic follow-up of students might well be coordinated by the placement office.

Objectives

* To relate occupational instruction and counseling to elementary students and faculty members.
* To establish an intensive program of occupational guidance and counseling in the junior high and secondary schools.
* To implement the Occupational Orientation Program for all students in the junior high schools.
* To provide cooperative education (work experience) through local businesses and industries.
* To provide a wide variety of occupational training programs through the vocational complex and post-secondary vocational-technical center (community college).
* To provide intensive occupational training programs during the day or evening for those about to leave school without salable skills.
* To establish the career-centered curriculum as an integral part of the school system's curriculum.
* To provide adequate placement and post-training work counseling for students.
* To develop curriculum guides and instructional material which might be utilized by other career-centered programs.
* To stimulate career-centered curriculum development in other school systems.

III. DESCRIPTION OF THE PROJECT

The exemplary project, a Career-Centered Curriculum for Vocational Complexes in Mississippi, is located in the Jones County School System. The system is located in the Coastal Plains area of the southeastern part of Mississippi. The county is classified as being depressed and has a high rate of unemployment.

The school system is made up of ten elementary schools which feed into three combination junior-senior high schools. The three high schools serve as feeder units for a centrally located vocational complex. In addition a community college which includes a post-secondary vocational-technical program is located within the county.

The Jones County School System has an enrollment of approximately 8,000 students, with a professional staff of some 380 teachers and administrators. It serves a school district with a population of approximately 61,000, of whom 25 percent are described as being "disadvantaged."

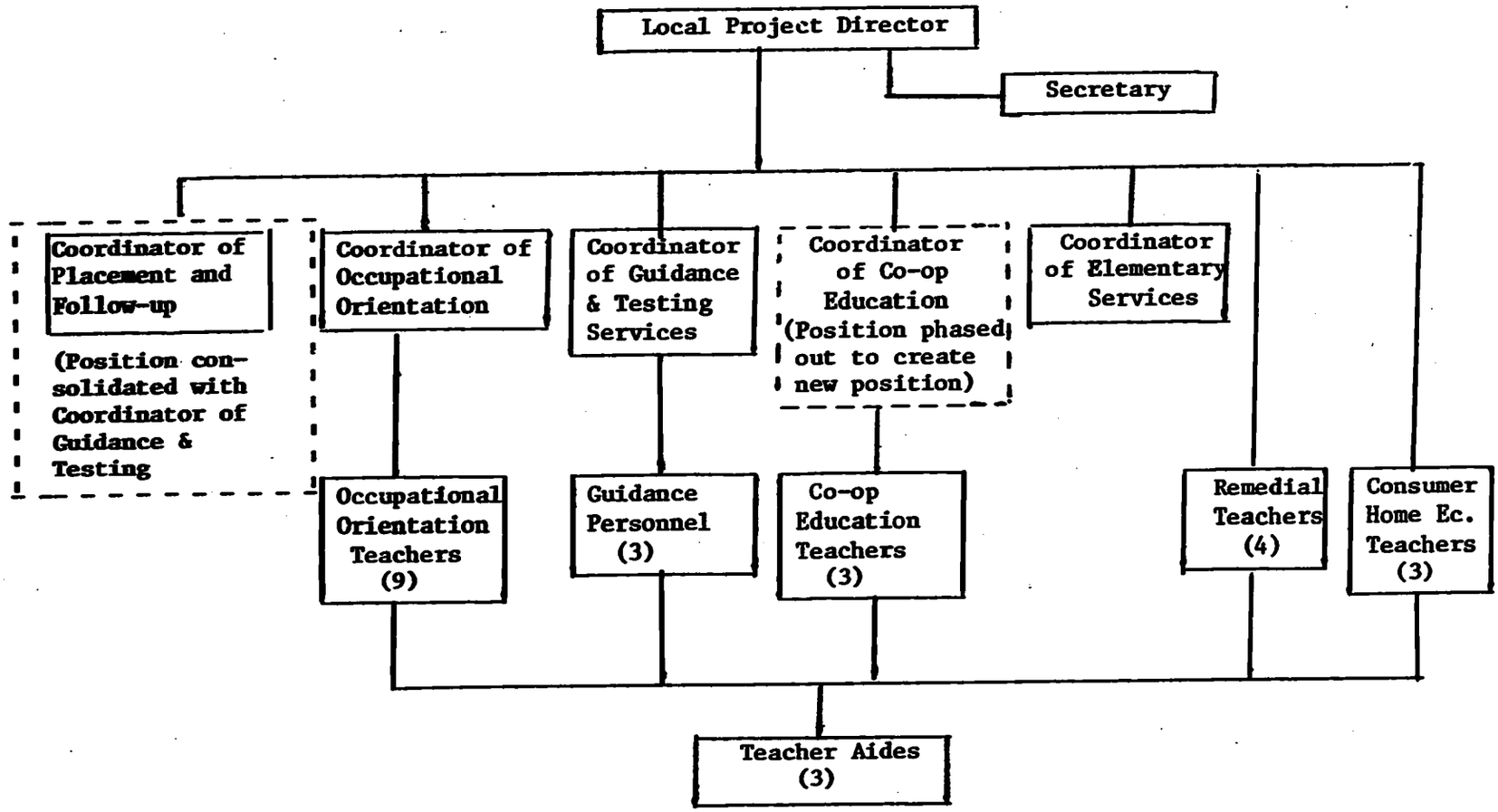
A total of 27 new professional level staff positions were utilized in the implementation of the program at the local level. This number included positions in administration, coordination, counseling, and instruction. In addition, one secretarial position and three teacher aide positions were utilized in the project implementation. All 27 professional-level positions were filled with persons meeting the State certification requirements and having a minimum of a bachelor's degree. Approximately 26 percent of the persons employed held a master's or higher degree. The professional-level positions and administrative structure of the program are shown in Figure I.

The procedure designed to implement the career-centered concept spanned all levels of the educational ladder. It placed heavy emphasis upon reorientation of the traditional school concept about occupational education. During the process students are exposed to occupational education as they enter the elementary school and continue learning about, and preparing for the world of work as they progress through elementary, junior high, secondary, and post-secondary schools in the area.

The procedure viewed the levels of occupational education as being a pyramid, with students making decisions about careers and needed training based upon broad exploratory experience and counseling obtained through the program. As students narrow their choices about occupational selections, individual occupational experiences became more sophisticated and intensified.

The process began with the elementary schools providing students with sufficient occupational information and counseling to meet the needs of all children according to their interests and abilities. To accomplish this basic goal, local exemplary program personnel provided basic services

Figure I. LOCAL EXEMPLARY PROJECT ADMINISTRATIVE STRUCTURE



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to the elementary faculties. These services include obtaining occupational information, providing counseling, and providing resource persons to be utilized by the elementary faculties. In addition, workshops, seminars, and field trips are held to assist the elementary faculties to incorporate career development into the regular instructional program.

In the junior high school, students expand and intensify their exploratory experiences in the world of work through a specially designed course, Occupational Orientation. In Occupational Orientation, the students' self-awareness of the world of work is increased by capitalizing upon the introduction to occupational information received at the elementary level. The course is designed to provide exploratory experiences in a broad range of occupational categories and levels, with opportunities for students to make comprehensive educational and occupational decisions rather than being forced into limited choices. In the course, the students are brought to grip with self and society, self and occupation, and self and personality development. Throughout the course the students see career development in logical sequenced steps traversing the entire occupational choice process.

The career-centered curriculum at the senior high school level is a continuation of exploratory experiences received by students in the elementary and junior high levels, with additional emphasis being placed on occupational preparation activities. Students receive assistance in planning for and attaining vocational goals and preferences, either in the form of additional vocational training or work experience. These experiences are obtained by the students through the vocational programs of agriculture, auto mechanics, building trades, cooperative education, consumer home economics, general metal trades, industrial drafting, industrial electricity, or office occupations, which are offered either in the three high school attendance centers or in the area vocational complex.

A concerted remedial program is operated for students who are identified as potential dropouts in conjunction with the exemplary program. This remedial program is equipping potential dropouts with competence and skills necessary for pursuing further vocational training in keeping with their occupational objectives.

The career-centered concept is enhanced by the availability of extensive vocational-technical training available through an area post-secondary school (Jones County Junior College). The vocational programs at the junior college are open-ended and accept students at any level who can make progress in the occupational training programs. Offerings available in the post-secondary facilities include: forestry, horticulture, livestock, technology, distribution and marketing, supermarket training, practical nursing, data processing, secretarial science, building construction technology, drafting and design, electronics technology, mechanical technology, air conditioning and refrigeration, auto mechanics,

horology, machine shop, radio and television repair, and welding.

IV. RESULTS AND ACCOMPLISHMENTS

Major Activities:

The fifth quarter of project operation could be characterized as a period of program review, planning, and materials development. In addition, the second school year was begun in an orderly fashion. The project was well supplied with instructional materials and equipment at the opening of school, which enhanced the interest of students. Refined instructional methods and techniques, along with newly-developed resource materials increased the interest of students.

During the period project personnel's duties and responsibilities were reviewed and some changes were made in staff assignments. The responsibilities of the Coordinator of Placement and Follow-up and the Coordinator of Guidance and Testing were consolidated into one functioning position. The position of Coordinator of Elementary Services was also fully implemented during the period. Personnel new to the project also received special orientation during this reporting period.

Continuation of intensive inservice training activities during the quarter resulted in the development of a comprehensive teaching guide for Career Education, Levels I and II, by occupational orientation personnel. In addition, tentative plans were outlined and work was begun on the development of a teaching guide for Career Education, Level III, which is to be implemented during the 1972-73 school year. Occupational Orientation I classes have been divided into six units encompassing approximately six weeks duration each. For the first two units (12 weeks) a class remains with its assigned teacher. Then it rotates for three units (18 weeks) to three other teachers with special expertise to increase their knowledge and experiences in the world of work. The class then returns to its assigned teacher for the final unit (six weeks). Upon completion of the rotation system each student will have been oriented to more than four hundred occupations, with indepth study of those of particular interest.

Occupational Orientation II has been implemented at all junior-senior high school attendance centers. This course was especially designed for upper level senior high school students who had not participated in Occupational Orientation I during the last school year. During the first six weeks period the students were given an introductory unit similar to that of Occupational Orientation I. However, these classes will focus their extensive studies in the latter units on occupations of interest to individual students rather than studying large numbers of occupations.

During the period the Coordinator of Elementary Services established effective working relationships with elementary faculties and administrators concerning further implementation of the career-centered concept in the elementary schools. Committees composed of elementary personnel and project personnel developed techniques and procedures for further implementation of the career-centered concept. The coordinator visited each of the ten elementary attendance centers on a two-week interval basis for scheduled meetings and follow-up visitations. However, the coordinator was frequently called by individual teachers in different attendance centers for aid at times other than scheduled visits.

Some occupational activities being conducted in the elementary attendance centers are readily visible within the schools. Classrooms containing bulletin boards depicting occupational themes are noted, occupational "coloring books" are being utilized by children in the lower elementary grades, posters on occupations are evident along with many other materials assisting elementary students in becoming aware of the world of work. An example of approaches being utilized to motivate elementary students in exploring the world of work while studying the "three R's" was found in one classroom. The students were studying about the use of forest products. The students then built a replica of the local wood utilization plant. They then studied the process through which the wood went to make the product and each occupation that was involved in the making and marketing of the product. Persons from the local wood utilization plant were used as resource persons.

The project facilities at the opening of school were very good and the project plan in most areas is progressing rapidly. Occupational orientation teachers' class schedules generally include four classes of occupational orientation and one study hall. Remedial teachers' schedules consist of five remedial classes.

Size of cooperative education classes has increased and the lack of available training stations does not appear to be the problem it was during the program's first year of operation.

Improved communication patterns succeeded in increasing the effectiveness of the entire project. All personnel within the school system (both project personnel and general faculty) appear to be more aware of the entire project's goals, functions, activities, and progress than previously. This has resulted in an observable attitude improvement on the part of personnel (both those directly and indirectly related to the project) concerned with the exemplary project. In addition, increased efficiency in communication between local project personnel and the State Division of Vocational-Technical Education resulted.

Counselors in the attendance centers met on a weekly basis at the centrally located vocational complex to coordinate activities. These meetings improved communications and provided for a unified attempt at meeting the needs of the project as well as the school system in

general. These meetings have in turn resulted in an ever-increasing awareness of the entire school system's vocational program.

During the sixth quarter each attendance center's occupational orientation met on a weekly basis for planning, coordination, and implementation activities. These meetings, widely involving personnel, have apparently enhanced all aspects of the program. They were especially important in bringing about change and redirection within the instructional program. In addition, they facilitated the implementation and the reaching of goals and objectives.

The occupational orientation resource center in each of the attendance centers was further equipped with shelving, materials, and supplies during the period. This increased the overall effectiveness. Evaluation personnel noted that last year's occupational orientation students were returning during their own free time to use resource center materials. These former occupational orientation students were observed investigating potential careers and/or making preliminary career plans. Based upon these and other observations, the first year of occupational orientation was successful in increasing the career-awareness and planning ability of participating students.

During the period, evaluation personnel, along with project personnel, were engaged in the development of instruments for assessment of the goals and objectives of this phase of the program. Five instruments were being developed for pre-and post testing of the rotation areas in the occupational orientation course. An overall instrument was being developed for use with students within the program and control groups in other school systems. Prior to development of these instruments several batteries of standardized tests and/or questionnaires were utilized in an attempt to measure student progress. These standardized tests proved to be unsatisfactory with respect to measuring students' progress in relationship to the program goals. Field testing of the instruments and final revision took place during the reporting period.

Special emphasis was given by elementary teachers within the respective attendance centers to more effective methods of integrating career education into the ongoing curriculum. The elementary coordinator for the project assisted teachers in planning groups, and individually, in developing techniques for presenting career education to elementary students.

The Course of Study Committees continued to develop plans and courses of study for career education. Through these plans more effective utilization of career development materials was accomplished. A sixth grade unit was developed during the period which effectively integrates materials concerning self-improvement with the goals of the program.

During the period teachers and students constructed new occupational games, songs, verses, and plays. These new materials were duplicated and distributed to all elementary teaching personnel as they were developed.

An intensive survey of all career education materials currently available in the elementary schools was conducted. The findings were printed and made available to all teachers to facilitate knowledge and use of the materials. This assisted the teachers in planning for classroom use and provide a baseline for new materials requisition.

There was an observable increase in the number of occupational resource persons utilized in the elementary schools during the period. Parents, as well as other resource persons, were utilized effectively in bringing the world of work into the classroom. One organized activity which created much interest in several elementary schools was the use of firemen as resource persons. They explained their occupation to the students and demonstrated the use of fire-fighting equipment.

A pre- and post test instrument was under development for the elementary level during the period. The instrument was field tested and then given as a pre-test to a random sample of students in the elementary schools.

The cooperative education program has made much progress in respect to providing training stations and placement of students. Staff members visited numerous prospective employers to explain and obtain support for the cooperative program. These visitations should enhance the opportunity for future growth, in number, of training stations available, thereby allowing for increased future enrollments.

During the period special emphasis was given in the instructional program to orientation to the cooperative program which included: (1) job application procedures and techniques: (2) financial management; (3) employment standards; (4) employer's operations; and (5) individual student guidance.

The Stanford Achievement Test was utilized in identifying students which might benefit by remedial instruction. Identified students were further assessed by using individual diagnostic tests to determine specific areas of weakness. Through the utilization of test results, individualized programs of instruction were subsequently planned for each student involved in the remedial program.

During the period a pilot program was placed into operation in one high school attendance center. The program is designed to test the efficacy of utilizing peers as teacher aides in the remedial program. Preliminary indications are that the use of peers as aides has enhanced the progress of remedial students. However, the program has not been in operation for a sufficient length of time to completely evaluate its effectiveness.

Special emphasis was given to the individual counseling of students enrolled in the remedial program. Student interests were channeled into career awareness and emphasis was placed upon vocational planning and preparation for these students.

During the period the role of the vocational counselors has been expanded. A greater portion of the counselor's activities were devoted to the identification and involvement of students in preparing for the world of work.

Counselors held weekly staff meetings with teachers, administrators, and central office personnel. These meetings aid in assessing the activities of the program; assist in identification of specific problems; and provide opportunities for all concerned to assist in problem solutions. Involvement of all personnel in the meetings has facilitated communications and has given similar directional focus to program activities within the system.

Group counseling techniques were utilized, as well as individual techniques, to enhance students' involvement in the program. Increased use of group counseling has resulted in more student-counselor contact. Apparently the contact students have with counselors during group sessions tends to remove some of the inhibitions students usually show in initial individual sessions.

During the seventh and eighth quarters of program operation meetings of personnel of the Jones County Exemplary Program were held, including faculty members representing all areas utilized within the project and personnel of agribusiness and natural resources from within the district. The primary objective of these meetings was to inform and/or clarify the role and purposes of the Exemplary Program of Jones County as it relates to the total educational process. Plans for a curricular workshop on the Mississippi State University campus were made to further expedite the career education curriculum in the schools of Mississippi. Also included in the meeting was the reviewing and refinement of the Jones County Career Education Curriculum Guide. This meeting was held in facilities furnished by the Curriculum Coordinating Unit and was attended by the State Project Director, State Vocational and Technical personnel, the local project director, three coordinators and two teachers of the exemplary program, in conjunction with staff members of the Curriculum Coordinating and Research Coordinating Units. Members of the Curriculum Coordinating provided assistance and recommendations for the refinement of curriculum guides.

Other activities attended by personnel of the exemplary program were the Mississippi Vocational Education meeting and the Mississippi Education Association meeting, plus sectional meetings of respective service areas in vocational education.

In an attempt to assess the progress of the students, evaluative instruments (pre-test and post-test) were developed and field tested by the third party evaluation personnel and project personnel. Items for the tests were based on questions submitted by teachers of career education. The tests represented the following areas: (1) industrial arts; (2) consumer education; (3) production, distribution, and management; and (4) public service. Once a compilation of test questions was made, a random sample of students was taken to form a control group. The test was then given to the control group and the scores were tabulated and summarized. After reviewing the results of the pre-test on the control group, refinement of the test was finalized and the pre-test was given to all the students preceding classroom experiences. After students were exposed to experiences in career education, a post-test was given.

In order to enhance the effectiveness of the instructional process, field trips have been used extensively. After students were grouped into interest areas, vivid experiences for the students were more easily attained. Field trips were centered around the interest areas expressed by each group. Individualized field activity centered around a particular student's interest was stressed where possible. This gave students an opportunity to see "first hand" the knowledge areas and competencies needed for a particular occupation. This type activity helps utilize the job analysis approach where classroom experiences of this type were almost impossible. If the preceding type of activity was not available, an activity centered around modular programmed instruction was utilized. During these experiences students were given opportunities to listen to tapes, view slides, etc. Students were also guided through the steps of the scientific method in order to develop decision-making skills and to explore the available avenues of occupational research.

Team teaching was utilized and proven to be quite effective in the program. This approach was implemented in order to give more detailed or indepth instruction to the different interest groups. This approach also utilized to a greater extent "hands-on" experiences. The "hands-on" activities of the students continue to be an integral part of career education.

Several local inservice workshops were held during the quarters. Each week a workshop was held for counselors. In turn, the counselor met with the teachers in order to more readily attain the desired outcome.

As students completed rotation areas for the school year. They returned to the teacher who taught them during the first six weeks of school. This final period was devoted to self-evaluation and planning.

The elementary staff of Jones County Schools, the coordinator of elementary project activities, and other staff personnel within the county,

continued to revise the old curriculum guides and/or developed a new curriculum guides for all courses of the elementary schools. These new curriculum guides provide ample flexibility and leeway in various areas for career education to be "fused" into the traditional curriculum. The coordinator of elementary project activities continued to work closely with the elementary teachers in the system. Appointments are scheduled with the school personnel and are followed up by the elementary coordinator.

Local inservice activities included weekly workshops which were held for the purpose of planning and expediting future activities. During these periods each teacher was given a new catalog of available teaching materials. After reviewing these catalogs, a list of materials was compiled for future use. In addition to attending and contributing to the workshop with agribusiness and natural resources personnel of the district, the exemplary project personnel has developed the final summary for the mathematics area.

Applications for the 1972-73 school year were being made by students for the cooperative vocational education program. Screening of students by coop coordinators, counselors, and personnel representing business was completed. Consideration in the screening process was given to: (1) abilities of the applicants, (2) needs of the applicants, (3) aspirations of the applicants, and (4) availability of job openings or occupational opportunities.

New job opportunities were available and students were placed for summer employment. Projected employment needs were analyzed for the next school year. Personal observation of the student on job-training stations was routine, with objective analysis being continuous.

Inservice activities have workshops held in conjunction with other coordinators and the state supervisor for cooperative vocational education. A consultant met with the coop coordinators to explore other approaches which could improve the overall program.

Remedial instructors, assisted by student aides, continued to make strides in a positive direction for the program. Advanced high school students continue to give noninstructional aid, thereby providing more individualized instruction for the remedial students.

Staff members from Jones County Junior College and from the Division of Vocational and Technical Education, a teacher trainer for the disadvantaged and handicapped, participated in workshops with remedial teachers. This proved to be quite beneficial.

Vocational Education Week focused special attention upon the Jones County Exemplary Project through activities planned by project personnel. Open house was held as a facet of public relations. This provided parents, faculty, administrators, and interested lay citizens a tour

of the facilities plus an insight into career education. Publicity for this occasion was spread via news media, radio, television, personal letters, and word of mouth. Posters proclaiming the week as Vocational Education Week were distributed, and tapes of children explaining "What Career Education has done for me" were recorded and used by local radio stations as part of the coverage for Career Education. Plans were made for activities in career education for the school year 1972-73. Recruitment and scheduling of students for vocational programs was completed. Testing of students continued to be vital for determining the progress which has been made by students in career education. Administering standardized tests was completed. Counselors continued coordinated efforts to establish rapport with the staff with the underlying purpose being to bring unity and cohesiveness to the staff and instructional program. Interaction among the teachers is emphasized with counselors rendering assistance or supervision where necessary. This type activity is held weekly as reported in the Occupational Orientation section.

Significant Findings:

Progress is being made in the establishment of occupational media centers in all the school system's attendance centers. Equipment and materials are being stored centrally for more effective use by personnel in their respective attendance centers. In addition, the school system's media center (located in the vocational complex) is continually being expanded and enhanced.

The elementary teachers continue to display high degrees of interest in the career-centered concept as demonstrated by their participation. Most teacher on the elementary level are most receptive to the incorporation of occupational materials into their on-going courses of study. Much progress in the area of the project is visible.

All teachers in the exemplary project appear to be operating at a much higher level of competency than at the same period last year. The additional time for planning and review, plus on year's experience in the new project have added much stability to the operation. In addition, the additional materials, supplies, and equipment received for utilization has greatly benefited the project.

Project personnel were continuing to place emphasis upon obtaining additional instructional materials. Increased emphasis was placed upon the development of materials, special techniques and methods to strengthen the career-centered concept's implementation within the system.

For a variety of reasons (i.e., better communication, increased goal clarity, and the production of curriculum and material guides) this year's occupational orientation courses appear to be operating remarkably smooth. All personnel involved in the program exhibit a sense of unity of purpose. A favorable goal-oriented attitude is observable on the part of staff members.

Students responded to the "What I Like To Do" form, personality rating scales, occupational questionnaire, leisure time questionnaire, and pre- and post test questionnaire during the period. These data are being tabulated and utilized as a baseline to assess future growth.

Students in occupational orientation classes participated in the following activities during the period: (1) collected clippings of jobs available in the area; (2) constructed occupational orientation bulletin boards; (3) applied for and received social security number; (4) constructed occupational orientation posters; (5) maintained notebooks of occupations; (6) participated in occupational orientation games; and (7) wrote autobiographies. In addition, students maintained a ledger of work completed and reported on various jobs on which they had conducted research. Sources of information utilized consists of D.O.T. chronicle file, Occupational Orientation Handbook, Largo File, S.R.A. Information Kit, and others.

Students participated in activities designed to relate individual hobbies, personalities, and skills to various jobs. They also participated in "hands on" exploratory experiences in the various rotation areas. This experience included the actual use of hand and stationery equipment. "Hands on" exploratory experiences were provided for all occupational orientation students in the area of industrial arts. Students were provided with exploration of small engine repair, auto engine repair, and the general approach to each. Consumer education "hands on" experience was provided in the use of the sewing machine, the oven and range, and small appliances. In addition, first aid experiences were provided. Manners, courtesies, and social customs were also dealt with in the consumer education area.

Simulated job application procedures were provided for all occupational education students. Data regarding the job requirements, decision as to student qualifications, the application, and the interview situation were covered.

Subjective criterion referenced pre- and post tests were constructed to assess the effectiveness of the program. The pre-test was administered to all elementary grades during the early part of the school year. Analysis of the pre-test results indicates no increase of career awareness with increase in grade level. This may indicate the need for a "stepped-up" operation in the upper elementary grades. Further analysis revealed extreme variation in the knowledge of career information within each age group.

The Jones County Course of Study Committee has expressed interest in the exemplary program. Investigation and thought have been given as to how the social studies area could lend support to the program. Social science teachers reviewed the exemplary objectives, materials, and procedures. This committee was impressed with the achievement of the project.

As as component of the co-op agreement between teacher, student, parent and employer, a student worksheet was developed. This worksheet permitted records of much greater detail to be kept of student's weekly hours, his job performance, his learning experiences, and his earned salary.

Approximately one-half of all students involved in the remedial program are assigned to remedial reading. Most of these students scored from 20 to 30 on the SDRT; others ranged from 1.0 to 5.8 grade level. All students assigned to the reading class were in need of remedial services.

The remedial teachers used a variety of methods and approaches, depending on the needs, interests, and achievement level of the student. Individualization of instruction was achieved to the highest possible extent. Reading materials which have an occupational slant were utilized when possible. There was some evidence of achievement improvement in other academic areas for those students who have been participating in the remedial program.

During the 1971-72 school year indications were that students' attitudes were much more favorable toward career education than in the previous year. "Hands-on" experiences played an integral part in stabilizing students' interest.

It has become quite evident during the year that numerous students lack the necessary skills in reading and comprehension. This, in turn, leads to a diminished tempo in the educational process for those students. "Hands-on" experiences for both boys and girls who lack reading and comprehension skills have provided increased interest in learning activities, especially in consumer education and industrial arts.

In addition to the use of "hands-on" experiences in these areas, audio-visual and other teaching aids proved immensely helpful. Even though teachers had greater supplies of materials, and these materials were rotated among the three schools, there is a definite need for additional material purchases. Such things as sets of encyclopedias, 35mm projectors, and programmed instruction materials would greatly enhance the program.

Teachers who continue to carry out the traditional instructional process have begun to utilize career education materials to a greater extent. This served to increase interaction among staff members, which in turn has alleviated some barriers between the exemplary project staff and the regular teaching staff.

As personnel of the Jones County elementary schools develop course outlines, it was evident that career education played a greater role in the instructional process. Although great strides were made in the past year for career education in the elementary grades, additional progress can still be made.

Career education in the Jones County elementary schools was responsible for a change in the traditional image of elementary education. As a result of this change, a progressive attitude was observed in members of the staff, in parents, in the public, and in the students. Planning of future activities for the elementary grades provided the key to continued enthusiasm among elementary teachers. Available educational materials played a vital role in creating new learning experiences for both teachers and students. The use of available materials was somewhat limited, due to the fact that they are being distributed among ten schools in the county.

Work attitudes and personal interest have proven to be important aspects to consider when attempting to fill a job opening. Thus, student screening became more and more important. It was demonstrated that when a student's interest for school activities decreases, so does his interest for his job training. A continuous flow of communication between the coop coordinator and the business supervisor is essential. This type of interaction gave both coordinator and employer the "inside" track in attempting to assist the student.

Dissemination Activities:

Local exemplary project personnel were engaged in a concerted effort to keep the public as well as professional educators abreast of the project's operation and results. Project personnel had continuous contact with parents, students, teachers, and the general public. Project personnel appeared before civic clubs and other organizations in an effort to disseminate results of the project.

As a part of dissemination activities the project personnel aided the State Division of Vocational-Technical Education in conducting a three-day workshop at the project site. This workshop was designed to aid the four school systems in the state which were beginning career-centered curriculums within their respective systems. The school systems involved were: Amory, New Albany, Franklin County, and Kemper County.

Personnel from Mississippi State University and the University of Southern Mississippi made several visits to the project during the period to become better acquainted with its operational methods and procedures. In addition local project personnel served as resource persons to career-centered classes at Mississippi State University.

State and local project personnel presented a program on the Jones County Career-Centered Curriculum at the statewide Vocational Education Convention held in Jackson, Mississippi, during August. Approximately 2,000 vocational educators were in attendance at the time the project program was presented.

During this reporting period numerous personnel from various school districts in the state visited the program. Out-of-state visitors included personnel from the Huntsville, Alabama, school system.

The development of the Curriculum Guide for Occupational Orientation was completed during the period. Advance copies of the Guide were distributed to local school systems within the state which were initiating career-centered programs as well as to other key vocational personnel. Publication of the Guide is presently underway and the material should be available for general distribution in the near future.

Inquiries about the project were received from many parts of the nation during the period. Both the state and local project directors continue to provide information as called for in the inquiries.

Occupational education students toured the WDAM TV facilities. During the tour, students were oriented as to the various occupations at the TV station and to the qualifications necessary for each occupation. Students also toured one of the local newpaper facilities for the same purpose. During these visits occupational education students were given an opportunity to explain the purpose of the program to TV and newspaper personnel.

During the fall semester, students constructed occupational orientation posters which they entered in a contest. The winners of the local contest were written up on the local newspaper, along with an explanation of the occupational education program. In addition to the local TV and press, numerous visits were made to exemplary program by outside educators. Included in these were groups from Biloxi, Mississippi, Tuscaloosa, Alabama, and two universities in the state. Project coordinators devoted considerable time to the orientation of local teacher groups to the goals and purposes of the exemplary program.

Dissemination activities also included several radio spots concerning career education on radio stations WNSL and WLAU. Speeches concerning the program were made to the Hattiesburg Literary Study Club and the AAUW during the month of December.

Numerous outside resource persons were utilized in the presentation of career information to career education and occupational orientation students. These visits permitted learning experiences for the students and also served as a method of dissemination of program methods and purposes back to the community.

Various methods of public relations are evident in the Jones County Exemplary Program. Media, such as newspapers, radio, speeches, resource persons, open house, and word or mouth, have been used during this quarter to explain the role of career education. This quarter saw a number of resource people, such as U.S. Air Force personnel, inhalation therapist, vocational rehabilitation couselor, choral director, etc., visit the exemplary program as well as explain their role in the world of work. Also, during this period the local director traveled to the Southern Region Agricultural Education Conference and presented a program for teacher educators on "Research Strategy for Teacher Education Programs to Assist Local Programs with Career Education." Vocational Education Week provided a time for an "all out" effort on the part of Jones County vocational educational personnel. Newspapers, radio, and television cooperated in making the week of February 7-13 (Vocational Education Week) a week of emphasis for career education in Jones County.

V. THIRD PARTY EVALUATION

SECOND
INTERIM EVALUATION REPORT

Project No. 0-361-0067

Grant No. OEC-0-70-5177 (361)

THE CAREER-CENTERED CURRICULUM FOR VOCATIONAL COMPLEXES IN MISSISSIPPI

An Exemplary Project in Vocational Education
Conducted Under
Part D of Public Law 90-576

James F. Shill
James E. Wall
Norbert Johnson

Mississippi State University
State College, Mississippi 39762

June 1972

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I. INTRODUCTORY SECTION

A. THE LOCALE

1. Geographical Description. Jones County is located in the Coastal Plains area of southeast Mississippi, some 100 miles north of the Gulf Coast. The county contains 706 square miles or 451,840 acres of land and is almost square in shape (see Figure 1). It is located approximately 90 miles southeast of Jackson and 10 miles north of Hattiesburg, Mississippi. It is bordered to the north by Jasper County, to the west by Covington County, and to the south by Forrest and Perry Counties.

   The county is part of the long-leaf pine area of the state with considerable acreage devoted to forest utilization. The topography is generally steep, with small areas of nearly level and moderately sloping land. The soils in the county possess low natural fertility, but respond well to good management and fertilization. The steep hill land is generally forested, with farming confined to the broad ridge tops and river bottoms.

   There are three incorporated centers (see Figure 2) in the county, each approximately five miles apart. These are Laurel, Ellisville, and Sandersville. In addition, there are 65 unincorporated communities scattered throughout the county. At the northeast corner of the county is a Choctaw Indian Reservation and the southeast corner is included in the Desoto National Forest (Chickasawhay Division).

2. Density and Population Trends. The population center in Jones County is at Laurel (the county seat) which has a population of 24,145 according to the 1970 census. In addition, the other centers and communities in the county contain 32,212 persons, for a total population of 56,357 for the county. This represents an overall decrease in population of 5.3 percent from the 1960 census. During the period between 1967 and 1970 in Jones County there has been a decrease in the five-and-under age group (-29 percent), in the six-to-14 age group (-6 percent), and in the 45-64 age group (-25 percent). Increases were reported in the 15-44 age group (+11 percent), and in the 65-and-over age group (+17 percent). The 1960 census reported a population of 59,542 for Jones County; however, the 1970 census reported a drop in population to 56,357. The greatest proportion of the out migration occurred between 1965 and 1970. The out migration appears to be affecting the small rural communities in the county more so than the three incorporated population centers.

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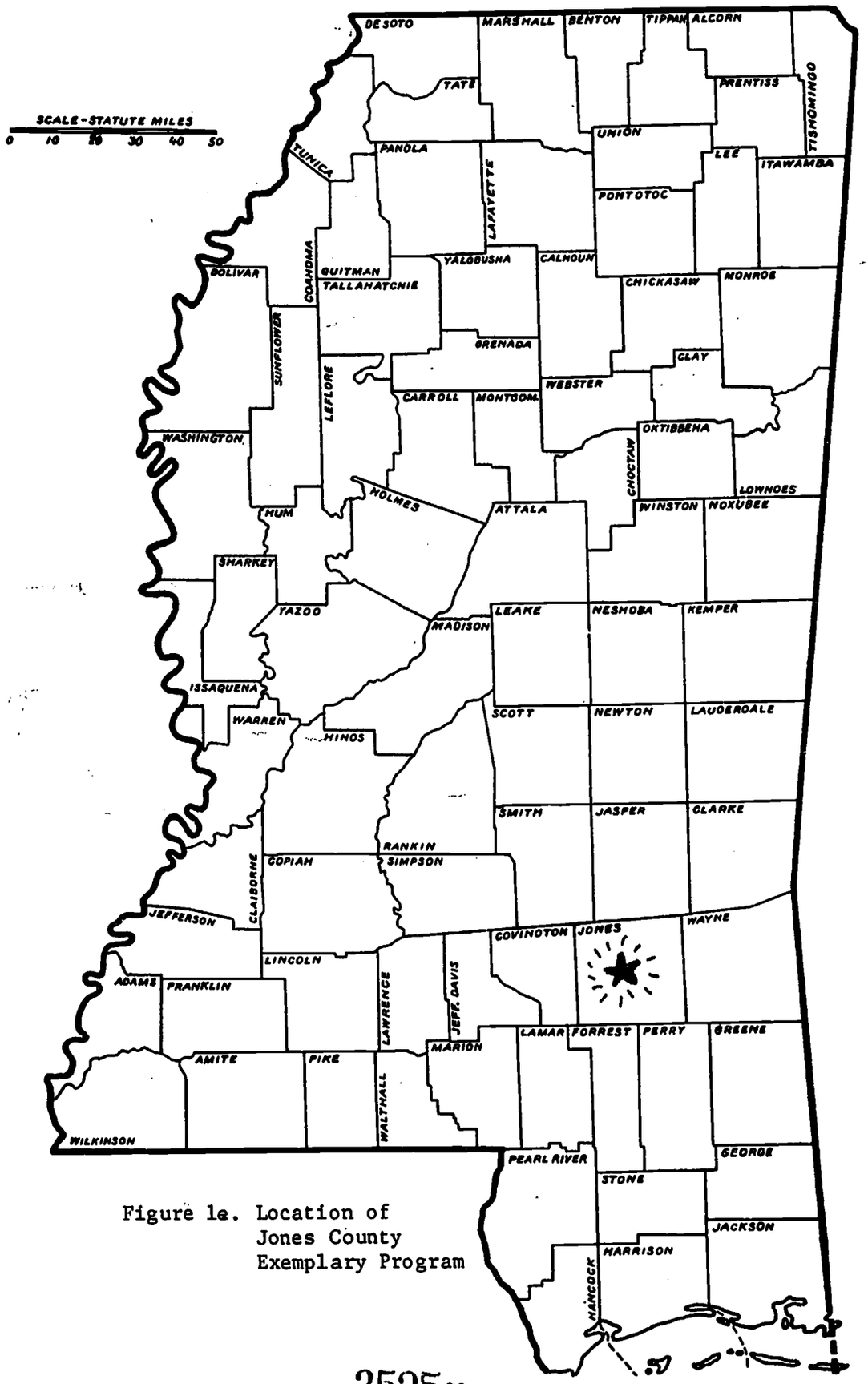


Figure 1a. Location of Jones County Exemplary Program

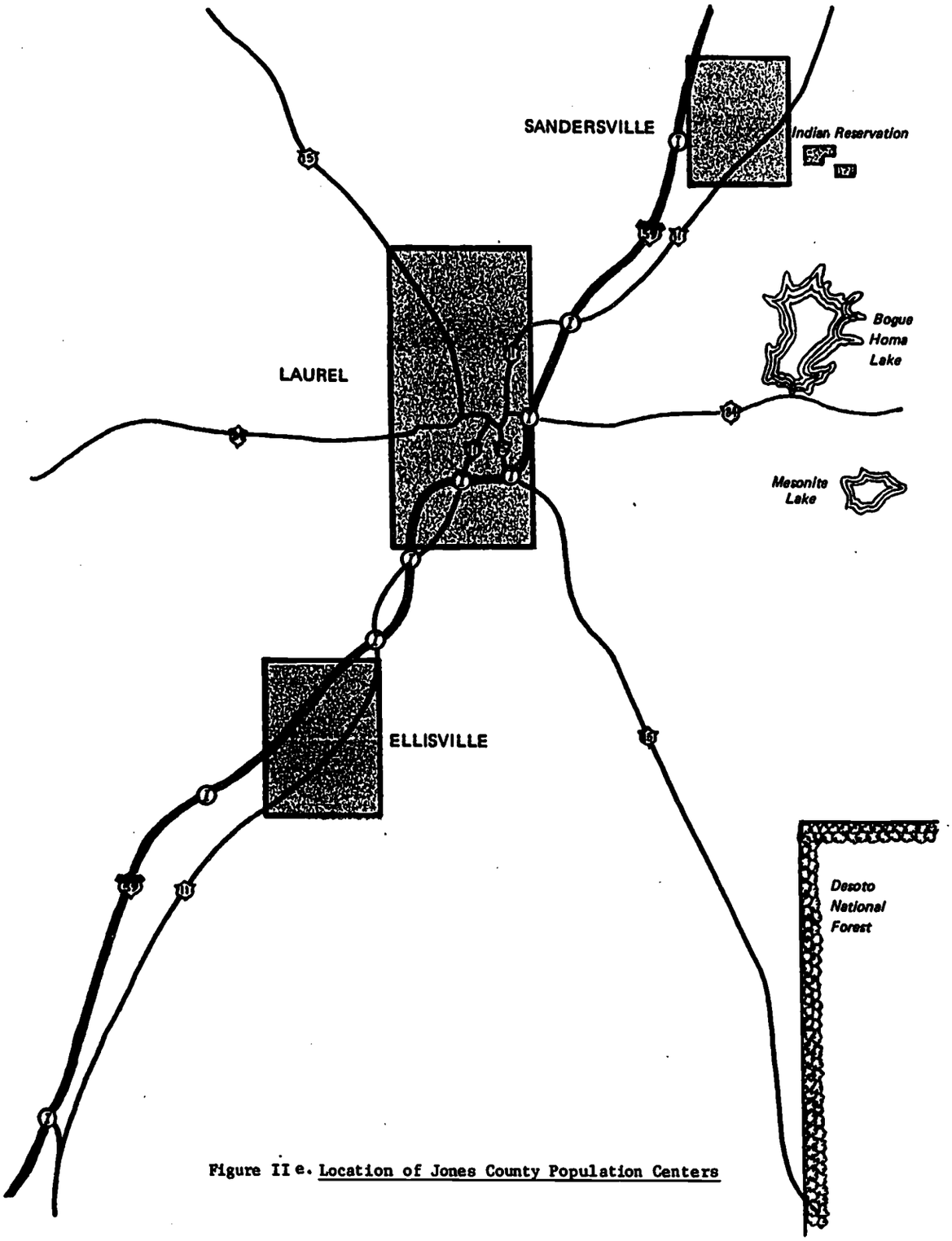


Figure II e. Location of Jones County Population Centers

3. Occupational Breakdown of Locale. The specific occupational breakdown for the locale includes an entire Employment Security District comprised of Jasper, Jones, Smith, and Wayne Counties. However, most industrial jobs within the District are located in Jones County. Table I depicts employment by occupational categories and changes during the operation of the exemplary program.

4. Unemployment Rate and Trend. The total work force in the Employment Security District in February, 1972 was reported to be 34,870. This figure represented an increase of 5.7 percent in the work force from the previous year. The unemployment rate decreased from 6.4 percent in February, 1971 to 4.3 percent in February, 1972. Although the area has been classified as being depressed, there appears to be a trend toward fuller employment for the area. Few jobs are being created in the area with an increase in total employment.

5. Income of Residents. Information obtained from the 1970 census indicates that the average family income in Jones County was $6,630. Approximately 68 percent of the men and 35 percent of the women above 16 years of age were in the Jones County labor force. The per capita income was approximately $2,074 for the county.

6. Families Receiving Welfare Assistance. Approximately 2,680 of the 14,000 families in Jones County, or 19.4 percent, received some type of family assistance checks during the year. This figure does not include those families in the county receiving food stamps but not welfare assistance checks. The number of persons receiving assistance by categories is shown in Table II.

B. THE SCHOOL SYSTEM

1. Facilities Description. The Jones County School System is comprised of fourteen separate physical plants. Of this number ten are elementary schools, three are combination junior-senior high schools, and one is a centrally located vocational complex. (See Figure III). The three combination junior-senior high schools and the vocational complex are of modern construction and are in excellent condition. With the elimination of the dual school system, some facilities were closed, resulting in some over-crowding of facilities. During the school year, temporary as well as permanent facilities were constructed which tended to alleviate some of the over-crowded conditions. The physical plants utilized as elementary facilities run the gauntlet from old to modern construction.

Students who desire vocational training of a specific nature attend the centrally located vocational complex from West Jones

Table Ie. Area Employment by Occupational Categorizations During Exemplary Program Operation.

Occupational Category	Employment January 1970	Employment January 1971	Employment February 1972
Agricultural (production)	3,400	3,400	3,400
Food Processing	1,040	1,080	1,250
AGRICULTURAL TOTAL	4,440	4,480	4,650
General Manufacturing (includes lumber and wood)	3,590	3,520	3,660
Apparel	1,410	1,650	2,020
Printing and Publishing	110	110	110
Machinery	1,360	1,160	1,530
Other mfg. (Furn. & Fixtures; paper & allied; stone, clay & glass; and metals)	640	600	660
MANUFACTURING TOTAL	7,010	7,040	7,980
Construction	1,070	1,060	1,050
Transportation and Utilities	1,180	1,170	1,200
Wholesale & Retail Trade	4,090	3,920	4,200
Finance, Ins., & Real Estate	620	630	650
Service & Miscellaneous	3,860	3,960	4,170
Government	4,950	4,980	5,650
Other	3,800	3,800	3,800
NONMANUFACTURING TOTAL	19,570	19,520	20,720
EMPLOYMENT--GRAND TOTAL	31,020	31,040	33,350

TABLE IIe.

Number of Jones County Families
Receiving Welfare Assistance by Category

Category	No. Families June 1966	No. Families June 1970	No. Families June 1971
Old Age Assistance	1,415	1,488	1,554
Aid to the Blind	41	36	36
Aid to Dependent Children	342	467	586
Aid to the Disabled	428	458	523
Total Families	2,226	2,449	2,669

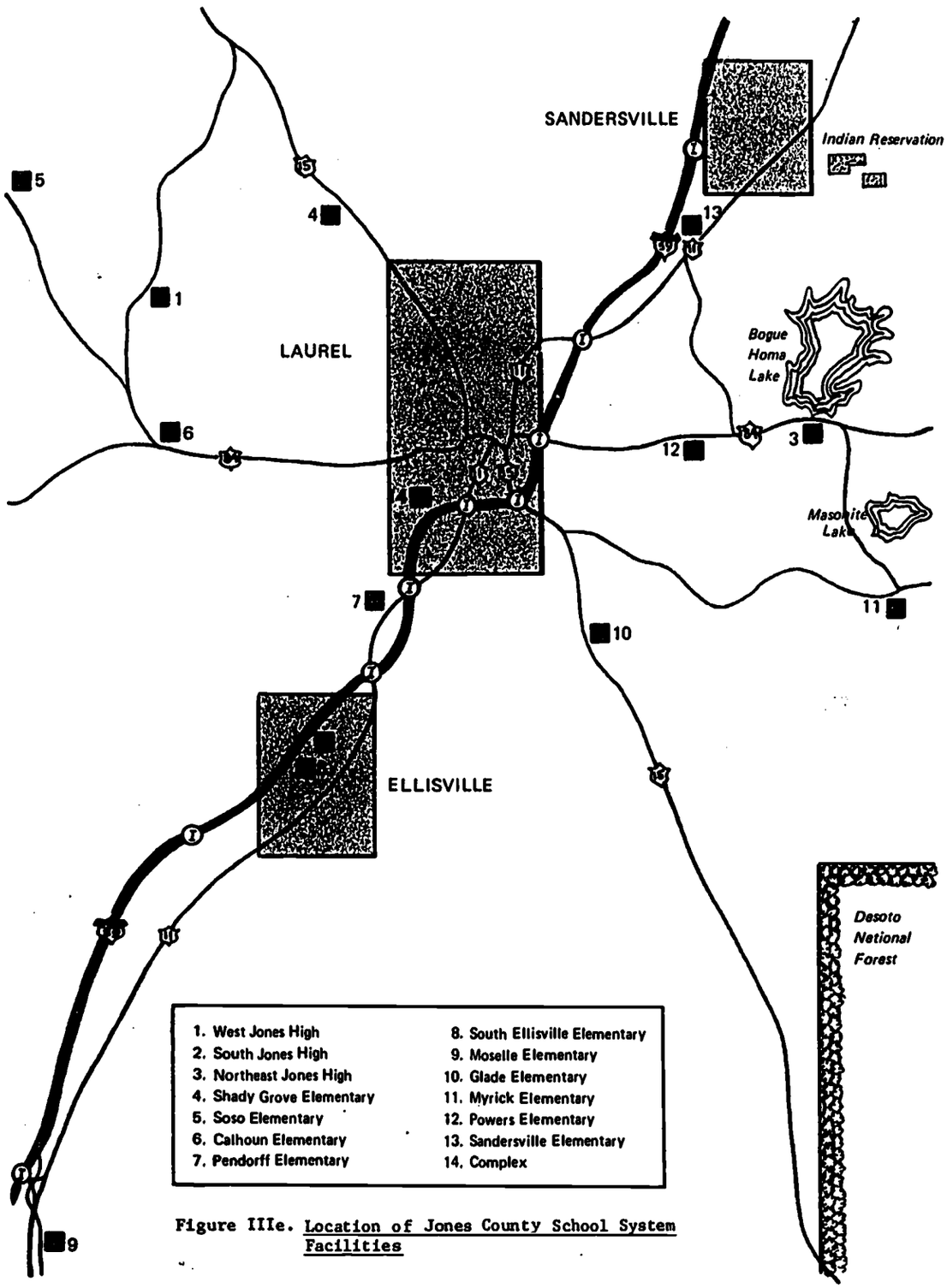


Figure IIIe. Location of Jones County School System Facilities

Junior-Senior High School, Northeast Jones Junior-Senior High School, and South Jones Junior-Senior High School. The vocational complex in turn prepares students who desire more specialized vocational-technical training to enter the community college programs at Jones Junior College, which is located in the southern part of the county.

The elementary schools of Soso, Calhoun, Shady Grove, and Pendorff send students, upon completion of six grades, to West Jones Junior-Senior High School. The Moselle and Ellisville Elementary Schools send students to South Jones Junior-Senior High School. Powers, Myrick, Glade, and Sandersville Elementary schools send students to Northeast Jones Junior-Senior High School.

All elementary school facilities in the system, with the exception of Moselle and Soso, house grades one through six. The facilities at Moselle and Soso are utilized for grades one through seven. All three combination junior-senior high school facilities house grades seven through twelve.

2. Enrollments. There has been a trend toward a slight increase in total enrollments in the school systems over the past year. The enrollment has slightly increased from 7,923 during 1970-71 session to 7,964 during the 1971-72 session. The enrollments during the fifth month of the 1971-72 session are shown in Table III.

3. School System Faculty. During the 1971-72 session there were 385 persons employed in the system as teachers, counselors, or administrators. This total was six over the 1970-71 session. Of this number, 71 possessed a master's or higher degree; 309 possessed a bachelor's degree, and five had not completed the bachelor's degree. All five were qualified trade instructors employed in the vocational complex. In addition, the system employed teacher aides, secretaries, custodians, and other service personnel.

4. School System Administrative Structure. The Jones County School Board members, as well as the county superintendent, were elected by the people in general elections. The specific administrative structure for the operation of the system is depicted in Figure IV.

5. School System Curriculum. The number of units (or credits) required by the school system for graduation increased to 17 1/2 during the 1970-71 session and will increase to 18 during the 1971-72 session. This apparently may be a significant factor in the future enrollment of students in the centrally located vocational complex. Students enrolling in the vocational

TABLE IIIe.

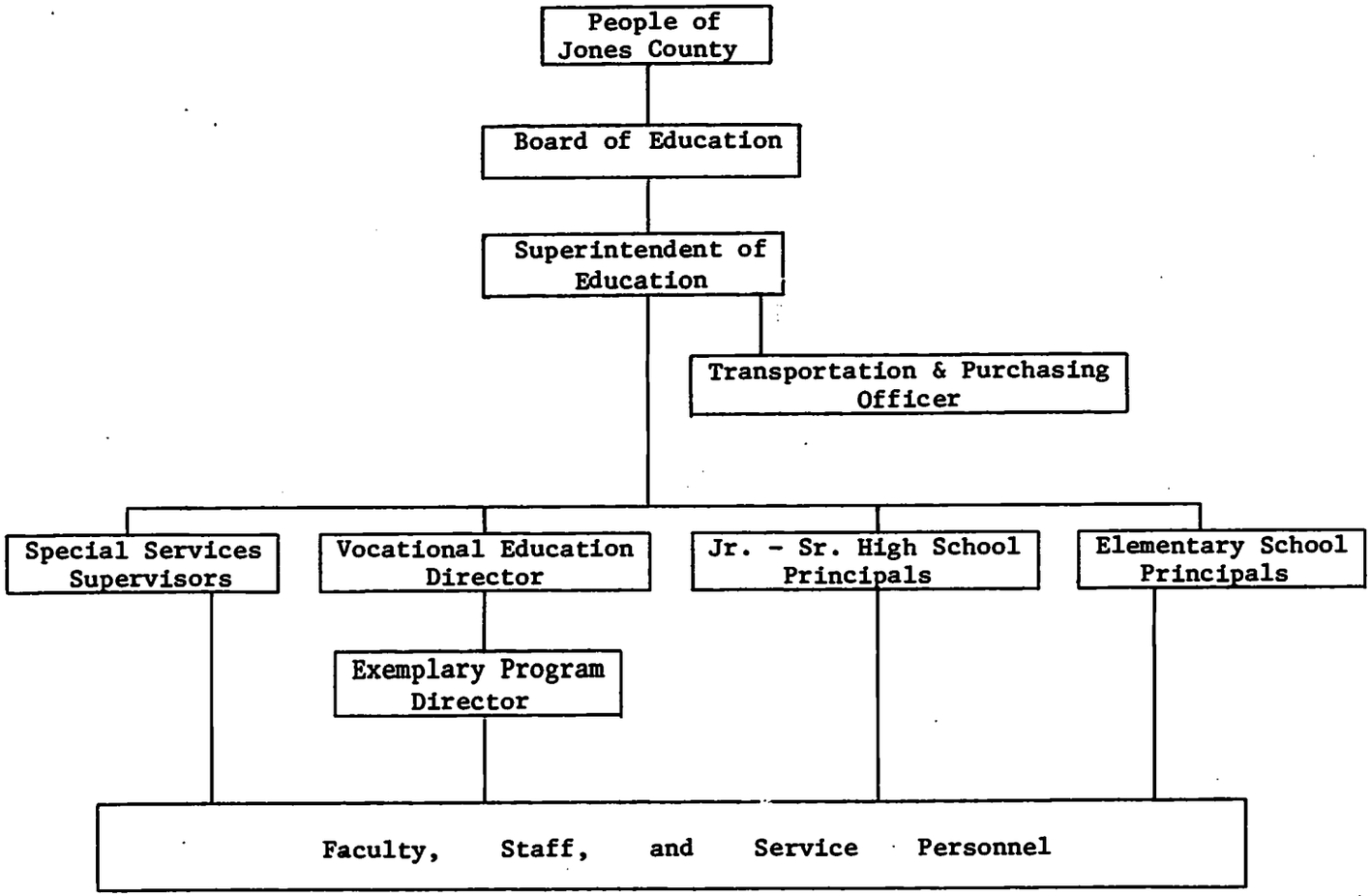
Jones County School System Enrollment

During 1971-72 Session

(By Attendance Centers)

Attendance Centers	Enrollment During 5th Month	Average Daily Attendance
Combination Jr. - Sr. High Schools (Grades 7 - 12)		
Northeast Jones	1,204	1,171.30
South Jones	1,146	1,096.50
West Jones	1,496	1,422.80
Jr. - Sr. High Total	3,846	3,690.60
Elementary School (Grades 1-6)		
Calhoun	529	504.10
Ellisville	854	803.90
Glade	465	455.65
Myrick	267	253.40
Pendorff	267	253.40
Powers	220	206.10
Sandersville	310	292.15
Shady Grove	560	532.60
(Grades 1-7)		
Moselle	343	322.95
Soso	300	291.55
ELEMENTARY TOTAL	4,118	4,065.92
SYSTEM TOTALS	7,964	7,618.15

Figure IVe. Jones County School System Administrative Structure



complex for classes one-half of the school day may find it difficult to meet graduation requirements in what is considered the normal time span of four years. Specific requirements for graduation in the system are:

English	4 units
Mathematics	2 units
Social Studies	3 units
(Miss. History - 1/2)	
(Civics - 1/2)	
(American History - 1)	
(American Government - 1/2)	
(Social Studies elective - 1/2)	
Science	2 units
Electives	7 units

6. Dropout and Transfer Trends. Based upon current statistics, approximately 63 percent of all students entering the first grade in the system will complete high school. During the 1969-70 school year approximately three percent of the students were listed as school system dropouts. The fluctuation of enrollment during the school months indicates that perhaps more transferring of students takes place than in most rural systems in the state. This may be partially explained by the high mobility of students' parents who are engaged in oil industry occupations of which there are many in Jones County. In addition, changes in the employment picture in the area may be causing families to seek employment away from the area of residence.

7. Financial Status of School System. Over a ten-year period local revenue for the support of the school system increased 45 percent. During the same period state revenue for the school system has also increased 48 percent. Total revenue expended by the school system (not including capital outlay) during the 1970-71 session amounted to $3,459,870. Of this amount, $1,308,496, or 37.8 percent, came from local sources; $1,827,426, or 52.8 percent, from state sources; and $318,753 or 9.4 percent, from Federal sources. The expenditure per pupil increased from $191.50 to $493.53 in the ten-year period ending with the 1970-71 session. The tax levy for the school system is the maximum allowed under State law - 25.0 mills.

II. THE EXEMPLARY PROGRAM

A. BACKGROUND INFORMATION

1. Origination of Program. The Exemplary Programs and Projects Section of the Vocational Amendments of 1968 offered an unparalleled opportunity to integrate more effectively proven concepts in vocational education with the total school effort. It allowed for a concentrated effort in providing school experiences that were meaningful for all students. The decision was made to commit all funds received in Mississippi from the Exemplary Programs and Projects Section (both the State and USOE Commissioner's share) to one project in a school system which would demonstrate the feasibility of the career-centered concept. The allocation of funds into one project was an attempt to make the greatest impact upon vocational offering in a school system which could demonstrate to teachers, administrators, and students in other schools in the state the effectiveness of the career-centered concept.

   The Jones County Exemplary Program was to begin on July 1, 1970. However, delay in final approval of the project caused some delay in the start-up time of some areas of the program. The contract for the third-party evaluation was not approved until February 1971, thus causing a delay in the collection of baseline data. The project was in its second semester of operation, which prevented the use of pretest evaluation materials during the first year's operation by the contractor. Baseline information on students was obtained from instruments utilized by the school system.

   The 1971-72 academic year saw the establishment and improvement of administrative procedures, the provision of more adequate facilities, the provision of more adequate equipment and supplies, the further development of the elementary program and greater contact with outside businesses.

2. Modification of Existing School Programs. The implementation of occupational orientation classes resulted in a majority of students not being placed in study halls. Some teachers in the areas of vocational agriculture, home economics, and industrial arts were transferred into the exemplary program in various capacities. This resulted in a decreased offering in their specific teaching areas and an increased offering in occupational orientation.

   A special administrative structure was designed and implemented for the exemplary program. This structure is illustrated and discussed in other sections of this report.

B. SCOPE OF THE PROGRAM

1. Participants Served. All of the Jones County School System's approximately 7,964 students were involved with the program in some manner. Those not directly enrolled in the program classes were influenced through poster contests, recruitment, counseling, assembly programs, contact with students in the program, etc.

2. Objectives of the Program. The specific objectives by which the program shall be evaluated are delineated in the project proposal as being:

   -- To establish structural relationships which will facilitate implementation of the career-centered concept in the Jones County School System.

   -- To establish the necessary relationships with local businesses and industries to provide cooperative (work-experience) education in all aspects of vocational offerings in an effort to meet total manpower needs better.

   -- To provide intensive and short-term entry level skill training immediately prior to exit from the school, for those students who have not previously been enrolled in one of the regular vocational programs.

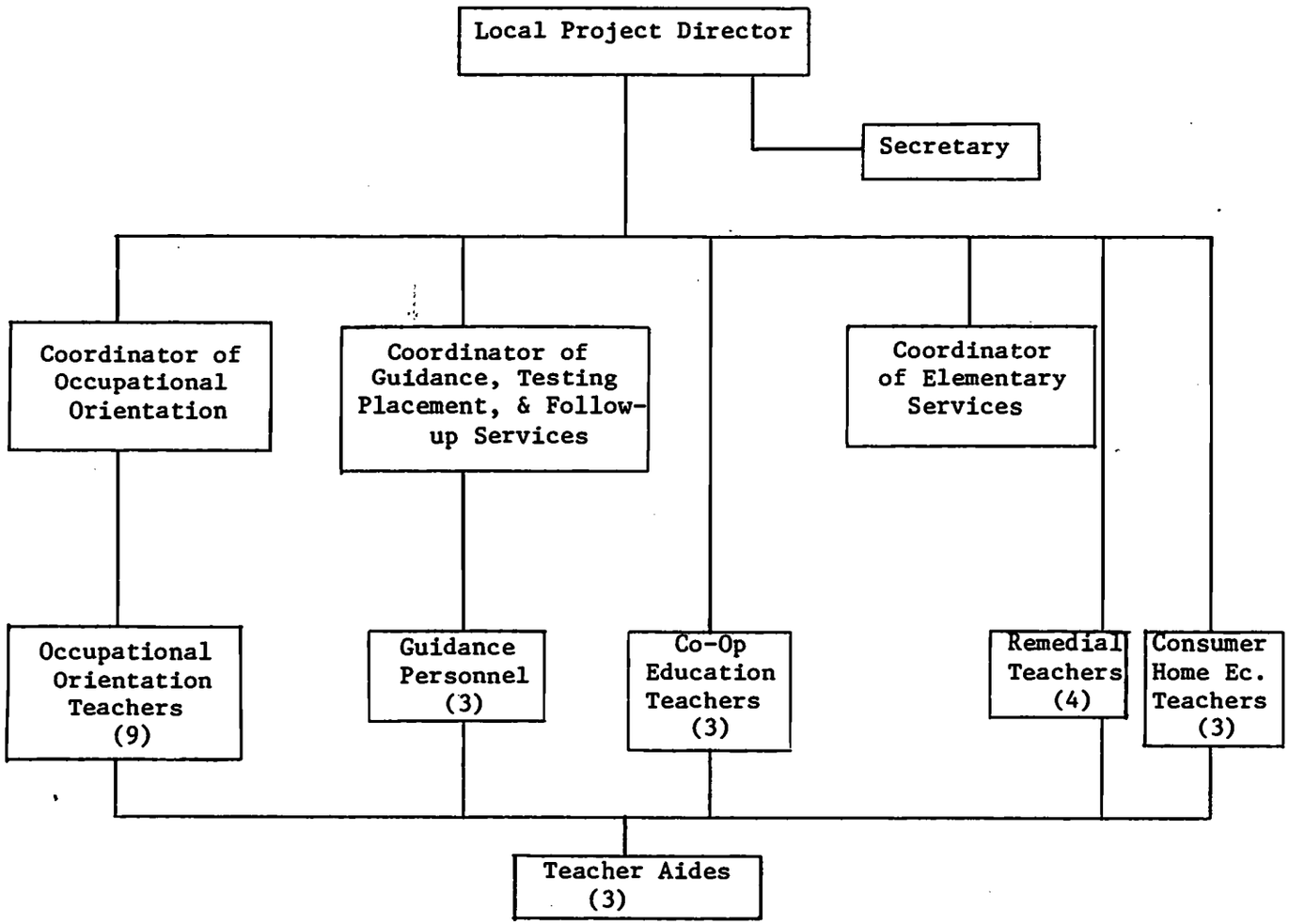
   -- To establish an intensive program of guidance-counseling-placement, relating to activities in Objective one above, and including activities which will assure adequate post-training work adjustment for each student.

C. PERSONNEL

1. Personnel Added by the Program. A total of 25 professional level staff positions were utilized in the program at the local level during the second year of operation. This number included positions in administration, coordination, counseling, and instruction. In addition, one secretarial position and three teacher aide positions were included in the project. All 25 professional-level positions were filled with persons meeting the State certification requirements and having a minimum of a bachelor's or higher degree. The professional-level positions and administrative structure of the program are shown in Figure V.

2. Administrative Staff. The five persons employed to administer and coordinate all phases of the exemplary project have an average of 21.1 years of teaching and administrative experience. The staff possesses experiences from the areas of vocational agriculture, home economics, guidance and counseling, history,

Figure Ve. LOCAL EXEMPLARY PROJECT ADMINISTRATIVE STRUCTURE



and elementary education, as well as administrative and supervisory experiences. The entire administrative staff devotes full time to administrative and coordinative activities.

The local project director possessed 22 years of vocational teaching and administrative experience to the program at the beginning of the second year of operation. He assumes responsibility for coordinating all phases of the program with the State Project Director, including recruitment, selection, and supervision of all personnel. In addition, he purchases equipment, supplies, and materials; arranges for consultative services; conducts inservice training of staff; conducts public relations activities; cooperates in evaluation activities; and makes necessary reports.

The coordinator of placement, follow-up, and evaluation has 16 years' teaching experience. His duties and responsibilities include counseling with staff personnel and students; obtaining and providing vocational guidance information; collecting, organizing, and analyzing materials; utilizing measuring instruments; conducting follow-up of students; and assisting in placement of students. The coordinator of guidance and testing position was consolidated with the position of coordinator of placement, follow-up services, and evaluation service. His responsibilities include synchronization of the testing program; interpretation of test results; obtaining and providing counseling materials; and assessment of the guidance and testing program.

The coordinator of occupational orientation has 26 years' vocational teaching and administrative experience. His responsibilities include coordination of equipment, supplies, and materials (purchase and utilization); materials development; assistance in course guide development and utilization; development of instructional materials; assistance in staff development; and assessment of the occupational orientation program.

The elementary project coordinator has over 20 years experience in teaching and administration. His responsibilities include obtaining and distributing teaching aids, equipment, and supplies to elementary teachers; scheduling resource persons, films, etc.; assisting in the development of objectives, methods, and evaluation of the elementary activities; assisting in the survey of local resources; and conducting inservice programs on the elementary level. The coordinator also assists in the overall planning, implementation and evaluation of the entire exemplary project.

3. Student Service Personnel. The exemplary program added one vocational guidance counselor to each of the three combination junior-senior high school attendance centers. The persons em-

ployed in these positions all hold master's degrees and averaged 5.6 years of experience at the beginning of the second year of program operation. Their responsibilities include collection, organization, and analysis of student information to be used in individual vocational and educational planning; providing counseling services; assisting in the selection of students for vocational courses; referral of students to local, state, and federal service agencies; assessment of counseling effectiveness; and assisting in interpreting the aims and objectives of the exemplary project to students, faculty, parents, and the community.

4. Instructional Personnel. The exemplary program added three cooperative education teachers, twelve occupational orientation teachers, four remedial education teachers, and three teacher aides to the regular instructional staff. All of the teachers and teacher aides were assigned to the three combination junior-senior high school attendance centers with the exception of one remedial teacher who was assigned to the vocational complex. All instructional personnel meet State certification standards.

All three junior-senior high schools had cooperative education teachers during the second year of operation. All teachers hold bachelor's degrees and averaged 1.6 years of teaching experience at the start of the second year. The cooperative education teachers' responsibilities include: working closely with guidance and counseling personnel in the selection of students; arranging for student training stations; providing individualized student study; developing of training plans; developing public relations program; and supervising students at on-the-job training stations.

Of the twelve occupational orientation teachers, all hold bachelor's degrees and one holds a master's degree. The teachers averaged 9.3 years' teaching experience at the start of the second year of the program. Their responsibilities include providing students with sound knowledge and experiences for making career choices; assisting students in self-assessment; assisting students in understanding the American economy and the world of work; and maintaining follow-up records.

The four remedial teachers averaged 9.8 years of teaching experience at the beginning of the program. Three of the remedial teachers were assigned to the junior-senior high school attendance centers and one to the vocational complex. Their responsibilities include developing an instructional program for dropout-prone students; developing a system for selecting students needing remedial assistance; adapting remedial subject matter to vocational choices of students; providing remedial instruction; and assisting the faculty in providing remedial instruction in specialty areas.

D. PROCEDURES

(The Jones County Career-Centered Curriculum has been funded for a three-year period. This interim report is an evaluation of the second year of operation.)

1. Physical Arrangements. The elementary level of the program required no special arrangement of facilities. An occupational materials and equipment center for each elementary attendance center in the system has functioned during the year in or near the principal's office. This arrangement allowed for accessibility to all teachers in the attendance center and enhanced material utilization. All individual classrooms were used without having to undergo major rearrangement of furniture or furnishings.

   Occupational orientation courses in the junior high schools used existing industrial arts shops and standard classrooms with little, if any, rearrangement of facilities. In one instance, a trailer classroom was used to eliminate overcrowding.

   At two of the high school attendance centers remedial classes were held in classrooms equipped as language labs, and in one attendance center a regular classroom was used. At the vocational complex the remedial classes met in a conventional classroom.

   Vocational counselors were provided with private offices. At two of the attendance centers the offices were in the general vicinity of the school administrative offices. At one school the office was adjacent to the cafeteria.

   In all cases the physical arrangement was designed to enhance the integration of the program's activities and personnel into the on-going school operations. Classrooms and offices are arranged so as not to place all segments of the exemplary program in one specific area of the school plant.

   Classroom teachers in the program were given maximum flexibility in the utilization and furnishing of their respective classrooms and/or shop facilities. While many identical materials were used in the classrooms, teachers arranged and utilized them in different ways.

   The vocational complex (centrally located) was used as a purchasing and storage area for supplies, materials, and equipment (shared among all schools in the system). Teachers were provided supplies, materials, and equipment as requested from the central staging area.

2. Review and Planning. A number of planning and review sessions were held during the year. These sessions included the state exemplary project director, local exemplary project administrative personnel, Jones County School System administrative personnel, personnel from the State Division of Vocational-Technical Education, and consultants.

   The local exemplary project administrative staff engaged in daily planning and review sessions at the vocational complex. In addition, the staff participated in weekly planning and review sessions with personnel at the attendance centers. Personnel at the attendance centers were engaged daily in coordination of activities (planning and reviews). These sessions were conducted both during the school day and after normal school hours.

   The utilization of daily planning and review sessions resulted in numerous modifications of the program's techniques and activities during the second year of operation. This effort accomplished a more uniform instructional program throughout the school system.

3. Inservice Training. A staff workshop was conducted for the purpose of establishing and clarifying the specific roles of all project personnel in performing and carrying out the objectives of the project, prior to the starting of school. All teachers and administrators in the system (not just exemplary project personnel) were involved in the workshop. In the workshop a detailed study of the project was made and personnel roles were established, along with methods and techniques for effective project implementation and advancement. Personnel from other agencies involved in the workshop were representatives from the State Division of Vocational-Technical Education, the Research Coordinating Unit at Mississippi State University (MSU), the Curriculum Coordinating Unit at MSU, and teacher education personnel at Mississippi State College for Women, Mississippi State University, and the University of Southern Mississippi.

   Inservice activities were generally conducted along specific interest areas. The occupational orientation teachers, along with other key project personnel, were involved in weekly inservice training programs. These training programs included developing course objectives and outlines; improving teaching materials; demonstrating effective operation and utilization of equipment; etc. Special consultants were utilized for all phases of the inservice training program. Guidance personnel met weekly at the vocational complex for planning and inservice activities.

Remedial teachers met on a regular basis throughout the school session for inservice activities. All the remedial teachers attended a reading clinic held at a university during the session.

Inservice activities were conducted with elementary teachers during the school year. These activities assisted the teachers in the incorporation of occupational materials into their courses of study and to minimize duplication of effort.

At the close of the school year a one-month workshop was conducted for all exemplary staff personnel. During this workshop personnel reviewed activities of the program and developed plans for the approaching school year. Individual course objectives were established, course content outlined, materials developed and/or purchased, and techniques and methods refined.

4. Activities. The career-centered exemplary project was based upon the assumption that all children should be assisted by the school in making realistic career decisions. This assumption implies that a total school experience for students is preparation for life, with earning a living a prime focus. Through the project, components of the entire school system are focused upon the career development concept in order to increase the awareness of career choices among students. A summary of activities designed to bring about the objectives in the project is presented below.

The process began in the elementary schools by providing students with sufficient occupational information and counseling to meet the needs of all children according to their interests and abilities. To accomplish this, local exemplary program personnel provided services to elementary faculties which would aid in the incorporation of career development into the regular instructional program. These services included obtaining occupational information, providing counseling, providing resource persons, conducting workshops, seminars, and field trips. The elementary teachers did not teach vocations as such, but used careers with which the children came in contact to increase their awareness and knowledge of the world of work. The children's interaction with their environment, parents, peers, and others was utilized to enhance their interests in the world of work.

Each elementary teacher was assigned to one of several committees to coordinate the activities of the elementary schools in the career development process. These committees began the development of a course of study utilizing occupational information for each grade. For grades one through three the

subject area and the grade levels were separated. In grades four through six, only the subject areas were divided. The career-information is being presented to the students in the following manner:

Grade 1 -- Career information centering around the home and school.
Grade 2 -- Career information centering around the neighborhood and community.
Grade 3 -- Career information centering around surrounding communities.
Grade 4 -- Career information centering around the state.
Grade 5 -- Career information centering around the United States.
Grade 6 -- Career information centering around foreign countries.

Examples of some activities conducted for grades one through three are: a) students told what their parents did on their jobs; b) parents served as resource persons for classes; c) students made posters and dolls of parents and others in occupations; d) students used occupational coloring books; e) students role-played parents' occupations; f) students developed lists of job-related activities they perform at home; g) students read stories in basic and supplementary readers that dealt with occupations; h) students viewed visual materials on occupations; i) students used tools that were related to occupations they were studying; j) students played occupational games; and k) students made up occupational songs, poems, and riddles. This is only a partial list of activities used to incorporate career awareness into the regular instructional program, but it should give the reader some insights into activities which could be utilized to increase elementary students' concept of the world of work.

As the elementary students progress to grades four through six, emphasis is placed upon students' enhancement of self-concept as related to career development. Such activities as: a) listing good and poor personality traits; b) classes choosing occupations of the week; c) conducting class appearance and personality contests; d) girls designing work clothes fashions; e) viewing occupational visual aids; f)discussing characteristics of persons needed to fill jobs; g) making collections of materials on jobs students would like; h) discussing types of persons needed to fill jobs students are interested in; i) collecting and studying "want ads" from newspapers; j) role-playing employer-employee situations; k) studying and role-playing jobs that their age group can obtain (baby sitting, paper boy, etc.); l) planning and role-

playing job hunts; and m) utilizing field trips and related activities in continuation of the career-centered concept. All activities were carried out by the regular elementary teachers (those not being paid from the project budget) with their respective classes. Exemplary project personnel aided with materials collection, equipment procurement, etc., but were not generally involved in classroom activities.

The exemplary project was extended into the junior high schools mainly through occupational orientation classes,consumer education classes, as well as remedial and counseling services. The occupational orientation course was designed to help students explore the world of work, including its requirements, conditions, and rewards; and to aid them in making meaningful career selections and decisions.

Occupational orientation teachers, with the aid of guidance personnel, utilized the Ohio Vocational Interest Survey (OVIS) and the Vocational Planning Inventory (VPI) to help students determine their occupational interests and abilities. Results of these instruments were used in course development as well as in individual and group counseling. Students were encouraged to use the knowledge of "self" gained from these instruments to explore effectively the world of work.

The basic structure of the occupational orientation course was changed prior to the opening of the second school session. The eight categories in which students received exploratory experiences during the first year of operation were incorporated into six basic units utilizing team teaching to enhance hands-on exploratory experiences. Teams were made up of teachers with various speciality areas in each of the attendance centers. Students received instruction in each unit for approximately a six week period.

In Unit I students are involved in appraising their individual interests, abilities, aptitudes, and skills as they explore a variety of vocational opportunities. Students begin to develop occupational vocabularies, become acquainted with sources of information, begin to realize a need for vocational planning, and acquire knowledge about the American Economic System.

Unit II is devoted to Industrial, Trade, and Craft occupations. Students become acquainted with a wide range of occupations within the cluster. Through the use of "hands-on experiences," resource persons,and field trips, students learn about occupational settings, worker skills, and training needs and opportunities. Students reappraise their own interests, abilities, and potentials for Industrial, Trade and Craft employment.

As students move through Unit III which is devoted to Consumer Education they become acquainted with a wide range of occupations in this specific area. Emphasis is placed on work, settings, opportunities, and worker skills. Training needs and opportunities are explored and students reappraise their interests, abilities, and potential for successful and satisfying employment within this area.

Unit IV is devoted to student explorations of Public Service Occupations. In Unit V students explore Production, Distribution and Management occupations. Both units' methods and procedures are similar to those in Units II and III.

The final Unit (VI) is devoted to allowing students to evaluate their occupational exploratory experiences and plan ahead. Students place emphasis upon educational planning as related to occupational exploration and/or choices. Personal development, independent study, methods of finding part-time employment, etc. are stressed.

Numerous activities and motivating techniques were employed to assist in meeting the objectives of the occupational orientation phase of the project. In the interest of brevity, an abbreviated list of activities conducted during the school term is presented in this interim report. These were:

-- Students engaged in various types of role-playing, including practice interviews.
-- Contests were conducted relating posters to occupations.
-- Resource persons from the local community came into the classrooms to discuss their respective jobs.
-- Students acted out jobs through playing charades.
-- Letters of application, resumes, follow-up letters of appreciation, and letters asking for permission to use someone as a reference were written by the students.
-- Students wrote research papers on occupations in which they were interested.
-- Students set up bulletin boards depicting occupations.
-- Students related hobbies to occupational interests.
-- Want ads in newspapers were reviewed to determine job availability.
-- Personality check lists were utilized by students.
-- Field trips were conducted.
-- Occupational crossword puzzles were utilized.
-- Occupational games were utilized.

A unique grading system based upon banking procedures was continued during the second year of operation by the occupational orientation teachers. Each student kept a checking account and wrote checks to a savings account corresponding to the monetary

value placed on his work by the teacher. A student was able to keep a current record of the amount he had on deposit which corresponded to a letter grade. The system also allowed the student to obtain a loan at the end of the grading period (if necessary) to make up deficiencies in his account. These loans would be repaid during the next grading period with additional work assignments. This system allowed the student to know his grade at all times during the grading period, as well as providing instruction in banking procedures.

The occupational orientation teacher-pupil ratio was one to 85.6 with a 17.7 pupil-per-class average. A typical schedule for the 8th grade students included English, mathematics, American History, science, and occupational orientation. Classes were composed of 50-minute time blocks. All occupational orientation classes contained both sexes.

The remedial education classes were open to students from the seventh through the twelfth grades on a voluntary basis. However, most of the students were in the seventh and eighth grades. Remedial instruction centered around individual needs which, in most cases, were in the areas of reading and/or communications skills and mathematics. During the first year of operation, there was a teacher-pupil ratio of one to 42. Remedial class sizes were generally held to between eight and ten students per class in order to facilitate maximum use of individualized instruction.

Remedial teachers utilized the Stanford Diagnostic Reading Test, the Schonell Graded Work Reading Test, as well as informal reading inventories compiled by the teachers in the diagnosing of individual reading problems. To increase student interest, the classes engaged in such activities as building puppet plays, and filming the plays. Remedial activities were centered around students' interests with special emphasis upon its relationship to occupational interests. For example, if a student indicated interest in automobiles, his reading was centered around publications concerning them. If this same student needed assistance in math, the instruction centered around math as it could be utilized with his interests.

The cooperative education teacher-pupil ratio was one to 20. All programs were of the diversified occupations type which included a broad range of job-training activities. Activities conducted by teachers in the programs were designed to assess interests and needs of students; to recruit and select students; to place students in appropriate job-training stations; to supervise students on jobs; to conduct individualized instruction related to jobs; and to provide occupational counseling for students.

The guidance specialist-pupil ratio was one to 456 pupils enrolled in project courses at the junior-senior high school level. However, the guidance personnel also worked with students not enrolled in project courses. Guidance personnel at each attendance center conducted activities centered around the collection, organization, and analysis of information concerning students' interests, abilities, aptitudes, and personality characteristics; counseling with students concerning problems and planning; administering tests and maintaining records; assisting in the identification, recruitment, and selection of students for exemplary project courses, vocational courses, and/or remedial courses; aiding students in obtaining needed services provided by local, state, and/or federal agencies; and interpreting the exemplary project to students, faculty, and parents.

The local exemplary project administrative personnel's (project director and coordinator) activities were conducted out of the centrally located vocational complex. The activities centered around the supervision and inservice training of personnel; reporting and record keeping; conducting staff meetings; planning and implementing specific phases of the project; maintaining communications with all school system personnel; and conducting extensive public relations activities. In addition, a relatively high percentage of the local administrative staff's time during the first year of operation was spent in the selection, purchase, and distribution of materials, supplies, and equipment.

5. Instructional Equipment and Materials. The instructional aids utilized by the exemplary project included printed materials (books, bulletins, brochures, pamphlets, fly sheets, newspapers, etc.), occupational games and songs, audiovisual devices, occupational coloring books, and mockups. Many special materials such as occupational coloring books, occupational songs, occupational mockups, and occupational games, as well as other materials were and/or are being developed and refined for use in the project. However, these materials will not be included in this report as project personnel are in the process of refining these materials. These developed materials will be presented in a later evaluation report. The project purchased on the open market a variety of materials and equipment which were utilized in the conduct of the project. A partial listing of major materials and equipment, along with methods of use follows:

   a. Audio equipment:
      - The three junior-senior high school attendance centers were supplied with solid state record players for use with records supplied with filmstrips. Remedial teachers have found these aids especially helpful.
      - Four cassette tape recorders were purchased and utilized. A series of on-the-job interviews with persons giving

first-hand accounts of occupations was purchased on the open market in addition to personnel making tapes on occupations in the local area.
- One reel tape recorder was purchased for the project.

b. Visual equipment:
- Each school was supplied with a 16mm projector.
- Each school was supplied with a film-strip projector.
- Each school was supplied with overhead projectors.
- Each school was provided with screens, stands, and other visual support equipment.
- One opaque projector was purchased for the project.
- One super 8 mm projector was purchased for the project.
- One sound-on-slide system and accessories were purchased for the project. (Since such large numbers of students were being involved in field trips, industries felt they were able to oblige only a few classes per year for tours. The sound-on-slide system allowed industry to be brought into the classroom with its sounds and sights. Each slide with its magnetic sound disc is narrated by the person actually performing the operation at the time the slide was made. This system appears to have some distinct advantages over motion pictures in that an individual slide may be stopped and occupational information studied in greater detail by students in the career development process.)
- One 35mm camera was purchased to make slides for the sound-on-slide system.
- Filmstrip series for the elementary, junior, and senior high levels have been purchased (such as Career Development and Guidance Series, Widening Occupational Roles Series, Vocational Product Series, etc.).

c. Printed materials:
Numerous printed materials were utilized in the exemplary project, and only a sample of the types utilized will be reported in this interim report.
(1) Sample of materials used in occupational orientation and guidance phase of the project:
- Dictionary of Occupational Titles (DOT)
- Encyclopedia of Careers and Vocational Guidance
- Counselor's Guide to Occupational and Other Manpower Information
- Educator's Guide to Free Guidance Materials
- Chronicle Guidance Kit
- Sextant Series
- Occupational Exploration Kit
- Junior Guidance Series Booklets
- Careers in Depth Series
- Occupational Outlook Handbook

(2) Samples of materials and/or equipment used in remedial education:

- Cyclo Teacher Learning and School Kit
- The Kaleidoscope Readers
- The Checkered Flag Series
- Happenings
- Reading Lab
- Reading Attainment System
- Phonics We Use Learning Games
- Britannica Junior Encyclopedia
- Language Master, with cards
- Reader's Digest New Reading Skill Builder
- Lesson for Self-Instruction in Basic Skills

6. Parent Community Involement. During the second year of the project's operation parents and other persons from the community were utilized to a much greater extent than during the first year of operation. Many parents and others served as resource persons, aided in field trips, and provided occupational materials for the project. A directed effort was made to keep parents and the community-at-large informed about the objectives, activities, and progress of the project through different media. Parents of students involved in the program received individual communications designed to increase their knowledge and understanding of the program. In addition to letters sent to parents, individual conferences (both by phone and in person) were held with parents.

   Mass media were utilized to introduce the project and to keep the public informed as to its progress. Several radio programs on WNSL-Laurel were utilized to inform the public of the progress made by the project. In addition, several newspaper articles (Samples A-J) appeared in papers with local and statewide circulation. Programs were also presented to civic and other organizations which increased citizen understanding of the project's operation.

7. Budget. The program was designed to involve each pupil in the school system and all costs (including the on-going vocational programs) concerned with career development were included in the budget. A total of $546,386 was budgeted for the second 12 months of operation. Of this total, $168,607 came from the Commissioner's share of exemplary funds, and $135,934 from the State Board's share. In addition, $82,386 of other State and Federal funds were utilized. Local funds contributed $159,459 to the budget.

   Per-pupil cost is presented in this section in two different ways. First, the per-pupil cost is presented for the total program (total vocational costs, including career-development

phase, of the system, divided by the number of students involved in the program). This cost amounted to $68.61 per pupil. Secondly, the per-pupil cost is presented as it concerns the career-centered exemplary project. The per-pupil cost of this phase of the program (total exemplary project costs divided by the number of students involved in the program) amounted to $38.23.

SAMPLE A: MISSISSIPPI EPA NEWS/APRIL, 1972

JONES COUNTY EXEMPLARY PROGRAM MEETS A NEED

'Career Education a continuing need'

Friday, February 18, 1972, concluded a very active period for the personnel of the Jones County Exemplary Program — National Vocational Education Week. However, since the program is a pilot program, offering space for improvision, innovation and original concepts of education — the staff has become accustomed to queries, observations, interruptions and counsel from within and without the school system of Jones County. The program has claimed national attention frequently in the news media. Visitors from throughout the United States and from throughout the state of Mississippi have made observations and evaluation of the Jones County Exemplary Program.

The personnel who make up the Jones County Exemplary Program include a local project director, Reese T. Ishee; a Coordinator of Career Education, Clifton Wade; a Coordinator of Elementary Project Activities, Mrs. Juanita Jefcoat; a combined Coordinator of Guidance - Coordinator of Placement, Follow-up and Evaluation, Jasper E. Fail; and a secretary, Mrs. Shirley Trest; which are housed in the Jones County Complex. The in-school staff positions included in the three Jr. Sr. high schools are a vocational guidance counselor, a remedial education teacher, a co-op coordinator and four career education specialist — (one industrial arts, one consumer education (home-making) and two other career research education specialist in vocational education) and one teacher aid. One remedial teacher serves at the Jones County Vocational Complex.

The Vocational Guidance Counselors for the three Jones County schools are Cliff Padgett, West Jones; Mrs. Patricia Scarbrough, South Jones; and Wm. Moss, Northeast Jones.

The specific role served by the Exemplary staff is as follows: The four Career Education specialist have divided Ann Roe's classification of jobs into their own respective training roles — where they feel most competent. The training the students experience, in a rotating cycle among the four teaching areas, include hands-on experience in both consumer education and industrial arts of Career Education. The student cycles through various phases of the four areas of educational endeavors, getting basic research, field trips, giving reports, speeches, involved in art (poster making and related) and many other related activities. Level I of Career Education is planned for Jr. high, while levels II, III, and IV involve high school students, offering two units of credit and

one half unit for those in the twelfth grade, without previous vocational orientation.

The Vocational Counselors assist the teachers and students in testing, in-school coordination, counseling, et. al. as is expedient to advance the purposes of the Jones County Exemplary Program — help develop the student educationally, occupationally, socially, psychologically, and help the student prepare for a well rounded, vocationally adjusted life with salable skills, suitable for economic independence.

The Co-op Coordinator works with those students in his respective school, who have made application for, and have been placed in a supervised job slot for specialized training. The Co-op Coordinator locates a job station that will complement the vocational desires and abilities of the student — he is placed accordingly and is supervised by the employer in cooperation with the Co-op Coordinator. Two units of high school credits are awarded for suitable performance by the student in this supervised work station.

The Remedial Education teachers assist in aiding the underprivileged student to become more proficient in his performance of general academic duties. The remedial teacher ascertains the students' weakness by use of specialized measuring instruments — then attempts are made to re-enforce the pupil, where these weaknesses are most prominent.

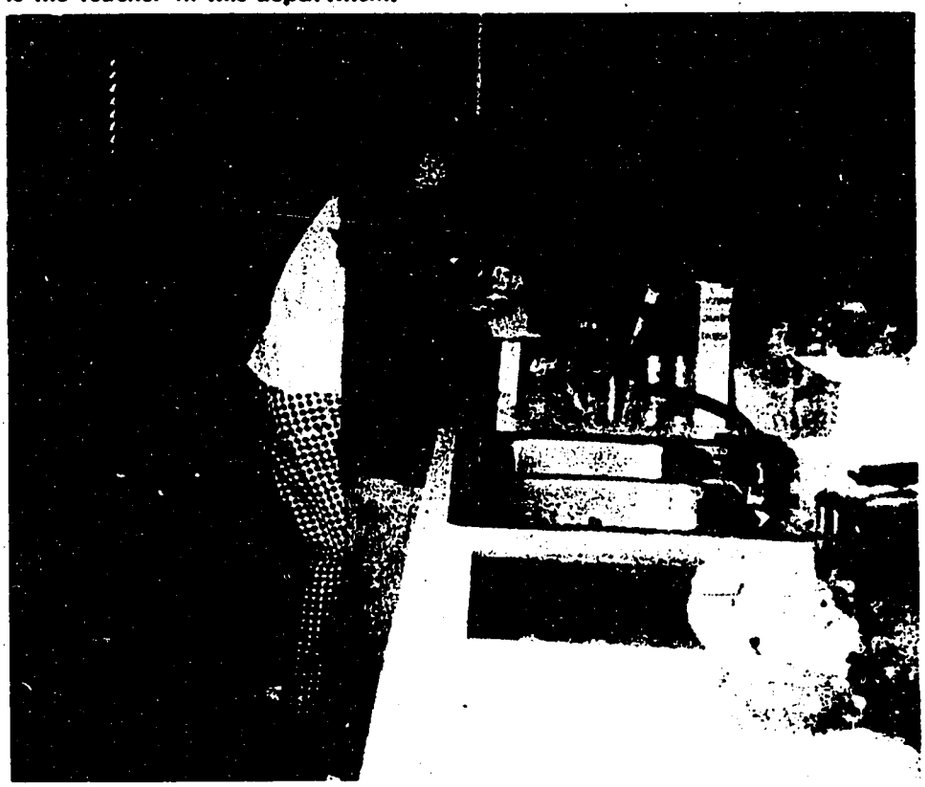
As a team working together and with the other staff of the Jones County school system, it is the purpose of this staff to see a better, more appreciative student — by meeting the needs of each and every student.

In a Pilot program it is always difficult to make a true evaluation especially when the program is young. However the Jones County Exemplary Program has overcome many of the pitfalls that so often beset trial projects. In viewing the over-all situation in all three Jones County Jr.-Sr. High Schools, it appears that under the capable leadership beginning at the Vo-Tech Complex and extending on into the classrooms and shop that this program is well on the way to being recognized as one of the best.

There seems to be much concern for the youth of this area to be better able to meet the needs of tomorrow and this particular program is helping to meet that need with its dedicated leadership.

SAMPLE B:

GROUP OF STUDENTS participate in operating a wood lathe at Northeast Jones High School in the Industrial Trades and Craft Department. Bob Davison is the teacher in this department.



MRS. GRETCHEN COCKERHAM, Consumer Education teacher at Northeast Jones, is proud of her students for their achievements this year. (They can cook delicious cakes, too).

SAMPLE C:

MRS. GAIL PACE, left, teacher in Consumer Education at West Jones High School, is shown instructing students on the art of candy making.

STUDENTS OF WEST JONES Level II Career Education are looking at job opportunities in bulletins from their Civil Service Board as Charles Davis, teacher, looks on.

SAMPLE D:

JAMES THOMAS, teacher in Industrial Arts and Crafts at South Jones shows a group of girls how to check auto battery, water, oil, etc., as a phase of work in this department.

LEVEL II TEACHER in Career Education, Mrs. Nelda Turner, is discussing occupation orientation with group of her students.

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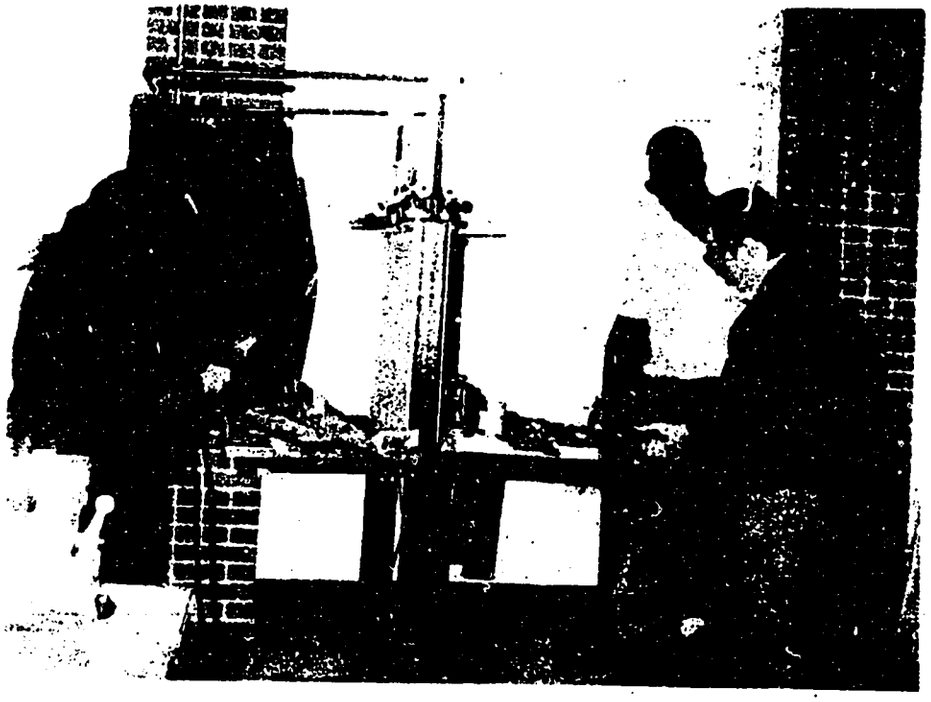
SAMPLE E:



GRADY MARSHALL, teacher in Industrial Arts at West Jones, is shown instructing a young man in Acetylene Welding. Also note that welding is not necessarily for the boys, as a young lady in the left of picture is trying her hand at e ectric arc welding.

GIRLS AND BOYS learn proper procedure for setting table at South Jones High School from Mrs. Emily Mooney, teacher in Consumer Education.

SAMPLE F:

INNOVATIVE IDEA

Career Centered Study Aids Community Understanding

One of the most exciting additions to the public school program in Mississippi is the Career Centered Curriculum systems.

The first such program was started in Jones County in the fall of 1970. At the beginning of this school year the program was begun in the Franklin and Kemper County school systems and New Albany and Amory Separate School Districts.

The Career Centered Curriculum involves all grades, all personnel in the school. In the schools where the Career Centered Curriculum operates bulletin boards throughout the building point out career concepts and ideas. Special sections in the library are devoted to the career centered ideas.

The Career Centered Curriculum breaks down into three phases: awarness, grades 1-6; exploration, middle grades and preparation in the high school years.

In the awareness phase of the program, children are taught to be conscious of the occupations of their parents and others in the family group.

Later, jobs in the community are - explored —"community helpers" they are called.

Teachers have found that most children are somewhat familiar with the job his parent has; but, outside the immediate family, he is unaware of what others do for a living.

It is during this phase that misconceptions about careers are cleared up and the proper name of the job is learned. For instance, a first grader might say he wants to be an airplane driver. It is during this phase that he learns that the proper job title is airplane pilot.

During the awareness phase, when it comes time to learn how to count money, pupils do this by operating a make believe drug or grocery store, with each student having a chance to be the store keeper and both he and the customer learn how to count money and to make change.

The course of study in the middle, or junior high classes, continues the ideas started in the loweer grads. However, students explore occupations, learning through field trips, visiting resource speakers and by other means, the requireby other means, the requirements, the social standing in the community, the compensation and thee advantages and tion and the advantages and disadvantages of specific occupations.

Again, in this stage of the curriculum, misconceptions about various careers are cleared up by actual study of the occupation.

The third phase—preparation, comes driving the high school years. By this time the student has some idea of whether he wants to attend college or terminate his education at graduation. For those students college bound he course of study is a college preparatory one. For others, they are introduced to various vocational courses. But, whether the student is going to college or not, he has been prepared for the career he had chosen.

Throughout the school years, by the teacher in the lower grades, and by counselors in the middle and high school grades the child is made to become aware of himself. The student learns something about his potentialities, his weaknesses and his strong points. The student is steered in the right direction for his best interest. As is usual in the case of new ideas, reluctance is hown by some teachers while the career centered program is being planned; but after having worked with the concept, the teachers —almost without exception—are high in their praise of the Career Centered Curriculum. Parents are pleased because their children are receiving relevant instruction, guiding him toward a career that is suited to him.

The Vocational Divison of the State Department of Education has the responsibility of implementing the program.

Troy V. Majure, state director Vocational Education, said, "Educators for a long time have felt the need for the ideas contained in the Career Centered Curriculum. I am very proud of the progress that Mississippi has made in this field. Mississippi is one of seven states with a career centered program rated as outstanding by evaluation teams."

J. H. McMinn, Vocational Division, is the coordinator of programs in Mississippi, while Ken Morris, Vocational Division, is the program ofifcer for the five projects in operation in Mississippi.

SAMPLE G:

The Clarion-Ledger JACKSON DAILY NEWS 1
Sunday, March 5, 1972 SECTION C

PARTS OF AN AUTOMOBILE—Students identify various parts of an automobile, and learn how to spell and pronounce the names in a career centered curriculum classroom.

OPERATE DRUG STORE — Pupils in the grammar school level of Career Centered Curriculum learn how to count money by operating a make believe drug store.

COMMUNITY HELPERS—This second grade student gives a news report tied into the class' study of the daily newspaper.

SAMPLE H:

S. JONES STUDENTS VISIT LEADER-CALL

Students in the Jones County Exemplary Program at South Jones High School recently visited the Laurel Leader-Call and were taken on a guided tour of the building.

The young people were accompanied by their consumer education teacher, Mrs. Emily Mooney, and assistant teacher, Mrs. Dianne Pickering.

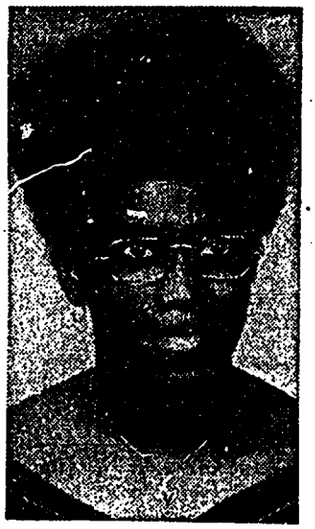
(Leader-Call Staff Photo)

SAMPLE I:

LOSO CHILDREN ON FIELD TRIP

Culminating an intensive study of "occupations", the two first grade students of Loso Elementary School took a field trip. Pupils of Mrs. Hazel Johnson and Mrs. Dawn Joyner rode the bus to the Hebron Community where they visited the Chester Ray Jefcoat dairy, the Pickering cattle farm, and the Roy Jefcoat farm where they saw sheep, cows and trees tapped for turpentine.

After lunch at the Hebron Community Center they returned to the Pickering farm to watch the baleing of hay. In addition to their teachers, the children were accompanied by Mrs. Laz Jefcoat, teacher's aide, and Mrs. A. B. Wiggington, the bus driver.



BETTY SMITH

Co-Op Student of the Week at Northeast Jones High School is Betty Smith, 19 year old daughter of Mrs. Ruby Nell King of Rt. 2, Laurel.

Miss Smith is a member of the Co-Op Club, Red Cross Club, Future Homemakers of America, and the Medical Careers Club. She is now receiving training as a nurse's aide, and plans to further her education in the field of nursing.

At the employer - employe banquet at Chancellor's Restaurant, the guest speaker, Jim Smith of the Laurel Police Department Narcotics Bureau, spoke about the spreading drug abuse in Laurel and Jones County and what actions are being taken toward this.

III. EVALUATION ANALYSIS

The evaluation section of this second interim report was devoted to a process evaluation. With the implementation of the exemplary project on the career-centered concept, it was felt that evaluation activities could make the greatest impact on the implementation phase of the program by focusing upon the process. Deficiencies in the process detected at early stages were corrected with the least amount of confusion when evaluative data concerning the process were continually fed back and incorporated into redirecting programmatic efforts during the first year of the project. Therefore, evaluation activities for the second year of operation were centered around the "process."

During the second year of the project's operation evaluation activities began to focus upon the "product" in greater detail. By the beginning of the second year of operation it became evident that the "process" had been refined to the point where it was functioning at a sufficiently stable level to allow some type of "product" measurement to commence. While much of the second interim evaluation report centers around the "product" some evaluation activities were devoted to the "process" to aid in its further refinement.

Before embarking upon the evaluation report for the second year of operation, the authors of this report felt that the recommendations brought forth in the First Interim Evaluation Report, and actions upon them, should be elaborated upon. The recommendations and a brief commentary on each are provided the following:

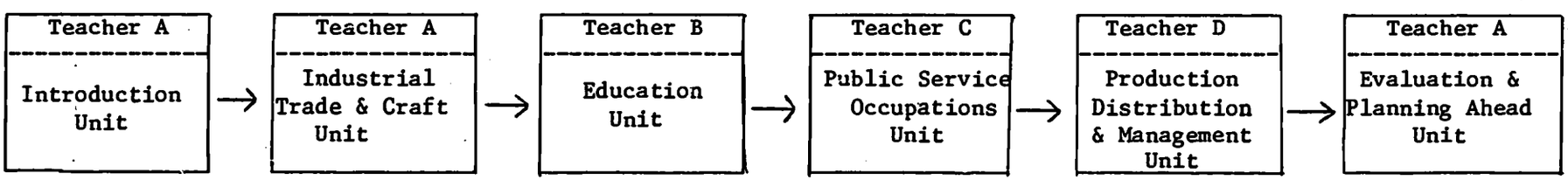
<u>First Interim Evaluation Report Recommendation: Consumer education classes in the project should be incorporated into the occupational orientation classes</u>.

This recommendation was implemented before the 1971-72 school session began. Each of the three consumer education teachers (one at each of the three Junior-Senior High School Attendance Centers) became occupational orientation teachers. They played a role in the revamping of the entire occupational orientation program which is discussed in greater detail under the next recommendation.

<u>First Interim Evaluation Report Recommendation: Occupational orientation classes should be rotated between teachers with specific specialty areas to increase the exploratory experiences of the students</u>.

This recommendation was implemented before the 1971-72 school session began. Teachers with specialty areas (Home economics, agriculture, industrial arts, etc.) were utilized by rotating students through their areas and facilities, thereby giving students maximum exposure to as many exploratory experiences under persons knowledgeable in that specific area. A sample rotation model utilized is depicted on the following page.

Example of an Occupational Orientation Rotation Model



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Each unit in the occupational orientation course is approximately six weeks in length. The students receive instruction from their assigned teachers for twelve weeks (the Introductory Unit plus the teachers specialty area unit) at the beginning of the school year. At the end of the school year they return to their original teacher for the final unit on evaluation and planning. During the year they spend six weeks each with three other teachers in other specialty areas.

First Interim Evaluation Report Recommendation: Additional "hands-on" occupational experiences should be provided for occupational orientation students.

During the 1971-72 school year some progress was made in providing additional "hands-on" experience for all students. This was mainly accomplished through allowing all students to rotate through areas (shops, laboratories, etc.) which had facilities designed to enhance "hands-on" experiences in occupations. However, all teachers did not place the same emphasis on providing "hands-on" experiences for students. It was observed that a few teachers, having sufficient laboratory facilities to provide a variety of "hands-on" experiences for students, did not take the maximum advantage of providing students with such experiences.

First Interim Evaluation Report Recommendation: Further development of career-centered media centers should continue in all attendance centers.

Further progress was made during the 1971-72 school session in developing more comprehensive career-centered media centers in each of the attendance centers. In addition, the centrally located media center (located at the vocational complex) was expanded. New equipment, materials, and supplies have been added during the year.

First Interim Evaluation Report Recommendation: Additional student recruitment activities for cooperative education be conducted.

Additional student recruitment activities conducted by project personnel resulted in an increase in enrollment in the cooperative education part of the project. However, the cooperative education classes were not operating with the maximum enrollments during the 1971-72 school session.

First Interim Evaluation Report Recommendations: Continuation of public relations activities connected with the project.

During the second year of the project's operation several forms of public relations activities were utilized in keeping the public informed as to the objectives, development, and progress of the career

education program. Special emphasis was given to keeping parents informed as to their children's progress in the program. Parents received individual communications designed to increase their knowledge and understanding of the program. In addition to letters sent to parents, individual conferences (both by phone and in person) were held with parents.

Mass media were utilized to keep the public informed as to the progress of the program. Several radio programs on WNSL-Laurel were utilized by project personnel to report the progress of the program. Several newspaper articles appeared in papers with local and statewide circulation. Programs were also presented to civic and professional organizations. Key project personnel presented programs at educational conferences in Jackson, Mississippi and Atlanta, Georgia concerning the project.

First Interim Evaluation Report Recommendation: Continuation of intensive inservice program for the project staff.

Professional growth activities of the program personnel was a continuous process. All staff members were affiliated with various professional organizations and participated in local and state meetings. Some staff members were enrolled in one or more graduate credit courses in their specialty areas during the second year of the program's operation. Inservice training activities were conducted during the year. These sessions included presession workshops conducted prior to the opening of school for all program personnel. During the session monthly training sessions were held throughout the school year. In addition to the workshops conducted throughout the year, staff and/or committee meetings aided in total staff development. It appears that the inservice activities which allowed the opportunity for the planning, development, and implementation of the program on a unified basis were chiefly responsible for its further development.

First Interim Evaluation Report Recommendation: Additional curriculum materials development should be undertaken.

During the second year of operation new curriculum materials were developed and/or adapted. Special emphasis was given to development of curriculum materials on the elementary level. Workshop and coordination activities aided in the development of these materials throughout the year.

First Interim Evaluation Report Recommendation: Curriculum guides for all phases of the program should be developed and distributed.

During the second year of operation special emphasis was given to the development and testing of an occupational orientation curriculum guide. A rough working copy was distributed to all

personnel within the project. As the guide was utilized during the school session, deletions and additions were made. Emphasis was given to writing the guide in behaviorial terms. Consultants were utilized to assist in the development of the guide. Plans are to finalize and print in quantity this guide for distribution during the next year of operation. Some progress has been made in the development of a comprehensive elementary curriculum guide.

First Interim Evaluation Report Recommendation: A placement center to aid students in obtaining employment should be established.

Progress was made in establishing and operating placement centers in each of the Junior-Senior High School Attendance Centers. Detailed information concerning the operation of these centers is further on in this section of the evaluation report.

First Interim Evaluation Report Recommendation: An intensive skill training program for students about to leave school without salable skills should be inaugurated.

During the second year of operation this objective of the program was implemented. Details of this objective implementation are found in the following section of the report.

Elementary Level

A concerted effort was made during the school year (1971-72) to make occupational awareness a force within the on-going elementary curriculum. This was accomplished by utilizing standard components (reading, science, etc.) as occupational vehicles. The regular classroom teachers were responsible for the activities.

The elementary staff of Jones County Schools, the coordinator of elementary project activities, and other staff personnel within the county, revised the old curriculum and/or developed a new curriculum guide for all courses in the elementary schools. These new curriculum guides provide ample flexibility and leeway in various areas for career education to be "fused" into the traditional curriculum. The coordinator of elementary project activities worked closely with the elementary teachers in the county. Appointments were scheduled with the school personnel and are followed up by the elementary coordinator. This assists the elementary teachers in implementing new career education experiences, as well as providing them with various occupational materials. Materials were interchanged among the various schools, at the appropriate levels. New materials were received for the project and have been distributed to all elementary schools with suggestions as to use.

Local inservice activities included weekly workshops which were held for the purpose of planning and expediting future activities. Teachers

were given new catalogs of available teaching materials. After reviewing these catalogs, lists of materials were compiled for future order and use.

The Course of Study Committees developed plans and courses of study for career education. Through these plans more effective utilization of career development materials was accomplished.

There was an observable increase in the number of occupational resource persons utilized in the elementary schools during the second year of operation. Parents, as well as other resource persons, have been utilized effectively in bringing the world of work into the classroom.

Subjective criterion referenced pre- and post tests were constructed to assess the effectiveness of the program. The pre-test was administered to all elementary grades during the early part of the school year. Analysis of the pre-test results indicates little increase in career awareness with increase in grade level. This may indicate the need for a "stepped-up" or "crash program" for those about to leave the upper elementary grades. Further analysis revealed extreme variation in the knowledge of career information within each age group. (Statistical information concerning these areas will be included in the final report.)

Career education during the 1971-72 session in the Jones County elementary schools has been responsible for a visable change in the traditional image of elementary education as noted by the evaluation team. As a result of this change, a progressive attitude has been observed in members of the staff, in parents, in the public, and in the students.

Occupational Orientation

In each attendance center occupational orientation personnel met on a weekly basis for planning, coordination, and implementation activities. These meetings, widely involving personnel, have apparently enhanced all aspects of the program. They were especially important in bringing about change and redirection within the instructional program (See pp. 46e-50e.) In addition, they have facilitated the implementation and the reaching of goals and objectives.

The Occupational Orientation resource centers in each of the attendance centers were further equipped with shelving, materials, and supplies during the second year of operation. This increased the overall effectiveness of the program. Evaluation personnel noted that last year's occupational orientation students were returning during their own free time to use resource center materials. These former occupational orientation students were observed investigating

potential careers and/or making preliminary career plans. Based upon these and other observations, the second year of occupational orientation was successful in increasing the career-awareness and planning ability of participating students.

Evaluation personnel, along with project personnel, engaged in the development of instruments for assessment of the goals and objectives of this phase of the program. Four instruments were developed for pre-and post testing of the rotation areas in the occupational orientation course. An overall instrument was developed for use with students within the program and control groups in other school system. Prior to development of these instruments several batteries of standardized tests and/or questionnaires were utilized in an attempt to measure student progress. These standardized tests proved to be unsatisfactory with respect to measuring students' progress in relationship to the program goals. Field testing of the instruments and final revision took place during the year.

The progress of students' awareness and exploration was measured by four separate pre-test post-test instruments. One instrument was developed for each rotation area; namely (1) Industrial, Craft and Trade Occupations; (2) Consumer Education; (3) Public Service; and (4) Production, Distribution and Management Occupations.

Instruments were administered during the beginning and ending of the fifth six-week term. All students present in each of the rotation areas (clusters) on pre-test and post-test days completed instruments. Over the six-week period an increase in occupational knowledge of students ranged from approximately 24 percent in one rotation area to 52 percent in another (see Figure VI). The public service area or cluster indicated a 23.97 percent increase in occupational knowledge; the production, distribution, and management area a 39.19 percent increase; the industry, craft and trade area a 44.73 percent increase; and the consumer education area a 52.40 percent increase in occupational knowledge.

In addition to the pre-test, post-test instruments, an instrument was developed to give an indication of students knowledge of the world of work. The instrument was field tested and refined before being administered. Each of the three attendance centers offering occupational orientation was paired with attendance centers not offering occupational orientation for comparisons. Those attendance centers selected as comparison groups exhibited similar achievement scores on the California Achievement Tests (1970 Edition), contained similar racial compositions, and were located in the same manpower and economic districts.

The instrument was administered to students during the fifth six-week term. Information collected indicated that the exemplary group

Figure VIe

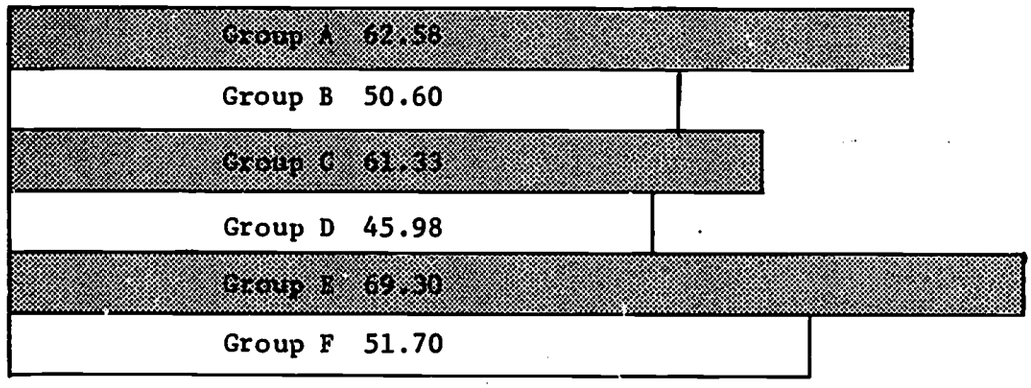
INCREASE IN STUDENTS' OCCUPATIONAL KNOWLEDGE
OVER A SIX-WEEK PERIOD

Mean Scores	Increase In Mean Score	Percentage Increase During Period
Industry, Trade and Craft Cluster 46.52 N=167 67.33 N=254	20.81	44.73
Production, Distribution & Management Cluster 57.26 N=115 79.70 N=287	22.44	39.19
Consumer Education Cluster 50.74 N=81 77.33 N=138	26.59	52.40
Public Service Cluster 63.0 N=319 78.1 N=200	15.10	23.97

Key: Pre-Test
Post-Test

scored consistently higher on occupational knowledge than did the comparison groups. (See Figure VII below).

Figure VIIe
Achievement of Students in Exemplary and Comparison Groups on Occupational Inventory Instrument in Mean Scores



Exemplary

Comparison

Group Size

Group A-N=182 Group D-N=37
Group B-N=127 Group E-N=242
Group C-n=264 Group F-N=125

Occupational Guidance and Placement

The program made much progress toward meeting the guidance and placement objective during the second year of operation. Each of the three combination junior-senior high school attendance centers housed full-time vocational guidance personnel who counseled with students. In addition to the guidance personnel, each attendance center housed four occupational orientation teachers whose courses were designed to utilize group guidance techniques. The guidance personnel, occupational orientation teachers, and other vocational education teachers planned and implemented a testing program designed to aid in career exploration, self-analysis and counseling for students.

Group counseling centered around assisting students in appraisal of individual interests, abilities, aptitudes, and skills; development of characteristics such as ambition, honesty, perserverance, initiative, cheerfulness, loyalty, and dependability; acquainting students with sources of occupational information and use; assisting students in the beginning of early career planning; and assisting students in participating in the American Economic System. Special emphasis was placed on assisting students in learning proper ways to seek satisfying employment.

A placement office was established in each of the junior-senior high school attendance centers during the second year of the project's operation. A partial summary of activities are found in Table IV.

Vocational Offering

During the second year of operation 18.92 percent of the school districts entire enrollment (grades 1-12) were enrolled in the preparation phase of the program. Of the 1,507 students enrolled in preparation courses 60 were in cooperative education, 859 in home economics, 38 in industrial electricity, 42 in building trades, 42 in automotive repair, 380 in agriculture, 21 in business and office, 24 in drafting, and 41 in metal trades. Agriculture and home economics courses were offered in the three junior-senior high school attendance centers. The other vocational courses were offered at the centrally located vocational complex.

Remedial Education

The remedial education provided by the career-centered project has been of great value to the effectiveness of the program. Students in the career development project (usually those at the occupation orientation level or the preparation level) with difficulties are referred to the remedial class. While students are deficient in several areas, reading and mathematics are the biggest stumbling blocks to the largest percentage of students. If these students are to pursue their educational and occupational objectives, additional assistance must be provided through remedial classes.

A total of 157 students were involved in the remedial reading phase of the program. Only 11, or seven percent, made little or no progress as indicated in Table V. Slightly over 62 percent of those students enrolled gained one year or more in reading.

TABLE IVe

SUMMARY OF JONES COUNTY EXEMPLARY
PROGRAM PLACEMENT ACTIVITIES

Activities	Center A	Center B	Center C	Total
	No. Placed	No. Placed	No. Placed	
I. PLACEMENT ACTIVITIES WITHIN THE SCHOOL				
A. Remedial Education	40	98	63	201
B. Senior Placement L-III				
C. Special Education				
D. Testing:				
1. C.A.T.	250	200	250	700
2. C.T.M.M.	190	200	180	570
3. Kuder E.	300	375	500	1175
4. Kuder CH	50	22	80	152
5. P.M.A.	350	300	-	650
6. M.M.P.T.	-	-	-	-
7. Schonnel	40	15	60	115
8. Stanford	70	-	65	135
9. Dolch	20	-	60	80
10. Other (specify) VIP,CTBS				
E. Placement on Jobs within the School:				
1. Lunchroom	15	8	3	26
2. Maintenance (Custodian)	8	20	6	34

TABLE IV (Continued)

Activities	Center A	Center B	Center C	Total
	No. Placed	No. Placed	No. Placed	
3. Bus Drivers	10	12	4	26
4. Bus Flag (boy-girl)	80	55	29	164
5. Career Resource Center Librarian	10	8	-	18
6. Librarian assistants	25	6	14	45
7. Teacher assistants	10	25	25	60
8. Office assistants	15	1	-	16
9. Athletic managers	12	11	16	39
10. Vocational, trade, related	88	65	90	243
11. Student Nurse's aide	-	8	-	8
12. Audio-visual helpers	10	-	10	20
13. Student teacher's aide	-	-	15	15
14. Student secretary, clerk, rel.	25	25	10	60
15. Student receptionist	3	1	3	7
II. PLACEMENT ACTIVITIES OUTSIDE THE SCHOOL				
A. Vocational rehabilitation	-	9	1	10
B. Miss. Employment Service	420	150	435	1005
C. Private Employment Service	-	-	-	-
D. Psychologist - Psychiatrist	-	-	-	-
E. Doctors, Dentist, related	15	-	-	15
F. Health Department Service	-	-	-	-

TABLE IV (Continued)

Activities	Center A	Center B	Center C	Total
	No. Placed	No. Placed	No. Placed	
G. College - University	245	90	101	436
H. Vocational - trade & related	-	54	66	120
I. Seminaries	-	-	-	-
J. University Services	-	-	-	-
1. Speech & Hearing	-	-	7	7
2. Guidance & related	-	-	-	-
3. Psychology Clinic	-	-	3	3
K. Title Programs	-	-	2	2
L. Social Clubs	-	-	-	-
M. Ministers (counselor)	-	-	-	-
N. Legal Service (counselor)	-	-	-	-
O. Financial Service (counselor)	-	-	-	-
P. Ellisville State School	-	-	-	-
Q. On the Job				
1. Part time	330	188	350	868
2. Co-op	36	22	16	74
3. Summer	522	101	492	1115
4. Full time	22	-	1	23
5. Temporary	502	-	563	1065

Table V e
GAIN IN MEAN READING LEVEL OF STUDENTS
ENROLLED IN THE REMEDIAL PHASE OF
THE EXEMPLARY PROGRAM

Gain in Six Months In Years	(N=157) No.	Percent
0- .49	11*	7.00
.5- .99	48**	30.40
1.0-1.49	39	24.70
1.5-1.99	24	15.20
2.0-2.49	18	11.40
2.5-2.99	3	1.90
3.0-3.99	9	5.70
4.0 and above	5	3.20

*Five of these students were classified as special education students
**One student was classified as a special education students

Intensive and Short-Term Skill Training

During the second year of the program's operation the short-term intensive training portion of the project was implemented. This was designed for those students (both those about to drop out and those about to graduate) who have not previously been enrolled in one of the regular vocational programs and did not possess a salable skill. Problems were encountered in enrolling enough students with the same interest areas at one time to justify employment of additional personnel for instruction. This problem was overcome by making all vocational courses in the vocational complex "open-ended" and allowing students desiring specific skills to enter the classes and stay as long as feasible. In some instances drop-out-prone students elected to stay in the vocational courses for the entire school day in order to develop specific skills. A total

of 34 students took advantage of the program during the year. Of this number four developed skills in the metal trade area, six in drafting, one in auto mechanics, nine in building trades, and fourteen in electricity.

IV. RECOMMENDATIONS

During the second year of operation numerous recommendations evolving from evaluative activities were fed back into the program through the state and/or local project directors. Most of these recommendations have been implemented and will not be elaborated upon in this section. Consequently, only those recommendations given at the end of the second year of operation will be reported in this section. The authors of this evaluation report recommend that:

* Funding should be continued for the third year of operation.
* Continued emphasis should be placed on providing remedial education classes for all students needing this service.
* Continued emphasis should be given to making the project an integral part of the on-going school system's activities.
* Curriculum guides (grades 1-12) should be refined and printed in sufficient quantities to distribute to other school systems.
* Additional student recruitment activities for all vocational courses should be conducted.
* A feasibility study on providing additional vocational offerings for the school districts should be conducted.
* Continued emphasis should be placed on providing intensive short-term skill training for dropout-prone students.
* Placement services should be continued and expanded.
* Intensive inservice training for project personnel should be continued.
* Public relations activities connected with the program should be continued.
* Plans should be finalized for the continuation of the program as Exemplary Funds are phased out.

V. SUMMARY

The goal of the project stated in its simplest form was to establish structural relationships which facilitate the implementation of the career-centered concept in the Jones County School System. The approximately 8,000 students in the school system were to be involved in the program in various ways. The program began with the elementary schools providing students with career information and counseling, access to resource persons, and field trips incorporated into the "regular" elementary curriculum. The program in the junior high school expands and intensifies career exploratory experiences through a specially designed course, occupational orientation, as well as counseling activities which assist students in the occupational choice process. At the high school level students receive assistance in planning for and attaining vocational goals and preferences through a variety of vocational programs.

The evaluation procedure centers around the use of the program's educational goal and objectives as a standard by which the outcome of the project was assessed. Evaluation activities for the first year of operation were centered around the "process." In addition, base-line data were collected on the "product." These activities continued during the second year of operation. The procedure included data collection; analysis of records and reports; judgments of qualified analysis of equipment and supplies, purchase and utilization; analysis of program activities; and analysis of opinions of program staff, State Division of Vocational and Technical Education personnel, consultants, school system faculty and administration, parents, and students.

Recommendations developing from evaluation activities during the first year of operation were all implemented by the project staff during the second year of the project's operation. Many of the recommendations were of the type which requires continuous efforts over several years. These were not repeated in the Second Interim Evaluation Report.

During the second year of operation, progress was made in "fusing" the career-centered concept into the ongoing curriculum at the elementary level. Inservice activities continued at a high level for all project personnel. Changes were made in the occupational orientation course which provide for greater use of team teaching. This resulted in the increase in the number of "hands-on" occupational experiences students received. The use of pre-test and post-test instruments indicated approximately a 40 percent increase in occupational knowledge in a six weeks period. Exemplary program students consistently rated higher in occupation knowledge than did comparison groups.

Placement centers were established at each of the junior-senior high school attendance centers, and in-school and out-of-school placement occurred. A total of 18.92 percent of the entire school population

(grades 1-12) were enrolled in vocational preparation courses (regular vocational courses) during the second year of the program's operation. Remedial courses contained maximum enrollments. An intensive short-term skill training program for those about to leave school (both by graduation and dropping out) without occupational skills was implemented during the second year of the program's operation. Special emphasis was placed on dropout-prone students by this intensive skill training program.

Upon analysis of evaluative data it was concluded that the project was making progress toward the attainment of its goal and objectives and should be funded for the third year of operation. Specific recommendations resulting from the evaluation effort include:

* Continued emphasis should be placed on providing remedial education classes for all students needing this service.
* Continued emphasis should be given to making the project an integral part of the ongoing school system's activities.
* Curriculum guides (grades 1-12) should be refined and printed in sufficient quantitites to provide other school systems with these materials.
* Additional student recruitment activities for all vocational courses should be conducted.
* A feasibility study on providing additional vocational offerings for the school districts should be conducted.
* Continued emphasis should be placed on providing intensive short-term skill training for dropout-prone students.
* Placement services should be continued and expanded.
* Continuation of intensive inservice training for project personnel.
* Continuation of public relations activities connected with the program.
* Plans should be finalized for the continuation of the program as Exemplary Funds are phased out.

VI. CONCLUSIONS AND RECOMMENDATIONS

By the end of the second year of the project's operation, additional insights into the operational facet of the career-centered concept had been gained. Information provided by the first and second year of operation provided for a smooth implementation of the career-centered concept in four additional school systems in the State. The most successful components of the project enhanced the immediate accomplishment of objectives established by the other school systems.

It was concluded that important progress was made by the project during the year in assisting students in developing skills which would enable them to adjust to changes within the world of work. In addition, progress was made in assisting students in developing psychological skills and occupational skills which will serve as a base for continuous growth and advancement in chosen careers.

Satisfactory progress was made during the second year of operation toward meeting the project's objectives. Two objectives, (1) implementation of short-term intensive skill training for students about to leave school without salable skills and (2) establishment of placement offices, which had not been implemented during the first year of operation were implemented during the second year. All phases of the project are in operation and making satisfactory progress toward fusing the career-centered concept into the school system.

Recommendations resulting from the second year's evaluation activities are as follows:

* Funding should be continued for the third year of operation.
* Continued emphasis should be placed on providing remedial education classes for all students needing this service.
* Continued emphasis should be given to making the project an integral part of the ongoing school system's activities.
* Curriculum guides (grades 1-12) should be refined and printed in sufficient quantitites to provide copies for other school systems.
* Additional student recruitment activities for <u>all</u> vocational courses should be conducted.
* A feasibility study on providing additional vocational offerings for the school districts should be conducted.
* Continued emphasis should be placed on providing short-term intensive skill training for dropout-prone students.
* Placement services should be continued and expanded.

* Public relations activities connected with the program should be continued.
* Intensive inservice training for project personnel should be continued.
* Plans should be finalized for the continuation of the program as Exemplary Funds are phased out.

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APPENDIX

APPENDIX A

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Corps (NYC Agency). Work by Albuquerque Public Schools under this contract was begun on November 16, 1970. It is the implementation of this contract which is being reviewed.

Administratively, there are two organizations functioning side-by-side to accomplish the purposes of the program: (1) the Neighborhood Youth Corps organization headed by a Director, and with a supporting staff of six, and (2) the School on Wheels, the training component operated under the aforementioned contract by the Albuquerque Public Schools. The Albuquerque Public Schools contract specifically requires that it provide the two kinds of training mentioned in the preceding paragraph.

Actually, the units are doing more than functioning as parallel entities. They are reasonably well integrated in their activities. The two Directors communicate regularly and meaningfully concerning pertinent administrative matters, and staff meetings are jointly held. Interpersonal relationships among all concerned appear to be of the highest order. Few discordant notes were found. However, long-range operations should not be based upon a satisfactory assessment of a situation at a particular point in time. A few statements of observation are appropriate at this point so the reader will better understand later analyses and recommendations.

Sound administrative practice which would apply to this organization suggests the following general criteria, several of which are not seen as being present in this situation:

1. Administrative conditions should be such that a single, clearly-defined, management pattern is in evidence.
2. A contractor-contractee relationship in itself suggests a clear delineation of functions between the two.

VT 016 345
SCHOOL ON WHEELS. REVIEW REPORT.

NEW MEXICO UNIV., ALBUQUERQUE. BUREAU OF EDUCATIONAL PLANNING AND DEVELOPMENT.
ALBUQUERQUE PUBLIC SCHOOLS, N. MEX.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - NOV71 64P.

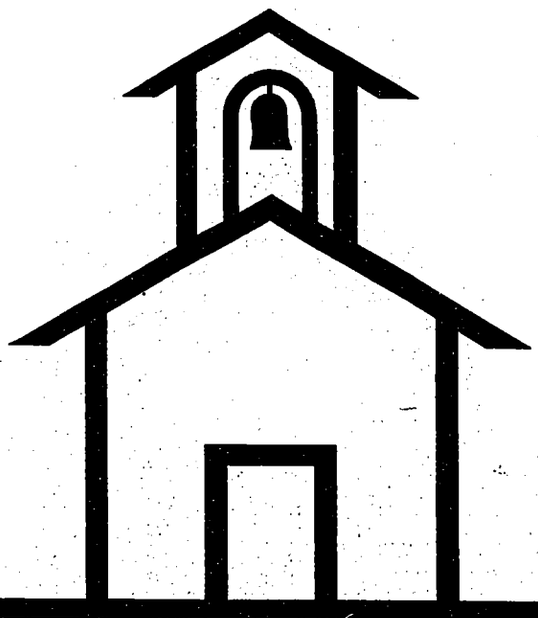
DESCRIPTORS - *ADULT BASIC EDUCATION; *ADULT VOCATIONAL EDUCATION; VOCATIONAL DEVELOPMENT; SKILL DEVELOPMENT; *DROPOUT PROGRAMS; *MOBILE CLASSROOMS; OPEN PLAN SCHOOLS; SELF CONTAINED CLASSROOMS; *PROGRAM IMPROVEMENT; PERSONNEL NEEDS; COST EFFECTIVENESS; DISADVANTAGED YOUTH

ABSTRACT - THE PURPOSE OF THIS FIRST ANNUAL REVIEW IS TO ANALYZE THE PROGRAM AND ACTIVITIES OF THIS MOBILE OPEN PLAN SCHOOL, PERMITTING HIGH SCHOOL DROPOUTS TO COMPLETE REQUIREMENTS FOR A HIGH SCHOOL DIPLOMA, IN TERMS OF ACCOMPLISHING THE STATED AND IMPLIED OBJECTIVES. RECOMMENDATIONS ARE MADE FOR IMPROVING PROGRAM ADMINISTRATION AND OPERATION AND MORE ACCURATE ASSESSEMENT OF UNIT COST AND QUALITY EFFECTIVENESS. AS AN ADJUNCT OF THE NEIGHBORHOOD YOUTH CORPS PROGRAM, THE "SCHOOL ON WHEELS" PROVIDES ADULT BASIC AND VOCATIONAL EDUCATION AND JOB SKILLS TRAINING. (AG)

3. Tasks should be defined in terms that leave no doubt as to the responsibility of an administrative unit. This is more especially necessary when two units are functioning in close proximity either with regard to space or tasks.

4. Large task breakdowns within a project should be such that assignments do not extend indiscriminately beyond defined parameters. In cases of "cutting across", which are often both necessary and desirable, it should be done consciously, and with planning.

Reference relative to specific situations will be made to the foregoing at a later point in the report.



A Review

SCHOOL ON WHEELS

VT016345

CHAPTER II

SCHOOL ON WHEELS OPERATIONS

Regardless of the structure, policies and activities of an organization, however unconventional; or, at the other extreme, exemplary, they may seem, the real test of practicality of operations must be applied before judgments can be made. This section of the review deals with the day-to-day operations in terms of what is and what is happening.

I. PLANNING AND ADMINISTRATION

The first step in the review process was an attempt to grasp an understanding of what was happening in these two vital areas. What is being done here should determine the tone, as well as the specifics, of what is taking place in other areas.

Original planning, or more properly the basic idea, and its initial implementation, was done by Mr. Desi Baca, Assistant Superintendent, South Area, of the Albuquerque Public School system. Preliminary planning proceeded in the Albuquerque Public Schools Area Office under the direction of Mr. Baca. The planning function was transferred to the School on Wheels office when the facility was formally opened for school activities in November 1970.

Under the presently operating program, both planning and administration are under the direction of Mr. Joseph G. Miera, Albuquerque Public Schools/Neighborhood Youth Corps Coordinator. Members of his staff assume most of the planning duties related to program. Planning, as it is used

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EDUCATION & WELFARE
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Review Report

concerning

SCHOOL ON WHEELS

A Contracted Project by the Albuquerque Public Schools

This Report is Made to the

Albuquerque Public Schools

Prepared by:

The Bureau of Educational Planning and Development
College of Education - The University of New Mexico
Albuquerque, New Mexico 87106 - Telephone (505) 277-2622
Richard F. Tonigan, Director

November 1971

herein, refers principally to the short-term, day-to-day type of planning. As would be expected, those staff members who are teaching are daily concerned with lesson and instruction planning. Likewise, the Director has the major responsibility for administrative planning.

Long-range planning, so far as the Review Study Team can determine, has been conspicuous for its absence. There may be substantial reasons for this, such as the uncertainty of future funding. This lack has not necessarily handicapped the operation up to this time, but presently a critical point is being reached, a time when a clear sense of direction, plus guideposts for moving in that future direction, will be needed. It may be presumed that the program review at this particular time may be the result of this obvious future need.

Administrative matters related to the daily operation of the program are handled on site by the Director. Albuquerque Public Schools support of either a program or logistic nature is handled by the Assistant Superintendent of the Area Office, South. Most of the local administrative procedures are of a routine nature, e.g., reports, record keeping, and minor personnel problems. Expenditure records and those few of receipts are kept in the school system Central Office. Little money is handled by the school Director.

Since the Neighborhood Youth Corps office is in the same building, and the two Directors (School on Wheels and the Neighborhood Youth Corps) are in daily communication, administrative problems which have implications for joint action may be acted upon promptly. Also, it is apparent that some costs which ordinarily would be assessed against the Albuquerque Public Schools operation are borne by the Neighborhood Youth Corps as a result of

THE UNIVERSITY OF NEW MEXICO

Bureau of Educational Planning and Development

SCHOOL ON WHEELS

Review Study Team

Paul V. Petty, Director
Administration and Finance
Compiling and Editing Report

William B. Runge, Program Study
Personnel Assignments

Alex C. Mercure, Agency-Community Study

Richard F. Tonigan, Equipment and Facilities

Projections and Recommendations

-- Review Study Team Members

informal agreements. Likewise, administrative decisions which may affect both groups can be conveniently handled as joint decisions because of the physical proximity of the two Directors. It should be noted that this proximity which may be advantageous for certain purposes may prove to be handicapping in other ways.

II. LEADERSHIP

In any functioning organization, the identification, and especially the evaluation, of leadership is extremely difficult. There are several obvious reasons for this situation: Some important aspects of leadership are intangible and not readily visible; there are different styles of leadership exercised by different individuals; leadership is defined differently by different individuals; and the effects sought by leadership of different organizations may vary considerably.

With regard to the School on Wheels, the leadership function could be generally stated in terms of a broadly acceptable definition: Leadership is the personal force exerted toward moving an organization in the direction of accomplishing its goal(s). The overall goals of the School on Wheels have been stated as those of: (1) enrolling high school dropout students, and (2) completing the requirements of these students for a high school diploma. This would be a simply stated definition for operating and evaluating. However, in order for the organization to achieve goals, many factors come into play beyond merely determining the product potential (possible dropout enrollees) and comparing that number with the products completed (high school graduates produced).

THE SCHOOL ON WHEELS

DIRECTION AND SUPERVISION

Staff:

Desi Baca, APS Central Office Coordinator, Area South

Joseph G. Miera, APS/NYC Coordinator

Richard S. Sanchez, Instructor

Barry Cole, Instructor

James D. West, Jr., Instructor

Helen Chalamidas, Instructor

Barbara Dominguez, Counselor-Records, APS/NYC

Neighborhood Youth Corps Support Staff:

Manuel Campos, NYC Project Director

Victor P. Padilla, Head Counselor

William Calderon, Counselor

William Stillwell, Counselor

Isaac Mares, WTI Coordinator

The quality of leadership in this case is to be appraised in terms of such factors as: (1) staff assignments and morale, (2) creativity and flexibility of program, (3) staff stimulation, (4) student satisfaction and morale, (5) course progress of students, (6) initiative shown by staff and students, (7) community knowledge and support of program, and (8) the extent to which the leadership actively moves in leading or pushing the program forward. This kind of broad leadership does not necessarily depend only upon the work of the one official leader at a particular time. One concept of the exercise of leadership is that a leadership team can best do the job. In such a case one would then identify the team and analyze its work.

With the foregoing as background of different ways for viewing leadership in this study, statements representing observations are now appropriate. In terms of a visible aggressive leadership style, the present School on Wheels Director would not rate high in the opinion of the Review Study Team. This means that his (the Director's) leadership role may perhaps be of a different style and therefore more difficult to assess. Or it may mean that he feels that a behind-the-scenes style of leadership is best for this situation. He could be correct in such a judgment.

Another interpretation is that others on the Director's team have strong leadership capability and are performing part of the function. Also, it could mean that the Director of the Neighborhood Youth Corps parent organization, which is located in the same building, is in some way exercising part of the leadership prerogatives of the Albuquerque Public Schools Director. Another possibility one must consider is that adequate leadership for this kind of innovative project is lacking.

F O R E W O R D

Problems toward which The School on Wheels focuses its attention are those which have faced secondary schools for many years. To date, however, the resolution of these problems and the alleviation of their resulting ill effects has been less than meager. The problems of school dropouts and misfits of a lockstep public school system have been treated more by a head-in-the-sand attitude than by positive remedial action. In this regard, this present effort being reviewed rates a positive plus since it is a constructive attempt to solve a serious problem.

Commendably, the Albuquerque Neighborhood Youth Corps (NYC) and the Albuquerque Public Schools (APS) have teamed together to do something about these very important student personnel problems. The establishment of the School on Wheels has literally become the vehicle by which it appears that something can be done about these pressing socioeducational problems.

The Bureau of Educational Planning and Development of the University of New Mexico was requested, as an independent outside agency, to review the organization, administration, and program of the School on Wheels. Specifically, the review was to look analytically at:

1. The instructional plan as detailed in the APS/City of Albuquerque (NYC) contract.
2. The program of skills training.
3. The staffing of the project.
4. The administrative procedures.

With this analysis of the possibilities resulting from this low profile leadership image which the Team reads, the Team proceeded to make furthur careful observations--the term "observations" must be used because the critical leadership factors at this stage lend themselves only to being observed in a judgmental manner.

Personal characteristics of the present School on Wheels Director are observed as fitting into a behind-the-scenes, low-profile style of leadership. Therefore, regardless of the particular local situation, such a style is likely to be in evidence in any case in which this particular official leader is involved. This cannot be categorized as good or bad; it has mixed advantages and disadvantages. A leader who has this style of operation must be cognizant of the style and make adjustments accordingly. Are these things in evidence in the School on Wheels operation?

It is the judgment of the Review Study Team that the project leadership, in this case, whether one person or a team, has not shown the desired amount of creativity and foresight needed and to be expected for this type of project at this stage of the project development. There is little evidence of the project implementation having moved ahead of the initial concept. There is lack of evidence that various alternatives have been considered and best ones chosen in a number of program situations. For an innovative type of project such as the School on Wheels, this lack of creative planning and a day-to-day analysis is a sure way to hold the project at a minimum level of effectiveness, or even to reduce its life span!

There is evidence that the Director does permit, perhaps encourages, staff initiative and new ideas. Of course this is a plus value since no

The contract implies some evaluative judgments even though one should not title the requested review an evaluation per se. The purpose of this review has been to analyze the program and activities in terms of their respective contributions toward the accomplishment of the stated and implied objectives. These objectives may be concisely summarized into two parts as follows:

1. to provide enrollees with further basic, high-school level education and skills training, and
2. to channel the educational and training efforts toward satisfying requirements for a high school diploma.

The reviewing team members have attempted to appraise all activities and efforts in terms of their contributions to the aforesaid goals.

Paul V. Petty
Director, Review Study

Albuquerque
November 15, 1971

single leader has a monopoly on good ideas. Staff input broadens the resource base and accomplishes another important purpose--it gives the involved staff members a closer identification with the ongoing program. A follow-up of this stated leadership possibility by the Review Study Team did not produce evidence of substantial changes resulting from such staff input.

Another factor related to the leadership function is considered especially important by at least one member of the Review Study Team. The Director has had limited professional experience in the area in which the project is operating, the area of secondary education. He may not feel fully comfortable in a leadership role operating in this less familiar field. However, since secondary education expertise can be available to him from Albuquerque Public Schools, this factor has to be examined carefully for pros and cons. A true leader often is not a specialist. Rather he is one who has general knowledge of a field and knows how to utilize the aid of available specialists as they are needed. Hence this handicap can be overcome in this project.

In summary, the Review Study Team feels that up to this point the leadership may have been approximately adequate; stated in other words, in the initial stages the leadership perhaps has not been noticeably inadequte. From this point, however, if the project is to continue and to expand, it is the feeling of the Team that a more forceful, creative leadership will be needed. Any obstructions to obtaining such strong leadership should be identified and dealt with in order that the program may grow in numbers and effectiveness. This does not mean that strong individual leadership is to be desired over well-organized team leadership. Actually, some evidence of

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both types operating simultaneously would appear to be most desirable. The suggestions made in this section should provide guidelines for dealing with the leadership situation. The project is judged as being exciting and vital, and therefore one that deserves the best in all respects.

III. COSTS AND FINANCES

The contract which was agreed upon by the Albuquerque Public Schools and the City of Albuquerque Neighborhood Youth Corps provides that Albuquerque Public Schools will receive reimbursement for operating the educational program at the rate of $6,387 per month. In addition, it allowed for the amount of $12,525 for altering and remodeling the interior of the building in order to adapt it for the program and for purchasing some items of essential equipment. All costs of recruitment and processing of students are costs borne by the Department of Labor and the Neighborhood Youth Corps. Hence, these items are not part of the Albuquerque Public Schools contract budget. Additionally, the Neighborhood Youth Corps pays a base stipend of $45 per week to each enrollee for the attendance time reported by the time clerk of the School on Wheels program. Those enrollees with dependents receive a supplement to the base stipend. Because of this finance relationship between individual attendance and payment received, care is exercised in determining and reporting correctly. Reporting errors have been minimal.

With the more recently placed emphasis on costs and cost-benefit, it becomes especially important to develop some rationale for a meaningful cost unit; and, beyond that, a determination of benefit derived from each unit of money expended. One must ask such questions as what does a cost

LIST OF FIGURES

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1. Present Neighborhood Youth Corps/School on Wheels Facility 16
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analysis of this operation really show? Recommendations along these lines are made at a later point in the report.

IV. EXISTING FACILITIES

The Albuquerque Public Schools "School on Wheels" currently is utilizing two facilities: (1) part of a converted warehouse located at 217 Marquette, N. E., and (2) a storefront location at 711 Bridge Street, S. W. Both facilities are old and tired. Both facilities are in need of considerable improvement. Steps are being taken at the Marquette location to modify and somehow update the heating, ventilation, air-conditioning services, the acoustical conditions, and the general appearance of the part of the warehouse being utilized by school activities. The former warehouse facility is being jointly used by at least three different organizations: (1) the Albuquerque offices of the Neighborhood Youth Corps, (2) civil defense storage, and (3) the Albuquerque Public Schools "School on Wheels". A fourth operation is soon to be added; namely, a new Neighborhood Youth Corps program. It is understood that this new program will be a work-study program for students still enrolled in high school.

The School on Wheels portion of this former warehouse facility contains four offices, one for each of the four instructors. One of the four offices is fully enclosed; the other three do not have acoustical privacy. There is a small group conference room which might also be used for independent study, and another office room for the Albuquerque Public Schools teacher-coordinator (partial partitions to the ceiling). A storeroom of adequate size is available, but badly needs shelving for the protection of

CHAPTER I

BACKGROUND AND INTRODUCTION TO REVIEW STUDY

The title, "School on Wheels", appropriately describes an educational project that is as flexible in its programs and locations as is perhaps possible in a teaching facility for high school dropouts. Both the facility and the program approach represent a unique attempt to solve a particular dropout problem, one which is similar to those which have plagued high schools throughout their history. Even more serious from the broader perspective, it is a problem which has resulted in untold lost manpower skills and just as often in "defective" citizenship.

Contrary to the first impression one might get from the title, the School on Wheels organization does have a fixed headquarters location in a permanent facility. Classes for the basic education section of its curriculum are held in this permanent facility. The building is owned by the City of Albuquerque and is located in close proximity to Albuquerque High School, the most centrally located of the high schools. The building contains much more than the amount of space actually needed for the special school facility. With the consummation of a contract which turned the educational functions over to Albuquerque Public Schools, some remodeling was done in order to make the space more desirable for small group discussions and individual student work. Even after the remodeling, something is left to be desired in the manner of the arrangements. The City-owned facility is located at 400 Marquette, N. E., a site having a definite

materials, and for fire protection of the facility and its occupants. Also, there is a second small group instructional room, a room for the Neighborhood Youth Corps counselors, and three small toilet rooms. These smaller rooms are on the perimeter of two large areas. The larger room is approximately 38 feet wide and 80 feet long, and the smaller room is approximately 28 feet wide and 26 feet long. FIGURE 1 on the following page shows the rooms and the space relationships.

To enter the School on Wheels portion of the former warehouse facility, one enters from the sidewalk and passes through the headquarters offices of the Neighborhood Youth Corps (four medium size private offices and a toilet room in this section). This arrangement leaves something to be desired.

The storefront facility is utilized exclusively by the Albuquerque Public Schools School on Wheels. This facility is one large room approximately 20 feet wide and 30 feet long. It has a toilet room, and one section partially partitioned for visual privacy during small group discussions. A second temporary partition divides the remaining space into two areas; one for receptions, exhibits, and the like; and the other for instruction, lounging, and group instruction activities. Approximately ten to fifteen youths are utilizing this facility at any one time. This storefront facility is in quite bad condition, but serves its meaningful purpose.

Building services are provided by Albuquerque Public Schools, with general cleaning being performed by students. The teacher-coordinator is attempting to get an Albuquerque Public Schools custodian assigned to the daily cleaning of the School on Wheels facilities. The teacher-coordinator reports that maintenance services are also provided by the Neighborhood

location advantage because students not only take skills training at Albuquerque High School, but have a centrally-located home base as they work with training industries located especially in the central part of the city.

A visit to the School on Wheels facility provides an overall impression very different from that of any regular school. An open-space concept plus a high degree of individualization tells the visitor immediately that he is not in an ordinary school type of facility. It does have an air of informal busyness with adult instructors and teenage students making up the personnel component that tells the newcomer that things are happening which are considered important by those involved.

At another location in the City is a branch facility headquarters--a storefront operation. This location is for the distance convenience of the youth living in the particular section of the City. Basic education training is provided by an instructor at this site. For other parts of the program the same assistance and facilities are available to the storefront enrollees as for any other students. There is thought of establishing other storefront operations.

A prime purpose of the School on Wheels is to re-enroll high school dropouts in a program more meaningful to them than had been their previous program in high school--the one from which they had earlier severed their relationship for whatever reason. The program with its new approach and flexibility would permit these students to accomplish their original purpose of high school enrollment; namely, to complete requirements for and to receive a <u>high school diploma</u>.

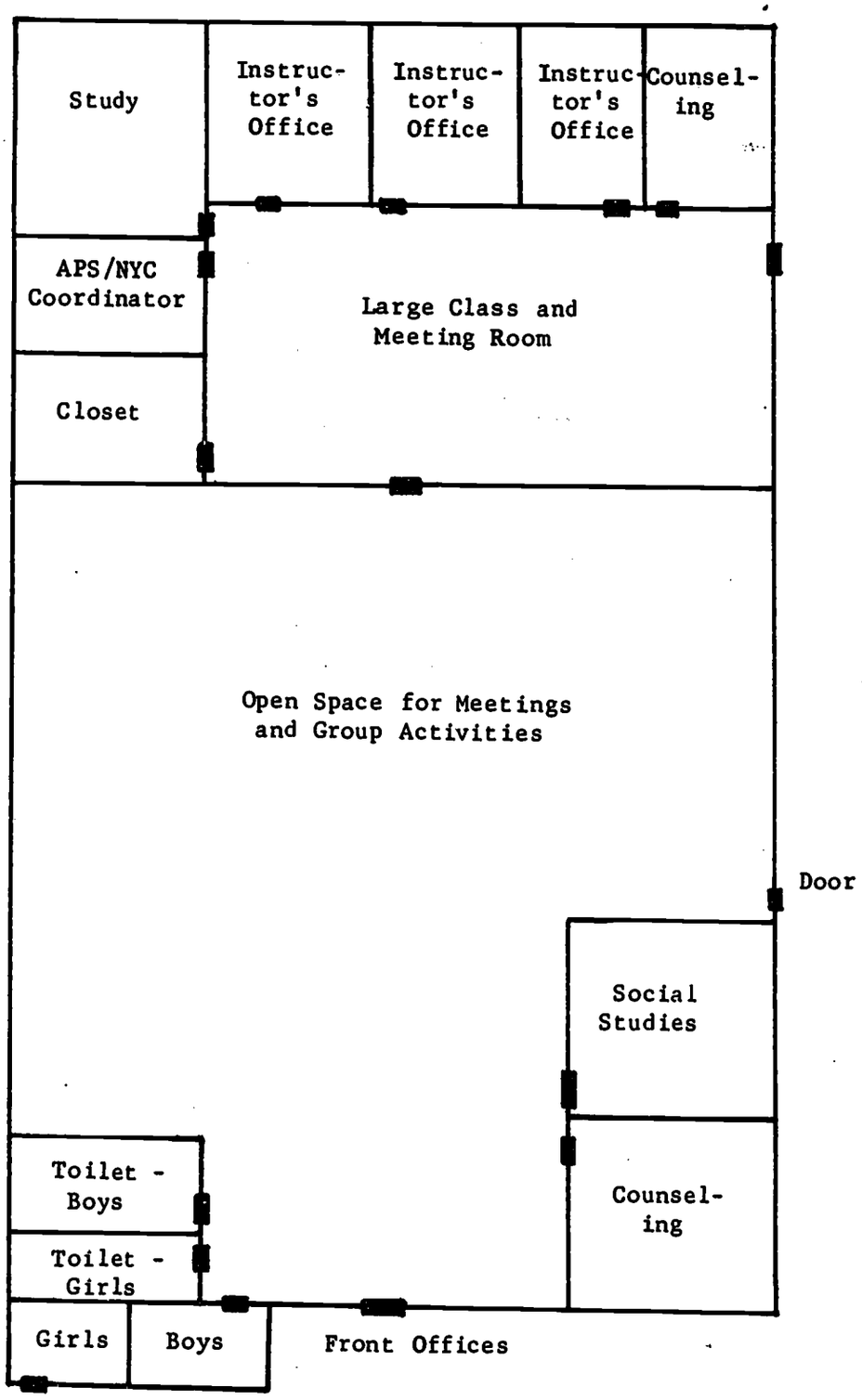

FIGURE 1

PRESENT NEIGHBORHOOD YOUTH CORPS/SCHOOL ON WHEELS FACILITY

(Drawing is not made to scale, and only shows space relationships. The overall measurements are 116 feet x 38 feet.)

I. APPRAISAL CONSIDERATIONS

With the foregoing objective so clearly stated, then a measure of the effectiveness of the School on Wheels program could be simply stated as the number of students who receive a high school diploma from the program. Of course, this would be an oversimplification of an effectiveness appraisal especially at such an early stage of development. Furthermore, the number of students actually enrolled relative to potential enrollment must also be considered. In this same vein, the number receiving diplomas must be considered relative to the total number who have been enrolled and working toward that goal. These considerations, if studied, should then provide a clue to the quantitative product output of the program.

Two other factors must at a later stage become an important part of the appraisal study procedure. These are cost and quality. Both of these factors are obviously important, and at the same time very difficult to measure in meaningful terms. Nevertheless, the fact of difficulty is not sufficient reason for their omission. As further experience is gained in the program, meaningful units of measurement should become clearer so far as financing costs are concerned. With regard to quality, the breakdown of program activities into observable and/or measurable behavioral objectives should permit an assessment of program quality. In March 1971, three very general initial participation behavioral objectives were written by one of the instructors. These could be considered a start in the right direction.

In this first review of a new program which has been in operation approximately one year and for which there was no previous experience, it

Youth Corps, and these are normally provided more rapidly than from Albuquerque Public Schools. The school portion of the warehouse facility is air-conditioned; and this air-conditioning will be increased in capacity by the Albuquerque Public Schools before the next cooling season.

V. SCHOOL AND COMMUNITY

Good relationships with the community served are more important in the case of the School on Wheels than with a regular elementary or secondary school. The first reason for this is obvious. All parents and citizens have had considerable experience with the conventional schools--both as students, and often as parents. The School on Wheels does not have the benefit of this experience. It is a new type of school, and the fact of newness often in itself raises skepticism.

Publicity of all types--information to the public--is very important as this new venture is gaining momentum. Perhaps there has been some deficiency in this regard in view of the fact that the Team in a sampling did not find too many persons who were at all familiar with the operation. This lack of a consistent public relations program was also verified in the administrative review.

As to actual community working relations for the School on Wheels, these seem to be good. Officials in cooperating industries have been supportive and helpful. Apparently there have been few, if any, direct negative responses in the placement of students for work experience. Feedback from those officials in a position to know has been positive.

More information to the general public seems to be the greatest present need. The Director indicated that arrangements have already been completed

is not expected that appraisal, except in the most general terms, will be an important objective. It shall be the purpose of this review to examine administrative structure, procedures, personnel assignments, and program in order to ascertain whether or not these functions and components as presently constituted are best suited for accomplishing the objectives stated. It shall be the further purpose to make recommendations and projections, on the basis of careful analysis, which could result in: (1) an operation of greater effectiveness, and (2) an operation which will lend itself to more accurate assessment of unit cost and quality effectiveness.

II. ADMINISTRATIVE STRUCTURE

The U. S. Department of Labor, in following its established national pattern under the amended Economic Opportunity Act, contracted with the City of Albuquerque to operate a Neighborhood Youth Corps program in accordance with a proposal submitted by the City and approved by the U. S. agency. After this approval, the Neighborhood Youth Corps was then established as an Agency of the City of Albuquerque. This city Agency has responsibility for providing services for disadvantaged youth of Albuquerque. Among the services to be furnished is a provision for Basic Education and a Skills Training program. It was the opinion of the City officials and the Director of the Neighborhood Youth Corps that, since the City was not an educational institution with appropriate facilities and staffing, it could best contract the implementation of these two programs to the Albuquerque Public Schools. As a result, a contract to this effect, dated October 16, 1970, was entered into between the Albuquerque Public Schools (APS) and the Neighborhood Youth

for further assistance from the Albuquerque Public Schools Central Office in this regard.

As information is disseminated more widely and public understanding is developed, support is likely to follow since the public is generally familiar with the tremendous high school dropout problem. In this way, the community will be able to assist in channeling students into the program and at the same time provide the kind of broad support needed.

CHAPTER III

THE PROGRAM

The educational component of the Neighborhood Youth Corps program could be called a second phase to its activities in Albuquerque. The Albuquerque Public Schools, as was mentioned in the previous section, contracted through the City to provide: (1) basic education, and (2) skills training (vocational education) for sixty students. The public school system agreed to furnish the necessary classroom space, materials and equipment, courses and programs of instruction, personnel, and records necessary toward the overall purpose of assisting school dropouts to be redirected and motivated, and ultimately finding a satisfying and productive place in society. The general setting for this arrangement was described in the previous section.

The curriculum in basic education has primarily included social studies, language arts, and mathematics. With the informal approach used by the school, additional experiences have been provided students in the fine arts, government, science, and other areas related to the social and educational enrichment of individual students.

Skills training has been provided in vocational classes at Albuquerque High School or the Technical-Vocational Institute. Students have enrolled in courses such as secretarial, clerical, data processing, drafting, electronics, auto mechanics, auto body repair and painting, and welding.

The second operation which was described earlier as a satellite, the storefront facility on Bridge Street, has a program which meshes with the

program at the central facility. The curriculum has been developed around identifiable problems common to the majority of the students. The emphasis has been on student-initiated mathematics problems, clerical arts, socialization, and communication skills.

I. THE SCHOOL OBJECTIVES AND PROGRESS

The original Neighborhood Youth Corps contract for the educational component included six objectives stated as follows:

1. An opportunity for students to return to school and complete work for a high school diploma.
2. An opportunity for students to improve basic educational skills such as language arts, social studies, and mathematics.
3. An opportunity for students to acquire relevant and useful occupational skills.
4. A chance for students to prepare for and move into advanced manpower programs.
5. Provision for students to have counseling and guidance (social, personal, and vocational).
6. Opportunity for students to obtain actual work experience with private and public agencies.

*7. To provide students with personal enrichment experiences of all types.

Data to support the seven objectives were collected from the school records, interviews with staff and students, and reports. The most valid figures obtainable are included in the explanatory paragraphs which follow.

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*This seventh objective was added later to the original list.

Objectives are numbered as in the foregoing paragraph, with appropriate comments on progress toward accomplishment of each.

1. Students complete work for a high school diploma. Students admitted to this program are all dropouts, and most need a year or more of school credits to complete diploma requirements. Two or three years of "School on Wheels" operation will be needed to really determine the holding power, and to provide enough time for credits to be earned. The School originally enrolled 53 students; and, after eleven months, has 73. A total of 61 terminations were made during this period, and 7 were awarded high school diplomas in June and July, 1970. These figures make a grand total of 134 students who have been enrolled in the School. Twenty-three of the present students have been in the School since it started, and at least 30 who started after November, 1970, will be eligible for graduation and a diploma during the 1971-72 school year, if they complete requirements.

   FIGURE 2 following indicates the number of terminations per month and reasons given for leaving the School. The largest number of terminations came during the three summer months.

   The major reasons for student terminations were: moved away (14); poor attendance (14); personal reasons (9); to work full-time (8); and other (16), e.g., to other programs, marriage, completed program, lack of interest.

MONTH	TRANS-FERRED TO STEP, WTI, MILITARY & MISC.	MOVED	FULL TIME EMPLOY-MENT	POOR ATTEN-DANCE	COM-PLETED TRAIN-ING	PER-SONAL	TOTAL NUMBER TERMI-NATED
December 1970		1		5			6
January 1971							0
February 1971	2	2					4
March 1971	2			2	1	1	6
April 1971	1					2	3
May 1971		1		2		2	5
June 1971	2	2	1	1			6
July 1971		4	2			4	10
August 1971	3	2	2	2			9
Septem-ber 1971	3	2	3	2	2		12
TOTALS	13	14	8	14	3	9	61

FIGURE 2

STUDENT TERMINATIONS AND REASONS FOR LEAVING SCHOOL
DECEMBER 1970 - SEPTEMBER 1971

The above figures would indicate that counselors, teachers, and administrators need to constantly work with students to do everything possible to improve holding power. However, if 23 of the original 53 are still in school and 7 were graduated, there is a better than fifty percent chance that students will at least stay long enough to accomplish objective number one and complete high school requirements.

2. Student improvement in basic skills of communication, socialization, and mathematics. The rationale of the school for instruction in basic skills says "the project should be seeking to provide the trainee with a broad overview of modern society, and offer the opportunity for the individual to perceive his or her own commitment to a functioning role in one of the many facets of urban, social, economic, and political life. The desired effects of the project are to instill a sense of belonging and commitment to each trainee."

Many activities have been implemented in order to assist students in better knowing themselves, developing a positive attitude about life in our society, gaining a sense of self-respect and confidence, and continuing learning in the basic subjects included in the curriculum. Such activities have grown out of student-initiated inquiry and interest at any time. The instructional staff has had to be innovative in the approach to learning activities and instructional strategies. The traditional approaches to the teaching of English,

history, and mathematics have had to be replaced by more informal settings, with "rap" sessions, seminars, team teaching, use of community resources, and the coordination of the basic elements of good counseling, some classroom instruction, and on-the-job practical experiences geared to help each individual student.

All staff members, with the help of students, have developed brief instructional outlines for the three basic areas of social studies, mathematics, and communicative arts. Students attend school 20 hours each week in these instructional areas.

The students identified four major interest areas in the social studies, and instructional outlines and units have been developed for: (1) occupational opportunities, (2) governmental services, (3) cultural awareness, and (4) drug abuse. Such subjects immediately suggest a wide variety of learning experiences that might be provided. Students have taken field trips, talked to business and community leaders, seen many films about jobs and the other subjects, and related their work station activities in seminars.

It is difficult to obtain objective evidence for changes in student behavior related to these areas. However, the school staff members believe progress is being made, and cite the fact that daily attendance has been averaging about seventy-

seven percent for the eleven months the school has been in session. Student absences for appearances at court for law violations have diminished. Individual students have shown tremendous change in personal traits, attitudes, actions, and new interest in life.

Two instructors developed the approach to instruction in mathematics with an outline titled "Math for What is Real." The objectives of this portion of the basic curriculum are to help students (1) pass standard Albuquerque Public School expectations and/or (2) satisfactorily pass the General Educational Development Test. Each objective is planned to take one year of instruction. The seven students who were graduated from high school did complete math classes. Others are about ready to take the GED Test.

The instructional outline on Communicative-Clerical Arts lists four objectives, including: (1) learning vocational Science Research Associates terms, (2) typing skills development, (3) improved reading ability, and (4) the demonstration of an ability to interpret and explain written and/or oral instruction. All instructors are conscious of the student need to constantly work on improved communication skills. Progress has been made. However, supporting evidence is mainly subjective and from the experiences of the instructors. Additional pre-and post-testing is planned to help measure student change.

During the past three months another element has been added to this basic curriculum. This has been the formation of a class

to help students specifically to prepare for and pass the General Educational Development Test. Some students want to move more rapidly in completing the basic program, and this will offer such an opportunity. Eleven students are enrolled in this program, but it is too new to determine student progress at this date.

3 and 6. Vocational skills training for students, and work experience in public and private agencies. The ultimate goal of the Neighborhood Youth Corps, with the help of the School on Wheels, is to make each trainee employable and self-supporting. There are at least three basic interrelated activities in the total Neighborhood Youth Corps program that focus on this goal. They are: (1) the School on Wheels occupational skills training classes, (2) the student work station experiences in non-profit agencies, and (3) the work training in industry provided for students by private agencies. The latter two are administered by the Neighborhood Youth Corps counselors and placement coordinator. However, all three elements are related and tied together through a student employability and occupational career plan.

As soon as a new enrollee is scheduled and oriented to the School on Wheels, he is placed in a work-station for 12 hours each week. These are either with the various City of Albuquerque departments or the the Public Schools. Active work stations are with such departments as fire, police, building maintenance,

data processing, legal aid, parks and recreation, personnel, and many others. Students are also placed in elementary or secondary school offices, libraries, cafeterias, and other areas. Efforts are made to relate the work-station experiences directly to the student's employability plan.

After a student has been enrolled in the School several months, and when he has reached a more definite point in selecting a potential occupational career objective, he selects a vocational class in the public schools that will provide the needed skills training. Such classes may be taken in the regular Albuquerque High School day or night programs, or at the Technical-Vocational Institute. Students are currently enrolled in the following types of classes: Auto Paint and Body, Data Processing, Auto Mechanics, Office Machines, Cashiering, Introduction to Health Careers, Drafting, Commercial Art, and Architectural Drafting.

Seminars have been held for all work-station supervisors. These have been very helpful in explaining project goals, the School on Wheels, and establishing proper supervision and possible on-the-spot job training. Over a period of several months, supervisors reported improved student trainee attendance and enthusiasm due to a better understanding and interest in the program on the part of the supervisors.

Student progress in the occupational skills courses has been quite varied and, since only clock hours of attendance are

counted and no grades are assigned, it is difficult to appraise accomplishments. However, 18 trainees have received certificates of completion and are advancing into the third component of the employability plan, work training in industry. The average number of students in this portion of the program is between 6 and 15 at any one time.

The Neighborhood Youth Corps placement coordinator locates private employers who are willing to take one or more students, establish a training plan, provide the necessary work expe-riences, and carefully supervise the trainee. Students are paid a minimum hourly wage by the employer who receives a partial reimbursement from the Neighborhood Youth Corps for the training and supervision provided. Trainees may remain in this part of the program up to 26 weeks. At that point, or sooner, it is expected that the student will (1) be employable, or (2) need to be referred to another advanced manpower training program.

Out of the total of 119 students enrolled in the School on Wheels during the eleven-month reporting period, 11 students took immediate full-time employment and terminated the Neighborhood Youth Corps program. No records are available to indicate the type of jobs obtained or their relevancy to the School on Wheels occupational training component. Such a continuing record might be helpful in future planning of students and teachers.

Records of the seven high school graduates indicate that four went on to advanced manpower training programs, one moved to California, the only girl got married, and one found employment as an assistant manager of a gas station. The four in advanced training have the promise of a permanent position in jobs including data processing, electronics assembler, auto paint and body repair, motor equipment parts manager, and environmental health control. Additional time is needed in order to more adequately determine the effectiveness of this Neighborhood Youth Corps and School on Wheels activity.

4. Student advancement into advanced manpower training programs. Records indicate that in the eleven-month reporting period at least five students have gone into other Department of Labor manpower programs. They are in Manpower Development and Training classes at the Albuquerque Technical-Vocational Institute taking electronics data processing and auto body repair and painting. One student is in the Public Service Careers Training Program studying environmental air, water, and sewage pollution control. More students will be entering such programs after the School on Wheels has been in operation longer.
5. Counseling and vocational guidance for students. With a staff of three Neighborhood Youth Corps counselors and one School on Wheels counselor aide available, all students have an opportunity to receive much individual assistance. Personal problems may be treated at any time. Students must make employability

plans and constantly evaluate progress on these plans with counselors. The four counselors, along with the regular teachers, spend many hours helping students with home and family adjustments, vocational discussions, money-planning, difficulties with law enforcement agents, drug problems, etc. Student attendance, increased holding power of the program, waiting lists of students desiring admission, program completions, and a lessening of student difficulties with the law would all indicate something is happening to help them become better adjusted citizens. The counselors play a very strong part in this total effort.

7. Student cultural enrichment. Students have shown an interest in and helped initiate a number of activities related to cultural awareness, appreciation of ethnic differences, and the contributions made by the various groups in this area. Classes have been devoted to a study of ethnic minorities, their history, unique contributions, problems, tensions, and present goals.

In addition to this direct involvement with cultural awareness and knowledge about the tri-cultures of the Southwest, a special effort has been made to provide other general student enrichment experiences. Such activities have included attendance at special motion pictures, the University Program Fine Arts Series, field trips to museums, the Santa Fe Opera, the Jemez Mountains, and other points of interest in and around Albuquerque. A special jet airplane flight was provided to El Paso and return, and

another in a private plane around the Albuquerque area. Such experiences have been well-attended and sought after by the students.

CHAPTER IV

CONCLUSIONS, RECOMMENDATIONS, AND PROJECTIONS

In the concluding section of any study those reporting are always subject to criticism for: arriving at conclusions beyond the justification of the data, misinterpreting some of the important items of data, or omitting some very important points of the study. This report may be more subject to criticism on these points than most reports due to the nature of the project, its uniqueness, and the lack of similar experience with which to make comparisons. Furthermore, the short period of operation of the project suggests that many of the practices are of a trial nature. The Review Study Team also noted the need for adding some practices which have not yet been initiated. Therefore, there will be statements that are considered important and pertinent but which are not necessarily supported by present data.

Also, it should be pointed out that certain recommendations are made for the consideration of the project administration as possibilities for strengthening the operation. These may be initiated on a trial basis; this is a common practice in new and experimental types of projects. Making these kinds of recommendations for consideration and trial seemed an appropriate role for the Review Study Team in this case. For example, there is an obvious need for a cost accounting plan that would lend itself to some kind of cost-benefit assessing. This had not been mentioned in either the Contract or the organizing documents.

I. CONCLUSIONS

To serve as a means of summarizing what has been found, a listing of the major conclusions is given in statements following:

1. There is complete agreement that the purpose for which the project was established is one of the most needed and worthwhile on the American education scene today.
2. This particular unique approach to alleviating the effects of the dropout problems as they affect the conventional high school has more merit than any other that has come to the attention of the Review Study Team. The Albuquerque Public School educators who developed the idea are to be commended.
3. It is the conclusion of the Team that one of the great strengths of the School on Wheels is its emphasis on exceptional and flexible teaching. The selection of excellent teachers who also have an empathy for students with problems represents a most obvious strength.
4. While it is the opinion of the Team that aggressive, positive administration is needed in this kind of operation, it is concluded that such administration must be of a facilitating integrating type--not the kind that is highly visible to the outside, strong administration <u>per se</u>.
5. It is the conclusion of the Team that relationships between the Neighborhood Youth Corps personnel and those of Albuquerque Public Schools have been cooperative and personally satisfying to those concerned. This seems to have happened, however,

because of the personal qualities of the individuals involved, and even in spite of poorly defined working arrangements.

6. The Team concludes that the existing facilities and space arrangements are not most conducive to an efficient program operation.

7. Based upon the dropout figures presented to the Albuquerque Board of Education in September 1971 as a result of a system-wide study, the School on Wheels as it is presently operating has adequate capacity to serve only as a pilot operation. It was an early conclusion of the Team that there is already sufficient positive evidence to justify planning for the expansion of this kind of operation.

8. It was concluded that remedial work in basic education is now, and will likely continue to be, in great demand in a dropout educational program. Perhaps too little is now being done that is of remedial nature. There is a risk of "turning off" some of these students who already lack strong motivation, if too much emphasis is placed upon strictly remedial work. The Team members are of the opinion that with the kind of staff members who will be assigned and their awareness of this situation, the instructional problem is manageable.

9. The observation of the Team was that the student class attendance arrangements with Albuquerque High School are not entirely satisfactory. Perhaps the principal cause of this problem is the noticeable difference between the informality of the School on Wheels instruction and the more formal class atmosphere of the Albuquerque High School classes.

10. The one satellite storefront operation now established seems to be very successful. It represents an inexpensive, effective method of expanding the program.

11. The initial planning, contracting, organizing, and operating phase of the program has omitted a plan for continuous evaluation. It appears that only informal attempts at evaluation of certain areas have been done on this important function during the first year of operation.

12. The internal curriculum offerings of the School on Wheels program are limited. The Review Study Team agrees that this is best for the operation. Wider and more specialized offerings are available on the individual student bases by utilizing the arrangements with Albuquerque High School. Up to this time the use of this arrangement has centered almost exclusively on skills training courses. The Team is of the opinion that this kind of emphasis is best; to begin to push students into the specialized academic courses could have the effect of putting them in the same positions they had been in prior to dropping out of high school in the first place.

II. RECOMMENDATIONS AND PROJECTIONS

A study which concludes with only brief statements of recommendations may be pretty sterile in its value for implementation. It is the purpose of this section to recommend, and also to attempt to project, the possible effects of implementing the recommendations. Hence, the double heading is

being used. Again, as was stated in a previous paragraph, some of the recommendations are based only upon implications drawn from the narrative text. They are not in all cases based upon clearly defined objective evidence of weaknesses or malfunctioning of the organization. Perhaps in most instances the statements will be complete enough to indicate the supporting rationale. Also, because of the desirability of having administration only as a facilitating function in this kind of operation, program and administrative items are not being identified separately in the listing.

It should also be mentioned to the reader that the order of listing does not imply importance or priority. Likewise, there seems to be no clearly logical sequence for presenting the information. Any indication of special attention needed or warranted in an area will be included as part of the recommending statement. It should also be noted that information which provides further elaboration on the items may be included in the Appendix. In such instances, proper reference is made.

1. Before the reader may be influenced by some of the possible negative implications of recommendations designed to improve weak spots in the School on Wheels operation, the positive nature of the overall review must be emphasized. There are some problem areas, but no insurmountable problems in the School on Wheels approach. It does not have to be an expensive operation, only a well-planned and properly administered one. <u>It is, therefore, recommended that the concept be expanded and gradually refined as experience is gained</u>. A caution is that over-formalization should be avoided.

2. An analysis of the leadership function in the School on Wheels type of operation points up its extreme importance. While money-management, record-keeping, and routine administrative matters must not be overlooked, it is evident that the most important leadership task in this relatively small operation is in the area of curriculum and instruction. Hence, in projecting plans for this kind of operation attention must be given to assuring aggressive, imaginative, competent leadership for a teaching-learning enterprise.

3. The matter of a seemingly dual administrative arrangement was of concern to the Team. Two directors working in such a close relationship should have more specific responsibility guidelines than their personal capabilities for working with others. Specific position descriptions and non-overlapping operating policies should be developed as plans for continuing operations are projected. In the Appendix suggestions have been made for clarifying this situation.

4. The present amount of space is approximately adequate. However, it is not arranged for most efficient use. Recommendations for certain space modifications which should partly improve the space situation are included in the Appendix.

5. Advance short-range planning seems to be all but completely missing. The Team is aware that rigid, week-in-advance, lesson planning could destroy some of the positive effects of the informality which characterizes this kind of school program. However, it is believed that both interpersonal informality

and specific planning are not in inevitable conflict. It is recommended that instructors do more detailed advance planning.

6. The production of graduates at this point (7) is not sufficient to generalize on cost. Thirty (30) additional graduates are projected by June 1972; graduates in this case indicating either regular Albuquerque High School diplomas or the GED test earned diploma. The cost-per-graduate could not validly be compared with the like costs from regular senior high schools because of the much wider range of services and specializations offered in regular high school courses. Likewise, the cost per credit earned would not be comparable for the two different types of programs. Perhaps the most valid comparison that could be made would be between those dropouts who attend the School on Wheels and a similar group who do not choose to re-enroll toward high school completion. How much does the latter group really cost the taxpayers in terms of government payments, crime involvement, lost earning capacity, and other societal costs? It is recommended that a complete system of cost accounting be established and maintained in order that different units of cost may be computed at a later time in order to do some comparative studies.

7. Closer coordination between the skills training at Albuquerque High School and the School on Wheels basic education program appears to be needed. Instructors in the Albuquerque High School classes pointed out this weakness in communications. A recommendation by the Team is that a staff member of the Albuquerque

Public Schools School on Wheels be assigned responsibility as supervisor-coordinator of the Albuquerque High School work being pursued by School on Wheels students. This would be a supplementary duty and should not require much time.

8. There appears to be gaps in the support-supervisory role of the Albuquerque Public Schools Central and Area offices and the School on Wheels. Specifically at times no one official in the Central Office seems to speak for the School on Wheels, and Area Office support fluctuates with direct requests and its work load. The Director of the School on Wheels is of the opinion that an undue length of time is required to get action on almost any request submitted; this is especially true in the area of facility maintenance. It is the opinion of the Team that these relationships and responsibilities can and should be clearly defined.

9. In the Team's review there seemed to be a lack of policy relative to use of GED prep materials as compared to use of the regular course approach. It is recommended that the regular basic course work and the work toward taking the GED examination be more closely coordinated. For example, more than the age factor alone should be considered in permitting or encouraging students to pursue the GED route.

10. In order to get a better picture of program progress, it is recommended that more pre-testing and post-testing be done, and that a formal, continuous plan of evaluation be instituted.

11. Very often, among students of the School on Wheels type, various health and physical problems are encountered. All students are

required to have a health examination upon being accepted in the School. A physical examination upon program completion, and routine periodic health checks should be continued for all students.

12. A series of seminars for work station supervisors was reported. The effects were very positive and specific. It is recommended that this kind of effort be continued. The effects are two-fold: better on-the-job supervision for the trainees, and a strengthening of community relations.

13. A total of 48 active work stations was reported in the School on Wheels publication for September 1971. All stations appeared to have excellent training potential. A Neighborhood Youth Corps/Department of Labor publication is available to provide guidelines for the training supervisors. The series of seminars sponsored by Albuquerque Public Schools/Neighborhood Youth Corps has supplemented the publication instructions. It is recommended that this kind of effort be continued and strengthened.

14. A range of activities designated as enrichment activities has been carried out by the School on Wheels staff. The number of activities reported represents variety and careful selection. Students who have participated in these enrichment programs rated them quite high. Enrichment activities should be carefully planned with adequate lead time, and definitely continued. Some preliminary study should precede each activity for greatest benefit to be derived.

15. Flexibility in programming and scheduling is a must for a new and experimental type of operation. Unless different patterns and plans are tried, a schedule which has evidence of being most effective cannot be developed. It appears that some features of present scheduling are handicapping efficient use of time and space. It is recommended that the staff be encouraged to study the various schedule possibilities, and to try out different plans as appropriate in order to be sure of using the most suitable overall plan.

16. Public information and community relations, both implying the use of many different means of informing the people of the community about the work of the schools and in seeking the support of the community for the education enterprise, are most important. A new venture in education, such as the School on Wheels, especially needs public understanding and support. A continuous flow of information is necessary. A recent descriptive publication by a staff member, entitled The School on Wheels Project, was well done and is quite informative. It seems most suitable for distribution to certain groups of persons--perhaps to laymen who have close ties with education and to other educators. This publication perhaps would be too costly for mass distribution. All avenues and types of communications media should be used for acquainting the general public with the dropout problem and the School on Wheels as one of the possible solutions which is working. It is strongly recommended that the School

staff, with support and assistance from the Albuquerque Public Schools Central Office, adopt a plan for providing continuous information for and contact with its public.

17. The Team is of the opinion that the system of all trainees receiving the same rate of pay regardless of level of training or period of experience fails to stimulate the majority of the Training Within Industry (TWI) assignees. It is recommended that an initial pay level be established, plus one or two advanced levels based upon the degree of expertise as well as the interest shown. Levels should also have a relationship to community averages. Therefore, it is recommended that consideration be given to providing realistic beginning levels for Training Within Industry, plus one or two stimulation advances.

18. The principle of maturation illustrated in Recommendation 17 should also apply to teachers. Their assignments are and should be more demanding than for regular classroom teaching. It is recommended that a high level of personal and professional qualifications be continued in the selection of teachers, and that a supplementary sum be added to their salary schedule pay level. It is also indicated that teacher pay scales for the School on Wheels were less than those in the special Freedom High School Project. Someone should definitely check this out and make the necessary adjustments.

19. A number of students have shown an interest in arts and crafts training. This type of training would be particularly appropriate

for enrollees such as the School on Wheels group. The Review Study Team recommends that consideration be given to a unit for Arts and Crafts training.

APPENDIXES

Appendix A

Projecting Facility Improvements

The Marquette location facility has had a number of improvements, and money is available to do several more. It is recommended that the Neighborhood Youth Corps director, with the teacher-coordinator, attempt to get architectural services either through the Head of the School of Architecture at the University of New Mexico, or from one of the local architects on a volunteer basis. These architectural services should be utilized to develop interesting and stimulating color schemes, and to assist in determining how visual and acoustical privacy might better be obtained through such things as hanging fabric panels and movable partitions.

It is recommended that very careful attention be given to the selection of a color scheme which would be bright, cheerful, and modern; that is to say, highly responsive to the interests of young people. For the type of studying performed in this facility there seems to be little reason to be concerned about providing "schoolhouse-type" color schemes. To keep the facility from having a schoolhouse-type color scheme, it should have just the opposite--bright, cheerful colors.

The fire protection concerns should be carefully reviewed. The two exit doors from the school portion of the facility to the exterior have been secured by padlocks in addition to normal door hardware. It would appear that the security desired can be maintained by putting on each of these doors an interior alarm-type lock so that the doors will always be locked from the exterior and can be opened at any time from the interior; but an alarm will sound whenever they are opened unless a control key is utilized. Normally,

public facilities require exit lights above all exit doors. None are installed in this school. The same is true of fire alarm and fire detector systems. Concern should be given as to whether or not temporary control units should be installed.

Although much of the school facility is not used during afternoon periods, this situation is likely to change when the second Neighborhood Youth Corps work-study project is activated. As soon as there are a number of different groups utilizing this facility, it seems that it would be advisable to replace windows and doors in walls dividing major sections of the building with brick and fire doors, respectively.

Informal discussion was held concerning whether the two remaining large spaces should be subdivided or retained as large open "loft-like" areas. It is believed that the spaces will remain more flexible and adaptable to programs and be more stimulating to students if they are retained in their large open "loft-like" areas. This will also be far less expensive than subdividing the space, even though a small amount of money should be spent in increasing the acoustical absorption properties of the spaces.

Although parking conditions are not the best, they are relatively functional, and it does not seem wise to place this need very high on the priority list. If the lot across the street is kept graded and available, it should serve the needs of the school.

Not very much money should be spent on the storefront facility. Heating and ventilation facilities should be kept in satisfactory operation. The student group directing the program in this facility should be supported in its ideas for improving the facility with supplies for carrying out those ideas. This would normally include only carpentry and painting supplies.

It seems that the storefront operation should be kept in a very humble, simple but clean and safe, condition. The lower the cost, the more feasible it would be to establish additional operations which are deemed to be very desirable.

Appendix B

Projection of Costs and Finances

In future planning for the School on Wheels, the finance management should be treated under two discrete topics: (1) the overall financing of present and projected operations, and (2) expenditures and cost accounting. The headings are sufficiently explanatory to indicate the purpose each will serve.

Following are some statements pertinent to projecting plans and providing financing for present and expanded operations:

1. Joint financing policies should be developed with Federal and State agencies having interests in and possible financial support available for this kind of effort. The most obvious supporting agency, of course, is the Department of Labor. For example, it has been suggested (but of course with no commitment) that if Albuquerque Public Schools could furnish instructors, the Office of Equal Opportunity (OEO) and the Department of Labor would probably assume other costs for expanding the School on Wheels program.
2. Dropouts re-enrolling in high school level work again qualify the school system for their being included in the ADM report for state allocation of funds. Some local tax funds could probably be made available as a supplement. With Federal, State, and local funds committed and projected into forthcoming budgets, expansion of the School on Wheels concept could be made. An assumption of inexpensive space being available would have to be made for the expansion to materialize.

3. In projecting plans for program expansion, it is very important for lay advisory groups to be involved. If this involvement begins with the early planning stage, then their support at the operational phase is much more likely to be assured.

4. Hopefully, costs per credit unit or per student semester unit could be kept below the level of regular conventional high school costs. Irregardless of this being achieved, the problem is so important and pressing that expansion should be attempted in the face of unexpected high cost.

The second finance matter relates to cost accounting which would lend itself to later meaningful cost-analysis, then perhaps eventually to cost-benefit analysis. In this regard, the reference is strictly to operational costs. All capital expenditure costs should be accounted for separately and would have, as nearly possible, come from other fund sources. Multiple funding here would also be highly desirable. Therefore, the suggestive statements following refer to the ways in which operating costs may be categorized in order to provide a basis for meaningful analysis:

1. The regular State-defined budget expenditure classifications should be used as the starting point in order to fulfill legal requirements and to permit internal consistency in accounting. It is likely that a number of the standard sub-classifications would not be appropriate; and perhaps certain major classifications such as, 800 - Transportation, and 900 - Food Services, could be avoided. Operations, and therefore accounting, should be kept simple.

2. Beyond the standard budget-accounting classifications, sub-classifications should be provided to take care of unique costs. For example, the special enrichment activities do represent a breakdown under 1000 - Student Activities. A number of these special sub-classifications suggest themselves as programs are viewed.

3. Since extensive Federal funding under existing programs is likely to be available, and with earmarking for special use in many cases, a double column format for expenditures is suggested.

4. Special pre-enrollment testing and interviewing is required as students enter the program via the Neighborhood Youth Corps. These entry costs are borne by the Department of Labor and State Employment Security Commission, but they, nevertheless, are costs to be included in the accounting. These costs, as they occur, should be reported to Albuquerque Public Schools accounting, and included as a student service cost.

5. The problem of what cost unit to use is a difficult one with such limited experience. Two possibilities are immediately suggested: (1) credit(s) earned, and (2) student units in attendance. Each has certain advantages, and, at this experience stage, perhaps both should be kept. The number of students graduating will also be meaningful, but this must be considered relative to total enrollees. The cost impact of "dropout dropouts" will also figure in the overall compilation.

As more sophisticated studies become available on the dollar cost of the high school dropout to society, the computations of School on Wheels costs will become more meaningful. The philosophic question already posed is not: Can we afford to do it?, but: Can we afford not to do it? The completion of high school is the most important milestone in the developing career of youth today.

Appendix C

Positions and Duties

When new organizations are initiated, the duties performed by various individuals holding positions either are assigned as a result of preplanning, or they develop through practice. In the case of preplanning, assignments are developed on the basis of some degree of sophistication of organizational theory. In the case of duties developing through practice, past experience and day-to-day practical considerations, plus the relative aggressiveness of different individuals, tend to determine who does what. Even though one person is likely to have been designated as head of the organization, unless he is firm and positive, some of the duties envisioned for him in the original plan for him may be eroded.

In reviewing the School on Wheels organization, it seems evident that the approach of developing an allocation of duties rather than preassignment was used. Perhaps the same type of reasoning was used as that with the school principal who, when asked whether or not written position descriptions listing the expected duties of the various teachers in his school were available, replied "no", that such descriptions were unnecessary because everyone knew what teachers were supposed to do. Of course, position descriptions are helpful for teachers. However, the type of educational operation of the School on Wheels does not parallel that of conventional school organization; hence, past experience as a guide is not the most valid criterion even for teacher position descriptions.

A confidential survey was made by the Review Study Team of the duties various staff members of the School on Wheels organization see themselves as

performing. A review and compilation of the listings reported on the survey forms was most revealing, and obviously inaccurate in many respects since different individuals saw themselves responsible for and actually performing tasks for which others also claimed responsibility.

The survey served two principal purposes: (1) that of providing a total listing of duties as seen by the staff, and (2) that of revealing the extent of misunderstanding and, to some degree, confusion regarding the total distribution of duties.

As a follow-up of the recommendation made in the study that the area of position-duty assignments should be detailed and specific, this section of the Appendix makes suggestions to be considered in formulating a position description plan. These suggestions should be considered as procedure guidelines and alternatives rather than providing an exact prescription.

Listed below are the total duties compiled from the survey forms returned. This initial listing is taken directly from the raw data, and is not given any kind of classification.

1. Organize classes
2. Make schedules
3. Contact outside agencies
4. Compile employability plans
5. Prepare budget
6. Order supplies and equipment
7. Review fund expenditures
8. Evaluate fund usage
9. Prepare space use plan
10. Teach classes
11. Give individual tutoring
12. Request repairs
13. Make curriculum plans
14. Make weekly teaching schedules
15. Selecting staff
16. Holding staff inservice meetings
17. Personal counseling
18. Educational counseling
19. Keeping attendance records
20. Arrange activity trips
21. Provide employment assistance
22. Write program objectives
23. Make course revisions
24. Plan public relations programs
25. Plan space changes
26. Handle school correspondence
27. Repair equipment
28. Procure audio-visual materials
29. Perform janitorial duties
30. Work to coordinate program
31. Photograph school
32. Evaluate work of teachers
33. Evaluate student's work
34. Revise schedules
35. Coordinate registration
36. Perform secretarial work
37. Select equipment for purchase
38. Enroll students at the University of New Mexico
39. Take students to doctor
40. Sponsor field trips for students

A review of the list indicates certain natural divisions according to like types. The survey forms reported that all personnel, with no more than three or four duties excepted, saw themselves as being responsible for performing all duties. In the thinking of the respondees there were no duties allocated to an administrator or coordinator. Obviously, there is a problem of overall administrative responsibility for the organization that is not understood by all staff members, and which may not have been fully assumed at this point. That is, the presently assigned director-coordinator may not be filling his position with sufficient force and clarity of role to demonstrate administrative leadership. Additionally, administrative positions always encompass certain important duties, especially in the area of decision-making, which are not readily discernible to others in the organization.

Next Steps. The foregoing information describes impressions and reported interpretations gained from reviewing operating mechanisms and position relationships of the organization. The next and most important task of this review report is to attempt to answer these questions: What does this information about present status mean in terms of suggested operating changes? Are there alternative suggestions?

The following guidelines are suggested as applying directly to the School on Wheels organization as improved operation is sought:

1. Overall responsibility must continue to be lodged in one person, whether he be designated as director or coordinator. However, the nature of his responsibility and his specific duties should be detailed and performance of the duties evaluated.

2. Assuming that survey list of duties is approximately complete, a number of these are administrative in nature. Certain of these are also of subprofessional level. Depending upon other organizational decisions, this suggests the possible use of paraprofessional or an executive-secretarial person for the performance of the subprofessional administrative tasks.

3. Whether the title "director" or "coordinator" is used to indicate the head person, that individual must possess curriculum know-how and exert instructional leadership. He must lead out on the adaptation of curriculum, teaching through use of behavioral objectives, and in the evaluation of student progress.

4. So that the official leader of the School on Wheels will be free to become totally involved in that operation, expansion programs for developing additional storefront types should be spearheaded by Albuquerque Public Schools Area officials, aided by Department of Labor personnel.

5. Position descriptions should be drawn up for all personnel. The duties reported in the survey represent a starting point. Other duties, especially for teachers, would have to be added to those listed. Also, it would be appropriate to include some of the special qualifications which are desirable for these teachers.

6. Once position descriptions are completed they should be treated as tentative until time has permitted refinements and revisions.

It is not the feeling of the Review Study Team that its members have sufficient detailed information and close experience with the operation of the School on Wheels to properly compile position descriptions. As indicated by the guidelines, Review Study Team information is general, even though it may be extensive. Furthermore, the final product of preparing the position statements should represent certain choices which only the director and the staff can make.

As a further guide to writing position descriptions, a model position description for a teacher which should be approximately suitable for the School on Wheels operation, is furnished in Appendix D following.

Appendix D

APS SCHOOL ON WHEELS

Position Description - Professional Staff

1. Position Title - Teacher (Subject Field)

2. Academic Requirements - Regular Albuquerque Public Schools professional qualifications for positions of same level.

3. Special Qualifications - (1) Previous successful teaching experience; (2) Some experience and/or training in remedial teaching; (3) Evidence of possessing a special interest in and empathy for young people with problems; (4) An expression of willingness to go beyond the normal call of duty in terms of time and effort; (5) Some evidence of more than average versatility in interests expertise.

4. Salary - Salary schedule for qualifications and experience, plus a supplement of * % for the special assignment.

5. Required Duties - (1) To teach in the field(s) for which qualified, utilizing appropriate methodology for group taught; (2) To work as a member of the instructional team in resolving problems, and for improving and adapting curriculum content and methodology; (3) To provide educational counseling to students; (4) To assist the students with personal and employment problems as appropriate and needed; (5) To cooperate in planning special activities for student groups, and to share in the accompanying of groups on trips; (6) To assist in developing and implementing a) an evaluation plan for assessing student progress, and b) an evaluation plan for the overall program; (7) To make parental and community contacts relative to the operation of the school in accordance with the plan adopted; (8) To plan for instruction individually and with the group as may be necessary; (9) To maintain and submit such periodic records and reports as may be required in the administration of the School; and (10) To perform such other pertinent duties as may be requested by the official in charge, or as may be necessary for the benefit of the program.

6. Information Concerning Program - For more information concerning program, write or call Office of Assistant Superintendent, Area South, Albuquerque Public Schools.

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*This figure may be depended upon several factors; hence, an exact percentage amount is not stated.

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BECK, CARLTON E., ED., AND OTHERS
WEST VIRGINIA YOUTH IN CRISIS.

WEST VIRGINIA UNIV., MORGANTOWN. COLL. OF HUMAN RESOURCES AND EDUCATION;APPALACHIAN CENTER, CHARLESTON, W.VA.
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IDENTIFIERS - WEST VIRGINIA

ABSTRACT - TO EXPLORE AND SEEK SOLUTIONS TO THE URGENT EDUCATIONAL AND OCCUPATIONAL NEEDS OF THE YOUTH OF WEST VIRGINIA, THIS CONFERENCE REPORT PRESENTS: (1) BACKGROUND INFORMATION ON YOUTH PROBLEMS WITHIN THE STATE, (2) AN IN-DEPTH ANALYSIS OF CURRENT OCCUPATIONAL TRENDS IN OUR SOCIETY, (3) FOUR CHAPTERS WHICH RECOMMEND SPECIFIC ACTION TO ALLEVIATE STATE PROBLEMS IN THE AREAS OF EDUCATION, INDUSTRY, AND YOUTH DEVELOPMENT, AND (4) FUTURE ACTIONS OF A TASK FORCE APPOINTED AS A RESULT OF THE CONFERENCE. TO DISSEMINATE PERTINENT DATA TO CHANGE AGENTS IN THE STATE AND TO PROVIDE INFORMATION TO THE PUBLIC ON YOUTH NEEDS, A SERIES OF SIX POSITION PAPERS FOCUS ON OCCUPATIONAL GUIDANCE, MANPOWER DEVELOPMENT, GENERAL EDUCATION, AND VOCATIONAL SCHOOLS. TABLES PRESENT THE DATA, SHOWING THAT ONLY 37 OF THE STATE'S 216 HIGH SCHOOLS ARE FULLY ACCREDITED, EXPENDITURES FOR EDUCATION ARE LOW, AND DROPOUT RATES AND OTHER EDUCATION ATTRITION MEASURES ARE HIGH. BRIEF COMMENTS BY CONFERENCE PARTICIPANTS ARE INCLUDED. (AG)

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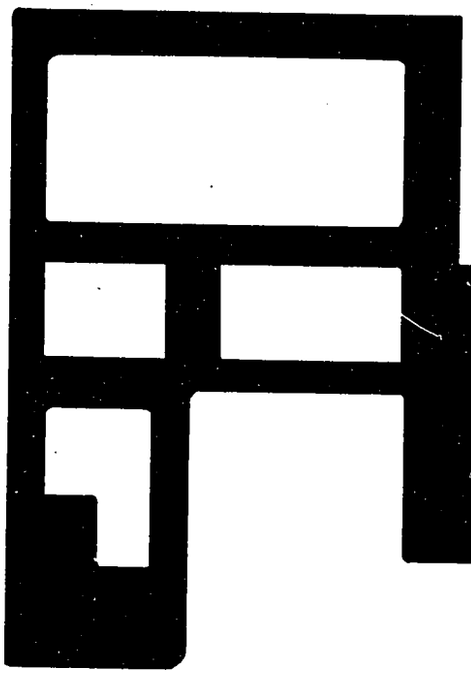
The West Virginia Youth Awareness Conference



WEST VIRGINIA YOUTH IN CRISIS

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Proceedings of the Conference held at
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Edited by:

Carlton E. Beck, Associate Professor, University of Wisconsin–Milwaukee, Wisconsin

Roy Kern, Doctoral Candidate, West Virginia University

Oscar Mink, Associate Professor, West Virginia University

Drawings by:

Mrs. Fred Huber, Milwaukee, Wisconsin

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PREFACE

The youth of any state are its hope for the future. The purpose of the West Virginia Youth Awareness Conference of June 20-21, 1968, was to explore and seek solutions to the multidimentional needs of the youth of West Virginia.

From this conference evolved a collection of relevant information which if acted upon by the people of the state, could further the opportunities of West Virginia youth in education, employment, and pursuit of a full and satisfying life.

Thus, the first function of this volume is the dissemination of pertinent data (evolving from the conference) to key personnel in the state most able to innovate needed change.

A second function of the volume is to relay to the public not only information on what the needs of the youth of this state or any state are but also to present position papers on what must be done to fulfill the occupational and educational needs of our youth.

The volume is divided into an introduction and three parts. The introduction provides the reader with background material regarding the particular problem areas of the youth within the state.

Part I consists of two chapters which are designed to give the reader an in depth look into the areas of major occupational changes taking place in our present day society.

Part II is the heart of the volume and consists of four chapters each of which recommend specific action needed to move West Virginia forward in the areas of education, industry, and youth development.

Part III presents future actions to be taken by the task force that was appointed as a result of the conference. It also includes brief comments by conference participants.

Although it is impossible to acknowledge all of the individuals responsible for assisting the co-sponsors, Division of Clinical Studies, College of Human Resources and Education of West Virginia University and the Appalachian Center, special thanks are due to Ernest Nesius, vice-president of off-campus education; who was responsible for encouraging and assisting the aforementioned co-sponsors in obtaining State Title I funds to carry out the project.

Others who deserve special thanks are the advisory committee who donated many hours of assistance to the program chairman in planning the conference activities. The advisory committee members are as follows: Lawrence Barker, Commissioner of Labor; Carlton Beck, Associate Professor, University of Wisconsin; Clarke Hess, Professor of Education, Marshall University; Phares Reeder, Executive Secretary, West Virginia Education Association; Miles Stanley, President, West Virginia Labor Federation; Darrell McGraw, Special Counselor to the Governor; Roy Kern, Conference Coordinator, responsible for organizational details of conference; Oscar Mink, Co-chairman and Director, Division of Clincial Studies; George Stormer, Co-chairman and Department Chairman of Counseling and Guidance; Paul Brannon, Supervisor of Guidance for State Department of Education; Reita Marks, State Extension Program leader, 4-H and Youth Development; Fran Stillman, research assistant in clinical studies, copy editor; Ernest Nesius, Vice-President, Off-campus Education; Stanley Ikenberry, Dean of College of Human Resources and Education at West Virginia University; Robert Jarrett, Personnel Department, Wheeling Steel Corporation; Elizabeth Hallanan, Executive Director, West Virginia Association of Colleges and Universities; George Auxt, Director of Guidance, Kanawha County.

Those appointed to the task force committee evolving from the conference are: John D. Rockefeller IV, Chairman, Secretary of State; George Stormer, Department Head of Counseling and Guidance, West Virginia University; Joe Kirby, liaison for extension services, West Virginia University; Carlton Beck, Professor of Education, University of Wisconsin; Hans McCourt, State Senator for West Virginia; Marion McCoy, State Department of West Virginia; Elizabeth

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Hallanan, Executive Director, West Virginia Association of Colleges and Universities; Clarke Hess, Professor of Education, Marshall University; Stanley Ikenberry, Dean of College of Human Resources and Education, West Virginia University; George Auxt, Director of Guidance, Kanawha County; Lawrence Barker, Commissioner of Labor; Paul Brannon, Director of Guidance, State Department of Education; James Fauber, Personnel, FMC Corporation; B. G. Pauley, Special Projects Director, Educational Planning; Robert Jarrett, Personnel Department, Wheeling Steel; Roy Kern, Task Force Coordinator, West Virginia University; Oscar Mink, Director of Division of Clinical Studies, College of Human Resources and Education, West Virginia University.

Roy Kern

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SPEAKERS & CHAPTER AUTHORS

CARLTON BECK - Presently Associate Professor of Education at University of Wisconsin-Milwaukee; author of *Guidelines for Guidance, Education for Relevance, Philosophical Foundations of Guidance,* and numerous articles in professional journals.

RUSSEL FLANDERS - Chief of Division of Manpower and Occupational Outlook, Bureau of Labor Statistics in the United States Department of Labor; responsible for preparation of the *Occupational Outlook Handbook* and *Occupational Outlook Quarterly.*

STANLEY IKENBERRY - Dean of the College of Human Resources and Education and Associate Professor of Education, West Virginia University; is presently Chairman, Board of Directors, Appalachia Educational Laboratory, Charleston, West Virginia, and member of the Educational Advisory Committee for the Appalachian Regional Commission.

JOHN D. (JAY) ROCKEFELLER, IV - Member of West Virginia House of Delegates from Kanawha County; has served as special assistant to the Director of the Peace Corps; as consultant to the Commission on Juvenile Delinquency and Youth Crime; worked with the West Virginia Program, Action for Appalachian Youth. Elected Secretary of State, 1968.

CHARLES E. SMITH - Presently Assistant Professor of Counseling and Guidance at West Virginia University; Co-author with Oscar Mink, *Guidance: Foundations and Services* and at present co-authoring with Oscar Mink, *Readings in the Foundations and Services of Guidance* and *The Guidance Function.*

WILBUR SMITH - Research Economist and Assistant Professor of Economics, Appalachian Center, West Virginia University. Currently researching labor force participation, hard core unemployed and economic effects of changing technology in West Virginia.

INTRODUCTION

Recent history sees increased emphasis being placed on meeting the needs of our youth in the areas of education, vocational choice and socioemotional adjustment. However, with the advent of the knowledge explosion, increases in population, and concommitant economic and social changes such as automation, the civil rights movement, and most recently the "hippie" movement, the ability of society to fulfill the needs of your youth becomes extremely complicated. Consider, for example, the complicated picture that youth of today face in the realm of vocational choice. The Department of Labor projects for the 1970's a job family with an increase of 41 per cent in the professional and technical fields as compared to an 18 per cent rise in the semi and unskilled professions.[1]

> Another startling projection is that, "six year olds now starting school can expect their vocations to change three times during their lifetime. One shot of formal education may have sufficed for most of us, but our children will need some form of education all during life.[2]

With these rapid changes in the job structure one can easily see the importance of keeping the youth of our country in school. This is supported by labor department figures that appear to indicate that some 75 per cent of individuals working in the professional and technical fields—the areas which will show the greatest increase in the 1970's—hold a high school diploma and have some college education.[3]

Thus, we see the importance of keeping our youth in school and also the importance of providing proper educational opportunities. However, just providing the opportunities is not enough. Also of utmost importance is providing the youth with adequate guidance activities to assist each in making the proper occupational decision. At the present time, only one out of ten leaving the educational system without a bachelor's degree has some specific occupational direction.[4]

Although society is often aware of the aforementioned data with regard to the educational and vocational needs of our youth, in many instances these needs are not fulfilled. Such is the case in West Virginia. Less than 50 per cent of West Virginia's youth finish high school, and of that group approximately 38 per cent go on to post-high school training. Approximately one-half of this 38 per cent finish their training, and of this group some leave the state. Other statistics in reference to accreditation of schools, per pupil expenditures, and guidance personnel appear to support the hypothesis that the needs of our youth are being direly neglected. For example, only 37 of the state's 216 high schools are fully accredited by the North Central Accreditation Association, and of these 37 some are destined to lost their good standing in accordance with the new accreditation standards for 1969. A further review of the records of the state show West Virginia ranked 44th in relation to other states on the number of guidance personnel per pupil, 1:1062 secondary school children. West Virginia is also ranked below some 43 other states in per pupil expenditures for education.

What do these figures along with the known changes taking place in our society mean to West Virginia's youth and the state in general? The following pages are an attempt by five men of rather divergent backgrounds to project what these changes mean to the youth and the state and what steps must be taken to move the state forward into the 1970's. In the first chapter, Russell Flanders, Chief of Division of Manpower and Occupational Outlook, Bureau of Labor Statistics in the United States Department of Labor, gives background material

[1]Gilbert C. Wrenn, *The Counselor in a Changing World*, American Personnel and Guidance Association, Washington, D. C., 1962, p. 20.

[2]Miller and Swanson, Eds., *AUTOMATION: The Threat and The Promise*, Monograph. National Vocational Guidance Association, Washington, D. C., 1964, p. 63.

[3]Grant Venn, *Man, Education, and Work*, American Council on Education, Washington, D. C., 1964, p. 16.

[4]*Ibid.*, p. 23.

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on what the jobs of the future will be. The following paper by Charles E. Smith, Associate Professor of Counseling and Guidance, is an attempt to pinpoint characteristics of successful and unsuccessful vocational training programs existent within our country.

The second chapter is comprised of specific plans of action necessary in West Virginia to provide for the needs of our youth. In the first paper, Jay Rockefeller, Secretary of State of West Virginia, presents a plea for more vocational schools within the state. The second paper by Wilbur Smith, Research Economist for the Appalachian Center, presents a vivid, heavily documented, picture of the importance of a good general education in relation to job success.

The third paper by Carlton Beck, Professor of Education, University of Wisconsin, and author of numerous publications, presents the merits of good guidance programs in the state as one other solution to meet the needs of our youth.

The last paper in the chapter by Stanley Ikenberry, Dean of the College of Human Resources and Education at West Virginia University, gives perhaps the best account of the changes that must be imposed in the state's educational system if it hopes to move ahead rather than digress.

The final chapter includes selected comments from participants of the West Virginia Youth Awareness Conference from which all the papers evolved, and a brief explanation of what actions should be taken to curb the "erosion of West Virginia's most treasured resources--its youth."

Carlton Beck
Roy Kern
Oscar Mink

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PART I

CURRENT OCCUPATIONAL CHANGES

Chapter 1

TOMORROW'S MANPOWER

Russell Flanders

Manpower planning in the United States has a special meaning. It is a much less rigorous process than the word "planning" connotes. In our economy, demand and supply of manpower in specific occupations naturally tends toward self-correction. For example, the wages of occupations in short supply may rise at a faster rate than in other occupations, motivating people to develop the skills required of the occupation. Employers may re-design jobs, upgrade low-skilled workers, provide job aides, and undertake a myriad of other changes to "make do" with the supply of workers at hand. Private and public education and training institutions will re-orient programs, and produce the required curriculum and teachers. However, implicit in these adjustments is that the process requires time, especially in occupations for which a long period of training is required. Moreover, there is no guarantee that the natural adjustment process will be the optimum process or, in some cases, that the information needed to begin the adjustment process will be available at an early enough date to take timely action. The cost of the adjustment process can be very great, not only to the nation's economy, but also to its social well-being. For example, rapid rises in wages for short-supply occupations can act as an engine of inflation by serving as a standard for the wage demands of workers in other occupations. Rapid wage increases are eventually translated into rapid price rises, affecting the efficiency and balance of the whole economy.

Therefore, the study, evaluation, and dissemination of information on future manpower requirements and supply creates the proper environment in which the natural self-correcting forces have a better chance for success in the short run. We feel that it is a least-cost solution, and a highly efficient tool for assuring a productive and fully employed work force.

The federal government, of course, is not the only institution concerned with manpower planning in the U.S. The rising importance of manpower planning in other large institutions is evidenced by the increasing interest in techniques of projecting manpower requirements. Business and unions are becoming more aware of their stakes in vocational training and are recognizing the importance of manpower projections in planning training programs. Government at all levels needs objective criteria to guide allocation of the resources committed to strengthening our educational and vocational training systems and to wage the war on poverty. The growing emphasis on vocational counseling, as well as the counselor's ever-increasing thirst for facts about the world of work, has raised the demand for occupational outlook information. All of these needs have been reinforced by a growing intolerance of wasted resources.

Ideal manpower projections for planning purposes would predict exactly the number and distribution of future job openings and the training requirements necessary to fill them. But as we all well know, not even the brightest economist or statistician armed with the most sophisticated computers and programs can predict the future to that degree of accuracy. What then can one reasonably expect of manpower projections? They can narrow the range within which decisions concerning the future should be made. They can indicate the direction and approximate magnitude of changes—the increasing need for white-collar workers; the decline in requirements for agricultural workers; the growing need for scientists, engineers, and technicians. By indicating trends, they can help us anticipate problems requiring advanced consideration.

I would like to outline the Bureau of Labor statistics' manpower projections through the mid 1970's, and briefly present information on how West Virginia is expected to compare with these national trends. The bureau's national manpower projections are based on several broad assumptions concerning the future. For example, the bureau's most recent projections of 1975 industry and occupation manpower requirements assume relatively full employment in the target year, specifically an unemployment rate of 3 percent, and a level of economic activity high enough to achieve this level. They assume that the Viet Nam conflict will not have materially changed the pattern of demand in the U.S. by 1975—a much safer assumption two years ago than today. It also assumes a continuation of scientific and technical progress of recent years, and the absence of major changes in the world's political situation. Obviously the projected employment will not materialize unless the assumptions are realized. For example, a high rate of unemployment can reduce the projected level of employment—especially in cyclical industries such as construction, trade, and manufacturing—and thus lower the projections of requirements in occupations concentrated in those industries. In addition, manpower projections are made for a target year and the actual employment levels in that year may differ because of the business cycle.

Also underlying BLS projections of manpower requirements are our projections of the labor force. These are also influenced by the assumption of economic activity in the target year. Obviously, a very high growth rate with low unemployment would result in a larger labor force than one with high unemployment and slow growth.

For these reasons, our manpower estimates are not predictions, but conditional projections.

Here are some of the projections resulting from our most recent analysis:

Total employment is expected to increase by about 20 percent between 1966 and 1975.

Agriculture employment (including self-employed and unpaid family workers) is expected to continue to decline in the future—from 4.2 million in 1966 to 3.7 million in 1975, despite a rise of about one-fifth in agricultural output. Employment in agriculture is expected to decline for reasons similar to those in the past. The growing use of electrical and mechanical power equipment will continue to reduce labor requirements. The competetive advantages of large farms will force many operators of less-efficient, small farms to sell their holdings or divert them to other uses. The more efficient small farm operators will enlarge their farm holdings to take advantage of the economies of increased size made possible through mechanization.

Between 1966 and 1975, requirements for nonagricultural wage and salary workers in the goods-producing industries—manufacturing, construction, and mining—are expected to increase by 6 percent from 23.1 million to 24.5 million. The projected increase in manpower requirements in contract construction (27 percent) contrasts sharply with mining where little change is expected. Requirements in manufacturing are expected to rise by about 3 percent, or less than one-sixth the rate of increase in total wage and salary employment.

Requirements in the service-producing industries—transportation and public utilities; trade; finance, insurance, and real estate; service and miscellaneous industries; and government—are expected to increase rapidly, but at a slower rate than during the post-war II period. Manpower requirements in the service-producing industries are expected to increase by 26 percent between 1966 and 1975, rising from 40.9 million to about 51.3 million.

The largest increase in manpower requirements in the service-producing sector is expected to be in the services and miscellaneous industries group (a growth of 35 percent). The expected increase in government (29 percent) and in trade (22 percent) are greater than for total nonagricultural wage and salary employment (19 percent). The number of jobs in finance, insurance, and real estate. on the other hand, will increase at about the same rate as total nonfarm

wage and salary employment (20 percent), and manpower requirements in transportation and public utilities are expected to rise only moderately (10 percent).

The industrial composition of the economy will change in the years ahead as a result of the differential rates of growth among industries. Service and miscellaneous industries and government will increase significantly as a proportion of total nonagricultural wage and salary employment. Other industries whose relative importance will increase are trade and contract construction. On the other hand, the relative importance of manufacturing will decline sharply. Slight declines in relative importance also are anticipated in transportation and public utilities; mining; and finance, insurance, and real estate.

How do these industry projections translate into occupational projections?

As stated earlier, total employment is expected to increase by about 20 percent between 1966 and 1975. An increase of about 28 percent is anticipated in the need for white-collar workers. Among white-collar occupations, the most rapid increase in requirements will be for professional and technical workers, which may increase nearly twice as fast as the average for all workers. Requirements for both managers and officials and for clerical workers are also expected to increase rapidly, by nearly one-fourth, and the need for sales workers should rise by more than one-fifth. Requirements for blue-collar workers are expected to rise by 10 percent between 1966 and 1975. The most rapid increase in requirements for these workers will be for craftsmen (18 percent), about the average increase for total employment (20 percent). Requirements for operatives will increase more slowly (17 percent), and little change is expected in the demand for laborers. The need for service workers is expected to rise by nearly one-third. On the other hand, a decline of about 14 percent is anticipated in requirements for farmers and farm workers.

As a result of these changes in occupational requirements, the nation's occupational composition is likely to change significantly between 1966 and 1975. The major changes will be in the proportions that professional and technical and service workers represent of all workers--proportions that are expected to rise significantly. Conversely, the proportions of farmers and farm workers, operatives, and nonfarm laborers in the work force will decline. The remaining occupational groups--managers, sales workers, clerical workers, and craftsmen--are expected to represent about the same proportions in 1975 as they did in 1966.

You now have an outline of the bureau's projections of national employment by major industry and by major occupational groups. Although our primary mission is the development of manpower projections at the national level, we have, at the request of the education council of the Appalachian Regional Commission, been involved in the development of occupational manpower projections for Appalachia. These projections were based on industry projections developed by the office of business economics of the U.S. Department of Commerce, which assume patterns of economic development differ from past trends. The commission hopes to use the manpower projections for the purpose of evaluating the present vocational education programs in Appalachia. While the projections were for economic subregions and not states, we are able, by combining several subregions, to gain some interesting insight into the possible employment changes within certain states such as West Virginia.

These projections are of course rough approximations and considerably more work needs to be done, but they do indicate that during the 1960-75 period, employment in West Virginia will grow at a pace far slower than the overall national average. Also, it shows that there will be considerable variations in the growth rates of the different occupational groups. For example, in West Virginia the need for professional workers will increase at a rate three times faster than the state's average employment increase. At the other extreme, the need for laborers and farm workers will actually decrease. Other occupational groups showing increases well above the state's average employment growth are

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clerical, sales, and service workers. On the other hand, important occupational groups such as craftsmen and operatives will show little or no employment growth. It should be stressed, however, that even in the occupational groups where the most rapid growth occurred, West Virginia will in fact lag substantially behind the national average increase. Even for professional and technical workers, shown to be the fastest growing occupational group in West Virginia, the rate of increase will be only one-half that expected at the national level.

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Chapter 2
EFFECTIVE MANPOWER RETRAINING: A BROADER VIEW[1]

C. E. Smith
Department of Counseling and Guidance
West Virginia University

Evaluation of manpower training programs depends on an awareness of social phenomena which surround such undertakings. While such an assertion has a ring of obviousness—even naivete—about it, typical evaluative statements usually are confounded by conflicting and shortsighted assumptions about goals, process, outcome, methods, and social need for retraining programs.

Critics of the social reconstruction enterprise and helping professions in general tend to have a mistaken view that such activities are new social functions which "mollycoddle" people, encourage irresponsibility and dependency, enforce conformity, or other similarly value-laden and emotionally charged generalizations. An example of such a mistaken and widespread view was reported in a recent study of differences in beliefs among social classes regarding reasons for unemployment. In the social classes deemed successful, beliefs tended to be represented by statements such as the following:

"If an individual fails to become socially and economically self-sufficient, it is his own responsibility for not having decided to exert proper effort." (Miller, Zeller, Blaine, 1968; p. 68). The implication is that being helped is somehow not quite respectable, and that "rugged individualism" is the truly righteous path. An attitudinal set of this sort provides the basis for the mystique of the "self-made" man whose frequent benedictions and sanctimonious self-aggrandizement consequently are socially and self-reinforced.

Where a "rugged-individualist" point of view falters, however, is in its failure to realize that man's existence and progress in a complex society is best described as a process of interdependency—of reciprocal sharing and accepting, giving and receiving. Further, genuine helping functions have always existed in Western civilization. Until rather recent times, however, most such functions were typically performed exclusively by parents, venerable elders, "self-made" men, church leaders, and other influential adults of the community. At the risk of oversimplification, what has happened over the past several decades in the United States has been the development of a professionalized structure of variable sophistication which gradually has assumed responsibility for the performance of this same set of functions as were always performed. The emergence of a professionalized structure is due predominantly to rampart social changes such as rapid industrialization, massive population shifts, and numerous other well-known factors, all of which have resulted in the overwhelming complexity of contemporary society. The resultant "technological juggernaut" with dominant characteristics of insatiable demands for higher level skills, pressures toward increased specialization, and instant obsolesence of many saleable skills requires not only the intensified development of a professional body of helpers, but also an expanded concept of who the consumers of the help actually are. It is today, for example, naive to attach much viability to the 19th century model of "helping" a child make a specific occupational choice, thereby preparing for a career he expects to follow most of his life. Statistics abound to cast doubt upon such a model: 70 per cent of the jobs today's elementary school children will eventually hold do not now exist; on the average, a worker needs retraining by the age of 30; workers need retraining, on the average, every seven years (Wrenn, 1962). Clearly then, the emphasis in education and training must be on the processes of continual choosing and learning, and on the acquisition of basic skills, attitudes, and knowledge to continue learning and making wise choices.

[1]A revised version of an informal speech presented at the West Virginia Youth Awareness Conference, May, 1968.

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John Diebold, a recognized authority on automation, summarizes the point. "No longer can we afford complete confidence in the permanancy of a way of life or in the continuence of existing trends. Counselors should no longer emphasize a choice of one career as a lifetime pursuit ... the future is in the planning for change. In helping a person plan for his occupational life, a counselor should keep uppermost in mind the importance of avoiding overemphasis on specific skills at the expense of developing basic capabilities. Special skills can become obsolete quickly. General capabilities, on the other hand, have the necessary foundation for acquiring new special skills."

The failure of public schools to operationalize a system to achieve general capabilities for great numbers of students is, in part, responsible for the need for "retraining" programs. Paradoxically, retraining efforts largely repeat the failure on both a conceptual and an operational basis.

Some Difficulties of Current Programs

A dismaying but necessary way to begin examining problems of current manpower retraining programs is to look critically at some present shortcomings of some existing programs. Two broad kinds of ineffectual retraining programs may be identified. The first of these is exemplified by the following letter written by a group of Appalachian men enrolled in such a program. The letter reflects sheer criminal prostitution of human dignity and public monies.

> We were in the building and maintenance class under MDTA that took up on April 10 and ended September 29. They told us each day we would have two hours of electricity, plumbing, carpentry and painting but for the most of it, all we did was paint school buildings and repair and cover the roofs of the schools. When some of the men bucked on painting so much, they was told the government would buy around a thousand dollars of lumber a month for us to work with. We unloaded plenty of new lumber and racked it up on the racks. For awhile we used some and then we was told we could buy it for 25 cents a foot and they said it wasn't for sale but it still got missing. In electricity, all we had were nine days; on our certificate of training, it says we got 320 hours. They just didn't care much if we learned a thing or not we was just putting in time.... (Ciardi; 1968, p. 16).

While relatively uninteresting from a theoretical standpoint, this sort of gross corruption clearly exemplifies the first type of ineffectual retraining program and apparently exists with some regularity in current reality. The trainees invested nothing in a non-existent program and gained even less from it. Unfortunately, hypocritical disregard for effective help for disadvantaged people will probably continue to exist as a cancerous growth on the quest for social health for some time to come. The solution, moreover, to this type of ineffectiveness is simple to state: Don't entrust programs to people who don't care.

The second type of ineffectual manpower development program is more common, though it is somewhat more difficult to analyze precisely. Ineffectual programs can result even when projects are entrusted to people who do care deeply whether others "learn a thing or not." In a recent vice-presidential address to the American Association for the Advancement of Science entitled, somewhat tongue-in-cheek, "Dare We Take the Social Sciences Seriously?" economist Kenneth Boulding (1967) spoke of the negative effects of the widespread presence of a good deal of relatively accurate general knowledge about social systems.

> If we want to navigate a satellite or produce a nuclear weapon, we do not call in the old wives. In social systems the old wives, or at least their husbands, are called in all the time. Creating a peaceful world, abolishing slums, solving the race problem, or overcoming crime and so on, are not regarded as subjects for scientific technology but are regarded as fields where a pure heart and a little common sense will do all that is really necessary.

The point is, of course, that a "pure heart, deep caring, and common sense" are all critically necessary, but they are not sufficient ingredients for successful

manpower retraining programs. The truth of the matter is there is a body of scientific theory and applied methods which can be demonstrated to work in most cases, assuming one knows where one wants to go. Lloyd Homme (1967: 1) states the case this way:

> There is a widespread misconception in our society that not much is known about the control of behavior. One of the ways this shows itself is in the often repeated assertion that, in order for a breakthrough in education to occur, 'We need to know more about the learning process.' This simply does not square with the facts. Psychologists have long pointed out... that by taking seriously the fundamental laws of behavior already well established, we can promote great changes for the better in our society. This can occur without the discovery of hitherto unknown laws, without any elaborate new theories, without knowing any more about the chemistry of the brain, without knowing any more about the fundamentals of behavior than we know today.

Scientists may agree among themselves that theory and applied methods in the social and behavioral sciences may be at a level only a foot off the floor if the ceiling represents most of the answers. Practice, however—even in formal institutions of learning—is typically the height of a speck of dust on the same floor. Inadequate conceptualization of program design is even more extensive.

A pointed example of the inadequately conceptualized retraining program is found in adult basic education classes for the school "dropout." The dropout, sent as an adult back to the same schoolroom he dropped out of, meets with the same old instructor again, fails to learn the same old material and perhaps even sits in the same old desk. While popular songs assert love is better the second time around, the analogy does not hold for the dropout simply because he now is an adult and "settled down."

Yet another example of shortsightedness is the case where trainees are given limited entry-level technical training for jobs that will, in all likelihood, be obsolete in the near future (Smith, 1968). Or, consider the naive, assembly-line model of education or training where the trainee "raw-material" is taken into the training factory and tooled up as a finished product; the task is then over.

Another aspect of conceptual inadequacy is failure to design for the avoidance of negative psychological effects of non-meaningful work. A recent article, for example, describes dramatic differences observed between two groups of young trainees, one of which was offered to role playing to prepare for a job interview and the other group which had a bonefide interview scheduled the next day. Those who recall W.P.A. projects of the 1930's and similar efforts realize the associated lack of psychological satisfaction for most workers. One problem American society faces is that the opportunity for satisfying, meaningful work will diminish in the future for great numbers of the population. This does not mean, as it has been argued, that there will be necessarily fewer jobs because of automation. It almost certainly does mean, except perhaps for a distant Utopian future, intrinsically satisfying jobs will be accessible primarily to the highly-trained, highly-skilled person who has the capacity and skills for growth and change.

Additionally, facing the indisputable fact of individual differences, it is also unlikely that manpower pools exist in sufficient size necessary to meet the demand in certain areas. This further restricts available, satisfactory jobs to those who are geographically mobile to more developed areas. An approach which either attempts to retrain workers for jobs which shortly will be obsolete or which do not exist in a given area is doomed to failure unless the approach stresses mobility, or is accompanied with an equal amount of economic development activities in the given area.

Summarily, what these diverse examples illustrate is even deep caring and the best intentions aren't sufficient in the absence of hard data about the optimal conditions under which humans learn most effectively, data about effective means for dealing with problems of psychological adjustment and adaptability, and of knowledge about what kinds of skills most likely will be

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needed in the job structure in the next several years. Some existing programs incorporate parts of these elements into their design and operation.

Some Effective Elements of Current Programs

A recent national conference dealing with means by which industry can make effective use of the "hard-core unemployed" brought together over 800 key representatives from public and private agencies and industries involved in some phase of manpower development. A series of common threads in the more effective programs seemed associated with program success (Smith, 1968). Few programs exist, however, which have done well-controlled experimental studies to determine effectiveness. Fewer still have used sufficiently sophisticated experimental procedures to enable the identification of the efficient elements antecedent to success. Additionally, manpower development projects—in common with many other organizations—have a tendency to become organizationally schizophrenic; that is, the desired image of the outcome is confirmed no matter what has occurred in reality. These factors make it difficult to get valid, non-distorted information both about how well and why programs work. One example suffices: one retraining effort reported successful job placement for 90 per cent of its graduates, neglecting to mention the 90 per cent constituted only half of the entering trainees, and that the "successful job placement" was with the United States Armed Services for over half of the graduates.

A few notable exceptions such as the Norfolk (Virginia) State College Project (Brazziel, 1966), the Mobilization for Youth (New York City), and the Kilmer Job Corps (New Jersey) the Philadelphia program seem to offer some grounds for optimism regarding the feasibility of developing and replicating effective programs.

Subjective inferences about successful programs were, however, identifiable at the conference by indices such as the percentage and quality of job placements of the trainees, by trainees' attitudes, and by input characteristics. Graduates of successful programs were reported to be economically and personally productive, to have an optimistic but realistic attitude, and those who appeared seemed to have a bearing which indicated obvious, new-found self-respect and dignity.

In general, the seemingly most effective programs all had in common the following components.

(1) Programs generally contained three major structured activities: (a) specific skill training for a job where placement was imminent; (b) highly intensive, often individualized, basic education effort; and (c) a social learning and/or attitudinal change program—typically intensive group counseling or human relations training.

(2) There was always a continuing effort of the project to provide help after the trainee had developed marketable skills and was employed. He was phased in instead of turned out as a finished product. This effort took many forms, but it involved primarily on-the-job counseling with the newly placed trainee. In some cases, human relations training groups were also carried on with groups of job supervisors of the trainees. The major thrust of these training efforts with supervisors was conflict resolution, usually about day-to-day problems at work.

(3) In some way or another, immediate incentives or rewards, contingent upon trainee performance of some desired behavior, were designed into the system so that the rewards were available for relatively small accomplishments. In contrast, "saving" all the satisfaction until after the trainee had finished long segments of work was not nearly as effective.

(4) Emphasis was placed on criterion performance. Simply stated, this means training efforts were continued until the trainee could demonstrate mastery of some specific objective. One rationale for assessing criterion performance instead of traditionally comparative graduating practices is simply that there are some job tasks which are critically essential to minimum performance of any given job. For example, it would be fruitless to compare

trainees in how well they know how to turn on the switch of a power lathe. The power lathe won't run unless the switch is on, and trainees can either turn it on or they can't. If they can't, there's no point in moving along to the more complex components of the job. Such an analysis can be extended to all of the acts which are required for the minimum performance of a job.

(5) Long-term vocational development as a process instead of a single-event occupational choice was a major emphasis. Conversely, a common source of conceptual and actual failure in some programs was the selection and location of initial jobs to become available to trainees. There is no particular advantage to either trainees or to society to design programs which change the status of the unemployed to that of the underemployed. Although the trainee has ordinarily the same kinds of aspirations for material and psychological satisfactions as does the employed technician, manager, and professional worker, a typical failure of some programs is the provision of training only for relatively low-level entry jobs, both in terms of skills required and economic rewards. It is no wonder that the trainee who perceives this farcical situation in a relatively accurate fashion tends to reject the somewhat onerous burden of learning a great deal of material and complex skills. He can see that his immediate economic gain is not going to be significantly greater than that which he can draw from the public coffers.

Not all trainees, of course, were placed in relatively high paying jobs. There was, nevertheless, a subtle advantage in the long-term vocational development approach. Trainees who weren't skilled enough for higher paying jobs were able, as one trainee put it, "to put up with the situation while they help me plan how to improve it." The approach has enjoyed success in Vocational Rehabilitation Centers, but was usually lacking in the conference retraining programs.

There were a number of other design factors* seemingly associated with effectiveness in some existing programs. However, a more profitable way to recapitulate may be an attempt to identify several underlying assumptions about personal and vocational developments which seem most critical to all the effective programs.

False Assumptions About Vocational Development

In general, planners of effective programs designed efforts which overcame a number of common, but false assumptions about vocational development. The first of these false assumptions is that programs can deal effectively with parts of human beings. If this were true, manpower retraining programs would be analogous to bringing a car into a shop to have the transmission fixed, then putting it back on the road to run effectively. Programs which attempt solely to "fix up" deficiencies in job skills are doomed to ineffectuality. To reiterate, the most important outcome of any educational program today is the development of skills and attitudes necessary to continue adapting to and accomodating change. By any criteria, programs which included basic education skills of these kinds were more effective than ones with major emphasis on technical training for entry-level jobs. Those including some minimum technical training, more basic education, and intensive personal growth counseling seemed most effective. In short, the concept of manpower retraining itself is at least partially ineffectual unless it is conceived in broader terms of total and continuing human development.

A second false assumption is that some serious or unconquerable defect exists in the trainee. "These people just don't want to work," is an example of this kind of false assumption. As sociologist Marshall Jones (1969) notes, what is often mistaken for maladaption due to individual defect occurs precisely because the individual is perfectly "normal or average," and discovers the reassurances of society are unrealistic. To reintroduce the car analogy, a trainee might well be ready and able to run effectively only to find out his particular road is an Olympic obstacle course or a maze of all blind alleys. Such is the case often for

*For example, jobs were assured to trainees contingent upon their completion of the program; emphasis was placed on developing trainee initiative, independence, and responsibility.

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the black trainee. This is not to say trainees, who by definition are maladaptive, do not require intensive re-educative effort or that they should shirk responsibility for themselves, but it does mean effective programs must deal effectively with the "outside system" as well as with the trainee. Examples in the successful programs surveyed earlier were (1) extended efforts with both trainees and their supervisors after the trainee was placed on the job, and (2) job development teams emphasizing long-term vocational development.

A third false assumption is that people make decisions rationally on the basis of objective facts. The absurdity of this position is evident, yet some manpower development programs seem to assume trainees have a unique ability to thrive on decisions made for them by "objective" matching of men and jobs.

A final false assumption to be identified is that it is possible to prepare a man for a specific job. There are a number of pitfalls in this assumption. First, it implies an assembly line model of education where a person is tooled up to fit a slot, is expected to fit there comfortably, and the process is completed. In view of the rampart change in the United States' job structure, it is at least likely that specific life-long career slots no longer exist. If for no other reason, it then becomes more important to develop skills of a higher order; for example, skills in making decisions, in how to continue learning, in how and where to find and make opportunities, in how to interact effectively with other human beings–in short, skills and knowledge in how to exercise humanness. Second, it is impossible to predict in the abstract all of those forces which may cause failure in future vocational development. Therefore, dealing with the immediate present while the trainee is on the job is implied. Additionally, the underlying expectation of a demand for specific skill trained employees is greatly exaggerated. Employability is dependent upon additional equally potent characteristics such as basic capabilities, attitudinal factors, and general personal functioning.

In conclusion, manpower retraining programs face the same inexorable demands and complex problems as do any educational efforts. Simplistic efforts, however well-intentioned, produce none of the return legitimately expected.

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PART II
MEETING THE NEEDS IN APPALACHIA

Chapter 3
REALITIES AND PRIORITIES

John D. Rockefeller, IV

Tonight, of course, is West Virginia's 105th birthday. It was just 105 years ago that our State was created out of civil war. To get some idea how far we've come in tolerance and human understanding, you need only to consider that on this memorable occasion, you have a carpetbagger as your speaker.

Even more remarkable, I think, is how swiftly major happenings occurred in those days. We talk about trying to turn this state around, to make drastic changes, and sigh at how long, oh Lord, how long will it take? Well, the 'New Virginia Now or Never' comittee made its big move 107 years ago and only two years later, Abraham Lincoln signed the papers that made West Virginia the 35th state. I'm tempted tonight to call for a resumption of that spirit—for a 'New West Virginia Now or Never' and see if we can attain that in two years.

Would you believe three?

I'm happy to see that much of what this conference is considering today and tomorrow is geared in that direction, of creating a New West Virginia, and that's why I'm happy to be here.

Your program chairman not only chose a carpetbagger for West Virginia's birthday, but asking me to speak on Education and jobs shows the same fine touch. Education and jobs. Some of you must feel that giving me that topic is like hiring Richard Nixon to sell Gillette razor blades. And there is room to question my expertise.

A reporter once asked Archie Moore, the former prizefighter, what he had ever done to fight juvenile delinquency. Archie replied: "I grew up."

It may be that to date my greatest contribution to education was to be graduated from school.

As for jobs, I'm reminded of an incident concerning John F. Kennedy, when he was campaigning for President in 1960, in West Virginia.

Senator Kennedy was standing outside a factory gate, shaking hands with workers as they entered the plant. One of the men stopped, looked the future President in the eye, and said, "People are saying you've never had to work a day in your life—that you don't know what it is to work for a living." And Senator Kennedy nodded that this was true. "Well," said the West Virginian, "I've worked every day for 42 years, and let me tell you—you haven't missed a thing."

So let me assure you that I don't come here tonight representing myself as someone who works for a living.

As a legislator, I've been involved in problems relating to both education and jobs. And ever since I came to West Virginia in 1964, I've been particularly concerned about how we can keep our young people—we're losing them at an unprecedented rate. 70 percent leave before they're 24—and while there are several pertinent reasons... we can't overlook the simple matter of confidence and integrity in government—the suspicion, even scorn, with which most young people view public officials and politicians in this State, leading to their pessimism about West Virginia's future... the central problem comes back to jobs—to lack of job opportunities.

That's why they look elsewhere. And that's why this conference is so important.

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Expanding job opportunity, of course, is tied to expanding industrial development, and industrial development is spurred by job training. There must be a pool of skilled labor available before industry will move in.

Yet, in the past school year, children in one-half of the counties of the state did not have an opportunity to take one vocational-industrial course, because none was offered.

Secondary school students in these 27 counties study what is essentially a college preparatory curriculum, while not more than 18 percent of them enter colleges.

The Legislature's Study of Vocational, Technical and Adult Education makes this point: "to provide high quality vocational programs in each high school in West Virginia would be a financial impossibility. Many schools (particularly in the twenty-seven counties referred to) do not have sufficient enrollments to justify the offering of various occupational courses which should be available to students."

The alternative appears to be the area vocational school, one school serving several high schools in one county as will be done in Kanawha County, or with one school serving several high schools in two or more counties, illustrated by the Tri-County School at Buckhannon.

The area school concept, particularly for vocational education, was recognized by the Legislature in 1960 by the passage of the Area Vocational Education Program Act.

All this costs money, so let's talk about financing. The Legislature's Study estimates that $42 million will be required within the next ten years to construct and equip vocational-technical schools. At present, there are three sources of funds:

1. Federal–Through the Vocational Education Act of 1963 and the Appalachian Regional Development Act.

2. State–An appropriation to Account No. 293, which has never amounted to more than $100,000 per year for construction.

3. Local funds–Through regular levy, excess levy, or by issuing bonds.

There are some problems in both State and Local Financing. For the State, there must be a policy decision as to extent of State financial assistance in constructing area vocational education schools. Is it to be more, the same ($100,000 a year), or less? Should such construction become a state responsibility or remain a local responsibility?

Indecisiveness at state level leads to uncertainty in the counties as to the extent of local financing. Local financing comes up against these problems:

1. Attitudes regarding construction of a school in another county, or even in another part of the same county, to provide vocational education.

2. Sixty per cent requirement for passage of bond issues and excess levies.

3. The legal problem regarding expenditure of tax revenues for capital improvements in another county. Article XII, Sec. 5 of the State Constitution is interpreted by some, including the Attorney General, as prohibiting a county from using tax revenues to aid in the construction of a school in another county. This could be a serious obstacle to the construction of the area school and points up again the need for constitutional reform.

There are some decisions to be made. Among these are the following:

Whether financing the construction of area vocational schools is to become a state responsibility, or is to remain a local responsibility.

Whether the 55 counties should be consolidated into one single, state-wide school district as some have advocated.

Whether we should provide for area school districts with taxing powers as recommended by the West Virginia Education Association.

And finally, whether we will continue with our present 55 school districts, but reduce the legal and emotional barriers to the joint establishment and maintenance of schools by two or more counties. This was authorized by the Legislature some 35 years ago.

In discussing vocational and technical education, a matter of priority is: what courses should be given? What will be the demand for job skills—not only in this State, but nationwide?

Unless the county boards of education make the right decisions on occupational course offerings, we may be training students for nonexistent jobs in 5 to 10 years—and then have to face the problem of retraining.

I doubt that we are sufficiently well organized and financed to obtain the information needed to advise on this. We need more active involvement of the Federal-State Employment Service and the West Virginia Commission on Manpower, Technology and Training in this area.

In his book, *Manpower Planning in a Free Society*, Richard Lester talks about guidance and counseling—matching the student with the course.

> The youngster... who seeks to make the most rational choice of career is faced nowadays with many obstacles and uncertainties. The world of employment has become increasingly large, complex, and specialized. Compensation is not just money but a bundle of benefit rights, employee privileges, and job protections. Rational choice of career involves not only long-range forecasting of demand and supply for particular occupations and industries but also weighing such incommensurables as nonmonetary forms of compensation, promotion possibilities, and the likelihood of the elimination of part or all of one's investment in training for an occupation because of technological advance...
>
> Faced with the task of assessing his own abilities for a wide range of career possibilities, the youngster usually lacks adequate data on different careers, expert neutral guidance in career selection, and information about training in terms of quality, time, and personal expense."
>
> Dr. Lester goes on to observe: A number of European countries are far ahead of the United States with respect to systematic study of occupations and career guidance in the public schools. In Sweden, for example, vocational orientation is an integral part of the curriculum during the last three years of the basic school (student ages of 13, 14 and 15). In each of those three years, weekly periods are reserved for teaching about occupations, the world of work, and the necessary preparation for various careers. In the middle year, each student spends three weeks during the term time working usually in two different jobs, mostly in private industry. The Employment Service arranges for such non-paid employment. In school, the students are prepared for the pre-vocational, on-the-job orientation by lessons. Afterward the pupils have follow-up discussions in class concerning their reactions, and they have individual consultations with the teacher relating this practical experience to their interests and abilities. The purpose of the program is work orientation; vocational choice presumably occurs at a later date. Specially trained vocational guidance teachers generally participate in the occupational and industrial instruction in those three school years.

Fred Eberle has an interesting idea that I would like to see tried in our schools. He has suggested that in the 9th grade every student be offered a course in jobs. Let them learn, at that very formative period in their lives—when most young people still have few career ideas—let them learn of the broad spectrum of job possibilities, so that perhaps many could begin to plan, to ask questions, to set goals for themselves. Jack Weller, in his book on Appalachia called *Yesterday's People*, wrote about his conversations with welfare children, and his attempt to discover what they wanted to do with their lives. He found that these young people held few realistic hopes or ambitions and were seldom able to articulate goals, and were even reluctant to talk about the future.

Weller went on to note that middle class children are brought up expecting that they will succeed, and they are helped by their parents to move toward success.

But the disadvantaged, parents who have long been out of the employment mainstream, are unable to help their children achieve success in an outside world they know little about. For the children, who are perhaps second or third generation welfare, who have had few contacts with successful adults, whose homes rarely contain reading material pertinent to jobs or industry, such guidance and help must come elsewhere. Many of these young people still

consider the object of education to be "Getting to 16 years old so you can quit."

I think Fred Eberle's idea of a course on jobs, plugging these children in early on job opportunities, letting them know they can acquire the skills, and that their services will be needed, will not only cut back the number of 16-year-old dropouts, but will enable all of our young people to develop more realistic goals and job plans.

I have something else I would like to suggest in this area, and this ties in with helping to keep young people in West Virginia. In Arkansas there is a very interesting program called Arkansas Careers Incorporated. It is a private foundation made up of top business and government leaders who work only on the problem of how to get jobs in Arkansas and young people in Arkansas together. And they have really gone at this in a hard-headed way, not like the way we do it. Many of our Chambers of Commerce have Young Person Day and they interview all the young people and tell them of the opportunities in the Ohio Valley and the Kanawha Valley, but it's a one-day thing. There's no follow-up. A young person doesn't learn of the opportunities in West Virginia and he doesn't feel that West Virginia wants him, that West Virginia's after him.

One other thought strikes me as important. I feel we need to do something to clarify, to make more available, resources and assistance we currently can provide to people who need help.

We have so many programs—federal, state, county—offering help in so many different areas, and one agency isn't always aware of what another is doing, and the bureaucracy that runs the machinery is a maze that even an experienced civil servant has difficulty mastering. I know that in my office I get quite a few letters and phone calls from people who want me to help them find jobs, or to receive other assistance, and when I try to get them plugged in, I have to swim upstream through nine different phone calls to find the right office. If I have that problem, then I can only imagine the difficulty facing this young man, or this middle-aged coal miner, or this working mother, from unsophisticated rural backgrounds, for whom one phone call requires considerable courage, and who feel unwanted and alienated after two or three bureaucratic referrals.

When I talk about uncluttering the bureaucracy, I don't mean cutting back on programs, or eliminating efforts—I only want them to be more visible, their functions more clearly defined, and to have a central coordinating point where one can direct any person who needs help in any of these areas, and where he can find the agency or effort that will help him. Perhaps all I'm talking about is a directory that covers the whole "jobs and welfare" ballpark, a scorecard to identify the players.

In conclusion, let me emphasize that we need to draw upon the skills of all our people—not just those who are qualified and financially able to attend college and to follow professional careers. Our progress as a state can be no swifter than our progress in such areas as technical and vocational education. Children whose education suffers now from lack of counseling, or adequate instruction, or proper facilities, can never gain back what they have lost—and it is West Virginia's loss as well as theirs.

Chapter 4

MANPOWER PROBLEMS AND PREPARATION FOR LIFE AND THE WORLD OF WORK IN APPALACHIA

Frederick A. Zeller and Wil J. Smith

Introduction

Frequently, reference is made to the fact that the economic and social development of Appalachia has not progressed as rapidly as the average for the United States.[1] Indeed, in the 1960's the Federal government alone has spent vast quantities of dollars in Appalachia in the hope that the Region would achieve parity or near parity with the rest of the nation in the important social and economic indices.[2] That this laudable goal has not been achieved, and does not yet appear to be within striking distance, is all too apparent to both the casual observer and the specialist on Appalachian problems. Several explanations have been given to account for the failure of the redoubled efforts.

It has been pointed out that the new programs, expensive as they are, are underfunded when considering the enormity of the problems they would solve.[3] Others believe that the economic base of the Region, which includes a disproportionate share of low-skilled, poor quality human resources, when evaluated in terms of full, effective and rewarding participation in the labor force, is inadequate to sustain a prolonged economic expansion which would produce results comparable to the national averages.[4] Still others believe that we have failed to pull the right trigger, the one which would set off the economic and social explosions.[5] In this latter group are those who have concluded that the desired economic and social "explosions" the "takeoff" so to speak, can be achieved in one or a combination of the following ways: more emphasis on technical and vocational training; more and better highways; the attraction of new industry; more effective exploitation of our so-called "abundant natural resources"; better physical planning; and, the proper climate for business expansion and "an optimistic attitude" by the people of Appalachia which will surely be followed by prosperity.

While the arguments have raged back and forth, some evidence has been slowly accumulating which reveals an extremely formidable obstacle to accelerated economic and social development, an obstacle which would not be effectively dealt with in its entirety by any of the programs which would follow from the preceding suggested methods of achieving accelerated economic and social progress. This obstacle to accelerated socio-economic development is the relatively poor quality of the Region's people, primarily with respect to their participation in the labor force.[6] For example, in South Carolina it has been reported that:

> "Indications are that continued rapid industrialization will be obtained with increasing difficulty. South Carolina may now have reached a point talked about for some years: the point where it is not only socially and politically but also economically necessary to extend our educational efforts. We must upgrade and educate many persons who now border on the unemployable."[7]

The same problem has been reported in North Carolina,[8] Kentucky,[9] and an area of West Virginia.[10] Indeed, it has been claimed that the lack of adequate manpower development is hampering economic development in many parts of the Appalachia Region.[11]

What this means is that the basic forces necessary for the sustained economic and social development of Appalachia have been unleashed in the Region but they are being curbed by the lack of suitably qualified manpower. Furthermore, it could also be claimed that this lack of suitably qualified manpower is preventing these forces from being strengthened in that additional new business firms are being discouraged from entering Appalachia.[12]

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This development is not unexpected. Some authorities have been calling our attention to it for several years.[13] However, despite frequent discussions of Appalachian problems it is generally true that today we are not yet in a good position to solve its most critical problem. While we have made substantial progress in certain facets of social problem solving—such as physical planning aimed at highways, airports, health facilities, etc.—we have scarcely begun to evolve a comprehensive plan for manpower development; a plan with the principal objective of preparing all the people in Appalachia for life and the world of work.[14] Worse yet, many laymen and professionals alike are caught up in and/or confused by a debate about the proper approach to manpower development. Broadly speaking, this debate is between two groups: (1) those who believe that the key to the problem is vocational and technical training and, (2) those who identify the solution in terms of general education. Unfortunately, the proponents of each of these approaches have not always bothered to define and develop their positions in a rigorous manner, nor has either group rigorously challenged the ideas and positions of his opponent.[15]

The purpose of this paper is to enter into the debate and introduce into the dialogue the results of interdisciplinary research which, hopefully, will not be cast aside by mere opinions or hunches, but instead will encourage rebuttals based on new research or new interpretations of the findings of existing research. In our opinion, it is time now to approach the issues on an intellectual, scientific basis and to move forward in developing a comprehensive, coordinated, rational manpower development program. The thesis of this paper is that the major thrust of such a rational manpower development program must be based on a system of general education not too drastically different from that found today[16] in the more progressive school systems, although carried out more effectively and innovatively than at present.[17]

What Is the Manpower Problem?

The best way to begin is to ask what is Appalachia's manpower problem? In many ways our manpower problem is not much different from the nation's although it impacts more severely on the Region for several reasons which will be mentioned later.[18]

The national manpower development problem is one of keeping the demand for labor balanced with labor supply, or put another way, matching skills with jobs. The problem emerges from the fact that industrial economies are dynamic.[19] The dynamism of industrial economies can be attributed to a number of factors including the following: rapid technological change;[20] discovery of new, and depletion of old sources of raw materials; changes in competitive positions of products both domestically and in foreign markets; changes in consumer tastes; changes in the distribution of population; and the development of significant wage differentials among different areas within the United States.[21] As these changes occur, they induce further significant changes relevant to this analysis. For example, some occupations disappear and new ones are created. Some occupations become less important and others more important. Earnings increase in some occupations and decrease in others. Finally, job vacancies increase in some areas and decrease in others.[22]

While the precise impact and total ramifications of these changes on any particular occupational group or geographic area would be difficult to ascertain, predict, or project, several general tendencies can be identified. First, those occupations requiring only simple physical skills are becoming less important, while those requiring complicated physical skills and diagnostic capabilities, and the ability to make judgmental decisions are becoming more important.[23] Second, and perhaps more importantly, these changes are operating in a way which require more and more of the people in the labor force, as well as family members, to be able to make both fundamental and comprehensive adaptations quickly. To illustrate this, as the population becomes more urban and mobile ever-increasing numbers of the people must be able to cope with the social,

psychological, economic, and other stresses associated with geographic, social, industrial, and occupational mobility. From the nation's point of view, the manpower problem is that much of the population lack the skills and the flexibility needed to make the types of adaptations necessary to permit the economy to function smoothly without bottlenecks and with maximum opportunities for everyone.[24]

Essentially this is also Appalachia's manpower problem, except that its problem is more entrenched and extensive.[25] The difference is that for the general population in the United States the development of adaptive skills has been accelerated and elevated, while for Appalachia the development of adaptive skills proceeds far more slowly.[26] Isolated and insulated from the rest of the country by walls of mountains, and only scarcely penetrated by modern transportation systems, the Appalachian economy experienced relatively slow change until about 1950 when many of its industries, expecially the coal industry, began to collapse, throwing thousands of men into unemployment, out of the labor force, or into the processions of migrants.[27] Even then, no industrial alternatives immediately appeared to replace the coal industry. Thus, when new industrial alternatives finally arrived in the 1960's, concomitantly with the revitalization of the coal industry, which then required not coal miners but coal technicians able to make diagnostic, judgment decisions, it slowly became apparent that the situation was one in which mid-twentieth-century progressive industrialism was being confronted by a labor force which had the adaptation attributes and the adaptive potentials of a labor force of the early Twentieth Century. Our challenge then, was and is to transform a labor force from obsolescence to relevance, recognizing that until this transformation occurs minimum acceptable levels of economic and social progress cannot be achieved and sustained in the Appalachian Region. But it is equally self-evident that this near-complete metamorphosis cannot be effected in a few months or even a few years. The social and psychological roots of the problem are at least three decades old or older. The solution will require at least half that time and probably more. Yet if we continue to use gimmicks and shortcuts and the quick, psuedo-answer, we may well be saying the same thing thirty years from now—that it will take at least fifteen more years to bring West Virginia and Appalachia abreast of modern industrialism and the demands of a sophisticated economy and society.[28]

If we want to start solving the problem now, the most urgent task is determining what is the most efficacious method for developing the potential of the Appalachian worker to adapt to modern industrialism.

The Approach to Manpower Development in Appalachia

Some understanding of the social psychology of occupational life is helpful for determining which approaches are likely to be most effective for creating adaptation skills.[29]

Our approach to occupational preparation, particularly for people expected to hold jobs which do not require college-level preparation, has been characterized by fascination with the occupational facets of the job.[30] We have been concerned for people's ability to perform certain occupational functions; while decrying the depersonalization of our society, our educational or quasi-educational systems have been perpetuating this depersonalization.[31] However, this approach ignores an obvious fact: that most occupational skills, including those possessed by college graduates, are learned "on the job." Although not always explicit on this matter, most employers recognize this. Their appreciation of formal job specifications and their insistence that successful job applicants meet or exceed the minimum requirements set forth in these job specifications reflect this understanding. A college degree is required of those who are required to be the most occupational geographical social mobile. Next in line in terms of shifting are entry level jobs requiring high school diplomas. Finally, jobs with the lowest educational specifications are those which involve little or no intracompany, occupational, or geographical mobility.

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In fact, entry level positions in these occupations frequently have almost no formal educational prerequisites. Ironically and tragically, though, people in these occupations usually are required to undergo as much or more job changing as any other group in the labor force, frequently involving extensive geographical and limited industrial and occupational mobility. Those least prepared in terms of skills and social-psychological adaptive abilities are required to make the most interfirm, geographical, and occupation adjustments.[32]

We as educators and educational planners should be at least as enlightened as modern industrial employers. They hire on the basis of the adaptability realities and potentials of the applicants relative to the position they are applying for, (or may be asked to perform with later intrafirm job shifts), with the educational requirements being raised in direct proportion to the need for new social, psychological, and occupational adaptations required within the industrial firm. Whether they realize it or not, employers allocate the so-called "better" jobs to those who can adjust to the most stress and change, primarily including those people who have the greatest ability to learn "on the job." Thus, the emphasis for recruitment to the better jobs is on social psychological factors, and emotional maturity and stability, not on the occupational skills possessed by the applicant.[33]

From the moment this point of fact is recognized and accepted, occupational and life preparation programs which emphasize occupational training per se must be re-evaluated and suspect. Those who propose them may be interested in staffing the lower socio-economic strata with people who will accept their grim station in life without question. This is a type of discrimination–an admittance that certain people must work in the more menial and manual occupations for the good of those at the top. Our vocational and technical programs do this by placing certain people in certain courses, often against their wishes and without their full commitment. They may be employers in desperate situations who need immediate candidates for positions but lack the time and resources to conduct on-the-job training programs. Or they may be sincere, but naive, people who falsely believe that the utter simplicity of an occupational training program cuts through the complexity of modern, industrial life at one-half the cost of alternative programs.

Vocational technical training in Appalachia is not the answer. It is questionable if it is an answer. It may be a partial answer to the question of what do we do with the older employable people in the Region who are in economic distress and for whom other answers are economically nonfeasible.[34] But even in this narrow case the answer is not clear cut. It would depend on which occupations the older people were trained for, perhaps services or certain occupations in heavy industry where technological development is less pronounced. Retraining programs were not established to be the panacea for our manpower development problems.[35] But, again, for older people there may be no other choice except to ignore their most important needs.[36] For our young people, however, the value of vocational and technical training must be seriously questioned and examined.

For one example, it appears that vocational and skill training opportunities are most often voluntarily used by those who have otherwise experienced more-intensive educational programs.[37] Then, too, following a rigorous analysis based on extensive research, Harold L. Wilensky concluded that, "The best vocational education is a good general education, accenting basic literacy, disciplined work habits, and adaptability."[38] Wilensky believes that instead of devising curricula which guide students into an orientation of premature vocationalism or job choice (and this is the objective of the curricula of most vocational and technical programs) the public schools and colleges should be more concerned with providing students with effective career counseling. Such counseling would enable students to see the long-run value of general education not only for the world of work, but also and more importantly, for rewarding, flexible, adaptable, and psychologically healthy lives.

However, rather than disposing of Vocational and technical education for the young with a few generalizations, we should examine the requirements of occupational adaptation and the adaptation demands of modern life. This would help to demonstrate specifically why general education is by far the superior approach, although we will suggest later that certain steps can and must be taken to make it more meaningful and more accessible for large segments of our population, especially the young people.

The Adaptation Requirements In A Modern Industrial Society

Successful adaptation in one's occupation and in one's total life activities is just as much a function of social-psychological potentials as it is of occupational skills.[39] Indeed, having certain social-psychological characteristics may be the most important prerequisite for the individual's ability to adapt his occupational skills to market demands on a lifetime basis. In addition, such characteristics may be equally important for people not presently in the labor force (i.e. those currently of school age), since in the future they, too, will experience social mobility which will require psychological skills. The question is: How can we effectively prepare people to meet change with a minimum of trauma?

First, it is completely obvious that the capacity of people to deal with change is a function of their psychological development. By psychological development we are including the abilities of people to see themselves in life situations different from those they have experienced, to respond to new motivations, and to learn new types of interpersonal relationships. In essence, what is required is for people to have the ability to adapt their expectations, needs, and means for satisfying those needs, to that which society is capable of producing.

Some theorists, notably the structural functionalists in the field of sociology, believe the function of the social structure is to produce and maintain equilibrium between the expectations, needs, and behavior of people and the same factors for society. Clearly, however, this function is not being performed within Appalachia in a satisfactory manner. To the extent it is being performed, it is producing adaptation of people to an unacceptable, outmoded, way of life, measured in terms of certain national norms. Moreover, some writers contend that growing numbers of people in America are resisting the very forces that are expected to produce social equilibration.[40] They maintain that people increasingly prefer their adaptations to be acts of individual decisions that are made consciously and voluntarily. Whatever the case, it is clear that people's adaptations to the social system cannot be achieved in many cases by the automatic operation of the social structure.

With respect to occupational adaptation, other theorists (principally economists) are convinced that people will respond automatically and rationally to market forces—they prefer employment to unemployment and higher wages to lower wages and will distribute themselves accordingly, assuring the most efficient allocation of scarce resources and thereby satisfy society's best interests. However, recent research has demonstrated that wages do not allocate labor in anything like this classical manner.[41]

If rational human adaptation cannot be achieved through the automatic operations of the social structure and the labor market, what are the alternative means?

Certain psychologists, such as Nevitt Sanford,[42] have pointed out in rather decisive terms that general education, from pre-school to graduate education, results in the student's having to confront and attempt to resolve a wide variety of experiences and challenges. The breadth of these experiences serves two purposes. First, the frequency of occurrence of problem-solving situations without the pressure of work activity and other role commitments and the search to resolve these situations in an atmosphere of learning, produces in the individual an enlarged capacity for dealing with similar and dissimilar life situations. In other words, the individual acquires a deeper, broader, more pliable personality which enables him later to cope with threats to customary behavior and expectations. The individual becomes adaptable.

It is not difficult to follow Sanford's reasoning with respect to the relationship between general education and adaptability. High school and college students, for example, are forced to deal with the following conditions over sustained periods of time: They must adapt to fellow students in the sense of having to enter into complex interrelationships; they must adapt to the requirements of a wide variety of courses; they must adapt to a number of different teachers each of whom is likely to be somewhat unique in terms of relationships with students, course standards, methods of grading, etc; in many instances, the students must leave home to get to the school sites, or must take up residence in another community, thus entering into the broader community and societal exchange.

All of these adaptation requirements force the youth who continues a program of general education to become self-reliant and adaptable—capable of dealing with change with a minimum of personal trauma.

But, of course, this begs the question, "Why can't vocational and technical programs impose the same requirements on students and, thus, produce the necessary adaptation skills?" Earlier we said that the breadth of the experiences associated with general education serves two purposes. First, to expose the individual to a variety of experiences and challenges and, second, to postpone role commitment. Presumably, technical and vocational programs could accomplish this if their design departed from many of the naive programs which exist today—programs based on the assumption that their only function is transference of occupational skills. However, even more broadly conceived technical and vocational programs are at a comparative disadvantage with general educational programs with respect to the second purpose.

The importance of the postponement of role commitments in the development of adaptation abilities cannot be overemphasized. From the moment that a young person makes a role commitment he has in a sense made a career choice. And the fact of having made this choice probably results in the person's deciding which training and educational experiences are relevant or irrelevant—which experiences he will enter into fully and permit self-development and which he will decide are meaningless for him.

With this perspective, the advantage of general education is that it postpones role commitment, thus encouraging the student to experiment with a variety of self-conceptions and identity searches which will further develop adaptability. And it should be added that this is advantageous not only in preparing for the world of work but, more importantly, in preparing for life. On the other hand, the principal disadvantage of technical and vocational programs for young people is that by focusing on a specific occupational role these programs encourage the individual to close his mind to new and alternative situations, thus closing off experimentation, the prime ingredient in the development of adaptability.

At this point in our analysis the case against vocational and technical education is fairly strong; stronger, in fact, than it really should be. This is because it is built upon a setaria-sparibus assumption. That is, we have assumed that all young people have equal role commitments and are equally affected by these commitments and that general education defers commitment and vocational and technical programs encourage or requires it. This assumption is invalid, although it is useful for pedagogic purposes. More realistically, role commitments are induced by a wide variety of contacts outside the school, including contacts with friends, family, neighbors, church, etc.

Vocational and Technical programs obviously are valuable in relieving the economic distress of the older adult population. This is true because employment and work are the prime factors in the older person's life. Most other aspirations and habits have been fulfilled or established and are of relatively low priority compared with unemployment or work. The changing technologies effect on the short AWLE for those 55-65 is more readily predictable. Ida R. Hoos, for example, found that retraining programs for adults were useful for

breaking unemployability patterns and facilitating their transition back into the labor force.[43]

On the other hand, with reference to pre-high school and pre-college-age young people, if they have made role commitments too early and irrationally as induced by influences other than the schools, then vocational and technical programs may perform a valuable salvaging function. For example, a young person who has made a commitment to a life on the welfare roles and, hence, sees general education as irrelevant, might be started back on a more preferred occupational track if he could be persuaded to become interested in a vocational program. What I am saying is that vocational programs should be complementary, not substitutable—they should act as a way station for those who have fallen out of the regular school system.

Nevertheless, we must be aware of the dangers of technical and vocational education applied indiscriminately. While it has its purpose, its principal value is as a last resort—a way station to reintroduce the dropout to the true value of general education. Vocational and technical programs should not be expanded until we have exhausted our ability to make general education attractive to the maximum number of young people at all socio-economic levels. Certainly, it should not be seen as a shortcut means of starting young men and women on the bottom rungs of some kind of an imaginary job ladder (which stresses that we all should start at the bottom and work our way up) assuming that something else will happen to permit their climb to the top rungs. There is no job ladder, per se. Educational institutions place people in a job family, and this family is composed of jobs that are closely related. This is especially true for vocational technical education or training. Lipset and Bendix found that occupational changes typically do not involve status changes; thus, occupational mobility occurs among closely related occupations.[44] Additional research in this area by Gladys Palmer indicated that there are very definite limits to the types of skills that can be transferred from one family of occupations to another.[45]

Why, then, is so much enthusiasm, concern and public support being generated for the expansion of technical and vocational programs when there is apparently little empirical, measureable evidence of their usefulness, more extensive and convincing evidence of their shortcomings, and a massive amount of evidence in support of the broad direct and indirect benefits of general educational programs? The answer to this question is not entirely clear, although it is interesting to speculate, briefly, as to what it might be.

First, technical and vocational programs are simple, direct approaches to a complex problem. Both simplicity and efficiency are highly valued in American society as is manual effort and "earning one's bread by the sweat of one's brow." Moreover, such programs enable us to accomplish a subtle form of discrimination while explicity working for social justice. That is, through premature channeling of human resources into occupations by our system of vocational and technical education, we predetermine who will be the served and the servants; the leaders and the followers; the high wage, high income recipients, and the low wage, low income recipients; the empowered and the powerless; the rich and the poor; the healthy and the unhealthy. At the same time, the reason may be formulated more intricately.

The more intricate explanation encompasses four broad areas of concern. First, modern industrial life demands a high degree of flexibility and tolerance for adaptation to change. Second, such ability and tolerance are thought to be acquired primarily in the first quarter or first third of people's lives. Third, many young people prefer early role commitments, since this produces a degree of stability during a period of instability (late adolescency and early adulthood), and technical and vocational programs are seen as means to provide this stability. Fourth, since technical and vocational programs have a ready-made captive clientele, are relatively easy to programme, plan, sell, and operate, they appear to offer the most direct solutions for incredibly difficult problems even though they may produce short-run illusory gains while sacrificing long-run, concrete benefits and individual staying power.

OTHER DROPOUT STATISTICS

	1961-62	1962-63	1963-64
Dropouts by I. Q. range			
Below 74		11.6%	9.9%
75-81		13.9	12.2
82-88		18.8	17.3
89-95		18.9	18.6
96-102		13.4	13.2
103-109		7.6	7.4
110-116		2.8	3.0
117-123		.6	1.0
124 and above		.3	.4
Not indicated		12.1	17.0
Retention:			
Never retained		34.1%	32.4%
Retained 1 year		24.0	23.5
Retained 2 years		17.9	17.1
Retained 3 years		7.7	6.9
Retained 4 years		1.4	1.7
Retained 5 years		.3	.3
Retained 6 years		.1	.0
Retained 7 years		.1	.1
Retained 8 years		.3	.1
Retained 9 years		.2	.2
Not indicated		14.1	17.8
Reading Level:			
4.0 and below		5.0%	4.4%
4.1 – 5.1		7.2	6.6
5.2 – 6.2		11.4	11.2
6.3 – 7.3		14.5	13.3
7.4 – 8.4		14.1	13.2
8.5 – 9.5		10.2	9.3
9.6 – 10.6		6.2	5.3
10.7 – 11.7		3.0	2.5
11.8 and above		1.3	1.2
Not indicated		27.1	33.0

It seems that about 32 per cent of the children in West Virginia have never been held back in school one year, but that's not a very high percentage. These are the ones who are going through "on schedule." Note how many of them have been held back many years. Now you can tell when a child has been held back eight or nine years, this probably means he has had only irregular schooling. He goes to school a few days and he is pulled out or stays out; it doesn't mean this is a poor student. What it means is that the child perhaps hasn't had a chance or a reason to go to school.

"Reading Level": Four per cent of the students in this state read at fourth grade level and below, and the ones reading at high school level number about 1.2 per cent. But I'm concerned about that last figure—"Not Indicated." Anytime that we can't account for 33 per cent of the students and don't have any idea at what reading level they're operating, it becomes very difficult to make sense in planning for remedial programs or trying to evaluate anything about the reading situation.

The vast majority of students don't drop out of school for insignificant reasons. The reasons may seem insignificant from an external point of reference, i.e. from where we sit, but when the student does this he does it for some reason significant to him.

Percentages of population over 14 years old that are illiterate: West Virginia has done reasonably well in this regard. We cannot get too inflated about it because these figures do not speak of functional illiteracy, which we are defining as about sixth grade level reading ability, but this means able to read or write a

Whatever the exact reason, however, it remains to be established that vocational and technical programs deserve all the interest and attention they have been getting.

General Education In Appalachia

If responsible manpower development is largely the product of general education, then the next question is, how well are we doing in this area? The answer for Appalachia is "not very well."

Garth L. Mangum has summarized several indicators of educational progress in Appalachia.[46] In 1960, 8 percent of the adult population of the U. S. had completed less than five years of schooling compared to 11 percent for Appalachia; 42 percent of the U. S. adults completed high school compared to 32 percent for Appalachia; 8 percent of U. S. adults completed college compared to 5 percent for Appalachia. Continuing this comparative analysis he noted that of the ten states with the lowest percent of sixteen- and seventeen-year-olds in school, eight were Appalachian; the average salary for elementary and secondary teachers in the U. S. was $6,200 and the Appalachian average was $4,800; the U. S. average expenditure per student was $518 in 1961-62, in Appalachia it was $337; the median student teacher ratio in the U. S. in 1960 was 19.6 to 1, every Appalachian state except New York exceeded this. Finally, in 1964, 27.6 percent of those examined for military service in the U. S. failed to pass the mental examination. The percentage figures for several representative Appalachian states are North Carolina 51, Kentucky 41 and West Virginia 36. An analysis of the National Merit Scholarship test scores for 1965 shows that most Appalachian states ranked well below the national averages in terms of the performance of the eleventh graders, although certain individual states did rather well and even certain states that didn't do well on the whole received a relatively large number of individual National Merit awards, i.e., West Virginia.[47]

Admittedly, there are no perfect or generally accepted indicators of the quantity and quality of general education, and those used by Mangum are no exception. Yet, at least these indicators do provide a rough approximation. To the extent that they succeed in depicting reality, the picture presented is a rather grim one. The quality of education in Appalachia, in general, is well below the national average, even excluding capital investment in primary and secondary school facilities. That many of these school plants and facilities and capital equipment are obsolete is quite evident to anyone who has done any traveling in the Region by automobile.

In the face of the present situation in which we have too few dollars to significantly upgrade our general educational system, we must employ an optimizing strategy. Obviously we must all be concerned with generating adequate public revenues to support the general education system. Then, too, we must scrutinize carefully the allocation of funds among the competing programs with similiar objectives—the preparation of people, particularly the young, for the world of work and lifetime careers. Funds must be distributed to programs with the highest cost-benefit ratios calculated in the most valid manner.[48] We believe this means that funds allocated for vocational and technical training for the young must be eyed very, very suspiciously. But other programs, as well, must be re-evaluated as to their potential for really coming to grips with the challenges of modern society.

The last component of an optimizing strategy is that we must use available revenues in the most effective manner. We assume that the professional educators are more aware of what is needed in this particular area than we are. However, our analysis does lead to one conclusion which should be stated openly and frankly.

Appalachia's system of general education may or may not approach the national norms in several categories, but it is a system which works fairly well for those who can be induced to remain in it and are motivated to take advantage of whatever opportunity provided by it. Therefore, the immediate task is to motivate more young people to remain in school and to take greater

WEST VIRGINIA STATE DEPARTMENT OF EDUCATION
CONTINUING EDUCATION SURVEY – 1966-67 HIGH SCHOOL GRADUATES
STATE TOTALS

SURVEY OF ALL RESPONDENTS

	1966		1967	
	NUMBER	PERCENT OF TOTAL	NUMBER	PERCENT OF TOTAL
POST GRADUATE HIGH SCHOOL COURSE	122	.48	103	.40
JUNIOR COLLEGE IN STATE	577	2.17	711	2.79
COLLEGE OR UNIVERSITY IN STATE	7,600	29.54	7,847	30.74
COLLEGE OR UNIVERSITY OUT OF STATE	1,282	4.98	1,274	4.99
VOCATIONAL SCHOOL	190	.74	272	1.07
BUSINESS OR COMMERCIAL COLLEGE	847	3.29	758	2.97
TECHNICAL SCHOOL	257	1.00	361	1.42
NURSING SCHOOL	388	1.51	327	1.28
DEGREE OR BEAUTICIAN SCHOOL	550	2.14	547	2.14
MILITARY SERVICE	2,088	8.12	1,318	5.16
EMPLOYED	7,653	29.75	7,567	29.65
OTHER	4,191	16.29	4,441	17.40
TOTAL	25,725	100.01	25,526	100.01

advantage of the opportunities even our present system of general education affords. And there is great need to extend all available educational opportunities to more young people by preventing drop-outs. While certain rather simple steps can be taken to identify potential drop-outs, thanks to research such as that conducted by Dr. Oscar Mink and Larry Barker of West Virginia University, and by others, it is almost a foregone conclusion that both the motivational question and the prevention of drop-outs will require more extensive and intensified counseling programs.[49]

By this, however, we do not mean conventional counseling; counseling which seeks to provide answers to the student about employment opportunities or attempts to direct a student into a particular occupation which appears to hold promise for the future. What we mean is integrated counseling—counseling which relates each individual's interest to the development of a lifetime career, in or out of the labor force, and his career to participation in the general educational system.[50] This would be counseling on a broader scale, adding a new dimension to classroom study, like history, yet having the responsibility for coordinating and integrating in a meaningful manner all the other areas of study in the secondary school system. This structural change would necessitate the development of a lifetime career program in the schools and would in effect constitute the planning component which cuts across many of the conventional disciplines. This lifetime career program in the schools would in turn be backed up by a counter part in the university which would assume full responsibility for the research and instruction necessary to feed a program of lifetime career development for people in or out of the labor force. Obviously, such a department or division, too, would have to be interdisciplinary, including economists, psychologists, sociologists, educators, social psychiatrists, and others. Their task, in a sense, would be to evolve a new discipline-the study of man and the skills he needs to adapt to a world he can't control as an individual—a world which is impersonal and relatively unresponsive and insensitive to the needs of a single individual.

If we could succeed in this task, we could move Appalachia to a preferred position in a generation or two. If we don't perform the task successfully, the history books read by your children and your grandchildren will read like those today and those of our fathers.

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simple message which is written in any language. This could mean being able to write your own grocery list, or being able at dictation to write a simple Dick and Jane type story. But even there West Virginia has about 2.4 per cent of the people who can't meet even that standard. Thirty-two states are below West Virginia. The states range from .7 in Iowa down to 6.3 per cent in Louisiana. Again, we're not the worst in this regard, but we still have a long way to go.

Consider now this very interesting document from the West Virginia State Department of Education. It tells where the young people go and what they are doing after they leave the high school.

Perhaps the most dramatic of all the charts that we have examined here shows the number of professionals working in West Virginia as compared to the recommended ratio from professional organizations.

In the matter of school psychologists in the whole state we have six–six school psychologists working full time. There ought to be at least one for every 2,000 students, and if West Virginia met that minimum requirement we would need immediately 200 extra school psychologists in addition to the six we already have. Psychometrists? We have two; we have some on a consultant basis only. The recommendation is one to 10,000 students and we would need about 40 more of those to meet that requirement.

I was talking to a very "optimistic" fellow the other day who said "Well, West Virginia doesn't really have a problem, because all the young people are leaving the state anyway, the birthrate is off. So, all you have to do is wait until time takes its toll and you won't need so many professionals!" None of us want to approach the problem that way. West Virginia is not a dying state as some would have us believe. It is in deep trouble.

Think about each of these, or whichever of them happens to be of chief interest to you, but next let us look at the situation regarding school counselors. The recommended ratio of secondary school counselors is that we need one for about 300 students. This has been recommended by the guidance associations, by our critic James Conant, and by many others. I don't think that figure is unreasonable. If one grants that a counselor should be assigned to every 300 students in a high school, how much time does that give him with each student if he is working a five-day week for the normal length school year? He's going to be busy if he does nothing but counseling, yet we know that in our state as in every other one the counselor has many, many things to do other than counsel. Our immediate problem seems to be that we need 340 more secondary school counselors, and if we were going to be thorough, we would need 640 elementary school counselors. Elementary counseling is not a frill. It is intended primarily to do developmental work, not remedial work, with students and to avoid some of the very serious problems that might come later.

As incredible as it may seem, today we are far behind the national average in support of our schools, farther behind than we were ten years ago. At that time, it would have taken $39,000,000 to bring West Virginia up to the average in the United States. And, as one man said today in a panel, "Who wants to be 'average'?" But today, because we have not taken sufficient action between then and now, it would take $60,000,000 to do the same job. What will happen if we wait another five or ten years to try to become "only average?" How much will it then cost? And, if we are talking about economy and about the cost of doing things, it would behoove us to get moving now and get this job done before we have to spend twice as much money just to catch up, just to be average. West Virginia spends $411 per pupil, ranking us 44th in the nation. The national average is $564, but even that doesn't tell the whole story, because some of the very wealthy states are spending nearly twice that average figure. So, again the handwriting is on the wall. Something is going to have to be done soon.

Look at the states which are leading the pack. The "average" education in Utah, Alaska, California, Colorado is a bit beyond a high school diploma. How did these states get that way? A combination of factors certainly, but one of the chief factors is that they have extended junior college at public expense to practically all children and the educational expectation now is not graduation

Footnotes

1. Almost every important social and economic indicator points up the "deprivation gap" which exists between the rest of the United States and Appalachia. A close checking of the following indices of social and economic welfare will quickly illustrate these disparities: (a) rate of unemployment, (b) median family income, (c) per capita personal income, (d) percent of families with incomes over $10,000 and percent of families with incomes under $3,000, (e) educational attainment for the population 25 years of age and older, (f) median school years completed, (g) male and female labor force participation rates, (h) estimated annual salary of instructional staff and classroom teachers in elementary and secondary schools, (i) educational expenditures as a percent of per capita income, (j) expenditures for elementary and secondary education as a percent of per capita income, (k) estimated expenditures per pupil in average daily attendance in public elementary and secondary schools, (l) condition of housing (percent sound and percent dilapidated). This is of course only a partial listing of areas where significant disparities exist between the national average and the Appalachian Region. One could add statistics on health, welfare and government and additional information on education and housing. For comparative statistics on the above indicators see, *Appalachian Data Book*, June, 1967, and *The Appalachian Region: A Statistical Appendix of Comparative Socioeconomic Indicators*, March, 1968, Appalachian Regional Commission, Washington, D.C. An excellent study of the attractiveness of each state for new plant locations was published by McGraw-Hill in *Chemical Week*, October 5, 1968, pp. 5-100. Note expecially pp. 99-100, where the fifty states are compared on the basis of nine key factors of life quality. Note also the over-all rank of the Appalachian states. For an indepth study of the human resources development problems in Appalachia see, Robert W. Miller and Frederick A. Zeller (eds.), *Manpower Development in Appalachia* (New York: Praeger, 1968). Finally, for those who are interested in Appalachian problems, the *Appalachian Outlook*, an annotated bibliographical listing of relevant materials published by the West Virginia University Library is perhaps the most complete and up-to-date source.
2. For a state-by-state breakdown of federal outlays from all programs for the fiscal years 1966, 1967, and 1968 see, *Federal Outlays: A Report of the Federal Government's Impact by State and County*, compiled for the Executive Office of the President by the Office of Economic Opportunity.
3. A brief listing of the problems Appalachia must solve would include (1) low rates of labor force participation, especially for the female labor force, (2) unemployment and underemployment of the labor force, (3) diversification of industry, (4) improvements in per capita income, (5) better housing, especially for the rural poor, (6) renovation (and innovation in) of the educational system with increased per pupil expenditures, (7) improved system of transportation, especially for the rural poor,(8) higher salaries for teachers, (9) tax reform, and (10) a complete reform of the public welfare system. This is just a partial listing of the areas in which Appalachia falls substantially below the national average.
4. The future economic growth of the Appalachian Region is determined not only by its economic base, which includes the quantity and quality of its human resources, raw materials, transportation systems, markets and technology, but also the quality of its educational and other social institutions (health, welfare, etc.). However, it should be noted that to the extent that an effective "trickling down" process takes place as a result of accelerated aggregate demand at the national level, Appalachia might well note substantial improvements in all the important social and economic indicators.
5. The "right trigger" and the "economic and social explosions" noted here in reference to the Appalachian Region (an economically depressed region or an underdeveloped area within a highly industrialized nation) are analogous to the national economy's process of "take-off" and "the drive to maturity in W. W. Rostow's book *The Process of Economic Growth* (New York: W. W. Norton and Company, Inc., 1962). In his analysis of the stages of economic growth, Rostow states that "until a definitive political transformation occurs—which harnesses national energies, talents and resources around the concrete tasks of economic growth—take-off is likely to be postponed: negatively, because the thin layer of modern technical and administrative talent in the society (as well as the society's margin of savings) is likely to be dissipated in activities of low or negative productivity; positively, because the government is unlikely to play its role effectively in the three sectoral developments—in social overhead capital, agriculture, and trade—necessary to create the matrix for sustained growth . . . " "the corps of entrepreneurs and technicians must be enlarged, and the sources of capital must be institutionalized in such a way as to permit the economy to suffer cultural shock, to redispose its investment resources, and to resume growth. " . . . in noneconomic terms, the take-off usually witnesses a definitive social, political and cultural victory of those who would modernize the economy over those who would either cling to the traditional society or seek other goals."

WEST VIRGINIA SURVEY OF PUPIL PERSONNEL SERVICES PERSONNEL

Pupil Personnel Services Personnel	Full Time	Half Time or More	Less Than Half Time	Total	On Consultant Basis Only	Number Employed With ESEA Title I Funds (Student Participation)	Recommended Ratio *	Number of Students To Whom Services are Available	Approximate Number of Additional Personnel Needed
School Psychologists	6			6	15	6 (19,853)	1:2000	116,926	200
Psychometrists	2			2	2	3	1:10,000	61,669	40
Psychiatrists					4	1		63,450	
School Social Worker	56	5	14	75	2	69 (37,716)	1:2000	157,793	130
School Nurses	80	8	15	103	5	48 (45,785)	1:100	299,173	300
School Physicians	2	2	7	11	10	3		143,379	
School Dentists	1		6	7	24	12		117,489	
Attendance Worker	36	15	11	62		5 1/2	1:8000	296,896	
Special Education	329		553	882		125 (7,970)	Variable	8,214	
Counselors	172	56	21	249		16 (40,659)	1:300 Sec. 1:500 Elem.	130,915	340 Sec. 640 Elem.

* Ratio is expressed as one professional person to the recommended number of students.

There has been an increased interest in applying the methods and theories of economic development in underdeveloped countries to the depressed regions in highly developed economies (i.e. Appalachia) because of the similarity of many of the problems confronting both areas.

6. The poor quality of the labor force in the Appalachian Region is reflected not only by the lower labor force participation rates of both men and women, but also in the occupational structure, hierarchy of skills, wage rates, types of industry, per capita income, and educational attainment of the people. Measured by almost any of the above indicators the Appalachian lies well below the national norms.
7. [1]A. C. Flora, Jr., "Education and Economic Progress in South Carolina", *Business and Economic* Review Vol. XII, No. 4 (January, 1966) University of South Carolina, p. 11.
8. [2]"North Carolina Contends with a Manpower Shortage", *Appalachia,* Vol. 1, No. 6 (February 1968) pp. 6-8.
9. [3]John L. Fulmer and Don M. Soule, "Why Kentucky Ranks Low Among the States in Per Capita Personal Income", *Research Briefs,* Bureau of Business Research, University of Kentucky, (November, 1966) p. 23.
10. [4]"West Central West Virginia Area Manpower Requirements Survey to 1972", Parkersburg Center, West Virginia University (November, 1967) p. iii.
11. [5]"North Carolina . . . op. cit., p. 6.
12. A recent report prepared by the Fantus Company, an industry location research firm, points up clearly the attitudes of location-seeking business toward the Appalachian Region. ". . . Many industrial newcomers plus perhaps an even larger number of location seeking businessmen who have chosen to wait out further developments before venturing into Appalachia will be more encouraged to locate in the region if they see greater progress in combating illiteracy and upgrading academic education." [p. 25] The report goes on to make additional and more important assessments of Appalachia's human resources dilemma in saying . . . " The doubts which industry expresses for the manpower outlook in Appalachia can be likened to economic questions which the engineer asks for electric power service: Is it competitive in costs?; is continuity of supply reliable?; (and most importantly) my parentheses--is the system capable of adjusting to new and sometimes unforeseeable demands?" [p. 26] Fantus concludes this section by pointing up the first priority importance of *general education* in the industrial and economic development of Appalachia by stating that "If the Appalachian States are to dispel the misgivings and reservations of location-seeking businessmen, if the region is to exploit what, statistically at least, is its greatest resources for new industry, (unused manpower), then it becomes abundantly clear that *education* should be given number one priority in any program to make more communities in the region more attractive to industry." P. 27. *The Appalachian Location Research Studies Program, Summary Report and Recommendations,* Prepared for the Appalachian Regional Commission, December, 1966, The Fantus Company, Inc., Contract No. C-273-66 (Neg.).
13. [6]For example, see Garth L. Mangum, "Manpower Needs and Development: Today and Tomorrow", and "Manpower Implications of the Appalachian Regional Programs", *Manpower Development in Appalachia,* Frederick A. Zeller and Robert W. Miller (eds.) (New York: Praeger, 1968) pp. 6-37, 45-62. The conference for which these papers were written was planned in 1964 and 1965.
14. Although scarcity of resources, (i.e., insufficient funds and a dearth of qualified administrators and other government personnel) has been a factor in delaying the development of a comprehensive national policy for human resources development, we feel that the more disastrous factor has been the failure of the general public and especially responsible governmental and educational leaders to understand the true nature and destiny of man, especially modern man. This has led to the subjugation of educational processes to the industrial-defense complex and the emphasis on education for occupational placement. The current heavy emphasis on vocational and technical education and the recent growth in manpower development and retraining programs, point this up rather vividly. Also, the current interest in vocational and technical training as a solution to the dropout problem further exemplifies this trend. The basic function of education should be to sensitize the individual; to open his mind to the beauty of complex ideas; to prepare each individual to seek the highest level of achievement in a rapidly changing, exciting, and challenging world. Education should provide each person with the capabilities and the active desire to be an *actor* in history and not a *reactor* to history. For a good discussion of human resources development see Theodore W. Schultz, *Economic Growth and Agriculture* (New York: McGraw-Hill Book Company, 1968), chp. 8, esp. pp. 166-171; John K. Galbraith, *The New Industrial State* (Boston: Houghton Mifflin Company, 1967), p. 399. Also Paul W. Devore, *Vocational Education in West Virginia,* unpublished paper presented to the Appalachian Center Visiting Committee, October 4, 1968.
15. Most of those who view the solution to manpower development problems in terms of vocational and technical training are from either government, politics, or business. Both government official, politician and business are primarily concerned with the state of the economy in the short-run. Naturally, in their desire to maintain high levels of production, profit, and employment any program which has immediate monetary, measureable payoffs will be favorably received. With few exceptions most of the reports of this nature are journalistic, superficial and economic development and not human resources development oriented. There are but few of this type of report which are concerned with man as anything more than an input in the productive system. See, Ch.

from high school, but at least some post high school work. Our expectation in this state is not that high. Let's go down the list and keep going down, down, down, until you get to the bottom of the second column where we find two states tied for 46th: West Virginia and Tennessee tied at 8.8 years of education. We are beating only Kentucky and South Carolina, which have 8.7.

No one is trying to paint the picture black. We are merely presenting the data as it is. We don't know how many of you are professional educators, but our intent for having this conference was not to load the place with professional educators. We wanted to have the business community, the industrial community, political leaders and others represented. Many of you may not know specifically what goes into the accrediting of a high school, but we do know that lack of accreditation indicates that something is seriously wrong. Some of you perhaps haven't thought very much about what it means to go to a non-accredited high school. But in the state of West Virginia we have only 37 fully accredited secondary schools. This means these are students who could go to any other state and have a reasonable chance of being admitted to the college of their choice. That is, at least they would be in the race. But some states will automatically rule out someone who goes to a non-accredited high school. Of the 84 schools with minor violations, i.e. ones which the accrediting agency would be willing to wink at, 10 of them were violating something in the field of guidance. In the 28 "Warning Issued" schools, guidance deficiency caused five of those and of all of our 216 high schools, 67 of them are simply not a member of the North Central Accrediting Association--not a member because of a guidance deficiency in 12 cases and seven schools lost their membership in 1966-7 because of deficiency in the guidance program.

Now, again, the handwriting is on the wall here, too. If we don't want to see more of the high schools losing their accreditation, then we must do something about guidance and the other items that are causing these problems. The "North Central" accrediting region, to which you belong, goes from West Virginia practically to the Pacific Coast. And, you're being compared with states which are at the top. For example, Utah is part of that region.

Once I asked the question, "If West Virginia is having a difficult time with accrediting by the North Central Association, why isn't a request made for a switch of affiliation to the southern states region, where you can compete better?" Those educators present threw up their hands and screamed at me "We don't want that!" I agree with them. I asked the question only to see what their reaction would be. Do we want to throw in the sponge and say we are not as good as Ohio and Pennsylvania and the other adjacent states, or do we want to do something about it? The easy way would be to seek permission to go in with the southern states and then rank reasonably well among them, but from the figures you've seen today, we wouldn't be at the top there, either.

West Virginia has been described in a national magazine as a dying state. I refuse to accept the idea that it has to be a dying state, but we do have many factors working against us.

You saw the figures on how many people come into the State and how many people leave. There is another figure, too, which I hesitate to mention but we had some figures on the birthrate. We find that Wirt County had only something like two live births per 1,000 population when they should be having 17 to be "national average." And, so, I made a list of about seven or eight counties where the people are just not doing their share and I'd be glad to give you that list if you have any recommendations about what could be done in this situation!

Survival is one of the categories created in 1859 by a man named Herbert Spencer in an essay called "What Knowledge is of Most Worth?" Spencer said there are five types of knowledge which must be stressed in every society. These five things have to be part of school programs, too, or else the school is not relevant to the needs of the students.

First, people have to be able to survive. This means stay physically alive. The second category (second in importance) is activities which support survival.

Sci. monitor articles) - It is regretable that there are so few educators who view many at the center and his institutions the total industrial complex revolving around him, subject to his control and needs. For a discussion of the merits of "Impractical" (general) education see - Robert W. Hutchins, "Permanence and Change," *The Center Magazine*, Vol. 1, No. 6, (September, 1968), pp. 2-6; Ronald W. Stadt, "The Choice for Today's Schools: Which is it going to be: General or Vocational Education?", *Journal of Industrial Arts Education*, September-October, 1967, and reprinted in West Virginia University *Extension Reader Series No. 155*. Also, see Schultz, *Economic Growth and Agriculture*, p. 168.

16. This is the general conclusion of the papers presented in the volume *Manpower Development in Appalachia*, Zeller and Miller, (eds.),
17. For a most lucid and provocative discussion of the dramatic changes requisite for the most effective communication of knowledge and stimulation of ideas in the American school system see, *Innovation in Education: New Directions for the American School* (A Statement of National Policy by the Research and Policy Committee) Committee for Economic Development, July, 1968. See especially pages 13-18.
18. Several reasons for the severity of the manpower problems in Appalachia will be noted later. Briefly, however, the manpower problem in Appalachia is a function of the social structure of the region—traditions (secular and religious), mores and cultural patterns which re-inforce many of the economic problems which are common to the rest of the United States. Perhaps in a vicious circle a region whose social and economic bases are inflexible and unadaptable will produce human resources which are inflexible and unadaptable—unable to withstand the shock of change. Investment in social overhead capital is the best way (perhaps the only way) to assure the proper response to change—for the region and its human resources. See Niles M. Hansen, "Some Neglected Factors in American Regional Development Policy: The Case of Appalachia", *Land Economics* XLII (February, 1966), esp. pp. 6-7.
19. P. Ackerman, *Unemployment: The Problem of Industrial Nations* (Montreal: P. Aekerman, 1959), and Carl C. Rutledge, *Jobineers* (New York: Vantage Press, Inc., 1952).
20. While the U. S. economy continually experiences technological change, those who are unfamiliar with the data tend to exaggerate the *rate* of change. The data do not indicate an impending technological "explosion" but, rather, gradual but persistent change. See *Technology and the American Economy*, Report of the National Commission on Technology, Automation, and Economic Progress, Vol. 1 (February, 1966). See also, *America's Industrial and Occupational Manpower Requirements 1964-75*, U. S. Department of Labor, BLS, (January, 1966).
21. The above factors which aptly characterize a dynamic industrial economy also effectively delineate the factors largely responsible for the economic decline of the Appalachian Region. At least partially responsible for the slowness of the recovery was (is) a large reservoir of high-waged, poorly qualified manpower. However, a more important factor in discouraging new industry from relocating in the region was the inadequate investment in social overhead capital. This was especially true for West Virginia. For a discussion of this and other factors leading to regional economic development see, Niles M. Hansen, *Land Economics*, XLII (February, 1966); Melvin L. Greenhut, "An Explanation of Industrial Development in Underdeveloped Areas of the United States," *Land Economics*, XXXVI, No. 4, (November, 1960); John B. Parr, "Outmigration and the Depressed Area Problem," *Land Economics*, XLII, No. 2, (May, 1966), pp. 153-159. Overtime significant wage differentials among regions will no doubt, cease to be (if it still is) an important factor in economic development.
22. For a discussion of the role of job vacancy data for an active manpower policy and the usefulness of this data in the placement of unemployed workers in available job openings see, *The Measurement and Interpretation of Job Vacancies*, National Bureau of Economic Research (New York: Columbia University Press, 1966), Parts 1, 3, and 4.
23. There are two distinct schools of thought on this point. There are those who feel that an increasingly automated and computerized economy will require a better educated and trained labor force. The members of this school of thought point to the work histories of the poorly educated and the apparent lack of demand for the unskilled and uneducated. See, Robert Theobald, *Free Men and Free Markets* (New York: Clarkson N. Potter, Inc., Publisher, 1963), esp. pp. 11-29; 168-184. Another school of thought holds that a complex society will not necessarily demand a better educated labor force. This school believes that the primary need will be for a small group of highly educated people who can interpret and routinize the operation of the highly technical capital equipment. In essence, the members of this school of thought would argue that the employment opportunities for the unskilled and uneducated might well be expanded through automation. See Richard R. Nelson, Merton J. Peck, and Edward D. Kalachek, *Technology, Economic Growth and Public Policy* (Washington, D. C.: The Brookings Institution, 1967), chp. 7.
24. A brief study of the early (and continuing) problems of the labor mobility projects which has been operative for approximately two years in West Virginia and in several other states, points up rather clearly the lack of skills and the inflexibility and unadaptability of large segments of the labor force. Initially in several of these demonstrations, mobility projects and returnee rate for relocatees was approximately 50%. With additional counseling in both the supply areas and the demand areas, the returnee rate was reduced to only about 5-10%.

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It is not enough to know how to climb a tree, it is not enough to be able to pick berries, but now we must learn perhaps how to grow food rather than just find it. An activity supporting survival in a tribal society would be far different from an activity supporting survival today. In West Virginia, "activities supporting survival" usually means either having a job or getting a welfare check. (By the way, we rate 10th in welfare expenditures. We're 14th in roads and 44th in education or 50th, depending on what we're measuring.) The next category that Mr. Spencer told us about 100 years ago is "Activities Perpetuating the Family". Home economics, for example, is one of the activities third in importance. The fourth category is "Perpetuating Larger Social Groups," i.e. larger than the family (the clan, the tribe, the city, the State, the nation). These come fourth in importance but they have to be dealt with either in school or by some other agency. And, the last of the five, is "Those Activities Which Cater to the Tastes or to the Preferences of People".

EDUCATIONAL LEVEL

Median School Years Completed by Persons 25 Years Old and Older, 1960

1.	Utah 12.2	29.	New Jersey 10.6
	Alaska 12.1		UNITED STATES 10.6
	California 12.1		
2.	Colorado 12.1	30.	Illinois 10.5
	Nevada 12.1		
	Washington 12.1		Maryland 10.4
	Wyoming 12.1		Oklahoma 10.4
		31.	South Dakota 10.4
8.	Idaho 11.8		Texas 10.4
	Oregon 11.8		Wisconsin 10.4
10.	Kansas 11.7	36.	Pennsylvania 10.2
	Massachusetts 11.6	37.	Rhode Island 10.0
11.	Montana 11.6		
	Nebraska 11.6	38.	Virginia 9.9
	Arizona 11.3	39.	Missouri 9.6
14.	Hawaii 11.3		
	Iowa 11.3	40.	North Dakota 9.3
17.	New Mexico 11.2	41.	Alabama 9.1
18.	Delaware 11.1	42.	Georgia 9.0
19.	Connecticut 11.0		Arkansas 8.9
	Maine 11.0	43.	Mississippi 8.9
			North Carolina 8.9
	Florida 10.9		
21.	New Hampshire 10.9		Louisiana 8.8
	Ohio 10.9	46.	Tennessee 8.8
	Vermont 10.9		West Virginia 8.8
	Indiana 10.8	49.	Kentucky 8.7
25.	Michigan 10.8		South Carolina 8.7
	Minnesota 10.8		
28.	New York 10.7		Puerto Rico 4.6

We have done a reasonable job in West Virginia and in other states in taking care of the first category. People stay alive somehow. The death rate for babies is

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25. Appalachia has lagged behind the national norms in almost every important area of human resources and economic development. The long-standing presence of these problems and the essentially rural nature of the Appalachian Region have seen the problems grow more entrenched and wide spread.
26. Frederick A. Zeller, *A Profile of Appalachia.* An unpublished mimeographed manuscript; John Photiadis, *Changes in the Rural Southern Appalachian Community*, Research Series 7, Office of Research and Development, West Virginia University, Morgantown, 1968.
27. U. S. Congress, House of Representatives, Ad Hoc Subcommittee on Appalachian Regional Development of the Committee on Public Works, *Hearings, Appalachian Regional Development Act*, 88th Congress, 2nd Session, May and June, 1964, pp. 105-159, which includes the statement[3] of Secretary of Labor Willard Wirtz and Secretary of Health, Education and Welfare, Anthony J. Celebreeze.
28. A modern industrial state is service oriented with special interest in high levels of investment in social overhead capital. The demands of a modern industrial state can be crushing for those who are inadequately prepared to adapt to change resulting from technology and mobility.
29. Very early occupational selection has been found almost always to be detrimental to the most healthy psychological development of the individual. A narrowly based training experience cannot adequately prepare an individual for change. Almost all of the current manpower development and training programs, as well as vocational and technical courses, take change as a given and assume that each person will be flexible and adaptable in the long run.
30. This is true for the vocational-technical schools, and the U.S. Department of Labor's retraining programs such as MDTA.
31. If one assumes that vocational and technical training results in a narrow span of job choice, and that through this method specialization is increased, then it is quite likely that vocational-technical educational or training programs perpetuate the depersonalization of society.
32. It is this group with few social and psychological abilities and with low job skills which could benefit most from financial assistance from the company and community support. Unfortunately, there are few "welcome wagons" and newcomers clubs for low-income, unskilled workers. This support and the financial support from private business is reserved for the middle-class professional.
33. Since it is difficult, if not impossible, for industry to project manpower needs by occupation over any extended period of time, it is quite understandable that government manpower policy should place greater emphasis on the on-the-job training types of programs. See, Robert Hutchins, *The Center Magazine*, Vol. I, No. 6, p. 2. It should also be noted that there has also been a sharp shift with respect to on-the-job-training. According to Professor Schultz, *(Economic Growth and Agriculture*, p. 168), "It is shifting more and more to people who already have college education. Increasingly workers are acquiring specific skills in training after graduation and on the job. Mincer has shown that in 1939 only one-third of all on-the-job-training of males, which at that time was as large as all formal training, went to college level males. In 1958, two-thirds of all on-the-job-training of males went to individuals who already had a college education. The implication to me is clear. Much specialization really takes place through on-the-job-training." There are those who feel strongly that the only role of the education system should be to produce a generalist—a good citizen, an adaptable, quality human being—and that he become a specialist through on-the-job-training at the expense of his employer whether it be industry or government.
34. For an 18 year old youth average work life expectancy awle is approximately 50 years. In an era of rapid technological change specialized skills can be obsoleted many times in half a decade, necessitating several periods of retraining for a single individual. This is costly and inefficient and most importantly, traumatic for the individuals involved. Vocational training for older persons for selected industries (i.e. service industries) might well be advisable, since learned skills would be used only a short period of time before the worker would retire.
35. Robert W. Miller and Frederick A. Zeller, *Social Psychological Factors Associated with Responses to Retraining*, West Virginia University Bulletin, Series 68, No. 7-2 (April, 1968). See also recent reports on manpower issued by the President and the Secretary of Labor.
36. The other alternatives would be (1) earlier retirement with full benefits and/or (2) some type of guaranteed annual income aimed at maintaining the older people above the poverty level.
37. U. S. Department of Labor, *Manpower Report of the President* (Washington, D. C.: Superintendent of Documents, March, 1964).
38. Harold L. Wilensky, "Careers, Counseling, and the Curriculum", *Journal of Human Resources*, Vol. II, No. 1, (Winter, 1967) p. 33.
39. Frederick A. Zeller, "Introduction," and Robert W. Miller, "Social Psychological Factors in Labor Market Behavior", in *Employment Security in Transition*, West Virginia University Bulletin, Series 68, No. 6-7 (December, 1967). See also Miller and Zeller, *Social Psychological Factors Associated . . .*", op cit. For representative other works which have ramifications for the social psychological approach to manpower development see the following: H. L. Sheppard and A. H. Belitsky, *The Job Hunt*

higher than we like to see it, and we have more undernourished children then we like to see, but we still carry on. In the other categories, we are not doing well. One might think that of the five categories the fifth is the one that we could slight. We can slight it, but only at our peril, because some of the things that make a human being a human being imply dealing with the individualities of children. We must talk of what makes a human being feel he is a human being. This is the category where we dare not fail.

Those are the five categories. We knew this more than one hundred years ago. What are we doing about those five categories? What kinds of priorities are we giving them? What kinds of changes must we make? These questions must be raised often, and must be answered by every generation.

Counseling has much to do with some of the recommendations our committee has come up with for your consideration. We are supposed to have one counselor to 300 students; Virginia has 433, Ohio, the same number; Maryland, 483; and Pennsylvania 568. West Virginia has one counselor to 1,062 students! We rank 44th in counselor-pupil ratio. We cannot keep the counselors we educate in West Virginia. Marshall University and West Virginia University produce a respectable total of counselors (274 from 1964 to 1967, for example), yet from 1962-1967 the total net gain of counselors employed in West Virginia schools was 3 counselors. Many factors enter here, among them salaries. The average salary of counselors nationally in 1967 was $9,088; their average salary in West Virginia was $7,000. In our neighboring states the median salary range was:

Maryland	$ 8,150 – 9,021
Pennsylvania	7,875 – 12,075
Ohio	7,583 – 11,175
Virginia	6,250 – 9,500
West Virginia	5,850 – 7,083

Beyond the key factor of salary, poor utilization of counselors now employed and adverse working conditions also take their toll. Since counselors can, and elsewhere have, taken leading roles in bringing about individualization of learning, and have been key liaison people between industry and students, we cannot afford the present situation.

No committee or conference group can specify everything which must be done, but in summary, let us list some which seem of prime importance.

1. More counselors and other special personnel.
2. Higher pay for counselors and teachers to help prevent loss of personnel.
3. Changes in the student-staff financial aid ratio formula to encourage hiring of special personnel.
4. Imaginative use of educational TV and other facilities.
5. More federal and state aid for up-grading personnel and programs in West Virginia schools.
6. More emphasis on skill development as one factor in attracting industry.

At a minimum, we must provide the opportunity for and encouragement of every child in West Virginia to attend an accredited school, and one in which what he studies is made relevant to life.

Our long-range task is to change the view of West Virginia from that of a "dying state" to that of a "Model State." We must begin--now.*

*For more complete information regarding the identification of dropout prone students and other characteristics of youth in West Virginia, refer to:

Barker, Lawrence W., and Mink, Oscar G. *The Mink Scale,* Office of Research and Development, Appalachian Center, West Virginia University, Morgantown, West Virginia; July, 1968.

Barker, Lawrence W., and Mink, Oscar G. *Dropout Proneness in Appalachia,* Office of Research and Development, Appalachian Center, West Virginia University, Morgantown, West Virginia; June, 1968.

(Baltimore: The Johns Hopkins Press, 1966); R. K. Williams, F. F. Foltoman and N. A. Rosen, "Some Social Physchological Correlates of a Depressed Area", Industrial Relations Research Association, *Proceedings of the 15th Annual Meeting*, 1962, pp. 325-28; H. R. Lantz, "Resignation, Industrialization and the Problem of Social Change: A Case History of a Coal Mining Community", *Blue Collar World*, A. B. Shostak and W. Gomberg (eds.) (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., Columbia University Press, 1958); and Zeller and Miller, (eds.) *Manpower Development in Appalachia*, op cit.

40. See, for example, Philip Rieff, *The Triumph of the Therapeutic* (New York: Harper and Row, Publishers, 1966).
41. *Wages and Labor Mobility*, Organization for Economic Co-Operation and Development, Paris, 1965.
42. Nevitt Sanford, *Self and Society* (New York: Atherton Press, 1966).
43. Ida R. Hoos, *Retraining the Work Force* (Berkeley and Los Angeles: University of California Press, 1967) p. 256. See also Gerald G. Somers, "Training the Unemployed", *In Aid of the Unemployed*, Joseph M. Becker, (ed.) (Baltimore: The Johns Hopkins Press, 1965) p. 250.
44. Seymour M. Kipset and Reinhard Bendix, "Social Mobility and Occupational Career Plan", *American Journal of Sociology*, p. 57, 1952.
45. Gladys L. Palmer *Labor Mobility in Six Cities* (New York: Social Science Research Council, 1954) p. 129.
46. Garth L. Mangum, "Manpower Implications . . . " op cit.
47. You would not expect normal distribution of National Merit Awards among income groups. However, it was interesting to note that at least in one instance (Morgantown High School, Morgantown, West Virginia) all recipients of National Merit Awards were from middle or upper income families. With but 2-3 exceptions, the parents of the students were on the faculty at West Virginia University. There was not a single recipient from a low-income family.
48. *Innovation in Education: New Directions for the American School*, (CED), Ch. 4: (Cost and Benefits), pp. 58-68.
49. Oscar G. Mink and Laurence W. Barker, *Dropout Proneness in Appalachia*, Office of Research and Development, Research Series No. 3, West Virginia University, Morgantown, June, 1968. See also Laurence W. Barker and Oscar G. Mink, *The Mink Scale*, Office of Research and Development, Information Series No. 1, West Virginia University, Morgantown, July, 1968.
50. We feel strongly that the selection of an occupation or profession should be postponed until after the student has received a good general education. Counselors should avoid classification of students into groups with college capabilities and those better suited for vocational and industrial training. The primary role of the counselor should be to make the educational experience meaningful and excitingly relevant for each individual through personalized services. Vocational choice should be an individual decision with the counselor playing a supporting role. Commitment to a lifetime vocation is a very serious matter. A good general educational base would in most instances include four years at a university or college.

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Chapter 6

LOOKING TO THE FUTURE FOR WEST VIRGINIA EDUCATION

Stanley O. Ikenberry

It is not necessary to describe in detail today the importance of education in our society. More and more we are becoming a society in which the benefits associated with education are both obvious and critical for social and economic survival. In an earlier day, the educational failures, that is, those drop-outs and others who did not develop adequate skills of communication and who did not acquire certain specialized technical or craft skills, were absorbed by the vast demand for unskilled and semi-skilled labor. The vast social unrest so painfully evident in our country today is, in part, a symptom of the change.

Between 1948 and 1960, for example, the number of blue-collar production workers declined by nearly a half million while non-production white collar workers rose by 1.5 million. Nowhere in the nation has this shift been more painfully obvious than in West Virginia. All West Virginians, and those outside our state, now see the relationship between education, economic growth, and the quality of life in our society more clearly than ever before.

It is not difficult to find agreement on these general propositions. Most of us agree that education is both good and important. If satisfactory progress is to be made in improving the quality of education in West Virginia, however, we must move beyond these general statements or commitments and adopt a program of action which will insure adequate educational opportunities for our youngsters.

I wish to direct our thinking for the next few minutes to two general areas. First, and drawing on some of the particularly stimulating remarks by Wil Smith, Carlton Beck and John Rockefeller, I wish to speak to the problem of relevance which, it seems to me, is the most severe obstacle blocking equality of educational opportunity in Appalachia today. Second, I wish to examine West Virginia education and to use Carlton Beck's phrase, "in the short-term," and make some rather specific recommendations which, if adopted, might improve our situation.

Problems of Relevance

Although Appalachia can lay no claim to any exclusive affliction, the greatest problems faced by its educational systems are those of relevance, or irrelevance, as the case may be. Irrelevance may be defined and examined in two ways. First, of course, there is the irrelevance produced by inappropriate goals; second is the irrelevance occasioned by ineffectiveness. Educational goals and the mechanisms for achieving them may have little relationship to the current interests and future needs of youngsters. Perhaps this is the simpler problem and therefore may be a good starting point.

There are certain basic educational objectives which must be achieved for all youngsters if they are to function effectively and productively in our society. The option of compromise is not available. If our systems of education are to meet these needs and be relevant, they must:

(a) enable sustained flexibility in occupational choice and, consequently, freedom of life style;
(b) enable individuals to function effectively as citizens;
(c) facilitate the creation, preservation and transmission of culture.

Educational irrelevance comes about in two ways: first, education becomes irrelevant because we don't really understand the implications of and requirements for flexibility of occupational choice, citizenship, or culture in the year 2000, the year in which today's first grader will be only 40 years old. Consequently, we are frequently unable to build a curriculum to achieve such performance. Second, where we might understand some of the implications, we fail to build a corresponding educational program.

Chapter 5

IMMEDIATE AND LONG-RANGE NEEDS OF WEST VIRGINIA YOUTH

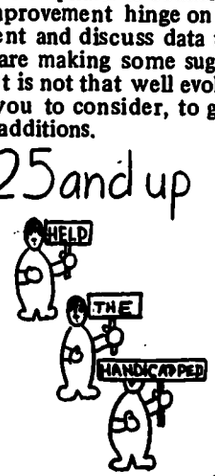
Carlton E. Beck

Let us consider together the educational status of West Virginia youth as compared to the educational status of those of surrounding states, and also to those of the nation. We must examine human needs of various types, and how these are being neglected or met or how well they are met in the state. The picture is not all black.

Meeting many of these needs can be facilitated through good guidance programs. It is necessary to examine the characteristics of what are considered to be pertinent, effective guidance programs today. We must speak of counseling and guidance in West Virginia, not because our major emphasis is counseling, but simply that many other vital elements of social improvement hinge on what we do about counseling and guidance. We must present and discuss data that The Youth Awareness Committee has assembled. We are making some suggestions. Someone has called it a master plan. It isn't that. It is not that well evolved, but we have some suggestions which we would like you to consider, to give your impressions of it, and to suggest modifications and additions.

West Virginia Age 25 and up

2.2%	no schooling
8.8%	1-4 years of school
11.4%	5-6 years of school
8.1%	7 years of school
23.5%	8 years of school



54.0% 8 years or less of school

15.5%	1-3 years high school
19.1%	4 years high school
6.2%	1-3 years college
5.2%	4 or more years college

8.8	years total average
8.7	years male
8.9	years female
8.8	years white
8.4	years non-white

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By way of illustration, examine the typical school program and identify those aspects which create and sustain freedom of life style and occupational choice. One may be overly critical at first and suggest that there are few or none. On the contrary, most of the traditional programs of the school, including reading and language expression, science, mathematics and other aspects of the general education program are more occupationally relevant than ever before. The growth occupations of the future will require increasing competence along these lines. Failure to develop these basic skills will spell more wide-spread occupational and personal failure, regardless of subsequent vocational training or occupational choice.

There are gaps in the school curriculum, however, which must be filled if the first objective, freedom in occupational choice and life style, and consequently relevance, is to be achieved. Note, for example, there is no aspect of the usual school curriculum in which the youngster may explore the wide world of work and the range of potentially applicable occupational choices open to him. There is no aspect of the usual school program which sets forth effectively the social, economic and educational implications of occupational choice.

Is it any wonder, then, that the youngster in Appalachia, or in the inner city, finds school irrelevant, when the models for occupational choice are limited to those apparent in the ghetto or in the mining community or on television? If he is lucky enough to find a viable occupational model or models, he may still be unable to relate the work in his mathematics class to his interest in becoming an auto mechanic or a space technician. While the parents of the middle class youngster may help overcome such problems, other youngsters may be less fortunate.

To follow the example, the risk of irrelevance could be reduced if explicit curriculum modifications were made to facilitate sophistication in occupational choice and an awareness of the educational, social and economic implications of the choice. If it is true that life style tends to be shaped by occupational choice, and if we recognize the occupational adaptiveness required in the years ahead, should we not at least have a portion of the curriculum devoted to these ends?

Although there are other gaps and distorted emphases in curriculum which might be cited with reference to the charge of irrelevance, there is a second aspect of relevance which in the final analysis may be less obvious but more damaging. This second aspect is the relevance gap produced by ineffectiveness. While the net result may be the same, irrelevance due to ineffectiveness is more damaging than gaps in the curriculum because it is more difficult to spot and remedy.

Schools of education may have contributed as much to the problem as to the solution. That is, much educational research has been directed at the problems associated with learning. Why can't Johnny read, for example? Let us now turn to the second area of concern, that is, specific recommendations which, if adopted, might go a long way in transforming the quality and quantity of educational opportunity available in our state. First, and perhaps easiest on our list, we should pass immediately those minimum legal reforms essential if the state is to fulfill its constitutional responsibility with regard to education. A thorough study needs to be made of the entire legal structure to remove those legal impediments which may retard progress. As an obvious example, we must remove the tax limitation amendment which prevents communities and counties throughout the state from making an adequate investment in the education of their youngsters. We are encouraged daily to buy two new cars and a color TV, but it is now next to illegal for many of our counties to buy a decent education for their children. As a double measure, we must revise the state school finance formula in such a way that it is not dependent upon the local property tax as a basis for school support. Such dependence, by definition, builds in basic inequalities.

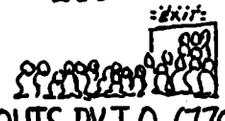
Still another legal impediment is the current requirement of a 60 percent majority for passage of a school bond proposal for buildings or for the passage of

First, let us consider the status of West Virginia youth—statistically. In West Virginia, we lose more than half of all the students by the time they enter the eighth grade. About 54 per cent of the people in West Virginia of age 25 and above left school before completing eight grades of school. We lose quite a few even before that. Some people don't go to school at all and, as a relative outsider, I certainly don't have to tell you where such areas are. Also, 23 per cent with only an eighth grade education is a sizeable number. The national average of years completed is something close to 11—it's about 10.7 years of education. We must do some comparing with neighboring states. If you catch me saying "our" state, it is because I have worked so long with this committee that, as the song goes, "I've grown accustomed to their faces" and am vitally interested in West Virginia's problems and progress.

Let us now consider the dropout problem. There was once a British educator on our campus who heard our staff members talking about "the dropout problem." He said, "You really shouldn't be concerned about the dropout problem; look what you drop in!" We in this country try to educate all of our children, and there is bound to be a dropout problem, but it need not be as serious as it is in West Virginia. The class of 1965 had lost 25 per cent of its members by the time they entered grade seven. We're talking about students who normally would have been graduated in 1965; 35 per cent had been lost by grade nine, and at grade 12, 56 per cent had been lost. Let us recognize, of course, that just keeping children in school longer is really not an answer unless the education they are receiving is relevant education.

STUDENT DROPOUTS BY GRADE

7th grade	503	6.45%
8th grade	851	10.91%
9th grade	825	23.40%
10th grade	2092	26.82%
11th grade	1470	18.85%
12th grade	798	10.23%
no indication	260	3.34%



STUDENT DROPOUTS BY I.Q. (7799 STUDENTS)

below 74 I.Q.	11.55%
75-81 I.Q.	13.86%
82-88 I.Q.	18.85%
89-95 I.Q.	18.90%
96-102 I.Q.	13.45%
103-109 I.Q.	7.55%
110-116 I.Q.	2.80%
117-123 I.Q.	.60%
124 and above I.Q.	.31%
no indication I.Q.	12.11%

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an excess levy. In county after county throughout West Virginia, bond issues and excess levies, which have received majority support from the voters. fail to be inacted because of a failure to meet the current percentage requirement. It is stretching the concept of democracy to allow a 40 percent minority to control the course of education in West Virginia. And yet, this is the current legal burden under which West Virginia schools must operate.

The establishment of a school building authority, proposed in the last legislative session, and the establishment of a legal framework to allow for larger operating school districts are examples of two additional legal reforms which could advance the quality of education in our state. The need for a school building authority has been widely publicized and is generally well understood. The need for the establishment of larger operating school districts is also becoming increasingly obvious and is gaining more and more support throughout the state. I am informed that several county Boards of Education from the Northern Panhandle of West Virginia have petitioned the State Superintendent of Schools to be allowed to join together as a single operating school district. At the moment, there are certain complicating legal factors which make such healthy cooperation difficult, if not impossible. An immediate study of the desirability of multi-county school districts and the necessary legal reforms and framework needed to provide for such cooperative ventures should be made.

In summary, the removal of the tax limitation amendment, a reduction from 60 to 50 percent the requirement for passage of school bonds or an excess operating levy, the revision of state school finance formula in such a way as to remove or at least to sharply minimize the negative effects of variations in property values from county to county, the establishment of a school building authority, and the building of a legal framework to allow for larger operating school districts throughout West Virginia, these are admittedly difficult and yet straight-forward legal steps West Virginia must take if she wishes to provide equal educational opportunities for her boys and girls.

In a second major area of concern, West Virginia should move to stop the erosion of human resources before it starts. It should begin immediately to test alternate forms of effective early childhood education for all West Virginia children from the age of three forward. Considerable national attention has been directed in this area and has come about because of recent evidence which demonstrates the critical importance of these early years on the formation of intelligence and future educational achievement. Small differences and deficiencies, which go unattended, tend to increase over time.

Thus, there has been an increasing concern during the last few years to find ways to supplement and to enrich the environment of youngsters, particularly those living in the less fortunate homes. The aim is to reduce the negative effects which become evident in the first grade of school and which increase in their impact in the years to follow. The now famous Headstart Program represents one such attempt nationally, but it fails to measure up in any sense to the magnitude of the need. The discussions of public kindergartens in West Virginia have followed from this same awareness of need, but apparently enjoy little prospect for success.

Cited are shortages of qualified personnel, inadequate facilities, and insufficient money to reach the three- and four-year-olds who should be included if a program of early childhood education were to enjoy maximum effectiveness. In spite of these difficulties, if West Virginia youngsters are to enjoy equal educational opportunity, and if we are to prevent the erosion of human resources so obvious in many of our communities throughout the state, we must resolve to initiate immediately carefully planned pilot programs of early childhood education, testing the effectiveness of alternate approaches, and developing a broad base of public support for early childhood education.

As a third major area, there is an immediate need to strengthen the West Virginia State Department of Education. For some time, state departments of education across the country concentrated primarily on the establishment of minimum standards for public education and creation of appropriate regulations

MEDIAN SCHOOL YEARS
COMPLETED BY PERSONS 25 YEARS
OLD AND OLDER, 1960

U. S. AVERAGE – 10.6

1.	Kanawha	10.1	
	Ohio	10.1	
3.	Cabell	10.0	
4.	Harrison	9.9	
5.	Wood	9.8	
6.	Hancock	9.6	
	Marion	9.6	
8.	Brooke	9.5	
9.	Monongalia	9.4	
	Marshall	9.0	
10.	Mercer	9.0	
	Wetzel	9.0	
13.	Mineral	8.9	
	Taylor	8.9	
	WEST VIRGINIA	8.8	
	Berkeley	8.8	
15.	Jackson	8.8	
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Student dropouts by grade? Why did we bother to compile that figure? Simply because there are often vocational training programs of one sort or another aimed at the senior high school. Other educators have found that in most parts of the country that senior high is too late. In fact, there was an article in *Saturday Review* for June 15, 1968, called "Kindergarten Is Too Late," but I'll just close my eyes to that one! We have to see where the children dropout to find out where we need to do something. Grade seven appears to be critical. In that grade we lose about 6 per cent, in grade eight we lose about 10 per cent; in ninth grade, 23 per cent. The legal school-leaving age in West Virginia at this time is 16. So you would expect that we wouldn't be losing so many children in the ninth grade, but the obvious answer is that many of them are over age and are able to quit at that stage. Tenth grade, of course, is the big bulge–26 per cent. This means that if you add up the ones who are quitting in the ninth grade, eighth grade and seventh grade, and some of those where we have no indication of grade at all, whatever we do has to be done during elementary school. It's not enough to work on the secondary level.

The next chart was one that we felt had to be done. The figures are from state department records. One would expect that in the range of I.Q. below 74 we would lose a great number of children because school becomes difficult for children like this unless there is a great deal of emphasis on Special Education.

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for the implementation of these standards. With the passage of large-scale federal legislation in the field of education the role and importance of the state departments of education in our country has changed. The former role of the establishment of minimum standards and the policing of these standards is no longer sufficient nor appropriate.

Now called for is considerable expertise in the fields of educational planning, research and development, and program evaluation. More and more the state department of education is called upon to describe the state's plan or strategy for improving the quality of public education. It must be able to show a sound plan of the investment of federal dollars, supported by research and development efforts, and continuously evaluated at the local and state levels. These are new roles, not only for the West Virginia State Department of Education, but for most other state departments. Nonetheless, perhaps no other single factor is as critical for the immediate and long-term improvement of education in our state as is the immediate and broad-scale strengthening of our State Department of Education.

Turning to a fourth major area, we must find ways to place more spark and thrust in our teacher training programs throughout the state and devise means to attract and retain in the state the most able of our graduates. Each of our state colleges and universities should be engaged in a program of healthy competition and rivalry in the field of teacher education. A premium should be placed on finding new, better, and more effective ways of educational manpower development. On the contrary, with the help of rigidly applied state standards, each of the teacher training programs tends to resemble the other, with a resulting lack of healthy competition and luster which comes from variation in program. In the years ahead, colleges and universities in our state and throughout our country must become less complacent and must search diligently for new and better ways to prepare teachers.

In spite of it all, West Virginia colleges and universities do prepare able teachers. Unfortunately, a disturbingly high proportion of the best of these graduates accept employment outside of our state and region. In part, this is due to the great disparity in salary schedules, a point to which I will speak in a moment. However, in addition to the sharp upward salary adjustments which will be necessary to attract and retain a qualified teaching force in West Virginia, still additional measures must be taken to give West Virginia the competitive advantage she needs to build a first rate system of public education. One concrete suggestion along this line would be the establishment of a cooperative scholarship program to retain and attract able young teachers to our state. In such a program, contributions by the beginning teacher would be matched over a period of three to five years, to provide at the end of that period a prepaid scholarship to the college or university of the teacher's choice. The matching provisions would be similar to the current retirement program but the tangible benefits much greater. Able teachers would have additional inducement to teach in West Virginia. The quality of our teaching force would be improved, and the movement of young teachers toward the completion of advanced degrees would be accelerated. All in all, the investment might prove to be a wise one. Certainly, whether in the form of these recommendations or others, a greater proportion of West Virginia's cream of the crop must be retained to help improve the quality of educational opportunity for West Virginia youngsters.

Finally, and perhaps the over-riding concern, we must find ways to immediately increase substantially our investment in public education in West Virginia. Make no mistake about it, West Virginia can have a first rate system of public education only if the citizens of our state are willing to establish the priority and demand the performance. Let us examine for a moment the nature of West Virginia's investment in public education.

In 1960-61, the educational expenditure in the United States was $390 per pupil. By 1966-67, it had increased to $564. In those same six years, West Virginia increased from an investment of $225 per pupil in 1960-61 to $411 per youngster in 1966-67.

ERIC

STATE TOTALS FOR PUPIL RETENTION
1949-61 through 1953-65

CLASS	1ST GRADE NET ENROLLMENT	7TH GRADE NET ENROLLMENT	PERCENTAGE OF ORIGINAL GROUP ENROLLED IN 7TH GRADE	9TH GRADE NET ENROLLMENT	PERCENTAGE OF ORIGINAL GROUP ENROLLED IN 9TH GRADE	GRADUATED FROM H. S.	PERCENTAGE OF ORIGINAL GROUP GRADUATING FROM H. S.
1949-61	55,557	39,841	71.71	34,573	62.23	21,137	38.05
1950-62	51,870	37,729	72.74	32,572	62.85	19,527	37.65
1951-63	49,503	36,960	74.66	31,348	63.33	19,356	39.10
1952-64	57,073	41,668	73.01	35,055	61.42	23,463	41.11
1953-65	60,660	45,189	74.50	39,111	64.48	26,746	44.09

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When we began in 1960-61, West Virginia ranked 43rd among the states in per pupil expenditure. By 1966-67, our rank remained 43rd. We lagged $135 per pupil in 1960-61 when we began and in 1966-67 by $153 per youngster. If we had done our best, we had lost ground.

A basketball coach at West Virginia University who declared his desire to equal the national average in the percentage of games won and lost would soon find his aspirations were too low. For West Virginia and our region to hope to provide educational opportunity equal to the national average is not enough; from what we know of the consequences, for us to do less is intolerable.

What are the results of this inadequate investment in youngsters? The toll may be seen in three ways.

First, it results in inadequate instructional supporting systems and services such as guidance counselors, curriculum development specialists, planners, supervisors, evaluators, teacher aids, clerical assistance, and other essential supporting services.

Second, because of our failure to invest in the education of youngsters, we have gross deficiencies in equipment, materials, supplies and facilities which serve to retard learning and deprive children of the best in educational opportunity and to demoralize parents and teachers alike.

Third, the result of inadequate investment in education results in a gradual, long-term erosion of the quality of the teaching force due to the lack of competitiveness in teacher salaries. As recently as 1960-61, the average teacher salary in West Virginia was only $3,980, or $1,225 below the national average. We ranked 44th among the states.

By 1966-67, after our great effort in 1965, the average teacher salary in West Virginia had increased to $5,450 but was still $1,371 below the national average and our rank was still 44th. Nearly every border state was and is able to drain off West Virginia teachers. By driving or relocating the few necessary miles in Ohio, Pennsylvania, or Virginia, West Virginia teachers might easily expect in excess of a one thousand dollar salary advantage.

One can rightfully ask about the implications of such an imbalance. Does a pay increase, for example, make a better teacher? And won't Miss Jones, the acknowledged master teacher now nearing retirement stay even though she loses a thousand dollars a year by doing so?

Perhaps a pay increase will not make instant master teachers and perhaps Miss Jones will stay another year or so more, but these are short-term half truths which result in long-term deceptions. The erosion of teaching resources is much like the erosion of natural resources. It is silent and hardly noticeable from year to year. It is only as we examine the high proportion of teachers, supervisors, and administrators nearing retirement age, the failure to attract the best of our newly trained teachers to the state, the performance of our youngsters on various criteria of educational and personal development, and project these trends into the future, that the plight becomes both serious and immediate.

More money obviously is part of the answer. West Virginia must find a way to catch up and keep up. It is not going to be easy. At a minimum, our youngsters must have $60 million in additional support to begin to catch up. To attempt to keep up, continued yearly investments of some 15 to 20 million additional dollars each year on a regular basis are essential.

There is no question but that we have a problem of priorities. In part, the problem is among priorities for the various services of government such as highways, welfare, police protection, recreation, and so forth. The priority to be faced is the question of whether we want an equal chance for our youngsters badly enough to pay for it, even at the price of a second car, a color television set, or a two-week vacation in Florida, any one of which costs more than our current yearly investment in a child's education.

Needed legal reforms, yes; early childhood education opportunities, yes; a stronger state department of education, yes; more lively programs of teacher training with the graduates attracted to career positions in our schools, yes; and the need for a different level of educational investment and priorities. These are

We would also expect that in the range from 82 to 88 we would lose quite a few students. And while I am concerned about these children, we just have to face realities; your state is not the only one which loses people in this I.Q. range. In fact, I think you've done very well as compared, for example, to the state which I represent—Wisconsin. But I am concerned greatly about this last figure. It concerns the students who have an I.Q. of 124 and above. As the chart shows, we lost .3 or .4 per cent of these students. But think a minute what that means. How many children in school have that I.Q. range? The figure would be somewhere between 2 and 3 per cent of all the students. So, when we are losing a little less than one half of 1 per cent, it means that we're losing about one out of five or one out of six of the brightest children we have in the state. They're dropping out of school. And in the so-called "normal range" here from about 100 up to about 110, we're losing 7 or 8 per cent of our "solid citizens." In this middle range, I think there are a great number of things we can do and should do. But I am gravely concerned about this last figure. The idea that of the very brightest kids we have, one out of five or one out of six are being lost before they finish high school is devastating.

Thirty-eight per cent of the graduates (that is, after we take out all the dropouts from first grade on up) take some kind of post-high school work. There are other figures we could have given you. e.g. most of the children who do go on for post-high school training go to college. The dropout rate in the college is terrifying, but nevertheless, 38 per cent take some kind of training after high school. But of these, only 19 per cent finish whatever kind of course they are taking. Whether it is barber school or vocational agriculture type training or whether it is college—only 19 per cent finish whatever they begin. And, of that 19 per cent, 19 per cent of them leave the state. So you see we have an attrition all the way along the line.

The next set of figures are given to you for local action. On the very first page we not only have indicated that the United States average is 10.6 years of school completed, but we have this broken down into West Virginia counties. Check your county to see where it rates, and check the ones nearby. We go from 10.1 which is a rather respectable sort of average down to Lincoln, McDowell, and Webster Counties and some others where the educational level is 8.1. Look at the percentage of students who began school in 1949, and who would have been graduated in 1961 had they stayed in school. The percentage of those students who were still enrolled even in the seventh grade was about 70 per cent. A few years later, the class that began first grade in 1953 and should have been graduated in 1965 had increased—but only by about 3 1/2 per cent. We're talking about seventh grade. So, we're keeping today roughly three fourths of the children until that particular grade. If we consider the ninth grade, we begin losing another 10 per cent, and by the time the children are getting out of high school (depending on whose figures you read) we lose around 44, 45, 46 per cent of them.

There is a loss here which is truly immeasurable, because these are human lives. I strongly agree with William Shakespeare, who to my mind was the greatest educator and psychologist of all time, when he said, "God made him; therefore, let him pass for a man." This is the way I feel about all of those young people who are dropping out of school. These are human beings with aspirations, with love, with hates and all of these people are going to be living some kind of life, and if they go into a world which demands a high school diploma or demands something beyond that and they don't have it then the welfare roles go up, there is a terrific waste of human potential and human resources go right out the window.

Figures in "Dropouts by Age" are significant to us, but perhaps more important is "Reasons for Dropping Out of School." Notice the ones with a star in front of them. The same one which is starred in the first column is starred in the last column, meaning that the relative strength of the reason has not changed very much in the last few years. These are the reasons given by students for dropping out and they may or may not represent the actual reasons, but

some immediate needs. A youngster, whether born in West Virginia or elsewhere has the same right and the same need for a good education. To accept the challenge to educate all the youngsters, to provide an effective and relevant education, to find the strategy that works, and to set a system of values and a priority high enough to insure it, these are steps we have yet to take. As never before, our State demands an effective response.

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AGE AND REASONS FOR DROPOUTS

Dropouts by age:	1961-62	1962-63	1963-64
12	.4%	.9%	1.0%
13	1.1	.9	1.6
14	3.7	2.4	3.0
15	10.0	9.3	8.7
16	39.8	44.1	41.9
17	27.1	24.9	24.9
18	12.2	11.7	10.8
19	4.0	3.7	3.3
20 and above	1.7	1.5	1.3
Not indicated	0.0	.6	3.5

Reasons for dropping out of school:	1961-62	1962-63**	1963-64**
1 Entered employment	2.9%	3.3%	3.4%
2 To seek employment	2.6	4.5	3.3
3 Entered military service	5.8*	5.8	4.9*
4 Entered correctional institution	2.0	1.2	1.0
5 Marriage	13.3*	11.5*	12.3*
6 Student's illness	4.7	5.2	4.2
7 Student deceased	.4	.4	.5
8 Lived too far from school	.5	.7	.6
9 Needed at home	2.6	3.9	2.7
10 Left home	.7	1.0	.8
11 Home conflicts	1.7	6.0*	4.3
12 Parent's lack of interest	6.3*	14.6*	10.7*
13 Financial problems	Omitted	4.2	2.7
14 Student's lack of interest	30.4*	42.8*	36.9*
15 Failure in course	9.5*	21.3*	17.5*
16 Administrative request or dismissal	2.6	3.2	3.4
17 Student conflict with teacher	Omitted	1.6	1.0
18 Disability – physical	1.4	2.4	2.0
19 Disability – mental	1.6	3.1	2.4
20 Disability – emotional	.5	1.5	1.3
21 Disability – social	.5	1.2	.5
22 Not known	3.6	5.1	9.9
23 Other	5.0	3.9	2.1
Not indicated	0.0	0.0	7.0

*Top five reasons for dropping out of school.

**The percentage has been computed here by dividing the number of students for whom this was given as a reason for dropping out by the total number of dropouts. Since, in many cases, multiple reasons were given the column total exceeds 100 percent.

nevertheless here they are. First: to enter military service; this is one of the top reasons but this doesn't really tell much because one wants to know why the student entered military service. The next one: marriage. I don't know quite what to say about that figure except that it is quite common. It ranks as one of the first three in all states. Again one asks why; we talk about "parental lack of interest" and many of the students feel this, according to the figures. Next: financial problems, and student lack of interest. In the latter, the student says, in effect, "The school doesn't have anything for me; I'm not happy there; I don't want any part of it." And the last reason which is starred is "Failure in a course."

SELECTED COMMENTS FROM PANEL DISCUSSIONS

"Some 980 counselors are needed for 1969 in West Virginia. I myself am one of those 'counselor drop outs.' I am going to Maryland for a $6000 salary raise and half the student load. We really need more relevant counseling and in-service training with parents."

"This state is 35th in the number of teacher trainees, second or third in exporting the ones we do train."

"The state is 44th or 45th in expenditure on education. Though the state needs at least $60,000,000 to catch up to the national average in educational spending (pro-rated), our investigation indicates that under present laws the most that the counties could raise would be $6,000,000."

"We really don't like to shoot for 'average'; we want eventually to compete with the top states like Utah, but $60,000,000 may be a little high for an initial goal."

"The number one problem in state education is lack of guidance counselors. I am not sure that money is the total solution . . . maybe teachers have also too many non-teaching burdens to do the job they are capable of doing. The real challenge is how to expand and extend the effectiveness of our existing resources in education."

"The statistics we have heard are overwhelming. While West Virginia has been standing still or even regressing, other states including those on our borders have been moving forward. I'd like to see a regional (3-4-county) counselor service center. The schools should also be the institution that broadens the base in mental health work."

"There should be in-service training to develop new strategies. Also, so we can move better in concert . . . we must co-ordinate better among ourselves and with business and industry."

"We need to design or at least make a place in the system for 'the loser.' We really have two cultures, one of abundance, the other of scarcity."

"Those figures showing that we have only three more counselors than we had four years ago don't take into account the number of counselors who end up as school principals."

"The Educational Professions Development act won't solve all our problems, what with the six billion dollar governmental budget cut definitely a reality now."

"It is important that the child find some success and relevance to his daily life in school. Our schools are based on a framework of failure."

"Why are we surprised at all the drop outs when the system is designed to produce this result?"

"The state's money problems with education cannot be solved within the state's present legal framework."

"I'm afraid we have a vicious cycle in operation here . . . people think that if our education system is so very bad with all the money we have spent already, why waste more money on such a bad system. If we are to succeed we must change the negative public climate . . ."

"The 'we must catch up' approach doesn't work nearly as well as the 'what will it do for Johnny' approach."

"Ideas are more important than money. The legislature doesn't have time to write in a 60-day session the kind of program required; this must be done on the outside and then presented to the legislature."

"We need to sharpen the edges of our educational leadership on a state level. Education in West Virginia hasn't begun to exercise its political muscle. We've about won the battle for bread and butter; now the time is to put the accent on personal development."

"We need to get education and labor working together."

"DESIGN FOR 69" calls for 253 more guidance personnel at the elementary level and 244 at the secondary level and will cost $4,000,000. We don't want just tax reform; we want more money. We don't have time to reform the constitution."

"It's as simple as this: 'If we get the dollars we'll get the people and if we get the people we'll have the program.'"

"Our school system is being starved by the adult population of West Virginia . . . Our efforts are futile and at best a holding action until we can get more money. States are like nations: those that have are getting more; those that don't are falling further behind."

"We can't appropriate large sums of money without a plan. The problem might be compared to our kindergarten situation, in which everybody wants the whole program all at once and is not willing to start in a small way with one kindergarten per county."

"I think that the legislature is ready to put some money into vocational education. But we need a plan . . . we don't have money to waste and we must be assured of results in advance."

"In one good vocational training program for pipeline welders, all but one of the 32 enrollees graduated to jobs paying $4.50 an hour and the one man who didn't take a job didn't do so because he didn't want to leave his home town."

"Another problem is the overlapping of functions of various educational agencies in the state."

"Vocational and technical and general education are compatible contrary to some of the things that we have heard here. We did a follow-up survey on state students. In 1966, 45.8% of high school graduates were going on to further studies. About 36.7% were going to college. In 1967, 47.8% of high school graduates were going on to further studies. About 38.5% were going to college. Therefore we see that more than 9% of the graduates were entering non-college programs of continuing education and/or training. It appears that there are not enough opportunities for the non-college oriented high school graduate."

"Guidance should start at least in junior high school but is a must in senior high school."

"We find that those in entry level jobs want quick salary advancement and want to get the better jobs but just are not equipped to do so."

"Our big problem is getting the right kind of people to train. Guidance can help us."

"What is the purpose of school—to teach all the same old subjects, or to prepare people to be effective citizens?"

"We should give our youth more opportunity to try different jobs while they are in school."

"Area vocational schools are a good idea to develop youth for entry jobs."

"In the next 40 years our democratic order will change as much as it has since the birth of the nation. What are we doing now to begin to provide skills for all the new jobs of 40 years from now?"

"We have to move away from the old 'sweat of your brow' protestant ethic—soon 30% of all the industrial jobs in America will be capable of being handled by machines with the equivalent of a high schooi education!"

"And 20% can be done with machines with a college education."

"We live in a 'credential' society."

"The Job Corps represents not just an education but a way of retrieving those whom America and its educational system have failed."

72% of the young people who finish college in this state leave the state . . . 60% never come back."

PART III
CHALLENGES OF TOMORROW

PANELISTS

Darrell McGraw – Special Counsel to the Governor
Hans McCourt – State Senator for West Virginia
Clarence Brock – Assistant State Superintendent of Schools, Services and Federal Programs
Richard Humphreys – Director of the Institute for Labor Studies, West Virginia University
Samuel Haden – President, Morgantown Glass Guild
Clemit Humphreys – Program Specialist, Guidance, Counseling and Testing, State Department of Education
Walton Webb – Region III Co-ordinator of Guidance and Personnel Services for Health, Education, and Welfare
Lawrence Barker – West Virginia Commissioner of Labor
Joseph Morris – Area Director for Appalachian Center
Marguerite Kellar – President, West Virginia Personnel and Guidance Association
John McCoy – Director, Research and Special Services for West Virginia Education Association
B. G. Pauley – Special Projects Director, Educational Planning, State Department of Education
Kenneth Auvil – West Virginia House of Delegates

WHERE DO WE GO FROM HERE?

No conference, in and of itself, can solve all the problems of a state. Several steps have been taken as a result of the conference, however. A continuing committee has been appointed under the chairmanship of John D. Rockefeller IV to pursue the objectives arrived at through the conference. A committee to seek federal funds for the upgrading of and production of counselors in West Virginia has been established under the chairmanship of Dr. Carlton Beck. Individual commitments have been made by various participants to pursue progress on individual priorities. These are a start.

It remains for the reader to ask himself: How can I help? What can I do? What groups can I reach? What problems presented here can I clarify or help to solve? Decide a course of action and act!

"One man with courage is a majority."

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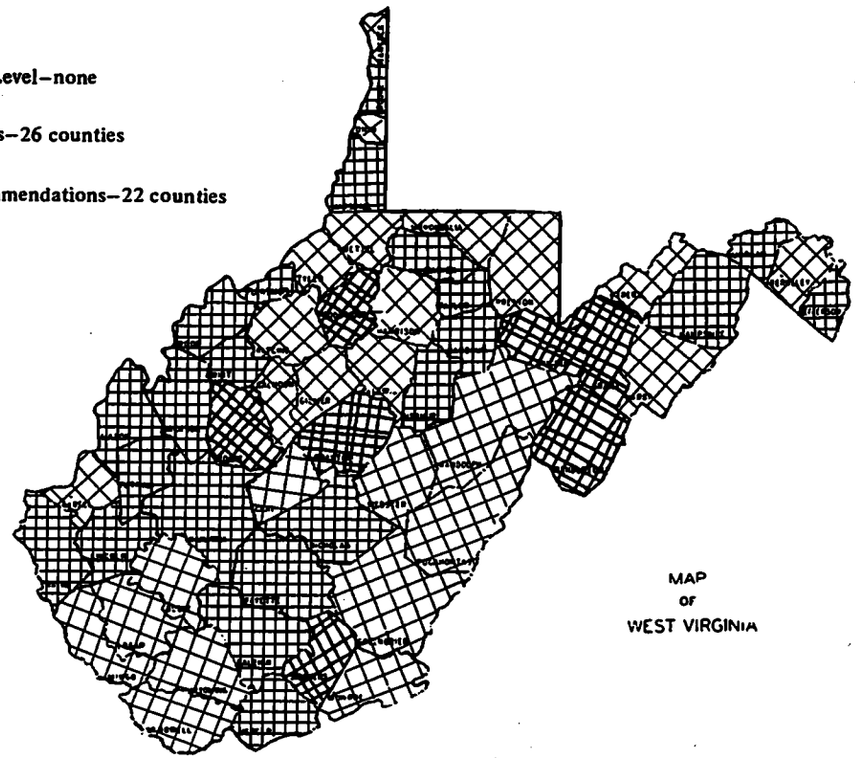
SECONDARY SCHOOL GUIDANCE PERSONNEL SUPPLY*

- Recommended Professional Level–none
- Some, but inadequate services–26 counties
- Approaching National Recommendations–22 counties
- None–7 counties



MAP
OF
WEST VIRGINIA

*Although the recommended counselor – student ratio is 1:250, many of the problems of youth in W. Va. are so extreme when compared to the typical US Public School. W. Va. ratios should be closer to 1 counselor for every 100 students.

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VT 016 348
VOCATIONAL CAREER GUIDE FOR CONNECTICUT.

UNIVERSITY RESEARCH INST. OF CONNECTICUT, INC., WALLINGFORD.
CONNECTICUT STATE DEPT. OF EDUCATION, HARTFORD. DIV. OF VOCATIONAL EDUCATION.;OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C. DIV. OF VOCATIONAL AND TECHNICAL EDUCATION.
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IDENTIFIERS - *CONNECTICUT

ABSTRACT - AS A COMPREHENSIVE INVENTORY OF POST-SECONDARY VOCATIONAL PREPARATION PROGRAMS IN CONNECTICUT, THIS CAREER GUIDE IS DESIGNED TO ASSIST CONNECTICUT STUDENTS AND GUIDANCE COUNSELORS IN LEARNING ABOUT THE SCHOOLS AND THEIR PROGRAMS THAT PROVIDE FORMAL EDUCATION FOR OCCUPATIONS. COMPILED BY MEANS OF AN INTENSIVE SURVEY OF SCHOOLS IN CONNECTICUT OFFERING VOCATIONAL TRAINING, A CROSS-REFERENCED ALPHABETICAL LISTING OF JOBS FOLLOWED BY PROGRAM LOCATIONS IS INCLUDED, AS WELL AS A DIRECTORY DESCRIBING SCHOOLS AND INSTITUTIONS IN CONNECTICUT. INFORMATION ON STATE-OPERATED SCHOOLS IS PRESENTED. (AG)

VOCATIONAL CAREER GUIDE
for
CONNECTICUT

VT016348

CONNECTICUT STATE DEPARTMENT OF EDUCATION
Division of Vocational Education

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VOCATIONAL CAREER GUIDE

FOR

CONNECTICUT

CONNECTICUT STATE DEPARTMENT OF EDUCATION

DIVISION OF VOCATIONAL EDUCATION

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Research and Planning Unit

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Charles J. Bertagna

Michael J. Errede

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FOREWORD

In 1971 the Connecticut State Department of Education contracted with University Research Institute of Connecticut, Inc. (URIC), for the compilation of a guide to career training programs below the baccalaureate level in Connecticut.

URIC conducted an intensive survey of all schools offering identifiable programs in Connecticut, and consequently, produced this guide to serve students, parents, counselors, and others in seeking information about career education programs in the state.

This guide is an attempt to provide a single comprehensive compilation of basic information about these schools and programs. We hope this guide will be of value to all who use it. We welcome any evaluative comments or suggestions for its future revisions.

Joseph F. Murphy
Associate Commissioner & Director
Division of Vocational Education

VOCATIONAL CAREER GUIDE FOR THE STATE OF CONNECTICUT

Introduction

This Guide is a comprehensive inventory of vocational career education in Connecticut. Its purpose is to assist Connecticut students and guidance counselors in learning about the schools and their programs that provide formal education for vocational careers.

Both the Connecticut State Department of Education and University Research Institute of Connecticut, Inc. have made every effort to assure a maximum degree of completeness and accuracy in this publication. Unfortunately, not all schools responded to the survey and some responses that were received may have been incomplete. We regret any omissions or errata on our part as a result of human or mechanical error.

This Guide is not intended to sell, recommend, or imply approval of any specific schools or programs. It is intended merely as a tool to inform the user about the wide range of vocational and career training programs in Connecticut and to supply information about these programs and the schools in which they are offered. As times and conditions change, much of the information presented herein will become outdated. It is strongly recommended that individual schools be contacted to obtain more complete and recent information.

It should be kept in mind that numerous other career training programs are available through apprenticeships, on-the-job training, and various public and private agencies. Most school guidance counselors and Connecticut State Employment Service offices have information on such programs.

Scope

This Guide includes vocational career programs below the baccalaureate

degree level in Connecticut public and private schools, colleges, and universities. It is assumed that students have access to complete information on vocational programs offered by their own local school systems, and therefore, such programs are not included.

Among the types of schools included are State regional vocational-technical schools, business schools, cosmetology schools, flight schools, hospital schools, trade and technical schools, State technical colleges, State colleges and university divisions, State community colleges, junior colleges, private colleges and universities, and, some special schools. This Guide includes correspondence schools that are based in Connecticut.

Use of the Guide

This Guide is presented in two sections.

First, there is a section which lists alphabetically all the occupations oovered in this Guide. Because some jobs may have several different titles, many cross references have been included in this listing. Each occupational listing is followed by the names of schools, their location by towns, and the page number on which each school's program is described. This cross-index of occupations runs from page 7 through page 17. For your convenience the pages are alphabetized in the upper corners.

The second section of this Guide is a directory, or an alphabetical listing of the identified schools and institutions in Connecticut. This school listing provides basic information on the schools and their vocational career programs. Where possible the school address, telephone number, year established, accreditations and approvals, general admission requirements, student body size, student housing availability, and other information is presented. Where possible, the vocational career programs are described in terms of length, number of instructional hours,

availability, tuition costs, and type of recognition awarded upon satisfactory completion. This directory listing is presented in a standard, impartial format. The pages of this section are also alphabetized in the upper corners.

General Admission Requirements

There are three groups of State operated schools which have standard basic admission requirements and similar or identical programs. As these schools represent a significant portion of the relevant educational effort in Connecticut, basic information and general admission requirements of these groups are given below. This information is not included separately in the school directory section of this Guide, but it is appropriately referenced.

State Regional Vocational-Technical Schools

General Information:

The regional vocational-technical school program is essentially a three-year program from Grades 10 - 12. The ninth grade program is a period of trade exploration for better vocational selection.

The school year is divided with one-half of the time allotted to skilled trade training and the remainder devoted to general and related education. Graduates of the secondary program receive a high school diploma.

Some schools offer trade certificate programs for high school graduates, veterans, and others. Such programs (Barbering, Welding, etc.) are usually of one-year duration. Such persons may also be accepted into special programs in other trade areas when space is available.

There is no tuition for Connecticut residents.

The minimum standards of admission for regular day preparatory secondary school programs are as follows:

a. Successful completion of grade 8 or 9 and readiness for grade 9 or 10.

b. Physical fitness for the trade desired.
c. Evidence of ability to successfully complete the program.
d. Interest in vocational education.
e. Entrance test and/or interview.
f. Physical Examination.

Special Admission Requirements - Dental Assistant:

Over 18 years of age. High school diploma or equivalent education. Entrance test and interview. Physical exam and character references. One-year program.

Special Admission Requirements - Licensed Practical Nurse:

One-year program consisting of four months training in vocational-technical school and eight months in an affiliated hospital. Applicants under age 20 must be high school graduates. Applicants 20 years of age or over should have two years of high school credit or the equivalent. Entrance exam, physical exam, interview, and character references required.

State Technical Colleges

Admission Requirements -- Pre-Technical (one-year) Program:

1. High school diploma or State high school equivalency certificate.
2. Entrance examination.
3. Evidence that applicant can benefit from program.

Admission Requirements - Associate Degree (two-year) Program:

1. High school diploma or State high school equivalency certificate.
2. Four units in English
3. Two units in mathematics (1 in algebra, 1 in geometry, or 2 in algebra).
4. One unit in physical science with laboratory (chemistry or physics).
5. Scholastic Aptitude Test (S.A.T.) scores are recommended but not mandatory.
6. Entrance examination required.

State Community Colleges

Admission Requirements:

All community colleges require that applicants be high school graduates or the equivalent or have

demonstrated ability to do college work. Further requirements may vary from one college to another.

Cosmetology Schools

Cosmetology Schools are Licensed by the Connecticut State Board of Health under Chapter 387, Revision of 1958, of the General Statutes of Connecticut. Registration is limited to the first week of January, March, May, July, September and November. Admission requirements include:

1. Minimum age 16 - proof required.
2. Physical examination.
3. Successful completion of eighth grade.

Program requirements set forth include a minimum of two thousand instructional hours, and prepare students to take State license examination.

Special Note

Approvals, Accreditations, Licensures, Admission Requirements and Programs in the directory portion of this Guide are referenced hereto to indicate that the prospective student should check details directly with the school.

Abbreviations

Most of the abbreviations used in this Guide need no explanation. The few which might not be known readily are listed below:

V.A.	Veterans Administration
F.I.S.L.	Federal Insured Student Loan
F.A.A.	Federal Aviation Authority
I.N.S.	Immigration and Naturalization Service for Foreign Students
S.A.T.	Standard Achievement Test

A few additional abbreviations (or acronyms) that are used in school listings in this Guide may be checked with the schools.

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Keypunch Operator		
Career Training Institute	Wethersfield	25
Computer Processing Institute	Hartford	27
New Haven Academy of Business	New Haven	48
New London School of Business	New London	49
Victor Business School	Bridgeport	61
Victor Business School	New Haven	61

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Law Enforcement Specialist		
Housatonic Community College	Bridgeport	37
Manchester Community College	Manchester	41
Mattatuck Community College	Waterbury	42
Mohegan Community College	Norwich	45
New Haven, University of	West Haven	49
Northwestern Conn.Community College	Winsted	51
Norwalk Community College	Norwalk	50
Legal Secretary - See Secretary, Legal		
Library Technical Assistant		
Housatonic Community College	Bridgeport	37
Norwalk Community College	Norwalk	50
Northwestern Conn.Community College	Winsted	51
Life Science Aide		
Mitchell College	New London	45
Lithographer - See Printer		

-M-

Machine Designer - See Mechanical Designer also		
Colonial School of Tool Design	Monroe	26
Porter School of Engineering Design	Rocky Hill	53
Machinist		
Abbott (Henry) Reg. Voc-Tech School	Danbury	19
Bullard-Havens Reg. Voc-Tech School	Bridgeport	24
Cheney (Howell) Reg. Voc-Tech School	Manchester	26
Ellis (Harvard H.) Reg. Voc-Tech School	Danielson	32
Goodwin (E.C.) Reg. Voc-Tech School	New Britain	33
Kaynor (Warren F.) Reg. Voc-Tech School	Waterbury	39
Norwich Reg. Voc-Tech School	Norwich	52
O'Brien (Emmett) Reg. Voc-Tech School	Ansonia	52
Prince (Albert I.) Reg. Voc-Tech School	Hartford	54
Vinal Reg. Voc-Tech School	Middletown	61
Whitney (Eli) Reg. Voc-Tech School	Hamden	63
Wilcox (Horace C.) Reg. Voc-Tech School	Meriden	64
Windham Reg. Voc-Tech School	Willimantic	64
Wolcott (Oliver) Reg. Voc-Tech School	Torrington	65
Wright (J.M.) Reg. Voc-Tech School	Stamford	65
Management Assistant - See Business Management Assistant		
Manager, Hotel - See Hotel Manager		
Manager, Motel - See Motel Manager		
Manicurist		
Creative School of Hairdressing	Hartford	30
Crown Academy of Hairdressing	New Britain	30
Manufacturing Engineering Aide		
Hartford State Technical College	Hartford	36
Thames Valley State Technical College	Norwich	59
Waterbury State Technical College	Waterbury	63
Mason		
Bullard-Havens Reg. Voc-Tech School	Bridgeport	24
Ellis (Harvard H.) Reg. Voc-Tech School	Danielson	32
Prince (Albert I.) Reg. Voc-Tech School	Hartford	54
Mechanical Designer - See Machine Designer also		
Chester Institute of Technical Educ.	Stratford	26
Mechanical Draftsman		
Abbott (Henry) Reg. Voc-Tech School	Danbury	19
Bullard-Havens Reg. Voc-Tech School	Bridgeport	24
Cheney (Howell) Reg. Voc-Tech School	Manchester	26
Chester Institute of Technical Educ.	Stratford	26
Ellis (Harvard H.) Reg. Voc-Tech School	Danielson	32
Goodwin (E.C.) Reg. Voc-Tech School	New Britain	33
Kaynor (Warren F.) Reg. Voc-Tech School	Waterbury	39
Norwich Reg. Voc-Tech School	Norwich	52
O'Brien (Emmett) Reg. Voc-Tech School	Ansonia	52
Prince (Albert I.) Reg. Voc-Tech School	Hartford	54
Technical Design Institute	W. Hartford	59
Vinal Reg. Voc-Tech School	Middletown	61
Warren Institute	Bridgeport	62
Whitney (Eli) Reg. Voc-Tech School	Hamden	63
Wilcox (Horace C.) Reg. Voc-Tech School	Meriden	64
Windham Reg. Voc-Tech School	Willimantic	64
Wolcott (Oliver) Reg. Voc-Tech School	Torrington	65
Wright (J.M.) Reg. Voc-Tech School	Stamford	65
Mechanical Engineering Aide		
Hartford State Technical College	Hartford	36
New Haven, University of	West Haven	49
Norwalk State Technical College	S. Norwalk	50
Thames Valley State Technical College	Norwich	59
Waterbury State Technical College	Waterbury	63
Medical Office Assistant		
Manchester Community College	Manchester	41
Medical Laboratory (Aide, Assistant) Technician		

(see next page)

Medical Laboratory (Aide, Assistant) Technician

		Pg.
Bridgeport Hospital	Bridgeport	23
Charlotte Hungerford Hospital	Torrington	26
Griffin Hospital	Derby	35
Hartford Hospital	Hartford	35
Housatonic Community College	Bridgeport	37
Lawrence and Memorial Hospitals	New London	40
Manchester Community College	Manchester	41
Meriden-Wallingford Hospital	Meriden	43
Norwalk Hospital	Norwalk	50
Park City Hospital	Bridgeport	53
Quinnipiac College	Hamden	55
St. Raphael, Hospital of	New Haven	57
Waterbury Hospital	Waterbury	62
Windham Community Memorial Hospital	Willimantic	64

Medical Record Technician

Quinnipiac College	Hamden	55

Medical Secretary - See Secretary, Medical

Mental Health Aide

Mattatuck Community College	Waterbury	42

Metallurgical Engineering Aide

New Haven, University of	West Haven	49

Mixologist - See Bartender

Model, Professional - See Fashion Merchandiser also

Barbizon School of Modeling	Hartford	21
Barbizon School of Modeling	New Haven	21
Barbizon School of Modeling	Stamford	21
Hanover School of Modeling	W. Hartford	35
Hoyt & Gulliver School	Danbury	37

Motel Manager

County Schools	Bridgeport	30

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Nuclear Engineering Aide

Hartford State Technical College	Hartford	36

Nurses - See Anesthetist, Nurse
See Nurse, Associate Degree below
See Nurse, Practical below
See Registered Nurse

Nurse, Associate Degree

Bridgeport, University of	Bridgeport	23
Mohegan Community College	Norwich	45
Norwalk Community College	Norwalk	50
Quinnipiac College	Hamden	55

Nurse, Practical

Abbott (Henry) Reg. Voc-Tech School	Danbury	19
Backus (William H.) Hospital	Norwich	20
Bridgeport Hospital	Bridgeport	22
Bristol Hospital	Bristol	24
Bullard-Havens Reg. Voc-Tech School	Bridgeport	24
Danbury Hospital	Danbury	31
Day Kimball Hospital	Putnam	31
Goodwin (E.C.) Reg. Voc-Tech School	New Britain	33
Greenwich Hospital	Greenwich	34
Hartford Hospital	Hartford	35

Nurse, Practical (continued)

		Pg.
Kaynor (Warren F.) Reg. Voc-Tech School	Waterbury	39
Middlesex Memorial Hospital	Middletown	44
New Britain General Hospital	New Britain	47
Norwalk Hospital	Norwalk	50
O'Brien (Emmett) Reg. Voc-Tech School	Ansonia	52
Norwich Reg. Voc-Tech School	Norwich	52
Park City Hospital	Bridgeport	53
Prince (Albert I.) Reg. Voc-Tech School	Hartford	54
St. Francis Hospital	Hartford	56
St. Mary's Hospital	Waterbury	56
St. Raphael, Hospital of	New Haven	56
St. Vincent's Hospital	Bridgeport	57
Stamford Hospital	Stamford	58
Vinal Reg. Voc-Tech School	Middletown	61
Whitney (Eli) Reg. Voc-Tech School	Hamden	63
Windham Community Memorial Hospital	Willimantic	64
Windham Reg. Voc-Tech School	Willimantic	64
Wright (J.M.) Reg. Voc-Tech School	Stamford	65
Yale-New Haven Hospital	New Haven	65

Nurse, Registered - See Registered Nurse

Nurse Aide

Laurel Heights Hospital	Shelton	39
St. Mary's Hospital	Waterbury	56

Nursery Manager

Ratcliffe Hicks School of Agriculture	Storrs	55

Nursing Home Administration Aide

Housatonic Community College	Bridgeport	37

-O-

Occupation Therapy Assistant

Manchester Community College	Manchester	41

Office Clerk - See Clerks

Office Machine Operator - See Typist also

Bristol Secretarial School	Bristol	24
Butler Business School	Bridgeport	25
Victor Business School	Bridgeport	61
Victor Business School	New Haven	61

Office Trainee, General

Stone School of Business	New Haven	58

Oil Burner Service Technician

Prince (Albert I.) Reg. Voc-Tech School	Hartford	54

Operating Room Technician - See Surgical Technician

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PBX Operator

County Schools	Bridgeport	30

Painter (see next page)

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		Pg.
Painter		
Bullard-Havens Reg. Voc-Tech School	Bridgeport	24
Photographer, Commercial		
Paier School of Art	Hamden	53
Physical Science Aide		
Bridgeport, University of	Bridgeport	23
Hartford, University of	W. Hartford	36
Pilot, Commercial Aircraft		
Airkaman Flight School	Windsor Locks	19
Bluebird Aviation	Danbury	22
Bridgeport Flight Service	Stratford	22
C & R Connair	Hartford	25
Connecticut Air Service	Danbury	27
Danbury School of Aeronautics	Danbury	31
Danielson Aviation	Danielson	31
International School of Aeronautics	Plainville	38
Interstate Aviation	Plainville	38
Meriden Airways	Meriden	43
New Haven Airways	New Haven	48
Simsbury Air Service	Simsbury	58
Waterford Flight Service	Waterford	63
Pipe Fitter - See Plumber below		
Plumber		
Bullard-Havens Reg. Voc-Tech School	Bridgeport	24
Goodwin (E.C.) Reg. Voc-Tech School	New Britain	33
Norwich Reg. Voc-Tech School	Norwich	52
Prince (Albert I.) Reg. Voc-Tech School	Hartford	54
Whitney (Eli) Reg. Voc-Tech School	Hamden	63
Wright (J.M.) Reg. Voc-Tech School	Stamford	65
Police Science Administrator - See Law Enforcement Specialist		
Printer		
Bullard-Havens Reg. Voc-Tech School	Bridgeport	24
Goodwin (E.C.) Reg. Voc-Tech School	New Britain	33
Norwich Reg. Voc-Tech School	Norwich	52
Prince (Albert I.) Reg. Voc-Tech School	Hartford	54
Whitney (Eli) Reg. Voc-Tech School	Hamden	63
Wilcox (Horace C.) Reg. Voc-Tech School	Meriden	64
Wright (J.M.) Reg. Voc-Tech School	Stamford	65
Process Planner		
Porter School of Engineering Design	Rocky Hill	53
Product Designer		
Porter School of Engineering Design	Rocky Hill	53
Psychiatric Aide		
Institute of Living	Hartford	38
Norwich Hospital	Norwich	52
Public Service Specialist - See Government Service Specialist also		
Manchester Community College	Manchester	41
Punch Designer		
Technical Design Institute	W. Hartford	59

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		Pg.
Radiation Therapy Technician		
Quinnipiac College	Hamden	55
Radiologic Technologist		
Bridgeport Hospital	Bridgeport	24
Bristol Hospital	Bristol	24
Hartford Hospital	Hartford	35
Lawrence and Memorial Hospitals	New London	40
Manchester Memorial Hospital	Manchester	42
Mattatuck Community College	Waterbury	42
Meriden-Wallingford Hospital	Meriden	43
Middlesex Community College	Middletown	44
Mount Sinai Hospital	Hartford	46
Park City Hospital	Bridgeport	53
Quinnipiac College	Hamden	55
St. Joseph Hospital	Stamford	56
St. Mary's Hospital	Waterbury	56
St. Raphael, Hospital of	New Haven	57
St. Vincent's Hospital	Bridgeport	57
Veterans Administration Hospital	West Haven	60
Windham Community Memorial Hospital	Willimantic	64
Yale-New Haven Hospital	New Haven	66
Radio Operator		
Elkins Institute	Hartford	32
Real Estate Salesman/Broker - See Addenda (Pg. 17) also.		
Branford Hall School of Business	Branford	22
Bridgeport, University of	Bridgeport	23
Connecticut, University of (Branches, extensions, etc.)		29
School of Business Administration	Storrs	29
Central High School	Bridgeport	29
Eastern High School	Bristol	29
Hamden High School	Hamden	29
Manchester High School	Manchester	29
School of Insurance	Hartford	29
Southeastern Branch	Groton	29
Staples High School	Westport	29
Torrington Branch	Torrington	29
Turn-of-River Jr. High School	Stamford	29
Waterbury Branch	Waterbury	29
Western Conn. State College	Danbury	29
Wilcox (H.C.) Reg. Voc-Tech School	Meriden	29
Recreation Aide		
Mitchell College	New London	45
Recreation Specialist		
Norwalk Community College	Norwalk	50
Northwestern Conn. Community College	Winsted	51
Refrigeration Designer - See Heating, Air Conditioning and Refrigeration Designer		
Refrigeration Technician		
Norwich Reg. Voc-Tech School	Norwich	52
Wolcott (Oliver) Reg. Voc-Tech School	Torrington	65
Registered Nurse		
Bridgeport Hospital	Bridgeport	23
Fairfield Hills Hospital	Newtown	32
Grace-New Haven Hospital	New Haven	34
Greenwich Hospital	Greenwich	34
Griffin Hospital	Derby	35
Lawrence and Memorial Hospitals	New London	39
Meriden-Wallingford Hospital	Meriden	43

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Registered Nurse (continued)

		Pg.
New Britain General Hospital	New Britain	47
Norwalk Hospital	Norwalk	50
St. Mary's Hospital	Waterbury	56
St. Raphael, Hospital of	New Haven	57
St. Vincent's Hospital	Bridgeport	5B
Wilcox (Ona M.) School of Nursing	Middletown	64

Respiratory Technician - See Inhalation Therapist

Retail Salesman - See Salesman - Marketing

-S-

Salesman - Marketing

Central Connecticut State College	New Britain	26
Greater Hartford Community College	Hartford	34
Manchester Community College	Manchester	41
Mattatuck Community College	Waterbury	42
Middlesex Community College	Middletown	44
Mohegan Community College	Norwich	45
Norwalk Community College	Norwalk	50
Northwestern Conn.Community College	Winsted	51
Tunxis Community College	Farmington	60

Screw Machine Operator

Goodwin (E.C.) Reg. Voc-Tech School	New Britain	33

Scientific Aides - See Agricultural Science Aide
See Animal Science Aide
See Biological Science Aide
See Environmental Science Aide
See Life Science Aide
See Physical Science Aide
See Social Science Aide

School Media Aide - See Educational Assistant also Connecticut, Univ. of, Continuing Ed. for Women, Storrs, 29

Secretarial Administrator

Stone School of Business	New Haven	5B

Secretaries - See below: Secretary, Bilingual
Secretary, Data Processing
Secretary, Executive
Secretary, General
Secretary, Legal
Secretary, Medical
Secretary, Technical

Secretary, Bilingual

Manchester Community College	Manchester	41

Secretary, Data Processing

Career Training Institute	Wethersfield	25

Secretary, Executive

Briarwood	Southington	22
Bridgeport, University of	Bridgeport	23
Career Training Institute	Wethersfield	25
Connecticut Business Institute	Bridgeport	2B
Greater Hartford Community College	Hartford	34
Hartford Academy of Business	W. Hartford	35
Hartford Secretarial School	Hartford	36
Hartford, University of	W. Hartford	36
Laurel of Connecticut	Meriden	39
Manchester Community College	Manchester	41

Secretary, Executive (continued)

Mattatuck Community College	Waterbury	42
Merrill Schools	Stamford	43
Middlesex Community College	Middletown	44
Mitchell College	New London	45
Mohegan Community College	Norwich	45
New Haven Academy of Business	New Haven	4B
New London School of Business	New London	49
Northwestern Conn.Community College	Winsted	51
Norwich Commercial School	Norwich	51
Post Junior College	Waterbury	54
Quinnipiac College	Hamden	55
Stone School of Business	New Haven	5B
Tunxis Community College	Farmington	60
Warren Institute	Danbury	62

Secretary, General

Branford Hall School of Business	Branford	22
Briarwood	Southington	22
Bristol Secretarial School	Bristol	24
Butler Business School	Bridgeport	25
Central Conn. State College	New Britain	26
Connecticut Business Institute	Bridgeport	2B
Hartford Academy of Business	W. Hartford	35
Hartford Secretarial School	Hartford	36
Housatonic Community College	Bridgeport	37
Laurel of Connecticut	Meriden	39
Lee Johnson School of Business	Norwalk	41
Manchester Community College	Manchester	41
Merrill Schools	Stamford	43
Mohegan Community College	Norwich	45
Morse of Hartford	Hartford	45
New Haven Academy of Business	New Haven	4B
New London School of Business	New London	49
Norwalk Community College	Norwalk	50
Norwich Commercial School	Norwich	51
Post Junior College	Waterbury	54
South Central Community College	New Haven	5B

Secretary, Legal

Briarwood	Southington	22
Bridgeport, University of	Bridgeport	23
Butler Business School	Bridgeport	25
Career Training Institute	Wethersfield	25
Connecticut Business Institute	Bridgeport	2B
Greater Hartford Community College	Hartford	34
Hartford Academy of Business	W. Hartford	35
Hartford Secretarial School	Hartford	36
Laurel of Connecticut	Meriden	39
Manchester Community College	Manchester	41
Merrill Schools	Stamford	43
Middlesex Community College	Middletown	44
Morse of Hartford	Hartford	45
New Haven Academy of Business	New Haven	4B
Northwestern Conn.Community College	Winsted	51
Norwich Commercial School	Norwich	51
Post Junior College	Waterbury	54
Quinnipiac College	Hamden	55
Stone School of Business	New Haven	5B

Secretary, Medical

Briarwood	Southington	22
Bridgeport, University of	Bridgeport	23
Butler Business School	Bridgeport	25
Career Training Institute	Wethersfield	25
Greater Hartford Community College	Hartford	34
Hartford Academy of Business	W. Hartford	35
Hartford Secretarial School	Hartford	36
Hartford, University of	W. Hartford	36
Laurel of Connecticut	Meriden	39
Merrill Schools	Stamford	43
Middlesex Community College	Middletown	44
Morse of Hartford	Hartford	45

Secretary, Medical (continued)

		Pg.
New Haven Academy of Business	New Haven	48
Northwestern Conn.Community College	Winsted	51
Norwich Commercial School	Norwich	51
Post Junior College	Waterbury	54
Quinnipiac College	Hamden	55
Stone School of Business	New Haven	58

Secretary, Technical

Career Training Institute	Wethersfield	25
Stone School of Business	New Haven	58

Sewing Instructor

Johnson (Mary) Sewing Studios	Madison	38

Sheet Metal Worker

Norwich Reg. Voc-Tech School	Norwich	52
Prince (Albert I.) Reg. Voc-Tech School	Hartford	54
Wilcox (Horace C.) Reg. Voc-Tech School	Meriden	64

Social Science Aide

Hartford, University of	W. Hartford	36

Social Service/Work Aide

Mattatuck Community College	Waterbury	42
Mitchell College	New London	45

Speedwriter - See Stenographer below.

Stenographer - See Court Stenographer also

Allen Institute of Business	Danbury	19
Briatol Secretarial School	Briatol	24
Butler Business School	Bridgeport	25
Hartford Academy of Business	W. Hartford	35
Merrill Schools	Stamford	43
New Haven Academy of Business	New Haven	48
New London School of Business	New London	49
Norwich Commercial School	Norwich	51
Stone School of Business	New Haven	58
Victor Business School	Bridgeport	61
Victor Business School	Hartford	61

Surgical Technician

Day Kimball Hospital	Putnam	31
Hartford Hoapital	Hartford	35
Johnson Memorial Hospital	Stafford Springa	38
Lawrence and Memorial Hoapitals	New London	40
New Britain General Hospital	New Britain	47
Norwalk Hospital	Norwalk	50
St. Mary's Hospital	Waterbury	56
St. Vincent's Hospital	Bridgeport	57
Manchester Community College	Mancheater	41

Surveyor

Hartford State Technical College	Hartford	36

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Teacher's Aide - See Educational Assistant also

Connecticut, Univ. of, Cont.Ed. for Women	Storrs	29
Hartford, University of	W. Hartford	36
Norwalk Community College	Norwalk	50
South Central Community College	New Haven	58

Technical Illustrator - See Illustrator, Technical

Technical Secretary - See Secretary, Technical

Technical Writer - See Writer, Technical

Technician, Electronic - See Electronic Technician

Tool Designer

Colonial School of Tool Design	Monroe	26
Porter School of Engineering Design	Rocky Hill	53
Technical Design Institute	W. Hartford	59

Tool Engineering Aide

Hartford State Technical College	Hartford	36

Tool and Die Maker

Abbott (Henry) Reg. Voc-Tech School	Danbury	19
Bullard-Havens Reg. Voc-Tech School	Bridgeport	24
Cheney (Howell) Reg. Voc-Tech School	Manchester	26
Ellis (Harvard H.) Reg. Voc-Tech School	Danielson	32
Goodwin (E.C.) Reg. Voc-Tech School	New Britain	33
Kaynor (Warren F.) Reg. Voc-Tech School	Waterbury	39
Norwich Reg. Voc-Tech School	Norwich	50
O'Brien (Emmett) Reg. Voc-Tech School	Ansonia	52
Prince (Albert I.) Reg. Voc-Tech School	Hartford	54
Vinal Reg. Voc-Tech School	Middletown	61
Whitney (Eli) Reg. Voc-Tech School	Hamden	63
Wilcox (Horace C.) Reg. Voc-Tech School	Meriden	64
Windham Reg. Voc-Tech School	Willimantic	64
Wolcott (Oliver) Reg. Voc-Tech School	Torrington	65
Wright (J.M.) Reg. Voc-Tech School	Stamford	65

Traffic Manager - See Transportation Manager

Transportation Manager

Norwalk Community College	Norwalk	50

Travel Agent

County Schools	Bridgeport	30
Norwood World Travel School	Darien	52

Typist

Allen Institute of Business	Danbury	19
Bristol Secretarial School	Bristol	24
Connecticut Business Institute	Bridgeport	28
Hartford Academy of Business	W. Hartford	35
Lee Johnson School of Business	Norwalk	41
Merrill Schools	Stamford	43
New Haven Academy of Business	New Haven	48
Northeastern Audio-Video	Stamford	49
Norwich Commercial School	Norwich	51
Victor Business School	Bridgeport	61
Victor Business School	Hartford	61
Victor Business School	New Haven	61

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Urban Professional Assistant

Housatonic Community College	Bridgeport	37

See -W- next page

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		Pg.
Waiter		
Bartending School of Mixology	Hartford	21
Waitress		
Bartending School of Mixology	Hartford	21
Welder		
Connecticut Welding Institute	Milford	29
Prince (Albert I.) Reg. Voc-Tech School	Hartford	54
Writer, Technical		
Porter School of Engineering Design	Rocky Hill	53

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X-ray Technician - See Radiologic Technologist

ADDENDA

Real Estate Salesman/Broker (continued)

County Schools	Bridgeport	30
Continuous Progress Education Center	Hartford	30
Fairfield University	Fairfield	32
Hartford, University of	W. Hartford	36
Lee Johnson School of Business	Norwalk	41
Manchester Community College	Manchester	41
Mattatuck Community College	Waterbury	42
New Haven, University of	West Haven	49
Northwestern Conn.Community College	Winsted	51
Post Junior College	Waterbury	54
Quinnipiac College	Hamden	55
Sacred Heart University	Bridgeport	56
Stone School of Business	New Haven	58
Trumbull Public Schools	Trumbull	60
Warren Institute	Bridgeport	62

ABBOTT (HENRY) REGIONAL VOCATIONAL-TECHNICAL SCHOOL

Hayestown Road
Danbury, CT 06810

Established: 1918
Tel: 743-5573

Approval, Accreditation: (See Page 3)
(State operated)
Approved by New England Association of Colleges and Secondary Schools

General Admission Requirements: See Page 3

Regular Vocational Programs: See Page 3

Automobile Mechanics

Carpentry

Drafting, Machine & Aeronautical

Electrical

Electronics, Industrial

Machine

Tool & Die

Post Secondary Vocational Programs: See Page 3

Practical Nurse

Student Body: 483, 3% female.

Special Information: Practical Nurse program affiliation with Danbury Hospital.

AIRKAMAN FLIGHT AND GROUND SCHOOL

Bradley International Airport
Windsor Locks, CT 06096

Established: 1964
Tel: 623-2671

Approvals: (See Page
Approved by F.A.A.
Approved by State Board of Education
Approved for V.A. and F.I.S.L. programs

General Admission Requirements: See Page 5

Vocational Programs: See Page 5

Commercial Pilot: Program length variable, approx. 275 hours; full time and part time, day and evening; tuition $4,500; certificate awarded.

Ground School Instructor: Program length variable, approx. 200 hours; full time and part time, day and evening; tuition $550; certificate awarded.

Flight Instructor - Airplane: Program length variable, 175 hours beyond Commercial Pilot; full time and part time, day and evening; tuition $2,700; certificate awarded.

Student Body: 100, 5% female.

Special Information: Transfer credits accepted.
Residential facilities assistance provided.
Additional pilot and instructor programs offered.
Tuition costs vary.

ALLEN INSTITUTE OF BUSINESS

Danbury Shopping Center
Danbury, CT 06810

Established: 1969
Tel: 743-4333

Approval: (See Page 5)
Approved by State Board of Education

General Admission Requirements:
High School diploma or equivalency.

Vocational Programs:

Typewriting: 5 weeks, 30 hours; part time, day only; tuition $65.

Typewriting: 5 weeks, 20 hours; part time, day only; tuition $50.

Speedwriting-Shorthand: 7 weeks, 63 hours; part time; day only; tuition $200; certificate awarded.

Speedwriting-Shorthand: 10 weeks, 60 hours; part time; day only; tuition $200; certificate awarded.

Student Body: 10.

AMERICAN SCHOOL FOR THE DEAF

139 North Main Street
West Hartford, CT 06107

Established: 1817
Tel: 236-5891

Approvals: (See Page 5)
Approved by State Board of Education
Approved for State Rehabilitation Programs

Admission Requirements:
Must have hearing loss too great to enter regular school; educational I.Q. range.

Vocational Programs:

Printing: Program length 3 years, 1200 hours; full time day; diploma awarded.

Machine Shop: Program length 3 years, 1200 hours; full time day; diploma awarded.

Data Processing: Program length 3 years, 1200 hours; full time day; diploma awarded.

Electronic Assembly: Program length 3 years, 1200 hours; full time day; diploma awarded.

Business Education: Program length 3 years, 1200 hours; full time day; diploma awarded.

Numerical Control: Program length 3 years, 1200 hours; full time day; diploma awarded.

Tool and Die: Program length 3 years, 1200 hours; full time day; diploma awarded.

Auto Body: Program length 3 years, 1200 hours; full time day; diploma awarded.

Drafting: Program length 3 years, 1200 hours; full time day; diploma awarded.

Student Body: 210, 40% female.

Special Information: Operates residential facilities.

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AME

AMERICAN TECHNOLOGICAL INSTITUTE

35 Mason Street
Greenwich, CT 06830

Established: 1966
Tel: 661-5400

Approval, Accreditation: (See Page
Approved by State Board of Education
Accredited by National Home Study Council

Vocational Program:

Computer Basics: by correspondence; tuition $195.

Special Information: Computer language and professional engineering licensure programs offered also.

AMERICAN TRACTOR TRAILER TRAINING, INC.

178 Burnside Avenue
East Hartford, CT 06108

Established: 1967
Tel: 289-6547

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. programs
Approved by Highway Safety Association and American Trucking Aaaociation

General Admisaion Requirements:
Ability to read and apeak English, good character, good physical condition.

Vocational Program:

Tractor Trailer Driving: 3 weeks, 120 hours; full and part time, day and evening; tuition $695; diploma awarded.

Student Body: 80.

Special Information: Residential facilities assistance provided.

AMERICO ACADEMY OF BEAUTY CULTURE, INC.

291 Main Street
Danbury, CT 06810

Established: 1960
Tel: 744-0900

Licenaure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. and F.I.S.L. programs

General Admisaion Requirements: See Page 5

Special Admisaion Requirements:
9th grade achooling.

Vocational Program:

Hairdresser: 50 weeka, 2000 hours; full and part time, day only; tuition $725; diploma awarded.

Student Body: 38, over 20% male.

Special Information: Reaidential facilities aaaiatance provided.

AMORE INSTITUTE OF HAIR DESIGN

1209 Campbell Avenue
Weat Haven, CT 06516

Established: 1960
Tel: 934-7941

AMORE INSTITUTE OF HAIR DESIGN (continued)

Licenaure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Special Admission Requirements:
10th grade schooling.

Vocational Program:

Coametologist-Hairdreaaer: 52 weeks, 2000 hours; full and part time, day and evening; tuition $775; diploma awarded.

Student Body: 73, aome malea.

Special Information: Residential facilities assistance provided.

ATLANTIS SCHOOL OF HARTFORD

40 Woodland Street
Hartford, CT 06105

Established: 1956
Tel: 527-7251

Approvala, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A., F.I.S.L., and I.N.S. programs
Accredited by National Association of Trade and Technical Schools

General Admission Requirements:
High School diploma or equivalent, physical examination, congenial, age 18-35, Registrar approval.

Vocational Program:

Airline Personnel Training: 16 weeka, 480 hours; full time, day only; tuition $895; diploma awarded.

Student Body: 187, 25% male.

Special Information: Operates residential facilities for atudents.

AUTOMATION INSTITUTE, INC.

One Padanaram Road
Danbury, CT 06810

Established: 1968
Tel: 744-2183

Approval: (See Page 5)
Approved by State Board of Education

General Admission Requirementa:
High School diploma or equivalent.

Vocational Program:

Computer Programming: 26 weeks, 156 hours; full time, evening only; tuition $1,065; certificate awarded.

Student Body: 12, 30% female.

BACKUS (WILLIAM W.) HOSPITAL

326 Washington Street
Norwich, CT 06360

Established: 1893
Tel: 889-8331

BACKUS (WILLIAM W.) HOSPITAL (continued)

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing
Approved for V.A. program

General Admission Requirements: See Page 5

Vocational Program:

Practical Nurse: one year, 2080 hours; full time; no tuition; diploma awarded.

Student Body: 39.

Special Information: Program affiliated with Norwich Regional Vocational-Technical School.

8AR8IZON SCHOOL OF MODELING - HARTFORD

50 Lewis Street
Hartford, CT 06103

Established: 1969
Tel: 249-1626

Approval: (See Page 5)
Approved by State Board of Education

General Admission Requirements:
Physically attractive, 5'2" - 5'9", measurements appropriate to height.

Vocational Program:

Modeling Training: 15 weeks, 44 hours; part time day and evening; tuition $395; diploma awarded.

Student Body: 94.

8ARBIZON SCHOOL OF MODELING - NEW HAVEN

419 Whalley Avenue
New Haven, CT 06511

Established: 1939
Tel: 777-7861

Approval: (See Page 5)
Approved by State Board of Education

General Admission Requirements:
General physical qualifications as to height, weight, facial and measurements of applicants.

Vocational Program:

Model: 18 weeks, 53 hours; part time day and evening; tuition $595; diploma awarded.

Student Body: 80.

8ARBIZON SCHOOL OF MODELING - STAMFORD

760 Summer Street
Stamford, CT 06901

Established: 1969
Tel: 325-3855

Approval: (See Page 5)
Approved by State Board of Education

General Admission Requirements:
Physical qualifications and age.

Vocational Program:

Model: 18 weeks, 53 hours; part time day and evening; tuition $595; diploma awarded.

8AR8IZON SCHOOL OF MODELING - STAMFORD (continued)

Student Body: 65

BARTENDING SCHOOL OF MIXOLOGY

655 Farmington Avenue
Hartford, CT 06105

Established: 1966
Tel: 232-7487

Approval: (See Page 5)
Approved by State 8oard of Education

General Admission Requirements:
8th grade of elementary school, aptitude.

Vocational Programs:

8artending: 10 weeks, 180 hours; full time day and evening; tuition $395; diploma awarded.

8ar Management: 10 weeks, 180 hours; full time day and evening; tuition $395; diploma awarded.

Waiter: 10 weeks, 180 hours; full time day and evening; tuition $395; diploma awarded.

Waitress: 10 weeks, 180 hours; full time day and evening; tuition $395; diploma awarded.

Hostess: 10 weeks, 180 hours; full time day and evening; tuition $395; diploma awarded.

Cocktail Waitress: 10 weeks, 180 hours; full time day and evening; tuition $395; diploma awarded.

Student Body: 75, 40% females.

8ERLITZ SCHOOL OF LANGUAGES (THE) - NEW HAVEN

246 Church Street
New Haven, CT 06510

Established: 1968
Tel: 787-4245

General Admission Requirements: None

Vocational Program:

Interpreter: Program length, cost and schedule vary.

Student Body: 43.

8ERLITZ SCHOOL OF LANGUAGES (THE) - STAMFORD

111 High Ridge Road
Stamford, CT 06900

Tel: 324-9551

General Admission Requirements: None

Vocational Program:

Interpreter: Program length, cost and schedule vary.

8ERLITZ SCHOOL OF LANGUAGES (THE) - WESTPORT

145 Main Street
Westport, CT 06880

Tel: 226-4223

General Admission Requirements: None

Vocational Program:

Interpreter: Program length, cost and schedule vary.

BLU

BLUEBIRD AVIATION CORPORATION

Danbury Municipal Airport
Danbury, CT 06810

Established: 1966
Tel: 744-5374

Approvals:
Approved by F.A.A.
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Vocational Programs: See Page 5

Commercial Pilot

Flight Instructor - Airplane

Student Body: Approximately 65, 10% females.

Special Information: Additional pilot programs offered.

BRANFORD HALL SCHOOL OF BUSINESS

19 South Main Street
Branford, CT 06405

Established: 1965
Tel: 488-1005

Approvals: (See Page 5)
Approved by State Board of Education
Approved for Connecticut Real Estate Commission program

General Admission Requirements:
High School diploma.

Vocational Programs:

Secretarial: 30 weeks, 600 hours; full and part time, day and evening; tuition $750; diploma awarded.

Business Administration: 30 weeks, 600 hours; full and part time, day and evening; tuition $750; diploma awarded.

Real Estate Principles: 13 weeks, 32½ hours; part time, day and evening; tuition $75; certificate awarded.

Student Body: 55, 50% male.

BRIARWOOD

2279 Mt. Vernon Road
Southington, CT 06489

Established: 1967
Tel: 628-4751

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A., F.I.S.L., and Connecticut Real Estate Commission programs.
Accredited by Accrediting Commission for Business Schools

General Admission Requirements:
High School diploma or equivalent.

Vocational Programs:

Executive Secretary: 74 weeks, 2516 hours; full time, day only; tuition $2,000; diploma awarded.

Legal Secretary: 74 weeks, 2516 hours; full time, day only; tuition $2,000; diploma awarded.

Court Stenographer: 74 weeks, 2516 hours; full time,

BRIARWOOD (continued)

Court Stenographer (continued):
day only; tuition $2,000; diploma awarded.

Medical Secretary: 74 weeks, 2516 hours; full time, day only; tuition $2,000; diploma awarded.

Medical (office) Assistant: 74 weeks, 2516 hours; full time, day only; tuition $2,000; diploma awarded.

Junior Medical Secretary: 37 weeks, 1258 hours; full time, day only; tuition $1,000; diploma awarded.

Junior Medical Assistant: 37 weeks, 1258 hours; full time, day only; tuition $1,000; diploma awarded.

Secretarial Finishing: 37 weeks, 1258 hours; full time, day only; tuition $1,000; diploma awarded.

Clerk-Typist: 37 weeks, 1258 hours; full time, day only; tuition $1,000; diploma awarded.

Travel Consultant: 37 weeks, 1258 hours; full time, day only; tuition $1,000; diploma awarded.

Student Body: 176.

Special Information: Operates residential facilities for students; 74-week programs extend 20 months, 37-week programs extend 10 months.

BRIDGEPORT FLIGHT SERVICE, INC.

Bridgeport Municipal Airport
Stratford, CT 06497

Established: 1949
Tel: 375-3329

Approvals: (See Page 5)
Approved by F.A.A.
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Vocational Programs:

Commercial Pilot: Program length 80 weeks, 160 hours; full time day only and part time day and evening; certificate awarded.

Flight Instructor: Program length 20 weeks, 37½ hours; full time day only and part time day and evening; certificate awarded.

Student Body: 110, 5% females.

Special Information: Additional pilot programs offered. Tuition costs vary.

BRIDGEPORT HOSPITAL

267 Grant Street
Bridgeport, CT 06602

Established: 1884
Tel: 334-0101

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Nursing Examiners

General Admission Requirements: See Page 5

Vocational Program:

Practical Nurse: one year, 2080 hours; full time;

BRIDGEPORT HOSPITAL (continued)

Practical Nurse (continued):
no tuition; diploma awarded.

Special Information: Program affiliated with Bullard-Havens Regional Vocational-Technical School.

BRIDGEPORT HOSPITAL SCHOOL OF MEDICAL TECHNOLOGY

267 Grant Street
Bridgeport, CT 06602
Established: 1969
Tel: 334-0131

Approvals: (See Page 5)
Approved by State Board of Education
Approved by American Society of Clinical Pathologists

General Admission Requirements:
High School diploma, aptitude.

Vocational Program:

Medical Laboratory Technician: 50 weeks, 200 hours; part time day only; no tuition; certificate awarded.

Student Body: 8, 38% male.

Special Information: Program affiliated with Housatonic Community College.

BRIDGEPORT HOSPITAL SCHOOL OF NURSING

267 Grant Street
Bridgeport, CT 06602
Established: 1884
Tel: 384-3214

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing
Approved for V.A. program
Accredited by National League for Nursing

Vocational Program:

(Registered) Nurse: 120 weeks (3 years), 101 semester hours; full time day; tuition $3,300; diploma awarded.

Student Body: 140, 1% male.

Special Information: Operates residential facilities.

BRIDGEPORT HOSPITAL SCHOOL OF X-RAY TECHNOLOGY

267 Grant Street
Bridgeport, CT 06602
Established: 1958
Tel: 334-0131
Extension 511

Approvals: (See Page 5)
Approved by the Council on Medical Education and Hospitals of the American Medical Association, and the American College of Radiology

General Admission Requirements:
Recent High School graduate; good health.

Vocational Program:

X-Ray Technology: 104 weeks, 450+ hours; no tuition; certificate awarded.

Student Body: 21, 10% male.

BRIDGEPORT SCHOOL OF BEAUTY (see next column)

BRIDGEPORT SCHOOL OF BEAUTY

1202 Main Street
Bridgeport, CT 06603
Established: 1951
Tel: 334-2167

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A., F.I.S.L, and State Rehabilitation programs

General Admission Requirements: See Page 5

Special Admission Requirements:
10th grade level.

Vocational Program:

Beautician: 52 weeks, 2000 hours; full and part time, day and evening; tuition $575; diploma awarded.

Student Body: 50, some males.

Special Information: Residential facilities assistance provided.

BRIDGEPORT, UNIVERSITY OF

219 Park Avenue
Bridgeport, CT 06602
Established: 1927
Tel: 384-0711

Approvals, Accreditation: (See Page 5)
Approved by New England Association of Colleges and Secondary Schools
Approved by Connecticut Real Estate Commission
Approved for V.A. program and F.I.S.L. program
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 5
Vary per programs.

Vocational Programs:

Art: Program length 60 weeks (2 years); full and part time, day only; tuition $4,000; associate degree awarded.

Nursing: Program length 60 weeks (2 years); full and part time, day only; tuition $4,000; associate degree awarded.

Fashion Merchandising: Program length 60 weeks (2 years) full and part time, day only; tuition $4,000; associate degree awarded.

Dental Hygiene: Program length 60 weeks (2 years); full and part time, day only; tuition $4,000; associate degree awarded.

Executive Secretary: Program length 60 weeks (2 years); full time, day only; tuition $4,000; associate degree awarded.

Legal Secretary: Program length 60 weeks (2 years); full time, day only; tuition $4,000; associate degree awarded.

Medical Secretary: Program length 60 weeks (2 years); full time, day only; tuition $4,000; associate degree awarded.

Business: Program length 60 weeks (2 years); full and part time, day only; tuition $4,000; associate degree awarded.

BRIDGEPORT, UNIVERSITY OF (continued)

Physical Science Technology: Program length 60 weeks (2 years); full time, day only; tuition $4,000; associate degree awarded.

Real Estate: Program length 30 weeks (1 year), 60 hours; part time evening only; tuition $270.

Student Body: 8,939, 40% female.

Special Information: Operates residential facilities.

BRISTOL HOSPITAL

Brewer Road
Bristol, CT 06010

Established: 1946
Tel: 589-2000
Extension 312

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Nursing Examiners

General Admission Requirements: See Page 5

Vocational Programs:

Practical Nurse: one year, 2080 hours; full time; no tuition; diploma awarded.

Respiratory Technician: 26 weeks, 624 hours; full time, day only, no tuition; diploma awarded.

Student Body: 34.

Special Information: Nursing Program affiliated with E.C. Goodwin Regional Vocational-Technical School. Operates residential facilities.

BRISTOL HOSPITAL SCHOOL OF RADIOLOGIC TECHNOLOGY

Brewer Road
Bristol, CT 06010

Established: 1951
Tel: 589-2000
Extension 424

Approvals: (See Page 5)
Approved by the American Medical Association
Approved by the American Society of Radiologic Technologists
Approved by the American College of Radiology

General Admission Requirements:
High School graduate (official school transcript), interview, good health, at least 18 years of age.

Vocational Program:

Radiologic Technologist: 104 weeks, 3920 hours; full time, day only; tuition $200; diploma awarded.

Student Body: 12.

Special Information: Operates residential facilities.

BRISTOL SECRETARIAL SCHOOL

81 Main Street
Bristol, CT 06010

Established: 1927
Tel: 583-7093

Approval: (See Page 5).
Approved by State Board of Education

BRISTOL SECRETARIAL SCHOOL (continued)

General Admission Requirements:
High School graduate or equivalent; aptitute tests.

Vocational Programs:

Secretarial: 40 weeks, 800 hours; full time, day only; tuition $960; diploma awarded.

Accounting: 30 weeks, 450 hours; full time, day only; tuition $480; diploma awarded.

Accounting: 36 weeks, 144 hours; part time, evening only; tuition $400; certificate awarded.

Shorthand: 30 weeks, 450 hours; full time, day only; tuition $480; certificate awarded.

Shorthand: 36 weeks, 144 hours; part time, evening only; tuition $400; certificate awarded.

Typewriting: 24 weeks, 240 hours; full time, day only; tuition $240; certificate awarded.

Typewriting: 36 weeks, 144 hours; part time, evening only; tuition $432.

Stenography: 30 weeks, 525 hours; full time, day only; tuition $720; diploma awarded.

Comptometer Operator: 24 weeks, 240 hours; full time day, and part time evening only; tuition $300; diploma awarded.

Student Body: 8.

Special Information: Residential facilities assistance provided.

BROOKFIELD SCHOOL OF HAIR DESIGN

Route 7
Brookfield, CT 06804

Established: 1967
Tel: 775-1287

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Special Admission Requirements:
10th grade education.

Vocational Program:

Hairdressing and Cosmetology: 52 weeks, 2000 hours; full and part time, day only; tuition $650; diploma awarded.

Student Body: 16, some males.

BULLARD-HAVENS REGIONAL VOCATIONAL-TECHNICAL SCHOOL

500 Palisades Avenue
Bridgeport, CT 06610

Tel: 336-4451

Approval, Accreditation: (See Page 3)
(State operated)

General Admission Requirements: See Page 3

BULLARD-HAVENS REGIONAL VOCATIONAL-TECHNICAL SCHOOL (continued)

Regular Vocational Programs: See Page 3

Automobile Mechanics

Baking

Barbering

Beauty Culture

Carpentry

Drafting, Architectural

Drafting, Machine

Electrical

Electronics, Industrial

Fashion Design

Food Trades

Machine

Masonry

Painting & Decorating

Printing & Lithography

Plumbing & Fitting

Tool & Die

Post Secondary Vocational Programs: See Page 3

Practical Nurse

Student Body: 999.

Special Information: Practical Nurse program affiliation with Bridgeport and St. Vincent's Hospitals.

BUTLER BUSINESS SCHOOL

211 State Street
Bridgeport, CT 06603

Established: 1900
Tel: 333-3601

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by United Business School Association

General Admission Requirements:
High School graduate upon standard course completion, aptitude and interest.

Vocational Programs:

Secretarial: 44 weeks, 979 hours; full time day only; tuition $925; diploma awarded.

Legal Secretarial: 56 weeks, 1271 hours; full time day only; tuition $1,165; diploma awarded.

Medical Secretarial: 56 weeks, 1271 hours; full time day only; tuition $1,165; diploma awarded.

Stenographic: 34 weeks, 799 hours; full time day only;

BUTLER BUSINESS SCHOOL (continued)

Stenographic (continued): tuition $685; diploma awarded.

Clerical-Machines: 26 weeks, 585 hours; full time day only; tuition $450; diploma awarded.

Accounting: 65 weeks, 1462 hours; full time day only; tuition $1,125; diploma awarded.

Office-Machines: 13 weeks, 292 hours; full time day only; tuition $225; diploma awarded.

Pace Accounting/Business Administration: 124 weeks, 2925 hours; full time evening only; tuition $2,400; diploma awarded.

Student Body: 190, 10% male.

Special Information: Evening programs indicated.

C & R CONNAIR, INC.

Brainard Airport
Hartford, CT 06114

Established: 1967
Tel: 522-9191

Approvals: (See Page 5)
Approved by F.A.A.
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Vocational Program:

Flight Training: Program length 40 hours; full time day and evening; diploma awarded.

Student Body: Continuous, 25% female.

Special Information: Residential facilities assistance provided.

CAREER TRAINING INSTITUTE

449 Silas Deane Highway
Wethersfield, CT 06109

Established: 1969
Tel: 563-2871

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A., and I.N.S. programs
Accredited by National Association of Trade and Technical Schools

General Admission Requirements:
High School diploma or equivalency, and personal interview.

Vocational Programs:

Computer Programming: Program length variable; certificate awarded.

Computer Operations: Program length variable; certificate awarded.

Keypunch: Program length variable; certificate awarded.

Executive Secretary: Program length variable; certificate awarded.

CAREER TRAINING INSTITUTE (continued)

Legal Secretary: Program length variable; certificate awarded.

Medical Secretary: Program length variable; certificate awarded.

Electronic Data Processing Secretary: Program length variable; certificate awarded.

Technical Secretary: Program length variable; certificate awarded.

Student Body: 105.

Special Information: Residential facilities assistance provided. Programs in various computer languages offered also.

CENTRAL CONNECTICUT STATE COLLEGE

1615 Stanley Street
New Britain, CT 06050

Established: 1849
Tel: 225-7481

Approval, Accreditations: (See Page 5)
(State operated)
Accredited by New England Association of Colleges and Secondary Schools
Accredited by Connecticut Commission for Higher Education

Admission Requirements:
Graduation from accredited high school or preparatory school, or high school equibalency certificate, with prerequisite courses.

Vocational Programs:

Accounting: Program length two years; full and part time day and evening; tuition $285 per semester; associate degree awarded.

Distributive Education: Program length two years; full and part time, day and evening; tuition $285 per semester; associate degree awarded.

Secretarial Studies: Program length two years; full and part time, day and evening; tuition $285 per semester; associate degree awarded.

Student Body: 13,000; 50% female.

Special Information: Operates residential facilities.

CHARLOTTE HUNGERFORD HOSPITAL (THE)

540 Litchfield Street
Torrington, CT 06790

Established: 1916
Tel: 489-0441

Accreditation*

Vocational Program: See Page 5

Certified Laboratory Assistant

Student Body: 0

Special Information: * Program accredited, but not being offered at present.

CHENEY (HOWELL) REGIONAL VOCATIONAL-TECHNICAL SCHOOL
(see next column)

CHENEY (HOWELL) REGIONAL VOCATIONAL-TECHNICAL SCHOOL
(continued)

791 West Middle Turnpike
Manchester, CT 06040

Established: 1915
Tel: 649-5396

Approval, Accreditation: (See Page 3)
(State operated)
Approved by New England Association of Colleges and Secondary Schools

General Admission Requirements: See Page 3

Regular Vocational Programs: See Page 3

Automobile Mechanics

Carpentry

Drafting, Machine

Electrical

Electronics, Industrial

Machine

Tool & Die

Student Body: 360, 100% male.

CHESTER INSTITUTE FOR TECHNICAL EDUCATION

2945 Main Street
Stratford, CT 06497

Established: 1966
Tel: 375-4463

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements:
High School diploma or satisfactory performance in CITE Qualification Profile.

Special Admission Requirements:
Draftsman programs are prerequisite to Designer programs.

Vocational Programs:

Electromechanical Draftsman: 52 weeks, 1200 hours; full time day, and part time evening only; tuition $1,350; diploma awarded.

Electromechanical Designer: 52 weeks, 1200 hours; full time day only; tuition $1,350; diploma awarded.

Architectual Draftsman: 52 weeks, 1200 hours; full time day, and part time evening only; tuition $1,350; diploma awarded.

Architectual Designer: 52 weeks, 1200 hours; full time day only; tuition $1,350; diploma awarded.

Student Body: 80, 5% male.

Special Information: Residential facilities assistance provided.

COLONIAL SCHOOL OF TOOL DESIGN (see next page)

183 Main Street
Monroe (Stepney Depot) CT 06468

Established: 1947
Tel: 261-4826

COLONIAL SCHOOL OF TOOL DESIGN (continued)

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements:
High School graduate.

Vocational Program:

Tool/Die/Machine Designer: 68 weeks, 1700 hours; full time day, and part time evening only; tuition $1,540; certificate awarded.

Student Body: 24, 100% male.

Special Information: Residential facilities assistance provided.

COMPUTER PROCESSING INSTITUTE - HARTFORD

111 Ash Street
East Hartford, CT 06108
Established: 1966
Tel: 528-9211

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A., I.N.S., and State Rehabilitation programs
Accredited by Accrediting Commission for Business Schools

General Admission Requirements:
High School diploma or equivalency, interview, aptitude test, approval by Board of Admissions.

Special Admission Requirements:
Rehabilitation program candidates should inquire.

Vocational Programs:

Computer Programming: 32 weeks, 800 hours; full time day, and part time evening only; tuition $1,995; diploma or certificate awarded.

Computer Programming (for the blind): 32 weeks, 800 hours; full time day, and part time evening only; tuition $2,395; diploma or certificate awarded.

Computer Operations/Programming: 28 weeks; full time day, and part time evening only; tuition $1,995; diploma or certificate awarded.

Keypunch: 3 weeks, 80 hours; full time day, and part time evening only; tuition $299; certificate awarded.

Student Body: 166.

Special Information: Operates residential facilities for students. Programs in various computer languages offered also.

COMPUTER PROCESSING INSTITUTE - NEW HAVEN

1890 Dixwell Avenue
Hamden, CT 06514
Established: 1970
Tel: 288-2381

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. and State Rehabilitation programs.

COMPUTER PROCESSING INSTITUTE - NEW HAVEN (continued)

General Admission Requirements:
High School graduation or equivalency.

Special Admission Requirements: Aptitude.

Vocational Program:

Advanced Computer Programming: 33 weeks, 800 hours; full time day only; tuition $1,995; diploma awarded.

Student Body: 21, one-third female.

Special Information: Residential facilities assistance provided. Program in various computer languages offered also.

CONNECTICUT ACADEMY OF DANCE & THEATRE

887 Hanover Road
Meriden, CT 06450
Established: 1965
Tel: 237-0474

General Admission Requirements:
Physical and personality aptitudes for career training in the theatre.

Vocational Programs:

Dance: 28 weeks, 28 hours; part time only; tuition $56.

Drama: 28 weeks, 56 hours; part time only; tuition $60.

Voice: 28 weeks, 14 hours; part time only; tuition $140.

CONNECTICUT ACADEMY OF DENTAL TECHNOLOGY, INC.

11 West Washington Street
South Norwalk, CT 06856
Established: 1970
Tel: 838-2386

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A., I.N.S., and State Rehabilitation programs

General Admission Requirements:

Good vision, average degree of manual dexterity.

Vocational Program:

Dental Laboratory Technology: 90 weeks, 1800 hours; full time day and evening, and part time evening only; tuition $4,500; diploma awarded.

Student Body: 32, 90% male.

Special Information: Operates residential facilities, high school diploma not required. Special advanced programs offered also.

CONNECTICUT AIR SERVICE, INC.

Danbury Airport
Danbury, CT 06810
Established: 1967
Tel: 748-3533

(see next page)

CONNECTICUT AIR SERVICE, INC. (continued)

Approvals: (See Page 5)
Approved by F.A.A.
Approved by State Board of Education
Approved by V.A. program

General Admission Requirements: See Page 5

Vocational Programs:

Commercial Pilot: Program 160 hours, full and part time, day and evening; tuition $2,496.

Flight Instructor: Program 65 hours; full and part time, day and evening; tuition $855.

Student Body: 75, 5% female.

Special Information: Additional pilot and instructor programs offered.

CONNECTICUT BUSINESS INSTITUTE

1188 Main Street
Bridgeport, CT 06603

Established: 1963
Tel: 367-4263

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by National Shorthand Reporters Association

General Admission Requirements:
High School diploma and some typing knowledge (except for typing programs).

Vocational Programs:

Typing: Term varies per aptitude; part time day and evening; tuition varies; certificate awarded.

Clerk-Typist: 10 weeks, 175 hours; full time day only; tuition $200; certificate awarded.

Clerk-Typist: 24 weeks, 144 hours; full time evening only; tuition $200; certificate awarded.

Secretary: 16 weeks, 400 hours; full time day only; tuition $595; certificate awarded.

Legal Secretary: 32 weeks, 800 hours; full time day only; tuition $995; certificate awarded.

Legal Secretary: 32 weeks, 224 hours; full time evening only; tuition $665; certificate awarded.

Executive Secretary: 48 weeks, 1200 hours; full time day and evening; tuition $1,590; certificate awarded.

Court Stenography: 60 weeks, 1600 hours; full time day and evening; tuition $1,990; certificate awarded.

Court Stenography: 64 weeks, 448 hours; full time day and evening; tuition $1,330; certificate awarded.

Student Body: 30.

Special Information: Residential facilities assistance provided.

CONNECTICUT SCHOOL OF BROADCASTING - HARTFORD

750 Main Street
Hartford, CT 06103

Established: 1964
Tel: 232-9988

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements:
Trainable voice, aptitude and motivation.

Vocational Program:

Announcer: 8 or 16 weeks, 112 hours; part time day and evening; tuition $640; diploma awarded.

CONNECTICUT SCHOOL OF BROADCASTING - STRATFORD

2874 Main Street
Stratford, CT 06497

Established: 1964
Tel: 378-5155

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements:
Satisfactory voice, reading ability, articulation and motivation.

Student Body: 86.

Special Information: Residential facilities assistance provided.

(See Addenda, Page 66)

CONNECTICUT SCHOOL OF ELECTRONICS

586 Boulevard
New Haven, CT 06519

Established: 1947
Tel: 624-7057

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A., F.I.S.L., I.N.S., and State Rehabilitation programs
Accredited by National Association of Trade and Technical Schools

General Admission Requirements:
High School graduate or equivalent diploma, satisfactory completion of at least one year of algebra.

Special Admission Requirements:
Two years of high school required for Technician program.

Vocational Programs:

Electronic Technology: 98 weeks (2 years), 2100 hours; full time day only; tuition $1,100 per year; diploma awarded.

Electronic Technician: 144 weeks (4 years), 888 hours; part time evening only; tuition $390 per year; certificate awarded.

Student Body: 264.

Special Information: Residential facilities assistance provided.

CONNECTICUT STENOGRAPHIC INSTITUTE

66 Franklin Square — Established: 1963
New Britain, CT 06051 — Tel: 223-6563

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A. and F.I.S.L. programs
Approved by National Shorthand Reporters Association
Accredited by Accrediting Commission for Business Schools

General Admission Requirements:
High School diploma or equivalent.

Special Admission Requirements:
Typing, English, I.Q., aptitude.

Vocational Program:

Court Reporting: 50 weeks, 1040 hours; full time day and evening; tuition $2,225; certificate awarded.

Student Body: 30

Special Information: Residential facilities assistance provided.

CONNECTICUT, UNIVERSITY OF (THE)

Branches, Extensions, etc.

Approval, Accreditation: (See Page 5)
(State operated)

Vocational Program: Real Estate Principles

Locations:

Center for Real Estate & Urban Economic Studies
School of Business Administration
Storrs, CT 06268 — Tel: 429-3311

Central High School
One Lincoln Boulevard — Tel: 333-8551
Bridgeport, CT 06606 — Extension 372

Eastern High School
632 King Street — Tel: 584-0971
Bristol, CT 06010 — Extension 251

Hamden High School
2040 Dixwell Avenue
Hamden, CT 06514 — Tel: 248-9311

Hartford Branch
1800 Asylum Avenue
West Hartford, CT 06117 — Tel: 523-4841

Manchester High School
134 East Middle Turnpike
Manchester, CT 06040 — Tel: 643-4171

School of Insurance
39 Woodland Street
Hartford, CT 06105 — Tel: 527-2149

Southeastern Branch
Avery Point
Groton, CT 06340 — Tel: 446-1020

CONNECTICUT, UNIVERSITY OF (THE) (continued)

Branches, Extensions, etc.

Locations: (continued) - Real Estate Principles

Staples High School
70 North Avenue
Westport, CT 06880 — Tel: 227-8451

Torrington Branch
University Drive
Torrington, CT 06790 — Tel: 482-7635

Turn-of-River Junior High School
Vine Road
Stamford, CT 06905 — Tel: 348-5851 Extension 487

Waterbury Branch
32 Hillside Avenue
Waterbury, CT 06701 — Tel: 757-1231

Western Connecticut State College
181 White Street
Danbury, CT 06814 — Tel: 792-1400

Wilcox (H.C.) Regional Vocational-Technical School
Oregon Road
Meriden, CT 06450 — Tel: 235-6316

CONNECTICUT, UNIVERSITY OF (THE)

Continuing Education for Women — Established: 1964
Storrs, CT 06268 — Tel: 429-3311 Extension 1880

Approval, Accreditation: (See Page 5)
(State operated)

Admission Requirements:
Non-credit special programs are open to the general public and usually have no prerequisites.

Vocational Programs:

Teacher Aide: Program length 15 weeks, 30 hours; part time evening only; tuition $40; certificate awarded.

Teacher Aide in Special Education: Program length 15 weeks, 30 hours; part time evening only; tuition $40; certificate awarded.

School Media Aide: Program length 5-15 weeks, 30 hours; full time day, and part time evening only; tuition $40; certificate awarded.

Modern Chemical Laboratory Techniques: Program length 15 weeks, 60 hours; part time evening only; tuition $75; certificate awarded.

Student Body: 1,120; 76% female.

Special Information: Operates residential facilities.

CONNECTICUT WELDING INSTITUTE

165 Buckingham Avenue — Established: 1970
Milford, CT 06460 — Tel: 877-0722

CON

CONNECTICUT WELDING INSTITUTE (continued)

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A., F.I.S.L., I.N.S., and State Rehabilitation programs
Accredited by National Association of Trade and Technical Schools

General Admission Requirements:
Three months prior to eighteenth birthday, eagerness to learn.

Vocational Program:

Combination Welder: 7 weeks, 185 hours; full time day, and part time evening only; tuition $1,223; certificate awarded.

Student Body: 12.

Special Information: Operates residential facilities. Has Spanish interpreter.

CONTINUOUS PROGRESS EDUCATION CENTER, INC.

55 Elizabeth Street
Hartford, CT 06105
Established: 1971
Tel: 232-9015

Approval: (See Page 5)
Approved by Connecticut Real Estate Commission

Vocational Program:

Real Estate Practices and Principles: Program length 12 weeks, 24 hours; part time evening; tuition $65.

COUNTY SCHOOLS

3787 Main Street
Bridgeport, CT 06606
Established: 1959
Tel: 374-6187

Approvals, Accreditations: (See Page 5)
Approved by State Board of Education
Approved for V.A. and Connecticut Real Estate Commission programs.

General Admission Requirements:
8th grade graduate.

Special Admission Requirements:
12th grade graduate for real estate, travel and drafting programs.

Vocational Programs:

Real Estate Broker: 10 weeks, 25 hours; part time evening only; tuition $70; certificate awarded.

Hotel-Motel Management: 12 weeks, 250 hours; part time day only; tuition $495; diploma awarded.

Travel Agent: 12 weeks, 36 hours; part time evening only; tuition $295; diploma awarded.

Bartending: 8 weeks, 49 hours; full and part time evening only; tuition $250; diploma awarded.

P.B.X.: 4 weeks, 12 hours; full and part time evening only; tuition $125; diploma awarded.

Construction Estimating: 15 weeks, 37 hours;

COUNTY SCHOOLS (continued)

Construction Estimating (continued): part time evening only; tuition $160; diploma awarded.

Drafting(1): 32 weeks, 150 hours; full and part time, day and evening; tuition $250; diploma awarded.

Student Body: 100, 40% female.

Special Information: Operates residential facilities for students.
(1) Correspondence program.

CREATIVE SCHOOL OF HAIRDRESSING (THE)

163 Asylum Street
Hartford, CT 06103
Established: 1961
Tel: 525-9128

Licensure, Approvals, Accreditation: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A., F.I.S.L., I.N.S., O.E.O., and Work Incentive programs
Accredited: Cosmetology Accrediting Commission

General Admission Requirements: See Page 5

Special Admission Requirements:
High School graduate or equivalent. Good moral character.

Vocational Programs:

Hairdresser-Cosmetologist: 52 weeks, 2000 hours; full and part time, day only; tuition $1,000; diploma awarded.

Manicurist: 12 weeks, 350 hours; full and part time, day only; tuition $350; diploma awarded.

Student Body: 70, 10% male.

Special Information: Residential facilities assistance provided.

CROWN ACADEMY OF HAIRDRESSING

12 Washington Street
New Britain, CT 06050
Established: 1955
Tel: 225-4651

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A., I.N.S., and Manpower Training and Work Incentive programs.

General Admission Requirements: See Page 5

Special Admission Requirements:
17 years of age, 10th grade level.

Vocational Programs:

Hairdressing: 2000 hours; full and part time, day and evening; tuition $800; diploma awarded.

Manicurist: 500 hours; full and part time, day and evening; tuition $200; diploma awarded.

Student Body: 34, some male.

CROWN ACADEMY OF HAIRDRESSING (continued)

Special Information: Residential facilities assistance provided.

CULINARY INSTITUTE OF AMERICA (THE)

393 Prospect Street
New Haven, CT 06511
Established: 1946
Tel: 772-2070

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by Council of Hotel, Restaurant and Institutional
Accredited by National Association of Trade and Technical Schools

General Admission Requirements:
High School diploma.

Vocational Program:

Chef: 2 years, 2160 hours; full time day and evening; tuition $2,000; diploma awarded.

Student Body: 1,050; 5% female.

Special Information: Operates residential facilities, and provides residential facilities assistance.

DANBURY BEAUTY SCHOOL

268 Main Street
Danbury, CT 06810
Established: 1958
Tel: 748-3836

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A., Social Security Division, and State Welfare programs

General Admission Requirements: See Page 5

Special Admission Requirements:
10th grade schooling.

Vocational Program:

Hairdressing & Cosmetology: 52 weeks, 2000 hours; full and part time, day and evening; tuition $700; diploma awarded.

Student Body: 21, 25% males.

DANBURY HOSPITAL

95 Locust Street
Danbury, CT 06810
Tel: 744-2300

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Nursing Examiners

General Admission Requirements: See Page 5

Vocational Program:

Practical Nurse: one year program; 2080 hours; full time; tuition - none; diploma awarded.

Student Body: Approx. 35.

DANBURY HOSPITAL (continued)

Special Information: Program affiliated with Henry Abbott Regional Vocational-Technical School.

DANBURY SCHOOL OF AERONAUTICS - DANBURY AIRWAYS, INC.

Piper Flite Center, Danbury Airport
Danbury, CT 06810
Established: 1945
Tel: 792-0100

Approvals: (See Page 5)
Approved by F.A.A.
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Vocational Programs:

Commercial Pilot: Program 160 hours; full and part time, day only; tuition $3,125.

Flight Instructor: Program 22 hours; full and part time, day only; tuition $904.

Student Body: 150, one-third female.

Special Information: Additional pilot and instructor program offered.

DANIELSON AVIATION, INC.

Danielson Airport
Danielson, CT 06239
Established: 1966
Tel: 774-5533

Approvals: (See Page 5)
Approved by F.A.A.
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Vocational Programs:

Commercial Pilot: full and part time, day and evening.

Flight Instructor: Program 35 hours; full and part time, day and evening; tuition $1,100; certificate awarded.

Student Body: 150, some females.

Special Information: Additional pilot and instructor programs offered. Residential facilities assistance provided.

DAY KIMBALL HOSPITAL

320 Pomfret Street
Putnam, CT 06260
Established: 1966
Tel: 928-6541

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Nursing Examiners

General Admission Requirements: See Page 5

Special Admission Requirements:
O.R.T. program candidate must be L.P.N. or ex-service corpsman.

Vocational Programs: (see next page)

DAY

DAY KIMBALL HOSPITAL (continued)

Vocational Programs:

Practical Nurse: one year, 2080 hours; full time; tuition - none; diploma awarded.

Operating Room Technician: 6 weeks, 240 hours; full time; tuition - none; certificate awarded.

Special Information: Nursing program affiliated with Windham Regional Vocational-Technical School.

ELKINS INSTITUTE OF HARTFORD, INC.

800 Silver Lane
East Hartford, CT 06118

Established: 1969
Tel: 528-9345

Approval: (See Page 5)
Approved by State Board of Education

General Admission Requirements:
High School graduate or equivalent (exceptions made); satisfactory intelligence test; personal interview; satisfactory monetary arrangements; student agreement.

Vocational Program:

Radio Operator Licensing: 6 weeks, 150 hours; full time day and evening; tuition $450; diploma awarded.

Student Body: 20.

ELLIS (HARVARD H.) REGIONAL VOCATIONAL-TECHNICAL SCHOOL

149 Maple Street
Danielson (Killingly) CT 06239

Established: 1913
Tel: 774-8511

Approval, Accreditation: (See Page 3)
(State operated)
Approved by New England Association of Colleges and Secondary Schools

General Admission Requirements: See Page 3

Regular Vocational Programs:

Automobile Mechanics

Aviation Mechanics (F.A.A. Approved)

Beauty Culture

Building Construction

Carpentry

Drafting, Aeronautical

Drafting, Architectural

Drafting, Machine

Electrical

Electronics, Industrial

Machine

Masonry

Tool & Die

ELLIS (HARVARD H.) REGIONAL VOCATIONAL-TECHNICAL SCHOOL (continued)

Student Body: 378.

ELM CITY BEAUTY ACADEMY, INC.

999 Dixwell Avenue
Hamden, CT 06514

Established: 1941
Tel: 562-2234

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A., F.I.S.L., and I.N.S. programs

General Admission Requirements: See Page 5

Special Admission Requirements:
Desire to work with public. Aptitude.

Vocational Program:

Hairdressing: 52 weeks, 2000 hours; full and part time, day and evening; tuition $800; diploma awarded.

Student Body: 30, some males.

FAIRFIELD HILLS HOSPITAL

P.O. Box 351
Newtown, CT 06470

Tel: 426-2531

Approval, Accreditation: (See Page 5)
(State operated)

General Admission Requirements:
Completion of 15 months in basic nursing program.

Vocational Program:

Nursing Student: 11 weeks, 320 hours; full time, day only; tuition - none.

Student Body: 34.

Special Information: Program affiliated with Bridgeport Hospital School of Nursing and Stamford Hospital School of Nursing.

FAIRFIELD UNIVERSITY

North Benson Road
Fairfield, CT 06430

Established: 1945
Tel: 255-5411

Approvals, Accreditation: (See Page 5)
Approved by Connecticut Real Estate Commission
Approved for V.A. and F.I.S.L. programs
Accredited by Connecticut Commission for Higher Education

Vocational Program:

Real Estate Principles and Practices: Program length 12 weeks, 30 hours; part time evening only; tuition $65; certificate awarded.

Student Body: 2,400; 25% female.

FAMOUS ARTISTS SCHOOLS, INC.

54 Wilton Road
Westport, CT 06880

Established: 1948
Tel: 227-8471

FAMOUS ARTISTS SCHOOLS, INC. (continued)

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Accredited by National Home Study Council

General Admission Requirements:
Self motivation, minimum age 16 years. Talent test, Aptitude Test, or evidence of ability.

Vocational Programs:

Commercial Art, Illustration and Design: 156 weeks, 1000-1500 hours; by correspondence; tuition $780; certificate awarded.

Fine Arts Painting: 156 weeks, 1000-1500 hours; by correspondence; tuition $780; certificate awarded.

Cartooning: 156 weeks, 1000-1500 hours; by correspondence; tuition $780; certificate awarded.

FAMOUS PHOTOGRAPHERS SCHOOL, INC.

54 Wilton Road
Westport, CT 06880
Established: 1948
Tel: 227-8471

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Accredited by National Home Study Council

General Admission Requirements:
Self motivation, minimum age 16 years. Talent Test, Aptitude Test, or evidence of ability.

Vocational Programs:

Fiction Writing: 156 weeks, 1000-1500 hours; by correspondence; tuition $780; certificate awarded.

Non-Fiction Writing: 156 weeks, 1000-1500 hours; by correspondence; tuition $780; certificate awarded.

Business Writing: 156 weeks, 1000-1500 hours; by correspondence; tuition $780; certificate awarded.

Advertising Writing: 156 weeks, 1000-1500 hours; by correspondence; tuition $780; certificate awarded.

Business Writing: 52 weeks, 750-1100 hours; by correspondence; tuition $385; certificate awarded.

Advertising Writing: 52 weeks, 750-1100 hours; by correspondence; tuition $385; certificate awarded.

Creative Writing: 78 weeks, 750-1100 hours; by correspondence; tuition $420; certificate awarded.

FAMOUS WRITERS SCHOOL, INC.

54 Wilton Road
Westport, CT 06880
Established: 1948
Tel: 227-8471

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Accredited by National Home Study Council

General Admission Requirements:
Self motivation, minimum age 18 years. Talent Test,

FAMOUS WRITERS SCHOOL, INC. (continued)

General Admission Requirements (continued):
Aptitude Test, or evidence of ability.

Vocational Programs:

Photography: 156 weeks, 1000-1500 hours; by correspondence; tuition $780; certificate awarded.

Advanced Photography: 78 weeks, 500-750 hours; by correspondence; tuition $420.

Professional Photography: 78 weeks, 500-750 hours; by correspondence; tuition $420.

FINE ARTS BEAUTY ACADEMY

91 South Main Street
Waterbury, CT 06702
Established: 1960
Tel: 756-1644

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Special Admission Requirements:
10th grade schooling

Vocational Program:

Hairdressing: 12-24 months, 2000 hours; full time day, and part time evening only; tuition $695.

Student Body: 40, some males.

GENERAL TRAINING SERVICE, INC.

733 Summer Street
Stamford, CT 06902
Established: 1963

Approval: (See Page 5)
Approved by State Board of Education

General Admission Requirements:
U. S. Citizen or have expressed intention to become one.

Special Admission Requirements:
Meet established educational, age, physical, etc. requirements for particular civil service position for which student expresses preference.

Vocational Program:

Civil Service Examination Training: by correspondence, tuition $275; certificate awarded.

GOODWIN (E.C.) REGIONAL VOCATIONAL-TECHNICAL SCHOOL

735 Slater Road
New Britain, CT 06053
Established: 1911
Tel: 225-7863

Approval, Accreditation: (See Page 3)
(State operated)

General Admission Requirements: See Page 3

Regular Vocational Programs:
(see next page)

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GOODWIN (E.C.) REGIONAL VOCATIONAL-TECHNICAL SCHOOL (continued)

Regular Vocational Programs: See Page 3

Automobile Mechanics

Baking

Beauty Culture

Carpentry

Drafting

Electrical

Electronics, Industrial

Fashion Design (Dressmaking)

Food Trades

Machine

Printing

Plumbing

Automatic Screw Machine

Tool & Die

Post Secondary Vocational Programs: See Page 3

Practical Nurse

Student Body: 791, 20% female.

Special Information: Practical Nurse program affiliation with Bristol and New Britain General Hospitals.

GRACE-NEW HAVEN SCHOOL OF NURSING

25 Park Street
New Haven, CT 06504

Established: 1895
Tel: 436-3334

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved by State Board of Nuraing Examiners
Approved for V.A. program
Accredited by National League for Nuraing

General Admission Requirementa:
High School graduate, with college preparation courae recommended; aatiafactory physical and dental examinationa, and protective immunizations; satiafactory referencea.

Vocational Program:

(Regiatered) Nurse: 119 weeka, 1295 houra; full time day; tuition $600.

Student Body: 76.

Special Information: Operatea residential facilitiea; program described exclusive of college credits, clinical experience, and other costs.

GREATER HARTFORD COMMUNITY COLLEGE

(see next column)

GREATER HARTFORD COMMUNITY COLLEGE (continued)

34 Sequaaaen Street
Hartford, CT 06106

Eatablished: 1967
Tel: 549-4200

Approval, Accreditation: (See Page 4)
(State operated)
Approval by New England Asaociation of Colleges and Secondary Schools pending
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 4

Vocational Programs:

Executive Secretary: Program length 64 weeks (2 yeara), 60 semester hours; full and part time, day and evening; tuition $169; associate degree awarded.

Legal Secretary: Program length 64 weeka (2 years), 60 semeater hours; full and part time, day and evening; tuition $169; associate degree awarded.

Medical Secretary: Program length 64 weeks (2 years), 60 semeater hours; full and part time, day and evening; tuition $169; associate degree awarded.

Management: Program length 64 weeks (2 yeara), 60 semeater hours; full and part time, day and evening; tuition $169; associate degree awarded.

Marketing: Program length 64 weeks (2 yeara), 60 semester hours; full and part time, day and evening; tuition $169; associate degree awarded.

Accounting: Program length 64 weeks (2 years) 60 semester hours; full and part time, day and evening; tuition $169; associate degree awarded.

Student Body: 1,221; 35% female.

Special Information: Residential facilities assistance provided.

GREENWICH HOSPITAL

Perryridge Road
Greenwich, CT 06830

Tel: 869-7000

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing

General Admisaion Requirements: See Page 5

Vocational Program:

Practical Nurse: one year, 2080 hours; full time; no tuition; diploma awarded.

Special Information: Program affiliated with J. M. Wright Regional Vocational-Technical School.

GREENWICH HOSPITAL SCHOOL OF NURSING

Perryridge Road
Greenwich, CT 06830

Established: 1906
Tel: 869-7000
Extension 276

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education

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GREENWICH HOSPITAL SCHOOL OF NURSING (continued)

Approvals, Accreditation (continued):
Approved by State Board of Examiners for Nursing
Approved for V.A. program
Accredited by National League for Nursing

General Admission Requirements:
Upper half of class rank in a college preparatory course in high school, including one year of chemistry; College Entrance Examination Boards - S.A.T. - total score acceptable to both University of Connecticut and Greenwich Hospital School of Nursing.

Vocational Program:

(Registered) Nurse: 120 weeks, 840 hours; full time day; tuition $2,400; diploma awarded.

Student Body: 68.

Special Information: Operates residential facilities.

GRIFFIN HOSPITAL (THE)

130 Division Street
Derby, CT 06418

Established: 1901
Tel: 735-7421

Vocational Programs:

(Registered) Nurse: Clinical training of University of Bridgeport and Quinnipiac College students only.

Medical Laboratory Technician: Clinical training of Housatonic Community College students only.

HANOVER SCHOOL OF MODELING

45 South Main Street
West Hartford, CT 06107

Established: 1920
Tel: 233-4166

General Admission Requirements:
Physical attributes.

Vocational Program:

Professional Model: 18 weeks, 18 hours; full and part time, day and evening; tuition $280; diploma awarded.

Student Body: 75

HARTFORD ACADEMY OF BUSINESS

Bishops Corner
West Hartford, CT 06117

Established: 1961
Tel: 236-2509

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by New England Business College Association and United Business School Association

General Admission Requirements:
High School diploma.

Special Admission Requirements: Aptitude.

Vocational Programs:

Legal Secretary: 32 weeks, 720 hours; full time

HARTFORD ACADEMY OF BUSINESS (continued)

Legal Secretary (continued):
day only; tuition $1,500; diploma awarded.

Executive Secretary: 32 weeks, 720 hours; full time day only; tuition $1,500; diploma awarded.

Medical Secretary: 32 weeks, 720 hours; full time day only; tuition $1,500; diploma awarded.

Fashion Secretary: 32 weeks, 720 hours; full time day only; tuition $1,500; diploma awarded.

Fashion Merchandising: 32 weeks, 720 hours; full time day only; tuition $1,500; diploma awarded.

Speedwriting/Shorthand: 10 weeks, 150 hours; full time, day and evening; tuition $365; certificate awarded.

Typing: 10 weeks, 100 hours; full time, day and evening; tuition $200; certificate awarded.

Student Body: 50, all females (summer school).

Special Information: Residential facilities assistance provided.

HARTFORD ACADEMY OF HAIRDRESSING

461 Farmington Avenue
Hartford, CT 06105

Established: 1922
Tel: 236-5461

Licensure, Approvals, Accreditation: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. and F.I.S.L. programs
Accredited: Cosmetology Accrediting Commission

General Admission Requirements: See Page 5

Vocational Program:

Hairdresser: 52 weeks, 2000 hours; full and part time, day and evening; tuition $970; diploma awarded.

Student Body: 109, 9% males.

HARTFORD HOSPITAL - SCHOOL OF ALLIED HEALTH

Hartford, CT 06115

Established: 1969
Tel: 524-2610

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing
Approved for V.A. program
Accredited by American Medical Association for Inhalation Therapy, Medical Technician, Certified Laboratory Assistance and X-ray programs

General Admission Requirements:
High School graduate.

Special Admission Requirements:
Medical Technician program candidates are required: 3 years of college, 16 credits in biology and chemistry, and 4 credits in mathematics;
Medical Laboratory Assistant program candidates are required: one year chemistry, one year biology and 2 years of college mathematics.

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HARTFORD HOSPITAL - SCHOOL OF ALLIED HEALTH (continued)

Vocational Programs:

Practical Nurse: 52 weeks, 535 hours; full time day; no tuition; diploma awarded.

Surgical Technician: 52 weeks, 392 hours; full time day; tuition $200; diploma awarded.

Radiological Technician: 104 weeks, 784 hours; full time day; tuition $200; diploma awarded.

Inhalation Therapy: 52 weeks, 392 hours; full time day; tuition $200; diploma awarded.

Medical Technician: 52 weeks, 2000 hours; full time day; diploma awarded.

Medical Laboratory Assistant: 52 weeks, 2000 hours; full time day; tuition $200; diploma awarded.

I.V. Technician: 52 weeks, 392 hours; full time day; diploma awarded.

Certified Inhalation Therapist Technician: 36 weeks, 288 hours; full time day; tuition $200; diploma awarded.

Student Body: 230, 5% male.

Special Information: Operates residential facilities. Practical Nurse program affiliated with A.I. Prince Regional Vocational-Technical School.

HARTFORD SECRETARIAL SCHOOL, INC.

19 Woodland Street
Hartford, CT 06105

Established: 1924
Tel: 522-2888

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements:
High School Diploma.

Vocational Programs:

Junior Secretary: 36 weeks, 900 hours; full time day, and part time evening only; tuition $1,400; diploma awarded.

Executive Secretary: 72 weeks, 1800 hours; full time day, and part time evening only; tuition $2,800; diploma awarded.

Legal Secretary: 72 weeks, 1800 hours; full time day, and part time evening only; tuition $2,800; diploma awarded.

Medical Secretary: 72 weeks, 1800 hours; full time day, and part time evening only; tuition $2,800; diploma awarded.

Student Body: 48, all females.

HARTFORD SCHOOL OF BALLET, INC.

308 Farmington Avenue
Hartford, CT 06105

Established: 1961
Tel: 525-9396

General Admission Requirements:
High School education and some dance training.

HARTFORD SCHOOL OF BALLET, INC. (continued)

Vocational Program:

Teacher Training: 16 weeks per semester, 560 hours; full and part time, day and evening; tuition $700 per semester; certificate awarded.

Student Body: 350, 8% male.

Special Information: Residential facilities assistance provided. High school program offered also.

HARTFORD STATE TECHNICAL COLLEGE

401 Flatbush Avenue
Hartford, CT 06106

Established: 1946
Tel: 527-4111

Approvals, Accreditation: (See Page 4)
(State operated)
Approved by Engineering Council for Professional Development
Approved by New England Association of Colleges and Secondary Schools
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 4

Vocational Programs:

Mechanical Technology: Program length 66 weeks, 1650 hours; full time day; tuition $115 per year; associate degree awarded.

Electrical Technology: Program length 66 weeks, 1650 hours; full time day; tuition $115 per year; associate degree awarded.

Civil Technology: Program length 66 weeks, 1650 hours; full time day; tuition $115 per year; associate degree awarded.

Data Processing Technology: Program length 66 weeks, 1650 hours; full time day; tuition $115 per year; associate degree awarded.

Tool & Manufacturing Technology: Program length 66 weeks, 1650 hours; full time day; tuition $115 per year; associate degree awarded.

Nuclear Technology: Program length 66 weeks, 1650 hours; full time day; tuition $115 per year; associate degree awarded.

Surveying: Program length 33 weeks, 726 hours; full time day; tuition $115 per year; certificate awarded.

Student Body: 606, 3% female.

Special Information: Residential facilities assistance provided. Programs run 33 weeks per year.

HARTFORD, UNIVERSITY OF

200 Bloomfield Avenue
West Hartford, CT 06117

Established: 1957
Tel: 523-4811

Approvals, Accreditations: (See Page 5)
Approved by Connecticut Real Estate Commission
Approved for V.A. and F.I.S.L. programs
Accredited by Connecticut Commission for Higher Education

HARTFORD, UNIVERSITY OF (continued)

Approvals, Accreditations (continued):
Accredited by New England Association of Colleges and Secondary Schools

Admission Requirements:
Accredited secondary school graduation, recommendation of the principal or guidance counselor.

Vocational Programs:

Biological Sciences: Program length 2 years; full and part time, day and evening; tuition $1,875 per year; associate degree awarded.

Physical Sciences: Program length 2 years; full and part time, day and evening; tuition $1,875 per year; associate degree awarded.

Social Sciences: Program length 2 years; full and part time, day and evening; tuition $1,875 per year; associate degree awarded.

Communication Arts: Program length 2 years; full and part time, day and evening; tuition $1,875 per year; associate degree awarded.

Teacher's Aide: Program length 2 years; full and part time, day and evening; tuition $1,875 per year; associate degree awarded.

Executive Secretary: Program length 2 years; full and part time, day and evening; associate degree awarded.

Medical Secretary: Program length 2 years; full and part time, day and evening; associate degree awarded.

Accounting: Program length 2 years; full and part time, day and evening; tuition $1,875 per year; associate degree awarded.

Economics & Finance: Program length 2 years; full and part time, day and evening; tuition $1,875 per year; associate degree awarded.

Management: Program length 2 years; full and part time, day and evening; tuition $1,875 per year; associate degree awarded.

Marketing: Program length 2 years; full and part time, day and evening; tuition $1,875 per year; associate degree awarded.

Engineering: Program length 2 years; full and part time, day and evening; tuition $1,875 per year; associate degree awarded.

Real Estate Principles and Practices: 12 weeks, 24 hours; part time evenings only; tuition $85; certificate awarded (non credit).

Student Body: Approx. 7,000.

Special Information: Operates residential facilities. Secretarial programs being phased out.

HOUSATONIC COMMUNITY COLLEGE

510 Barnum Avenue
Bridgeport, CT 06608

Established: 1965
Tel: 366-8201

Approval, Accreditation: (see next column)

HOUSATONIC COMMUNITY COLLEGE (continued)

Approval, Accreditation: (See Page 4)
(State operated)
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 4

Vocational Programs:

Accounting: Program length 64 weeks (2 years), 60 semester hours; full and part time, day and evening; tuition $180 per year; associate degree awarded.

Secretarial Science: Program length 64 weeks (2 years), 60 semester hours; full and part time, day and evening; tuition $180 per year; associate degree awarded.

Business Administration: Program length 64 weeks (2 years), 60 semester hours; full and part time, day and evening; tuition $180 per year; associate degree awarded.

Medical Laboratory Technician: Program length 72 weeks (2 years), 62 semester hours; full time only; tuition $180 per year; associate degree awarded.

Urban Professional Assistant: Program length 64 weeks (2 years), 62 semester hours; full and part time, day and evening; tuition $180 per year; associate degree awarded.

Child Care: Program length 64 weeks (2 years), 60 semester hours; full time day only; tuition $180 per year; associate degree awarded.

Library Technical Assistant: Program length 64 weeks (2 years), 61 semester hours; full and part time, day and evening; tuition $180 per year; associate degree awarded.

Law Enforcement: Program length 64 weeks (2 years), 60 semester hours; full and part time, day and evening; tuition $180 per year; associate degree awarded.

Hospital Administrative Aide: Program length 64 weeks (2 years), 65 semester hours; full and part time, day and evening; tuition $180 per year; associate degree awarded.

Nursing Home Administrator: Program length 64 weeks (2 years), 62 semester hours; full and part time, day and evening; tuition $180 per year; associate degree awarded.

Student Body: 2,193; 38% female.

Special Information: Medical Laboratory Technical program affiliated with Bridgeport Hospital, accredited by American Society of Clinical Pathologists.

HOYT AND GULLIVER SCHOOL (THE)

215 Main Street
Danbury, CT 06810

Established: 1971
Tel: 748-4928

General Admission Requirements: Aptitude.

Vocational Program: (see next page)

HOYT AND GULLIVER SCHOOL (THE) (continued)

Vocational Program:

Model: 6 or 10 weeks, 15 hours; part time evening only; tuition $250.

IBM EDUCATIONAL CENTER

1049 Asylum Avenue
Hartford, CT 06105 Tel: 249-8601

Approval: (See Page 5)
Approved by State Board of Education

General Admission Requirements:
Normally limited to own and customer personnel.

Vocational Programs:

Business Data Processing and Management

Scientific Data Processing and Management

INSTITUTE OF LIVING

400 Washington Street Established: 1822
Hartford, CT 06106 Tel: 278-7950

General Admission Requirements:
High School graduate or equivalency, 18 years minimum age, interest in program, willingness to work on varying rotating shifts.

Special Admission Requirements:
Program limited to employees.

Vocational Program:

Psychiatric Aide: 12 weeks, 480 hours; full time day, and sometimes part time evening only; no tuition.

Student Body: 15, 33% male.

Special Information: Operates residential facilities (for single employees only).

INTERNATIONAL SCHOOL OF AERONAUTICS - DIV. ALPINE AIRWAYS

Robertson Airport Established: 1962
Johnson Avenue Tel: 747-5316
Plainville, CT 06062

Approvals: (See Page 5)
Approved by F.A.A.
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Vocational Programs:

Commercial Pilot: Program length 50 weeks, 160 hours; full and part time, day and evening; tuition $4,400; certificate awarded.

Flight Instructor: Program length 10 weeks, 25 hours; full and part time, day and evening; tuition $750; certificate awarded.

Student Body: 80, some females.

INTERNATIONAL SCHOOL OF AERONAUTICS - DIV. ALPINE AIRWAYS (continued)

Special Information:
Additional pilot programs offered.

INTERSTATE AVIATION, INC.

Johnson Avenue Established: 1970
Plainville, CT 06062 Tel: 747-6500

Approvals: (See Page 5)
Approved by F.A.A.
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Vocational Programs:

Commercial Pilot: Program length 20 weeks, 170 hours; full and part time, day and evening; tuition $2,035; diploma awarded.

Flight Instructor: Program length 10 weeks, 45 hours; full and part time, day and evening; tuition $600; diploma awarded.

Student Body: 100, some females.

Special Information: Additional pilot and instructor programs offered. Residential facilities assistance provided.

JOHNSON (MARY) SEWING STUDIO, INC.

56 Wall Street Established: 1968
Madison, CT 06443 Tel: 245-7820

Approval: (See Page 5)
Approved by State Board of Education

General Admission Requirements:
High School diploma or equivalent, pass written examination, sewing ability.

Special Admission Requirements:
Must be employed by or own Mary Johnson Sewing School Franchise.

Vocational Program:

Sewing Instructor: 3 weeks, 105 hours; full time day only; tuition $880; certificate awarded.

Special Information:
Residential facilities assistance provided.

JOHNSON MEMORIAL HOSPITAL

37 East Street
Stafford Springs, CT 06076 Tel: 684-4251

Vocational Program:

Operating Room Technician: Not offered on a regularly scheduled basis.

JOSEPH LAWRENCE SCHOOL OF NURSING (THE) (see next page)
(Lawrence & Memorial Hospitals)

JOSEPH LAWRENCE SCHOOL OF NURSING (THE) (continued)
(Lawrence & Memorial Hospitals)

New London, CT 06320 — Established: 1913
Tel: 442-0711

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing
Approved for V.A. program
Accredited by National League for Nursing

General Admission Requirements:
Applicants should be at least 17 years old at the time of entrance. Applicant must be enrolled in or have graduated from an approved secondary school, or present evidence of equivalent acceptable preparation. Applicant should rank in the upper half of the high school class. College Entrance Examination Boards are required - total score 800.

Vocational Program:

(Registered) Nurse: 108 weeks, 2807 hours; full and part time, day only; tuition $1,250; diploma awarded.

Student Body: 138, 6% male.

Special Information: Operates residential facilities.

KAVULA (M.) INSTITUTE OF HAIR DESIGN

157 East Main Street
Waterbury, CT 06702 — Established: 1956
Tel: 756-7836

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Special Admission Requirements:
Knowledge of English language, congeniality and desire to work on hair.

Vocational Program:

Hairdressing & Cosmetology: 50 weeks, 2000 hours; full and part time, day and evening; tuition $600; diploma awarded.

Student Body: Approx. 60, some males.

Special Information: Residential facilities assistance provided.

KAYNOR (WARREN F.) REGIONAL VOCATIONAL-TECHNICAL SCHOOL

43 Tompkins Street
Waterbury, CT 06708 — Established: 1953
Tel: 754-4188

Approval, Accreditation: (See Page 3)
(State operated)
Approved by New England Association of Colleges and Secondary Schools

General Admission Requirements: See Page 3

Regular Vocational Programs: See Page 3

Automobile Body Repair

KAYNOR (WARREN F.) REGIONAL VOCATIONAL-TECHNICAL SCHOOL (continued)

Regular Vocational Programs (continued):

Automobile Mechanics

Beauty Culture

Carpentry

Drafting, Machine

Electrical

Electronics, Industrial

Fashion Design

Machine

Tool & Die

Post Secondary Vocational Programs: See Page 3

Practical Nurse

Student Body: 618, 20% female.

Special Information: Practical Nurse program affiliation with St. Mary's and Waterbury Hospitals.

LAUREL HEIGHTS HOSPITAL

Sheltor, CT 06484 — Established: 1910
Tel: 734-2593

Approval, Accreditation: (See Page 5)
(State operated)

General Admission Requirements:
High School senior.

Vocational Programs:

Nurse Aide: 42 weeks, 210 hours; full time day; certificate awarded.

Food Service Training: 42 weeks, 210 hours; part time day only.

Student Body: 51, 25% male.

LAUREL OF CONNECTICUT

147 West Main Street
Meriden, CT 06450 — Established: 1920
Tel: 235-0043

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements:
High School diploma or equivalent.

Special Admission Requirements:
Prerequisite course and grade attainments for most programs.

Vocational Programs:

One Year Secretarial: 32 weeks, 512 hours;
(see next page)

LAUREL OF CONNECTICUT (continued)

One Year Secretarial (continued): full and part time, day and evening; tuition $995; certificate awarded.

Legal Secretary: 64 weeks, 1024 hours; full and part time, day and evening; tuition $1,990; diploma awarded.

Executive Secretary: 64 weeks, 1024 hours; full and part time, day and evening; tuition $1,990; diploma awarded.

Medical Secretary: 64 weeks, 1024 hours; full and part time, day and evening; tuition $1,990; diploma awarded.

One Year Accounting: 32 weeks, 512 hours; full and part time, day and evening; tuition $995; certificate awarded.

Accounting Science: 64 weeks, 1024 hours; full and part time, day and evening; tuition $1,990; diploma awarded.

One Year Data Processing: 32 weeks, 512 hours; full and part time, day and evening; tuition $995; certificate awarded.

Data Processing Science: 64 weeks, 1024 hours; full and part time, day and evening; tuition $1,990; diploma awarded.

Student Body: 134.

Special Information: Operates residential facilities.

LAWRENCE AND MEMORIAL HOSPITALS

365 Montauk Avenue
New London, CT 06320

Established: 1912
Tel: 442-0711

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by American Medical Association Council on Medical Education

General Admission Requirements:
High School diploma or equivalent, good scholastic record, good health.

Special Admission Requirements:
Appropriate group insurance must be carried.

Vocational Programs:

Radiologic Technologist: 2 years, no tuition.

Surgical Technician: 1 year, no tuition; certificate awarded.

Special Information: Operates limited residential facilities.

LAWRENCE AND MEMORIAL HOSPITALS SCHOOL OF INHALATION THERAPY TECHNICIANS

365 Montauk Avenue
New London, CT 06320

Approval: (see next column)

LAWRENCE AND MEMORIAL HOSPITALS SCHOOL OF INHALATION THERAPY TECHNICIANS (continued)

Approval: (See Page 5)
Approved by State Board of Education

General Admission Requirements:
High School graduate, submission of transcript, satisfactory physical examination, interest in program and work.

Special Admission Requirements:
Group insurance must be carried.

Vocational Programs:

Inhalation Therapist: 2 years; variable schedule; certificate awarded.

Inhalation Therapist Technician: 1 year, variable schedule; certificate awarded.

Special Information: Operates limited residential facilities. Inhalation Therapist program affiliated with Manchester Community College.

LAWRENCE AND MEMORIAL HOSPITALS SCHOOL OF LABORATORY ASSISTANTS

365 Montauk Avenue
New London, CT 06320

Tel: 442-0711

General Admission Requirements:
High School graduate, submission of transcript, aptitude in mathematics and science preferred, medical examination.

Special Admission Requirements:
Hospitalization insurance must be carried.

Vocational Program:

(Certified) Laboratory Assistant: 12 months, variable schedule; no tuition; certificate awarded.

Special Information: Operates limited residential facilities.

LAWRENCE AND MEMORIAL HOSPITALS SCHOOL FOR NURSE ANESTHETISTS

365 Montauk Avenue
New London, CT 06320

Established: 1962
Tel: 442-0711

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by American Association of Nurse Anesthetists

General Admission Requirements:
Graduation from a recognized School of Nursing, submission of transcript.

Special Admission Requirements:
Hospitalization insurance must be carried.

Vocational Program:

Nurse Anesthetist: 18 months, 250 hours academic; variable schedule; tuition $60; diploma awarded.

Student Body: 4-6 per year. (continued next page)

LAWRENCE AND MEMORIAL HOSPITALS
SCHOOL FOR NURSE ANESTHETISTS (continued)

Special Information: Co-ed program. Operates limited residential facilities.

LEE JOHNSON SCHOOL OF BUSINESS

606 West Avenue — Established: 1960
Norwalk, CT 06850 — Tel: 838-4365

Approvals: (See Page 5)
Approved by State Board of Education
Approved for Connecticut Real Estate Commission program.

General Admission Requirements:
High School diploma or equivalent, exceptions made for special courses or subjects.

Vocational Programs:

Stenographic-Secretarial: 24 weeks, 580 hours; full time day only; tuition $720.

Stenographic: 12 weeks, 300 hours; full time day only; tuition $350.

Speedwriting: 12 weeks, 280 hours; full time day only; tuition $200.

Clerk-Typist: 24 weeks; full time day only; tuition $500.

Stenographic: 24 weeks, 128 hours; part time evening only; tuition $280.

Speedwriting: 16 weeks, 96 hours; part time evening only; tuition $200.

Typing: 16 weeks, 64 hours; part time evening only; tuition $150.

Real Estate: 8 weeks, 32 hours; part time evening only; tuition $100; certificate awarded.

Student Body: 55, 20% male.

Special Information: Brush-up courses offered also.

LEON INSTITUTE OF HAIR DESIGN - BRIDGEPORT

111 Wall Street — Established: 1933
Bridgeport, CT 06603 — Tel: 335-6412

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. and Social Security Division, State Rehabilitation programs

General Admission Requirements: See Page 5

Special Admission Requirements:
Aptitude for hairdressing.

Vocational Program:

Hairdressing & Cosmetology: 54 weeks, 2000 hours; full and part time, day and evening; tuition $575; diploma awarded.

Student Body: 60, 10% male.

Special Information: (see next column)

LEON INSTITUTE OF HAIR DESIGN - BRIDGEPORT (continued)

Special Information: Residential facilities assistance provided.

LEON INSTITUTE OF HAIR DESIGN - STAMFORD

91 Atlantic Street — Established: 1941
Stamford, CT 06904 — Tel: 325-3900

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Special Admission Requirements:
Aptitude, 9th grade.

Vocational Program:

Hairdressing: 52 weeks, 2000 hours; full and part time, day and evening; tuition $650; diploma awarded.

Student Body: 25, 50% male.

MANCHESTER COMMUNITY COLLEGE

146 Hartford Road — Established: 1963
Manchester, CT 06040 — Tel: 647-9951

Approvals, Accreditation: (See Page 4)
(State operated)
Approved by Connecticut Real Estate Commission
Approval by New England Association of Colleges and Secondary Schools pending
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 4

Vocational Programs:

Inhalation Therapist: Program length 80 weeks (2 years), 1870 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Medical Laboratory Technician: Program length 80 weeks (2 years), 1775 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Occupational Therapist Assistant: Program length 60 weeks (2 years), 930 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Surgical Technician: Program length 80 weeks (2 years), 1735 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Accounting: Program length 64 weeks (2 years), 992 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Business Administration: Program length 64 weeks (2 years), 992 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Data Processing: Program length 64 weeks (2 years), 1024 hours; full and part time, day and evening; tuition $200; associate degree awarded.

MANCHESTER COMMUNITY COLLEGE (continued)

Vocational Programs (continued):

Marketing: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Hotel & Food Service Management: Program length 72 weeks (2 years), 1424 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Dental Office Assistant: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Executive Secretarial: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Legal Secretarial: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Medical Office Assistant: Program length 64 weeks (2 years), 992 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Secretarial Service: Program length 64 weeks (2 years), 992 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Bilingual Secretary (Spanish): Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Law Enforcement: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Corrections: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Public Service: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Educational Associate: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $200; associate degree awarded.

Educational Assistant: Program length 32 weeks (1 year), 480 hours; full and part time, day and evening; tuition $100; certificate awarded.

Student Body: 2,641; 35% female.

Special Information: Inhalation Therapist program affiliated with Lawrence and Memorial Hospitals, School of Inhalation Therapy.

MANCHESTER MEMORIAL HOSPITAL SCHOOL OF RADIOLOGY

71 Haynes Street
Manchester, CT 06040

Established: 1957
Tel: 646-1222

(see next column)

MANCHESTER MEMORIAL HOSPITAL SCHOOL OF RADIOLOGY (continued)

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by American Medical Association and American Registry of X-ray Technicians

General Admission Requirements:
High School diploma.

Vocational Program:

X-ray Technician: 100 weeks, 4000 hours; full time, day and evening; certificate awarded.

Student Body: 14, 20% male.

MATTATUCK COMMUNITY COLLEGE

236 Grand Street
Waterbury, CT 06702

Established: 1967
Tel: 757-9661

Approvals, Accreditation: (See Page 4)
(State operated)
Approved by Connecticut Real Estate Commission
Approval by New England Association of Colleges and Secondary Schools pending

Admission Requirements: See Page 4

Vocational Programs:

Business Administration Accounting: Program length 64 weeks (2 years), 992 hours; full and part time, day and evening; tuition $100; associate degree awarded.

Business Administration Management: Program length 64 weeks (2 years), 992 hours; full and part time, day and evening; tuition $100; associate degree awarded.

Business Administration Marketing: Program length 64 weeks (2 years), 992 hours; full and part time, day and evening; tuition $100; associate degree awarded.

Business Administration Real Estate/Finance: Program length 64 weeks (2 years), 992 hours; full and part time, day and evening; tuition $100; associate degree awarded.

Executive Secretarial: Program length 64 weeks (2 years), 976 hours; full and part time, day and evening; tuition $100; associate degree awarded.

Mental Health Worker: Program length 64 weeks (2 years), 1104 hours; full and part time, day and evening; tuition $100; associate degree awarded.

Police Science and Administration: Program length 64 weeks (2 years), 976 hours; full and part time, day and evening; tuition $100; associate degree awarded.

Radiologic Technology: Program length 64 weeks (2 years), 1072 hours; full and part time, day and evening; tuition $100; associate degree awarded.

(see next page)

MATTATUCK COMMUNITY COLLEGE (continued)

Vocational Programs (continued):

Social Service Aide: Program length 64 week (2 years), 2072 hours; full and part time, day and evening; tuition $100.

Student Body: 1,733; 45% female.

Special Information: Radiologic Technology program in cooperation with St. Mary's and Waterbury Hospitals.

MERIDEN AIRWAYS - AIR SERVICE, INC.

213 Evansville Avenue
South Meriden, CT 06450

Established: 1964
Tel: 235-3383

Approvals: (See Page 5)
Approved by F.A.A.
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Vocational Program:

Commercial Pilot: Program length 24 weeks, 260 hours; full and part time, day and evening; tuition $3,800; diploma awarded.

Student Body: 40, some females.

Special Information: Additional pilot programs offered.

MERIDEN-WALLINGFORD HOSPITAL
CERTIFIED LABORATORY ASSISTANT SCHOOL

181 Cook Avenue
Meriden, CT 06450

Established: 1892
Tel: 238-0771

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by American Medical Association, American Society of Clinical Pathologists

General Admission Requirements:
High School graduation.

Vocstionsl Program:

(Certified) Laboratory Assistant: 52 weeks, 2000 hours; full time day; tuition - none; certificate awarded.

Student Body: 78, in all schools.

Special Information: Operates residential facilities.

MERIDEN-WALLINGFORD HOSPITAL
SCHOOL OF NURSING

181 Cook Avenue
Meriden, CT 06450

Established: 1892
Tel: 238-0771

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing
Approved for V.A. program
Accredited by National League for Nursing

MERIDEN-WALLINGFORD HOSPITAL
SCHOOL OF NURSING (continued)

General Admission Requirements:
High School graduation, SAT minimal composite score of 850.

Vocational Program:

(Registered) Nurse: 120 weeks, 3549 hours; full time day; tuition $2,100; diploma awarded.

Student Body: 78, in all schools.

Special Information: Operates residential facilities.

MERIDEN-WALLINGFORD HOSPITAL
SCHOOL OF RADIOLOGIC TECHNOLOGY

181 Cook Avenue
Meriden, CT 06450

Established: 1892
Tel: 238-0771

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by American Medical Association, American Society of Radiologic Technologists

General Admission Requirements:
High School graduation, upper 50% of class, SAT composite 850 minimum.

Vocational Program:

Radiologic Technologist: 100 weeks, 4000 hours; full time day; tuition $200; certificate awarded.

Student Body: 78, in all schools.

Special Information: Operates residential facilities.

MERRILL BUSINESS SCHOOLS (THE)

227 Bedford Street
Stamford, CT 06902

Estsblished: 1888
Tel: 323-1444

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. and I.N.S. programs
Approved by New England Business College Association and United Business School Association

General Admission Requirements:
High School diploma required for Day School courses.

Vocational Programs:

Executive Secretary: 26+ weeks, 620 hours; full time day only; tuition $975; diploma awarded.

Medical Secretary: 26+ weeks, 620 hours; full time day only; tuition $975; diploma awarded.

Legal Secretary: 26+ weeks, 620 hours; full time day only; tuition $975; diploma awarded.

Business Preparation: 26+ weeks, 620 hours; full time day only; tuition $975; diploma awarded.

Shorthand & Typing: 8 months; part time evening only; tuition $295; certificate awarded.

(see next page)

MERRILL BUSINESS SCHOOLS (THE) (continued)

Vocational Programs (continued):

Typing & Dictaphone: 5 months; part time evening only; tuition $200; certificate awarded.

Typewriting: 5 months; part time evening only; tuition $175; certificate awarded.

Bookkeeping & Accounting: 8 months; part time evening only; tuition $325; certificate awarded.

Student Body: 80% female, 20% male.

Special Information: Residential facilities assistance provided. Brush-up courses offered also.

MIDDLESEX COMMUNITY COLLEGE

425 Huntington Hill Avenue
Middletown, CT 06457

Established: 1966
Tel: 347-7411

Approval, Accreditation: (See Page 4)
(State operated)
Approval by New England Association of Colleges and Secondary Schools pending
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 4

Vocational Programs:

Accounting: Program length 2 years, 60 semester hours; full and part time evening only; associate degree awarded.

Business Administration: Program length 2 years, 60 semester hours; full and part time evening only; associate degree awarded.

Marketing: Program length 2 years, 60 semester hours; full and part time evening only; associate degree awarded.

Environmental Health: Program length 2 years, 64 semester hours; full and part time evening only; associate degree awarded.

Government Service: Program length 2 years, 60 semester hours; full and part time evening only; associate degree awarded.

Radiologic Technologist: Program length 2 years, 62 semester hours; full and part time day only; associate degree awarded.

Executive Secretary: Program length 2 years, 60 semester hours; full and part time evening only; associate degree awarded.

Legal Secretary: Program length 2 years, 60 semester hours; full and part time evening only; associate degree awarded.

Medical Secretary: Program length 2 years, 60 semester hours; full and part time evening only; associate degree awarded.

Student Body: 1,422; 40% female.

Special Information: Radiologic Technologist program affiliated with Middlesex Memorial Hospital, School of Radiologic Technology.

MIDDLESEX MEMORIAL HOSPITAL

28 Crescent Street
Middletown, CT 06457

Establlshed: 1966
Tel: 346-9667

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing

General Admission Requirements:
High School graduation or High School equivalency. After 20 years of age, 2 years of high school or the equivalent, good health, P.A.C.E. 50%ile OTIS 95.

Vocational Program:

Practical Nurse: 52 weeks, 1840 hours; full time day only; no tuition; certificate awarded.

Student Body: 41.

Special Information: Operates residential facilities on emergency basis. Program affiliated with Vinal Regional Vocational-Technical School.

MIDDLESEX MEMORIAL HOSPITAL
SCHOOL OF RADIOLOGIC TECHNOLOGY

28 Crescent Street
Middletown, CT 06457

Established: 1959
Tel: 347-9471

Approval, Accreditations: (See Page 5)
Approved by State Board of Education
Accredited by American Medical Association Council on Medical Education, American College of Radiology and American Society of Radiologic Technologists

General Admission Requirements:
High School graduate, preferably with college preparatory and science courses.

Vocational Program:

Radiologic Technologist: 116 weeks, including 4 semesters of college, 2400 hours minimum; full time day and evening; tuition approx. $400; certificate awarded by hospital.

Student Body: 15; 20% male.

Special Information: Operates residential facilities. Combined program completed in 27 months affiliated with Middlesex Community College.

MISS BETTE'S SCHOOL OF HAIRDRESSING

1194 Main Street
Bridgeport, CT 06603

Established: 1963
Tel: 335-6417

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Special Admission Requirements:
10th grade schooling.

Vocational Program:

Hairdresser: 52 weeks, 2000 hours; full time day, and part time day and evening only; tuition $475; diploma awarded.

MISS BETTE'S SCHOOL OF HAIRDRESSING (continued)

Student Body: 25, some males.

Special Information: Residential facilities assistance provided.

MITCHELL COLLEGE

437 Pequot Avenue
New London, CT 06320

Established: 1938
Tel: 443-2811

Approvals, Accreditation: (See Page 5)
Approved by New England Association of Colleges and Secondary Schools
Approved for V.A. program
Accredited by Connecticut Commission for Higher Education

Admission Requirements:
High School diploma, acceptable college boards, prerequisite courses dependent upon programs.

Vocational Programs:

Executive Secretary: Program length 2 years; full and part time day; tuition $1,800 per year; associate degree awarded.

Engineering Aide: Program length 2 years; full and part time, day and evening; tuition $1,800 per year; associate degree awarded.

Life Science Aide: Program length 2 years; full and part time day; tuition $1,800 per year; associate degree awarded.

Physical Education: Program length 2 years; full and part time day; tuition $1,800 per year; associate degree awarded.

Social Work Aide: Program length 2 years; full and part time day; tuition $1,800 per year; associate degree awarded.

Business Administration: Program length 2 years; full and part time day; tuition $1,800 per year; associate degree awarded.

Instructional Aide: Program length 2 years; full and part time day; tuition $1,800 per year; associate degree awarded.

Student Body: 1,318; 35% female.

Special Information: Operates residential facilities.

MOHEGAN COMMUNITY COLLEGE

34 Shetucket Street
Norwich, CT 06360

Established: 1970
Tel: 889-3391

Approval, Accreditation: (See Page 4)
(State operated)
Approval by New England Association of Colleges and Secondary Schools pending
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 4

Vocational Programs:
(see next column)

MOHEGAN COMMUNITY COLLEGE (continued)

Vocational Programs:

Accounting: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $100 per semester; associate degree awarded.

Business Administration: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $100 per semester; associate degree awarded.

Executive Secretarial: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $100 per semester; associate degree awarded.

Secretarial Science: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $100 per semester; associate degree awarded.

Marketing: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $100 per semester; associate degree awarded.

Management: Program length 64 weeks (2 years), 960 hours; full and part time, day and evening; tuition $100 per semester; associate degree awarded.

Law Enforcement: Program length 64 weeks (2 years), 960 hours; part time evening only; tuition $100 per semester; associate degree awarded.

Nursing: Program length 64 weeks (2 years), 960 hours; tuition $100 per semester; associate degree awarded.

Dental Hygiene: Program length 64 weeks (2 years), 960 hours; tuition $100 per semester; associate degree awarded.

Student Body: 732, 43% female.

Special Information: New Nursing and Dental Hygiene programs to start September 1972.

MORSE OF HARTFORD, INC.

183 Ann Street
Hartford, CT 06103

Established: 1860
Tel: 522-2261

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A. and F.I.S.L. programs
Accredited by Accrediting Commission for Business Schools

General Admission Requirements:
High School diploma or equivalent, interview.

Vocational Programs:

Accounting: 64 weeks; full time day only; tuition $1,450 per year; diploma awarded.

Marketing Management: 64 weeks; full time day only; tuition $1,450 per year; diploma awarded.

Data Processing: 64 weeks; full time day only; tuition $1,450 per year; diploma awarded.
(see next page)

MOR

MORSE OF HARTFORD, INC. (continued)

Vocational Programs (continued):

Secretarial: 64 weeks; full time day only; tuition $1,450 per year; diploma awarded.

Secretarial: 32 weeks; full time day only; tuition $1,450 per year; diploma awarded.

Merchandising: 64 weeks; full time day only; tuition $1,450 per year; diploma awarded.

Secretarial Training: 36 weeks, 180 hours; part time day only; tuition $420; certificate awarded.

Data Processing: 36 weeks, 270 hours; part time day only; tuition $1,190; certificate awarded.

Student Body: 140.

Special Information: Residential facilities assistance provided. School year is 32 weeks.

MOUNT SINAI HOSPITAL

500 Blue Hills Avenue
Hartford, CT 06112

Established: 1923
Tel: 243-1441

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by American Registry of Radiologic Technologists and American Society of Radiologic Technologists

General Admission Requirements:
High School graduate.

Special Admission Requirements:
Background in biology and science.

Vocational Program:

Radiologic Technologist: 104 weeks, 486 hours; full time day only; no tuition; certificate awarded.

Student Body: 10; 20% male.

Special Information: Residential facilities assistance provided.

NAEBM-WESTLAWN SCHOOL OF YACHT DESIGN

537 Steamboat Road
Greenwich, CT 06830

Established: 1930
Tel: 661-4800

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Accredited by National Home Study Council

General Admission Requirements:
2 years of mathematics.

Vocational Program:

Yacht Designer: 2000 hours; by correspondence; tuition $490; diploma awarded.

NATIONAL ACADEMY OF HAIRDRESSING - BRIDGEPORT

41 Cannon Street
Bridgeport, CT 06603

Established: 1959
Tel: 334-2937

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A., F.I.S.L., and I.N.S. programs

General Admission Requirements: See Page 5

Special Admission Requirements:
Aptitude. Desire to work with public.

Vocational Program:

Hairdressing: 52 weeks, 2000 hours; full and part time, day and evening; tuition $575; diploma awarded.

Student Body: 50; 10% male.

NATIONAL ACADEMY OF HAIRDRESSING - NEW BRITAIN

103 West Main Street
New Britain, CT 06051

Established: 1961
Tel: 229-5375

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A., F.I.S.L., and I.N.S. programs

General Admission Requirements: See Page 5

Special Admission Requirements:
Aptitude. Desire to work with public.

Vocational Program:

Hairdressing: 52 weeks, 2000 hours; full and part time, day and evening; tuition $795; diploma awarded.

Student Body: 50, some males.

NATIONAL ACADEMY OF HAIRDRESSING - SOUTH NORWALK

17 South Main Street
South Norwalk, CT 06853

Established: 1963
Tel: 838-0753

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A., F.I.S.L., and I.N.S. programs

General Admission Requirements: See Page 5

Special Admission Requirements:
Aptitude. Desire to work with public.

Student Body: 20, some males. (Program: See Addenda, Pg.66)

NATIONAL ACADEMY OF HAIRDRESSING - STAMFORD

230 Atlantic Street
Stamford, CT 06901

Established: 1957
Tel: 348-9300

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. and F.I.S.L. programs

NATIONAL ACADEMY OF HAIRDRESSING - STAMFORD (continued)

General Admisaion Requirementa: See Page 5

Vocational Program:

Hairdreaaing & Cosmetology: 52 weeka, 2000 hours; full time evening, and part time day only; tuition $650; diploma awarded.

Student Body: 30.

NATIONAL TRAINING SERVICE, INC.

34 East Putnam Avenue
Greenwich, CT 06830

Eatabliahed: 1952
Tel: 869-1712

Approvala: (See Page 5)
Approved by State Board of Education
Approved by American Council on Schoola and Collegea

General Admiaion Requirementa:
U. S. Citizen, 16 years minimum, able to read and write.

Vocational Programs: See Page 3

Advertiaing

Auto Mechanica

Buaineaa Management

Civil Service

Cartooning

Computer Programming

Coat Accountant

Drafting

Electricity

Electronic Technician

Home Contractor

Hotel-Motel

Inaurance Adjuater

Induatrial Electronica

Junior Accountant

Machine Shop Practices

Perannnel Management

Refrigeration, Air Conditioning

Salea Management

Salesmanship

Shop & Window Display

Welding Technology

Special Information: Correapondence couraea only.

NEW

NEW BRITAIN GENERAL HOSPITAL (THE)

92 Grand Street
New Britain, CT 06052

Eatabliahed: 1966 (1)
1967 (2)
Tel: 224-5291
224-5516

Approvals: (See Page 5)
Approved by State Board of Education (1)
Approved by State Board of Examinera for Nuraing (1)
Approved for Manpower Training Program (2)

General Admiaion Requirementa:
4 years high school if 20 or under, 2 yeara if over 20; Otia teat acore of 95 or above; good phyaical health for Nuraing program, high school diploma or equivalent for ORT program.

Special Admiaaion Requirementa:
National League of Nursing examination 50% acore minimum, aa appropriate.

Vocational Programs:

Practical Nurse (1): 1 year, 1928 houra; full time day; no tuition; diploma awarded.

Operating Room Technician (2): 52 weeka, 2080 houra; full time day only; no tuition; certificate awarded.

Student Body: 27; 15% male.

Special Information: Nuraing program affiliated with E. C. Goodwin Regional Vocational-Technical School.

NEW BRITAIN GENERAL HOSPITAL (THE)
SCHOOL OF INHALATION THERAPY

92 Grand Street
New Britain, CT 06050

Eatabliahed: 1966
Tel: 224-5264

Approvala: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by American Medical Aaaociation Council on Medical Education

General Admiaaion Requirementa:
High School graduation with two science couraea, peraonal interview and evaluation, three lettera of reference.

Vocational Program:

Inhalation Therapy Technician: 50 weeka, 1900 hours; full time day; tuition $200; diploma awarded.

Student Body: 12; 50% male.

Special Information: Operates residential facilitiea.

NEW BRITAIN GENERAL HOSPITAL (THE)
SCHOOL OF NURSING

92 Grand Street
New Britain, CT 06050

Eatabliahed: 1917
Tel: 224-5604

Approvala, Accreditation: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nuraing
Approved for V.A. and I.N.S. programs
Accredited by National League for Nuraing

NEW

NEW BRITAIN GENERAL HOSPITAL (THE) (continued)
SCHOOL OF NURSING

General Admission Requirements:
High School graduation with college preparatory courses, rank in upper half; CEEB results total minimum 800; PACE nursing examination results at 50 percentile; good physical and mental health.

Vocational Program:

Professional Nurse: 112 weeks (3 years), 1263 hours; full time day only; tuition $2,095; diploma awarded.

Student Body: 83; 13% male.

Special Information: Operates residential facilities.

NEW ENGLAND SCHOOL OF HAIRDRESSING, INC.

684 Main Street
Middletown, CT 06457

Established: 1967
Tel: 347-5694

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for F.I.S.L. program

General Admission Requirements: See Page 5

Special Admission Requirements:
9th grade education.

Vocational Program:

Cosmetology & Beauty Culture: 52 weeks, 2000 hours; full and part time; tuition $895; diploma awarded.

Student Body: 45; 10% male.

NEW ENGLAND TRACTOR TRAILER TRAINING OF CONNECTICUT, INC.

Main Street
Somers, CT 06071

Established: 1965
Tel: 749-0711

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements:
Total physical fitness, valid driver's license, 21 years old and able to read and write the English language.

Vocational Program:

Tractor Trailer Driver: 4 weeks, 144 hours; full time day, and part time day and evening; tuition $795; certificate awarded.

Student Body: 64; 100% male.

Special Information: Residential facilities assistance provided.

NEW HAVEN ACADEMY OF BUSINESS

900 Chapel Square Mall
New Haven, CT 06510

Established: 1960
Tel: 624-9935

Approvals: (See Page 5)
Approved by State Board of Education

NEW HAVEN ACADEMY OF BUSINESS (continued)

Approvals (continued):
Approved for V.A. program
Approved by New England Business College Association and United Business School Association

General Admission Requirements:
High School diploma in major programs.

Special Admission Requirements:
Aptitude only in Keypunch and Typing programs.

Vocational Programs:

Legal Secretary: 32 weeks, 800 hours; full time day only; tuition $1,745; diploma awarded.

Medical Secretary: 32 weeks, 800 hours; full time day only; tuition $1,745; diploma awarded.

Executive Secretary: 32 weeks, 800 hours; full time day only; tuition $1,745; diploma awarded.

Fashion Secretary: 32 weeks, 800 hours; full time day only; tuition $1,745; diploma awarded.

Fashion Merchandising: 32 weeks, 800 hours; full time day only; tuition $1,745; diploma awarded.

Data Processing-Computer Programming: 32 weeks, 800 hours; full and part time, day and evening; tuition $1,745; diploma awarded.

Keypunch-Data Processing-Clerical: 32 weeks, 800 hours; full and part time, day and evening; tuition $1,745; diploma awarded.

Speedwriting and Typing: 10 weeks, 150 hours; full and part time, day and evening; tuition $310; diploma awarded.

Keypunch and Typing: 6 weeks, 90 hours; full and part time, day and evening; tuition $300; diploma awarded.

Student Body: 154; 40% male.

Special Information: Residential facilities assistance provided.

NEW HAVEN AIRWAYS, INC.

Tweed-New Haven Airport
New Haven, CT 06512

Established: 1962
Tel: 467-6314

Approvals:
Approved by F.A.A.
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Vocational Programs:

Commercial Pilot: Program length 52 weeks, 200 hours; full and part time, day and evening; tuition $4,000.

Flight Instructor: Program length 14 weeks, 40 hours; full and part time, day and evening; tuition $1,200.

Student Body: 100, some females.

Special Information: Additional pilot programs offered.

NEW HAVEN, UNIVERSITY OF

300 Orsnge Street
West Haven, CT 06516

Estsblished: 1920
Tel: 934-6321

Approvsls, Accreditation: (See Page 5)
Approved by New England Association of Colleges and Secondary Schools
Approved by Connecticut Real Estate Commission
Approved for V.A. and F.I.S.L. program
Accredited by Connecticut Commission for Higher Education

Admission Requirementa:
High School graduate, prerequisites vsry per program.

Vocational Progrsms:

Law Enforcement: Program length 2 years, 60 semester hours; full time day, and part time evening; tuition $35 per semeater hour; asaociate degree awarded.

General Engineering: Program length 2 yesrs; 60 semester hours; full time day, and part time evening only; tuition $35 per semester hour; associate degree awarded.

Electrical Engineering: Program length 2 years, 60 semester hours; part time evening only; tuition $35 per semester hour; asaociate degree awarded.

Industrial Engineering: Program length 2 years, 60 semester hours; part time evening only; tuition $35 per semester hour; associate degree awarded.

Mechanical Engineering: Program length 2 years, 60 semester hours; part time evening only; tuition $35 per semester hour; associate degree awarded.

Metallurgical Engineering: Program length 2 yesrs; 60 semester hours; part time evening only; tuition $35 per semester hour; associate degree awarded.

Commercial snd Advertising Art: Program length 2 years; 60 semester hours; full time day; tuition $35 per semester hour; associate degree awarded.

Journalism: Program length 2 years, 60 semester hours; full time day only; tuition $35 per semester hour; associate degree awarded.

Real Estste Principles and Practices: Program length 13 weeks, 26 hours; part time evening only; tuition $75; certificate awarded.

Student Body: 4,950; 6% female.

Special Information: Operates residential facilities.

NEW LONDON ACADEMY OF HAIRDRESSING (THE)

253 State Street
New London, CT 06320

Established: 1961
Tel: 447-1433

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. program

NEW LONDON ACADEMY OF HAIRDRESSING (THE) (continued)

General Admission Requirements: See Page 5

Special Admission Requirements:
10th grade completion, or diploma.

Vocational Progrsm:

Hairdressing & Cosmetology: 52 weeks, 2000 hours; full and part time day only; tuition $825; diploma swarded.

Student Body: 65, some males.

NEW LONDON SCHOOL OF BUSINESS

231 State Street
New London, CT 06320

Established: 1887
Tel: 443-7441

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements:
High School grsduate or equivslent.

Vocational Programs:

Business Administrstion in Accounting: 80 weeks, 1800 hours; full time day, and part time evening only; tuition $1,000; diploma awarded.

Executive Secretarial: 80 weeks, 1800 hours; full time day, and part time evening only; tuition $1,000; diploma awarded.

Junior Accounting: 48 weeks, 1200 hours; full time day, and part time evening only; tuition $600; diploma awarded.

Stenographic: 48 weeks, 1200 hours; full time day, and part time evening only; tuition $600; diploma awarded.

Genersl Clerical: 48 weeks, 1200 hours; full time day, and part time evening only; tuition $600; diploma swarded.

Stenographic Secretarial: 72 weeks, 1650 hours; full time day, snd part time evening only; tuition $900; diploma awarded.

Keypunch: 4 or 40 weeks; full time day, snd part time evening only; tuition $100; certificate awarded.

Student Body: 65, 10% male.

Special Information: Residential facilities assistance provided.

NORTHEASTERN AUDIO-VIDEO, INC.

85 Atlantic Street
Stamford, CT 06901

Established: 1970
Tel: 359-0299

General Admission Requirements: None

Vocational Programs:

Typing: 36 hours; part time day and evening; tuition $199.

NORTHEASTERN AUDIO-VIDEO, INC. (continued)

Vocational Programs (continued):

Computer Programming: 27 hours; part time day and evening; tuition $99.

Student Body: 40, 50% male.

NORWALK COMMUNITY COLLEGE

300 Highland Avenue
Norwalk, CT 06854

Established: 1969
Tel: 853-2040

Approval, Accreditation: (See Page 4)
(State operated)
Approved by State Board of Examiners for Nursing
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 4

Vocational Programs:

Business Administration: Program length 2 years; associate degree awarded.

Accounting: Program length 2 years; associate degree awarded.

Early Childhood Education: Program length 2 years; associate degree awarded.

Data Processing: Program length 2 years; associate degree awarded.

General Business: Program length 2 years; associate degree awarded.

Marketing: Program length 2 years; associate degree awarded.

Secretarial Studies: Program length 2 years; associate degree awarded.

Early Childhood Educator: Program length 2 years; associate degree awarded.

Law Enforcement: Program length 2 years; associate degree awarded.

Library Technical Assistant: Program length 2 years; associate degree awarded.

Nursing: Program length 2 years; associate degree awarded.

Inhalation Therapy: Program length 2 years; associate degree awarded.

Recreation Leadership: Program length 2 years; associate degree awarded.

Secretaries: Program length 1 year; certificate awarded.

Early Childhood Education: Program length 1 year; certificate awarded.

Teacher Aides: Program length 1 year; certificate awarded.

Traffic & Transportation: Program length 1 year; certificate awarded.

NORWALK COMMUNITY COLLEGE (continued)

Special Information: Inhalation Therapy program affiliated with Norwalk Hospital.

NORWALK HOSPITAL

24 Stevens Street
Norwalk, CT 06852

Tel: 838-3611

Accreditations: (See Page 5)
All programs fully accredited by appropriate professional and governmental agencies.

Admission Requirements:
Dependent upon particular program.

Vocational Programs:

Nurse, Diploma: 116 weeks; full time day only; tuition $1,990; diploma awarded.

Inhalation Therapist: 2 years; tuition $50 per semester.

Surgical Technician: 52 weeks, 2080 hours; full time day only; tuition - none; certificate awarded.

Cytotechnologist: 1 year; full time day only; certificate awarded.

Practical Nurse: 1 year, 2080 hours; full time day only; tuition - none; diploma awarded.

Student Body: 160.

Special Information: Operates residential facilities for diploma nurse students. Inhalation Therapist program affiliated with Norwalk Community College. Practical Nurse program affiliated with J. M. Wright Regional Vocational-Technical School.

NORWALK STATE TECHNICAL COLLEGE

181 Richards Avenue
South Norwalk, CT 06854

Established: 1961
Tel: 838-0601

Approvals, Accreditation: (See Page 4)
(State operated)
Approved by Engineering Council for Professional Development
Approved by New England Association of Colleges and Secondary Schools
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 4

Vocational Programs:

Architectural Draftsman: Program length 33 weeks, 825 hours; full time day; tuition $100 per year; certificate awarded.

Computer Programmer Technology: Program length 66 weeks, 1650 hours; full time day; tuition $100 per year; associate degree awarded.

Electronic Technology: Program length 66 weeks, 1650 hours; full time day; tuition $100 per year; associate degree awarded.

Mechanical Technology: (see next page)

NORWALK STATE TECHNICAL COLLEGE (continued)

Mechanical Technology: Program length 66 weeks; 1650 hours; full time day; tuition $100 per year; associate degree awarded.

Chemical Technology: Program length 66 weeks; 1650 hours; full time day; tuition $100 per year; associate degree awarded.

Student Body: 710.

Special Information: Residential facilities assistance provided. Programs run 33 weeks per year.

NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE

Park Place East
Winsted, CT 06098

Established: 1965
Tel: 379-8543

Approvals, Accreditation: (See Page 4)
(State operated)
Approved by Connecticut Real Estate Commission
Approval by New England Association of Colleges and Secondary Schools pending
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 4

Vocational Programs:

Accounting: Program length 2 years; full time day, and part time day and evening; tuition $100 per year; associate degree awarded.

Business Administration: Program length 2 years; full time day, and part time day and evening; tuition $100 per year; associate degree awarded.

Marketing & Retailing: Program length 2 years; full time day, and part time day and evening; tuition $100 per year; associate degree awarded.

Executive Secretarial: Program length 2 years; full time day, and part time day and evening; tuition $100 per year; associate degree awarded.

Legal Secretarial: Program length 2 years; full time day, and part time day and evening; tuition $100 per year; associate degree awarded.

Medical Secretarial: Program length 2 years; full time day, and part time day and evening; tuition $100 per year; associate degree awarded.

Recreational Leadership: Program length 2 years; full time day, and part time day ane evening; tuition $100 per year; associate degree awarded.

Child Care: Program length 2 years; full time day, and part time day and evening; tuition $100 per year; associate degree awarded.

Environmental Studies: Program length 2 years; full time day, and part time day and evening; tuition $100 per year; associate degree awarded.

Law Enforcement: Program length 2 years; full time day, and part time day and evening; tuition $100 per year; associate degree awarded.

Library Technician: Program length 2 years; full time day, and part time day and evening; tuition $100 per year; associate degree awarded.

NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE (continued)

Vocational Programs (continued):

Real Estate Principles and Practices

Student Body: 1,200; 40% females.

Special Information: Residential facilities assistance provided.

NORWICH BEAUTY ACADEMY

26 Norwich Avenue
Norwich, CT 06360

Established: 1966
Tel: 889-6565

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. and F.I.S.L. programs

General Admission Requirements: See Page 5

Vocational Program:

Hairdressing & Cosmetology: 52 weeks, 2000 hours; full and part time day only; tuition $700; diploma awarded.

Student Body: 25.

NORWICH COMMERCIAL SCHOOL

193 Broadway
Norwich, CT 06360

Established: 1908
Tel: 887-3090

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements:
High School graduation.

Special Admission Requirements:
Aptitude, except for summer Typing program.

Vocational Programs:

Secretarial: 72 weeks, 1750 hours; full time day, and part time evening only; tuition $1,008; diploma awarded.

Stenographic: 40 weeks, 1000 hours; full time day, and part time evening only; tuition $560; diploma awarded.

Accounting: 80 weeks, 2000 hours; full time day, and part time evening only; tuition $1,120; diploma awarded.

Bookkeeping: 48 weeks, 1200 hours; full time day, and part time evening only; tuition $700; diploma awarded.

Clerk-Typist: 13 weeks, 325 hours; full time day, and part time evening only; tuition $182; certificate awarded.

Typist: 13 weeks, 325 hours; full time day, and part time evening only; tuition $182; certificate awarded.

Typing (Summer): 6 weeks, 150 hours; part time day only; tuition $45; certificate awarded.

NORWICH COMMERCIAL SCHOOL (continued)

Student Body: 30, 20% male.

Special Information: Mature atudenta are accepted when no diploma ia desired. Tuitions above are for day classes only.

NORWICH HOSPITAL

17 Broad Street
Norwich, CT 06360 Tel: 889-7361

Approval, Accreditation: (See Page 5)
(State operated)

General Admiaaion Requirementa:
High School graduation or equivalency, maturity and motivation, clinical interview, emotional stability, responaibility.

Vocational Program:

Psychiatric Aide: 34 weeka, 1190 houra; full time day only; tuition - none; certificate awarded.

Student Body: 27, 48% male.

Special Information: Operates residential facilitiea.

NORWICH REGIONAL VOCATIONAL-TECHNICAL SCHOOL

590 New London Turnpike Eatablished: 1942
Norwich, CT 06360 Tel: 889-8453

Approval, Accreditation: (See Page 3)
(State operated)
Approved by New England Aasociation of Colleges and Secondary Schools

General Admission Requirementa: See Page 3

Regular Vocational Programs: See Page 3

Air Conditioning & Refrigeration

Automobile Mechanica

Beauty Culture

Carpentry

Drafting, Machine

Electrical

Electronics, Industrial

Machine

Printing & Lithography

Plumbing & Steamfitting

Sheet Metal

Tool & Die

Poat Secondary Vocational Programs: See Page 3

Practical Nurse

Student Body: 579.

NORWICH REGIONAL VOCATIONAL-TECHNICAL SCHOOL (continued)

Special Information: Practical Nurse program affiliation with W. W. Backua Hoapital.

NORWOOD WORLD TRAVEL SCHOOL

2429 Post Road Eatablished: 1970
Darien, CT 06820 Tel: 655-8901

Approval: (See Page 5)
Approved by State Board of Education

General Admiaaion Requirements:
High School or equivalent.

Vocational Program:

Travel Agent: 12½ weeka, 75 hours; part time evening only; tuition $275; diploma awarded.

Student Body: 10, 30% male.

OAK HILL SCHOOL
(The Connecticut Inatitute for the Blind)

120 Holcomb Street Eatabliahed: 1893
Hartford, CT 06112 Tel: 242-2274

Admisaion Requirementa:
Legally blind, including multiply handicapped blind, to age 20.

Vocational Programs:

Elemental Machine Operation: Program length 36 to 144 weeks; full time day; no tuition; diploma awarded.

Business Education: Program length 36 to 144 weeka; full time day; no tuition; diploma awarded.

Student Body: 140.

O'BRIEN (EMMETT) REGIONAL VOCATIONAL-TECHNICAL SCHOOL

141 Prindle Avenue Eatabliahed: 1968
Ansonia, CT 06401 Tel: 735-8683

Approval, Accreditation: (See Page 3)
(State operated)
Approved by New England Aasociation of Colleges and Secondary Schoola

General Admiaaion Requirementa: See Page 3

Regular Vocational Programa: See Page 3

Automobile Mechanics

Carpentry

Chemistry, Industrial (planned)

Drafting, Machine

Electrical

Electronics, Industrial

Machine

Tool & Die

O'BRIEN (EMMETT) REGIONAL VOCATIONAL-TECHNICAL SCHOOL (continued)

Post Secondary Vocational Programs: See Page 3

Practical Nurse (planned)

Student Body: 406, 100% male.

PAIER SCHOOL OF ART, INC.

14 Gorham Avenue
Hamden, CT 06514

Established: 1946
Tel: 777-3851

Approvals, Accreditation: (See Page 5)
Approved by State Board of Educstion
Approved for V.A. program
Approved by National Society of Interior Design, Interior Design Education Council, and American Institute of Design
Accredited by National Association of Trade and Technical Schools

General Admission Requirements:
Completion of secondary education with satisfactory grades; transcript of records of previous education; personal interview; presentation of portfolio; letter of recommendation.

Vocational Programs:

Commercial Artist: 136 weeks (4 years), 3400 hours; full time day and evening, and part time evening only; tuition $1,350 per year; diploma awarded.

Interior Designer: 102 weeks (3 years), 2550 hours; full time day and evening; tuition $1,350 per year; diploma awarded.

Fashion Illustration: 102 weeks (3 years), 2550 hours; full time day, and part time evening only; tuition $1,350 per year; diploma awarded.

Fine Arts: 136 weeks (4 years), 3400 hours; full time day and evening, and part time evening only; tuition $1,350 per year; diploma awarded.

Illustration: 136 weeks (4 years), 3400 hours; full time day and evening, and part time evening only; tuition $1,350 per year; diploma awarded.

Photography: 68 weeks (2 years), 1700 hours; full time day and evening; tuition $1,350 per year; diploma awarded.

Student Body: 530, 50% male.

Special Information: Residential facilities assistance provided.

PARK CITY HOSPITAL

695 Park Avenue
Bridgeport, CT 06604

Tel: 368-0201

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program

Vocational Programs:

Practical Nurse: 52 weeks, approval pending, to start February 1972.

PARK CITY HOSPITAL (continued)

Vocational Programs (continued):

X-ray Technician: 104 weeks, 4160 hours; tuition $50.

Medical Technologist: 52 weeks, 2080 hours; no tuition.

Special Information: Medical Technologist is joint program with St. Vincent's Hospital.

PARK INSTITUTE OF HAIR DESIGN

68 West Main Street
Meriden, CT 06450

Established: 1962
Tel: 237-8867

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A., F.I.S.L., and I.N.S. programs

General Admission Requirements: See Page 5

Special Admission Requirements:
Aptitude. Desire to work with public.

Vocational Program:

Hairdressing: 52 weeks, 2000 hours; full and part time, day and evening; tuition $750; diploma awarded.

Student Body: 30, 10% male.

PORTER SCHOOL OF ENGINEERING DESIGN (THE)

2119 Silas Deane Highway
Rocky Hill, CT 06067

Established: 1945
Tel: 529-2519

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A., F.I.S.L., and State Rehabilitation programs
Approved by American Institute of Design and Drafting Association
Accredited by National Association of Trade and Technical Schools

General Admission Requirements:
High School graduate; aptitude; proven ability in mechanicsl drawing from high school screening or by test.

Vocational Programs:

Drafting: 56/117 weeks; full and part time, day and evening; tuition $365/235 per semester; certificste awarded.

Tool Design: 102/211 weeks; full snd part time, day and evening; tuition $365/235 per semester; certificate awarded.

Product Design: 150/312 weeks; full and part time, day and evening; tuition $365/235 per semester; certificate awarded.

Technical Illustrator: 84/175 weeks; full and part time, day and evening; tuition $365/235 per semester; certificate awarded.

Machine Design: (see next page)

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PORTER SCHOOL OF ENGINEERING DESIGN (THE) (continued)

Machine Design: 150/312 weeks; full and part time, day and evening; tuition $365/235 per semester; certificate awarded.

Process Planning: 134/279 weeks; full and part time, day and evening; tuition $365/235 per semester; certificate awarded.

Technical Writing: 32/32 weeks; full and part time, day and evening; tuition $365/235 per semester; certificate awarded.

Heating, Air conditioning & Refrigeration Design: 140/290 weeks; full and part time, day and evening; tuition $365/235 per semester; certificate awarded.

Architectural Design: 88/183 weeks; full and part time, day and evening; tuition $365/235 per semester; certificate awarded.

Student Body: 232.

Special Information: Operates residential facilities; program (maximum) lengths and costs given per day/ evening; acceleration is encouraged.

POST JUNIOR COLLEGE

800 Country Club Road
Waterbury, CT 06708

Established: 1890
Tel: 755-0121

Approvals, Accreditations: (See Page 5)
Approved by Connecticut Real Estate Commission
Approval by New England Association of Colleges and Secondary Schools pending
Accredited by Connecticut Commission for Higher Education
Accredited by Accrediting Commission for Business Schools

Admission Requirements:
High School graduate with four units of English.

Vocational Programs:

Legal Secretary: Program length 64 weeks (2 years), 60 credit hours; full and part time, day only; tuition $1,500 per year; associate degree awarded.

Medical Secretary: Program length 64 weeks (2 years), 60 credit hours; full and part time, day and evening; tuition $1,500 per year; associate degree awarded.

Executive Secretary: Program length 64 weeks (2 years), 60 credit hours; full and part time, day and evening; tuition $1,500 per year; associate degree awarded.

General Secretary: Program length 64 weeks (2 years), 60 credit hours; full and part time, day only; tuition $1,500 per year; associate degree awarded.

Accounting: Program length 64 weeks (2 years), 60 credit hours; full and part time, day and evening; tuition $1,500 per year; associate degree awarded.

Real Estate Practices and Principles: Program length 15 weeks, 40 hours; part time evening only; tuition $105; certificate awarded.

Student Body: 548, 35% female.

POST JUNIOR COLLEGE (continued)

Special Information: Operates residential facilities.

PRINCE (ALBERT I.) REGIONAL VOCATIONAL-TECHNICAL SCHOOL

500 Brookfield Street
Hartford, CT 06106

Tel: 246-8495

Approval, Accreditation: (See Page 3)
(State operated)
Approved by New England Association of Colleges and Secondary Schools

General Admission Requirements: See Page 3

Regular Vocational Programs: See Page 3

Automobile Mechanics

Barbering

Beauty Culture

Carpentry

Drafting, Architectural

Drafting, Machine

Electrical

Electronics, Industrial

Fashion Design

Machine

Masonry

Oil Burner Service

Printing & Lithography

Plumbing

Sheet Metal

Tool & Die

Welding

Post Secondary Vocational Programs: See Page 3

Dental Assistant

Practical Nurse

Student Body: 960, 30% female.

Special Information: Practical Nurse program affiliation with Hartford and St. Francis Hospitals. Has programs for disadvantaged.

PROFESSIONAL INSTITUTE OF FLORAL DESIGN

1262 West Main Street
Waterbury, CT 06708

Established: 1969
Tel: 753-5672

Approval: (See Page 5)
Approved by State Board of Education

PROFESSIONAL INSTITUTE OF FLORAL DESIGN (continued)

General Admission Requirements:
Minimum age 16; desire and ability to learn the trade, and initiative to apply the knowledge.

Special Admission Requirements:
Normal manual dexterity.

Vocational Program:

Floral Designer: 5 weeks, 150 hours; full time day only; tuition $500; diploma awarded.

Student Body: 3.

Special Information: Residential facilities assistance provided.

PROGRAMMING & SYSTEMS INSTITUTE OF FAIRFIELD COUNTY, INC.

1200 Summer Street
Stamford, CT 06905

Established: 1965
Tel: 348-9275

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A., I.N.S., and State Rehabilitation programs

General Admission Requirements:
Must have high school diploma and pass aptitude test.

Vocational Program:

Computer Programming: 312 hours; full time day, and part time evening only; tuition $1,695; diploma awarded.

Student Body: 150, 40% male.

Special Information: Residential facilities assistance provided.

QUINNIPIAC COLLEGE

Mount Carmel Avenue
Hamden, CT 06518

Established: 1929
Tel: 288-5251

Approvals, Accreditation: (See Page 5)
Approved by Connecticut Real Estate Commission
Approved by New England Association of Colleges and Secondary Schools
Accredited by Connecticut Commission for Higher Education

Admission Requirements:
High School diploma, acceptable high school and SAT or ACT test performances.

Vocational Programs:

Executive Secretary: Program length 64 weeks (2 years), 60 credit hours; full and part time, day and evening; tuition $1,550; associate degree awarded.

Legal Secretary: Program length 64 weeks (2 years), 61 credit hours; full and part time, day only; tuition $1,550; associate degree awarded.

Medical Secretary: Program length 64 weeks (2 years), 64 credit hours; full and part time, day only; tuition $1,550; associate degree awarded.

Medical Record Technician: Program length 64 weeks (2 years), 62 credit hours; full time day only; tuition $1,750; associate degree awarded.

QUINNIPIAC COLLEGE (continued)

Vocational Programs (continued):

Cytotechnology: Program length 112 weeks, 1080 hours; full time day only; tuition $1,750; associate degree awarded.

Inhalation Therapy: Program length 87 weeks, 1890 hours; full time day only; tuition $1,750; associate degree awarded.

Nursing: Program length 80 weeks, 1920 hours; full time day only; tuition $1,750; associate degree awarded.

Radiation Therapy Technology: Program length 140 weeks, 4574 hours; full time day only; tuition $1,750; associate degree awarded.

Radiologic Technology: Program length 140 weeks, 4574 hours; full time day only; tuition $1,750; associate degree awarded.

Real Estate Principles: Program length 15 weeks, 3 credit hours; part time day and evening; tuition $38 per credit hour.

Student Body: 2,936; 46% female.

Special Information: Operates residential facilities.

RATCLIFFE HICKS SCHOOL OF AGRICULTURE
The University of Connecticut

Storrs, CT 06268

Established: 1941
Tel: 429-3311

Approval, Accreditation: (See Page 5)
(State operated)

Admission Requirements:
Graduation from approved secondary school, some agricultural experience.

Vocational Programs:

Food Technology and Distribution: Program length 2 years; full and part time day only; tuition $145 per semester; certificate awarded.

Animal Science: Program length 2 years; full and part time day only; tuition $145 per semester; certificate awarded.

Floriculture: Program length 2 years; full and part time day only; tuition $145 per semester; certificate awarded.

Fruit and Vegetable Products: Program length 2 years; full and part time day only; tuition $145 per semester; certificate awarded.

Nursery Management: Program length 2 years; full and part time day only; tuition $145 per semester; certificate awarded.

Student Body: 105, 8% female.

Special Information: Operates residential facilities.

SACRED HEART UNIVERSITY

(see next page)

SAC

SACRED HEART UNIVERSITY

5229 Park Avenue
Bridgeport, CT

Established: 1963
Tel: 374-9441

Approval, Accreditation: (See Page 5)
Approved by Connecticut Real Estate Commission
Accredited by Connecticut Commission for Higher Education

Vocational Programs:

Real Estate Principles and Practices: Program length 12 weeks; part time evening only.

General Business: Program length 2 years; full and part time day only; associate degree awarded.

Accounting: Program length 2 years; full and part time day only; associate degree awarded.

ST. FRANCIS HOSPITAL

114 Woodlawn Street
Hartford, CT 06105

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing

General Admission Requirements: See Page 5

Vocational Program:

Practical Nurse: 1 year, 2080 hours; full time day only; no tuition; diploma awarded.

Special Information: Program affiliated with A.I. Prince Regional Vocational-Technical School.

ST. JOSEPH HOSPITAL
SCHOOL OF RADIOLOGIC TECHNOLOGY

128 Strawberry Hill Avenue
Stamford, CT 06904

Established: 1955
Tel: 327-3500

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Accredited by American Medical Society, American Registry of Radiologic Technologists

General Admission Requirements:
High School graduation or equivalency, good physical condition, capable of working with patients and machinery.

Special Admission Requirements: Aptitude.

Vocational Program:

Radiologic Technologist: 104 weeks, 2400 hours; full time day only; tuition $200; diploma awarded.

Student Body: 9, 25% male.

ST. MARY'S HOSPITAL

56 Franklin Street
Waterbury, CT 06706

Established: 1907
Tel: 756-8351

Approvals: (see next column)

ST. MARY'S HOSPITAL (continued)

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing
Approved for V.A. program

General Admission Requirements:
High School or equivalent, except Nurse Aide program.

Vocational Programs:

Practical Nurse: 1 year; full and part time, day and evening; no tuition; certificate awarded.

Surgical Technician: 1 year; full and part time, day and evening; no tuition; certificate awarded.

Nurse Aide: 4 weeks, 160 hours; full and part time, day and evening; no tuition.

Inhalation Therapist: 1 year; full and part time, day and evening; no tuition.

(Registered) Nurse: 3 years; full and part time, day and evening; tuition $3,400; diploma awarded.

X-ray Technologist: 2 years; full and part time, day and evening; certificate awarded.

Special Information: Operates residential facilities. Practical Nurse program affiliated with Warren F. Kaynor Regional Vocational-Technical School.

ST. RAPHAEL, THE HOSPITAL OF

1450 Chapel Street
New Haven, CT 06511

Established: 1907
Tel: 772-3900
Extension 227

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing

General Admission Requirements: See Page 5

Vocational Program:

Practical Nurse: 52 weeks, 1320 clinical hours; full time day only; no tuition; certificate awarded.

Special Information: Program affiliated with Eli Whitney Regional Vocational-Technical School. Residential facilities assistance provided.

ST. RAPHAEL, THE HOSPITAL OF
SCHOOL OF INHALATION THERAPY

1450 Chapel Street
New Haven, CT 06511

Established: 1964
Tel: 772-3900

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by American Medical Society Council on Medical Education

General Admission Requirements:
High School education, moral integrity, mental fitness.

Vocational Programs: (see next page)

ST. RAPHAEL, THE HOSPITAL OF
SCHOOL OF INHALATION THERAPY (continued)

Vocational Programs:

Inhalation Therapist: 2 years, 2900 hours; full time day and evening, and part time evening only; tuition $2,900.

Inhalation Technician: 1 year, 920 hours; full time day only; tuition $500; certificate awarded.

Student Body: 15, 30% male.

Special Information: Residential facilities assistance provided.

ST. RAPHAEL, THE HOSPITAL OF
SCHOOL OF MEDICAL RADIOLOGIC TECHNOLOGY

1450 Chapel Street
New Haven, CT 06511

Established: 1948
Tel: 772-3900
Extension 571

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by the American Medical Association,
American College of Radiology, and
American Society of Radiologic Technicians

General Admission Requirements:
High School diploma, college preparatory course, rank in upper third of class, personal interview.

Vocational Program:

Radiologic Technologist: 104 weeks, 4160 hours; full time day; tuition $150; diploma awarded.

Student Body: 25.

ST. RAPHAEL, THE HOSPITAL OF
SCHOOL OF MEDICAL TECHNOLOGY

1450 Chapel Street
New Haven, CT 06511

Established: 1943
Tel: 772-3900
Extension 637

Approvals, Accredication: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by American Medical Society
Accredited by American Society of Clinical Pathologists

General Admission Requirements:
Satisfactory completion of 3 years in an accredited college or university, with credit for 16 semester (24 quarter) hours in biology, 6 semester (9 quarter) hours of inorganic chemistry and 10 semester hours (15 quarter) of organic, qualitative or biochemistry.

Vocational Program:

Medical Technologist: 52 weeks, 2000 hours; full time day; no tuition; certificate awarded.

Student Body: 12, 33% male.

Special Information: Operates residential facilities.

ST. RAPHAEL SCHOOL OF NURSING (see next column)

ST. RAPHAEL, THE HOSPITAL OF
SCHOOL OF NURSING

659 George Street
New Haven, CT 06511

Established: 1908
Tel: 772-3900
Extension 351

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Apporove by State Board of Examiners for Nursing
Approved for V.A. program
Accredited by National League for Nursing

General Admission Requirements:
Rank in upper half of high school graduating class, attainment of scores above 800 on the College Entrance Examination SAT, attainment of high school grades at the average or above the average level, personal interview.

Special Admission Requirements: Aptitude.

Vocational Program:

(Registered) Nurse: 117 weeks, 1250 hours; full time day only; tuition $3,960; diploma awarded.

Student Body: 92.

Special Information: Operates residential facilities.

ST. VINCENT'S HOSPITAL

2820 Main Street
Bridgeport, CT 06606

Tel: 334-1081

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing
Approved for V.A. program
Approved by American Medical Association,
American Registry of Radiologic Technologists and
American Society of Radiologic Technicians

General Admission Requirements:
High School graduates.

Special Admission Requirements:
Aptitude test, SAT, and interview for some programs.

Vocational Programs:

Radiologic Technician: 96 weeks, 420 hours classroom; full time day only; diploma awarded.

Inhalation Therapist: 96 weeks; full time day only.

Practical Nurse: 52 weeks, 580 hours classroom; full time day only; diploma awarded.

Surgical Technician: 38 weeks, 1520 hours; full time day only; diploma awarded.

Student Body: 169, 4% male, for all schools.

Special Information: Residential facilities assistance provided. Practical Nurse program affiliated with Bullard-Havens Regional Vocational-Technical School.

ST. VINCENT'S HOSPITAL
SCHOOL OF NURSING

(see next page)

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ST. VINCENT'S HOSPITAL
SCHOOL OF NURSING

2820 Main Street
Bridgeport, CT 06606 Tel: 334-1081

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing
Accredited by National League for Nursing

General Admission Requirements:
High School graduate.

Special Admission Requirements:
Aptitude test.

Vocational Program:

(Registered) Nurse: 144 weeks; full time day only; diploma awarded.

Student Body: 135.

Special Information: Operates residential facilities.

SIMSBURY AIR SERVICE, INC.

94 Wolcott Road Established: 1970
Simsbury, CT 06070 Tel: 658-0481

Approvals: (See Page 5)
Approved by F.A.A.
Approved by State Board of Education

General Admission Requirements: See Page 5

Vocational Programs:

Commercial Pilot: Part time day.

Flight Instructor: Part time day.

Student Body: 50.

Special Information: Additional pilot programs offered.

SOUTH CENTRAL COMMUNITY COLLEGE

111 Whitney Avenue Established: 1968
New Haven, CT 06510 Tel: 772-3472

Approval, Accreditation: (See Page 4)
(State operated)
Approval by New England Association of Colleges and Secondary Schools pending
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 4

Vocational Programs:

Secretarial Science: Program length 64 weeks (2 years), 960 hours; part time day and evening; tuition $200; associate degree awarded.

Food Service Management: Program length 64 weeks (2 years), 1960 hours; part time day and evening; tuition $200; associate degree awarded.

Early Childhood Education: Program length 64 weeks
(see next column)

SOUTH CENTRAL COMMUNITY COLLEGE (continued)

Early Childhood Education (continued): (2 years), 960 hours; part time day and evening; tuition $200; associate degree awarded.

Insurance Management: Program length 64 weeks (2 years), 960 hours; part time day and evening; tuition $200; associate degree awarded.

Student Body: 1,171; 40% female.

STAMFORD HOSPITAL (THE)

190 West Broad Street
Stamford, CT 06902 Tel: 327-1234

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing

General Admission Requirements: See Page 5

Vocational Program:

Practical Nurse: 1 year, 2080 hours; full time day only; no tuition; certificate awarded.

Special Information: Program affiliated with J. M. Wright Regional Vocational-Technical School.

STONE SCHOOL OF BUSINESS

54 Wall Street Established: 1864
New Haven, CT 06510 Tel: 777-6414

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A., F.I.S.L., and Connecticut Real Estate Commission programs
Accredited by Accrediting Commission for Business Schools

General Admission Requirements:
High School diploma and submission of satisfactory transcript; aptitude; interview.

Vocational Programs:

Executive Secretarial: 72 weeks, 1800 hours; full and part time, day and evening; tuition $3,000; diploma awarded.

Secretarial: 48 weeks, 1200 hours; full and part time, day and evening; tuition $2,000; diploma awarded.

Stenographic: 36 weeks, 900 hours; full and part time, day only; tuition $1,500; diploma awarded.

Modern Office Training: 36 weeks, 900 hours; full and part time, day only; tuition $1,500; diploma awarded.

Secretarial Administration: 24 weeks, 720 hours; full and part time, day only; tuition $1,300; diploma awarded.

Fashion Merchandising: 48 weeks, 1200 hours; full and part time, day only; tuition $2,000; diploma awarded.

(see next page)

STONE SCHOOL OF BUSINESS (continued)

Vocational Programs (continued):

Accounting - I: 36 weeks, 900 hours; full and part time, day and evening; tuition $1,500; diploma awarded.

Sales Management: 36 weeks, 900 hours; full and part time, day only; tuition $1,500; diploma awarded.

Accounting - II: 72 weeks, 1800 hours; full and part time, day and evening; tuition $3,000; diploma awarded.

Real Estate Principles and Practices: 15 weeks, 30 hours; part time evening only; tuition $85.

Student Body: 109, 20% male.

Special Information: Residential facilities assistance provided. Additional programs in Business Law, Accounting - III, Medical Terminology, Legal Typing and Secretarial Procedures offered at times.

TECHNICAL DESIGN INSTITUTE

672A Farmington Avenue
West Hartford, CT 06119

Established: 1968
Tel: 523-5551

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements:
Application with fee and high school, or equivalent, transcript.

Vocational Programs:

Mechanical Drawing: 24 weeks, 600 hours; full time day, and part time day and evening; tuition $550; certificate awarded.

Tool Design: 36 weeks, 900 hours; full time day, and part time day and evening; tuition $825; certificate awarded.

Punch & Die Design: 6 weeks, 150 hours; full time day, and part time day and evening; tuition $140; certificate awarded.

Student Body: One.

TECHNICAL SEMINARS

P.O. Box 671
Norwalk, CT 06852

Established: 1966
Tel: 838-2008

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A., F.I.S.L., I.N.S., and State Rehabilitation programs
Accredited by National Association of Trade and Technical Schools

General Admission Requirements:
High School diploma for some programs.

Vocational Programs:

Quality Control Inspector/Technician

TECHNICAL SEMINARS (continued)

Vocational Programs (continued):

Quality Control Engineering

Quality Control Management

Reliability Engineering Technology

Production & Inventory Control

Quantitative Methods

Business Management

Industrial Engineering

Special Information: Correspondence courses only.

THAMES VALLEY STATE TECHNICAL COLLEGE

574 New London Turnpike
Norwich, CT 06360

Established: 1963
Tel: 889-8311

Approvals, Accreditation: (See Page 4)
(State operated)
Approved by Engineering Council for Professional Development
Approved by New England Association of Colleges and Secondary Schools
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 4

Vocational Programs:

Chemical Engineering Technology: Program length 66 weeks, 148 hours; full time day, and part time day and evening; tuition $100 per year; associate degree awarded.

Data Processing Technology: Program length 66 weeks, 136 hours; full time day, and part time day and evening; tuition $100 per year; associate degree awarded.

Electrical Engineering Technology: Program length 66 weeks, 148 hours; full time day, and part time day and evening; tuition $100 per year; associate degree awarded.

Manufacturing Engineering Technology: Program length 66 weeks, 142 hours; full time day, and part time day and evening; tuition $100 per year.

Industrial Drafting: Program length 33 weeks, 76 hours; full time day only; tuition $100 per year; certificate awarded.

Student Body: 1,080; 12% female.

Special Information: Residential facilities assistance provided. Programs run 33 weeks per year.
(See Addenda, Page 66)

TORRINGTON BEAUTY ACADEMY

41 Main Street
Torrington, CT 06790

Established: 1965
Tel: 482-7691

Licensure, Approvals: (see next page)

TOR

TORRINGTON BEAUTY ACADEMY (continued)

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A., I.N.S., State Welfare and State Rehabilitation programs

General Admission Requirements: See Page 5

Special Admission Requirements:
9th grade; 10th grade per July 1972.

Vocational Program:

Hairdressing & Cosmetology: 52 weeks, 2000 hours; full and part time, day only; tuition $800; diploma awarded.

Student Body: 25, some males.

TRUMBULL PUBLIC SCHOOLS

4630 Madison Avenue
Trumbull, CT 06611
Established: 1962
Tel: 261-3687

Approval: (See Page 5)
Approved by Connecticut Real Estate Commission

Vocational Program:

Real Estate Practices and Principles:
Program length 12 weeks, 24 hours; part time evening only; tuition $20; certificate awarded.

Student Body: 60.

TUNXIS COMMUNITY COLLEGE

Market Place
Farmington, CT 06032
Established: 1970
Tel: 677-7701

Approval, Accreditation: (See Page 4)
(State operated)
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 4

Vocational Programs:

Accounting: Program length 64 weeks (2 years), 560 hours; full and part time, day and evening; tuition $100; associate degree awarded.

Management: Program length 64 weeks (2 years), 528 hours; full and part time, day and evening; tuition $100; associate degree awarded.

Executive Secretarial: Program length 64 weeks (2 years), 432 hours; full and part time, day and evening; tuition $100; associate degree awarded.

Retail Sales Administration: Program length 64 weeks (2 years); full and part time, day and evening; tuition $100; associate degree awarded.

Student Body: 627, 36% female.

Special Information: Residential facilities assistance provided.

VALLEY ACADEMY OF BEAUTY CULTURE

117 Main Street
Ansonia, CT 06401
Established: 1960
Tel: 734-7878

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for F.I.S.L. program

General Admission Requirements: See Page 5

Special Admission Requirements:
Aptitude. Two years of high school.

Vocational Program:

Hairdresser & Cosmetician: 50 weeks, 2000 hours; full and part time, day and evening; tuition $750; diploma awarded.

Student Body: 45, some males.

VAUGHN BARBER SCHOOL, INC.

199 Ann Street
Hartford, CT 06103
Established: 1925
Tel: 522-2359

Licensure, Approvals, Accreditation: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. program
Accredited by National Educational Council of Associated Master Barbers and Beauticians of America

General Admission Requirements:
Good health verified by doctor's statement; minimum of 8 grades of school.

Vocational Program:

Barber: 25 weeks, 1000 hours; full time day only; tuition $500; diploma awarded.

Student Body: 23, 15% female.

Special Information: High school graduates preferred.
Residential facilities assistance provided.
Advanced Hair Styling program offered also.

VETERANS ADMINISTRATION HOSPITAL
SCHOOL OF RADIOLOGIC TECHNOLOGY

West Spring Street
West Haven, CT 06516
Established: 1969
Tel: 933-2561
Extension 448

Approval, Accreditation: (See Page 5)
(Federal operated)
Approved by State Board of Education
Accredited by Joint Commission on Accreditations, College of Radiology and American Society of Radiologic Technologists

General Admission Requirements:
Completion of Allied Health Care programs (36 credits) at Quinnipiac College.

Special Admission Requirements:
Spatial aptitude.

(see next page)

VETERANS ADMINISTRATION HOSPITAL
SCHOOL OF RADIOLOGIC TECHNOLOGY (continued)

Vocational Program:

Radiologic Technology: 144 weeks, 5760 hours; full time day only.

Student Body: 19.

Special Information: Program affiliated with Quinnipiac College.

VICTOR BUSINESS SCHOOLS (Bridgeport)

211 State Street
Bridgeport, CT 06603

Established: 1905
Tel: 334-6163

Approval: (See Page 5)
Approved by State Board of Education

General Admission Requirements:
High School graduate or equivalent; aptitude evaluation tests.

Vocational Programs:

Keypunch: 4 weeks, 60 hours; full time day only; tuition $250; diploma awarded.

Comptometer: 12 weeks, 240 hours; full time day only; tuition $225; diploma awarded.

Typing: 4 weeks, 60 hours; full time day only; tuition $120; diploma awarded.

10-key Adders: 2 weeks, 30 hours; full time day only; tuition $70; diploma awarded.

VICTOR BUSINESS SCHOOLS (Hartford)

410 Asylum Street
Hartford, CT 06103

Established: 1905
Tel: 527-2179

Approvals: (See Page 5)
Approved by State Board of Education
Approved by United Business School Association

General Admission Requirements:
High School diploma or equivalency; entrance test.

Vocational Programs:

Business Machines: 1.8-20 weeks, 36-120 hours; day and evening; tuition $55-180.

Typing: 1.2-10 weeks, 60 hours; day and evening; tuition $35-90.

Stenographic: 1.2-4.0 weeks, 24 hours; day and evening; tuition $35.

File Clerk: 1-6 weeks, 36 hours; day and evening; tuition $75.

Keypunch: 3-10 weeks, 60 hours; part time day and evening; tuition $225.

Student Body: 22.

VICTOR BUSINESS SCHOOLS (New Haven)
(see next column)

VICTOR BUSINESS SCHOOLS (New Haven)

85 Church Street
New Haven, CT 06510

Established: 1906
Tel: 777-5775

Approval: (See Page 5)
Approved by State Board of Education

General Admission Requirements:
High School diploma or equivalency.

Special Admission Requirements: Aptitude.

Vocational Programs:

Comptometer: 10-12 weeks, 240 hours; full time day only; tuition $225; diploma awarded.

Keypunch: 4 weeks, 60 hours; full time day only; tuition $250; diploma awarded.

Typing: 4 weeks, 75 hours; full time day only; tuition $125.

VINAL REGIONAL VOCATIONAL-TECHNICAL SCHOOL

60 Daniels Street
Middletown, CT 06457

Established: 1925
Tel: 346-9667

Approval, Accreditation: (See Page 3)
(State operated)
Approved by New England Association of Colleges and Secondary Schools

General Admission Requirements: See Page 3

Regular Vocational Programs: See Page 3

Automobile Mechanics

Carpentry

Drafting, Machine

Electrical

Electronics, Industrial

Machine

Tool & Die

Post Secondary Vocational Programs: See Page 3

Practical Nurse

Student Body: 432.

Special Information: Practical Nurse program affiliation with Middlesex Hospital. Has programs for disadvantaged.

WARD (SAMUEL I.) TECHNICAL COLLEGE
University of Hartford

200 Bloomfield Avenue
West Hartford, CT 06117

Established: 1948
Tel: 523-4811

Approvals: (See Page 5)
Approved by State Board of Education
Approved by New England Association of Colleges and Secondary Schools
Approved for V.A. program

3774

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WARD (SAMUEL I.) TECHNICAL COLLEGE (continued)

Admission Requirements:
High School graduation; math prerequisite for associate programs; aptitude required for certificate programs.

Vocational Programs:

Electronic Engineering Technology: Program length 2 years; full and part time, day and evening; tuition $1,400 per year; associate degree awarded.

Electromechanical Engineering Technology: Program length 2 years; full and part time, day and evening; tuition $1,400 per year; associate degree awarded.

Industrial Electronics Technology: Program length 2 years; full time day only; tuition $1,400 per year; certificate awarded.

Electronic Maintenance Technology: Program length 2 years; part time evening only; tuition $1,400 per year; certificate awarded.

Student Body: 170

Special Information: Operates residential facilities.

WARREN INSTITUTE, INC. (Bridgeport)

1070 Park Avenue
Bridgeport, CT 06603

Established: 1941
Tel: 336-3563

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A. and Connecticut Real Estate Commission programs
Accredited by Accrediting Commission for Business Schools, National Association of Trade an Technical Schools

General Admission Requirements:
High School diploma or willingness to complete high school equivalent before completion of program.

Special Admission Requirements:
Aptitude (for some programs).

Vocational Programs:

Clerk-Typist: 36 weeks, 900 hours; full time day, and part time evening only; tuition $900; diploma awarded.

Stenographer: 36 weeks, 900 hours; full time day, and part time evening only; tuition $900; diploma awarded.

Drafting: 36 weeks, 900 hours; full time day, and part time evening only; tuition $900; diploma awarded.

Electronics: 36 weeks, 900 hours; full time day, and part time evening only; tuition $900; diploma awarded.

Real Estate: 12 weeks, 30 hours; part time evening only; tuition $65; certificate awarded.

Bookkeeper-Accounting: 36 weeks, 900 hours; full time day, and part time evening only; tuition $900; diploma awarded.

Student Body: 64, 30% male.

Special Information: (see next column)

WARREN INSTITUTE, INC. (Bridgeport) - continued

Special Information: Residential facilities assistance provided.

WARREN INSTITUTE (Danbury)

321 Main Street
Danbury, CT 06810

Established: 1969
Tel: 744-4905

Approvals: (See Page 5)
Approved by State Board of Education
Approved for Connecticut Real Estate Commission program

General Admission Requirements:
True desire to learn.

Vocational Programs:

Executive Secretary: 40 weeks, 1000 hours; full time day only; tuition $750.

Executive Secretary: 40 weeks, 280 hours; part time evening only; tuition $350.

Accounting: 40 weeks, 1000 hours; full time day only; tuition $750.

Accounting: 40 weeks, 280 hours; part time evening only; tuition $350.

Mechanical Drafting: 40 weeks, 1000 hours; full time day only; tuition $750.

Mechanical Drafting: 40 weeks, 280 hours; part time evening only; tuition $350.

Student Body: 58, 40% male.

Special Information: Residential facilities assistance provided; aptitude test available upon request.

WATERBURY HOSPITAL SCHOOL OF MEDICAL TECHNOLOGY

64 Robbins Street
Waterbury, CT 06720

Established: 1946
Tel: 756-4421

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by American Society of Clinical Pathologists
Accredited by American Medical Society Council on Medical Education

General Admission Requirements:
At least 3 years of college including 16 semester hours in biology and 3 semester hours in mathematics; 16 semester hours in chemistry.

Special Admission Requirements:
Good student, personable.

Vocational Program:

Medical Technology: 52 weeks, 2000 hours; full time day only; no tuition; certificate awarded.

Student Body: 7.

Special Information: Operates residential facilities.

WATERBURY SCHOOL OF HAIRDRESSING, INC. (see next page)

FOREWORD

The project that led to the study described in this report was initially conceived by Charlie M. Dunn, the former Assistant Commissioner of Vocational-Technical Education in Tennessee and presently Dean of Instruction at the Nashville State Technical Institute, and the author. The support given to the project by Mr. Dunn and his successor, Mr. Bill Harrison, was indispensable. Whatever benefits may be gained from the study were possible only through their support.

The project was funded jointly by the Tennessee Division of Vocational-Technical Education and Memphis State University's Center for Manpower Studies, recipient of a Manpower Administration Institutional Grant (31-45-70-03). The project was begun in June 1970, with the collection of data completed by March 1971. Although this paper only reports on one aspect, the project had three specific objectives. First, guidance counselors and other personnel from each of the 23 area vocational-technical schools in operation in 1970 served as interviewers in the project, calling upon approximately 1,000 establishments in their respective areas. This experience served two ends beyond the immediate project: acquainting the school personnel with industry patterns, training needs, and problems, and directly acquainting the persons in industry with the capabilities and capacities of the area vocational-technical school system.

Second, in accordance with the Vocational Education Amendments of 1968 (Public Law 90-567), an objective of the project was to project demand for the output of 105 types of vocational and technical training in Tennessee, the nine economic regions, and four Standard Metropolitan Statistical Areas. This part of the project has been completed, and projections

WATERBURY SCHOOL OF HAIRDRESSING, INC.

134 South Main Street
Waterbury, CT 06702

Established: 1969
Tel: 754-6926

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for Social Security Division and Work Incentive programs

General Admission Requirements: See Page 5

Vocational Program:

Hairdresser: 52 weeks, 2000 hours; full and part time day only; tuition $695.

Student Body: 22, some males.

WATERBURY STATE TECHNICAL COLLEGE

1460 West Main Street
Waterbury, CT 06708

Established: 1964
Tel: 756-7035

Approvals, Accreditation: (See Page 4)
(State operated)
Approved by Engineering Council for Professional Development
Approved by New England Association of Colleges and Secondary Schools
Accredited by Connecticut State Commission for Higher Education

Admission Requirements: See Page 4

Vocational Programs:

Chemical Technology: Program length 66 weeks, 123 hours; full time day only; tuition $100 per year; associate degree awarded.

Civil Technology: Program length 66 weeks, 108 hours; part time evening only; tuition $100 per year; associate degree awarded.

Data Processing Technology: Program length 66 weeks, 107 hours; full time day, and part time evening only; tuition $100 per year; associate degree awarded.

Electrical Technology: Program length 66 weeks, 108 hours; full time day, and part time evening only; tuition $100 per year; associate degree awarded.

Fire Technology: Program length 66 weeks, 110 hours; part time evening only; tuition $100 per year; associate degree awarded.

Industrial Management: Program length 66 weeks, 109 hours; part time evening only; tuition $100 per year; associate degree awarded.

Manufacturing Technology: Program length 66 weeks, 108 hours; full time day, and part time evening only; tuition $100 per year; associate degree awarded.

Mechanical Technology: Program length 66 weeks, 107 hours; full time day, and part time evening only; tuition $100 per year; associate degree awarded.

Industrial Drafting: Program length 33 weeks, 56 hours; full time day only; tuition $100 per year; certificate awarded.

WATERBURY STATE TECHNICAL COLLEGE (continued)

Student Body: 1,239; 4-5% female.

Special Information: Residential facilities assistance provided. Programs run 33 weeks per year.

WATERFORD FLIGHT SCHOOL

New London - Waterford Airport
Waterford, CT 06385

Established: 1970
Tel: 443-2297

Approvals: (See Page 5)
Approved by F.A.A.
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Vocational Programs:

Commercial Pilot: Program 271 hours; full and part time, day and evening; tuition $3,595; certificate awarded.

Flight Instructor: Program 82.5 hours; full and part time, day only; tuition $915; certificate awarded.

Student Body: 70, some females.

Special Information: Additional pilot and instructor programs offered. Residential facilities assistance provided.

WHITNEY (ELI) REGIONAL VOCATIONAL-TECHNICAL SCHOOL

71 Jones Road
Hamden, CT 06514

Established: 1956
Tel: 387-2563

Approval, Accreditation: (See Page 3)
(State operated)
Approved by New England Association of Colleges and Secondary Schools

General Admission Requirements: See Page 3

Regular Vocational Programs: See Page 3

Automobile Mechanics

Beauty Culture

Carpentry

Drafting, Machine

Electrical

Electronics, Industrial

Fashion Design

Machine

Printing & Lithography (Graphic Arts)

Plumbing

Tool & Die

Post Secondary Vocational Programs: (see next page)

through 1978 have been delivered to the Division of Vocational-Technical Education. These findings are to be reported jointly with the Tennessee Department of Employment Security in a joint publication that will present a combined effort at both industry and occupational projections.

Third, the final objective of the project was to collect and analyze data on the supply side of the problem, reported here. This report actually consists of a potpourri of topics and comments on the characteristics of the Tennessee labor force included in the sample. The discussion is directed primarily to vocational educators and counselors. It is hoped that an understanding or appreciation of some of the forces that shape the work experiences of people will be useful in advance planning and in the day-to-day operations of training programs.

The author wishes to recognize the valuable assistance provided in the formative stages by C. Howard Davis, associate professor of economics at Memphis State, and the many graduate students who carried a large share of the burden--Kay Lewis Redditt, Jackson Jones, Lee Davison, and James Freeman. Particular appreciation is expressed to Robert R. McCormick, research assistant in the Center, who actually managed much of the project.

The bulk of the work was performed by the Area Vocational-Technical School personnel who carried out the interviewing in addition to their normal duties. The study would not have been possible without their diligent and skillful performance.

The opinions or points of view expressed in this article do not necessarily represent those of Memphis State University or of the Department of Labor. Moreover, the author is solely responsible for the factual accuracy of all material developed in the report.

William R. Schriver

WHITNEY (ELI) REGIONAL VOCATIONAL-TECHNICAL SCHOOL
(continued)

Post Secondary Vocational Programs: See Page 3

Dental Assistant

Practical Nurse

Student Body: 735.

Special Information: Practical Nurse program affiliation with Hospital of St. Raphael and Yale-New Haven Hospital.

WILCOX (HORACE C.) REGIONAL VOCATIONAL-TECHNICAL SCHOOL

Oregon Road
Meriden, CT 06450
Established: 1918
Tel: 235-6316

Approval, Accreditation: (See Page 3)
(State operated)
Approved by New England Association of Colleges and Secondary Schools

General Admission Requirements: See Page 3

Regular Vocational Programs: See Page 3

Automobile Mechanics

Beauty Culture

Carpentry

Drafting, Machine

Electrical

Electronics, Industrial

Machine

Printing

Sheet Metal

Tool & Die

Student Body: 608, 7% female.

Special Information: Has programs for disadvantaged.

WILCOX (ONA M.) SCHOOL OF NURSING
(Middlesex Memorial Hospital)

28 Crescent Street
Middletown, CT 06457
Established: 1908
Tel: 347-9471

Approvals, Accreditation: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing
Approved for V.A. program
Accredited by National League for Nursing

General Admission Requirements:
Graduate of an accredited high school with a college preparatory background. Rank in the upper half of the class. Consideration will be given individuals with a high school equivalency diploma. C.E.E.B. score of 800 composite. N.L.N. Pre-entrance and Guidance test rank in the 50 percentile or better.

WILCOX (ONA M.) SCHOOL OF NURSING (continued)

Vocational Program:

(Registered) Nurse: 120 weeks, 3460 hours; full and part time, day only; tuition $900; diploma awarded.

Student Body: 69.

Special Information: Operates residential facilities.

WILLIMANTIC INSTITUTE OF HAIRDRESSING & COSMETOLOGY, INC.

17 Temple Street
Willimantic, CT 06226
Established: 1962
Tel: 423-6339

Licensure, Approvals: (See Page 5)
Licensed by State Board of Health
Approved by State Board of Education
Approved for V.A. program

General Admission Requirements: See Page 5

Special Admission Requirements:
9th grade level.

Vocational Program:

Hairdresser & Cosmetologist: 50 weeks, 2000 hours; full time day only; tuition $600.

Student Body: 20

WINDHAM COMMUNITY MEMORIAL HOSPITAL

112 Mansfield Avenue
Willimantic, CT 06226
Established: 1933
Tel: 423-9201

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing
Approved for V.A. program

General Admission Requirements:
See Page 4 for Practical Nurse program; other programs require science courses.

Vocational Programs:

Laboratory Assistant: 50 weeks; full time day only; no tuition; diploma awarded.

Medical Laboratory Technician: 50 weeks; full time day only; tuition $75; diploma awarded.

Practical Nurse: 50 weeks; no tuition; diploma awarded.

X-ray Technician: 100 weeks; full time day only; tuition $100; certificate awarded.

Student Body: 26.

Special Information: Practical Nurse program affiliated with Windham Regional Vocational-Technical School.

WINDHAM REGIONAL VOCATIONAL-TECHNICAL SCHOOL

210 Birch Street
Willimantic, CT 06226
Established: 1928
Tel: 423-4544

(see next page)

WORK AND TRAINING CHARACTERISTICS OF A SAMPLE OF THE NON-PROFESSIONAL LABOR FORCE OF TENNESSEE

The Study

As part of a larger study to project demand for training in various non-professional occupations in Tennessee,[1] it was felt that it would be useful to examine the supply side of the problem. Therefore, an attempt was made to collect certain data on Tennessee's labor force that would allow educational planners to assess certain functions of the labor market and public-private training programs.

Since the methodology of the larger study called for interviewers (personnel from the local area vocational-technical schools) to visit approximately 1,000 establishments in Tennessee, the marginal cost was minimal for obtaining additional information on the labor force by leaving "employee questionnaires" (attached as Appendix A) with the person interviewed, usually a personnel or office manager. The questionnaire asked for certain demographic data and labor force experience during the 1969-1970 time period.

Questionnaires and postage-paid, addressed envelopes for 10 percent of the non-professional work force of each establishment were left with the person interviewed who was instructed to distribute the questionnaires and envelopes among the personnel in proportion to the occupational structure without regard to sex or race. For example, if 90 percent of the establishment's work force were machine operators, 90 percent of the allotted

---

[1] Approximately 1,000 establishments representing the economic structure of Tennessee were interviewed (two establishments from each 3-digit SIC manufacturing group and two establishments from each 2-digit SIC non-manufacturing group). Data were obtained on the occupational structure of the firm, and an occupational matrix was developed for Tennessee.

WINDHAM REGIONAL VOCATIONAL-TECHNICAL SCHOOL (continued)

Approval, Accreditation: (See Page 3)
(State operated)
Approved by New England Association of Colleges and Secondary Schools

General Admission Requirements: See Page 3

Regular Vocational Programs: See Page 3

Automobile Mechanics

Carpentry

Drafting, Architectural

Drafting, Machine

Electrical

Electronics, Industrial

Machine

Tool & Die

Post Secondary Vocational Programs: See Page 3

Dental Assistant

Practical Nurse

Student Body: 457, 10% female.

Special Information: Practical Nurse program affiliation with Day Kimball and Windham Memorial Hospitals.

WOLCOTT (OLIVER) REGIONAL VOCATIONAL-TECHNICAL SCHOOL

75 Oliver Street
Torrington, CT 06790

Established: 1915
Tel: 489-0261

Approval, Accreditation: (See Page 3)
(State operated)
Approval by New England Association of Colleges and Secondary Schools pending

General Admission Requirements: See Page 3

Regular Vocational Programs: See Page 3

Air Conditioning & Refrigeration

Automobile Mechanics

Beauty Culture

Carpentry

Drafting, Machine

Electrical

Electronics, Industrial

Health Services Occupations

Machine

Tool & Die

Student Body: 511, 10% female.

WRIGHT (J.M.) REGIONAL VOCATIONAL-TECHNICAL SCHOOL

Woodside Park
Stamford, CT 06902

Established: 1920
Tel: 324-7363

Approval, Accreditation: (See Page 3)
(State operated)
Approval by New England Association of Colleges and Secondary Schools pending
Accredited by American Dental Association

General Admission Requirements: See Page 3

Regular Vocational Programs: See Page 3

Automobile Mechanics

Beauty Culture

Carpentry

Chemistry, Industrial

Drafting, Machine

Electrical

Electronics, Industrial

Food Trades

Machine

Printing & Lithography

Plumbing & Heating

Tool & Die

Vocational Homemaking

Post Secondary Vocational Programs: See Page 3

Dental Assistant

Practical Nurse

Student Body: 775, 35% female.

Special Information: Practical Nurse program affiliation with Greenwich, Norwalk, St. Joseph and Stamford Hospitals.

YALE-NEW HAVEN HOSPITAL

789 Howard Avenue
New Haven, CT 06504

Approvals: (See Page 5)
Approved by State Board of Education
Approved by State Board of Examiners for Nursing

General Admission Requirements: See Page 5

Vocational Program:

Practical Nurse: 1 year, 2040 hours; full time day only; tuition - none; certificate awarded.

Special Information: Program affiliated with Eli Whitney Regional Vocational-Technical School.

YALE-NEW HAVEN HOSPITAL - INHALATION THERAPY (next page)

questionnaires were distributed among the operators and the remaining 10 percent among the other employees in proportion to their occupational composition. The employees were told that their participation was voluntary, and the questionnaire explained that all individual information would be treated confidentially.

Twelve thousand employee questionnaires were left with persons interviewed at the establishments, and it was assumed that they, in turn, distributed them to their respective work forces as instructed. The response was 2,680 usable questionnaires (22.3 percent). However, the reader is cautioned to interpret the subsequently discussed findings as suggestive only, since the response sample analyzed cannot be treated as statistically representing the Tennessee non-professional, non-managerial labor force.

How does the response sample differ in composition from the population it suggests? Certain sample statistics can be compared with population parameters taken from the 1960 Census of Population (the 1970 employment data were not available at time of writing). Table 1 compares the mean age, sex, and race composition of the sample with 1960 labor force characteristics. The sample appears to be most disproportionate in race, with whites being over-represented.

The sample may also be compared by industry of employment with the 1960 labor force employment by industry taken from the Census of Population. Table 2 shows this comparison. In comparison to the 1960 labor force, the sample is most over-represented by employment in services and most under-represented in extraction and construction, trade, and transportation and utilities.

The extent of the bias in the sample due to its concentration in the demographic and industrial characteristics shown in Tables 1 and 2 is

YAL

YALE-NEW HAVEN HOSPITAL
SCHOOL OF INHALATION THERAPY

789 Howard Avenue
New Haven, CT 06504

Established: 1961
Tel: 436-3467

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by American Medical Society Council on Medical Education

General Admission Requirements:
Same as college admission requirements.

Vocational Program:

Inhalation Therapist: 96 weeks, 2368 hours; full time day only; tuition $2,300.

Student Body: 9, 78% male.

YALE-NEW HAVEN HOSPITAL
SCHOOL OF RADIOLOGIC TECHNOLOGY

789 Howard Avenue
New Haven, CT 06504

Established: 1944

Approvals: (See Page 5)
Approved by State Board of Education
Approved for V.A. program
Approved by American Medical Society Council on Medical Education, American Society of Radiologic Technologists and American Registry of Radiologic Technologists

General Admission Requirements:
High School graduate.

Special Admission Requirements:
Science Course.

Vocational Program:

Radiologic Technologist: 96 weeks, 700 hours; full time day only; tuition $900; diploma awarded.

Student Body: 48, 25% male.

Special Information: Operates residential facilities for females, provides residential facilities assistance for males.

ADDENDA

CONNECTICUT SCHOOL OF BROADCASTING - STRATFORD
(continued)

Vocational Program:

Broadcaster: 8 or 16 weeks, 112 hours; part time day and evening; tuition $640; diploma awarded.

NATIONAL ACADEMY OF HAIRDRESSING - SOUTH NORWALK
(continued)

Vocational Program:

Hairdressing: 52 weeks, 2000 hours; full and part time, day and evening; tuition $750; diploma awarded.

THAMES VALLEY STATE TECHNICAL COLLEGE (continued)

Vocational Program:

Mechanical Engineering Technology: Program length 66 weeks, 142 hours; full time day, and part time day and evening; tuition $100 per year.

Table 1

COMPARISON OF THE SAMPLE WITH THE
1960 LABOR FORCE

	Sample	Labor Force
Mean Age	37	39.8
Race Composition		
Percent Whites	93	84
Percent Other	7	16
Sex Composition		
Percent Males	59.1	65.1
Percent Females	40.9	34.9

Table 2

COMPARISON OF SAMPLE WITH THE 1960 LABOR FORCE
BY INDUSTRY OF EMPLOYMENT*

	Sample (%)	Labor Force (%)
Extraction & Construction	.5	8.8
Manufacturing	38.6	30.2
Trade	1.2	20.8
Transportation & Utilities	.4	7.4
Service	59.3	32.6

*Excludes agriculture, forestry and fisheries, and not reported; forced to 100%.

Acknowledgments

As the University Research Institute of Connecticut, Inc. (URIC) is an independent consortium of the research interests and capabilities of twelve Connecticut universities and colleges, this Guide could not have been prepared without their individual cooperation. The acknowledgment of URIC's "associated institutions" is most appropriate, viz:

UNIVERSITY OF BRIDGEPORT

CENTRAL CONNECTICUT STATE COLLEGE

CONNECTICUT COLLEGE

FAIRFIELD UNIVERSITY

UNIVERSITY OF HARTFORD

UNIVERSITY OF NEW HAVEN

RENSSELAER POLYTECHNIC INSTITUTE OF CONNECTICUT

SAINT JOSEPH COLLEGE

SOUTHERN CONNECTICUT STATE COLLEGE

TRINITY COLLEGE

WESLEYAN UNIVERSITY

YALE UNIVERSITY

not known. It was impossible, given the limitations of staff and funds, to select and collect data on a probability sample, and the study population upon which the subsequent findings are based is defensable only by calling forth these constraints. Although all findings must be regarded as suggestive and not necessarily representative of the total Tennessee non-professional labor force, broad comparisons within the study population are possible and, in some instances, inferences to the larger labor force may be valid.

Findings

Geographic Mobility

Table 3[2] shows the geographic mobility of the sample during the 1969-1970 time period. Surprisingly, the women were more mobile than the men. Ninety-five percent of the men did not change county residences compared to 90 percent of the women. Five percent of the women moved from another state to Tennessee as compared to only 2 percent of the males. However, the male and female categories cannot be considered separately in the sense that married female mobility tends to be a function of the male household head. Of the total sample, 3 percent moved from another state to Tennessee, and 4 percent changed counties of residence in Tennessee.

Geographic mobility can also be examined by occupational category. Table 4 shows these data for each of the six occupational categories. The overall pattern found in Table 4 appears to describe generally each of the occupational categories.

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[2] In the tables that follow, percentages of the column total are shown in parentheses, but they may not sum to 100 due to rounding errors. The total number of respondents may vary from table to table due to incomplete response to all items in each questionnaire.

Table 3

GEOGRAPHIC MOBILITY BY SEX

Mobility	Males	Females	Both
Total	1,583	1,094	2,677
None	1,505 (95)	987 (90)	2,492 (93)
Changed counties of residence in Tennessee	39 (2)	58 (5)	97 (4)
Moved from another state to Tennessee	39 (2)	49 (4)	88 (3)

Table 4

GEOGRAPHIC MOBILITY BY OCCUPATIONAL CATEGORY

Mobility	Technician	Craftsman	Salesworker	Clerical	Operatives	Service
Total	533	469	50	804	522	152
None	498 (93)	453 (96)	44 (88)	712 (88)	497 (95)	145 (95)
Changed counties in Tennessee	13 (3)	8 (2)	3 (6)	58 (7)	12 (2)	2 (1)
Changed states	22 (4)	8 (2)	3 (6)	34 (5)	13 (3)	5 (3)

WORK AND TRAINING CHARACTERISTICS OF A SAMPLE OF THE NON-PROFESSIONAL LABOR FORCE OF TENNESSEE

Center for Manpower Studies

Memphis State University & University of Mississippi

U.S. Department of Labor Grant 31-45-70-03

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Since data were not available from this study to examine outmigration of the Tennessee labor force, little can be said about overall trends. Geographic movement between the states tends to be a function of economic benefits (as real or imagined) and, to the extent Tennessee has attracted labor from outside its borders, is some indication of relative job advantages in Tennessee. The losses, not reported here, must be interpreted the same way. More will be said about migration when the states in which job training was received are discussed later in the study.

Commuting Time

Although data were not collected on commuting patterns of the sample across county lines, data were collected on the amount of time spent commuting portal to portal one way. Mileage data were also collected, but time appears to be the more relevant of the two variables. Table 5 shows that the commuting patterns of the men and women were practically identical with but a very slight skew among the males toward greater commuting times. The median and mode of both categories fall within the eleven to twenty minute categories with frequencies tapering off heavily beyond the twenty-one to thirty minute category.

Theoretically, commuting time is positively related to wage rate and negatively related to commuting cost (both monetary and psychic). With the advent of the interstate highway system and other general highway improvements on the one hand, and increased availability of car pool arrangements on the other, costs of commuting have been drastically reduced in Tennessee, improving the efficiency of the labor markets. An exception may have been in the metropolitan areas where the paucity of public transportation probably increased commuting costs, impairing labor market efficiency.

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Table 5

COMMUTING TIME BY SEX

Commuting Time (minutes)	Males	Females	Both
Total	1,495	1,043	2,538
10 and less	154 (10)	114 (11)	268 (10)
20 to 11	706 (47)	520 (50)	1,226 (48)
30 to 21	348 (23)	260 (25)	608 (24)
40 to 31	87 (6)	67 (6)	154 (6)
50 to 41	101 (7)	44 (4)	145 (6)
Over 50	99 (7)	38 (4)	137 (5)

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WORK AND TRAINING CHARACTERISTICS OF A SAMPLE OF THE NON-PROFESSIONAL LABOR FORCE OF TENNESSEE

by

William R. Schriver

Center for Manpower Studies
Memphis State University
Memphis, Tennessee

April 1972

3784

Employer Mobility

Table 6 shows the number of male and female workers in the sample who changed employers during the 1969-1970 interval by reason stated. Table 6 reveals that 16 percent of the sample changed employers during the time interval, and that females changed employers more frequently than males. Among males the most important reasons for change in order of frequency were better pay, improved working conditions, and involuntary. Among females the most important were better pay, tying in frequency with change in residence (frequently caused by husband's job change), and improved working conditions. It is not surprising that reasons other than improved pay were important since the employment situation is a complex package. Other studies have found improved pay to account for a smaller proportion of changes than found here. Not only are wages but one, albeit important, aspect of the total employment situation, but man is not in actual practice an income maximizer. Then too, women, especially when they are secondary earners in the family unit, frequently must choose hours and conditions of work that are contrary to their income maximization but which more nearly represent the totality of family needs.

The effect of not voluntarily changing employers, which is typical of the American worker even when improved employment packages are available at no additional costs on behalf of the worker, is an impairment of labor market efficiency.

Occupation

Table 7 shows the occupational categories in which the sample was employed at the time of answering the questionnaire. The different occupational structures for males and females reflect the pervasive bias in the American economy to shuttle women into certain occupations and men into

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Table 6

EMPLOYER MOBILITY BY SEX

Mobility	Males	Females	Both
Total	1,583	1,094	2,677
None	1,362 (86)	886 (81)	2,248 (84)
Changed Employers	221 (14)	208 (19)	429 (16)
Reasons:			
improved pay	68 (31)	47 (23)	115 (27)
improved hours	15 (7)	13 (6)	28 (6)
improved work conditions	45 (20)	31 (15)	76 (18)
people problems	1 (.4)	7 (3)	8 (2)
changed residence	10 (4)	47 (23)	57 (13)
involuntary	38 (17)	22 (10)	60 (14)
other	44 (20)	41 (20)	85 (20)

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others at a wage discrepancy extremely favorable to the men.[3] The last column in Table 7 shows the median income for each of the occupational categories. The unfavorable position of women in terms of median wages associated with occupational employment is obvious. Female employment was concentrated among clerical occupations and operative occupations which rank fifth and sixth, respectively, in median wage.

The sorting of females into "typically female" occupations and males into the "typically male" occupations is as venerable as it is reliable and begins in infantile socialization when little girls are taught to be passive and little boys to be active and aggressive. School further divides the two streams, and the final occupational preparation, be it in legal training biased toward males or teacher training in elementary education biased toward females, is the educational system's capstone. The educational system, however, merely mirrors the economy and society.

A labor market is self-defeating that continues to sort persons into occupations and industries on the basis of sex and independently of abilities, yet this occurs. The extension of the Civil Rights Act of 1964 into the web of female discrimination, increased recognition of discrimination against women, and their increasing independence and participation in the labor force should all mitigate to improve the position of women vis-a-vis men in the labor force. The educational and training institution must also play an active part in labor market efficiency. This can be partially done by training females in erstwhile male occupations that command high wages

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[3] Much of the wage discrimination against women can be explained by occupational exclusion, but women usually earn less than men even when in the same occupation. (See: V. R. Fuchs, "Differences in Hourly Earnings Between Men and Women," Monthly Labor Review, Vol. 94, No. 5, May 1971; J. F. Buckley, "Pay Differences Between Men and Women in the Same Job," Monthly Labor Review, Vol. 94, No. 11, November 1971.)

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Table 7

EMPLOYMENT BY OCCUPATION AND SEX

Occupation	Males	Females	Both	Median Income 1960*
Total	1,536	1,076	2,612	
Technician	410 (27)	123 (11)	533 (20)	$6,619
Craftsman	432 (28)	37 (3)	469 (18)	5,240
Sales	46 (3)	4 (.4)	50 (2)	4,987
Clerical	152 (10)	651 (61)	803 (31)	4,785
Operative	315 (20)	207 (19)	522 (20)	4,299
Service	103 (7)	54 (5)	157 (6)	3,310
Laborer	78 (5)	0 (0)	78 (3)	2,948

*Source: U. S. Department of Commerce, Bureau of Census, "Lifetime Occupational Mobility of Adult Males, March, 1962," Current Population Reports.

and through counseling women to pursue training and employment based upon their aptitudes and abilities, not their sex.

Occupational Mobility

Table 8 shows the extent of change from one occupation to another by the sample during 1969-1970. (This is not to be confused with the data presented in Table 6: employer changes.) Occupational mobility means that a person did at least two different kinds of work (as his major job) in the period under study with or without changing employers or industry of employment.

Occupational mobility may be interpreted as one of the major labor market adjustment mechanisms when workers voluntarily respond to supply and demand differentials among occupations (expressed in wage differences), or when workers involuntarily change occupations through layoffs and regain new employment only by changing occupations. Unfortunately, the latter is frequently at a lower skill level. Married women often respond to factors external to the labor market in making occupational changes, as was pointed out in the previous analysis of Table 6, by performing the role of secondary earner in the family unit.

Table 8 shows that 13 percent of the sample worked in more than one occupation during the study period. Men had a slightly higher rate (14 percent) than did females (13 percent).

Occupational mobility may also be presented in simple input-output form, i.e., patterns of movement among the various occupational categories. Table 9 shows, for those workers who changed jobs during 1969-1970, mobility patterns by occupation. The rows reveal present occupation and the columns reveal former occupation. For example, the cell comprising row 2 (craftsmen) and column 5 (operatives) shows the frequency and percent of

Table 8

OCCUPATIONAL MOBILITY BY SEX

Mobility	Males	Females	Both
Total	1,583	1,094	2,677
None	1,364 (86)	954 (87)	2,318 (87)
One or more occupational changes	219 (14)	140 (13)	359 (13)

Table 9

OCCUPATIONAL MOBILITY PATTERNS AMONG THE OCCUPATIONAL CATEGORIES

Present Occupation	Former Occupation: Technician	Craftsman	Salesworker	Clerical	Operative	Service	Total
Technician	29 (42)*	5 (7)	13 (19)	11 (16)	6 (9)	5 (7)	69
Craftsman	8 (15)	12 (23)	5 (10)	3 (6)	19 (36)	5 (10)	52
Salesworker	2 (40)		3 (60)				5
Clerical	14 (13)	4 (4)	10 (9)	59 (54)	14 (13)	9 (8)	110
Operative	4 (5)	9 (11)	8 (10)	9 (11)	41 (52)	8 (10)	79
Service	3 (17)	2 (11)	2 (11)		8 (44)	3 (17)	18

* Percent of row total

present craftsmen who formerly worked as operatives during the study period.

As might be expected, most occupational changes occurred within the same family of occupations; e.g., of the 69 technicians who changed occupations during the study period, 42 percent changed to other occupations within the same category. That this was the dominant pattern across all occupations can easily be determined by examining the principal diagonal in Table 9 and seeing that large percent values fall on this diagonal.

Multiple Jobholding (Moonlighting)

The extent of multiple jobholding in the labor force has long been of interest to students of labor force behavior. Table 10 shows the extent of multiple jobholding among the sample to be 9 percent during 1969-1970. There was an extreme difference between males and females; 13 percent of the men held additional jobs while only 3 percent of the women did so. Eighty-five percent of the moonlighters were male. The above pattern is predictable in terms of other studies. A study of a national labor force sample (1970-1971) found that: 7 percent of the males held second jobs (it was most prevalent among the 25-44 age group); only 2.6 percent of the women worked at more than one job; 81 percent of the moonlighters were men.[4] Thus, the Tennessee sample conforms in trend to the national pattern.

The national study determined that the highest moonlighting rates were found among teachers, guards, policemen, and firemen; opportunity was held to be as important a factor as need for extra income.[5]

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[4] H. V. Hayghe and K. Michelotti, "Multiple Jobholding in 1970 and 1971," Monthly Labor Review, Vol. 94, No. 10, October 1971.

[5] Ibid.

Table 10

MULTIPLE JOBHOLDING BY SEX

Multiple Jobholding	Males	Females	Both
Total	1,583	1,094	2,677
None	1,375 (87)	1,056 (99)	2,431 (91)
With second job	208 (13)	38 (1)	246 (9)

We may conclude by stating that moonlighting was a fairly common phenomenon among the Tennessee sample and by inference in the Tennessee labor force. Since the national study found that the median weekly earnings from second jobs were $30 and the median hours worked were seven hours per week,[6] the impact of moonlighting on individual incomes and the Tennessee economy is significant. Labor market imperfections are implied; if moonlighting coexists with high unemployment, particularly among relatively low skill occupations, the market may not be efficiently allocating jobs.

Moonlighting may also be examined by analyzing the connection between a primary occupation and the secondary occupations most frequently linked to it. Again, the simple input-output form is useful in looking at these patterns. From Table 11 it can be seen that most persons worked in second jobs that were identical or similar to their primary jobs, since the principal diagonal in Table 11 contains the cells with the largest percent values. However, the remaining secondary jobs are well dispersed among each of the primary occupational categories (except among salesworkers where there was only one observation).

Little more can be added by the data to an understanding of moonlighting and labor market efficiency except to state that technicians and craftsmen held proportionately more second jobs than did workers in other categories. The sample consisted of 20 percent technicians and 17 percent craftsmen who held 27 percent and 26 percent of all second jobs, respectively. This may have been a function of supply and demand conditions and less due to labor market inefficiency. That is, craftsmen and technicians could have

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[6] Ibid.

Table 11

MULTIPLE JOBHOLDING PATTERNS AMONG OCCUPATIONAL CATEGORIES

Primary Occupations	Secondary Occupations: Technician	Craftsman	Salesworker	Clerical	Operative	Service	Total
Technician	36 (57)	4 (6)	9 (14)	1 (2)	7 (11)	6 (10)	63
Craftsman	20 (33)	24 (39)	4 (6)	1 (2)	8 (13)	4 (6)	61
Salesworker			1(100)				1
Clerical	12 (24)	2 (4)	7 (14)	18 (36)	8 (16)	3 (6)	50
Operative	11 (23)	9 (19)	9 (19)	1 (2)	10 (21)	6 (13)	47
Service	1 (8)	1 (8)	1 (8)		4 (33)	5 (42)	12

been in great demand and relatively short supply. Therefore, the number of openings may have exceeded the number of skilled persons, and multiple jobholding may have been the most efficient way in the short-run to fill these jobs. By inference it would appear that there were labor shortages in the technical and craft areas in Tennessee during 1969-1970.

Nonemployment

Nonemployment may be divided for purposes of analysis into non-participation and unemployment, the former consisting of those persons not working and not looking for work and the latter category consisting of those persons not working but actively looking for work. Nonparticipants can further be subdivided into voluntary (those not desiring to work under present circumstances) and involuntary (those unable to work due to illness, pregnancy, overriding family responsibilities, etc.). Table 12 shows the frequency of duration categories of nonemployment encountered by the sample total and males and females. Theoretically, women should experience a higher level of unemployment and both voluntary and involuntary nonparticipation due to various cultural and economic reasons.[7] The data in Table 12 substantiate the fact that women in the sample suffered considerably more nonemployment than males in each category.

During the study period, women had a median unemployment period of 6.3 weeks compared with 5 weeks for males; had a median involuntary non-participation period of 12 weeks compared with 8.6 weeks for males; and had a median voluntary nonparticipation period of 21.1 weeks compared with 15.1 weeks for males.

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[7] For a comprehensive treatment of female nonemployment, see: Lowell E. Gallaway, Manpower Economics (Homewood, Illinois: Richard D. Irwin, Inc., 1971).

Table 12

NONEMPLOYMENT TYPES BY SEX

Nonemployment Type	Males	Females	Both
None	1,444 (91)	844 (77)	2,288 (85)
Unemployed			
Median Weeks	5	6.3	5.7
Number of Persons Experiencing One or More Weeks of Unemployment	98 (6)	104 (10)	202 (8)
Involuntary Nonparticipant			
Median Weeks	8.6	12	11.1
Number of Persons Experiencing One or More Weeks of Unemployment	20 (1)	59 (5)	79 (3)
Voluntary Nonparticipation			
Median Weeks	15.1	21.1	19.9
Number of Persons Experiencing One or More Weeks of Unemployment	21 (1)	87 (8)	108 (4)

These findings are generally consistent with national data that showed women to have an average unemployment rate about 68 percent higher than males in 1969.[8] However, these data do not prove or disprove economic discrimination against women, since, as employers allege, women generally have less attachment to the labor force and enter and exit more frequently than males with similar demographic characteristics. This tendency is reflected in unemployment characteristics as women volitionally leave the labor force and as employers show preference for a more stable male work force. However, there appears to be a residual of earnings and employment conditions that can be explained only in terms of "pure" economic discrimination against women.[9]

How Present Job Was Obtained

Table 13 shows how the sample found out about their present jobs. Analysis of the data from the questionnaires indicated that there were nine major sources; the remaining diverse sources were classified as "other."

From Table 13, in terms of the total sample and males and females separately, it can be seen that the overwhelming major source was information of the job vacancy from a friend or relative who worked there. In the total sample 56 percent of jobs were obtained in this manner; among males 62 percent were obtained this way, and among females 47 percent were obtained in this manner.

Next in order of importance was the method termed, in common parlance, "walk-in," defined as "applied directly to the employer on the basis of

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[8] Manpower Report of the President, 1970, Table A-13.

[9] Lowell Gallaway, op. cit., Chapter 13.

Table 13

METHOD USED TO OBTAIN PRESENT JOB

Method	Males	Females	Both
Total	1,562	1,083	2,645
Info from friend or relative who worked there	977 (62)	514 (47)	1,491 (56)
Private employment agency	50 (3)	61 (7)	111 (4)
Union	11 (.7)	0	11 (.04)
Tennessee Department of Employment Security	104 (7)	129 (12)	233 (9)
Radio, TV, or newspaper advertisement	57 (4)	35 (3)	92 (3)
Walk-in	224 (14)	194 (18)	418 (16)
Placement through school	21 (1)	38 (4)	59 (2)
Recruited directly by employer	28 (2)	23 (2)	51 (2)
Other	90 (6)	89 (8)	179 (7)

chance or own knowledge." In the total sample 16 percent obtained their jobs this way; among males 14 percent used the "walk-in" method, and among females 18 percent used this method.

The third most frequently used source among the total sample and both sexes was the Tennessee Department of Employment Security. Among the total sample 9 percent of the jobs were obtained through services offered by Employment Security; among the men 7 percent of the jobs were obtained this way, and among the women 12 percent.

The above findings are generally congruent with the findings of other studies. Job placements by the state employment services as a percent of total job placements in private industry have been estimated to be as high as 25 percent.[10] Another study of job-seeking behavior found that 14.7 percent and 17.6 percent, respectively, of residents of poverty areas in Atlanta and Detroit utilized the state employment service in seeking jobs.[11] Of the residents of non-poverty areas of Atlanta and Detroit, 11.2 percent and 13.1 percent, respectively, sought jobs through the state employment service.

Although the above findings are not directly comparable to this study (the former is based upon job-seeking activity; the latter is based upon how jobs were actually obtained), some general comments are in order. Why was the state employment service not used more frequently? Blaming the low rate on the employment service is somewhat akin to blaming illegitimacy and excessive population growth on the birth control industry; their responsibility goes only so far. There is an institutionalized job market outside

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[10] Lloyd G. Reynolds, Labor Economics and Labor Relations (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1970), p. 134.

[11] Harvey J. Hilaski, "How Poverty Area Residents Look for Work," Monthly Labor Review, Vol. 94, No. 3, March 1971.

the employment service. Employers can usually fill vacancies informally through employee contacts or a file of walk-ins.

Then too, the state employment service has been charged with many responsibilities since its establishment in 1933 under the Wagner-Peyser Act. Originally, it served only as a meeting place between buyers and sellers of labor and serviced the unemployment benefit function. With the advent of the Manpower Development and Training Act of 1962 and subsequent programs such as Human Resources Development, Job Banks, and Concentrated Employment Programs, to name but a few, the state employment service has been charged with specific training, outreach, and poverty-oriented functions. Unfortunately, the economic and welfare roles have not been clearly separated; and all too frequently the service has not been able to attract or develop (and hold) competent technical personnel in numbers required to fulfill their expanded mission.[12]

Clearly, labor market efficiency can be increased by developing more fully the clearinghouse function of the employment service, where job seekers and labor seekers can optimize their choice by considering the available alternatives rather than selecting the first vacancy or applicant as the "walk-in" and "tip by friend or relative" methods imply.

State in Which Training Was Received

Tennessee has traditionally been an exporter of population due primarily to the high birth rates of a predominantly rural population in combination with tremendous declines in agricultural employment. Although in

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[12]For a more complete treatment of this point, see: S. H. Ruttenburg and J. Gutchers, The Federal-State Employment Service: A Critique (Baltimore, Maryland: Johns-Hopkins Press, 1970).

recent years much of this outmigration has been checked due to growth in the non-agricultural sector and a trend toward urbanization and concomitant lower birth rates, Tennessee remains an exporter of its human capital, i.e., investments in skills embodied in persons who leave the State. On the other hand, Tennessee imports human capital, but the net difference probably reflects a loss rather than a gain.

Although data presented here do not allow an examination of outflows, it is possible to examine the inflow of human capital. Table 14 shows that 88 percent of the sample received their main training in Tennessee, 5 percent received their training in one of the eight adjacent states, and 7 percent received it in other states. There appears to be little if any difference between the sexes with regard to state in which training was received. Tennessee got a free ride on about 10 percent of the sample.

If the state in which training was received is examined by occupational category, a pattern of homogeneity emerges. Table 15 shows these data. It can be seen that the proportion of the sample receiving their training in Tennessee, adjacent states, and other states, is generally consistent throughout the six occupational categories.

Level of Educational Attainment

Level of formal educational attainment may well be the single most important variable in determining eligibility for entry into an occupation, advancement within the occupation, and consequently, lifetime earnings. There is a strong and reliable relationship in American society between educational attainment and income.[13] Whether this relationship is due

[13] See Herman P. Miller, "Annual and Lifetime Income in Relation to Education: 1929-1963," American Economic Review, 50, December 1960, pp. 962-986.

Table 14

STATE IN WHICH TRAINING WAS RECEIVED BY SEX

State	Males	Females	Both
Total	1,182	867	2,049
Tennessee	1,037 (88)	777 (90)	1,814 (88)
Adjacent States*	56 (5)	37 (4)	93 (5)
Other States	89 (7)	53 (6)	142 (7)

*Mississippi, Arkansas, Missouri, Kentucky, North Carolina, South Carolina, Georgia, Alabama.

Table 15

STATE IN WHICH TRAINING WAS RECEIVED BY OCCUPATIONAL CATEGORY

State	Technician	Craftsman	Sales	Clerical	Operatives	Service
Total	440	371	35	673	330	111
Tennessee	380 (86)	320 (86)	29 (83)	599 (89)	302 (92)	98 (88)
Adjacent States	21 (5)	19 (5)	3 (9)	31 (5)	12 (3)	5 (4)
Other States	39 (9)	32 (9)	3 (9)	43 (6)	16 (5)	8 (8)

entirely to increased productivity as a function of education or due to increased productivity and prestige is somewhat of a controversial issue.[14] It does appear that the employer may frequently use level of educational attainment as a rationing device through which scarce jobs may be distributed. Further, if an employer has a taste for discrimination against groups in the labor force, he may require higher levels of education in the groups before he will employ them. There is some evidence to support this by the fact that women generally have more education than men when both are employed in the same occupation. In certain occupational categories this may also be true of blacks and whites.

Although our data will not support a test of the above proposition, it is possible to show the mean level of prior educational attainment by sex and by occupational category. Table 16 shows females and female-dominated clerical occupations to have more education than males. There is a pattern of education being positively related to skill level of the occupations. However, the relatively low-skill clerical occupations, consisting primarily of women, have a higher educational level than even the high-skill technicians and craftsmen.

Training for Present Job

The respondents were asked to identify the source or sources of training for their present occupation, naming more than one source if applicable. Non-baccalaureate occupational preparation may be classified in several ways. One useful system is: (1) high school vocational programs, (b) area

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[14] The productivity-prestige controversy has been examined by the author. See: W. R. Schriver and R. L. Bowlby, "The Effect of Vocational Training on the Income-Education Distribution," Industrial Relations, forthcoming May 1972.

Table 16

MEAN EDUCATION BY SEX AND OCCUPATIONAL CATEGORY

	Mean Level of Educational Attainment
Total	11.48
Sex	
Males	11.26
Females	11.79
Occupation	
Technician	12.26
Craftsman	11.34
Salesworker	12.04
Clerical	12.27
Operatives	10.29
Service	10.41

vocational-technical schools (and technical institutes), (c) Federal apprenticeship programs, (d) proprietary vocational schools (including home-study programs), (e) armed forces, (f) employer training (OJT programs), (g) self-taught or informal apprenticeship, and (h) Federal manpower programs (such as MDTA, Job Corps, NYC, WIN, and Public Service Careers Program).

It is virtually impossible to attempt to estimate demand for occupational training output for a single training source in the above classification even when total occupational demand is reasonably well defined. There are many voids and overlaps. Although the Vocational Education Amendments of 1968 have emphasized the issue of relating vocational training to current demand, the problem is far from settled. One could argue that proprietary training establishments respond quickly to job market changes (in fact, Belitsky[15] does just this by noting that proprietary schools do not offer training in vocational agriculture!), but that public vocational schools are less likely to do so due to traditional rigidities in the system.

The Tennessee Division of Vocational-Education is making a strong effort to relate its output to current and projected job markets.[16] Estimates of occupational employment in Tennessee are made jointly by the Tennessee Department of Employment Security and the Center for Manpower Studies. However, complex theoretical issues concerning the very nature of vocational training remain yet unresolved. Should occupational training

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[15] Harvey A. Belitsky, Private Vocational Schools and Their Students (Cambridge, Mass.: Schenkman Publishing Company, Inc., 1969).

[16] This study and its parent project, "Occupational Projections in Tennessee," were supported by the Tennessee Division of Vocational-Technical Education. The findings of both projects will be useful in selecting a reasonable training output mix and, of equal importance, giving wise counsel to students entering and leaving the training programs.

have high skill specificity to prepare the student for the current industrial structure perhaps at the later cost of structural unemployment? Or should the training content be unspecific, emphasizing shop math, general chemistry, and perhaps a low-level physics course that can be applied to a host of jobs if the industrial structure changes, and let the employer train for the specific skill? Another set of questions involve the economic efficiency of institutional versus OJT training or a combination such as the contemporary British system. Other issues revolve around who should be trained, when, and how effective is vocational training among the hard-core disadvantaged and the lower and upper ends of the general ability distribution? These questions, of course, cannot be resolved here, nor is an attempt even made; they were brought up merely to remind the reader of the problems involved in preparing for a dynamic economic structure.

Table 17 shows the sources of training for the total sample and for males and females. For both men and women the most frequent source of training was OJT. Among men the "just picked it up" category ranked second and other unclassified sources ranked third. Among women high school vocational programs (primarily typing and secretarial training) ranked a high second and proprietary schools ranked third. It is noteworthy that area vocational-technical schools may have already trained about 3 percent of the non-baccalaureate non-agricultural labor force in Tennessee.

The findings of this study with respect to sources of job training are generally corroborated by a 1964 study of training in the national labor force.[17] There it was found that most workers "just picked up" the necessary

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[17] Mary Bedell and Roger L. Bowlby, Formal Training of Adult Workers--Its Extent, Nature and Use (Washington: U. S. Department of Labor, Manpower/Automation Research Monograph No. 2, December 1964).

Table 17

TRAINING SOURCES FOR PRESENT JOB BY SEX

Training Sources	Males	Females	Both
Total*	2,326	1,691	4,007
Armed Forces	154 (7)	18 (1)	168 (4)
High school vocational program	147 (6)	365 (22)	505 (13)
Area vocational-technical school	79 (3)	47 (3)	121 (3)
On-job-training	1,093 (47)	644 (38)	1,738 (43)
Apprenticeship (both DOL sponsored and other)	89 (4)	6 (.4)	98 (2)
Proprietary vocational schools	132 (6)	229 (14)	361 (9)
Just picked it up	393 (17)	176 (10)	570 (14)
Other	239 (10)	206 (12)	446 (11)

*The questionnaire asked the respondents to list all sources of significant training; therefore, the total reasons exceed the number of respondents.

skills on the job. (This category probably includes some of our OJT category since the two are not clearly distinguishable.)

The above findings lend some support for a relatively new concept of vocational training. Specifically, employers would hire their own vocational training staffs and train their own work forces with perhaps the best advantages from both institutional and OJT systems. This concept would have two distinct advantages. First, through a tax rebate system, employers could be effectively encouraged to hire and train the relatively unemployable "disadvantaged." Secondly, the sticky problem of projecting demand for occupations and translating it into vocational training output schedules could at least be partially alleviated in the short-run, since training would automatically be tied to jobs. Since, as this study and others show, the employers are already doing much of the vocational training, the new concept could be a vital and efficient sector of vocational training in combination with the institutionalized sector.

Another way of examining the sources of vocational training utilized by the sample is to analyze the sources by occupational categories. Table 18 shows the data in this way. It can be seen that OJT was the most important source to all occupational categories and, excluding consideration of the "other" category, "just picked it up" was the second most important source among all occupations except clerical. Among clerical workers high school vocational programs were second most important, reflecting the numerically strong training in this area in Tennessee high schools.

While area vocational-technical schools served as a source of training for 6 percent of the workers in service occupations, it only averaged about 3.5 percent in the remaining occupations. The relative concentration among the service workers was due mainly to the large output in health occupations and cosmetology in the Tennessee area vocational-technical

Table 18

TRAINING SOURCE FOR PRESENT JOB BY OCCUPATIONAL CATEGORY

Training Source	Technician	Craftsman	Salesworker	Clerical	Operatives	Service
Total	848	732	60	1,352	639	218
Armed Forces	41 (5)	55 (8)	0	27 (2)	24 (4)	18 (8)
High school vocational program	76 (9)	40 (5)	1 (2)	353 (26)	24 (4)	9 (4)
Area vocational-technical school	27 (3)	26 (4)	0	28 (2)	24 (4)	12 (6)
On-job-training	361 (42)	352 (48)	38 (63)	439 (32)	374 (58)	97 (44)
Apprenticeship (both DOL sponsored and other)	15 (2)	55 (8)	1 (2)	7 (.5)	15 (2)	4 (2)
Proprietary vocational schools	81 (10)	35 (5)	1 (2)	217 (16)	14 (2)	9 (4)
Just picked it up	87 (10)	110 (15)	13 (22)	138 (10)	130 (20)	45 (21)
Other	160 (19)	59 (8)	6 (10)	143 (10)	34 (5)	24 (11)

school system. Other patterns in Table 18 appear reasonable on a priori grounds. Viewed from within the source categories, Armed Forces training was most important to craftsmen and service workers; OJT was most important to salesworkers and operatives; apprenticeship training was most important to craftsmen; proprietary vocational schools were most important to clerical workers and technicians; "just picked it up" was most important to salesworkers and operatives.

Conclusions

The amount of education and training possessed by the labor force is a crucial factor in determining personal income. For these skills to generate the largest possible amount of income, they must be utilized in those enterprises and occupations where each individual skill will enjoy its maximum productivity. This important task is left to the functioning of the labor markets.

To the extent that labor markets do not sort workers into jobs based upon their abilities, motivations, and skills, but on irrelevant factors such as sex, race, or formal educational attainment irrespective of skill potential, income is not maximized.

The role of the educator, particularly the vocational educator, is crucial. It is here that decisions are made that dramatically affect the lifetime incomes of many people. It is imperative that the administrators have readily available to them current information upon which to base their decisions. Training and counseling, after all, are two of the more important devices to promote labor market efficiency. It is hoped that this study in spite of its many limitations will provide insights into the Tennessee labor force that will be useful to educational planners.

APPENDIX A

Appendix A

MID-SOUTH REGIONAL MANPOWER DEVELOPMENT CENTER

Memphis State University and
The University of Mississippi

EMPLOYMENT SURVEY

Memphis State University is making a survey of jobs in Tennessee, and we would like for you to tell us several things about your work. We will use the information we get from you along with that from others to find ways that people can be better trained and guided into suitable work.

The information you give us in the Survey will not be seen by anyone except members of this staff. Only averages will be released. Please answer the attached questions and mail this to us in the stamped envelope.

Thank you very much for your help.

William R. Schriver
Director

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MEMPHIS STATE UNIVERSITY • Memphis, Tennessee 38111 • Telephone A/C 901 321-1703

AT THE END OF THIS QUESTIONNAIRE THERE IS SPACE
FOR YOUR COMMENTS AND OPINIONS

1. Present Address _____
City and County

a. Have you lived in other counties in Tennessee or in another state this year or during 1969? _____ _____. If yes, what other counties and
Yes No

states? _____

b. How far do you travel from your home to place of work (one way)?

_____ _____
Miles Amount of time required

2. Sex _____ _____ Age _____ Race _____ _____
Male Female Years Black White

a. Marital Status _____ _____ _____
Married Single Other

3. Please answer these questions about your present job:

a. For whom do you work? _____
Name of company, business or organization

_____

b. What kind of business or industry is your employer in? _____
such as: shoe

_____
factory, bank, paper-mill, grocery store, TV repair shop, etc.

c. Have you worked for a different employer this year or during 1969?

_____ _____. If yes, how many? _____. What kind of business
Yes No Number

was your last employer in? _____
such as: shoe factory, bank, paper-mill,

_____
grocery store, TV repair shop, etc.

If you changed employers this year or during 1969, what was the most important reason? (Answer concerning last change if more than one change was made) _____
such as: improved pay, better hours, better

_____
working conditions, laid off, etc.

d. What kind of work are you doing? _____
such as: welding, truck driving, selling,

_____
bookkeeping, assembling, machine operator, etc.

e. Have you done other kinds of work this year or during 1969?

_____ Yes _____ No. If yes, how many? _____ Number. What other kinds of work did you do? _____
such as: welding, truck driving, selling, bookkeeping,

_____
assembling, machine operator, etc.

f. Do you do any part time work in addition to your main work? _____ Yes _____ No.

If yes, what kind of work do you do? _____
such as: welding, truck driving,

_____
selling, bookkeeping, assembling, machine operator, etc.

4. Were you out of work at any time this year or during 1969? _____ Yes _____ No. If yes, how many weeks were you out of work? _____ Weeks. Why? _____
Reason: such as:

_____
laid off, sickness, husband moved, between jobs, pregnancy, etc.

5. How did you find out about your present job? (Check Only One)

_____ A friend who worked here

_____ A private employment agency

_____ The Union

_____ Tennessee Employment Security

_____ Advertisement in newspaper or radio

_____ Other _____ How

6. Circle the highest grade of school you completed:

1 2 3 4 5 6 7 8 9 10 11 12 More than 12

7. Where or how did you learn your present occupation? (Check All That Apply)

_____ Armed Forces

_____ High school educational program

_____ Tennessee Area Vocational-Technical School or an Area Vocational-Technical School in some other state

_____ On-Job-Training

_____ Apprenticeship Program

_____ Private school (such as: beautician school, business college, correspondence school, etc.

_____ Just picked it up

_____ Other _____
How

CIRCLE THE KIND OF TRAINING THAT WAS MOST HELPFUL IF MORE THAN ONE IS CHECKED

a. About what year did you finish the main training for this job? _____
Year

b. In what state did you receive the main training? _____
State

COMMENTS AND OPINIONS

(Include whether or not you have been able to find work that suits your abilities and training, or anything else you want to tell us about your answers.)

APPENDIX B

Appendix B

In addition to the employee questionnaires, the employers were asked in the interview to report their experiences in dealing with skill shortages in 1969 and 1970. Specifically, the employers were asked three questions dealing with this topic.

1. What occupations have the highest turnover?
2. What occupations are hardest to fill?
3. What have you done to fill these jobs?

Tables B1 through B7 show the total responses of the 761 firms in the sample that answered the first question and the responses by seven industrial classifications: extraction and construction, manufacturing, trade, transportation and utilities, finance, real estate and insurance, and service. Tables B8 through B14 show the total responses of the 856 firms in the sample that answered the second question and the responses in aggregate and by the same industrial classifications. Tables B15 through B21 show the same information for the third question.

The reader is cautioned to be very careful in generalizing from these tables to skill supply and demand relationships in the Tennessee labor force. The firms interviewed in the sample are not statistically representative of the Tennessee economic structure, and the number of firms interviewed in an industry were not necessarily in proportion to the relative size of that industry. Also, the frequencies and percents in the tables reflect merely the number of firms that identified the occupation and <u>not</u> the number of jobs involved.

Table B1

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER:
ALL INDUSTRIES

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants	3	.39
Artists	1	.13
Draftsmen	3	.39
Dietitians & Nutritionists	1	.13
Personnel in Child Care	1	.13
Dental	0	00
Electronic	5	.66
Other Technicians	16	2.10
Clerical & Kindred Workers		
Bank Tellers	1	.13
Bookkeepers	5	.66
Cashiers, with Public Contact	2	.26
File Clerks	11	1.45
Office Machine Operators, Accounting	1	.13
Receptionists	5	.66
Secretary, Executive	1	.13
Secretaries, Other	16	2.10
Stenographers	2	.26
Telephone Operators	1	.13
Typists	5	.66
Data Processing Operators, Computer and Console	1	.13
Data Processing Operators, Peripheral Equipment	4	.53
Other Clerical & Kindred Workers	28	3.68
Sales Workers		
Insurance Agents, Brokers, etc.	1	.13
Advertising Agents & Salesmen	4	.53
Salesmen & Sales Clerks (n.e.c.)	14	1.84
Craftsmen, Foremen, & Kindred Workers		
Blacksmiths, Foremen, & Hammermen	1	.13
Cabinetmakers & Patternmakers		
Carpenters	1	.13
Compositors & Typesetters	3	.39
Electricians, Construction, or Electricians, Non-Construction	2	.26
Linemen & Servicemen, Telephone, Telegraph, & Power	2	.26
Machinists & Job Setters	11	1.45

Table B1 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER:
ALL INDUSTRIES

Occupation	Frequency of Identification	Percent
Mechanics & Repairmen		
Automobile	2	.26
Radio & Television	1	.13
Refrigeration	2	.26
Office Machines	1	.13
Diesel Mechanics	2	.26
Mechanics & Repairmen, Small Engine Repair, Internal Combustion	1	.13
Mechanics & Repairmen (n.e.c.)	16	2.10
Millwrights	1	.13
Molders, Metal	5	.66
Painters (Construction), Paperhangers	1	.13
Plasterers & Cement Finishers	1	.13
Printing Craftsmen, Except Compositors and Typesetters	5	.66
Tinsmiths, Coppersmiths, & Sheet Metal Workers	6	.66
Toolmakers, Diemakers, & Setters	4	.53
Upholsterers	1	.13
Inspectors & Quality Controllers	3	.39
Roofers & Slaters	1	.13
Other Craftsmen & Kindred Workers	20	2.63
Foremen (n.e.c.)	10	1.31
Operatives & Kindred Workers		
Apprentices		
Electricians	1	.13
Machinists	5	.66
Plumbers & Pipefitters	1	.13
Metalworking Trades	4	.53
Printing Trades	1	.13
Home Appliances		
Other	8	1.05
Assemblers	25	3.29
Attendants, Auto Service & Parking		
Bus Drivers	2	.26
Checkers, Examiners, & Inspectors in Manufacturing	3	.39
Dressmakers & Seamstresses, Except Factory	4	.53
Filers, Grinders, & Polishers, Metal	6	.66
Furnacemen, Smeltermen, & Pourers	4	.53
Laundry & Dry Cleaning Operatives	1	.13
Painters, Except Construction & Maintenance	1	.13
Packers & Wrappers (n.e.c.)	16	2.10

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Table B1 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER:
ALL INDUSTRIES

Occupation	Frequency of Identification	Percent
Sawyers	1	.13
Spinners & Weavers, Textile	7	.92
Taxicab Drivers & Chauffeurs	0	00
Delivery and Routemen	18	2.37
Truck & Tractor Drivers	20	2.63
Welders & Flame Cutters	18	2.37
Other Specified Operatives & Kindred Workers	153	20.10
Service Workers, Excluding Private Household		
Barbers	1	.13
Charwomen, Janitors & Porters	12	1.58
Cooks	1	.13
Practical Nurses	1	.13
Waiters, Bartenders, & Counter Workers	1	.13
Other Service Workers	15	1.97
Laborers, Except Farm & Mine		
Lumbermen, Raftsmen & Woodchoppers	2	.26
Other Laborers	195	25.49

Table B2

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER:
EXTRACTION AND CONSTRUCTION

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants		
Artists		
Draftsmen		
Dietitians & Nutritionists	1	2.50
Personnel in Child Care		
Dental		
Electronic		
Other Technicians	1	2.50
Clerical & Kindred Workers		
Bank Tellers		
Bookkeepers		
Cashiers, with Public Contact		
File Clerks		
Office Machine Operators, Accounting		
Receptionists		
Secretary, Executive		
Secretaries, Other	1	2.50
Stenographers	1	2.50
Telephone Operators		
Typists	1	2.50
Data Processing Operators, Computer and Console		
Data Processing Operators, Peripheral Equipment		
Other Clerical & Kindred Workers	3	7.50
Sales Workers		
Insurance Agents, Brokers, etc.	1	2.50
Advertising Agents & Salesmen		
Salesmen & Sales Clerks (n.e.c.)	4	10.00
Craftsmen, Foremen, & Kindred Workers		
Blacksmiths, Foremen, & Hammermen		
Cabinetmakers & Patternmakers		
Carpenters		
Compositors & Typesetters		
Electricians, Construction, or Electricians, Non-Construction		
Linemen & Servicemen, Telephone, Telegraph, & Power		
Machinists & Job Setters		

Table B2 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER:
EXTRACTION AND CONSTRUCTION

Occupation	Frequency of Identification	Percent
Mechanics & Repairmen		
Automobile		
Radio & Television	1	2.50
Refrigeration	1	2.50
Office Machines		
Diesel Mechanics	1	2.50
Mechanics & Repairmen, Small Engine Repair, Internal Combustion		
Mechanics & Repairmen (n.e.c.)		
Millwrights		
Molders, Metal		
Painters (Construction), Paperhangers	1	2.50
Plasterers & Cement Finishers		
Printing Craftsmen, Except Compositors and Typesetters		
Tinsmiths, Coppersmiths, & Sheet Metal Workers		
Toolmakers, Diemakers, & Setters		
Upholsterers		
Inspectors & Quality Controllers		
Roofers & Slaters		
Other Craftsmen & Kindred Workers		
Foremen (n.e.c.)		
Operatives & Kindred Workers		
Apprentices		
Electricians		
Machinists		
Plumbers & Pipefitters		
Metalworking Trades		
Printing Trades		
Home Appliances		
Other		
Assemblers		
Attendants, Auto Service & Parking		
Bus Drivers		
Checkers, Examiners, & Inspectors in Manufacturing		
Dressmakers & Seamstresses, Except Factory		
Filers, Grinders, & Polishers, Metal		
Furnacemen, Smeltermen, & Pourers		
Laundry & Dry Cleaning Operatives		
Painters, Except Construction & Maintenance		
Packers & Wrappers (n.e.c.)		

Table B2 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER:
EXTRACTION AND CONSTRUCTION

Occupation	Frequency of Identification	Percent
Sawyers		
Spinners & Weavers, Textile		
Taxicab Drivers & Chauffeurs		
Delivery and Routemen	1	2.50
Truck & Tractor Drivers	1	2.50
Welders & Flame Cutters		
Other Specified Operatives & Kindred Workers	2	5.00
Service Workers, Excluding Private Household		
Barbers		
Charwomen, Janitors & Porters	2	5.00
Cooks		
Practical Nurses	1	2.50
Waiters, Bartenders, & Counter Workers		
Other Service Workers	1	2.50
Laborers, Except Farm & Mine		
Lumbermen, Raftsmen & Woodchoppers		
Other Laborers	15	37.50

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Table B3

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER: MANUFACTURING

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants	3	.45
Artists	1	.15
Draftsmen	3	.45
Dietitians & Nutritionists		
Personnel in Child Care		
Dental		
Electronic	4	.61
Other Technicians	13	1.91
Clerical & Kindred Workers		
Bank Tellers		
Bookkeepers	5	.76
Cashiers, with Public Contact		
File Clerks	11	1.66
Office Machine Operators, Accounting		
Receptionists	3	.45
Secretary, Executive	1	.15
Secretaries, Other	6	.91
Stenographers	1	.15
Telephone Operators		
Typists	4	.61
Data Processing Operators, Computer and Console	1	.15
Data Processing Operators, Peripheral Equipment	3	.45
Other Clerical & Kindred Workers	20	3.03
Sales Workers		
Insurance Agents, Brokers, etc.		
Advertising Agents & Salesmen	3	.45
Salesmen & Sales Clerks (n.e.c.)	10	1.51
Craftsmen, Foremen, & Kindred Workers		
Blacksmiths, Foremen, & Hammermen	1	.15
Cabinetmakers & Patternmakers		
Carpenters	1	.15
Compositors & Typesetters	3	.45
Electricians, Construction, or Electricians, Non-Construction	2	.30
Linemen & Servicemen, Telephone, Telegraph, & Power	1	.15
Machinists & Job Setters	11	1.66

Table B3 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER: MANUFACTURING

Occupation	Frequency of Identification	Percent
Mechanics & Repairmen		
Automobile	2	.30
Radio & Television		
Refrigeration	1	.15
Office Machines		
Diesel Mechanics		
Mechanics & Repairmen, Small Engine Repair, Internal Combustion	1	.15
Mechanics & Repairmen (n.e.c.)	16	2.42
Millwrights	1	.15
Molders, Metal	5	.76
Painters (Construction), Paperhangers		
Plasterers & Cement Finishers	1	.15
Printing Craftsmen, Except Compositors and Typesetters	5	.76
Tinsmiths, Coppersmiths, & Sheet Metal Workers	6	.91
Toolmakers, Diemakers, & Setters	4	.61
Upholsterers	1	.15
Inspectors & Quality Controllers	3	.45
Roofers & Slaters	1	.15
Other Craftsmen & Kindred Workers	20	3.03
Foremen (n.e.c.)	10	1.51
Operatives & Kindred Workers		
Apprentices		
Electricians	1	.15
Machinists	5	.76
Plumbers & Pipefitters	1	.15
Metalworking Trades	4	.61
Printing Trades	1	.15
Home Appliances		
Other	8	1.21
Assemblers	25	3.78
Attendants, Auto Service & Parking		
Bus Drivers		
Checkers, Examiners, & Inspectors in Manufacturing	3	.45
Dressmakers & Seamstresses, Except Factory	4	.61
Filers, Grinders, & Polishers, Metal	6	.91
Furnacemen, Smeltermen, & Pourers	4	.61
Laundry & Dry Cleaning Operatives		
Painters, Except Construction & Maintenance	1	.15
Packers & Wrappers (n.e.c.)	16	2.42

Table B3 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER: MANUFACTURING

Occupation	Frequency of Identification	Percent
Sawyers	1	.15
Spinners & Weavers, Textile	7	1.06
Taxicab Drivers & Chauffeurs		
Delivery and Routemen	10	1.51
Truck & Tractor Drivers	17	2.57
Welders & Flame Cutters	18	2.72
Other Specified Operatives & Kindred Workers	148	22.39
Service Workers, Excluding Private Household		
Barbers		
Charwomen, Janitors & Porters	7	1.06
Cooks	1	.15
Practical Nurses		
Waiters, Bartenders, & Counter Workers		
Other Service Workers	9	1.36
Laborers, Except Farm & Mine		
Lumbermen, Raftsmen & Woodchoppers		
Other Laborers	176	26.62

Table B4

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER:
TRANSPORTATION AND UTILITIES

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants		
Artists		
Draftsmen		
Dietitians & Nutritionists		
Personnel in Child Care		
Dental		
Electronic		
Other Technicians		
Clerical & Kindred Workers		
Bank Tellers		
Bookkeepers		
Cashiers, with Public Contact		
File Clerks		
Office Machine Operators, Accounting		
Receptionists		
Secretary, Executive		
Secretaries, Other	1	12.50
Stenographers		
Telephone Operators	1	12.50
Typists		
Data Processing Operators, Computer and Console		
Data Processing Operators, Peripheral Equipment		
Other Clerical & Kindred Workers		
Sales Workers		
Insurance Agents, Brokers, etc.		
Advertising Agents & Salesmen		
Salesmen & Sales Clerks (n.e.c.)		
Craftsmen, Foremen, & Kindred Workers		
Blacksmiths, Foremen, & Hammermen		
Cabinetmakers & Patternmakers		
Carpenters		
Compositors & Typesetters		
Electricians, Construction, or Electricians, Non-Construction		
Linemen & Servicemen, Telephone, Telegraph, & Power	1	12.50
Machinists & Job Setters		

Table B4 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER:
TRANSPORTATION AND UTILITIES

Occupation	Frequency of Identification	Percent
Mechanics & Repairmen		
Automobile		
Radio & Television		
Refrigeration		
Office Machines		
Diesel Mechanics	1	12.50
Mechanics & Repairmen, Small Engine Repair, Internal Combustion		
Mechanics & Repairmen (n.e.c.)		
Millwrights		
Molders, Metal		
Painters (Construction), Paperhangers		
Plasterers & Cement Finishers		
Printing Craftsmen, Except Compositors and Typesetters		
Tinsmiths, Coppersmiths, & Sheet Metal Workers		
Toolmakers, Diemakers, & Setters		
Upholsterers		
Inspectors & Quality Controllers		
Roofers & Slaters		
Other Craftsmen & Kindred Workers		
Foremen (n.e.c.)		
Operatives & Kindred Workers		
Apprentices		
Electricians		
Machinists		
Plumbers & Pipefitters		
Metalworking Trades		
Printing Trades		
Home Appliances		
Other		
Assemblers		
Attendants, Auto Service & Parking		
Bus Drivers	2	25.00
Checkers, Examiners, & Inspectors in Manufacturing		
Dressmakers & Seamstresses, Except Factory		
Filers, Grinders, & Polishers, Metal		
Furnacemen, Smeltermen, & Pourers		
Laundry & Dry Cleaning Operatives		
Painters, Except Construction & Maintenance		
Packers & Wrappers (n.e.c.)		

Table B4 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER:
TRANSPORTATION AND UTILITIES

Occupation	Frequency of Identification	Percent
Sawyers		
Spinners & Weavers, Textile		
Taxicab Drivers & Chauffeurs		
Delivery and Routemen		
Truck & Tractor Drivers		
Welders & Flame Cutters		
Other Specified Operatives & Kindred Workers		
Service Workers, Excluding Private Household		
Barbers		
Charwomen, Janitors & Porters		
Cooks		
Practical Nurses		
Waiters, Bartenders, & Counter Workers		
Other Service Workers		
Laborers, Except Farm & Mine		
Lumbermen, Raftsmen & Woodchoppers		
Other Laborers	2	25.00

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Table B5

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER: TRADE

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants		
Artists		
Draftsmen		
Dietitians & Nutritionists		
Personnel in Child Care		
Dental		
Electronic	1	4.17
Other Technician		
Clerical & Kindred Workers		
Bank Tellers		
Bookkeepers		
Cashiers, with Public Contact	1	4.17
File Clerks		
Office Machine Operators, Accounting		
Receptionists		
Secretary, Executive		
Secretaries, Other		
Stenographers		
Telephone Operators		
Typists		
Data Processing Operators, Computer and Console		
Data Processing Operators, Peripheral Equipment		
Other Clerical & Kindred Workers	4	16.67
Sales Workers		
Insurance Agents, Brokers, etc.		
Advertising Agents & Salesmen	1	4.17
Salesmen & Sales Clerks (n.e.c.)		
Craftsmen, Foremen, & Kindred Workers		
Blacksmiths, Foremen, & Hammermen		
Cabinetmakers & Patternmakers		
Carpenters		
Compositors & Typesetters		
Electricians, Construction, or Electricians, Non-Construction		
Linemen & Servicemen, Telephone, Telegraph, & Power		
Machinists & Job Setters		

Table B5 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER: TRADE

Occupation	Frequency of Identification	Percent
Mechanics & Repairmen		
Automobile		
Radio & Television		
Refrigeration		
Office Machines		
Diesel Mechanics		
Mechanics & Repairmen, Small Engine Repair, Internal Combustion		
Mechanics & Repairmen (n.e.c.)		
Millwrights		
Molders, Metal		
Painters (Construction), Paperhangers		
Plasterers & Cement Finishers		
Printing Craftsmen, Except Compositors and Typesetters		
Tinsmiths, Coppersmiths, & Sheet Metal Workers		
Toolmakers, Diemakers, & Setters		
Upholsterers		
Inspectors & Quality Controllers		
Roofers & Slaters		
Other Craftsmen & Kindred Workers		
Foremen (n.e.c.)		
Operatives & Kindred Workers		
Apprentices		
Electricians		
Machinists		
Plumbers & Pipefitters		
Metalworking Trades		
Printing Trades		
Home Appliances		
Other		
Assemblers		
Attendants, Auto Service & Parking		
Bus Drivers		
Checkers, Examiners, & Inspectors in Manufacturing		
Dressmakers & Seamstresses, Except Factory		
Filers, Grinders, & Polishers, Metal		
Furnacemen, Smeltermen, & Pourers		
Laundry & Dry Cleaning Operatives		
Painters, Except Construction & Maintenance		
Packers & Wrappers (n.e.c.)		

Table B5 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER: TRADE

Occupation	Frequency of Identification	Percent
Sawyers		
Spinners & Weavers, Textile		
Taxicab Drivers & Chauffeurs		
Delivery and Routemen	7	29.17
Truck & Tractor Drivers	2	8.33
Welders & Flame Cutters		
Other Specified Operatives & Kindred Workers		
Service Workers, Excluding Private Household		
Barbers		
Charwomen, Janitors & Porters		
Cooks		
Practical Nurses		
Waiters, Bartenders, & Counter Workers	1	4.17
Other Service Workers	4	16.67
Laborers, Except Farm & Mine		
Lumbermen, Raftsmen & Woodchoppers		
Other Laborers	2	8.33

Table B6

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER:
FINANCE, INSURANCE AND REAL ESTATE

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants		
Artists		
Draftsmen		
Dietitians & Nutritionists		
Personnel in Child Care		
Dental		
Electronic		
Other Technicians		
Clerical & Kindred Workers		
Bank Tellers	1	12.50
Bookkeepers		
Cashiers, with Public Contact	1	12.50
File Clerks		
Office Machine Operators, Accounting	1	12.50
Receptionists	1	12.50
Secretary, Executive	1	12.50
Secretaries, Other		
Stenographers		
Telephone Operators		
Typists		
Data Processing Operators, Computer and Console		
Data Processing Operators, Peripheral Equipment	1	12.50
Other Clerical & Kindred Workers	1	12.50
Sales Workers		
Insurance Agents, Brokers, etc.		
Advertising Agents & Salesmen		
Salesmen & Sales Clerks (n.e.c.)		
Craftsmen, Foremen, & Kindred Workers		
Blacksmiths, Foremen, & Hammermen		
Cabinetmakers & Patternmakers		
Carpenters		
Compositors & Typesetters		
Electricians, Construction, or Electricians, Non-Construction		
Linemen & Servicemen, Telephone, Telegraph, & Power		
Machinists & Job Setters		

Table B6 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER:
FINANCE, INSURANCE AND REAL ESTATE

Occupation	Frequency of Identification	Percent
Mechanics & Repairmen		
Automobile		
Radio & Television		
Refrigeration		
Office Machines		
Diesel Mechanics		
Mechanics & Repairmen, Small Engine Repair, Internal Combustion		
Mechanics & Repairmen (n.e.c.)		
Millwrights		
Molders, Metal		
Painters (Construction), Paperhangers		
Plasterers & Cement Finishers		
Printing Craftsmen, Except Compositors and Typesetters		
Tinsmiths, Coppersmiths, & Sheet Metal Workers		
Toolmakers, Diemakers, & Setters		
Upholsterers		
Inspectors & Quality Controllers		
Roofers & Slaters		
Other Craftsmen & Kindred Workers		
Foremen (n.e.c.)		
Operatives & Kindred Workers		
Apprentices		
Electricians		
Machinists		
Plumbers & Pipefitters		
Metalworking Trades		
Printing Trades		
Home Appliances		
Other		
Assemblers		
Attendants, Auto Service & Parking		
Bus Drivers		
Checkers, Examiners, & Inspectors in Manufacturing		
Dressmakers & Seamstresses, Except Factory		
Filers, Grinders, & Polishers, Metal		
Furnacemen, Smeltermen, & Pourers		
Laundry & Dry Cleaning Operatives		
Painters, Except Construction & Maintenance		
Packers & Wrappers (n.e.c.)		

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Table B6 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER:
FINANCE, INSURANCE AND REAL ESTATE

Occupation	Frequency of Identification	Percent
Sawyers		
Spinners & Weavers, Textile		
Taxicab Drivers & Chauffeurs		
Delivery and Routemen		
Truck & Tractor Drivers		
Welders & Flame Cutters		
Other Specified Operatives & Kindred Workers	1	12.50
Service Workers, Excluding Private Household		
Barbers		
Charwomen, Janitors & Porters		
Cooks		
Practical Nurses		
Waiters, Bartenders, & Counter Workers		
Other Service Workers		
Laborers, Except Farm & Mine		
Lumbermen, Raftsmen & Woodchoppers		
Other Laborers		

Table B7

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER: SERVICE

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants		
Artists		
Draftsmen		
Dietitians & Nutritionists		
Personnel in Child Care	1	5.00
Dental		
Electronic		
Other Technicians	2	10.00
Clerical & Kindred Workers		
Bank Tellers		
Bookkeepers		
Cashiers, with Public Contact		
File Clerks		
Office Machine Operators, Accounting		
Receptionists	1	5.00
Secretary, Executive		
Secretaries, Other	6	30.00
Stenographers		
Telephone Operators		
Typists		
Data Processing Operators, Computer and Console		
Data Processing Operators, Peripheral Equipment		
Other Clerical & Kindred Workers		
Sales Workers		
Insurance Agents, Brokers, etc.		
Advertising Agents & Salesmen		
Salesmen & Sales Clerks (n.e.c.)		
Craftsmen, Foremen, & Kindred Workers		
Blacksmiths, Foremen, & Hammermen		
Cabinetmakers & Patternmakers		
Carpenters		
Compositors & Typesetters		
Electricians, Construction, or Electricians, Non-Construction		
Linemen & Servicemen, Telephone, Telegraph, & Power		
Machinists & Job Setters		

Table B7 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER: SERVICE

Occupation	Frequency of Identification	Percent
Mechanics & Repairmen		
Automobile		
Radio & Television		
Refrigeration		
Office Machines	1	5.00
Diesel Mechanics		
Mechanics & Repairmen, Small Engine Repair, Internal Combustion		
Mechanics & Repairmen (n.e.c.)		
Millwrights		
Molders, Metal		
Painters (Construction), Paperhangers		
Plasterers & Cement Finishers		
Printing Craftsmen, Except Compositors and Typesetters		
Tinsmiths, Coppersmiths, & Sheet Metal Workers		
Toolmakers, Diemakers, & Setters		
Upholsterers		
Inspectors & Quality Controllers		
Roofers & Slaters		
Other Craftsmen & Kindred Workers		
Foremen (n.e.c.)		
Operatives & Kindred Workers		
Apprentices		
Electricians		
Machinists		
Plumbers & Pipefitters		
Metalworking Trades		
Printing Trades		
Home Appliances		
Other		
Assemblers		
Attendants, Auto Service & Parking		
Bus Drivers		
Checkers, Examiners, & Inspectors in Manufacturing		
Dressmakers & Seamstresses, Except Factory		
Filers, Grinders, & Polishers, Metal		
Furnacemen, Smeltermen, & Pourers		
Laundry & Dry Cleaning Operatives	1	5.00
Painters, Except Construction & Maintenance		
Packers & Wrappers (n.e.c.)		

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Table B7 (Cont'd.)

OCCUPATIONS IDENTIFIED AS HAVING A HIGH RATE OF TURNOVER:
SERVICE

Occupation	Frequency of Identification	Percent
Sawyers		
Spinners & Weavers, Textile		
Taxicab Drivers & Chauffeurs		
Delivery and Routemen		
Truck & Tractor Drivers		
Welders & Flame Cutters		
Other Specified Operatives & Kindred Workers	2	10.00
Service Workers, Excluding Private Household		
Barbers	1	5.00
Charwomen, Janitors & Porters	3	15.00
Cooks		
Practical Nurses		
Waiters, Bartenders, & Counter Workers		
Other Service Workers	1	5.00
Laborers, Except Farm & Mine		
Lumbermen, Raftsmen & Woodchoppers		
Other Laborers	1	5.00

Table B8

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
ALL INDUSTRIES

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants	13	1.52
Artists	5	.58
Draftsmen	11	1.29
Nurses, Professional	2	.23
Personnel in Child Care	1	.12
Dental	2	.23
Electrical	2	.23
Electronic	27	3.15
Other Technicians	51	5.96
Therapists & Healers (n.e.c.)		
Programmers	4	.47
Clerical & Kindred Workers		
Bank Tellers	1	.12
Bookkeepers	13	1.52
Cashiers, with Public Contact	1	.12
File Clerks	4	.47
Office Machine Operators, Accounting	1	.12
Receptionists	1	.12
Secretaries, Other	18	2.10
Stenographers	4	.47
Telephone Operators		
Typists	3	.35
Data Processing Operators, Computer & Console	2	.23
Data Processing Operators, Peripheral Equipment	4	.47
Other Clerical & Kindred Workers	21	2.46
Sales Workers		
Insurance Agents, Brokers, etc.	1	.12
Real Estate Agents, Brokers	1	.12
Advertising Agents & Salesmen	3	.35
Salesmen & Sales Clerks (n.e.c.)	36	4.01
Craftsmen, Foremen & Kindred Workers		
Blacksmiths, Foremen, & Hammermen	1	.12
Cabinetmakers & Patternmakers	3	.35
Carpenters	2	.23
Compositors & Typesetters	4	.47
Electricians, Construction, or Electricians, Non-Construction	24	2.92
Linemen & Servicemen, Telephone, Telegraph & Power	1	.12

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Table B8 (Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL
ALL INDUSTRIES

Occupations	Frequency of Identification	Percent
Machinists & Job Setters	44	5.14
Masons, Tile Setters, & Stone Cutters	3	.35
Mechanics & Repairmen		
Airplane		
Automobile	7	.82
Radio & Television	3	.35
Air Conditioning, Heating	3	.35
Refrigeration	3	.35
Office Machines	2	.23
Diesel Mechanics	5	.57
Mechanics & Repairmen, Small Engine Repair, Internal Combustion	5	.57
Mechanics & Repairmen (n.e.c.)	56	6.54
Millwrights	2	.23
Molders, Metal	12	1.40
Painters (Construction), Paperhangers	2	.23
Plasterers & Cement Finishers	1	.12
Plumbers & Pipe Fitters	1	.12
Printing Craftsmen, Except Compositors and Typesetters	10	1.17
Stationary Engineers	1	.12
Structural Metalworkers	1	.12
Tinsmiths, Coppersmiths, & Sheet Metal Workers	7	.82
Toolmakers, Diemakers, & Setters	33	3.86
Jewelers, Watchmakers, Goldsmiths, & Silversmiths	1	.12
Opticians, Lens Grinders & Polishers	1	.12
Upholsterers	5	.58
Inspectors & Quality Controllers	6	.70
Excavating, Grading & Road Machine Operators (other than Tractor Operators)	1	.12
Other Craftsmen & Kindred Workers	36	4.21
Foremen (n.e.c.)	53	6.20
Operatives & Kindred Workers		
Apprentices		
Auto Mechanics	1	.12
Dry-wall Installers	1	.12
Electricians	1	.12
Machinists	8	.94
Toolmakers	1	.12
Plumbers & Pipefitters	1	.12
Building Trades (n.e.c.)	1	.12
Metalworking Trades (n.e.c.)	3	.35

Table B8 (Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
ALL INDUSTRIES

Occupations	Frequency of Identification	Percent
Printing Trades	3	.35
Other	5	.58
Assemblers	6	.70
Dressmakers & Seamstresses, Except Factory	5	.58
Filers, Grinders & Polishers, Metal	1	.12
Furnacemen, Smeltermen, & Pourers	3	.35
Laundry & Dry Cleaning Operatives	1	.12
Meat Cutters, Except Slaughter & Packing House	1	.12
Painters, Except Construction & Maintenance	5	.58
Packers & Wrappers (n.e.c.)	2	.23
Sawyers	5	.58
Spinners & Weavers, Textile	5	.58
Taxicab Drivers & Chauffeurs		
Delivery and Routemen	8	.94
Truck & Tractor Drivers	15	1.75
Welders & Flame Cutters	22	2.57
Other Operatives & Kindred Workers	119	13.90
Service Workers, Excluding Private Household		
Barbers	1	.12
Charwomen, Janitors & Porters	7	.82
Cooks	1	.12
Guards & Watchmen	1	.12
Waiters, Bartenders, & Counter Workers	1	.12
Other Service Workers	7	.82
Laborers, Except Farm & Mine		
Other Laborers	43	5.03

Table B9

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
EXTRACTION AND CONSTRUCTION

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants		
Artists		
Draftsmen		
Nurses, Professional		
Personnel in Child Care		
Dental		
Electrical		
Electronic	2	4.44
Other Technicians	4	8.88
Therapists & Healers (n.e.c.)		
Programmers		
Clerical & Kindred Workers		
Bank Tellers		
Bookkeepers	2	4.44
Cashiers, with Public Contact		
File Clerks		
Office Machine Operators, Accounting		
Receptionists		
Secretaries, Other		
Stenographers	1	2.22
Telephone Operators		
Typists		
Data Processing Operators, Computer & Console		
Data Processing Operators, Peripheral Equipment		
Other Clerical & Kindred Workers	2	4.44
Sales Workers		
Insurance Agents, Brokers, etc.		
Real Estate Agents, Brokers		
Advertising Agents & Salesmen		
Salesmen & Sales Clerks (n.e.c.)	7	15.54
Craftsmen, Foremen & Kindred Workers		
Blacksmiths, Foremen, & Hammermen		
Cabinetmakers & Patternmakers		
Carpenters		
Compositors & Typesetters		
Electricians, Construction, or Electricians, Non-Construction		
Linemen & Servicemen, Telephone, Telegraph & Power		

Table B9 (Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
EXTRACTION AND CONSTRUCTION

Occupations	Frequency of Identification	Percent
Machinists & Job Setters		
Masons, Tile Setters, & Stone Cutters	1	2.22
Mechanics & Repairmen		
-Airplane		
Automobile	1	2.22
Radio & Television	1	2.22
Air Conditioning, Heating	1	2.22
Refrigeration	1	2.22
Office Machines		
Diesel Mechanics	1	2.22
Mechanics & Repairmen, Small Engine Repair, Internal Combustion		
Mechanics & Repairmen (n.e.c.)		
Millwrights		
Molders, Metal		
Painters (Construction), Paperhangers	1	2.22
Plasterers & Cement Finishers		
Plumbers & Pipe Fitters		
Printing Craftsmen, Except Compositors and Typesetters		
Stationary Engineers		
Structural Metalworkers	1	2.22
Tinsmiths, Coppersmiths, & Sheet Metal Workers		
Toolmakers, Diemakers, & Setters		
Jewelers, Watchmakers, Goldsmiths, & Silversmiths		
Opticians, Lens Grinders & Polishers		
Upholsterers		
Inspectors & Quality Controllers		
Excavating, Grading & Road Machine Operators (other than Tractor Operators)		
Other Craftsmen & Kindred Workers	5	11.10
Foremen (n.e.c.)		
Operatives & Kindred Workers		
Apprentices		
Auto Mechanics	1	2.22
Dry-wall Installers		
Electricians		
Machinists		
Toolmakers		
Plumbers & Pipefitters		
Building Trades (n.e.c.)		
Metalworking Trades (n.e.c.)		

Table B9 (Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
EXTRACTION AND CONSTRUCTION

Occupations	Frequency of Identification	Percent
Printing Trades		
Other		
Assemblers		
Dressmakers & Seamstresses, Except Factory		
Filers, Grinders & Polishers, Metal		
Furnacemen, Smeltermen, & Pourers		
Laundry & Dry Cleaning Operatives		
Meat Cutters, Except Slaughter & Packing House		
Painters, Except Construction & Maintenance		
Packers & Wrappers (n.e.c.)		
Sawyers		
Spinners & Weavers, Textile		
Taxicab Drivers & Chauffeurs		
Delivery and Routemen		
Truck & Tractor Drivers	4	8.88
Welders & Flame Cutters		
Other Operatives & Kindred Workers	4	8.88
Service Workers, Excluding Private Household		
Barbers		
Charwomen, Janitors & Porters		
Cooks		
Guards & Watchmen		
Waiters, Bartenders, & Counter Workers		
Other Service Workers		
Laborers, Except Farm & Mine		
Other Laborers	4	8.88

Table B10

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:

MANUFACTURING

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants	13	1.74
Artists	5	.67
Draftsmen	11	1.48
Nurses, Professional	2	.27
Personnel in Child Care		
Dental	2	.27
Electrical	2	.27
Electronic	2	.27
Other Technicians	42	5.63
Therapists & Healers (n.e.c.)		
Programmers	4	.54
Clerical & Kindred Workers		
Bank Tellers		
Bookkeepers	8	1.07
Cashiers, with Public Contact		
File Clerks	4	.54
Office Machine Operators, Accounting	1	.13
Receptionists		
Secretaries, Other	1	.13
Stenographers	3	.40
Telephone Operators		
Typists	3	.40
Data Processing Operators, Computer & Console	1	.13
Data Processing Operators, Peripheral Equipment	3	.40
Other Clerical & Kindred Workers	16	2.15
Sales Workers		
Insurance Agents, Brokers, etc.		
Real Estate Agents, Brokers		
Advertising Agents & Salesmen	3	.40
Salesmen & Sales Clerks (n.e.c.)	22	3.08
Craftsmen, Foremen & Kindred Workers		
Blacksmiths, Foremen, & Hammermen	1	.13
Cabinetmakers & Patternmakers	3	.40
Carpenters	2	.27
Compositors & Typesetters	4	.54
Electricians, Construction, or Electricians, Non-Construction	25	3.35
Linemen & Servicemen, Telephone, Telegraph & Power		

Table B10(Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
MANUFACTURING

Occupations	Frequency of Identification	Percent
Machinists & Job Setters	44	5.90
Masons, Tile Setters, & Stone Cutters	2	.27
Mechanics & Repairmen		
Airplane		
Automobile	5	.67
Radio & Television	1	.13
Air Conditioning, Heating	2	.27
Refrigeration	1	.13
Office Machines		
Diesel Mechanics	3	.40
Mechanics & Repairmen, Small Engine Repair, Internal Combustion	5	.67
Mechanics & Repairmen (n.e.c.)	54	7.24
Millwrights	2	.27
Molders, Metal	12	1.61
Painters (Construction), Paperhangers	1	.13
Plasterers & Cement Finishers	1	.13
Plumbers & Pipe Fitters	1	.13
Printing Craftsmen, Except Compositors and Typesetters	10	1.34
Stationary Engineers	1	.13
Structural Metalworkers		
Tinsmiths, Coppersmiths, & Sheet Metal Workers	7	.94
Toolmakers, Diemakers, & Setters	33	4.42
Jewelers, Watchmakers, Goldsmiths, & Silversmiths	1	.13
Opticians, Lens Grinders & Polishers	1	.13
Upholsterers	5	.67
Inspectors & Quality Controllers	6	.80
Excavating, Grading & Road Machine Operators (other than Tractor Operators)	1	.13
Other Craftsmen & Kindred Workers	30	4.02
Foremen (n.e.c.)	48	6.44
Operatives & Kindred Workers		
Apprentices		
Auto Mechanics		
Dry-wall Installers	1	.13
Electricians	1	.13
Machinists	8	1.07
Toolmakers	1	.13
Plumbers & Pipefitters	1	.13
Building Trades (n.e.c.)	1	.13
Metalworking Trades (n.e.c.)	3	.40

Table B10(Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
MANUFACTURING

Occupations	Frequency of Identification	Percent
Printing Trades	3	.40
Other	5	.67
Assemblers	6	.80
Dressmakers & Seamstresses, Except Factory	5	.67
Filers, Grinders & Polishers, Metal	1	.13
Furnacemen, Smeltermen, & Pourers	3	.40
Laundry & Dry Cleaning Operatives		
Meat Cutters, Except Slaughter & Packing House		
Painters, Except Construction & Maintenance	5	.67
Packers & Wrappers (n.e.c.)	2	.27
Sawyers	5	.67
Spinners & Weavers, Textile	5	.67
Taxicab Drivers & Chauffeurs		
Delivery and Routemen	4	.54
Truck & Tractor Drivers	11	1.48
Welders & Flame Cutters	22	2.95
Other Operatives & Kindred Workers	112	15.01
Service Workers, Excluding Private Household		
Barbers		
Charwomen, Janitors & Porters	4	.54
Cooks	1	.13
Guards & Watchmen	1	.13
Waiters, Bartenders, & Counter Workers		
Other Service Workers	7	.94
Laborers, Except Farm & Mine		
Other Laborers	37	4.96

Table B11

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
TRANSPORTATION AND UTILITIES

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants		
Artists		
Draftsmen		
Nurses, Professional		
Personnel in Child Care		
Dental		
Electrical		
Electronic	2	25.00
Other Technicians	2	25.00
Therapists & Healers (n.e.c.)		
Programmers		
Clerical & Kindred Workers		
Bank Tellers		
Bookkeepers		
Cashiers, with Public Contact		
File Clerks		
Office Machine Operators, Accounting		
Receptionists		
Secretaries, Other		
Stenographers		
Telephone Operators		
Typists		
Data Processing Operators, Computer & Console		
Data Processing Operators, Peripheral Equipment		
Other Clerical & Kindred Workers	1	12.50
Sales Workers		
Insurance Agents, Brokers, etc.		
Real Estate Agents, Brokers		
Advertising Agents & Salesmen		
Salesmen & Sales Clerks (n.e.c.)	1	12.50
Craftsmen, Foremen & Kindred Workers		
Blacksmiths, Foremen, & Hammermen		
Cabinetmakers & Patternmakers		
Carpenters		
Compositors & Typesetters		
Electricians, Construction, or Electricians, Non-Construction		
Linemen & Servicemen, Telephone, Telegraph & Power		

Table B11 (Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
TRANSPORTATION AND UTILITIES

Occupations	Frequency of Identification	Percent
Machinists & Job Setters		
Masons, Tile Setters, & Stone Cutters		
Mechanics & Repairmen		
Airplane		
Automobile		
Radio & Television		
Air Conditioning, Heating		
Refrigeration		
Office Machines		
Diesel Mechanics	1	12.50
Mechanics & Repairmen, Small Engine Repair, Internal Combustion		
Mechanics & Repairmen (n.e.c.)		
Millwrights		
Molders, Metal		
Painters (Construction), Paperhangers		
Plasterers & Cement Finishers		
Plumbers & Pipe Fitters		
Printing Craftsmen, Except Compositors and Typesetters		
Stationary Engineers		
Structural Metalworkers		
Tinsmiths, Coppersmiths, & Sheet Metal Workers		
Toolmakers, Diemakers, & Setters		
Jewelers, Watchmakers, Goldsmiths, & Silversmiths		
Opticians, Lens Grinders & Polishers		
Upholsterers		
Inspectors & Quality Controllers		
Excavating, Grading & Road Machine Operators (other than Tractor Operators)		
Other Craftsmen & Kindred Workers		
Foremen (n.e.c.)		
Operatives & Kindred Workers		
Apprentices		
Auto Mechanics		
Dry-wall Installers		
Electricians		
Machinists		
Toolmakers		
Plumbers & Pipefitters		
Building Trades (n.e.c.)		
Metalworking Trades (n.e.c.)		

Table B11 (Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
TRANSPORTATION AND UTILITIES

Occupations	Frequency of Identification	Percent
Printing Trades		
Other		
Assemblers		
Dressmakers & Seamstresses, Except Factory		
Filers, Grinders & Polishers, Metal		
Furnacemen, Smeltermen, & Pourers		
Laundry & Dry Cleaning Operatives		
Meat Cutters, Except Slaughter & Packing House		
Painters, Except Construction & Maintenance		
Packers & Wrappers (n.e.c.)		
Sawyers		
Spinners & Weavers, Textile		
Taxicab Drivers & Chauffeurs		
Delivery and Routemen		
Truck & Tractor Drivers		
Welders & Flame Cutters		
Other Operatives & Kindred Workers		
Service Workers, Excluding Private Household		
Barbers		
Charwomen, Janitors & Porters		
Cooks		
Guards & Watchmen		
Waiters, Bartenders, & Counter Workers		
Other Service Workers		
Laborers, Except Farm & Mine		
Other Laborers	1	12.50

Table B12

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
TRADE

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants		
Artists		
Draftsmen		
Nurses, Professional		
Personnel in Child Care		
Dental		
Electrical		
Electronic	1	3.57
Other Technicians		
Therapists & Healers (n.e.c.)		
Programmers		
Clerical & Kindred Workers		
Bank Tellers		
Bookkeepers	2	7.14
Cashiers, with Public Contact		
File Clerks		
Office Machine Operators, Accounting		
Receptionists		
Secretaries, Other		
Stenographers		
Telephone Operators		
Typists		
Data Processing Operators, Computer & Console	1	3.57
Data Processing Operators, Peripheral Equipment		
Other Clerical & Kindred Workers	2	7.14
Sales Workers		
Insurance Agents, Brokers, etc.		
Real Estate Agents, Brokers		
Advertising Agents & Salesmen		
Salesmen & Sales Clerks (n.e.c.)	6	21.42
Craftsmen, Foremen & Kindred Workers		
Blacksmiths, Foremen, & Hammermen		
Cabinetmakers & Patternmakers		
Carpenters		
Compositors & Typesetters		
Electricians, Construction, or Electricians, Non-Construction		
Linemen & Servicemen, Telephone, Telegraph & Power		

Table B12 (Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:

TRADE

Occupations	Frequency of Identification	Percent
Machinists & Job Setters		
Masons, Tile Setters, & Stone Cutters		
Mechanics & Repairmen		
Airplane		
Automobile	1	3.57
Radio & Television		
Air Conditioning, Heating		
Refrigeration	1	3.57
Office Machines	1	3.57
Diesel Mechanics		
Mechanics & Repairmen, Small Engine Repair, Internal Combustion		
Mechanics & Repairmen (n.e.c.)	1	3.57
Millwrights		
Molders, Metal		
Painters (Construction), Paperhangers		
Plasterers & Cement Finishers		
Plumbers & Pipe Fitters		
Printing Craftsmen, Except Compositors and Typesetters		
Stationary Engineers		
Structural Metalworkers		
Tinsmiths, Coppersmiths, & Sheet Metal Workers		
Toolmakers, Diemakers, & Setters		
Jewelers, Watchmakers, Goldsmiths, & Silversmiths		
Opticians, Lens Grinders & Polishers		
Upholsterers		
Inspectors & Quality Controllers		
Excavating, Grading & Road Machine Operators (other than Tractor Operators)		
Other Craftsmen & Kindred Workers	1	3.57
Foremen (n.e.c.)	4	14.29
Operatives & Kindred Workers		
Apprentices		
Auto Mechanics		
Dry-wall Installers		
Electricians		
Machinists		
Toolmakers		
Plumbers & Pipefitters		
Building Trades (n.e.c.)		
Metalworking Trades (n.e.c.)		

Table B12(Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:

TRADE

Occupations	Frequency of Identification	Percent
Printing Trades		
Other		
Assemblers		
Dressmakers & Seamstresses, Except Factory		
Filers, Grinders & Polishers, Metal		
Furnacemen, Smeltermen, & Pourers		
Laundry & Dry Cleaning Operatives		
Meat Cutters, Except Slaughter & Packing House	1	3.57
Painters, Except Construction & Maintenance		
Packers & Wrappers (n.e.c.)		
Sawyers		
Spinners & Weavers, Textile		
Taxicab Drivers & Chauffeurs		
Delivery and Routemen	4	14.29
Truck & Tractor Drivers		
Welders & Flame Cutters		
Other Operatives & Kindred Workers		
Service Workers, Excluding Private Household		
Barbers		
Charwomen, Janitors & Porters		
Cooks		
Guards & Watchmen		
Waiters, Bartenders, & Counter Workers	1	3.57
Other Service Workers		
Laborers, Except Farm & Mine		
Other Laborers	1	3.57

Table B13

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
FINANCE, INSURANCE AND REAL ESTATE

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants		
Artists		
Draftsmen		
Nurses, Professional		
Personnel in Child Care		
Dental		
Electrical		
Electronic		
Other Technicians		
Therapists & Healers (n.e.c.)		
Programmers		
Clerical & Kindred Workers		
Bank Tellers	1	11.11
Bookkeepers	1	11.11
Cashiers, with Public Contact	1	11.11
File Clerks		
Office Machine Operators, Accounting		
Receptionists		
Secretaries, Other	1	11.11
Stenographers		
Telephone Operators		
Typists		
Data Processing Operators, Computer & Console		
Data Processing Operators, Peripheral Equipment	1	11.11
Other Clerical & Kindred Workers		
Sales Workers		
Insurance Agents, Brokers, etc.	1	11.11
Real Estate Agents, Brokers	1	11.11
Advertising Agents & Salesmen		
Salesmen & Sales Clerks (n.e.c.)		
Craftsmen, Foremen & Kindred Workers		
Blacksmiths, Foremen, & Hammermen		
Cabinetmakers & Patternmakers		
Carpenters		
Compositors & Typesetters		
Electricians, Construction, or Electricians, Non-Construction		
Linemen & Servicemen, Telephone, Telegraph & Power		

Table B13 (Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
FINANCE, INSURANCE AND REAL ESTATE

Occupations	Frequency of Identification	Percent
Machinists & Job Setters		
Masons, Tile Setters, & Stone Cutters		
Mechanics & Repairmen		
Airplane		
Automobile		
Radio & Television		
Air Conditioning, Heating		
Refrigeration		
Office Machines		
Diesel Mechanics		
Mechanics & Repairmen, Small Engine Repair, Internal Combustion		
Mechanics & Repairmen (n.e.c.)		
Millwrights		
Molders, Metal		
Painters (Construction), Paperhangers		
Plasterers & Cement Finishers		
Plumbers & Pipe Fitters		
Printing Craftsmen, Except Compositors and Typesetters		
Stationary Engineers		
Structural Metalworkers		
Tinsmiths, Coppersmiths, & Sheet Metal Workers		
Toolmakers, Diemakers, & Setters		
Jewelers, Watchmakers, Goldsmiths, & Silversmiths		
Opticians, Lens Grinders & Polishers		
Upholsterers		
Inspectors & Quality Controllers		
Excavating, Grading & Road Machine Operators (other than Tractor Operators)		
Other Craftsmen & Kindred Workers		
Foremen (n.e.c.)		
Operatives & Kindred Workers		
Apprentices		
Auto Mechanics		
Dry-wall Installers		
Electricians		
Machinists		
Toolmakers		
Plumbers & Pipefitters		
Building Trades (n.e.c.)		
Metalworking Trades (n.e.c.)		

Table B13 (Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
FINANCE, INSURANCE AND REAL ESTATE

Occupations	Frequency of Identification	Percent
Printing Trades		
Other		
Assemblers		
Dressmakers & Seamstresses, Except Factory		
Filers, Grinders & Polishers, Metal		
Furnacemen, Smeltermen, & Pourers		
Laundry & Dry Cleaning Operatives		
Meat Cutters, Except Slaughter & Packing House		
Painters, Except Construction & Maintenance		
Packers & Wrappers (n.e.c.)		
Sawyers		
Spinners & Weavers, Textile		
Taxicab Drivers & Chauffeurs		
Delivery and Routemen		
Truck & Tractor Drivers		
Welders & Flame Cutters		
Other Operatives & Kindred Workers	2	22.22
Service Workers, Excluding Private Household		
Barbers		
Charwomen, Janitors & Porters		
Cooks		
Guards & Watchmen		
Waiters, Bartenders, & Counter Workers		
Other Service Workers		
Laborers, Except Farm & Mine		
Other Laborers		

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IN VOCATIONAL AND TECHNICAL EDUCATION, ONE OF THE OHIO STATE CENTER'S SERIES OF REVIEW AND SYNTHESIS DOCUMENTS.

THIS PRESENTATION IS DIVIDED INTO TWO SECTIONS. THE FIRST PRESENTER WILL DISCUSS THE STATUS OF RESEARCH ON INDIVIDUALIZING INSTRUCTION IN VOCATIONAL AND TECHNICAL EDUCATION AND THE SECOND PRESENTER WILL SPEAK ABOUT THE FUTURE PROSPECTS OF RESEARCH IN THIS AREA.

CURRENT STATUS OF INDIVIDUALIZED INSTRUCTION RESEARCH

IN OUR EFFORTS TO DEVELOP THE REVIEW AND SYNTHESIS DOCUMENT WE REVIEWED BETWEEN 500-600 RESEARCH STUDIES, OF WHICH ABOUT 200 WERE REPORTED IN THE FINAL DRAFT. THROUGH OUR REVIEWS AND CRITIQUES OF THOSE STUDIES, AND OUR ATTEMPTS TO ORGANIZE AND SYNTHESIZE THOSE SELECTED FOR INCLUSION IN THE "REVIEW AND SYNTHESIS" IN TERMS OF AN ACCEPTABLE INSTRUCTIONAL FRAMEWORK WE MADE WHAT WE THINK ARE SOME INTERESTING OBSERVATIONS. AFTER SHARING SOME OF THESE OBSERVATIONS WITH YOU WE WILL BE OFFERING SEVERAL RECOMMENDATIONS REGARDING FUTURE RESEARCH EFFORTS IN THIS AREA.

OBSERVATION 1. BOTH THE QUANTITY AND QUALITY OF RESEARCH EXAMINING THE INDIVIDUALIZATION OF INSTRUCTION IN VOCATIONAL AND TECHNICAL EDUCATION HAVE INCREASED CONSIDERABLY EACH YEAR SINCE 1965, AT WHICH TIME THE FIRST SIGNIFICANT RESEARCH EFFORTS OF THIS TYPE WERE UNDERTAKEN. BY ROUGH ESTIMATE IT SEEMS THAT THE NUMBER OF STUDIES REPORTED IN THIS AREA HAVE APPROXIMATELY DOUBLED EACH YEAR THROUGH 1970. AN OBVIOUS INCREASE IN THE QUALITY OF THESE INVESTIGATIONS WAS OBSERVED, AS EVIDENCED BY THE PROPORTION OF LATER STUDIES SELECTED FOR INCLUSION IN THE "REVIEW AND SYNTHESIS."

OBSERVATION 2. A NUMBER OF INVESTIGATIONS REVIEWED IN THIS DOCUMENT DEMONSTRATED THAT CERTAIN APPROACHES TO INDIVIDUALIZING INSTRUCTION WERE EFFECTIVE IN FACILITATING SELECTED LEARNING OUTCOMES FOR SPECIFIC GROUPS OF STUDENTS UNDER PARTICULAR CONDITIONS.

Table R14

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
SERVICE

Occupation	Frequency of Identification	Percent
Total		
Technical & Kindred Workers		
Accountants		
Artists		
Draftsmen		
Nurses, Professional		
Personnel in Child Care	1	5.00
Dental		
Electrical		
Electronic	1	5.00
Other Technicians	3	15.00
Therapists & Healers (n.e.c.)		
Programmers		
Clerical & Kindred Workers		
Bank Tellers		
Bookkeepers		
Cashiers, with Public Contact		
File Clerks		
Office Machine Operators, Accounting		
Receptionists	1	5.00
Secretaries, Other	4	20.00
Stenographers		
Telephone Operators		
Typists		
Data Processing Operators, Computer & Console		
Data Processing Operators, Peripheral Equipment		
Other Clerical & Kindred Workers		
Sales Workers		
Insurance Agents, Brokers, etc.		
Real Estate Agents, Brokers		
Advertising Agents & Salesmen		
Salesmen & Sales Clerks (n.e.c.)		
Craftsmen, Foremen & Kindred Workers		
Blacksmiths, Foremen, & Hammermen		
Cabinetmakers & Patternmakers		
Carpenters		
Compositors & Typesetters		
Electricians, Construction, or Electricians, Non-Construction		
Linemen & Servicemen, Telephone, Telegraph & Power		

OBSERVATION 3. AN INCREASING COGNIZANCE OF RELEVANT FACTORS INFLUENCING THE DESIGN OF INDIVIDUALIZED INSTRUCTION IS DEMONSTRATED IN THE MOST RECENT RESEARCH AND DEVELOPMENT EFFORTS IN VOCATIONAL AND TECHNICAL EDUCATION. THE SPECIFIC NATURE OF THESE FACTORS PROVIDE THE FOCUS FOR THE FOLLOWING OBSERVATIONS.

OBSERVATION 4. THE SAMPLES UTILIZED IN MUCH OF THE RESEARCH REVIEWED IN THIS DOCUMENT WERE NOT COMPOSED OF THE TYPE OF STUDENT TO WHICH WE DESIRE TO GENERALIZE THE RESULTS. GIVEN THAT THE PRIMARY PURPOSE OF INDIVIDUALIZING INSTRUCTION IS TO MEET THE EDUCATIONAL OR TRAINING NEEDS OF THE WHOLE SPECTRUM OF OUR STUDENT POPULATION, LITTLE EFFORT APPEARS TO HAVE BEEN MADE TO ADEQUATELY REPRESENT THAT RANGE.

OBSERVATION 5. THE EMPHASIS UPON THE DEVELOPMENT OF ACTUAL WORK PERFORMANCE SKILLS IN VOCATIONAL AND TECHNICAL PROGRAMS HAS NOT BEEN SUFFICIENTLY RECOGNIZED IN MOST OF THE RESEARCH REVIEWED. THE PREPONDERANCE OF STUDIES POSED RATHER ARTIFICIAL, EASILY MEASURED CRITERION VARIABLES UPON WHICH TO MEASURE INSTRUCTIONAL EFFECTIVENESS.

OBSERVATION 6. AN OVERABUNDANCE OF STUDIES DEALT WITH THE DIFFERENTIAL EFFECTIVENESS OF ONE OR MORE EXPERIMENTAL TREATMENTS AND A CONVENTION OR TRADITIONAL INSTRUCTIONAL METHOD. IN SPITE OF THE CONSIDERABLE CRITICISM LEVELED UPON SUCH RESEARCH (BLOOM AND OTHERS, 1971; BRIGGS, 1968; REID AND OTHERS, 1967; SULLIVAN, 1959; AND TRAVERS, 1962), AND ITS FAILURE TO PROVIDE MEANINGFUL AND INTERPRETABLE RESULTS, IT STILL SEEMS TO PERSIST.

OBSERVATION 7. THE ONLY SIGNIFICANT ATTEMPTS TO REPLICATE RESEARCH WERE FOUND IN STUDIES CONDUCTED FOR THE MILITARY. THE LACK OF REPLICATION IS AT LEAST PARTIALLY DUE TO THE FAILURE OF MOST STUDIES TO ADEQUATELY DESCRIBE THE INSTRUCTIONAL TREATMENTS BEING TESTED.

Table B14 (Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
SERVICE

Occupations	Frequency of Identification	Percent
Machinists & Job Setters		
Masons, Tile Setters, & Stone Cutters		
Mechanics & Repairmen		
Airplane		
Automobile		
Radio & Television	1	5.00
Air Conditioning, Heating Refrigeration		
Office Machines	1	5.00
Diesel Mechanics		
Mechanics & Repairmen, Small Engine Repair, Internal Combustion		
Mechanics & Repairmen (n.e.c.)	1	5.00
Millwrights		
Molders, Metal		
Painters (Construction), Paperhangers		
Plasterers & Cement Finishers		
Plumbers & Pipe Fitters		
Printing Craftsmen, Except Compositors and Typesetters		
Stationary Engineers		
Structural Metalworkers		
Tinsmiths, Coppersmiths, & Sheet Metal Workers		
Toolmakers, Diemakers, & Setters		
Jewelers, Watchmakers, Goldsmiths, & Silversmiths		
Opticians, Lens Grinders & Polishers		
Upholsterers		
Inspectors & Quality Controllers		
Excavating, Grading & Road Machine Operators (other than Tractor Operators)		
Other Craftsmen & Kindred Workers		
Foremen (n.e.c.)		
Operatives & Kindred Workers		
Apprentices		
Auto Mechanics		
Dry-wall Installers		
Electricians		
Machinists		
Toolmakers		
Plumbers & Pipefitters		
Building Trades (n.e.c.)		
Metalworking Trades (n.e.c.)		

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OBSERVATION 8. THE MOST PROMISING AREA OF INDIVIDUALIZED INSTRUCTION RESEARCH AND DEVELOPMENT IN TERMS OF ITS POTENTIAL CONTRIBUTION TO THE IMPROVEMENT OF VOCATIONAL AND TECHNICAL INSTRUCTION IS REPRESENTED BY THE INSTRUCTIONAL SYSTEMS APPROACH. BECAUSE OF ITS GLOBAL NATURE THE INSTRUCTIONAL PROCESS CONCEIVED AS A SYSTEM MUST TAKE INTO ACCOUNT THE EFFECT OF ITS ESSENTIAL COMPONENTS AND THEIR INTERACTIONS, INCLUDING COST CONSTRAINTS, NATURE OF INSTRUCTIONAL OBJECTIVES, EVALUATIVE DESIGN, AND CRITERIA FOR MODIFICATION. THE SHORTCOMINGS OF MANY OF THE STUDIES REVIEWED IN THIS DOCUMENT ARE THE RESULTS OF A RESTRICTED CONCEPTION OF THE INSTRUCTIONAL PROCESS--AN UNLIKELY OCCURRENCE IN UTILIZING THE SYSTEMS APPROACH.

OBSERVATION 9. MUCH OF THE MILITARY TRAINING RESEARCH REVIEWED IN THIS DOCUMENT EXEMPLIFIED THE TYPE OF PROGRAMMATIC RESEARCH AND DEVELOPMENT ACTIVITY NECESSARY TO RESOLVE IN A SYSTEMATIC FASHION THE MULTITUDE OF PROBLEMS EMANATING FROM THE INDIVIDUALIZED APPROACH TO INSTRUCTION. THE SHORTCOMINGS OF SPORADIC EFFORTS CONDUCTED BY INDIVIDUAL INVESTIGATORS HAVE DEMONSTRATED THE NEED FOR MORE GLOBAL RESEARCH EFFORTS. BECAUSE OF THE FINANCIAL SUPPORT SITUATION THE MILITARY HAVE BEEN ABLE TO MOUNT SUCH PROGRAMS OF RESEARCH WITH SUBSTANTIAL SUCCESS.

OBSERVATION 10. THE RESEARCH REVIEWED WAS GENERALLY SIMPLISTIC IN DESIGN, AVOIDING THE EXAMINATION OF INTERACTIVE EFFECTS SUCH AS INSTRUCTIONAL TREATMENT BY TYPE OF OBJECTIVE, OR INSTRUCTIONAL TREATMENT BY LEVEL OF STUDENT ABILITY. DOCTORAL STUDIES PARTICULARLY DEMONSTRATED THIS TENDENCY TOWARD THE UNIVARIATE APPROACH.

Table B14 (Cont'd.)

OCCUPATIONS IDENTIFIED AS BEING THE HARDEST TO FILL:
SERVICE

Occupations	Frequency of Identification	Percent
Printing Trades		
Other		
Assemblers		
Dressmakers & Seamstresses, Except Factory		
Filers, Grinders & Polishers, Metal		
Furnacemen, Smeltermen, & Pourers		
Laundry & Dry Cleaning Operatives	1	5.00
Meat Cutters, Except Slaughter & Packing House		
Painters, Except Construction & Maintenance		
Packers & Wrappers (n.e.c.)		
Sawyers		
Spinners & Weavers, Textile		
Taxicab Drivers & Chauffeurs		
Delivery and Routemen		
Truck & Tractor Drivers		
Welders & Flame Cutters		
Other Operatives & Kindred Workers	1	5.00
Service Workers, Excluding Private Household		
Barbers	1	5.00
Charwomen, Janitors & Porters	3	15.00
Cooks		
Guards & Watchmen		
Waiters, Bartenders, & Counter Workers		
Other Service Workers		
Laborers, Except Farm & Mine		
Other Laborers		

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OBSERVATION 11. SEVERAL STUDIES WERE IDENTIFIED WHICH ACCOUNTED FOR STUDENT CHARACTERISTICS IN SOME WAY. MOST OF THESE, HOWEVER, ACCOUNTED FOR APTITUDE DIFFERENCES, BUT AVOIDED AFFECTIVE DIFFERENCES (SUCH AS ATTITUDES, MOTIVATION, INTERESTS, OR VALUES).

FUTURE PROSPECTS FOR INDIVIDUALIZED INSTRUCTIONAL RESEARCH

BASED UPON THESE OBSERVATIONS INDIVIDUALIZED INSTRUCTION IS PERCEIVED TO HAVE A GREAT POTENTIAL FOR IMPROVING VOCATIONAL AND TECHNICAL EDUCATION. OTHER FACTORS LEADING TO AN OPTIMISTIC VIEW OF THE FUTURE ARE THE RELATIVELY SHORT PERIOD OF TIME DURING WHICH THE SYSTEMATIC STUDY OF INDIVIDUALIZED INSTRUCTION HAS BEEN GOING ON, AND THE SHORT HISTORY OF RESEARCH IN VOCATIONAL AND TECHNICAL EDUCATION.

IN TERMS OF THE FUTURE OF INDIVIDUALIZED INSTRUCTION RESEARCH IT APPEARS MOST LOGICAL TO FOCUS ON THOSE STRATEGIES WHICH HAVE THE GREATEST POTENTIAL TO MAXIMIZE RETURNS ON RESEARCH INVESTMENTS. IF THE SHORTCOMINGS AS SPECIFIED IN THE LIST OF OBSERVATIONS ARE INDEED ACCURATE THERE ARE AT LEAST TWO STRATEGIES WHICH THE AUTHORS FEEL WILL BE MOST BENEFICIAL IN THE SEARCH FOR NEW KNOWLEDGE ABOUT INDIVIDUALIZED INSTRUCTION. THE TWO ARE: (1) THE DEVELOPMENT OF ONGOING PROGRAMMATIC RESEARCH; AND (2) THE APPLICATION OF MULTIVARIATE DESIGNS TO INDIVIDUALIZED INSTRUCTION RESEARCH.

PROGRAMMATIC EFFORTS

CRONBACH AND SUPPES (1969) MAKE A CLEAR DISTINCTION BETWEEN TWO FUNDAMENTAL KINDS OF INQUIRY. THEY DIFFERENTIATE BETWEEN DECISION-ORIENTED AND CONCLUSION-ORIENTED INVESTIGATIONS BY STATING THAT IN THE FORMER AN INVESTIGATOR IS ASKED TO PROVIDE INFORMATION WANTED BY A DECISION MAKER WHILE THE LATTER TAKES ITS DIRECTION FROM THE INVESTIGATOR'S COMMITMENTS

Table B15

HOW THE FIRMS REACTED TO SKILL SHORTAGES:
ALL INDUSTRIES

How the Firm Reacted	Frequency	Percent
Increase wages, fringe benefits, etc.	221	35.82
Extended the number of sources of recruitment within existing labor market	102	16.53
Looked in new labor markets	42	6.81
Used employees not specifically trained in the scarce skill	81	13.13
Did without	18	2.92
Other	153	24.80

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AND HUNCHES. ADDITIONALLY, "CONCLUSION-ORIENTED RESEARCH IS INTENDED TO HAVE A GENERAL SIGNIFICANCE, WHEREAS DECISION-ORIENTED RESEARCH IS DESIGNED FOR ITS RELEVANCE TO A PARTICULAR INSTITUTION AT A PARTICULAR TIME" (CRONBACH AND SUPPES, 1969, P. 25).

UNFORTUNATELY, THE LINKAGES BETWEEN THESE TWO KINDS OF INQUIRY ARE, AT BEST, WEAK. WHILE CONCLUSION-ORIENTED STUDIES ARE HIGHLY GENERALIZABLE, THEY MAY NOT PROVIDE ANSWERS TO THOSE QUESTIONS POSED BY THE DECISION-MAKER (E.G., VOCATIONAL DIRECTOR, COORDINATOR, TEACHER). DECISION-ORIENTED STUDIES, ON THE OTHER HAND, DO NOT SEEM TO PROVIDE A BASE WHICH IS APPROPRIATE FOR MAKING USEFUL GENERALIZATIONS.

LOGICALLY, INDIVIDUALIZED INSTRUCTION RESEARCH HAS TO MOVE AWAY FROM PIECE-MEAL TYPES OF STUDIES IF ANY GREAT IMPACT ON VOCATIONAL AND TECHNICAL EDUCATION IS TO BE FELT. RESEARCH ACTIVITIES MUST FLOW LOGICALLY IN SUCH A MANNER THAT ONE STUDY BUILDS UPON ANOTHER, THUS PRODUCING AN EMPIRICAL BASE WHICH EVENTUALLY MAY BE APPLIED TO IMPROVEMENT OF INSTRUCTION.

A PARTIAL ANSWER TO THE "GENERATED GAP" CAN BE OBTAINED BY ATTACKING PROBLEMS IN A MORE PROGRAMMATIC MANNER. THE PROPONENTS OF PROGRAMMATIC RESEARCH AND DEVELOPMENT FEEL THAT THIS APPROACH MAY WELL BRIDGE THE GAP BETWEEN "HARD-CORE" RESEARCHER AND "HARD-CORE" PRACTITIONER (IN ADDITION TO THOSE CLASSED AS SOFT-CORE). GIDEONSE (1970) INDICATES THAT THE TERM PROGRAMMATIC IS GENERALLY USED "TO IMPLY MORE THAN A SINGLE PROJECT, A RELATIVELY LONG TIME FRAME AND A JUSTIFICATION WHICH EXTENDS BEYOND THE PURPOSES OF INDIVIDUAL PROJECT COMPONENTS." HE PROPOSES THAT PROGRAMMATIC RESEARCH AND DEVELOPMENT CAN BE SPECIFIED ON THE BASIS OF GOALS TOWARD WHICH IT IS AIMED. IN A PAPER WHICH FOCUSES UPON PROGRAMMATIC RESEARCH

Table B16

HOW THE FIRMS REACTED TO SKILL SHORTAGES:
EXTRACTION AND CONSTRUCTION

How the Firm Reacted	Frequency	Percent
Increase wages, fringe benefits, etc.	18	46.15
Extended the number of sources of recruitment within existing labor market	6	15.39
Looked in new labor markets	4	10.26
Used employees not specifically trained in the scarce skill	5	12.82
Did without	1	2.56
Other	5	12.82

AND DEVELOPMENT IN VOCATIONAL EDUCATION, MORRISON (1970) ALSO EXPOUNDS UPON THE IDENTIFICATION OF OUTCOMES. HE STATES THAT THE IDENTIFICATION OF OBJECTIVES STATED IN TERMS OF DESIRED OUTCOMES IS BASIC TO THE PROGRAMMATIC EFFORT. MORRISON GOES ON TO INDICATE THAT, IN ORDER TO ACHIEVE DESIRED OUTCOMES, A LONG RANGE PLAN MUST BE DEVELOPED WHICH DEFINES THE DESTINATION AND STRATEGY FOR GETTING THERE.

IT CAN BE SEEN THAT PROGRAMMATIC RESEARCH AND DEVELOPMENT REQUIRES MORE THAN MERELY PUTTING TAB A IN SLOT B. PROGRAMMATIC EFFORTS MUST BE SPECIFIED IN SUCH A WAY THAT THE END AND THE MEANS TO THAT END (NO MATTER HOW COMPLEX) FORM AN INTEGRATED PACKAGE. THIS IS OF PARTICULAR IMPORTANCE TO RESEARCH IN INDIVIDUALIZED INSTRUCTION. UNFORTUANTELY, THE AFOREMENTIONED LINKAGES BETWEEN CONCLUSION AND DECISION-ORIENTED INQUIRY ARE VERY WEAK IN THE AREA OF INDIVIDUALIZED INSTRUCTION. FOR EXAMPLE, A CONCLUSION-ORIENTED RESEARCHER MIGHT BE ATTEMPTING TO IDENTIFY THOSE THEORY-BASED VARIABLES WHICH CAN ENHANCE THE INSTRUCTIONAL PROCESS. MEANWHILE, THE DECISION-MAKER DESIRES INFORMATION ABOUT HOW WELL LOCAL TEACHERS MAY USE FILMSTRIP X AS OPPOSED TO MOVE Y. IN THE END, NEITHER HAS ACTUALLY FOCUSED ON THE ULTIMATE TARGET POPULATION (THE STUDENTS).

PROGRAMMATIC RESEARCH AND DEVELOPMENT IN INDIVIDUALIZED INSTRUCTION THEN MAY BE INVISIONED AS A COOPERATIVE EFFORT WITH TEAM MEMBERS SELECTED FROM THE RANKS OF RESEARCHERS, TEACHERS, ADMINISTRATORS, AND STUDENTS. A PROGRAMMATIC PLAN WOULD INCLUDE THE GOALS TO BE ATTAINED (WHICH FOCUS ON THE ULTIMATE TARGET POPULATION) AND THE WAYS IN WHICH RESEARCH AND DEVELOPMENT SHOULD TAKE PLACE IN ORDER TO ATTAIN THESE GOALS. ALTHOUGH THIS MAY APPEAR TO BE A MONUMENTAL UNDERTAKING, IT IS NOT TOO HUGE WHEN ONE ADDS UP THE YEARS OF MEANINGLESS "WHEEL-SPINNING" ASSOCIATED WITH PROBLEMMATIC RESEARCH ACTIVITIES.

Table B-17

HOW THE FIRMS REACTED TO SKILL SHORTAGES:
MANUFACTURING

How the Firm Reacted	Frequency	Percent
Increase wages, fringe benefits, etc.	172	33.27
Extended the number of sources of recruitment within existing labor market	86	16.63
Looked in new labor markets	33	6.38
Used employees not specifically trained in the scarce skill	70	13.54
Did without	14	2.71
Other	142	27.47

Multivariate Approaches

With regard to designing individualized instruction research the past is certainly not a prologue. An overabundance of studies can be identified which are generally simplistic in design avoiding the examination of interactive effects such as instructional treatment by type of objective, or instructional treatment by level of student ability. Moreover, in only a few cases can studies be identified which examine students' personal (e.g. affective) characteristics as they relate to the instruction process.

This is not to say that univariate research should be abandoned. It must merely be considered as but one weapon in the research arsenal. In addition to the ever popular single-classification designs, opportunities may exist to study the relationships between one dependent variable and two or more independent variables. For example, this might occur when one wants to examine the differential effectiveness of several instructional treatments with youngsters who vary in their reading ability and motivation toward learning. If the criterion were learning success we could, in part, identify what kinds of youngsters (from a motivation toward learning and reading ability standpoint) learn best with certain instructional treatments. A fringe benefit of the multiple-classification approach is that interactions among variables may be examined. For example, it might be found that students with indices of low motivation perform better on treatment A than highly motivated students but perform worse on treatment B. This hypothetical case represents the type of information which is needed if instruction is to be tailored to individual needs.

In fact, before individualized instruction can be developed which is optimally effective we must be able to assess the complex relationships which

Table B18

HOW THE FIRMS REACTED TO SKILL SHORTAGES:
TRANSPORTATION AND UTILITIES

How the Firm Reacted	Frequency	Percent
Increase wages, fringe benefits, etc.	5	62.50
Extended the number of sources of recruitment within existing labor market		
Looked in new labor markets	1	12.50
Used employees not specifically trained in the scarce skill		
Did without		
Other	2	25.00

3877

EXIST BETWEEN NUMEROUS INDEPENDENT, DEPENDENT, AND INTERVENING VARIABLES. A PROMISING APPROACH TO THE CONCEPTUALIZATION OF THESE VARIABLES IS PRESENTED BY SEIDEL (1971). HE DESCRIBES A MODEL WHICH IS DESIGNED TO ULTIMATELY TAKE INTO ACCOUNT "DIMENSIONS AND ELEMENTS OF THE SUBJECT MATTER STRUCTURE, THE INDIVIDUAL'S PERSONAL CHARACTERISTICS AND FINALLY, INTERRELATIONSHIP BETWEEN THE PARTICULAR SUBSETS OF INDIVIDUAL CHARACTERISTICS AND THE NATURE OF THE KNOWLEDGES AND PERFORMANCES REQUIRED OF A STUDENT AT A MOMENT OF INSTRUCTION." THE MODEL PROPOSES TO REPRESENT TEACHING-LEARNING COMBINATIONS AS VECTORS WITHIN A SAMPLE SPACE. SEIDEL'S STRATEGY, ALTHOUGH IN A CONCEPTUAL STATE AT PRESENT, IS ONE THAT MAY EVENTUALLY LINK LEARNING THEORY AND INSTRUCTIONAL PRACTICE. OF COURSE, CENTRAL TO THIS MODEL'S VALIDATION IS AN EXAMINATION OF THE MANY VARIABLES WHICH ENCOMPASS THE TEACHING-LEARNING PROCESS. THIS BUILDS AN EVEN STRONGER CASE FOR THE USE OF MULTIVARIATE ANALYSIS.

HOW THEN MIGHT ONE GO ABOUT THE ARDUOUS TASK OF ACCOUNTING FOR A MULTITUDE OF VARIABLES WITHIN A RESEARCH DESIGN? FORTUNATELY, WITH THE ADVENT OF HIGH SPEED COMPUTERS VAST AMOUNTS OF DATA CAN NOW BE PROCESSED IN A RELATIVELY SHORT PERIOD OF TIME. LIKEWISE, COMPLEX AND HERETOFORE OBSCURE STATISTICAL ANALYSES MAY BE UNDERTAKEN VIA COMPUTER.

NOTEABLE AMONG THE COMPLEX APPROACHES TO STATISTICAL ANALYSIS IS MULTIPLE LINEAR REGRESSION. DETAILED DESCRIPTIONS OF THE MULTIPLE LINEAR REGRESSION TECHNIQUE ARE PROVIDED BY BOTTENBERG AND WARD (1963) AND SMITH (1969), HOWEVER, A BRIEF DESCRIPTION OF THIS METHODOLOGY IS GIVEN BELOW.

BY UTILIZING MULTIPLE LINEAR REGRESSION, EFFECTS OF CERTAIN INDEPENDENT VARIABLES MAY BE PARTIALLED OUT SO THAT THE UNIQUE CONTRIBUTION WHICH A

Table B19

HOW THE FIRMS REACTED TO SKILL SHORTAGES:
TRADE

How the Firm Reacted	Frequency	Percent
Increase wages, fringe benefits, etc.	10	50.00
Extended the number of sources of recruitment within existing labor market	1	5.00
Looked in new labor markets	3	15.00
Used employees not specifically trained in the scarce skill	5	25.00
Did without	1	5.00
Other		

3878

PARTICULAR INDEPENDENT VARIABLE MAKES TO A DEPENDENT VARIABLE MAY BE ASCERTAINED. VARIABLES INCLUDED IN THE ANALYSIS MAY BE CONTINUOUS OR CATEGORICAL, THUS TAKING INTO ACCOUNT CHARACTERISTICS SUCH AS GROUP MEMBERSHIP (E.G., SOPHOMORE, JUNIOR, SENIOR) AND SCHOOL MEMBERSHIP. THE GENERAL MODEL CAN BE EXPRESSED AS:

$$Y = A_0 + A_1X_1 + A_2X_2 + \ldots\ldots A_NX_N + E$$

WHERE

Y = DEPENDENT VARIABLE

$X_1, X_2, \ldots\ldots X_N$ = INDEPENDENT VARIABLE

$A_0, A_1, A_2 \ldots\ldots A_N$ = PARTIAL REGRESSION COEFFICIENTS

E = ERROR TERM

SINCE THE DEPENDENT VARIABLE (Y) AS WELL AS THE INDEPENDENT VARIABLES ($X_1, X_2, \ldots\ldots X_N$) MAY BE CONTINUOUS OR CATEGORICAL, THERE IS A GREAT DEAL OF FLEXIBILITY IN RESEARCH DESIGN. FOR EXAMPLE, Y COULD SPECIFY THAT ALL PERSONS ATTAINING CRITERION ARE "1" AND THOSE WHO DO NOT ATTAIN CRITERION ARE "0." LIKEWISE, INDEPENDENT VARIABLES MIGHT INCLUDE CATEGORICAL DATA. X_1 COULD INDICATE THAT PERSONS ASSIGNED TO A TREATMENT GROUP ARE "1" AND THOSE ASSIGNED TO ANOTHER TREATMENT GROUP ARE "0." X_2 MIGHT INCLUDE CONTINUOUS TYPE DATA ON STUDENTS' ABILITIES (OR ANY OTHER MEANINGFUL PERSONAL CHARACTERISTIC).

ONE MAY EASILY OBSERVE THE ADVANTAGES WHICH MULTIPLE LINEAR REGRESSION HAS OVER MANY OF THE "TRADITIONAL" RESEARCH METHODOLOGIES. A WIDE RANGE OF VARIABLES MAY BE TAKEN INTO ACCOUNT WITH A RESEARCH DESIGN, THUS ENHANCING THE VALIDITY OF A PARTICULAR STUDY. SINCE THE INDIVIDUALIZATION OF INSTRUCTION SUGGESTS THAT "OPPORTUNITY FOR INDIVIDUAL MASTERY OF COMMON SUBJECT MATERIAL WILL EXIST, AS WELL AS THE PROVISION OF PERSONALIZED INSTRUCTION

Table B20

HOW THE FIRMS REACTED TO SKILL SHORTAGES:
FINANCE, INSURANCE AND REAL ESTATE

How the Firm Reacted	Frequency	Percent
Increase wages, fringe benefits, etc.	4	66.67
Extended the number of sources of recruitment within existing labor market	2	33.33
Looked in new labor markets		
Used employees not specifically trained in the scarce skill		
Did without		
Other		

FOR THE STUDENT THAT IS UNIQUE TO HIS ABILITY, MOTIVATION, AND INTEREST" (BISHOP, 1971, P. 54), IT IS ONLY LOGICAL THAT RESEARCH SHOULD ACCOUNT FOR THOSE CHARACTERISTICS WHICH ARE BASIC TO THE INSTRUCTIONAL PROCESS. ALTHOUGH MULTIPLE LINEAR REGRESSION IS ONE OF MANY RESEARCH STRATEGIES IT EXEMPLIFIES THE MEANS BY WHICH ANSWERS TO COMPLEX INDIVIDUALIZED INSTRUCTION QUESTIONS MAY BE OBTAINED.

ACCOUNTING FOR VARIABLES: AN APPLICATION OF INDIVIDUALIZED INSTRUCTION RESEARCH

IN ORDER TO BETTER DESCRIBE HOW MULTIVARIATE ANALYSIS FITS INTO THE RESEARCH PROCESS, PORTIONS OF A RECENTLY COMPLETED INVESTIGATION WILL BE PRESENTED. THIS PARTICULAR STUDY, WHICH FOCUSED ON THE ROLE OF DYNAMIC SIMULATION IN TEACHING COMPLEX PROBLEM SOLVING SKILLS, UTILIZED MULTIPLE LINEAR REGRESSION AS A MEANS OF ANALYZING DATA (FINCH, 1971). IT INVOLVED A MULTI-SCHOOL, MULTI-TEACHER, MULTI-GRADE SAMPLE AND INCLUDED YOUNGSTERS WITH A WIDE RANGE OF PERSONAL ATTRIBUTES (N = 205). THE SPECIFIC EQUATIONS USED IN THIS STUDY WERE:

$$Y_I = A_0 + A_1X_1 + A_2X_2 + A_3X_3 + A_4X_4 + \ldots\ldots A_{15}X_{15} + E$$

$I = 1, 6$

WHERE

Y_1 = TROUBLESHOOTING PROFICIENCY

Y_2 = TROUBLESHOOTING EFFICIENCY

Y_3 = TROUBLESHOOTING REDUNDANCY

Y_4 = TROUBLESHOOTING SEARCH TIME

Y_5 = TROUBLESHOOTING ACTION CHECKS

Y_6 = TROUBLESHOOTING INFORMATION CHECKS

AND

Table B21

HOW THE FIRMS REACTED TO SKILL SHORTAGES:
SERVICE

How the Firm Reacted	Frequency	Percent
Increase wages, fringe benefits, etc.	12	44.44
Extended the number of sources of recruitment within existing labor market	7	25.93
Looked in new labor markets	2	7.41
Used employees not specifically trained in the scarce skill		
Did without	2	7.41
Other	4	14.81

3880

X_1 = TREATMENT

X_2 = SCHOOL

X_3 = GRADE LEVEL

X_4 = VERBAL ABILITY

X_5 = NON-VERBAL ABILITY

X_6 = MOTIVATION TOWARD LEARNING

X_7 = EQUIPMENT KNOWLEDGE

X_8 = OCCUPATIONAL KNOWLEDGE

X_9 = AGE IN MONTHS

X_{10} = TROUBLESHOOTING EXPERIENCE IN SCHOOL

X_{11} = TROUBLESHOOTING EXPERIENCE OUTSIDE OF SCHOOL

X_{12} = JOBS HELD RELATED TO INSTRUCTIONAL AREA

X_{13} = HOBBIES RELATED TO INSTRUCTIONAL AREA

X_{14} = LIVING AREA (EMPLOYMENT SITUATION)

X_{15} = FATHER'S OCCUPATION

IN ORDER TO ASSESS THE EFFECTIVENESS OF DYNAMIC SIMULATION IT WAS NECESSARY TO DETERMINE WHAT UNIQUE RELATIONSHIP THE PRIME INDEPENDENT VARIABLE, GROUP MEMBERSHIP (TREATMENT VS. NON-TREATMENT), MIGHT HAVE WITH THE SIX DEPENDENT VARIABLES (PROFICIENCY, EFFICIENCY, REDUNDANCY, SEARCH TIME, ACTION CHECKS, AND INFORMATION CHECKS). IT SHOULD FIRST BE NOTED THAT THIS INDEPENDENT VARIABLE WAS CATEGORICAL WITH THE GROUP RECEIVING SIMULATOR INSTRUCTION CODED 1 AND THE CONTROL OR NON-TREATMENT GROUP CODED 0. ADDITIONALLY, PROFICIENCY WAS CODED 1, 2, OR 3 DEPENDING ON WHETHER AN INDIVIDUAL FOUND NO TROUBLES, ONE TROUBLE, OR BOTH TROUBLES. THE OTHER FIVE DEPENDENT VARIABLES WERE CONTINUOUS AND, PRIOR TO THE ANALYSIS, HAD BEEN DERIVED FROM RAW SUB-SCORES WHICH WERE FIRST CONVERTED TO STANDARD SCORES AND THEN COMBINED.

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FINCH, CURTIS R.; IMPELLITTERI, JOSEPH T.
RESEARCH ON INDIVIDUALIZING INSTRUCTION IN VOCATIONAL AND TECHNICAL EDUCATION: STATUS AND PROSPECTS.

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ABSTRACT - THE CURRENT STATUS OF RESEARCH ON INDIVIDUALIZING INSTRUCTION IN VOCATIONAL AND TECHNICAL EDUCATION WAS OUTLINED IN 11 OBSERVATIONS BY THE FIRST SPEAKER AT AN ANNUAL CONVENTION, STRESSING THE VALUE OF THE SYSTEMS APPROACH AND THE EFFECTIVENESS OF MILITARY TRAINING RESEARCH. AFTER REVIEWING A SYNTHESIS OF RESEARCH IN THIS AREA, FUTURE RESEARCH PROSPECTS AND RECOMMENDED APPROACHES ARE SPECIFIED BY THE SECOND SPEAKER, INCLUDING A DISCUSSION OF MULTIVARIATE REGRESSION ANALYSIS AND PROGRAMMATIC DEVELOPMENT NEEDS. (AG)

INITIALLY, A ZERO-ORDER CORRELATION MATRIX WAS GENERATED FOR THE SIX PERFORMANCE (DEPENDENT VARIABLES) AND ALL INDEPENDENT VARIABLES. MULTIPLE LINEAR REGRESSION ANALYSIS (MRA) WAS THEN CONDUCTED TO IDENTIFY THE UNIQUE CONTRIBUTION WHICH EACH OF THE INDEPENDENT VARIABLES MADE TO THE DEPENDENT VARIABLES. AS INDICATED PREVIOUSLY, PRIME CONCERN WAS WITH THE TREATMENT VARIABLES AS THIS DIFFERENTIATED BETWEEN STUDENTS RECEIVING AND NOT RECEIVING SIMULATOR INSTRUCTION. OTHER INDEPENDENT VARIABLES WERE ALSO IMPORTANT TO THE EXTENT THAT THEY MADE UNIQUE CONTRIBUTIONS TO EACH OF THE PERFORMANCE VARIABLES.

AN EXAMPLE OF REGRESSION ANALYSIS FOR THE VARIABLE "INFORMATION CHECKS" USING A STEP-DOWN PROCESS IS PRESENTED IN TABLE 1. AS A RESULT OF STEP-DOWN PROCEDURE (AN OPTION IN THE MRA PROGRAM; SEE HALLBERG, 1969) ONLY THOSE VARIABLES WITH SIGNIFICANT PARTIAL REGRESSION COEFFICIENTS WERE RETAINED.

IN BRIEF, VARIABLE 1 (GROUP) ATTAINED THE HIGHEST PARTIAL REGRESSION COEFFICIENT AND THE HIGHEST I VALUE (5.02). ON THE AVERAGE, STUDENTS IN THE TREATMENT GROUP SCORED 10.65 UNITS HIGHER ON THE INFORMATION CHECKS VARIABLE THAN DID THE NON-TREATMENT GROUP. OTHER VARIABLES INCLUDED IN THE PARTIAL REGRESSION MODEL WERE GRADE, JOBS IN AUTOMOTIVE AREA, AND EQUIPMENT KNOWLEDGE. THE GRADE VARIABLE AND EQUIPMENT KNOWLEDGE VARIABLE WERE POSITIVELY RELATED TO NUMBER OF INFORMATION CHECKS MADE. JOBS IN AUTOMOTIVE AREA WAS NEGATIVELY RELATED, HOWEVER, SINCE ONE WAS "YES" AND TWO WAS "NO," RESULTS SHOULD BE INTERPRETED ACCORDINGLY. PERSONS WHO HELD JOBS IN THE INSTRUCTIONAL AREA SCORED ON THE AVERAGE, 3.66 UNITS HIGHER ON THE INFORMATION CHECKS VARIABLE. LIKEWISE, FOR EACH UNIT INCREASE IN EQUIPMENT KNOWLEDGE TEST SCORE THERE WAS A CORRESPONDING .6114 INCREASE IN INFORMATION CHECKS SCORE. WITH REGARD TO VARIABLE 3, A ONE UNIT INCREASE IN GRADE (10 TO 11 OR 11 TO 12) REFLECTED A CORRESPONDING 3.43 UNIT INCREASE IN INFORMATION CHECKS SCORE.

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RESEARCH ON INDIVIDUALIZING INSTRUCTION IN VOCATIONAL AND TECHNICAL EDUCATION: STATUS AND PROSPECTS

CURTIS R. FINCH
CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
OHIO STATE UNIVERSITY

AND

JOSEPH T. IMPELLITTERI
DEPARTMENT OF VOCATIONAL EDUCATION
PENNSYLVANIA STATE UNIVERSITY

PRESENTED AT THE ANNUAL CONVENTION OF THE
AMERICAN VOCATIONAL ASSOCIATION

DECEMBER 4, 1971

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TABLE 1

REGRESSION ANALYSIS BETWEEN FOUR INDEPENDENT VARIABLES AND THE DEPENDENT VARIABLE INFORMATION CHECKS

(N = 205)

Variables	Partial Regression Coefficient	Standard Error	Student "t"
3. Grade Level	3.4326	1.4743	2.33*
12. Jobs in Area	-3.6585	1.5246	2.40*
7. Equipment Knowledge Test	.6114	0.1830	3.34**
1. Group	10.6467	2.1215	5.02**
Intercept	50.0214	15.7301	

Standard Error of Estimate = 15.0322

Multiple Correlation (full model) = .5118

Adjusted Coefficient of Determination (full model) = .1948

Multiple Correlation (four independent variables) = .4751

Adjusted Coefficient of Determination (four independent variables) = .2103

* = P < .05
** = P < .01

AS IS SUGGESTED BY THE TITLE OF THIS PAPER WE HAVE ATTEMPTED TO EXTRACT DIRECTION FROM THE NUMEROUS RESEARCH EFFORTS WHICH HAVE EXPLORED THE INDIVIDUALIZATION OF VOCATIONAL AND TECHNICAL INSTRUCTION. THE MANNER IN WHICH WE CHOSE TO PURSUE OUR OBJECTIVE OF DERIVING FUTURE DIRECTIONS FOR RESEARCH IN THIS AREA INVOLVED EIGHT STEPS:

1. REVIEWING EXISTING RESEARCH
2. CRITIQUING THE REVIEWED RESEARCH
3. ORGANIZING THE ACCEPTABLE RESEARCH WITHIN A VALID INDIVIDUALIZED INSTRUCTION FRAMEWORK
4. SYNTHESIZING THE RESEARCH WITHIN MAJOR CATEGORIES OF THAT FRAMEWORK
5. SYNTHESIZING THE SYNTHESES
6. RECOMMENDING FUTURE DIRECTIONS FOR RESEARCH BASED ON THE OVERALL SYNTHESIS
7. SPECIFYING THE RECOMMENDED RESEARCH APPROACHES
8. EXEMPLIFYING SELECTED APPROACHED

THE COMPLETION OF EACH OF THE STEPS IN THIS SCHEME IS OBVIOUSLY CRUCIAL TO THE UNDERTAKING OF THE FOLLOWING STEPS. SINCE WE WILL BE DISCUSSING TODAY PRIMARILY STEPS FIVE THROUGH EIGHT ON THE LIST, LET US ASSURE YOU THAT ONE THROUGH FOUR HAVE ACTUALLY BEEN COMPLETED AND REPORTED. IF YOU HAVEN'T SEEN THAT REPORT WHICH, BY THE WAY, ACTUALLY INCLUDES A DESCRIPTION OF STEPS ONE THROUGH SIX DO NOT FEEL SLIGHTED, FOR WE HAVE NOT SEEN THE PUBLISHED FORM EITHER. THE FINAL DRAFT WAS COMPLETED IN THE SPRING AND IS SCHEDULED FOR PUBLICATION SOME TIME WITHIN THIS DECADE. IT WILL BEAR THE TITLE, REVIEW AND SYNTHESIS OF RESEARCH ON INDIVIDUALIZING INSTRUCTION

THIS EXAMPLE PROVIDES A HASTY LOOK AT ONE OF THE WAYS MULTIVARIATE ANALYSIS CAN BE USED IN THE RESEARCH PROCESS TO ACCOUNT FOR VARIABLES WHICH MIGHT AFFECT THE INSTRUCTION. HOPEFULLY, IT REPRESENTS A TREND IN THE DIRECTION OF INCREASED CONCERN ABOUT THE MANY VARIABLES WHICH CAN BE IDENTIFIED WITHIN THE TEACHING-LEARNING PROCESS.

THE TANGIBLE ACCOMPLISHMENTS OF RESEARCH ON INDIVIDUALIZING INSTRUCTION IN VOCATIONAL AND TECHNICAL EDUCATION ARE, AT PRESENT, EXTREMELY DIFFICULT TO IDENTIFY AND DESCRIBE EXPLICITLY. THE PAST APPEARS TO BE A PRECURSOR OF THINGS TO COME RATHER THAN A FIRM, ESTABLISHED GAIN. HOWEVER, WITH A GOODLY SUPPLY OF TRAINED INDIVIDUALS, A PROGRAMMATIC RESEARCH AND DEVELOPMENT EFFORT, AND AN AMPLE SUPPLY OF APPROPRIATE RESEARCH STRATEGIES, THE FUTURE SEEMS VERY BRIGHT INDEED!

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O'HAGAN, ROBERT E.

EVALUATION OF ELECTRONICS CURRICULUM IN TERMS OF EMPLOYER'S RATING OF JOB PERFORMANCE OF FORMER STUDENTS. FINAL REPORT.

MORAINE PARK TECHNICAL INST., FOND DU LAC, WIS.
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ABSTRACT - TO DETERMINE TO WHAT EXTENT THE 2-YEAR ELECTRONICS CURRICULUMS OFFERED IN THE ELEVEN VOCATIONAL, TECHNICAL, AND ADULT EDUCATION DISTRICTS OF WISCONSIN ARE SATISFYING THE NEEDS OF INDUSTRY AS EMPLOYERS VIEW THESE NEEDS, SURVEY INTERVIEWS AND QUESTIONNAIRES WERE DEVELOPED TO COLLECT DATA FROM EMPLOYERS AND EMPLOYEES, BOTH IN WISCONSIN AND OTHER STATES. DATA WERE SUMMARIZED, EXPRESSED IN PERCENTAGES, AND PRESENTED IN A WIDE RANGE OF TABLES. THE DATA DEALT WITH TRAINING AND PLACEMENT OF EMPLOYEES, PROJECTED NEEDS FOR TECHNICIANS, EXPECTED JOB PROFICIENCES AND ACTIVITIES, AND OTHER EVALUATION MEASURES. BASED ON RESPONSES FROM 80 EMPLOYERS AND 184 EMPLOYEES, IT WAS RECOMMENDED THAT SOME CURRICULUM AREAS BE EVALUATED FOR THEIR USEFULNESS, COMMUNICATIONS TRAINING BE STRENGTHENED, TECHNICAL COURSES BE EMPHASIZED, AND DEVELOPMENT OF JOB PROFICIENCES STRESSED. (AG)

FINAL REPORT

Project Nos. 10.036.221 - 10.001.151.222

EVALUATION OF ELECTRONICS CURRICULUM IN TERMS OF EMPLOYER'S RATING OF JOB PERFORMANCE OF FORMER STUDENTS

February, 1972

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WISCONSIN BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION

Madison, Wisconsin

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FINAL REPORT

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EVALUATION OF ELECTRONICS CURRICULUM IN TERMS OF EMPLOYER'S RATING OF JOB PERFORMANCE OF FORMER STUDENTS

Robert E. O'Hagan

MORAINE PARK TECHNICAL INSTITUTE

Fond du Lac, Wisconsin

February, 1972

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F O R E W O R D

Startling developments in science and technology and a rapidly expanding economy are spelling out important changes in the structure of the occupational world. Specific jobs become obsolescent more frequently, old occupations disappear, and new occupations emerge, not always in foreseeable fashion. The pressures of a rapidly changing technological society make career decision making by youth, curriculum revisions by staff, and program planning by administrators even more dependent on research, follow-up of students and assessment by employers for appropriate data and information needed in developing plans, solving problems, improving instruction, and assessing progress toward achieving the goals of the system.

The success of an institution can best be measured by the success of the student. To ascertain the effectiveness of a school's program, there must be follow-up from the day the student enters the institution until after he gains employment or transfers to another institution. Follow-up is a process by which an educational institution seeks to determine how effectively it is meeting the current and future needs of those it serves. Vocational, technical and adult education state staff and districts must determine how well their stated mission, goals and objectives are being achieved. The employer of the product is a valuable source of information.

One of the problems confronting educators in developing curricula is the problem of time and change. Our knowledge is spiraling with each day. Each innovation calls for new skills and knowledges. How can the

curriculum then keep pace with the times. The answer may lie in bringing industry to help in building the curriculum with the help of advisory committees.

The basis for constructing and maintaining a relevant curriculum can be obtained from employers' needs. In addition to using advisory committees and joint curriculum committees, surveys of employers' observations of workers on the job, interviews with supervisors and other methods can be used.

An Associate Degree Program which has been in existance in the Wisconsin Vocational, Technical and Adult Education system a long time and therefore warrants employer evaluation is: Electronics Technology. This project will be concerned with this technology including industrial and communications electronics.

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CHAPTER I

THE TASK OF THE CURRICULUM DESIGNER OF TECHNICAL PROGRAMS

The curricula of technical programs are the applications of the philosophy of technical education. Curricula, when well-designed, parallel the requirements of the technical occupations so far as they can be classified. These job requirements of course, are not within the control of the curriculum designer; they are established by the employer whose industrial needs differ in accordance with his differences in production technology and in his product. Therefore, the role of the curriculum-designer who is charged with creating a pattern of theory and skill-oriented experiences is complicated by the various demands employers may make on candidates for the positions they offer.

Although any attempt to measure the validity of a curriculum must involve the fact that the expectations of every potential employer cannot be fully satisfied; a prediction when attainable of what job skills, knowledge, attitudes, and appreciation most employers seek, is perhaps the most significant insight a curriculum-designer can have in his efforts to design new patterns of instruction or to evaluate those already established.

Completeness of the program however, is not the whole concern of the curriculum-designer; he must consider the relevancy and intensity of those features in his program--being careful not to overemphasize some skill trainings at the expense of other, perhaps more appropriate kinds. Therefore any prediction of what employers expect in the candidate's background should include the consideration of how much and to what

degree a given skill is required.

Since job requirements are constantly changing, the curriculum-designer must make every attempt to locate trends in the various occupational fields. This tends to complicate his task. The immediate demands of employers--whose product is subject to constant technological refinement, whose line may be ever-expanding, whose production system may involve greater and greater specialization of human tasks, whose ever-increasing employment of instrumentation changes--are unpredictable. It becomes imperative, however, that the well-designed curriculum be responsive to these trends in completeness, intensity, and relevancy to the skills identified within the program. The accuracy of employers' requirement comes into question: far-sighted employers may seek standards of skill, knowledge, and attitude that exceed the present employee's need but that may be necessary for his ability to adjust to the anticipated technology changes; short-sighted employers may simply overestimate the intensity of certain kinds of training or underestimate the completeness or relevancy of skills in operation now or in the future.

Nevertheless, the task of successful curriculum design--a constant quest for completeness, relevancy, and proper intensity--is dependent in great part on a knowledge of the employer's expectations--no matter that they be transitory and sometimes unjustified.

The purpose of this study is:

> to determine to what extent the two-year electronics curricula offered in the eleven Vocational, Technical, and Adult Education districts of Wisconsin are satisfying the needs of industry as the employers view these needs.

The focus on the electronics curricula puts the problem into a workable framework for specific recommendations on curricula revisions and on reinforcement of existing curricular practices. The selection of the electronic curricula is an indiscriminate one, but quite typical of curricula subject to rapid technological changes. The adoption of electronic equipment in business and industry accounts for jobs in places where none existed before and specialization of jobs and the elimination of jobs as the result.

The methodology (to be described in the following section) will demonstrate that the factors of completeness, intensity, and relevancy of subject matter and the accuracy of the employer's job description requirements are all within the focus on this problem.

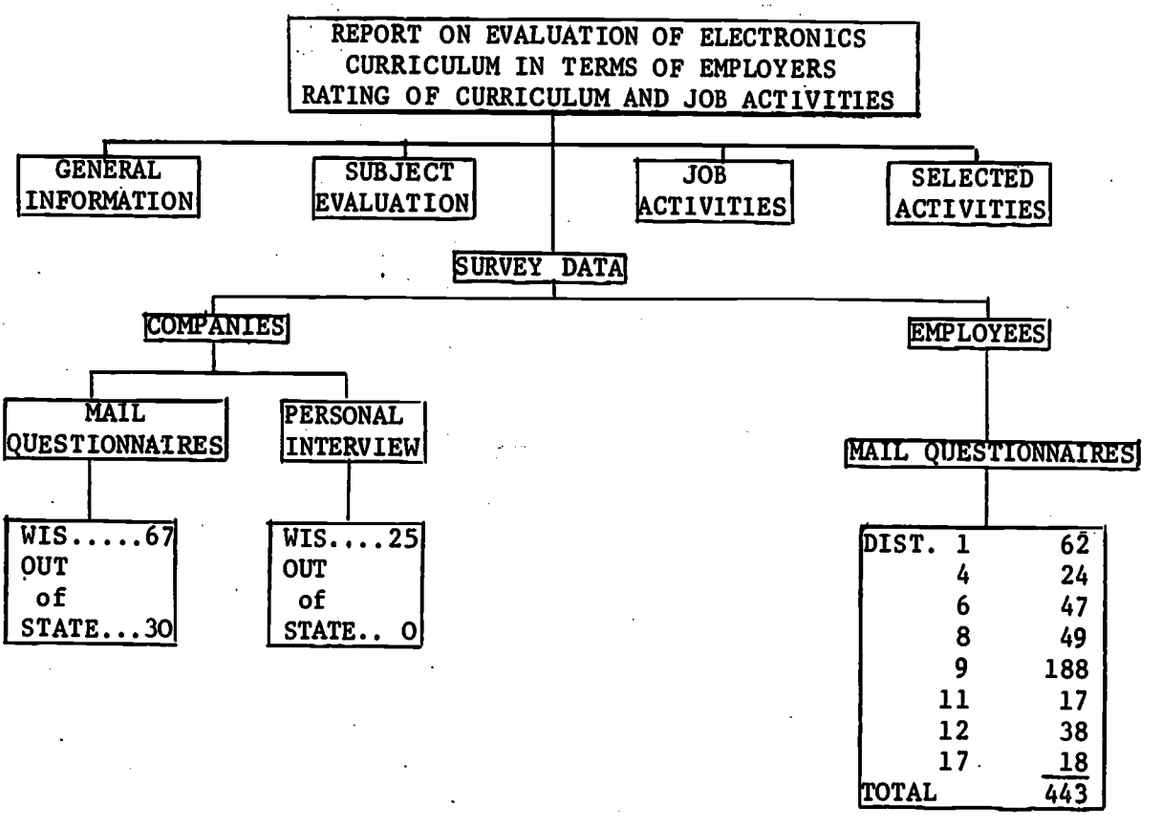
CHAPTER II

METHODOLOGY

The survey method was used in gathering data from employers who have hired graduates awarded associate degrees in the Electronics Associate Degree Program in the Wisconsin Schools of Vocational, Technical, and Adult Education. Employers in the State of Wisconsin as well as some outside the State were contacted. The survey method was also used to gather data from employees.

The data on which this report is based was collected during interviews held on the premises of selected companies, as well as questionnaires mailed to both employers and employees. The general methods used to gather data, including both the flow of information and the design of the sample appear below.

INFORMATION FLOW AND SAMPLE DESIGN



DETERMINATION OF COMPANIES TO BE CONTACTED

In April, 1971 the State Director of Wisconsin Vocational, Technical, and Adult Education sent a letter to all VTAE Districts in the state who offer the two-year Associate Degree Programs in Electronics. This letter explained the purpose of this study, "to obtain information which would provide a basis for possible curriculum changes and to determine if our present programs are fulfilling the needs of industry in preparing Electronics Technicians for employment."

He also requested the following information from the Districts to be submitted to the Research Coordinating Unit of the State Board Office, by May 12,1971:

1. List of Electronics Technology Associate Degree Graduates for the years - 1967 through 1970, including their last known address and employer of each graduate.
2. Topical course outlines for Electronics Technology Associate Degree Programs.

After receipt of these lists of Electronics Technology graduates, company selection was based on consideration of the following factors:

1. Objective characteristics such as size, type of production processes, service oriented, number of plants, and location.

In general, the intent was to select from within the districts those companies that would provide a good cross-section of the types of manufacturing and services offered in the Electronics field.

The selection of actual plants to visit was determined in much the same manner as the selection of companies. Due consideration was given to plant characteristics which might develop a much more representative sample. A total of twenty-five(25) plants were selected for personal interviews.

DETERMINATION OF EMPLOYEES TO BE CONTACTED

From the lists of two-year Associate Degree Electronic graduates submitted by the Districts, employee selection was based on consideration of the following factors:

1. Year of graduation, type of industry in which he is working, if attending school, in service, and availability of mailing address.

The selection of actual graduates to receive the questionnaire was determined on the basis of the industry in which he was working and availability of his mailing address.

DEVELOPMENT OF THE QUESTIONNAIRES

A questionnaire was developed using as a basis for construction, the curriculum requirements of the Wisconsin Board. The purpose of the questionnaire (Appendix C) was to determine from the employer, his satisfaction with the employee as to the concepts presumably learned in the curriculum.

The questionnaire was administered on a trial basis to staff personnel of one of the districts that offer the Associate Degree in Electronics, one member of our State University System in Industrial Technology, and two members of industry in the area of Electronics. During this try-out, the time required to complete the questionnaire was recorded, any difficulties the respondent experienced in completing the questionnaire were noted and the respondent's comments concerning the questionnaire after he had completed were obtained through interview with him.

The development of the employee questionnaire (Appendix E) was structured very much like that developed for the employer. The general information section was changed to reflect questions of interest to the employee. Selected activities were chosen on the basis of employee interest.

ADMINISTRATION OF QUESTIONNAIRES

During June and July, 1971 the finalized questionnaires with appropriate cover letter and stamped, self-addressed envelope were sent to 122 companies and 433 employees. Twenty-five companies were contacted on a personal basis and were asked to complete the questionnaire in the presence of the researcher. In most instances, this was possible; however, in some cases it was necessary to leave the questionnaire with a stamped, self-addressed envelope for return after its completion. When the questionnaire was not received after six weeks, a follow-up letter (Appendix F) was mailed. Nine such letters were sent out to companies selected.

TABULATION OF COMPLETED QUESTIONNAIRES

The results obtained from the completed questionnaires were tabulated to determine the frequency of the various areas outlined in the questionnaire. The data was analyzed in terms of summation and percentages of responses.

CHAPTER III

FINDINGS RELATED TO THE EMPLOYERS OF THE TWO YEAR ELECTRONIC ASSOCIATE DEGREE PROGRAM GRADUATES

For the years 1967 thru 1970 employers of the two-year Electronic Associate Degree Program Graduate numbered 215. Employers located within the state numbered 147 or 68%; 68 or 32% were located outside the state. Of the employers contacted, 48 indicated employing two or more graduates of the two-year Electronic Associate Degree Program.

TABLE I

Location of Companies that employ Graduates of the Electronic Associate Degree Program - by District.

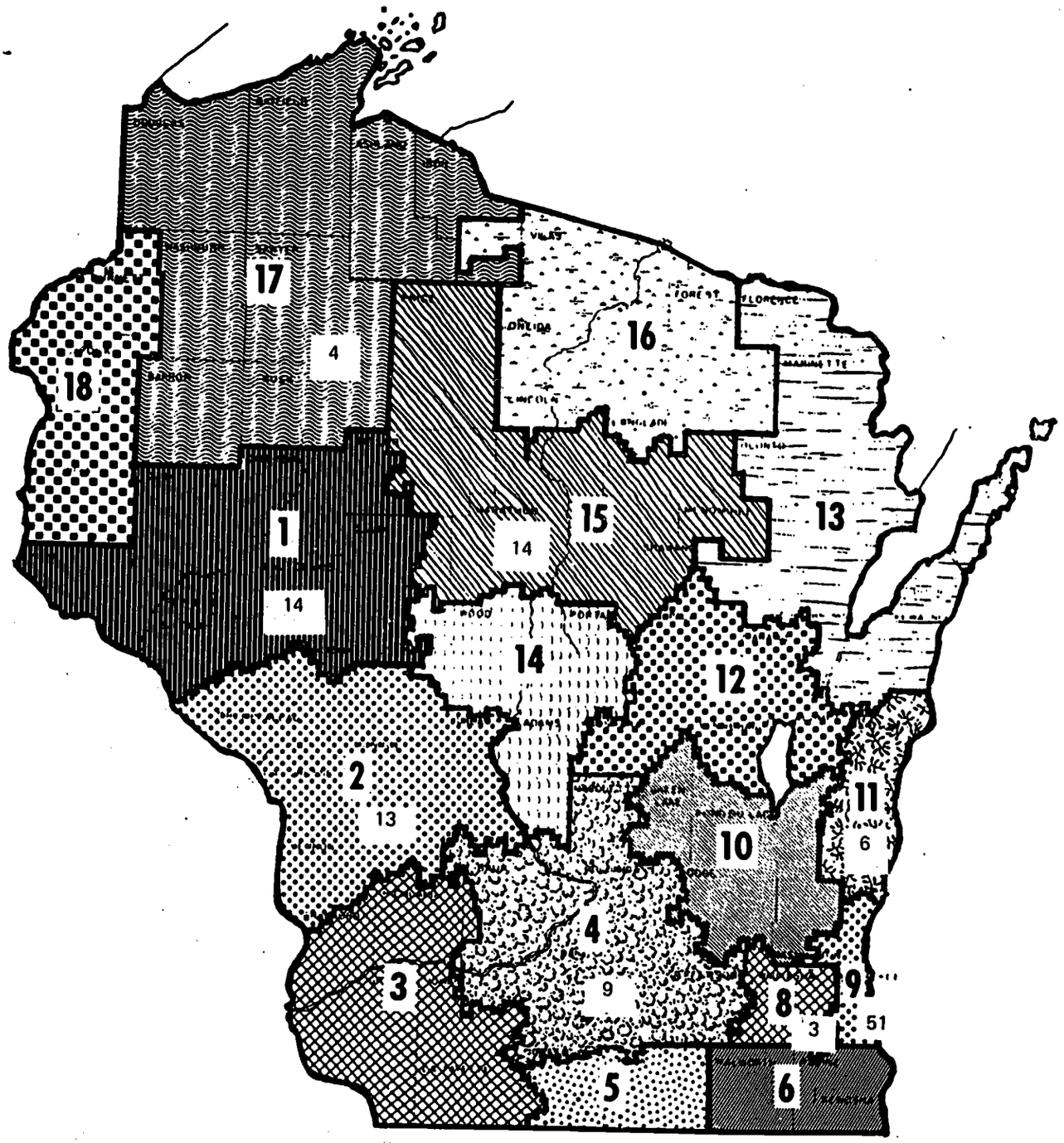
District	Location of Company			Total	No. of Companies that Employ---Graduates						
	In District	Out of District	Out of State		1	2	3	4	5	6	or more
1	14	1	7	22	18	4					
2	13	5	7	25	18	4	1	2			
4	9	0	2	11	6	3	1			1	
5	A	A	A	A							
6	B	B	B	B							
8	3	5	0	8	6	2					
9	51	3	28	82	61	6	6	3	1	5	
11	B	B	B	B							
12	6	6	2	14	13			1			
15	14	13	10	37	30	2	3			2	
17	4	0	12	16	15	1					
Totals	114	33	68	215							

A. No information made available.

B. Employers were not indicated on list submitted.

LOCATION OF COMPANIES THAT EMPLOY

THE TWO-YEAR ASSOCIATE DEGREE ELECTRONIC GRADUATE



Out of State: 30

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TABLE II

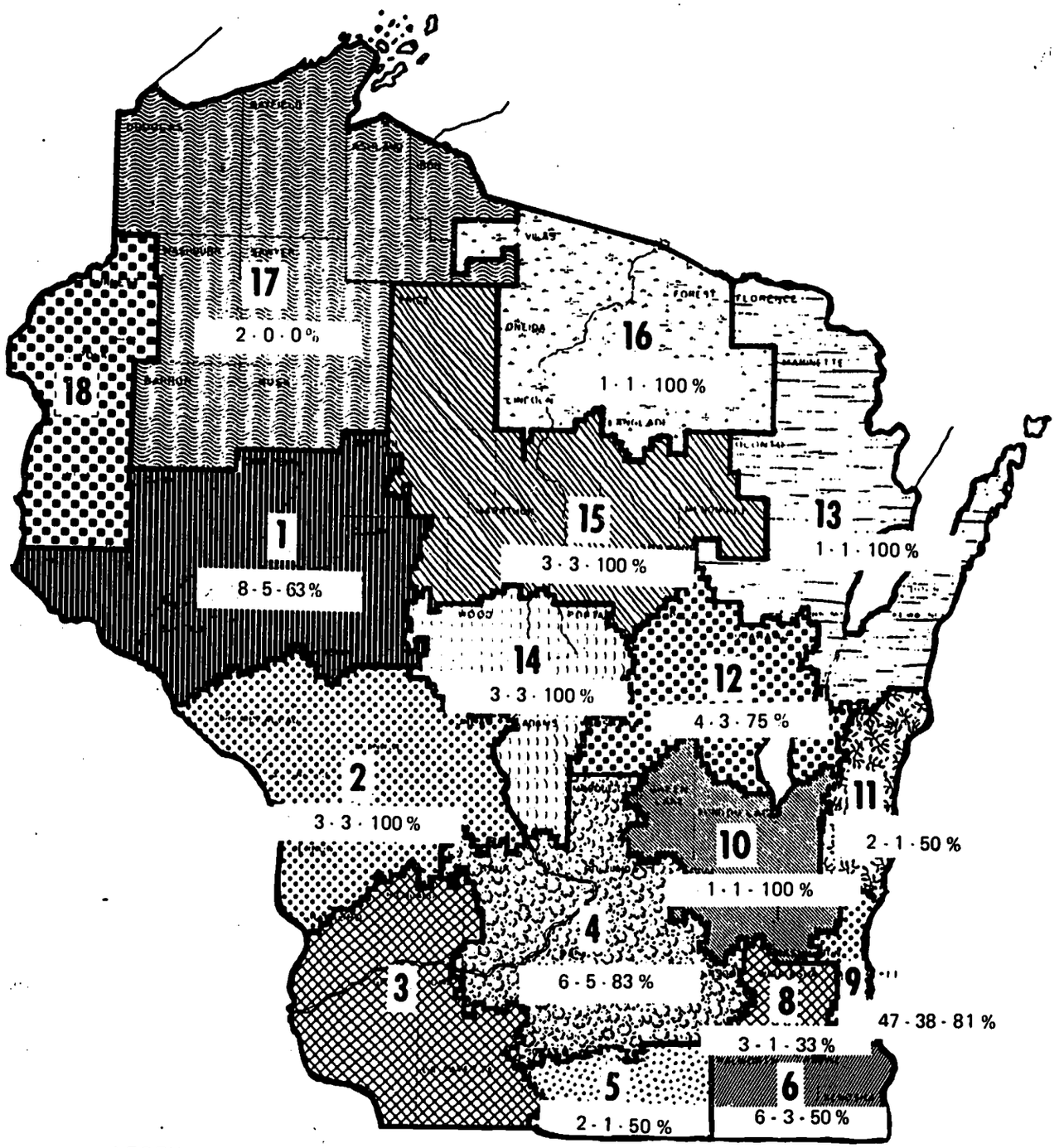
Companies who received Questionnaires or received Personal visits-by

DISTRICT	Questionnaires mailed to	Personal Visit	Totals
1	8	0	8
2	3	0	3
4	3	3	6
5	1	1	2
6	2	4	6
8	3	0	3
9	33	14	47
10	0	1	1
11	1	1	2
12	3	1	4
13	1	0	1
14	3	0	3
15	3	0	3
16	1	0	1
17	2	0	2
Out of State	30	0	30
Totals	97	25	122

The above table indicates that employers of the two-year Electronic Associate Degree Technician who received questionnaires, are located in 15 of the 17 State V. T. A. E. Districts.

STATISTICS PERTAINING TO THE NUMBER OF COMPANIES CONTACTED

IN THIS STUDY AND THE NUMBER OF QUESTIONNAIRES RETURNED - BY DISTRICT



LEGEND:
lst digit - number received
2nd digit - number returned

Out of State: 30 - 14 - 47 %

Calif. - 1	N.Y. - 1
Ill. - 6	Ohio - 2
Mass. - 1	Penn. - 1
Minn. - 2	

TABLE III

Statistics pertaining to the number of Companies contacted in this study and the number of questionnaires returned - By District.

DISTRICT	Questionnaires Mailed to	Results		Personal Visits		
		Returned	Did not Return	Scheduled	Contacted	Not Contacted
1	8	5	3			
2	3	3				
4	3	2	1	3	3	
5	1	1		1	1	
6	2		2	4	3	1
8	3	1	2			
9	33	28	5	14	10	4
10				1	1	
11	1	1		1	1	
12	3	2	1	1	1	
13	1	1				
14	3	3				
15	3	3				
16	1	1				
17	2		2			
Out of State	30	14	16			
Totals	97	65	32	25	20	5

A total of 122 (57%) employers were selected to participate in this statewide survey. Questionnaires were sent to 97 companies, 30 of which were located outside the state. Personal visits were made to 25 of the 122 employers.

TABLE IV

Statistics as to the number of Companies contacted and the number of returned questionnaires.

	In State		Out of State	
	By Questionnaire	BY Personal Visit	BY Questionnaire	Total
Total Companies	67	25	30	122
Questionnaires not deliverable	1	0	0	1
Out of business	1	0	0	1
Do not employ	3	0	0	3
Do not require Technicians	1	0	0	1
Number of Respondents	45	21	14	80
Number of non-Respondents	16	4	16	36
Percentage of Respondents based on Companies contacted	67.2	84.0	46.7	65.6

The above table indicates that a return of 65.6% was experienced. A second questionnaire was mailed to nine employers in the state, with a return of one. Four of the nine were employers that were initially paid a personal visit, but contact with the proper personnel was not made.

TABLE V

Areas in which Companies place full time, two-year Associate Degree Electronic Technicians after their initial training period. (multiple replies)

AREA	COMPANY SIZE						
	1000 & OVER	750-999	500-749	250-499	100-249	50-99	UNDER 50
Electronic Design & Drafting	15	2	2	5	3	4	4
Field Service	11	1	2	5	4	8	10
Production Maintenance	11	3	1	1	5	1	1
Quality Assurance	8	1	2	2	1	4	1
Research & Development	16	3	1	5	3	5	3
Technical Writer - Editor	9			1		1	
Other - Inside sales	2						
Lab. Technician	3						
Install & Repair				2			
Electrical Testing					1	1	1

There was no real pattern as to placement of the Electronic Technicians after the initial training period, as can be seen in the above table. Placement might have been in Electronic Design or Quality Assurance, as well as Research and Development. Most companies responding to the question indicated more than one position of placement.

TABLE VI

Position Companies normally start two-year Associate Degree Electronic Technician Graduates and position that Technicians are expected to progress to (multiple replies).

LEVEL	COMPANY SIZE															
	1000 & OVER				750-999				500-749				250-499			
		After				After				After				After		
	Start	1-2 yrs	3-4 yrs	5 yrs	Start	1-2 yrs	3-4 yrs	5 yrs	Start	1-2 yrs	3-4 yrs	5 yrs	Start	1-2 yrs	3-4 yrs	5 yrs
Trainee	13				2								5			
Asst. Engineer Technician	3	8	4	1	1	2			2				2			
Engineering Technician	10	9	3	3	1	1	2				1		1	3	1	
Production Technician		13	2			1						1		2		
Service Technician		8	1											5		
Technical Sales		2														
Technical Writer			2	2												
Senior Technician				6			1								1	

(continued on next page)

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TABLE VI (CONT)

LEVEL	COMPANY SIZE											
	100-249				50-99				UNDER 50			
		After				After				After		
	Start	1-2 yrs	3-4 yrs	5 yrs	Start	1-2 yrs	3-4 yrs	5 yrs	Start	1-2 yrs	3-4 yrs	5 yrs
Trainee	6				4				9			
Asst. Engineering Technician		1	1		1	3			1	5		1
Engineering Technician	3	1	1	1	2	2	5	3	1	3	3	1
Production Technician			1			2						
Service Technician		3			1	4			3	8	7	4
Technical Sales												
Technical Writer							1					
Associate Engineer								1				
Field Engineer					1	1						

The majority of companies responding to the question, "Position Companies Normally Start, etc." replied that they were started as trainees. However, companies employing 1000 & over, indicated that the placement of the Electronic Technician could just as well be as an Engineering Technician, as well as a trainee.

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TABLE VII

Company's projected needs for Technicians in the next five years.

AREA	COMPANY SIZE 1000 & OVER N=27				750-999 N=4				500-749 N=3				250-499 N=9			
	Increase	Decrease	Stay same	Not need	Increase	Decrease	Stay same	Not need	Increase	Decrease	Stay same	Not need	Increase	Decrease	Stay same	Not need
	N %	N %	N %	N %	N %	N %	N %	N %	N %	N %	N %	N %	N %	N %	N %	N %
Computer service	10 37	1 4	4 15	12 44	1 25	0 0	0 0	3 75	1 33	0 0	0 0	2 67	2 22	0 0	2 22	5 56
Electronic design and drafting	16 59	2 7	5 19	4 15	1 25	0 0	2 50	1 25	2 67	0 0	1 33	0 0	3 33	0 0	2 22	4 45
Electronic testing	16 59	1 4	4 15	6 22	1 25	0 0	1 25	2 50	3 100	0 0	0 0	0 0	4 45	0 0	1 10	4 45
R & D	11 41	0 0	10 37	6 22	3 75	0 0	1 25	0 0	1 33	0 0	0 0	2 67	4 45	0 0	2 22	3 33
Electronic Instrumentation	16 58	1 4	5 19	5 19	1 25	0 0	0 0	3 75	2 67	0 0	1 33	0 0	3 33	0 0	2 22	4 45
Production	13 48	3 11	4 15	7 26	2 50	0 0	0 0	2 50	1 34	0 0	1 33	1 33	2 22	0 0	1 11	6 67
Quality Assurance	11 41	1 4	3 11	12 44	1 25	0 0	2 50	1 25	2 67	0 0	1 33	0 0	3 33	0 0	1 11	5 56
Trouble shooting and repair	18 66	1 4	5 19	3 11	3 75	0 0	0 0	1 25	1 33	0 0	2 67	0 0	5 56	0 0	2 22	2 22

(continued on next page)

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TABLE VII (CONT)

	COMPANY SIZE																			
	100-249 N=10								50-99 N=14								TOTALS			
	Increase		Decrease		Stay same		Not need		Increase		Decrease		Stay same		Not need		Increase		Decrease		Stay same		Not need	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Computer service	4	40	0	0	1	10	5	50	3	21	0	0	0	0	11	79	27	33	1	1	7	9	46	57
Electronic design and drafting	3	30	0	0	3	30	4	40	5	36	0	0	2	14	7	50	34	42	2	2	17	21	28	35
Electronic testing	6	60	1	10	0	0	3	30	6	43	0	0	1	7	7	50	44	54	2	2	9	11	26	32
R & D	2	20	0	0	3	30	5	50	7	50	0	0	0	0	7	50	34	42	0	0	16	20	31	38
Electronic Instrumentation	4	40	0	0	1	10	5	50	3	21	0	0	0	0	11	79	31	38	0	0	12	15	38	47
Production	4	40	0	0	0	0	6	60	5	36	0	0	0	0	9	64	31	38	2	2	9	11	39	48
Quality Assurance	2	20	0	0	2	20	6	60	5	36	0	0	0	0	9	64	30	37	1	1	12	15	38	47
Trouble shooting and repair	6	60	1	10	1	10	2	20	7	50	0	0	1	7	6	43	49	61	2	2	10	12	20	25

The greatest need for technicians seems to be in the area of trouble shooting and repair, while the area with the least need is computer service.

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TABLE VIII

Additional Electronic Technicians expected to be employed in next five years.

NUMBER	COMPANY SIZE							TOTALS
	1000-OVER	750-999	500-749	250-499	100-249	50-99	UNDER 50	
NONE	5		1	1	2	2		11
Less than 5	4	4	2	1	6	3	8	28
5-10	4			2	1	4	4	15
11-20	4			2		2	1	9
Over 20	10			3	1	2	1	17

Twenty-eight of the 81 companies responding indicated the need for less than 5, while seventeen companies indicated a need of over 20.

TABLE IX

Degree of Mathematics knowledge, which companies expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary		Did Not Respond	
	N	%	N	%	N	%	N	%
Algebra	51	63.0	28	34.5	0	0.0	2	2.5
Logarithm	31	38.4	33	40.8	9	11.1	8	9.7
Trigonometry	38	46.9	28	34.5	7	8.9	8	9.7
Applied Calculus	12	14.8	34	42.0	24	29.6	11	13.6
Analytical Geometry	7	8.9	43	53.1	18	22.2	13	15.8
Slide Rule	49	60.5	26	32.1	3	3.7	3	3.7
Digital Logic	34	42.0	28	34.5	10	12.4	9	11.1
Calculator Operation	13	15.8	31	38.4	23	28.5	14	17.3

Algebra, Trigonometry, Digital Logic, and Slide Rule appear to be the areas in which companies feel"Knowledge is Essential"as it relates to mathematics. On the other hand Analytical Geometry, Applied Calculus, and Logarithm were areas in which companies felt "Some Related Knowledge Advisable."

TABLE X

Degree of Science knowledge which companies expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary		Did Not Respond	
	N	%	N	%	N	%	N	%
Mechanics	35	43.3	41	50.5	0	0	5	6.2
Statics	22	27.2	43	53.1	6	7.4	10	12.4
Dynamics	23	28.4	40	49.4	7	8.6	11	13.6
Heat	20	24.7	43	53.1	8	9.7	10	12.4
Sound	17	21.0	43	53.1	15	18.5	6	7.4
Light	18	22.2	34	42.0	20	24.7	9	11.1
Strength of Materials	18	22.2	38	46.9	15	18.5	10	12.4

In the field of Science knowledge, the above indicates that 53% of the companies feel that "Some Related Knowledge is Advisable" in the areas of Statics, Heat and Sound.

In addition, low ratings were experienced in the field of Light and Strength of Materials.

TABLE XI

Degree of General Education knowledge, which companies expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary		Did Not Respond	
	N	%	N	%	N	%	N	%
Communications (Oral, written)	61	75.5	19	23.5	1	1.0	0	0
Technical Report writing	35	43.1	37	45.8	6	7.4	3	3.7
Economics-Industrial Consumer	8	9.7	40	49.4	26	32.1	7	8.6
Psychology of Human Relations	15	18.5	48	59.3	15	18.5	3	3.7
American Institutions	0	0	31	38.4	37	45.8	13	15.8

In the field of General Education knowledge, 75% of the companies responding indicated, "Knowledge is Essential," in communications. Zero companies felt that "Knowledge is Essential," in American Institutions.

Table XLIX (P.78) which indicates the employee responses to this subject area denotes that "Knowledge is Essential" in communications and 51.4% of the employee respondents indicated "No Knowledge Necessary" in the subject area of American Institutions.

TABLE XII

Degree of Technical Course knowledge which companies expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary		Did Not Respond	
	N	%	N	%	N	%	N	%
Technical Electronic Drawing	49	60.5	24	29.6	4	4.9	4	4.9
Fundamentals of Electricity	73	90.5	6	7.4	0	0	2	2.5
Electronic Devices	70	86.5	7	8.6	1	1.2	3	3.7
Circuit Analysis-AC & DC	67	82.7	10	12.4	1	1.2	3	3.7
Electronic Amplifiers	47	58.1	24	29.6	4	4.9	6	7.4
Instruments and measurements	63	77.8	13	15.8	1	1.2	4	4.9
Communication circuits	26	32.1	39	48.3	9	11.1	7	8.6
Communication systems	21	26.0	37	45.8	13	15.8	10	12.4
Introduction to computers	27	33.4	33	40.8	14	17.3	7	8.6
Control circuits and systems	58	71.7	16	19.8	2	2.5	5	6.2
Electronic Design and Fabrication	36	44.5	37	45.8	2	2.5	6	7.4
Introduction to non-Electronic Devices	44	54.4	30	37.1	2	2.5	5	6.2
Electrical Machinery	33	40.8	42	52.2	0	0	6	7.4
F. C. C. Licensing	8	9.7	16	19.8	49	60.5	8	9.7

90.5% of the companies responding indicated that "Knowledge is Essential" in Fundamentals of Electricity as regards technical courses taken by graduates of the Electronic Associate Degree Program.

TABLE XIII

Degree of Job Activity Proficiency, which companies expect a two-year Associate Degree Electronic Technician to have.

JOB ACTIVITY	Proficiency is Essential		Some Proficiency is Advisable		No Proficiency is Necessary		Did Not Respond	
	N	%	N	%	N	%	N	%
Equipment checkout procedures.	60	74.1	16	19.8	1	1.2	4	4.9
Adjusting and aligning.	57	70.4	19	23.5	1	1.2	4	4.9
Replacing of components.	58	71.7	17	21.0	4	4.9	2	2.5
Isolating faults to particular stage.	60	74.1	16	19.8	2	2.5	3	3.7
Isolating within stage faults to defective components.	52	64.3	22	27.2	2	2.5	5	6.2
Assembling or constructing circuits from schematics and wiring diagrams.	49	60.5	24	29.6	3	3.7	5	6.2
Using oscilloscope to:								
a. Measure voltage.	61	75.5	15	18.5	2	2.5	3	3.7
b. Measure frequency.	57	70.4	18	22.2	2	2.5	4	4.9
c. Compare waveshape to waveshape standard.	60	74.1	15	18.5	2	2.5	4	4.9
d. Make time interval measurements.	60	74.1	13	15.8	4	4.9	4	4.9
e. Make phase measurements.	50	61.7	23	28.4	3	3.7	5	6.2
Using voltmeter to measure various ranges of voltage.	73	90.5	5	6.2	1	1.2	2	2.5
Using ohmmeter to measure DC resistance.	72	88.9	7	8.6	1	1.2	2	2.5
Using signal generator to inject standard or known signals into equipment for test purposes.	51	63.0	24	29.6	3	3.7	3	3.7

(continued on next page)

TABLE XIII (CONT)

JOB ACTIVITY	Proficiency is Essential		Some Proficiency is Advisable		No Proficiency is Necessary		Did Not Respond	
	N	%	N	%	N	%	N	%
Using frequency meter to measure unknown frequencies.	42	52.2	26	32.1	9	11.1	4	4.9
Using basic hand tools.	65	80.3	11	13.6	3	3.7	2	2.5

Most companies rated "Proficiency is Essential" in Degree of Job Activity which companies expect a two-year Associate Degree Electronic Technician to have. 90.5% rated "Proficiency is Essential" in using voltmeter to measure various ranges of voltage, for example.

TABLE XIV

Degree of Involvement in Selected Activities which companies indicated for two-year Associate Degree Electronic Technicians.

ACTIVITY	Always (daily)		Frequently (weekly)		Occasionally (monthly)		Seldom or Never		Did Not Respond	
	N	%	N	%	N	%	N	%	N	%
Works directly with engineers and scientists in development phase of electronic product.	25	30.9	16	19.8	12	14.8	23	28.4	5	6.2
Works with engineers and scientists in making design changes or modifications.	21	26.0	24	29.6	20	24.7	13	15.8	3	3.7
Involved in building, testing, and modifying prototypes of new electronic products.	25	30.9	22	27.2	12	14.8	19	23.5	3	3.7
Uses sophisticated test equipment to investigate new ideas.	16	19.8	19	23.5	23	28.4	19	23.5	4	4.9
Responsible for certain aspects of design work under engineering supervision.	14	17.3	20	24.7	17	21.0	16	19.8	4	4.9
Maintains complex automated production machines.	12	14.8	15	18.5	14	17.3	31	38.4	9	11.1
Supervise and train production teams in methods of testing or manufacturing new products.	3	3.7	8	9.7	24	29.6	41	50.5	5	6.2
Maintain and calibrate test equipment used in manufacturing.	5	6.2	16	19.8	26	32.1	30	37.1	4	4.9
Customer Service:										
a. Maintain equipment	26	32.1	11	13.6	11	13.6	29	35.9	4	4.9
b. Solve customer problems	24	29.6	11	13.6	16	19.8	27	33.4	3	3.7
c. In-plant training	8	9.7	10	12.4	20	24.7	37	45.8	6	7.4
Performs routine tests of equipment being built on the production line.	9	11.1	15	18.5	12	14.8	40	49.4	5	6.2

(continued on next page)

TABLE XIV (CONT)

ACTIVITY	Always (daily)		Frequently (weekly)		Occasionally (monthly)		Seldom or Never		Did Not Respond	
	N	%	N	%	N	%	N	%	N	%
Aids in running routine tests on radio and TV transmitting equipment.	4	4.9	3	3.7	7	8.6	62	76.6	5	6.2
Provides regular maintenance, and repair on computer equipment.	11	13.6	5	6.2	12	14.8	47	58.1	6	7.4
Works as project director.	1	1.2	1	1.2	15	18.5	59	73.0	5	6.2
Prepares work progress reports.	6	7.4	15	18.5	31	38.4	23	28.4	6	7.4
Prepares laboratory test reports.	7	8.6	16	19.8	28	34.5	23	28.4	7	8.6
Provides technical data and specifications.	8	9.7	20	24.7	27	33.4	20	24.7	6	7.4
Makes sketches of electronic devices and systems.	14	17.3	21	26.0	28	34.5	13	15.8	5	6.2
Determines what tests should be performed on equipment.	6	7.4	22	27.2	27	33.4	21	26.0	5	6.2
Determines scope of sampling and kinds of tests to be run.	4	4.9	12	14.8	24	29.6	36	44.5	5	6.2
Translates customer specifications into testing procedures.	4	4.9	8	9.7	17	21.0	46	56.8	6	7.4
Directs repair and maintenance technicians.	10	12.4	7	8.6	26	32.1	33	40.8	5	6.2
Prepares cost estimates.	2	2.5	11	13.6	24	29.6	39	48.3	5	6.2
Prepares a list of parts or bills of materials.	7	8.6	25	30.9	31	38.4	13	15.8	5	6.2
Establishes and maintains quality standards.	6	7.4	19	23.5	23	28.4	27	33.4	6	7.4
Converts "sketches" into working drawings.	4	4.9	10	12.4	28	34.5	32	39.5	7	8.6

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TABLE XV

Areas in which Companies find Electronic Technicians lack adequate training background. (Multiple replies.)

1.	Knowledge and application of electronic principles.	10
2.	Knowledge and application of electronic terms.	4
3.	Knowledge and application of electronic testing equipment.	17
4.	Knowledge and application of mathematical principles.	27
5.	Knowledge and application of technical science.	11
6.	Knowledge and application of communication skills.	42
7.	Proper procedures of recording technical data.	31
8.	Human relations as it relates to his work habits, attitudes, working with others, leadership, and responsibility.	41

Knowledge and application of electronic principles and terms, are areas in which companies find Electronic Technicians have adequate training. In the areas of communication skills, proper procedures of recording technical data, and human relations as it relates to work habits, etc., companies responded that Electronic Technicians lack adequate training background.

The six tables on the following pages, relate to size of companies and their responses to Curriculum Knowledge and Proficiency in Job Activities listed. The breakdown according to company size, is as follows:

SIZE	NUMBER
1000 and Over	27
750 to 999	4
500 to 749	3
250 to 499	9
100 to 249	10
50 to 99	14
Under 50	14
TOTAL	81

TABLE XVI

Degree of Mathematics knowledge which Companies expect a two-year Associate Degree Electronic Technician to have - Comparison as to size of Company.

KNOWLEDGE IS ESSENTIAL

	COMPANY EMPLOYING						
SUBJECT	1000 AND OVER	750 TO 999	500 TO 749	250 TO 499	100 TO 249	50 TO 99	UNDER 50
Algebra	78%	75%	67%	67%	60%	57%	36%
Logarithm	63	50	33	44	30	21	14
Trigonometry	70	50	33	56	40	36	14
Applied Calculus	26		33	11	20	7	
Analytic Geometry	19			11		7	
Slide Rule	67	100	67	67	60	57	36
Digital Logic	30	50	33	23	60	57	36
Calculator Operation	26			12	10	14	14

SOME RELATED KNOWLEDGE ADVISABLE

SUBJECT							
Algebra	22%	25%		33%	40%	36%	64%
Logarithm	30	50	33%	44	40	43	57
Trigonometry	26	25	33	44	30	43	43
Applied Calculus	55	25	33	56	30	50	14
Analytic Geometry	70	50		56	70	36	36
Slide Rule	33			33	30	29	50
Digital Logic	48	25	33	44	10	14	50
Calculator Operation	37	50	33	44	30	36	43

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TABLE XVI Cont)

NO KNOWLEDGE NECESSARY

	COMPANY EMPLOYING						
SUBJECT	1000 AND OVER	750 TO 999	500 TO 749	250 TO 499	100 TO 249	50 TO 99	UNDER 50
Algebra			33%			7%	
Logarithm	7%		33	12%	30%	36	29%
Trigonometry	4	25%	33		30	21	43
Applied Calculus	19	75	33	33	50	43	86
Analytic Geometry	11	50	100	33	30	57	64
Slide Rule			33		10	14	14
Digital Logic	22	25	33	33	30	29	14
Calculator Operation	37	50	67	44	60	50	43

Regardless of size, most companies indicated that "Knowledge is Essential" in Algebra and Slide Rule principles. Of the companies employing 500 to 749, all responded "No Knowledge Necessary" in the area of Analytic Geometry. The general consensus of respondents seems to indicate that "Some Related Knowledge is Advisable" in the subject area of Analytic Geometry is expected.

The following Table shows that most companies felt "Knowledge is Essential" or "Some Related Knowledge Advisable" in all areas of Sciences indicated. Two areas, Sound and Light tend toward "No Knowledge Necessary" as compared to the rest of the subject areas indicated.

TABLE XVII

Degree of Science knowledge which Companies expect a two-year Associate Degree Electronic Technician to have - Comparison as to size of Company.

KNOWLEDGE IS ESSENTIAL	COMPANY EMPLOYING						
SUBJECT	1000 AND OVER	750 TO 999	500 TO 749	250 TO 499	100 TO 249	50 TO 99	UNDER 50
Mechanics	41%	75%	33%	44%	50%	29%	50%
Statics	37	25	33	22	20	21	29
Dynamics	37	75	33	22	40	14	7
Heat	33	25	67	22	20	21	7
Sound	26		67		40	7	21
Light	26	25	67		30	14	21
Strength of Materials	26	25		33	30	21	7
SOME RELATED KNOWLEDGE ADVISABLE							
SUBJECT							
Mechanics	59%	25%	33%	56%	40%	57%	43%
Statics	56	75	33	67	50	43	43
Dynamics	56	25	33	67	30	43	57
Heat	59	75		56	50	43	50
Sound	67	50		67	40	43	50
Light	63	25		33	30	29	43
Strength of Materials	63		33	44	40	36	50
NO KNOWLEDGE NECESSARY							
SUBJECT							
Mechanics			33%		10%	14%	7%
Statics	7%		33	11	30	36	29
Dynamics	7		33	11	30	43	36
Heat	7		33	22	30	36	43
Sound	7	50%	33	33	20	50	29
Light	11	50	33	67	40	57	36
Strength of Materials	11	75	67	23	30	43	43

TABLE XVIII

Degree of General Education which Companies expect a two-year Associate Degree Electronic Technician to have - Comparison as to size of Company.

KNOWLEDGE IS ESSENTIAL

	COMPANY EMPLOYING						
SUBJECT	1000 AND OVER	750 TO 999	500 TO 749	250 TO 499	100 TO 249	50 TO 99	UNDER 50
Communications	85%	75%	33%	56%	80%	57%	79%
Technical Report Writing	56	50	33	33	50	29	29
Economics-Industrial	15		33	12		7	
Psychology of Human Relations	11	25			50	14	29
American Institutions							

SOME RELATED KNOWLEDGE ADVISABLE

SUBJECT							
Communications	15%	25%		33%	20%	36%	21%
Technical Report Writing	44	50		56	30	57	42
Economics-Industrial	59	75		44	40	36	57
Psychology of Human Relations	63	50	33	77	40	57	64
American Institutions	56		33	33	20	36	36

NO KNOWLEDGE NECESSARY

SUBJECT							
Communications			67%	11%		7%	
Technical Report Writing			67	11	20	14	29
Economics-Industrial	26	25	67	44	60	57	43
Psychology of Human Relations	26	25	67	23	10	29	7
American Institutions	44	100	67	67	80	64	64

Communications, and Technical Report Writing were indicated as "Knowledge is Essential" by 29% or better of all companies reporting, regardless of size. In the subject area of American Institutions, between 44% and 100% of the companies reporting, indicated "No Knowledge Necessary."

TABLE XIX

Size of Companies indicating "Knowledge is Essential" in Technical courses-based on percent.

	COMPANY EMPLOYING						
TECHNICAL COURSES	1000 AND OVER	750 TO 999	500 TO 749	250 TO 499	100 TO 249	50 TO 99	UNDER 50
Technical Electronic Drawing	74	25	67	56	40	64	57
Fundamentals of Electricity	96	100	67	89	90	79	93
Electronic Devices	93	75	67	78	90	79	93
Circuit Analysis - AC & DC	81	75	67	89	90	71	86
Electronic Amplifiers	59	75	67	44	60	50	64
Instruments and measurements	81	75	67	89	90	64	79
Communication Circuits	33		33	33	60	14	36
Communication Systems	30			22	60	7	29
Introduction to Computers	30	25	33	33	30	43	43
Control Circuits and Systems	70	100	67	56	80	57	86
Electronic Design and Fabrication	52	75	67	44	30	43	29
Introduction to non-Electronic Devices	63	25	67	44	60	50	50
Electrical Machinery	48	75	33	23	30	36	43
F.C.C. Licensing		25			40		21

Tables XIX, XX, and XXI indicates the "core" or Technical courses were felt by companies reporting, according to size, as "Knowledge is Essential," or "Some Related Knowledge Advisable." The subject area of F.C.C. Licensing, was indicated by most respondents as "No Knowledge Necessary."

TABLE XX

Size of Companies indicating "Some Related Knowledge Advisable" in Technical courses- based on percent.

TECHNICAL COURSES	COMPANY EMPLOYING						
	1000 AND OVER	750 TO 999	500 TO 749	250 TO 499	100 TO 249	50 TO 99	UNDER 50
Technical Electronic Drawing	26	75		33	50	21	21
Fundamentals of Electricity	4			11		21	7
Electronic Devices	7	25		11		14	7
Circuit Analysis -- AC & DC	19	25		11		7	14
Electronic Amplifiers	37			33	30	29	36
Instruments and measurments	19			11		29	14
Communication Circuits	52	25	33	44	30	57	57
Communication Systems	52	25	67	56	30	43	42
Introduction to Computers	44	25	33	56	40	36	50
Control Circuits and Systems	26			22	10	36	7
Electronic Design and Fabrication	48	25		33	60	43	57
Introduction to non-Electronic Devices	37	75		33	30	36	43
Electrical Machinery	48	25	33	77	50	50	57
F.C.C. Licensing	33			33	10	14	7

TABLE XXI

Size of Companies indicating "No Knowledge Necessary" in Technical courses - based on percent.

	COMPANY EMPLOYING						
TECHNICAL COURSES	1000 AND OVER	750 TO 999	500 TO 749	250 TO 499	100 TO 249	50 TO 99	UNDER 50
Technical Electronic Drawing			33	11	10	14	21
Fundamentals of Electricity			33		10		
Electronic Devices			33	11	10	7	
Circuit Analysis - AC & DC			33		10	21	
Electronic Amplifiers	4	25	33	23	10	21	
Instruments and measurements		25	33		10	7	7
Communication Circuits	15	75	33	22	10	29	7
Communication Systems	19	75	33	22	10	50	29
Introduction to Computers	26	50	33		30	21	7
Control Circuits and Systems	4		33	22	10	7	7
Electronic Design and Fabrication			33	23	10	14	14
Introduction to non-Electronic Devices			33	23	10	14	7
Electrical Machinery	4		33		20	14	
F.C.C. Licensing	67	75	100	67	50	86	72

TABLE XXII

Size of Companies indicating "Proficiency is Essential" in Job Activities - based on percent.

JOB ACTIVITY	COMPANY EMPLOYING						
	1000 AND OVER	750 TO 999	500 TO 749	250 TO 499	100 TO 249	50 TO 99	UNDER 50
Equipment checkout procedures	82	25	67	56	80	72	79
Adjusting and aligning	70	100	100	33	80	72	72
Replacing of components	78	100	67	44	80	65	72
Isolating faults to particular stage	81	100	100	56	70	72	64
Isloating within stage faults to defective components	74	75	67	44	60	58	64
Assembling or constructing circuits from schematics and wiring diagrams	63	75	67	44	50	65	64
Using oscilloscope to:							
a. Measure voltage	78	75	67	67	70	65	86
b. Measure frequency	74	50	33	67	60	72	86
c. Compare waveshape to waveshape standard	70	75	100	67	60	79	86
d. Make time interval measurements	78	75	100	67	60	65	86
e. Make phase measurements	74		67	67	50	51	71
Using voltmeter to measure various ranges of voltage	93	100	67	89	90	86	93
Using ohmmeter to measure DC resistance	85	100	67	89	90	86	93
Using signal generator to inject standard or known signals into equipment for test purposes	59	50	100	56	70	58	71
Using frequency meter to measure unknown frequencies	59		67	56	50	51	50
Using basic hand tools	78	100	33	67	90	79	93

Of the Job Activities listed in Tables XXII, XXIII, and XXIV, only two, "Using oscilloscope to make phase measurements", and "Using frequency meter to measure unknown frequencies," were not responded to as "Proficiency is Essential," and only companies employing 750 to 999 employees did not indicate this area. In all other areas of Job Activity, all companies, regardless of size, indicated "Proficiency is Essential" in performing the job.

TABLE XXIII

Size of Companies indicating "Some Proficiency is Advisable" in Job Activities - based on percent.

JOB ACTIVITY	COMPANY EMPLOYING						
	1000 AND OVER	750 TO 999	500 TO 749	250 TO 499	100 TO 249	50 TO 99	UNDER 50
Equipment checkout procedures	18	50	33	11	10	21	14
Adjusting and aligning	30			44	10	14	21
Replacing of components	18			22	10	35	21
Isolating faults to particular stage	15			11	20	28	29
Isolating within stage faults to defective components	22	25	33	22	30	28	29
Assembling or constructing circuits from schematics and wiring diagrams	37	25	33	33	30	28	14
Using oscilloscope to:							
a. Measure voltage	22	25		11	20	21	14
b. Measure frequency	22	50	67	11	20	21	14
c. Compare waveshape to waveshape standard	26	25		11	30	7	14
d. Make time interval measurements	22			11	10	21	14
e. Make phase measurements	22	75	33	11	30	35	29
Using voltmeter to measure various ranges of voltage	7					14	7
Using ohmmeter to measure DC resistance	15					14	7
Using signal generator to inject standard or known signals into equipment for test purposes	37	50		22	20	28	29
Using frequency meter to measure unknown frequencies	26	100	33		30	28	50
Using basic hand tools	18		33	11		21	7

TABLE XXIV

Size of Companies indicating "No Proficiency is Necessary " in Job Activities - based on percent.

JOB ACTIVITY	COMPANY EMPLOYING						
	1000 AND OVER	750 TO 999	500 TO 749	250 TO 499	100 TO 249	50 TO 99	UNDER 50
Equipment checkout procedures		25		33	10	7	7
Adjusting and aligning				22	10	14	7
Replacing of components	4		33	33	10		7
Isolating faults to particular stage	4			33	10		7
Isolating within stage faults to defective components	4			33	10	14	7
Assembling or constructing circuits from schematics and wiring diagrams				22	20	7	21
Using oscilloscope to:							
a. Measure voltage			33	22	10	14	
b. Measure frequency	4			22	20	7	
c. Compare waveshape to waveshape standard	4			22	10	14	
d. Make time interval measurements		25		22	30	14	
e. Make phase measurements	4	25		22	20	14	
Using voltmeter to measure various ranges of voltage			33	11	10		
Using ohmmeter to measure DC resistance			33	11	10		
Using signal generator to inject standard or known signals into equipment for test purposes	4			22	10	14	
Using frequency meter to measure unknown frequencies	15			44	20	21	
Using basic hand tools	4		33	22	10		

TABLE XXV

Degree of Mathematics Knowledge Companies expect a two-year Associate Degree Electronic Technician to have - by District.

SUBJECT AREA	DISTRICT																	
	1(n=5)			2(n=3)			4(n=6)			5(n=2)			6(n=3)			9(n=36)		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Algebra	2	3		2	1		4	2		2			2	1		20	14	2
Logarithm		2	3	1	1	1	1	5		2			1		2	13	17	6
Trigonometry	2	2	1	1	2		2	4		2			1		2	16	12	8
Applied Calculus		2	3		2	1	1	3	2		1	1		1	2	6	15	15
Analytical Geometry		4	1		2	1		2	4		2			1	2	5	18	13
Slide Rule	3	2		2	1		5	1		2			3			20	13	3
Digital Logic	1	2	2	2		1	2	3	1	1	1			1	2	16	11	9
Calculator Operation	1	2	2	1		2	1	4	1	1		1			3	5	14	17

A = Knowledge is Essential
B = Some Related Knowledge is Advisable
C = No Knowledge Necessary

(Continued)

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TABLE XXV (Cont)

SUBJECT AREA	DISTRICT												OUT OF STATE(n=14)			TOTAL(n=80)		
	11(n=3)			12(n=3)			14(n=3)			15(n=2)								
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Algebra	2	1		2	1		1	2		1	1		13	1		51	27	2
Logarithm	1	2		2	1		1	1	1			2	10	3	1	32	32	16
Trigonometry	2	1		1	2		1	1	1			2	10	3	1	38	27	15
Applied Calculus		2	1		1	2	1		2			2	4	7	3	12	34	34
Analytical Geometry		2	1		1	2	1		2			2	1	11	2	7	43	30
Slide Rule	1	1	1	2	1		1	1	1	1	1		9	5		49	26	5
Digital Logic	1	1	1	2		1		3				2	7	6	1	32	28	20
Calculator Operation		1	2		1	2		2	1	1		1	3	7	4	13	31	36

A = Knowledge is Essential
B = Some Related Knoweldge is Advisable
C = No Knowledge Necessary

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TABLE XXVI

Degree of Science Knowledge Companies expect a two-year Associate Degree Electronic Technician to have - by District.

SUBJECT AREA	DISTRICT																	
	1(n=5)			2(n=3)			4(n=6)			5(n=2)			6(n=3)			9(n=36)		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Mechanics	2	3		1	2		2	4		1	1		2		1	17	17	2
Statics	1	4		1		2	1	5			2		2		1	8	21	7
Dynamics	2	3		1		2	1	5		1	1		1		2	8	21	7
Heat	2	3		1	1	1	2	3	1	1	1		1		2	8	19	9
Sound	1	4		1	2		3	2	1		2			3		8	17	11
Light	1	2	2	2		1	2	2	2		1	1		1	2	8	16	12
Strength of Materials	2	2	1	1	1	1	1	3	2		1	1		2	1	7	18	11

SUBJECT AREA	DISTRICT												OUT OF STATE(n=14)			TOTAL(n=80)		
	11(n=3)			12(n=3)			14(n=3)			15(n=2)								
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Mechanics	2	1		2	1		1	1	1		1	1	4	10		34	41	5
Statics	2		1	1	1	1	1	1	1			2	4	9	1	21	43	16
Dynamics	2		1	2		1	1	1	1			2	4	9	1	23	40	17
Heat	2	1		1	1	1			3			2	2	12		20	41	19
Sound	2		1	1	1	1		2	1			2		10	4	16	43	21
Light	2		1	1	1	1			3			2	1	10	3	17	33	30
Strength of Materials	1	1	1	1	1	1			3			2	5	8	1	18	37	25

A = Knowledge is Essential B = Some Related Knowledge is Advisable C = No Knowledge Necessary

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TABLE XXVII

Degree of General Education Knowledge Companies expect a two-year Associate Degree Electronic Techician to have- by District.

SUBJECT AREA	DISTRICT																	
	1(n=5)			2(n=3)			4(n=6)			5(n=2)			6(n=3)			9(n=36)		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Communications (Oral, written)	4	1		3			5	1		2			2	1		22	12	2
Technical Report Writing	4	1		1	2		3	3		1	1		2	1		10	20	6
Economics-Industrial Consumer	1	4		1	1	1	2	4			1	1		2	1	2	17	17
Psychology of Human Relations	3	2			3			4	2		1	1		2	1	8	17	11
American Institutions		3	2		2	1		4	2			2			3		13	23

SUBJECT AREA	DISTRICT												OUT OF STATE(n=14)			TOTAL(n=80)		
	11(n=3)			12(n=3)			14(n=3)			15(n=2)								
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Communications (Oral, written)	3			3			1	2		1	1		13	1		59	19	2
Technical Report Writing	2	1		2		1	1	2		1		1	8	6		35	37	8
Economics-Industrial Consumer		2	1		1	2		2	1			2	1	6	7	7	40	33
Psychology of Human Relations		2	1	1	2			3		1		1	1	11	2	14	47	19
American Institutions			3		1	2		1	2			2		5	9	0	29	51

A = Knowledge is Essential
B = Some Related Knowledge is Advisable
C = No Knowledge is Necessary

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TABLE XXVIII

Degree of Technical Course Knowledge Companies expect a two-year Associate Degree Electronic Technician to have- by District.

SUBJECT AREA	DISTRICT																	
	1(n=5)			2(n=3)			4(n=6)			5(n=2)			6(n=3)			9(n=36)		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Technical Electronic Drawing	4	1		3			4	1	1		2		2	1		21	12	3
Fundamentals of Electricity	4	1		3			6			2			2	1		34	1	1
Electronic Devices	3	2		3			4	1	1	2			3			32	3	1
Circuit Analysis - AC & DC	4		1	3			5	1		2			3			30	4	2
Electronic Amplifiers	1	3	1	2	1		3	2	1	1	1		3			23	9	4
Instruments and Measurements	3	2		3			4	2		2			2		1	31	3	2
Communication Circuits	1	4		2	1		2	3	1			2		2	1	15	13	8
Communication Systems	1	3	1	2	1		1	4	1			2		1	2	11	14	11
Introduction to Computers		2	3	2	1		2	4			2			2	1	11	13	12
Control Circuits and Systems	2	3		1	2		3	2	1	2			3			30	2	4
Electronic Design and Fabrication	2	3		2	1		3	2	1	1	1		1	1	1	15	18	3
Introduction to non-electronic Devices	3	2		2	1		3	2	1		2			2	1	19	14	3
Electrical Machinery	3	2		1	2		2	4		1	1		1	2		16	18	2
F. C. C. Licensing		1	4	1	1	1		1	5			2			3	4	8	24

A = Knowledge is Essential
B = Some Related Knowledge is Advisable
C = No Knowledge Necessary

(Continued)

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TABLE XXVIII (Continued)

SUBJECT AREA	DISTRICT 11(n=3)			12(n=3)			14(n=3)			15(n=2)			OUT OF STATE(n=14)			TOTAL(n=80)		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Technical Electronic Drawing	2		1	2	1		1	1	1			2	10	4		49	23	8
Fundamentals of Electricity	3			3			2	1			1	1	14			73	5	2
Electronic Devices	3			3			2	1				2	14			69	7	4
Circuit Analysis - AC & DC	3			3			2	1				2	11	3		66	9	5
Electronic Amplifiers	3			2	1		2	1				2	9	5		49	23	8
Instruments and Measurements	3			3			2	1			1	1	12	2		65	11	4
Communication Circuits		1	2	1	2		1	2				2	3	11		25	39	16
Communication Systems		1	2	1	2		1	2				2	5	9		22	37	21
Introduction to Computers		2	1	2	1		2		1			2	8	6		27	33	20
Control Circuits and Systems	3			2	1		2		1		1	1	10	4		58	15	7
Electronic Design and Fabrication	3			3				2	1			2	6	8		36	36	8
Introduction to non-Electronic Devices	2	1		3			2	1				2	10	4		44	29	7
Electrical Devices	3			1	1	1	2	1				2	3	11		33	42	5
F.C.C. Licensing			3	2		1	1	2				2		2	12	8	15	57

A = Knowledge is Essential
B = Some Related Knowledge is Advisable
C = No Knowledge Necessary

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TABLE XXIX

Degree of Job Proficiency Companies expect a two-year Associate Degree Electronic Technician to have - by District.

JOB ACTIVITY	DISTRICT																	
	1(n=5)			2(n=3)			4(n=6)			5(n=2)			6(n=3)			9(n=36)		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Equipment checkout procedures	3	2		3			5	1		2			1	1	1	26	7	3
Adjusting and aligning	3	2		3			3	2	1	2			2		1	27	7	2
Replacing of Components	2	3		3			4	1	1	2			2		1	29	5	2
Isolating faults to particular stage	2	3		3			3	2	1	2			1	1	1	31	3	2
Isolating within stage faults to defective components	2	3		3			2	3	1	2			1	1	1	27	6	3
Assembling or constructing circuits from schematics and wiring diagrams	3	2		1	2		2	3	1	2			3			24	9	3
Using oscilloscope to:																		
a. Measure voltage	1	4		2	1		4	1	1	2			3			28	5	3
b. Measure frequency	1	4		2	1		2	3	1	1	1		3			28	6	2
c. Compare waveshape to waveshape standard	1	4		2		1	4	1	1	2			3			29	6	1
d. Make time interval Measurements	1	3	1	2	1		3	2	1	2			3			28	4	4
e. Make phase measurements	1	4		1	2		2	2	2	1	1		2	1		25	7	4
Using voltmeter to measure various ranges of voltage	5			3			5	1		2			3			33	1	2

(Continued)

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TABLE XXIX (Cont)

JOB ACTIVITY	DISTRICT																	
	1(n=5)			2(n=3)			4(n=6)			5(n=2)			6(n=3)			9(n=36)		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Using ohmmeter to measure DC resistance	4	1		3			5	1		2			3			33	1	2
Using signal generator to inject standard or known signals into equipment for test purposes	3	2		1	2		4	1	1	2			3			24	10	2
Using frequency meter to measure unknown frequencies	2	2	1	2	1		2	2	2	1	1		3			20	12	4
Using basic hand tools	4		1	3			4	1	1	2			3			31	3	2

A = Knowledge is Essential
B = Some Related Knowledge is Advisable
C = No Knowledge Necessary

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TABLE XXIX (Cont)

JOB ACTIVITY	DISTRICT 11(n=3)			12(n=3)			14(n=3)			15(n=2)			OUT OF STATE(n=14)			TOTAL(n=80)		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Equipment checkout procedures	3			3			2	1			1	1	12	2		60	15	5
Adjusting and aligning	2	1		3			2	1				2	10	4		57	17	6
Replacing of Components	3			3			1	2			1	1	9	4	1	58	16	6
Isolating faults to particular stage	2	1		3			2	1			1	1	11	3		60	15	5
Isolating within stage faults to defective components		3		3			2	1				2	10	4		52	21	7
Assembling or constructing circuits from schematics and wiring diagrams	2	1		2	1		1	1	1			2	9	5		49	24	7
Using oscilloscope to:																		
a. Measure voltage	3			3			2	1			1	1	12	2		60	15	5
b. Measure frequency	2		1	3			2	1				2	12	2		56	18	6
c. Compare waveshape to waveshape standard	2		1	3			1	2				2	12	2		59	15	6
d. Make time interval measurements	3			3			2	1				2	12	2		59	13	8
e. Make phase measurements	3			2	1		2	1				2	11	3		50	22	8
Using voltmeter to measure various ranges of voltage	3			3			2	1			1	1	14			73	4	3
Using ohmmeter to measure DC resistance	3			3			1	2			1	1	14			71	6	3

(Continued)

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TABLE XXIX (Cont)

JOB PROFICIENCY	DISTRICT												OUT OF STATE(n=14)			TOTAL(N=80)		
	11(n=3)			12(n=3)			14(n=3)			15(n=2)								
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Using signal generator to inject standard or known signals into equipment for test purposes	2	1		2	1		1	2				2	9	5		51	24	5
Using frequency meter to measure unknown frequencies	2	1		2	1		1	2				2	8	6		43	28	9
Using basic hand tools	3			3			1	2			1	1	11	3		65	10	5

A = Knowledge is Essential
B = Some Related Knowledge is Advisable
C = No Knowledge Necessary

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TABLE XXX

Degree of Curriculum Knowledge which eleven Automatic Control Product Companies (Electrical, Electronic, Control Panels, Control Systems) expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	KNOWLEDGE IS ESSENTIAL	SOME KNOWLEDGE ESSENTIAL	NO KNOWLEDGE NECESSARY	DID NOT RESPOND
MATHEMATICS	N	N	N	N
Algebra	10	1		
Logarithm	8	2		1
Trigonometry	8	1		2
Applied Calculus	3	6	1	1
Analytical Geometry	3	5	2	1
Slide Rule	11			
Digital Logic	5	5		1
Calculator Operation	4	4	1	2
SCIENCE				
Mechanics	5	5		1
Statics	4	6		1
Dynamics	5	5		1
Heat	5	3	1	2
Sound	3	5	1	2
Light	3	4	2	2
Strength of Materials	1	6	3	1
GENERAL EDUCATION				
Communication (Oral, written)	9	2		
Technical Report Writing	6	5		
Economics - Industrial Consumer	1	7	1	2
Psychology of Human Relations	3	7	1	
American Institutions		6	3	2

(CONTINUED)

TABLE XXX (CONT)

SUBJECT AREA	KNOWLEDGE IS ESSENTIAL	SOME KNOWLEDGE ESSENTIAL	NO KNOWLEDGE NECESSARY	DID NOT RESPOND
TECHNICAL COURSES	N	N	N	N
Technical Electronic Drawing	8	2		1
Fundamentals of Electricity	10			1
Electronic Devices	10			1
Circuit Analysis - AC & DC	10			1
Electronic Amplifiers	8	2		1
Instruments and measurements	9	1		1
Communication Circuits	2	6	2	1
Communication Systems	2	5	3	1
Introduction to Computers	3	6	1	1
Control Circuits and Systems	10			1
Electronic Design and Fabrication	8	2		1
Introduction to non-Electronic Devices	5	5		1
Electrical Machinery	8	2		1
F.C.C. Licensing		2	8	1

TABLE XXXI

Degree of Job Proficiency which eleven Automatic Control Product Companies (Electrical, Electronic, Control Panels, Control Systems) expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	PROFICIENCY IS ESSENTIAL	SOME PROFICIENCY ESSENTIAL	NO PROFICIENCY NECESSARY	DID NOT RESPOND
JOB ACTIVITIES	N	N	N	N
Equipment checkout procedures	9	1		1
Adjusting and aligning	8	1	1	1
Replacing of Components	10			1
Isolating faults to particular stage	8	2		1
Isolating within stage faults to defective components	8	2		1
Assembling or constructing circuits from schematics and wiring diagrams	9	1		1
Using oscilloscope to:				
a. Measure voltage	10			1
b. Measure frequency	9	1		1
c. Compare waveshape to waveshape standard	10			1
d. Make time interval measurements	10			1
e. Make phase measurements	8	2		1
Using voltmeter to measure various ranges of voltage	10			1
Using ohmmeter to measure DC resistance	10			1
Using signal generator to inject standard or known signals into equipment for test purposes	9	1		1
Using frequency meter to measure unknown frequencies	7	3		1
Using basic hand tools	9	1		1

TABLE XXXII

Degree of Curriculum Knowledge which four Telephone Service Companies expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	KNOWLEDGE IS ESSENTIAL	SOME KNOWLEDGE ESSENTIAL	NO KNOWLEDGE NECESSARY	DID NOT RESPOND
MATHEMATICS	N	N	N	N
Algebra	1	3		
Logarithm		3		1
Trigonometry		3		1
Applied Calculus		1		3
Analytical Geometry		1		3
Slide Rule		3		1
Digital Logic		2		2
Calculator Operation		2		2
SCIENCE				
Mechanics	1	2		1
Statics		1		3
Dynamics		1		3
Heat		1		3
Sound	2	1		1
Light		1		3
Strength of Materials	1	1		2
GENERAL EDUCATION				
Communications (Oral, written)	4			
Technical Report Writing		2		2
Economics-Industrial Consumer	1	2		1
Psychology of Human Relations		4		
American Institutions		2		2

(continued)

TABLE XXXII (CONT)

SUBJECT AREA	KNOWLEDGE IS ESSENTIAL	SOME KNOWLEDGE ESSENTIAL	NO KNOWLEDGE NECESSARY	DID NOT RESPOND
TECHNICAL COURSES	N	N	N	N
Technical Electronic Drawing	2	1		1
Fundamentals of Electricity	3	1		
Electronic Devices	3	1		
Circuit Analysis - AC & DC	3	1		
Electronic Amplifiers	2	2		
Instruments and measurements	2	2		
Communication Circuits	3	1		
Communications Systems	3	1		
Introduction to Computers	1	2		1
Control Circuits and Systems	1	2		1
Electronic Design and Fabrication	1	2		1
Introduction to non-Electronic Devices	1	3		
Electrical Machinery		3		1
F.C.C. Licensing	1	3		

FINDINGS RELATED TO THE GRADUATES OF THE TWO-YEAR ELECTRONICS ASSOCIATE DEGREE PROGRAM

Graduates of the two-year Electronics Associate Degree Education Program of the Wisconsin Schools of Vocational, Technical and Adult Education for the years 1967 thru 1970 numbered 713. This information is based on the list of Electronics graduates submitted by ten of the eleven districts offering the two-year Associate Degree in Electronics. Table XLII is an analysis of graduates by districts.

Eight of the eleven districts offering the Associate Degree submitted mailing addresses of graduates. Table XLIII shows the number of graduates to whom questionnaires were mailed from each of the districts. A total of 443 out of 713 or 61% were mailed questionnaires. The 287 who were not mailed questionnaires were either in school, military service or no mailing address was submitted. Of the 443 that were mailed in 184 or 42% responded. Only one mailing was made to the graduates.

Concerning employment, Table XLIV is an analysis of Electronic Associate Degree graduates by district. Of the 354 indicating employment 177 or 50% are employed in their district, 40 or 11% outside the district but within the state and 137 or 39% out of the state.

TABLE XXXIII

Degree of Job Proficiency which four Telephone Service Companies expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	PROFICIENCY IS ESSENTIAL	SOME PROFICIENCY ESSENTIAL	NO PROFICIENCY NECESSARY	DID NOT RESPOND
JOB ACTIVITIES	N	N	N	N
Equipment checkout procedures	3	1		
Adjusting and aligning	2	2		
Replacing of Components	3	1		
Isolating faults to particular stage	2	2		
Isolating within stage faults to defective components	2	2		
Assembling or constructing circuits from schematics and wiring diagrams	1	2		1
Using Oscilloscope to:				
a. Measure voltage	2	2		
b. Measure frequency	2	2		
c. Compare waveshape to waveshape standard	2	2		
d. Make time interval measurements	2	2		
e. Make phase measurements	2	1	1	
Using voltmeter to measure various ranges of voltage	2	2		
Using ohmmeter to measure DC resistance	2	2		
Using signal generator to inject standard or known signals into equipment for test purposes	1	3		
Using frequency meter to measure unknown frequencies	2	1	1	
Using basic hand tools	3	1		

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TABLE XLII

Graduates of the two-year Electronics Associate Degree Program of the Wisconsin Schools of Vocational, Technical and Adult Education.

YEAR	DISTRICT										
	1	2	4	6	8	9	11	12	15	17	TOTAL
1967	34	13		10	9	52	5	14	21	4	162
1968	19	16		15	6	68	12	9	20	6	171
1969	15	10	21	12	17	59		22	22	6	184
1970	18	17	23	10	17	67		17	20	7	196
TOTALS	86	56	44	47	49	246	17	62	83	23	713

TABLE XXXIV

Degree of Curriculum Knowledge which six Companies manufacturing Hospital Related Equipment expect a two-year Associate Degree Electronic Technician to have.

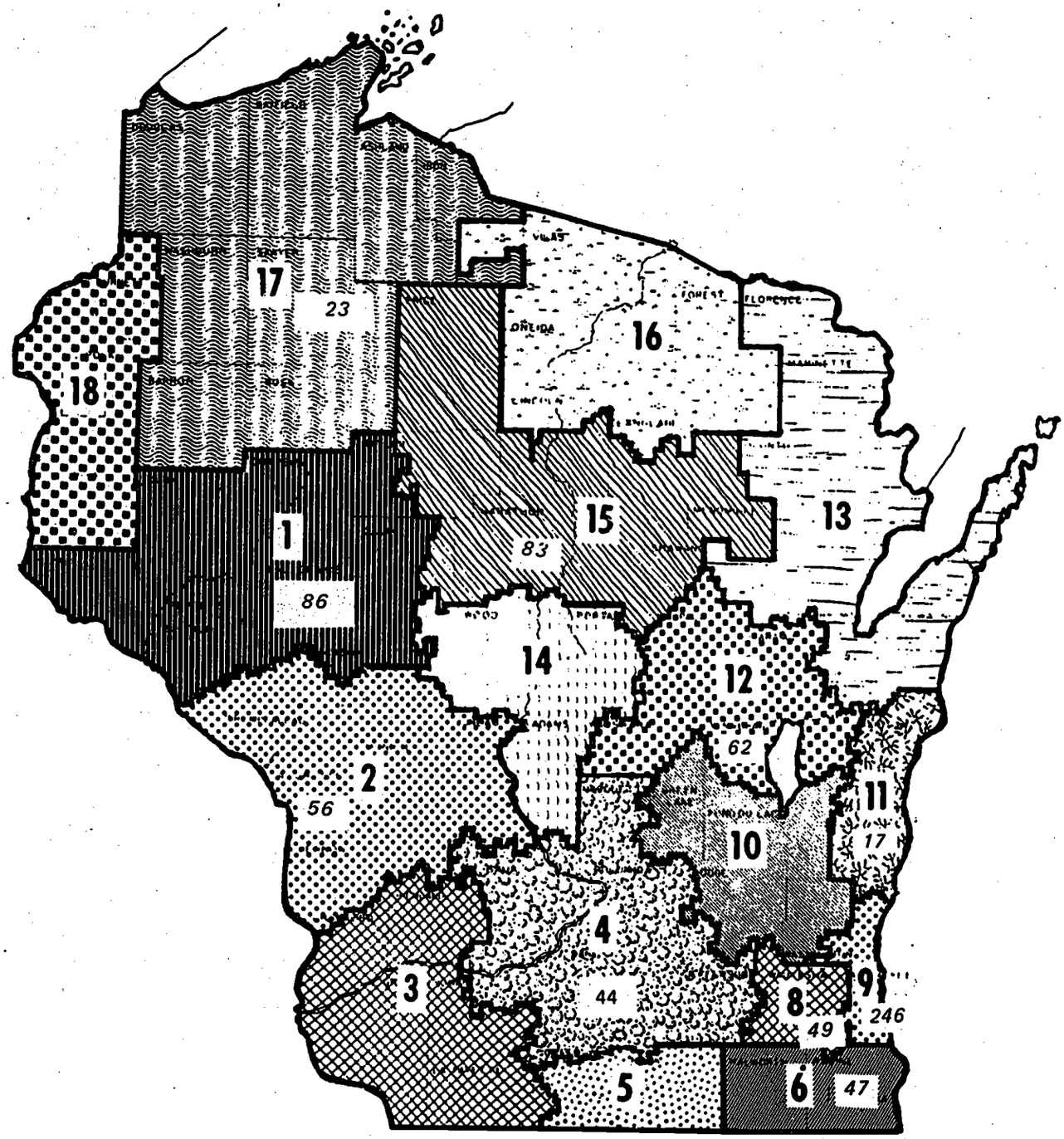
SUBJECT AREA	KNOWLEDGE IS ESSENTIAL	SOME KNOWLEDGE ESSENTIAL	NO KNOWLEDGE NECESSARY	DID NOT RESPOND
MATHEMATICS	N	N	N	N
Algebra	4	2		
Logarithm	2	4		
Trigonometry	1	4	1	
Applied Calculus	2	3	1	
Analytical Geometry		3	2	1
Slide Rule	4	2		
Digital Logic	2	3	1	
Calculator Operation	2	3	1	
SCIENCE				
Mechanics	4	2		
Statics	2	4		
Dynamics	3	3		
Heat	3	3		
Sound	3	2	1	
Light	3	2	1	
Strength of Materials		5		1
GENERAL EDUCATION				
Communications (Oral, written)	5	1		
Technical Report Writing	2	4		
Economic - Industrial Consumer	3	3		
Psychology of Human Relations	1	4		1
American Institutions		2	3	1

(CONTINUED)

ELECTRONIC GRADUATES - BY DISTRICT

THAT OFFER THE TWO-YEAR ASSOCIATE ELECTRONIC DEGREE

1967 THROUGH 1970



LEGEND:
Figure indicates number Graduates

TOTAL 713

TABLE XXXIV (CONT)

SUBJECT AREA	KNOWLEDGE IS ESSENTIAL	SOME KNOWLEDGE ESSENTIAL	NO KNOWLEDGE NECESSARY	DID NOT RESPOND
TECHNICAL COURSES	N	N	N	N
Technical Electronic Drawing	5	1		
Fundamentals of Electricity	6			
Electronic Devices	6			
Circuit Analysis - AC & DC	5	1		
Electronic Amplifiers	5			1
Instruments and measurements	6			
Communications Circuits	2	4		
Communication Systems		4	1	1
Introduction to Computers	2	3	1	
Control Circuits and Systems	5	1		
Electronic Design and Fabrication	4	2		
Introduction to non-Electronic Devices	5	1		
Electrical Machinery	3	3		
F.C.C. Licensing		1	4	1

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TABLE XLIII

Statistics as to the Number of Graduates that were mailed Questionnaires and the Number of Returned Questionnaires.

	TOTAL		DISTRICT									
			1	2	4	6	8	9	11	12	15	17
	N	%										
Total Mailed	443	100	62	*0	24	47	49	188	17	38	*0	18
Questionnaires not deliverable	32	7.2										
a. Moved-Not Forwardable	(13)	(2.9)	2			5	1	2		3		
b. Building razed	(1)	(.2)						1				
c. Address Unknown	(11)	(2.5)	4				1	5				1
d. Moved-Left no Address	(7)	(1.6)			1			4		2		
Number of Non-respondents	229	51	31		11	22	23	99	11	21		9
Number of Respondents	184	42	25		12	20	24	77	6	12		8

* Home address not indicated

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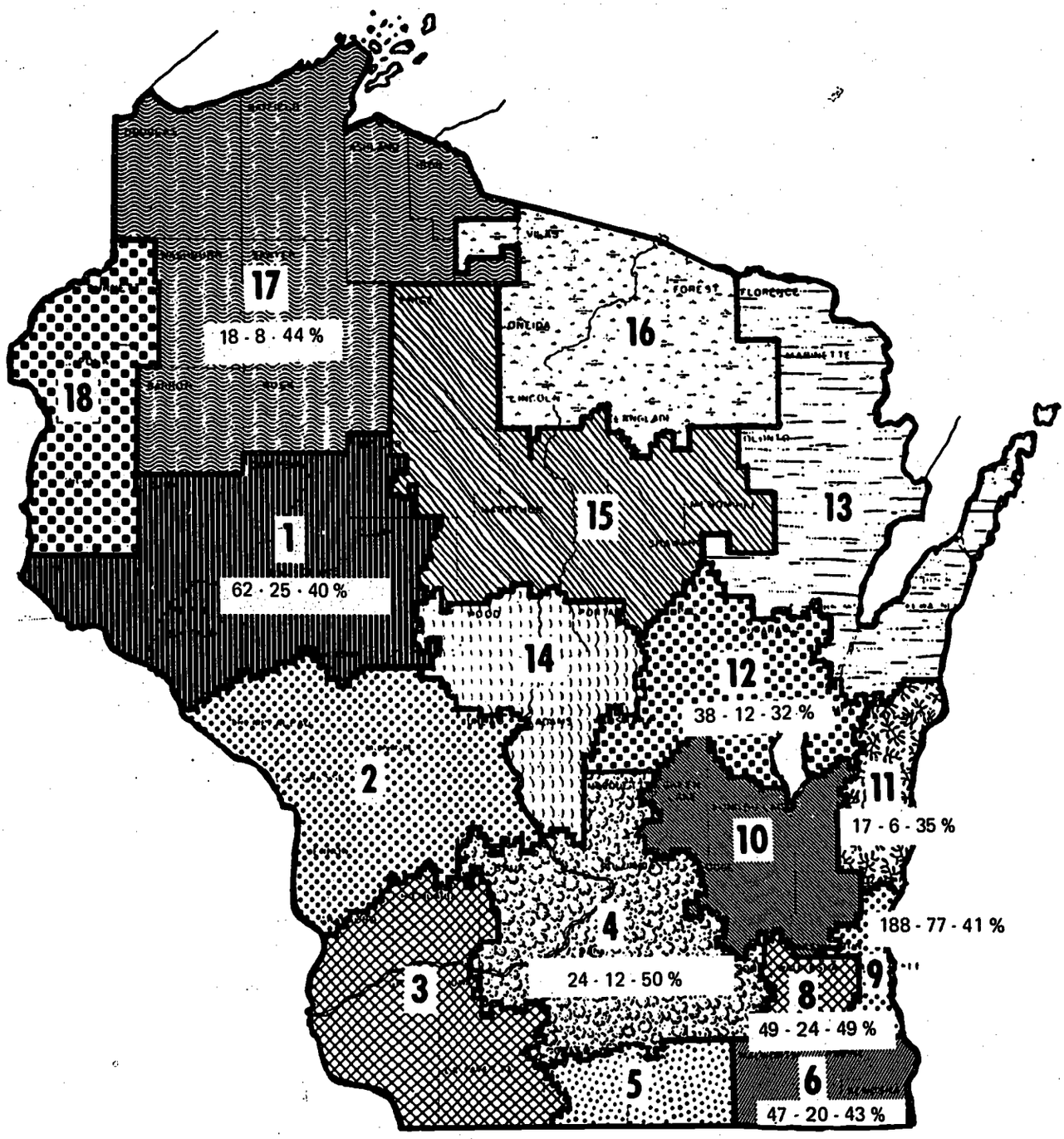
TABLE XXXV

Degree of Job Proficiency which six Companies manufacturing Hospital Related Equipment expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	PROFICIENCY IS ESSENTIAL	SOME PROFICIENCY ESSENTIAL	NO PROFICIENCY NECESSARY	DID NOT RESPOND
JOB ACTIVITIES	N	N	N	N
Equipment checkout procedures	5	1		
Adjusting and aligning	5	1		
Replacing of Components	5		1	
Isolating faults to particular stage	6			
Isolating within stage faults to defective components	5	1		
Assembling or constructing circuits from schematics and wiring diagrams	3	3		
Using oscilloscope to:				
a. Measure voltage	5	1		
b. Measure frequency	4	2		
c. Compare waveshape to waveshape standard	5	1		
d. Make time interval measurements	5	1		
e. Make phase measurements	4	2		
Using voltmeter to measure various ranges of voltage	6			
Using ohmmeter to measure DC resistance	6			
Using signal generator to inject standard or known signals into equipment for test purposes	5	1		
Using frequency meter to measure unknown frequencies	3	3		
Using basic hand tools	5	1		

NUMBER OF GRADUATES THAT WERE MAILED QUESTIONNAIRES - BY DISTRICT



LEGEND:
Ist figure indicates number Graduates receiving Questionaires
2nd figure indicates number Graduates returning Questionaires

TABLE XXXVI

Degree of Curriculum Knowledge which eight Companies manufacturing Electronic Calculating Equipment and Related Products expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	KNOWLEDGE IS ESSENTIAL	SOME KNOWLEDGE ESSENTIAL	NO KNOWLEDGE NECESSARY	DID NOT RESPOND
MATHEMATICS	N	N	N	N
Algebra	3	5		
Logarithm	2	3	3	
Trigonometry	2	3	3	
Applied Calculus		4	4	
Analytical Geometry		4	4	
Slide Rule	1	5	2	
Digital Logic	4	4		
Calculator Operation		3	5	
SCIENCE				
Mechanics	5	3		
Statics	1	5	2	
Dynamics	2	3	3	
Heat		6	2	
Sound		5	3	
Light		5	3	
Strength of Materials	1	4	3	
GENERAL EDUCATION				
Communications (Oral, written)	5	3		
Technical Report Writing	1	6	1	
Economics - Industrial Consumer	1	2	4	1
Psychology of Human Relations	3	5		
American Institutions		2	5	1

(CONTINUED)

TABLE XLIV

Analysis of Electronic Associate Degree Graduates - by Districts.

VTAE DIST.	YEAR	TOTAL N	TOTAL %	EMPLOYED: IN DISTRICT N	EMPLOYED: IN DISTRICT %	EMPLOYED: OUT OF DISTRICT N	EMPLOYED: OUT OF DISTRICT %	EMPLOYED: OUT OF STATE N	EMPLOYED: OUT OF STATE %	OTHER: UNEMPLOYED N	OTHER: UNEMPLOYED %	OTHER: STUDENT N	OTHER: STUDENT %	OTHER: MILITARY N	OTHER: MILITARY %	OTHER: UNKNOWN N	OTHER: UNKNOWN %
1	1967	34	40	3	4											31	36
	1968	19	22	2	2			2	2			3	3	3	3	9	11
	1969	15	17	8	10	1	1	2	2			1	1	1	1	2	2
	1970	18	21	5	6			3	3	1	1	5	6	4	5	0	
		86	100	18	22	1	1	7	7	1	1	9	10	8	9	42	49
2	1967	13	23	1	2											12	21
	1968	16	29	5	9	1	2	3	5			5	9			2	4
	1969	10	18	3	5	1	2	1	2			1	2			4	7
	1970	17	30	4	7	3	5	3	5							7	13
		56	100	13	23	5	9	7	12			6	11			25	45
4	1969	21	48	5	11			8	18			2	4	3	7	3	7
	1970	23	52	8	18			3	7			5	11	5	11	2	4
		44	100	13	30			11	25			7	16	8	18	5	11
5		*															
6	1967	10		**													
	1968	15															
	1969	12															
	1970	10															
		47															
8	1967	9	18													9	18
	1968	6	12													6	12
	1969	17	35	5	10	6	12			1	2	5	10				
	1970	17	35													17	36
		49	100	5	10	6	12			1	2	5	10			32	66

* Graduate list not received

** Did not indicate

(CONTINUED)

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TABLE XXXVI (CONT)

SUBJECT AREA	KNOWLEDGE IS ESSENTIAL	SOME KNOWLEDGE ESSENTIAL	NO KNOWLEDGE NECESSARY	DID NOT RESPOND
TECHNICAL COURSES	N	N	N	N
Technical-Electronic Drawing	2	4	2	
Fundamentals of Electricity	7	1		
Electronic Devices	8			
Circuit Analysis - AC & DC	7	1		
Electronic Amplifiers	2	6		
Instruments and measurements	6	2		
Communication Circuits	3	5		
Communication Systems	3	4		1
Introduction to Computers	6	2		
Control Circuits and Systems	5	3		
Electronic Design and Fabrication	2	6		
Introduction to non-Electronic Devices	4	4		
Electrical Machinery	2	6		
F.C.C. Licensing		2	6	

TABLE XLIV (CONT)

VTAE DIST.	YEAR	TOTAL N	TOTAL %	EMPLOYED IN DISTRICT N	EMPLOYED IN DISTRICT %	EMPLOYED OUT OF DISTRICT N	EMPLOYED OUT OF DISTRICT %	EMPLOYED OUT OF STATE N	EMPLOYED OUT OF STATE %	UNEMPLOYED N	UNEMPLOYED %	OTHER STUDENT N	OTHER STUDENT %	OTHER MILITARY N	OTHER MILITARY %	OTHER UNKNOWN N	OTHER UNKNOWN %
9	1967	52	21	22	9			21	8	1		2	1	6	2		
	1968	68	28	20	8	1	.4	26	11	3		6	2	6	2	6	2
	1969	59	24	26	11			12	5			7	3	6	2	8	3
	1970	67	27	28	11	2	.6	6	2	7		8	3	8	3	8	3
		246	100	96	39	3	1	65	26	11	4	23	9	26	11	22	9
11	1967	5		**													
	1968	12															
		17															
12	1967	14	23													14	23
	1968	9	15	1	2	2	3	1	2					3	5	2	3
	1969	22	35	4	6	4	6	1	2			2	3	9	15	2	3
	1970	17	27	2	3	2	3					6	10	4	6	3	5
		62	100	7	11	8	12	2	4			8	13	16	26	21	34
15	1967	21	25	6	7	5	6	5	6			3	4	2	2		
	1968	20	24	3	4	4	5	11	13			2	2				
	1969	22	27	3	4	3	4	10	12			4	5	2	2		
	1970	20	24	3	4	5	6	1	1			7	8	4	5		
		83	100	15	19	17	21	27	32			16	19	8	9		
17	1967	4	17					1	4.5			1	4.5	2	8.5		
	1968	6	26					3	13			2	8.5			1	4.5
	1969	6	26	2	8.5			4	17								
	1970	7	31	2	8.5			5	22.5								
		23	100	4	17			13	56.5			3	13	2	8.5	1	4.5

** Did not indicate

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TABLE XXXVII

Degree of Job Proficiency which eight Companies manufacturing Electronic Calculating Equipment and Related Products expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	PROFICIENCY IS ESSENTIAL	SOME PROFICIENCY ESSENTIAL	NO PROFICIENCY NECESSARY	DID NOT RESPOND
JOB ACTIVITIES	N	N	N	N
Equipment checkout procedures	7	1		
Adjusting and aligning	6	2		
Replacing of Components	3	5		
Isolating faults to particular stage	5	3		
Isolating within stage faults to defective components	3	5		
Assembling or constructing circuits from schematics and wiring diagrams	3	2	3	
Using oscilloscope to:				
a. Measure voltage	6	2		
b. Measure frequency	6	2		
c. Compare waveshape to waveshape standard	6	2		
d. Make time interval measurements	6	2		
e. Make phase measurements	5	3		
Using voltmeter to measure various ranges of voltage	8			
Using ohmmeter to measure DC resistance	8			
Using signal generator to inject standard or known signals into equipment for test purposes	3	4	1	
Using frequency meter to measure unknown frequencies	3	3	2	
Using basic hand tools	8			

TABLE XLV

Relationship of Present Job to Major Field of Study.

	DISTRICT								
	1	4	6	8	9	11	12	17	TOTAL
Very much related	11	1	10	8	36	1	4	6	77
Somewhat related	7	10	6	10	27	4	3	1	68
Unrelated	5	1	2	4	7	1	4	1	25
									170

Of the Electronic graduates, 45% consider their present job very much related to their major field of study. Of the 25 indicating their job as unrelated, some were employed as technical writers, railroad switchmen, mechanics, stock and bonds salesmen, and some were in service.

TABLE XLVI

How I feel about my Present Job.

	DISTRICT								
	1	4	6	8	9	11	12	17	TOTAL
I enjoy it very much	8	7	10	8	27	1	4	4	69
I am fairly well satisfied	8	1	3	8	26	3	3	0	52
I am satisfied for the time being	6	3	5	7	15	2	1	2	41
I consider my job unpleasant	1	1	1	0	2	0	1	0	6
									168

69 or 41% of the graduates responding to the question indicated that they enjoy their present job very much.

TABLE XXXVIII

Degree of Curriculum Knowledge which five Public Utilities expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	KNOWLEDGE IS ESSENTIAL	SOME KNOWLEDGE ESSENTIAL	NO KNOWLEDGE NECESSARY	DID NOT RESPOND
MATHEMATICS	N	N	N	N
Algebra	2	3		
Logarithm	1	3		1
Trigonometry	3	1		1
Applied Calculus	1	1	1	2
Analytical Geometry		2	1	2
Slide Rule	3	2		
Digital Logic	3	1		1
Calculator Operation	1	1	3	
SCIENCE				
Mechanics	1	4		
Statics	1	3		1
Dynamics	1	3		1
Heat	1	1	1	2
Sound	1	2	1	1
Light	1	1	1	2
Strength of Materials	1	2		2
GENERAL EDUCATION				
Communications (Oral,written)	2	3		
Technical Report Writing	1	2	2	
Economics - Industrial Consumer		1		4
Psychology of Human Relations		3		2
American Institutions		2		3

(CONTINUED)

TABLE XLVII

Degree of Mathematics knowledge, which two-year Associate Degree Electronic Technicians, feel necessary to do the type of work they are presently responsible for.

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	N	%	N	%	N	%
Algebra	94	55.0	52	30.4	25	14.6
Plane Geometry	56	32.7	69	40.3	46	27.0
Solid Geometry	36	21.1	78	45.5	57	33.4
Trigonometry	67	39.2	69	40.3	35	20.5
Analytical Geometry	30	17.7	72	42.0	69	40.3
Applied Calculus	21	12.3	71	41.5	79	46.2
Computer Programming	34	20.0	70	40.9	67	39.1
Operations of Calculating Machine	28	16.4	67	39.1	76	44.4
Slide Rule Usage	84	49.1	56	32.7	31	18.1

Each two-year Associate Degree graduate was asked to evaluate the curriculum as it related to the type of work he is presently responsible for. 55% of the respondents indicated they felt knowledge of Algebra essential, while but 21% felt knowledge of Calculus essential.

TABLE XXXVIII (CONT)

SUBJECT AREA	KNOWLEDGE IS ESSENTIAL	SOME KNOWLEDGE ESSENTIAL	NO KNOWLEDGE NECESSARY	DID NOT RESPOND
TECHNICAL COURSES	N	N	N	N
Technical Electronic Drawing	2	1	1	1
Fundamentals of Electricity	4	1		
Electronic Devices	3	1		1
Circuit Analysis - AC & DC	4			1
Electronic Amplifiers	3		1	1
Instruments and measurements	3	2		
Communication Circuits	3		1	1
Communication Systems	3		1	1
Introduction to Computers	4			1
Control Circuits and Systems	3	1	1	
Electronic Design and Fabrication	2	1	1	1
Introduction to non-Electronic Devices	3		1	1
Electrical Machinery	2	2		1
F.C.C. Licensing	2		2	1

TABLE XLVIII

Degree of Science knowledge, which two-year Associate Degree Electronic Technicians, feel necessary to do the type of work they are presently responsible for.

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	N	%	N	%	N	%
Magnetism, Electro-Magnetism	104	60.8	51	29.8	16	9.4
Mechanics	100	58.5	62	36.2	9	5.3
Statics	39	22.8	89	52.0	43	25.2
Dynamics	41	24.0	87	50.8	43	25.2
Heat	61	35.7	80	36.8	30	17.5
Sound	63	36.8	63	36.8	45	26.3
Light	52	30.4	76	44.5	43	25.1
Strength of materials	44	25.7	77	45.0	45	26.3

In the evaluation of Science Knowledge 61% indicated Magnetism and Electro-Magnetism knowledge is essential, whereas 23% indicated knowledge of Statics is essential.

One-fourth of the respondents indicated that Statics, Dynamics, Sound, Light, and Strength of Materials as "No Knowledge Necessary."

TABLE XXXIX

Degree of Job Proficiency which five Public Utilities expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	PROFICIENCY IS ESSENTIAL	SOME PROFICIENCY ADVISABLE	NO PROFICIENCY NECESSARY	DID NOT RESPOND
JOB ACTIVITIES	N	N	N	N
Equipment checkout procedures	3	1	1	
Adjusting and aligning	3		1	1
Replacing of Components	3	1	1	
Isolating faults to particular stage	3	1	1	
Isolating within stage faults to defective components	3	1	1	
Assembling or constructing circuits from schematics and wiring diagrams	1	3	1	
Using oscilloscope to:				
a. Measure voltage	4		1	
b. Measure frequency	3		1	1
c. Compare waveshape to waveshape standard	3		1	1
d. Make time interval measurements	3		1	1
e. Make phase measurements	2	1	1	1
Using voltmeter to measure various ranges of voltage	3	2		
Using ohmmeter to measure DC resistance	3	2		
Using signal generator to inject standard or known signals into equipment for test purposes	3	1		1
Using frequency meter to measure unknown frequencies	3		1	1
Using basic hand tools	3	1	1	

TABLE XLIX

Degree of General Education knowledge which two-year Associate Degree Electronic Technicians feel necessary to do the type of work they are presently responsible for.

Subject Area	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	N	%	N	%	N	%
Communications (Oral & Written)	119	69.6	51	29.8	1	.6
Technical Report Writing	90	52.7	67	39.2	14	8.1
Economics-Industrial Consumer	29	17.0	92	53.7	50	29.3
Psychology of Human Relations	67	39.2	81	47.3	23	13.5
American Institutions	10	5.9	73	42.7	88	51.4

Communications (70%) and Technical Report Writing (53%) were felt essential as opposed to American Institutions (6%) and Economics (17%) in the General Education evaluation.

"No Knowledge Necessary" was indicated by 29.3% for Economics-Industrial Consumer, and 51.4% of the respondents also felt the same about American Institutions.

Table LXVII (p. 99) shows a comparison between employer and employee responses to this General Education curriculum.

TABLE XL

Degree of Curriculum Knowledge which eight Electronic Equipment and Components Manufacturers expect a two-year Associate Degree Electronic Technicians to have.

SUBJECT AREA	KNOWLEDGE IS ESSENTIAL	SOME KNOWLEDGE ESSENTIAL	NO KNOWLEDGE NECESSARY	DID NOT RESPOND
MATHEMATICS	N	N	N	N
Algebra	5	3		
Logarithm	2	5	1	
Trigonometry	3	5		
Applied Calculus		6	2	
Analytical Geometry		5	2	1
Slide Rule	6	2		
Digital Logic	5	1	2	
Calculator Operation	2	3	2	1
SCIENCE				
Mechanics	3	5		
Statics	2	4	2	
Dynamics	1	5	2	
Heat	2	5	1	
Sound	2	5	1	
Light	3	4	1	
Strength of Materials	3	4	1	
GENERAL EDUCATION				
Communications (Oral, written)	5	3		
Technical Report Writing	1	7		
Economics- Industrial Consumer	1	5	2	
Psychology of Human Relations	1	5	2	
American Institutions		6	2	

(CONTINUED)

Out of the 16 Technical Subjects listed, 12 were evaluated by 50% or more of the respondents as essential to do the type of work they are presently responsible for. More than 20% of the respondents felt D. C. Fundamentals, A. C. Fundamentals, Principles of Electronics, Basic Electronics knowledge essential to do their present type of work. Table L shows the results of the respondent to Technical Subject Knowledge.

TABLE XL (CONT)

SUBJECT AREA	KNOWLEDGE IS ESSENTIAL	SOME KNOWLEDGE ESSENTIAL	NO KNOWLEDGE NECESSARY	DID NOT RESPOND
TECHNICAL COURSES	N	N	N	N
Technical Electronic Drawing	6	2		
Fundamentals of Electricity	8			
Electronic Devices	7	1		
Circuit Analysis - AC & DC	6	2		
Electronic Amplifiers	4	4		
Instruments and measurements	7	1		
Communication Circuits	4	2	2	
Communication Systems	4	2	2	
Introduction to Computers	4	3	1	
Control Circuits and Systems	5	2	1	
Electronic Design and Fabrication	5	3		
Introduction to non-Electronic Devices	6	2		
Electrical Machinery	4	4		
F.C.C. Licensing		3	5	

TABLE L

Degree of Technical Subject knowledge which two-year Associate Degree Electronic Technicians feel necessary to do the type of work they are presently responsible for.

Technical Subjects	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	N	%	N	%	N	%
D.C. Fundamentals	142	83.4	22	12.9	6	3.6
A.C. Fundamentals	146	86.0	19	11.0	5	3.0
Principles of Electronics	142	83.4	20	11.8	8	4.9
Basic Electronics	142	83.4	20	11.8	6	3.6
Solid State Electronics	131	76.9	25	14.7	14	8.4
Industrial Electronics	98	57.6	59	34.7	13	7.7
Machines and Controls	83	48.8	67	39.4	20	11.8
Basic Pulse Circuits	102	59.9	49	28.8	19	11.3
Electronic Control Circuits	111	65.3	39	27.9	20	11.8
Instrumentation Fundamentals	93	54.7	55	32.4	22	12.9
Computer Electronics	74	43.5	61	36.0	35	20.5
Technical Problems	99	58.2	56	32.8	13	7.7
Technical Drawing (Electronic)	65	38.3	84	49.5	21	12.2
Technical Report Writing	73	43.0	76	44.7	21	12.2
Circuit Analysis	122	71.8	35	20.6	13	7.6

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TABLE LI

Degree of Proficiency in Job Activities, which two-year Associate Degree Electronic Technicians, feel necessary to do the type of work they are presently responsible for.

JOB ACTIVITY	Proficiency is Essential		Some Proficiency is Advisable		No Proficiency is Necessary	
	N	%	N	%	N	%
Perform equipment check-out procedures	116	69.8	32	19.3	18	10.9
Adjusting and aligning	108	65.0	36	21.6	22	13.3
Replacing components	113	68.0	32	19.3	21	12.7
Assembling or building circuits	83	49.2	55	32.6	31	18.2
Using oscilloscope to: Measure voltage	112	67.4	30	18.0	24	14.6
Measure frequency	105	63.1	34	19.8	27	16.1
Compare waveshape to waveshape standard	110	66.1	27	16.3	29	17.6
Measure phase time	82	49.3	48	28.8	36	21.9
Using voltmeter to measure various ranges of voltage	138	82.9	14	8.5	14	8.5
Using ohmmeter to measure D.C. resistance	131	78.8	17	10.4	18	10.8
Using hand tools in accomplishing various jobs	123	73.8	28	16.9	15	9.3

Statistics show that of the 166 respondents to "Proficiency in Job Activities", 138 or 83% rated, "using voltmeter to measure various ranges of voltage", followed by 131 or 79% rating "using ohmmeter to measure D.C. resistance", as "Proficiency is Essential".

TABLE XLI

Degree of Job Proficiency which eight Electronic Equipment and Components Manufacturers expect a two-year Associate Degree Electronic Technician to have.

SUBJECT AREA	PROFICIENCY IS ESSENTIAL	SOME PROFICIENCY ESSENTIAL	NO PROFICIENCY NECESSARY	DID NOT RESPOND
JOB ACTIVITIES	N	N	N	N
Equipment checkout procedures	7	1		
Adjusting and aligning	6	2		
Replacing of Components	5	3		
Isolating faults to particular stage	6	1	1	
Isolating within stage faults to defective components	6	1	1	
Assembling or constructing circuits from schematics and wiring diagrams	6	2		
Using oscilloscope to:				
a. Measure voltage	7	1		
b. Measure frequency	6	2		
c. Compare waveshape to waveshape standard	6	1	1	
d. Make time interval measurements	6	2		
e. Make phase measurements	5	3		
Using voltmeter to measure various ranges of voltage	7	1		
Using ohmmeter to measure DC resistance	7	1		
Using signal generator to inject standard or known signals into equipment for test purposes	4	3	1	
Using frequency meter to measure unknown frequencies	4	3	1	
Using basic hand tools	7	1		

TABLE LII

Areas of Training in which the two-year Associate Degree Electronic Technicians feel are inadequate for the type of work they are responsible for.

	DISTRICT							
	1	4	6	8	9	11	12	17
Knowledge and application of electronic principles.	6	2	3	2	13	2	0	0
Knowledge and application of electronic terms.	1	0	1	2	4	1	1	0
Knowledge and application of electronic equipment.	9	1	8	1	22	4	0	0
Knowledge and application of mathematical principles.	2	0	2	1	5	2	1	0
Knowledge and application of technical science.	2	2	3	2	5	1	0	0
Knowledge and application of communication skills.	2	4	2	5	11	0	1	1
Proper procedures of recording and reporting technical data.	3	6	5	4	15	3	1	2

Knowledge and application of electronic equipment seems to be the area that Electronic Technicians feel inadequately trained for in the type of work they are presently responsible for, as well as Proper procedures of recording and reporting technical data.

Knowledge and application of electronic terms is an area that respondents indicated adequate training.

The Electronic Technician can expect to find himself working directly with engineers involved in building and testing new electronics products and maintaining customer equipment on a daily basis in approximately one-third of the companies he might work for. Table LIII indicates the broad area of activities that a two-year Associate Degree Electronic Technician might find himself involved in.

TABLE LIII

Degree of involvement, that two-year Associate Degree Electronic Technicians, feel they have in the activities listed.

SELECTED ACTIVITY	Always (daily)		Frequently (weekly)		Occasionally (monthly)		Never	
	N	%	N	%	N	%	N	%
Work directly with engineers and scientists in development phase of electronic product.	41	25.0	23	14.0	32	19.5	68	41.5
Involved in building, testing and modifying prototypes of new electronic products.	34	20.7	16	9.8	42	25.5	72	44.0
Maintain complex automated production machines.	33	20.2	13	7.9	18	11.0	100	60.9
Use test equipment.	112	68.3	19	11.6	13	7.9	20	12.2
Maintain and calibrate test equipment.	31	18.9	20	12.2	53	32.3	60	36.6
Customer service:								
a. Maintain equipment	47	28.7	15	9.2	16	9.7	86	52.4
b. Solve customer problems	43	16.]	21	12.8	22	13.4	78	47.6
c. In-plant training	18	11.0	14	8.5	46	28.0	86	52.5
Work as a project director.	9	5.5	8	4.9	36	21.0	111	67.6
Prepare work progress reports.	24	14.7	24	14.7	45	27.4	71	43.2
Prepare laboratory test report.	15	9.2	17	10.4	29	17.7	103	62.7
Prepare cost estimates.	14	8.5	12	7.3	32	19.5	106	64.7
Convert "sketches" into working drawings.	16	9.7	18	11.0	42	25.5	88	53.8
Determine scope of sampling and kinds of test to be run.	18	11.0	18	11.0	48	29.2	80	48.8
Responsible for certain aspects of design work under engineering supervision.	34	20.7	14	8.5	38	23.2	78	47.6
Establish and maintain quality standards.	55	33.5	20	12.2	29	17.7	60	36.6

TABLE LIV

Degree of Knowledge which Employees feel necessary to do the type of work they are presently responsible for - based on percent.

MATHEMATICS	DISTRICT																							
	1			4			6			8			9			11			12			17		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Algebra	54	18	27	25	41	33	63	31	5	47	38	14	60	30	9	33	33	33	63	36	0	57	28	14
Plane Geometry	14	52	33	41	16	41	33	39	27	19	43	38	39	40	20	33	50	16	27	36	36	57	28	14
Solid Geometry	9	52	38	25	25	50	35	35	29	14	38	47	24	47	28	50	50	0	18	54	27	28	57	14
Trigonometry	33	33	33	41	16	41	52	42	5	28	52	19	40	41	19	50	50	0	20	54	18	57	28	14
Analytical Geometry	10	40	50	8	41	50	31	37	31	14	43	43	16	47	36	33	16	50	18	45	36	14	57	28
Applied Calculus	14	23	61	9	33	50	22	44	33	9	38	52	10	50	39	20	20	60	18	9	73	0	43	57
Computer Programming	4	42	52	0	50	50	16	63	21	24	28	47	30	38	30	0	50	50	18	45	36	14	14	71
Operation of Calculating Machine	13	27	59	0	41	58	42	52	5	19	38	43	13	45	42	16	16	66	18	36	45	14	28	57
Slide Rule Usage	38	23	38	25	41	33	84	16	0	38	33	28	45	39	35	83	0	16	54	27	18	86	14	0

A = Knowledge is Essential B= Some Related Knowledge is Advisable C = No Knowledge Necessary

MATHEMATICS*

Algebra and Slide Rule Usage subjects of the discipline of mathematics seem to be the more relevant of the subjects of mathematics necessary for the respondents to perform their jobs.

Plane Geometry, Solid Geometry, and Trigonometry indicate a somewhat equal balance between essestial and advisable whereas Operation of Calculating machine, and Computer Programming and Applied Calculus trend toward advisable and not necessary.

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TABLE LV

Degree of Knowledge which Employees feel necessary to do the type of work they are presently responsible for - based on percent.

SCIENCE	DISTRICT																					
	1			4			6			8			9			11			12			17		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Magnetism and Electromagnetism	66	24	9	33	41	25	72	27	0	47	43	9	63	26	10	66	16	16	63	27	9	71	28	0
Mechanics	62	33	4	25	50	25	66	33	0	62	33	4	55	38	5	57	43	0	63	36	0	57	43	0
Statics	24	38	38	8	41	50	27	61	11	15	55	30	21	54	24	16	50	33	54	27	18	28	57	14
Dynamics	24	33	43	0	50	50	33	55	11	20	40	40	21	59	20	16	50	33	54	18	27	43	43	14
Heat	38	33	28	8	33	58	39	61	0	25	60	15	35	43	21	66	33	0	63	27	9	43	57	0
Sound	33	24	43	33	16	50	39	55	5	30	45	25	39	36	24	50	50	0	45	18	36	43	43	14
Light	33	47	38	8	33	58	27	66	5	16	47	37	40	37	23	50	50	0	36	45	18	43	43	14
Strength of Materials	19	47	33	16	41	41	33	66	0	16	47	37	23	46	30	50	50	0	63	18	18	28	28	43

A = Knowledge is Essential
B = Some Related Knowledge is Advisable
C = No Knowledge Necessary

Science area emphasizes the need for exposure to all subjects listed, with more exposure to Magnetism and Electromagnetism, and Mechanics more essential than other areas. Heat, Light and Sound subjects, in addition to the other subjects listed, were strongly advised.

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TABLE LVI

Degree of Knowledge which Employees feel necessary to do the type of work they are presently responsible for - based on percent.

GENERAL EDUCATION	DISTRICT 1			4			6			8			9			11			12			17		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Communications (Oral & Written)	66	33	0	63	36	0	66	33	0	68	31	0	67	30	3	100	0	0	73	27	0	57	43	0
Technical Report Writing	47	33	19	58	33	8	61	39	0	58	37	5	52	39	8	60	40	0	33	50	16	43	57	0
Economics - Industrial, Consumer	9	57	33	0	83	16	22	55	22	16	47	37	18	43	38	20	80	0	18	72	9	0	57	43
Psychology of Human Relations	52	38	9	46	50	8	27	61	11	35	55	10	38	43	18	40	60	0	40	40	20	14	85	0
American Institutions	9	43	47	0	50	50	5	50	44	5	31	63	4	39	56	20	40	40	9	45	45	0	43	57

A = Knowledge is Essential
B = Some Related Knowledge is Advisable
C = No Knowledge Necessary

Communications, Technical Report Writing, and Psychology of Human Relations were responded to by the graduates, as essential.
Economics was considered advisable, whereas American Institutions was considered as non-essential.

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TABLE LVII

Degree of Knowledge which Employees feel necessary to do the type of work they are presently responsible for - based on percent.

TECHNICAL SUBJECT	DISTRICT																				
	1			4			6			8			9			11			12			17		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
D. C. Fundamentals	86	13	0	50	33	16	94	6	0	68	25	6	85	13	1	66	33	0	90	0	10	86	0	14
A. C. Fundamentals	85	14	0	58	33	8	89	11	0	81	14	4	87	9	3	66	33	0	90	0	10	86	0	14
Principles of Electronics	85	14	0	41	41	16	94	6	0	85	10	5	85	12	3	66	33	0	90	0	10	86	0	14
Basic Electronics	85	14	0	54	33	8	94	6	0	72	22	4	85	12	3	66	33	0	90	0	10	86	0	14
Solid State Electronics	71	19	9	33	41	25	89	5	5	70	20	10	82	15	3	50	33	16	90	0	10	71	14	14
Industrial Electronics	57	33	9	41	33	25	89	5	5	42	47	10	50	46	4	66	16	16	60	20	20	57	28	14
Machines and Controls	57	28	14	50	25	25	58	37	5	45	45	10	43	47	10	66	33	0	70	10	20	43	43	14
Basic Pulse Circuits	62	19	19	41	25	33	60	35	5	52	31	16	58	32	9	50	16	33	80	10	10	71	14	14
Electronic Control Circuits	54	15	20	41	25	33	80	15	5	60	30	10	61	28	10	66	33	0	77	11	11	71	14	14
Instrumentation Fundamentals	76	9	14	33	41	25	73	26	0	68	26	5	39	44	16	66	33	0	80	0	20	57	28	14

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TABLE LVII (CONT)

TECHNICAL SUBJECT	DISTRICT 1			4			6			8			9			11			12			17		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Computer Electronics	60	20	20	8	58	33	52	42	5	47	33	19	43	36	21	16	50	33	60	10	30	28	57	14
Technical Problems	57	38	4	25	66	8	52	42	5	52	42	5	62	26	11	33	66	0	60	30	10	86	14	0
Technical Drawing(Electronic)	43	43	14	25	41	33	42	58	0	42	37	21	35	58	7	33	50	16	80	20	0	43	43	14
Technical Report Writing	52	19	28	41	41	16	52	47	0	37	63	0	31	56	12	33	33	33	50	30	20	37	50	12
Circuit Analysis	71	24	4	50	25	25	63	31	5	68	31	0	75	19	5	100	0	0	80	10	10	86	0	14

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A = Knowledge is Essential
B = Some Related Knowledge is Advisable
C = No Knowledge Necessary

TECHNICAL SUBJECTS

The technical subject area was quite strong in regards to the relevancy of the particular subject to the graduates' present jobs. Several subjects, e. g. Machines and Controls, Instrumentation Fundamentals, Computer Electronics, and Technical Report Writing trended toward "advisable" and away from "not essential."

TABLE LVIII

Employee Rating as to Degree of Proficiency in Job Activities - based on percent.

Proficiency is Essential	DISTRICT							
	1	4	6	8	9	11	12	17
Perform equipment check-out procedures.	76	50	68	71	70	67	100	67
Adjusting and aligning.	75	42	68	61	70	50	62	67
Replacing components.	71	42	59	68	70	83	71	67
Assembling or building circuits	42	8	84	43	51	100	50	50
Using oscilloscope to:								
a. Measure voltage	65	42	74	59	74	83	62	100
b. Measure frequency	61	33	72	59	68	83	62	83
c. Compare waveshape to waveshape standard	64	50	74	59	73	67	62	83
d. Measure phase time	50	18	58	45	58	33	50	67
Using voltmeter to measure various ranges of voltage.	95	45	90	81	84	100	89	100
Using ohmmeter to measure D.C. resistance.	90	45	90	54	84	100	89	100
Using hand tools in accomplishing various jobs.	86	45	90	74	72	83	70	83

PROFICIENCY IN JOB ACTIVITIES as indicated in Tables LVIII, LVIX, and LX.

The activity of using the oscilloscope to: measure voltage, measure frequency, compare waveshape to waveshape standard, measure phase time was very active in regard to the degree of proficiency necessary for successful job performance. Measuring phase time was the area of least proficiency necessary where the remaining procedures with the oscilloscope trended more toward advisable than not necessary.

The remaining activities the graduates felt were essential to advisable with, however, "using ohmmeter to measure D. C. resistance, using voltmeter to measure various ranges of voltage, and using hand tools in accomplishing various jobs," as the activities that were felt to be highly essential to successful job performance.

TABLE LVIX

Employee Rating as to Degree of Proficiency in Job Activities - based on percent.

Some Proficiency is Advisable	DISTRICT							
	1	4	6	8	9	11	12	17
Perform equipment check-out procedures.	9	17	21	24	21	33	0	33
Adjusting and aligning.	20	17	26	23	17	50	37	33
Replacing components.	23	17	29	23	17	17	29	16
Assembling or building circuits.	42	33	10	43	34	0	50	33
Using oscilloscope to:								
a. Measure voltage	15	8	21	27	17	17	38	0
b. Measure frequency	23	17	22	23	20	0	38	17
c. Compare waveshape to waveshape standard	18	0	21	18	16	16	38	17
d. Measure phase time	15	36	37	27	28	50	38	33
Using voltmeter to measure various ranges of voltage.	5	9	5	14	7	0	11	0
Using ohmmeter to measure D.C. resistance.	5	0	5	27	7	0	11	0
Using hand tools in accomplishing various jobs.	14	18	5	17	20	17	30	17

TABLE LX

Employee Rating as to Degree of Proficiency in Job Activities- based on percent.

No Proficiency is Necessary	DISTRICT							
	1	4	6	8	9	11	12	17
Perform equipment check-out procedures.	14	33	11	5	8	0	0	0
Adjusting and aligning.	5	42	5	14	13	0	0	0
Replacing components.	4	42	12	9	13	0	0	16
Assembling or building circuits.	14	58	6	14	14	0	0	16
Using oscilloscope to:								
a. Measure voltage	20	50	5	14	9	0	0	0
b. Measure frequency	14	50	5	18	11	17	0	0
c. Compare waveshape to waveshape standard	18	50	5	23	11	16	0	0
d. Measure phase time	35	45	5	27	15	16	12	0
Using voltmeter to measure various ranges of voltage.	0	45	5	5	7	0	0	0
Using ohmmeter to measure D.C. resistance.	5	54	5	18	7	0	0	0
Using hand tools in accomplishing various jobs.	0	36	5	9	7	0	0	0

TABLE LXI

Employee Rating in Degree of Involvement in Selected Activities - based on percent.

ALWAYS	DISTRICT							
	1	4	6	8	9	11	12	17
Work directly with engineers and scientists in development phase of electronic product.	18	14	60	10	21	43	22	14
Involved in building, testing and modifying prototypes of new electronic products.	12	7	56	5	19	28	27	28
Maintain complex automated production machines.	15	8	12	22	13	33	36	14
Use test equipment.	95	24	73	63	65	66	60	66
Maintain and calibrate test equipment.	25	9	22	16	16	66	10	25
Maintain equipment.	40	9	17	33	31	16	55	22
Solve customer problems.	19	27	11	35	25	16	55	11
In-plant training.	9	0	0	21	7	16	33	0
Work as project director.	14	0	5	10	3	14	11	0
Prepare work progress reports.	5	0	17	21	8	33	44	12
Prepare laboratory test report.	5	0	28	5	6	57	22	25
Prepare cost estimates.	0	18	11	5	7	14	10	12
Convert "sketches" into working drawings.	0	18	16	15	12	28	10	14
Determine scope of sampling and kinds of test to be run.	19	0	11	10	9	28	10	14
Responsible for certain aspects of design work under engineering supervision.	18	45	33	15	22	28	10	14
Establish and maintain quality standards.	30	45	28	31	37	71	44	71

TABLE LXII

Employee Rating in Degree of Involvement in Selected Activities - based on percent.

FREQUENTLY	DISTRICT							
	1	4	6	8	9	11	12	17
Work directly with engineers and scientists in development phase of electronic product.	27	7	13	15	22	0	22	0
Involved in building, testing and modifying prototypes of new electronic products.	21	0	12	10	10	14	22	0
Maintain complex automated production machines.	10	8	19	16	6	0	0	0
Use test equipment.	8	14	13	26	13	16	20	0
Maintain and calibrate test equipment.	15	9	17	0	15	16	30	12
Maintain equipment.	10	9	17	5	7	37	0	0
Solve customer problems.	24	9	11	11	17	0	0	0
In-plant training.	19	9	11	10	9	0	0	0
Work as a project director.	9	0	17	10	1	0	0	0
Prepare work progress reports.	9	18	17	10	11	16	22	0
Prepare laboratory test report.	14	9	22	10	4	0	0	12
Prepare cost estimates.	9	18	5	5	9	0	0	12
Convert "sketches" into working drawings.	14	27	21	5	12	14	2	14
Determine scope of sampling and kinds of test to be run.	5	18	28	5	12	0	10	14
Responsible for certain aspects of design work under engineering supervision.	0	0	33	5	9	0	30	14
Establish and maintain quality standards.	10	9	27	15	9	0	22	14

TABLE LXIII

Employee Rating in Degree of Involvement in Selected Activities - based on percent.

OCCASIONALLY	DISTRICT							
	1	4	6	8	9	11	12	17
Work directly with engineers and scientists in development phase of electronic product.	45	7	13	21	21	14	33	14
Involved in building, testing and modifying prototypes of new electronic products.	29	31	19	31	22	28	44	14
Maintain complex automated production machines.	10	8	19	5	10	66	27	0
Use test equipment.	0	7	6	0	12	16	0	0
Maintain and calibrate test equipment.	35	18	39	66	32	0	20	12
Maintain equipment.	10	18	11	5	10	0	0	0
Solve customer problems.	14	18	33	11	14	16	0	0
In-plant training.	24	27	39	10	30	16	22	33
Work as a project director.	14	9	11	31	34	43	22	12
Prepare work progress reports.	28	45	33	31	28	16	11	0
Prepare laboratory test report.	19	9	16	3	21	0	22	0
Prepare cost estimates.	14	9	44	5	21	28	20	0
Convert "sketches" into working drawings.	14	0	31	37	28	28	30	14
Determine scope of sampling and kinds of test to be run.	28	18	33	47	21	14	60	28
Responsible for certain aspects of design work under engineering supervision.	18	9	22	31	24	43	20	14
Establish and maintain quality standards.	15	9	16	10	24	14	0	0

TABLE LXIV

Employee Rating in Degree of Involvement in Selected Activities - based on percent.

NEVER	DISTRICT							
	1	4	6	8	9	11	12	17
Work directly with engineers and scientists in development phase of electronic product.	9	71	13	52	35	43	22	71
Involved in building, testing and modifying prototypes of new electronic products.	37	61	12	52	47	28	11	57
Maintain complex automated production machines.	54	75	50	55	69	0	36	85
Use test equipment.	0	57	6	10	9	0	20	33
Maintain and calibrate test equipment.	25	64	22	16	36	16	40	50
Maintain equipment.	40	64	55	55	50	50	44	77
Solve customer problems.	43	45	44	41	43	66	44	89
In-plant training.	47	64	50	58	52	66	44	66
Work as a project director.	62	90	66	47	60	43	66	87
Prepare work progress reports.	57	36	33	37	51	32	22	87
Prepare laboratory test report.	62	90	33	52	68	43	55	62
Prepare cost estimates.	77	54	39	84	62	57	70	75
Convert "sketches" into working drawings.	73	54	31	42	47	28	40	57
Determine scope of sampling and kinds of test to be run.	47	64	27	42	58	57	20	43
Responsible for certain aspects of design work under engineering supervision.	64	45	11	47	44	28	40	57
Establish and maintain quality standards.	45	36	33	42	30	14	33	14

CHAPTER IV

TABLE LXV

Comparison of Employer and Employee responses to Mathematics Curriculum.

SUBJECT AREA	Knowledge is Essential				Some Related Knowledge Advisable				No Knowledge Necessary			
	Employers		Employees		Employers		Employees		Employers		Employees	
	N	%	N	%	N	%	N	%	N	%	N	%
Algebra	51	64.6	94	55.0	28	35.4	52	30.4	0	0	25	14.6
Trigonometry	38	52.2	67	39.2	28	38.4	69	40.3	7	9.4	35	20.5
Analytical Geometry	7	10.3	30	17.6	43	63.2	72	42.1	18	26.5	69	40.3
Applied Calculus	12	17.1	21	12.3	34	48.5	71	41.6	24	34.4	79	46.1
Operation of Calculating machine	13	19.4	28	16.4	31	46.3	67	39.2	23	34.3	76	44.4
Slide Rule	49	62.8	84	49.2	26	33.2	56	32.8	3	4.0	31	18.0

% based on total number responding to question.

TABLE LXVI

Comparison of Employer and Employee responses to Science Curriculum.

SUBJECT AREA	Knowledge is Essential				Some Related Knowledge Advisable				No Knowledge Necessary			
	Employers		Employees		Employers		Employees		Employers		Employees	
	N	%	N	%	N	%	N	%	N	%	N	%
Mechanics	35	46.0	100	58.3	41	54.0	62	36.2			9	5.5
Statics	22	31.0	39	22.8	43	60.6	89	52.0	6	8.4	43	25.2
Dynamics	23	33.0	41	24.0	40	57.0	87	50.8	7	10.0	43	25.2
Heat	20	28.2	61	35.6	43	60.6	80	46.8	8	11.2	30	17.6
Sound	17	22.7	63	36.8	43	57.3	63	36.8	15	20.0	45	26.4
Light	18	25.0	52	30.4	34	47.3	76	44.4	20	27.7	43	25.2
Strength of Materials	18	25.2	44	26.4	38	53.6	77	46.4	15	21.2	45	27.2

TABLE LXVII

Comparison of Employer and Employee responses to General Education Curriculum.

SUBJECT AREA	Knowledge is Essential				Some Related Knowledge Advisable				No Knowledge Necessary			
	Employers		Employees		Employers		Employees		Employers		Employees	
	N	%	N	%	N	%	N	%	N	%	N	%
Communications (Oral, written)	61	75.5	119	69.0	19	23.5	51	29.9	1	1.0	1	1.1
Technical report writing	35	45.0	90	52.5	37	47.5	67	39.2	6	7.5	14	8.3
Economics - Industrial consumer	8	10.8	29	17.0	40	54.0	92	53.7	26	35.2	50	29.3
Psychology of Human Relations	15	19.2	67	39.2	48	61.6	81	47.4	15	19.2	23	13.4
American Institutions			10	5.8	31	45.6	73	42.8	37	54.4	88	51.4

TABLE LXVIII

Comparison of Employer and Employee responses to Selected Activities.

ACTIVITY	Always (daily)				Frequently (weekly)				Occasionally (monthly)				Never			
	Employer		Employee		Employer		Employee		Employer		Employee		Employer		Employee	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Work directly with engineers and scientists in development phase of electronic product.	25	33	41	25	16	21	23	14	12	16	32	20	23	30	68	41
Involved in building, testing and modifying prototypes of new electronic products.	25	32	34	21	22	28	16	10	12	15	42	26	19	24	72	44
Maintain complex automated production machines.	12	17	33	20	15	21	13	8	14	19	18	11	31	43	100	61
Use test equipment.	17	21	112	68	20	25	19	12	24	29	13	8	20	25	20	12
Maintain and calibrate test equipment.	5	6	31	19	16	21	20	12	26	34	53	32	30	39	60	37
Customer service:																
a. Maintain equipment	26	34	47	29	11	14	15	9	11	14	16	10	29	38	86	52
b. Solve customer problems	24	31	43	26	11	14	21	13	16	21	22	13	27	35	78	48
c. In-plant training	8	11	18	11	10	13	14	8	20	27	46	28	37	49	86	52
Work as a project director.	1	1	9	5	1	1	8	5	15	20	36	22	59	78	111	68
Prepare work progress reports	6	8	24	15	15	20	24	15	31	41	45	27	23	31	71	43
Prepare laboratory test report.	7	9	15	9	16	22	17	10	28	38	29	18	23	31	103	63

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TABLE LXVIII (CONT)

ACTIVITY	Always (daily)				Frequently (weekly)				Occasionally (monthly)				Never			
	Employer		Employee		Employer		Employee		Employer		Employee		Employer		Employee	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Prepare cost estimates.	2	3	14	8	11	14	12	7	24	32	32	20	39	51	106	65
Convert "sketches" into working drawings.	4	5	16	10	10	14	18	11	28	38	42	26	32	43	88	54
Determine scope of sampling and kinds of test to be run.	4	5	18	11	12	16	18	11	24	32	48	29	36	47	80	49
Responsible for certain aspects of design work under engineering supervision.	14	21	34	21	20	30	14	9	17	25	38	23	16	24	78	48
Establish and maintain quality standards.	6	8	55	34	19	25	20	12	23	31	29	18	27	36	60	37

4013

TABLE LXIX

Comparison of Employer and Employee responses to Job Activities.

JOB ACTIVITY	Proficiency is Essential				Some Proficiency is Advisable				No Proficiency is Necessary			
	Employers		Employees		Employers		Employees		Employers		Employees	
	N	%	N	%	N	%	N	%	N	%	N	%
Perform equipment check-out procedures	60	78	116	70	16	21	32	19	1	1	18	11
Adjusting and aligning	57	74	108	65	19	25	36	22	1	1	22	13
Replacing Components	58	74	113	68	17	22	32	19	4	4	21	13
Assembling or building circuits	49	64	83	50	24	32	55	33	3	4	31	19
Using oscilloscope to:												
a. Measure voltage	61	78	112	68	15	19	30	18	2	3	24	14
b. Measure frequency	57	74	105	63	18	23	34	20	2	3	27	16
c. Compare waveshape to waveshape standard	60	78	110	66	15	19	27	16	2	3	29	17
d. Measure phase time	60	78	82	49	13	17	48	29	4	5	36	22
Using voltmeter to measure various ranges of voltage	73	93	138	83	5	6	14	8	1	1	14	8
Using ohmmeter to measure D.C. resistance	72	90	131	79	7	9	17	10	1	1	18	11
Using hand tools in accomplishing various jobs	65	82	123	74	11	14	28	17	3	4	15	9

TABLE LXX

Comparison of Television Stations and three of their Employee Responses to Curriculum Knowledge.

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
MATHEMATICS	N	N	N	N	N	N
Algebra	1	3				
Trigonometry	1	1		1		1
Analytical Geometry			1	1		2
Applied Calculus			1	1		2
Operation of Calculator			1			3
Slide Rule Usage		2		1	1	
SCIENCE						
Mechanics	1	1		2		
Statics				3	1	
Dynamics				3	1	
Heat				2	1	1
Sound	1	1		2		
Light	1			3		
Strength of Materials	1			2		1
GENERAL EDUCATION						
Communications (Oral, written)	1	3				
Technical Report Writing	1	3				
Economics-Industrial Consumer				1	1	2
Psychology of Human Relations	1	2		1		
American Institutions				2	1	1

(CONTINUED)

TABLE LXX (CONT)

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
TECHNICAL COURSES	N	N	N	N	N	N
Technical Electronic Drawing	1	1		2		
Fundamentals of Electricity	1	3				
Electronic Devices	1	3		3		
Instruments and Measurements	1	1		2		
Circuit Analysis - AC & DC	1	3				
Introduction to Computers		1	1	2		
Control Circuits and Systems	1	3				
Electronic Design and Fabrication		2	1	1		

TABLE LXXI

Comparison of Television Stations and three of their Employee Responses to Job Activity Proficiency.

SUBJECT AREA	Proficiency is Essential		Some Proficiency is Advisable		No Proficiency is Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
JOB ACTIVITIES	N	N	N	N	N	N
Equipment checkout procedures	1	3				
Adjusting and aligning	1	3				
Replacing of Components	1	3				
Assembling or constructing circuits	1	3				
Using oscilloscope to:						
a. Measure voltage	1	3				
b. Measure frequency	1	3				
c. Compare waveshape to waveshape standard	1	3				
d. Make phase measurements	1	2		1		
Using voltmeter to measure various ranges of voltage	1	3				
Using ohmmeter to measure DC resistance	1	3				
Using basic hand tools	1	2		1		

TABLE LXXII

Comparison of Manufacturers of Automatic Temperature Controls and seven of their Employee Responses to Curriculum Knowledge.

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
MATHEMATICS	N	N	N	N	N	N
Algebra	1	1		4		2
Trigonometry	1			4		3
Analytical Geometry	1			3		4
Applied Calculus	1			4		3
Operation of Calculator	1	1		5		1
Slide Rule Usage	1	2		4		1
SCIENCE						
Mechanics		3	1	4		
Statics			1	6		1
Dynamics			1	6		1
Heat	1	2		5		
Sound	1	1		5		1
Light	1			5		2
Strength of Materials		1	1	4		2
GENERAL EDUCATION						
Communications (Oral, written)	1	5		2		
Technical Report Writing	1	4		3		
Economics-Industrial Consumer		1	1	4		2
Psychology of Human Relations	1	3		3		1
American Institutions			1	3		4

(CONTINUED)

TABLE LXXII (CONT)

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
TECHNICAL COURSES	N	N	N	N	N	N
Technical Electronic Drawing	1	3		2		2
Fundamentals of Electricity	1	6		1		
Electronic Devices	1	7				
Instruments and Measurements	1	4		2		1
Circuit Analysis - AC & DC	1	6		1		
Introduction to Computers	1	5				2
Control Circuits and Systems	1	3		4		
Electronic Design and Fabrication	1	5		2		

TABLE LXXIII

Comparison of Manufacturers of Automatic Temperature Controls and seven of their Employee Responses to Job Activity Proficiency.

SUBJECT AREA	Proficiency is Essential		Some Proficiency is Advisable		No Proficiency is Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
JOB ACTIVITIES	N	N	N	N	N	N
Equipment checkout procedures	1	3		4		
Adjusting and aligning	1	3		2		2
Replacing of Components	1	3		2		2
Assembling or constructing circuits	1	6		1		
Using oscilloscope to:						
a. Measure voltage	1	6		1		
b. Measure frequency	1	6		1		
c. Compare waveshape to waveshape standard	1	6		1		
d. Make phase measurements	1	6		1		
Using voltmeter to measure various ranges of voltage	1	6		1		
Using ohmmeter to measure DC resistance	1	6		1		
Using basic hand tools	1	6		1		

TABLE LXXIV

Comparison of Public Utility Companies and three of their Employee Responses to Curriculum Knowledge.

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
MATHEMATICS	N	N	N	N	N	N
Algebra	1	2		1		
Trigonometry	1	2		1		
Analytical Geometry			1	3		
Applied Calculus	1			3		
Operation of Calculator		1	1	2		
Slide Rule Usage	1	3				
SCIENCE						
Mechanics		1	1	2		
Statics		1	1	2		
Dynamics		1	1	2		
Heat		1	1	2		
Sound			1	1		2
Light			1	1		2
Strength of Materials		1	1	1		1
GENERAL EDUCATION						
Communications (Oral, written)		2	1	1		
Technical Report Writing		2	1	1		
Economics-Industrial Consumer				2	1	1
Psychology of Human Relations		2			1	1
American Institutions				1	1	2

(CONTINUED)

TABLE LXXIV (CONT)

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
TECHNICAL COURSES	N	N	N	N	N	N
Technical Electronic Drawing			1	2		1
Fundamentals of Electricity	1	2		1		
Electronic Devices	1	1		2		
Instruments and Measurements	1	1		2		
Circuit Analysis - AC & DC	1			2		1
Introduction to Computers	1			2		1
Control Circuits and Systems	1			3		
Electronic Design and Fabrication		3	1			

TABLE LXXV

Comparison of Public Utility Companies and three of their Employee Responses to Job Activity Proficiency.

SUBJECT AREA	Proficiency is Essential		Some Proficiency Advisable		No Proficiency Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
JOB ACTIVITY	N	N	N	N	N	N
Equipment checkout procedures	1					3
Adjusting and aligning	1					3
Replacing of Components	1					3
Assembling or constructing circuits			1			3
Using oscilloscope to:						
a. Measure voltage	1					3
b. Measure frequency	1					3
c. Compare waveshape to waveshape standard	1					3
d. Make phase measurements	1					3
Using voltmeter to measure various ranges of voltage	1			1		2
Using ohmmeter to measure DC resistance	1			1		2
Using basic hand tools	1	1		1		1

TABLE LXXVI

Comparison of Manufacturers of Telephone Equipment and seven of their Employee Responses to Curriculum Knowledge.

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
MATHEMATICS	N	N	N	N	N	N
Algebra	1	2		3		2
Trigonometry	1	3		1		3
Analytical Geometry	1	2		2		3
Applied Calculus	1	1		3		3
Operation of Calculator		1	1	2		4
Slide Rule Usage	1	1		3		3
SCIENCE						
Mechanics	1	4				3
Statics	1			3		4
Dynamics	1			3		4
Heat	1	1		3		3
Sound	1	1		2		4
Light	1	1		2		4
Strength of Materials	1	1		3		3
GENERAL EDUCATION						
Communications (Oral, written)	1	6		1		
Technical Report Writing	1	7		0		
Economics-Industrial Consumer		1	1	5		1
Psychology of Human Relations		3	1	1		3
American Institutions			1	5		2

(CONTINUED)

TABLE LXXVI (CONT)

	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
TECHNICAL COURSES	N	N	N	N	N	N
Technical Electronic Drawing	1	5		1		1
Fundamentals of Electricity	1	3		3		1
Electronic Devices	1	3		3		1
Instruments and Measurements	1	3		1		3
Circuit Analysis - AC & DC	1	3		3		1
Introduction to Computers		3	1	3		1
Control Circuits and Systems		3	1	2		2
Electronic Design and Fabrication		4	1	3		

TABLE LXXVII

Comparison of Manufacturers of Telephone Equipment and seven of their Employee Responses to Job Activity Proficiency.

SUBJECT AREA	Proficiency is Essential		Some Proficiency is Advisable		No Proficiency is Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
JOB ACTIVITIES	N	N	N	N	N	N
Equipment checkout procedures	1	4		1		2
Adjusting and aligning	1	3		1		3
Replacing of Components	1	3		1		3
Assembling or constructing circuits	1	3		1		3
Using oscilloscope to:						
a. Measure voltage	1	4				3
b. Measure frequency	1	4				3
c. Compare wave - shape to wave-shape standard	1	4				3
d. Make phase measurements	1	3		1		3
Using voltmeter to measure various ranges of voltage	1	5				2
Using ohmmeter to measure DC resistance	1	5				2
Using basic hand tools		4	1			3

TABLE LXXVIII

Comparison of Manufacturers of Hospital Equipment and seven of their Employee Responses to Curriculum Knowledge.

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
MATHEMATICS	N	N	N	N	N	N
Algebra		5	1	1		1
Trigonometry		4	1	1		2
Analytical Geometry		1	1	3		3
Applied Calculus		2	1	1		4
Operation of Calculator			1	4		3
Slide Rule Usage		5	1			2
SCIENCE						
Mechanics		2	1	5		
Statics			1	5		2
Dynamics			1	5		2
Heat			1	5		2
Sound			1	4		3
Light		1	1	4		2
Strength of Materials			1	4		3
GENERAL EDUCATION						
Communications (Oral, written)	1	5		2		
Technical Report Writing		1	1	5		1
Economics-Industrial Consumer		1	1	2		4
Psychology of Human Relations		1	1	2		4
American Institutions				2	1	5

(CONTINUED)

TABLE LXXVIII (CONT)

SUBJECT AREA	Knowledge is Essential		Some Related Knowledge Advisable		No Knowledge Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
TECHNICAL COURSES	N	N	N	N	N	N
Technical Electronic Drawing	1	3		3		1
Fundamentals of Electricity	1	6		1		
Electronic Devices	1	7				
Instruments and Measurements	1	2		4		1
Circuit Analysis - AC & DC	1	5		2		
Introduction to Computers		3		3	1	1
Control Circuits and Systems	1	5		2		
Electronic Design and Fabrication	1	5		1		1

TABLE LXXIX

Comparison of Manufacturers of Hospital Equipment and seven of their Employee Responses to Job Activity Proficiency.

SUBJECT AREA	Proficiency is Essential		Some Proficiency is Advisable		No Proficiency is Necessary	
	Employer	Employee	Employer	Employee	Employer	Employee
JOB ACTIVITIES	N	N	N	N	N	N
Equipment checkout procedures	1	4		3		
Adjusting and aligning	1	5		2		
Replacing of Components	1	4		3		
Assembling or Constructing circuits	1	4		3		
Using oscilloscope to:						
a. Measure voltage	1	6		1		
b. Measure frequency	1	6		1		
c. Compare waveshape to waveshape standard	1	4		3		
d. Make phase measurements	1	4		2		1
Using voltmeter to measure various ranges of voltage	1	7				
Using ohmmeter to measure DC resistance	1	7				
Using basic hand tools	1	6		1		

CHAPTER V

SUMMARY AND CONCLUSIONS

The prime objective of this project was to obtain employer ratings and evaluations of curriculum in the area of Electronic Technology based on job performance of graduates of the two-year Associate Degree Electronics Technology Program.

Of the total one hundred twenty-two (122) employers receiving questionnaires, eighty completed and returned the questionnaires. Personal visits were made to 25 of the 122 companies receiving questionnaires. Data was obtained concerning training, placement of employees, employers projected needs for Technicians, employers evaluation of the degree of Mathematics, Science, General Education and Technical Course knowledge that graduates of the two-year Associate Degree Electronic Program should have. Further information relating to Job Activity Proficiency which companies expect a two-year Associate Degree Electronic Technician to have as well as the Degree of Involvement in Selected Activities was obtained.

A questionnaire similar to that sent to employers was mailed to 443 graduates of the two-year Associate Degree Electronic Program. One humdred eighty four (184) graduates responded to the questionnaire. Information concerning graduates evaluation of degree of Mathematics, Science, General Education and Technical course knowledge, Job Activity, and Degree of Involvement in Selected Activities was obtained. Information concerning placement, starting and present salary,

relationship of present job to major field of study, and attitude towards present job was also obtained.

In the evaluation of the General Education courses, a majority of respondents indicated, Communications Knowledge is Essential. None of the companies responding indicated that "Knowledge is Essential" in American Institutions. However, 38% of the companies responding indicated, "Some Related Knowledge Advisable" in American Institutions.

The majority of the responses, to Technical Course Knowledge, indicated that "Knowledge is Essential" in eight of the fourteen subject areas listed. Particular emphasis was placed on "Fundamentals of Electricity" with "Electronic Devices" next in importance.

The responses to "Degree of Job Activity Proficiency, which companies expect a two-year Associate Degree Electronic Technician to have," showed that the majority felt that in all activities listed, "Proficiency is Essential." Of the activities listed, not one fell below 52% as relates to "Proficiency is Essential" which more or less indicates that companies expect the graduates to be able to perform while on the job.

Of the companies responding, forty-two indicated that they find Electronic Technicians lack adequate training background in: "Knowledge and application of communication skills," and "Human Relations, as it relates to his work habits, attitudes, working with others, etc."

Expected employment over the next five years ranged from eleven companies indicating no increase to seventeen indicating an increase of twenty or more. The companies responding, felt that the need for Electronic Technicians, over the same period, would be in the area of Electronic Testing and Trouble Shooting and Repair.

The results of the employee questionnaire verified the fact that "Knowledge is Essential" in Communications as was also shown in the responses of the companies. "Knowledge is Essential" in technical subjects was also emphasized by the employees responding to this question. The majority of employees also indicated the need for "Proficiency is Essential" in the Job Activities that were listed.

The employers responding indicated inadequate training in "Knowledge and Application of Electronic Equipment," and "Proper procedures of recording and reporting technical data."

Companies within districts indicated "Knowledge is Essential" or "Some Related Knowledge is Advisable" for the subject areas of Algebra, Logarithm, Trigonometry, Slide Rule, and Digital Logic; whereas, "Some Related Knowledge is Advisable" or "No Knowledge Necessary" in the areas of Applied Calculus, Analytical Geometry, and Calculator Operation.

In the degree of General Education Knowledge, companies within districts responded that "Knowledge is Essential" in the subject area of Communications. On the other hand, these same companies responded that "Some Related Knowledge is Advisable" or"No Knowledge is Necessary" in the subject area of American Institutions.

CHAPTER VI

RECOMMENDATIONS

Based on the responses from 80 employers and 184 employees, further study and consideration should be given to the following:

1. The following subject areas should be re-evaluated by administrators, coordinators, and instructors since they were indicated to be of least value to the respondents:

MATHEMATICS	SCIENCE
Analytical Geometry	Statics
Solid Geometry	Dynamics
Applied Calculus	Strength of Materials
Computer Programming	

GENERAL EDUCATION

American Institutions
Economics - Industrial, Consumer

It is understandable that required General Education subjects outside the major field are less apt to be desirable by the respondents. They may not be considered as being immediately helpful on the job either, but these courses should be re-evaluated because of the small percentage of respondents that indicated, "Knowledge is Essential."

2. Communications training should be strengthened. This General Education subject was mentioned most by respondents as being essential to getting along on the job. Proper communications procedures and techniques should be emphasized.

Recommendations-Con't.

3. All subject matter in Technical courses offered should be strengthened. Fundamentals of Electricity, Electronic Devices, and Circuit Analysis - A.C. and D.C., were mentioned most by respondents as being essential to the type of work being performed.
4. Of the employers responding to the question, "Degree of Job Activity Proficiency"--50% or more indicated "Proficiency is Essential" in all areas concerned. Inasmuch as we are training people for "job entry," there should be a continued effort to increase the amount of Job Activity Proficiency that our graduates are presently receiving.

APPENDIX A

APR 29 1971

State of Wisconsin \ BOARD OF VOCATIONAL, TECHNICAL & ADULT EDUCATION

EUGENE I. LEHRMANN
State Director
137 EAST WILSON STREET
MADISON, WISCONSIN 53703

April 27, 1971

Mr. H. J. Van Valkenburg, District Director
Vocational, Technical and Adult Education
District 10
235 North National Avenue
Fond du Lac, Wisconsin 54935

Dear Mr. Van Valkenburg:

The State Board has awarded research grants to VTAE 10 and VTAE 15 to conduct two state-wide studies to analyze trends in Mechanical Design and Electronics Technology fields.

The purpose of these two studies is to obtain information which would provide a basis for possible curriculum changes, and to determine if our present programs are fulfilling the needs of industry in preparing Mechanical Design and Electronics Technicians for employment.

Your assistance in making these projects a success would be greatly appreciated. Please submit the following information from your district to the RCU by May 12, 1971.

(1) A list of Mechanical Design (Associate Degree) graduates for the four years 1967, 1968, 1969, 1970 respectively, including the last known address and employer of each graduate.
(2) A list of Electronics Technology (Associate Degree) graduates for each of the years 1967, 1968, 1969, 1970.
(3) Topical course outlines for your Mechanical Design Associate Degree program.
(4) Topical course outlines for your Electronics Technology Associate Degree program.

Copies of the completed studies will be sent to you for consideration toward implementation in improving the above two Associate Degree programs.

Sincerely,

Eugene Lehmann

Eugene Lehmann
State Director

EL/rjk/gao

APPENDIX B

VOCATIONAL, TECHNICAL AND ADULT EDUCATION - DISTRICT 10

H. J. Van Valkenburg, Director

We are pleased that you are the employer of a graduate of the Vocational-Technical Electronics program. We are hopeful that in this capacity you might assist us and our State Advisory Committee in examining the two-year Electronics program offered in Wisconsin Vocational-Technical Schools.

The State Advisory and ad hoc Committees are composed of dedicated employers and employees who guide educators in their search for curricula that prepare people for the world of work. They are interested in finding out from you if the present Electronic curriculum is fulfilling the needs in preparing students for employment in the field. It is imperative that the curriculum does the job that you, the employer, expects from the two-year associate degree graduates.

You can guide the curriculum planners with your answers and comments. Would you please give 10 minutes of your valuable time in answering this questionnaire? Your answers will bring out strengths and weaknesses which will result in curriculum improvement. You can be assured that all answers will be held in strict confidence.

Enclosed is the questionnaire and a stamped self-addressed envelope. I would appreciate your completion and return of this questionnaire as soon as possible.

The results of this survey will be furnished to you upon your request.

Sincerely,

Robert E. O'Hagan

Robert E. O'Hagan
Project Assistant

RA:jk
Enc: 1

4036

BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
235 North National Avenue Fond du Lac, Wisconsin 54935 Phone (414) 922-8611

APPENDIX C CODE_____

EMPLOYERS ELECTRONIC TECHNOLOGY QUESTIONNAIRE

DIRECTIONS: In order that all who reply to this questionnaire may have the same understanding of the term "Technician", please read the following:

WHAT TECHNICIANS DO

Each electronic product must be developed, produced, and then maintained. Technicians work on a team with engineers, scientists, supervisors, and skilled craftsmen, converting theories and ideas into products and processes. The electronic technician is part engineer, part craftsman. He must be able to use both theoretical knowledge and manual skills, working with engineers at times and with craftsmen at others. He may be responsible for making calculations, conducting laboratory experiments, operating instruments, developing experimental models, preparing drawings and specifications, or acting as a liaison person between engineering and production under the supervision of an engineer. In short, he helps to change ideas into accomplishments.

PART I - GENERAL INFORMATION

1. Please check (✓) each of the following activities which are performed by your company at this location:

   a. ( ) Consulting services
   b. ( ) Electronic assemblies
   c. ( ) Electronic components
   d. ( ) Electronic equipment
   e. ( ) Electronic system
   f. ( ) Machinery and Manufacturing
   g. ( ) Metalworking and Fabrication
   h. ( ) Research and Development
   i. ( ) Utilities
   j. ( ) Technical writing
   k. ( ) Trouble-shooting and Repair
   l. ( ) Other: (Specify) _____

2. If your company manufactures or processes at this location, please list below the products produced in order of importance:

   a. _____
   b. _____
   c. _____

   A. If no manufacturing or processing is done at this location, what is your company's principal activity? _____
   _____

   B. Approximate number of employees at this location:
   1. ( ) Under 50; 2. ( ) 50-99; 3. ( ) 100-249; 4. ( ) 250-499;
   5. ( ) 500-749; 6. ( ) 750-999; 7. ( ) 1,000 and over.

   C. Number of full-time technicians presently working at this location?_____.
   Of this number, how many are working in electronics only?_____.

D. Number of electronic technicians with less than Two-year Associate Degree training _____.

3. After their initial training period, in which of the following areas do your full-time Two-year Associate Degree Electronic Technicians work?
   a. ( ) Electronic Design and Drafting
   b. ( ) Field Service
   c. ( ) Production Maintenance
   d. ( ) Quality Assurance
   e. ( ) Research and Development
   f. ( ) Technical Writer-editor
   g. ( ) Other: (Specify) _____

4. At what position does your company normally start a Two-year Associate Degree Electronic Technician graduate? What position would you expect them to progress to after 1-2 years, 3-4 years, after 5 years of experience?

Level	Start	1-2 yrs.	3-4 yrs.	5 yrs.
1. Trainee	( )	( )	( )	( )
2. Assistant Engineer Technician	( )	( )	( )	( )
3. Engineering Technician	( )	( )	( )	( )
4. Production Technician	( )	( )	( )	( )
5. Service Technician	( )	( )	( )	( )
6. Technical Sales	( )	( )	( )	( )
7. Technical Writer	( )	( )	( )	( )
8. Other: (Specify) _____	( )	( )	( )	( )

5. Looking to the future, what are your company's projected needs for technicians in each of the following areas for the next five years?

	Will Increase	Will Decrease	Will Stay The Same	Will Not Need
a. Computer Service	( )	( )	( )	( )
b. Electronic Design and Drafting	( )	( )	( )	( )
c. Electronic Testing	( )	( )	( )	( )
d. R. & D.	( )	( )	( )	( )
e. Electronic Instrumentation	( )	( )	( )	( )
f. Production	( )	( )	( )	( )
g. Quality Assurance	( )	( )	( )	( )
h. Trouble-shooting and Repair	( )	( )	( )	( )
i. Others: (Specify) _____	( )	( )	( )	( )

6. Approximately what number of <u>additional</u> Electronic Technicians do you expect to employ in the next five years?
   a. ( ) none; b. ( ) less than 5; c. ( ) 5-10; d. ( ) 11-20;
   e. ( ) over 20.

PART II - CURRICULUM

Industry prefers to employ technicians with adequate training in mathematics, related science, drafting and electronics. General knowledge of manufacturing is desirable as is the ability to read and write a technical report.

Please rate the degree of knowledge your company expects a Two-year Associate Degree Electronic Technician to have in each of the areas listed:

	Knowledge is Essential	Some Related Knowledge Advisable	No Knowledge Necessary
1. MATHEMATICS			
a. Algebra	( )	( )	( )
b. Logarithm	( )	( )	( )
c. Trigonometry	( )	( )	( )
d. Applied Calculus	( )	( )	( )
e. Analytical Geometry	( )	( )	( )
f. Slide Rule	( )	( )	( )
g. Digital Logic	( )	( )	( )
h. Calculator Operation	( )	( )	( )
i. Others: (Specify)	( )	( )	( )
_____	( )	( )	( )
_____			
2. SCIENCE			
a. Mechanics	( )	( )	( )
b. Statics	( )	( )	( )
c. Dynamics	( )	( )	( )
d. Heat	( )	( )	( )
e. Sound	( )	( )	( )
f. Light	( )	( )	( )
g. Strength of Materials	( )	( )	( )
h. Other: (Specify)	( )	( )	( )
_____			
3. GENERAL EDUCATION			
a. Communications (oral and written)	( )	( )	( )
b. Technical Report Writing	( )	( )	( )
c. Economics-Industrial Consumer	( )	( )	( )
d. Psychology of Human Relations	( )	( )	( )
e. American Institutions	( )	( )	( )
f. Other: (Specify)	( )	( )	( )
_____			

4. TECHNICAL COURSES	Knowledge is Essential	Some Related Knowledge Advisable	No Knowledge Necessary
a. Technical Electronic Drawing	( )	( )	( )
b. Fundamentals of Electricity	( )	( )	( )
c. Electronic Devices	( )	( )	( )
d. Circuit Analysis - AC and DC	( )	( )	( )
e. Electronic Amplifiers	( )	( )	( )
f. Instruments and Measurements	( )	( )	( )
g. Communication Circuits	( )	( )	( )
h. Communication Systems	( )	( )	( )
i. Introduction to Computers	( )	( )	( )
j. Control Circuits and Systems	( )	( )	( )
k. Electronic Design and Fabrication	( )	( )	( )
l. Introduction to New Electronic Devices	( )	( )	( )
m. Electrical Machinery	( )	( )	( )
n. F.C.C. Licensing	( )	( )	( )

PART III - JOB ACTIVITIES

Please rate the degree of proficiency an electronic technician should have in each of the activities listed:

	Proficiency Is Essential	Some Proficiency Is Advisable	No Proficiency Is Necessary
1. Equipment checkout procedures.	( )	( )	( )
2. Adjusting and aligning.	( )	( )	( )
3. Replacing of components.	( )	( )	( )
4. Isolating faults to particular stage.	( )	( )	( )
5. Isolating within stage faults to defective components.	( )	( )	( )
6. Assembling or constructing circuits from schematics and wiring diagrams.	( )	( )	( )
7. Using oscilloscope to:			
a. Measure voltage.	( )	( )	( )
b. Measure frequency.	( )	( )	( )
c. Compare waveshape to waveshape standard.	( )	( )	( )
d. Make time interval measurements.	( )	( )	( )

PART III - JOB ACTIVITIES (Continued)

	Proficiency Is Essential	Some Proficiency Is Advisable	No Proficiency Is Necessary
e. Make phase measurements.	( )	( )	( )
8. Using voltmeter to measure various ranges of voltage.	( )	( )	( )
9. Using ohmmeter to measure DC resistance.	( )	( )	( )
10. Using signal generator to inject standard or known signals into equipment for test purposes.	( )	( )	( )
11. Using frequency meter to measure unknown frequencies.	( )	( )	( )
12. Using basic hand tools.	( )	( )	( )

PART IV - SELECTED ACTIVITIES

A number of activities have been selected which a Two-year Associate Electronic Technician might become involved with in his normal day-to-day function in your company. Please rate the degree of involvement he would have in each of the activities listed.

ACTIVITY	Always (Daily)	Frequently (Weekly)	Occasionally (Monthly)	Seldom or Never
1. Works directly with engineers and scientists in development phase of electronic product.	( )	( )	( )	( )
2. Works with engineers and scientists in making design changes or modifications.	( )	( )	( )	( )
3. Involved in building, testing, and modifying prototypes of new electronic products.	( )	( )	( )	( )
4. Uses sophisticated test equipment to investigate new ideas.	( )	( )	( )	( )
5. Responsible for certain aspects of design work under engineering supervision.	( )	( )	( )	( )
6. Maintains complex automated production machines.	( )	( )	( )	( )

ACTIVITY	Always (Daily)	Frequently (Weekly)	Occasionally (Monthly)	Seldom or Never
7. Supervise and train production teams in methods of testing or manufacturing new products.	( )	( )	( )	( )
8. Maintain and calibrate test equipment used in manufacturing.	( )	( )	( )	( )
9. Customer Service:				
a. Maintain equipment	( )	( )	( )	( )
b. Solve customer problems	( )	( )	( )	( )
c. In-plant training	( )	( )	( )	( )
10. Performs routine tests of equipment being built on the production line.	( )	( )	( )	( )
11. Aids in running routine tests on radio and TV transmitting equipment.	( )	( )	( )	( )
12. Provides regular maintenance, and repair on computer equipment.	( )	( )	( )	( )
13. Works as project director.	( )	( )	( )	( )
14. Prepares work progress reports.	( )	( )	( )	( )
15. Prepares laboratory test reports.	( )	( )	( )	( )
16. Provides technical data and specifications.	( )	( )	( )	( )
17. Makes sketches of electronic devices and systems.	( )	( )	( )	( )
18. Determines what tests should be performed on equipment.	( )	( )	( )	( )
19. Determines scope of sampling and kinds of tests to be run.	( )	( )	( )	( )
20. Translates customer specifications into testing procedures.	( )	( )	( )	( )
21. Directs repair and maintenance technicians.	( )	( )	( )	( )
22. Prepares cost estimates.	( )	( )	( )	( )
23. Prepares a list of parts or bills of materials.	( )	( )	( )	( )
24. Establishes and maintains quality standards.	( )	( )	( )	( )

ACTIVITY	Always (Daily)	Frequently (Weekly)	Occasionally (Monthly)	Seldom or Never
25. Converts "sketches" into working drawings.	( )	( )	( )	( )
26. Other: (Specify)				
a._____	( )	( )	( )	( )
b._____	( )	( )	( )	( )
c._____	( )	( )	( )	( )
d._____	( )	( )	( )	( )
e._____	( )	( )	( )	( )

PART V - TRAINING BACKGROUND

In which of the following general areas do you find Electronic Technicians lack adequate training background:

1. ( ) Knowledge and application of electronic principles.
2. ( ) Knowledge and application of electronic terms.
3. ( ) Knowledge and application of electronic testing equipment.
4. ( ) Knowledge and application of mathematical principles.
5. ( ) Knowledge and application of technical science.
6. ( ) Knowledge and application of communication skills.
7. ( ) Proper procedures of recording and reporting technical data.
8. ( ) Human relations, as it relates to his work habits, attitudes, working with others, leadership, responsibility, etc.
9. ( ) Others: (Specify) _____

PART VI - COMMENTS

Please write any additional suggestions or concerns below which you feel would be helpful in improving curriculum in Wisconsin Vocational, Technical and Adult schools to develop a better employee for you.

APPENDIX D

VOCATIONAL, TECHNICAL AND ADULT EDUCATION - DISTRICT 10

H. J. Van Valkenburg, Director

Enclosed is a survey questionnaire pertaining to a study of Electronics curriculum and technicians. I know you are busy, but I hope you will take a few minutes to complete and return it in the enclosed envelope as soon as possible.

I am doing this study for our Wisconsin Board of Vocational, Technical and Adult Education and they are anxious to receive as much data and information as possible to help our VTAE districts improve the Electronics curriculum.

Electronics Technology graduates for the years 1967 thru 1970, throughout the state, are being asked to take part in this study. You as an employee are familiar with practical applications that school personnel may not be aware of. You can best suggest changes in our programs which will benefit students when they graduate and enter employment similar to yours. All the information you furnish will be treated confidentially.

Thank you for your help and suggestions.

Sincerely,

Robert E. O'Hagan

Robert E. O'Hagan
Project Assistant

RO:jk
Enc: 1

4044

BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
235 North National Avenue Fond du Lac, Wisconsin 54935 Phone (414) 922-8611

APPENDIX E

ELECTRONIC TECHNOLOGY SURVEY

(Technicians)

PERSONAL HISTORY

NAME: _____ GRADUATION DATE _____
Last First Middle Initial

ADDRESS: _____
(Where you can be reached) Street City State

MARITAL STATUS: Single _____ Married _____ Widowed _____ Divorced _____

NUMBER OF CHILDREN: _____

EMPLOYMENT HISTORY

How are you employed at present?

Full time _____ Part time _____ Military Service _____

What jobs have you held since graduation?
(List most recent job after graduation first)

Where Employed	Job Title	Length of Time on Job

Date of Present Employment: _____ Duties: _____
(Use reverse side if needed)

What was the source (s) that assisted you in obtaining initial employment?
(Please check)

Friend _____ Parent _____ Newspaper _____ School Placement Center _____

Dept. Head _____ Teacher _____ Wis. Employment Service _____ Others _____

What was your pay per month when you were initially employed? (Please Check)

Under $400 _____, $400-$500 _____, $500-$600 _____, $600-$700 _____,

$700-$800 _____, $800-$900 _____, $900-$1,000 _____, over $1,000 _____.

What is your pay per month presently? (Please check)

Under $400 _____, $400-$500 _____, $500-$600 _____, $600-700 _____, $700-$800 _____, $800-$900 _____, $900-$1,000 _____, over $1,000 _____.

How do you feel about your present job? (Please check)

I enjoy it very much _____; I am fairly well satisfied with my job _____; I am satisfied with my job for the time being _____; I consider my job unpleasant _____.

To what extent do you consider your present job related to your major field of study?

Very much related _____ Somewhat related _____ Unrelated _____

SUBJECT EVALUATION

Industry prefers to employ technicians with adequate training in mathematics, related science, drafting and electronics. General knowledge of manufacturing is desirable as is the ability to read and write a technical report.

Please rate the degree of knowledge that you, as an electronic technician, feel is necessary to do the type of work you are presently responsible for, in each of the areas listed below: (Please check)

	Knowledge is Essential	Some Related Knowledge Advisable	No Knowledge Necessary
MATHEMATICS			
Algebra	( )	( )	( )
Plane Geometry	( )	( )	( )
Solid Geometry	( )	( )	( )
Trigonometry	( )	( )	( )
Analytical Geometry	( )	( )	( )
Applied Calculus	( )	( )	( )
Computer Programming	( )	( )	( )
Operation of Calculating Machine	( )	( )	( )
Slide Rule Usage	( )	( )	( )
SCIENCE			
Magnetism and Electromagnetism	( )	( )	( )
Mechanics	( )	( )	( )
Statics	( )	( )	( )
Dynamics	( )	( )	( )
Heat	( )	( )	( )
Sound	( )	( )	( )
Light	( )	( )	( )
Strength of Materials	( )	( )	( )
GENERAL EDUCATION			
Communications (Oral and Written)	( )	( )	( )
Technical Report Writing	( )	( )	( )
Economics - Industrial, Consumer	( )	( )	( )
Psychology of Human Relations	( )	( )	( )
American Institutions	( )	( )	( )

TECHNICAL SUBJECTS	Knowledge Is Essential	Some Related Knowledge Advisable	No Knowledge Necessary
D. C. Fundamentals	( )	( )	( )
A. C. Fundamentals	( )	( )	( )
Principles of Electronics	( )	( )	( )
Basic Electronics	( )	( )	( )
Solid State Electronics	( )	( )	( )
Industrial Electronics	( )	( )	( )
Machines and Controls	( )	( )	( )
Basic Pulse Circuits	( )	( )	( )
Electronic Control Circuits	( )	( )	( )
Instrumentation Fundamentals	( )	( )	( )
Computer Electronics	( )	( )	( )
Technical Problems	( )	( )	( )
Technical Drawing (Electronic)	( )	( )	( )
Technical Report Writing	( )	( )	( )
Circuit Analysis	( )	( )	( )

Which of these subjects have been most helpful to you in your occupation?_____

_____

Which of these subjects have been least helpful to you in your occupation? _____

_____

In which of the following general areas listed have you found your educational training in Vocational-Technical School <u>not</u> <u>adequate</u> enough for the type of work you are now responsible for?

( ) Knowledge and application of electronic principles.
( ) Knowledge and application of electronic terms.
( ) Knowledge and application of electronic equipment.
( ) Knowledge and application of mathematical principles.
( ) Knowledge and application of technical science.
( ) Knowledge and application of communication skills
( ) Proper procedures of recording and reporting technical data.

JOB ACTIVITIES

Based on your work experience, please rate the <u>degree of proficiency</u> you feel you should have in each of the activities listed.

	Proficiency Is Essential	Some Proficiency Is Advisable	No Proficiency Is Necessary
Perform equipment check-out procedures	( )	( )	( )
Adjusting and aligning	( )	( )	( )
Replacing components	( )	( )	( )
Assembling or building circuits	( )	( )	( )
Using oscilloscope to:			
Measure voltage	( )	( )	( )
Measure frequency	( )	( )	( )
Compare waveshape to waveshape standard	( )	( )	( )
Measure phase time	( )	( )	( )

	Proficiency Is Essential	Some Proficiency Is Advisable	No Proficiency Is Necessary
Using voltmeter to measure various ranges of voltage	( )	( )	( )
Using ohmmeter to measure D.C. resistance	( )	( )	( )
Using hand tools in accomplishing various jobs	( )	( )	( )

SELECTED ACTIVITIES

Listed below are a number of selected activities which you, as an electronic technician, might be involved in during your normal day-to-day function. Please rate the degree of involvement you have in each of the activities listed.

	Always (daily)	Frequently (weekly)	Occasionally (monthly)	Never
Work directly with engineers and scientists in development phase of electronic product.	( )	( )	( )	( )
Involved in building, testing and modifying prototypes of new electronic products.	( )	( )	( )	( )
Maintain complex automated production machines.	( )	( )	( )	( )
Use test equipment.	( )	( )	( )	( )
Maintain and calibrate test equipment.	( )	( )	( )	( )
Customer service:				
a. Maintain equipment	( )	( )	( )	( )
b. Solve customer problems	( )	( )	( )	( )
c. In-plant training	( )	( )	( )	( )
Work as a project director.	( )	( )	( )	( )
Prepare work progress reports	( )	( )	( )	( )
Prepare laboratory test report.	( )	( )	( )	( )
Prepare cost estimates.	( )	( )	( )	( )
Convert "sketches" into working drawings.	( )	( )	( )	( )
Determine scope of sampling and kinds of test to be run.	( )	( )	( )	( )
Responsible for certain aspects of design work under engineering supervision.	( )	( )	( )	( )
Establish and maintain quality standards.	( )	( )	( )	( )
Others: (Specify)				
_____	( )	( )	( )	( )
_____	( )	( )	( )	( )
_____	( )	( )	( )	( )
_____	( )	( )	( )	( )
_____	( )	( )	( )	( )

NAME AND ADDRESS OF PRESENT EMPLOYER:

_____

_____

_____

APPENDIX F

State of Wisconsin \ BOARD OF VOCATIONAL, TECHNICAL & ADULT EDUCATION

EUGENE I. LEHRMANN
State Director
137 EAST WILSON STREET
MADISON, WISCONSIN 53703

Recently you have received a survey questionnaire from Mr. Robert O'Hagan, Vocational, Technical and Adult Education, District 10 pertaining to a study of Electronics curriculum and technicians.

He is doing this study for our Wisconsin Board of Vocational, Technical and Adult Education and we are anxious to receive as much data and information as possible to help our VTAE districts improve the Electronics curriculum.

If you have not already done so, we would appreciate it if you would complete and return the enclosed questionnaire in the stamped self addressed envelope.

Sincerely,

Eugene Lehrmann

Eugene Lehrmann
State Director

EL/rjk/gao

Enc.

APPENDIX G

Types of Companies that took part in the Survey

MANUFACTURING

- Communications Systems and Equipment
  - Radar Equipment and Parts
  - Radio Equipment and Parts
  - Tape and Sound Recording Equipment
  - Telephone Equipment
- Compressors
- Construction Products
- Controls
  - Electrical
  - Electronic
  - Panel
- Electronic Machinery, Equipment and Components
- Hospital, Institutional, Medical and Surgical Equipment and Supplies
- Household Appliances
- Numerical Controls
- Paper Products
- Paper Making Machinery
- Plastics Machinery Equipment
- Printed Circuit Fabrication
- Tractor Equipment
- Transformers

SERVICES

- Computer and Data Processing
- Consulting
- Office Equipment
- Sales - Electronic Equipment
- Television Broadcasting
- Telephone Services
- Testing for Public Safety
- Utilities

OTHER

- In Plant Maintenance - Machines and Equipment

APPENDIX H

Employer Comments

We do not specifically require that an individual be a trained technician before we will hire him. We are much more interested in hiring intelligent, industrious people with some basic electronic knowledge, experience or aptitude. We want people who are interested in and capable of advancing to management.

Help them learn better how to analyze and think thru problems.

Most technicians do not have sufficient training in drafting skills. They know the principles but not the technique. They must know how to print and write properly.

Some have never learned basic math in high school so need to be taught fractions, percentages, ratios, etc. Higher Math (Calculus, Differential Equations, etc.) not required in our field.

1. Develop in the student the ability to generate new ideas and applications for electronic devices.

2. Broaden the student's knowledge of related fields in order to help him apply his training.

3. Make the student aware of the economics of industry.

More training in fabrication of Printed Circuits.

Our work is very general and varied. We do not need an expert in specific areas but all around ability and willingness to work on many projects.

Basically, we want people who like to work - we can train that person ourselves.

1. The greatest deficiency of new graduates right now seems to be that their knowledge of integrated circuits is rather shallow.

2. I also believe that several courses in good basic problem solving techniques would help improve the quality of the graduates. These courses should not be specific for a particular discipline, but rather should be general with emphasis on technique so that it has broad application. It seems that regardless of the education major required for a particular job, the job assignments will involve other disciplines (Electronics, materials and mechanics primarily).

Employer Comments, Continued

If employees are looking towards advancement in the future they must be able to communicate (write reports). The spelling in many reports creates a poor image of the writer.

I believe that there should be more cooperation between industry and educational institutions so these institutions will turn out individuals with the proper training to be useful to industry.

The answers we have provided on this questionnaire reflect the situation—in the division of our company where we make the greatest utilization of Electronics Technicians. This is our Electrical Testing and Maintenance Division where the Technicians conduct load and operating characteristics tests, test for location of underground structures, perform soil resistance measurements and electrolysis investigations. They also assist engineering personnel in the construction of electronic equipment, location of system faults and high potential testing of overhead and underground lines. The Technicians may also perform routine testing and calibration of some of the less complex types of instruments and relays used for the operation and protection of the company distribution system.

We have employed Electronics Technicians in the power field where they would be for example performing such duties as designing of electrical transmission and distribution systems. However, we have a definite preference for hiring Technicians with courses in the power field for this area of work. We have found that many electronics people are not interested, and understandably so, in this application.

We would like to add that we have been very pleased with the quality of the Technicians we have hired from the technical colleges in Wisconsin. (The cooperation of the placement people at these schools has also been excellent.) We not only have a good source of Technician personnel but have also found among these some individuals with managerial talent. The possibility for managerial responsibility exists for these Technicians even though they are not initially hired for this reason. In fact, in the power field mentioned above, there are three levels of Technicians and the people at the highest of these levels function as lead men. We have had instances where Technicians at this level have advanced into positions which are truly managerial in nature.

Note: Since we are not a manufacturer in the usual concept of the term, many of the above items do not directly relate to our company or its activities. The majority of our Technicians are occupied with the completion of sub-engineering projects involved in the planning for and design of electric transmission and distribution facilities. Except possibly for some of those relatively few positions which are partially involved in the electronics field, our concern is less with specific disciplines than with the individual having a solid, well-rounded background at the two-year technological level. In general, we are more

Employer Comments, Continued

interested in the individual's ability to think, using the formal education as a broad foundation, rather than being overly concerned with specifics of curriculum. As an example of this philosophy, we have some technicians, whose work is partially related to electronics, with two-year degrees in disciplines other than electronics. A two-year degree in technology is a pre-requisite in all cases for an individual to be hired by our company as a Technician.

I believe that basic theory should be taught with lots of laboratory sessions. With the basics we can mold the person into electronic or physics technicians. With the advent of Solid State more chemistry would be helpful especially inorganic, with emphasis on acids and bases and reactions.

The most common deficiency is the lack of respect and understanding for the requirements in industry for extensive documentation, records, reports and support information. The typical reaction is that this is just too much paper work.

I recognize that there is a limit to what you can do for a two year student beyond what you are now doing. I suggest that greater emphasis be placed on continuing education. The on-going need for a technician or engineer to keep current in his field is a challenge that must stand in the hands of the individual. Perhaps the attitude toward the need for continuous study can be developed while the student is still in school.

I'm sure you recognize that the present economic conditions of our country makes future planning a real task. During normal times it is rather easy to predict the manpower requirements.

The technician should be well-versed in the use of modern test equipment for electronic testing. He should be thoroughly familiar with such circuit technology as radio frequency, video and audio amplifiers, trigger circuits, differential amplifiers, modulators, and demodulators, and high power low frequency liniar and switching circuits. All circuit technology should encompass the application of transistors and integrated circuits with some basics in semiconductor technology so that he knows how they function. He should be trained in computer user technology and fortran. In human relations, attitude should reflect pride in competence in technician status.

Instill in the pupil that advancement in pay and title comes from performance on the job and not just technical background or diploma.

It seems to me that most schools are trying to train "Electronic People." If it is possible, how about an individual who is well versed in many basic areas like test equipment procedures - basic plant maintenance of machines, electric wiring -- some knowledge of ASA and NEMA standards.

Employer Comments, Continued

Attitude towards work, rules, procedures, and punctuality. Being able to apply common reasoning to the job at hand. Being able to get along, work well and relate well to others.

Stress the importance and responsibilities a qualified Electronic Technician has in this new era of Electronics and advise him to keep current on all new developments and devices.

Don't teach how a semiconductor works--teach how to use it. Basic practical skills are important. Emphasis on craftsmanship. The stereotyped "Radio Ham" is probably more useful to us than a Ph. D.

There are some technicians that can advance to engineers, and too many engineers that should have been trained as technicians for they are not capable engineers, and because of their background, make poor technicians even though this is the job they perform. A good technician can make more money than a poor engineer.

Human relations, as it relates to his work habits, attitudes, working with others, leadership, responsibility, etc., should be emphasized. Many a good technician has limited horizons because of attitudes. His technical excellence cannot be enough for him to get ahead beyond a certain point.

We require technicians of neat appearance, willing to go out of their immediate fields, when asked to do so. Average electronic intelligence and ability to get along with many people with whom they may come in contact.

We are generally favorably impressed with the quality of Tech-grads that we have met in the past 10 years. We don't expect these people to produce at full capacity when hired. We train them from 3 months to a year. Electronics people must also learn our special type of hydraulics.

We have been fortunate in obtaining Techs who fit our immediate needs and have developed along with our expanding program in Electronic Process Control.

We feel knowledge and application of electronic principles is most important.

APPENDIX I

Employee Comments

I wanted to take this opportunity to tell you that you have a very fine Electronics program. I feel the lab sessions are very important in the development of a good technician. An employer likes to see a new "hire-on" who can work with components and know their purpose in a circuit. He wants a man who can do more than work a slide rule and talk theory. At the technical institute which I attended I believe you turn out this type of person and I admire you for this.

More knowledge of trouble-shooting procedures and circuit analysis should be stressed from the very basic subjects thru to the advanced.

I do not operate as a Technician but rather on a par with Graduate Engineers. Little of the activities listed under "Selected Activities" applies.

No mention is made previously -- but Pneumatics, and Pneumatic Hardware are important, as important as Electronics in the Instrumentation field. If I were "improving" the course I attended, I would make the Instrument portion of the classes closely parallel those given by_____. Each gives a two to four week full time course on Hardware Basics. And with modern hardware, I might add. The hardware I saw at_____ almost turned me from Instruments and Controls (Can you imagine an "L & N Micromax" - the unit we had was older than I now am - 23).

The scope of our work is such that my duties can vary from digging a hole to designing a solution for some complex electrical-mechanical problem from idea to paper - to ordering the parts and, finally, building it.

Technical writing is a must and this involves writing the test procedure, progress reports, the final report, memos, and in some cases, proposals have to be written.

Some interesting job varieties include: air conditioning, stress and vibration, electrical components, machine shop work, design and drafting, communications both written and oral, and most recently noise control and abatement.

Since graduating from_____in January, 1969 I have been going to_____, in an attempt to receive my B. S. in Engineering Technology, as an evening student.

In conclusion, I think Technical Schools are of great assistance to industry and should receive more recognition in the future.

Employee Comments, Continued

My job as technician consists mainly of setting-up and calibrating of Electronic recording equipment. This equipment is used for recording of data during hydraulic tests. The knowledge of tranducers and galvometers is very essential.

The design and wiring of electronic and electrical circuits comes in very handy. Some knowledge of Photography is helpful as developing and processing of the trace obtained from a test must be performed by the technician.

Working in test center, such as is the case where I am employed, a technician must have, no matter what his title or degree, some knowledge of Electronics, Hydraulic, and Electrical circuits. Needless to say, a good mechanical mind would be very handy.

I know not everyone coming out of a technical school can have the knowledge or experience listed above. But I believe if more of the basics were taught, plus the present subjects, a student would have an easier time when starting to work.

I have 16 mechanics, $3,000,000 worth of machinery to maintain at high efficiencies. Priorities are set constantly, items ordered, people hired, budgets set, etc. I typically control all aspects of the job in my area as if I were the employer.

No degree required for my job - one only has to pass the two Electronic tests given prior to employment. However, tests are difficult and a well-rounded knowledge of Electronics is needed to pass them.

My work is not directly associated with Electronics. I prepare mechanical specifications, drawings and designs. My Electronics background is very helpful in that I work closely with Electrical Engineers. I am required to meet certain electrical requirements (Grounding, cabinet isolation, conduit size, etc.) in my specs.

My understanding of electronics gives me a better understanding of the electrical engineer's problem and enables me to promote my own ideas. Judging from what other graduates of 2-year Electronics schools are doing in Electronics, I prefer my present job in the mechanical area.

Since my job doesn't deal directly with Electronics my answers to your questions may seem a bit negative toward the education I received and a lacking in certain subjects in regard as to how they apply to my work.

I am sure that most Electronic Technicians will be doing mechanical work for a considerable part of their work day. No special class was set up for us. We had Mechanical Drawing, Fabrication of some sheet metal

Employee Comments, Continued

projects and some training in the Watch Repair department. These courses were not applicable and specific enough to the actual work performed by the Electronic Technicians.

Some knowledge of types of screws, thread sizes, lockwashers and when to use them, proper use of needle nose plyers to bend wires for soldering, good soldering techniques is necessary by technicians who service or construct Electronic equipment.

When I attended_____the curriculum was sorely lacking and definitely not very thoro in mathematics and the writing of technical reports.

I realize that perhaps you cannot do everything; however, when you ask what things I use in my job you are asking what is unimportant to me. What is more important to me is that I do not want to be a professional technician. I would like to go on to further my education. Your courses fail in this respect since they lack mathematics. But most important, they lack accreditation where it counts at the universities.

I like the idea of less theory and more practical application because I find I know more about equipment and actual Electronic components than the engineers from the university. However, I am miles away from catching up in education to these engineers.

I am now going to the university at night and it is obvious that I wasted two years in attending your institution. I liked the idea of practical application but there must be some theory to make the courses comparable to the university education. I was an "A" student at your institution and am now a "B" student at the university. You could make it a little tougher by using more theory.

Your questionnaire was not broad enough. I don't know if you realize it but there are a lot of men such as me, who did not obtain jobs in Electronics. The only reason I filled out this questionnaire was to find out just how much my training has helped me including military training in Electronics, and as you can see for yourself, not much, and know that as time passes it will be of less and less use to me.

I must say the training I received was great in almost all respects and who knows - maybe some day it will pay off.

I have just graduated from_____and have enlisted in the Army Reserves. In a few months I will go active and receive training for a Senior Radio Repairman. The majority of my answers on this form are opinions. I would like to fill out the form in, perhaps, another two years.

Employee Comments, Continued

I do not feel qualified to complete this questionnaire for two reasons. One, I have been out of the field of Electronics for one year. Two, the two jobs I had did not last long enough to put my Electronics training to use. My future in Electronics is very questionable, unless I receive more specific training in one area of Electronics. The course I had at the_____was a good one; however, I feel it covered too large an area, and did not go into enough detail on the most important parts of Electronics.

Many of the job activities and selective activities were not my daily duties but could have been if I had not been laid off. I believe the Electronics program needs more troubleshooting and lab experience.

Too many unrelated subjects are required.

Reminds me of a college, not a Vocational and Technical school.

My degree opened the door for me to get this job. Very little of my actual classroom work and very few of my courses have any direct relation to my job.

I do believe that if a person is willing to take responsibility and can handle it, there are many more positions available and a greater chance for advancement.

I believe that a curriculum basically the same as when I attended, but with a choice between Electronics, as what I had, and another branch more in the Power Field, would serve more of the needs of industry.

Below are some comments on some of the questions or course titles found in the survey. The numbers below correspond to the items I numbered.

(1) Applied Calculus: In my opinion this cannot be stressed too much for those people who desire to work in an engineering environment. Practical applications using calculus are put to use every day and should be taught that way. This was not done when I attended school.

(2) Heat: Some knowledge of heat and its characteristics is desirable from the standpoint of heat transfer away from devices consuming power such as power transistors and also the effect an increase in ambient temperature has on a solid-state device.

(3) Solid State Electronics: A very good course in fundamentals essential plus an additional comprehensive course in applications of solid state devices, i. e., transistors, integrated circuits (digital and linear). Also, a good course discussing FET transistors, junction and MOS types, and their application in MOS and COSMOS integrated circuits.

Employee Comments, Continued

(4) Knowledge and Application of Electronic Equipment: A knowledge of equipment that is most commonly used: ('scopes, counters, DVMS, VOMS, PWR. Supplies, etc.) how it is used and basically how it operates.

(5) Mathematical Principles: Not only are the principles necessary but also how to apply these principles in actual electronic circuits. A good understanding of algebra, trigonometry and calculus is essential.

One thing I would like to explain is that on the project which I am working on there is a very close working relation between Engineers (B. S. degree or more) and the Engineering Associate (2 year Technical Degree). The Engineer does not take the good jobs and give the rest to the Engineering Assistant but each is assigned a part and this is their responsibility. The biggest difference between an Engineer and an Engineer Assistant is salary.

APPENDIX J

Monthly Salary of Electronic Graduates upon initial employment.

DISTRICTS	1				4				7				8				9				11				12				17				
YEAR	67	68	69	70	67	68	69	70	67	68	69	70	67	68	69	70	67	68	69	70	67	68	69	70	67	68	69	70	67	68	69	70	TOTAL
UNDER $400	1			3				1		1		1	2	1	1	4	1	2	1	3	1						1			1	1	1	27
400 to 500	4		2	3			2	1		2			1		4	2	10	2	5	3		1			1		3	1			1		48
500 to 600	5	1	2	1			1		1	1	2				3		8	7	3	7		3			1		1	2		1		2	52
600 to 700							2	5	3	1	3	3	1		1	2	2	5	3	7							1						39
700 to 800	1		1													1	1		3	1													8
800 to 900												1						1	1														3
900 to 1000																																	
OVER 1000																																	

Present Monthly Salary of Electronic Graduates

DISTRICTS	1				4				7				8				9				11				12				17				
YEAR	67	68	69	70	67	68	69	70	67	68	69	70	67	68	69	70	67	68	69	70	67	68	69	70	67	68	69	70	67	68	69	70	TOTAL
UNDER $400			1	1			1					1			3	1	1	2	1	1							1						14
400 to 500	1			2									1			1	1	1		1	1											1	10
500 to 600	2		1	3				1		2			1		4	4	1			2		1					2	1		1		1	27
600 to 700	1		2	1			1					3			1	1	2	3	3	10		1			1		2	2			1		35
700 to 800	3	1					2	5	2	1	2		1			2	6	3	4	4		1							1	1			39
800 to 900	2						1	1	2		2	1	1	1			3	3	6	1					1								25
900 to 1000	1									1					1		4	2	2														11
OVER 1000			1								1						2	3														1	8

ERIC

APPENDIX K

SOURCES THAT ASSISTED ELECTRONIC GRADUATES IN OBTAINING INITIAL EMPLOYMENT

	DISTRICT								
	1	4	6	8	9	11	12	17	TOTAL
FRIEND		2	5	5	6	1	1	1	21
PARENT	2			2	1		1		6
NEWSPAPER	5		3	4	8		1	3	24
SCHOOL PLACEMENT CENTER	4	5	4	11	45	3	1		73
DEPARTMENT HEAD		1	2				1		4
TEACHER		1		1	5	1	2		10
WISCONSIN EMPLOY - MENT SERVICE	2		1		1			1	5
OTHERS	11	2	4	1	10	1	5	1	35
TOTALS	24	11	19	24	76	6	12	6	178

PROCESS OBJECTIVES

1. Develop students' awareness of self and the varied career opportunities open for future exploration through:

   a. hands-on experiences which develop interests, attitudes and values about work

   b. study of self and relationships within the community

   c. study of self and dependence on the people in the community

   d. study of general career orientation information

   e. engaging in decision-making activity about self in a future work role through simulation, games, role-playing, etc.

   f. experiencing varied work roles through observation and other direct and indirect contacts with workers.

2. Provide preliminary counseling and guidance data for students' use by:

   a. encouraging self awareness through career development activities

   b. helping the student to experience career roles and relate these to other school activities

   c. assisting the student in becoming familiar with the developmental processes going on within himself

   d. encouraging information-seeking behavior

   e. encouraging self evaluation to better understand self interests and aptitudes

   f. study of the inherent value and need of work and the knowledge of why work is necessary

   g. aiding in attitudinal development regarding the dignity of all work, honesty, dependability, etc.

VT 016 380

PROJECT LOOM: AN EXPERIMENTAL CAREER EDUCATION PROJECT FOR K-6 ELEMENTARY AND 6-8 MIDDLE SCHOOLS.

FLORIDA STATE UNIV., TALLAHASSEE. DEPT. OF INDUSTRIAL ARTS EDUCATION.

FLORIDA STATE DEPT. OF EDUCATION, TALLAHASSEE. DIV. OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 72 37P.

DESCRIPTORS - *EXPERIMENTAL PROGRAMS; PREVOCATIONAL EDUCATION; *ELEMENTARY GRADES; MIDDLE SCHOOLS; *CAREER EDUCATION; UNITS OF STUDY (SUBJECT FIELDS); *OCCUPATIONAL CLUSTERS; EDUCATIONAL OBJECTIVES; *CURRICULUM DEVELOPMENT

IDENTIFIERS - PROJECT LOOM; *LEARNER ORIENTED OCCUPATIONAL MATERIALS; FLORIDA

ABSTRACT - DURING THE FIRST YEAR OF PROJECT LOOM IN FLORIDA, TEACHERS AND OTHERS INVOLVED IN THE DEVELOPMENT OF CAREER EDUCATION FOR THE ELEMENTARY GRADES PRODUCED CURRICULUM MATERIALS FOR DIFFERENT GRADE LEVELS. DURING THE 1971-72 SCHOOL YEAR CAREER EDUCATION WILL BE EXPANDED TO THE MIDDLE GRADES AND THE K-6 CURRICULUM MATERIALS ALREADY DEVELOPED WILL BE IMPLEMENTED. GENERAL, PRODUCT, AND PROCESS OBJECTIVES OF THE PROJECT ARE STATED. PROJECT LOOM UNITS BY OCCUPATIONAL CLUSTER AND GRADE LEVEL ARE LISTED, WITH COMPLETED UNITS INDICATED. ELEMENTARY TEACHERS WERE QUERIED AFTER WORKSHOPS TO ASSESS THE EFFECTIVENESS OF THE WORKSHOPS AND THE TEACHERS' REACTIONS TO THE PROJECT, AND SOME TYPICAL RESPONSES ARE APPENDED. (MF)

3. Provide work experience orientation through

   a. Sequential individual and group instruction packs

   b. Career-related role modeling activities, such as field trips, role playing, in-school visits by workers, career day, career fair, etc.

   c. Working with materials and tools that are representative of those used in the world of work.

   d. A study of work roles and workers in the real world.

   e. Application of activities (e.g. using a carpenter's rule for arithmetic instruction).

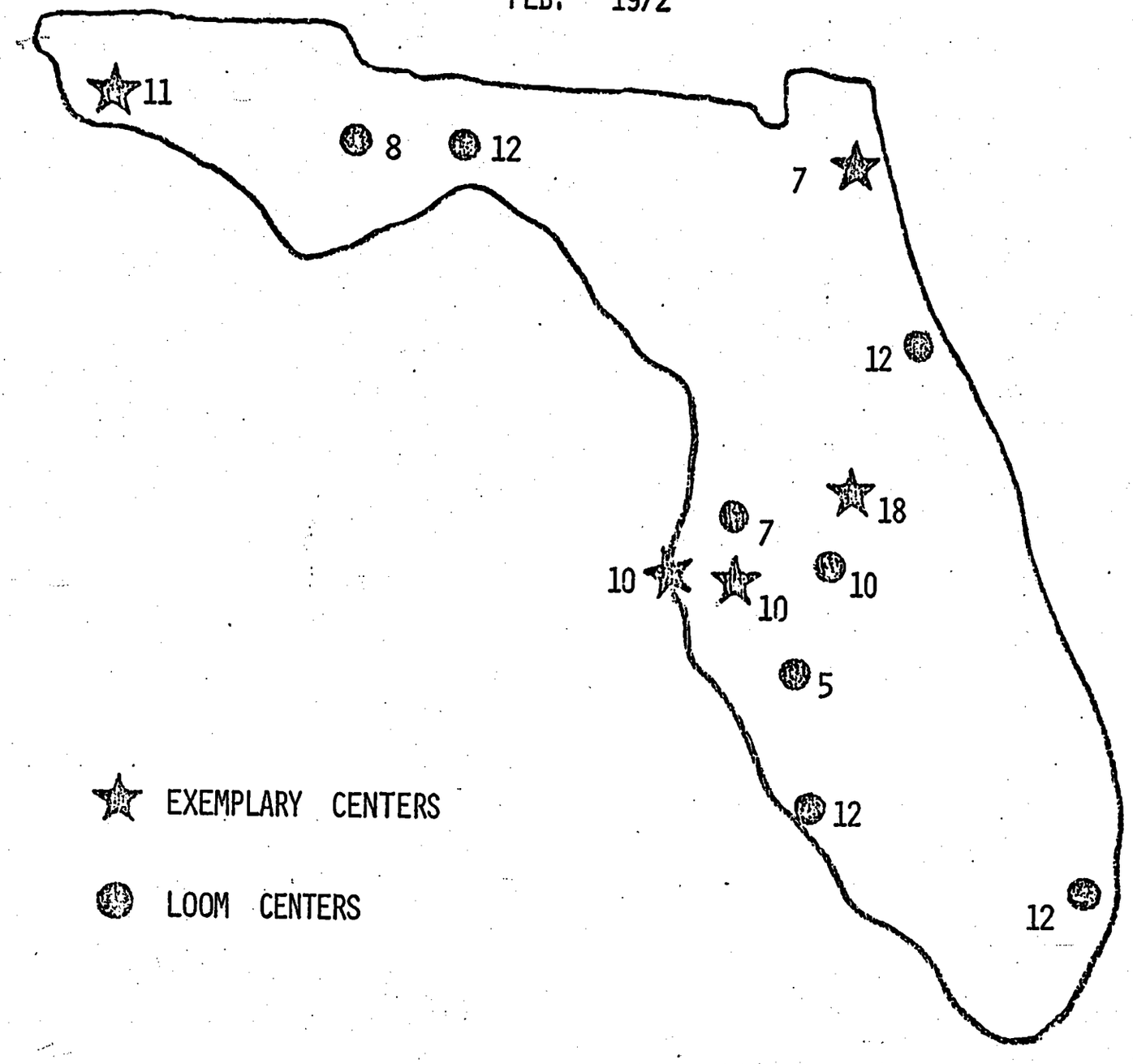
   f. Developing attitudes necessary for career exploration and occupational skills development.

   g. Providing exploration experiences through various laboratory instructional procedures, including hands-on construction activities, and the development of basic manipulative skills.

VT016380

PROJECT LOOM
INDUSTRIAL ARTS DEPARTMENT
FLORIDA STATE UNIVERSITY
TALLAHASSEE, FLA. 32306

PARTICIPATING COUNTIES
FEB. 1972



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PROJECT L O O M

LEARNER ORIENTED OCCUPATIONAL MATERIALS

AN EXPERIMENTAL CAREER EDUCATION PROJECT

FOR K-6 ELEMENTARY AND 6-8 MIDDLE SCHOOLS

THE FLORIDA STATE UNIVERSITY

DEPARTMENT OF INDUSTRIAL ARTS EDUCATION

DIRECTORS:

DR. JAMES HEGGEN

MR. JOHN GEIL

4065

Participating Counties:

The following counties and teachers are participating in the development, trial, and implementation of LOOM packages; as of February 7, 1972.

County	Anticipated Number of Participants
Broward	12
Duval	7
Escambia	11
Hernando	5
Hillsborough	10
Jackson	8
Lee	12
Leon	12
Orange	18
Pasco	7
Pinellas	10
Polk	10
Volusia	12
Total	134

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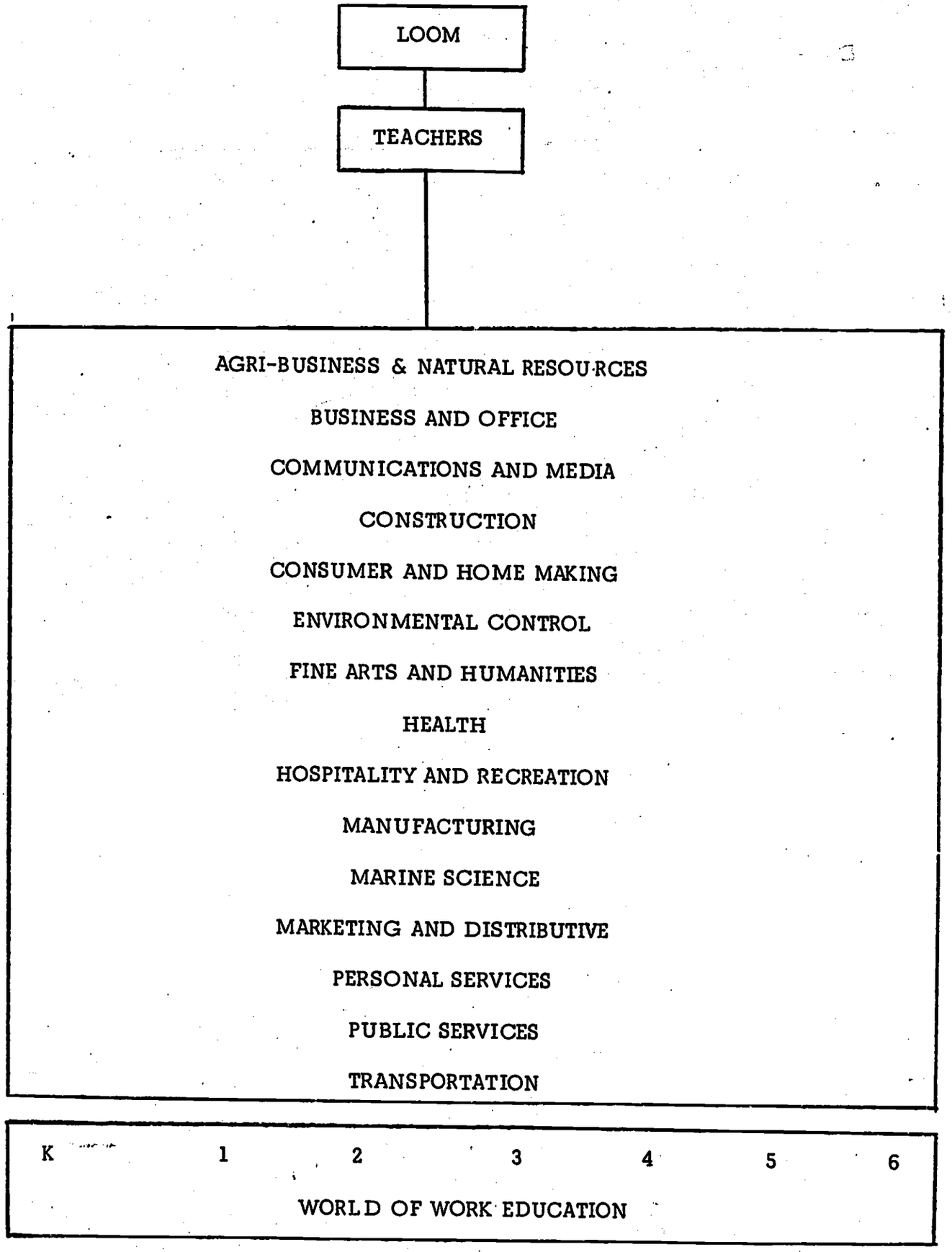

LOOM
TEACHERS
AGRI-BUSINESS & NATURAL RESOURCES
BUSINESS AND OFFICE
COMMUNICATIONS AND MEDIA
CONSTRUCTION
CONSUMER AND HOME MAKING
ENVIRONMENTAL CONTROL
FINE ARTS AND HUMANITIES
HEALTH
HOSPITALITY AND RECREATION
MANUFACTURING
MARINE SCIENCE
MARKETING AND DISTRIBUTIVE
PERSONAL SERVICES
PUBLIC SERVICES
TRANSPORTATION
K 1 2 3 4 5 6
WORLD OF WORK EDUCATION

Rationale:

The first year of operation of Project LOOM has been an extremely rewarding and interesting adventure. During the past year we have established a major network throughout the state to identify and involve competent teachers, administrators and supervisors who are interested in the development of career education for the elementary grades. In addition, we have produced a wide assortment of curriculum materials for various grade levels.

In addition to these two prime purposes, we have begun to formulate an implementation and dissemination plan for the thirteen participating counties. However, this becomes an extremely difficult task considering the wide variety of school situations and the diversity of teachers involved in the project.

The continuation of Project LOOM for the 1971-72 school year is of major importance because of the need to expand career education in the middle grades and to implement the K-6 curriculum materials developed during the first year of the project.

Our basic goals and specific objectives are substantially the same as for the past year. Experience and teacher feedback during the first year indicate that we are on the right course. However, because of expanding into the middle grades, we have had to add additional goals and objectives to cover this broadening aspect. The project's main thrust in the middle

PROJECT LOOM
Industrial Arts Department
Florida State University

List of LOOM Units by Occupational Cluster and Grade Level

(*Indicates completed Units)

Agri-Business and Natural Resources

Forest Worker	4
Florist	2
Commercial Fisherman	2 *
Rancher	2 *
Truck Farmer	2 *
Dairy Farmer	1 *
Gardener/Grounds keeper	4 *
Cattleman/Cowboy	1 *
Pepper Farmer	3 *
Wild Life Manager	4 *
Plantation/Farm Manager	5 *
Vegetable Grower	1 *
Landscaper/Nurseryman	2 *
Forester	5
Agricultural/Soil Scientist	5
Cat-fish Farmer	
Fur Farmer	2
Citrus Farmer	2
Veterinarian	
Beekeeper	3
Oil Field Worker	5
Poultry Farmer	5

Business and Office

Switchboard Operator	2 *
Apartment Manager	2 *
Secretary	4
Bank Teller	INT
Computer Programmer	
Clerk	
Bookkeeper	6
Typist	
Accountant	4
Watch & Clock Repairman	4 *
Bicycle Repairman	4 *
Janitor	
Locksmith	5 - 6
Employment Bureau Worker	
File Clerk	6

grades will be at the early grades (6 and 7 in middle schools or 7 and 8 in junior high schools). We are basing this decision on the assumption that we need most an orientation program that is relevant to both the students and vocational choices in the upper grades. We also feel that the programs already in existance in agriculture, home economics, business education, and industrial arts will perhaps become the main vehicle for the upper middle grades.

Communications and Media

Sign Painter	1
Commercial Artist	6
Printer	3 *
Bookbinder	6 *
Cable Splicer	
Photographer	4 - 5
Newspaper Printer	K
T.V. Repairman	
Telephone Repairman	Prim
Silkscreen Worker	5
Radio-T.V. Announcer	3 *
Disc Jockey	5 *
Librarian	4 *
Cartoonist	4

Construction

Brick Mason	5 *
Carpenter	K *
Carpenter	1 *
Cabinet Maker	5 - 6 *
Roofer	K
Electrician	4
Carpenter	4 - 5
Tile Setter	6
Plumber	6
Cement Mason	9 Ind. Study

WORLD OF WORK K-6 ELEMENTARY CURRICULUM

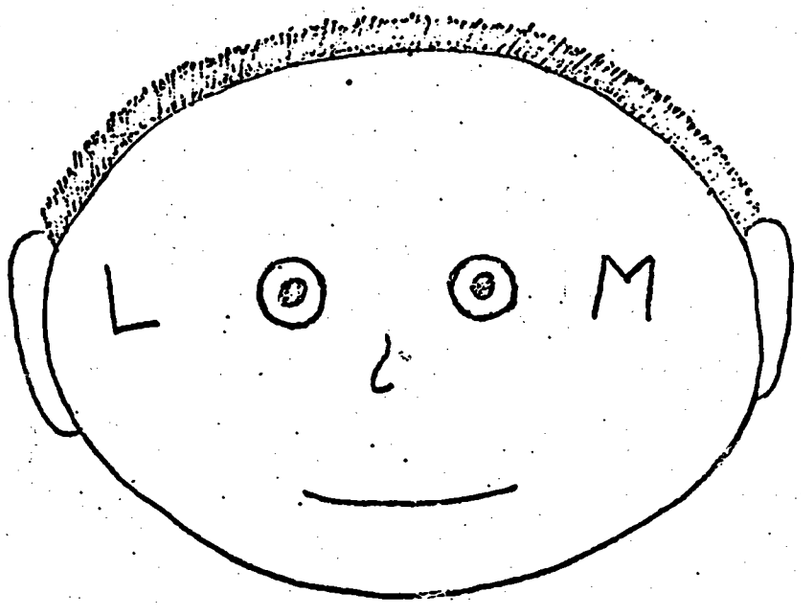
INPUT → BEHAVIOR MODIFICATION → OUTPUT

FACTUAL DATA

TECHNICAL TERMINOLOGY

SOCIETAL ATTITUDES

EXPERIENCES AND ACTIVITIES



VOCATIONAL AWARENESS

SELF APPRAISAL

TRANSFERABLE KNOWLEDGE & SKILLS

ACCEPTABLE ATTITUDES

REJUVENATING LIFE STYLE

6907

Consumer and Home-Making Related

Cooks & Chefs	3 *
Baker	1 *
Lunch Room Worker	6 *
Tailor/Dressmaker	3 *
Sewing Machine Operator	3
Interior Decorator	2
Fast Food Service Worker	7
Ice Cream Maker	K
Ice Cream Maker	1
Butcher	4
Housekeeper	3
Salad Maker	5
Interior Designer	5
Shoe Repairman	5 - 6 *
Furniture Repairman	5

Environmental Control

Meteorologist	4 *
City Planner	3

Assumptions:

1. Vocational education has been made an integral part of the school curriculum for all future learners through legislation passed in 1970.

2. School districts have been requested to submit plans for a K-14 vocational education program. Very few, however, have any prior experience in the K-6 or middle grade vocationally-oriented program.

3. School districts will be implementing, on an experimental basis, vocational education programs in grades K-6 in the 1971-72 school year.

4. Schools must assume a new and different role in meeting the needs of individuals and society through relevant programs.

5. Lay citizens, who are the ultimate supporters and beneficiaries of any public education program, must be led to improve their understanding and acceptance of vocational education, especially in elementary schools.

6. Teachers must be re-educated so as to hold a positive concept of the world of work and career development and understand that vocationally-oriented programs are not only valid but are absolutely essential.

7. Young people need to develop a realistic awareness of, and appreciation for, the world of work, and an understanding of occupational needs. That this is not generally accomplished is evidenced by unrealistic choice of secondary school subjects, the alarming drop-out rate, and the unemployability of youth.

8. Middle grade curriculum needs an infusion of the world of work as an integral part of their curricular offerings.

6

Fine Arts and Humanities

Mosaic Craftsman	4 - 5
Jeweler	4 - 6
Singer	K - 5 *
Dance Instructor	K
Theater Arts	
Poet	K
Architect	3
Ceramacist	2
Archaelogist	3
Make-up Artist	6

Health

Nurses Aide/Orderly	5
Dental Hygienist (Ass't)	6 *
School Health Nurse	1 *
Hospital Attendant	4 *
Hospital Worker/Aide	5 *
Dental Lab Technician	3
Health Worker	K
Rehaf. Instr. of Deaf & Blind	EMR
Microbiologist	6
Biochemist	6
Podiatrist	2
Pharmacist	5
Exterminator	6

VOCATIONAL ASSUMPTIONS

1. The community can and should provide resources for real and/or simulated experiences to introduce children to the world of work.

2. Teachers must be motivated to relate career development information to students and to provide learning experiences which develop knowledge of self in relation to the world of work.

3. A career exploration program must be developmental and an integrated part of the on-going elementary school program.

4. Knowledges, concepts, skills and self awareness related to the world of work must be developed through psychomotor activities and in a work context.

5. People usually work together--interdependently. The work of one person depends upon that of several others. Concept development in this regard must be an integral part of the world of work curriculum.

6. Due to the changing technology, workers face the possibility of several major job changes during their working lifetimes. This, coupled with the general mobility of people, which currently sees some 20 per cent of the populace involved in a major residence change each year, suggests that education for the world of work include components designed to promote adaptability to change.

7. Many people are placed in jobs by a haphazard process rather than through realistic awareness of self coupled with a realistic, broad knowledge of the world of work.

8. Many people are chronically unemployed due to improper attitudes regarding work and the lack of knowledge of how to get training and what sort of training to seek.

9. The image of vocational education in the eye of the public must be improved so as to make elementary level vocationally-related education not only acceptable to all but actually sought after and supported.

10. Success factors should be an integral part of all world of work program activities--the child must see himself developing as a capable person while at the same time relaizing his own individual strengths and weaknesses.

11. The development of broad concepts relating to the dignity of all honest work, the necessity of each citizen contributing positively to the development of society, the value of all work, etc., should be integrated into the world of work program.

12. A vocational guidance program in an elementary school will become an integral part of the total world of work structure.

13. Teachers of the world of work curriculum will be vocational oriented in philosophy and have assistance in preparing curriculum materials.

Hospitality and Recreation

Guide	3 *
Clown	K *
Life Guard	6 *
Recreation Worker	4
Travel Agent	1
Race Car Driver	6

Manufacturing

Weaver	1 *
Pottery Worker	5 *
Leather Worker	SpEd *
Shipbuilder	6 *
Moulder	K *
Toy Maker	K *
Plastics Industry Worker	4
Spray Room Maint. Man.	6
Machinist	6
Soft Drink Industry Worker	3
Pattern Maker	3
Fiberglass Plastics Worker	4
Steel Worker	1

Marine Science

Scuba Diver	Int.
Marine Biologist	4 - 6
Oceanographer	6
Skin Diver	K - 6

Purpose of Project:

1. Development of learner-oriented occupational materials that meet the needs of today's youth in a rapidly changing technological age.

2. Identification of a relevant rationale and content structure to guide the development of instructional models, including program facilities and teacher competencies.

3. Development of a sequential foundation structure for a K-6 program and a 6-8 or 7-9 program as part of the comprehensive vocational curriculum K-14.

4. Development of teaching techniques and methods to provide a relevant awareness to the world of work for elementary and middle grade students.

5. Design potential pilot programs which may be implemented with a minimum of cost and training.

6. Establishment of a state-wide system of curriculum development and experimentation centers, in selected counties representing various types of schools (i.e., rural, inner-city, advantaged, etc.), and develop a cadre of teachers in these centers who will become local authorities on Project LOOM Materials.

Marketing & Distribution

Fish Retailer	3	
Retail Cashier	4	*
Stock Clerk	K	
Salesman		
Jobber	4	
Food Store Worker		
Check out	2	*
Meat-cutting	4	*
Storage	3	*
Produce	5	*
Food Store - General		*
Food Store - Dairy		*
Cashier	3	*
Fashion Model	7	

Personal Services

Wigmaker	K
Beauty Operator	5
Barber	6

Public Services

Military Career	5	*
Policeman	2	*
Fireman	3	
Pbulic Relations	3	*
Postmaster	1	*
Correction Worker	3	
K - Nursery Teacher	2	
Teacher Aide	1 - 3	
Clergyman	5	
Criminologist	4	
Elementary School Teacher	2	
Physical Education Teacher	K	
Undertaker		
Zoo Caretaker	K	
Lawyer	7	
Religious Worker	7	

GENERAL OBJECTIVES

1. To develop pre-vocational interest exploration in the child leading to later specific career exploration.

2. To develop self-evaluation skills leading to self goal-setting.

3. To explore probable employment possibilities and patterns in the local community, state, and nation in the future.

4. To help each child develop an awareness of the life style he hopes to achieve and realize how his future employment will affect the attainment of this goal.

5. Provide for developing an awareness that career and job opportunities change and will continue to change more rapidly due to technological and societal changes.

6. Develop technical literacy of terms used in the exploration of careers.

7. To develop the ability to understand that occupations are interrelated in a wide variety of ways.

8. To develop an appreciation for different kinds of careers.

9. To build an awareness (knowledge) of the value of all kinds and levels of work (employment).

10. To create realistic self awareness in terms of work and personal/social needs.

11. Develop a degree of skill in the use of the tools, equipment and supplies that workers use in the performance of their jobs and have practical experiences in each.

12. Help each child recognize the relationship between school roles and work roles.

13. To become aware of vocational ways of satisfying his needs and interests.

14. To aid the child to become aware of parental work roles and new vocations.

15. To help develop an understanding of our free enterprise system of economics.

Transportation

	SpEd.
Truck Driver	
Auto Body Repairman	5
Truck Driver	K *
Ship Captain	K *
Auto Mechanic	4 *
Bus Driver	1
Mototcycle Repairman	5
Train Engineer	K
Taxicab Driver	5 - 6
Airline Pilot	K
Air Traffic Controller	7 - 8
Filling Station Oper.	1
Airline Stewardess	4
Astronaut	7

Specific Project Objectives:

1. Teachers will be able to identify the goals of vocational education in the elementary and middle grades.

2. Learner-oriented occupational materials will be in "package" form and will convey the accepted vocational concepts.

3. Selected occupations for study will be relevant to the learner's maturity and his socioeconomic condition.

4. Learner-oriented occupational materials will enhance learning through psychomotor activities.

5. Curriculum materials will be designed to meet state accreditation standards and will be stated in performance terms in order to facilitate accountability.

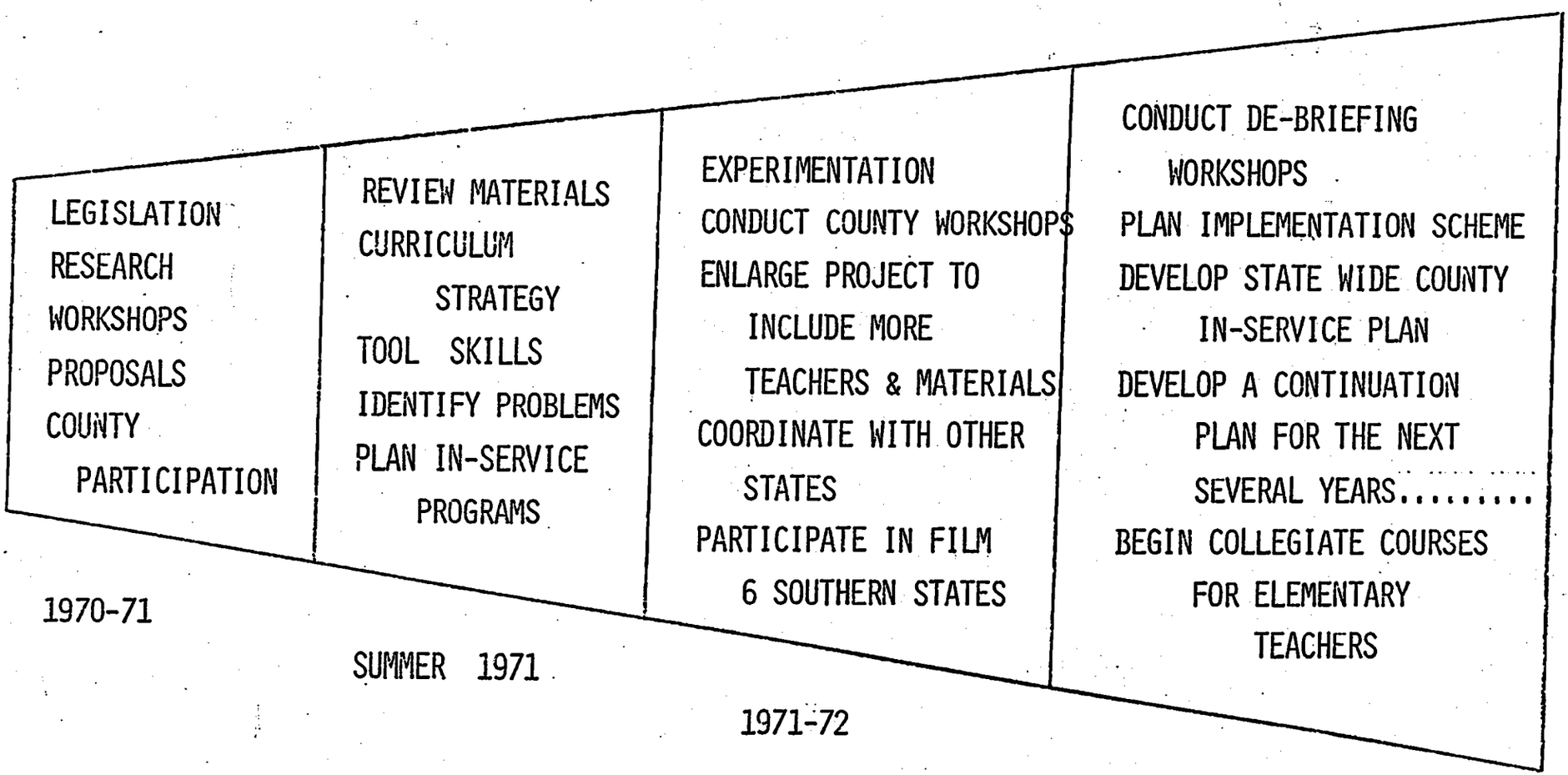
6. Recommended requirements for certification of elementary vocational personnel and units will be identified.

7. Several feasible facilities and models in which to conduct the learning activities will be identified and basic plans developed.

8. Development of complementary relationship patterns among the elementary and middle grade teachers, principals, administrators, vocational counselors and occupational laboratory teachers.

9. Development of world of work curriculum materials for the middle grades that will begin the orientation process.

FUTURE PLANS FOR PROJECT LOOM



PRODUCT OBJECTIVES

Learners in grades K-6, as a result of having participated in the world of work education program, will:

1. Demonstrate positive attitudes toward work as indicated by work habits in the classroom and laboratory, adherance to safety measures, care of equipment and materials, and task completion.

2. Identify a variety of jobs and occupations in the community (K-3) and nation (4-6) and be able to describe in appropriate terms the work of people in the jobs and occupations and their role in the community/nation.

3. Demonstrate a degree of skill in using basic tools, equipment, and materials.

4. Apply problem-solving techniques in individual and group situations related to the world of work.

5. Relate, on an appropriate level, the contributions of technology, industry, agriculture, business, and the service occupations to the development of society.

6. Understand the inter-relatedness of the academic and world of work aspects of the elementary curriculum.

7. Relate realistic self appraisals in regard to interests and aptitudes.

8. Evidence an inquisitive behavior regarding people at work, types of jobs, contributions of jobs, etc.

9. Demonstrate an understanding of some of the interdependent relationships of workers.

10. Develop an understanding that occupations carry advantages as well as disadvantages for the worker.

11. Develop a respect for other people, their work, and the contributions made by providing products and services for everyone.

Findings

1. HIGH DEGREE OF INTEREST
2. NATIONAL IMPORTANCE
3. MANY STATES ARE DEVELOPING ELEMENTARY WORLD OF WORK CURRICULUMS
4. LACK OF LONGITUDINAL STUDIES
5. UNCERTAINTY OF HOW ONE SELECTS AN OCCUPATION
6. PSYCHOMOTOR ACTIVITIES ENHANCE LEARNING FOR MANY STUDENTS
7. TEACHERS ARE APPREHENSIVE ABOUT TEACHING "TOOL SKILLS"
8. INDUSTRY IS WILLING TO PROVIDE MATERIALS
9. TEACHER EDUCATION WILL NEED TO BE MODIFIED
10. TEXTBOOK COMPANIES ARE LOOKING FOR ELEMENTARY WORLD OF WORK MATERIALS

PROJECT LOOM

Learner-Oriented Occupational Materials

Industrial Arts Department
Florida State University

WHAT THE TEACHERS SAY

At the conclusion of each workshop, participants are asked to respond, anonymously, to several questions.

The purposes of the questionnaire are to assess the effectiveness of the workshops and discern the perceptions of the teachers regarding several aspects of the project and of elementary level occupational awareness education. On the pages which follow are typical responses which reveal the thinking of the participants.

Do you, as a practicing elementary teacher, honestly feel that occupational education, in the form represented by Project LOOM materials, can be successfully infused into the "standard" elementary curriculum? Please comment.

Yes, I do. Especially in the school that I am in now - I really see the need. We are unable to motivate these children with books. We really need a program like this.

Yes, but . . . I feel, as with other good programs, teachers need to be encouraged to put material to use in a continuous program. Follow up from an administrative level seems to be necessary.

Yes, but with a long term growth allowance. It cannot be an instantaneous program without careful consideration of objectives.

Not at this time. The elementary curriculum is now full of "not complete" programs or programs not fully understood by those involved in the actual teaching process. This will be one more program ineffectively used.

Yes. All learning situations can be interwoven into all phases of the curriculum.

Yes. If the teacher can be convinced that this is what is needed in education.

Yes. If we have a good sales program.

The activities of the units can easily fit into many areas, math, measuring, etc. Social studies, a feeling and a respect of others and their contribution, through work, to the total community. Science, how and why things take place, how products are produced.

Yes. In fact, I think it is a very important part!

Yes. Already has brought about increasing field trips.

Yes. I have seen it done.

What parts of the anticipated occupational curriculum do you feel most inadequate to teach?

Highly specialized technological jobs.

Building activities.

Some of the facts and concepts (rather than psychomotor skills .

Probably the area of industrial arts, I feel I'm inadequate with most machinery.

Tool skills.

Those requiring specific skills which I do not have, i.e. building trades. Those with which I am relatively unfamiliar, i.e. technological occupations.

None.

All of it until I become familiar with the materials. However, I would learn it before I taught it.

I will try most anything.

Practical skills with tools, etc.

Tools (Industrial Arts).

None! Unless I don't have the proper tools to do one.

How will you "justify" to the parents the inclusion of occupational materials in your curriculum?

The material includes academic learning. Children deserve to know about different jobs.

We live in a society that frowns on non-workers in a sense. Everyone will be helpful in grade school so that children will be aware of opportunities.

Someday these children will have to support themselves--the more they know about job opportunities, the more likely their future success.

We are learning about the world in which we live, specifically about our society and community.

Need to orient parents to belief that a college education isn't the only way to fly and give students an insight to what's ahead.

All people eventually enter world of work--most with little understanding--help child in making correct general occupational choice early enough to make some preparation.

This type of information has not been available to most elementary students. Many of these students will not be going to college and need this information to begin to plan their future.

That children's ideas are formed early and a variety of ideas gives them a better opportunity to make a decision. (My parents have accepted my innovative teachings...)

Most parents want their children to grow up and have a means of supporting themselves. This material helps to stimulate youngsters in thinking about careers and opportunities.

Don't need to. We have always had a unit on occupations and have never had it questioned. How could they?

I will quote the legislation and the fact that all need to learn the dignity of work in any area.

It will not have to be justified because we as teachers are already attempting to prepare the children for their adulthood.

Are you (personally as an educator) in favor of occupational materials for your students in the elementary grades?

Only to the extent that they be used in conjunction with projects that develop in the course of the class development, rather than be superimposed upon the existing curriculum without regard to specific interest of the child.

Yes. I am currently an elementary guidance counselor and I perceive providing vocational quicance as a part of my total function.

No.

Yes.

Yes, and as a teacher for six years and presently as a librarian in the elementary school there is a great need for these materials. Children request occupational materials daily and we do not have an adequate supply.

Yes. I believe all children should be exposed to as many ideas and concepts as possible.

Yes (if they'd quit stealing tools).

By all means.

Yes, one can be much more motivated to be an actual working part of a group besides just a book learner.

Yes. It will enable the students to make "better" decisions when they reach adulthood.

Yes, very much so. I believe children should become aware of occupations long before it becomes necessary to have one, for satisfaction in the job.

Yes, the activities keep the children interested and when they're interested and busy, the discipline is better.

Yes, because this is one way to get quite a few of my students involved.

I believe occupational materials should start on kindergarten level of learning.

Of course!

Do you think your children will like to work and learn about the occupation you have selected? Why?

Yes, they have asked how their work applies to a job.

Yes, young children like to imitate any adult role -- especially if there is an element of excitement.

Children like animals and are usually interested in watching them grow and taking care of them.

Yes. Kindergarten children are curious about everything! There natural interest will spur this occupation.

They'll love it--because it's something new and something they can DO.

Yes, my children have been taught to become aware of their surroundings and when they are not sure of themselves or they are in doubt, to question it.

Yes. They are fascinated with the health "professions", role play at them, need reassurance about their contacts with them.

Yes. My children are from the higher social-economic group and will most likely know someone in this profession.

Yes, psychomotor oriented.

Yes--because of interest in Activity.

Yes. They are generally book-learning oriented. This would be a unique and unusual approach with tangible materials.

Children are always interested in anything that promises activity.

2. Do you feel confident that you can develop your LOOM unit (with technical assistance from county person)? If not, what more do you need to change this feeling?

I feel confident that I can develop my unit and I really believe this whole idea is excellent.

Yes, I believe with the materials presented and consultant guidance, any unit can be developed.

Yes, I feel very confident. I now know where to go and whom to go to in order to develop my unit.

Yes, there is no doubt in my mind that I can prepare a very constructive unit.

Yes. Especially if I had more time in doing one.

Creativity does not seem to blossom, while occupied with writing for accreditation.

I think that I could develop a LOOM unit without any trouble if I had more time available. (Too many demands now from other school-related programs)

We will set up a county library of pertinent and related printed materials.

I feel confident that I could develop a LOOM unit and would very much like to, but there just aren't enough hours in the day.

Dr. Heggen always inspires me to "get on" with the project.

Believe new, more specific format will be very helpful.

Yes, hearing the experiences that other teachers had with their projects helped clarify my role.

Yes. The new format helps me realize it's not so complicated.

Yes, ideas given were substantiated by practical suggestions.

Yes. It made me more aware that "problem" children can be helped by being involved with occupations and shown that learning through this method can be fun.

Yes. I think the agenda is well organized and very thorough and clear!

More discussion on purposes of project and more definite format on submitting written LOOM project.

Did the workshop help to clarify your role in the development of occupational materials? How?

Yes, by explaining the format of the units. It also rekindled the fire of interest which had been smoldering because of frustration felt while trying unsuccessfully to write a unit.

Yes, by clarifying how each part of the program fits together - and by explaining what we are to do.

Yes, I didn't know how to get units and kits or funds to begin experimentation with my class. Format for units a help.

Yes. The workshop gave me a specific outline to follow in going about writing occupational materials.

Yes, next steps in revision, continuity and growth of project.

Yes, defined program--illustrated and explained teaching units for specific occupations.

Very much so. I did not realize that children could be taught at an early level how to choose their occupation. This was very enlightening.

Definitely. Through the excellent explanation and materials offered.

It was explained in a very clarifying manner. All my questions were explicitly answered.

This workshop introduced me to some ideas I had not possibly preconceived. It cleared away much of the fog which was in my mind concerning the project. I feel I am now better qualified to sell the program to both parents and students.

Yes. I'm not sure of what I'll encounter, but I feel I can get started now.

Yes, by brain picking.

Yes. I now feel even more responsible for seeing that every child be knowledgeable about different occupations.

Yes, by stating what is expected of each member.

Yes, more involved than anticipated.

Please sound off here on anything (related to the project) about which you feel enthused, confused, bemused, or abused.

The idea has merit; it seems like something that the children should be exposed to, will certainly broaden their knowledge of the world in which they live.

Somewhat confused with all facts coming in during one day, but ready to go to work on something I truly believe in.

I feel completely enthused and convinced and believe it could be the answer to many of our slow learner and accelerated children if the teacher has a positive, enthusiastic attitude in the interests of her students and not herself.

I am very enthused with the ideals and goals of this project. I am glad it is being developed. Hopefully, it can be implemented in our school system in the near future. I am looking forward to my work in this project, and I feel honored that I was selected to participate in it.

I am happy that this type of program has finally come along. There are so many kids that have dropped out of school because they could not keep up academically. With this type of program, a child might discover at an early age that he is able to succeed in other areas of life.

Time and money is the only short coming to the program. We need money to develop the kind of programs which I envision in my mental concepts.

I'm enthused. This was my first introduction to the rationale, theoretical and practical, behind the project. I like it because it's "hands on" and practical.

I'm 100% in favor of the project. I've seen the interest of children that makes every effort worthwhile. If classes could be smaller, I think more participation would be possible.

Real glad to see that there are still educated legislators that see this need.

I am very enthused about this project. Just hope that there will be enough time to do a very good job.

Motivation for better teaching. "Out of the rut."

Do you feel that your school and county will provide you with the support (money and other) necessary to carry out the experimental portion of the project?

Money, yes, but unfortunately we have a faculty that is not very flexible or just plain allergic to extra work.

I surely hope so!

I am going to try with every fibre of my being to sell them the project for acceptance.

Yes, I think sooner or later some provisions will be made.

I should think so if it is interwoven into the curriculum.

Some money, some material.

We hope!

Yes. But if additional space (like a room only for vocational education) then no.

We may have trouble with the school principal.

Yes. I'm confident Orange County will support this program.

I hope! Not sure about money for materials--other provisions perhaps yes.

They may provide the "other" but not the money. If so I will be extremely surprised.

I don't really know--I sure hope so!

I hope so, but of course there will be many times and areas where it will be limited.

Yes.

No.

How can the project LOOM assist you in the future?

If occupations were divided for grade levels: going from simple jobs in K and first to more advanced, in other words, cover more areas by not repeating.

Using other units to show the importance of training.

By keeping communication lines open and providing units to work with.

Enrich my class by giving me units to try with the children.

By providing units to suggest ways to introduce various jobs.

To provide a wider range of occupations than are in the textbooks or most films provided.

I feel that it will help to make education more relevant to the needs of the child by capitalizing on his interests of the moment.

Help me to become aware of the many vocations needed in our society.

Not sure yet. I hope you can help me become a better teacher.

VT 016 381
1969-71 BIENNIAL REPORT.

WISCONSIN STATE BOARD OF VOCATIONAL, TECHNICAL, AND ADULT EDUCATION, MADISON.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 54P.

DESCRIPTORS - *VOCATIONAL EDUCATION; *ADULT EDUCATION; *ADULT VOCATIONAL EDUCATION; *POST SECONDARY EDUCATION; SPECIAL SERVICES; *STATE PROGRAMS; PROGRAM DESCRIPTIONS; ENROLLMENT; EXPENDITURES; STATISTICAL DATA
IDENTIFIERS - *WISCONSIN

ABSTRACT - THE BIENNIAL REPORT OF THE WISCONSIN BOARD OF VOCATIONAL, TECHNICAL, AND ADULT EDUCATION FROM JULY 1, 1969 THROUGH JUNE 30, 1971 DESCRIBES THE POST-SECONDARY, ADULT, AND SPECIAL EDUCATIONAL SERVICES OFFERED AT ALL LEVELS BELOW THE BACCALAUREATE DEGREE. MORE THAN 257,000 PERSONS EACH YEAR WERE ENROLLED IN ALL AREAS OF ADULT VOCATIONAL EDUCATION, AND A RECORD 52,000 PERSONS ENROLLED IN POST-SECONDARY VOCATIONAL EDUCATION DURING THE 1971 FISCAL YEAR. THE REPORT GIVES ENROLLMENT AND OTHER DATA FOR THE STATE AND ALSO BY COUNTIES AND IN THE 18 VOCATIONAL EDUCATION DISTRICTS ESTABLISHED DURING THIS PERIOD. EXPENDITURES OF STATE AND FEDERAL FUNDS FOR THE TWO FISCAL YEARS ARE PRESENTED, ALONG WITH THE FINANCIAL STRUCTURE OF THE SYSTEM. MORE THAN 760 JOB PREPARATION PROGRAMS IN 227 FIELDS OF STUDY WERE AVAILABLE TO ALL CITIZENS OF THE STATE. GOALS FOR THE 1972-1973 FISCAL YEARS GIVE PRIORITY TO IMPROVING AID TO THE NEEDY AND SPECIAL STUDENTS AND TO EXPANSION OF PROGRAMS IN HEALTH OCCUPATIONS, CONSUMER EDUCATION, AND ENVIRONMENTAL EDUCATION.

BIENNIAL REPORT

Fiscal Years
1969-70
1970-71

WISCONSIN BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION

Eugene Lehrmann, State Director

VT016381

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1969-71 BIENNIAL REPORT

OF THE

WISCONSIN BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION

137 EAST WILSON STREET, MADISON, WIS.
EUGENE LEHRMANN, STATE DIRECTOR

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West Bend Daily News
DEC 16 1971

Job Finding Reported Good By Moraine Park Graduates

A recent follow-up study of 1970-71 graduates made by the Student Services Office of the Moraine Park Technical Institute shows that [illegible] cent have [illegible] in [illegible]

were working outside the state of Wisconsin.

Of the graduates not employed, 7 per cent (16) are [illegible]ending school; 5 per cent [illegible] are unemployed for other sons such as military or marriage and only nt (10) were reported employment.

[illegible]al agencies [illegible]

Mechanical production ($450, $564.62, $736.67); machine tool operation ($423, $557.39, $715); accounting ($335, $400, $406.67); account clerk ($388.80, $390.40, $407.50); auto body repair ($422, $456.94, $590); auto mechanic ($391.33, $402.62, $419.67); clerk typist ($376, $379.67, $433); data processing ($377.37, $367.50, $400.67); and electronic servicing ($365.33, $516.19, $466.44).

Also farm equipment mechanic [illegible] $347.32, $390); marketing [illegible] $457); mechanic [illegible] $450.

Mineral Point Dem. & Tribune

DEC 16 1971

Editorials

VTAE Students Get Jobs

Since the Southwest Wisconsin Vocational school at Fennimore started up a few years ago and the operation of the school started to show up as a separate item on our tax bills, many questions have been raised about the school—particularly concerning the courses offered and w[illegible] completing courses wou[illegible]

Some answers to t[illegible] given in a report rel[illegible] Daniel J. Wagner, r[illegible] the VTAE 3 distric[illegible]

He sent a que[illegible] students who gra[illegible] last spring. Abc[illegible] replied.

Wagner repc[illegible] of the graduat[illegible] are unemploy[illegible] to the 17 pe[illegible] in youths u[illegible] Wisconsin [illegible] and Huma[illegible]

Of tho[illegible] employe[illegible] which [illegible] 25.7 pe[illegible] al are[illegible] Wagn[illegible] figu[illegible] izin[illegible] ricultura[illegible] turned to the fa[illegible]

The survey also revealed that 86.5 p[illegible] cent of the employed graduates obtai[illegible] jobs in the five-county area of Distr[illegible] An additional five per cent are em[illegible] in Dubuque.

Two-year programs from v[illegible] dents graduated last spring are [illegible] One-year prog[illegible] sistant, agricultural mechar[illegible]

Appleton Post-Crescent

JUL 21 1971

FVTI Graduates Have Jobs

More than 60 per cent of the 1971 Fox Valley Technical Institute graduates have been placed in jobs, and the figure, in reality, might be much higher because in many cases students don't report that they have accepted positions.

The facts were presented Monday to the Vocational, Technical and Adult Education District 12 (VTE-12) board by William Sirek, director.

"In many cases, the graduates have been working while attending school. In other cases, they don't use our placement service — especially in occupations where there is a shortage, such as health services," Sirek explained.

The statistics are much higher than the estimated 35 per cent of 1971 graduates from colleges and universities who have jobs.

Breakdown Facts

Of the 472 graduates, 260 have indicated to the school's placement office that they have positions. Ten are continuing their education in colleges and universities and 17 have entered the armed forces.

In an abbreviated breakdown, practical nursing program had 74 graduates (the highest) and 70 have informed the school they have positions. There were 47 graduates in the nursing assistants program and 40 have jobs. A total of 20 graduated from the school aides program and 26 have indicated they have employment.

"The statistics in many cases are incorrect, I'm sure. They would have to be higher because in some programs, we have had many openings listed by employers, yet only a handful have indicated they have found employment. Not many jobs go begging these days, so we must assume our people are filling the openings but simply aren't informing us about it," Sirek said.

A. E. Engebretson, director of the Wisconsin Employment office for Appleton-Neenah-Menasha, interviewed a few days earlier, indicated that the rate of employment for those with technical knowledge is higher than the college people — especially those in liberal arts fields.

Brodhead Independent-Register
DEC 16 1971

Most Technical Grads Find Jobs

Janesville (Special) — An impressive 91.4% of the Blackhawk Tech Vocational and Technical School graduates of 1970 are currently on the job in a fulltime capacity.

This announcement was made by R. W. Hogard, director of Blackhawk Tech student services, who said the statistics prove that vocational and technical education "gets students down to business" faster and more effectively than virtually any other kind of instruction available.

Blackhawk Tech, which had a total of 208 graduates (including apprentices), serves residents of Rock and Green Counties with campuses at Beloit and Janesville.

A survey of graduates shows an age range from 18 to 55, with a median of 23, Hogard said.

It also indicated that 64% of the graduates remained within the two-county area to gain employment.

As for salaries [illegible]

State of Wisconsin \ BOARD OF VOCATIONAL, TECHNICAL & ADULT EDUCATION

EUGENE I. LEHRMANN
State Director
137 EAST WILSON STREET
MADISON, WISCONSIN 53703

November 22, 1971

The Honorable Patrick J. Lucey
Governor of Wisconsin
and
Members of the Legislature

In accordance with State Statute, the Wisconsin Board of Vocational, Technical and Adult Education is pleased to submit the attached biennial report for the period July 1, 1969 - June 30, 1971.

The system of vocational, technical and adult education in the state continues to provide educational services to all of the people in the state at all levels below the baccalaureate degree. More than 257,000 persons each year enroll in all areas of adult vocational education.

A record 52,000 persons enrolled in post-secondary vocational education programs this year in comparison to 49,000 reported a year ago. The continued rise in vocational, technical and adult education enrollments can be attributed to a number of important factors. Reorganization of the state into vocational education districts has brought the awareness of the system to more and more people as the districts have developed programs to meet the needs of our economy. More than 760 job preparation programs in 227 fields of study are available to the citizens of the state.

The continued support of your office and the legislature will enable the further development of this most important segment of our educational system.

Eugene Lehrmann

Eugene Lehrmann
State Director

The State V.T.A.E. Board OCTOBER, 1971

Chapter 15, Section 15.94, creates the Wisconsin Board of Vocational, Technical and Adult Education: (1971 Law places the president of the University of Wisconsin Board of Regents on the V.T.A.E. Board, and vice versa)

15.94 Board of vocational, technical and adult education; creation. There is created a board of vocational, technical and adult education consisting of 11 members, as follows:

(1) The state superintendent of public instruction or his designee.
(2) A member or designee of the industry, labor and human relations commission, selected by the commission.
(3) Nine members, of whom 3 shall be employers of labor, 3 shall be employes who do not have employing or discharging power and 3 shall be persons whose principal occupation is farming and who are actually engaged in the operation of farms, appointed for staggered 6-year terms.

EMPLOYEE REPRESENTATIVES

MARVIN J. BOEDE, Port Washington
ROY C. LANE, New Berlin
JOHN ZANCANARO, Milwaukee

FARMER REPRESENTATIVES

C. PHILIP JOHNSON, Darien
PETER C. SENN, Campbellsport
MERTON TIMMERMAN, Roberts

EMPLOYER REPRESENTATIVES

MRS. ADIE A. HALYARD, Milwaukee
LEROY Q. JONAS, JR., Wausau
BURT ZIEN, Milwaukee

EX-OFFICIO MEMBERS

W.C. KAHL, Superintendent
Wisconsin Department of Public Instruction

PHILIP E. LERMAN, Commission Chairman, Wisconsin Department of Industry, Labor and Human Relations

W. ROY KOPP, President
Board of Regents of the University of Wisconsin System

OFFICERS

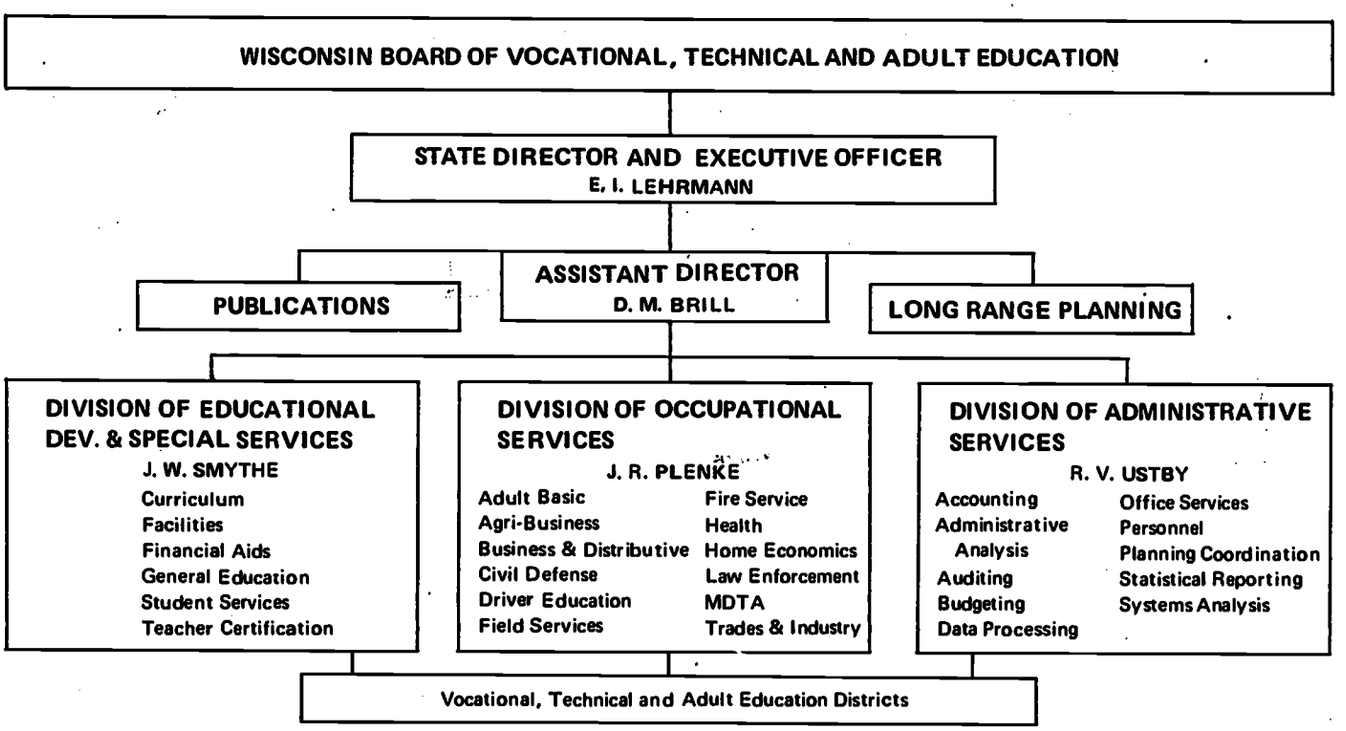
JOHN ZANCANARO
President

LEROY Q. JONAS, JR.
Vice President

STATE DIRECTOR and EXECUTIVE OFFICER

EUGENE LEHRMANN
(Appointed January 1, 1971)

C. L. GREIBER
(Retired December 30, 1970)



The State Advisory Council For Vocational Education

Membership—October, 1971:

JOHN N. KRAMER, Chairman
Fennimore, Wisconsin
—Representative of local educational agency.

MRS. WILLIAM A. NIELSEN, Vice Chairman
West Bend, Wisconsin
—Representative of School Boards.

WARREN BROWN
Hartland, Wisconsin
—Familiar with vocational needs and problems of management and labor.

MISS KATHRYN T. GILL
Madison, Wisconsin
—Person having special knowledge and experience who is not involved in administration of state or local vocational program.

MRS. EDWARD HAERTER
New Berlin, Wisconsin
—Representative of general public, knowledgeable about the poor and disadvantaged.

GEORGE HALL
Green Bay, Wisconsin
—Familiar with vocational needs and problems of management and labor.

RAYMOND O. JONDAHL
Racine, Wisconsin
—Familiar with vocational needs and problems of management and labor.

EDWIN KEHL
Madison, Wisconsin
—Representative of manpower and vocational education agencies in state and CAMPS.

NORMAN P. MITBY
Madison, Wisconsin
—Representative of community and junior colleges.

JOSEPH PELLEGRIN
Germantown, Wisconsin
—Familiar with vocational education programs including comprehensive secondary schools.

C. D. REJAHL
Madison, Wisconsin
—Familiar with administration of state and local vocational programs.

DR. ROBERT RUDIGER
Menomonie, Wisconsin
—Representative of community and junior colleges.

KEITH STOEHR
Kenosha, Wisconsin
—Representative of manpower and vocational agencies in state and CAMPS.

KENNETH SVEE
Madison, Wisconsin
—Person with special knowledge with respect to special educational needs of physically and mentally handicapped.

ROGER WAUKAU
Neopit, Wisconsin
—Representing school systems with large concentration of academically, socially, economically, and culturally disadvantaged students.

DR. BERNARD WEISS
Milwaukee, Wisconsin
—Representing school systems with large concentration of academically, socially, economically, and culturally disadvantaged students.

FREDERICK BRONSON
Milwaukee, Wisconsin
—Representative of the general public, knowledgeable about the poor and disadvantaged.

JAMES CLEARY
Ladysmith, Wisconsin
—Familiar with vocational needs and problems of labor and management.

THEODORE W. HARRIS
Caledonia, Wisconsin
—Representative of the general public, knowledgeable about the poor and disadvantaged.

EMILIO LOPEZ
Milwaukee, Wisconsin
—Representative of the general public, knowledgeable about the poor and disadvantaged.

LES RIEBAU
Madison, Wisconsin
—Representing state industrial and economic development agency.

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THE V.T.A.E. MISSION

The philosophy and operating format of the Wisconsin System of Vocational, Technical and Adult Education are set forth in the laws of the state.

"STATEMENT OF PURPOSE", CHAPTER 292, WISCONSIN LAWS OF 1965:

"Section 1. Statement of Purpose: In order to broaden the educational opportunities for the youths and adults of Wisconsin, the state board of vocational, technical and adult education shall establish a program of instruction at institutions throughout this state which will equip all of this state's people to find their place in the competitive labor market of today."

CHAPTER 125, SECTION 241.38 WISCONSIN LAWS OF 1971:

"Mission. The board shall be responsible for the initiation, development, maintenance and supervision of programs with specific occupational orientations below the baccalaureate level, including terminal associate degree, training of apprentices and adult education below the professional level."

SECTION 38.155 OF THE WISCONSIN STATUTES:

"Beginning as soon after September 29, 1965 as practicable, the coordinating committee for higher education, in conjunction with the state board of vocational, technical and adult education, shall prepare a proposed master plan for vocational, technical and adult education districts. By July 1, 1970, the state board of vocational, technical and adult education shall act to include all areas in such school districts of vocational, technical and adult education as the state board designates...."

A major goal in Wisconsin education was achieved when, on July 1, 1970, all areas of the state were included in Vocational, Technical and Adult Education Districts, thereby broadening the vocational education opportunities for the citizens of Wisconsin. One measure of this expanded opportunity is indicated in Table II which reflects the relative degree of population and enrollments by county. Plans to optimize district structure are currently being developed to carry this goal even further in order to provide educational services to the public at reasonable cost.

OPEN DOOR ADMISSION POLICY

On February 25, 1969, the Wisconsin Board of Vocational, Technical and Adult Education "reaffirmed and clarified" the "Open Door Admission Policy" to which the system is committed.

"The Wisconsin Board of Vocational, Technical and Adult E "The Wisconsin Board of Vocational, Technical and Adult Education is committed to an open door admission policy. The policy refers to the "open doors" of the districts and not to specific programs. It means that, for any applicant who seriously wants and needs more education, the doors of the district are open.

"It recognizes the right of all people to educational benefits and also the responsibility of the districts in meeting each individual's needs. It becomes the responsibility of the student services staff to find a suitable program for the individual somewhere in the district or in the state.

"Admission policies and procedures are flexible and are inclusive rather than selective and result in a commitment to what is best for the individual rather than what is best for the district.

"Effective guidance and counseling services including comprehensive testing, provision of occupational information, and all possible assistance in meeting minimum entrance requirements of the various curricula are essential in helping the individual find the educational program that is best for him.

"Districts provide a wide variety of courses and programs in order to meet the wide variety of interests, desires, and abilities of prospective students. The incoming individual, on a "first come-first served" basis, shall have unrestricted choice in selecting a field of study or a course or program of his interest and within his capability, and shall not be turned away due to lack of options available and because of nonresidence. Placement in a proper program within the state is paramount."

INTER–AGENCY COOPERATION "BUILT-IN"

Voids in service, and duplications of services, are minimized through close liaison and cooperation with other agencies, federal, state, local and private. The State Director, by law, is a member of a substantial number of statewide boards, councils and commissions and formal liaison committees of the Vocational, Technical and Adult Education system meet regularly with staff members of the Department of Public Instruction and of the Wisconsin State Employment Service. Three members of the state VTAE board sit on the new University of Wisconsin Board of Regents.

Mr. John Zancanaro, president of the state VTAE board, is a member of the board of regents and Mr. W. Roy Kopp, president of the board of regents, is a member of the state VTAE board. Mr. William C. Kahl, state superintendent of public instruction, is a member of both boards.

ADVISORY COMMITTEES "HEART" OF THE SYSTEM

The philosophy and concepts of Vocational, Technical and Adult Education in Wisconsin are based upon quality and upon meaningful services to business and industry. To carry out these concepts, it is imperative that those having responsibility for the system, whether it be at the state, district or local level, be well informed as to the needs of Wisconsin business and industry. To do this it is necessary to seek advice from those served whether it be for training new staff or for upgrading of currently employed persons.

The device used to assure responsiveness to labor market needs in the Wisconsin Vocational, Technical System since its inception in 1911 has been the advisory committee. Advisory and Adult Education committees are constituted of employers, employees and others who are chosen from candidates submitted by member organizations or associations of each occupation or cluster of occupations. The policies that exist on all levels insist that these advisory committies be formed and function to assure that the system's philosophical concepts as well as practical instruction are carried out. Presently there are more than 2000 people serving on district and state advisory committees.

The very structure of the state board itself is based upon representation of the people it is to serve. The state board's broadly-based representation is augmented by a state advisory council.

One method of evaluating the performance of vocational education is to analyze the extent to which the citizens of Wisconsin are served.

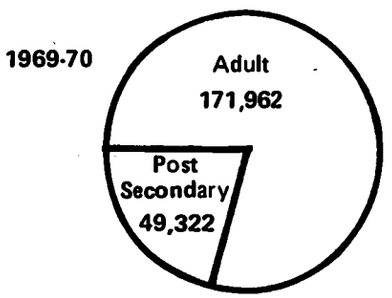
It is equally important that many people be served and that many types of people be served. Generally, the citizens served through the Vocational, Technical and Adult Education System represent all spectrums of society.

V.T.A.E. Name Describes Educational Service

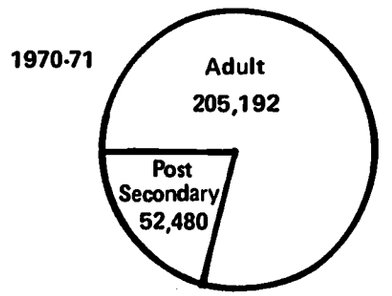
The Wisconsin System of Vocational, Technical and Adult Education gets its official name from the types of education it delivers, e.i., "Vocational", "Technical", and "Adult". For the purposes of this report, Vocational and Technical are identified as "Post-Secondary" and the remainder are considered "Adult".

The Disadvantaged and the Handicapped also are served through these programs, and through special projects and activities described elsewhere in this report under "Services to Citizens With Special Needs"

POST SECONDARY VOCATIONAL, TECHNICAL AND ADULT ENROLLMENTS



Total Enrollments in Adult and Post Secondary Programs— 221,284



Total Enrollments in Adult and Post Secondary Programs— 257,672

Post Secondary Programs

POST-SECONDARY PROGRAMS are designed to prepare citizens for initial employment in the world of work. This category includes the 2-year Associate Degree, 2-year College Parallel, short term programs (less than one year), 1- and 2-year vocational diploma, apprenticeship and developmental programs. Enrollments for each of these programs are presented in Table III (Page 15).

ASSOCIATE DEGREE—Seventeen Wisconsin technical institutes, and vocational-technical schools offer two-year programs leading to the Associate Degree. This type of program provides broad general and technical education as well as a sound foundation in manipulative skills where these are necessary. All Associate Degree programs must meet standards established by the Wisconsin Board of Vocational,, technical and Adult Education to receive degree approval.

COLLEGE PARALLEL—College parallel programs provide courses comparable in vigor, variety and scope to the first two years offered by four-year colleges and universities, thereby enabling the student to continue his education as a junior in a four-year institution. Program flexibility permits the first two year courses of study to be applicable toward specific majors while also serving as a broad preparation for transfer into several fields of study.

ONE-AND TWO-YEAR VOCATIONAL DIPLOMA—Vocational Diploma programs place greater emphasis upon manipulative skills and prepare individuals for more specific types of jobs than do the Associate Degree programs.

SHORT TERM—Short term programs are similar to the one- and two-year Vocational Diploma programs, but they are less than one year in length.

APPRENTICESHIP—The Division of Apprenticeship and Training of the Wisconsin Department of Industry, Labor and Human Relations maintains direct supervision over all formal apprenticeship programs and all apprentices are indentured under provisions of the Wisconsin State Apprenticeship Statutes. The Wisconsin vocational, technical and adult school system provides related instruction in most apprenticeship occupations.

DEVELOPMENTAL—A program designed to prepare the student for successful entry into a full-time vocational/technical program.

The Adult Programs

ADULT PROGRAMS—These encompass a broad range of services, some of which are occupationally oriented and are supported in part by state or federal funds. These include part-time preparatory, extension and fire service training. Others address the safety and well-being of the individual as a member of the community. These include driver education, adult high school, homemaking, general adult, adult basic education, and civil defense. Avocational activities are also considered adult programs but do not receive state or federal aids. Enrollments for each of these general adult programs are presented in Table III on Page 12.

EXTENSION—Courses which are designed to upgrade people in their present jobs or occupations. If a class is to qualify as an extension class, 50% or more of the enrollees must be employed in a definitely related occupation.

PART-TIME PREPARATORY—Courses which have a very definite vocational objective. The vocational objective must be designed to provide employment sometime in the future.

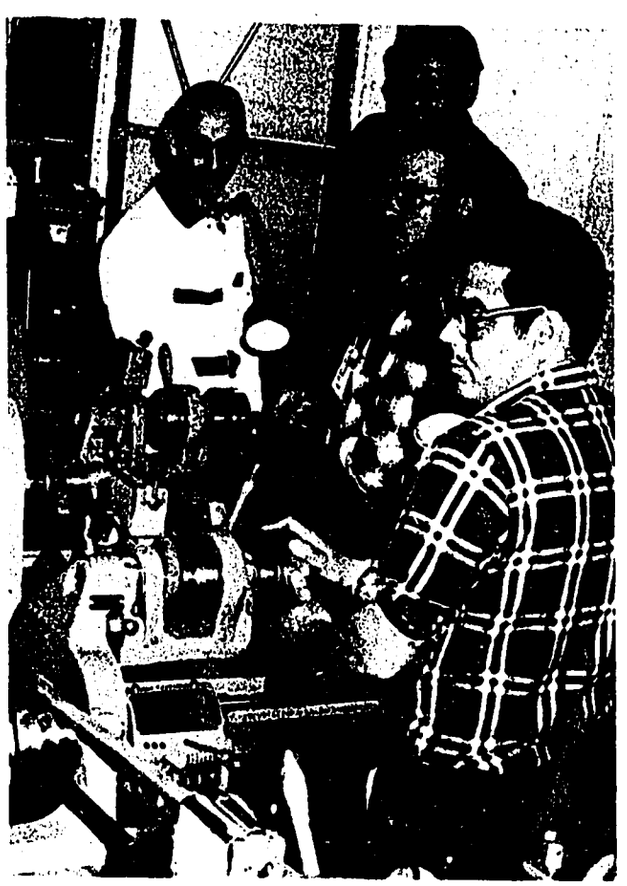
MANPOWER DEVELOPMENT AND TRAINING—Federally funded services designed to provide education and training to help unemployed and underemployed persons fully participate in productive employment.

HOMEMAKING—Part-time courses designed for homemakers to improve homemaking skills and efficiency.

ADULT HIGH SCHOOL—Classes which are designed to help the applicant earn high school credit. The high school credit is granted through a cooperating institution.

GENERAL ADULT—Courses which are of a general educational nature, but are considered aidable. This category would exclude all craft, hobby, recreation, sports, and game activities. "English For New Americans" is an example of an aidable general adult course.

DRIVER EDUCATION—Preparatory and in-service industrial safety education is carried on by districts and schools on a locally-oriented basis. Beginning adult driver education is provided in all districts and refresher courses for experienced drivers are conducted in cooperation with the Wisconsin Council of Safety. Special over-the-road semi-truck driving and in-service truck and school bus driving are taught. Also, specialized traffic safety and recreational vehicle safety education courses are conducted.



ADULT BASIC EDUCATION—An instructional program designed specifically for adults who function at a levels that do not permit their total involvement in today's complex and highly technical society. By law, this is defined as an individual functioning below an eighth grade reading level. The program is designed to provide an adult with the prime tools of basic education: reading, spelling, writing, and mathematics skills. Adult Basic Education is directed toward unemployed workers, public assistance recipients, Negroes, Mexican-Americans, Indians and non-English speaking adults.

FIRE SERVICE TRAINING—Specialized courses in fire prevention, extinguishment, safety practices, management and fire investigation are available to public volunteer and paid fire departments and to private fire departments, such as industrial and institutional units. Other special services, including seminars on various fire protection subjects are provided.

CIVIL DEFENSE—The Wisconsin Board of Vocational, Technical and Adult Education sponsors and supervises civil defense education throughout the state on personal and family survival, shelter management and radiological monitoring.

OTHER AIDABLE—Conferences, seminars and workshops of an occupationally oriented nature and special programs such as high school contract and high school continuation.

NON-AIDABLE—Applies only to those general education classes, usually part-time offerings, which can be considered crafts, games, hobbies, sports, recreation, etc.

All of the post secondary programs listed above and many "adult" programs can be classified into one of the occupational fields described on the next page.

1. **OFFICE EDUCATION**—Provides learning experiences leading to employment and/or advancement of individuals in office occupations which are the connecting link between production and distribution activities of an organization.

2. **DISTRIBUTIVE EDUCATION**—Provides training and education for individuals to enter, progress and/or improve competencies in distributive occupations which include retail and wholesale, finance, credit, insurance, real estate, service and service trades, transportation and allied sales areas.

3. **TRADE AND INDUSTRIAL EDUCATION**—Provides educational and training programs for the present and future employees of industries such as automotive power, drafting and design, public services, electrical, civil-structural, material processing, maintenance, graphic arts and a wide range of occupations through construction, industrial, service and graphics apprenticeable trades.

4. **TECHNICAL EDUCATION**—Technical education is concerned with that body of knowledge organized in a planned sequence of classroom and laboratory experiences usually at the post secondary level, to prepare an individual for a cluster of job opportunities in a specialized field of technology. The program of instruction is based on the study of the underlying sciences and supporting mathematics inherent in a technology, as well as methods, skills, materials, and processes commonly used and services performed in the technology. Technical programs are found in each of the other six occupational divisions.

5. **AGRICULTURAL EDUCATION**—Concerns itself with teaching operating farmers to solve problems most advantageously as related to production and marketing of food and fiber. It includes those who are preparing to serve the above with products and services and those who process agricultural products into edible foods. It also addresses itself to those industries using natural resources, soil, water, timber and air, which affect the well-being of man.

6. **HEALTH OCCUPATIONS EDUCATION**—Provides educational opportunities for adults and high school graduates who can benefit from a wide range of para-dental, para-medical, nursing and kindred programs for service in the health field.

7. **WAGE EARNING HOME ECONOMICS EDUCATION**—To prepare individuals for employment in occupations requiring home economics knowledge and skills which include home and management services, housing and home furnishing services, child care services, food services, clothing services and a wide variety of other wage-earning occupational services.

The V.T.A.E. Student

The combined post-secondary and adult enrollments for 1970-71 reveal the following student characteristics:

1) Citizens in all age groups are receiving the benefits of Vocational, Technical and Adult Education.

TABLE I

Age Groups of Citizens Served By Vocational, Technical and Adult Education 1970-71

Age Group	Number of Students In Age Group (Unduplicated Enrollments)	Number of Students In Age Group As A % of Total Enrollments
15-19	34,279	15.9
20-24	42,298	19.6
25-29	33,638	15.6
30-34	22,757	10.5
35-39	18,581	8.6
40-44	17,292	8.0
45-50	15,287	7.1
50+	31,101	14.4

2) Vocational education services are as readily accessible to the citizen who is married as to the citizen who is single. 63% of all 1970-71 enrollments were married.

3) Vocational education serves citizens with all backgrounds of educational attainment.

2.6% of all 1970-71 Vocational, Technical and Adult enrollments had less than an 8th grade level of education prior to attending the vocational system.

20.4% had less than a 12th grade level of education.

9.7% had completed college level education.

4) Follow-up studies of students completing post-secondary programs indicate that 85% to 95% are employed in an occupation related to their field of training.

The Enrollment Picture

TABLE II

County Vocational, Technical and Adult Education Enrollments As A Percent Of Total State Vocational, Technical and Adult Education Enrollments Compared to County Population* As A Percent Of Total State Population

* Based upon preliminary report of 1970 Census Data and 1970-71 Vocational, Technical and Adult Education Enrollments.

Population/Enrollments By Counties

County	County Population As A % Of Total State Population	County VTAE Enrollments As A % Of Total State VTAE Enroll.	County	County Population As A % Of Total State Population	County VTAE Enrollments As A % Of Total State VTAE Enroll.
Adams	.18	.24	Marathon	2.17	2.07
Ashland	.36	.39	Marinette	.80	.58
Barron	.77	.87	Marquette	.19	.16
Bayfield	.25	.34	Menominee	.05	.09
Brown	3.60	2.94	Milwaukee	23.99	17.96
Buffalo	.31	.30	Monroe	.76	.81
Burnette	.20	.23	Oconto	.57	.45
Calumet	.63	.69	Oneida	.50	.81
Chippewa	1.08	1.16	Outagamie	2.70	2.49
Clark	.69	.55	Ozaukee	1.24	1.06
Columbia	.94	.85	Pepin	.15	.22
Crawford	.34	.41	Pierce	.60	.55
Dane	6.55	7.81	Polk	.58	.72
Dodge	1.58	2.15	Portage	1.07	1.04
Door	.44	.44	Price	.32	.29
Douglas	.98	1.08	Racine	3.92	4.10
Dunn	.65	.78	Richland	.38	.51
Eau Claire	1.45	1.78	Rock	2.94	2.96
Florence	.06	.10	Rusk	.31	.40
Fond du Lac	1.91	2.61	St. Croix	.78	.92
Forest	.16	.17	Sauk	.89	.78
Grant	1.09	1.43	Sawyer	.21	.23
Green	.57	.67	Shawano	.74	.54
Green Lake	.37	.52	Sheboygan	2.19	2.62
Iowa	.42	.60	Taylor	.38	.22
Iron	.14	.19	Trempealeau	.53	.63
Jackson	.34	.42	Vernon	.54	.76
Jefferson	1.36	1.48	Vilas	.23	.32
Juneau	.40	.45	Walworth	1.41	1.54
Kenosha	2.67	3.50	Washburn	.23	.22
Kewaunee	.43	.28	Washington	1.45	1.97
LaCrosse	1.83	2.08	Waukesha	5.25	5.05
LaFayette	.39	.48	Waupaca	.84	.56
Langlade	.42	.38	Waushara	.32	.40
Lincoln	.52	.47	Winnebago	2.96	2.43
Manitowoc	1.87	2.45	Wood	1.50	1.88

	1969-70	1970-71
Post Secondary Program Enrollments		
Associate Degree	18,940	20,746
College Parallel	6,427	6,646
One Year Vocational Diploma	12,577	14,820
Two Year Vocational Diploma	3,567	3,320
Short Term	81	628
Apprenticeship	7,424	5,582
Developmental	306	738
Post Secondary Total	49,322	52,480
Adult Program Enrollments		
Extension	31,435	38,790
Part-Time Preparatory	21,788	20,552
MDTA (Manpower Development & Training)	1,919	2,155
Homemaking	27,652	36,211
Adult High School	5,198	6,400
General Adult	22,789	24,940
Driver Education	7,781	7,971
Adult Basic Education	2,384	3,813
Fire Training	9,829	9,070
Civil Defense	5,610	7,255
Other Aidable	2,970	1,711
Non-aidable	32,607	46,264
Adult Total	171,962	205,192
Total Post Secondary & Adult	221,284	257,672

TABLE III
ANNUAL STATEWIDE ENROLLMENTS IN POST SECONDARY AND ADULT PROGRAMS

The rapid growth of Vocational, Technical and Adult Education in Wisconsin is evidenced by Table III. A 16% increase in total enrollments was experienced from 1969-70 to 1970-71. This represents serving 1 in every 17 Wisconsin citizens.

VTAE

Tables IV, V and VI reflect vocational system enrollments by occupational division.

TABLE IV

ANNUAL STUDENT ENROLLMENTS IN POST SECONDARY AND ADULT PROGRAMS BY DIVISION

The continued growth of vocational education in Wisconsin is shown in Table IV. The increase in post-secondary program enrollments from 1969-70 to 1970-71 was 6.4%. The adult program enrollments increased 20% in the same period of time. (See Table IV.)

*Other-General Education: Continuing education for each adult provided to meet a specific need be it occupationally oriented or designed to help the individual broaden his civic and cultural awareness.

	1969-70			1970-71		
	Post Secondary	Adult	Total	Post Secondary	Adult	Total
Agriculture	642	4,743	5,385	1,144	5,884	7,028
Distribution	4,157	4,464	8,621	4,042	2,783	6,825
Health	3,127	3,789	6,916	4,275	3,890	8,165
Comprehensive Homemaking		48,993	48,993		60,673	60,673
Wage Earning Home Economics	650	1,265	1,915	745	1,860	2,605
Office	12,634	19,200	31,834	14,699	16,362	31,061
Technical	6,393	458	6,850	6,894		6,894
Trade & Industry	13,431	44,753	58,184	13,297	36,121	49,418
*Other		28,858	28,858		61,294	61,294
Not Reported	1,556		1,556			
College Parallel	6,427		6,646	6,646		6,646
Developmental	306		306	738		738
Total	49,322	156,523	205,845	52,480	188,867	241,347

NOTE: All program and enrollment classifications used in this report follow the U. S. Office of Education coding system.

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TABLE V
NUMBER OF DIFFERENT POST SECONDARY PROGRAMS BY TYPE BY DIVISION

	Associate Degree	1 Yr. Voc Diploma	2 Yr. Voc. Diploma	Short Term	Appren-tice	Total
Agriculture						
1969-70	9	0	2	0	1	12
1970-71	10	5	2	0	1	18
Distribution						
1969-70	9	4	2	0	0	15
1970-71	10	4	2	0	0	16
Health						
1969-70	4	7	0	2	1	14
1970-71	7	7	0	3	1	18
Wage Earning Home Economics						
1969-70	2	6	0	0	6	14
1970-71	2	5	0	1	6	14
Office						
1969-70	9	8	2	0	0	19
1970-71	9	8	2	1	0	20
Technical						
1969-70	26	0	0	0	1	27
1970-71	28	0	0	0	1	29
Trade & Industry						
1969-70	5	35	15	0	52	107
1970-71	8	35	16	1	52	112
Total						
1969-70	64	60	21	2	61	208
1970-71	74	64	22	6	61	227

There was a 10.5% increase in the number of different post-secondary programs offered from 1969-70 to 1970-71. The total of 227 different post-secondary programs in 1970-71 should not be interpreted to represent the total of all post-secondary programs which was 761 in 1970-71. The 761 figure includes identical programs which are offered in more than one district.

Note: There is a College Parallel program offered in three of the VTAE districts—District 4-Madison, District 9-Milwaukee, and in District 16-Rhinelander.

TABLE VI
ANNUAL STUDENT ENROLLMENTS IN POST SECONDARY PROGRAMS BY TYPE BY DIVISION

Agriculture						
1969-70	410	0	173	0	59	642
197071	512	61	487	0	84	1,144
Distribution						
1969-70	3,874	107	176	0	0	4,157
1970-71	3,768	214	60	0	0	4,042
Health						
1969-70	420	2,631	0	76	0	3,127
1970-71	794	2,994	0	487	0	4,275
Wage Earning Home Economics						
1969-70	248	248	0	0	154	650
1970-71	295	259	0	53	138	745
Office						
1969-70	6,070	5,495	1,069	0	0	12,634
1970-71	7,581	6,194	907	17	0	14,699
Technical						
1969-70	6,388	0	0	0	4	6,392
1970-71	6,830	0	52	0	12	6,894
Trade & Industry						
1969-70	948	4,014	2,149	0	6,320	13,431
1970-71	966	5,098	1,814	71	5,348	13,297
Not Reported						
1969-70	582	82	0	5	887	1,556
1970-71	0	0	0	0	0	0
Total						
1969-70	18,940	12,577	3,567	81	7,424	42,589
1970-71	20,746	14,820	3,320	628	5,582	45,096

College Parallel — 1969-70, 6,427; 1970-71, 6,646
Developmental — 1969-70, 306: 1970-71, 738

TABLE VII

ENROLLMENTS IN SPECIAL PROGRAMS FOR CITIZENS WITH SPECIAL NEEDS 1970-71

	Enrollment
Adult Basic Education	3,813
Manpower Development and Training	2,155
Adult High School	6,400
Continuation	260
High School Contract	906
	13,534

Services to Citizens With Special Needs

Vocational, Technical and Adult Education has given priority emphasis to serving the citizen with special needs. These needs vary extensively and are met in primarily two different ways:

1) 14,857 disadvantaged and handicapped persons were served in the on-going post-secondary and adult programs in 1970-71.

2) 13,534 disadvantaged and handicapped persons were served through special state and federally funded programs in 1970-71.

It should be noted that there were approximately 100 additional Manpower Development and Training and 1,573 Adult Basic Education enrollments served through delegate agencies in 1970-71. Delegate agencies are non-state or local government agencies such as Opportunity Industrialization Center, Jewish Vocational Services, Madison Opportunity Center, United Migrant Opportunities Service, and Milwaukee Urban League.

Over 13,000 people were also served through projects funded under the 1968 Vocational Education amendments. These services were in addition to the services provided by the programs previously mentioned in Table VII. These projects provide comprehensive services to the disadvantaged and handicapped including special instructional programs and pre-vocational orientation programs, remedial instruction, tutoring and coaching, guidance and counseling, employability skills training, communications skills training, diagnostic services, special transportation facilities and services, special education equipment, services and devices, and reader and interpreter services.

Consumer and homemaking education projects designed specifically for the disadvantaged and handicapped served nearly 1,800 people. These services were also in addition to those provided through the programs indicated in Table VII.

The V.T.A.E Instructional Staff

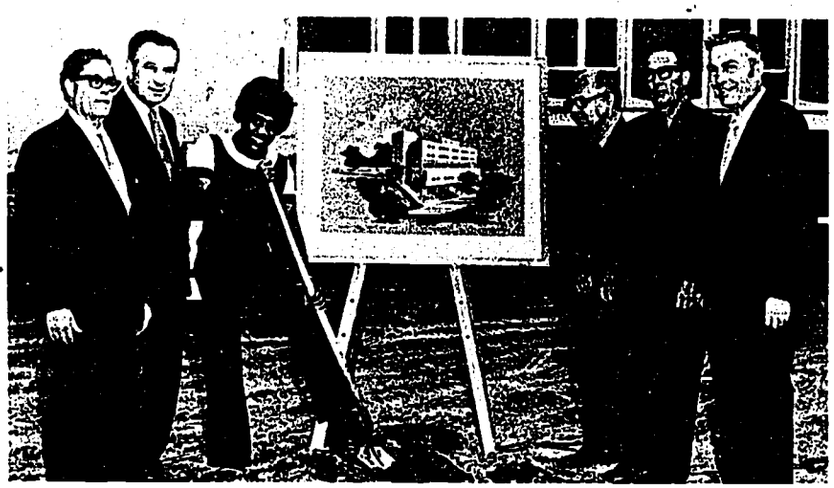
The Vocational, Technical and Adult Education Districts employed 1,941 full time certifiable instructional personnel in 1970-71 and 7,467 part time instructional staff members to serve the 257,000 persons who studied in the system during that period.

The Wisconsin Administrative Code (Chapter A-V-1, Requirements For Certification) requires that each person on the instructional staff in the V.T.A.E. system must have technical competence and experience in the field taught, to assure having teachers who are up-to-date on current practices in their fields.

The occupational experience is required to assure instruction by persons who are up-to-date on current practices within their fields.

A teacher requirement for a V.T.A.E. five-year Standard Certificate is 24 months of occupational experience in the teaching area, except for academic subject teachers, who must have six months of experience in any occupation except education.

In addition to the nearly 10,000 persons employed full time or part time in the V.T.A.E. system, there are a number of other persons who are employed to teach in special areas, such as civil defense education and fire service training. V.T.A.E. instructional supervisors, coordinators, guidance counselors, and administrators also must meet occupational experience as well as academic requirements.



V.T.A.E. Facilities Development

The Wisconsin VTAE districts operate 95 buildings across the state for the full-time programs, and space is leased or otherwise arranged in more than 500 locations for vocational adult and other special educational activities.

There are 42,830 student stations in the total gross full-time program space of 4,333,577 square feet. Value of the space, both owned and leased, is approximately $96 million.

The facilities planning unit of the "Educational Development and Special Services" division of the State Board of Vocational, Technical and Adult Education works closely with the districts to develop sound plans for new facilities. Efforts have been concentrated on the

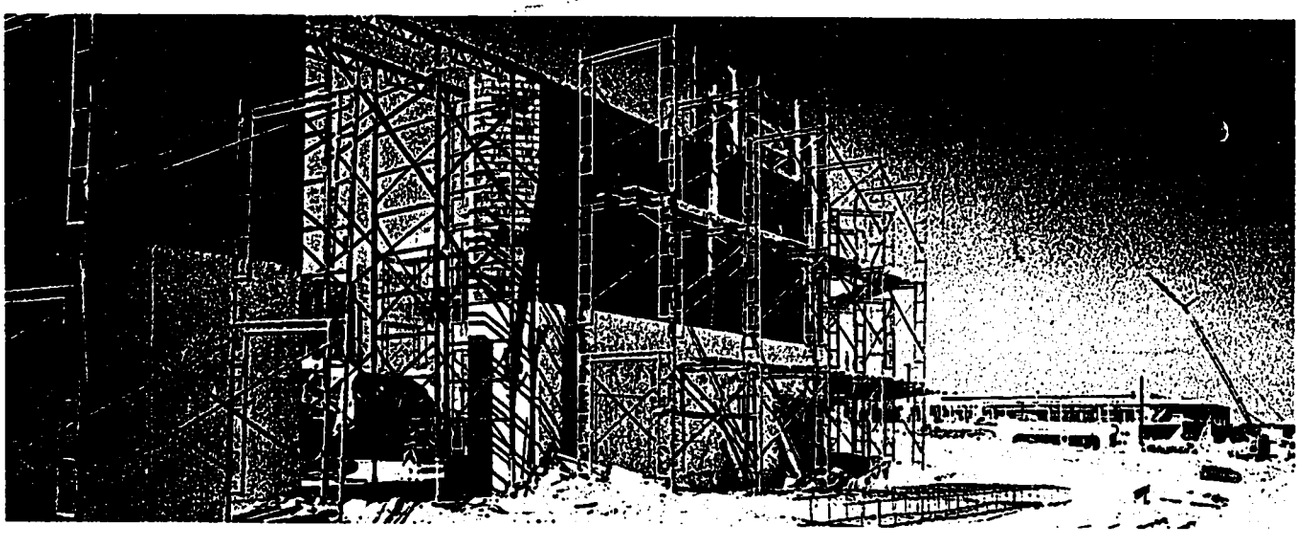
FEDERAL FUNDING ON CONSTRUCTION PROJECTS FOR FY 1970 & 1971

Fiscal Year Ending June 30, 1970

Project No.	District or School	%	Local	Federal	Total
70.08.28	1. VT&A Dist. 8 New Facility	6.45	$ 4,335,156.00	$ 295,844.00	$ 4,631,000.00
70.03.29	2. VT&A Dist. 3 New Facility	26.88	615,949.00	226,466.00	842,415.00
70.12.30	3. VT&A Dist. 12 New Facility	13.55	2,830,834.00	443,766.00	3,274,600.00
70.13.31	4. VT&A Dist. 13 New Facility	9.46	3,282,030.00	342,970.00	3,625,000.00
			$11,063,969.00	$1,309,046.00	$12,373,015.00
TOTAL			$11,063,969.00	$1,309,046.00	$12,373,015.00

Fiscal Year Ending June 30, 1971

71.09.32	1. VT&A Dist. 9 Addition	40	$ 111,590.00	$ 74,400.00	$ 185,990.00
71.04.33	2. VT&A Dist. 4 Addition	40	24,000.00	16,000.00	40,000.00
71.03.34	3. VT&A Dist. 3 New Facility	28.46	602,615.00	239,800.00	842,415.00
71.12.35	4. VT&A Dist. 12 New Facility	11.07	2,912,000.00	362,600.00	3,274,600.00
71.13.36	5. VT&A Dist. 13 New Facility	8.67	3,310,672.00	314,328.00	3,625,000.00
71.07.37	6. VT&A Dist. 7 Addition	31.92	665,084.00	311,916.00	977,000.00
	TOTAL		$7,625,961.00	$1,319,044.00	$8,945,005.00



development of the central schools in the districts.

The State Board has approved the construction projects for federal funding, keyed to:

(1) Student Needs
(2) Program Needs
(3) Needs of Business and Industry.

Allocations to the projects submitted were rated on the basis of the following criteria:

(1) Ability to pay
(2) Manpower needs
(3) Enrollments
(4) Students Station Utilization
(5) Local effort.

Table 1 indicates the federal funding level for projects approved for fiscal year 1970 and 1971. Table 2 is a "Construction Analysis" of the major projects for 1970-71 on a breakdown of the 9 indicated items.

1970 PROJECTS

(1) Second year of funding for a new comprehensive school in District 8.
(2) First year of funding—addition to the comprehensive school in District 3, consisting of shops, classrooms, library, cafeteria and office space.
(3) Total development of a new comprehensive facility in District 12, first year funding.
(4) New comprehensive facility, District 13, first year funding.

1971 PROJECTS

(1) Second year of funding for the addition to the comprehensive facility in District 3.
(2) Second year of funding for the comprehensive school in District 12.
(3) Second year of funding for the comprehensive school in District 13.
(4) Addition to the comprehensive school, District 6-Racine, first year funding.
(5) Remodeling classroom for laboratory space at the comprehensive school in District 9.
(6) Installation of an elevator at the Science Tech Building, Commercial Avenue, District 4.

All of the above projects were developed, planned, bid and contracts awarded during fiscal year 1970 and fiscal year 1971. The following schedule indicates the state of completion of these projects.

1970 PROJECTS

(1) District 8 project, 95% completed—will be placed in operation February 1, 1972.
(2) District 3 project, 100% completed—placed in operation November 1, 1971.
(3) District 12 project, 90% completed—two buildings already occupied—balance of facility to be placed in operation February, 1972.
(4) District 13 project, 55% completed—will be placed in operation November, 1972.

1971 PROJECTS

(1) District 3 project, 100% completed—placed in operation November 1, 1971.
(2) District 12 project, 95% completed—will be placed in operation February, 1972.
(3) District 13 project, 55% completed—will be placed in operation November, 1972.
(4) District 7 project, 45% completed—will be placed in operation during September, 1972.
(5) District 9 project, 90% completed—will be placed in operation during February, 1972.
(6) District 4 project, 100% completed—placed in operation during September, 1971.

SPECIAL NOTE: Despite construction of the new, modern, VTAE career education campuses under the district plan, backed by accelerated federal funding, more and more prospective students are asking for service. This has focussed attention on improved utilization of existing facilities and a search for ways to provide the instruction or call attention to career fields where there are jobs and in which the system has class openings.

CONSTRUCTION COSTS ANALYSIS
Schools of Vocational, Technical and Adult Education in Wisconsin
MAJOR PROJECTS FY 70 & FY 71

	District 8 Waukesha	District 3 Fennimore	District 12 Appleton	District 13 Green Bay	District 6 Racine
1. Year of Construction	1970	1970	1970	1970	1971
2. School size students	2300	650	2500	2650	750
3. Total cost	$6,985,197.00	$1,699,148.00	$6,277,880.00	$7,952,417.00	$1,954,000.00
4. Total number square feet	244,500	80,880	252,712	270,000	87,300
5. Land size	98.6	53	110	191	27
6. Cost per square foot	$28.56	$21.01	24.84	$29.45	$22.35
7. Number of square feet per student	106.34	135.72	101.08	101.88	116
8. Cost per student	$3,037.00	$2,614.00	$2,511.00	$3,000.00	$2,605.00
9. Average cost of land per acre	$3,100.00	$400.00	$—0—	$3,926.00	$—0—

Cost Analysis: Our type of School — National Average
1. Cost per square foot — $21.00 to $38.00 — (Total Cost)
2. Cost per Student — $3,450.00
3. Square feet per Student 150 to 172 — (On Gross Area)

The V.T.A.E. Financial Structure

TOTAL OPERATIONS:

Funding for all state and local operations of the Wisconsin Vocational, Technical and Adult Education system totalled $60,534,177 in FY 1969-70 and $71,903,146 in FY 1970-71.

These totals account for all dollars spent by the V.T.A.E. Districts in support of educational operations and construction debt service, fees and tuition paid by students to support local district educational operations, all federal funds controlled by the Wisconsin Board of Vocational, Technical and Adult Education, and state appropriations.

Federal dollars ($9.9 million in FY 1969-70 and $10.6 million in FY 1970-71) include sums available under the U. S. Vocational Education Amendments of 1968, Manpower Development and Training Act, Civil Defense Education and other Federal programs.

The totals include amounts allocated to the Wisconsin Department of Public Instruction to operate high school Vocational Education programs.

State expenditures for support of Vocational, Technical and Adult Education included $8.8 million in FY 1969-70 and $10.7 million in FY 1970-71 for direct aids to local V.T.A.E. Districts, used to offset costs associated with post high school and adult job training or retraining programs.

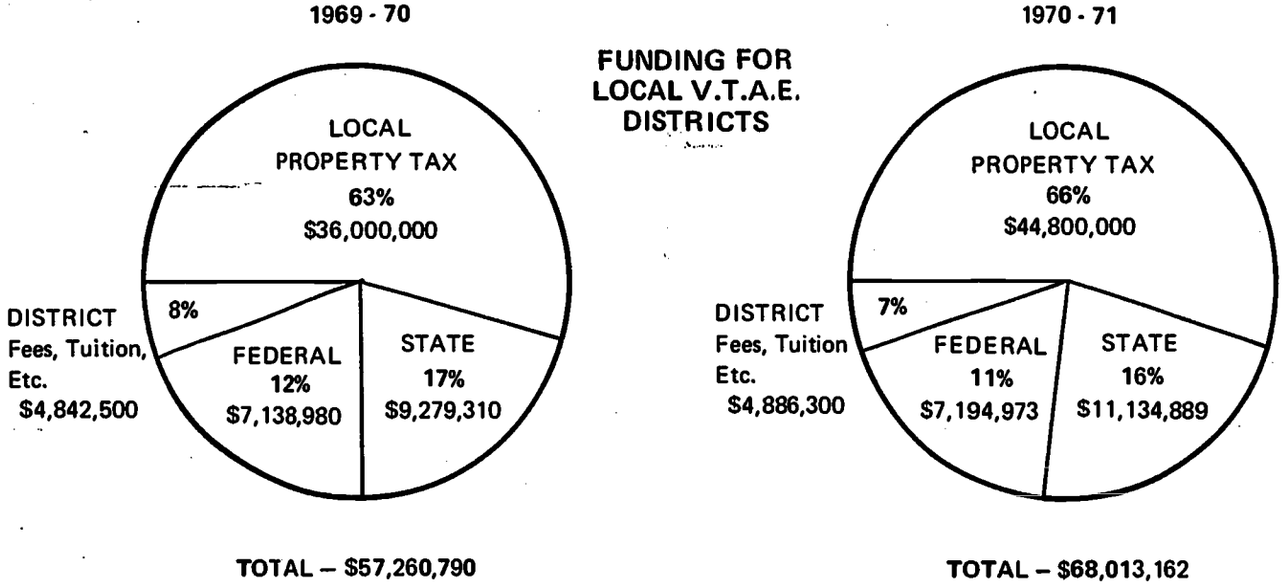
State tax dollars aided Wisconsin V.T.A.E. Board administrative costs by $410,000 in FY 1969-70 and $435,539 in FY 1970-71.

Local V.T.A.E. Districts in Wisconsin derive the largest portion of funding from the local property tax, which was set at two (2) mills of equalized valuation during the 1969-71 biennium.

THE LOCAL DISTRICT PICTURE:

The accompanying graphs indicate the funding picture for local V.T.A.E. Districts in Fiscal Years 1969-70 and 1970-71.

FUNDING FOR LOCAL V.T.A.E. DISTRICTS



Included in the local property tax percentages shown above are amounts for operations and construction debt service. Federal expenditures include amounts for M.D.T.A. operations, but exclude amounts spent by the local high schools for V.T.A.E. programs conducted at the secondary school level. (If M.D.T.A. operations were excluded, the federal government's funding of total operations would decline to 10 per cent in 1969-70 and eight (8) per cent in 1970-71.)

State expenditures for the fiscal years include basic state aids to fund local post high school and adult job training or retraining, Leadership and Need Scholarship expenditures, and amounts spent for driver training operations.

The four tables displayed on the following pages give greater financial detail.

Tables VIII through XI highlight expenditures for Vocational, Technical and Adult Education in 1969-70 and 1970-71. State and Federal funds administered by the State VTAE agency increased from $19,691,677 in 1969-70 to $22,216,846 in 1970-71, an increase of 12.8 per cent.

Table VIII details the State-Federal shares of aids paid for each year by each District. Tables IX and X detail expenditures for each of the two fiscal years by section of the Vocational Education Act. "Balance Available To Award" figures were those amounts carried forward, at June 30 in each case, into the following fiscal year.

Table XI displays actual expenditures for each year by appropriation, shown in comparison to the 1971-72 budget.

TABLE VIII

Wisconsin Board of Vocational, Technical And Adult Education
Schedule Of Aids Paid To Area Vocational Districts
And State Office Expenditures

District	FY 1969-70 State	FY 1969-70 Federal	FY 1970-71 State	FY 1970-71 Federal
1	488,983	132,417	593,830	172,556
2	432,359	221,890	571,652	214,464
3	88,888	326,198	170,639	407,386
4	1,235,542	177,756	1,424,541	192,878
5	184,252	80,609	212,228	102,481
6	563,434	140,789	723,334	178,346
7	280,140	112,195	335,019	463,345
8	309,770	346,091	397,439	161,537
9	3,103,520	1,975,721	3,404,883	1,685,520
10	282,090	188,745	373,643	230,681
11	318,693	69,784	386,057	66,817
12	430,698	625,601	549,874	668,703
13	405,942	476,422	568,429	500,387
14	214,952	47,875	253,884	67,013
15	398,678	204,079	569,918	266,420
16	47,171	16,212	81,025	39,241
17	285,226	387,844	346,954	412,124
18	32,291	48,380	34,475	114,015
*		355,272		394,344
State Total	9,102,629	5,933,880	10,997,824	6,338,258
State Office Administration	410,000	526,955	436,539	535,368
Total	9,512,629	6,460,835	11,434,363	6,873,626

*Projects through the State Office with Private Schools, Universities and other Public Institutions

TABLE IX

Wisconsin Board of Vocational, Technical and Adult Education
Vocational Education Act As Amended 1968
Schedule of Expenditures By Part of Act
FY 1969-70

	FY 1969-70 Federal Appropriation	Expenditures	Balance Available To Award
Administration		398,300	
Construction		1,309,046	
Disadvantaged		526,701	
Handicapped		349,945	
Apprentice		287,349	
Extension		305,871	
Equipment		381,816	
Special Awards		23,123	
Total Part B—Basic Grants	3,903,871	3,582,151	321,720
Administration		15,913	
Research Grants			
Total Part C—Research	15,913	15,913	
Part D—Exemplary	78,193	48,021	30,172
Regular		70,869	
Disadvantaged		76,543	
Total Part F—Consumer and Homemaking	190,237	147,412	42,825
Administration		6,600	
Student Aids		14,146	
Total Part H—Work Study	88,951	20,746	68,205
Part A—102B Special Needs	215,967	39,533	176,434
Total Vocational Education	4,493,132	3,853,776	639,356

TABLE X

Wisconsin Board Of Vocational, Technical And Adult Education
Vocational Education Act As Amended 1968
Schedule Of Expenditures By Part Of Act
FY 1970-71

	FY 1969-70 Available In FY 1970-71	FY 1970-71 Federal Appropriation	Expenditures	Balance Available To Award
Administration			420,897	
Construction			1,319,044	
Disadvantaged			559,489	
Handicapped			410,122	
Apprentice			299,145	
Extension			371,568	
Equipment			596,751	
Special Awards			26,933	
Total Part B–Basic Grants	321,720	4,117,121	4,003,949	434,892
Administration			19,700	
Research Grants			66,460	
Total Part C–Research		229,441	86,160	143,281
Part D–Exemplary	30,172	98,134	97,702	30,604
Regular			20,913	
Disadvantaged			137,824	
Total Part F–Consumer and Homemaking	42,825	271,017	158,737	155,105
Administration			10,000	
Student Aids			155,280	
Total Part H–Work Study	68,205	115,113	165,280	18,038
Part A–102B Special Needs	176,434	255,574	259,911	172,097
Total Vocational Education	639,356	5,086,400	4,771,739	954,017

TABLE XI

Wisconsin Board of Vocational, Technical and Adult Education
Schedule of Expenditures By Appropriation

20.292	Description	Expenditures 1969-70	Expenditures 1970-71	Budget 1971-72
101	General Operations	410,000	436,539	568,400
102	Scholarships	272,409	291,872	546,400
103	Indian Scholarships	27,501	23,786	
104	Fire Service Training	59,500	58,957	63,500
	Total State General Purpose Funds	9,533,210	11,445,054	15,499,500
131	Text Materials	220	1,444	2,000
132	Gifts and Grants	2,401	7,121	
133	Conferences	38	25	
	Total State Revolving Funds	2,659	8,590	2,000
161	Driver Education and Training	215,600	185,331	156,000
	Total State Segregated Funds	215,600	185,331	156,000
144	Civil Defense	44,490	47,348	52,525
145	Manpower REtraining (MDTA)	1,707,575	1,553,917	1,940,000
148	Adult Basic Education (ABE)	600,765	670,924	917,375
150	Highway Safety Act	93,685	78,478	15,000
151	1968 Vocational Education Act*	7,490,143	7,954,864	9,770,915
152	State Advisory Council	3,550	46,716	50,924
153	Special Federal Projects		25,709	30,000
154	Upper Great Lakes		19,915	40,000
	Total Federal Funds	9,940,208	10,577,871	12,816,739
	Total Expenditures	19,691,677	22,216,846	28,474,239
	Number of Positions			
	Professional	46	46	54.5
	Clerical	26.5	27.5	33.5
	Total Positions	72.5	73.5	88

*Includes Department of Public Instruction's Share of 3,183,125 for FY 1970-71 and 3,908,366 for FY 1971-72.

1971-73 GOALS

of the Wisconsin Board of Vocational, Technical and Adult Education

There are seven goals which will receive priority in the 1971-73 biennium. The achievement of these goals is critical to providing quality vocational, technical and adult education to the citizens of Wisconsin.

GOAL 1 TO SUBSTANTIALLY IMPROVE THE ACQUISITION AND DELIVERY OF FINANCIAL AIDS TO ALL NEEDY STUDENTS IN POST SECONDARY PROGRAMS.

Students attending vocational-technical schools are required to provide for a much higher proportion of their educational costs, by working or by borrowing, than do students in other post-secondary systems in Wisconsin.

More vocational-technical students have to work a greater portion of their time in order to attend school than do students of other post secondary systems. 17.2% of the vocational-technical students work 20 hours a week; 11.3% at the state universities; and 13.2 at the University of Wisconsin. This discrepancy becomes even greater at 40 hours per week, 11.7% vocational-technical students work; 2.6% at state universities and .6% at the University of Wisconsin. Vocational-technical students do not have the same levels of aid available and therefore must carry a heavier workload. This comparison is based on first year students.*

The average vocational-technical student must also borrow a higher percentage of his education aids.

In 1970 the Leadership and Need Scholarship support available per student was considerably less than that available per student in other post secondary systems. $31.93 of Leadership and Needs was available per student attending the State University system. Only $8.86 was available per student attending the vocational system.

In the school year 1971-72, the vocational-technical students will receive almost twice as much Leadership and Needs Scholarship Aid as they have received in the past. $545,400 was allocated for this year of the biennium and $568,800 for the second. In an effort to make the most impact with limited aid the Wisconsin Board of Vocational, Technical and Adult Education will allocate scholarships to the most needy students. This approach will result in fewer scholarships but in larger and more meaningful aid to students with total need. It means that the totally needy student will still have to work and borrow money to go to school but in smaller percentages than before. By allocating the gift aid on the basis

*Research Report, Post-Secondary Activities of 1968 High School Seniors, Coordinating Council for Higher Education, December, 1970.

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of need and further by allocating it to the most needy students first, it is hoped that more disadvantaged students will not only be able to start school, but also will complete it.

However, the level of funding is still not adequate to meet the needs of students with substantial need. To accomplish this would have required at least $1,137,000 in Leadership and Need Scholarships for this year. This figure is based on a need survey made of the vocational-technical districts on June of 1971.

State scholarship assistance to vocational-technical students continues to be the most important single aid available. Without question it is the most important factor in assisting the disadvantage students with total financial need to attend vocational-technical schools.

It is anticipated that between 900 and 1,000 needy students will be assisted this year with Leadership Scholarship funds. A special effort is being directed toward helping District 9 provide more assistance to inner city youth.

The State Board will consolidate the federal applications for aid from all districts in order to ensure system-wide equity. It is anticipated that this will result in better use of federal and state resources to impact upon attracting and serving the very needy student.

GOAL 2 THE IMPROVEMENT AND EXPANSION OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION FOR CITIZENS WITH SPECIAL NEEDS.

I. This office will improve the quality of service in existing programs for citizens with special needs by:

   A. Adapting curricular content to effectively meet the individual special needs of disadvantaged and handicapped citizens.

      Through:

      Open-ended programs whereby a person may enter the program at any time and during hours which he can attend, progress at his own ability and become employed when he is ready.

      Development of behavioral objectives and achievement goals which will lead to meaningful credentials for employment and advancement.

      Providing for a wide variety of instructional methods including audio-visual, multi-media, hands-on-real equipment, work-experience, and on-the-job methods of instruction.

   B. Sensitizing state and local government to the unique needs of the disadvantaged.

      Provide in-service training programs which will sensitize state and local

administrative and instructional personnel to the unique needs of the disadvantaged.

Include in staff meetings and communications media regular progress reports on services delivered and evaluation reports on effectiveness of services.

Encourage inter-agency and public and private sector involvement through advisory committees, ad hoc committees, and inter-agency utilization of resources and personnel.

C. Providing special supportive services to ensure student success.

Outreach of services—utilizing mobile facilities (especially for rural areas) and other local public and private facilities on an outreach basis.

Recruitment of students by utilizing para-professionals and peer group representatives, and inter-agency articulation. Provide orientation, communication, and pre-vocational educational programs.

Provide remedial instruction to overcome academic deficiencies.

Provide tutoring and coaching to encourage the student's regular attendance habits, continuation of his vocational education, completion of his training, and success on the job.

Provide vocational diagnosis, assessment, counseling and guidance.

Provide special transportation facilities and services which would make the comprehensive Vocational, Technical and Adult Education Schools more accessible.

Provide special education equipment, services and devices, and reader and interpreter services.

Provide practical consumer education as a supplement to job training to enable the disadvantaged to avoid deceit and fraud in the marketplace of the disadvantaged.

D. In-depth, expanded, meaningful follow-up procedures and services.

Gather individual student profile information.

Design program of services to meet individual needs, assess effectiveness of program, re-design program to more effectively induce student progress.

Match records with other agencies in order to articulate services and avoid unnecessary duplication of services.

Follow-up students at completion of vocational education in order to determine

success on the job and to determine need for and provide continuing education services.

II. This office is aware of the unique disadvantagement of the retuming Vietnam era veteran. Many of them left this country with educational deficiencies and other disadvantages but the problem becomes more severe as they retum with additional handicaps physically, mentally, and emotionally. The percentage of increase of the numbers receiving disability compensation over World War II and Korea is staggering.

Therefore, we will re-align our objectives in serving veterans as follows:

A. Alert district administration and personnel to the unique and special needs of the retuming veteran.

B. Provide extensive encouragement to the returning veteran, pointing out how vocational education can and will serve him.

Open entry/open exit scheduling to permit his enrollment at any time.

Development of individualized instruction through learning packages, programmed materials.

GOAL 3 EXPANSION OF HEALTH OCCUPATIONS EDUCATION IN RURAL AREAS.

In order to delineate the rural areas, we need to look at Wisconsin as primarily a rural state. With the exception of Milwaukee and Madison metropolitan areas, we can reach into the rural areas within a few miles of the boundaries of any city.

During the 1971-73 biennium, our efforts will continue to increase the availability of health occupations education in the rural areas.

I. Providing short-term preparatory and extension programs to the health agencies—hospital and nursing home—for the preparation and upgrading of nursing assistants.

A. Programs will be offered whenever a need is expressed and a sufficient number of students can be recruited to justify setting up a program.

B. Programs are and will be taken directly into the health institutions in all counties of Wisconsin.

C. Programs are and will continue to be made available to every hospital and nursing home in the rural areas. Programs are planned and conducted out of the center schools in all districts.

II. In addition to the preparatory programs for practical nursing located in eleven

districts, extension programs are offered and will be offered in all districts in the following areas for the Licensed Practical Nurses.

1. Care of the Emotionally and Mentally Ill
2. Care of the Medical and Surgical Patient
3. Care of the Geriatric Patient
4. Care of the Patient with Chronic Illness
5. Drugs and Administration of Medication
6. Care of the Mentally Regarded
7. Care of Mother and Baby

III. The V.T.A.E. Health Occupations Education staffs will continue to collaborate with the Extension Division of the University of Wisconsin and other health agencies in providing special educational programs to the nursing teams in hospitals and nursing homes in the rural areas, such as "Rehabilitation Nursing for the Chronically Ill".

IV. The V.T.A.E. Health Occupations staff will continue to conduct 1-2 day institutes for instructors in the rural areas to keep them abreast with new developments and to insure quality programs in the rural areas by:

1. Providing a wide variety of instructional methods including audio-visual, multi-media and supervised extended laboratory experience.

2. Assisting in the development of behavior objectives and evaluation to assure meaningful training for the health worker.

V. During 1971-72 a 116-hour program is being offered to a total of 550 nursing home administrators in nine different geographical locations in the state. The purpose is to prepare and to upgrade the administrative practices in the nursing home field and to assist the administrators to meet licensure requirements. Rural as well as urban areas are represented among the enrollees. The V.T.A.E. system is prepared to continue this program in 1973-74 if the need is demonstrated.

GOAL 4 TO WORK CLOSELY WITH THE DEPARTMENT OF PUBLIC INSTRUCTION IN IMPLEMENTING THE CAREER EDUCATION CONCEPT.

Career education is the fundamental concept that all educational experiences, curriculum, instruction and counseling should be pertinent to preparation for economic independence and the dignity of work. The main thrust of career education is to prepare all students for a successful life of work by improving the basis for occupational choice, by facilitating the acquisition of job skills, and most important by enhancing educational achievement in all subject areas and at all levels through making education more meaningful and relevant to the aspirations of students. Career education recognizes the critical decision points in life when students must be prepared and equipped to decide whether to pursue a job or further education or some combination of both work and education.

It relates to all educational experiences from early childhood throughout the productive life of the individual. Early childhood education would provide an awareness of the world of work and provide some hands on experiences to motivate and captivate the interest. As the child moves through the school system, he explores and tries out his talents and interest to the point where he makes an occupational choice and then prepares for entrance into employment. After entering employment, he may re-enter formal education at any time for the purpose of improving his employability for changing jobs. Vocational education is that portion of the career development program that prepares the individual for entrance into employment, upgrading of skills and knowledge or retraining to enter a new job.

A cooperative program, with the Department of Public Instruction, will be established in the northwest area of the state to test the career education model.

GOAL 5 · TO EXPAND CONSUMER EDUCATION PROGRAMS IN ALL VOCATIONAL, TECHNICAL AND ADULT EDUCATION DISTRICTS.

The purposes of consumer education are to help each student evolve his own value system, to develop a sound decision-making procedure based upon his values, evaluate alternatives in the marketplace and get the best buys for his money, understand his rights and responsibilities as a consumer in our society, and fulfill his role in directing a free enterprise system.

Consumer Education is an imperative need for persons of all age groups; for the disadvantaged and the affluent, for the undereducated and the academically proficient, for persons in the mainstream of occupational endeavors and the senior citizen, for all members of our society.

The Vocational, Technical and Adult Education system will develop educational programming to assist in meeting this need through:

- incorporating Consumer Education in Adult Basic Education programs
- developing Manpower DevelopmentTraining programs with a specific Consumer Education component
- incorporating Consumer Education in all projects for disadvantaged or handicapped members of society
- developing specific Consumer and Homemaking Education projects for the disadvantaged as well as regular members of society
- expanding the development of Consumer Education offered on a credit elective basis to students enrolled in post-secondary full-time diploma and associate degree programs
- strengthening the consumer information incorporated in all adult education courses planned for students in home and family living
- combining efforts with other agencies to use public media and other methods to disseminate consumer information

Efforts will be made to strengthen the Consumer Education concept for persons in

administrative or decision-making roles, to provide educational opportunities for professionals and para-professionals in the teaching field, and to recruit additional teachers in this field. An inter-disciplinary approach to teaching will be developed, thereby utilizing the talents of all persons who can assist the agency in achieving its objectives.

GOAL 6 TO INCREASE THE OPPORTUNITIES FOR ENVIRONMENTAL EDUCATION.

The vocational, technical and adult education system is represented on the Wisconsin Environmental Education Council Advisory Committee. Findings of this committee will be used to improve vocational education's contribution to this important mission.

Priority will be given to the development of programs which will produce skilled manpower for environmental protection occupations. A secondary objective will be development of a program designed to acquaint every full-time student with problems facing our state and nation because of a worsening environment.

Programs will address the decline in environmental equality of air, water, wildlife, soil, and living space. The program designed to orient all students to this problem will also consider health, population, minerals and timber as they affect our way of life.

GOAL 7 TO STUDY AND RECOMMEND NEW METHODS OF FINANCING VOCATIONAL, TECHNICAL AND ADULT EDUCATION IN WISCONSIN.

The continued growth of the vocational system is directly dependent upon the availability of adequate financial resources.

The 1971-73 budget increased the level of state aid reimbursement to 40 percent and 55 percent of the operating cost per full-time equivalent student in post secondary programs for 1971-72 and 1972-73 respectively. This amounted to an increase of $14,553,300 in state aids over the last year of the previous biennium.

However, the 1971-73 budget also reduced the taxing authority of the districts from 2 mills to 1.8 and 1.7 mills for 1971-72 and 1972-73 respectively.

This mill rate decrease reduces the potential property tax revenues for the districts by $18,421,000 during the 1971-73 biennium. However, the increase in state aids of $14,553,000 reduces the potential loss to $3,867,700.

The combined state and local revenues will be insufficient to meet the needs of some districts if their present growth rates continue.

A major study will commence during the 1971-73 biennium for purposes of establishing new methods of financing vocational, technical and adult education in Wisconsin.

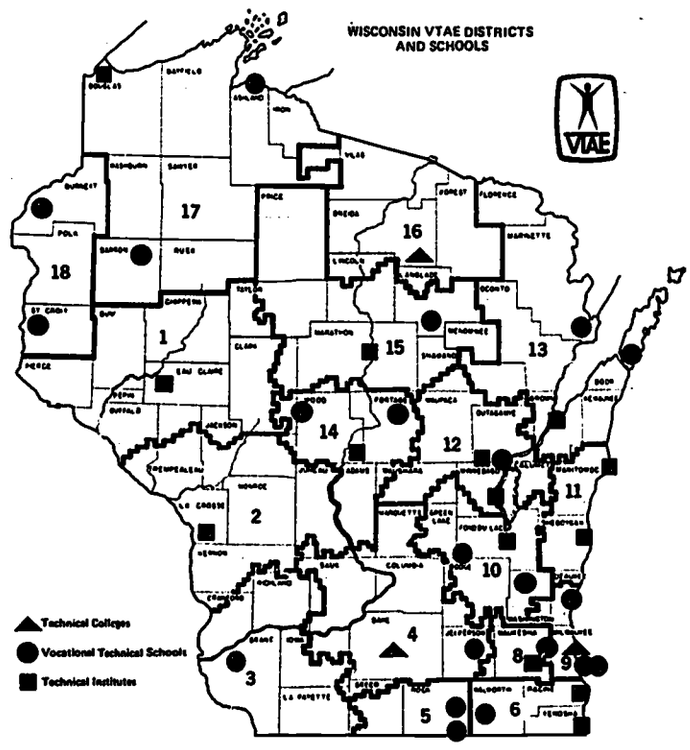
The V.T.A.E. Districts

Section 38.155 of the Wisconsin statutes, adopted by the 1965 Legislature, established that "Beginning as soon after September 29, 1965, as practicable, the coordinating council for higher education, in conjunction with the board of vocational, technical and adult education, shall prepare a proposed master plan for vocational, technical and adult education districts. By July 1, 1970, the board of vocational, technical and adult education shall act to include all areas in such school districts of vocational, technical and adult education as the board designates."

The plan was developed as required and, on July 1, 1970, all areas of the state were in 18 VTAE districts. The number was reduced to 17, through merger of Districts 6 and 7, on July 1, 1971, by state VTAE board action. This is in contrast to 63 city vocational education districts previously operated through-out Wisconsin under earlier laws.

The state VTAE board, following a policy of review of the district plan to assure the best method of providing vocational, technical and adult education to "all persons in all areas of the state", in May, 1971, requested the state VTAE director, Mr. Eugene Lehrmann, to institute a review of the six northern Wisconsin VTAE districts to determine whether or not changes in the number and boundaries of those districts should be made.

The accompanying map below shows the VTAE districts as of July 1, 1971.



Approved for Operation July 1, 1971

4138

4139

Post Secondary and Adult Program Enrollments
District No. 1

	1969-70		1970-71	
Post Secondary				
Associate Degree	739		888	
College Parallel				
One Year Vocational Diploma	522		658	
Two Year Vocational Diploma	249		221	
Short Term				
Apprenticeship	259		198	
Post Secondary Totals		1,769		1,965
Adult				
Extension	1,587		1,727	
Part-time Preparatory	1,572		1,544	
Manpower Development and Training	8		73	
Homemaking	1,766		2,164	
Adult High School	84		136	
General Adult	875		1,000	
Driver Education	309		235	
Adult Basic Education				
Other Aidable	162		212	
Non-aidable	2,055		2,613	
Adult Total		8,418		9,704
District Total—Adult and Post Secondary		10,187		11,669

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70	29				
1970-71	35				6
Distribution					
1969-70	85				
1970-71	123				
Health					
1969-70		19			
1970-71		41			
Wage Earning					
Home Economics					
1969-70					
1970-71					
Office					
1969-70	400	253			
1970-71	477	337			
Technical					
1969-70	225				
1970-71	228				
Trade and Industry					
1969-70		250	249		259
1970-71	25	280	221		192

District One

Mr. Cecil W. Beede, District Director

V.T.A.E. District One served Dunn, Pepin, Eau Claire and Chippewa Counties and parts of Buffalo, Clark, Jackson and Trempealeau Counties until July 1, 1971, when Pierce County was detached from District 18 and attached to District One by State Board action.

During FY 1971, the District operated District One Technical Institute at Eau Claire, Vocational-Adult Centers at Chippewa Falls and Menomonie, and 29 additional centers at locations throughout the District.

As of 1971, 21 per cent of the labor force in the District was engaged in manufacturing, 16 per cent in agriculture, 15 per cent in business occupations, and 10 per cent in education.

Primary thrust of Vocational, Technical and Adult Education planning for the District through 1980 is expected to be to meet changing occupational needs as technologies change.

MEMBERS OF THE DISTRICT BOARD
1971-72

Arthur Medtlie, Chairman, Menomonie

B. K. Duetscher, Vice-Chairman, Mondovi

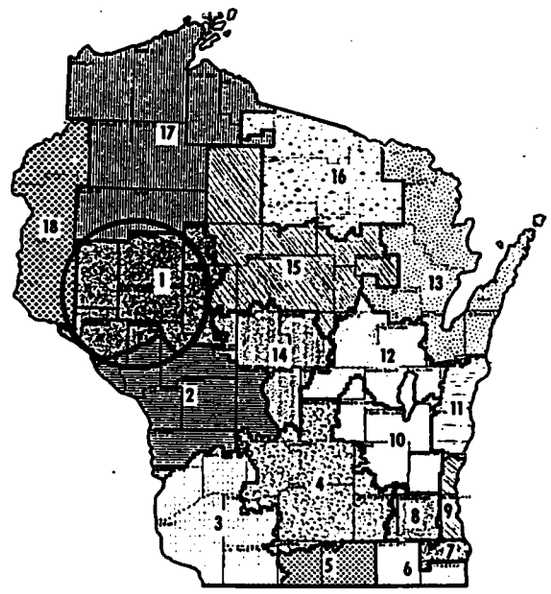
James A. Sells, Secretary, Eau Claire

John R. Bertz, Treasurer, Neillsville

Lyall E. Anderson, Chippewa Falls

Fred F. Schultz, Osseo

George C. Sprague, Eau Claire



Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70	1	1			
1970-71	1				1
Distribution					
1969-70	1				
1970-71	1				
Health					
1969-70		1			
1970-71		1			
Wage Earning					
Home Economics					
1969-70					
1970-71					
Office					
1969-70	3	3			
1970-71	3	4			
Technical					
1969-70	4				
1970-71	4				
Trade and Industry					
1969-70		7	4		8
1970-71	1	10	4		8

ERIC

Post Secondary and Adult Program Enrollments
District No. 2

	1969-70		1970-71	
Post Secondary				
Associate Degree	1,049		1,186	
College Parallel				
One Year Vocational Diploma	464		650	
Two Year Vocational Diploma	19		157	
Short Term			172	
Apprenticeship	203		141	
Post Secondary Totals		1,735		2,306
Adult				
Extension	1,959		2,411	
Part-time Preparatory	1,196		1,270	
Manpower Development and Training	70		166	
Homemaking	742		918	
Adult High School	170		261	
General Adult	1,167		1,268	
Driver Education	437		608	
Adult Basic Education	108		315	
Other Aidable			359	
Non-aidable	1,757		2,995	
Adult Total		7,606		10,571
District Total—Adult and Post Secondary		9,341		12,877

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70	38				
1970-71	30		143		
Distribution					
1969-70	180				
1970-71	185				
Health					
1969-70		198			
1970-71	23	252		172	
Wage Earning Home Economics					
1969-70	27	17			8
1970-71	47	29			
Office					
1969-70	490	112			
1970-71	499	138			
Technical					
1969-70	224				
1970-71	294				
Trade and Industry					
1969-70	90	137	19		203
1970-71	108	231	14		133

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District Two

Mr. Charles G. Richardson
District Director

V.T.A.E. District Two encompasses La Crosse, Monroe and parts of Buffalo, Trempealeau, Jackson, Vernon, Crawford, Juneau, Richland and Sauk Counties.

In 1970-71 the District operated Western Wisconsin Technical Institute at La Crosse, a Vocational-Adult Center at New Lisbon, and additional adult centers at 30 other locations throughout the District.

The District is primarily rural, with production agriculture providing the largest amount of employment outside of La Crosse County. Of the non-farm employment, manufacturing makes up about 37 per cent, retail trade, 30 per cent, service occupations 17 per cent and health occupations eight per cent.

It is projected that the population of the District will remain stable. Past employment growth has come largely from expansion of existing industry, with the major exception being the human services occupations, which grew more than 50 per cent in the past decade.

MEMBERS OF THE DISTRICT BOARD
1971-72

Robert E. Ringdahl, Chairman, La Crosse

J. O. Beadle, Vice-Chairman, Galesville

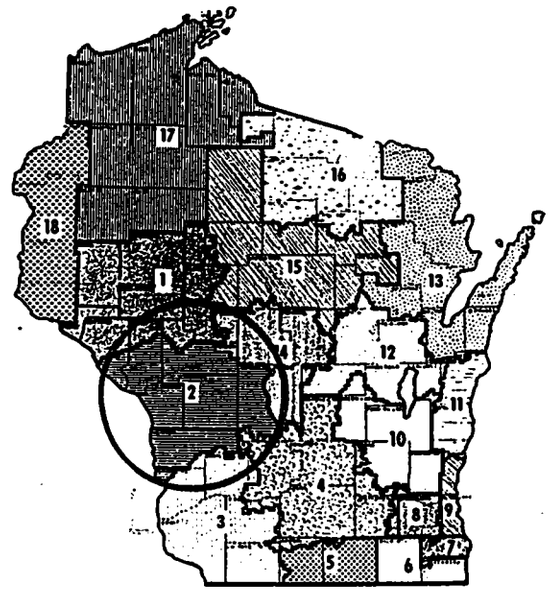
Louis F. Youngman, Secretary, La Crosse

Myron L. Bockhaus, Treasurer, Necedah

Lloyd McKaskey, Oakdale

Paul R. Mockrud, Westby

Melvin C. Schmallenbert, Black River Falls



Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70	2		1		
1970-71	2				
Distriction					
1969-70	4				
1970-71	4				
Health					
1969-70		4		2	
1970-71	1	4			
Wage Earning Home Economics					
1969-70	1	2			1
1970-71	1	2			
Office					
1969-70	5	3			
1970-71	5	3			
Technical					
1969-70	5				
1970-71	5				
Trade and Industry					
1969-70	2	6	2		15
1970-71	2	9	1		11

Post Secondary and Adult Program Enrollments
District No. 3

	1969-70		1970-71	
Post Secondary				
Associate Degree				
College Parallel				
One Year Vocational Diploma	86		122	
Two Year Vocational Diploma	183		300	
Short Term			91	
Apprenticeship	2		26	
Post Secondary Totals		271		539
Adult				
Extension	1,628		1,853	
Part-time Preparatory	590		509	
Manpower Development and Training			33	
Homemaking	633		1,196	
Adult High School	414		347	
General Adult	778		645	
Driver Education	388		224	
Adult Basic Education	46		24	
Other Aidable			93	
Non-aidable	2,017		2,650	
Adult Total		6,499		7,574
District Total—Adult and Post Secondary		6,770		8,113

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70			141		
1970-71		10	226		
Distribution					
1969-70					
1970-71		15			
Health					
1969-70					
1970-71				91	
Wage Earning					
Home Economics					
1969-70					
1970-71					
Office					
1969-70		66	12		
1970-71		58	22		
Technical					
1969-70					
1970-71					
Trade and Industry					
1969-70		20	30		2
1970-71		39	52		26

District Three

Mr. Ronald H. Anderson
District Director

V.T.A.E. District Three encompasses Grant County and most of Crawford, Richland, Iowa and LaFayette Counties.

The District operates Southwest Wisconsin Vocational-Technical School at Fennimore, which now is housed on a new campus at the eastern edge of the city. In 1971, the District also operated Vocational-Adult Centers at 31 other locations throughout the area.

The area served by this V.T.A.E. District is primarily agricultural and the educational services offered have been developed to meet the needs of the region. In the past there has been heavy outmigration of the population, particularly by the youth. About 38 per cent of the District population is employed in agriculture, 34 per cent in business and service occupations, 21 per cent in manufacturing and other industry, and seven per cent in governmental functions.

MEMBERS OF THE DISTRICT BOARD
1971-72

John N. Kramer, Chairman, Fennimore

Walter Calvert, Vice-Chairman, Benton

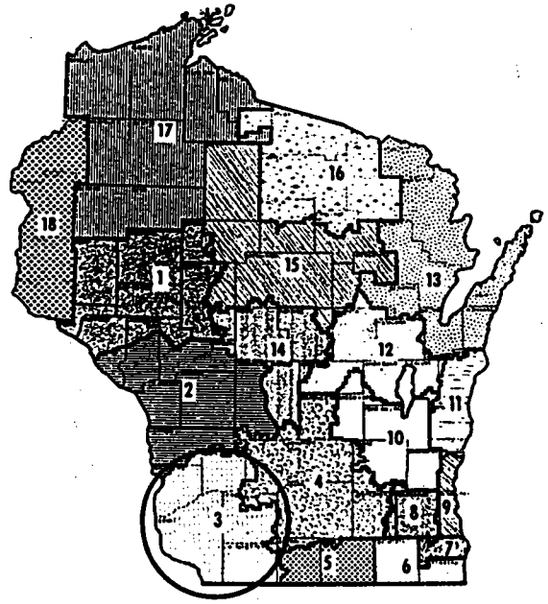
Dr. E. Graham Harrell, Secretary, Platteville

Roger D. Biddick, Treasurer, Livingston

Earl Anderson, Fennimore

Cecil Wanless, Viola

Jack M. White, Prairie du Chien



Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70			2		
1970-71		1	2		
Distribution					
1969-70					
1970-71		1			
Health					
1969-70					
1970-71				2	
Wage Earning					
Home Economics					
1969-70					
1970-71					
Office					
1969-70		3	1		
1970-71		3	1		
Technical					
1969-70					
1970-71					
Trade and Industry					
1969-70		1	1		1
1970-71		2	1		2

ERIC

Post Secondary and Adult Program Enrollments
District No. 4

	1969-70		1970-71	
Post Secondary				
Associate Degree	1,201		1,625	
College Parallel	1,112		992	
One Year Vocational Diploma	2,752		2,643	
Two Year Vocational Diploma	601		245	
Short Term	25			
Apprenticeship	1,004		669	
Developmental			29	
Post Secondary Totals		6,695		6,203
Adult				
Extension	3,154		2,539	
Part-time Preparatory	2,429		2,145	
Manpower Development and Training	30		58	
Homemaking	4,458		4,899	
Adult High School	339		356	
General Adult	1,287		1,923	
Driver Education	1,185		915	
Adult Basic Education	50		36	
Other Aidable	38		67	
Non-aidable	5,833		6,864	
Adult Total		18,803		19,802
District Total—Adult and Post Secondary		25,498		26,005

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71	21				
Distribution					
1969-70	232	30	77		
1970-71	226	100			
Health					
1969-70	3	337		25	
1970-71	57	395			
Wage Earning Home Economics					
1969-70		92			71
1970-71		69			50
Office					
1969-70	419	1927	42		
1970-71	583	1529	18		
Technical					
1969-70	478				
1970-71	578				
Trade and Industry					
1969-70	71	366	482		933
1970-71	160	550	227		619
College Parallel					
1969-70	1112				
1970-71	992				

Developmental
1970-71 29

District Four

Mr. Norman P. Mitby, District Director

V.T.A.E. District Four serves Columbia County, part of Dane and Sauk Counties, and parts of Jefferson, Marquette, Adams, Dodge, Green, Iowa, Juneau, LaFayette, Richland and Rock Counties.

The District operates Madison Area Technical College on two campuses at Madison—the central school at downtown Madison and the technical center on the east side of the city. A Vocational-Technical school also is operated at Watertown and a Vocational-Adult Center also is operated at Fort Atkinson, along with 35 other centers in various parts of the District.

Dane County contains 70 per cent of the population of the District. Employment characteristics reveal that business and service industries (health and social) employ the largest percentage of the labor force, followed by governmental functions, manufacturing and industry, and production agriculture.

MEMBERS OF THE DISTRICT BOARD
1971-72

Marvin E. Brickson, Chairman, Madison

H. A. Alwin, Vice-Chairman, Reedsburg

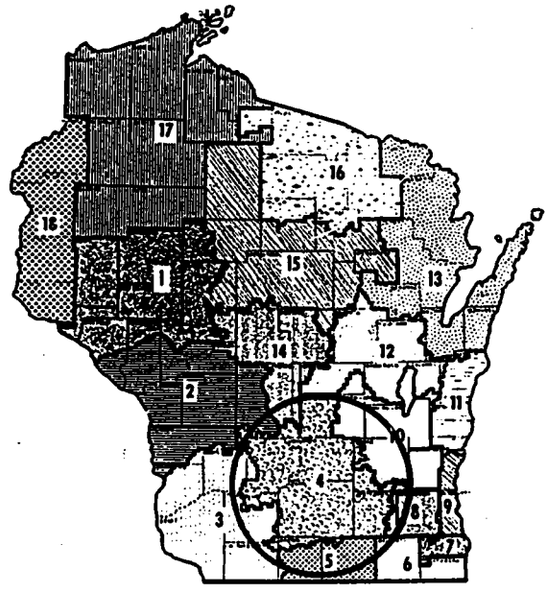
George Hall, Secretary, Madison

John F. Misfeldt, Treasurer, Fort Atkinson

Walter Brink, Verona

Francis E. Kohn, Westfield

Dr. Ray Rueckert, Portage



Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71	1				
Distribution					
1969-70	3	1	2		
1970-71	3	2			
Health					
1969-70	1	5		1	
1970-71	2	6			
Wage Earning Home Economics					
1969-70		3			2
1970-71		3			2
Office					
1969-70	5	7	1		
1970-71	6	7	1		
Technical					
1969-70	8				
1970-71	8				
Trade and Industry					
1969-70	2	8	7		21
1970-71	3	11	5		20

(College Parallel—One program—Developmental—One program)

District Five

Mr. Orvis L. Johnson, District Director

V.T.A.E. District Five is made up largely of Green and Rock Counties. It now is known as Blackhawk Tech. and operates two former Vocational schools, one at Beloit and one at Janesville, which are known as the South and North campuses, respectively, and the District planned to open a new Decatur Township center near Brodhead in late 1971. During 1970-71 there were additional Vocational-Adult Centers at 11 other locations throughout the two-county area.

The District Five population is a mixture of urban and rural residents. The segments of the economy include 33 per cent manufacturing, 20 per cent service occupations, and the remainder divided between wholesale-retail sales occupations and agricultural employment.

The majority of the land in Rock and Green Counties is highly productive and of high value. The District has six major hospitals, several major medical clinics, numerous nursing homes, and a number of other health services facilities.

MEMBERS OF THE DISTRICT BOARD
1971-72

Albert C. Schumacher, Chairman
Janesville

Roy C. Mielke, Vice-Chairman, Beloit

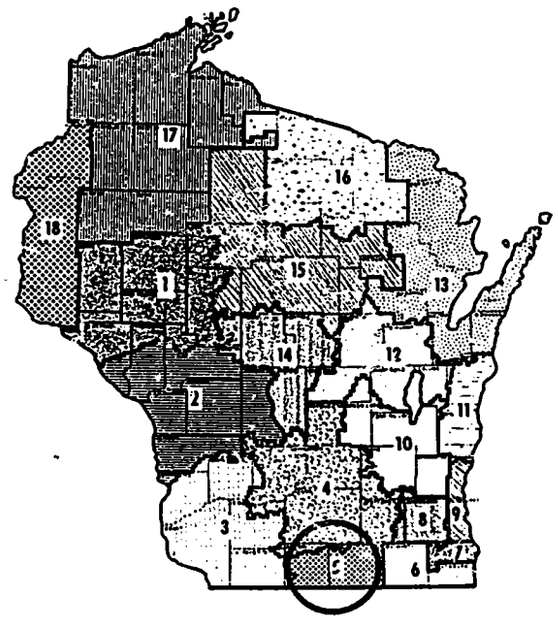
Carl Seifert, Secretary, Beloit

Willis M. Lorch, Treasurer, Brodhead

Dr. Wayne J. Fencil, Monroe

Fred R. Holt, Janesville

Kenneth Hull, Milton



Post Secondary and Adult Program Enrollments
District No. 5

	1969-70		1970-71	
Post Secondary				
Associate Degree	73		202	
College Parallel				
One Year Vocational Diploma	266		312	
Two Year Vocational Diploma	126		70	
Short Term				
Apprenticeship	323		204	
Post Secondary Totals		788		788
Adult				
Extension	2,143		2,143	
Part-time Preparatory	727		529	
Manpower Development and Training	78		60	
Homemaking	992		1,208	
Adult High School			10	
General Audit	804		743	
Driver Education	534		497	
Adult Basic Education			268	
Other Aidable	28		32	
Non-aidable	1,916		1,994	
Adult Total		7,222		7,484
District Total—Adult and Post Secondary		8,010		8,272

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					11
1970-71					6
Distribution					
1969-70			55		
1970-71	60		28		
Health					
1969-70					
1970-71					
Wage Earning Home Economics					
1969-70					23
1970-71					24
Office					
1969-70	40	130	25		
1970-71	88	169			
Technical					
1969-70	33				
1970-71	54				
Trade and Industry					
1969-70		136	46		289
1970-71		143	42		174

Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					1
1970-71					1
Distribution					
1969-70			2		
1970-71	1		2		
Health					
1969-70					
1970-71					
Wage Earning Home Economics					
1969-70					1
1970-71					1
Office					
1969-70	1	4			
297---71	2	4	1		
Technical					
1969-70	1				
1970-71	2				
Trade and Industry					
1969-70		7	2		15
1970-71		7	2		14

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Post Secondary and Adult Program Enrollments
District No. 6

	1969-70		1970-71	
Post Secondary				
Associate Degree	2,446		2,425	
College Parallel				
One Year Vocational Diploma	607		733	
Two Year Vocational Diploma	0		38	
Short Term	0			
Apprenticeship	108		152	
Developmental			403	
Post Secondary Totals		3,161		3,751
Adult				
Extension	964		1,346	
Part-time Preparatory	1,367		1,798	
Manpower Development and Training	93		463	
Homemaking	734		1,534	
Adult High School	375		716	
General Adult	1,104		2,306	
Driver Education	478		523	
Adult Basic Education	345		698	
Other Aidable	153		0	
Non-aidable	1,804		1,834	
Adult Total		7,417		11,218
District Total—Adult and Post Secondary		10,578		14,969

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70	110				
1970-71	96				
Distribution					
1969-70	453	2			
1970-71	411	32			
Health					
1969-70		411			
1970-71		434			
Wage Earning Home Economics					
1969-70	189	27			
1970-71	163	22			
Office					
1969-70	919	23			
1970-71	943	57			
Technical					
1969-70	775				
1970-71	812				
Trade and Industry					
1969-70		144			108
1970-71		188	33		152

(Developmental 1970-71—403)

District Six

Mr. Keith W. Stoehr, District Director

V.T.A.E. District Six originally was made up Kenosha County, with Walworth County joining it to make a two-county district. It now is a three-county district, as of July 1, 1971, when it was combined with District Seven, largely Racine County.

Kenosha Technical Institute—K.T.I.—is operated at Kenosha and a branch campus is operated at Elkhorn, with more than 20 other Vocational-Adult Centers serving community needs in various parts of the area.

With a density of population that is greater than the average for the state, the District serves the vocational, technical and adult education needs of a combination urban and rural society. The two primary economic bases are manufacturing and the service industries, with agriculture also a strong contributor.

MEMBERS OF THE DISTRICT BOARD 1971-72

Sam Rizzo, Chairman
Racine

Arvo M. Mattson, Vice-Chairman
Kenosha

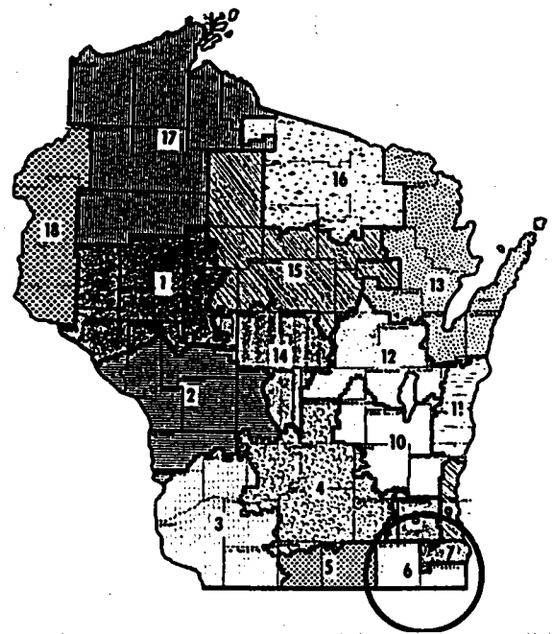
Vernon Pollock, Secretary
Lake Geneva

Lynn D. Johnson, Treasurer
Union Grove

Philip B. Morrissy
Elkhorn

Mrs. Corinee Owens
Racine

Alfred J. Schmidt
Salem



Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70	2				
1970-71	2				
Distribution					
1969-70	3	1			
1970-71	3	1			
Health					
1969-70		3			
1970-71		4			
Wage Earning Home Economics					
1969-70	1	1			
1970-71	1	1			
Office					
1969-70	5	1			
1970-71	5	1			
Technical					
1969-70	7				
1970-71	7				
Trade and Industry					
1969-70		7			9
1970-71		7	1		13

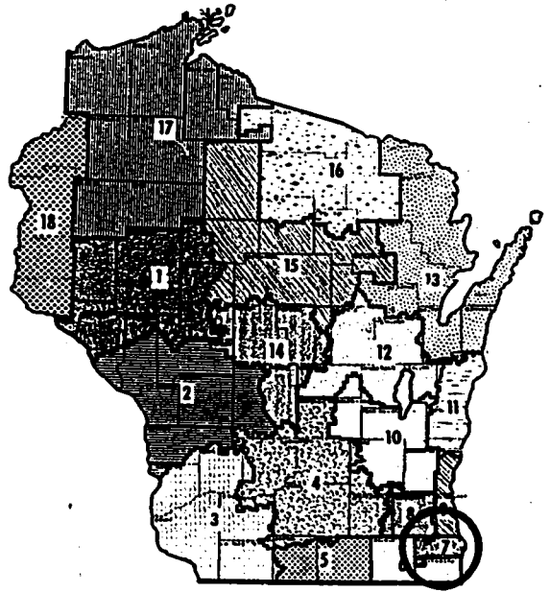
(Developmental—One program)

District Seven

Mr. Howard M. Heigl, District Director

V.T.A.E. District Seven was made up of most of Racine County. It no longer exists, having been combined with District Six by State Board Action as of July 1, 1971.

District Six now operates Racine Technical Institute (R.T.I.) at Racine plus a number of Vocational Adult Centers at other locations in the county. Racine County is a growing urban area with an expected 1980 population of more than 200,000. It has more than 300 diversified industrial plants, nearly 1,400 retail businesses, 700 service businesses, and 190 wholesale businesses, plus an agricultural segment.



Post Secondary and Adult Program Enrollments
District No. 7

	1969-70	1970-71
Post Secondary		
Associate Degree	1,302	1,375
College Parallel		
One Year Vocational Diploma	249	414
Two Year Vocational Diploma		
Short Term		
Apprenticeship	443	293
Post Secondary Totals	1,994	2,082
Adult		
Extension	2,271	1,883
Part-time Preparatory	491	563
Manpower Development and Training	112	115
Homemaking	1,039	1,596
Adult High School	754	1,146
General Adult	1,955	1,647
Driver Education	398	540
Adult Basic Education	294	542
Other Aidable		
Non-aidable		496
Adult Total	7,314	8,528
District Total—Adult and Post Secondary	9,308	10,610

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71					
Distribution					
1969-70	332				
1970-71	274				
Health					
1969-70					
1970-71					
Wage Earning					
Home Economics					
1969-70					
1970-71					
Office					
1969-70	341	77			
1970-71	512	193			
Technical					
1969-70	609				
1970-71	560				
Trade and Industry					
1969-70	20	172			443
1970-71	29	221			293

MEMBERS OF THE DISTRICT BOARD

V.T.A.E. District 7

1970-71

Ray Marhefke, Chairman
Racine

Joseph Riederer, Vice-Chairman
Racine

Philip R. Reinfeldt, Secretary
Burlington

Robert A. Kish, Treasurer
Racine

The Late Gilbert E. Brach, Sr.
Racine

Anthony Rewald
Burlington

Sam Rizzo
Racine

Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71					
Distribution					
1969-70	3				
1970-71	3				
Health					
1969-70					
1970-71					
Wage Earning					
Home Economics					
1969-70					
1970-71					
Office					
1969-70	2	4			
1970-71	2	3			
Technical					
1969-70	8				
1970-71	8				
Trade and Industry					
1969-70	1	7			11
1970-71	1	7			11

Post Secondary and Adult Program Enrollments
District No. 8

	1969-70		1970-71	
Post Secondary				
Associate Degree	2,027		1,458	
College Parallel				
One Year Vocational Diploma	900		1,209	
Two Year Vocational Diploma	245		257	
Short Term	53		39	
Apprenticeship	551		324	
Post Secondary Totals		3,776		3,287
Adult				
Extension	1,113		1,172	
Part-time Preparatory	1,396		768	
Manpower Development and Training				
Homemaking	1,874		1,753	
Adult High School	180		186	
General Adult	859		1,574	
Driver Education	335		346	
Adult Basic Education	447		444	
Other Aidable	62			
Non-aidable	1,847		2,507	
Adult Total		8,113		8,750
District Total--Adult and Post Secondary		11,889		12,037

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71					
Distribution					
1969-70	1341				
1970-71	978				
Health					
1969-70		380		53	
1970-71		626		39	
Wage Earning Home Economics					
1969-70					
1970-71		44			
Office					
1969-70	362	286			
1970-71	242	299			
Technical					
1969-70	324				
1970-71	238				
Trade and Industry					
1969-70		200	245		551
1970-71		240	257		324

(Not Reported 1969-70--34--One Yr. Voc. Diploma)

District Eight

Mr. Anthony J. Natalizio
tor District Director

V.T.A.E. District Eight covers most of Waukesha County and parts of Dodge, Jefferson and Racine Counties.

The District operates Waukesha County Technical Institute, which has been conducted in the former Waukesha Vocational School and other temporary facilities in the city.

A new Technical Institute campus has been completed at the edge of Pewaukee and Vocational Adult Centers also are operated in other communities.

The District is in the heavily-populated part of the state and the population is expected to exceed 400,000 by 1980. Almost half of the population is age 19 or younger.

Many persons commute out of the District to nearby jobs in the urban Milwaukee area, so the vocational, technical and adult education needs of the District residents are not confined to factors within the District boundaries.

The basic employment areas are manufacturing, retail trade, human services, construction and agriculture.

MEMBERS OF THE DISTRICT BOARD
1971-72

W. J. Pierce, Chairman, Menomonee Falls

I. R. Rinehart, Vice-Chairman, Waukesha

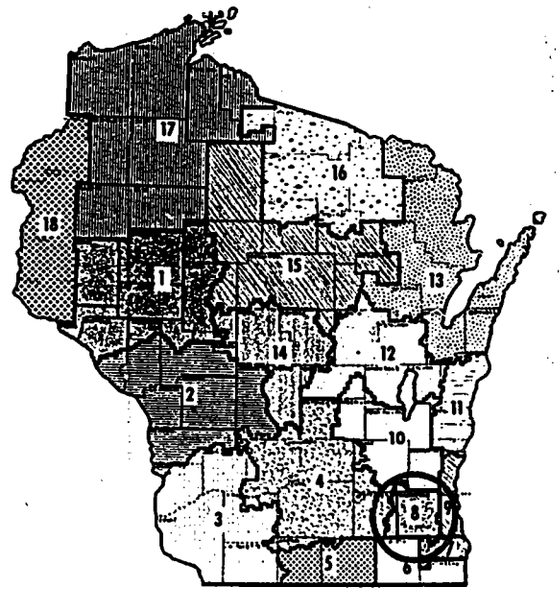
Joseph B. Weix, Jr., Secretary-Treasurer
Oconomowoc

William Heinzelmann, Palmyra

Dr. Henry Kroeze, Brookfield

William F. Paton, Oconomowoc

James M. Nugent, Waukesha



Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71					
Distribution					
1969-70	4				
1970-71	4				
Health					
1969-70		3		2	
1970-71		3		1	
Wage Earning Home Economics					
1969-70					
1970-71		1			
Office					
1969-70	2	4			
1970-71	3	4			
Technical					
1969-70	2				
1970-71	2				
Trade and Industry					
1969-70		5	2		12
1970-71		3	3		13

Post Secondary and Adult Program Enrollments
District No. 9

	1969-70		1970-71	
Post Secondary				
Associate Degree	6,240		6,521	
College Parallel	5,315		5,185	
One Year Vocational Diploma	3,646		4,699	
Two Year Vocational Diploma	1,133		1,066	
Short Term				
Apprenctieship	2,059		1,435	
Developmental	306		194	
Post Secondary Totals		18,699		19,100
Adult				
Extension	2,687		2,209	
Part-time Preparatory	4,105		3,830	
Manpower Development and Training	958		627	
Homemaking	5,631		4,988	
Adult High School	2,274		2,322	
General Adult	2,566		2,630	
Driver Education	1,092		956	
Adult Basic Education	555		548	
Other Aidable	1,256		63	
Non-aidable	4,644		6,794	
Adult Total		25,768		24,967
District Total—Adult and Post Secondary		44,467		44,067

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71					
Distribution					
1969-70	429	11			
1970-71	538				
Health					
1969-70	350	505			
1970-71	616	460			
Wage Earning					
Home Economics					
1969-70		15			40
1970-71		22			18
Office					
1969-70	1718	1522	904		
1970-71	2219	2314	787		
Technical					
1969-70	2407				
1970-71	2398				
Trade and Industry					
1969-70	754	1593	229		1972
1970-71	750	1903	279		1417
Not Reported					
1969-70	582				47
College Parallel 1969-70	5315				
College Parallel 1970-71	5185				
Developmental 1969-70				306	
Developmental 1970-71				194	

District Nine

Dr. William L. Ramsey, District Director

V.T.A.E. District nine serves Milwaukee County, most of Ozaukee County, and parts of Washington and Waukesha Counties.

The District operates Milwaukee Area Technical College, with the campuses including the Technical College in downtown Milwaukee, and others at Cudahy, Port Washington, South Milwaukee and West Allis. Vocational Adult Centers are operated at Shorewood and in more than 200 high schools throughout the district.

Milwaukee County ranks high among the industrialized areas of the nation, but approximately one-sixth of the county remains as farm land. Also, Ozaukee County is changing from a predominantly rural area to groups of suburban communities with light industry, manufacturing and service businesses.

MEMBERS OF THE DISTRICT BOARD
1971-72

Ralph E. Bowes, Chairman
Milwaukee

Frank P. Zierden, Vice-Chairman
Milwaukee

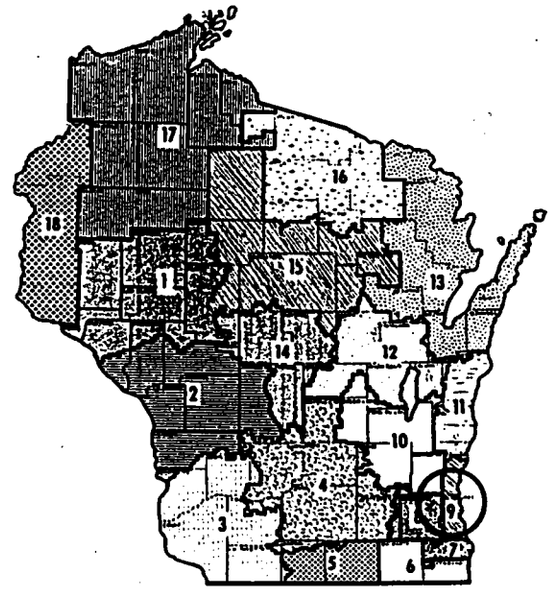
Mrs. Lillian R. Sicula, Secretary
Milwaukee

John S. Randall, Treasurer
Milwaukee

William E. Claypool
Milwaukee

Dr. Richard P. Gousha
Milwaukee

Albert G. VanBoxel
Milwaukee



Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71					
Distribution					
1969-70	3	1			
1970-71	5				
Health					
1969-70	1	3			
1970-71	5	4			
Wage Earning					
Home Economics					
1969-70		1			2
1970-71		1			2
Office					
1969-70	7	5	1		
1970-71	7	5	1		
Technical					
1969-70	19				
1970-71	21				
Trade and Industry					
1969-70	5	23	4		27
1970-71	5	22	5		32

(College Parallel—One Program——Developmental—One Program)

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Post Secondary and Adult Program Enrollments
District No. 10

	1969-70		1970-71	
Post Secondary				
Associate Degree	275		405	
College Parallel				
One Year Vocational Diploma	363		413	
Two Year Vocational Diploma	84		72	
Short Term				
Apprenticeship	386		317	
Post Secondary Totals		1,108		1,207
Adult				
Extension	2,750		3,980	
Part-time Preparatory	1,227		2,018	
Manpower Development and Training	130		83	
Homemaking	23		3,271	
Adult High School	109		198	
General Adult	3,775		2,098	
Driver Education	471		577	
Adult Basic Education	241		464	
Other Aidable				
Non-aidable	2,648		4,517	
Adult Total		11,374		17,206
District Total—Adult and Post Secondary		12,482		18,413

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70	23				57
1970-71	36	10			63
Distribution					
1969-70	91	20			
1970-71	128	8			
Health					
1969-70		84			
1970-71		127			
Wage Earning Home Economics					
1969-70					
1970-71					8
Office					
1969-70	94	127			
1970-71	140	111			
Technical					
1969-70	54				
1970-71	90				
Trade and Industry					
1969-70	13	132	84		290
1970-71	11	157	72		246

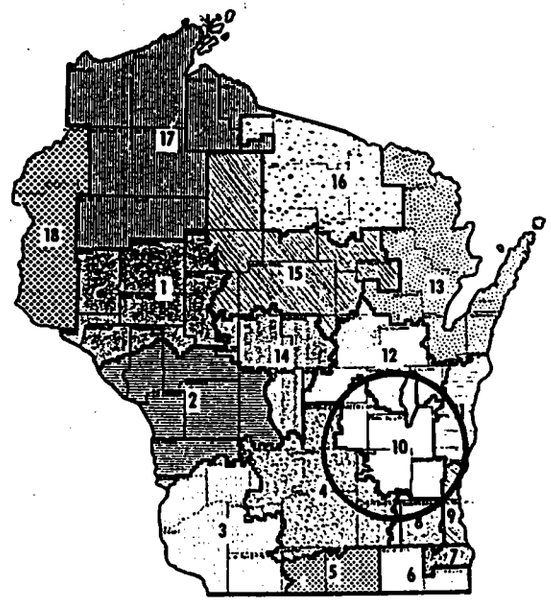
(Not Reported 1969-70—39—Apprentices)

District Ten

Mr. Robert P. Sorensen, District Director

Moraine Park Technical Institute—District 10, serves Fond du Lac and Green Counties, most of Dodge and Washington Counties and parts of Calumet, Sheboygan, Waushara and Winnebago Counties.

The District operates a Technical Institute at Fond du Lac and additional campuses at Beaver Dam and West Bend. In addition, 21 Vocational Adult Centers were operated throughout the District in 1970-71. Facilities to augment the Technical Institute space are rented from the University of Wisconsin branch campus at Fond du Lac. The District economy is based upon industry, recreation, and agriculture, with service occupations growing rapidly.



MEMBERS OF THE
DISTRICT BOARD

V.T.A.E. District 10

1971-72

J. Gibbons Zeratsky, Chairman
Green Lake

Carl E. Platum, Vice-Chairman
West Bend

Clarence E. Sheridan, Secretary
Fond du Lac

Franklin B. Mittelstadt, Treasurer
Beaver Dam

Donald Blakely
Fond du Lac

Ralph H. Dosch
New Holstein

Donald D. Elvestrom
Beaver Dam

Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70	2				1
1970-71	2	1			1
Distribution					
1969-70	1	1			
1970-71	1	1			
Health					
1969-70		2			
1970-71		2			
Wage EArning Home Economics					
1969-70					
1970-71					
Office					
1969-70	2	3			1
1970-71	2	4			
Technical					
1969-70	3				
1970-71	3				
Trade and Industry					
1969-70	1	6	2		10
1970-71	1	7	1		12

Post Secondary and Adult Program Enrollments
District No. 11

	1969-70		1970-71	
Post Secondary				
Associate Degree	552		768	
College Parallel				
One Year Vocational Diploma	327		437	
Two Year Vocational Diploma	35		21	
Short Term				
Apprenticeship	461		444	
Post Secondary Totals		1,375		1,670
Adult				
Extension	1,900		2,461	
Part-time Preparatory	693		1,071	
Manpower Development and Training	52		48	
Homemaking	1,625		2,128	
Adult High School	79		98	
General Adult	1,161		1,382	
Driver Education	473		389	
Adult Basic Education	58			
Other Aidable	236		474	
Non-aidable	2,766		3,136	
Adult Total		9,043		11,187
District Total—Adult and Post Secondary		10,418		12,857

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70		20			
1970-71					
Distribution					
1969-70	150				
1970-71	252				
Health					
1969-70		147			
1970-71		205			
Wage Earning					
Home Economics					
1969-70					
1970-71					
Office					
1969-70	265	35			
1970-71	328	64			
Technical					
1969-70	137				
1970-71	188				
Trade and Industry					
1969-70		125	35		461
1970-71		168	21		444

District Eleven

Mr. Frederick J. Nierode
District Director

V.T.A.E. District 11 encompasses most of Manitowoc and Sheboygan Counties and parts of Calumet and Ozaukee Counties.

The District operates Lakeshore Technical Institute, which now has campuses at the former Manitowoc and Sheboygan Vocational schools. A new central Technical Institute has been approved for construction at Cleveland, Wisconsin, between the two major cities of the District. Vocational Adult Centers also were operated during 1970-71 at 13 additional locations in the District.

Of the non-farming working population of the District, 70 per cent are employed in manufacturing, 13 per cent in governmental occupations, six per cent in wholesale and retail sales, five per cent in service occupations, three per cent in contract construction, and three per cent in transportation, communication, electric gas and sanitary services. The District has witnessed a shift from production agriculture to service occupations along with other changes reflecting the modern social and economic picture.

MEMBERS OF THE DISTRICT BOARD
1971-72

E. H. Beach, Chairman, Sheboygan

H. C. Brennan, Vice-Chairman, Valders

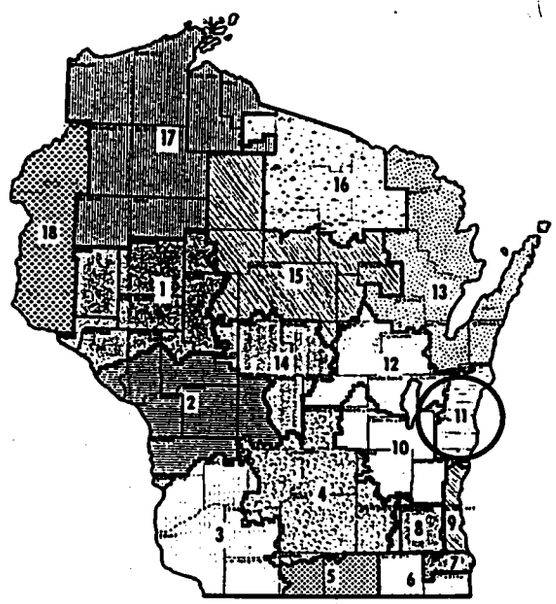
Anton Zajc, Secretary-Treasurer, Sheboygan

Joseph J. Barta, Two Rivers

James V. Dailey, Manitowoc

Robert Goetsch, Glenbeulah

Harold L. Paukert, Kohler



Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70		1			
1970-71					
Distribution					
1969-70	1				
1970-71	2				
Health					
1969-70		4			
1970-71		4			
Wage Earning					
Home Economics					
1969-70					
1970-71					
Office					
1969-70	2	2			
1970-71	2	3			
Technical					
1969-70	2				
1970-71	3				
Trade and Industry					
1969-70		6	2		17
1970-71		8	2		17

Post Secondary and Adult Program Enrollments
District No. 12

	1969-70		1970-71	
Post Secondary				
Associate Degree	822		1,435	
College Parallel				
One Year Vocational Diploma	287		300	
Two Year Vocational Diploma	150		183	
Short Term			210	
Apprenticeship	661		583	
Developmental			19	
Post Secondary Totals		1,920		2,730
Adult				
Extension	2,874		4,269	
Part-time Preparatory	858		530	
Manpower Development and Training			44	
Homemaking	2,074		2,775	
Adult High School	161		212	
General Adult	1,490		1,646	
Driver Education	421		288	
Adult Basic Education	21		70	
Other Aidable	630		232	
Non-aidable	1,381		2,180	
Adult Total		9,910		12,246
District Total—Adult and Post Secondary		11,830		14,976

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70	210				13
1970-71	294				9
Distribution					
1969-70	95				
1970-71	108				
Health					
1969-70		58			
1970-71		112		69	
Wage Earning Home Economics					
1969-70	32				13
1970-71	85			53	12
Office					
1969-70	231	137			
1970-71	578	127		17	
Technical					
1969-70	254				
1970-71	370				
Trade and Industry					
1969-70		92	150		630
1970-71		61	183	71	562
Not Reported					5
1969-70					
Developmental					
1970-71	19				

District Twelve

Mr. William M. Sirek, District Director

V.T.A.E. District 12 serves most of Outagamie, Waupaca, Winnebago and Calumet Counties and parts of Shawano, Brown, Waushara and Manitowoc Counties.

The District operates Lakeshore Technical Institute at Appleton and at Oshkosh. The Appleton facility was completed in late 1971 and programs at Neenah and Appleton now are being moved there, and balance of programs and enrollments is being implemented between the two central technical institute campuses. In addition, the District operated Vocational Adult Centers at 21 other locations during 1970-71.

Located in an area of Wisconsin with a rapidly growing population, the District has a good mix of business, service, governmental, manufacturing, construction, agriculture and recreational opportunities. Educational focus of the District is on preparation for jobs in business and industry, with additional emphasis on human service occupations and agribusiness.

MEMBERS OF THE DISTRICT BOARD
1971-72

Harlen Kirchner, Chairman, Clintonville

D. J. Steinfert, Vice-Chairman, Oshkosh

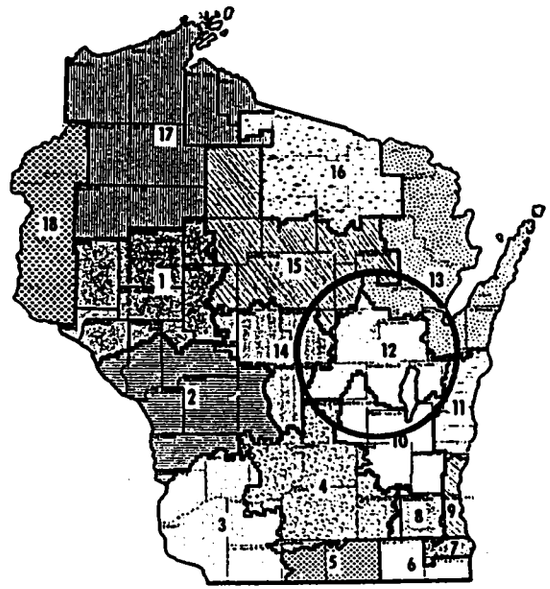
Robert Schneider, Secretary, Hortonville

Darwin E. Smith, Treasurer, Menasha

Larry Berton, Menasha

Frank W. Sprister, Appleton

Gaylord Unbehaun, Brillion



Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70	3				1
1970-71	3				1
Distribution					
1969-70	2				
1970-71	2				
Health					
1969-70		1			
1970-71		1		2	
Wage Earning Home Economics					
1969-70	1				1
1970-71	1			1	1
Office					
1969-70	4	3			
1970-71	4	3		1	
Technical					
1969-70	4				
1970-71	4				
Trade and Industry					
1969-70		5	3		18
1970-71		4	3	1	18

(Developmental—One Program)

Post Secondary and Adult Program Enrollments
District No. 13

	1969-70		1970-71	
Post Secondary				
Associate Degree	707		795	
College Parallel				
One Year Vocational Diploma	688		665	
Two Year Vocational Diploma	72		73	
Short Term	3			
Apprenticeship	461		323	
Developmental			45	
Post Secondary Totals		1,931		1,901
Adult				
Extension	1,254		3,393	
Part-time Preparatory	2,018		973	
Manpower Development and Training	66		72	
Homemaking	988		1,152	
Adult High School	26		142	
General Adult	606		1,427	
Driver Education	369		358	
Adult Basic Education	112		181	
Other Aidable			7	
Non-aidable	969		1,957	
Adult Total		6,408		9,662
District Total—Adult and Post Secondary		8,339		11,563

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71					
Distribution					
1969-70	198				
1970-71	183				
Health					
1969-70		239			
1970-71		206			
Wage Earning					
Home Economics					
1969-70		18			13
1970-71		15			13
Office					
1969-70	205	240			
1970-71	233	264			
Technical					
1969-70	304				
1970-71	379				
Trade and Industry					
1969-70		187	72		375
1970-71		180	73		310
Not Reported					
1969-70		4		3	86

(Developmental 1970-71—45)

District Thirteen

Mr. Kenneth W. Haubenschild
District Director

V.T.A.E. District 13 includes the counties of Door, Kewaunee, Oconto, Florence and Marinette, most of Brown County, and parts of Manitowoc, Outagamie and Shawano Counties.

The District operates Northeastern Wisconsin Technical Institute, with a major center at Green Bay, where a new facility is being completed, and new campus facilities also have been built at Marinette and Sturgeon Bay.

V.T.A.E. District 13 is a relatively stable rural region with fast growing metropolitan areas. Basic orientation is around the paper industry. A major Great Lakes seaport at Green Bay connecting truck and rail lines makes this the hub of a large transportation network.

Educational development is in the areas of business and manufacturing, agriculture, water transportation, tourism, environmental technologies, health services, and home and community services.

MEMBERS OF THE DISTRICT BOARD
1971-72

Joe E. Gagnon, Chairman, Sturgeon Bay

Otto W. Neumann, Vice Chairman, Gillett

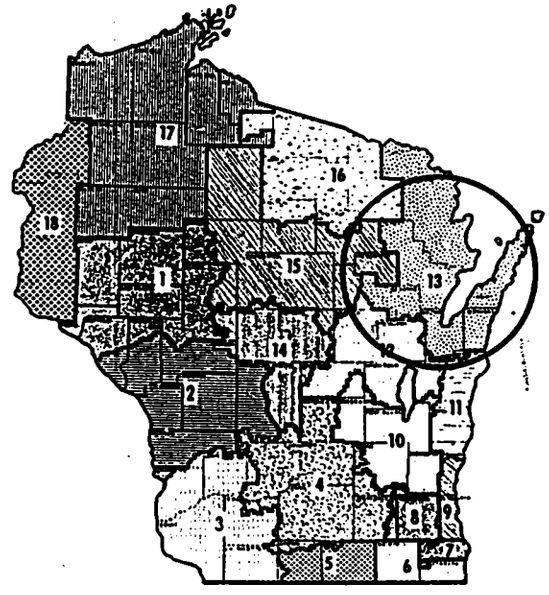
Edwin B. Olds, Secretary, Green Bay

Clayton B. Smits, Treasurer, Green Bay

Frederick W. Barnes, Green Bay

L. Thomas Plouff, Marinette

Edwin F. Waterstreet, Kewaunee



Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71					
Distribution					
1969-70	4				
1970-71	4				
Health		3			
1970-71		4			
Wage Earning					
Home Economics					
1969-70		1			1
1970-71		1			
Office					
1969-70	3	4			
1970-71	3	4			
Technical					
1969-70	6				
1970-71	7				
Trade and Industry					
1969-70		9	1		12
1970-71		8	1		14

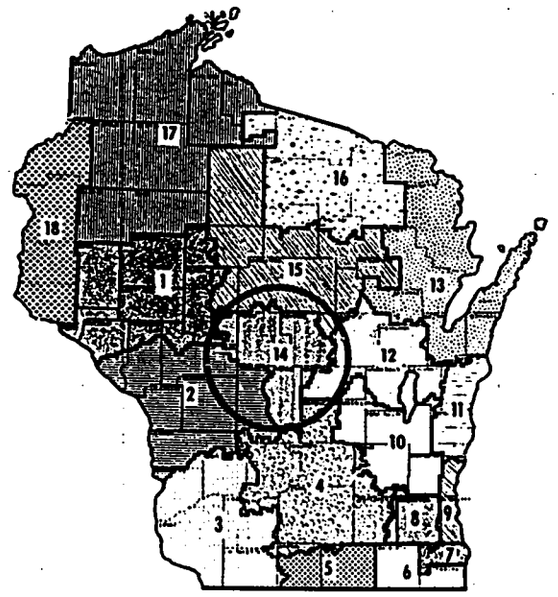
District Fourteen

Mr. Earl F. Jaeger, District Director

V.T.A.E. District 14 encompasses Wood County, most of Portage and Adams Counties and parts of Waupaca, Clark, Jackson, Washara, and Marathon Counties.

The District operates Mid-State Technical Institute, with campuses at Marshfield, Stevens Point and Wisconsin Rapids. There were Vocational Adult Centers in operation at 15 additional communities in the District during 1970-71.

Its location in Central Wisconsin requires that the District's educational services be oriented toward the paper industry, medical and other human services, agriculture (truck farming and irrigation), and tourism. Educational needs of special groups, such as Indians and migrant workers, are recognized.



Post Secondary and Adult Program Enrollments
District No. 14

	1969-70		1970-71	
Post Secondary				
Associate Degree	218		289	
College Parallel				
One Year Vocational Diploma	213		286	
Two Year Vocational Diploma	71		78	
Short Term				
Apprenticeship	238		220	
Post Secondary Totals		740		873
Adult				
Extension	1,560		1,343	
Part-time Preparatory	609		807	
Manpower Development and Training	72		41	
Homemaking	1,301		1,420	
Adult High School	98		16	
General Adult	916		640	
Driver Education	321		542	
Adult Basic Education	17		4	
Other Aidable				
Non-aidable	1,456		2,547	
Adult Total		6,350		7,360
District Total—Adult and Post Secondary		7,090		8,233

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71					
Distribution					
1969-70	46				
1970-71	60				
Health					
1969-70		75			
1970-71		86			
Wage Earning Home Economics					
1969-70					
1970-71		30			
Office					
1969-70	75	67	17		
1970-71	131	65	20		
Technical					
1969-70	97				
1970-71	98				12
Trade and Industry					
1969-70		71	54		238
1970-71		105	58		208

MEMBERS OF THE DISTRICT BOARD

1971-72

Frederick J. Wenzel, Chairman
Marshfield

Daniel P. Meyer, Vice-Chairman
Wisconsin Rapids

Lloyd A. Mitchell, Secretary
Wisconsin Rapids

John Korda, Treasurer
Stevens Point

Richard J. Dignan
Almond

Robert Kirsenlohr
Adams

David A. Silverman
Stevens Point

Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71					
Distribution					
1969-70	2				
1970-71	2				
Health					
1969-70		2			
1970-71		2			
Wage Earning Home Economics					
1969-70					
1970-71		1			
Office					
1969-70	2	3	1		
1970-71	2	2	1		
Technical					
1969-70	3				
1970-71	3				1
Trade and Industry					
1969-70		6	2		12
1970-71		7	2		10

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Post Secondary and Adult Program Enrollments
District No. 15

	1969-70		1970-71	
Post Secondary				
Associate Degree	1,049		1,195	
College Parallel				
One Year Vocational Diploma	238		387	
Two Year Vocational Diploma	156		123	
Short Term				
Apprenticeship	129		116	
Developmental			39	
Post Secondary Totals		1,572		1,860
Adult				
Extension	2,055		3,198	
Part-time Preparatory			9	
Manpower Development and Training	95		43	
Homemaking	641		850	
Adult High School	135		254	
General Adult	1,193		951	
Driver Education	233		358	
Adult Basic Education	57		50	
Other Aidable				
Non-aidable	567		365	
Adult Total		4,976		6,078
District Total—Adult and Post Secondary		6,548		7,938

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70			32		
1970-71		15	34		
Distribution					
1969-70	201	27			
1970-71	196	33			
Health					
1969-70	67				
1970-71	103				
Wage Earning Home Economics					
1969-70		18			
1970-71		28			4
Office					
1969-70	405	81			
1970-71	525	140			
Technical					
1969-70	376				
1970-71	371				
Trade and Industry					
1969-70		112	124		129
1970-71		171	89		112
Developmental					
1970-71	39				

District Fifteen

Mr. Lawrence B. Hoyt, District Director

V.T.A.E. District 15 is comprised of Menomonie and Price Counties, most of Marathon and Langlade Counties and parts of Taylor, Lincoln, Portage, Shawano and Portage Counties.

The District operates North Central Technical Institute at Wausau and a vocational-technical school campus at Antigo, and a Vocational-Adult Center at Merrill. In addition, Vocational-Adult Centers also are operated in 54 other locations throughout the District in 1970-71.

The economy of VTAE District 15, aside from emerging agricultural activities, is largely dependent upon the paper and allied products industry, machinery manufacturing, pre-built home construction, insurance, and trade and service businesses.

MEMBERS OF THE DISTRICT BOARD

1971-72

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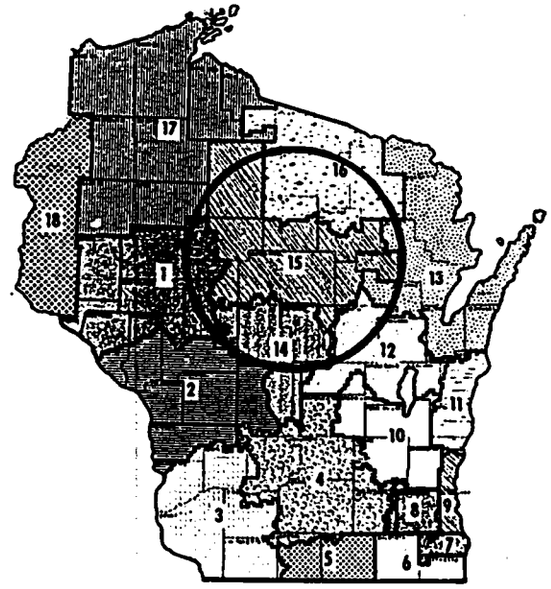


Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70			1		
1970-71		1	1		
Distribution					
1969-70	3	1			
1970-71	3	1			
Health					
1969-70	1				
1970-71	1				
Wage Earning Home Economics					
1969-70		1			
1970-71		1			1
Office					
1969-70	3	2			
1970-71	3	2			
Technical					
1969-70	4				
1970-71	4				
Trade and Industry					
1969-70		5	2		10
1970-71		5	2		10

(Developmental—One Program)

Post Secondary and Adult program Enrollments
District No. 16

	1969-70		1970-71	
Post Secondary				
Associate Degree				
College Parallel			469	
One Year Vocational Diploma	167		267	
Two Year Vocational Diploma				
Short Term				
Apprenticeship	46		33	
Developmental			9	
Post Secondary Totals		213		778
Adult				
Extension	388		449	
Part-time Preparatory	276		115	
Manpower Development and Training	15			
Homemaking	428		442	
Adult High School				
General Adult	995		1,091	
Driver Education	49		100	
Adult Basic Education				
Other Aidable	73		41	
Non-aidable	160		813	
Adult Total		2,384		3,051
District Total—Adult and Post Secondary		2,597		3,829

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71		21			
Distribution					
1969-70		15			
1970-71		26			
Health					
1969-70					
1970-71					
Wage Earning Home Economics					
1969-70					
1970-71					
Office					
1969-70		67			
1970-71		111			
Technical					
1969-70					
1970-71					
Trade and Industry					
1969-70		85			46
1970-71		109			32
College Parallel					
1970-70	469				
Developmental					
1970-71	9				

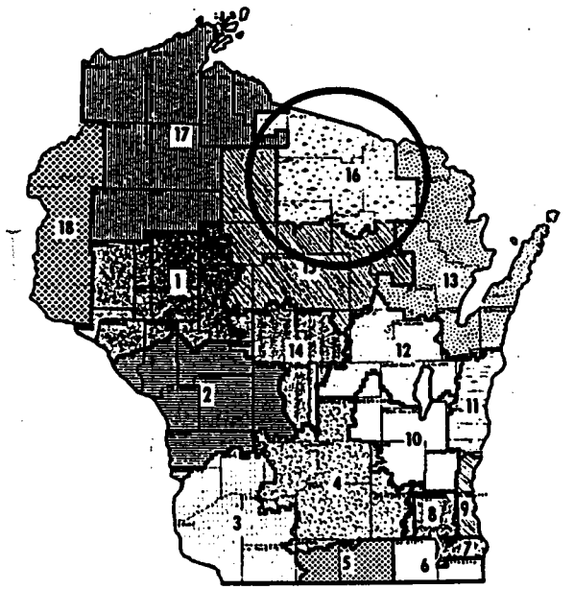
District Sixteen

Dr. Richard J. Brown, District Director

V.T.A.E. District 16 is made up of the counties of Forest, Oneida and Vilas and parts of Iron, Lincoln, and Langlade Counties.

The District operates Nicolet College and Technical Institute in a forest setting at the edge of Rhinelander. The school is unique in many ways, following a mandate that it be established as an experimental institution offering liberal arts and vocational-technical education in the area which previously had a city-operated vocational school and no liberal arts school.

The District is sparsely populated, with family income below the state average. Basic occupations are tourism, forestry, and wood products industries and the distributive, clerical and service areas.



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Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71		1			
Distribution					
1969-70		1			
1970-71		1			
Health					
1969-70					
1970-71					
Wage Earning Home Economics					
1969-70					
1970-71					
Office					
1969-70		3			
1970-71		3			
Technical					
1969-70					1
1970-71					
Trade and Industry					
1969-70		4			9
1970-71		4			7

(College Parallel—One Program——Developmental—One Program)

District Seventeen

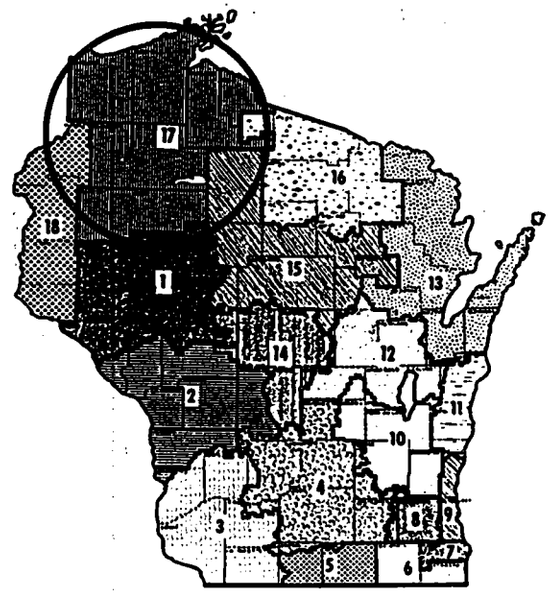
Mr. James W. Covey, District Director

V.T.A.E. District 17 is made up of Ashland, Barron, Bayfield, Douglas, Rusk, Sawyer, and Washburn Counties and most of Iron County.

The District operates Superior Technical Institute, Ashland Vocational-Technical School, and Rice Lake Vocational-Technical School. In addition, Vocational-Adult Centers were operated at 19 other locations in the District during 1970-71.

This broad geographical area has a sparse and dispersed population, with a few large clusters around cities. Economic resources of the area are limited and unemployment and underemployment exist to a considerable degree.

Special emphasis of the District's educational mission is to retrain agricultural workers and improve the training of persons employed in fishing, mining and pulp wood cutting.



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Edward P. Zamzow, Barron

Post Secondary and Adult Program Enrollments
District No. 17

	1969-70		1970-71	
Post Secondary				
Associate Degree	240		179	
College Parallel				
One Year Vocational Diploma	802		597	
Two Year Vocational Diploma	443		332	
Short Term				
Apprenticeship	87		103	
Post Secondary Totals		1,572		1,211
Adult				
Extension	301		481	
Part-time Preparatory	2,042		1,844	
Manpower Development and Training	129		229	
Homemaking	2,009		2,315	
Adult High School				
General Adult	770		1,128	
Driver Education	220		363	
Adult Basic Education	20		62	
Other Aidable			180	
Non-aidable	881		1,600	
Adult Total		6,372		8,202
District Total—Adult and Post Secondary		7,944		9,413

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71		15			
Distribution					
1969-70	41	2	44		
1970-71	46	2	32		
Health					
1969-70		178			
1970-71		81			
Wage Earning					
Home Economics					
1969-70					
1970-71					
Office					
1969-70	106	325	69		
1970-71	83	254	60		
Technical					
1969-70	93				
1970-71	50				
Trade and Industry					
1969-70		297	330		87
1970-71		245	240		103

Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71		1			
Distribution					
1969-70	1	1	1		
1970-71	1	1	1		
Health					
1969-70		1			
1970-71		1			
Wage Earning					
Home Economics					
1969-70					
1970-71					
Office					
1969-70	2	4	2		
1970-71	2	4	2		
Technical					
1969-70	2				
1970-71	2				
Trade and Industry					
1969-70		7	5		8
1970-71		8	5		9

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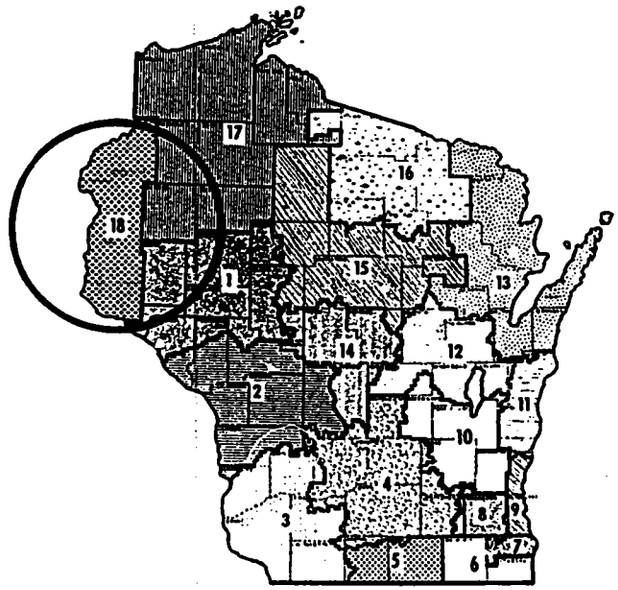
District Eighteen

Mr. Arthur H. Cothran, District Director

V.T.A.E. District 18 included Burnett, Polk, St. Croix and Pierce Counties until July 1, 1971, when Pierce County was detached and placed in District One by State Board action.

The District, known as Advotech District 18, operates vocational-technical schools at New Richmond and at Grantsburg and Vocational-Adult Centers were operated at 22 other locations across the District during 1970-71. A large number of young persons from the district attend V.T.A.E. schools in other districts, with the Advotech District paying tuition costs.

Although the population is shifting from rural to urban concentrations, agriculture remains the major base of the District's economy. Many persons work in the nearby Twin Cities area of Minnesota, however.



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Post Secondary and Adult Program Enrollments
District No. 18

	1969-70		1970-71	
Post Secondary				
Associate Degree				
College Parallel				
One Year Vocational Diploma			28	
Two Year Vocational Diploma			84	
Short Term			116	
Apprenticeship	3		1	
Post Secondary Totals		3		229
Adult				
Extension	847		1,933	
Part-time Preparatory	192		229	
Manpower Development and Training	11		0	
Homemaking	689		1,602	
Adult High School	0		0	
General Adult	488		841	
Driver Education	68		152	
Adult Basic Education	13		107	
Other Aidable	85		11	
Non-aidable	153		402	
Adult Total		2,546		5,277
District Total—Adult and Post Secondary		2,549		5,506

Annual Student Enrollments in Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71			84		
Distribution					
1969-70					
1970-71					
Health					
1969-70					
1970-71				116	
Wage Earning Home Economics					
1969-70					
1970-71					
Office					
1969-70					
1970-71					
Technical					
1969-70					
1970-71					
Trade and Industry					
1969-70					3
1970-71		28			1

Number of Post Secondary Programs

	Associate Degree	1 Yr. Voc. Diploma	2 Yr. Voc. Diploma	Short Term	Apprentice
Agriculture					
1969-70					
1970-71			1		
Distribution					
1969-70					
1970-71					
Health					
1969-70					
1970-71				1	
Wage Earning Home Economics					
1969-70					
1970-71					
Office					
1969-70					
1970-71					
Technical					
1969-70					
1970-71					
Trade and Industry					
1969-70					1
1970-71		2			1

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JOHNSON, WILLIAM A.
CHANGING PATTERNS OF EMPLOYMENT IN THE NEW YORK METROPOLITAN AREA.

NEW YORK CITY RAND INST., N.Y.
NEW YORK CITY ECONOMIC DEVELOPMENT ADMINISTRATION, N.Y.

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IDENTIFIERS - *NEW YORK CITY; LABOR FORCE PARTICIPATIONS

ABSTRACT - THIS STUDY FOCUSES ON REGIONAL CHANGE IN EMPLOYMENT PATTERNS IN THE NEW YORK METROPOLITAN AREA BETWEEN 1962 AND 1966. ITS BASIC OBJECTIVES ARE TO: (1) DEVELOP A USEFUL AND PREVIOUSLY UNAVAILABLE SOURCE OF DATA ABOUT JOB CHANGE IN THE AREA, (2) ESTIMATE THE RELIABILITY OF THESE DATA, AND (3) DETERMINE MORE PRECISELY HOW THE NATURE OF EMPLOYMENT IN THE NEW YORK AREA HAS CHANGED IN RECENT YEARS, WHICH FACTORS ARE RESPONSIBLE FOR THIS CHANGE, AND WHAT IT IMPLIES FOR THE CITY'S ECONOMY. A CONTINUOUS NEW YORK AREA SUBSAMPLE OF EMPLOYEES FROM THE SOCIAL SECURITY ADMINISTRATION NATIONAL ONE-PERCENT WORK HISTORY FILE WAS GENERATED, CONTAINING DETAILED INFORMATION FOR THE PURPOSE OF CROSS-TABULATION. ALTHOUGH INDUSTRIAL CLASSIFICATION IS RATHER ARBITRARY AND THERE ARE DISCREPANCIES BETWEEN THE NEW YORK CITY DATA AND STATE DATA NOW AVAILABLE, THE DATA GENERALLY SUPPORTS THE BELIEF THAT INCREASED EMPLOYMENT HAS BEEN CONCENTRATED IN SUBURBAN AREAS, WITH GROWTH IN THE CITY LIMITED TO HIGH-INCOME, OFFICE AND SERVICES, AND MINORITY EMPLOYMENT. ALTHOUGH THE SERIOUSNESS OF THE GROWING JOB-MANPOWER IMBALANCE MAY HAVE BEEN EXAGGERATED, THE INABILITY OF MINORITY GROUPS TO TAKE FULL ADVANTAGE OF JOB OPPORTUNITIES IN SUBURBAN AREAS STILL CREATES A PROBLEM FOR THESE GROUPS AND FOR THE CITY. MANY TABLES PRESENT THE DATA. (AUTHOR/AG)

R-571-NYC
DECEMBER 1971

Changing Patterns of Employment in the New York Metropolitan Area

William A. Johnson

THE
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II. ACCURACY OF THE SOCIAL SECURITY DATA

Until now, the only time series data on employment in New York City have been developed by the New York State Department of Labor (DOL) in cooperation with the Bureau of Labor Statistics (BLS).* Table 1 presents a comparison of the Social Security estimates with the Department of Labor estimates for major industrial categories.

There are several important differences. Some of these differences clearly reflect the limitations or peculiarities of the Social Security file. For example, the low level of employment by government indicated by the Social Security data results from the fact that most government employees do not participate in the Social Security system.** The discrepancy between the two estimates of employment in transportation and public utilities also reflects the exclusion of railway workers from the system, coupled with the sharp drop in railway employment during the past decade.

Moreover, the definition of employment implicit in the Social Security data differs from the definition of employment used by the BLS. The Social Security definition includes all persons employed in covered jobs sometime during the year; the BLS definition, persons employed in all jobs during a particular week of the year. The more inclusive period of employment assumed by the Social Security sample would tend to increase its measure of employment relative to the DOL measure. However, the Social Security sample's more limited coverage of the employed population would have the opposite effect. For all industries except government, the employment estimates obtained from the Social Security file are higher than estimates by the Department of Labor; this suggests that the first bias more than offsets the second.

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*New York State Department of Labor, Employment Review, Albany, Department of Labor, Division of Employment, Research and Statistics Office, various months.

**See Appendix A.

The New York City-Rand Institute is a nonprofit research institution founded, as its Articles of Incorporation state, "... primarily to conduct programs of scientific research and study, and provide reports and recommendations, relevant to the operations, planning or administration of the City of New York." The Institute was established in 1969 by the City of New York and The Rand Corporation as a center for the continuing application of scientific and analytic techniques to problems of urban life and local government. It is governed by a Board of Trustees appointed jointly by the City and Rand.

Table 1

SOCIAL SECURITY AND NEW YORK STATE DEPARTMENT OF LABOR
NONAGRICULTURAL EMPLOYMENT ESTIMATES FOR NEW YORK CITY
(Thousands)

Industry	1962		1966		Increase	
	Social Security[a]	Department Of Labor	Social Security[a]	Department Of Labor	Social Security[a]	Department Of Labor
Manufacturing	1156.6	911.7	1160.2	863.7	3.6	-48.0
Mining	4.4	1.9	3.9	2.5	-0.5	0.6
Contract Construction	166.4	137.3	130.8	104.9	-35.6	-32.4
Transportation and Public Utilities	321.4	313.3	371.7	318.8	50.3	5.5
Wholesale and Retail Trade	940.7	739.4	898.7	743.7	-42.0	4.3
Finance, Insurance and Real Estate	459.0	398.0	441.2	396.5	-17.8	-1.5
Services and Miscellaneous	956.2	628.7	1090.7	700.4	134.5	71.7
Government	25.1	428.9	35.9	483.8	10.8	54.9
Total	4029.8	3559.3	4133.1	3614.3	103.3	55.0

Source: Social Security sample and New York State Department of Labor, Employment Review, Supplement, April 1969.

[a]Agricultural, military, and nonclassifiable employment have been excluded from the Social Security estimates.

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R-571-NYC
DECEMBER 1971

Changing Patterns of Employment in the New York Metropolitan Area

William A. Johnson

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One might expect to find discrepancies between the two estimates of job changes to the extent that certain industries tend to hire part-time or seasonal employees, while others do not, and the character of part-time and seasonal employment in particular industries has changed over time. For example, early in the period covered by the sample, a relatively large number of seasonal employees may have worked in wholesale and retail trade. Because many of these jobs were subsequently upgraded, part-time employees might have been replaced by a smaller number of full-time employees. The result could well be what one observes in the Social Security data, a reduction in the total number employed in wholesale and retail trade even though, under the BLS definition of employment, the same number of individuals worked in these activities at a particular point in time.

Why one should observe the opposite in manufacturing industries is more puzzling. Here, the Social Security data fly in the face of convention by suggesting that manufacturing employment in the City increased slightly between 1962 and 1966, when the official data show a sharp drop. This discrepancy may be due to the different definitions of employment underlying the two estimates. It is, however, rather difficult to accept the notion that a widely accepted trend in employment is simply a matter of definition. There are other reasons for this discrepancy.

One problem must be the fairly arbitrary nature of Standard Industrial Classifications (SICs). The BLS and Social Security Administration use essentially the same procedure to assign SICs to firms. Each firm is classified in an industry on the basis of its primary product or service. For a firm having several plants or establishments, where possible, each unit of the firm is assigned to an industry separately. The fact that discrepancies for manufacturing industries are more or less offset by discrepancies for wholesale and retail trade is suggestive. One of the greatest difficulties encountered in assigning industrial classifications to companies is in distinguishing between the manufacturing and sales operations of the same unit. The two operations often share the same quarters, particularly in administrative offices which, of course,

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tend to be concentrated in Manhattan. One possible explanation for discrepancies between the two estimates of job change is that the distinction between establishments by industry is sufficiently arbitrary that the two activities may have been confused in one or both data sources.

Another problem may be sampling error in the Social Security data. Changes in the City's employment over time have been small relative to total levels of employment; normal sampling error could well be responsible for some of the observed differences between the Social Security and BLS estimates. The BLS data would be less affected by sampling error. These data have been adjusted to annual "benchmark" estimates drawn from reports by establishments subject to state unemployment insurance laws. The benchmark data cover about three-fourths of all nonagricultural employees; they are supplemented by information drawn from other sources, including the Social Security Administration's records. Because the benchmark surveys are, in effect, censuses of firms covered by unemployment insurance, one would expect the BLS data to be less subject to sampling error than the Social Security file.*

All things considered, one might have less confidence in the Social Security than in the official industry employment estimates. For this reason, in part, I have not done much with the Social Security file's industrial breakdown. One would expect, however, that the classification of job-holders by age, race, sex, and income class in the Social Security file would be less subject to error than the classification by industry. Fortunately, this Report is primarily concerned with employee characteristics.

The Social Security data are far from perfect. Offsetting their imperfections, however, are their two main advantages: The file is sufficiently large that relatively fine cross-classifications by individual and employer characteristics are possible; more important, the file

*For further discussion of BLS estimating techniques, see United States Department of Labor, Bureau of Labor Statistics, Employment and Earnings, Vol. 17, No. 5, November 1970, Technical note, p. 126; and Carol Utter, "BLS Establishment Employment Estimates Revised to March 1969 Benchmark Levels," Employment and Earnings, Vol. 16, No. 12, June 1970, pp. 11-15.

PREFACE

This Report, one of several studies sponsored by New York City's Economic Development Administration, presents the findings of a study of the changing composition of jobs in the New York metropolitan area. A related report by Irving Fisher, R-600-NYC, will examine the changing composition of the area's population as a result of migration.

Read together, the two reports present a relatively comprehensive analysis of the growing imbalance between jobs and manpower in the region, a major topic of the work done by the New York City-Rand Institute for EDA.

The scope of this Report has been limited by the length of the Institute's contract period with EDA. It took much of the fiscal year to generate the basic data, the New York metropolitan area subsample of the Social Security Administration's national work history file, and to correct some of its deficiencies. Relatively little time was left to give the subsample the analysis it deserves. The Institute was only able to run the most basic cross-tabulations of the file. Much more can and should be done, particularly with the continuity of the file and more sophisticated methods of analyzing it.

NOTE: Most of the data used in this publication were derived from a computer tape furnished by the Social Security Administration. The author did not at any time have access to any information permitting identification of specific individuals or reporting units. The Social Security Administration assumes no responsibility for whatever analyses, interpretations, inferences, conclusions, or recommendations are developed from the statistics by others.

is continuous. The employment histories of the same individuals can be traced over the five-year period. As in most things, however, one must accept the bad with the good.

SUMMARY

This study of employment in the New York metropolitan area between 1962 and 1966 has three basic objectives: (1) to develop a useful and, until now, unavailable source of data about job change in the area; (2) to estimate the reliability of these data; (3) to determine more precisely how the nature of employment in the New York area has changed in recent years, which factors are responsible for this change, and what it implies for the City's economy.

The New York City-Rand Institute has generated a continuous New York area subsample of employees from the Social Security Administration's national one-percent work history file. This subsample contains information on the age, race, sex, and wage income of New York area employees, as well as their county and industry of employment. The most important and unique features of the file are its substantial size, which permits detailed cross-tabulations of the labor force by employee and employer characteristics, and its continuity, which provides a record of individuals' job changes over time.

There are some discrepancies between the Social Security Administration's employment data and State data now available to the City. The Social Security file indicates greater job growth in the City during the mid-1960s than is generally thought to have occurred. The file also indicates that employment by New York City manufacturing firms has increased slightly, instead of decreasing, while employment in wholesale and retail trade has decreased sharply, instead of increasing. One reason for these discrepancies is the different definitions of employment implicit in each source of data; another is the limited coverage of the labor force by the Social Security system. Perhaps most important, the industrial classification of employers, particularly in manufacturing and trade, is rather arbitrary. These discrepancies give reason to question the usefulness, for some purposes, of the employment data disaggregated on an industry-by-industry basis.

The study focuses on regional change in employment patterns in the New York metropolitan area. Although it supports the general belief that the increase in employment in the region has been concentrated in suburban

III. JOB CHANGE IN THE NEW YORK AREA

The Social Security sample gives us location of employment, not location of residence. Therefore, job growth in the City may not be the same as job growth for City residents. This is an important point. Most new jobs in the City have been in the office and service sectors; many of these jobs have probably been filled by suburban commuters.

Total employment in New York City, given by the Social Security data, increased by slightly less than 3 percent between 1962 and 1966. By contrast, employment in the suburbs* rose by over 13 percent. The Social Security data substantiate the general belief that job growth of the New York metropolitan area has been concentrated in the suburbs. Even so, 112,000 more individuals were employed in New York City in 1966 than in 1962 (Table 2). Job growth in the City has not been negligible.

EMPLOYMENT BY INCOME CLASS

There has been a general increase in income levels in both the City and the suburbs (Tables 2 and 3). This is to be expected, both because of inflation (the income data are not deflated for price increases) and substantial economic growth during the period. What is more important, however, is the disproportionate increase in high-income jobs, and loss of low-income jobs in New York City. The Social Security data support the belief that, over time, employment in the City has shifted toward high-income jobs relative to employment in suburban areas.

EMPLOYMENT BY AGE GROUP

Between 1962 and 1966, the percentage of youth employed in both the City and suburbs increased slightly (Table 4). However, the employment of white teenagers in the City decreased.** This exception probably

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*For convenience, we define all non-New York City parts of the New York metropolitan area as "suburbs," even though these areas include such urban centers as Newark, Jersey City, Paterson, and Yonkers. For the counties included in the New York metropolitan area, see Appendix A.

**See Appendix C, Tables C-5 and C-8.

areas, there has still been considerable job growth in the City. It also supports the general belief that the City has been losing low- and middle-income jobs, and gaining high-income jobs, relative to the suburbs, and that this change has been associated with a shift to office and service sector activities. Yet, in something of a contradiction, the study shows that youth, women, and minority groups--segments of the population receiving relatively low wages--have accounted for most of the increased employment in the City.

There are several explanations for this contradiction. For example, the increase in employment of minority groups has been associated in part with the replacement of middle-income whites dropping out of the labor force or leaving the City. This is especially true of minority males. Minority groups have also found employment in the suburbs in substantial numbers. Indeed, considering the total number of jobs filled by these groups in the metropolitan area, job growth in the suburbs has been as important as job growth in the City. In short, the study suggests that there are adjustment mechanisms in the region's economy through which the consequences of a growing imbalance between the location of jobs and residences of low-income manpower have been mitigated.

Still, the problem of regional imbalance between jobs and manpower should concern the City's policymakers. In the first place, a number of minority employees may be unemployed because of their inability to find jobs in the City or to fill jobs in the suburbs. The Social Security data do not indicate this number. In the second place, black males generally earn more in the suburbs than in the City; for all other groups, the opposite is the case. This suggests a cost, to black males at least, of the suburbanization of low- and middle-income jobs. Finally, there is some evidence that the jobs available to minority groups in the City are less likely to provide stable long-run employment than jobs available in the suburbs. Even though the seriousness of the growing job-manpower imbalance may have been exaggerated, the inability of minority groups to take full advantage of job opportunities in suburban areas still creates a problem for these groups and for the City.

Table 2

EMPLOYMENT BY INCOME CLASS
(Thousands)

Income Class	City		Suburbs	
	1962	1966	1962	1966
$1-2499	1388.4 (34.3)[a]	1288.2 (30.9)	1064.0 (34.3)	1200.1 (34.1)
$2500-4999	1267.2 (31.3)	1071.2 (25.7)	876.7 (28.3)	846.0 (24.1)
$5000-7999	830.7 (20.5)	940.7 (22.6)	740.4 (23.9)	813.5 (23.1)
$8000 or more	557.5 (13.7)	855.4 (20.5)	420.8 (13.6)	656.6 (18.7)
Total	4043.8	4155.5	3101.9	3516.2

Source: Social Security sample: Appendix C, Table C-3.

[a]Percentage of total in parentheses.

ACKNOWLEDGMENTS

I am indebted to Warren Buckler of the Social Security Administration and John Merck, formerly of The Rand Corporation, for helping me to understand the contents and limitations of the Social Security sample. I am also indebted to Anthony Japha of New York City's Bureau of the Budget, Charles Brecher of Columbia University, Abraham Berman of the New York State Department of Labor, R. Edward Park of The Rand Corporation, and Harrison Campbell of The New York City-Rand Institute for many useful comments. Above all, I am grateful to Fred Finnegan of Rand's Computer Sciences Department who generated the New York subsample and converted it into a usable research file.

Table 3

EMPLOYMENT GROWTH IN NEW YORK CITY
BY INCOME CLASS AND INDUSTRY
(Thousands)

Industry	Income Class			
	$1-$5000	$5000-$7999	$8000 or more	Total
Total	-296.2	110.0	297.9	111.7
Manufacturing	-89.2	21.9	70.9	3.6
Transportation and Communication	-22.4	-0.9	50.6	27.3
Retail and Wholesale Trade	-93.1	17.1	34.0	-42.0
Finance	-30.3	12.7	22.3	4.7
Insurance and Real Estate	-50.5	15.2	12.8	-22.5
Medical, Health and Educational Services	- 8.0	14.9	49.7	56.6
Other Personal and Business Services (Including Government)	17.0	27.5	44.2	88.7
Other	-19.7	1.6	13.4	- 4.7

Source: Social Security sample.

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(Thousands)

Age Group	City		Suburbs	
	1962	1966	1962	1966
Less than 18	97.6 (2.4)[a]	107.8 (2.5)	97.3 (3.1)	141.8 (4.0)
18 to 24	667.3 (16.5)	731.1 (17.5)	533.8 (17.2)	677.6 (19.3)
25 to 49	2039.0 (50.4)	2063.5 (49.6)	1673.1 (53.9)	1788.8 (50.9)
Greater than 50	1239.9 (30.6)	1253.1 (30.1)	797.7 (25.7)	908.0 (25.8)
Total	4043.8	4155.5	3101.9	3516.2

Source: Social Security sample: Appendix C, Table C-4.

[a]Percentage of total in parentheses.

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reflects the general exodus of white families from the City during the period and the fact that the employment location of teenagers is generally determined by the residential location of their families, and not vice versa.

EMPLOYMENT BY SEX

The percentage of women employed in both the City and the suburbs also increased (Table 5). This conclusion is consistent with the findings of others. One of the important labor market developments of this century has been the steadily increasing participation of women in the labor force.* However, nearly 80 percent of the job growth in the City was accounted for by women, compared to 54 percent of the job growth in the suburbs. Female employees have enjoyed a larger than average share of the City's job growth. One reason for this may have been that women have filled a relatively large percentage of new jobs in service industries (Table 6).** During the five-year period covered by the sample, service activities increased more in the City than in the suburbs. One would expect, therefore, a disproportionate increase in employment of women in the City.

Still, the concentration of women in growing industries has not been the primary reason for their improved job position in the City. Table 5 shows that in 1962, women accounted for nearly 40 percent of the City's employees. This percentage was virtually identical for industries in which total employment was to increase as in industries in which total employment was to fall in succeeding years. In other words, the predominance of women in the City's job growth between 1962 and 1966 was not largely associated with the fact that women tend to work in industries that have grown rather than in industries that have declined.

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*Glen G. Cain, Married Women in the Labor Force, The University of Chicago Press, Chicago, 1966, p. 1.

**It should be remembered, however, that the Social Security file indicates industry of employment, not occupation. Individuals employed in service activities can be identified, although most individuals employed in office activities cannot.

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Table 5

EMPLOYMENT BY SEX
(Thousands)

Sex	City		Suburbs	
	1962	1966	1962	1966
Male	2438.0 (60.3)[a]	2461.5 (59.2)	1945.3 (62.7)	2134.9 (60.7)
Female	1605.8 (39.7)	1694.0 (40.8)	1156.6 (37.3)	1381.3 (39.3)
Total	4043.8	4155.5	3101.9	3516.2

Source: Social Security sample: Appendix C, Table C-1.

[a]Percentage of total in parentheses.

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Table 6

EMPLOYMENT GROWTH IN NEW YORK CITY
BY SEX AND INDUSTRY
(Thousands)

Industry	Male	Female	Total
Total	23.5	88.2	111.7
Manufacturing	1.4	2.2	3.6
Apparel	(-6.9)	(-10.6)	(-17.5)
Other	(8.3)	(12.8)	(21.1)
Transportation and Communication	16.1	11.2	27.3
Retail and Wholesale Trade	-29.9	-12.1	-42.0
Finance	- 0.6	5.3	4.7
Insurance and Real Estate	- 9.2	-13.3	-22.5
Medical, Health and Educational Services	26.6	30.0	56.6
Other Personal and Business Services (Including Government)	30.2	58.5	88.7
Other	-11.1	6.4	- 4.7

Source: Social Security sample.

I. INTRODUCTION

A major focus of The New York City-Rand Institute's work for the Economic Development Administration has been the allegedly growing regional disparity between job and residential location in the New York metropolitan area. This phenomenon has been widely discussed in recent years.* It is thought to be an especially serious problem in New York because of the physical size of the region.

According to the more or less conventional wisdom, recent growth in employment in the City has been concentrated in office and service sector activities and has provided work for relatively skilled and well-educated white-collar and clerical employees drawn heavily from the suburbs. The number of blue-collar jobs in the City has decreased during the last decade because of the relocation of manufacturing firms to nearby suburban counties and to other parts of the country. At the same time, however, most observers believe that the City's population has become increasingly poor. Low-income families have moved into the City, while middle- and high-income families have moved to the suburbs. The result of these movements is that minority blue-collar workers in particular are put in an increasingly disadvantageous position in the region's job markets. Because of a shortage of suitable housing and housing discrimination, in suburban areas, increasing numbers of the metropolitan area's low-income workers are faced with the disagreeable choice between time-consuming, costly commuting and unemployment.**

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*For example, see John F. Kain, "Housing Segregation, Negro Employment, and Metropolitan Decentralization," Quarterly Journal of Economics, Vol. 82, No. 2, May 1968, pp. 175-197; Paul Offner and Daniel H. Saks, "A Note on John Kain's 'Housing Segregation, Negro Employment, and Metropolitan Decentralization'," Quarterly Journal of Economics, Vol. 85, No. 1, February 1971, pp. 147-160; John F. Kain, "Rejoinder," Quarterly Journal of Economics, Vol. 85, No. 1, February 1971, pp. 161-162; John F. Kain, "Coping with Ghetto Unemployment," Journal of the American Institute of Planners, Vol. 35, No. 2, March 1969, pp. 80-83; and Wilfred Lewis, Jr., "Urban Growth and Suburbanization of Employment--Some New Data," Unpublished paper, The Brookings Institution, Washington, D.C., 1969.

**National Committee against Discrimination in Housing (NCDH), Jobs and Housing: A Study of Employment and Housing Opportunities for Racial Minorities in Suburban Areas of the New York Metropolitan Region, NCDH, New York, 1970, pp. 11 and 39.

In Table 7, industries reported at the two-digit SIC level have been divided into two groups: those in which total employment increased and those in which total employment decreased or remained constant during the five-year period. In industries in which total employment increased, women accounted for 44 percent of the job growth; in industries in which total employment decreased, women amounted for only 22 percent of the job loss. The fact that women have been able to hold their positions in declining industries seems to have been the primary reason for their increased share of jobs in the City. What may be reflected in these data is a basic occupational change that was occurring between 1962 and 1966--the shift from blue-collar to office jobs in many of the City's industries. When this is coupled with the fact that office jobs tend to be filled by women, one can understand why women have accounted for a large proportion of the City's job growth.

EMPLOYMENT BY RACE

Even more pronounced than the increase in the proportion of women in the City's labor force has been the increase in the proportion of minority groups (Table 8).* During the period covered by the Social Security data, employment of whites in the City actually fell. In other words, minority groups accounted for more than 100 percent of the job growth in the City. Minority employment grew in all major sectors of the City's economy and even in those industries in which total employment decreased (Tables 7 and 9).

Job change for minority groups was in some ways similar, yet also dissimilar to job change for women. Minority groups have found employment in the City during the past decade, partly because of an increasingly tight labor market, and partly because these groups, like women, have traditionally provided marginal employees to firms. Yet, the striking difference between minority and female labor is that while

*Blacks account for more than 90 percent of the minority population as it is defined in the Social Security file. Puerto Ricans and other Spanish-speaking minority groups are listed as whites. The word "minority," therefore, is used here to mean the total black and other non-Spanish-speaking segments of the minority population.

The purpose of this Report is to improve the City's understanding of the regional job-manpower disparity by examining job change in the New York metropolitan area in recent years. Another Institute report* examines changes in the composition of the area's population as a result of migration. Together, these studies should provide a better understanding of the dimensions of the growing imbalance between jobs and people in New York City, how the City's economy has adjusted to this imbalance, and what, if anything, the City can do about it.

The basic data source used in this study is the New York metropolitan area subsample of the Social Security Administration's continuous work history file. This subsample is a highly useful and previously unavailable source of information about employment in the City. However, it is also potentially misleading and should be used only with its definitions and limitations clearly in mind.** The file consists of two continuous five-year samples of employees in the City and the surrounding metropolitan area--one for 1957 through 1961 and the other for 1962 through 1966. Five basic sets of cross-tabulations have been generated for the second period. These cross-tabulations furnish the data for this Report; they have also been made available to the City's Economic Development Administration and Bureau of the Budget.

In this Report I present some of the more important conclusions to be drawn from the more recent New York area subsample. However, my analysis only scratches the surface. The Social Security file is sufficiently rich in information to support much additional work for years to come.

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*Irving N. Fisher, Demographic Changes in New York City and the Metropolitan Region: The Role of Population Mobility, The New York City-Rand Institute, R-600-NYC (forthcoming).

**This subsample and its contents and limitations are discussed at length in Appendix A.

Table 7

EMPLOYMENT GROWTH IN NEW YORK CITY BY RACE, SEX, AND CHANGE IN TOTAL EMPLOYMENT IN TWO-DIGIT INDUSTRIES
(Thousands)

Race and Sex	Employment Increased	Employment Decreased or Remained Constant
Total Employment	288.5	-176.8
White		
Males	109.6	-145.2
Females	78.6	- 56.5
Black		
Males	44.7	0.4
Females	41.5	9.3
Other		
Males	6.9	7.1
Females	7.2	8.1

Source: Social Security sample.

Table 8

EMPLOYMENT BY RACE
(Thousands)

Race	City		Suburbs	
	1962	1966	1962	1966
White	3413.3 (84.4)[a]	3399.8 (81.8)	2798.3 (90.2)	3110.7 (88.5)
Black	563.0 (13.9)	658.9 (15.9)	286.5 (9.2)	375.7 (10.7)
Other	67.5 (1.7)	96.8 (2.3)	17.1 (0.6)	29.8 (0.8)
Total	4043.8	4155.5	3101.9	3516.2

Source: Social Security sample: Appendix C, Table C-2.

[a]Percentage of total in parentheses.

Table 9

EMPLOYMENT GROWTH IN NEW YORK CITY
BY RACE AND INDUSTRY
(Thousands)

Industry	Race			
	White	Black	Other	Total
Total	-13.5	95.9	29.3	111.7
Manufacturing	-14.4	7.8	10.2	3.6
Transportation and Communication	14.3	11.6	1.4	27.3
Retail and Wholesale Trade	-57.3	7.7	7.6	-42.0
Finance	- 3.3	6.8	1.2	4.7
Insurance and Real Estate	-25.0	2.1	0.4	-22.5
Medical, Health and Educational Services	39.0	15.4	2.2	56.6
Other Personal and Business Services (Including Government)	37.4	44.8	6.5	88.7
Other	- 4.2	- 0.3	- 0.2	- 4.7

Source: Social Security sample.

the employment of women has increased in growth industries only, the employment of minority groups has increased in almost all industries. As we shall see, there is good reason for this preponderance of minority groups in the City's job growth, even though one would think that the City's loss of blue-collar jobs has made the employment of these groups more difficult.

Minority groups also accounted for about 25 percent of the increase in employment in suburban counties, a percentage of job growth disproportionate to their percentage of the population in these counties. Moreover, the increase in minority employment in the suburbs was responsible for roughly half of the increase in minority employment in the entire metropolitan area. Although the region's minority groups are concentrated in the City, their penetration of suburban labor markets was as important during the period as their increased share of jobs in the City.

CONCLUSIONS

This initial, superficial examination of the Social Security data suggests a contradiction. Although there has been a disproportionate growth in high-income jobs in the City and a reduction in low-income jobs, job growth in the City has been dominated by youth, women, and minority groups, segments of the population generally thought to have low incomes. To investigate this contradiction, we must dig deeper into the Social Security file.

IV. SOME ADDITIONAL CONCLUSIONS

Because of the large size of the Social Security sample, it is feasible to vary all four characteristics of the employee simultaneously--income, age, sex, and race--without encountering serious problems with inadequate cell size. In this way, one can better understand the job change that has taken place in the New York metropolitan area.

EMPLOYMENT BY SEX AND RACE

There was during the period investigated a rough equality between job growth for black men and women in both the City and the suburbs (Table 10). This finding has two important implications. First, even though the City's job growth was concentrated in the office and service sectors and this, in turn, was partly responsible for the disproportionate increase in female employment in the City, this does not mean that black men, especially, were unable to find employment. Second, this finding indicates that the suburbs have been as important as the City in providing employment for black workers, even though the percentage of total job growth enjoyed by black employees was lower in suburban areas.

The drop in white employment in the City resulted entirely from a reduction in the employment of white men. As we shall see, the unique character of white male employment reflects the fact that of all groups in the population, white men are better able to respond to geographic changes in job opportunities. There was also a notable change in the composition of white women employed in the City during the period. Digging deeper into the sample, one can determine that the employment of white women between 18 and 25 years old increased, while the employment of white women in other age groups decreased.* In other words, among whites,

*Between 1962 and 1966, employment of white females less than 25 years old increased by about 33,000; employment of white females 25 years and older decreased by 11,000. Employment of minority females increased for all age groups. See Appendix C, Table C-8.

Table 10

CHANGE IN EMPLOYMENT IN THE NEW YORK METROPOLITAN AREA BY SEX AND RACE

Race and Sex	Increase in Employment, 1962-1966			
	City		Suburbs	
	Number (Thousands)	Percent of total	Number (Thousands)	Percent of total
White	-13.5	100.0	312.4	100.0
Male	-35.6	263.7	137.3	44.0
Female	22.1	-163.7	175.1	56.0
Black	95.9	100.0	89.2	100.0
Male	45.1	47.0	44.0	49.3
Female	50.8	53.0	45.2	50.7
Other	29.3	100.0	12.7	100.0
Male	14.0	47.8	8.3	65.4
Female	15.3	52.2	4.4	34.6
Total	111.7	100.0	414.3	100.0
Male	23.5	21.0	189.6	45.8
Female	88.2	79.0	224.7	54.2

Source: Social Security sample.

young females appear to have been the only beneficiaries of job growth in the City. Other segments of the area's white population have been beneficiaries solely of job growth in the suburbs.

EMPLOYMENT BY SEX, RACE, AND INCOME CLASS

Although, in general, the employment of white men in New York City fell between 1962 and 1966, the employment of white men in the highest income category rose significantly (Table 11). Examination of the Social Security file in greater depth indicates that much of this phenomenon was the result of a general increase in individuals' income levels over time. However, some of it was also a result of the changing composition of jobs in the City--the growth of white-collar employment and decline in blue-collar employment.

The employment of white women in the City also fell in low-income categories and rose in high-income categories. However, job growth for white women was concentrated in a lower income bracket--$5000 to $8000 per year--than job growth for white men. The Social Security data also indicate greater employment of black men in higher wage brackets.* However, as with white women, much of the increased employment of black men was concentrated in the $5000 to $8000 income category. By contrast, growth in employment of black women was concentrated more heavily in even lower-income brackets, especially in suburban areas. On the basis of the income categories we have selected, one finds support for the general belief that blacks and females, and particularly black females, experience significant income differentials and that these differentials have continued over time.

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*During the period, the employment of black men increased in both the City and the suburbs in all income classes except one, $2500 to $4999. The growth of black male employment in the lowest income category consisted almost entirely of youth and, especially, youth working part of the year. This was also true for black women.

Table 11

CHANGE IN EMPLOYMENT BY INCOME CLASS,
SEX, AND RACE
(Thousands)

Income Class	Males			Females		
	White	Black	All Males	White	Black	All Females
New York City						
Change in total employment	-35.6	45.1	23.5	22.1	50.8	88.2
$1-2499	-60.6	7.9	-50.3	-59.2	2.5	-49.9
$2500-4999	-157.5	-14.4	-168.7	-55.4	21.8	-27.3
$5000-7999	-60.8	32.7	-22.7	108.9	22.4	132.7
$8000 or more	243.3	18.9	265.2	27.8	4.1	32.7
Suburbs						
Change in total employment	137.3	44.0	189.6	175.1	45.2	224.7
$1-2499	46.8	6.7	56.5	58.8	18.2	79.6
$2500-4999	-86.2	- 2.2	-86.3	34.6	20.1	55.6
$5000-7999	-38.3	27.0	-10.0	75.8	6.7	83.1
$8000 or more	215.0	12.5	229.4	5.9	0.2	6.4

Source: Social Security sample.

V. CHANGING EMPLOYMENT STATUS AND JOB LOCATION IN THE NEW YORK METROPOLITAN AREA

Perhaps the major advantage of the Social Security file is its continuity. The same individuals are sampled each year as long as they remain employed. For this reason, this source of data, unlike others, indicates how individuals' employment histories have varied over time. In this section, I examine two intertemporal characteristics of employment: changing employment status* and job location. The Social Security file can also be used to determine other intertemporal characteristics of jobs, such as income growth and stability of employment for a particular company. The principal question investigated here, however, is how different segments of the metropolitan area's population have, by changing their employment status and job location, helped bring about the various changes in the composition of the City's work force discussed in preceding sections. An examination of other characteristics has had to be postponed because of limitations in both time and resources.

JOB CHANGE BY SEX AND RACE

The City's loss of white male employees between 1962 and 1966 can be attributed to several factors (Table 12).

- Approximately 18,000 more white men left the City's labor force as the result of death, retirement, or some other reason than became employed in the City for the first time. Increasingly, white male employees are beginning their work careers in suburban areas.

- There has been a net relocation by white male jobholders from the City to the suburbs. Nearly 27,000 more white male employees changed their job location from the City to the suburbs between 1962 and 1966 than from the suburbs to the City.

*"Employment status" refers to whether or not an individual worked in any given year.

Table 12

EMPLOYMENT CHANGE IN NEW YORK CITY AND THE SUBURBS
BETWEEN 1962 AND 1966 BY SEX AND RACE
(Thousands)

	Male			Female		
Employment Change	White	Black	Other	White	Black	Other
New York City						
Change in Total Employment	-35.6	45.1	14.0	22.1	50.8	15.3
Net Entry into Labor Force	-17.9	39.3	15.4	52.1	57.3	14.8
Net Movement from Suburbs to City	-26.6	-5.0	-1.4	-20.8	-2.3	-0.1
Net Movement from Elsewhere to City	8.9	10.8	0.0	-9.2	-4.2	0.6
Suburbs						
Change in Total Employment	137.3	44.0	8.3	175.1	45.2	4.4
Net Entry into Labor Force	115.1	25.5	6.3	161.5	35.5	4.6
Net Movement from City to Suburbs	26.6	5.0	1.4	20.8	2.3	0.1
Net Movement from Elsewhere to Suburbs	-4.4	13.5	0.6	-7.2	7.4	-0.3

Source: Social Security sample: Appendix D.

On the other hand, the City drew nearly 9000 white male employees from outside the metropolitan area. However, this statistic is deceptive. It masks rather substantial flows from elsewhere to the City by white males in the highest income bracket and equally large flows in the reverse direction by white males in the lowest income bracket.* This latter group consisted almost entirely of teenagers, many of whom probably were not yet permanently attached to the labor force. By contrast, a large proportion of white men moving their job locations from outside the area to the City are full-time employees. They are also most likely to settle in suburban areas.

There has also been some movement of job location by black men from the City to the suburbs, and a slightly larger movement from outside the metropolitan area to the City. However, the big difference between the employment of white and black men is in entry into the labor force. The Social Security data suggest that the withdrawal of white men from the City's labor force, although small compared to total white male employment, has been sufficient to accommodate a relatively large increase in black men becoming employed in the City for the first time. Put differently, there appears to have been a variant of the "trickle-down" effect operating in the New York metropolitan area. Black men may be less able to take advantage of the concentration of job growth in suburban areas than white men, either by entering the labor force in the suburbs or changing the location of their employment to suburban areas. However, because blacks are a minority group, a relatively small reduction in the employment of white men in the City has permitted a relatively large gain in the employment of black men. As a result, the consequences to blacks and other minority groups of the suburbanization of blue-collar employment may not have been as severe as one might expect.

Most new employees in the suburbs have entered the labor force there, and have not shifted their job location from the City. This is true of all races and both sexes. Interestingly, there has also been a tendency for the suburbs to draw somewhat more heavily from locations outside the metropolitan area, rather than from the City, for black

*See Appendix D, Table D-1.

employees. This may, to some extent, reflect the fact that there has been significant growth in jobs for blacks in the City during the period.

It is impossible to tell, however, whether new entrants to the labor force in the suburbs were residents of the suburbs or the City at the time of their employment. Although we know that 5000 more black men moved the location of their employment from the City to the suburbs than vice versa, many black men living in the City may have found employment in suburban areas for the first time. For this reason, the impact of suburban job growth on the employment of City residents has probably been greater than is indicated by the data in Table 12.

JOB-LOCATION CHANGE BY SEX, RACE, AND INCOME CLASS

Two general directions of job-location change are apparent in Table 13. Individuals have tended to move the location of their jobs from outside the metropolitan area to the City. By and large, these individuals have been in the middle- and high-income classes.* Individuals have also tended to move their job locations from the City to the suburbs; these individuals have been in middle- and low-income classes.** This general pattern of movement from outside the metropolitan area to the City and from the City to the suburbs exists for both whites and blacks and men and women. The overall effect of this job location change has been to raise the income distribution of jobs in the City relative to the suburbs. Table 14 shows the income effects of job-location change in the suburbs.

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*Once again, the large outflow of individuals in the lowest income category from the City to places outside the metropolitan area consists almost entirely of youths whose job-location mobility has probably had relatively little to do with the availability or nonavailability of jobs in the City.

**The exception is the lowest income group which, on balance, has been moving its job location from the City to places outside the metropolitan area.

Table 13

EFFECTS OF JOB-LOCATION CHANGE IN NEW YORK CITY
(Thousands)

Effects of Job-Location Change Between 1962 and 1966	Income Class in 1966					
	$1-2,499	$2,500-4,999	$5,000-7,999	$8,000-11,999	$12,000+	Total
All employees						
Increase in employment	-58.4	-23.0	14.3	13.2	4.6	-49.3
Net movement to City from:						
Suburbs	-17.2	-21.8	-14.9	-1.2	-1.1	-56.2
Elsewhere	-41.2	-1.2	29.2	14.4	5.7	6.9
White men						
Increase in employment	-33.5	-9.6	9.2	11.7	4.5	-17.7
Net movement to City from:						
Suburbs	-6.3	-9.4	-9.9	-0.4	-0.6	-26.6
Elsewhere	-27.2	-0.2	19.1	12.1	5.1	8.9
Black men						
Increase in employment	-1.0	4.8	1.3	0.4	0.3	5.8
Net movement to City from:						
Suburbs	-0.6	-0.8	-3.6	-0.3	0.3	-5.0
Elsewhere	-0.4	5.6	4.9	0.7	0	10.8
White women						
Increase in employment	-18.1	-15.7	3.7	0.7	-0.6	30.0
Net movement to City from:						
Suburbs	-8.7	-10.7	-0.4	-0.2	-0.8	-20.8
Elsewhere	-9.4	-5.0	4.1	0.9	0.2	-9.2
Black women						
Increase in employment	-4.1	-2.6	0.3	-0.1	0	-6.5
Net movement to City from:						
Suburbs	-1.1	-0.8	-0.3	-0.1	0	-2.3
Elsewhere	-3.0	-1.8	0.6	0	0	-4.2

Source: Social Security sample: Appendix D.

Table 14

EFFECTS OF JOB-LOCATION CHANGE IN THE NEW YORK METROPOLITAN AREA SUBURBS
(Thousands)

Effects of Job-Location Change Between 1962 and 1966	Income Class in 1966					
	$1-2,499	$2,500-4,999	$5,000-7,999	$8,000-11,999	$12,000+	Total
All employees						
Increase in employment	-14.9	38.4	44.8	4.1	-6.6	65.8
Net movement to suburbs from:						
City	17.2	21.8	14.9	1.2	1.1	56.2
Elsewhere	-32.1	16.6	29.9	2.9	-7.7	9.6
White men						
Increase in employment	-23.4	14.7	36.6	1.7	-7.4	22.2
Net movement to suburbs from:						
City	6.3	9.4	9.9	0.4	0.6	26.6
Elsewhere	-29.7	5.3	26.7	1.3	-8.0	-4.4
Black men						
Increase in employment	0.9	7.6	9.5	1.0	-0.5	18.5
Net movement to suburbs from:						
City	0.6	0.8	3.6	0.3	-0.3	5.0
Elsewhere	0.3	6.8	5.9	0.7	-0.2	13.5
White women						
Increase in employment	2.8	11.2	-2.6	1.1	1.1	13.6
Net movement to suburbs from:						
City	8.7	10.7	0.4	0.2	0.8	20.8
Elsewhere	-5.9	0.5	-3.0	0.9	0.3	-7.2
Black women						
Increase in employment	4.7	4.3	0.6	0.1	0	9.7
Net movement to suburbs from:						
City	1.1	0.8	0.3	0.1	0	2.3
Elsewhere	3.6	3.5	0.3	0	0	7.4

Source: Social Security sample: Appendix D.

VI. FULL-YEAR VERSUS PART-YEAR EMPLOYMENT

Until now, I have not distinguished persons who were employed full-time from those who were not. Indeed, it is not possible using the Social Security file to separate the two. For example, one cannot differentiate between a well-paid employee working part-time in all four quarters of the year and a poorly paid employee working 40 hours a week throughout the year. Both may earn the same total wage, even though the former was employed far fewer hours.

It is possible, however, to make a rough and imperfect approximation of part-time employment by sorting the file into two groups: persons employed all four quarters of the year and persons employed less than four quarters. In the latter group we find individuals who, for one reason or another, did not want to work throughout the year. In other words, we cannot equate persons working less than four quarters with persons meeting the official definition of "underemployed."

About two-thirds of the City's labor force was employed all four quarters in 1966 (Table 15). As one would expect, this percentage was higher for men than women. More important, however, is how it has changed over time. During the five-year period, an increasing percentage of white male employees worked all four quarters of the year in both the City and the suburbs (Tables 16 and 17). The percentage of black males working all four quarters also increased for the suburbs, although by a lower rate. By contrast, the percentage for white and black female employees in both the City and the suburbs and black male employees in the City was more or less the same in 1966 as in 1962. The Social Security data indicate that the "stability" of employment, measured by quarters worked, has generally increased for men, but not for women. The only apparent exception to this rule has been black men working in the City.

One can understand why many women might choose not to work all four quarters of the year in response to improved employment opportunities.

Table 15

PART-YEAR AND FULL-YEAR EMPLOYMENT
IN NEW YORK CITY IN 1966

Period of Employment	Number (Thousands)	Percentage of Total
All Employees		
Total	4155.5	100.0
Employed all four quarters	2683.7	64.6
Employed less than four quarters	1471.8	35.4
Males		
Total	2461.5	100.0
Employed all four quarters	1695.6	68.9
Employed less than four quarters	765.9	31.1
Females		
Total	1694.0	100.0
Employed all four quarters	988.1	58.3
Employed less than four quarters	705.9	41.7

Source: Social Security sample.

Table 16

PART-YEAR AND FULL-YEAR EMPLOYMENT IN NEW YORK CITY
BY SEX AND RACE
(Thousands)

Period of Employment	Male		Female	
	White	Black	White	Black
1962				
Total	2083.6	311.2	1329.7	251.8
Employed all four quarters	1234.1 (59.2)[a]	171.1 (55.0)	776.0 (58.4)	138.0 (54.8)
Employed less than four quarters	849.5 (40.8)	140.1 (45.0)	553.7 (41.6)	113.8 (45.2)
1966				
Total	2048.0	356.3	1351.8	302.6
Employed all four quarters	1464.9 (71.5)	199.7 (56.0)	814.0 (60.2)	155.6 (51.4)
Employed less than four quarters	583.1 (28.5)	156.6 (44.0)	537.8 (39.8)	147.0 (48.6)

Source: Social Security sample.

[a]Percentage of total employment in parentheses.

Table 17

PART-YEAR AND FULL-YEAR EMPLOYMENT IN THE SUBURBS
BY SEX AND RACE
(Thousands)

Period of Employment	Male		Female	
	White	Black	White	Black
1962				
Total	1751.7	181.1	1046.6	105.4
Employed all four quarters	982.3 (56.1)[a]	91.1 (50.3)	589.0 (56.3)	47.6 (45.2)
Employed less than four quarters	769.4 (43.9)	90.0 (49.7)	457.6 (43.7)	57.8 (54.8)
1966				
Total	1889.0	225.1	1221.7	150.6
Employed all four quarters	1286.8 (68.1)	121.9 (54.2)	688.3 (56.3)	66.6 (44.2)
Employed less than four quarters	602.2 (31.9)	103.2 (45.8)	533.4 (43.7)	84.0 (55.8)

Source: Social Security sample.

[a]Percentage of total employment in parentheses.

In our society, married women typically constitute a secondary work force. The fact that the percentage of black men working all four quarters of the year in the City has not increased significantly is more surprising. It may mean one of two things:

- o A disproportionate number of black men may also act as secondary members of the work force. They may choose to work only part of the year if their families do not depend primarily on their earnings.

- o New jobs available to black men, particularly in New York City, may be marginal and may not provide steady employment throughout the year. In other words, the fact that a greater number of blacks was employed during the period does not mean that all problems involving minority employment have been or are being resolved.

One cannot tell from the Social Security data which of these factors has been at work. The second, I suspect, has been relatively more important. It seems plausible that one of the results of the pattern of employment that has emerged in New York City--black men filling jobs vacated by white men who have relocated to the suburbs--is that these jobs are less likely to provide stable employment over the long run than jobs that black men might be able to fill if they too had reasonable access to suburban areas. Jobs being filled by blacks in the City are, in other words, less likely to lead to permanent attachment to the labor force and, by inference, permanent exit from poverty.

Moreover, one might also argue, plausibly, that the "stability" of employment of black men working in suburban areas might have increased more rapidly than it has were there improved access to suburban jobs. Long hours of commuting from the City and high rentals and housing discrimination in the suburbs may, in themselves, discourage permanent employment in these areas. For this reason, the actual disparity between full-year jobs available in the City and the suburbs may be greater than it appears in the Social Security data.

VII. INCOME DIFFERENTIALS

The income estimates contained in the Social Security file are approximate at best.* Still, the Social Security data can be used to generate more precise estimates of income than we have made up to now. These estimates are presented in Tables 18 and 19.

Once again, in terms of income, the City's employees tend to fall into three distinct groups: (1) white males; (2) black males and white females; and (3) black females. There is also little evidence of any appreciable difference between rates of increase in average wage incomes for these groups. However, because the Social Security data measure the total annual wage income of the individual, a change in income may reflect either a change in the wage rate or the number of hours worked. To eliminate part-year employment, if only imperfectly, I have also estimated average wage incomes for only those individuals employed all four quarters of the year. Doing this, the same separation of employees into three distinct wage groups is apparent, although now there is evidence of a greater increase in the average wage incomes of females and, especially, minority groups in the City. In the suburbs, by contrast, only black men have enjoyed a significantly greater rate of growth in wage incomes than white men.

These findings are suggestive. In terms of wage rates, at least, there may have been some lessening of the gap between the sexes and, especially, the races. However, the fact that a relatively large number of women and blacks do not work all four quarters of the year seems to have prevented this from being translated into a lessening of the gap between wage incomes. If this interpretation of the data is correct, the reduction in the disparity between wage rates would have been offset by some increase in the disparity between hours worked.

Moreover, for all groups except one, average incomes earned in the City exceeded average incomes earned in the suburbs (Tables 20 and 21).

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*See Appendix A.

Table 18

AVERAGE ANNUAL WAGE INCOME IN NEW YORK CITY
BY SEX AND RACE
(Dollars)

Race and Sex	All Employees			Persons Employed All Four Quarters Only		
	1962	1966	Percent Increase	1962	1966	Percent Increase
Total work force	4462	5206	17	5929	7202	21
White						
Males	6035	7228	20	7877	9294	18
Females	2889	3357	16	3853	4712	22
Black						
Males	2968	3474	17	4050	5155	27
Females	2127	2535	19	3098	3984	29

Source: Social Security sample.

Table 19

AVERAGE ANNUAL WAGE INCOME IN THE SUBURBS
BY SEX AND RACE
(Dollars)

Race and Sex	All Employees			Persons Employed All Four Quarters Only		
	1962	1966	Percent Increase	1962	1966	Percent Increase
Total work force	4295	4669	9	5712	6644	16
White						
Males	5614	6253	11	7230	8340	15
Females	2552	2766	8	3624	4073	12
Black						
Males	3184	3642	14	4339	5371	24
Females	1834	2062	12	3028	3416	13

Source: Social Security sample.

Table 20

THE RATIO OF AVERAGE ANNUAL WAGE INCOMES IN THE CITY TO WAGE INCOMES IN THE SUBURBS BY SEX AND RACE

Race and Sex	All Employees		Persons Employed All Four Quarters Only	
	1962	1966	1962	1966
Total work force	1.04	1.12	1.04	1.08
White				
Males	1.07	1.16	1.09	1.11
Females	1.13	1.21	1.06	1.16
Black				
Males	.93	.95	.93	.96
Females	1.16	1.23	1.02	1.17

Source: Social Security sample.

Table 21

THE RATIO OF AVERAGE ANNUAL WAGE INCOMES OF WHITE AND BLACK EMPLOYEES BY SEX AND LOCATION OF EMPLOYMENT

Location and Sex	All Employees		Persons Employed All Four Quarters Only	
	1962	1966	1962	1966
New York City				
Male	2.03	2.08	1.94	1.80
Female	1.36	1.32	1.24	1.18
Suburbs				
Male	1.76	1.72	1.67	1.55
Female	1.39	1.30	1.20	1.19

Source: Social Security sample.

The exception is black males. This is not too surprising. As a rule, job growth in both the City and the suburbs has tended to favor whites. In the City, this is the result, among other things, of the concentration of growth in high-income, professional and managerial jobs; in the suburbs, it is a result of the difficulties minority groups have had in finding housing. Job growth in the City has also tended to favor women; job growth in the suburbs, men. As a result, black men are least likely to have benefited from the changing geographic distribution of jobs in the New York metropolitan area.

Some observers have noted that the increasing concentration of blue-collar employment in the suburbs and of minority residents in the central city has restricted the trade-off between housing and commuting for these groups.* The minority male may have little choice other than to incur substantial costs of commuting to suburban jobs because of the restriction of his residential choice to the central city. For this reason, the higher wage income of the black man working in the suburbs reflects, among other things, his higher costs of commuting. However, black men have an alternative--to work at lower-paying and less stable jobs in the City, while, at the same time, spending less time and money in commuting. Although one trade-off may be denied to black men, there is another.

The regional difference between the wage incomes of black men is consistent with what one would expect from an equilibrium in an imperfect market. It suggests that the net earnings of black men might increase if ways could be found to provide better access to suburban jobs, either through improved commuter facilities or suitable housing in suburban areas. The wage outlay of suburban firms might also fall. By increasing the labor supply available to suburban firms, the removal of barriers to mobility by low-wage labor in the City would serve to eliminate any wage premiums now received by suburban employees.

By the same token, the net earnings of employees who commute from the suburbs to the City might also increase, and the wage costs of City

*For example, see John R. Meyer, John F. Kain, and Martin Wohl, The Urban Transportation Problem, Cambridge, Mass., Harvard University Press, 1966, pp. 146 and 150.

firms decrease, if these employees were to have better access to housing in or near Manhattan. There is growing concern over the shortage of middle- and even high-income housing in the City and the possibility that, for many commuters, suburban living is not a matter of choice, but of necessity.* The higher wages earned by whites in the City reflect, among other things, their higher costs of commuting. These costs must be covered by wages if firms located in the City are to attract and hold the staff they need.

The trapping of the minority residents in the City does have one dubious benefit for the City's economy, however. Other things being equal, it probably helps to sustain the City's traditional comparative advantage in certain types of low-wage employment. At one time the City's piers were its hiring halls for unskilled labor. More recently, Puerto Ricans and blacks from the South have supplied labor formerly supplied by European immigrants. Even if Puerto Rican and black inmigration were to diminish, the limited ability of these groups to move on to suburban areas or elsewhere in pursuit of better jobs may serve to retain this labor supply for City firms. As a result, the decline in the City of such low-wage industries as the garment trade may be slowed.

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*For example, see "For Executives, Fun City Can Be a Hardship," Business Week, No. 2110, February 7, 1970, p. 66.

VIII. SOME IMPLICATIONS FOR THE CITY'S ECONOMY

We now have at least a partial answer to the contradiction in the Social Security data--the increase in high-income jobs relative to low-income jobs in the City and, at the same time, the preponderance of low-income segments of the population in the City's job growth. During the five years there was an underlying change in the composition of employment in the City, with a general growth in the City's office and service sector jobs and decline in blue-collar, manufacturing jobs. Much of the new employment resulting from this change appears to have benefited high-income white men. However, this growth in high-income white employment was more than offset by a decline in employment among low- and middle-income white men, many of whom either changed the location of their jobs from the City to the suburbs or dropped out of the labor force. These adjustments made possible considerable job growth for minority employees in most industries in the City. In this way, minority groups have been able to benefit indirectly from job growth in suburban areas.

By contrast, the greater participation of women in the City's job growth seems to have been more a result of the fact that job change in the City has favored female rather than male employees. Although the Social Security data do not indicate employment by occupation, much of the job growth for women in the City probably can be attributed to an increase in clerical jobs associated with expansion of office activities. However, this growth has been concentrated among young white women and black women of all ages, the two segments of the female population probably best able or most likely to reside and, therefore, work in the City.

The market mechanism appears to be working, if only imperfectly. The regional imbalance between jobs and manpower is being equilibrated, in part through the vehicle of white family mobility. Even if blacks are less able to follow jobs to the suburbs, whites can; thus whites are freeing jobs in the City for black employees. As a corollary, one might be tempted to conclude that efforts by the City to stem the outflow of low-income jobs are unnecessary since the market is making whatever adjustments are needed. This is, however, stated much too boldly. The

market is working imperfectly at best. There are still costs to both minority groups and the City as a result of imperfect residential mobility in response to regional job change.

First, we know nothing about unemployment from the Social Security data. While there were 45,100 new jobs in the City held by black men between 1962 and 1966, there may have been many more black men seeking jobs and unable to find them. Although the unemployment rate for minority workers in the City dropped during the period, it was considerably higher in 1966 for nonwhites than for whites, indicating, among other things, that the market may not have been working as well as it should.

Second, the unemployment rate only measures those actively searching for work who cannot find it. Because of the loss of low-income jobs by the City, some workers may have withdrawn from the labor force, as it is officially defined, and may be relying instead on other sources of income such as public assistance or illicit activities.

Finally, the Social Security data indicate that black men may pay a price, in the form of lower wage incomes and less likelihood of stable jobs in the long run, for working in the City rather than suburban areas. That this is the case is not too surprising. It is unlikely that minority males who live in the City would take work in the suburbs unless given remuneration sufficient to cover both the monetary and nonmonetary cost of commuting. It is also unlikely that white men would leave the City to take less well-paying jobs in the suburbs.

In other words, an increase in employment of minority groups in the City depends on an increase in employment of whites in suburban areas. Will, therefore, the recent increase in unemployment, in certain suburban areas especially, result in a slow-down in the outflow of white employees now working in the City? Will this, in turn, result in a slow-down in the employment of the City's minority population? The answer to these questions is a probable "yes." The job markets of the City and the suburbs are interrelated; the City must be concerned with what happens to suburban employment since, eventually, this is likely to affect City employment as well.

The City must also be concerned with a question that is growing larger each succeeding month: Will the current recession ease or exacerbate the employment problems facing the City? Indeed, is there now a completely different set of employment problems confronting the City? To some extent, the exodus of larger manufacturing firms from the City during the 1960s was a by-product of prosperity. As profits increased, firms located in the City considered expansion. Those expanding firms involved in the production and distribution of goods, especially, were faced with limited space, inadequate transportation, and outdated facilities, all of which encouraged their movement to new locations outside the City. This does not mean, however, that a slow-down in the economy will be any better for blue-collar and manufacturing employment in the City. While some firms may postpone plans to leave, other marginal firms are more likely to go out of business. These may include the smaller manufacturing firms that have traditionally been the mainstay of the City's economy.

In other words, the City is faced with the worst of both worlds, the likelihood that it will lose blue-collar jobs in good times as well as bad. Yet, though the problem of finding employment for the City's low-income population is likely to remain, and may even worsen in a deepening recession, the nature of this problem would change. Its resolution would depend much less on securing a larger share of the metropolitan area's job growth for the City's low-income population, than on restoring general prosperity to the area's economy.

Appendix A

THE SOCIAL SECURITY ADMINISTRATION'S ONE-PERCENT CONTINUOUS WORK HISTORY FILE*

THE SOCIAL SECURITY WORK HISTORY FILE

The Rand Corporation has obtained the Social Security Administration's one-percent work history file as part of its research for the Office of Economic Opportunity and the Air Force. With support from several sources, including the Economic Development Administration, Rand's Computer Sciences Department has edited and compacted the parent file and has assembled data for the same individuals over time, creating a continuous work history sample of the nation's covered work force. The national file has, in turn, been used to generate a New York area subfile. This subfile was produced under the New York City-Rand Institute's contracts with the City's Economic Development Administration, Human Resources Administration, and Bureau of the Budget, as well as Rand's contract with the Federal Department of Housing and Urban Development. The purpose of this appendix is, first, to discuss the contents and limitations of the subfile for the New York metropolitan area and, second, to indicate how this file is being used in work for the Economic Development Administration.

The national one-percent sample has been generated by the Social Security Administration for each year since 1957 by selecting the records of individuals possessing certain combinations of digits in their social security numbers. Only "active" numbers are sampled each year; that is, the only numbers selected are those for individuals who have had some earnings covered by social security during the year. For this reason, although the file includes about one percent of the covered work force, it includes only about 0.7 percent of the persons holding social security numbers at any one point in time. Sampling of the same combination of digits year after year has assured continuity of the file, i.e., retention of the same individuals in the sample as

*This Appendix is a reproduction of an earlier document by Fred Finnegan and William A. Johnson, already distributed separately to Institute, Rand, and City personnel.

long as they have continued to earn income covered by the system. This also ensures a representative sample over time, since the sample automatically changes in composition as certain kinds of individuals enter or drop out of the employed labor force.

Rand has generated two continuous five-year segments for both the national and the New York area samples. The first covers the period 1957 through 1961; the second, 1962 through 1966. In work for EDA, Rand has utilized the second segment only. The 1962-1966 subsample for the New York metropolitan area has been recast into a second, more operationally useful form to facilitate handling of the data. In discussing the files' contents, we will distinguish the two New York area subsamples as the "basic" and the "subsidiary" subfiles and will indicate the types of information contained in each.

In generating the New York area subsamples we have retained the largest feasible definition of the metropolitan area. In addition to the five boroughs, we have included the following counties in this definition:

Inner Ring	Outer Ring
Nassau (N.Y.)	Fairfield (Conn.)
Westchester (N.Y.)	Suffolk (N.Y.)
Rockland (N.Y.)	Putnam (N.Y.)
Hudson (N.J.)	Orange (N.Y.)
Union (N.J.)	Dutchess (N.Y.)
Essex (N.J.)	Morris (N.J.)
Passaic (N.J.)	Mercer (N.J.)
Bergen (N.J.)	Somerset (N.J.)
Middlesex (N.J.)	Monmouth (N.J.)

With few exceptions, our definition of "inner" and "outer" ring is the same as that used by the New York Metropolitan Area studies ten years ago. In both the basic and the subsidiary files, however, we have retained the county identification for future analysts who might prefer an alternative definition of the metropolitan area.

The social security file is divided into two basic sections: employee- and employer-generated data. The employee's date of birth, race, and sex are obtained from forms filled out when he first applied

for a social security number and correction notices received subsequently by the Social Security Administration. Data on employers are obtained from reports submitted to the Administration by employers. These data include the county from which payments into the system are made by each employer. In most instances this is the county of employment. They also include the employer's industry and his quarterly withholdings, from which the Social Security Administration has made annual estimates of wages.

One reason for restricting ourselves to the latter five-year period is that coverage under the social security system was virtually unchanged between 1962 and 1966.* There is a problem, however, with the noncoverage of important segments of the labor force. Perhaps most significant for New York City is exclusion of railway employees, federal civil servants, and state and local government employees who have not elected to participate in the system. For this reason, the number employed indicated by the sample is likely to understate the actual number employed at any one point in time.

There is also an opposite bias resulting from the definition of employment implicit in our use of the social security file. In effect, our data measure the total number of individuals employed at any time during the year; the official definition used, for example, by the Bureau of Labor Statistics, the total number of individuals employed during a particular week. For this reason, the number of employed indicated by the social security sample is likely to overstate the actual number employed indicated by BLS and other official publications. A comparison of employment data from the two sources indicates that this latter bias is dominant.

THE BASIC NEW YORK METROPOLITAN AREA FILE

The basic New York metropolitan area file has the same format as the national file. First, there is a record of employee characteristics for each individual in the sample. This is followed by an employer

*The exception is coverage of self-employed doctors and interns which began in 1965.

record for each year in which a person was employed in a job covered by the social security system and for each employer in each year. The tape's format is indicated in Table A-1.

Employee Data

The basic file contains the individual's scrambled social security number. It also contains the individual's sex and date of birth, given by month and year. There are four categories of race: white, black, other, and unknown. For the New York area subsample, at least, the "unknown" category is miniscule and the "other" category small. Neither category contains many workers from the area's Puerto Rican community. Social Security Administration officials believe that Puerto Ricans and other Spanish-Americans have tended to call themselves white when applying for social security numbers. For this reason, one cannot equate black with minority employment.

Employer Data

The employer data are potentially misleading. They should only be used with their limitations in mind and with interpretations of the data clearly tempered by these limitations.

Employer Number. The employer number has also been scrambled so that identification of the employer is impossible. Yet, like the employee number, it has been scrambled consistently over time. With some limitations, this permits one to determine whether an individual was employed by the same firm throughout a five-year period. Unfortunately, numbers can change as the employer's legal status changes. If, for example, a firm converts from a partnership to a corporation, it is required to get a new number. For this reason, an employee may appear to work for two firms when, in fact, he worked for only one. Corporate mergers also produce apparent changes in employers. Officials of the Social Security Administration believe these to be infrequent and to create relatively minor problems with the sample.

Table A-1

FORMAT OF THE BASIC FILE FOR THE NEW YORK METROPOLITAN AREA SOCIAL SECURITY CONTINUOUS WORK HISTORY SAMPLE

Employee 1

- Employee Data
  - Employee number (scrambled social security number)
  - Sex
  - Race (white, black, other, or unknown)
  - Month of birth
  - Year of birth
  - Number of years for which employment has been recorded
- Employer Data
  - First Year
    - Date
    - Number of employers in the year
    - First Employer
      - Employer number (scrambled)
      - State and County
      - Industry (standard industrial classification)
      - Schedule code
      - Coverage code
      - Size of employer (number of employees)
      - Wages
        - Annual reported
        - First quarter reported
        - Second quarter reported
        - Third quarter reported
        - Fourth quarter reported
        - Annual estimated
    - Second Employer
    - Third Employer
  - Second Year
  - Third Year
  - Fourth Year
  - Fifth Year

Employee 2

Employee 3

State and County. The location of the county of employment is most important for our purposes because it has been used to generate the New York area subsamples. Strictly speaking, this identification number records the location of the office through which reports are made by the employer to the Social Security Administration. In most cases, this is the same as the county in which the employer is located and the employees employed. There are, however, several important exceptions.

First, if an individual is paid by a firm located in a particular county, but works elsewhere, he will be recorded as working in the county from which he is paid. For example, a salesman who worked in New Jersey for a Manhattan firm will be recorded as working in Manhattan. Multi-establishment firms, however, must report through each of the counties in which their establishments are located. For example, should that salesman work out of a branch office in Somerset County, he will be recorded as working in Somerset County. The major exception involves government employees who have chosen to participate in the social security system. According to officials of the Social Security Administration, state employees working in New York City and covered by social security are likely to be reported out of Albany. U.S. military personnel are listed without state or county of location.

Second, prior to 1962, a firm could report to the same district in which it originally registered with the Social Security Administration. For this reason, it might report to a New York City office even though it had previously moved its operations out of the City. Since 1962 an effort has been made to update the location of each firm or branch of a firm. This is another major reason for our using the file only for the period after 1962. Multiestablishment firms are now required to inform the Social Security Administration of any changes in the location of their establishments. Officials of the Social Security Administration state that there is some noncompliance, but feel that it is not too great.

A problem does arise, however, with single establishment firms. These firms are asked to inform the Administration of changes in

location. Changes in the county codes in the sample are also made when, for one reason or another, changes in location come to the attention of the Administration. However, some changes are made only after five-year intervals, after completion of the censuses of commerce and manufacturers. The Social Security Administration checks its file against these censuses and, when discrepancies in location arise, makes the appropriate adjustments. As a result, the actual shift in job location that has taken place to some extent precedes the reported shift in job location indicated by the social security file. There is also some discontinuity in the reported shift. In the five-year period in which we are interested, for example, a number of adjustments in firm location were made around 1965 and 1966. This is an extremely important limitation for our purposes, because we are interested in tracing regional changes in employment over time. The social security sample provides only an approximate indication of the regional changes that have taken place.

Finally, only since 1964 does the file distinguish the five counties in New York City. Even then, adjustments in the file were so slow that as late as 1966 a number of firms were still designated as being located in New York City and not in one of its boroughs. In other words, the county code is of little use for someone interested in a breakdown of employment by the boroughs.

Industry. Code numbers based on the Standard Industrial Classification (SIC) series are used to identify a firm's industry. These code numbers vary over time according to changes in SIC manuals. Codes for the 1957 sample are based on 1945 SICs for manufacturing and 1949 SICs for nonmanufacturing; codes for 1958 through 1962 on 1957 SICs; and codes for 1963 through 1966, on 1957 SICs with 1963 supplements. For some years the code numbers indicated in the social security tape may differ from SIC codes because of delays in updating a firm's industry classification. However, this is not thought to be too great a problem, especially for the latter five-year period.

Ostensibly, the file contains four-digit SICs. In fact, the fourth digit is relatively meaningless because many firms have been classified under the most general four-digit heading. For all practical purposes, they are classified by three-digit industry groups. A firm's industry indicated in the social security file may also change with a change in its product. A company that produces electric machinery and household appliances may move from one industry heading to another depending on changes in its product mix. For this reason, the industry in which an individual is employed may change even when the firm that employs him has not.

One potentially troublesome problem affects both the number of employers and of industries in which an individual has worked. In many instances multiple employers and industries may reflect either moonlighting on the part of the employee, or a change in jobs during the period of the sample. In some instances, however, it may also reflect the character of the job. Stevedores and truckdrivers, for example, are typically employed through hiring halls for a particular job; for this reason, they will be recorded in the file as employed by a number of firms in a number of industries in any one year. Some sales representatives also have incomes reported separately by different employers; they, too, are recorded as having multiple employers and industries during a year. A sampling of the tape indicates that this is a relatively infrequent occurrence. Occasionally, however, one does find an individual employed by several dozen firms in as many industries during the same year.

Schedule Code. The schedule code indicates which of the four basic types of reports are filed for the individual: the civilian report, the military report, the farm labor report, or the household report. As such, the code provides a very general occupational breakdown of the sample which is of little use for our purposes because it is so general. Most employees in the New York area subsample fall into the first category. Military personnel include only those individuals who have also had some civilian employment during the five-year

period.* Farm labor and household employees are also a small percentage of the total New York area subsample.

Coverage Code. The coverage code resembles the schedule code. It indicates whether or not a job is always covered by social security. If it is not, the code identifies the job as belonging to one of the categories of jobs that are partially covered: farm labor, state and local government, nonprofit organizations, federal civilian agencies, or the military and military reserves.

Size of Employer. The Social Security Administration warns against relying too heavily on employer size. This statistic was obtained by asking each employer, when he initially filled out forms for the Administration, to indicate the number of employees he then had on his payroll. No effort has been made to bring this estimate up to date following the initial report. In our work, we have ignored it and urge others to do so also.

Wage Income. The file contains two wage statistics for each job: annual estimated wages and annual and quarterly reported wages. Reported wages measure taxable earnings and are equal to the total annual (or quarterly) wages of the individual only if he has had one employer and if his reported wages are less than his maximum taxable income.

The Social Security Administration has estimated actual wages and salaries for each job in each year using the following method:

- o If reported wages from a job are less than maximum taxable wages in any one year, reported wages are equal to estimated wages.

- o For nonfarm employment, the "limit quarter" is that in which maximum taxable income is reached. The reported wages in the limit quarter or the prior quarter are selected, whichever is greater, and used as an estimate of wages in the limit and all succeeding quarters. The annual estimate of wages earned from a job is obtained by summing the actual and estimated wages over the four quarters.

*Because no county of employment is indicated for persons in the military, those stationed in the New York metropolitan area would not have been included in the basic New York area subsample unless they also had some civilian employment in the New York area during the five-year period.

- For farm income, if reported wages are equal to or greater than the maximum taxable income, annual estimated wages are set equal to $8000, if the employee is male, and to $7300, if female.

These wage estimates are rather arbitrary. The most arbitrary of all is farm wages, because they are reported annually to the Social Security Administration rather than quarterly as with nonfarm wages. Fortunately, this category is relatively unimportant for the New York metropolitan area sample.

A similar problem arises in the case of one class of nonfarm employees -- high-income employees. For those whose reported wages reach maximum taxable earnings within the first quarter, the method for computing estimated wages fails. When this happens, the Social Security Administration assumes that male employees earn $32,000 a year and females $25,000.

Checks by the Administration's Office of Research and Statistics have indicated that its method of estimating annual income is generally reliable, especially for low-income groups in the sample. Fortunately, once again, it is precisely these groups in which we are primarily interested.

Three additional problems with the wage estimates should be noted. First, part-time and casual employment pose difficulties. For example, it is theoretically impossible to tell whether a person who has reached his maximum taxable income prior to the end of the year has continued to work or has stopped working. The Administration assumes that he has continued to work for all four quarters, even though he may have died or retired after making his full annual payment into the system. This assumption is more likely to be erroneous for high-income groups.

Second, multiple employment causes a number of difficulties. No problem arises with a person who reaches his maximum taxable income in one job before the end of the year and who moonlights on other jobs where he does not. His annual income is simply the total of his estimated income from his first job and reported incomes from all

other jobs. Income may be overstated, however, for a person who changes jobs during the year. His estimated annual income is the total of estimated incomes from each of the two jobs. For his estimated income from both jobs to approximate his actual income, he must not have reached his maximum taxable income on the first of the two jobs. If, in fact, a man has changed jobs after reaching his maximum taxable income on the first job, the income from the second job is treated as additional income and is added, improperly, to the estimated annual income from the first job. Again, this difficulty is more likely to occur for upper-income groups.

Finally, the income estimates are wages and salaries from covered employment only. They do not include income of the self-employed or income from investments and transfers, such as pensions and public assistance. Nor do they include wages and salaries paid by employers outside the social security system. Probably the most important exclusions from the point of view of the New York metropolitan area are federal and some local government employees working in the area.

In short, the user of the social security file should be aware of the income estimates' limitations and not expect too much from them. At best, they provide a rough indication of an individual's economic status and his quarterly and annual wages from a particular job.

THE SUBSIDIARY NEW YORK METROPOLITAN AREA FILE

Because the basic file is rather cumbersome, we have created a subsidiary file that contains the information relevant to our needs on the EDA project. It presents all employee data for each of the five years, along with most of the employer data separated into five basic segments. Table A-2 shows the subsidiary file's format.

Aggregate Data

The aggregate segment contains annual income from all employers. It also contains a set of codes which facilitates sorting of the tape.

Table A-2

FORMAT OF THE SUBSIDIARY FILE

FOR THE NEW YORK METROPOLITAN AREA

SOCIAL SECURITY CONTINUOUS WORK HISTORY SAMPLE

Employee 1

Employee Data

Employee number (scrambled social security number)
Sex
Race (white, black, and Other)
Month of birth
Year of birth

Employer Data

Aggregate data (for each year)

Estimated annual wages, all employers
Reported relative to estimated wages, all employers
Reported relative to estimated wages, employer providing the highest income
Stability of employment, employer providing the highest income

County data (for each year)

Estimated annual wages, county of highest income
County code
Reported relative to estimated wages, all employers, county of highest income
Reported relative to estimated wages, employer providing the highest income, county of highest income
Stability of employment, all employers, county of highest income
Stability of employment, employer providing the highest income, county of highest income

Industrial data (for each year)

Estimated annual wages, industry of highest income
Industry code
Reported relative to estimated wages, all employers, industry of highest income
Reported relative to estimated wages, employer providing the highest income, industry of highest income
Stability of employment, all employers, industry of highest income
Stability of employment, employers providing the highest income, industry of highest income

Table A-2 (Continued)

County/Industry data (for each year)

- Estimated annual wages, industry of highest income within county of highest income
- Industry code for industry of highest income within county of highest income
- Reported relative to estimated wages, all employers, industry of highest income within county of highest income
- Reported relative to estimated wages, employee providing the highest income, industry of highest income within county of highest income
- Stability of employment, all employers, industry of highest income within county of highest income
- Stability of employment, employer providing the highest income, industry of highest income within county of highest income

Employer location: Summary (for each year)

- General (New York City, inner ring, outer ring, other, no employment record)
- County code

Employee 2

Employee 3

These codes indicate whether reported wages are less than or equal to estimated wages for all employers and for the employer providing the highest wage income. They also indicate whether the individual was employed all four quarters of the year and, if so, whether it was by the employer providing the highest wage income.

County Data

The county segment contains estimated annual income in the county in which the individual earned the highest income each year, along with a code indicating the county of employment. This segment also contains a set of codes, parallel to those contained in the aggregate segment, but keyed to the county of highest income.

Industry Data

The industry segment contains the estimated annual income in the industry in which the individual earned the highest income each year. It also has a code indicating the industry, and additional codes parallel to those contained in both the aggregate and the county segments.

County/Industry Data

The county/industry segment contains the estimated annual income for the industry in which the individual earned the highest income, in the county in which he earned the highest income. It also has codes corresponding to those found in other segments of the subsidiary file.

Employer Location Segment

The final segment is included to make the subsidiary file easier to sort. It contains two employer location codes. The first tells whether a person's principal employer in each year was located in New York City, the inner ring, the outer ring, or elsewhere, or whether the person had no employment record for that year. The second, a simplified county code, identifies the county in which the principal employer was located.

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Appendix B

CROSS-TABULATIONS BASED ON THE NEW YORK METROPOLITAN AREA SUBSAMPLE OF THE SOCIAL SECURITY ADMINISTRATION'S NATIONAL CONTINUOUS WORK HISTORY FILE

PART I - BASIC CROSS-TABULATIONS

Part I contains the cross-tabulations for each year of the five-year period, 1962 through 1966. The number of persons employed is broken down by sex, race, age group, income class, and county and region in the metropolitan area in which the individual earned the highest income each year.

Segment 1. Income is defined as wage income earned in the county of principal employment.

Segment 2. Income is defined as wage income earned from all employers. Summary tables for all income classes are included in Segment 1.

PART II - CROSS-TABULATIONS BY TWO-DIGIT INDUSTRIES

Part II repeats Part I, Segment 2 for two-digit industry classifications. Only four regional classifications of employment location are used: New York City; the inner ring; the outer ring; and elsewhere.

Segment 1. All employees.

Segment 2. Employees whose earnings from their principal industry of employment were greater than or equal to 80 percent of their total earnings and who were employed all four quarters of the year.

Segment 3. Employees whose earnings from their principal industry of employment were greater than or equal to 80 percent of their total earnings and who were employed less than four quarters of the year.

Segment 4. Employees whose earnings from their principal industry of employment were less than 80 percent of their total earnings and who were employed all four quarters of the year.

Segment 5. Employees whose earnings from their principal industry of employment were less than 80 percent of their total earnings and who were employed less than four quarters of the year.

PART III - CROSS-TABULATIONS FOR SELECTED THREE-DIGIT INDUSTRIES

Part III repeats Part II for selected three-digit industries. The segments of Part III are identical to those of Part II.

PART IV - CHANGES IN EMPLOYMENT STATUS AND LOCATION BETWEEN 1962 AND 1966

Part IV takes into consideration the continuity of the work history file. Persons employed in both the City and suburbs in 1966 are sorted by whether or not they were employed 1962 and, if employed, where. Persons employed in the City and suburbs in 1962 are sorted by whether or not they were employed in 1966 and, if employed, where. The file is cross-tabulated by sex, race, and income class.

PART V - CHANGES IN LOCATION OF EMPLOYMENT OVER TIME

Part V also takes into consideration the continuity of the work history file. Persons employed in 1966 are identified by the location of their previous employment during each of the previous four years. The file is cross-tabulated by sex, race, age group, and income class.

Segment 1. Persons employed in 1966 are sorted into six groups: Persons employed in New York City throughout the five-year period; persons employed in the suburbs throughout the period; persons who have shifted the location of their employment from the City to the suburbs; persons who have shifted the location of their employment from the City to places outside the New York metropolitan area; persons who have shifted the location of their employment from places outside the metropolitan area to the City; and persons who have shifted the location of their employment from the suburbs to the City.

Segment 2. The number of persons employed in 1966 is tabulated for all possible combinations of employment locations for each of the five years.

Appendix C

ANNUAL EMPLOYMENT DATA CONTAINED IN THE NEW YORK METROPOLITAN AREA SOCIAL SECURITY WORK HISTORY SAMPLE

Appendix C contains tables summarizing some cross-tabulations generated in Part I, Segment 2 of Appendix B. Employment records are presented for each of the five years for various groups in the metropolitan area's population. No effort is made to preserve the data's continuity by sorting or changing employment characteristics over time. This is done in the following appendix.

Table C-1

EMPLOYMENT BY SEX
(Thousands)

Sex	1962	1963	1964	1965	1966
New York City					
Male	2438.0 (60.3)[a]	2448.3 (60.5)	2425.8 (60.2)	2432.6 (60.0)	2461.5 (59.2)
Female	1605.8 (39.7)	1599.4 (39.5)	1601.3 (39.8)	1619.9 (40.0)	1694.0 (40.8)
Total	4043.8	4047.7	4027.1	4052.5	4155.5
Inner Ring					
Male	1391.2 (63.2)	1368.6 (62.5)	1395.5 (62.6)	1466.7 (62.4)	1505.5 (61.6)
Female	810.5 (36.8)	820.3 (37.5)	832.2 (37.4)	882.4 (37.6)	939.8 (38.4)
Total	2201.7	2188.9	2227.7	2349.1	2445.3
Outer Ring					
Male	554.1 (61.6)	567.7 (60.8)	585.5 (60.5)	604.8 (59.6)	629.4 (58.7)
Female	346.1 (38.4)	365.3 (39.2)	382.3 (39.5)	410.7 (40.4)	441.5 (41.3)
Total	900.2	933.0	967.8	1015.5	1070.9

[a]Percentage of total in parentheses.

Table C-2

EMPLOYMENT BY RACE
(Thousands)

Race	1962	1963	1964	1965	1966
New York City					
White	3413.3 (84.4)[a]	3393.2 (83.8)	3356.2 (83.3)	3349.5 (82.6)	3399.8 (31.8)
Black	563.0 (13.9)	578.3 (14.3)	590.3 (14.7)	612.6 (15.1)	658.9 (15.9)
Other	67.5 (1.7)	76.2 (1.9)	80.6 (2.0)	90.4 (2.3)	96.8 (2.3)
Total	4043.8	4047.7	4027.1	4052.5	4155.5
Inner Ring					
White	1969.1 (89.4)	1951.2 (89.1)	1978.5 (88.8)	2066.6 (88.0)	2138.8 (87.5)
Black	219.2 (10.0)	223.9 (10.2)	233.0 (10.5)	263.0 (11.2)	283.5 (11.6)
Other	13.4 (0.6)	13.8 (0.7)	16.2 (0.7)	19.5 (0.8)	23.0 (0.9)
Total	2201.7	2188.9	2227.7	2349.1	2445.3
Outer Ring					
White	829.2 (92.1)	859.6 (92.1)	887.2 (91.7)	924.6 (91.0)	971.9 (90.8)
Black	67.3 (7.4)	68.8 (7.4)	75.3 (7.8)	85.0 (8.4)	92.2 (8.6)
Other	3.7 (0.5)	4.6 (0.5)	5.3 (0.5)	5.9 (0.6)	6.8 (0.6)
Total	900.2	933.0	967.8	1015.5	1070.9

[a]Percentage of total in parentheses.

Table C-3

EMPLOYMENT BY INCOME CLASS
(Thousands)

Income Class	1962	1963	1964	1965	1966
New York City					
$1-2500	1388.4 (34.3)[a]	1345.8 (33.2)	1276.8 (31.7)	1255.5 (30.9)	1288.2 (30.9)
$2500-5000	1267.2 (31.3)	1239.5 (30.6)	1210.1 (30.0)	1170.5 (28.8)	1071.2 (25.7)
$5000-8000	830.7 (20.5)	855.6 (21.1)	855.9 (21.2)	871.3 (21.5)	940.7 (22.6)
$8000 or more	557.5 (13.7)	606.8 (14.9)	684.3 (16.9)	755.2 (18.6)	855.4 (20.5)
Total	4043.8	4047.7	4027.1	4052.5	4155.5
Inner Ring					
$1-2500	739.4 (33.5)	738.5 (33.7)	738.9 (33.1)	761.3 (32.4)	814.2 (33.2)
$2500-5000	617.0 (28.0)	609.4 (27.8)	587.5 (26.3)	594.8 (25.3)	582.7 (23.8)
$5000-8000	537.0 (24.3)	520.0 (23.7)	537.1 (24.1)	565.7 (24.0)	576.2 (23.5)
$8000 or more	308.3 (14.0)	321.0 (14.6)	364.2 (16.3)	427.3 (18.1)	472.2 (19.3)
Total	2201.7	2188.9	2227.7	2349.1	2445.3
Outer Ring					
$1-2500	324.6 (36.0)	332.5 (35.6)	335.1 (34.6)	347.9 (34.2)	385.9 (36.0)
$2500-5000	259.7 (28.8)	259.1 (27.7)	268.9 (27.7)	275.6 (27.1)	263.3 (24.5)
$5000-8000	203.4 (22.5)	213.7 (22.9)	217.8 (22.5)	226.3 (22.2)	237.3 (22.1)
$8000 or more	112.5 (12.4)	127.7 (13.6)	146.0 (15.0)	165.7 (16.3)	184.4 (17.2)
Total	900.2	933.0	967.8	1015.5	1070.9

[a]Percentage of total in parentheses.

Table C-4

EMPLOYMENT BY AGE GROUP
(Thousands)

Age Group	1962	1963	1964	1965	1966
New York City					
Less than 18	97.6 (2.4)[a]	93.7 (2.3)	90.1 (2.2)	90.2 (2.2)	107.8 (2.5)
18 to 25	667.3 (16.5)	676.8 (16.7)	688.5 (17.0)	719.7 (17.7)	731.1 (17.5)
25 to 50	2039.0 (50.4)	2028.7 (50.1)	2001.1 (49.6)	2005.0 (49.4)	2063.5 (49.6)
Greater than 50	1239.9 (30.6)	1248.5 (30.8)	1247.4 (30.9)	1237.6 (30.5)	1253.1 (30.1)
Total	4043.8	4047.7	4027.1	4052.5	4155.5
Inner Ring					
Less than 18	66.7 (3.0)	73.5 (3.3)	71.3 (3.2)	78.5 (3.3)	95.4 (3.9)
18 to 25	372.5 (16.9)	384.4 (17.5)	401.6 (18.0)	442.5 (18.8)	465.1 (19.0)
25 to 50	1178.9 (53.5)	1152.2 (52.6)	1153.7 (51.7)	1202.2 (51.1)	1237.1 (50.5)
Greater than 50	583.6 (26.5)	578.8 (26.4)	601.1 (26.9)	625.9 (26.6)	647.7 (26.4)
Total	2201.7	2188.9	2227.7	2349.1	2445.3
Outer Ring					
Less than 18	30.6 (3.3)	32.0 (3.4)	31.4 (3.2)	35.8 (3.5)	46.4 (4.3)
18 to 25	161.3 (17.9)	172.8 (18.5)	184.0 (19.0)	203.1 (20.0)	212.5 (19.8)
25 to 50	494.2 (54.8)	503.1 (53.9)	514.9 (53.2)	530.8 (52.2)	551.7 (51.5)
Greater than 50	214.1 (23.7)	225.1 (24.1)	237.5 (24.5)	245.8 (24.2)	260.3 (24.3)
Total	900.2	933.0	967.8	1015.5	1070.9

[a]Percentage of total in parentheses.

Table C-5

MALE EMPLOYMENT IN NEW YORK CITY BY AGE AND RACE
(Thousands)

Race and Age	1962	1963	1964	1965	1966
White					
Less than 18	50.8	46.4	44.6	41.9	45.2
18 to 25	261.0	267.8	262.0	272.4	266.6
25 to 50	1067.7	1058.1	1042.6	1040.7	1056.7
Greater than 50	704.1	703.9	696.1	682.5	679.5
Total	2083.6	2076.2	2045.3	2037.5	2048.0
Black					
Less than 18	6.1	7.0	9.1	11.2	16.0
18 to 25	60.3	62.1	64.3	66.0	67.4
25 to 50	184.6	192.3	194.2	198.9	206.1
Greater than 50	60.2	60.8	61.8	63.0	66.8
Total	311.2	322.2	329.4	339.1	356.3
Other					
Less than 18	1.0	.8	.8	1.8	1.9
18 to 25	9.2	10.2	9.8	11.4	10.8
25 to 50	25.2	29.2	30.9	32.0	33.8
Greater than 50	7.8	9.7	9.6	10.8	10.7
Total	43.2	49.9	51.1	56.0	57.2
Total					
Less than 18	57.9	54.2	54.5	54.9	63.1
18 to 25	330.5	340.1	336.1	349.8	344.8
25 to 50	1277.5	1279.6	1267.7	1271.6	1296.6
Greater than 50	772.1	774.4	767.5	756.3	757.0
Total	2438.0	2448.3	2425.8	2432.6	2461.5

Table C-6

MALE EMPLOYMENT IN INNER RING BY AGE AND RACE
(Thousands)

Race and Age	1962	1963	1964	1965	1966
White					
Less than 18	36.6	41.0	37.0	38.8	46.9
18 to 25	178.6	184.6	192.2	212.1	213.5
25 to 50	680.1	655.8	659.9	678.7	685.1
Greater than 50	347.0	337.2	348.7	359.8	371.1
Total	1242.3	1218.6	1237.8	1289.4	1316.6
Black					
Less than 18	1.7	2.0	3.9	6.1	6.8
18 to 25	24.9	26.4	26.2	30.5	34.7
25 to 50	87.8	87.0	88.1	96.9	101.2
Greater than 50	24.8	24.6	27.9	29.9	30.0
Total	139.2	140.0	146.1	163.4	172.7
Other					
Less than 18	0.0	0.1	0.1	0.5	0.3
18 to 25	1.6	1.6	2.0	2.4	3.7
25 to 50	6.2	6.1	6.8	8.2	9.5
Greater than 50	1.9	2.2	2.7	2.8	2.7
Total	9.7	10.0	11.6	13.9	16.2
Total					
Less than 18	38.3	43.1	41.0	45.4	54.0
18 to 25	205.1	212.6	220.4	245.0	251.9
25 to 50	774.1	748.9	754.8	783.8	795.8
Greater than 50	373.7	364.0	379.3	392.5	403.8
Total	1391.2	1368.6	1395.5	1466.7	1505.5

Table C-7

MALE EMPLOYMENT IN OUTER RING BY AGE AND RACE
(Thousands)

Race and Age	1962	1963	1964	1965	1966
White					
Less than 18	16.6	17.0	17.2	18.5	23.5
18 to 25	77.3	85.3	89.8	96.7	99.7
25 to 50	285.9	287.0	289.9	294.3	299.5
Greater than 50	129.6	132.7	137.9	139.8	149.7
Total	509.4	522.0	534.8	549.3	572.4
Black					
Less than 18	1.4	0.8	0.8	1.8	3.0
18 to 25	8.3	7.8	9.3	10.3	9.1
25 to 50	25.8	27.0	29.0	30.7	31.9
Greater than 50	6.4	6.7	7.6	8.3	8.4
Total	41.9	42.3	46.7	51.1	52.4
Other					
Less than 18	0.0	0.2	0.0	0.3	0.0
18 to 25	0.7	0.4	0.8	1.0	1.3
25 to 50	1.8	2.5	2.8	2.8	3.0
Greater than 50	0.3	0.3	0.4	0.3	0.3
Total	2.8	3.4	4.0	4.4	4.6
Total					
Less than 18	18.0	18.0	18.0	20.6	26.5
18 to 25	86.3	93.5	99.9	108.0	110.1
25 to 50	313.5	316.5	321.7	327.8	334.4
Greater than 50	136.3	139.7	145.9	148.4	158.4
Total	554.1	567.7	585.5	604.8	629.4

Table C-8

FEMALE EMPLOYMENT IN NEW YORK CITY BY AGE AND RACE
(Thousands)

Race and Age	1962	1963	1964	1965	1966
White					
Less than 18	35.5	34.6	31.0	29.5	31.5
18 to 25	269.5	269.2	284.1	297.2	306.7
25 to 50	593.8	579.2	558.6	549.1	565.4
Greater than 50	430.9	434.0	437.2	436.2	448.2
Total	1329.7	1317.0	1310.9	1312.0	1351.8
Black					
Less than 18	3.4	3.9	4.0	4.8	11.5
18 to 25	61.8	61.0	61.6	64.4	70.5
25 to 50	151.9	153.5	155.7	163.1	177.8
Greater than 50	34.7	37.7	39.6	41.2	42.8
Total	251.8	256.1	260.9	273.5	302.6
Other					
Less than 18	0.8	1.0	0.6	1.0	1.7
18 to 25	5.5	6.5	6.7	8.3	9.1
25 to 50	15.8	16.4	19.1	21.2	23.7
Greater than 50	2.2	2.4	3.1	3.9	5.1
Total	24.3	26.3	29.5	34.4	39.6
Total					
Less than 18	39.7	39.5	35.6	35.3	44.7
18 to 25	336.8	336.7	352.4	369.9	386.3
25 to 50	761.5	749.1	733.4	733.4	766.9
Greater than 50	467.8	474.1	479.9	481.3	496.1
Total	1605.8	1599.4	1601.3	1619.9	1694.0

Table C-9

FEMALE EMPLOYMENT IN INNER RING BY AGE AND RACE
(Thousands)

Race and Age	1962	1963	1964	1965	1966
White					
Less than 18	26.9	28.4	28.3	29.7	36.5
18 to 25	142.4	147.4	155.4	169.6	182.4
25 to 50	357.6	352.6	346.9	357.6	374.8
Greater than 50	199.9	204.2	210.1	220.3	228.5
Total	726.8	732.6	740.7	777.2	822.2
Black					
Less than 18	1.4	1.9	2.0	3.3	4.6
18 to 25	23.6	23.2	24.3	26.2	28.6
25 to 50	45.3	48.5	49.2	57.6	63.1
Greater than 50	9.7	10.3	11.4	12.5	14.5
Total	80.0	83.9	86.9	99.6	110.8
Other					
Less than 18	0.1	0.1	0.0	0.1	0.3
18 to 25	1.4	1.2	1.5	1.7	2.2
25 to 50	1.9	2.2	2.8	3.2	3.4
Greater than 50	0.3	0.3	0.3	0.6	0.9
Total	3.7	3.8	4.6	5.6	6.8
Total					
Less than 18	28.4	30.4	30.3	33.1	41.4
18 to 25	167.4	171.8	181.2	197.5	213.2
25 to 50	404.8	403.3	398.9	418.4	441.3
Greater than 50	209.9	214.8	221.8	233.4	243.9
Total	810.5	820.3	832.2	882.4	939.8

Table C-10

FEMALE EMPLOYMENT IN OUTER RING BY AGE AND RACE
(Thousands)

Race and Age	1962	1963	1964	1965	1966
White					
Less than 18	12.1	13.5	12.8	14.2	17.4
18 to 25	67.8	73.1	76.8	85.1	90.7
25 to 50	165.7	169.9	175.9	183.8	195.2
Greater than 50	74.2	81.1	86.9	92.2	96.2
Total	319.8	337.6	352.4	375.3	399.5
Black					
Less than 18	0.5	0.4	0.5	0.9	2.4
18 to 25	7.0	5.9	6.9	9.4	10.8
25 to 50	14.3	16.0	16.5	18.4	20.9
Greater than 50	3.6	4.2	4.7	5.2	5.7
Total	25.4	26.5	28.6	33.9	39.8
Other					
Less than 18	0.0	0.1	0.1	0.1	0.1
18 to 25	0.2	0.3	0.4	0.6	0.9
25 to 50	0.7	0.7	0.8	0.8	1.2
Greater than 50	0.0	0.1	0.0	0.0	0.0
Total	0.9	1.2	1.3	1.5	2.2
Total					
Less than 18	12.6	14.0	13.4	15.2	19.9
18 to 25	75.0	79.3	84.1	95.1	102.4
25 to 50	180.7	186.6	193.2	203.0	217.3
Greater than 50	77.8	85.4	91.6	97.4	101.9
Total	346.1	365.3	382.3	410.7	441.5

Table C-11

MALE EMPLOYMENT IN NEW YORK CITY BY INCOME CLASS AND RACE
(Thousands)

Race and Income	1962	1963	1964	1965	1966
White					
$1-2500	467.5	453.0	420.1	409.8	406.9
$2500-5000	508.0	477.7	449.3	419.8	350.5
$5000-8000	604.0	602.6	569.5	546.9	543.2
$8000 or more	504.1	542.9	606.4	661.0	747.4
Total	2083.6	2076.2	2045.3	2037.5	2048.0
Black					
$1-2500	120.8	124.8	123.0	122.4	128.7
$2500-5000	131.0	126.0	127.0	120.8	116.6
$5000-8000	51.2	62.2	64.9	76.7	83.9
$8000 or more	8.2	9.2	14.5	19.2	27.1
Total	311.2	322.2	329.4	339.1	356.3
Other					
$1-2500	20.1	22.4	21.4	23.8	22.5
$2500-5000	17.4	18.5	19.7	20.1	20.6
$5000-8000	4.1	6.6	7.4	8.2	9.5
$8000 or more	1.6	2.4	2.6	3.9	4.6
Total	43.2	49.9	51.1	56.0	57.2
Total					
$1-2500	608.4	600.2	564.5	556.0	558.1
$2500-5000	656.4	622.2	596.0	560.7	487.7
$5000-8000	659.3	671.4	641.8	631.8	636.6
$8000 or more	513.9	554.5	623.5	684.1	779.1
Total	2438.0	2448.3	2425.8	2432.6	2461.5

Table C-12

MALE EMPLOYMENT IN INNER RING BY INCOME CLASS AND RACE
(Thousands)

Race and Income	1962	1963	1964	1965	1966
White					
$1-2500	255.8	258.4	261.1	263.7	284.2
$2500-5000	268.6	258.2	238.2	225.3	204.9
$5000-8000	434.2	408.3	406.2	415.1	394.5
$8000 or more	283.7	293.7	332.3	385.3	433.0
Total	1242.3	1218.6	1237.8	1289.4	1316.6
Black					
$1-2500	48.5	49.8	50.6	54.6	54.6
$2500-5000	55.9	55.4	52.2	54.6	52.7
$5000-8000	30.6	30.6	36.5	44.7	51.7
$8000 or more	4.2	4.2	6.8	9.5	13.7
Total	139.2	140.0	146.1	163.4	172.7
Other					
$1-2500	4.5	4.6	5.8	6.3	6.8
$2500-5000	3.0	2.9	3.1	4.2	4.8
$5000-8000	1.8	1.3	1.7	1.7	2.9
$8000 or more	0.4	1.2	1.0	1.7	1.7
Total	9.7	10.0	11.6	13.9	16.2
Total					
$1-2500	308.8	312.8	317.5	324.6	345.6
$2500-5000	327.5	316.5	293.5	284.1	262.4
$5000-8000	466.6	440.2	444.4	461.5	449.1
$8000 or more	288.3	299.1	340.1	396.5	448.4
Total	1391.2	1368.6	1395.5	1466.7	1505.5

Table C-13

MALE EMPLOYMENT IN OUTER RING BY INCOME CLASS AND RACE
(Thousands)

Race and Income	1962	1963	1964	1965	1966
White					
$1-2500	118.4	120.7	120.9	118.9	136.8
$2500-5000	116.1	110.1	110.0	109.9	93.6
$5000-8000	169.4	172.8	170.6	169.2	170.8
$8000 or more	105.5	118.4	133.3	151.3	171.2
Total	509.4	522.0	534.8	549.3	572.4
Black					
$1-2500	18.0	17.0	16.7	18.7	18.6
$2500-5000	15.6	14.3	18.1	17.9	16.6
$5000-8000	7.5	9.9	9.9	12.0	13.4
$8000 or more	0.8	1.1	2.0	2.5	3.8
Total	41.9	42.3	46.7	51.1	52.4
Other					
$1-2500	1.7	2.1	2.1	2.3	2.4
$2500-5000	0.6	0.5	1.0	1.0	0.9
$5000-8000	0.5	0.4	0.4	0.6	0.7
$8000 or more	0.0	0.4	0.5	0.5	0.6
Total	2.8	3.4	4.0	4.4	4.6
Total					
$1-2500	138.1	139.8	139.7	139.9	157.8
$2500-5000	132.3	124.9	129.1	128.8	111.1
$5000-8000	177.4	183.1	180.9	181.8	184.9
$8000 or more	106.3	119.9	135.8	154.3	175.6
Total	554.1	567.7	585.5	604.8	629.4

Table C-14

FEMALE EMPLOYMENT IN NEW YORK CITY BY INCOME CLASS AND RACE
(Thousands)

Race and Income	1962	1963	1964	1965	1966
White					
$1-2500	616.2	588.4	559.9	542.7	557.0
$2500-5000	510.5	507.8	499.4	488.3	455.1
$5000-8000	160.7	170.9	194.1	214.5	269.6
$8000 or more	42.3	49.9	57.5	66.5	70.1
Total	1329.7	1317.0	1310.9	1312.0	1351.8
Black					
$1-2500	146.8	139.8	133.4	135.7	149.3
$2500-5000	94.1	101.7	105.2	110.0	115.9
$5000-8000	9.6	12.2	19.0	23.2	32.0
$8000 or more	1.3	2.4	3.3	4.6	5.4
Total	251.8	256.1	260.9	273.5	302.6
Other					
$1-2500	17.0	17.4	19.0	21.1	23.8
$2500-5000	6.2	7.8	9.5	11.5	12.5
$5000-8000	1.1	1.1	1.0	1.8	2.5
$8000 or more	0.0	0.0	0.0	0.0	0.8
Total	24.3	26.3	29.5	34.4	39.6
Total					
$1-2500	780.0	745.6	712.3	699.5	730.1
$2500-5000	610.8	617.3	614.1	609.8	583.5
$5000-8000	171.4	184.2	214.1	239.5	304.1
$8000 or more	43.6	52.3	60.8	71.1	76.3
Total	1605.8	1599.4	1601.3	1619.9	1694.0

Table C-15

FEMALE EMPLOYMENT IN INNER RING BY INCOME CLASS AND RACE
(Thousands)

Race and Income	1962	1963	1964	1965	1966
White					
$1-2500	373.9	368.6	364.8	374.6	400.2
$2500-5000	265.8	265.9	263.5	274.6	281.1
$5000-8000	67.3	76.6	88.8	98.7	117.8
$8000 or more	19.8	21.5	23.6	29.3	23.1
Total	726.8	732.6	740.7	777.2	822.2
Black					
$1-2500	54.3	54.5	53.4	58.9	64.3
$2500-5000	22.8	26.0	29.3	34.3	37.5
$5000-8000	2.7	3.0	3.7	5.1	8.5
$8000 or more	0.2	0.4	0.5	1.3	0.5
Total	80.0	83.9	86.9	99.6	110.8
Other					
$1-2500	2.4	2.6	3.2	3.2	4.1
$2500-5000	0.9	1.0	1.2	1.8	1.7
$5000-8000	0.4	0.2	0.2	0.4	0.8
$8000 or more	0.0	0.0	0.0	0.2	0.2
Total	3.7	3.8	4.6	5.6	6.8
Total					
$1-2500	430.6	425.7	421.4	436.7	468.6
$2500-5000	289.5	292.9	294.0	310.7	320.3
$5000-8000	70.4	79.8	92.7	104.2	127.1
$8000 or more	20.0	21.9	24.1	30.8	23.8
Total	810.5	820.3	832.2	882.4	939.8

Table C-16

FEMALE EMPLOYMENT IN OUTER RING BY INCOME CLASS AND RACE
(Thousands)

Race and Income	1962	1963	1964	1965	1966
White					
$1-2500	169.7	175.4	179.0	188.3	202.2
$2500-5000	119.0	125.6	128.2	133.6	138.3
$5000-8000	25.0	29.0	35.4	42.4	50.3
$8000 or more	6.1	7.6	9.8	11.0	8.7
Total	319.8	337.6	352.4	375.3	399.5
Black					
$1-2500	16.2	16.3	15.6	18.9	24.4
$2500-5000	8.3	8.5	11.3	12.7	13.7
$5000-8000	0.8	1.5	1.4	2.0	1.7
$8000 or more	0.1	0.2	0.3	0.3	0.0
Total	25.4	26.5	28.6	33.9	39.8
Other					
$1-2500	0.6	1.0	0.8	0.8	1.5
$2500-5000	0.1	0.1	0.3	0.5	0.2
$5000-8000	0.2	0.1	0.1	0.1	0.4
$8000 or more	0.0	0.0	0.1	0.1	0.1
Total	0.9	1.2	1.3	1.5	2.2
Total					
$1-2500	186.5	192.7	195.4	208.0	228.1
$2500-5000	127.4	134.2	139.8	146.8	152.2
$5000-8000	26.0	30.6	36.9	44.5	52.4
$8000 or more	6.2	7.8	10.2	11.4	8.8
Total	346.1	365.3	382.3	410.7	441.5

Appendix D

PERSONS EMPLOYED IN 1962 AND 1966: JOB STATUS AND LOCATION COMPARED

Appendix D contains cross-tabulations from the New York area subsamples which preserve the continuity of the Social Security file. Individuals employed in New York City and the suburbs in 1962, or who had no employment record in 1962, are sorted by their employment status and location in 1966. Conversely, persons who were employed in New York City or the suburbs in 1966, or who had no employment record in 1966, are sorted by their employment status and location in 1962. The employment data are also sorted by race, sex, and income class in 1966.

Table D-1

CHANGE IN JOB STATUS AND LOCATION BY WHITE MALES
(Thousands)

	Income Class in 1966						
	No Income	$1-2,499	$2,500-$4,999	$5,000-$7,999	$8,000-$11,999	$12,000+	Total
Employed in New York City in 1962; Employment Status and Location in 1966							
No Recorded Employment	326.1	-0-	-0-	-0-	-0-	-0-	326.1
New York City	-0-	171.9	227.8	407.9	352.2	226.8	1,386.6
Suburbs	-0-	24.6	24.5	42.7	33.6	16.8	142.2
Elsewhere	-0-	60.5	39.7	50.1	41.0	37.4	228.7
Total	326.1	257.0	292.0	500.7	426.8	281.0	2,083.6
Employed in Suburbs in 1962; Employment Status and Location in 1966							
No Recorded Employment	219.2	-0-	-0-	-0-	-0-	-0-	219.2
New York City	-0-	18.3	15.1	32.8	33.2	16.2	115.6
Suburbs	-0-	137.1	171.2	416.0	337.9	139.3	1,201.5
Elsewhere	-0-	64.1	35.1	46.6	41.1	28.5	215.4
Total	219.2	219.5	221.4	495.4	412.2	184.0	1,751.7

Table D-1

(Continued)

	Income Class in 1966						
	No Income	$1-2,499	$2,500-$4,999	$5,000-$7,999	$8,000-$11,999	$12,000+	Total
Employed in New York City in 1966; Employment Status and Location in 1962							
No Recorded Employment	-0-	183.4	68.1	33.3	14.3	9.1	308.2
New York City	-0-	171.9	227.8	407.9	352.2	226.8	1,386.6
Suburbs	-0-	18.3	15.1	32.8	33.2	16.2	115.6
Elsewhere	-0-	33.3	39.5	69.2	53.1	42.5	237.6
Total	-0-	406.9	350.5	543.2	452.8	294.6	2,048.0
Employed in Suburbs in 1966; Employment Status and Location in 1962							
No Recorded Employment	-0-	224.9	62.4	33.3	9.0	4.7	334.3
New York City	-0-	24.6	24.5	42.7	33.6	16.8	142.2
Suburbs	-0-	137.1	171.2	416.0	337.9	139.3	1,201.5
Elsewhere	-0-	34.4	40.4	73.3	42.4	20.5	211.0
Total	-0-	421.0	298.5	565.3	422.9	181.3	1,889.0

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Table D-2

CHANGE IN JOB STATUS AND LOCATION BY BLACK MALES
(Thousands)

	Income Class in 1966						
	No Income	$1-2,499	$2,500-$4,999	$5,000-$7,999	$8,000-$11,999	$12,000+	Total
Employed in New York City in 1962; Employment Status and Location in 1966							
No Recorded Employment	47.4	-0-	-0-	-0-	-0-	-0-	47.4
New York City	-0-	50.2	76.1	67.3	20.1	2.6	216.3
Suburbs	-0-	5.0	6.2	6.4	1.6	-0-	19.2
Elsewhere	-0-	14.0	8.6	4.3	1.0	0.4	28.3
Total	47.4	69.2	90.9	78.0	22.7	3.0	311.2
Employed in Suburbs in 1962; Employment Status and Location in 1966							
No Recorded Employment	22.1	-0-	-0-	-0-	-0-	-0-	22.1
New York City	-0-	4.4	5.4	2.8	1.3	0.3	14.2
Suburbs	-0-	24.5	38.0	45.2	14.3	0.3	122.3
Elsewhere	-0-	10.9	6.9	4.0	0.5	0.2	22.5
Total	22.1	39.8	50.3	52.0	16.1	0.8	181.1

4250

Table D-2

(Continued)

	Income Class in 1966						
	No Income	$1-2,499	$2,500-$4,999	$5,000-$7,999	$8,000-$11,999	$12,000+	Total
Employed in New York City in 1966; Employment Status and Location in 1962							
No Recorded Employment	-0-	60.5	20.9	4.6	0.6	0.1	86.7
New York City	-0-	50.2	76.1	67.3	20.1	2.6	216.3
Suburbs	-0-	4.4	5.4	2.8	1.3	0.3	14.2
Elsewhere	-0-	13.6	14.2	9.2	1.7	0.4	39.1
Total	-0-	128.7	116.6	83.9	23.7	3.4	356.3
Employed in Suburbs in 1966; Employment Status and Location in 1962							
No Recorded Employment	-0-	32.5	11.4	3.6	0.1	-0-	47.6
New York City	-0-	5.0	6.2	6.4	1.6	-0-	19.2
Suburbs	-0-	24.5	38.0	45.2	14.3	0.3	122.3
Elsewhere	-0-	11.2	13.7	9.9	1.2	-0-	36.0
Total	-0-	73.2	69.3	65.1	17.2	0.3	225.1

Table D-3

CHANGE IN JOB STATUS AND LOCATION BY OTHER MINORITY MALES
(Thousands)

	Income Class in 1966						
	No Income	$1-2,499	$2,500-$4,999	$5,000-$7,999	$8,000-$11,999	$12,000+	Total
Employed in New York City in 1962: Employment Status and Location in 1966							
No Recorded Employment	6.0	-0-	-0-	-0-	-0-	-0-	6.0
New York City	-0-	6.5	13.2	6.6	1.5	0.7	28.5
Suburbs	-0-	1.3	0.6	0.8	0.2	0.1	3.0
Elsewhere	-0-	2.7	1.6	0.8	0.5	0.1	5.7
Total	6.0	10.5	15.4	8.2	2.2	0.9	43.2
Employed in Suburbs in 1962; Employment Status and Location in 1966							
No Recorded Employment	1.4	-0-	-0-	-0-	-0-	-0-	1.4
New York City	-0-	0.8	0.6	0.1	-0-	0.1	1.6
Suburbs	-0-	2.3	1.7	1.7	1.1	0.3	7.1
Elsewhere	-0-	1.2	0.4	0.4	0.2	0.2	2.4
Total	1.4	4.3	2.7	2.2	1.3	0.6	12.5

4252

Table D-3

(Continued)

	Income Class in 1966						
	No Income	$1-2,499	$2,500-$4,999	$5,000-$7,999	$8,000-$11,999	$12,000+	Total
Employed in New York City in 1966; Employment Status and Location in 1962							
No Recorded Employment	-0-	13.5	4.9	1.9	0.8	0.3	21.4
New York City	-0-	6.5	13.2	6.6	1.5	0.7	28.5
Suburbs	-0-	0.8	0.6	0.1	-0-	0.1	1.6
Elsewhere	-0-	1.7	1.9	0.9	0.7	0.5	5.7
Total	-0-	22.5	20.6	9.5	3.0	1.6	57.2
Employed in Suburbs in 1966; Employment Status and Location in 1962							
No Recorded Employment	-0-	4.7	2.3	0.6	0.1	-0-	7.7
New York City	-0-	1.3	0.6	0.8	0.2	0.1	3.0
Suburbs	-0-	2.3	1.7	1.7	1.1	0.3	7.1
Elsewhere	-0-	0.9	1.1	0.5	0.1	0.4	3.0
Total	-0-	9.2	5.7	3.6	1.5	0.8	20.8

4253

Table D-4

CHANGE IN JOB STATUS AND LOCATION BY WHITE FEMALES
(Thousands)

	Income Class in 1966						
	No Income	$1-2,499	$2,500-$4,999	$5,000-$7,999	$8,000 $11,999	$12,000+	Total
Employed in New York City in 1962; Employment Status and Location in 1966							
No Recorded Employment	363.0	-0-	-0-	-0-	-0-	-0-	363.0
New York City	-0-	226.8	291.9	212.5	41.1	21.4	793.7
Suburbs	-0-	24.1	25.4	8.9	1.3	0.9	60.6
Elsewhere	-0-	48.7	42.7	18.4	1.9	0.7	112.4
Total	363.0	299.6	360.0	239.8	44.3	23.0	1,329.7
Employed in Suburbs in 1962; Employment Status and Location in 1966							
No Recorded Employment	280.6	-0-	-0-	-0-	-0-	-0-	280.6
New York City	-0-	15.4	14.7	8.5	1.1	0.1	39.8
Suburbs	-0-	218.2	270.3	138.2	16.7	9.0	652.4
Elsewhere	-0-	34.5	26.8	11.9	0.6	-0-	73.8
Total	280.6	268.1	311.8	158.6	18.4	9.1	1,046.6

Table D-4

(Continued)

	Income Class in 1966						
	No Income	$1-2,499	$2,500-$4,999	$5.000-$7,999	$8,000-$11,999	$12,000+	Total
Employed in New York City in 1966: Employment Status and Location in 1962							
No Recorded Employment	-0-	275.5	110.8	26.1	2.0	0.7	415.1
New York City	-0-	226.8	291.9	212.5	41.1	21.4	793.7
Suburbs	-0-	15.4	14.7	8.5	1.1	0.1	39.8
Elsewhere	-0-	39.3	37.7	22.5	2.8	0.9	103.2
Total	-0-	557.0	455.1	269.6	47.0	23.1	1,351.8
Employed in Suburbs in 1966: Employment Status and Location in 1962							
No Recorded Employment	-0-	331.5	96.4	12.1	1.7	0.4	442.1
New York City	-0-	24.1	25.4	8.9	1.3	0.9	60.6
Suburbs	-0-	218.2	270.3	138.2	16.7	9.0	652.4
Elsewhere	-0-	28.6	27.3	8.9	1.5	0.3	66.6
Total	-0-	602.4	419.4	168.1	21.2	10.6	1,221.7

4255

Table D-5

CHANGE IN JOB STATUS AND LOCATION BY BLACK FEMALES
(Thousands)

	Income Class in 1966						
	No Income	$1-2,499	$2,500-$4,999	$5,000-$7,999	$8,000-$11,999	$12,000+	Total
Employed in New York City in 1962; Employment Status and Location in 1966							
No Recorded Employment	50.9	-0-	-0-	-0-	-0-	-0-	50.9
New York City	-0-	52.9	85.6	27.1	3.5	1.5	170.6
Suburbs	-0-	4.3	2.4	0.9	0.1	-0-	7.7
Elsewhere	-0-	13.1	8.6	0.8	0.1	-0-	22.6
Total	50.9	70.3	96.6	28.8	3.7	1.5	251.8
Employed in Suburbs in 1962; Employment Status and Location in 1966							
No Recorded Employment	20.7	-0-	-0-	-0-	-0-	-0-	20.7
New York City	-0-	3.2	1.6	0.6	-0-	-0-	5.4
Suburbs	-0-	30.5	32.8	7.3	0.4	-0-	71.0
Elsewhere	-0-	5.3	2.7	0.3	-0-	-0-	8.3
Total	20.7	39.0	37.1	8.2	0.4	-0-	105.4

ERIC

Table D-5

(Continued)

	Income Class in 1966						
	No Income	$1-2,499	$2,500-$4,999	$5,000-$7,999	$8,000-$11,999	$12,000+	Total
Employed in New York City in 1966; Employment Status and Location in 1962							
No Recorded Employment	-0-	83.1	21.9	2.9	0.3	-0-	108.2
New York City	-0-	52.9	85.6	27.1	3.5	1.5	170.6
Suburbs	-0-	3.2	1.6	0.6	-0-	-0-	5.4
Elsewhere	-0-	10.1	6.8	1.4	0.1	-0-	18.4
Total	-0-	149.3	115.9	32.0	3.9	1.5	302.6
Employed in Suburbs in 1966; Employment Status and Location in 1962							
No Recorded Employment	-0-	45.0	9.8	1.4	-0-	-0-	56.2
New York City	-0-	4.3	2.4	0.9	0.1	-0-	7.7
Suburbs	-0-	30.5	32.8	7.3	0.4	-0-	71.0
Elsewhere	-0-	8.9	6.2	0.6	-0-	-0-	15.7
Total	-0-	88.7	51.2	10.2	0.5	-0-	150.6

Table D-6

CHANGE IN JOB STATUS AND LOCATION BY OTHER MINORITY FEMALES
(Thousands)

	Income Class in 1966						
	No Income	$1-2,499	$2,500-$4,999	$5,000-$7,999	$8,000-$11,999	$12,000+	Total
Employed in New York City in 1962; Employment Status and Location in 1966							
No Recorded Employment	5.3	-0-	-0-	-0-	-0-	-0-	5.3
New York City	-0-	7.7	7.3	1.1	0.2	-0-	16.3
Suburbs	-0-	0.3	0.2	-0-	-0-	-0-	0.5
Elsewhere	-0-	1.1	0.8	0.3	-0-	-0-	2.2
Total	5.3	9.1	8.3	1.4	0.2	-0-	24.3
Employed in Suburbs in 1962; Employment Status and Location in 1966							
No Recorded Employment	0.7	-0-	-0-	-0-	-0-	-0-	0.7
New York City	-0-	0.3	0.1	-0-	-0-	-0-	0.4
Suburbs	-0-	1.0	0.8	0.6	0.2	-0-	2.6
Elsewhere	-0-	0.4	0.3	0.2	-0-	-0-	0.9
Total	0.7	1.7	1.2	0.8	0.2	-0-	4.6

Table D-6

(Continued)

	Income Class in 1966						
	No Income	$1-2,499	$2,500-$4,999	$5,000-$7,999	$8,000-$11,999	$12,000+	Total
Employed in New York City in 1966; Employment Status and Location in 1962							
No Recorded Employment	-0-	14.9	4.4	0.7	-0-	0.1	20.1
New York City	-0-	7.7	7.3	1.1	0.2	-0-	16.3
Suburbs	-0-	0.3	0.1	-0-	-0-	-0-	0.4
Elsewhere	-0-	0.9	0.7	0.7	0.5	-0-	2.8
Total	-0-	23.8	12.5	2.5	0.7	0.1	39.6
Employed in Suburbs in 1966; Employment Status and Location in 1962							
No Recorded Employment	-0-	4.0	0.8	0.5	-0-	-0-	5.3
New York City	-0-	0.3	0.2	-0-	-0-	-0-	0.5
Suburbs	-0-	1.0	0.8	0.6	0.2	-0-	2.6
Elsewhere	-0-	0.3	0.1	0.1	0.1	-0-	0.6
Total	-0-	1.6	1.1	0.7	0.3	-0-	3.7

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INDUSTRIAL ARTS TRANSPORTATION
AEROSPACE - LAND - MARINE
A Resource Unit

Developed by:
Leroy J. Sanders

Submitted for research conducted under a Fellowship
and Staff Development Grant during the Fall Semester, 1969.

VT016386

ACKNOWLEDGEMENTS

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INTRODUCTION

Transportation is very comprehensive--ranging from business logistics to efficiency of canal barges, to big city commuter problems. Because of this, it has implications for nearly all curriculum areas in education. It is a popular unit in elementary school social studies classes and frequently helps shape the study of geography, economics, science and other subjects. It should also be a concern to the area of industrial arts, not only relating to technical ways and means of travel, but to many general aspects of the vast industry as well.

A search of literature showed that although the term "transportation" has been employed in some industrial arts circles, it appeared very infrequently. No evidence of comprehensive course development was found by the writer. These findings were reinforced by a survey study reported by Trudeau. Although most of his efforts were directed toward Power Mechanics, some information did touch upon transportation programs as stated below:

> . . . In addition, those people working in transportation felt that precious few understood what it was really about. Ten per cent felt that present day curriculum was adequate. What did the teacher educators say about this? All but one felt that curriculum was inadequate. Again, the stress on servicing the reciprocating piston engine was cited as the heart of a typical program and was termed too narrow in scope to reflect the total technology.[1]

Although a N.D.E.A. Transportation Institute held at Oswego during the summer of 1966 devoted much effort to the determination of content for industrial arts transportation in the schools, a great deal of research still remained to refine, up-date and adapt the materials to a college level program.

The preceding factors suggested a need for additional curriculum study in the area and resulted in the resource unit presented in this paper.

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[1]Terence J. Trudeau, "Teaching Industrial Arts Power - What Is It Today and What Tomorrow?," Industrial Arts and Vocational Education, Vol. 58, No. 1 (January 1969), pp. 32-36.

4264

Industrial Arts Transportation

For the purpose of this study, Industrial Arts Transportation denotes the ways and means by which goods and people are moved from one location to another. The concept will be developed by studying elements of power, propulsion, vehicles, media, guidance and control, terminals and socio-economic aspects of the transportation industry. It shall be general education in nature and the immediate audience prospective junior-senior high school teachers.

Industrial Arts Transportation at the College Level--Goals

Four goals were identified by a special curriculum study committee for Industrial Arts Transportation at State University College Oswego during the spring of 1969. They provided direction for development of the resource unit and are listed as follows:

1. To develop a broad background of related technical-cultural concepts pertaining to Aerospace, Land and Marine transportation.
2. To acquire laboratory experience in activities required for the teaching of transportation in the schools.
3. To gain experience in developing appropriate curriculum units applicable to teaching transportation.
4. To develop specific competencies necessary for the promotion, organization and management of transportation programs and laboratory facilities.

Objectives of the Study

The writer proposed the following objectives prior to development of the resource unit:

1. Survey and analyze current literature pertaining to transportation in order to develop background, determine content limits and identify sources of information for further investigation.
2. Correspond with selected transportation related agencies, associations and industries requesting materials and information about possible educational services.
3. Study books, periodicals and other literature to strengthen the researcher's knowledge. Areas of study to include: (1) general, (2) technical, (3) organizational and (4) human aspects of land, marine and aerospace transportation industries.

4. Develop a resource unit devoted to Industrial Arts Transportation at the college level.

5. Expand the Transportation section of the Departmental Curriculum Library.

6. Participate in scheduled Fellowship and Staff Development Seminars.

Procedure

The procedure for the development of the resource unit was as follows:

1. Reviewed curriculum materials developed during the N.D.E.A. Transportation Institute, Oswego, Summer 1968.

2. Searched the State University College, Oswego, Industrial Arts Curriculum Library and the Penfield Library for available literature in the areas of land, marine and aerospace transportation.

3. Identified and corresponded with selected land, marine and aerospace transportation related agencies, associations and companies requesting pertinent materials and information.

4. Requested selected new books for the Departmental Curriculum Library.

5. Analyzed possible content and developed a resource unit for Industrial Arts Transportation at the college level.

6. Wrote the final report.

Resource Unit--A Description

A unit of instruction may be classified either as a unit of work or as a resource unit. A unit of work centers on a comprehensive interest around which curriculum experiences are organized. A resource unit, on the other hand, reinforces the work unit. It precedes a classroom experience and provides the teacher with an advisory source for his program. It is a collection of content dealing with major lesson topics, possible activities and sources from which instructional materials or services may be obtained. A resource unit is broad in scope, contains more than can ordinarily be used during a course, is flexible enough to accommodate many abilities and interests and is prepared for the teacher's use. Particular value of the unit can be derived from information about current events not available in textbooks or library references.

INDUSTRIAL ARTS TRANSPORTATION

Aerospace - Land - Marine

A Structure

Transportation and Education	The U.S. Transportation System, Problems and Policy Occupational Information Transportation Education in Industrial Arts
Power and Propulsion	Natural Forms of Power and Propulsion Steam Power for Propulsion Internal Combustion Engines Electrical and Exotic Propulsion Generators
Vehicles	Highway Vehicles Railway Vehicles Aircraft Spacecraft Seacraft
Media	Airways Landways Waterways Space Pipelines
Terminals	Airports Land Transport Terminals Ports and Marinas
Guidance and Control	Selected Agencies and Associations Licensing and Registration Rules and Regulations Navigation Radio Communications

Format

Each block of content contains the following elements:

Heading: Identifies the mode, category and particular block of content.

Conceptual Statement: Introduces the idea, understanding, mental picture or description to be developed by a student.

Scope: Lists and limits, in outline form, suggested items for the block of content identified in the heading.

Possible Activities: A listing to be constantly revised as new or more meaningful ideas are identified.

Selected Audio-Visual Aids: A listing of equipment, specific materials and sources that may be helpful in making meaningful class presentations.

Selected References: Books, periodicals and other reference materials that might be helpful to lesson preparation in the particular block of content.

Evaluation: A listing of ideas relative to comprehensive evaluation of a course and students. Methods and devices differ among the categories for the sake of variety.

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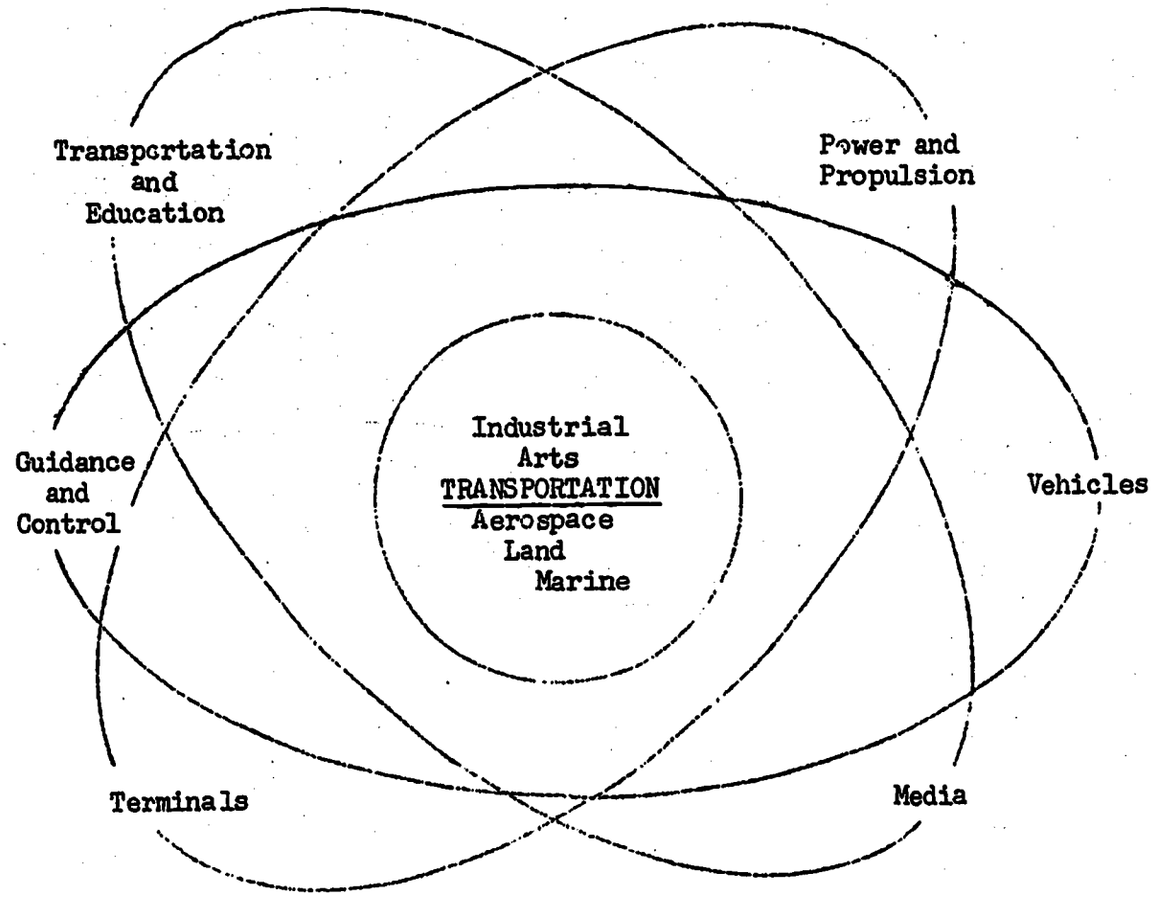

A Resource Unit
Developed By:
Leroy J. Sanders
January, 1970

TRANSPORTATION AND EDUCATION

Block Number	Topic
1.	The U.S. Transportation System Problems and Policy
2.	Occupational Information
3.	Transportation Education in Industrial Arts

4270

I.A. Transportation
Modes: Air, Land and Marine
Category: Transportation and Education
Content Block #1: The U.S. Transportation System, Problems and Policy

I. Conceptual Statement: Transportation is that aspect of economic activity which provides for the carrying of people and materials from one location to another. It generally partakes of both public and private interests and may relate to either production or consumption. A once adequate structure of transportation does not have the capabilities to cope with problems resulting from the needs of a rapidly expanding population. However, as a result of these pressures, a trend toward research evolves. Sooner or later, new concepts are applied to alleviate the problems as illustrated by demonstration projects in various national locations.

II. Scope:

A. Transportation and the economy.

1. Nature of transportation.

2. Transport and location of industry.

a. Factors in the location of industry.
b. Transport and regional development.
c. Development of metropolitan areas.

3. Effects of improved transportation.

a. Transport and production.
b. Political effects.
c. Social effects.
d. National defense.

B. Elements of a modern transport system.

1. Railroads.

a. The railroad plant.
b. Organization.
c. Role in modern transport.

2. Motor transport.

a. The motor transport plant.
b. Role of motor transport.

3. Domestic water transport.

   a. Inland waterway transportation.
   b. Role of water transport.

4. Air transport.

   a. The air transport plant.
   b. Role of air transport.

5. Pipe line transport.

   a. Oil
   b. Gas
   c. Other types.

C. Transport geography.

1. Geographic considerations.

2. Basis for transport routes.

3. Transport routes of the United States

4. Commodity flows.

D. Transport services.

1. The common carrier.

   a. Nature.
   b. Role.
   c. Control.
   d. Coordinating services.

E. Transportation policy.

1. A national problem.

   a. Nature of the problem.

   b. Public policy

      1) Formulation.
      2) Objectives
      3) Agencies.

2. Public aid and investment.

3. Integration, coordination and competition.

4. The labor problem.

F. The urban transportation crisis.

1. The urban transportation problem.

a. Rise of the city.
b. Industrialization.
c. Automobile revolution.
d. Transport and urban development.
e. Pattern of traffic movements.
f. Commuter problems.
g. Proposed solutions.

1) Federal legislation.
2) Northeast Corridor Project.
3) Chicago Area Transportation Study.
4) Los Angeles Metropolitan Transit Program.
5) San Francisco Bay Area Transit District.
6) Urban Mass Transportation Act.

G. Transportation and the future.

1. Planning for progress.

2. The automobile--a challenge for change.

3. Revitalization of the railroad.

4. Changing nature of the trucking industry.

5. The pipeline.

6. Transportation by the year 2000.

III. Selected Activities:

A. Review a wide selection of books, magazines, newspapers and other printed material in an attempt to isolate major transportation problems and efforts to solve them.

B. Brainstorm possible solutions to the transportation crisis in metropolitan areas.

C. Propose and develop individual or group contract projects.

IV. Selected Audio-Visual Aids:

A. Films:

1. N.A.S.A.

a. "Flight to Tomorrow"

2. Buchan Pictures
   122 West Chippewa Street
   Buffalo, New York 14202

   a. "A Trip from Chicago"
   b. "New Directions" (Railroads)
   c. "Autos, Autos, Everywhere"

3. General Motors.

   a. "Our American Crossroads"

V. Selected References:*

Danielson. Federal Metropolitan Politics and the Commuter Crises.
Gwilliam. Transport and Public Policy.
Mott. Transportation Century.
Owen. Strategy for Mobility.
Pegrum. Transportation: Economics and Public Policy.
Pell. Megalopolis Unbound--The Supercity and the Transportation of Tomorrow.
Ruppenthal and McKinnell, Jr. (ed.) Transportation and Tomorrow.
Smerk. Urban Transportation: The Federal Role.
Taylor. The Transportation Revolution.

VI. Evaluation:

A. Assign credit to reports and laboratory contract projects.

B. Class discussion relative to the transportation industry, current problems, possible solutions and trends for the future.

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*Publishers and dates are documented in the BIBLIOGRAPHY.

I.A. Transportation
Modes: Aerospace, Land and Marine
Category: Transportation and Education
Content Block #2: Occupational Information

I. Conceptual Statement: Transportation has great impact upon many areas of world business, industries, professions and services. A forecast of change is certain in this vast field. Change will greatly increase the number of new opportunities and the need for guidance in career selection. Young people must learn how to obtain facts which can aid them in arriving at sound career-choice decisions.

II. Scope:

A. Introduction to occupations.

1. General trends.

a. Growth of the work force.
b. Movement of the work force.
c. Rising level of education attainment.
d. Women in the work force.
e. Non-whites in the work force.
f. Young people in the work force.
g. Older people in the work force.
h. Handicapped workers in the work force.

B. Occupational structure for transportation industries.

1. Railroads.

a. Line-haul.
b. Related service companies.

2. Local and suburban, and interurban passenger transportation.

3. Motor freight transportation and warehousing.

4. Water transportation.

5. Transportation by air.

6. Pipeline transportation.

C. Occupational literature.

1. Kinds.

a. Geographical scope.

1) National coverage.
2) Local coverage.

b. Industrial scope.

1) Occupational studies.
2) Industrial studies.

D. Sources of occupational information.

1. Governmental agencies.

2. Private publishers.

3. Professional and industrial societies.

4. Trade associations and labor unions.

5. Periodicals.

6. Motion pictures and film strips.

7. Major industries and specific companies.

8. Employment agencies.

III. Possible Activities:

Select an occupation of interest. Do research to determine the following:

A. Nature of the work.

B. Where employed.

C. Training and other qualifications.

D. Employment outlook.

E. Earnings and work conditions.

F. Where to go for more information.

IV. Selected Audio-Visual Aids;

A. Copies of references listed in Section V.

B. Samples of literature from a variety of transportation associations, agencies and industries.

C. Sound Film Strip:

National Aerospace Education Council.

"Aviation -- Where Career Opportunities are Bright"

V. Selected References:

Baer. Occupational Information: The Dynamics of Its Nature and Use. N.A.S.A. and U.S. Office of Education. Educational Guidance in the Space Age.

U.S. Department of Labor. Dictionary of Occupational Titles -- Volume I. Definitions of Titles.

U.S. Department of Labor Dictionary of Occupational Titles -- Volume II. Occupational Classification and Industry Index.

U.S. Department of Labor. Occupational Outlook Handbook Employment Information on Occupations for Use in Guidance.

U.S. Department of Labor. Occupational Outlook Quarterly. Latest publications. (Periodical, four issues per year. U.S. Governemnt Printing Office $1.75 per yearly subscription).

VI. Evaluation:

General class discussion of occupational information relating to transportation.

I.A. Transportation
Modes: Aerospace, Land, Marine
Category: Transportation and Education
Content Block #3: Transportation Education in Industrial Arts

I. Conceptual S atement: Preliminary investigation and detailed planning are essential to the acceptance and success of new programs in a school curriculm.

II. Scope:

A. Preliminary planning.

1. A philosophy.

2. The community.

a. Composition
b. Resources

3. The school

a. Board
b. Administration
c. Students
d. Time
e. Facilities
f. Equipment
g. Funds

4. The State Department of Education.

B. Course of Study

1. Preliminaries.

a. Title page
b. Preface

2. Introduction

a. Backround information
b. Course time allocations.
c. Course aims.

3. Contnet.

a. Unit titles
b. Items in outline form.

4. Methods and aids

5. Evaluation

6. Laboratory supplies and equipment.

III. Possible Activities:

A. Write a philosophy for Industrial Arts Transportation.

B. Write a justification for Industrial Arts Transportation.

C. Develop a course outline or a course study for Industrial Arts transportation at a selected school grade level.

D. Plan an Industrial Arts Transportation Laboratory area, including basic equipment and supplies.

E. Discuss Industrial Arts Transportation compared to Power Mechanics and Automotives.

IV. Selected Audio Visual Aids:

V. Selected References:

Frey. School Administration -- Selected Readings.
Friese. Course Making in Industrial Education.
Hack. Educational Administration: Selected Readings
Leeper. Role of Supervisor and Curriculm Director in a Climate of Change.
Morphet. Educational Administration.
Proctor. TNT -- Techniques, Notes, Tips for Teachers.
Silvius. Organizing Course Materials.
Silvius. Teaching Multiple Activities.
Wilber. Industrial Arts in General Education.

VI. Evaluation:

A. Assign credit to reports.

B. General class discussion summarizing Transportation Education in Industrial Arts.

POWER AND PROPULSION

Block Number	Topic
1.	Natural Forms of Power and Propulsion
2.	Steam Power for Propulsion
3.	Internal Combustion Engines
4.	Electrical and Exotic Propulsion Generators

4280

I.A. Transportation
Modes: Aerospace, Land, Marine
Category: Power and Propulsion
Content Block #1: Natural Forms of Power and Propulsion

I. Conceptual Statement: Until approximately two hundred years ago, power for transportation consisted entirely of natural forms, such as muscle, water and wind.

II. Scope:

A. Muscle power and propulsion.

1. Man.

2. Animal.

B. Water power and propulsion.

1. Water wheels

2. Water turbines.

3. Surf and current.

C. Wind power and propulsion.

1. Sails -- ships and boats.

2. Windmills.

3. Air currents -- balloons and sailplanes.

III. Possible Activities:

A. Construct a model sailing vehicle on wheels. Test operation in parking lot.

B. Design and construct a model windmill.

C. Develop and test a model hot air balloon.

D. Develop and test a model glider.

E. Approved student proposed written or laboratory contract project.

IV. Selected Audio-Visual Aids:

A. Film: Coronet Films

"Winds and Their Causes"

B. Staff developed transparencies illustrating natural forms of power applied to transportation.

V. Selected References:

Duffy. Power -- Prime Mover of Technology, pp. 5-18.
General Motors. The Story of Power, pp. 2-21.
Stephenson. Power Technology, pp. 1-8.

VI. Evaluation:

A. Review students' activities including:

1. Historial collections.

2. Outlines of readings relative to the early history of power and transportation.

3. Student developed contract project.

I.A. Transportation
Modes: Land and Marine
Category: Power and Propulsion
Content Block #2: Steam Power for Propulsion

I. Conceptual Statement: Advancing beyond natural energy forms became possible with the application of steam for power and vehicle movement.

II. Scope:

A. Development of steam power.

B. Early applications to transportation.

1. Automotive.

2. Locomotive.

3. Boat.

C. Steam turbines.

D. Recent trends and applications.

1. Automobile

2. Atomic fuel steam generators.

a. Ships.
b. Submarines.
c. Aircraft.

III. Possible Activities:

A. Research and report on modern developments in the application of steam to automobiles.

B. Report of visits to marine and railroad museums.

C. Study operation of steam model locomotive.

D. Develop a bibliography of recent books and articles which propose principles of steam to propel modern vehicles.

E. Student contract project.

IV. Selected Audio-Visual Aids.

A. Mock-up of steam engine.

B. Issustrations of William Lear's experimental steam powered race car.

V. Selected References.

Duffy. Power: Prime Mover of Technology, pp. 19-40.
Glenn. Exploring Power Mechanics, pp. 15-15.
General Motors. The Story of Power, pp. 14-20
Sandfort. Heat Engines.
Worthington and others. General Power Mechanics, pp. 1-14.

Periodicals: Select recent editions, especially from titles listed in the bibliography.

VI. Evaluation:

A. Write an essay relative to the merits or disadvantages of modern applications of steam to various transportation vehicles.

B. Award credit due students for written and project efforts.

I.A. Transportation
Modes: Land, Marine, Air
Category: Power and Propulsion
Content Block #3: Internal Combustion Engines

I. Conceptual Statement: The internal combustion engine, in its various forms, has had the greatest power application to the propulsion of transportation vehicles.

II. Scope:

A. Early Internal combustion engines.

1. Development.

2. Applications.

B. Gasoline reciprocating engine fundamentals and applications.

1. Automobile

2.. Aircraft.

3. Marine.

C. Diesel engine fundamentals and applications.

1. Automobile

2. Truck.

3. Locomotive.

4. Marine

D. Rotary combustion engines.

1. Types.

2. Applications.

E. Gas turbine engines

1. Development

2. Vehicular terbines.

3. Free-piston engines.

4. Additional gas turbine applications.

F. Airstream reaction engine fundamentals and applications.

1. Jet engines.

a. Pure jet
b. Turbo-jet
c. Turbo-fan

G. Rocket engine fundamentals and applications.

1. Basic developments.

2. Liquid fuel.

3. Solid fuel.

4. Nuclear propulsion.

III. Possible Activities:

A. General preventarive maintenance: Personal automobile

B. Change engine oil and filter.

C. Adjust carburetor idle.

D. Tiem engine.

E. Change ignition points.

F. Change or clean spark plugs.

G. Remove and clean or replace fuel, air filters.

H. Test and service storage battery.

I. Approved student contract project.

IV. Selected Audio-Visual Aids

Transparencies: See series dealing with engines.

A. DCA Educational Products, Inc. Catalog 200, pp. 15-17

B. Curtiss-Wright engine transparencies.

C. Two stroke cycle engine transparencies

D. Four stroke engine cycle transparencies

E. Transparent model automobile engine

F. Selected laboratory mock-ups.

G. Films:

General Motors: (See 1969 catalog, pp. 7-10).

a. "ABC of the Automobile Engine"
b. "ABC of the Diesel Engine"
C. "ABC of the Jet Propulsion"

V. Selected References:

Duffy. Power: Prime Mover of Technology, pp. 107-290.
General Motors. The Story of Power, pp. 30-44.
Sandfort. Heat Engines, pp. 223-270.
Stephenson. Power Technology.
Stockel. Auto Mechanics Fundamentals.
Tobolt and others. Motor Services Automobile Encyclopedia.

Periodicals: Select recent editions, especially from titles listed in Bibliography.

VI. Evaluation:

A. Administer an objective examination.

B. Comduct performance examination relative to selected aspects of automotive preventative maintainance problems.

C. Analysis of unit written or laboratory activities.

I.A. Transportation
Modes: Aerospace, Land, Marine
Category: Power and Propulsion
Content Block #4: Electrical and Exotic Propulsion Generators

I. Conceptual Statement: When highly efficient forms of power become practical, new kinds of transportation vehicles will become common on earth and extented travel will become possible in space.

II. Scope:

A. Conventional Electricity.

1. Rotary Motor.

2. Linear Motor.

B. Fuel Cells

C. Solar Cells

D. Bio cells

E. Thermoelectricity
F. Nuclear Power

III. Possible Activities

A. Construct a model hot air engine

B. Determine the efficiency of the solar cell compared with the efficiency of water power.

C. Conduct in-depth research into any of the more exotic forms of power.

D. Approved student contract project.

IV. Selected Audio-Visual Aids:

V. Selected references:

Duffy. Power: Prime Mover of Technology, pp. 291-350.
Worthington and others. General Power Machanics, pp. 500-507.

Periodicals: See Bibliography, select and review currnt issues.

VI. Evaluation:

A. Research reports

B. Current reading reports

C. Class discussions

D. Laboratory research and experimentation.

VEHICLES

Block Number	Topic
1.	Highway Vehicles
2.	Railway Vehicles
3.	Aircraft
4.	Spacecraft
5.	Seacraft

I.A. Transportation
Mode: Land
Category: Vehicles
Content Block #1: Highway Vehicles

I. Conceptual Statement: When a vehicle designed for highway travel is understood, properly maintained and operated, it will provide safe, functional and economical service.

II. Scope:

A. Automobile.

1. Early developments.

2. Current facts and figures.

3. Modern design and equipment.

4. How a car works.

5. Personal car care and service.

6. Trailer towing.

7. Trends.

a. Multi-modal.
b. Tele-trans.
c. Starr car.

B. Truck.

1. Motor truck facts.

a. Registrations.
b. Sales.
c. Employment.
d. Taxes.

2. Kinds and uses.

3. Changing nature of trucking industry.

C. Bus.

1. Scheduled passenger.

2. Charter.

3. School.

4. Trends.

a. Dial-a-bus system.
b. Special purpose.

1) "Plane-mate"

D. Motorcycle.

1. Features.

2. Safety.

3. Applications.

III. Possible Activities:

A. Preventative maintenance personal automobile.

1. Lubricate body and chassis.

2. Test antifreeze.

3. Inspect exhaust system.

4. Rotate tires.

5. Check wheel alignment.

6. Balance wheels.

7. Lubricate and adjust wheel bearings.

8. Check, replace shock absorbers.

9. Check brake linings.

10. Adjust headlights.

B. Approved student laboratory or written contract project.

IV. Selected Audio-Visual Aids:

A. Laboratory mockups.

B. Personal vehicles.

C. Films:

1. Ford Motor Company (1969-70 catalog)

The Automobile Industry.

a. "Steel on the Rouge"
b. "A Car is Born"
c. "No Accident"

2. General Motors (See 1969 catalog, p. 10)

   a. "Safety First -- Second -- Third"
   b. "Up from Clay"

3. Buchan Pictures

   a. "Autos, Autos Everywhere"
   b. "A Trip from Chicago:
   c. "Importance of Trucks"
   d. "The Carmakers"

Miscellaneous Materials: Ford Charts and Packet of Pictures.

V. Selected References:

Allen. Know Your Car.
AMA. Automobile Facts and Figures.
AMA. Motor Truck Facts.
Becker. Understanding Your Car.
Ford Motor Company. How an Automobile is Assembled.
"New Transportation Technology", International Science and Technology, (Nov. 1966), pp. 26-37.
N.Y.S. Policies and Plans for Transportation.
Pell. Megalopolis Unbound, pp. 61-104 and 129-158.
Redmayne. Transport By Land, pp. 32-38.
Ross. "New Transportation Technology", International Science and Technology, (Nov. 1966), pp. 36-37.
Ruppenthal. Transportation Progress, pp. 76-83 (Bus).
Ruppenthal and McKinnell. Transportation and Tomorrow.
Toboldt and Johnson. Motor Service's Automotive Encyclopedia.

VI. Evaluation:

A. Written or oral reports relative to design of highway vehicles.

B. Encourage creativity of class toward development of new highway vehicles.

C. Evaluate laboratory projects in relation to safety and preventative maintenance aspects of the personal automobile.

D. Approve written or laboratory student contract projects.

I.A. Transportation
Mode: Land
Category: Vehicles
Content Block #2: Railway Vehicles

I. Conceptual Statement: Railway vehicles have been major contributors to the growth of transportation and will continue to be important in the future as new rail ideas in mass passenger transit and freight hauling become operational.

II. Scope:

A. Early development and contributions.

B. Traffic, equipment and program trends.

1. Passenger train service.

a. Above ground.
b. Underground.

2. High speed rail demonstration projects.

a. Metroliner.
b. Turbo train.
c. Overhead support.
d. Monorail.

3. Tracked air cushion.

4. Containerization.

5. Consolidation and coordination.

6. Tube vehicles.

a. Tracked.
b. Non-tracked.

III. Possible Activities:

A. Assemble a model railroad display covering selected periods of development.

B. Request reports on railroad museums visited by class members.

C. Approved written or laboratory student contract project.

D. Approve reports of study seminar groups.

IV. Selected Audio-Visual Aids:

A. Films:

1. Illinois Central Railroad

a. "Safety at the Crossroads"
b. "Trains, Tracks and Safety Facts"

2. Buchan .:. Pictures

a. "A Trip from Chicago"

V. Selected References:

Association of American Railroads. Railroads of America.
Association of American Railroads. Railroad Review and Outlook.
Carper. Focus: The Railroad in Transition.
N.Y.S. Policies and Plans for Transportation.
Pell. Megalopolis Unbound, pp. 129-158.
Redmayne. Transport by Land, pp. 24-31.
Ress. Transportation in Today's World, pp. 46-73.
Ringwalt. Development of Transportation Systems in the United States.

VI. Evaluation:

A. Display case and bulletin board contributions.

B. Encourage discussion on the status of the railroads today. Compare with the past and project into the future.

C. Approve written or laboratory student contract projects.

I.A. Transportation
Mode: Aerospace
Category: Vehicles
Content Block #3: Aircraft

I. Conceptual Statement: As the many types of aircraft were developed and demonstrated reliable, the transportation of goods and passengers by air increased rapidly.

II. Scope:

A. Early developments.

B. Commercial.

1. Passenger airliners.

a. Regular.
b. Jumbo.
c. SST.

2. Air freight.

3. Helicopter.

C. General aviation.

1. Light aircraft.

a. Private.
b. Corporate.
c. Experimental.

D. Military aviation.

E. Model aircraft.

F. Multimodal.

1. Hovercraft.

2. Amphibian.

III. Possible Activities:

A. Visit commercial airport.

B. Invite airline consultant.

C. Student Orientation flights in light aircraft.

D. Student flight lessons.

E. Investigate new aircraft market.

F. Investigate used aircraft market.

G. Construct model aircraft.

1. Free flight.

2. U-Control.

3. Radio control.

H. Investigate model airplane clubs.

I. Ride in an airliner.

J. Approved student contract projects.

IV. Selected Audio-Visual Aids:

A. Films:

1. Beech Aircraft

a. "Discover Flying"

2. Federal Aviation Administration

a. "How Airplanes Fly"
b. "A Place to Land" (Helicopters and V/STOL)
c. "We Saw It Happen"

3. NASA

a. "Flight to Tomorrow"

4. Champion Spark Plug Company

a. "The Sky is Yours"

V. Selected References:

Benardo. Aviation and Space in the Modern World.
Cook. Transport Planes that Made History.
Mercer. Applied Aviation Science.
N.Y.S. Policies and Plans for Transportation.
Pell. Megalopolis Unbound, pp. 105-128.
Ross. Transportation in Today's World, pp. 138-173.
Van Deventer. An Introduction to General Aeronautics.

VI. Evaluation:

A. Student evaluation of the class, instructor, program, methods, administration and facilities.

B. Discussion of field trip (when applicable)

C. Student-Teacher discussion of special terminology and principles.

D. Objective or subjective examination followed by discussion of material and test results.

I.A. Transportation
Mode: Aerospace
Category: Vehicles
Content Block #4: Spacecraft

I. Conceptual Statement: When the first space vehicle was launched in 1957, the world entered the space age. Now the exploration of the moon is underway. Other planets, and even other galaxies are becoming realistic prospects.

II. Scope:

A. Brief history.

1. The approach of the space age.

2. Early pioneers.

B. Unmanned vehicles.

1. Scientific probes

2. Practical applications.

a. Communications.
b. Weather.
c. Navigation.
d. Defense.

C. Manned vehicles.

1. Mercury.

2. Gemini.

3. Apollo.

D. Space stations.

E. Additional benefits from space technology.

1. Medicine.

2. Materials for home and industry.

3. Influence on methods, equipment and appliances.

III. Possible Activities:

A. Research future space travel possibilities.

B. Model rocketry.

1. Construction.

2. Flight.

3. Classroom applications.

C. Review selected space related films.

D. Research and note "spin-off" to home and industry as a result of efforts in space.

E. Approved student contract projects.

IV. Selected Audio-Visual Aids

A. Films:

1. N.A.S.A.

a. "America in Space"
b. "The Hard Ones"
c. "Living in Space"
d. "Project Apollo"
e. "Returns from Space"

2. Buchan... Pictures.

a. "To the Moon"

V. Selected References:

Armstrong and others. "First Explorers on the Moon", National Geographic, Vol. 136, No. 6 (Dec. 1969), pp. 735-737.
Bryan. Fundamentals of Aviation and Space Technology, pp. 120-148.
Clark. The Coming of the Space Age.
N.A.S.A. Space Resources for the High Schools--Industrial Arts Resource Units.
N.A.S.A. Space: The New Frontier.

VI. Evaluation:

Objective examination based upon student submitted items.

I.A. Transportation
Mode: Marine
Category: Vehicles
Content Block #5: Seacraft

I. Conceptual Statement: Water transportation has been very important to man throughout the centuries and continues to be as new types of power, vessels and applications develop.

II. Scope:

A. Early developments.

1. Ship building.

2. Trade routes.

B. Commercial.

1. Cargo carriers.

a. Barges.
b. Freighters.
c. Containerized ships.

2. Towboats and tugboats.

3. Passenger service.

4. Submarines.

a. Defense.
b. Research.

C. Personal pleasure craft,

1. Classes.

a. Equipment requirements.
b. Boat, motor and trailer.
1) Products.
2) Selection.
c. Basic pleasurecraft handling.
1) Powerboats.
2) Sailboats.

D. New developments.

1. Hydrofoil vessels.

2. Hovercraft.

3. Boat-building kits.

4. Sportcraft.

a. "Sea Doo"
b. Power racers.

III. Possible Activities:

A. Visit a lock.

B. Visit boat dealer.

C. Visit boat manufacturer.

D. Trailer a boat to lab and explain equipment and requirements.

E. Handle a power boat.

F. Ride in a sailboat.

G. Visit a freighter.

H. Visit Coast Guard station.

I. Fiberglass boat, related problems.

J. Design, construct and test model hull.

K. Compile a notebook on selected aspects of marine transportation.

L. Group project - Build a full-size pleasure craft.

M. Approved student contract projects.

IV. Selected Audic-Visual Aids:

A. Films:

1. Association Film Inc.

a. "The Wonder of Water"
b. "Forever Free"

2. Buchan Pictures.

a. "Wide Wake"
b. "Conquering the Sea"

3. Syndicated Films.

a. "The Master Element"

V. Selected References:

Coles. Heavy Weather Sailing.
Government Printing Office. Official U.S. Coast Guard Recreational Boating Guide.
Hiscock. Voyaging Under Sail.
McDermott. Manual of Sailboat Racing.
Ress. Transportation in Today's World, pp. 104-136.
Ringwalt. Development of Transportation Systems in the United States.
Taylor. The Economic History of the United States, pp. 32-73.
The American Waterways Operators, Inc. Big Load Afloat.
U.S. Coast Guard Auxiliary. Basic Seamanship.

VI. Evaluation:

A. Objective or written examination over small boat handling, registration and rules of the road.

B. Oral exam, projecting questions to individual class members relative to small boat equipment and safety.

MEDIA

Block Number	Topic
1.	Airways
2.	Landways
3.	Waterways
4.	Space
5.	Pipelines

I.A. Transportation
Mode: Aerospace
Category: Media
Content Block #1: Airways

I. Conceptual Statement: When the number of aircraft flights became numerous, took place in darkness as well as in daylight and in all kinds of weather, airways were established for economic and safety reasons.

II. Scope:

A. Early developments.

1. Beacons.

2. Low frequency radio beams.

B. Air traffic service.

1. Airport control tower.

2. Air route traffic control centers.

3. Flight service station.

4. The future.

C. How pilots fly the airways.

1. Enroute charts.

2. VHF radio beams.

D. Airway economics.

III. Possible Activities:

A. Study a low altitude enroute chart.

B. Fly a course using a Navigational Flight Simulator.

C. Identify airways on a sectional chart.

D. Visit an Air Traffic Control Center or Airport Approach Control Facilities.

E. Invite an airline pilot to speak on the airway system.

F. Visit an airport control tower.

G. Approved student contract projects.

IV. Selected Audio-Visual Aids:

A. Films:

1. F.A.A. - 1968 catalog

a. "Holding Pattern Procedures"
b. "Using the Airspace"
c. "What's My Traffic?"

B. Filmstrips with sound:

1. Sanderson Films

a. "Instrument Approaches"

C. Charts:

1. U.S. Department of Commerce - 1969 catalog

a. Enroute Low Altitude Charts.
b. Enroute High Altitude Charts.
c. Instrument Approach Procedure Charts.

V. Selected References:

Bernardo. Aviation and Space in the Modern World, pp. 300-320.
F.A.A. Air Traffic Service U.S.A.
F.A.A. In These Hands.
Mercer. Applied Aviation Science. Section 2-1.
Pegrum. Transportation: Economics and Public Policy.
Ress. Transportation in Today's World, pp. 150-167.

VI. Evaluation:

Request class to describe a flight across the country by an airliner. Include departure, airway system enroute and approach to destination.

I.A. Transportation
Mode: Land
Category: Media
Content Block #2: Landways

I. Conceptual Statement: When a comprehensive system of highways and railways was developed, movement of goods and passengers by land became a dependable, flexible, safe, and competative mode of transportation

II. Scope:

A. Roads and turnpikes

1. Early development.

2. Present development.

a. Preliminary planning.
b. Design.
c. Construction.
d. Maintenance.
e. Research and safety.

3. Highway economics.

4. Influence on city structure and growth.

B. Railways.

1. Early development.

2. Present development.

a. Physical characteristics.
b. Construction.
c. Maintenance.
d. High speed rail.

1) Metroliner.
2) Air cushion.

3. Railway economics.

4. Monorail.

a. Demenstration projects.
b. Trends.

5. Underground rail.

a. Urban development and modernization.
b. Between urban centers.

6. Suspended rail.

III. Possible Activities:

A. Visit county or state highway department.

B. Obtain a resource speaker from a railroad system.

C. Obtain a resource consultant to speak to class from city, country or state highway department.

D. Field trip to observe selected railroad beds and yards.

E. Field trips to observe various highway and railway maintenance equipment.

F. Draw to scale, possible new routes for more efficient traffic within or around a selected community.

G. Approved student contract projects.

IV. Selected Audio-Visual Aids:

A. Films:

1. Ford Motor Co. -- 1969-70 catalog

a. "The American Road"
b. "The World of Henry Ford"

2. AAA -- 1968 catalog

a. "Freeway Driving is Different"
b. "The National System of Interstate and Defense Highways"

3. Louisiana Department of Highways
Public Relations Office
P.O. Box 4245
Capital State
Baton Roughe, Louisiana 70804

a. "Big Span"

V. Selected References:

American Trucking Association. Highways to 1985.
Carper. Focus: The Railroad in Transition.
Mott. (Ed). Transportation Century.
New York State Department of Transportation. (1) How A Highway is Born, (2) How Your State Acquires Property for Public Purposes, (3) Highway Safety...More Than Pavement Deep.
Pegrum. Transportation: Economics and Public Policy.
Redmayne. Transport By Land.

Ress. Transportation in Today's World, pp. 38-104.
Ringwalt. Development of Transportation Systems in the United States.
Ross. "New Transportation Technology", International Science and Technology, (November, 1966), pp. 26-37.
Smerk. Urban Transportation: The Federal Role.
U.S. Steel. Highways to 1985.

VI. Evaluation:

Present a problem stating needs in a selected community. Allow students as individuals to draw up a plan to establish the necessary service.

I.A. Transportation
Mode: Marine
Category: Media
Content Block #3: Waterways

I. Conceptual Statement: Most great centers of population, of industrial production and commercial distribution, owe their initial growth and much of their continued prosperity to commerce on the waterways.

II. Scope:

A. Major U.S. inland waterways.

1. Atlantic Coast.

2. Gulf Intracoastal.

3. Mississippi River System.

4. Pacific Coast.

B. Locks and dams.

C. Great Lakes shipping.

D. Ocean shipping.

E. Waterway economis.

1. Major commodities carried.

2. Rail and truck competition.

F. Water recreation.

III. Possible Activities:

A. Research and construct a model lock system.

B. Develop a showcase display.

C. Develop a bulletin board display.

D. Develop a graphic display for bulletin board or showcase.

E. Visit a lock as a class or as individuals to see and learn about its operation.

F. Visit selected Maritime Museums. Report on findings and facilities.

G. Research selected waterway systems noting period of building, reasons for development and happenings since that time.

H. Approved student contract projects.

IV. Selected Audio-Visual Aids:

A. Films:

1. The American Waterways Operators, Inc.

a. "Forever Free"
b. "The Wonder of Water"

B. Maps:

1. "The Inland Waterways of the U.S."

2. Cruising charts of New York Waterways, Lake Ontario and adjacent Canadian waterways.

V. Selected References:

Graduate School of Business. Stanford University. Optimizing Transportation Potential.
Maritime Administration. Marine Museums in the United States.
Mott. (Ed.). Transportation Century.
Pegram. Transportation: Economics and Public Policy.
Ress. Transportation in Today's World, pp. 104-137.
Ringwalt. Development of Transportation Systems in the United States.
Taylor. The Transportation Revolution, pp. 32-73.
The American Waterways Operators, Inc. Big Load Afloat.

VI. Evaluation:

A. Compare selected waterways making note of such factors as:

1. Size.

2. Major products carried.

3. Amount and type of traffic.

4. Special regulation.

I.A. Transportation
Mode: Aerospace
Category: Media
Content Block #4: Space

I. Conceptual Statement: Space, as a media, continues outward in all directions and does not have any known limits.

II. Scope:

A. Beginnings of space.

1. Theories.

B. Space beyond earth and moon.

1. Cislunar.

2. Translunar.

C. Space among the planets (Interplanetary).

1. The planets.

2. Termination of influence.

D. Space toward the stars and beyond.

1. Interstellar.

2. Intergalatic.

III. Possible Activities:

A. Seminar discussion of outer space.

B. Discuss thoughts about America's plans for future manned space flights.

C. Discuss procedure for spacecraft departure into outer space.

D. Construct and fly a variety of model rockets.

E. Discuss applications of model rocketry to junior and senior high school programs.

F. For laboratory projects--see Dean's book Model Spacecraft Construction.

G. Approved student contract projects.

IV. Selected Audio-Visual Aids:

A. N.A.S.A. selection of photographs, displays and charts.

B. Model rocket display and mockups.

C. Model rocket launch equipment and tracking devices.

D. Films:

1. N.A.S.A. -- latest catalog.

a. "America in Space"
b. "Father of the Space Age"
c. "Living in Space"
d. "Log of Mariner IV"
e. "Universe"

2. Encyclopedia Britannica Educational Corporation -- 1969 catalog.

a. See wide selection of space films, pp. 44-45.

V. Selected References:

Bryan and others. Fundamentals of Aviation and Space Technology, pp. 120-148.
Clark (Ed.). The Coming of the Space Age.
Cortright. Space Exploration -- Why and How.
Dean and others. Model Spacecraft Construction.
Dryden. "Footprints on the Moon", National Geographic, March 1964.
Goodwin. "Space Travel", World Book Encyclopedia.
N.A.S.A. The Challenge of Space Exploration.

N.A.S.A. Space Challenge and Promise.
N.A.S.A. Space: The New Frontier.
R.C.A. Man and Space.
Strickler. An Introduction to Aerospace Education.

VI. Evaluation:

Present a paper in which a stand is taken regarding the pros and cons of national expenditures in space.

I.A. Transportation
Mode: Pipelines
Category: Media
Content Block #5: Pipelines

I. Conceptual Statement: Although pipelines have carried crude oil, petroleum products and natural gas for better than a century, new developments enable them to transport solids, bulk cargo and people.

II. Scope:

A. Background.

B. Applications.

1. Petroleum.

2. Gas.

3. Solids.

4. Other.

a. Bulk cargo.
b. Passengers.

C. Traffic control.

D. Trends.

1. Mass transit.

2. Economic impact.

III. Possible Activities:

A. As a group, organize, develop drawings and construct a model segment of a pipeline system.

B. Approved student contract projects.

IV. Selected Audio-Visual Aids:

V. Selected References:

Gwilliam. Transport and Public Policy, pp. 201-207.
Mott (Ed.) Transportation Century.
Pegrum. Transportation: Economics and Public Policy.
Ruppenthal and McKinnell. Transportation and Tomorrow, pp. 75-83.
"The Hidden Industry," Transportation and Distribution Management (Oct. 1969), pp. 48-51.

VI. Evaluation:

Class discussion relative to pipeline development, progress and trends. Or ... write an essay-type summary on the topic.

TERMINALS

Block Number	Topic
1.	Airports
2.	Land Transport Terminals
3.	Ports and Marinas

4313

I.A. Transportation
Mode: Air
Category: Terminals
Content Block #1: Airports

I. Conceptual Statement: Just as there must be roads to utilize automobiles, there must be airports or other appropriate landing facilities in order to transport goods and passengers by air.

II. Scope:

A. Airports.

1. Growth and development.

2. Parts of an airport.

a. Parking.
b. Terminal building
c. Control tower.
d. Airfield
e. Landing system.
f. Hangers (private and commercial)
g. Service and repair shops.
h. Air freight terminal.

3. Airport ownership and management.

B. Airports and the community.

1. Economic aspects.

a. Industry.
b. Service.

C. Airport problems.

D. The National Airport Program.

E. Heliports.

III. Possible Activities:

A. Visit airport terminal at Hancock Field.

B. Visit terminal at Oneida County Airport.

C. Compare selected major airport runway and building layouts using Jeppesen Airport charts or similar materials printed by Coast and Geodetic Survey.

IV. Selected Audio-Visual Aids:

A. Films:

1. Federal Aviation Administration.

a. "It Pays to Stay Open"
b. "A Place to Land"
c. "Dulles International"

2. National Association of State Officials
1000 Vermont Avenue NW
Washington, D.C. 20005

a. "Airport America"

3. Encyclopedia Britannica

a. "Airport in the Jet Age"

B. Pamphlets:

1. Federal Aviation Administration

a. "Planning the Airport Industrial Park"

2. United Air Lines

a. "The Airport and Your Community"

V. Selected References:

Bernardo. Aviation and Space in the Modern World, pp. 114-129.
Colton and Ward. Industrial Traffic Management.
C.A.P. Airports, Airways and Electronics.
Fairbanks. Air Transportation, pp. 17-19.
Mercer. Applied Aviation Science, pp. 2-1;-3-0.
Pegrum. Transportation Economics and Public Policy, pp. 578-600.
Pell. Megalopolis Unbound.
Ress. Transportation in Today's World, pp. 160-164.
T.W.A. Air World Education -- Doorway to the Sky.
Van Deventer. An Introduction to General Aeronautics, pp. 23-37.

VI. Evaluation:

Write a paper giving reasons for or against the development of a community airport.

I.A. Transportation
Mode: Land
Category: Terminals
Content Block #2: Land Transport Terminals

I. Conceptual Statement: Before a commercial land transportation system can be operated, stations and terminal facilities must be established to provide service for equipment, storage of cargo, and passenger conveniences.

II. Scope:

A. Railroad terminals.

1. General aspects.

a. Early development.
b. Dispatch, facilities and procedures.
c. Maintenance and service centers.
d. Terminal ownership and management.
e. Current status.

2. Passenger terminals.

a. Passenger transfer.

1) Service.
2) Problems.

3. Terminal freight traffic.

a. Aspects, problems and procedures.

1) Through traffic.
2) Local carload.
3) Partial shipment.
4) Produce shipments.

B. Motor terminals.

1. Bus.

a. Suburban.
1) Unique features.
b. Intercity.
1) Unique features.
c. Terminal ownership and management.

2. Truck.

a. Freight.
1) Problems involving less than truckload shipments.
2) Terminal location.
b. Terminal ownership and management.

III. Possible Activities:

A. Visit a railroad yard.

B. Report on a visit to a railroad museum.

C. Report on visits to a trucking firm and freight terminal.

D. Invite an official of a land transportation company to speak to the class.

E. Conduct research to determine new development in railroad and bus terminal design.

F. Approved student contract projects.

IV. Selected Audio-Visual Aids:

V. Selected References:

Association of American Railroads. Railroads of America.
Association of American Railroads. Railroad Review and Outlook.
Colton and Ward. Industrial Traffic Management.
N.Y.S. Policies and Plans for Transportation in New York State.
Pegrum. Transportation: Economics and Public Policy, pp. 578-600.
Pell. Megalopolis Unbound, pp. 129-158.
Ress. Transportation in Today's World, pp. 46-102.
Ringwalt. Development of Transportation Systems in the United States, pp. 306-309.
Ruppenthal. Transportation Progress, pp. 76-83 (Bus).
Wigotsky. "Transportation -- The Pressure for Balance," Design News, (Feb. 17, 1969), pp. 28-29.

VI. Evaluation:

A. Provide credit for written and oral reports.

B. Discuss field trips.

C. Review reports of magazine and newspaper articles.

I.A. Transportation
Mode: Marine
Category: Terminals
Content Block #3: Ports and Marinas

I. Conceptual Statement: Transport by water is ineffective without safe havens for marine vehicles and adequate gateways to serve as interchange centers for other modes of transportation.

II. Scope:

A. Ports.

1. Function and scale.

a. Types of ports.
1) Deep draft.
2) Shallow draft.
b. Warehousing.
c. Cargo handled.
d. Relationship to other modes.
1) Pipelines.
2) Rail.
3) Truck.
e. Docks.

2. Prospects and issues.

a. Economic.
b. Facilities and growth.

3. Port administration.

a. Federal and local agencies.
b. The Port of New York Authority.

4. Marinas.

a. Services.
b. Economic aspects.

III. Possible Activities:

A. Visit selected marinas. Compare construction, design, equipment, fees and services offered.

B. Design and construct models of various types of marinas or harbors.

C. Visit selected ports. Note facilities for ships, storage of cargo and passenger services.

D. Approved student contract projects.

IV. Selected Audio-Visual Aids:

A. Films:

1. Academy Films
748 N. Seaward Street
Los Angeles, California 90028

a. "Freighter in Port"

V. Selected References:

American Waterways Operators. Big Load Afloat, pp. 45-47.
Coulton and Ward. Industrial Traffic Management.
Mott. Transportation Century, pp. 132-144.
N.Y.S. Policies and Plans for Transportation.
Pegrum. Transportation: Economics and Public Policy, pp. 593-600.
Ress. Transportation in Today's World, pp. 104-157.
Taylor. The Transportation Revolution, pp. 104-131.
U.S. Coast Guard. Official U.S. Coast Guard Recreational Boating Guide, pp. 51-54.

GUIDANCE AND CONTROL

Block Number	Topic
1.	Selected Agencies and Associations
2.	Licensing and Registration
3.	Rules and Regulations
4.	Navigation
5.	Radio Communications

I.A. Transportation
Modes: Aerospace, Land, Marine
Category: Guidance and Control
Content Block #1: Selected Associations and Agencies

I. Conceptual Statement: As a transportation system develops, guidance and control, by associations and agencies, becomes essential in that they help insure safety and a sense of direction.

II. Scope:

Introduction: There are numerous associations and agencies that contribute in a variety of ways to guidance and control functions. If an Industrial Arts transportation teacher becomes aware of specific functions and related services provided by each of the following, he will have access to nearly all the resources needed to become knowledgeable in the field. The reason for such thinking is that most of the associations and agencies conduct research, publish literature, hold conventions, introduce new products and techniques, and/or establish rules and regulations.

A. Aerospace

Academy of Model Aeronautics.
1025 Connecticut Avenue
Washington 6, D.C. 20036
An organization for those interested in model aircraft. A division of the National Aeronautic Association. Publishes Model Aviation.

Aerospace Industries Association of America
1725 DeSales Street NW
Washington, D.C. 20036
An organization of approximately sixty manufacturers of aerospace vehicles, parts and supplies. Publishes Aerospace.

Aircraft Owners and Pilots Association
National Headquarters
Washington, D.C. 20014
Devoted to private pilot and general aviation interests. Publishes Pilot Journal.

Air Transport Association of America
1000 Connecticut Avenue N.W.
Washington, D.C. 20036
An organization of regular airlines flying regular schedules. Publishes Air Transport Facts and Figures.

Aviation Distributors and Manufacturers' Association
1900 Arch Street
Philadelphia, Pa. 19103
An organization of wholesalers and manufacturers of aircraft parts, supplies and equipment. Publishes Aviation Education News Bulletin.

Civil Air Patrol Aerospace Education Association
National Headquarters, CAP
Maxwell AFB, Ala. 36112
Publishes a wealth of materials for Aerospace Education plus a paper titled Civil Air Patrol News.

Federal Aviation Administration
Washington, D.C. 20590
A part of the United States Government responsible for the promotion, regulation and safety of civil aviation, and for safe and efficient use of airspace shared by both civil and military aircraft. In carrying out its civil responsibilities, FAA makes certain that only qualified men and aircraft take to the air. Publishes FAA Aviation News.

National Aeronautics Association
610 Shoreham Building
806- 15th Street, N.W.
Washington, D.C. 20005
Devoted to the progress and development of American General and Military Aviation. Active in supervising competitive aviation events and official aircraft records. Publishes National Aeronautics.

National Aerospace Education Council
Suite 310 Shoreham Building
806- 15th Street, N.W.
Washington, D.C. 20005
An independent, non-profit, education organization comprised of teachers, school administrators and representatives of Aerospace Industries. Provides numerous materials and services relative to Aerospace Education. Their Aviation Education Bibliography deserves special mention.

National Aeronautics and Space Administration
Washington, D.C. 20546
An arm of the U.S. Government responsible for planning and directing space activities. More than ninety percent of her budget pays for work done by industry and universities. Publishes a wealth of materials and films useful to teachers. An information bulletin of note is called N.A.S.A. Facts.

University Aviation Association
Parks College
St. Louis University
East St. Louis, Illinois 62201
A professional organization of university personnel engaged in flight instruction. Publishes UAA Newsletter.

B. Land

American Automobile Association
1712 G. Street, N.W.
Washington 6, D.C. 20006
A federation of auto clubs active in virtually every facet of motoring. Publishes AAA Tour Books, Maps and Sportsmanlike Driving. (Driver Education Textbook)

American Roadbuilders Association
918 16th Street, N.W.
Washington 6, D.C. 20006
An association of highway contractors, engineers, and manufacturers of road building equipment. Publishes the American Road Builder, Road Builder News, and the ARBA Newsletter.

American Trucking Associations
1616 P. Street, N.W.
Washington 6, D.C. 20036
A federation of 50 state trucking associations and 12 national conferences of truckers. Publishes Transport Topics, Quarterly Digest, Proceedings of the Trucking Industrial Forum, Bibliography of Motor Freight Transportation, and Motor Carrier Directory.

Association of American Railroads
American Railroad Building
Washington, D.C. 20036
An association of those engaged in operating United States class I railroads. The central coordinating and research agency of the American Railway Industry. Publishes a wealth of materials as described in their Price List of Publications Issued by the Association of American Railroads.

Automobile Manufacturers Association
320 New Center Building
Detroit 2, Michigan 48202
An organization made up of automobile and commercial vehicle manufacturers. Publishes Automobile Facts and Figures and Motor Truck Facts.

International Road Federation
1023 Washington Building, N.W.
Washington 5, D.C. 20005
A federation of firms involved in activities related to highways with interest in promoting better roads. Publishes World Highways and Road International.

National Association of Motor Bus Owners
839 17th Street, N.W.
Washington 6, D.C. 20006
An association of companies operating interstate bus lines and the manufacturers involved in this business activity. Publishes Motor Carrier Regulation Service, Legal and Legislative Bulletin, NAMBO News Notes, Bus Facts, Research Report, State Taxes, Fees and Regulations, and Restrictions on Inter-city Buses and the Statistical Service Bulletin.

New York State Department of Transportation
1220 Washington Avenue, State Campus
Albany, New York 12226
Publishes a variety of materials of value to Industrial Arts Transportation. Items are described and prices noted in Sale of Printed Material and Services. Selected single copies may be obtained free of charge by teachers.

The National Mode Railroad Association
P.O. Box 1328 Station C.
4602 Fourth Street, N.W.
Canton, Ohio 44708
An organization of those interested in the model railroad hobby. Publishes the NMRA Yearbook, Bulletin, Date Sheets and Standards and Recommended Practices.

C. Marine

American Association of Port Authorities
601 Southern Building
Washington 5, D.C. 20005
An association made up of the port administrative organizations of the United States, Canada and Latin America, plus private firms with related interests. Sets standards for the field. Publishes World Ports.

American Bureau of Shipping
45 Broad Street
New York, New York 10004
A technical society supported and controlled by the shipping industry, with government representatives included. Establishes and maintains ship standards. Publishes The Record, Rules for Building and Classing Steel Vessels and the Surveyor.

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American Waterways Operators Inc.
1250 Connecticut Avenue - Suite 502
Washington, D.C. 20036
An organization of domestic water carriers engaged in freight cargo transportation. Publishes many books, manuals, maps and news releases of value to teachers interested in marine transportation. Special mention goes to a book entitled Big Load Afloat.

National Association of Engine and Boat Manufacturers
420 Lexington Avenue
New York 17, New York 10017
An association of manufacturers and related businesses engaged in the boat, marine engine and outboard motor industry. Publishes Boating News, the Bulletin and Boating Means Business.

American Inland Waterways Association
608 South Dearborn Street
Chicago 5, Illinois 60605
An association of those involved in the canal and river barge lines industry.

American Power Boat Association
2334 St. Aubin
Detroit 7, Michigan 48207
An association of those interested in power boating. The governing body for the promotion of power boat racing. Publishes Propoller, the Yearbook and Racing Rules.

National Boat Association
P.O. Box 282
Destin, Florida 32541
An association of the small vessel owners, manufacturers and related businesses.

Outboard Boating Club of America
333 North Michigan Avenue
Chicago, Illinois 60601
A club comprised of all segments of the boating industry. Publishes many materials ranging from handbooks on boating law to the handling of small boats, motors and trailers.

State of New York, Conservation Department, Division of Motor Boats.
Concerned with safe boating in New York State. Publishes Boating Rules and Regulations and How to Register Your Boat in New York State.

United States Coast Guard Auxiliary
55 Public Square
Cleveland 13, Ohio 44141
A civilian organization made up of persons with boats, radios and similar equipment that assist the Coast Guard on a volunteer basis. Conducts special classes for the public, inspects boats for safety equipment and publishes many books, films and other materials.

U.S. Coast Guard
1300 E. Street, N.W.
Washington, D.C. 20004
An organization of the U.S. Government which defends the coasts, prevents smuggling, aids vessels in distress, establishes boating equipment requirements, rules and regulations, maintains aids to navigation, etc. Produces a number of publications of interest to boating and marine transportation in general.

U.S. Department of Commerce
Maritime Administration
Washington, D.C. 20235
Involved with seafaring employment and training. Publishes a host of materials. Many are of value to a classroom and single copies are available free of charge to teachers. See Current Publications of the Maritime Administration.

III. Possible Activities:

A. Students conduct library and other research in order to identify additional associations and agencies of importance to Industrial Arts Transportation.

B. Approved student contract projects.

IV. Selected Audio-Visual Aids:

A. Hand out sheet about organizations listing names, addresses, specific functions and related services of each.

B. Provide displays of materials from selected associations and agencies.

V. Selected References:

Metcalf. Transportation Information Sources.
N.A.E.C. Aviation Education Bibliography.
Ringwalt. Development of Transportation Systems in the United States.
Sanders. See filed materials in sections Aerospace, Land and Marine Transportation.

VI. Evaluation:

A. Examine student notes and collected information pertaining to transportation associations and agencies.

B. Oral or written examination on the category.

I.A. Transportation
Modes: Aerospace, Land, Marine
Category: Guidance and Control
Content Block #2: Licensing and Registration

I. Conceptual Statement: Growth in the number of air, land and marine vehicles and operators has brought ever increasing problems of safety, education, identification, and enforcement. Because of this, licensing and registration have become necessary requirements to insure an orderly system for determining vehicle ownership and relative safety of operation.

II. Scope:

A. Aviation.

1. Pilot certification.

a. Student pilot.
b. Private pilot.
c. Commercial pilot.

2. Aircraft registration and airworthiness.

a. Airworthiness categories.
1) Normal.
2) Utility.
3) Acrobatic.
4) Transport.
5) Experimental.
b. Registration.
1) Certificates.
2) Registration markings.
c. Aircraft maintenance and inspection.
1) Pilot responsibilities.
2) Maintenance records.
3) Inspection records.

B. Land.

1. Driver licensing.

a. Agencies.
b. Requirements and standards.
c. Types.
d. Suspension and revocation of licenses.

2. Vehicle registration.

a. Purposes.
b. Types.
1) Motor vehicles.
2) Motorcycles.
3) Trailers.

3. Vehicle inspection.

a. Purposes.
b. Requirements and standards.

C. Marine.

1. Boat registration.

a. Purposes.
b. Classes, procedures, and fees.
c. The numbering system.

2. Operators' requirements.

a. Age.
b. Violations.
c. Attitude.

III. Possible Activities:

A. Compare local, state laws relating to registration with those of other selected states.

B. Review the requirements for vehicle periodic inspection, including specific standards.

C. Compare requirements for licensing of a private pilot with the licensing of an automobile driver, and an operator of a small power boat.

D. Make arrangements with a driver education department so that class members might participate in selected tests. For example: Depth perception, night vision and reaction time.

E. Ask students to relate personal experiences involving registration and licensing of vehicles.

F. Approved student contract projects.

IV. Selected Audio-Visual Aids:

A. Publications:

1. General Motors -- 1969 catalog

a. "Good Driving Practices"
b. "Right Behind the Wheel"
c. "Birds to Beware Of"

B. Pamphlets:

1. New York State

a. "How to Register Your Boat in New York State"
b. "Boating Rules and Regulations"
c. "Facts about Your New Driver License and Your Probationary Period"
d. "Motorcycles and Motorcyclists"
e. "Suppose Your License Were Taken Away"

C. Films:

1. General Motors -- 1969 catalog

a. "Your Permit to Drive"
b. "We Drivers"
c. "Let's Live a Little -- Longer"

2. Sanderson Films

a. "F.A. Regulations"

V. Selected References:

Aero Publishers, Inc. Federal Aviation Regulations and Flight Standards for Pilots, pp. 11-38.
Brody. Highway Safety and Driver Education, pp. 96-109.
F.A.A. Rules of Flight, pp. 1-9 and 29-42.
N.Y.S. Driver Manual, pp. 9-25.
N.Y.S. How to Register Your Boat in New York State.
U.S. Coast Guard. Federal Requirements for Motor Boats.
U.S. Coast Guard. Official U.S. Coast Guard Recreational Boating Guide, pp. 1-40.

VI. Evaluation:

A. Objective examination covering operator certification and vehicle registration requirements -- automobile, small boat, light aircraft.

B. Class review and discussion devoted to the topic listed above.

I.A. Transportation
Modes: Aerospace, Land, Marine
Category: Guidance and Control
Content Block #3: Rules and Regulations

I. Conceptual Statement: When individuals become owners or operators of air, land or marine vehicles, they must assume responsibility for using them safely and in accordance with rules and regulations established by law.

II. Scope:

A. Rules for vehicle operation.

1. Boating rules and regulations.

2. Rules of flight.

3. Rules of the road.

B. Regulation of transport.

1. Major regulating agencies.

a. Interstate Commerce Commission.
b. Civil Aeronautics Board.
c. U.S. Coast Guard.

2. Railroad regulation.

3. Regulation of motor transport.

4. Regulation of air transportation.

5. Regulation of water transportation.

6. Regulation of pipe-line transportation.

III. Possible Activities:

A. Invite an insurance agent to speak to the class.

B. Invite a Driver's License Examiner to speak to the class.

C. Visit a Coast Guard station. Discuss rules and regulations pertaining to boating and marine transportation.

D. Visit an airport control tower. Discuss importance of the rules of flight.

E. Chart an automobile or boat trip through a number of states. Check variations in regulations pertaining to vehicle operation through the selected states.

F. Approved student contract projects.

IV. Selected Audio-Visual Aids:

Refer to Publications, Films and Pamphlets listed in this category under Content Block #2: Licensing and Registration.

V. Selected References:

Aero Products. Federal Aviation Regulations -- Basic Flight Manual and ATC Procedures.
Chapman. Piloting, Seamanship, and Boat Handling.
Coulton and Ward. Industrial Traffic Management.
F.A.A. Rules of Flight.
McDermott. Manual of Sailboat Racing.
N.Y.S. Boating Rules and Regulations.
N.Y.S. Driver's Manual.
Pegrum. Transportation Economics and Public Policy.
Ringwalt. Development of Transportation Systems in the United States.
Sanderson. Federal Aviation Regulations.
U.S. Coast Guard. Rules of the Road.
U.S. Coast Guard. Rules and Regulations for the Numbering of Undocumented Vessels and the Reporting of Boating Accidents.
U.S. Coast Guard. Rules and Regulations for Uninspected Vessels.
Van Deventer. An Introduction to General Aeronautics, pp. 283-294.

VI. Evaluation:

A. Perform an oral exercise with the class by asking responses to the reading of selected questions from New York State's Driver's Manual, pp. 86-91.

B. Perform a similar exercise from New York State's Boating Rules and Regulations.

C. Continue the procedure by selecting appropriate topics from Federal Aviation Regulations.

I.A. Transportation
Modes: Aerospace, Land, Marine
Category: Guidance and Control
Content Block #4: Navigation

I. Conceptual Statement: To realize full benefits from a transportation vehicle, an operator must maintain a pre-determined course over unfamiliar media and arrive at a destination previously chosen. To safely accomplish such a trip, the operator must be familiar with materials, equipment and methods of navigation.

II. Scope:

A. Fundamentals.

1. Position.

2. Direction.

3. Distance.

B. Navigation materials and equipment.

1. Charts and maps.

2. Compasses.

3. Computers.

4. Plotters.

5. Sextant.

C. Navigation skills.

1. Map and chart reading.

2. Establishing a course.

3. Trip plan development.

D. Aids to navigation.

1, Aerospace.

a. Radar.
b. Distance measuring equipment.
c. Automatic direction finders.
d. Beacons.
e. Very high frequency Omni-radio range.
f. Tactical air navigation.
g. Instrument landing systems.

h. Transponders.
i. Celestial.
j. Inertial.
k. Infrared.

2. Land.

a. Signs.
b. Signals.
c. Trip planning service.

3. Marine.

a. Buoys.
b. Lighthouses.
c. Light ships.
d. Radio beacons.
e. Loran.
f. Markers.
g. Sound signals.
h. Lighting for power and sailing vessels.
i. Radar.
j. Astronomical.

4. Navigation satellites.

a. Transit.
b. Navigation and air traffic control satellite.

III. Possible Activities:

A. Plan a cross-country flight.

B. Plan an open water boat trip.

C. Fly a planned short cross-country trip.

D. Solve navigation problems with a computer.

E. Plan a cross-country road trip.

F. Obtain a selection of road maps and compare features.

G. Approved student contract projects.

IV. Selected Audio-Visual Aids:

A. Selected navigation instruments.

B. Selected models and mockups.

C. Sanderson Film Strips -- Navigation

D. Jeppesen transparencies -- Navigation.

E. Selected charts.

F. Selected plotters and computers.

V. Selected References:

A.A.A. Sportsmanlike Driving, pp. 153-154.
Bryan. Fundamentals of Aviation and Space Technology, pp. 71-88.
C.A.P. Navigation and the Weather.
Hiscock. Voyaging Under Sail, pp. 168-215.
Jeppesen. Basic Aeronautics.
Jeppesen. The Pilots Digest.
Lyon. Practical Air Navigation.
Mercer. Applied Aviation Science, Sections 8-1, 9-1, 10-1.
N.A.S.A. Space: The New Frontier, pp. 88-92.
Sanderson. Aviation Fundamentals.
Sanderson. Navigation.
Sanderson. Radio Navigation.
U.S. Coast Guard Auxiliary. Basic Seamanship.
U.S. Coast Guard. Aids to Marine Navigation of the United States.
U.S. Coast Guard. Official U.S. Coast Guard Recreational Boating Guide.
Van Deventer. An Introduction to General Aeronautics, pp. 295-348.

VI. Evaluation:

A. Solve selected problems relating to air, land and marine navigation.

B. Oral discussion of similarities and differences regarding navigation applied to the modes: Air, Land and Marine.

I.A. Transportation
Modes: Aerospace, Land, Marine
Category: Guidance and Control
Content Block #5: Radio Communications

I. Conceptual Statement: In order to insure efficiency and safety in transportation vehicular movement, a well-equipped and operated system of communications is essential.

II. Scope:

A. Introduction.

1. Radio telephone procedures.

2. International phonetic alphabet.

3. Radio equipment.

a. Low frequency.
b. Medium frequency.
c. Very high frequency.

4. Emergencies.

a. Distress signals and procedures.

1) Air.
2) Marine.
3) Highway.

B. Aircraft radio.

1. Types.

2. Purposes.

3. Channels.

4. Operating rules.

5. Licensing.

C. Marine radiotelephones.

1. Types.

2. Purposes.

3. Frequency bands.

4. Operating rules.

5. Licensing.

D. Radio communications for band vehicles.

1. Radio telephone.

2. Citizen's band.

a. Purposes.
b. Licenses.
c. Channels.

E. Satellite communications.

1. Echo.

2. Synchronous.

3. Project relay.

4. Project telstar.

5. Early bird.

F. Spacecraft tracking and communications.

1. Space Tracking and Data Aquisition Network (STADAN)

2. N.A.S.A. Communications Network (NASCOM)

3. Station Conference and Monitoring Arrangement (SCAMA)

III. Possible Activities:

A. Code exercises.

B. Phraseology with Walki-Talkies.

C. Radio communication exercises through utilization of a flight simulator.

D. Practice channel selection on various types of radios.

E. Approved student contract projects.

IV. Selected Audio-Visual Aids:

A. Flight simulator.

B. Aircraft radio.

C. Walki-Talkies.

D. Record:

1. Jeppesen

a. "Tower Communications"

E. Film Strip:

1. Sanderson Films:

a. "Radio Communications"

F. Films:

1. Bell Telephone Co.

a. "Telstar"
b. "Voice of Mercury"

V. Selected References:

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C.A.P. Communications.
Chapman. Piloting Seamanship and Small Boat Handling, pp. 376-384.
Mercer. Applied Aviation Science, pp. 127-129.
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N.A.S.A. N.A.S.A. Facts: Spacecraft Tracking and Communications.
Sanderson. Pilot's Radio Guide.
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U.S. Coast Guard. Official U.S. Coast Guard Recreational Boating Guide, pp. 64-72.

VI. Evaluation:

A. Discuss or write relative to the purposes, procedures and rules of operation for air, land and marine radio communications. Point out similarities and differences.

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Modern Learning Aids
16 Spear Street
San Francisco, California 94105

National Aeronautics and Space Adm.
Electronics Research Center
Educational Programs Office
Cambridge, Massachusetts 02139

Shell Oil Co.
50 W. 50th Street
New York, New York 10020

Walt Disney Productions
Educational Film Division
3 Highlow S. Buena Vista Avenue
Burbank, California 91503

Selected Periodicals

Nearly all of the listed periodicals are currently being received by the S.U.C.O. Penfield Library. The remainder come to the Industrial Arts Curriculum Library, Industrial Arts Transportation Laboratories or to the author.

Aerospace

Aerospace
Aerospace Industries Association
1725 DeSales Street, N.W.
Washington, D.C. 20036
Fall, Winter and Spring-Summer. Free upon request.
Purpose is to help foster better understanding of the Aerospace industry.

American Aviation
American Aviation Publications, Inc.
1001 Vermont Avenue, N.W.
Washington, D.C. 20005
Bi-weekly, $6.00

Astronautics and Aeronautics
American Institute of Aeronautics and Astronautics, Inc.
404 N. Wesley Avenue
Mount Morris, Illinois 61054
Monthly, Free to AIAA members
Others write for subscription price.

Aviation Week and Space Technology
Fulfillment Manager
P.O. Box 430
Hightstown, N.J. 08520
Weekly, $15.00 per year

FAA Aviation News
Superintendent of Documents
Government Printing Office
Washington, D.C. 20402
Monthly, $2.00 per year.
Published by the Office of Information Services,
Federal Aviation Administration,
Washington, D.C. 20590, in the interest of aviation safety and to acquaint readers with the programs and policies of the agency.

Flying
Circulation Department
Portland Place
Boulder, Colorado 80302
Monthly, $6.00 per year.
World's most widely read aviation magazine.

VT 016 387
MCKINNEY, HAROLD
CONTINUING PLACEMENT SERVICE STUDY. FINAL REPORT.

FAYETTEVILLE SCHOOL DISTRICT, ARK.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 72 34P.

DESCRIPTORS - *HIGH SCHOOL GRADUATES; *GRADUATE SURVEYS; *FOLLOWUP STUDIES; VOCATIONAL FOLLOWUP; *JOB PLACEMENT; *STUDENT PLACEMENT; PUPIL PERSONNEL SERVICES; QUESTIONNAIRES

ABSTRACT - THE STUDY DEVELOPED PROCEDURES FOR PLACING ALL STUDENTS IN THEIR NEXT STEP BEYOND HIGH SCHOOL, WHETHER EMPLOYMENT OR FURTHER EDUCATION, ESTABLISHED FOLLOW-UP PROCEDURES FOR ALL STUDENTS, AND REPORTED ON THE OPERATION OF AN EXPERIMENTAL JOB PLACEMENT SERVICE AT FAYETTEVILLE HIGH SCHOOL. TO ACCOMPLISH THIS, QUESTIONNAIRES WERE MAILED IN NOVEMBER AND DECEMBER 1971 TO FORMER STUDENTS WHO HAD BEEN SENIORS DURING THE 1969-70 AND 1970-1971 SCHOOL YEARS. AN EXPERIMENTAL PLACEMENT OFFICE WAS OPERATED FOR FOUR WEEKS. PROCEDURES FOR THE SURVEY AND THE PLACEMENT SERVICE ARE DETAILED IN THE REPORT. CONCLUSIONS DERIVED FROM THE SURVEY ARE: (1) STUDENTS NEED ASSISTANCE IN MAKING THE TRANSITION FROM SCHOOL TO WORK, AND WOULD USE A PLACEMENT SERVICE, IF AVAILABLE, (2) THE SUCCESS OF A JOB PLACEMENT SERVICE DEPENDS ON ACCEPTANCE BY THE BUSINESS COMMUNITY OF THIS SERVICE AS A MEANS OF SECURING COMPETENT EMPLOYEES, AND (3) CLOSE COOPERATION AMONG COUNSELING STAFF, COOPERATIVE PROGRAM PERSONNEL, ADMINISTRATION, AND PLACEMENT SERVICE PERSONNEL WOULD BE NECESSARY TO FULLY IMPLEMENT SUCH A PROGRAM. (MF)

VT 016 387

Model Airplane News
Subscription Department
1 North Broadway
White Plains, New York 10601
Monthly, $6.00 per year.

Trade-A-Plane
Crossville, Tenn. 38555
- Published three times each month, $4.00 per year.
Features a catalog section of aviation equipment and products plus space for advertising aircraft.

Land

Automotive Industries
Chilton Company
Chestnut and 56th Streets
Philadelphia, Pa. 19139
Semi-monthly, $10.00 per year.
Technical articles. Lots of advertising
News about Industry. Listings on free technical literature.

Modern Railroads
Watson Publications, Inc.
Subsidiary of Cahners Publishing Company
5 South Wabash Avenue
Chicago, Illinois 60603
Monthly, $15.00 per year.
No obligation to qualified personnel. The Management Magazine of Railroading and Urban Rail Transit.

Motor
Subscription Service Department
Box No. 528
New York, N.Y. 10019
Monthly, $5.00 per year.
News and information of interest for a Transportation Laboratory.

Motor Trend
Peterson Publishing Company
8490 Sunset Blvd.
Los Angeles, California 90069
Monthly, $5.00 per year.

Railway Age - The Transportation Weekly
Subscription Department
P.O. Box 961
Bristol, Connecticut 06010
Weekly, $6.00 per year.
Up-to-the-minute news.

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
OFFICE OF EDUCATION
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FINAL REPORT

for

Continuing Placement Service Study

VT016387

Prepared by

Harold McKinney

Railroad Model Craftsman
Model Craftsman Publishing Corporation
31 Arch Street
Ramsey, New Jersey 07446
Monthly, $5.00 per year.
A model railroad hobby magazine.

Traffic World
Subscription Department
815 Washington Bldg.
Washington, D.C. 20005
Weekly, $48.00 per year.
Little advertising. Lots of news on all areas of transportation.

Trains
Kalmbach Publishing Company
1027 North 7th Street
Milwaukee, Wisconsin 53233
Monthly, $7.00 per year.
The magazine of railroading.

Marine

Boating
Circulation Department
Portland Place
Boulder, Colorado 80302
Monthly, $6.00 per year.
Lots of advertising, good General Technical and News articles. Lists new books.

Boats and Harbors
Crossville, Tennessee 38555
Published three times each month, $1.50 per year, third class.
National coverage for advertising equipment and materials in the marine field.

Seaports and the Shipping World
4149 St. Catherine St. West
Montreal 215, Canada
Monthly, $5.00 per year.
The information magazine of Marine activities and Personalities in Canada.

Surveyor
Quarterly Publication of the American Bureau of Shipping
45 Broad Street
New York, N.Y. 10004
Well illustrated. Very appropriate for Industrial Arts transportation.

ADVISORY COMMITTEE

These men bear witness, by their time and interest, that they want public education to be more relevant to the students of Fayetteville Public Schools.

From left to right:

Mr. Joe Slavens, Asst. Superintendent, Fayetteville School System
Mr. Ezra Bartlett, Manager, Employment Security Division
Mr. Harry Vandergriff, Superintendent, Fayetteville School System
Mr. Murry Merry-ship, Manager, Campbell Soup Co.
Dr. Dean Clayton, University of Arkansas

The Waterways Journal
The Waterways Journal, Inc.
701 Chemical Building
721 Olive Street
St. Louis, Mo. 63101
Weekly since 1887, $5.00 per year.
Old fashioned format. Relates heavily to barge transportation. Advertising.

World Ports
Amundsen Publications, Inc.
1612 K. Street, N.W.
Washington, D.C. 20006
Published eight times each year, $4.00 per year.
The official organ of the American Association of Port Authorities. Many illustrations and maps of ports around the country. Very good on maritime terminals and equipment.

Yachting
Yachting Publishing Corporation
50 West 44th Street
New York, N.Y. 10036
Monthly, $7.00 per year.
A large "classy" magazine.

General

Business Week
Subscription Department
P.O. Box 430
Highstown, N.J. 08520
Weekly, $10.00 per year.
Very newsey about industry in general. Lots of advertising. Covers all types of transportation industries.

Industrial Research
Industrial Research Inc.
Industrial Research Building
Beverly Shores, Indiana 46301
Thirteen issues plus Buyer's Guide in Spring, $3.00 per year.

Metropolitan
Bobit Publishing Company
1155 Waukegan Road
Glenview, Illinois
Six issues per year, $5.00.
Devoted to Public Transportation, Administration and Planning.

We should like to express our thanks and appreciation to the following people who volunteered their service:

Miss Pat Kelly
Mrs. Lily Stutte
Mr. Gene Fitzhugh
Mr. Charles Pudlas
Mrs. Deborah Wiggins

National Geographic
17th and M Streets, N.W.
Washington, D.C. 20036
Monthly, $9.00 per year.
Features many excellent articles appropriate to transportation.

Oilways
Humble Oil & Refining Company
P.O. Box 2180
Houston, Texas 77001
Six times per year - free, upon request.
Articles relating to the Oil Industry plus others of a general nature.

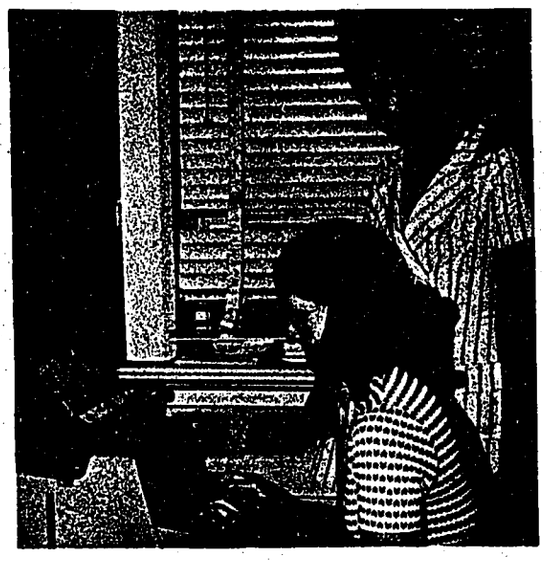
Petroleum Today
American Petroleum Institute
1271 Avenue of the Americas
New York, N.Y. 10020
Quarterly - free upon request.

Popular Mechanics
Box 646 (For subscriptions)
New York, N.Y. 10019
Published by Hearst Corporation
57th St. at 8th Avenue, New York, New York
Monthly, $4.00 per year.
Covers: The Automobile, Home, Boating, Shop, Science, Electronics, Photography, Space, Aviation. Has more advertising than Popular Science.

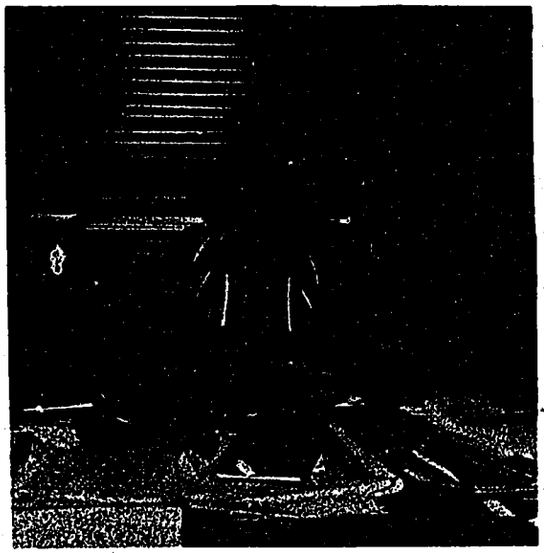
Popular Science
Popular Science Publishing Co., Inc.
355 Lexington Avenue
New York, New York 10017
New Orders to: Popular Science
Subscription Department
Boulder, Colorado 80302
Monthly, $5.00 per year.
Includes: Cars, Science and Inventions, Space and Aviation, Boating, Home, Electronics, etc.

Steelways
American Iron and Steel Institute
150 E. 42nd Street
New York, New York 10017
Bi-monthly, free upon request.
Purpose is to promote a better understanding of the steel industry. Much of the information is directly related to aspects of transportation.

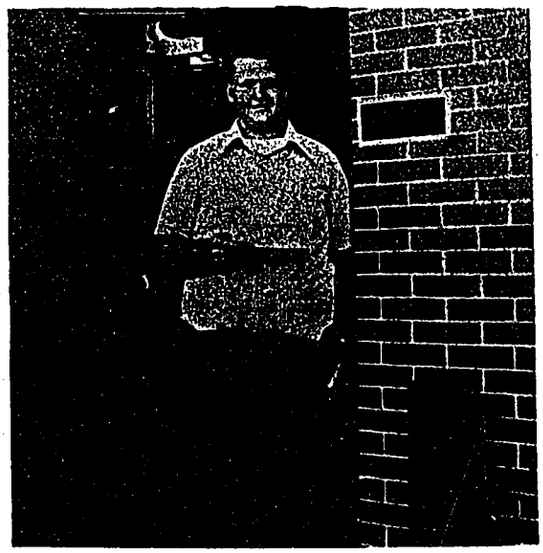
Office Manager, Susan Guinn interviewing an applicant



COE Coordinator Pat Kelly supervising studen: aid



Deborah Wiggins at East Campus Office



Ronnie Shelman gets a job.

The Lamp
Standard Oil Co. (New Jersey)
30 Rockefeller Plaza
New York, New York 10020
Four times a year. Free upon request.
Nicely illustrated and written. Features many articles appropriate to transportation.

Transportation and Distribution Management
The Traffic Service Corporation
815 Washington Bldg.
Washington, D.C. 20005
Monthly, free upon request..

I. Introduction

Fayetteville Public Schools are now attempting to place in either a job or further schooling as many of its students as possible. However, the system is falling far short of reaching one hundred percent placement of all its students. The school is doing the best job with placing the college preparatory students and the vocational students, but those who graduate as general education majors and those who leave before graduating are left to fend for themselves. It is with the needs of these last two groups that a placement and follow-up service properly structured and organized would meet these needs and help Fayetteville Schools reach the goal of one hundred percent placement of all its students.

The purpose of the study was

1) to develop procedures for placing all students in their next step beyond high school, whether it be employment or further education;
2) to establish and implement follow-up procedures for all students; and
3) to operate an experimental job placement service at Fayetteville High School.

APPENDIX

ASSOCIATIONS, AGENCIES AND INDUSTRIAL CONTACTS

4358

II. Methods

The following procedures and activities were carried out:

1) A survey was made of students who entered Fayetteville High School as seniors during the 1969-70 and 1970-71 school years (including area students attending West Campus) concerning their employment and/or progress in education. This survey was made during the period November 5, 1971 - December 15, 1971. THE PROCEDURES FOR FOLLOW-UP SURVEY, a section of this report, details the procedures developed.

2) An experimental placement office was operated for four weeks. THE PROCEDURES FOR ESTABLISHING JOB PLACEMENT SERVICE, a section of this report, details the procedures developed.

3) Conferences were held with counselors, administrators and the advisory committee on:

   a. September 6 and 7, 1971, meetings were held with administrators, counselors and other personnel to explain the project;

   b. October 24, 1971, the advisory committee met to review the proposed survey questionnaire.

   c. February 15, 1972, the advisory committee met to review the findings of the mail-out questionnaire. The Appendix, pages iv - vi, is a letter from a member of the committee concerning these findings.

INQUIRIES RELATIVE TO:

1. Instructional Resources
2. Teacher Education Service
3. Professional Education Conferences
4. Lecture Demonstration Programs
5. Other Education Programs

American Automobile Association
1712 G. Street, N.W.
Washington, D.C. 20006
AAA Driver Education Publications
Announcement of Sportmanlike Driving Publications
Driver Education Equipment Catalog
Driver Education for the Youth of the Nation
Dual Control Car Equipment
ETV - Sportsmanlike Driving Film Announcements
General Test on Traffic and Driving Knowledge
Mailing List Card
Minimum Stopping Distance
Practice Driving Check List
Report of Driving Errors
Road Test Check List

American Bureau of Shipping
45 Broad Street
New York, New York 10004
Periodical publication - Surveyor

American Motors Corporation
14250 Plymoth Road
Detroit, Michigan 48232

American Red Cross
1550 Sutter Street
San Francisco, California 94101
Film Catalog. Of particular interest are listing on water safety.

American Trucking Association
1616 P Street, N.W.
Washington, D.C. 20036
Booklets and other literature of general nature showing types of trucks and their uses.

Auromobile Manufacturers Association
320 New Center Building
Detroit, Michigan 48202
Publications: Lifelines, Motor Truck Facts, Automotive Facts and Figures, Standards for Automotive Service Instruction in Secondary Schools.

d. May 15, 1972, the advisory committee met to evaluate the project. The Appendix, page xviii, is a report of their evaluation.

4) A search for additional information about placement services was made through the University of Arkansas Computer facilities. Although some references were found, it was felt that the Fayetteville School problems were unique and that specialized procedures were required.

III. Findings

1) Results of the survey questionnaire are summarized on Appendix, page i of this report.

2) Results of the survey of 1972 Senior Class of Fayetteville High School are summarized on Appendix, page vii of this report.

3) Graphic designs are contained in the Appendix of this report.

IV. Conclusions:

1) Conclusions made from the survey are:

a. Students would use a job placement service. 57% of those responding to the mail survey so indicated. 40% of the 1972 Senior class indicated an interest.

b. Students need assistance in making the transition from school to work. 49% of those responding to the mail survey so indicated.

Briggs & Stratton Corp.
P.O. Box 702
Milwaukee, Wisconsin 53201
Free to school and college power programs: One small gas engine. Booklets on repair and theory of operation, plus wall charts. Liberal discount on additional engines. Also for purchase--slide series on upkeep and repair of Briggs and Stratton engines. Company sponsors service schools.

Chrysler Corporation
343 Massachusetts Avenue
Detroit, Michigan 48203

Clinton Engines Corporation
Maquoketa, Iowa 52060
Liberal educational discounts on engines, manuals, charts and other materials.

Ford Motor Company
The American Road
Dearborn, Michigan 48121
Chart showing automobile mass production, set of historical company pictures, pamphlets on corporate studies and other literature.

General Motors Corporation
Public Relations Staff
Room 1-101
General Motors Building
Detroit, Michigan 48202
Literature: In Planning Your Future, Look First at the Retail Automobile Business, GM Educational Opportunities, Driver Education Kit for Teachers. Plus: Catalog of Films, Catalog of Educational Materials.

Illinois Central Railroad
Public Relations Department
135 East Eleventh Place
Chicago, Illinois 60605
Safety at the Crossing. Plus: Materials pertaining to diesels on the Illinois Central Railroad.

Maritime Administration
Department of Commerce
441 Street, N.W.
Washington, D.C. 20235
Merchant Marine Film Catalog

Outboard Boating Club of America
333 N. Michigan Avenue
Chicago, Illinois 60601
Booklet on boating, trailering and rules and regulations.

2) The success of a job placement service depends on acceptance by the business community of this service as a means of securing competent employees. This "selling" is a big public relations job and would need to be a primary concern for the project director. Of the 43 area businesses which were directly surveyed by project personnel, 14% actively used the placement service.

3) Close cooperation between counseling staff, cooperative program personnel, administration, and placement service personnel would be necessary to fully implement such a program.

V. Budget Expenditures

See Appendix, page xix.

Santa Fe Railroad
Public Relations Department
80 East Jackson Boulevard
Chicago, Illinois 60604

The American Waterways Operators, Inc.
1250 Connecticut Avenue
Suite 502
Washington, D.C. 20036
Publications: Big Load Afloat, book describing the barge and towing industry; The Inland Waterways of the United States (a map); film flyers describing The Wonder of Water and Forever Free (two films); Waterway Economics, all available editions, I-IV; Optimizing Transportation Potential, the record of a seminar on transportation held September, 1966 at Stanford University; Waterside Plant Locations and Expansion 1968, and 1967 Inland Waterborne Commerce Statistics.

Union Pacific Railroad Company
Advertising Department
1416 Dodge Street
Omaha, Nebraska 68102

MISCELLANEOUS INQUIRIES

Jack E. Nettles, Editor
Alcoa Aluminum Newsletter
Public Relations Dept. Alcoa
Pittsburgh, Pennsylvania 15219
Periodic newsletter shows applications of aluminum to the various modes of transportation.

American Iron and Steel Institute
150 East 42nd Street
New York, New York 10017
Publishes periodical--Steelways

Association of American Railroads
Public Relations Department
American Railroads Building
Washington, D.C. 20036
Publishes many materials as identified in their Price List of Publications. One example: List of Principal Railroads in the United States.

PROCEDURES FOR FOLLOW-UP SURVEY

The Appendix, pages i and ii are copies of the survey questionnaire and cover letter used in the survey. It was decided to use the superintendent's name on the cover letter and on the return address because it would be familiar and emphasize that the survey was being made by the school system. The cover letter should be brief and the questionnaire should be limited to one page.

Objectives to be achieved through the survey should be selected prior to development of the questionnaire. The advisory committee can be asked to criticize the draft of the questionnaire. Their comments will be helpful.

The questions proved to be satisfactory for the purpose. Only a few of those responding commented on ambiguity or lack of clarity.

It is suggested that either the cover letter and/or the questionnaire be worded to emphasize that response is solicited from all former students not only those who are working or interested in working but also students, housewives, and others. This was frequently mentioned during phone follow-up as a reason for failure to respond.

The postal response card (see Appendix, page iii)is preferable. It is easy to file and refer to. When responses are punched, it is easy to use the cards for tabulating results and cross-references can be easily made.

Students do not seem to object to being identified, and most are willing to supply a return address. A code number should be used to identify sex and East or West Campus, (i. e., odd numbers for boys, even numbers for girls; numbers 100-1000 for West Campus, 1000-2000 for East Campus). To encourage response, a drawing for a card number could be held for a prize to be awarded only to a person who had returned the card.

Aviation Education Department
Beech Aircraft Corporation
Wichita, Kansas 67201
Company promotes aviation education in schools and colleges through printed materials and consultant services. Sponsors flight instrument ground school scholarships for teachers.

A.F. Novak, Information Specialist
Cahners Publishing Co., Inc.
270 St. Paul Street
Denver, Colorado 80206
Publishes Design News. Frequently features articles of value to the various modes of transportation.

Russell W. Watson
Air Age Education Specialist
Cessna Aircraft Company
Wichita, Kansas 67201
Company provides services, literature and other materials promoting aviation education from the elementary grades through college. Sponsors summer aviation education workshops for teachers.

Federal Aviation Administration
Flight Standards Technical Division
AC-700
Operations Branch, AC-740
P.O. Box 25082
Oklahoma City, Oklahoma 73125

Flying Educators, Inc.
P.O. Box 3333
Van Nuys, California 91407
Organization became inactive September 30, 1969.

Humble Oil and Refining Company
P.O. Box 2180
Houston, Texas 77001
Publishes periodical--Oilways.

McCullough Aircraft Corp.
119 Standard Street
El Segundo, California 90245

New York State Department of Transportation
1220 Washington Avenue
State Campus
Albany, New York 12226
Publishes: How a Highway is Born, Highway Safety, More Than Pavement Deep. Plus: many additional items featuring highways, railroads and other forms of transportation.

In this year's survey, the open-ended opinion question brought good responses. Those responding (49%) to the question seemed eager to express views about their school days and to offer suggestions for improvement. Some responses are quoted in the Appendix, page iii.

If the survey is to be an annual event, students should be informed of the event during the spring of the senior year. It would be a good idea to have them answer a questionnaire of the same type on a similar answer sheet. At this time, current mailing addresses and phone numbers could be obtained.

In preparing the mailing list, addresses should come from the counselor's office.

When working from a mailing list which may not be accurate, a pre-mailing telephone survey is helpful. The surveyor, working through parent's name and address and a current phone book, briefly explains the purpose of the survey and asks for a current address and phone number of the person in question. A record should be made of all calls, responses, and information received. Such a procedure is useful for contacting students and servicemen because:

1) it eliminates the problem of forwarding the letter (Will it ever be forwarded?)

2) it gives some information about the person in the event that he does not respond to the survey.

As previously mentioned, graduating seniors could supply much of this information during the spring for the survey to be given the following fall. At that time, they could be asked to supply the name and phone number of someone who would give an accurate address if they expect it to change.

Air Science Education Dept.
Piper Aircraft Corporation
Lock Haven, Pennsylvania 17745
Company promotes general aviation education in schools, colleges plus technical offerings for vocational orientation.

Schweizer Aircraft Corporation
Box 147
Elmira, New York 14902

Mr. Theodore R. Scott, Jr.
Manager, Aviation Education, Link Division
Singer Education and Training Products
Binghamton, New York 13902
A new division, Fall 1969. Company manufactures the GAT-1, a flight simulator very appropriate for school aviation education programs.

The National Model Railroad Association
P.O. Box 1328 Station C
4602 Fourth Street, N.W.
Canton 8, Ohio 44708

Trade-A-Plane
Crossville, Tenn. 38555

A similar telephone survey could be used for those whose letters are returned for insufficient address. Other methods for securing addresses would be:

1) On a bulletin board, post a list of names and ask for information concerning the whereabouts of these people.

2) Publish a list in the student newspaper and ask for information.

During the first survey, 124 of the questionnaires were never delivered because of insufficient or inaccurate address. Effort should be made to reduce this number.

Mailing labels can be used for typing addresses. This is more economical in time and material. The typed labels are just taped to the envelopes. A colorful stamp should be chosen to give the envelope an attractive appearance. Don't use a stamping machine.

The survey letter should be mailed by mid-October, this date avoids holiday and semester exam conflicts. Solicit as much publicity at this time as possible. All local radio and TV stations will cooperate and newspapers will write feature articles. The student newspaper should also be used.

One week after the mailing date, a post-mailing telephone follow-up should begin. For cards not yet returned, calls should be made to the home-phone to verify whether:

1) the letter was received and forwarded (if necessary)

2) a change of address is necessary.

A woman should make calls to contact girl's homes and a man should contact boy's homes. The surveyor should explain the purpose of the survey and encourage response. Note should be taken at this time of constructive comments with respect to the school system or the survey. Between 5:00 p.m. and 7:00 p.m. is a good time to contact people at home.

The responses to the survey are tabulated (see Appendix, page i). The following conclusions were made:

1) 293 responded to the questionnaire.

2) 65 % of those responding are full-time students.

3) 57% of those responding would use a job placement service.

4) 49 % of those responding need assistance in making the transistion from school to work.

5) 49% of those responding made a comment on the open-ended question.

6) 39% responded to the survey questionnaire.

PROCEDURES FOR ESTABLISHING A JOB PLACEMENT SERVICE

The office for the job placement service would best be located near both campuses but not on either one. If it were necessary to locate the office at one campus, then another office should be established at the other school to be open and staffed on a regular schedule. The office should be private (not immediately adjacent to other offices). It would be necessary to have a private telephone line.

The Appendix, pages viii - ix, lists the furniture requirements and gives a floor plan arrangement.

The Appendix, pages x - xii, gives job descriptions for the office manager and the clerical aids. The office manager should be a woman experienced in business office work and who could talk with businessmen. It is recommended that COE students be utilized as secretarial aids. The number would be determined by resources and by the personnel available to supervise their work.

The placement director should be experienced in dealing with businessmen, preferably in this area. A retired businessman would be a logical choice. A job description is contained in the Appendix, page xiii.

The placement service, though seasonal in one aspect, is a year-round operation. The placement service should be the primary duty for the director.

When trying to secure jobs, the initial contacts between director and employer should be personal. Follow-up contacts could be handled by phone.

Good telephone facilities are particularly important when the businessman is trying to reach the placement center. (See Appendix, page xiv.)

Publicity is very important. Local radio and TV are cooperative (speech classes can write and tape "spot" radio announcements), see Appendix, pages xv - xvi. A small classified ad in the newspaper would also be beneficial.

Locating the target group for the placement service is a difficult task. The prime target group would be the students needing full-time employment upon finishing high school and those who need employment because of having dropped out of school. Typically, such a student is not aggressive nor self-confident and would be reluctant to seek help on his own initiative. He needs occupational counseling. He may not even be aware of his need to find work.

A survey (conducted through a large group class such as English) can be designed to indicate the target group as well as other types of needs. (See Appendix, page vii). Once identified, students in the prime target group would be scheduled for the earliest and for more frequent interviews.

Close cooperation between the counselors' office and the placement service would facilitate referals of the prime target group.

Scheduling of time for interviews and conferences could be handled by COE students. The placement office should have a copy of each student's schedule. While many appointments will be scheduled at the request of the interviewer, a student should feel free to schedule an interview of his own initiative.

As mentioned previously, the director would supervise the interview sequenced with students. The initial conference would serve as an appraisal to determine how "ready" the student is for employment. This meeting might need to be supplemented with additional sessions to provide counseling, practice in job interview, writing letters of application, filling out of application forms, securing letters of recommendation, and preparing personal resumes. (See Appendix, page xvii).

The office manager would also conduct student interviews. It is recommended that an individual student work only with one person (office manager or project director) to prevent duplication of effort or lack of coordination.

The students should be made aware of the fact job placement is not instantaneous and that it may be well into the summer before suitable employment is found.

When a student, in the opinion of placement personnel is "ready" to work, appointments should be made for him for job interviews. Appointments should be made at least one day in advance. The student should be well informed as to:

1) person to see (stress importance of remembering names)
2) location and time of interview
3) information to be supplied
4) appropriate dress and manner
5) background of company
6) rough job description and salary scale
7) personality of interviewer

Students should be instructed to report to the placement service the result of all interviews. Accurate records should be kept. A student must be cautioned that all information be kept confidential.

Accurate information as to the whereabouts of former students, their first activities after high school graduation and their successes in these activities, will provide facts on which decisions will be made to help achieve one hundred percent placement of Fayetteville High School Students.

Mark all responses on the answer card, making only one response for each question. Space for marking your choices is indicated on the outside edge of the answer card. For example, if you are a student you will mark Question 1 as follows:

1. a___
   b___
   c X
   d___
   e___

Total responses per question.

If your name or address differs from that on the cover letter, please state correctly as a return address on the answer card.

1. Which one of the following best describes your present position?

11	a. military service
14	b. housewife
195	c. student
64	d. full-time employed
9	e. un-employed

2. In taking your first full-time job, which one of the following was most important to you?

23	a. working conditions
14	b. job security
11	c. opportunity for promotion
24	d. salary
56	e. personal interest
26	f. only job available
60	g. earning money to go to school
79	no responses

3. How long did it take before you obtained a full-time job?

101	a. prior to leaving school
47	b. less than one month after leaving school
30	c. between one and three months after leaving school
25	d. more than three months after leaving school
90	no responses

4. How many miles away from Fayetteville was the location of your first full-time job?

183	a. 0--50 miles
5	b. 50-250 miles
13	c. more than 250 miles
92	no responses

5. Would you have used an employment placement service had it been available through Fayetteville Public Schools?

166	a. yes
70	b. no
57	no responses

6. Would you be interested in further career training?

143	a. yes
89	b. no
61	no responses

7. Would you be willing to respond to a follow-up survey in the future?

258	a. yes
14	b. no
21	no responses

8. What suggestions can you make that would improve Fayetteville School System? (You may use the blank part of the answer card to write your comments.)

TO: FORMER STUDENTS
OF FAYETTEVILLE HIGH SCHOOL

FROM: HARRY VANDERGRIFF, SUPERINTENDENT

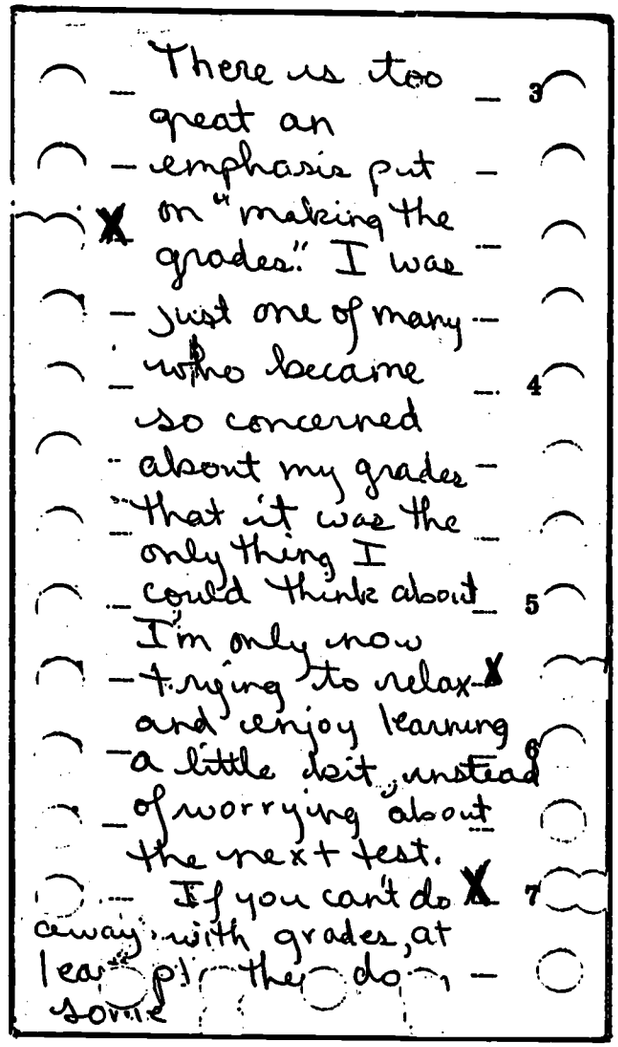
In an effort to make the Fayetteville Public Schools more relevant to the needs of our students, we are conducting a follow-up study of former students.

One of the basis for the success of a school is how well it prepares a student for the years immediately following leaving school. Your responses to the following survey will be most helpful in helping determine the future direction of our schools. We earnestly solicit your participation in this survey. All information will be kept confidential. A self-addressed, post-paid answer card is enclosed. Please respond so that you might aid us in improving our services to future students.

5858

MR. HARRY VANDERGRIFF, Supt.
Administration Building
1000 Stone
Fayetteville, Arkansas 72701

Self-addressed answer card (side one)



Response on answer card to open-end question.

1 a	—	—	3 a
	b —	—	b
	c —	—	c
	d —	—	d
	e —	—	4 a
2 a	—	—	b
	b —	—	c
	c —	—	5 a
	d —	—	b
	e —	—	6 a
	f —	—	b
	g —	—	7 a
		—	b

Response section (side two)

1. A. At the time of this response at least 281 out of 308 persons who responded to the survey were placed.

   B. Nine or 3.1% of the 290 who answered this question were unemployed. (Note: Coincidentally, the unemployment rate for Washington County in December was 3.1%)

   Conclusion: 1. Seven months after graduation practically all had been placed. This is almost unbelievable.
   2. Placement service not needed.

2. A. Fifty-six of 213 or 26% responding indicate that "personal interest" was the most important factor in their taking their first job.

   B. Twelve of 213 or 6% indicate that opportunity for advancement was the most important factor.

   C. Seventy-nine of 292 (Total of all responses to other parts of the question, plus no responses), 27% did not respond to any part of this question.

   Conclusion: 1. Group contacted are typical of todays youth. Things such as job security, opportunity for promotion and salary are relatively unimportant. Doing a job that interests them takes precedent.
   2. Most of the 79 no responses are probably college students who did not need a job to continue their education.

3. A. One-hunred-forty-five of the 197 answering this question obtained a full time job within one month from the time they left school.

   B. Ninty or 32% of the 287 who mailed in the questionnaire did not answer this question.

   Conclusion: 1. Assuming that the 197 answering this question were looking for full time employment from the time school ended, we can conclude that 52 or 26% needed placement assistance.
   2. A high percentage of the 90 who did not answer any part of this question, were probably students or housewives who did not need a full time job.

4. A. One-hundred-eighty-seven or 91% of the 205 answering this question were employed near their home.

   B. 90 or 31% of the 295 questionnaires returned did not respond to this question.

   Conclusions:
   1. Most people (91%) leaving high school and seeking full time employment find their first permanent job near their home.
   2. Most of the 90 or 31% who did not respond to any part of this question were probably students or housewives who did not need a full time job.

5. A. One-hundred-sixty-one or 67% of the 240 responding indicate that they would have used a placement service at the school.

   B. One-hundred-twenty-nine or 45% of those returning the questionnaires either answered that they would not have used a placement service at school or did not respond at all.

   Conclusions:
   1. It is highly probable that these questions would have been more affirmative had the students been asked this question before they graduated. Looking back they can see where they did not need this service because things have worked out satisfactorily for them without it.
   2. Based on the negative answers given to the question and the no responses slightly less than 56% of those leaving school would use a placement service, if established.

6. A. One-hundred-forty-three or 62% of those answering this question indicate that they would be interested in further career training.

   B. One-hundred-forty-seven or 51% either stated that they would not be interested in further career training or did not respond to this question.

   Conclusion:
   1. Without knowing who answered these questions "yes", I would not even guess as to a conclusion. By who I mean housewife, student, full time employed, etc.

7. A. I feel that this question is one that we would not want to use in the future.

OVERALL CONCLUSIONS

1. Using non-response data from questions 2, 3, and 4 and the positive answer to question 1C, from 85 to 95 of the 308 persons responding to the survey are now college students and did not seek any type employment after they graduated from high school.

2. Using data from questions 1, 3, 4, and 5, the need for a full time "job" placement facility is not indicated.

3. Most students leaving high school get their first permanent job near their home.

4. Young people are looking for more than job security, salary, promotional opportunities and working conditions in the job they want. They are looking primarily for a job that interests them.

5. Orientation and counseling service should be increased for those students not planning to attend college as well as those who do plan to attend college. Much more orientation should be geared to the vocational or technical subject area.
(Answers to questions 6 and 8 used as basis for these conclusions.)

1. Do you plan to attend the U. of Ark. next year?

   Yes 200

   No 200

2. Do you plan to attend another college or to seek further training next year?

   Yes 151

   No 249

3. Do you plan to make your permanent home in the Fayetteville area?

   Yes 189

   No 211

4. Are you a licensed driver?

   Yes 161

   No 39

5. Have you had part time work experience?

   Yes 347

   No 53

6. Would you like help in part-time job placement?

   Yes 139

   No 261

7. Would you like help in full-time job placement?

   Yes 160

   No 240

8. Are you enrolled in one of the cooperative work study programs ?

   Yes 91

   No 302

FURNITURE AND EQUIPMENT NEEDS

FURNITURE :

- 3 Secretarial style desks
- 1 Large work table
- 1 Small work table
- 1 Executive style desk
- 5 4-drawer file cabinets
- 1 Bookcase storage unit
- 1 Credenza
- 3 Secretarial chairs (swivel)
- 5 Side-arm chairs
- 2 Large chairs for reception area
- 1 Lamp table for reception area

EQUIPMENT:

- 3 Selectric IBM Typewriters
- 2 Executary transcription machines
- 1 Executary dictation unit
- 1 4-position call director
- 3 Telephones
- 3 10-key electronic printing calculators
- 1 Photocopier
- 1 Address-O-graph machine

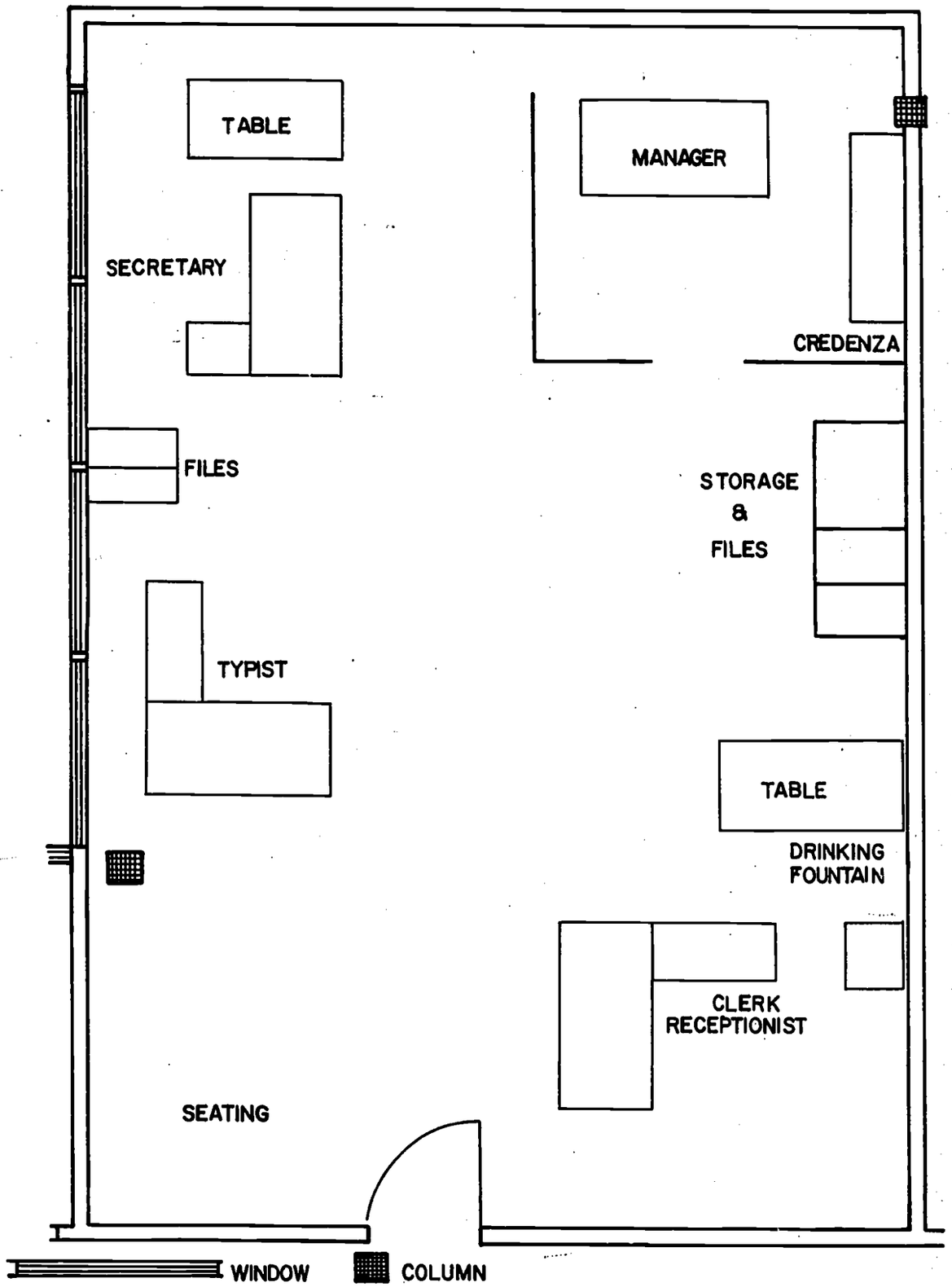


TABLE
MANAGER
SECRETARY
CREDENZA
FILES
STORAGE
&
FILES
TYPIST
TABLE
DRINKING
FOUNTAIN
CLERK
RECEPTIONIST
SEATING
WINDOW
COLUMN

FAYETTEVILLE HIGH SCHOOL

PLACEMENT SERVICE

JOB DESCRIPTIONS - CLERICAL POSITIONS

SECRETARY/OFFICE MANAGER

Job Skills: Typing (60-70 WPM), Shorthand (100-120 WPM), Accounting, knowledge of operation of other common office machines (adding and listing machines, photocopy equipment, machine dictation equipment, etc.), knowledge of overall office procedures and experience in office management.

Salary: $300 - $450 Range

Job Description:

1. Typing: Correspondence, reports, and memos as dictated by director.

2. Communication (written): Compose letters, memos, and reports as delegated by director. Compose job newsletter once each month.

3. Communications (Oral):

   a. Telephone Communications:

      1. Handle calls in directors absence.
      2. Make appointments for director.
      3. Make routine calls for director and those necessary for the operation of office.

   b. Other Oral Communications:

      1. Handle callers in directors absence.
      2. Handle routine callers for director as delegated.
      3. Transmit instructions to two COE workers.

4. Appointment Calendar: Keep appointment calendar for director.

5. Record Keeping Duties:

   a. Prepare and keep budget records for office.
   b. Prepare and keep payroll/time records for office.
   c. Maintain follow-up records on Fayetteville High School graduates:
      1. Addresses of graduates.
      2. Place of employment.
      3. Armed service records.
      4. Post-secondary training records of graduates.

6. Filing and retrieving duties:

   a. File correspondence, reports, and memos received and sent by office.
   b. File and retrieve records on students and graduates as necessary
   c. Maintain files concerned with operation of office.

7. Photocopier duties: Operate photocopier as required.

8. Printing Calculator: Operate printing calculator to fulfill functions of job.

9. Supervisory Duties:

   a. Functions as office manager and has overall responsibility for efficient operation of the clerical aspects of placement office.
   b. Supervise two COE workers in performance of job. This includes examining work performed by students for conformance to rules, procedures and policies, proof-reading student's work for accuracy, etc.

10. Training Responsibilities:

   a. Schedule training of two COE students positions in procedures, policies, skill development, and interpersonal relations in an office. This schedule of training is developed in consultation with coordinator and director.

   b. See that schedule of training is carried out and assists coordinator in planning in-school training for job growth and development.

11. Evaluation Responsibilities: Assists director and coordinator in the evaluation of performance of two COE student positions.

COE STUDENT WORKERS:

Position 1 - Typist:

Job Skills: Typewriting (40-60 WPM)

This job is to be filled by a High School Cooperative Office Education student. Job skills required before starting job would be typing. Other job skills will be developed in the related class as part of student's in-school training and by instruction received on-the-job from secretary and director.

Job Description:

1. Assists secretary in typing routine letters, reports, and memos.
2. Assists secretary in filing and retrieving records.
3. Copies material on photocopier as necessary.
4. Compiles and condences follow-up information on graduates.
5. Addresses envelopes for bulk mailings to graduates.
6. Assists secretary in record keeping duties.
7. Types from dictation machine.
8. Assists secretary in the performance of her duties in any way required for the efficient operation of the office.

Position 2 - Receptionist:

Job Skills: Typewriting (30-40 WPM)

This job is to be filled by a High School Cooperative Office Education student. Other job skills will be developed in the related class as part of student's in-school training and by instruction received on-the-job from secretary and director.

Job Description:

1. Mail, sorts and distributes all mail to the office.
2. Answers all incoming calls and places many outgoing calls.
3. Places long distance calls as necessary.
4. Greets and directs all callers.
5. Maintains reception area in a neat and attractive appearance.
6. Keep and post job bulletin board located in reception area.
7. Assists secretary and typist in the performance of any office functions necessary.

The above two jobs would require four COE students, one for each position morning and afternoon.

PLACEMENT DIRECTOR

JOB DESCRIPTION

1. Supervision of all personnel.
2. Regularly surveying the business community to determine job openings and projected employment demands.
3. Counseling of students in career education and career employments. Included in this counseling would be seeing that students take advantage of aptitude testing available and such skill achievement tests as Civil Service Tests.
4. Interviewing students and supervising the necessary follow-up sessions.
5. Public relations activities. Publicity for the program should be obtained at every opportunity from radio and TV and through speaking engagements. Businessmen should be brought to the schools to acquaint them with the career training available through the schools and with the quality of students' work.
6. Working to establish contact with faculty personnel on both campuses and to build their confidence in the program.
7. Promoting the work of the advisory committee.
8. Arranging to hold a Career Week for students interested in entering the World of Work and A College Week for those planning to enter college.
9. Maintianing a current file of available job descriptions and referals (see form), Appendix, page xiv.

PLACEMENT SURVEY QUESTIONNAIRE

1. Name of firm _____

2. Address _____ Telephone _____

3. Type of Business _____
(as variety store, auto body shop, etc.)

4. Person interviewed _____ Title _____

5. Interviewer _____ Date _____

6. Job Title _____ No. Needed ____

7. Age requirements _____ Male _____ Female __

8. Other requirements _____

REFERALS

	Student's Name	Date	Who refered
1.			
2.			
3.			
4.			
5.			

Job Title _____ No. needed ____

	Student's Name	Date	Who refered
1.			
2.			
3.			
4.			
5.			

This is Steve Carter and I would like to speak to the business leaders of our community. I am speaking on behalf of the Fayetteville High School Placement Service, an organization formed to place graduating seniors in part time or full time employment. If you are interested in helping the leaders of tomorrow get their start in the business world, please call the Placement Service at 443-3481.

Attention Businessmen: Fayetteville High School is offering you the chance for dependable, qualified employees. This year members of the graduating class of 1972 will be helped by a job placement center at the high school. You can help too. Call 443-3481 and ask for the Placement Service.

This message is for you, the employers ... Fayetteville High School has a unique offer for you. For the first time, the Fayetteville Public Schools are helping their graduating seniors with a job placement center. We hope that you will help them too.
If you would like to hire one of these seniors, or desire more information please call 443-3481, the Job Placement Service.

Do you have a job opening? Fayetteville High School Job Placement Center has a service just for you. You can choose from the most dependable and qualified young people in Fayetteville. The 1972 Graduating class of Fayetteville High School is now available for full-time or part-time employment. Call 443-3481; that's 443-3481.

Mr. Employer: this message is in behalf of the Fayetteville Public Schools. You've often given us your help. Now we have an offer for you. It is young energetic employees. They are all members of the 1972 Graduating class. For information about job placement (either full or part time) call 443-3481 and ask for the Placement Service.

This is a message for employers. Fayetteville Public Schools are ready to market their product again. That, of course, is our graduating seniors. This year we are experimenting by providing job placement to as many as we can. We need your cooperation. Call Fayetteville High School, ask for the Placement Service and tell us about the (full or part time) jobs you have available.

Employers, Fayetteville High Seniors need your help. If you are looking for full or part time help in your place of business, call Fayetteville High School at 443-3481 and ask for the Placement Service.

Employers: Fayetteville High School has a unique offer for you. Fayetteville High School has instituted a placement service to help the 1972 Seniors find employment. These students will make young and energetic employees. If you have an opening in your firm for either full or part time workers, call the Placement Service at 443-3481.

Do you need help? Fayetteville High School has the answer. The Placement Service at Fayetteville High School has just the help you need - either full or part time. So, if you need more help, call the Placement Service at 443-3481.

APPLICATION WORK SHEET

1. Last Name First Middle Soc. Security No.

2. Address Street or Route City State Zip Code

Telephone No. Height Weight Birthday Sex

Special Courses Participated in

Willing to Relocate
____Yes
____ No

If needed for work do you have transportation ____ Yes _____ No

List the courses of training which prepared you for work.

Describe previous work experience (Job title, dates worked)

Name the type of company or business where you would like to work.

Name the hours and wages that you want or will accept.

School attendance record and grade record.

JOB PLACEMENT SERVICE EVALUATION FOR ADVISORY COMMITTEE

Please use the following scale to indicate your reaction to each of the following statements:

(1) Strongly agree, (2) Agree, (3) No opinion, (4) Disagree, (5) Strongly Disagree

1. Cooperation between school administrators and project director has been good. _____
2. Cooperation between counselors and project director has been good. _____
3. Cooperation between other faculty personnel and the project director has been good. _____
4. Cooperation between other institutions and industry and the project director has been good. _____
5. Adequate procedures have been developed to conduct a follow-up survey. _____
6. Follow-up survey provided information about successes and failures of former students. _____
7. The follow-up survey provided a means of continued contact with former students who may need adult education courses. _____
8. The follow-up survey provided a means of continued contact with former students who need some assistance in making the transition from school to work. _____
9. The follow-up survey provided feed-back for program improvements. _____
10. Adequate procedures were developed for the establishment of an experimental placement center. _____
11. Using the placement center as a work station for COE students was a workable situation. _____
12. An adequate number of conferences was held with administrators and counselors for the purpose of developing procedures. _____
13. Students were well informed about the operation of the placement center. _____
14. Students responded favorably to the idea of a placement service. _____
15. The target group (i. e., general education majors and drop-outs) were given priority during placement procedures. _____
16. A full-time job placement service should be operated by Fayetteville Public Schools. _____

CRITIQUE: Please give comments and suggestions as to how the project could be improved.

VT 016 393
LEEDY, HERBERT B.
TRAINING IN MECHANIZED STOCK ACCOUNTING SYSTEMS IN ARMY LOGISTICS.

HUMAN RESOURCES RESEARCH ORGANIZATION, ALEXANDRIA, VA.
OFFICE OF THE CHIEF OF RESEARCH AND DEVELOPMENT (ARMY), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
HUMRRO-TR-72-16
PUB DATE - MAY72 138P.

DESCRIPTORS - *MAN MACHINE SYSTEMS; *SUPPLIES; COMPUTERS; *JOB TRAINING; PERSONNEL NEEDS; *FEDERAL PROGRAMS; *ACCOUNTING; VOCATIONAL EDUCATION; VOCATIONAL DEVELOPMENT; INTERVIEWS; PERFORMANCE FACTORS; PROGRAM EFFECTIVENESS

ABSTRACT - TO DETERMINE JOB TRAINING NEEDS BY EVALUATING PERSONNEL EXPERIENCE, THIS TECHNICAL REPORT SUMMARIZES AN ARMY SURVEY OF 13 NCR 500 MECHANIZED STOCK ACCOUNTING SYSTEMS FOR REPAIR PARTS SUPPLIES IN FOUR FAR EASTERN COMMANDS BY ANALYZING TAPED INTERVIEWS HELD IN 1969 WITH 128 OFFICERS AND ENLISTED MEN SERVING IN NINE DUTY POSITIONS. THESE FINDINGS, PRESENTED AS A MODEL FOR STUDYING THE PROBLEMS OF IMPLEMENTING THIS SYSTEM, SHOW A LACK OF ADEQUATE NCR 500 TRAINING AND EXPERIENCE IN THE STAFF AND HIGH PERSONNEL TURNOVER IN MANAGEMENT. ASSOCIATED WAREHOUSES WERE INADEQUATELY MANNED. HOWEVER, THE AUTOMATED SYSTEM WAS CONSIDERED GENERALLY MORE EFFICIENT THAN THE MANUAL SYSTEMS, AND THE ARMY COMPUTER SYSTEMS COMMAND FIELD TEAMS AT THE GENERAL AND DIRECT SUPPORT LEVELS PROVIDED VALUABLE MANAGEMENT ASSISTANCE. SYSTEM EFFICIENCY WOULD HAVE BEEN PROMOTED BY A COMPREHENSIVE TRAINING APPROACH, ASSIGNMENT OF A TECHNICAL SUPPLY OFFICER, MORE TRAINED NONCOMMISSIONED OFFICERS, AND MORE FIELD TRAINING, SUCH AS "HANDS-ON" ACTIVITIES AND ON-THE-JOB TRAINING. (AG)

Technical
Report
72-16

HumRRO-TR-72-16

HumRRO

Training in Mechanized Stock Accounting Systems in Army Logistics

Herbert B. Leedy

HUMAN RESOURCES RESEARCH ORGANIZATION
300 North Washington Street • Alexandria, Virginia 22314

May 1972

VT016393

Prepared for

Office of the Chief of Research and Development
Department of the Army
Washington, D.C. 20310

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HumRRO
Technical
Report
72-16

Training in Mechanized Stock Accounting Systems in Army Logistics

Herbert B. Leedy

HumRRO Division No. 1 (System Operations)
Alexandria, Virginia

HUMAN RESOURCES RESEARCH ORGANIZATION

May 1972

Prepared for

Office of the Chief of Research and Development
Department of the Army
Washington, D.C. 20310

4404

The Human Resources Research Organization (HumRRO) is a nonprofit corporation established in 1969 to conduct research in the field of training and education. It is a continuation of The George Washington University Human Resources Research Office. HumRRO's general purpose is to improve human performance, particularly in organizational settings, through behavioral and social science research, development, and consultation. HumRRO's mission in work performed under contract with the Department of the Army is to conduct research in the fields of training, motivation, and leadership.

The findings in this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

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Department of the Army
Washington, D.C. 20310

FOREWORD

The research reported here is an effort to determine the Army's experience with the introduction of a small mechanized stock accounting system, using the NCR 500, with respect to personnel and training, in order to better enable the Army to take advantage of this experience in implementing newer and more complex computer-based logistics systems. The report identifies duty positions where general training needs exist for implementation of such systems.

The data for this report were collected in a survey of 13 NCR 500 systems located in four Far Eastern Commands. Interviews were held in mid-1969 with 128 officers and enlisted men serving in nine duty positions connected with these systems. The survey was conducted under Work Unit ACCOUNT, Analysis of Army Experience in Implementing a Mechanized Stock Accounting System.

The results of this survey were originally compiled in April 1970, and provided to operational personnel at that time. This report is a summary of the findings, and is presented here as a model for studying the problems of implementing a mechanized stock accounting system.

This research was conducted by HumRRO Division No. 1 (System Operations) at Alexandria, Virginia. The Director of the Division is Dr. J. Daniel Lyons. Dr. C. Dennis Fink was the Program Director and Dr. Herbert B. Leedy was the Work Unit Leader.

HumRRO research for the Department of the Army is conducted under Contract DAHC 19-70-C-0012. Training, Motivation, Leadership research is conducted under Army Project 2Q062107A712.

Meredith P. Crawford
President
Human Resources Research Organization

SUMMARY AND CONCLUSIONS

PROBLEM

Reports produced by various Department of the Army study groups indicated that the effectiveness of repair parts supply at the direct support and general support levels of the Army logistics system could be improved by the automation of the stock accounting function. A simple electronic bookkeeping machine system, the NCR 500, was introduced for this purpose.

Several sources of information have indicated that the efficiency of this mechanized stock accounting system has been less than optimal. This information indicates that the general problem was the management of the system. Management problems appeared to manifest themselves not only within the system, but at its interfaces as well. The management problems appeared to obtain primarily because training did not seem to have been given to a sufficient number of personnel, particularly managers, who supervised, evaluated, provided input, or used output from the system.

This study had two objectives:

First, to determine the Army's experience in introducing the NCR 500 with respect to personnel and training, in order to better enable the Army to take advantage of this experience in implementing newer and more complex computer-supported logistics systems.

Second, to determine those jobs in the mechanized stock accounting system and at its interfaces for which training needs appear to exist.

METHOD

An interview guide was developed for each of nine types of duty positions, both within the mechanized stock accounting system and in interfacing activities. Information in the following general categories was obtained: NCR 500 system training and experience; supply training and experience; management; staffing; personnel turnover; attitudes toward the NCR 500 system; and contact with the Computer System Command DSU/GSU Field Teams.

Interview data were obtained by tape-recorded, open-ended, in-depth interviews. In mid-1969 interviews were held with 128 officers and enlisted personnel serving in the various duty positions connected with 13 different NCR 500 systems located in four Far Eastern commands. Neither the personnel interviewed nor the NCR 500 systems were selected by probability sampling methods.

RESULTS

Analysis of the interview data led to the following findings:

(1) There has been a continual input of underskilled personnel into nearly all of the duty positions in the mechanized stock accounting system and in its two major interfacing activities. This situation appears to have been a function of the lack of training, personnel turnover, and the attrition (exodus from the Army) of first-line supervisors.

(2) There has been a need for additional training and for performance aid support for both the NCR 500 system and repair parts supply procedures at every duty position category, although this need was greater for some duty positions than for others.

(3) Personnel turnover has resulted in trained and/or experienced personnel being replaced by personnel who might have had some training but who were not experienced.

(4) Approximately three-fourths of the first-line managers and operators of the NCR 500 systems were leaving the Army.

(5) More than four-fifths of the respondents were serving in duty positions to which one of their MOSs was either identical or related. This is considered a potentially misleading statistic in the light of the evidence of the need of the respondents for additional training.

(6) The respondents generally felt that the NCR 500 was an efficient system and that it was more efficient than the manual stock accounting system.

(7) The mechanized stock accounting systems were generally considered to be adequately staffed, but there was some indication that the associated warehouses were considered to be inadequately manned.

(8) The manager personnel tended to feel that the U.S. Army Computer Systems Command DSU/GSU Field Teams were providing valuable management assistance.

CONCLUSIONS

Mechanized stock accounting system efficiency would have been promoted by the following:

(1) A total systems approach to training that included training for all duty positions in the mechanized stock accounting system and at its major interfaces; integration of NCR 500 procedures and concepts with repair parts supply procedures and concepts; upgrading of the storage operation as well as the supporting stock accounting system.

(2) Assignment of a well-qualified Technical Supply Officer.

(3) More noncommissioned officers with repair parts supply experience trained in the NCR 500 system.

(4) More field training in any or all of the following forms: (a) a model DSU with "hands on" training; (b) on-the-job training courses; and (c) performance aid systems.

Mechanized stock accounting system efficiency was promoted by the assistance provided by the U.S. Army Computer Systems Command DSU/GSU Field Teams.

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Training in Mechanized Stock Accounting Systems in Army Logistics

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Chapter 1

PROBLEM AND METHOD

BACKGROUND

This report summarizes research concerned with the development of a prototype performance, or job-aid system, for a small mechanized stock accounting system used by the United States Army for repair parts at the general support and direct support levels of the Army logistics system in the field. The NCR 500[1] computer system serves as a vehicle for this stock accounting function.

REPAIR PARTS STOCK ACCOUNTING

The availability of repair parts has a profound effect on the combat readiness of the Army. Several studies and analyses have indicated that combat readiness has been degraded by the inability of combat units to get repair parts when they are needed.

A requisition for a repair part is originated by a using unit (company, battery, battalion, etc.), and is forwarded to a direct support unit (DSU) that issues the parts directly to the user. In the event that a requisitioned part cannot be supplied by a DSU, the part is ordered by the DSU from a higher source, usually a supply depot. Which repair part items are stocked at the user unit, the DSU, and the higher supply echelons is determined by the number of demands over a given period.

The repair parts supply system is thus demand-oriented. Accurate demand data are needed throughout the system so that knowledge of requirements and consequent stockage of repair parts at various echelons provide for the necessary responsiveness of the supply system. Accurate recordkeeping, therefore, is of vital importance if repair parts are to be provided as needed and combat readiness maintained.

Several Department of the Army and contract research organization studies over the past few years have been concerned with the state of Army readiness and logistical support. Their reports indicated that under manual procedures, the maintenance of stock accounting records for repair parts at direct support and general support levels is cumbersome, difficult to perform, and subject to considerable human error.

The U.S. Army Materiel Command (USAMC) established a task group in 1965 to study these reported manual deficiencies and to submit recommendations for improving the overall supply effectiveness at the direct support unit and the general support unit (GSU) levels. They determined that a simple electronic bookkeeping machine utilizing a visible posted ledger installed at the DSU and GSU levels could probably ameliorate the stock accounting problem at these echelons.

Tests of the automation of the repair parts stock accounting function were made by the task group. The tests indicated that the mechanization of the operation was feasible and would be a considerable improvement over the manual system. As a result of the tests, the NCR 500 computing system was selected as the basic hardware for the automation of the stock accounting function.

[1] Identification of products is for research documentation purposes only; mention of this system does not constitute an official endorsement by either HumRRO or the Department of the Army.

The Department of the Army began automating selected DSUs in Southeast Asia in October 1966. Since that time, NCR 500 systems have been installed in many direct support units, general support units, and supply points in various other locations, both in continental United States (CONUS) and overseas.

THE NCR 500 COMPUTER SYSTEM

The NCR 500 is a small-scale bookkeeping machine computer system. The configuration is composed of a programmed central processor, a card reader, a console for reading and posting magnetic ledger cards, and the card punch. The system also has key punch machines and a sorter. The equipment is completely contained in two van-type semitrailers with adequate space for files and operating personnel.

This mechanized stock accounting system is designed to operate within current Army supply doctrine (Military Standard Requisitioning and Issue Procedures—MILSTRIP) by automatic processing of data. Information about each repair part is maintained on a ledger card both visibly and in coded magnetic form. There is one ledger for each repair part item. NCR 500 system output in the form of punched card documents in the MILSTRIP format can serve as input to computers of other echelons of supply.

The personnel contingent is ideally made up of nine operators and a repairman. The remainder of the system consists of maintenance equipment, application procedures in the form of manuals, and operational computer programs.

In a direct support function, the mechanized stock accounting system is found in the supply platoon of either the headquarters and main support company of a division. maintenance battalion, or the main support company of a maintenance battalion not attached to a division. Typically, the supply platoon, which includes the corresponding storage activity as well as the mechanized stock accounting system, is under the command of a lieutenant who is known as the Technical Supply Officer.

MECHANIZED STOCK ACCOUNTING SYSTEM PROBLEMS

Reports by teams of Army personnel engaged in providing operational assistance to or inspecting mechanized stock accounting systems in the field, indicate that the mechanized stock accounting system[1] should function more efficiently. The problems and shortcomings pointed out by the Army personnel were also indicated in HumRRO Exploratory Research 58, Manual Format. This information indicated that the overall problem with NCR 500 performance was management of the system.

Management problems were evident within the system and at its various interfaces. Within the system, management difficulties existed for the Technical Supply Officer who supervised the system, his assistants, the platoon sergeant, the stock control supervisor, and the senior stock accounting specialist. Problems also existed at the level of the maintenance battalion commander and his staff, such as the executive officer and the materiel officer, and for those command echelons above the maintenance battalion. Management problems in varying degrees were also indicated for the DSU warehouse, the depot or higher supply source, and finally for the units supported by the DSU, the customers.

[1] Throughout this report the term mechanized stock accounting system will be used to designate both the NCR 500 computer system equipment, its software, procedures, and the stock accounting function that the equipment supports.

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At a more fundamental level, management problems with the mechanized stock accounting system appeared to be related to training. In essence, training did not seem to have been given to a sufficient number of personnel, particularly managers, who supervised, evaluated, provided input, or used output from the system. In the case of the mechanized stock accounting system equipment operators, training did not appear to have been a problem to the degree indicated in the case of management personnel.

OBJECTIVES

The general objective of this research was the determination of the Army's experience, with respect to personnel and training, in the introduction of the NCR 500 in the field.

The NCR 500 was the first computer system that the Army introduced in the field for a logistics function on an extensive basis. There are more sophisticated field computer systems either being introduced or to be implemented in the future for logistical operations, such as DLOGS, CS_3, COCOAS. Determination of the Army's introduction experience with the NCR 500 in the personnel and training area should enable the Army to take advantage of this experience in the implementation of the newer computer-supported logistics systems.

The primary aim of this research was to determine the location of training needs, that is, the jobs in the mechanized stock accounting system, and at the interfaces of the system, for which training needs appear to exist.

This research was not designed to identify specific training needs or training requirements. Nevertheless, several general areas in which additional training was indicated did become evident in this research and are reported here.

This research was designed to collect information from personnel of individual mechanized stock accounting systems and their interfaces: the associated repair parts storage activity or warehouse; the various command echelons in the maintenance battalion including the battalion commander; the battalion staff officers such as the maintenance officers, the materiel officer, the battalion Technical Supply Officer, and the customers supported by the DSU. Data were not collected from higher supply sources (depots) as training problems specific to the NCR 500 system appeared to be comparatively minor at that level.

METHOD

MECHANIZED STOCK ACCOUNTING SYSTEMS VISITED

The survey results in this report were obtained in the field during May-July 1969. At that time, operational NCR 500-based mechanized stock accounting systems were functioning only in Far Eastern commands.

A given NCR 500-based mechanized stock accounting system served as the focal point for the data collection. Interview data were collected from personnel in various jobs within, and associated with, each system visited. Data collection was completed for one system before being started for another.

Data were collected from personnel associated with 13 of approximately 72 systems operational in the Far East at the time. The types of units in which these systems were operating, the types of supported activity, and their location are indicated in Table 1. Only

Table 1

Mechanized Stock Accounting Systems From Which Data Were Collected

Designation	Type of Unit	Type of Unit Primarily Supported	Location
ALPHA	DSU: Transportation Co., Transportation Bn., Non-Division.	Aviation: combat.	Vietnam
BRAVO	DSU: HQ and Main Support Co., Maintenance Bn., Non-Division.	Varied: non-combat.	Vietnam
FOXTROT	DSU: HQ and A Co., Maintenance Bn., Division.	Infantry, Armor, Artillery: combat.	Vietnam
GOLF	DSU: Transportation Co., Transportation Bn., Non-Division.	Aviation: combat.	Vietnam
HOTEL	DSU: Main Support Co., Maintenance Bn., Non-Division.	Varied: non-combat.	Vietnam
INDIA	DSU: Maintenance Co., Logistical Support Command, Non-Division.	Varied: non-combat.	Vietnam
CHARLEY	DSU: Signal Co., Signal Group, Non-Division.	Signal: non-combat.	Thailand
DELTA	DSU: HQ and Main Support Co., Maintenance Bn., Non-Division.	Transportation, Construction: non-combat.	Thailand
ECHO	DSU: Light Equipment Maintenance Co., Maintenance Bn., Non-Division.	Transportation, Construction: non-combat.	Thailand
JULIET	DSU: Ordnance Co., Artillery Brigade, Non-Division.	Missile: non-combat.	Okinawa
KILO	DSU: HQ and A Co., Maintenance Bn., Division.	Infantry, Armor, Artillery; non-combat.	Korea
LIMA	GSU: Supply Co., Non-Division.	DSU's.	Korea
MIKE	Supply Point: FASCOM, Non-Division.	Varied: non-combat.	Korea

code names are given since complete anonymity of the respondents and their units was maintained.

RESPONDENTS

The structure of the typical DSU is diagrammed in Figure 1. There were 128 respondents to the interviews. The number of respondents by type of job (duty position) in the DSU structure and by mechanized stock accounting system is listed in Table 2.

Neither the respondents in this study nor the mechanized stock accounting systems visited were selected by probability sampling methods, primarily because of combat

Typical DSU Structure and Interfacing Activities

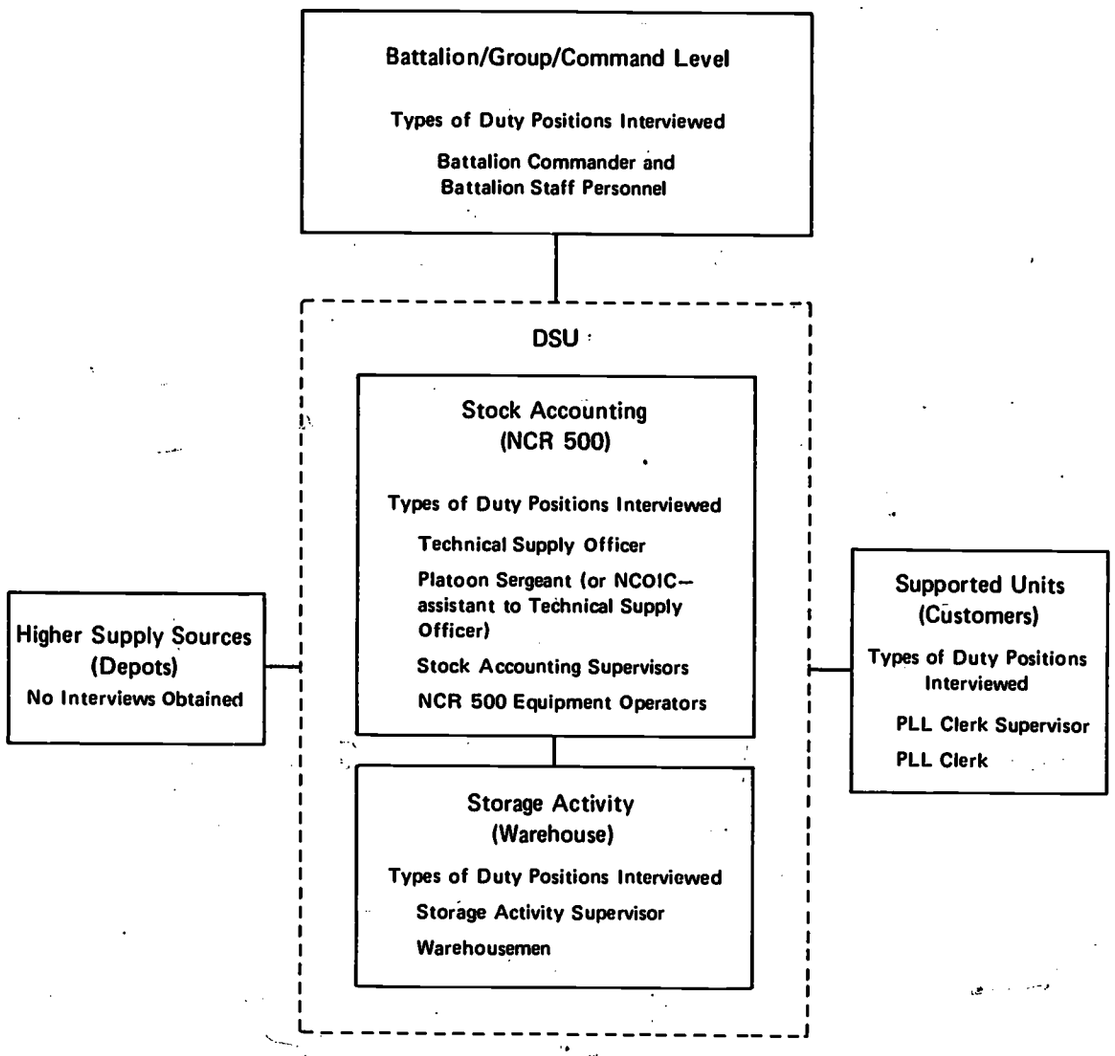

Figure 1

Table 2

Number of Respondents Interviewed Per NCR 500 System by Duty Position

NCR 500 System	Duty Position Number[a]									
	1	2	3	4	5	6	7	8	9	Total
ALPHA	2		1	1						4
BRAVO				1						1
CHARLEY	2	1		1		1		1	2	8
DELTA	2	1	1	1				1		6
ECHO	1	1	1	1	2	1	2	3	5	17
FOXTROT	3	1		1	2	1	2	2	3	15
GOLF	2	1		2	1			3	5	14
HOTEL	1	1	1	1	1	1	1	3	3	13
INDIA	1	1	1	1	1	1	1	2	3	12
JULIET		1	1		1	1	2	1	5	12
KILO	1	1		1	2			6	8	19
LIMA	1	1		2		1				5
MIKE		1		1						2
Total	16	11	6	14	10	7	8	22	34	128
Estimated personnel in the job in Far Eastern Commands	235	72	72	280	575	215	720	2880	4320	

[a] 1 = Battalion management personnel (battalion commander and battalion staff personnel).
2 = Technical Supply Officer.
3 = Platoon Sergeant (or NCOIC - assistant to the TSO).
4 = Stock Accounting Supervisors (Stock Control Supervisor and Senior Stock Accounting Specialist).
5 = Mechanized stock accounting system equipment operators.
6 = Storage activity supervisors.
7 = Warehousemen.
8 = PLL Clerk supervisors.
9 = PLL Clerks.

conditions in Vietnam. The systems and the respondents were deliberately selected to be representative of the different types of command structure, location, type of customer unit supported, and duty position, since this diversity was considered to be important for the purposes of the research. Systems were further selected for those that could be expected to provide a reasonable number of accessible respondents in a relatively short time span, that is, 3-4 days. The mechanized stock accounting systems in the study were chosen by the author and the Computer Systems Command DSU/GSU Field Team, Vietnam.

Every effort was made to avoid hindering operations, particularly in Vietnam. This meant that in some cases preferred respondents could not be interviewed and substitutions had to be made, or that the interview had to be condensed or terminated before completion. These conditions occurred for the most part at the level of the Battalion Commander, his staff, or other management personnel, although operations had an effect on the availability of respondents at virtually all levels.

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DATA COLLECTION TECHNIQUES

Data collection for this survey was planned for the following problem categories that had been indicated by the exploratory study to be of importance to the functioning of the NCR 500 system:

(1) Mechanized stock accounting training and experience
(2) Supply training and experience
(3) Management
(4) Staffing
(5) Personnel turnover
(6) Attitudes toward the NCR 500
(7) Contact with the Computer System Command DSU/GSU Field Teams

The information for this research was collected by the survey method through semistructured interviews. One respondent was interviewed by the author at a time and each interview was tape-recorded. Anonymity of the respondent and his unit was preserved. Names of personnel and units were not recorded. There was no indication that the collection of data by tape recorder had any effect on the interview responses that would have been different than that found by other survey data collection methods, although a systematic comparison of interview data collection techniques was not made.[1]

All of the data pertaining to individual respondents, such as primary, secondary, and duty MOS, time in the duty position, attitudes, opinions, and so forth, were collected directly from the respondents. No TO&Es, personnel records, or other personnel were consulted.

INTERVIEW GUIDES

The survey questions were open ended, and were followed by probes for more information when the interviewer felt this to be necessary, or when time permitted. Separate guides or questionnaires were developed for each of the nine types of duty positions interviewed, although many of the same questions were asked the respondents in all of the duty positions. The basic interview questions pertinent to this report are listed in Appendix A.

ANALYSIS

The transcribed interviews were content analyzed and the data tabulated by type of question for each job position. Appendix B contains some quotations from the interviews. These are included in this report because they tend to express the realistic state of affairs.

Statistical analysis, in the sense of the computation of a statistically significant relationship, was not done because the data were not obtained by probability sampling methods, and because the number of respondents interviewed in the different job positions is small. Therefore, these survey data rather than being definitive, indicate likely trends.

The findings of this research generally coincide with two other independent sources: the informal exploratory study completed prior to the data collection for this effort, and

[1] In one instance, the author had to interview two respondents without a tape recorder. No difference was noted between these two interviews and the tape-recorded interviews from the standpoint of willingness to talk.

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with the informal comments, memos, and so forth, by various personnel who have been involved with the mechanized stock accounting system. It is felt, therefore, that the trends in the data of this study can be accepted as likely, but not as a basis for specific estimates. The data trends make up the information that is of prime importance in this survey. For example, all of the 11 technical supply officers interviewed said that they had studied the mechanized stock accounting system manuals, SOPs, or briefing materials. The number of technical supply officers in Far Eastern commands who have studied these manuals cannot be estimated from this information, but the trend in these data—which indicates that a rather large number of technical supply officers find it necessary to further their learning in this manner—can be accepted as likely, and is the information that is of importance.

Since the interviews for this study have been completed, several changes have been made in the training for the mechanized stock accounting system. Most of these changes have been in courses for commissioned officers, and are in the direction of more comprehensive training in CONUS schools. The U.S. Army Quartermaster School has developed a comprehensive 32-hour block of instruction that is incorporated in several officer training courses and the Non-commissioned Officer Logistics Program. The U.S. Army Ordnance Center and School has included 15 hours of instruction on the mechanized stock accounting system in several officer and non-commissioned officer courses.

ORGANIZATION OF REPORT

The main objective of this research was to identify the location of training needs by duty position. Therefore, this report is organized in terms of separate survey reports for each of the nine duty positions interviewed. For easier comparisons between duty positions, tables of data summarized across the various duty positions are presented in Appendix C.

It is important to remember that the smaller the respondent group, the less stable or reliable the data. Since none of the groups of respondents was large, considerable caution should be exercised in making comparisons between groups.

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Chapter 2

BATTALION MANAGEMENT PERSONNEL

GROUP COMPOSITION

This group included officers assigned to maintenance battalions who were concerned with repair parts supply management in connection with the maintenance and support activities of their battalion. Officers in this category were, for the most part, only indirectly involved in the supervision of the mechanized stock accounting system. Their essential relationship to this system was the use of supply management information provided by the system. Some of the supply management information utilized was regularly scheduled output, other information was specially requested by some of these personnel. Battalion management personnel also participated in the inspection of the mechanized stock accounting system from time to time.

Included in this group of 16 respondents[1] were maintenance battalion commanders, maintenance battalion staff officers (e.g., materiel officers and technical supply officers), and commanders of main support companies in which the mechanized stock accounting system was located. The Chief of Logistics of a signal group is included with this group of respondents, and was the only respondent at this command level interviewed. The DSU with which he was associated was attached to a signal group and was not part of a battalion. This officer had transactions with this DSU that were were rather similar to those of a battalion commander with a DSU in his battalion. Technical supply officers who command the supply platoon (the DSU) of the main support company are not included in this group of respondents (that duty position is discussed in Chapter 3). Table 3 lists the 16 respondents by DSU, rank, job title, duty MOS, primary and secondary MOS (where available), and relationship between duty MOS and primary or secondary MOS.

Assignment of Personnel. The personnel listed in Table 3 were assigned to duty positions for which they had at least some qualifications. This is indicated by the degree of relationship between the duty MOS and the primary or secondary MOS.

Each of the officers was assigned to a duty position for which either his primary or his secondary MOS was germane: Six said their primary MOS was "identical" to their duty MOS, and seven said it was "related"; two reported their secondary MOS was "identical" to their duty MOS and one "related."

Job Turnover. The amount of time in the duty position held by the respondent at the time of interview was used as an indication of job turnover.[2]

The number of months on the job in Vietnam ranged from 1.5 to 8, with a 4.2 average; in Thailand the range was from 2-11 months with a 7.4 average, while in Korea the range was 5-10 months with a 7.5 average.

Although the number of respondents was low (16) and the representativeness of the data unknown, the average number of months on the job obtained from the

[1] Relevant quotations from personnel interviewed are in Appendix B.

[2] The original intention was to add the number of months on the job to the number of months remaining on the job for a measure of job turnover, but the latter information was not known by several respondents. Therefore, number of months on the job is used as an indication of turnover for all jobs discussed in this report.

Table 3

Battalion Management Personnel Respondents

Direct Support Unit	Rank	Job Title	Duty MOS	Primary MOS	Secondary MOS	Duty MOS Relation to Primary or Secondary MOS[a]
CHARLEY	LTC	Chief of Logistics, Signal Group	0210 (Signal Officer)	0210	- - -	Identical to Primary
ALPHA	MAJ	Battalion Executive Officer, Transportion Bn.	4823 (Aircraft Maintenance Officer)	2167 (Research and Development Coordinator)	4823	Identical to Secondary
ALPHA	MAJ	Company Commander Transportation Bn.	4823 (Aircraft Maintenance Officer)	1980 (Fixed Wing Aviator)	4823	Identical to Secondary
CHARLEY	CW3	Accountable Officer, Signal Co.	761A (Unit Supply Technician	761A	- - -	Identical to Primary
DELTA	MAJ	Battalion Executive Officer, Maintenance Bn.	4803 (Maintenance Officer)	4803	- - -	Identical to Primary
DELTA	CPT	Company Commander, Main Support Co., Maintenance Bn.	4803 (Maintenance Officer)	0210 (Signal Officer)	4400 (Signal Supply Officer)	Related to Primary
ECHO	1LT	Company Commander, Light Equipment Maintenance Co., Maintenance Bn.	4803 (Maintenance Officer)	4815 (Mechanical Maintenance)	- - -	Related to Primary
FOXTROT	LTC	Battalion Commander Maintenance Bn.	4815 (Mechanical Maintenance Officer)	4800 (Ordnance Maintenance Officer)	- - -	Related to Primary

(Continued)

Table 3 *(Continued)*

Battalion Management Personnel Respondents

Direct Support Unit	Rank	Job Title	Duty MOS	Primary MOS	Secondary MOS	Duty MOS Relation to Primary or Secondary MOS
FOXTROT	MAJ	Battalion Materiel Officer, Maintenance	4803 (Maintenance Officer)	4803	2170 (Technical Operations Officer)	Identical to Primary
FOXTROT	CPT	Battalion Technical Supply Officer, Maintenance Bn.	4530 (Ordnance Supply Officer)	4516 (Missile Maintenance Officer)	---	Related to Primary
GOLF	CPT	Battalion Stock Control Officer, Transportation Bn.	4201 (Supply Management Officer)	1980 (Fixed Wing Aviator)	4823 (Aircraft Maintenance Officer)	Related to Secondary
GOLF	MAJ	Company Commander, Transportation Co., Transportation Bn.	4823 (Aircraft Maintenance Officer)	4823	---	Identical to Primary
HOTEL	CPT	Company Commander, Main Sup-Support Co., Maintenance Bn.	4815 (Mechanical Maintenance Officer)	4200 (Supply and Service Officer)	---	Related to Primary
INDIA	CPT	Company Commander	4803 (Maintenance Officer)	4415 (Signal Equipment Maintenance & Repair Officer)	4419 (Quartermaster Supply Officer)	Related to Primary
KILO	LTC	Battalion Commander, Maintenance Bn.	4512 (Ordnance Officer)	4512	---	Identical to Primary
LIMA	1LT	Company Commander, Supply Co. (RP)	4200 (Supply & Services Officer)	4815 (Mechanical Maintenance Officer)	---	Related to Primary

[a]Relationship of duty MOS to the primary or secondary MOS in all designated relationships in this report is specified depending on which of these MOSs is most similar to the duty MOS. MOS are considered to be related if there are some common areas of knowledge shared by both MOS. Determination of relationship between MOS was made from descriptions of these MOS in AR 611-101 (Manual of Commissioned Officers Military Occupational Specialties), AR 611-112 (Manual of Warrant Officers Military Occupational Specialties), and AR 611-201 (Enlisted Military Occupational Specialties), whichever was applicable.

respondents does agree with information given informally by personnel assigned to these locations. For example, it was mentioned on several occasions that officers in Vietnam usually change jobs every six months. This point was not brought out in interviews outside of Vietnam where officer personnel apparently tend to remain in their duty positions for longer periods. The tour of duty in Vietnam, Thailand, and Korea is limited to 12 months, although an 18-month tour is possible in Thailand under some conditions.

The months-on-job figures represent a rather high turnover rate. The basic mechanized stock accounting system training problems occasioned by high turnover with respect to these respondents is primarily that of training logistics, that is, getting NCR 500 training to all of these personnel in time for it to be of use. Problems associated with learning a large amount of complex material concerning the NCR did not appear to obtain for this group.

MECHANIZED STOCK ACCOUNTING SYSTEM TRAINING

The training reported by the respondents[1] is classified in this report as formal or informal. Formal training refers to scheduled, guided, systematic instruction given in a school or classroom setting. Informal training refers to the unsystematic, non-uniform learning—sometimes self-initiated, sometimes initiated by supervisors—that takes place during a duty position assignment.

Formal, Informal, Combined Training. Ten respondents reported having had formal mechanized stock accounting system training, while six reported they had not. Of the 10, one attended U.S. Army Quartermaster School special orientation, two attended U.S. Army Ordnance Center and School special orientation, four attended the U.S. Army Computer Systems Command DSU/GSU Field Team Vietnam-Supervisor's Course, and four attended conversion briefings.[2]

The fact that 10 of the 16 officers had some formal training on the mechanized stock accounting system is somewhat deceiving. Most of this training amounted to a few hours at best. The most thorough training, two days, was received by the four officers who attended the Supervisor's Course given by the DSU/GSU Field Team, Vietnam (discontinued in December 1968). The U.S. Army Quartermaster School special orientation also appeared comprehensive involving several sessions.

The conversion briefings, although they covered the system in its totality, did not amount to more than a few hours of instruction. These briefings are only given to those personnel attached to a battalion at the time of conversion. Personnel who are subsequently assigned to the battalion do not receive this training, and there seems to be no training available for them unless they have had previous experience or training.

It should be noted that not one of the 16 officers reported receiving instruction on the mechanized stock accounting system in any regular course of instruction taken at the U.S. Army Quartermaster School, although three had taken courses at the QMS.

Ten respondents reported having had informal mechanized stock accounting system training, while six reported not having any informal training. Of the 10, four attended miscellaneous briefings and orientations; eight studied NCR 500 system manuals, SOP's, and briefing materials, while four attended demonstrations, or received instructions from personnel operating the NCR 500 system.

[1] None said that they had had experience with the NCR 500 in the field prior to their present assignment.

[2] Briefings received as part of the conversion of a manual stock accounting function to the mechanized stock accounting system.

Informal training for this group of respondents was largely self-initiated and of the do-it-yourself kind. In some cases, the instruction may have been originated by someone else but this seems to be the exception for this group.

All the 16 respondents indicated that they had had either formal (6) and/or informal (6) training, while four reported receiving both.

Training Needs. All 16 personnel responded to questions regarding mechanized stock accounting system training needs. Thirteen expressed a desire for more training in the fundamentals of the system, six expressed a need for system management training, while three wanted more training in the operation and function of the equipment and the computer programs.

There were three officers who did not express training needs: one had attended the DSU/GSU Field Team, Vietnam, Supervisors Course and did not closely supervise the system; one was the officer who had given instruction on the system; and one was an officer with considerable mechanized supply experience.

Several training methods were suggested including use of a programed text and role-playing techniques. A thorough knowledge of the software of the system, and an emphasis in training on the basic principles of supply were also mentioned as needs.

Comment. There are several lines of evidence in the respondents' account of training received which indicate that a rather high proportion of these personnel were in need of more training on the NCR 500-based mechanized stock accounting system than they had received.

First, the respondents indicated that the formal training received on the NCR 500 involved only a few hours of instruction. It is also evident that this training was not always suited to the respondent's job. A working knowledge of this system cannot be gained in a few hours, especially if the instruction is embedded with other subjects in a training course.

Second, formal instruction only reached 10 of the 16 respondents which indicates that a considerable proportion of officers in these jobs had not received NCR 500 system instruction.

Third, 10 of the officers found it necessary to initiate their own training.

Fourth, 13 of the respondents said that they needed additional training on the mechanized stock accounting system.

Fifth, comments by some of the officers indicated that they did not have an adequate grasp or appreciation of the system. For example, a battalion commander (who was also indicating his desire for a more sophisticated computer system) indicated that he frequently requested supply management information that required the mechanized stock accounting system to halt its regular operations in order to comply with the data request.

The respondents also indicated the general direction of their training needs. First, all 13 officers who expressed the need for additional training on the mechanized stock accounting system said that they wanted to know more about the fundamentals of the system, to enable them to carry out their managerial functions more effectively. By "fundamentals" they meant the components of the mechanized stock accounting system, including personnel, hardware, and software; how these components function together to produce the correct and optimum work flow; and what indicators can be used to evaluate system functioning.

A second direction that these officers felt training should take is the incorporation of more supply management information in their instruction. The comments about training needs emphasize that the relationship between the NCR 500 and the Army supply system requires that personnel who use the NCR 500 output, provide input to the system, supervise the system, or operate the equipment also need to be trained and knowledgeable in the Army repair parts supply system as well as the NCR 500.

Third, the respondents felt that the training should integrate the NCR 500 computer system and its operations with supply management and supply operations.

Fourth, the officers indicated that a wider coverage of the functions and responsibilities of the various duty positions in a DSU should be included in training as DSU efficiency would be considerably increased if personnel were more familiar with duty positions other than their own.

Training techniques or vehicles were also recommended. Some officers expressed the desire for a programed text that consolidates needed information from many sources and presents this information so that it can be found rapidly. Many indicated that their jobs did not allow them much extra time for study and that too much needed information was scattered among too many hard-to-search sources.

A second training method which was rather enthusiastically recommended was a simulated stock accounting operation in which the students learned by role playing in different duty positions.

REPAIR PARTS SUPPLY TRAINING AND EXPERIENCE

Data from the exploratory study before this survey indicated that knowledge of the repair parts supply system is a basic and primary requirement for personnel working with the mechanized stock accounting system. For this group of officers, supply knowledge is probably more important than mechanized stock accounting system know-how.

Formal and Informal Training. Fifteen of the 16 respondents reported having had repair parts supply training; only one reported not having training. Formal training included: U.S. Army Quartermaster School Officer Course (3); U.S. Army Ordnance Center and School Officer Course (7); U.S. Army Infantry School Officer Course (1); U.S. Army Transportation School Officer Course (2); U.S. Army Signal School OCS (1); data processing course (1); correspondence course (1); field training classes, courses, and so forth (4).

Other than the Quartermaster School and Transportation School courses, school training in supply was that included in basic or career officer courses, and apparently consisted of no more than a few hours of instruction.

Five of the respondents said they had had two types of supply training, while 10 said they had had only one.

Only four of the 16 officers reported that they had studied regulations and manuals to further their supply knowledge. These four had also had some formal training in repair parts supply. Most of the other respondents implied that they learned from supply publications but did not actually so state.

Repair Parts Supply Experience. All 16 respondents reported having had repair parts supply experience. More than half (9) gave maintenance work as their previous experience. Other experience reported was: unit supply (2); property book (1); repair parts (5); warehouse (1); inventory control point (2); DSU (4); mechanized supply—other than NCR 500—(1); ammunition supply (1).

Eleven respondents said they had had only one type of prior supply work, two gave two types, one gave three, and two reported four types of supply experience.

Comment. The respondents' accounts of their supply training indicate that this training has not reached the desired level for incumbents of the duty positions concerned. The fact that 15 of the 16 officers reported that they had received formal training in supply is somewhat deceptive, for while five of the 16 officers were given repair parts supply training at service schools, 10 reported formal training that evidently consisted of only a few hours included in basic or career courses, and one officer reported no formal supply training.

It is evident that most of the required supply know-how was unsystematically obtained by the respondents in various duty positions as requirements, time, and inclination permitted. Thus, it would appear that comprehensive and systematic repair parts supply training should be available and given to a greater number of personnel in the duty positions represented by this group of respondents.

A simulated DSU as a vehicle for repair parts supply training was recommended by one officer who had been trained at the U.S. Army Transportation School with this technique.

PROBLEMS IN MECHANIZED STOCK ACCOUNTING SYSTEMS

The respondents outlined various problems that can also be considered related to the lack of mechanized stock accounting system training of the respondents and/or other personnel who interact with, or are part of the system. These problems were mentioned by the officers in connection with their responses to questions concerned with possible problem areas such as management, warehousing, personnel, and customers.

Management. All respondents (16) reported management problems; these included coordination of the mechanized stock accounting system (8), coping with special data requirements and reports (9), and handling of heavy workload (8). All respondents reported that they experienced management problems in one or more of these categories.

This does not assure that the three categories of management problems indicated were mutually exclusive. Actually, problems of coping with special data requirements and problems connected with a heavy workload can also be classified under coordination problems as they are generated by these two conditions.

Coordination problems included: keeping system operations synchronized and moving; organizing personnel and tasks; poor coordination between the stock accounting and storage activities; and organization and coordination of document flow.

Special data requirements that took time away from normal operations included: printouts of zero balance items; lists of balance on hand for specific items; running specially written programs to abstract certain types of information from the ledgers.

Workload problems were mentioned by respondents who also indicated that they had difficulty organizing the effort of the system under these conditions. The real problems seem to be a joint function of the level of training of the managers, and the account of work imposed on the system.

A battalion executive officer, who mentioned coordination and special requirements as problems, also said he had difficulty evaluating the NCR 500 system (there was a newsletter published by the DSU/GSU Field Team, Vietnam and a handbook published by an aviation group that concerned evaluation of this computer system that should have been available to this officer).

The respondents needed training in (1) managing the system workflow (although these personnel became involved in this management aspect in varying degrees); (b) evaluation of the mechanized stock accounting system operations; and (c) knowing enough about the system to explain the capabilities and limitations to superiors who make requests (or requirements) for data that the system could not provide or could provide only with considerable difficulty and at the expense of normal operations.

Training needs of supervisors, with respect to the understanding of the capacities and limitations of the NCR 500 system, were indicated by the frequency and type of requirements for special reports or data, although it is obvious that many of

these requests did not stem from lack of knowledge about the system on the part of the supervisors, but rather from necessity. There is some tendency for personnel, who do not understand that the NCR 500 is really a bookkeeping machine rather than a computer, to believe that the system can provide much more information with much greater ease than is actually possible.

Warehousing. Twelve of the 16 respondents mentioned warehousing problems that included receiving of stock (2), location of stock (9), stock balance (2), and issuing (1). (Nine of the 13 DSUs were represented by the respondents who mentioned warehousing problems.)

Difficulties with receiving of stock included incorrect handling of documents accompanying received material, and the lack of recording of the location of newly received repair parts.

Stock location problems are those of mislocation of stock, multiple stock location, incorrect stock location files, and location of stock not recorded. A battalion commander said that a complete inventory had revealed that some of the stock in his warehouse had been on hand for 18 to 30 months. A company commander said that his biggest problem was in the warehouse, not the NCR 500. Stock balance shortcomings are basically the lack of agreement of the stock accounting records or ledgers with the actual stock on hand. Inaccurate location of stock is also a contributor to this problem.

Issuing problems were those of issuing the wrong quantity of repair parts.

Lack of organization is the basic problem in warehouse operation mentioned by most of the officers. This situation results from three interrelated problem areas:

(1) Lack of training in the repair parts supply system, the mechanized stock accounting system, and storage operations.

(2) Lack of proper assignment of personnel to the warehouse. There appears to be a prevalent notion among those who assign personnel to warehouse duty positions that these jobs require only a strong back. This is not so. Warehousemen have to be accurate in locating materiel and keeping records. These duty positions require alert, conscientious personnel, and should not be filled with personnel who are disciplinary problems. A training need for managers exists as well. Assignment of untrained personnel or personnel with behavior problems to warehouse duty positions indicates that those who assign the personnel do not understand the place of the storage activity in the logistics system.

(3) Lack of motivation. Considering that warehouse jobs are regarded as low status duty positions, and jobs that anyone can do, it is not surprising that motivation problems occur.

All of these problems interact, so system discipline suffers and logistics system efficiency is adversely affected.

DSU Personnel. All respondents (16) reported problems with DSU Personnel. Fifteen complained of the lack of training of DSU managers (technical supply officers, NCOs). Every respondent mentioned problems reflecting the need for additional training and experience for their subordinate personnel, including: lack of supply trained personnel (6); lack of storage trained personnel (4); personal turnover (4); motivation or initiative of personnel (8). The only respondent who did not mention the lack of training of the NCR 500 managers did indicate that motivation of personnel was a problem.

Technical supply officers and the NCO supervisors of this technical supply operation need further training. The need for more training was also indicated for nonsupervisory personnel in both stock accounting and storage.

There is also a need for better motivation, either throughout the DSU or with respect to personnel in some of the duty positions.

Customers. Twelve of the 16 respondents mentioned having problems with customers including: prepunched requisitions not used (4);[1] PLL's not furnished or updated (4);[2] and status not understood (5);[3] abuse of priorities (2); lack of agreement between customer and DSU records (2); lost documents (2); other problems (2).

The problems reported by the respondents indicated that supply system procedures were not being followed by a fairly substantial proportion of the DSU customers. The fact that about a third of the officers said that customers had difficulty understanding status indicates that there is a need for better customer training with respect to PLL procedures.

In some of the cases where customers did not use prepunched requisitions, it was evident that they did not have them, because (a) they had used their supply, (b) the requisitions had been lost in transit from the DSU to the unit, or (c) the DSU had not furnished the customer with prepunched requisitions.

Staffing. The 16 respondents were asked about the staffing of the mechanized stock accounting activity and the corresponding storage activity. Exploratory study data had indicated that staffing, particularly of the mechanized stock accounting system, was considered a problem.

Most of the 15 respondents (one interview terminated before staffing information could be obtained) felt that the mechanized stock accounting system in their DSU was adequately staffed. Eight indicated staffing to be adequate without reservations. Four more said staffing was adequate with certain considerations. For example, one respondent said that the correct number of personnel were assigned to his mechanized stock accounting system, but there weren't enough trained personnel on hand. Another said that his system had no trained personnel assigned but did have some NCR 500 trained enlisted personnel on loan from another DSU. Another officer pointed out that the required number of stock accounting personnel were assigned but that there was no NCR maintenance man attached to the unit.

Most of the 14 respondents[4] tended to feel that the storage activity, like the stock control operations, was adequately staffed, although six respondents felt the staffing was adequate with the provision that the military complements were supplemented by American civilians in one case, and by local national civilians in five cases. One officer said that his warehouse was staffed in terms of the TO&E but understaffed with regard to the amount of work to be done. Two said they simply needed more personnel.

The need of training for their subordinate personnel reported by these respondents indicated that the respondents feel that their DSUs were not adequately staffed with trained personnel, particularly supervisors.

[1] Each customer (or unit such as a company or battalion) supported by a mechanized DSU is furnished prepunched-preprinted requisition forms (in the form of punched cards) for all repair part items on the unit's PLL. The customer only adds three items of information to the card in requisitioning a part.

[2] Supported units are required to furnish their supporting DSU with a copy of their PLL and to keep the PLL updated with their DSU as changes occur.

[3] Status cards are furnished customers when requisitions cannot be filled or can only be filled in part. The card indicates, by a letter and number code, the status of the requisition, e.g., whether the parts have been back-ordered, or the requisition has been sent to a higher supply source, such as a depot.

[4] Two interviews in the group of 16 terminated before staffing information could be obtained.

ATTITUDES TOWARD THE MECHANIZED STOCK ACCOUNTING SYSTEM

The Exploratory Study information had indicated differences in the attitudes of certain classes of personnel concerned with the NCR 500. In the case of some categories of managers, particularly in the field grade officers and warrant officers, there was indication that the attitudes were somewhat negative. Attitudes of this sort might have implications to the kind of support an NCR 500 system might get. The Exploratory Study data also indicated that the attitudes of company grade officers might be somewhat more favorable to the NCR 500 than those of field grade officers. The attitude data were thus categorized by field grade and company grade officers. Of the 16 manager-type respondents, there were nine field grade, one was a warrant officer, and seven were company grade.

Efficiency. The three field grade and two company grade officers who said that the NCR 500 system was efficient gave speed, accuracy and the ability of the system to handle large workloads as their reasons.

Negative comments made about the NCR 500 system emphasized such factors as slowness, lack of flexibility, and perpetuation of error. Most of the respondents had both positive and negative comments to make about the system, most of which amounted to: "It's an efficient system if used properly."

Comparison of the Mechanized With the Manual System. Six field grade and six company grade officers said the mechanized system was more efficient than the manual system. The 12 respondents (four made no comment) said, essentially, that compared to the manual system, the mechanized system was faster, more accurate, required fewer personnel, and could handle a heavier workload.

One officer, a battalion commander, who previously had said that the mechanized stock accounting system was generally inefficient, also said that it was less efficient than the manual system. The officer had received a special orientation at a CONUS school on the NCR 500, and his complaint was about information that he wanted and could not easily obtain from the mechanized system.

Manual System Advantages. Six respondents felt that the manual system had certain advantages over the mechanized stock accounting system. They commented that data are more accessible, there is no equipment to break down, and errors are not perpetuated as they are in the mechanized system.

Mechanized System Publications. Of eight respondents (five made no comment; three interviews were curtailed) four felt that the publications were easy to use, one that they were not easy, and three that there were both easy and difficult features.

Four publications that concern procedures, maintenance, and the management of the mechanized stock accounting system for system operators and managers have been published by the U.S. Army Computer Systems Command. Most of the comments about ease of use of those manuals pointed out that they were very clear and specific.

Negative comments emphasized the desire for different organization of some of the manuals, more on management, and so forth. Three of the four respondents who made negative comments about the mechanized stock accounting system manuals also reported that they were easy to use. The fourth officer who made critical comments about the publications said he had had prior experience with computer systems as well as several courses in data processing and computers. He was rather critical of the entire mechanized stock accounting system, but did say it was more efficient than the manual system.

Not one of the three officers who said that the mechanized system was slow or inefficient made any comment about the mechanized stock accounting system publications. Four respondents reported that the publications for their mechanized units were up to date.

Comment. The number of respondents was small (16), and the degree to which this group of officers was representative of the population of battalion management personnel is unknown. Nevertheless, these data indicate that the attitudes toward the mechanized stock accounting system of field grade officers does not differ essentially from those of company grade officers.

There are two types of evidence from these data that indicate that more mechanized stock accounting system training would be worthwhile for officers in the duty positions represented by this group of respondents. First, several of the suggested comments about the system, including the equipment, indicate that the officers who made them did not understand the system or its purpose. These comments also indicated a desire for a more sophisticated computer system with greater capability for producing various kinds of supply management data. Desire for a more sophisticated computer system does not necessarily imply lack of knowledge about the NCR 500 system, of course.

Second, some of the respondents indicated that there were other officers in supply management duty positions who avoided the NCR 500 and its output because they did not understand it.

USE OF INSPECTION CHECKLIST

One of the problems expressed by personnel interviewed in the Exploratory Study was the lack of management indicators that could be used to determine whether the mechanized stock accounting system was functioning properly.

This problem has been known by the U.S. Army Computer System Command for some time. Accordingly the USACSC developed an inspection checklist that has been incorporated in newsletters and was available for use by mechanized stock accounting system managers for several months prior to the time interviews for this research took place. The DSU/GSU Field Teams have published this checklist and have encouraged its use at the DSU level as a management tool. The respondents were asked if they used this checklist; only three of the 16 said they did, while 10 said they did not. One of the 10, a battalion maintenance officer, said that he had used the CSC inspection checklist in his previous job but not in his present one. Two respondents reported they had not heard of the checklist, while another knew about the CSC checklist but used one of his own. Three did not comment on the list.

When asked about their inspection of the mechanized stock accounting system, five of the 11 respondents[1] said they only inspected one aspect of the system. Six officers reported inspecting more than one aspect such as program schedules and ledgers. The most frequent inspection of the system had to do with cleanliness and neatness. While it does not require much knowledge of the mechanized stock accounting system to make this inspection, it is a rapid technique for a busy and/or untrained manager.

CONTACT WITH THE COMPUTER SYSTEMS COMMAND DSU/GSU FIELD TEAMS

All 16 respondents reported they had had contact with the DSU/GSU field teams prior to the time of the author's visit.

The mission of the Computer Systems Command includes the provision of assistance to major Army commands in installations, operation, and maintenance of multicommand

[1] Of the group of 16, five did not report.

ADP systems. The CSC DSU/GSU Field Teams participate in the performance of this function. Their assistance, by its very nature, is a training vehicle, functioning concomitantly with the other aspects of the field team mission. This assistance turns out to be repair parts supply system training as well as computer system training because of the integrated nature of the two systems in the mechanized stock accounting system operation. The CSC DSU/GSU Field Team assistance is, therefore, considered as training for the purpose of this report.

All of the 16 respondents reported that the CSC DSU/GSU field teams had provided some kind of assistance including inspection and/or evaluation (12); maintenance (7); system procedures (9); training (1) and conversion (manual to NCR 500 system) (3). Eleven respondents said that they had received two or more kinds of assistance.

Thirteen of the respondents said that they were satisfied with the assistance their NCR 500 systems were getting from the DSU/GSU Field Teams and that these teams were providing valuable assistance and should remain on the job.

Comment. A high proportion of the respondents felt that the DSU/GSU Field Teams were providing a very valuable service. It is evident that the main value of this service was in the form of assistance with the management of the mechanized stock accounting systems and that the field teams provided this assistance in the surrogate sense for the first-line managers and/or provided management assistance to the technical supply officers and the NCO supervisors.

The fact that a high proportion of these respondents felt the teams provided a valuable service is another indication that more mechanized stock accounting system training is in order for both the respondents and their subordinates.

Chapter 3

TECHNICAL SUPPLY OFFICERS

JOB DESCRIPTION

The Technical Supply Officer (TSO) is normally in command of the supply platoon in the main support company of a maintenance battalion not attached to a division, or of the supply platoon of the headquarters and main support company of a maintenance battalion attached to a division.

The supply platoon is the DSU and includes both the storage activity or warehouse, and the stock accounting activity that keeps account of the repair parts that are received, stored, and issued by the storage activity. Thus, the TSO is required to be knowledgeable about stock accounting procedures as well as those procedures and techniques that are germane to the storage activity. At DSUs that have an NCR 500 system, the TSO is also required to be knowledgeable about that system's procedures and equipment. The Technical Supply Officer has an important job. Maintenance depends on the availability of repair parts which in turn depends on a smooth flow of these parts in and out of support activities.

The Technical Supply Officer is usually a lieutenant serving in one of his first duty positions, and is frequently an ordnance officer, though TSOs with other branch affiliations are common.

Ten technical supply officers, all from different DSUs, were interviewed. The Officer-in-Charge of a Supply Point was interviewed using the same set of questions that were used for TSOs, as his job appeared to be more like that of a TSO than any other duty position in the survey. One Technical Supply Officer was attached to a general support unit, the nine remaining TSOs were attached to direct support units.

Not all of the technical supply officers interviewed had equal supervisory responsibility or involvement with the supervision of the NCR 500 system in their direct support activity. In one case the supervision of the mechanized stock accounting system was primarily carried out by a battalion staff officer (the battalion technical supply officer), the TSO centering his activities on the storage operation. In two other cases, the actual supervision was rather obviously effected by a knowledgeable NCO in the Stock Control Supervisor's duty position. Another TSO, experienced as a TSO of another DSU having an NCR 500 and having only a month of Army service remaining, was temporarily assigned as a replacement for a TSO who had been injured.

Table 4 lists technical supply officers by DSU, rank, duty MOS, primary and secondary MOS (where available), and relationship between duty MOS and primary or secondary MOS.

Assignment of Personnel. One respondent said his primary MOS and duty MOS were identical, while another said his secondary and duty MOSs were identical; five reported their primary MOS and duty MOS were related, while one said his secondary and duty MOS were related; two reported no relationship between primary MOS and duty MOS. (One respondent's MOS relationships were not ascertained.)

The relationship between duty and primary or secondary MOS for the Technical Supply Officer does not seem to be quite as close as that found in the case of the battalion management personnel. Half of the battalion managers were in duty positions

Table 4

Technical Supply Officers: Relationship Between Duty, Primary, Secondary MOSs

DSU	Rank	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
CHARLEY	1LT	2162 (Operations & Training Staff Officer - G3, S3)	0215 (Basic Signal Officer)	--	Not related
DELTA	1LT	4219[a]	4200 (Supply & Service Officer)	4219[a]	Not ascertained
ECHO	1LT	4200 (Supply & Service Officer)	4815 (Mechanical Maintenance Officer)	--	Related to Primary
FOXTROT	1LT	4201 (Supply Management Officer)	1723 (Nuclear Weapons Officer)	4815 (Mechanical Maintenance Officer)	Related to Secondary
GOLF	CAPT	4823 (Aircraft Maintenance Officer)	1980 (Fixed Wing Aviator)	--	Not related
HOTEL	1LT	4200 (Supply & Service Officer)	4201 (Supply Management Officer)	--	Related to Primary
INDIA	CW2	761A (Unit Supply Technician)	286A (Communications-Electronics Repair Technician)	--	Related to Primary
JULIET	CAPT	4802 (Ord. Guided Missile Officer	4516 (Missile Maintenance Officer)	--	Related to Primary
KILO	1LT	4201 (Supply Management Officer)	4201	--	Identical to Primary
LIMA	1LT	4200 (Supply & Service Officer)	4815 (Mechanical Maintenance Officer)	--	Related to Primary
MIKE	1LT	4000 (General Supply Officer)	2136 (Nontactical Unit Officer)	4000	Identical to Secondary

[a]Not a valid MOS number; respondent may have meant 4419, Quartermaster Supply Officer, now converted to 4200 or 4201.

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having an MOS that was identical to either their primary or secondary MOS. In the case of the TSOs less than a fifth did. This difference could be due to the fact that the TSO duty position covers a narrower, more specific set of activities than the higher level battalion management jobs.

Job Turnover. The amount of time in the duty position held by the respondent at the time of interview was used as an indication of job turnover for the technical supply officers.

Number of months respondents reported having been on the job in Vietnam ranged from one to 12; Thailand one to five; Korea three to six; the one respondent in Okinawa had been on the job 10 months. The average was 4.9 months.

The number of respondents was too small to compare meaningfully the number of months on the job by location. These data, though of unknown representativeness, do agree with statements made by personnel in the exploratory study who said that officers remained in the TSO duty position for comparatively short periods of time.

Considering the training and experience that the TSO usually brings to his job, together with his short job tenure, it appears that this important duty position is almost continuously filled by an underqualified officer.

MECHANIZED STOCK ACCOUNTING SYSTEM TRAINING

FORMAL, INFORMAL, AND COMBINED TRAINING

One officer reported two sources of training: (1) the Supply Management Officer Course at the U.S. Army Quartermaster School; and (2) instruction by the DSU/GSU Field Team, Vietnam, in the Supervisor's Course. The remaining respondents who reported formal training indicated only one source: U.S. Army Ordnance Center and School, OCS (3); DSU/GSU Field Team, Vietnam, Supervisors Course (2); conversion briefings (2). Three TSOs said they had not had formal training on the mechanized system, and one of them said he had never even heard of the NCR 500 before he reported to his unit.

Most of the training reported by the TSOs was little more than a few hours orientation. The conversion briefings and classes also amounted to just a few hours. The two-day Supervisor's Course given by the DSU/GSU Field Team, Vietnam, comprised the most extensive training received by the TSOs.

All of the 11 respondents reported that they had studied manuals and other documents.[1] Nine said that they had received some information from personnel who were operating the NCR 500 system. Two officers did not report demonstrations as a source of training, but it is probable that they did obtain some NCR 500 information this way. All 11 respondents reported having used mechanized stock accounting system manuals,[2] SOPs, and briefing materials, and six reported using newsletters.

[1] These data only refer to statements by the respondents that they studied the mechanized stock accounting system manuals with the intent of learning about the system. The manuals were also used as aids for job performance, though there is no doubt that both ends were simultaneously served by such study. The major point is that the respondents felt it necessary to increase their knowledge in this way.

[2] The current versions of the materials used at that time are the following: *Logistics Management Mechanized Stock Control and Supply Accounting System (Magnetic Ledger) Stock Control and Supply Accounting System (Magnetic Ledger) Operator's Manual* (ST 38-10-711-2, 1 Nov 68); *Logistical Management Mechanized Stock Accounting Records System (Magnetic Ledger) and Procedures for Conversion of Manual Records* (ST 38-10-711-3, 15 Feb 72); all, Computer Systems Command, Fort Belvoir, Virginia.

Despite the rather obvious management and training value inherent in the CSC Inspection Checklist, only four of the 11 TSOs reported that they had used it as an inspection aid.

The important point is that all of the respondents reported feeling the necessity to initiate some training for themselves. This does not seem surprising in view of the complexity of the mechanized stock accounting system and the brief orientation to this system that the officers had. The informal training in this case does not appear to be just the usual learning-on-the-job that people achieve through normal job activities; rather it can be considered as self-initiated learning by people who obviously feel inadequate in their duty positions.

No respondents reported having formal training only, while three reported having informal training only. Eight respondents reported having had both formal and informal training.

Of the 11 respondents, nine expressed a need for further training in the mechanized system. More information about the fundamentals of the system—its operations, limitations, and capabilities was a need expressed by nine officers; operation and function of the equipment and the computer programs (7), and management of the system (8).

Two officers did not express training needs. Both had attended the DSU/GSU Field Team Supervisor's Course. One of these respondents had also completed the Supply Management Officer's Course at the U.S. Army Quartermaster School and had served as an assistant TSO at another DSU having an NCR 500 system. The other TSO was rather new in his job and may not have had an appreciation of his training requirements, although he appeared to have a reasonably good grasp of the various aspects of his job.

MECHANIZED SYSTEM EXPERIENCE

Three of the 11 respondents reported experience with the NCR 500 system prior to their assignment at the time of interview. Two of these officers had been technical supply officers for a few months at other DSUs having the NCR 500. The other had been an assistant technical supply officer at another DSU for four months.

The two respondents who had previously been technical supply officers indicated the need for more training on the NCR 500 system. One said he wanted to know more about the fundamentals of the system, the operation and function of the programs and the equipment, and management of the system. The other indicated a need for more knowledge about the operation and functions of the equipment and the programs, and system management.

The officer who had formerly been an assistant TSO did not indicate the need for more training, apparently feeling that his training and experience had given him the required expertise. It should be noted that his company commander had formerly given instruction on the mechanized stock accounting system at the U.S. Army Ordnance Center and School.

Comment. The same types of evidence that indicated that the battalion management personnel needed more training on the mechanized stock accounting system indicated the need for additional training for the technical supply officers as well.

The respondents indicated the general direction of what they considered to be their training needs. First, all of the TSOs who expressed the need for additional training indicated the need to know more about the fundamentals of the system, the components of the system, and relationship between the components. As in the case of the battalion management personnel, the implication was rather clear that this training was needed in order to help the TSOs manage the system more effectively. These officers laid heavier stress on their training needs with respect to the operation and function of the NCR 500

system equipment and programs, and on management training needs, than the battalion managers. This is understandable as the TSO is a first-line manager.

Unlike the battalion managers, the TSOs did not specifically mention the need for repair parts supply training and information to be integrated in the mechanized stock accounting system training. The need for this training integration, while not overtly stated, was implied in some of the comments made by the respondents about their mechanized system training needs and management problems. The interview data do not clearly establish a training need of this nature, however. It is possible that the battalion managers, with somewhat more repair parts supply experience, held a wider perspective of training requirements than the TSOs who were less experienced.

TRAINING IN REPAIR PARTS SUPPLY

Ten of the 11 respondents reported having had formal training in repair parts supply as follows: U.S. Army Quartermaster School—OCS (1), Supply Management Officer Course (2); U.S. Army Ordnance Center and School—OCS (3), Basic Course (2), Mechanical Maintenance Officer Course (1); U.S. Army Transportation School—Basic Course (1), Aircraft Maintenance Officer Course (1); U.S. Army Signal School—Basic Course (1); U.S. Army Munitions Center and School—Missile Maintenance Officer Course (1); enlisted courses (schools not ascertained) (1); field training (1).

With the exception of the Quartermaster School courses, the repair parts supply training received by the respondents was usually a part of other courses and involved only a few hours.

All of the respondents reported some formal training in repair parts supply except the Warrant Officer whose training was primarily in communications and electronics.

Repair Parts Supply Experience. Six of the 11 officers reported repair parts supply experience in jobs held prior to their duty position at the time of interview. Three of these officers had been technical supply officers or assistant technical supply officers of other DSUs having NCR 500 units. Three other respondents reported prior repair parts supply experience. One was a former enlisted man with maintenance experience but no supply experience. One had worked in a depot warehouse for four months. The third had been in a technical supply duty position in a forward supply company for a few months.

The TSOs description of their training in repair parts supply indicates that additional training is necessary for incumbents of these jobs. The fact that 10 of the 11 respondents received formal training in repair parts supply is deceptive. With the exception of two TSOs who had completed the Supply Management Officers Course at the U.S. Army Quartermaster School, the formal supply training reported by the other eight TSOs evidently consisted of only a few hours included as part of other courses.

As in the case of the battalion management personnel, it is evident that most of the supply knowledge gained by the TSOs was obtained unsystematically on the job as certain requirements arose.

PROBLEMS IN MECHANIZED STOCK ACCOUNTING

The problems indicated by the respondents could be considered as being related to the lack of NCR 500 training. The problems have been categorized under the following headings: management, warehousing, training, experience of subordinate personnel, and customers.

Management. Ten of the 11 respondents reported having management problems. All 10 reported problems with coordination of the mechanized system, six said they had

difficulty coping with special data requirements and reports, and six reported problems with a heavy workload.

The only officer who did not express management problems was comparatively new at his job as Officer in Charge of a Supply Point and had had no formal training on the NCR 500 system.

Coordination problems reported had to do with keeping system operations synchronized and moving; organizing personnel and tasks; poor coordination between stock accounting and storage activities; and organization and coordination of the flow of documents.

The special data requirements or reports that took up time usually concerned with regular operations were the same type that management personnel had indicated: printouts of zero balance items; lists of balance on hand for specific items, and so forth.

Many of these management problems appeared to be the result of an interaction between two major factors: (a) the lack of training of the personnel involved in the functions and operation of the NCR 500 systems; (b) workload requirements that were in fact demanding.

The management problems indicated by the TSOs were essentially the same as those experienced by the battalion management personnel. The problems indicated previously centered about management of the system workflow, sometimes under heavy workload conditions.

Management problem data indicate the need for additional training at three levels: the TSOs' superiors in the battalion and management levels above its maintenance battalion; the TSOs themselves; and the TSOs' subordinate personnel.

Training needs for superiors (and technical supply officers as well) were indicated by the fact that about half of the TSOs felt that personnel at higher management levels imposed many special requirements for data on the NCR 500 system that they would not require if they understood the capacities, limitations, and content of the mechanized stock accounting system.

Training needs for the TSOs were indicated by the fact that 10 of 11 respondents said that they had problems coordinating various functions and operations of the system.

Training needs for subordinates were indicated by the difficulties mentioned by the TSOs in coordinating the mechanized stock accounting system.

Warehousing. Eight of the 11 respondents reported warehousing problems: location of stock (6); stock balance (4); and issuing (1). Three TSOs gave the same two problems: location of stock, and stock balance. Five officers each noted one warehousing problem.

Three respondents did not mention warehousing problems. One of them was in charge of a well-operated, well-staffed warehouse that had been established for some time, and was engaged in missile support in a non-combat zone. Another had a warehouse that was operated by an American civilian contractor. The third TSO did not appear to be closely involved with the supervision of the warehouse.

The same stock location problems were mentioned by the technical supply officers that were noted by the management personnel: stock mislocated, multiple stock locations, stock location not recorded, and incorrect stock locator files. Stock balance problems were essentially the lack of agreement between the stock accounting records and the actual stock on hand.

The same basic warehousing problem—lack of organization—mentioned by the battalion managers was also indicated by the TSOs. Also, as in the case of the higher level managers, about three-fourths of the TSOs pointed out these difficulties.

Judging from the TSO response data, the same interacting factors underline this disorganized warehouse condition: lack of training, inappropriate assignment, and low motivation.

Essentially the problem with personnel turnover was expressed as the loss of key supervisors who had been on the job for several months and were performing satisfactorily.

Motivation or initiative of personnel was only mentioned by two of the 11 TSOs whereas half of the 16 management personnel mentioned this as a problem. This seems somewhat odd since the TSO is presumably closer to the DSU personnel than the battalion staff officers. On the other hand, the TSOs, being comparatively new in the Army for the most part, may not have had the same sensitivity to initiative in an Army setting as the more senior officers.

DSU Personnel. Ten of the 11 respondents reported problems with DSU personnel including: lack of NCR 500 system training of the DSU NCO managers—platoon sergeants (NCOIC) (7); storage activity supervisor (6); stock account supervisor (1); lack of personnel trained in supply (6); lack of personnel trained in storage (6); personnel turnover (4); motivation or initiative of personnel (2).

The TSO interview data indicated that further training in the mechanized stock accounting system and/or repair parts supply is needed by supervisory and non-supervisory personnel in the DSU. Although there were exceptions, the stock accounting supervisory and non-supervisory personnel did not appear to present a serious training problem as far as the TSOs were concerned. Most of these personnel had received formal mechanized stock accounting system training and/or had work experience in their jobs.

Customers. Ten of the 11 respondents mentioned having problems with customers that included: prepunched requisitions not used (4); PLLs not provided or updated (5); status not understood (4); prepunched requisitions received in damaged state (3); incorrect requisitions (1); abuse of priorities (2); lack of agreement between customer records and DSU records (2); PLL clerk not trained (3); lost documents (2); customer complaints: requisitions not filled (3); other problems (2).

The one TSO who did not mention difficulties with customers was serving in a general support unit whose customers were DSUs.

The technical supply officers mentioned the same type of problems with customers as did the battalion management personnel. The types of problems most frequently mentioned were also the same. Because the TSOs have more contact with customers than the battalion management personnel, they encountered problems more frequently.

Other less frequently mentioned difficulties with customers were communication with customers, and failure of customers to carry out reconciliations.

Problems with customers reported by the TSOs were essentially the same as those reported by the battalion management personnel. The data indicated that a considerable number of customers were not following supply system procedures as closely as supply system discipline and efficiency would dictate.

This situation can be ascribed to the need for the training of customers in PLL procedures and possibly to the lack of willingness to follow supply procedures as well.

Staffing. Eight of the 11 technical supply officers felt that their NCR 500 systems were adequately staffed although two of them said that the staffing was adequate given the augmentation of local national personnel. (The author noticed that all of the 13 support units visited employed local national personnel in the stock accounting function.)

Three TSOs said that their mechanized stock accounting systems were understaffed with respect to certain conditions: lack of well-trained supervisors, lack of trained personnel, and the fact that specialists instead of NCOs were in supervisory positions. One DSU had no personnel trained on the mechanized stock accounting system at the Quartermaster School, although the required number of personnel were attached to the unit. This was the only DSU that did not have personnel assigned that had been trained

on the mechanized stock accounting system at the QMS or elsewhere. The other 12 DSUs had trained personnel.

Of the eight technical supply officers who felt that the storage activity was adequately staffed, five specified that the warehouse was adequately staffed if the augmentation by local national personnel was considered. Two officers said that the storage activity in their DSUs was understaffed because of a heavy workload and/or because of many extra duties, such as guard and KP, that are required of the warehouse personnel.

For the TSOs, staffing in terms of the required number of personnel in either the stock accounting or the storage activities did not present a problem. Other interview data indicate that the TSOs did feel that they were understaffed with adequately trained subordinate personnel, particularly in the storage activities, and at the platoon sergeant level with respect to the NCR 500 primarily.

ATTITUDES TOWARD MECHANIZED STOCK ACCOUNTING SYSTEM

Two respondents, out of nine making comments, said that the mechanized system was efficient, and they indicated speed, accuracy, and the ability of the system to handle large workloads as their reasons. One TSO indicated that the system was inefficient since it could not handle a large workload. In his case the workload was temporarily abnormally heavy as his DSU was taking over a warehouse full of equipment that had been operated by a civilian contractor.

Six TSOs said the system has both efficient and inefficient features. Comments that were critical of the NCR 500 system noted that it required a considerable number of manual operations and that system functions tended to come to a halt when the equipment was inoperable.

Comparison of the Mechanized and Manual Systems. Nine technical supply officers said that the mechanized system was more efficient than the manual system. These respondents had previously said: the mechanized system was generally efficient (1); the mechanized system was generally inefficient (1); the mechanized system had both efficient and inefficient features (5); and made no comment about the general efficiency of the mechanized system (2).

Two TSOs did not make the comparison between the mechanized and the manual systems, reporting that they were not familiar enough with the manual system to make a comparison.

The technical supply officers who felt that the mechanized system was more efficient than the manual gave as their reasons that it was faster, more accurate, required fewer personnel, and could handle a heavier workload.

Only three technical supply officers said that the manual system had certain advantages over the NCR 500 system. One said that the data were more accessible under the manual system and that there was no equipment to break down. The other two TSOs felt that work backlog was easier to handle with the manual system. However, all three officers said that the NCR 500 was more efficient than the manual system.

Comments on Mechanized System Publications. Five of nine respondents (two had no comment) thought the mechanized stock accounting system publications were easy to use; one felt they were not easy; three felt they had both easy and difficult features.

Most of the comments by the TSOs concerning ease of use of mechanized stock accounting system publications emphasized that these documents had the characteristics of being easy to follow and explicit, and having information that is easy to find. The critical comments concerned the manner in which the publications were organized.

The attitudes expressed by the TSOs indicate that they feel the mechanized stock accounting system is generaliy efficient, and that it is more efficient than the manual system.

The TSOs expressed the same attitudes about the system as the battalion management personnel and in roughly the same proportion.

Most of the technical supply officers appeared to feel somewhat positively about the mechanized stock accounting system publications, indicating that these publications were comparatively easy to use.

Career Intentions. Eight of the 11 respondents said that they were not going to remain in the Army after completion of their current tour of obligated service. Two said that they had not decided whether they would remain in the Army or not, while only one said that he was going to remain in.

CONTACT WITH THE COMPUTER SYSTEMS COMMAND DSU/GSU FIELD TEAMS

All 11 officers reported that they had had contact with the DSU/GSU Field teams prior to the time of the author's visit. The type of assistance received included: inspection and evaluation (9); maintenance (8); system procedures (7); training (2); conversion (manual to NCR 500 system) (3).

All of the technical supply officers said that the CSC DSU/GSU Field Teams had provided two or more of the categories of assistance listed above. One TSO reported assistance in five categories, another gave four, and two other respondents mentioned three kinds of assistance.

Ten of the officers reported that they were satisfied with the assistance their NCR 500 system had received from the DSU/GSU Field Team and that the teams were providing valuable help. One TSO indicated that he was dissatisfied with the help his NCR system had received in the process of converting from the manual system to the NCR 500.

As in the case of battalion management personnel, it is apparent that DSU/GSU Field Team assistance is considered valuable by the TSOs because help provided is in the form of assistance with the management of the mechanized stock accounting system.

This attitude is a further indication that more TSO training in the management of the mechanized system is needed.

Chapter 4

PLATOON SERGEANT
(Noncommissioned Officer in Charge)

JOB DESCRIPTION

The Platoon Sergeant, also known as the Noncommissioned Officer in Charge (NCOIC), is typically the highest ranking NCO in the supply platoon. He is the main assistant of the Technical Supply Officer, and handles the supervision and administration of the platoon in the absence of the TSO. The platoon sergeant usually has a grade of E-7, being an NCO rather than a specialist.

The nature of the platoon sergeant's job requires that he be knowledgeable about stock accounting and storage procedures and operations. Where the stock accounting function is carried out by means of the NCR 500, the platoon sergeant must also be knowledgeable about this system. The mechanized stock accounting system knowledge requirements for the platoon sergeant are approximately the same as those for the Technical Supply Officer.

GROUP COMPOSITION

Six platoon sergeants were interviewed. One said he was an assistant platoon sergeant, but it was evident from the job description he gave that he performed all of the duties of the platoon sergeant. Another respondent was rather difficult to classify because of the unusual structure of responsibilities in his DSU.

Table 5 lists the six platoon sergeants by DSU, rank, duty MOS, primary and secondary MOS (where available), and relationship between duty MOS and primary or secondary MOS.

Assignment of Personnel. Of the six platoon sergeants interviewed, four reported duty and primary MOSs that were identical, and two gave duty and primary MOS that were related. Two said there was no relationship between their duty and primary MOS. One of these NCOs had the NCR 500 qualification designation (G3) added to his MOS, that is 76P20G3.

It appears that these personnel had been assigned to duty positions that were reasonably consistent with their MOS. When these data were collected, it was unlikely that there were enough personnel in the Army qualified for the platoon sergeant duty position, who were also qualified as a supervisor for the mechanized stock accounting system, available for assignment to DSUs having mechanized systems.

Job Turnover. Job turnover seems to be somewhat different for enlisted personnel than for commissioned officers. Generally, enlisted personnel tend to spend their entire period of assignment in the Far East in the same job, whereas commissioned officers, particularly in Vietnam, tend to change to jobs that are quite different at least once during their Far Eastern assignments.

The months on the job for the six respondents were: 8, 3½, 2, 5, 2, and 11, with an average of 5.3. Since the number of platoon sergeants was small, no breakdown by area is given as it would be almost meaningless.

Table 5

Platoon Sergeants: Relationship Between Duty MOS and Primary or Secondary MOS

DSU	Rank	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
ALPHA	E-5 SGT	76P40 (Stock Control & Accounting Specialist)	76P20G3 (Stock Control & Accounting Specialist - NCR 500 Qualified)	--	Related to Primary
DELTA	E-6 Staff SGT	76P40 (Stock Control & Accounting Specialist)	76P40	76Q40 (Special Purpose Equipment Repair Parts Spec.)	Identical to Primary
ECHO	E-6 Staff SGT	76P40 (Stock Control & Accounting Specialist)	76P40	76V40 (Equipment Storage Specialist)	Identical to Primary
HOTEL	E-6 Staff SGT	76P40 (Stock Control & Accounting Specialist)	76P40	--	Identical to Primary
INDIA	E-7 SFC	76P40 (Stock Control & Accounting Specialist)	76P40	--	Identical to Primary
JULIET	E-5 Sp/5	76R20 (Missile Repair Parts Specialist)	76P20 (Stock Control & Accounting Specialist)	76Q20 (Special Purpose Equipment Repair Parts Specialist)	Related to Primary

As enlisted personnel tend to remain on their jobs for their entire tour in the Far East, the average time on this job for these respondents may be somewhat lower than the average for enlisted men.

MECHANIZED STOCK ACCOUNTING SYSTEM TRAINING

FORMAL, INFORMAL, AND COMBINED TRAINING

Formal mechanized training reported was: U.S. Army Quartermaster School, mechanized stock accounting system training (2); DSU/GSU Field Team, Vietnam, Supervisor's Course (1). Three sergeants reported that they had not received any formal training. None of the three respondents who had formal training reported having more than one kind.

The NCR 500 training received by two of the respondents at the U.S. Army Quartermaster School was the regular three-week and three-day period of instruction given to enlisted personnel assigned to mechanized system training immediately following completion of the Stock Control and Accounting Specialist Course.

Five respondents reported having informal training that included: miscellaneous briefings, orientations, (1); mechanized stock accounting system manuals, SOPs, briefing materials (3); demonstrations, instruction from personnel operating the mechanized system (4). Only one NCOIC reported having no informal training.

The one respondent who did not indicate that he had taken informal training had been through the DSU/GSU Field Team Supervisor's Course and was the respondent whose job position was difficult to classify. He was attached to a DSU having a duty configuration somewhat at variance with that usually found in a mechanized stock accounting system.

Two NCOs reported that they had studied mechanized stock accounting system manuals as well as having learned from personnel operating the system.[1]

An attitude that was implicit in several interviews with management personnel, both officer and enlisted, was that both types of managers appeared to feel that they were unable to supervise as effectively as they would have liked because of their lack of knowledge about the mechanized system, and because their subordinates knew more about the system than they did.

One respondent reported having had formal training only, and one informal training only. Two NCOIC reported having had both informal and formal training.

MECHANIZED SYSTEM NEEDS

Only two of the six respondents said they had need for training on the mechanized stock accounting system.[2] One of these said he wanted to know more about the fundamentals of the system as well as the operation of the equipment. This was the NCO

[1] These data only refer to statements by these respondents that they studied the mechanized stock accounting system manuals with the intent of learning about the system. The use of these manuals as aids for the job performance is covered in a later section, though there is no doubt that both ends were simultaneously served by such study. The major point is that the respondents felt it necessary to increase their knowledge in this way.

[2] All of these NCOs were going to leave the Army at the end of their enlistment. The fact that only two platoon sergeants expressed training needs may have been related to the departure intentions of these NCOs.

who was difficult to classify and whose job position was such that his knowledge requirements of the NCR 500 system were actually less than any of the other platoon sergeants. The other NCO expressed only the need for more training on the fundamentals of the system.

Both respondents who identified training needs had had formal training, one at the U.S. Army Quartermaster School, the other by the DSU/GSU Field Team Supervisor's Course.

Four respondents did not report training needs. All said they had taken informal training on the NCR 500 system. One had completed the mechanized stock accounting course given by the QMS. The other three did not report formal training. All four said they had taken informal training on the mechanized system. Two of these NCOs had been working with the NCR 500 for some time and appeared rather knowledgeable about the system. The other two NCOs appeared to spend most of their time with warehouse operations. One may have been avoiding contact with a system with which he was not familiar. The other apparently spent most of his time with the warehouse operation because his presence there was needed more than it was in the stock control activity.

Mechanized System Experience. Two of the six respondents reported experience with the NCR 500 prior to the duty positions held at the time of interview. One of these, who had been trained on the mechanized stock accounting system at the U.S. Army Quartermaster School, had had experience as an NCR 500 equipment operator and as a stock control supervisor in the same DSU in which he was serving. The other platoon sergeant, who had been trained on the NCR 500 at the U.S. Army Quartermaster School, had spent two years as a member of the DSU/GSU Acceptance Team, a Computer Systems Command unit that tests NCR 500 systems before they are accepted by the Army.

The evidence in these data indicate the need for more of the NCO personnel to receive training on the mechanized stock accounting system.

TRAINING IN REPAIR PARTS SUPPLY

Formal repair parts supply training reported was: U.S. Army Quartermaster School Stock Control and Accounting Course (2), Stock Control Supervisor's Course (1), and General Supply School (1). Two NCOs reported that they did not have any training.

Two platoon sergeants said the only supply training they had was OJT. One respondent felt that supply training courses were not as thorough as they should be.

All of the respondents reported using the supply regulations on their jobs.

Repair Parts Supply Experience. Five respondents reported having had repair parts supply experience including: unit supply (1), repair parts (2), warehouse (4), DSU (1), depot (2), and mechanized supply (other than NCR 500) (2). One reported no previous experience. Two respondents reported having experience in three categories, two in two categories, and one in one category.

Training in repair parts supply does not appear to be a problem of the same magnitude for the platoon sergeant as it was for the two categories of commissioned officers discussed earlier.

Only one of the six platoon sergeants had previous DSU experience. If the ratio of one platoon sergeant with prior DSU experience to five platoon sergeants without prior DSU experience is even remotely representative, training in DSU operations for platoon sergeants may be indicated, providing there is enough difference between DSU operations and other repair parts supply jobs to warrant the special DSU training.

MECHANIZED ACCOUNTING SYSTEM PROBLEMS

Management. Mechanized stock accounting system management problems reported included coordination of the mechanized stock accounting system (3), and coping with special data requirements and reports (3). Two reported no management problems.

Both management problems were cited by two NCOs. Two other NCOs indicated but one type of management problem. The three respondents who reported coordination problems indicated difficulties coordinating the workflow between the NCR 500 system and the warehouse.

The two NCOICs who did not mention management problems had not had formal NCR 500 training, did not indicate the need for such training, and were the two NCOICs who appeared to devote most of their time to warehouse operations.

Three respondents mentioned special data requirements that took them away from normal operations as a problem. The special requirements noted were requirements for demand history, key punching personnel data, and key punching weapon serial numbers.

These management problem data indicate the need for mechanized stock accounting system training at three levels: the maintenance battalion and management levels above the battalion; the platoon sergeants themselves; and personnel subordinate to the platoon sergeants, particularly in the storage activity.

Training needs for higher management levels were indicated by the fact that half of the platoon sergeants noted that requests for special data were a problem.

Training needs for the platoon sergeants and for their subordinates were indicated as half of the NCOs reported difficulties in coordinating the various functions and operations of the system.

Warehousing. Warehousing problems reported included: receiving (1), location of stock (4), stock balance (2), and issuing (1). Two respondents reported that they did not have any warehousing problems.

One respondent said he had problems with receiving, issuing, and stock locations not being known. He indicated that the receiving and issuing difficulties were more a function of personnel shortages than anything else. Two respondents reported a problem with stock location and stock balance. The fourth said his only warehousing problem was stock location.

Two NCOs did not report warehousing problems. One of them was attached to a DSU having a civilian control organization operating the warehouses. The other was attached to a DSU having a well-organized and well-staffed warehouse that was operated by Army personnel.

The same general warehousing problem indicated by the other groups of respondents was likewise suggested by the platoon sergeant interviews, that is, lack of organization. This general problem was indicated by four of the six platoon sergeants. These data, as the other respondent group data, indicate that lack of training, inappropriate assignment, and low motivation are substantial contributions to this condition.

DSU Personnel. All six respondents reported problems with DSU personnel that included: lack of training of mechanized stock accounting system managers (technical supply officer) (1); lack of supply trained personnel (4); lack of storage trained personnel (2); personnel turnover (2); and motivation or initiative of personnel (2).

Repair parts supply appears to be the major area of training deficiency of subordinates as seen by the platoon sergeants.

Training in storage procedures and techniques for storage personnel is also indicated by this data as a problem but perhaps to a somewhat lesser extent than supply.

Customers. Five of the six respondents reported having problems with customers that included: prepunched requisitions not used (3); prepunched requisitions received in

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damaged state (3); incorrect requisitions (2); abuse of priorities (1); PLLs not furnished or updated (1); status not understood (1); and PLL clerk not trained (1).

The one respondent who did not mention having customer problems was an NCO who spent most of his time with the warehouse operation.

As in the case of other groups of respondents, the platoon sergeant data indicate that a considerable number of customer units were not following supply system procedures as closely as supply system discipline and efficiency would prescribe. These problems were mentioned by five of the six NCOs.

The area of difficulties with customers indicated by the platoon sergeants tended to be rather narrow, being concerned for the most part with requisitions. This situation can be attributed to the need for training customers in PLL procedures and conceivably to the lack of willingness to follow supply procedures.

Staffing. Four of the six respondents said that the mechanized stock accounting system in their DSU was adequately staffed.

Two respondents said their systems were understaffed. One felt that two more key punchers were needed. The other said that there was not an NCO to supervise the mechanized stock accounting system.

Only one of the six NCOs thought that the storage activity of his DSU was adequately staffed. Four said that the warehouse was understaffed in their case. One respondent was attached to a warehouse staffed by a civilian contract firm.

Unlike the battalion management personnel and the technical supply officers, the platoon sergeants appeared to feel that their DSUs were understaffed.

ATTITUDES TOWARD THE MECHANIZED STOCK ACCOUNTING SYSTEM

The attitudes of the platoon sergeants followed the same general pattern as the technical supply officers and the battalion management personnel. Most (five of six) of the respondents had both positive and negative comments to make about the mechanized system, although in the case of the platoon sergeants everyone had some criticism of the system. One NCO respondent felt the system was inefficient.

Comparison of Mechanized and Manual Systems. The four respondents who said that the mechanized system was more efficient than the manual system included the NCO who said that the system was generally inefficient. Two NCOs did not make any comparison because they had not had manual experience.

Only one respondent said that the manual system had an advantage over the mechanized, and that was that the manual system could handle a work backlog easier. The platoon sergeant who appeared to be avoiding the mechanized system said that it was more efficient than the manual, but that he preferred the manual system.

Comments on Mechanized System Publications. Three respondents felt the publications were easy to use, and one said they had both easy and difficult-to-use features. Two NCOs did not comment.

The NCO who made the single negative comment about the ease of use of the mechanized system publications said that the codes (status, transaction, etc.) were not explained as well as they should be.

One NCO who said he used the procedures manual (ST 38-10-711-1)[1] and the operator's manual (ST 38-10-711-2)[2] did not comment on the ease of use.

[1] Stock Control and Supply Accounting Procedures, *op. cit.*
[2] Operator's Manual, *op. cit.*

Two of the four respondents who said that the NCR 500 system manuals were easy to use indicated that they used a specific manual.

One of the six NCOs said he had used the CSC inspection checklist. This respondent appeared to be one of the more knowledgeable NCOICs and seemed capable of using this management tool effectively.

Career Intentions. All six platoon sergeants were leaving the Army at the end of their present enlistment or obligated service. Three NCOs were going to retire. The other three were not going to reenlist.

CONTACT WITH THE COMPUTER SYSTEM COMMAND DSU/GSU FIELD TEAMS

Five of the six respondents reported that they had had contact with the DSU/GSU Field Teams prior to the time of the author's visit. The single platoon sergeant who had not had previous contact was one who had indicated that he devoted nearly all of his time to the warehouse, who had had no NCR 500 training, and who did not indicate any need for additional training.

Types of assistance received by the respondent's DSU from the Computer System Command DSU/GSU Field Teams included: inspection and/or evaluation (3), maintenance (1), procedures (3), training (1), and conversion (manual system to NCR 500 system) (2).

Four of the respondents reported that the DSU/GSU Field Teams had provided some type of assistance which they considered to be valuable. Two NCOs mentioned three kinds of aid and two reported assistance in two categories. One NCO had had no contact with the teams.

It is apparent that the platoon sergeants considered the DSU/GSU Field Team assistance valuable because of the help in managing the system which they provided. This attitude is a further indication that additional training in the management of the mechanized stock accounting system was needed for the platoon sergeants.

Chapter 5

STOCK ACCOUNTING NCOs

JOB DESCRIPTION

The respondents that make up this group have duty positions at two levels of noncommissioned (or specialist) supervision of the stock control activity of the supply platoon (or the DSU) of the main support company of a maintenance battalion. The duty positions concerned are usually designated as the Stock Control Supervisor and the Senior Stock Accounting Specialist. The Stock Control Supervisor, in addition to supervising and coordinating the stock control activities, also maintains liaison with the storage activity, the customers, and the higher sources of supply such as the depots.

The Senior Stock Accounting Specialist is at the next lower supervisory level. He has supervisory responsibilities similar to those of the Stock Control Supervisor, but he is less concerned with liaison and more involved with and has closer supervision of the stock control operations in general and of the mechanized stock accounting system operations in particular.

Both of these duty positions obviously require the incumbents to be knowledgeable about the NCR 500 system and its procedures.

GROUP COMPOSITION

Fourteen stock accounting NCOs were interviewed. Eight of them were specialists, five were NCOs, and one was an E-5 who was an acting sergeant.

Not all of the respondents had Stock Control Supervisor or Senior Stock Accounting Specialist titles but their duty positions could be placed in either of these categories. Eight of the supervisors could be classified as Senior Stock Accounting Specialists, and six as Stock Control Supervisors.

Ten of these supervisors were in their first tour of enlistment in the Army, while four had prior Army service. There is a tendency for the Stock Control Supervisor to have prior Army service (4/6) but for the Senior Stock Accounting Specialist to be in his first tour of Army service (8/8).

Table 6 lists the stock accounting NCOs by DSU, rank, duty MOS, primary and secondary MOS (where available), and relationship between duty MOS and primary or secondary MOS.

Assignment of Personnel. Eleven of the 14 respondents had primary MOSs that were identical to their duty position MOS. Of these 11 supervisors, nine had the NCR 500 qualification designation (G3) added to their primary MOS (76P20G3).

One supervisor had a secondary MOS that was identical to his duty MOS, while another had a primary MOS that was related to his duty MOS. One respondent's primary MOS was not related to his duty MOS.

It appears, at least with respect to this group of supervisors, that qualified personnel tend to be assigned to stock control supervisory duty positions.

Job Turnover. In considering the geographical area data, it should be remembered that the number of respondents was very small and the extent to which these data

Table 6

Stock Accounting NCOs: Relationship of Duty MOS to Primary or Secondary MOS

DSU	Rank	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
ALPHA	E-6 Staff Sgt.	76P40 (Stock Control and Accounting Specialist)	76T40 (Aircraft Repair Parts Specialist)	--	Related to Primary
BRAVO	E-5 Sp/5	76P20G3 (Stock Control and Accounting Specialist - NCR 500 Qualified)	76P20G3	76Q20 (Special Purpose Equipment Repair Parts Specialist)	Identical to Primary
CHARLEY	E-6 Staff Sgt.	76P40G3 (Stock Control and Accounting Specialist - NCR 500 Qualified)	76U40 (Communications Electronics Repair Parts Specialist)	76P40G3	Identical to Secondary
DELTA	E-5 Sgt.	76P20G3 (Stock Control and Accounting Specialist - NCR 500 Qualified)	76P20G3	--	Identical to Primary
ECHO	E-5 Sp/5	76P20G3 (Stock Control and Accounting Specialist - NCR 500 Qualified	76P20G3	--	Identical to Primary

(Continued)

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Table 6 *(Continued)*

Stock Accounting NCOs: Relationship of Duty MOS to Primary or Secondary MOS

DSU	Rank	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
FOXTROT	E-4 Sp/4	76P20G3 (Stock Control and Accounting Specialist - NCR 500 Qualified)	76P20G3	--	Identical to Primary
GOLF	E-5 Sp/5	76P20G3 (Stock Control and Accounting Specialist - NCR 500 Qualified)	76P20G3	--	Identical to Primary
GOLF	E-5 Sp/5	76P20G3 (Stock Control and Accounting Specialist - NCR 500 Qualified)	74G20 (Assistant Systems Analyst)	34D20 (ADP Repairman)	Not Related
HOTEL	E-5 Sp/5	76P20G3 (Stock Control and Accounting Specialist - NCR 500 Qualified)	76P20G3	--	Identical to Primary
INDIA	E-4 Sp/4	76P20G3 (Stock Control and Accounting Specialist - NCR 500 Qualified)	76P20G3	--	Indentical to Primary

(Continued)

Table 6 *(Continued)*

Stock Accounting NCOs: Relationship of Duty MOS to Primary or Secondary MOS

DSU	Rank	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
KILO	E-5 Acting Sgt.	76P40G3 (Stock Control and Accounting Specialist - NCR 500 Qualified)	76P20G3	--	Identical to Primary
LIMA	E-4 Sp/4	76P20G3 (Stock Control and Accounting Specialist - NCR 500 Qualified)	76P20G3	--	Identical to Primary
LIMA	E-6 Staff Sgt.	76P40 (Stock Control and Accounting Specialist)	76P40	--	Identical to Primary
MIKE	E-7 SFC	76P40 (Stock Control and Accounting Specialist)	76P40	76Y40 (Unit and Organization Supply Specialist)	Identical to Primary

approximate the real values for these areas is unknown. The number of months on the job in Vietnam ranged from 3 to 22, with an average of 12.2; Thailand 4 to 6, with an average of 3,3; and Korea 3 to 12 with an average of 5.

The overall average number of months on the job was 8.3. This figure is probably high as the time-on-the-job data for Vietnam, where most of these respondents were located, appears to be biased by the presence of five supervisors having 11.5 or more months in their duty positions. Three of these five respondents had extended their service in Vietnam, while the other two were at the end of their tour there.

MECHANIZED STOCK ACCOUNTING SYSTEM TRAINING

FORMAL, INFORMAL, AND COMBINED TRAINING

Nine of the 14 supervisors reported having had formal training that included: U.S. Army Quartermaster School NCR 500 training, [enlisted[1]] (7); DSU/GSU Field Team Vietnam, Operators Course (2); and conversion briefings (1). Five respondents said they had not had any formal training.

Only one respondent reported more than one type of formal training: the NCR 500 system training course at the QMS, and the operator's course given by the DSU/GSU Field Team. He was serving in a Senior Stock Accounting Specialist duty position.

There seems to be some relationship between the level of supervision and whether the respondent had formal training in the QMS enlisted course, or the operator's course given by the DSU/GSU Field Team. Six of the nine respondents who had attended these formal courses were in Senior Stock Accounting Specialist jobs. Two of eight Senior Stock Accounting Specialists reported no formal training.

The personnel with the greatest amount of formal training in the NCR 500 were thus in duty positions having the closest supervision of the NCR 500 system. Other factors were probably involved as well. The system is relatively new and well-trained supervisors tend to be in their first enlistment, not having been in the Army long enough to reach senior supervisory jobs. Furthermore, as will be seen, most of those with formal training leave the Army at the end of their first tour.

Twelve of the 14 respondents reported having had informal training that included: mechanized stock accounting system manuals, SOPs, briefing materials, and so forth (12); demonstrations and instructions from personnel operating the NCR 500 system (6); and miscellaneous briefings and orientation (2). Two respondents said they had not had any informal training.

Of the seven supervisors who had completed the mechanized stock accounting training course at the U.S. Army Quartermaster School, four reported they had studied mechanized stock accounting system manuals. One reported that he had learned by demonstrations and instructions from personnel operating the equipment and that he had also studied the manuals. The other two who were QMS trained did not mention informal training.

The six supervisors who reported learning from personnel operating the mechanized system also reported the use of mechanized stock accounting system manuals. Two of these NCOs had completed the two-day supervisor's course given by the DSU/GSU Field

[1] Nearly all the enlisted personnel who attend the NCR 500 system training at the U.S. Army Quartermaster School are selected from those who have completed the Stock Control and Accounting Specialist Course. There are provisions for NCOs to attend this course also, but none of this group of respondents were NCOs when they did attend. Five spaces in each class are reserved for NCOs. According to information obtained from the QMS, NCOs seldom take this training.

Team, Vietnam. Four of these six supervisors had reported no formal mechanized stock accounting system training.

It is highly probable that all of the supervisors learned more about their jobs from manuals and from other personnel on the job, whether or not they reported this to be the case.

Two supervisors reported that they had had formal training only, five reported informal training only, and seven reported having had both formal and informal training.

MECHANIZED SYSTEM TRAINING NEEDS

Two of the 14 supervisors expressed the need of further training including fundamentals of the system, its operations, limitations, and capabilities; operation and function of the equipment and the computer programs; and management of the system.

The two respondents wanting further training were stock control supervisors. Both expressed a need for additional training on the mechanized stock accounting system; neither had had formal training. One—an NCO in a unit that had just completed the conversion process and so was rather new to the mechanized system—identified three areas in which he felt the need for training. The other supervisor apparently did not feel that he had learned enough in eight months on the job; he preferred to take formal training rather than OJT.

Twelve of the respondents felt they could perform on their jobs adequately and that additional mechanized training was unnecessary.

Comments on the formal mechanized training received by enlisted personnel at the U.S. Army Quartermaster School are based, for the most part, on the supervisor's opinions of the competency that the school-trained personnel exhibit after being assigned to their first jobs. In the case of supervisors who were trained at the QMS, the opinions are also based on their own training.

Comments on training were made by all 14 respondents and included: students learn the fundamentals of the system, but job experience needed (11); more training coverage needed of: supply and supply procedures (10), NCR 500 system procedures (8), equipment operation and function (7), computer programs, meaning and use of (5); special problems and conditions encountered in the field (9); and valuable handouts received in training (4).

The data indicate that most of the supervisors feel that the students learned some of the required basic knowledge, but not enough. All 14 supervisors felt the course needed additional coverage of several aspects of the mechanized stock accounting system, particularly supply and supply procedures.

Mechanized Stock Accounting Experience. Ten respondents were former NCR 500 computer operators. All were in their first tour; all of the seven respondents who had completed the formal mechanized system training at the Quartermaster School had been NCR 500 computer operators; two had previously served as operators in another NCR 500 system, changing DSUs when they became supervisors; eight were supervisors in the same mechanized stock accounting system in which they had served as operators; two were Stock Control supervisors, eight were in Senior Stock Accounting Specialist duty positions.

Of the two respondents who had had previous service as supervisors in other mechanized systems, one had previously been an NCR 500 computer operator in a different DSU than his present one, and was in his first tour; the other had OJT as an NCOIC of another DSU and had received no other training. He had been in the Army for seven years.

Of the three respondents who did not have prior experience with the mechanized system, all were serving in stock control supervisor duty positions; two were Army career men; and one had been in the Army for 19 years, but was going to leave at the end of his enlistment.

Eleven of the 14 supervisors had had both training and experience in their jobs, while three had received training only.

These data primarily indicate that there is a need for mechanized system training to be given to a greater number of stock accounting NCOs. The essential problem is the number of supervisors who have been trained on the mechanized system rather than the adequacy of the training that has been given.

The mechanized system training needs appear to be somewhat more acute at the level of the Stock Control Supervisor (the higher supervisory level) than at the level of the Senior Stock Accounting Specialist duty position. A smaller proportion of the Stock Control Supervisors seem to be formally trained than the Senior Stock Accounting Specialists. The latter, being at a lower supervisory level, tend to be promoted to this duty position from the computer operator job during the same tour in a DSU or a command. It is less likely that promotion to Stock Control Supervisor can be achieved in one tour with a DSU.

Stock accounting supervisors who had completed the mechanized system training given by the U.S. Army Quartermaster School indicated that they learned the fundamentals of the NCR 500 system, but that the training should give more coverage of repair parts supply, special problems and conditions encountered in the field, and mechanized stock accounting system procedures, equipment, and computer programs.

REPAIR PARTS SUPPLY TRAINING

Twelve of the 14 supervisors reported having had formal repair parts supply training including: U.S. Army Quartermaster School, Stock Control and Accounting Specialist Course (9), Supply Management Course (1), Special Purpose Equipment Repair Parts Specialist Course (1); U.S. Army Transportation School Aircraft Supply Course (1); general supply course (3); field training (2); and NCO Logistics Program (1). Two respondents reported that they did not receive formal training in repair parts supply or on the NCR 500.

Included among the nine supervisors who had attended the Stock Control and Accounting Specialist (MOS 76P20) course at the QMS were the seven respondents who had also completed the QMS NCR 500 training.

All 14 of the respondents reported having had supply experience prior to the duty positions held at the time of interview. Experience included: unit supply (1); technical supply (2); property book (1); repair parts (1); depot (3); and DSU manual system (1), NCR 500—other than present system—(2), DSU to which attached when interviewed (10); and mechanized supply—other than NCR 500 (2).

Most of the variation of repair parts supply experience is due to three senior NCOs (Stock Control Supervisors) who reported six, three and two kinds of experience respectively. Two supervisors had prior experience in DSUs having NCR 500 systems. One said that he had had experience in all of the three DSUs having NCR 500 systems in his battalion.

Seven of the supervisors reported they had had only training in supply, five reported having had both training and experience, while two reported not having training or experience.

The Stock Control Supervisors had completed more formal training courses in supply, and the courses were more diverse than the training received by the Senior Stock

Accounting Specialist. The repair parts supply training of the Senior Stock Accounting Specialist tended to be confined to the Stock Control and Accounting course given by the U.S. Army Quartermaster School.

The repair parts supply experience of the Stock Control Supervisors was broader than that of the Senior Stock Accounting Specialists. This is to be expected, as the Stock Control Supervisors were more senior and had more Army experience.

The data indicate that repair parts supply training does not present a serious problem for the Stock Accounting Supervisors. Of the two types of supervisors, the Stock Control Supervisors may be somewhat better equipped primarily because of their greater experience in supply duty positions.

MECHANIZED STOCK ACCOUNTING SYSTEM PROBLEMS

The cateogries of problems are the same as those listed previously for other groups of respondents—problems that can be considered as being related, at least in part, to the lack of mechanized stock accounting system training. The problem categories are: management, warehousing, training and experience of subordinate personnel, and customers.

Management. Thirteen of the 14 respondents cited management problems that included: coordination of the mechanized stock accounting system (7); coordination between the stock accounting activity and the warehouse (7); coping with special data requirements and reports (10); and heavy workload (6). Only one supervisor said that he had not had any management problems.

Coordination problems mentioned were: keeping system operations synchronized and moving, scheduling operations, organizing personnel, and keeping the work flowing smoothly between the storage and the stock accounting activities.

Special data requirements or reports that took time away from regular operations were generally the same as those mentioned by other categories of respondents. This is to be expected since many of the respondents in the different groups were attached to the same DSU. The special data requirements presented problems primarily because they required a considerable amount of manual work.

The essential problem indicated by these data is management of the mechanized stock accounting system workflow, both within the stock accounting operation and between stock accounting and the warehouse operations frequently under heavy workload conditions.

The interview data indicate the need for additional mechanized stock accounting system training at three levels: (a) the maintenance battalion (or management levels above the maintenance battalion); (b) the stock accounting NCOs, although more mechanized system management training needs appear to obtain in the case of the Stock Control Supervisors than for Senior Stock Accounting Specialists; and (c) personnel subordinate to these respondents.

Training needs for higher management levels with respect to the capabilities, limitations and the intent of the mechanized stock accounting system are indicated by the fact that almost three-fourths of the stock accounting NCOs said that special requests for data were a problem.

Training needs for the stock accounting NCOs, their subordinates, and the warehouse personnel were indicated as half of these respondents reported problems in coordinating the stock accounting operation, and half reported difficulties managing the flow of work between the warehouse and the stock accounting operation.

Warehousing. Ten of the 14 respondents reported having warehousing problems that included: location of stock (9); stock balance (5); receiving (1); and issuing (1). Four

respondents reported that they did not have warehousing problems. Two of the respondents who did not mention warehousing problems were from a DSU where warehousing operation was completely handled by a civilian contract firm.

The stock location difficulties were the same as mentioned previously by other groups of respondents: stock mislocated, location not recorded, multiple location, and so forth. The stock balance problems were also the same as those noted earlier, that is basically a disagreement between the ledgers and the actual amount of stock in the warehouse.

DSU Personnel. Twelve of the 14 respondents commented on their problems with DSU personnel. These included: lack of training of mechanized stock accounting system managers (8); lack of supply trained personnel (7); lack of storage trained personnel (5); personnel turnover (3); motivation or initiative of personnel (4). The two supervisors who made no comment were attached to the DSU where the storage activity was handled by a civilian contract firm.

Customers. All 14 respondents reported having at least one problem with customers. These included: incorrect requisitions (2); prepunched requisitions not used (3); prepunched requisitions received in damaged state (3); PLLs not furnished or updated (8); status not understood (6); lost documents (2); abuse of priorities (1); lack of agreement between customer records and DSU records (3); PLL clerks not trained (2); other problems (3); failure to follow-up (2); and poor communication with customer (1).

Essentially the problems come down to the failure—or possible lack of willingness—of customers to follow supply system procedures to the degree consistent with efficient repair parts supply. This situation indicates the need for customer training in PLL procedures.

Staffing. The stock accounting supervisors were asked only about the staffing situation for the NCR 500 system. Staffing conditions in the warehouse were not obtained from this group of respondents.

Nine respondents felt that the staffing of the mechanized system was adequate; two said it was adequate with respect to specific conditions; one felt it was understaffed with respect to specific conditions; and two felt the system was understaffed.

Of the two respondents who said that the NCR 500 system was adequately staffed with respect to certain conditions, one was attached to a GSU that was adequately staffed for his present workload, but with the planned addition of another large unit to support his system would be understaffed. The other respondent said that his system was adequately staffed with the addition of local national personnel.

One supervisor said his NCR 500 system was understaffed conditionally, that his system needed a different configuration of supervisory personnel.

Another supervisor noted the effect of the lack of promotion opportunities because of the absence of the required authorized duty positions.

ATTITUDES TOWARD THE MECHANIZED SYSTEM

Eight of the 14 supervisors thought that the NCR 500 was an efficient system, while six respondents thought it had both efficient and inefficient features.

This group of respondents appeared to feel somewhat more positively about the mechanized system than did the platoon sergeants. Not one of the supervisors said the system was inefficient. These personnel have generally been closer and more involved with the NCR 500 than the NCOIC personnel; 10 of the 14 stock accounting NCOs were former computer operators. On the other hand, three of the four respondents who had not been computer operators said that the system was efficient.

COMPARISON OF THE MECHANIZED AND MANUAL SYSTEMS

Twelve supervisors thought the mechanized system was more efficient. Two supervisors could not make a comparison as they had not had manual experience. Only one of the supervisors said that the manual system had an advantage over the mechanized in that the manual did not have equipment breakdowns.

One of the respondents, a senior NCO with 17 years of Army service, and who had much praise for the mechanized stock accounting system, reported resistance to it on the part of other managers.

ATTITUDES TOWARD MECHANIZED SYSTEM PUBLICATIONS

Ten respondents felt that the mechanized system publications were easy to use, while one said they were not easy to use. Three supervisors did not comment on ease of use. Two supervisors complained that the halts were not indexed.

The one negative comment about the use of the NCR 500 system publications was that it was difficult to find information in publications ST 38-10-711-1,[1] 711-2,[2] and 711-3.[3]

Two of the three supervisors who did not comment on the ease of use of these publications reported using the procedures manual (711-1) and the operator's manual (711-2). Only one respondent of this group of 14 reported using the CSC inspection checklist.

CAREER INTENTIONS

Eight of the stock accounting supervisors, including five who were trained on the mechanized system at the QMS and one with four years of service, said they were going to leave the Army at the end of their period of obligated duty. One respondent, QMS trained on the mechanized system, had not decided whether he was going to stay in the Army.

Two supervisors, neither QMS trained on the mechanized system, said they were career soldiers. One had 16 years of Army service, the other had 17 years. Two supervisors, one QMS trained, and one specialist did not say what their career plans were.

CONTACT WITH COMPUTER SYSTEMS COMMAND DSU/GSU FIELD TEAMS

Thirteen of the 14 supervisors reported that they had had contact with the DSU/GSU Field Teams prior to the author's visit. One respondent said he knew about the Field Team but had no contact with the team as he was a night supervisor of the NCR 500 computer system in his DSU.

All 14 respondents indicated that their DSUs had received some assistance from the DSU/GSU Field Teams. Types of assistance received were: inspection and/or evaluation (9); maintenance (6); procedures (9); and conversion (manual system to NCR 500) (4).

[1] Stock Control and Supply Accounting Procedures, *op. cit.*
[2] Operator's Manual, *op. cit.*
[3] Procedures for Conversion of Manual Records, *op. cit.*

Eleven of the supervisors said that the DSU/GSU Field Teams had provided valuable assistance to their NCR 500 systems. Ten respondents felt that the teams were needed and should remain on duty.

One supervisor said that the team did not spend enough time at his DSU. He did not say that the team had provided valuable service but thought it should remain available to him. Another supervisor said he would like to have more assistance with some minor problems but was satisfied with the assistance he had received.

It is evident that the stock accounting supervisors considered this assistance valuable because of the help it provided them in managing the system. This attitude indicates that some additional training in the management of the mechanized system might be of use to the stock accounting NCOs.

Chapter 6

MECHANIZED STOCK ACCOUNTING SYSTEM EQUIPMENT OPERATORS

JOB DESCRIPTION

Personnel assigned to the operation of the NCR 500 computer system equipment are responsible for processing various supply transactions involved in the direct support operations. The operators usually operate all of the different items of equipment from time to time and may be assigned to other stock accounting or storage jobs for various periods.

GROUP COMPOSITION

Ten operators were interviewed, eight of whom were E-4 specialists and two E-3. All were in their first tour of duty.

Table 7 lists the operators by DSU, rank, duty MOS, primary and secondary MOS (when available), and relationship between duty MOS and primary or secondary MOS.

Assignment of Personnel. The duty MOS for the computer operator is 76P20G3, hence the duty MOS for this group of respondents is the same in each case. The primary MOS of eight of the operators was 76P20G3. One operator had a primary MOS that was related to the duty MOS. The primary MOS of the tenth respondent was not related to the duty MOS.

Job Turnover. The number of months on the job for the operators[1] ranged from one-half month to 13 months, with an average of 4.3.

Job turnover in the case of operators has a somewhat different meaning than in the case of managers, noncommissioned or commissioned. The managers, particularly the commissioned officers, tend to move from an NCR 500-system-related job to a job that has little or no connection to this stock accounting system. Noncommissioned officer managers change their jobs much less frequently, and the jobs they change to are more similar to their mechanized stock accounting system-related job.

Change of jobs in the case of the computer operator is more apt to mean either moving up to a supervisory position in the same or another mechanized stock accounting system, or moving from one DSU to another as an operator.

MECHANIZED STOCK ACCOUNTING SYSTEM TRAINING

FORMAL, INFORMAL, AND COMBINED TRAINING

Eight of the 10 respondents reported having had formal mechanized system training at the U.S. Army Quartermaster School NCR 500 enlisted personnel course while two

[1] Only two operators were interviewed in Thailand and Korea, and one in Okinawa, so listing by geographical area does not add any information that can be considered reliable.

Table 7

Mechanized Equipment Operators: Relationship of Duty MOS to Primary or Secondary MOS

DSU	Rank	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
ECHO	E-4 Sp/4	76P20G3 (Stock Control and Accounting Specialist - NCR 500 Qualified)	76P20G3	--	Identical to Primary
ECHO	E-4 Sp/4	76P20G3	76P20G3	--	Identical to Primary
FOXTROT	E-4 Sp/4	76P20G3	76P20G3	--	Identical to Primary
FOXTROT	E-3 PFC	76P20G3	11D10 (Armor Intelligence Specialist)	--	Not Related
GOLF	E-4 Sp/4	76P20G3	76P20G3	--	Identical to Primary
HOTEL	E-4 Sp/4	76P20G3	76P20G3	--	Identical to Primary
INDIA	E-4 Sp/4	76P20G3	76P20G3	--	Identical to Primary
JULIET	E-3 PFC	76P20G3	76P20G3	--	Identical to Primary
KILO	E-4 Sp/4	76P20G3	76P20G3	--	Identical to Primary
KILO	E-4 Sp/4	76P20G3	74E20 (ADPS Console Operator)	--	Related to Primary

operators were not given formal training on the NCR 500 system. One of the two had been an Armor Intelligence Specialist and had been the manager of a grocery store in civilian life. The other had been console operator in a computer system quite different from the NCR 500 processing missile data in CONUS. He was assigned to the mechanized stock accounting system after reporting to his company.

All 10 respondents reported additional training or learning on the job. The eight Quartermaster School-trained operators reported that they learned or underwent OJT by working with more experienced personnel and by being cross-trained on the different pieces of NCR 500 system equipment and in different jobs in the stock accounting operation.

The two operators who had no formal training said that they learned essentially by being shown what to do by other personnel attached to the mechanized system.

Eight of the 10 operators reported that they had received both formal and informal training, while two said they had had informal training only.

Training Needs. Three of the 10 respondents said they would like more training in fundamentals of the system: its operations, limitations, and capabilities. One of the three said he would like more training in the operation and function of the equipment, while another said status. Seven operators did not express any training needs.

Of the three operators who expressed the need for training on the fundamentals of the NCR 500 system, two had not had formal training. One had been on the job three weeks, another four months. The third had completed the QMS NCR 500 training, but had not been working in the NCR 500 system to any great extent. He had been assigned to a 30-day guard detail (his DSU was in a combat zone).

Opinions Concerning Training. These opinions are based on the experience that eight of the 14 respondents had had on the job following their training at the Quartermaster School. Two operators who were not trained at the Quartermaster School did not comment. It should be noted that seven of the eight operators who commented on the training given by the QMS also indicated that they themselves did not have the need for additional training in the formal sense at the time they were interviewed.

The following opinions were expressed by the respondents concerning training given by the Quartermaster School: students learn the fundamentals of the system, but job experience needed (4); valuable handouts received in training (5); more coverage needed of: NCR 500 system procedures (5), equipment operations and functions (5), computer programs, meaning and use of (3), and special problems and conditions encountered in the field (2).

A total of 25 comments about mechanized system training were made by eight respondents. Seven of these operators had been on their jobs for two months or longer. One had been assigned only two weeks when interviewed. The operator who made only one comment about his training had been on his job for 13 months.

Mechanized System-Experience. All 10 operators were serving in their first duty positions in the NCR 500 system. None had prior mechanized stock accounting system experience.

COMMENT ON TRAINING

There is little in these data to indicate that training is a problem of any status with respect to the mechanized stock accounting system equipment operators. Eight of the 10 operators had been trained on the mechanized stock accounting system at the U.S. Army Quartermaster School. Two were learning on the job, much like apprentices. Only three of these respondents indicated training needs.

When newly trained operators arrive in the field, they are not, of course, finished products. Job experience is necessary before they become proficient. Lack of job experience, both with the mechanized system and with repair parts supply, appears to be the major problem as far as the job proficiency of the operators is concerned. The effect of this is accentuated where a large number of experienced personnel rotate in a short time span. Large-scale rotation was mentioned as a problem by supervisors.

REPAIR PARTS SUPPLY TRAINING AND EXPERIENCE

Eight of the 10 respondents had completed the stock control and accounting specialist course at the U.S. Army Quartermaster School. These were the same eight who had also completed the NCR 500 system training at the QMS. Two operators did not receive repair parts supply training, and none reported informal training. All 10 operators were serving in their first duty position involving repair parts supply. None had prior repair parts supply experience.

MECHANIZED STOCK ACCOUNTING SYSTEM PROBLEMS

Problems in two major interfacing activities were mentioned by the operators—the warehouse and the customers. Problems in these activities were also mentioned by various categories of management personnel.

Warehousing. Seven of the 10 respondents reported warehousing problems that included: location of stock (6); stock balance (2); and receiving (1). Three operators did not mention having warehouse problems.

The problems of the seven operators indicated that a lack of organization was a basic problem in the warehouse. There was some indication that the operators felt this situation was due in part to understaffing.

Customers. Nine of the 10 operators mentioned having problems with customers. These included: incorrect requisitions (2); prepunched requisitions not used (8); prepunched requisitions received in damaged state (2); PLL clerks not trained (3); status not understood (2); procedures not followed (1); PLL not finished or updated (1); lost documents (2). Only one operator did not mention having problems with customers.

These problems can be reduced in large measure to the failure of customers to follow supply system procedures—further indication of the need for customer training in PLL procedures, and/or willingness to follow these procedures.

Staffing. Little comment was made about the staffing of the mechanized system. One operator said his system was understaffed. Another said his system had enough personnel, but needed more QMS-trained operators.

ATTITUDES TOWARD THE MECHANIZED STOCK ACCOUNTING SYSTEM

Five of the 10 operators felt the NCR 500 was an efficient system, one thought it inefficient, and four respondents said the NCR 500 had both efficient and inefficient features.

The computer operators appeared to feel somewhat positive about the NCR 500 system. This is not surprising since most of the respondents had been intimately involved with the system for most of their Army careers.

The only operator (QMS-trained) who said that the system was inefficient was attached to one of the systems that appeared to have an excessive amount of downtime. He felt that the system was inoperative too much to be efficient.

Comparison of Mechanized and Manual Systems. Seven operators thought the mechanized system was more efficient. Four operators could not make a comparison as they did not have manual experience.

Actually, none of the respondents had experience in a manual system and so could not make a comparison. But eight of the 10 had been trained in the manual system in the Stock Control and Accounting Specialist course at the QMS, so these operators did have some basis for comparison. Interestingly, the three operators who said they couldn't compare the two stock accounting systems were all QMS-trained. The two operators whose only mechanized stock accounting system training was OJT said that the mechanized system was the more efficient of the two.

The operator who said that the mechanized system was generally inefficient felt, however, that the mechanized system was more efficient than the manual.

Two operators commented on the advantages of the manual system. One said that the manual system had no equipment to break down. This respondent was attached to a system that appeared to have excessive downtime. The other operator felt that more errors were perpetrated in the mechanized than in the manual system.

Comments About Job. The exploratory study had indicated that some mechanized system personnel felt uncomfortable in the vans becuase of the requirement to work in confined quarters. The operators were asked how they felt about their jobs in order to test whether there was some substance to the possible feeling about confinement, and to obtain an indication of other attitudes that might exist.

All 10 operators commented on their jobs. Their remarks included: interesting job (3); will help in civilian occupation (2); high caliber personnel in NCR 500 system (2); clean and comfortable working conditions (4); easy job (1); nerve-racking—so many things to do (3); boring—too routine (3); too many hours of work—not enough free time (2); personnel work too closely together (2); and too confining (2).

There does not appear to be a single salient attitude, with the possible exception that the respondents like the clean and comfortable working conditions that the system offers.

Comments on Mechanized System Publications. All 10 respondents commented on the mechanized system publications. Five said they were easy to use, while three said they were not easy to use. Other comments were: publications have both easy- and difficult-to-use-features (1); and halts not indexed (4).

All 10 operators reported that they used the operator's instruction manual (ST 38-10-711-2), while eight used the procedures manual (ST 38-10-711-1). None of the respondents reported using the manual dealing with conversion procedures although one of the operators had participated in the conversion of his DSU. None of the DSUs represented in the operator interviews had recently converted to the mechanized system, however.

Career Intentions. Nine of the 10 operators said that they were not going to remain in the Army after their obligated service expired. The other operator said he had not decided but might remain in the Army if he could become a computer programmer.

CONTACT WITH COMPUTER SYSTEMS COMMAND DSU/GSU FIELD TEAMS

Six of the 10 operators said that they had had contact with the DSU/GSU Field Teams. Of the four respondents who did not report contact with the teams, three had

been assigned to their systems for a very short time. The fourth was attached to a DSU that had received assistance from the team, but he said he personally had not had contact with the team.

Five of the six operators (one did not comment) who had had contact with the team felt that it was providing a valuable service and should remain on duty. This attitude is further evidence that additional training for the various manager levels of the mechanized system is in order.

Types of assistance received from the Field Teams included: inspection and/or evaluation (4); procedures (4); conversion (manual system to the NCR 500) (1). One operator reported no assistance received.

Three of the operators said that the team had provided two types of assistance. Three operators reported one type of assistance.

Chapter 7

STORAGE ACTIVITY SUPERVISORS

GROUP COMPOSITION

Storage activity supervisors handle mechanized stock accounting system output in the form of prepunched card documents (e.g. material release orders [MROs], and inventory count cards), or provide input to this system (e.g. warehouse denial cards, inventory adjustment cards, and receipts of stock).

Seven storage activity supervisors were interviewed, all in different DSUs. One was a first lieutenant assigned to a GSU; one sergeant first class, grade E-7; four staff sergeants, E-6; and one Sp/5, E-5. All of the enlisted personnel were career soldiers, having had Army service prior to the enlistments in which they were serving. The lieutenant was in his first tour of duty and was not going to remain in the Army after his obligated period of service.

Table 8 lists the storage activity supervisors by DSU, rank, duty MOS, primary and secondary MOS (where available), and relationship between duty MOS and primary or secondary MOS.

Assignment of Personnel. All of this group reported primary MOSs that were in the supply field. Five of the enlisted supervisors reported their primary MOS to be 76P (Stock Control and Accounting Specialist) rather than one of the other supply MOSs that included storage know-how in its required skills. One of the five also said that his duty MOS was 76P20 which is not authorized as a duty MOS for this duty position, although the assignment of an individual with a primary MOS of 76P is possible.

Three of the seven respondents said their primary MOS was identical to their duty MOS; one said his secondary MOS was identical to his duty MOS; and three said their primary MOS was related to their duty MOS.

It is evident that these respondents were serving in duty positions for which they had some MOS qualifications. With the exception of the lieutenant, all of the respondents had had experience in supply duty positions during their Army careers.

Job Turnover. The number of months on the job for the storage activity supervisors ranged from one to nine, with an average of five months.[1]

Job turnover for the storage activity supervisors appears to be about the same as that of other managers: 5.6 for the battalion management personnel, 5.0 for the technical supply officers, and 5.3 for the platoon sergeants.

MECHANIZED STOCK ACCOUNTING SYSTEM TRAINING AND EXPERIENCE

Formal and Informal Training. Four of the seven respondents reported having had formal training that included U.S. Army Quartermaster School—Supply and Service

[1] No breakdown by geographical area is made because of the small number of respondents. All geographical areas, i.e. Vietnam, Thailand, Okinawa, and Korea, are represented in this group.

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Table 8

Storage Activity Supervisors: Relationship of Duty MOS to Primary or Secondary MOS

DSU	Rank	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
CHARLEY	E-6 Staff SGT	76V50 (Equipment Storage Specialist)	76P40 (Stock Control and Accounting Specialist)	76U40 (Communications Electronics Repair Parts Specialist)	Related to Primary
ECHO	E-5 Sp/5	76P20 (Stock Control and Accounting Specialist)	76P20	--	Identical to Primary
FOXTROT	E-7 SFC	76S40 (Automotive Repair Parts Specialist)	76P40 (Stock Control and Accounting Specialist)	76S40	Identical to Secondary
HOTEL	E-6 Staff SGT	76V40 (Equipment Storage Specialist)	76P40	--	Related to Primary
INDIA	E-6 Staff SGT	76V40 (Equipment Storage Specialist)	76P40 (Stock Control and Accounting Specialist)	--	Related to Primary
JULIET	E-6 Staff SGT	76R40 (Missile Repair Parts Specialist)	76R40	--	Identical to Primary
LIMA	O-2 1LT	4200 (Supply and Service Officer)	4200	--	Identical to Primary

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Officer Course (1); and conversion briefings (4). Three respondents did not report any formal training. The Supply and Service Officer Course was attended by the lieutenant, who had also received conversion briefings.

Two respondents reported having had informal training as follows: miscellaneous briefings and orientations (2), and demonstrations by personnel operating the NCR 500 (1). Five supervisors did not report any informal training.

The two supervisors who reported informal training had received no formal training on the mechanized stock accounting system.

Mechanized Stock Accounting System Experience. Only one of the storage activity supervisors reported prior experience with the Mechanized Stock Accounting system. This respondent had received conversion briefings and had served briefly as a key punch operator in another DSU.

Five of the seven respondents had received training only; one had both training and experience; and one had neither training nor experience.

Mechanized stock accounting system training needs were expressed by four of the seven supervisors, and included: fundamentals of the system, its operations, limitations, and capabilities (3); operation and function of the equipment (1); how to read punches in cards (1); and codes (status, document processing, transaction) (1). Three supervisors did not express training needs.

The three who wanted to learn more about the fundamentals of the mechanized system, expressed no other training needs. They were the respondents who had not received formal training in the NCR 500. One NCO, who had received conversion briefings, indicated three training needs: operation and function of the equipment, reading punches in cards, and codes.

Two supervisors said that the Army was reluctant to send personnel to school if they had been in the service for some time.

Comment. These data indicate that formal training on the mechanized stock accounting system does not reach an adequate number of warehouse supervisors. Although formal training on the NCR 500 reached four of the seven respondents, three of them had nothing more than conversion briefings. Two other supervisors received training informally and one reported no training of any sort.

The conversion briefings were given only one time since a stock accounting function is converted to the mechanized system but once. Had it not been for the conversion briefings, only one of the DSU warehouse supervisors would have received formal training on the NCR 500 system. The only supervisor who was formally trained other than by conversion briefings was a first lieutenant who was assigned to a GSU.

The formal training given those who did receive this instruction amounted to only a few hours. These interview data indicate that the supervisors consider this training to have been largely sufficient, since only one who had received formal training indicated a need for additional training.

REPAIR PARTS SUPPLY TRAINING AND EXPERIENCE

Training. All seven respondents reported having had formal repair parts supply training that included: General Supply School (1); Electronics Communication Supply Specialist Course (1); U.S. Army Quartermaster School, enlisted course (2); NCO Logistics Program (2); field training classes or courses, (4); and U.S. Army Quartermaster School Officer Courses (1).

Experience. Six of the seven supervisors reported having repair parts supply experience that included: unit supply (3); repair parts (3); warehouse (4); depot (4); DSU (3); and mechanized supply (Other than the NCR 500) (1).

With the exception of the lieutenant, all of the storage activity supervisors reported several years of experience with repair parts supply, some of it in warehousing, prior to the duty position held at the time of interview.

Comment. These respondents appeared to have the required qualifications for their jobs. All seven supervisors had completed training in repair parts supply and six had prior experience in repair parts supply jobs.

Training in repair parts supply as such does not appear to be a problem with these supervisors. The need for additional warehousing know-how, while not evident in these data, is rather clearly indicated in other interview data, both from these supervisors as well as by other groups of respondents.

MECHANIZED STOCK ACCOUNTING SYSTEM PROBLEMS

Management. Four of the seven supervisors reported management problems in coordination of document flow with stock accounting.

Three of the four had received formal training. Three supervisors did not report any management problems.

These interview data indicate the need for additional training for the warehouse supervisors, particularly on the fundamentals of the mechanized stock accounting system and on the workflow and document flow between the storage and stock accounting activities. The data indicate, too, that lack of training and low motivation in the case of the nonsupervisory warehouse personnel also contribute to management problems.

Warehousing. Problems in warehousing were reported by five of the seven supervisors, and included: receiving (3); location of stock (2); stock balance (5); and issuing (1). Two supervisors did not report warehouse operating problems.

The most frequently mentioned problem, stock balance, referred to lack of agreement between the amount of stock shown on the stock accounting ledgers and that actually on hand in the storage activity. This problem was mentioned by five of the seven respondents who also noted the other warehousing problems. For some reason, location of stock, which was the most frequently mentioned warehousing difficulty by the other groups of managers, was mentioned by only two of the supervisors. It is not surprising that this would be an infrequently cited problem by these personnel since it could be considered an admission of operational shortcomings by them.

The two respondents who did not mention that they had warehousing problems indicated that coordination of document flow with the stock accounting activity was a problem.

The problem of lack of agreement between the amount of stock shown on the stock accounting ledgers and that actually on hand indicated that much of this can be attributed to a lack of organization in the storage activity.

DSU Personnel. Five of the seven supervisors reported problems with DSU personnel that included lack of training on a mechanized stock accounting system (5), and lack of storage trained personnel (3). Two supervisors did not mention any personnel problems.

One supervisor who did not indicate problems with untrained personnel, indicated that the caliber of personnel assigned to the warehouse was a problem.

Only one supervisor indicated that there were problems with customers. He said that the supported units were very slow in picking up the repair parts they had requisitioned. The fact that the units supported by this respondent's DSU were located up to 300 miles distant from their direct support may have had some effect on the pickup time.

Staffing. Concerning staffing of the storage activity, two supervisors thought it was adequate, two reported adequate with respect to specified conditions, and three said it was understaffed.

Two supervisors specified that the staffing was adequate when local national personnel were considered.

ATTITUDES TOWARD THE MECHANIZED STOCK ACCOUNTING SYSTEM

Efficiency. Four of the seven respondents felt that the mechanized stock accounting system was efficient, and gave speed and accuracy as the primary characteristics for its efficiency. One supervisor thought that the NCR 500 system was inefficient because he felt that it was responsible for an increase in double shipments received by his DSU and was of no help to him.

Two respondents said that the NCR 500 had both efficient and inefficient features. Both said the system was fast and accurate, but indicated that he thought the manual system was more flexible. The other confused poor program sequencing with system inefficiency.

Comparison of the Mechanized and Manual Stock Accounting Systems. Six of the seven respondents said that the NCR 500 system was more efficient than the manual, while one supervisor said that the system was generally inefficient.

Four supervisors thought the manual system had advantages including: data more accessible (2); work backlog easier to handle (2); no equipment to break down (1); easier system for local nationals to learn (1); more accurate than NCR 500 (1); and less work required of the storage activity (1).

Some of the manual system "advantages" appear to stem more from a lack of knowledge about the mechanized stock accounting system than any degree of sophistication with that system which would serve as a basis for comparison of the two.

Three of the advantages were given by one respondent, the lieutenant; two were mentioned by the supervisor who felt that the NCR 500 system was inefficient; and two were mentioned by a supervisor who said that the NCR 500 system was faster and more accurate than the manual system.

Thus, the storage activity supervisors indicated that they considered the mechanized stock accounting system to be generally more efficient than the manual system, although their attitudes were perhaps not as positive as those expressed by other managers toward the mechanized system, judging by the number of respondents who said that the manual stock accounting system had some advantages over the NCR 500 system.

CONTACT WITH COMPUTER SYSTEMS COMMAND DSU/GSU FIELD TEAMS

Five of the seven supervisors reported having contact with the DSU/GSU Field Teams, two for inspection and/or evaluation, and four for conversion. The two respondents who had not had contact with the teams were the two with the least amount of time on the job, that is, one and two months.

Three supervisors said that valuable assistance had been received from the teams. Two who had received conversion help only, said they were dissatisfied with the briefings because they were not comprehensive enough or were not relevant to their jobs.

These data indicate that some additional training on the mechanized stock accounting system should have been given to these warehouse supervisors.

COMMENT ON STORAGE ACTIVITY

Interviews with personnel in the storage activity did not indicate the severity of one of the major problems, if not *the* major problem, having to do with the efficiency of the mechanized stock accounting system as disclosed in this survey—the state of the main interfacing activity, the warehouse, for which the stock accounting records are kept. Personnel at all levels in the supply platoon, including the warehouse personnel themselves, and the battalion management personnel, indicated that the condition of the warehouse operation was a problem.

The overall problem indicated was a lack of organization, particularly the mislocation of stock, and the lack of accurate record keeping in the warehouse. It seems evident that this condition was related to the lack of training (and experience) of the warehouse personnel, low motivation, shortages of personnel, and inappropriate assignment. (The assignment problem was not indicated by the interviews with the nonsupervisory personnel although the interviewer felt that the most qualified and articulate of the warehouse personnel were made available for these interviews.)

Another factor in the problem of warehouse organization could have been the heavy influx of repair parts that accompanied the buildup of U.S. forces in Vietnam, and to some extent in Thailand. It is possible that the effects of this buildup were still being felt somewhat at the DSU level when these interviews were being conducted. This situation accentuates the need for more storage-trained personnel to be available for such emergencies.

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Chapter 8

WAREHOUSEMAN

GROUP COMPOSITION

These personnel were assigned to nonsupervisory duty positions in the storage activity or warehouse of various support units visited. Basically, warehousemen are involved in receiving, storing, issuing, and shipping repair parts. They are also concerned with document flow procedures which are related to the mechanized stock accounting system such as handling material release orders, zero balance cards, inventory count cards, and receiving documents.

Eight warehousemen were interviewed. Five were E-4's, SP/4's and three were E-5, SP/5's. Seven were in their first tour of enlistment, and one was in his second tour.

Table 9 lists the warehousemen by DSU, rank, duty MOS, primary and secondary MOS (when available), and relationship between duty MOS and primary or secondary MOS.

Assignment of Personnel. As shown in Table 9, five of the eight warehousemen had a primary MOS that was identical to their duty MOS. One respondent had a primary MOS that was related to his duty MOS. Two of the warehousemen did not know what their duty MOSs were[1] (although each had served in this duty position for six months); from knowledge of their primary MOS, it is probable that in one case the duty and primary MOS were unrelated, and in the other that they were related.

Four of the respondents said that their duty MOS was 76P20, an MOS that is not usually found in the storage activity. The respondents may have been mistaken, although they appeared to be sure that they had given correct information. Certain TO and E changes had been made for some of these units before the period in which the interviews were held, so the information given by some of the respondents may reflect the older organization.

Job Turnover. The number of months on the job for the eight warehousemen ranged from one to 18 with an average of 8.2 months.[2]

The time-on-the-job data, like that of the stock accounting NCOs, appear to be somewhat high. This is due to the presence of one warehouseman who had extended his period of service in Vietnam and another who was serving in Okinawa, where the tour is longer than it is in Vietnam, Thailand, or Korea.

MECHANIZED STOCK ACCOUNTING SYSTEM TRAINING

Only one of the eight respondents reported having had formal training and this consisted of conversion briefings.

[1] It is assumed that these two respondents were serving in duty MOSs that were designated as supply MOSs.

[2] Because of the small number of warehousemen interviewed, a breakdown by geographical area did not seem warranted.

Table 9

Warehousemen: Relationship of Duty MOS to Primary or Secondary MOS

DSU	Rank	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
ECHO	E-4 Sp/4	76P20 (Stock Control and Accounting Specialist)	76P20	--	Identical to Primary
ECHO	E-4 Sp/4	76P20 (Stock Control and Accounting Specialist)	76P20	--	Identical to Primary
FOXTROT	E-5 Sp/5	76P20 (Stock Control and Accounting Specialist)	76P20	--	Identical to Primary
FOXTROT	E-4 Sp/4	76P20 (Stock Control and Accounting Specialist)	63B20 (Wheel Vehicle Repairman)	--	Not Related
HOTEL	E-4 Sp/4	Respondent did not know	52B30 (Power Generation Equipment Operator/ Mechanic)	--	Not Related
INDIA	E-5 Sp/5	Respondent did not know	76P20 (Stock Control and Accounting Specialist)	--	Related to Primary
JULIET	E-5 Sp/5	76R20 (Missile Repair Parts Specialist)	76R20	--	Identical to Primary
JULIET	E-4 Sp/4	76R20 (Missile Repair Parts Specialist)	76R20	82C10 (Artillery Surveyor)	Identical to Primary

The single warehouseman who had formal training was assigned to a DSU that was in the final stages of conversion. Another warehouseman interviewed from this same DSU said he was absent the day that the briefing movie was shown, but he had participated in the conversion process for several weeks.

Three of the eight warehousemen reported having had informal training consisting of personnel operating the NCR 500 system, while five respondents did not report having had any informal training.

All of the warehousemen said they had learned those tasks that involved input to or output from the mechanized stock accounting system while learning their other job functions. These tasks were evidently learned rather unsystematically, one by one, somewhat as an apprentice would learn. Three of the respondents reported that they had been given additional information about the NCR 500 system by personnel operating the equipment.

Only two of the eight warehousemen said that they felt the need for training on the mechanized stock accounting system. Both thought they should know more about the fundamentals of the system and its operation. The remaining six did not indicate a need for training.

Since warehousemen handle both input and output to the mechanized stock accounting system and do not operate any of the equipment, training on the NCR system given warehousemen, while not extensive, does have to be channeled in the pertinent direction.

The need for training on the mechanized stock accounting system for the warehouse personnel was indicated by personnel in all of the other groups of DSU respondents.

Experience. One of the warehousemen reported that he had previously held a clerical duty position in another mechanized stock accounting system, but that he did not learn to operate any of the equipment. None of the other respondents had any prior experience with the mechanized system.

Three of the eight respondents had received only training in the mechanized stock accounting system; one had had both training and experience; and four had not had either training or experience.

Comment. These data indicate that formal mechanized stock accounting system training does not reach an adequate number of warehousemen.

Four of the warehousemen had been given some training on the NCR 500 system but only one reported formal training, and this was a conversion briefing. Three others reported receiving mechanized stock accounting system information from personnel operating the system. This was in connection with temporary assignment to clerical jobs in the stock accounting operation and was thus, in all probability, only peripherally germane to their warehouse jobs.

Only two of the eight warehousemen indicated the need for further mechanized stock accounting system training. The data do not indicate why so few felt this need, particularly given the absence of training.

REPAIR PARTS SUPPLY TRAINING

Five of the eight respondents reported receiving formal training in repair parts supply consisting of U.S. Army Ordnance Center and School, Ordnance Supply Course—enlisted personnel—(1); U.S. Army Quartermaster School, Missile Repair Parts Specialist Course (1); and General Supply Course (3). Three warehousemen did not report having had any training.

All of the respondents said they had been further trained on their jobs. Warehouse duty positions do not require a complex set of skills. Typically, nonsupervisory

warehouse personnel tend to learn their jobs from other more experienced warehousemen or from the storage activity supervisors, who show the newly assigned personnel how to perform their jobs.

Experience. Two of the eight respondents reported repair parts supply experience prior to their present assignment. One said that he had been assigned to a clerical job at a DSU and the other had a company supply duty assignment. None of the warehousemen had previously been assigned to a storage activity duty position.

While five of the eight warehousemen had received some formal repair parts supply training, these data indicate that such training has not reached an adequate number of warehousemen. There is some evidence that the respondents, although they may have had training in supply, apparently received little or no training in storage procedures and techniques. Interview data from other respondents leave little doubt that training in warehouse procedures and techniques is needed by the warehousemen.

MECHANIZED STOCK ACCOUNTING SYSTEM PROBLEMS

Generally, the warehousemen did not seem to think that they had many problems as far as the performance of their duty position requirements was concerned. A few difficulties, however, were mentioned by five of the eight warehousemen including: keeping stock moving (1); mislocation of stock (1); document flow (3); federal stock number changes (1); and storage activity understaffed (2). Three respondents did not report any problems.

Document flow, the most frequently mentioned problem, was also cited by other groups of respondents with considerable frequency.

ATTITUDES TOWARD MECHANIZED STOCK ACCOUNTING SYSTEM

Three of the eight warehousemen said they thought the NCR 500 system was efficient, while four respondents thought the system had both efficient and inefficient features. One respondent said he did not know enough about it to comment.

The pattern of attitudes about the efficiency of the mechanized stock accounting system for this group of respondents is about the same as the response pattern for the other groups. The prevailing attitudes being either positive or having both positive and negative components.

Comparison of Mechanized and Manual Stock Accounting Systems. Six of the eight respondents thought the mechanized system more efficient than the manual, while two could not make a comparison.

Only two of the warehousemen had prior repair parts supply experience that gave them some knowledge of the manual system. Both of these respondents were included among those who said that the NCR 500 system was more efficient than the manual system. The remaining six warehousemen had not had prior experience with the manual stock accounting system, although five of them had manual system training in the formal supply courses that they had completed.

The two respondents who said that they could not compare the NCR 500 system with the manual system had neither prior experience with nor training on the manual stock accounting system.

Only one respondent said that the manual system had some advantages over the mechanized stock accounting system. He said that while the manual system was slower, it does not produce as many errors as the mechanized stock accounting system.

CONTACT WITH THE COMPUTER SYSTEMS COMMAND DSU/GSU FIELD TEAMS

Only two of the warehousemen reported that they had had contact with the CSC DSU/GSU Field Teams. Both of these respondents were assigned to the same DSU, which was just completing the conversion process. They did not comment further about the teams.

Chapter 9

PLL CLERK SUPERVISORS

GROUP COMPOSITION

Personnel in this group were in supervisory maintenance type duty positions at units (customers) supported by the DSUs in this study. They were concerned with repair parts supply only to the extent that it was involved in their primary functions and maintenance responsibilities.

These personnel were involved with the mechanized stock accounting system in connection with their supervision of PLL (Prescribed Load List) Clerks. The PLL clerks dealt directly with the mechanized system as part of their PLL activities involving the submission of requisitions for repair parts, maintaining the status of submitted requisitions for repair parts, maintaining the unit PLL, and keeping various records pertaining to repair parts authorized to be carried by their unit.

Twenty-two supervisors were interviewed. Their grades ranged from 0-3 to E-5, including warrant officers. A variety of job titles were held by this group of respondents, including maintenance officer, motor officer, material officer, motor sergeant, and supply management officer. Two of the respondents, both 1LT's, were in their first tour of Army service. The remaining 20 supervisors had had prior service and could be considered career soldiers.

Table 10 lists the respondents by supporting DSU, rank, job title, duty MOS, primary MOS, secondary MOS (when available), and relationship between duty MOS and primary or secondary MOS.

Assignment of Personnel. The personnel in this group were assigned to duty positions that matched their qualifications very closely. Nineteen of the 22 supervisors had primary and duty MOSs that were identical. The remaining three had primary MOSs that were closely related to their duty MOS.

Job Turnover. The number of months on the job for the PLL Clerk Supervisors ranged from two to 11 months in Vietnam, 1½ to 12 months in Thailand, and one to 12 months in Korea.[1] The average number of months on the job for Vietnam was 6.4, Thailand 5.7, and Korea 6.8. The average for all areas was 6.1 months.

Although statistical computations are not feasible here, one could argue from a heuristic basis at least, that the somewhat higher average time on the job for this group of respondents may well be reasonably close to the real situation for these duty positions. Because many of these respondents were NCOs or warrant officers, and because of the rather highly technical nature of the duty positions concerned, personnel turnover would tend to be lower for this group.

MECHANIZED STOCK ACCOUNTING SYSTEM TRAINING

Only five of the 22 respondents reported having received formal mechanized stock accounting system training, including U.S. Army Quartermaster School—Supply

[1] Only one supervisor was interviewed in Okinawa. He had been assigned to his duty position for three weeks, and his data are included in the computation of the time on the job for all areas combined.

Table 10

PLL Clerk Supervisors: Relationship of Duty MOS to Primary or Secondary MOS

Supporting DSU	Rank	Job Title	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
CHARLEY	E-6 Sp/6	--	34B20 (Tabulating Equipment Repairman)	34B20	--	Identical to Primary
DELTA	CW02	Material Officer	286A (Communications-Electronics Repair Technician)	286A	--	Identical to Primary
ECHO	CW02	Maintenance Officer	631A (Automotive Maintenance Technician)	631A	--	Identical to Primary
ECHO	CW02	Maintenance Officer	621A (Engineer Equipment Repair Technician)	621A	--	Identical to Primary
ECHO	CW03	Maintenance Officer	631A (Automotive Maintenance Technician)	632A (Automotive Repair Technician)	--	Related to Primary
FOXTROT	0-3	Maintenance Officer	1204 (Armored Reconnaissance Unit Commander)	1204	1203 (Tank Unit Commander)	Identical to Primary
FOXTROT	CW03	Motor Maintenance Officer	631A (Automotive Maintenance Technician)	631A	--	Identical to Primary
GOLF	0-3	Platoon Leader	4415 (Signal Equipment Maintenance and Repair Officer)	4415	--	Identical to Primary

(Continued)

Table 10 *(Continued)*

PLL Clerk Supervisors: Relationship of Duty MOS to Primary or Secondary MOS

Supporting DSU	Rank	Job Title	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
GOLF	E-5 SGT	Shop Supply Supervisor	76P40 (Stock Control and Accounting Specialist)	76P40	--	Identical to Primary
GOLF	E-5 Sp/5	Assistant Supply Sergeant	76T40 (Aircraft Repair Parts Specialist)	76T40	--	Identical to Primary
HOTEL	E-6 Staff SGT	--	76U40 (Communications Electronics Repair Parts Specialist)	76U40	--	Identical to Primary
HOTEL	E-7 SFC	Shop Motor Sergeant	63C40 (General Vehicle Repairman)	63H40 (Engine and Powertrain Repairman)	--	Related to Primary
HOTEL	CW02	Maintenance Officer	631A (Automotive Maintenance Technician)	631A	--	Identical to Primary
INDIA	E-6 Staff SGT	Motor Sergeant	63C40 (General Vehicle Repairman)	63C40	--	Identical to Primary
INDIA	CW02	Maintenance Officer	621A (Engineer Equipment Repair Technician)	621A	--	Identical to Primary
JULIET	E-5 SGT	--	76Y40 (Unit and Organization Supply Specialist)	76Y40	76P20 (Stock Control and Accounting Specialist)	Identical to Primary

(Continued)

Table 10 *(Continued)*

PLL Clerk Supervisors: Relationship of Duty MOS to Primary or Secondary MOS

Supporting DSU	Rank	Job Title	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
KILO	0-2	Technical Supply Officer	4201 (Supply Management Officer)	4201	--	Identical to Primary
KILO	CW02	Maintenance Officer	631A (Automotive Maintenance Technician)	631A	--	Identical to Primary
KILO	E-7 SFC	Motor Sergeant	63C40 (General Vehicle Repairman)	63H40 (Engine and Powertrain Repairman)	--	Related to Primary
KILO	0-2	Technical Supply Officer	4201 (Supply Management Officer)	4201	--	Identical to Primary
KILO	CW02	Automotive Mechanics Supervisor	631A (Automotive Maintenance Technician)	631A	--	Identical to Primary
KILO	CW03	Maintenance Officer	631A (Automotive Maintenance Technician)	631A	--	Identical to Primary

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Management Officer Course (3) and field training (2). It would appear that personnel who are assigned to duty positions in DSU customer units involving the supervision of PLL activities seldom receive formal training on the mechanized stock accounting system.

Seventeen of the respondents reported having had informal mechanized stock accounting system training that included miscellaneous briefings and orientation (7) and SOP furnished by supporting DSU (17). Five supervisors did not report having had any informal mechanized stock accounting system training.

A DSU is supposed to furnish support customers with an external SOP containing information about customer unit procedures germane to the NCR 500 system, such as requisitioning repair parts, furnishing updated PLLs, and other matters pertaining to the supporting activities of the DSU. This external SOP can be considered as training literature for the mechanized stock accounting system, more or less specially designed for customer personnel.

Nine DSUs are represented in this group of respondents. The customers of seven of these DSUs said that they had received external SOPs. Altogether 17 of the 22 respondents said that they had external SOPs. One said he had been in his job for only a few days and didn't know whether his unit had an external SOP (one of the other customers of the same DSU reported that he had received an external SOP). Four respondents said they did not have an external SOP from their supporting DSU (two of these supervisors were from units supported by DSUs that had furnished external SOPs to other customers).

The seven supervisors who reported informal briefings, and so forth, also reported that they had external SOPs.

To summarize: two of the 22 respondents received only formal training, 14 received only informal training, three had both formal and informal training, and three did not have either formal or informal training.

Only five of the 22 respondents said they had need for additional mechanized stock accounting system training. Three of them had received either formal or informal training, two had not. Three respondents said they needed to know more about the fundamentals of the system and indicated that they were interested in those basic system functions that pertained to PLL operations and procedures for customer support.

The remaining 17 supervisors did not indicate that they were in need of more information about the mechanized stock accounting system. Included in this group were eight respondents who had had either formal or informal NCR 500 training, and nine who had not.

The primary concern of this group of respondents is maintenance. Detailed knowledge of stock accounting operations at the DSU level is scarcely required, but supply does require their attention to varying degrees. The amount of time spent on supply activities was estimated by each of the 22 respondents. Three said they spent all their time on supply activities, one said about three-fourths, one spent half his time, four spent two-fifths, three spent more than a fourth, six spent one-fifth, and four reported one-tenth.

The three respondents who spent all of their time on supply included two battalion technical supply officers and a sergeant whose duty position concerned communications equipment supply.

Mechanized Stock Accounting System Experience. Only three of the 22 respondents reported having some experience with the mechanized stock accounting system prior to the duty positions they held at the time of interview. One, a sergeant, had taken part in a logistics test at Fort Hood, Texas, involving the NCR 500. The other two were both warrant officers and had served with DSUs that had NCR 500 systems. One had served as a battalion material officer, and the other as a battalion maintenance officer.

Sixteen of the 22 supervisors had received training only, three had both training and experience, and three had neither training nor experience.

Comment. These data indicate that this group of respondents seldom receives formal training on the mechanized stock accounting system (only five of 22 supervisors reported such training).

Training on the mechanized stock accounting system as such does not appear to present a serious problem with respect to this group of respondents. The principal training need for the PLL Clerk supervisors, as far as the NCR 500 system is concerned, seems to be in the use and care of prepunched requisitions. All of the groups of respondents attached to DSUs (except warehousemen) indicated that customers did not use or take care of prepunched requisitions to the extent that they should have.

Personnel in these duty positions appear to need training in repair parts supply, particularly PLL procedures, rather than extensive instruction on the mechanized stock accounting system.

The survey data obtained from this group of supervisors indicate that adequate training on the mechanized stock accounting system as such, might be accomplished by means of a document such as the SOP furnished customer units by their supporting DSU. Training on the NCR 500 system does not appear to present a problem other than mechanized stock accounting system input and output procedures and the physical care and use of prepunched requisition forms.

REPAIR PARTS SUPPLY TRAINING

Twelve of the 22 respondents reported having had formal repair parts supply training that included U.S. Army Quartermaster School Supply Management Officer Course (2); U.S. Army Signal School—Signal Equipment Maintenance and Repair Officer Course (1); General Supply School (2); various schools—not ascertained (2); and field training classes and courses. None of the respondents said that they had had more than one of these types of instruction.

Only one of the 22 supervisors mentioned informal training in the sense of self-study of regulations, but it seems highly likely that all of the respondents had studied regulations and other literature from time to time.

Repair Parts Supply Experience. Nineteen of the 22 respondents reported having had repair parts supply experience that included unit supply (3); property book (2); repair parts (stock accounting) (1); maintenance (13); depot (1); and mechanized supply (other than NCR 500) (2).

Nineteen of the 22 respondents reported prior experience in supply duty positions. One supervisor said he had property book experience as well as experience with repair parts supply in the course of his maintenance experience. Another reported repair parts supply experience in connection with maintenance duty positions and also mechanized supply experience in CONUS. A third, a 1LT, said he had served in a depot where a large computer was operating. The other 16 respondents indicated but one type of repair parts supply experience. Three said they had no previous supply duty positions, a Sp/5, a 1LT, and a CAPT.

Three of the 22 supervisors said they had had training only, three had experience only, and 16 had both training and experience.

Comment. Twelve of these supervisors reported formal training that concerned repair parts supply. Nineteen reported prior repair parts supply experience. Considering the importance of supply to efficient maintenance operations, these data indicate that not enough personnel in the duty positions represented by the respondents receive organized,

systematic training in repair parts supply concepts and procedures, particularly procedures concerning the prescribed load list.

This conclusion is reinforced by the statements made by DSU respondent groups who indicated that customer units were not following PLL procedures to the extent that they should.

MECHANIZED STOCK ACCOUNTING SYSTEM PROBLEMS

The respondents reported problems in four interrelated areas: personnel, status, reconciliations, and requisitions.

Personnel. Five of the supervisors reported that lack of trained PLL clerks was a problem, and one of these respondents also said that lack of motivation among the PLL clerks in his command was another problem.

Status. Twelve of the 22 respondents said that status presented problems, and the most frequently mentioned were: incorrect status, status coming in slowly or not received, and inability to interpret status codes.

Reconciliations. Reconciliation inaccuracies were noted by 10 of the supervisors. The most frequent problems were concerned with lack of agreement between the records maintained by the supported units and those maintained at the DSU.

Requisitions. Different problems with requisitions were cited by eight respondents. Requisition problems mentioned concerned lost requisitions, or prepunched requisition forms that were incorrect, slow in arriving, or missing for certain repair parts.

Altogether, 15 of the 22 respondents reported some of the above problems. Seven respondents did not report having any of these problems.

Comment. Only five of the supervisors consider the training of PLL clerks as a problem. The PLL job is rather routine and evidently not difficult to learn. Typically, PLL clerks appear to learn their jobs by working as an understudy to another clerk for a few weeks or months before the senior clerk is due to depart. The supervisors seem to feel that this is an adequate training technique for the job.

ATTITUDES TOWARD THE MECHANIZED STOCK ACCOUNTING SYSTEM

Six of the 22 supervisors considered the NCR 500 an efficient system; nine thought that the system had both efficient and inefficient features; seven respondents said they did not know enough about the NCR 500 system to comment. Evidently most of the supervisors did not bear strong feelings about the system. Seemingly this objectivity was due to their lack of close association with the system or lack of knowledge about it.

Comparison of the Mechanized and Manual Stock Accounting Systems. Fifteen of the 22 respondents thought the mechanized accounting system was more efficient, while seven said they could not make a comparison as they did not know enough about the NCR 500 system.

One of the 22 respondents said that an advantage of the manual system was that it cost less than the NCR 500 system.

Chapter 10

PLL CLERKS

GROUP COMPOSITION

Prescribed Load List (PLL) Clerks are found in duty positions in DSU customer units. PLL Clerk responsibilities include maintaining the units' supply of authorized repair parts and the various records pertaining to them. PLL Clerks deal directly with the mechanized stock accounting system in connection with submitting requisitions, maintaining repair parts demand data, and keeping the unit PLL.

Thirty-four PLL Clerks were interviewed who were attached to customer units of eight DSUs involved in this research. Personnel of customer units of the General Support Unit and the Supply Point were not interviewed.

There are 18 primary MOSs represented among the 34 PLL clerks. The most frequently mentioned primary MOS was 76S, Automotive Repair Parts Specialist, held by eight of the PLL clerks. Five clerks held MOS 63C, General Vehicle Repairman as primary. The remaining MOSs were only indicated once or twice as primary MOS by the clerks.

Ten different duty MOSs were cited by the respondents. The most frequently mentioned were: 76S, Automotive Repair Parts Specialist (7); 76P, Stock Control and Accounting Specialist (5); and 76R, Missile Repair Parts Specialist (4). The other seven duty MOSs were mentioned once or twice by the clerks. There were eight PLL clerks who did not know the MOS of their duty positions.

By rank, there were 20 PLL Clerks who were E-4, Sp/4; nine were E-5, Sp/5, three were E-3, PFC; one was a sergeant, E-5, and one was an E-2.

Table 11 lists PLL Clerks by supporting DSU, rank, duty MOS, primary and secondary MOS (where available), and relationship between duty MOS and primary or secondary MOS.

Assignment of Personnel. According to the information reported by the respondents, there appeared to be only a fair relationship between the PLL Clerk duty position requirements and the MOS qualification of the incumbents. Only about half of the respondents had primary or secondary MOSs that were related to their duty position MOS—the least of all the groups of respondents for this relationship.

Sixteen respondents said their primary MOS was identical to their duty MOS, and two that it was related to their duty MOS. Seven respondents said their primary MOS was not related to their duty MOS, and one said his secondary MOS was identical to his duty MOS. For eight respondents the degree of relationship was not ascertained.

Job Turnover. The number of months on the job for the 34 respondents ranged from one to 12 months in Vietnam, 1½ to 12 months in Thailand, 2 to 7 in Okinawa, and 1½ to 17 in Korea. The average number of months on the job was 6.8 in Vietnam, 6.2 in Thailand, 4.7 in Okinawa, 6.6 in Korea, and 6.3 overall.

Both the PLL Clerks and their supervisors reported that these personnel tend to stay in their duty positions for their entire tour of duty in the Far East. Some PLL clerks are

Table 11

PLL Clerks: Relationship of Duty MOS To Primary or Secondary MOS

Supporting DSU	Rank	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
CHARLEY	E-4 Sp/4	Did not Know	76C40 (Telephone Switchboard Operator)	--	Not ascertained
CHARLEY	E-5 Sp/5	Did not Know	31E20 (Field Radio Repairman)	--	Not ascertained
ECHO	E-4 Sp/4	Did not Know	63B20 (Wheel Vehicle Repairman)	--	Not ascertained
ECHO	E-3 PFC	Did not Know	71B30 (Clerk Typist)	--	Not ascertained
ECHO	E-4 Sp/4	Did not Know	61E30 (Amphibian Engineer)	--	Not ascertained
ECHO	E-4 Sp/4	76Q20 (Special Purpose Equipment Repair Parts Specialist)	76Q20	--	Identical to Primary
ECHO	E-4 Sp/4	76Q20 (Special Purpose Equipment Repair Parts Specialist)	76Q20	--	Identical to Primary
FOXTROT	E-4 Sp/4	76S20 (Automotive Repair Parts Specialist)	45G20 (Turret Artillery Repairman)	--	Not related
FOXTROT	E-4 Sp/4	76S20 (Automotive Repair Parts Specialist)	76S20	76P20 (Stock Control and Accounting Specialist)	Identical to Primary

(Continued)

Table 11 *(Continued)*

PLL Clerks: Relationship of Duty MOS To Primary or Secondary MOS

Supporting DSU	Rank	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
FOXTROT	E-4 Sp/4	76P20 (Stock Control and Accounting Specialist)	76S20 (Automotive Repair Parts Specialist)	--	Related to Primary
GOLF	E-5 Sp/5	76U20 (Communications-Electronics Repair Parts Specialist)	35M20 (Avionic Navigation Equipment Repairman)	--	Not Related
GOLF	E-4 Sp/4	76P20 (Stock Control and Accounting Specialist)	76P20	--	Identical to Primary
GOLF	E-2	Did not Know	67M20 (Single-Engine Single-Rotor Observation Helicopter Mechanic)	--	Not ascertained
GOLF	E-5 Sp/5	76T20 (Aircraft Repair Parts Specialist)	76T20	--	Identical to Primary
GOLF	E-5 Sp/5	76P20 (Stock Control and Accounting Specialist)	76P20	--	Identical to Primary
HOTEL	E-4 Sp/4	76S20 (Automotive Repair Parts Specialist)	36E20 (Cable Splicer)	--	Not Related

(Continued)

Table 11 *(Continued)*

PLL Clerks: Relationship of Duty MOS To Primary or Secondary MOS

Supporting DSU	Rank	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
HOTEL	E-5 Sp/5	76S20 (Automotive Repair Parts Specialist)	76S20	--	Identical to Primary
HOTEL	E-4 Sp/4	71B20 (Clerk-Typist)	63C20 (General Vehicle Repairman)	-- --	Not Related
INDIA	E-4 Sp/4	76S20 (Automotive Repair Parts Specialist)	76S20	76P20 (Stock Control and Accounting Specialist)	Identical to Primary
INDIA	E-4 Sp/4	76P20 (Stock Control and Accounting Specialist)	76P20	--	Identical to Primary
INDIA	E-4 Sp/4	76U20 (Communications-Electronics Repair Parts Specialist)	76U20	--	Identical to Primary
JULIET	E-4 Sp/4	76Y20 (Unit & Organization Supply Specialist)	22G20 (NIKE Launcher System Repairman)	--	Not Related
JULIET	E-3 PFC	76R20 (Missile Repair Parts Specialist)	71B20 (Clerk-Typist)	--	Not Related
JULIET	E-5 SGT	76R20 (Missile Repair Parts Specialist)	76Y40 (Unit & Organization Supply Specialist)	76R20	Identical to Secondary

(Continued)

Table 11 *(Continued)*

PLL Clerks: Relationship of Duty MOS To Primary or Secondary MOS

Supporting DSU	Rank	Duty MOS	Primary MOS	Secondary MOS	Relation of Duty MOS to Primary or Secondary MOS
JULIET	E-5 Sp/5	76R20 (Missile Repair Parts Specialist)	76R20	52B30 (Power Generation Equipment/Operator/ Mechanic)	Identical to Primary
JULIET	E-4 Sp/4	76R20 (Missile Repair Parts Specialist)	76R20	–	Identical to Primary
KILO	E-4 Sp/4	76P20 (Stock Control and Accounting Specialist)	76S20 (Automotive Repair Parts Specialist)	76P20	Identical to Primary
KILO	E-3 PFC	76A10 (Supplyman)	76A10	–	Identical to Primary
KILO	E-5 Sp/5	76S20 (Automotive Repair Parts Specialist)	63C30 (General Vehicle Repairman)	–	Related to Primary
KILO	E-5 Sp/5	Did not Know	63C30 (General Vehicle Repairman)	–	Not ascertained
KILO	E-4 Sp/4	76S20 (Automotive Repair Parts Specialist)	76S20	76P20 (Stock Control and Accounting Specialist)	Identical to Primary
KILO	E-5 Sp/5	Did not Know	63C30 (General Vehicle Repairman)	–	Not ascertained
KILO	E-4 Sp/4	76Y20 (Unit & Organization Supply Specialist)	63C20 (General Vehicle Repairman)	11B10 (Light Weapons Infantryman)	Not related
KILO	E-4 Sp/4	76S20 (Automotive Repair Parts Specialist)	76S20	76P20 (Stock Control and Account-Specialist)	Identical to Primary

promoted out of the job, and others are transferred from the duty position for other reasons, but this is not usually the case.[1]

MECHANIZED STOCK ACCOUNTING SYSTEM TRAINING

Formal mechanized stock accounting system training reported included U.S. Army Quartermaster School—covered briefly in Enlisted Courses (3), and conversion briefing or orientation (3). Twenty-eight of the 34 clerks did not report having had any formal mechanized stock accounting system training.

These data, although they cannot be considered representative of the state of mechanized system training for PLL clerks in a precise sense, indicate that few PLL clerks have had any mechanized stock accounting system training. Furthermore, from comments made by the respondents, the training received has been little more than a very brief description of the system, apparently no longer than an hour at most.

Only five of the 34 respondents reported informal training on the mechanized stock accounting system. This training was in the form of the external SOP furnished by the supporting DSU. Actually, 29 of the 34 respondents were attached to units supported by DSUs that had furnished external SOPs to their customers. The PLL clerks were not asked if they had seen an external SOP, which may explain the low response.

Six of the clerks reported having had only formal training, five only informal training, while 23 did not report any training.

Training Needs and Experience. Only four of the 34 PLL clerks said that they wanted training on the mechanized stock accounting system, including fundamentals of the system and its operations (3), and how to read punches in cards (1). The clerk who said he wanted to know how to read punches in cards also wanted to know more about requisition procedures.

Not one of the PLL Clerks had experience with the mechanized stock accounting system prior to that of the duty position held at the time of interview.

Comment. The data indicate that most PLL Clerks do not feel the need for additional training on the mechanized stock accounting system. This view is at variance with the opinions of maintenance battalion respondents, more than four-fifths of whom felt that the PLL Clerks did need additional training for their jobs.

REPAIR PARTS SUPPLY TRAINING AND EXPERIENCE

Twenty of the 34 PLL CLerks reported having had formal training in repair parts supply that included U.S. Army Quartermaster School: Automotive Repair Parts Specialist Course (6), Aircraft Repair Parts Specialist Course (1), Stock Control and Accounting Specialist Course (2), Communications Electronics Repair Parts Specialist Course (1), and Missile Repair Parts Specialist Course (1); PLL part of MOS training (school not ascertained) (1); field training (5); and General Supply School (4). Fourteen clerks did not report any formal training.

Informal training in the sense of on-the-job training as an understudy PLL clerk was reported by 26 of the 34 respondents, including all 14 who said they had not had formal training. Thus, all of the PLL clerks reported some training for their jobs.

[1] Early in this survey it became apparent to the interviewer that the PLL Clerks being interviewed were a rather alert group. Because of this, the clerks were asked how far they had gone in school. The years of education reported ranged from 10 to 16, with an average of 12.8. These data were obtained from 25 PLL Clerks and one supervisor who reported the years of education for four of his clerks.

Eight of the 34 clerks had formal training only; 14 had informal training only; and 12 had both formal and informal training.

Only four PLL clerks reported repair parts supply experience in duty positions held prior to the job held when interviewed. One had prior experience in a depot, two had previous experience as PLL CLerks; one of these had also served in unit supply as well. The fourth respondent had been in unit supply only. Thus, 30 of the 34 PLL Clerks had no previous experience with repair parts supply. Thirty clerks had received training only, while four had had both training and experience.

These data indicate that there are not enough PLL clerks receiving organized, systematic training in repair parts concepts and procedures.

MECHANIZED STOCK ACCOUNTING SYSTEM PROBLEMS

The PLL clerks mentioned three types of problems having some relationship to the mechanized stock accounting system: status, record keeping, and lack of prepunched requisition cards or forms for all of the repair parts on their PLLs. Actually, this last problem is the only one of the three that is closely related to the mechanized stock accounting system. Status and record keeping are more properly problems of supply procedures.

Requisitions. Customer units are supposed to be furnished with two prepunched requisition forms for each repair part item on their PLL by their supporting DSU (when the DSU has an NCR 500 system). When a prepunched requisition form is used, another prepunched form is sent to the unit by the supporting DSU to replace the one that has been used.

Eleven of the 34 respondents said that their units had either not received any prepunched requisition forms or that they had received these forms for some, but not all their PLL items. They did not appear to know why all of their prepunched requisition forms had not been received.

There were eight DSUs represented among this group of respondents. The 11 PLL clerks who reported this prepunched requisition form shortage were associated with five of these DSUs.[1]

Status. Nineteen of the 34 clerks reported three major problems with status cards: that they were incorrect or incomplete (5); not received or slow to arrive at unit (4); not understandable or unable to interpret (14). Fifteen clerks did not report status problems.

The most common problem, the interpretation of status cards, was noted by respondents in other groups (Stock Accounting NCOs, TSOs, etc.) as a problem their customer units had.

Record Keeping. Eleven PLL clerks reported that keeping their records straight was a problem. Record keeping problems on the part of customers were also cited by the DSU personnel interviewed.

ATTITUDES TOWARD THE MECHANIZED STOCK ACCOUNTING SYSTEM

Nine of the 34 clerks thought the NCR 500 was an efficient system; five thought the system had both efficient and inefficient features; and 20 said they did not know

[1] Five respondents were attached to units that were supported by a DSU that was completing its conversion from the manual to the mechanized stock accounting system. This DSU had not reached the point in conversion where prepunched requisition forms were being furnished to its customers. These respondents and their DSU are excluded from this statement.

enough about the NCR 500 system to comment. It is evident that the respondents generally knew very little about the system.

The major point of interaction between the mechanized stock accounting system and the customer units is in the process of requisitioning of repair parts. Much of the knowledge about the NCR 500 that is required of PLL clerks is actual knowledge about the requisitioning process, which involves knowing how to use prepunched requisition forms. Twelve of the respondents said that the prepunched requisition form was easy to use and generally made things easier for them.

Comparison of the Mechanized and Manual Stock Accounting Systems. Only seven of the 34 respondents felt that they had a basis for making a comparison between the manual and the mechanized stock accounting systems, and all said that the mechanized was more efficient than the manual system. Two PLL clerks said that the manual system had an advantage in that it did not have any equipment that could break down.

Comment. The survey data indicate that the PLL clerks received very little training on the mechanized stock accounting system. The basic training problem for the PLL clerks is concerned with repair parts supply rather than the mechanized stock accounting system.

Considering that the PLL clerk is primarily a supply duty position with important implications to maintenance, these data indicate that not enough PLL clerks are receiving organized, systematic training in repair parts supply.

Chapter 11

SUMMARY

The information in this report reflects those conditions existing at the time the interviews were conducted (mid-1969). Since then, several modifications have been made in the training for personnel in the mechanized stock accounting system. Essentially these changes have been in the direction of more comprehensive training in more courses in more CONUS schools. Nevertheless, it appears that some modification of certain aspects of personnel and training would be worthwhile.

BASIC PROBLEM

The interview data obtained in this survey indicate that the basic personnel problem experienced by the mechanized stock accounting system is a continued input of underskilled personnel to nearly all of the duty positions in the system and at its interfaces: the maintenance battalion (or group) management, the associated warehouse or storage activity, and the supported customer units.

There appear to be at least three major interacting factors that contributed to this situation: the lack of training; personnel turnover; and attrition (rate of exodus from the Army) of the first-line managers, that is the technical supply officers, the platoon sergeants, and the stock accounting NCOs, and the equipment operators as well.

TRAINING OF PERSONNEL

The survey data indicate that training coverage for the mechanized stock accounting system was too narrow on two dimensions: coverage of information about the system, and number of duty positions included in training.

Description of the formal training received in officer courses at the CONUS schools by the respondents who were in technical supply officer or battalion management duty positions suggested that the training given was too abbreviated and did not cover enough material thoroughly. Most of the training only involved between three and nine hours of instruction. This is too brief for much to be remembered, particularly when NCR 500 training is only one of several subjects covered, and when other assignments, or leave and travel time, intervene between training and reporting for duty.

Courses that were more thorough and systematic than the CONUS school officer courses were given by the CSC DSU/GSU Field Team, Vietnam. The team gave a supervisor's course of 16 hours and an operator's course of 20 hours. Both courses were discontinued in 1968.

The most adequate training was, and still is, that given in the 146-hour operator's course by the U.S. Army Quartermaster School. Both NCR 500 equipment operators and a few NCOs are trained in this course.

Training for the personnel of the two major interfacing activities, the warehouse and the supported units, was accomplished in the field, apparently on a one-time basis for the most part. Most of this training appeared to be rather nonuniform and unsystematic.

Warehouse personnel usually received a one-time briefing when a manual stock accounting system was mechanized by the NCR 500. The data indicate that the content of this training may have been too narrow, although warehouse personnel do not have to know the mechanized stock accounting system in depth. After this briefing, training tended to be perpetuated on an unsystematic on-the-job training basis.

Customer personnel were usually trained informally by their supporting DSU by means of liaison units, classes, or SOPs. The evidence indicates that the content of this training tended to be adequate. This training was also usually perpetuated by unsystematic, apprentice-like, on-the-job training, particularly in the case of the PLL clerks.

The data indicate that training on the mechanized stock accounting system did not reach an adequate number of battalion management personnel, TSOs, platoon sergeants, stock control supervisors, warehousemen, and PLL clerks, but that it did reach an adequate number of senior stock accounting specialists, NCR 500 equipment operators, and PLL clerk supervisors.

Around the time the Vietnam Field training courses were discontinued, new training courses were introduced in several CONUS schools, or existing CONUS school training was increased in comprehensiveness. The new courses were primarily for commissioned and warrant officers who might later be assigned to maintenance battalions as technical supply officers or other duty positions involving some management or use of NCR 500 system output. Courses for NCOs who might later become NCR 500 system supervisors have evidently not received the same emphasis as those for commissioned officers, although the need for trained NCOs for this system appears to be rather acute.

The areas where additional training or performance aids could probably make a contribution to the efficiency of the mechanized stock accounting system are identified in Table 12. The data upon which Table 12 is based indicate that there was a need for additional training or performance aid support at almost every job in the mechanized stock accounting system and for those jobs at the system interfaces as well.

PERSONNEL TURNOVER

Turnover is hardly an unusual problem for the Army. Efficiency is lowered when personnel change from one job to another without gaining enough experience to function proficiently, or rotate almost as soon as they gain enough experience to become proficient. The efficiency of the mechanized stock accounting system, like that of other Army systems, suffers from the effect of high turnover.

One specific turnover problem mentioned by some of the respondents was the tendency in some DSUs for several of their trained and most experienced personnel to be lost at one time. This apparently is the result of an entire NCR crew being assigned to a system at the same time. According to the respondents, a severe strain was put on a system when such rotation took place.

The average number of months on the job for all the respondents in this study was 6.1 months. For the maintenance battalion personnel, the average was 6.0. Assuming that personnel are assigned to these jobs at a fairly even rate, these data indicate that the respondents would hold their jobs for about one year. Considering that most of the personnel input was not comprehensively trained, a year may be enough time for an incumbent to reach optimum proficiency on the more routine jobs but probably not enough for some of the supervisory duty positions.

Turnover would not be a problem if well-trained and experienced job incumbent were being replaced by other well-trained and experienced personnel. However, this was not the case for the mechanized stock accounting system. In this system, trained and

Table 12

Area of Use and Type of Training That Might Further Efficiency of the Mechanized Stock Accounting System

Duty Position	Area of Activity for Performance Aid Development	General Area of Knowledge Where Training Is Indicated
Battalion Management Personnel	Mechanized Stock Accounting System Management: 1) Workflow 2) Inspection Supply Management	1) Fundamentals of the NCR 500 system including operation and function of the various system components: hardware, software, and personnel. 2) Capabilities and limitations of the system. 3) Relation of the system components and functions to repair parts supply management. 4) Inspection criteria. 5) Supply management; basic concepts and procedures.
Technical Supply Officer	Mechanized Stock Accounting System Management: 1) Workflow Supply Management	1) Fundamentals of the NCR 500 system including operation and function of the various system components: hardware, software, and personnel. 2) Capabilities and limitations of the equipment. 3) Supply management, basic concepts and procedures.
Platoon Sergeant	Management: 1) Workflow	1) Fundamentals of the NCR 500 system including operation and function of the various system components: hardware, software, and personnel. 2) Document and workflow between the mechanized stock accounting system and the interfacing warehouse.

(Continued)

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Table 12 *(Continued)*

Area of Use and Type of Training That Might Further Efficiency of the Mechanized Stock Accounting System

Duty Position	Area of Activity for Performance Aid Development	General Area of Knowledge Where Training Is Indicated
Stock Accounting NCOs	Management: 1) Workflow	1) Fundamentals of the NCR 500 system including the operation and function of the various system components: hardware, software, and personnel. (For those who were not trained on the NCR 500 system at the U.S. Army Quartermaster's School) 2) Document and workflow between the mechanized stock accounting system and the interfacing warehouse. 3) Warehouse organization, function, and document flow procedures.
Mechanized Stock Accounting System Equipment Operators	Stock Accounting Equipment Operation	1) Relation of the system components and functions to repair parts supply concepts and procedures. 2) Mechanized stock accounting system procedures.
Storage Activity Supervisors	Management: 1) Workflow	1) Fundamentals of the NCR 500 system, particularly document flow and the relationship between the storage and stock accounting activities. 2) Warehouse procedures and techniques.
Warehousemen	Warehousing	1) Fundamentals of the NCR 500 system, particularly document flow and the relationship between the storage and stock accounting activities.

(Continued)

Table 12 *(Continued)*

Area of Use and Type of Training That Might Further Efficiency of the Mechanized Stock Accounting System

Duty Position	Area of Activity for Performance Aid Development	General Area of Knowledge Where Training Is Indicated
		2) Warehouse procedures and techniques.
PLL Clerk Supervisors	PLL Supervision	1) Repair parts supply concepts and procedures. 2) PLL procedures. 3) Relationship between the NCR 500 system and PLL activities.
PLL Clerks	PLL Operations	1) Repair parts supply concepts and procedures. 2) PLL procedures particularly record keeping and status. 3) Relationship between the NCR 500 system and PLL activities.

experienced personnel were usually replaced by personnel who might have had some training but who were not experienced.

Attrition of Personnel. The third problem that is evident in these data is the attrition of mechanized stock accounting system first-line managers and computer system operators. The attrition problem has existed for years, and the Army had to a degree adapted to it. However, as equipment and systems become more complex, the need for trained and experienced personnel increases. Of 31 first-line managers and 10 operators interviewed, only three said that they were career soldiers, four had not decided, three did not say what their plans were, and 31 were going to leave the Army. While the degree to which the data of this survey are representative of the career intentions of all of the men in those jobs in Far Eastern commands is unknown, these data do indicate that this attrition should be studied to determine how serious it is, and what impact it is having on logistic system efficiency.

The immediate problem for the NCR 500 system, occasioned by this high rate of attrition, is simply that the Army is continually short of personnel trained and experienced in the mechanized stock accounting system for promotion into the key noncommissioned manager duty positions at the E-5 and particularly the E-6 level. This means that the efficiency of the system will remain impaired until more computer system operators and junior managers decide to make the Army a career and can be assigned to duty positions consistent with their skills in mechanized stock accounting.

Assignment of Personel. More than four-fifths of the respondents were serving in a duty position either identical or related to one of their MOSs. The findings reported in Table 12 concerning the need for training on both the mechanized stock accounting system and repair parts supply indicate that this statistic is considered somewhat misleading.

Attitudes Toward the Mechanized Stock Accounting System. The attitudes expressed toward the NCR 500 system tended to be positive. Whether these survey data reflect real attitudes is unknown, but from other comments made outside the interview situation the interviewer is of the opinion that these attitude data generally reflect the feeling about the NCR 500 system.

Staffing. The respondents tended to feel that the various mechanized stock accounting systems were adequately staffed. There were some reservations on this score as far as the warehouses were concerned; more than a fourth of the respondents said that their warehouses were understaffed.

Contact with the U.S. Army Computer Systems Command DSU/GSU Field Teams. These data were obtained from the maintenance battalion personnel only. More than four-fifths of these respondents reported contact with the field teams. More than three-fourths of the managers felt that the teams were providing valuable assistance to them in the management of the mechanized stock accounting system.

Only three of 16 maintenance battalion managers reported using a management checklist for the NCR 500 system that was furnished by the U.S. Army Computer Systems Command.

CONCLUSIONS

The NCR 500 is the first computer system implemented by the Army for field use in the logistic system on a large scale. Several conclusions can be drawn from the implementation experience in the personnel and training area covered by this research. System efficiency would probably have been promoted by the following:

(1) The Total Systems Approach to Training

(a) Training for all concerned duty positions.

The study data indicate that adequate training or instruction was not given for all duty positions in the system or for the duty positions in the interfacing activities. When the NCR 500 system was first put in the field the computer system operators were the only job incumbents who received comprehensive instruction. This study indicates that training for managers, such as the maintenance battalion commander, his staff, the technical supply officer, and the enlisted stock accounting supervisory personnel, was too abbreviated to enable these individuals to efficiently assume managerial duty positions for the NCR 500 system.

Training for the personnel of the major interfacing activities, the associated storage activity or warehouses, and the supported customer units was accomplished in the field. A one-time conversion briefing made up the principal source of formal training on the NCR 500 for personnel assigned to the warehouse, the main interfacing activity.

There was little or no systematic, uniform, or continuous training for the other important interface, the PLL clerk and his supervisor at the supported units. Customer training was accomplished largely through their supporting DSU, and varied from DSU to DSU. Training for both of these interfacing activities was accomplished for the most part through unsystematic, apprentice-like on-the-job training.

(b) Integration of NCR 500 system concepts with supply concepts.

Various respondents said that the training courses should thoroughly integrate the NCR 500 computer system concepts and procedures with the logistics operations and concepts that the system supports. NCR 500 system training was criticized as lacking this integration.

(c) Upgrading the storage operation supported by the mechanized stock accounting system.

While the implementation of the NCR 500 system was accomplished to upgrade the stock accounting function of repair parts supply, an equal effort was apparently not made to upgrade the storage operation that is supported by this mechanized system. Many of the efficiency problems of NCR 500 systems can be attributed to inefficient warehouse operations that provide incorrect input information or that mishandle output.

It does little good to have a highly efficient stock accounting system if the repair parts data received from the warehouse are inaccurate. Obviously both system components are equally important as far as logistical efficiency is concerned. The Army should put as much training effort in the storage activity as it does in the stock accounting function.

In addition to the training of warehouse personnel, a more positive attitude toward warehouse jobs should be encouraged. Commanders do not seem to understand that warehouse duty positions require personnel who are alert and motivated to do a good job, and that this is highly important to an efficient repair parts supply operation. Warehouse jobs should not be considered as places to put disciplinary problems or those who have shown little or no aptitude for other jobs.

By the same token, training is required at the customer interface. Stock accounting efficiency can be degraded by poorly and inefficiently operated customer PLL operations feeding inaccurate input data to the computer system or handling output incorrectly.

The Army should also insure that the customers receive proper training in PLL operations as well as those aspects of the NCR 500 system that are relevant to their duty positions. Lack of consideration of these related functions degrades the efficiency of the computer system, not only with respect to the quality of the data but also with regard to the motivation of the computer system personnel.

(2) Assignment of a well-qualified Technical Supply Officer

The NCR 500 system was put in the field without a first-line manager who could manage the computer system qua system and manage the supply mission as well. The principal first-line manager of this system is the Technical Supply Officer. This duty position should have had a technically qualified incumbent who was thoroughly knowledgeable about the NCR 500 system as such, thoroughly knowledgeable about repair parts supply, and well versed about the relationship between the hardware and supply concepts and operations. Instead, this survey revealed that this duty position was nearly always filled by an inexperienced lieutenant.

These data indicate that this assignment practice impaired the efficiency of the repair parts supply functions. It also put an additional strain on the higher level managers who have more than enough to do in carrying out the maintenance functions without the added managerial obligation of technical supply. The job was simply too big for the incumbents. It is also likely that this assignment would discourage these personnel from staying in the Army (only one of the 11 TSOs said they were career officers).

Newer and much more complex computer-supported logistic systems are being developed. The "logistics offensive" with such concepts and policies as "inventory in motion," "planning and logistic intelligent," and "making automatic data processing systems work," obviously involves a much greater requirement for a group of very knowledgeable first-line managers than for the comparatively simple NCR 500 system. The Army will have to put more knowledgeable and experienced personnel in key first-line manager positions in these new systems than was done with the NCR 500 if the new systems are going to function efficiently.

(3) Training more noncommissioned officers with supply experience

If the data obtained in this study pertaining to the career intentions of the first-line managers and the computer system operators are even approximately correct, it is evident that a great deal of time and money have been spent training personnel who are of use to the logistics system for only a short time.

The study data indicate that there is a very inadequate base of trained and experienced personnel from which badly needed first-line managers for the mechanized stock accounting system can be drawn.

In view of this apparent high attrition rate, every effort should be made to train senior career NCOs who are experienced in repair parts supply, on the mechanized stock accounting system. There are spaces allotted for NCOs in the NCR 500 training classes at the U.S. Army Quartermaster School. These spaces rarely seem to be filled. A few NCOs interviewed felt that the Army is reluctant to send personnel to school who have been in the Army for some time. If this is true, the policy should be reviewed. If it is not true, this impression should be corrected.

Retention of personnel may well be even more difficult for the new systems than for the NCR 500 as the higher skilled personnel will probably be in more demand outside the Army, and thus be eligible for jobs paying better salaries than can be paid by the Army.

(4) More field training

These interviews indicate that a considerable number of personnel were assigned to jobs for which their qualifications were less than optimal. Furthermore, personnel were not always assigned directly to DSU jobs following training for them. Sometimes other assignments intervened, or several weeks elapsed between training and reporting for duty.

The NCR 500-based mechanized stock accounting system is relatively complex. Much of the training involves rather detailed and specific procedures that are easily forgotten if not used. Furthermore, given present assignment practices, many personnel who are assigned to duty positions in this system will not be trained or will

have forgotten many of the details by the time they report for duty. This places a training demand on the DSU that should be mitigated as much as possible for the sake of efficiency.

The unsystematic nature of the training received by many respondents in this survey indicates the need for standardized systematic instruction, not only on the NCR 500 system, but on repair parts supply, and storage procedures and techniques as well. A field training facility could have provided for organized, systematic training that could have promoted system efficiency by providing a more capable personnel input and by removing some of the training demands from DSUs that had a limited amount of time for training.

A field training facility could take one of the following three forms, or any combination of the three: a model DSU, on-the-job training packages, and a performance aid system. A model DSU could embody the "hands on" technique in which the trainees learn their jobs, and the jobs of others in the system, by actually performing in these jobs, using real documents, a real NCR 500 to process them, and a real warehouse with real parts to be received, stored, and issued.

System efficiency would be enhanced if the trainees included warehousemen and supported unit personnel (particularly PLL clerks) as well as mechanized stock accounting trainees.

On-the-job training programs complete with training materials and performance aids could be developed for the entire DSU, those management positions at levels above the DSU, and for the customer unit personnel, particularly the PLL clerk.

A system of performance aids would have several advantages. The more job know-how that can be removed from formal training courses and incorporated in performance aids that can be used on the job, the shorter the training required for the system should be, the lower the cost of training, the more use the Army will get from the personnel, and the easier it will be for untrained or partly trained personnel to learn on the job.

Considering the effect of attrition, it is possible that a continued flow of underskilled personnel into the NCR 500 system and into future computer-supported logistics systems will continue. Training for future, more complex, computer-supported logistics systems will be longer and will cost more. Field training as well as OJT will be more difficult; mismanagement, or the lack of trained personnel, will have a more profound effect on efficiency. The need for performance aids may well increase as the system becomes more complex.

Mechanized stock accounting system efficiency was promoted by the assistance provided to the NCR 500 systems in this research by the U.S. Army Computer Systems Command DSU/GSU Field Teams. This assistance was considered to be valuable by a large proportion of the NCR 500 system managers interviewed. Much of this assistance was in the form of management help which the survey data indicate was badly needed.

Assuming that many of the same training problems will apply for the new oncoming computer-supported logistics systems as were experienced with the NCR 500 system, it seems rather evident that this field assistance function will have to be provided—and probably increased—for the new systems. The new systems, being more complex and comprehensive will, in all probability, result in many more of these management, turnover, reenlistment, and training problems than the comparatively simple NCR 500-based mechanized stock accounting system.

APPENDICES

Appendix A

BASIC INTERVIEW QUESTIONS

The basic questions used to collect the interview data for the nine types of duty positions summarized in this report are reproduced in this appendix. These questions were freely supplemented by probes for additional information when the desired information was not forthcoming from the original question and when time permitted. As the probes were of an ad hoc nature, they are not reproduced here.

Questions which were identical for more than one type of duty position are reproduced only once. For the purposes of interview data collection, separate interview guides containing all of the questions used for a given duty position were employed. An 'x' is placed in the column below the number of the duty position for which the question was used. Duty positions are designated as follows:

Duty Position	Number
Battalion Management	1
Technical Supply Officer	2
Platoon Sergeant	3
Stock Accounting Supervisors	4
Operators	5
Storage Activity Supervisors	6
Warehousemen	7
PLL Clerk Supervisors	8
PLL Clerks	9

Basic Question	Duty Position Number 1	2	3	4	5	6	7	8	9
What is your MOS?	x	x	x	x	x	x	x	x	x
How did you get your MOS?	x	x	x	x	x	x	x	x	x
What is your duty position?	x		x					x	
What is the MOS designated for your duty position?	x	x	x	x	x	x	x	x	x
How long have you been in your present duty position?	x	x	x	x	x	x	x	x	x
Have you had any formal training, briefings, orientations, demonstrations and so forth on the NCR 500 system? (probes used for CONUS schools; DSU/GSU Field Team, Vietnam; special briefings, orientations, classes etc.)	x	x	x	x	x	x	x	x	x
Would you like to have any additional training on the NCR 500 system? In what aspects of the system?	x	x	x	x	x	x	x	x	x

Basic Question	Duty Position Number 1	2	3	4	5	6	7	8	9
Have you had any experience with the NCR 500 system other than this DSU? Where? When? How long? What was the nature of this experience?	x	x	x	x	x	x	x	x	x
Have you had any formal training, briefings, orientations, classes in the field, in repair parts supply?	x	x	x	x	x	x	x	x	x
What experience have you had in supply jobs other than your present duty position?	x	x	x	x	x	x	x	x	x
How much of your time do you spend in supply activities?								x	
What are your management functions?	x	x	x	x		x			
What are your management problems?	x	x	x	x		x			
What are your major tasks?					x		x		x
What are your most difficult tasks?	x	x	x	x	x	x	x	x	x
How are the transactions between stock accounting and the warehouse going?	x	x	x	x	x	x	x		
How are the transactions between the DSU and the customers going?	x	x	x	x	x	x		x	x
Is the stock control activity adequately staffed?	x	x	x	x	x				
Is the storage activity adequately staffed?	x	x	x			x			
How do you feel about the NCR 500 computer system?	x	x	x	x	x	x	x	x	x
How do you think the NCR 500 mechanized stock accounting system compares with the manual stock accounting system?	x	x	x	x	x	x	x	x	x
Have you seen any publications, e.g. CSC (ADFSC) regulations, text books, newsletters, etc. that pertain to the NCR 500 mechanized stock accounting system?	x								
How are these publications with respect to: ease of reading or understanding; finding information; format?	x								
Which of the NCR 500 system publications are the easiest to use?		x	x	x	x				
Which of the NCR 500 system publications are the most difficult to use?		x	x	x	x				
What aspects of the mechanized stock accounting systems do you inspect?	x	x							

Basic Question	Duty Position Number 1 2 3 4 5 6 7 8 9
Have you used the DSU/GSU Assistance Team inspection checklist?	x x
In general how do you like your present job?	x
Do you plan to make the Army a career?	x x x x
Have you had any contact with the DSU/GSU Assistance Team? In what respect?	x x x x x x x

Appendix B

SELECTED QUOTATIONS FROM PERSONNEL INTERVIEWED

BATTALION MANAGEMENT PERSONNEL

Training

". . . in the Aviation Maintenance Officer Course at the Transportation School we had the manual system and since I've been in Vietnam . . . I've been to numerous briefings and self teaching programs to learn this thing . . . it was a matter of studying the regulations and publications . . . the briefings that I've received have not really been designed as orientation to the system. They've been more related to operator kind of thing—by operator I mean user of the machine, not a real orientation . . . I understood the briefings and I think I benefited as much as anyone who was there, but I never got a chance to receive an orientation—an authoritative orientation sort of briefing to the machine. All my knowledge of the machine operation is pretty much based on what I could read and interpret from the regulations."

Training Needs, Mechanized System

"The basics, program sequence, what you have to have in one step before you can perform the next step . . . a good working knowledge of the general supply procedures as well as requirements . . . the feel for what it takes to get a job done, how much time it takes, . . . what you can expect of your people and how much time they should have to do it."

Training Needs, Repair Parts Supply

"I have had OJT and supply seminars, but mainly in my case it is self-taught through reading and having worked both at the NICP level and at the unit level, and being able to know and understand what is going on, and my own personal desire to be an expert in the field I am working in . . . you just have to dig in and find it. I learned a lot through seminars and through literature that is passed out, and newsletters, etc."

Management

"I looked at the reports from all the ___ Group which has 10 DSU operating mechanized stock accounting systems. I tried to evaluate which one was doing a better job versus the other one by the number of lines they had on their ASL, the number of transactions posted, and the number of aircraft supported. I tried to get some trend established, to get some sort of systems capability. Now with most hardware when . . . the military procures it, they list in a publication, specifications saying what can be effected under what kind of conditions. This system doesn't have any parameters as to what is expected and what the capability of the equipment is, and therefore, as a manager you do not know when they say they are saturated whether or not they are, or whether they are getting poor utilization . . ."

Warehousing

". . . zero balance, that is the big problem with us, obviously . . . most times, if we can get the parts here then it's no problem. Warehousing is always a problem. It's difficult to get people, to get GI's to take warehousing seriously. People don't realize the

importance of accurate warehousing procedures. These small deviations from procedures and warehousing are fatal to the system really, so far as knowing what's on hand and knowing where it's located and controlling it."

DSU Personnel

"I think our greatest problem in supply is not necessarily the lack of training because there is nothing mysterious about the Army supply system. The problem that I have here in the Battalion is really a lack of initiative. I think this is true both for the officer I have down there and my NCO. The NCO that is there has been there for 7 months. Virtually everything I have looked at in Tech Supply has not been satisfactory. This is a major failing on the part of the NCO's. I can't pin it to the officer. He is a young lieutenant. I think the job is too big for a lieutenant in this environment. He doesn't have the experience. He doesn't have the know-how to handle a job of that magnitude. I have taken the captain from my staff and put him in headquarters in Tech Supply full time."

Attitudes Toward the Mechanized System

"I think . . . from a psychological standpoint, that it makes supply business a little more attractive. I mean people having a chance to work with sophisticated equipment adds a little dignity and color to it and all that sort of thing, to the stock accounting clerk who used to be a pretty mundane kind of job . . . much faster work, of course, and much more accurate . . . The vulnerability of the thing, of the paper where the temperature is particularly disagreeable for it. Also power source problem continues to be a harassing sort of thing. The vulnerability to frequency vibration or frequency variation voltage regulation causes some problems in some areas."

"It is a very slow system, there is no flexibility within the thing. I cannot get a page print of its output which I need all the time particularly in that it is very essential that I publish stockage lists for my customers, so they will know what is normally stocked within the DSU, and this is particularly true of the construction type items, so that my engineers will request items stocked already instead of going through catalogs and finding a new piece that we never handled before. We are having to develop our own procedures."

Contact With CSC DSU/GSU Field Teams

"For the people who bumped into this job with no experience whatsoever, the (Team) can be a vital solace. Once the Team gets attention, people listen to them and realize that they are trying to help. They need to be out here. They need to talk to people. They need to come back out. They need to talk to them again. There are a lot of things that happen up in the field that a person behind a desk might say, 'that can't happen. Nothing like that has ever happened. It just isn't so.' Then somebody maybe from the Team will tell them . . ."

TECHNICAL SUPPLY OFFICERS

Mechanized System Training

"I believe I received two hours training on the NCR 500 in OCS, one hour of which followed a vigorous PT session and we weren't very receptive. The second hour consisted of a film on the system where it showed the system processing one or two requisitions under ideal circumstances."

"I have an operator's manual here. Every time I can, I look through a few more pages of it. I have an instructor's guide of stock control and supply accounting. This has helped me a little bit and whatever I ask from my NCOIC, has helped me quite a lot to learn more about the system. However, I know I still have a lot to learn."

Mechanized Training Needs

"I could use additional NCR 500 instruction. I think there are a lot of areas that I still can't tie in, ones I can't understand, and I have to depend a lot on my NCOIC. I think a good three-day course on the procedures to follow would be a worthwhile experience."

Repair Parts Supply Training

"I think we had four hours on supply management in the Officer Basic Course . . . not repair parts supply management either. Everything I know is what I studied from 711-16 and various AR's."

Problems With Management

"Trying to contend with individuals on a higher level than myself, in other words, individuals who aren't familiar with the system and who are placing certain requirements on us that impair our mission here. They are placing certain requirements on me that I don't feel we have the capability to do, that is, we don't have the personnel, and I have to try to get these done the best way possible without creating too many incidents."

"I would say getting the total picture, getting everything coordinated properly. You have got to sit back and take a big look at it. You can't get wrapped up in all the day-to-day procedures and not take a good look at the overall picture."

Warehousing

"The most difficult, not in actual performance of duty, but the most difficult in controlling would be the warehouse. It's harder than most jobs trying to keep the warehouse straight. This is where the problems occur because if the warehouse does not locate the stock where they can find it, they send in incorrect totals to the stock accounting section and what you have in there would not be worth the paper it's written on. My specific problem here is lack of trained personnel. This particular unit never had any tech supply prior to March, and when we started the people we had we drew from other sections, they were school-trained supply people but they never worked in a warehouse. We tried to train them but a lot of them didn't have the interest or ability to immediately take up warehousing."

Subordinate Personnel

"I think what's difficult about the job primarily is the lack of training your people receive . . . people are trained as operators on the NCR and they know the machine, but what they don't know is the stock control portion of the program, they don't know what the data is that they are putting in and getting out of the machine.

Customers

"Most of the problems are generated by using units. Problems you typically find are someone at unit level not maintaining accurate and adequate document registers. This quite often results in us having to go back to our records unnecessarily to validate receipts of a requisition or issue a part or status."

"They do furnish me with PLL's. We were having trouble getting them to use prepunched, they didn't understand, seemed to be a little afraid of them. During the monthly visits we explained how much time it would save and how helpful they were so now they use them."

Comparison of Mechanized and Manual Systems

"It is much better than manual, because it is faster and gives you information that you couldn't get without many hours of computation manually. The disadvantage is that you are limited in the number of line items you can handle . . . one of the best things about the NCR 500, you can tell what you are doing each day."

"Disadvantages can be summed up in one word: downtime. When you are down you have 12 and 17 priorities piling up in your space and you can't do anything about them. Advantages: you have less people working in stock control system which makes for less errors, you can do a lot of things with this system you couldn't possibly do as well manually.

Attitudes Toward Mechanized Publications

"They are confusing to me. I just don't understand what they are saying. I have a difficult time relating what they are saying to the machine and to the job at hand. Some of those charts they have, the flow of document charts, I prefer to have it written down than on a chart. The document chart does nothing for me. If it is written down in steps and series, I can grasp this a lot easier. This is myself; maybe some other people can grasp the charts better."

Contact With DSU/GSU Field Teams

"My initial contacts on this system were in the establishment of the system itself. The ADESC team came out and assisted my people in becoming proficient on equipment. They have been here on inspection visits, and have been down here to provide assistance any time asked. We have a good working relationship with them."

PLATOON SERGEANTS

Training

"All of our 10 people have been trained at the QM school, their training is effective except for the fact that going from my own experience at the school there is too much emphasis put on the ideal situations and not enough emphasis put on the way the system has to work over here due to the different supply problems. For instance, when I went to the school there it was said that the ordering ship time for any requisition we would get would be 15 days. My experience has shown over that, it is as much as 100 days."

Supply Experience

"I worked in the NCR DSU for approximately 15 months prior to the time I took over my present job, I worked in the outside storage, inside storage, shop supply. I worked just about every job in the DSU."

Problems With Management

"The information that we have to give to whoever asked for it seems like a small amount of information, but when you actually go down and try to breakdown, it takes a lot longer than the deadline given, and it causes the work to be necessarily hurried if you have to meet the deadline."

"We have received several requests for various types of reports from higher headquarters. Approximately half of our time for the day crew is tied up researching various reports. We have received requests for data that the machine was not designed to provide."

Warehousing

"I am trying to get the warehouse straight. Tech supply is only 2 months old and I have to make sure the warehouse is up to par. I do check some ledgers when it pertains to due outs and due ins . . . one problem is personnel that are not qualified to be in the warehouse. NCR personnel are trained and know their work. The personnel in the warehouse have not had training, we have OJT."

DSU Personnel Problems

". . . We are having a problem with turnover on personnel and are going to continue having a problem because the individuals don't want to stay here because they don't feel they can get promoted and they can't better themselves here. This is the NCR people."

"A lot of the personnel that come over here have come here just after advanced individual training, whether it be supply or maintenance or whatever it is. It takes some of them a while and it takes others less time to really get into the swing of things with their jobs. Another problem is people rotating back to the States. You get a person trained in a job and the next thing you know he is gone. . ."

Customer Problems

"PLL's are one of our biggest problems. We recently completed furnishing all of our customers with prepunched and preprinted requisitions. Seventy-two out of our 84 customers have PLL's on hand which is rather good. Less than half of these 72 customers have PLL's up to date. They have not submitted changes, additions, releases, and so on. We can't give them prepunched cards for items that they don't get. We can't make addition to PLL's if they don't send them in."

Efficiency of Mechanized Systems

"It takes a lot of the manual effort out of the processing of requisitions, filling requisitions, processing repeats and everything else. It is about time the Army's come up with something like this . . . I don't believe myself that the NCR is capable of handling the workload that is put on it by some of the different DSU's. NCR as I understand it is built for about 8,000 to 10,000 line items and we are handling 14,000 something right now . . ."

Comparison of Mechanized and Manual Systems

"This machine is much faster, doesn't need as many personnel. It is still costing the Army a lot of money, breaks down, the least piece of dust can put the machine down, the machine is too sensitive."

"The manual system may be a little faster but it is not anywhere as accurate. There are built-in safeguards in the NCR system that prevent you from posting one request for one FSN against another FSN . . ."

Attitudes Toward Mechanized System Publications

"Every newsletter or regulation that we get always has some very valuable information . . . the basic regulation, the 711-1 and 711-2 are always used. They are used every day and as they set up the procedures and policies and the way the work should be run . . . they cover everything we do, except I feel that the NCR system program and everything else is not set up for an aircraft tech supply or primarily for an aircraft tech supply, but rather for a quartermaster type of supply."

Contact With DSU/GSU Field Teams

"We just had a thorough inspection by the ADFSC. They left us a complete critique of our entire operation including warehousing. They showed up our weaknesses, our administrative problems, problems in maintenance and management. They also pointed out to us that it is necessary to utilize their check sheet as a management tool. It should continue its work. I think they are a big help . . ."

STOCK ACCOUNTING NCOs

Training

"I took a course in Saigon. I picked up the MOS after I came over here. We covered what the computer was designed and not designed to do. We didn't have anything on support of customers. We were taught how to use the management tools, and system publications. We got handouts, which were useful."

"NCR school at Ft. Lee is not long enough, people should have more experience, three weeks is not long enough. I would rather have a man with a good supply background and experience, coming out of school helps, but good supply experience is better. For example, the work packs that are going into the machine like a receipt or request is going in, he ought to know just exactly what these are. If he doesn't know what they are, he can't tell if they are correctly punched."

Training Needs

"There's a lot of training I would like to have. I don't see how they could give it in school, it would be too involved. If they would just give these people a more basic concept of supply, it is easy to train on the machine, the problem comes when they have to make decisions on supply like what's going to be the effect of my making this one decision . . . People working for me have no idea of what supply clerks on unit level are doing. They (the customer units) will send documents to them (the DSU stock accounting personnel) and come up with questions. How should I be doing this? Our people cannot answer them. I feel that if you work on higher level like the DSU, you should know exactly how they should be functioning on a supported unit level."

Experience

"As I indicated before, you come over here and you don't have too much knowledge at all. You don't have any confidence . . . you are new. So any bad habit that a person . . .. the people that are there when you come into the system have got, you are going to pick up . . . all the people that were here were short tour when people have 3 months to go, all they start thinking about is getting out. This is not only in supply, but everywhere. It seems that it is really a big problem. So these people just said, well, 'there it is, it is all yours.'"

Problems With Management

"I'd say the biggest one is the paper work coming from outside into the inside so it can get posted to the ledger. Keeping the balances on hand straight. Inventories kill you. To inventory this many times out here in a system this large, requires so much time that you get backlogged."

"I received requests for run offs from machine, like an ASL run off. I would have to take all data 1 cards and put them in the machine. It would take 5-6 days for this run off."

Warehousing

"In this particular system . . . the balance . . . it is extremely messed up right now. I think if you would take any 10 stock numbers, check the total quantity due in with the due in file against the total quantity due in against the ledger, you would find about 50% accuracy and that's all at the present time."

DSU Personnel Problems

"We have a problem getting trained personnel from school. What we have done is take people that are 76P MOS which is a stock control MOS, and cross-train them to be mechanized personnel. Everywhere we have tried this they have turned out to be very good choices."

"As far as I know the personnel that are put out there (the warehouse) are not working in their MOS, and they're not given any kind of actual training, they're told what to do and how to pull stock but they're not told the little things like watching unit of issues and inventories."

Customer Problems

"Our customer personnel have no training at all. Most of our customers don't even know that the system here even exists."

"They use prepunched cards, I believe they are in the process now of submitting reviewed PLL's. There is a problem with status cards, but is mostly their own fault, they are too lazy to utilize AR's they have to find out what they are supposed to do with them."

Staffing

"It needs at least a major in charge, he should be either a signal supply or a quartermaster officer. The NCOIC should be a senior supply specialist, he should be familiar with NCR. Admin. section right now has an E-7 in charge, a PFC should be in Admin. We don't need him. The Accountable Officer should be someplace else. Stock control could be handled by a good E-6 or E-7, he should have good supply background, maybe a senior supply specialist, and good knowledge or school trained on the NCR."

Comparison of Mechanized and Manual Systems

"It definitely has its advantages in speed and accuracy. It also has disadvantages. We are trying right now to work the machine with a workload the system was not designed to handle . . ."

"The advantages of having the mechanized system over the manual is that you can have more of a workload for a smaller percentage of people. You don't need nearly as many personnel to actually do the same amount of work this is the big thing, it keeps better control of your stock using the mechanized system."

Mechanized System Publications

"I use ADFSC handbook most frequently. This is a consolidation of all newsletters that have been sent out. We also use 711-1 and -2, we just received these training aids used at Ft. Lee, there are about 4 manuals altogether. I believe one of the manuals replaces the ADFSC 711-1 or -2, I think they are extremely valuable, they are much more concise and easy to find things in them . . ."

Contact With DSU/GSU Field Teams

"For technical assistance with the machines, we have had a lot of contact. For what I would call system's assistance, we haven't had any. When they come over, we talk over any problems that we have, but that is basically it. But not for technical repair assistance. We use them a lot."

OPERATORS

Training

"In school we just basically got acquainted with the machine. When I got over here on the job and got on the machine all by myself without any assistance, I had assistance if I needed it, but to get on the machine without someone watching over you get more out of a feeling of what's going on. Back in school you were given an allotted time on the machine, but there were about 6 other guys in the group that had to run the same program. When you sit down alone, you get a lot more, you get to know what its going to do next. I think right now I know every program that we can run, and can run it fast enough to use it for the purpose it was designed."

"I would like to get one of the course outlines so I can go back and refresh my memory as to what I learned. I worked on another job and then a month's leave before coming here so I have forgotten 90% of what I learned.

Warehousing

"One of the big problems here is that we'll cut an MRO on a stock number and we'll get a warehouse denial on it, and I could take maybe 50 of these warehouse denials and go out in the warehouse and find anywhere from 5 to 15 of these items out there. One reason for this is because they might have three or four locations for one item. They'll put just one location down on that MRO, and naturally the person pulling that stock will not know to go to look in a different location if it is not on the card . . . They're awful short on men."

Customers

"Units are constantly after us for status. We get 10,000 status cards a week to put out to our units to sort and get in unit order, and send out. It takes time. They don't use prepunched cards; all manual requisitions. When they fill out manual requisitions, they do not fill them out correctly and we have to make up entries for them on the cards. Sometimes requisitions are received without the quantity wanted. A lot of units think everything can be run fast. They don't realize the hours of preparation it takes. 02 requisitions can get fast priority but normal takes time."

Attitudes Toward System

"There seems to be a lot of loop holes, there seems to be too many records that have to be kept on it, your due-ins and due-outs. If one gets lost in the warehouse, it's bound to show up and really upset the ledgers. The machine itself is not that reliable, it's fast but the main point is that if it is not done right, the whole thing is fouled up."

"As a whole the system is fairly efficient. The only problems that I've encountered are that if you do have a shortage of personnel, the input that goes into the machine is not going to be as good as it should be, and this causes errors in your output. Your ledger comes out wrong, and it seems like mistakes just multiply on top of each other and before you know it you've really got yourself in a mess."

Comparison of Manual and Mechanized

"I think the main advantage of the system is the fact that you can process a lot, maybe 100 times more in one day than manual. Manually would take one hour to write out 30 requisitions, computer punches out in about 4 seconds. The disadvantage is that the machine breaks down or something goes wrong you will develop a backlog and have to start doing things by hand and finally when the computer gets back up again, you have to convert all these manual into mechanized."

Attitude Toward Job

"The main disadvantage of working up there is that we work so close together. Everyone who is with this system has got at least average intelligence or higher depending on the tests. Working this close together you get on each other's nerves and you have little problems that way. As far as advantages . . . I have got a nice place to work. It is better than the average person."

Mechanized System Publications

"The mechanized stock procedures book is written in such a way that if you just follow step by step, I think anyone could operate the computer."

"NCR has the best publications cause you can go right to the book and anything that goes wrong with the machine other than a malfunction of the machine itself mechanically, you can get out of if you take your time and read it."

Help From DSU/GSU Field Teams

"They have been down here and helped us, but none of the people have been trained with them . . . when we first started, we had problems on management. Everybody was qualified but they didn't have the practical experience."

STORAGE ACTIVITY SUPERVISORS

Training

"I spent 9 weeks at Ft. Lee in the Officer Basic Course and then I spent 9 weeks in a Supply and Service Officer Course. It was there that we had about 3 hours lecture on the NCR. Other than that, I have only had a short briefing for an hour here when the Assistance Team came . . . I feel for my particular job that the training I had served its purpose. It did not teach me how the machine works and what I had to do to make the machine work. However, it did teach me the functions of my storage area so that the

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stock control people could actually use this machine well. However, it did not train me to actually take over in the stock control section."

Experience

"In Korea I was in a depot as a storage specialist. Relocation and consolidation was one job. I also made reports of survey. I was there 2 years. I also worked in outside storage, ran a warehouse; and a clothing warehouse."

"NCOIC of the tech supply, PO depot, instructor inspector in the Far East command, warehouse supervisor and the receiving and shipping supervisor."

Management Problems

"From my point of view the hardest part of the mechanized system is insuring that the figures which go into the computer from my particular section are correct because if these figures aren't the machine will actually pick up extra items which I don't have on hand or I will have one on hand and the machine will pick up less. Here again it is just all the human errors."

Warehousing Problems

"When we get double shipments, we are sitting holding the item and nobody wants it, then we have a backlog of parts cause they are just sitting in the yard. Some of them have been sitting there for years. When I receive an item with no paper work you get a stock number, take it to the NCR 500, and they can't tell who it is issued to and who ordered it or anything else. This puts me in a tight spot where I just sit and hold the item . . . I think everybody on the machines should be school trained. The reason is if you don't know anything about the machines, you can't do the job that the machines are wanting you to do, and it's just a mess really cause you end up with zero balances and you don't know what you are doing cause the machine says its zero and you are not. I think everybody ought to be trained. Everybody who works in supply, not just individuals."

DSU Personnel Problems

"A lot of times the supervisor has to get out and do jobs along with his people. Mainly because of your mission, supply carries a great support mission and you would like to just supervise, but I find because of the importance of the mission I have to get right in there. These guys we get straight out of school have to be supervised, you can get so much from book learning, but OJT is really needed for practical application."

Staffing

"We have enough personnel to operate the way it is set up now under this new TO&E. We are using supply people that are trained and could be of better use other places if we had a few supply handlers and people of this type to handle supplies and let the trained personnel do the paperwork."

Efficiency of Mechanized Stock Accounting System

"At this level it is much faster. When you have so many people involved, you are going to have a few errors, but the machine itself is fast. I think the biggest problem with the machine itself is that the people are not trained. It is like any new program. Until we get the people trained and know exactly what the capabilities are . . . Outside of the operators and supervisors, we ought to have a man work up there for a while. We should

give him a few days OJT up there before we put him in the warehouse. He should get familiar with the machine and he will understand the problems they have. By the same token, let them come down to the warehouse."

Contact With DSU/GSU Field Teams

"This training covered everything very explicit. The NCOIC and maintenance man of the conversion team stayed 2 weeks making sure we were all well versed, and wouldn't encounter any problems . . ."

"We had a short briefing here when they first brought it in. I thought this was adequate for the people familiar with the system, but if a man wasn't familiar with it the briefing wasn't worth anything."

WAREHOUSEMEN

Mechanized System Training

"I would just like to get more training in the NCR 500 and about the warehouse procedures than I have now."

"Just from everybody who had worked here before. I had them explain to me how to do it."

Repair Parts Supply Training

"I took my training at Ft. Knox, Ky. and the 76A10 supply school for general supply clerk, which is more like unit room supply. I haven't had any other special training other than when I worked in the van in Vietnam. The rest had been OJT."

"I was given about 2 weeks OJT and they did explain to me what it was all about."

"They just showed me what to do in the warehouse and that was it."

Experience

"I was working in my tech supply and the Platoon SGT came over and offered this position in the NCR 500. I went over and was introduced to the NCOIC of the NCR 500 . . . First I was typing up file cards, sorting cards also off setting. Those are the only positions I've held. They put me on a specific job, showed me how and I did it."

Problems

Some of these problems were expressed as follows:

"Finding the parts that are in wrong places. Looking up parts that are not where they are supposed to be, so you have to go look. That's about the only trouble I have."

"It is trying to keep the stock moving and keep it in stock when you are trying to issue it out at the same time."

Comparison of Mechanized and Manual Stock Accounting Systems

"I think it would be a lot slower manually. The machine speeds a lot up."

"You work a lot faster and you work a lot better, it's less complicated than the manual system. The manual system is slow . . ."

"The manual procedures would take a lot longer than the NCR procedures because computers can put out a lot more work than men can put out. But they do make mistakes and errors. The manual system has fewer errors but it takes a lot longer and procedures are more dragged out."

PLL CLERK SUPERVISORS

Mechanized System Training

"As I recall we devoted about two days to the system . . . they hit on several other computer systems in the general computer field, and not enough on the NCR 500. I would have wanted more information."

"By watching it. By having people explain it to me. Asking questions. Saying now why is this card punched this way. How do you make it go automatic here and by them just explaining to me . . . I just went myself."

Repair Parts Supply Training

"I had formal instruction at Ft. Lewis, briefings, and have done some reading. This was an officers class that took place at Ft. Lewis, one evening a week for six weeks last summer. Supply management was covered. We didn't get into customer support. It was above our echelon and we didn't get into repair parts supply management. I don't remember too much about it."

Personnel Problems

"The PLL clerks make most of their errors by not keeping a close enough track on their inventories. Maybe they will have one item and will show a record of 2 items. Follow-ups are a problem for them also. If you don't get that control number and when it does come in . . . you aren't sure whether that is the right document (say you ordered the item 2 or 3 times) and you aren't sure which requisition it is. In a way it is an error in the system. If you could keep the same number all the way through instead of changing it . . ."

Status Problems

"The follow-up is basically the thing that kills the system. Sometimes we don't get status cards back and don't get the control number that the machine cuts out. There we are with one document and the item is going to come in under another document. Sometimes guys get parts which are due to a key punch error, the wrong item. We have a lot of civilian equipment and a lot of it has just got the manufacturer's part numbers on it. The DSU gets it (the requisition) out all right, but when it gets to depot it doesn't have enough information on the card so the depot cancels them back to us."

Reconciliations

"The last reconciliation we had was in January (approximately four months prior to this interview). Out of 900 requisitions, I could reconcile 375. According to the instructions that came with this reconciliation I should have cancelled the other 500 requisitions. But I know I had those requisitions in, somewhere between here and the DSU they must have got lost. We took the reconciliation back to them, asked for another one and never received it."

Requisitions

"There are some times that we don't have enough prepunch cards for . . . because we order it so frequently that the kickback of the prepunch cards is not fast enough. At the present time we are lacking about 100 or more cards."

"A lot of the prepunched information is in error and the printouts. I have to constantly straighten it out."

Comparison of Mechanized and Manual Systems

"I think it is a much better system than the manual system once they have the people trained to use the system as it is supposed to be used. I think it will work very well."

"I feel it cuts down quite a bit of the paper work. If the status cards are received back in time, they give you good information of the status of your parts."

"I think it's probably far more efficient than a manual system. The problem that I have seen is the people that are putting the input material into the NCR 500. You have the soldier who could care less about how he performs his job. He's going to make mistakes. He's not going to be nearly as accurate as someone who perhaps runs the NCR 500 in a civilian occupation. The mistakes drastically hinder what it is capable of doing. But now, even with this hindrance, I think it is far more efficient than what a normal soldier would do manually."

PLL CLERKS

Training

"In my primary MOS, 31 ECHO, they gave us approximately 31 hours on requisitioning parts and PLL . . . not very much at all. Most of it has been OJT. I haven't had any special classes or anything like that. Most of that training was the very basics like it told us about stock numbers and what each section of the stock number meant. The 59-60's were mostly transistors and things like this. They talked a lot about the parts manuals, 1158-05. They told us how to make the requisitions from the station to the PLL itself. We did get some handouts."

". . . from people around me, and checked through TM's and AR's, just more or less self-taught, there was one PLL clerk here who taught me."

"I was just taken around and shown what to do."

Status Card Problems

"We might get a few I can't figure out. When I get them, I take them over to the DSU and they fill me in on it. All the numbers might be stuck together and I can't really separate them. When I get the stock number, I can usually figure it out from there, but sometimes . . . I guess they must be messed up from the other unit."

Record Keeping Problems

"Keeping files straight. Trying to determine the codes on the cards."

"Right now it would be keeping the PLL straight . . . keeping the proper entries in. Anytime we order a part or a part is taken out of the PLL, one has to be requisitioned for it to replace it. In a day's time you could have 5 or 6 of the same item which means you have to make 5 or 6 different orders."

Efficiency of the NCR 500 System

"It makes the work a lot easier on everybody. With the computerized card all you have to do is pull it out. If you have a key punch, you can just key punch it on to the card. Then you send the card in and they run it through the computer. We have gotten double quite a few items that we have had to send back. Sometimes they may send stuff on the old card and on the new card. They might just have the wrong item or something. It does have a lot of advantages when they get it fully set up."

Appendix C

SURVEY DATA SUMMARIZED ACROSS NINE DUTY POSITIONS

LEGEND

Category	Duty positions included
DSU Management	TSO, platoon sergeant, stock accounting NCO's.
Total Management	DSU management and battalion management.
Total Warehouse	Storage activity supervisors, warehousemen.
Total DSU	DSU management, total warehouse, and operators.
Total Support	Battalion management, TSO, platoon sergeant, stock accounting NCO's, operators, storage activity supervisors and warehousemen.
Total Customers	PLL clerk supervisors and PLL clerks.
Grand Total	Total support and total customers.

Table C-1

Relationship of Primary or Secondary MOS to Duty MOS (Percent)

Personnel	Identical to Duty	Related to Duty	Not Related	Not Applicable
Battalion Management (*N* = 16)				
Primary MOS	38	44	0	0
Secondary MOS	12	6		
TSO (*N* = 11)				
Primary MOS	9	45	18	9
Secondary MOS	9	9		
Platoon SGT (*N* = 6)				
Primary MOS	67	33	0	0
Secondary MOS	0	0		
Stock Accounting NCO (*N* = 14)				
Primary MOS	79	7	7	0
Secondary MOS	7	0		
Operators (*N* = 10)				
Primary MOS	80	10	10	0
Secondary MOS	0	0		
Warehouse Supervisor (*N* = 7)				
Primary MOS	43	43	0	0
Secondary MOS	14	0		
Warehousemen (*N* = 8)				
Primary MOS	63	13	25	0
Secondary MOS	0	0		
PLL Clerk Supervisor (*N* = 22)				
Primary MOS	86	14	0	0
Secondary MOS	0	0		
PLL Clerks (*N* = 34)				
Primary MOS	47	6	21	24
Secondary MOS	3	0		
DSU Management (*N* = 31)				
Primary MOS	52	26	10	3
Secondary MOS	6	3		
Total Management (*N* = 47)				
Primary MOS	47	32	6	2
Secondary MOS	9	4		
Total Customer (*N* = 56)				
Primary MOS	63	9	13	14
Secondary MOS	2	0		

(Continued)

Table C-1 *(Continued)*

Relationship of Primary or Secondary MOS to Duty MOS (Percent)

Personnel	Identical to Duty	Related to Duty	Not Related	Not Applicable
Total DSU (*N* = 56)				
Primary MOS	57	23	11	2
Secondary MOS	5	2		
Grand Total (*N* = 128)				
Primary MOS	57	20	10	7
Secondary MOS	5	2		
Total Support (*N* = 72)				
Primary MOS	53	28	8	1
Secondary MOS	7	3		
Total Warehouse (*N* = 15)				
Primary MOS	53	27	0	0
Secondary MOS	7	0	13	0

Table C-2

Average Number of Months on the Job

Personnel	*N*	Average Time on Job (months)
Battalion Management	16	5.6
TSO	11	4.9
Platoon SGT	6	5.3
Stock Accounting NCO	14	8.3
Operator	10	4.3
Warehouse Supervisor	7	5.0
Warehousemen	8	8.2
Total Support	72	6.0
PLL Clerk Supervisor	22	6.1
PLL Clerk	34	6.3
Total Customer	56	6.2
GRAND TOTAL	128	6.1
DSU Management	31	6.5
Total Management	47	6.2
Total DSU	56	6.1
Total Customer		6.2
Grand Total		6.1
Total Support		6.0
Total Warehouse	15	6.7

Table C-3

Formal and Informal Mechanized Stock Accounting System Training (Percent)

Type of Training	Bn Mgt N=16	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Opr N=10	Whse Super N=7	Whse N=8	PLL Clk Super N=22	PLL Clk N=34	DSU Mgt N=31	Tot Mgt N=47	Tot Whse N=15	Tot DSU N=56	Tot Supp N=72	Tot Cust N=56	Grand Total N=128
Formal Training																
Quartermaster School	6	18	33	50	80	14	0	14	9	35	26	7	36	29	11	21
Ordnance School	12	27	0	0	0	0	0	0	0	10	11	0	5	7	0	4
DSU/GSU Field Team	25	18	17	14	0	0	0	0	0	16	19	0	9	13	0	7
Field Training	0	0	0	0	0	0	0	9	0	0	0	0	0	0	4	2
Conversion	25	18	0	7	0	57	13	0	9	10	23	33	14	17	5	12
Total Training	62	73	50	64	80	57	13	23	18	65	64	33	59	60	20	42
No Training	38	27	50	36	20	43	87	77	82	35	36	67	41	40	80	58
Informal Training	62	100	83	86	100	29	37	77	15	90	81	33	77	74	39	59
No Informal Training	38	0	17	14	0	71	63	23	85	10	19	67	23	26	61	41

Table C-4

Formal, Informal, and Combined Mechanized Stock Accounting System Training (Percent)

Type of Training	Bn Mgt N=16	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Opr N=10	Whse Super N=7	Whse N=8	PLL Clk Super N=22	PLL Clk N=34	DSU Mgt N=31	Tot Mgt N=47	Tot Whse N=15	Tot DSU N=56	Tot Supp N=72	Tot Cust N=56	Grand Total N=128
Formal	38	0	17	14	0	57	13	9	18	10	19	33	14	19	14	17
Informal	38	27	50	36	20	29	37	63	15	35	36	33	32	33	34	34
Combined	24	73	33	50	80	0	0	14	0	55	45	0	45	40	5	25
No Training	0	0	0	0	0	14	50	14	67	0	0	33	9	7	47	24

Table C-5

Prior Mechanized Stock Accounting System Experience (Percent)

	Bn Mgt N=16	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Opr N=10	Whse Super N=7	Whse N=8	PLL Clk Super N=22	PLL Clk N=34	DSU Mgt N=31	Tot Mgt N=47	Tot Whse N=15	Tot DSU N=56	Tot Supp N=72	Tot Cust N=56	Grand Total N=128
Yes	0	27	33	79	0	14	13	14	0	52	34	13	32	25	5	16
No	100	73	67	21	100	86	87	86	100	48	66	87	68	75	95	84

Table C-6

Mechanized Stock Accounting System Training Needs (Percent)

	Bn Mgt N=16	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Opr N=10	Whse Super N=7	Whse N=8	PLL Clk Super N=22	PLL Clk N=34	DSU Mgt N=31	Tot Mgt N=47	Tot Whse N=14	Tot DSU N=56	Tot Supp N=72	Tot Cust N=56	Grand Total N=128
Fundamentals	81	82	33	14	30	43	25	14	9	42	55	33	38	47	11	31
PN and Functions	19	64	17	7	10	14	0	0	0	29	26	7	20	19	0	11
Management	38	72	0	7	0	0	0	0	0	29	32	0	16	21	0	12
Status	0	0	0	0	10	0	0	0	0	0	0	0	2	1	0	1
Codes	0	0	0	0	0	14	0	9	0	0	0	7	2	1	4	3
Punches in Cards	0	0	0	0	0	14	0	0	3	0	0	7	2	1	2	2
Total Needs	81	82	33	14	30	57	25	23	12	42	55	40	39	49	16	34
No Needs	19	18	67	86	70	43	75	77	88	58	45	60	61	51	84	66

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Table C-7

Formal Repair Parts Supply Training (Percent)

	Bn Mgt N=16	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Opr N=10	Whse Super N=7	Whse N=8	PLL Clk Super N=22	PLL Clk N=34	DSU Mgt N=31	Tot Mgt N=47	Tot Whse N=15	Tot DSU N=56	Tot Supp N=72	Tot Cust N=56	Grand Total N=128
Quartermaster School	19	27	50	79	80	43	13	9	32	55	43	27	52	44	23	35
Signal School	6	9	0	0	0	0	0	4	0	3	4	0	2	3	2	5
Transportation School	12	18	0	7	0	0	0	0	0	10	11	0	5	7	0	9
Ordnance School	44	55	0	0	0	0	13	0	0	19	28	7	13	19	0	11
General Supply School	0	0	17	22	0	14	37	9	13	13	9	27	14	11	11	11
NCO Logistics Program	0	0	0	7	0	28	0	0	0	3	2	13	5	4	0	5
Field Training	25	9	0	14	0	57	0	23	15	10	15	27	13	15	18	16
Other	19	18	0	0	0	14	0	9	3	6	11	7	5	8	5	7
Total Training	94	91	67	86	80	100	63	54	59	84	87	80	82	85	57	73
No Training	6	9	33	14	20	0	37	46	41	16	13	20	18	15	43	27

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Table C-8

Repair Parts Supply Experience (Percent)

	Bn Mgt N=16	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Opr N=10	Whse Super N=7	Whse N=8	PLL Clk Super N=22	PLL Clk N=34	DSU Mgt N=31	Tot Mgt N=47	Tot Whse N=15	Tot DSU N=56	Tot Supp N=72	Tot Cust N=56	Grand Total N=128
Unit	12	0	17	7	0	43	13	14	6	6	9	27	11	11	9	10
Property Book	6	0	0	7	0	0	0	9	0	3	4	0	2	3	4	3
Tech Supply	0	0	0	14	0	0	0	0	0	6	4	0	4	3	0	1
Repair Parts	31	9	33	7	0	43	0	4	6	13	19	20	13	17	5	12
Maintenance	56	9	0	0	0	0	0	59	0	3	21	0	2	14	23	18
Depot	0	0	0	22	0	54	0	4	1	10	6	27	13	10	4	7
Warehouse	6	9	67	0	0	54	0	0	0	16	13	27	16	14	0	8
Inventory Control Point	12	0	0	0	0	0	0	0	0	0	4	0	0	3	0	1
Direct Support Unit	24	27	17	86	0	43	13	0	0	52	43	27	36	33	0	19
Mechanized Supply	6	0	33	14	0	14	0	4	0	13	11	7	9	8	2	5
Ammunition Supply	6	0	0	0	0	0	0	0	0	0	2	0	0	1	0	1
Total Experience	100	55	87	100	0	86	25	86	12	81	87	53	59	68	41	56
No Experience	0	45	17	0	100	14	75	14	88	19	13	47	41	32	59	44

Table C-9

Mechanized Stock Accounting System Management Problems (Percent)

Problem	Bn Mgt N=16	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Whse Super N=7	DSU Mgt N=31	Tot Mgt N=47
Coordination of Mechanized Stock Accounting System	50	91	50	50	0	65	60
Code	56	54	50	71	0	61	60
Workload	50	54	0	42	0	39	43
Stock Accounting and Warehouse	0	0	0	50	57	23	15
Total	100	91	67	93	57	87	91
No Management Problems	0	9	33	7	43	13	9

Table C-10

Warehousing Problems (Percent)

Problem	Bn Mgt N=16	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Opr N=10	Whse Super N=7	Whse N=8	DSU Mgt N=31	Tot Mgt N=47	Tot Whse N=15	Tot DSU N=56	Tot Supp N=72
Receiving	12	0	17	7	10	43	0	6	9	20	11	11
Stock Location	56	54	67	64	60	29	13	61	60	20	50	51
Stock Balance	12	36	33	36	20	71	0	35	28	33	32	28
Issuing	6	9	17	7	0	14	0	10	9	7	7	7
Document Flow	0	0	0	0	0	0	77	0	0	20	5	4
Other	0	0	0	0	0	0	26	0	0	13	4	3
TOTAL	75	73	67	71	70	71	63	71	72	67	70	71
No Problems	25	27	33	29	30	29	37	29	28	33	30	29

Table C-11

Problems with DSU Personnel (Percent)

Problem	Bn Mgt *N*=16	TSO *N*=11	Plt Sgt *N*=6	Stock Acct NCO *N*=14	Whse Super *N*=7	DSU Mgt *N*=31	Total *N*=54
Managers	94	10	17	57	0	65	65
Train in Supply	38	55	67	50	71	55	52
Train in Storage	25	55	33	36	43	42	37
Turnover	25	36	33	22	0	29	24
Initiative Motivation	50	18	33	29	0	26	30
Total Problems	100	91	100	86	71	90	91
No Problems	0	9	0	14	29	10	9

Table C-12

Problems with Customers (Percent)

Problem	Bn Mgt *N*=16	TSO *N*=11	Plt Sgt *N*=6	Stock Acct NCO *N*=14	Opr *N*=10	DSU Mgt *N*=31	Total *N*=57
Incorrect requisitions	0	9	33	14	20	16	12
Prepunched requisitions not used	25	36	50	22	80	32	39
Prepunched requisitions received in damaged state	0	27	50	22	20	29	19
PLL's not furnished or updated	25	45	17	57	10	45	33
Status not understood	31	36	17	42	20	35	32
Lost documents	13	18	0	14	20	13	14
Abuse of priorities	13	18	17	7	0	13	11
Lack of agreement between customer records and DSU records	13	18	0	22	0	16	12
PLL clerks not trained	0	27	17	14	30	19	16
Customer complaints: requisitions not filled	0	27	0	0	0	10	5
Other	13	18	0	22	10	16	14
Total respondents mentioning customer problems	75	91	83	100	90	94	88
No problems with customers mentioned	25	9	17	0	10	6	12

Table C-13

Staffing:[a] Mechanized Stock Accounting System and Storage Activity (Percent)

Mechanized Stock Accounting System	Bn Mgt N=16	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Opr N=10	Total DSU N=31	Total N=56
Adequate	53	55	67	64	0	61	48
Adequate Conditional	26	18	0	14	10	13	16
Under Conditional	7	27	0	7	0	13	9
Under	0	0	33	14	10	13	9
Total	100	100	100	100	20	100	86
No Comment	0	0	0	0	80	0	14

Storage Activity[b]	Bn Mgt	TSO	Plt Sgt	Whse Super	Total DSU Mgt	Total
Adequate	36	27	17	29	24	29
Adequate Conditional	43	45	0	29	29	34
Under Conditional	7	18	0		12	8
Under	14	9	83	43	35	29
Total	100	100	100	100	100	100

[a]Stock Acounting NCOs and operators were not asked to comment on the staffing of the storage activity. Storage Activity Supervisors were not asked to comment on the staffing of the mechanized stock accounting system.

[b]One warehouse staffed by civilians - GOLF.

4530

Table C-14

Attitudes Toward Efficiency of the Mechanized Stock Accounting System
(Percent)

	Bn Mgt N=16	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Opr N=10	Whse Super N=7	Whse N=8	PLL Clk Super N=22	PLL Clk N=34	DSU Mgt N=31	Tot Mgt N=47	Tot Whse N=15	Tot DSU N=56	Tot Supp N=72	Tot Cust N=56	Grand Total N=128
Efficient	31	18	0	57	50	57	37	27	26	32	32	47	39	38	27	33
Inefficient	19	9	17	0	10	14	0	0	0	6	11	7	7	10	0	5
Both	50	55	83	43	40	29	50	41	15	55	53	40	48	49	25	38
No Comment	0	18	0	0	0	0	13	32	59	6	4	7	5	4	48	23
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table C-15

Mechanized Stock Accounting System Compared to Manual System
(Percent)

	Bn Mgt N=16	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Opr N=10	Whse Super N=7	Whse N=8	PLL Clk Super N=22	PLL Clk N=34	DSU Mgt N=31	Tot Mgt N=47	Tot Whse N=15	Tot DSU N=56	Tot Supp N=72	Tot Cust N=56	Grand Total N=128
More efficient	75	82	67	86	70	86	74	68	21	81	79	80	79	78	39	61
Less efficient	0	0	0	0	0	14	0	0	0	0	0	7	2	1	0	1
No Comment	25	18	0	0	0	0	0	0	0	6	13	0	4	8	0	5
Unable to Compare	0	0	33	14	30	0	26	32	79	13	9	13	16	13	61	34
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

4531

Table C-16

Manual Stock Accounting System Advantages Over Mechanized Stock Accounting System (Percent)

	Bn Mgt N=16	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Opr N=10	Whse Super N=7	Whse N=8	PLL Clk Super N=22	PLL Clk N=34	OSU Mgt N=31	Tot Mgt N=47	Tot Whse N=15	Tot DSU N=56	Tot Supp N=72	Tot Cust N=56	Grand Total N=128
A[a]	19	9	0	0	0	29	0	0	0	3	9	13	5	8	0	5
B	13	9	0	7	10	14	0	0	6	6	9	7	7	8	4	6
C	13	0	0	0	10	0	0	0	0	0	4	0	2	4	0	2
D	0	18	17	0	0	29	0	0	0	10	6	13	9	7	0	4
E	0	0	0	0	0	14	0	0	0	0	0	7	2	1	0	1
F	0	0	0	0	0	14	13	0	0	0	0	13	4	3	0	2
G	0	0	0	0	0	14	0	0	0	0	0	7	2	1	0	1
H	0	0	0	0	0	0	0	5	0	0	0	0	0	0	2	1
No Comment	63	73	83	93	80	43	87	95	94	84	77	67	79	75	95	84
Total Comments	37	27	17	7	20	57	13	5	6	16	23	33	21	25	5	16
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

[a]A - Data more accessible
B - No equipment to break down
C - Errors not perpetrated as they are in mechanized system
D - Work backlog easier to handle
E - Easier system for local nationals to learn
F - More accurate than NCR 500
G - Less work required of storage activity
H - Manual system costs less

4532

Table C-17

Attitudes Toward Mechanized Stock Accounting System Publications (Percent)

	Bn Mgt N=16	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Opr N=10	Total N=57
Easy to use	25	45	50	71	50	47
Not easy to use	6	9	0	7	30	11
Have both easy and difficult to use factors	19	27	17	0	10	14
No comment	50	18	33	22	10	28
Total respondents	50	82	67	78	90	72
Total	100	100	100	100	100	100

Table C-18

Career Intentions (Percent)

	TSO N=11	Plt Sgt N=6	Stock Acct NCO N=14	Opr N=10	Total N=41
Will leave Army	73	100	57	9	76
Not decided	18	0	7	10	10
Career soldier	9	0	14	0	7
Did not say	0	0	22	0	7
TOTAL	100	100	100	100	100

Assume "had not decided" and "did not say" as evenly divided:

Will leave Army	31 + 3.5 = 34.5	84.0
Career Soldier	3 + 3.5 = 6.5	16.0
		100.0

Divide "not decided" and "did not say" in same ratio as "will leave Army" to "career soldier"

Will leave Army	31 + 6 = 37	90.0
Career soldier	3 + 1 = 4	10.0

Table C-19

Contact With Computer Systems Command DSU/GSU Field Teams and Type of Assistance Received (Percent)

	Bn Mgt *N*=16	TSO *N*=11	Plt Sgt *N*=6	Stock Acct NCO *N*=14	Opr *N*=10	Whse Super *N*=7	Whse *N*=8	DSU Mgt *N*=38	Tot Mgt *N*=54	Total *N*=72
Contact										
Yes	100	100	87	93	60	71	25	89	93	81
No	0	0	13	7	40	29	75	11	7	19
Satisfied	81		67	78	50	43	0	74	76	64
Not Satisfied	0		0	0	0	29	0	8	6	4
No Comment	19	0	33	22	50	29	100	18	19	32
Type of Assistance										
Inspection and Evaluation	75	82	50	64	40	29	0	61	65	54
Maintenance	44	72	17	42	0	0	0	39	41	31
System Procedures	56	64	50	64	40	0	0	50	52	44
Training	6	18	17	0	0	0	0	8	7	6
Conversion	19	27	33	29	10	57	0	34	30	24
TOTAL COMMENTING	100	100	87	93	60	71	0	89	93	78
No Comment	0	0	13	7	40	29	100	11	7	22
TOTAL	100	100	100	100	100	100	100	100	100	100

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13. ABSTRACT

Army experience with a small mechanized stock accounting system, the NCR 500, was studied with respect to personnel and training, in order to improve implementation of newer and more complex computer-based logistics systems. Officers and enlisted personnel in various duty positions connected with NCR 500 systems in four Far Eastern commands were interviewed. Data showed there had been a continual input of underskilled personnel into nearly all of the duty positions in the mechanized stock accounting system and at its major interfaces. Interviews indicated that efficiency would have been promoted by (a) integrating NCR 500 procedures and concepts with repair parts supply procedures and concepts, (b) a total systems approach to training, (c) upgrading the storage operation as well as the supporting stock accounting system, (d) assigning more well-qualified technical supply officers, and (e) training in the NCR 500 system for more noncommissioned officers with repair parts supply experience.

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10 CG USA FORCES SOUTHERN COMD ATTN SCAHCO CZ
2 CG US ARMY EUROPE APO 09403 NY ATTN OPNS DIV
1 CG USA AD COMD ENT AFB ATTN AOGPA COLO
6 CG 1ST ARMY ATTN DCSOT FT MEADE MD
1 CG 3RD ARMY ATTN DCSOT FT MCPHERSON
4 CG SIXTH ARMY PRES OF SAN FRAN ATTN AMUPS-T2
1 DIR HEL APG MD
1 CG USA CDC EXPERIMENTATION COMD FT ORD
2 ENGNR PSYCHOL LAB PIONEERING RES DIV ARMY NATICK LABS NATICK MASS
4 TECH LIB ARMY NATICK LABS NATICK MASS
2 INST OF LAND CNT ATTN TECH LIB FT BELVOIR VA
1 REDSTONE SCIENTIFIC INFC CTR US ARMY MSL COMD ATTN CHF DUC SEC ALA
1 CO FT HUACHUCA SPT COMD USA ATTN TECH REF LIB
1 SIXTH USA LIB DEPOT BLDG M I3 I4 PRES OF SAN FRAN
1 PLNS OFCR PSYCH HDQTRES USACDCEC FT ORD
1 DIR WALTER REED ARMY INST OF RES WALTER REED ARMY MED CTR
1 DIR WRAIR WALTER REED ARMY MED CTR ATTN NEUROPSYCHIAT DIV
1 CU HW ARMY ENLISTED EVAL CTR FT BENJ HARRISON
1 TECH LIB BOX 22 USACDC EXPERIMENTATION COMD FT ORD
1 CO FRANKFORD ARSNL ATTN SMUFA-N6400/202-4 PA
1 4TH ARMY MSL COMD AIR TRANSPORTABLE SAN FRAN
1 REP M HS IS NASA ALA
1 CO USA CBT DEVEL COMD TRANS AGCY FT EUSTIS
1 CU ARMY CDC ARMOR AGY FT KNOX
1 CU US ARMY CDC AVN AGCY FT RUCKER
1 CG USA TNG CTR & FT LEONARD WOOD ATTN ACOFS G3
1 CG USA INF CTR ATTN AJIGT-T FT BENNING
1 CG USA TNG CTR INF ATTN ACOFS G3 FT DIX
1 CG USA TNG CTR ATTN ACOFS G3 FT JACKSON
1 CG USA TNG CTR INF ATTN ACOFS G3 FT LEWIS
1 CG USA TNG CTR INF & FT ORD ATTN ACOFS G3
61 CG USA TNG CTR INF ATTN ACOFS G3 FT POLK
20 CG USA AD CTR ATTN G3 FT BLISS
1 CG USA TNG CTR INF ATTN ACOFS G3 FT CAMPBELL
3 LIB ARMY WAR COLL CARLISLE BKS
1 US MILIT ACAD WEST POINT ATTN LIB
1 COMDT ARMY AVN SCH ATTN DIR OF INSTR FT RUCKER
2 COMDT ARMY SECUR AGY TNG CTR & SCH FT DEVENS ATTN LIB
1 STIMSON LIB AMEU FLD SERV SCH BROOKE ARMY MED CTR FT SAM HOUSTON
10 COMDT THE ARMOR SCH ATTN DGI FT KNOX
1 LIB USA ARMOR SCH FT KNOX
1 COMDT ARMY CHEM CORPS SCH FT MCCLELLAN ATTN EDUC ADV
1 COMDT USAIS ATTN AJIIS-D-EPRD FT BENNING
2 COMDT US ARMY SOUTHEASTERN SIG SCH ATTN EDUC ADV FT GORDON
1 CUMDT USA AD SCH ATTN OGI FT BLISS
5 ASST COMDT ARMY AIR DEF SCH FT BLISS ATTN CLASSF TECH LIB
3 CG USA FLD ARTY CTR & FT SILL ATTN AVN OFCR
1 COMDT ARMED FORCES STAFF COLL NORFOLK
1 COMDT JUDGE ADVOCATE GENERALS SCH U OF VA
1 OPTY CUMDT USA AVN SCH ELEMENT GA
1 OPTY ASST COMDT USA AVN SCH ELEMENT GA
1 USA AVN SCH ELEMENT OFC OF DIR OF INSTR ATTN EDUC ADV GA
1 EDUC CONSLT ARMY MILIT POLICE SCH FT GORDON
6 COMDT USA ENGR SCH ATTN EDUC ADV AHRBES-EA FT BELVOIR
1 DIR OF INSTR US MIL ACAD WEST POINT NY
1 USA INST FOR MIL ASSIST ATTN LIB BLDG 1ST2808 FT BRAGG
4 USA INST FOR MIL ASSIST ATTN COUNTERINSURGENCY DEPT FT BRAGG
1 COMDT DEF MGT SCH FT BELVOIR
2 COMDT USA MSL & MUN CTR & SCH ATTN CHF OFC OF OPS REDSTONE ARSNL
2 HQ ABERDEEN PG ATTN TECH LIB
1 CU USA INTELL CTR & SCH ATTN DIR OF ACADEMIC OPS FT HUACHUCA
1 CO USA INTELL CTR & SCH ATTN DIR OF DOC & LIT FT HUACHUCA
1 CUMDT USA CGSC OFC OF CHF OF RESIDENT INSTR FT LEAVENWORTH
1 CUMDT USA CA SCH ATTN OFC OF DOCTRINE DEVEL LIT & PLNS FT BRAGG
1 COMDT USA CA SCH ATTN ODI FT BRAGG
1 CUMDT USA CA SCH ATTN EDUC ADV FT BRAGG
1 COMDT USA CA SCH ATTN LIB FT BRAGG
1 CUMDT USA SCH & TNG CTR ATTN ACOFS G3 TNG DIV FT MCCLELLAN
1 COMDT USA SCH & TNG CTR ATTN ACOFS G3 PLNS & OPS DIV FT MCCLELLAN
10 COMDT USA INST FOR MIL ASSIST ATTN ODI FT BRAGG
1 LIBN USAIS FT BENNING
18 COMDT USA FLD ARTY SCH ATTN ODI FT SILL
1 CUMDT USA ARTY SCH ATTN EDUC SERVICES DIV FT SILL
1 COMDT USA ARTY SCH ATTN EDUC ADV FT SILL
1 CUMDT USA TRANS SCH ATTN LIB FT EUSTIS
1 USA INST FOR MIL ASST ATTN EDUC ADV FT BRAGG
1 COMDT USA ARTY SCH ATTN LIB FT SILL
1 CG USA SCH & TNG CTR ATTN ACOFS G3 FT GORDON
1 DIR OF GRAD STUD & RSCH ATTN BEHAV SCI REP USACDGSC
1 COMDT USA AU SCH ATTN AKRAAS-DL-EA FT BLISS
2 DIR RRGD + AN OPNS DEPT USAIS FT BENNING
1 DIR COMP ELEC USAIS FT BENNING
1 DIR ARN-AIR MOBILITY DEPT USAIS FT BENNING
1 CG USA SIG CTR & SCH ATTN ATSSC-DP-C03 FT MONMOUTH
1 SECY OF ARMY, PENTAGON
1 DCS-PERS DA ATTN CHF C+S DIV
1 DIR OF PERS STUDIES & RSCH DUCSPER DA WASH DC
2 ACSFOR DA ATTN CHF TNG DIV WASH DC
1 CG USA MAT COMD ATTN AMCRD-TE
1 US ARMY BEHAVIOR & SYS RSCH LAB ATTNCRD-AH ARL VA
1 PROVOST MARSHAL GEN DA
1 CFC RESERVE COMPON DA
12 AUMIN DOC ATTN: TCA (HEALY) CAMERON STA ALEX., VA. 22314
1 CO US ARMY MED RES LAB FT KNOX
1 CHF OF R+D DA ATTN CHF TECH + INDSTR LIAISON OFC
1 CO USA CDC MED SERV AGCY FT SAM HOUSTON
1 USA BEHAVIOR & SYS RSCH LAB ATTN CRD-AIC ARL VA
1 CAREER MGT BR ATTN R DETIENNE CAMERON STA ALEX VA
1 USA LIB DIV-TAGO ATTN ASDIRS
1 PRES ARMY MAINT BD FT KNOX
1 CG CONARC ATTN COL E M HUDAK ATIT-SA FT MONROE
15 CG CONARC ATTN AIIT-STN FT MONROE
2 CG CONARC ATTN LIB FT MONROE
1 USA ARCTIC TEST CTR CHF INSTR & TEST METH DIV SEATTLE
1 CHF USA AU HHD FT BLISS
1 CHF USA ARMOR HHD FT KNOX
1 CHF USA AVN HHD FT RUCKER
1 CHF USA INF HHD FT BENNING
1 CHF USA TNG CTR HHD PRES OF MONTEREY
3 CG ARMY ARMOR CTR FT KNOX ATTN G3 AIRBGT
1 CG 3RD INF DIV ATTN ACOFS G3 APO NY 09036
1 CG 7TH INF DIV ATT ACOFS G2 APO SAN FRAN 96207
3 CG 4TH INF DIV (MECH) & FT CARSON ATTN ACOFS G3
1 DA HQS FT CARSON & HQS 4TH INF DIV (MECH) ATT MAJ HARRIS
3 CG 82ND AHN INF DIV ATTN ACOFS G3 FT BRAGG
1 CG XVIII ADN CORPS ATTN ACOFS G3 FT BRAGG
1 CO 197TH INF BRGD FT BENNING ATTN S3
1 CO 2ND BN 15TH INF 3RD INF DIV ATTV S3 APO NY 09026
1 CO 4TH BN (MECH) 54TH INF ATTN S3 FT KNOX
2 DA OFC OF ASST CHF OF STAFF FOR COMM-ELCT ATTN CETS-6 WASH
1 USA RECRUITING COMD HAMPTON VA
1 DIR ARMY LIB PENTAGON
1 CHF OF MILIT HIST DA ATTN GEN REF BR
1 CU USA 10TH SPEC FORCES GP FT DEVENS
1 CG 31ST ARTY BDE AD ATTN S3 PA
1 CG 101ST ABN DIV (AIRMOBILE) ATTN ACOFS G3 APO SAN FRAN 96383
1 CG 1ST CAV (AIRMOBILE) ATTN ACOFS G3 APO SAN FRAN 96383
1 US ARMY TROPIC TEST CTR PO DRAWER 942 ATTN REHAV SCIEN CZ
10 CG III CORPS & FT HOOD ATTN G3 SEC FT HOOD
30 CU 1ST ARMORED DIV ATTN G3 SEC FT HOOD
30 CG 20 ARMORED DIV ATTN G3 SEC FT HOOD
25 CO 13TH SUPT BDDE ATTN S3 SEC FT HOOD
1 CG USAFAC & FT SILL ATTN AKPSIGT-TNTN
20 CO III CORPS ARTY ATTN G3 SEC FT SILL
15 CO 1ST AIT BDDE ATTN G3 SEC FT BLISS
1 RSCH CONTRACTS & GRANTS HR ARO
1 BESD ARO OFC CHF OF R+D WASH DC
1 CHF OF R+D DA ATTN SCT INFO BR RSCH SPT DIV WASH DC
1 CINC US ATLANTIC FLT CODE 312A USN BASE NORFOLK
1 CUR TNG COMMAND US PACIFIC FLT SAN DIEGO
3 DIR PERS RES DIV BUR OF NAV PERS
1 TECH LIB BUR OF SHIPS CODE 210L NAVY DEPT
1 CO FLT ANTI-AIR WARFARE TNG SAN DIEGO
1 CO NUCLEAR WPNS TNG CTR PACIFIC US NAV AIR STA SAN DIEGO
1 CU FLEET TNG CTR US NAV STA SAN DIEGO
1 CO FLT ANTI-SUB WARFARE SCH SAN DIEGO
1 CHF OF NAVL RSCH PERS & TNG PR (CODE 458) ARL VA
1 DIR US NAV RES LAB ATTN CODE 5120
1 DIR NAVAL RSCH LAB ATTN LIB CODE 2029 WASH DC
1 CO NED FLD RES LAB CAMP LEJEUNE
1 DIR AEROSPACE CREW EQUIP LAB NAV AIR ENGNR CTR PA
5 COMDT MARINE CORPS HQ MARINE CORPS ATTN CODE AU-18
1 HQ MARINE CORPS ATTN AX
1 DIR MARINE CORPS INST ATTN EVAL UNIT
1 US MARINE CORPS HQS HIST REF LIB ATTN MRS JADOT
1 CHF OF NAV AIR TECH TNG NAV AIR STA MEMPHIS
1 DIR OPS EVAL GRP OFF OF CHF OF NAV OPS OPD3EG
1 CO US COAST GUARD TNG CTR GOVERNORS ISLAND NY
1 CU US COAST GUARD TNG CTR CAPE MAY NJ
1 CO US COAST GUARD TNG CTR & SUP CTR ALAMEDA CALIF
1 CO US COAST GUARD INST OKLA CITY OKLA
1 CO US COAST GUARD RES TNG CTR YORKTOWN VA
1 SUPT US COAST GUARD ACAD NEW LONDON CONN
1 TECH DIR TECH TNG DIV(HRD) AFHRL LOWRY AFB COLO
1 CHF SCI DIV ONCTE SCI + TECH DCS R+D HQ AIR FORCE AFRSTA
1 AFHRL/ZIT ATTN CAPT W S SELLMAN LOWRY AFB
1 HQ SAMSO (SMSKI) AF UNIT POST OFC LA AFS CALIF
2 AFHRL (HRT) WRIGHT-PATTERSON AFB
1 AMD AMRH BROOKS AFB TEXAS
2 CO HUMAN RESOURCES LAB BROOKS AFB
1 COMDT USAF SPEC OP SCH TTAC EGLIN AFB
1 AFHRL (FT) WILLIAMS AFB ARIZ
1 PSYCHOBIOLOGY PROG NATL SCI FOUND
1 DIR NATL SECUR AGY FT GEO G MEADE ATTN TDL
3 CIA ATTN CRS/ADD STANDARD DIST
1 SYS EVAL DIV RES DIRECTORATE OUSDRED PENTAGON
1 DEPT OF STATE BUR OF INTEL + RES EXTERNAL RES STAFF
1 SCT INFO EXCH WASHINGTON
2 CHF MGT & GEN TNG DIV IN 200 PAA WASH DC
1 BUR OF RES & ENGR US POST OFC DEPT ATTN CHF HUMAN FACTORS AR
1 EDUC MEDIA BR OF HEW ATTN T U CLEMENS

1 NAT'L OUR STANDS BEHAV SCI GP ATTN DR J E ERLICK
1 DEC OF INTERNATL TNG PLANNING & EVAL BR AID WASH DC
1 DEPT OF TRANS FAA ACQ SEC HQ 610A WASH DC
2 ERIC DE WASH DC
2 DUNLAP & ASSOC INC DARIEN ATTN LIB
2 RAC ATTN LIB MCLEAN VA
1 MITRE CORP BEDFORD MASS ATTN LIB
2 LEARNING RES CTR U OF PITTS ATTN DIR
2 TECH INFO CTR ENGNR DATA SERV N AMER AVN INC COLUMBUS O
1 CHRYSLER CORP MSL DIV DETROIT ATTN TECH INFO CTR
1 GEN DYNAMICS POMONA DIV ATTN LIB DIV CALIF
1 HGR BIOTECHNOLOGY AEROSPACE SYS DIV MS 8H-25 BOEING CO SEATTLE
1 IDA RSCH & ENG SUPT DIV ARL VA
1 SCI & TECH DIV IDA ARL VA
1 HUGHES AIRCRAFT COMPANY CULVER CITY CALIF
1 UTR CTR FOR RES ON LEARNING & TEACHING U OF MICH
1 EDITOR TNG RES ABSTR AMER SOC OF TNG DIRS U OF TENN
3 AUSTRALIAN NAV ATTACHE EMBSY OF AUSTRALIA WASH DC
2 AUSTRALIAN ARMY ATTACHE EMBSY OF AUSTRALIA ATTN TECH CLK
1 MENNINGER FOUNDATION TOPEKA
1 AMER INSTS FOR RSCH SILVER SPRING
1 AMER INSTS FOR RSCH ATTN LIBN PA
1 DIR PRIMATE LAB UNIV OF WIS MADISON
1 EDUC & TNG CONSLT CO LA CALIF
1 DR GEORGE T HAUTY CHMN DEPT OF PSYCHOL U OF DEL
1 HEAD DEPT OF PSYCHOL UNIV OF SC COLUMBIA
1 U OF GEORGIA DEPT OF PSYCHOL
1 GE CO WASH D C
1 AMER INST FOR RSCH ATTN LIB PALO ALTO CALIF
1 ROWLAND & CO HAUPPAUGE NJ ATTN PRES
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1 DR J R CULLEN DEPT OF SOC & ANTHROP UNIV OF RI
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1 NO ILL U HEAD DEPT OF PSYCHOL
1 GEORGIA INST OF TECH DIR SCH OF PSYCHOL
1 LIFE SCI INC HURST TEXAS ATTN W G MATHENY
1 AMER BEHAV SCI CALIF
1 SO ILLINOIS U DEPT OF PSYCHOL
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CARROLL, STEPHEN J., AND OTHERS
EVALUATION RESULTS FOR THE LOS ANGELES WOMEN'S JOB CORPS CENTER.

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IDENTIFIERS - *JOB CORPS

ABSTRACT - TO COMPARE THE EFFECTIVENESS OF THE EXPERIMENTAL COMMUTER PROGRAM OF THE LOS ANGELES WOMEN'S JOB CORPS CENTER TO THE RESIDENTIAL PROGRAM FOR THE PURPOSE OF DERIVING USEFUL EVALUATIVE INFORMATION FOR PROGRAM ADMINISTRATORS, THIS EMPIRICAL ANALYSIS EXAMINED THREE SHORT-TERM INDICATORS: CORPSWOMEN'S COGNITIVE GAINS, CHANGES IN THEIR WORK-RELEVANT ATTITUDES, AND THE LENGTH OF TIME THEY REMAINED IN THE CENTER. AS MEASURED BY CHANGES IN JOB CORPS TEST AND STANFORD ACHIEVEMENT TEST SCORES, THE INFLUENCE OF RESIDENCE UPON COGNITIVE GAINS WAS IN A NEGATIVE DIRECTION. NONE OF THE MEASURES OF ATTITUDE CHANGE, INCLUDING WORK-RELEVANT ATTITUDES, WAS SYSTEMATICALLY RELATED TO PROGRAM INPUTS OR TO DEMOGRAPHIC CHARACTERISTICS OF THE INCOMING POPULATION. FOUR TYPES OF CORPSWOMEN WERE SUBSTANTIALLY MORE LIKELY TO STAY IN THE PROGRAM AFTER THE FIRST 90 DAYS: (1) COMMUTERS, (2) HIGH SCHOOL GRADUATES, (3) MEXICAN-AMERICAN AND BLACKS, AND (4) THOSE WHO SCORED HIGH ON "OPTIMISM" ON AN ATTITUDE TEST. A SERIES OF RECOMMENDATIONS SUGGESTS THAT: (1) THE COMMUTER PROGRAM BE CONTINUED AND INSTITUTED ON AN EXPERIMENTAL BASIS IN OTHER RESIDENTIAL CENTERS, DUE TO THE SUPERIOR PERFORMANCE OF THE COMMUTERS, (2) SPECIAL ATTENTION BE GIVEN TO THE NEEDS OF MEXICAN-AMERICANS AND POTENTIAL DROPOUTS, (3) PERFORMANCE DATA BE COLLECTED AT ROUTINE INTERVALS, (4) EVALUATIONS BE UNDERTAKEN TO DETERMINE VALID LONG-TERM INDICATORS OF PROGRAM EFFICIENCY, AND (5) A STUDY BE CONDUCTED TO ESTABLISH WHETHER THE JOB CORPS TESTS ARE CONSISTENT WITH THEIR EDUCATIONAL OBJECTIVES. (AG)

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September 1971

Evaluation Results for the Los Angeles Women's Job Corps Center

Stephen J. Carroll, David H. Greenberg and Patricia O. Katsky

A Report prepared for

OFFICE OF ECONOMIC OPPORTUNITY

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PREFACE

In June 1969 the Office of Economic Opportunity awarded Rand a contract to evaluate the programs of the Los Angeles Women's Job Corps Center. The Center had just begun an experimental program and the focus of the evaluation was on comparing the effectiveness of the experimental program with that of the traditional residential program operated by the Center for the past five years.

To estimate fully the relative effectiveness of the two programs, we would have to observe what happens to participants over the long term. However, if program administrators are to receive useful evaluative information within a reasonable length of time, short-term indicators of long-term outcomes must frequently be used. For this reason, this Report focuses on comparing the in-program experiences of participants in the commuter and residential programs.

The authors owe much to Mary Dolittle, Director of the Los Angeles Women's Job Corps Center, and her staff. Their active cooperation helped to smooth the many difficult steps in the analysis. Jacquie Richman, the Center's Research Director, developed most of the data sources and directed the entire data collection effort. The authors owe special thanks to Rand colleagues Robert Levine and Malcolm Palmatier, as well as to Paul Geyer of OEO for commenting on earlier drafts. The would also like to acknowledge the contribution of Linda Kleiger, Anthony H. Pascal and S. James Press, who worked on earlier phases of the study.

SUMMARY

In June 1969, The Rand Corporation was funded by the Office of Economic Opportunity to evaluate an experimental commuter program operated by the Los Angeles Women's Job Corps Center (LAWJCC). An earlier report has described the evaluation design.* This Report presents the results of the empirical analysis. In the interest of deriving useful evaluative information for program administrators within a reasonable period, short-term indicators of long-term outcomes must be used. In this study we examine the relative effectiveness of the commuter program in terms of three such short-term indicators: corpswomen's cognitive gains, changes in corpswomen's work-relevant attitudes, and the length of time that corpswomen remained in the Center.

We found that much of the residential population at the LAWJCC is composed of what might be described as the "old" poor -- women from unbroken, self-supporting homes in rural areas or small towns, often with a fairly high level of education, who are willing to work in low-status jobs for low wages. They were seldom familiar with an urban environment.

The LAWJCC commuter group, in contrast, is composed to a large extent of what might be called the "new" poor -- women typically from the two major minority groups of blacks and Mexican-Americans, who grew up in crowded urban ghetto conditions and on welfare, and who left school early and yet were knowledgeable enough in the ways of the city to find employment in white-collar jobs for reasonably good wages.

With respect to cognitive gains, our main finding is that any influence of residence upon cognitive gain, as measured by changes in Job Corps Test (JCT) and Stanford Achievement Test (SAT) scores, is in a negative direction. The gains of commuters did not systematically

*S. J. Carroll et al., Evaluation Design for the Los Angeles Women's Job Corps Center, RM-6373-OEO, The Rand Corporation, December 1970. The longitudinal study called for in this design was later cancelled.

differ from the gains of residents. Once differences in individual characteristics were controlled for, however, residency appeared, if anything, to have an adverse effect. Still, the magnitude of this effect is so small as to be apt to have little influence on the corpswoman's future.

We found that significantly positive increases in reading and mathematics, as measured by the tests, occur while women are at the LAWJCC. Most, if not all, of this gain takes place during the basic education sequence, and is in fact positively associated with the number of hours of basic education actually attended.

The incoming women's personal characteristics also influence cognitive gain. Socio-economic status (as measured by family income) and maturity (as measured by age) are both positively related to gains. Women from mother-headed households appear to make somewhat greater relative progress than others. Mexican-Americans and blacks register less cognitive gain than whites. Women who made the greatest gains in reading appeared to be those who at entry were relatively strong in mathematics; conversely, those who made the greatest progress in mathematics were among the best readers at entry.

There was considerable evidence either that the accuracy of measurement of cognitive gain varies from one test to another, or that the tests measure different dimensions of progress. For the same time period, correlations between score changes on different tests were quite low. Regression results varied considerably when different tests were used in calculating the dependent variable. The JCT registered much larger increases in grade levels for both reading and mathematics than did the SAT.

While there is evidence that some women improve somewhat in job-relevant attitudes during their stay at the Center, the results indicate that the majority do not. Improvement, when it occurred, was apparently unrelated to whether a woman was a resident or a commuter. In fact, none of the measures of attitude change was systematically related to program inputs or to demographic characteristics of the incoming population.

Resident corpswomen are substantially more likely to leave the Center within 90 days of entry than are commuter corpswomen. Among corpswomen who remain in the Center for at least 90 days, residents are no more likely to depart during ensuing periods. This result holds even after controlling for differences in the characteristics of the two populations.

High school graduates are much more likely to remain in the Center for lengthy periods of time than are high school dropouts. This variable proved to be a very significant predictor of length of stay for every time period.

Demographic variables were seldom related to length of stay. The data indicated, however, that black corpswomen are less likely to terminate during their first 4 or 5 months than are non-black corpswomen. Mexican-Americans who remained through 90 days were much more likely to remain for subsequent periods than were other corpswomen who remained through 90 days.

The size of the community or the geographic region where a woman was raised is apparently unrelated to how long she remains at the Center.

The amount of time a corpswoman spends in basic education is not related to how long she remains in the program after completing basic education. Further, whether she is assigned to a work task, or to an advanced education class, or to a skill-training course after finishing basic education has little discernible impact upon how long she remains in the Center.

Finally, optimistic women (that is to say, women who scored high on the attitude test labeled "optimism") are more likely to remain in the program after the fourth month.

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I. INTRODUCTION, CONCLUSIONS, AND RECOMMENDATIONS

In June 1969, The Rand Corporation was funded by the Office of Economic Opportunity to evaluate an experimental commuter program operated by the Los Angeles Women's Job Corps Center (LAWJCC). An earlier report has described the evaluation design.* This Report presents the results of the empirical analysis.

THE OBJECTIVE OF THE EVALUATION

The mission of the Job Corps is to ". . . prepare young people to be responsible productive citizens by providing them the opportunity to rise out of poverty by increasing their own knowledge and skills."** In the past the residential program has been the only tool available to the Job Corps in fulfilling its mission. The traditional Job Corps is accurately described in an official statement as "a residential program . . . [for] disadvantaged young men and women aged 14 to 21, who require a change in environment in order to prepare themselves for the responsibilities of citizenship and to increase their employability."*** Thus, the commuter program represents a major departure from the traditional Job Corps approach.

To estimate the extent to which the commuter program is successful, we would have to observe what happens to participants over the long term. The primary outcome variable in an evaluation should be the corpswoman's economic situation sometime after she leaves the Center. This outcome, however, can be observed only in a long-term evaluation study. In the interest of deriving useful evaluative information for program administrators within a reasonable length of

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*S. J. Carroll et al., Evaluation Design for the Los Angeles Women's Job Corps Center, RM-6373-OEO, The Rand Corporation, December 1970.

**U.S. Congress, Joint Economic Committee, Subcommittee on Economic Progress, Federal Programs for the Development of Human Resources, 89th Congress, 2nd Session, December 1966, Vol. I, p. 116.

***Statement by William P. Kelly, former Director of the Job Corps, before the Senate Subcommittee of the Committee on Appropriations, May 13, 1968, Washington, D.C. (Emphasis added.)

time, short-term indicators of the long-term outcomes must be used. In this study we use the three following short-term indicators to examine the relative effectiveness of the commuter and residential programs -- the objective of the evaluation.

Increase in Cognitive Skills

One of the ways in which the Job Corps attempts to improve corpswomen's economic opportunities is by increasing their cognitive skills -- their ability to think and reason. The basic education program is directly aimed at this objective. Many women, upon completing basic education, continue to develop reading and arithmetical skills in various advanced education courses. The extent to which women increase in achievement, as measured by standardized tests, is a fundamental concern of the Center's staff. The extensive research into the economic and social returns to education suggests that their concern is not misplaced.

Attitude Change

The Job Corps attempts to make participants employable, not only by providing marketable training, but also by socializing the participants into a changed perception of themselves and the role of work in their lives. Research to date has not provided clear evidence of a relationship between attitudes and economic success. However, we believe it reasonable to presume that the acquisition of positive, work-relevant attitudes is related to success in the labor market.

Length of Stay

The length of a woman's stay in the Job Corps is the third of the indicators examined in the analysis. There are several reasons for our interest in this variable. First, women who enter the Job Corps commonly have serious disabilities (inadequate education, lack of any skill or training useful in the labor market, severe personal problems -- to name just a few) that impair their ability to rise out of poverty. Job Corps staff members generally believe that their chances of helping

a woman increase with the amount of time they have to work with her. Second, many of the skill training programs offered by the Center lead to formal certification (e.g., a beautician's license, a vocational nursing license). Since certification usually depends upon completion of the training course and since a certificate is required for employment in such jobs, it is crucial that the Center "hold" the woman through course completion. Finally, the length of time that corpswomen remain in a program is viewed as a measure of that program's "quality." This view is based on the notion that women respond to help. Thus, a program that is able to hold its corpswomen must be offering them the services they require, at least in comparison with a program that is unable to hold its clients. These notions all suggest that the commuter program must keep its dropout rate to a reasonable level if it is to succeed in the long term.

THE LIMITS OF THE EVALUATION

Before presenting empirical results, we must emphasize, first, that throughout the evaluation we were concerned with relative, not absolute, effects. We do not compare Job Corps participants with nonparticipants; we attempt to estimate the differential impact of residency upon women within the Center. This study, therefore, is not to be interpreted as a comparison of the Los Angeles Women's Job Corps Center with other Job Corps Centers or other human resources programs.

Second, we have necessarily focused on near-term rather than far-term effects. The objective of the Job Corps is to help women rise out of poverty. The proximate objectives on which we focus in this Report are important only insofar as they are valid indicators of long-term success. This phase of the evaluation is, in fact, only one part of what must be a two-part analysis. Our results should be viewed as tentative until sufficient longitudinal data on corpswomen's post-participation success becomes available.

Third, time limitations on the data curtailed analyses of changes in attitudes and skills. The data we received from the Center cover only the twelve months from June 1, 1969 through May 29, 1970. Most

women who enter the Center enroll in training programs requiring over nine months to complete, but only a small proportion of our sample entered the Center during the first three months of this period. Thus, our sample can be roughly divided into two groups: dropouts and women who were still in the Center on May 29, 1970. (There are only nine program graduates in our sample of 506 corpswomen.) Consequently, we could not include in the analyses measures of success in skill-training. Our investigation of attitude changes while in the Center was also severely limited.

Finally, we have not included costs in the analysis. The on-going resident program was funded on a per-capita basis at an annual rate of approximately $5,250 per corpswoman. To ensure equitable treatment of commuters, the Center was obliged to establish a separate system of cost accounts. The commuter program was funded, also on a per-capita basis, at an approximate annual rate of $5,329 per corpswoman. Because of these fiscal arrangements, any direct comparison of costs between the two programs would indicate negligible differences, on a per-woman basis. However, we feel that it would be erroneous to conclude that the programs are equally costly. The financial grcund rules imposed on the Center's staff effectively precluded experimenting with alternative expenditure levels. In particular, the option of expanding (or contracting) the size of a program by spending less (or more) per corpswoman was closed.* Substantive conclusions regarding the true relative costs of the two programs could only be derived from an extensive cost analysis -- a task beyond the resources available in this study.

*There was, of course, the option of spending less per corpswoman and returning the surplus funds to Washington. This would scarcely be acceptable behavior on the part of a staff charged with the responsibility of doing as much as possible to aid its clientele.

PLAN OF THE STUDY

A brief description of the Los Angeles Women's Job Corps Center and of the women who entered each of the Center's programs is provided in Section II. Section III summarizes the analysis and presents the more important results. A list of the variables examined in the course of the evaluation is given in Appendix A. Appendices B, C, and D present technical details of the analyses of cognitive skills, attitude change, and length of stay, respectively. In the interest of brevity, we do not describe the evaluation design or the data-collection process. The interested reader is referred to a previous Report.*

CONCLUSIONS AND RECOMMENDATIONS

Mindful of the limits of the evaluation described above, we submit the following conclusions and recommendations:

1. By far the most important result from the empirical analysis concerns the apparently superior performance of commuters. Commuter corpswomen are substantially less likely than residents to drop out of the Center during their first three months, and are no more prone to drop out thereafter. Controlling for population differences strengthens this result. Furthermore, when other factors are controlled for, commuters are found to register greater cognitive gains both during basic education and during their entire stay at the Center. Attitude changes while at the Center are about the same for residents and commuters. Thus, in terms of the proximate outcomes considered in this study, commuters clearly perform at least as well as residents and by several measures they do substantially better. Accordingly, we recommend that the commuter program at LAWJCC be continued.

2. The two populations, residents and commuters, differ substantially in their characteristics. The commuter program serves a population not served by the traditional resident program. Of

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*S. J. Carroll et al., Evaluation Design for the Los Angeles Women's Job Corps Center, RM-6373-OEO, December 1970.

particular importance in this respect is the substantial proportion of commuters who must care for dependent children and would, therefore, find it difficult to reside at the Center. Since this study concerned only the LAWJCC, our results cannot be generalized to what might happen if similar programs were instituted elsewhere. Nevertheless, the potential ability of a commuter-type program to serve segments of a population not reached by resident programs (and vice versa) should not be overlooked. Since our results provide no reason to believe that commuters will not perform as well as residents, we recommend that similar commuter programs be instituted on an experimental basis in other residential Centers.

3. We have examined a number of demographic variables in terms of proximate outcomes. We found that Mexican-American corpswomen are more likely than other corpswomen to remain at the Center for long periods of time. There is no evidence that Mexican-American women are less motivated than others; in fact, they are less likely to be absent from basic education classes. Despite their superior attendance records, however, these women consistently register lower cognitive gains during basic education, even after controlling for other factors. These results carry particularly important implications for the commuter program; the proportion of Mexican-Americans is substantially greater among commuters than among residents, and we suspect that the Center has not fully adjusted to the relatively large influx of Mexican-American women that accompanied the commuter program. We recommend that the Center staff pay particular attention to the needs of the Mexican-American corpswomen. Instituting an "English as a second language" program should be considered, as should a special pre-orientation program.

4. Regardless of residency status or background, corpswomen consistently registered larger gains during basic education on the Job Corps' own achievement tests than on the Stanford Achievement Tests. This was true for both reading and mathematics. Interestingly, measured grade levels at entry were quite similar on the two sets of tests. We found that hours of attendance in basic education exercised

a powerful influence on gains registered by the Job Corps tests, a much weaker influence on gains measured by the SAT tests. These results support the possibility that the material treated in basic education is closely related to skills tested by the Job Corps' own instruments. To discover the precise relation between the two sets of tests would require an analysis of the tests themselves, a task beyond the scope of this study. We recommend that the Job Corps undertake a study of the relationship between these two batteries of tests with a view toward establishing whether stressing the concepts tested in the Job Corps battery is consistent with the Job Corps' educational objectives.

5. The analysis of length of stay indicated that women who drop out of the Center during the first 90 days tend to be young, non-black high school dropouts, who lived with neither parent prior to entry and who score relatively low on the entry Stanford mathematical test. We recommend that counseling activities be focused on such women soon after their entrance.

6. Throughout this study we have focused on proximate outcomes, on the assumption that a woman who performs well with respect to proximate outcomes is more likely to succeed in adult life than a woman who performs less well. Before much reliance can be placed on the evaluative results, the accuracy of this assumption must be verified. We recommend that the Job Corps undertake a longitudinal evaluation to determine which, if any, proximate outcomes are valid indicators of program efficacy over the long run.

7. Often data necessary to the evaluation of program performance are not scheduled for collection until a woman's departure. As a result, such data are frequently not obtained. Also, serious sampling biases can occur. For example, women who decide to terminate and are antagonistic toward the Job Corps may refuse to take attitude tests. We recommend that the Job Corps collect performance data at routine intervals, whenever possible.

In the course of the study we obtained several additional results that do not directly lend themselves to policy recommendations:

- o The program variables included in the analysis, with the exception of residency, proved not to be systematically related to the length of time corpswomen remain in the Center. Our measures were crude, however, omitting certain program services such as counseling.
- o Cognitive gains were directly related to hours of attendance in basic education.
- o Cognitive gains were not related to hours of attendance <u>after</u> basic education.
- o The lengths of time corpswomen remained in the Center after basic education were unrelated to their cognitive gains during basic education.
- o Women whose attitudes toward the world -- as measured by the "optimism" tests -- were relatively positive tended to drop out less frequently after basic education.
- o None of the measures of attitude change was systematically related to the program inputs as we were able to measure, or to the demographic characteristics of the incoming population.
- o A minority of Corpswomen appeared to improve somewhat in job-relevant attitudes while at the Center; the majority apparently did not.

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II. THE LOS ANGELES WOMEN'S JOB CORPS CENTER: BACKGROUND

The LAWJCC, located in downtown Los Angeles, provides basic education, counseling, vocational training, and related services to young women, 16 to 21 years old, from impoverished families. Since its inception in 1965 the Center has operated as a residential facility; until the summer of 1969 all women enrolled in the program, approximately 315 at any one time, resided in the Center itself. In June 1969 the Center was funded to operate an experimental program for women commuting daily from points within the Los Angeles area. At any one time just over 100 women are enrolled in the commuter program. These commuters participate in the same basic education and vocational training classes as the residents and are afforded the same support services, such as counseling and medical services. Commuters are also included in informal after-hours Center activities.

The Center's training program is essentially the same for both residents and commuters. Upon entry into either program a woman begins a two-week orientation sequence. During this period corpswomen are introduced to the Center's staff and facilities. They are told what the Center expects of them and what they may expect from the Center. The women take a number of tests, drawn for the most part from the Stanford Achievement Test series, and begin to interact with the Center's counselors.

After the orientation period the corpswomen are given about eight weeks of basic education emphasizing reading and arithmetical skills.* Each woman begins her basic educational work at a level consistent with her previous achievement as measured by the Stanford tests. She is allowed to work at her own pace, aided by the basic education instructors. The educational materials were designed for the Job Corps and are used at all Job Corps Centers.

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*Depending upon her progress in basic education and the educational requirements of the skill-training program she wishes to enter, a particular corpswoman may spend more or less time in basic education.

Interspersed with basic education classes are counseling sessions and classes in "life skills." The counselors acquaint the women with the skill-training programs from which they may choose, and aid them in choosing a program consistent with their abilities and aspirations. In the life skills classes the corpswomen receive instruction in a variety of areas ranging from the basic principles of personal hygiene to cooking and sewing.

Once the basic education period is completed, the corpswoman is free to move into one of a variety of vocational training programs. The stated philosophy of the Center is that she is free to choose any training and the Center will attempt to provide it, often by contracting with an outside training institution. However, she is assisted in making her decision by the Center staff, who base their recommendations upon their assessment of her abilties and potential. Depending upon the availability of open "slots" in the chosen vocational program, the corpswoman may spend some time waiting to begin her training. During this waiting period the Center typically provides some pre-vocational training.

Women have been traditionally recruited into the on-going residential program by the Women in Community Service (WICS), a nation-wide volunteer organization. About 50 percent of the residents come from the Western states; most of the remainder are from the old South. At any one time 25-30 states are usually represented among the approximately 300 women in the Center's resident program. In addition, the U.S. territories of Guam and Puerto Rico have typically been represented. Very few of the residents are from the immediate Los Angeles area.

During the summer of 1969 the WICS contract was terminated by the Department of Labor. Recruiting responsibility was turned over to the various state employment services. Coincidentally with the shift in recruiting responsibility, demographic characteristics of the Center's population began to change. Women from urban areas of the Midwest and Northeast Coast began to appear in substantial numbers for the first time. Representation from the old South declined, and enrollees from Hawaii and the island territories ceased to appear altogether.

The WICS contract was renewed early in 1970. It is not yet clear whether the demographic profile of the Center will, as a result, move back toward its original distribution.

Women for the commuter program are recruited separately, by a staff employed by the LAWJCC for this purpose. The commuters' homes are clustered in three areas of the city -- a predominantly black area not far from the Center, a predominantly Mexican-American area in East Los Angeles, and a more racially and ethnically mixed area located at a greater distance from the Center in the vicinity of Los Angeles harbor. This geographic clustering of enrollees was necessary to facilitate the transportation of participants.

We examined entry characteristics of the 501 corpswomen who entered the Center between June 1, 1969 and May 29, 1970 and remained in the program for at least one week. Table 1 reports percentage distributions by residence status for each of a number of variables. Corpswomen occasionally refused, or were unable, to answer a question. In other cases questionnaires were lost or never given to a corpswoman. At the head of each subcolumn in Table 1 we report the number of corpswomen in that category for whom we had valid information. The tests of statistical significance were based on analyses of frequency distributions.

As Table 1 makes evident, corpswomen who participated in the commuter program differ in important ways from the comparable resident population. Commuters, for example, tend to be older and to have relatively more education.* The two groups also differ significantly in regard to racial distributions.** The proportion of blacks in

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*Both differences are due to the relatively greater proportion of 16-year-olds in the resident program. A Job Corps regulation required that commuters be at least 16-2/3 years old.

**For this analysis, what we have chosen to call "ethnicity" was divided into three categories: Black, Mexican-American, and Other. The "Other" category is almost exclusively Caucasian, but includes a sprinkling of Oriental girls and girls from the Pacific Islands.

Table 1

PERCENTAGE DISTRIBUTIONS OF CORPSWOMEN'S CHARACTERISTICS BY RESIDENCY

Characteristic	Residents	Commuters
Age[a]	(317)	(183)
16	16.7	4.9
17	23.0	29.0
18	21.8	21.9
19	18.3	19.7
20	13.9	14.8
21	5.7	9.8
22	.6	0.0
Ethnicity[a]	(295)	(175)
Black	47.5	52.6
Mexican-American	14.9	30.9
Other	37.6	16.6
Highest Grade Completed[a]	(288)	(169)
9 or less	36.1	21.9
10	22.6	36.1
11	11.8	21.9
12	29.2	18.9
13 or more	.3	1.2
Marital Status[a]	(312)	(183)
Married	1.6	12.0
All others	98.4	88.0
Number of Dependent Children[a]	(312)	(183)
0	89.1	60.1
1	9.0	30.1
2 or more	1.9	9.8
Parents in Household[a]	(293)	(174)
Not living with parents	22.2	30.0
Mother only	27.1	37.5
Father only	3.2	2.7
Both parents	47.5	28.9
Size of Community[a]	(286)	(174)
City	48.3	75.9
Town or Country	51.7	24.1
Welfare Status[a]	(316)	(183)
On welfare	30.7	61.7
Not on welfare	69.3	38.3

Table 1 - (continued)

Characteristic	Residents	Commuters
Previous Employment	(292)	(169)
Never worked	35.3	34.5
Had 1 or more previous jobs	64.7	65.5
Type of Most Recent Job[b]	(189)	(111)
Domestic	21.7	8.0
Office Worker	12.2	26.8
Waitress	13.8	7.1
Unskilled Factory	6.8	9.8
Other	45.4	48.3
Earnings on Most Recent Job[a]	(189)	(111)
Less than $1.65/hour	57.1	30.6
At least $1.65/hour	42.9	69.4

[a]Differences between the two distributions with respect to this variable are significant at the 1% level.

[b]Differences between the two distributions with respect to this variable are significant at the 5% level.

both groups is roughly the same (about 50 percent). Three-fifths of the non-black commuters, but only one-fourth of the non-black residents, are of Mexican-American descent.

There are significant differences between resident and commuter corpswomen with respect to family structure. Although both groups are predominantly single, a significantly greater proportion of the commuters are married. This difference and the fact that commuters are significantly more likely to have dependent children indicate that the commuter program is attracting women who would have difficulty residing in the Center. Of the three-quarters of all corpswomen who are still living with at least one of their parents prior to entry, the residents are significantly more likely to come from families containing both parents and the commuters to come from female-headed households. Almost one-half of the residents, but only a little over one-quarter of the commuters, are from unbroken homes. A solid majority (62 percent) of commuters come to the Center from homes receiving welfare, twice the proportion of residents (31 percent) from such homes.

Nearly one-half of the women in each program worked before entering the Job Corps; however, commuters and residents tended to have had significantly different kinds of jobs. Residents were more likely to have worked as domestics and waitresses, commuters as clerks. In general, commuters had received significantly higher wages for their work. These differences are, at least in part, attributable to the fact that residents were much more likely to have lived in non-urban environments before entering the Center. Approximately half the residents come from small towns or rural areas, whereas nearly three-quarters of the commuters have lived most of their lives in a large city.

The attitudes of entering women were obtained on scales measuring their degree of self-confidence and the degree to which they possessed

a positive view of the world ("optimism").* Table 2 presents mean self-confidence and optimism scores for corpswomen in the two programs. Overall, residents and commuters appear very similar in attitude at entry. We investigated the distribution of self-confidence scores by ethnicity and age as well as by residency status. Black corpswomen scored higher on the self-confidence scale in both the resident and commuter populations, but the differences were not statistically significant. Age was not related to these scores. On the optimism scale, black resident and commuter corpswomen again scored higher, young black corpswomen scoring higher than their older counterparts.

Table 2

MEAN SCORES ON ENTRY ATTITUDE SCALES BY RESIDENCY
(Resident-Commuter differences not significant)

Scale	Residents	Commuters
Self-confidence	24.2 (192)[a]	24.4 (96)
Optimism	34.3 (193)	34.9 (96)

[a]Cell size upon which mean is based.

In general, we found the resident population to be largely composed of what might be described as the "traditional" poor. These women were typically raised in unbroken, self-supporting homes in rural areas or small towns. They often had a fairly high level of education, but had worked in low-status jobs for low wages. They were seldom familiar with an urban environment.

The commuter group, in contrast, could be characterized as the "new urban" poor. Commuters were typically from the two major minority groups (blacks and Mexican-Americans), grew up in crowded urban ghetto

*See S.J. Carroll, op.cit., Section VI, for a discussion of the the theory and construction of these tests.

conditions and on welfare, and left school early, yet were knowledgeable enough in the ways of the city to find employment in white-collar jobs for reasonably high wages.

Among commuters there were interesting subcultural differences between non-black and black enrollees. The black commuters were more likely to have a child to support, less likely to come from two-parent homes, and somewhat more likely to possess relatively positive attitudes about themselves and their chances in the world. Non-black commuters came from more protective and sheltered environments and had comparatively less confidence in themselves and their ability to find their way in the world.

III. SUMMARY OF THE ANALYSES

METHODOLOGY

The principal statistical tool we employed was multiple regression analysis. Using these techniques, we were able to estimate the impact of each member of a set of independent variables upon a dependent variable while controlling for the influence of all the remaining members of the set. However, for any particular set of independent variables we can include in the analysis only those corpswomen for whom we have observations on every variable in the set. Unfortunately, we had observations on all the variables of interest for very few corpswomen.

Accordingly, we conducted numerous regression analyses for each dependent variable incorporating a large number of different combinations of independent variables.* Those independent variables that were never significant themselves and that never affected the significance of other variables were deleted. In using this procedure we placed strong emphasis upon consistency. That is to say, we did not accept or reject hypotheses on the basis of significance tests generated in any one regression. Instead, we were primarily concerned with whether a variable consistently had the same sign, was of the same order of magnitude, and was significant throughout the analysis. The particular regression results reported here are meant to be exemplary.

We also provide the results of tests of significance for the reported regressions. Strictly speaking, these cannot be interpreted in the traditional sense. Our procedure violates the assumptions that underlie the traditional methods of significance testing. However, it does indicate which variables consistently proved to be significant throughout the analysis.

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*A listing of the independent variables we examined is presented in Appendix A.

COGNITIVE ACHIEVEMENT*

Corpswomen's achievements in reading and mathematics were measured by two sets of standardized achievement tests, the Stanford Achievement Tests (SAT) and the Job Corps Tests (JCT), administered at several points in time. We constructed, for each corpswoman, six measures of cognitive gain: the difference between her scores on the SAT mathematics (reading) tests given at the end of her basic education program and at her entry into the Center, the difference between her scores on the JCT mathematics (reading) tests given at the same two points in time, and the difference between her scores on the SAT mathematics (reading) tests given at the time she terminated and at the time of her entry into the Center.

Changes in Test Scores

We examined the mean initial grade level and the mean changes in these grade levels as measured by JCT and SAT. All the changes in test scores were positive.** As measured by both the JCT and SAT tests, therefore, improvements in reading and mathematical ability do occur while the girls are at the Center.

There is, however, a striking disparity in the magnitude of the improvement as it is measured by the Job Corps' own tests and by the Stanford Achievement Tests. The SAT tests suggest that during basic education reading and mathematical ability both increase by slightly over half a grade level. The mean increase in reading ability during basic education as measured by JCT is about three times greater than the increase measured by SAT, although both tests measure reading ability at entry to the Job Corps at about a sixth-grade level. The increase in mathematical ability as measured by JCT is about five

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*The analysis of cognitive achievement is presented in greater detail in Appendix B.

**A test of statistical significance indicated that the mean improvement in test scores is significantly greater than zero at the .001 level in all cases.

times greater. This raises the possibility that the Job Corps is teaching toward their own tests. If this is true, changes measured by JCT would be exaggerated and actual improvements in ability would be more accurately measured by SAT.*

A comparison of the two different time spans covered by SAT indicates that there is little real difference in achievement gains during basic training and during the entire period at the Center. Changes in reading level between entry and termination are, in fact, smaller than changes during basic education. We find that the reading grade level decreased by .02 grades during the post-basic education period, while the math grade level increased by .26 grades. The first number is not significantly different from zero, but the second number is statistically significant at the 5 percent level. During basic education these girls increased their SAT reading ability by .55 grades and their mathematical ability by .61 grades. This suggests that most, if not all, of the improvement in mathematical and especially reading ability that does take place occurs during the basic education sequence.

The relations between scores on the various tests are also revealing. Among the six simple correlations among the four initial tests, for example, the strongest relations are between the two reading tests and between the two math tests. This suggests that the measurement of initial ability levels in reading or math does not depend on whether JCT or SAT is used. All six correlations, however are

*A reviewer suggested that these results may stem from biases in the respective tests. The Job Corps may have deliberately biased their test in order to show large achievement gains. Alternatively, the Stanford tests may be culturally biased whereas the Job Corps tests, being designed for use with this particular subpopulation, accurately measure their true achievement. We are disinclined to accept either hypothesis. Either, or both, sets of tests may be biased for one reason or another. But we would expect any test bias to be reflected in the absolute score a corpswoman attains on that test rather than in her change in score between two repetitions of the test. The high correlations among the initial SAT and JCT scores suggest that if the tests are biased at all they are apparently biased in the same direction to about the same degree.

relatively high, with none falling below .5, and all are of high statistical significance. Thus, relative cognitive ability as measured by one test at entry to the Center is likely to be relected by the other tests.

By way of contrast, the six correlation coefficients for the four test score changes during the basic training period are relatively small. None is above .3, only one is larger than .15, and most are not statistically significant. Similarly, the simple correlation between the SAT measured changes in reading and mathematical ability over the entire stay at the Center is only .13. These weak relationships indicate that a gain as measured by one test is seldom reflected by score changes on the other tests. This may either be because the tests measure different dimensions of achievement or because they measure the same dimension, but with varying degrees of accuracy.

Because changes in test scores are only proximate outcome variables, their value to the Job Corps depends on how well they can predict longitudinal outcomes. The low correlations between changes in scores on various tests suggest, however, that it is unlikely that they are equally valid. This constitutes an important limitation to the present study. We have no way of knowing which, if any, of our proximate outcome variables deserves our confidence: a test of which measure is the most closely related to long term outcomes must await further research.

Regression Results

Thus far we have only described the relationships among a set of proximate outcome measures. Assuming that at least some of these measures are good predictors of future success, we attempted to determine the factors that systematically influence them through multiple regression analysis.

The independent variables we examined are conveniently assigned to two categories: program services, including residency, and individual characteristics. These variables are described in detail in Appendix A.

We turn to the latter category first. It is important to note that a number of the individual characteristic variables investigated were not related to our measures of cognitive gain. Among the more important of these were formal education, school stability, prior experience in the labor market, attitudes, place of origin, and self-rating upon entering the Job Corps. The following variables do appear to be related to changes in test scores: age, socio-economic status as measured by family income, family structure, and ethnicity. Age and family income both appeared to be positively related to achievement, although the age-achievement relation was often statistically insignificant. Mexican-Americans make less gain than Caucasian women. The evidence on blacks is much weaker, but on balance they also make somewhat less progress than Caucasians. The one surprising result is for family structure. Women from father-headed households, women who lived by themselves, and women who lived with a spouse all appeared to perform about equally well. They were therefore grouped together and compared with those who lived in a mother-headed household prior to entering the Job Corps. As measured by several of the test score changes, this latter group made greater-than-average progress while at the Center.

In examining the program variables, we found one of the most important influences on cognitive gain to be hours of attendance in basic education. Its effect is consistently positive and is generally statistically significant. Depending upon the particular assumptions made, the results indicated that it would be necessary to increase basic education by around 200 to 400 hours to obtain an increase of one grade level.* This may be given greater perspective by noting that the girls in our sample averaged slightly more than 200 hours of basic education. Thus, to add one additional grade level, hours of attendance in basic education would have to be at least doubled.

*The most extreme result indicated that the basic education sequence would have to be increased by 1000 hours to obtain an increase of one grade level.

It should be stressed that the lowest hours estimates were invariably associated with regressions that used JCT scores as a dependent variable. In fact, some of the estimates based on differences in SAT scores suggested that a three to five-fold increase in basic education hours might be necessary before an additional grade level could be achieved. This is consistent with our earlier hypothesis that the Center tends to teach toward the Job Corps Tests, so that much of what is learned is not reflected by scores on more general measures of ability, such as Stanford Achievement Tests.

The effect of hours of training after completion of basic education is consistently positive, but it is very small and is invariably statistically insignificant. Thus, our evidence indicates that hours of training after basic education contribute little if anything toward cognitive gain. This result receives additional support when days rather than hours of training are used. Even days in advanced training -- a course of study supposedly designed to impart cognitive skills -- do not appear to influence changes in test scores.

Residency

A major reason for utilizing a regression analysis incorporating the variables so far discussed was to control for factors related to test score changes so that the influence of residency could be isolated. In fact, when we did compare corpswomen who entered the resident program with those who became commuters without controlling for other important factors, our results were rather ambivalent. Sometimes the residents appeared to have made the greatest cognitive gain and sometimes the commuters, but most of these differences were statistically insignificant. Once other important factors are controlled for, however, the relationship between residency and five of our six measures of cognitive gain is negative. Although some of the negative relations are statistically significant, the one positive relation is not. From this we conclude that, everything else being equal, to the extent there is an effect of residency on achievement, it is negative.

Thus far we have emphasized the direction of residency's influence on achievement. We now turn to the size of that influence. Rows 1 and 2 of Table 3 permit the initial grade levels and the changes in the grade levels of residents to be compared with those of commuters. Initial grade levels for residents and commuters tend to be similar; in most instances the differences are much smaller than half a grade level.

Four of the six comparisons of changes in grade levels favor commuters. The only difference that is statistically significant, however, is associated with changes in SAT reading levels during basic education, and this comparison favors the residents. The differences between residents and commuters in row 2 range from .01 to .3 with a median value of around one-fifth of a grade. As a fraction of the total change that took place (at least as measured by SAT), one-fifth of a grade level is not inconsequential. But for women who, upon leaving the Center, possess reading and mathematical ability at the sixth or seventh grade level, one-fifth of a grade more or less does not seem very consequential. There is, therefore, no reason to believe that the achievements of participants in the commuter program were either substantially better or substantially worse than the progress of participants in the residential program.

This is not to say, however, that it makes little difference to a given woman, everything else being equal, whether she is placed in the resident or the commuter program. To examine this issue, we report in the third row what we consider our best estimates of the change in grade level attributable to residency. These estimates are calculated directly from the coefficients for residency in the regressions that incorporate our full set of independent variables.* Thus, these estimates are as close as we could come to measuring the impact of residency, while holding all other systematic determinants of test score changes constant.

*See Table B-6 in Appendix B.

Table 3

CHANGE IN GRADE LEVEL ASSOCIATED WITH RESIDENCY AND WITH BEING A MEXICAN-AMERICAN

	Change over Basic Education								Change from Entry to Termination			
	JCT				SAT				SAT Only			
	Reading		Math		Reading		Math		Reading		Math	
	Residents	Commuters	Residents	Commuters	Residents	Commuters	Residents	Commuters	Residents	Commuters	Residents	Commuters
	1		2		3		4		5		6	
1. Initial Grade Level	5.89	5.87	5.25	5.29	6.06	5.73	5.75	5.49	6.09	6.26	5.93	5.49
2. Change in Grade Level	1.58	1.55	2.74	2.75	0.66	0.36	0.53	0.73	0.28	0.51	0.74	0.92
3. Change in Grade Level Attributable to Residency	-0.21		-0.30		0.18		-0.34		-0.47		-0.15	
4. Change in Grade Level Attributable to Being a Mexican-American	-0.34		-0.87		-0.41		-0.43		0.05		-0.41	
5. Number of Observations	110	126	110	126	73	66	73	66	38	45	38	45

The estimates reported in row 3 provide an answer to the following question: What would the increase in grade levels have been for girls placed in the commuter (residency) program had they instead been placed in the residency (commuter) program? To illustrate, let us look at the change in reading level during basic education as measured by JCT. Row 2 indicates that residents and commuters both improved by slightly more than a grade and a half. Row 3 indicates that, had the residents been commuters, their grade level would have increased by about 1.8 grades. Had the commuters been residents, on the other hand, their grade level would have increased only by about 1.3 grades.

Three of the estimates in row 3 are based on insignificant regression coefficients and cannot therefore be assumed to be statistically different from zero. The three remaining estimates imply that residency has a negative impact of one-fifth to almost one-half a grade. The upper end of this range is certainly large relative to the increases that actually did take place, at least as measured by SAT, but the overall impression conveyed by Table 3 is that <u>at worst</u> residency will have no more than a slightly negative impact on future success. However, this conclusion must remain tentative until more is known about the relation between changes in grade levels while at the Center and experiences upon leaving the Center.

Row 4 is similar to row 3, except that the estimates are based on the regression coefficients for Mexican-Americans, rather than for residency. With but one exception, the change in grade level attributable to being a Mexican-American is larger than that attributable to residency. This indicates that, if everything else is equal, Mexican-Americans are under a greater handicap than are residents.

ATTITUDE CHANGE

Two measures of attitude change have been utilized. Self-perceived changes in attitudes are based on a series of open-ended questions administered upon termination from the Center. On the basis of their answers corpswomen were separated into: those perceiving a positive change, those perceiving a negative change, and those seeing no change.

The second measure of attitude change is based upon two attitude tests developed by Regis Walther in a study of the Neighborhood Youth Corps.* The first Walther test provides a measure of self-confidence; and the second, labeled by Walther as "optimism," measures the degree to which the world is seen as friendly and manageable.

Since the Walther tests are presumably objective, whereas the self-perceived measures are subjective, the former might be viewed as superior. The relative merits of the two approaches, however, remain controversial.** Moreover, our Walther test data are subject to important limitations related to when the tests were given. The tests were administered at two points in time: at a Corpswomen's thirteenth week at the Center and at her termination. This means that the Walther tests cannot be used to measure attitude changes during the basic education sequence, a period when one might expect considerable change to take place. Equally important, it means that we cannot use the Walther tests to measure attitude changes among corpswomen who leave the Center during their first thirteen weeks, a group whose attitudes are likely to be adversely affected by their Job Corps experience.*** Furthermore, the final Walther tests were administered much less systematically than were the self-perceived attitude change questions.

Besides the Corpswomen for whom we have self-perceived attitude change measures but not changes in Walther test scores, there is a second, larger group for whom we have neither. This group includes those who terminated without providing the necessary data -- once a trainee decides to terminate the Center's ability to elicit her

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*Regis Walther, The Measurement of Work Relevant Attitudes, Social Research Group, George Washington University, February 1968.

**See Walter Mischel, Personality and Assessment, Wiley & Sons, New York, 1968.

***In a regression analysis, however, we did not find a systematic relationship between length of time at the Center and any of the five measures of attitude change. This implies that leaving early terminators out of the Walther sample may not be seriously distorting.

cooperation in interviews and test taking is obviously limited -- and those who had not yet terminated when the data cutoff occurred. The attitudes of the first subclass seems likely to have disproportionately changed for the worst and those of the second subclass likely to have disproportionately improved.

Relationships Among the Attitude Change Measures*

The simple correlations among the five measures of attitude change indicate that attitude changes as measured by the Walther tests are virtually unrelated to attitude changes as perceived by the Corpswomen themselves. This is disturbing because it suggests that our two types of attitude change measures have different stories to tell; it is not clear, as we noted above, which should be considered the more reliable.

Correlations among the three self-perceived measures and between the two Walther measures are generally statistically significant. The coefficients, however, are not particularly large. This is not surprising. The three self-perceived measures, like the two Walther tests, were each designed to assess different dimensions of attitude change, and conceptually there is no reason why these dimensions must change in the same way over time. Further research is necessary before we can tell which, if any, of the five measures are useful predictors of longitudinal outcomes.

Attitude Changes While at the Center

In Table 4 we compare, for each measure, the percentage of corpswomen whose attitudes improved while they were at the Center, the percentage whose attitudes change for the worse, and the percentage whose attitudes did not change. On the basis of the "objective" Walther tests, about as many corpswomen seemed to have regressed in attitudes as have improved. On the basis of their subjective perceptions, however, more corpswomen felt they were leaving the Center with improved attitudes

*The correlation coefficients upon which the discussion in this section is based are presented in Appendix C.

Table 4

DISTRIBUTION OF ATTITUDE CHANGES WHILE AT THE CENTER
(percent)

	Walther Tests		Self-Perceived Attitude Change		
	Self-Confidence	Optimism	Self-Concept	Social Ability	View of the Future
Total	100	100	100	100	100
Improved	43.9	43.3	45.7	35.5	30.5
No change	12.1	11.9	39.3	62.1	59.1
Worsened	44.0	44.8	15.0	2.4	10.4
Number of observations	67	67	175	169	141

than thought they were leaving with poorer attitudes. Nevertheless, even on the basis of self-perception, a clear majority of terminating corpswomen indicated that they either did not change in attitude while at the Center or that they changed in a negative direction.

Our finding that attitudes improved on balance as reported by the trainees themselves, but not as measured by the more objective Walther tests, is similar to the results of research on hallucinogenic drugs.* Subjects frequently report that taking the drug was a powerful experience, sometimes stating that one experience will affect their entire life. Psychological tests, however, have indicated little change. It is unclear whether this indicates that persons unrealistically tend to magnify the importance of experiences in their recent past or that available tests are not very useful indicators of change. Some of the disparity between the objective and the subjective measures may also be associated with the failure to give the initial Walther tests until the thirteenth week at the Center.

*See W. H. McGlothlin, Sidney Cohen, and Marcella S. McGlothlin, Short Term Effects of LSD on Anxiety, Attitudes and Performance, P-2757, The Rand Corporation, June 1963.

The disparity between the objective and the subjective measures prevents a final conclusion as to whether the Center is able to effect an overall improvement in attitudes. It is most reasonable to conclude that although a minority of trainees probably do improve somewhat in attitude, the majority do not.

Residents vs. Commuters

A comparison of resident and commuter attitude changes appears in Table 5. To facilitate the comparison, corpswomen perceiving a negative change were combined with those not perceiving a change; the Walther results reported in Table 5 are the mean percentage change in scores between the initial and the final tests.

None of the differences between commuters and residents with respect to either self-perceived or objective attitude measures are significant. Although the changes on the Walther tests are positive, no change is significantly greater than zero at the five percent level. Thus, without controlling for differences in the characteristics of the two populations or for differences in the services each receives, we may conclude that attitude changes for residents and commuters are about the same.

To introduce controls for other factors that may influence attitude change we experimented with regressions incorporating various subsets of the independent variables listed in Appendix A. It was hoped that in addition to isolating the influence of residency on attitudes, the regression analysis would suggest individual characteristics and program services (other than those directly associated with residency itself) that are related to changes in attitudes.

The results of the regression analysis were disappointing. The analysis was rendered difficult by relatively small sample sizes and by sampling biases. The results were extremely sensitive to variations in the set of independent variables and to variations in sample composition.* Based on the best evidence we could assemble, we concluded that

*Because of missing information, the sample composition was itself a function of which independent variables were used.

Table 5

MEASURES OF CHANGES IN ATTITUDES

	Walther Tests[a]				Self-Perceived Attitude Change[b]					
	Self-Confidence		Optimism		Self-Concept		Social Change		View of the Future	
	Change	No. Observ.	Change	No. Observ.	Change	No. Observ.	Change	No. Observ.	Change	No. Observ.
Residents[c]	2.1	48	4.3	48	47.4	114	37.3	110	30.8	91
Commuters[c]	5.0	19	7.9	19	42.6	61	32.2	59	30.0	50
All	2.9	67	5.3	67	45.7	175	35.5	169	30.5	141

[a]Change on the Walther Tests is measured as the mean percentage change in test scores between the initial test and the test at termination.

[b]Change in self-perceived attitude is measured as the percentage of reporting corpswomen who indicate a positive change.

[c]None of the differences between residents and commuters are statistically significant at the .1 level.

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neither the program inputs nor the individual characteristics that we could measure are systematically related to our measures of attitude changes.*

Although the regression results were disappointing, they nevertheless consistently pointed to one major conclusion: no matter what measure of attitude change or combination of independent variables was used, residency was not statistically associated with attitude change. On the basis of our best evidence, therefore, the service of residency appears to exert little or no influence on the attitudes of corpswomen.

LENGTH OF STAY

Our data extend only through May 29, 1970, and many of the women in the sample had not terminated by that date. For these corpswomen we do not, of course, know when they left the Center, if, in fact, they are not still corpswomen today. However, we do know how much of the program they completed by that date. For example, if a corpswoman entered the Center sometime in February 1970, and had not terminated by the end of May 1970, we have no idea of how long thereafter she remained in the Center. But we could include her in an analysis of the factors that induce women to remain in the Center through the first 90 days of her program. We could not include her (or anyone else who entered the Center after January 1970) in an analysis of the factors related to the completion of the first 120 days of a program. Similarly, when we examine the probability that a corpswoman will make it

*There are at least three possible explanations for this result, and we have no way of determining which is the best. The first is that little or no real change in attitudes took place; the second is that there was a change, but our measures inadequately captured it. These explanations imply that the differences between corpswomen indicated by our measures are essentially meaningless. The third explanation is that changes in attitudes while at the Center are essentially random or unrelated to the individual characteristics and program inputs that we have measured. There may, of course, be other characteristics or inputs we have not measured that are related to attitude change. An important example is counseling.

through the first 180 days of her program we must restrict the analysis to those who entered the Center prior to December 1969.*

This restriction is reflected throughout the analysis. Rather than simply investigate the factors related to corpswomen's length of stay, we chose an arbitrary point in time, restricted the sample to women who entered the Center prior to that time, and examined the factors related to the number of days between our point in time and May 29, 1970 that members of the sample remained in the Center.** Of course, as the point in time becomes further removed from May 29, 1970, the size of the sample was reduced and the statistical results become less accurate. Because of this problem we focused on 90, 120, 180, and 240 day lengths of stay; sample sizes for longer periods of time were too small to support the statistical tests.

Completion Rates

We began with an examination of the overall completion rates for residents and commuters (see Table 6). Our results clearly indicate that, overall, commuters tend to remain in the Job Corps for significantly longer periods of time. We find, for example, that over 80 percent of the commuters remain in the program for at least 90 days, whereas one-third of the residents leave the Center within their first 90 days. Similarly, two-thirds of the residents drop out within 8 months (240 days) of entering the Center. On the other hand, the Center has held over half the commuter corpswomen for at least that long.

The analysis also suggested that the disparity in completion rates between residents and commuters narrows as the time period grows longer. In order to examine this possibility more carefully, we have calculated "conditional" completion rates for residents and commuters (see Table 7).

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*For convenience, we assume 30-day months throughout the discussion.

**If, for example, our point in time was December 1969, we attempted to find, for corpswomen who entered the Center prior to that date, the determinants of the number of days (up to a maximum of 180) that they remained in the Center between December 1969 and May 29, 1970.

Table 6

OVERALL COMPLETION RATES

Length of Period (days)	Residents (percent)	Commuters (percent)	Total (percent)
90[a]	66.0 (153)[c]	83.7 (135)	74.4 (288)
120[b]	56.2 (137)	74.4 (125)	65.0 (262)
180[b]	50.4 (121)	60.5 (114)	55.1 (235)
240[b]	33.3 (81)	50.6 (83)	42.1 (164)

[a]Difference between residents and commuters is significant at the .05 level.

[b]Difference between residents and commuters is significant at the .10 level.

[c]Numbers in parentheses indicate the sample sizes upon which completion rates are based.

Table 7

CONDITIONAL COMPLETION RATES[a]

Length of Period (days)	Beyond Day	Residents (percent)	Commuters (percent)	Total (percent)
60	180	77.1 (35)[b]	84.0 (50)	81.2 (85)
150	90	57.4 (47)	60.0 (70)	59.0 (117)
60	120	88.4 (69)	82.1 (84)	84.4 (153)
90	90	74.4 (82)	71.9 (96)	72.6 (178)
30	90	85.6 (90)	88.6 (105)	87.2 (195)

[a]None of the differences between residents and commuters are statistically significant.

[b]Numbers in parentheses indicate the sample sizes upon which completion rates are based.

These show the rate at which girls who have completed a given number of days in the program tend to remain in the Center for various subsequent lengths of time. For example, 35 resident girls entered the Center at least 240 days before May 29, 1970 and completed at least 180 days. Of these 35 corpswomen 77 percent remained in the Center for at least 60 or more days. Similarly, 50 commuters entered the Center at least 240 days before our data cutoff and remained for at least 180 days. Of these, 84 percent were still in the Center 60 days later. In other words, the conditional probability that a corpswoman will complete 240 days, given that she has completed 180 days, is 77 percent if she is a resident and 84 percent if she is a commuter.

Statistical analysis of the conditional completion rates yields an extremely interesting result: the conditional completion rates for residents and commuters who remain in the Center at least 90 days are not significantly different. This result, in connection with the overall completion rate results cited above, implies that resident corpswomen are much more likely to drop out of the Center during the first 90 days than are commuter corpswomen. Overall residents are less likely than commuters to remain in the program for lengthy periods of time (roughly, four to eight months); but this is almost entirely due to the propensity of residents to terminate during the first three months. If we consider only those corpswomen who stay through the first three months, residents are no more likely to drop out thereafter than are commuters.

In our examination of completion rates, we have so far only examined the relation between residency and length of stay. For a simultaneous investigation of the relationships among a large number of possible explanatory variables and length of stay, we turn to multiple regression analysis.* This technique allows us to examine whether our earlier results for residency remain valid when other factors are held constant.

*The regression analysis is only summarized here, but it is presented in full detail in Appendix D.

Residency

We ran a number of regressions in which the dependent variables were the total number of days a corpswoman remained in the Center. The coefficient of residency was negative and quite significant in all equations. This result was obtained in all regressions no matter what combination of demographic variables was used to control for differences in the respective incoming populations and no matter what combination of program service variables was used to control for the impact of the Center. It is clear that, overall, residents tend to remain in the Center fewer days than otherwise similar commuters.

This result is surprising at first glance. Residents must rely on the Center for transportation home. Hence, the Center's staff generally has two or three days during which travel arrangements are being made to work with the corpswoman and attempt to change her mind. Commuters, on the other hand, typically terminate simply by ceasing to appear at the Center. Thus staff members have no opportunity to affect their departure decisions. However, it must be remembered that the vast majority of the residents' homes are thousands of miles from Los Angeles. Once a resident leaves it is impossible for Center staff to contact her and attempt to attract her back into the program. Commuters, on the other hand, can be easily reached after they terminate. We understand that the Center's staff has been quite successful in inducing commuter program dropouts to return to the Center.

Interestingly, we found that the level of statistical significance of the residency variable consistently declined as we expanded the sample to include corpswomen who had spent greater lengths of time at the Center. This supported our earlier results concerning overall completion rates. Accordingly, we ran a number of analyses in which the samples were restricted to corpswomen who had remained in the program some minimum number of days and the dependent variables were the number of days they remained beyond the minimum.*

*The minimum periods used were 90 days, 120 days, and 180 days.

Residency was insignificant in virtually all the regressions. In general, there is no evidence that the services included under residency are related to length of stay beyond 90 days among corpswomen who stay at least through the first three months after entrance. This result is consistent with our earlier observation that the significance of residency in the overall regressions steadily declined as the time period was extended.

Individual Characteristic Variables

As noted above, we were also able through regression analysis to make a simultaneous examination of a large number of individual characteristic variables. Among the variables that do not consistently appear to influence the length of time that a corpswoman remains in the Job Corps are: age, place of origin, school stability, prior experience in the labor market, size of place raised (urban-rural), socio-economic status as measured by family income or parents' educational levels, and grade level on any of the four entry achievement tests.

The following variables do appear to be related to length of stay: high-school graduation, ethnicity, family structure, and attitudes. These variables generally influenced length of stay in the expected direction. High school graduates tended to remain in the Center for significantly longer periods of time than women who have not completed high school, other things being equal. Black corpswomen appear to stay in the Center significantly longer than whites, at least through the first four or five months, but from day 120 onward there is little evidence that black corpswomen are less prone to drop out. After their first three months in the Center, Mexican-American corpswomen behave in approximately the same fashion as black corpswomen. However, our results indicated that during the first 90 days in the Center Mexican-American corpswomen were no less prone to leave than were white corpswomen.

We experimented with a number of variables describing a corpswoman's family structure. Whether she lived with both parents or with her

mother proved to be the only consistent predictor of her length of stay. The size of her family, whether she had dependent children, whether her family was on welfare, and who headed her family (if not a parent) were all statistically insignificant. Women from two-parent households, or who lived with only their mothers, were significantly less likely than women who had lived with neither parent to drop out of the Center during their first three or four months after entry.

The degree to which the world is seen as friendly and manageable as measured by the Walther optimism test was significantly and positively related to the length of time a corpswoman spent in the Center. A corpswoman's rating on the self-confidence attitude scale, her self-rating (that is, how intelligent she thought she was compared with the average), and her reason for entering the Job Corps were not related to length of stay.

Program Services

The amount of time spent in basic education varies from one corpswoman to another, but very few spend more than 90 days. By deleting these women we were able to construct a sample such that every corpswoman included in the analysis had completed basic education and had received an assignment to a subsequent course of training before her 90th day in the Center. We employed measures of whether a corpswoman entered a skill-training program or an advanced education program at the end of her basic education, and whether she was assigned to a work task after basic education. We also examined the amount of time a corpswoman spent in basic education. We experimented with her scores on the four achievement tests given at the end of basic education and with changes in the four test scores over the basic education period. None of these variables proved to be related to how long a corpswoman remained in the Center beyond day 90.

These results imply that what happens to a corpswoman while she is in basic education has no discernible effect upon how long she remains in the Center after completing basic education. Furthermore, there is no apparent relationship between her assignment after basic education and her subsequent length of stay.

Magnitude of Residency's Impact

Now that we have narrowed residency's influence to the first 90 days that corpswomen are in the Center, it is useful to examine the size of that influence. To do this we recalculated our 0 to 90 day regression, changing only the dependent variable so that corpswomen who completed all 90 days were assigned a one and those who failed to complete 90 days were assigned a zero. The resulting coefficient for residency allows us to compare the probability that a resident will complete the first 90 days of her training with the same probability for a commuter, holding other factors constant. Our results, which were highly significant, indicated that, other things being equal, a resident is 23 percent* less likely to complete the first 90 days.

This result may be contrasted with our estimate of the impact of residency where we did not control for other factors. There we estimated that a commuter is about 18 percent more likely to remain in her program through the first 90 days. The difference between these two estimates is largely due to the significantly higher proportion of high school graduates in the resident program.** High school graduates are much less likely to depart within 90 days of entering the Center. Thus, the higher proportion of non-graduates in the commuter program obscures the negative impact of residency in an analysis that does not control for other factors.

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*The t-value for this estimate is 5.92, significant at the .001 level.

**See Table 1.

APPENDICES

Appendix A*

VARIABLES EXAMINED DURING THE INVESTIGATION

DEPENDENT VARIABLES

We have focused on three proximate outcomes in this analysis: corpswomen's cognitive gains, the length of time they remain at the Center, and changes in their attitudes. In each case we have used a number of different measures of the outcome.

Cognitive Gains

The Stanford Achievement Tests (SAT) measure a woman's achievement in reading and mathematics by comparing her score with nationwide norms. These tests are widely used throughout the United States. Corpswomen were given SAT at entry to the Center, upon completion of the basic education sequence, and at termination from the program. These tests provide measures of changes in reading and mathematical ability both during basic education and during the entire stay at the Center. If a corpswoman should terminate at or before completing the basic education sequence, the two time periods are, of course, coterminous.

Job Corps Tests (JCT), designed for and exclusively used by the Job Corps, are an alternative to SAT. These tests are administered at entry to the Center and upon completion of the basic education sequence. They provide a measure of a corpswoman's progress in reading and in mathematics while she is in basic education.

Attitude Change**

We examined both objective and subjective measures of attitude change. The objective measures were derived from two attitude scales

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*The evaluation design contains an extensive discussion of all variables examined in the study. Complete details of the data collection process and the construction of variables from the data are also given there. See S. J. Carroll et al., op. cit.

**For a more detailed discussion of theoretical considerations concerning attitudes and their measurements, see ibid., Section VI.

developed by Regis Walther. The first attempts to measure general feelings of self-confidence, and the second attempts to measure what Walther terms "optimism," the degree to which the world is seen as friendly and manageable. Corpswomen are asked to respond to each of these scales in their twelfth week in the program and again at termination. The differences between these two scores for each scale are used as objective measures of attitude change.

At termination the corpswomen are asked a series of open-ended questions regarding their opinion as to whether their attitudes have changed during their participation in the Job Corps. For example, self-perceived changes in social ability were estimated by asking the following question: "Has the way you get along with people changed?" Corpswomen were separated into three categories: those perceiving a positive change, those perceiving a negative change, and those perceiving no change. Similarly, changes in a corpswoman's self-perceived view of the future were assessed by asking, "Do you see your future in the same way?"

Two pairs of questions were used to appraise changes in a corpswoman's self-concept: "Try to remember how you felt when you first came to the Job Corps. Do you think you changed any since you've been here? (If yes) In what way?" And "Do you think of yourself in the same way? (If no) How have you changed?" After examining a number of questionnaires we decided to combine the answers to the two pairs of questions since the responses tended to be overlapping. Corpswomen who indicated in answering either set of questions that they had changed in a positive direction were coded as experiencing a positive change in self-concept. And corpswomen who provided a negative answer to either set and a positive answer to neither were placed in the negative category.

Length of Stay

Our data extend only through May 29, 1970, and many of the corpswomen in the sample had not terminated by that date. For these women we do not, of course, have termination dates. However, we do know how

much of the program they completed by the cutoff date. If a woman entered the Center sometime in February 1970, for example, we know whether she terminated before May 1970. Consequently, we know whether or not she remained in the Center for at least 90 days and we can include her in an analysis of the factors that induce women to remain in the Center through the first 90 days of their program, though not in an analysis of the factors related to completion of the first 120 days. Similarly, to examine the determinants of length of stay over a 180 day period, we must restrict the analysis to corpswomen who entered the Center prior to December 1969.* Thus, to calculate the proximate outcome variables used in this part of the analysis, we chose arbitrary points in time and restricted the sample to corpswomen who entered the Center prior to that time. The variables are calculated as the number of days each member of a sample was at the Center between a particular point in time and May 29, 1970. We have replicated the analysis four times, focusing on 90, 120, 180, and 240 day lengths of stay.

We use the notation Days (X, Y) for all of our dependent variables where X is the minimum number of days a corpswoman must have spent in the Center to be included in the analysis and Y is the number of days prior to May 29, 1970 she must have entered the Center in order to be included. For example, Days (120, 240) is the notation used when we analyze the factors related to length of stay beyond 120 days among women who entered the Center at least 240 days before the data cutoff date.

The value of the variable for a corpswoman included in the sample is the number of days she remained beyond the minimum for inclusion (X in our notation) or the number of days prior to the data cutoff date (Y in our notation) less the minimum, whichever is smaller. For example, a woman who entered the Center December 20, 1969, and terminated May 10, 1970, would not be included in the analysis when the dependent variable was Days (0, 240) or Days (90, 240) or, in general, Days (X, 240), for any number X, because she did not enter the Center 240 days before the

*For convenience, we assume 30 day months throughout the analysis.

cutoff date. She would be included in the sample for Days (0, 180). And, because she remained in the Center 170 days past the minimum, 0, she would be assigned the number 170 in the analysis. When the analysis concerns the dependent variable Days (X, 180) she would also be included. She would be assigned the value 170-X, indicating that she stayed at least 170-X days past the minimum.

INDEPENDENT VARIABLES

The independent variables -- the potential determinants of systematic variations in our proximate outcome measures -- fell into two natural categories, program services and individual characteristics. The latter are interesting in themselves and must be taken into account if we are properly to isolate the contribution of program inputs.

Program Service Measures

Residency. Because some of the corpswomen reside at the Center and others commute, somewhat different treatment is accorded the two groups. Measurement of the impact of this difference is, of course, the focal point of this study. We cannot, however, isolate each aspect of the differences in treatment received by residents and commuters. Rather, we view residency as a single aggregate service offered to some women and not to others. For the regressions, residents were assigned a one and non-residents a zero.

Type of Training in Days. The quantity of services a corpswoman receives from the Center should be roughly proportional to the number of days she spends at the Center. This measure has been somewhat refined in this report by dividing days at the Center into four categories: days in basic education, days in advanced training, days in skill training, and days in holding. Since basic education and advanced training are supposedly most concerned with imparting cognitive skills, we should expect the strongest positive relation between days in these activities and improvements in JCT and SAT test scores. Skill training is mostly concerned with vocational education and should generally therefore be more weakly related to improvement in reading or math

than either basic education or advanced training. Often, after a corpswoman completes her basic education sequence, she must wait a short period before beginning skill training. During this "holding" period a corpswoman may receive some preliminary training, but we suspect that for most women this time does not make a positive contribution.

Hours of Training. A better measure of the quality of training received than days in training is the hours of training actually received. Because of absences, corpswomen with an equal number of scheduled days may diverge considerably in hours attended. Unfortunately, because of data limitations, hours of training can only be divided between hours of basic training and hours of training after the basic education sequence has been completed.

Training Assignment. All corpswomen who remain in the Center beyond basic education enter one of three activities: skill training, advanced education, or a work task. This last includes women who are waiting for a particular skill-training program to begin or for a vacancy to appear in an ongoing skill training program. Work task is a zero-one variable which is assigned the value one if, and only if, the corpswoman is not assigned to either a skill-training program or an advanced education class after finishing basic education. Advanced education is also a zero-one variable. It is assigned the value one if, and only if, the corpswoman enters an advanced education class upon completion of her basic education program. Corpswomen who enter skill-training after basic education are assigned a zero for both of the above variables. All women who remain in the Center beyond basic education enter one of these three activities. Consequently, the coefficients of work task and advanced education in the regression analyses serve to measure the influence of these programs as compared with that of skill-training.

Unexcused Absences. Although absence may be explained by sickness, a medical or dental appointment, or Center business, some absence may be unexcused. A variable was constructed by dividing each woman's total hours of absences into her hours of unexcused absences. We expected this variable, which is as much a measure of attitudes as

program inputs, to be negatively related to the dependent variables.

Individual Characteristic Measures

Education. We experimented with two alternative functional forms of educational achievement: Grades of school completed and a dummy variable that equaled one for high school graduates and zero otherwise.

Schooling Stability. The number of schools a corpswoman has attended per year of school completed was used as a proxy for the number of environmental changes she has experienced in the past.

Labor Market Experience. We experimented with three different variables that reflected employment experience between leaving high school and entering the Job Corps: the number of weeks worked, the number of weeks worked per job held, and the number of weeks worked as a percentage of the total number of weeks between leaving high school and joining the Job Corps. All three were expected to be positively related to length of stay.

Socio-economic Status. Two crude proxies for socio-economic status (SES) were utilized: family income immediately before joining the Job Corps and parents' education. Family income is particularly rough because it depends on whether a woman was living alone, with a spouse, or with one or both parents before entering the Center. We expected both variables to be positively correlated with each woman's SES and that women of relatively high SES would show greater improvement during their stay at the Center.

Family Structure. Family structure was defined as a series of dummy variables indicating whether prior to entering the Center each corpswoman lived by herself, with a spouse, in a father-headed household, in a mother-headed household, or with a relative or guardian. Our prior expectation was that women who came from families that most closely approximated a middle class norm, that is, families headed by a father or spouse, would make the most progress while at the Center.

Age. Age entered the regressions linearly. In addition we experimented with dividing the sample into three discrete age groups: 17 years or less, 18 or 19 years old, and over 20. We expected age to be positively related to maturity and hence to the dependent variables.

Ethnicity. The sample was divided into three groups, Negroes, Mexican-Americans, and all others. This last group is almost entirely Caucasian with a few Orientals. These variables entered the regressions as dummies, with the "other" category serving as the base group. Both Negroes and Mexican-Americans tend to receive a poorer quality of education than whites and they would be expected to do more poorly for this reason. In addition, many Mexican-Americans suffer a language problem.

Place of Origin. The region of the country and the size of the place in which a corpswoman is raised help determine her attitudes, her ability to adjust to an environment such as that offered by the Job Corps, and the quality of schooling she will receive.

The corpswomen were divided into two sets of three categories defined by dummy variables. The first set separated women who were raised in California, those who were raised in the South Census Region, and those who were raised in all other areas. The second classification was based on whether women were raised in an urban area, a town, or a rural area.

We also experimented with possible interactions between region and race. Blacks, for example, were divided into two subcategories: those raised in the South and those raised in the rest of the country.

Self-Rating. On entering the Job Corps, corpswomen were asked how smart they believed themselves to be and how smart they thought other people thought they were. Women who thought they were at least average were assigned a one, and otherwise a zero; similarly, women who thought that others considered them at least average were assigned a one, and all other women were assigned a zero. A positive self-image was expected to be positively related to the proximate outcome measures.

Attitudes. The initial scores on the two Walther scales were used as measures of corpswomen's attitudes. Our hypothesis is that women who enter the Center with relatively positive attitudes will perform better with respect to our outcome measures than women whose initial attitudes are relatively negative.

Appendix B

ANALYSIS OF COGNITIVE SKILLS

In this appendix we report our findings on the influence of residency, other program services, and certain additional factors on a Corpswoman's achievement while she is at the Los Angeles Women's Job Corps Center. "Achievement" for our purposes refers to increases in reading and mathematical ability.

Two sets of tests, administered at several points in time, have been used to attempt to measure changes in reading and mathematical ability while at the Center. The Stanford Achievement Tests (SAT) were given to corpswomen three times during their stay at the Center: at entry to the Center, upon completion of the basic education sequence, and at termination from the program. These tests therefore provide measures of changes in reading and mathematical ability over two spans of time -- during basic education and during the entire stay at the Center. The Job Corps Test (JCT) are administered at entry to the Center and upon completion of the basic education sequence. Thus, they provide a measure of a woman's progress in reading and in mathematics while she is in basic education.

Table B-1 presents the mean initial grade level and the mean changes in these grade levels as measured by JCT and SAT.

Table B-1

INITIAL GRADE LEVEL AND CHANGES IN GRADE LEVEL WHILE AT THE CENTER

	Women for Whom End-of-Basic-Training Tests Available				Women for Whom Termination Tests Available	
	JCT		SAT		SAT Only	
Sample	Reading	Math	Reading	Math	Reading	Math
Initial Grade Level	5.84	5.13	6.03	5.73	5.95	5.65
Change in Grade Level	1.59	2.82	0.54	0.56	0.34	0.67
Number of Observations	354	383	232	234	169	168

There are three important conclusions to be drawn from this table:

1. Positive cognitive achievement appears to occur.*
2. The Job Corps Tests indicate a much larger gain than do the Stanford Achievement Tests.**
3. Most of the gain takes place during the basic education sequence.

These points are more fully discussed in Section III.

RELATIONSHIPS AMONG TEST SCORES***

Table B-2 presents a matrix of simple correlations among ten variables: the four initial test scores, the four changes in test scores during the basic training period, and the two changes in SAT scores between entry into the program and termination. The maximum number of observations is utilized. However, correlation matrixes based on common sets of observations (not shown here) display patterns very similar to those in Table B-2.

The strong relation between the initial test scores and the contrasting weak correlations between the test score changes are discussed in Section III of the main text and will not be further examined here. However, the correlations between the initial test scores and changes in test scores are also revealing. The initial JCT reading tests are found to be negatively related to the changes in the JCT reading test but positively related to changes in the mathematics test. The

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*A test of statistical significance indicated that the mean improvements in test scores are all significantly greater than zero at the .001 level.

**The figures reported in Table B-1, however, are based on somewhat different samples. Not all the women were given every test, and we have reported means based on the maximum number of women for whom we have the required information. Nevertheless, the disparity between JCT and SAT is equally impressive when the comparison (not shown) is based on a common set of observations.

***The term "test scores" refers to the form in which we received the raw data from the Center. The term "grade levels," on the other hand, refers to test scores that have been converted to equivalent public school math or reading levels.

Table B-2

MATRIX OF CORRELATION COEFFICIENTS BETWEEN INITIAL TEST SCORES AND CHANGES IN TEST SCORES
(number of observations reported in parentheses)

	Initial Test Scores				Change Over Basic Education				Change From Entry to Termination	
	JCT		SAT		JCT		SAT		SAT Only	
	Reading	Math	Reading	Math	Reading	Math	Reading	Math	Reading	Math
Initial Test Scores										
JCT										
Reading	1.000[a] (361)									
Math	0.536[a] (360)	1.000[a] (386)								
SAT										
Reading	0.747[a] (357)	0.659[a] (382)	1.000[a] (473)							
Math	0.510[a] (358)	0.789[a] (383)	0.697[a] (472)	1.000[a] (473)						
Change Over Basic Education										
JCT										
Reading	-0.115[b] (354)	0.135[a] (354)	0.074 (350)	0.179[a] (351)	1.000[a] (354)					
Math	0.172[a] (357)	-0.158[a] (383)	0.073 (379)	0.021 (380)	0.296[a] (354)	1.000[a] (383)				
SAT										
Reading	0.039 (196)	0.103 (205)	-0.079 (232)	0.057 (232)	0.139 (194)[b]	0.031 (205)	1.000[a] (232)			
Math	0.022 (196)	0.010 (207)	0.168[a] (234)	-0.063 (234)	0.091 (194)	0.117 (207)	0.083 (231)	1.000[a] (234)		
Change from Entry to Termination										
SAT Only										
Reading	-0.232[a] (134)	0.003 (147)	-0.326[a] (169)	0.002 (169)	0.149[b] (131)	0.055 (147)	0.412[a] (110)	0.017 (111)	1.000[a] (169)	
Math	0.149[b] (133)	0.182[b] (146)	0.225[a] (168)	-0.053 (168)	0.197[b] (130)	0.013 (146)	0.122 (109)	0.694[a] (110)	0.127[b] (168)	1.000[a] (168)

[a]Statistically significant at the .01 level.

[b]Statistically significant at the .05 level.

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correlations between the initial JCT math score and the two changes in JCT test scores follow the opposite sign pattern. Identical patterns exist between the initial SAT scores and changes in SAT scores.

We are inclined to believe that this relationship is a statistical phenomenon. Since test score changes are calculated by subtracting initial scores from later scores, any error in the initial test scores will result in a negative spurious bias in the measured correlations between initial scores and the change in scores. If the initial score is overstated, for example, the difference between the initial score and a later score will be understated. This explanation suggests that a more accurate measure of the relationship between initial ability and achievement while in the Job Corps is the correlation between the initial score on one test and the change in score on another test. All but one of these correlations is positive.*

REGRESSION RESULTS

In this section, a regression analysis is used to explain systematic differences in achievement, as measured by different rates of changes in test scores. We expect much of the variance in test score changes to remain unexplained. First, much of this variance is unsystematic or random (a particular corpswoman, for example, may be more disposed toward test taking on one particular test day than on another); and second, it is not possible for us to adequately measure every potential systematic determinant of differences in changes in test scores. To cite just one example, the variables listed in Appendix A do not adequately capture the quality of a woman's relationship with her parents.

*There are at least two other plausible explanations for these sign patterns. A behavioral explanation would suggest that either the Center or the women themselves tend to work hardest and most successfully on the skill area where each woman is weakest. Thus women who are strongest in mathematics make their greatest progress in reading, and vice versa. A more mechanical rationalization would imply that each incremental advancement on a given test is more difficult than the preceding. Women who start out highest on a particular test make their least measured progress on that test. They make a greater measured advancement on a test on which they started lower.

The regression results will be reported in three successive steps. In the first, changes in test scores are regressed on residency only; in the second, the remaining program measures are added to the regressions; and in the third, the individual characteristic variables are added. Because it is not clear whether the initial test scores are program variables,* individual characteristic variables, a correction for measurement error in the dependent variable, or some combination of all three, the regressions at each step will be reported with initial test scores alternatively excluded and included.

The first set of reported regressions indicates differences in achievement, as measured by changes in test scores, between residents and commuters without controlling for differences in the characteristics of the two populations or differences in the services each receives (other than those directly associated with residency itself); the third set does attempt to control for these differences. Both sets of results contain useful policy information.

The first predicts how residents will do compared with commuters, if existing differences in characteristics and services remain unchanged. This is a not entirely unrealistic possibility, for administrators are constrained as to how populations and services can be distributed between the two programs. Resident programs, for example, must necessarily be provided for many southern rural corpswomen; while for many urban Mexican-American women, the ability to reside at home may be a prerequisite to joining the Job Corps. Similarly, residents may have better attendance records than non-residents because program staff members can exert greater pressure upon them.

The third set of regressions is an attempt to predict whether a corpswoman, everything else being equal, is likely to make greater progress if she is placed in the resident program or in the commuter program. In essence, the contribution that the service of residency makes

*If Center staff systematically consider the initial test scores in determining the amounts or types of services a girl receives they should be viewed as program variables. Specifically, the initial test scores are then proxies for the services corpswomen receive.

toward increasing (or decreasing) a woman's reading and mathematical ability is netted out.

The middle set of regressions allows us to examine several program inputs simultaneously while not controlling for differences in individual characteristics. It is possible that the relation between a particular service and certain individual characteristics is such that the contribution the service has made to achievement, although important, will appear to be statistically insignificant.* If this happens, benefits associated with the service will be obscured. The second set of regressions provides a test of this possibility.

Before we present the regression results themselves, we should discuss the samples used. Three different samples are utilized: one for JCT and one for each of the two time periods covered by SAT.** All three sample sizes are limited by missing information, the major constraints being the program data (except for the residency variable) and the test scores, especially the SAT tests given at termination. The rather substantial differences in the size of the three samples is mainly attributable to the varying availability of different test scores.

Only one potential sampling bias was uncovered and this pertains only to test score changes from entry to termination. Taking the termination test depends, in part, on the good will of the trainee. A woman who simply leaves the Center without going through the standard termination procedure will not have taken a test. On the other hand, we also do not have termination test scores for women who were still at the Center when the data collection cutoff occurred. And these presumably tended to be corpswomen who felt they were benefiting from the Job Corps.

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*See Samuel Bowles and Henry M. Levin, "The Determinants of Scholastic Achievement -- An Appraisal of Some Recent Evidence," Journal of Human Resources, Vol. III, No. 1, Winter 1968.

**Regressions that used the same sample, rather than three different samples, do not differ substantially from those reported here.

Residency Only

Table B-3 presents a set of regressions in which the only independent variables are residency and (in alternating cases) initial test scores. Of the six regressions that exclude test scores, only in regression number 3 does the residency coefficient differ significantly from zero. Although this coefficient is positive, four of the five insignificant coefficients are negative. The addition of initial scores to the regressions does not substantially affect the third regression, but the size of the coefficient in regression 5 increases in absolute value and becomes significant (negative).

Out of the 12 regressions reported in Table B-3, then, the coefficient for residency is significantly positive in two instances, significaty negative in one, and in nine cases does not significantly differ from zero. We do not here examine the magnitude of the influence of residency in those cases where it does significantly differ from zero -- an issue we discuss in the main text. However, we can tentatively conclude that the achievements of women who entered the commuter program were not systematically better or worse than those women in the resident program. This at least would seem to be true insofar as achievement can be measured by changes in test scores.

Other Program Variables

Table B-4 permits inferences as to the impact of some additional program variables. The addition of these variables does not substantially change the size or significance of the residency coefficients.

One of the most important results in Table B-4 is for hours of attendance in basic education. This variable is used in 12 of the 16 reported regressions. It is consistently positive, and in eight cases is statistically significant. The coefficient for hours of attendance in basic education can be used to estimate how many additional hours of attendance in basic education would be necessary on the average to increase grade levels by one additional grade. These estimates are presented in Table B-5. These figures may be given greater perspective

Table B-3

REGRESSIONS ON TEST SCORE CHANGES: EFFECTS OF RESIDENCY AND INITIAL TEST SCORES
(t-ratios in parentheses)

	Change Over Basic Education								Change from Entry to Termination			
	JCT				SAT				SAT Only			
	Reading		Math		Reading		Math		Reading		Math	
	1		2		3		4		5		6	
Residency	0.051	0.035	-0.066	-0.030	2.997[b]	3.028[b]	-2.06	-2.172	-2.269	-4.322[b]	-1.801	-0.899
	(0.17)	(0.14)	(0.20)	(0.10)	(1.69)	(1.71)	(1.22)	(1.35)	(0.85)	(1.83)	(0.63)	(0.32)
Initial reading score		-0.152[a]		0.317[a]		-0.079[b]		0.159[a]		-0.350[a]		0.132[b]
		(2.62)		(4.66)		(1.67)		(3.69)		(5.34)		(1.66)
Initial math score		0.167[a]		-0.271[a]		0.087		-0.156[a]		0.337[a]		-0.156[b]
		(3.51)		(4.87)		(1.59)		(3.14)		(4.43)		(1.70)
Constant	3.103	3.093	3.794	3.414	3.606	3.356	7.333	6.787	5.111	8.507	9.222	9.534
R^2	0.000	0.54	0.000	0.115	0.020	0.043	0.011	0.106	0.009	0.278	0.005	0.045
F	0.033	4.437	0.037	10.08	2.840	2.023	1.501	5.359	0.715	10.154	0.404	1.246
Standard error of estimate	2.172	2.122	2.635	2.489	10.469	10.423	9.895	9.474	12.179	10.523	12.863	12.759
Mean	3.13	3.13	3.76	3.76	5.18	5.18	6.25	6.25	4.07	4.07	8.40	8.40
Number of observations	236	236	236	236	139	139	139	139	83	83	83	83

[a]Statistically significant at the .01 level.

[b]Statistically significant at the .05 level.

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Table B-4

REGRESSIONS ON TEST SCORE CHANGES: EFFECTS OF RESIDENCY, OTHER PROGRAM VARIABLES, AND INITIAL TEST SCORES
(t-ratios in parentheses)

	Changes Over Basic Education								Changes From Entry to Termination							
	JCT				SAT				SAT Only							
	Reading		Math		Reading		Math		Reading				Math			
	1		2		3		4		5				6			
Residency	-0.149	-0.187	-0.188	-0.161	3.061[b]	3.049[b]	-2.204	-2.297	-3.276	-4.646[b]	-1.775	-3.578	-2.125	-1.482	-2.260	-1.333
	(0.54)	(0.69)	(0.54)	(0.49)	(1.71)	(1.70)	(1.31)	(1.42)	(1.18)	(1.86)	(0.62)	(1.41)	(0.69)	(0.48)	(0.72)	(0.42)
Hours attendance, basic education	0.010[a]	0.011[a]	0.007[b]	0.008[a]	0.010	0.013	0.033[b]	0.030[b]	0.050[b]	0.032[c]			0.016	0.016		
	(4.11)	(4.51)	(2.27)	(2.46)	(0.51)	(0.65)	(1.85)	(1.72)	(1.94)	(1.28)			(0.57)	(0.82)		
Hours attendance, training after basic education									0.003	0.004			0.003	0.003		
									(0.61)	(0.79)			(0.48)	(0.44)		
Days in basic education											0.145	0.072			0.067	0.093
											(1.64)	(0.87)			(0.69)	(0.92)
Days in holding											-0.018	-0.039			-0.063	-0.057
											(0.24)	(0.59)			(0.77)	(0.70)
Days in advanced training											-0.018	0.006			-0.008	-0.02
											(0.44)	(0.14)			(0.17)	(0.45)
Days in skill training											0.020	0.012			0.001	0.004
											(0.98)	(0.68)			(0.00)	(0.17)
Unexcused absences	-0.532	-0.427	-0.823	-0.740	-2.556	-1.953	-0.560	-1.287	-11.324[b]	-7.687[b]	-11.513[b]	-8.495[b]	1.580	-0.132	0.645	-1.209
	(1.23)	(1.00)	(1.53)	(1.44)	(0.88)	(0.66)	(0.20)	(0.48)	(2.26)	(1.69)	(2.23)	(1.82)	(0.28)	(0.03)	(0.10)	(0.20)
Initial reading score		-0.123[b]		0.331[a]		-0.078		0.160[a]		-0.315[a]		-0.324[a]		0.150[b]		0.151[b]
		(2.19)		(4.87)		(1.64)		(3.73)		(4.72)		(4.78)		(1.80)		(1.80)
Initial math score		0.187[a]		-0.260[a]		00.086		-0.147[a]		0.317[a]		0.302[a]		-0.150		-0.172[b]
		(4.09)	(4.	(4.71)		(1.52)		(2.87)		(4.12)		(3.83)		(1.56)		(1.76)
Constant	1.230	0.679	2.721	2.081	2.635	1.443	0.400	0.226	-1.313	2.809	0.015	7.435	3.676	1.610	5.643	4.859
R^2	0.081	0.144	0.037	0.152	0.029	0.051	0.037	0.131	0.117	0.329	0.110	0.324	0.013	0.056	0.024	0.072
F	6.842	7.724	2.950	8.234	1.350	1.425	1.750	4.004								
Standard error of estimate	2.091	2.027	2.597	2.448	10.499	10.458	9.833	9.414	11.717	10.346	11.913	10.521	13.053	12.932	13.149	12.998
Mean	3.13	3.13	3.76	3.76	5.18	5.18	6.25	6.25	4.07	4.07	4.07	4.07	8.40	8.40	8.40	8.40
Number of observations	236	236	236	236	139	139	139	139	83	83	83	83	83	83	83	83

[a]Statistically significant at the .01 level.

[b]Statistically significant at the .05 level.

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Table B-5

HOURS OF ADDITIONAL ATTENDANCE IN BASIC EDUCATION NEEDED TO INCREASE READING OR MATH ABILITY BY ONE GRADE LEVEL

	Result Based on the Basic Education Attendance Coefficient From Regression:					
	1	2	3	4	5	6
Initial test scores						
Excluded	200	190	1000	303	200	625
Included	182	167	769	333	313	400

by noting that the corpswomen in our regression samples averaged slightly greater than 200 hours of basic education. To add one additional grade level, hours of attendance in basic education would have to be at least doubled.

Note that the hours estimates associated with regressions that used differences in JCT scores as a dependent variable are considerably lower than those that used differences in SAT scores. In fact, four of the eight SAT estimates are based on regression coefficients that do not significantly differ from zero. This is consistent with the evidence from Table B-1 that indicated that the Center tends to teach toward the Job Corps Tests, so that much of what is learned is not reflected by scores on more general measures of ability, such as Stanford Achievement Tests.

The coefficient for hours of training after completion of basic education (see regressions 5 and 6) is consistently positive, but it is very small and is invariably associated with t-values of less than one. Thus, our evidence indicates that hours of training after basic education contribute little if anything to reading and mathematical ability. This result receives additional support in the regressions in which days rather than hours of training are used. Even days in advanced training do not appear to influence changes in test scores.

Unexcused absence, which, as noted above, is as much a measure of attutudes as program inputs, performs as expected. Its sign is negative,

except in regression 6 where the coefficient is insignificant. Even when negative, however, the coefficient is frequently insignificant.

Individual Characteristic Variables

Table B-6 reports regressions that incorporate some of the individual characteristic variables. Variables that neither approached statistical significance nor exerted substantial influence on the program variables were omitted from the final regressions. This was done both because it is good statistical practice and because it enabled us to increase our sample size. Among the variables that do not appear to influence changes in test scores are formal education, school stability, prior experience in the labor market, attitudes, place of origin, and self-rating upon entering the Job Corps.

The following variables do appear to be related to changes in test scores: age, socio-economic status as measured by family income, family structure, and ethnicity. These variables generally had the expected sign. Age, for example, appears to be positively related to achievement, although its coefficient is frequently insignificant. The coefficient for family income is usually both statistically significant and positive. Mexican-Americans make appreciatively less gain than women in the mostly Caucasian base group. The evidence on blacks is much weaker but points in the same direction. Women from father-headed households, women who lived by themselves, and women who lived with a spouse all appeared to perform about equally well. They were therefore grouped together as a base group and compared with the women who lived in a mother-headed household prior to entering the Job Corps. As measured by several of the test score changes, this latter group made greater than average progress while at the Center.

The principal reason for adding the individual characteristic variables (and for that matter the initial test scores) to the regressions is to control for non-program factors that are related to test score changes, so that the influence of program inputs can be isolated. In general, the addition of these variables does not substantially affect the coefficients for hours or days of training nor those for

Table B-6

REGRESSIONS ON TEST SCORE CHANGES: EFFECTS OF RESIDENCY, OTHER VARIABLES, INITIAL TEST SCORES, AND INDIVIDUAL CHARACTERISTICS
(t-ratios in parentheses)

	Changes Over Basic Education								Changes From Entry to Termination							
	JCT				SAT				SAT Only							
	Reading		Math		Reading		Math		Reading				Math			
	1		2		3		4		5				6			
Residency	-0.341	-0.409	-0.536	-0.397	2.001	1.765	-3.816[b]	-3.428	-3.065	-4.742[b]	-1.646	-3.952	-1.879	-1.472	-1.805	-1.825
	(1.14)	(1.41)	(1.44)	(1.12)	(0.99)	(0.88)	(2.08)	(1.93)	(0.95)	(1.68)	(0.49)	(1.32)	(.057)	(0.45)	(0.53)	(0.52)
Hours attendance, basic education	0.010[a]	0.011[a]	0.008[a]	0.008[a]	0.006	0.010[b]	0.030[b]	0.026	0.049[b]	0.032			0.026	0.029		
	(4.03)	(4.49)	(2.49)	(2.48)	(0.33)	(0.52)	(1.69)	(1.45)	(1.82)	(1.28)			(0.95)	(0.96)		
Hours attendance, training after basic education									0.002	0.004			0.007	0.006		
									(0.40)	(0.71)			(1.17)	(1.07)		
Days in basic education											0.156	0.081			0.081	0.079
											(1.70)	(0.98)			(0.86)	(0.81)
Days in holding											-0.011	-0.055			-0.086	-0.096
											(0.14)	(0.75)			(1.04)	(1.12)
Days in advanced training											-0.021	0.021			0.008	-0.004
											(0.46)	(0.51)			(0.17)	(0.10)
Days in skill training											0.016	0.009			0.016	0.014
											(0.73)	(0.145)			(0.71)	(0.60)
Unexcused absences	-0.674	-0.576	-0.735	-0.705	-3.434	-2.801	-1.61	-2.311	-10.185[b]	-4.891	-10.507[b]	-5.908	3.762	2.372	2.771	1.077
	(1.50)	(1.36)	(1.32)	(1.32)	(1.14)	(0.91)	(0.59)	(0.85)	(1.90)	(1.02)	(1.92)	(1.21)	(0.69)	(0.41)	(0.50)	(0.20)
Initial reading score		-0.146[a]		0.297[a]		-0.850[b]		0.141[a]		-0.344[a]		-0.360[a]		0.077		0.067
		(2.51)		(4.8)		(1.66)		(3.13)		(4.84)		(4.90)		(0.92)		(0.78)
Initial math score		0.202[a]		-0.252[a]		0.095[b]		-0.135[a]		0.334[a]		0.322[a]		-0.090		-0.129[b]
		(4.48)		(4.58)		(1.66)		(2.67)		(4.16)		(3.86)		(0.95)		(1.32)
Age	0.030	0.048	0.215[b]	0.180	0.263	0.280	0.577	0.543	0.185	1.156	0.025	1.129	2.084[b]	1.842[b]	1.797[b]	1.407[c]
	(0.30)	(0.51)	(1.79)	(1.58)	(0.40)	(0.42)	(0.95)	(0.93)	(0.20)	(1.40)	(0.03)	(1.26)	(2.21)	(1.88)	(1.79)	(1.34)
Family income (in thousands)	0.16[a]	0.19[a]	0.13[c]	0.07	0.49	0.56	0.74[b]	0.63[b]	-0.49	-0.20	-0.58	-0.18	1.60[a]	1.52[b]	2.0[a]	1.60[a]
	(2.39)	(2.89)	(1.53)	(0.94)	(1.25)	(1.45)	(2.10)	(1.85)	(0.75)	(0.36)	(0.87)	(0.30)	(2.41)	(2.26)	(2.50)	(2.33)
Family headed by mother = 1	0.495[c]	0.624[b]	0.491	0.289	1.65	1.949	4.911[a]	4.478[a]	-2.49	-1.209	-2.59	-1.934	8.702[a]	8.336[a]	7.91[a]	7.378[b]
	(1.64)	(2.13)	(1.31)	(0.81)	(0.81)	(0.95)	(2.64)	(2.48)	(0.80)	(0.45)	(0.79)	(0.67)	(2.75)	(2.59)	(2.37)	(2.19)
Spanish = 1	-0.636	-0.682[b]	-1.394[a]	-1.161[b]	-3.569	-4.058	-5.465[b]	-4.274	2.610	0.543	2.99	-0.015	-4.326	-4.078	-4.710	-5.395
	(1.51)	(1.65)	(2.68)	(2.30)	(1.20)	(1.30)	(2.03)	(1.55)	(0.58)	(0.14)	(0.66)	(0.00)	(0.95)	(0.86)	(1.02)	(1.10)
Black = 1	0.213	0.146	-0.663	-0.339	0.789	0.063	-3.007	-1.316	-0.165	-2.467	-0.290	-3.270	-3.785	-3.521	-4.723	-5.395
	(0.62)	(0.41)	(1.55)	(0.79)	(0.33)	(0.00)	(1.37)	(0.54)	(0.04)	(0.71)	(0.10)	(0.88)	(1.01)	(0.87)	(1.22)	(1.32)
Constant	0.481	-0.376	-0.963	-0.788	-1.647	-3.085	-8.237	-8.091	-3.432	-16.98	0.364	-10.777	-43.278	-38.169	-33.726	-20.671
R^2	0.128	0.200	0.093	0.188	0.068	0.093	0.134	0.202	0.137	0.364	0.134	0.363	0.191	0.203	0.197	0.217
F	4.155	5.623	2.904	5.215	1.194	1.317	2.507	3.237	1.286	3.691	0.996	3.023	1.912	1.642	1.584	1.472

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Table B-6 continued

	Changes Over Basic Education								Changes From Entry to Termination							
	JCT				SAT				SAT Only							
	Reading		Math		Reading		Math		Reading				Math			
	1		2		3		4		5				6			
Standard error of estimate	2.060	1.981	2.548	2.421	10.480	10.419	9.506	9.196	11.972	10.422	12.162	10.580	12.219	12.297	12.341	12.361
Mean	2.13	3.13	3.76	3.76	5.18	5.18	6.25	6.25	4.07	4.07	4.07	4.07	8.40	8.40	8.40	8.40
Number of observations	236	236	236	236	139	139	139	139	83	83	83	83	83	83	83	83

[a]Statistically significant at the .01 level.

[b]Statistically significant at the .05 level.

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unexcused absences. However, they do markedly influence many of the coefficients for residency. In regressions 1 through 4, these coefficients become more negative and in regressions 1, 2, and 4 more significant.

Thus, with every important variable entered, some of the coefficients for residency are negative and significant, while the remainder apparently do not significantly differ from zero. From this we conclude that, everything else being equal, the effect of residency on achievement -- to the extent there is an effect -- is negative. As we note in the main text, however, it appears unlikely that the magnitude of residency's impact is sufficient to make much difference to a corpswoman once she has left the Center.

Appendix C

ANALYSIS OF ATTITUDE CHANGE

Table C-1 presents a matrix of simple correlations among the five measures of attitude change. Correlations between these measures and scores on the Walther tests given during the thirteenth week in the Center are also reported. The table supports the analysis of attitude change in Section III where we noted that there is virtually no relation between the subjective (self-perceived) and the objective (Walther Tests) measures of attitude change.

Table C-1 also indicates that the initial Walther test scores are only weakly related to self-perceived attitude changes, but rather strongly and negatively associated with changes in Walther scores over time. The strong negative relation may result because corpswomen who start out with the worst attitudes make the greatest progress. More likely it is caused by measurement errors. Since changes on the Walther tests are calculated by subtracting initial scores from final scores, any error in an initial score produces a spurious negative bias in the measured correlations between the initial score and the change in score. If the initial score is understated, for example, the difference between the initial score and the final score will be overstated.

Table C-1

MATRIX OF CORRELATION COEFFICIENTS BETWEEN MEASURES OF CHANGES IN ATTITUDES AND INITIAL SCORES ON WALTHER TESTS
(number of observations reported in parentheses)

	Self-Perceived Attitude Change			Change on Walther Tests		Initial Walther Test Scores	
	Self-Concept	Social Ability	View of Future	Self-Confidence	Optimism	Self-Confidence	Optimism
Self-perceived attitude change							
Self-concept	1.000[a] (175)						
Social ability	0.389[a] (169)	1.000[a] (169)					
View of the future	0.307[a] (141)	0.068 (138)	1.000[a] (141)				
Change on the Walther tests							
Self-confidence	0.001 (66)	0.004 (64)	-0.202[c] (53)	1.000[a] (67)			
Optimism	-0.008 (66)	-0.017 (64)	-0.012 (53)	0.486[a] (67)	1.000[a] (67)		
Initial Walther scores							
Self-confidence	0.066 (86)	0.018 (83)	0.116 (70)	-0.652[a] (67)	-0.214[b] (67)	1.000[a] (287)	
Optimism	0.170[c] (86)	0.101 (83)	0.123 (70)	-0.353[a] (67)	-0.726[a] (67)	0.384[a] (287)	1.000[a] (287)

[a]Statistically significant at the .01 level.

[b]Statistically significant at the .01 level.

[c]Statistically significant at the .10 level.

Appendix D

ANALYSIS OF LENGTH OF STAY

In this appendix we report the details of our regression analysis of the factors that affect the length of time corpswomen participate in the Center's programs. The analysis includes 340 corpswomen. An additional 161 women entered the Center during the evaluation period. However, the Center was unable to provide us with program data for them. We thus had no information as to the amount of each program service they received and were forced to delete them from the analysis.

We conducted numerous regression analyses for each of the overall and conditional length of stay variables, incorporating different combinations of independent variables. The independent variables we experimented with are described in Appendix A. Those independent variables that were never statistically significant themselves and that never affected the size or the significance of the coefficients of other variables were deleted. In using the procedure we strongly emphasized consistency. That is to say, we did not accept or reject hypotheses on the basis of a statistical significance test in any single regression but were instead primarily guided by whether a variable consistently had the same sign, was of the same order of magnitude, and was significant throughout the analysis. The particular regression results reported here are meant to be exemplary.

OVERALL LENGTH OF STAY

We begin with an analysis of overall length of stay. Here we are concerned with the factors related to the length of time a corpswoman remains in the Center. The dependent variables of interest here are Days (0, 90), Days (0, 120), Days (0, 180), and Days (0, 240). Regression results are provided in Table D-1.

Residency, the reader will recall, is defined as a zero-one variable indicating whether a woman received the aggregation of services afforded to resident corpswomen. The coefficient is negative and very significant in all four equations. This result was obtained in all regressions no matter what combination of demographic variables was used

Table D-1

REGRESSION COEFFICIENTS: OVERALL LENGTH OF STAY

Regression Number	Regression Coefficient (t-values)			
	1	2	3	4
Dependent Variable	Days (0, 90)	Days (0, 120)	Days (0, 180)	Days (0, 240)
Independent Variables				
Residency	-9.02[a]	-14.82[a]	-21.31[a]	-22.56[b]
	(4.60)	(4.40)	(3.24)	(1.84)
High school graduate	3.54	6.98[b]	15.42[b]	41.34[a]
	(1.53)	(1.77)	(1.97)	(2.74)
Age	1.17[b]	1.72	1.90	3.41
	(1.77)	(1.53)	(0.83)	(0.76)
Black	2.56	6.66	11.84	34.51[b]
	(1.29)	(1.64)	(1.45)	(2.22)
Mexican-American	0.01	2.64	9.30	29.48
	(0.00)	(0.54)	(0.94)	(1.62)
City	1.25	2.44	2.30	14.56
	(0.63)	(0.73)	(0.34)	(1.10)
Family income (thousands of $)	0.25	0.19	-0.28	0.66
	(0.81)	(0.39)	(0.30)	(0.00)
Two-parent household	4.99[b]	7.70[b]	4.26	12.92
	(2.12)	(1.93)	(0.54)	(0.85)
Mother only household	4.26[b]	5.41	4.61	8.61
	(1.82)	(1.38)	(0.58)	(0.56)
Entry grade level SAT mathematics	0.09[b]	0.11	0.30[b]	0.53
	(1.84)	(1.35)	(1.76)	(1.61)
Constant	56.57	67.10	96.62	53.22
R^2	.15	.17	.14	.22
F	4.60	4.32	2.92	3.79
Sample size	238	215	191	131
Mean of dependent variable	85.01	109.69	153.31	183.88
Standard error	13.85	21.97	41.17	63.51

[a]Coefficient is significantly different from zero at the .01 level.

[b]Coefficient is significantly different from zero at the .05 level.

to control for differences in the respective incoming populations. It is clear that, overall, residents tend to remain in the Center fewer days than otherwise similar commuters.

High school graduates also tend to remain in the Center for significantly longer periods of time than corpswomen who have not completed high school, other things being equal. We experimented with a series of regressions including the corpswomen's level of education (measured by grade completed). The coefficient of grade completed was always positive and always significant, but the goodness-of-fit measures were always lower than those obtained from otherwise similar regressions employing only the high school dummy variable. Finally, when both grade completed and the high school variables were included in a regression the latter variable was always significant and the former invariably insignificant. Our results indicate that the high school variable is not simply measuring the amount of schooling corpswomen have had; it also measures her willingness to stick to a task and see it through to completion.

Age proved to be consistently significant only in regressions focusing on the first three months after entry. It appears that older corpswomen are somewhat more likely to complete the first 90 days, but their behavior is not noticeably different from younger corpswomen, other things being equal, when longer time periods are examined.

Black corpswomen tend to remain in the Center significantly longer than either Mexican-American corpswomen or those included in the "other" ethnic group.

Place of origin as described in Appendix A was defined by a variety of measures. In no case did any of these variables turn out to be significant. There is no evidence then that either the size or region of the area where a corpswoman was raised or where she lived just prior to entrance is associated with her overall length of stay.

We were also concerned with the possibility that the shift in recruiting responsibility for the resident program* might have led to

*See Section II.

significant differences in length of stay. Members of an ethnic group who were raised, or lived just prior to entry, in different geographical areas may behave quite differently. Accordingly, we attempted to fit various interaction terms crossing the ethnicity and regional variables. For example, separate variables were defined for Negroes raised in the South and in the rest of the country. We found no evidence that women of a given ethnic background differed by geographic origin.

Family income and parent's education were two measures of socio-economic status we used. These variables were never significant predictors of length of stay.

Two-parent households and mother headed households produced corps-women who were significantly less likely to drop out of the Center during the first three or four months after entry. These variables were not significant in regressions 3 and 4, covering longer time periods. Although we experimented with several additional variables describing a corpswoman's family structure, such as the size of her family, whether she had dependent children and whether her family was on welfare, none proved to be statistically significant.

Entry grade level as measured by the SAT mathematics test proved to be a better predictor of length of stay than any of the other three achievement tests corpswomen are given upon entry into the Center. Women who perform well on this test are significantly more likely to remain in the Center for lengthy periods of time.

CONDITIONAL LENGTH OF STAY

Again, we divided the overall time periods into a number of segments and examined the determinants of length of stay for each segment. The dependent variables of interest here are: Days (90, 120), Days (90, 180), Days (90, 240), Days (120, 180), and Days (180, 240). Exemplary regression results are presented in Table D-2. We examined the same variables in these regressions as were included in the regression results reported above. We deleted a large number of alternative variables that consistently proved to be insignificant.

Table D-2

REGRESSION COEFFICIENTS: CONDITIONAL LENGTH OF STAY

Regression Number	Regression Coefficient (t-values)				
	5	6	7	8	9
Dependent Variable	Days (90,120)	Days (90,180)	Days (90,240)	Days (120,180)	Days (180,240)
Independent Variables					
Residency	-0.14 (0.16)	0.02 (0.01)	17.20[b] (1.75)	0.14 (0.06)	-1.60 (0.46)
High school graduate		7.02 (1.58)	24.76[a] (2.51)	5.37[b] (2.08)	7.55[b] (2.16)
Age				-0.93 (1.15)	
Black	3.97[a] (4.11)	13.93[a] (2.86)	44.25[a] (4.11)		
Mexican-American	3.56[a] (2.86)	15.31[a] (2.50)	58.57[a] (4.22)	7.00[a] (2.44)	
City					7.01[b] (1.99)
Two-parent household	-1.73[b] (1.73)	-8.67[b] (2.14)	-26.91[b] (2.34)	-4.72[b] (2.06)	12.16[a] (2.93)
Mother only household	-1.15 (1.17)		-12.05 (1.04)		5.20 (1.25)
Advanced education		-6.64[b] (1.67)		-2.89 (1.28)	
Number of days in basic education	0.02 (1.14)				
Constant	25.35	70.78	83.53	72.26	40.50
R^2	.13	.13	.28	.08	.16
F	4.21	3.77	6.54	2.37	3.85
Sample size	181	164	109	146	81
Mean of dependent variable	28.51	77.35	117.07	55.03	53.39
Standard error	5.12	24.25	46.67	12.88	14.27

[a]Coefficient is significantly different from zero at the .01 level.

[b]Coefficient is significantly different from zero at the .05 level.

In general, the results of the conditional length of stay analysis were not as good as the results of the overall length of stay analysis. Coefficients were less often consistently significant and the "goodness-of-fit" measures for the regressions were generally lower. This is not surprising. The time periods investigated in the conditional analysis are shorter. In only two cases (regressions 6 and 7) do we examine periods greater than 60 days in length. A corpswoman who left the Center, say, on day 110 would be assigned the value 110 for the dependent variable Days (0, 180) and the value 20 for the dependent variable Days (90, 120). Suppose that she had left on day 117 instead. Then she would have been assigned 117 and 27 for Days (0, 180) and Days (90, 120), respectively. This minor change in her behavior, remaining in the Center one more week, would clearly have a much greater impact upon the part of the analysis that focuses on the latter dependent variable. Staying only one more week, however, is unlikely to be systematically related to any of the dependent variables.

We also note that our sample sizes are considerably smaller when we use the conditional dependent variables. Deviant behavior by any one corpswoman for reasons unassociated with any of the independent variables we have examined will thus have a relatively stronger impact on these results. To simplify the presentation of these results we always include residency but only include those other variables in the reported regressions that consistently had t-values greater than one.

Residency is insignificant in four of the regressions reported in Table D-2. Its significance level in regression 7 is unimpressive. There is little evidence that the services included under residency are related to length of stay beyond day 90, among women who stay at least through the first three months after entrance. Although the set of services termed residency is an important factor associated with resident corpswomen leaving the Center during the first 90 days, in the longer time periods the overall impact of residency is only significant because the longer periods include the first 90 days.

High school graduation is significant or almost significant in all regressions, except the fifth. We are inclined to discount that

result as an anomaly caused by the extremely short time period covered by the dependent variable.

Black and Mexican-American corpswomen appear to stay in the Center significantly longer than "other" corpswomen, at least through the first four or five months. There is little evidence, however, that blacks who have been in the Center for at least four months or Mexican-Americans who have been in the Center for at least six months tend to remain for longer periods thereafter than comparable "other" corpswomen.

The City variable proved to be a poor predictor of conditional length of stay. It was significant only in regressions in which the dependent variable was Days (180, 240). The sample is relatively small, and we believe that this result is an aberration. The other geographic variables never appeared to be significant.

The two-parent households variable is negative and significant in regressions 5, 6, and 7. The variable is significantly positive in regression 9. And, in the first two regressions of Table D-1, this variable was significantly positive. On inspecting the data we observed that women who come from two-parent households tend to leave the Center between three and four months after entering if they leave at all. Apparently the group of women from two-parent households consists of two distinct subgroups. One subgroup contains corpswomen who tend to depart from the Center soon after the end of basic education. The other contains girls who remain in the Center for lengthy periods of time.

Entry grade level, as measured by the SAT mathematics test, proved to be insignificant in all conditional length of stay analyses. Further, none of the other three entry achievement tests did any better. We also experimented with scores on the four achievement tests given at the end of basic education and with changes in the four test scores over the basic education period. None proved to be related to how long a corpswoman remained in the Center after day 90.

Number of days in basic education was also insignificant in all conditional length of stay regressions. In connection with the results

reported in the previous paragraph this implies that what happens to a corpswoman while she is in basic education has no discernible effect upon how long she remains in the Center after completing basic education.

Work task assignments following basic education had no significant effect upon subsequent length of stay.

Advanced education assignments have a significant impact on length of stay past basic education in only one of the five regressions. And there its significance level is not impressive. Thus, it does not appear that the assignment a corpswoman receives at the end of basic education exerts a very substantial impact on her subsequent length of stay.

Variables were introduced into the analysis to attempt to determine the extent to which a corpswoman's attitudes at the time she entered the Center influenced the length of time she spent there. Corpswomen's self-ratings of how intelligent they were, as compared with the average, were unrelated to length of stay. Their reasons for entering the Job Corps were also not related to length of stay.

We then examined the relationship between the scores a corpswoman obtained on the two objective attitudinal scales developed by Regis Walther. Including these variables in the analysis, however, proved to be difficult. We had obtained scores on these scales for less than half the corpswomen in our sample. Sample sizes are thus much reduced when attitudinal variables enter the analyses. Corpswomen filled out the attitudinal questionnaires approximately 13 weeks after entering the Center. We do not have comparable attitude measures for women who left the Center within their first 90 days. An analysis of overall length of stay incorporating the attitudinal measures would thus be hopelessly biased. We therefore restricted the introduction of these variables to the conditional length of stay analyses.

Table D-3 reports exemplary regression results. Again, we experimented with numerous specifications of the regression models, deleted those variables that were consistently insignificant, and re-ran the regressions on the remaining variables. Self-confidence was never

Table D-3

REGRESSION COEFFICIENTS: ATTITUDINAL EFFECTS

Regression Number	Regression Coefficient (t-values)				
Dependent Variable	10 Days (90,120)	11 Days (90,180)	12 Days (90,240)	13 Days (120,180)	14 Days (180,240)
Independent Variables					
Residency	-1.31 (1.63)	-4.45 (1.05)	14.00 (1.47)	-0.49 (0.22)	1.17 (0.31)
High school graduate		7.71 (1.75)	22.02[a] (2.41)	5.35[b] (2.07)	8.80[b] (2.31)
Black	2.95[a] (3.10)	10.01[b] (2.06)	49.98[a] (4.78)		
Mexican-American	2.31[b] (1.85)	12.99[b] (2.08)	73.45[a] (5.21)	7.77[a] (2.59)	8.22 (1.67)
City					9.16[b] (2.25)
Family income (thousands of $)		-0.68 (1.26)		-0.90[b] (1.97)	
Two-parent household		-4.36 (1.04)	-29.93[a] (2.69)		8.68[b] (2.13)
Mother only household			-24.00[b] (2.16)		
Entry grade level SAT mathematics					-0.13 (1.34)
Work task				5.52 (1.22)	
Advanced Education	-0.86 (1.08)	-6.39 (1.60)			
Number of days in basic education	0.02 (1.22)				
Optimism	0.09 (1.02)	0.80[b] (1.93)	2.08[b] (2.22)	0.67[a] (2.79)	0.59 (1.30)
Constant	23.32		18.16	45.83	24.66
R^2	.12	.16	.41	.14	.24
F	3.30	3.02	7.61	2.78	2.79
Sample size	153	136	85	125	69
Mean of dependent variable	28.84	79.73	123.78	55.52	52.84
Standard error	4.71	21.90	35.20	11.99	14.31

[a]Coefficient is significantly different from zero at the .01 level.
[b]Coefficient is significantly different from zero at the .05 level.

significantly related to length of stay. Optimism, however, was significant and positively related to length of stay in regressions on three of our five conditional dependent variables. Since the variable was not significant in regressions 10 and 14 it appears that, other things being equal, more optimistic girls leave at a lower rate than less optimistic girls between days 120 and 180.

VT 016 396
THE DU SABLE EXEMPLARY PROJECT: BRIDGING THE GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK. ANNUAL INTERIM REPORT.

CHICAGO BOARD OF EDUCATION, ILL.
BUREAU OF ADULT, VOCATIONAL, AND TECHNICAL EDUCATION (DHEW/OE), WASHINGTON, D.C.
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ABSTRACT - THIS FIRST ANNUAL INTERIM REPORT OF A SUCCESSFUL FEDERAL EXEMPLARY PROJECT IN VOCATIONAL EDUCATION FOR THE ELEMENTARY AND SECONDARY GRADES DETAILS THE PROGRAM FOR 122 DISADVANTAGED STUDENTS, WHICH INCLUDES SIX SKILL DEVELOPMENT CLASSES OFFERING THREE CREDIT HOURS, LEADING TO JOB PLACEMENT AND VOCATIONAL ADJUSTMENT, VOCATIONAL GUIDANCE, AND A WIDE RANGE OF GROUP ACTIVITIES. AIMED AT THE HIGH SCHOOL SENIOR AND THE POTENTIAL DROPOUT, THE PROGRAM ALSO PRESENTED WEEKLY CAREER EDUCATION CLASSES IN THREE ELEMENTARY SCHOOLS. ONE THIRD OF THE STUDENTS WERE PLACED ON JOBS, ASSISTED BY A PROJECT ADVISORY COUNCIL. A SIMULATED OFFICE AND BOUTIQUE HELPED PROVIDE WORK EXPERIENCE. DUE TO ITS ACCEPTANCE AND DEVELOPMENT OF POSITIVE ATTITUDES, CONTINUATION OF THE PROGRAM WAS RECOMMENDED. AN EVALUATION TEAM OF UNIVERSITY EDUCATORS OBSERVED THE WORK-STUDY CLASSES. A PROGRAM SUMMARY EMPHASIZED THE NEGATIVE ASPECTS OF THE STUDENTS' HOME ENVIRONMENT. EXTENSIVE INSTRUCTIONAL AND RESOURCE MATERIALS ARE GIVEN IN THE APPENDIXES, SUCH AS THE PROGRAM NEWSLETTER, THE SCHOOL ASSEMBLY PROGRAMS, BIBLIOGRAPHIES, AND UNITS OF STUDY. DEVELOPMENTAL READING MATERIALS, STRESSED IN THE PROGRAM, ARE INCLUDED. (AG)

I N T E R I M R E P O R T

Project No. 361157
Grant No. OEG-0-71-1026(361)

The Du Sable Exemplary Project: Bridging the Gap Between High School and the World of Work

Exemplary Project in Vocational Education
Conducted Under
Part D of Public Law 90-576

Louise P. Dumetz
Du Sable High School
4934 South Wabash Avenue
Chicago, Illinois 60615

VT016396

June 1972

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ANNUAL INTERIM REPORT

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Louise P. Dumetz
Project Director
Chicago Board of Education
DuSable High School
4934 South Wabash Avenue
Chicago, Illinois

June, 1972

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Louise P. Dumetz
Du Sable High School
4934 South Wabash Avenue
Chicago, Illinois 60615

June 1972

SUMMARY OF THE REPORT

A. Time Period Covered by the Report

Beginning with the initial planning activity in April, 1971 and continuing through the actual beginning of the project during August with the in-service work for the staff, this report covers the objectives, activities and the accomplishments through June, 1972.

B. Goals and Objectives of the Project

The general objectives of the project have been those outlined in the proposal:

The development of a guidance program which would bring occupational information to elementary upper grade and high school students in District Thirteen.

The development of vocational instruction at the senior high school level for students who have not acquired salable skills - dealing specifically with seniors and with potential early school leavers who have reached 15½ years of age.

The development of instruction in grooming, human relations, communication skills, proper decorum, and job information related to the vocational instruction being provided.

The focusing of student attention on the importance of a viable adjustment to the demands of society as required for successful job placement, through counseling, specific group activities emphasizing cooperation and team-work, parent conferences, home visitations, organized tours, placement, resolving of personal problems, group guidance sessions and testing before and after training.

Placement of students at any time they reach a satisfactory point in their skill development.

The development of an atmosphere of success which permits every student to augment his ability and his self-concept to the extent necessary for him to become a potentially important employment investment and to see himself as such.

C. Procedures Followed

Six skill development classes for DuSable High School students are held in the following areas:

Automotive Services
Data Processing
Food Services
General Clerical Procedures
Offset Printing
Typing

These classes meet for eighty minutes in the morning and for eighty minutes (two periods) in the afternoon. The morning class has the main objective of developing a skill. The afternoon class offers skill reinforcement and instruction in other areas such as occupational orientation, grooming, human relations, proper decorum and communication skills.

Students are excused from the afternoon class when job placement has been effected. A full academic program of classes for each student insures that the required subjects are included so that his scheduled graduation date will not be adversely affected. Each student can earn three units of credit when enrolled in the program: one for intensive training, one for occupational orientation, and one for work experience.

In addition to the class experiences, students are involved in whole and smaller group activities. There are all-group assemblies every five weeks to focus on the accomplishments of the enrolled students (Appendix A). Outside speakers, films and demonstrations are also part of these assemblies. There are also scheduled weekly group guidance sessions with the counselor, and a Bridging the Gap Service Club which plans activities for the whole group (Appendix B).

A Bridging the Gap Newsletter highlights the activities of the project (Appendix C). This newsletter is mailed to the home of each student. A DuSable Exemplary Project Advisory Council assists in program supplementation, with the primary objective of helping with job placement, and there are two project developments which help provide work experience. These are the Clerical Services Office, which accepts typing, duplicating, and other assignments from the school staff; and the Second Setting Boutique which stocks contributed clothing, jewelry and household items for sale to students (Appendix D).

Group trips to industrial plants, museums, and technical schools; a luncheon-dance; a Skills Demonstration Day; and a "Showdown" variety production are also part of the experiences available to students to orient them to acceptable dress and behavior in and out of school situations (Appendix E).

In the elementary school career information program, the procedure developed in three schools has been to have weekly career education sessions lasting from twenty to forty minutes.

Using this method, the Associate Director, Mrs. Winifred French, has been able to work with the whole school population at Colman, Horner, and Parkman elementary schools. The large group sessions are scheduled for pupils in the primary, intermediate and upper grade levels. When sessions are completed for pupils at one level, they are arranged for those at another level until all of the pupils have participated.

At DuSable and Vincennes Upper Grade Centers, Mrs. French has served as a consultant, assisting with trip planning, curriculum development, and movie, film strip, slide, and speaker supplementation to the existing career guidance programs.

Mrs. French attempted to divide her time by spending one half day in the five schools she worked with, and the other half day at preparation or working with activities in the DuSable High School program.

D. Results: Accomplishments

This project has made a definite impact upon both the students who participated in it and upon the school enrollment in general. One hundred eighty students registered to participate in the 1972-73 classes. This number has been reduced considerably by Mrs. Olga Glenn, the assistant principal in charge of programming, but it is expected that there will be an enthusiastic, interested group of students participating next year.

In some instances a student was removed because the assistant principal or a counselor felt the student was not a potential drop-out and in other instances because it was felt that the student was college-bound.

Faculty evaluations have indicated that the enrolled students are attending their other classes more regularly and their general school attendance has improved. Demonstration sessions have shown that many students are becoming skilled performers in the various work areas. And a positive esprit des corps has made group projects dynamic and successful.

E. Evaluation

This beginning program has reached students who were unskilled and uninvolved in school activities. It has helped them to regard themselves as potentially valuable employees. About a third of the students have been placed on jobs and the Advisory Council chairmen have indicated that they will attempt to place every graduating student who is not employed. Enough progress has been attempted to suggest that if this same level of effort can be maintained and all of the current activities strengthened and increased, both the enrolled students and the general student body at DuSable will profit from the project.

On the elementary level the career education program has strengthened the holding power of the participating schools and has made it very likely that the drop-out rate in the high school will continue to decline. Through the medium of the career education concepts, the elementary students have become acquainted with new ideas regarding school and a future career. Learning about themselves and their aspirations and abilities will help them to recognize the value of high school more readily. Also, the career education emphasis has created a no-failure situation so that school has become a more enjoyable place for these failure prone children (Appendix F).

DuSable High School probably has entered into the consciousness of these children in an inprecedented and positive way which can make the idea of going to high school something other than a chore. Some of these elementary students have toured the work-study classes at DuSable and have seen the school firsthand. Also, there is a personal involvement with Mrs. French which makes DuSable attractive because the program she works with is located in the high school. Thus the whole program concept seems attractive and personalized to the children so that very likely some are looking forward to becoming a part of the program during their high school careers.

It is important for school holding power that the apathetic deadening monotony of day-to-day school procedures be interspersed with a variety of different, stimulating experiences. One value in having someone other than the classroom teacher participate in career education is that it becomes an exciting event the children can look forward to. Although it should be a function of every classroom teacher, added value to the concept can be achieved by using other sources for student stimulation.

F. Conclusions and Recommendations

At the elementary level the career education method has been very thorough and very effective in reaching three of the thirteen schools in District Thirteen. It would seem advisable, however, that efforts be made to reach more of the district schools. Since this becomes extremely difficult with the kind of intensive teaching that is now being done, it seems that working with the district teachers in in-service sessions would do more to get the career education concept practiced in all of the district schools. A committee to implement this accomplishment has been set up and it is expected that plans for the coming year will make it possible for more district teachers and children to get involved in broadening the understanding of the career education objectives.

Possible DuSable work-study students and staff members can be invited to participate in district career education sessions for the elementary pupils. Carefully planned presentations could help to keep the program dynamic and interesting as well as informative.

In the high school two incentives have been most influential in promoting the work-study program. First, the prospect of earning three units of credit, and second the prospect of being placed on a job.

Both of these are considered worthwhile achievements, although DuSable students as a rule, have the ability to earn either a decent grade or selective job placement. The attitude is one of attempting to endure; attempting to be present often enough and make enough of an effort to convince a reasonable teacher that the credit or the diploma or the job consideration is deserved. The credits have a value in that they add up to graduation, but students are reluctant to compete for grades because they doubt their ability to appear in any way other than inadequate. A job has a positive value when it is possible to get it and hold it with only a marginal degree of stress.

In spite of repeated explanations that a job could not be guaranteed to any of the students, there was high expectations that all would be placed. At any rate this was an expressed disappointment projected by the students.

However, with this annoyance at not being placed, there is reason to speculate as to its cause. Students in the General Clerical Procedures and Typing classes were urged to apply at Spiegel, Inc. where an Advisory Council co-chairman is Personnel Director. The students were to apply at a specific time for skill tests and applications. Only two showed up at the plant employment office.

A conclusion that could be drawn is that the annoyance expressed by the students was a "scapegoat outlet," a way of having some "other" person to blame for their jobless situations.

Since carfare was offered to any who could not afford it, those who had a self-concept that permitted success were present to be tested. Those who did not believe they could succeed or who could not bear to fail, simply did not show.

With no available job opportunity, it becomes the system's fault, or the school's fault, or the teacher's fault. When a job possibility is available and the student does not bother to apply, the real situation emerges. There is undoubtedly a fear of failure, embarrassment, or rejection. When questioned as to why he didn't go, the student will say he couldn't find the place or he forgot, or he was there but they wouldn't give him an application. Rarely will a student admit that he had nothing suitable to wear. It is hoped that the Boutique can make available neat, serviceable clothing for needy students. However, the existing pride is such that there must be careful development of this shop or the students will feel stigmatized when purchasing the clothing.

In view of the factors concerning placing job applications, one recommendation is that someone accompany students who are being considered for employment. Also, the practice of providing carfare should be extended so that no student can use the excuse of not having money.

As a final recommendation that the project be continued it should be noted that this is another way of individualizing instruction, another way of reaching children who have been turned-off, overlooked, or never motivated. Both the elementary and the high school aspects of the program reach out to make school a more comfortable place, providing some degree of enjoyment and some insight into the fact that what the person is, is part of what he is becoming. If he is aware of the many career possibilities and can see himself successfully accomplishing the skills necessary for a particular job or career, his self- concept can become such that he does indeed become and remain what is the ultimate objective of the project, an important contributing citizen, an important employment investment.

BODY OF THE REPORT

A. Problem Area

The 3,500 DuSable high school students and many of the pupils in the district elementary schools come from an area dominated by a seven mile bank of high rise buildings which have earned the reputation of being "concentration camps." The title stems from the supposition that the projects are dumping grounds for the poverty-stricken. The Robert Taylor Homes include 4,324 apartments. In 1969 gang violence became such a factor in the lives of the residents of these buildings that a steady decline in tenants began. At the present time there are 350 vacancies in spite of the fact that families with children are desperate for a place to live.

When fully occupied these apartments include 20,370 children, a number that inundates the small number of children from surrounding areas with more stabilized home situations in terms of income and family composition. Thus, the District Thirteen population consists largely of people on the outside of the mainstream of citizen accomplishment. Their reaction is typical. There is constant vandalism, violence and an understood set of values called "street" sense. Of the 4,000 families, 3,700 of them are getting some kind of income assistance. The children in District Thirteen are for the most part at the bottom of the lower income level.

Although a few of the one-third who succeed in graduating will receive scholarships, in many instances capable students still cannot afford to attend college. Thus, as the proposal pointed out, a large number of students will graduate with neither marketable nor finances to attend college. The career education concept in this proposal can have the following impact on the community:

1. Intensive guidance and emphasis on the positive value of contributing to society by selecting and preparing for a particular career objective can orient youngsters to the satisfactions inherent in earning a living.

2. Intensive training in a chosen area can develop not only the ability to earn a living, but the pride of being a skilled, capable person.

3. The activities related to both the career education guidance and the intensive training can help to build the self-concept of the student while at the same time creating a positive, enjoyable image of the school experience.

Two previous studies bear directly on the objectives of this proposal:

A.P. Garbin and Others

Problems in the Transition from High School to Work as Perceived by Vocational Educators.
Ohio State University, Columbus, Center for Vocational Education.

The study explored factors related to the transition of modern youth from school to work with the intention of identifying specific impediments to a smooth and lasting adjustment. The data, obtained from 69 outstanding vocational educators, revealed that of 49 specific worker adjustment problems, the following four were cited by more than 40% of the respondents:

1. Unrealistic aspirations and expectations
2. Poor attitudes toward work and working
3. Lack of responsibility, maturity and self-discipline.
4. Lack of knowledge and the real demands of work.

In the DuSable Exemplary Project special efforts are being made to alleviate and/or avoid these problems by individual and small group guidance sessions, as well as in the overall training activity program.

The second study:

Office of Education (DHEW), Washington

A Pilot Project to Develop a Program of Occupational Training for School Alienated Youth.

This study included students who attended classes for a part of the day and worked four hours per day. From a survey the following facts were determined: 96% were working to the satisfaction of employers and 71% were in jobs directly related to their training.

Thus the following conclusions were drawn:

1. Drop-outs will return to school and can succeed in curricula which meet their needs and interests.
2. Dissatisfaction relationships stimulate personal and social adjustment.
3. Parents can be involved.
4. Peer relationships stimulate personal and social adjustment.
5. Business and industry are pleased with such programs.

The DuSable Exemplary Project has considered the concepts inherent in the above studies and is attempting to meet the needs of the students and the employers who participate in this program.

B. Goals and Objectives of the Project

An important objective is a change in the affective behavior of the participating students. Coming from homes where a low value is placed on both education and work as a way of life, the students must be led to understand that society can function satisfactorily only if there are citizens who make a contribution that improves the existing conditions. A person who is trained and skilled in his career choice can know the pride of the builder, the successful artisan.

Thus, elementary students are to learn of the thousands of career possibilities in the many different kinds of employment available to them. They are to meet career models, successful people in many different walks of life who can demonstrate that life on welfare as a hustler can be improved upon planning and training.

High School students who choose the vocations offered in the program can enjoy the satisfaction of knowing that they are skilled and can develop the positive self-concept that accompanies being able to do a job well and knowing that one can do a job well.

At the same time this project can help both the high school and the elementary school community by developing a feeling of success in the students, a feeling of being able to do what is expected of them. This, plus the many planned activities in small and large groups, can increase the holding power of the school and make school a pleasant experience.

C. General Project Design

Procedures followed:

To begin the Health, Education and Welfare Department DuSable Exemplary Project, "Bridging the Gap Between High School and the World of Work," it was necessary to do some extensive groundwork. New programs invariably require some kind of additional response or activity from a faculty already extending itself physically and emotionally in a demanding--almost consuming situation. More adjustment, more responses, and more activity are hardly to be welcomed. Thus, it becomes necessary to win the tolerance of the faculty before the students could be approached.

DuSable High School is located in a part of Chicago, Illinois, known as the Near South Side. When the city was incorporated in 1837, this sandy wasteland traversed by wagon trails was included. There was little development until the 1850's when several railroads laid their tracks through the area.

The establishment of industrial enterprises within and near the community as well as the railroad yards and shops, created a demand for workers who, in turn, sought inexpensive lots and homes near their work. Workingmen's frame homes and boarding houses rose on the once unsettled prairie and wasteland. Most of these earlier settlers were Irish, German, and some Scandinavians.

The public transportation facilities of the Near South Side made its avenues easily accessible to the downtown area. The fire in 1871 did not damage the Near South Side. Business concerns, burned out of the central business district set up temporary headquarters in residences in the area but moved back to the loop as soon as they could. This ruined the area as a residential area as old mansions were converted into rooming houses or structures combining business and residential uses. The old vice area in the southern and western parts of the downtown areas, having been burned out, moved into slum areas of the Near South Side. The Negro section of the southern part of the downtown area was burned out by a fire in 1874 and re-established in the Near South Side.

During the 1880's, the tendency to erect apartment buildings grew rapidly, especially along the car-line streets. The construction of a cross-town horse-car line on 26th street in 1887 was an impetus to the development of the southern part of the community, while the construction of the steam elevated system, the "Alley L," between State street and Wabash avenue from Congress street to 39th street in 1890 sped development along its route. By 1893 the fashionable residential areas had lost prestige rapidly as the vice area expanded eastward. The increased utilization of land by industrial and warehouse facilities, as well as the proximity of Negro residents to the west were also factors in this change. By 1895, the Near South Side had reached residential maturity.

Although the vice area was legally abolished in 1912, the district remained a notorious one. During and after World War 1, there was a great influx of Negroes into the city, many of whom sought housing in the low-rent areas of the Near South Side. As their numbers increased, the older residents, mainly those of Irish and German descent, moved to other communities. The trend of steadily declining population was reversed in the 1940's with the influx of Negro population. By 1960 Negroes made up 77 percent of the population, and many purchased these older homes.

Conferences were held with division teachers of junior divisions. Conferences were held with individual counselors as well as with the entire counseling department. Notices explaining the program were placed in every faculty box. Notices thanking the faculty for their cooperation in helping to get the program off the ground floor were placed in every faculty box. Faculty members were invited to the activities planned for the enrolling students and for the parents of the students (Appendix G).

Gradually the acceptance of the school community was earned. While this was being accomplished, massive recruitment was also going on. Since the program would be primarily for seniors during the coming year, the recruitment was done among junior divisions. Notices were placed in the daily bulletin. The school paper carried information about the program. Every corridor on every floor had an announcement of the program and an invitation to get more information by consulting a faculty person. A meeting was held with the counseling department and the entire Junior Class to discuss the program.

In spite of the general acceptance in the school, there still existed--and exists--a group of detractors. Students were told the program was for "dummies." Other faculty members told the students that it would be a "waste of time" signing up for it because there were already four work-study programs in the school--these found it difficult to get an adequate number of students enrolled. If the new program required 150 students, it would never develop.

The acting project director and the staff members were also discussed in a negative fashion, and the predictions of failure accompanies many discussions of the venture. Even the participating staff members could be negative in their viewpoint. One declared that it would be impossible to teach the "DuSable students" if the "HEW students" were always using the equipment.

The general cooperation of the staff, the division of teachers and the counselors however, made it possible to accomplish the enrollment of 169 students during May. Some of these faculty personnel extended themselves to counsel students to enroll or to recommend students for participation. By the end of June the number was reduced to 132 because Mrs. Glenn followed the recommendations of several of the counselors who insisted that students who were college bound should not participate.

There was practically no new construction in the community until 1962 when the Chicago Housing Authority completed the Robert Taylor Homes (adjoining the DuSable High School). The Taylor Homes contain 803 dwelling units on a 17-acre site and are almost wholly occupies by Negroes. The great majority of the remaining housing units appear to have been constructed before 1900. Very few of the 1960 housing units are owner occupied and 81 percent are in structures containing ten or more units. The vacancy rate (more than 15 percent) is unusually high. There are virtually no extensive residential areas, but rather an admixture of residential and other land uses. Overcrowding of units and substandard conditions are prevalent.

Approximately 65 percent of the students of DuSable High School reside in the Chicago Housing Authority Units (Model Cities). These households are typically without the father member of the family and many have experienced the second and third generation of welfare dependence. The numerous children living in these housing units and attending DuSable High and other schools in the area have acute academic, socio-economic, and cultural disadvantages. Few have the desire or ambition to obtain marketable skills and even fewer are prepared, even after graduation, to enter the World of Work. Almost none can obtain the finances to further their education.

Many students seem to lack a sense of responsibility toward public property and are complacent about the "slum" conditions they endure. As a result, there is a high incident of vandalism and a serious lack of vocational purpose in their lives. Inspite of certain outstanding teachers who promote self-esteem and motivation, the plague of community influence and history of survival in the ghetto is difficult to overcome.

As a part of a very large school system where money is always a problem and budgets competitive, the resources of DuSable High School would be considered minimal by most communities. Added to this the deterioration of physical facilities through vandalism and just lack of respect for public property and lack of community concern, it has become a struggle for administrators and staff to maintain a learning atmosphere. Thus, the students in this community have been characterized as having a social, economic, cultural, civic, and educational lag.

The pressing problem is how to prepare the students of DuSable to become contributing members of our society. It was felt that there were three essential elements. First, the students had to develop an awareness of vocational opportunities as a condition that would lead to the desire to participate as a contributing member of society. Second, there had to be a program with sufficient holding power to keep the student in school. Third, the program had to be designed to provide job entry skills. This was the motivation for the "Bridging the Gap" proposal.

The elementary career education program met with a similar reception in that it was regarded as another demand on the time and thinking of the teachers--a demand which more than likely would have more nuisance value that valuable growth in the development of the students.

Mrs. French talked first with the principals of the five schools mentioned in the proposal. She arranged to meet with them, then was introduced to the cooperating faculty members. In some instances she spoke at faculty meetings to explain the program. In other instances she met with individual or small group staff people. Her plan became a practical one from the standpoint of the teacher in that Mrs. French would assume the responsibility of teaching the students for a given period of time. Thus, some of the resistance was abated since the teacher would be relieved of a small amount of responsibility while Mrs. French was present.

Two schools, the DuSable Upper Grade Center, and the Vincennes Upper Grade Center, had guidance teachers who felt that they could develop the career education program adequately. Thus, Mrs. French did not assume the responsibility of teaching these students. She assisted by helping plan speakers, trips and activities.

A career education kit was made up for every student in the three school classes. This kit included a collection of pamphlets from many varied sources (Appendix H for a list of these pamphlets). Each had to do with getting a job, staying in school, learning about employment activities, and the like. When Mrs. French contacted one pamphlet source, Western Electric, she learned that there was an integrated career guidance team which would cooperate in helping to develop the program. This company has assisted both in the elementary and in the high school phases of the program.

Also helpful in developing the career education program in the elementary school was a Basic Guidance Library which the Bureau of Pupil Personnel had distributed for use in the public school system (Appendix I for these materials).

Mrs. Louise P. Dumetz, project director, Mrs. Winifred French, and the six staff members were all involved in an intensive effort to discover suitable materials for use in developing the program. Very helpful were the Board of Education advisors from the Department of Vocational and Practical Arts Education, the Bureau of Pupil Personnel, the Department of Curriculum, and the Department of Guidance. Some of those cooperating in either an advisory-cousultant capacity or by presenting in-service workshop sessions for the staff include the following:

Program Description

There are two separate but related thrusts to the program. The first is concerned with Career Education in the K-8 program of the schools that feed into DuSable High School. For this purpose, career development materials have been developed for grades 4, 5, and 6. As these materials are refined, it is anticipated that they will become a part of the regular curriculum for these grades. As a continuation of occupational awareness, group guidance units have been developed for teachers of grades 7 and 8. These have been promoted by vocational counselors, assisting local school personnel.

The second thrust involves instruction that leads to job entry skills. This involves the areas of (a) Typing and General Clerical Procedures, (b) Data Processing, (c) Food Services, (d) Offset Printing, and (e) Automotive Service Occupations. The opportunity of "holding" the student in school while he develops a saleable vocational skill is the over-riding factor.

Concentrated training in the areas of instruction is given two periods in the morning with three additional periods at the end of the day for counseling, remedial instruction, and production. When the student has progressed to the point of placement, the afternoon is used for on-the-job training.

The director of the project is Mrs. Louise P. Dimetz and the Associate Director, Mrs. Winifred French. The subject skill staff includes Mrs. Mildred Stewart (Food Services), Mrs. Marva Littleton (Typing), Mrs. Peggy Hicks (Clerical), Mr. Henry El, (Data Processing), Mr. Albert Isaac (Automotive Service Occupations), and Mr. Elster Dubney (Offset Printing). Of course other administrative personnel are interested and relate in various ways such as Mr. Frank LuCente Jr. (Principal), Mr. Johnny Sheppard (Counselor), Dr. Gyrald Bober, (Liaison), Dr. William Rohan (District 13 Superintendent), Dr. Enos C. Perry (Director of Business Education, and Dr. Joseph J. Dixon (Assistant Superintendent). All personnel involved are fully certified for the positions they hold with successful experience in the Chicago school system and at DuSable.

A part of the project has been an elementary school vocational guidance program incorporating career development and occupational information. This program was designed to (1) give elementary school pupils career information, (2) prepare them for high school by giving them a background for making more valid vocational choices, and (3) provide a continuous guidance program from school entrance to school leaving. The program used the vertical plan, kindergarten through eighth grade, continuing into high school. A schedule was set up as follows: In the primary grades, 20 minutes per week, for eight weeks, (May-June) to devote time learning about workers in the community, and out of the community (farms, suburbs, big city, etc.); in the intermediate grades, 30 minutes per week to emphasize a job family categories, and job clusters. (This grade level was the first to be involved, and the program began in October, and ended in December, 1971, after ten

Mr. Joseph J. Dixon
Superintendent of the Department of
Vocational and Practical Arts Education

Dr. Enos Perry
Director of the Bureau of Business
Education

Mrs. Winifred Wagner
Director of the Bureau of Home Economics

Mr. Warren A. Koerner
Director of the Bureau of Practical Arts
and Technical Subjects

Dr. Gerald F. Bober
Consultant, Bureau of Business Education

Mrs. Jean Sachs
Director of the Bureau of Home Economics
(after the retirement of Mrs. Wagner)

Mr. Elmer Schick
Representative of the Regional Office of
the U.S. Office of Education

Mrs. Henriette Gebert
Consultant, Home Economics

Mrs. Virginia Daugherty
Home Economics Consultant, Area A

Miss Joan Jordan
Director of the Division of Guidance

Dr. William Rohan
District Thirteen Superintendent

Mr. Frank Lucente, Jr.
Principal of DuSable High School

Mr. Allan Smith
Guidance Counsultant, Area A

Mr. George Jones
Supervisor, Graphic Arts

Mr. Edward Makuch
Supervisor, Auto Mechanics

Mrs. Lorraine DeVoe
Director of the Bureau of Instructional
Materials

weeks); in the upper grades, 40 minutes per week, for two eight week sessions, to expose, explore, and interest young people in the various job opportunities and to help them to make career choices. (January-April)

The associate director, in charge of the elementary guidance program, visited three (K-8) schools (Parkman, Horner, and Coleman) once a week to conduct classes with vocational orientation emphasis. Prior to conducting classes, in-services and conferences were held with counselors, adjustment teachers, and classroom teachers to acquaint them with the overall project and to develop expertise in handling the classes after the associate director departed. Since the elementary guidance program has been continuous in nature, the planned schedule was made to include all of the grade levels in the (K-8) schools. So far in the Parkman School, approximately 355 pupils have participated in the program. (90@ 4th grade, 90@ 5th grade, 90@ 6th grade, and 175@ 8th grade). In the Horner School, approximately 1160 pupils participated. (280@ 4th grade, 245@ 5th grade, 495@ 6th grade, and 140@ 8th grade). In the two upper grade centers, Vincennes and DuSable, the associate director provided the counselors with resource materials, information concerning new and changing trends, planned trips, accompanied the classes on trips, and made contact with those in the world of work to bring materials and information for Career Conference Day and Parent Interview Day. Special rooms were selected for the programs planned.

With the use of outside speakers, films, filmstrips, tours, group guidance techniques, and other classroom activities, this program was designed to better enable students entering DuSable to make realistic educational choices. With occupational information geared to the interests, aptitudes, and educational opportunities of each pupil, it is hoped that he will become more self-directed, see himself in relation to his opportunities, and formulate and achieve worthy and realistic goals.

There are 79 of the 402 DuSable seniors involved in the exemplary program. In addition there are 43 underclassmen for a total of 122 students. Only 11 students or less than one percent have been dropped from the program.

In each of the skill areas, there is sufficient space with appropriate equipment committed to the program. Teacher presentations and demonstrations, supervised practice, and on-the-job participation have been involved in student preparation. They have been given supervision in actual work and in simulated work according to their development and available placement.

Such facilities as classrooms, counseling offices, libraries, and shops are being used. All of the skill instruction is accomplished at the DuSable High School, prior to the on-the-job experience. This is not always with ideal facilities but adequate for basic instruction.

Dr. Gerald Bober was particularly helpful in acting as a liaison person between the staff at DuSable and the personnel at the Board of Education offices. He was also instrumental in expediting the accomplishment of equipment and supply orders, salary adjustments, and other procedures which sometimes required the expertise of an experienced consultant.

Sample units of study are included in Appendix J. These include materials and a bibliography for the intensive training classes, and units used by Mrs. French in the elementary career education program.

The DuSable Exemplary Project began looking for jobs in September and continued until June in this effort. Both the director and the associate director extended efforts in this direction, but only a third of the students were placed on jobs. With a smooth functioning program which will not require the kind of initial adjustment and effort necessary this first year, it is hoped that a much better record will be achieved during the next year. However, much also must be accomplished with the students in order to help them recognize the importance of personal initiative and personal responsibility in getting and holding a job.

Staff members of the DuSable Exemplary Project werw all members of the DuSable High School faculty, with the exception of Mrs. French, who was an adjustment teacher in a district elementary school. The staff members have met each week to work out plans and problems. The degree of effort and cooperation have progressed so that the group now approximates a team with a common concern that includes the whole school as well as those students enrolled in the project.

An intensive effort to implement the teaching of reading was begun in the DuSable Exemplary Project and then shared with the whole school body. The principal, Mr. Lucente, set up a committee to aid the whole faculty in helping improve the reading ability of the DuSable students. The director became a member of that committee and material used in the project classes was shared with the whole school (Appendix K.)

D. Results and Accomplishments of the Project

One important accomplishment has been the acceptance of the program in a positive way by the DuSable High School community. The initial resistance has become tolerence, and even, in some cases, an interested effort to assist the staff members and the students.

The first marking period (ten weeks) involved an orientation and basic skill development. The second marking period (ten weeks) included, in addition to further skill development, introduction to grooming, job decorum development, attitude modification, and character building traits. The first placements were made during the third grading period (beginning of the second semester). For those not immediately placed in the field, because of readiness or opportunity, an in-house program was established. Job orders were received from other teachers, students, and citizens for selected in-service jobs.

In addition to the above program, students were enrolled in such subjects as English, social studies, physical education and an elective to meet their academic requirements for graduation. None was scheduled beyond the 7th period.

An advisory committee was formed to assist in planning a luncheon, a skill demonstration day, and second setting Boutique and general support and advice to the program.

The community became involved particularly with the placement of students. Through this council which included local business and industry representatives, as well as parents and other community people.

Staffing, supplies, and equipment was utilized against the approved budget except that a counselor has not been active since December, when Sheppard left the system to pursue advanced degree work in Utah. Additional funds were directed to Food Services (Commodities).

Evaluation

Objectives

a. To provide job entry skills in a range of occupations for high school seniors not previously exposed to vocational education programs.

b. To develop wholesome attitudes regarding the role of work in the life of the individual.

c. To provide career ladder information related to the specific job for which the students are being trained.

d. To place all or most of the students participating in job assignments in a cooperative education arrangement prior to the end of the school year with the goal of all entering full-time employment upon graduation.

Also, with this tolerence has developed an awareness of what the program is attempting to do, both in the high school and in the district. A booklet was distributed to most of the staff, explaining many facets of the whole program. This has meant that the staff members are very much "career education" oriented. English teachers have begun to implement the suggestion that the career ladder of the leading figures in literature assignments be conjectured and discussed. Appendix L is a copy of the DuSable Exemplary Project booklet which was distributed to the faculty at DuSable, to staff members at the cooperating elementary schools, and to other interested people in the community.

In the current enrollment the breakdown by classes is as follows:

Seniors	82
Juniors	20
Sophomores	11
Freshman	9
	122

Eleven students who appeared in September, 1971 have left the program. Ten were transferred out. One appears to be a true drop-out.

The rapport in the classes seems to be positive. The students are being reached in terms of becoming responsible citizens who are making a contribution to society. This is emphasized at each of the five week assemblies. There seems to be much pride among students in the program and they seem to work aggressively to please the instructors in the classes.

Job recruitment has been difficult. Despite the efforts of the staff, at the present time the employment picture is very much like that found generally in the community. However, there is optomism since the chairmen of the Advisory Council have agreed to attempt to place all of the program seniors who are graduating.

The employment breakdown is as follows:

Automotive Services	7
Data Processing	3
General Clerical	12
Food Services	6
Offset Printing	7
Typing	12
	47

At this stage of the evaluation only a confirmation of activity and initial professional judgments can be made. The evaluation team was given the assignment only at the end of February and has been asked for a report less than two months later. The team has been organized as a committee, has visited DuSable as a group and has become acquainted individually with the several facets of the project. They further have been in contact with various Chicago Board of Education and DuSable and Project personnel, have read the various materials and reports presented, listened to presentations made at a State convention, have visited with students involved and employers cooperating. They feel that the comments which follow are given with a great deal of understanding.

Food Services

Comments

Three visits have been made in March and April for evaluation at the DuSable High School. Mrs. Stewart is the instructor of the Food Service course of Bridging the Gap Between High School and the World of Work.

She tells me that the majority of her students are at about the 5th grade reading level. She has 24 in her class. The majority of these students have a very very limited knowledge of foods. Bread made at home is limited to cornbread. Ham and turkey, if ever cooked at home, are always boiled before being baked.

Practically all experience of vegetables have been canned (frozen vegetables are unknown). Spices are unfamiliar to the students.

The students who are in Mrs. Stewart's class at 9 a.m. have come to school without breakfast and are hungry. The budget for foods class is limited to $50.00 per semester which averages out to approximately $2.00 per student.

Recommendations

1. More food money should be budgeted for food to permit the students to become:

   a) acquainted with different foods
   b) familiar with different ways of preparation
   c) develop standards of good quality food

2. The course should be initiated for the student the second semester of her senior year to help prepare the students for working the second semester of their senior year.

Students in the General Clerical Procedures, Date Processing and Typing classes have completed applications for civil service employment. Many have already taken the examinations but it is not known as yet how many passed the tests and can be placed after graduation.

Employers cover a wide range:

Hamp's Hut Restaurant
Firman Settlement House
DuSable High School Faculty (NYC)
Provident Hospital
Speigel Mail Order Company
Goldblatt's Department Store
Sears, Roebuck and Co.
First National Bank
Board of Education - Medical Department
Chicago Burglar Alarm Company
United States Post Office
Chicken Unlimited
Dr. G. Nichols
High Community Bank
H and H Cafe
Joe Louis Milk
Valois Restaurant
Beacon Drug Store
Sheraton-Chicago Hotel
Cascade Super Market
Tabbs Standard Station
Advance Transmission
Original Pancake House

Another Accomplishment has been the involvement of the evaluating team which has visited DuSable on several occasions and observed in each of the work-study classes. The team is made up of Chicaho State University educators and includes the following:

Contract Officer:	Dr. Jon Miller Director of Research Services
Director:	Dr. Norman Laws Chairman Department of Industrial Education
Career Education Coordinator:	John A. Kockauskus Assistant Dean Division of Education

3. These students need time to comprehend all the things that the middle social economic class take for granted.

4. If it were possible - a good way to analyze the skills needed for various job occupations would be to take pictures of movies and analyze the job skills needed for various occupations. This then might be used as motiviations for students.

5. Once a year a dinner might be held for all potential employers (across the board) before students go out again at the conclusion of the work session with another dinner to be held wherein a certificate of appreciation could be given.

6. Each student might keep a diary of their activities on each job location that would be turned in once a week.

Offset-Printing

After two visits to DuSable High School with Mr. Dabney in the Graphic Arts area, I am impressed that in general, a good job is being done in this area toward the overall goals of the project. Dabney seems to show proficiency and skill in dealing with the many facets of the program.

Teaching and Curriculum Patterns

Dabney made full use of available curriculum materials from publishers as well as manufacturers to select basic pattern of instructional materials. He has need of adapting this material to a level that will meet the needs of his students. He has basic organization to his program but often sporatic attendance, will disrupt. Most teaching seems to hinge on group and individual demonstrations and instruction, aided by films and some AV materials. He has need for much more use of a wide variety of AV materials.

Student Attitude

Class enrollment has typical range from low to high motivation factor with emphasis often in the lower range. The motivation factor, manifests itself in poor scholastic ability, poor attendance, and often an uncooperative attitude. As the program progresses, Dabney feels that some form of screening for applicants to the program would help.

Proficiency in Technical Skills

Degrees of skill often is dependent upon scholastic ability, attitude and general motivation of student. The range at present is both on the low side. Dabney is aware of factors that will lead to higher skill.

Business Education: Coordinator	Dr. Franklin Dye Chairman Department of Business Education
Food Services: Specialist	Dr. Rhea Shields Chairman Department of Home Economics
Printing Specialist:	Frank N. Moore Retired Student Teacher Supervisor and Printing Teacher at CSU
Automotive Specialist:	Anthony C. Vasis Student Teacher Supervisor and Automotive Instructor

Mr. Joseph Dixon, Dr. Enos Perry, Dr. Gerald Bober, and Dr. Elmer Schick have also observed in each of the work-study classes. Dr. Schick reminded the staff that the scheduling of young people in the Bridging the Gap classes for the other cooperative education programs would help to keep them competent in their skill areas. Those students who are not graduating thus can be enrolled in the Home Economics Related Occupations, the Office Occupations, the Distributive Education or the Cooperative Work Training classes.

Many positive experiences have resulted from project activities. Vocational Education Week was observed by pre-orientation emphasis and discussion, and by a trip to a Black Esthetics Exhibit at the Museum of Science and Industry. Other trips included one to Illinois Federal Savings and Loan and two to Western Electric. The first was a tour and the second was a work experience assignment with each student observing the tasks and responsibilities of a single Western Electric employee. This was accomplished by several meetings with the Western Electric Integrated Guidance Team (Appendix M.)

At the Illinois Federal Savings and Loan visit, Mrs. Louise Quarles Lawson, treasurer and manager, talked with the students and took them on a tour of the institution. Refreshments were served. At Western Electric a free lunch was very much enjoyed by the students on both trips tp the plant.

Guidance and Remedial Instruction

At present no student has been placed in a plant or a part-time job. Dabney has substituted a work experience based upon the normal job work that comes into the school print shop. There is need here to provide real work experience for these students. Dabney definitely needs help here in making the contacts and setting up machinery to make this job experience effective. Program-wise, he does not seem to have time to do the whole job himself. I would suggest that some action be taken in this area.

Materials and Equipment

Good equipment and supplies seem to be in evidence. Maintenance is good. Housekeeping could be better. The arrangement and layout of the shop needs updating in terms of a more modern concept of graphic arts. The range of equipment is there but the arrangement is not as efficient as it could be. I suggest that this area be explored further.

Automotive Service Occupations

1. The abandoned automobiles located on the outside wall of the auto shop should be removed. It not only presents a safety problem and takes up instructional space, but it gives the building a sloven appearance.

2. The metal grating between the auto shop and the carpenter's shop should be removed to provide more space for the auto shop program.

3. The exhaust system should be in operation. For some reason or other it has not been connected. This is a must for an auto shop program.

4. Running engines should be connected to the exhaust system to allow for testing and diagnosis.

5. An automobile chasis would be an asset to this program.

6. All vacant spaces in the snap-on-tool cabinets should be filled.

7. Color dynamics would benefit this program by promoting safety, affecting human behavior, and affording high morale.

During the current year students enrolled in the Bridging the Gap program have experienced six field trips, six all group assemblies, four all group movie sessions, and speakers from five community institutions. These activities have, hopefully, presented some new ideas and insights both about the world of career education and the individual position as related to that world.

The outlook of many youngsters from the Robert Taylor Housing Project environment has been negative to such an extent that success has been sought by them only in ways that are disruptive. Coming from families with a median income of $4,180 per year, and an average of 6.2 children per family, their environment has not developed in them the ability to achieve success by excelling in academic subject areas. But these impoverished children have a zest that belies their living conditions, a zest for success that propels them into succeeding at subterfuge, dishonesty, vandalism, even violence. When no other triumph is available to them, they triumph by destroying some aspect of society related to the environment that crushes and humiliates them, that constantly suggests to them that they are inadequate and inferior. They can triumph only in their destructive power and this power places on the faces of the observing victims the same pain, the same feeling of inadequacy that the child has lived with for a lifetime.

The degree of hostility or violence prone activity in a youngster is often measured by the degree of violence he has experienced in his dealings with those in his home, his school, his community. If he has lived with cruelty or an absence of compassion, it is this behavior he acts out when he vandalizes a classroom, destroys school windows, burns teachers'records, or attacks a fellow classmate for some slight or imagined injury.

Winning, being in on the "game" is important to young people in an environment such as that found in the DuSable area. It becomes increasingly important as the students fail upward through school. They succeed by "telling off" the teacher or "playing the dozens" with a peer. Success can be cheating on your homework and getting by or rolling your eyes at a teacher and getting put out of the class. Success is often being the student nobody can handle. Working to effect a change in this outlook is a battle Bridging the Gap must win if it is to succeed.

Clerical and Data Processing

The 52 students in the areas of typing, general clerical procedures, and data processing at DuSable High Schook, Project #361157 (OEG-0-71-1026 (361), are performing satisfactory in their respective levels of learning at school and at a cooperative work station.

This evaluator must point out the need for a longitudinal aspect for the project before an accurate and justifiable evaluation can be made. The three teachers at DuSable involved in the business and office education areas are working under expected handicaps, such as 75% working condition of typewriters and the usual inner-city absences.

A more in-depth evaluation in the area of business and office education will be made within the next two months to identify further the recommendations for revising the planning and organizing of the project.

It is the opinion of this evaluator that the project must be continued for another school year, at least.

Additional information for the preliminary evaluation report is given in the respective cells of the attached sheet.

An accomplishment that has aroused considerable interest is the Clerical Services Room. Items were carried weekly in the school bulletin offering the services of Bridging the Gap students in a variety of areas. Mrs. Marva Littleton decorated a room which had formerly been the Business Department office. This became the Clerical Services Office, with the cooperation of the department chairman and members. Mrs. Dumetz met with the whole Business Education Department regarding this project and it was agreed that the Office Occupations and Distributive Education teachers would also work in the Clerical Services project. Students are scheduled to supervise the room and to take orders for services. Funds received are to be turned in to the main office at DuSable for the Bridging the Gap fund.

Another project is the Second Setting Boutique. The Art Department has cooperated in planning an unusual decor. Mrs. Peggy Hicks is working to set up the merchandise and staff the area. Mrs. Brenda Fryison, Distributive Education teacher, has indicated that she will cooperate in operating the Boutique and assign some of her students to work there.

Dr. Perry and Dr. Bober were successful in getting nearly three dozen additional typewriters for the Business Department. Several of these are used in the Clerical Services Office. Also, repairmen were at the school for several days working on non-functioning typewriters and other machines. Those that could not be used were removed and the absence of this clutter has much improved the Business Department classrooms.

The aim toward improving the esthetic atmosphere at DuSable is an objective that is gradually being accomplished. Both lunchrooms were decorated with bright paper and interesting sayings. These have not been vandalized. When the paper has crumpled, it has been replaced. Thus, the lunchrooms have been much more attractive than they were with the ragged looking partly covered areas that were there before the decorating. Also, the Second Setting Boutique area is easily available and unsupervised most of the day (with no merchandise there, however). The wall decorations, the carpeting, the case and other furniture could have been wrecked or stolen or disturbed. During the first week a ladder was broken and removed. Since then the area has not been disturbed. This is quite an improvement over what many faculty persons would have expected. Efforts to beautify the school are sometimes reluctantly attempted because many feel the students will destroy and vandalize such efforts.

PRELIMINARY REPORT information - DuSable High School project,
Bridging the Gap Between High School and the World of Work

Class and Teacher	Teaching Curriculum Patterns related to Objectives	Students' Psychological & Social attitudes and readiness for job placement	Proficiency in Technical Skills	Guidance and Remedial Instruction	Job Placement	Materials and Equipme
Typing Mrs. Littleton 24 students	very acceptable to the evaluator; standards are in agreement with the evaluator	All students are given instruction in the Affective Domain (interest, attitudes, understandings)	Very adequate standards & require- 40 WPM in five minute writing is sufficient for job entry	Given when requested.	Difficulty in finding suitable job stations as cooperative education link- usually 3 days before student is placed on job;	Only 75% typewrite proper wo ing condit Repairme Chicago B of Educati has not be at School classroon Since Jan
General Clerical Procedures Mrs. Hicks 20 students	All 3 teachers are qualified to carry out an effective instructional program.	Students in project and students on campus display very high in project.	Clerical performance standards meet national norms in judgment of evaluator	Given when requested.	Recommendations: at least 2 wks needed from time job station identified to time student goes to work station.	Recomme tion: Spec attention repairme must be g to projec chines. chers car from in-s vice know of typewr repair (n repair).
Data Processing Mr. El 8 students	Adequate		Did not observe	Given when requested. requested		Adequate

4691

It is notable that this has not so far resulted. Also notable is the exemplary behavior of the students on every occasion when trips have been made or guests have been invited into the school. Although much improvement in the appearance of the young people could be affected, their behavior has been above reproach.

During the recent "Showdown, 72" production, there was a most unusual occurence. Dressing rooms offstage had not been cleaned for decades and were buried in soot and dust. The stage committee got mops and buckets from the maintenance staff and thoroughly cleaned these rooms, making a trip around to the Bridging the Gap office to get the director to point out with great pride how thoroughly the job had been done. This demonstrates the effectiveness of placing responsibility on the youngsters and expecting them to live up to it, and the importance of having varied activities which can be enjoyed by students who may not excel in ways that are everyday routine in the average high school. "Showdown, 72" was presented by the Bridging the Gap Service Club guided by Mrs. French. Another successful venture of the club was the luncheon dance which included nearly half the enrolled students' Advisory Council members parents, employers, and school and district staff members.

Also, an accomplishment in terms of school rapport has been effected. In answering the bulletin which declared that Bridging the Gap students would tackle any kind of job, the chairman of the physical education department explained that she had ninety tank suits that were ripped in the seams. A new kind of faculty cooperation resulted in this job being done by a student who was paid for the effort. There are many such jobs that could be done by students with faculty cooperation. These jobs help to build responsibility in the students and a rapport among the school community.

A movie, "Work-Study Programs at DuSable" was completed and narrated by the principal, Mr. Frank Lucente. Mrs. Dumetz worked with Bridging the Gap students to complete this extra curricular activity. Also, slides that introduce DuSable and all of its departments and activities have been completed. Mr. Lucente expects to use these to improve the image of DuSable among the district elementary students (Appendix N.)

In the district elementary career education program, Mrs. French has worked effectively presenting in-service sessions for the staff at the five participating schools, plus Beethoven and McCorkle elementary schools. She served as a facilitator for a district meeting, explaining the structure of the vertically integrated occupational curriculum.

Further Observations

It appears that one of the major problems in the program involves the placement and liaison with students in the field. The present design calls upon the classroom teacher to perform the functions twoard the end of the school day. This seems unrelated for two reasons: first, there is little indication that each of the teachers so involved has been adequately prepared for this placement and coordinating role. Secondly, typically a shop teacher has clean up, material handling, and other kinds of duties that extend beyond the regular class periods. This combined with the aditive production schedule, designed for those who have not yet been put into the field, makes it difficult for the classroom teacher to carry out his coordinating functions. It is, therefore, recommended that a replacement counselor be employed and that he, together with one or two full-time coordinators, assume the responsibility of this aspect of the program.

It would seem desirable to establish a second advisory committee made up of representatives from business and industry to assist with the determination of job entry skills and the actual placement of students in the community.

Commodities and equipment budgets need to be re-evaluated so as to provide essential support to the program. The reductions of the original proposals provide some serious gaps.

It is difficult to adequately emphasize the importance of this project. It is being directed and handled by educators who have identity and understanding with the community and students they serve. What may be lacking in sophistication and innovation is made up for in the humanistic and pragmatic accomplishments taking place.

Dr. Norman G. Laws, Chairman
Dept. of Industrial Education
Chicago State Univ., Chi. 60621

Other activities have included presentations by Washburne Trade School, Western Electric, and district teacher-nurse personnel. A hair stylist discussed the duties, qualifications and employment outlook for those in her field, Parkman eighth graders visited the Black Esthetics exhibit at the Museum of Science and Industry, DuSable Upper Grade Center eighth grade students visited Michael Reese Hospital and viewed a film, "Cap for Cathy." They also heard discussions by three specialists concerning their career fields and toured two laboratories.

At Dyett Middle School which replaced the Vincennes Upper Grade Center, Mrs. French worked with the counselors to plan a Career Conference Day. Many career areas were represented such as: Banking, Real Estate, Merchandising, Marketing, Civil Service and Industry. Dyett eighth grade students toured Provident Hospital, visiting the medical library and two laboratories.

Some of the sessions which Mrs. French held with the young people helped them to learn about themselves, take a look at high school, and to find out how school can help in preparing them for work. At the primary level the program consisted of developing awareness of community helpers, farm workers and outside of the community workers. Activities included role-playing, using cardboard puppets of community helpers, a Western Electric presentation (Draw Me a Telephone), the use of Dr. Marla Peterson's OCCUPAC, film strips and slides.

Both Mrs. French and Mrs. Dumetz have attended workshops relating to the career education area. They made successful presentations in Peoria at the Illinois Vocational Association Convention. Mrs. French attended a career education convention in Glen Ellyn, Illinois and learned of the ABLE program through Mrs. Trudy Starks and Dr. Wernick. Mrs. French, Mrs. Dumetz, Mrs. Marva Littleton and Mrs. Peggy Hicks will participate in a workshop in DeKalb, Illinois in June. Mrs. French will attend a conference in Vandalia, Illinois, and Mrs. Dumetz will participate in a workshop for coordinators to be held for three weeks at Northern Illinois University.

Successful public relations accomplishments have included two half-hour discussions of the program on television. The project director, Mrs. Dumetz, was guest hostess on "Whatever's Fair," a Channel 44--WSNS program viewed at 10:30 nightly. Her guests were a DuSable senior, Laurie Griffin, and Mr. Luke Helm, an assistant principal.

Conferences with each of the project staff members have been held in the Chicago State University evaluating team. Dr. Rhea Shields accompanies Mrs. Dumetz on visits to employers, and Dr. Laws has visited Mrs. French at the Parkman and Dyett schools. Specialists in the different skill areas have worked with the project staff, observing and evaluating.

F. Conclusions, Implications, and Recommendations

The DuSable Exemplary Project: Bridging the Gap Between High School and the World of Work at DuSable High School can serve the community and the school in a very important way.

Employment is the number one need in this community. Every single student who is placed is a most important outcome of the project. However, there are other factors that are just as important on a long term basis.

The graduating students who have acquired a skill and who feel competent in using that skill are equipped in a way that would not have happened if this project had not been available. In many instances the self-concept of the enrolled student has been affected in such a way as to make him have more regard for himself and for his potential. He may have grown from a "loner" on the outside of the school activities to a participant, someone who belongs, who may even have been active. These are factors that can work to the advantage of the whole community because they can mean the difference between the person who is hostile to a society that rejects him and the person who can contribute because he feels he is part of the mainstream.

The atmosphere of success is one that is important in this project. Every single student who enrolls must be helped to feel successful in some undertaking, even if it is no more than feeling triumphant because he can arrive at school on time and attend his classes. There must be an absence of negative attitudes evidenced toward the behavior of the students. Students at DuSable who have no skills, and who may have been potential drop-outs, need to be reassured that they have worth, that success is available to them. Continued efforts to get and keep parent participation must also have a positive orientation. They can then help and be helped in the important area of the self-concept.

Almost without exception, the emphasis in dealing with a student who has not performed in a way that is considered satisfactory, is to convince him that he needs to be

This program was televised on two occasions--first it was viewed on Wednesday, August 11, and then again on Saturday, August 14.

Another successful public relations venture was the appearance of Mrs. Dumetz and Mrs. Theresa Leonard, an assistant principal, on "Think Tank," a radio program broadcast on Saturday, September 25 from 9:00 a.m. to 9:30 a.m.

More recently a Bridging the Gap student, Shirley Avant, and Mrs. Dumetz were heard throughout the day on CBS radio station WBBM discussing the DuSable Exemplary Project. The interview was broadcast on November 4, 5, 6, and 7. It was repeated in March when it was heard through March 3, 4, and 5.

On April 22, Mrs. Dumetz, Mrs. Marva Littleton, and two students, Kathleen Jefferson and Carolyn Ransom, were heard on radio station WMBI as they were interviewed regarding the project.

Newspaper coverage has included an item in the March 29, 1972 issue of the Chicago Courier which mentioned the movie "Work-Study Programs at DuSable High School," and stated that interested civic and social groups could view the film upon request.

Other items include several printed in the Southside Bulletin and in the Chicago Daily Defender. In the bulletin the story was given front page exposure and detailed the presentation of a new six cylinder engine to the DuSable Exemplary Project by a local firm. (Appendix O.) Mr. Edward Makuch, Auto Mechanics Supervisor had arranged to have this equipment donated to DuSable.

Very helpful in program planning and accomplishment have been conferences at the downtown office with Mr. Joseph Dixon, Dr. Enos Perry and Dr. Gerald Bober. Similar conferences at DuSable have included Dr. William Rohan and Mr. Frank Lucente. A recent conference at DuSable included Mrs. French, Mrs. Dumetz, Dr. Rohan, Dr. Bober, Mr. Lucente, and the principal of the Hartigan Elementary School, Mr. John L. Ryan. The purpose of the conference was to discuss the evaluation by the U.S. Office of Education team which was at DuSable on March 29 and 30 (Appendix P.) One outcome of the conference was that Mrs. French is to chair a committee to develop a plan which will permit more in-service training for the District Thirteen elementary schools teachers. It is expected that with this training the teachers will be able to emphasize the career education objectives and thus broaden the accomplishments of the project efforts in this area.

taught a lesson, that he needs to learn that he can't get something for nothing. Apparently the assumption is that all of his life he has been getting away with something. He has been having such as easy time that NOW he must learn that society is not like that. He has got to work and earn whatever he receives.

Life in the DuSable community is full of lessons that you can't get something for nothing. It is full of punitive attitudes and punishment ranging from constant failure, constant rejection, constant deprivation to the threat of being imprisoned or shot for doing poorly at a street survival lesson.

The important approach in dealing with these students is to build on what the student wants, his plans. Does he want a high school diploma? Does he want to learn a skill? Does he want to earn some money? Using these questions as a basis for counseling, the student should be helped to discover that he has certain responsibilities if he is to accomplish his objectives. When he does not fulfill his responsibilities, both he and the counselor should feel regretful, and hopeful that he can develop the attitudes and the habits which will permit him to reach his goal. There should be a careful evaluation of his effort, a positive approach that will give him the number of opportunities that he requires to accomplish what he considerd to be his goal. It is important that there is no mention of failure, rather the discussion should center on why the student was not able to do what he set out to do, and how to help him to accomplish the objective.

The counselor for the project was with the program for only three weeks and so the guidance area has not been implemented to the extent that it should. Another counselor is in the process of being employed and with this full-time counselor, the director, associate director and the six staff members, every student can receive some direction in discovering what motivates him to come to school and to make the effort to stay in school. Then he can be helped to achieve success by being an important part of the school, someone who is accomplishing and participating.

When punitive techniques are used, they are rejective. The student becomes hostile and says he tried but "they" just wouldn't give him a break. He wanted to succeed but "they" just wouldn't let up. Students who are "turned off" and who perhaps see little merit in what school has offered them during the first ten or eleven years of enrollment are not likely to become model pupils

in what they regard as an informal detention center, something to be endured if possible but adding little to the ongoing enjoyment of their lives.

This program for students 15½ years old and older, can reach the public school population in a way that can be most rewarding to the student and to the community. It is a project that can reclaim the drop-out, that can add dimensions to the outlook of the student without a salable skill. The success of the program hinges as much on the psychology of the approach as on the teaching effort. Students must be allowed to feel important, to feel that whay they do, represents accomplishment, has worth. And this must be done as much for the smart aleck, the braggart, the hostile unsooperative student as for the docile, well-adjusted student. It is essential that every student be considered an important part of the program and that every student is helped to become a success.

In the elementary school the approach is more varied. The objective is to help youngsters use the insights they develop about themselves to decide on a potential career. However, even in this situation the students must be helped to feel adequate, important. Not only must they feel this way when they are choosing to be doctors, lawyers or accountants, they must also be able to feel this way even when choosing to be clerks or servants, janitors or window washers. Admittedly some careful orientation for teachers is necessary. Some cannot perceive a successful, important student aiming for a career as a household worker. But successful and important have to do with personal adjustment. There are students who would be happiest at just such a task, if they could keep their self-respect and feel their worth in their community while performing the task.

In education today there are few short triumphs. The achievements of a single day may add up to long range failure when an evaluation is effected. The reports of the Chicago State University evaluating team and from the U.S. Office of Education were appreciated for the insight they gave to our efforts and the objectives we must struggle to attain. It is gratifying to know that our personal concern working in the school environment is understood and shared by people far removed from the situation. Our federal government is a bulwark of strength to which so many of us must owe appreciation for the help given in so many areas and so many methods.

E. Evaluation of the Project

EVALUATION OF DUSABLE BRIDGING THE GAP...PROGRAM
(An Interim Report)

Summary

DuSable High School and its feeder elementary schools are located in Chicago's Near South Side which historically has been considered the least desirable residential section of Chicago. The growth of business and industry on this section of sandy wasteland related the area to those who were seeking low cost housing. In the earlier 60's, the city through the Chicago Housing Authority undertook a project of consolidation of low income families into high-rise apartments. This provided an unbelievable density of low income families, with a heavy burden on area schools. Unique sociological problems provided an even greater challenge as teachers struggled with limited resources to provide not only basic education but social and economic motivation to their students.

The Bridging the Gap Between High School and the World of Work project involved career guidance at three elementary schools and two upper grade center schools. This has been well designed as a vertical program preparing students for the experiences available to them at DuSable High School. Occupational awareness and the development of participating attitude toward the World of Work is most important in this sociological setting.

Cooperative type programs in the areas of typing and general clerical procedures, data processing, food service, off-set printing, and automotive service occupations have been developed. After a semester involving five periods a day, the program continues a second semester with two periods in the class room followed by on the job experience. Some students, however, with insufficient development and others for whom no jobs have been found have continued in the shops in a production unit during the second semester.

To date the holding power in this program has been at the 99 percent level. The personnel involved have exemplified the unique understanding of their students and have made significant attitudial gains. While the skill level of attainment has not been exceptional and while an involving program has been beset with some functional problems, it seems obvious that there is much enthusiasim among the leaders, and students as well, and that it would have to be declared a successful beginning. Limited resources and a curtailed budget have prevented individual teachers from developing their related instruction and promoting the skill development desired. Placement has been discouragely slow but inspite of these obstacles in comparison to previous opportunities, gains have been significant.

Thus in both the elementary career education program and in the high school skill training program, every effort must be extended to help the individual student to believe in himself and in his own importance to society. He must be helped to believe that the world of work can be a satisfying way of life and that the effort he must extend to become part of that world is worthwhile and necessary.

APPENDIX A

ALL GROUP ASSEMBLY PROGRAMS

CONGRATULATIONS!
You have succeeded in being
SOMEONE TO BE PROUD OF
(For a whole five weeks)

SKILLS

COMPETENCE

EMPLOYMENT

BRIDGING

THE

GAP

THE NEW DU SABLE

EXEMPLARY PROGRAM

Can you make it 10? 20? 40?

4568

Lots of you know
which keys on an adding machine
are concave, and which are flat

Others know
what a major alignment is . . .
and what automotive hardward
is used for

You may be among those who know
the marginal stops for a
forty space line, one with
50 spaces, even 70

Maybe you're in the group that knows
what a bone is, what a lay-out is
or how to make a paste-up

Those of you in data processing know
how to code an IBM card, how to
prepare a data card or a program card

In the Food Services class you learned
how to set a table for a commercial
food service operation, you learned
about nutrients and their functions

CONGRATULATIONS!

You're "Bridging the Gap Between
High School and the World of Work"

You're on your way to becoming

A VALUABLE EMPLOYMENT INVESTMENT!

BRIDGING THE GAP STUDENT MEETING
Thursday, October 14, 1971
7th Period - Dyett Hall

"I DARE YOU!!

Welcome — Janis Saxon

Speakers

Mr. Elester Dabney
Offset Printing Instructor

Mr. Charles J. Jozaitis
Mathematics Instructor

Mrs. Winifred French
Associate Director,
HEW DuSable Exemplary Program
"Bridging the Gap Between High
School and the World of Work"

Mr. Allan Smith
Area A Guidance Consultant

Mrs. Louise P. Dumetz, Director
HEW DuSable Exemplary Program

Mr. Frank Lucente, Principal
DuSable High School

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BRIDGING THE GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK

NEW DU SABLE EXEMPLARY PROJECT

presents a memorial to

T W O O U T S T A N D I N G A M E R I C A N S

Wednesday, November 17, 1971

Dyett Hall, 7th Period

"One person can make a difference - be that person."

"He can who thinks he can."

PROGRAM

Warren Langford	Determination and Courage (or Staying on the Case)
Mary Dowery	Can You Dig It? A Weak Link Is a Stone Drag
Butheford Hubbard	Some words and a weird flick honor two men worth remembering

A 15 minute film accompanied by a tape recorded broadcast

Mrs. Louise P. Dunetz	The Importance of Whipping Game or I Dare You

USHERS

THE BRIDGING THE GAP SERVICE CLUB
Mrs. Winifred French, Advisor

Mr. Frank Lucente, Jr., Principal

Mr. William Rohan, Superintendent, District 13

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When you get a chance to think about what you have heard today, some of it will mean something and some of it won't.

You may say, well they did such and so . . . but some of them are a lot smarter than I am . . . or they had better opportunities.

You'll be trying to cop out - so you won't have to really try. Trying is hard work and it hurts when you don't succeed. You have to have courage to try. You have to dare. You may have to be double dog dare.

How do you go about daring? Well, take advantage of what is available to you. There are teachers here at DuSable to help you. You're not locked in a cell like Malcolm X was, glad to have even a dictionary to study. You're not as poor as Abraham Lincoln who had to study using the light from the only heat in his home, the fireplace.

And you're smart. You're a lot smarter than a lot of us up here. You're bright and alert. I know I've had students point things out to me many times. There are a lot of things you know that we don't.

This is a new program. Whether it succeeds is up to you, not up to us. We are here every day trying. If you come every day and try, you will learn something. That will mean that all of us have succeeded.

About jobs. We can't promise you anything. We want to get you a job just as bad as you want to have one. But you know this is a recession we're going through and it may not be possible to place every student. But if you try, and we try, and if you really learn something, we can feel good about what we have done.

WARREN LANGFORD

Fellow classmates, faculty members, and friends:

Welcome to this assembly which will honor two outstanding Americans. But . . . in a way . . . when we honor them we are honoring ourselves also. . . . It is true that one of them was the head of a great nation - and it is true that the other was head of an important department in a school which has produced many outstanding citizens.

But . . . even though we who are here, will not accomplish the same kind of success that they worked for, the fact that WE ARE HERE AT DU SABLE in Dyett Hall today . . . shows that we are aiming toward SOME KIND OF SUCCESS.

There were students who started out with us ten weeks ago who have messed up. Some who really meant to work hard and stay in school have let their bad habits defeat them. Some couldn't stand the freedom they have in high school; they developed the hadit of cutting classes and causing problems in the corridors.

Some didn't have the patience or the courage to come day after day, week after week, to try and try again . . . and keep on trying. We are developing habits which will be important the rest of our lives. One important habit is an attitude of patience and courage.

So at this assembly which honors two outstanding Americans, let us also congratulate each and every one of us . . . for we are trying to be a success in what we are doing right now, today, at DuSable.

MARY DOWERY

Fellow students, faculty members and friends:

I am going to read to you an article which was written by the late Captain Walter Henri Dyett. It appeared in the April, 1968 issue of the DuSable Dial.

Are you proud of DuSable? Why not? DuSable is as great as its basically fine student body makes it. A chain is no stronger than its weakest link. A school is no better than the students working with the administration and faculty make it.

When will DuSable gain fame and recognition as one of the finest high school of the land? When playful uninterested students realize they are cheating themselves as well as others.

When noisy and cluttered corridors are realized to be a reflection on every student in DuSable. When every student will admit that anything but the best of behavior, the best effort possible to get the best possible grades, is a "drag" on him or her. When every student determines his or her chief aim in life and starts out to reach this goal. A goal must be known before a journey can start. Ask yourself: Where am I going? What will I accomplish in ten years, five years, one year?

Make it your daily purpose to gain in ability for sure achievement every day. Become self-reliant. Be true to yourself. Stop cheating yourself. Have a "ball" at DuSable by becoming one of its best. Act like you want to be . . . and soon you will be as you act.

He can who thinks he can.

I Dare you to think you can!

BUTHEFORD HUBBARD

Faculty members and fellow classmates:

On Monday, November 22, it will be eight years since the death of our late President John Fitzgerald Kennedy. Perhaps some of you were so young that you do not recall the terrible impact his death had on our country.

But most of you will recall the sadness everyone felt when we learned of the death of Capt. Walter Dyett on November 16, 1969, not long after he had retired from his teaching job. You know that Capt. taught at DuSable from the day the school opened in 1935 until his illness made it impossible for him to continue. You probably know that this auditorium was given the name Dyett Hall and dedicated to his memory. Most of you know that an oil painting of Captain Dyett hangs in our Social Room. And the Walter Dyett Middle School is now being built in Washington Park.

The next part of today's program will present to you a tape recording of a radio program that was broadcast eight years ago. It was heard on the Board of Education station, WBEZ and was a tribute from the teachers in the Chicago Public School system.

While the broadcast is being played you will see a tribute to Captain Dyett. The movie is an abstract, symbolic film. During the fifteen minutes that you listen to the broadcast and watch the film, see if you can figure out meanings or statements you find in the film.

The cameraman for the film was a June, 1971 graduate, Alexander King. The film was a class project for a Writing- Speech class taught by Mrs. Dumetz.

Now, for fifteen minutes, please give your attention to the tape recording and the movie that are our tribute to two outstanding Americans.

THE IMPORTANCE OF WHIPPING GAME OR I DARE YOU

People who can whip game on you are cool. They're together. They're really with it.

You could say Kennedy and Dyett were like that. You know George Mosley and Warren Langford are like that. Almost anybody can whip game if they can handle it.

But to do it there is one very important requirement. You must be in control of you.

You must be able to handle you.

No blowing your top or getting an attitude.

You can't get past the front desk if you don't have your cool working.

And once hired, if you're adsent a lot, if you're tardy, if you're always griping or mad, or agitating . . . chances are you won't be there long enough to whip game on anybody.

Maybe the job won't be the one you plan to spend your life working on. Maybe the pay won't be what you hoped to earn. But if you can get yourself together, and get hired, you may become so good at whipping game until one day you'll be considered on of the most important employees there.

You'll be one person who really makes a difference.

You'll be one of those who can be cause he thinks he can.

December 21, 1971

Greetings, Teachers, Students and Friends.

I am George Mosley, Foreman, and a member of the DuSable Automotive Services Class. I have been chosen to give you a brief summary of the opportunities open to trained mechanics.

You know, somethimes people get the wrong impression of a mechanic. They seem to think that a machanic only deals with grease, dirt, and the grimy job of climbing under a car. True, in a sense, because in order to get ahead, you have to begin at the bottom and work your way up. But, the need is urgent, and the opportunities are great. You can get a better paying job if you know how an automobile operates and how it is serviced and maintained.

You may ask, what are some of the jobs you can look forward to. First, of course, is the automotive mechanic. Today he is a highly respected, skilled and well paid worker. His income compares favorably with that of men in other skilled professions. Mostly because his services are always in demand. For many men, a job as an automotive mechanic is a stepping stone to greater things. The automotive mechanic can move up to become service manager, parts manager, or sales manager of an automotive shop or a dealer agency.

A great majority of the independent service garages and service stations in the United States are owned and operated by good mechanics who have moved up the ladder. There are about 30,000 automotive dealers, 100,000 independent garages, and 200,000 service stations. So you can see that there are big opportunities for the hard-working man who knows his business.

But that's not all. If a man knows automobiles and has a good personality, he may become an automotive jobber salesamn or a field representative of one of the parts manufacturers. He may move on up to be a factory representative.

THE HEW DU SABLE EXEMPLARY PROJECT

Bridging the Gap Between High School and the World of Work

February 29, 1972

An Assembly for the 25th Week
Twenty-five weeks of moving toward skill mastery.

PROGRAM

Introduction	Beverly Sandifer
Distribution and Evaluation of Employee Evaluation Forms	Linda Jones
Bridging the Gap Between Home and Work	Linda Jones
Movie — Work-Study Programs at Du Sable High School	
Comments	

Mrs. Winifred French, Associate Director

Mrs. Louise Dumetz, Director

Mr. Frank Lucente, Jr., Principal

REMEMBER: Tuesday, March 7, 1972 - Guest speaker at 1:00 p.m. in 145. Mr. Frank Bradley from the Daniel Hale Williams Center.

Tuesday, March 14, 1972, a trip to Western Electric plant from 9:00 a.m. to 1:30 p.m. Cost: $.75. A free lunch willbe served.

Visitors from the Office of Education, Chicago State University and the downtown offices will attend many of our class sessions.

Help the Bridging the Gap Services!

Work for the big event, "Showdown, '72."

ERIC

SILENT NIGHT

Silent night, Holy night
All is calm, All is bright
Round yon Virgin, Mother and Child
Holy Infant so tender and mild
Sleep in heavenly peace,
Sleep in heavenly peace

JOY TO THE WORLD

Joy to the world, the Lord is come,
Let earth receive Her King.
Let every heart prepare His room
And heaven and nature sing, and
heaven and nature sing, and heaven
and heaven, and nature sing.

AWAY IN A MANGER

Away in a manger, no crib for a bed.
The little Lord Jesus laid down His
sweet head.
The stars in the sky looked down where
He lay.
The Little Lord Jesus asleep on the hay.

MERRY CHRISTMAS AND HAPPY NEW YEAR

Mrs. L. Dunetz, Director
(H.E.W.)
Mrs. W. French, Associate
Director
Mr. John Shepherd, Counselor
Mr. Frank Lucente, Jr.,
Principal, D.L.H.S.

(H.E.W.) BRIDGING THE GAP ASSEMBLY

GREETINGS.....MR JOHN SHEPHERD

INTRODUCTION OF SERVICE CLUB MEMBERS....MRS. W. FRENCH

SKITS & DEMONSTRATIONS.....

AUTO MECHANICS
I. WARREN LANGFORD---volt tester, STEVE HARDEMAN----battery tester, GEORGE MOSLEY---job outlook

GEN. OFFICE PROCEDURES....
(JANIS SAXON, APRILL EVANS)

TYPING (WHAT WENT WRONG)
CATHY WHITE, BEVERLY MORRISON, CYNTHIA THOMAS, ELLA BROWN, EVA BROWN, AND CHRISTINE HARRIS

OFF-SET PRINTING
(GREGORY WALKER---paste-up)

DATA PROCESSING
(ROBERT MADDEN---The computer)

FOOD SERVICES
(BEVERLY SANDIFER---training program)

REMARKS.....MRS. LOUISE DUNETZ

SOCIAL HOUR FOLLOWING PROGRAM

APPENDIX B

PROGRAM FOR BRIDGING THE GAP
SERVICE CLUB ACTIVITY

DUSABLE EXEMPLARY PROJECT, BRIDGING
THE GAP BETWEEN HIGH SCHOOL AND
THE WORLD OF WORK

PRESENTS

FIRST BANQUET ACTIVITY

GREETINGS .....BILLY JEFFERSON
Print Shop

INTRODUCTION OF GUEST SPEAKER ...ANGELA AARON
General Clerical
Procedures

GUEST SPEAKER.....MRS. ORA HIGGINS
Spiegel's

RECOGNITION OF GUESTS ...MRS. W. FRENCH
HEW, Asso. Director

COMMENTS .....MRS. LOUISE DUMETZ
HEW, Director

CLOSING REMARKS.....Dr. W. ROHAN
Dist. Supt. 13

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APPENDIX C

BRIDGING THE GAP NEWSLETTER

Bridging the Gap Newsletter

Moving Toward Skill Mastery

Vol. 1 - No. 1 The HEW Du Sable Exemplary Project December, 1975

"Bridging the Gap Between High School and the World of Work"
Du Sable High School - Chicago, Illinois 60615

NEIGHBORHOOD SCHOOLS TOUR NEW CLASSES

During the month of November, the Bridging the Gap Service Club, under the leadership of Mrs. Winifred French, Associate Director, planned several tours for elementary students who visited the skills classes.

The Colman students came on November 2nd and 11th, and the Vincennes Upper Grade Center students came on November 10th and 16th.

Eighth-graders from both schools visited the six different vocational areas of the program: Automotive Mechanics, Data Processing, General Clerical Procedures, Food Services, Offset Printing, and Food Services. The conservatory was visited as a special feature. Mr. Emiel Hamberlin helped by explaining the various plants and animals. Also helping was staff assistant Dennis Walton who took pictures and made movies of the tours.

In each of the classes visited, the teacher-coordinators had helped the classes to develop lectures and demonstrations which were put on by the students in the classes.

TEACHERS "DARE" STUDENTS

Copies of I Dare You by William H. Danforth, which had been contributed by Dr. Enos Perry, Director of the Bureau of Business Education, were distributed at the five week assembly held in October.

Faculty members told how their first jobs (as dish washer, truck loader, and mail order clerk), had helped to develop important working habits. The teachers "dared" the students to use their school-work experiences to develop habits that will always be important.

SHIRLEY WEIT TELLS ABOUT PROGRAM

WBBM (CBS) listeners learned all about the Bridging the Gap Program on November 4, 5, 6 and 7, when a taped recording of a station interview was featured.

Shirley and Mrs. Louise Dunetz, the HEW Project Director, visited the studio and were interviewed by Marvin Mullins on Thursday, November 4.

After taping the broadcast, the two had lunch in the Continental Plaza and visited a bank and a merchandising concern in the John Hancock building.

AUTO SHOP STUDENTS EXCEL

A bulletin board of brightly colored photographs decorates the Auto Shop. Students in the Automotive Services Class are shown hard at work on various job sheet projects. Each student has a folder which covers the different jobs he has learned. And each student can explain to visitors the different steps in completing the jobs.

STUDENTS TOUR WASHBURNE

Thirty-nine students from the six skills training classes enjoyed a chartered bus ride to Washburne Trade School. The group then toured the whole building before returning to Du Sable. Accompanying the students who found the tour very interesting and informative, were Mrs. Stewart, Mrs. French, Mr. Dabney, and Mrs. Alberta Jones, grandmother of Lynda Jones in the Food Services Class.

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B R I D G I N G T H E G A P N E W S L E T T E R

ADVISORY COUNCIL MEETING PLANNED FOR THURSDAY, DECEMBER 16

The HEW DuSable Exemplary Project Proposal calls for the organization of an advisory committee made up of business and industry representatives. Also to be included on the committee are parents and other local citizens. A meeting of this Advisory Council is scheduled for Thursday, December 16 in Room 113. It is hoped that staff members, potential employers, parents and other interested persons will be present for this organizational meeting. The meeting is to be held from 2:30 to 3:15.

Parents of students in the program are urged to attend to participate in developing plans to make the Council active and helpful.

WE GET TESTIMONIALS

Miss Katherine O'Keefe Of the DuSable Language Department said she was interested in learning all she could about the HEW Project because she had noticed the improvement in two of her division students since their enrollment in the program. She said: "One has shown a tremendous improvement in attitude. His attendance has improved and his grades have skyrocketed from D's to B's. He is very proud of his progress and of his work in the HEW program. The other student received failing grades last year and was demoted, but now is doing well and seems very proud of her work in the Bridging the Gap program."

TWO OUTSTANDING AMERICANS

The ten-week assembly honored two outstanding men, the late President John F. Kennedy, who died on November 22, 1963, and Captain Walter H. Dyett, who died on November 16, 1969. Participating in the program were: Warren Langford, Mary Dowery, and Butheford Hubbard.

SOME STUDENTS ALREADY EMPLOYED

Some of the participants in the HEW Bridging the Gap Program are already employed. The objective of the program was to find jobs for the students in January, but many have already started working.

Among those who are already working are the following: George Mosley, Haywood Walker, Doris Hamilton, Dennis Tucker, Kathleen Jefferson, Carolyn Ronson, R. L. Porter, Janette Davis, Evelyn McNair, Cathy White, Ella Brown, Eva Brown, Charlotte Collins, Dorsel Waller, LeaEtta Brown, Cheryl Little, Melvin Dotson, Carlos Jordine, Martenia Jones, Doretha Payton, David Bender, Marilyn Little and Connie Terrell.

All of the teacher-coordinators, the director, associate director, and the counselor, Mrs. Johnnie Sheppard, are doing their very best to find jobs for the trained students. However, the job situation is very, very difficult and it is possible that all of our students will not be employed. It is hoped that the Advisory Council, parents, faculty, and friends will help us to get a job for every student.

However, if an outside job is not found for every student, it is hoped that a simulated job experience can be provided by opening a school operated day care center or a "Second Clothing Boutique" which will be a school-operated merchandising concern.

Students who are successful in the program will be eligible for the three units of credit, even though no outside job placement can be made.

EXCERPTS FROM THE ADDRESS BY WARREN LANGFORD

. . . There were students who started out with us ten weeks ago who have messed up. Some who really meant to work hard and stay in school have let their bad habits defeat them. Some couldn't stand the freedom they have in high school; they developed the habit of cutting classes and causing problems in the corridors. Some didn't have the patience to come day after day, week after week, to try, and try again . . . and keep on trying. . . ."

CONTINENTAL MOTORS CONTRIBUTES ENGINE TO AUTOMOTIVE MECHANICS CLASS

Continental Motors was represented by Mr. John Kriegsman and Mr. Sam Peasley, when a new six cylinder industrial engine was presented to the HSG automotive mechanics class.

Present for the occasion were representatives from the downtown offices of the Chicago Board of Education; Mr. Edward Makuch, Supervisor of Auto Mechanics, and Mr. George Jones, Supervisor of Graphic Arts. Also participating were Mr. Frank Lucente, Jr., principal of Du Sable High School; Mr. Albert Isaac, teacher-coordinator for the automotive serviced class, Mrs. Winifred French, and Mrs. Louise Dumetz.

Newspapers gave considerable coverage to the event: the Chicago Daily Defender printed a photograph of the presentation and a lengthy article. The Bulletin Newspaper printed a front page story.

LUNCHEON AWARD

Gregory Walker and Malice Collins were the winners in a perfect attendance contest held in the Offset Printing Class. The two winners were taken to lunch at Brad's Restaurant by Mrs. French.

COUNSELOR JOINS STAFF

Mr. Johnnie Shennard joined the staff of the Bridging the Gap Program on November 29th. Group Guidance Classes have been organized for all of the enrolled students. Mr. Shennard is also directing his attention to the problem of students who are consistently tardy or absent. He and Mrs. French will work together in guiding the Bridging the Gap Service Club.

CLASSES CHOOSE OUTFITS

The six classes in the Bridging the Gap Program have chosen identifying outfits which they plan to purchase. The Food Services Class has already acquired neat white uniforms with black aprons or black uniforms with white aprons. They also wear matching caps. Men students wear white uniforms with white chef's caps.

SPEAKER DISCUSSES GROOMING

Mrs. Vernita A. Carter and Mrs. Sarah Black were speakers at a recent assembly for Bridging the Gap Students.

Mrs. Carter is director of the Madame C. J. Walker College of Beauty Culture, and Miss Black, a student, was a 1965 graduate of Du Sable High School. Mrs. Carter urged the students to present themselves in as favorable a way as possible when seeking employment. She said that many fads such as unusual coiffures, extreme styles, and poor grooming habits, kept people from being considered for jobs.

Gregory Walker was the Offset Printing student who introduced the guests. His research efforts developed the following information about the founder of the Madame C. J. Walker College of Beauty Culture:

The Madame Walker College of Beauty Culture has a great tradition among black people. Madame Walker, born to poverty and hardship, invented a straightening comb and an oil hair softener which were the basis for a company which eventually provided job opportunities for thousands of black people. Deeply concerned about the poor, she gave thousands of dollars to black institutions and charities. In her will she left two-thirds of the profits of her company to charitable organizations.

BOARD PERSONNEL VISITS PROGRAM

Dr. Gerald Bober, Mr. Edward Makuch and Mr. George Jones were guest lecturers for in-service meetings of the Bridging the Gap staff.

The areas covered by the speakers were: Behavioral Objectives, Lesson Plans, Job Sheets, and Work Progress Charts.

MRS. DUMETZ GETS AROUND

Recently Mrs. Louise Dumetz spoke for a community meeting and a graduate class at Chicago State University.

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BRIDGING THE GAP NEWSLETTER

NEWSLETTER STAFF

Marvin Anderson
Steve Hardiman
George Mosley
Warren Langford
Fred Raymond
Carolyn Ranson
Evelyn McNair
Butheford Hubbard
Floraine Fleming
Doris Hamilton
Billy Jefferson
Doris Harrelson
L. Roberson
Beverly Morrison
Cathy White
Gregory P. Walker

FACULTY STAFF

Mr. Albert Isaac	Automotive Services
Mr. Henry El	Data Processing
Mrs. Mildred Stewart	Food Services
Mrs. Peggy Hicks	General Clerical
Mr. Elester Dabney	Offset Printing
Mrs. Marva Littleton	Typing
Mr. Johnnie Shepard	Counselor
Mrs. Winifred French	Associate Director
Mrs. Louise Dumetz	Director
Mr. Frank Lucente, Jr.	Principal
Dr. Wm. Rohan	District 13 Superintendent

ABOUT THE PROGRAM

Section 142 of the Vocational Act of 1963 stated that 10% of appropriations for vocational education should be reserved for vocational research and development. Studies begun in 1965 resulted in the Vocational Amendments of 1968, Part D, of which called for an exemplary type of vocational activity in every State and Territory of the Union. Proposals were studied and those selected were provided with funds to begin the projects.

The DuSable Exemplary Project at DuSable High School is part of a national effort to structure a K through 12 "career education system."

The objectives are varied: Familiarizing elementary and secondary students with the broad range of occupations for which special skills are required; providing students with educational experiences through work; and providing students with intensive occupational guidance and counseling during the last years of school.

OBJECTIVES AT DU SABLE

The Bridging the Gap Program provides intensive training in six skills areas for four periods a day for five months. Efforts are then made to place each student on a job which requires the skills he has learned. Classroom sessions and related instruction will cover communications skills, grooming, job decorum and human relations. Another phase of the program provides career education emphasis for elementary schools in the DuSable High School district.

COMMENTS ABOUT TOURS

Butheford Hubbard:
Automotive Mechanics

My visit to the Washburne Trade School was one I am glad I made. I learned some very significant facts. The school offers some very thorough training in many different vocations. I learned that the trade I am interested in is good but that I shouldn't stop studying. I would like to go to Washburne when I graduate and continue to study mechanics and electronics.

I also enjoyed the tour because I knew someone there whom I was quite surprised to see.

Alphonse Nicholas
Vincennes Upper Grade Center

Room 203 would like to say thanks for a very wonderful afternoon at Du Sable. We went to the Auto Mechanics Shop, the Typing Room, the General Clerical Procedures Class, and the Conservatory.

Everyone in my group was very interested in seeing the great hawk and the talking bird in the conservatory. We really enjoyed the tour.

Keriller Jean Johnson

I had never been in a high school before but now I have and DuSable is really very pretty inside. I want to go there.

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APPENDIX D

ADVISORY COUNCIL MEMORANDA

CLERICAL SERVICES OFFICE ANNOUNCEMENT

SECOND SETTING BOUTIQUE ANNOUNCEMENT

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THE HEW DUSABLE EXEMPLARY PROJECT
BRIDGING THE GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK

The DuSable Exemplary Project Advisory Council

STATEMENT OF PURPOSE

Functional relationships with business, industry, community institutions and with those interested persons in the area of DuSable High School, are most important to the success of the HEW DuSable Exemplary Project.

An advisory committee is a group of interested persons who function to implement the ongoing program of a venture in cooperative education.

The DuSable Exemplary Project Advisory Council has as its objective - program supplementation. Included in the membership are interested parents, educators, community residents, and representatives from business, industry, and community institutions.

One important contribution the Council can make is in the area of job placement. Students are trained in the following areas:

Automotive Services
Data Processing
Food Services
General Clerical Procedures
Offset Printing
Typing

Equally valuable are contributions which assist in the area of implementation of the training of the students - both in the district elementary schools and in DuSable High School. This assistance can include:

Resource Material
Material that offers expertise in a skill performance area or in a behavioral area
Speakers, Pamphlets, Film Strips, Records, Slides, Demonstrations, etc.
Work Experience Planning and Supervision
Group Activity Planning and Supervision
Trip Planning and Supervision
Annual Banquet Planning and Supervision
Skills Demonstration Day Planning and Supervision

Meetings are held on the second Thursday of each month at 1:30 p.m. Committees will be established and members can choose the area where they wish to make a contribution to the program.

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HEW DuSable Exemplary Project
Bridging the Gap Between High School and the World of Work

January 12, 1972

Dear Neighbor:

The HEW DuSable Exemplary Project is attempting to develop a salable skill in every youngster enrolled.

We hope each youngster will become a valuable employment investment, with the habits, attitudes and skills that will make him successful in the world of work.

Your ideas, your energy, and your interest would be very much appreciated. We need the help of every interested adult, those who represent businesses or institutions, and those who are concerned members of the community.

Please attend the next meeting of the HEW DuSable Advisory Council on Friday, January 21, 1972 at 1:30 in Room 145.

Thank you for your cooperation.

Louise P. Dumetz, Director
HEW DuSable Exemplary Project

Frank Lucente, Jr., Principal
DuSable High School

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CONTINENTAL BANK

CONTINENTAL ILLINOIS NATIONAL BANK AND TRUST COMPANY OF CHICAGO · 231 SOUTH LASALLE STREET, CHICAGO, ILLINOIS 60690

January 18, 1972

Mrs. Louise P. Dumetz
DuSable High School
4934 South Wabash Avenue
Chicago, Illinois 60615

Dear Mrs. Dumetz:

Thank you for your invitation to attend the Friday meeting of the HEW Advisory Council.

Unfortunately, however, in view of my current commitments, I feel that, at this time, I am not able to actively participate in DuSable's project. Our bank is involved in employment of students on a part time basis through Office Occupations, COP, and the handicapped program. Therefore, it would be difficult for me to do justice to another program at present.

I am sorry I am unable to participate. If we can assist any of your students who are in the Office Occupations class, please feel free to have the teacher-coordinator contact me.

Sincerely,

Susan Miller
Personnel Division

SM:VR

4689

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January 10, 1972

Dear Colleague:

The Program Office has asked that the Hew Bridging the Gap Program begin recruiting for the September, 1972 enrollment.

Enclosed is a sheet that explains the requirements, and permits the interested student to select the area he prefers.

Please ask each interested student to complete the form, sign it and obtain the signature of a parent. Completed forms must be in the office box of Mrs. Dumetz or in Room 112 before Friday, January 14, 1972.

(Confidential: Only current juniors and potential premature school departures are eligible.)

Thank you for your cooperation.

Respectfully,

Louise P. Dumetz, Director
HEW DuSable Exemplary Project

P.S. In cases where students have been recommended by a counselor, the name is already on the form.

4690

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THE HEW DUSABLE EXEMPLARY PROJECT
BRIDGING THE GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK

March 8, 1972

Dear Friend and Neighbor:

A student in this project which represents the only one of its kind in the state, is employed by your establishment.

We are most appreciative of this fact and we are working with our students daily to help them to become more valuable employment investments.

There is a Bridging the Gap Advisory Council which works with us in solving problems that concern our program and our students. We would like very much to have you belong to this Council.

The next meeting will be held on Thursday, March 23, 1972 at 1:30 p.m. in Room 145 of DuSable High School, 4934 South Wabash Avenue.

Our office phone number is 373-3200, Ext. 21. We would like to see you at our next meeting. If you cannot attend, please try to send or recommend someone.

Yours truly,

Louise P. Dumetz, Director
DuSable Exemplary Project

Frank Lucente, Jr., Principal
DuSable High School

4691

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BOARD OF EDUCATION
City of Chicago
228 NORTH LA SALLE STREET
Chicago, Illinois 60601
Telephone 641-4141
JAMES F. REDMOND
General Superintendent of Schools

JOSEPH J. DIXON
Assistant Superintendent of Schools
DEPARTMENT OF VOCATIONAL
AND PRACTICAL ARTS EDUCATION
ENOS C. PERRY, Director
Bureau of Business Education
Telephone 641-4431

March 15, 1972

Mrs. Louise Dumetz
DuSable High School
4934 South Wabash Avenue
Chicago, Illinois 60615

Dear Mrs. Dumetz:

Today I have written to a dozen or so people who hopefully will provide members for your advisory council. When the names are submitted to me I shall pass them on to you so that you may extend a formal invitation to them.

Hope we get results.

Sincerely,

Enos Perry

ECP:ml

4692

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April 3, 1972

Dear Neighbor:

The next meeting of the HEW DuSable Exemplary Project Advisory Council will be on Thursday, April 13 at 1:30 p.m. in the Chauncey C. Willard Room of the DuSable High School.

We do hope that you will be able to join us and help to plan the program and the activities that involve the participating students here at DuSable.

Please try to be present. We look forward to seeing you.

Yours truly,

Louise P. Dumetz, Director
DuSable Exemplary Project

Frank Lucente, Jr., Principal
DuSalbe High School

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INTERNATIONAL HARVESTER COMPANY
401 NORTH MICHIGAN AVENUE • CHICAGO, ILLINOIS 60611

TELEPHONE—AREA CODE 312
527-0200

EMPLOYE RELATIONS DEPARTMENT

April 5, 1972

Mr. Enos C. Perry
Director, Bureau of
Business Education
Board of Education
City of Chicago
228 North La Salle Street
Chicago, Illinois 60601

Dear Mr. Perry:

This will confirm our conversation of Thursday, March 30, 1972, that I will serve on the Advisory Council for the project at DuSable High School, "Bridging the Gap Between High School and the World of Work."

Sincerely yours,

L. Juno Albright

L. Juno Albright
Supervisor, Employment

LJA/jh

4694

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THE DUSABLE EXEMPLARY PROJECT
BRIDGING THE GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK

April 13, 1972
Advisory Council Agenda

Welsome	Mrs. Winifred French Associate Director
Discussion of Objectives	Mrs. Louise Dumetz, Director Meeting Participants
Program Supplementation Development	Advisory Council Officers Chairman Secretary Treasurer Committee Chairmen Job Recruitment Job Project Sampling Public Relations Human Relations Banquet Skills Demonstration Day Clerical Services Second Setting Boutique Trips Recreational Activities
Closing Remarks	Mr. Frank Lucente, Jr. Principal DuSable High School

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May 9, 1972

Dear Friend and Neighbor:

You are cordially invited to be present at the next meeting of the DuSable Exemplary Project Advisory Council Meeting on Thursday, May 18, 1972 at 1:30 p.m. in the Chauncey C. Willard Social Room.

It will be helpful if you can place several students on a "work experience" job for Tuesday morning, May 23. Western Electric has already agreed to take twenty-five (25) and we would like to involve as many youngsters as possible.

Thank you for your past cooperation. We look forward to seeing you and to planning for a productive school year during the 1972-73 sessions.

Yours truly,

Louise P. Dumetz, Director
DuSable High School Exemplary Project

Frank Lucente, Jr., Principal
DuSable High School

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THE NEW EMPLOYABLE EMPLOYMENT PROJECT

Bridging the Gap Between High School and the World of Work

WATCH FOR THE OPENING OF THE

Second Setting Boutique

LOVELY, USEFUL FASHIONS
AND PRACTICAL HOUSEHOLD ITEMS

Check your closets, your pantry . . .

Contribute that sport shirt or jacket you never wear . .

that good suit or coat you just don't like . . .

that blouse or dress that you've outgrown . . .

Leave contributions in Room 112 or put a note in Mrs. Hicks' or Mrs. Dumetz' box to request a pick-up.

Support the Bridging the Gap Services.

Service rates available for work done by the Auto Shop, Print Shop, Food Services, Typing, General Clerical Procedures, and Data Processing classes.

Check the Clerical Services Office in Room 318 or put a note in Mrs. Littleton's box for typing, duplicating or mimeographing services.

WATCH FOR THE OPENING OF THE

Second Setting Boutique

LOVELY, USEFUL FASHIONS
AND PRACTICAL HOUSEHOLD ITEMS

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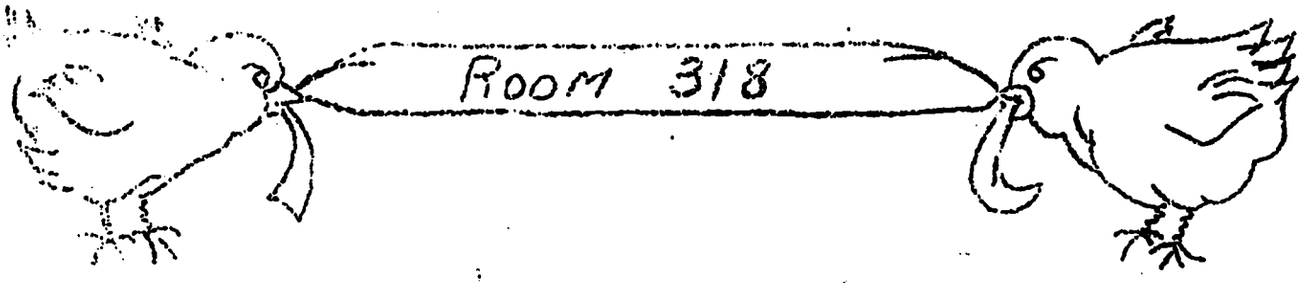

Bridging the Gap

Business Education Dept.

You are invited to the
official OPEN HOUSE for
Room 318, a "Clerical Services Program"
utilizing
the skills of business
education students.

Wednesday.....
March 1st 1972

Periods 3, 4 & 5

Hostesses: HEW; O.O.; D.E.

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APPENDIX E

MEMORANDA REGARDING TRIPS PLANNED FOR STUDENTS

FILMED FROM BEST AVAILABLE COPY

The HEW DuSable Exemplary Project
Bridging the Gap Between High School and the World of Work

February 4, 1972

Dear Pre-registered Student:

You are cordially invited to join DuSable work-study students on a trip to the Black Esthetics Exhibit at the Museum of Science and Industry on Tuesday, February 15, 1972, from 9:00 a.m. (when we will leave from the entrance at 4934 South Wabash), until 1:00 when we will be back at DuSable.

Paintings, sculpture, a film about the Underground Railroad, and a comic stage show will be viewed.

The round trip cost will be $.75 per student. Every student who goes on the trip is expected to be an example of courteous and cooperative DuSable student behavior.

If you are interested, please get the attached consent slip signed and turn it in to Mrs. Dumetz in Room 112, with your $.75 on or before Friday, February 11. This is necessary to make sure that we have an adequate number of buses for the trip.

Interested parents can call 373-3200, Ext. 21 and let us know if they plan to help chaperone the trip.

Yours truly,

Louise P. Dumetz

Louise P. Dumetz, Director
HEW DuSable Exemplary Project

Frank Lucente, Jr., Principal
DuSable High School

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February 4, 1972

Dear Colleague:

Buses have been chartered to take work-study students to the Black Esthetics Exhibit at the Museum of Science and Industry on Tuesday, February 15, 1972, from 9:00 a.m. to 1:00 when we will be back at school.

Paintings, sculpture, a film about the Underground Railroad, and a comic stage show will be viewed.

The round trip cost will be $.75 per student.

Please let us know by Wednesday, February 9, how many of your students will attend. Also turn in the student fee as soon as possible. If you will accompany your students, please make the necessary arrangements with the office. Consent slips are attached.

Yours truly,

Louise P. Dumetz, Director
DuSable Exemplary Project

Frank Lucente, Jr., Principal

4701

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NAME_____DIV._____CLASS_____

THE NEW DU SABLE EXEMPLARY PROJECT

Bridging the Gap Between High School and the World of Work

February 15, 1972

The Black Esthetics Exhibit which is being presented by the Chicago Daily Defender, the Continental Bank of Illinois, and the Museum of Science and Industry, is an in-depth exploration of Black Culture.

Answer the following questions and you will get a better acquaintance with what you see and hear. You are seeing how the world of work can include the arts. Perhaps you had not thought of art as being work, but you will find that many people enjoy earning a living in this area.

List the names of three Black sculptors and give the names of their works

1_____

2_____

3_____

List the names of three Black artists and give the names of their works.

4_____

5_____

6_____

7. Name a Black cartoonist whose work is featured._____

8. Name a Black photographer whose work is exhibited._____

9 - 10. Name two performers in the stage show._____

_____

4702

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DU SABLE HIGH SCHOOL
4934 SOUTH WABASH AVENUE
CHICAGO, ILLINOIS 60615

FIELD TRIP CONSENT

(TO BE FILED IN THE OFFICE BEFORE LEAVING SCHOOL)

Institution to be visited _____

Date of trip _____

Time of trip _____

Teacher in charge of trip _____

Dear Principal:

I hereby give my son/daughter _____
(name of student)
permission to accompany his/her teacher on the above scheduled trip.

Signed _____
(Parent or guardian)

All teachers will kindly sign this slip indicating their knowledge and permission for the above named pupil to take the trip.

DIVISION NO. _____ GRADE _____

0. _____ 5. _____

1. _____ 6. _____

2. _____ 7. _____

3. _____ 8. _____

4. _____ 9. _____

Rev. No. 9
9/29/68 (jgw)

4703

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CONSENT AND RELEASE

FOR FIELD TRIP

My child, or ward, Barfield, Cecilia (Name) has my permission to go on a field trip to the Hawthorne Works of Western Electric Company, Incorporated, on Tuesday morning, May 23, 1972. I release all persons involved in this trip, including Western Electric Company, Incorporated, its employees participating in this trip, and the Chicago Board of Education, from any liability for acts or omissions resulting in injury to my child or damage to property during this trip.

Parent or Guardian [signature]

Date May 22, 1972

4704

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APPENDIX F

ELEMENTARY CAREER EDUCATION FORMS

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mailman letters mailbox fix
policeman street cleaner lights truck
fireman street repairman

Fill in the correct words:

1. The _____ will help put out the fire
2. Please put the _____ in the garbage can.
3. The _____ will stop the cars, so we can cross the street
4. Look at the _____ and cars before crossing the street.
5. The _____ left two books in the doorway.
6. Mother let me go to put a package in the _____.
7. The men will _____ the holes in the street
8. The _____ cleaned the streets today.

4706

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g - I

Match the following words:

1. mailman	a. street cleaner
2. letters	b. fix
3. mailbox	c. trash
4. policeman	d. fireman
5. street cleaner	e. letters
6. trash	f. lights
7. street repairman	g. mailbox
8. fix	h. street repairman
9. lights	i. mailman

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① Write a sentence for each word below.

telephone job electricity dial
wires operator listen

a.
b.
c.
d.
e.
f.
g.

② Write your telephone number below.

③ Draw a telephone.

④ Make 3 community helpers.

1. Draw two telephones

2. Draw four garbage trucks

3. Write your telephone number

4. Make three mail boxes.

5. Make a fireman at work.

AME_____DATE_____

CHOOL_____ROOM_____GRADE_____

VOCATIONAL GUIDANCE — CAREER EDUCATION

1. How do the following community workers handle emergencies and give service to people?

   a. firemen

   b. ambulance workers

   c. hospital workers

   d. welfare workers

   e. telephone lineman

   f. city electrician

   g. garbage collectors

   h. street repairmen

2. Where can one go in an emergency and what service would one get?

   a. c.

   b. d.

3. N ame three places which provide recreational facilities.

   a.

   b.

   c.

4. Give the name and address of the places in your community which provide the following:

   a. Protection of life & property

   b. Medical care

   c. Fresh fruits & vegetables

   d. Prepared food

   e. Entertainment/ Recreational facilities

YOUR CITY HELPERS

I Basic Concept

Meet community workers who handle emergencies & give service to people

- fireman
- ambulance workers
- hospital workers
- welfare workers
- telephone lineman
- city electricians
- sanitation workers
- garbage collectors
- street repairmen

II Where to go in an emergency:

medical
innoculations
pre natal care counseling
financial
interrupted public services

III Service Center Facilities

classrooms
recreational planning
guidance groups
actors groups

IV City recreational facilities

parks
youth activities

V Educational Concepts

- Reading comprehension: instructions on fire alarm, room rules, work loads of city workers, following directions
- Arithmetic: figuring wages: hourly to daily to month to yearly, pay based on work load by hour, figure pay on per-word typing

The Carpenter

Match Column 1 with Column 2

1. pencil	a. tape measurer
2. wood	b. pencil
3. blueprint	c. saw
4. tape measure	d. blueprint
5. saw	e. wood

How long are these lines?

a. _____

b. _____

c. _____

d. _____

Draw a tape measure	Draw a saw

Draw the kind of house you live in.

APPENDIX G

PROGRAM DEVELOPMENT MEMORANDA

May 28, 1971

To: Bridging the Gap Enrollees

From: Mrs. Louise Dumetz

Re: "The Happy Ending"

Please present this invitation promptly at the beginning of eighth (8th) period Tuesday, June 1, in Room 119.

It will admit you to a performance of "The Happy Ending" by Douglas Turner Ward presented by the Drama Club from Hirsch High School, directed by Mrs. Merriel Tolbert.

4714

DU SABLE HIGH SCHOOL

4934 South Wabash Avenue

Chicago, Illinois 60615

June 9, 1971

Dear Neighbor:

You are cordially invited to see an unusual film produced by the Du Sable High School Journalism Class.

The title of the film is "Death in an Ordinary Place." This class project takes twenty minutes, and documents the deaths of twenty black teens during the first twenty weeks of the current school year.

Special arrangements were made to permit parents of the "Bridging the Gap" enrollees to be present at a private showing of this film. Staff members in the "Bridging the Gap" program will be present and you will have a chance to meet and talk with them.

The date is Wednesday, June 16 at 1:00 p.m. in the Du Sable High School Social Room.

We look forward to seeing you.

Yours truly,

Louise P. Dumetz,
HSW Project Director

Frank Lucente, Jr.,
Principal

4715

The DuSable Exemplary Program

"Bridging the Gap Between High School and the World of Work"

DuSable High School
4934 South Wabash Avenue
Chicago, Illinois 60615

October 7, 1971

Dear Neighbor:

A meeting of all of the students in the DuSable Exemplary Program "Bridging the Gap Between High School and the World of Work" is planned for Thursday, October 14 at 12:45 p.m. in Dyett Hall.

You are cordially invited to attend this one-hour session.

An invitation is also extended for you to visit our work-study classes or our weekly group meetings at any time that it is convenient for you to do so.

As you know, the objectives of the program are to teach our youngsters job-entry skills and find jobs for them (while they are still enrolled in regular high school classes). It is also important that we teach job-related information such as: communication skills, grooming, decorum, and human relations.

We are doing our best to see that every youngster who enrolls will become a valuable employment investment.

We hope to see you at the meeting Thursday.

Yours truly,

Louise P. Dumetz

Louise P. Dumetz, Director
DuSable Exemplary Program

Frank Lucente, Jr., Principal
DuSable High School

4716

For Juniors Only

(September, 1972 Seniors)

Pre Register now for

"Bridging the Gap"

Intensive training
2 or 3 Curriculum Credits
Special Assemblies
Movies
Trips
Speakers
Help with job hunting
A job placement project

Sign up with your division teacher or

Mr. Dabney
Mr. E
Mrs. Hicks
Mr. Isaac

Mrs. Littleton
Mrs. Stewart
Mrs. French
Mrs. Dumetz

Do it today! Don't get left out!

4717

THE NEW DU SABLE EXEMPLARY PROJECT
BRIDGING THE GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK

April 5, 1972

Dear Colleague:

The following students have been recommended for enrollment in the Bridging the Gap program for September, 1972.

Please ask the student(s) listed to see Mrs. Dumetz in Room 112 to indicate whether they wish to enroll and in what area.

The intensive training classes include:

Automotive Services
Data Processing
Food Services
General Clerical Procedures
Offset Printing
Typing

_____

_____

_____

_____

_____

Louise P. Dumetz, Director
DuSable Exemplary Project

Frank Lucento, Jr., Principal
DuSable High School

1972-73 HEW - Bridging the Gap Program Planning

	First week	Second week	Third week	Fourth week	Fifth week
Sept.			Thurs 9/14 HEW Advisory Council Meeting 1:00pm Soc. Rm Tues. 9/12 Black Expo Trip	Thurs 9/21 Staff Meeting 1:00 - Rm 112	Thurs 9/28 Staff Meeting
Oct	Tues. 10/3 HEW Assembly 1:00. Rm 145 Work study movie Human Relations Th 10/5 Staff Meeting	Thurs 10/12 Advisory Council Meeting	Th 10/19 Staff Meeting		
Nov.	Thurs 11/2 Staff Meeting	Tues 11/7 Assembly Groomings Thurs 11/9 Advisory Council Meeting	Tues-Th 11/14 - 11/16 Elementary tours	Thurs 11/23 Staff Meeting	Tues-Th 11/28 - 11/30 Elementary tours
Dec		Thurs 12/7 ACM	Tues. 12/12 Assembly Ordinary Place Movie Job info + decorum	Tues 12/19 Western Electric Trip Mon 12/18 Begin 1973 Recruitment	
Jan		Thurs 1/11 ACM	Thurs 1/18 Staff Meeting	Tues 1/23 Assembly DuSable slides Work Area Speakers	Tues 1/30 Sun-Times Trip Career Education Week at DuSable
Feb	Thurs 2/1 Staff Meeting	Thurs 2/8 ACM	Tues 2/13 Black Esthetics at Museum Trip (music) Thurs 2/15 Staff Meeting		Tues 2/27 Assembly In Memoriam movie
Mar	Fri. 3/2 Showdown 173	Thurs 3/8 ACM Tues 3/6 Agency + Cadillac Standard Service Station trip	Thurs 3/15 Staff Meeting		Thurs 3/29 Staff Meeting
Apr	Tues 4/3 Assembly	Thurs 4/12 ACM Tues 4/10 Washburne Trip	Thurs. 4/19 Staff Meeting		
May	Thurs 5/3 Staff Meeting	Tues 5/8 Assembly Thurs 5/10 Awards Banquet	Tues 5/15 Skills Demonstration Day	Sat 5/26 Picnic Washington Park Thurs 5/24 Staff Meeting	
June		Thurs 6/7 Staff Meeting	Wed 6/13 Matinee theatre production Tues 6/12 Assembly HEW Awards Thurs 6/14 ACM		Clean Sweep Clean Sweep Special Activities Contacts Clean Sweep

4719

APPENDIX H

BIBLIOGRAPHY OF MATERIALS

IN

ELEMENTARY CAREER EDUCATION KIT

BIBLIOGRAPHY

BOOKS

1. _____ Black Scientists. Chicago: Western Electric.

2. _____ Occupational Outlook Handbook. Bureau of Labor Statistics Department of Labor. Washington: Government Printing Office, published biennially.

3. _____ Career Opportunities. Career Information Service, New York Insurance Co., Box 51, New York. 10010.

FILMSTRIPS

1. "What is a Job?" SRA WORK KIT Chicago: Science Research Lab.

2. "What are Job Families?"

APPENDIX I

BIBLIOGRAPHY OF MATERIALS

BASIC GUIDANCE LIBRARY

BASIC GUIDANCE LIBRARY

BIBLIOGRAPHY

Books

Bruck, Charlotte Marie. Guidance Series. New York: Macmillan Co.

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Build. Teacher's Guide, 1969.
Focus. Teacher's Guide, 1968.
Quest. Teacher's Guide, 1968.
Search. Teacher's Guide, 1970.

Caldwell, Edson. Group Techniques for the Classroom Teacher. Chicago: Science Research Associates, 1960.

Combs, Arthur W., Kelley, Earl C., et al. Perceiving, Behaving, Becoming. Washington: Association of Supervision & Curriculum Deve., 1962.

Grams, Armin. Facilitating Learning and Individual Development. St. Paul: Minnesota Dept. of Education, Document Section, 1966.

Norris, Willa. Occupational Information in the Elementary School. Chicago: Science Research Associates, 1969.

Randall, Florence. Getting a Job. Palo Alto, California: Fearon Publisher, 1966.

Rubin, Louis J., et al. Life Skills in School and Society. Washington: Association for Supervision and Curriculum Development, N.E.A., 1969.

Senesh, Lawrence. Our Working World. (grade 1-3) Chicago: Science Research Associates, 1964.
Families at Work. Resource Unit.
Neighbors at Work. Resource Unit.

Shaftel, Fannie, and Shaftel, George. Role-Playing for Social Values-Decision-Making in the Social Studies. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1967.

Smiley, Marjorie, et al. MacMillan Gateway English. (Grades 7 & 8) New York: MacMillan Company, 1966.
Coping.
Who Am I?
Stories in Song and Verse.

Something Strange.

Sugarman, Daniel, and Hochstein, Rolaine H. Seven Stories for Growth. 1st thru 5th grades. New York: Pitman Publishing Company, 1965.

Thompson, Ethel. Unfinished Stories for the Classroom Teacher. Washington: National Education Assn. Publication Sales, 1968.

U. S. Department of Labor, Bureau of Labor Statistics. Occupational Outlook Handbook. Washington: U. S. Government Printing Office, 1970-71 edition.

U. S. Department of Labor, Bureau of Labor Statistics. Occupational Quarterly. Washington: U. S. Government Printing Office.

Wrenn, Gilbert, et al. Planned Group Guidance. Circle Pines, Minnesota: American Guidance Services, Inc., 1961.

APPENDIX J

Units of Study for

Occupational Orientation
Work-Study Skills Class
and
Elementary Career Education Classes

OCCUPATIONAL ORIENTATION WORKSHOP

1st Session

A. Introduce Program

1. Topics to be covered
2. Objectives of the class
3. Explain program flexibility
4. Invite student suggestions as to how they would like sessions to be conducted.
5. Have each student introduce himself using tape recorder.
6. Pass out folders to students.

2nd Session

B. Job Investigation

1. Want Ads
2. Salary vs. Wage
3. State employment, Personnel agencies, private owned and operated employment offices
4. Benefits
5. Company expectations of students and vice versa
5. Transportation, hours
7. Skils required

3rd Session

C. Self Preparation

1. General Hygiene
2. Grooming for the business world
   a. clothing
   b. make-up
3. Individual image for business world
   a. personality
   b. attitude, outlook
   c. social habits, recreation

4th Session

D. Documents and Records

1. Diploma
2. Birth Certificate
3. Social Security card
4. Driver's license
5. Military Status papers
6. Personal references
   a. names
   b. addresses
   c. telephone numbers
7. Employment Record
   a. names
   b. addresses
   c. telephone numbers
   d. dates
   e. responsibilities--duties
   f. reason for leaving
8. Health Record

5th Session

E. Explain and discuss employment office personnel
F. Application blanks

   1. Each student fills out blank with instructions
   2. discuss and explain why certain questions are asked.

6th Session

G. How to take tests

   1. Use instructional tape
      a. each student has test booklet to fill out
      b. evaluate answers

   2. Discuss importance of positive attitude

H. How to preprare physically for test

7th Session

I. Interviews

   1. Using taped interviews--students are requested to write down each question interviewer asks.

   2. Discuss interview (objective is to help students learn areas in which questions are asked as well as how and why they are asked)

4727

3. Have students write at least two questions that were asked in each of the broad areas - work, school, leisure time.

   a. In addition, student should write one other question

   b. discuss answers to questions

4. Interview Role playing

   a. Have students exchange previously filled out application blanks and test booklets along with questions they've written from tape.

   b. Select one student for interviewer and one for applicant.

8th Session

J. Go through entire procedure

   1. Fill out application blank
   2. Give test
   3. Have interviews

K. Evaluate Procedure

9th Session

L. Review and Reinforcement of Occupational Orientation

10th Session

M. Skill Reinforcement

COMMUNITY CAREERS

(Grades K-3)

The main goal of this unit is to develop an awareness of the various workers in one's familiar surroundings, the community, and the contributions each provides.

Behavioral Objectives

1. Children will identify those workers which provide a service, make a product, or give professional assistance in the community.
2. Children will recognize the interrelationship and cooperation of workers necessary for the development of the community.
3. Children will understand the jobs and duties of family members.

Suggestive Activities

1. Use experience charts, flash cards, pictures, and posters to develop vocabulary in unit.
2. Plan bulletin board display of the three categories of workers described in the community.
3. Pupils will bring in pictures from magazines, newspapers, etc., showing the various workers for notebooks, and bulletin board development.
4. Pupils will view filmstrips form series, Community Helpers, Set #2.
5. Invite workers from the community to speak to class on their particular job.
6. Ask pupils if parents, or other relatives work in the community. Invite them to participate in project as a speaker, etc.

7. Visit several places where people work in the community: The police station, firehouse, supermarket, milk company, or the bread company in the community.

8. Pupils will prepare a scrapbook of field trip using any art work, or stories they have developed during study of unit.

9. Plan a career corner or career reference library in classroom of books, magazines, and newspapers at various levels of reading for individual instruction.

10. Pupils will read stories, poems, etc., according to reading abilities and interest.

11. Pupils will write original stories, poems, and plays concerning workers in the community.

12. Set up facsimile of grocery store, bank, or whatever as a realistic setting for pupils to identify with.

13. Pupils will make hand puppets to be used for role-playing experiences.

14. Pupils will use cardboard puppets from the "Community Helpers" kit.

15. Take a walking trip to observe and identify workers on the job.

16. Make a map of the neighborhood. Fill in familiar work areas.

17. Pupils will make a picture dictionary (A-Z) of people who work in the community.

18. Use OCCUPAC to show how a professional worker serves the community.

19. Pupils will interview workers in the community.

BIBLIOGRAPHY

Books

1. Norris, Wills. Occupational Information in Elementary Schools. Science Research Associates, Inc., Chicago 1963.

2. Senesh, Lawrence. Our Working World. SRA, Inc., Chicago, 1965.
   Neighbors at Work
   Families at Work

3. McNally, Rand. Fireman Joe. McNally, Chicago, 1965.

4. Berger, Knute. A Visit to the Doctor. 1960

5. Hanna, Paul, and Hoyt, Genevieve. In The Neighborhood. Scott, Foresman and Company, Chicago, 1968.

Filmstrips

1. Community Helpers, Series Set #2. McGraw Hill Book Co.

2. Working in Our Community #7, Jam Handy School Service.

3. Our Neighborhood.

Other Resources

1. Peterson, Marla. OCCUPAC Program, Eastern University, Charleston, Illinois.

4731

CAREER EDUCATION UNIT

JOB FAMILIES

INTERMEDIATE GRADES 4, 5 & 6

The main objective is to develop the concept of job commonality; and because of this, jobs can be grouped into families much like the grouping of people into families. Jobs form family groups because they are in the same industry, demand similar skills, involve similar activities, and interests.

OBJECTIVES

1. To group jobs according to their sameness.

2. To identify jobs that belong to more than one job family.

3. To analyze the relationship of personnel skills, talents, and personality traits to occupations.

4. To classify individual interests, abilities, and skills which are applicable to more than one job.

SUGGESTED ACTIVITIES

1. Pupils may bring pictures from magazines, etc., to prepare a bulleting board display: Jobs in the same industry, Jobs requiring similar skills, Thing Jobs, Idea Jobs, People Jobs, and Jobs Relating to Similar Interests.

2. Pupils may make individual scrapbooks, and a class scrapbook of workers grouped according to job families.

3. Pupils may use group guidance techniques for more expressive interpretation, and understanding of job families.

a. Interview a neighbor, friend, or relative who works.

b. Role-play a job selected from picture collection.

c. Pantomine job hunting.

d. Panel discussion of Female Workers vs. Male Workers.

e. Buzz session dealing with attitudes on the job.

4. Pupils may trace a letter that has been mailed at the nearest mailbox. List all of the workers who are responsible for it from its beginning to delivery to person intended.

5. Invite school personnel to discuss their jobs in the school: faculty members, lunchroom staff, janitorial staff, etc.

6. Plan a career library of materials, books, magazines, etc., geared toward the abilities, and interests of the pupils.

7. Participate in Western Electric Career Guidance Presentation of slides, movies, and discussions of the various workers in a large industry employing over 15,000 people.

8. Use OCCUPAC tapes, slides, and manipulative materials of workers in the same trade industry.

   a. Carpenter

   b. Electrician

9. View filmstrips: "What is a Job?" "What Are Job Families?"

10. Invite people in the world of work from each of the job families to speak to class concerning their job as being in a particular family, or their relationship with another job family.

a.	Teacher-nurse	People job--works with people Thing job--handles various instruments
b.	Secretary (Western Electric)	People job
c.	Engineer (Western Electric)	Idea job
d.	Mechanic	Thing job

VOCABULARY

job	overtime	occupation	interest
family	department	high school	skill
interview	assembly line	hire	talent
male	mass produce	industry	kin
female	career	factory	

4734

CAREER EDUCATION UNIT

HIGH SCHOOL AND THE WORLD OF WORK

UPPER GRADES

(7-8)

The main objective of this unit is to have children develop an awareness of the relationship between high school subjects and the world of work. Each type of high school offers activities, and programs suited to one's abilities, interests, aptitudes, and career choices.

BEHAVIORAL OBJECTIVES

1. Children will relate school activities with the world of work.
2. Children will develop career awareness through identification of occupationsl opportunities.
3. Children will learn to make better and more realistic career choices upon entering high school.
4. Children will become acquainted with the educational opportunities in high school and beyond.
5. Children will explore the educational requirements of jobs.

SUGGESTED ACTIVITIES

1. Visit one of each of the three kinds of high schools to become familiar with the physical surroundings, and academic programs of each.
2. Prepare bulletin board composed of literature from the three kinds of high schools.
3. Discuss and compare the different programs of studies of each of the high schools through buzz sessions or panel discussions.

4. Invite former students in high school to come to speak to the class concerning career choices.

5. Participate in career conferences with influential business and community leaders to share ideas about the world of work and education.

6. Read What's Next for the 8th Grade Graduate? as a basis for discussion of the world of work.

7. Read pamphlet Stay in High School as subject for discussion of importance of education.

8. View filmstrip Looking Ahead to High School, and Who Are You? to get more insight into attitudes, interests, hobbies, etc.

9. Pupils will view film "Bridging the Gap..." to see how high school students participate in intensive training classes to prepare for the world of work.

10. Plan a field trip to a business, factory, or professional facility to see the different kinds of jobs performed by individuals.

11. Tour the community to see available jobs or career opportunities in familiar surroundings.

12. Participate in Western Electric presentation of developing career awareness consisting of slides, and discussions.

13. Participate in Washburne Trade School program of career information dealing with apprentice program consisting of slides, movies, and tour of school.

14. Interview people in the world of work with whom the class can interact on pertinent topics.

15. Discuss the different types of work with which the children are most familiar of jobs they have actually done.

16. Discuss the differences between part-time and/or summer work and a full-time career in terms of: reasons for part-time job, values of part-time jobs, and the relation of part-time jobs with future plans.

17. List the types of part-time summer jobs, and the requirements necessary for getting jobs in the community.

18. Use other group guidance techniques to allow for further expression of attitudes, and patterns of behavior concerning the world of work. (pantomines, role-playing, brainstorming, etc.)

19. Further develop the concept of job families and job clusters by using SRA WORK KIT to separate jobs in their categories.

20. Use WORK KIT to find information concerning duties, education and employment outlook of 450 jobs.

21. Participate in class assignments relative to getting ready for high school. (filling out personal data sheet, planning outline of a particular job, preparing an interview, and filling out a job application.

22. Look in want ad section to see what kinds of jobs are available.

VOCABULARY

high school	career	hire	apprentice	manufacture
occupation	salary	factory	interview	product
job	employ	want ad	skilled	service
vocation	employee	industry	requirement	work
technical	employee	trade	college	trainee

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1. Tennyson, Wesley. The Teacher's Role in Career Development. Minnesota Department of Educational Publication, March, 1965.

2. _____ Occupational Outlook Handbook. Bureau of Labor Statistics Department of Labor. Washington: Government Printing Office, published biennially.

3. Helpful Hints for Young Job Seekers. Western Electric, Chicago.

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Build	Teacher's Guide, 1969.
Focus	Teacher's Guide, 1968.
Quest	Teacher's Guide, 1968.
Search	Teacher's Guide, 1970.

5. Randall, Florence. Getting a Job. Palo Alto, California: Fearon Publisher, 1966.

FILMS AND FILMSTRIPS

1. Looking Ahead to High School

2. Who Are You? SRA WORK KIT

3. Bridging the Gap Project. DuSable High School Exemplary Project, Louise Dumetz, director and productor.

FIVE-WEEK UNIT PLAN

General Typewriting
(April 10 - May 19)

General Objective:

Training in comprehensive planning for solving a problem as a whole by combining various parts into a complete unit through proper organization of materials.

I. Specific Objective: April 10-14

Develop the following abilities pertaining to the business letter: 1. correct placement; 2. the different styles and the various adaptations of each style; 3. special lines - attention, subject, reference, initials, dictator's name or title, enclosure and carbon copies. Form letters and their adaptations.

Procedure:

Introduce the different styles of business letters, correct placement, special lines, carbon copies.

Activity:

Show illustration of different styles. Assign jobs pertaining to letters. Give a time allotment for students to complete jobs.

II. Specific Objective: April 17-21

Develop the ability to type simple manuscripts with footnotes.

Procedures:

Introduce manuscripts with footnotes. Stress top, bottom and side margins. Explain to students the importance of typing footnotes on the same page with quotations. Also, explain the correct placement of table of contents, bibliography and title sheet.

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Activity:

Assign a short manuscript that includes footnotes, bibliography, table of contents and title sheet. Give time allotment for students to complete manuscript.

III. Specific Objective: May 1-5

1. Develop the ability to type from rough drafts.

2. Master abilities to perform in basic typewriting procedures: a. syllabication; b. punctuation; c. tabulation; d. multiple carbons.

Procedures:

Explain to students the symbols used for correcting rough drafts. Also, stress rules used for dividing words at the end of a line. Review punctuations, procedures used for setting up a table, and typing with one or more carbon copies.

Activity:

Assign unarranged rough draft letters with special displays (tables, quotations, enumerations) and have students use carbon copies. Give alloted time for completion.

IV. Specific Objective: May 8-12

Develop skill in applying the straight-copy rate to representative business materials.

Procedures:

Introduce to students the different business forms; legal papers, invoices, memorandum, purchase orders, etc.

Activity:

Assign a job for each type of business form. Have students turn in each job upon completion.

V. Specific Objective: May 15-19

1. Attempt to reach new levels in speed and to develop greater control and accuracy.

2. Improve typing power by increased sustained periods of writing.

Procedures:

Explain to students the three different kinds of timing (net words a minute, gross words a minute and correct words a minute). Also, stress the importance of typing with speed and control.

Activity:

Give students a one-minute timing as a warm-up. Afterwards, time students for five minutes for the cwam, gwam, and nwam. Have students pass in three timings at end of the period.

DUSABLE EXEMPLARY PROJECT UNIT

Introduction to Data Processing

Text:	Business Data Processing Supplementary--Arnold, Hill, and Nichols, Introduction to Data Processing IBM, Manuals for Operation
Materials: Equipment:	Punched cards, Terminal paper, Flowchart templates, IBM keypunches, sorter, reproducer and terminal
General Objectives:	To give both the college-bound and the vocationally-oriented student an understanding of computer technology and modern data processing procedures To point up the relationship of data processing methods and procedures in solving fundamental problems of business
Class Organization:	Students acquire basic concepts of data processing and develop skill on the available equipment through practical applications

Course outline:

4 weeks

Unit I--Introduction to Data Processing

I. Introduction to data processing

- A. Data processing terminology
- B. Data processing cycle
- C. Reasons for studying data processing
- D. Methods of data processing
- E. Limitations of data processing
- F. Advantages of data processing
- G. Uses of data processing
- H. The history and development of data processing
- I. Career opportunities of data processing

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Unit II--Unit Record Data Processing

10 weeks

II. Unit Record Data Processing

- A. The unit record concept
- B. The punch-card
- C. Keypunch and verifier
- D. Sorter
- E. Reproducer
- F. Interpreter
- G. Collator
- H. Calculator
- I. Tabulating machine
- J. Problem solving and practical applications

Unit III--Computer Characteristics

III. Computer Characteristics

- A. Internal Operation
- B. Review of computer capabilities and limitations
- C. Functional units
  1. Input-output media and devices
  2. Storage
  3. CPU arithmetic and logic
  4. Control
- D. Relationship of equipment
- E. Computer usage
- F. Data representation
  1. Binary code
  2. Binary arithmetic
  3. Computer codes

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Unit IV--Computer Languages

IV. Computer languages

- A. Definitions
- B. Purpose of computer language

1 week

- C. Kinds of computer languages
- D. CARDIAC--A simulated cardboard computer developed by Bell Telephone
- E. Terminal control language and operation

5 weeks

- F. RY-SMPL--a simulated computer language

Unit V--Compiler Language Programming

9 weeks

V. Compiler Language Programming

- A. COBOL or FORTRAN (a decision will be made later depending upon the Bureau of Data Processing's progress in getting COBOL programs executed and compiled via the terminal)

6 weeks

- B. Application of business problems

OFFSET PRINTING UNIT

Artwork and Image Assembly

(Copy Preparation)

A. Artwork pertains to the basic principles of designing, laying out, and selecting color for the job.

Objectives:

1. Each student is required to make sketches and plans for simplified pages that are to be converted into camera ready copy.
   a. The student is required to use good design principles.
   b. The student is required to select and arrange his draftsman tools and supplies for efficiency of operation.
   c. He or she is to closely follow techniques that are currently practiced by employee persons doing similar work.
   d. The student is made aware of good work and safety habits needed to successfully perform the various operations.

2. Each student must prepare a rough layout and convert it into camera ready copy. He is to utilize hot type, cold type, adhesive type and clip art (both line and halftone) and assemble these images on a mechanical within a 40 minute class period.

A. Job Planning and Layout

1. Anatomy of a page
   a. Preparation
   b. Balance
   c. Contrast
   d. Harmony
      rhythmic

2. Laying out the job
   a. Thumbnail sketches
   b. Rough layouts
   c. Comprehansive layouts
      1) Display types
      2) Body types
      3) Hand and art illustrations
   d. Copyfitting

3. Scaling the copy
   a. Reducing
   b. Enlarging
   c. Diagonal line method
   d. Proportional scale method

4. Using the page dummy

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3. Performance will be further measured by written questions (a post-test). The student's achievement will be successful if a score of 70% correctness is made.

B. Image Assembly deals with graphic materials, (handwritten, drawings typewritten, printers types or photographic images) and techniques used to arrange of affix these images to a mechanical for the photographic process.

Objectives:

1. The student will be able to identify and describe 5 basic methods of image assembly, then paste-up (with the use of a layout and draftsman tools) camera-ready copy from assembled images. (From which line and halftone negatives or photographic plates may be made.)

B. Types of composition--Image Assembly Methods)

1. Cold type
2. Hand lettering devices
3. Photographic type
4. Hotmetal types
5. Clip-art and adhesive

C. Paste-up of Non-metalic Composition

1. Existing printed work
   a. Letterheads
   b. Business forms
   c. Newspaper clippings
   d. Magazine clippings
2. Clip art (commercially prepared)
   a. Line illustrations
   b. Words or slogans
   c. Borders and decorations
3. Photographic display copy
   a. Headlines
   b. Strip printer
   c. Protype
   d. Friden typro

5. Printed type (commercially prepared)
   a. Self adhesive
   b. Tab-type letters
   c. Others

D. Safety

1. Precautions
   a. Typewriter
   b. Varityper
   c. Headlines
   d. Other

2. Use of drafting tools
   a. Cutting tools
   b. Scribbers

3. Use of chemicals

4. Storage

5. Emergencies

Activities

A. Have student practice making thumb nail sketches and rough draft of selected copy. Extend this practice toward the making of more complex layouts of school forms. Have students practice methods of scaling copy for enlargement or reduction.

B. Demonstrate the use of typewriter (manual or electric) to prepare a select project requiring original composition. Point out condition of the keys and the ribbon in making clear, sharp, and well inked original copy. Arrange for the showing of a film strip to help clarify the use of impact composition. Have the students prepare typewriter copy. Provide instruction and give aid in helping the students to align margins, follow styles, use proper vertical and horizontal spacing, exercise touch control, learn to center and justify lines, make corrections, service the machine, and safely handle supplies and materials. Have the students extend these practices to the use of more complex machines like the varitype, and the justowriter. Arrange for a sales representative to give a demonstration on other selected typewriters that may not be presently in the shop.

Arrange a bulletin board or mock up of various types of handlettering and art copy. Demonstrate the preparation and the use of carbon paper to reproduce the drawings on paper (if the student cannot make his own illustration). Add typewritten composition to complete the work if necessary. Have the students make use of various stencil and lettering devices.

Gather photographic type samples from a trade shop or from the manufacturers of phototypesetters and make a display board. Make reading assignments to the students on "Photographic types and typesetters." Arrange a field trip to a large composition shop, e.g., Harris Intertype Corporation.

Secure several small letterpress forms from a school print shop or a trade shop composed of hand set and machine set type. Have the students pull reproduction proof. Well inked and clear type may be used or original, or paste up copy.

C. Demonstrate the techniques of selecting cle , sharp, and well inked line and half tone copy. Point out the correct use of the light tables, drafting boards, T-square, 30° and 45° triangles, rubber cement (or waxes), etc. Have the students practice following the dummy or layout and perform paste up operations with selected projects and shop jobs. Have students start a "clip" or idea file for illustrations. Also have the students help redesign other school forms using "cold" composition.

D. Discuss any safety precautions as the need arises. Point out the dangers from lifting heavy objects (typewriters or varitypes), danger of falls because the objects are in the aisles, danger of skin wounds from sharp cutting tools, pointed objects, sharp corners, burred edges, etc.

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1. Cogoli, John E., Photo Offset Fundamentals, McKnight and McKnight Publishing Co., Bloomington, Illinois, 1967.

2. Internation-Paper Co., Pocket Pal, International Paper Co., New York, 1966, pp. 67-91.

3. Maurello, S. Ralph, How to do Paste Ups and Mechanicals, New York, Tudor Publishing Co., 1960.

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Five Weeks Unit Plan

for

General Clerical Procedures
Entering the World of Work

I. Objectives

A. General

1. Provide instructions in basic skills in order to prepare students for beginning office jobs

2. Develop desirable personal traits, attitudes, and work habits

3. Integrate new and formerly learned skills by means of realistic office assignments

4. Improve reading, language, and math skills

B. Specific

1. To explore choices of jobs and opportunities

2. To learn how to answer job advertisements

3. To develop the ability to fill out job application forms

4. To develop the ability to write letters of application and personal data sheets

5. To prepare students for job interviews

6. To improve attitudes

7. To develop and refine personal habits and character traits that are necessary for getting along with others

8. To acquaint the students with some of the things employers expect from employees

9. To acquaint the students with unions and professional groups

10. To develop the ability to measure success and achievement

11. To learn how to terminate a job

12. To encourage and develop the ability to evaluate ones' work performance

II. Contents

A. Job Choices and Opportunities (First week)
   1. Basic skills and knowledge
      a. English and communication
      b. making notes
      c. spelling
      d. working with figures
      e. handwriting
   2. Part-time jobs
   3. Qualifications
   4. Where to look
      a. family and friends
      b. employment agencies
      c. city, county, state, and Federal Government
      d. schools, colleges, and universities
      e. newspaper advertisements
      f. direct calling

B. Applying for a Job (Second week)
   1. Application forms
   2. Letters of application
   3. Personal data sheets
   4. Interviews
      a. find out about the company
      b. find out about the interviewer
      c. be prepared for questions
   5. Follow up of application

C. Human Relations (Third week)
   1. The importance of attitude
   2. How to win favorable reactions
   3. Office etiquette
   4. What the employer expect from employees
      a. cooperation
      b. honesty
      c. initiative
      d. dependability
      e. enthusiasm
      f. loyalty
      g. acceptance of criticism
   5. Getting along with co-workers
      a. as a beginner
      b. formality in business relationships
      c. stay neutral in disputes
   6. Unions and professional groups

D. Progress on the Job (Fourth week)
   1. Success and achievement
      a. promotions
      b. handling responsibility
      c. salary increases

2. Performance review and evaluation
3. Terminating the job
   a. giving notices of termination
   b. if you are fired

E. Knowing and Understanding Yourself (fifth week)
1. values
2. interests
3. people, things, and ideas
4. aptitudes and abilities
5. personality
6. personal appearance
7. punctuality
8. Self control

III. Materials and Resources

A. Pamphlets
B. Application forms
C. Letters of application
D. Data Sheets
E. Vocational speakers
F. Bulletin boards
G. Paper, pen, and pencil
H. Films and filmstrips

IV. Bibliography

Archer, Fred, General Office Practice, 3rd ed., Mcgraw-Hill, New York, 1968.

Kimbrell, Grady, and Vineyard, Ben, Succeeding in the World of Work, 1st ed., McKnight and McKnight, Bloomington, 1970.

AUTOMOTIVE SERVICE

UNIT ONE: ORIENTATION

(Classroom time - 4 hours)

Outline of Content	Suggested Activities
A. Organization of Program	A. Organization of Program
1. Course outline a. Auto shop b. Auto service c. Automotive Electricity d. Combination Welding	Discuss the course outline with students and show how one unit will build on another.
2. Procedures a. Use of notebook b. Attendance c. Shop rules d. Safety rules	Explain the procedures of the shop with regard to attendance, work, rules, and safety. Make the procedures meaningful by relating them to outside employment.
B. Related Automotive Processes	B. Related Automotive Processes
1. Foundry 2. Design 3. Assembly 4. Engine	Show transparancies (listed at end of unit) on foundry, design, assembly, and engine. Discuss the various stages of development of the automobile.

RESOURCE MATERIALS

Books

Cruse. Automotive Mechanics

Science Research Associates. Automobile Industries Employment Guide.

Booklets

Automotive Service. Automobile Facts and Figures.

United States Department of Labor. Job Guide For Young Workers.

Transparencies

Automobile Assembly and Testing
Aotomobile Design and Engineering
Automobile Foundry
Safety in the Shop
The Automobile Engine

Charts

Facts and Facets of the Automobile Industry.
Ford Motor Company
Flip Charts. General Motors.

C. Occupational Opportunities	C. Occupational Opportunities
1. Automotive service station attendant a. Characteristics b. Requirements 2. Automotive mechanic's helper and body repairman's helper 3. Apprentice (automotive mechanic and body repairman.)	Create a discussion of job opportunities with the students. Explain the service station attendant is the first step of the ladder that can lead to a bright, profitable future. Define and discuss the personal trates, work habits, and attitudes that make-up a successful employee. Explain to the student that they must understand and be able to apply technical information to their work. Discuss with the student the necessity for maintaining a high standard of workmanship, following proper procedures, and checking their work carefully.
4. Journeyman (automotive mechanic and body repairman) 5. Shop Foreman 6. Service salesman 7. Service manager 8. New car salesman	Explain the various steps: helper, apprentice, journeyman, shop foreman, service salesman, service manager, and new car salesman. Indicate that diligent work and drive are needed to attain these goals.

AUTOMOTIVE SERVICES

UNIT TWO: BASIC AUTOMOTIVE TOOLS

OCCUPATIONAL ORIENTATION

(Classroom Time - 4 hours)

(Shop Time - 6 hours)

Point out that important criteria for judging the capabilities of an automotive serviceman are knowledge of the tools, ability to select the proper tool for a spacific use, and the skill with which he uses the tools.

Have the students complete the work sheets in a workbook for sutomotive tools.

This unit is divided into two areas. The first deals with automotive tools. The second deals with grooming expected of shop workers. The activities connected with this area are designed to help the students develop a good grooming program, development of attitudes and personal character traits. Activities connected with this unit will stress, first learning, review and reinforcement.

Outline of Content	Suggested Activities
A. Screwdrivers	A. Screwdrivers
1. Use	Discuss and demonstrate the proper use of screwdrivers. Demonstrate the procedure for redressing blade tips.
2. Nomenclature	
3. Types	

B. Hammers 1. Use 2. Nomenclature 3. Types a. Hard head b. Medium head c. Soft head	B. Hammers Have various types of hammers used in the training program available for students to examin. Discuss and demonstrate the proper technique of using a hammer. Emphasize the precautions to be exercised with its use.
C. Pliers 1. Use 2. Parts 3. Types	C. Pliers Demonstrate the proper technique to be used in the application and use of pliers for gripping, holding, and cutting operations.
D. Wrenches 1. Use 2. Nomenclature 3. Types 4. Size Classification	D. Wrenches Demonstrate the proper technique for selecting types of wrenches.
E. Socket Wrenches 1. Use 2. Nomenclature 3. Types of Sockets 4. Kinds of drives	E. Socket Wrenches Demonstrate on an engine how to select the proper socket for the job to be done. Demonstrate to the students the selection and application of the various drive handles and adapters. Emphasize their application in adapting socket wrenches for use in inaccessible places.

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F. Vises 1. Use 2. Nomenclature 3. Types oi Vises	F. Vises Discuss and demonstrate the proper techniques used for clamping parts and materials in a vise. Emphasize the fact that heave anvil type hammering should not be done in or on a vise.
G. Chisels 1. Use 2. Nomenclature 3. Kinds 4. Size classification	G. Chisels Discuss and demonstrate the proper use of a chisel in cutting metals, cutting a rivet head, cutting a rod, splitting a nut, using and emphasizing safety precautions.
H. Punches 1. Use 2. Nomenclature 3. Kinds 4. Size classification	H. Punches Discuss and demonstrate the proper use of punches in removing a pin, aligning holes when fastening parts together, and preparing a center point for drilling metal. Use and emphasize all safety precautions.
I. Files 1. Use 2. Types 3. Nomenclature 4. Cuts 5. File shape 6. Size classification 7. File cleaner	I. Files Discuss and demonstrate the proper use of files, the importance of selecting the proper file for the job to be done, and the use of file handles and their installations. Stress the importance of keeping the file clean.

J. Hacksaws 1. Use 2. Nomenclature 3. Types of hacksaws 4. Types of blades 5. Blade teeth 6. Size classification	J. Hacksaws Discuss and demonstrate the proper technique for adjusting the frame and inserting and tensioning the blade in the frame. Demonstrate the proper technique for the use of a hacksaw.
K. Snips and Shears (Metal Cutting) 1. Use 2. Nomenclature 3. Types 4. Size classification	K. Snips and Shears Demonstrate the proper selection of shears for cutting the various gauges of metals.
L. Drills 1. Use 2. Nomenclature 3. Types 4. Size classification 5. Drilling machines	L. Drills Discuss and demonstrate the proper drill speed when drilling metals of various kinds and varying hardiness. Discuss and demonstrate the use of cutting, lubrication when drilling various materials.
M. Taps 1. Use 2. Threads 3. Tap types 4. Tap drills 5. Tap wrenches	M. Taps Discuss and demonstrate the use of tap-drill tables and guides. Demonstrate the procedure for starting tap, checking and maintaining alignment, and tapping.

N.	Dies	N. Dies
	1. Purpose	Demonstrate the procedure for starting a die, checking and maintaining alignment, and cutting a thread. Discuss the need for lubricants when cutting a thread and the type to be used with various materials.
	2. Thread fits	
	3. Types of dies	
	4. Stocks	
	5. Pipe stock and dies	
	6. Use	
O.	Soldering Equipment	O. Soldering Equipment
	1. Uses	Discuss the qualities of good soldering equipment (flame heated and electric) and desirable characteristics.
	2. Types	
	3. Nomenclature	
	4. Size	
	5. Methods of heating	
	6. Kinds of tips	
	7. Solders	

RESOURCE MATERIALS

Books

Cruse. Automotive Mechanic Workbook for Automotive Tools.

Delmar Publishers, Inc. General Repair Tools for Automotive Mechanics.

General Motors Corp. A.B.C.'s of Hand Tools.

Films

A.B.C.'s of Hand Tools. General Motors
How to Protect Your Tools. Snap on Tools Corp.

Training Aids

Tool Wall Charts. Set. Snap on Tools Corp.

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AUTOMOTIVE SERVICES

UNIT THREE: CHASSIS

(Classroom Time - 4 hours)

(Shop Time - 14 hours)

Outline of Content	Suggested Activities
A. Power Source 1. Engine 2. Fuel 3. Ignition system 4. Lubrication system 5. Cooling system 6. Electrical system	A. Power source Conduct a discussion on the function of the power source of the automobile. Describe briefly, the various types of engines and identify the various components of the power-plant, their location and function. Illustrations or examples of various types of engines should be available. Have a complete automobile chassis available in the training area. (Each of the major components should be painted a different color so that it can be identified easily by the student. Alphabetized or numbered tags should be attached to each of these units in such a way that they can be changed for each class.)

Engine

A. Demonstrate to class how to replace manifold gaskets in line engine. Tools and equipment P. 20, Procedure P. 20.

B. Demonstrate to class how to replace a cylinder head gasket in line engine. Tools and equipment P. 23, Procedure P. 23.

C. Demonstrate to class how to replace a cylinder head gasket in V-8 engine. Tools and Equipment P. 27, Procedure P. 27, Installing Procedure P. 28.

Fuel

A. Demonstrate to class how to repair a fuel pump. Tools and equipment P. 138, Procedure P. 138.

B. Demonstrate to class how to repair the vacuum side of a combination fuel pump. Tools and equipment P. 141, Procedure P. 141.

C. Demonstrate to class how to disassemble a single-barrel carburetor. Tools and equipment P. 145, Procedure P. 145. Demonstrate how to inspect and clean a single barrel carburetor.

D. Demonstrate to class how to disassemble a two-barrel carburetor. Tools and equipment P. 150, Procedure P. 150.

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E. Demonstrate to class how to disassemble a four-barrel carburetor. Tools and equipment P. 157, Procedure P. 157.

Ignition System

A. Conduct a discussion on service procedures and troubleshooting. Demonstrate to class how to clean and adjust spark plugs. Tools and equipment P. 257, Procedure P. 257.

B. Demonstrate to class how to test an ignition Coil. Tools and equipment P. 259.

C. Demonstrate to class how to test a condenser. Tools and equipment P. 263, Procedure P. 263.

D. Demonstrate to class how to clean and adjust ignition points. Tools and equipment P. 265.

E. Demonstrate how to adjust the ignition cam dwell. Tools and equipment P. 270, Procedure P. 270.

F. Demonstrate to class how to set the ignition timing. Tools and equipment P. 273, Procedure P. 273.

G. Demonstrate to class how to test the engine for a miss. Tools and equipment P. 275, Procedure P. 275.

Lubrication System

A. Conduct a discussion on service procedures. Demonstrate to class how to change engine oil. Tools and equipment P. 59, Procedure P. 59.

B. Demonstrate to class how to replace an oil gasket. Tools and equipment P. 59, Procedure P. 59.

C. Demonstrate how to replace an oil filter element. Tools and equipment P. 62, Procedure P. 63.

D. Demonstrate how to repair an oil pump. Tools and equipment P. 64.

Cooling System

A. Conduct a discussion on service procedures and troubleshooting. Demonstrate how to replace a fan belt. Tools and equipment P. 38, Procedure P. 38.

B. Demonstrate to class reverse flushing. Tools and procedure P. 40.

C. Demonstrate to class how to test a thermostat. Tools and equipment P. 42, Procedure P. 42.

Electrical System

A. Conduct a discussion on magnetism, batteries, circuits, electro-magnetism, solenoids, and relays, circuit breakers, measurements of electricity. Conduct an experiment on magnetism. Tools and equipment P. 179, Procedure P. 179..

B. Demonstrate to class the law of magnetic attraction and electro magnetism. Tools and Procedure P. 180-181.

C. Demonstrate to class how to measure electricity. Tools and equipment P. 183, Procedure P. 184.

D. Demonstrate how to wire electrical circuits. Tools and equipment P. 186, Procedure P. 187.

Have students perform each job in Unit III, write an essay explaining the operation of the job, and make a sketch of each unit and label its parts.

B. Frame

1. Purpose

2. Type

B. Frame

Explain the difference between a unibody and a conventional separate frame chassis.

C. Suspension 1. Rear a. Leaf spring b. Coil spring c. Independent 2. Front a. Leaf spring b. Coil spring c. Torsion bar 3. Shock absorbers a. Purpose b. Types c. Removal and replacement of shocks	C. Suspension Familiarize students with the various types of spring suspension used on automobiles. Provide charts, films, or other types of visual material to develop students' understanding of the variety of suspensions used on American cars. Have different front ends mounted on the bench or on stands to show the different front suspensions. Explain the purpose of king pins, ball joints and stabilizer bars. Demonstrate the safe and proper way to use a jack and horses; remove and replace shock absorbers on a chassis. Have each student perform the operation.
D. Steering Gear 1. Parts of mechanism (Manual) 2. Operation 3. Power steering	D. Steering Gear Show the class power steering devices and explain how hydraulic pressure is used to assist driver in steering the vehicle. Explain to the student the hydraulic pump and valve sustem used to activate the power steering machanism ans explain how the system is made to act undirectional so that road shocks do not activate the mechanism and produce undesirable steering reactions.

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4. Front end angle
   a. Caster
   b. Chamber
   c. Toe in
   d. Turning radius

Discuss the importance of front end angles to ease safety in steering control and steering gear reaction. Use charts, service manuel, and chalk board talks to illustrate and demonstrate the reasons for accurate adjustment of front angle such as caster, chamber, toe in and turning radius.

E. Brakes

Brakes

A. Identify the breaking system on the chassis. Describe its function, construction, and design. Discuss service procedures and troubleshooting of brake system.

B. Demonstrate how to make minor brake adjustment. Tools and equipment P. 431, Procedure P. 431.

C. Demonstrate how to make a major brake adjustment Tools and equipment P. 433, Procedure P. 433.

D. Demonstrate how to repair a hydraulic cylinder. Tools and equipment P. 435, Procedure P. 435.

E. Demonstrate how to bleed hydraulic brakes. Tools and equipment P. 437.

F. Demonstrate how to reline brakes. Tools and equipment P. 438.

G. Demonstrate how to turn brake drums and brake disk.

H. Demonstrate how to make parking brake adjustment.

F. Tires and Wheels

1. Tube type

2. Tubeless

Tires and Wheels

A. Identify on the chassis the wheels and tires. Describe briefly their function, construction, and design.

B. Demonstrate how to lubricate and adjust a front wheel bearing. Tools and equipment P. 405, Procedure P. 405.

C. Demonstrate to class how to mount tires. Tools and Procedure P. 407.

D. Demonstrate to class how to balance a wheel. Tools and Procedure P. 412.

DEVELOPMENTAL VOCABULARY

Alignment	Flexing	Shimmy
Bead	Friction	Spindle
Camber	Misalignment	Stem
Casing	Plies	Synthetic
Caster	Pneumatic	Tire inflation
Cold Patch	Radial	Toe-in
Core	Run-out	Toe-out
Eccentric	Sealer	Vulcanizers

RESOURCE MATERIALS

Books

Bostwick, et.al. Auto Mechanics-Standard Job Sheets.

Car Service. Check-Chart Corp.

Crouse. Automotive Chassis and Body.

Automotive Mechanics.

Workbook for Automotive Chassis.

Glenn. Auto Mechanics.

Stokel. Auto Mechanics Fundamentals.

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AUTOMOTIVE ELECTRICITY

Skills

1. Use of meters to measure voltage.
2. Current and resistance.
3. Use of relay and solenoids.
4. Use of 12 volt test lamp.
5. Correct use of hand tools.
6. Servicing of battery.
7. Testing of battery.
8. Use of hydrometer
9. Capacity testing of battery.
10. Light Load Testing of battery.
11. Charging of battery.
12. Replacing and setting of breaker points.
13. Replacing and testing condensers.

Jobs

Helper in Automotive Electric Shop

Helper in Ignition Specialty Shop

Service Station Helper

AUTOMOTIVE ELECTRICITY

UNIT FOUR: BATTERIES

(Classroom Time - 5 hours)

(Shop Time - 15 hours)

Outline of Content	Suggested Activities
A. Construction of Automobile Battery 1. Element 2. Groups 3. Plates 4. Separations 5. Connectros	A. Construction of Automobile Battery Have the students examine cutaways and identify components of parts.
B. Chemical Action 1. Reaction during charge 2. Discharge reaction 3. Elements involved a. Lead peroxide b. Spongy lead c. Electrolyte sulfuric acid water	B. Chemical Action Show the filmstrip Lead Acid Storage Battery to illustrate the action of a battery.
C. Battery Efficiency 1. Time of rate of discharge 2. Temperature	C. Battery Efficiency Have the student complete circuit patch board with lights and accessories and note the effect the circuits have on terminal voltage.

D. Battery Service	D. Battery Service
1. Cleaning of battery 2. Addition of water 3. Cleaning of terminals and cable clamps 4. Fastening of hold-down clamp	Demonstrate the correct way of loosening and removing battery cables, removing ground cables first. Emphasize the correct use of tools so as not to damage battery or tools.
E. Testing of Battery	E. Testing of Battery
1. Hydrometer tests 2. Light load test 3. Capacity test 4. Fast charge test	Have students make tests on the batteries as indicated by the instructor (chart car service, P. 5-6.)

Du Sable Exemplary Project

FOOD SERVICES UNIT

General Objectives:

To offer occupational instruction to approximately 20 senior students who have not developed a salable skill in the home economics area.

To provide job entry skill training in the food service field.

Specific Objectives:

To prepare students for immediate employment in a food handling or food preparation situation.

To equip students with a real knowledge of the food service industry.

First Session:

Food Service as an Honorable Profession

Write about yourself
Take a pretest
Determine objectives
Discuss classroom procedure

NRA Film "Where Do I Go From Here?"

Second Sessions:

Jobs in a Typical Restaurant

Speaker from a local restaurant
Restaurant equipment and tools
Illustrations from trade magazine INSTITUTIONS
What services are given?
Responsibilities of each employee
Typical organization chart showing job locations

Third Session:

Personal Employee Standards

Expected customer behavior
Employee grooming
Employee attitude
Communication skills
Principles of good body mechanics

Fourth Session:

Basic Table Setting

Diagram t[illegible]ettings
Study table appointments
Serve no-cook and cooked snacks
Analyze group eating habits

Study nutrients and their functions
Make special reports on nutrients

Fifth Session:

Standardized recipes and menus

Use recipe to show correct procedure
Show what happens when incorrect recipe is used
Plan buffet meal menu
Use trade magazine illustrations and student reports to develop variousl buffet menus.

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APPENDIX K

READING MATERIAL FOR

IMPLEMENTATION OF TEACHING READING

INPUT INTO DUSABLE READING DEVELOPMENT PROGRAM

Mr. Frank Lucente, Jr., Principal, initiated a long-range program planned to involve the whole staff at DuSable in the teaching of reading. Coordinating the program are Mrs. McPherson and Mrs. D. Sides. The following material called the "DuSable Detective Series" was submitted by the DuSable Exemplary Project to assit in implementing the teaching of reading by all teachers of all subjects.

Of particular importance in the "DuSable Detective Series: when used by English teachers, is the career concept. When anything is read about any people in a story, novel, magazine, or exercise, it is important that some reference is made to the occupational employment of the people involved. If no specific job is mentioned, discussion might center around what kind of work the person(s) might do considering their education, training, etc. In this way, not only are the objectives of reading development being met, but the important objective of helping students to stay aware of the many career alternatives open to them is also implemented.

In other class areas, teachers are also urged to point out the career ladder, the training required, and the particular job assignment which may be involved when dealing with the accomplishments of outstanding people in the different subject areas.

S K I M M I N G P R A C T I C E

Detective Series

A Technique to Aid Developmental Reading

Louise P. Dumetz, Instructor
Frank Lucente, Jr. Principal
DuSable High School - 7/23/71

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Skimming Practice Detective Series

The Skimming Practice Detective Series is a developmental reading technique which can be an effective addition to standard procedures.

This "Detective Series" method has several positive aspects:

1. Students participate enthusiastically.
2. The habit of reading is strengthened.
3. Growth occurs in the ability to read rapidly.
4. The method can be adapted for use in any subject area.
5. A degree of success is experienced by every student.

Recommended procedure is as follows:

The teacher explains:

"Everyone will have a chance to be a detective in our next assignment and we will keep a record of the ten best detectives.

"This assignment will improve your ability to skim, one of the three main kinds of reading. Skimming helps you to read rapidly for the general idea, the main point, or a specific detail.

"You already know how to read - perhaps you are good at study reading and at pleasure reading. But skimming is also an important technique which you can improve. This assignment will help you to improve your ability to skim.

"As a detective you will be asked to find specific details that are part of some assigned material. First, you must read the whole assignment (not more than five pages) and answer two comprehension questions. Then you a re to become a detective and find ten challenging phrases. To show that you have found them, write the complete sentence which includes each phrase. Sentences must he written neatly and must be absolutely correct.

"Bring your paper to the desk as soon as you have finished."

For each assignment the teacher will write the title of the material, the pages where it can be found, and will list the ten phrases.

For the beginning exercises, the phrases can be in the order that they are found in the material - proceeding from the first page to the last. Then they can be mixed, one from the last page ahead of one near the beginning, etc.

In some instances teachers may ask students to read certain pages as a homework assignment to prepare for the "Detective Exercise" the next day.

Also, assignments can be developed to emphasize different concepts. Phrases in a given lesson can be chosen to demonstrate digraphs, compound words, words changed by an initial consonant, syllabication, affixes, or varied word recognition concepts which testing and observation have indicated are needed. Discussion of the emphasized concept can follow the assignment.

Daily assignments for definite periods of time are recommended in order to build habit, speed, and skill. This technique is especially valuable for workshop sessions that last for more than one class period.

Recognition should be given to each student for his degree of success.

Reinforcement of understanding can be effected by having students develop the exercises for the class. These can be simple phrases or can demonstrate a particular word recognition skill.

The reading skills program workbooks, Design for Good Reading, Levels A. and B. by Schumacker, Schick, and Schmidt, (Chicago: Harcourt, Brace and World, Inc., 1969), are useful for the "Detective Series" assignment as well as for other developmental reading aspects. The two and three page essays and two "What do you think?" questions can be interesting and effective.

Other texts can be equally as helpful, however, when careful planning insures that the material is relevant and geared toward the goals which are the teacher's objective.

A variation of the technique can be successful in any class where the level of the material meets the needs and the abilities of the students.

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DETECTIVE SERIAL EXERCISE

A Skimming Practice Technique to Aid Developmental Reading

HEW DU SABLE EXEMPLARY PROJECT

Bridging the Gap Between High School and the World of Work

Automotive Services	Albert Isaac
Data Processing	Henry El
General Clerical Procedures	Peggy Hicks
Food Services	Mildred Stewart
Offset Printing	Elester Dabney
Typing	Marva Littleton

William Rohan
Superintendent, District 13

Frank Lucente, Jr.
Principal, Du Sable High School

Louise P. Dumetz, Director
HEW DuSable Exemplary Project

Winifrod French, Associate Director
HEW DuSable Exemplary Project

DETECTIVE SERIES EXERCISES

Design for Good Reading - Level A

"Reading Is Important" pp. 8-11

1. the time you spend
2. read a great deal
3. the latest trends
4. with more understanding
5. what to look for
6. will enjoy readi
7. available somewhere
8. one kind
9. improves all reading
10. a thousand words

1. List three main kinds of reading
2. What is skimming?

"The DC-3" - pp 125-127

1. who knows
2. dropped supplies
3. to the miracle
4. anyone's guess
5. toward Istres
6. radio range
7. crew of four
8. Sergeant Wayne G. Folsom
9. semiconsciousness
10. history as well

Answer questions 1 and 2 of "What Do You Think?"

"Nature Still Does It Better" - pp 20-22

1. especially expert
2. some clear and
3. capability superior
4. primarily why the
5. surrounding water
6. interests many
7. expensive men
8. sophisticated sonar
9. operates by a
10. hope to learn

Answer questions 1 and 2 of "What Do You Think?"

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DETECTIVE SERIES EXERCISES

Design for Good Reading - Level A

Riveters of Skyscrapers - pp 24-25

1. apprentice whose
2. pneumatic tubing
3. by the inspectors
4. beam between them
5. patented cups
6. whole platform
7. heater or passer
8. joe the catcher
9. his knowledge
10. skyscraper construction

Answer questions 1 and 2 of "What Do You Think?"

Like Foolish People - pp 94-95

1. Half Arrow and Little Crane
2. mention it
3. look on their door
4. rotting leg
5. dead branches hang
6. touch with a stick
7. make their campfire
8. foolish and troublesome
9. under some trees
10. heedless like children

Answer questions 1 and 2 of "What Do You Think?"

Developing Speed and Comprehension - pp 12-16

1. eye step
2. this depends
3. word-by-word
4. good book is spoiled
5. anyone can do
6. see ideas
7. signposts stand out
8. habits are tiring
9. heart of reading
10. several reading speeds

Answer questions 1 and 2 of "What Do You Think?"

Tales About Tubs - pp 37-38

1. Crete came replete
2. studied the pattern
3. warm bath
4. revolutionary leader
5. a sinful luxury
6. either baby
7. famous beauties
8. wooden shoes
9. downright unpleasant
10. plush upholstery

Answer questions 1 and 2 of "What Do You Think?"

Design for Good Reading - Level A

Students must answer questions 1 and 2 of "What Do You Think" after reading each assignment. The two questions are to be answered before the detective series phrases are located in the story.

"Flying with an Otter" - pp 130-132

1. the very queen
2. quite unprepared
3. a flying tackle
4. in those days
5. pet on my knee
6. stepped into the breach
7. extremely bad
8. leave the aircraft
9. appreciated the meaning
10. compartment was filled

"Hallowe'en" - pp 77-78

1. hurling of a cabbage
2. a drubbing
3. feel safe
4. last cabbage
5. it was worthwhile
6. root still clinging
7. settled down upon
8. dead are usually buried
9. what a night
10. return unless

"Rank and Dignity of Piloting" - pp 98-99

1. such pay as
2. people in one's
3. boundless authority
4. consulted no one
5. every man
6. guessed, considering
7. pilots came
8. but then we
9. embarrassing objects
10. gravels me

"Dig to Antiquity in Your Own Backyard" - pp 60-62

1. he didn't know
2. the biggest problems
3. are often located
4. three basic methods
5. amateur world
6. a few years ago
7. villages were usually
8. was something about
9. in two large
10. when this happens

"The Riddle of Ohio's Age-Old Serpent Mound - pp 81-82

1. state route
2. variously described
3. Great Wall of China
4. slowly worked
5. their descendants
6. moved eastward
7. mounds were destroyed
8. have been walled
9. number of them
10. Ohio Historical Society

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DETECTIVE SERIES EXERCISES

"Duke Ellington" - pp 28-30

1. source of inspiration
2. abiding passion
3. express himself
4. customarily nuanced
5. can't be rude
6. grown as a man
7. living American composers
8. musical personalities
9. specific musicians
10. enjoyment of life

"Stowaways of Years Gone By" - pp 112-113

1. sea tramps
2. that he be set
3. be sure
4. stowaways had
5. fortunate quartette
6. held all sorts
7. engineer on
8. met a gentleman
9. perfidious alick
10. acquaintance of last

"Motoring to Lake Tahoe" - pp 45-47

1. stopped to look
2. like Mark Twain's
3. boy all the time
4. father drove
5. preferred the woods
6. camped in clusters
7. at a toll bridge
8. father said later
9. see a mountain lion
10. used lots of it

"Grandmother's Mistake" - pp 56-57

1. once upon a time
2. their behavior
3. tickled to
4. husband, Hesteen
5. Wally stepped
6. horny toad
7. boys lead
8. squaw dance
9. his guts
10. it's so tragic

"Cutting Car Cost" - pp 65-66

1. five elements
2. gasoline is wasted
3. hard-earned dollars
4. normal build-up
   system of numbers
6. a low cost oil
7. everyone will agree
8. go undetected
9. keep heated garages
10. and common sense

"The Ten Smartest Animals - pp 120-122

1. stood motionless
2. kicked a trap
3. the only indication
4. chimp's mental powers
5. more remarkable
6. steer clear
7. clearly acted
8. baboon can talk
9. otters hunting one
10. man's animal cousins

DETECTIVE SERIES EXERCISES

"Departure and Return" - pp 102-104

1. the little writings
2. shall want nothing
3. you wasn't scalped
4. ways of the wild
5. we were antagonistic
6. talked the matter out
7. in touch with things
8. felt sorry
9. boarded a train
10. on to Fort Benton

"Man Meets Dog" - pp 85-87

1. hunted animals
2. experience and muscle power
3. troublesome followers
4. meager spoils
5. at an order
6. stand in anticipation
7. signal for marching
8. strange action
9. listen attentively
10. feeling of safety

"Another Vanishing American" - pp 107-109

1. wolf retreated
2. scrap of wilderness
3. as late as 1890
4. a common enemy
5. hate the wolf
6. freelance trappers
7. greatly reduced
8. wolf predation
9. form of refuge
10. cannot be delayed

"Arab Magic" - pp 41-42

1. declared his pass
2. us poor shepherd
3. the rose had
4. first physician
5. behold the prediction
6. splendid warrior
7. Bedouin Arab
8. All alleviation
9. or precious stone
10. princess recognized

"Yakimas" - pp 116-118

1. squirrel ran
2. as large
3. The Dalles
4. made themselves
5. the women
6. his mother
7. are members
8. men fishing
9. being prepared
10. they immediately

"The University Past and Present - pp 73-74

1. our modern universities
2. the principal purpose
3. by 1966
4. at best
5. the University of Bologna
6. the first university
7. in the early universities
8. the word university
9. as the body
10. today, no university

"Adventure of the Mawon" - pp 69-71

DETECTIVE SERIES EXERCISES

"Churchhill in Moscow" - pp 50-53

1. again take off
2. cold and windy
3. an impressive-looking
4. dinner usually
5. to be a banquet
6. amazing man
7. signal for the rest
8. shut the office
9. there was peace
10. feeling of comradeliness

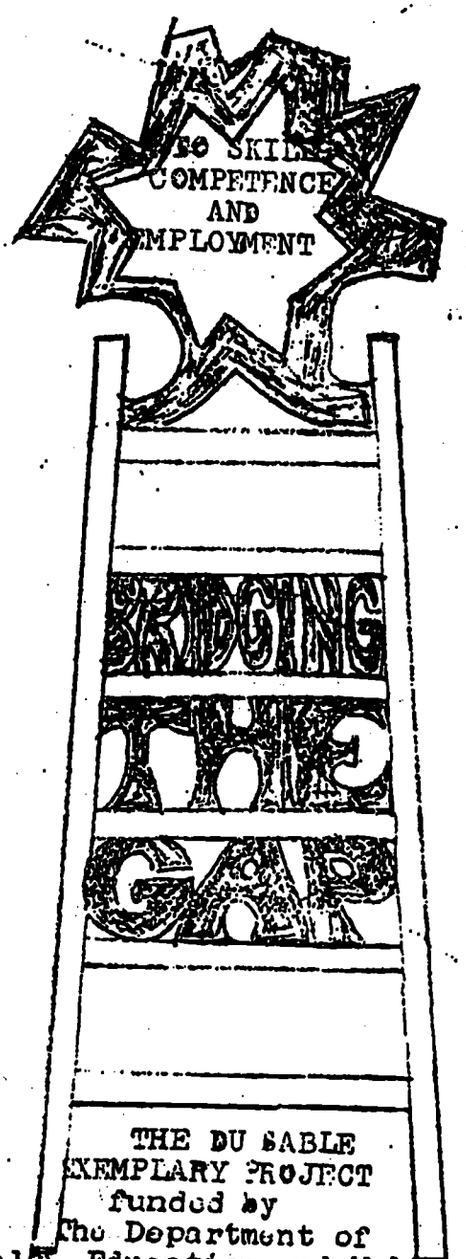
Now that the series has been completed, the class assignment can be to begin with the first story and, after rereading, answer the "Comprehension Check" questions. Do not write in the book. Write each sentence, putting in the correct answer. Answers can be checked on page 135.

When this has been completed, start on page 142. Read each story, then write the two sentences at the end - filling in the correct answer. These can be checked on page 155.

If your notebook or folder contains all of this assigned material, you are indeed an outstanding and superior student!

APPENDIX L

COMPREHENSIVE PROGRAM BOOKLET


TO SKILL
COMPETENCE
AND
EMPLOYMENT
THE DU SABLE
EXEMPLARY PROJECT
funded by
The Department of
Health, Education and Welfare

A PROJECT [illegible]

Project No. 361157
Grant No. OEG-0-71-1026(361)

The DuSable Exemplary Project: Bridging the Gap Between High School and the World of Work

Exemplary Project in Vocational Education
Conducted Under
Part D of Public Law 90-576

JAMES F. REDMOND
General Superintendent of Schools

Joseph J. Dixon
Assistant Superintendent of Schools
Department of Practical Arts and Vocational Education

William Rohan
Superintendent of District 13

Frank Lucente, Jr.
Principal of DuSable High School

Louise P. Dumotz
Director, HEW DuSable Exemplary Project
DuSable High School
4934 South Wabash Avenue
Chicago, Illinois 60615

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THE DuSABLE EXEMPLARY PROJECT

BRIDGING THE GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK

Career orientation is now receiving additional emphasis in our public schools. A Vocational Exemplary Project is being funded by the U. S. Government in each of the fifty states of the nation.

In Illinois, the participating school is DuSable High School, Mr. Frank Lucente, Jr., Principal. The program at DuSable is called the NEW DuSable Exemplary Project: Bridging the Gap Between High School and the World of Work. It is fully funded by an HEW discretionary grant, and operates throughout District 13 of the Chicago Public Schools.

Most of the Vocational Exemplary Projects which have been initiated under Part D. Section 142(c) of the Vocational Education Amendments of 1968, represent attempts to structure operating models of a kindergarten through 12th grade "career education system." The roots for such a system go back into many years of basic research on career developments and theory.

Objectives of the exemplary projects are varied: Familiarizing elementary and secondary students with the broad range of occupations for which special skills are required and the requisites for careers in such occupations; Providing students with educational experiences through work; Providing students with intensive occupational guidance and counseling during the last years of school; Helping exiting students with initial job placement; and Broadening and improving vocational education curriculums.

L E A R N A S K I L L

E A R N W H I L E Y O U G A I N E X P E R I E N C E

The HEW DuSable Exemplary Project

Bridging the Gap Between High School and the World of Work

is a government funded program

that develops skills

in six areas

Automotive Services	Mr. Albert Isaac
Data Processing	Mr. Henry El
Food Services	Mrs. Mildred Stewart
General Clerical Procedures	Mrs. Peggy Hicks
Offset Printing	Mr. Elester Dabney
Typing	Mrs. Marva Littleton

Students get intensive daily training

while earning academic class credits

Interesting activities - Speakers - Movies - Projects

Efforts will be made to find jobs for every student

Mrs. Winifred French,
Associate Director

Mrs. Louise P. Dumetz,
Director

Mr. Frank Lucente, Jr.,
Principal

E N R O L L W H E N Y O U B E C O M E A S E N I O R

Inquire of your division teacher or counselor.
Stop by Room 112 for further information or call 373-3200 Ext. 21.

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THE HEW-DU SABLE EXEMPLARY PROJECT
BRIDGING THE GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK

This project is designed to prepare students for employment by providing specific training for job entry skills.

Seniors without salable skills will be encouraged to enroll in six different vocational areas: Typing, General Clerical Procedures, Data Processing, Food Services, Offset Printing, and Automotive Services. Potential drop-outs at lower grade levels will also be eligible for enrollment.

The proposed program of instruction will include:

1. Vocational instruction at the senior level for those who have not developed vocational skills that would make them employable.
2. Intensive and accelerated instruction.
3. Provision for extended instructional time for those who need it.
4. Placement on jobs at any time students have reached a satisfactory level in their skill development.
5. Related instruction in grooming, human relations, communication skills, proper decorum and job information.
6. Remedial and individual instruction.
7. Individual counseling and group guidance.

Also part of the project is an elementary school (K-8) guidance program incorporating career development and occupational information. This program is designed to give elementary pupils career information, to prepare them for high school by giving them a background for making more valid vocational choices upon entering high school, and to have a continuous guidance program from school entrance to school leaving.

Units are being developed for all levels. These units are based on four threads: "Learning to Know Oneself," "Learning About Vocational Opportunities," "Developing Habits and Relationships," and "Making and Carrying Out Plans."

With occupational information geared to the interests, aptitudes, and educational opportunities of each pupil, it is hoped that he will become more self-directed, see himself in relation to his opportunities, and formulate and achieve worthy and realistic goals.

THE NEW DU-SABLE EXEMPLARY PROJECT
BRIDGING THE GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK

Vocational instruction will be provided for approximately 150 seniors and potential dropouts at low levels who were not previously enrolled in occupationally oriented programs.

Job-entry skill training in five vocational areas will be provided:

Automotive Service Occupations
Data Processing
Food Services
Offset Printing
Typing and General Clerical Procedures

Related instruction will include job information, communication skills, grooming, job decorum and human relations.

Remedial instruction will be provided for those students who may need supplemental training.

A full-time director, working under the supervision of the principal, will be responsible for administering the program and providing essential reports.

An associate director, working under the supervision of the district superintendent, will coordinate and enhance the occupational information programs in all of the elementary schools that feed into DuSable. This program should better enable students entering DuSable to make realistic educational choices.

A counselor will be responsible for coordinating individual and group guidance activities, parent conferences, home visitations, organized tours, over-all placement activities, and testing. In addition, he will coordinate the dissemination of vocational information to the entire student body at DuSable High.

Six teacher-coordinators will conduct the occupational training programs, develop job placements, conduct performance follow-ups, and provide career information pertaining to their respective occupational areas.

Supportive services for this project will be provided by the Department of Vocational and Practical Arts Education, the Bureau of Pupil Personnel Services, and selected members of the Advisory Council.

The guidance aspects of this project at both the elementary and high school levels will be articulated with the Board's established guidance program. Costs related to salaries, automobile reimbursement, additional equipment, instructional materials, and evaluation will be funded directly by the U.S. Office of Education for three years. Under the regulations pertaining to exemplary projects, the evaluation must be conducted by an outside agency, subject to the approval of the Office of Education.

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THE NEW DU SABLE EXEMPLARY PROJECT
Bridging the Gap Between High School and the World of Work

The major thrust of this project is toward preparing six classes of students for employment by providing specific training for job-entry skills. Students who do not have salable skills will be encouraged to enroll for intensive training in the following areas: Food Services, Auto Mechanics, Offset Printing, Data Processing, Typing, and General Clerical Procedures.

A second aspect of the project includes the District Thirteen elementary schools. Coordination and enhancement of the occupational information programs in the schools which feed into DuSable will better enable students entering DuSable to make realistic educational choices.

VOCATIONAL CLASS EMPHASIS

Food Services provides:
1. training in skills and techniques in preparation for work in restaurants, cafeterias, snack-bars, and diners.
2. a wide range of career opportunities in food services, food preparation, food management, and allied categories

Auto Mechanics provides:
1. training in major and minor tune-ups, brake adjustments, wheel alignment, tire service, welding, and the various systems (exhaust, electrical, and cooling).
2. preparation for employment in service stations, garages, automobile dealerships, and preventive maintenance.

Graphic Arts provides:
1. training in letter press and off-set lithographic printing
2. training in job planning - lay-outs, composing, proof-reading, bindery operations, camera operations, plate-making, and press work.
3. exploratory information, try-outs, job preparation, and entry skill for a printing job.

Data Processing provides:
1. training in coding IBM cards, using cards, and preparing data cards and program cards
2. ample key-punch time for each student to develop a salable skill.

Typing provides:
1. the minimum typing skills, experiences, and knowledge of a typist: type 40 words or more a minute for 3 minutes with a minimum of three errors.
2. copy, make basic editorial corrections, arrange, and execute material correctly.

General Clerical Procedures provides:
1. exposure to basic office machines: typewriters, key-driven calculators, full key adding machines, and filing methods.
2. training in production work on the above machines and a basic typing skill of 30 or more words per minute.

THE DU SABLE EXEMPLARY PROJECT
BRIDGING TH E GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK

SAMPLE STUDENT PROGRAM

PERIODS	CLASS
0-1	Automotive Services
2	English 3
3	Physical Education
4	Lunch
5	U. S. History
6	Music
7-8	Automotive Services

The double period Bridging the gap class in the morning consists of intensive training in the skill area. The afternoon class consists of related job information, communication skills, grooming, job decorum, human relations, and extended instructional time. Three units of credit can be earned for intensive training, occupational orientation, and work experience.

Also available to the students are: remedial and indivivual instruction, individual counseling and group guidance, assemblies, trips, speakers, and films.

An Advisory Council made up of bussiness people, parents, and other interested persons, assists in the long range planning of activities in the program.

There is a "Bridging the Gap Newslettler" published bi-monthly, which is distributed to the students and mailed to the parents. Parents are also invited to activities planned for the group, as well as to visit the work-study classes.

A film, "Work-Study Programs at DuSable," has been completed and narrated by the principal, Mr. Frank Lucente, Jr.

The Briding the Gap Service Club, made up of representatives from each class, helps in planning group activities, serves as guides for work-study class tours, and works as ushers for the assemblies which are held at five week intervals. The club is currently developing a variety show "Showdown '72" to be presented as a fund raising event.

THE HEW DU SABLE EMPLAPY PROJECT
Bridging the Gap Between High School and the World of Work

PROGPAM SUPPLEMENTATION

The intensive skill training and the related emphasis on grooming, human relations, communication skills, proper job decorum, and job information are supplemented by other programs planned to further develop the students.

All-group assemblies are held every five weeks to focus on those students who continue to be successful in the project. A theme is developed for each assembly which includes student speakers, slides, films, and/or speakers from various work areas.

Trips are made to exhibits, plants, museums, offices, and places of business which relate to the areas taught in the classes.

Students are invited to attend the staff meetings and the Advisory council meetings. A Bridgan, the Gap Service Club serves as ushers for visitors and during all-group events. The club also put on a variety show and raised funds to help with a banquet for the Advisory Council, parents, staff and students.

Two business venture provide employment for students who do not obtain outside jobs. No salaries are paid but the students are given credit for participating, and this permits them to earn the work experience credit which is available to them.

It is possible to earn a total of three credits for participation in the program: one credit for intensive training, one for occupational orientation, and one for work experience.

The two business ventures are the Clerical Services Office which offers typing, duplicating and mimeographing services, and the Second Setting Boutique which consists primarily of clothing and household items contributed by the faculty. These are sold to students for prices ranging from $.25 to $3.00.

Each of the work-study classes also offers a service in the area of their skill development. All funds collected are deposited in an office account to be used to subsidize activities planned for the whole group.

THE NEW DU SABLE EXEMPLARY PROJECT
BRIDGING THE GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK

DISTRICT THIRTEEN ELEMENTARY VOCATIONAL GUIDANCE

The DuSable Exemplary Project objective in District Thirteen is to coordinate and enhance the occupational information programs of the elementary schools which feed into DuSable.

Associate Director Winifred French meets with guidance and adjustment teachers and with elementary and upper grade staff teachers to assist in planning emphasis on career education objectives.

Weekly vocational guidance classes are also conducted by Mrs. French to demonstrate methods that are helpful in achieving career education objectives. Some of the forms used by Mrs. French are included in this booklet. An "Occupac" vocational training program is being used in one school with an enthusiastic response from the students.

Teachers are assisted in planning for trips, films, slide presentations, and speakers. Assistance is also given in obtaining free and inexpensive vocational education pamphlets and other materials.

Elementary students are encouraged to participate in tours of the DuSable High School work-study classes. During these tours students in each class explain to the visitors some of the skills which are learned in the class, and some of the job opportunities that may result from acquiring the skills.

VERTICALLY INTEGRATED OCCUPATIONAL CURRICULUM

The Vocational Education Act of 1968 provided that programs of career information and job preparation be implemented in our elementary and secondary schools.

The need for "career education" grew out of much research in the field of vocational guidance information. The rising trends of education having to recognize the need to expose our young people to the world of work, have placed a great deal of emphasis on exploring job families, developing salable skills, realizing the dignity of work, and forming positive attitudes toward work.

Occupational information has become an important goal of education. Many high school students develop unrealistic images concerning the world of work. The schools must provide our youth with an occupational program which involves exposure to and exploration of various occupations, development of basic skills, or training in some vocational area in relationship with their abilities, and guidance in career choices.

One of the most effective ways of incorporating and introducing youngsters to the world of work is through the Vertically Integrated Occupational Curriculum. This would begi with:

1. a continuous vocational guidance pro ram (K-8)
2. developing positive work attitudes
3. developing positive work habits
4. creating awareness of occupational opportunities
5. providing knowledge about families of occupations
6. providing skills sufficient to meet the demands of a constantly changing world of work
7. providing entry-level, salable skills, from which the worker may build
8. providing the necessary occupational and academic skills enabling the student to enter technical knowledge training
9. reinforcing the concept of education as a continuous process

The concept of incor orating the Vertically Integrated Occupational Curriculum into the middle schools has been considered. Because the junior high schools, and upper grade centers have proven to be failures in meeting the needs of our pre-adoloscents, the middle schools have been assigned to bridge

the gap between the time of leaving the elementary schools with the time of entering secondary schools. The learning experiences will be of a continuous elementary school educational program.

The "feeder" schools to the middle schools must concentrate on developing occupational information relative to the needs, problems, and abilities of the pre-adolescent (ages 11-14).

Primary grades would emphasize workers in and out of the community, and of the city. Topics might include:

Kg - Workers in the Community
1 - Workers out of the Community
2 - Review and enhancement of information concerning helpers in and out of the community. Introduction to workers on the farm.
3 - Workers on the Farm

Intermediate grades would emphasize job family categories. Possible topics may include:

4 - Review of workers in and out of the community and on the farm in relationship with the job family concept.
5 - Recognizing the job family classifications such as: people jobs, thing jobs, and idea jobs. Also, jobs requiring the same skills, in the same industry, etc.
6 - Developing an understanding of the overlapping of job families, and becoming acquainted with workers in their states.

Upper grades would emphasize learning about the world of work.

7 - Exploring opportunities
8 - Future Career Choices

The Bureau of Pupil Personnel has begun preparations for initiating a continuous program of group guidance with much emphasis on the exposure to the vocational and avocational world.

Adjustment teachers, counselors, and teachers, will be involved in coordinating a program centered around relating the activities in the school to the functions of living out of the school.

FILMED FROM BEST AVAILABLE COPY

CAREFR CLUSTERS

Information from the United States Office of Education helps to clarify the range of career options available in a "career education" approach.

It suggests as follows: "The problems of delivering this type of career education are compounded by the complexity of the American economy and the diversity of the American labor force. The Dictionary of Occupational Titles, for example, lists more than twenty thousand individual jobs. Obviously, dealing with each of these individual jobs would be administratively impossible when designing and implementing a career awareness program or when providing other aspects of career education. The only feasible solution seems to be to group these jobs into a series of manageable clusters. While it is not possible to deal with twenty thousand separate jobs, it would be feasible to deal with 15 or 20 broad career clusters.

Any scheme which is developed for clustering jobs for career education programs should meet four basic requirements:

1. The cluster scheme should be such that it encompasses all the jobs in the Dictionary of Occupational Titles.

2. Each cluster should include jobs at all levels, from entry-level through skilled jobs, technical jobs, and professional jobs.

3. Each cluster should be related to an identifiable group of employers, viz. health occupations: physicians, dentists, administrators.

4. The clusters should represent a continuing societal function, it should be enduring over a period of time in the forseeable future.

The U. S. Office of Education has developed a cluster wcheme which meets the four requirements. It consists of 15 career clusters which are:

Construction Occupations—Cluster
Manufacturing Occupations Cluster
Transportation Occupations Cluster
Agri-Business and Natural Resources Occupations Cluster
Marina Science Occupations Cluster
Environmental Occupations Cluster
Business and Office Occupations Cluster
Marketing and Distribution Occupations Cluster
Communications and Media Occupations Cluster
Hospitality and Recreation Occupations Cluster
Personal Service Occupations Cluster
Health Occupations Cluster
Consumer and Homemaking Occupations Cluster
Fine Arts and Humanities Occupations Cluster
Public Services Occupations Cluster

BRINGING THE GAP

VOCATIONAL FORMS AND ACTIVITIES

Mrs. Winifred French,
Associate Director

Mrs. Louise P. Dumotz,
Director

Mr. Frank Lucente, Jr.,
Principal

Dr. William Rohan,
District Thirteen
Superintendent

PRACTICE PRINTING DRILL

You can improve your printing ability if you will trace and retrace these letters very carefully, until you are able to reproduce them on another sheet just as they appear here.

ABCDEFGHIJKLMNOPQRSTU

VWXYZ

ABCDEFGHIJKLMNOPQRSTU

VWXYZ

abcdefghijklmnopqrstuvwxyz

abcdefghijklmnopqrstuvwxyz

abcdefghijklmnopqrstuvwxyz

abcdefghijklmnopqrstuvwxyz

1234567890

1234567890

HEW DuSable Exemplary Project
Bridging the Gap Between High School and the World of Work

SAMPLE JOB APPLICATION

I. Personal Facts

Name_____ Social Security Number_____

Address_____ Birth Date_____

City_____ State_____

Phone_____ Birthplace_____

Height_____ Weight_____ Single_____ Married_____ Dependents_____

Father's Name_____ Mother's Name_____

Father's Occupation_____ Mother's Occupation_____

II. Education

Number in Family_____ girls_____ boys_____

Grade School_____ High School_____

Did you graduate from high school? Yes____ No____ Graduation Date _____

Business Training: Typing_____ years Estimate of typing speed_____ words per minute

List other business courses_____

List machines you can operate:_____

_____

Can you operate a keypunch machine? Yes_____ No_____ Kind of Machine_____

What is your speed on a keypunch machine?_____

Shop or Food Service Courses:_____

List skills you have developed:_____

List machines you can operate:_____

School Activities, Awards and Honors:_____

Favorite recreational activity:_____

Favorite human being_____

Most interesting experience_____

Finish this sentence: "I appreciate_____

_____

4807

Finish this sentence: "I can't stand _____

_____

Finish this sentence: "I hope that I will spend my life _____

_____

III. Work and Other Experiences

Present Employer_____

Address_____Phone_____

Job Duties_____

Supervisor's Name_____

Previous Employer_____

Address_____Phone_____

Supervisor's Name_____

IV. References

Name_____

Address_____Phone_____

Name_____

Address_____Phone_____

Name_____

Address_____Phone_____

Name_____

Address_____Phone_____

V. General Information

Are you now, or within the last ten years have you been a member of the Communist Party, U.S.A.? _____Yes_____No

Are you a member of an organization that advocates the overthrow of the constitutional form of government of the United States by force or violence or other unlawful means? _____Yes_____No

Do you have or have you had heart disease, a nervous breakdown, epilepsy, tuberculosis, or diabetes? _____Yes_____No

Signature_____

4808

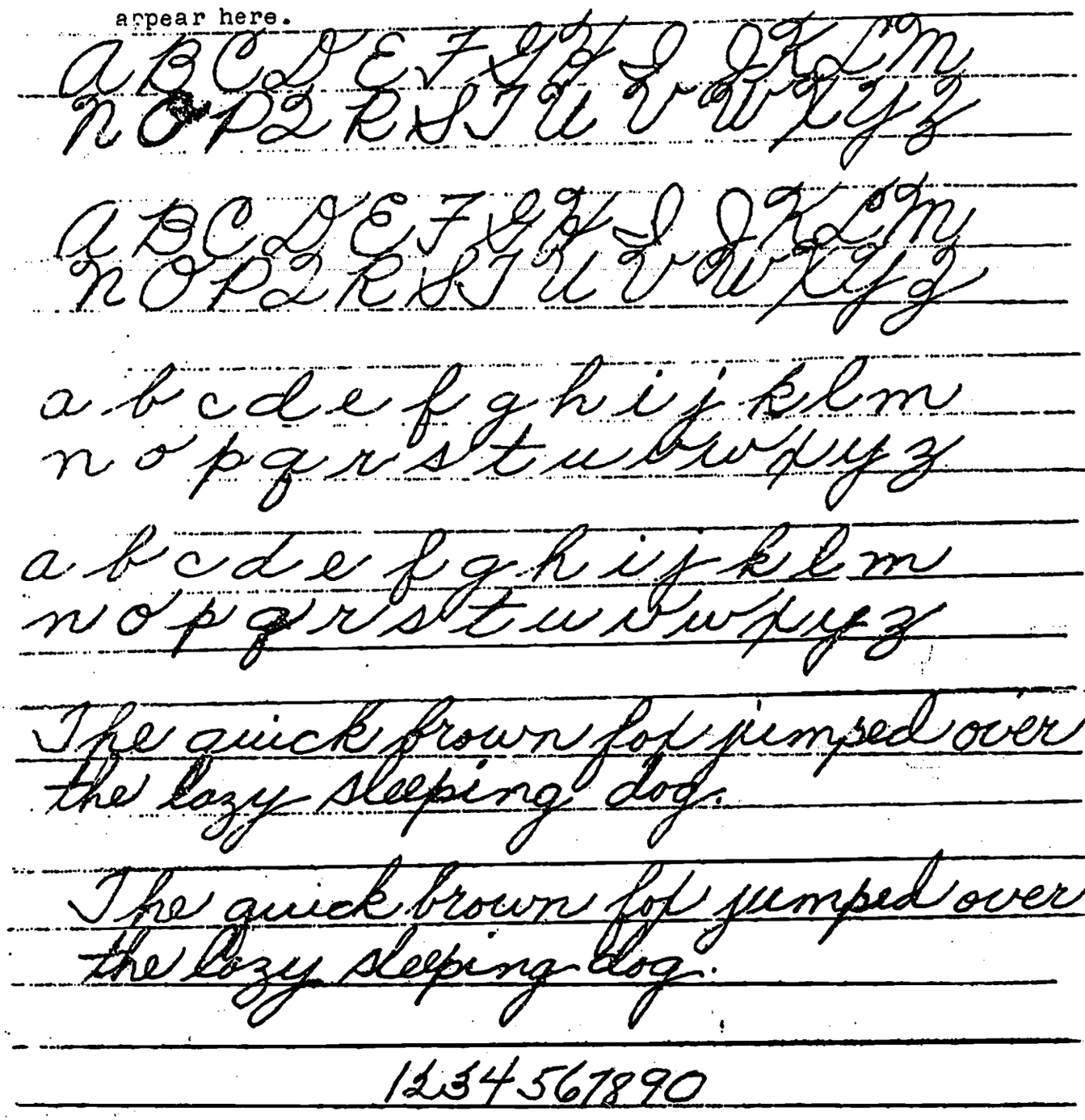
BRIDGING THE GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK

EMPLOYEE EVALUATION

	Unsatis-factory	Satisfactory	Good
1. Cheerfulness			
2. Poise (self-assured not fidgety)			
3. Speech (Correct - clear)			
4. Grooming (Clean, neat, hair tidy)			
5. Punctuality - Attendance			
6. Directness (Speaks to the point, doesn't go on and on)			
7. Enthusiasm (Peppy, interested in job)			
8. Preparedness (Organized, has necessary materials or equipment to begin work promptly)			

PRACTICE WRITING DRILL

You can improve your writing ability if you will trace and retrace these letters very carefully, until you are able to reproduce them on another sheet just as they appear here.



SEPTEMBER OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE

Suggested Activities:

Visit fire station and police station.

Tour community to point out various people at work.

View filmstrips concerning:

Farm community, small town, suburbs, big city

VOCATIONAL INFORMATION

1. Community Resources
2. Outside the Community

1. Workers in My State
2. Job Family Classifications
3. Using Want Ads for Occupational Information
4. Blueprints and Bulldozers

Suggested Activities

Listen to outside speakers (successful Black businessmen, former students, etc.)
Prepare individual folders of activities to be used as future reference
Exhibit posters, charts of people at work
Prepare bulletin boards emphasizing areas of work
View films and filmstrips
Use group guidance techniques to make experiences meaningful

Suggested Activities

Same as above (4,5,6)
Visit local high school
Visit local industry to observe various jobs in progress
Plan career day
Plan parent conference day
Set up career reference library

1. Exploring Future Educational Opportunities
2. Learning About Work
3. Exploring Career Opportunities
4. Looking to the Future

NAME_____ DATE_____

SCHOOL_____ ROOM_____ GRADE_____

CAREER EDUCATION & VOCATIONAL GUIDANCE

A. SCHOOL

1. SUBJECTS I LIKE:

2. SUBJECTS I DISLIKE:

3. SCHOOL ACTIVITIES I LIKE :

4. SCHOOL ACTIVITIES I DISLIKE:

5. BOOKS I READ

B. HOME

1. THINGS I DO NOT LIKE DOING:

2. THINGS I ENJOY DOING:

3. BOOKS & MAGAZINES READ AT HOME:

C. WORK I HAVE DONE

1. HOME

2. COMMUNITY

3. PAID JOBS

4. SCHOOL SERVICES

D. SPORTS I ENJOY PARTICIPATING IN ARE:

E. SPORTS I ENJOY WATCHING:

F. SOME INTERESTS I HAVE:

G. SOME HOBBIES I HAVE ENJOYED:

NAME_____DATE_____

SCHOOL_____GRADE_____ROOM_____

CAREER EDUCATION & VOCATIONAL GUIDANCE

NAME THE THREE KINDS OF HIGH SCHOOLS. GIVE TWO EXAMPLES OF EACH KIND.

1.

2.

3.

NAME THREE HIGH SCHOOL COURSES/SUBJECTS WHICH TAKE THE PLACE OF ELEMENTARY LANGUAGE ARTS, AND SOCIAL STUDIES.

1. 1.

2. 2.

3. 3.

NAME THREE HIGH SCHOOL COURSES/SUBJECTS WHICH TAKE THE PLACE OF ELEMENTARY SCIENCE, AND MATHEMATICS.

1. 1.

2. 2.

3. 3.

NAME THREE HIGH SCHOOL ACTIVITIES WHICH ARE SIMILAR TO ELEMENTARY SCHOOL ACTIVITIES.

1.

2.

3.

NAME FIVE HIGH SCHOOL ACTIVITIES WHICH ARE DIFFERENT THAN THOSE IN THE ELEMENTARY SCHOOLS.

1.

2.

3.

NAME FOUR KINDS OF SHOPS GENERALLY FOUND IN A LOCAL HIGH SCHOOL.

1. 2. 3.

NAME AS MANY OTHER COURSES AS YOU CAN THAT YOU THINK ARE TAUGHT IN THE HIGH SCHOOLS.

1. 2. 3.

4.

NAME _____ DATE _____

SCHOOL _____ ROOM _____ GRADE _____

VOCATIONAL GUIDANCE

THERE ARE MANY DIFFERENT KINDS OF NURSES. NAME 5 (FIVE) OR MORE. TELL WHAT EACH ONE DOES. EX: PUBLIC HEALTH NURSE·····VISITS HOME, HELPS WITH CHILD CARE IN THE HOME, ETC.

1.
2.
3.
4.
5.

WHAT ARE 3 (THREE) GENERAL DUTIES OF A NURSE?

1.

2.

3.

WHAT KINDS OF PLACES DOES A NURSE WORK IN BESIDES IN A HOSPITAL?

1. 2. 3.

WHAT IS THE NAME OF THE TEACHER-NURSE IN YOUR SCHOOL?

_____

NAME 3 (THREE) DUTIES OF YOUR TEACHER NURSE?

1.

2.

3.

NAME THREE QUALIFICATIONS NEEDED TO BECOME A TEACHER-NURSE.

1.

2.

3.

NAME _____ DATE _____

SCHOOL _____ ROOM _____ GRADE _____

VOCATIONAL GUIDANCE

VOCABULARY:

HAIR STYLIST WIG SHAMPOO WAVE MANICURE "TEASE"

BEAUTICIAN FALL TINT ROOOERS CUTICLE POLISH

COSMETOLOGIST "PRO" RINSE PERMANENT CASCADE

COSMETOLOGY SET LICENSE BUFF BASE COAT EMERY BOARD

NAME FIVE (5) OBJECTS USED TO "SET" THE HAIR.

1.
2.
3.
4.
5.

NAME THREE (3) KINDS OF HAIR PIECES.

1.
2.
3.

NAME THREE (3) DIFFERENT SERVICES AVAIABLE AT THE BEAUTY SHOP.

1.

2.

3.

WHAT ARE SOME OF THE REQUIREMENTS TO GET A JOB AS A BEAUTICIAN?

1.

2.

3.

4.

WHAT IS THE FUTURE EMPLOYMENT OUTLOOK FOR BEAUTICIANS/HAIR STYLISTS?

NAME _____ DATE _____

SCHOOL _____ ROOM _____ GRADE _____

VOCATIONAL GUIDANCE

TRADE: a means of earning one's living; work; occupation; especially skilled work.

skill: great proficency ; expertness; an art, craft, or science, especially one involving the use of the hands, or body.

SKILLED: having or requiring an ability, as in a particular industrial experience occupation, machine, etc., gained by special experience or a regular program of training or apprenticeship.

APPRENTICESHIP: any training or period p of training.

APPRENTICE: a person under legal agreement to work a specific length of time for a master craftsman in a craft or trade in return for instruction and, formerly, support; any learner or beginner.

EXAMPLES:
CARPENTERS
ELECTRICIANS
FLOOR COVERERS
PAINTERS
PLUMBERS
SHEET METAL WORKERS
PIPE FITTERS
METAL LATHERS
MILLHANDS--CABINMAKERS
MILLWRIGHTS
PLASTERS
STRUCTURAL IRON WORKERS
ARCH. -- IRON WORKERS
OPERATING ENGINEERS
CEMENT MASONS
MACHINE MOVERS & RIGGERS
AUTO MECHANICS

MACHINISTS
TOOL & DIE MAKERS
PATTERN MAKERS
FOUNDRY WORKERS.
DIE SINKERS
TYPESETTERS
LINOTYPE MACHINISTS
MEAT CUTTERS
SIGN PAINTERS
BAKERS
CHEFS

NAME_____ DATE_____

SCHOOL_____ ROOM_____ GRADE_____

VOCATIONAL GUIDANCE

1. PREPARE A NOTEBOOK CONTAINING THE FOLLOWING ASSIGNMENTS:

   a. COLLECT PICTURES OF WORKERS IN EACH OF THE 3 (THREE) JOB FAMILY CATEGORIES. TELL IF THE WORKER PROVIDES A SERVICE, MAKES A PRODUCT, OR GIVES PROFESSIONAL ASSISTANCE. FIVE PICTURES IN EACH JOB FAMILY IS REQUIRED: HOWEVER MORE CAN BE COLLECTED IFOR EXTRA CREDIT.

   b. SAMPLE CLIPPING FROM WANT AD SECTION. EXPLAIN ITS USE.

   C. VOCABULARY LIST OF WORDS USED.

   d. PERSONAL DATA SHEET

   e. OUTLINE ON OCCUPATIONS

   f. WORKSHEET ON JOB FAMILY CLASSIFICATIONS

   g. WORKSHEET ON COMMUNITY HELPERS

   h. WORKSHEET ON CITY HELPERS

   i. WORKSHEET ON THE COSMETOLOGIST

   j. WORKSHEET ON TEACHER-NURSE

   k. WORKSHEET ON TRADES

   l. SAMPLE JOB APPLICATION

2. CLASS DEMONSTRATION USING ONE OR MORE OF THE GROUP GUIDANCE TECHNIQUES.

   a. mock interview

   b. role playing

   c. panel discussion

   c. buzz session

   d. brainstorming

   e. pantomines

   f. open-end sentences

4817

November 5, 1971

Dear Teachers,

As a culminating activity, please try to plan a demonstration lesson using one of the following techniques:

a. role playing-----(imitating or reliving an esperience)

b. buzz session-----(using small clusters of children to work on a topic)

c. pantomine-------(imitating with use of voice) (using gestures)

d. mock interview------using interviewing techniques)

e. panel discussion-----(composed of several members who hav have done some research on a given topic,etc. Questions may asked by those in audience)

I will assist you in this project. Each class will be responsible for a 3-5 minute skit using one of the above techniques.

It would be better if you agreed on who is to do what, so as not to duplicate a lesson.

Some suggestive topics are: "Getting a Job," Proper Attire for Job Hunting," "Roving Cameraman," "Female Workers vs. Male Workers." Dramatizing a Particular Occupation."

Please feel free to ask any questions concerning the project. Through this project it is hoped that you will become experts in the field of vocational guidance.

Sincerely,

Winifred French, Associate Director,
DuSable Exemplary Project,"Bridging
the Gap Between High School and the
World of Work."

Good business makes better communities

The Department of
Health, Education and Welfare (HEW)
and Du Sable High School

Exemplary Project

Bridging the Gap Between High School
and the World of Work

William Rohan,
Superintendent of District 13

Frank Lucente, Jr.
Principal

Louise Dumetz
Director

Winifred French
Associate Director

-189-
4819

It is good business to hire trained, competent youth

The HEW-Du Sable High School

"BRIDGING THE GAP"

Exemplary Project

enrolls students for intensive training
four class periods daily

The skills areas include:

Automotive Services
Mr. Albert Isaac
Instructor-Coordinator

Data Processing
Mr. Henry El
Instructor Coordinator

Food Services
Mrs. Mildred Stewart
Instructor-Coordinator

General Clerical Procedures
Mrs. Peggy Hicks
Instructor-Coordinator

Offset Printing
Mr. Elester Dabney
Instructor-Coordinator

Typing
Mrs. Marva Littleton
Instructor-Coordinator

Help your business
and your community

Hire Several Students

from the
Exemplary Project

Write:

Du Sable High School
Exemplary Project
4934 S. Wabash Ave.
Chicago, Illinois 60615

Or contact:

Mrs. Louise Dumetz,
373-3200 Ext. 21

APPENDIX M

ARRANGEMENT FOR WORK OBSERVATION EXPERIENCE

Western Electric

W. E. Rheingrover
General Manager,
Hawthorne Works

Hawthorne Station
Chicago, Ill. 60623
312 494-2700

May 9, 1972

MRS. LOUISE P. DUMETZ, Director
DuSable Exemplary Project
DuSable High School
4934 South Wabash Avenue
Chicago, Illinois 60615

Dear Mrs. Dumetz:

As I indicated during the Hawthorne Career Guidance Team meeting April 14, it would take time to evaluate your request for one-to-one work observation experiences for 25 high school students in the DuSable Exemplary Project with 25 Team members. As a matter of fact, we have just completed reviewing your request with our Legal and Community Relations people, as well as Team members and their immediate supervisors. It is now my pleasure to tell you that we will be happy to welcome your group of 25 students to Hawthorne on Tuesday morning, May 23, 1972, on the condition that the parent or guardian of each participating high school student complete the "Consent and Release for Field Trip" form, which we are enclosing.

Mr. James E. Nuellen, of Community Relations, will be in contact with you to discuss plans and the final arrangements. Regarding the second visit which you requested, I am sure that you initially will want to evaluate the results of the first visit with the students and your staff, as we will with the participating Team members and our Community Relations people. After that evaluation, please let us know if your request for a second visit still stands.

In closing, I would like to say that we enjoyed meeting and talking with you and Miss French. It was not only interesting but encouraging to learn more about the DuSable Exemplary Project.

Sincerely,

General Manager

Enc.

APPENDIX N

NARRATION FOR PROJECT MOVIE

THE HEW DUSABLE EXEMPLARY PROJECT

BRIDGING THE GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK

WORK-STUDY PROGRAMS AT DUSABLE HIGH SCHOOL

A new concept has had noticeable impact on public education in America today. This concept, "career education," has had the vigorous support of United State Commissioner of Education Sidney P. Marland, Jr., and has earned recognition as an important vertical school process beginning in kindergarten and continuing until school or college departure.

At DuSable High School in District 13 of the Chicago Public Schools, we have one of fifty discretionary grants for exemplary projects - made by the Department of Health, Education and Welfare - in every state and territory in the nation. The purpose of the grant is to develop a program which implements the "career education" concept.

Learning about jobs, trades, vocations, and professions, helps every child to begin to relate to a real life working involvement - it helps him to begin to see himself as a potential employed adult. It helps him to think of the job he would like to have for his adult career - one that he can plan for and prepare for.

The HEW DuSable Exemplary Project, Bridging the Gap Between High School and the World of Work, which was initiated by Assistant Superintendent Joseph J. Dixon of the Department of Practical Arts and Vocational Education, spans the kindergarten through high school range. It focuses the attention of the high school students on the importantce of preparing for employment - the importance of training. And it also encourages elementary students in District Thirteen to examine the world of work so that they can make career oriented choices of subjects when they reach high school.

This movie, produced by HEW Bridging the Gap Program, shows one way that a career education program can be implemented.

A successful program requires the cooperative effort of many people, not only the administrative personnel in the downtown and district offices, but the staff in each participating school.

Assistant pricnipals Joyce Seidel, Clementene Clark and Olga Glenn, as well as W. Joseph Sondhelm and Luke Helm, are all involved directly or indirectly in making the Bridging the Gap Program at DuSable High School a success in District Thirteen.

On more than one occasion involvement and concern for the Bridging the Gap program have been demonstrated by Assistant Superintendent Joseph J. Dixon shown here with District 13 Superintendent William Rohan, Area A. Consultant Allen Smith and Bridging the Gap Associate Director, Winifred French.

Holding a job is probably the most meaningful, relevant way of learning about the world of work. There are several programs at DuSable, in addition to Bridging the Gap, which try to place students on jobs. The NYC - the National Youth Corps, guided by Irwin Finnell, provides jobs in the school for students who qualify.

HERO, The Home Economics Related Occupations work-study program headed by Mrs. Rugh Hamilton, has a job orientation class, and places girls in Home Economics related areas. The girls are shown here working on a class sewing project.

CWT- The Cooperative Work Training Class, taught by Roy Tolbert, places students on suitable jobs in the community. Job related instruction continues and academic work toward graduation also continues for all of the students enrolled in work-study programs at DuSable.

Mrs. Jacqueline Crawford teaches the Office Occupations class. It is open to seniors only, and includes some of the most capable students at DuSable. They are placed on jobs requiring clerical and typing skills.

Also open to seniors only are the Distributive Education classes. There are two DE groups. This one is taught by Mrs. Brenda Fryison. The students are helped to prepare for and find suitable jobs in merchandising areas.

The other DE class is taught by Mrs. Faye Grays. Work-study classes are much enjoyed by the students because they have an immediate relevance. Students in these programs who have been palced on jobs rarely drop out of school. Career education in itself is meaningful, but it is possible most meaningful to these students because they can see the importance of learning skills that will help them become capable employees.

Staff meetings are an important part of Bridging the Gap planning. This one includes Mrs. Louise Dumetz, Director, Assistant Superintendet Dixon, Mrs. Winifred French, Associate Director; and District 13 Superintendent Dr. William Rohan.

The HEW Bridging the Gap program, like the five other work-study programs at DuSable High School, helps prepare students for employment and then attempts to place them on jobs. However, the Bridging the Gap classes meet four periods daily with the objective of teaching students specific job entry skills. The six classes, typing, general clerical procedures, data processing, food services, automotive services, and offset printing, meet two periods in the morning, and two in the afternoon from September until January when efforts are made to place every student on a job. Employed students are then excused from the two afternoon periods. In addition to the intensive skill training, the students are oriented to proper job decorum, good grooming habits, human relations, and the potential career ladder in each area. These are typing students in the class of teacher-coordinator Marva Littleton.

Here Assistant Superintendent Dixon visits the Offset Printing class of Elester Dabney. Also on hand is Bridging the Gap Director Louise Dumetz.

These young visitors are a very important part of the Bridging the Gap program. They are from Colman Elementary School in District 13. Guided by Associate Director Winifred French, they have been learning about the world of work. A tour of the work-study classes was arranged for them and they will discuss the careers these job-entry- skills can help the students to enjoy. Mrs. French works with guidance and adjustment teachers as well as with students in the District 13 elementary schools, helping to focus emphasis on the importance of career education.

This group includes Huey Johnson, a student in the Bridging the Gap Automotive Services class, Walter Anglin, advisor to the DuSable High School Student Council, and Eric Small advisor to the Area A Inner School Council. Huey is president of the DuSable Student Council, which is one of twenty high school councils participating in the Area A Council.

The Automotive Services class has just received a new 6 cylinder engine to be used in class projects. It was the gift of a local firm. Albert Isaac is the teacher-coordinator for the class.

The General Clerical Procedures teacher-coordinator is Mrs. Peggy Hicks. These students develop skills in the use of adding machines, typewriters, and duplicators, as well as those skills which are used in office work, generally.

In the Data Processing class taught by Henry El, the students are developing key punch skills.

Mrs. Mildred Stewart is the teacher-coordinator for the Bridging the Gap Food Services class. These students are being prepared for employment in restaurants and other food handling areas. This class is one of the most popular in the program.

Assistant Superintendent Dixon and Associate Director Winifred French visit the typing class of Mrs. Marva Littleton.

Eric Small, Area A Inner School Council advisor, is shown with Huey Johnson, president of the DuSable High School Student Council, and other Council members, when DuSable was host to a recent meeting of the Area Council. Huey is a member of the Bridging the Gap Automotive Services Class, shown here hard at work on various auto mechanic projects.

Meet some of the students in the Offset Printing Class of Elester Dabney.

More visitors on a tour of the work-study classes are shown visiting the Food Services class. These are from Vincennes Upper Grade Center.

Bridging the Gap Director Louise Dumetz is shown at work in the work-study office.

And these work-study students are shown about to board busses for a trip to the Black Esthetics Exhibit at the Museum of Science and Industry. All of the DuSable work-study classes are invited to participate in Bridging the Gap activities.

The career education concept as a vertical process can help every youngster to prepare for the kind of adult career which he prefers. With a particular job, trade, vocation or profession as a goal, the student will find his subject-matter more meaningful, more relevant. This is true whether he seeks employment immediately after high school or continues his preparation in college or trade school.

Work-study programs are significant because they help students to develop job-entry skills which can be used while they are still in school or college, and immediately after school departure. These are important because they are not only highly motivational but give economic assistance to participating students.

APPENDIX O

NEWSPAPER COVERAGE OF PROJECT

Students in auto class get automobile engine

STUDENTS ENROLLED in the DuSable Exemplary Project funded by the Health, Education and Welfare Department, received a contribution Tuesday which will add to the ability of auto shop students in a very positive way. John Kriegsmann, and Sam Beasley of Continental Motors, presented the Automotive Services class with a new six cylinder industrial engine. The engine will be used to teach youngsters enrolled in auto shop classes at DuSable High School.

PRESENT FOR the occasion were representatives from the downtown offices of the Chicago Board of Education; Edward Makuch, Supervisor of Auto Mechanics, and George Jones, Supervisor of Graphic Arts. Also participating were Albert Isaac, teacher-coordinator for the Automotive Services class, Mrs. Winifred French, Associate Director of the HEW DuSable Exemplary Project, Mrs. Louice P. Dumetz, Director, and Frank Lucente, Jr., Principal of DuSable.

WARREN LANGFORD, a student enrolled in the program, is chairman of the "Bridging the Gap Service Club." He commented: "This program gives you a chance to get well acquainted with a particular kind of job so that you feel you really know how to do it well."

THE CAREER orientation program which is called "Bridging the Gap Between High School and the World of Work," includes classes for double periods in the morning and again in the afternoon. The skills areas are: Food Services, Offset printing, Data Processing, Typing, General Clerical Procedures, and Automotive Services. The objective is to prepare students for employment by giving them intensive training. Another phase of the HEW DuSable Exemplary Project involves orienting youngsters in elementary schools in District 13 to understanding of realistic employment requirements and employment opportunities. Research has shown that many high school graduates are not prepared for specific employment and a notable percentage does not enroll in college. After four months of intensive training, it is hoped that the 136 students enrolled in the skill classes will be placed on jobs. Efforts are being made to recruit an Advisory Council to assist in job placement. Anyone interested can call 373-3200, ext. 21 for further information.

"Bulletin newspaper" Nov, 1971

4329

Bridging the gap...

Students enrolled in the DuSable high school Exemplary Project, funded by the Health, Education and Welfare Department, received a contribution which will add to the ability of auto shop students in a very positive way. The Automotive services class was presented a new six-cylinder industrial engine which will be used to teach students enrolled in auto shop classes. Looking over the new machinery are DuSable principal Frank Lucente, Jr., Albert Isaac, Automatic Services teacher coordinator, Mrs. Louise Dumetz, director of HEW DuSable Exemplary Project, and George Mosley, co-chairman of the "Bridging the Gap," service club. The engine was contributed by Continental Motors Co.

CHICAGO DAILY DEFENDER — NOV. 20 — NOV. 26, 1971

Car shop students get a new engine

Auto shop students enrolled in the DuSable Exemplary Project last week received a gift which will add to their ability in the trade in a positive way.

DuSable's Automotive Services class was presented with a new six cylinder industrial engine to be used to instruct students enrolled in auto shop.

The presentation was highlighted by the appearance of representatives from the Chicago board of education, Edward Makuch, supervisor of Auto Mechanics and George Jones, supervisor of Graphic Arts. Others participating during the ceremony were:

Albert Isaac, teacher-coordinator for the Automotive Service class; Mrs. Winifred French, Associate director of the HEW DuSable Exemplary Project; Mrs. Louise P. Dumetz, director, and Frank Iucente Jr., principal of DuSable High School.

In commenting on the project, funded by the Health, Education and Welfare (HEW) department, Warren Langford, a student enrolled in the program and chairman of the "Bridging the Gap" Service Club said:

"This program gives you a chance to get well acquainted with a particular kind of job so that you feel you really know how to do it well." The career orientation program is called "Bridging the Gap Between High School and the World of Work."

Included are classes for double periods in the morning and in the afternoon. Skill areas also include, in addition to automotive services, food services, offset printing, data processing, typing, general and clerical procedures.

The objective, it was explained, is to prepare students for employment by giving them intensive training in these fields.

Another phase of the HEW DuSable Exemplary Project involves orienting youngsters in elementary schools in District 13 to an understanding of realistic employment requirements and employment opportunities.

Research has shown that many high school graduates are not prepared for specific employment. A notable percentage does not enroll in college. After four months of intensive training it is hoped that the 136 students enrolled in the skill classes will be placed on jobs.

Efforts also are being made to recruit an Advisory Council to assist in job placement. Those interested are invited to call 373-3200, Ext. 21 for further information.

BUY
U.S.
SAVINGS
BONDS

APPENDIX P

PROJECT EVALUATION TEAM AGENDA

THE NEW DUSABLE EXEMPLARY PROJECT
BRIDGING THE GAP BETWEEN HIGH SCHOOL AND THE WORLD OF WORK

DuSable High School
4934 South Wabash Avenue
Chicago, Illinois 60615

EVALUATION TEAM AGENDA
Wednesday and Thursday, March 29 and 30, 1972

EVALUATION TEAM MEMBERS

Mrs. Joyce Dechman, Program Officer
Exemplary Projects, United States Office of Education
Department of Health, Education and Welfare

Mr. Elmer Schick, Regional Program Officer
United States Office of Education
Department of Health, Education and Welfare

Mr. Robert Gray, Coordinator
Research and Development Unit
State Board of Vocational Education and Rehabilitation
Division of Vocational and Technical Education

Miss Barbara Sosnowski, Social Planner
Chicago Commission on Urban Opportunity - Model Cities Program
Ms. Arlene Davidson, Social Planner, Model Cities Program

CHICAGO STATE UNIVERSITY EVALUATION TEAM

Dr. Norman Laws, Chairman
Dr. Franklyn Dye
Mr. Frank Moore
Dr. Rhea Shields
Mr. Anthony C. Vasis, Jr.

COORDINATING BOARD OF EDUCATION REPRESENTATIVES

James F. Redmond, General Superintendent of Schools

Joseph J. Dixon, Assistant Superintendent of Schools
Department of Vocational and Practical Arts Education

William Rohan
District Thirteen Superintendent

Frank Lucente, Jr., Principal
DuSable High School

Enos C. Perry, Director
Bureau of Business Education

Louise P. Dumetz, Director
DuSable Exemplary Project

Gerald F. Bober, Consultant
Bureau of Business Education

Winifred French, Associate Director
DuSable Exemplary Project

Jean B. Sachs, Director
Bureau of Home Economics

Edward J. Makuch, Supervisor
Auto Mechanics

George W. Jones, Supervisor
Graphic Arts

Albert Isaac, Teacher-Coordinator
Automotive Services

Marva Littleton, Teacher-Coordinator
Typing

Henry El, Teacher-Coordinator
Data Processing

Elester Dabney, Teacher-Coordinator
Offset Printing

Peggy Hicks, Teacher-Coordinator
General Clerical Procedures

Mildred Stewart, Teacher-Coordinator
Food Services

EVALUATION TEAM AGENDA
Wednesday, March 29, 1972
Chauncey C. Willard, Social Room

7:40 a.m.	Welcome - Mr. Frank Lucente, Jr., Principal
7:50 a.m.	HEW Evaluating Team: Briefing, Purpose of visit, Description of what is to be observed and measured.
8:20 a.m.	Mrs. Louise Dumetz: Profile of the community and film - "Work Study Programs at DuSable."
8:40 a.m.	Student Input: An Evaluation.
9:00 a.m.	General discussion with student speakers, staff, and evaluating team.
10:00 a.m.	Coffee Break
10:15 a.m.	Staff Input: An Evaluation.
11:15 a.m.	Mrs. Winifred French: The Elementary Career Information Program.
12:00 a.m.	Lunch
1:00 p.m. to 3:00 p.m.	On site visit at Horner Elementary School 4111 South Michigan Avenue 285-1739 Mrs. Theresa Leonard, Principal

Thursday, March 30, 1972

7:40 a.m. to 9:00 a.m.	Classroom visitations	
	Food Services	Room 109
	Automotive Services	150
	Second Setting Boutique	153A
	Data Processing	326
	General Clerical	316
	Clerical Services	318
	Typing	319
	Offset Printing	250
9:00 a.m.	General Discussion: Exchange of Observations, Evaluating team and staff.	
10:00 a.m.	Coffee Break	
10:15 a.m.	Mrs. Louise P. Dumetz: Planning for Progress.	
10:45 a.m.	Input from Chicago State University team.	
11:15 a.m.	Input from Office of Education and Model Cities team.	
12:00 p.m.	Lunch	
1:00 p.m. to 3:00 p.m.	Caucus, debriefing, and wrap-up session.	

VT 016 397

MOSKOWITZ, IRVING
CAREER RESOURCE CENTER: A "PRE-K TO ADULT" MODEL FOR CAREER DEVELOPMENT. INTERIM REPORT.

HACKENSACK PUBLIC SCHOOLS, N.J.;NEW JERSEY STATE DEPT. OF EDUCATION, TRENTON. DIV. OF VOCATIONAL EDUCATION.
BUREAU OF ADULT, VOCATIONAL, AND TECHNICAL EDUCATION (DHEW/OE), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
OEC-0-7-5188(361)
PUB DATE - JUN71 72P.

DESCRIPTORS - EDUCATIONAL OBJECTIVES; VOCATIONAL EDUCATION; *CAREER EDUCATION; VOCATIONAL DEVELOPMENT; ELEMENTARY GRADES; SECONDARY GRADES; *DEVELOPMENTAL PROGRAMS; *PROGRAM DESIGN; *PILOT PROJECTS; *PUBLIC SCHOOL SYSTEMS; ADULT EDUCATION PROGRAMS
IDENTIFIERS - PUBLIC LAW 90-576, PART D; *HACKENSACK CAREER DEVELOPMENT CENTER

ABSTRACT - THE BASIC GOALS OF THE HACKENSACK CAREER DEVELOPMENT MODEL ARE: (1) TO INTEGRATE CAREER DEVELOPMENT CONCEPTS INTO REGULAR CLASSROOM ACTIVITIES, (2) TO IMPLEMENT THE CAREER DEVELOPMENT MODEL INTO THE HACKENSACK PUBLIC SCHOOLS, AND (3) TO CONTINUALLY EVALUATE AND UPDATE THE CAREER DEVELOPMENT CONCEPT. A PILOT PROJECT, THE HACKENSACK CAREER DEVELOPMENT CENTER, WAS CONDUCTED IN A SCHOOL SYSTEM HAVING 6,200 STUDENTS FROM PRE-KINDERGARTEN TO GRADE 12, AN ADULT EVENING SCHOOL, AND AN ADULT BASIC EDUCATION PROGRAM. THIS FEDERALLY FUNDED EXEMPLARY PROJECT IN CAREER EDUCATION HAS ATTAINED AND SURPASSED ITS INITIAL OBJECTIVES FOR THE FIRST YEAR, WITH THE ACTIVE INVOLVEMENT OF THE STAFF AS A MAJOR FACTOR IN THE PROGRAM'S SUCCESS. A SERIES OF RECOMMENDATIONS FOR THE PROJECT ARE PRESENTED, AS WELL AS THE GENERAL PROJECT DESIGN AND PROCEDURES. FOR EACH OF 10 PROJECT OBJECTIVES, METHODS OF ACCOMPLISHMENT ARE ENUMERATED. UTILIZATION OF AUDIOVISUAL AIDS HAS PROVED HELPFUL IN A 2-TRACK APPROACH WHICH INVOLVES ONGOING PROGRAMS AS WELL AS SHORT-TERM PROGRAMS. (AG)

INTERIM REPORT

Project No.
Grant or Contract No. OEC-0-70-5188 (361)

Career Resource Center: A "Pre-K to Adult" Model for Career Development

Exemplary Project in Vocational Education
Conducted Under
Part D of Public Law 90-576

Irving Moskowitz

Hackensack Public Schools
355 State Street
Hackensack, New Jersey 07601

and

Division of Vocational Education
Trenton, New Jersey 08625

VT016397

June, 1971

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U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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INTERIM REPORT

Project No.
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Career Resource Center: A "Pre-K to Adult" Model for Career Development

Exemplary Project in Vocational Education
Conducted Under
Part D of Public Law 90-576

The project reported herein was performed pursuant to a contract with the Bureau of Adult, Vocational, and Technical Education, Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official office of Education position or policy.

Irving Moskowitz

Hackensack Public Schools, 355 State Street, Hackensack, New Jersey

June, 1971

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SUMMARY OF THE REPORT

Time Period Covered by the Present Report

October 1, 1970, to June 1, 1971

Statement of Project Goals

The basic goals of the Hackensack Career Development Model are:

1. to develop a model in which career development concepts may be incorporated into regular classroom activities,

2. to implement the career development model into the Hackensack Public Schools, and

3. to evaluate and update the career development concept on a continual basis.

Statement of Project Objectives

1. To make career development education a significant part of the school curriculum at each developmental stage.

2. To provide sequential and continuous career development activities throughout all grade levels from pre-kindergarten to adult education.

3. To establish a working model of a Career Development Center functioning within a school system.

4. To study the impact of career development activities on students.

5. To make career development activities applicable to every student category including all special needs groups.

6. To provide students with a broad and accurate knowledge of occupations and career opportunities.

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Statement of Project Objectives (Continued)

7. To increase students' awareness of themselves, their interests and aptitudes relative to work.

8. To help students in developing decision-making skills necessary for a sound vocational choice.

9. To influence teachers to think of career development activities as a necessary part of all course content.

10. To provide information regarding job placement services to students.

Procedures Followed

The Hackensack Career Development Center is a pilot project designed to:

1. make career development learning activities an integral part of the school curriculum from the earliest grades through adult education,

2. provide a setting in which experimentation with and evaluation of such activities may be carried on, and

3. offer students and graduates all possible assistance in finding desired and/or suitable employment.

Career development learning activities are defined as any type of experiences that will:

1. enable students to enlarge their knowledge of occupations,

2. increase their awareness of their interests and aptitudes relative to work, and

3. develop the decision-making skills needed to put this knowledge to best use.

This project is being conducted in a school system with an enrollment of 6,200 students from pre-kindergarten to grade 12; with a sizeable adult evening school and Adult Basic Education Program. The school population is mixed racially, socially, and ethnically--reflecting the heterogeneous nature of the city's population.

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In the first year of the Center's operation, two types of operations (Continuing Programs and Intra-Curricular Activities) have been planned and conducted by the staff. The Continuing Programs are based upon a pre-established curriculum guide and, in most cases, are implemented over a prolonged period--such as all or most of the school year or summer. These programs are intended to be repeated each year. In some cases, they form the basis for a self-contained course, and also provide curriculum materials and activities to be interspersed through the ongoing classroom instruction.

The Intra-Curricular Activities are short-term projects planned mutually by one of the School/Industry Coordinators and a classroom teacher in response to a request by the teacher for a career development activity to relate to his course work. These activities include field trips, demonstrations, "hands-on" work activities, guest speakers, simulations or role-playing activities in the classroom, or media presentations of any kind.

During the initial year, the staff has either planned and/or is conducting approximately fifteen Continuing Programs, some of which are being carried over from past years. In addition, approximately 210 Intra-Curricular Activities have been conducted, most of them consisting of more than one component or learning experience.

Through a combination of Continuing Programs and Intra-Curricular Activities, the program eventually plans to provide sequential and continuous coverage in career development activities for all students in the school system, with each program activity designed to meet the needs of a particular level.

Results, Accomplishments

The Hackensack Career Development Program has attained its initial objectives had has moved beyond the developed intent for year one. Staff involvement has been a key to project success, with members going beyond their assigned responsibilities.

The program has generally been operating under a two-track approach, involving on-going programs as well as providing short-term programs throughout the year. Utilization of audio and video tapes and other audiovisual equipment has made this approach efficient and effective.

The program has also considered its future role and development. A university professor has assisted by developing a paper on the theory and

practicality of career development concepts. This material will be examined closely and serve as a basis for the second year's operational program.

Evaluation

The evaluation of the first year's career development program will focus on process activities, since this was a major emphasis of the staff. These activities/tasks/responsibilities have been incorporated into ten process objectives. Data related to each will be presented in the evaluation report.

Conclusions and Recommendations

The Hackensack Career Development Program has attained the established objectives for year one and has progressed beyond the expected outcomes. The staff has been actively involved and has been instrumental in the program's success.

It is recommended by the evaluator that the project:

1. involve all staff members in planning for 1971-72 evaluation activities.

2. consider further involvements with the regular school staff for incorporation of career development concepts into the regular school curriculum.

3. work in cooperation with district administrators in integrating career development concepts into the regular school curriculum.

4. disseminate the results of year one and the approach implemented to provide students with career development information.

5. continue to be acceptable to change and to incorporate ideas and concepts that would benefit students.

6. consider the materials related to theory and practicality developed during the 1970-71 year and provide a setting for the testing of the developed concepts.

7. conduct a follow-up study regarding student perceptions and utilizations of career development information.

PROBLEM AREA

In examining the problem area, the evaluator has drawn from the material presented in the original project proposal. This material was developed by Mr. Thomas Gambino and Mr. Robert Briant, of the Division of Vocational Education, State of New Jersey.

> Educators have long recognized that the development of a person's perception of himself in a career role is a complex on-going process beginning in the early years and continuing throughout his entire life. Despite the urgency and the extent of the problem, little real progress has been made regarding how the school should provide for the career development process. In the 1970's, youth will find themselves in a society characterized by rapid social and occupational change. Greater than ever before, there will be a need for workers in numerous new fields. A well-planned pre-school to adult career development program is becoming increasingly critical if we are to reduce the waste of human resources now taking place.
>
> Now and for the next decade, more high school graduates will go immediately to work than will go on to college. (This is not to say that more would not go--but a good career foundation has been lacking.) Yet, the employment-bound population is often neglected except through specific vocational education programs at the high school level. In order to gain maximum success, the focus of career development activities must go beyond the limits of providing only for skill training necessary for employability in a particular occupation. Additionally, provisions must be made for those aspects of the educational experience presently underdeveloped which help people to discover their talents, to relate them to the world of work, to choose an occupation, and to refine their talents and use them successfully in employment.
>
> There is a great need for workers in almost every field including technicians, nurses, service occupation workers, nuclear energy, space travel, and many others. People attain self-fulfillment through the use of their potential in satisfying, meaningful work. Why then, under such conditions does such a tremendous shortage of qualified workers exist? Why also, are so many people unhappy and unproductive in their work? The answer seems to lie within another complex question: "By what educational process can it be determined,

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what vocational direction will benefit the individual and meet the needs of our technological civilization?" This is the core of the problem that is being studied in this project.

Through a thorough review of the literature, participation in state and national career conferences, and research reports, it has been found that this is indeed a worthwhile problem urgently in need of study. To further clarify the problem, a number of selected references are cited:

> Work can be viewed as man's aim and end, or as his instrument. Whatever the view, our Nation can no longer afford the vagueness, hap-hazardness, and error to which individuals are so frequently abandoned in their career choices. The fate and welfare of the United States and its people are now, and for some time will remain, substantially dependent on. . .the cultivation and employment of the Nation's talent.

Further in the same report, regarding outcomes of the Vocational Education Act of 1963, more specific evidence of the proportions of the problem is summed up as follows:

> Overall enrollments increased from 4.5 million to 6 million between fiscal years 1964 and 1966, but secondary level enrollment constitutes only a quarter of the total high school enrollment of the Nation, even though five out of six youths never achieve a college education. Less than one-half of the noncollege-trained labor force was found by a 1964 Labor Department survey to have had any formal training for current jobs. Less than 4 per cent of the 18-21 population were enrolled in post-secondary full-time vocational education, with less than 3 per cent of the 22-64 population involved in part-time adult extension courses. Yet we are convinced that the time has arrived when almost every person requires some formal preparation for employment and most will continue to need some type of continuous up-grading. (Bridge Between Man and His Work)

The complexity of the problem is clearly illustrated in still another part of the Vocational Education Act of 1963 report:

> It is becoming increasingly difficult for persons under age 20 to obtain a meaningful job. Equally demoralizing is the fact that the employment they can get is often temporary and

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usually low-paid. The prospect for young persons in the future is even more bleak, for employment of youths is almost certain to become more difficult.

The only practical solution seems to be to keep youths occupied in worthwhile activities until they are ready for employment. For much of this group, the best place is school. Yet this is the group the current vocational system is least prepared to serve. Such remedial manpower and antipoverty programs as the Manpower Development and Training Act and the Job Corps can currently enroll only tens of thousands when hundreds of thousands need help. The schools must have help to meet this massive need.

Special attention to those with "academic, socio-economic, and other handicaps" was one of the new directions of the Vocational Education Administration Act of 1963, but as indicated above, this is not among the impressive accomplishments. Fragmentary information suggests, and experience confirms, that vocational students tend to be substantially below other students in general capability. Yet too often the better schools attempt to upgrade their student bodies and enhance their prestige, not by providing special help to those who need it, but by actually eliminating such students by more stringent requirements.

In some school systems, vocational education serves as a dumping ground for academic misfits. In others, where vocational education has a strong voice in policy determination, it tends to reject these misfits, so that they are placed in the "general" curriculum which prepares them for nothing. (Bridge Between Man and His Work)

It appears that despite the magnitude of the efforts of the Vocational Education Act of 1963 and the many excellent accomplishments, we have barely begun to scratch the surface. The Advisory Council on Vocational Education, 1968, offers some significant recommendations that the New Jersey Division of Vocational Education subscribed to wholeheartedly.

An adequate system of vocational education capable of achieving these objectives while coping with a changing environment, should have the following characteristics:

1. Occupational preparation should begin in the elementary schools with a realistic picture of the world of work. Its

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fundamental purposes should be to familiarize the student with his world and to provide him with the intellectual tools and rational habits of thought to play a satisfying role in it.

2. In junior high school, economic orientation and occupational preparation should reach a more sophisticated stage with study by all students of the economic and industrial system by which goods and services are produced and distributed. The objective should be exposure to the full range of occupational choices which will be available at a later point and full knowledge of the relative advantages and the requirements of each.

3. Occupational preparation should become more specific in the high school, though preparation should not be limited to a specific occupation. Given the uncertainties of a changing economy and the limited experiences upon which vocational choices must be made, instruction should not be overly narrow but should be built around significant families of occupations or industries which promise expanding opportunities.

4. Occupational education should be based on a spiral curriculum which treats concepts at higher and higher levels of complexity as the student moves through the program. Vocational preparation should be used to make general education concrete and understandable; general education should point up the vocational implications of all education. Curriculum materials should be prepared for both general and vocational education to emphasize these relationships. (The Bridge Between Man and His Work)

For too long, vocational educators have designed programs along the earlier narrow patterns; namely, placing the greatest emphasis at the high school level and later, on the attainment of saleable skills needed for employment rather than meeting the total career development needs of the individual which actually spread across his entire life. Thus, a key aspect of the Hackensack project is to explore ways in which the vocational educator can participate in the total curriculum--pre-school to adult.

Willa Norris, Associate Professor of Guidance and Personnel Services, Michigan State University, supports such a position:

> The 1960 White House Career Conference Reports point out that vocational decisions have their roots in the primary years. However, little has been accomplished to help point directions or guidelines regarding techniques and approaches that we might use at the elementary level. The need is more urgent today as more and more vocational education programs are offered in the schools. Children need foundations for decisions. (Norris)

Vocational theorists have stated for many years that career development is a process that begins with the birth of the child and continues throughout his life. Many have written widely on the subject and their thoughts can be pointed up by Dr. Donald Super, who states:

> In infancy, the individual begins the process of forming a concept of himself, developing a sense of identity. . . Exploration appears to be the first phase and a continuing process. . .

The concept of vocational education must be firmly constructed within the concept of career development if vocational education is to be truly recognized as a significant part of education.

Educators in the fields of vocational education, in psychology, sociology, and others cited below provide evidence of the need to merge academic and vocational in order to offer more comprehensive educational opportunities for all individuals.

> Ideally, something should be done to programmatically build into the curriculum itself content which shows the place of school in the larger world. An effort must be made to show how skills acquired in school have later utility, or build toward the development of skills that will have utility, in the world of work. Children are interested in thinking about themselves as adults and in various work roles. A considerable opportunity for constructive, vicarious vocational exploration exists at the elementary level. This is likely to be most effectively accomplished directly in the curriculum rather than imposed as an adjunct program by a specialist outside the curriculum. The role of the specialist should be to serve as an advisor and consultant to the curriculum developer and teacher who will have to implement the concepts. (Osipow)

> Children are influenced by attitudes of people around them. To compound the problems that this generally produces, the typical curriculum does not provide sufficient opportunities for them to explore and develop their potentials. Studies show that by the fifth grade, clear distinctions have been made regarding what is appropriate for them to like and dislike. Most teachers and counselors have middle-class attitudes and are more familiar with the professions than they are with clerical, health, sales, and skilled and semi-skilled areas. Textbooks follow this same pattern. (Super)

The findings of behavioral psychologists cited in the following excerpts present positive evidence in favor of early school programs, such as Technology for Children:

> The motor ability of a child constitutes an important component of his feeling of competence in coping with the environment. It enables him to feel either executively independent and capable of looking after his own needs or relatively dependent on the physical assistance of others. It also constitutes an important source of primary status in the home, school, and peer group as well as basic prerequisite for ultimately attaining volitional independence. . .The executively independent child is more free to explore the wider community with some feeling of assurance. (Ausubel)

Ausubel continues elsehwere:

> Certainly more is involved during the school years when children address themselves to motor, manual, and intellectual achievements and need a sense of making things and making them well and even perfectly.

White identified a common problem regarding motibility:

> Restrictions of motibility may occur because the parents are anxious or because the child's assertiveness troubles them, and a lasting injury to the parent-child relationship may result. Clumsiness in motor or manipulative accomplishments may lead to self-hatred and dependence, for the "evaluation of self-assertiveness and self-esteem" is significantly connected with motor development.

Careful attention should be given to this point expressed by Roe:

> . . .a child whose expressions of natural curiosity were thoroughly blocked, would cease to be curious. "Natural curiosity" here may be interpreted to mean pursuit of need satisfaction.

Despite the urging and the expertise, little has evolved in actual educational practice by way of attuning the education of the individual to the career development processes.

Holland-Whitney also stress this need in the following statements:

> A larger and better integration of current knowledge is needed. The potential value of looking at vocational behavior in the context of counseling, industrial psychology, and particularly sociology needs more explicit attention. Despite much talk about careers, only work histories. Most investigators have been content to study the relationship between one job and the next or the correlates of a single job. Counseling psychologists have focused on adolescents; industrial psychologists have focused on selection and placement; and sociologists have focused on work groups and other group phenomena. Consequently, the links among these diverse fields--all concerned with vocational behavior--are few and weak. More long-term longitudinal studies in which concepts from many fields are integrated in single studies are perhaps the most promising possibility.

Thus it is quite apparent that a strong case has been presented for greater and greater involvement on the part of the vocational educator in the entire educational process.

Under the early vocational education acts supporting and implementing vocational education, vocational educators were restricted in terms of their involvement in the total educational process. Provisions of the funding acts addressed themselves to the somewhat narrow framework of training per se. Further, there was no recognizable effort by vocational educators, nor unfortunately encouragement by other members of the educational family, to open avenues of communication and appreciation on the part of the student and of the community towards vocational education. Such an operational framework was probably the greatest contributor to relegating vocational education to "second choice" education.

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Marvin J. Feldman, at the time that he was Program Officer of the Ford Foundation, showed a great concern for this problem when he stressed the need for broadening foundations for future career choices as follows:

> The failure of vocational education to serve larger numbers is directly related to the fact that the vocational system has no voice in the preparation of students for its program.

He too feels that at this stage in its history, vocational education remains primarily "training" and has not yet arrived at the "education" level.

This is the challenge that must be met. Vocational education, operating within the framework of the career development concept, is somewhat broader than the aspects cited in the "Problem" of the original proposal guidelines, i.e., "(a) creating bridges between school and earning a living for young people; (b) promoting cooperation between public education and manpower agencies; and (c) broadening occupational aspirations and opportunities for youths."

From original proposal, section written by Mr. Thomas Gambino and Mr. Robert Briant of the New Jersey State Department Division of Vocational Education.

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GOALS

Coordinate the efforts of the respective facets of the Career Development Model.

* * * * * * * * * * * * * *

Provide multi-media, multi-variety resources and services to teachers in order to enhance the teachers' respective subject areas.

* * * * * * * * * * * * * *

Expedite exchange, reduce duplication, promote efficiency in total program effort.

* * * * * * * * * * * * * *

Expand involvement of all facets with each other.

* * * * * * * * * * * * * *

Identify, develop, and maintain continuity of individual experiences of students in respect to career development process.

* * * * * * * * * * * * * *

Expedite evaluation and follow-up of total program.

* * * * * * * * * * * * * *

Identify a core of knowledge pertinent to in-service education.

* * * * * * * * * * * * * *

Determine the efficacy of total staff involvement.

* * * * * * * * * * * * * *

Contribute to efficient use of funds for Career Development.

* * * * * * * * * * * * * *

Expand lines of communication.

* * * * * * * * * * * * * *

Place resources of school, industry, and community in full operation relative to their respective needs.

The Career Resource Center is viewed as the key vehicle for communications among all pertinent facets of the school and the community. Its design provides the organization for the implementation of the Career Development concept and, at the same time, it represents the model. It functions as a resource for articulation among programs to provide necessary continuity and develop two-way avenues between school and community.

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PROJECT OBJECTIVES

To attain the basic project goals, the following project objectives have been developed:

1. To make career development education a significant part of the school curriculum at each developmental stage.

2. To provide sequential and continuous career development activities throughout all grade levels from pre-kindergarten to adult education.

3. To establish a working model of a Career Development Center functioning within a school system.

4. To study the impact of career development activities on students.

5. To make career development activities applicable to every student category including all special needs groups.

6. To provide students with a broad and accurate knowledge of occupations and career opportunities.

7. To increase students' awareness of themselves, their interests, and aptitudes relative to work.

8. To help students in developing decision-making skills necessary for a sound vocational choice.

9. To influence teachers to think of career development activities as a necessary part of all course content.

10. To provide information regarding job placement services to students.

GENERAL PROJECT DESIGN AND PROCEDURES

The Hackensack Career Development Center is a pilot project designed to:

1. make career development learning activities an integral part of the school curriculum from the earliest grades through adult education.

2. provide a setting in which experimentation with and evaluation of such activities may be carried on, and

3. offer students and graduates all possible assistance in finding desired and/or suitable employment.

Career development learning activities are defined as any type of experiences that will:

1. enable students to enlarge their knowledge of occupations,

2. increase their awareness of their interests and aptitudes relative to work, and

3. develop the decision-making skills needed to put this knowledge to best use.

This project is being conducted in a school system with an enrollment of 6,200 students from pre-kindergarten to grade 12; with a sizeable adult evening school and Adult Basic Education Program. The school population is mixed racially, socially, and ethnically--reflecting the heterogeneous nature of the city's population.

In the first year of the Center's operation, two types of operations (Continuing Programs and Intra-Curricular Activities) have been planned and conducted by the staff. The Continuing Programs are based upon a preestablished curriculum guide and, in most cases, are implemented over a prolonged period--such as all or most of the school year or summer. These programs are intended to be repeated each year. In some cases, they form the basis for a self-contained course, and also provide curriculum materials and activities to be interspersed through the ongoing classroom instruction.

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The Intra-Curricular Activities are short-term projects planned mutually by one of the School/Industry Coordinators and a classroom teacher in response to a request by the teacher for a career development activity to relate to his course work. These activities include field trips, demonstrations, "hands-on" work activities, guest speakers, simulations or role-playing activities in the classroom, or media presentations of any kind.

During the initial year, the staff has either planned and/or is conducting approximately fifteen Continuing Programs, some of which are being carried over from past years. In addition, approximately 210 Intra-Curricular Activities have been conducted, most of them consisting of more than one component or learning experience.

Through a combination of Continuing Programs and Intra-Curricular Activities, the program eventually plans to provide sequential and continuous coverage in career development activities for all students in the school system, with each program activity designed to meet the needs of a particular level.

The following material presents an overview of the general project design for the 1970-71 project year. The material is organized into two sections--continuing programs and spot activity programs.

Continuing Programs

Continuing programs are those programs that comprise a permanent part of the curriculum or programs that will be repeated each year. In most cases, these are based on a pre-established curriculum plan spanning a full school year. In certain cases, however, they are of shorter duration. The Job Fair, for example, is conducted during one week each year. Although these programs are pre-structured, they are evaluated continually and revised as necessary.

Job Fair

The Job Fair is a week-long program conducted at the high school each year for students in the senior class. During this week, representatives from many local business and industrial firms conduct job interviews with any interested senior. Many students are hired as a result of these interviews. In any case, the Job Fair provides a learning experience in job interview procedures and conduct for all students who take advantage of it.

Summer Community College Program

For tenth and eleventh grade students with low career expectancy, the Summer Community College Program provides exposure to a nearby community college during a six-week summer session. These students will have the opportunity to observe and participate in the wide variety of programs the school offers for general education and career training. In this way, they are encouraged to find an avenue of development consistent with their abilities and interests.

Technology for Children

Through world-of-work projects growing out of classroom study units, students in the early elementary grades are led toward an understanding of modern technology and encouraged to respect work in its many forms. The Technology for Children projects engage them in a wide variety of "hands-on" activities with the tools and materials of modern business and industry ranging from basic carpentry tools to office machines. As they assume roles in a classroom business office, assembly line, photography studio, or construction crew, for example, the students can also begin to understand the complexities of on-the-job relationships of all kinds, as well as the importance, of individual responsibility and contributions.

Parochial School Technology Program

Local parochial elementary schools will participate on a limited basis in the Technology for Children Program described above.

Vocational Program for Students with School Adjustment Problems

For those students with serious school adjustment problems, the Vocational Program for Students with School Adjustment Problems offers the opportunity of continuing to graduation while, at the same time, gaining valuable work experience and occupational training. Under a shared-time concept, the students work mornings at jobs in either auto mechanics shops or business offices (girls) and spend their afternoons at the high school completing required course work and receiving intensive occupational training related to their morning work. This training stresses an informal, small group approach in keeping with the special needs of these students.

Evening Adult Vocational Training

The Evening Adult Vocational Training program offers any adult in the school district a chance to explore a new occupational area to increase his career potential or simply enrich his use of leisure time. Through evening courses in metal shop, auto mechanics, cabinet making, offset printing, foods, clothing, commercial arts and typing, etc., those interested may avail themselves of expert instruction and the facilities of the high school laboratories and shops. Potential enrollees will also receive advice from trained counselors as to their choice of courses and the prospects for putting their newly-acquired skills and interests to best use.

Non-native Adult Evening Program

The Non-native Adult Evening Program provides for the special needs of non-native adults through instruction in English language skills, coupled with shop experiences related to their working life. Its immediate aim is to impart a greater ease and familiarity with industrial terminology and the language of job interviews, classified ads, job applications, etc. In general, it will cover those areas of communication essential for successful job entry and work adjustment.

Intensive Training for Twelfth Grade Students

In the last half of their senior year, students may take advantage of an opportunity for intensified occupational training in one of a number of basic skill areas. Courses in machinist training, welding, photo-offset printing, clerk-typist skills, drafting, sheet metal working, keypunch operating, and dental assisting are sponsored by the Career Center through the local Adult Training Center. Interested students may enroll on a shared-time basis if their high school schedule permits, or choose a course which meets during evening hours. A certificate of training is given for successful completion of course work.

Occupational Awareness

As an important element in their career education for this stage, eighth grade boys and girls engage in an intensive Occupational Awareness program of career exploration through their industrial arts and home economics classes. The program provides for in-depth study of various occupational areas. Each unit involves a broad survey of the particular occupational

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area, classroom visits by industrial personnel, and at least one field trip to a representative occupational site. In their laboratory work, students will get considerable "hands-on" experience with the tools and materials of each skill area. In this way, they acquire a broad base from which further career exploration can proceed.

Job Placement Office

Through the Job Placement Office located in the high school, any student of work age may get assistance in finding full or part-time employment. This service is also extended to graduates of the high school. The Job Placement Office also coordinates other activities, such as the Intensive Training Program and the Job Fair, along with group counseling sessions involving common problems of the young worker.

Career Club Program

A number of Career Clubs have been begun under the auspices of local community agencies. They are designed to stimulate boys and girls aged ten and eleven to begin thinking about their vocational future. Representatives of various professional and other careers are invited to address the members on their job activities, preferably accompanied by demonstrations of their key tasks with the youngsters joining in craft experiences. Through this exposure to career role models and the world of work generally, the children can begin to construct a hopeful career image for themselves.

Industrial Prep

The Industrial Prep curriculum offers boys in grades ten through twelve the opportunity of studying English, mathematics, and science within a technical framework. Study units in this program are built around world-of-work themes and emphasize the way in which these three disciplines interrelate as tools for occupational problem-solving. To boys with leanings toward early job entry or further trade training, this track offers a needed alternative to the college preparatory/general education choice. Through it, they can combine a sound academic foundation with a maximum of vocational exploration.

Cooperative Work Programs

The various Cooperative Work Programs allow students in the late high school years to share their day between work and school in a way that

maximizes the potential benefits of each. Their work experience provides for job rotation within a certain occupational area and expert training in each job encountered, for which they also receive course credit at the school. This is in addition to regular pay. In their half-day at school, they take certain courses required for graduation as well as one devoted to study of their occupational field and group guidance for problems encountered on the job. In this way, the school utilizes the training resources of the business and industrial community. Five such programs are offered covering the following areas:

(a) Cooperative Industrial
(b) Cooperative Office
(c) Cooperative Health
(d) Cooperative Home Economics
(e) Distributive Education

Special Needs Workshops

The Special Needs Workshops are directed toward the vocational needs of students in the educable and trainable categories, primarily the universal need to experience the satisfaction of work successfully performed. Within the sheltered environment of their own classrooms, these students work on job projects contracted from local business firms and are paid for what they produce. The projects are chosen for their high achievement potential and engage the students in production planning and related economic consideration. In this way, they are exposed to several aspects of the working world without the stress of competing in it before they are ready to do so.

Summer Remedial Program

This six-weeks Summer Remedial Program, offered as an alternative to the regular summer school, blends basic instruction in English and mathematics with related occupational projects. During the first part of their morning session, the boys attend classes which are conducted informally and stress individualized instruction. The rest of the morning is spent either in the auto mechanics shop or on a building project somewhere on the school grounds, depending upon which area they choose. Both stress "hands-on" participation in various aspects of the building trade or auto repair and maintenance. Follow-up tutoring in their academic work is interspersed through their work period and another brief classroom session follows at the end of the school day. Full course credits are allowed for both academic areas and additional ones for the work segment.

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Middle School/High School Seminar

The Middle School/High School Seminar, designed for middle school students with low vocational or school expectations, offers frequent contacts with the occupational world and the encouragement of older students who have persevered despite similar problems. Seminar sessions conducted by twelfth grade students in the Cooperative Work Program give the younger students a chance to discuss their problems with a sympathetic listener. A scheduled series of field trips covering major occupational areas provides needed exposure to a number of career role models. Activities of whatever kind are planned cooperatively by the students and thus encourages a sense of belonging to some aspect of school life.

Middle School Summer Vocational Exploration

A group of middle school students spend a summer session at the county vocational and technical high school trying their hands at a variety of skills under the direction of the school's instructors. They are chaperoned by high school seniors who act in a "big brother" capacity and conduct an organized recreation period each day. Their shop instruction stresses the fun of work activity and the rewards of seeing a finished product of their own making. In this way, these students see what the vocational school has to offer them and are thus better prepared to make their upcoming decision of what type of high school to attend. At the same time, the experience encourages them to explore their occupational interests and talents.

Intra-Curricular Activities

Unlike the Continuing Programs, the Intra-Curricular activities are intended to be conducted just once, although they may be repeated if it seems worthwhile. In general, they are developed in response to a request by a classroom teacher and related to some aspect of course content. They may last anywhere from a few hours for a field trip or demonstration to a period of several months as expemplified by the Colonial Crafts unit described below. A complete list of all Intra-Curricular activities is available in the Project office. A sampling of Intra-Curricular activities follows:

> . . .a unit involving third graders in a study of work in Colonial America. Each student joined a craft group as either an "apprentice" or "master craftsman" and worked at such projects as weaving, candlemaking, carpentry, sewing,

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quilting, baking, etc. In addition to this "hands-on" activity, the students also engaged in research projects on Colonial life. The unit culminated in a Colonial Fair at which the children displayed and sold the products of their handiwork as well as demonstrating some of the techniques involved in their craft.

. . .a project delineating various careers in journalism through video-taped interviews with professionals in this field. The tapes were produced in conjunction with a high school journalism teacher and will be used in her classes. In each interview, the subject discussed the nature of his work, the preparation needed for it, and the opportunities in the field.

. . .a project depicting job categories in the field of advertising through a video tape produced at a local ad agency. A high school English class planned the project as part of a classroom unit in advertising. At the agency, an ad theme which the students had created was processed through all the stages for a magazine ad. Each of these was explained by agency personnel and documented on video tape.

. . .a unit for third graders in health occupations involved talks, demonstrations, and "hands-on" experience with inhalation therapy, electro-cardiograms, optometry, and dental hygienics. On a tour through Hackensack Hospital, the children interviewed a number of hospital personnel. The information they compiled will be used for a pamphlet they are making in health occupations.

. . .a project involving high school students in an exploration of career opportunities in a large drug firm. A group of students representing various school departments are working with representatives from the Hoffman-LaRoche Company in planning a series of career experiences using that firm's facilities. These will engage larger groups of students in studies of a variety of occupations ranging from skilled maintenance to science lab work.

. . .a project for first graders in careers related to animal care. Classroom demonstrations were given in poodle grooming, dog training, and cat care in which the children were allowed to participate in certain of the tasks. The unit also included a visit to a local pet shop.

. . .a project for second graders in food preparation careers. A portable oven was purchased for the classroom. Under the direction of their classroom teacher, the children, dressed in chef's hats and aprons, baked bread and cookies and prepared griddle cakes.

. . .a project involving five second grade classes delineating careers as "community helpers." Each group took a guided tour of either the local hospital, city hall, post office, courthouse, or fire and police departments. The children took slides which they will later exchange as they tell each other about their experiences.

. . .a trip to the NBC studios in New York by eighth grade students in the Immaculate Conception school. The students toured the studio and conducted an interview with Ron Milligan, one of the station's newscasters.

. . .a first grade project focusing on "career hats" to introduce the jobs of baker, policeman, nurse, bus driver, construction worker, etc. The unit featured a class visitation by a local collector of specialty hats and walking field trips to meet representatives of these various careers. Hats were also purchased for the children to wear.

. . .a project for fifth grade students exploring careers in the culinary arts and hotel-motel management. The project featured field trips to several restaurants and a large motel.

. . .a project called "Youth and Industry" for high school students sponsored by several large corporations in the area. Students from the Economics and Industrial Prep classes will visit four large industrial plants (Hills Bros., Faberge, Lever Bros., and Lowe Paper) in consecutive weeks for a full plant tour and discussion period conducted by company personnel. The discussion will focus on principles of economics and industrial trends. The students involved will be given a test on economic principles prior to and following the project to determine its effectiveness.

. . .a project exploring careers in court reporting was open to all high school students. Those who expressed an interest in this field were taken to a school which trains court reporters where they were given pertinent facts about the nature of this work, the training required, and future pros-

pects in the field. Later, they visited the local courthouse and sat in on a trial where they were able to observe a court reporter at work.

. . .a project for high school science classes at the Sandy Hook Marine Biology Laboratory. Plans are being made for students to visit this site to observe the wide variety of scientific and technical work done there with the possibility of participating in certain of the activities. Some functions of the laboratory will be documented on video tape for classroom use.

Certain benefits have often occurred as a result of the developed Intra-Curricular activities. One such example has been documented by the project staff and is enclosed as a case study.

Case Study

Documentation of a Career Development Experience on a Second Grade Student:

Randy was characterized by his teachers as a destructive child, habitually using abusive language and throwing classroom objects around the room. His family consists of eight children and mother, the father having died when Randy was two. Randy's mother is known to have recently lost her job with a local day care center. His brother has also been a problem child in school.

Scholastically, Randy is a poor student. His attention span is very short and he participates very little in a group; this participation usually being limited to the use of four-letter words. The one exception to his lack of scholastic participation was penmanship, in which he showed interest and persistence.

During the Colonial Crafts program, however, Randy was seen to exhibit concern and interest. He chose to work in the Colonial Recreation group where he made popcorn pictures. To the surprise of his teachers, Randy maintained interest in his project until he completed the picture. He insisted that the teacher take a picture of him showing his completed piece and would not let anyone touch it. Although he showed much interest in this individual activity, always being anxious to start working on it, his participation in group activities was still not in evidence. He would not participate in group games or dancing.

The extent of his involvement with his individual project was noticeable at the Colonial Fair the children presented as a culmination of their Crafts project. Randy and another girl were demonstrating how they had made their popcorn pictures. When a photographer asked to take the girl's picture, overlooking Randy, he jumped up and told a teacher to "make the man go."

After the Fair, Randy never initiated further discussion about the Fair or the project he had worked on. However, since then he has shown interest in puzzles and now colors books nicely. His teachers attribute this largely to his work in making popcorn pictures.

RESULTS, ACCOMPLISHMENTS

The Hackensack Career Development Program has attained its objectives for year one and has progressed further than planned. A general operational plan involving on-going programs and the ability to provide intra-curricular programs during the year has been implemented. This plan is not static, but has served the first year's operation.

Staff involvement has been enthusiastic and staff members have gone beyond their defined responsibilities to promote the concept of career development as part of the school curriculum.

The use of audio and video hardware has been impressive. Opportunities for involvement with business concerns have been utilized to the fullest. Video tapes of various careers have been made which will be used for years to come. Such equipment has also been used for documenting outstanding intra-curricular programs. The use of this type of approach has also served as a catalyst for promoting further involvement in such activities. An additional benefit derived from the use of such facilities involves the aspect of community relations. Although not specifically a project objective, the "seeing" of school situations has helped to promote the school's image. Appendix A documents video tapes made during the first year's operation.

The project has also contracted a university professor to explore the area of theory and practicality. This material has been completed and a plan for integrating such concepts into the on-going program will be considered.

The Locale

The Hackensack Career Development Program is incorporated within the Hackensack Public School System and serves the school children of this community.

Hackensack had a 1970 population of 35,911 within an area of 4.18 square miles, or 2,673 acres. This gives a population density of 13.4 per acre, or approximately 8,600 per square mile.

The population has been gradually increasing: 1960 population, 30,521; 1970 population, 35,911; and projected 1985 population, 50,500. This represents a fifteen to twenty-five per cent gain each decade.

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A list of major occupations broken down by employed men and women is presented below.

Major Occupations

Occupation	Male	Female
Operatives	1,665	979
Clerical	719	1,395
Craftsmen	1,604	59
Professional/Technical	1,044	544
Service	707	536
Managerial/Official	1,008	161
Sales	725	342
Laborer	508	13
Private/Household	13	464
	8,540	4,819

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REPORTING THE EVALUATION

Statement of Project Objectives

Objective #1

To make career development education a significant part of the school curriculum at each development level.

The program has documented career development activities related to each grade level during the 1970-71 program year. This material has identified the general area related to career development: the instructor, the number of students involved, and a brief description of the activity. This information has been documented through March, 1971. During April and May, approximately one-third as many activities have been completed.

Continuing education activities have been outlined in the section regarding program design and procedures followed.

Pre-Kindergarten

General Activity	Teacher	No. of Students
Dental Careers	Mrs. Parimenis	25
Sewing	Kay Garner	11
Field trip to Modell's	E. Marx	38
Field trip to Van Saun Park	Mrs. E. Marx	38
Trucks	I. Schwartz	22

Kindergarten

General Activity	Teacher	No. of Students
Dental Careers	Kaplow and Winters	50
Transportation	Kaplow and Winters	100
Farm Workers	J. Elizer	34
Farm Workers	J. Eliegar	34

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Kindergarten (Parochial)

General Activity	Teacher	No. of Students
Community Helpers	Mrs. Mitchell	24
Health Occupations	Mrs. Linda	32
Community Helpers	Sr. Dorothy	34
Animal Care	Mrs. Linda	32

First Grade

General Activity	Teacher	No. of Students
Lamp Projects	Slepis, Miguire	8 special ed.
Career: Hats, Costumes, Tools	H. Pearlman	25
Animal Care	E. Katz	20
Animal Care	R. McBride, M. Costello	31
Beauty Salon	R. McBride	13

First Grade (Parochial)

General Activity	Teacher	No. of Students
Animal Care	_____	68
Community Helpers	Sr. Mirium	19

Second Grade

General Activity	Teacher	No. of Students
Colonial Crafts	LEM	125
Colonial Crafts	LEM	125
Colonial Crafts	Beth Greenblatt	12
Colonial Crafts	T. Giordano, K. Cobella	12
Colonial Crafts	Miss Applegate	125
Wig Making	K. Colella	16
Chef - Baker	M. Reilly	12
Community Helpers	Mauthe, Muller, Hammer, Lutthans, and Ackerson	132

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Second Grade (Parochial)

General Activity	Teacher	No. of Students
Music	Sr. Mary	32
Animal Care	Kelly and Chaudron	—

Third Grade

General Activity	Teacher	No. of Students
Dental Careers	Decter, Traino, Zucher, and Schudin	105
Baking	Mrs. Galante	15
Beauty Salon	Mrs. Galante	15
Deaf Program	C. Peszynski	17
Occupations--Indian Origin	Ann Galante	15
Hospital Tour	R. Selly	13
Colonial Crafts	K. Colella	12
Carpentry	_____	—
Colonial Crafts	Colella, Wilson	10
Dental Assistant	Zier	27
Colonial Crafts Sewing	LEM	10
Manufacturing and Merchandising	LEM	10

Third Grade (Parochial)

General Activity	Teacher	No. of Students
Electricity	Mrs. Kelly, Sr. Patricia	33
Animal Care	Kelly, Chaudron	36

Fourth Grade

General Activity	Teacher	No. of Students
Health Occupations	S. Toscano	28
Communications	A. Forbes	28
Colonial Crafts	_____	145
The Denal Hygenist	_____	—

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General Activity	Teacher	No. of Students
Technology for Children	Fruhling	19
Braillist	Fruhling	21
Photography--Photo-Offset	Fruhling	21
T4CP--Photography Workshop for Teachers	_____	—
Technology for Children	Fruhling	19
Health Occupations	Miss Person	13
Beauty Culture	Miss Person	13
Health Occupations	Kessler	25

Fourth Grade (Parochial)

General Activity	Teacher	No. of Students
Health Occupations	_____	—
Colonial Crafts	Sr. Patricia	40
Electricty	_____	33

Fifth Grade

General Activity	Teacher	No. of Students
Fingerprinting	Mosbrooker	25
Law Enforcement	Mosbrooker	25
Bilingual Careers	Trelles	17
Restaurant-Hotel Management	DiPeri, Giglento, and Higgins	60
Bilingual Careers	Trelles	17
Career Interviews	DeCondo, DePeri	25
Dental Lab Technician	DiPeri, Giglento, Higgens, Madden	100
Dental Hygenist	Di Peri, Gilento Higgens, Madden	100
Technology for Children	W. Cooke	18
Newspaper Photography	W. Cooke	18
Photography--Photo-Offset	W. Cooke	18
Carpentry Workshop	Cooke, Meyers, Fruhling, Sourifman	—

Fifth Grade (Parochial)

General Activity	Teacher	No. of Students
Airport	Mrs. Matter	24
Health Occupations	_____	--

Sixth Grade (Parochial)

General Activity	Teacher	No. of Students
Health Occupations	Sr. Catherine	--
Trip to American Museum of Art	Sr. Ann	69
Communications	Sr. Rita	31

Middle School

General Activity	Teacher	No. of Students
Nursing Careers	Plump	40
Telephone Careers	Ann Smith	300

Seventh Grade

General Activity	Teacher	No. of Students
Trip to Whitney Museum	Sr. Mary	25
Health Occupations	Fiore	33

Eighth Grade (Parochial)

General Activity	Teacher	No. of Students
Photography	Sr. Mary Ann	14
Technology	Sr. Mary Ann	14
Marketing, Retailing, Buying	Sr. Mary Ann	23

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General Activity	Teacher	No. of Students
United Nations Tour	Burke, Sr. Mary Ann	32
News Casting	B. Zock, Sr. Mary Downey	23
Teaching as a Career	Zock, Sr. Mary Downey	23

Middle School

General Activity	Teacher	No. of Students
Field Trip to Jail (Government Careers)	Calise	30
Bergen County Government	Calise	30
Plastics	Vladyka	14
Clothing Manufacturing	Johnson	11
Vocational Reading Library	Savage	—
Trip to Metropolitan Museum of Art	Szatanski	16
Trip to General Motors Assemply Plant	Corbin	11

High School

General Activity	Teacher	No. of Students
Video Tape of Commercials	Capone	14
Field Trip to Volkswagen	Kalfayan	12
Video Tape of Charm Consultant	Kalfayan	60
Field Trip to Austin Display	Capone	11
Video Tape of TWA Stewardess	Kraus	20
ABOVE Video Tape Shown to students	Kraus	25
Careers in Fashion Designing	Capone	15
Careers dealing with Chemistry	Bernardo	10

Ninth Grade

General Activity	Teacher	No. of Students
Careers in Advertising	_____	—
Video Tape of Westshore Publishing Co.	Dobson	30
How to Fill out Job Applications	Heidecker, Acciardi	—

Eleventh Grade

General Activity	Teacher	No. of Students
Trip to Bloomingdale's	Schlochaur	—
Journalism Careers	Brancato	16
Careers in Journalism	Brancato	16
City Government Employment	_____	—

Tenth and Eleventh Grades

General Activity	Teacher	No. of Students
Field Trip to Stenotype School	_____	—
Field Trip to United Nations	Fishberg	43
How to Fill out Job Applications	Heidecker, Acciardi	30

Eleventh and Twelfth Grades

General Activity	Teacher	No. of Students
Video Tape of Sport Fishery Biologist at Sandy Hook	_____	—
Guest Speaker from Montclair State	Masone	50

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General Activity	Teacher	No. of Students
Field Trip to Teterboro Airport	_____	—
Field Trip to Westchester Airport	Lane	20
Trip to Hills Brothers	_____	—
Trip to Lowe Paper Co.	_____	—
Art Seminar	Turner	—
Field Trip to Lever Bros., Faberge	_____	—

Career Clubs

General Activity	Teacher	No. of Students
Radio Kits	C. Clay	15
Trip to Teterboro Airport	C. Clay	15
Veterinarian	C. Clay	15
Doctor and Nurse	C. Clay	15
Photographer	C. Clay	15
Sewing	Parciaseppe	20
Carpentry	D'Arminio	19
Baking	Parciaseppe	20
Trip to Teterboro	D'Arminio	25
Electronics, Carpentry	F. Meirs	25
Sewing, Knitting, Cooking	Sr. Ann	25
Carpentry	B. Zoch	25
Trip to Teterboro Airport	B. Zoch	25
Sewing	B. Zoch	25
Real Estate	C. Clay	15
Auto Show	C. Clay	15
Dental Technician	C. Clay	15

Evening Program

General Activity	Teacher	No. of Students
Commercial Art	Shiefer	31
Typing, Commercial	Kraus, Minkewicz, Adams, Capone	100

General Activity	Teacher	No. of Students
Spanish-Speaking Project	Lane	10
Foods	Gagliostro	11
Printing	Detrick	9
Sewing	Wiatrak	38
Auto Mechanics	Ralston	43
Cabinet Making	Giordano	25

Guidance

General Activity	Teacher	No. of Students
Bergen Community College Health Fair	Acciardi	8
Hoffman LaRoche meeting Committee	LeRose and Mackert	6
Film dealing with Careers in Medical Profession	Thomas	50
Special Occupations Project Adjustment Group	Tupponce	20
Job Placement	Acciardi	
Trip to Wall Street	Tupponce	5

Special Education

General Activity	Teacher	No. of Students
Sheltered Workshop	Whitney	20
Sheltered Workshop	Whitney	20

Approximately two thousand students have been involved in career development intra-curricular activities. Other data document activities of the career clubs, evening programs, guidance involvement, and special education involvement.

Objective #2

To provide sequential and continuous career development activities throughout all grade levels from Pre-Kindergarten to adult education.

Major continuing programs will be described as to (a) description of program intent, (b) activities required to attain the program intent, (c) the student population participating in the program, and (d) the project staff responsible for implementation. The second descriptive phase of program procedures will outline programs at defined levels. Intra-curricular activities have been documented under Objective #1.

Program: Audiovisual Media

How an individual perceives himself and establishes an "operational" self-image is the outgrowth of a multiplicity of experiences and interactions. The opportunity to "see and hear" himself as a means of enhancing the chances for self-identity, rarely a part of the career development experience, can be highly effective in this type of project.

Experiences will be more meaningful when video-playback, slides, or audio tapes are used to complement the learning exercise. This will be particularly when the student is the "subject," regardless when audiovisuals are used--pre-school to adult. Audiovisual media involvement during the various broad stages of career development will cut across pre-school to adult in order to affect greater interrelatedness of experiences.

Activities

1. Initiate and respond to requests from staff regarding locally-produced audiovisual materials.
2. Photograph and/or audio tape using various media, group activities, special information, data pertinent to any staff person's needs.
3. Maintain record of productions--report available material. (See Appendix A)

Enrollment

Serve pre-school to adult

Staff

One director
One technican (part-time)

Program: Public Information

Adequate, comprehensive information places the student in a better position to make important vocational decisions. Further, it enhances the understanding of parents, employers, and educators regarding career development.

Activities

1. Prepare newsletters and other media for school and out-of-school groups.
2. Assist in school/industry activities.
3. Develop appropriate reporting format suitable to the various levels, pre-school to adult.
4. Meet parents, community, and PTA groups.
5. Meet with business, industrial, and labor representatives.

Enrollment

Serve pre-school to adult

Staff

One Public Relations person

Program: School/Industry Coordination

Students whose education is updated and broadened through an on-going program of communications with business and industry should be more motivated because of the realistic experiences that result.

Where business, industry, and schools involve themselves in the development of each other's respective resources, the outcome should be more relevant to education and employment.

School/Industry coordination involvement cuts across the broad stages from pre-school to adult.

Activities

1. Develop intra-curricular activities cooperatively with classroom teachers.
2. Assist in coordination of continuing programs.
3. Provide appropriate personnel from industry and business to assist educators in the development and evaluation of occupationally-oriented curricula.
4. Conduct in-service education programs for educators, both during the year and over the summer.
5. Actively seek areas of educational concern that could be improved more efficiently with community cooperation.

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6. Cooperate with industry in the development of in-plant or industry-oriented education projects.

Enrollment

Serve pre-school to adult

Staff

One full-time person (elementary)
One part-time person (elementary)
One full-time person (middle and senior high school)

A basic outline of the specific programs involving students in exploratory, skill development, informational, and assessment experiences along a pre-school to adult continuum have been documented. Those programs presently operating and locally funded by the Hackensack School District have been included in this summary in order that the full spectrum of career development activities may be conceptualized.

Information related to developmental stages is presented in the following material. These stages have been designated as (1) elementary, (2) middle school, (3) high school, and (4) adult and out-of-school youth.

Elementary Stage

The elementary stage is generally one of providing experiences where youngsters begin to establish attitude and behavior patterns relative to growth in vocational awareness. These experiences usually include provisions for where the individual begins to explore, cope, and clarify feelings of "self" as he interacts with his environment.

In Hackensack, English as a Second Language program is being provided for Spanish-speaking persons. In the area of Special Needs, classes for handicapped and retarded and educable are conducted. Further, the Head Start program has been absorbed within the school district, so that at present all four-year-olds are accepted in pre-school classes throughout the district.

Another feature of the Hackensack School District is that it is one of the few districts employing counselors in the elementary school. Of the four elementary schools, two have had full-time counselors for the past three years.

Programs in the Elementary Stage include:

Technology for Children
(a) Pilot units for elementary children

Intra-Curricular Activities

Middle School Stage

The Middle School Stage is a period of broad vocational exploration on a more sophisticated level than the previous stage and leads to a specificity of choices for many students. At this stage, the student is generally more mature regarding the ability to judge his potential more realistically and make relevant educational decisions.

Contributing to the above climate, the Hackensack Middle School has four full-time counselors operating at a ratio of 250:1. A well-organized vocational guidance segment of activity is presently operating. Articulation with Hackensack High School and the Bergen County Vocational/Technical School has been expanded. Industrial Arts shops cover six different areas of study and Home Economics operates on a full schedule. Special Needs students take shops, home economics, and other electives in regular classes while academic classes are held separately to provide a climate conducive to interaction at a level commensurate with abilities.

Programs in the Middle School Stage include:

Summer Program of Career Exploration
Introduction to Vocations (regular)
Intra-Curricular Activities

High School Stage

The High School Stage is one of study, evaluation, in-depth testing of tentative choices, and development of specific skills according to potential, needs, interests, and opportunities. Orientation and placement in an appropriate "next step" including jobs, further training, and/or continuing education are essential aspects.

Cooperative Education programs are operating in the areas of Distributive Education and Industrial Education. Cooperative Office of Education started September, 1970. A smoothly-operating program identified as Industrial Preparation is offered to students interested in the pursuit of "industrial"

careers covering the full gamut up to professional interests. Job placement, part-time and full-time, is conducted through the Job Placement Office.

A special program for Alienated Youth was inaugurated during the school year 1969-70. Operating on a "cooperative school/work" basis, it serves the student who has become disenchanted with school.

A special critical feature of this stage is that the entire curriculum be designed in order that students representing many varied interests and abilities all be offered equal opportunity to experience career development encompassing sequence continuity.

Programs in the High School Stage include:

Grade Level	Program
9-12	Guidance and Counseling
9-12	Job Placement
9-12	Special Needs--Cooperative Employment Orientation
11-12	Cooperative Vocational Education: Industrial Education, Office Occupations, Home Economics, Distributive Education
12	Short-term Occupational Preparation
12	Employment Orientation
9-12	Pre-Vocational for Alienated Youth
10-12	Pre-Vocational Industrial Preparatory
12	Job Fair
9-12	Career Resource Center
9-12	Summer Remedial Instruction and On-the-Job Training Program

Adult and Out-of-School Youth Stage

Operation "Second Chance," or possibly "first" for many disadvantaged persons, makes up the bulk of the programs in this project. Programs in this category have been carefully designed to incorporate the following aspects:

outreach, orientation, education and occupational training, job counseling, and placement and follow-up.

Certain institutions, including community colleges, street academies, four-year colleges, and others offer special opportunities to the young adult who did not "make it" in the regular high school program.

The Department of Labor, and the Department of Community, also sponsor special opportunity programs for the disadvantaged.

Programs organized by the Hackensack Career Development Center include:

Occupational Awareness for Spanish-speaking adults
Evening Adult Vocational (includes counseling)
Job Placement Office

Objective #3

To establish a working model of a Career Development Center functioning within a school system which involves community agencies.

The project has opened lines of communication and has actively involved a large number of agencies in career development activities. A sampling of these contacts follows by category, along with a brief mention of the involvement with the individual agency. A complete listing of all contacts is available in the project office.

1. Community Affairs

Bergen County Chamber of Commerce: employment aids and facilitated contact with the business community.

Bergen County Medical Society: participated in their "Career Day."

Hackensack Hospital: tours, demonstrations, and speakers.

Humane Society: speaker

Bergen County Heart Association: speaker, demonstration.

YMCA: "Youth and Industry Program" sponsored by this organization.

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2. Continuing Education

Montclair State College: speaker, demonstration.

Bergen Community College: summer exploratory program planning.

Fairleigh Dickinson University: "Career Day" Dental Hygiene Clinic.

Roberts-Walsh Stenotype School: tour and demonstration.

Bergen Technical Training Center: intensive training program, tours, and demonstrations.

3. Vocational-Technical Schools

Bergen County Vocational School: joint programs of career exploration involving visitations and use of facilities.

4. State Department of Education

In frequent contact with State Department personnel concerning all facets of the project.

5. Department of Labor

Publications and job placement assistance.

6. Municipal and County Government

Hackensack Fire Department: tours, speakers, demonstrations.

Hackensack City Hall: tours.

Bergen County Court: tours.

Bergen County Prosecutor's Office: speaker.

Bergen County Probation Office: speaker.

7. Business/Industry/Labor

Bloomingdale's Department Store
People's Trust (local bank)
Singer Company
Jonathan Logan
Esso Research Center
Hills Brothers
Manhattan Drug Co.
B. Altman and Co.
Construction Industry Advancement Fund
Bergen Record
Mariott Motel
Latin American Travel
Prentice-Hall Publishers
Lever Brothers
Faberge
N. J. Bell Telephone Co.
International Ladies' Garment Workers Union

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Objective #4

To study the impact of career development activities on students.

Two approaches have been incorporated for studying the impact of career development activities. First, the project has designed evaluation sheets to be used for each individual school activity. Copies of such forms are presented in Appendix B. This information is available in the project office.

The second approach involved the development of a framework for planning and evaluating the activities under career development. Dr. Bruce W. Tuckman, Rutgers University, was contracted to draw up a taxonomy of career development stages. This document has been received and is titled, An Age-Graded Model for Career Development Education. Major sections included in the work are:

1. an analysis of the career development process into its basic components,
2. a composite model of general child development drawn from several prominent sources and related closely to career development components, and
3. suggested media and sample units for school activities within each developmental stage.

The center has limited copies available for in-office work.

Objective #5

To make career development activities applicable to every student category including all Special Needs groups.

The following documentation indicates the extent of career development services offered to Special Needs groups.

1. Trainable classes

   Eight students at the elementary level engaged in a project assembling and painting lamp kits.

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2. Educable Classes (elementary)

Eleven first and second grade students engaged in a sewing project involving field trips, demonstrations, and "hands-on" experience.

3. Deaf Program Classes

Seventeen first and second grade students studied school system workers through a synchronized slide-sound show and visits to work sites.

4. Immature, Emotionally Disturbed Classes

Thirty-one first grade students studied careers in animal care through classroom demonstrations by professionals and a visit to a pet shop.

Thirteen first grade students visited a wig salon for demonstrations and "hands-on" experience in care of wigs.

Thirteen first grade students study careers as community helpers through a guided bus tour of the city.

Twelve second grade students engaged in a unit in baking using a portable oven purchased for their classroom.

Fifteen third grade students studied occupations of Indian origin involving a visit to a furrier and work in leathercraft.

5. School Adjustment Program

Thirteen third grade students toured the local hospital and visited a dental clinic to study health occupations.

Six eighth grade students toured an automotive assembly plant.

6. Educable Classes (high School)

Two groups of educable students each engaged in two work experience projects. The first project involved sorting, assembling, and packaging rubber washers for marketing. The second involved assembling radios from kits.

Objective #6

To provide students with a broad and accurate knowledge of occupations and career opportunities.

Objective #7

To increase students' awareness of themselves, their interests, and aptitudes relative to work.

Objective #8

To help students in developing decision-making skills necessary for a sound vocational choice.

Students have been provided with information through two major procedures: continuing programs and intra-curricular activities. Information related to continuing programs have been documented under objective #2 and intra-curricular activities have been documented under objective #1.

Objective #9

To influence teachers to think of career development activties as a necessary part of all course content.

The guidelines for involving school personnel in the program have not been formalized, but exist rather as verbal principles that have been followed. These guidelines are:

1. In the work with classroom teachers, the project tries to maintain a role as enablers or facilitators rather than replacing the teacher in the classroom for the duration of the project. In keeping with this philosophy, the project tries to engage the teacher in mutual planning of the project and to encourage him to take as active a part as possible through all stages--planning, conducting, and follow-up evaluation.

2. For instigating projects in the schools, the project tries to motivate teachers and administrators to see the value of career development education so that the initial suggestion for

a project will come from them and not from the project. To this end, the project initiates a series of presentations early in the school year to groups of teachers from all schools, levels, and departments explaining the function of the Center, the importance of career development education, and the specific ways in which the project could help them provide a vocational tinge to their classroom work. Request forms were distributed, filled out, and returned for any project teachers might wish to try. Through our newsletter, all school personnel are made aware of the types of things that can be done and are being done around the school system relative to career education. Exemplary projects such as the Colonial Crafts unit also served as concrete examples of career development activities and motivated teachers to consider such activities for their own classes. Many such projects were documented on video tape and other media for wider dissemination among school personnel.

3. As to the choice of subject or content for school projects, the project tries to encourage classroom teachers to see career development activities not as unrelated or isolated facets of curriculum, but rather as growing out of the ongoing instruction. In this way, it is planned that such activities will become an integral part of the school curriculum at all levels.

A number of people from various facets of vocational education have been involved in the program. The guideline for such involvement has been to engage their services for specific projects where they are needed. Thus far, this involvement has taken the following form:

1. Several industrial arts teachers from the high school have trained teachers of the Technology for Children Program in the use of tools, etc.

2. Several industrial arts and home economics teachers from the high school have taught courses in the Evening Adult Vocational Program sponsored by the Center.

3. Guidance and administrative personnel from the local vocational high school have worked with the Center in planning and conducting programs involving the use of their facilities and staff.

Objective #10

To provide opportunities of job placement for eligible students in the Hackensack Public Schools.

Toward the goal of 100% commitment to placement, the Job Placement Office has engaged in the following activities:

1. Addressed service clubs, civic groups, church groups, and the like informing them of the career development program and its purpose.

2. Made over one hundred visits to prospective employers for job development and information.

3. Made over five hundred telephone contacts with business and industry for job development and information.

4. Enlisted the cooperation of the New Jersey Employment Service and the New Jersey State Rehabilitation Bureau in giving tests, employment counseling, and job placement to dropouts, graduates, and current students.

5. In conjunction with the Hackensack Chamber of Commerce, organized a Job Fair for seniors. This involves more than twenty firms sending representatives to the high school to conduct job interviews.

6. Worked cooperatively with the local Manpower Training Center to organize an intensive training program for high school seniors.

7. Attended special meetings conducted by the Vocational Division of the New Jersey State Department of Education.

8. Attended conferences at schools of higher learning.

9. Conducted groups of students on field trips to various places of employment to make them more aware of the types of work available.

10. Worked with guidance counselors and Cooperative Work Program personnel at the high school regarding employment and locational training for students.

As a result of these efforts, over two hundred students, drop-outs, and graduates have been placed in jobs. Most of them are still employed in these positions. In addition, communications between school, community agencies and employers have been greatly increased. In general, job placement and vocational opportunities of all kinds have been given greater recognition as part of the school's function.

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

The Hackensack Career Development Program has attained the established objectives for year one and has progressed beyond the expected outcomes. The staff has been actively involved and has been instrumental in the program's success.

The success of the program has many implications for the concept of career development. Many school systems may wish information regarding the program and/or the opportunity to visit the program. Such involvement must be planned for to maintain the on-going program.

The Career Development Program's concept of attempting to integrate career development concepts within regular school curricula should provide school systems with valuable information. This information should not be restricted to Hackensack, but be available to other districts throughout the country.

It is recommended by the evaluator that:

1. the project pre-plan for 1971-72 evaluation activities, involving all staff members.

2. the project consider further involvement with the regular school staff for incorporation of career development concepts in the regular school curriculum.

3. the project attempt to work with the district administration in integrating career development concepts into the regular school curriculum (written materials).

4. the project publicize the results of year one and the approach taken to provide school children with career development information.

5. the project continue to be acceptable to change and to incorporate ideas/concepts that would benefit students.

6. the project consider the materials related to theory and practicality developed during the 1970-71 year and provide a setting for the testing of the developed concepts.

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7. a follow-up study be initiated regarding student perceptions and utilization of career development information.

APPENDICES

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APPENDIX A

Video Tapes

1. Careers in Journalism (a series of twelve interviews and student introductions)
   a. Magazines (30 minutes)
   b. Books (30 minutes)
   c. Newspapers (30 minutes)
   d. Broadcasting (30 minutes)

2. Careers in Advertisement Production (27-minute documentation)

3. Airline Hostess, TWA (25-minute interview)

4. Freelance Model (30-minute interview)

5. Bilingual Careers
   a. Banker (10-minute interview)
   b. Newscaster (20-minute interview)
   c. Lawyer (20-minute interview)

6. Elementary Exposure to Careers for Bilinguals
   a. Guy Calisi, former Bergen County Prosecutor (30-minute interview)
   b. Court Interpreter, Secretary, Reporters (30-minute interview)
   c. Bank Teller (15-minute interview)

7. Elementary Health Careers
   a. E.K.G. Specialist (20-minute demonstration)
   b. Dental Technician (30-minute demonstration)

8. Careers related to Law
   a. Judge (20-minute interview)
   b. Court Reporter (15-minute interview)
   c. Lawyer (20-minute interview)
   d. Mock Trial conducted by Students (1 hour)

Included up to April 1. Additional materials have been documented. Complete listing is available in Project staff office.

APPENDIX B

CAREER DEVELOPMENT CENTER
HACKENSACK PUBLIC SCHOOLS
210 State Street
Hackensack, N. J. 07601

STUDENT EVALUATION FORM

You can help us plan more effective activities of this sort by answering the following questions to the best of your ability.

1. Do you have any questions about anything you saw during the course of the trip?_____

2. What occupations seemed interesting to you for any reason?

3. What occupations did you observe on this trip that you think you would enjoy doing?_____

4. What occupations did you see on this trip that you think you would not enjoy doing?_____

5. What occupations did you see that you think you could do well or learn easily? _____

6. What occupation did you see that you think you could not do well or learn easily? _____

_____

_____

7. How would you rate this trip as a means of learning about occupations.

Please Circle One:

1. Very Good
2. Good
3. Fair
4. Poor

HACKENSACK PUBLIC SCHOOLS

SCHOOL

ACTIVITY:

GOAL:

GRADE OR DEPARTMENT
TEACHER
NO. OF STUDENTS
DATE

	CENTER RATING BEFORE ACTIVITY					TEACHER RATING AFTER ACTIVITY				
	1	2	3	4	5	1	2	3	4	5
Degree of Active Student Participation: 1. observe 2. experiment 3. engage in dialogue or questioning 4. role play (project oneself into the situation) 5. research 6. plan 7. assume responsibility										
Opportunity for Student to Enlarge Knowledge Base										
Provision for Student to Experience Reactions to his Performance										
Teacher Evaluation of Activity Based on Student Reaction										

APPENDIX C

(201) 488-4100

CAREER DEVELOPMENT CENTER
HACKENSACK PUBLIC SCHOOLS
210 State Street
Hackensack, N. J. 07601

STUDENT EVALUATION FORM

You can help us plan more effective activities of this sort by answering the following questions to the best of your ability.

1. Do you have any questions about anything you saw during the course of the trip? Yes. In some of the labs, they assumed we knew too much and I didn't understand a lot of what was going on. They showed a lot of how but no why.

2. What occupations seemed interesting to you for any reason?

Public relations because I'm interested in working with people, not in science. The lab work seemed like a great deal of boring, doing the same thing everyday with limited challenges.

3. What occupations did you observe on this trip that you think you would enjoy doing? Same as above.

4. What occupations did you see on this trip that you think you would not enjoy doing? All the lab work.

5. What occupations did you see that you think you could do well or learn easily? Same as #3 because you do well & easily what you like.

6. What occupation did you see that you think you could not do well or learn easily? The lab work cause I don't like it.

7. How would you rate this trip as a means of learning about occupations.

Please Circle One:

1. Very Good
2. Good
3. Fair
4. Poor

(201) 488-4100

CAREER DEVELOPMENT CENTER
HACKENSACK PUBLIC SCHOOLS
210 State Street
Hackensack, N. J. 07601

STUDENT EVALUATION FORM

You can help us plan more effective activities of this sort by answering the following questions to the best of your ability.

1. Do you have any questions about anything you saw during the course of the trip? Yes, I would have enjoyed seeing the actual use of the equiptment and more of an explination

2. What occupations seemed interesting to you for any reason? I like the mass occupation in Spectrophotometric lab because he explained and showed us the equiptment so we understood it.

3. What occupations did you observe on this trip that you think you would enjoy doing? Very frankly - none. The jobs there seemed unchallanging and uninteresting

4. What occupations did you see on this trip that you think you would not enjoy doing? Working in the micro lab & leading guided tours.

5. What occupations did you see that you think you could do well or learn easily? Working in the Spectrophotometric lab because we learned about Spectrophotometry in Adv Chem + I liked it

6. What occupation did you see that you think you could not do well or learn easily? They were all about the same as far as excitement goes (except for Spectrophotometry) so it wouldn't make much difference, I'd do Daily in all.

7. How would you rate this trip as a means of learning about occupations.

Please Circle One:

1. Very Good
2. Good
3. Fair
4. Poor

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Career Development Evaluations

Date 4/23 Grade 11 School HHS Teacher MRS. TURNER Subject ART MAJOR

Project: Art Seminar

Class Reaction:

Commercial Artist—Newark Art School—Interior Decorator—Children's Fashion Designer.

Commercial Artist - He spoke well, and knew his field. His examples of his work were very good.

Interior Decorator - Her taste left me cold. I guess if you have that many rooms in your house, (and $) you can afford to make things gaudy and overdecorated.

Suggestions and Recommendations:

Please have more of these. They were enjoyable.

Career Development Evaluations

Date 4/23/71 Grade 12 School HHS Teacher Mrs Turner Subject Art Major

Projects: Art Seminar

Class Reaction:

Commercial Artist--Newark Art School--Interior Decorator--Children's Fashion Designer.

All of the speakers were good. I found ~~that~~ the interiol designer most interesting because that is what I'll be studying next year. The rest of them were good just to read, but since I already know that I want to be a designer, ~~so~~ the others have no effect on my decision to be a designer.

Suggestions and Recommendations:

none.

Social Studies 8a

Pat Shelley April 26, 1971.

"Career Development Center"

I think that all the people who came were very interesting. I think it would make a great teaching method.

I was especially interested in the Court Reporter and the Probation Officer. I think this is a good method because they told us exactly what their jobs were and all the other things clearly and fully.

I think going to the court house was interesting, too. I liked being in the court session learning about each person.

It's like, so to speak, "Getting it straight from the horses mouth."

8-o Social Studies

Georgene Miller April 26 1971

Out of all of them I think the court speaker, and the Social Worker were the two most interesting speakers, because they explained everything extently and fully.

The trip wasn't really what I thought it would be, because most of the time we just sat around and talked to each other because there was nothing else to do. But the court was realy hearing. all we did was sit around all the time.

As for the detention rooms, well I didn't caues see that.

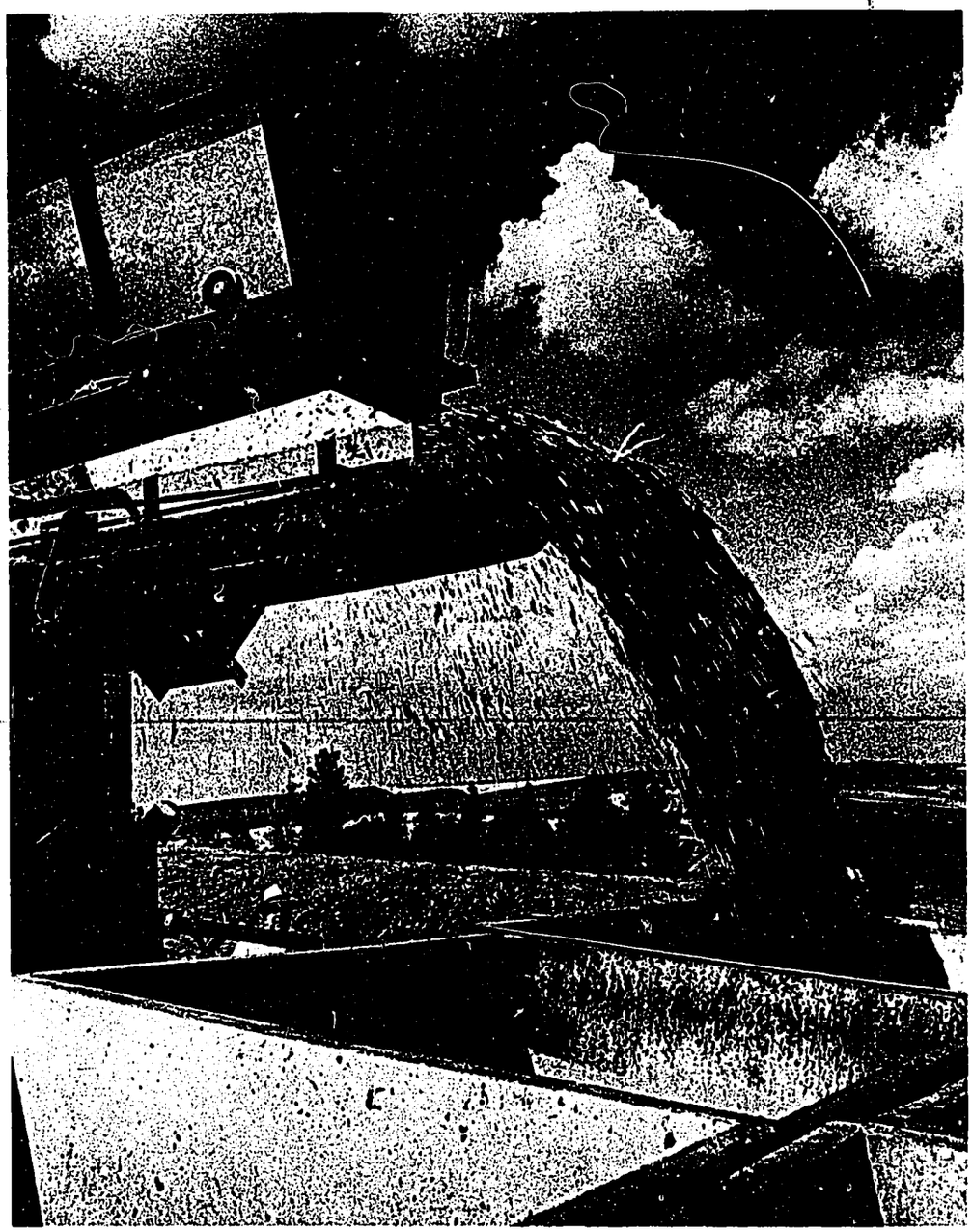
But it really wasn't what I expected.

VT 016 400
FRUIT AND VEGETABLE PROCESSING JOBS. WORLD OF WORK.

WISCONSIN STATE EMPLOYMENT SERVICE, MADISON.
OCCUPATIONAL ANALYSIS FIELD CENTER.
MF AVAILABLE IN VT-ERIC SET.
SER-1110-6-70-WSES-3170
PUB DATE -. ND 41P.

DESCRIPTORS - CAREER LADDERS; PAMPHLETS; *OCCUPATIONAL INFORMATION; *VOCATIONAL DEVELOPMENT; *INDUSTRIAL EDUCATION; *FOOD PROCESSING OCCUPATIONS; PRESERVATION; *AGRICULTURAL PRODUCTION; HARVESTING; EMPLOYMENT TRENDS
IDENTIFIERS - AGRIBUSINESS; OFF FARM AGRICULTURAL OCCUPATIONS

ABSTRACT - THIS BROCHURE DISCUSSES THE TECHNIQUES INVOLVED IN THE COMMERCIAL HARVESTING AND PROCESSING OF FRUITS AND VEGETABLES IN THE STATES OF ILLINOIS, INDIANA, MICHIGAN, MINNESOTA, OHIO AND WISCONSIN. DEVELOPED BY A RESEARCH ANALYST, THIS STUDY INCLUDED EMPLOYER CONTACTS CARRIED OUT DURING THE 1969 CROP SEASON, INVOLVING BOTH LARGE AND SMALL FIRMS AND CONSIDERING FACTORS SUCH AS PLANT EMPLOYMENT, PRODUCT LINES, MECHANIZATION, AND AUTOMATION. FOCUSING ON THE CHARACTERISTICS OF JOBS IN THE AGRICULTURAL, CANNING, AND PRESERVING INDUSTRIES, THIS RESEARCH PROJECT DESCRIBES OCCUPATIONAL TRENDS. TWO PROCESS FLOW CHARTS AND A CAREER LADDER ARE INCLUDED. PHOTOGRAPHS ILLUSTRATE THE TEXT. THIS STUDY IS INTENDED TO ASSIST EDUCATORS IN DEVELOPING CURRICULUMS FOR THE PURPOSE OF JOB TRAINING. (AG)



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FRUIT and VEGETABLE PROCESSING JOBS

VT013701

WORLD OF WORK
OCCUPATIONAL ANALYSIS FIELD CENTER
SERIES 1110-6-70

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WSES-3170

SPECIAL NOTICE

This publication has been developed to aid the selection and placement techniques required to obtain maximum utilization of human resources. The material presented has been collected through research, observation, and interview. Every effort has been made to typify the information so as to provide maximum usage; however, conditions differ to such an extent that certain areas of information may not precisely describe a given location or process. Caution must therefore be exercised in the use of such material.

Wisconsin State Employment Service
A Division of the Department of
INDUSTRY, LABOR AND HUMAN RELATIONS

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ACKNOWLEDGEMENTS

The information contained in this publication was collected and developed by Roland Juhnke, Research Analyst, under the supervision of William Miller, Chief of the Occupational Analysis Field Center of the Wisconsin State Employment Service.

We gratefully acknowledge the excellent cooperation and assistance given us by the many food processing plants and employers. Without such cooperation, the collection of occupational data would be impossible and brochures such as this could not be prepared.

We wish to thank the firms who permitted us to include photographs of job settings and equipment in this publication.

We are grateful to the many individuals who gave so generously of their time. Particular appreciation is extended to management personnel for allowing production workers to cooperate in explaining their many job duties. It is our sincere wish that the brochure will serve as an informational tool to the employment service in its manpower programs, to industry, its employees and future workers and to educators.

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FOREWORD

This report is a study of the techniques involved in the commercial harvesting and processing of fruits and vegetables in the States of Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin. The purpose of the research project was to acquire data concerning the occupational composition and characteristics of jobs in the agricultural and the canning and preserving industries. The study was carried out during the 1969 crop season (June through September) and included employer contacts in the six states named above. The employer selections were made following analysis and evaluation of various background materials and in consultation with the Regional Director of Farm Labor and Rural Manpower Services, U.S. Department of Labor, and with the affiliated state agency personnel. This study involved major national corporations as well as smaller local firms. Factors such as plant employment, product lines, mechanization and automation were considered.

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CHAPTER ONE

INTRODUCTION

The production and consumption of fruit and vegetable crops has been a continuing process in the history of mankind. To reap the bounty of these products, hand harvesting was the traditional means for gathering the crops. As changes occurred in the social structure and population shifts resulted, dramatic innovations were required to improve the techniques concerned with harvesting and processing of fruit and vegetable products. The migration of people from rural living to urban areas reduced the supply of labor available to harvest and process food products. These phenomona were happening at a time when the population was increasing substantially and therefore creating increased pressures on food sources and suppliers. Following World War II emphasis was directed to the development of new machinery and equipment for harvesting and processing of fruit and vegetable crops. In some crop harvest activities, mechanical equipment is now being utilized exclusively. Automated equipment has been added to existing plants and incorporated into new facilities to achieve efficiencies for processors. The search for improvements continues and further advances will be necessary to meet anticipated food demands.

This study took place in six Great Lakes states. In 1969, the vegetable acreage in these six states totaled 727,620.1/ This was 35.3 percent of the national acreage figure of 2,059,550. The dollar value of these vegetable crops for processing in the same year was $133,411,000 in this region.2/ This figure represents 29.6 percent of the national figure of $451,458,000.

1/ Vegetables - Processing, Dec. 18, 1969
U.S. Dept. of Agriculture, S.R.S., Crop Reporting Board, Wash., D.C.
2/ Ibid.

STATE	ACREAGE	DOLLAR VALUE (AMOUNT IN THOUSANDS)
INDIANA	31,010	$ 12,781
ILLINOIS	108,700	19,577
MICHIGAN	56,620	17,896
MINNESOTA	183,280	21,606
OHIO	36,040	20,850
WISCONSIN	311,970	40,701
	727,620	$ 133,411

(These statistics indicate the large acreages devoted to vegetable cropping and the economic significance of these activities in the area.)

The increasing volume of food production has direct implication on the labor force. In the past, additional hand type labor was recruited to harvest and process the food products. Population shifts from rural to urban areas reduced a ready and available labor supply. In order to meet the demand for its products and to be assured of meeting harvesting deadlines, the industries undertook programs of machinery development and improvement. Emphasis was directed to developing mechanical harvesting equipment and to improvements in the techniques for processing fruits and vegetables. The new equipment made different demands on the worker and required new types of training and experiences from the worker. The sophisticated machines had to be set up, operated, and maintained in order to carry out their function in the production and processing cycle. This required retraining and upgrading of existing workers to meet the needs of the new jobs.

Studies of this type are intended to assist educators in developing appropriate curricula to properly train workers for meaningful employment in society. As the technological advances become more sophisticated, worker requirements will continue to change. This brochure attempts to explain the modern techniques concerned with the harvesting and processing of fruits and vegetables and to identify the accompanying worker requirements.

CHAPTER TWO

PROCESSES IN CANNING AND FREEZING

Fruit and vegetable preserving is divided into two basic processes - canning and freezing. These two preserving processes have several basic steps:

Canning	Freezing
Harvesting	Harvesting
Receiving & Preparation	Receiving & Preparation
Canning	Freezing
Cooking	Packaging - Warehousing, or Warehousing - Packaging,
Warehousing	Shipping
Shipping	

Of these, only the first two steps vary to any great degree from crop to crop. A description of both canning and freezing processes will be given to illustrate methods employed in this industry.

HARVESTING OF VEGETABLES

Harvesting of most commercial vegetable and an increasing number of fruit crops is performed by mechanical means. Of the vegetable crops grown in the States of Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin, asparagus, beans (green and yellow), beets, cabbage, carrots, corn, cucumbers, lima beans, peas, and potatoes, and tomatoes, only four - asparagus, cabbage, cucumbers, and tomatoes - are in part or entirely harvested by hand.

Mechanical vegetable harvesting machinery is of two basic types: that used to harvest root crops and that used to harvest above ground crops. All machinery is power-driven either through a self-propelled unit or through a power take-off method from a farm tractor. All current machinery used in vegetable harvesting is of the type termed "one time only": that is, in the course of harvesting it destroys the vine or stem upon which the crop grows. After the machine has cut or dug the crop it eliminates most of the waste (vines, leaves, dirt, etc.) and conveys the crop into some type of bin. Most machine bins are of a power dump type.

HARVESTING OF FRUITS

Mechanical harvesting of fruits at present is much more limited in nature than is the case with vegetables. Of the major fruit crops grown for processing; apples, blueberries, tart cherries, sweet cherries, peaches, pears, raspberries, and strawberries, the only widespread use of mechanical harvesting equipment is found in tart cherries. The rest of these fruit crops are hand harvested except for the occasional use of experimental or demonstration equipment.

Mechanical tart cherry harvesting is performed with a device that mechanically shakes the tree causing the fruit to fall onto a portable catching frame or canvas. The cherries are gathered by conveyor into lug boxes (containers used to store product) and dumped into a water tank for hauling.

Harvesting of fruits and vegetables, whether intended for canning or freezing, is performed in the same hand picking manner. Fruits and vegetables are rapidly transported from field to processing plant because of their rapid deterioration and spoilability. Transport is usually by contracted truck haulers.

CANNING-PRESERVING

The basic steps involved in the canning of fruits and vegetables are similar. Certain variations do exist from product to product, primarily in the preparation of the product for filling into the can or jar. As an example certain products require blanching, (a precooking process to preserve the product), others do not; some crops are washed in a tank and some are spray washed; some crops require peeling.

There are also several methods employed in the industry for pressure cooking (as illustrated later) and some for cutting or chopping. The basic steps in the canning process are; receiving and preparation, container filling and closing, cooking and cooling, and warehousing and shipping, (see process flow chart #1) with variations as indicated.

CHERRY HARVEST

HAND

MACHINE

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PROCESS FLOW CHART #1

CANNING PRESERVING

Receiving	(truck unloading or dumping, bin dumping, box or pail dumping)
Preparation	(air cleaning, spray or tank washing, blanching, peeling, cutting chapping)
Filling	(hand or automatic or semiautomatic machine can or jar filling)
Closing	(can sealing or jar capping)
Cooking and Cooling	(retort, continuous or hydrostatic batch, or automatic cooking and cooling)
Warehousing	(labeling, bright stacking, casing by hand, semiautomatic or automatic machines)
Shipping	(truck or rail car loading by hand or fork lift truck)

RECEIVING

As previously stated, the majority of fruit and vegetable crops are transported via truck. The raw product may be in boxes, pails, large lug boxes, or in the truck box itself. The first step is to determine the product weight. The product usually is unloaded by some type of mechanical or power-assist method such as hydraulic dump box, fork-lift truck, truck bed conveyor and truck box dump. Only in a very limited number of cases is dumping performed by hand. The truck or container is emptied into a conveyor or flume system (an inclined chute or trough carrying water), depending on the plant and nature of the product (tomatoes and cherries are flumed to avoid bruising). Fluming has the advantage of offering an additional washing step. The empty truck, box or lug box is immediately washed to avoid buildup of residue and eliminate formation of mold or fungus.

PREPARATION

The crop is conveyed or flumed into the plant where it passes through several steps. Generally, the initial step is cleaning, which is performed through one of any combination of screen and air blast, spray washing or agitation washing. Cleaning serves to remove dirt and extraneous material such as husks, stems, pods, and leaves. The next step varies with the type of crop being handled - e.g. peas receive a flotation washing, corn is husked and cut from the cobs, apples are peeled, cherries pitted, etc.

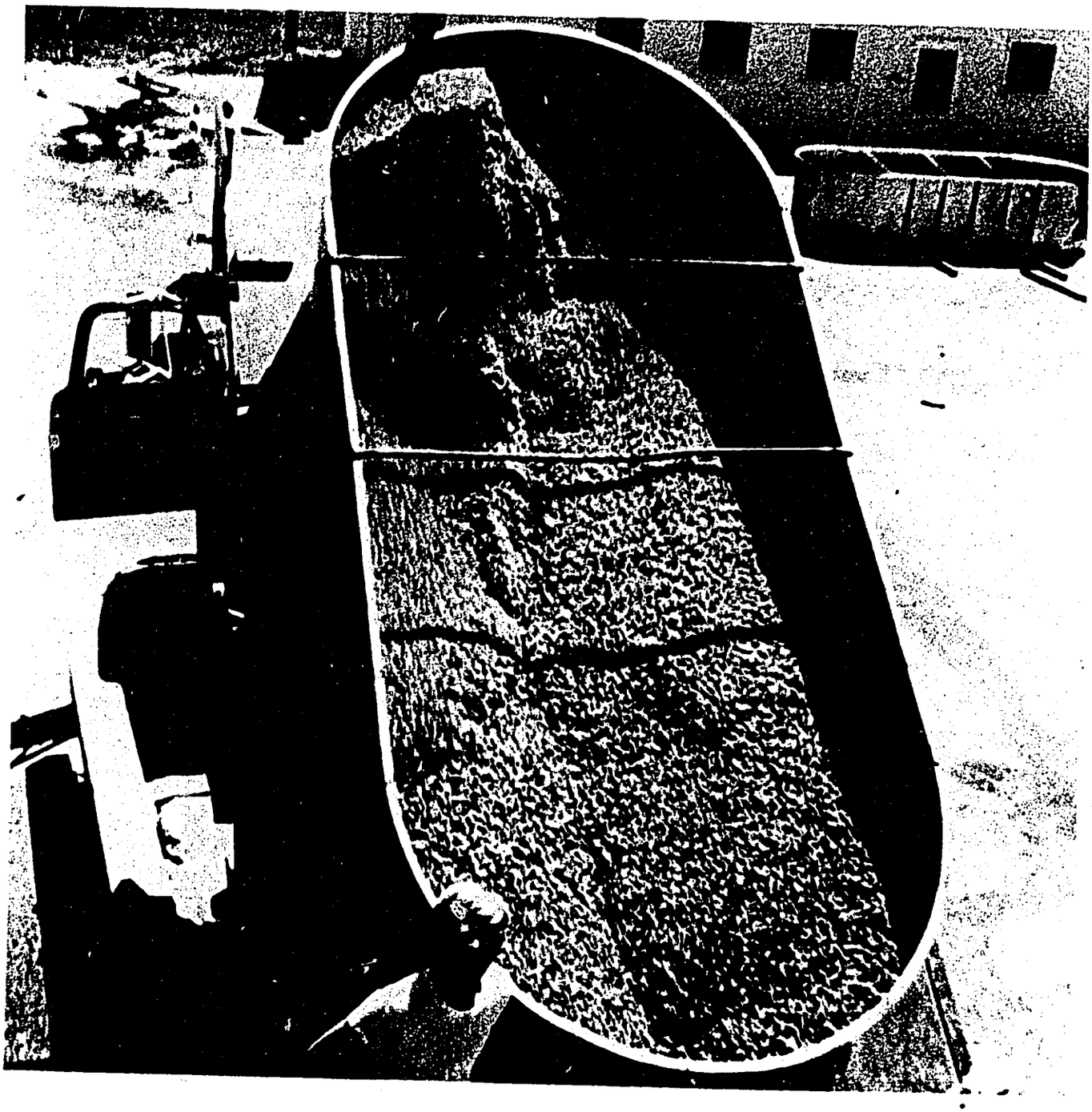
The crop is then ready for a final washing and final preparation for canning or bottling. Final preparation also varies from crop to crop depending on the nature of the crop and the type of final product desired. Peas are graded for size and tenderness with screens and gravitational separating equipment, beans and asparagus are cut to desired length in mechanical cutters, apples are mechanically cored, sliced or cooked (for applesauce) and most crops are blanched.

Plants usually engage in either the processing of fruits or of vegetables. Several reasons account for this. The harvest period for many fruits and vegetables occurs at the same time thus making it physically impractical to process the products simultaneously. Growing areas for fruits and vegetables are normally quite distant from each other which would impose a transportation problem to centralized processing.

FILLING - CLOSING

The filling and closing of jars and cans of fruits and vegetables are performed almost entirely by automatic machines. Semi-automatic or hand operated equipment is used for very large or unusually shaped containers in limited production runs.

Fruits or vegetables flow along conveyors from the preparation area to the filling and closing area or are pumped



LOAD OF FRESH VEGETABLES ARRIVING AT PROCESSING PLANT

or sucked through pipes. There are many different manufacturers of filling machines but there are two basic types of machines, straight line and rotary. In the straight line machine, empty cans move along a can track through the filling area where the product is dropped or tumbled into them. After they are filled, the cans proceed along the track to the rotary reamer or capper. Syrup, salt, or some other solution is added to the can between filling and closing. The closing machine, usually of rotary action, places a cover or cap on the container and tightens or rolls the seam to hermetically seal (make airtight) the container.

In the rotary filling operation the process is performed as the can is rotated around the machine rather than as it passes along a conveyor. Adding of syrup, salt, or other solutions is performed at one position in the rotation of the machine. Sealing and capping are performed in the same manner as in the straight line operation.

Semiautomatic or hand operated equipment, while it is power-driven, differs from automatic equipment in that the operator is required to activate each cycle of the machine. Use of the semiautomatic type of equipment is very limited and is expected to decline more in the near future.

The filled and sealed cans and bottles are conveyed to the cooking operation by conveyor or placed in a cart or basket depending on the type of cooking operation employed by a specific plant. Conveyors are used in conjunction with automatic continuous cookers, baskets or carts in conjunction with batch retort cookers.

COOKING AND COOLING

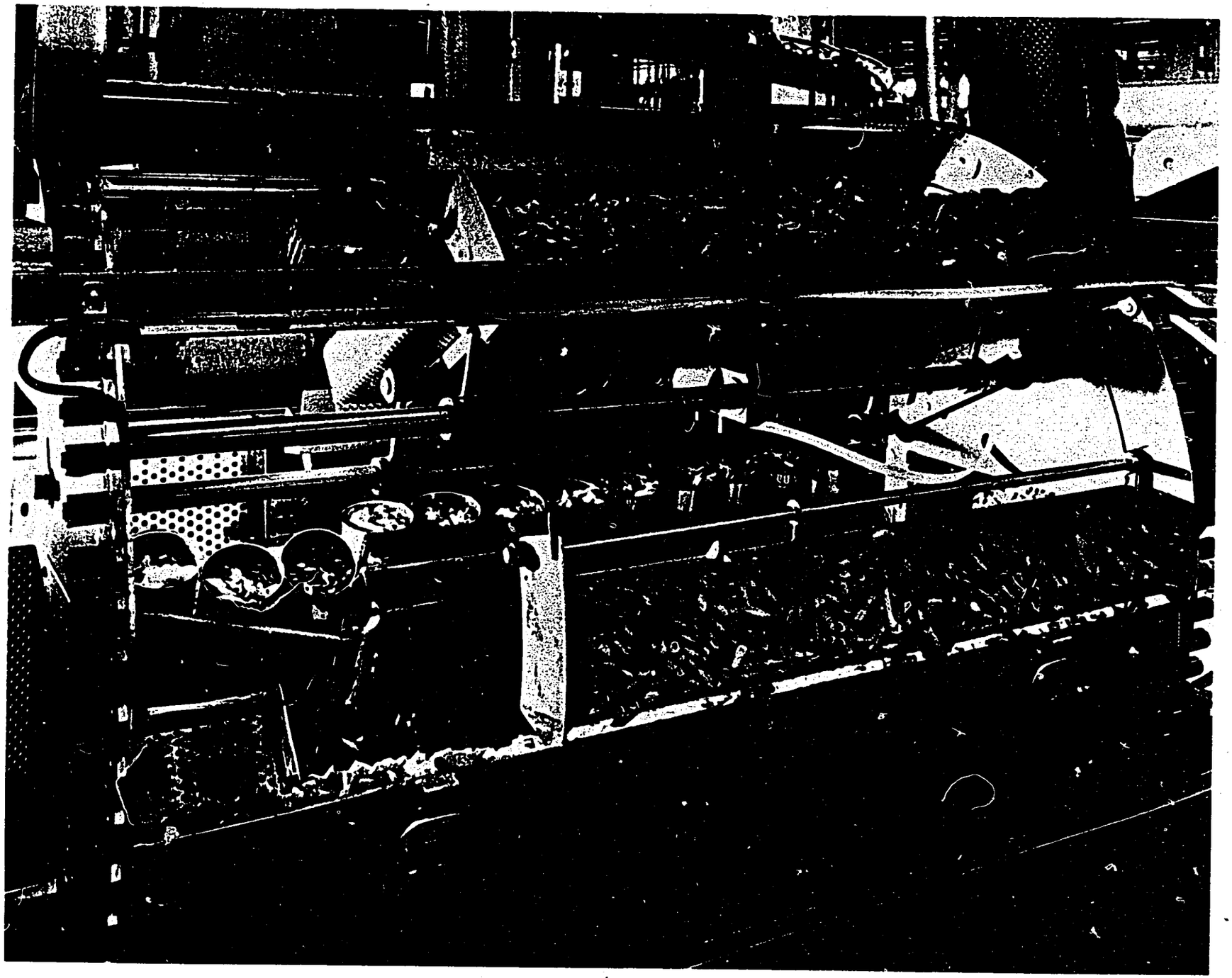
This is the vital step in the entire canning process as it is the one that ensures the final quality of the product by ensuring it against spoilage. Although the time and temperature factors may vary from product to product, the cooking process itself is common to both fruits or vegetables for canning-preserving.

Several types of units are used to cook-preserve fruits and vegetables. They are; non-pressure steam cabinet, pressure retort cooker, pressure rotary continuous cooker and pressure hydrostatic continuous cooker. A brief description of each process follows.

Non-pressure steam cabinet

This unit, built of stainless steel, is in the form of a long tunnel approximately 3 ft. wide, 2 ft. high and 12 to 16 ft. long (dimensions vary depending on required capacity and temperature) with a conveyor running through it. The product to be processed passes along through the unit and is raised to the desired temperature for a specified time. Cooling is usually performed by conveying the product through a series of water sprays. The primary use for

OPEN VIEW OF CAN FILLING MACHINE



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this unit is in processing products requiring low heat, e.g. products packed in sugar syrup, to ensure them against spoilage. This is an automatic machine requiring low labor input.

Pressure retort cooker

This steel unit is similar to a very large pressure cooker. There are two styles of retorts - a vertical and a horizontal model. The vertical model is usually sunk into the floor and is loaded with steel crates of product through the top by means of a hoist. The horizontal model stands in a low pit and is loaded by pushing steel coils loaded with cans or jars into it. After loading, the doors on both styles are sealed and steam is admitted to heat and pressure-cook the contents.

These are low cost units found in most small volume operations. Most of the process is manual - loading, controlling the cooker and unloading - consequently, this process requires substantial numbers of workers.

Pressure rotary continuous cooker

This unit resembles two or three large drums that have been laid on their sides and joined together. Pressure locks are located on the two units at opposite ends. These locks allow cans to enter and leave the unit without pressure loss. Cans flow along a can conveyor or track and into this unit. The cans are moved through the interior by the interaction of a rotating reel and a track welded to the interior of the cooker drums. The variable speed of the reel determines the length of time cans are in the unit, and combined with the controlled interior temperature the desired heat is achieved in order to preserve the contents from spoilage. There are three separate areas in this type of cooker: preheat, cook, and cool. This type of unit usually will accept only one size of container. These units are expensive, usually costing in excess of $150,000, and are economical only for a large volume producer. This is a continuous operation requiring a small number of trained workers.

Pressure hydrostatic continuous cooker

This unit appears as a large vertical tower approximately 60 ft. high and 10 ft. square. In addition to this basic unit are one or two mechanical devices for loading and unloading cans of product. Cans are loaded mechanically into trays in a continuous chain which carries them through the cooking operation. The chain proceeds from the loading point into the water filled inlet leg of the unit, then down

the inlet leg into the cooking dome, up into the steam area of the dome, out of the dome into the water filled exit leg and down through a cooling spray. Pressure in the steam dome is controlled by the water level in the entry and exit legs and cooking time by the speed of the conveyor chain. Cookers of this type may have one or more chains in simultaneous operation. The major advantages to this type of unit are; it will handle several different types of cans at one time and it has a high volume flow. These units are very expensive, usually costing in excess of $500,000, and are economical only for a large volume producer. Most of the firms who have such a unit use it year-round, canning pork and beans or fruit juices in the off season. This cooking process is a continuous operation requiring a small trained work force.

WAREHOUSING AND SHIPPING

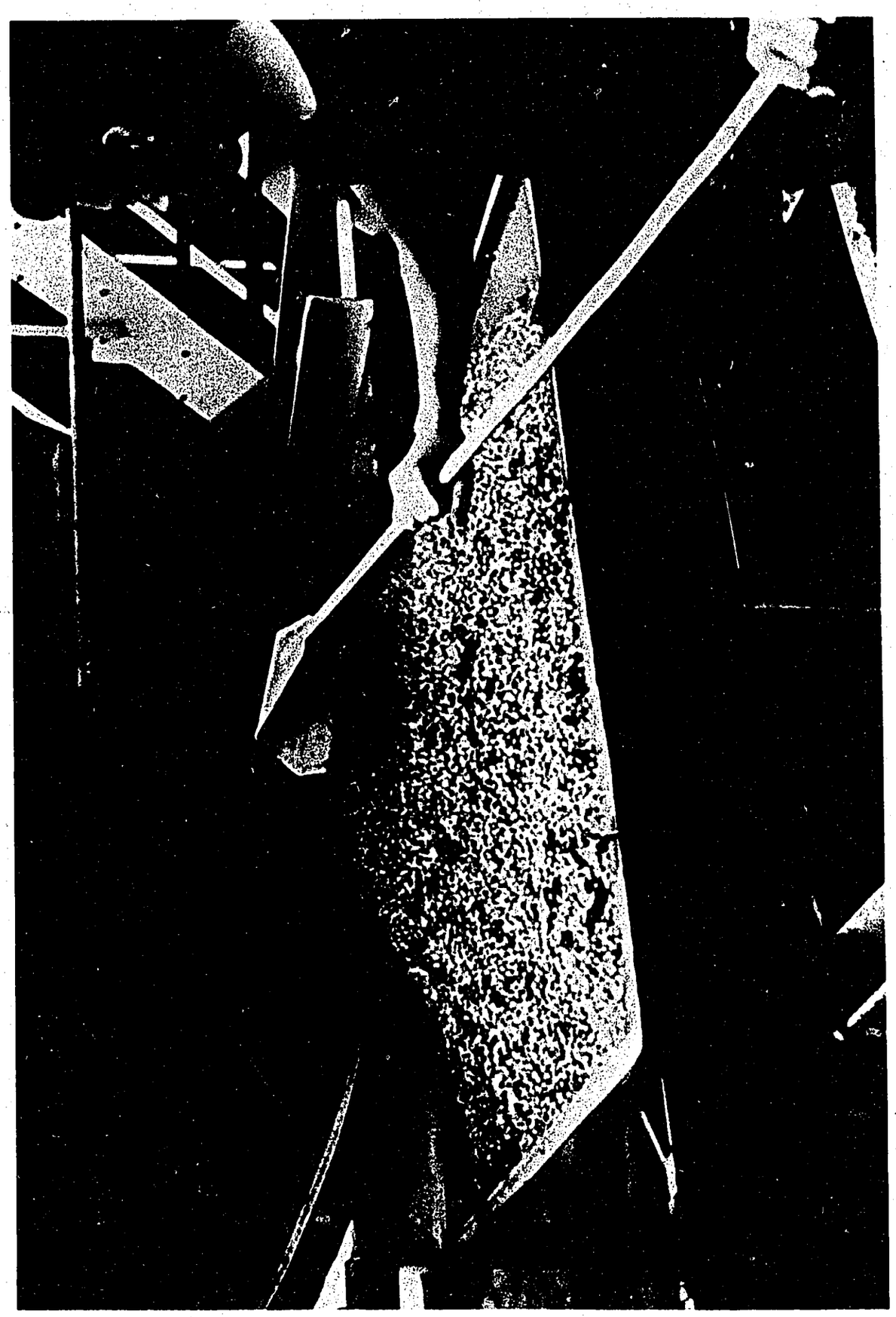
After cooking or exhausting (heating, closing and cooling cans to create partial vacuum) is completed, containers of product are moved to the warehouse via steel basket, cart, or conveyor. Two methods of warehousing are used depending on the firm and its requirements. The products are either run through automatic labeling machines and then cased or palletized (stacked on a double faced wooden platform) for storage, or palletized without labels (bright stacking). After they are palletized or cased, the products are moved to a specified area in the warehouse by forklift truck. Products are loaded for shipment directly from the warehouse. Most plants have facilities for both truck and railroad shipping.

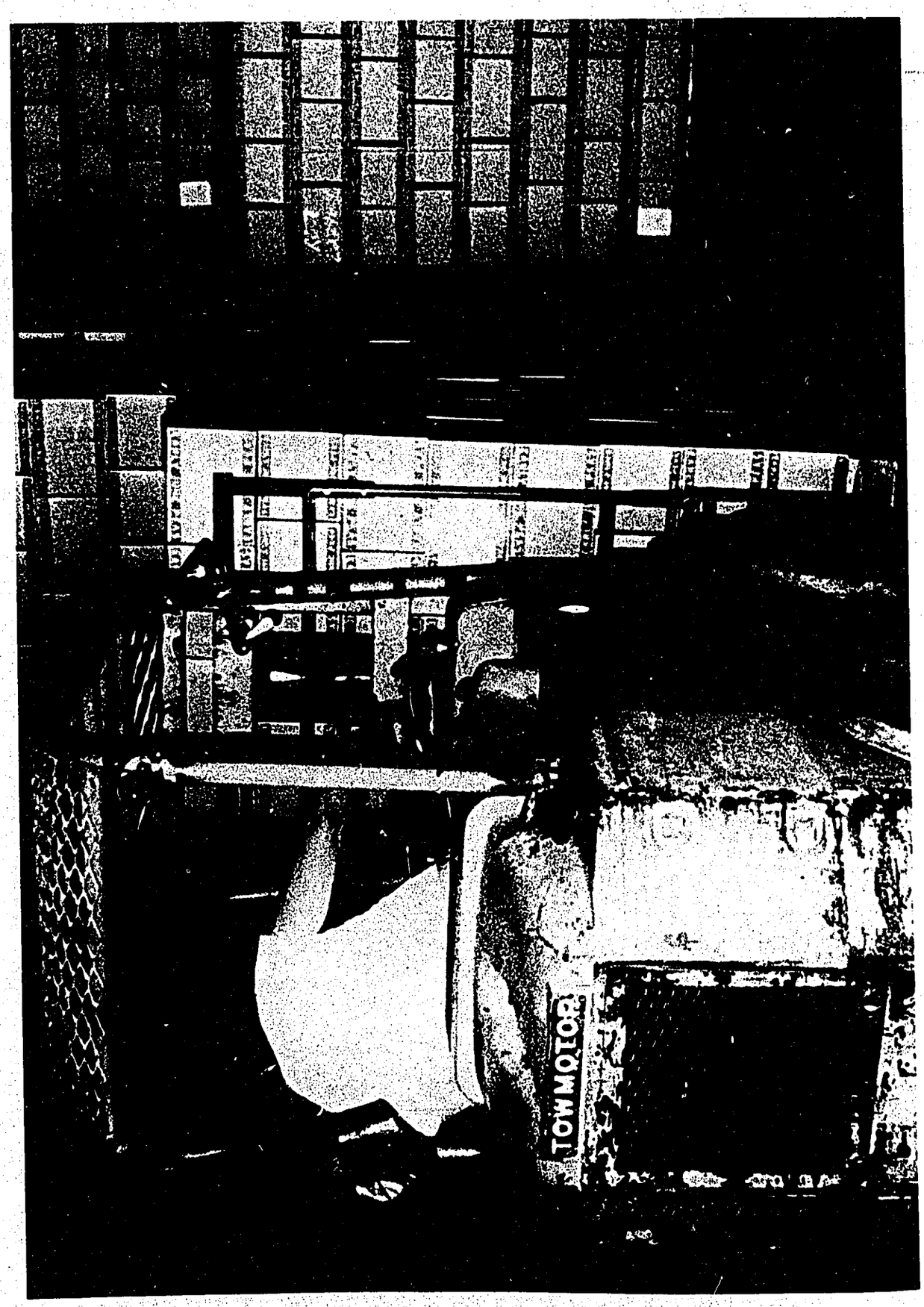
Technological advances have created many changes in warehousing. There is an increasing use of automatic and semiautomatic palletizers and depalletizers, of conveyor systems, and of case stacking equipment. The trend is toward reducing the amount of physical labor required to warehouse and ship products.

FREEZING PRESERVING

The basic steps involved in the freezing of fruits and vegetables are similar. Certain variations, as in canning processing, do exist from product to product, primarily in preparing the product for freezing and filling into containers. There are also several freezing methods employed, such as: air blast tunnel freezers, plate contact freezers, and tray freezers. The most commonly employed type, particularly in large volume operations, is the air blast tunnel freezer. The basic steps in the freezing process are; receiving and preparation, freezing, packaging and warehousing, and shipping, with variations as indicated. (See process flow chart #2.)

CONVEYOR FEEDER





STACKING CASES OF CANNED PRODUCTS IN WAREHOUSE

FEEDING - OFFBEARING

Work activities require an employee to insert, throw, dump or place materials in to or to remove them from machines or equipment. These machines are usually automatic and are usually tended or operated by another worker.

Cannery Worker - dumps or places food products in hopper, sorting table or conveyor. Sorts or grades products according to size, color or quality. Trims, peels and slices products with knife or other tool. Fills containers using scoop or filling form, or packs by hand. Places filled containers on trays, racks, or into boxes.

PROCESS FLOW CHART #2

FREEZING PRESERVING

Receiving	(truck unloading or dumping, bin dumping, box or pail dumping)
Preparation	(air cleaning, spray or tank washing, blanching, peeling, cutting, chopping)
Freezing	(box filling and plate freezing or tunnel freezing)
Packaging-Warehousing	(package filling and warehousing or bulk container filling and warehousing, packaging from bulk container)
Shipping	(truck or rail car loading by hand or for lift truck)

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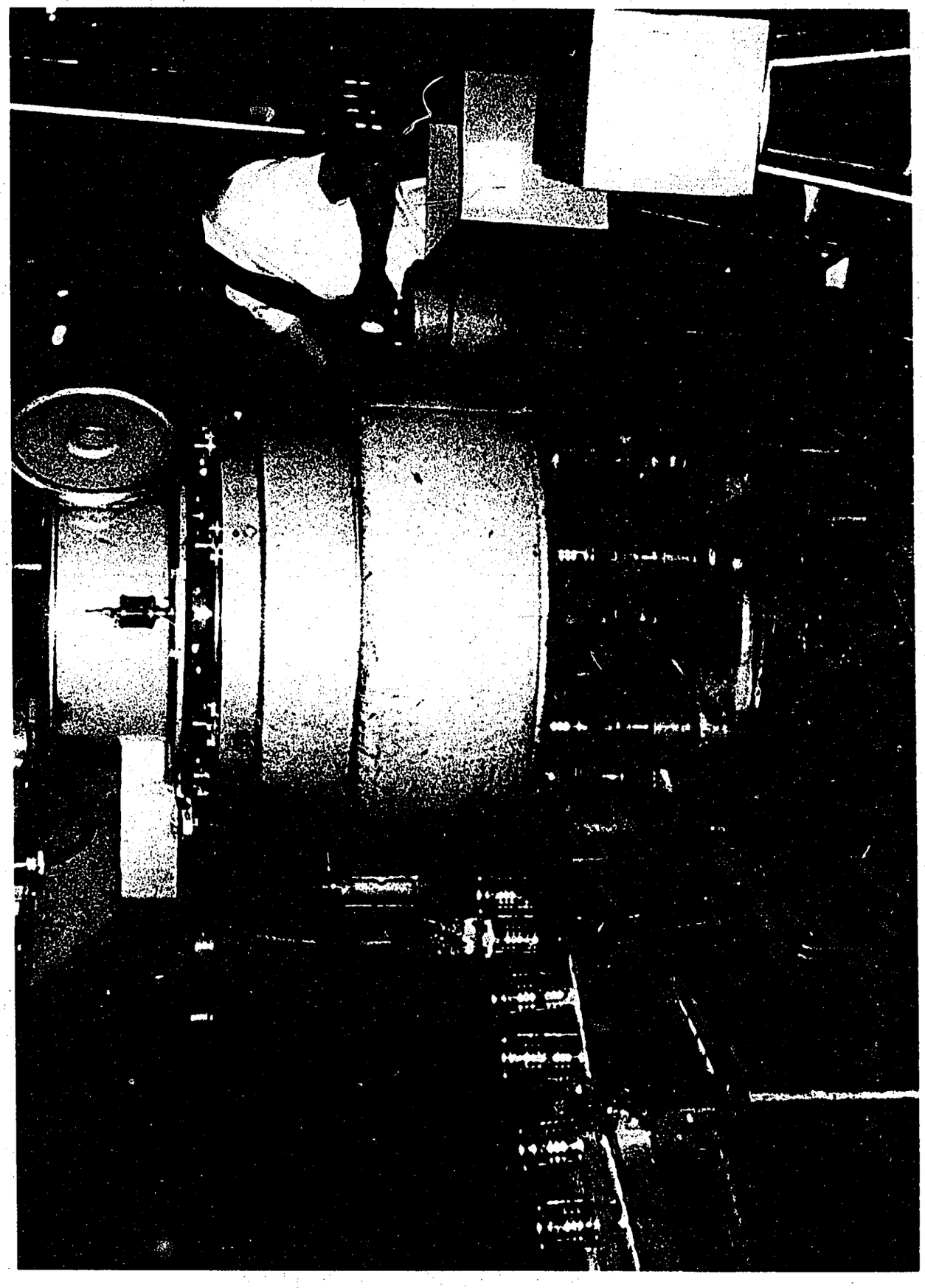


CAN FILLING MACHINE

RECEIVING

As previously stated, the majority of fruit and vegetable crops are transported via truck. The raw product may be in boxes, pails, large lug boxes, or in the truck box itself. The first step is to weigh the product, which usually is done by weighing the loaded truck and subtracting the empty truck weight. Unloading of the product is done by some type of mechanical or power-assist method such as hydraulic dump box, fork lift truck, truck bed conveyor and truck box dump. Only in a very limited number of cases is dumping performed by hand. The truck or container is emptied into a conveyor or flume system depending on the plant and nature of the product (as an example, cherries are flumed to avoid bruising). Fluming has the advantage of offering an additional washing step. The empty truck, box, or lug is immediately washed to avoid build up of residue and eliminate formation of mold or fungus.

PREPARATION

Several steps are required in this phase of the processing cycle. After the crop is conveyed or flumed into the plant, it is cleaned by means of any combination of screen and air blasts, spray washing or agitation washing. The cleaning removes dirt and other unwanted materials such as husks, stems, pods, and leaves. The specific crop or product dictates the next operation - e.g. peas receive a flotation washing, corn is husked and cut from the cobs, apples are peeled and cherries are pitted.

The crop or product is then given a final washing and final preparation for canning or bottling. The specific final preparation is dependent on the nature of the crop and final product desired. Screens and gravitational separating equipment grade peas for size and tenderness, mechanical cutters cut beans and asparagus to desired lengths, apples are mechanically cored, sliced or cooked (for applesauce) and most crops are blanched.

Plants normally engage in either the processing of fruits or of vegetables. Many fruit and vegetable harvesting periods occur simultaneously thus precluding multiple product processing. Fruit and vegetable growing areas are usually quite distant from each other and separate processing facilities are required.

FREEZING

Rapid freezing is the vital step in the entire process of food preserving by freezing. This step ensures the maintenance of the quality of the product. While the method of freezing may vary from plant to plant, the ultimate aim at all plants is the rapid freezing of the product to maintain quality.

TENDING

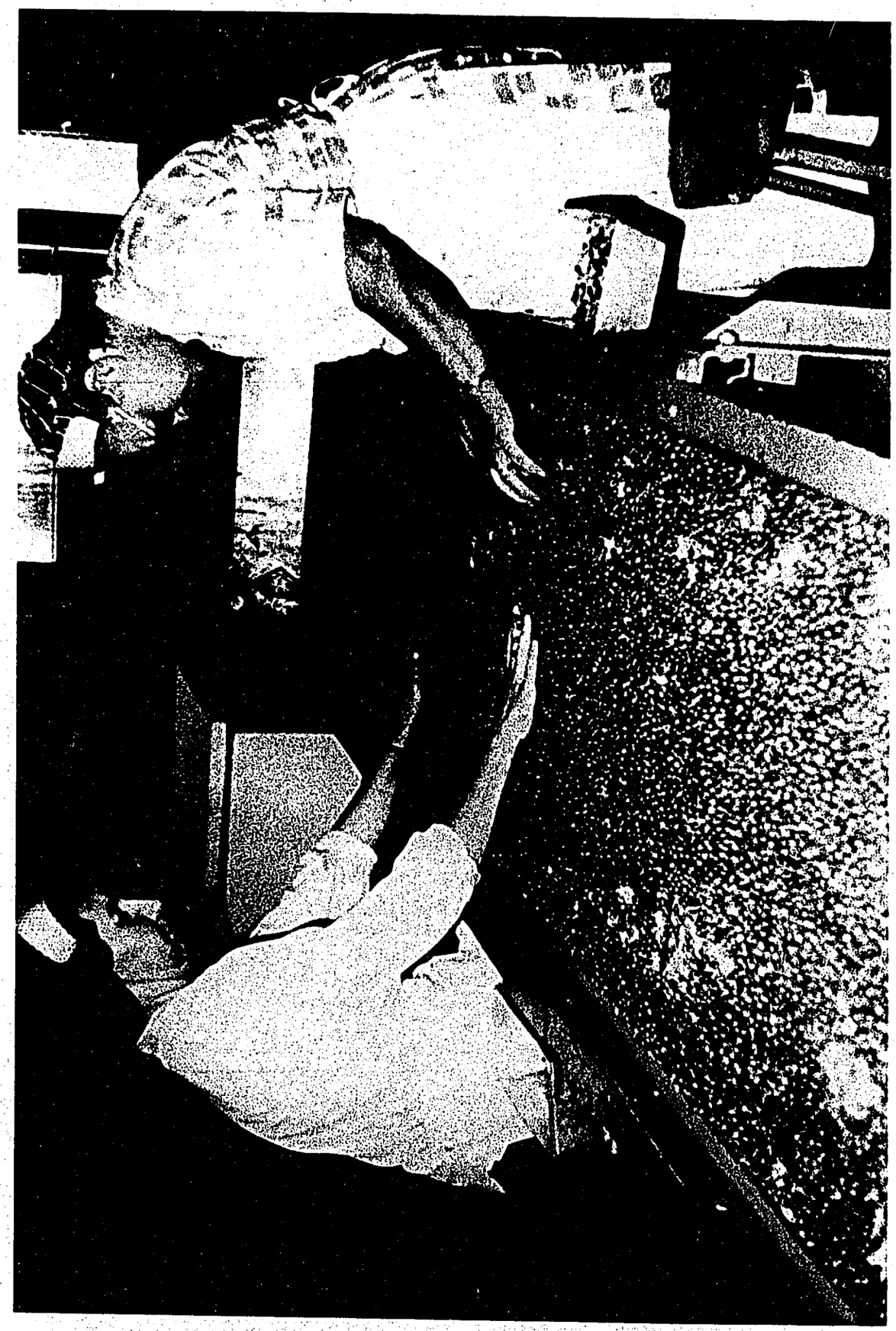
The function of tending requires a worker to start, stop, and observe machines and equipment as they are functioning. May require adjusting of materials or controls of the machine, such as turning valves to adjust the flow of materials or flipping switches in response to dial lights. Responses to these situations are necessary to the steady performance of the machine.

Tenderometer Operator - determines quality of fresh peas for canning, and as a basis of payment to grower, using a machine called Tenderometer.

Packager, Mach.- tends a machine that performs functions such as cleaning, filling, marking, labeling, sorting. Starts machine, observes functioning. Makes minor repairs and adjustments, such as opening valves, setting guides, etc. Replaces containers and wrapping stock as required.

Brine Maker - tends steam cooker to prepare brines and pickling solutions for preserving food products. Opens and closes valves. Adds ingredients. Observes temperature gages and regulates heat.

Blanching-Machine Operator - tends machine that blanches fruits and vegetables prior to canning and preserving. Observes gages and dials to regulate temperature and blanching time. Feels and visually examines blanched product to determine softness and color factors.



INSPECTING PEAS

OPERATING - CONTROLLING

A worker must be able to start, stop, control and adjust machine or equipment progress. Involves setting up the machine and adjusting the machine or material as the work progresses.

The control of equipment involves observing gages, lights, and dials and turning valves and other devices for control of temperature, pressure, flow of liquids, pump speed, and the reaction of materials.

Conveyor-Line Operator Automatic - operates console that controls automatic palletizing equipment to sort, transfer and stack on pallets the containers of finished product. Reads instructions for production and delivery schedules and stacking pattern arrangement (to see what goes where.) Turns selector switch or palletizer to control stacking arrangement of packages on pallet. Turns selector switch off before clearing production jams. Reports malfunctions to repairman.

Sewage-Plant Operator - Controls water treatment plant equipment for purifying waste water from plant before discharge to rivers, streams, or city mains. Starts and regulates operation of motors, pumps, and valves. Adds appropriate amounts of chemicals to properly disinfect, deodorize and clarify water. Monitors control panels to adjust distribution of water. Determines water composition by applying color reaction tests. Records information pertaining to test results and conditions.

Several types of units have been employed in the freezing of fruits and vegetables; the most common and current being air blast tunnel freezer and the plate contact freezer. A brief description of each of these two follows.

Air-blast tunnel freezer

This unit consists of a rectangular insulated room approximately 12 ft. high, 10 ft. wide and 50 ft. long. At one end is a separate pre-cool chamber and at the other an exit chamber. The product is moved into the entry chamber by conveyor or tube and spread out mechanically onto a slowly moving steel mesh conveyor screen (temp. in this area is usually about 0°F.) The screen moves the product along into the air blast area (through a dividing wall) where it is exposed to a temperature of approximately - 30°F. and an air blast of 20 to 50 mph. The product is usually frozen solid in 5 to 10 minutes. The conveyor screen carries the frozen product through a wall into the discharge area where it falls into tote bins or into a conveyor for transfer to the freezer warehouse or packaging room. The speed of the conveyor is varied depending on the freezing time requirement of the product. Some freezers have more than one conveyor and can freeze two different products at one time. This is a continuous operation requiring a low input of skilled labor. These units are expensive, usually costing in excess of $100,000 and are economical only for a large volume producer.

Plate contact freezer

This unit consists of one or several upright cabinets with full-length single or multidoor arrangement, some having doors on two sides. The interior appearance is of many open shelves. In this process the product is filled into boxes after preparation and the boxes are placed on trays. The trays are placed on shelves to fill the freezer and then a mechanism is activated which causes the shelves to lower until each tray of product has both top and bottom contact. The doors are then closed and the product left for a specified freezing time. After the freezing is completed the trays are removed and the product conveyed to a freezer warehouse. These units are inexpensive when compared to the air blast tunnel. They cost approximately $5,000, depending on the size of the unit. This is a batch process requiring a high labor input. This type of unit is usually found in a small or experimental operation.

MECHANICAL REPAIR & MAINTENANCE

Workers perform tasks necessary to fabricate, inspect and repair equipment. Emphasis is placed on manual skills and applying an organized body of knowledge to a problem. Requires independent judgement and assuming responsibility for attainment of specific quality standards.

Training may be obtained by means of an apprenticeship or an on-the-job training program.

Refrigeration Mechanic - installs and repairs industrial refrigerating and cooling systems. Reads the blueprints and engineering specifications completely. Lays out reference points for equipment using instruments such as a tape, transit, plumb bob, level and square cuts, threads and connects pipe. Starts up the system and observes the equipment in operation. Makes adjustments to ensure proper functioning of equipment.

Maintenance Man - a maintenance man repairs machinery, plumbing, physical structure, electrical wiring and fixtures in an industrial establishment. Inspects various types of machinery, analyzes problems and determines appropriate corrective actions to remedy the problems.

PACKAGING - WAREHOUSING

After freezing has been completed the product either is conveyed to the refrigerated warehouse for bulk storage or to the packaging room for filling various sized boxes and containers. In the plate contact freezing process, this step is completed prior to freezing. The determination of which method is used depends on the demand for packages for immediate distribution. Machines employed in filling, closing, and wrapping boxes or containers of frozen products are of the automatic or semiautomatic type. Equipment to handle and dump bulk containers is automatic, semiautomatic, or power-assisted and includes forklift truck, conveyors, and hydraulic dumps. Packaged products are packed in cases, stacked on pallets, and placed in a refrigerated warehouse. Most case filling and sealing equipment is automatic or semiautomatic in nature. The trend is toward fully automatic equipment using the case stacking or palletizing method. The temperature in the refrigerated warehouse is usually maintained at -20°F.

SHIPPING

Packaged products are loaded directly into refrigerated trucks or railroad cars. Bulk stored products are either shipped in their bulk containers or rerouted through the packaging department for processing, depending on customer order.

FOREMAN

Supervises and coordinates work activities of employees and applies knowledge of the work process in order to make appropriate decisions. Work schedules and assignments must be made consistent with management objectives. Effective communications, oral and written, are essential to success. The foreman must motivate the workers to get the job done, develop individual initiative, and create and maintain a harmonious work setting.

Preparation Foreman - supervises and coordinates activities of workers involved in the processing of fruits and vegetables. Studies production schedule and estimates man-hour requirements for job assignments. May determine appropriate work procedures to meet production schedule. Makes determinations and recommendations on personnel actions such as promotions, hirings, discipline cases,etc. Acts in capacity of first level of management team.

Warehouse Foreman - supervises and coordinates work activities of personnel engaged in receiving, transporting, stacking, order filling, shipping and maintaining of stock records in warehouse. The other duties are similar in nature to Preparation Foreman.

CHAPTER THREE

OCCUPATIONAL INFORMATION

The combination of job duties observed in this study reflect the degree of mechanization and automation utilized by the employer. Plants having batch or retort facilities require more physical labor. Continuous process operations require increased worker-machine involvement with a decreased need for physical labor. Those jobs having an increased machine responsibility required job performance at a higher level of complexity which was reflected in a higher wage rate.

Mechanical harvesting devices are sophisticated, expensive pieces of equipment. To state that any farm tractor operator can handle a mechanical harvester, such as a pea combine, cornpicker, or a tree shaker, is an oversimplification of the facts. Certain duties of a tractor operator are part of the mechanical operator's job. In addition, the worker must perform various maintenance functions to prevent malfunctions from occurring. Workers instinctively become aware of any unusual operating noises that might indicate potential problems. Mechanical and hydraulic systems have an increasing number of dials and gages that must be observed to assure proper and continuous operation of the equipment. The worker must be able to perform the tasks required in operating the equipment but also must be alert to take precautions against possible breakdown. The equipment must be operated on a continuous basis during the season and this depends upon proper operation, maintenance, and care. These responsibilities are a part of the operator's job duties.

To maximize the use of mechanical equipment, and to ensure as nearly continuous operation as possible, repairs to the equipment must be carried out as quickly as possible and as close to the work site as feasible. Portable field repair units are a common sight today. The units carry the necessary tools for making repairs

MANAGEMENT

Jobs in management require planning, initiating, directing, and executing programs designed to meet company goals and objectives. The usual route to management positions is by means of an appropriate college degree, or in lieu of a degree, a number of years of experience in an area of work. The management staff must be able to accomplish the job efficiently by directing the efforts of other people.

and many are equipped with portable welding equipment and air compressors to accommodate a variety of repair needs in the field.

The tractor or equipment operator is involved in starting, stopping, and moving controls to operate the planting and harvesting equipment. Foot pedals require the use of the feet and legs, the vehicle requires steering, and the operator must guide the machine over the terrain. These duties necessitate good eye-hand-foot coordination as well as manual dexterity of the operator.

The off season, winter months, provide a break in the hectic pace of these industries. During the winter, equipment is checked and overhauled in preparation for the coming season. The mechanics have to be able to diagnose the trouble, provide a plan for the repair by either following an equipment manual or personal knowledge and then making the repair. New diagnostic equipment may be used to locate trouble points and requires the ability to read gages, dials and meters. Manual skills are an important characteristic of the mechanic who must work on repairs in a great variety of positions. Personal satisfaction to a mechanic is to repair a piece of equipment and see and listen to it perform the way it should.

A large number of jobs in the canning-preserving industry require worker performance at similar levels of complexity. This permits employers to utilize workers in various jobs, depending on the demands of the specific product. It also affords the worker a more continuous period of employment during the crop season.

New employees are placed in jobs that require little or no previous experience. Following a brief demonstration the individual is able to perform such tasks as hand sorting of the product, sorting and assembling containers for the product and the moving of products from work station to other plant areas. The work involves following simple directions and being able to meet the physical needs of the job. Titles vary from plant to plant but typically the workers are designated as packers, handlers and material handlers.

A canning-freezing plant requires the use of a great variety of machinery. Materials and products must be supplied to machines and must be removed from the machine at the completion of the operation. Workers perform tasks necessary to feed the products into the machines and also in removing the product from the machine. These workers may be designated as dumpers, peelers, sorters, or trimmers.

The tending and operating of the machines require a worker to perform at a higher level of complexity. These jobs involve starting, stopping and observing the functioning of machines and equipment. The worker must be able to read and follow instructions and to keep simple records. The necessary training is normally on-the-

CHAPTER SIX

OCCUPATIONAL TRENDS

The need for a continuing supply of high quality food at the lowest possible price is a vital concern of society today. With population growth pointing to signifcant increases in the coming years, additional inputs of research will be required to develop and improve the techniques for harvesting and processing fruit and vegetable products.

Mechanical equipment has dramatically reduced the need for harvest labor in the past two decades. This equipment is being improved and modified continually to harvest increased acreage and yields. The operation and maintenance of this equipment will continue to require workers for these jobs.

Occupational patterns in the canning and preserving industry are expected to show gradual changes in the coming years. The rate of implementation and utilization of automated equipment will depend primarily on economic factors, such as capital expenditure requirements for equipment and the consumer market outlook. The pace of construction of new plant facilities will be contingent to a great extent upon the money market, i.e. the availability of funds for building and the interest rate being charged for borrowing money.

An alternative to new plant construction would be the remodeling of existing facilities. The physical structure imposes certain restrictions on doing this. Piecemeal utilization of automated equipment may not be practical. These limitations many times preclude widespread alteration or modification of existing plant processing techniques. It appears more likely that the rate of change occurring in food processing techniques will be a gradual rather than a dramatic, abrupt phenomonon.

job, under the guidance of an experienced worker, leadman, or foreman. The workers may be classified as retort operator, blancher operator, freezer operator, or filling and closing machine operator.

Job progression in the canning-preserving industry will normally be from plant work to various other specialized departments of the establishment. Advancement to foreman, maintenance man, industrial truck operator, shipping clerk and refrigeration mechanic may occur. Workers demonstrating potential for more responsible jobs and possessing proper work habits will be selected to fill the higher level jobs.

Canning and freezing plants employ large numbers of seasonal laborers. Recruitment of this personnel is conducted among the ranks of migrant workers, housewives and students. Many of the workers from these groups are willing to accept seasonal employment and meet the minimum requirements of the jobs. The industry and workers have enjoyed a very good relationship.

The professional, management and technical jobs in canning and freezing plants are such as to require staffing on a year round basis. These jobs permit the flow of products to customers, product testing, equipment repair, building and plant maintenance and modification and other activities.

The job structure in the canning and preserving industry has entry level jobs which can accommodate individuals with little or no previous work experience and limited educational background. Individuals can be trained to perform the tasks in many of the jobs in a rather short period of time while on the job. Further training and work experience make it possible to advance to more complex work and higher pay. The continuing demand for food products creates a continuing need for workers in the canning-preserving industry.

The changes that do occur in terms of worker requirements will relate to the automated equipment, its operation, maintenance and repair. Workers will have to be trained for jobs involving mechanical and electrical maintenance duties. Hydraulic systems are being incorporated to a greater extent into field equipment. Workers will have to be trained to maintain this equipment. Automated devices are rapidly developing in warehousing. Workers will require training to operate and maintain the equipment. The freezing process for food products is a departure from the conventional methods and will require workers to have maintenance capabilities and knowledge in the area of refrigeration.

The overall level of employment is expected to remain fairly constant. Changes will be reflected in terms of the work requirements relating directly to the workers' involvement with automated equipment.

CHAPTER FOUR

WORK SETTING

WORKING CONDITIONS - CANNING PLANTS Working conditions vary among the plants in the industry to a great extent, based on the age of the facilities. Older plants are often comprised of a series of multistory buildings reflecting conversion of the facilities from some other type of manufacture, or the construction of various additions to meet increased production demands. These multistory, older buildings usually reflect the least desirable working conditions to be found in the industry. The best working conditions are found in modern plants specifically designed for food processing purposes.

PHYSICAL DEMANDS In older retort process plants, the physical demand on the workers is much greater because of the high labor input type of equipment being used. As an example, cans are often transported about in retort carts or crates, that is, pulled or pushed around by hand labor. This work requires a great amount of physical effort and is very tiring. In the newer continuous process plants, the picture is of jobs with a much lower degree of physical input, the equipment is power operated or power-assisted. For example, cans are moved by car track or on pallets by forklift truck.

ENVIRONMENTAL CONDITIONS Atmospheric conditions, high humidity and wetness, vary between old and new plants. In general the older the plant the more noticeable is the midity and wetness. High humidity and excessive wetness are due to constant washing of equipment and plant floors and due to use of steam in cooking and blanching, and water heating operations. New plants have been constructed

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to make use of highly efficient air circulating equipment and floors have been designed with good drainage and nonslip characteristics. One new plant visited has equipment that changes the entire air volume every six minutes. In addition, this plant maintains a positive (higher than atmospheric) interior air pressure which prevents flies from entering the plant.

While high humidity and wetness cause discomfort in warm weather, especially in older plants with limited air circulation, they do not constitute a health hazard.

WORKING CONDITIONS - FREEZING PLANTS

Working conditions in freezing plants are quite similar to those in canning plants. The amount of physical labor required again relates to the age of the plant and its equipment and its degree of mechanization. The atmospheric conditions are similar to those in the preparation area of a canning plant (wet and humid), as these steps are basic to both processes.

The conditions in the freezing area and the refrigerated warehouse are unique. In plants using a plate contact freezer the unloading area is at normal room temperature while the unloading area (usually the refrigerated warehouse) is at approximately -20°F. In an automatic air tunnel process there is only limited inspection of the interior (temperature -40°F. and air speed 40 to 50 m.p.h.) during operation. In both cases the most extreme working conditions are in the refrigerated warehouse, -20°F. Workers in the refrigerated warehouse are supplied with special insulated clothing and usually receive a 10 minute warm up break each hour.

As in the canning operations there was no observation, during the course of the study, of conditions that could be called health hazards. In general then, no conditions, physical or environmental, were observed in canning or freezing plants that were extreme or harmful to the workers.

PERSONNEL PRACTICES

Hiring requirements in the canning and freezing industry depend, as they do in industry in general, upon the nature of the job. Thus the requirements for a maintenance mechanic, or boiler operator are approximately what they would be in a paper mill, an automobile manufacturing plant, or a machine shop. Requirements for unskilled seasonal positions such as trimmers, sorters, huskers, harvest hands, and clean up men are such that people with limited experience or education may qualify. For these unskilled entry jobs all that is required is the ability to follow simple directions and to meet the physical demands of the job. Training is usually on-the-job under the guidance of an experienced worker, leadman, or foreman.

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MCDONALD, LORETTA ANN
CURRICULA OFFERINGS IN BUSINESS EDUCATION IN SCHOOLS FOR THE DEAF IN THE UNITED STATES.

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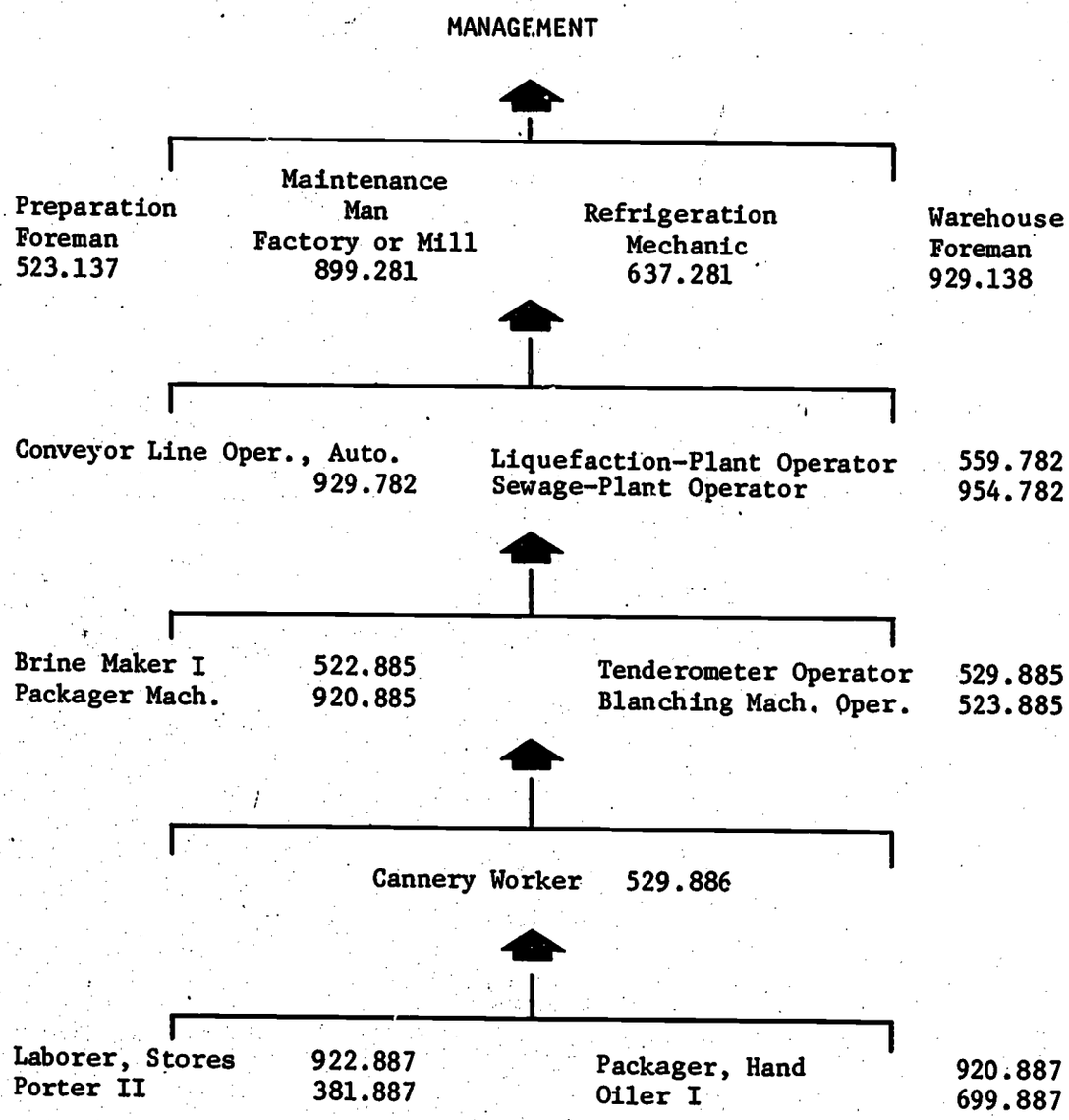
DESCRIPTORS - MASTERS THESES; *BUSINESS EDUCATION; *CURRICULUM; *DEAF; *HANDICAPPED STUDENTS; *CURRICULUM EVALUATION; DEAF EDUCATION

ABSTRACT - THE PURPOSE OF THIS STUDY WAS TO DETERMINE WHAT IS NOW BEING TAUGHT IN THE BUSINESS CURRICULA OF SCHOOLS FOR THE DEAF IN THE UNITED STATES. OF THE 87 SCHOOLS POLLED, 83 REPLIED. OF THOSE THAT REPLIED, 27 DID NOT PROVIDE ANY BUSINESS TRAINING, AND TWO WERE NOT SCHOOLS STRICTLY FOR DEAF STUDENTS. FROM THE 54 USABLE QUESTIONNAIRES THE FOLLOWING WERE INCLUDED AS FINDINGS: (1) TYPEWRITING WAS OFFERED BY EVERY SCHOOL WITH A BUSINESS EDUCATION CURRICULUM, (2) OF THE SCHOOLS THAT OFFERED FILING INSTRUCTION, 31.5 PERCENT OFFERED IT AT THE VOCATIONAL COMPETENCY LEVEL, 37.0 PERCENT AT THE PRE-VOCATIONAL OR PERSONAL-USE LEVEL, AND 7.4 PERCENT AT THE EXPLORATORY LEVEL WITHIN THE BUSINESS DEPARTMENT, (3) OFFICE WORK EXPERIENCE OR ON-THE-JOB TRAINING WAS PROVIDED ON A VOCATIONAL LEVEL BY 18.5 PERCENT, ON A PRE-VOCATIONAL LEVEL BY 9.3 PERCENT, ON A EXPLORATORY LEVEL WITHIN THE DEPARTMENT BY 7.4 PERCENT, AND ON AN EXPLORATORY LEVEL OUTSIDE THE DEPARTMENT BY 5.6 PERCENT, AND (4) OFFICE PRACTICE OR SECRETARIAL PROCEDURES WAS PROVIDED BY 16.7 PERCENT ON A VOCATIONAL LEVEL, BY 24.1 PERCENT ON A PRE-VOCATIONAL LEVEL, AND 7.4 PERCENT ON AN EXPLORATORY BASIS WITHIN THE DEPARTMENT. (AUTHOR/JS)

CAREER LADDER

CANNING & PRESERVING INDUSTRY

JOB TITLES & CODES



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CURRICULA OFFERINGS IN BUSINESS EDUCATION IN SCHOOLS FOR THE DEAF IN THE UNITED STATES

by

Loretta Ann McDonald

A report submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Business Education

Plan B

Approved:

Major Professor

Committee Member

Committee Member

Dean of Graduate Studies

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Logan, Utah

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CAREER LADDER

The following information gives a sample in general terms of jobs typically found in the food processing industry. The list of titles and codes attempts to portray the levels of complexity at which a worker performs in jobs, and the usual patterns of progression.

HANDLING

An individual may be required to use his hands, fingers, or feet, or to use handtools such as shovels, pitchforks, brooms or other special devices to work, to move, or to carry objects or materials. The work tools and the work standards are well described and laid out for the employee.

Packager, Hand - packages materials and products by hand - lines and pads crates, assembles cartons, nails, glues, or otherwise closes and seals containers.

Laborer, Stores - receives, stores, ships and distributes materials, tools and equipment as directed. Uses hand truck or carries items for delivery. Sorts materials in racks or bins.

Oiler I - oils and greases machinery. Fills containers and squirts or pours oil on equipment. Reports machinery defects and malfunctions. Cleans machinery.

Porter II - Cleans working areas of plant. Sweeps and mops floors around equipment using hand and power equipment. Washes windows, waxes and polishes floors, empties waste containers, and dusts office areas of plant as required.

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I. INTRODUCTION

A deaf child at age two has no useful verbal language, but the hearing child at age two has begun to develop a meaningful spoken and hearing vocabulary. Hence, communication with the deaf child must be developed through systematic and laborious procedures and in a setting different from that of the hearing child.[1] One estimate states that five per cent of the school-age children have hearing levels outside the normal range, and one to two of every ten in this group require special educational attention.[2] Deaf children are usually retarded two years or more in educational achievement with their performance following a very consistent pattern. They approach a normal level in concrete skills, such as grammar, punctuation, capitalization, spelling, and arithmetical computation, but they are consistently below normal in abstract skills, such as the comprehension of word and paragraph meaning or the solving of arithmetic problems.[3] Therefore, the main source of vocational guidance structure must become the school for the deaf because of these problems.[4]

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[1]Hallowell Davis and S. Richard Silverman, ed., Hearing and Deafness (New York: Holt, Rinehart, and Winston, Inc., 1960), p. 413.

[2]Ibid., p. 416.

[3]Ibid., p. 427.

[4]Ibid., p. 515.

> Steadily increasing emphasis by business and government on employment of physically handicapped workers in recent years arises in large part from the very practical reasons of filling manpower needs and of making taxpayers out of tax consumers. Circumstances are most favorable for deaf people to prove their mettle. More and more employers are coming to understand that after a brief orientation period most jobs require little communication and that properly trained and placed deaf workers are very resourceful in compensating.
>
> We have, however, scarcely begun. Jobs that do not begin to tap a person's capacities are a major continuing problem in the vocational guidance of deaf persons. There is need for understanding that properly motivated, trained deaf people bring to their jobs skills and powers of compensation that reduce the communication difficulties to small significance. All disciplines that serve the deaf share the responsibility for creating understanding.[5]

Curriculum offerings vary widely in schools for the deaf as well as in schools for normal hearing students. According to Peter J. Owsley, schools for the deaf were pioneers in vocational education on the high school level. These schools for the deaf are now being forced by changing economic conditions to review their vocational programs to see that they are really teaching vocational skills which will be marketable.[6]

In one study, the population of deaf adults that took part were asked to "list the three kinds of work, in order of preference from most preferred to least preferred, that you want most to do when you finish college." Both male and female respondents listed teaching (specifically, teaching the deaf) as first choice. Their second choices were trades, such as linotyping, carpentry, and machinist, for the males, and

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[5] Ibid., p. 530.

[6] Peter J. Owsley, "Academic-Vocational Education of Hearing Handicapped Children," The Volta Review, LXVI, No. 7 (September, 1964), 551-555.

clerical for the females, with typist being the most common choice. The implication was that the range of vocational choice was remarkably limited, apparently because of a lack of knowledge about vocational possibilities. Recognition must be given the fact that the choice of trades and typing, though unusually unimaginative for a college population, may be realistic in many instances for those people who have profound deafness from early life even though they have college training. These choices may reflect unconscious awareness of the fact that opportunities are limited or that deafness imposes a major limitation as far as many types of work are concerned.[7]

Statement of the Problem

The purpose of this paper is to determine the curriculum offerings in business education in schools for the deaf in the United States. More specifically, the study attempts to determine the following:

1. What courses are offered in schools for the deaf?
2. Which of these courses are offered on a vocational level of proficiency?
3. Which of these courses are offered on a pre-vocational or personal-use level of proficiency?
4. Which are offered on an exploratory basis either within the business department or outside the department?

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[7]Helmer R. Myklebust, The Psychology of Deafness (New York: Grune & Stratton, Inc., 1960), pp. 364-366.

5. What is the frequency of offering for these courses; that is, which are taught regularly, occasionally, or not at all?

6. Which courses are provided off campus at another institution?

Statement of Procedures

The following materials were consulted to determine if studies similar to this one have been reported: The Readers' Guide, The Education Index, The Business Education Index, The American Annals of the Deaf, and The Volta Review. All materials were checked back to at least 1962.

A review of the list of dissertations and theses on the education of the deaf, as contained in "The Directory of Services for the Deaf," revealed no similar research.

A questionnaire was sent to the administrators of schools for the deaf. These schools were both public and private schools; both residential and day schools were included. The roster was selected from "The Directory of Services for the Deaf" published in May of 1968. Only those schools listed as having at least seven levels or grades were included. A pilot questionnaire was sent to six schools chosen at random from the roster with four responding. Two minor revisions were incorporated into the questionnaire as a result. Two follow-ups were sent at two week intervals to those schools not responding within the alloted time.

Limitations

The accuracy of this study is limited to the degree of accuracy by the respondents in filling out the questionnaire.

Importance of the Study

Boyce R. Williams, who is Chief of the Communication Disorders Branch of the Rehabilitation Services Administration of Health, Education, and Welfare, states, "We do not know of any publications on courses in business education for deaf persons."[8]

Peter J. Owsley, in an article that pertains to vocational areas in general, makes the following comments:

> If the majority of our deaf students are to compete with their hearing peers in industry, it will be necessary for schools for the deaf throughout the country to develop vocational programs that will graduate students with the necessary skills to do so. . . .
> . . . The deaf of the future must compete with graduates of industrial high schools. These hearing competitors have had unusual advantages in equipment and in calibre of instruction. . . . Unfortunately there is a general impression that the deaf cannot operate the new machinery as successfully as the hearing. . . . /Deaf children/ need training by competent vocational teachers who have a background in a vocational or technical field, as well as the training to teach the deaf. . . .
> . . . It is my feeling that the practice of sending deaf students to vocational schools with their hearing peers is not in the best interest of the students. Teachers in these schools have large classes and no training to teach the deaf, with the result that the deaf pupils are often neglected.[9]

John Rybak seems to support Peter J. Owsley's statements concerning the need for competent vocational teachers for the deaf in the schools for the deaf by his comment that

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[8]Boyce R. Williams, personal letter, dated 18 February 1969, to author.

[9]Peter J. Owsley, op. cit.

"the lack of rapid communications skills will have to be compensated for by the use of utmost efficiency in skills and attitudes."[10]

For these reasons--the necessity of competition with hearing peers, the need for the deaf person to prove himself as a capable worker, and the need to provide qualified teachers for deaf students--a study of curricula offered in schools for the deaf would be valuable. Such a study would assemble data that would give educators of the deaf an overall view of the extent and nature of offerings in business courses in schools for the deaf. Stephen P. Quigley, 2nd vice president of the Professional Rehabilitation Workers with the Adult Deaf and also professor of special education at the University of Illinois, states, "The . . . /topic which has been/ selected concerning training in business education in state schools for deaf students seems to . . . be worthy of investigation."[11]

Definition of Terms

Terms used in this paper that warrent defining are:

School for the deaf.--A "school for the deaf" is one that is listed in the May, 1968, issue of "The Directory of Services for the Deaf in the United States," published by The American Annals of the Deaf.

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[10]John Rybak, "Business Education for the Deaf," Report of the Proceedings of the International Congress on Education of the Deaf and of the 41st Meeting of the Convention of American Instructors of the Deaf, S. Doc. 106, 88th Cong., 2nd Sess., 1964, p. 1048. (Convention held 22-28 June 1963, in Washington, D. C.)

[11]Stephen P. Quigley, personal letter, dated 18 February 1969, to author.

Business education.--"Business education" is that body of knowledge which includes (1) the knowledge, attitudes, and non-vocational skills needed by all persons to be effective in their personal economics and in their understanding of our economic system and (2) the vocational knowledge and skills needed for initial employment and for advancement in a business career.[12]

Vocational competency.--"Vocational competency" is the degree of skill needed to prepare the student for office occupations as competent business employee with a background in business and economic knowledge that he can call upon to relate to the problems that arise in his occupation.[13]

Pre-vocational or personal-use competency.--"Pre-vocational or personal-use competency" is that training designed to prepare the students for proper execution of their personal business affairs and/or to enable them to progress in their chosen professions or occupations through the use of certain business skills and knowledge.[14]

Exploratory training.--"Exploratory training" is training that will provide the students with a beginning and elementary knowledge of many types of skills to enable them

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[12]"This We Believe About Business Education in the High School," Business Education Forum, XVII, No. 4 (January, 1963), 1-2.

[13]C. A. Nolan, Carlos K. Hayden, and Dean R. Malsbary, Principles and Problems of Business Education (Cincinnati, Ohio: South-Western Publishing Company, 3d ed., 1967), pp. 10-11, 17.

[14]Lloyd V. Douglas, Business Education (New York: The Center for Applied Research in Education, Inc., 1963), pp. 24-25.

to begin to consider which they would like to pursue further as a vocation.

Hearing person.--A "hearing person" is one without an auditory handicap, as distinguished from a "deaf person" or a "hard of hearing person."

Deaf person.--A "deaf person" is one in whom the sense of hearing is nonfunctional for the ordinary purposes of life.[15]

Hard of hearing person.--A "hard of hearing person" is one in whom the sense of hearing although defective, is functional with or without a hearing aid.[16] For the purpose of this study, those who fit into this group who are attending a "school for the deaf" have been classified with those who are deaf.

Skill subjects.--"Skill subjects" are those subjects, such as typewriting, shorthand, or card punch machine operation, that involve the acquisition of a specific skill or ability.

Non-skill subjects.--"Non-skill subjects" are those subjects, such as general business, economics, economic geography, or consumer economics, that involve the learning of principles, theories, or facts, but not of a specific ability.

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[15] Committee on Nomenclature of the Conference of Executives of American Schools for the Deaf, 1937. (Original not seen; cited in Hallowell Davis and S. Richard Silverman, op cit.)

[16] Ibid.

Organization of the Remainder of the Paper

Chapter II presents a review of curriculum guides and related literature concerning the basic curriculum in business education in the public school for normal hearing students since a survey of related literature revealed no information about business education in schools for the deaf.

Chapter III presents the design of the study and the findings of the survey with tables containing data from the survey.

Chapter IV presents the conclusions and recommendations based on the findings. A sample of the questionnaire used is presented in Appendix A, and a list of schools that returned the questionnaire is presented in Appendix B. The findings of the study are compared with the findings from the related literature so that a comparison may be made of the curricula offered in schools for the deaf to the curricula offered in schools for normal hearing students.

II. REVIEW OF RELATED LITERATURE

Overview of Literature Pertaining to the High School Business Curriculum

According to Ralph E. Mason and Peter G. Haines, a continuous adaptation and readaptation of workers, supervisors, and managers to new tools, appliances, operations, and methods is necessary because of new devices and processes being invented and discovered. Only as new skills and new technical knowledge are transmitted to the producers and distributors in a wide variety of occupations can this adaptation be made. Vocational education, and business education is just that, has the objective to develop occupational efficiency. This could be illustrated by Richards' Formula, as cited in Cooperative Occupational Education: E = M + T + I + GV. This formula is explained to mean the following:

E -- occupational efficiency
M -- manipulative skill
T -- technical knowledge
I -- job intelligence or the ability to apply skills and knowledges to the job
GV -- general vocational information[17]

The business courses offered should be organized around major occupational areas, taking into account the need for revision as new skills and knowledges become necessary.

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[17]Ralph E. Mason and Peter G. Haines, Cooperative Occupational Education and Work Experience in the Curriculum (Danville, Illinois: The Interstate Printers & Publishers, Inc., 1965), pp. 25-26.

In a study by S. J. Wanous, a majority of the business leaders surveyed stated that one or more programs should be organized and offered around major occupations areas. Sequences organized around general clerical, stenographic, and distributive occupations were favored. The survey indicated the desire for a general business sequence of courses such as economics, general business, business law, typewriting, and merchandising. S. J. Wanous stated, "In the judgement of these leaders, typewriting, general business, economics, and bookkeeping should be required of all students pursuing a major business sequence." He commented that economics was a new course to be added to this list and that these leaders surveyed believed that it was a course that should be required of all students, with the other courses open to all as electives.[18]

Herbert A. Tonne cites a survey done in 1958-1959 of 100 schools in communities of over 3,000 population in Colorado, Ohio, North Carolina, and New Jersey to find which courses were most widely offered. These courses are listed below in rank order.[19] Omitted were those subjects offered by less than one-third of the respondents. Also listed is the percentage of schools offering each subject.

Typewriting I (100)
Shorthand (90)
Bookkeeping I (89)
Introduction to business (59)
Business arithmetic (48)

---

[18]S. J. Wanous, "Curriculum Standards in Business Education, Part II," The Balance Sheet, L, No. 2 (October, 1968), 52-55.

[19]Shorthand and salesmanship are not recommended subjects for students with severe hearing impairments.

Typewriting II (48)
Business law (37)
Consumer education (36)
Salesmanship (33)[20]

The curriculum guide from the Division of Vocational Education, State of North Carolina, lists the courses suggested for the basic clerical sequence with the suggested grade level as the following:

Basic business (9-10)
Typewriting I (10)
Business mathematics (10)
Bookkeeping I (11)
Typewriting II (11)
Business law (12)
Business communication (12)
Cooperative office practice (12)

The guide also included the following courses suggested for enrichment: Bookkeeping II, Introduction to data processing, Business economics, Business management.[21]

The guide published by the supervisor of business education for the State of New Jersey gives a slightly different sequence of courses. The bookkeeping and the clerical sequences differ slightly. Both sequences offer the following courses at the indicated grade levels:

Typewriting I (9)
General business (9)
Typewriting II (10)
Office machines-½ (11)
Business law-½ (11)
Business economics-½ (11)
Cooperative work experience (12)

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[20]Herbert A. Tonne, Principles of Business Education (New York: Gregg Publishing Division, McGraw-Hill Book Co., Inc., 1961), pp. 270-271.

[21]BOE--Work Experience Manual for Business and Office Occupation, Division of Vocational Education, State Department of Public Instruction, Raleigh, North Carolina, p. 13.

The bookkeeping sequence presents these courses in addition to those listed on the preceeding page:

Bookkeeping I (10)
Bookkeeping II (11)
Office practice (12)

The clerical sequence presents these courses in addition to those taken by both clerical and bookkeeping students:

Recordkeeping (10)
Business mathematics (10)
Business correspondence-½ (11)
Clerical office practice (12)[22]

J. Frank Dame and Albert R. Brickman reiterate the philosophy that the business education curriculum is a group of related, occupationally focused as well as general education subjects that are systematically arranged and prescribed for graduation and possible certification in a field of business placement. They also list the four major catagories of business careers: (1) bookkeeping and accounting, (2) stenographic and secretarial, (3) general clerical, and (4) merchandising. These authors give a sample curriculum compiled from those of several small high schools. It varies little from previously cited curricula:

Exploratory course in business-½ (9)
Typewriting-½ (9)
Business arithmetic (9)
Typewriting (10)
Bookkeeping (10)
General business (10)
Typewriting (11)

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[22] Organizing a Cooperative Work Experience Program, State of New Jersey, Department of Education, Vocational Division, p. 8.

Shorthand (11)
Shorthand transcription with secretarial practice (12)
Course in consumer problems (12)[23]

An examination of the curriculum guide for the state of Missouri revealed the following sequence of courses offered at the indicated grade level:

Basic business practices (9 or 10)
Typewriting (9-12)
Business English-½ (11-12)
Business law-½ (11-12)
Office machines-½ (11-12)
Bookkeeping (11-12)
Clerical practice--clerical sequence only (11-12)
Advanced business problems--clerical sequence only-½ (11-12)
Salesmanship--bookkeeping sequence only (11-12)
Work experience--3 hours daily (12)[24]

Purposes of Business Education in the High School

A general curriculum pattern can be seen in the courses offered in various parts of the country. This pattern has emerged as the attempt to meet the needs of youth as they enter the field of business from high school. Statements, such as the one entitled "Imperative Needs of Youth," continue to stress the general needs to include the following areas:

> 1. All youth need to develop salable skills and those understandings and attitudes that make the worker an intelligent and productive participant in economic life. To this end, most youth need supervised work experience as well as education in the skills and knowledge of their occupations.
> . . . . . .

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[23] J. Frank Dame and Albert R. Brickman, Guidance in Business Education (Cincinnati, Ohio: South-Western Publishing Co., 3d ed., 1961), pp. 27-28.

[24] A Guide for Business Education, Publication No. 115-G, Tentative Report, State of Missouri, 1959, pp. 16-17.

> 5. All youth need to know how to purchase and use goods and services intelligently, understanding both the values received by the consumer and the economic consequences of their acts.
>
> . . . . . .
>
> 10. All youth need to grow in their ability to think rationally, to express their thoughts clearly, and to read and listen with understanding.[25]

Clair Parsh summarizes an article about business education by stating that a student must leave high school with adequate vocational skills in the office occupations and the distributive areas. He further states that he believes that the student needs some instruction in the new areas of modern data processing methods. Without this vocational skill, the graduate will have difficulty in finding employment. He also points out that the high school graduate needs a basic understanding of our business system and how it operates. Information about personality development, business ethics, applying for a job, and similar areas are important for success in the business world. Students must also learn how to be effective consumers by gaining knowledge of credit, selective buying, banking, insurance, investments, and business law.[26]

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[25]National Association of Secondary School Principals, Planning for American Youth (Washington, D. C.: The Association, 1944), p. 43.

[26]Clair Parsh, "The Future of Business Education," The Balance Sheet, L, No. 4 (December, 1968), 162, 165, 177.

Summary

Business education in schools for normal hearing students provide a variety of skill subjects and of non-skill subjects. Typewriting was the major skill subject offered, and every curriculum contained at least one course in basic business. At least one course in business mathematics, business arithmetic, or bookkeeping was offered in every sequence cited. These schools advocate a curriculum that is broad in scope to ensure students of adequate preparation for entry-level jobs in the business world.

III. DESIGN OF STUDY AND PRESENTATION OF FINDINGS

Procedure Used

At the beginning of this study, a search of the literature was made that revealed no evidence of any similar research in the area of business education in schools for the deaf.

Sources of Data

All of the data for this paper were obtained from a mailed questionnaire sent to all schools for the deaf listed in "The Directory of Services for the Deaf in the United States" published in 1968. A sample of the questionnaire is found in Appendix A. The directory is brought up to date once each year and published shortly after May of each year. Out of eighty-seven questionnaires sent, eighty-three were returned, with fifty-four usable. Two of the twenty-nine unusable came from schools that were not strictly schools for the deaf, and the other twenty-seven schools did not offer any business subjects. These schools were either elementary schools or were schools that sent their students to public school classes with hearing students for vocational training. The list of schools that returned the questionnaire is found in Appendix B.

Presentation of the Findings of the Study

The findings are presented in this chapter as they related to the survey. After the findings were tabulated, the list of classes was ranked from high to low in regard to frequency.

The tables in this chapter show the number and percentage of the fifty-four schools that offer each of the subjects listed. Included in the tables are the subjects not listed on the questionnaire, but written in by the respondents under the section labeled "Other." These subjects are marked with an asterisk whenever they appear in the tables. Business arithmetic and business mathematics are combined because of their similarity.

Table 1 shows the subjects offered on a vocational level of competency. Typewriting is offered by over half of the schools involved (29 schools or 53.7%). Instruction on the spirit duplicator is offered by 42.6% (23 schools), on card punch machines by 37.0% (20 schools), on the stencil duplicator by 29.6% (16 schools), on the offset duplicator by 25.9% (14 schools), on the ten-key adding-listing machine by 24.1% (13 schools), and on the full-key adding-listing machine by 20.4% (11 schools). Filing is the only non-machine skill subject offered on a vocational competency level by more than a fifth of these schools. It is offered by 17 schools or 31.5% of the total being considered.

Table 2 shows the subjects offered on a pre-vocational or personal-use basis. Typewriting heads the list and is offered by 44.4% (24 schools). Vocabulary, a non-skill subject, is offered by 22 schools (40.7%). Instruction on the ten-key adding-listing machine is offered by 21 schools (38.9%), filing by 20 schools (37.0%), and business arithmetic/business mathematics by 18 schools (33.3%).

TABLE 1.--Number and Percentage of Schools for the Deaf Offering Vocational Competency in Subjects in Business Education

Subject	Number	Per Cent
Typewriting	29	53.7
Spirit duplicator	23	42.6
Card punch machines	20	37.0
Filing	17	31.5
Stencil duplicator	16	29.6
Offset	14	25.9
Ten-key adding-listing	13	24.1
Full-key adding-listing	11	20.4
Business arithmetic/business mathematics	10	18.5
Office work experience or on-the-job training	10	18.5
Office practice or secretarial procedures	9	16.7
Vocabulary	8	14.8
Rotary calculator	8	14.8
Printing calculator	7	12.9
Spelling	7	12.9
Business English	7	12.9
Bookkeeping machines	7	12.9
Addressograph*	5	9.3
Penmanship	4	7.4
Bookkeeping	4	7.4
Graph-o-type*	3	5.6
Vari-Typer*	3	5.6
Sorter IBM 082*	2	3.7
Just-o-writer*	2	3.7
Recordkeeping	2	3.7
General business	2	3.7
Consumer economics	2	3.7
Business law	1	1.9
Bank encoding*	1	1.9
Mailing procedures*	1	1.9
Teletypesetter*	1	1.9
Flex-o-writer*	1	1.9
Photocopying equipment*	1	1.9
Binding*	1	1.9
Layout & pasteup*	1	1.9
ITEK Camera*	1	1.9
Collator*	1	1.9
Comptometer*	1	1.9
Data processing*	1	1.9

* Denotes subjects written in on questionnaire under the section labeled "Other."

TABLE 2.--Number and Percentage of Schools for the Deaf Offering Pre-Vocational or Personal-Use Competency in Subjects in Business Education

Subject	Number	Per Cent
Typewriting	24	44.4
Vocabulary	22	40.7
Ten-key adding-listing	21	38.9
Filing	20	37.0
Business arithmetic/business mathematics	18	33.3
Spelling	17	31.5
Spirit duplicator	16	29.6
Full-key adding-listing	15	27.8
Card punch machines	14	25.9
Penmanship	14	25.9
Recordkeeping	13	24.1
General business	13	24.1
Office practice or secretarial procedures	13	24.1
Printing calculator	12	22.2
Stencil duplicator	12	22.2
Business English	11	20.4
Offset	9	16.7
Rotary calculator	8	14.8
Economics	7	12.9
Bookkeeping	7	12.9
Bookkeeping machines	5	9.3
Office work experience or on-the-job training	5	9.3
Consumer economics	4	7.4
Addressograph*	2	3.7
Vari-Typer*	2	3.7
Headliner*	1	1.9
Sorter IBM 082*	1	1.9
Graph-o-type*	1	1.9
Teletypesetter*	1	1.9
Accounting machines 402*	1	1.9
Folding machine*	1	1.9
IBM-MT/ST complete unit*	1	1.9
Just-o-writer*	1	1.9
IBM composing machine*	1	1.9
Layout & pasteup*	1	1.9
Comptometer*	1	1.9
Copy work--Xerox*	1	1.9

* Denotes subjects written in on questionnaire under the section labeled "Other."

TABLE 3.--Number and Percentage of Schools for the Deaf Offering Subjects on an Exploratory Level Within the Business Department

Subject	Number	Per Cent
Recordkeeping	7	12.9
Business arithmetic/business mathematics	4	7.4
Filing	4	7.4
Stencil duplicator	4	7.4
Bookkeeping	4	7.4
Office work experience or on-the-job training	4	7.4
Office practice or secretarial procedures	4	7.4
Rotary calculator	4	7.4
Bookkeeping machines	3	5.6
Ten-key adding-listing	3	5.6
Offset	3	5.6
General business	3	5.6
Vocabulary	3	5.6
Spelling	2	3.7
Full-key adding-listing	2	3.7
Card punch machines	2	3.7
Spirit duplicator	2	3.7
Typewriting	1	1.9
Printing calculator	1	1.9
Consumer economics	1	1.9
Economics	1	1.9
Business English	1	1.9
Penmanship	1	1.9
Vari-Typer*	1	1.9
Sorter IBM 082*	1	1.9
Elementary wiring IBM 403*	1	1.9

* Denotes subjects written in on questionnaire under the section labeled "Other."

Tables 3 and 4 show those subjects offered on an exploratory basis either within the business department or outside of it. Table 3 shows those subjects which are taught within the business department, while Table 4 shows those taught outside the department. As both tables show, all subjects listed were offered by less than 15% of the respondents. Recordkeeping was offered by only 12.9% (7 schools) within the business department. Business arithmetic/

business mathematics, filing, instruction on the stencil duplicator, bookkeeping, office work experience or on-the-job training, office practice or secretarial procedures, and instruction on the rotary calculator were offered by 4 schools or 7.4%. Business arithmetic/business mathematics was offered by 6 schools outside the business department (11.1%).

TABLE 4.--Number and Percentage of Schools for the Deaf Offering Subjects on an Exploratory Basis Outside the Business Department

Subject	Number	Per Cent
Business arithmetic/business mathematics	6	11.1
Office work experience or on-the-job training	3	5.6
Penmanship	3	5.6
Spelling	3	5.6
Card punch machines	2	3.7
General business	2	3.7
Full-key adding-listing	1	1.9
Business law	1	1.9
Business English	1	1.9
Consumer economics	1	1.9
Economics	1	1.9
Spirit duplicator	1	1.9
Vocabulary	1	1.9

Table 5 indicates that all but one school (53 schools or 98.1%) offer typewriting on either a regular or occasional basis. Instruction on the spirit duplicator is offered by 42 schools (77.8%), filing by 41 schools (74.3%), business arithmetic/business mathematics by 35 schools (64.8%), and instruction on the ten-key adding-listing machine, and instruction on the offset duplicator, and vocabulary by 34 schools (62.9%).

TABLE 5.--Number and Percentage of Schools for the Deaf Offering Subjects in the Business Department on Either a Regular or Occasional Basis

Subject	Number	Per Cent
Typewriting	53	98.1
Spirit duplicator	42	77.8
Filing	41	74.3
Business arithmetic/business mathematics	35	64.8
Ten-key adding-listing	34	62.9
Offset	34	62.9
Vocabulary	34	62.9
Card punch machines	33	61.1
Stencil duplicator	32	59.3
Full-key adding-listing	29	53.7
Spelling	28	51.9
Office practice or secretarial procedures	27	50.0
Office work experience or on-the-job training	24	44.4
Penmanship	23	42.6
Recordkeeping	21	38.9
Business English	20	37.0
General business	19	35.2
Rotary calculator	19	35.2
Printing calculator	17	31.5
Bookkeeping	15	27.8
Bookkeeping machines	14	25.9
Economics	9	16.7
Consumer economics	8	14.8
Addressograph*	7	12.9
Vari-Typer*	5	9.3
Sorter IBM 082*	3	5.6
Graph-o-type*	3	5.6
Just-o-writer*	3	5.6
Business law	2	3.7
Teletypesetter*	2	3.7
Bank encoding*	1	1.9
Headliner*	1	1.9
Mailing procedures*	1	1.9
Flex-o-writer*	1	1.9
Accounting machine 402*	1	1.9
Folding machine*	1	1.9
IBM-MT/ST*	1	1.9
Photocopy equipment*	1	1.9
Binding*	1	1.9
IBM composing machines*	1	1.9
Layout & pasteup*	1	1.9
ITEK Camera*	1	1.9
Collator*	1	1.9
Comptometer*	1	1.9
Data processing*	1	1.9
Copy work--Xerox*	1	1.9

* Denotes subjects written in on questionnaire under the section labeled "Other."

Tables 6 and 7 separate the information contained in Table 5 into the two catagories of "occasional" and "regular." Table 6 indicates that recordkeeping is offered by 12 schools on an occasional basis, this being 22.2% of the total. Instruction on the spirit duplicator and office work experience or on-the-job training are offered by 11 schools (20.4%). Table 7 indicates that typewriting is taught on a regular basis by 52 schools (96.3%) and filing by 37 schools (68.5%). Of those subjects offered by at least 30% of the schools, two-thirds are machine skills subjects.

TABLE 6.--Number and Percentage of Schools for the Deaf Offering Subjects in the Business Department on an Occasional Basis

Subject	Number	Per Cent
Recordkeeping	12	22.2
Spirit duplicator	11	20.4
Office work experience or on-the-job training	111	20.4
Business arithmetic/business mathematics	10	18.5
Bookkeeping	9	16.7
Stencil duplicator	9	16.7
General business	7	12.9
Rotary calculator	7	12.9
Penmanship	7	12.9
Bookkeeping machines	5	9.3
Office practice or secretarial procedures	4	7.4
Filing	4	7.4
Card punch machines	4	7.4
Full-key adding-listing	4	7.4
Offset	4	7.4
Consumer economics	3	5.6
Economics	3	5.6
Printing calculator	3	5.6
Business English	3	5.6
Spelling	3	5.6
Ten-key adding-listing	3	5.6
Sorter IBM 082*	2	3.7
Vocabulary	1	1.9
Business law	1	1.9
Typewriting	1	1.9
Vari-Typer*	1	1.9
Elementary wiring IBM 403*	1	1.9

TABLE 7.--Number and Percentage of Schools for the Deaf Offering Subjects in the Business Department on a Regular Basis

Subject	Number	Per Cent
Typewriting	52	96.3
Filing	37	68.5
Vocabulary	33	61.1
Spirit duplicator	32	59.3
Ten-key adding-listing	31	57.4
Card punch machines	29	53.7
Business arithmetic/business mathematics	26	48.1
Full-key adding-listing	25	46.3
Spelling	25	46.3
Office practice or secretarial procedures	23	42.6
Stencil duplicator	23	42.6
Offset	20	37.0
Business English	16	29.6
Penmanship	16	29.6
Printing calculator	14	25.9
Office work experience or on-the-job training	13	24.1
General business	12	22.2
Rotary calculator	12	22.2
Recordkeeping	9	16.7
Bookkeeping machines	9	16.7
Addressograph*	8	14.8
Economics	6	11.1
Bookkeeping	6	11.1
Consumer economics	5	9.3
Vari-Typer*	5	9.3
Graph-o-type*	4	7.4
Just-o-writer*	3	5.6
Sorter IBM 082*	2	3.7
Teletypesetter*	2	3.7
Flex-o-writer*	2	3.7
Layout & pasteup*	2	3.7
Comptometer*	2	3.7
Business law	1	1.9
Bank encoding*	1	1.9
Headliner*	1	1.9
Mailing procedures*	1	1.9
Accounting machine 402*	1	1.9
Folding machine*	1	1.9
IBM-MT/ST*	1	1.9
Photocopy equipment*	1	1.9
Binding*	1	1.9
IBM composing equipment*	1	1.9
ITEK Camera*	1	1.9
Collator*	1	1.9
Data processing*	1	1.9
Copy work--Xerox*	1	1.9

Table 8 indicates the subjects which are provided off-campus for the students. Instruction on card punch machines is provided by 6 schools (11.1%). Office work experience or on-the-job training is provided by 3 schools (5.6%) and office practice or secretarial procedures by 2 schools (3.7%).

TABLE 8.--Number and Percentage of Schools for the Deaf Providing Training in Business Subjects Off-Campus

Subject	Number	Per Cent
Card punch machines	6	11.1
Office work experience or on-the-job training	3	5.6
Office practice or secretarial procedures	2	3.7
Printing calculator	2	3.7
Rotary calculator	2	3.7
Typewriting	1	1.9
Full-key adding-listing	1	1.9
Ten-key adding-listing	1	1.9
Bookkeeping machines	1	1.9
Offset	1	1.9

Summary

The survey showed a curriculum emphasizing the skill subjects. The non-skills subjects ranked low in frequency as well as in degree of competency. Typewriting was the one subject taught in every school that provided business education, with one exception, and that school sent its students off-campus for training. The survey indicated training on a variety of machines ranging from the typewriter as the most common to the Comptometer and the Xerox among the least.

IV. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This study was undertaken to determine what is now being taught in the business curricula of schools for the deaf in the United States. From the eighty-seven schools polled, eighty-three questionnaires were returned with fifty-four usable in the study. After comparing the results of the study with the suggested curricula in the related literature, certain differences were noted.

Summary

Of the eighty-seven schools polled, eighty-three replied. Of these that replied, twenty-seven did not provide any business training, and two were not schools strictly for deaf students. From the fifty-four usable questionnaires the following findings were made:

1. Typewriting was offered by every school with a business education curriculum. Typewriting was offered by 53.7% of these schools at the vocational level, by 44.4% at a pre-vocational or personal-use level, and by 1.9% on an exploratory level within the business department.

2. Operation of the spirit duplicator was offered by 42.6% on a vocational level, 29.6% on a pre-vocational or personal-use level, 3.7% on an exploratory level within the business department, and 1.9% on an exploratory level outside the business department.

3. Training on card punch machines was offered on a vocational level by 37.0% of the schools, on a pre-vocational or personal-use level by 25.9% of the schools, on an exploratory

level within the business department by 3.7%, and outside the business department by 3.7%.

4. Of the schools that offered filing instruction, 31.5% offered it at the vocational competency level, 37.0% at the pre-vocational or personal-use level, and 7.4% at the exploratory level within the business department.

5. Operation of the stencil duplicator was offered by 29.6% on a vocational level, 22.2% on a pre-vocational or personal-use level, and 7.4% on an exploratory level within the business department.

6. The ten-key adding-listing machine and its use were taught on a vocational level by 24.1%, on a pre-vocational or personal-use level by 38.9%, and on an exploratory level within the business department by 5.6%.

7. Use of the full-key adding-listing machine was taught on a vocational level by 20.4%, on a pre-vocational or personal-use level by 27.8%, on an exploratory level within the department by 3.7%, and on an exploratory level outside the department by 1.9%.

8. Office work experience or on-the-job training was provided on a vocational level by 18.5%, on a pre-vocational level by 9.3%, on an exploratory level within the department by 7.4%, and on an exploratory level outside the department by 5.6%.

9. Office practice or secretarial procedures was provided by 16.7% on a vocational level, by 24.1% on a pre-vocational level, and by 7.4% on an exploratory basis within the department.

10. Typewriting was provided on a regular basis by fifty-two of the fifty-four schools; one school sent its students off-campus for training, and the other offered typewriting occasionally.

Conclusions

The following conclusions were made upon completion of the study and of the review of related literature:

1. Schools for the deaf provide various skill subjects in business education, usually revolving around a core of typewriting; operation of the spirit and stencil duplicators; use of the card punch machine, full-key and ten-key adding-listing machines; and filing.

2. Business curricula in high schools for the hearing include, in addition to those skill subjects provided in schools for the deaf, non-skill subjects such as general business, business arithmetic or business mathematics, business law, business English, economics, and bookkeeping.

Recommendations

The following recommendation is made based upon the previously stated findings and conclusions:

Schools for the deaf should widen the scope of their business curricula, including non-skill subjects, such as are found in the high schools for the hearing. More specifically, the following areas should be placed in the business program as units within a business course or as separate courses within the business curriculum:

1. General business or an introduction to business that provides economic understanding and personal economic efficiency, by covering such topics as the role of business and industry in America, the role and costs of government, the creative growth of the economy, factors of cost involved in producing goods and services, inflation and deflation, labor-management relations, and management of personal economic affairs.

2. Business arithmetic or business mathematics that provides training in the basic computational skills needed in business.

3. Recordkeeping or elementary bookkeeping that provides an understanding of the processes used in business for keeping records.

4. Business law that provides an understanding of those legal situations in which deaf persons are often found. A book entitled The Law and the Deaf is now available in both a teacher's and a student's edition. The student's edition is in clear and simple language and is inexpensive so that any deaf person can afford a personal copy. The book is available from the author, Lowell J. Myers, J. D., Attorney at Law, 1060 W. North Shore, Chicago, Illinois 60626.

5. Business English or business communications that provides the student with a solid foundation in this area.

6. Work experience or office practice that provides the teacher a way of evaluating the training each student has received, by remaining in close contact with the employer.

In addition to the recommendation made based upon the findings and conclusions, the following additional recommendations are made:

1. A study should be made to determine the qualifications of the teachers now in business education in schools for the deaf to ascertain if these teachers meet at least the minimal standards for teachers of business education in schools for normal hearing students.

2. A more detailed analysis than this study would permit should be made of the subjects now offered in business education in schools for the deaf to determine the specific content of each subject. This should be compared with the content of similar courses provided in the high school for normal hearing students to determine if the school for the deaf is providing at least comparable training in these subjects, and, if not, what areas need to be strengthened.

APPENDIXES

NAME OF SCHOOL_____ LOCATION_____

Enrollment information:

Full-time students:_____ Students other than full-time:_____ Age range of all students: from___ to___years.

Information concerning business classes: Please read carefully the explanations below and decide which is most applicable to your school's program. Place a CHECK MARK in the column under the proper heading. Please respond to EACH item. Be certain to mark FREQUENCY for every subject listed and to mark PURPOSE for each subject you DO OFFER IN ANY CAPACITY.

PURPOSE OF TRAINING:

Vocational competency: the student is prepared for office occupations as a competent business employee with a background in business and economic knowledge that he can call upon to relate to the problems that arise in his occupation.

Pre-vocational or personal-use: the student receives training designed to prepare him for proper execution of his personal business affairs and/or to enable him to progress in his chosen profession or occupation through the use of certain business skills and knowledge.

Exploratory: the student is given the opportunity to perform the elementary work of several business occupations rather than merely obtaining explanation about them, usually planned within the framework of an existing course a) within the business department, or b) outside of the business department.

FREQUENCY OF TRAINING:

Regular: equipment, facilities, and/or instruction provided annually or within a normal sequence of classes.

Occasional: equipment, facilities, and/or instruction available, but taught only upon specific request.

Not offered: no equipment, facilities, and/or instruction provided on the campus.

Off-campus: students desiring training are sent to another school for this training.

PURPOSE OF TRAINING						FREQUENCY OF TRAINING			
Vocational Competency	Pre-vocational or personal-use	Exploratory--in bus. dept.	Exploratory--outside bus. dept.		Regular	Occasional	Not offered	Off-campus
				Record keeping				
				Bookkeeping				
				Bookkeeping machines				
				Business arithmetic				
				Business mathematics				
				Business law				
				Business English				
				Spelling				
				Vocabulary				
				Penmanship				
				General business				
				Economics				
				Consumer economics				
				Typewriting				
				Card punch machines				
				Filing				
				Office practice or secretarial procedures				
				Office work experience or on-the-job training				
				Business machines:				
				full-key adding-listing				
				ten-key adding-listing				
				printing calculator				
				rotary calculator				
				Duplicating machines:				
				stencil (mimeograph)				
				spirit (ditto)				
				offset (multilith)				
				Other subjects offered:				

If you would like a copy of the summary of this survey, please indicate to whom it should be sent and the proper address:

_____

_____

_____

_____

NAME OF SCHOOL_____ LOCATION_____

Enrollment information:

Full-time students:_____ Students other than full-time:_____ Age range of all students: from___ to___years.

Information concerning business classes: Please read carefully the explanations below and decide which is most applicable to your school's program. Place a CHECK MARK in the column under the proper heading. Please respond to EACH item. Be certain to mark FREQUENCY for every subject listed and to mark PURPOSE for each subject you DO OFFER IN ANY CAPACITY.

PURPOSE OF TRAINING:

Vocational competency: the student is prepared for office occupations as a competent business employee with a background in business and economic knowledge that he can call upon to relate to the problems that arise in his occupation.

Pre-vocational or personal-use: the student receives training designed to prepare him for proper execution of his personal business affairs and/or to enable him to progress in his chosen profession or occupation through the use of certain business skills and knowledge.

Exploratory: the student is given the opportunity to perform the elementary work of several business occupations rather than merely obtaining explanation about them, usually planned within the framework of an existing course a) within the business department, or b) outside of the business department.

FREQUENCY OF TRAINING:

Regular: equipment, facilities, and/or instruction provided annually or within a normal sequence of classes.

Occasional: equipment, facilities, and/or instruction available, but taught only upon specific request.

Not offered: no equipment, facilities, and/or instruction provided on the campus.

Off-campus: students desiring training are sent to another school for this training.

PURPOSE OF TRAINING					FREQUENCY OF TRAINING			
Vocational Competency	Pre-vocational or personal-use	Exploratory-- in bus. dept.	Exploratory-- outside bus. dept.		Regular	Occasional	Not offered	Off-campus
				Record keeping				
				Bookkeeping				
				Bookkeeping machines				
				Business arithmetic				
				Business mathematics				
				Business law				
				Business English				
				Spelling				
				Vocabulary				
				Penmanship				
				General business				
				Economics				
				Consumer economics				
				Typewriting				
				Card punch machines				
				Filing				
				Office practice or secretarial procedures				
				Office work experience or on-the-job training				
				Business machines:				
				full-key adding-listing				
				ten-key adding-listing				
				printing calculator				
				rotary calculator				
				Duplicating machines:				
				stencil (mimeograph)				
				spirit (ditto)				
				offset (multilith)				
				Other subjects offered:				

If you would like a copy of the summary of this survey, please indicate to whom it should be sent and the proper address:

_____

_____

_____

_____

NAME OF SCHOOL _____ LOCATION _____

Enrollment information:

Full-time students: _____ Students other than full-time: _____ Age range of all students: from ___ to ___ years.

Information concerning business classes: Please read carefully the explanations below and decide which is most applicable to your school's program. Place a CHECK MARK in the column under the proper heading. Please respond to EACH item. Be certain to mark FREQUENCY for every subject listed and to mark PURPOSE for each subject you DO OFFER IN ANY CAPACITY.

PURPOSE OF TRAINING:

Vocational competency: the student is prepared for office occupations as a competent business employee with a background in business and economic knowledge that he can call upon to relate to the problems that arise in his occupation.

Pre-vocational or personal-use: the student receives training designed to prepare him for proper execution of his personal business affairs and/or to enable him to progress in his chosen profession or occupation through the use of certain business skills and knowledge.

Exploratory: the student is given the opportunity to perform the elementary work of several business occupations rather than merely obtaining explanation about them, usually planned within the framework of an existing course a) within the business department, or b) outside of the business department.

FREQUENCY OF TRAINING:

Regular: equipment, facilities, and/or instruction provided annually or within a normal sequence of classes.

Occasional: equipment, facilities, and/or instruction available, but taught only upon specific request.

Not offered: no equipment, facilities, and/or instruction provided on the campus,

Off-campus: students desiring training are sent to another school for this training.

PURPOSE OF TRAINING					FREQUENCY OF TRAINING			
Vocational Competency	Pre-vocational or personal-use	Exploratory--in bus. dept.	Exploratory--outside bus. dept.		Regular	Occasional	Not offered	Off-campus
				Record keeping				
				Bookkeeping				
				Bookkeeping machines				
				Business arithmetic				
				Business mathematics				
				Business law				
				Business English				
				Spelling				
				Vocabulary				
				Penmanship				
				General business				
				Economics				
				Consumer economics				
				Typewriting				
				Card punch machines				
				Filing				
				Office practice or secretarial procedures				
				Office work experience or on-the-job training				
				Business machines:				
				full-key adding-listing				
				ten-key adding-listing				
				printing calculator				
				rotary calculator				
				Duplicating machines:				
				stencil (mimeograph)				
				spirit (ditto)				
				offset (multilith)				
				Other subjects offered:				

If you would like a copy of the summary of this survey, please indicate to whom it should be sent and the proper address:

_____

_____

_____

_____

Appendix B

List of Schools Returning the Quesstionnaire

Alabana Institute for Deaf and Blind, Talladega

Arizona State School for Deaf and Blind, Tucson

Arkansas School for the Deaf, Little Rock

California School for the Deaf, Riverside

Colorado School for the Deaf and the Blind, Colorado Springs

Connecticut
- American School for the Deaf, West Hartford
- Mystic Oral School for the Deaf, Mystic

Delaware, Margaret S. Sterck School for Hearing Impaired, Newark

Florida
- Florida State School for Deaf and Blind, St. Augustine
- Fort Lauderdale Oral School, Fort Lauderdale
- Tampa Oral School for Deaf, Tampa
- Robert McCord Oral School, Tampa

Georgia School for the Deaf, Cave Spring

Hawaii, Diamond Head School for the Deaf, Honolulu

Idaho School for the Deaf and the Blind, Gooding

Illinois School for the Deaf, Jacksonville

Indiana School for the Deaf, Indianapolis

Iowa School for the Deaf, Council Bluffs

Kansas
- Institute of Logopedics, Wichita
- Kansas School for the Deaf, Olathe

Kentucky School for the Deaf, Danville

Louisiana State School for Deaf, Baton Rouge

Maine, Governor Baxter State School for Deaf, Portland

Maryland School for the Deaf, Frederick

Massachusetts
- Beverly School for the Deaf, Beverly
- Boston School for the Deaf, Randolph
- Clarke School for the Deaf, Northampton
- Horace Mann School for Deaf, Roxbury

Michigan
- Michigan School for the Deaf, Flint
- Lutheran School for the Deaf, Detroit
- Detroit Day School for Deaf, Detroit

Minnesota School for the Deaf, Fairbault

Mississippi Schools for the Deaf, Jackson

Missouri
- Missouri School for the Deaf, Fulton
- Central Institute for the Deaf, St. Louis
- St. Joseph Institute for the Deaf, University City
- Gallaudet School for the Deaf, St. Louis

Nebraska School for the Deaf, Omaha

New Hampshire, Crotched Mountain School for the Deaf, Greenfield

New Jersey
- Marie H. Katzenbach School for the Deaf, West Trenton
- Bruce Street School, Newark

New Mexico School for the Deaf, Santa Fe

New York
- Lexington School for the Deaf, Jackson Heights
- Mill Neck Manor, Lutheran School for Deaf, Mill Neck
- New York School for the Deaf, White Plains
- New York State School for the Deaf, Rome
- Rochester School for the Deaf, Rochester
- St. Joseph's School for the Deaf, New York
- St. Mary's School for the Deaf, Buffalo

North Carolina School for the Deaf, Morganton

North Dakota School for the Deaf, Devils Lake

Ohio
- Ohio School for the Deaf, Columbus
- St. Rita School for Deaf, Evandale-Cincinnati
- Alexander Graham Bell School, Cleveland
- Alexander Graham Bell School, Columbus

Oklahoma, Jane Brooks Foundation, Chickasha

Oregon
- Oregon State School for the Deaf, Salem
- Tucker-Maxon Oral School, Portland

Pennsylvania
Pennsylvania School for the Deaf, Philadelphia
Western Pennsylvania School for the Deaf, Pittsburgh
Pennsylvania State Oral School for the Deaf, Scranton
Archbishop Ryan Memorial Institute for Deaf, Philadelphia
De Paul Institute, Pittsburgh
Willis and Elizabeth Martin School, Philadelphia

Rhode Island School for the Deaf, Providence

South Carolina School for the Deaf and the Blind, Spartanburg

South Dakota School for the Deaf, Sioux Falls

Tennessee School for the Deaf, Knoxville

Texas
Texas School for the Deaf, Austin
Pilot School for the Deaf, Dallas

Utah School for the Deaf, Ogden

Vermont, The Austine School for the Deaf, Brattleboro

Virginia
Virginia School for Deaf and Blind, Staunton
Virginia State School for the Deaf, Hampton

Washington
Continuation High School, Spokane Public Schools, Spokane
Washington School for the Deaf, Vancouver

West Virginia School for the Deaf and the Blind, Romney

Wisconsin School for the Deaf, Delavan

Wyoming School for the Deaf, Casper

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VITA

Loretta Ann McDonald

CANDIDATE FOR THE DEGREE OF

Master of Science

Report: Curricula Offerings In Business Education in Schools for the Deaf in the United States

Major Field: Business Education

Bibliographic Information:

Personal data: Born 20 May 1940 in St. Louis, Missouri.

Education: A. A. in Elementary Education, Harris Teachers College, St. Louis, Missouri. B. S. in Special Education (Education of the Deaf), University of Arkansas, Fayetteville, Arkansas.

Professional Experience: Five years of teaching (various levels, various subjects), Utah State Schools for the Deaf and the Blind, Ogden, Utah. One year of teaching (sixth grade), Davis County School District, Utah.

"INITIATING SIMULATED OFFICE EDUCATION AT NEW MEXICO JUNIOR COLLEGE IN THE INTENSIVE SECRETARIAL PROGRAM

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INITIATING SIMULATED OFFICE EDUCATION AT NEW MEXICO JUNIOR COLLEGE IN THE INTENSIVE SECRETARIAL PROGRAM

BY
Olive V. Church, Coordinator
New Mexico Junior College
Roswell, New Mexico

CONDUCTED UNDER A MINI-GRANT FROM THE

NEW MEXICO STATE DEPARTMENT OF EDUCATION

RESEARCH COORDINATING UNIT

MINI-GRANT PROPOSAL FOR NEW WAYS TO IMPROVE

VOCATIONAL-TECHNICAL EDUCATION IN

NEW MEXICO

Title

Initiating Office Simulation Education at New Mexico Junior College in the Intensive Secretarial Training Program

Duration of Project

March - August 1970: According to following schedule--

1. Research, Travel and purchase or rental of Materials--March-May, 1970 --to be used for 1970 Simulated Office Education Workshop

PLUS

2. Research, Travel, and purchase or rental of Materials--July-August, 1970 --to be used for subsequent years of SOE instruction at NMJC, as well as for the benefit of regional and state operations in SOE.

Description

Initiation of Office Simulation Education at New Mexico Junior College through the use of a ten full eight-hour day Workshop, with two or three classrooms set up as a model lab, complete (so far as possible) with:

1. A chain of command--job descriptions, flow charts, defining of basic routines,
2. Equipment--including machines, partitions, a communications system, etc., and
3. The office game--which corresponds with an actual business; complete with departments, forms, operations, routines, and procedures.

In order to do this effectively, it will be necessary to do research, travel (for the purpose of observation and research), and purchase and/or rent materials--particularly the cost of "the game" which could amount to 150-250 pages of extensively-prepared detailed information.

Objectives

1. Cooperation--between business and education; between education and the community; and between area and state teachers of office education.

2. Public relations and goodwill--even when one of the prepared packets is used, the adaptation of materials to the regional economy and making this operation known can develop an awareness and understanding of Vocational Education within the community, the area, the state, and possibly on a national level (writing of articles for national business publications).

3. Experience--Simulated Office Education is neither imaginary nor symbolic. Even though not as yet on the job, SOE serves as a capstone to bridge the gap between school and work. It is in a business office and can provide the student with self-confidence.

Objectives (Continued)

4. Individualized instruction--controlled with stations, controlled people, controlled environment. The instructor has the opportunity for individual observation and help. Even where students will go into cooperative training later (NMJC students have four to five weeks of on-the-job training, without pay), this learning situation can provide both the teacher and the student with a last-minute opportunity to spot weaknesses and hopefully, correct them.

5. Inter-action--provides more opportunity for student-to-student; and even student-to-teacher, rather than just the typical classroom teacher-to student situations. Students learn coordination and dependency on each other; as well as adjustment to the policies, to the forms, and to the supervisors.

Budget Requests

New Mexico Junior College approves and supports the proposal of this SOE program, and will provide support through the purchase and construction of additional facilities; and providing time and class arrangements for the instructor to be out for research and travel.

Personnel will include the regular instructors for the Intensive Secretarial Program: Dr. I. E. Siegenthaler, Mrs. Olive V. Church, and Mrs. Jeanne Hightower--no budget request.

Communications and services are listed with materials and supplies. Budget breakdown in two areas--Materials and Travel and per diem. Although budget items are listed for a follow-up workshop, this is only a suggestive item included as a possible benefit to area and state office education teachers.

A. Materials or Supplies: purchase or rental

1. Purchase of Mrs. Thelma Radding's Comprehensive SOE Kit (of San Jose State) $75

AND/OR

2. Purchase of Mrs. Beverly Funk's SOE Kit, through the Washington (State) Insurance Council $75 (estimate)

3. Rental of three 45-minute sound films from Mrs. Funk's program $25 (estimate)

4. Purchase of materials supplied or recommended by Mr. Garth Hanson, Utah State University, Logan $25 (estimate)

5. Possible rental of communications system, per unit price estimate $5-$10; preferably intercom with 8-10 simultaneous telephone conversations. However, it is hoped that we might not need to rent this equipment (if available at all in this area), but that as a service to education and public relations and goodwill it might be possible to borrow their equipment. $80-100 (estimate)

(minimum-maximum $175-$300) Sub-Total, Materials--$ 300

Budget (Continued)

B. Travel: four trips--two this spring; two in the summer

1. Spring (March and April); purpose--research and observation prior to this summer's workshop

a. Texas Tech, Lubbock, Mrs. Dolores Kilchenstein

1-2 days, out-of-state @ $25 per diem	$ 25 - $ 50
travel @ 10¢ mi. 220 miles	22

b. Santa Fe and/or Four Corners (only if deemed beneficial--intend discussing this with Mr. R. K. Gordon); observe operation of SOE in mobile lab

4 days, in-state, @ $20 per diem	80
travel @ 10¢ mi 1,000 miles (Approximately)	100
(Minimum-maximum $50-$252) Sub-Total, Spring Travel	$252

2. Summer (July-August); purpose--research and observation to benefit subsequent SOE

a. Utah State University, Mr. Garth Hanson, Logan

2-3 days @ $25 per diem, out-of-state	$ 75
200 miles (approximate) @ 10¢ mi.	20

(request mileage only for "out-of-way" portion of personal trip; and per diem cost request only for time actually spent in Logan)

b. Mountlake Terrace, Washington, Mrs. Beverly Funk

2-3 days @ $25 per diem, out-of-state	75
200 miles (approximate) @ 10¢ mi.	20
(minimum-maximum $190-$200) Sub-Total, Summer Travel	$190

Sub-Total, TRAVEL $442

TOTAL, Materials, Supplies, Travel and Per Diem (Minimum-Maximum) $415-$742

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ACKNOWLEDGEMENTS

The successful completion of this research and experiment would not have been possible without the unselfish help and cooperation of many, many people. Among this list are all those who willingly corresponded or consulted in person with the instructor.

Special recognition and appreciation for assistance, suggestions, and encouragement goes to Mr. Joseph A. Solano, Assistant State Supervisor of Office Education.

An expression of thanks for the opportunity of research in implementing the SOE program goes to Mrs. Hilda Majors, Director of the Research Coordinating Unit; and to Mr. Robert Gordon, State Supervisor of Office Education.

The program would not have been possible, either, without the cooperation of Mrs. Betty Read, Manager of Secretarial Services, Stenocall, Lubbock, Texas; Mrs. Jeanne Hightower, Accounting Instructor at New Mexico Junior College; student secretaries Jackie Lewis and Betty Johnston; Vocational Secretary Mrs. Elaine Richeson; and the NMJC Administration for allowing the instructor time off for travel and initiating the program. These include Dr. Jodie C. Smith, President; Mr. Frank Vrska, Vice-President for Business; and Dr. I. E. Siegenthaler, Vocational Dean. Also helpful was the local news media who publicized the activity once it got to the implementing phase.

Olive V. Church
Coordinator

I N T R O D U C T I O N

In order to initiate Simulated Office Education at New Mexico Junior College in the Intensive Secretarial Training Program it seemed advisable to discover and evaluate what has been happening in this field throughout the country. After contacting many people, reviewing many sources, and observing a number of actual programs in operation there evolved a purpose in SOE as compared with the traditional classroom method.

Suggested advantages and values are listed, and a step-by-step procedure to follow in order to set up a full-scale SOE operation.

Included is a sampling of the NMJC program after its first year's experiment, as well as examples and experiences. Besides the 32-hour SOE operation (8-hour day, 4-day week), there was also a full semester, 2-hour block program which was termed pre or semi-simulation. Pictures, a floor-plan layout, the student job manual, news releases, working papers, sample of input and accounting system are also a part of this report.

Also included are: (1) copies of the house organ, Stenoflyer; (2) an Integrated Project; and (3) a copy of the program for the student-planned Secretarial Workshop, "Office Mechanics;" all of which were produced during the pre-simulation semester.

I N T R O D U C T I O N

DEFINITION OF TERMS

SIMULATION
Webster says that to simulate is to assume the appearance of ...

SOE
Simulated Office Education implies the "model office" plan

POSITION OR TASK SIMULATION
As developed by J. D. Lee, Indiana Supervisor of Office Education, is the development of a complete single station or position within the classroom which represents every piece of material and job standard as those found in business concerns. It lacks the operation of work flow and interdependence of student-to-student which exists in the full-scale SOE operations.

In the Indiana Laboratory programs are stations representing banking, insurance, real estate, law, medicine, etc. They use no textbooks or practice sets. Their materials are real, acquired from local business concerns with complete job descriptions, forms, procedures, flow charts, work activities, etc., which are coordinated with the business after the instructor has observed the office and made up a complete job analysis.

INTEGRATED PROJECT
As develpped at Michigan State University, is a series of business-like tasks which are planned by the teacher to use the knowledges, skills, attitudes, etc., learned from other single courses.

FULL-SCALE SOE
In the simulation plan as used by MOE, Inc., of Utah; or THIC, The Hawk Insurance Company, of Washington; or STENOWRITE, of New Mexico Junior College, the complete operation and work flow of an actual company is simulated. It is the development of a real organization doing real or contract work, using real materials, real equipment, and <u>could</u> receive real pay.

Like the position simulation, it is developed after complete office observation and job analysis has been conducted.
MOE, Inc. is modeled after a Mortgage Loan Company
THIC is modeled after SAFECO Insurance and the Insurance Information Institute
STENOWRITE is modeled after Stenocall of Lubbock, Texas

PURPOSE

The purpose of SOE is to bring the office to the student so that when he goes to the office, there is little, if any, adjustment. SOE students are trained--not taught.

A person who has learned to accommodate himself to one office situation usually can accommodate himself to another. This is one reason would-be workers find it so difficult to gain entrance into that first job. Employers want experience.

Why experience? For one thing, office staffs operate as teams. The individual employee is not free to do whatever he chooses, how he chooses, when he chooses. He must adjust himself to performing a specific task along established lines and in harmony with other people and tasks. He is not an isolated being responsible only to the boss. Rather he is a link in a chain, and his performance--in both quantity and quality of production, as well as in personal attitudes--will make or break the chain in any office or business activity.

There is also notable difference in the student's learning situation under the SOE method, because instead of learning a skill to meet some theoretically perceived future need, he learns to meet an immediate and apparent need. Skill improvement arises as the result of the equivalent of on-the-job training.

EXAMPLE: "It is possible to learn to operate a calculating machine in the classroom through formal instruction and the practice of sets of exercises or problems. When this is the case, one learns to use a calculator but may not learn the way a calculator is used. Another way to learn to operate a calculator is to employ it to calculating such things as salaries and wages and the deductions which must be made preliminary to issuing paytoll checks. When learning on-the-job in this way, one learns simultaneously how to use a calculator and how it is used in actual business practice. In this situation, a "need" for learning is thus developed which is immediate and strongly motivating." Garth A. Hanson, Purpose of Simulation in Teaching Office Occupations, Utah State University, 1970.

STEPS IN SETTING UP SOE

1. After permission is granted from school administration, keep them informed of progress, developments, needs, and the like.

2. Establish teaching objectives based on students, needs, facilities, equipment, space, time, and personnel.

3. Select a company, the office "game" to simulate. This also should be based on the teaching objectives already formulated.

4. Observe and analyze the company operation. It may not be necessary to include every procedure. And it may be desirable to add other procedures. In other words, define the limits as well as the objectives and adapt the company operation to the classroom situation, facilities, equipment, students, etc. (see following page for outline to use when observing a company.)

5. Select student stations. It may be necessary to combine some jobs, rearranging job descriptions so that work processed will fit student needs, schedules, time allotment, equipment, room layout, etc.

6. Prepare job descriptions, flow charts, etc. Development of input goes hand-in-hand. The teacher must have a good over-all picture of what is happening in this office "game" employed.

7. Prepare a student job manual. (See STENOWRITE, the job manual used at NMJC)

8. Add a contingency file. Variables in the form of rush jobs, pressure situations, etc., must be inserted to simulate the realism which occurs in the office world. Where contract work is used, the contingencies are "real-life." (EXAMPLE One of the college deans brought a survey problem to out STENOWRITE SECRETARIAL SERVICES. Several division office employees were involved with real telephone calls, devised a form to fit the information, typed it, produced it in their "print shop" and met the deadline with 100 beautiful copies, only to discover that the administration had "changed their mind" as to their needs, and the whole thing had to be done over. It presented the students with a tremendous challenge to have to re-do a job, staying after hours, and all the while maintaining a pleasant attitude throughout.)

9. Public Relations. Keep the public informed through local news media, personal contact, and letters. Contact business people, school personnel (including fellow teachers, counselors, administration and staff), parents, students and friends. Students themselves make good PR personnel. They can write personal letters of invitation, information, and appreciation. This helps build their pride and loyalty to the operation when they are consistently an integral part of the organization. It is <u>their</u> company.

10. Conduct debriefings. This encourages an analytical approach. The instructor has to learn to sit back and keep quiet and let the students develop the discussion. Both good and bad will come out and many suggestions will result.

11. Establish evaluation procedures. Some suggestions, most of which relate to actual office standards and methods are: student folders, peer evaluation, rush jobs (timed), and audio and video-tapes together with individual conferences.

RESEARCH SUMMARY

(Under Mini-Grant Proposal, entitled "Initiating Office Simulation Education at New Mexico Junior College in the Intensive Secretarial Training Program.")

SOURCES, METHODS AND RESULTS

The instructor corresponded with people in Indiana, California, Michigan, Kentucky, Washington, Utah, and Texas. After having read and reviewed all of the wealth of materials each of these fine people sent, we began to formulate ideas of our own.

The next step was a trip to Texas Tech to consult personally with Mrs. Dolores Kilchenstein and Dr. William Pasewark to benefit from their knowledge, findings, and experiences in the area of simulation.

Next the instructor enrolled in a university workshop on simulation at Utah State University under the direction of Professor Garth A. Hanson, a now nationally-known figure in office education, and was exposed to the internal operations of the Utah-based MOE, Inc., which is a comprehensive simulation of a mortgage loan company, set up in a mobile unit which can rotate among several schools.

Observation and analysis of a specific company in Lubbock, Texas, for the NMJC simulation followed. Adaptation of their forms and procedures as well as job descriptions, work flow, methods, etc., was all a part of initiating the experiment at NMJC.

Keeping the college administration and the State Department of Office Education aware of developments and ideas was also included in the evolution of SOE at NMJC.

Next came news releases to all of the county news media, as well as personal letters of invitation, information, and appreciation to many people.

Although it was the original intention to purchase, borrow, or rent an office "game" materials or packets already produced such as Thelma Radding's California-based kit, which sells for $75 as an initial investment; or Utah's MOE, Inc., or Washington's THIC insurance operation, there finally emerged the desire to develop our own company, uniquely geared to the needs of our college freshmen Intensive Secretarial Program. STENOWRITE SECRETARIAL SERVICES was conceived and implemented, based on Stenocall of Lubbock, Texas. Our experiment might also be called a composite of the broad scope of materials and methods researched.

On the following pages are the results of this experiment. The students were receiving college credit in Advanced Typewriting and Advanced Shorthand and the 32-clock-hour week would have been used as a skill-building clinic had we not implemented the SOE program.

Needless to say, although we realize it was indeed experimental this first year, the excitement among instructors as well as students is keen; and we intend developing the program to a much finer degree. It is not a substitution for the single-concept course; but is a method of incorporating the skills and knowledges already learned and adding the motivation of a real office, complete with people-interaction and interdependence, the profit-motive, and competition among employees and division office.

COST: RESEARCH IN SOE AND IMPLEMENTATION
OF FIRST YEAR's EXPERIMENT

Since there were so many areas in which the $250 mini-grant could have been used, we evaluated these avenues very carefully before actually spending the money. It seemed possible that the initial correspondence and research could be done without any expenditures. Thus, there was no money spent until late spring and summer. We had anticipated having to spend money on some of the facilities, such as a communications system, room dividers, etc., but these were obtained by improvising and borrowing. The items that we feel should be included next year are now in the college budget, together with the fact that other college departments and personnel are interested in contributing both work and equipment in helping to make this possible without greatly increasing the secretarial department's overall budget, as well as a few contributions from local businessmen.

We had thought, then, that the purchase of materials--the office "game"--would be quite costly. Since it was determined to go ahead on our own, building a program from the beginning to suit our own needs, it was not necessary to spend any money here either. Thus, most of the money allowed was used in actual travel to consult with and personally evaluate simulation techniques. Besides what is listed here, the instructor also included observation and discussion in the Seattle, Washington, area as part of her personal vacation. This did not have to come out of mini-grant funds. We found, therefore, that in some cases, it is still possible to stretch a dollar.

Trip to Utah State University	$207.00
Trip to Lubbock, Texas: observation of Stenocall Consultation with Texas Tech University professors	18.50
Film, materials, supplies, etc.	24.50
	$250.00

FORMAT FOR OBSERVATION AND VISITATION OF STATIONS

An observation might include the following:

A. Company Description
   history of the company and its products or services; number of employees, departments, fringe benefits, pay schedule, etc.

B. Organization Chart
   could be an organizational chart of the entire business or just a department of which would consist of the individuals and their titles.

C. Office Layout
   location of desk, filing cabinets, telephones, work tables, equipment, etc., and could possibly show the definite desk of which this work station is a part.

D. Job Description
   1. Summary of Job--work performed. Each duty performed during the day for a five-day period; some jobs performed only once every month, six months, or a year.

   2. Qualifications. Necessary in regards to the various business skills needed, employment test given and how advancement within the company is determined.

E. Job Analysis
   basically, information gathered for the job description can be used in the job analysis, such as:
   1. Daily duties
   2. Occasional duties
   3. Periodical duties
   4. Equipment used
   5. Special skills and knowledges
   6. General requirements of the firm
   7. Physical activities
   8. Working conditions
   9. Worker characteristics required
   10. General comments

F. Flow Charts and Explanations
   a flow chart shows the flow of work from one desk to another. To develop a better understanding in regards to the flow of work, it is best to organize a flow chart for each duty that must be performed.

G. Vocabulary

H. Supply Sheet

I. General Instructions on how to prepare each form--and a sample of each form.

J. One original copy of each form.

ABOUT THE PROGRAM
N M J C

WHAT IS THE PROGRAM?

The Intensive Secretarial & Office Occupations Program is designed to prepare qualified persons in ten-and-a-half months for careers as competent secretaries. The program provides development of skills, knowledges, and procedures on the most modern equipment. At the completion of classroom training, the student is given the opportunity to use what she has learned in an on-the-job situation.

WHO IS THE PROGRAM FOR?

* Mature adults of any age (high school graduates or GED entrants)

* Those who have a need for or a desire for a comprehensive secretarial skill

* Those who wish to attain this skill in the shortest possible time

* Those who desire employment upon completion

WHAT ARE THE ADVANTAGES OF THE PROGRAM?

* Modern equipment

* Qualified vocational instructors trained in office education

* Progress in typing and shorthand on an individual basis

* Logical sequence of courses

* Thorough and complete coverage of office knowledges and skills

* Selected training stations providing on-the-job instruction

* Completion in ten-and-a-half months: Mid-September through Mid-July

QUALIFICATIONS FOR ADMISSION

* Applicants should request that all materials be sent to: Director, Intensive Secretarial Program, New Mexico Junior College, Hobbs, NM 88240

* Complete an application for admission to the Intensive Secretarial Program

* Request your high school transcript (or GED test scores--high school equivalency) be sent

* Take the GATB aptitude test (given at the State Employment Office) and request that the scores be sent

* Have a personal interview with the Director, Intensive Secretarial Program, NMJC

NEW MEXICO JUNIOR COLLEGE

LOVINGTON HIGHWAY
HOBBS, NEW MEXICO 88240

THE INTENSIVE SECRETARIAL PROGRAM

Because of your interest in the Intensive Secretarial Program at New Mexico Junior College I have compiled some information which you might find helpful in planning your future. I would also like to invite you to visit the college to get acquainted with the campus facilities and perhaps meet some of the faculty and staff.

An official interview schedule will be set up for the middle of June. Should you decide to submit an application form and complete your folder by fulfilling the following qualifications for admittance, I will write you again with the date and time for your interview.

Qualifications for Admission:

1. Complete an application for admission to the Intensive Secretarial Program.

2. Request your high school transcript (or your scores on the GED test--General Education Development, high school equivalency) to be sent to the Director, Intensive Secretarial Program, NMJC.

3. Take the GATB aptitude test (given at the State Employment Office) and request that these scores be sent to the Director, Intensive Secretarial Program, NMJC.

4. Have a personal interview with the Director, Intensive Secretarial Program, NMJC.

5. Upon acceptance into the program, have your physician complete a physical examination form, and submit it to the Director, Intensive Secretarial Program, NMJC.

The attached information brochure and personal statements from Intensive Secretarial graduates should give you much of the information you need. If you decide to apply, the first step is to request an application blank and then proceed through the list of qualifications.

Best wishes in whatever you decide to do with your future. If we can be of any further help, just let us know. My office is in Vocational-A Building, and I can be reached at 392-6526, extension 266.

Sincerely,

Mrs. Olive V. Church, Director
Intensive Secretarial Program

OVC:pa

INTENSIVE SECRETARIAL & OFFICE OCCUPATIONS

First Semester	Second Semester	Summer Session
Principles of Typewriting Speed Goal: 45+	Intermediate Typewriting Speed Goal: 60+	Advanced Typewriting Speed Goal: 70+
Principles of Shorthand Speed Goal: 70+	Intermediate Shorthand Speed Goal: 90+	Advanced Shorthand Speed Goal: 110+
Office Practice Records Management	Business Communications Letter & Report Writing Telephone, Mail, Receptionist	Data Processing Keypunch
Business Machines & Math Adding and Calculating	Secretarial Procedures & Administration Operational & Managerial Specialized Procedures	Cooperative Office Internship
	Secretarial Accounting	

Office Seminar & Simulated Office Experience (LABORATORY CONTINUES THROUGHOUT DURATION OF COURSE) .....

Business Orientation:
Economics, terms, World-of-Work Concepts

Secretarial Accounting

Business English and Word Studies

Business Behavior
Personality Development, Office Etiquette & Psychology

Office Machines
Transcribing, Duplicating, Copying

Integrated Projects
Class House Organ, Workshops, STENOWRITE SECRETARIAL SERVICES,
OFFICE EDUCATION ASSOCIATION

Classes meet from 6 to 8 hours daily 5 days each week; 32 college-credit hours; 1,600 clock hours

THE INTENSIVE SECRETARIAL PROGRAM

Personal comments from Intensive Secretarial students and graduates:

"After only ten months you will graduate with a certificate showing that you are a college-trained secretary..."

"Subject areas covered are Typing, Shorthand, Business English and Word Studies, Letter Writing, Machine Transcription, Business Machines, Secretarial Accounting, Data Processing (Keypunch), Secretarial Procedures, and Business and Economic Orientation, work in charm, poise and personality development. It also includes such "extras" as guest speakers, films, publication of a newspaper, and an annual workshop put on by the students--complete with fashion show and luncheon."

"Don't let the program scare you! There are fun-times too, and even during the unassigned labs, a trained supervisor is always on hand..."

"For extra-curricular activities we played volleyball once a week. This breaks the regular routine and helps develop physical fitness for the 'totally-trained' secretary. On these days we were allowed to wear slacks. As mature adults, dresses were worn the rest of the week..."

"I've thoroughly enjoyed this class. I feel I've gained some knowledge and experience, and already I feel more self-confident."

"I have asked myself this question a million times--'What have I gotten myself into?' After I think about the matter a little while, I remember that I am in this course to learn to make a living. This is what I want to do, and I am really glad I took it....I realize that I am growing up and no longer am a teenager..."

"This class has taught me the meaning of responsibility..."

"I like the feeling of being more on my own; I know that something has to be done and I do it more willingly than if I had been pushed..."

"Our public speaking (in Business Communications) is wonderful training since we are going out into the business world and will be meeting people."

"Once I get into the routine of whatever is assigned, I don't mind. It is all in getting used to it, and I do enjoy going to school...I have made some lasting friends, I believe."

"My life is just a puzzle...I am grateful that I was chosen to be part of this class..."

"What I really likedabout this course was the Oral Communications training---answering the telephone in different buildings and on the college switchboard. ....It was interesting because you never knew what problems might come up."

"I feel that I have really learned a lot through the labs, practice sessions, and on-the-job training. You get a feeling that you are really doing something worthwhile and it is better than just 'reading it out of a book'..."

"...another part of the course I have really enjoyed is Secretarial Accounting. It gets a little difficult at times, but it is interesting."

"...It feels so much better to be here when everyone else is. It's quite embarrassing to be late!"

"I was so frightened the first semester--had a hard time getting used to all the rush and hurry. The second semester seemed much easier."

"I sometimes get to feeling sorry for myself when the assignments are heavy, but I know that is the only way we can learn...we have to do our best here if we expect to do well on the job."

"I have learned to speak with more ease, write better letters and most of all, keep going with the world, instead of crawling into my own little shell."

"...most of all I enjoyed composing letters and Business Behavior."

"Shorthand is one subject that is giving me an inferiority complex..."

"Everyone should join OEA (The Office Education Association). It is not only fun but can be very educational for the older ones as well as the younger ones."

"I feel that by taking this course I have learned a great deal more than I did in public school--all 12 years!"

"I feel that if a person really enjoys what she is doing she will get a lot more out of it. I like most of the work that a secretary has to know how to do. You never know what will happen next and you just sit and wait and wonder..."

"There have been times when I felt like quitting, but I decided to go ahead. Now I am glad that I did!"

"Overall I feel that I am getting more than my 'money's worth' by being in the Intensive Secretarial Class."

S I M U L A T E D O F F I C E E D U C A T I O N

INTENSIVE SECRETARIAL PROGRAM

New Mexico Junior College

The first year of operation using the simulation plan at New Mexico Junior College was preceded by a full semester of pre-simulated lab, with a total of 8-12 (weekly) clock hours available for rotation, involving office procedures and office machines, including: machine transcription; mimeograph, ditto, and copiers; IBM executive typewriters; receptionist and communications; clerks and supervisors; and editorial staff on the house organ. It did not include adding and calculating machines as they had had a full semester of that as a single-concept course in the fall.

This pre-simulation was followed by four 8-hour days (or 32 clock hours) in the full-scale SOE. We utilized three classrooms, with our primary base in the main double-suite office lab. The vice-president in charge of sales--instructor--was in one classroom and could be reached by telephone. The lab assistant had her office in the same classroom, and another area was set up as the company "coffeeshop." It was possible to pull in needed equipment to the main company as well as supplies from other classrooms and offices to arrange facilities to suit our particular needs since the model office was conducted during the interim break between spring and summer sessions for the regular college classes. The art department of the college granted permission for us to borrow screens as room dividers and the electronics department fixed up a small telephone system. This year we hope to add 12-20 more telephones and to purchase our own small, light-weight folding screens.

The 1970-71 SOE lab will be conducted during two semesters on a two-hour block plan. Phase I will last three weeks and will be primarily orientation,

introduction and pretesting. Phase II will be similar to our pre-simulated lab of last year, except shorter in duration--six weeks--and Phase III will last 24 weeks, allowing each of the 24 students one week each on each station in the small Central Office. During the remainder of their training they will be in the regular classroom as a member of their division office staff. This classroom is shared with several teachers in a traditional setting, during the regular college year.

During this period, the division office will function much like the Washington Insurance SOE plan, conducting regular company business. STENOWRITE performs a variety of secretarial servies, including every manner of typing job, "ptinting" jobs (stencil, ditto, copiers, etc.), dictation from both shorthand tapes and transcription belts, etc., and must carry on their complete accounting procedures as well. But in addition to this, the instructor can insert individual jobs as needed which will provide each student with the kind of training and reteaching he needs at any given time.

In our first year's operation, there were four division offices plus a central office receptionist and secretary. The instructor assumed several roles, such as: vice-president in charge of sales; the customer (1) in person, (2) through the mails, (3) over the telephone; the lawyer or doctor down the hall, the technician in a lab or whatever, each time in a separate suite of offices. Again, we put some of the otherwise empty classrooms to use. There was also a student lab-assistant who worked the full week.

This year we will use two or three student simulators each week. In addition to their duties as customers in inserting the day's input they will, of course, also pick up in person, or receive through the mail, the work performed (the instructor performed this role during the first experiment). In this role the students will have to proofread and in case of error will

then be the "irate customer." (What "real" customer would consistently pay his bill or, indeed, return, if he received services inadequately rendered?)

As the irate customer, these students will write letters requesting corrections and adjustments on their bill; or they will call in; or come in. Since each student has the opportunity to play this role, sooner or later they are all "in the same boat," and will know what it feels like to have unacceptable work delivered to them with the expectation of having to pay for such work.

All work, must, therefore, be completed according to office standards of acceptability. If not, the subsequent reaction of the "irate customer" produces inconvenience and embarrassment and is felt by many employees in the chain of command. An effort must be made to correct not only the error in the work and the invoice but also with the goodwill of the customer and fellow employees in the division.

STENOWRITE employees are provided with much opportunity for thinking-deciding-applying-doing situations. The office manager of each division not only has full supervisory responsibility over her employees but makes decisions within her division as to work load, equipment use, supply purchases, coffee breaks, etc., as well as being allowed to make suggestions to management for improving production, forms, procedures, or office morale. (See ULTIMATUM as example of student-initiated role playing)

Each office of STENOWRITE tried to see which division could produce the most "profit." Profit was realized from income (after expenses), based on charges made for the different types of secretarial services performed by the employees. Each employee made out an invoice to the customer for whom she types materials, takes dictation, does printing jobs or performs other clerical activities. Each employee also keeps a record of her total mailable (acceptable)

Specializing In Business Communications

- TELEPHONE ANSWERING
- SECRETARIAL SERVICE
- MOBILE TELEPHONE
- OFFSET PRINTING
- POCKET PAGERS
- COPY SERVICE

WELCOME TO STENOCALL!

We are pleased that you have visited our facilities, for we are quite proud of our installation and enjoy every opportunity to show it off.

Thank you
For your interest
In our Stenocall operation

And . . . . . Do Return!

Betty Read . . . . . Manager
Secretarial Department

(This is a sample of the use of our MTSC Composer equipment. It is used for automatic typesetting in conjunction with our MTST equipment. Recordings are typed and precoded on the MTST, but the MTSC must be used for playback. The computer brain is especially designed to meet our needs at Stenocall.)

ILLUSTRATION 49

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20

WELCOME

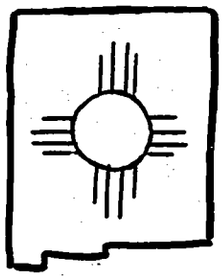
to

STENOWRITE

SECRETARIAL SERVICES

New Mexico Junior College

Hobbs, New Mexico



From the Desk of the President . . . . . .

Dear Fellow Worker:

This booklet will serve as a reference manual during your tenure as an employee of Stenowrite Secretarial Services. In it you will find a brief explanation of the policies that will most concern you as an employee. It will serve as a guide for making your work more satisfying and explain your part in making a "go" of our company.

We are a new company. We have great plans for the future. We hope you plan to be an important part of these plans.

Sincerely,

George Smith
President

HOURS OF WORK AND COMPENSATION

Workday

The workday for our company is from 8 a.m. to 5 p.m. with two 15-minute breaks. (Or 1-5 with one 15-minute break.)

Workweek

The company workweek is from Tuesday through Friday, for a total of 32 hours.(Or Monday-Friday, for a total of 20 hours)

Time Cards

You are to clock in and out, 8:00 a.m., 12 noon, 1:00 p.m. and 5:00 p.m. The time clock is located in the coffeeroom of the Administration Building. You are expected to have clocked in and be in your division office ready for work by 8 a.m.

On Friday of each week, you and the office manager will verify the accuracy of the entries and total the number of working hours. When you receive your paycheck, you are to sign your Time Card to certify that your check is correct. Any question may be discussed with the office manager.

Salary

The sum you receive in your pay check is very important to you. That sum may grow larger through merit increases. The salary scale and how increases are received will be explained to you by your office manager or the Vice President. Dividends from profits which your division office earns will be distributed quarterly. This amount will depend to a great extent on the contribution each employee of your division makes. Therefore, your attendance and cooperation is needed at all times.

Payday

Every Friday is payday. You will be paid by check for work done the week prior to the one in which payday occurs. When payday falls on a holiday, or a day when the office is closed for any other reason, you will be paid the day before. Your office manager will explain anything you do not understand about your pay check."End of fiscal year" Bonus Checks will go to employees of the division producing most.

Pay Scale:

Office Managers	- $2.15
Bookkeepers	- 2.10
Stenos	- 2.05
Clerk-Typists	- 2.00

Each position has a level of responsibility commensurate with the pay scale. Merit increases can be earned, as well as promotions, as employees show evidence of competence and productivity. Dividends are divided among the employees on the basis of profit earned by the whole division staff--and distributed according to the percent of lines produced by each employee during that earning period. Therefore, it might be quite possible for clerk-typists to earn as much or more than their office manager.

Salary Deductions

Following are the three salary deductions required by law to be made from your gross pay: Federal Income Tax, which is based on the exemption claimed by you on the Employee's Withholding Exemption Certificate which you filled out. Official Federal Income Tax tables are used; Social Security, or F.I.C.A. (Federal Insurance Contributions Act); and New Mexico State Income Tax.

23/24

5024

OFFICE PRACTICES

Each employee is an important part in the smooth operation of an office. Courtesy and simple good manners are essential when many people work together. Certain office practices must be followed.

All work is confidential and should not be discussed with anyone.

Decorum

Your conduct should be that of a business person at all times. Such conduct does not include loud and boisterous conversation, sitting on desks, constant moving about, or other acts which disturb others.

Housekeeping

To do an efficient job, you should keep your work area neat and orderly. Only those materials necessary to do the job at hand should be on your desk. Place your purse under your desk and out of the aisle. Be certain it is closed at all times.

Company Equipment and Supplies

Machines and other equipment represent a big investment. Listed below are some general instructions to follow in machine care:

- uncover your typewriter and place the cover inside your desk
- be certain to clean all machines, particularly the mimeograph, the liquid-process machine, and the typewriters after using them.
- Check to see that all electrical equipment is turned off before leaving
- Notify office manager if you have any difficulty with faulty machines.
- Cover machines no longer in use.

- Supplies and printed forms are costly. Exercise care in their use. Return all unused supplies to the proper place.

Grievances, Recommendations, etc.

"Do not carry a grudge." If you feel you have been treated unjustly, discuss the matter with your office manager--not with your fellow workers.

During the day, make it a policy to write down questions, problems, or suggestions as they arise, which may concern technical aspects of your job or equipment--questions of policy or morale problems.

Work Procedures

- Check instructions carefully on the Work Orders before beginning to type. Retyping because instructions have not been followed is much more time-consuming and temper-triggering than asking questions beforehand.
- Check the delivery or mailing date on all Work Orders. It is senseless to type a job for day after tomorrow before completing those that must be typed and delivered today. Keep things in their proper perspective.
- Check the Work Order Basket periodically. Don't neglect our customers or a "Rush" order!
- When a Work Order is completed, put it on your office manager's desk. Do not interrupt other people's activities by visiting. Comment only if it is necessary to explain some aspect of the job to be done. Remember: When you are visiting with another person, twice as much is not being done!

5025

25/26

O R I E N T A T I O N

Job Classifications

The job classifications in our company are:

Office Managers
Bookkeepers
Stenographers
Clerk-Typists

Training in the duties of your job is the responsibility of your office manager. Periodically you will be rated. This rating will be done by your office manager. The rating will include performance and attitude. This rating will become a part of your personnel record and will be considered for salary increases and promotions.

Job Descriptions

Office Manager:
- oversees all division operations
- distributes work or work-load, as needed
- checks on employees, helps, answers questions or directs them where to find answers
- turns out Work Order material
- quickly proofs carbons attached to Work Orders from employee's work
  - (ok's carbons--originals ready for mailing)
  - (catches originals--returns work to girls)
  - (carbons in file basket; discards Work Order)
- sees visitors, clients, salesmen, etc.

Bookkeeper:
- posts employees' work (lines completed--M) to employee's individual ledger sheet
- posts total lines performed by division from previous day
- posts income (from charges) attributed to division from previous day
- works on Work Orders

Stenos and Typists:

pick up, or receive from office manager, Work Orders

plans the job, arranging materials to be used, understanding instructions, etc., including the asking of questions, before beginning the job.

works as quickly and accurately as possible;

proofs own work immediately (on simple jobs)

gets someone else to proof with you, and helps others proof; assembles job, attaches Work Order to carbon (white copy), to-Office Mgr.

Makes out invoice: pink copy of invoice
pink copy of Work Order-bkr
blue copy,inv.-client

Stencs:

makes sure she can transcribe shorthand notes before she gets halfway through letter.

checks spelling of any words you are in doubt before beginning to type.

All division employees--make out "Lines Completed" form at end of day, place on bookkeeper's desk.

27/28

5026

F R I N G E B E N E F I T S

Holidays

You will be paid for all school holidays for which the school personnel receives pay. You may check the school calendar to verify these days.

A T T E N D A N C E

No pay will be received for absences. Sick leave--1 day for every 30 work days (or approximately six weeks); Remember, though, that every hour you are out, your division suffers.

Although an employee's personal life is his own to do as he wishes, remember too, that if your hours away from the office are not well-disciplined, your effectiveness on the job will be impaired--and again--your division suffers.

Proofing

- Each girl should be able to proof a short, simple letter taken from dictation notes, handwritten or typed copy without help from someone else. However, do not hesitate to ask your supervisor if there is a question concerning grammar, word usage, spelling, or the sense the copy makes. Try first, to determine the answer yourself--then ask.

- Two stenos should not proof together, for our typewriters are our tools of productivity and should be idle as little as possible! Utilize the bookkeeper's or central office receptionist's efforts in this area; but if there are any questions whatsoever, take them to your supervisor or the Central Office Manager. She can be contacted by telephone, if not in the immediate vicinity.

Other Charges

carbon copies, each	.05
envelopes addressed (each line)	.05
cards, labels, etc. (each line)	.05
blue legal binders	.10
folders	.50

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* When there is no question concerning billing, stenos and typists may get invoices from the bookkeeper's desk and make them out (especially for cash sales).

* Mark the invoice either PAID CASH, or PAID CHECK.

* The customer gets the blue copy
  Bookkeeper gets pink copy, plus the money
  Supervisor gets the white copy (on desk or basket)

* A cash receipt ticket may be written at the front desk if it is more convenient to call the receptionist and tell her what the charges are.

ED 124 502?

THE TEN COMMANDMENTS OF OFFICE MANNERS

Barbara L. Teasley
Transylvania's Modern Secretary

- Smile, and be of good cheer; for it promotes goodwill and thus increases efficiency.
- Thou shalt not yell, but speak clearly and distinctly to the person with whom you are talking.
- Thou shalt not pass the buck, but shalt accept thy errors as thine, and endeavor to eliminate such..
- Thou shalt not grumble about thy work, for there is someone else who will do the work cheerfully.
- Thou shalt not consider thyself indispensable; even presidents can be replaced.
- Thou shalt not condescend; for there are no class distinctions among intelligent people, and each is equal to the other.
- Thou shalt not deem thyself superior, and talk down to co-workers; one day you may find thyself looking up to them.
- Thou shalt not take the name of thy co-worker and use it unfairly or maliciously in regard to gossip.
- Thou shalt be responsible for thine own job, and only thine; let everyone take care of his responsibility.
- Thou shalt remember that an office is to be run as a place of business, for employees are adults and should act and be treated accordingly.

* * * * * * * * * * *

May your days spent at STENOWRITE be both pleasant and productive.

STENOWRITE SECRETARIAL SERVICES - CHARGES

Rates are based on standard 8½ x 11 and legal-size sheets; divide proportionately, according to half or off-sized materials

Straight-typing

8½ x 11	double-spaced	1.25
	w/tab or numerical data	1.50
	letter, single-sp	1.50
legal-size	double-sp	1.50
	single-sp	2.00
	d-sp, w/tab data	2.00

Dictation/Transcription, time rate

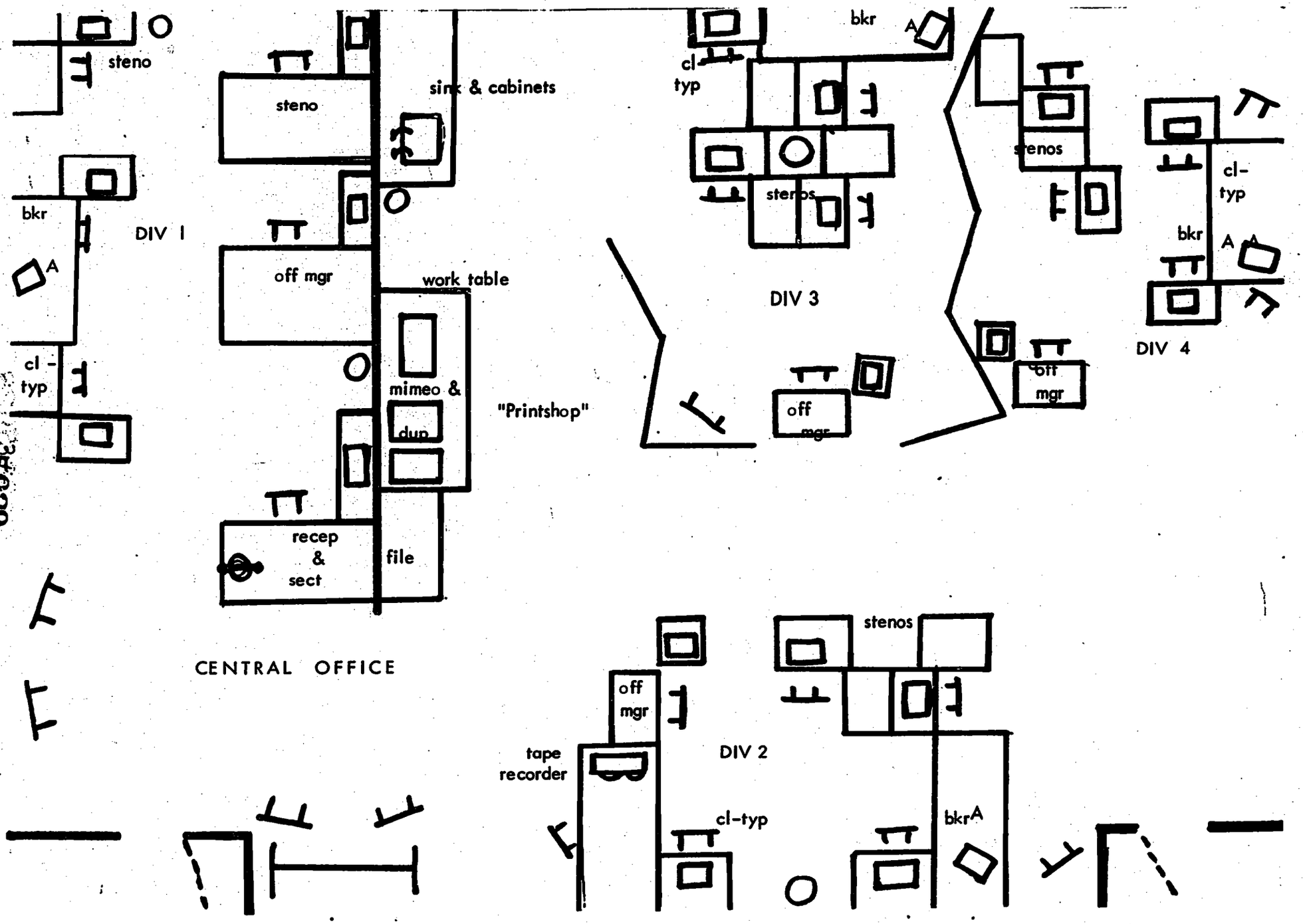
Hour	6.00
half-hour	3.00
quarter-hour	1.50

Exact time should be placed on the Work Order Sheet (rounded off to nearest quarter-hour)

* If stenos work too slowly, we will lose our clients to other Secretarial Services; therefore do not dawdle, causing an excessive charge to be rendered.

* The client should be told that additional charges will be made <u>if</u> the copy from which we are typing is hard to read or must be edited.

3 5028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35029

WORK DESCRIPTION

DIVISION OFFICES

Manager — **Employee** — **Employee**

Work Order - Approved ----------

1. Complete work order as directed and proofread
2. Fill in Individual Work Production Form
3. Return to Manager
   a. Initialed work order
   b. Completed assignment
   c. Individual work production form

Completed Work

1. Proofread all forms
2. Prepare for mailing and mail
3. Prepare Invoice

Work Order

White copy to Home Office
Pink copy to files

Invoice

White copy to customer
Green copy to Home Office
Pink copy to files

4. Return Individual Work Production Form to employee after verification.

Once a week

Manager -
1. Record all invoices in journal by months
2. Tally production for each individual - Recapitulate and mail to Home Office
3. Prepare payroll information from time cards and mail to Home Office

Expenses

All bills for expenses are to be paid by the Home Office. Forward as they arrive.

Petty Cash

Home Office will provide each division with $25.00 petty cash to pay for small items. Manager shall balance the petty cash fund at the end of each month. Due in Home Office by the 5th of the following month.

Upon employment each employee shall

1. Fill out a W-2 form which will be sent to Home Office
2. Pick up a time card

STENOWRITE

CHART OF ACCOUNTS

Division Code
A
B
C
D

Assets

111	Cash
112	Petty Cash
121	Notes Receivable
122	Accounts Receivable
012	Allowance for Bad Debts
131	Furniture and Fixtures
013	Allowance for Depreciation - Furn. and Fixtures
141	Prepaid Insurance
151	Stationery and Supplies

Liabilities

211	Accounts Payable
221	Notes Payable
231	Sales Tax Payable
241	Employees Income Tax Payable
251	FICA Tax Payable
261	FUTA Tax Payable
271	State Unemployment Tax Payable

Capital

311	Mrs. O. Church, Capital
031	Mrs. O. Church, Drawing
321	Mrs. J. Hightower, Capital
032	Mrs. J. Hightower, Drawing

Income

411	Income from Services

Expenses----------

511	Rent
512	Advertising
513	Salaries
514	Bonuses
515	Office Supplies
516	Depreciation
517	Insurance
518	Employer's Payroll Taxes
519	Bad Debts
520	Utilities
521	Telephone

HOME OFFICE

Office Manager

1. Orients employees to their job (has been on every desk in home office so is familiar with work)
2. Is responsible for seeing that work done in home office has been verified
3. Dictates letters to secretary (customers, sales, good-will, division offices, etc.)
4. Acts as clearing house for problems, incoming inquiries, etc.
5. Sees to it that the office runs smoothly
6. Confidentially evaluates all employees under her.

Receptionist/ Clerk

1. Handles all mail
2. Phone calls
3. Visitors, customers
4. Files
5. Is responsible to home mgr. to help workflow

Secretary

1. Responsible to office manager
2. Files
3. Fills supply orders from division offices
4. Verifies work as needed

Ass't Bookkeeper

1. Prepares Payroll Checks
2. Records Invoices Total Journal
3. Writes Checks
4. Keeps Individual Employees Earning Records
5. Prepares Gov't Forms
6. Sends out Customer Statements
7. Keeps Accounts Receivable Ledger

Bookkeeper

1. Keeps Cash Journal
2. Makes General Journal Entries
3. Post to Gen. Ledger
4. Reconcile Bank Acct.
5. Trial Balance
6. Financial Statements (Each month)
7. Prepares bonus Information (Give to Mrs. Hightower for approval)

Books of Original Entry

Cash Journal
General Journal
Sales Journal

Forms Needed

Checks
Work Orders
Invoices
Individual Work Production Form
Individual Earnings Records
Statements
Division Earnings and Production Records
Journal and Ledger Sheets
Government recording forms

May 26, 1970

Workshop, Clinic
Intensive Secretarial
New Mexico Junior College
Hobbs, New Mexico

Gentlemen:

Your advertisement on the blackboard in Room 118 states that you need a bookkeeper during your spring workshop. I would like to apply for this position.

My recent training in this area is listed on my enclosed resume. You will also notice that I have used my abilities in this field during the past four years.

If there is need for other office skills, you will find that I can also take dictation, type, file, or serve as receptionist.

On Monday morning of next week I will check with you to see if I have been accepted for this position.

Sincerely.

Edna Stacy

Mrs. Edna Stacy

S T E N O W R I T E SECRETARIAL SERVICES

WORKING PAPERS

S T E N O W R I T E SECRETARIAL SERVICES

New Mexico Junior College Hobbs, NM 88240

WORLD-WIDE AIRWAYS, INC.
APPLICATION FOR EMPLOYMENT

DATE May 22, 1970

IMPORTANT. READ CAREFULLY, PRINT OR TYPE ANSWERS TO EVERY QUESTION. ALL INFORMATION CONTAINED HEREIN WILL BE KEPT STRICTLY CONFIDENTIAL)

POSITION APPLIED FOR: Key Punch Operator

☒ DOMESTIC ASSIGNMENT ☐
☐ OVERSEAS ASSIGNMENT ☐

SOCIAL SECURITY NO. 525-88-6340

NAME IN FULL: Eades (LAST NAME) Clair (FIRST NAME) E. (MIDDLE OR MAIDEN NAME)

PRESENT ADDRESS: Star Route A Box 497 (STREET AND NUMBER) Hobbs (CITY) New Mexico (STATE) 88240 (ZIP CODE) 392-6421 (TELEPHONE NO.)

PERMANENT ADDRESS: Same (STREET AND NUMBER) (CITY) (STATE) (ZIP CODE) (TELEPHONE NO.)

IN CASE OF ACCIDENT NOTIFY: B. F. Eades (NAME) Husband (RELATIONSHIP) 392-6421 (TELEPHONE NO.)

ADDRESS: Star Route A Box 497 (STREET AND NUMBER) Hobbs (CITY) New Mexico (STATE) 88240 (ZIP CODE) 392-6421 (TELEPHONE NO.)

AGE 49 DATE OF BIRTH April 12, 1921

MALE ☐ FEMALE ☒

AMERICAN CITIZEN YES ☒ NO ☐

HAVE YOU EVER FILED AN APPLICATION WITH THIS COMPANY BEFORE? YES ☐ NO ☒ WHEN? ____ WHERE? ____

HAVE YOU EVER BEEN EMPLOYED BY THIS COMPANY BEFORE? YES ☐ NO ☒ WHEN? ____ WHERE? ____

EDUCATION

	SCHOOL AND LOCATION	MAJOR COURSE	MINOR COURSE	NO. YEARS ATTENDED	DATE OF LEAVING	WERE YOU GRADUATED?	DEGREE
HIGH SCHOOL	Hobbs High School, Hobbs, N.M.	XXXXXXX	XXXXXX	11	[illegible]	yes	XXXXX
UNIVERSITY OR COLLEGE	New Mexico Junior College Hobbs, New Mexico	Intensive Secretarial		1	7-10-1970	yes	
NIGHT OR CORRESPONDENCE SCHOOL							
SPECIAL SCHOOL							
GRADUATE WORK							
OTHER							

LIST EXTRA CURRICULAR ACTIVITIES, HOBBIES, ETC. ____

RECORD OF BUSINESS EXPERIENCE

LIST ALL PREVIOUS EXPERIENCE. BEGIN WITH PRESENT POSITION AND WORK BACK TO YOUR FIRST POSITION. ATTACH RÉSUMÉ. IF NECESSARY.

FROM Month	FROM Year	TO Month	TO Year	NAME OF COMPANY	ADDRESS STREET, CITY, AND STATE	NATURE OF WORK YOU PERFORMED	MONTHLY EARNINGS	REASON FOR LEAVING
~~5~~	~~'56~~	~~10~~	~~'56~~					
9	'67	10	'67	Jerry's	Broadmoor Shopping Center Hobbs, N.M.	Sales work	$ 225.00	worker cut down
5	'56	10	'56	C. R. Anthonys	Broadmoor Shopping Center Hobbs, New Mexico	Sales work	$ 235.00	To stay home with children

(Over)

[RWA 76, Chapter 26, Page 661]

PHYSICAL DATA

HEIGHT 5' 7½" WEIGHT 170 COLOR: EYES Grey HAIR Gray

ANY DEFECT IN: HEARING? no SPEECH? no

OTHER PHYSICAL IMPAIRMENTS no

TIME LOST THROUGH ILLNESS PAST TWO YEARS? 10 days NATURE Flu

REFERENCES

NAME	ADDRESS	OCCUPATION	YEARS KNOWN
Mrs. Olive V Chance	2901 North Glenn, Hobbs	Instructor	1
Mrs. Jeanne Hightower	1212 Lincoln Road, Hobbs	Instructor	1
Rev. Bailey Smith	217 W. Gold, Hobbs	Pastor	1
Mr Royce Cooper	820 Copper, Hobbs	Manager Finance	6

GENERAL INFORMATION

SINGLE, ENGAGED, MARRIED DIVORCED, WIDOWED OR SEPARATED? November 11, 1939 (IF MARRIED, GIVE DATE OF MARRIAGE) NO. AND AGES OF CHILDREN, IF ANY 2 - 25 years - 23 years

OTHER DEPENDENTS? _____ DEGREE OF DEPENDENCY _____

HAVE YOU ANY LOANS OR DEBTS PAST DUE? YES ☐ NO ☒ DO YOU LIVE WITH PARENTS? YES ☐ NO ☒

HAVE YOU EVER BEEN CONVICTED OF VIOLATING ANY LAW? (EXCEPT TRAFFIC VIOLATION) YES ☐ NO ☒ IF SO ATTACH RÉSUMÉ HAVE YOU EVER BEEN DENIED A SURETY BOND? YES ☐ NO ☒

NAME PERSONAL ACQUAINTANCES AND RELATIVES IN OUR EMPLOY None RELATIONSHIP

HOW SOON FOLLOWING NOTIFICATION CAN YOU REPORT FOR EMPLOYMENT? Immediately

WHAT LANGUAGE OTHER THAN ENGLISH CAN YOU:

1. READ? None
2. WRITE? None
3. SPEAK FLUENTLY? None

IN THE COURSE OF YOUR EMPLOYMENT WILL YOU ACCEPT TRANSFER TO:

1. ANOTHER STATE? no
2. A FOREIGN COUNTRY? no

WILL YOU ACCEPT SHIFT ASSIGNMENTS? yes

OFFICE

STATE AMOUNT OF EXPERIENCE (IN MONTHS) IN THE FOLLOWING:

SECRETARY _____ STENOGRAPHER _____

ACCOUNTANT _____ COMPTOMETER OPERATOR _____ STATISTICAL CLERK _____

AUDITOR _____ IBM OPERATOR _____ STOCK CLERK _____

BILLING CLERK _____ PAYROLL CLERK _____ DICTAPHONE OPR. _____

BOOKKEEPER _____ SHIPPING CLERK _____ FILING CLERK _____

SPEEDS

TYPING 35 - 45 WPM

SHORTHAND ~~Yes~~ Notehand WPM

TELETYPE _____ WPM

Stenowrite

Secretarial Service

Income	$466.18
Expenses:	
Salary	-$331.20
Rent	$25.00
Telephone	$15.00
Utilities	$25.00
Supplies	$25.00
Advertising	$15.00
Tax and Depreciation	$15.00
Miscellaneous	$10.80
Total	-$462.00
Net Income	$4.18

EXAMPLE STATEMENT

STENOWRITE

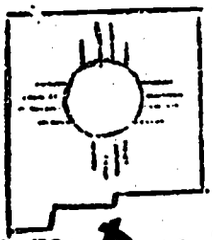
New Mexico Junior College

NAMEXXXXXXXXXXX

TERMS: NET CASH 10TH PROX. ALL BILLS PAYABLE AT NMJC
PLEASE RETURN THIS STUB WITH YOUR CHECK

DATE	REFERENCE	CHARGES	CREDITS	BALANCE
BALANCE FORWARDED				
(of each separate invoice)	Each invoice (#) listed separately	each separate charge	when check (or cash) has been made	extend
				TOTAL
				LAST AMOUNT IN THIS COLUMN IS BALANCE DUE

Plus One Carbon



STENOTYPE
SECRETARIAL SERVICES
NMJC Hobbs, NM
Division I

Invoice No. _____

SOLD TO **Don't overlook this!** DATE

TERMS ~~cash~~ ~~charge~~

DATE	QUANTITY	DESCRIPTION	CHARGES	TOTAL
			TAX	
			TOTAL	

customer

Plus Two Carbons
Each On Separate Color

Intensive Secretarial
Room 128 - Voc. A
NEW MEXICO JUNIOR COLLEGE

1-785
266

_____ 19____ No.

PAY TO THE ORDER OF _____ $_____

_____ DOLLARS

FIRST NATIONAL BANK

_____
AUTHORIZED SIGNATURE

DETACH AND RETAIN THIS STATEMENT

THE ATTACHED CHECK IS IN PAYMENT OF ITEMS DESCRIBED BELOW
IF NOT CORRECT PLEASE NOTIFY US PROMPTLY NO RECEIPT DESIRED

To _____

Date _____

For _____

Amount _____

_____ 19____

Received from _____

_____ 100 Dollars

_____

$_____

Intensive Secretarial
Room 128 - Voc. A
NEW MEXICO JUNIOR COLLEGE

5040

W E J U S T K N O W .....

Your check will arrive today

If not, please post without delay.

Your balance is $_____

Many Thanks

from

S T E N O W R I T E
S E C R E T A R I A L
S E R V I C E S

WORK ORDER

DATE_____ NAME_____ NO._____

BILL TO _____

ADDRESS _____

PICK UP _____ WHEN _____ WE MAIL _____ HOW _____ WHEN _____

DELIVER TO _____ WHEN _____ CALL WHEN READY _____

INSTRUCTIONS

_____

_____

_____

_____

STENO'S TIME

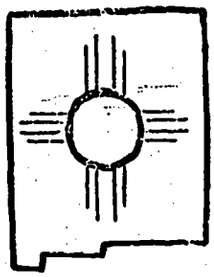
_____	8½ x 11 double-spaced	_____
_____	w/tab or numerical data	_____
_____	letter, single-sp	_____
legal _____	double-sp	_____
_____	single-sp	_____
_____	dbl-sp, w/tab data	_____
_____	carbon copies	_____
_____	envelopes, lines	_____
_____	cards, labels, etc., lines	_____
_____	blue legal binders	_____
_____	folders	_____
_____	other	_____

TOTAL _____

TAX _____

FINAL TOTAL _____

Plus One Carbon



STENOWRITE SECRETARIAL SERVICES
New Mexico Junior College
Hobbs, NM 88240 392-6526

5943

PAY PERIOD ENDING

No.

NAME Johnston Betty J

REG. HRS. 36.05 RATE 2.15 TOTAL 77.51

EXTRA HRS. _____ RATE _____ TOTAL _____

F. I. C. A. _____ ST. UN. COMP. _____ TOTAL _____

FED. W. T. _____ ST. DIS. BEN. _____

INSURANCE _____ DUES _____

CITY/ST. W.T. _____ BONDS _____

NET WAGES

EXTRA TIME				REGULAR TIME			
				IN	OUT	IN	OUT
		1/16					
		2/17				4	
						4.15	
		3/18				4.10	
						5.05	
		4/19				4.10	
						5.15	
		5/20				4.10	
						5.	
		6/21					
		7/22					
		8/23					

TOTAL 36 Hrs 05 min

TOTAL

PAYMENT RECEIVED IN FULL

SIGNED _____

10-100372 SIMPLEX TIME RECORDER CO., SAN JOSE, CALIF. PRINTED IN U.S.A.

PAY PERIOD ENDING

No.

NAME Linda Williams

REG. HRS. 33.40 RATE 2.15 TOTAL 70.17

EXTRA HRS. _____ RATE _____ TOTAL _____

F. I. C. A. _____ ST. UN. COMP. _____ TOTAL _____

FED. W. T. _____ ST. DIS. BEN. _____

INSURANCE _____ DUES _____

CITY/ST. W.T. _____ BONDS _____

NET WAGES

EXTRA TIME				REGULAR TIME			
				IN	OUT	IN	OUT
		1/16					
		2/17				4	
						4.20	
		3/18				4.10	
						4.05	
		4/19				4.10	
						4.20	
		5/20				4.20	
						4.05	
		6/21					
		7/22					
		8/23					

TOTAL 33 Hrs 40 min

TOTAL

PAYMENT RECEIVED IN FULL

SIGNED _____

10-100372 SIMPLEX TIME RECORDER CO., SAN JOSE, CALIF. PRINTED IN U.S.A.

Mary Parsons

Division II

Lines Per Person

Mary Parsons	6/2/70	6/3/70	6/4/70	6/5/70	Total Lines
Dictation/Transcribe	25	54	14		
" "	25		32		
" "	16	71	28		
Form Letters	374	190	320		
Total Tabulation	40	15	34		
	480		433	397	1625
Betty Williams					
Form Letters	545	736			
Tabulation	21	24			
Tabulation	42	75			
Total	608	33			
		865	498	409	2380
Edna Stacy					
Tabulation	40	18	116		
Form Letters	364	4	201		
Total	404	22	317	168	911
Sherry Wade					
Tabulation	25	75			
Dictation/Trans	19	39			
" "	22	39			
" "	17	47			
" "	26	47			
" "	28	30			
Form Letters	204	329			
Total Lines	341	622	947	650	2560

Division II

Division Gross Sales

6/2/70	3	4	5	Total
10855	11280	14874	13435	50949
			Expenses	39320
			Net Profit	11629

Expenses

Rent	2500
Phone	1500
Utilities	2500
Supplies	2500
Other	1500
Taxes/Rep.	1500
Misc.	1080
Payroll	26240
Total	39320

PAYROLL SHEET

For Week Ending _____

NAME	TOTAL HOURS	HOURLY RATE	REGULAR EARNINGS	EARNINGS FOR OVERTIME	TOTAL EARNINGS	DEDUCTIONS			NET AMOUNT PAID
						F.I.C.A. Tax	INCOME TAX WITHHELD	GROUP INSURANCE	
TOTAL									

Calculating Net Pay

ERIC

5947

47

THIS IS A WEEKLY STATEMENT OF YOUR EARNINGS AND DEDUCTIONS

PERIOD ENDING _____ No. _____

STENOWRITE
NMJC Hobbs, NM

EARNINGS		GROSS PAY	DEDUCTIONS			NET PAY
REGULAR	OVERTIME		F.I.C.A.	INCOME TAX WITHHELD	INSUR-ANCE	

— I M P O R T A N T —

YOU MUST KEEP THIS RECEIPT FOR YOUR PERSONAL RECORD.

STENOWRITE
NMJC Hobbs, NM

DATE _____ No. _____

PAY TO THE ORDER OF _____

_____ $ _____

PAYROLL ACCOUNT

VOID IF NOT CASHED WITHIN 30 DAYS

TO THE FIRST NATIONAL BANK _____

THIS IS A WEEKLY STATEMENT OF YOUR EARNINGS AND DEDUCTIONS

PERIOD ENDING _____ No. _____

STENOWRITE
NMJC Hobbs, NM

EARNINGS		GROSS PAY	DEDUCTIONS			NET PAY
REGULAR	OVERTIME		F.I.C.A.	INCOME TAX WITHHELD	INSUR-ANCE	

— I M P O R T A N T —

YOU MUST KEEP THIS RECEIPT FOR YOUR PERSONAL RECORD.

STENOWRITE
NMJC Hobbs, NM

DATE _____ No. _____

PAY TO THE ORDER OF _____

_____ $ _____

PAYROLL ACCOUNT

VOID IF NOT CASHED WITHIN 30 DAYS

TO THE FIRST NATIONAL BANK _____

5028

THIS IS A WEEKLY STATEMENT OF YOUR EARNINGS AND DEDUCTIONS

PERIOD ENDING _____ No. _____

STENOWRITE
NMJC Hobbs, NM

EARNINGS		GROSS PAY	DEDUCTIONS			NET PAY
REGULAR	OVERTIME		F.I.C.A.	INCOME TAX WITHHELD	INSUR-ANCE	

— I M P O R T A N T —

YOU MUST KEEP THIS RECEIPT FOR YOUR PERSONAL RECORD.

STENOWRITE
NMJC Hobbs, NM

DATE _____ No. _____

PAY TO THE ORDER OF _____

_____ $ _____

PAYROLL ACCOUNT

VOID IF NOT CASHED WITHIN 30 DAYS

TO THE FIRST NATIONAL BANK _____

EXPENSE REPORT **FOR RECORDING I.R.S. DATA**

Name: Terr. or Dept. Date of Report:

Purpose of Trip: Date of Trip: From To

ITEM	EXPENSE	SUN. / /	MON. / /	TUES. / /	WED. / /	THUR. / /	FRI. / /	SAT. / /	ITEM TOTALS
* 1	TRANSPORTATION ($25. Or Over Att. Receipt)								
* 2	TAXI - LIMOUSINE - CARFARE								
3	HOTEL (Attach Receipt)								
4	MEALS (Personal Use Only No. 11 For Other)								
5	TELEPHONE - TELEGRAM								
6	LAUNDRY - VALET SERVICE								
* 7	OTHER AUTO Parking - Tolls Service - Repairs								
8	TIPS - CHECKING - OTHER								
9	POSTAGE								
*10	MISCELLANEOUS & GIFTS								
*11	ENTERTAINMENT								
	DAILY TOTALS →								

NON-REIMBURSED EXPENDITURES (PERSONAL RECORD)

SUN.			
MON.			
TUES.			
WED.			
THU.			
FRI.			
SAT.			
Total			

ACCOUNTING

REMARKS:

CHECKED BY:

APPROVED BY:

DATE:

Amt. Advance $

Exp. Above $

Difference $

* EXPLAIN BELOW IN DETAIL

ITEM		SUN.	MON.	TUES.	WED.	THUR.	FRI.	SAT.
1	FROM							
	TO							
	TO							
	TO							
	AUTO MILEAGE							
2	FROM							
	TO							
	FROM							
	TO							
	FROM							
	TO							

ITEM	DATE	AUTO—Parking, Tolls, Service, Repairs	AMOUNT
7			
10		MISC.-Show Name, Cost, Purpose-$25. Or Over Att. Recpt.	

ITEM	DATE	ENTERTAINMENT—Show Customer Name & Title, Amt., Place & Business purpose.—$25. or over Att. Recpt.	AMOUNT
11			

Signed: Approved by: DATE / /

PART 1 WITH RECEIPTS ATTACHED TO APPROPRIATE OFFICE. PART 2 RETAINED AS YOUR RECORD OF EXPENSE.

S T E N O W R I T E SECRETARIAL SERVICES

WORK INPUT

MEREDITH TYPING SERVICE

305 ROSSLYN STREET • LOS ANGELES, CALIFORNIA 90057

Intensive Secretarial
Room 128 - Voc. A
NEW MEXICO JUNIOR COLLEGE

May 28, 1970

Stenowrite Secretarial Services
New Mexico Junior College
Hobbs, NM 88240

Ladies:

I appreciate very much your taking on some of our extra work load. We shall be happy to reciprocate if you find yourself overworked and understaffed, which has been the case this month here at Meredith Typing Service.

Enclosed are rough draft copies for the DITTO, Inc. offices. You will note that there are many letters to be written. Their company stated in their instructions to us that they have already typed the envelopes, so you can eliminate that chore. Also, they would like to have these letters and all of their other work ready for pick-up by noon, Thursday, June 4.

Again, thank you so much for helping us out in this bind.

Very truly yours,

MEREDITH TYPING SERVICE

Betty James
Office Manager

BJ:ovc

Enclosure

PS The forms for their billing procedure (item #7) will be sent to you as soon as they forward them to us.

bj

STENOWRITE SECRETARIAL

NEW MEXICO JUNIOR COLLEGE

Inter-Office Correspondence

9:20 AM

Intensive Secretarial
Room 128 - Voc. A
NEW MEXICO JUNIOR COLLEGE

To: Betty Johnston
Divison 1

Date: May 22, 1970

From: Vice-President GVChurch

I particularly liked the work of one of the stenos in your division, and would appreciate your having one of them type up the tabulated materials on pages 40 and 41 of our company manual.

This is for our annual report to the stockholders and I would like to receive it by noon, Tuesday. I shall send a messenger around to pick it up.

kdl

MEYER SPECIALTY CO.

3417 W. 1ST ST. LOS ANGELES, CALIF. DUNKIRK 3-3331

June 1, 1970

Reference Secretarial
Room 128 - Voc. A
NEW MEXICO JUNIOR COLLEGE

STENOWRITE Secretarial Services
New Mexico Junior College
Hobbs, NM 88240

Ladies:

Our company is acting in the stead of the Clary Corporation. Their employees--including the office staff--is out on strike! Therefore, as you can imagine, they are having a great deal of difficulty getting some of their rush jobs completed at this time.

We would appreciate very much your taking on their week's work. I understand that your division, as well as your entire company, comes very highly recommended. Therefore, I would like to entrust the activities of the Clary Corporation to your office for this week. If the work is satisfactory we shall continue to send you materials until such time as Clary can get straightened out. It might be possible to arrange a contract, if we are satisfied with your services.

Enclosed are rough draft materials. The typists in our offices already had the envelopes prepared, thus you can omit the materials on p. 2. Also, the telegrams were sent out by telephone, so omit p. 3 as well. The invoices, forms, etc., will be sent along in the next day or so. Please extend the invoices (p. 7).

We would appreciate your mailing these materials out to us by Thursday at 5:00 p.m., the latest.

Sincerely yours,

John Jacobson

John Jacobson
Manager

qrs
Enclosures

52

OFFICE STYLE TYPING

A Typist's Day in the Office of Clary Corporation

Prepared and Published with the Co-operation of
The Foundation for Business Education, Inc., by

CLARY CORPORATION
San Gabriel, California
from whom additional copies may be obtained

The work of the beginning typist is about the same in every office; this leaflet gives a fair sample of what the beginner may expect. Although the beginner might not actually encounter all these different activities in any one day's work in the office of Clary Corporation, he will usually get them all early in his first job as a typist.

1. FORM LETTERS

Type as many mailable copies of the following letter as you can in the time allowed, using the addresses in the order listed on page 3. These are actual names and addresses of Clary Corporation dealers.

Gentlemen: In your talks and demonstrations before students of business education don't forget to stress the exclusive features of our adding machines. Business students see several types of adding machines during their school career and any unusual features brought to their attention will make a deep and lasting impression.

Make certain you point out that the Clary Full Keyboard Adding Machine is the only adding machine with a Thumb Add Bar and show just how it permits the operator to enter large amounts at one stroke. Be sure to demonstrate the use of the Extra Capacity Key in doubling the listing capacity of the keyboard.

When demonstrating the operation of the Clary 10-Key Adding Machine, emphasize that it is the *only* adding machine that will hold a constant factor. Perform one or two problems involving discounts or invoices and show how the constant can be held in the machine as long as desired without re-entering.

If the students have operated other 10-key adding machines, they will recall using reciprocal tables. Be sure to stress in all your demonstrations of the Clary Full Keyboard and 10-Key machines that the amazing and exclusive Clary Dividing Eye eliminates completely the use of such tables and thus, for the first time, makes division easy, simple, and practical on an adding machine.

If you follow the general pointers given in the model demonstration lesson sent you last month, you will have no trouble holding your audience. Don't hesitate to write or call me if you need any further help. Cordially yours, Louis C. Temple, General Sales Manager.

5954

2. ENVELOPES OR LABELS

Type envelopes, if available, for each of the addresses below. Type labels for the names on page 8 and also for these given below. If neither labels nor envelopes are available, list the addresses in envelope address form on plain paper, three columns to the sheet and ten addresses to the column.

Clary Business Machines, 150 Dorrance Street, Providence, Rhode Island
Adams Office Supply, 302 Main Street, Montrose, Colorado
Dinsmore's Office Equipment Service, Box 312, 315 South 11 Street, Laramie, Wyoming
Schwarz Office Machine Company, 338 Main Avenue South, Twin Falls, Idaho
Yuma Typewriter & Adding Machine Company, 133 First Street, Yuma, Arizona
Brady Office Supply, 415 North Marion, Lake City, Florida
Alfred Williams & Co., 119 Fayetteville Street, Raleigh, North Carolina
Nebraska Typewriter Company, 125 North Eleventh Street, Lincoln, Nebraska
Smith Office Equipment, Inc., 230 Union Street, New Bedford, Massachusetts
Merrill Office Machines, 625 First Avenue, South, Fort Dodge, Iowa
Mailing Shop & Office Supply, P.O. Box 31, Great Falls, Montana
Ithaca Office Equipment Co., 308 East Seneca Street, Ithaca, New York
Grundy's Office Supplies, Box 86, 211½ La Bree Avenue, North, Thief River Falls, Minnesota
A-1 Office Machines Co., 235 East Main Street, Lexington, Kentucky
Decker's, Inc., 514-520 East Main Street, Lafayette, Indiana
R. B. Causfy Office Supply, 916 Main Street, Little Rock, Arkansas
Santa Paula Office Equipment Co., 819 Main Street, Santa Paula, California
Kimball Office Machines, 119 West Shiawasse, Lansing, Michigan
Olsen Typewriter Company, 120 South Seventh Street, Salina, Kansas
Modern Business Machines Company, 320 South 6 Street, Springfield, Illinois
Clary Business Machines, 6 Pine Street, Longfellow Square, Portland, Maine
Cal's Office Supply, 315 First Avenue South, Jamestown, North Dakota
Moss Office Supply Service, 718 Market Street, P.O. Box 176, Pascagoula, Mississippi
Amidon's Business Machines, 4534 South 6 Street, Klamath Falls, Oregon
Les Call Adding Machines, 216-218 West Pershing, Springfield, Missouri
Drawbaugh Office Machines, 101 South Duke Street, York, Pennsylvania
Sevier School & Office Supply, 30 North Main, Richfield, Utah
West Texas Office Supply, 204-6 West Texas Avenue, Midland, Texas
Johnson's Inc., 23 South Mission Street, Wenatchee, Washington
Kimball Business Machines, 2013 Centenary Boulevard, Shreveport, Louisiana
Mitchell Typewriter Service, 16 South Center, Springfield, Ohio
Durr's Office Machines, 142½ Lincoln Avenue, Santa Fe, New Mexico
Cromwell Press, 123 West Maine, Enid, Oklahoma
Schroll & Brown Business Machines, 287 Madison Avenue, Memphis, Tennessee
Dakota Business Machines, 2131 South Minnesota Street, Sioux Falls, South Dakota
Tri-State Office Supply Inc., 303 Main Street, La Crosse, Wisconsin
Morgan's Inc., 1026 Fourth Avenue, Huntington, West Virginia
Shepherd Business Equipment, 606 Main Street, Lynchburg, Virginia
Ellis Traub Business Machines, 218 Chandler Street, Worcester, Massachusetts
Dudek Office Equipment Company, 325 F Street, Eureka, California
Office Machines Incorporated, 111 North Royal, Mobile, Alabama
The Brock Press, Inc., 39 Atlantic Street, Stamford, Connecticut
Clary Corporation, 1136 18 Street, North West, Washington, D. C.
Clary Business Machines, 308 South 19 Street, Omaha, Nebraska

3. TELEGRAMS

On the telegram blank forms that will be supplied you, type 1 copy of the full rate telegram below to each of the addresses listed.

Jackson Company will buy 20 Clary Electric 10-Key machines if delivery is made before sixteenth. Reply immediately.

R. W. Walter

Edwards Business Machine Co., 517 North Salina Street, Syracuse, New York
Advanced Business Machines, 330 North Main, Jennings, Louisiana
Wilson Office Supply Co., 810 Scott Street, Wichita Falls, Texas
Talbert Office Equipment Co., 124 North Walcott, Casper, Wyoming
C. J. Feltz Office Appliances, 1111 Brown Street, Dayton, Ohio
Brandenburg Office Machines, 109 Rose Court, Muncie, Indiana
McCullough Office Equipment Co., 370 Cherry Street, Macon, Georgia
Riggs Supply Co., 231 East McLeod, Ironwood, Michigan
Wilde's, 112 Morley Avenue, Nogales, Arizona
Midwest Office Supply, 5 West Main Street, Chanute, Kansas
Armanko Office Supply Co., 152 North Virginia Street, Reno, Nevada
Clary Corporation, 1915 Walnut Street, Philadelphia, Pennsylvania
Bussing Office Supply, 126 West Street, Port Angeles, Washington
Scharpf's, Inc., 26 Washington Boulevard, Oshkosh, Wisconsin
Murphy Office Equipment Co., 99 State Street, Rutland, Vermont

On the telegram blank forms that will be supplied you, type 1 copy of the night letter below to each of the addresses listed.

The solution to your customer's problem lies in the purchase of our two-total Clary Model 306. With the 306, he can ring up meals in one total and cigar, cigarette, and candy sales in the other total. At any time of the day he can take two separate totals quickly and determine his volume and traffic at that hour.

You can also recommend this machine to other types of business where two main breakdowns of information are desired.

J. C. Lyons

Rapid Business Services, 917 West Street, Rapid City, South Dakota
Clary Business Machines Agency, 310 East Avenue, Rochester, New York
Porter Typewriter & Adding Machine Company, Jonesboro, Arkansas
Office Machine Supply Co., 1474 Keo-Way, Des Moines, Iowa
Smead Brothers, 630 Landis Avenue, Vineland, New Jersey
A. C. T. Service, 1604 Broadway, Riviera Beach, Florida
Miner Business Machines Co., 291 East Court Street, Kankakee, Illinois
Powell's Office Supply, 198 South Oregon Street, Ontario, Oregon
Fred Johnson, Inc., 126 King Street, Charleston, South Carolina
Robert F. Clauser, 703 West Market, Pottsville, Pennsylvania
Woddmansee's, Inc., P.O. Box 505, Bismarck, North Dakota
F. P. Meyers, Box 252, Pineville, Kentucky
Clary Corporation, 4433 El Cajon Boulevard, San Diego, California
The Business Machines Company, 225 East Broadway, Missoula, Montana
Curry Office Supply Company, 611 Washington Street, Waco, Texas

4. CENTERING

Center 1 typed copy of the Ad below vertically and horizontally on a half sheet, 8½" x 5½".

The Hand-Operated CLARY Cash Register
New, Modern, and Years Ahead
Rugged and Space Saving
Low and Beautiful
Exclusive 5-Way Lock Gives Maximum Control and Protection
Tape Easy to Replace
Convenient Writing Surface ## Under Tape
Simplifies Bookkeeping
Heavy Duty yet Light Enough for Easy Transportation
No Operator Experince or Training Necessary
One-Year Factory Guarantee!

Center 1 typed copy of the following Ad vertically and horizontally on a full sheet, 8½" x 11".

CLARY CORPORATION
Pioneer in Electronic Data Handling Equipment
Manufacturers
of
Adding Machines
Cash Registers
Automatic Controls
Electronic Computing Equipment
Aircraft Components
General offices: San Gabriel, California
In Canada: Clary Multiplier of Canada, Ltd., Toronto
In Europe: Deutsche Clary, G.M.B.H., Rastatt, Germany
Sales and service throughout the U.S. and in 57 other Countries

5. MANUSCRIPT ROUGH DRAFT

Type 1 corrected copy of the following page of manuscript, making any necessary corrections.

The Clary Cash Register System

A comparative analysis of the Clary Cash Register System and present department store systems shows that the basic difference between the two is in the processing of the information which they provide. The present system is ~~very~~ expensive because the machine used on the selling floor partially records and partially processes sales information at the point of purchase. Data provided by this system still requires a great deal of manual processing before complete sales reports can be secured.

Clary advocates the modern concept of processing all information one time through one work center, thus eliminating needlessly expensive selling floor equipment and duplication of effort necessary to provide really usable sales figures.

The ~~many~~ advantages of the Clary Cash Register System have been proved by many of America's leading department stores. Complete cash control, information for quick, accurate reports, faster customer service, freedom for inter-selling for sales people, plus cash savings of up to 80 per cent on original equipment investment may be obtained with the Clary cash register system.

A jury of nationally prominent engineers adjudged Clary Cash Registers to be one of the five best engineered and best designed electrical products produced since the war. They are the only cash registers to ever receive a top honor award in the national manufacturing contest sponsored by Electrical Manufacturing Magazine. Their ~~There~~ proven dependability is backed by Clary Service and Sales in every one of the nation's 3,075 counties and 57 countries of the world.

Clary System Engineers will work with you in adapting the Clary system to your present operating methods. Their services include a thorough study of your system of processing records and, if you wish, a complete evaluation of your method in terms of cost factors and efficiency. Take advantage of this service by calling the Clary office nearest you.

6. TABULATION

Type 1 copy of the following tabulation. Center it vertically and horizontally on a half sheet, 8½" x 5½".

Ten Outstanding CLARY Advantages to
You with Your Choice of Keyboards

1. Greater work output
2. Simplicity
3. Unsurpassed beauty
4. Quietness
5. Power controls
6. Visual credit balance
7. Fast multiplication
8. Dividing eye
9. Heavy duty, yet portable
10. Rugged, durable

Type 1 copy of the following tabulation. Center and rule it vertically and horizontally on a half sheet, 8½" x 5½".

Outstanding Advantages of

The Modern CLARY Cash Register

Priced for Small Business with Big Business Performance

Customer Eye Appeal	Gives Customers an Itemized Receipt
World's Fastest Check-Out Machine	Gives Positive Protection
Jam-Proof Keyboard	Records Vital Information
Subtracts Credits, Refunds	Gives Years of Dependable Service
Costs Less	Offers Timesaving Convenience
Perfect Control	Pays for itself

Type 1 copy of the following tabulation. Center it vertically and horizontally on a half sheet, 8½" x 5½".

Values Obtained With

CLARY CUSTOM ADDING MACHINES

Direct totals	Writing surface under tape	Automatic punctuation
Two-color ribbon	Perfect tripod balance	Rustproof mechanism
Inlaid numerals	Non-crystallizing platen	Full-time power drive
14" x 7" x 9"	Automatic space-up of totals	115V or 230V AC-DC
Fully guaranteed	Enclosed paper compartment	Case-hardened surfaces

7. BILLING

On the duplicated billheads that will be supplied, type the 10 copies of the following bill needed for the addresses given. Set tabular stops according to the printed columns on the billhead.

Clary Custom Electric Full Keyboard Adding Machine, Model #112, Price $365.00
State Office Supply, 7 North Green Street, Wadesboro, North Carolina
Invoice No. 4682, Order No. 2357, Quantity: 2
Lloyd's Business Equipment, Inc., 212 Monk Street, Brunswick, Georgia
Invoice No. 4683, Order No. 6415, Quantity: 4
Kammeyer's Inc., 318—24 Street, Ogden, Utah
Invoice No. 4684, Order No. 3729, Quantity: 3
Commercial Stationers, Inc., 59 Haywood Street, Asheville, North Carolina
Invoice No. 4685, Order No. 1872, Quantity: 10
Huff Printing Company, 127 North Street, Bluefield, West Virginia
Invoice No. 4686, Order No. 5643, Quantity: 6
Fawcetts Office Supply, 6 West Third Street, La Junta, Colorado
Invoice No. 4687, Order No. 7921, Quantity: 7
Arrowhead Office Machines Co., 136 West First, Duluth, Minnesota
Invoice No. 4688, Order No. 3257, Quantity: 9
Albany Cash Register Co., 225 Hudson Avenue, Albany, New York
Invoice No. 4689, Order No. 8271, Quantity: 4
Bakers, Inc., 85-91 Main Street, Brattleboro, Vermont
Invoice No. 4690, Order No. 9160, Quantity: 3
Alabama Business Machines, 514 North 21 Street, Birmingham, Alabama
Invoice No. 4691, Order No. 4245, Quantity: 5

On the duplicated billheads that will be supplied, type the 10 copies of the following bill needed for the addresses given. Set tabular stops according to the printed columns on the billhead.

Clary Custom Electric 10-Key Adding Machine, Model #148, Price $299.50
Newton's, Inc., 109 North Euclid Avenue, Ontario, California
Invoice No. 6213, Order No. 8590, Quantity: 3
Blunt Business Equipment Co., 301 North 4 Street, Clinton, Iowa
Invoice No. 6214, Order No. 3257, Quantity: 2
H. G. Miller Office Equipment, Rush Road, Henniker, New Hampshire
Invoice No. 6215, Order No. 4175, Quantity: 4
Office Machine & Equipment Co., 508 Franklin Street, Clarksville, Tennessee
Invoice No. 6216, Order No. 6194, Quantity: 10
General Business Machines, P.O. Box 785, 164 Falls Avenue, Waterloo, Iowa
Invoice No. 6217, Order No. 5347, Quantity: 1
Davis & Nye, Inc., Corner Bank & Grand Streets, Waterbury, Connecticut
Invoice No. 6218, Order No. 7521, Quantity: 5
Bartelt Business Machines, 1236 Main Street, Green Bay, Wisconsin
Invoice No. 6219, Order No. 2914, Quantity: 8
Texhoma Office Supply, 106 East Main Street, Ardmore, Oklahoma
Invoice No. 6220, Order No. 3807, Quantity: 2
Wolkins Office Equipment, 135 North Broad, Adrian, Michigan
Invoice No. 6221, Order No. 9150, Quantity: 4
Wells Office Equipment Company, 627 Main Street, Pine Bluff, Arkansas
Invoice No. 6222, Order No. 5082, Quantity: 6

8. PICK-UP WORK

In every office there is some long job that is used for pick-up work for any typist who has time to help. During the week the following letter is to be sent to as many of the addresses given below as possible. As you finish each assignment in this book, try to type a few of these letters for extra credit.

Gentlemen: There is one market you may be neglecting in selling Clary Adding Machines, and that is the home. It is no longer a novelty to find a typewriter in the home and the day is fast approaching when it will no longer be a novelty to find an adding machine there, too.

Research figures compiled by the Clary Corporation reveal that the average family of four spends 800 hours a year adding for personal use without an adding machine. Think of the boon a Clary Personalized Adding Machine would bring to these families in balancing the domestic budget, keeping account of bills, receipts, installment payments, interest, taxes, etc.

In your local advertising be sure to point out to this market the hours and hours of labor saved and the accuracy gained by using one of our Clary Personalized Adding Machines. Emphasize that this machine is not a toy but a regular adding machine built to stand heavy work loads when necessary and yet light enough (16 pounds) to be easily set in or out of a closet or carried about in a handsome carrying case. Stress the reasonable price at which the Clary may be purchased. For less than 50 cents a day, a Clary Personalized Adding Machine that performs direct subtraction may become the property of any family and, what is more, the low purchase price of $155 may be paid off in less than a year.

Don't hesitate to write or call me for further advice in reaching your local home market or in coping with any other problems which may arise. Very cordially yours, George L. Thomas, Sales Promotion Manager.

Thomaston Office Equipment Co., 117 West Gordon, Thomaston, Georgia
Daily's Typewriter Shop, 52 Asylum Street, Hartford, Connecticut
Wayne Office Supply Company, 141 North Wayne Avenue, Waynesboro, Virginia
Gorny-Winzeler, 123 South Main Street, Bryan, Ohio
Calhoun's, 175 North Church Street, P.O. Box 887, Spartanburg, South Carolina
The Norman Company, 621 Rogers Avenue, Fort Smith, Arkansas
Beckley Business Equipment Co., 102 East Center, Rochester, Minnesota
The Macon Beacon, Macon, Mississippi
Moore Stationery, 115 South Kimball Avenue, Caldwell, Idaho
Leesburg Typewriter Service, 120 West Main Street, Leesburg, Florida
Clary Corporation, 2300 West Seventh Street, Los Angeles, California
Newton Office Supply, 202 North Second Avenue, West, Newton, Iowa
Bermingham Office Equip. Co., 972 Main Street, Fitchburg, Massachusetts
Konen Equipment Company, 78 Castle Street, Geneva, New York
Murphy's Office Machine Co., 47 East Broadway, Butte, Montana

STENOWRITE SECRETARIAL SERVICES
NEW MEXICO JUNIOR COLLEGE

Inter-Office Correspondence

To: Division 2 **Date:** June 1, 1970

From: Vice President OVChurch

The National Blank Book Company, with regional offices out of El Paso are in need of some extra help. Since they are considering opening up a branch office in Hobbs, I was very anxious that they not only hear about our company, but have a sample of our expert, accurate, and quick service. I shall be by the Hobbs office, approximately 4-5 p.m., Thursday, June 4, to pick up the materials.

You do not need to address the envelopes or type the telegrams (pp. 2-3) as this has been taken care of in their El Paso office.

The forms for their billing (p. 7) will be coming along later. Be sure to do all the figuring and check with someone in your office on the accuracy of same.

ggg

S T E N O W R I T E SECRETARIAL SERVICES

NEW MEXICO JUNIOR COLLEGE

Inter-Office Correspondence

To: Jackie Lewis, Central Office Date: June 2, 1970

From: Vice President OVChurch ovc

Please announce to all divisions--

Meeting today, 1:00 p.m., Room 118, of all Bookkeepers

ggg

5963

MARTIN MILLER & SONS

HEALY BUILDING

58 BROAD STREET ATLANTA, GEORGIA 30303
Broadmoor Building Hobbs, NM 88240

June 1, 1970

Intensive Secretarial
Room 128 - Voc. A
NEW MEXICO JUNIOR COLLEGE

STENOWRITE Secretarial Services
New Mexico Junior College
Hobbs, NM 88240

Ladies:

Thank you for the very fine work you turned out for our company during the past month. Your courtesy, promptness, and above all--your cooperation on rush jobs--has not gone unnoticed. Now we have some additional work for you, as follows:

Statistical Data
problem 8, pp. 52-53 Div 1
prod. job 12, p. 54 Div. 2 +1
prod. job 13, p. 57 · Div. 2

Letter with data:
prob. 1, p. 58 Div 3
prob. 2, p. 59 Div 3 -4
prod. job. 14, p. 60 Div 4
prob. 3, pp. 60, 61
prod. job 15, p. 61

It is imperative that we have 3 original copies of each of the above. Perhaps three different stenos could each type a copy. I realize this will involve 20-24 different employees, but because of the labor situation that has occurred over the weekend in our offices we will appreciate your cooperation once again.

Can you have these in tomorrow's mail? Or at least by Wednesday, June 3? They should be sent in one large folder to our Atlanta address above.

Very truly yours,

Martin Miller, Sr.
President

ftc

MEYER SPECIALTY CO.

3417 W. 1ST ST. LOS ANGELES, CALIF. DUNKIRK 3-3331

June 3, 1970

Intensive Secretarial
Room 128 - Voc. A
NEW MEXICO JUNIOR COLLEGE

Mrs. Jackie Lewis
STENOWRITE Secretarial Services
New Mexico Junior College
Hobbs, NM 88240

Dear Mrs. Lewis:

The Clary Corporation has contacted our company in reference to using STENOWRITE for our extra work-load. I have heard that your Board of Directors has considered opening offices near ours here in Los Angeles. Therefore we would like to show Clary an example of the work your company is capable of turning out.

Please, therefore, have each one of your employees type up a copy of the enclosed so that we may see evidence of the quality of work you do.

We would like, also, to see how your girls work "under pressure." Consequently, a messenger will be by your office to pick up this order approximately one hour after you receive it.

Cordially yours,

Peter Meyer
Public Relations

PM:xyz

Enclosures (20)

Test 2-D scoring:

| | | |

TWO-PAGE ROUGH DRAFT PRACTICE MATERIAL

CLASS PROJECT: AN ADDING MACHINE SURVEY

INTRODUCTION: Success and advancement in office work depend not only on doing one thing well, but on demonstrating a wide range of ability and knowledge. The class project which is outlined below is your opportunity to begin to learn more about the very important subject of office machines. It is your opportunity to learn the names and addresses of adding machine company agents in your city and in neighboring communities. These men will stand ready to assist you by advising you and teaching you about the modern machines in up-to-date offices.

THE PROBLEM: You are working in a small office and your employer decides to buy an adding machine. You will be operating the adding machines, therefore, he asks you about the ones you consider best. He is interested only in what you consider to be the best two adding machines for he has time to interview only two salesmen.

Organizing The Investigation: A class committee is to be formed to make the investigation and report back to the class. The first duty of the committee is to locate the nearest Clary Corporation agent and make an appointment with him for some time after school hours.

Double Space

THE INVESTIGATION: The committee should collect from class members questions that they would like answered about adding machines. The Clary Agent should then be visited and committee members will make notes on what he tells them about the Clary Adding Machine. The Clary

agent will also be glad to inform the committee members where they may see other types of adding machines so that appointments may be made to see a variety of equipment. They should accept only one or two copies of descriptive literature which will be offered by each agent.

INVESTIGATION BY MAIL: By writing to adding machine manufacturers, you may learn the names of agents in your city and in neighboring communities. If you can not make your investigation in person, the survey may be accomplished by writing letters to the nearest agents requesting information about their adding machines.

THE REPORT: Just as you would report to an employer, the committee will report to the class on its findings. The features of the machines should be compared and important factors to be considered might be: ease of learning and ease of operation, speed, versatility, attractiveness, and other features stressed by the agents. The copies of descriptive literature should be passed through the class for all to see.

Double Space
All Copy!

(To the teacher: It is suggested that the learners carry out this assignment if possible.)

The 10-Key and Full-Keyboard Adding Machines Compared

If you are faced with a choice between a 10-key adding machine and a full-keyboard adding machine, you will need definite reasons for recommending one over the other one. The difference between these two lies in the fact that the ten-key machine is designed for such operation like a typewriter, while the full-key machine requires the operator to look as he depresses a key.

The keys on most 10-key machines are arranged as follows. One manufacturer puts the zero on the side as in the second example:

7 8 9	7 8 9
4 5 6	4 5 6
1 2 3	0 1 2 3
0	

On the other kind of machine, the keys are layed out in columns like a ledger page. If you were to write the figure $8,264,931.04 on a 10-key, you would have to depress each key one at a time -- even the zero. On a full-keyboard machine the zeros print automatically and you can sometimes depress two or more keys and the Add Bar simultaneously.

The Clary full-keyboard adding machine is unique because it is only adding machine having a Thumb Add Bar. On the Clary you can, amazingly enough, enter the following figure with one stroke:

$6,805,000.40

You do this by depressing the Thumb Add Bar with the thumb while the amount keys with your other four fingers. The zeros print automatically.

The Clary corporation, which manufactures both 10-key and full-keyboard adding machines, has furnished this chart showing where the different kinds of machines are mostly used:

	10-Key	Full-Key	Hand-Operated
Beginners		X	X
Trained Operators	X		
Big Business	X		
One-machine Offices		X	X
Farms and very small businesses			X
Government Offices	X	X	X

Prepared and published with the co-operation of the Foundation for Business Education as a contribution to the teaching of business education by
CLARY CORPORATION o SAN GABRIEL, CALIFORNIA
from whom additional copies may be obtained.

MARTIN MILLER & SONS

HEALY BUILDING
58 BROAD STREET ATLANTA, GEORGIA 30303
Broadmoor Building Hobbs, NM 88240

Intensive Secretarial
Room 128 - Voc. A
NEW MEXICO JUNIOR COLLEGE

Miss Jackie Lewis
STENOWRITE Secretarial Services
New Mexico Junor College
Hobbs, NM 88240

Dear Miss Lewis:

Following are work order designations for your office staff:

1 { Prob. 3, p 64
  { Prod job 16, p. 65
  { Prod job 17, p. 66

2 { prob 4, p 67
  { prob 1, p. 68

3 { prob 2, p. 69
  { prod job 18, p. 70
  { prob 4, p. 71
  { prod job 19, p. 72

Again, we would like to have three girls (each), or rather 3 original copies of each of the above. On the duplicated and mimeographed letters we would like to have one girl use the lists in the textbook, one girl use the address lists in the Clary folder, and one girl use the lists in the Ditto, Inc. folder.

read each office manager

We would like to have all of the above materials ready by Thursday at 5:00 p.m. Thank you for your excellent work for our company. We are happy to recommend you to other business establishements who might like to benefit from your work.

Very truly yours,

Martin Miller, Sr.
President

tof

MARTIN MILLER & SONS

HEALY BUILDING

58 BROAD STREET ATLANTA, GEORGIA 30303
Broadmoor Building Hobbs, NM 88240

Intensive Secretarial
Room 128 - Voc. A
NEW MEXICO JUNIOR COLLEGE

STENOWRITE Secretarial Services
New Mexico Junior College
Hobbs, NM 88240

Ladies:

Thank you for your work orders of last month. We appreciate not only your cooperation, but your prompt, efficient service.

Enclosed are a number of rough draft materials which we have collected for the following companies:

Judd-Kane, Attornies
Lea County Health & Medical Clinic
U.S. Government - Air Base City
Mitchell, Fitchell & Cawley
National Blank Book Company

We would like to have 9 original copies of each, preferably typed by nine different employees. Also, the materials will not need to be in the mail until Friday at 4:00 p.m. Please assemble and place together all materials for each separate company in a separate file folder. Thus our job of distribution will be accurate and efficient.

Just bill each company, and place their invoice inside their folder.

Yours very truly,

Martin Miller, Jr.
Vice-President, Publicity

MMj:tac

P.S. On second thought, we will pick these materials up by special messenger--Friday, June 5, 5:00 p.m.
mm

STAGE PLAYS INCORPORATED

158 West 45 Street • New York, New York 10072

June 3, 1970

Intensive Secretarial
Room 128 - Voc. A
NEW MEXICO JUNIOR COLLEGE

Miss Jackie Lewis
STENOWRITE Secretarial Service
New Mexico Junior College
Hobbs, NM 88240

Dear Miss Lewis:

From all reports, your company comes very highly recommended. It is imperative that we have a rush order out as soon as possible. Since we have heard about the reputation your stenos have gained all across the nation, it was only natural that I should decide to write you while in the southwest.

I am staying at the Holiday Inn, Las Cruces, for the next day and a half, and shall be passing through Hobbs between noon and mid-afternoon, Friday, June 5, 1970.

Enclosed is a copy of a play, entitled, S-T-R-E-T-C-H-I-N-G THE TRUTH. I would like to have this typed on good bond paper, on elite typewriters, with very narrow margins (1/2 - 3/4 in. R, L, top and bottom.) Use all-caps for the cast names, either for speaking or directional information, but do not indent so far on second and succeeding lines (about 10 spaces would be sufficient). In other words, I would appreciate uniformity in typing, but want to conserve space--cut down on pages, etc., for a less-bulky script. Our goal is not to save on costs of this job, but to save ultimate costs during rehearsals. Therefore, I shall be happy to pay your standard $6 an hour rate.

The original script was typed by several different typists, on different typewriters. I would appreciate very much, Miss Lewis, if you would determine the format and stick to it all the way through.

After typing, please Xerox 30 copies of each sheet, then collate and staple. Your cooperation will certainly be appreciated.

Cordially yours,

Peter Paul Romero

Peter Paul Romero
Technical Manager

PPR:rm
Enclosure

MARTIN MILLER & SONS

Broadmoor Building
Hobbs, NM

June 4, 1970

Stenowrite Secretarial Services
New Mexico Junior College
Hobbs, NM 88240

Ladies:

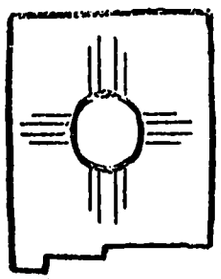
Enclosed is your invoice No. 4-4, dated June 2, 1970. I believe the invoice is incorrect. Please make proper adjustments and let us know or prepare a corrected invoice.

Yours very truly,

Bob Miller
Auditor

BM:vap

Enclosure



STENOWRITE SECRETARIAL SERVICES
New Mexico Junior College
Hobbs, NM 88240 392-6526

M E M O

TO: All Division Bookkeepers

FROM: V-P OVChurch

DATE: June 4, 1970

SUBJECT: Sending out monthly statements

On Friday afternoon, June 5, all division bookkeepers should send out the monthly statements.

Also, all bookkeepers should total income for the week ending Friday, June 5.

Bookkeepers should total all personnel time cards, posting the total hours to each employee's ledger sheet.

ggg

Your name & number _____
Unit of Work _____
Name of Evaluated Supervisor _____

STUDENT'S EVALUATION OF SUPERVISOR

Consider the following points carefully and objectively. Your evaluation will be kept CONFIDENTIAL; therefore, complete honesty is expected.

	No Opinion	Deficient	Fair	Average	Good
1. Attitude and conscientiousness in relation to assigned responsibility to supervise	_____	0	123	456	789
2. Receptivity to requests for assistance	_____	0	123	456	789
3. Evidenced ability and resourcefulness to effectively handle requests for assistance	_____	0	123	456	789
4. Use of Judg and imagination where required	_____	0	123	456	789
5. Temperament (disposition, manner, tact, ability to deal with others without offending them)	_____	0	123	456	789
6. Evidenced knowledge of problems within area of supervision	_____	0	123	456	789
7. Evidenced ability to effectively demonstrate machine(s)	_____	0	123	456	789
8. Evidenced ability to supervise	_____	0	123	456	789

REMARKS: (Use back side of sheet, if necessary.)

_____ (Student's Signature)

_____ Suggested unit grade for supervisor

_____ (current date)

5074

U L T I M A T U M

This is to notify STENOWRITE that the signatures below attest to the belief that the aforementioned company is negligent in the condition of working equipment, in the salaries of employees, and in fringe benefits. Therefore, the employees signed below choose to terminate their employment voluntarily unless all equipment is put into proper operating condition, all salaries are raised to $100.00 per week, and a definite arrangement is made for vacations and sick-leave. Terminal pay will be expected by 5:00 p.m. on Friday, June 5, 1970, unless these grievances have been remedied by that time.

Nancy Newton
Lynita Brough
Clair Eades
Arnette Scott
Bernice Buckner
Thelma Howard
Betty Williams
Betty J. Johnston
Linda M. Williams
Jackie Lewis

SEMI-SIMULATION: Secretarial Procedures Lab*

One full Semester: 8 clock hours weekly

Rotations:

Transcription Machines, I and II
Duplicating, Copying, House Organ
Communications - receptionists
IBM Executive Typewriters
Office Manager and clerks

* In this pre or semi simulation, the students learned the operation of machines. During the first semester they had had calculating and adding machines and filing. At the same time (second semester) as the pre-simulation they were also taking secretarial accounting.

During the operation of this 8-hour per week lab they learned much in the way of business behavior and human relations because the office manager and clerks not only distributed the work load (see pages on "live" work which was inserted throughout the period) but checked all papers and materials produced and had to "ok" them or return them to the typist before submitting work to the "Out" basket.

DATE	PRICE	FILM	SOURCE
	$ 2.50	MEANING OF PERCENTAGE Elementary, old	
Jan. 11-15, 1970	Free Rental	CPS-SYMBOL OF EXCELLENCE, color FMS--Recommand late spring.	Nat'l. Sec. Ass'n.
Jan. 18-22, 1970	$ 5.60	BETTER TYPING AT YOUR FINGERTIPS Manual typewriters--better recommend "Advanced Typing Shortcuts" (which we originally ordered). Check out for charge next year.	BEF
		PROGRESSIVE FILING SERIES 4 FMS--recommend using them in the fall.	NMJC
	$ 1.25	WHY ETIQUETTE IN BUSINESS, b&w Too old (FMS)	BEF
Sept. 28-30, 1969 Oct. 2, 1969	$ 4.60	YOU'RE ON THE TEAM, color Good	BEF
Oct. 5-9, 1969	Free	THE PAPER WAR, color Modern up-to-date	Sterling Movies 6290 Sunset Blvd. LA 90028
Feb. 8-12, 1970	Free	MANNER OF SPEAKING, color Excellent, modern up-to-date T.V. & movie stars	General Tel. Co. of the SW Hobbs
Apr. 5-9, 1970	$ 1.85	SECRETARY AS RECEPTIONIST, color FMS, no sound.	BEF
Jan. 25-29, 1970	$ 3.10	LIFE INSURANCE OCCUPATIONS	BEF
Feb. 15-19, 1970	Free	VOICE IN BUSINESS, color	General Tel. Co. of the SW Hobbs
Oct. 12-16, 1969	?	TAKE A LETTER FROM A TO Z, color Excellent, modern, up-to-date, fits all areas of society.	Film Library 413 W. 61st St. Suite 601 NY 10023
May 14, 1970		AS OTHERS SEE US, b&w Dry-English wit, humorous--old	
Oct. 1969	$ 3.75	BUILD YOUR VOCABULARY, b&w Clothes old--outdated--but good principle.	
Nov. 2-6, 1969	$ 2.25	IT'S EVERYBODY'S BUSINESS, color Excellent, (cartoon) Introduction to Business Office Education, American History, & Gov't.	BYU

DATE	PRICE	FILM	SOURCE
Nov. 9-13, 1969		MONEY AND BANKING, color	
Nov. 16-20, 1969	$ 5.00	NEED TO ACHIEVE, b&w Excellent, Psychology, Marketing, Personal Goals, Aptitudes.	BYU
		THE SOCIAL VALUES OF MARKETING Lecture(?)	
	$ 4.00	SPEECH: CONVERSATION, b&w Mid-50's--principle o.k.	
Dec. 7-11, 1969	$ 4.10	EXACT SMALL THINGS, b&w 30 min. lecture approach. Students said they liked it; principle of liking.	ENMU
Sept. 21-25, 1969	$ 2.50	FILING PROCEDURES IN BUSINESS, b&w	Coronet Instr. Films
Dec. 14-18, 1969	Free	MONEY ON THE MOVE Excellent--good for Economics, Introduction Science.	Federal Res. Bank of Dallas Sta. K. Dallas, TX. 75222
	$ 3.10	OFFICE TEAMWORK, b&w Clothes old, but principles good Recommend a more recent film (same topic)	BEF
Mar. 1-5, 1970	$ 3.50	SUCCESSFUL SECRETARY, color Excellent; clothes, machine methods. contemporary.	BEF
Feb. 1-5, 1970	Free	WHO WROTE THAT?, b&w Business letter, humorous eye & ear catching. Writing--recommend for <u>Spring</u> term.	Association Films, Inc. 600 Madison Ave. NY 10022
	$ 3.75	WORK OF THE STOCK EXCHANGE, b&w Old, but principles good.	

SPEAKERS FOR 1969-70 INT. SC.

January 4 Business Behavior--"Money & Banking"	Mr. Charles Robinson N.M. Bank & Trust
February 18 "Clothes & Accessories"	Mrs. Wilma Brooks Home Economics Teacher
February 19 "Personality & Aptitude Tests"	John Malone NMJC Counselor
February 25 "Hair Styles"	Mrs. Jean Beck Beauty College Instructor
February 26 "Charm, Poise, Etc."	Mrs. Belinda Moore Professional Model
May 7 "Unit on Personality"	Dr. I. E. Siegenthaler NMJC Vocational Dean
May 7 "Post Office & Mail"	Mr. Norman Booker Post Office
January 21 "Principles of Letter Writing"	Dr. Jodie C. Smith NMJC President
January 21 "What is a Secretary?"	Mr. George Williams Administrator of Lea General Hospital System
January 21 "Duties and Responsibilities of Secretaries" Panel	Mrs. Dorothy Shanks 1969 Graduate INT SC Mrs. Christine Woodfin Banking Mrs. Dot Henry Education

January 21 "Professional Organizations"	Mrs. Jo Johnson Desk and Derrick Mrs. Eunice Daniels Lea County Medical Association Mrs. Alicia Dean BPW
January 21	Mr. Leroy Rudolph CPA, Elmer Fox Co.
January 21 "What do Businessmen look for in a Secretary"	Mr. Clifford Crowe Chamber of Commerce President
January 21 "History of the Typewriter:"	Mr. Dale Brown Paper Clip
January 21 "Job Attitudes"	Dr. I. E. Siegenthaler NMJC Vocational Dean

	Supervisors and Clerks					Communications (Noon Hour)				Newsletter (Duplicating) (by arrangement)				
	Office Manager	File Clerk	Librarian	Attendance & Supplies	Va-Tech M-Th, 3-4 F - Noon	Buildings Academic MWF -1-2 T - T 12-1	Science MWF -1-2	Switchbd. 3 - 4	Observation	Editor & Lay-out	Bus. Office	Govt. Social College, Etc.	Int.	Feature
January 30 -	B. Williams	Teel	Newton	Buckner	Hindman	Gough		Johnston		Patterson	O.Williams	Ringener		Wiygle
February 3 - 6	Newton	B. Williams	Buckner	Teel	Johnston	Hindman		Gough						
February 9 - 13	Buckner	Newton	Teel	B. Williams	Gough	Johnston		Hindman						
February 16 - 20	Cutler	Stacy	Wade		Patterson	Ringener	O.Williams	Wiygle	Scott			Howard		Eades
February 23 - 27	Stacy	Wade	Quick		Patterson	Wiygle		O.Williams Ringener						
March 2 - 6	Wade	Quick	Stacy		Wiygle	Ringener	O.Williams	Patterson						
March 9 - 13	Johnston	Gough	Hindman		Howard	Eades		Scott	Arnold	Cook		Kirby		Lewis
March 16 - 20	Hindman	Johnston	Gough		Howard	Scott		Eades						
March 23 - 26 (Easter)	Gough	Hindman	Johnston		Scott	Eades		Howard						
March - April 3	O.Williams	Wiygle	Patterson	Ringener	Lewis	Cook	Kirby	Arnold	Newton	Buckner		Teel		B.Williams
April 6 - 10	Patterson	Ringener	O.Williams	Wiygle	Arnold		Kirby	Cook Lewis						
April 13 - 17	Wiygle	Patterson	Ringener	O.Williams	Lewis	Cook		Kirby						
April 20 - 24	Eades	Howard	Scott		B.Williams	Teel	Buckner	Newton Buckner	Stacy			Quick		Wade
April 27 - May 1	Howard	Scott	Eades		B.Williams			Teel						
May -	Scott	Eades	Howard			Teel	Buckner	B.Williams						
May - 8	Arnold	Cook	Lewis	Kirby	Quick	Wade		Stacy	Johnston			Hindman		Gough
May 11	Cook	Arnold	Kirby	Lewis	Quick	Stacy		Wade						
May 17	Lewis	Kirby	Arnold	Cook	Stacy	Wade		Quick						

Key to be instructed
Office Manager: Teel, Ringener, Kirby
File Clerk: Buckner, O.Williams, Lewis
Librarian: B.Williams, Wiygle, Cook
Attendance & Supplies: Newton, Patterson

ERIC

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	Supervisors and Clerks					Communications (Noon Hour)			Newsletter (Duplicating)				
	Office Manager	File Clerk	Librarian	Attendance & Supplies	Vo-Tech M-Th, 3-4 Noon	Buildings: Academic MWF 1-2 1-1 12-1	Science MWF 1-2	Observation (by arrangement) Switchbd. 3 - 4	Editor & Lay-out	Bus. Govt. Office	Social College, etc.	Feature	
January 28 - 30	B. Williams	Teel	Newton	Buckner	Hindman	Gough		Johnston	Patterson	O. Williams	Ringener	Wiygle	
February 2 - 6	Newton	B. Williams	Buckner	Teel	Johnston	Hindman		Gough					
February 9 - 13	Buckner	Newton	Teel	B. Williams	Gough	Johnston		Hindman					
February 16 - 20	Quick	Stacy	Wade		Patterson	Ringener	O. Williams	Wiygle	Scott		Howard	Eades	
February 23 - 27	Stacy	Wade	Quick		Patterson	Wiygle		O. Williams Ringener					
March 2 - 6	Wade	Quick	Stacy		Wiygle	Ringener	O. Williams	Patterson					
March 9 - 13	Johnston	Gough	Hindman		Howard	Eades		Scott	Arnold	Cook	Kirby	Lewis	
March 16 - 20	Hindman	Johnston	Gough		Howard	Scott		Eades					
March 23 - 28 (Easter)	Gough	Hindman	Johnston		Scott	Eades		Howard					
March 30 - April 3	O. Williams	Wiygle	Patterson	Ringener	Lewis	Cook	Kirby	Arnold	Newton	Buckner	Teel	B. Williams	
April 6 - 10	Patterson	Ringener	O. Williams	Wiygle	Arnold		Kirby	Cook Lewis					
April 13 - 17	Wiygle	Patterson	Ringener	O. Williams	Lewis	Cook		Kirby					
April 20 - 24	Eades	Howard	Scott		B. Williams	Teel	Buckner	Newton	Stacy		Quick	Wade	
April 27 - May 1	Howard	Scott	Eades		B. Williams			Buckner Teel					
May 4 - 8	Scott	Eades	Howard			Teel	Buckner	B. Williams					
May 11 - 15	Arnold	Cook	Lewis	Kirby	Quick	Wade		Stacy	Johnston		Hindman	Gough	
May 18 - 22	Cook	Arnold	Kirby	Lewis	Quick	Stacy		Wade					
May 25 - 27	Lewis	Kirby	Arnold	Cook	Stacy	Wade		Quick					

Supervisory jobs unpracticed:
Office Manager: Teel, Ringener, Kirby
File Clerks: Buckner, O. Williams, Lewis
Librarians: B. Williams, Wiygle, Cook
Attendance & Supplies: Newton, Patterson

SC 223B Secretarial Procedures
--Office Machines Practice--

ROTATION INFORMATION

Stations

I	Transcription, IBM Executary	Stenographers
II	Transcription, IBM, Executary	Stenographers
III	Duplicating	Clerk-Typists
IV	Communications	Receptionists
V	Executive IBM	Master Typists
VI	Office Manager and Clerks	Clerks, Office Manager

Groups

A	B	C	D	E	F
Arnold	Eades	Patterson	Gough	Quick	Williams, B.
Cook	Howard	Ringener	Hindman	Stacy	Teel
Lewis	Scott	Williams, O.	Johnston	Wade	Newton
Kirby		Wiygle			Buckner

Time

Three weeks on each station. Communications and Supervisory (VI) Stations will have sub-rotation periods of one week in each position. Because of holidays, emergencies, sickness, and other unforeseen circumstances, plan to complete work on each station in 12-13 days. Extra lab time for most stations will be available; so that 15-25 hours might be allowed, but work must be complete (mailable) in folders by the end of the next-to-last day (no work completed after that will be acceptable as work on that rotation station).

--Last day on each station reserved for testing (except clerks and Office Manager, who will be making out their reports on that day).

Work Method

1. Place work as completed (personally proofread, corrected, assembled) in proper shelf on Office Manager's desk (1st, Trans. I, II; 2nd, III Dup; 3rd, V IBM; Bottom, VI Office Managers' reports and materials--including job-book and reports from clerks)
2. Each time before you begin anything new, check in front section of your file folder for work checked with a ✓ in the upper right-hand corner.
3. Correct or re-do anything so designated: ✓= to correct; X= to re-do.
4. After making corrections, mark the penciled check with a cross, thusly: ✓X
5. Return to proper shelf
6. If Office Manager designates material acceptable (mailable), your work will be filed in the back section of your folder. It is now ready for instructor.

1. Each student has an individual file folder, in top drawer, (labeled INT SC, Student Folders). Each student is to divide her folder between front and back sections. This can be done with a sheet of cardboard, construction paper, or other divider.

2. After each lab period the student should assemble the material she wishes to hand in (personally proofread, corrected, assembled) and place in the proper sorter-rack on the Office Manager's desk. The divisions are as follows:

   top (or 1st) section = Transcription Stations I and II

   second section = Duplicating Station III

   third section = Executive IBM Station V

   bottom (4th) section = Weekly and/or daily reports to Office Manager from clerks.

   basket (separate) = File basket; materials in here are ready for the file clerk

3. Office Manager and clerks proofread, marking the papers according to the following code:

   ✓ = proofread and correctible errors marked
   X = must re-do; work unacceptable
   ∴ = student indicates she has made corrections
   ✓ = mailable
   0 = work unacceptable second time; or in other words, = F

   When students find a penciled check in the upper-right-hand corner, they then look through the paper which has been marked as follows:

   ∴ = in margin, lightly penciled
   ✓ = above error, lightly penciled

4. Office Manager or clerks place proofread and marked materials in the file basket where the file clerk files (from basket into individual folders).

5. File clerk files proofread materials which need correcting or re-doing in the front section of the folder. If materials are mailable, or checked ✓ in red, they are filed in the back section.

6. The Office Manager makes a report to the instructor on the final day of her station. This report is a summary of her own reports and the file and other clerks. It will list each student's name, how many papers were proofread during her rotation period as Office Manager, and how many errors each student made and how many times papers had to be re-done (only once per paper, but if each student had to re-do every paper she handed in, this would add up quickly.)

SC 223B Secretarial Procedures and Office Machines Practice

JOB TITLES AND DESCRIPTIONS

I-II Stenographers

I IBM Executary

1. Transcribe on IBM Executaries Belts 1-9, eliminating supplementary materials
2. Test Belt 5 will be given at end
3. Read each lesson before you begin to type. Do not forget to do the out-of-class activities before beginning transcription.
4. When all work done in this station is complete and ready for instructor (approved by Office Manager as "mailable"), on the next-to-last day prepare a cover sheet, with your name, group letter, station, and number of jobs completed, staple, and return to <u>back</u> section of folder.

II IBM Executary

1. Same as above Belts 12-19, <u>all</u>.
2. Test belt given at end of 3 weeks.
3. Same as above.

III Clerk-Typists

III Duplicating and Copying

1. Read Hanna, Ch. 5 and 6
2. Grading: a. 3/4 quantity and quality of meritals in folders
   b. 1/4 on word-record card and theory quiz

Folder Materials:

1. 3X5 card listing:
   a. description of each job performed
   b. how many copies
   c. on what machines
   d. for whom
   e. initialed by Office Manager

Examples: (1 copy of each job run)

a. tri-weekly newspaper
b. material for instructors or for INT SC
c. Workshop Evaluation
d. Original project (idea approved by instructor prior to starting)

SC 223B Secretarial Procedures and Office Machines Practice

JOB TITLES AND DESCRIPTIONS
(continued)

IV Receptionists

Supplies: phone book with Junior College extensions; desk calendar or appointment book; note pad or note-message pads (could make your own when on duplicating station or have one of the clerk-typists on that station make you some), pen, pencil, etc.

IV Communications - Emphasis, Oral

1. Read Hanna, Chs. 3, 12, 13
2. Working in NMJC Offices 10-12 hours
   Buildings: Academic, Science,
   (noon) Vocational A
3. Observation: Administration Bldg. Switchboard
   (by arrangement)
4. Grading: 1/3 theory over reading
   2/3 work record--3x5 card listing days, hours; places worked; experiences (good, bad, unusual, interesting, helpful to others, etc.)

V Master Typists

Jobs:
1. an original letterhead design (on typewriter only)
2. a program
3. a menu or an invitation
4. minutes of a meeting
5. statistical (tabulated) report
6. a graph or chart
7. 1 copy of a justified page
8. a letter
9. to be assigned
10. " "

V Executive IBM Typewriters, Room 127

1. Read Hanna, Chs. 4 and 5
2. 10 jobs
3. Grading: 3/4 quality and quantity of folder materials; 1/4 tests (theory from reading; skilled timed test at the IBM)

(Instructor will assign these jobs during the 3-week station rotation; some will be out of our Secretarial Procedures text and workbook. Whenever actual work needs to be done, especially when it fits ito one of the above categories, these will be used)

VI-A Office Manager

Rotation on sub-station each week

a. Read Hanna, Ch. 28
b. Grading: based on overall attitude, method of supervising, thoroughness in supervising, proofreading, and follow up.

VI Office Manager

1. Checks daily (with instructor, job book, bulletin board, etc.,) (for necessary jobs other than daily proofreading: gets key for proofreading)
2. Puts in a minimum of 10 hours during her week
3. Circulates during every lab period (except optional "after 4" labs), including calling each receptionist. Purpose: to give assistance, to answer questions, to offer constructive criticism, etc.
4. Sees that clerks have enough work to do; or adjusts work load among them.
5. Proofreads, following the proofreading procedures.
6. Makes out a report sheet (instructor keeps them confidential); on which she lists suggestions, recommendations, problems, etc. Also tallies the proofreaders and clerks' report sheets, with her own proofreading record. (See attached form)

B Librarian (Records & Belts)

C. Attendance & Supplies

(When only 3 girls are on this station, B & C are combine)
Hanna, Ch. 24, Ch. 2

1. Keeps careful record (card file, refiled records)
2. Charges and collects fines
3. Proofreads
4. Fills out form and leaves with Office Manager
5. Assignment (written) re. some of the questions on above two chapters

1. Keeps daily time and attendance (in journal)
2. Tallies at end of week
3. Keeps supplies and materials inventoried and in order
4. Proofreads, and answers to Office Manager
5. Fills out report form and gives to Office Manager at end of sub-station rotation
6. Written assignment over questions indicated by instructor over readings--see above

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D File Clerk

1. Sets up and maintains files (from Office Manager, job-book, etc.)

2. When working for other instructors may request additional help from personnel (Office Manager)
3. Files report sheet at end of sub-station rotation period with Office Manager
4. Proofreads as assigned when filing duties are complete

NEW MEXICO JUNIOR COLLEGE

LOVINGTON HIGHWAY
HOBBS, NEW MEXICO 88240

TO: Mrs. Olive Church

THROUGH: I. E. Siegenthaler, Dean of Vocational Technical Education

FROM: Frank Vrska

DATE: January 30, 1970

SUBJECT: Communication Rotation Project, Intensive Secretarial Class

In response to your memo, dated January 26, 1970, concerning the above subject, I am in complete agreement with you. I am of the opinion that this would be an essential and necessary phase in the training of the secretarial group. My experience has shown, particularly in the employment of unexperienced secretaries, that their greatest weaknesses often are in the area of telephone etiquette.

By way of this memo, I am forwarding to Mrs. Joanne Henry and each of the instructional building secretaries a copy of your memo and our encouragement and approval for you to implement your program.

I would request that you have complete coordination with Mrs. Henry and provide her with instructions stating precisely what it is that you wish each of the trainees to accomplish, evaluation forms, etc.

cc: Jodie C. Smith
Mrs. Joanne Henry
Mrs. Geraldine McIlhaney
Mrs. Elaine Richeson
Mrs. Carolyn Carrell

ASSIGNMENTS

IBM Executives

Your Choice

X 1. Original Letterhead (also applies to Business Correspondence)

   a. Artyping--a pamphlet in the files (Supplies)
   b. Cartoon Sketch Books--in red looseleaf in back of supplies in files

2. Invitation--p. 99 in Text (Hanna)

3. Tabulated Report--p. 3, Workbook

4. Manuscript--pp. 151-153, Workbook

5. Table--p. 1

6. Letter--(of "thanks")--also applies to Business Correspondence (with carbon & envelope)

7. Enumeration--pp. 23, 24, Workbook

X 8. Justified page--(at least 10)

9. Minutes of a Meeting--choice (2) pp. 413 or 418

X 10. A two-page letter; carbon copy & envelope (Use Workbook letterhead & envelope)

*When student is given jobs, the instructor will replace (or give credit for) one, two, or more of the above assignments.

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FILMED FROM BEST AVAILABLE COPY

MASTER TYPISTS

1. Retype film sheets for 1970 INT SC book
2. Type speakers report
3. Type Workshop Evaluation
4. Type invitations--volleyball
5. Retype yellow pages
6. Type Office Laboratory
7. Type 8 letters for Dean Siegenthaler
8. Type senior information sheets
9. Type cover sheet and 4 pages for National OEA Torch Ceremony
10. Type 10 sheets of National OEA Torch Ceremony
11. Retype brochure
12. Poem for Mrs. Hachmier
13. Job for Mrs. Hachmier
14. Tabulation for Mrs. Church

TIME AND SUPPLY CLERK

1. Inventory typewriters in Rms 127-128
2. Type cards listing NMJC code #-file by row and position
3. File requisition for mimeo paper
4. Requisition 2 reams mimeo paper
5. Make new guide in box and file cards behind it
6. File cards stating transcribers and typewriters needing repairs
7. Make folders and type labels.
8. Inventory supplies
9. Keep time

FILE CLERK

1. Make file folder for zip code papers
2. Type labels
3. Label drawers, student folders, records, belts, and instructor's materials
4. Straighten student files
5. Type new cards for textbooks

LIBRARIAN

1. Type labels for file guides to correspond with card file
2. Sort out additional dictation records-make new codes
3. Prepare Usage Report on records, periodicals
4. Work on Mr. Coston's files

OFFICE MANAGER

1. Work on Mr. Coston's files
2. Add to INT SC 1970 book
3. Assign typing jobs to IBM Master Typists
4. Check with Vo-Tech instructors for jobs to be done

DUPLICATING

1. Cut stencil--mimeograph 25 copies for nurses
2. Xerox 10 copies for Mrs. Hachmier
3. Xerox 60 copies of invitations
4. Xerox Workshop Evaluation--75 copies--cut stencil
5. Xerox 25 copies for Mrs. Hachmier
6. Xerox 25 copies--assemble papers for Mrs. Hachmier
7. Cut stencil
8. Xerox 25 copies of poem
9. Xerox 10 copies of zip code
10. Ditto 20 copies for Miss Key
11. Cut stencil--run 200 copies
12. Xerox job for Mrs. Church
13. Xerox 30 copies--collate and staple
14. Cut 2 stencils and run 100 copies
15. 25 copies punctuation exercise for Miss Key
16. Xerox sections of INT SC book for 1970
17. Xerox 3 copies of Business Communications letters
18. Run 30 copies of ditto
19. Cut stencil and run 30 copies of Typing Facts
20. Xerox 25 copies of interoffice memo
21. Xerox papers for Data Processing Department
22. Xerox Potty Schedule
23. Xerox 2 copies of Torch Ceremony
24. Run 2 ditto copies of poem
25. Xerox 25 copies for Mrs. Church

WORK ATTITUDES

	POSITIVE	CHECK	NEGATIVE	CHECK
1.	Interested		Indifferent	
2.	Persistent		A quitter	
3.	Industrious		Lazy	
4.	Thorough		Haphazard	
5.	Orderly		Disorderly	
6.	Adaptable		Set in your ways	
7.	Speedy		A slow worker	
8.	Responsible		Irresponsible	
9.	Punctual		A Shirker	
10.	Loyal		Disloyal	

MENTAL ATTITUDES

11.	Alert		A drifter
12.	Ingenious		A routine worker
13.	Intelligent		Slow to comprehend
14.	Accurate		Inaccurate
15.	Careful		Impulsive
16.	Self-confident		Fearful
17.	Honest		Dishonest
18.	Forceful		Inane

SOCIAL ATTITUDES

19.	Friendly		Shy
20.	Cheerful		Gloomy
21.	Stable		Excitable
22.	Polite		Discourteous
23.	Tactful		Tactless
24.	Considerate		Inconsiderate
25.	Personally neat		Untidy

TOTAL

EXAMPLE OF AN INTEGRATED PROJECT ----------

This was real or contract work. The Director of the Nursing Division at New Mexico Junior College brought a poem from a magazine to the STENOWRITE SECRETARIAL SERVICES. She wanted it reproduced, but had no idea of format, etc., since she is not a typist.

The OFFICE MANAGER of a division assigned the project to her steno on the IBM typewriter. She in turn, chose the format, used the stencil numbers rather than typed numbers for effect, (these numbers are available when the girls use the mimeoscope machine), then she requested one of her classmates, who is good with artwork, to copy the magazine picture. This was done, the material typed on an IBM executive typewriter; the typist requested another steno to help proof, since this was "real" work, they were more particular.

After the STENO completed the job, she filled out her WORK ORDER form, made out the INVOICE in triplicate, (even though she would not, in this case, actually present an invoice to the "customer" it would be channeled in the same way as any role-playing--the instructor or lab assistant would receive the customer's copy of the invoice); distributed the set of invoices as directed--one copy to office manager, one to bookkeeper, one to customer.

The material was then sent to DUPLICATING, (Central Office) for reproducing. Since this was a good copy, the steno and duplicating and Office Manager showed it to the instructor, who decided it should also be shared with all the class members as a part of the BUSINESS BEHAVIOR emphasis. This was done.

The duplicating staff also collated, staped and distributed the finished product.

INTENSIVE SECRETARIAL CLASS HOUSE ORGAN.....

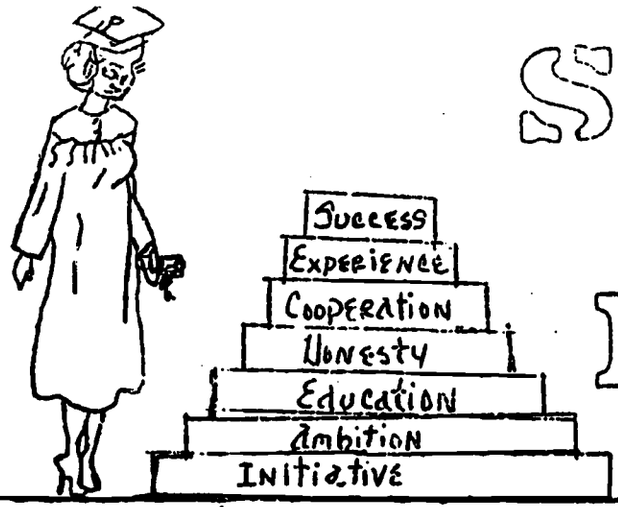
S T E N O F L Y E R

The Steno Flyer is published tri-weekly for the Intensive Secretarial Class of New Mexico Junior College at Hobb, New Mexico, during the spring semester.

The STENO FLYER is an integrated project...

In the BUSINESS COMMUNICATIONS Class (SE 223), under the category of "Report Writing," students are required to hand in one news article every third week.

Under the DUPLICATING ROTATION in the Semi-Simulated Lab (Secretarial Procedures--SC 223B) those students who are assigned during the period are designated as the "editors" of the STENO FLYER. It is their responsibility to set up the format and direction of each issue; assign topics or news stories; work with the "reporters," edit in-coming articles; type the stencils; do the art-work on the mimeoscope; run the mimeograph, collate and distribute newspapers at the end of the three-week rotation period.



STENO FLYER

Vol. 1 No. 6 May 22, 1970

COMMENCEMENT EXERCISE

The New Mexico Junior College and the Intensive Secretarial Class of 1969-70, announces its fourth Commencement Exercise, Friday May 29, at 8:00 p.m. in the Thunderbird Gymnasium.

Guest speaker will be Dr. George L. Cross, President Emeritus at the University of Oklahoma.

There will be a total of 146 graduates. One hundred and ten are candidates for Associated Art Degrees. Out of those 146 graduates, 21 will be the Intensive Secretarial Class, and 19 will be Nurses.

O.E.A. TACKY PARTY

O.E.A. is sponsoring a Tacky party on May 23, 1970 at 6:30 p.m. in Mrs. Hightower's backyard. All of Intensive Secretarial is invited to attend. Everyone is to bring their own hamburger meat and covered dish. I hope everyone will be able to attend so we can have a really great time. Remember it is a Tacky Party so don't wear your Sunday suit.

Sherry Wade

GRADUATION WISHES

The cap and gown that you are to wear
Are symbols of success,
Signs of goals you have achieved
To bring you happiness.

You stand with pride among your class
Upon this coming day,
With knowledge gained to help you
Along life's winding way.

Be grateful and be humble
When honors come your way,
And strive for even greater goals
After Graduation day.

WHIRLWIND?

Have you ever noticed how much Mrs. Church resembles a small whirlwind in double-high gear? How many other people could visit the tallest building in Lubbock, and two days later have the building twisted and ready to collapse?

Seriously, though, Lubbock's tornado was a great tragedy. It has caused concern for many friends and relatives of Lubbock residents.

What I really want to say about our instructor's visit to Lubbock is; "We're glad you left there before it all happened, Mrs. Church!" Edna Grace

DECA CONFERENCE

Mr. Kiekhaefer and the NMJC Mid-Management Club attended the National DECA Conference, May 1-3 in Minneapolis, MN.

The convention was held in the Hotel Leamington. Those attending were: Jim Larkin, President, also State President, Ron Thorp, who was a finalist in Management Decision Making Merchandising. William Grisham, and Bill Bruner, the voting delegate.

Mr. Kiekhaefer said the bus trip was quite an experience. Their luggage was lost and did not arrive until Saturday.

Entertainment featured; comedians Edmond and Terly; the well known band, Chad Mitchell and friends. Door prices valued over $1,000 were given away. These consisted of a Color TV--Cassettes--Radios--Tape recorders--Tape Players, etc.

Earl Nightingale, the renowned speaker on Motivation, addressed the group at one of their banquets. I might add, they also saw Hubert Humphrey who lives in that hotel while staying in Minneapolis. Dwight Loken, National OEA President, also attended and was recognized.

It seems the Post-Secondary divisn has had the same problems as OEA in trying to get their name changed. A group from Maryland, for the past 3 years. has tried to get it changed to Phi Beta Nu which is a business fraternity. However, the delegation voted this year to change the Post-Secondary (only) to Junior Collegiate Division DECA.

Saturday night was Minnesota night. They had soap-box campaigning. and a social. The candidates also were given the opportunity to give regular campaign speeches at one of their general sessions.

From listening to Mr. Kiekhaefer, they really had a good time. We know they proudly represented the State of New Mexico and NMJC.

Robbie Wiygle

EDITORIAL

The Intensive Secretarial Class started the year off on September 15. Everybody seemed to have doubts that first day and began to wonder what they were doing here. Believe me some people are still wondering.

We were encouraged to develop initiative, to learn problem solving techniques, to learn the value of ethical business behavior, to gain an understanding of the importance of good human relations, and to become personally informed and knowledgeable about the world around us. I think we all can say that we have accomplished all this and more.

All the class showed how much they had learned by the successful outcome of the workshop, which was held on January 21 in the Faculty Lounge. It was topped off with a luncheon and a style show at the Holiday Inn.

There was a surprise Christmas party for Mrs. Church and Mrs. Hightower, in which the class gave them a present. Anybody who was on a diet that week sure couldn't stay on it with all the goodies.that were brought. At least if we don't make secretaries we can always go back to cooking.

Mrs. Church must of started a fad when she lost her wig in Fort Worth. Zanita and Jo both lost their's while playing volleyball. Now girls let's not lose our hair over it.

The winning name for the "Steno Flyer" was submitted by Annette Scott. All of those who have contributed articles to the newspaper have helped make it a success and something we all can be proud of.

I know all of us would like to thank Mrs. Church for the great work she has done this year. Even though she has been using us for "guiana pigs." All of us will understand why she gave us those "odd jobs" to do when we go out into the business world.

Jane Hindman

PROS OF A WORKING WIFE

There are many advantages in being a working wife. Some people work to buy a new home, a new car, or send the children to college. Others work simply to feel a sense of accomplishment. Some women are bored by the daily routine of cleaning house, taking care of the children, and cooking meals. When these women are working, these chores don't seem to be so boring, and they are usually done faster than before. The woman who works to help out at home usually feels that she is contributing something to the family, and taking some of the load off the breadwinner's back. When women work, they develop a broader outlook on life, they keep up-to-date on things happening around them. They give the impression of being better dressed, more intelligent, and are more confident at social affairs than a normal housewife. They are able to discuss something besides making beds and washing dishes, therefore, they are more able to cope with most problems that arise. The day of the working woman is here, so women take advantage of it. Shirley Patterson

NMJC RODEO CLUB

The NMJC Rodeo team did it again! We traveled to Las Cruces for their Rodeo the weekend of April 30 through May 1 and 2. Although we came home empty handed we gave it a good try. One thing you can say about our team is that we have a good time whatever we do. We also get lost in big places such as Las Cruces. Our club is thinking about having a picnic, and a playday before school is out. This will be discussed further at our next meeting. Mr. Pearce is the sponsor of the Rodeo Club, and he has done his best to help the club. Gianne Ringener

Life is like a cafeteria. There are no waiters to serve you success---it is there---so just help yourself to it. Mary Quick

You're an oldster if you went to college to take courses rather than buildings.

CONS OF A WORKING WIFE

Everything has two sides; good and bad. I'm not going to say that a woman definitely should not work, but I am going to point out a few of the disadvantages. What I consider the main disadvantage deals directly with your children. A husband should be mature enough to understand. If not at first, he can learn to cope with the situation much faster than a child. When you're a child life is filled with new joys, sorrow about things that you nor I would be able to feel, adventures of games as well as animal life, and sharing. This sharing can extend from a pet frog to an exaggeration of the day's happenings. Where are you? Is your little boy or girl telling a babysitter about it?

"Don't do this," and "Do that," are two old familiar sayings. Have you ever noticed though that the older you get the less you hear it? When you're a child this seems to be all you hear. More days than one will come when the wrong decisions are made. That child of yours, torn between confusion and fright, needs you; his mother. Where are you? Is he or she running towards that babysitter? Brenda Kirby

Congratulations to the coming graduates ...You're gonna get your diploma soon and you know what you can do with it... ...Stick it in your pocket and go get a job! Mary Quick

"Here I'm trying to lose weight and he sticks that up in front of me!"

The worst thing about retirement is having to drink coffee on your own time.

Office Situation

You are hired at $3 an hour; you later learn that older employees are only drawing $2.50. Do you tell how much you are making, and if asked what would be your answer? In your opinion, what is the value of seniority in an office?

1. I would tell her that I believe it is the regular starting pay. If she insisted, I would probably say that I will be earning $3 an hour. I would rather do this than lie, and I would have no way of knowing what she earns.

On the other hand, she should have the grace not to ask me just to satisfy her curiosity.

Seniority should prevail over the new worker. However, circumstances sometimes prevent this. The person may not take responsibilities or have good work habits. In some cases, she may be happy in the position she holds.

Benny Buckner

2. I would not tell anyone how much I am being paid. If someone asks, I would rather tell them, tactfully, that I would rather not discuss wages the company pays.

I feel it would be unfair to the employees who have been working there for several years, for me to be paid more money than they are being paid. Perhaps the employer has reasons for his action in this matter. At the present time, I would not refuse the wages I am receiving.

Clair Eades

Fashions

Summer office wear can be summarized in two words--polyester-knits. Everything this year is polyester and something else, either cotton, knit, or rayon. The long torso with pleated skirt wins hands down. The shift is still good, especially with a long scarf in a wild color. The length is still short. The 'middy' has not been popular and the two sources questioned see no change in the length for fall. The middy may make the scene for after 5 wear when the weather is cooler next fall.

Reed's Fashions and
Leatas
Oulda Williams

CONGRATULATIONS GRADUATING SECRETARIES

CHAMPIONSHIP OFFICE RELATED SKILLS

Two American men hold the shorthand speed records. Under championship conditions in 1922, Nathan Behrin wrote Pitman at 300 words a minute for 2 minutes.

Currently, Morris I. Kligman of New York claims to be the world's fastest shorthand writer at 300 words a minute. He has taken 50,000 words in 5 hours--and transcribed them in less than 5 hours.

Four American's are the world's fastest typists. On standard typewriters, Margaret Owen typed 170 words in one minute in 1918, and Albert Tangora typed 147 words per minute for an hour in 1923.

The office record on an electric typewriter for one hour was set by Margaret Hamma in 1941. She typed 9,316 words with 40 errors, a net rate of 149 words a minute. In an unofficial test Stella Pajunas typed 216 words a minute for an hour in 1946.

Modern Secretary-Apr.70
Nancy Newton

CAMPUS NEWS

All students may go by the Administration Building and have their cards pulled May 21 or 22 and be ready to pay their fees June 8 for the summer semester.

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We have been informed that due to the fact that Mrs. Henry has been exposed to the members of a certain class, she will enroll in a class this summer to regain some of her knowledge and clam.

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Mrs. McKelvey is a proud new grandmother. She has a grandson named Sean Mitcheal.

Floella Cook

We have been invited to Mr. Malone's office to see his collection of "birds?"

Floella Cook

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ACHIEVEMENT

Garnett Ann Schultz

Do you know what you want in the years just ahead?
Do you know what you want to be?
Are you striving for one thing you hope to achieve. . .
Is perfection the star you can see?

Every moment the best in your plan and your scheme.
Then no matter how far you might stray,
With one goal in mind you are sure to succeed.
Constant trying will show you the way.

A little of this and a little of that
Never won any prize in the end.
It's the man who is sure of the one thing he wants.

Who has worthwhile achievement to lend.

Life is too short for a variety of goals,
For a talent that's placed on the shelf.
But life gives success that is second to none.
To the man who is sure of himself.

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POSTAL REPORT

Friday, May 8, Mrs. Hightower's Communications Class and the Intensive Secretarial Class heard a speech given by Mr. Booker, Postmaster, of the United States Post Office in Hobbs. Mr. Booker spoke on the current events that are now facing the Post Offices of the United States. He gave some very helpful suggestions for secretaries to use when handling the mail along with some do's and don'ts. He told us that there are only 52 people working in the Hobbs Post Office, and they handle each item of mail at least three times. Mr. Booker was very helpful in answering the questions asked of him by the class.

Paulinda Arnold

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OEA TEA

The Intensive Secretarial Class sponsored the OEA Tea that was given in honor of Dr. Smith to present him with the trophies won at the State and National OEA conventions.

Robbie Wiygle gave the welcoming speech to the faculty members. Mrs. Hightower presented several certificates among them were Mrs. Church for helping sponsor the trips. Miss Key--patience and help in sponsoring the trips. Julia McClure--Secretary, Floella Cook--Vice President--;Robbie Wiygle--President; and last but no least Randy Watson--Male Escort With Fortitude.

After the tea, Mary Quick was surprised by the presentation of shower gifts from the Intensive Secretarial Class.

Thelma Howard

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Dr. Siegenthaler's Lecture

Dr. Siegenthaler presented slides and comments in a two-hour lecture for the Intensive Secretarial Class.

The first slides he presented were about the growth of job opportunities for women, as well as men, in the different fields of work.

The second slides were about personality development. As bad as we hate to admit it, or no matter how perfect we think we are, we all have room for improvement.

We want to express our thanks to Dr. Siegenthaler for the interest he has displayed in our program, as well as in each of us individually.

Annette Scott

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SO THOUGHTFUL

"Stick to your washing, ironing, scrubbing, and cooking, a husband told his wife." "No wife of mine is going to work."

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Seven days without prayer makes one weak

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"They're the answer to absenteeism,--we'll parade 'em in front of the men all day."

@@@

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Vol. 1 No. 2 March 6, 1970

STATE O.E.A. CONFERENCE

Eastern New Mexico University
Portales, New Mexico

The State Office Education Association Conference will be held at Eastern New Mexico University, Portales, New Mexico; March 19 and 20.

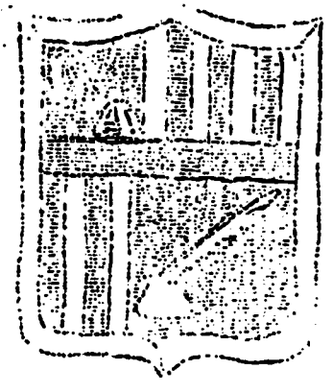
OEA is a cocurricular activity and an integral part of the education program designed for "Developing Vocational Competence in the Office Occupations." The organization's activities provide for leadership development and citizenship training, as well as an increased knowledge of the office and its future.

Participation in OEA is encouraged for both secondary and post-secondary students enrolled in office education programs. Various activities take place at the local, state and national level.

The prime purposes of OEA are these:

1. Develop student leadership.
2. Improve poise, sociability, attitude and tact.
3. Develop vocational competence in office education.
4. Promote better understanding at local, state and national levels.
5. Promote student ambition for useful purposes.
6. Learn to plan effectively.
7. Develop an enthusiasm for learning and for remaining knowledgeable in the office field.
8. Develop confidence and a spirit of competition.
9. Learn to get along with others.
10. Develop loyalty through esprit de corps.
11. Understand and promote business.

The OEA emblem has profound and significant meaning. The four points of the shield stand for Ambition, Leadership, Sociability and Poise. The shield itself stands for the honor and dignity of the office profession. The quill and inkwell represent the stability of the office through the ages. (continued page)
Cont. p 7



EDITORIAL

I've noticed class spirit hasn't been exactly what it should be.

Flu has overcome a few of the members of our class. Even though we have had sickness and classes are in an upheaval with everyone on different stations, we still need to keep our spirits up.

We have been taught to hold our heads high and smile on the job. That also pertains to our attitude in class.

When we are given an assignment in any of our subjects, several moans and groans can be heard. On the job, we aren't supposed to do it and probably won't; so why do it here when we are in training?

Smile girls! It won't hurt one bit.

TOTAL ECLIPSE--MARCH

Eclipse of the sun in the United States on March 7, 1970. In early days people believed a "monster" devoured the sun, which is of course the moon. In its pathway across the sky, the moon occasionally moves in front of the sun and obscures its light. In doing so it displays the effect of an extraordinary coincidence. The sun is just 400 times as wide as the moon, and is also 400 times as distant from us as the moon. The result is that size and distance cancel each other, and both bodies appear to be almost exactly the same size in our sky.

Mary Quick

Courage is not the absence of fear--it is the mastery of it.

Before television no one knew what a headache looked like.

DID YOU KNOW---

Sir Winston Churchill won the Nobel Prize (1953) for Literature. Mastery of historical description.

The Peking Gazette is the oldest printed daily newspaper in the world. Its first publication was about 1350 A. D. It is still published.

Atomic eight is 16, and its symbol is O.

The Great Pyramid is the largest structure ever built. It is a mathematical curiousity. Its base lacks but six-tenths of an inch being a perfect square, and but twelve seconds of a degree of being a perfect rectangle, and that the ratio of the height and the sum of the four sides is equal to the ratio of the radius of a circle and the circumference.

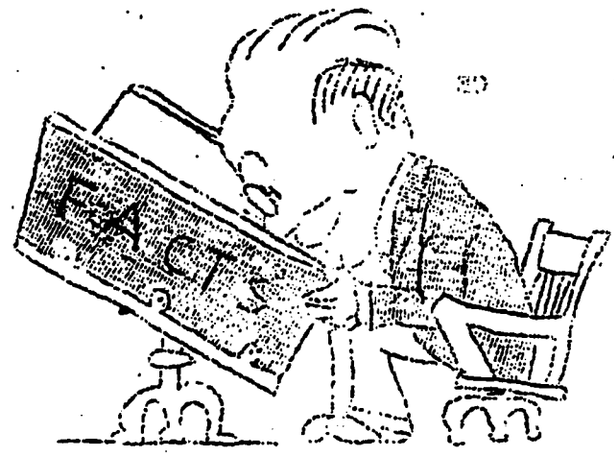
Floella Cook

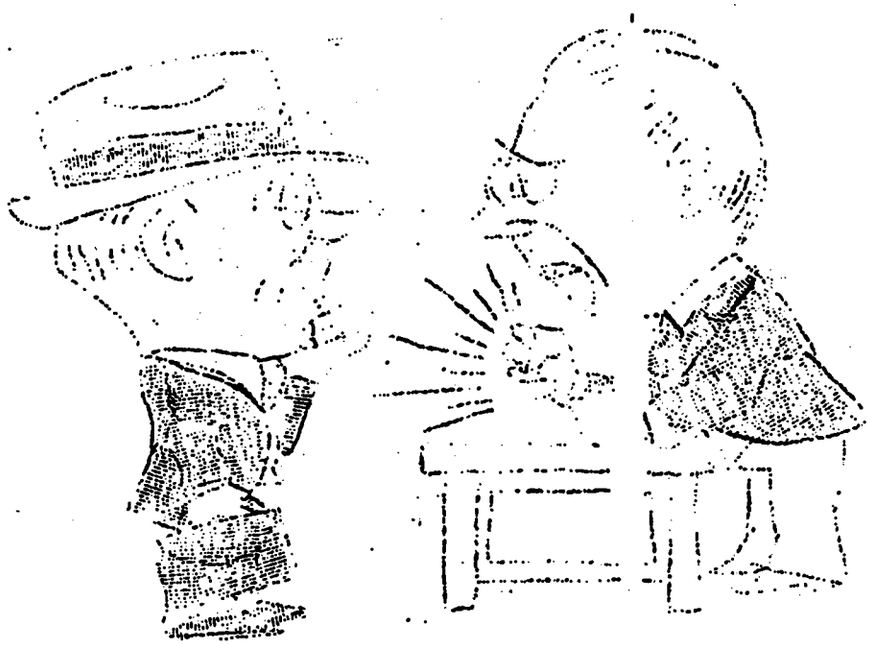
PLAY SAFE--The Scots chemistry professor was demonstrating the properties of various acids. "Watch carefully," he said, "I'm going to drop a half dollar into the acid. Will it dissolve?"

"No, sir," spoke one student promptly.

"Correct, and why not?"

"Because," came the reply, "if it would, you wouldn't drop it in."





MR. MALONE'S SPEECH

Mr. Malone, a counselor at New Mexico Junior College, spoke to our class this month on the subject of the different types of "Personality Tests" and their purpose.

He explained that the tests would be a matter of choice, and one could be taken by going to Mr. Malone's office.

His speech was humorous, as well as enlightening. He touched on the topic of "Why people blow off steam--then take it out on others."

Another point he mentioned in his talk was, if a person has a mental problem, the test could detect it. Then if the person desired, he could be helped.

I believe all the class enjoyed his talk, and benefited from it. Maybe he will speak to us again soon.

Bennie Buckner

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It takes more than a shoeshine to give a man polish.

TH

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SAY IT WELL:

SPEAK RIGHT UP!

Today good speech is essential for success in business. Unfortunately, few of us know how well, or how poorly, we do speak. Good speech is an art that must be learned. How well we speak is largely a matter of individual effort. First, we must become aware of just how poorly we speak. We may think we speak beautifully, but we could be fooling ourselves. So find out the truth and face it frankly.

Just as important as enunciation is the way we project our voice. Whispery voices, nasal twangs, and monotonous tones are the result of improper use of the diaphragm, tongue, and lips.

Here are a few tips on how to avoid these speech errors:

Stand eight inches from the corner of a room and speak in your normal voice. We now know how we sound to others in the room.

Cup our hands behind our ears and speak. That's the way we sound to someone who is standing next to us.

Are we now ready to give our enunciation a working out? One of the best ways to groom our speech is by reading aloud. Read these phrases, slowly and distinctly at first: Then speed them up as much as possible without letting our tongue become twisted:

(continued page 7)

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You can say a lot more with a nod of approval than with a lot of words.

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HORN TOOTS AND STATUS

The next time you are trying to enter a busy thruway from a side street and someone honks his horn behind you to get you going, don't get mad. He could be telling you something about the "status" of your car.

Two psychologists have discovered that being honked at or not being honked at in this situation is significantly related to the kind of car you are driving.

The psychologists conducted 86 tests at six intersections in Palo Alto and Menlo Park, California, during a quiet Sunday. The tests were equally divided between a rusty 1954 station wagon and a new washed and polished black hardtop. Specifically, drivers caught behind a nonmoving car at a green light will honk more quickly and more often at an ordinary car than at a luxury model.

In 84 per cent of the low-status trials the subjects of the experiment honked at least once, whereas in the high-status trials, only 50 percent of them honked. One honk, of course, could be a polite way of calling attention to the green light. But 47 per cent of the test subjects honked twice at the old car, while only 19 per cent honked twice at the new car.

Tired of being honked at? Your neighborhood friendly luxury car dealer will be happy to make an offer for your clunker.

Ouida Williams

CONFUSED BY THE PROFIT SYSTEM?

READ THIS!

It is sometimes difficult for wage earners to appreciate fully the profit system.

Maybe the following story, first published by the Washington Evening Star, will clarify the profit picture--or confuse it further.

It seems that a man bought a super-duper $10,000 car for his girlfriend, giving the auto dealer a check for that amount.

The auto dealer endorsed the check over to a yacht company for a boat he wanted and which cost $10,000.

The yacht dealer endorsed the check over to a furrier for a $10,000 fur coat for his wife.

The furrier decided he would endorse the check over to an appliance company to install an elaborate new kitchen in his home.

And so it went--to the point that nine men endorsed the check before the tenth decided to cash it.

The tenth discovered that it was a cold check. But did they all ten lose? Not at all. They got together and made the best they could of the deal.

Since each had made a $2,500 profit on his particular transaction, each kicked in $1,000 to put into the bank and make the check good.

Each wound up, even after spending $1,000, with $1,500 in clear profit and their girl friends, wives, etc. still had the sports cars, fur coats, fine kitchens, etc., that they started out to buy in the first place.

For some reason--that never seems to work out with pay checks!

Nancy Newton

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At a professor's housewarming, it was apparent to all of us that his luxurious new house, located in an exclusive neighborhood, was in the higher price bracket. In fact, one of the guests wondered out loud just how a university professor could afford such a layout.

"You will observe," explained the professor, "that this house is built on a prominent bluff--and it is being paid for the same way."

High Rise In Fashions

The change in fashions for women have never been so varied in type, style and season. The change includes mini-skirts, maxi-coats, and midi lengths. Where could you see such a variety of fashion differences, the answer would be in the larger cities of the United States.

The question is will these styles ever reach towns such as Hobbs Eunice and Lovington? At the moment there are only a few of these styles on the campus of NMJC. Everyone who sees these styles usually has their own opinion of what they think. Let's just face it Lea County is not quite ready to become the big fashion center of the country

The truth of the matter is, wear what you feel comfortable in at the proper time and usually you will come out ahead. Who wants to see a mini-skirt at a big formal dress ball, a maxi skirt in an office, and a midi length when you go for a job interview? The look of today is wear what you wish at the appropriate time and you will always be in style.

♣ Paulinda Arnold

OEA (continued from page 1)

The stripes represent direction and the letters OEA stand for the name of the organization.

OEA competitive events are held at local, state and national levels. Through a process of elimination, the top students in the country are declared national winners to climax the year's activities.

In 1968, Carol Walker, our New Mexico Junior College representative, won third place in Typewriting at the National Competition held in Kansas City, Missouri. A number of fine trophies from OEA competition are displayed in the Vocational Administration Building.

Three New Mexico Junior College Business Instructors will be judging part of the competitive events of the conference. They are: Mrs. Olive Church, Miss Carolyn Lee and Mr. Oscar Poston.

Students are signing up for these events this month.

CE

Sneak (continued from page 2)

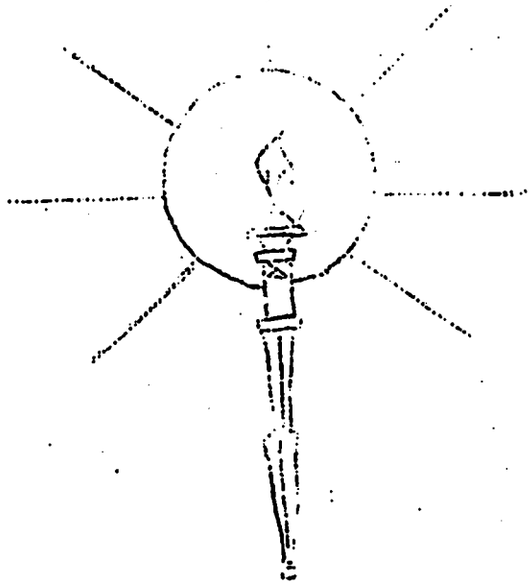
Some shun sunshine.
Thirty-six thick silk threads,
A school coal scuttle.
Shingles and single; shave a
single shingle thin.
She sews she shall sew a seat.

Roll our tongues over these:

Frank threw Fred three free throws.
Old oily Ollie oils old oily autos.
She bought a black lace brush.
Hen shops stock chops.

That is all for now. Good luck

Tekla Hinkle



PATH TO LEARNING
By Edna Stacy

The path to learning is long and slow,
But one along which all must go;
For this path is before us from our first day
And leads on into a future far away.

We first find that a hand is our own;
Then later discover that we're not alone;
Someone is with us to love and care;
A warm hand, a soft bosom, is always there.

Then one day the crib is too small;
We see a world where people are tall
And make strange sounds that we don't know
'Til we too learn, though learning is slow.
The world out there awaits us now--
We must fly to it, but first learn how
To conquer the problems that seem to arise
With each step under bright, open skies.

One step higher we must climb,
Learning lessons one at a time,
And as we think victory nearly won
We find the race is only half run.

So on we move up the path,
Shedding youth as an aftermath;
Climbing on up the long hill.
Pushing on with courage and will

Until again we find a plateau
And stop to think of all we know.
We catch a breath and ponder things,
Then upward again, as tho with wings,

For the long path has no end--
It stretches on with only a bend
Around which we find still more
Unlearned treasures held in store.

The path to learning is long and slow,
One along which we all must go,
For if we look but all stand still,
How, then, can we make it up the hill?

THOUGHTS WORTH BANKING

Faith is patience with the lamp lit.

Accuracy of statement is one of the first elements of truth; inaccuracy is a near kin to falsehood.

If through all his days a man tells the truth as he sees it, keeps his word as he gives it, and works well at his task--he gets what is called a good reputation.

Opportunity seems to have an uncanny habit of favoring those who have paid the price of years of preparation.

Success consists in getting up once oftener than you fall down.

Friendship is the only cement that will ever hold the world together.

A ship in harbor is safe, but that is not what ships are built for.

A man will remain a rag-picker as long as he has only the vision of a rag-picker. Doing easy things does not tax us, neither does it challenge us. It is a good plan to tackle one hard job every day. If we do this, we will find that we have exercised our will-power, our mind, and our body to good purpose.

Betty Johnston

I BELIEVE IN TOMORROW

I believe in it because it has not yet come. And I am young, and youth always believes that tomorrow will be better than today. I believe that I will do tomorrow what I failed to do today, and be then what I have not yet been.

I trust the future. Youth is always glorious because it trusts the future. Youth will attempt the impossible, scale the mountain that is supposed to be inaccessible, and dare the thing that age will fear. We specialize in the wholly impossible, doing the thing that no one else could do.

I believe in Tomorrow because it is unspoiled. I have not, nor has anyone, yet written on it with the grimy finger o folly or selfishness of sin. No wars have been fought in Tomorrow. No man has treacherously failed a friend in Tomorrow

Tomorrow is one clean, beautiful day the day on which dreams come true, on which the impossible things will yet be done, on which I shall have the nerve and the will to be and to do that which was too much for me in the grim battle of Today.

I believe in Tomorrow.

Jane Hindman

Seeing is believing ain't necessarily so! Ten Dollars looks the same as it did 20 years ago\

Learn to live each day by itself. The worries are mostly about yesterday and tomorrow

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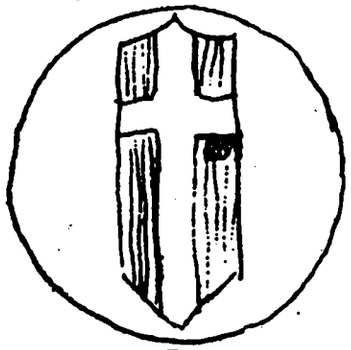
THE SHIELD OF FAITH



In God shall be my hope, my stay, my guide and lantern to my feet.

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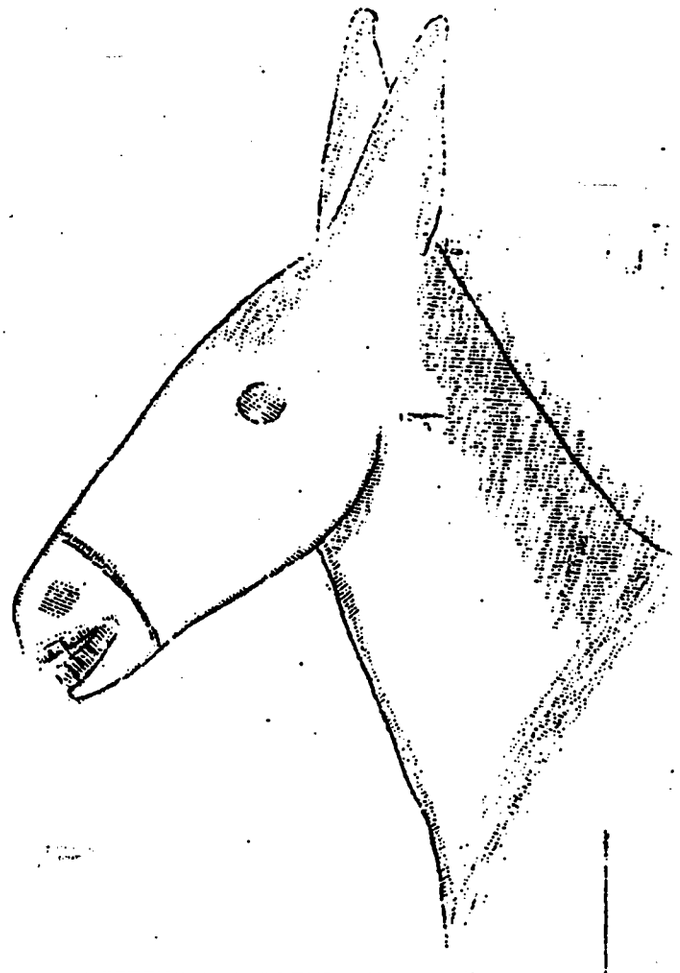
You are young at any age if you are planning for tomorrow.

SPORTS

The Intensive Secretarial Program is now complete. A class in "Physical fitness" has been installed. Every Tuesday at 1.00 P.M. the Intensive Secretarial group goes to the gymnasium to play Volleyball....And Mrs. Church brought an exercise wheel for between class "shaping up."

Betty Williams



HEE HAW

Little boy: "Lady, my brother will imitate a hen if you give him a dime."
Lady: "What will he do, lay an egg?"
Boy: "No ma'am, that's silly. He'll just eat some worms."

The woman wanted a drinking bowl for her pet dog. The clerk tried to sell her one that had inscribed on the side, "For the Dog."
"That's really not necessary," said the woman. "My husband hardly ever drinks water and the dog can't read."

GETTING HIS EXPERIENCE.--"How is your doctor-son getting on in his practice?"

Excellently--He is now occasionally able to tell a patient there is nothing wrong with him."

Dinner guest: "Professor, will you please pass the nuts?"

Preoccupied professor: "I suppose so, but I really should flunk most of them."

She threw her arms around her shy suitor and kissed him for bringing her a bouquet of flowers. He jumped up and started for the door.

"Don't go," she pleaded, I didn't mean to offend you."

"I'm not angry," he said, I'm just going for more flowers."

FALSE ALARM--The family was enjoying a special mushroom dish for dinner. Then they noticed the family cat, which had been given a taste of the mushrooms, holding its stomach and mewing piteously, writhing in pain.

The father rushed the entire family to the hospital where all had their stomachs pumped.

Shaky from the ordeal, but grateful to the cat for the warning, they returned home.

There was the cat, still under the table and huddling several new kittens.

The editors would like to thank each of you for writing an article. A special thanks to Edna Stacy and Clair Eades' son-in-law, Jack Jones, for the art work they contributed.

CHECKBOOK LANGUAGE

Do you have trouble with the symbols penciled beside an entry in your wife's checkbook? Well, to make it easier for you, I have compiled a list and their definitions for you.

DN---Didn't Mail---this is a check usually written to a department store which she intended to mail, but funds ran out. So she hid it in the lining of her purse to mail later. Instead of subtracting that amount, you add it to the balance.

HIT---Hang In There---a deposit to cover this check is in the mail.

TF---Tooth Fairy---you pay for the entire year because the Tooth Fairy fired her accountant and put her records in the hands of a computer and the computer prefers checks to loose change. Anyway, there wasn't a dime in the house.

RP---stands for Regular Price, on the next line is SP for Sale Price, and in the back of the checkbook is the balance, recorded under WYBS for Would-You-Believe-Savings.

TPTR---Too Petty To Remember---the paper boy and the parking lot, etc. Just subtract five dollars and you come out about even.

IHB---In His Billfold, IHb means In Her Billfold, too. If this confuses you just look in your billfold, if it's not there, it's in hers.

If the checkbook still does not balance just remember, she has to wrestle with the surtax, allocate money for space and defense, try to stabilize the food economy, keep the market steady while all around us currency is devaluating, and round out interest rates at eight percent. Even a financial giant can do just so much!

Shirley Patterson

HELPFUL HOUSEHOLD HINTS

I enjoy keeping house, and since I've had my apartment, I have learned quite a few things about household cleaning.

My floors are quite important to me, and I wax them at least once every two weeks. This way the wax won't build up quite so fast. If you use one kind of wax, don't change brands; use the same one all the time. You will find that putting one kind of wax on the top of another will build up more scuff marks, and also the liquids that are spilled will go into both of these waxes, and it is very hard to remove.

Remember, also, the junk you lay down, can also be picked up, and you can have a neat and orderly house.

Jackie Lewis

END BATHROOM SHOC

Do your windows and mirror fog up every time someone takes a shower or bath? You can put an end to this problem by running the cold water first, and then turning on the hot water until it reaches the temperature you desire. If someone forgets this trick, you can get rid of the steam by running the cold water for a few minutes.

TOOL TOTE

Here is a handy aid for busy housekeepers. Attach a few cup hooks to a wooden coat hanger and on these hang dust cloths, brushes, a chamois--the daily cleaning tools. Hang this tote on the back of the door of the room in which you are working. You'll save many steps.

Brenda Kirby

Advice is like snow, the softer it falls, the longer it remains, and the deeper it sinks into the mind.

TL

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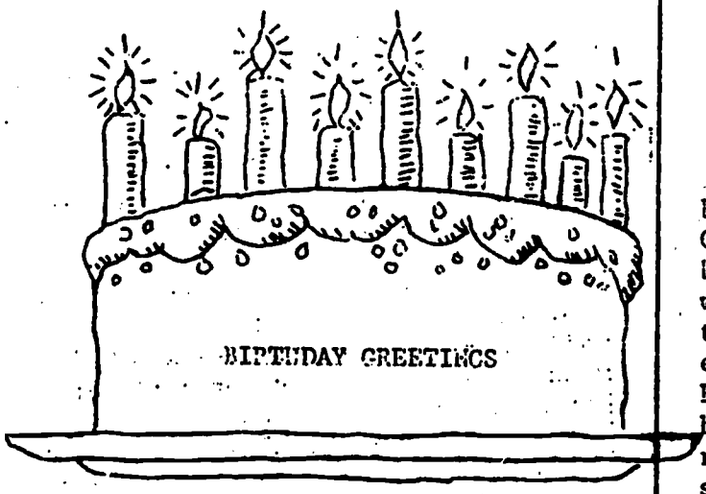


Make-Up, with the use of moisturizers.

The twice or ritual--cleansing plays only a partial role in preparing your face each day. Moisturizers are equally important to give that sparklingly fresh look to your face, it also makes your make-up look smooth and dewy. After all, the person with dry skin is apt to age faster and show telltale wrinkles at an earlier age. Used nightly and even under make-up eye-cream helps slow down the wrinkles around the eyes; with a small dab of eye-cream on your 'pinkies' start at the inner corner of your eye-lids and in a circular motion, smooth eye-cream to those dry areas. As the eyes show wrinkles first so does your neck, a good moisturizer will help here too. Let me stress the importance of moisturizers. You'll never experience dry skin again if you use these religiously!

A word for sun-tanning, imagine an orange out in the sun, after a couple of hours notice how it starts to wrinkle and dry out, this is just what the sun does to your skin without adquate suntan lotion or oil. Gradually building up your sunning time and with the precaution of suntan lotions a prettier and much longer-lasting tan develops.

Zanita Gough

Three of our classmates celebrated their birthdays last month. On February 10, Edna Stacy celebrated her birthday by buying a piglet. She said she needed it the most. Jo Ellen Teel celebrated her birthday on Valentines day, February 14. Robbie Wingle's birthday was on the 25th of February. She was hoping that her son would hurry up and get well.

There were also two great men in our history who were born in February. George Washington was born on the 22nd and Abraham Lincoln was born on the 12th. These are the only two presidents whose birthdays are declared as holidays.

Sherry Wade

****

It's the running expenses that keeps the father out of breath!

T.

****

****

To be a friend a man should close his eyes to the faults of others and open them to his own.

NEW MEXICO JUNIOR COLLEGE

LOVINGTON HIGHWAY
HOBBS, NEW MEXICO 88240

Office of the President

January 23, 1970

Mrs. Olive Church, Instructor
Intensive Secretarial Program
New Mexico Junior College
Faculty Exchange

Dear Mrs. Church:

It was a pleasure to have the opportunity to be a part of the Intensive Secretarial Program's Workshop held this week. Certainly from all I could observe it was well organized and went off quite smoothly. Any time the outward appearance of an activity seems to be opperating smoothly one only has to look behind the scenes to find the tremendous amount of planning, follow-up and supervision that has made it possible.

I would appreciate it if you would extend to the ladies of your program my appreciation and thanks for being included in their workshop.

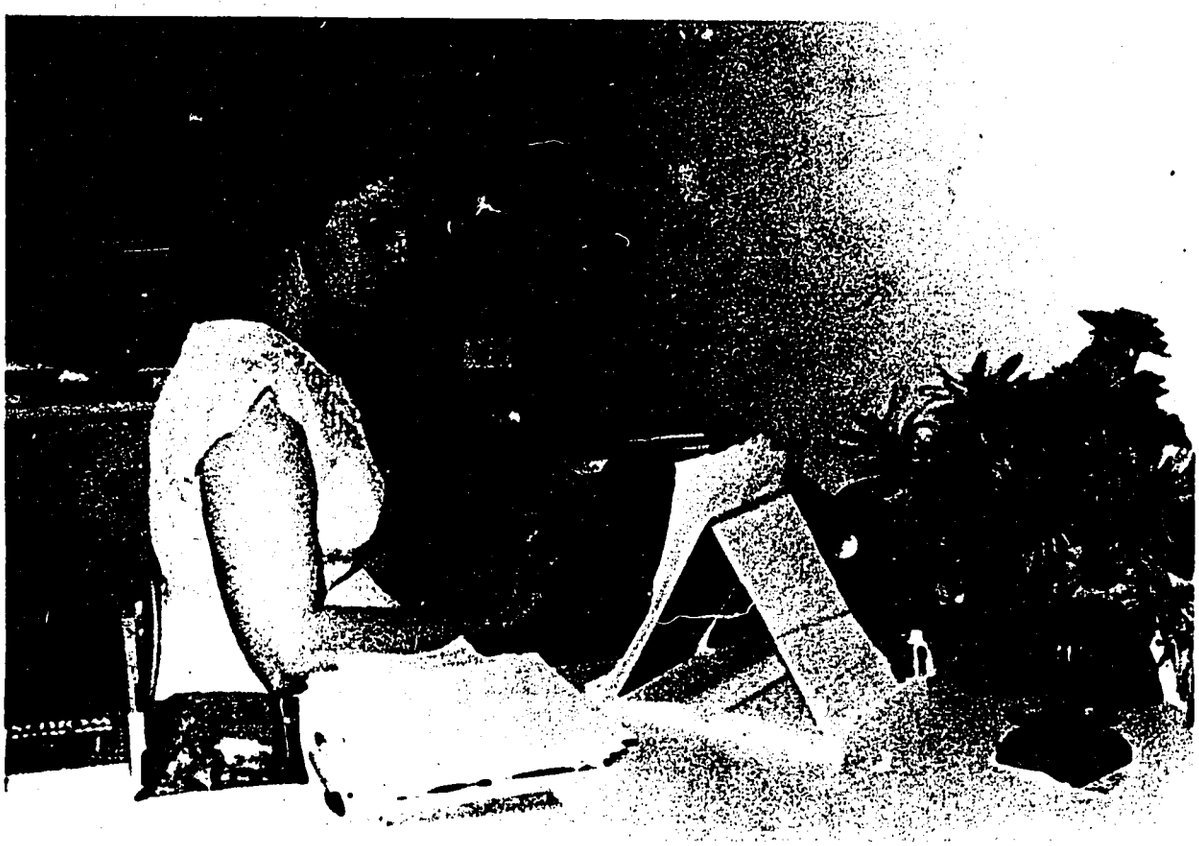
Cordially,

Jodie C. Smith
President

JCS:cf

STENOWRITE - NMJC SOE - DIVISION II

Stenos



NMJC STENOWRITE - 4 division offices
each with 1 office manager, 1 book-
keeper, 2 stenos, 1 clerk-typist

STENOWRITE
- 1970 -
NEW MEXICO JUNIOR COLLEGE SIMULATION

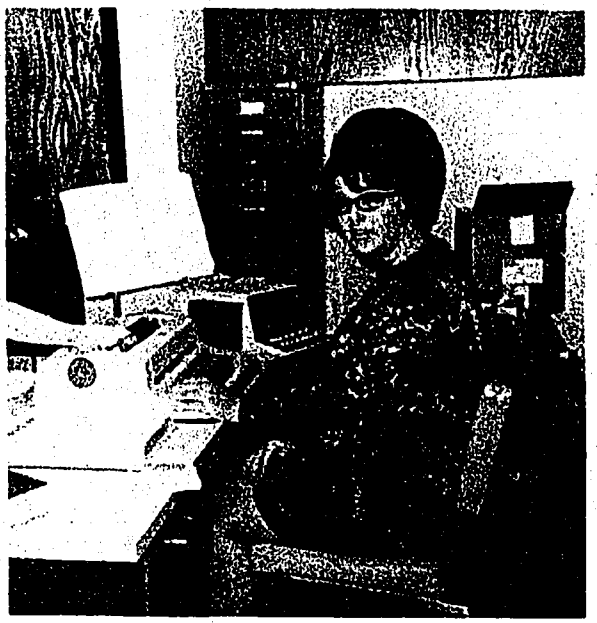
5216

CENTRAL OFFICE RECEPTIONIST
Jackie Lewis (foreground)

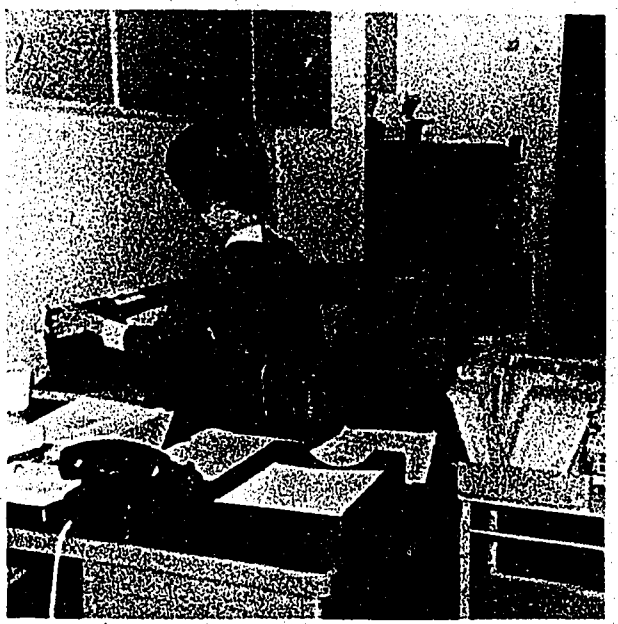
STENOWRITE = NMJC SOE - 1970
Division I (background) Office
manager seated at desk

STENOCALL - Lubbock, Texas
The Company chosen by NMJC to simulate
in our experimental classroom SOE plan

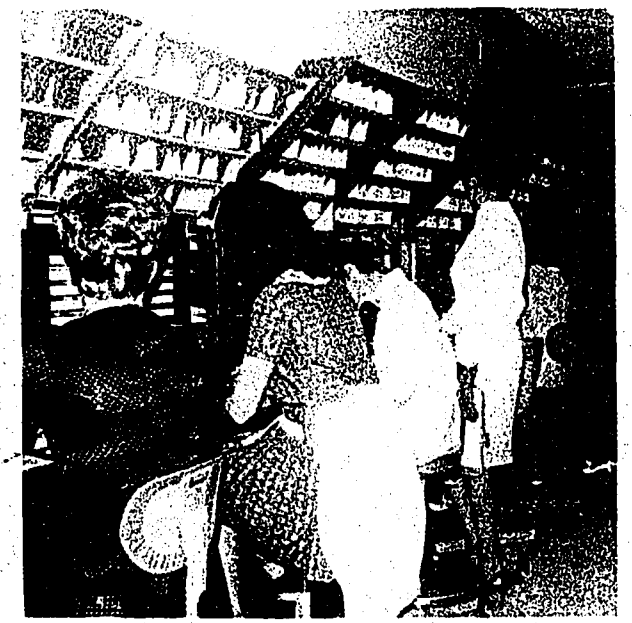
STENOCALL - Lubbock, Texas
Receptionist



STENOCALL - Steno



STENOCALL - Bookkeeper



STENOCALL - "Communications"
Telephone Answering Service

4. Continued and stronger emphasis be placed on program planning and curricula development, in terms of higher standards and expected quality of output, by both State vocational-technical and local educational authorities for all levels of training.

5. That continued effort be made in the administration of the vocational education program to plan comprehensive programs beginning with: (1) occupational orientation to be completed just prior to the time that students enter an occupational training program; (2) a comprehensive high school vocational education program; and (3) a comprehensive post secondary vocational and technical program, in order that the total needs of vocational education may be met.

6. That emphasis be placed on training and recruitment of qualified guidance counselors to more effectively operate the occupational orientation program and reduce the guidance counselor-student ratio to one to 250.

7. Continued emphasis be placed on maintaining a close working relationship between State Department personnel who are concerned with the disadvantaged groups in developing effective teacher training programs (both pre-service and in-service) to better serve these groups.

8. The ancillary agencies and organizations and vocational education continue their cooperative relationship; and that efforts be made to expand and improve the services provided to the mutual advantage of all parties.

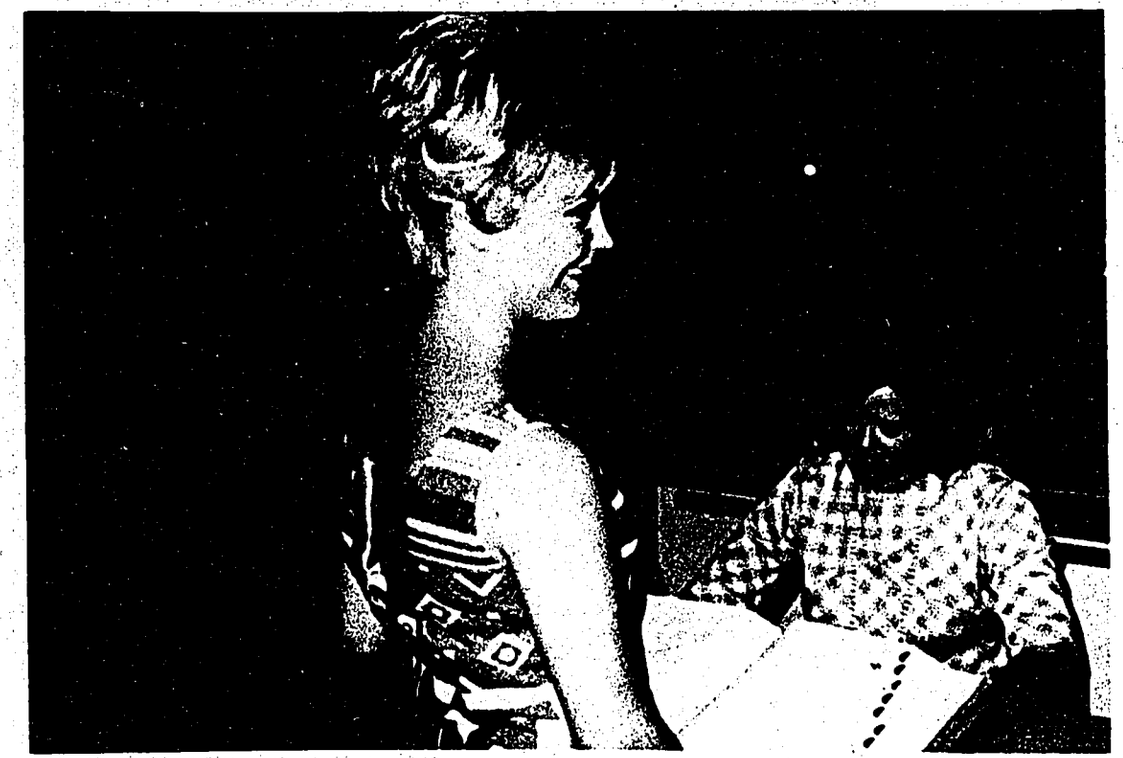
9. Efforts be continued to improve the image of vocational education by the State Board and its staff, State Advisory Council and its staff, and school administrators.

10. If funds become available under Part C of the Amendments, that emphasis be placed on conducting research on problems in vocational education through experimental and pilot projects.

11. Because of increased cost of providing quality education, State funds be used to supplement any school system that would lose Federal funds due to the new allocation formula.

NMJC PRE-SIMULATION
Orientation, Practice &
Individual Projects

2-Hour Block
18 Weeks
1 Semester



STENOWRITE - NMJC SOE - Pre-Sim
Students at work on individual Projects

STENOWRITE - NMJC SOE - Pre-Sim
Individual Projects: Machine transcription, Itinerary, dictation (Machine)

GOAL I. EVALUATION SHOULD FOCUS ON THE STATE GOALS AND PRIORITIES SET FORTH IN THE STATE PLAN

STENOWRITE - NMJC SOE - CENTRAL OFFICE
"Employees" getting out a Printing Job

STENOWRITE - NMJC SOE - CENTRAL OFFICE
Work Table: "Employees" duplicating forms

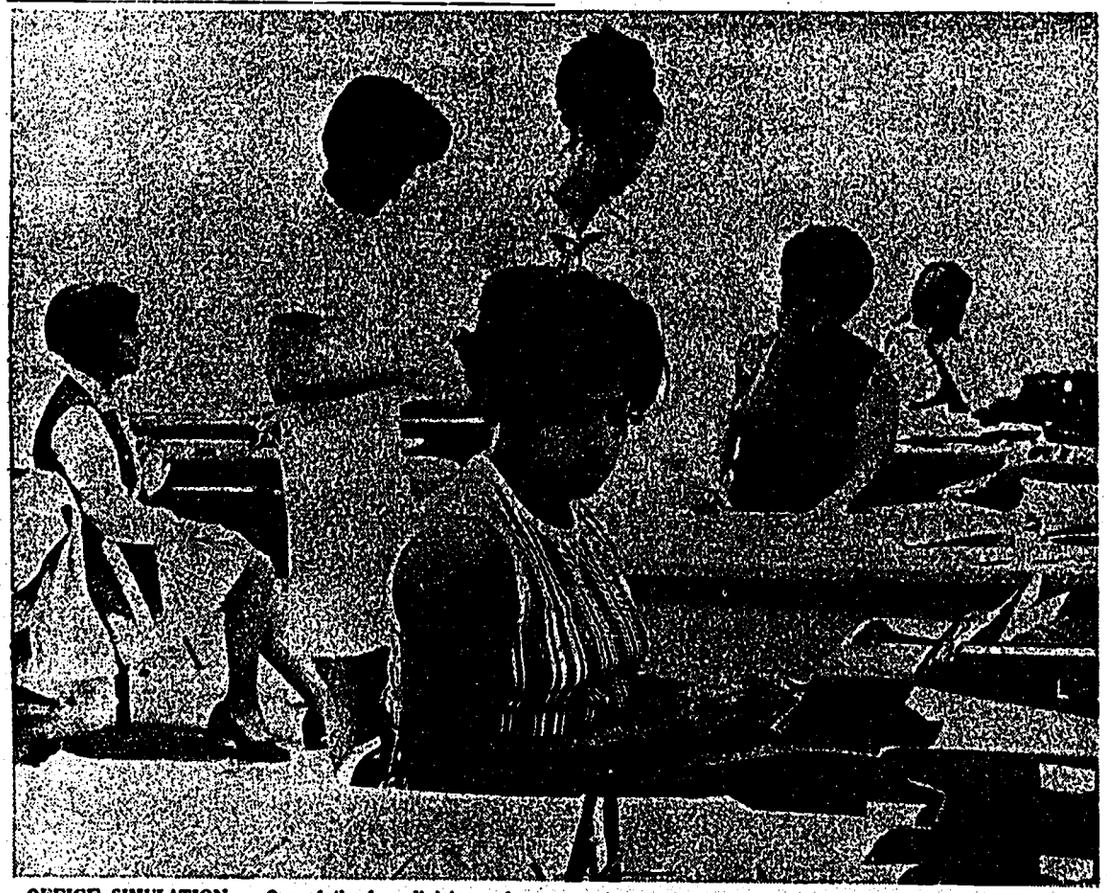
GOAL I. EVALUATION SHOULD FOCUS ON THE STATE GOALS AND PRIORITIES SET FORTH IN THE STATE PLAN

I. A. ITEM: Were the priorities and objectives set forth in the annual and long-range program plans valid in terms of the vocational education needs of all youth and adults and the manpower requirements and job opportunities in the State?

B. FINDINGS AND CONCLUSIONS

The priorities and objectives set forth in the annual and long-range program plans were valid in terms of the vocational education needs of all youth and adults and the manpower requirements and job opportunities in Mississippi. It is an indisputable fact that vocational and technical education cannot, even within the next few years, meet the total vocational needs of all youth and adults and labor demands of the labor market for the State. As determined from the most recent reliable data available, the total employment in the State in round figures was 698,000 persons out of an estimated population of 2,460,993. The projected labor demand for FY70 was 41,000. Of this number the projected vocational education output was 13,000, or approximately one-third of the total projected demand. Specific reasons for vocational education's inability to meet a greater percentage of the labor supply are: (1) insufficient funds, (2) lack of training facilities, and (3) insufficient numbers of trained staff and instructor personnel.

To focus more specifically that the stated objectives and priorities are valid a study made by the Mississippi Employment Security Commission for FY70 indicates a very high rate of youth unemployment in 15 of the counties that have been officially designated as depressed areas. Young people who have dropped out of school without occupational skills are finding it difficult to secure employment. The acuteness and seriousness



OFFICE SIMULATION — One of the four divisions of an Intensive Secretarial simulated office experiment in progress at NMJC is headed by Jackie Lewis, foreground, secretary to Mrs. Olive V. Church, the instructor conducting the experiment. Performing secretarial services in this division are, left to right, Floella Cook, Ouida Williams, Robbie Wiygle, Betty Johnston and Jane Hindman.

—NMJC Photo

NMJC Class Simulates Model Office

The Intensive Secretarial class at New Mexico Junior College will adopt a new model office plan this week in Vocational A Building. Their simulated "company" is named Stenowrite Secretarial Services. It has four division offices, each with its own office manager, bookkeeper, two stenos and a clerk-typist. The vice-president in charges of sales is the instructor, Mrs. Olive V. Church whose office is next door where she can be reached by telephone.

Mrs. Jackie Lewis, central office receptionist and secretary to Mrs. Church, conducts tours through the company offices during the 8 to 5 working day.

Each Stenowrite office is striving to produce the most "profit" which is realized from income after expenses, based on charges made for secretarial services performed by the "employes." Each employe makes out an invoice to the customer for whom she has typed materials, taken dictation, run printing jobs or performed other clerical activities and keeps a record of her total mailable lines produced, which is posted daily by the bookkeeper. At the end of the competition she will receive, in addition to her guaranteed "salary check," a bonus check based on her contribution to her division. Mrs. Church will treat the winning division to a luncheon at Furr's Cafeteria.

The office manager of each division has full supervisory responsibility over her employes, makes decisions within her division as to coffee-breaks, work-load, equipment-use and makes suggestions to management for improving production, forms and procedures or office morale.

Operation of the simulated office is modeled after the secretarial services department of the Stenocall Co. in Lubbock, Tex. Mrs. Church observed its operation and was given permission to initiate similar procedures and forms at NMJC. She visited May 8 before the tornado damaged the Great Plains Building, where Stenocall was located.

Mrs. Church observed Stenocall with Texas Tech Professor Dr. William R. Pasewark and Assistant Professor Dolores Kilchenstein who will team-teach a graduate course this summer in Office Simulation.

The model office at NMJC is an experiment in a research project Mrs. Church has been conducting for the past year on Simulation in Office Education. New Mexico Junior College received funds from the New Mexico State Department of Education to develop materials and methods. The NMJC experiment is a composite of Mrs. Church's research, including materials and plans from the State of Indiana, Utah State University at Logan, the Mountlake Terrace school system in Washington state, the University of Kentucky, and Texas Tech, plus numerous innovations of her own. She will attend a workshop in Logan, Utah June 22-29 on Office Simulation at Utah State University.

of the problems of persistent high unemployment in the other 59 depressed counties, out of a total of 82 counties, and high dropout rate, are brought into sharp focus by referring to Appendices A and B.

To meet the challenge that the above situation presents, there have been 21 post secondary vocational-technical complexes (two others are under construction) constructed and equipped during the period from FY65 to FY70. These complexes are located in such a manner that practically every person in the State who wants, and is in need of vocational-technical training, is within reasonable commuting distance.

The situation for training students at the secondary level is not as advanced as for post secondary training because of the greater number of students, greater number of secondary schools, and the greater total cost. However, definite measurable progress has been and is being made. For example, there are at the present 11 completed secondary vocational complexes in operation and 18 others are in various stages of construction. During the years 1972-1975, provided funds are available, the goal is to construct 27 additional secondary area vocational complexes. Of the secondary area vocational schools planned and presently in operation, at least 21 will be located in officially designated depressed counties of the State.

The inventory cost of secondary and post secondary buildings completed and equipped is approximately $50,000,000.

The counties with the greatest population density have now, or will have by 1975, comprehensive vocational education programs at both the secondary and post secondary levels. Because there are many relatively small secondary schools in Mississippi, it is not practical to have a comprehensive program in each secondary school. To overcome this problem two or more secondary schools cooperate in the construction and operation of a comprehensive area vocational complex. These area complexes are being

S T E N O W R I T E SECRETARIAL
SERVICES

planned and construction started as rapidly as funds will permit. The need for providing a comprehensive vocational education program for the entire State by 1975 will not be met entirely; however, by then the large majority of the elementary, secondary, post secondary and adult population, including the disadvantaged and the handicapped, of the State will have ready access to excellent vocational and technical training of the kind and scope to meet their needs for entering the labor market, or to upgrade themselves to higher levels of employment.

C. RECOMMENDATIONS

Careful scrutiny should be given to providing programs with the view of increasing the output of trained personnel to meet employment demands in all the critical areas. In view of vocational education output being approximately one-third of the total demand, a careful study should be made with respect to full enrollment in all of the areas of training. In existing classes with a limited enrollment, a strong effort should be exercised to recruit students.

2. A. ITEM: Were the objectives and program emphases listed in the State Plan proper and adequate with respect to the priorities and intent of the Vocational Education Amendments of 1968?

B. FINDINGS AND CONCLUSIONS

According to all information that was available at the time the State Plan was written the program emphases were proper and adequate. The funds available naturally influenced the extent to which program emphases could be carried out. In selecting the emphases or priorities as shown in the State Plan, educational and occupational areas with the greatest need were given the greatest attention.

C. RECOMMENDATIONS

It is recommended that frequent reviews of program accomplishments be made to determine if the emphases and priorities in the State Plan are being met, particulary for the disadvantaged and handicapped.

STENOWRITE - NMJC SOE - Pre-Simulation
Office Manager & Time Clerk
Distribution of work load ---- Personnel Hours

STENOWRITE - NMJC SOE - Pre-Simulation
Supervisors checking work turned in by their
Department "employees."

3. A. ITEM: To what extent were the program objectives met? Why did this level of achievement occur? How efficiently were these accomplishments made?

B. FINDINGS AND CONCLUSIONS

Overall the program objectives set forth in the State Plan were met. In some instances the objectives were exceeded and others under those projected.

For secondary students the objectives called for 1,702 instructional programs for FY70. Most recent records available show that 1,759 instructional programs operated for secondary students during the year - this being 57 more programs than were planned. Ninety-six percent of the students who completed their training and who were available were placed in occupations, or closely related occupations, for which they were trained.

For post secondary students the planned objectives called for 288 programs but only 264 programs were operated. Even though the goal for the numbers of programs in this area was not reached the planning was reasonable and challenging. One very strong point was that 97.4 percent of the students who completed their training and who were available were placed in occupations, or closely related occupations, for which they were trained.

As an example of a successful post secondary program one class of disadvantaged students in a welding course is cited. Upon completion of the course two major industries competed for the employment of the entire class. Fifteen of the 16 were offered employment by one of the industries at a wage of more than $3.00 per hour; however, because of the distance from home only nine accepted.

As remarkable as the situation appears one cannot say that "vocational education has arrived." Proof of this is the fact that only 23 percent of secondary students are enrolled in vocational education in

STENOWRITE - NMJC SOE - Pre-Simulation
Six Hours of actual practice as receptionist
in College Offices - "Communications"

STENOWRITE - NMJC SOE - Pre-Simulation
Three Hours of observation and Practice on
College Switchboard - "Communications" Unit

the State. Of those enrolled in vocational education only 44 percent pursue further vocational and technical training at the post secondary level.

Planning specific programs for adults is rather difficult. This is particularly true where large industries like Ingalls Shipyard in Pascagoula is involved. The goal set was for 1,825 programs to be operated but only 1,618 programs operated. Inability to reach the goal was caused by two factors: (1) the long delay (about nine months) of Federal funds reaching the State which forced the Vocational Division to notify schools not to commence any more adult classes, and (2) difficulty in forecasting exact programs needed and desired by adults.

For disadvantaged persons a goal of 311 programs was set. A shortage of 86 programs was caused by a lack of funds, shortage of teachers with specific training to work with disadvantaged people, and specific needs as they were actually found to exist in Mississippi. It will require considerable time and effort to meet the needs of these disadvantaged people. It will be necessary to hold training seminars and workshops, and give classroom supervision, to train people from the disadvantaged group to teach certain programs for disadvantaged people. This is especially true in the field of consumer and homemaking education.

Planning, designing, and conducting vocational programs to meet the needs of handicapped people was an entirely new experience for Mississippi vocational educators. There were 41 programs for the handicapped planned, but it was only feasible to conduct 32 programs. The reason for not reaching the goal was due largely to a time element, lack of experience, lack of trained teachers, and adequate facilities. This problem was met in part by cooperative agreements between vocational education, vocational rehabilitation, and special education. By following this procedure vocational education was able to reach the needs of the handicapped to a greater extent.

VT 016 404

EVALUATION REPORT ON VOCATIONAL EDUCATION FOR FISCAL YEAR 1970. STATE OF MISSISSIPPI.

MISSISSIPPI STATE ADVISORY COUNCIL ON VOCATIONAL EDUCATION, JACKSON.

MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 71 65P.

DESCRIPTORS - ANNUAL REPORTS; *VOCATIONAL EDUCATION; *PROGRAM EVALUATION; *STATE PROGRAMS; *EDUCATIONAL NEEDS; FINANCIAL NEEDS; EDUCATIONAL OBJECTIVES; *PROGRAM EFFECTIVENESS; DISADVANTAGED GROUPS; DROPOUTS; VOCATIONAL RETRAINING; AREA VOCATIONAL SCHOOLS; DEPRESSED AREAS (GEOGRAPHIC).
IDENTIFIERS - *MISSISSIPPI

ABSTRACT - THIS FIRST ANNUAL EVALUATION REPORT OF THE MISSISSIPPI STATE ADVISORY COUNCIL APPRAISES PROGRESS TOWARD OBJECTIVES AND IDENTIFIES WEAKNESSES IN THE STATE'S VOCATIONAL EDUCATION PROGRAM FOR FISCAL YEAR 1970. SPECIAL EMPHASIS IN THE PROGRAM WAS PLACED ON TRAINING THE DISADVANTAGED, HANDICAPPED, UNEMPLOYED, AND UNDEREMPLOYED AND ON HELPING SCHOOL DROPOUTS AND POTENTIAL DROPOUTS. THERE WAS A STRONG MOVE TO PROVIDE AREA VOCATIONAL SCHOOLS IN ALL PARTS OF THE STATE, PARTICULARLY IN DEPRESSED COUNTIES, ON BOTH THE SECONDARY AND POST-SECONDARY LEVELS. A PRINCIPLE WEAKNESS IN THE PROGRAM WAS THE LACK OF SUFFICIENT FUNDS FOR ADEQUATE FACILITIES, EQUIPMENT, AND INSTRUCTIONAL PERSONNEL. ALSO NEEDED WERE MORE VALID AND RELIABLE DATA TO FACILITATE PLANNING AND IMPLEMENTATION OF NEW PROGRAMS. IT WAS FELT THAT THIS EVALUATION WAS USEFUL AND THAT A CONTINUOUS SYSTEMATIC EVALUATION SHOULD BE CONDUCTED TO INSURE THE MOST EFFECTIVE PROGRAM.

A new program initiated was that of occupational orientation or group guidance for secondary students. There were 250 programs planned; however, because of a lack of trained teachers only 196 programs operated. Even though the goal fell short it is felt that the occupational orientation program had a good beginning and is adding tremendously to the overall vocational education program in the State. More teachers are being trained to teach occupational orientation, and it is expected that this program will expand rapidly in numbers and quality of instruction.

C. RECOMMENDATIONS

In view of the fact that physical plant facilities and other instructional facilities for the first half of the decade of the 70's will be for the most part at the secondary level, greater emphasis should be focused jointly by State vocational-technical and local educational authorities on program planning and curricula development. This joint planning should result in providing basic training in occupational clusters with the purpose of serving not only as occupational orientation for secondary students in a variety of training objectives, but also to give an insight for the need of advance job training. Secondary complexes for the most part should serve as "feeders" for training students in specific training objectives at the vocational technical centers, thus obviating the problem of recruitment that exists in some of the vocational technical centers.

4. A. ITEM: What major changes in direction or emphasis should be made in next year's State annual and long-range program plans?

B. FINDINGS AND CONCLUSIONS

In view of the experience gained in preparing the 1970 Plan and the results achieved, it is not felt that any major changes in direction or emphasis should be made. However, the conviction is that the plan

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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STATE OF MISSISSIPPI

MISSISSIPPI'S STATE ADVISORY COUNCIL'S EVALUATION REPORT ON VOCATIONAL EDUCATION FOR FISCAL YEAR 1970

VT016404

prepared in 1971 is much better than the one prepared in 1970 in that it is more factual and more realistic. The experience gained in the preparation of projections prior to 1970 was of great value in preparing the 1970 Plan; however, with one year's experience, and with new factual information, there is no question that the 1971 Plan is a great improvement over that of the one prepared for 1970. This is particularly true in Parts II and III. These sections are completely different from the information presented in 1970. The only major difference in Section I of the 1971 Plan is the method of allocation of funds to schools.

C. RECOMMENDATIONS

In-as-much as training the disadvantaged cuts across the secondary and post secondary services, it is recommended that the three service Assistant Directors and their staff members who are concerned with the disadvantaged groups, and the Coordinator of Research, Curricula, and Teacher Training maintain at all times a very close working relationship. Further, it is recommended that well-planned teacher training programs and in-service training of teachers on the job be conducted on a continuing basis.

5. A. ITEM: What specific actions are being taken by the State Board and its staff to improve the effectiveness and efficiency of its overall program planning and evaluation activities, particularly with respect to the State Board's management responsibilities relating to State Plan operation? Are these actions adequate? Should these actions be redirected or reordered in any way?

B. FINDINGS AND CONCLUSIONS

The work and exercise that went into the preparation of the State Plan focused the attention of the State Director and key staff personnel in the Vocational Education Division on the necessity of a thorough reorganization of the staff and their functions in order to more effectively

State of Mississippi

MISSISSIPPI STATE ADVISORY COUNCIL ON VOCATIONAL EDUCATION

R. D. Morrow, Sr., Chairman
Brandon, Miss. 39042

James L. Easom, Sr., Executive Secretary
Eloise Farned, Asst. Executive Secretary
P. O. Box 771
Jackson, Mississippi 39205

Harold T. White, Vice Chairman
Booneville, Miss. 38829

June 16, 1971

TO : Persons Addressed

FROM : James L. Easom, Sr., Executive Secretary, State Advisory Council on Vocational Education J. L. E.

SUBJECT: First Annual (1970) Evaluation Report of the Mississippi State Advisory Council on Vocational Education

The supply and distribution of the above referenced report was limited at its completion in September 1970. Since then the suggestion was made by the Executive Director of the National Advisory Council on Vocational Education, Dr. Calvin Dellefield, that the various State Advisory Councils on Vocational Education exchange evaluation reports. In addition to these, there are possibly other groups and individuals within the State who may be interested in receiving a copy.

In the preparation of the Evaluation Report, the Advisory Council on Vocational Education received valuable assistance from Dr. James F. Shill, Co-Director, Research and Coordinating Unit, Mississippi State University, and his graduate assistant Mr. Allen T. Steed.

To those State Executive Directors or Executive Secretaries who have not mailed me a copy of your 1970 Evaluation Report I would appreciate a copy. Comments and suggestions will be appreciated.

carry out the provisions of the 1968 Amendments. Long and thorough study was given by the Director and several key staff members to this problem. Several drafts of an organizational chart were prepared. Each was carefully related to the provisions and requirements of the State Plan. This kind of effort or test resulted in a number of discarded charts.

The final result of these efforts, put into effect July 1, 1969, was the designation of three Assistant State Directors - one responsible for all secondary vocational education programs, one responsible for all special service occupations, and one responsible for all post secondary vocational education programs. The three staff members filling these positions are responsible to the Director thru the Deputy Director. The three, along with the Deputy Director, Administrative Assistant (these two positions presently unfilled), the Finance and Budget Officer, the Public Relations Officer, the Coordinator of Research, Curricula, and Teacher Training, and the Coordinator of Program Planning and Evaluation are responsible for all functions within their designated functional areas and coordinate their functions with each other, as may be necessary. In June 1970, after almost one years operation under the reorganization as outlined above, one change was made; namely, the naming of the Coordinator of Program Planning and Evaluation as an Assistant Director performing the same functions. This change was deemed proper because of the nature, scope, and across the board responsibilities incumbent upon such a person filling the position. (See chart - Appendix C)

This reorganization diffused the major program responsibilities to the three services, thus lessening the heavy responsibilities previously carried by the State Director. The transition, that is the reassignment of duties, transfer of personnel from former positions to different positions in some cases, and changes in supervisory staff in a few instances, was

State of Mississippi

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P. O. Box 771
Jackson, Mississippi 39205

Harold T. White, Vice Chairman
Booneville, Miss. 38829

September 4, 1970

Mr. A. P. Fatherree
State Director
Vocational and Technical Education
Jackson, Mississippi 39205

Dear Mr. Fatherree:

The Executive Committee of the State Advisory Council herewith submits the FY70 Evaluation Report on Vocational and Technical Education for the State of Mississippi. This report, as we understand, is for your review and submission to the U. S. Office of Education, HEW, who will in turn transmit the necessary numbers of copies to the National Advisory Council in Washington, D. C.

The minutes of our Ad Hoc Committee meeting on May 27, 1970, indicate that the documents "Framework for Planning and Evaluating Vocational Education", and "Recommended Questions and Goals for Consideration by State Advisory Councils" were discussed. It was agreed that these documents would be used in making the evaluation report. In making our evaluation, we found the suggestions and questions provocative and helpful, though in some instances there were some questions overlapping in nature and implication.

We made every effort at being thorough and objective, with the single purpose of preparing a report that would be constructive and helpful. We trust that you will find our conclusions valid, and our recommendations sound and practical.

Sincerely yours,

THE EXECUTIVE COMMITTEE:

Robert D. Morrow, Sr., Chairman

Harold T White

Harold D. White, Vice Chairman

Walter Washington

Dr. Walter Washington, Member

5127

effected in a smooth and harmonious manner, and with no noticeable let down in morale, and with a minimum of dissatisfaction on the part of personnel of the Vocational Education Division to the reorganization. During the one year that the reorganization has been in operation relationships between personnel of the three services have been relatively free of conflicting interests, contrary view-points, and without any known recriminations.

The reorganization of the Division has proven to be very satisfactory, particularly with respect to more effectively directing and managing the responsibilities incumbent upon the Director and his staff in carrying out all of the provisions of the State Plan.

Another action which has increased and improved the effectiveness of program operations are division-wide conferences held two or three times during the year. The State Director of Vocational Education and designated staff personnel give an overview and progress report at these conferences.

C. RECOMMENDATIONS

It is recommended that an ever-mounting and intensified effort be exerted to further train guidance counselors so that a more thorough and effective job can be done in the occupational orientation program at the secondary level, and further recruit additional counselors as rapidly as possible to bring the ratio of counselors and students to a one to 250 ratio.

State of Mississippi

DEPARTMENT OF EDUCATION
G. H. JOHNSTON, SUPERINTENDENT

DIVISION OF VOCATIONAL AND TECHNICAL EDUCATION
A. P. FATHERREE, DIRECTOR
P. O. BOX 771
JACKSON, MISS. 39205

September 10, 1970

Dr. Arthur Lee Hardwick
Associate Commissioner for Adult
Vocational and Technical Education
BAVTE U. S. Office of Education
Washington, D. C.

Dear Dr. Hardwick:

We are herewith submitting seven copies of the Evaluation Report of the State Advisory Council for Fiscal Year 1970.

The State Advisory Council contracted with the Research Coordinating Unit of Mississippi State University to work with their staff in making this evaluation.

Our staff members have supplied information for this evaluation and have worked with the Advisory Council staff when called upon. The State Board staff did not attempt to influence the State Advisory Council in making this evaluation. It is an independent evaluation of the Advisory Council.

The State Board staff has reviewed and studied this evaluation. We feel that the State Advisory Council has done an excellent job in making the evaluation. They have pointed up some of the strong and weak phases of the program and have recommended programs and activities that we feel, if carried out, will strengthen the whole program of vocational and technical education.

We trust that this evaluation will have a beneficial effect on Mississippi's vocational and technical education program. An attempt has been made by the State Advisory Council to make an unbiased evaluation of the program. We trust that it has been made in keeping with the policies and wishes of the National Advisory Council and the U. S. Office of Education.

Sincerely yours,

A. P. Fatherree

A. P. Fatherree
Director

Enclosures

GOAL II. EVALUATION SHOULD LOOK INTO ALL PARTS OF THE HUMAN RESOURCES DEVELOPMENT PROGRAMS OF THE STATE

SUMMARY STATEMENT AND RECOMMENDATIONS

GOAL II. EVALUATION SHOULD LOOK INTO ALL PARTS OF THE HUMAN RESOURCES DEVELOPMENT PROGRAMS OF THE STATE

I. A. ITEM: To what extent have actions been taken to expand and improve the joint program planning, implementation, and evaluation efforts of the State Board, Employment Service, vocational rehabilitation agencies, and the agencies responsible for special education (disadvantaged and handicapped students)? What positive effects, if any, may be attributed to these actions? Were the changes brought out adequately? What new or improved actions should be taken in this regard next year?

B. FINDINGS AND CONCLUSIONS

Joint efforts were taken by the Vocational Education Division staff; personnel of the Mississippi Employment Security Commission; staff personnel of the Vocational Rehabilitation Division, State Department of Education; the Curriculum Coordinating Unit, Mississippi State University; Special Education Section of the Division of Instruction, State Department of Education; State Department of Public Welfare; and the Mississippi Research and Development Center to improve program planning and their implementation. All of these agencies and organizations were most helpful in the development of the State Plan and the long-range aspects thereof. The Vocational Education Division entered into written cooperative agreements with the first five named agencies and organizations to provide reciprocal services. These relationships have been very cooperative, harmonious, and helpful to all parties.

The Vocational Rehabilitation Division and the Mississippi Employment Service are cited as examples of exemplary service and cooperation. In the case of the former, they provided housing for training for the handicapped in Sheltered Workshops. During FY70 a total of 1,870 handicapped adults were trained, of which there were 785 completions and employed. It

SUMMARY STATEMENT AND RECOMMENDATIONS

This evaluation has attempted to appraise in part the vocational education program FY70. There has been no attempt to present all statistical data available, but an analysis and interpretation of such data was made to determine in what direction programs are moving. It was clearly demonstrated in this evaluation that progress has been made in this State to reach the objectives of vocational education; however, there were some weaknesses identified.

It was noted that vocational education placed special emphasis on training the disadvantaged, handicapped, unemployed, and underemployed in the State as well as regular students. There was aiso special emphasis placed on reaching the drop-outs who had left school and providing a program to prevent students from becoming dropouts. There was a strong move to provide vocational education in area vocational schools to students in all parts of the State, particularly in depressed counties, on both the secondary and post secondary levels.

Even though the above trends present a bright future for vocational education in the State some weaknesses exist which must be removed. One weakness of prime concern was the lack of sufficient funds to provide adequate facilities, equipment, and instructional personnel to most effectively operate the vocational education programs. There was also a need for more valid and reliable data concerning vocational education and manpower needs to better facilitate the planning and implementation of new programs. There was a definite need for continued emphasis to be placed on research in vocational education to provide new concepts and to evaluate the efficiency of those presently in operation.

This evaluation has served a useful purpose and it was felt that a continuous systematic evaluation should be conducted to insure the most effective programs possible.

RECOMMENDATIONS

Based on a careful review and analysis of the data on vocational education certain major recommendations were made.

It was recommended that:

1. The date for submission of the annual evaluation report to the U. S. Office of Education be changed to allow sufficient time for compiling and analyzing output data on vocational education programs in the State.

2. Federal appropriations for vocational education be made in sufficient time so that allocation of those funds to the States will be available for use at the beginning of the fiscal year.

3. Continued emphasis should be placed on providing programs to train disadvantaged and handicapped persons in the depressed areas and areas of persistent high unemployment to meet employment demands in all critical areas, and on providing a systematic evaluation and continued improvement of such programs.

must be recognized that these adults have mental and physical handicaps which precludes a rate of progress equal to that of normal persons. The training pursued is not terminal in terms of a specified length of time but is geared to the trainees limitations. Consequently for some trainees the length of training will be shorter than for others; thus, they are employable in a shorter length of time.

In the case of the Mississippi Employment Service, invaluable assistance was provided in giving information with respect to job opportunities in the State; job requirements in the various occupations; and cooperating with the various local educational agencies in giving aptitude tests and making other assessments. Further, cooperation was provided in conducting studies to collect information not otherwise available, and in giving special attention to counseling and placement of trainees.

The other agencies and organizations have been equally as cooperative and helpful as the two cited above.

In addition to the specified services provided by the above mentioned agencies and organizations, memorandum agreements were entered into with The University of Mississippi; Mississippi State University; University of Southern Mississippi; Mississippi State College for Women; Alcorn A. & M. College; and Mississippi Delta College.

These institutions provide teacher education services, both pre-service and in-service training, to vocational education personnel in the various fields of vocational education. Additionally, these institutions provide other ancillary services calculated to improve and enrich programs of vocational education. To cite an example, the Curriculum Coordinating Unit at Mississippi State University, through its curriculum materials

center, develop and disseminate curricula and instructional materials in practically all fields of vocational education to instructors throughout the State.

C. RECOMMENDATIONS

It is recommended that the ancillary agencies and organizations and vocational education continue their cooperative relationship, and that efforts be made to expand and improve upon the services provided to the mutual advantage of all parties.

Informal critiques or reviews should be held with all personnel concerned in the several ancillary agencies and organizations on the accomplishments achieved; the weaknesses and strengths; and methods and suggestions outlined for expansion and improvement.

2. A. ITEM: What joint actions have been taken by public and private vocational education institutions and agencies during the year to effect improvements in State program planning, coordination, and evaluation efforts? What were the results of these actions? What additional steps would seem logical and feasible for next year?

B. FINDINGS AND CONCLUSIONS

Not applicable.

C. RECOMMENDATIONS

See "B" above.

3. A. ITEM: What programs, services, and activities have been implemented or are planned regarding joint efforts between public vocational education and the other non-educational social institutions and agencies in the State concerned with the development of human resources? What pay-offs have resulted from these activities?

B. FINDINGS AND CONCLUSIONS

A particular significant joint development in FY70 was between

the Vocational Education Division and the Vocational Rehabilitation Division of the State Department of Education in planning and developing a vocational complex for training the handicapped at the Itawamba Junior College, Vocational-Technical Center, Tupelo, Mississippi, in Northeast Mississippi, and at the Jones Junior College, Ellisville, Mississippi, in South Mississippi.

The training complex at Tupelo is planned to serve 14 counties in the northeast part of the State, and the one at the Jones Junior College will serve the greater part of the southern half of the State in training the handicapped. Available needed funds for physical facilities were made available in December 1969 for the Tupelo complex. Planning, which had been underway for some time, was continued to the point of time when an architect was employed to develop detailed construction plans for a building to cost $300,000. The contract for construction was let in July 1970. Equipment purchased to date is in the amount of $80,000.

These two projects demonstrate excellent examples of community spirit and cooperation. For example, the City of Tupelo purchased 7 1/4 acres of land at a cost of $1,500 per acre and contributed it to the center.

Local private leadership, representing various civic and professional agencies, were unsparing in their interest, time, and talent in assisting in promoting and developing the projected program.

Representatives of social institutions and agencies involved are: The Regional Rehabilitation Center at Tupelo; the State Vocational Rehabilitation Division and Special Education, both of the State Department of Education; the Mental Health Complex, a division of the North Mississippi Medical Center; and the local school systems of that area of the State. These agencies and organizations will continue to play an active role when the complex for the handicapped is in operation.

The Regional Rehabilitation Center, located near the Northeast Mississippi Medical Center in Tupelo, has been in operation for some fifteen years. The Child Development Clinic has a staff of four pediatricians, a psychologist, one full-time public health nurse, and one full-time social worker, with the necessary clerical personnel. In addition, there are six full-time speech and hearing therapists, a physical therapist and two assistants, and an occupational therapist with one assistant. Other professional staff personnel are a teacher for the deaf and hard of hearing, a teacher for the blind and visually impaired, and five counselors; lastly, there is a sheltered workshop.

The handicapped training complex, in the words of the Director of the Regional Vocational Rehabilitation Center, "is a blessing from God and now our mentally and physically handicapped can be referred from here to the vocational training complex for the handicapped at the Vocational Technical Center which is only about one and one-half miles away. Transportation of trainees from the Regional Rehabilitation Center and those handicapped persons from outlying towns and counties will be provided. The complex at Tupelo will be ready for use by September 1971.

The complex for training the handicapped at Ellisville is not as advanced in planning as the one at Tupelo. The estimated cost of the building is $300,000 and the equipment cost placed at $100,000. The expected date of completion is September 1971.

Handicapped persons at both of these centers will be accepted from age 14 and up.

C. RECOMMENDATIONS

In-as-much as these two complexes for training the handicapped are in the formative and construction phases no recommendations are made.

4. A. ITEM: What new programs and working arrangements have been implemented or are planned for bringing about a closer, more effective involvement of employers and organized labor in the planning, operation, and evaluation of vocational education programs? What were the results of these efforts?

B. FINDINGS AND CONCLUSIONS

Not feasible.

C. RECOMMENDATIONS

See "B" above.

5. A. ITEM: What specific actions have been taken in the State to enhance the image of vocational education and to effect a closer articulation between general and vocational education?

B. FINDINGS AND CONCLUSIONS

Specific actions taken in recent years to enhance the image of vocational education are:

1. The Vocational Education Division has a full-time public relations employee who prepares feature news articles with photographs on all aspects of vocational education programs and activities, such as construction and equipping of new facilities, student activities, successful employment stories on graduates, in-service training, conferences, development and initiation of new instructional programs, etc. These articles appear in the two daily newspapers of the capitol city which have state-wide coverage, in small city daily papers, in weekly county papers, and the Mississippi Vocational News - a monthly publication which has wide coverage throughout the State.

2. Regularly scheduled TV and radio presentation of programs on activities and accomplishments in the various fields of vocational education in different areas of the State.
3. Frequent appearances, on a continuing basis, by staff personnel in the Division of Vocational Education and the State Superintendent of Education before local educational groups, civic organizations, school boards, county and city governmental officials, etc.
4. Work of local advisory councils for various vocational programs, example: Health Occupation Advisory Committees, Trade and Industrial Education Craft Committees, etc.
5. Youth organizations and their programs of work - such as Future Farmers of America, Future Homemakers of America, Vocational Industrial Clubs of America, Distributive Education Clubs of America, Future Business Leaders of America, and Phi Beta Lambda. These organizations have a total membership of about 40,000 enrolled in practically all schools in the State where vocational education training is provided. There is little question that the type of youth leadership provided in terms of quality is unsurpassed. All of these youth organizations have some similarity. The State Supervisors of the various services function as State Advisors, and local teachers serve as Local Advisors to the local chapters. These youth organizations are an integral part of vocational education and the public school programs. They have for their objectives training in leadership, cooperation, democracy, self-discipline, scholarship, and occupational proficiency. The youth in these organizations are having a great influence on improving the image of vocational education.

6. State Advisory Council members participate in area meetings on vocational education. These are men of influence and stature in the State. The question of the poor image that vocational education has in some quarters has evoked considerable discussion in advisory council meetings. Their interest and concern about this problem unquestionably will contribute toward improving the image of vocational education.

There is positive evidence that considerable progress has been made in improving the image of vocational education in the State since the passage of the 1963 Vocational Education Act and the Amendments of 1968. This Act focused the need to a degree never before comprehended by vocational education and general education professionals. This in turn has had a decided influence on local and State civic leaders, State officials, and members of the State Legislature. The proof of this is the increasing requests on the part of school boards for expanding present vocational facilities and programs, and the establishment of new area vocational centers. As a consequence, the 1970 legislature increased the FY70 appropriation of $5,183,800 to $7,800,000 for FY71, or 50.46 percent increase which is unprecedented.

C. RECOMMENDATIONS

It is recommended that continued and expanded efforts be made to improve the image of vocational education.

6. A. ITEM: What steps have been taken with respect to eliminating duplication and competition in vocational program efforts in the State? What is the present status regarding duplication and competition among various programs concerned with the development of human resources including public and private vocational education efforts?

B. FINDINGS AND CONCLUSIONS

As outlined in answer to question one of this goal, cooperative

working agreements have been developed between the Vocational Division of the State Department of Education and the named agencies involved in human resource development programs.

When a new vocational training program is being planned in a local community the heads of all the agencies concerned with manpower training meet and discuss the program and the contributions that each can make. The plans are outlined with a clear-cut understanding of what role each agency or organization will assume. The result is the elimination of competition and over-lapping of functions and duplication of efforts.

The Cooperative Work-Study Program, as it now functions, is a good example. Formerly, there might have been two or three specialized coordinators in a given community. These coordinators would vie for prestige, numbers, and credit. Since the 1968 Amendments this program has been reorganized so that one coordinator conducts a comprehensive cooperative occupational program with many occupations represented among his students.

There is no duplication of effort between public vocational education and private vocational schools. In the latter category, there are only private business schools, cosmetology schools, etc., in operation.

C. RECOMMENDATIONS

It is recommended that a careful study and analysis on a continuous basis should be made in every local community to prevent any duplications in cost, personnel, and services to students.

GOAL III. EVALUATION SHOULD FOCUS UPON THE EFFECTS THE VOCATIONAL EDUCATION AMENDMENTS OF 1968 HAD UPON THE STATE IN THE YEAR UNDER REVIEW

GOAL I:1. EVALUATION SHOULD FOCUS UPON THE EFFECTS THE VOCATIONAL EDUCATION AMENDMENTS OF 1968 HAD UPON THE STATE IN FY70

I. A. ITEM: How many and what types of programs, services, and activities were terminated during the year? Why?

B. FINDINGS AND CONCLUSIONS

Post Secondary Education - A total of 13 operational programs were phased out during the period under study. Of this number, one was an agricultural program (code 01.99), two were health programs (codes 14.02 and 14.03), and eight were trade and industrial programs (codes: five 17.0302 and one each 17.1000, 17.1900, and 17.23). The major reason for termination of the programs was low enrollments. Student interest seemed to be lacking in the occupational offerings in the geographical areas despite the availability of jobs in the occupations in the programs in which training was offered.

Secondary Education - At the secondary level a total of 217 operational programs were terminated. This total included 33 agricultural programs (12 code 01.0100 and 21 code 01.0500); 11 distributive education programs (one code 04.000, four 04.0105, and six 04.0114); four health occupations programs (code 07.0206); 147 home economics programs (75 code 09.0101, two 09.0102, nine 09.0103, 47 code 09.0106, three 09.0107, two 09.0108, one 09.0109, five 09.0200, one 09.0201 and two 09.0203); three office occupations programs (code 14,0300) and 19 trade and industrial programs (one code 17.0200, eight 17.1400, one 17.1501, one 17.1900, one 17,3100, two 17.3400, and four 17.9900). The general reasons for termination of the programs were school system consolidations, establishment of unitary system under court orders, and lack of employment opportunities in training areas.

Adult Education - At the adult level a total of 447 programs were terminated. Of this total 16 were agricultural programs (14 code 01,0100 and two 01.0500), 35 were distributive education programs (one code 04.0400, four 04.0600, 19 code 04.0800, three code 04.0114, one code o4.0115, five code 04.0117 and one code 04.3100); 12 were health occupations programs (two code 07.0200, three 07.0205, and seven 07.0206); 21 were home economics programs (two 09.0102, three 09.0105, three 09.0108, two 09.0199, two 09.0202, four 09.0204, one 09.0205, and four 09.9900); 196 were office occupations programs (173 code 14.0300 and 23 code 14,0700); 32 were technical programs (two code 16.0107, three 16.0108, 14 code 16.0500, and 13 code 16.0599); and 91 were trade and industrial programs (one 17.0301, 12 code 17.0302, two 17.0401, five 17.0500, two 17.1003, four each codes 17.1300, and 17.1400, two 17.1501, five 17.1503, 19 code 17.1700, one 17.1900, seven 17.2002, 18 code 17.2300, one each of 17.2303, 17.2500 and 17.2801 and two each of 17.3100 and 17.3400). Adult classes were terminated when the expressed needs of those interested in training or retraining were met.

Disadvantaged Education - Twenty-six programs for disadvantaged students were discontinued or redirected during the year under study. Of the number terminated, one was an agricultural program (code 01.0700); four were distributive education programs (code 04.0105); seven were home economics programs (two 09.0101, one 09.0202 and four 09.0203); two were office occupations programs (code 14.0300), and eight were trade and industrial programs (one each of codes 17.1100, 17.1900, 17.1200 and 17.3400, and four 17.3399). Programs were redirected toward job opportunities in which students indicated greater interest.

C. RECOMMENDATIONS

It is recommended that continued emphasis be placed on evaluation of programs and services at all levels of vocational education. Where job opportunities are lacking, and/or student interest is lacking, the programs be phased out.

2. A. ITEM: What significantly new programs and services were implemented during the year as a direct result of the influence or requirements of the new State Plan?

B. FINDINGS AND CONCLUSIONS

Occupational Orientation Programs - A prevocational program in which group guidance will be carried out with students prior to enrolling in vocational education programs. The course carries one secondary unit of credit and was implemented in 196 programs in the State during the year under study.

Occupational Orientation Supervisory and Curriculum Services - Supervision was provided for the new programs by the State Division of Vocational Education through a State Supervisor of Occupational Orientation and two teacher trainers in Occupational Orientation. Curriculum materials for the programs were prepared and/or purchased through the Curriculum Coordinating Unit, and a position was established for a Curriculum Specialist in Occupational Orientation.

Secondary Area Vocational Schools - Nine secondary area vocational schools were placed in operation during FY70. Of this number, one was located on the Gulf Coast (the area destroyed by Hurricane Camille and has a high unemployment rate), two were located in areas with persistently high unemployment rates, and four were located in depressed areas.

Post Secondary Area Vocational Schools - One post secondary area school was placed in operation during FY70. This school service district includes two counties which are classified as being depressed.

C. RECOMMENDATIONS

It is recommended that emphasis be continued on providing group guidance through occupational orientation and individual guidance through counseling with students. It is further recommended that occupational orientation be extended to as many students as possible.

3. A. ITEM: What noteworthy accomplishments have been achieved in the special programs authorized (only those funded) under Parts C-1 of the Amendments of 1968?

B. FINDINGS AND CONCLUSIONS

Several projects were implemented under Part C of the Amendments of 1968 in the State. Those projects which could have the greatest effect on vocational-technical education are reported in this document.

The Mississippi Evaluation Systems Project in Occupational Education. This project tried out and demonstrated the feasibility and general ability of a systems approach to local vocational program evaluation developed by Michigan State University. Four local school systems and one public junior college were included in the tryout of the systems approach.

Evaluation capability of local school personnel was developed through workshops, review meetings, conferences, consultant services, and monitoring visits by project personnel. Local leadership (one local project leader and one research associate) in each school system was charged with developing evaluation capability among the staff of the school system.

Each school system with the aid of citizen and staff committees, project personnel, and consultants, developed their objectives, plans, and activities for the local evaluation project.

The school systems participating in the evaluation systems project reported the following results from participation in the project:

1. Increased citizen interest and support of vocational education programs.
2. Increased vocational staff involvement with entire vocational program.
3. Construction of a Vocational Education Complex.
4. Passage of a bond issue by a five-to-one majority for vocational education support.
5. Expanded the number of vocational course offerings.
6. Restructured vocational course content.
7. Increased vocational staff involvement with business and industry.
8. Establishment of Placement Bureaus.
9. Establishment of a vocational director's position.
10. Broadened the vocational education objectives of school systems.
11. Increased "academic" staff understanding and support of local vocational education programs.
12. Replacement of outmoded equipment for vocational education programs.
13. Increased purchases of teaching aids and materials for vocational programs.
14. Additional classroom and office space for vocational programs.
15. Increased vocational education "supplies" budgets.

16. Reduction of vocational teacher-student class ratio.

Of all the findings of this project, the following seems to be outstanding:

1. Involvement of citizens in the school system in a meaningful manner. Some citizens, for the first time, were able to get a first-hand look at the vocational education program and had the opportunity to make specific recommendations. For some citizens, vocational education became something more than just vocational agriculture for the first time. Their enthusiasm dispelled any fears that citizens might be apathetic toward what schools are doing.
2. Increased citizen support of the school system. Greater understanding of the details of vocational programs apparently caused increased citizen support for additional facilities, as well as curriculum revision and expansion.
3. Development of evaluation expertise in local schools. School vocational personnel, who otherwise might not have had the opportunity, gained valuable experience in conducting evaluation activities in this project. Nonvocational teachers and administrators, who otherwise might not have had the opportunity and who were involved in this project, not only developed additional evaluation expertise, they also increased their understanding and appreciation for vocational education goals and aims, and either consciously or subconsciously began articulating these with the goals and aims of their own specialized areas.

4. Development of proper attitude toward continuous introspective assessment of the vocational program. When evidence was obtained which indicated that many previous vocational program activities had resulted in worthwhile outcomes, project personnel began to assume a slightly more secure feeling about conducting critical introspective scrutiny of their programs.
5. Results obtained locally were used in drafting annual plans for the local program of vocational education.

Self-Appraisal of Vocational-Technical Education in Mississippi by Local School Committees and Instructors. A self-appraisal procedure was utilized to assess administrators' and instructors' perceptions of the quality and adequacy of the different aspects of their vocational programs.

In general, the overall vocational program, as seen by school committees was "good" or "very good." However, committee evaluations of specific vocational areas were not as favorable, with mean scale responses ranging between "fair" and "good."

When specific vocational areas were compared, instructors gave higher evaluations to programs such as vocational agriculture, home economics, and industrial arts. Committees, on the other hand, gave higher evaluations to business and office education, health occupations, distributive education and technical education. Trade and industrial education was evaluated essentially the same by both groups.

The major findings of this survey is suggestive of several conclusions. First, vocational education at the secondary level, generally, is viewed quite favorable. At the same time, specific weaknesses have been exposed by the committees and instructors, the most obvious ones being adequate physical facilities, adequate equipment, concern with

scheduling, class size, and teacher workload. The evaluation also revealed the following as specific problem areas: providing for special needs students, using advisory committees advantageously, continual training after graduation, space and equipment for teachers, work stations for maximum student enrollments, and student follow-up activities.

Discrepancies occurred often between the evaluations of the committees and the instructors. When these occurred, the more positive evaluations were given by the committees rather than by instructors; however, the instructors' views may be more realistic, since daily contact with a program should result in greater insight. Likewise, there may be a tendency for the committee to "over-estimate" or to present vocational area programs in the best possible light. Where discrepancies appear, it is important to learn why. If "official" school opinion is that some aspect of guidance, or offerings, or supplies and materials is better off than it actually is, according to the views of the instructors, then important administrative decisions may not be made to the best advantage of the program.

Finally, as is the case in any evaluation effort, its relationship to a program is based on what those who are responsible for program decisions do with the new information and whether or not the experience of participating in an evaluation exercise serves as a catalyst for the teacher to claim a higher level of commitment to excellence to his profession and to the scores of students who pass under his tutelage.

A Description and Self-Appraisal of Agricultural Programs for High School Students with Special Needs in Mississippi. The purposes of this study were to: (1) provide a composite description of existing programs for special needs students; (2) provide a profile of teachers of special needs students; (3) provide information on students enrolled in

special needs classes; (4) compare the self-appraisal of vocational education programs for special needs students between local school administrators and teachers of the special needs students; and (5) determine how well the program is accepted by the special needs students, parents, and the public.

Programs were generally centered around agricultural mechancis and the curriculum was described as skill-oriented.

Teachers in the program were generally male, over 30 years of age, married, and had educational backgrounds varying from ninth grade level to Bachelor's degrees, with the largest group having two years or less college credit. Teachers were also found to be generally from rural areas or small towns and from low-income families.

Teachers generally had over six years of nonteaching work experience in fields which were related to the subjects they taught. They also had two to five years of teaching experience.

Students were generally educationally deprived in the ninth to twelfth grades.

Teachers appraised generally the major aspects of the overall program higher than administrators.

Enrolled students generally accepted the program while other students showed some reluctance. Parents and the public were reluctant to accept it at first, but generally accepted it after a time.

Self-Appraisal of Programs for Disadvantaged Students in Mississippi. The degree of communication sustained between persons involved in the programs was rated by teachers and administrators as being generally average. Teachers ranked the communication between the students and teachers first with a rating of high average, while administrators ranked both this communication level and the communication sustained

between State Department personnel and local school personnel first with a high average rating. The lowest ranking (poor) in this aspect of the program was reported by teachers to be the other faculty members' involvement in the program. Administrators felt communication between State Department personnel and local school personnel should be ranked last with a rating of low average.

The facilities, equipment, and materials used in the program were appraised by teachers and administrators as average. Generally, the teachers felt the equipment was more adequate than did administrators. The interviews with both teachers and administrators indicated a definite need for additional equipment, facilities, and materials. In many programs the lack of such facilities and equipment limited the effectiveness of the program to a great extent.

The acceptance of the program as viewed by teachers and administrators differed to a certain extent. Administrators felt that the program had been accepted to a greater degree than did teachers, but the degree of acceptance was still indicated as only average to high average. Teachers felt the parents had not completely accepted the programs and gave specific reasons for their feeling this way. These teachers reported that parents did not understand the programs and no orientation or introduction to the programs was made to them. They only knew what they had heard on the street or from their children.

Administrators felt that because they had heard very few complaints from the parents, the program was being accepted. Both teachers and administrators indicated that students were accepting the program well, now, but they were reluctant to enter the program at first. Some other students who were not in the program called these students names and made fun of them for enrolling in the program.

Both teachers and administrators indicated that the program had helped the students. Their appraisal rated this aspect of the program high average. Teachers felt the programs had prevented dropouts to a greater extent than did administrators but only rated it high average to administrators' rating of average. Both teachers and administrators indicated that students had average participation in extracurricular activities. Teachers also rated the directed work experience received by students as low average, while administrators rated this aspect high average. In the interviews, teachers indicated that because of a lack of equipment, facilities, public support, and cooperation, there was a limited amount of directed work experience available to the student both in school and out-of-school.

The curriculum was appraised by administrators as being average, while teachers felt it was high average. Both groups rated the personal characteristics and work habits developed in the students as average. The teachers felt the degree that nonvocational courses were keyed to the program was only average, while administrators felt it should be rated as high average. Teachers indicated that there was a definite need for additional courses (such as English, math, etc.) offered on a level at which these students could function. It was also noted in the interviews that only approximately 20 percent of the teachers had any type of written goals or objectives for their programs.

In the overall self-appraisal of the programs, administrators and teachers rated the programs relatively equal. The highest rating - high average - given a program by teachers was in the home economics area, and the lowest rating teachers gave was in the distributive education area. Administrators ranked health occupations first with a rating of high average and distributive education last with a rating of average. It was

especially noted that neither teachers or administrators rated any programs superior or poor.

C. RECOMMENDATIONS

It is recommended that if funds become available under Part C of the Amendments that emphasis be placed on conducting research on problems in vocational education in the State. It is further recommended that new concepts in vocational education be explored and demonstrated through experimental programs and pilot projects.

4. A. ITEM: What specific changes were made in state management policies and procedures relating to vocational education as a result of implementing the State Plan and meeting the intent of Amendments of 1968? How effective and efficient did these new policies and procedures prove to be?

B. FINDINGS AND CONCLUSIONS

For the purpose of more effectively administering vocational-technical education in Mississippi under the Amendments of 1968 the Vocational-Technical Division was reorganized. (See Appendix C) The reorganization allowed for more effective operation of services and programs which cut across traditional lines. At the same time unnecessary duplication of effort was minimized. This reorganization proved especially effective in adding impetus to administering the "set aside" funds under Part F of the Amendments of 1968. Special emphasis was placed on providing services for the disadvantaged and handicapped under the policies and procedures evolving from the reorganization. In addition, emphasis was placed on providing more directed efforts upon prevocational and guidance services.

In addition, policies and procedures were established for each school system in the State to develop local plans for vocational education based upon manpower needs. Each vocational program funded was the result of the local plan depicting employment needs and local interest in manpower development.

To receive maximum effectiveness of available funds a policy of not starting new vocational programs in a county until the county received a vocational complex was implemented. This policy resulted in the concentration of new programs in target areas.

During the year under study a new policy on reimbursement was placed into operation. A formula which considered manpower needs, vocational needs, ability of school district to pay an excess cost of programs was utilized in reimbursement procedures. Reimbursement was determined by deviation from the State average. State funds could supplement Federal funds so that each school district could be allotted a total amount not less than the previous year's allotment.

The restructuring of the State Division proved to be a very workable organizational plan to administer the vocational programs under the 1968 Amendments. Very few, if any, flaws have been identified in the new organizational structure and to date, modification has not been necessary. The policy of requiring local schools to submit plans has proven to be very effective. Procedures for allocation of funds has been effective and will continue to be as long as State funds are utiiized so that no school district receives less funding than the previous year.

C. RECOMMENDATIONS

It is recommended that the present State management policies and procedures relating to vocational education be continued.

5. A. ITEM: What specific effects have occurred as a result of the new State system of allocating Federal funds to local educational agencies?

B. FINDINGS AND CONCLUSIONS

The results of the new State system of Federal funds allocation was an increased emphasis on vocational education in target area school systems, due to an increase in available funds for these systems. It resulted in programs being expanded and vocational offerings increased in some school systems. The undesirable effects of the new allocation system were negated by supplementing State funds to school districts who would have received less funds under the formula than they received during the previous year. With the increased costs of providing quality vocational education, reduction in funding for any school district could result in reduction of quality and/or quantity of vocational education in such district.

The system of allocating funds is working with only minor problems. However, should the base (no school system receiving less funding than the previous year) be removed, it is likely that the quality and number of vocational offerings would decline due to reduction of available funds.

C. RECOMMENDATIONS

It is recommended that because of increased cost of providing quality vocational education State funds be used to supplement any school system that would lose Federal funds due to the new allocation formula.

6. A. ITEM: Is the State mounting a concerted effort to meet the major priorities and program emphasis of the Vocational Education Amendments of 1968? What progress has been made?

B. FINDINGS AND CONCLUSIONS

In most counties in the State vocational programs are available on the secondary, the post secondary, and the adult levels. Post-secondary vocational programs are offered through the junior colleges and are available to all persons within each junior college district. Almost every person in

the State had vocational education programs available within commuting distance of his or her home.

A concerted effort is being made to place new vocational programs in areas where the highest concentration of persons needing vocational training are located. In addition, emphasis is being placed on serving persons in depressed counties, counties with persistant high unemployment, counties with high dropout rates, counties with high percentages of disadvantaged persons, and counties with high percentages of handicapped persons.

All local educational systems are required to develop a local vocational education plan based upon manpower and vocational needs. Each vocational program included in the plan must be justifiable by demonstrated needs.

A concerted effort is being made to provide all students with group and individual guidance. Emphasis upon group guidance received high priority in the State Plan. A total of 187 occupational orientation programs were begun during the fiscal year under review. Emphasis is being placed at the secondary, post secondary, and adult levels, on individual vocational guidance services.

In order to meet the priorities of the Amendments of 1968, nine secondary and one post secondary area vocational schools were placed in operation during the year under study. These facilities were strategically located in order to serve depressed areas, areas of persistently high unemployment, and areas with high percentages of disadvantaged persons.

Additional programs for the disadvantaged and handicapped were placed into operation during the year. Efforts are being made to train and/or retrain (through workshops, inservice training, etc.) persons employed in these programs to serve these populations better.

C. RECOMMENDATIONS

It is recommended that the State continue to mount concerted effort to meet the priorities of the Vocational Education Amendments of 1968 by increasing vocational efforts in depressed areas and areas with persistant high unemployment, areas with high dropout rates, and areas with high percentages of disadvantaged and handicapped persons.

GOAL IV. EVALUATION SHOULD FOCUS UPON THE PEOPLE AND THEIR NEEDS

GOAL IV. EVALUATION SHOULD FOCUS UPON THE PEOPLE AND THEIR NEEDS

I. A. ITEM: What specific actions were taken to improve the validity of data pertaining to the current and projected vocational education needs of all youth and adults in the State? What were the results of these actions? What are the plans to improve the validity and reliability of present data?

B. FINDINGS AND CONCLUSIONS

To improve the data being gathered for vocational education programs the following actions were taken: each local school was required to submit a local plan for their vocational education program; plans have been made to purchase census tapes as they become available; cooperative agreements have been arranged between the Vocational Education Division and the Mississippi Employment Security Commission, the Research and Development Center, the Chamber of Commerce, the United States Department of Commerce, and others, to provide pertinent data which would be necessary for the planning and development of vocational education programs; and a follow-up study was conducted with a sample of all schools offering vocational education to determine the effectiveness of the programs.

This cooperative working agreement with the different agencies mentioned above has revealed certain gaps or inadequacies in the data.

Because this is the end of a census period, census data used for planning and evaluating is very questionable as far as reliability. Manpower information is available in certain geographic areas of the State but totally lacking in other areas.

Additional steps are planned to improve the data on vocational education needs such as census tape being purchased and the Employment Security Commission utilizing new methods of reporting occupational information in the coming years.

C. RECOMMENDATIONS

It is recommended that continued effort be exerted on cooperation with other State and Federal agencies to provide data pertaining to vocational education and manpower needs.

2. A. ITEM: What progress has been made toward providing high quality programs for dropouts and potential dropouts, unemployed and underemployed youth and adults, and disadvantaged and handicapped youth and adults? What additional programs, services, and activities are being provided for each of these categories of people? Does the State presently have the capacity to get the job done? If not, what is needed, other than just money?

B. FINDINGS AND CONCLUSIONS

There has been an increase in the number of programs offered in vocational education for these groups. The programs for disadvantaged students have more than doubled in number during the last year, and thirty-two new programs were started for the handicapped, a group not previously served by vocational education in the State. These programs have increased the holding power of the schools and greatly benefited the students. The programs designed for adults who are underemployed or unemployed increased in number to meet the needs of those adults. With an increase in occupational offerings and vocational guidance services to enable students to make wise occupational choices, the vocational programs are better able to meet the needs of the population.

There are, however, some factors which may be a hindrance to future rapid expansion of the programs. There is a need for additional qualified personnel and for additional training programs (both in-service and pre-service) to enable the programs to be more effectively operated. There is also a strong need for more precise identification

criteria and selection procedures to facilitate the placement of students in the program in a way that will be most beneficial to the individual. Expanding and equipping facilities also could hinder rapid expansion of the program.

C. RECOMMENDATIONS

It is recommended that continued emphasis be placed on designing and implementing vocational programs for dropouts, potential dropouts, unemployed and underemployed, youth and adults, and disadvantaged and handicapped persons.

3. A. ITEM: To what extent are new programs, services, and activities, being planned and implemented; old ones being modified; and all programs being articulated to enable new students -- potentially all those not now served -- to profit from some type of occupational training and guidance? Are there any principal stumbling blocks? Are plans being made or actions being taken to overcome these restraints?

B. FINDINGS AND CONCLUSIONS

The past years have seen many new programs started for the disadvantaged and handicapped populations in the State. Strong emphasis has been placed on the training of these groups for successful employment as well as training the unemployed or underemployed. The implementation of the occupational orientation program will enable the students to be more successful in selecting suitable occupations. This program of occupational orientation has shown such promise that the curriculum is being broadened for the coming years. Major emphasis is also being placed on individual vocational guidance services in each school. Plans are presently underway for every school with a disadvantaged program to have a remedial education program.

The principal stumbling blocks as identified here are: (1) student recruitment; (2) student retention; (3) the image of vocational education programs; (4) attitudes of teachers and administrators toward the programs; (5) certification requirements; and (6) lack of adequately trained teachers. These stumbling blocks are the primary focus of the coming years. There will be efforts made to overcome these as funds and personnel are made available.

C. RECOMMENDATIONS

It is recommended that a continued effort be maintained in modifying programs where needed, as well as implementing new programs as needed. It is further recommended that high priority be continued to be placed on individual and group guidance.

4. A. ITEM: How effective have the programs been during the year under review when measured against evaluative criteria, such as meeting their preestablished objectives relative to numbers, enrollments and completions, job placement in fields for which trained, graduates' initial success on jobs?

B. FINDINGS AND CONCLUSIONS

In the secondary vocational programs approximately 44 percent of the students completing continued their education in post secondary vocational programs. In secondary vocational education programs approximately 74 percent of the students completed and/or left the program with marketable skills during that year. Ninety-six percent of secondary students available for employment were placed on jobs.

In the post secondary vocational-technical programs the enrollment consisted of approximately 30 percent of all post secondary students (two-year programs). Approximately 97 percent of all post secondary vocational-technical students completed and/or left with a marketable skill and were placed on a job.

Adult classes were also planned and conducted during that year to upgrade and in some cases retrain persons for occupational entry and/or advancement. There were 204 additional programs offered for adults during the fiscal year under review. Most of these programs were designed to upgrade those adults who were presently engaged in an occupation.

There are strong indications that programs for the disadvantaged have reduced the dropout rate in schools; however, at the time of reporting, insufficient data were available to ascertain accurate dropout figures. Programs for the disadvantaged were increased by 122 during FY70.

The programs for handicapped persons also increased, or in reality began during FY70. There were 32 new vo-ed programs for the handicapped operating during FY70. These new programs were being operated under contract with Vocational Rehabilitation and Special Education in the State Department of Education.

C. RECOMMENDATIONS

It is recommended that continued emphasis be placed on evaluation of vocational programs against preestablished objectives.

5. A. ITEM: What is the status of the State program effort regarding its mandated responsibility to provide ample opportunity for youth and adults who desire or who are able to profit from technical and vocational education programs at the post secondary level? What significant problems, if any, (in addition to just financial deficits) are preventing attainment of this objective?

B. FINDINGS AND CONCLUSIONS

There are currently, or will be in the near future, opportunities for vocational-technical training in the majority of service fields in

every post secondary district in the State. There are also area vocational schools located within commuting distance to any person in the State offering vocational education to all persons. Training is available to youth and adults through these vccational programs on either a full-time or part-time basis. In addition, adult education programs are established in any service area when there is a reasonable interest shown in such a program.

To maximize the use of the facilities and equipment, some programs are operated on the secondary level for part of the day and on a post secondary level for the remainder of the day and night. Preparatory and supplementary training, as well as retraining, are carried out at the post secondary level in these vocational education programs.

There were a total of 264 predominantly post secondary vocational education programs operating during this fiscal year. This number includes an approximate 17 percent increase in instructional programs during the last fiscal year.

The problems which have been identified are as follows: (1) the image of vocational education; (2) the effects of the apprenticeship program in industry decreasing the enrollments in vocational education programs; (3) the need to restructure some ongoing programs; and (4) the need for attracting more industry into the area.

C. RECOMMENDATIONS

It is recommended that continued emphasis be placed on providing vocational education at the post secondary level to all who can benefit from such training.

GOAL V. EVALUATION SHOULD IDENTIFY THE EMPLOYMENT OPPORTUNITIES WITHIN THE STATE AND THE VOCATIONAL SERVICES REQUIRED

GOAL V. EVALUATION SHOULD IDENTIFY THE EMPLOYMENT OPPORTUNITIES WITHIN THE STATE AND THE VOCATIONAL SERVICES REQUIRED

I. A. ITEM: How valid and reliable are the present data pertaining to current and projected manpower requirements and job opportunities in the State? What is being done to improve it?

B. FINDINGS AND CONCLUSIONS

Intensive study has pointed up the lack of comprehensiveness in certain areas of manpower data. To increase the validity and reliability of data utilized in projecting manpower requirements and job opportunities, the following actions were taken:

1. Local school systems were requested to conduct manpower and job opportunity surveys which were to be included in local vocational plans.
2. Funds have been made available to purchase census tapes as they become available.
3. A cooperative agreement has been entered into with the Mississippi Employment Security Commission to utilize data and overcome gaps in available data.
4. A cooperative agreement has been entered into with the Mississippi Research and Development Center to improve manpower and job opportunity data collection.

Despite the apparent inadequacies of manpower and job opportunity data in certain areas, the actions stated will apparently pay dividends in increasing validity and reliability of the data.

C. RECOMMENDATIONS

It is recommended that continued effort be maintained to improve the validity and reliability of manpower data through cooperation with other agencies.

2. A. ITEM: To what extent are vocational education programs providing training to meet the current and projected manpower requirements in shortage occupations? What percentage of the graduates are placed in shortage occupations? How many such job opportunities are going unfilled because of a shortage of skilled manpower? Will State program efforts be redirected in this direction next year?

B. FINDINGS AND CONCLUSIONS

Every possible effort is being exerted as far as funds permit to provide occupational training in identified occupations with manpower shortages in the State. For example, in such critical areas as health occupations, 62 instructional programs are planned on the secondary, post secondary, and adult levels. Based on data from the Mississippi Employment Service and other sources, vocational programs have been planned and/or implemented for identified occupations with critical shortages of manpower. However, many of the vocational-technical programs designed to meet this established need are difficult to populate because of the high entrance requirements, lack of student interest, or the relatively low wage scale for such occupations.

The projected needs for employment in areas served by vocational education is 44,337; however, the projected output of vocational education programs is only 14,367, while other sectors will train 3,190. This leaves a total of 26,780 employment opportunities not filled. This large number of unfilled employment opportunities will be of prime concern for vocational education during the coming fiscal year. There are presently plans to increase the output in almost every occupational category served by vocational education programs in an effort to reduce this employment problem.

C. RECOMMENDATIONS

It is recommended that continued effort be placed on providing trained manpower for shortage occupations.

3. A. ITEM: To what extent are vocational programs providing training to meet the current and projected manpower requirements in new and emerging occupations and to what extent are occupational openings being filled?

B. FINDINGS AND CONCLUSIONS

As new and emerging occupations are identified within the State, adult, post secondary, and secondary instructional programs are designed and placed in operation to meet the needs. An illustration of these programs is the vocational program developed to prepare individuals for employment in ship propeller manufacturing. This program was designed to meet the critical needs of the shipbuilding industry on the Mississippi Gulf Coast. It was planned and implemented with the aid and expertise of a skilled technician from Holland. The program operated for approximately one school year and was terminated when the employment opportunities were reached.

Continued emphasis is being placed on close cooperation with various industries, the Employment Security Commission, and others in defining new and emerging occupations. Programs will be designed and implemented when definite needs are established.

C. RECOMMENDATIONS

It is recommended that vocational programs continue to be designed and implemented to meet projected manpower requirements in new and emerging occupations.

4. A. ITEM: To what extent are vocational education programs being implemented to provide training for job clusters and what do placement figures show regarding graduates from such programs? What changes will be made next year for these programs?

B. FINDINGS AND CONCLUSIONS

The clustering concept has been utilized to some degree in building trades, metal trades, auto mechanics, and nonfarm agricultural occupations. In addition, vocational complexes have been established or are planned for most areas in the State making greatest use of the cluster concept.

Due to the recent initiation of the cluster concept for vocational education programs, job placement figures are unavailable at this time. Due to the relatively short operational period of these programs, there have been few completions as of this date.

C. RECOMMENDATIONS

It is recommended that training for job clusters be provided where feasible in vocational programs.

5. A. ITEM: To what extent are vocational and technical education programs and services being planned and implemented to provide occupational training and guidance to satisfy the full range of potential job opportunities in the State? Is this range of opportunities known? Are steps being taken to close any existing gaps? Does the State presently have the capability of providing the additional programs? What are the problems?

B. FINDINGS AND CONCLUSIONS

Group guidance services are greatly enhanced with the implementation of occupational orientation programs in the State. These programs were established to familiarize all students with current, new, and/or emerging occupations.

Emphasis is also being placed on individual student vocational guidance. Some progress has been made during the last year in reducing the student-guidance counselor ratio in secondary schools from 1 to 567 to 1 to 550 students. Through individual student guidance generally students have become more familiar with the employment opportunities in the State. Students are generally better equipped through occupational orientation and individual guidance to make realistic occupational choices.

Emphasis is being placed on planning vocational and technical programs to meet the changing occupational needs of the State. The period under study has seen the addition of 297 secondary programs, 39 post secondary programs, 204 adult programs, 122 programs for the disadvantaged, and 32 programs for the handicapped. Along with these additions, nine additional secondary and one post secondary area vocational schools have been put into operation during FY70. There are also plans to have approximately 24 post secondary and 42 secondary area vocational schools in operation by FY74.

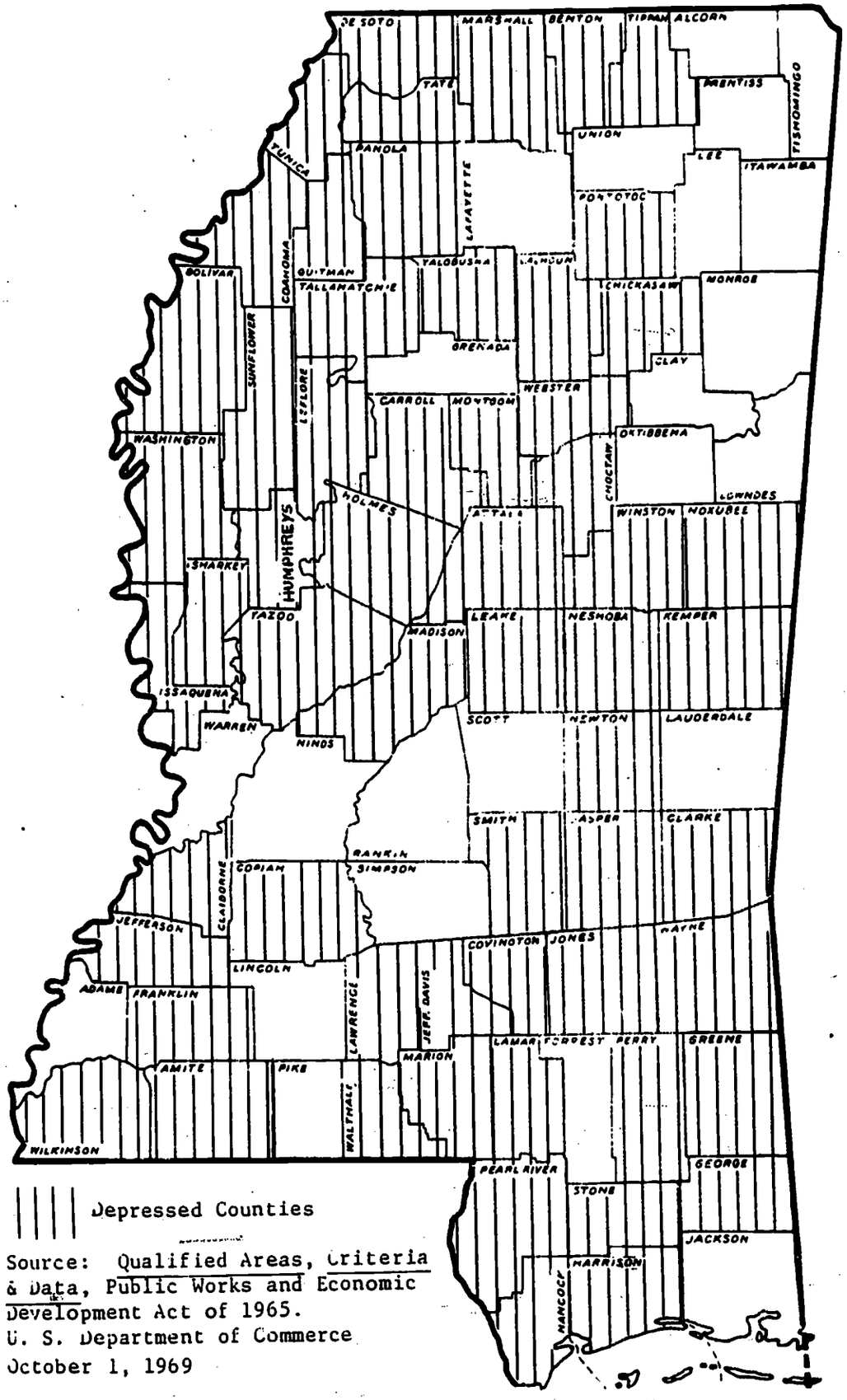
Generally, the State has the capability of providing additional programs within the available funds. However, in some areas matching funds are a problem. Another problem facing vocational education is the time lapse between demonstrated need for the program and actual construction and equipping of facilities. There is also a problem of securing well-qualified and trained personnel to operate the program in some service areas.

C. RECOMMENDATIONS

It is recommended that continued effort be maintained in providing occupational training in guidance for potential job opportunities in the State.

APPENDICES A, B, AND C

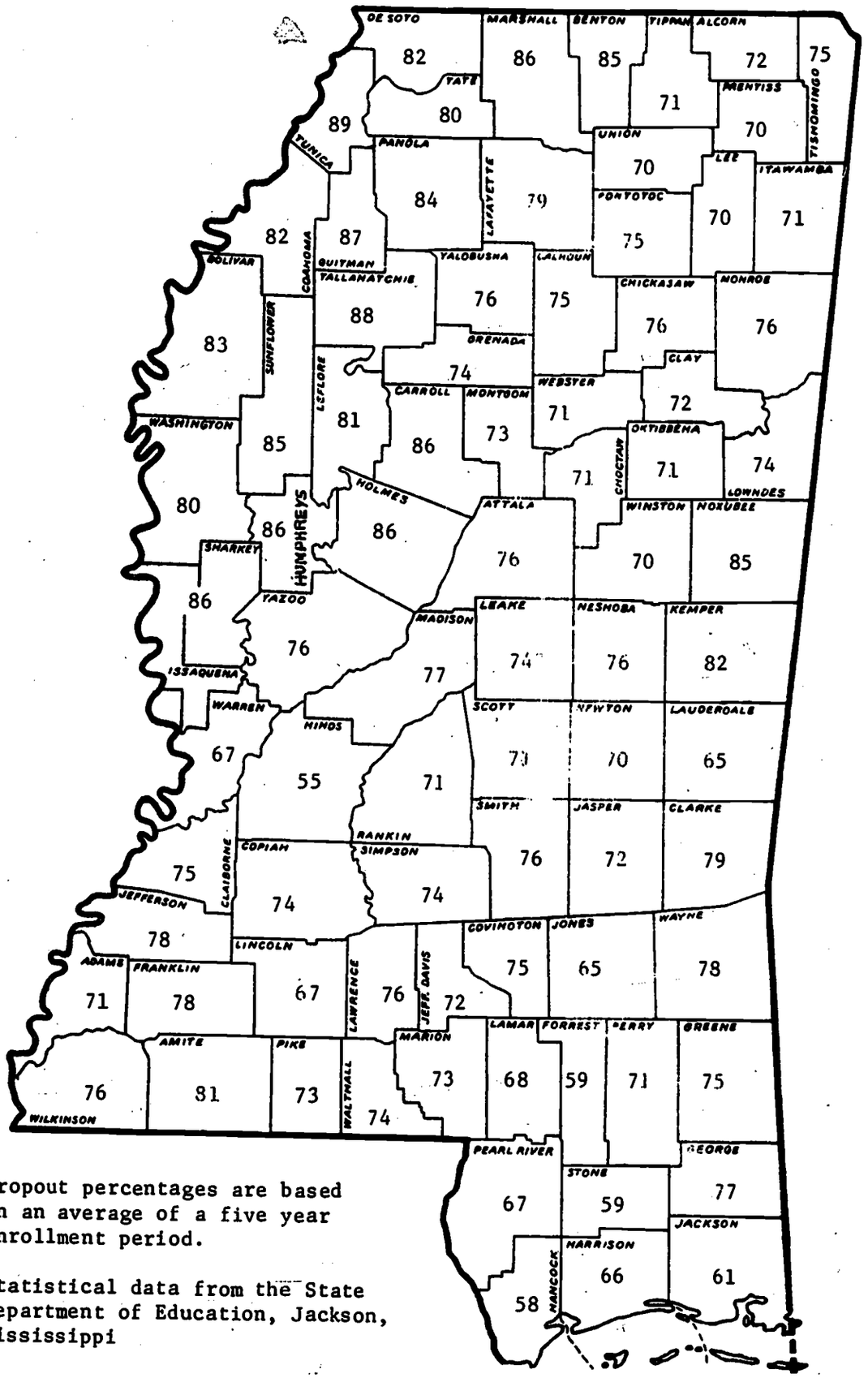
Designated Depressed Counties



Depressed Counties

Source: Qualified Areas, Criteria & Data, Public Works and Economic Development Act of 1965.
U. S. Department of Commerce
October 1, 1969

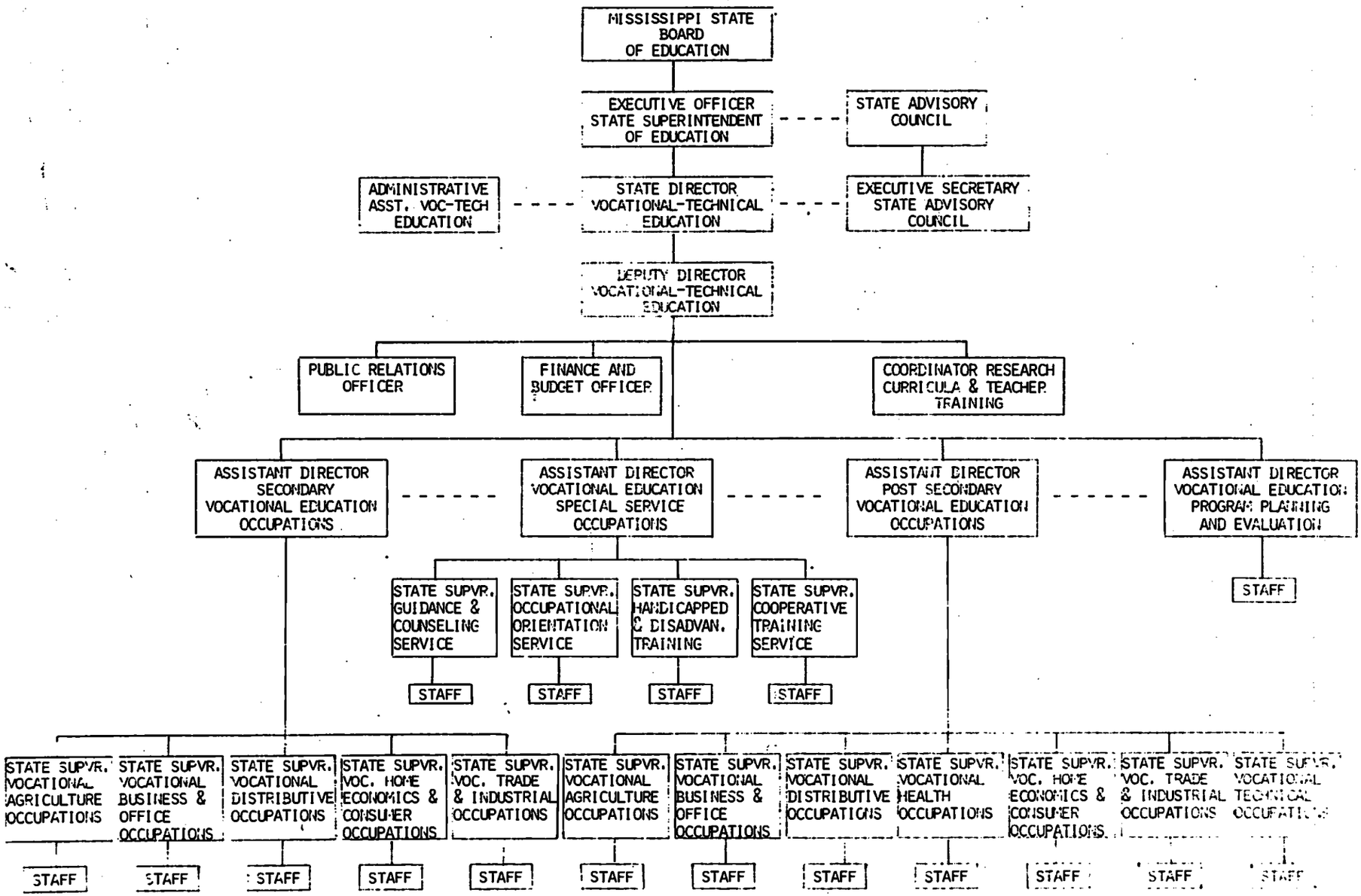
Percent of School Dropouts Between Entering the Second Grade and Entering the First Year of College, by County



Dropout percentages are based on an average of a five year enrollment period.

Statistical data from the State Department of Education, Jackson, Mississippi

ORGANIZATIONAL CHART
VOCATIONAL-TECHNICAL DIVISION
STATE DEPARTMENT OF EDUCATION



OPTIONAL APPENDICES

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FUNCTIONS AND RESPONSIBILITIES OF STATE ADVISORY COUNCIL MEMBERS AND EMPLOYED STAFF

1. Chairman

The Chairman of the State Advisory Council presides at all Council and Executive Committee meetings. He plans and directs activities of the various committees of the Council; and consults with, and reviews with, the chairmen and members of the various committees of the Council on all matters pertaining to the total functions and responsibilities of the Council.

2. Vice-Chairman

The Vice-Chairman, in absence of the Chairman, serves in his place and performs all incumbent functions.

3. Executive Secretary

The Executive Secretary carries out policies set by the Council and performs all other functions and responsibilities delegated by the Chairman and members of the Council. A position description is on file.

4. Assistant Executive Secretary

The Assistant Executive Secretary assists in all functions performed by the Executive Secretary and such other duties as may be assigned; and in his absence serves as Executive Secretary.

5. Executive Committee

The Executive Committee, composed of three persons, chaired by the State Chairman, will recommend policies and procedures for the Council and act on matters in absence of the entire Council.

6. Planning and Advising Committee

The Planning and Advising Committee, composed of a Chairman and two members, will advise the State Department of Education, Vocational Division, on the development of the State Plan, including the preparation of long-range and annual program plans, and prepare and submit a statement describing its consultation with the State Department of Education, Vocational Division, on its State Plan. This committee will advise the State Department of Education, Vocational Division, on policy matters arising in the administration of the State Plan submitted pursuant to the Vocational Act and regulations.

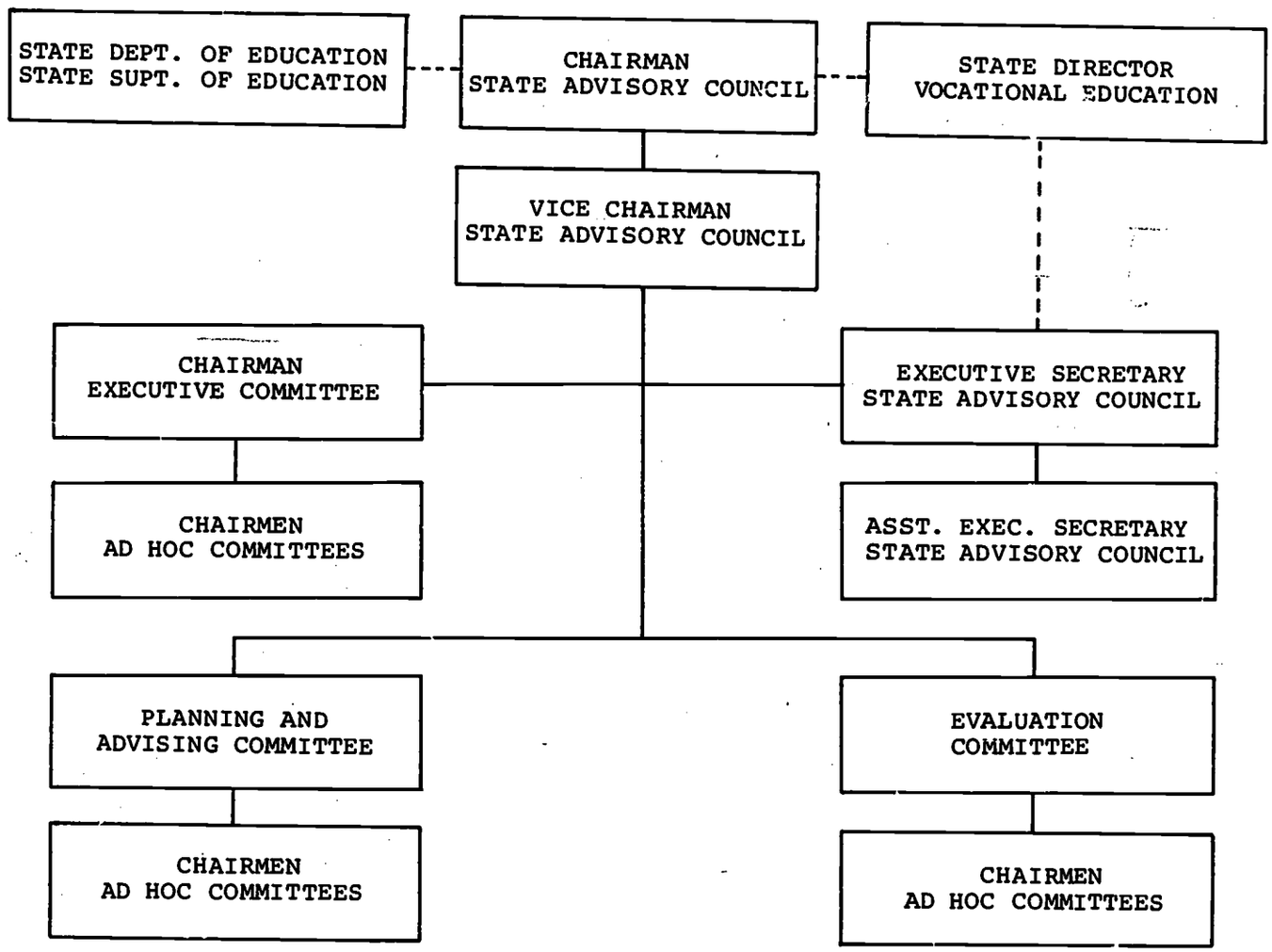
7. Evaluation Committee

The Evaluation Committee, composed of a Chairman and two members, will evaluate vocational education programs, services, and activities under the State Plan, and publish and distribute the results thereof; prepare and submit through the State Department of Education, Vocational Division, to the Commissioner and to the National Advisory Council an annual evaluation report, accompanied by such additional comments of the State Department of Education, Vocational Division, as they deem appropriate, which (1) evaluates the effectiveness of vocational education programs and services carried out in meeting the program objectives set forth in the long-range program plan and the annual program plan required, and (2) confer with the State Director of Vocational Education and recommend such changes as may be warranted by the evaluations.

8. Ad Hoc Committees

These committees will be appointed by the Chairman as needed for the purpose of studying and reporting on particular phases and problems, if any, in vocational education which will be brought to the attention of the Council as a whole at a later date for discussion and decision. The findings will be made available to the State Director of Vocational Education.

ORGANIZATIONAL CHART STATE ADVISORY COUNCIL ON VOCATIONAL EDUCATION STATE OF MISSISSIPPI



VT 016 405

THE JOB CORPS. RESIDENTIAL TRAINING FOR DISADVANTAGED YOUTH.

MANPOWER ADMINISTRATION (DOL), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 12P.

DESCRIPTORS - *ACULT VOCATIONAL EDUCATION; *FEDERAL PROGRAMS; *DISADVANTAGED YOUTH; POVERTY PROGRAMS; *OUT OF SCHOOL YOUTH; VOCATIONAL TRAINING CENTERS
IDENTIFIERS - *JCB CORPS

ABSTRACT - THIS GUIDE DESCRIBES THE JOB CORPS RESIDENTIAL CENTERS FOR DISADVANTAGED YOUTH. THE PAMPHLET DESCRIBES ENROLLEES, TYPES OF TRAINING CENTERS, AND PROGRAM BENEFITS. ADDRESSES OF NATIONAL JOB CORPS HEADQUARTERS AND REGIONAL MANPOWER ADMINISTRATORS ARE INCLUDED. (BH)

THE JOB CORPS

Residential Training for Disadvantaged Youth

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U.S. DEPARTMENT OF LABOR/Manpower Administration

THE JOB CORPS

● A 19-year-old Colorado youth who was working as a low-paid farm laborer decided that he needed specialized training in order to qualify for a better job. Since no suitable training program was available near his home, he joined the Job Corps. After 5 months of remedial education and skill training at a Job Corps center, he was hired by an aerospace company as a machine shop trainee at $2.11 an hour. Eventually, he rented a house, bought his own car, and took over the support of his mother, who had been on welfare for 12 years.

● A Baltimore girl dropped out of school after only 5 years of formal education. She was steered to Job Corps, a residential program that could give her education and other services as well as skill training. After 1 year, she had received her high school equivalency diploma and completed studies to be a nurse aide. From Job Corps she went on to a full 4-year scholarship at the State University of New York at Albany.

● The most money a teenager from the rural South had ever made was $1.25 an hour. A seventh-grade dropout, he wasn't making enough to live on and didn't have the skills or education to get a better paying job. He entered Job Corps, where it was felt round-the-clock supportive services would give him the boost he needed. While in Job Corps, he successfully completed welder's training, raised his reading level three grades, and finished a basic math course. At last report, he was working in an automobile plant as a spot welder and earning $3.37 an hour.

Since 1965, more than 278,000 other disadvantaged young men and women--out of school and unable to get a decent job--have sought a new direction in life through the Job Corps. These young people grew up in the Nation's ghettos and poor rural areas. Many dropped out of school and took menial jobs because they lacked the skills to get and hold a good position. Before joining the Job Corps, they had little hope of escaping a future of low-paid work or unemployment, continued poverty, and, perhaps, delinquency.

RESIDENTIAL TRAINING FOR JOBLESS OR LOW-INCOME YOUTH

The Job Corps is a pioneer effort of the Federal Government to help jobless or low-income youth, aged 16 through 21, become responsible, employable citizens. It is a nationwide program designed to provide, usually in a residential setting, basic education and job training to poor, out-of-school, out-of-work young people.

Residential training, either in the home area or away from home, is a unique feature which distinguishes the Job Corps from other Federal manpower programs. From the start, the Job Corps has been based on two key ideas: (1) That many underprivileged young people need a change of environment--away from family or community problems, or both--to make the most of their training; and (2) that these youth need not only work-training but also a full program of educational, health, and recreational services.

Established in August 1964, the Job Corps opened its first center in January 1965. The program was originally administered by the Office of Economic Opportunity. On July 1, 1969, the Job Corps was delegated to the Department of Labor and integrated into its Manpower Administration, although it continues to be funded through the Economic Opportunity Act. Since then, the Job Corps has been restructured to increase its effectiveness. The least effective centers were closed, and the 48 with the best performance records were retained. The closed centers are being replaced in part by 28 residential centers located in or near cities. They serve local area youth and make maximum use of existing community facilities. When all new centers are operational, the program will serve about 25,000 young men and women.

THE TYPICAL JOB CORPS ENROLLEE

The typical youth who joins the Job Corps--a young man of 17, a young woman 18--has completed 9 years of school before dropping out, but has the reading and math ability of a fifth grader.

Some 28 percent of the enrollees are women. About half of all Corpsmembers are from rural areas or towns with a population of under 50,000. Half of all enrollees have never seen a doctor or a dentist. Only about 55 percent have ever held a full-time or part-time job; for these, the average hourly wage was $1.35.

Job Corps enrollees are recruited by the State employment services, Women in Community Service (WICS), and other organizations. All have volunteered for the program and are usually school dropouts. They must be: 16 through 21 years old; citizens or permanent residents of the United States; unable to find or hold an adequate job; and, for residential students, in need of a change in environment because they come from low-income homes where poor living conditions limit their educational development. Enrollees are encouraged to remain in the Job Corps long enough to complete their training, which may take up to 2 years. The average stay is 6 months.

TYPES OF RESIDENTIAL CENTERS

Job Corps operates five types of residential centers:

- *Civilian conservation centers for men,* operated by the Department of Agriculture or the Department of Interior in national parks and on other public lands. These are small centers, averaging 180 men.

- *Large centers for men,* operated under contract by business firms or, in one case, a State educational foundation. Located on unused military bases, these centers have facilities for from 1,350 to 3,000 men.

- *Centers for women,* accommodating from 200 to 750 enrollees and located in or near urban areas. Operated under contract by business organizations, a university, and educational and social service agencies, these centers provide young women with instruction in home management in addition to the regular program. A few women's centers have nonresident students.

- *Residential manpower centers for men and women,* designed to train local urban youth and to coordinate their activities with existing community services. These new-type centers, training from 125 to 350 enrollees for jobs needed in the immediate area, are operated under contract by private industry or nonprofit organizations and located in or near metropolitan areas. Some RMC's are for men and some for women; others are co-ed. Over half have some nonresidential students.

• *Residential support centers*, along with the RMC's, the newest type of centers to be added to the Job Corps. Usually run under contract by nonprofit groups, RSC's are rooming-house style residences in urban areas for about 30 local youth (men or women) who are enrolled in local daytime vocational programs other than Job Corps. These centers provide the intensive support and tutoring services that underprivileged youth often need to succeed in their vocational courses. RSC's have no training facilities of their own.

A NEW KIND OF LIFE BEGINS

When a Corpsmember arrives at a Job Corps center, he enters a new kind of life. He lives in comfortable quarters and is responsible for his own housekeeping chores. He eats nutritious meals in the center cafeteria. He takes part in physical training classes, hobby groups, and student government meetings. On weekends, he visits nearby communities under supervision for recreation and religious services. After 6 months, he is eligible for 2 weeks of home leave.

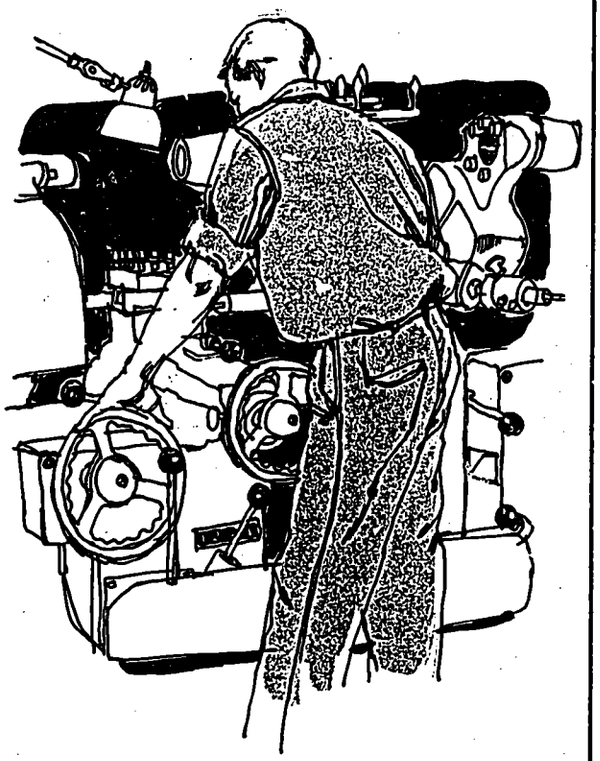
He receives work and dress clothing. The Federal Government pays his travel expenses, usually by bus, from his home to the center and return. He receives a monthly allowance of $30, which may be increased to $50 if he does well in his work. At all times, he is expected to attend classes, work hard, and observe center regulations. When he has completed his Job Corps training or performed satisfactorily in the Corps for 6 months, he may be paid a readjustment allowance of $50 for every month of service. If a Corpsmember has a child or dependent female spouse, a monthly allotment of up to $25 from the readjustment allowance may be arranged. This amount is equally matched by the Federal Government and can result in the dependent's receiving up to $50 a month.

EDUCATION PLUS WORK TRAINING

Job Corps enrollees benefit from an innovative program combining remedial education, work-skill training, and on-the-job work experience. They are taught by professional educators and by instructors, some of whom are drawn from industry and labor unions.

The Job Corps general education program includes reading, mathematics, language and study skills, consumer education, advanced general education, standard English, English as a second language, and orientation to the world of work.

The general education program does not reflect any particular theory of teaching. It is assumed that there are many ways to teach, and the program concentrates on using the best instructional materials and techniques available. Job Corps emphasizes use of self-instructional materials geared to individual students' interests and abilities. Each student begins instruction at his own level and proceeds at his own pace. The general education program is suitable for students at all levels--from those with zero skills to those preparing for high school equivalency certificates.



The Job Corps vocational training programs prepare young men and women for specific jobs with known manpower shortages. Corpsmembers are trained for jobs in automotive and machinery repair, food services, electronics assembly, electrical appliance repair, construction and metal trades, transportation and heavy equipment operation, health services occupations, clerical and business skills, retailing, cosmetology, and other occupations currently in demand. At civilian conservation centers, preapprenticeship training in heavy equipment and other construction trades (carpentry, painting, plastering, and bricklaying) is conducted by labor unions.

The Job Corps work-experience program gives Corpsmembers actual training on the job. Youth often work in nearby business firms, hospitals, and government agencies or on conservation and building projects on public lands.

Health and counseling services are available at Job Corps centers. Psychologists and counselors provide job counseling and assist enrollees with personal problems. A health staff provides medical and dental services to help develop strong bodies and good health needed for a productive life. Health education is also part of the program.

70 PERCENT HAVE GONE INTO JOBS, THE ARMED SERVICES, OR BACK TO SCHOOL

From the day an enrollee arrives at a Job Corps center, his program is planned to help him move on to a good job. When he completes his training, he is assisted in finding a job by the local office of the State employment service, by Job Corps placement officers, or by one of the Job Corps GATE (Graduate Aid to Employment) Houses, located in 25 cities with heavy concentrations of returning Corpsmembers. Volunteer organizations like JACS (Joint Action in Community Service) and WICS provide the support services former Corpsmembers need to adjust to the world of work.

Has Job Corps met its goal of starting underprivileged young people on the road to a better life? Studies show that of the 245,000 young men and women who went through the program during its first years (through 1969), about 70 percent, or 171,500, were making constructive use of the training they received. Some 134,000 took jobs paying an average of more than $1.70 an hour, 17,500 went back to school or on to college, and 20,000 entered the Armed Forces. Of the remainder, some were looking for better jobs, some were not yet employed because they were too young to meet age requirements for certain jobs, and some of the women had married and left the labor market.

JOB CORPS EDUCATION AIDS AMERICA'S SCHOOLS: CORPSMEMBERS HELP THE NATION, COMMUNITY

In addition to preparing disadvantaged young people for useful lives, the Job Corps has made other important contributions to the Nation. Several different teaching techniques--special types of team teaching and multimedia instruction--used by Job Corps and materials developed specifically for the program are now being widely used in other youth training programs, in the Armed Forces, and in hundreds of public schools across the country to speed the learning rate of slow students and help potential dropouts stay in school. Some 400 public school teachers from 270 school systems have taught in Job Corps centers with the objective of putting the methods they learned there to work in their own school districts.

Another Job Corps contribution has been the service projects performed by Corpsmembers. Improvements they have made in national parks and forests are valued at over $100 million. They have worked with the aged and the handicapped in nearby communities, fought forest fires and floods, and conducted search and rescue missions.

NEW DIRECTIONS FOR THE JOB CORPS

The 28 new centers being established represent a new concept for Job Corps--the concept of training young people in or near their own communities.

As part of the Manpower Administration, Job Corps has been coordinating its recruitment, training, and placement activities more closely with other manpower programs. For example, whenever possible (and particularly at the new centers), enrollees' training is being provided by existing local manpower programs and educational institutions, including local technical schools and skills centers established under the Manpower Development and Training Act.

At the same time, enrollees in other manpower programs benefit through the availability of Job Corps services and facilities. MDTA, Neighborhood Youth Corps (NYC), Work Incentive Program (WIN), and other enrollees may be trained at Job Corps facilities under local agreements on a nonresidential basis.

A NEW FUTURE FOR JOB CORPS GRADUATES

When a Corpsmember finishes his Job Corps training, he receives a Certificate of Achievement. It certifies that he has completed his education and work-training program at a Job Corps center. He has worked hard to improve his reading and math. He has learned skills that he can use to get a good job. And he has learned how to live and work together with other young people. With Job Corps help, he is ready to put his past behind him--and to move ahead to a better life.

WHERE TO GET MORE INFORMATION

For more information on the Job Corps, write to Job Corps, Manpower Administration, U.S. Department of Labor, 1111 - 18th Street, NW., Washington, D.C. 20210 or get in touch with the nearest office of the Regional Manpower Administrator at the address listed below:

Location	States Served	
John F. Kennedy Fed. Bldg. Boston, Mass. 02203 (617) 223-6440	Connecticut Maine Massachusetts	New Hampshire Rhode Island Vermont
341 Ninth Avenue New York, N.Y. 10001 (212) 971-5445	New Jersey New York	Puerto Rico Virgin Islands
5000 Wissahickon Avenue Philadelphia, Pa. 19144 (215) 438-5200	Delaware Maryland Pennsylvania	Virginia West Virginia
D.C. Manpower Administrator 14th and E Streets, NW. Washington, D.C. 20004 (202) 629-3663	District of Columbia	
1371 Peachtree Street, NE. Atlanta, Ga. 30309 (404) 526-5411	Alabama Florida Georgia Kentucky	Mississippi North Carolina South Carolina Tennessee
219 South Dearborn Street Chicago, Ill. 60604 (312) 353-4258	Illinois Indiana Michigan	Minnesota Ohio Wisconsin
411 North Akard Street Dallas, Tex. 75201 (214) 749-2721	Arkansas Louisiana New Mexico	Oklahoma Texas
911 Walnut Street Kansas City, Mo. 64106 (816) 374-3796	Iowa Kansas	Missouri Nebraska
New Custom House 19th and Stout Streets Denver, Colo. 80202 (303) 297-3091	Colorado Montana North Dakota	South Dakota Utah Wyoming
450 Golden Gate Avenue San Francisco, Calif. 94102 (415) 556-7414	Arizona California Hawaii Nevada	American Samoa Guam Trust Territories
Smith Tower Building Seattle, Wash. 98104 (206) 583-7700	Alaska Idaho	Oregon Washington

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MANPOWER NEEDS IN IOWA BY OCCUPATION

1971–1975

VT 016406

5203

Iowa Employment Security Commission

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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Manpower Needs in Iowa

By Occupation

1971 - 1975

Developed By:

Iowa Employment Security Commission
Research and Statistics Department
1000 East Grand Avenue
Des Moines, Iowa 50319

Commissioners:

James T. Klein
George A. Lundberg
Abe D. Clayman

June 1972

5204

FORWARD

In order to better prepare our future supply of laborers to obtain meaningful employment, it is necessary that information on the number and kinds of manpower needs in the future be made available. It is the object of this publication to provide such information to those involved in the counseling, training, and placement of workers.

This publication contains projected manpower needs for selected occupations in the State of Iowa for the four year period 1971 to 1975. Total needs for each occupation represent the sum of anticipated needs due to growth in the occupation (expansion needs) and the number of workers needed to replace workers who leave already present positions due to death, retirement, or other separations from the labor force (replacement needs).

Projections of state employment by industry are obtained by using national industrial employment and projected employment along with state industrial employment over the last ten to twelve years. A national staffing pattern transforms projected industrial employment to occupational employment by distributing each industry's total employment to those occupations pertinent to the specific industry. This will yield expansion needs due to industrial growth.

Replacement needs are determined by applying separation rates by age group for males and females to annual average employment by age and sex. Total annual separations are multiplied by four to provide total separations for the projection period.

Employment data shown represent annual average employment for the specific year(s). Totals represent one job per worker with those holding more than one job being considered in their primary occupation. The manpower needs included here are only for a selected list of job titles, with many titles falling into "all other" categories. (See Appendix) It should also be noted that these figures concern only demand for workers in these occupations, and say nothing about the supply of workers in any of the occupations.

Expansion needs represent anticipated needs due to extension of present conditions, rather than representing actual employment or predictions. Other assumptions concerning the economic environment during the projection period will affect the projected needs.

These assumptions, as detailed in Tomorrow's Manpower Needs, Vol. IV published by the Department of Labor, Bureau of Labor Statistics include the following:

1) BLS labor force projections by 1975 assume a total labor force of 94.1 million; Armed Forces, 2.7 million; and civilian labor force of 91.4 million.

2) An unemployment rate of 4% was assumed for 1975.

3) No major event will substantially alter the rate and nature of economic growth.

4) Economic and social patterns and relationships will continue to change at about the same rate as in the recent past.

5) Scientific and technological advances of recent years will continue at about the same rate.

6) Defense expenditures (in constant dollar terms) between 1965 and 1975 will increase at about the same average rate as during the 1955-65 period. This implies an end to the Viet Nam conflict before 1975 and a return to "cold war" levels of patterns of defense expenditures.

These projections supersede previous projections published in February 1970 for the period 1970-1975. Changes in projected manpower needs for certain occupations are primarily due to new projections of 1975 state industrial employment. State industrial employment projections to 1975 were based on new national industrial projections of nonagricultural wage and salary employment supplied to us by the Department of Labor. The prime example of this concerns the railroad industry. Both the state and nation are expected to have decreasing railroad employment and this will affect the needs for occupations found in this industry, notably, railroad conductors, locomotive engineers and firemen, railroad mechanics, brakemen and switchmen. Similarily, decreases in mining employment will decrease needs for such jobs as mining engineers, mine operatives and laborers, while increases in the hotel and lodging industry will increase the need for managers, cooks, waiters, waitresses, and other service workers.

Basic methodology to prepare these projections was obtained from the Handbook for Projecting Employment by Occupations for States and Major Areas (draft publication 1970) and Tomorrow's Manpower Needs, Volumes I-IV, both of which are published by the U. S. Department of Labor, Bureau of Labor Statistics.

Other sources include the Occupational Outlook Handbook (Department of Labor, Bureau of Labor Statistics), Standard Industrial Classification Manual (Office of Statistical Standards), Dictionary of Occupational Titles (U. S. Department of Labor, Bureau of Employment Security) and the U. S. Census of Population, 1960, Iowa (Bureau of Census).

MANPOWER NEEDS FOR IOWA

1971 - 1975

by Occupation

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Estimated Employment for Iowa — 1971 and 1975

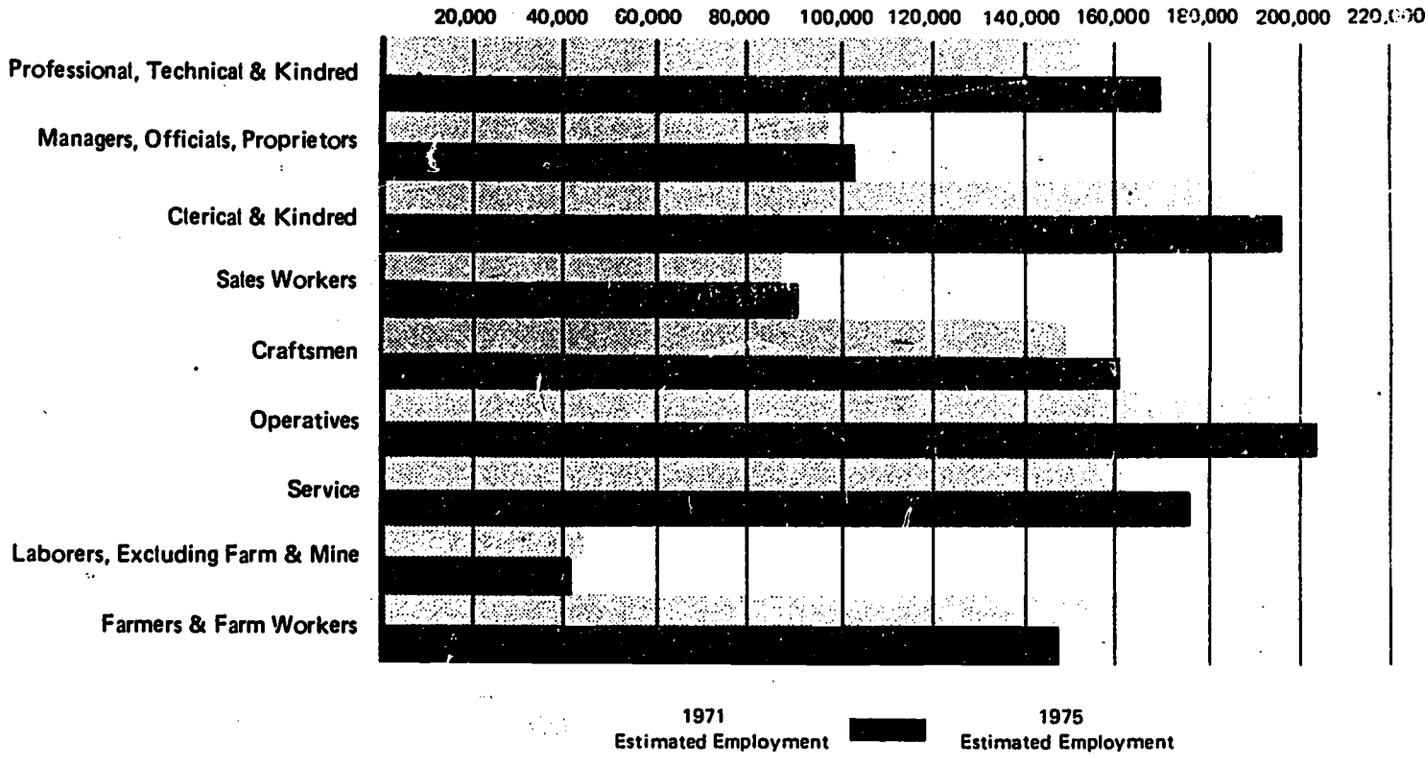


Table 1A

	Estimated 1971	Percent	Projected 1975	Percent
Total All Occupations	1238396	100.0	1290009	100.0
Professional, Technical and Kindred	151770	12.2	170621	13.2
Managers, Officials, Proprietors	96175	7.8	100537	7.8
Clerical & Kindred	180467	14.6	193891	15.0
Sales Workers	88312	7.1	91033	7.1
Craftsmen	151952	12.3	161495	12.5
Operatives	198516	16.0	209260	16.2
Service Workers	161757	13.1	176215	13.7
Laborers except Farm and Mine	43183	3.5	40688	3.2
Farmers & Farm Workers	166264	13.4	146269	11.3

Most major occupational groups will either maintain or increase the same percentage of total employment from 1971 to 1975. Only Laborers, excluding farm and mine, and Farmers and Farm workers will show a decrease in their percentages of total employment from 1971 to 1975. Operatives and Kindred workers will continue to be the largest occupational group in terms of total employment, 1975 employment projected at 209260. Second are Clerical and Kindred workers with projected employment of 193891. Third numerous will be Service Workers with 176215 as projected 1975 employment. Employment of other major occupational groups will range from 40,000 to 171,000.

Manpower Needs for Iowa — 1971 to 1975

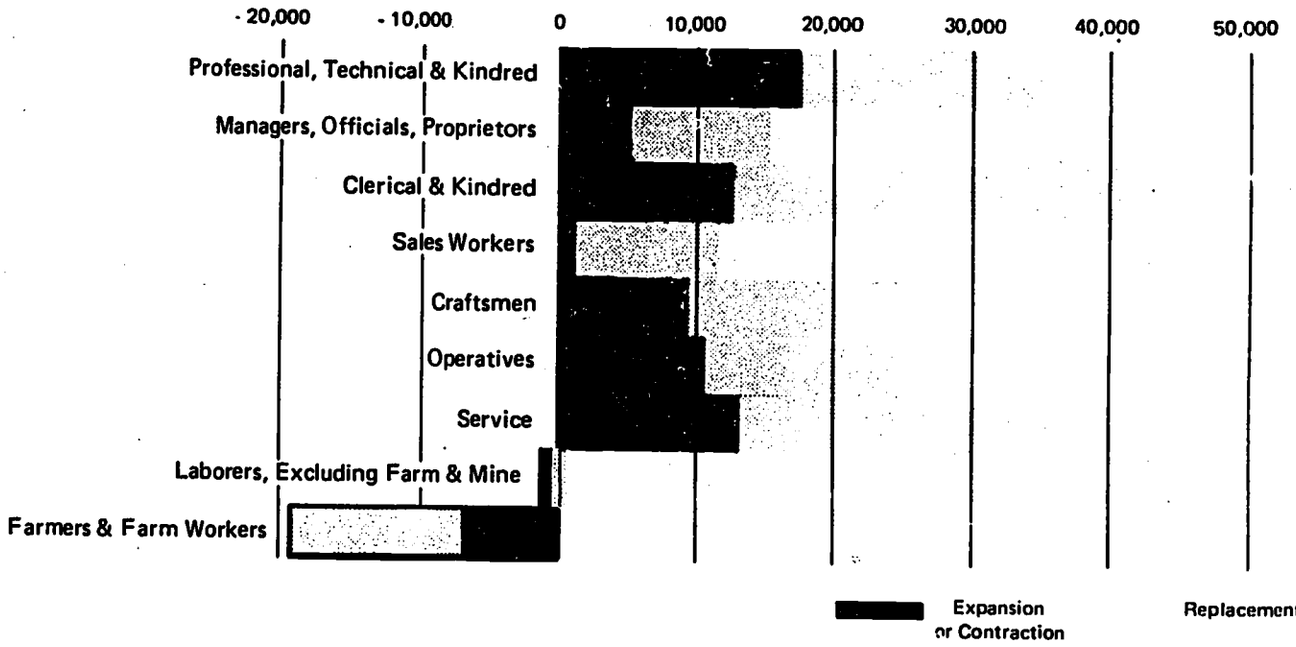


Table 1B

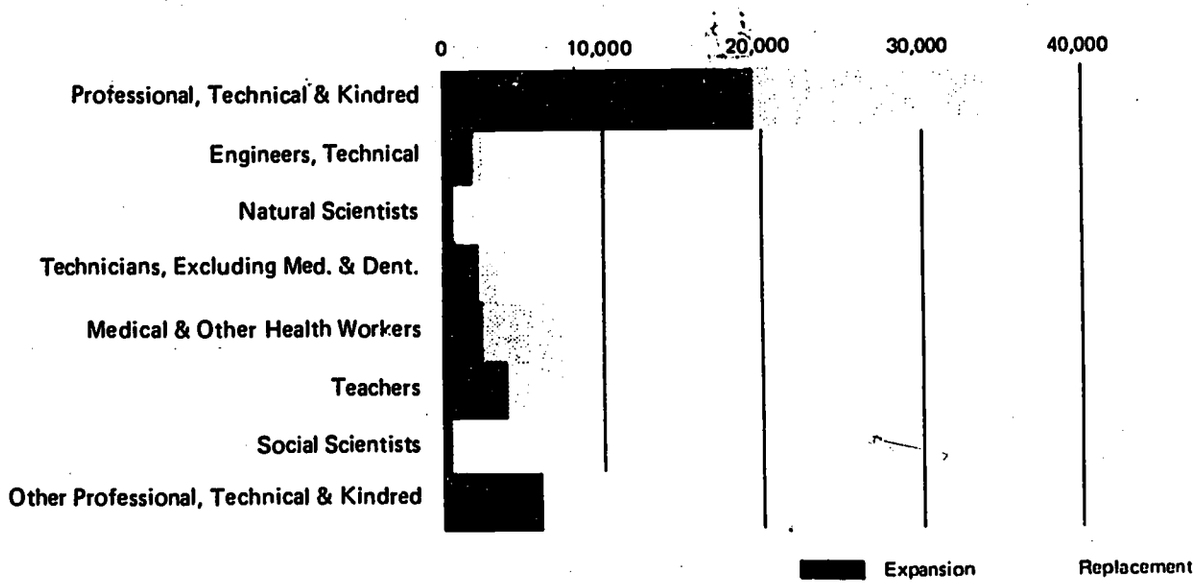
	Total Needs 1971-75	Expansion or Contraction Percent Change 1971-75
Total All Occupations	187391	4.2
Clerical and Kindred	43848	7.4
Service Workers	38922	8.9
Professional, Technical and Kindred	35915	12.4
Operatives	25016	5.4
Craftsmen	21129	6.3
Managers, Officials, Proprietors	14882	4.5
Sales Workers	13045	3.0
Laborers except Farm and Mine	877	-5.8
Farmers & Farm Workers	-6243	-12.0

As shown in Table 1B total manpower needs for the four year period 1971 to 1975 are projected to 187,391 with slightly over one-fourth of these (51613) due to industrial growth (expansion needs). The percent change between estimated 1971 employment and projected 1975 employment for all occupations as shown in Table 1A will be 4.2% resulting in 1975 projected employment of 1,290,009. The fastest growing major occupational group in this period will be Professional, Technical, and Kindred occupations with a 12.4% increase over the four year period. Second, in terms of growth rate between 1971 and 1975 are Service Occupations, expected to grow at a 8.9% rate, while Clerical and Kindred occupations are third with an expansion rate of 7.4%. All other major occupational groups will grow at a rate between 3.0% and 6.5% with Laborers, except farm and mine, and Farmers and Farm workers showing decreases.

In terms of the number of projected needs, the same three major occupational

groups lead, but in different order. Projected to have the greatest number of total needs are the Clerical and Kindred occupations with 43,848. Second are Service Workers with projected needs of 38,922, while Professional, Technical and Kindred workers are projected to have needs of 35,915. All other major occupational groups are expected to have needs of less than 30,000 in the four year period, with Laborers needing less than 1,000 and needs for Farmers being negative.

Professional, Technical and Kindred Manpower Needs



	Expansion	Replacement	Total
Professional, Technical, & Kindred	18851	17064	35915
Engineers, Tech.	2358	568	2926
Natural Scientists	407	92	499
Technicians, except Medical and Dental	2476	560	3036
Medical, Other Health	2776	5504	8280
Teachers	3836	4432	8268
Social Scientists	65	40	105
Other Prof., Tech., & Kind., N.E.C.	6933	5868	12801

Among the Professional, Technical and Kindred occupations, Teachers (see p. 11), Medical and Health Workers, and Engineers and Technicians continue to show the greatest number of needs. Many of these needs, however, will be due to replacement of workers rather than due to growth in the occupations. This will be especially true of needs for Medical Workers and Teachers.

Technical Engineers

	Expansion	Replacement	Total Needs
Engineers, Technical	2358	568	2926
Aeronautical	----	---	----
Chemical	42	12	54
Civil	402	184	586
Electrical	416	76	492
Industrial	547	88	635
Mechanical	463	124	587
Metallurgical, etc.	25	4	29
Mining	-3		-3
Other	466	80	546

Among technical engineers, industrial engineers are projected to have the greatest needs of 635. Demand for industrial engineers will increase due to the increasing complexity of industrial operations, and growing concern with scientific management and safety engineering in increasing productivity and reducing costs. Civil, Electrical, and Mechanical Engineers also have high projected total needs. Growing needs for housing, industrial buildings and transportation systems created by the growing population will stimulate demand for Civil Engineers. Needs for Electrical Engineers will be created by increased demand for electrical control of automatic production processes. Expansion of industry and increasing complexity of technology will contribute to demand for Mechanical Engineers. Nationally, expansion to 1980 will be rapid (over 30%) for the above mentioned engineering occupations plus those of Chemical and Metallurgical Engineers. Mining engineers, however, are expected to have negative needs due to a decrease in projected employment in the mining industry, which was projected on the basis of a decrease in mining employment nationally. No additional needs for Aeronautical Engineers is foreseen for Iowa due to the current national cutbacks in commercial aviation and defense spending.

Natural Scientists

	Expansion	Replacement	Total Needs
Natural Scientists	407	92	499
Chemists	176	40	216
Agricultural	109	20	129
Biological	50	20	70
Geologists, Geophysicists	10	4	14
Mathematicians	4	4	8
Physicists	56	4	60
Other	2		2

Chemists are projected to have the greatest expected total needs in the four year period among Natural Scientists. The 216 needs expected for this occupation will account for almost half of the total needs of Natural Scientists. Increasing research and development work will continue to create demand for chemists. Agricultural Scientists, such as soil scientists or extension service workers, will continue to be in demand to support Iowa's agriculture industry. Other natural scientists are expected to have moderate to rapid growth rates.

Printing Trades Craftsmen

	Expansion	Replacement	Total Needs
Printing Trades Crafts	-11	340	329
Compositors, Typesetters	-235	216	-19
Electrotypers, Stereotypers	-11	4	-7
Engravers, Ex. Photoengravers	7	8	15
Photoengravers, Lithographers	107	28	135
Pressmen and Plate Printers	121	84	205

Decreasing employment in the printing trades industry will affect the growth rate and quantity of expansion needs for printing trades craftsmen. Replacement needs, however, are substantial and will be large enough such that total needs for the entire group of occupations will be positive, even though some specific occupations will not have positive total needs. Growth among printing trades craftsmen will vary among the specific occupations. Labor saving technological changes in typesetting and composition will decrease employment in those occupations. Growing use of offset printing and lithography will increase needs for lithographers. Increases in the amount of printing and use of color will help create demand for Pressmen and Plate Printers.

Technicians

	Expansion	Replacement	Total Needs
Technicians, ex. Med. & Dent.	2476	560	3036
Draftsmen	441	116	557
Surveyors	330	68	398
Air Traffice Controllers inc'd w/Radio Operators			
Radio Operators	53	32	85
Other	1652	344	1996

Highest in terms of total needs among technicians will be draftsmen. Rapid growth rates in this occupation will be due to increasing complexity of modern design products and processes. More draftsmen will also be needed as support personnel to the scientific and engineering occupations. Rapid growth of urban areas, roads and highways will continue to maintain demand for surveyors. Anticipated total needs for Iowa in the four year period are 398. Both draftsmen and surveyors are expected to have rapid growth rates in the seventies, while Air Traffic Controllers and Radio Operators will have more moderate needs.

Transportation and Public Utilities Craftsmen

	Expansion	Replacement	Total Needs
Trans. & Other Pub. Util. Crafts	-203	376	173
Linemen & Servicemen	114	180	294
Locomotive Engineers	-139	176	37
Locomotive Firemen	-178	20	-158

Total needs for Transportation and Other Public Utility Craftsmen are projected to be less than 200. The most significant determinant of needs for these occupations is projected employment in the railroad transportation industry. Since this is an area of decreasing employment, employment in railroad occupations, such as engineers and firemen will be decreased, rather than expand. There will be some need for locomotive engineers to replace present workers who leave. Growth rate for linemen and servicemen is expected to slowly increase nationally, and in Iowa will total less than 3%. Replacement needs for linemen and servicemen will bring total needs for those occupations close to 300.

Medical Workers

	Expansion	Replacement	Total Needs
Medical, other Health Workers	2776	5504	8280
Dentists	146	312	458
Dieticians, Nutritionists	24	64	88
Nurses, Professional	766	2660	3426
Optometrists	12	16	28
Osteopaths	23	24	47
Pharmacists	15	176	191
Physicians & Surgeons	523	540	1063
Psychologists	70	32	102
Technicians, Med. & Dent.	783	812	1595
Veterinarians	89	64	153
Other	325	804	1129

With over 3000 total needs, Professional Nurses will account for close to one half of total needs for Medical and Health workers. Rising population, extension of hospitalization programs, such as Medicare, will account for this demand. Replacement, however, will be the major cause of needs in the medical occupations as a group. Physicians and Surgeons needs are expected to require slightly over 1000, being nearly equally divided between expansion and replacement demands. Rising population and higher health standards will contribute to this demand.

Only slight needs are projected for Dieticians and Nutritionists. Smaller hospitals are using consultants and many personnel trained in these occupations are re-entering the labor force in response to previous demand. Manpower needs for Veterinarians will continue to rise due to the amount of agriculture and livestock in the State requiring medical services. Most other medical occupations are projected nationally to have moderate to rapid growth rates in the decade.

Mechanics and Repairmen

	Expansion	Replacement	Total Needs
Mechanics and Repairmen	4528	3050	7578
Airplane Mechanics & Repairmen	22	8	30
Motor Vehicle Mechanics	1006	856	1862
Office Machine Mechanics	76	44	120
Radio & T. V. Mechanics	43	94	137
Railroad & Car Shop Mechanics	-69	36	-33
Other	3450	2012	5462

Motor vehicle mechanics is by far the leading occupation in terms of total needs among Mechanics and Repairmen as a group. Increasing numbers of automobiles and therefore, maintenance and accidents resulting in damage will result in increased demand for mechanics. Replacement needs will also be substantial for motor vehicle mechanics. Although some expansion needs are projected for Radio and TV mechanics, growth will be limited by technological improvements, such as transistors and printed circuits which will reduce service requirements. Other mechanics are also expected to experience moderate to rapid growth rates in the four year period.

Teachers

	Expansion	Replacement	Total Needs
Teachers	3836	4432	8268
Elementary	806	2437	3243
Secondary	1841	1241	3082
College	959	532	1491
Other	230	222	452

The above projected needs for Teachers are based on increasing employment in public and private educational services, and as such may be optimistic in view of the decreasing birth-rate and decreasing numbers of school-age children. Coupled with the great numbers of graduates in education, teacher placement may still remain a problem in the next decade. Beginning teachers will have to increase the quality of their skills and be willing to take jobs in some rural districts or in urban disadvantaged areas. In opposition to the declining birth rate are other changes in the educational system which may increase demand, or at least employ some of the excess supply. Reduction of the pupil-teacher ratio could result in needs for additional teachers, as the reduced class size would contribute to the quality of education. The possibility of removing teachers not now presently meeting certification requirements may also offer additional employment opportunities for new teachers. In addition, the effect of closing parochial schools and the transfer of students from these to public schools may also increase demand for elementary and secondary school teachers.

The 1970 Census of Population shows ten year olds as having the greatest population among youth. This age group will be among those in secondary schools in 1975 and may be responsible for some of the expansion needs for Secondary Teachers.

At the present time, the Department of Public Instruction is participating in a survey of teacher needs with Iowa State University. Findings of that study may update and supersede the above projections.

Needs for college level teachers may decline somewhat due to the slow down in the surging college enrollments of the sixties. However, the transfer of students to vocational and area schools may take up some of the slack in demand of college teachers.

Other Craftsmen and Kindred

	Expansion	Replacement	Total Needs
Other Craftsmen and Kindred	1976	1552	3528
Bakers	-49	176	127
Cabinetmakers	123	112	235
Crane, Derrick, Hoistmen	97	88	185
Glaziers	56	40	96
Jewelers & Watchmakers	-42	48	6
Loom Fixers	---	---	---
Opticians, Lens Grinders	16	28	44
Inspectors, Log & Lumber	2	4	6
Inspectors, Other	137	128	265
Upholsterers	62	72	134
Craftsmen & Kindred N.E.C.	1574	856	2430

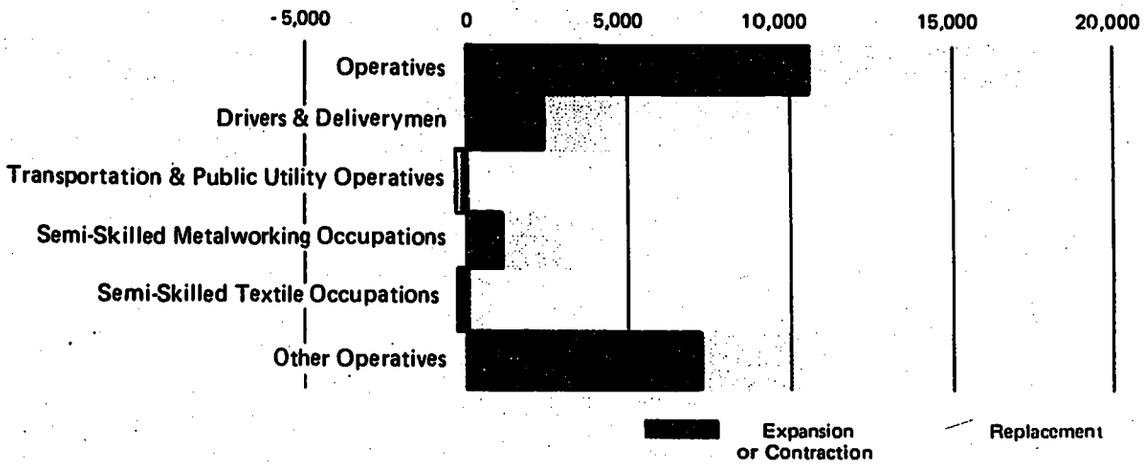
Inspectors (other) will show the greatest total needs in the four year period for the remaining Crafts occupations. Replacement needs will account for many of total needs, but rising quality standards and complexity of production will stimulate some expansion in the occupation. Cabinetmakers are also projected to have total needs of over 200. Negative expansion needs for Bakers and Jewelers and Watchmakers are due to projected declining employment in industries where these occupations are found. The percentage of Bakers employed in the food and kindred industry is projected to decline by 1975. Little or no change is expected nationally for Jewelers and Watchmakers. The 1960 Census showed no Loom Fixers employed in Iowa, so no projection of needs was made for this occupation.

Social Scientists

	Expansion	Replacement	Total Needs
Social Scientists	65	40	105
Economists	35	20	55
Statisticians & Actuaries	25	20	45
Other	5		5

Social Scientists will show moderate increases with respect to their present employment levels. Increased analysis of business trends, forecasting and planning will create demand for economists in private industry, while data collection and analysis and administration of programs will necessitate employment of more economists in government. Statisticians will also be needed by business and government for accounting, sales and program analysis. Actuaries will continue to be needed in the insurance and some government fields.

Manpower Needs for Operatives



	Expansion	Replacement	Total
Operatives and Kindred	10744	14272	25016
Drivers and Deliverymen	2236	2428	4664
Transportation and Public Utility Operators	-276	180	-96
Semi-Skilled Metal Occupations	1296	1828	3124
Semi-Skilled Textile Occupations	-118	336	218
Other Operatives	7606	9500	17106

Drivers and Deliverymen, and Semi-Skilled Metalworking Occupations will have the greatest total needs in the four year projected period among operative and kindred occupations. Decreasing employment in the railroad industry will again affect expansion needs for Transportation and Public Utility Operatives. Semi-Skilled Textile Occupations will be affected by increased use of mechanized equipment and other labor saving devices requiring fewer workers. Replacement needs will be important for Operatives as a group, accounting for more than half of total needs.

Other Professional, Technical and Kindred

	Expansion	Replacement	Total Needs
Other Professional, Tech., & Kindred	6933	5868	12801
Accountants & Auditors	471	664	1135
Airplane Pilots & Navigators	26	12	38
Architects	51	48	99
Workers in Arts, Entertainment	1489	1568	3057
Clergymen	-225	484	259
Designers, ex. Design Drafts	93	32	125
Editors & Reporters	212	296	508
Lawyers & Judges	43	408	451
Librarians	226	492	718
Personnel & Lab. Rel. Workers	226	152	378
Photographers	44	64	108
Social & Welfare Workers	317	348	665
Pro., Tech., Kin., N.E.C.	3960	1300	5260

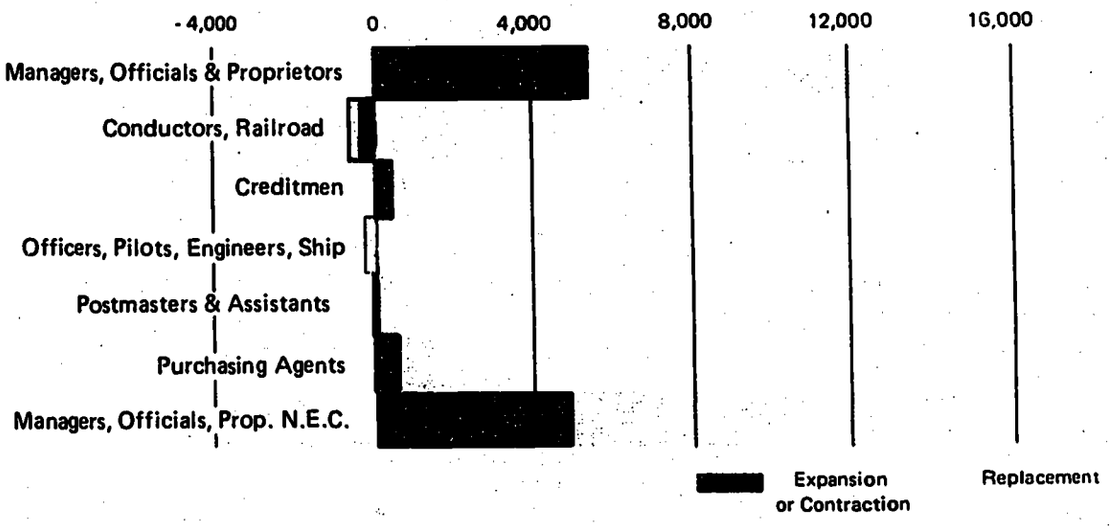
Accountants and Auditors will continue to be in demand due to greater use of accounting information in business management. Increased use of computers may require additional accountants to analyze and interpret data output. Negative needs for clergymen reflect an opinion that churches will not see any growth in employment; rather, employment will likely maintain only 95% of current employment, or at best, hold stable. This will be due to consolidation of church districts and congregations. There will still exist some need for clergymen to replace those who die, retire or otherwise leave the profession. Most other professional, technical and kindred occupations will have moderate growth rates with respect to their current employment. Librarians, Social and Welfare Workers, and Editors and Reporters all will have total needs of over 500, with Lawyers and Judges, and Personnel Workers having needs between 300 and 500.

Drivers and Deliverymen

	Expansion	Replacement	Total Needs
Drivers and Deliverymen	2236	2428	4664
Bus, Truck, Tractor	1493	1860	3353
Deliverymen & Routemen	743	568	1311

Drivers and Deliverymen show substantial needs, but growth is anticipated to be less than 5%. Replacement needs will constitute the major part of total needs. Increases in freight moved by motor carrier will stimulate demand for drivers. Deliverymen will find employment due to rising incomes, demand for services, expanding population, and increasing numbers of working wives. Automatic food service in plants, schools, stores, hospitals and other buildings will increase demand for vending machine routemen.

Manpower Needs for Managers, Officials, and Proprietors



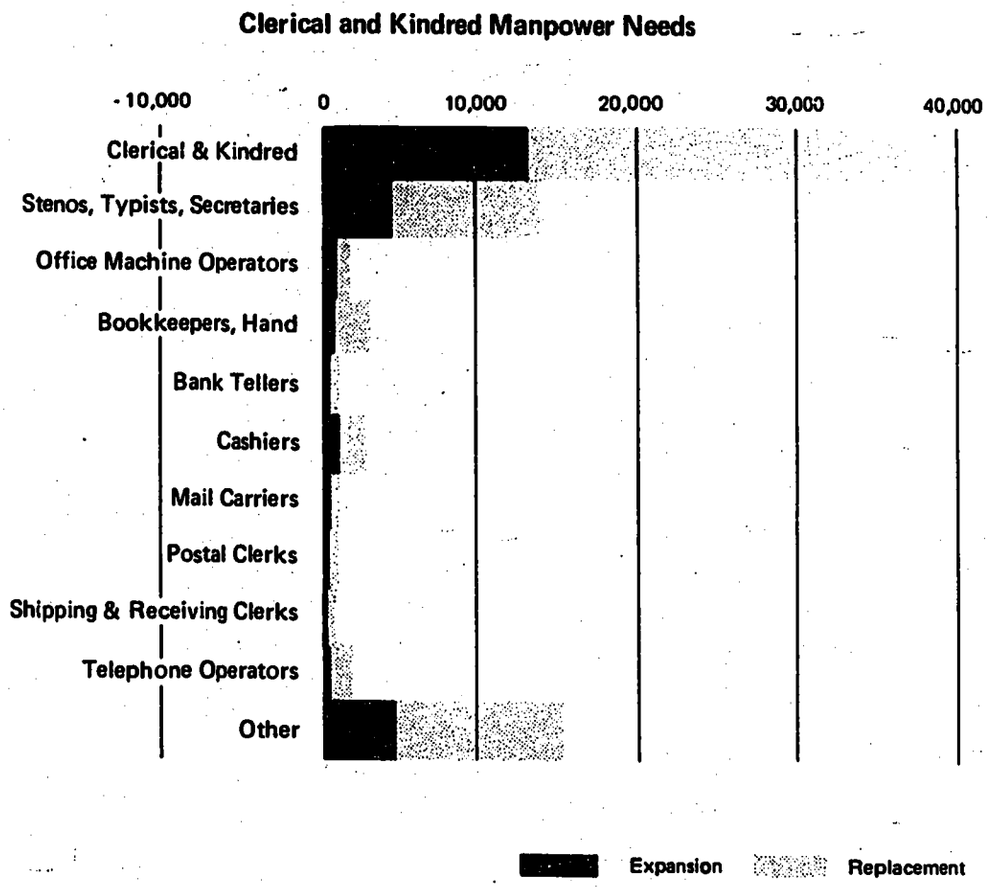
	Expansion	Replacement	Total
Managers, Officials, & Prop.	4362	10520	14882
Conductors, Railroad	-125	60	-65
Creditmen	119	104	223
Officers, Pilots, Engineers, Ship	-2	4	2
Postmasters & Assistants	-2	156	154
Purchasing Agents	140	216	356
Managers, Officials, Prop. N.E.C.	4232	9980	14212

Continuing increases in the size and complexity of business firms, development of new products and sources of supply, and continuing competition between businesses will continue to maintain demand for purchasing agents. With total needs of 356, this occupation leads those in the managerial group above in terms of expected manpower needs. Second in terms of total number needed will be creditmen, perhaps due to increased use of consumer credit to finance durable goods purchases. Negative needs for Railroad Conductors are due to decreasing projected employment in the railroad transportation industry, both in the state and in the nation. Growth will be negative for Postmasters and Assistants due to the closing of smaller post offices in the state, however, replacement needs will remain over 100.

Transportation and Public Utilities Operatives

	Expansion	Replacement	Total Needs
Trans. & Pub. Util. Operatives	-276	180	-96
Brakemen & Switchmen, R.R.	-279	152	-127
Power Station Operators	-1	28	27
Sailors and Deckhands	4		4

Railroad industrial employment in 1975 will have the greatest effect on Transportation and Public Utility Operatives. Total needs for this group will be negative due to the contraction of employment of Brakemen and Switchmen. Power station operators will be needed to replace those who will leave the occupation in the four year period ahead, even though no expansion is projected. Increasing river transportation mainly on the Mississippi will generate slight expansion needs for deckhands.



	Expansion	Replacement	Total
Clerical & Kindred	13424	30424	43848
Stenos, Typists, & Secretaries	4524	9744	14268
Office Machine Operators	783	1164	1947
Other Clerical & Kindred	8117	19516	27633
Accounting Clerks	Included with Bookkeepers Hand.		
Bookkeepers, Hand	393	3572	3965
Bank Tellers	390	448	838
Cashiers	1473	2012	3485
Mail Carriers	562	404	966
Postal Clerks	359	512	871
Shipping, Receiving Clerks	50	296	346
Telephone Operators	30	1556	1586
N.E.C.	4860	10716	15576

Total needs for Clerical and Kindred occupations will continue to be high. Close to one-third of these needs will be accounted for by demand for Stenographers, Typists, and Secretaries. Increased paperwork and correspondence will result in the expansion needs, while over 9000 will be needed to replace those who retire, withdraw from the labor force or otherwise leave their jobs. Expansion in business activity will create demand for Bookkeepers and Cashiers, but again, replacement needs will account for most of total needs in these two occupations. Office Machine Operators

Semi-skilled Metalworking Occupations

	Expansion	Replacement	Total Needs
Semi-skilled Metalworking Occup.	1296	1828	3124
Furnacemen, Smeltermen, Pourers Heaters, Metal	-14	32	18
Welder & Flamecutters	941	504	1445
Assemblers, Metalworking, Class A Assemblers, Metalworking, Class B	521	944	1465
Inspectors, Metalworking, Class B	-152	348	196
Machine Tool Operators, Class B			
Electroplaters			
Electroplater's Helper			

Metalworking assemblers will have the greatest total needs in semi-skilled metalworking occupations. However, replacement will account for over 60% of these; the growth rate being only slightly over 3% in the four year period. Wider use of the welding process and maintenance and repair work in the metalworking industries will create demand for Welders and Flamecutters. Increases in output per worker may limit demand for furnacemen, smeltermen, and pourers, although there will still be a positive need to replace those leaving this job.

Mechanization and use of automatic inspection equipment will limit need for Metalworking Inspectors. Nationally, growth in this occupation is expected to be slow.

Those occupations with no figures shown are included with "Other Operatives, N.E.C." (See p. 31).

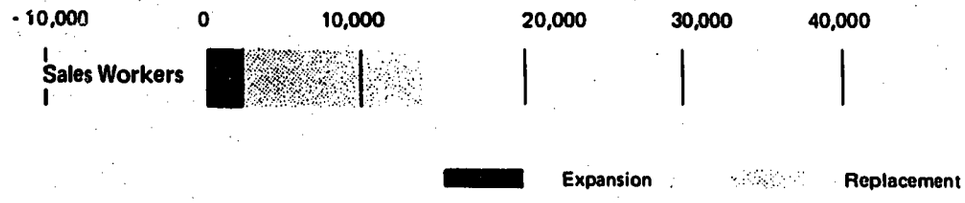
and Telephone Operators are projected to each have total needs of greater than 1000. Here also, replacement needs will account for 75% of total needs for these occupations. Streamlining of record keeping and use of automated equipment may have some effect on expansion needs for shipping and receiving clerks. Slightly under 300 workers will still be needed for replacement needs.

Semi-skilled Textile Occupations

	Expansion	Replacement	Total Needs
Semi-skilled Textile Occup.	-118	336	218
Knitters, Loopers, Toppers	1	4	5
Spinners, Textile	-3	4	1
Weavers, Textile	-17	44	27
Sewers & Stitchers, Mfg.	-99	284	185

Increasing output per worker due to use of mechanized equipment and labor-saving techniques will result in little or no expansion needs for the above textile occupations. However, these occupations employ many older and female workers. Therefore, replacement needs will be important for all occupations in the group and will over-compensate for negative expansion needs, resulting in positive total needs. This will be especially true of Sewers and Stitchers where most employment and needs are concentrated.

Manpower Needs for Sales Workers



	Expansion	Replacement	Total
Sales Workers	2721	10324	13045

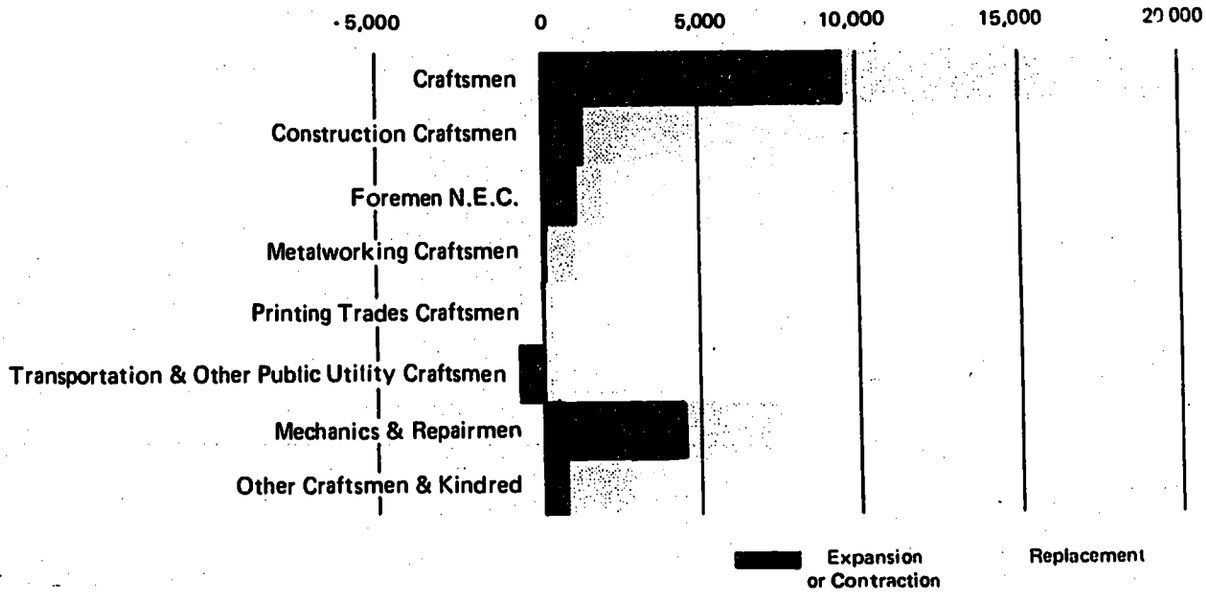
Increased sales as a result of population growth, business expansion, and income increases, will be the main determinant of increased demand for sales workers. In addition, over 10,000 workers will be needed to replace workers who leave presently existing jobs. Overall growth for sales occupations is expected to be moderate.

Other Operatives

	Expansion	Replacement	Total Needs
Other Operatives	7606	9500	17106
Asbestos, Insulation Workers	18	16	34
Attendants, Auto Service Parking	2083	620	2703
Blasters and Powdermen	----	4	4
Laundry and Dry Cleaning	97	912	1009
Meat Cutters, Ex. Meat Packing	-174	244	70
Mine Operatives & Laborers, N.E.C.	-210	48	-162
Other Operatives, N.E.C.	5792	7656	13448

Increases in employment among Auto Dealers, Gas Service Stations, and Auto Repair Services will account for the increased need for Auto Service and Parking Attendants. Over 600 will also be needed for replacement in this occupation. Laundry and Dry Cleaning Workers will have total needs of over 1000 with 90% of these due to replacement needs. Meat Cutters will be affected by a decreasing percentage of employment in food and dairy stores and by increasing worker productivity. Replacement needs, however, are sufficient to leave total needs positive. Mine Operatives and Laborers will experience a decrease in employment due to the projected decrease in mining industrial employment. For Other Operatives as a group, replacement needs will account for over half of the total needs.

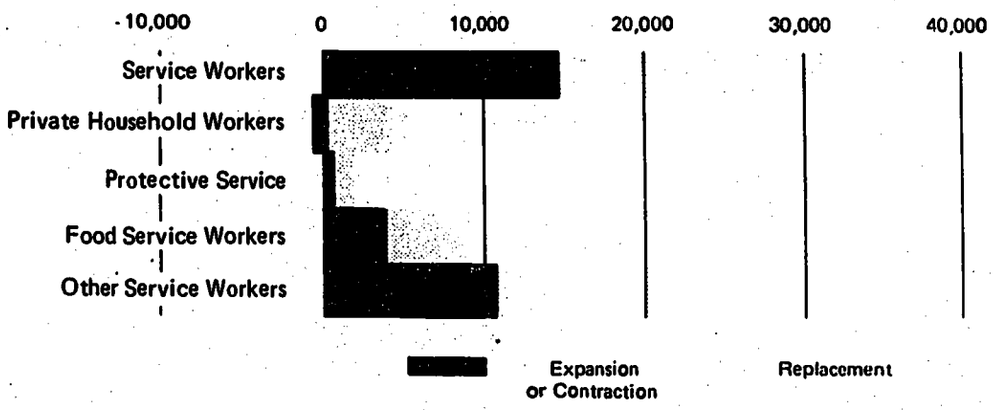
Manpower Needs for Craftsmen



	Expansion	Replacement	Total
Craftmen	9543	11586	21129
Construction Craftsmen	1661	3856	5517
Foremen, N.E.C.	1136	1412	2548
Metalworking Craftsmen	456	1000	1456
Printing Trades Crafts	-11	340	329
Transportation and Other Public Utility Crafts	-203	376	173
Mechanics and Repairmen	4528	3050	7578
Other	1976	1552	3528

Among Craftsmen and Kindred occupations, mechanics and repairmen will have the greatest total needs of 7578. This is the only occupational group among craftsmen and kindred which is projected to have expansion needs greater than replacement needs. Other groups with high total needs, Construction Craftsmen, Foremen, and Metalworking Craftsmen, will find most of their needs resulting from replacements of present workers. Negative expansion needs for Printing Trades Craftsmen and Transportation and Public Utilities Craftsmen are due to projected decreasing employment in the printing and publishing industry and railroad industry respectively, although both of these occupational groups will still have some demand in the form of replacement needs.

Manpower Needs for Service Workers



	Expansion	Replacement	Total
Service Workers	14458	24464	38922
Private Household	-668	5612	4944
Protective Service	688	836	1524
Food Service Workers	3639	5920	9559
Other Service Workers	10799	12096	22895

Service Workers as a group are expected to have a growth rate of slightly under 9% between 1971 and 1975. Replacement needs will also require over 24,000 workers, making total needs 38,922. Food service workers will have the largest total needs due to more frequent use of restaurants and preparation of meals outside the home. Greater need to protect property and life will create demand for protective service workers. Due to projected decreasing employment, expansion needs for Private Household Workers will be negative. However, the large number of replacement needs will create positive total needs. Replacement needs for service workers as a group will be significant accounting for over 60% of total needs.

Construction Craftsmen

	Expansion	Replacement	Total Needs
Construction Craftsmen	1661	3856	5517
Carpenters	494	1640	2134
Brickmasons & Tile Setters	145	192	337
Cement Concrete Finishers	45	24	69
Electricians	104	328	432
Excavating, Grading Mach. Op.	193	420	613
Painters & Paper Hangers	129	740	869
Plasterers	14	32	46
Plumbers & Pipefitters	383	380	763
Roofers and Slaters	53	60	113
Structural Metal Workers	101	40	141

Greatest total needs among Construction Craftsmen will be found for Carpenters. This is largely due to the high number of workers needed to replace those leaving the occupation. A projected increase in 1975 employment in the Construction industry will generate expansion needs of 494. Painters and Paperhangers will also be affected by the same changes in the construction industry. Again, replacement needs will add over 700 to bring total needs for these two occupations to 869.

Two other occupations show total needs over 500: Plumbers and Pipefitters and Excavating and Grading Machine Operators. Increasing needs for Plumbers and Pipefitters will be caused by installation of more bathrooms per dwelling, more appliances, and automatic heating systems, increased use of automatic production activities and refrigeration and air-conditioning equipment. Most of the anticipated need for Excavating and Grading Machine Operators is due to replacement needs, but highway construction, maintenance and repair and increasing mechanization of material movement will generate some expansion in the occupation.

Private Household Workers

	Expansion	Replacement	Total Needs
Private Household Workers	-668	5612	4944

Retirements, deaths, and other separations will account for all projected needs for Private Household Workers. Employment in these occupations in Iowa has been decreasing in the past decade, and employment in future years is projected to follow that trend; thus, the negative expansion needs.

Foremen, N.E.C.

	Expansion	Replacement	Total Needs
Foremen, N.E.C.	1136	1412	2548

The majority of total needs for Foremen will be those needed to replace present foremen who are promoted, transfer, retire or die. Growth in this occupation will be the result of increased supervision as industrial production processes become more complex, and increased need for foremen in business and government for inspection and coordination of production and manufacturing work.

Protective Service

	Expansion	Replacement	Total Needs
Protective Service	688	836	1524
Firemen	222	92	314
Guards, Watchmen, Doorkeepers	44	392	436
Policemen, Other Law Enforcement	422	352	774

Growth rate for protective service workers is projected to be near 8% between 1971 and 1975, with replacement needs accounting for 800 workers. Policemen and Other Law Enforcement Officials with total needs of 774 account for half of the demand for Protective Service Workers as a group. Protection of life and property, traffic regulation and growing population will stimulate demand for policemen along with the need to replace those retiring or otherwise leaving the job. Specialization among officers, such as engineering or data processing, is expected to increase needs. Growing needs for fire protection and prevention in urban communities will generate demand for Firemen. Replacement needs for Guards, Doorkeepers and Watchmen will be most important since these occupations are usually filled by older workers.

Metalworking Craftsmen

	Expansion	Replacement	Total Needs
Metalworking Craftsmen	456	1000	1456
Machinists & Related Occup.	248	500	748
Blacksmiths, Forgemen, Hammermen	-73	84	11
Boilermakers	6	20	26
Heat Treaters, Annealers	-12	20	8
Millwrights	20	52	72
Moulders, Metal, Ex. Coremakers	-6	40	34
Patternmakers, Metal, Wood	31	48	79
Rollers & Roll Hands	1	4	5
Sheet Metal Workers	138	100	238
Toolmakers & Die Makers	103	132	235

Among Metalworking Craftsmen, Machinists and Related occupations will have the highest total needs of 748. These expansion needs are due to increases in projected employment in the machinery and transportation equipment industries. Two occupations show expansion needs of over 100 and total needs greater than 200. Demand for Sheet Metal Workers will be created by increased call for installation of central air-conditioning and large refrigeration systems. Continued need for tools and dies to produce metal parts will result in some expansion needs for Tool and Die Makers.

Blacksmiths will have negative expansion needs since articles formerly made by blacksmiths are now being made in forge shops. A number will still be needed to replace those leaving the job. Negative and small expansion needs in other metalworking occupations can be attributed to projected industrial employment.

Food Service Workers

	Expansion	Replacement	Total Needs
Food Service Workers	3639	5920	9559
Bartenders	195	376	571
Cooks, Ex. Private Household	1743	2268	4011
Counter & Fountain Workers	425	324	749
Waiters, and waitresses	1276	2952	4228

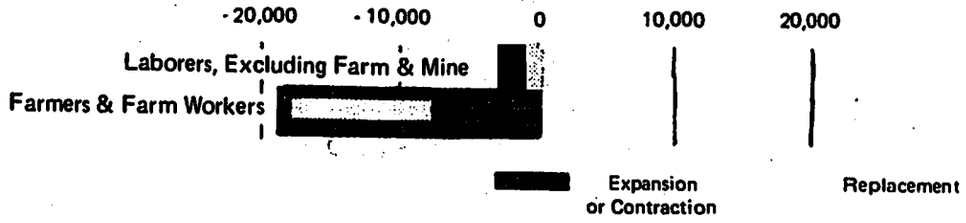
Projected needs for waiters and waitresses will continue to increase between 1971 and 1975, due to the increasing number of eating establishments. However, replacement needs will be the major determinant of total needs for waiters and waitresses, because of the high turnover rate which can be attributed to the sometimes unfavorable working conditions and the large number of women employed in the occupation. Cooks also will have total needs of over 4000 due to the increasing numbers of restaurants, travel, working wives, and a population on the go. Those who have had training should find many employment opportunities available. Replacement needs will also contribute a large part of total needs. Counter and Fountain Workers and Bartenders will have needs of over 700 and 500 respectively for the above reasons. High turnover among all food service occupations will create replacement needs of close to 6000.

Other Service Workers

	Expansion	Replacement	Total Needs
Other Service Workers	10799	12096	22895
Housekeepers & Stewards exc. prv. hh.	1042	752	1794
Attendants, Hosp., Other Inst.	2204	2304	4508
Charwomen & Cleaners	803	796	1599
Janitors and Sextons	2129	2988	5117
Nurses, Practical	1138	1104	2242
Service Workers, N.E.C.	3483	4152	7635

Total needs for other service occupations will be over 1000 each. Again replacement needs will be responsible for over half of total needs for the above listed occupations. Most significant will be Janitors and Sextons with over 5000 needs, attributable to the number of new apartments, offices, hospitals and other buildings requiring custodial services. Projected needs of over 4000 are foreseen for Hospital Attendants. Increasing population, in particular the older population, and development of medical care plans will be responsible for these. Also, needs for Practical Nurses will be slightly over 2000. Growth for all the above occupations to 1975 is projected to be at a 13% rate of 1971 employment.

Manpower Needs for Laborers and Farm Workers



Laborers

	Expansion	Replacement	Total
Laborers, ex. Farm and Mine	-2495	3372	877

Replacement needs account for all of total needs for nonfarm and mine laborers. Continued substitution of mechanical equipment for labor, and integrated systems of processing and handling will result in the projected negative expansion needs.

Farm Workers

	Expansion	Replacement	Total
Farmers and Farm Workers	-19995	13752	-6243

Decreasing agricultural employment will result in negative total needs for farmers and farm workers. The trend to decreasing employment in agriculture has been shown in the last decade as Iowa moves from agriculture to manufacturing. Improved mechanization and farm technology have accounted for this change. Consolidation of small farms and the trend to larger more efficient farms will limit replacement needs, such that total needs will still be negative.

STATISTICAL INFORMATION

A. Total Manpower Needs for IOWA 1971 to 1975 for Selected Occupations

	Expansion	Replacement	Total
Total, all occupations	51613	135778	187391
Professional, Technical, & Kindred	18851	17064	35915
Engineers, Technical	2358	568	2926
Aeronautical	-----	------	------
Chemical	42	12	54
Civil	402	184	586
Electrical	416	76	492
Industrial	547	88	635
Mechanical	463	124	587
Metallurgical, etc.	25	4	29
Mining	-3		-3
Other	466	80	546
Natural Scientists	407	92	499
Chemists	176	40	216
Agricultural	109	20	129
Biological	50	20	70
Geologists, Geophysicists	10	4	14
Mathematicians	4	4	8
Physicists	56	4	60
Other	2		2
Technicians, ex. Med. & Dent.	2476	560	3036
Draftsmen	441	116	557
Surveyors	330	68	398
Air Traffic Controllers inc'd w/Radio Operators			
Radio Operators	53	32	85
Other	1652	344	1996
Medical, other Health Workers	2776	5504	8280
Dentists	146	312	458
Dieticians, Nutritionists	24	64	88
Nurses, Professional	766	2660	3426
Optometrists	12	16	28
Osteopaths	23	24	47
Pharmacists	15	176	191
Physicians & Surgeons	523	540	1063
Psychologists	70	32	102
Technicians, Med. & Dent.	783	812	1595
Veterinarians	89	64	153
Other	325	804	1129
Teachers (see p. 11)	3836	4432	8268
Elementary	806	2437	3243
Secondary	1841	1241	3082
College	959	532	1491
Other	230	222	452

	Expansion	Replacement	Total
Social Scientists	65	40	105
Economists	35	20	55
Statisticians & Actuaries	25	20	45
Other	5		5
Other Professional, Tech., & Kindred	6933	5868	12801
Accountants & Auditors	471	664	1135
Airplane Pilots & Navigators	26	12	38
Architects	51	48	99
Workers in Arts, Entertainment	1489	1568	3057
Clergymen	-225	484	259
Designers, ex. Design Drafts	93	32	125
Editors & Reporters	212	296	508
Lawyers & Judges	43	408	451
Librarians	226	492	718
Personnel & Lab. Rel. Workers	226	152	378
Photographers	44	64	108
Social & Welfare Workers	317	348	665
Prof., Tech., Kin., N.E.C.	3960	1300	5260

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Managers, Officials, & Prop.	4362	10520	14882
Conductors, Railroad	-125	60	-65
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Patternmakers, Metal, Wood	31	48	79
Rollers & Roll Hands	1	4	5
Sheet Metal Workers	138	100	238
Toolmakers & Die Makers	103	132	235
Printing Trades Crafts	-11	340	329
Compositors, Typesetters	-235	216	-19
Electrotypers, Stereotypers	-11	4	-7
Engravers, Ex. Photoengravers	7	8	15
Photoengravers, Lithographers	107	28	135
Pressmen and Plate Printers	121	84	205
Trans. & Other Pub. Util. Crafts	-203	376	173
Linemen & Servicemen	114	180	294
Locomotive Engineers	-139	176	37
Locomotive Firemen	-178	20	-158
Mechanics and Repairmen	4528	3050	7578
Airplane Mechanics & Repairmen	22	8	30
Motor Vehicle Mechanics	1006	856	1862
Office Machine Mechanics	76	44	120
Radio & T. V. Mechanics	43	94	137
Railroad & Car Shop Mechanics	-69	36	-33
Other	3450	2012	5462
Other Craftsmen and Kindred	1976	1552	3528
Bakers	-49	176	127
Cabinetmakers	123	112	235
Crane, Derrick, Hoistmen	97	88	185
Glaziers	56	40	96
Jewelers & Watchmakers	-42	48	6
Loom Fixers	---	---	---
Opticians, Lens Grinders	16	28	44
Inspectors, Log & Lumber	2	4	6
Inspectors, Other	137	128	265
Upholsterers	62	72	134
Craftsmen & Kindred N.E.C.	1574	856	2430

	Expansion	Replacement	Total
Operatives and Kindred	10744	14272	25016
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Waiters, and waitresses	1276	2952	4228
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Housekeepers and Stewards, exc. priv. hhds.	1042	752	1794
Attendants, Hosp., Other Institutions	2204	2304	4508
Charwomen & Cleaners	803	796	1599
Janitors and Sextons	2129	2988	5117
Nurses, Practical	1138	1104	2242
Service Workers, N.E.C.	3483	4152	7635
Laborers, ex. Farm and Mine	-2495	3372	877
Farmers and Farm Workers	-19995	13752	-6243

B. Expansion Needs for Iowa 1971 to 1975 for Selected Occupations

	1960 1/ Employ.	1971 3/ Estimated Employ.	1975 2/ Projected Employ.	Needs 1971 to 1975	% Change 1971 to 1975
Total, all occupations	1069037	1238396	1290009	51613	+4.2
Professional, Technical, & Kindred	107365	151770	170621	18851	+12.4
Engineers, Technical	7451	12072	14430	2358	+19.5
Aeronautical	26	68	68	----	0.0
Chemical	163	271	313	42	+15.5
Civil	1696	2324	2726	402	+17.3
Electrical	1405	2260	2676	416	+18.4
Industrial	1220	2206	2753	547	+24.8
Mechanical	1641	2682	3145	463	+17.3
Metallurgical, etc.	80	134	159	25	+18.7
Mining	8	10	7	-3	-30.0
Other	1208	2117	2583	466	+22.0
Natural Scientists	1008	1637	2044	407	+24.9
Chemists	530	839	1015	176	+21.0
Agricultural	222	345	454	109	+31.6
Biological	140	223	273	50	+22.4
Geologists, Geophysicists	31	59	69	10	+16.9
Mathematicians	8	19	23	4	+21.1
Physicists	48	116	172	56	+48.3
Other	26	36	38	2	+5.6
Technicians, ex. Med. & Dent.	6626	11012	13488	2476	+22.5
Draftsmen	2021	3137	3578	441	+14.1
Surveyors	816	1164	1494	330	+28.4
Air Traffic Controllers inc'd w/Radio Operators	269	359	412	53	+14.8
Radio Operators	3518	6352	8004	1652	+26.0
Other	22122	29142	31918	2776	+9.5
Medical, other Health Workers	1536	1898	2044	146	+7.7
Dentists	287	354	378	24	+6.8
Dieticians, Nutritionists	9724	11292	12058	766	+6.8
Nurses, Professional	280	320	332	12	+3.8
Optometrists	280	300	323	23	+7.7
Osteopaths	1364	1404	1419	15	+1.1
Pharmacists	3194	4463	4986	523	+11.7
Physicians & Surgeons	153	314	384	70	+22.3
Psychologists	1937	4093	4876	783	+19.1
Technicians, Med. & Dent.	971	1217	1306	89	+7.3
Veterinarians	2393	3487	3812	325	+9.3
Other					

	1960 1/ Employ.	1971 3/ Estimated Employ.	1975 2/ Projected Employ.	Needs 1971 to 1975	% Change 1971 to 1975
Teachers (see p. 11)	35489	46038	49874	3836	+8.3
Elementary	19276	21493	22299	806	+3.8
Secondary	10945	16008	17849	1841	+11.5
College	3744	6381	7340	959	+15.0
Other	1523	2156	2386	230	+10.7
Social Scientists	300	428	493	65	+15.2
Economists	140	213	248	35	+16.4
Statisticians & Actuaries	147	193	218	25	+13.0
Other	11	22	27	5	+22.7
Other Professional, Tech., & Kindred	34367	51441	58374	6933	+13.5
Accountants & Auditors	5377	7642	8113	471	+6.2
Airplane Pilots & Navigators	138	248	274	26	+10.5
Architects	281	385	436	51	+13.2
Workers in Arts, Entertain.	7505	11195	12684	1489	+13.3
Clergymen	4803	4500	4275	-225	-5.0
Designers, ex. Design Drafts	435	695	788	93	+13.4
Editors & Reporters	1809	2052	2264	212	+10.3
Lawyers & Judges	2893	3012	3055	43	+1.4
Librarians	1544	2334	2560	226	+9.7
Personnel & Lab. Rel. Workers	1050	1650	1876	226	+13.7
Photographers	674	837	881	44	+5.3
Social & Welfare Workers	1181	2023	2340	317	+15.7
Pro., Tech., Kin., N.E.C.	6672	14868	18828	3960	+26.6

	1960 1/ Employ.	1971 3/ Estimated Employ.	1975 2/ Projected Employ.	Needs 1971 to 1975	% Change 1971 to 1975
Managers, Officials, & Prop.	85417	96175	100537	4362	+4.5
Conductors, Railroad	725	574	449	-125	-21.8
Creditmen	653	904	1023	119	+13.2
Officers, Pilots, Engineers, Ship	50	47	45	-2	-4.3
Postmasters & Assistants	1179	1252	1250	-2	-0.2
Purchasing Agents	1671	2208	2348	140	+6.3
Managers, Officials, Prop. N.E.C.	81136	91190	95422	4232	+4.6
Clerical & Kindred	133238	180467	193891	13424	+7.4
Stenos, Typists, & Secretaries	29277	43016	47540	4524	+10.5
Office Machine Operators	3600	5384	6167	783	+14.5
Other Clerical & Kindred	100360	132067	140184	8117	+6.1
Accounting Clerks inc'd w/Bookkeepers, Hand					
Bookkeepers, Hand	19051	22559	22952	393	+1.7
Bank Tellers	1874	3151	3541	390	+12.4
Cashiers	7902	13011	14484	1473	+11.3
Mail Carriers	3553	4795	5357	562	+11.7
Postal Clerks	3563	4975	5334	359	+7.2
Shipping, Receiving Clerks	2863	3002	3052	50	+1.7
Telephone Operators	6223	5984	6014	30	+0.5
N.E.C.	55327	74590	79450	4860	+6.5
Sales Workers	79715	88312	91033	2721	+3.0

	1960 1/ Employ.	1971 3/ Estimated Employ.	1975 2/ Projected Employ.	Needs 1971 to 1975	% Change 1971 to 1975
Craftsmen	122836	151952	161495	9543	+6.3
Construction, Craftsmen	36628	41792	43453	1661	+4.0
Carpenters	13985	15344	15838	494	+3.2
Brickmasons & Tile Setters	2205	2605	2750	145	+5.6
Cement. Concrete Finishers	332	448	493	45	+10.0
Electricians	4074	4827	4931	104	+2.2
Excavating, Grading Mach. Op.	4302	5036	5229	193	+3.8
Painters & Paper Hangers	5431	5786	5915	129	+2.2
Plasterers	556	613	627	14	+2.3
Plumbers & Pipefitters	4481	5498	5881	383	+7.0
Roofers and Slaters	601	720	773	53	+7.4
Structural Metal Workers	657	915	1016	101	+11.0
Foremen, N. E. C.	15107	21079	22215	1136	+5.4
Metalworking Craftsmen	11305	13738	14194	456	+3.3
Machinists & Related Occup.	5816	6499	6747	248	+3.8
Blacksmiths, Forgemen, Hammer.	511	453	380	-73	-16.1
Boilermakers	146	165	171	6	+3.6
Heat Treaters, Annealers	229	286	274	-12	-4.2
Millwrights	539	685	705	20	+2.9
Moulders, Metal, Ex. Coremakers	736	979	973	-6	-0.6
Patternmakers, Metal, Wood	342	508	539	31	+6.1
Rollers & Roll Hands	27	35	36	1	+2.9
Sheet Metal Workers	1396	1838	1976	138	+7.5
Toolmakers & Die Makers	1558	2290	2393	103	+4.5
Printing Trades Crafts	4724	4871	4860	-11	-0.2
Compositors, Typesetters	3043	2774	2539	-235	-8.5
Electrotypers, Stereotypers	116	73	62	-11	-15.1
Engravers, Ex. Photoengravers	60	82	89	7	+8.5
Photoengravers, Lithographers	248	452	559	107	+23.7
Pressmen and Plate Printers	1254	1490	1611	121	+8.1
Trans. & Other Pub. Util. Crafts	6327	5709	5506	-203	-3.6
Linemen & Servicemen	4295	4560	4674	114	+2.5
Locomotive Engineers	1140	887	748	-139	-15.7
Locomotive Firemen	891	262	84	-178	-67.9

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	1960 1/ Employ.	1971 3/ Estimated Employ.	1975 2/ Projected Employ.	Needs 1971 to 1975	% Change 1971 to 1975
Mechanics and Repairmen	34726	47380	51908	4528	+10.0
Airplane Mechanics & Repairmen	207	335	357	22	+6.6
Motor Vehicle Mechanics	13297	16064	17070	1006	+6.3
Office Machine Mechanics	385	653	729	76	+11.6
Radio & T. V. Mechanics	1752	1870	1913	43	+2.3
Railroad & Car Shop Mechanics	540	428	359	-69	-16.1
Other	18544	28030	31480	3450	+12.3
Other Craftsmen and Kindred	14018	17383	19359	1976	+11.4
Bakers	1832	1743	1694	-49	-2.8
Cabinetmakers	859	1018	1141	123	+12.1
Crane, Derrick, Hoistmen	1108	1478	1575	97	+6.6
Glaziers	235	354	410	56	+15.8
Jewelers & Watchmakers	572	586	544	-42	-7.2
Loom Fixers	-----	-----	-----	----	-----
Opticians, Lens Grinders	229	318	334	16	+5.0
Inspectors, Log & Lumber	67	64	66	2	+3.1
Inspectors, Other	1219	1427	1564	137	+9.6
Upholsterers	674	770	832	62	+8.1
Craftsmen & Kindred N.E.C.	7218	9625	11199	1574	+16.4

	1960 1/ Employ.	1971 3/ Estimated Employ.	1975 2/ Projected Employ.	Needs 1971 to 1975	% Change 1971 to 1975
Operatives and Kindred	157628	198516	209260	10744	+5.4
Drivers and Deliverymen	40650	47112	49348	2236	+4.7
Bus, Truck, Tractor	31647	35950	37443	1493	+4.2
Deliverymen & Routemen	9003	11162	11905	743	+6.7
Trans. & Pub. Util. Operatives	2986	2375	2099	-276	-11.6
Brakemen & Switchmen, R.R.	2593	1980	1701	-279	-14.1
Power Station Operators	356	355	354	-1	-0.3
Sailors and Deckhands	36	40	44	4	+10.0
Semi-skilled Metalworking Occupations	20823	34090	35386	1296	+3.8
Furnacemen, Smeltermen Pourers	349	500	486	-14	-2.8
Heaters, Metal					
Welders & Flamecutters	6594	11256	12197	941	+8.4
Assemblers, Metalworking, Class A	9310	15656	16177	521	+3.3
Assemblers, Metalworking, Class B					
Inspectors, Metalworking, Class B	4568	6678	6526	-152	-2.3
Machine Tool Operators, Class B					
Electroplaters					
Electroplater's Helper					
Semi-skilled Textile Occupations	2639	3522	3404	-118	-3.4
Knitters, Loopers, Toppers	34	57	58	1	+1.8
Spinners, Textile	15	18	15	-3	-16.7
Weavers, Textile	162	212	195	-17	-8.0
Sewers & Stitchers, Mfg.	2426	3235	3136	-99	-3.1
Other Operatives	90527	111417	119023	7606	+6.8
Asbestos, Insulation Workers	209	277	295	18	+6.5
Attendants, Auto Service Parking	7990	12593	14676	2083	+16.5
Blasters and Powdermen	31	37	37	----	----
Laundry and Dry Cleaning	5476	5741	5838	97	+1.7
Meat Cutters, Ex. Meat Packing	2767	3114	2940	-174	-5.6
Mine Operatives & Laborers, N.E.C.	844	520	310	-210	-40.4
Other Operatives, N.E.C.	73207	89135	94927	5792	+6.5

	1960 1/ Employ.	1971 3/ Estimated Employ.	1975 2/ Projected Employ.	Needs 1971 to 1975	% Change 1971 to 1975
Service Workers	117391	161757	176215	14458	+8.9
Private Household Workers	23024	21908	21240	-668	-3.0
Protective Service	6602	8680	9368	688	+7.9
Firemen	1434	2016	2238	222	+11.0
Guards, Watchmen, Doorkeepers	2234	2405	2449	44	+1.8
Policemen, other Law Enforcement	2933	4259	4681	422	+9.9
Food Service Workers	34926	49234	52873	3639	+7.4
Bartenders	2957	3493	3688	195	+5.6
Cooks, Ex. Private Household	12124	18021	19764	1743	+9.7
Counter & Fountain Workers	1689	3086	3511	425	+13.8
Waiters, and Waitresses	18155	24634	25910	1276	+5.2
Other Service Workers	52838	81935	92734	10799	+13.2
Housekeepers and Stewards, except private households	2498	5554	6596	1042	+18.8
Attendants, Hosp., Other Inst.	9513	18907	21111	2204	+11.7
Charwomen & Cleaners	2894	4892	5695	803	+16.4
Janitors and Sextons	12584	17940	20069	2129	+11.9
Nurses, Practical	3094	5848	6986	1138	+19.5
Service Workers, N.E.C.	22252	28794	32277	3483	+12.1
Laborers, Ex. Farm & Mine	44197	43183	40688	-2495	-5.8
Farmers & Farm Workers	221250	166264	146269	-19995	-12.0

1/ Totals may not equal sum of detail due to rounding.
2/ Totals adjusted to equal sum of detail.
3/ Interpolated from 1960 or 1967 and 1975 data. Totals adjusted to equal sum of detail.

APPENDICES

Appendix A

Methodology for Projecting Employment by Occupation

In order to project manpower needs and occupational employment to the desired year (in this case 1975), it is first necessary to obtain a projection of employment by industry in 1975, since occupational employment will be determined by type and amount of industrial employment. Nonagricultural wage and salary employment by industry for Iowa in 1975 was projected by regression analysis using National nonagricultural wage and salary employment over the past ten years and/or time as the independent variable(s). An equation of the form $Y_{75} = a + bX_{75}$ was derived from the regression analysis; X_{75} represents national non-agricultural wage and salary employment in 1975 (or time, where appropriate) and Y_{75} represents the projected 1975 non-agricultural wage and salary employment in Iowa for the specific industry under question. Non-agricultural wage and salary employment was converted to total industrial employment by adding agricultural employment and distributing non-educational government employment, non-agricultural self-employed and unpaid family workers, and domestic workers in private households to the appropriate industry based on 1960 census employment data. Total employment by industry was developed for 1960, 1967, and 1975.

These total employment figures were used with the BLS Staffing pattern matrix (Tomorrow's Manpower Needs, Vol. IV, Appendix G), to obtain occupational employment for the above three years. These estimates provide occupational employment based on a national distribution of occupations according to industry. In order to insure that the state's growth rate plays the major part in projecting manpower needs, the occupational employment obtained by use of the matrix is used only to derive a change factor for each occupation. Sums of employment by occupation are found for each occupation for the above years. It is assumed that the ratio of 1975 estimated occupational employment to 1960 estimated occupational employment will be the same as the ratio of actual figures for the two years, that is:

$$\frac{\text{1975 estimated occupational employment}}{\text{1960 estimated occupational employment}} = \frac{\text{1975 actual}}{\text{1960 actual}}$$

or

$$\text{1960 Actual} \times \frac{\text{1975 estimated}}{\text{1960 estimated}} = \text{1975 actual}$$

The estimates of occupational employment obtained from application of the matrix are used to find the above ratio and 1960 Census employment is used as actual employment. Thus, only the national rates are used to project 1975 by multiplying the actual employment by the ratio as shown above. This yielded projected 1975 occupational employment. Employment for 1971 was interpolated from 1960 or 1967 and 1975 employment. Increase or decrease between 1971 and 1975 was then calculated. This figure represents expansion needs due to growth.

Replacement needs were also obtained to show workers needed to fill present positions when these are vacated due to death, transfer, retirement or other reasons. Annual average employment by occupation is found by dividing the sum of 1960 census employment and 1975 projected employment by two. This was done for male and female employment in each occupation. Sex and age group distributions of employment by occupation were derived from the 1960 Census and applied to the annual average employment. Annual separations for each occupation by age and sex were found by applying sex and age group separation rates (Tomorrow's Manpower Needs, Vol. I) to the annual average occupational employment by age and sex. Total annual separations were found by adding male and female separations. Total separations for the projection period were found by multiplying annual separations by four, the number of years in the projection period. Total replacement needs thus calculated were added to total expansion needs by occupation to obtain total manpower needs.

Appendix B

Comparability of Occupational Titles in BLS Tables of Occupational Composition of Industry Employment with Census Occupational Categories*

Occupational Titles in BLS Tables	Comparable Census Occupational Categories
PROFESSIONAL, TECHNICAL, AND KINDRED	
Other engineers, technical	Sales engineers, plus engineers, not elsewhere classified
Agricultural scientists	Agricultural scientists, plus part of foresters and conservationists
Air traffic controllers	
Radio operators	Radio operator
Technicians, other	Technicians, electrical and electronic; technicians, other engineering, and physical science; and technicians, other
Other medical, health workers	Chiropractors; therapists; nurses, student professional
Teachers, elementary	Part of college presidents, professors, and instructors not elsewhere classified
Other social scientists	Miscellaneous social scientists
Workers in arts and entertainment	Includes actors, artists, and art teachers; athletes; authors; dancers and dance teachers; entertainers, not elsewhere classified; musicians and music teachers and sports instructors and officials
Professional and technical workers, not elsewhere classified	Includes part of college teachers; farm and home management advisors; part of foresters and conservationists; funeral directors and embalmers; public relations and publicity writers; recreation and group workers; religious workers; and professional, technical, and kindred, not elsewhere classified
MANAGERS, OFFICIALS, AND PROPRIETORS	
Officers, pilots, engineers, ship	Officers, pilots, pursers and engineers, ship
Purchasing agents	Purchasing agents and buyers, not elsewhere classified
Managers, officials, and proprietors, not elsewhere classified	Includes buyers and department heads, store; buyers and shippers, farm products; floor men and floor managers, store; inspectors, public administration; managers and superintendents, building; officials and administrators, not elsewhere public administration; officials, lodge, society, union, etc.; managers, officials, and proprietors, not elsewhere classified

Occupational Titles in BLS Tables	Comparable Census Occupational Categories
CLERICAL AND KINDRED WORKERS	
Stenos, typists, and secretaries	Three separate titles
Accounting clerks	Part of bookkeepers
Bookkeepers, hand	Part of bookkeepers
Clerical and kindred workers, not elsewhere classified	Includes agents, not elsewhere classified; attendants and assistants, library; attendants, physicians and dental office baggagemen transportation; collectors, bill and account; dispatchers and starters, vehicles; express messengers and railway mail clerks; file clerks; insurance adjusters, examiners and investigators; messengers and office boys; payroll and timekeeping clerks; receptionists; stock clerks and storekeepers; telegraph messengers, telegraph operators; ticket, station, and express agents; and clerical and kindred, not elsewhere classified
CRAFTSMEN, FOREMEN, AND KINDRED WORKERS	
Painters and paperhangers	Painters, construction and maintenance and paperhangers (two titles)
Machinists and related occupations	Machinists and job setters, metal (two titles)
Blacksmiths, forge, hammermen	Blacksmiths and forgemen and hammerman (two titles)
Sheet metal workers	Tinsmiths, coppersmiths, and sheet metal workers
Toolmakers and diemakers	Toolmakers and diemakers and setters
Other mechanics and repairmen	Air-conditioning, heating, and refrigeration mechanics, and repairmen and mechanics and repairmen, not elsewhere classified (two titles)
Craftsmen and kindred workers, not elsewhere classified	Bookbinders; decorators and window dressers; furriers; millers, grain, flour, feed, etc.; motion picture projectionists; piano and organ tuners and repairmen; shoemakers and repairers, except factory; stationary engineers; stone cutters and stone carvers; and craftsmen and kindred workers, not elsewhere classified
OPERATIVES AND KINDRED WORKERS	
Drivers, bus, truck, tractor	Bus drivers and truck and tractor drivers (two titles)
Deliverymen and routemen	Deliverymen and routemen, and taxicab drivers and chauffeurs (two titles)
Brakemen and switchmen, railroad	Brakemen, railroad and switchmen (two titles)

Occupational Titles in BLS Tables	Comparable Census Occupational Categories
OPERATIVES AND KINDRED WORKERS (Continued)	
Assemblers, metalworking, class A.	Part of assemblers
Assemblers, metalworking, class B.	Part of assemblers
Inspectors, metalworking, class B.	Part of checkers, examiners, and inspectors, manufacturers
Machine tool operators, class B.	Part of operatives, not elsewhere classified
Electroplaters	Part of operatives, not elsewhere classified
Electroplaters helper	Part of operatives, not elsewhere classified
Other operatives and kindred workers, not elsewhere classified	Includes apprentices; part of assemblers; boatmen, canalmen, and lock keepers; chainmen, rodmen, and axmen, surveying; part of checkers, examiners, and inspectors manufacturing; conductors, bus and street railway; dressmakers and seamstresses, except factory; dyers; filers, grinders and polishers, metal; fruit, nut, and vegetable graders and packers, except factory; graders and sorters, manufacturing; milliners; motormen, mine, factory, logging camp, etc.; motormen, street, subway, and elevated railway; oilers and greasers, except auto; packers and wrappers not elsewhere classified; painters, except construction and maintenance; photographic process workers; sawyers; stationery firemen; part of operatives and kindred workers, not elsewhere classified
SERVICE WORKERS	
Firemen	Firemen, fire protection
Guards, watchmen and doorkeepers	Guards, watchmen and doorkeepers and watchmen (crossing) and bridge tenders (two titles)
Policemen and other law enforcemen officials	Marshals and constables; policemen and detectives; sheriffs and bailiffs
Airline stewards and stewardesses	Part of housekeepers and stewards, except private household
Other service workers, not elsewhere classified	Attendants, professional and personal services, not elsewhere classified; attendants, recreation and amusement; barbers; boarding and lodging housekeepers; bootblacks; chambermaids and maids, except private household; elevator operators; hair-dressers and cosmetologists; part of housekeepers and stewards, except private household; kitchen workers, not elsewhere classified, except private household; midwives; porters; ushers, recreation and amusement; and service workers, except private household, not elsewhere classified

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Occupational Titles in BLS Tables	Comparable Census Occupational Categories
FARMERS AND FARM WORKERS	Farmers and farm managers, and farm laborers and foremen

*Taken from Appendix F, Volume 4 of TOMORROW'S MANPOWER NEEDS published by the U. S. Department of Labor.

Appendix C

Information on Labor Supply in Iowa

Projected manpower needs presented in this publication were based on past and projected future employment. As such, they represent only demand for the various occupations and say nothing about the supply of workers. In order to show both labor demand and supply, the following table on Labor Supply is included here. This table was prepared for the Annual Report on State and Area Occupational Requirements for Vocational Education. The figures shown represent applicants currently available in ESARS, the Employment Security Automated Reporting System. This system provides data on applicants and job orders and also is used as a broad management tool. Only those occupations with 30 or more active applicants in the state as of October 31, 1971 were included in this table. Applicants included on this table represent 67% of the total number of workers in the active file as of October 31, 1971.

Occupational characteristics of these applicants are indicated in the following breakout by major group:

	Number	Percent
Professional, Technical, Kindred	1580	6.96%
Clerical and Sales	7131	31.40
Service Occupations	4125	18.16
Agriculture	364	1.60
Processing	535	2.36
Machine Trades	1128	4.97
Bench Work	1008	4.44
Structural	2336	10.29
Miscellaneous	4505	19.84

The table included in this appendix was compiled by occupational code only. Titles were chosen as being most representative of the six digit code and may not necessarily be the same code used in any one local office. Entry codes of less than six digits were not included. It should also be noted that the ESARS active file and the number of unemployed do not necessarily represent the same people. The active file will contain people who are already employed and seeking another job; those who have moved or otherwise withdrawn from the labor force; and persons who are enrolled in training.

Those occupations showing a supply of over 500 applicants include:

DOT	Title	Number
929887	Material Handler	1506
219388	Clerk, General Office	1185
311878	Waiters and Waitresses	893
209588	Clerk, General	849
922887	Laborer, Stores	828
355878	Nurse Aide, Orderly	687
869887	Construction Worker II	672
905883	Truck Driver, Heavy	597
381887	Charwoman	574
209388	Clerk Typist	571
201368	Secretary	576

Imbalances between demand and supply may be attributed to low wages and method of pay, long hours and other unfavorable working conditions, and employer demand for highly skilled workers. Such a situation may result in high demand and supply for the same occupation, notably waiters and waitresses and other clerical and sales workers.

LABOR SUPPLY SUMMARY

IOWA

DOT Code	Title	Available ES Applicants (10/31/71)
0, 1	Professional, Technical, Managerial	
003081	Electrical Engineer	38
003181	Electrical Technician	63
007081	Tool Designer	33
007281	Draftsman, Mechanical	82
012188	Industrial Engineer	31
017281	Draftsman, Comm.	33
020188	Programmer, Business	78
045108	Counselor	44
075378	Nurse, General Duty	35
079368	Inhalation Therapist	46
079378	Licensed Practical Nurse	129
091228	Teacher, Secondary	149
092228	Teacher, Elementary	68
160188	Accountant	142
162158	Buyer	40
163118	Manager, Sales	43
169168	Administrative Assistant	83
185168	Manager, Retail	160
187168	Manager, Services	58
189168	Manager, Trainee	150
195108	Social Worker	75

DOT Code	Title	Available ES Applicants (10/31/71)
2	Clerical and Sales	
201368	Secretary	516
202388	Stenographer	67
203588	Typist	82
206388	File Clerk	132
209388	Clerk Typist	571
209588	Clerk, General	849
210388	Bookkeeper	400
211368	Cashier I	83
211468	Cashier II	145
212368	Teller (Banking)	50
213382	Computer Operator	97
213582	Key Punch Operator	162
219388	Clerk, General Office	1185
219488	Accounting Clerk	195
219588	Posting Clerk	45
222387	Shipping, Receiving Clerk	60
223387	Stock Clerk	287
235862	Telephone Operator	88
237368	Receptionist	274
242368	Hotel Clerk	33
249368	Credit Clerk	63
250258	Salesman, Insurance	47
262358	Salesman, Food Products	30
263358	Salesman, Mens Clothing	52
263458	Salesperson, Mens Clothing	106
276358	Salesman, Building Equipment	36
280358	Salesman, Automobile	37
289358	Salesman, General	246
289458	Salesperson, General	353
290468	Sales Attendant	35
290478	Sales Clerk	320
290877	Salesperson, Food	37
292358	Salesman, Driver	116
299138	Manager, Department	47
299468	Cashier-Checker	285

DOT Code	Title	Available ES Applicants (10/31/71)
3	Service Occupations	
301887	Day Worker	32
304887	Yardman	87
306878	Maid, General	77
307878	Nursemaid	175
311878	Waiters & Waitresses	893
312878	Bartender	97
313381	Baker	245
314381	Short Order Cook	84
315381	Cook	39
316884	Meat Cutter	75
317884	Sandwich man	30
317887	Cook Helper	47
318887	Kitchen Helper	361
323887	Maid II	183
332271	Beautician	64
355878	Nurse Aide, Orderly	687
359878	Child Care Attendant	70
363782	Presser	38
372868	Watchman	110
375268	Patrolman	32
381887	Charwomen	574
382884	Janitor	125
4	Agriculture	
406887	Nursery Worker	35
407887	Park Worker	32
421883	Farmhand	190
421887	Farmhand II	107
5	Processing	
519887	Foundry Worker	110
525884	Meat Boner	48
525887	Poultry Dresser	119
526886	Baker, Helper	36
529886	Factory Helper	68
529887	Laborer, Meat Packing	154

DOT Code	Title	Available ES Applicants (10/31/71)
6	Machine Trades	
600280	Machinist I	63
601280	Tool and Die Maker	31
606782	Drill Press Operator	60
609885	Production Machine Operator	106
615782	Punch Press Operator I	33
616380	Machine Operator I	49
617885	Punch Press Operator II	45
619885	Machine Operator II	34
620281	Auto Mechanic	272
620381	Auto Service Mechanic	145
620884	Auto Mechanic Helper	99
621281	Aircraft Mechanic	47
625281	Diesel Mechanic	36
638281	Maintenance Mechanic	72
651782	Press Man	36
7	Bench Work	
705884	Grinder-Chipper	49
706884	Assembler, Small Parts	112
706887	Assembler, Production	285
720281	TV and Radio Repairman	37
723884	Appliance Repairman	43
726781	Electrical Assembler	130
726884	Capacitor Assembler	46
729884	Chassis Assembler	76
737887	Assembler, Explosive	44
739887	Assembler, Small Product	32
741884	Spray Painter	57
787782	Sewing Machine Operator	97

DOT Code	Title	Available ES Applicants (10/31/71)
8	Structural	
807381	Auto Body Repairman	82
809884	Assembler, Production Line	38
810782	Spot Welder	31
810884	Welder, Arc	232
812884	Welder, Combination	109
824281	Electrician	53
828281	Electronics Mechanic	88
829887	Electrician Helper	43
840781	Painter (Construction)	75
840884	Painter, Structure Steel	32
850883	Bulldozer Operator	40
859883	Dragline Operator	73
860381	Carpenter	105
860781	Carpenter, Rough	74
860887	Carpenter, Laborer	92
862884	Pipefitter, Helper	35
866381	Roofer	35
869884	Construction Worker I	303
869887	Construction Worker II	672
899281	Maintenance Man, Factory	40
899381	Maintenance Man, Building	84
9	Miscellaneous	
904883	Tractor, Trailer, Truck Driver	184
905883	Truck Driver, Heavy	597
906883	Truck Driver, Light	238
913463	Bus Driver	34
915867	Auto Service Station Attendant	480
915887	Lubrication Man	51
919887	Cleaner	53
920885	Packager Machine	80
920887	Packager Hand	250
922883	Industrial Truck Operator	204
922887	Laborer, Stores	828
929887	Material Handler	1506

Manpower Needs for Iowa
1971 - 1975
(by total needs)
Appendix D

Occupation	Expansion Needs	Replacement Needs	Total Needs
Clerical and Kindred, N.E.C.	4860	10716	15576
Stenos, Typists and Secretaries	4524	9744	14268
Managers, Officials & Proprietors N.E.C.	4232	9980	14212
Other Operatives, N.E.C.	5792	7656	13448
Sales Workers	2721	10324	13045
Service Workers, N.E.C.	3483	4152	7635
Mechanics & Repairmen, Other	3450	2012	5462
Professional, Technical & Kindred, N.E.C.	3960	1300	5260
Janitors and Sextons	2129	2988	5117
Private Household Workers	-668	5612	4944
Attendants, Hospitals & Other Institutions	2204	2304	4508
Waiters and Waitresses	1276	2952	4228
Cooks, exc. Private Households	1743	2268	4011
Bookkeepers, Hand	393	3572	3965
Cashiers	1473	2012	3485
Nurses, Professional	766	2660	3426
Bus, Truck & Tractor Drivers	1493	1860	3353
Elementary Teachers	806	2437	3243
Secondary Teachers	1841	1241	3082
Workers in Arts & Entertainment	1489	1568	3057
Attendants, Auto Service Parking	2083	620	2703
Foremen, N.E.C.	1136	1412	2548
Craftsmen & Kindred, N.E.C.	1574	856	2430
Nurses, Practical	1138	1104	2242
Carpenters	494	1640	2134
Technicians, other, exc. Medical & Dental	1652	344	1996
Office Machine Operators	783	1164	1947
Motor Vehicle Mechanics	1006	856	1862
Housekeepers & Stewards, exc. Private Households	1042	752	1794
Charwomen & Cleaners	803	796	1599
Technicians, Medical & Dental	783	812	1595
Telephone Operators	30	1556	1586
College Teachers	959	532	1491
Assemblers, Metalworking, Classes A & B	521	944	1465
Welders & Flamecutters	941	504	1445
Deliverymen & Routemen	743	568	1311
Accountants & Auditors	471	664	1135
Medical & Health Workers, Other	325	804	1129
Physicians & Surgeons	523	540	1063
Laundry & Dry Cleaning Operatives	97	912	1009

Occupation	Expansion Needs	Replacement Needs	Total Needs
Mail Carriers	562	404	966
Laborers, exc. Farm & Mine	-2495	3372	877
Postal Clerks	359	512	871
Painters & Paperhangers	129	740	869
Bank Tellers	390	448	838
Police & Other Law Enforcement	422	352	774
Plumbers & Pipefitters	383	380	763
Counter & Fountain Workers	425	324	749
Machinists & Related	248	500	748
Librarians	226	492	718
Social & Welfare Workers	317	348	665
Industrial Engineers	547	88	635
Excavating & Grading Machine Operators	193	420	613
Mechanical Engineers	463	124	587
Civil Engineers	402	184	586
Bartenders	195	376	571
Draftsmen	441	116	557
Engineers, Other	466	80	546
Editors & Reporters	212	296	508
Electrical Engineers	416	76	492
Dentists	146	312	458
Teachers, Other	230	222	452
Lawyers & Judges	43	408	451
Guards, Watchmen & Doorkeepers	44	392	436
Electricians	104	328	432
Surveyors	330	68	398
Personnel & Labor Relations Workers	226	152	378
Purchasing Agents	140	216	356
Shipping & Receiving Clerks	50	296	346
Brickmasons & Tile Setters	145	192	337
Firemen	222	92	314
Linemen & Servicemen	114	180	294
Inspectors, Other	137	128	265
Clergymen	-225	484	259
Sheet Metal Workers	138	100	238
Cabinetmakers	123	112	235
Toolmakers & Diemakers	103	132	235
Creditmen	119	104	223
Chemists	176	40	216
Pressmen & Plate Printers	121	84	205

Occupation	Expansion Needs	Replacement Needs	Total Needs
Inspectors, Metalworking, Class B	-152	348	196
Pharmacists	15	176	191
Crane, Derrick & Hoistmen	97	88	185
Sewers & Stitchers, Manufacturing	-99	284	185
Postmasters & Assistants	-2	156	154
Veterinarians	89	64	153
Structural Metal Workers	101	40	141
Radio & TV Mechanics	43	94	137
Photoengravers, Lithographers	107	28	135
Upholsterers	62	72	134
Agricultural Scientists	109	20	129
Bakers	-49	176	127
Designers, exc. Design Draftsmen	93	32	125
Office Machine Mechanics	76	44	120
Roofers and Slaters	53	60	113
Photographers	44	64	108
Psychologists	70	32	102
Architects	51	48	99
Glaziers	56	40	96
Dieticians & Nutritionists	24	64	88
Radio Operators	53	32	85
Patternmakers, Metal & Wood	31	48	79
Millwrights	20	52	72
Biological Scientists	50	20	70
Meat Cutters, exc. Meat Packing	-174	244	70
Cement & Concrete Finishers	45	24	69
Physicists	56	4	60
Economists	35	20	55
Chemical Engineers	42	12	54
Osteopaths	23	24	47
Plasterers	14	32	46
Statisticians & Actuaries	25	20	45
Opticians, Lens Grinders	16	28	44
Airplane Pilots & Navigators	26	12	38
Locomotive Engineers	-139	176	37
Asbestos, Insulation Workers	18	16	34
Moulders, Metal exc. Coremakers	-6	40	34
Airplane Mechanics & Repairmen	22	8	30
Metallurgical Engineers	25	4	29
Optometrists	12	16	28
Power Station Operators	-1	28	27
Weavers, Textile	-17	44	27
Boilermakers	6	20	26
Furnacemen, Smeltermen, Pourers	-14	32	18
Engravers, exc. Photoengravers	7	8	15
Geologists & Geophysicists	10	4	14
Blacksmiths, Forgemen, Hammermen	-73	84	11

Occupation	Expansion Needs	Replacement Needs	Total Needs
Heat Treaters, Annealers	-12	20	8
Mathematicians	4	4	8
Inspectors, Log & Lumber	2	4	6
Jewelers & Watchmakers	-42	48	6
Knitters, Loopers, Toppers	1	4	5
Rollers & Roll Hands	1	4	5
Social Scientists, Other	5	---	5
Blasters & Powdermen	---	4	4
Sailors & Deckhands	4	---	4
Natural Scientists, Other	2	---	2
Officers, Pilots, Engineers, Ship	-2	4	2
Spinners, Textile	-3	4	1
Mining Engineers	-3	---	-3
Electrotypers & Stereotypers	-11	4	-7
Compositors & Typesetters	-235	216	-19
Railroad & Car Shop Mechanics	-69	36	-33
Conductors, Railroad	-125	60	-65
Brakemen & Switchmen, RR	-279	152	-127
Locomotive Firemen	-178	20	-158
Mine Operatives & Laborers, N.E.C.	-210	48	-162
Farmers & Farm Workers	-19995	13752	-6243
Accounting Clerks	Included with Bookkeepers, Hand		
Air Traffic Controllers	Included with Radio Operators		
Electroplaters	Included with Other Operatives, N.E.C.		
Electroplater's Helper	Included with Other Operatives, N.E.C.		
Heaters, Metal	Included with Other Operatives, N.E.C.		
Loom Fixers	None reported in 1960 Census. No projection made.		
Machine Tool Operators, Class B	Included with Other Operatives, N.E.C.		

Manpower Needs for Iowa 1971 - 1975
(by percent change)
Appendix E

Occupation	1975 Employment	Expansion Needs '71-'75	% Change '71 to '75
Physicists	172	56	48.3
Agricultural Scientists	454	109	31.6
Surveyors	1494	330	28.4
Professional, Technical & Kindred, N.E.C.	18828	3960	26.6
Technicians, Other, exc. Medical and Dental	8004	1652	26.0
Industrial Engineers	2753	547	24.8
Photoengravers, Lithographers	559	107	23.7
Social Scientists, Other	27	5	22.7
Biological Scientists	273	50	22.4
Psychologists	384	70	22.3
Engineers, Other	2583	466	22.0
Mathematicians	23	4	21.1
Chemists	1015	176	21.0
Nurses, Practical	6986	1138	19.5
Technicians, Medical and Dental	4876	783	19.1
Housekeepers, and Stewards, exc. Private Households	6596	1042	18.8
Metallurgical Engineers	159	25	18.7
Electrical Engineers	2676	416	18.4
Civil Engineers	2726	402	17.3
Mechanical Engineers	3145	463	17.3
Geologists, Geophysicists	69	10	16.9
Attendants, Auto Service Parking	14676	2083	16.5
Charwomen and Cleaners	5695	803	16.4
Craftsmen and Kindred, N.E.C.	11199	1574	16.4
Economists	248	35	16.4
Glaziers	410	56	15.8
Social and Welfare Workers	2340	317	15.7
Chemical Engineers	313	42	15.5
College Teachers	7340	959	15.0
Radio Operators	412	53	14.8
Office Machine Operators	6167	783	14.5
Draftsmen	3578	441	14.1
Counter and Fountain Workers	3511	425	13.8
Personnel and Labor Relations Workers	1876	226	13.7
Designers, exc. Design Draftsmen	788	93	13.4
Workers in Arts and Entertainment	12684	1489	13.3
Architects	436	51	13.2
Creditmen	1023	119	13.2
Statisticians and Actuaries	218	25	13.0
Bank Tellers	3541	390	12.4
Mechanics and Repairmen, Other	31480	3450	12.3
Cabinetmakers	1141	123	12.1
Service Workers, N.E.C.	32277	3483	12.1

Occupation	1975 Employment	Expansion Needs '71-'75	% Change '71 to '75
Janitors and Sextons	20069	2129	11.9
Attendants, Hospital and Other Institutions	21111	2204	11.7
Mail Carriers	5357	562	11.7
Physicians and Surgeons	4986	523	11.7
Office Machine Mechanics	729	76	11.6
Secondary Teachers	17849	1841	11.5
Cashiers	14484	1473	11.3
Firemen	2238	222	11.0
Structural Metal Workers	1016	101	11.0
Teachers, Other	2386	230	10.7
Airplane Pilots and Navigators	274	26	10.5
Stenos, Typists, Secretaries	47540	4524	10.5
Editors and Reporters	2264	212	10.3
Cement and Concrete Finishers	493	45	10.0
Sailors and Deckhands	44	4	10.0
Police and Other Law Enforcement	4681	422	9.9
Cooks, exc. Private Household	19764	1743	9.7
Librarians	2560	226	9.7
Inspectors, Other	1564	137	9.6
Medical and Health Workers, Other	3812	325	9.3
Engravers, exc. Photoengravers	89	7	8.5
Welders and Flamecutters	12197	941	8.4
Pressmen and Plate Printers	1611	121	8.1
Upholsterers	832	62	8.1
Dentists	2044	146	7.7
Osteopaths	323	23	7.7
Sheet Metal Workers	1976	138	7.5
Roofers and Slaters	773	53	7.4
Veterinarians	1306	89	7.3
Postal Clerks	5334	359	7.2
Plumbers and Pipefitters	5881	383	7.0
Dieticians and Nutritionists	378	24	6.8
Nurses, Professional	12058	766	6.8
Deliverymen and Routemen	11905	743	6.7
Airplane Mechanics and Repairmen	357	22	6.6
Crane, Derrick and Hoistmen	1575	97	6.6
Asbestos, Insulation Workers	295	18	6.5
Clerical and Kindred, N.E.C.	79450	4860	6.5
Other Operatives, N.E.C.	94927	5792	6.5
Motor Vehicle Mechanics	17070	1006	6.3
Purchasing Agents	2348	140	6.3
Accountants and Auditors	8113	471	6.2
Patternmakers, Metal and Wood	539	31	6.1

Occupation	1975 Employment	Expansion Needs '71-'75	% Change '71 to '75
Bartenders	3688	195	5.6
Brickmasons & Tile Setters	2750	145	5.6
Natural Scientists, Other	38	2	5.6
Foremen, N.E.C.	22215	1136	5.4
Photographers	881	44	5.3
Waiters and Waitresses	25910	1276	5.2
Opticians, Lens Grinders	334	16	5.0
Managers, Officials and Proprietors, N.E.C.	95422	4232	4.6
Toolmakers and Diemakers	2393	103	4.5
Bus, Truck and Tractor Drivers	37443	1493	4.2
Elementary Teachers	22299	806	3.8
Excavating and Grading Machine Operators	5229	193	3.8
Machinists and Related	6747	248	3.8
Optometrists	332	12	3.8
Boilermakers	171	6	3.6
Assemblers, Metalworking, Class A and B	16177	521	3.3
Carpenters	15838	494	3.2
Inspectors, Log and Lumber	66	2	3.1
Sales Workers	91033	2721	3.0
Millwrights	705	20	2.9
Rollers and Roll Hands	36	1	2.9
Linemen and Servicemen	4674	114	2.5
Plasterers	627	14	2.3
Radio and TV Mechanics	1913	43	2.3
Electricians	4931	104	2.2
Painters and Paperhangers	5915	129	2.2
Guards, Watchmen, Doorkeepers	2449	44	1.8
Knitters, Loopers, Toppers	58	1	1.8
Bookkeepers, Hand	22952	393	1.7
Laundry and Dry Cleaning Operatives	5838	97	1.7
Shipping and Receiving Clerks	3052	50	1.7
Lawyers and Judges	3055	43	1.4
Pharmacists	1419	15	1.1
Telephone Operators	6014	30	0.5
Aeronautical Engineers	68	---	----
Blasterers and Powdermen	37	---	----
Postmasters and Assistants	1250	-2	-0.2
Power Station Operators	354	-1	-0.3
Moulders, Metal exc. Coremakers	975	-6	-0.6
Inspectors, Metalworking Class B	6526	-152	-2.3
Bakers	1694	-49	-2.8
Furnacemen, Smeltermen, Pourers	486	-14	-2.8
Private Household Workers	21240	-668	-3.0
Sewers and Stitchers, Manufacturing	3136	-99	-3.1
Heat Treaters, Annealers	274	-12	-4.2
Officers, Pilots and Engineers, Ship	45	-2	-4.3
Clergymen	4275	-225	-5.0
Meat Cutters, exc. Meat Packing	2940	-174	-5.6
Laborers, exc. Farm and Mine	40688	-2495	-5.8
Jewelers and Watchmakers	544	-42	-7.2
Weavers, Textile	195	-17	-8.0

Occupation	1975 Employment	Expansion Needs '71-'75	% Change '71 to '75
Compositors, Typesetters	2539	-235	-8.5
Farmers and Farm Workers	146269	-19995	-12.0
Brakemen and Switchmen, R.R.	1701	-279	-14.1
Electrotypers and Stereotypers	62	-11	-15.1
Locomotive Engineers	748	-139	-15.7
Blacksmiths, Forgemen, Hammermen	380	-73	-16.1
Railroad and Car Shop Mechanics	359	-69	-16.1
Spinners, Textile	15	-3	-16.7
Conductors, Railroad	449	-125	-21.8
Mining Engineers	7	-3	-30.0
Mine Operatives and Laborers, N.E.C.	310	-210	-40.4
Locomotive Firemen	84	-178	-67.9
Accounting Clerks	Included with Bookkeepers, Hand		
Air Traffic Controllers	Included with Radio Operators		
Electroplaters	Included with Other Operatives, N.E.C.		
Electroplater's Helper	Included with Other Operatives, N.E.C.		
Heaters, Metal	Included with Other Operatives, N.E.C.		
Loom Fixers	None reported on 1960 Census, no projection made.		
Machine Tool Operators, Class B	Included with Other Operatives, N.E.C.		

The Occupational Outlook Handbook in Brief

The 1972–73 edition of the *Occupational Outlook Handbook* is here. Issued regularly every 2 years, the 900-page *Handbook* is one of the most widely used publications in the vocational guidance field and an alltime best seller among Government publications.

The new volume describes the nature of the work, entrance requirements, employment outlook, advance opportunities, earnings and working conditions for over 800 occupations and 30 major industries. Many promising new occupations have been added, such as subprofessional health service jobs, including electrocardiograph technician, inhalation therapist, occupational therapy aide, surgical technician, medical assistant, and others. Additional statements cover the outlook for such diverse occupations as motorcycle mechanics, city managers, food scientists, and food processing technicians. New industry statements describe job opportunities in trucking, drug manufacturing, office machinery manufacturing, and laundry and drycleaning plants.

The 1972–73 *Handbook* has been updated to reflect both the latest salary information and technological developments. Expanded statements provide more detail about personal traits—a desire to work out-of-doors, for example—to help workers choose the right job. Beyond learning about the job itself, young people should assess their interests and abilities and should explore employment possibilities in the geographic area in which they would like to live. This new information will help them pinpoint jobs which best match their interests and abilities.

Outlook statements in the 1972–73 *Handbook* describe employment changes expected to occur between 1970 and 80. Employment growth has been used as a key indicator of job opportunities, but replacement of workers who die, retire, or withdraw from the labor force for other reasons also will contribute to job openings during the 1970's. Replacement needs will be especially significant in occupations having a large proportion of women, such as registered nurses and elementary school teachers, or among older workers, such as cooks and chefs. Methods of arriving at 1980 employment projections are described in detail in the Technical Appendix of the *Handbook*.

During the 1970's, professional and technical jobs, which usually require college level training, are expected to increase faster than those in any other occupational group. Nonetheless, 8 out of every 10 jobs open will not require a college degree.

The occupational statements in the *Handbook* will enable readers to get a good, all-round description of each job. School vocational counselors and State employment service offices and other community agencies stand ready to offer guidance. Copies of the *Handbook* usually are available in school counselors' offices and in school and public libraries. They may be purchased for $6.25 a copy from any of the Bureau of Labor Statistics offices listed on the inside front cover of this issue.

The following brief summary from the *Handbook* has been prepared to help young people get an overview of employment prospects in a wide range of occupations. The *Handbook* should be consulted for important details that could not be included in this summary. For example, no attempt has been made in the summary to measure the changing manpower requirements arising from employee transfers from occupation to occupation. Research in this area has been limited and usable data are available for only a few large professions, such as teaching and engineering. Also, the number of annual openings shown in each field represents one-tenth of those expected over the 1970–80 period. Because of changes in economic conditions, figures in the summary do not necessarily show the number of openings in any specific year.

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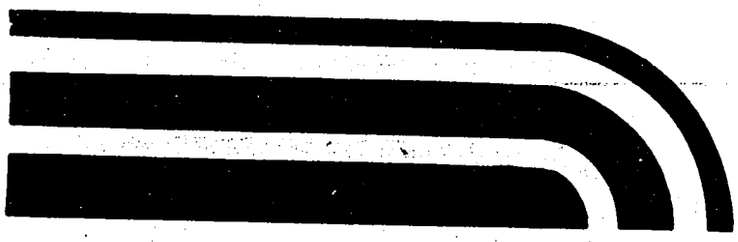

OCCUPATIONAL OUTLOOK HANDBOOK IN BRIEF
1972–73 Edition

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [2]
PROFESSIONAL AND RELATED OCCUPATIONS			
Business administration and related professions			
Accountants	491,000	31,200	Excellent opportunities. Strong demand for college trained applicants. Graduates of business and other schools offering accounting should have good prospects.
Advertising workers	141,000	5,400	Slow growth. Opportunities will be good, however, for highly qualified applicants, especially in advertising agencies.
Marketing research workers	23,000	2,600	Excellent opportunities especially for those who have graduate degrees. Existing marketing research organizations are expected to expand and new research departments and independent firms set up.
Personnel workers	160,000	9,100	Favorable outlook, especially for college graduates with training in personnel administration. More workers will be needed for recruiting, interviewing, and psychological testing.
Public relations workers	75,000	4,400	Rapid increase due to population growth and rise in level of business activity. An increasing amount of funds will be allocated to public relations work.
Clergymen			
Protestant ministers	295,000	9,700	Competition keen in some denominations. Many clergymen will find work in social work, education, and as chaplains with the Armed Forces.
Rabbis	6,500	300	Number of rabbis probably will be inadequate. Growth in Jewish religious affiliation and in the number of synagogues, along with demand for rabbis to work with social welfare and other Jewish affiliated organizations, should continue.
Roman Catholic priests	60,000	2,200	Growing number needed. Number of priests ordained insufficient to meet the needs of newly established parishes, expanding colleges, and growth of the Catholic population.
Conservation occupations			
Foresters	22,000	1,000	Number of forestry graduates may more than meet demand. Private owners of timberland and forest products industries should employ increasing numbers of foresters. Demand in the Federal Government is expected to remain stable.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [1]
Forestry aides	**11,000**	**1,300**	Favorable opportunities, especially for those who have post-high school training in forestry. The number of aides required by forest products industries and the Federal Government is expected to increase.
Range Managers	**3,600**	**60**	Declining employment opportunities in the Federal Government because scientific and technical duties will be done increasingly by natural scientists. The decline will be somewhat offset by increasing employment opportunities in the private sector.
Counseling occupations			
Employment counselors	**8,000**	**1,100**	Excellent opportunities for those who have master's degrees or experience in the field. Graduates with bachelor's degrees and 15 hours of counseling-related courses will find favorable opportunities in State and local employment.
Rehabilitation counselors	**13,000**	**1,600**	Shortage occupation. Excellent opportunities for those who have graduate work in rehabilitation counseling or in related fields.
School counselors	**54,000**	**5,200**	Very rapid employment increase, reflecting continued growth of counseling services and some increase in secondary school enrollments.
Engineering occupations	(Estimated employment, 1970=1,100,000; average annual openings to 1980 [1]=58,000.)		
Aerospace engineers	**65,000**	**1,500**	Long-run outlook favorable but employment opportunities fluctuate periodically. Currently, openings may fall short of the number seeking employment.
Agricultural engineers	**13,000**	**600**	Rapid increase due to the growing mechanization of farm operations, increasing emphasis on conservation of resources, and the broadening use of agricultural products and wastes as industrial raw materials.
Biomedical engineers	**3,000**	**120**	Excellent prospects for those who have graduate degrees. Increased research and development expenditures will create new jobs in areas such as prosthetics, cybernetics, instrumentation systems, computer usage, and environmental pollution.
Ceramic engineers	**10,000**	**500**	Rapid increase in requirements due to growing use of ceramic materials, nuclear energy programs and electronics as well as in consumer and industrial uses.
Chemical engineers	**50,000**	**1,700**	Moderate growth from expansion of the chemical industry and large expenditures for research and development. Opportunities also will arise in new areas of work such as environmental control.
Civil engineers	**185,000**	**10,000**	Expanding opportunities from growing needs for housing, industrial buildings, and highway transportation systems. Urban environmental problems such as air pollution also should require additional civil engineers.
Electrical engineers	**235,000**	**12,200**	Very rapid growth related to demand for electrical equipment to automate and mechanize production processes, especially for items such as computers and numerical controls for machine tools, and for electrical and electronic consumer goods.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [2]
Industrial engineers	125,000	8,000	Very rapid growth in employment resulting from the increasing complexity of industrial operations, expansion of automated processes, and continued growth of industries.
Mechanical engineers	220,000	10,100	Rapid employment growth due to demand for industrial machinery and machine tools and increasing technological complexity of industrial machinery and processes.
Metallurgical engineers	10,000	500	Rapid increase in number of workers needed by the metalworking industries to develop metals and new alloys as well as adapt current ones to new needs, and to solve metallurgical problems in the efficient use of nuclear energy.
Mining engineers	5,000	100	Favorable opportunities through the 1970's. The number of new graduates in mining engineering entering the industry may be fewer than the number needed to replace those who retire or die.
Health service occupations			
Chiropractors	16,000	900	Favorable outlook although only a small growth in demand is expected. Anticipated number of new graduates will be inadequate to fill openings.
Dental assistants	91,000	9,200	Excellent opportunities, especially for graduates of academic programs.
Dental laboratory technicians	33,500	2,900	Very good outlook for well-qualified technicians and trainees. Best opportunities for salaried positions in commercial laboratories and the Federal Government.
Dental hygienists	16,000	3,100	Supply will continue to be inadequate to meet demands of the growing population. Very good opportunities both for full-time and part-time workers.
Dentists	103,000	5,400	Very good opportunities. Limited capacity of dental schools will restrict supply of new graduates.
Dietitians	30,000	2,300	Very good opportunities for both full-time and part-time workers due to expanding programs in hospital and nursing facilities and in other institutions.
Electrocardiographic technicians	9,500	1,600	Excellent opportunities due to increased reliance by physicians upon electrocardiograms in diagnosing heart disease and upon electrocardiographs in monitoring patients under intensive care.
Electroencephalographic technicians	3,000	950	Excellent opportunities as EEG's are used more to diagnose brain diseases and to monitor brain activity.
Hospital administrators	17,000	1,000	Very good opportunities for those who have master's degrees in hospital administration. Applicants without graduate training will find it increasingly difficult to enter this field.
Medical assistants	175,000	20,000	Excellent opportunities, especially for graduates of 2-year junior college programs. The shortage of physicians, the increasing complexity of medical practice, and the growing volume of paperwork will add to demand.

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Occupation	Estimated employment 1970	Average annual openings to 1980	Employment prospects
Inhalation therapists	10,000	2,100	Excellent opportunities related to the greater demand for health services. The benefits derived from releasing nurses and kindred personnel to perform their primary duties should also increase demand.
Medical laboratory workers	110,000	13,500	Excellent opportunities for new graduates with bachelor's degrees in medical technology. Demand will be particularly strong for those who have graduate training in biochemistry, microbiology, immunology, and virology.
Medical record librarians	13,000	1,500	Excellent opportunities for graduates of approved medical record librarian programs.
Occupational therapists	7,500	1,150	Excellent opportunities. Demand is expected to exceed supply as interest in the rehabilitation of disabled persons and the success of established occupational therapy programs increases.
Occupational therapy assistants	6,000	1,300	Excellent opportunities, particularly for graduates who have received the title of Certified Occupational Therapy Assistant (C.O.T.A.) from the American Occupational Therapy Association.
Optometrists	18,000	800	Favorable outlook. By the mid-1970's, new graduates may approximate demand because of expected expansion of optometry schools.
Optometric assistants	5,000	300	Moderate employment increase resulting from an expanding population, more elderly people and white-collar workers, and a wider recognition of the importance of good vision for efficiency at work and in school.
Osteopathic physicians	13,500	950	Excellent opportunities. Greatest demand in States where osteopathy is widely accepted as a method of treatment.
Podiatrists	7,000	250	Favorable opportunities for new graduates to establish their own practices as well as to enter salaried positions in other podiatrists' offices, hospitals, extended care facilities, and public health programs.
Pharmacists	129,000	5,100	Employment will grow as a result of new drugs, increasing numbers of pharmacies, and insurance plans covering prescriptions.
Physical therapists	15,000	1,600	Excellent prospects as demand continues to exceed supply. Increased public recognition of the importance of rehabilitation will result in expanded programs to help the disabled.
Physical therapy assistants	10,000	2,200	Excellent opportunities, particularly for graduates of 2-year junior college programs.
Physicians	305,000	22,000	Shortage occupation. Excellent opportunities for employment, as limited capacity of medical schools restricts supply of new graduates.
Veterinarians	25,000	1,500	Very good outlook. Supply will be restricted by limited capacity of schools of veterinary medicine.

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Occupation	Estimated employ-ment 1970	Average annual openings to 1980 [1]	Employment prospects [2]
Radiologic technologists	80,000	7,700	Very good outlook for both full-time and part-time workers, primarily as a result of the expansion in the use of X-ray equipment to diagnose and treat diseases.
Registered nurses	700,000	69,000	Very good outlook. Opportunities as administrators, teachers, clinical specialists, public health nurses, and in research are excellent for nurses who have graduate training.
Sanitarians	15,000	1,100	Very favorable opportunities for college graduates. A bachelor's degree in environmental health is preferred, although a degree in one of the basic sciences generally is accepted.
Speech pathologists and audiologists	22,000	2,200	Good opportunities, especially for those who have completed graduate study. Increasing emphasis on the master's degree by Federal and State governments will limit opportunities at the bachelor level.
Surgical technicians	25,000	2,600	Excellent opportunities, particularly for junior college graduates.
Mathematics and related occupations			
Actuaries	5,200	300	Excellent opportunities. Strong demand for recent college graduates who have backgrounds in mathematics and have passed actuarial examinations.
Mathematicians	75,000	4,600	Favorable outlook for Ph.D. graduates to teach and do research. Because of the large number of mathematicians projected to receive bachelor's degrees, competition for entry positions will be keen.
Statisticians	24,000	1,400	Very good opportunities for new graduates and experienced statisticians in industry and government.
Natural science occupations			
Geologists	23,000	500	Favorable prospects for graduates with advanced degrees; those who have bachelor's degrees probably will face competition for entry positions.
Geophysicists	8,000	500	Favorable outlook, especially for those who have graduate degrees. Geophysicists will be needed to operate highly sophisticated equipment to find concealed fuel and mineral deposits; explore the outer atmosphere and space; and solve problems related to water shortages, flood control, and pollution abatement.
Meteorologists	4,400	200	Favorable outlook. Space-age activities contribute to demand. Those who have advanced degrees will be in special demand to conduct research, teach in colleges and universities, and engage in management and consulting work.
Oceanographers	5,400	300	Favorable outlook for those who have advanced degrees. The importance of the ocean in national defense as well as a source of energy, minerals, and food will open up new opportunities for specialists.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [2]
Life science occupations			
Biochemists	11,000	800	Good employment opportunities especially for those who have Ph.D. degrees to conduct independent research or to teach. The greatest growth will be in medical research.
Life scientists	180,000	9,900	Rapid increase in employment through the 1970's. However, the number of life science graduates also is expected to increase rapidly and result in keen competition for the more desirable positions. Those who hold advanced degrees, especially Ph.D.'s, should have less competition than those who hold bachelor's degrees.
Physical scientists			
Astronomers	1,300	100	Employment opportunities will be favorable but higher level positions will be filled by persons with a doctorate. Bachelor's or master's degree recipients will have favorable prospects primarily as research and technical assistants.
Chemists	137,000	9,400	Favorable outlook. Chemists will continue to be needed to perform research and development work. They also will be needed to teach at colleges and universities, where the strongest demand will be for those who have Ph.D. degrees.
Food scientists	7,300	400	Favorable employment outlook at all degree levels as a result of an expanding population demanding a greater variety of quality convenience foods—both in and outside the home.
Physicists	48,000	3,500	Favorable opportunities, particularly for those who have advanced degrees to teach at colleges and universities. Physicists will be required in substantial numbers to do complex research and development work.
Performing artists			
Actors and actresses	15,000	800	Applicants greatly outnumber jobs available. Moreover, many actors are employed in their profession for only a small part of year.
Dancers	23,000	1,500	Limited opportunities. The number of applicants exceeds the number of jobs available. Best outlook is for those trained to teach.
Musicians and music teachers	210,000	11,100	Overcrowded field. Keen competition among performers. Some openings may result from the expanded use of video cassettes and cable T.V. Best prospects are in teaching.
Singers and singing teachers	75,000	4,300	Highly competitive field. Some opportunities should result from the expanded use of video cassettes and cable T.V., but best prospects remain in teaching.

Occupation	Estimated employ-ment 1970	Average annual openings to 1980 [1]	Employment prospects [2]
Social scientists			
Anthropologists	3,100	200	Rapid increase, especially in the college teaching field. Some positions will be found in museums, archeological research programs, mental and public health programs, and in community survey work.
Economists	33,00	2,300	Excellent opportunities for those who have graduate degrees in teaching, government and business. Young people with bachelor's degrees will find employment in Government and as management trainees in industry and business.
Geographers	7,100	500	Favorable outlook. Demand will be strong in teaching and research for those who have Ph. D.'s. Those who have master's degrees or less face competition. Colleges and universities will offer the greatest number of opportunities, although employment is expected to rise in government and in private industry.
Historians	15,500	1,000	Favorable opportunities in teaching and archival work for experienced Ph. D.'s. New Ph. D. recipients and those with lesser degrees will encounter competition; teaching positions available for those meeting certification requirements.
Political scientists	11,000	700	Very good prospects for those who have Ph. D. degrees and are interested in college teaching. More limited prospects for those with master's degrees or less.
Sociologists	12,000	800	Good prospects for those who have Ph. D. degrees, but those with only master's degrees will face considerable competition. Very good opportunities in college teaching and in nonteaching fields dealing with social and welfare problems and the implementation of legislation to develop human resources.
Teachers			
College and university teachers	335,000	10,800	Good employment prospects at 4-year colleges for those who have Ph. D. degrees and at 2-year colleges for those who have master's degrees. New Ph. D.'s will face stronger competition for openings as their numbers grow each year.
Kindergarten and elementary school teachers	1,260,000	52,000	New graduates may face keen competition for jobs during the 1970's. Young people seeking their first teaching assignment will find schools placing greater emphasis on their academic work and the quality of their training. Nevertheless, employment opportunities may be very favorable in urban ghettos, rural districts, and in geographic areas where teaching salaries are low and better paying opportunities are available in other fields. The outlook also will be favorable for teachers who are trained to work with handicapped children. Many students, however, who are preparing for elementary teaching as a career will have to direct their studies toward other careers.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [1]
Secondary school teachers	1,015,000	38,000	Opportunities will be very favorable in some geographic areas and in subject fields such as the physical sciences. Increased demand for teachers trained in the education of mentally retarded or physically handicapped children is expected. Nevertheless, if past trends of entry and reentry continue, the supply of secondary teachers will significantly exceed requirements.
Technicians			
Draftsmen	310,000	16,300	Favorable outlook, especially for those having posthigh school training in drafting.
Engineering and science technicians	650,000	33,000	Favorable opportunities. Demand strongest for graduates of post-secondary technician training schools to fill more responsible jobs. Industrial expansion and complexity of products and manufacturing processes will increase demand.
Food processing technicians	3,400	150	Favorable opportunities, especially for graduates of postsecondary technical training programs. The complexity of processing convenience foods under higher quality and safety standards will result in a need for more technicians in many areas of the food industry.
Writing occupations			
Newspaper reporters	39,000	1,650	Favorable opportunities for young people with exceptional talent and ability to handle news about highly specialized and technical subjects. Weekly or daily newspapers in small towns and suburban areas offer the most opportunities for beginners.
Technical writers	20,000	1,000	Good prospects for those having college courses in writing and technical subjects plus writing ability.
Other professional and related occupations			
Airline dispatchers	1,200	60	Few openings because field is very small.
Air traffic controllers	20,000	800	Moderate increase as a result of growth in the number of airport towers and the need to provide services for private planes.
Architects	33,000	2,700	Favorable opportunities for registered architects. Growth in nonresidential as well as residential construction. Homeowners' growing awareness of the value of architects' services also will spur demand.
Broadcast technicians	22,000	500	Technical advances, such as automatic programing and remote control of transmitters, will keep employment from growing. However, deaths and retirements will create some openings.
College career planning and placement counselors	2,800	200	Very rapid increase in employment as students and colleges increase in number and as greater recognition is given to the need for counseling—especially of minority group students and students of low income families.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [2]
Commercial artists	60,000	2,500	Favorable outlook for well-trained and qualified workers. Young people with only average ability and little specialized training will face keen competition and have limited opportunity for advancement.
Flight engineers	8,500	500	Very rapid increase due to the rise in the number of large jet-powered aircraft that require flight engineers.
Ground radio operators, and teletypists (civil aviation)	7,850	50	Overall employment will decline because of the use of more automatic communications equipment. A small number of workers will be needed each year to replace those who retire or die.
Home economists	105,000	6,700	Favorable prospects. Greatest demand for teachers, but business also should increase demand for these workers especially in research and development.
Industrial designers	10,000	300	Favorable opportunities for talented college graduates. Those with training in industrial design may face competition from architectural and engineering graduates who have artistic talent.
Interior designers and decorators	15,000	700	Good opportunities, but those without formal training will find it increasingly difficult to enter this field. The number employed by department and furniture stores is expected to rise.
Landscape architects	10,000	600	Professional opportunities will expand due to continued growth of parks and recreation facilities in metropolitan areas and the rising interest in city and regional planning.
Lawyers	280,000	14,000	Good prospects in salaried positions with well-known law firms and as law clerks to judges for graduates of outstanding law schools, or for those who rank high in their classes. Growth in demand will stem from business expansion and the increased use of legal services by low- and middle-income groups.
Librarians	125,000	11,500	Good opportunities, especially in school libraries for those who have advanced degrees.
Library technicians	76,000	7,200	Outlook excellent, particularly for graduates of academic programs. The increasing needs of a growing population for library services will contribute to demand.
Photographers	65,000	2,000	Competition in commercial and portrait fields is keen but opportunities exist for those who are talented and well trained. Demand for industrial photographers is expected to be strong.
Pilots and copilots	49,000	4,800	Rapid increase because of growth in the number of aircraft as well as in the increasing number of flights.
Programers	200,000	34,700	Very rapid employment growth, especially in firms that use computers to process business records or to control manufacturing processes. Professionally trained personnel to handle both programing and systems analysis will be increasingly in demand.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [2]
Psychologists	40,000	3,700	Excellent opportunities for those who have a doctorate; less favorable for those with only a master's degree. Strong demand in mental hospitals, correctional institutions, mental hygiene clinics, and community health centers.
Radio and television announcers	17,000	1,000	Moderate increase in employment as new radio and television stations are licensed. Entry jobs easier to get in radio than in television because of the greater number of radio stations, especially small ones, that hire beginners.
Recreation workers	13,500	1,700	Excellent opportunities for the well qualified and good opportunities for those without related training in local governments and voluntary agencies, religious groups, and the Federal Government.
Social workers	170,000	18,000	Very good prospects for those who have training in city and bachelor's degrees in social work. Many part-time jobs for qualified women with experience.
Surveyors	54,000	2,400	Best prospects for persons with postsecondary school training in surveying. Demand will be stimulated by urban development and highway construction.
Systems analysts	100,000	22,700	Excellent opportunities due to rapid expansion of electronic data processing systems in business and government.
Underwriters	55,000	2,740	Favorable opportunities especially in metropolitan areas.
Urban planners	8,000	750	Very good prospects for those who have training in city and regional planning. Construction of new cities and towns, urban renewal projects, and beautification and open space land improvement projects will spur demand for these workers.
MANAGERIAL OCCUPATIONS			
Bank officers	174,000	11,000	Employment is expected to grow rapidly as the increased use of computers enables banks to expand their services.
City managers	2,600	200	Excellent opportunities especially for persons with master's degrees in public or municipal administration.
Conductors (railroad)	37,500	1,200	Moderate number of opportunities resulting from the need to replace workers who retire or die.
Industrial traffic managers	18,000	700	Moderate employment increase. Strong demand is expected for specialists who can classify products to obtain the lowest possible freight rates.
Licensed Merchant Marine Officers	11,000	—	Employment decline due to competition from foreign ships and construction of new ships that can operate with fewer officers. Employment decline will more than offset openings from retirement and deaths.
Managers and assistants (hotel)	195,000	14,400	Favorable outlook, especially for those who have college degrees in hotel administration.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [1]
Purchasing agents	**167,000**	**5,400**	Good prospects. Demand strong for business administration graduates who have courses in purchasing. Demand also will be strong for graduates with backgrounds in engineering or science to work in firms manufacturing chemicals, complex machines, and other technical products.
CLERICAL AND RELATED OCCUPATIONS			
Bank clerks	**510,000**	**29,600**	Employment will increase slowly. Introduction of data processing equipment, will decrease demand for check sorters and bookkeeping machine operators but increase demand for electronic data processing workers.
Bank tellers	**153,000**	**14,700**	Very rapid increase as banks continue to expand their services. An increasing proportion will be employed part-time during peak hours.
Bookkeeping workers	**1,340,000**	**74,000**	Slow growth. Use of electronic data processing equipment and other bookkeeping machines will limit employment increase.
Cashiers	**847,000**	**64,000**	Very favorable outlook especially for those with typing or other special skills. Many opportunities for part-time workers.
Claim adjusters	**114,000**	**4,500**	Rapid employment growth due to expanding insurance sales and resulting claims.
Claim examiners	**29,000**	**780**	Limited opportunities. Fewer examiners will be needed to process claims due to the increasing use of computers. Some openings will result from deaths or retirements.
Electronic computer operating personnel	**200,000**	**34,200**	Employment will increase very rapidly due to growth in the number of computer installations. Beginners may find it easier to qualify for openings because technological advances have made computer equipment easier to operate.
File clerks	**169,000**	**15,300**	Rapid employment growth resulting from the long-term growth of business and the need for more and better recordkeeping. However, the increasing use of computers to arrange, store, and transmit records may begin to limit growth.
Front office clerks (hotel)	**61,000**	**4,500**	Rapid increase in employment as number of hotels, motels, and motor hotels increases.
Office machine operators	**365,000**	**20,800**	Moderate increase as the growing volume of paperwork more than offsets the effect of automated recordkeeping systems and advances in office automation and inter-office communications.
Receptionists	**298,000**	**23,500**	Moderate increase in employment. Young applicants may face competition from more experienced workers. Automation should not affect receptionists as their work is of a personal nature.
Shipping and receiving clerks	**379,000**	**12,000**	Slow increase as laborsaving equipment enables large firms while using fewer clerks to handle a greater volume of merchandise.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [1]
Station agents (railroad)	9,900	100	Although employment will continue to decline, a limited number of opportunities will result from the need to replace experienced agents who retire or die.
Stenographers and secretaries	2,833,000	247,000	Rapid employment growth. Best opportunities for those with stenographic skills.
Stock clerks	500,000	23,000	Moderate increase in employment. Growth will be due to business expansion. However, electronic computers that control inventories can be expected to limit growth.
Telegraphers, telephoners, and towermen (railroad)	12,000	—	Mechanization of yard operations, new communications devices, and other innovations will continue to reduce the number of workers needed. Employment decline will more than offset openings from retirements and deaths.
Telephone operators	420,000	28,000	Large number of openings to replace women who leave work due to family responsibilities. However, direct dialing and other automatic devices will restrict employment growth in telephone companies. Most growth will occur in stores, factories, and other businesses that use private branch exchange (PBX) switchboards.
Traffic agents and clerks (civil aviation)	45,000	4,800	Rapid increase in employment because of anticipated growth in passenger and cargo traffic.
Typists	671,000	61,000	Favorable outlook especially for typists who have other office skills. Increasing use of duplicating machines will eliminate some routine typing.
SALES OCCUPATIONS			
Automobile parts countermen	68,000	2,600	Continued employment growth related to increasing number of motor vehicles and a growing variety of replacement parts.
Automobile salesmen	320,000	4,300	Moderate employment increase as car sales rise over the long run, but most openings will result from turnover.
Automobile service advisors	20,000	700	Moderate increase as a result of more automobiles. Opportunities best for those who have some experience in automobile repair.
Insurance agents and brokers	350,000	19,000	Moderate employment increase. Despite an expected increase in the number of policies, insurance selling will remain keenly competitive.
Manufacturers salesmen	510,000	25,000	Favorable opportunities for well-trained workers, but competition will be keen. Best prospects for those trained to handle technical products.
Real estate salesmen and brokers	226,000	14,800	Many new positions will be created to serve growing population, but most openings will result from turnover.
Retail trade salesworkers	2,500,000	131,000	Good prospects for both full-time and part-time workers. Most demand for workers who are skilled in salesmanship and well informed about their merchandise.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [2]
Securities salesmen	200,000	11,800	Good opportunities.
Wholesale trade salesworkers	539,000	27,700	Good opportunities. Demand will be stimulated by increase in business activity and the growth of specialized services offered by wholesale houses.
SERVICE OCCUPATIONS			
Barbers	180,000	7,700	Slow increase in employment. Trend to longer hair will keep employment from growing as fast as male population.
Bartenders	160,000	8,700	Moderate increase as new restaurants, bars, and hotels open.
Bellmen and bell captains (hotel)	33,000	1,500	Slow employment increase. Although some openings will result as new hotels and motor hotels are built, the fast growing motel business, with its emphasis on informality, employs few bellmen.
Building custodians	1,100,000	70,000	Opportunities will be favorable due to the construction of new apartments, hospitals, offices, recreation centers, and other buildings. Improvements in cleaning and maintenance technology will limit growth.
Cooks and chefs	740,000	4,900	Moderate increase as new restaurants and hotels open. Opportunities will be especially good for the well qualified because highly skilled cooks and chefs are in short supply.
Cosmetologists	484,000	43,000	Very good opportunities for beginners as well as experienced workers. Part-time work also available.
F.B.I. special agents	7,900	*	Employment expected to rise as FBI responsibilities grow. Turnover rate is traditionally low.
Firefighters	180,000	11,800	Many new job openings as fire departments enlarge staffs or paid workers replace volunteers. Competition in large cities will be keen.
Guards and watchmen	200,000	15,700	Moderate growth due to the increasing number of plants, offices, banks, stores, and schools as well as the mounting incidence of crime and social unrest.
Hospital attendants	830,000	111,000	Very rapid rise in employment. Most openings occur in hospitals, but some exist also in nursing and convalescent homes and other long-term care facilities.
Housekeepers and assistants (hotel)	33,000	2,600	Most openings will occur from the need to replace workers who retire or die. Some new openings will become available in newly built hotels, motor hotels, and luxury motels.
Police officers (municipal)	332,000	17,000	Very good opportunities for qualified applicants. Trained specialists in electronic data processing, engineering, and social work are becoming essential.
Licensed practical nurses	370,000	58,000	Good opportunities as health facilities continue to expand and as licensed practical nurses are increasingly used in work not requiring the skills of a registered nurse.
Models	58,000	1,900	Moderate increase in employment. Although full-time work should remain highly competitive, part-time opportunities will be favorable.

Occupation	Estimated employment 1970	Average annual openings to 1980	Employment prospects
Private household workers	1,558,000	16,000	Excellent employment opportunities. Demand will be stimulated by rising family incomes and larger numbers of women working outside the home. However, many jobseekers are unwilling to accept domestic work despite its availability.
Social service aides	50,000		Many jobs have been generated by antipoverty legislation. A wide variety of new jobs for unemployed and low-income persons is expected to result from the New Careers program.
State police officers	41,000	2,900	Very rapid increase in employment. The greatest demand will be for highway patrol officers.
Stewardesses	35,600		Very favorable job opportunities because of expected increases in air travel and the 30 percent turnover each year.
Waiters and waitresses	1,040,000	67,000	Moderate employment increase as new restaurants and hotels open. Many additional openings will arise because of high turnover.
CRAFTSMEN—Building trades			
Asbestos and insulating workers	25,000	900	Moderate growth resulting from the anticipated rise in volume of construction. Increasing use of pipe in manufacturing processes and in air-conditioning and refrigeration installations will spur demand for these workers.
Bricklayers	175,000	8,500	Rapid employment increase is expected as construction activity expands along with the popularity of structural and ornamental brickwork in buildings.
Carpenters	830,000	46,000	Rapid employment increase resulting from rise in construction activity.
Cement masons (cement and concrete finishers)	65,000	3,500	Very rapid increase resulting from construction expansion and growing use of concrete and concrete products.
Electricians (construction)	190,000	12,000	Very rapid increase in employment as construction expands and more electric outlets, switches, and wiring are needed for appliances, air-conditioning systems, electronic data processing equipment, and electrical control devices.
Elevator constructors	15,000	6,000	Moderate employment increase resulting from the anticipated expansion in new industrial, commercial, and large residential building, and from the modernization of older installations.
Floor covering installers	40,000	2,000	Rapid employment increase resulting from expansion of construction and wider use of resilient floor coverings and wall-to-wall carpeting.
Glaziers	10,500	500	Rapid increase in employment. Expansion of construction and the increasing use of glass in building construction will create very favorable long-range outlook.
Lathers	30,000	1,500	Rapid increase related to anticipated growth in construction and to new plastering methods that require lathing.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [1]
Operating engineers (construction machinery operators)	310,000	15,600	Rapid employment growth resulting from increasing use of machinery for construction, particularly for highways and heavy construction.
Painters and paperhangers	390,000	22,000	Rapid employment increases are expected as construction expands and more use is made of new materials such as polyester and vinyl coatings, and fabric, plaster, and other wall coverings. Painters also will be needed for maintenance work.
Plasterers	35,000	1,000	Slow increase resulting from growth in construction. New materials and methods have expanded use of plaster, but drywall construction will limit employment growth.
Plumbers and pipefitters	350,000	20,000	Rapid growth as construction increases. Increasing industrial activities related to nuclear energy and the greater use of refrigeration and air-conditioning systems will provide many job opportunities. Maintenance, repair, and modernization of existing plumbing and heating systems also will create additional jobs.
Roofers	60,000	3,000	Rapid increase resulting mainly from new construction growth and repairs on existing structures. Technological innovations may limit growth somewhat.
Sheet metal workers	60,000	2,500	Rapid increase due to greater use of heating, air-conditioning, and refrigeration systems required in all types of structure.
Stonemasons, marble setters, tile setters, and terrazzo workers	30,000	1,000	Little increase in employment due to decline of stonemasonry in modern architecture.
Structural-, ornamental-, and reinforcing-iron workers, riggers, and machine movers	85,000	4,000	Rapid increase due to expansion in construction. Improved competitive position of steel as a construction material will spur demand for these workers.
Machine occupations			
All-round machinists	530,000	16,600	Slow growth expected as metalworking activities expand. Much of the growth will occur in maintenance shops where more workers will be needed to repair machinery.
Instrument makers—mechanical	8,000	400	Rapid increase resulting from the growing use of instruments in manufacturing processes and research and development work.
Machine tool operators	425,000	9,600	Technological developments, such as numerically controlled machine tools, will limit need for additional operators. However, many openings will result from retirements or deaths.
Setup men (machine tools)	70,000	2,600	Moderate increase due to expansion of metalworking activities. Numerically controlled machine tools may change job duties.
Tool and die makers	163,000	4,700	Despite technological advances in toolmaking, which restrict growth, employment is expected to increase slowly because of expansion of metalworking industries.

Occupation	Estimated employment 1970	Average annual openings to 1980	Employment prospects
Mechanics and repairmen			
Air-conditioning, refrigeration, and heating mechanics	115,000	7,900	Very rapid increase in air-conditioning mechanic employment due primarily to continued growth of home air-conditioning. Oil burner mechanics may find openings limited since relatively few new homes have oil heating systems.
Aircraft mechanics	140,000	6,000	Rapid growth because of substantial increase in the number of aircraft in operation. Openings will occur in both firms providing general aviation services and in independent repair shops.
Appliance servicemen	220,000	11,000	Rapid increase as a result of growth in the number and variety of household appliances.
Automobile body repairmen	100,000	4,500	Moderate increase as a result of growing number of traffic accidents.
Automobile mechanics	610,000	23,300	Moderate increase as a result of more automobiles and added features such as air-conditioning and exhaust control devices. Greater shop efficiency will limit growth.
Bowling-pin-machine mechanics	6,000	140	Little or no change in employment due to improved pinsetting machines which require fewer repairs. A small number of openings will occur as a result of retirements or deaths.
Business machine servicemen	80,000	6,000	Very rapid growth. Outlook particularly favorable for those trained to service computers and associated equipment.
Diesel mechanics	85,000	4,100	Rapid increase due to expansion of industries that are major users of diesel engines.
Electric sign servicemen	8,000	450	Rapid increase due to business expansion and increasing use of electric signs.
Farm equipment mechanics	53,000	1,400	Slow increase due to declining number of farms and increased reliability of farm machinery.
Industrial machinery repairmen	180,000	9,000	Rapid increase due to growing amount of machinery needed to fabricate, process, assemble, and inspect industrial production materials.
Instrument repairmen	95,000	5,900	Very rapid growth due to the increase in use of instruments for scientific, industrial, and technical purposes.
Jewelers and jewelry repairmen	15,000	500	Little or no employment change. Despite growing demand for jewelry, greater efficiency will limit the need for new workers. Turnover will create a small number of openings.
Maintenance electricians	250,000	11,000	Moderate increase mostly from the need to replace workers who retire or die.
Millwrights	80,000	3,100	Moderate increase, related to new plants, additions of new machinery, changes in plant layout, and maintenance of increasing amounts of complex machinery.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [2]
Motorcycle mechanics	5,000	250	Rapid increase due to growing popularity of motorcycles, minibikes, and snowmobiles. Seasonal fluctuations in the demand for workers because cycling activity increases in summer and declines in winter.
Television and radio service technicians	132,000	4,500	Rapid increase related to growing number of radios, televisions, phonographs, and other consumer electronic products.
Truck and bus mechanics	115,000	5,200	Rapid increase in truck mechanic employment resulting from more freight transportation by truck. Little change in bus mechanic employment because decline in local bus transit is expected to offset increased intercity bus travel.
Vending machine mechanics	18,000	700	Moderate increase due to expansion of automatic merchandising.
Watch repairmen	15,000	500	Little or no employment change because most new watches will cost little more to replace than repair. Replacement needs will create small number of job opportunities.
Printing (graphic arts) occupations			
Bookbinders and related workers	30,000	700	Increasing mechanization of bindery operations will reduce employment.
Composing room occupations	185,000	3,400	Slow employment decline despite greater volume of printing. Technological changes in equipment make it possible to set type faster using fewer operators. Knowledge of electronics and photography increasingly important for operation of new equipment. Openings will result from need to replace workers who die or retire.
Electrotypers and stereotypers	5,000	—	Moderate decline in employment caused by technological change, despite increased printing volume. Employment decline will more than offset openings from retirements and deaths.
Lithographic occupations	80,000	2,600	Moderate increase as more commercial printing firms and small and medium size newspaper publishers use offset presses.
Photoengravers	17,000	60	Slow decline as a result of more efficient equipment and the increasing use of offset printing which requires no photoengravings.
Printing pressmen and assistants	85,000	2,400	Moderate employment increase because of growth in the amount of printed materials.
Telephone industry occupations			
Central office craftsmen	92,000	3,700	Rapid growth in employment due to increasing demand for telephone service and data communication systems.
Central office equipment installers	22,000	675	Moderate growth resulting from the need to install equipment in new central offices and replace obsolete equipment in existing offices. Knowledge of electronics becoming increasingly important in this occupation.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [2]
Linemen and cable splicers	40,000	900	Little or no change in the number of linemen due to greater use of laborsaving devices such as pole-lifting equipment and earth-boring tools. Moderate increase in number of cable splicers. Replacement needs will create some openings.
Telephone and PBX installers and repairmen	102,000	5,300	Rapid increase due to demand for telephones and PBX and CENTREX systems.
Other craft occupations			
Automobile trimmers and installation men (automobile upholsterers)	9,000	400	Moderate growth due to increased demand for replacement and repair of automobile upholstery and convertible tops. More durable fabrics will limit growth.
Blacksmiths	12,000	400	Mass-production of metal parts should reduce employment. A small number of openings, however, will occur as experienced blacksmiths retire or die.
Boilermaking occupations	25,000	700	Slow growth. More efficient production techniques will keep employment from growing as fast as demand for boilers and related products.
Coremakers (foundry)	26,000	550	Little or no change due to the growing use of machine-made cores. Nevertheless, openings will occur as workers retire or die.
Dispensing opticians and optical mechanics	26,000	700	Moderate increase in dispensing optician employment as a result of rising demand for eyeglasses and contact lenses. However, more efficient methods of producing lenses will keep optical mechanic employment from growing.
Foremen	1,488,000	56,500	Moderate increase due to industrial expansion and the need for increased supervision as industrial production processes become more technical.
Furniture upholsterers	33,000	750	Opportunities favorable. Demand for qualified workers is expected to continue to exceed supply despite little or no change in employment. Openings will occur as workers die or retire.
Locomotive engineers	35,000	1,400	A limited number of openings will occur each year, primarily as a result of the need to replace engineers who retire or die.
Locomotive firemen (helpers)	17,200	—	Limited opportunities for employment.
Molders (foundry)	55,000	1,500	Little or no change because of the trend toward machine molding and the increasing use of permanent molds and shell molds. Openings will develop, however, as workers retire or die.
Motion picture projectionists	15,000	625	Slow growth in employment. Stiff competition from experienced projectionists who are unemployed or underemployed.
Patternmakers (foundry)	21,000	600	Little or no change due to the greater use of metal patterns that can be used many times to make identical molds. However, openings will arise as workers retire or die.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [1]
Shoe repairmen	25,000	1,000	Little or no increase because more people buy new shoes rather than repair old ones. Nevertheless, opportunities are favorable for the highly skilled because the number being trained is insufficient to meet replacement needs.
Shop trades (railroad)	82,500	800	The need to replace experienced workers who retire or die will create a limited number of openings.
Stationary engineers	200,000	4,500	Little or no change because larger boilers and automatic controls make it possible to increase capacity without corresponding increases in employment. However, openings will become available as workers retire or die.
OPERATIVES			
Driving occupations			
Intercity busdrivers	25,000	700	Most job opportunities in this slowly growing occupation will result from the need to replace drivers who retire or die.
Local-transit busdrivers	69,000	300	Although the number of local bus drivers is declining, a few opportunities exist for new workers to replace drivers who retire or die.
Local truckdrivers	1,200,000	35,000	Moderate increase as a result of anticipated growth in volume of freight.
Routemen	240,000	2,600	Little change in overall employment. However, many job opportunities will result from the need to replace routemen who retire or die.
Taxi drivers	100,000	1,800	Although number of drivers is declining, high turnover results in need for some replacements.
Truckdrivers, over-the-road	655,000	21,000	Moderate increase. Economic growth of the Nation and continued decentralization of industry will increase demand for intercity trucking.
Other operative occupations			
Assemblers	865,000	44,000	Moderate long-run increase despite continuing automation of assembly processes. Employment sensitive to changes in business conditions and national defense needs, particularly in plants that produce automobiles, aircraft, and other durable goods.
Automobile painter	30,000	1,100	Moderate increase due to growing number of traffic accidents.
Brakemen (railroad)	75,000	800	Opportunities in this declining occupation will result from the need to replace brakemen who retire or die.
Electroplater	17,000	650	Moderate increase, related to expansion of metalworking industries and use of the electroplating process on a greater variety of metals and plastics.
Gasoline service station attendants	410,000	13,300	Moderate increase for both part-time and full-time workers resulting from growing consumption of gasoline and other service station products.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [1]
Inspectors	665,000	29,700	Moderate employment increase due to industrial expansion, the growing complexity of manufactured products, and rising quality standards.
Meatcutters	190,000	5,000	Little or no employment change. More efficient meat cutting and distribution methods will limit the need for new workers, but openings will arise as experienced meatcutters retire or die.
Parking attendants	52,000	600	Slow growth as most new parking facilities are expected to be the self-park variety.
Production painters	115,000	3,700	Slow employment increase as greater use of automatic sprayers and other laborsaving innovations curb need for additional workers.
Photographic laboratory occupations	37,000	2,200	Rapid increase despite greater mechanization of film processing equipment.
Power truck operators	200,000	5,100	Employment increase will be slow, as more efficient power trucks and other mechanized materials-handling equipment are developed. Most openings will result from the need to replace workers who retire or die.
Signal department workers (railroad)	11,200	—	Improved signaling and communications systems, which require less maintenance and repair, will reduce the number of workers needed. Employment decline will more than offset openings from retirements and deaths.
Stationary firemen (boiler)	71,000	100	Employment expected to decrease moderately as result of more automatic centralized equipment, but some openings will occur from the need to replace workers who retire or die.
Unlicensed merchant seamen	31,000	—	Employment decline due to competition from foreign ships and construction of new ships which can operate with fewer men. Small number of openings due to deaths and retirements. However, on net balance employment decline will more than offset openings from retirements and deaths.
Waste water treatment plant operators	30,000	2,100	Rapid employment growth resulting from the construction of new treatment plants and the modernization of existing ones.
Welders and oxygen and arc cutters	535,000	22,000	Rapid increase in welder employment, related to growth in metalworking industries and wider use of welding. Growth in cutter employment, on the other hand, will be restricted by greater use of mechanized cutting equipment.
Laborers (nonfarm)			
Bridge and building workers (railroad)	10,500	—	Employment decline due to increased use of power tools and other laborsaving equipment, and new materials which require less maintenance. Employment decline will offset openings resulting from retirements and deaths.

Occupation	Estimated employment 1970	Average annual openings to 1980 [1]	Employment prospects [2]
Track workers (railroad)	54,900	400	Mechanized equipment and new materials for roadway construction will continue to reduce employment. Several thousand workers are hired each year to handle seasonal rush, but opportunities for year-round employment are limited.
Construction laborers and hod carriers	815,000	25,500	Despite large increases in construction, mechanized equipment may limit demand for these workers. Nevertheless, thousands of openings will arise annually.

[1] Due to growth and death, retirement, and other separations from the labor force. Does not include transfers out of the occupation.

[2] The Bureau of Labor Statistics assessment of the 1980 occupational and industry outlook is based on a projected labor force of 100.7 million in 1980, Armed Forces of 2.7 million, and a resulting labor force of 98 million. The employment outlook presented in the *Handbook* also assumes:

a. maintenance of high levels of employment through the 1970's,
b. that no major event will alter economic growth substantially,
c. that economic and social patterns and relationships will change at about the same rate as in the recent past,
d. that scientific and technological advancement will continue at about the same rate as in recent years, and
e. that the United States will no longer be fighting a war. Defense expenditures will be reduced from the peak levels of the Vietnam conflict but a still guarded relationship between the major powers will permit no major reduction in armaments.

[3] Estimate not available.

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Appendix G

Occupation Alphabetically	Page No.	Expansion Needs	Replacement Needs	Total Needs
Accountants & Auditors	13	471	664	1135
Accounting Clerks	15	Included with Bookkeepers, Hand		
Agricultural Scientists	8	109	20	129
Airplane Mechancis & Repairmen	24	22	8	30
Airplane Pilots & Navigators	13	26	12	38
Air Traffic Controllers	9	Included with Radio Operators		
Architects	13	51	48	99
Asbestos, Insulation Workers	31	18	16	34
Assemblers, Metalworking, Classes A & B	29	521	944	1465
Attendants, Auto Service Parking	31	2083	620	2703
Attendants, Hospitals & Other Inst.	36	2204	2304	4508
Bakers	25	-49	176	127
Bank Tellers	15	390	448	838
Bartenders	35	195	376	571
Biological Scientists	8	50	20	70
Blacksmiths, Forgemen, Hammermen	21	-73	84	11
Blasters and Powdermen	31	---	4	4
Boilermakers	21	6	20	26
Bookkeepers, Hand	15	393	3572	3965
Brakemen & Switchmen, RR	28	-279	152	-127
Brickmasons & Tile Setters	19	145	192	337
Bus, Truck & Tractor Drivers	27	1493	1860	3353
Cabinetmakers	25	123	112	235
Carpenters	19	494	1640	2134
Cashiers	15	1473	2012	3485
Cement & Concrete Finishers	19	45	24	69
Charwomen & Cleaners	36	803	796	1599
Chemical Engineers	7	42	12	54
Chemists	8	176	40	216
Civil Engineers	7	402	184	586
Clergymen	13	-225	484	259
Clerical & Kindred, N.E.C.	15	4860	10716	15576
Compositors & Typesetters	22	-235	216	-19
Conductors, Railroad	14	-125	60	-65
Cooks, exc. Private Household	35	1743	2268	4011
Counter & Fountain Workers	35	425	324	749
Craftsmen & Kindred, N.E.C.	25	1574	856	2430
Crane, Derrick, & Hoistmen	25	97	88	185
Creditmen	14	119	104	223
Deliverymen & Routemen	27	743	568	1311
Dentists	10	146	312	458
Designers, exc. Design Draftsmen	13	93	32	125
Dieticians & Nutritionists	10	24	64	88
Draftsmen	9	441	116	557

Occupation Alphabetically	Page No.	Expansion Needs	Replacement Needs	Total Needs
Economists	12	35	20	55
Editors & Reporters	13	212	296	508
Electrical Engineers	7	416	76	492
Electricians	19	104	328	432
Electroplaters	29	Included with Other Operatives, N.E.C.		
Electroplater's Helper	29	Included with Other Operatives, N.E.C.		
Electrotypers & Stereotypers	22	-11	4	-7
Engineers, Other	7	466	80	546
Engravers, exc. Photoengravers	22	7	8	15
Excavating & Grading Machine Operators	19	193	420	613
Farmers & Farm Workers	37	-19995	13752	-6243
Firemen	34	222	92	314
Foremen, N.E.C.	20	1136	1412	2548
Furnacemen, Smeltermen, Pourers	29	-14	32	18
Geologists & Geophysicists	8	10	4	14
Glaziers	25	56	40	96
Guards, Watchmen, Doorkeepers	34	44	392	436
Heaters, Metal	29	Included with Other Operatives, N.E.C.		
Heat Treaters, Annealers	21	-12	20	8
Household Workers, Private	33	-668	5612	4944
Housekeepers & Stewards, exc. Private Households	36	1042	752	1794
Industrial Engineers	7	547	88	635
Inspectors, Log & Lumber	25	2	4	6
Inspectors, Metalworking Class B	29	-152	348	196
Inspectors, Other	25	137	128	265
Janitors & Sextons	36	2129	2988	5117
Jewelers & Watchmakers	25	-42	48	6
Knitters, Loopers, Toppers	30	1	4	5
Laborers, exc. Farm & Mine	37	-2495	3372	877
Laundry & Dry Cleaning Operatives	31	97	912	1009
Lawyers & Judges	13	43	408	451
Librarians	13	226	492	718
Linemen & Servicemen	23	114	180	294
Locomotive Engineers	23	-139	176	37
Locomotive Firemen	23	-178	20	-158
Loom Fixers	25	None reported on 1960 Census no projection made		

Occupation Alphabetically	Page No.	Expansion Needs	Replacement Needs	Total Needs
Machine Tool Operators, Class B	29	Included with Other Operatives, N.E.C.		
Machinists & Related	21	248	500	748
Mail Carriers	15	562	404	966
Managers, Officials, & Proprietors, N.E.C.	14	4232	9980	14212
Mathematicians	8	4	4	8
Meat Cutters, exc. Meat Packing	31	-174	244	70
Mechanical, Engineers	7	463	124	587
Mechanics & Repairmen, Other	24	3450	2012	5462
Medical & Health Workers, Other	10	325	804	1129
Metallurgical Engineers	7	25	4	29
Millwrights	21	20	52	72
Mine Operatives & Laborers, N.E.C.	31	-210	48	-162
Mining Engineers	7	-3	---	-3
Motor Vehicle Mechanics	24	1006	856	1862
Moulders, Metal exc. Coremakers	21	-6	40	34
Natural Scientists, Other	8	2	---	2
Nurses, Practical	36	1138	1104	2242
Nurses, Professional	10	766	2660	3426
Office Machine Mechanics	24	76	44	120
Office Machine Operators	15	783	1164	1947
Officers, Pilots, & Engineers Ship	14	-2	4	2
Other Operatives, N.E.C.	31	5792	7656	13448
Opticians, Lens Grinders	25	16	28	44
Optometrists	10	12	16	28
Osteopaths	10	23	24	47
Painters & Paperhangers	19	129	740	869
Patternmakers, Metal & Wood	21	31	48	79
Personnel & Labor Relations Workers	13	226	152	378
Pharmacists	10	15	176	191
Photoengravers, Lithographers	22	107	28	135
Photographers	13	44	64	108
Physicians & Surgeons	10	523	540	1063
Physicists	8	56	4	60
Plasterers	19	14	32	46
Plumbers & Pipefitters	19	383	380	763
Police & Other Law Enforcement	34	422	352	774
Postal Clerks	15	359	512	871
Postmasters & Assistants	14	-2	156	154
Power Station Operators	28	-1	28	27
Pressmen & Plate Printers	22	121	84	205
Professional, Technical & Kindred N.E.C.	13	3960	1300	5260
Psychologists	10	70	32	102
Purchasing Agents	14	140	216	356

Occupation Alphabetically	Page No.	Expansion Needs	Replacement Needs	Total Needs
Radio Operators	9	53	32	85
Radio & TV Mechanics	24	43	94	137
Railroad & Car Shop Mechanics	24	-69	36	-33
Rollers & Roll Hands	21	1	4	5
Roofers & Slaters	19	53	60	113
Sailors and Deckhands	28	4	---	4
Sales Workers	17	2721	10324	13045
Service Workers, N.E.C.	36	3483	4152	7635
Sewers & Stitchers, Mfg.	30	-99	284	185
Sheet Metal Workers	21	138	100	238
Shipping & Receiving Clerks	15	50	296	346
Social Scientists, Other	12	5	---	5
Social & Welfare Workers	13	317	348	665
Spinners, Textile	30	-3	4	1
Statisticians & Actuaries	12	25	20	45
Stenos, Typists, & Secretaries	15	4524	9744	14268
Structural Metal Workers	19	101	40	141
Surveyors	9	330	68	398
Teachers, College	11	959	532	1491
Teachers, Elementary	11	806	2437	3243
Teachers, Other	11	230	222	452
Teachers, Secondary	11	1841	1241	3082
Technicians, Medical & Dental	10	783	812	1595
Technicians, Other, exc. Medical & Dental	9	1652	344	1996
Telephone Operators	15	30	1556	1586
Toolmakers & Diemakers	21	103	132	235
Upholsterers	25	62	72	134
Veterinarians	10	89	64	153
Waiters and Waitresses	35	1276	2952	4228
Weavers, Textile	30	-17	44	27
Welders & Flamecutters	29	941	504	1445
Workers in Arts & Entertainment	13	1489	1568	3057

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VOCATIONAL EDUCATION PROFESSIONAL PERSONNEL INFORMATION SURVEY.

KENTUCKY RESEARCH COORDINATING UNIT, LEXINGTON.
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DESCRIPTORS - EDUCATIONAL EXPERIENCE; *EDUCATIONAL NEEDS; *VOCATIONAL EDUCATION; *VOCATIONAL DEVELOPMENT; *PROFESSIONAL PERSONNEL; SECONDARY GRADES; *STATE SURVEYS; QUESTIONNAIRES; EDUCATIONAL PLANNING; TABLES (DATA); DATA ANALYSIS; EDUCATIONAL OBJECTIVES
IDENTIFIERS - KENTUCKY

ABSTRACT - AS AN AID IN DEVELOPING A STATE PLAN FOR VOCATIONAL EDUCATION AND PLANNING A PROFESSIONAL GROWTH PROGRAM FOR VOCATIONAL EDUCATION PERSONNEL IN KENTUCKY, THIS SURVEY RESEARCH PROJECT AIMED TO DETERMINE THE CURRENT PROFESSIONAL STATUS OF VOCATIONAL EDUCATION PERSONNEL BY COLLECTING, ORGANIZING, AND ANALYZING BASE-LINE DATA FROM A POPULATION OF APPROXIMATELY 3,600 PERSONS. A FIELD-TESTED AND REVISED SURVEY QUESTIONNAIRE, DEVELOPED FROM A PREVIOUS INSTRUMENT BY THE KENTUCKY RESEARCH COORDINATING UNIT, COLLECTED DATA IN FOUR AREAS: (1) PERSONAL DATA, (2) PRESENT JOB STATUS, (3) BACKGROUND DATA, AND (4) PERSONAL FEELINGS ABOUT TRAINING NEEDS FOR WORK. DATA WERE PROCESSED AND ANALYZED FROM 2,525 RESPONSES AND PRESENTED IN 81 TABLES. MOST OF THE PERSONNEL WERE FULL-TIME VOCATIONAL TEACHERS IN THE SECONDARY GRADES, WITH 58% SERVING THE DISADVANTAGED AND 35% SERVING THE HANDICAPPED. THE AVERAGE AGE WAS 41 YEARS, AND THE AVERAGE NUMBER OF YEARS IN VOCATIONAL EDUCATION WAS EIGHT. OPPORTUNITIES FOR ADVANCEMENT THROUGH PROFESSIONAL GROWTH PROGRAMS SHOULD BE ENCOURAGED. AREAS WHERE PROGRAM DEVELOPMENT IS NEEDED ARE IDENTIFIED, AS INDICATED BY THE RESPONDENTS' EDUCATIONAL BACKGROUND. POTENTIAL AREAS FOR TRAINING PROGRAMS, RANKED ACCORDING TO THE NEEDS OF PERSONNEL IN VARIOUS VOCATIONAL FIELDS, ARE DETAILED. (AG)

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Lexington

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VOCATIONAL EDUCATION PROFESSIONAL PERSONNEL

INFORMATION SURVEY

Clayton P. Omvig
Steven J. Gyuro
Edward G. Thomas

Kentucky Research Coordinating Unit
for Vocational Education
College of Education
University of Kentucky
Lexington

March, 1972

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I. INTRODUCTION

Need

Planning is a crucial function to be carried out by vocational education personnel. Effective planning must be based upon valid information. Information for planning comes from an analysis of data concerning various areas within the vocational education field. In Kentucky, a need was felt for information to be used in two types of planning.

First, the Bureau of Vocational Education is responsible for developing a state plan for vocational education. In addition, the Bureau is committed to planning a professional growth program for vocational education personnel in Kentucky. For either of these two planning activities, information about the current professional status of vocational education personnel is vital. The information which was needed was not available to those who are involved in planning for vocational education. Therefore, appropriate steps were taken to collect, organize, and analyze data concerning present professional personnel. The collection of data alone generally does not yield meaningful information. It is only after data are organized and analyzed that information for planning becomes available.

In order to gather the necessary information, the Kentucky Research Coordinating Unit was asked to design a survey research project aimed at determining the current professional status of vocational education personnel.

Relationships

Miss Mary Lois Williamson, Associate Director, Supportive Services Unit, Bureau of Vocational Education, had the overall responsibility for planning a professional growth program for vocational education personnel in Kentucky. Dr. Carl Hurley, Coordinator, Teacher Education and Supervision, had specific

responsibilities in personnel development. The KRCU was asked to participate in conducting a survey research project to collect and analyze relevant data.

Within the KRCU, Clayton P. Omvig and Steven J. Gyuro directed the project. Edward G. Thomas, Research Assistant, served as a project assistant. Anne Mills, served as the project secretary.

A committee was organized to review the survey instrument and help in its revision. Committee members were as follows: C. O. Neel, Coordinator, State Program Evaluation; Robert Brandon, Coordinator, Computer and Statistical Services, and Robert L. Kelley, Director, Division of Agricultural Education. Miss Williamson, Steven J. Gyuro, and Edward G. Thomas were also involved in the review and revision process.

Objectives

The project had three major objectives:

1. Collection of base-line data concerning the professional status of vocational education personnel in Kentucky.
2. Organization and analysis of the data collected in order that implications for professional growth programs for vocational education personnel could be identified.
3. Identification of implications for comprehensive planning of professional development programs in vocational education in Kentucky based on the results of the survey.

II. PROJECT DESIGN

Population

The population used in the survey was all those people in Kentucky who fall into the following categories:

-Vocational teachers in public high schools, area vocational schools, and vocational extension centers.

-Related subjects teachers.

-Guidance and counseling personnel at all levels.

-College and university faculty members who are involved in vocational teacher education.

-Bureau of Vocational Education staff members.

-Staff members of regional vocational offices.

-Personnel involved in the administration and supervision of vocational education at the local level.

-Personnel involved in research and development activities, curriculum and instructional materials development activities, evaluation activities, and other ancillary activities.

The population consisted of approximately 3,600 persons.

Data Collection

The data collected fell generally into the following four categories:

1. Personal data, such as year of birth and sex of respondents.
2. Present status, including the vocational education field in which respondents were working; the type of agency in which they were employed; and the types and levels of students whom they served.
3. Background data, such as number of years of formal education they had completed; the highest degree they had received; and the number of years of related work experience they had completed.

4. Personal feelings about some areas of training which the respondents felt would be beneficial to them in terms of carrying out their current responsibilities.

The instrument used for data collection was developed in the KRCU. The basic instrument was one which had been devised in 1969 by Clayton P. Omvig for use in a similar study. The instrument review committee analyzed the instrument and revisions were made to adapt the instrument to the job at hand. This revised instrument was field-tested through the cooperation of several vocational education faculty and staff persons at the University of Kentucky and approximately 25 teachers within the Covington Vocational Education Region. Based upon the results of the field-test, the instrument was further revised. The final version is displayed in Appendix I.

The instrument contained no open-ended items. All responses were made by filling in numbers, making check marks, or circling appropriate responses.

Processing of Data

The data collected were keypunched onto punched cards directly from the instrument, eliminating the need for extensive coding of data. Most of the data processing was done at the Northern Kentucky Area Vocational School, utilizing student workers wherever possible. A minimum amount of work was contracted with an outside agency. Mr. Francis Blackburn, data processing instructor at the Northern Kentucky Area Vocational School, was responsible for the work done at the school. Computer programs were written in order to organize the data in a way which was considered desirable for the project.

Data Analysis

The organized data were analyzed in order that information for planning could be identified. The analysis was initially confined to describing the status of vocational education personnel in Kentucky. In addition, the analysis yielded implications for planning professional staff development programs.

III. FINDINGS

There were 2,525 responses to the questionnaire. The data processing yielded a printout of frequencies for all respondents on all items and averages and/or ranges where appropriate. Cross-runs on the data isolated various types of information on certain dimensions, such as position, agency, or service area. Most of the findings will be presented in table form, with headings and narrative where appropriate.

The average age of the respondents was 41 years, with a range of 22-70 years. There were 1,314 male and 1,211 female respondents. The average number of years of employment in vocational education in Kentucky was 8 years. There was a range of employment of 1-44 years. The average number of years that persons had been employed in their positions in their agencies at that time was 6 years. The range was 1-43 years. The first group of tables (1-16) present information concerning all respondents (N=2,525).

As would be expected, the largest percentage of the personnel were full-time teachers in the secondary public schools of Kentucky. Ninety-five percent indicated that they served regular vocational students, but 35% indicated that they were also serving handicapped students and 58% indicated that they served the disadvantaged.

Considering those personnel who were local district employees, 60% responded as being Rank II teachers or higher. This fact has implications for professional development programs, since a large majority of these people will not enroll in further graduate education. Their needs must be met through inservice education.

TABLE 1 - PRIMARY POSITION HELD BY RESPONDENTS

Primary Position Held	Number of Respondents	Percent
Full-time teacher in public schools	901	36
Full-time instructor in vocational school	621	25
Part-time teacher in public school	13	0
Part-time instructor in vocational school	27	1
Counselor	504	20
Coordinator	145	6
Supervisor	67	3
Director	40	2
Principal	31	1
Faculty member - higher education	176	7
TOTAL	101	2,525

TABLE 2 - TYPE OF AGENCY WHERE EMPLOYED

Type of Agency	Number Employed	Percent
Public School	1,490	59
Area School	420	17
Extension Center	320	13
Regional Office	20	1
State Bureau	63	2
Community College	10	0
College or University	184	7
Other Governmental Agency	18	1
TOTAL	2,525	100

The average age of teachers and the range of ages is presented in Table 3. The information is provided by service area assignment.

TABLE 3 - AVERAGE AND RANGE IN AGE OF TEACHERS BY SERVICE AREA

Vocational Education Field	Average Age	Range in Age
Agriculture	42	23 to 70
Business & Office	35	22 to 70
Distributive Education	38	24 to 62
Health Occupations	41	25 to 62
Home Economics	40	22 to 70
Trades & Industry	44	23 to 70
Technical	46	26 to 68
Public Service	27	24 to 29
Guidance & Counseling	40	28 to 52
Related Subjects	40	24 to 65
Teacher Education	28	28 to 28
Ancillary	34	30 to 39

Table 4 gives the average and range in number of years each person had been employed in vocational education in Kentucky. The information is broken down by service area.

TABLE 4 - NUMBER OF YEARS RESPONDENTS HAD BEEN EMPLOYED IN VOCATIONAL EDUCATION IN KENTUCKY - AVERAGE AND RANGE BY SERVICE AREA

Vocational Education Field	Average No. of Years Employed	Range of Years Employed
Agriculture	15	1 to 44
Business & Office	5	1 to 38
Distributive Education	4	1 to 26
Health Occupations	5	1 to 30
Home Economics	11	1 to 40
Trades & Industry	6	1 to 32
Technical	7	1 to 24
General Adult	6	1 to 23
Public Service	3	1 to 5
Guidance & Counseling	6	1 to 34
Related Subjects	4	1 to 23
Administration & Supervision	11	1 to 41
Teacher Education	10	1 to 34
Research & Development Evaluation	6	1 to 34
Ancillary	7	1 to 28

TABLE 5 - VOCATIONAL EDUCATION FIELD IN WHICH EMPLOYED

Field	Number Employed	Percent
Agriculture	204	8
Business & Office	452	18
Distributive Education	86	3
Health Occupations	87	3
Home Economics	372	15
Trades & Industry	487	19
Technical	34	1
General Adult	15	1
Public Service	4	0
Guidance & Counseling	534	21
Related Subjects	36	1
Administration & Supervision	129	5
Teacher Education	63	2
Research & Development/Evaluation	9	0
Ancillary	13	1
TOTAL	2,525	98

TABLE 6 - LEVELS OF STUDENTS BEING SERVED

Level of Students	Number Who Serve Each Level	Percent*
Elementary	218	9
Secondary	1,934	77
Post Secondary	724	29
Adult	688	27

*Non-Cumulative - Respondents could check more than one category.

TABLE 7 - TYPES OF STUDENTS BEING SERVED

Type of Students	Number Who Serve Each Type	Percent*
Regular	2,393	95
Handicapped	894	35
Disadvantaged	1,468	58

*Non-Culumative

On the items covered by Tables 6-7, the respondents were allowed to check as many levels or types of students as were appropriate. Thus, the totals are not cumulative as on many of the other tables. On other tables, percentage totals may not equal 100 because of rounding.

TABLE 8 - CURRENT RANK OF LOCAL SCHOOL DISTRICT EMPLOYEES

Rank	Number in Category	Percent
I	275	18
II	619	42
III	576	39
IV	14	1
TOTAL	1,484	100

TABLE 9 - CURRENT RANK OF EMPLOYEES OF HIGHER EDUCATION INSTITUTIONS

Rank	Number in Category	Percent
Instructor	47	24
Assistant Professor	70	35
Associate Professor	45	22
Professor	38	19
TOTAL	200	100

TABLE 10 - CURRENT GRADE AND STEP OF STATE EMPLOYEES

Grade	Step	Number in Category	Grade	Step	Number in Category	Grade	Step	Number in Category
00	0	138	14	4	49	18	1	2
03	1	1	14	5	35	18	3	7
06	1	2	14	6	12	18	3	7
10	2	1	14	A	10	18	4	3
11	1	4	15	6	16	18	5	6
11	2	1	15	A	17	18	6	3
12	1	2	15	B	10	19	3	3
12	4	2	16	1	3	19	4	2
12	5	3	16	2	21	14	B	7
12	A	1	16	3	16	15	1	11
13	1	8	16	4	8	15	2	19
13	2	33	16	5	3	15	3	25
13	3	39	16	6	7	15	4	29
13	4	43	16	A	7	15	5	23
13	5	33	16	B	2	19	5	2
13	6	18	17	1	1	19	A	2
13	A	2	17	2	8	20	3	1
13	B	1	17	3	10	20	4	1
14	1	13	17	4	6	20	5	2
14	2	50	17	5	2	22	4	1
14	3	44	17	6	3			

Those who left the grade and step space blank were designated as Grade 00 Step 0. There were 841 persons in the state employee category.

TABLE 11 - MONTHS PERSONNEL WERE CONTRACTED FOR EMPLOYMENT IN CURRENT YEAR

Number of Months	Number Contracted for Time Period	Percent
One month	2	.1
Two months	1	.0
Four months	5	.2
Five months	3	.1
Six months	4	.2
Seven months	3	.1
Eight months	8	.3
Nine months	324	12.9
Ten months	809	32.3
Eleven months	211	8.4
Twelve months	1,138	45.4
TOTAL	2,508	100.0

Seventeen persons omitted this item in their responses, resulting in the reduction of total responses given.

TABLE 12.- CURRENT STATE DEPARTMENT OF EDUCATION CERTIFICATE HELD

Certificate Type	Number Holding Certificate Type	Percent
Provisional High School	889	35
Standard High School	479	19
One-Year Vocational	397	16
Ten-Year Vocational	233	9
Part-Time Special	8	0
Vocational Education Specialist	6	0
Administration, Supervision, and Coordination	111	4
Other	266	11
None	136	5
TOTAL	2,525	99

TABLE 13 - HIGHEST DEGREE HELD BY RESPONDENTS

Degree Held	Number Holding Each Degree	Percent
A.A.	36	1
B.S. or B.A.	812	32
M.S. or M.A.	993	39
Ed.S.	36	1
Ph.D. or Ed.D.	90	4
Other	90	4
No Response	468	19
TOTAL	2,525	100

There were 468 persons (19%) who omitted the item dealing with highest degree held. This total includes the 388 persons who had completed less than 14 years of general education. The remaining persons either overlooked this item or had completed 14 or more years of education without taking a degree. The 19% who omitted the item coupled with the 81% who had taken a degree totals 100%. The percentages in Table 13 were based on the total number of respondents (N=2,525).

TABLE 14 - TYPES OF STATE DEPARTMENT OF EDUCATION CERTIFICATES HELD BY PERSONNEL IN EACH VOCATIONAL EDUCATION FIELD

VOCATIONAL EDUCATION FIELD	CERTIFICATE TYPE: PROVISIONAL HIGH SCHOOL	STANDARD HIGH SCHOOL	ONE-YEAR VOC.	TEN-YEAR VOC.	PART-TIME SPEC.	VOC. ED. SPEC.	ADM., SUPERV., & COORDINATION	OTHER	NONE	TOTAL
Agriculture	91 (45)* (10)**	91 (45) (18)	1 (0) (0)	5 (2) (2)	1 (0) (13)	-	3 (1) (3)	3 (1) (1)	9 (4) (7)	204
Business & Office	302 (69) (34)	98 (22) (20)	13 (29) (3)	8 (2) (3)	-	1 (0) (17)	5 (1) (5)	11 (2) (4)	14 (3) (10)	452
Distributive Education	40 (47) (4)	17 (20) (2)	11 (13) (3)	12 (3) (5)	-	1 (1) (17)	-	5 (6) (2)	-	86
Health Occupations	1 (1) (0)	1 (1) (0)	50 (57) (13)	18 (21) (7)	1 (1) (13)	-	1 (1) (0)	3 (3) (1)	12 (14) (9)	87
Home Economics	253 (68) (28)	69 (19) (14)	3 (0) (0)	21 (6) (9)	-	-	3 (0) (3)	11 (3) (4)	12 (3) (9)	372
Trades & Industry	14 (3) (2)	8 (2) (2)	297 (61) (75)	126 (26) (54)	5 (1) (63)	3 (0) (50)	7 (1) (6)	10 (2) (4)	17 (3) (13)	487
Technical	-	2 (6) (0)	13 (38) (3)	14 (41) (6)	-	-	-	2 (6) (0)	3 (8) (2)	34
General Adult	2 (13) (0)	7 (47) (1)	1 (7) (0)	-	-	-	3 (20) (3)	-	2 (13) (1)	15
Public Service	1 (25) (0)	1 (25) (0)	-	-	1 (25) (13)	-	-	1 (25) (0)	-	4
Guidance & Counseling	145 (27) (16)	134 (25) (28)	-	3 (0) (1)	-	-	35 (7) (32)	200 (37) (75)	17 (3) (13)	534
Related Subjects	15 (42) (2)	8 (22) (2)	4 (11) (0)	6 (17) (2)	-	-	-	2 (6) (0)	1 (3) (1)	36
Administration & Superv.	16 (12) (2)	19 (15) (4)	4 (3) (0)	18 (14) (8)	-	-	46 (36) (41)	7 (5) (3)	19 (15) (14)	129
Teacher Education	5 (8) (0)	19 (30) (4)	-	1 (2) (0)	-	-	6 (10) (5)	10 (16) (4)	21 (33) (15)	63
Research & Devel./Eval.	1 (11) (0)	1 (11) (0)	-	-	-	-	1 (11) (0)	-	6 (67) (4)	9
Ancillary	3 (23) (0)	4 (31) (0)	-	1 (8) (0)	-	-	1 (8) (0)	1 (8) (0)	3 (23) (4)	13
TOTALS	889 (35)	479 (19)	397 (16)	233 (9)	8 (0)	6 (0)	111 (4)	266 (11)	136 (5)	2525 (100)

* The figure in parenthesis to the right represents the percentage of respondents at grade level within a specific vocational field and for TOTAL.
** The figure in parenthesis below represents the percentage at grade level across vocational fields.

TABLE 15 - HIGHEST NUMBER OF YEARS OF GENERAL EDUCATION COMPLETED BY PERSONNEL IN EACH VOCATIONAL EDUCATION FIELD

Vocational Education Field	Highest Number of Years of General Education Completed												
	9	10	11	12	13	14	15	16	17	18	19	20	TOTAL
Agriculture	-	-	-	-	-	1 (0)* (1)**	-	44 (22) (7)	56 (27) (11)	63 (31) (13)	17 (8) (13)	23 (11) (13)	204
Business & Office	-	-	1 (0) (25)	6 (1) (2)	4 (1) (3)	-	5 (1) (6)	243 (54) (38)	98 (22) (18)	70 (15) (14)	12 (3) (9)	13 (3) (7)	452
Distributive Edu.	-	-	-	3 (3) (1)	2 (2) (2)	1 (1) (1)	3 (3) (4)	36 (42) (6)	25 (29) (5)	12 (14) (2)	1 (1) (1)	3 (3) (2)	86
Health Occupations	-	-	-	21 (24) (8)	7 (8) (6)	12 (14) (14)	24 (28) (28)	13 (15) (2)	3 (3) (1)	3 (3) (1)	4 (5) (3)	-	87
Home Economics	-	-	-	1 (0) (0)	1 (0) (1)	-	4 (1) (5)	217 (58) (34)	82 (22) (15)	46 (12) (9)	7 (2) (5)	14 (4) (8)	372
Trades & Industry	4 (1) (100)	2 (0) (100)	3 (1) (75)	215 (44) (83)	94 (19) (78)	59 (12) (69)	38 (8) (45)	27 (6) (4)	26 (5) (5)	11 (2) (2)	3 (1) (12)	5 (1) (3)	487
Technical	-	-	-	5 (15) (2)	9 (26) (8)	2 (6) (2)	5 (15) (6)	6 (18) (1)	2 (6) (0)	3 (9) (1)	-	2 (6) (1)	34
General Adult	-	-	-	1 (7) (0)	-	-	-	-	5 (33) (1)	9 (60) (2)	-	-	15
Public Service	-	-	-	-	1 (25) (1)	-	-	2 (50) (0)	-	1 (25) (0)	-	-	4
Guidance & Coun.	-	-	-	-	-	-	1 (0) (1)	11 (2) (2)	177 (33) (33)	215 (40) (44)	57 (11) (44)	73 (14) (40)	534
Related Subjects	-	-	-	2 (6) (1)	-	1 (3) (1)	1 (3) (1)	18 (50) (3)	5 (14) (1)	6 (17) (1)	1 (3) (1)	2 (6) (1)	36
Adm. & Supervision	-	-	-	4 (3) (2)	2 (2) (2)	8 (6) (9)	3 (2) (4)	17 (13) (3)	44 (34) (8)	25 (19) (5)	13 (10) (10)	13 (10) (7)	129
Teacher Education	-	-	-	-	-	-	-	1 (2) (0)	4 (6) (1)	15 (24) (3)	15 (24) (11)	28 (44) (15)	63
Research & Dev./Eval.	-	-	-	-	-	-	-	-	1 (11) (0)	2 (22) (0)	1 (11) (1)	5 (56) (3)	9
Ancillary	-	-	-	-	-	1 (8) (1)	1 (8) (1)	-	5 (38) (1)	4 (31) (1)	-	2 (15) (1)	13
TOTALS	4 (0)	2 (0)	4 (0)	258 (10)	120 (5)	85 (3)	85 (3)	635 (25)	533 (21)	485 (19)	131 (5)	183 (7)	2,525 (100)

*The figure in parenthesis to the right represents the percentage of respondents at grade level within a specific vocational field and for TOTAL.

**The figure in parenthesis below represents the percentage at grade level across vocational fields.

TABLE 16 - YEAR WHEN HIGHEST LEVEL OF COLLEGE WORK WAS COMPLETED

Year	Number Completing	Cum. Percent	Year	Number Completing	Cum. Percent	Year	Number Completing	Cum. Percent
1926	1	0	1942	9	5	1957	39	20
1927	1	0	1943	12	5	1958	52	22
1929	1	0	1944	7	6	1959	35	24
1930	2	0	1945	10	6	1960	50	27
1931	2	0	1946	10	7	1961	66	30
1932	5	1	1947	9	7	1962	77	34
1933	6	1	1948	14	8	1963	74	37
1934	4	1	1949	23	9	1964	77	41
1935	1	1	1950	20	10	1965	110	47
1936	5	1	1951	23	11	1966	102	52
1937	8	2	1952	27	13	1967	116	58
1938	11	2	1953	22	14	1968	176	66
1939	14	3	1954	20	15	1969	242	78
1940	14	4	1955	28	16	1970	338	95
1941	12	4	1956	36	18	1971	97	100

Analysis of Table 16 revealed that, of those who had completed college work, 48% had done so within the last five years. Only 30% had completed their work over 10 years ago.

Table 17 gives the responses received relative to the areas in which college classes were taken. Respondents were able to check all items which were appropriate. The findings presented were based on a response of 2,008, the number of persons who had taken college work.

TABLE 17 - AREA OF COLLEGE WORK IN PROFESSIONAL EDUCATION*

Area	Number Who Took Courses in Area
Secondary Education	1,076
Vocational Education	807
Teacher Education	632
Administration & Supervision	323
Guidance & Counseling	58
Curriculum	151
Research/Statistics	97
Planning/Evaluation	58
Business Management/Accounting	143
Computer Science	6
Journalism/Public Relations	10
Industrial Arts/Industrial Education	131

*Respondents checked each area which was appropriate.

There were 605 (24%) persons who had completed technical training, outside of a degree program, in an area related to their current position. There were 1,920 (76%) who had not completed related technical training. For those who had completed related technical training, the average length of training was 15 months, with a range of 1-72 months.

There were 1,682 (67%) persons who had completed a minimum of one year of work experience in an area related to their assignments. Those not having related work experience numbered 843 (33%). For those who had completed related work experiences, the date of termination of that work experience is given in Table 18. There were 131 persons who failed to give the termination date on their questionnaire or are still engaged in related work experience activities.

TABLE 18 - DATE OF TERMINATION OF LAST RELATED WORK EXPERIENCE

Year of Termination	Number Who Terminated	Cumulative Percentage	Year of Termination	Number Who Terminated	Cumulative Percentage
1923	1	0	1953	16	9
1924	1	0	1954	18	10
1932	1	0	1955	20	11
1936	2	0	1956	26	13
1937	1	1	1957	21	14
1939	3	1	1958	34	16
1940	4	1	1959	39	19
1941	7	1	1960	42	22
1942	5	1	1961	33	24
1943	1	2	1962	41	26
1944	4	2	1963	68	31
1945	14	3	1964	70	35
1946	13	4	1965	100	42
1947	7	4	1966	101	48
1948	9	5	1967	137	57
1949	3	5	1968	187	69
1950	15	6	1969	209	83
1951	11	7	1970	232	97
1952	16	8	1971	39	100

Presented in Tables 19-32 are data relative to the total number of years of related work experience completed by the respondents. The average number of years of work experience was 11 years. The range was 1-51 years. This particular item may be misleading since many persons may have included teaching experience, especially in the case of guidance and counseling personnel.

TABLE 19 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY AGRICULTURE PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	113	55	16-18	3	1
1- 3	13	6	19-21	5	2
4- 6	20	10	22-24	3	1
7- 9	8	4	25-27	3	1
10-12	17	8	28-30	2	1
13-15	8	4	Over 30	9	4
			TOTAL	204	97

TABLE 20 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY BUSINESS AND OFFICE PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	30	7	16-18	7	2
1- 3	216	48	19-21	6	1
4- 6	102	23	22-24	5	1
7- 9	35	8	25-27	5	1
10-12	31	7	28-30	2	0
13-15	12	3	Over 30	1	0
			TOTAL	452	101

TABLE 21 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY DISTRIBUTIVE EDUCATION PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	6	7	16-18	1	1
1- 3	22	26	19-21	7	8
4- 6	25	29	22-24	0	0
7- 9	5	6	25-27	2	2
10-12	7	8	28-30	4	5
13-15	6	7	Over 30	1	1
			TOTAL	86	100

TABLE 22 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY HEALTH OCCUPATIONS PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	5	6	16-18	2	2
1- 3	6	7	19-21	6	7
4- 6	15	17	22-24	3	3
7- 9	7	8	25-27	6	7
10-12	16	18	28-30	2	2
13-15	11	13	Over 30	8	9
			TOTAL	87	99

TABLE 23 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY HOME ECONOMICS PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	279	75	16-18	5	1
1- 3	20	5	19-21	6	2
4- 6	25	7	22-24	4	1
7- 9	9	2	25-27	4	1
10-12	14	4	28-30	0	0
13-15	3	1	Over 30	3	1
			TOTAL	372	100

TABLE 24 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY TRADES & INDUSTRY PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	37	8	16-18	46	9
1- 3	32	7	19-21	50	10
4- 6	58	12	22-24	38	8
7- 9	46	9	25-27	23	5
10-12	55	11	28-30	21	4
13-15	47	10	Over 30	34	7
			TOTAL	487	100

TABLE 25 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY TECHNICAL PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	2	6	16-18	2	6
1- 3	2	6	19-21	2	6
4- 6	7	21	22-24	3	9
7- 9	5	15	25-27	1	3
10-12	1	3	28-30	3	9
13-15	4	12	Over 30	2	6
			TOTAL	34	102

TABLE 26 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY GENERAL ADULT PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	6	40	16-18	2	13
1- 3	0	0	19-21	0	0
4- 6	2	13	22-24	0	0
7- 9	2	13	25-27	0	0
10-12	1	7	28-30	1	7
13-15	1	7	Over 30	0	0
			TOTAL	15	100

TABLE 27 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY PUBLIC SERVICE PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	1	25	16-18	0	0
1- 3	0	0	19-21	0	0
4- 6	1	25	22-24	0	0
7- 9	1	25	25-27	1	25
10-12	0	0	28-30	0	0
13-15	0	0	Over 30	0	0
			TOTAL	4	100

TABLE 28 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY GUIDANCE & COUNSELING PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	300	56	16-18	12	2
1- 3	30	6	19-21	15	3
4- 6	43	8	22-24	10	2
7- 9	35	7	25-27	13	2
10-12	34	6	28-30	8	1
13-15	25	5	Over 30	9	2
			TOTAL	534	100

TABLE 29 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY RELATED SUBJECTS PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	8	22	16-18	0	0
1- 3	7	19	19-21	5	14
4- 6	7	19	22-24	0	0
7- 9	4	11	25-27	2	6
10-12	0	0	28-30	2	6
13-15	1	3	Over 30	0	0
			TOTAL	36	100

TABLE 30 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY ADMINISTRATION & SUPERVISION PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	49	38	16-18	7	5
1- 3	10	8	19-21	3	2
4- 6	20	16	22-24	3	2
7- 9	8	6	25-27	4	3
10-12	10	8	28-30	1	1
13-15	7	5	Over 30	7	5
			TOTAL	129	99

TABLE 31 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY TEACHER EDUCATION PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	24	38	16-18	0	0
1- 3	10	16	19-21	3	5
4- 6	11	17	22-24	0	0
7- 9	3	5	25-27	0	0
10-12	5	8	28-30	1	2
13-15	5	8	Over 30	1	2
			TOTAL	63	101

TABLE 32 - TOTAL NUMBER OF YEARS OF RELATED WORK EXPERIENCE COMPLETED BY RESEARCH AND DEVELOPMENT, EVALUATION, AND OTHER ANCILLARY PERSONNEL

Years of Experience	Number	Percent	Years of Experience	Number	Percent
0	10	45	16-18	0	0
1- 3	2	9	19-21	0	0
4- 6	0	0	22-24	0	0
7- 9	3	14	25-27	1	5
10-12	3	14	28-30	1	5
13-15	0	0	Over 30	2	9
			TOTAL	22	101

On the item concerning whether respondents had received professional training related to working with the disadvantaged student, 583 persons (23%) indicated that they had received such training while 1,942 (77%) indicated that they had not. In addition, 389 (15%) indicated that they had received professional training relative to working with the handicapped while 2,136 (85%) indicated that they had not received such training.

Concerning professional training relative to working in cooperative programs, 652 persons (26%) indicated that they had received such training. Those who had not received such training numbered 1,873 (74%).

When asked if they would be interested in receiving up-to-date work experience in the field in which they were serving, 1,871 (74%) answered that they would be interested. Those who were not interested numbered 654 (26%).

When asked if they had received professional training within the last two years relative to the activities for which they were responsible, 1,854 (73%) answered that they had received such training. There were 671 (27%) persons who indicated that they had not received such training in the time period.

In Table 33 information is presented about whether personnel from the agriculture area have had training relative to working with disadvantaged students, handicapped students or in working in cooperative programs. In addition, the table indicates whether these respondents were interested in obtaining up-to-date work experience in the field of agriculture. The tables immediately following Table 33 (34-47) present the same information for the other service areas. Information in all this group of tables is broken down by type of agency where respondents were employed.

TABLE 33 - PROFESSIONAL TRAINING OF AGRICULTURE PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE - BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	23	13	156	87	14	8	165	92	77	43	102	57	134	75	45	25
Area School	-	0	2	100	-	0	2	100	-	0	2	100	2	100	-	0
Extension Center	1	50	1	50	-	0	2	100	1	50	1	50	2	100	-	0
Regional Office	-	0	1	100	-	0	1	100	-	0	1	100	-	0	1	100
State Bureau	2	40	3	60	1	20	4	80	2	40	3	60	5	100	-	0
Community College	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
College/University	4	27	11	73	1	7	14	93	12	80	3	20	10	67	5	33
Other Government Agcy.	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
TOTAL	30	15	174	85	16	8	188	92	92	45	112	55	153	75	51	25

TABLE 34 - PROFESSIONAL TRAINING OF BUSINESS AND OFFICE PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE - BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	22	7	316	93	6	2	332	98	72	21	266	79	249	74	89	26
Area School	4	11	31	89	4	11	31	89	9	26	26	74	28	80	7	20
Extension Center	5	10	45	90	5	10	45	90	1	2	49	98	46	92	4	8
Regional Office	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
State Bureau	-	0	4	100	-	0	4	100	2	50	2	50	3	75	1	25
Community College	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
College/University	6	26	17	74	3	13	20	87	11	48	12	52	17	74	6	26
Other Govt. Agency	-	0	2	100	-	0	2	100	1	50	1	50	2	100	-	0
TOTAL	37	8	415	92	18	4	434	96	96	21	356	79	345	76	107	24

TABLE 35 - PROFESSIONAL TRAINING OF DISTRIBUTIVE EDUCATION PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE - BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	8	11	62	89	4	6	66	94	58	83	12	17	56	80	14	20
Area School	1	8	11	92	-	0	12	100	5	42	7	58	8	67	4	33
Extension Center	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Regional Office	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
State Bureau	-	0	3	100	-	0	3	100	2	67	1	33	3	100	-	0
Community College	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
College/University	1	100	-	0	-	0	1	100	1	100	-	0	-	0	1	100
Other Govt. Agency	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
TOTAL	10	12	76	88	4	5	82	95	66	77	20	23	67	78	19	22

TABLE 36 - PROFESSIONAL TRAINING OF HEALTH OCCUPATIONS EDUCATION PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE - BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	-	0	1	100	-	0	1	100	1	100	-	0	1	100	-	0
Area School	5	9	51	91	11	20	45	80	15	27	41	73	42	75	14	25
Extension Center	1	5	18	95	3	16	16	84	3	16	16	84	10	53	9	47
Regional Office	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
State Bureau	-	0	1	100	-	0	1	100	-	0	1	100	1	100	-	0
Community College	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
College/University	3	33	6	67	4	44	5	56	4	44	5	56	7	78	2	22
Other Govt. Agency	1	100	-	0	1	100	-	0	1	100	-	0	1	100	-	0
TOTAL	10	11	77	89	19	22	68	78	24	28	63	72	62	71	25	29

TABLE 37 - PROFESSIONAL TRAINING OF HOME ECONOMICS EDUCATION PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE - BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	82	25	250	75	49	15	283	85	46	14	286	86	204	61	128	39
Area School	3	33	6	67	3	33	6	67	2	22	7	78	7	78	2	22
Extension Center	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Regional Office	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
State Bureau	1	17	5	83	-	0	6	100	-	0	6	100	3	50	3	50
Community College	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
College/University	6	24	19	76	3	12	22	88	7	28	18	72	9	36	16	64
Other Govt. Agency	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
TOTAL	92	25	280	75	55	15	317	85	55	15	317	85	223	60	149	40

TABLE 38 - PROFESSIONAL TRAINING OF TRADES & INDUSTRIAL EDUCATION PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE - BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	11	31	25	69	2	6	34	94	22	61	14	39	35	97	1	3
Area School	17	8	193	92	11	5	199	95	43	20	167	80	181	86	29	14
Extension Center	19	9	202	91	16	7	205	93	35	16	186	84	203	92	18	8
Regional Office	-	0	2	100	-	0	2	100	-	0	2	100	2	100	-	0
State Bureau	3	37	5	63	3	37	5	63	2	25	6	75	6	75	2	25
Community College	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
College/University	3	43	4	57	3	43	4	57	5	71	2	29	7	100	-	0
Other Govt. Agency	-	0	3	100	-	0	3	100	-	0	3	100	-	0	3	100
TOTAL	53	11	434	89	35	7	452	93	107	22	380	78	434	89	53	11

TABLE 39 - PROFESSIONAL TRAINING OF TECHNICAL EDUCATION PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE - BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Area School	5	18	23	82	2	7	26	93	3	10	25	90	25	90	3	10
Extension Center	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Regional Office	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
State Bureau	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Community College	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
College/Community	-	0	6	100	-	0	6	100	3	50	3	50	6	100	-	0
Other Govt. Agency	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
TOTAL	5	15	29	85	2	6	32	94	6	18	28	82	31	91	3	9

TABLE 40 - PROFESSIONAL TRAINING OF GENERAL ADULT EDUCATION PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE - BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	3	60	2	40	-	0	5	100	2	40	3	60	5	100	-	0
Area School	-	0	2	100	-	0	2	100	1	50	1	50	2	100	-	0
Extension Center	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Regional Office	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
State Bureau	5	100	-	0	4	80	1	20	4	80	1	20	5	100	-	0
Community College	1	100	-	0	1	100	-	0	1	100	-	0	1	100	-	0
College/University	1	50	1	50	-	0	1	100	-	0	1	100	-	0	1	100
Other Govt. Agency	-	0	1	100	-	0	1	100	-	0	1	100	-	0	1	100
TOTAL	9	60	6	40	5	33	10	67	8	53	7	47	13	87	2	13

TABLE 41 - PROFESSIONAL TRAINING OF PUBLIC SERVICE PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE - BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	2	100	-	0	2	100	-	0	1	50	1	50	2	100	-	0
Area School	-	0	1	100	-	0	1	100	-	0	1	100	1	100	-	0
Extension Center	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Regional Office	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
State Bureau	-	0	1	100	-	0	1	100	-	0	1	100	1	100	-	0
Community College	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
College/University	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Other Govt. Agency	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
TOTAL	2	50	2	50	2	50	2	50	1	25	3	75	4	100	-	0

TABLE 42 - PROFESSIONAL TRAINING OF GUIDANCE AND COUNSELING PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE - BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	222	46	258	54	161	34	319	66	105	22	375	78	327	68	153	32
Area School	6	50	6	50	6	50	6	50	-	0	12	100	10	83	2	17
Extension Center	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Regional Office	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
State Bureau	-	0	4	100	1	25	3	75	-	0	4	100	4	100	-	0
Community College	3	37	5	63	1	12	7	88	-	0	8	100	7	88	1	12
Cc e/University	13	62	8	38	10	48	11	52	12	57	9	43	13	62	8	38
Othe. Govt. Agency	3	33	6	67	2	22	7	78	1	11	8	89	7	78	2	22
TOTAL	247	46	287	54	181	34	353	66	118	22	416	78	368	69	166	31

TABLE 43 - PROFESSIONAL TRAINING OF RELATED SUBJECTS EDUCATION PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	12	71	5	29	6	35	11	65	8	47	9	53	14	82	3	18
Area School	7	41	10	59	3	18	14	82	1	6	16	94	11	65	6	35
Extension Center	-	0	1	100	-	0	1	100	-	0	1	100	1	100	-	0
Regional Office	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
State Bureau	-	0	1	100	-	0	1	100	-	0	1	100	1	100	-	0
Community College	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
College/University	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Other Govt. Agency	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
TOTAL	19	53	17	47	9	25	27	75	9	25	27	75	27	75	9	25

TABLE 44- PROFESSIONAL TRAINING OF ADMINISTRATION AND SUPERVISION PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE - BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	11	46	13	54	8	33	16	67	11	46	13	54	14	58	10	42
Area School	11	33	22	67	8	24	25	76	9	27	24	73	23	70	10	30
Extension Center	7	26	20	74	6	22	21	78	6	22	21	78	20	74	7	26
Regional Office	4	24	13	76	1	6	16	94	4	24	13	76	12	71	5	29
State Bureau	8	40	12	60	5	25	15	75	6	30	14	70	11	55	9	45
Community College	1	100	-	0	-	0	1	100	-	0	1	100	1	100	-	0
College/University	-	0	5	100	-	0	5	100	2	40	3	60	3	60	2	40
Other Govt. Agency	1	50	1	50	1	50	1	50	2	100	-	0	2	100	-	0
TOTAL	43	33	86	67	29	22	100	78	40	31	89	69	86	67	43	33

TABLE 45 - PROFESSIONAL TRAINING OF TEACHER EDUCATION PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE - BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	-	0	1	100	-	0	1	100	-	0	1	100	1	100	-	0
Area School	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Extension Center	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Regional Staff	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
State Bureau	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Community College	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
College/University	16	26	46	74	9	15	53	85	24	39	38	61	41	66	21	33
Other Govt. Agency	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
TOTAL	16	25	47	75	9	14	54	86	24	38	39	62	42	67	21	33

TABLE 46 - PROFESSIONAL TRAINING OF RESEARCH AND DEVELOPMENT AND EVALUATION PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	1	100	-	0	1	100	-	0	-	0	1	100	-	0	1	100
Area School	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Extension Center	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Regional Office	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
State Bureau	-	0	1	100	-	0	1	100	1	100	-	0	-	0	1	100
Community College	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
College/University	4	57	3	43	1	14	6	86	2	29	5	71	5	71	2	29
Other Govt. Agency	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
TOTAL	5	56	4	44	2	22	7	78	3	33	6	67	5	56	4	44

TABLE 47 - PROFESSIONAL TRAINING OF ANCILLARY SERVICE PERSONNEL IN SPECIFIC AREAS AND INTEREST IN OBTAINING UP-TO-DATE WORK EXPERIENCE - BY TYPE OF AGENCY WHERE EMPLOYED

Type of Agency Where Employed	Have Had Professional Training Relative to -															
	Working with Disadvantaged Students				Working with Handicapped Students				Working with Cooperative Programs				Interest in Obtaining Up-to-Date Work Experience in Field			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
Public School	3	75	1	25	1	25	3	75	1	25	3	75	4	100	-	0
Area School	-	0	3	100	-	0	3	100	-	0	3	100	3	100	-	0
Extension Center	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Regional Office	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
State Bureau	1	25	3	75	1	25	3	75	-	0	4	100	3	75	1	25
Community College	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
College/University	1	50	1	50	1	50	1	50	2	100	-	0	1	50	1	50
Other Govt. Agency	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
TOTAL	5	38	8	62	3	23	10	77	3	23	10	77	11	85	2	15

The next group of tables (48-50) were developed in order to get more specific information on teachers only. Table 48 contains information about the highest degrees held by teachers by service area.

TABLE 48 - HIGHEST DEGREES HELD BY TEACHERS (BY SERVICE AREA)(N=1562)

	HIGHEST DEGREE HELD:							
	A.A.	B.S. or B.A.	M.S or M.A.	Ed.S.	Ph.D. or Ed.D.	Other	None	Total
Vocational Education Field:								
Agriculture	-	83	95	3	1	-	1	183
Business & Office	1	276	109	-	2	4	14	406
Distributive Edu.	1	37	19	1	-	1	5	64
Health Occupations	6	9	-	-	-	20	35	70
Home Economics	-	253	79	-	1	1	5	339
Trades & Industry	19	34	8	1	-	24	346	432
Technical	1	6	1	-	-	1	19	28
Public Service	-	1	-	1	-	-	1	3
Guidance & Counseling	-	1	-	-	-	-	-	2
Related Subjects	-	18	7	-	-	1	4	30
Teacher Education	-	1	-	-	-	-	-	1
Ancillary	-	1	3	-	-	-	-	4
TOTAI	28	720	321	6	5	52	430	1,562
PERCENT	2	46	21	0	0	3	28	100

Table 49 contains information about the number of teachers in each service area who had a minimum of one year of related work experience. The minimum of one year meant at least 2,000 clock hours of work. It did not mean that all those hours had to be worked within the same calendar year.

TABLE 49 - TEACHERS WITH MINIMUM OF 1 YEAR WORK EXPERIENCE (BY SERVICE AREA)

Vocational Education Field:	Work Experience: Yes No.	Yes %	No No.	No %	Total No.	Total %
Agriculture	78	43	105	57	183	
Business & Office	391	96	15	4	406	
Distributive Education	61	95	3	5	64	
Health Occupations	66	94	4	6	70	
Home Economics	86	25	253	75	339	
Trades & Industry	410	95	22	5	432	
Technical	27	96	1	4	28	
Public Service	2	67	1	33	3	
Guidance & Counseling	1	50	1	50	2	
Related Subjects	25	83	5	17	30	
Teacher Education	1	100	-	0	1	
Ancillary	4	100	-	0	4	
TOTAL	1,152	74	410	26	1,562	100%

Table 50 contains information about whether teachers have had related professional training within the last two years. This information is broken down by service area and type of agency in which the teachers were employed. Of the 1,549 respondents (teachers) who were included, 71% indicated that they had received related professional training within the preceding two years. Related professional training meant conferences, workshops, seminars, and other educational experiences which would help the person grow professionally.

TABLE 50 - RELATED PROFESSIONAL TRAINING WITHIN THE LAST TWO YEARS BY VOCATIONAL EDUCATION FIELD AND TYPE OF AGENCY WHERE EMPLOYED

Vocational Education Field	Professional Training	Type of Agency: Public School				Area School				Extension Center				Total %	
		Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	No
Agriculture		162	91	16	9	-	0	2	100	1	50	1	50	90	10
Business & Office		207	65	112	35	27	82	6	18	41	82	9	18	68	32
Distributive Education		55	93	4	7	5	100	-	0	-	0	-	0	94	6
Health Occupations		1	100	-	0	31	62	19	38	10	56	8	44	61	39
Home Economics		226	68	104	32	6	86	1	14	-	0	-	0	69	31
Trades & Industry		24	80	6	20	123	65	67	35	134	64	75	0	66	34
Technical		-	0	-	0	17	61	11	39	-	0	-	0	61	39
Public Service		2	100	-	C	1	100	-	0	-	0	-	0	100	0
Guidance & Counseling		1	100	-	0	-	0	-	0	-	0	-	0	100	0
Related Subjects		8	73	3	27	14	82	3	18	1	100	-	0	79	21
Teacher Education		-	0	1	100	-	0	-	0	-	0	-	0	0	100
Ancillary		3	100	-	0	1	100	-	0	-	0	-	0	100	0
TOTAL		689	74	246	26	225	67	109	33	187	67	93	33	71	29

The respondents were asked to indicate, from a list provided, which areas of professional training they felt would be beneficial to them in carrying out their responsibilities. Table 57 presents each item and the number of responses checked for each. Respondents were free to check as many as they wished. Percentages are based on a return of 2,525 instruments. Percentages are not cumulative. No breakdown by agency or service area was considered for this table.

TABLE 51 - AREAS OF PROFESSIONAL TRAINING WHICH TOTAL RESPONDENTS FELT WOULD BE BENEFICIAL TO THEM IN CARRYING OUT THEIR RESPONSIBILITIES (N=2525)

Area of Training	Number Who Checked Item	Percent
Developing and Using Visual Aids	1,091	43
Developing Proposals for Fundings	604	24
Conducting Research Studies	523	21
Using Research Findings to Improve Instruction	954	38
Organizing and Operating Cooperative Education Programs	751	30
Identifying and Working with the Disadvantaged Student	1,381	55
Identifying and Working with the Handicapped Student	1,017	40
Organizing and Using Local Advisory Committees	742	29
Organizing and Conducting Out-of-School Programs for Adults	656	26
Knowledge of Exemplary and Innovative Programs in Vocational Education	931	37
Evaluation of an Individuals Progress in Training Programs	1,007	40
Evaluation of Teaching Methods	1,132	45
Analysis of Program Effectiveness and Efficiency	856	34
Planning Vocational Education Programs, Services, and Activities	998	40
Knowledge of Learning Theory	780	31

Table 51 continued

Area of Training	Number Who Checked Item	Percent
Preparing and Using Behavioral Objectives and Program Goals	700	28
Planning and Carrying out Classroom Activities	881	35
Knowledge and Use of Newly Developed Curriculum Materials for Vocational Education	1,272	50
Knowledge and Use of Occupational and Population Information	707	28
Developing Curriculum Materials	777	31
Developing a Course of Study	670	27
Developing Joint Programs with other Vocational Service Areas or other Educational Agencies	603	24
Guiding and Helping Students Arrange for Individual Experience Programs Related to Class Room Instruction	1,027	41
Knowledge of Legal Restrictions and Implications	740	29
Knowledge of Resource Allocation Methods & Procedures	435	17
Understanding and Use of Modern Management Tools and Techniques for all Levels	587	23
Improvement of Communications, Coordination, and Cooperation Within and Without Vocational Education	1,000	40
Understanding and Employment of Public Relations Practices	651	26
Improved Supervision Methodology	553	22
Understanding and Use of Modern Change Process Systems and Techniques for all Areas	1,202	48

The following group of tables (52-81) provides more detailed information about the number of respondents who indicated that they felt a particular area of professional training would be beneficial in carrying out their responsibilities. Each table covers one area of training and responses are broken down by service area and type of agency where employed. Percentages, again, are not cumulative. Respondents were free to check as many spaces as they felt appropriate.

TABLE 52 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN DEVELOPING AND USING VISUAL AIDS WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	94	1	1	-	4	-	6	-	106	52
Business & Office	189	12	-	-	1	-	9	1	239	53
Distributive Education	41	3	-	-	2	-	1	-	47	55
Health Occupations	1	23	11	-	-	-	5	-	40	46
Home Economics	201	3	-	-	1	-	11	-	216	58
Trades & Industry	16	95	120	1	3	-	5	2	242	50
Technical	-	9	-	-	-	-	1	-	10	29
General Adult	-	-	-	-	4	1	-	1	6	40
Public Serivce	1	-	-	-	-	-	-	-	1	25
Guidance & Counseling	107	1	-	-	2	-	8	1	119	22
Related Subjects	6	8	1	-	1	-	-	-	16	44
Adm. & Supervision	6	3	2	2	1	1	2	1	18	14
Teacher Education	1	-	-	-	-	-	27	-	28	44
Research & Del./Eval.	-	-	-	-	-	-	2	-	2	22
Ancillary	-	-	-	-	-	-	1	-	1	8
TOTAL RESPONSES	663	158	162	3	19	2	78	6	1,091	43
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(44)	(38)	(51)	(15)	(30)	(20)	(42)	(33)		

TABLE 53 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN DEVELOPING PROPOSALS FOR FUNDING WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	61	-	1	1	1	-	6	-	70	34
Business & Office	63	7	6	-	4	-	9	-	89	20
Distributive Education	22	3	-	-	2	-	-	-	27	31
Health Occupations	-	4	2	-	1	-	5	-	12	14
Home Economics	45	2	-	-	1	-	9	-	57	15
Trades & Industry	10	23	45	-	2	-	4	-	84	17
Technical	-	4	-	-	-	-	1	-	5	15
General Adult	2	2	-	-	1	1	-	-	6	40
Public Service	2	1	-	-	1	-	-	-	4	100
Guidance & Counseling	112	5	-	-	-	4	10	1	132	25
Related Subjects	1	5	-	-	-	-	-	-	6	17
Adm. & Supervision	9	18	17	14	6	1	4	1	70	54
Teacher Education	-	-	-	-	-	-	29	-	29	46
Research & Dev./Eval.	-	-	-	-	-	-	5	-	5	56
Ancillary	3	3	-	-	1	-	1	-	8	62
TOTAL RESPONSES	330	77	71	15	20	6	83	2	604	24
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(22)	(18)	(22)	(75)	(32)	(60)	(45)	(11)		

TABLE 54 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN CONDUCTING RESEARCH STUDIES WOULD BE BENEFICIAL - BY SERVICE AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	16	-	-	1	1	-	4	-	22	11
Business & Office	40	9	10	-	-	-	5	-	64	14
Distributive Education	20	2	-	-	1	-	-	-	23	27
Health Occupations	-	7	-	-	1	-	4	-	12	14
Home Economics	34	1	-	-	-	-	8	-	43	12
Trades & Industry	7	32	53	-	2	-	4	-	98	20
Technical	-	4	-	-	-	-	1	-	5	15
General Adult	2	-	-	-	1	1	1	1	6	40
Public Service	1	-	-	-	-	-	-	-	1	25
Guidance & Counseling	142	4	-	-	2	4	13	2	167	31
Related Subjects	3	3	-	-	-	-	-	-	6	17
Adm. & Supervision	10	11	7	6	4	1	1	-	40	31
Teacher Education	-	-	-	-	-	-	28	-	28	44
Research & Del./Eval.	1	-	-	-	1	-	3	-	5	56
Ancillary	-	1	-	-	1	-	1	-	3	23
TOTAL RESPONSES	276	74	70	7	14	6	73	3	523	21
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(19)	(18)	(22)	(35)	(22)	(60)	(40)	(17)		

TABLE 55 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN USING RESEARCH FINDINGS TO IMPROVE INSTRUCTION WOULD BE BENEFICIAL - BY SERVICE AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	47	-	-	1	3	-	6	-	57	28
Business & Office	104	15	21	-	3	-	9	-	152	34
Distributive Education	28	3	-	-	1	-	-	-	32	37
Health Occupations	-	22	5	-	1	-	5	1	34	39
Home Economics	92	4	-	-	3	-	11	-	110	30
Trades and Industry	15	81	101	2	6	-	3	1	209	43
Technical	-	10	-	-	-	-	4	-	14	41
General Adult	1	-	-	-	4	1	-	-	6	40
Public Service	-	-	-	-	-	-	-	-	-	0
Guidance & Counseling	201	4	-	-	1	1	9	2	218	41
Related Subjects	9	6	1	-	-	-	-	-	16	44
Adm. & Supervision	15	14	14	4	8	1	2	1	59	46
Teacher Education	1	-	-	-	-	-	35	-	36	57
Research & Del./Eval.	1	-	-	-	1	-	4	-	6	67
Ancillary	1	1	-	-	1	-	2	-	5	38
TOTAL RESPONSES	515	160	142	7	32	3	90	5	954	38
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(35)	(38)	(44)	(35)	(51)	(30)	(49)	(28)		

TABLE 56 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN ORGANIZING AND OPERATING COOPERATIVE EDUCATION PROGRAMS WOULD BE BENEFICIAL - BY SERVICE AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	58	2	-	-	5	-	4	-	69	34
Business & Office	138	16	27	-	2	-	7	1	191	42
Distributive Education	36	3	-	-	1	-	-	-	40	47
Health Occupations	-	6	2	-	1	-	4	-	13	15
Home Economics	43	4	-	-	2	-	8	-	57	15
Trades & Industry	17	64	71	1	-	-	4	-	157	32
Technical	-	10	-	-	-	-	2	-	12	35
General Adult	-	1	-	-	-	1	-	1	3	20
Public Service	2	1	-	-	-	-	-	-	3	75
Guidance & Counseling	125	1	-	-	-	1	3	2	132	25
Related Subjects	8	2	-	-	-	-	-	-	10	28
Adm. & Supervision	6	6	18	7	3	1	1	-	42	33
Teacher Education	-	-	-	-	-	-	17	-	17	27
Research & Del./Eval.	-	-	-	-	-	-	2	-	2	22
Ancillary	2	-	-	-	1	-	-	-	3	23
TOTAL RESPONSES	435	116	118	8	15	3	52	4	751	30
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(29)	(28)	(37)	(40)	(24)	(30)	(28)	(22)		

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TABLE 57 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN IDENTIFYING AND WORKING WITH THE DISADVANTAGED STUDENT WOULD BE BENEFICIAL - BY SERVICE AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	124	2	1	1	3	-	4	-	135	66
Business & Office	157	24	34	-	3	-	7	1	226	50
Distributive Education	38	7	-	-	2	-	-	-	47	55
Health Occupations	1	28	9	-	1	-	4	1	44	51
Home Economics	224	5	-	-	4	-	7	-	240	65
Trades & Industry	14	102	119	1	3	-	3	-	242	50
Technical	-	11	-	-	-	-	2	-	13	38
General Adult	4	1	-	-	4	1	-	-	10	67
Public Service	1	-	-	-	-	-	-	-	1	25
Guidance & Counseling	284	6	-	-	2	6	7	6	311	58
Related Subjects	12	11	1	-	1	-	-	-	25	69
Adm. & Supervision	11	11	15	8	7	1	2	1	56	43
Teacher Education	1	-	-	-	-	-	19	-	20	32
Research & Del./Eval.	-	-	-	-	-	-	3	-	3	33
Ancillary	4	2	-	-	1	-	1	-	8	62
TOTAL RESPONSES	875	210	179	10	31	8	59	9	1381	55
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(59)	(50)	(56)	(50)	(49)	(80)	(32)	(50)		

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TABLE 58 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN IDENTIFYING AND WORKING WITH THE HANDICAPPED STUDENT WOULD BE BENEFICIAL - BY SERVICE AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	88	2	1	1	3	-	3	-	98	48
Business & Office	101	17	26	-	1	-	5	1	151	33
Distributive Education	23	6	-	-	2	-	-	-	31	36
Health Occupations	1	12	6	-	1	-	1	-	21	24
Home Economics	144	4	-	-	2	-	6	-	156	42
Trades & Industry	13	92	97	1	3	-	3	-	209	43
Technical	-	12	-	-	-	-	2	-	14	41
General Adult	2	1	-	-	1	1	-	-	5	33
Public Service	2	-	-	-	-	-	-	-	2	50
Guidance & Counseling	215	7	-	-	-	2	7	4	235	44
Related Subjects	9	10	-	-	1	-	-	-	20	56
Adm. & Supervision	7	13	14	8	6	1	2	1	52	40
Teacher Education	1	-	-	-	-	-	13	-	14	22
Research & Del./Eval.	-	-	-	-	-	-	3	-	3	33
Ancillary	2	2	-	-	1	-	1	-	6	46
TOTAL RESPONSES	608	178	144	10	21	4	46	6	1017	40
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(41)	(42)	(45)	(50)	(33)	(40)	(25)	(33)		

TABLE 59 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN ORGANIZING AND USING LOCAL ADVISORY COMMITTEES WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	50	1	-	-	3	-	1	-	55	27
Business & Office	77	12	16	-	2	-	6	-	13	3
Distributive Education	31	6	-	-	2	-	-	-	39	45
Health Occupations	-	12	3	-	1	-	2	-	18	21
Home Economics	48	4	-	-	1	-	3	-	56	15
Trades & Industry	18	84	102	-	1	-	3	-	208	43
Technical	-	9	-	-	-	-	2	-	11	32
General Adult	2	-	-	-	-	1	-	-	3	20
Public Service	1	-	-	-	-	-	-	-	1	25
Guidance & Counseling	134	2	-	-	-	1	4	4	145	27
Related Subjects	6	3	-	-	-	-	-	-	9	25
Adm. & Supervision	9	19	18	8	4	1	2	2	63	49
Teacher Education	-	-	-	-	-	-	14	-	14	22
Research & Del./Eval.	-	-	-	-	1	-	3	-	4	44
Ancillary	1	1	-	-	1	-	-	-	3	23
TOTAL RESPONSES	377	153	139	8	16	3	40	6	742	29
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(25)	(36)	(43)	(40)	(25)	(30)	(22)	(33)		

TABLE 60 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN ORGANIZING AND CONDUCTING OUT-OF-SCHOOL PROGRAMS FOR ADULTS WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	64	-	1	-	3	-	2	-	70	34
Business & Office	78	13	15	-	2	-	4	1	113	25
Distributive Education	20	5	-	-	3	-	-	-	28	33
Health Occupations	-	8	1	-	1	-	1	1	12	14
Home Economics	80	6	-	-	1	-	7	1	94	25
Trades & Industry	11	57	69	-	-	-	3	-	140	29
Technical	-	6	-	-	-	-	1	-	7	21
General Adult	3	1	-	-	5	1	-	-	10	67
Public Service	-	-	-	-	1	-	-	-	1	25
Guidance & Counseling	103	2	-	-	-	2	3	3	113	21
Related Subjects	5	5	-	-	-	-	-	-	10	28
Adm. & Supervision	5	10	16	5	2	1	2	2	43	33
Teacher Education	-	-	-	-	-	-	13	-	13	21
Research & Del./Eval.	-	-	-	-	-	-	1	-	1	11
Ancillary	-	1	-	-	-	-	-	-	1	8
TOTAL RESPONSES	369	114	102	5	18	4	37	7	656	26
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(25)	(27)	(32)	(25)	(29)	(40)	(20)	(39)		

TABLE 61 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN ACQUIRING A KNOWLEDGE OF EXEMPLARY AND INNOVATIVE PROGRAMS IN VOCATIONAL EDUCATION WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	41	2	1	1	4	-	6	-	55	27
Business & Office	156	12	20	-	3	-	16	-	207	46
Distributive Education	34	3	-	-	2	-	1	-	40	47
Health Occupations	-	9	1	-	-	-	4	-	14	16
Home Economics	98	3	-	-	4	-	14	-	119	32
Trades & Industry	17	37	57	-	1	4	4	-	116	24
Technical	-	10	-	-	-	-	4	-	14	41
General Adult	2	-	-	-	2	1	-	-	5	33
Public Service	1	1	-	-	1	-	-	-	3	75
Guidance & Counseling	203	7	-	-	4	1	9	5	229	43
Related Subjects	9	9	1	-	-	-	-	-	19	53
Adm. & Supervision	12	15	21	9	9	1	2	2	71	55
Teacher Education	-	-	-	-	-	-	25	-	25	40
Research & Del./Eval.	1	-	-	-	-	-	5	-	6	67
Ancillary	4	2	-	-	1	-	1	-	8	62
TOTAL RESPONSES	578	110	101	10	31	3	91	7	931	37
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(39)	(26)	(32)	(50)	(49)	(30)	(49)	(39)		

TABLE 62 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN EVALUATION OF AN INDIVIDUAL'S PROGRESS IN TRAINING PROGRAMS WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	66	2	-	-	4	-	1	-	73	36
Business & Office	147	15	23	-	2	-	8	2	197	44
Distributive Education	39	6	-	-	1	-	-	-	46	53
Health Occupations	1	35	10	-	1	-	6	-	53	61
Home Economics	83	4	-	-	3	-	8	-	98	26
Trades & Industry	17	86	122	1	2	-	4	1	233	48
Technical	-	13	-	-	-	-	2	-	15	44
General Adult	1	-	-	-	-	1	-	1	6	40
Public Service	1	-	-	-	-	-	-	-	1	25
Guidance & Counseling	166	5	-	-	1	1	9	2	184	34
Related Subjects	11	9	-	-	-	-	-	-	20	56
Adm. & Supervision	8	13	17	5	7	1	1	1	53	41
Teacher Education	-	-	-	-	-	-	17	-	17	27
Research & Del./Eval.	1	-	-	-	1	-	2	-	4	44
Ancillary	3	2	-	-	2	-	-	-	7	54
TOTAL RESPONSES	544	190	172	6	27	3	58	7	1007	40
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(37)	(45)	(54)	(30)	(43)	(30)	(32)	(39)		

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TABLE 63 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN EVALUATION OF TEACHING METHODS WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	55	1	1	1	3	-	8	-	69	34
Business & Office	166	19	25	-	1	-	14	2	227	50
Distributive Education	32	4	-	-	2	-	-	-	38	44
Health Occupations	1	30	15	-	1	-	7	1	55	63
Home Economics	177	4	-	-	3	-	16	-	200	54
Trades & Industry	11	79	113	1	5	-	6	2	217	45
Technical	-	13	-	-	-	-	2	-	15	44
General Adult	1	-	-	-	5	1	-	1	8	53
Public Service	1	-	-	-	1	-	-	-	2	50
Guidance & Counseling	158	3	-	-	1	2	8	4	176	33
Related Subjects	10	5	-	-	-	-	-	-	15	42
Adm. & Supervision	16	13	15	4	7	1	3	-	59	46
Teacher Education	1	-	-	-	-	-	38	-	39	62
Research & Del./Eval.	1	-	-	-	1	-	3	-	5	56
Ancillary	2	2	-	-	2	-	1	-	7	54
TOTAL RESPONSES	632	173	169	6	32	4	106	10	1132	45
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(42)	(41)	(53)	(30)	(51)	(40)	(58)	(56)		

TABLE 64 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN ANALYZING PROGRAM EFFECTIVENESS AND EFFICIENCY WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	35	1	-	1	2	-	4	-	43	21
Business & Office	92	12	16	-	4	-	9	-	133	29
Distributive Education	22	6	-	-	1	-	-	-	29	34
Health Occupations	1	18	3	-	1	-	6	-	29	33
Home Economics	82	4	-	-	4	-	5	-	95	26
Trades & Industry	14	64	92	-	4	-	5	-	179	37
Technical	-	14	-	-	-	-	3	-	17	50
General Adult	2	-	-	-	-	1	-	1	4	27
Public Service	1	1	-	-	1	-	-	-	3	75
Guidance & Counseling	171	5	-	-	2	3	10	3	194	36
Related Subjects	6	8	-	-	-	-	-	-	14	39
Adm. & Supervision	14	20	20	11	8	1	2	1	77	60
Teacher Education	-	-	-	-	-	-	28	-	28	44
Research & Del./Eval.	1	-	-	-	-	-	4	-	5	56
Ancillary	1	3	-	-	2	-	-	-	6	46
TOTAL RESPONSES	442	156	131	12	29	5	76	5	856	34
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(30)	(37)	(41)	(60)	(46)	(50)	(41)	(28)		

TABLE 65 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN PLANNING VOCATIONAL EDUCATION PROGRAMS, SERVICES, AND ACTIVITIES WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOVT. AGCY.	TOTAL	PERCENT
Agriculture	84	2	1	1	4	-	4	-	96	47
Business & Office	145	10	22	-	2	-	8	1	188	42
Distributive Education	34	4	-	-	3	-	1	-	42	49
Health Occupations	-	14	4	-	1	-	3	-	22	25
Home Economics	87	5	-	-	1	-	8	-	101	27
Trades & Industry	15	66	96	1	5	-	5	-	188	39
Technical	-	5	-	-	-	-	1	-	6	18
General Adult	2	1	-	-	1	1	-	-	5	33
Public Service	1	-	-	-	-	-	-	-	1	25
Guidance & Counseling	204	6	-	-	1	3	7	5	226	42
Related Subjects	8	6	1	-	-	-	-	-	15	42
Administration & Supervision	9	21	19	13	11	1	3	2	79	61
Teacher Education	-	-	-	-	-	-	16	-	16	25
Research & Dev./Eval.	-	-	-	-	1	-	4	-	55	56
Ancillary	2	2	-	-	3	-	1	-	8	62
TOTAL RESPONSES	591	142	143	15	33	5	61	8	998	40
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(40)	(34)	(45)	(75)	(52)	(50)	(33)	(44)		

TABLE 66 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING FOR ACQUIRING A KNOWLEDGE OF LEARNING THEORIES WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	24	-	-	-	1	-	2	-	27	13
Business & Office	96	16	14	-	1	-	4	-	131	29
Distributive Education	13	4	-	-	1	-	-	-	18	21
Health Occupations	-	25	16	-	-	-	2	1	44	51
Home Economics	75	4	-	-	3	-	7	-	89	24
Trades & Industry	13	87	97	-	2	-	5	-	204	42
Technical	-	11	-	-	-	-	-	-	11	32
General Adult	1	-	-	-	1	1	-	1	4	27
Public Service	-	-	-	-	-	-	-	-	-	0
Guidance & Counseling	166	3	-	-	-	2	10	4	185	35
Related Subjects	9	5	-	-	-	-	-	-	14	39
Adm. & Supervision	9	7	8	2	4	1	-	-	31	24
Teacher Education	-	-	-	-	-	-	17	-	17	27
Research & Dev./Eval.	1	-	-	-	-	-	2	-	3	33
Ancillary	1	1	-	-	-	-	-	-	2	15
TOTAL RESPONSES	408	163	135	2	13	4	49	6	780	31
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(27)	(39)	(42)	(10)	(21)	(40)	(27)	(33)		

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TABLE 67 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN PREPARING AND USING BEHAVIORAL OBJECTIVES AND PROGRAM GOALS WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	24	1	-	1	2	-	2	-	30	15
Business & Office	60	6	7	-	1	-	11	-	85	19
Distributive Education	19	1	-	-	1	-	1	-	22	26
Health Occupations	-	18	5	-	1	-	5	1	30	34
Home Economics	84	3	-	-	3	-	8	-	98	26
Trades & Industry	14	48	58	-	4	-	4	1	128	26
Technical	-	4	-	-	-	-	1	-	5	15
General Adult	3	1	-	-	3	1	-	-	8	53
Public Service	2	-	-	-	-	-	-	-	2	50
Guidance & Counseling	167	4	-	-	4	2	10	5	192	36
Related Subjects	7	5	1	-	-	-	-	-	13	36
Adm. & Supervision	11	12	16	6	9	1	1	-	56	43
Teacher Education	-	-	-	-	-	-	20	-	20	32
Research & Dev./Eval.	-	-	-	-	1	-	4	-	5	36
Ancillary	1	1	-	-	2	-	2	-	6	46
TOTAL RESPONSES	392	104	87	7	31	4	69	6	700	28
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	26	25	27	35	49	40	38	33		

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TABLE 68 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN PLANNING AND CARRYING OUT CLASSROOM ACTIVITIES WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	70	1	1	-	2	-	4	-	78	38
Business & Office	155	8	25	-	1	-	6	1	196	43
Distributive Education	45	4	-	-	2	-	-	-	51	59
Health Occupations	1	24	12	-	-	-	2	1	40	46
Home Economics	172	3	-	-	-	-	6	-	181	49
Trades & Industry	12	69	100	1	2	-	2	-	186	38
Technical	-	7	-	-	-	-	-	-	7	21
General Adult	-	-	-	-	2	1	-	-	3	20
Public Service	1	-	-	-	-	-	-	-	1	25
Guidance & Counseling	76	-	-	-	-	-	6	2	84	16
Related Subjects	10	5	1	-	1	-	-	-	17	47
Adm. & Supervision	5	4	5	2	-	1	-	-	17	13
Teacher Education	-	-	-	-	-	-	17	-	17	27
Research & Dev./Eval.	-	-	-	-	-	-	2	-	2	22
Ancillary	1	-	-	-	-	-	-	-	1	8
TOTAL RESPONSES	548	125	144	3	10	2	45	4	881	35
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(37)	(30)	(45)	(15)	(16)	(20)	(24)	(22)		

TABLE 69 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING FOR ACQUIRING A KNOWLEDGE OF NEWLY DEVELOPED CURRICULUM MATERIALS IN VOCATIONAL EDUCATION AND HOW TO USE THEM WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	82	-	-	-	3	-	5	-	90	44
Business & Office	217	19	31	-	2	-	10	1	280	62
Distributive Education	38	5	-	-	1	-	1	-	45	52
Health Occupations	-	21	9	-	1	-	4	-	35	40
Home Economics	232	4	-	-	4	-	10	-	250	67
Trades & Industry	15	101	128	1	3	-	4	-	252	52
Technical	-	13	-	-	-	-	3	-	16	47
General Adult	1	-	-	-	2	1	-	-	4	27
Public Service	1	-	-	-	-	-	-	-	1	25
Guidance & Counseling	185	2	-	-	-	1	6	4	198	37
Related Subjects	9	9	1	-	1	-	-	-	20	56
Adm. & Supervision	10	12	18	5	4	1	1	1	52	40
Teacher Education	-	-	-	-	-	-	18	-	18	29
Research & Dev./Eval.	1	-	-	-	-	-	3	-	4	44
Ancillary	3	1	-	-	2	-	1	-	7	54
TOTAL RESPONSES	794	187	187	6	23	3	66	6	1,272	50
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(53)	(45)	(58)	(30)	(37)	(30)	(36)	(33)		

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TABLE 70 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING FOR ACQUIRING KNOWLEDGE OF AND USES FOR OCCUPATIONAL AND POPULATION INFORMATION WOULD BE USEFUL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	24	-	-	1	2	-	1	-	28	14
Business & Office	82	11	11	-	2	-	6	-	112	25
Distributive Education	22	2	-	-	1	-	-	-	25	29
Health Occupations	-	5	-	-	-	-	3	-	8	9
Home Economics	40	3	-	-	2	-	3	-	48	13
Trades & Industry	9	56	61	-	3	-	4	-	133	27
Technical	-	6	-	-	-	-	6	-	9	26
General Adult	2	-	-	-	1	1	1	-	5	33
Public Service	1	-	-	-	1	-	1	-	2	50
Guidance & Counseling	222	8	-	-	2	4	8	2	246	46
Related Subjects	6	1	-	-	-	-	-	-	7	19
Adm. & Supervision	11	16	13	7	9	1	1	1	59	46
Teacher Education		-	-	-	-	-	16	-	16	25
Research & Dev./Eval.	1	-	-	-	1	-	2	-	4	44
Ancillary	-	2	-	-	2	-	1	-	5	38
TOTAL RESPONSES	420	110	85	8	26	6	49	3	707	28
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(28)	(27)	(27)	(40)	(41)	(60)	(27)	(17)		

TABLE 71 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING FOR DEVELOPING CURRICULUM MATERIALS WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	58	1	1	1	3	-	4	-	68	33
Business & Office	115	6	18	-	2	-	7	-	148	33
Distributive Education	29	5	-	-	1	-	1	-	36	42
Health Occupations	1	16	4	-	-	-	3	-	24	28
Home Economics	108	3	-	-	1	-	13	-	125	34
Trades & Industry	10	57	80	1	4	-	2	-	154	32
Technical	-	6	-	-	-	-	1	-	7	21
General Adult	2	-	-	-	3	1	-	-	6	40
Public Service	1	-	-	-	-	-	-	-	1	25
Guidance & Counseling	125	2	-	-	-	-	5	1	133	25
Related Subjects	8	5	-	-	1	-	-	-	14	39
Adm. & Supervision	10	7	8	2	3	1	1	1	33	26
Teacher Education	-	-	-	-	-	-	22	-	22	35
Research & Dev./Eval.	-	-	-	-	-	-	2	-	2	22
Ancillary	3	1	-	-	-	-	-	-	4	31
TOTAL RESPONSES	470	109	111	4	18	2	61	2	777	31
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(32)	(26)	(35)	(20)	(29)	(20)	(33)	(11)		

TABLE 72 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING FOR DEVELOPING A COURSE OF STUDY WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	58	2	1	-	2	-	3	-	66	32
Business & Office	96	8	13	-	1	-	4	1	123	27
Distributive Education	20	4	-	-	1	-	1	-	26	30
Health Occupations	1	20	7	-	-	-	3	1	32	37
Home Economics	71	3	-	-	-	-	7	-	81	22
Trades & Industry	11	68	90	1	2	-	3	1	176	36
Technical	-	6	-	-	-	-	-	-	6	18
General Adult	-	-	-	-	1	1	-	1	3	20
Public Service	1	-	-	-	1	-	-	-	2	50
Guidance & Counseling	92	1	-	-	-	-	5	1	99	19
Related Subjects	7	6	-	-	-	-	-	-	13	36
Adm. & Supervision	7	6	6	2	1	1	-	1	24	19
Teacher Education	-	-	-	-	-	-	15	-	15	24
Research & Dev./Eval.	-	-	-	-	-	-	2	-	2	22
Ancillary	1	1	-	-	-	-	-	-	2	15
TOTAL RESPONSES	365	125	117	3	9	2	43	6	670	27
# OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(24)	(30)	(37)	(15)	(14)	(20)	(23)	(33)		

TABLE 73 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN DEVELOPING JOINT PROGRAMS WITH OTHER VOCATIONAL SERVICE AREAS OR OTHER EDUCATIONAL AGENCIES WOULD BE BENEFICIAL - BY SERVICE AREA & TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	GOV. AGCY.	TOTAL	PERCENT
Agriculture	36	1	-	1	4	-	6	-	48	24
Business & Office	62	8	10	-	2	-	10	-	92	20
Distributive Education	16	6	-	-	2	-	-	-	24	28
Health Occupations	-	7	6	-	1	-	4	1	19	22
Home Economics	46	4	-	-	2	-	8	1	60	16
Trades & Industry	13	44	55	1	1	-	5	-	119	24
Technical	-	7	-	-	-	-	2	-	9	26
General Adult	2	-	-	-	1	1	-	-	4	27
Public Service	2	-	-	-	1	-	-	-	3	75
Guidance & Counseling	117	6	-	-	1	2	4	2	132	25
Related Subjects	5	6	-	-	-	-	-	-	11	31
Adminstratinn & Super.	6	18	15	8	8	1	2	2	60	46
Teacher Education	-	-	-	-	-	-	17	-	17	27
Research & Dev./Eval.	1	-	-	-	-	-	2	-	3	33
Ancillary	1	-	-	-	1	-	-	-	2	15
TOTAL RESPONSES	307	107	86	10	24	4	60	5	603	24
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(21)	(25)	(27)	(50)	(38)	(40)	(33)	(28)		

TABLE 74 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN GUIDING AND HELPING STUDENTS ARRANGE FOR INDIVIDUAL EXPERIENCE PROGRAMS RELATED TO CLASSROOM INSTRUCTION WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	68	1	1	-	3	-	5	-	78	38
Business & Office	165	15	30	-	1	-	8	-	219	48
Distributive Education	34	3	-	-	2	-	-	-	39	45
Health Occupations	-	13	6	-	-	-	5	1	25	29
Home Economics	126	5	-	-	1	-	6	-	138	37
Trades & Industry	12	63	95	1	1	-	4	-	176	36
Technical	-	9	-	-	-	-	2	-	11	32
General Adult	3	-	-	-	2	1	-	-	6	40
Public Service	1	-	-	-	-	-	-	-	1	25
Guidance & Counseling	245	6	-	-	3	2	8	3	267	50
Related Subjects	10	6	1	-	-	-	-	-	17	47
Adm. & Supervision	11	2	7	2	2	1	-	1	26	20
Teacher Education	-	-	-	-	-	-	20	-	20	32
Research & Dev./Eval.	-	-	-	-	-	-	2	-	2	22
Ancillary	2	-	-	-	-	-	-	-	2	15
TOTAL RESPONSES	677	123	140	3	15	4	60	5	1,027	41
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(45)	(29)	(44)	(15)	(24)	(40)	(33)	(28)		

TABLE 75 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING FOR ACQUIRING A KNOWLEDGE OF LEGAL RESTRICTIONS AND IMPLICATIONS WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	47	1	-	1	4	-	2	-	55	27
Business & Office	79	13	7	-	2	-	3	1	105	23
Distributive Educatinn	26	3	-	-	1	-	-	-	30	35
Health Occupations	-	27	6	-	-	-	3	-	36	41
Home Economics	55	4	-	-	1	-	3	-	63	17
Trades & Industry	12	66	76	-	3	-	5	-	162	33
Technical	-	9	-	-	-	-	-	-	9	26
General Adult	1	-	-	-	-	1	-	-	2	13
Public Service	1	-	-	-	-	-	-	-	1	25
Guidance & Counseling	165	5	-	-	-	1	9	2	182	34
Related Subjects	5	1	1	-	-	-	-	-	7	19
Adm. & Supervision	10	16	15	9	9	1	2	2	64	50
Teacher Education	-	-	-	-	-	-	15	-	15	24
Research & Dev./Eval.	-	-	-	-	1	-	3	-	4	44
Ancillary	1	2	-	-	2	-	-	-	5	38
TOTAL RESPONSES	402	147	105	10	23	3	45	5	740	29
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(27)	(35)	(33)	(50)	(37)	(30)	(24)	(28)		

TABLE 76 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING FOR ACQUIRING A KNOWLEDGE OF RESOURCE ALLOCATION METHODS AND PROCEDURES WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV.AGCY.	TOTAL	PERCENT
Agriculture	22	-	-	1	2	1	2	1	27	13
Business & Office	43	4	8	-	3	-	4	-	62	14
Distributive Education	14	3	-	-	2	-	-	-	19	22
Health Occupations	-	6	4	-	1	-	4	-	15	17
Home Economics	39	3	-	-	-	-	3	-	45	12
Trades & Industry	7	27	34	-	2	-	3	-	73	15
Technical	-	6	-	-	-	-	1	-	7	21
General Adult	-	-	-	-	-	1	-	-	1	7
Public Service	1	-	-	-	-	-	-	-	1	25
Guidance & Counseling	94	3	-	-	-	1	5	-	103	19
Related Subjects	5	1	-	-	-	-	-	-	6	17
Adm. & Supervision	6	14	13	9	8	1	-	-	51	40
Teacher Education	-	-	-	-	-	-	15	-	15	24
Research & Dev./Eval.	1	-	-	-	1	-	4	-	6	67
Ancillary	-	2	-	-	2	-	-	-	4	31
TOTAL RESPONSES	232	69	59	10	21	3	41	1	435	17
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(16)	(16)	(18)	(50)	(33)	(30)	(22)	(1)		

TABLE 77 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN UNDERSTANDING AND USING MODERN MANAGEMENT TOOLS AND TECHNIQUES FOR ALL LEVELS WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	41	-	1	1	2	-	2	-	47	23
Business & Office	66	10	11	-	2	-	2	1	92	20
Distributive Education	19	4	-	-	1	-	-	-	24	28
Health Occupations	-	2	5	-	-	-	4	-	11	13
Home Economics	80	4	-	-	-	-	4	-	88	24
Trades & Industry	12	56	78	-	1	-	3	-	150	31
Technical	-	3	-	-	-	-	2	-	5	15
General Adult	-	-	-	-	2	1	-	1	4	27
Public Service	1	-	-	-	1	-	-	-	2	50
Guidance & Counseling	61	2	-	-	-	1	4	1	69	13
Related Subjects	5	2	-	-	-	-	-	-	7	19
Adm. & Supervision	11	17	12	8	8	1	2	2	61	47
Teacher Education	-	-	-	-	-	-	16	-	16	25
Research & Dev./Eval.	1	-	-	-	1	-	6	-	8	89
Ancillary	-	2	-	-	1	-	-	-	3	23
TOTAL RESPONSES	297	102	107	9	19	3	45	5	587	23
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(20)	(24)	(33)	(45)	(30)	(30)	(24)	(28)		

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TABLE 78 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN IMPROVING COMMUNICATIONS, COORDINATION, AND COOPERATION WITHIN AND OUTSIDE VOCATIONAL EDUCATION WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	52	1	-	1	4	-	8	-	66	32
Business & Office	116	14	26	-	4	-	7	1	168	37
Distributive Education	33	5	-	-	2	-	-	-	40	47
Health Occupations	-	24	9	-	1	-	6	1	41	47
Home Economics	87	4	-	-	4	-	7	-	102	27
Trades & Industry	23	91	112	-	5	-	5	1	237	49
Technical	-	12	-	-	-	-	3	-	15	44
General Adult	1	-	-	-	1	1	-	-	3	20
Public Service	1	-	-	-	1	-	-	-	2	50
Guidance & Counseling	179	10	-	-	1	4	8	2	204	38
Related Subjects	6	8	-	-	-	-		-	14	39
Adm. & Supervision	7	20	22	10	9	1	2	2	73	57
Teacher Education	-	-	-	-	-	-	19	-	19	30
Research & Del./Eval.	1	-	-	-	1	-	5	-	7	78
Ancillary	2	3	-	-	2	-	2	-	9	69
TOTAL RESPONSES	508	192	169	11	35	6	72	7	1000	40
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(34)	(46)	(53)	(55)	(56)	(60)	(39)	(39)		

TABLE 79 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN UNDERSTANDING AND EMPLOYING PUBLIC RELATIONS PRACTICES WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	25	1	-	-	3	-	2	-	31	15
Business & Office	86	10	10	-	3	-	3	1	113	25
Distributive Education	25	5	-	-	3	-	-	-	33	38
Health Occupations	-	9	2	-	3	-	4	-	15	17
Home Economics	33	4	-	-	3	-	3	-	43	12
Trades & Industry	17	62	73	1	2	-	5	-	160	33
Technical	-	2	-	-	-	-	1	-	3	9
General Adult	2	-	-	-	1	1	-	-	4	27
Public Service	1	1	-	-	1	-	-	-	3	75
Guidance & Counseling	151	7	-	-	-	1	6	1	166	31
Related Subjects	6	3	-	-	-	-	-	-	9	25
Adm. & Supervision	9	15	14	6	4	1	1	1	51	40
Teacher Education	-	-	-	-	-	-	14	-	14	22
Research & Del./Eval.	-	-	-	-	-	-	1	-	1	11
Ancillary	1	2	-	-	2	-	-	-	5	38
TOTAL RESPONSES	356	121	99	7	22	3	40	3	651	26
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(24)	(29)	(31)	(35)	(35)	(30)	(22)	(17)		

TABLE 80 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN IMPROVING SUPERVISION METHODOLOGY WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	33	-	-	1	4	-	3	-	41	20
Business & Office	60	8	7	-	1	-	4	1	81	18
Distributive Education	18	4	-	-	1	-	-	-	23	27
Health Occupations	-	23	4	-	1	-	3	1	32	37
Home Economics	38	4	-	-	4	-	8	-	54	15
Trades & Industry	13	52	50	2	2	-	3	-	122	25
Technical	-	4	-	-	-	-	2	-	6	18
General Adult	1	-	-	-	5	1	-	1	8	53
Public Service	-	-	-	-	1	-	-	-	1	25
Guidance & Counseling	63	2	-	-	2	-	4	1	72	13
Related Subjects	7	2	-	-	-	-	-	-	9	25
Adm. & Supervision	13	23	17	8	12	1	-	2	76	59
Teacher Education	-	-	-	-	-	-	20	-	20	32
Research & Del./Eval.	-	-	-	-	-	-	3	-	3	33
Ancillary	1	2	-	-	2	-	-	-	5	38
TOTAL RESPONSES	247	124	78	11	35	2	50	6	553	22
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(17)	(30)	(24)	(55)	(56)	(20)	(27)	(33)		

TABLE 81 - NUMBER OF RESPONDENTS WHO FELT THAT PROFESSIONAL TRAINING IN UNDERSTANDING AND USING MODERN CHANGE PROCESS SYSTEMS AND TECHNIQUES AT ALL LEVELS WOULD BE BENEFICIAL - BY SERVICE AREA AND TYPE OF AGENCY

	TYPE OF AGENCY EMPLOYED									
	PUBLIC SCHOOL	AREA SCH.	EXTEN. CENTER	REGION OFFICE	STATE BUREAU	COMMUN. COLLEGE	COLLEGE /UNIV.	OTHER GOV. AGCY.	TOTAL	PERCENT
Agriculture	54	1	1	1	3	-	4	-	64	31
Business & Office	126	14	22	-	2	-	11	1	176	39
Distributive Education	35	5	-	-	2	-	-	-	42	49
Health Occupations	-	28	10	-	1	-	5	1	45	52
Home Economics	138	5	-	-	3	-	12	-	158	42
Trades & Industry	27	104	112	-	5	-	4	-	252	52
Technical	-	14	-	-	-	-	3	-	17	50
General Adult	3	-	-	-	3	1	-	-	7	47
Public Service	1	1	-	-	1	-	-	-	3	75
Guidance & Counseling	265	7	-	-	1	3	13	6	295	55
Related Subjects	9	8	-	-	-	-	-	-	17	47
Adm. & Supervision	16	20	19	9	13	1	3	2	83	64
Teacher Education	-	-	-	-	-	-	29	-	29	46
Research & Del./Eval.	1	-	-	-	1	-	5	-	7	78
Ancillary	2	3	-	-	1	-	1	-	7	54
TOTAL RESPONSES	677	210	164	10	36	5	90	10	1202	48
% OF POTENTIAL RESPONDENTS FOR EACH TYPE OF AGENCY	(45)	(50)	(51)	(50)	(57)	(50)	(49)	(56)		

IV. CONCLUSIONS AND RECOMMENDATIONS

Specific conclusions and recommendations concerning what kinds of professional growth programs should be provided are not within the scope of the KRCU's responsibility in the conduct of this study. These decisions will be left to those in the Bureau of Vocational Education who have specific responsibilities in this area. However, some general conclusions and recommendations can be made by those in the KRCU who were involved in the data collection and analysis. These general conclusions and recommendations will be examined on the basis of the four types of information gathered as outlined in Part II under "Data Collection."

Personal Data

The personal data collected showed that the average age of personnel varied somewhat from service area to service area. The range of ages was fairly wide except for guidance and counseling personnel and those in service areas which had few personnel. Service areas such as business and office education and distributive education, would seem to have a high percentage of personnel who were relatively young. This may be a factor which should be taken into consideration when planning professional development programs. It may be that those personnel who are older or have been out of school for several years would be in need of upgrade training. However, it would be very risky to draw conclusions based on age alone. Other factors, such as recent professional training experiences or work experiences, would make a difference. It seems that the personal data are most important in terms of providing baseline data for future use rather than as a basis for making decisions about professional growth programs at this time.

Present Status

Concerning the present status of personnel, it appeared that some items were significant. Local school district employees indicated their ranks at the

time. Only 18% had completed the requirements for Rank I certification. This may be an indication that significant numbers of those holding Rank II certification could advance in position by enrolling in some college courses in an approved program. This is in light of the fact that 42% of the local employees hold Rank II certification. Possibly some sort of motivational programs would help these persons to see the opportunity they have to advance economically as well as professionally. This would also apply to the 39% who hold Rank III certification and who could move up to Rank II.

For state employees, the only significant cluster of personnel falls in Grades 13-14. It is possible that these employees could advance in position through their achievements in professional growth programs. Though length of service is important here, many persons could advance through demonstrating that they had made professional growth. Again, more emphasis upon the improvement of performance may be needed.

For college and university faculty members, the incentive to grow professionally is already strong. It is likely that efforts to help these people in their professional development should be closely tied to helping the other classes of vocational education personnel grow. They should be encouraged to work in special educational programs developed for state and local school district employees.

The information on State Department of Education certificates held by personnel reinforces the conclusions reached about the opportunities that personnel have to advance. Many more persons should be encouraged to complete requirements for higher-level certificates. This would help them reap both economic and professional rewards.

Background Data

Looking at the areas of college work in which respondents indicated they had taken courses, it can be concluded that there is a need for more personnel

to have formal educational backgrounds in some areas. In light of current developments in vocational education, it seems very clear that more personnel should have experiences in the areas of curriculum development, computer science, public relations, planning and evaluation, and research and statistics. Certain personnel should be encouraged to gain formal educational experiences in these areas. Perhaps special programs could be designed and implemented to achieve this.

In terms of work experience, 33% of the vocational education personnel who responded had had no related work experience. Of the 67% who had had related experience, about one-fourth had terminated that experience over 10 years ago. Nearly three-fourths of all respondents indicated that they were interested in obtaining up-to-date work experience in the field in which they were working. One might capitalize on this high level of need and interest. Programs designed to help personnel gain up-to-date work experience should be developed. Such experiences would help personnel become familiar with newer procedures and developments in their respective areas and would lead to more relevant educational activities in vocational education classes.

Though almost three-fourths of the respondents indicated that they had received some type of professional training within the last two years (at that time), there was an indication that such training was not related to areas of current need such as working with disadvantaged and handicapped students and working with cooperative programs. Perhaps programs dealing with these areas should be developed, especially for those groups of persons who indicated that training in these areas would be beneficial to them. More information on these feelings is reported in the next section.

Personal Feelings About Areas of Training

From Table 51 several items can be identified which seem to offer significant information about areas for staff improvement. The following items were

checked by at least 40% of all respondents (N=2,525):

Identifying and Working with the Disadvantaged Student	(55%)
Knowledge and Use of Newly Developed Curriculum Materials for Vocational Education	(50%)
Understanding and Use of Modern Change Process Systems and Techniques for all Areas	(48%)
Evaluation of Teaching Methods	(45%)
Developing and Using Visual Aids	(43%)
Guiding and Helping Students Arrange for Individual Experience Programs Related to Classroom Instruction	(41%)
Identifying and Working with the Handicapped Student	(40%)
Evaluation of an Individual's Progress in Training Programs	(40%)
Planning Vocational Education Programs, Services, and Activities	(40%)
Improvement of Communications, Coordination, and Cooperation Within and Without Vocational Education	(40%)

It is possible that special programs for personnel in all service areas could be developed to provide training in some of these areas.

Examining the responses to these items by service areas provides information about where programs for members of specific service areas might be beneficial. An analysis of Tables 52-81 provides some insight into which areas were deemed important by personnel in the respective service areas.

A majority of the Agriculture personnel felt that professional training in the following areas would be beneficial:

Identifying and Working with the Disadvantaged Student	(66%)
Developing and Using Visual Aids	(52%)

The Business and Office personnel felt that training in these areas would benefit them most:

Knowledge of Newly Developed Curriculum Materials in Vocational Education and How to Use Them	(62%)

Developing and Using Visual Aids (53%)

Identifying and Working with the Disadvantaged Student (50%)

Evaluation of Teaching Methods (50%)

The following areas of training were indicated by a majority of the Distributive Education personnel:

Planning and Carrying Out Classroom Activities (59%)

Developing and Using Visual Aids (55%)

Identifying and Working with the Disadvantaged Student (55%)

Evaluation of an Individual's Progress on Training Programs (53%)

Knowledge of Newly Developed Curriculum Materials in Vocational Education and How to Use Them (52%)

Health Occupations personnel exhibited interest in these areas of training:

Evaluation of Teaching Methods (63%)

Evaluation of an Individual's Progress in Training Programs (61%)

Understanding and Using Modern Change Process Systems and Techniques at All Levels (52%)

Identifying and Working with the Disadvantaged Student (51%)

Knowledge of Learning Theories (51%)

The follwoing areas were found to offer potential for Home Economics personnel:

Knowledge of Newly Developed Curriculum Materials in Vocational Education and How to Use Them (67%)

Identifying and Working with the Disadvantaged Student (65%)

Developing and Using Visual Aids (58%)

Evaluation of Newly Developed Curriculum Materials in Vocational Education and How to Use Them (67%)

Those working in the Trades and Industry area felt that these training topics could be beneficial:

Understanding and Using Modern Change Process Systems and Techniques at all Levels	(52%)
Developing and Using Visual Aids	(50%)
Identifying and Working with the Disadvantaged Student	(50%)

Personnel working in the Technical program felt that this topic would benefit them most:

Analyzing Program Effectiveness and Efficiency	(50%)

Persons working in the area of General Adult Education indicated that they could be benefited most by programs dealing with these subjects:

Identifying and Working with the Disadvantaged Student	(67%)
Organizing and Conducting Out-of-School Programs for Adults	(67%)
Evaluation of Teaching Methods	(53%)
Preparing and Using Behavioral Objectives and Program Goals	(53%)
Improving Supervision Methodology	(53%)

Guidance and Counseling personnel felt, on the whole, that the following areas offer the most potential for their activities:

Identifying and Working with the Disadvantaged Student	(58%)
Understanding and Using Modern Change Process Systems and Techniques at all Levels	(55%)
Guiding and Helping Students Arrange for Individual Experience Programs Related to Classroom Instruction	(50%)

Persons involved in Administration and Supervision felt that these areas would be most beneficial as topics for professional training programs:

Understanding and Using Modern Change Process Systems and Techniques at all Levels	(64%)
Planning Vocational Education Programs, Services, and Activities	(61%)
Analyzing Program Effectiveness and Efficiency	(60%)

Improving Supervision Methodology	(59%)
Improving Communications, Coordination, and Cooperation Within and Outside Vocational Education	(57%)
Acquiring a Knowledge of Exemplary and Innovative Programs in Vocational Education	(55%)
Developing Proposals for Funding	(54%)
Knowledge of Legal Restrictions and Implications	(50%)

Persons involved in Teacher Education pointed out these areas as having potential for training programs:

Evaluation of Teaching Methods	(62%)
Using Research Findings to Improve Instruction	(57%)

Because of the small numbers of personnel involved, the other service areas covered on Tables 52 - 81 are not included in this discussion. It is possible that these persons would be included in some of the training programs which may be developed.

Only those items which were checked by at least 50% of the respondents in each service area were pointed out above. It is possible that a lower or higher figure would give a better indication of the relative importance attached to the items. If a decision is made to develop programs based on this information, a more thorough analysis may be called for.

The data may be examined relative to the type of agencies where personnel were employed. Again, a response by 50% of the respondents in a category is the figure used to designate significance. The training areas are isolated and the agencies whose personnel felt each training area would be of benefit to them are grouped with the training area. The analysis provides the following information:

AREA OF TRAINING	AGENCY WHO PERSONNEL FELT THIS WOULD BE BENEFICIAL	
Developing and Using Visual Aids	Extension Center	(51%)
Developing Proposals for Funding	Regional Office	(75%)
	Community College	(60%)
Conducting Research Studies	Community College	(60%)
Using Research Findings to Improve Instruction	Bureau	(51%)
Identifying and Working with the Disadvantaged Student	Community College	(80%)
	Public School	(59%)
	Extension Center	(56%)
	Area School	(50%)
	Regional Office	(50%)
	Other Agency	(50%)
Identifying and Working with the Handicapped Student	Regional Office	(50%)
Acquiring a Knowledge of Exemplary and Innovative Programs in Vocational Education	Regional Office	(50%)
Evaluation of an Individual's Progress in Training Programs	Extension Center	(54%)
Evaluation of Teaching Methods	College/University	(58%)
	Other Agency	(56%)
	Extension Center	(53%)
	Bureau	(51%)
Analyzing Program Effectiveness and Efficiency	Regional Office	(60%)
	Community College	(50%)
Planning Vocational Education Programs, Services, and Activities	Regional Office	(75%)
	Bureau	(52%)
	Community College	(50%)
Knowledge of Newly Developed Curriculum Materials in Vocational Education and How to Use Them	Extension Center	(58%)
	Public School	(53%)

AREA OF TRAINING	AGENCY WHOSE PERSONNEL FELT THIS WOULD BE BENEFICIAL	
Knowledge of and Uses for Occupational and Population Information	Community College	(60%)
Developing Joint Programs with Other Vocational Service Areas or Other Educational Agencies	Regional Office	(50%)
Knowledge of Legal Restrictions and Implications	Regional Office	(50%)
Knowledge of Resource Allocation Methods and Techniques	Regional Office	(50%)
Improving Communications, Coordination, and Cooperation Within and Outside Vocational Education	Community College	(60%)
	Bureau	(56%)
	Regional Office	(55%)
	Extension Center	(53%)
Improving Supervision Methodology	Bureau	(56%)
	Regional Office	(55%)
Understanding and Using Modern Change Process Systems and Techniques at All Levels	Bureau	(57%)
	Other Agency	(56%)
	Extension Center	(51%)
	Area School	(50%)
	Regional Office	(50%)
	Community College	(50%)

It is possible to look at the above information in a different arrangement. Each type of agency is isolated and the training areas felt to be of potential benefit to personnel in those agencies are grouped with each agency. Again, a 50% or larger response was used to designate significant interest.

AGENCY WHERE EMPLOYED	AREA OF TRAINING WHICH WAS FELT TO BE OF POTENTIAL BENEFIT	
Public School	Identifying and Working with the Disadvantaged Student	(59%)
	Knowledge of Newly Developed Curriculum Materials in Vocational Education and How to Use Them	(53%)
Area School	Identifying and Working with the Disadvantaged Student	(50%)
	Understanding and Using Modern Change Process Systems and Techniques at all Levels	(50%)
Extension Center	Knowledge of Newly Developed Curriculum Materials in Vocational Education and How to Use Them	(58%)
	Identifying and Working with the Disadvantaged Student	(56%)
	Evaluation of an Individual's Progress in Training Programs	(54%)
	Evaluation of Teaching Methods	(53%)
	Improving Communications, Coordination, and Cooperation Within and Outside Vocational Education	(53%)
	Developing and Using Visual Aids	(51%)
	Understanding and Using Modern Change Process Systems and Techniques at all Levels	(51%)
Regional Office	Developing Proposals for Funding	(75%)
	Planning Vocational Education Programs, Services, and Activities	(75%)
	Analyzing Program Effectiveness and Efficiency	(60%)
	Improving Communications, Coordination, and Cooperation Within and Outside Vocational Education	(55%)
	Improving Supervision Methodology	(55%)
	Identifying and Working with the Disadvantaged Student	(50%)

AGENCY WHERE EMPLOYED	AREA OF TRAINING WHICH WAS FELT TO BE OF POTENTIAL BENEFIT	
Regional Office	Identifying and Working with the Handicapped Student	(50%)
	Acquiring a Knowledge of Exemplary and Innovative Programs in Vocational Education	(50%)
	Developing Joint Programs with Other Vocational Service Areas or Other Educational Agencies	(50%)
	Knowledge of Legal Restrictions and Implications	(50%)
	Knowledge of Resource Allocation Methods and Techniques	(50%)
	Understanding and Using Modern Change Process Systems and Techniques at all Levels	(50%)
Bureau of Vocational Education	Understanding and Using Modern Change Process Systems and Techniques at all Levels	(57%)
	Improving Communications, Coordination, and Cooperation Within and Outside Vocational Education	(56%)
	Improving Supervision Methodology	(56%)
	Planning Vocational Education Programs, Services, and Activities	(52%)
	Using Research Findings to Improve Instruction	(51%)
	Evaluation of Teaching Methods	(51%)
Community College	Identifying and Working with the Disadvantaged Student	(80%)
	Developing Proposals for Funding	(60%)
	Conducting Research Studies	(60%)
	Knowledge of and Uses for Occupational and Population Information	(60%)

AGENCY WHERE EMPLOYED	AREA OF TRAINING WHICH WAS FELT TO BE OF POTENTIAL BENEFIT	
Community College	Improving Communications, Coordination, and Cooperation Within and Outside Vocational Education	(60%)
	Analyzing Program Effectiveness and Efficiency	(50%)
	Planning Vocational Education Programs, Services, and Activities	(50%)
	Understanding and Using Modern Change Process Systems and Techniques at all Levels	(50%)
College/University	Evaluation of Teaching Methods	(58%)
Other Governmental Agency	Evaluation of Teaching Methods	(56%)
	Understanding and Using Modern Change Process Systems and Techniques at all Levels	(56%)
	Identifying and Working with the Disadvantaged Student	(50%)

The analysis of the above grouping shows that 19 of the 30 areas of training were indicated by the personnel of at least one agency as being ones of potential benefit. This analysis points out that the personnel in the various agencies have quite different concerns on the whole. Looking at both the service area and agency data, it is possible that training programs may be set up to serve only personnel of selected agencies or personnel of selected service areas. For some areas, such as Identifying and Working with the Disadvantaged Student, it may be desirable to arrange for across the board professional training programs.

APPENDIX A

COVER LETTER AND INSTRUMENT

UNIVERSITY OF KENTUCKY

LEXINGTON, KENTUCKY 40506

COLLEGE OF EDUCATION
VOCATIONAL EDUCATION
RESEARCH COORDINATING UNIT
152 TAYLOR EDUCATION BLDG

March 30, 1971

Dear Colleague,

We wish to solicit your cooperation in the conduct of a survey research study. Your responses are essential for the effective planning of vocational education. The enclosed questionnaire is a part of a professional personnel survey being conducted in relation to the Education Professions Development Act (EPDA). There is a two-fold need for the resulting information from this study. First, the study will provide valuable information which can be used in the planning and development of a master plan for professional growth of vocational education personnel in Kentucky. Secondly, the study will provide us with an information base which will be an integral part of a management information system for vocational education and will be used in master state plan development for vocational education. This comprehensive planning will have wide-spread implications for future vocational programs, services, and activities. Consequently, your active participation in this professional survey will serve two extremely important functions.

The survey is being conducted during the month of April, 1971, over the entire State of Kentucky. All levels of vocational education will be included - vocational area schools and extension centers, public secondary schools offering vocational education courses, community colleges, and colleges and universities. This information will be handled as confidential and used for planning purposes only.

We realize that you are extremely busy with your professional duties, however, we wish to ask you to take time to complete the enclosed questionnaire. The results of this survey study will make it possible to provide better vocational education programs for your students and provide you with a more meaningful and viable professional growth program. We are also working under a deadline which makes the success of the survey study dependent upon your prompt response to the questionnaire.

Your time and cooperation in this study is greatly appreciated, and we will be looking forward to hearing from you in the near future. Again, thank you for your assistance.

Endorsements:

Wendell P. Butler
Superintendent of Public Instruction

Carl F. Lamar
Assistant Superintendent for
Vocational Education

Sincerely,

Steven J. Cyuro, Director
Professional Personnel Survey Study

STATE AND LOCAL EXPENDITURES PER DOLLAR OF FEDERAL FUNDS

The Vocational Education Act of 1963, as amended, contains matching provisions for the Federal share of expenditures as follows: Part B State Programs - 50 percent; Part A 102(b) - 100 percent; Part C RCU - 75 percent; Grants - 90 percent; Part D - 100 percent; Part F - 50 percent, depressed areas - 90 percent; Part G - 100 percent; and Part H - 80 percent. Actually the States overmatched the Federal dollars, as indicated in the following tables.

For All Programs

1971	1970	1969	1968	1967
$4.92	$5.14	$4.37	$3.65	$2.96

By Purpose - Vocational Education Act of 1963, As Amended

Part B	102(a) Total	$ 5.53	Part A	102(b) Spec. Disadv.	$ 0.46
	Secondary	10.14	Part C	Research	0.75
	Postsecondary	5.63	Part D	Exemplary	0.49
	Adult	5.93	Part F	Consumer & Homemkg.	9.51
	Disadvantaged	1.68	Part G	Cooperative	0.60
	Handicapped	0.79	Part H	Work-Study	0.54
	Construction	4.40			
	Guidance & Counseling	6.28			
	Ancillary Services	1.94			

By States

Ten High States		Ten Low States	
Massachusetts	$11.53	Dist. of Columbia	$1.31
Illinois	9.80	South Dakota	1.58
New York	8.85	Louisiana	1.60
Ohio	7.84	Arkansas	1.72
Maryland	7.77	West Virginia	1.72
Vermont	7.46	Indiana	1.84
Pennsylvania	6.81	Puerto Rico	1.85
Connecticut	6.77	South Carolina	1.94
Wisconsin	6.63	North Dakota	2.14
Delaware	5.52	New Mexico	2.15

VOCATIONAL EDUCATION PROFESSIONAL PERSONNEL INFORMATION SURVEY

Instructions

We wish to emphasize three points about your completing the questionnaire. (1) Answer all questions which apply to you. (2) The questionnaire should be accurate. (3) The questionnaire should be answered and returned as quickly as possible.

The following questions make up the professional personnel information questionnaire. The first five (5) items require some personal information from you. Please print your answers in the blanks provided. From question five (5) through thirty-one (31) you are asked to indicate your answers in blanks provided by placing a check mark (✓) beside the answers which apply, by circling the answer which applies, or by printing replies. Read each item carefully. You will be instructed about how you should indicate your answer.

1. Name _____
   Last First Middle Initial

2. Soc. Sec. No. /_/_/_/-/_/_/-/_/_/_/_/

3. Agency Name _____
   (School, Institution, etc.)

4. Year of Birth /_/_/_/_/

5. Sex /_/ /_/
   Male Female

6. What is the primary position you presently hold? Place a check mark beside the one which applies:
   _____1. Full-time Teacher (in public schools)
   _____2. Full-time Instructor (in voc. school)
   _____3. Part-time Teacher (in public schools)
   _____4. Part-time Instructor (in voc. school)
   _____5. Counselor
   _____6. Coordinator
   _____7. Supervisor (State, Region, Local)
   _____8. Director (State, Region, Local)
   _____9. Principal
   _____10. Faculty (higher education)

7. What is the vocational education field in which you presently work? Place a check mark by the one which applies:
   _____1. Agriculture
   _____2. Business and Office
   _____3. Distributive Education
   _____4. Health Occupations
   _____5. Home Economics
   _____6. Trades and Industry
   _____7. Technical
   _____8. General Adult
   _____9. Public Service
   _____10. Guidance & Counseling
   _____11. Related Subjects
   _____12. Administration & Supervision
   _____13. Teacher Education
   _____14. Research & Development/Evaluation
   _____15. Ancillary

8. In what type of agency are you employed? Place a check mark beside the one which applies:
   _____1. Public School
   _____2. Area School
   _____3. Extension Center
   _____4. Regional Office
   _____5. State Bureau
   _____6. Community College
   _____7. College/University
   _____8. Other Governmental Agency (Specify)
   _____

9. What are the levels of students being served by your primary activities? Place a check mark by all which apply:
   _____1. Elementary
   _____2. Secondary
   _____3. Post Secondary

10. What types of students are being served by your primary activities? Place a check mark by all which apply:
   _____1. Regular
   _____2. Handicapped
   _____3. Disadvantaged

TOTAL EXPENDITURES FOR VOCATIONAL EDUCATION BY OBJECT (EXCLUDES CONSTRUCTION AND WORK-STUDY)
FISCAL YEAR 1971
(IN 000's)

Program	Total	Instructional Salaries	Instructional Equip.	Other Instruc. Costs	Guid. & Counseling	Admin., Super., Eval.	Teacher Educ.	Research & Demo.	Curriculum Dev.
Grand Total	$2,075,881	$1,426,330	$141,401	$251,114	$66,609	$142,813	$26,879	$12,260	$8,475
Part A 102(b) Spec. Disadv.	31,119	19,526	4,752	3,524	1,067	1,615	183	252	200
Part B 102(a) State Programs	1,804,265	1,216,736	130,210	231,604	61,893	133,163	22,204	2,557	5,897
Part C Research	12,174	1,590	199	420	53	1,389	229	7,209	1,085
Part D Exemplary	11,474	4,981	978	1,295	879	584	207	1,946	603
Part F Consumer & Homemkg.	188,883	162,999	2,878	11,189	2,434	4,913	3,659	281	529
Part G Cooperative	27,966	20,497	2,384	3,082	281	1,148	397	16	161

TOTAL VOCATIONAL EDUCATION EXPENDITURES BY LOCATION 1/
FISCAL YEAR 1971
(IN 000's)

Location	Total	Federal	State/ Local	Economically Depressed Areas		
				Total	Federal	State/ Local
Grand Total	$1,863,815	$334,123	$1,529,692	$363,174	$83,011	$280,163
SMSA	997,832	154,240	843,592	149,823	32,583	117,240
Central City	509,989	86,715	423,274	102,755	21,227	81,528
Non-SMSA	865,983	179,883	686,100	213,351	50,428	162,923

1/ No Report-California, New York

11. If you are a state employee, print your current grade and step:
Grade _____ Step _____

If you are an employee of a local school district, check your current rank:
Rank I _____ Rank II _____ Rank III _____ Rank IV _____

If you are an employee of an institution of higher education, check your current rank:
Instructor ___ Assistant Professor ___ Associate Professor ___ Professor ___

12. What is your current State Department of Education certificate type? Place a check mark beside the one which applies:

_____1. Provisional High School
_____2. Standard High School
_____3. One-Year Vocational
_____4. Ten-Year Vocational
_____5. Part-time Special
_____6. Vocational Education Specialist
_____7. Administration, Supervision, and Coordination
_____8. Other (please specify below)
_____
_____9. None

13. During the current year, how many months are you contracted for employment? Place a check mark beside the one which applies:

_____1. One Month
_____2. Two Months
_____3. Three Months
_____4. Four Months
_____5. Five Months
_____6. Six Months
_____7. Seven Months
_____8. Eight Months
_____9. Nine Months
____10. Ten Months
____11. Eleven Months
____12. Twelve Months

14. How many years have you been employed in vocational education in Kentucky?
Please print your answer: _____ years

15. How many years have you been employed in your present position at your current agency? Please print your answer: _____ years

16. What is the highest number of years of general education you have completed? Please circle the number which represents the highest year you have completed: 9 10 11 12 13 14 15 16 17 18 19 20
High School Jr. Col./Col./Univ. Grad. School
If you circled 13 or lower, omit questions 17 through 20.

17. What is the highest degree you hold? Please place a check mark beside the appropriate answer:

_____1. A.A
_____2. B.S. or B.A.
_____3. M.S. or M.A.
_____4. Ed.S. (Specialist)
_____5. Ph.D or Ed.D.
_____6. Other (Please specify below)
_____

18. When did you complete your highest level of college work? Please write in the year: /////

19. Was your college work in professional education in the following areas? Check those which are appropriate:

_____1. Secondary Education
_____2. Vocational Education
_____3. Teacher Education
_____4. Administrative & Supervision
_____5. Guidance & Counseling
_____6. Curriculum
_____ 7. Research/Statistics
_____ 8. Planning/Evaluation
_____ 9. Business Management/Accounting
_____10. Computer Science
_____11. Journalism/Public Relations
_____12. Industrial Arts/Industrial Education

20. How many total semester hours have you completed in professional education? Please print your answer:
_____ Semester hours (1 quarter hour = 2/3 semester hour)

TOTAL EXPENDITURES FOR VOCATIONAL EDUCATION, BY LEVEL AND BY TARGET GROUP, ALL PROGRAMS
FISCAL YEAR 1971
(IN 000's)

	Source of Funds			Target Group			
Level	Total	Federal	State/ Local	Total	Regular	Disadvan-taged	Handi-capped
Grand Total	$2,346,061	$395,093	$1,950,968	$2,346,069	$2,063,959	$219,127	$62,983
Secondary	1,560,889	250,328	1,310,561	1,560,889	1,366,744	147,792	46,353
Postsecondary	566,978	110,046	455,932	566,986	525,908	31,460	9,618
Adult	218,194	33,719	184,475	218,194	171,307	39,875	7,012
Disadvantaged	223,833	92,092	131,741				
Handicapped	64,586	35,021	29,565				

TOTAL VOCATIONAL EDUCATION EXPENDITURES BY TYPE OF POSTSECONDARY INSTITUTION 1/
FISCAL YEAR 1971

	Total	Federal	State/Local
Grand Total	$593,498,440	$112,326,372	$481,172,068
Community Colleges	246,025,453	45,856,516	200,168,937
Technical Institutes	119,510,086	15,332,250	104,177,836
Vocational Technical, Other	227,962,901	51,137,606	176,825,295

1/ No report - California, Puerto Rico

21. Have you completed any technical training related to your current position outside of a degree program? Place a check mark beside the answer which applies: _____1. Yes _____2. No

22. How many months of training have you completed in the area of a related technical training program? Print your answer: _____ months

23. Have you had a minimum of one year's work experience (2,000 hrs.) in an area related to your present assignment? Place a check mark by the answer which applies: _____1. Yes _____2. No

24. When did you terminate your last related work experience position? Please print below: _____ Year

25. What is the total number of years of work experience which you have? Please print your answer below: _____ Years

26. Have you had professional training related to working with the disadvantaged student? Place a check mark by the answer which applies: _____1. Yes _____2. No

27. Have you had professional training related to working with the handicapped student? Place a check mark by the answer which applies: _____1. Yes _____2. No

28. Have you had professional training relative to working in cooperative programs (providing students with meaningful work experience opportunities)? Place a check mark by the answer which applies: _____1. Yes _____2. No

29. Would you be interested in obtaining up-to-date work experience in the field in which you presently serve? Place a check mark beside the answer which applies: _____1. Yes _____2. No

30. Have you had professional training (workshops, institutes, seminars, etc.) within the last two years related to the activities for which you are currently responsible? _____1. Yes _____2. No

31. Place a check mark beside those areas of professional training which you feel would be beneficial to you in carrying out your responsibilities.

____a. Developing and using visual aids

____b. Developing proposals for fundings

____c. Conducting research studies

____d. Using research findings to improve instruction

____e. Organizing and operating cooperative education programs

____f. Identifying and working with the disadvantaged student

____g. Identifying and working with the handicapped student

____h. Organizing and using local advisory committees

____i. Organizing and conducting out-of-school programs for adults

____j. Knowledge of exemplary and innovative programs in vocational education

____k. Evaluation of an individual's progress in training programs

ESTIMATED ENROLLMENT IN VOCATIONAL EDUCATION, BY PROGRAM
FISCAL YEAR 1971

	Total 1/	Secondary	Post-secondary	Adult	Disad-vantaged	Handi-capped
Grand Total, Unduplicated	10,495,411	6,494,641	1,140,943	2,859,827	1,414,437	208,681
Part 102(b)-Disadvantaged	152,778	101,186	35,209	16,383	152,778	-
Part B-State Programs	7,526,960	4,183,837	1,035,295	2,307,828	785,125	169,080
Part F-Consumer & Homemaking	2,932,382	2,316,284	26,707	589,391	460,491	30,702
Depressed Areas	(776,763)	(595,801)	(14,444)	(166,518)	-	-
Part G-Cooperative	70,469	54,711	15,758	-	31,958	7,022
Part H-Work Study	28,726	22,296	6,430	-	25,890	1,362

1/ No report - West Virginia

____l. Evaluation of teaching methods

____m. Analysis of program effectiveness and efficiency

____n. Planning vocational education programs, services, and activities

____o. Knowledge of learning theory (Psychology of learning - how students learn best, etc.)

____p. Preparing and using behavioral objectives and program goals

____q. Planning and carrying out classroom activities

____r. Knowledge and use of newly developed curriculum materials for vocational education

____s. Knowledge and use of occupational and population information

____t. Developing curriculum materials

____u. Developing a course of study

____v. Developing joint programs with other vocational service areas or other educational agencies

____w. Guiding and helping students arrange for individual experience programs related to classroom instruction

____x. Knowledge of legal restrictions and implications

____y. Knowledge of resource allocation methods and procedures

____z. Understanding and use of modern management tools and techniques for all levels

___aa. Improvement of communications, coordination, and cooperation within and without vocational education

___bb. Understanding and employment of public relations practices

___cc. Improved supervision methodology

___dd. Understanding and use of modern change process systems and techniques for all areas (How do we get people to change)

ESTIMATED ENROLLMENT BY RACIAL/ETHNIC GROUP 1/
FISCAL YEAR 1971

	Total	American Indian	Negro	Oriental	Spanish Surnamed American	Other
Grand Total	9,943,297	47,485	1,849,570	69,879	636,777	7,339,586
Regular	8,381,872	25,784	1,395,081	61,116	474,416	6,425,475
Disadvantaged	1,360,301	19,811	412,155	7,236	148,691	772,408
Handicapped	201,124	1,890	42,334	1,527	13,670	141,703
Secondary	6,135,959	32,224	1,339,851	41,218	389,566	4,333,100
Postsecondary	1,108,709	5,336	145,935	13,147	94,265	850,026
Adult	2,698,629	9,925	363,784	15,514	152,946	2,156,460

1/ No report - Connecticut, Minnesota, West Virginia

5423

VT 016 421
VOCATIONAL EDUCATION. SUMMARY DATA. FISCAL YEAR 1971.

BUREAU OF ADULT, VOCATIONAL, AND TECHNICAL EDUCATION (DHEW/OE), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
VOC-EDU-INF-I
PUB DATE - JUN72 21P.

DESCRIPTORS - *PROGRAM ADMINISTRATION; *VOCATIONAL EDUCATION; *ANNUAL REPORTS; *TABLES (DATA); STATISTICAL DATA; *STATE PROGRAMS

ABSTRACT - THIS REPORT CONTAINS A SERIES OF TABLES WHICH SUMMARIZE THE ANNUAL REPORTS SUBMITTED BY THE STATES IN THE ADMINISTRATION OF VOCATIONAL EDUCATION INFORMATION FOR FISCAL YEAR 1971. DATA PRESENTED INCLUDE STATISTICS RELATING TO EXPENDITURES, ENROLLMENTS, PROGRAM COMPLETIONS, TEACHERS, AND TEACHER TRAINING. EXPENDITURE DATA ARE CONSIDERED PROVISIONAL. HIGHLIGHTS OF INFORMATION REVEALED IN THE TABLES ARE LISTED. (AG)

VT 016 421

PERCENTAGE DISTRIBUTION OF VOCATIONAL EDUCATION ENROLLMENT
BY GEOGRAPHIC LOCATION
FISCAL YEAR 1971

	Total	Secondary	Post-secondary	Adult
Regular-TOTAL	100.0	100.0	100.0	100.0
SMSA	60.2	58.0	66.2	62.7
Central City-As Percent of Total	(25.0)	(22.9)	(24.0)	(30.0)
-As Percent of SMSA	(41.6)	(39.5)	(36.2)	(47.8)
Non-SMSA	39.8	42.0	33.8	37.3
Disadvantaged-Total	100.0	100.0	100.0	100.0
SMSA	66.8	65.3	72.0	70.0
Central City-As Percent of Total	(33.5)	(31.2)	(36.0)	(41.4)
-As Percent of SMSA	(50.2)	(47.8)	(49.9)	(59.5)
Non-SMSA	33.2	34.7	28.0	30.0
Handicapped-TOTAL	100.0	100.0	100.0	100.0
SMSA	63.2	58.6	79.8	42.3
Central City-As Percent of Total	(23.6)	(26.0)	(18.3)	(23.6)
-As Percent of SMSA	(37.3)	(44.4)	(22.9)	(55.7)
Non-SMSA	36.8	41.4	20.2	57.7

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EDUCATION & WELFARE
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JUL 30 1972

Vocational Education Information No. I

SUMMARY DATA

VOCATIONAL EDUCATION

FISCAL YEAR 1971

VT016421

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Office of Education
Bureau of Adult, Vocational, and Technical Education
Washington, D.C. 20202

ENROLLMENT IN VOCATIONAL EDUCATION BY OE INSTRUCTIONAL PROGRAM
FISCAL YEAR 1971

OE Instructional Code and Title		Total	Female	Male	Secondary	Post-secondary	Adult
01.	Agriculture*	845,085	34,925	810,160	562,141	28,418	254,526
01.0100	Agri. Production	557,633	15,924	541,709	339,509	8,295	209,829
01.0200	Agri. Supplies/Services	20,583	766	19,817	16,258	2,549	1,776
01.0300	Agri. Mechanics	120,745	1,182	119,563	93,005	3,859	23,881
01.0400	Agri. Products	9,235	530	8,705	7,417	570	1,248
01.0500	Ornamental Horticulture	48,267	11,415	36,852	32,772	4,933	10,562
01.0600	Agri. Resources	20,000	1,578	18,422	14,505	2,868	2,627
01.0700	Forestry	16,675	379	16,296	12,677	3,311	687
01.9900	Other	53,289	3,201	50,088	47,287	2,037	3,965
04.	Distribution*	578,075	258,342	319,733	241,119	85,859	251,097
04.0100	Advertising Services	26,748	11,583	15,165	8,615	3,858	14,275
04.0200	Apparel & Accessories	20,569	12,701	7,868	14,188	2,154	4,227
04.0300	Automotive	7,231	800	6,431	5,556	919	756
04.0400	Finance & Credit	23,543	10,160	13,383	3,078	2,800	17,665
04.0500	Floristry	3,708	2,768	940	1,335	165	2,208
04.0600	Food Distribution	25,101	8,964	16,137	15,329	3,309	6,463
04.0700	Food Services	28,168	18,286	9,882	11,989	1,395	14,784
04.0800	General Merchandise	199,728	97,192	102,536	113,063	28,086	58,579
04.0900	Hdwe., Bldg. Mtls., etc.	5,540	1,258	4,282	3,566	334	1,640
04.1000	Home Furnishings	4,734	3,179	1,555	2,097	102	2,535
04.1100	Hotel & Lodging	13,098	6,078	7,020	1,387	3,456	8,255
04.1200	Industrial Marketing	8,141	2,464	5,677	1,744	4,461	1,936

* Unduplicated Total

FOREWORD

This report contains summary data compiled by Harold F. Duis, Reports and Data Section, from fiscal year 1971 annual reports submitted by the States in the administration of vocational education information for FY 1971. The data presented include statistics relating to expenditures, enrollments, program completions, teachers, and teacher training. Expenditure data are subject to audit and are to be considered provisional. The following highlights illustrate the kinds of information revealed in the series of tables:

- A total of 10,495,411 persons were enrolled, which was an increase of 19.4 percent over the 8,793,960 enrolled in FY 1970.
- A total of 1,414,437 disadvantaged persons and 208,681 handicapped persons were enrolled and received special services in order to succeed in vocational education.
- Secondary enrollment increased by more than 1-1/3 million students to 6,494,641 and postsecondary enrollment increased by 127,517 students to 1,140,943.
- Enrollment in cooperative programs under Part G showed a three-fold increase over FY 1970 to 70,469, and work-study participants about doubled to 28,726. In addition, over 300,000 students enrolled in cooperative programs under Part B.
- A total of 211,550 individual teachers and 5,674 teacher aides were employed.
- A total of 52,753 persons were enrolled in preservice teacher training and 80,746 teachers received inservice training.
- Over 2.3 billion dollars from Federal, State and local sources were expended for vocational education during the fiscal year.
- For each dollar of Federal funds expended, the States expended $4.92, with a range among the States of $11.53 to $1.31.
- Of the $65 million of FY 1970 Federal allotments carried forward, all but $1.3 million was expended in FY 1971. About $80 million of the FY 1971 allotments was carried forward for expenditure in FY 1972.
- Of the total Federal expenditure of Part B funds, 22.8 percent was for postsecondary programs, 16.3 percent for programs for disadvantaged, and 10.7 percent for programs for handicapped persons.
- Of the total program completions reported, 53.9 percent were available for employment, and of those 89.6 percent were employed.

MICHAEL RUSSO
Acting Director
Division of Vocational
and Technical Education

ROBERT M. WORTHINGTON
Associate Commissioner
Bureau of Adult, Vocational,
and Technical Education

June 1972

Enrollment by OE Instructional Program (Cont'd)

OE Instructional Code and Title		Total	Female	Male	Secondary	Post-secondary	Adult
04.1300	Insurance	14,226	3,615	10,611	1,045	1,093	12,088
04.1400	International Trade	1,549	551	998	341	34	1,174
04.1500	Personal Services	13,461	7,061	6,400	4,670	892	7,899
04.1600	Petroleum	5,087	382	4,705	2,996	107	1,984
04.1700	Real Estate	73,018	25,924	47,094	585	16,219	56,214
04.1800	Recreation & Tourism	10,431	4,435	5,996	1,766	1,855	6,810
04.1900	Transportation	12,794	4,491	8,303	2,107	5,126	5,561
04.9900	Other	81,762	36,623	45,139	45,802	9,524	26,436
07.	Health*	269,546	236,412	33,134	43,300	137,943	88,303
07.0101	Dental Assistant	12,189	11,539	650	3,142	7,371	1,676
07.0102	Dental Hygienists (Asso.)	3,828	3,728	100	483	3,174	171
07.0103	Dental Lab. Technician	2,581	892	1,689	241	1,893	447
07.0203	Medical Lab. Assisting	5,650	4,690	960	1,024	3,532	1,094
07.0299	Other Med. Lab. Technol.	7,798	6,379	1,419	414	4,523	2,861
07.0301	Nurse, Associate Degree	47,090	44,534	2,556	615	39,099	7,376
07.0302	Practical (Voc.) Nurse	73,372	70,993	2,379	8,163	51,669	13,540
07.0303	Nurses' Assistants (Aide)	54,868	48,680	6,188	14,067	6,315	34,486
07.0401	Occupational Therapy	686	488	198	93	467	126
07.0402	Physical Therapy	1,200	788	412	126	773	301
07.0501	Radiologic Technology	4,868	3,155	1,713	155	3,402	1,311
07.0700	Environmental Health	2,998	651	2,347	27	257	2,714
07.0800	Mental Health Technology	2,380	1,600	780	53	1,865	462
07.0903	Inhalation Therapy Tech.	3,767	2,014	1,753	132	2,455	1,180
07.0904	Medical Assistant	7,549	7,015	534	1,497	3,794	2,258
07.0906	Health Aide	2,282	1,976	306	1,676	135	471
07.9900	Other	38,112	28,940	9,172	11,456	8,852	17,804

* Unduplicated Total

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Enrollment by OE Instructional Program (Cont'd)

OE Instructional Code and Title		Total	Female	Male	Secondary	Post-secondary	Adult
09.0100	Consumer & Homemaking*	2,932,382	2,734,879	197,503	2,316,284	26,707	589,391
09.0102	Child Development	134,601	129,098	5,503	85,071	2,879	46,651
09.0103	Clothing & Textiles	296,471	293,173	3,298	119,211	3,485	173,775
09.0104	Consumer Education	88,743	73,935	14,808	54,929	2,392	31,422
09.0106	Family Relations	169,526	131,539	37,987	142,837	3,072	23,617
09.0107	Food & Nutrition	169,523	148,122	21,401	118,900	1,512	49,111
09.0108	Home Management	36,100	33,565	2,535	20,423	440	15,237
09.0109	Housing & Home Furn.	74,594	67,854	6,740	32,191	946	41,457
09.0199	Other	1,933,625	1,827,598	106,027	1,713,085	12,097	208,443
09.0200	Home Economics (Gainful)*	197,422	168,838	28,584	99,923	26,085	71,414
09.0201	Care & Guid. of Children	49,338	46,364	2,974	24,098	13,431	11,809
09.0202	Clothing Mgt., Prod., Serv.	39,426	38,077	1,349	15,348	4,819	19,259
09.0203	Food Mgt., Prod., & Serv.	67,077	49,974	17,103	36,629	3,919	26,529
09.0204	Home Furn., Equip., Serv.	11,433	9,951	1,482	3,353	1,866	6,214
09.0205	Inst. & Home Mgt., & Sup.	6,701	5,912	789	4,092	425	2,184
09.0299	Other	23,617	18,711	4,906	16,466	1,658	5,493
14.	Office Occupations*	2,226,854	1,681,716	545,138	1,395,909	335,198	495,747
14.0100	Accounting & Computing	329,281	195,141	134,140	196,082	63,389	69,810
14.0200	Bus. Data Process. Sys.	181,313	86,583	94,730	55,522	70,160	55,631
14.0300	Filing, Office Machines	364,274	296,652	67,622	275,299	36,082	52,901
14.0400	Info., Communic. Occup.	26,788	18,546	8,242	12,275	5,273	9,240
14.0500	Mtls. Support, Trans., etc.	11,860	5,131	6,729	7,096	368	4,396

* Unduplicated Total

ENROLLMENT IN VOCATIONAL EDUCATION, BY PROGRAM AND BY LEVEL
FISCAL YEAR 1971

Program	Total	Secondary		Post-secondary	Adult		
		Below Grade 9	Grades 9 - 12		Preparatory	Supplemental	Apprenticeship
Grand Total (Unduplicated)	10,495,411	1,383,368	5,111,273	1,140,943	584,624	2,091,533	183,670
Agriculture	845,085	32,626	529,515	28,418	7,960	243,021	3,545
(Off-Farm)	(287,452)	(18,271)	(204,361)	(20,123)	(5,196)	(39,363)	(138)
Distribution	578,075	1,686	239,433	85,859	53,975	197,068	54
Health	269,546	942	42,358	137,943	33,087	55,177	39
Home Ec. (Gainful)	197,422	6,185	93,738	26,085	26,448	44,794	172
Office	2,226,854	5,817	1,390,092	335,198	222,317	273,020	410
Technical	313,860	192	35,971	177,718	24,455	73,561	1,963
Trades & Industry	2,075,166	18,647	790,493	309,812	151,595	627,634	176,985
Special Programs (Unduplicated)	1,087,270	806,799	195,597	20,572	14,130	49,342	830
Prevocational	859,931	797,092	58,974	2,876	132	857	-
Prepostsecondary	3,354	-	2,157	1,112	59	26	-
Remedial	57,554	3,850	35,848	9,047	6,819	1,990	-
Other N.E.C.	178,747	5,857	107,382	9,929	7,120	47,629	830
Consumer & Homemkg.	2,932,382	510,867	1,805,417	26,707	57,486	531,905	-

Enrollment by OE Instructional Program (Cont'd)

OE Instructional Code and Title		Total	Female	Male	Secondary	Post-secondary	Adult
14.0600	Personnel, Trg., & Related	11,924	8,150	3,774	2,385	3,799	5,740
14.0700	Steno., Secy., & Related	533,221	503,656	29,565	331,824	82,846	118,551
14.0800	Supervisory & Admin. Mgt.	70,050	20,936	49,114	8,411	40,849	20,790
14.0900	Typing & Related	612,770	482,968	129,802	446,930	20,474	145,366
14.9900	Other	88,212	66,081	22,131	62,247	12,191	13,774
16.	Technical*	313,860	24,210	289,650	36,163	177,718	99,979
16.0101	Aeronautical Technology	6,095	347	5,748	1,474	2,721	1,900
16.0103	Architectural Technology	14,716	741	13,975	2,870	9,710	2,136
16.0104	Automotive Technology	5,021	24	4,997	288	3,913	820
16.0105	Chemical Technology	6,393	984	5,409	1,968	2,578	8,075
16.0106	Civil Technology	19,216	537	18,679	1,282	9,859	3,147
16.0107	Electrical Technology	19,355	558	18,797	2,922	9,557	6,876
16.0108	Electronics Technology	67,335	1,534	65,801	10,350	39,832	17,153
16.0109	Electromechanical Technol.	4,829	87	4,742	1,114	1,673	2,042
16.0110	Environ. Control Technol.	2,956	85	2,871	155	1,333	1,468
16.0111	Industrial Technology	9,457	311	9,146	329	5,208	3,920
16.0112	Instrumentation Technol.	4,089	141	3,948	340	1,307	2,442
16.0113	Mechanical Technology	25,249	488	24,761	1,523	15,575	8,151
16.0114	Metallurgical Technology	2,779	49	2,730	279	1,414	1,086
16.0117	Scientific Data Technology	15,949	5,512	10,437	2,991	7,282	5,676
16.0601	Commercial Pilot Training	7,381	528	6,853	123	5,975	1,254
16.0602	Fire & Safety Technology	8,377	88	8,289	1	4,126	4,152
16.0603	Forestry Technology	2,298	26	2,272	286	1,076	921
16.0604	Oceanographic Technology	1,664	152	1,512	114	1,433	109
16.0605	Police Science Technology	36,099	2,182	33,917	41	26,367	9,501
16.9901	Air Pollution Technology	356	110	246	98	158	100
16.9902	Water & Waste Water Technol.	802	10	792	63	176	563
16.9900	Other	53,482	9,714	43,768	7,421	26,111	19,950

* Unduplicated Total

VOCATIONAL EDUCATION ENROLLMENTS BY TARGET GROUP AND COOPERATIVE PROGRAM
FISCAL YEAR 1971

Program	Total	Disadvantaged	Handicapped	Cooperative	
				Part B	Part G
Grand Total (Unduplicated)	10,495,411	1,414,437	208,781	309,371	70,469
Agriculture	845,085	94,138	14,993	14,648	4,151
(Off-Farm)	(287,452)	(40,341)	(5,883)	(9,929)	(2,101)
Distribution	578,075	61,877	8,508	122,105	21,190
Health	269,546	39,953	4,596	12,535	2,986
Home Economics (Gainful)	197,422	43,706	7,998	9,106	2,520
Office	2,226,854	287,231	24,725	64,014	22,595
Technical	313,860	23,511	3,386	2,876	2,319
Trades and Industry	2,075,166	265,894	74,547	64,380	14,037
Special Programs (Undupl.)	1,087,270	124,588	34,515	10,672	9,488
Prevocational	859,931	42,530	14,835	118	-
Prepostsecondary	3,354	352	7	-	-
Remedial	57,554	40,143	14,272	48	-
Other N.E.C.	178,747	50,103	9,177	10,508	9,488
Consumer & Homemaking	2,932,382	482,812	35,833	3,028	1,061

Enrollment by OE Instructional Program (Cont'd)

OE Instructional Code and Title		Total	Female	Male	Secondary	Post-secondary	Adult
17.	Trade & Industrial*	2,075,166	226,997	1,848,169	809,140	309,812	956,214
17.0100	Air Conditioning	52,575	1,618	50,957	16,537	10,749	25,272
17.0200	Appliance Repair	9,474	213	9,261	4,668	1,804	3,182
17.0301	Body & Fender, Auto	39,703	269	39,434	22,894	9,109	7,700
17.0302	Mechanics, Auto	176,203	1,964	174,239	106,173	27,932	42,098
17.0399	Other Automotive	52,215	1,055	51,160	24,953	3,793	23,469
17.0400	Aviation Occup.	33,804	1,254	32,550	8,603	13,587	11,614
17.0500	Blueprint Reading	13,694	634	13,060	1,141	497	12,056
17.0600	Business Machine Maint.	2,854	85	2,769	932	1,283	639
17.0700	Commercial Art Occup.	23,983	10,674	13,309	8,796	8,381	6,806
17.0800	Commercial Fishery Occup.	3,885	1,330	2,555	236	589	3,060
17.0900	Commercial Photog. Occup.	13,570	3,808	9,762	2,330	6,561	4,679
17.1001	Carpentry	79,988	936	79,052	37,857	9,421	32,592
17.1002	Electricity	53,120	349	52,771	16,447	5,092	31,404
17.1004	Masonry	26,682	132	26,550	14,684	2,262	9,731
17.1007	Plumbing & Pipefitting	35,420	167	35,253	5,101	1,832	29,487
17.1099	Other Constr. & Maint.	70,813	892	69,921	29,854	4,320	36,639
17.1100	Custodial Services	16,292	2,019	14,273	4,670	815	10,807
17.1200	Diesel Mechanic	9,568	14	9,554	2,159	4,989	2,420
17.1300	Drafting Occup.	134,790	6,840	127,950	83,474	29,989	21,327
17.1400	Electrical Occup.	57,865	478	57,387	16,757	5,352	35,756
17.1500	Electronic Occup.	95,118	5,199	89,919	41,752	17,583	35,783
17.1600	Fabric Maint. Services	3,859	1,174	2,685	1,637	482	1,740
17.1700	Foremanship, Super., & Mgt. Devel.	88,914	18,269	70,645	2,743	12,116	74,055
17.1900	Graphic Arts Occup.	68,343	7,148	61,195	47,685	8,079	12,579
17.2000	Industrial Atomic Energy	492	60	432	281	28	183
17.2100	Instr. Maint. & Repair	2,616	93	2,523	320	956	1,340

* Unduplicated Total

NUMBER OF TEACHERS IN VOCATIONAL EDUCATION PROGRAMS
FISCAL YEAR 1971

Vocational Programs	Total (Unduplicated)	Secondary		Postsecondary		Adult		Teacher Aides
		Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	
Total (Unduplicated)	211,550	89,946	28,973	27,640	21,234	4,808	58,775	5,674
Occupational Programs:								
Agriculture	12,910	8,653	1,729	808	357	614	4,686	96
Distribution	11,974	4,590	1,433	1,012	1,608	240	3,960	78
Health	12,613	1,642	504	6,024	2,429	455	2,032	151
Homemaking	32,735	21,688	5,415	171	393	551	8,276	210
Home Economics (Gainful)	5,370	1,698	1,260	463	556	156	1,802	123
Office	49,363	23,716	8,850	5,225	4,682	930	8,802	3,345
Technical	14,750	1,023	218	6,261	4,801	163	3,206	183
Trades and Industry	59,065	19,584	5,095	7,189	6,721	1,675	22,056	513
Other	6,540	1,664	851	549	360	68	2,436	86
Special Programs:								
Exemplary	1,890	951	827	36	45	7	23	14
Prevocational	7,929	4,941	2,854	145	113	13	109	81
Prepostsecondary	295	273	22	-	-	-	-	-
Remedial	1,959	665	584	349	201	22	120	109
Cooperative, Part G	2,803	1,609	860	213	415	-	-	47
Disadvantaged	11,933	6,299	4,323	1,256	3,789	385	2,351	598
Handicapped	3,609	2,145	1,423	284	342	99	301	353

Enrollment by OE Instructional Program (Cont'd)

OE Instructional Code and Title		Total	Female	Male	Secondary	Post-secondary	Adult
17.2200	Maritime Occup.	4,693	106	4,587	518	382	3,829
17.2300	Metalworking Occup.	274,744	2,686	272,058	97,154	40,904	136,686
17.2400	Metallurgy Occup.	3,367	29	3,338	955	678	1,734
17.2601	Barbering	4,031	593	3,438	871	1,584	1,576
17.2602	Cosmetology	45,045	42,373	2,672	27,997	10,083	6,965
17.2699	Other Personal Services	15,985	10,940	5,045	8,894	198	6,893
17.2700	Plastics Occup.	4,313	289	4,024	2,000	247	2,066
17.2801	Fireman Training	128,822	4,811	123,711	170	7,970	120,382
17.2802	Law Enforcement Trg.	65,021	4,624	60,397	1,375	26,567	37,079
17.2899	Other Public Services	49,733	13,689	36,044	949	4,672	44,112
17.2900	Quantity Food Occup.	37,253	14,325	22,928	18,510	6,648	12,095
17.3000	Refrigeration	10,036	22	10,014	1,346	1,751	6,939
17.3100	Small Engine Repair	19,182	137	19,045	9,401	1,473	8,308
17.3200	Sta. Energy Sources Occup.	7,863	88	7,775	535	400	6,928
17.3300	Textile Prod. & Fab.	43,753	36,002	7,751	13,217	5,435	25,101
17.3400	Leather Working	2,268	387	1,881	1,123	340	805
17.3500	Upholstering	11,630	4,196	7,434	2,616	1,489	7,525
17.3600	Woodworking Occup.	53,593	2,216	51,377	38,506	2,327	12,760
17.9900	Other	128,606	22,845	105,761	78,292	9,845	40,469
99.	Special Programs*	1,087,270	491,574	595,696	1,002,396	20,572	64,302
99.0100	Group Guid. (Prevoc.)	859,931	409,338	450,593	856,066	2,876	989
99.0200	Prepostsecondary	3,354	1,861	1,493	2,157	1,112	85
99.0300	Remedial	57,554	24,419	33,135	39,698	9,047	8,809
99.0400	Other N.E.C.	178,747	60,010	118,737	117,309	9,929	55,579

* Unduplicated Total

NUMBER OF ENROLLEES AND COMPLETIONS OF VOCATIONAL EDUCATION TEACHER TRAINING PROGRAMS
FISCAL YEAR 1971

Vocational Program	Number of Enrollees		Number Completing Requirements	
	Preservice	Inservice	Preservice	Inservice
Total (Unduplicated)	52,753	80,746	17,708	31,469
Occupational Programs:				
Agriculture	5,869	7,284	1,644	2,126
Distribution	2,925	4,210	1,048	1,881
Health	478	3,467	272	2,005
Homemaking	20,448	12,825	7,248	5,753
Home Economics (Gainful)	806	1,360	271	1,024
Office	11,393	10,511	3,262	3,457
Technical	1,004	3,219	321	2,021
Trades and Industry	9,525	20,792	2,247	10,410
Other	773	12,960	536	151
Special Programs:				
Exemplary	-	315	-	223
Prevocational	942	1,123	514	718
Prepostsecondary	10	25	-	7
Remedial	9	327	29	299
Cooperative, Part G	170	827	63	310
Disadvantaged	1,500	3,315	119	1,355
Handicapped	83	1,014	84	499

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FOLLOW-UP OF PROGRAM COMPLETIONS IN PREPARATORY VOCATIONAL EDUCATION PROGRAMS [1]
FISCAL YEAR 1971

	Total, All Programs [2]		Secondary		Postsecondary		Adult (Preparatory)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Completed Program Requirements [3]	1,133,961	100.0	764,960	100.0	223,100	100.0	145,901	100.0
Available for placement	611,274	53.9	384,440	50.3	142,526	63.9	84,308	57.8
Not available for placement	323,432	28.5	262,231	34.3	32,782	14.7	28,419	19.5
Status unknown	199,255	17.6	118,289	15.4	47,792	21.4	33,174	22.7
Not Available for Placement	323,432	100.0	262,231	100.0	32,782	100.0	28,419	100.0
Continued full-time school	221,545	68.5	195,913	74.7	17,183	52.4	8,449	29.7
Other reasons	101,887	31.5	66,318	25.3	15,599	47.6	19,970	70.3
Available for Placement	611,274	100.0	384,440	100.0	142,526	100.0	84,308	100.0
Employed in field trained or related	439,695	71.9	259,132	67.4	113,662	79.7	66,901	79.4
Other employment	108,150	17.7	78,707	20.5	18,213	12.8	11,230	13.3
Unemployed	63,429	10.4	46,601	12.1	10,651	7.5	6,177	7.3

1/ Status of persons in November 1971.
2/ No reports from California, Hawaii, New York, American Samoa, and Puerto Rico.
3/ Includes 90,555 persons who terminated their training in a program prior to normal completion time and were employed in field for which trained.

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GSA DC 72-14780

VOCATIONAL EDUCATION EXPENDITURES, BY SOURCE OF FUNDS, BASIC ALLOTMENTS, AND UNOBLIGATED FUNDS
FISCAL YEAR 1971

Voc. Edu. Act of 1963, As Amended	Basic FY 1971 Allotments	Total Expenditures	Federal 1/ Expenditures	State/Local Expenditures	Unobligated Allotments Carried Forward
Grand Total	$412,451,059	$2,347,353,175	$396,378,405	$1,950,974,770	$80,092,078
Part A-102(b) Special Disadvantaged	19,997,026	31,203,556	21,446,628	9,756,928	7,567,830
Part B-102(a) State Programs Total	321,699,853	2,066,439,031	317,083,369	1,749,355,662	46,780,247
Secondary		980,904,172	88,362,942	892,541,230	
Postsecondary		477,724,595	72,107,104	405,617,491	
Adult		110,544,879	15,983,122	94,561,757	
Disadvantaged		138,702,625	51,819,442	86,883,183	
Handicapped		60,654,027	33,871,902	26,782,125	
Construction (400 Projects)		277,969,774	51,477,906	226,491,868	
Guidance & Counseling		(53,408,871)	(7,333,812)	(46,075,059)	
Contracted Instruction		(7,462,990)	(1,488,325)	(5,974,665)	
Ancillary Services		(117,711,714)	(40,072,020)	(77,639,694)	
Part C-Research	17,872,215	12,170,832	8,893,321	3,277,511	9,478,098
RCU		3,737,553	2,003,050	1,734,503	
Grants		8,433,279	6,890,271	1,543,008	
Part D-Exemplary (State)	7,822,821	11,519,378	7,651,420	3,867,958	3,195,785
Part F-Consumer & Homemaking Total	21,246,841	189,502,456	18,071,041	171,431,415	4,758,436
Depressed Areas		(63,848,164)	(9,133,663)	(54,714,501)	
Part G-Cooperative Total	18,245,774	28,025,961	17,585,628	10,440,333	6,843,447
Employer Reimbursement		(976,555)	(923,081)	(53,474)	
Part H-Work-Study Total	5,499,281	9,042,766	5,783,711	3,259,055	1,468,235
Student Compensation		8,836,729	5,675,064	3,161,665	
Administration		206,037	108,647	97,390	

1/ Includes FY 1970 carryover funds

VT 016 484
CRESSMAN, RUTH E.
SURVEY OF MARKETING STUDENTS. FINAL REPORT.

MILWAUKEE AREA TECHNICAL COLL., WIS.
WISCONSIN STATE BOARD OF VOCATIONAL, TECHNICAL, AND ADULT EDUCATION, MADISON.;OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - JUN72 82P.

DESCRIPTORS - *MARKETING; *SURVEYS; *STUDENT OPINION; *CAREER CHOICE; *DECISION MAKING; BACKGROUND; GRADUATE SURVEYS; TABLES (DATA); FOLLOWUP STUDIES; PROGRAM EVALUATION; POST SECONDARY EDUCATION

ABSTRACT - A QUESTIONNAIRE AND INTERVIEW SURVEY WAS MADE OF MARKETING STUDENTS IN AN AREA TECHNICAL COLLEGE FOR THE PURPOSE OF ASCERTAINING WHAT DIFFERENCES IN BACKGROUNDS MIGHT HAVE CONTRIBUTED TO THEIR SELECTING MARKETING AS A CAREER. THE SURVEY ALSO SOUGHT INFORMATION WHICH MIGHT HAVE CONTRIBUTED TO STUDENT SUCCESS OR LACK OF SUCCESS IN THE MARKETING PROGRAM. AMONG THE FINDINGS WERE: (1) HIGHER PROPORTIONS OF GRADUATES THAN NONGRADUATES HAD ENTERED THE MARKETING FIELD, WERE CURRENTLY EMPLOYED, HELD JOBS BEYOND ENTRY LEVEL, ATTENDED OR PLANNED TO ATTEND SCHOOL AFTER LEARNING THE AREA TECHNICAL COLLEGE, AND HAD CHOSEN THEIR MARKETING PROGRAM BECAUSE OF THEIR CAREER OBJECTIVE, (2) A HIGHER PROPORTION OF NONGRADUATES THAN GRADUATES HAD ATTENDED OTHER POST-SECONDARY SCHOOLS PREVIOUSLY, WERE INFLUENCED IN THEIR CHOICE OF PROGRAM BY JOBS THEY HELD OR BY FRIENDS IN THE FIELD, AND WERE INFLUENCED IN THEIR CHOICE OF SCHOOL BY THE LOW COST, AND (3) GRADUATES WHO HAD ENTERED THE FIELD REPORTED SALARIES RESULTING IN THE HIGHEST MEDIAN SALARY. (JS)

VT 016 484

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FINAL REPORT
Project No. 09-007-151-222

SURVEY OF MARKETING STUDENTS

June, 1972

MILWAUKEE AREA TECHNICAL COLLEGE
Milwaukee, Wisconsin

VT016484

Final Report

Project No. 09-007-151-222

SURVEY OF MARKETING STUDENTS

RUTH E. CRESSMAN

MILWAUKEE AREA TECHNICAL COLLEGE

MILWAUKEE, WISCONSIN

JUNE, 1972

The research reported herein was performed pursuant to a grant or contract with the Wisconsin Board of Vocational, Technical and Adult Education, partially reimbursed from an allocation of Federal funds from the U. S. Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official State Board or U. S. Office of Education position or policy.

PREFACE

The author acknowledges with thanks the help and encouragement of the Research Committee of Milwaukee Area Technical College, particularly Dr. George A. Parkinson, Mr. Alfon Mathison, Dr. Merrel Stockey, and Dr. Marvin Ketterling. Also to Miss Betty Havens, formerly of that committee, go grateful thanks.

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To all the respondents, and especially to those interviewed, for their generosity of time and their sincerity, grateful acknowledgment is extended.

Ruth E. Cressman

June, 1972

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SUMMARY

The survey was conducted to ascertain what differences in backgrounds might have contributed to differing progress in students' completion and/or entering the field of training after having enrolled in a marketing program at Milwaukee Area Technical College.

Questionnaires were mailed to the 556 students enrolled in marketing programs at the school from Fall Semester, 1967 through Spring Semester, 1971. One hundred and eighty respondents were divided into four groups, those who:

graduated and entered the field of marketing;

graduated but did not enter the field of marketing;

did not graduate but entered the field of marketing;

did not graduate, and did not enter the field of marketing.

A stratified random sample was selected from the groups. The forty respondents in the sample were interviewed regarding their previous vocational and educational experience, impressions of the marketing programs, and future directions.

Data from the interviews was tabulated and the groups were compared.

28.9% of respondents had graduated; the 71.1% who had not graduated included 31.1% who had attended during Spring Semester, 1971 and said they plan to graduate, and an additional 12.1% who had last attended prior to Spring Semester, 1971 but said they still plan to graduate.

Higher proportions of graduates than nongraduates had entered the field; were currently employed; held jobs beyond entry level; attended or planned to attend school after leaving Milwaukee Area Technical College; were employed--and in the field--at the time they last attended the school; had chosen their marketing programs because of their career goal; wish they had taken more courses in math.

A higher proportion of nongraduates than graduates had attended other post-secondary school previously; were influenced in their choice of program by jobs they held or had held and/or by friends in the field; were influenced in their choice of school by the low cost; plan to change their field or are undecided about the field.

A higher proportion of respondents who had entered the field--as opposed to those who had not--planned to complete the program; had attended other schools previously; were employed at the time they last attended the school; had enrolled in other programs at Milwaukee Area Technical College previously; were Marketing Administration or Retail Administration majors; plan to remain in the field.

A higher percentage of those who had not entered the field were influenced in their choice of school by the low cost of attending the school.

Other data relating to choice of career, choice of school, choice of program, opinions of the marketing programs, and future directions showed no marked differences between the groups of interviewees.

Graduates who had entered the field reported salaries resulting in the highest median salary; nongraduates who had entered the field showed the next highest median salary.

The following recommendations were made as a result of the findings:

1. Further research, using a larger sample, and with a control for continuing students, making possible more sophisticated statistical treatment, might elicit more specific differences between the groups.
2. Research and analysis of differences between the groups in motivation, attitude, and other personality characteristics in

addition to the objective data might contribute to more effective guidance both during high school and after.

3. Continuing and continuous efforts should be made to inform potential students of the opportunities in marketing, as well as the effectiveness of the programs in marketing available at Milwaukee Area Technical College.

4. Curriculums should be reviewed and consideration given to:

   additional, shorter term, programs in marketing;

   additional courses in math;

   strengthening existing internship courses;

   adding an internship course to the Transportation and Traffic Management major.

CHAPTER 1

BACKGROUND OF THE STUDY

Milwaukee Area Technical College (MATC) has, since 1963, offered three curriculums in marketing: Marketing Administration, Retail Administration, and Transportation and Traffic Management. All lead to the degree of Associate in Applied Science. Objective of the programs is to prepare students to "meet the demand for professionally trained men and women to fill mid-management marketing positions."

Although specific "success stories"--students who had completed and/or moved into positions of responsibility--have been reported regularly to the faculty, there has been no previous attempt to ascertain systematically what the progress of students may have been after they left the school, except for the regular follow-up studies of graduates. Diminishing enrollments--from a peak of 155 in September 1968 to a low of 128 in February 1970--have been a matter of considerable concern. It has also been observed that there has been considerable attrition from the programs: of 556 students enrolled during the period from September 1967 to June 1971, 88 have graduated. The subsequent vocational experience of the students who did not complete the program has not been known. Questions which have naturally arisen have been:

Did they "drop out"? or

Did they enter the world of work on a full-time basis? or

Did they leave this school to pursue a bachelor's degree?

As a basis for evaluating the programs, and possibly as a basis for more effective guidance in students' choice of programs, this study was proposed to determine what some influences on the student's background prior to his

enrolling in a marketing program may have contributed to his progress in the program. In order to study those influences, it would be necessary to determine exactly the progress that had been influenced.

Furthermore, the follow-up of former students required for the above-mentioned purposes would in itself provide a "profile" of the student group.

Since the study was proposed as a pilot study, the investigator has attempted earnestly to point out weaknesses in the design and instrumentation, in the interest of contributing to possible future studies of the same nature.

CHAPTER 2

METHODOLOGY

Questionnaires (Appendix I) and covering letter (Appendix II) were mailed to the 556 students who had been enrolled in marketing programs during the period beginning with Fall Semester, 1967, through and including Spring Semester, 1971.

Returned questionnaires were sorted into four groups:

Group I: Respondents who had graduated and entered the field of marketing

Group II: Respondents who had graduated but had not entered the field of marketing

Group III: Respondents who had not graduated but had entered the field of marketing

Group IV: Respondents who had not graduated and had not entered the field of marketing

In determining the categories for sorting, the following definitions were used:

graduate is limited for purposes of this study to those who had graduated with a marketing major.

nongraduate is used to identify those students who have not completed the requirements for a marketing major.

employment in the field of marketing is considered to be:

(1) employment in a marketing institution, e.g., a retail firm, or other firm established for the purpose of distributing products, but excluding restaurants; or

(2) employment in a position performing a marketing function, e.g., buying, selling, physical distribution, in a business or other organization, excluding military services.

entered field is considered employment, at any time subsequent to enrolling in the program, in the field of marketing, but omitting internship station if the student remained less than six months after leaving school.

internship station is a position held by the student to fulfill the requirements of two of the marketing majors: Marketing Administration and Retail Administration.

Each questionnaire was numbered as received, sorted, and tabulated by hand. Two follow-ups in the form of postcards (Appendices III and IV) were sent. When responses reached a total of 160 (30%), a stratified random sample of 25% (40 respondents) was selected. The number corresponding to each questionnaire was written on a card. Ten cards were selected by lot from each group. The number in Group II was exactly ten; therefore, the entire group became the sample of that group. The 40 respondents thus selected were to be interviewed personally. Cards corresponding to questionnaires returned from outside the Milwaukee area were rejected, and replacements randomly selected. Two such questionnaires had to be rejected from Group II; the sample for that group was further diminished when, during the course of the interviews, two positions which by their title did not indicate that they were marketing-related were discovered to be marketing jobs; the questionnaires and interviews with the respondents holding those jobs were added to Group I. Efforts to select a replacement sample were to no avail, so the number in Group II was finally only six. Two additional respondents were added to the sample for

Group I, making the number in the sample from that group total fourteen. This was done in order to maintain the same sample size--twenty--for the two major variables: graduate and nongraduate. There was contamination of sample in Groups III and IV in that these groups included students who had last attended in Spring Semester, 1971, and, therefore, might be continuing students and not necessarily nongraduates in the sense that they would not complete. This factor was dealt with in the tabulation and reporting where it seemed pertinent.

Open-end questions (Appendix V) were asked, attempting to encourage the interviewees to talk freely; other questions were interspersed as needed to develop and/or clarify responses. All interviews were tape-recorded.

When the interviews were completed, the tapes were played and responses recorded on individual sheets for each interview. The sheets were coded to be transformed into input data appropriate for processing by programs in the 360 computer at Milwaukee Area Technical College.

Because of the exploratory nature of the study, and also because of the small numbers in the samples, statistical treatment was limited to comparison of percentages, and determination of median, where appropriate.

Additional questions, which would have improved both the questionnaire and interview schedule, suggested themselves in the course of the interviews, but proper research procedure precluded their use and tabulation being used in this report. Responses relating to the internship course have been omitted from the report due to certain complexities:

(1) Nongraduates may not yet have enrolled in the course, so their responses could not be compared in any meaningful way to those of students who were taking the course or who had completed it.

(2) Transportation and Traffic Management majors are not at the present time required to take an internship course.

CHAPTER 3

RESULTS AND FINDINGS FROM QUESTIONNAIRE SURVEY

Graduate vs. Nongraduate

From 529 known addresses, 180 (34%) questionnaires were returned. In Table 1, responses categorized according to the major variables are shown: 52 (28.9%) respondents had graduated; 128 (71.1%) had not. 44 (24.4%) were placed in Group I, having graduated and entered marketing. 8 (4.5%) were placed in Group II, having graduated but having not entered marketing. 78 (43.3%) were placed in Group III--nongraduates who had entered marketing. 50 (27.7%) were placed in Group IV--nongraduates who had not entered matketing (Table 1a).

A total of 122 (67.7%) graduates and nongraduates had been employed in the field of marketing following enrollment in a marketing program.

In the nongraduate groups, a total of 65 (50.7%) had been enrolled during Spring Semester 1971, and 56 (35.9%) planned to graduate. A total of 63 (49.3%)nongraduates had last been enrolled at some time prior to Spring Semester 1971, and 23 (17.9%) planned to graduate. Comparing graduation plans of Group III and Group IV, 51 (65.3% of Group III) plan to graduate; 28 (56.0% of Group IV) plan to graduate.

Present Employment Status

39 graduates (21.7%) and 64 nongraduates (35.5%) were employed in marketing at the time of the survey (Table 2).

Age of Respondents

63 (35% of all respondents) were in the youngest age group (under 21); 82 (45.6%) were in the middle age group (22-25); and 35 (19.4%) were in the

TABLE 1

COMPLETION STATUS OF 180 RESPONDENTS

Status	Entered Field	Did Not Enter	Total
Graduates	44* 24.4%	8/ 4.5%	52 28.9%
Nongraduates	78# 43.3%	50' 27.8%	128 71.1%
Total	122 67.7%	58 32.3%	180 100%

* Group I
/ Group II
Group III
' Group IV

LAST SEMESTER ATTENDED AND PLANS TO GRADUATE
(Groups III and IV only)

	Plan to Graduate		Not	NA*	Total
Spring 1971					
Group III	37		3	2	42
Group IV	19	56 43.8%	3	1	23
					65 (50.3%)
Prior to Spring 1971					
Group III	14		14	8	36
Group IV	9	23 17.9%	14	4	27
					63 (49.3%)
Total	79		34	15	128
		61.7%	26.6%	11.7%	100%

*No Answer

TABLE 2

PRESENT EMPLOYMENT STATUS OF 180 RESPONDENTS*

Status	Employed in Marketing	Not Employed in Marketing	Total
Graduates	39 21.7%	13 7.2%	52 28.9%
Nongraduates	64 35.5%	64 35.5%	128 71.1%
Total	103 57.25%	77 42.75%	180 100%

*June 1971

group "26 and over" (Table 3). The largest group in the "21 and under" category was Group III (47.4%), possibly reflecting the large proportion of students in this group who had been enrolled during the immediately preceding semester.

Sex of Respondents

29 (16.1%) respondents were female, and 151 (83.9%) were male (Table 4).

Present Position

A total of 136 (75.5%) respondents were employed in occupations excluding "student" or "military service." 14 (7.7%) were unemployed (Table 5). Positions listed on the questionnaire (Appendix I) were those that might be assumed to be the ones which the largest number of marketing majors would obtain. However, the "other" category, excluding "student" and "military" totals more (70) than the "typical job" list used on the questionnaire. While both Groups I and III checked "Salesman, Sales Representative" most frequently, the positions which followed (all implying some responsibility and supervisory tasks) were checked by respondents in Group III more frequently than by those in Group I. The list of "Other" marketing positions also includes supervisory positions, some of which were listed by respondents in Group III (Table 6). However, such positions were checked by a total of more respondents in Group I than in Group III.

In Table 7, "other" non-marketing positions are shown by group.

Time In Present Position

Housewives, unemployed, students, and those in military service were grouped together in "other," since length of time in those positions would not be relevant (Table 8). "Over 12 months" was checked by the largest numbers

TABLE 3

AGE OF 180 RESPONDENTS BY GROUP

Age	Group I	Group II	Group III	Group IV	Total
21 and under	8 18.1%	3 37.5%	37 47.4%	15 30.0%	63 35%
22 to 25	20 45.0%	3 37.5%	30 38.5%	29 58.0%	82 45.6%
26 and over	16 36.3%	2 25%	11 14.1%	6 12%	35 19.4%
Total	44 100%	8 100%	78 100%	50 100%	180 100%

TABLE 4

SEX OF 180 RESPONDENTS BY GROUP

Sex	Group I	Group II	Group III	Group IV	Total
Female	8 18.1%	2 25.0%	12 15.4%	7 14.0%	29 16.1%
Male	36 81.9%	6 75.0%	66 84.6%	43 86.0%	151 83.9%
Total	44 100%	8 100%	78 100%	50 100%	180 100%

TABLE 5

PRESENT POSITION REPORTED BY 180 RESPONDENTS

Position	Group I	Group II	Group III	Group IV	Total
Salesman, Sales Representative	16 36.3%	0	29 37.1%	0	45 25.0%
Sales Head, Head of Stock	0	0	7 9%	0	7 3.9%
Dept. Manager	2 4.5%	0	15 19.2	0	17 9.4%
Group Manager, Division Mgr.	2 4.5%	0	2 2.5%	0	4 2.2%
Assistant Buyer	2 4.5%	0	0	0	2 1.1%
Buyer	1 2.3%	0	1 1.2%	0	2 1.1%
Other	19 43.1%	6 .75%	21 26.9%	41 82.0%	87 48.8%
Unemployed	2 4.5%	2 .25%	3 3.8%	7 14.0%	14 7.7%
No Answer				2 4.0%	2 1.1%
Total	44 100%	8 100%	78 100%	50 100%	180 100%

SPECIAL POSITIONS INCLUDED IN "OTHER" ABOVE

	Group I	Group II	Group III	Group IV	Total
Student	0	2	0	5	7
Military Service	1	2	0	8	11
Total	1	4	0	13	18

TABLE 6

"OTHER" MARKETING POSITIONS LISTED BY RESPONDENTS

Position	Group I	Group III
Programmer (Sales Promotion)	X	
Materials Handler		X (2)
Automobile Dealer Parts Man	X	
Display Helper	X	
Statistical Analysis (Marketing)	X	
Stenographer		X
Stocker		X
Sales Manager	X	
Inventory Control	X	
Expeditor	X	
Production Assistant (Advertising)		X
Assistant Store Manager	X (3)	X (2)
Media Researcher	X	
Cash Register Reader		X
Cashier		X (2)
Assistant Dock Foreman		X
Branch Manager (Credit Bureau)		X
Entrepreneur (Clothing)		X
Rate and Billing Supervisor		X
Checker		X
Shipping Manager		X
Dock Foreman		X
Route Salesman		X
Sales and Stock		X
Marketing Correspondent		X
Management Trainee (Retail)		X
Buyer's Clerical		X
Receiving Clerk		X

TABLE 7

NON-MARKETING POSITIONS LISTED BY RESPONDENTS
(Excluding Student and Military)

Position	Group I	Group II	Group III	Group IV
Underwriter Trainee		X		X
Child Psychiatric Aide				X
Secretary		X		X (2)
Post Office Clerk	X			
Housewife				X
Truck Driver			X	X
Management Consultant				X
Laborer				X
Ride Operator (Amusement Park)				X
Foreman (Manufacture)				X
Nursing Assistant				X
Entrepreneur (Entertainment)				X
Teacher				X
Welder				X
Inspection Assistant (Mfg.)	X			
Mechanic				X
Factory Worker				X (2)
Systems Analyst				X
Clerk (Investments)				X
Maintenance			X	X
Bookkeeper				X
School Bus Driver				X
Computer Operator				X
Laboratory Technician			X	
Electrician				X
Draftsman				X
Caretaker				X

TABLE 8

TIME IN PRESENT POSITION REPORTED BY 180 RESPONDENTS

Time	Group I	Group II	Group III	Group IV	Total
Under 6 Months	14 31.8%	0	13 16.7%	13 16.7%	40
6 to 12 Months	2 4.5%	1 12.5%	1 1.2%	6 12.0%	10
Over 12 Months	24 54.5%	1 12.5%	52 66.6%	11 22%	88
No Answer	2 4.5%	0	1 1.2%	1 1.2%	4
Other*	2 4.5%	6 75.0%	11 14.1%	19 38%	38
Total	44 100%	8 100%	78 100%	50 100%	180 100%

in Groups I, III, and IV. The overwhelmingly large proportion (66.6%) of those in Group III might imply that some "dropouts" had indeed been "job-outs." "Summer jobs" would be reflected in the "under 6 months" category; those in Group I who checked this category would include graduates from Spring 1971.

Present Salaries

Where possible, hourly rates and part-time salaries were converted to monthly rates, using a 40-hour week, 4.3-week month as base (Table 9).

Group I, with 36 respondents reporting, showed the highest median salary, $750.

Group III, with 62 responses, showed the next highest median salary, $500.

The largest range and lowest median was shown by Group IV.

The limited response--2--in Group II (reflecting the student-military-unemployed status of the respondents in that group) makes any interpretation meaningless. However, it might be expected that both range and median would be lower than in Group I if there was a shorter period of time of employment of students who had proceeded to other schools.

Institutions Previously Attended

Table 10 shows that of 180 respondents 127 (70.6%) had not previously attended other post-secondary schools. 53 respondents (28.9%) listed a total of 61 previous enrollments in other schools, 5 students having previously attended more than one other institution. Of the institutions listed on the questionnaire (those thought most likely to have been attended by the largest numbers), the University of Wisconsin - Milwaukee was checked by the largest group, 25. There would appear to be no relationship between attendance at other

TABLE 9

PRESENT SALARIES REPORTED BY 131 RESPONDENTS

	Range	Median	Number
Group I	$240 - $1,500	$750	36
Group II	$480 - $500	$490	2
Group III	$160 - $1,600	$500	62
Group IV	$135 - $2,000	$485	31

TABLE 10

PREVIOUS ATTENDANCE AT OTHER INSTITUTIONS REPORTED BY 180 RESPONDENTS

Number of Institutions	Group I	Group II	Group III	Group IV	Total
None	27 61.3%	6 75.0%	60 76.9%	34 68.0%	127 70.6%
One or More	17 38.7%	2 25.0%	18 23.1%	16 32%	53 29.4%
Total	44 100%	8 100%	78 100%	50 100%	180 100%

PREVIOUS INSTITUTIONS ATTENDED

Institution	Group I	Group II	Group III	Group IV	Total
UW-M	9	0	8	8	25
Whitewater	2	0	1	6	9
Marquette	1	0	0	2	3
Other	5	1	11	7	24
Total Institutions	17	1	20	23	61
Total Respondents Attending	17	2	18	16	53

institutions and subsequent "success" in marketing programs at MATC, with Group I reporting the highest number, and Group II reporting the lowest number. It might, however, relate to the age groups referred to in Table 3.

"Other" institutions listed by respondents are shown in Appendix VI.

General Education and Business were checked by the largest number of students who had attended other schools. "Other" majors are listed by group in Appendix VII. 53 respondents listed a total of 57 majors, 4 either not answering or stating "undecided", and some listing more than one.

Previous Majors At MATC

Table 11 shows that 118 (65.5%) respondents had had no previous majors at MATC. One respondent had pursued two other majors. Of the 62 respondents who had previously been enrolled in another major at the school, the proportion in Group I (52.3%) was substantially higher than in any other group, with Group III showing the next highest percentage, 30.8% There might be an implication of job-relatedness of marketing programs' influencing the choice of program.

Of the 62 respondents previously enrolled in other programs, 47 (78.0%) had been enrolled in another Business major, with Business Administration being checked m o s t frequently by all groups. General Education was checked by a total of 19 respondents, with three having graduated previously, in that major.

Although the question was not specifically asked, later majors at MATC were indicated by some respondents, either in listing their present positions as "student" or in noting their subsequent graduation in another major.

MAJORS AT PREVIOUS INSTITUTIONS

Major	Group I	Group II	Group III	Group IV	Total
General Education	4	0	7	6	17
Business	5	0	5	7	17
Other	8	3	6	6	23
Total Majors	17	3	18	19	57
Total Respondents	17	2	18	16	53

TABLE 11

PREVIOUS MAJORS AT MATC REPORTED BY 180 RESPONDENTS

Number	Group I	Group II	Group III	Group IV	Total
None	21 47.7%	6 75.0%	54 69.2%	37 74.0%	118 65.5%
One or More	23 52.3%	2 25.0%	24 30.8%	13 26.0%	62 34.5%
Total	44 100%	8 100%	78 100%	50 100%	180 100%

PREVIOUS MAJORS OF 62 RESPONDENTS

Major	Group I	Group II	Group III	Group IV	Total
General Education	7	1	8	3	19
Accounting	2	0	3	3	8
Business Administration	11	2	11	4	28
Business Data Processing	1	0	6	3	10
Secretarial Science	1	0	0	0	1
Other	1	0	1	3	5
Total Majors	23	3	29	16	71
Total Respondents	23	2	24	13	62

Although data thus derived may not be considered in the same manner as responses to specific questions, it is interesting to note that two students had later graduated with General Education majors, one was still enrolled in a Business Administration major, and two had graduated from Adult Vocational programs.

Later Institutions Attended

A total of 17 respondents (9.4%) reported having attended other institutions after leaving MATC (Table 12). 8 were graduates; 9 were non-graduates. Four respondents each of graduates and non-graduates who had entered the field had attended other schools.

"Other" institutions (Appendix VIII) was the category checked by the largest number of respondents in all groups.

Employment Status At Leaving MATC

A total of 142 (78.8%) respondents were employed; 15 (8.3%) were not employed at the time they left MATC; 23 (12.7%) did not answer this question. Of those employed, 107 (75.6%) were in marketing: 74 in part-time jobs, 33 in full-time jobs. These include 68 non-graduates, therefore probably reflecting "summer" jobs. 35 (24.7%) were employed in non-marketing jobs; 32 of these were in Groups III and IV (Table 13).

TABLE 12

LATER ATTENDANCE AT OTHER INSTITUTIONS REPORTED BY 180 RESPONDENTS

Number	Group I	Group II	Group III	Group IV	Total
None	40 90.0%	4 50.0%	74 94.9%	45 90.0%	163 90.6%
One or More	4 9.1%	4 50.0%	4 5.1%	5 10%	17 9.4%
Total	44 100%	8 100%	78 100%	50 100%	180 100%

INSTITUTIONS ATTENDED BY 17 RESPONDENTS

Institution	Group I	Group II	Group III	Group IV	Total
UW-M	1	0	2	0	3
Whitewater	0	2	0	1	3
Marquette	1	0	0	0	3
Other	2	2	2	4	12
Total Institutions	4	4	4	5	17
Total Respondents	4	4	4	5	17

TABLE 13

EMPLOYMENT STATUS AT LEAVING MATC REPORTED BY 180 RESPONDENTS

Status	Group I	Group II	Group III	Group IV	Total
Employed	35 79.4%	7 87.5%	72 92.3%	28 56.0%	142 78.8%
Not Employed	0	1 12.5%	2 2.6%	12 24.0%	15 8.3%
No Answer	9 20.6%	0	4 5.1%	10 20%	23 12.7%
Total	44 100%	8 100%	78 100%	50 100%	180 100%

FIELD OF EMPLOYMENT OF 142 RESPONDENTS AT LEAVING MATC

Field	Group I	Group II	Group III	Group IV	Total
Marketing					
Part Time	18 51.4%	3 42.8%	52 72.2%	1 3.6%	74 52.1%
Full Time	16 45.7%	2 28.6%	15 20.8%	0	33 23.2%
Non-Marketing					
Part Time	1 2.9%	1 14.3%	2 2.8%	20 71.4%	24 16.9%
Full Time	0	1 14.3%	3 4.2%	7 25.0%	11 7.8%
Total Employment	35 100%	7 100%	72 100%	28 100%	142 100%

CHAPTER 4

RESULTS AND FINDINGS OF 40 INTERVIEWS

Graduate vs. Nongraduate

As explained in the methodology chapter, Groups I and II were not made up of 25% each of the interview sample; but the total of the two groups totalled 50% of the sample.

19 out of 40 (47.5%) had attended school during Spring Semester 1971 (Table 14). 14 out of 20 (70%) in Groups III and IV had attended in Spring Semester 1971, a higher proportion than in the respondent group totally.

Seven interviewees (70%) from Group III plan to graduate; six (60%) from Group IV plan to graduate. These are both higher percentages than in the total respondent group.

Age of Interviewees

Percentages in the various age groups (Table 15) differed slightly from those of the total respondents groups, with a smaller proportion in each of the four groups falling in the "22 to 25" category except for Group IV.

Sex of Interviewees

The proportion of females (Table 16) was consistently higher than in the total respondent group, with the exception of Group III.

Present Employment of Interviewees

35 (89.5%) interviewees were employed at the time of the survey, 28 (70%) in positions other than "student" or "military", only slightly less than in the respondent group. As in the total group, the "Other" category included more responses than the total of the jobs cited (Table 17).

TABLE 14

LAST SEMESTER ATTENDED AND PLAN TO GRADUATE REPORTED BY INTERVIEWEES

	Attended Spring 1971	Plan to Graduate	Attended Prior to Spring 1971	Plan to Graduate	Total
Group 1	4 28.5%	-	10 71.5%	-	14 100%
Group II	1 16.7%	-	5 83.3%	-	6 100%
Group III	8 80%	7 70%	2 20%	0	10 100%
Group IV	6 60%	5 50%	4 40%	1 10%	10 100%
Total	19 47.5%	12 30%	21 52.5%	1 10%	40 100%

TABLE 15

AGE OF 40 INTERVIEWEES BY GROUP

Age	Group I	Group II	Group III	Group IV	Total
21 and Under	3 21.5%	2 33.3%	4 40%	3 30%	12 30%
22 to 25	7 50.0%	3 50%	4 40%	2 20%	20 50%
26 and Over	4 28.5%	1 16.7%	2 20%	1 10%	8 20%
Total	14 100%	6 100%	10 100%	10 100%	40 100%

TABLE 16

SEX OF INTERVIEWEES BY GROUP

Sex	Group I	Group II	Group III	Group IV	Total
Female	5 35.7%	2 33.3%	1 10%	2 20%	10 25%
Male	9 64.3%	4 67.7%	9 90%	8 80%	30 75%
Total	14 100%	6 100%	10 100%	10 100%	40 100%

TABLE 17

PRESENT POSITION REPORTED BY 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total
Salesman, Sales Representative	4 28.5%	0	4 40%	0	8 20%
Sales Head, Head of Stock	0	0	1 10%	0	1 2.5%
Dept. Manager	1 7.1%	0	0	0	1 2.5%
Group Manager	0	0	0	0	0
Assistant Buyer	1 7.1%	0	0	0	1 2.5%
Buyer	0	0	0	0	0
Other*	7 50%	4 66.7%	4 40%	9 90%	24 60.0%
Unemployed	1 7.1%	2 33.3%	1 10%	1 10%	5 12.5%
Total	14 100%	6 100%	10 100%	10 100%	40 100%

*Includes Student

Time in Present Position

As in the total respondent group, the largest number of interviewees had been employed in their present position over 12 months, particularly notable in Groups I and III. With only 2 in Group II reporting, it can only be noted that they were divided between the "6 to 12 months" and the "over 12 months" categories (Table 18).

Present Salaries

Medians were comparable with those of the total group, with the exception of that in Group I. A smaller range is noted in all groups (Table 19).

Previous Attendance at Other Institutions

28 (70%) interviewees had not attended any other institution previously, a similar proportion to that in the total respondent group (Table 20).

As in the total group, the major cited most frequently by those who had attended other schools was General Education.

Previous Major at MATC

14 (35%) interviewees had been previously enrolled in other majors at MATC, a similar proportion to that of the total respondent group. Four from Group I had been enrolled in General Education; two from Group III and one from Group IV had been enrolled in General Education. Business Administration had been checked by interviewees in all groups except Group IV (Table 21).

Later Attendance at Other Institutions

Six (15%) interviewees had attended other schools after leaving MATC (Table 22). This represented a higher proportion than that of the total respondent group, due to the high proportion of those in Group II--the small sample group.

No interviewees from Group III had later attended another school.

TABLE 18

TIME IN PRESENT POSITION REPORTED BY 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total
Under 6 Months	3 25%	0	1 12.5%	3 60%	8
6 to 12 Months	2 16.7%	1 50.0%	2 25.0%	1 20%	6
Over 12 Months	7 58.3%	1 50.0%	5 62.5%	1 20%	14
Total	12 100%	2 100%	8 100%	5 100%	28 100%

TABLE 19

PRESENT SALARIES REPORTED BY 40 INTERVIEWEES

	Number Reporting	Range	Median
Group I	10	$267 - $840	$600
Group II	1	$480	--
Group III	5	$370 - $820	$480
Group IV	4	$267 - $640	$484

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TABLE 20

PREVIOUS ATTENDANCE AT OTHER INSTITUTIONS REPORTED BY 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total
None	9 64.2%	5 67.5%	7 70%	8 80%	28 70%
One or More	5 35.8%	1 32.5%	3 30%	2 20%	12 30%
Total	14 100%	6 100%	10 100%	10 100%	40 100%

INSTITUTIONS PREVIOUSLY ATTENDED BY 12 INTERVIEWEES

Institution	Group I	Group II	Group III	Group IV	Total
UW-M	5	0	1	1	7
Whitewater	0	0	0	1	1
Marquette	1	0	0	0	1
Other	1	2	2	1	6
Total Institutions	7	2	3	3	15
Total Respondents	5	2	3	2	12

MAJORS AT PREVIOUS INSTITUTIONS OF 12 INTERVIEWEES

Major	Group I	Group II	Group III	Group IV	Total
General Education	3	0	2	1	6
Business	1	0	0	2	3
Other	1	2	1	0	4
Total Majors	5	2	3	3	13
Total Interviewees	5	2	3	2	12

TABLE 21

PRIOR MAJOR AT MATC REPORTED BY 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total
None	7 50%	5 83.3%	6 60%	8 80%	26 65%
One or More	7 50%	1 16.7%	4 40%	2 20%	14 35%
Total	14 100%	6 100%	10 100%	10 100%	40 100%

PRIOR MAJORS REPORTED BY 14 INTERVIEWEES

Major	Group I	Group II	Group III	Group IV	Total
Accounting	0	0	1	0	1
Business Administration	3	1	2	0	6
Business Data Processing	0	0	1	1	2
Secretarial Science	0	0	0	0	0
Other	4	0	2	1	7
Total Majors	7	1	6	2	16
Total Interviewees	7	1	4	2	14

TABLE 22

LATER ATTENDANCE AT OTHER INSTITUTIONS ATTENDED BY 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total
None	12 85.7%	3 50%	10 100%	9 90%	34 85%
One or More	2 14.2%	3 50%	0	1 10%	6 15%
Total	14 100%	6 100%	10 100%	10 100%	40 100%

INSTITUTIONS LATER ATTENDED BY 6 INTERVIEWEES

Institution	Group I	Group II	Group III	Group IV	Total
Whitewater	0	1	0	0	1
Marquette	1	0	0	0	1
UW-M	0	0	0	1	1
Other	1	2	0	0	3
Total	2	3	0	1	6
Total Interviewees	2	3	0	1	6

Employment Status at Leaving MATC

90% (36 out of 40) interviewees had been employed at the time they last attended MATC, a substantially higher proportion than that of the total respondent group (Table 23).

Of those 36, 29 (80.5%) were employed in marketing: 19 in part-time jobs, 10 in full-time jobs. 12 of these were in Groups III and IV (Table 23).

Marketing Majors of 40 Interviewees

It was possible to determine the specific marketing major of interviewees. (There was no provision made on the questionnaire for nongraduates to indicate their major; most graduates listed "Marketing", even though their major had actually been Retail Administration or Transportation and Traffic Management.)

Marketing Administration and Retail Administration majors accounted for nearly equal numbers of interviewees; however, Groups I and II showed more majors in Marketing Administration (11), than in Retail Administration (8), while Groups III and IV showed the reverse, with nine retail majors, and seven marketing majors (Table 24).

Present Field of Interviewees

Seven graduates and three nongraduates who had majored in marketing were employed in some marketing-related job outside of retailing; six graduates and five nongraduates who had majored in Retail Administration were employed in retailing. None of the graduates were employed in transportation, but one nongraduate was employed in the receiving department of a retail firm.

Three graduates interviewed were students; six nongraduates were students at the time of the survey.

TABLE 23

EMPLOYMENT STATUS AT LEAVING MATC REPORTED BY 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total
Employed	12 85.7%	6 100%	10 100%	6 60%	36
Not Employed	2 14.3%	0	0	4 40%	4
Total	14 100%	6 100%	10 100%	10 100%	40 100%

FIELD OF EMPLOYMENT OF 36 INTERVIEWEES

Field	Group I	Group II	Group III	Group IV	Total
Marketing					
Part Time	9 75%	3 50%	6 60%	1 12.5%	19 52.8%
Full Time	2 16.7%	3 50%	3 30%	2 25%	10 27.7%
Non-Marketing					
Part Time	0	0	1 10%	4 50%	5 13.8%
Full Time	1 8.3%	0	0	1 12.5%	2 5.5%
Total Employed	12 100%	6 100%	10 100%	8 100%	36 100%

TABLE 24

MARKETING MAJORS OF 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total
Marketing Administration	8 57.1%	3 50%	3 30%	4 40%	18 45%
Retail Administration	5 35.7%	3 50%	6 60%	3 30%	17 42.5%
Transportation and Traffic Management	1 7.2%	0	1 10%	3 30%	5 12.5%
Total	14 100%	6 100%	10 100%	10 100%	40 100%

Two graduates who had majored in Marketing Administration were employed (in supervisory capacities) in retail firms. Three graduates who had majored in Retail Administration were employed in positions outside the retail field (Table 25).

Life Stage When Interviewees Decided on a Marketing Career

Table 26 shows that the largest number of both graduates and nongraduates interviewed (7 and 8 respectively) had decided on marketing after having been enrolled in other programs at MATC. More graduates (25%) than nongraduates (10%) had decided after attending other schools. Nearly equal numbers of graduates and nongraduates (20% and 25%) had known before high school graduation the field they wished to enter.

Influences on Choice of Career

The largest single influence on interviewees' choice of career, both graduates and nongraduates, was "jobs in field", with nongrads (70%) outnumbering graduates. There were slightly more in Groups I and III totalled than in Groups II and IV totalled.

More non-graduates (35%) than graduates (5%) said they had been influenced by high school business courses. One from Group III and one from Group IV had been enrolled in high school Distributive Education programs. Graduates and nongraduates had been equally influenced (25% each) by having family members already in the field, although no interviewees felt that they had been influenced by advice of family members. More who had entered the field (9 out of 24 in Groups I and III) were so influenced than those who had not yet entered (4 out of 16 in Groups II and IV).

Results of batteries of tests, at MATC or elsewhere, had influenced 15% of graduates and 10% of nongraduates. 29% of all interviewees cited "Other"

TABLE 25

PRESENT FIELD OF 40 INTERVIEWEES

Field	Group I	Group II	Group III	Group IV	Total
Marketing	7 50.0%	0	3 30.0%	0	10 25.0%
Retail	6 42.8%	0	4 40.0%	0	10 25.0%
Transportation	0	0	1	0	1 2.5%
Student	1 7.2%	2 33.3%	0	6 60.0%	9 22.5%
Other	0	4 66.7%	2 20.0%	4 40.0%	10 25.0%
Total	14 100%	6 100%	10 100%	10 100%	40 100%

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TABLE 26

LIFE STAGE WHEN 40 INTERVIEWEES DECIDED ON MARKETING AS A CAREER

	Group I	Group II	Group III	Group IV	Total Grads.	Total Nongrads.
Before H. S. Graduation	3 21.4%	1 16.7%	3	2	4 20%	5 25%
At H. S. Graduation	2 14.2%	0	1 10%	1 10%	2 10%	2 10%
After Working	0	1 16.7%	0	0	1 5.0%	0
After Military Service	1 7.1%	0	0	3 30%	1 5.0%	3 15%
After Attending Other School	3 21.4%	2 33.3%	1 10%	1 10%	5 25.0%	2 10.0%
After Other MATC Programs	5 35.7%	2 33.3%	5 50%	3 30%	7 35.0%	8 40.0%
Total	14 100%	6 100%	10 100%	10 100%	20 100%	20 100%

TABLE 27

INFLUENCES ON CHOICE OF CAREERS OF 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total Grads.	Total Nongrads.
Results of Testing	2 14.2%	1 16.7%	1 10.0%	1 10.0%	3 15%	2 10%
H. S. Business Courses	0	1 16.7%	1 10.0%	6 10.0%	1 5.0%	7 35%
Advice of Family	0	0	0	0	0	0
Family in Field	5 35.7%	0	4 40.0%	1 10.0%	5 25%	5 25%
Friends in Field	3 21.4%	1 16.7%	2 20.0%	2 20.0%	4 20.0%	4 20%
Jobs in Field	5 35.7%	3 50%	9 90.0%	5 50.0%	8 40.0%	14 70%
Other	5 35.7%	4 66.7%	1 10.0%	2 20.0%	9 45.0%	3 15%
Total Interviewees	14 100%	6 100%	10 100%	10 100%	20 100%	20 100%

influences, including two from Group I who said they had chosen marketing over an alternative they disliked (teaching in one instance and factory work in the other).

Appeal of the Field

Closely related to the influences, particularly the "jobs in field" and "family in field" influences, were the particular appeals which the field had had for the interviewees (Table 28).

Appeals shown in the table are those mentioned consistently, or those which might have been assumed to be appeals. An overwhelming majority of both graduates and nongraduates (65% and 60% respectively) said it offered an opportunity to work with people, to help people, to "affect people." 8 graduates (40%) and 7 nongraduates (35%) said they liked the diversity of tasks and minimum of routine. Only 3 graduates and 5 nongraduates mentioned the potential for high earnings as a particular appeal for them. There was no great difference in the appeals the field had for graduates vs. nongraduates except in the graduates' mentioning "glamour" (2) and "travel" (3).

In the "other" category, some interviewees in each group mentioned liking detail, liking arithmetic, liking to plan and make decisions. One in Group IV said that the appeal was simply"... this was the job that was available after military service."

Interviewees in Groups I, II, and IV mentioned specifically "freedom in the job."

Life Stage When Interviewees Decided to Attended Post-Secondary School

There was no substantial difference between graduates and nongraduates here (Table 29), with a large majority of both graduates (65%) and nongraduates

TABLE 28

APPEAL OF FIELD FOR 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total Grads.	Total Nongrads.
Earnings Potential	2	1	1	4	3 15%	5 25%
Prestige	1	0	1	0	1 5%	1 5%
Glamour	2	0	0	0	2 10%	0
Travel	2	1	0	0	3 15%	0
Likes to Work With People	10	3	8	4	13 65%	12 60%
Diversity of Tasks	7	1	4	3	8 40%	7 35%
Other	13	4	6	7	17	13

TABLE 29

LIFE STAGE WHEN 40 INTERVIEWEES DECIDED TO ATTEND POST SECONDARY INSTITUTION

	Group I	Group II	Group III	Group IV	Total Grads.	Total Nongrads.
Before H. S. Graduation	9 64.2%	4 66.7%	8 80%	6 60%	13 65%	14 70%
At H. S. Graduation	1 7.1%	2 33.3%	1 10%	0	3 1.5%	1 5%
After Working	2 14.2%	0	1 10%	2 20%	2 10%	3 15%
After Military Service	2 14.2%	0	0	2 20%	2 10%	2 10%
Total	14 100%	6 100%	10 100%	10 100%	20 100%	20 100%

(70%) having known before high school graduation that they would continue their education. It is interesting to compare this with the figures in Table 26, where considerably fewer in both groups had decided before high school graduation on the particular career field.

Influences on Choice of School

Table 30 shows the influences in interviewees' choice of MATC. More nongraduates (65%) than graduates (45%) were influenced by the low cost. Equal numbers (50%) of graduates and nongraduates indicated that high school personnel--counselors or teachers--had influenced their choice; this point was pursued to differentiate between mere "information" about the school and "influence" to attend. Slightly more graduates than nongraduates (15% vs 10%) had been influenced by family members' attendance; more nongraduates than graduates had been influenced by friends' attendance (25% nongraduates vs. 10% graduates).

Influence on Choice of Program

Reasons for choosing a particular program are shown in Table 31. More graduates (60%) than nongraduates (45%) had chosen their major because of their career goal; those who had entered the field (15 out of 24 in Groups I and III) and those who had not (10 out of 16) were equally influenced by this factor.

Nearly equal numbers of graduates and nongraduates were influenced by courses offered, (40% and 45% respectively). More graduates and nongraduates who had been employed in the field of marketing, expectedly, had chosen their major because it seemed related to their job at the time than did those who had not entered the field.

TABLE 30

INFLUENCES ON CHOICE OF SCHOOL OF 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total Grads.	Total Nongrads.
Low Cost	4 28.5%	5 80%	5 50%	8 80%	9 45%	13 65%
Family Attending or Attended	3 21.4%	0	0	2 20%	3 15%	2 10%
Friends Attending or Attended	2 14.2%	0	2 20%	3 30%	2 10%	5 25%
High School Personnel	9 64.2%	3 50%	6 60%	5 50%	12 60%	11 55%
Total	14 100%	6 100%	10 100%	10 100%	20 100%	20 100%

TABLE 31

INFLUENCES ON CHOICE OF PROGRAM OF 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total Grads.	Total Nongrads.
Career Goal	11 78.5%	1 16.7%	4 40%	5 50%	12 60%	9 45%
Courses Offered	4 28.5%	4 66.7%	5 50%	4 40%	8 40%	9 45%
Courses Not Required	1 7.1%	1 16.7%	0	1 10%	2 10%	1 5%
Job Related	2 14.2%	0	4 40%	1 10%	2 10%	5 25%
Total	14 100%	6 100%	10 100%	10 100%	20 100%	20 100%

Source of Information About MATC

The manner in which students knew about the school (Table 32) quite apart from their reasons for enrolling, is of considerable interest.

High school personnel had provided the information to only 20% of graduates and 15% of nongraduates said that they had learned of the school through brochures, catalogs, participation in Career Days, and other such promotional efforts of MATC itself.

The largest numbers (13 graduates and 11 nongraduates) had learned of it from some "other" source. Seven had cited "friends attending"; five knew from family members' attendance at the school; two others knew because of family members' acquaintances with personnel at the school. One had been advised of the school by personnel at an adult school in another part of the country, and one knew from his own attendance at another vocational school in the Milwaukee area.

Impressions of the Marketing Curriculums

Table 33 displays totals for each group, of comments made most frequently.

The comment made most often by both graduates and nongraduates was that they can see "direct applications in business." 85.7% of graduates in the field see such application, and 70% of nongraduates in the field see it. It is interesting to note that some interviewees in both Groups II and IV, as well, see application of their marketing curriculum, even in other fields.

More graduates (7) than nongraduates (2) wish they could have pursued some subjects in greater depth; the proportions are about equal (5 out of 24 in Groups I and III vs. 4 out of 16 in Groups II and IV) between those who have

TABLE 32

SOURCE OF INFORMATION ABOUT MATC OF 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total Grads.	Total Nongrads.
High School Personnel	3	1	5	3	4 20%	8 40%
Promotional Efforts of MATC	2	2	1	2	4 20%	3 15%
Other	10	3	4	7	13 65%	11 55%
Total					20 100%	20 100%

TABLE 33

PRESENT IMPRESSIONS OF MARKETING PROGRAMS OF 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total Grads.	Total Nongrads.
See Direct Application in Business	12 85.7%	4 66.7%	7 70%	1 10%	16 80%	8 40%
Wish More Subjects	4 28.5%	3 50%	1 10%	1 10%	7 35%	2 10%
Wish Subjects Omitted	4 28.5%	0	1 10%	1 10%	4 20%	2 10%
Other	4 28.5%	1 7.1%	5 20%	7 35%	5 25%	12 60%
Total	14 100%	6 100%	10 100%	10 100%	20 100%	20 100%

entered the field and those who have not. The subject mentioned most often was math.

"Other" comments followed no discernible pattern, but are listed below because of the interest in the comments related to the particular group the interviewee was in:

Group I: "Theory isn't always the same as business."

"My degree has been respected by employers."

Group II: "The faculty is especially good because of their business experience."

"It taught me discipline....I would not have made it at Whitewater if I hadn't gone to MATC first."

Group III: "The courses are helpful outside of business as well."

"The relatively small size of classes (compared to a university) was advantageous."

"The courses and faculty are 'up-to-date'."

Group IV: "I think it prepared you pretty well."

"Salesmanship is especially good."

"It's good, but some of the courses are dry."

"It was more detailed knowledge than I wanted to know."

"It was too easy for me...I'd done it in high school."

Membership in Clubs and Organizations

As a possible indicator of personality characteristics, interviewees were asked about their membership in clubs and organizations at various stages in their careers (Table 34). There is no particular pattern apparent except for the relatively larger number of graduates (50%) who had been active in clubs

TABLE 34

MEMBERSHIP IN CLUBS AND ORGANIZATIONS OF 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total Grads.	Total Nongrads.
Belonged in High School	7 50%	3 50%	3 30%	2 20%	10 50%	5 25%
Held Office in High School	2 14.2%	0	2 20%	2 20%	2 10%	4 20%
Belonged in Post Secondary School	3 21.4%	2 33.3%	0	3 30%	5 25%	3 15%
Held Office in Post Secondary	2 14.2%	2 33.3%	0	3 30%	4 20%	3 15%
Belonged After MATC	1 7.1%	1 16.7%	2 20%	2 20%	2 10%	4 20%
Held Office After MATC	2 14.2%	0	0	0	2 10%	0
Participated in Sports	4 28.5%	1 16.7%	8 80%	5 50%	5 20%	13 75%
Total	14 100%	6 100%	10 100%	10 100%	20 100%	20 100%

in high school. There is also a relatively larger proportion of nongraduates who specifically mentioned having participated in sports; the nongraduate group is substantially higher in the number of citations here (13-75.0%).

Some interviewees from both graduates and nongraduates specifically made such comments as

"I've been more of a loner."

"I don't like organizations."

Others indicated that jobs in high school as well as since have precluded their active participation in clubs.

Plans to Attend School after MATC

13 (75%) of graduates indicated that they definitely plan to attend school after graduation from MATC. This includes those who have already started in programs at other schools (Table 35). 30% of nongraduates have definite plans to attend school after MATC. It is interesting to note that 57.1% of Group I and 83% of Group II plan further education, thus possibly indicating no particular influence of employment on perceived educational needs. However, again because of small numbers in Group II, this interpretation might not be valid.

Plan to Remain in Present Field (Or Enter Field of Present Major)

Relating to the objectives of completion and entering field of major, Table 36 shows that 11 interviewees in Groups I and III plan to stay in marketing, one plans to change fields, two are undecided. In Group II, one (who has attended another school since MATC) plans to enter the field of marketing; three intend to remain in their present (non-marketing) fields; and two are undecided about remaining in the present (non-marketing) field,

TABLE 35

PLANS TO ATTEND SCHOOL AFTER MATC OF 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total Grads.	Total Nongrads.
Plan to Attend	8 57.1%	5 80%	3 30%	3 30%	13 75%	6 30%
Do Not Plan to Attend	1 7.1%	1 16.7%	3 30%	1 10%	2 10%	4 20%
Undecided	5 35.7%	0	4 40%	6 60%	5 25%	10 50%
Total	14 100%	6 100%	10 100%	10 100%	20 100%	20 100%

TABLE 36

PLANS TO REMAIN IN PRESENT FIELD
(OR ENTER FIELD OF PRESENT MAJOR) OF 40 INTERVIEWEES

	Group I	Group II	Group III	Group IV	Total Grads.	Total Nongrads.
Plan to Pursue Present Field	11 78.5%	3 50%	9 90%	6 60%	14 70%	15 65%
Plan to Change Field	1 7.1%	0	1 10%	1 10%	1 5%	3 15%
Undecided	2 14.2%	3 50%	3 30%	3 30%	5 25%	6 30%
Total	14 100%	6 100%	10 100%	10 100%	20 100%	20 100%

possibly trying to enter marketing at a future time. In Group IV, one is undecided, four plan to remain in or enter a non-marketing field; five intend to pursue a marketing career.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

To the degree that the sample corresponds to the population, some conclusions can be reached (28.9% respondents were graduates, whereas 16% was the proportion of enrollees who actually graduated during the period covered by the study).

With a total of 77.7% of all respondents having been employed in some way in marketing, and 75.5% of them having been so employed at the time of the survey, the programs would seem to be meeting their objectives to a large degree.

Because of the small size of the interview sample, it would seem unwise to attempt to form a "composite" of the MATC marketing student or graduate; indeed, from some standpoints, the persons interviewed seemed to present quite disparate images related to previous experience and influences on their careers. Furthermore, in a field so broad and diverse, as indicated by the lists of the jobs held, no one sterotype seems possible. However, there are some influences which seem to be common to graduates and not to nongraduates, and some which seem to be common to those who have entered the field and not to those who have not. These commonalities might have some implications for curriculum and/or guidance.

More graduates than nongraduates were employed at the time of the survey in jobs beyond entry level, which would seem to indicate that the programs are meeting their objectives. However, it should be noted from the numbers of

VT 016 485
A STUDY OF TRANSFER STUDENTS TO WISCONSIN VOCATIONAL, TECHNICAL AND ADULT SCHOOLS. FINAL REPORT.

MILWAUKEE AREA TECHNICAL COLL., WIS.
WISCONSIN STATE BOARD OF VOCATIONAL, TECHNICAL, AND ADULT EDUCATION, MADISON.;OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - JUN72 121P.

DESCRIPTORS - *TRANSFER STUDENTS; *SECONDARY SCHOOL STUDENTS; STUDENT MOBILITY; *ADULT STUDENTS; *VOCATIONAL EDUCATION; *AREA VOCATIONAL SCHOOLS
IDENTIFIERS - VTAE SCHOOLS; VOCATIONAL TECHNICAL AND ADULT EDUCATION; WISCONSIN; TECHNICAL EDUCATION; POST SECONDARY EDUCATION

ABSTRACT - THIS STATE-WIDE STUDY, CONDUCTED DURING THE FALL OF 1971, WAS INITIATED TO: (1) DETERMINE THE NUMBER OF STUDENTS TRANSFERRING TO EACH OF THE WISCONSIN VOCATIONAL-TECHNICAL SCHOOL DISTRICTS AND SCHOOLS FROM WHICH THEY TRANSFERRED, (2) INDICATE THEIR RATIONALE FOR TRANSFERRING, (3) INDICATE CHANGES IN CAREER OBJECTIVES, AND (4) DETERMINE STUDENT CHARACTERISTICS IN TERMS OF SEX, AGE, CREDITS EARNED, GRADE POINT AVERAGE, AND MILITARY STATUS. DATA WERE OBTAINED FROM QUESTIONNAIRES TO TRANSFEREES IN ALL VOCATIONAL TECHNICAL ADULT EDUCATION (VTAE) DISTRICTS IN THE STATE OF WISCONSIN. A TOTAL OF 1,129 WERE RETURNED, REPRESENTING ABOUT 40 TO 45 PERCENT OF THE POPULATION. STUDENTS WERE CATEGORIZED ACCORDING TO PROGRAM TYPE AND PROGRAMS CLASSIFIED FOR IDENTIFICATION OF RESPONSE DIFFERENTIATION. FINDINGS INCLUDE: (1) AN INCREASE IN ENROLLMENT OF TRANSFER STUDENTS BY UP TO 26% FOR 1969-71, (2) ABOUT 16% OF THE NEW STUDENTS ENROLLED WERE TRANSFERRED IN THE FALL OF 1971, (3) APPROXIMATELY 76% OF THE STUDENTS WERE ENROLLED IN ASSOCIATE DEGREE OR VOCATIONAL DIPLOMA PROGRAMS RELATED TO A SPECIFIC OCCUPATIONAL AREA, (4) THE MOST SIGNIFICANT REASON FOR TRANSFER SEEMED TO BE A CHANGE IN OCCUPATIONAL OBJECTIVES, (5) THE MEAN NUMBER OF CREDITS EARNED BY STUDENTS PRIOR TO TRANSFER WAS 32, AND (6) A MAJORITY OF THE STUDENTS HAD 2.0 GRADE POINT AVERAGES BEFORE TRANSFERRING AVERAGES VARYING BY PROGRAMS. IT IS FELT THAT STUDIES OF THIS TYPE WILL PROVE USEFUL IN COUNSELING STUDENTS AS WELL AS IN PLANNING ACTIVITIES FOR HIGHER EDUCATION. (SN)

nongraduates holding entry level jobs--even though some will probably graduate and/or progress subsequently--that they may not have met their objectives. Programs in other fields or shorter programs in marketing with different objectives than those of the Associate Degree programs, might have served these students better.

More graduates than nongraduates were employed when they left MATC, and in their field of training, with the exception of Transportation and Traffic majors. This would seem to support the idea of internship--which is required at present in the other two majors--since the internship itself constitutes "entry into the field."

Moreover, when comparing those who have entered the field with those who have not, there also seems to be support for the internship course; more who have entered the field (which includes those at present enrolled in the internship courses):

plan to graduate, or have graduated;

plan to remain in the field.

Relating to sources of information about the school, although some students had been influenced by and informed by high school personnel, the large majority who were informed and influenced otherwise would suggest that communication with high school personnel be increased and intensified. The same is implied with regard to information emanating from MATC: brochures and catalogs were effective when they were available to prospective students; they were apparently not available to the majority.

The disproportionate majority of males vs. females suggests that particular effort be made to enroll girls in the programs.

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EDUCATION & WELFARE
OFFICE OF EDUCATION
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A STUDY OF TRANSFER STUDENTS TO WISCONSIN VOCATIONAL, TECHNICAL AND ADULT SCHOOLS

Project No.

09-033-151-222

FINAL REPORT

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MILWAUKEE AREA TECHNICAL COLLEGE

June 1972

VTC16485

The large proportion of those who have entered the field who had changed from a Business Administration major suggests that possibly students could be more completely informed about programs and/or careers at time of enrollment. It would seem that information on marketing came to them and influenced them after they were enrolled at the school.

In general, both graduates and nongraduates consider the programs effective and valuable; some graduates in the field wish they had taken more courses in math.

Recommendations

1. Further research, using a larger sample and with control for continuing students, thus making possible more sophisticated statistical treatment, might elicit more specific differences between the backgrounds of the various groups.
2. Research and analysis of differences between the groups in motivation, attitudes, and other personality characteristics, in addition to the objective data, might contribute to more effective guidance both during high school and after.
3. Continuing and continuous efforts should be made to inform potential students of the opportunities in marketing and of the marketing programs available at MATC.
4. Curriculums should be reviewed and consideration given to:
   shorter term programs in marketing in addition to the degree programs
   addition of more courses in math
   strengthening existing internship courses, and adding an internship to the Transportation and Traffic Management major.

FINAL REPORT

Project No. 09-033-151-222

A STUDY OF TRANSFER STUDENTS TO WISCONSIN VOCATIONAL, TECHNICAL AND ADULT SCHOOLS

Dennis Redovich, Research Coordinator

George A. Parkinson, In Charge of Research and Long-Range Planning

MILWAUKEE AREA TECHNICAL COLLEGE

Milwaukee, Wisconsin

William A. Ramsey, District Director

June 1972

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APPENDIX I

Research Study of Former Marketing Students at Milwaukee Area Technical College

QUESTIONNAIRE

(If address at left is incorrect, please show correct address below.)

Telephone Number: _____ _____
(Area Code) (Local Number)

AGE: (check one)

_____ 21 and under
_____ 22-25
_____ 26 and over

SEX: _____Male _____Female

PRESENT POSITION: (Check one title which most closely describes your position)

_____Salesman, Sales Representative
_____Sales Head, Head of Stock
_____Department Manager
_____Group Manager, Division Manager
_____Assistant Buyer
_____Buyer
_____Other (specify) _____

_____ _____
EMPLOYER (Name of Firm) KIND OF BUSINESS

_____ _____ _____
DATE STARTED SALARY (Per Month) Present Salary

WHAT OTHER INSTITUTIONS OF HIGHER LEARNING DID YOU ATTEND BEFORE YOU ENROLLED AT MATC?

_____None
_____UW-M
_____Whitewater State University
_____Marquette
_____Other (specify) _____

IN WHAT MAJOR(S) WERE YOU ENROLLED AT THE INSTITUTION ATTENDED BEFORE MATC?

(specify) _____

IN WHAT OTHER MAJORS AT MATC WERE YOU ENROLLED BEFORE YOU ENROLLED IN A MARKETING PROGRAM?

_____None
_____Accounting
_____Business Administration
_____Business Data Processing
_____Secretarial Science
_____Other (specify) _____

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To the Research Departments and other personnel from all VTAE districts in the State of Wisconsin for their cooperation in providing data for this study.

Finally, to the 1,129 Fall 1971 transfer students who completed the questionnaires that provided the necessary information for the study.

DID YOU GRADUATE FROM MATC?

_____Yes (If yes:) IN WHAT YEAR? _____ IN WHAT MAJOR? _____

_____No (If no:) WHAT WAS THE LAST SEMESTER AND YEAR YOU ATTENDED? _____Fall _____Spring

DO YOU PLAN TO GRADUATE?

_____Yes (If yes:) IN WHAT SEMESTER AND YEAR? _____January _____June

_____No

WHAT OTHER INSTITUTIONS OF HIGHER LEARNING DID YOU ATTEND AFTER YOU LEFT MATC?

_____None
_____Whitewater State University
_____Marquette
_____UW-M
_____Other (specify) _____

WHEN YOU LEFT MATC, WERE YOU ALREADY EMPLOYED?

_____Yes Part time?_____ Full time?_____
In field of marketing?_____ Not in field of marketing? (Including military service)_____

_____No (If answer is no, were you employed:)

_____Within 1 month?
_____Within 6 months?
_____Within 12 months?
_____Have not been employed since leaving MATC

LIST IN ORDER, STARTING WITH INTERNSHIP TRAINING STATION (IF ANY) THE POSITIONS YOU HAVE HELD: (Check in column at left if position was an internship station.)

_____ TITLE (or position) _____ EMPLOYER (Firm Name)

_____ KIND OF BUSINESS _____ MONTHS IN POSITION

_____ STARTING SALARY (Per Month) _____ ENDING SALARY (Per Month)

_____ TITLE (or position) _____ EMPLOYER (Firm Name)

_____ KIND OF BUSINESS _____ MONTHS IN POSITION

_____ STARTING SALARY (Per Month) _____ ENDING SALARY (Per Month)

ABSTRACT

A state-wide study of transfer students to vocational, technical and adult schools in the State of Wisconsin was conducted. The study was limited to day students in post secondary programs (associate degree, vocational diploma, and apprentice). Data on the number of transfer students to VTAE districts were obtained from the Wisconsin Board of Vocational, Technical and Adult Education for the years 1969, 1970, and 1971. Questionnaires were distributed to transfer students in all VTAE districts in the State of Wisconsin in the fall of 1971. A total of 1,129 questionnaires were used in this study.

The objectives of the study were to determine the number of students transferring to each of the Wisconsin vocational-technical school districts and the schools from which these students transferred, to indicate the reasons students give for transferring and for selecting specific programs, to indicate changes in career objectives by transfer students, and to determine characteristics of transfer students, such as sex, age, veterans, number of credits earned, and grade point average at the school from which the student transferred.

A few of the findings of the study are as follows:

1. The number of transfer students enrolled in the fall of each year at VTAE schools in the state has increased from 1969 to 1971 in most districts. The number of transfer students to VTAE districts from four-year colleges and universities has increased by 21% from 1969 to 1970 and by 26% from 1970 to 1971. The former State University System accounted for about one-third of the transfer students to VTAE schools in the fall of 1969, 1970, and 1971.

2. About 16% of new students enrolled in day post secondary programs at VTAE schools were transfer students in the fall of 1971.

3. About 76% of the fall 1971 transfer students were enrolled in Associate Degree or Vocational Diploma programs directly related to a specific occupational area.

4. The most important reason for transfer was a change in occupational objective. In most cases the reason given for transfer by students was in some way related to employment. About one-fourth of the transfer students (22%) changed their occupational objective from teaching to some other occupational area.

5. The mean number of credits earned by transfer students at colleges and universities before transfer was 32, and the mean number of semesters attended was 2.4.

6. A majority of transfer students indicated they had a grade point average of 2.0 or above at a four-year college or university before transfer. About one-third (30%) of the transfer students indicated that they had a grade point average below 2.0 at a four-year college or university before transfer. The grade point average varied greatly by program; for example, 16% of the Health Occupations transfer students indicated they had a grade point average below 2.0 at a four-year school, while 41% of the General Education students reported a grade point average below 2.0.

It is recommended that a report on transfer students be prepared annually, that an analysis of transfer students in individual programs be made, and that a state-wide study of transfer students be carried out with the cooperation of the VTAE system and the University of Wisconsin system. These studies will be useful for counseling students and in planning activities for higher education.

TITLE (or position) | EMPLOYER (Firm Name)

KIND OF BUSINESS | MONTH OS POSITION

STARTING SALARY (Per Month) | ENDING SALARY (Per Month)

TITLE (or position) | EMPLOYER (Firm Name)

KIND OF BUSINESS | MONTHS IN POSITION

STARTING SALARY (Per Month) | ENDING SALARY (Per Month)

TITLE (or position) | EMPLOYER (Firm Name)

KIND OF BUSINESS | MONTHS IN POSITION

STARTING SALARY (Per Month) | ENDING SALARY (Per Month)

TITLE (or position) | EMPLOYER (Firm Name)

KIND OF BUSINESS | MONTHS IN POSITION

STARTING SALARY (Per Month) | ENDING SALARY (Per Month)

APPENDIX II

In the interest of continuously improving our two-year degree Marketing Programs, we are conducting a survey of all our students of recent years. Your answers on the enclosed questionnaire will be most helpful to us in evaluating our program and improving it. (Besides, we like to hear from you!)

All answers will be held strictly confidential and will be used for the purpose of this study only.

Will you please return the questionnaire in the enclosed envelope as soon as possible? We will appreciate it greatly.

Cordially yours,

Ruth Cressman

Ruth Cressman (Miss)
Instructor,
Marketing Department

RC/dr

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APPENDIX III

FIRST FOLLOW-UP

MILWAUKEE AREA TECHNICAL COLLEGE 1015 North Sixth Street
Milwaukee, Wisconsin 53203

We wonder if you may have overlooked or misplaced the questionnaire we sent to you a few days ago. We truly like to hear from our students, and answers to the few questions will be of great help to us in evaluating our programs and in always trying to improve them for future students.

Won't you take a few minutes to fill out the questionnaire and mail it back to us? We will appreciate it so very much! (If it isn't readily available, just call me at 271-1341, extention 296, and I'll send you another!)

Sincerely yours,
Ruth Cressman

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APPENDIX IV

SECOND FOLLOW-UP

MILWAUKEE AREA TECHNICAL COLLEGE, 1015 North Sixth Street
Milwaukee, Wisconsin 53203

We've received the questionnaires from so many of your fellow students, but we're still missing yours. We would like so much to include your answers to the few questions in our survey totals!

I do hope you can spare a few minutes to fill out the questionnaire and mail it--I'll be looking for it!

Sincerely yours,

Ruth Cressman, Instructor
Marketing Department

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INTERVIEW SCHEDULE

NAME _____

GROUP _____

MAJOR _____

PRESENT FIELD _____

WHEN DID YOU DECIDE ON A MARKETING CAREER?

WHAT INFLUENCED YOUR CHOICE OF MARKETING AS A CAREER FIELD?

WHAT ASPECTS OF THE FIELD APPEAL(ED) TO YOU?

WHEN DID YOU DECIDE TO GO TO SCHOOL BEYOND HIGH SCHOOL?

HOW DID YOU DECIDE TO GO TO MATC?

HOW DID YOU LEARN OF MATC?

WHAT ARE YOUR IMPRESSIONS OF THE MARKETING PROGRAM NOW?

WHAT ARE YOUR THOUGHTS ON THE INTERNSHIP COURSE?

DID YOU BELONG TO CLUBS AND ORGANIZATIONS?

DO YOU PLAN TO GO TO SCHOOL BEYOND MATC?

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Mary Hardin Baylor College

"Military and Correspondence" schools

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Mississippi Valley State College

North Dakota University

Oshkosh State University

Sales Training

St. Francis College

Spencerian College

Stout State University

University of East Manila

University of Florida

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Business Education

Chemistry

Conservation

Elementary Education (2)

Education

Engineering

History (2)

Math

Micro-Biology

Real Estate

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"OTHER" INSTITUTIONS ATTENDED BY RESPONDENTS AFTER MATC

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Manpower

Milwaukee School of Engineering

Milton College

Spencerian College (3)

Stout State University (2)

University of Louisville

University of Wisconsin--Madison

University of Wisconsin--Parkside (2)

University of Wisconsin--Whitewater

Waukesha Technical Institute

Wisconsin State University--Stevens Point

Wisconsin State University--Platteville

CHAPTER I

INTRODUCTION

College graduates without specific job skills are finding it increasingly difficult to obtain satisfactory employment. College students are more concerned about job opportunities after graduation than they have been in the past decade. Edwin L. Rumpf, Director of Vocational and Technical Education for the United States Office of Education, says, "Our higher education programs are turning out more graduates than the economy can absorb. In many cases people are spending four years in colleges and are not prepared to do any specific job when they finish. People are finally beginning to recognize that college isn't the only way to get to Heaven."[1]

A great deal of research has been done on transfer from two-year colleges to four-year colleges, but very little research has been done on the reverse transfer student who goes from the four-year school to the two-year school. The reasons for the lack of research of the reverse transfer student identified by Lembke are (1) institutions are unaware of the number of transfer students enrolled, (2) they fail to view the transfer student as unique, or (3) they lack the motivation or resources to undertake research.[2]

The Wisconsin Coordinating Council of Higher Education (CCHE) has prepared a number of studies of transfer students and the post-secondary preferences of high school seniors. The CCHE was dissolved when the University of Wisconsin and the Wisconsin State University systems were merged in 1971, and these studies are no longer being done. To assist the university system and the vocational-technical system in planning programs and projection enrollments, information regarding transfer students and preferences of high school students should be collected and analyzed. The vocational-technical system should not leave this type of research to be done exclusively by the universities. The VTAE system has the ability to carry out this type of research.

Post-secondary vocational-technical and adult education involving retraining and upgrading workers will become increasingly

---

[1]Lewis M. Phelps, "Learning a Trade," The Wall Street Journal, Wednesday, September 22, 1971, p. 1.

[2]Robert T. Lembke, The Two-Year College Drop-in Student: A New Perspective, ERIC ED 023 378, 1968.

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Kahn, Robert L., Carrell, Charles F., The Dynamics of Interviewing, New York: John Wiley and Sons, Inc. 1957

Richardson, Stephen A., Dobrenwend, Barbara Snell, Klein, David, Interviewing, New York, London: Basic Books Inc. 1965.

Riley, Matild White, Sociological Research, Volume II. New York, Chicago, San Francisco, Atlanta: Harcourt, Brace, and World, Inc. 19

important in the future.[3] The traditional college market will be a declining market by the 1980's. Enrollment in the University of Wisconsin system is expected to reach 159,900 in 1980, then decline to 137,580 in 1986.[4] The number of high school graduates will start declining in the late 1970's, and fewer students may be electing to take Liberal Arts majors that do not offer job opportunities. The VTAE system must be prepared to meet the needs of the citizens of this state. This study will hopefully encourage VTAE districts to do detailed studies of their transfer students and the post-secondary preferences of high school students.

Enrollments at vocational-technical schools in the State of Wisconsin are increasing. The purpose of this study is to determine what part of vocational-technical enrollments are made up of transfer students and to obtain some description data about these transfer students. This information will be valuable in planning instructional programs and counseling of students at VTAE schools.

Objectives

1. To determine the number of students transferring to each of the Wisconsin vocational-technical school districts and the schools from which these students transferred.

2. To indicate the reasons students give for transferring and for selecting specific programs.

3. To indicate changes in career objectives by transfer students.

4. To determine characteristics of transfer students, such as sex, age, veterans, number of credits earned, and grade point average at the school from which the student transferred.

[3] Work Force, 1980 - A Problem & an Opportunity!, a cooperative analysis by eight Wisconsin state agencies, December 1971.

[4] Ralph D. Olive, "UW Expects 159,900 in 1980," The Milwaukee Journal, April 7, 1972.

Definition of Terms

VTAE Districts - Composed of 17 vocational, technical and adult education districts in the State of Wisconsin as of June 1972.

Transfer Student - A student who attended a post-secondary institution, such as a four-year college or university, a proprietary school, or another VTAE district, prior to enrolling in a full-time post secondary program in a VTAE district.

New Student - A student who has not been previously enrolled in a program in the VTAE district.

Post-Secondary Programs - Includes Associate Degree, Vocational Diploma, and Apprenticeship programs.

Continuing Student - A student who was enrolled in previous semester in the same VTAE district.

Re-entry Student - A student who discontinued at a VTAE district and then re-enrolled in the same or different program at a later date. Students who originally enroll in a VTAE district who later transfer to another post-secondary institution and then re-enter the original VTAE district are considered re-entry students, not transfer students.

Drop-in Students - Students who drop out of a four-year college or university and drop in to a vocational-technical program.

Limitations of the Study

The number of transfer students indicated in this study includes only those enrolled in day full-time post-secondary programs. The sample was limited to day students, because most evening VTAE students are enrolled in courses to fulfill individual needs and are not seeking to complete programs. If evening students were included, the number of transfer students in each district would be two or more times greater than indicated in this study. The evening students omitted in this study who are seeking a degree or diploma would be offset by some day students included in the study who are part-time students taking individual courses and not seeking a degree or diploma. Providing courses for the special needs of part-time students is an important function of vocational-technical education. A study of part-time students should be a separate study.

The sample of questionnaires completed by transfer students that was obtained from some districts is limited. Data concerning numbers of transfer students to some districts were not available or not complete. Any data that appeared to be of questionable accuracy was omitted. A total number of transfer students to all VTAE districts for the years 1969 to 1970 was not available. As a result, it is not possible to make a complete state analysis of trends in numbers of transfer students to VTAE districts.

CHAPTER II

REVIEW OF RELATED TRANSFER STUDIES AND OTHER RESEARCH

Studies of Associate Degree graduates in District 9 have shown that a significant number of these graduates are transfer students from four-year colleges. In 1965, 1966, and 1968, approximately one out of three MATC Associate Degree graduates was a transfer student from a four-year college or technical school. The 1965, 1966, and 1968 percentages were 35.5%, 34.4%, and 35.5%. The percentage of MATC graduates who were transfers from four-year colleges or technical schools decreased to 29.5% in 1970 and 26% in 1971, although the total number of transfer graduates increased. There were 234 Associate Degree level graduates who were transfer students in 1970 and 238 in 1971, as compared to 137 in 1965.[5]

A study of students enrolled in Associate Degree programs at the Milwaukee Area Technical College the first semester of 1970-71 shows that 16.6% of these students were transfers from four-year colleges and universities. This percentage included continuing and re-entry students who had transferred from a four-year college or university.[6]

The Wisconsin Coordinating Council for Higher Education has conducted studies of the number of transfer students in 1962, 1964, and 1966. The CCHE studies indicated numbers of students transferring between post-secondary institutions in the State of Wisconsin, but vocational-technical schools, with the exception of the Milwaukee Area Technical College (District 9), are not specified in these studies.[7]

[5] "Transfer to Associate Degree Divisions at Milwaukee Campus-MATC from Four-Year Colleges," MATC, January 1971.

[6] "1971 MATC Associate Degree Graduate Profile," Student Services and The Research and Long-Range Planning Office, November 1971.

[7] Phyllis Hawthorne and L. J. Lins, Undergraduate Transfers, Wisconsin Coordinating Committee for Higher Education, September 1967.

The 1966 study showed that about twice as many students (306) transferred to VTAE District 9 (District 9 was called MIT in the 1966 study) from UW-M as transferred from MIT to UW-M (161 students). Tables 2.1 and 2.2 from the CCHE report also show that more students transferred to MIT from other schools (797 students) than to UW-M (704 students). Table 2.3 indicates that the number of transfers to District 9 increased from 458 in the fall of 1962 to 797 in 1966. It also indicates that a majority of transfers were enrolled in General Education in District 9. However, the percent of transfer students in General Education decreased from 64.8% in 1962 to 55.1% in 1966.

The number of transfers to District 9 in the CCHE study must be compared cautiously to the numbers in the present study, because in 1966 the transfer students reported to CCHE from District 9 may have included some continuing transfer students and re-entry students. (Students who started in District 9 transferred to a four-year school and then transferred back to District 9.) The present study includes only new students who are transfers to any of the VTAE districts in the State of Wisconsin.

The Minnesota Higher Education Coordinating Commission has prepared a tabular study of Minnesota undergraduate transfer students. This study showed that transfers to state junior colleges in Minnesota represented 8.1% of the full-time enrollment in their institutions in the fall of 1970.[8]

A study done for the America Association of Junior Colleges showed that 9.44% of the new students at 46 community colleges were transfer students. This study recommended examination of methods used in counseling transfer students and a more detailed study of the problem of transfer students.[9]

[8]"Minnesota Undergraduate Transfer Students, 1962-1970," Minnesota Higher Education Coordinating Commission, November 1970.

[9]Michael C. Heinze and Jack L. Daniels, The Transfer of Students into Community Colleges, 1970, ERIC ED 051 379.

Table 2.1

COLLEGE OR SCHOOL CHOSEN BY UNDERGRADUATE TRANSFERS TO UNIVERSITY OF WISCONSIN-MILWAUKEE
BY COLLEGE FROM WHICH TRANSFERRED, FALL 1966

College or School	FROM: UW System		FROM: State University System										FROM: Other Colleges					Total
	UW Msn	UW Ctrs	Eau Claire	La Crosse	Osh-kosh	Platte-ville	River Falls	Stev. Point	Stout	Super-ior	White-water	Total State Univ.	CTC	MIT	Priv	Voc	Out-of-State	
L & S	82	84	5	8	13	--	2	9	3	--	13	53	--	86	68	1	93	467
Educ.	18	22	1	--	7	1	1	2	--	2	5	19	--	32	33	--	24	148
Engr.	7	7	--	--	2	1	1	1	--	--	2	7	--	17	8	--	9	55
Nurs.	3	4	--	--	1	--	--	--	--	--	--	1	--	3	9	--	6	26
Journ.*	4	2	--	--	1	--	--	--	--	1	1	3	--	1	--	--	3	13
Bus.Adm.	10	17	--	--	2	--	--	3	--	1	1	7	--	21	--	1	15	71
Home Ec.	--	--	--	--	--	--	--	1	--	--	--	1	--	--	--	--	1	2
Pharm.	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	2
TOTAL	124	136	6	8	26	2	4	16	3	4	22	91	--	161	119	2	151	784

*Journalism is a part of the College of Letters and Science at The University of Wisconsin, but has been separated here.

Source: Undergraduate Transfers, Research Report, Wisconsin Coordinating Committee for Higher Education, September 1967.

Table 2.2

COURSE OR DIVISION CHOSEN BY UNDERGRADUATE TRANSFERS TO THE MILWAUKEE INSTITUTE OF TECHNOLOGY BY COLLEGE FROM WHICH TRANSFERRED, FALL 1966

Course or Division	FROM: UW System			FROM: State University System										FROM: Other Colleges				Total
	UW Msn	UW Milw	UW Ctrs	Eau Claire	La Crosse	Osh-kosh	Platte-ville	River Falls	Stevens Point	Stout	Super-ior	White-water	Total State Univ.	CTC	Priv Voc		Out-of-State	
Gen.Educ.	41	164	2	3	8	43	3	--	16	13	--	49	135	1	59	--	37	439
Bus.Educ.	12	67	--	--	2	8	--	--	4	--	--	16	30	--	23	1	10	143
Tech.Educ.	9	47	5	--	--	8	1	--	2	--	1	6	18	2	31	4	9	125
Nursing	3	12	--	2	--	4	--	--	--	--	--	3	9	2	9	--	4	39
Serv. & Health	1	5	--	--	--	2	--	--	1	--	--	--	3	--	11	--	8	28
Graphic & Appl.Arts	2	9	--	--	--	--	--	--	--	--	--	--	--	--	3	1	5	20
Television	--	2	--	--	--	--	--	--	--	--	--	--	--	--	--	1	--	3
TOTAL	68	306	7	5	10	65	4	--	23	13	1	74	195	5	136	7	73	797

Source: Undergraduate Transfers, Research Report, Wisconsin Coordinating Committee for Higher Education, September 1967.

5533

Table 2.3

COURSE OR DIVISION CHOSEN BY TOTAL UNDERGRADUATE TRANSFERS
TO THE MILWAUKEE INSTITUTE OF TECHNOLOGY
FALL 1962, 1964, AND 1966

Course or Division	Fall 1962		Fall 1964		Fall 1966	
	No.	% of Total	No.	% of Total	No.	% of Total
General Education	232	64.8	283	61.8	439	55.1
Business Education	34	9.5	63	13.8	143	17.9
Technical Education	57	16.0	58	12.7	125	15.7
Nursing	--	--	--	--	39	4.9
Service and Health	8	2.2	33	7.2	28	3.5
Graphic and Applied Arts	19	5.3	14	3.0	20	2.5
Television	8	2.2	7	1.5	3	0.4
TOTAL	358	100.0	458	100.0	797	100.0

Source: Undergraduate Transfers, Research Report, Wisconsin Coordinating Committee for Higher Education, September 1967.

Enrollments at Wisconsin Public Post-Secondary Institutions

Total enrollments at four-year colleges and universities and VTAE districts are affected by the number of transfer students and the changing preferences of high school graduates. A discussion of enrollment trends at public post-secondary schools in the State of Wisconsin follows. The relationship between total enrollments and transfer students is discussed in the summary of this study.

The Wisconsin Coordinating Council for Higher Education in a 1970 study indicated that the rate of increase of enrollments in the University of Wisconsin and the former Wisconsin State University System was declining. This report indicates that the changes in enrollment are due to the rise in fees to Wisconsin resident students.[10]

> Although the number of resident new freshmen increased state-wide 12.5 percent from 1967 to 1970, the rate of increase from 1964 to 1967 was 30.7 percent. Sixteen counties provided fewer new freshmen in 1970 than in 1967. Of 19 heavily populated counties which accounted for nearly three-quarters of the state's new freshmen in 1970, only three had a higher rate of increase from 1967 to 1970 than from 1964 to 1967, and in many cases the rate of increase was substantially less than it was from 1964 to 1967.
>
> For the first time in a decade, resident new freshman enrollments declined in the Wisconsin State University System from 1969 to 1970, the system which educates the largest proportion of the state's undergraduate residents.[11]

[10] Phyllis Hawthorne and L. Joseph Lins, Wisconsin's High School Graduates, New Freshman Enrollments, and Geographic Origin of New Freshmen, 1960-1970, Wisconsin Coordinating Council for Higher Education, May 1971.

[11] Ibid.

In 1971 the rate of increase in enrollments in the University of Wisconsin System continued to decline. The total system had an increase from 132,088 to 133,702, but the percentage of 18-year-olds entering as new resident freshmen decreased from 28.78 to 26.75 from 1970 to 1971. This percentage is projected to increase from 1972 to 1986.[12]

Table 2.4 indicates that the proportion of 18-year-olds enrolling in VTAE post-secondary programs is increasing. The proportion at the University of Wisconsin (Chapter 36 schools) and at the former state universities (Chapter 37 schools) is decreasing.[13] Caution must be used in comparing numbers and percentages in this table, because the head count enrollments for VTAE schools would include more part-time students than at the universities, and the mean age of VTAE students is higher than university undergraduates. Also, as is pointed out in a footnote for Table 2.4, there may be some overlap of VTAE enrollments in post-secondary and transfer programs.

Table 2.5 shows the full-time equivalent enrollments at UW two-year centers, state university branches, and VTAE districts for 1967, 1970, and 1971. While the VTAE FTE increased by 4,710 students from 1970 to 1971, the UW two-year campuses' FTE decreased by 191. The FTE enrollments in VTAE full-time post-secondary programs at some districts have been adjusted upward since this table was prepared in February 1972 by the State VTAE staff. A corrected table has not been prepared. The VTAE enrollments do not include students enrolled in adult courses. VTAE adult head count enrollments are larger than post-secondary enrollments. Most students in adult courses, however, are part-time students.

[12]"1973-75 Biennial Budget Policy Paper #2.1, Enrollment Projections 1975-86," University of Wisconsin System, April 1972.

[13]Ibid., p. 3.

Table 2.4

WISCONSIN FALL NEW STUDENT[1] ENROLLMENTS

Related to Birth Pool

Fall	Birth Pool[2]	Ch. 36		Ch. 37		Co. Teach. & Private		VTAE Tr. Cr.		Total Degree Cr.		VTAE Post Sec.[3] FT		Grand Total	
		New Fr.	Rel.	New Fr.	Rel.	New Fr.	Rel.	New Fr.	Rel.	New Fr.	Rel.	New Fr.	Rel.	New Fr.	Rel.
1967	82,736	8,062	9.74	13,696	16.55	7,904	9.55	1,469	1.78	31,131	37.63	10,337	12.49	41,468	50.12
1968	82,034	9,206	11.22	14,526	17.71	7,675	9.36	1,543	1.88	32,950	40.17	11,787	14.37	44,737	54.53
1969	87,819	10,327	11.76	15,294	17.42	7,411	8.44	1,502	1.71	34,534	39.32	14,209	16.18	48,743	55.50
1970	88,941	10,509	11.81	15,090	16.97	7,179	8.07	1,715	1.93	34,493	38.78	16,508	18.56	51,001	57.34
1971	88,408	10,028	11.34	13,624	15.41	6,683	7.56	2,054	2.32	32,389	36.63	20,036	22.66	52,425	59.30

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Source: 1973-75 Biennial Budget Policy Paper #2.1, Enrollment Projections 1975-86, University of Wisconsin System, April 1972.

[1]Chapter 36 (University of Wisconsin System) and 37 (State University System) have resident new freshmen; others are total "new freshmen;" based in part upon WACRAO reports.

[2]18-year-old population.

[3]Fall 1971 is a preliminary count; there is likely some overlap between the two VTAE categories.

Table 2.5

FTE Enrollments at UW Centers,
State University Branches, and VTAE Districts
Fall 1969, 1970, and 1971

	1969	1970	1971
UW Centers:			
Marathon County	669	675	654
Marshfield	255	269	289
Rock County	508	493	472
Sauk County	242	260	249
Sheboygan County	488	459	449
Washington County	406	442	439
Waukesha County	1,048	1,100	1,132
Subtotal:	3,616	3,698	3,684
State University Branches:			
Barron County	343	401	400
Fond du Lac	498	531	469
Richland Center	357	351	296
Taylor County	130	209	150
Subtotal:	1,328	1,492	1,315
Total: (U.W., W.S.U. Branch Campuses)	4,854	5,190	4,999
Full-time Post-Secondary Enrollments for Fall Semester, Voc-Tech. Ed. Districts:*			
1	1,343	1,437	1,691
2	1,321	1,550	1,899
3	282	432	621
4	3,413	3,382	3,898
5	387	446	683
6	1,557	1,856	2,987
7	653	738	-
8	784	1,135	1,456
9	7,186	7,653	8,382
10	712	767	922
11	829	1,017	1,217
12	1,116	1,409	2,105
13	1,255	1,423	1,742
14	493	455	746
15	1,206	1,262	1,217
16	160	439	631
17	847	996	1,005
18	4	47	63
Subtotal, VTAE Districts	23,548	26,444	31,345
Grand Total, U.W., W.S.U., VTAE District Enrollments	28,402	31,634	36,344

*Includes Associate Degree, College Parallel, Two-year Vocational Diploma, One-year Vocational Diploma, and Apprentice.

Source: Wisconsin [illegible]

CHAPTER III

PROCEDURES

Preparation of Questionnaire and Distribution

A questionnaire and forms for the listing of transfer students by school was prepared in July 1971 and reviewed by members of the VTAE State Board staff. Suggested revisions were made in a second draft of the questionnaire, and forms were sent to the Research Director of each VTAE district in the State for their comments. The questionnaire and forms were revised a third time, after suggestions made by District Research Directors were received.

In September 1971 a cover letter from Mr. Eugene Lehrmann, State VTAE Director, and questionnaires and forms were sent to each District Director (see Appendixes II, III, and IV). Each district was to complete Forms 1A, 1B, and 1C and to distribute questionnaires to new transfer students at orientation sessions or to obtain the data asked for in the study from individual students by mail or individual contact. It was anticipated that some districts might not be able to fully cooperate in the study. Research personnel at a number of districts indicated that they would have some difficulty in identifying transfer students. Some of the reasons for this difficulty mentioned were the following:

1. Orientation sessions for new students were not scheduled.
2. There was a lack of time to distribute and collect questionnaires.
3. There was a lack of funds for clerical and professional personnel to locate transfer students and to distribute questionnaires to a large sample.

However, all districts did cooperate and supply at least some of the data requested. District personnel distributed questionnaires in regular or orientation classes, mailed them to transfer students, or contacted transfer students individually. Some districts used a combination of these procedures. Questionnaires were received from all districts by January 1972. The total number of questionnaires returned was 1,129. This represents 40 to 45 percent of the transfer students to VTAE districts in the State of Wisconsin. The exact percentage cannot be calculated because of incomplete data. The sample from some districts include some continuing transfer students. The questionnaires completed by continuing transfer students cannot be distinguished from new transfer students in most cases. The total sample hopefully represents a representative sample of transfer students, even though the samples from some districts may not be representative of a district. The sample size from districts ranged from 4 to 332.

In District 9 the sample represents about one-half of the new transfer students. This sample was obtained from orientation classes of new students and through distribution of questionnaires to randomly selected classes in areas (such as Communication Skills and English Composition) where a large number of transfer students would be found.

Distribution of the total sample that returned questionnaires is shown in Table 3.1. Table 3.2 shows the number of questionnaires returned from each district. The questionnaires were tabulated by instructional division and district. District totals were combined to obtain state-wide summaries.

Table 3.1

Distribution of Sample from All VTAE Districts
By Instructional Divisions
Fall 1971 Transfer Students

Program (See Table 3.4)	No.	%
Agriculture	16	1.4
Business	439	38.9
General Education (College Parallel)	93	8.2
Graphic and Applied Arts	42	3.7
Health Occupations	220	19.5
Service Occupations	89	7.9
Technical or Industrial	230	20.4
	1,129	100.0

Table 3.2

Number of Students in Total Sample
From Each District
Fall 1971 Transfer Students

District	1	2	3	4	5	6 & 7	8	9	10
No. of Transfer Students	175	51	21	25	20	149	37	332	36
% of Sample	15.51	4.52	1.86	2.13	1.77	13.21	3.28	29.43	3.19
District	11	12	13	14	15	16	17	18	Total
No. of Transfer Students	43	43	46	49	19	27	52	4	1,129
% of Sample	3.81	3.81	4.08	4.35	1.69	2.39	4.61	.36	100.0

Table 3.3 shows the distribution of students in this sample by Associate Degree, College Parallel, Vocational, and Apprentice programs. The percentages of College Parallel (General Education), 8%, and Apprentices, 1%, in the questionnaire sample are low. The percentage of transfer students from four-year colleges and universities to VTAE schools was about 23% in General Education and 3% for Apprentices. A majority of General Education students in the sample are from District 9. The others are from Districts 4 and 16. The questionnaire responses of General Education students are shown separately whenever they appeared to differ greatly from other classifications. Apprentices are included in the Technical and Industrial group.

Table 3.3

Distribution of Students in Sample by Type of Programs

	Associate Degree--Science	College Parallel	Vocational Diploma	Apprentices
Number	622	93	372	11
Percent	57%	8%	34%	1%
Unknown	31			

To identify any differences in questionnaire responses of transfer students in various programs, classifications of programs were used. Table 3.4 shows the arbitrary classification used and the programs included in each group. In most cases, little difference was noted between Associate Degree and Vocational Diploma students. However, an analysis of individual questionnaires showed some large differences between responses in different classifications or programs. In future studies on the state or district level, each program should be analyzed. This is beyond the scope of this study.

Table 3.4

Programs of Transfer Students Included in the Sample

Agriculture

Agriculture Buildings Serviceman
Agriculture Mechanic
Horticulture Production
Horticulture Retail
Farm Business Management
Timber Producer Aide

Business

Account Clerk
Accounting
Clerk Typist
Court and Conference Reporting
Data Processing Machine Operator
Data Processing (Programmer)
Fashion Retailing
General Business
Office Mid-Management
Marketing
Marketing (Fashion Merchandising, Foods, Industrial, Retail, Transportation and Distribution)
Secretarial Science
Secretarial Science - Legal
Secretarial Science - Medical
Stenographer
Stenographer - Legal

Graphic and Applied Arts

Commercial Arts
Photography
Printing and Publishing
Visual Communication

Health Occupations

Dental Assistant
Dental Hygienist
Dental Laboratory Technician

Health Occupations - (Continued)

Environmental Health and Water and Wastewater
Inhalation Therapist
Medical Assistant
Operating Room Assistant
Practical Nursing
Ward Clerk
Medical Record Technician

Service Occupations

Child Care Assistant
Cosmetology
Interior Decoration
Restaurant and Hotel Cookery
Home Management Assistant
Barber
Police Science Technician
Funeral Service
Community Service Aide

Technical or Industrial

Aeronautics-Pilot Training
Air Conditioning
Air Frame and Power Mechanics
Architectural
Architectural--Residential Design
Auto Body
Auto Mechanics
Automotive
Chemical Technology
Civil Highway Technology
Civil Structural Technology
Combustion Engine
Drafting Architectural
Drafting Mechanical
Electricity
Electronics
Electronics Communications
Electronics--Computer
Electronics Servicing Radio and Television Repair
Fire Service
Industrial Maintenance
Instrumentation
Mechanical Design
Mechanical Production (MFG)
Power Electrical

Technical or Industrial - (Continued)

Sheet Metal
Technical Engineering
Telecasting
Tool and Die Making
Welding
Wood Technics
Biomedical Electronics
Electrical Power Distribution
Electromechanical Technician
Industrial Safety Technician
Plastics Technician

Determination of Numbers of Transfer Students

Ten of the 17 VTAE districts completed Form 1A which indicated the number of new transfer students. Only 5 districts were able to complete either Forms 1B (Continuing Transfer Students) or 1C (Re-entry Transfer Students). This data is not ordinarily collected by VTAE districts.

In order to obtain more complete data on numbers of transfer students, a request was made to the VTAE State Board staff for transfer data received from VTAE districts. Numbers of new transfer students for districts in the years 1968, 1969, 1970, and 1971 were available from the State VTAE Data Processing Department. Data from 1968 appears to have many errors, and the data from 1968 was not used. Not all districts reported transfer students to the State District VTAE Board in 1969, 1970, and 1971. Data for a majority of the districts was available in each year. This data was carefully reviewed, and, in a few cases, questionable data was discarded. The data was tabulated and is discussed in chapter IV of this study. Only transfer students enrolled in day full-time post-secondary programs were used in the study of numbers of transfer students.

CHAPTER IV

FINDINGS

Number of Transfer Students

Tables 4.1, 4.2, and 4.3 are summaries of numbers of transfer students from various types of post-secondary institutions in 1969, 1970, and 1971, respectively. The only year in which all transfer students were reported to the State VTAE office was 1971. A few of the findings indicated in these tables are the following:

1. In each year, the greatest proportion of transfers came from the former State University System. The number of transfers from the nine state universities increased from 572 in 1969 to 589 in 1970 to 932 in 1971.

2. The number of transfer students from UW-Madison to VTAE schools increased about three times (82 to 242) from 1969 to 1971. A majority of these students went to District 4 (Madison Area Technical College).

3. A decrease of transfer students from UW-Milwaukee to VTAE schools occurred from 1969 to 1971 (181 in 1969 to 167 in 1971). This is the only four-year college or university classification that showed a decrease.

4. A total of 81.1% of all transfer students to VTAE districts were from four-year colleges and universities in 1971 and almost one-half of this total (36.6%) were from the nine former state universities. If the 227 transfer students from other VTAE districts are not included, then the transfer from four-year colleges and universities is 84.5%, and the percentage from the former state universities is 40.3%.

5. A large decrease in the number of transfers from one VTAE district to another (394 to 159 from 1969 to 1970) is the result of the combination of local VTAE schools into districts.

Comparisons between the totals in Tables 4.1, 4.2, and 4.3 cannot be made, because not all districts reported their number of transfer students in 1969 and 1970. However, 11 VTAE districts that had a total of 85% of the transfer students in 1971 reported data to the State VTAE office in all three years, and comparisons can be made of numbers of transfer students from 1969 to 1971 from these districts. Table 4.4 shows the following about these 11 districts:

1. The number of transfer students from four-year colleges and universities increased by 52% (587) from 1969 to 1971 at the 11 districts used in the comparison.

2. District 4 (Madison Area Technical College) had an increase of 233 transfer students from four-year colleges and universities from 1969 to 1971, which represents over one-third of the increase for all 11 districts.

3. In the 11 districts the increase in the number of transfer students from four-year colleges and universities from 1970 to 1971 (26%) was greater than the increase from 1969 to 1970 (21%).

4. The number of transfers from private vocational-technical schools increased by 103 (71%) from 1970 to 1971 (145 in 1970 to 248 in 1971).

Table 4.5 shows the type of program in which transfer students enroll. This table indicates the following:

1. About one-half of the transfer students to VTAE schools enrolled in Associate Degree programs.

2. The percentage of transfers in College Parallel programs has decreased from 27.9% in 1969 to 23.8% in 1971.

3. The percentage of transfers to Vocational Diploma programs has increased from 15.7% to 22.5% from 1969 to 1971.

4. The percentage of transfer students enrolled in Apprentice programs decreased from 8.0% in 1969 to 2.3% in 1971.

The schools included in the categories in Tables 4.1 to 4.22 are indicated in Forms 1A, 1B, and 1C in Appendix IV. For example, UW-Other includes UW-Parkside, UW-Green Bay, and all two-year centers that were included in the University of Wisconsin before merger with the State University System.

Table 4.1
Number and Percent of Transfer Students to State Vocational-Technical Schools
Day Post-Secondary Programs
District Summary - Fall 1969

	Associate Degree		College Parallel		Vocational Diploma		Apprentice		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
State Voc-Tech Schools	99	13.08	14	3.55	77	26.46	204	65.18	394	22.45
UW-Madison	27	3.57	36	9.14	19	6.53	-	-	82	4.67
UW-Milwaukee	65	8.59	83	21.07	15	5.15	18	5.75	181	10.31
UW-Other	77	10.17	7	1.78	22	7.56	-	-	106	6.04
UW-State Universities	308	40.69	145	36.81	95	32.65	24	7.67	572	32.59
Marquette	7	.92	19	4.82	2	.69	4	1.28	32	1.82
Other Private State Colleges and Universities	34	4.49	23	5.58	13	4.47	17	3.19	87	4.95
Private Cosmetology Schools	4	.53	-	-	2	.69	-	-	6	.34
Private Health Occupations Schools	3	.40	2	.51	5	1.72	-	-	10	.57
Private, Business, Trade and Technical Schools	30	3.96	8	2.03	11	3.78	7	2.24	56	3.19
Out-of-State Colleges and Universities	77	10.17	53	13.45	22	7.56	11	3.51	163	9.29
Out-of-State Business or Trade Schools	26	3.43	4	1.02	8	2.74	28	8.95	66	3.76
TOTALS	757	100.00	394	100.00	291	100.00	313	100.00	1,755	100.00

Districts 1, 2, 3, 4, 5, 6, 9, 10, 11, 13, 14, 15. (Districts 7, 8, 12, 16, 17, 18 not included.)

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Table 4.2
Number and Percent of Transfer Students to
State Vocational-Technical Schools
Day Post-Secondary Programs
District Summary - Fall 1970

	Associate Degree		College Parallel		Vocational Diploma		Apprentice		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
State Voc-Tech Schools	74	7.92	10	2.49	45	12.71	30	22.90	159	8.73
UW-Madison	72	7.71	47	11.69	24	6.78	2	1.53	145	7.96
UW-Milwaukee	122	13.06	48	11.94	26	7.34	19	14.50	215	11.81
UW-Other	114	12.21	15	3.73	36	10.17	2	1.53	167	9.17
UW-State Universities	294	31.48	150	37.31	107	30.23	36	27.48	587	32.24
Marquette	13	1.39	15	3.73	5	1.41	-	-	33	1.81
Other Private State Colleges and Universities	60	6.42	27	6.72	27	7.63	16	12.21	130	7.14
Private Cosmetology Schools	-	-	-	-	1	.28	-	-	1	.05
Private Health Occupations Schools	3	.32	6	1.49	7	1.98	-	-	16	.88
Private, Business, Trade and Technical Schools	38	4.07	11	2.74	21	5.93	7	5.34	77	4.23
Out-of-State Colleges and Universities	119	12.74	63	15.67	44	12.43	14	10.69	240	13.18
Out-of-State Business or Trade Schools	25	2.68	10	2.49	11	3.11	5	3.82	51	2.80
TOTALS	934	100.00	402	100.00	354	100.00	131	100.00	1,821	100.00

Districts 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16. (Districts 1, 7, 17, 18 not included.)

Table 4.3 - Summary
Number and Percent of Transfer Students to
State Vocational-Technical Schools
Day Post-Secondary Programs
District Summary - Fall 1971

	Associate Degree		College Parallel		Vocational Diploma		Apprentice		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
State Voc-Tech Schools	109	8.54	22	3.66	67	12.23	29	33.72	227	9.04
UW-Madison	116	9.08	77	12.81	44	8.03	5	5.81	242	9.63
UW-Milwaukee	76	5.95	59	9.82	27	4.93	5	5.81	167	6.65
UW-Other	171	13.39	18	2.99	56	10.22	3	3.49	248	9.87
UW-State Universities	488	38.06	211	35.11	219	36.13	24	27.91	932	36.59
Marquette	22	1.72	15	2.50	6	.91	2	2.33	45	1.75
Other Private State Colleges and Universities	88	6.81	45	7.49	44	7.66	4	4.65	181	7.09
Private Cosmetology Schools	7	.55	2	.33	2	.37	-	-	11	.44
Private Health Occupations Schools	12	.94	66	10.98	7	1.28	-	-	85	3.38
Private, Business, Trade and Technical Schools	52	4.07	20	3.33	18	3.28	4	4.65	94	3.74
Out-of-State Colleges and Universities	121	9.40	57	9.48	55	9.85	8	9.30	241	9.51
Out-of-State Business or Trade Schools	19	1.49	9	1.50	28	5.11	2	2.33	58	2.31
TOTALS	1,281	100.00	601	100.00	573	100.00	86	100.00	2,541	100.00
Unknown*	77		1		42		-		120	
TOTALS (Including Unknown)	1,358		602		615		86		2,661	

School from which student transferred is not known. All districts included.

Table 4.4

Comparison of Number and Percent Change of Transfer Students in Day Post-Secondary Fall Programs At 11 VTAE Districts*- 1969-1971

	1969	1970	% Change From 1969	1971	% Change From 1970
All Transfer Students	1,650	1,636	0%	2,162	+32%
Transfers Not Including Those from VTAE Schools	1,263	1,506	+19%	1,960	+30%
Transfers from 4-Year Colleges and Universities	1,125	1,363	+21%	1,712	+26%

*Includes Districts 2, 3, 4, 5, 6, 9, 10, 11, 13, 14, and 15 which had 85% of total transfer students in 1971. Other districts not included because transfer data was not available for all three years.

Table 4.5

State Summary of the Proportion of Transfer Students By Types of VTAE Post-Secondary Programs - 1969-1971

	Number**	Associate Degree	College Parallel	Vocational Diploma	Apprentice
1969*	1,361	48.3%	27.9%	15.7%	8.0%
1970*	1,662	51.7%	23.6%	18.6%	6.0%
1971*	2,434	51.4%	23.8%	22.5%	2.3%

*Includes all districts for which data was available in each year; 1969--12 districts, 1970--14 districts, 1971--All 17 districts.

**Transfers from one VTAE district to another are not included on this table.

Number of Transfer Students by District

Tables 4.6 through 4.22 show the number of transfer students to each district by types of schools transferred from and by type of program. A brief analysis of changes from 1969 to 1971 is as follows: (Districts 8, 12, 17, and 18 are not included because of insufficient data.)

District 1 (Table 4.6) - The number of transfer students increased from 80 in 1969 to 114 in 1971. Increase is due to doubling of the number from the State University System (53 in 1969 to 105 in 1971). Over 92% of transfer students are from State universities in 1971.

District 2 (Table 4.7) - Increase of transfer students from 82 in 1969 to 115 in 1971. State universities are primary source of transfers.

District 3 (Table 4.8) - Increase of transfer students from 9 in 1969 to 25 in 1971, primarily due to increase in number of students from State University System.

District 4 (Table 4.9) - Largest district increase of transfer students in State of Wisconsin (285 in 1969 to 737 in 1971). District had more transfer students than any other VTAE district in 1971. Large increase from all categories of schools. Primary source of transfer is from State universities and UW-Madison.

District 5 (Table 4.10) - Increase in transfer students from 3 in 1969 to 14 in 1971.

District 6 (Table 4.11) - Increase of transfer students from 69 in 1969 to 91 in 1971, primarily due to transfers from University of Wisconsin--Parkside.

District 9 (Table 4.13) - Increase from 673 in 1969 to 716 in 1970 and then decreased to 666 in 1971. The number of transfer students to district has leveled off at about 650 to 720 since 1966. Number and proportion of students coming directly from high school to District 9 is increasing.

District 10 (Table 4.14) - Increase of transfer students from 40 in 1969 to 73 in 1971. Primary sources are former State University System and other VTAE schools.

District 11 (Table 4.15) - Increase of transfer students from 41 in 1969 to 90 in 1971.

District 13 (Table 4.17) - Almost all transfer students in 1969 are from VTAE schools outside the district at that time (184 out of 229). Number of transfer students almost doubled from 104 in 1970 to 203 in 1971. Large increase from UW and other categories.

District 14 (Table 4.18) - Decrease of transfer students from 98 in 1969 to 41 in 1970 and then an increase to 80 in 1971, primarily due to fluctuations in transfer students from State university system and other VTAE schools.

District 15 (Table 4.19) - Decrease in transfer students from 121 in 1969 to 61 in 1970 and 68 in 1971, primarily due to decrease in students from State university system.

District 16 (Table 4.20) - Decrease in transfer students from 85 in 1970 to 65 in 1971. Largest decrease from State universities (41 to 33).

Table 4.6

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 1 - Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total No. 1969	Total % 1969	Total No. 1970*	Total % 1970*	Total No. 1971	Total % 1971
	1969	1970*	1971	1969	1970*	1971	1969	1970*	1971	1969	1970*	1971						
State Voc-Tech Schools	2		-	-		-	6		-	-		-	8	10.00			-	-
UW-Madison	-		-	-		-	-		-	-		-	-	-			-	-
UW-Milwaukee	-		-	-		-	-		-	-		-	-	-			-	-
UW-Other	2		1	-		-	-		-	-		-	2	2.50			1	.88
UW-State Universities	35		69	-		-	18		36	-		-	53	66.25			105	92.10
Marquette	-		1	-		-	-		-	-		-	-	-			1	.88
Other Private State Colleges and Universities	-		-	-		-	-		-	-		-	-	-			-	-
Private Cosmetology Schools	1		-	-		-	1		-	-		-	2	2.50			-	-
Private Health Occupations Schools	-		1	-		-	1		-	-		-	1	1.25			1	.88
Private Business, Trade, and Technical Schools	-		1	-		-	-		-	-		-	-	-			1	.88
Out-of-State Colleges and Universities	3		1	-		-	1		4	-		-	4	5.00			5	4.38
Out-of-State Business or Trade Schools	9		-	-		-	1		-	-		-	10	12.50			-	-
TOTALS	52		74	-		-	28		40	-		-	80	100.00			114	100.00

Table 4.7

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 2 - Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total					
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971	No. 1969	% 1969	No. 1970	% 1970	No. 1971	% 1971
State Voc-Tech Schools	6	2	6	-	-	-	2	1	6	-	-	-	8	9.76	3	2.94	12	10.43
UW-Madison	1	2	2	-	-	-	-	2	-	-	-	-	1	1.22	4	3.92	2	1.74
UW-Milwaukee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UW-Other	2	-	1	-	-	-	2	-	-	-	-	-	4	4.88	-	-	1	.87
UW-State Universities	30	48	61	-	-	-	21	24	23	-	-	-	51	62.20	72	70.59	84	73.04
Marquette	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Private State Colleges and Universities	1	1	5	-	-	-	1	1	3	-	-	-	2	2.44	2	1.96	8	6.09
Private Cosmetology Schools	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private Health Occupations Schools	1	-	-	-	-	-	3	-	1	-	-	-	4	4.88	-	-	1	.87
Private Business, Trade, and Technical Schools	-	2	-	-	-	-	-	1	-	-	-	-	-	-	3	2.94	-	-
Out-of-State Colleges and Universities	4	7	5	-	-	-	4	11	1	-	-	-	8	9.76	18	17.65	6	5.22
Out-of-State Business or Trade Schools	1	-	-	-	-	-	3	-	1	-	-	-	4	4.88	-	-	1	.87
TOTALS	46	62	80	-	-	-	36	40	35	-	-	-	82	100.02	102	100.00	115	100.00

Table 4.8

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 3 - Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total No. % 1969		Total No. % 1970		Total No. % 1971	
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971						
State Voc-Tech Schools	-	-	-	-	-	-	5	2	-	-	-	-	5	55.56	2	28.57	-	-
UW-Madison	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UW-Milwaukee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UW-Other	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	4.00
UW-State Universities	-	-	-	-	-	-	3	5	20	-	-	-	3	33.33	5	71.43	20	80.00
Marquette	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Private State Colleges and Universities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Private Cosmetology Schools	-	-	-	-	-	-	1	-	-	-	-	-	1	11.11	1	-	-	-
Private Health Occupations Schools	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Private Business, Trade, and Technical Schools	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Out-of-State Colleges and Universities	-	-	-	-	-	-	-	-	2	-	-	-	-	-	1	-	2	8.00
Out-of-State Business or Trade Schools	-	-	-	-	-	-	-	-	2	-	-	-	-	-	1	-	2	8.00
TOTALS	-	-	-	-	-	-	9	7	25	-	-	-	9	100.00	7	100.00	25	100.00

Table 4.9

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 4 - Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total No.	Total %	Total No.	Total %	Total No.	Total %
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1969	1970	1970	1971	1971
ate Voc-Tech Schools	11	13	26	4	1	7	7	10	10	-	-	3	22	7.73	24	6.11	46	6.24
-Madison	14	47	86	28	34	64	9	13	34	-	-	5	51	17.89	94	23.92	189	25.64
-Milwaukee	1	2	6	3	-	2	2	-	2	-	-	-	6	2.11	2	.51	10	1.36
-Other	3	10	15	-	-	10	1	2	4	-	-	-	4	1.40	12	3.05	29	3.93
-State Universities	59	63	94	61	45	125	18	27	30	-	1	3	138	48.42	136	34.10	252	34.19
rquette	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2	.27
her Private State Colges and Universities	3	4	13	8	2	21	3	6	1	-	-	-	14	4.91	12	3.04	35	4.75
ivate Cosmetology Schools	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3	.41
ivate Health Occupaons Schools	-	2	3	2	5	57	-	2	3	-	-	-	2	.70	9	2.29	63	8.55
ivate Business, Trade, d Technical Schools	10	18	21	8	8	12	6	7	8	-	-	1	24	8.42	33	8.39	42	5.70
t-of-State Colleges and iversities	5	25	31	11	14	9	4	14	8	-	-	1	20	7.02	53	13.49	49	6.65
t-of-State Business or ade Schools	-	8	9	2	5	5	1	4	3	1	-	-	4	1.40	17	4.33	17	2.31
TOTALS	106	193	307	127	114	312	51	85	105	1	1	13	285	100.00	393	100.00	737	100.00

55572

Table 4.10

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 5 - Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			1969 Total No.	1969 Total %	1970 Total No.	1970 Total %	1971 Total No.	1971 Total %
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971						
State Voc-Tech Schools	1	1	1	-	-	-	-	-	1	-	-	-	1	33.33	1	10.00	2	14.29
UW-Madison	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	7.14
UW-Milwaukee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UW-Other	-	2	-	-	-	-	2	2	1	-	-	-	2	66.67	4	40.00	1	7.14
UW-State Universities	-	1	3	-	-	-	-	-	4	-	-	-	-	-	1	10.00	7	50.00
Marquette	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Private State Colleges and Universities	-	-	-	-	-	-	-	1	1	-	-	-	-	-	1	10.00	1	7.14
Private Cosmetology Schools	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private Health Occupations Schools	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private Business, Trade, and Technical Schools	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	10.00	-	-
Out-of-State Colleges and Universities	-	-	2	-	-	-	-	1	-	-	-	-	-	-	1	10.00	2	14.29
Out-of-State Business or Trade Schools	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	10.00	-	-
TOTALS	1	6	7	-	-	-	2	4	7	-	-	-	3	100.00	10	100.00	14	100.00

5558

Table 4.11

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 6 - Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total					
													No.	%	No.	%	No.	%
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969		1970		1971	
State Voc-Tech Schools	11	6	8	-	-	-	2	-	3	-	1	5	13	18.84	7	10.77	16	17.58
UW-Madison	5	2	3	-	-	-	-	-	-	-	-	-	5	7.25	2	3.08	3	3.30
UW-Milwaukee	4	1	1	-	-	-	-	-	-	-	-	-	4	5.80	1	1.54	1	1.10
UW-Other	14	17	37	-	-	-	4	4	7	-	1	1	18	26.09	22	33.85	45	49.45
UW-State Universities	11	10	9	-	-	-	2	1	1	-	-	1	13	18.84	11	16.92	11	12.09
Marquette	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1.54	-	-
Other Private State Colleges and Universities	1	4	2	-	-	-	-	-	-	-	1	1	1	1.45	5	7.70	3	3.30
Private Cosmetology Schools	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private Health Occupations Schools	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.10
Private Business, Trade, and Technical Schools	7	-	2	-	-	-	-	1	-	-	-	-	7	10.15	1	1.54	2	2.20
Out-of-State Colleges and Universities	8	6	5	-	-	-	-	3	3	-	-	-	8	11.59	9	13.85	8	8.79
Out-of-State Business or Trade Schools	-	5	-	-	-	-	-	-	1	-	1	-	-	-	6	9.23	1	1.10
TOTALS	61	51	68	-	-	-	8	10	15	-	4	8	69	100.01	65	100.00	91	100.00

Table 4.12

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 8 - Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total No. % 1969		Total No. % 1970		No. % 1971	
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971						
State Voc-Tech Schools		-	5		-	-		-	7		6	4			6	100.00	16	22.22
UW-Madison		-	3		-	-		-	-		-	-			-	-	3	4.17
UW-Milwaukee		-	1		-	-		-	2		-	-			-	-	3	4.17
UW-Other		-	10		-	-		-	1		-	-			-	-	11	15.28
UW-State Universities		-	9		-	-		-	11		-	-			-	-	20	27.78
Marquette		-	1		-	-		-	-		-	-			-	-	1	1.39
Other Private State Colleges and Universities		-	5		-	-		-	-		-	-			-	-	5	6.94
Private Cosmetology Schools		-	1		-	-		-	-		-	-			-	-	1	1.39
Private Health Occupations Schools		-	2		-	-		-	-		-	-			-	-	2	2.78
Private Business, Trade, and Technical Schools		-	2		-	-		-	-		-	-			-	-	2	2.78
Out-of-State Colleges and Universities		-	4		-	-		-	3		-	-			-	-	7	9.72
Out-of-State Business or Trade Schools		-	-		-	-		-	1		-	-			-	-	1	1.39
TOTALS		-	43		-	-		-	25		6	4			6	100.00	72	100.00

Table 4.13

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 9 - Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total					
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971	No. 1969	% 1969	No. 1970	% 1970	No. 1971	% 1971
State Voc-Tech Schools	36	21	25	10	6	9	11	3	9	25	10	6	82	12.18	40	11.63	49	7.36
UW-Madison	5	11	5	8	11	8	3	4	6	-	2	-	16	2.38	28	3.91	19	2.85
UW-Milwaukee	60	113	66	80	47	57	11	25	22	18	19	4	169	25.11	204	28.49	149	22.37
UW-Other	7	13	20	7	12	4	1	1	5	-	-	1	15	2.23	26	3.63	30	4.50
UW-State Universities	62	75	68	84	68	57	9	6	9	12	16	4	167	24.82	165	23.05	138	20.72
Marquette	7	13	17	19	15	15	2	3	3	3	-	1	31	4.61	31	4.33	36	5.41
Other Private State Colleges and Universities	20	32	33	15	24	23	6	7	21	16	15	3	57	8.46	78	10.89	80	12.01
Private Cosmetology Schools	-	-	-	-	-	1	-	-	2	-	-	-	-	-	-	-	3	.45
Private Health Occupations Schools	1	1	2	-	-	9	1	-	1	-	-	-	2	.30	1	.14	12	1.80
Private Business, Trade, and Technical Schools	5	7	12	-	3	8	4	4	5	7	6	2	16	2.38	20	2.79	27	4.05
Out-of-State Colleges and Universities	42	60	38	42	35	39	6	6	25	9	14	6	99	14.71	115	16.06	108	16.22
Out-of-State Business or Trade Schools	1	1	5	2	1	4	1	2	5	15	4	1	19	2.82	8	1.12	15	2.25
TOTALS	246	347	291	267	222	234	55	61	113	105	86	28	673	100.00	716	100.00	666	100.00

5561

Table 4.1

Number and Percent of Transfer Students to
State Vocational-Technical Schools

District 10- Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total No. 1969	Total % 1969	Total No. 1970	Total % 1970	Total No. 1971	Total % 1971
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971						
State Voc-Tech Schools	2	7	8	-	-	-	4	5	8	4	13	4	10	22.73	25	37.88	20	27.40
UW-Madison	-	-	-	-	-	-	2	-	-	-	-	-	2	4.55	-	-	-	-
UW-Milwaukee	-	-	-	-	-	-	2	-	-	-	-	-	2	4.55	-	-	-	-
UW-Other	-	9	2	-	-	-	-	9	5	-	1	-	-	-	19	28.79	7	9.59
UW-State Universities	10	-	24	-	-	-	8	1	9	4	5	1	22	50.00	6	9.09	34	46.58
Marquette	-	-	-	-	-	-	-	-	-	1	-	-	1	2.27	-	-	-	-
Other Private State Colleges and Universities	1	5	-	-	-	-	2	9	5	1	-	-	4	9.09	14	21.22	5	6.85
Private Cosmetology Schools	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private Health Occupations Schools	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1.52	-	-
Private Business, Trade, and Technical Schools	-	-	-	-	-	-	-	1	2	-	-	-	-	-	1	1.52	2	2.74
Out-of-State Colleges and Universities	2	-	2	-	-	-	1	-	-	-	-	1	3	6.82	-	-	3	4.11
Out-of-State Business or Trade Schools	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS	15	21	37	-	-	-	19	26	30	10	19	6	40	100.01	66	100.00	73	100.00
Unknown			1		-			1			-						2	2.74

5562

Table 4.15

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 11- Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total					
													No.	%	No.	%	No.	%
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969		1970		1971	
State Voc-Tech Schools	4	1	2	-	-	-	3	3	1	-	-	3	7	15.56	4	5.63	6	6.67
UW-Madison	-	2	4	-	-	-	2	1	2	-	-	-	2	4.44	3	4.23	6	6.67
UW-Milwaukee	-	1	2	-	-	-	-	-	-	-	-	-	-	-	1	1.41	2	2.22
UW-Other	10	23	22	-	-	-	5	6	11	-	-	-	15	33.33	29	40.85	33	36.67
UW-State Universities	9	10	14	-	-	-	2	4	5	-	-	-	11	24.45	14	19.72	19	21.11
Marquette	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Private State Colleges and Universities	2	3	8	-	-	-	1	1	3	-	-	-	3	6.67	4	5.64	11	12.22
Private Cosmetology Schools	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.11
Private Health Occupations Schools	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	1.41	1	1.11
Private Business, Trade, and Technical Schools	2	1	2	-	-	-	-	2	1	-	-	-	2	4.44	3	4.23	3	3.33
Out-of-State Colleges and Universities	1	5	5	-	-	-	1	2	-	-	-	-	2	4.44	7	9.86	5	5.56
Out-of-State Business or Trade Schools	3	4	3	-	-	-	-	1	-	-	-	-	3	6.67	5	7.04	3	3.33
TOTALS	27	50	64	-	-	-	14	21	23	-	-	3	41	100.00	71	100.00	90	100.00

ERIC

5563

Table 4.16

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 12- Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total No.			Total %		
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971
State Voc-Tech Schools		6			-			2			-			8			8.25	
UW-Madison		3			-			1			-			4			4.12	
UW-Milwaukee		2			-			-			-			2			2.06	
UW-Other		9			-			3			-			12			12.37	
UW-State Universities		45			-			16			-			61			62.89	
Marquette		-			-			1			-			1			1.03	
Other Private State Colleges and Universities		1			-			1			-			2			2.06	
Private Cosmetology Schools		-			-			-			-			-			-	
Private Health Occupations Schools		-			-			1			-			1			1.03	
Private Business, Trade, and Technical Schools		2			-			1			-			3			3.09	
Out-of-State Colleges and Universities		3			-			-			-			3			3.09	
Out-of-State Business or Trade Schools		-			-			-			-			-			-	
TOTALS		71			-			26			-			97			100.00	
Unknown			76			-			41			-						117	100.00

ERIC

Table 4.17

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 13 - Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total No.	Total %	Total No.	Total %	Total No.	Total %
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1969	1970	1970	1971	1971
State Voc-Tech Schools	5	6	13	-	-	-	12	7	14	167	-	-	184	80.35	13	12.50	27	13.30
UW-Madison	1	4	10	-	-	-	3	1	1	-	-	-	4	1.75	5	4.81	11	5.42
UW-Milwaukee	-	2	-	-	-	-	-	-	1	-	-	-	-	-	2	1.92	1	.49
UW-Other	13	15	48	-	-	-	6	7	16	-	-	-	19	8.30	22	21.15	64	31.53
UW-State Universities	13	18	25	-	-	-	4	6	6	-	-	-	17	7.42	24	23.08	31	15.27
Marquette	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	.99
Other Private State Colleges and Universities	1	7	18	-	-	-	-	1	5	-	-	-	1	.44	8	7.69	23	11.33
Private Cosmetology Schools	-	-	1	-	-	-	-	1	-	-	-	-	-	-	1	.96	1	.49
Private Health Occupations Schools	1	-	-	-	-	-	-	2	2	-	-	-	1	.44	2	1.92	2	.99
Private Business, Trade, and Technical Schools	1	5	10	-	-	-	1	-	1	-	-	-	2	.87	5	4.80	11	5.42
Out-of-State Colleges and Universities	-	11	23	-	-	-	-	6	4	-	-	-	-	-	17	16.35	27	13.30
Out-of-State Business or Trade Schools	1	2	2	-	-	-	-	3	1	-	-	-	1	.44	5	4.81	3	1.48
TOTALS	36	70	152	-	-	-	26	34	51	167	-	-	229	100.01	104	100.00	203	100.00

5565

Table 4.10

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 14 - Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total No. % 1969		Total No. % 1970		Total No. % 1971	
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971						
Voc-Tech Schools	4	3	3	-	-	-	12	2	1	8	-	4	24	23.08	5	12.20	8	10.00
ison	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	2.44	-	-
vaukee	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	1.25
er	-	-	-	-	-	-	-	2	-	-	-	-	-	-	2	4.88	-	-
ce Universities	32	5	22	-	-	-	6	9	29	8	14	15	46	44.23	28	68.29	66	82.50
tte	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private State Col- and Universities	-	-	1	-	-	-	-	1	1	-	-	-	-	-	1	2.44	2	2.50
e Cosmetology Schools	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	2.44	-	-
e Health Occupa- Schools	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
e Business, Trade, chnical Schools	4	-	1	-	-	-	-	2	1	-	1	1	4	3.85	3	7.32	3	3.75
-State Colleges and sities	2	-	-	-	-	-	-	-	-	2	-	-	4	3.85	-	-	-	-
-State Business or Schools	10	-	-	-	-	-	2	-	-	12	-	-	24	23.08	-	-	-	-
TOTALS	50	9	27	-	-	-	18	17	32	30	15	21	98	98.09	41	100.00	80	100.00

5566

Table 4.19

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 15 - Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total No. 1969	Total % 1969	Total No. 1970	Total % 1970	Total No. 1971	Total % 1971
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971						
State Voc-Tech Schools	18	6	12	-	-	-	13	-	4	-	-	-	31	23.48	6	9.84	16	23.53
UW-Madison	1	1	2	-	-	-	-	1	-	-	-	-	1	.76	2	3.28	2	2.94
UW-Milwaukee	-	1	-	-	-	-	-	1	-	-	-	-	-	-	2	3.28	-	-
UW-Other	26	15	14	-	-	-	1	-	1	-	-	-	27	20.45	15	24.59	15	22.06
UW-State Universities	47	19	19	-	-	-	4	4	3	-	-	-	51	38.63	23	37.71	22	32.35
Marquette	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Private State Colleges and Universities	2	3	2	-	-	-	-	2	2	-	-	-	2	1.52	5	8.20	4	5.88
Private Cosmetology Schools	3	-	1	-	-	-	-	-	-	-	-	-	3	2.27	-	-	1	1.47
Private Health Occupations Schools	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1.47
Private Business, Trade, and Technical Schools	1	2	-	-	-	-	-	-	-	-	-	-	1	.76	2	3.28	-	-
Out-of-State Colleges and Universities	10	2	3	-	-	-	5	-	3	-	-	-	15	11.36	2	3.28	6	8.82
Out-of-State Business or Trade Schools	1	4	-	-	-	-	-	-	-	-	-	1	1	.76	4	6.56	1	1.47
TOTALS	98	53	54	-	-	-	23	8	13	-	-	1	121	99.99	61	100.00	68	100.00

Table 4.20

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 16 - Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total No.			Total %		
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971
State Voc-Tech Schools		-	-		3	6		10	3		-	-		13	9		15.29	13.85
UW-Madison		-	-		2	5		-	1		-	-		2	6		2.35	9.23
UW-Milwaukee		-	-		1	-		-	-		-	-		1	-		1.18	-
UW-Other		-	-		3	4		-	-		-	-		3	4		3.53	6.15
UW-State Universities		-	-		37	29		4	4		-	-		41	33		48.23	50.77
Marquette		-	-		-	-		-	-		-	-		-	-		-	-
Other Private State Colleges and Universities		-	-		1	1		1	-		-	-		2	1		2.36	1.54
Private Cosmetology Schools		-	-		-	1		-	-		-	-		-	1		-	1.54
Private Health Occupations Schools		-	-		1	-		-	-		-	-		1	-		1.18	-
Private Business, Trade, and Technical Schools		-	-		-	-		2	-		-	-		2	-		2.35	-
Out-of-State Colleges and Universities		-	-		14	9		1	1		-	-		15	10		17.65	15.38
Out-of-State Business or Trade Schools		-	-		4	-		1	-		-	-		5	-		5.88	-
TOTALS		-	-		66	56		19	9		-	-		85	65		100.00	100.00
Unknown			-			1			-			-			1			1.54

5568

Table 4.21

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 17 Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total No.			Total %		
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971
State Voc-Tech Schools																		
UW-Madison																		
UW-Milwaukee																		
UW-Other																		
UW-State Universities			2						21						23			79.31
Marquette									1						1			3.45
Other Private State Colleges and Universities			1						2						3			10.34
Private Cosmetology Schools																		
Private Health Occupations Schools																		
Private Business, Trade, and Technical Schools																		
Out-of-State Colleges and Universities			1						1						2			6.90
Out-of-State Business or Trade Schools																		
TOTALS			4						25						29			100.00

Table 22

Number and Percent of Transfer Students to State Vocational-Technical Schools

District 18 - Fall 1969, 1970, 1971

	Assoc. Degree No.			Coll. Parallel No.			Voc. Diploma No.			Apprentice No.			Total					
	1969	1970	1971	1969	1970	1971	1969	1970	1971	1969	1970	1971	No. 1969	% 1969	No. 1970	% 1970	No. 1971	% 1971
State Voc-Tech Schools									-									
UW-Madison									-									
UW-Milwaukee									-									
UW-Other									2								2	13.33
UW-State Universities									4								4	26.67
Marquette									-									
Other Private State Colleges and Universities									-									
Private Cosmetology Schcols									-									
Private Health Occupations Schools									-									
Private Business, Trade, and Technical Schools									-									
Out-of-State Colleges and Universities									2								2	13.33
Out-of-State Business or Trade Schools									7								7	46.67
TOTALS									15								15	100.00

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Number of Transfer Students

As Compared to New Students

Tables 4.23 to 4.39 indicate the proportion of new transfer students to new students by program and by district. About 16% of all new students enrolled in day post-secondary programs in the Fall of 1971 at VTAE District schools were transfer students. Highest percentages of transfer students were found in District 4. About 29% of new students enrolled in day post-secondary programs in District 4 were transfer students in 1971. District 3 had the lowest percentage of new students who were transfer students (about 2% in 1971).

Table 4.23

Number and Percent of New Students in Day Post-Secondary Programs Who Are Nontransfer or Transfer Students

District 1 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971		1969	1970	1971
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Associate Degree	255	36.22					52	65.00					307		
College Parallel	-	-					-	-					-		
Vocational Diploma															
1-year or less	287	40.77					19	23.75					306		
2-year	128	18.18					9	11.25					137		
Apprentice	34	4.83					-	-					34		
TOTALS	704	100.00					80	100.00					784		

1969	1970	1971	
10.20 %	- %	- %	of new students were transfer students.
16.94 %	- %	- %	of new students in Associate Degree programs were transfer students.
6.32 %	- %	- %	of new students in Vocational Diploma programs were transfer students.
- %	- %	- %	of new students in Apprenticeship programs were transfer students.

5572

Table 4.24

Number and Percent of New Students in Day Post-Secondary Programs Who Are Nontransfer or Transfer Students

District 2 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971		1969	1970	1971
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Associate Degree	356	52.98	421	44.60	519	45.85	46	56.10	62	60.78	80	69.57	402	483	599
College Parallel	-	-			-	-	-	-			-	-	-		-
Vocational Diploma															
1-year or less	315	46.88	401	42.48	507	44.79	36	43.90	29	28.43	34	29.57	351	430	541
2-year	1	.15	122	12.92	9	.80	-	-	11	10.78	1	.87	1	133	10
Apprentice	-	-	-	-	97	8.57	-	-	-	-	-	-	-	-	97
TOTALS	672	100.00	944	100.00	1,132	100.00	82	100.00	102	100.00	115	100.00	754	1,046	1,247

1969	1970	1971	
10.88 %	9.75 %	9.22 %	of new students were transfer students.
11.44 %	12.84 %	13.36 %	of new students in Associate Degree programs were transfer students.
10.23 %	7.10 %	6.35 %	of new students in Vocational Diploma programs were transfer students.
- %	- %	- %	of new students in Apprenticeship programs were transfer students.

55223

Table 4.25

Number and Percent of New Students in Day Post-Secondary Programs Who Are Nontransfer or Transfer Students

District 3 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971		1969	1970	1971
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Associate Degree	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
College Parallel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vocational Diploma															
1-year or less	62	47.69	116	34.32	230	57.79	2	22.22	4	57.14	5	71.43	64	120	235
2-year	67	51.54	208	61.54	144	36.18	7	77.78	3	42.86	2	28.57	74	211	146
Apprentice	1	.77	14	4.14	24	6.03	-	-	-	-	-	-	1	14	24
TOTALS	130	100.00	338	100.00	398	100.00	9	100.00	7	100.00	7	100.00	139	345	405

1969	1970	1971	
6.47 %	2.03%	1.73 %	of new students were transfer students.
- %	- %	- %	of new students in Associate Degree programs were transfer students.
5.07 %	2.11%	1.84 %	of new students in Vocational Diploma programs were transfer students.
- %	- %	- %	of new students in Apprenticeship programs were transfer students.

55574

Table 4.26

Number and Percent of New Students in Day Post-Secondary Programs
Who Are Nontransfer or Transfer Students

District 4 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971		1969	1970	1971
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Associate Degree	495	29.55	666	32.55	656	36.00	106	37.19	193	49.11	307	41.66	601	859	963
College Parallel	296	17.67	291	14.22	343	18.83	127	44.56	114	29.01	312	42.33	423	405	655
Vocational Diploma															
1-year or less	492	29.37	716	35.00	645	35.40	38	13.33	75	19.08	100	13.57	530	791	645
2-year	247	14.75	261	12.76	110	6.04	13	4.56	10	2.54	5	.68	260	271	115
Apprentice	145	8.66	112	5.47	68	3.73	1	.35	1	.25	13	1.76	146	113	81
TOTALS	1,675	100.00	2,046	100.00	1,822	100.00	285	100.00	393	100.00	737	100.00	1,960	2,439	2,559

1969	1970	1971	
14.54 %	16.11 %	28.80 %	of new students were transfer students.
17.64 %	22.47 %	31.88 %	of new students in Associate Degree programs were transfer students.
6.46 %	8.00 %	13.82 %	of new students in Vocational Diploma programs were transfer students.
.68 %	.88 %	16.05 %	of new students in Apprenticeship programs were transfer students.
30.02 %	28.15 %	47.48 %	of new students in College Parallel programs were transfer students.

5525

Table 4.27

Number and Percent of New Students in Day Post-Secondary Programs
Who Are Nontransfer or Transfer Students

District 5 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971		1969	1970	1971
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Associate Degree	39	11.14	100	27.55	141	26.06	1	33.33	6	60.00	7	50.00	40	106	148
College Parallel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vocational Diploma															
1-year or less	198	56.57	197	54.27	328	60.63	-	-	2	20.00	7	50.00	198	199	335
2-year	57	16.29	29	7.99	32	5.91	2	66.67	2	20.00	-	-	59	31	32
Apprentice	56	16.00	37	10.19	40	7.39	-	-	-	-	-	-	56	37	40
TOTALS	350	100.00	363	100.00	541	100.00	3	100.00	10	100.00	14	100.00	353	373	555

1969	1970	1971	
.85 %	2.68 %	2.52 %	of new students were transfer students.
2.50 %	5.66 %	4.73 %	of new students in Associate Degree programs were transfer students.
.78 %	1.74 %	1.91 %	of new students in Vocational Diploma programs were transfer students.
- %	- %	- %	of new students in Apprenticeship programs were transfer students.

5576

Table 4.28

Number and Percent of New Students in Day Post-Secondary Programs Who Are Nontransfer or Transfer Students

District 6 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	1969	1970	1971
Associate Degree	511	72.38	601	62.22	880	60.98	61	88.41	51	78.46	68	74.73	572	652	948
College Parallel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vocational Diploma															
1-year or less	195	27.62	258	26.71	452	31.33	8	11.59	10	15.38	14	15.38	203	268	466
2-year	-	-	28	2.90	18	1.25	-	-	-	-	1	1.10	-	28	19
Apprentice	-	-	79	8.18	93	6.44	-	-	4	6.15	8	8.79	-	83	101
TOTALS	706	100.00	966	100.00	1,443	100.00	69	100.00	65	100.00	91	100.00	775	1,031	1,534

1969	1970	1971	
8.90 %	6.30 %	5.93 %	of new students were transfer students.
10.66 %	7.82 %	7.17 %	of new students in Associate Degree programs were transfer students.
3.94 %	3.38 %	3.09 %	of new students in Vocational Diploma programs were transfer students.
- %	4.82 %	7.92 %	of new students in Apprenticeship programs were transfer students.

5527

Table 4.29

Number and Percent of New Students in Day Post-Secondary Programs
Who Are Nontransfer or Transfer Students

District 7 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971		1969	1970	1971
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Associate Degree	348	61.38	165	53.40			-	-	2	100.00			348	167	
College Parallel	-	-	-	-			-	-	-	-			-	-	
Vocational Diploma															
1-year or less	125	22.05	114	36.89			-	-	-	-			125	114	
2-year	-	-	-	-			-	-	-	-			-	-	
Apprentice	94	16.58	30	9.71			-	-	-	-			94	30	
TOTALS	567	100.00	209	100.00			-	-	2	100.00			567	311	

1969	1970	1971	
- %	.64 %	- %	of new students were transfer students.
- %	1.20 %	- %	of new students in Associate Degree programs were transfer students.
- %	- %	- %	of new students in Vocational Diploma programs were transfer students.
- %	- %	- %	of new students in Apprenticeship programs were transfer students.

5578

Table 4.30

Number and Percent of New Students in Day Post-Secondary Programs Who Are Nontransfer or Transfer Students

District 8 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971		1969	1970	1971
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Associate Degree	268	42.41	308	38.36	299	46.72	-	-	-	-	43	59.72	268	308	342
College Parallel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vocational Diploma															
1-year or less	273	43.20	376	46.83	266	41.57	-	-	-	-	23	31.94	273	376	289
2-year	41	6.49	75	9.34	40	6.25	-	-	-	-	2	2.78	41	75	42
Apprentice	50	7.91	44	5.48	35	5.47	-	-	6	100.00	4	5.56	50	50	39
TOTALS	632	100.00	803	100.00	640	100.00	-	-	6	100.00	72	100.00	632	809	712

1969	1970	1971	
- %	.74 %	10.11 %	of new students were transfer students.
- %	- %	12.57 %	of new students in Associate Degree programs were transfer students.
- %	- %	7.5% %	of new students in Vocational Diploma programs were transfer students.
- %	12.00 %	10.26 %	of new students in Apprenticeship programs were transfer students.

Table 4.31

Number and Percent of New Students in Day Post-Secondary Programs Who Are Nontransfer or Transfer Students

District 9 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971		1969	1970	1971
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
ssociate Degree	958	33.86	1,271	43.00	1,207	36.88	246	36.55	347	48.46	291	43.69	1,204	1,618	1,498
ollege Parallel	695	24.57	758	25.64	934	28.54	267	39.67	222	31.01	234	35.15	962	980	1,168
ocational Diploma									~~61~~	~~8.52~~				844	
1-year or less	634	22.41	753	25.48	916	27.99	55	8.17	61*	8.52	111	16.67	689	8.44	1,027
2-year	29	1.03	30	1.01	35	1.07	-	-			2	.30	29		37
pprentice	513	18.13	144	4.87	181	5.53	105	15.60	86	12.01	28	4.20	618	230	209
TOTALS	2,829	100.00	2,956	100.00	3,273	100.00	673	100.00	716	100.00	666	100.00	3,502	3,672	3,939

1969	1970	1971	
9.22 %	19.50%	16.91 %	of new students were transfer students.
0.43 %	21.45%	19.43 %	of new students in Associate Degree programs were transfer students.
7.98 %	7.23%	10.62 %	of new students in Vocational Diploma programs were transfer students.
6.99 %	37.39%	13.40 %	of new students in Apprenticeship programs were transfer students.
7.75 %	22.65%	20.04 %	of new students in College Parallel programs were transfer students.

5580

Table 4.32

Number and Percent of New Students in Day Post-Secondary Programs
Who Are Nontransfer or Transfer Students

District 10 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	1969	1970	1971
Associate Degree	122	28.11	135	31.18	130	27.25	15	34.09	21	31.82	37	50.68	137	156	167
College Parallel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vocational Diploma															
1-year or less	209	48.16	219	50.58	259	54.30	17	38.64	22	33.33	26	35.62	226	241	251
2-year	43	9.91	28	6.47	60	12.58	2	4.55	4	6.06	4	5.48	45	32	64
Apprentice	60	13.82	51	11.78	28	5.87	10	22.73	19	28.79	6	8.22	70	70	34
TOTALS	434	100.00	433	100.00	477	100.00	44	100.00	66	100.00	73	100.00	478	499	550

1969	1970	1971	
9.21 %	13.23%	13.27 %	of new students were transfer students.
10.95 %	13.46%	22.16 %	of new students in Associate Degree programs were transfer students.
7.01 %	9.52%	9.52 %	of new students in Vocational Diploma programs were transfer students.
14.29 %	27.14%	17.65 %	of new students in Apprenticeship programs were transfer students.

5581

Table 4.33

Number and Percent of New Students in Day Post-Secondary Programs
Who Are Nontransfer or Transfer Students

District 11 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	1969	1970	1971
Associate Degree	209	40.12	263	42.49	259	41.64	31	68.89	50	70.42	64	71.11	240	313	323
College Parallel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vocational Diploma															
1-year or less	191	36.66	270	43.62	327	52.57	14	31.11	21	29.58	23	25.55	205	291	350
2-year	22	4.22	15	2.42	-	-	-	-	-	-	-	-	22	15	-
Apprentice	99	19.00	71	11.47	36	5.79	-	-	-	-	3	3.33	99	71	39
TOTALS	521	100.00	619	100.00	622	100.00	45	100.00	71	100.00	90	100.00	566	690	712

1969	1970	1971	
7.95 %	10.29%	12.64 %	of new students were transfer students.
12.92 %	15.97%	19.81 %	of new students in Associate Degree programs were transfer students.
6.17 %	6.86%	6.57 %	of new students in Vocational Diploma programs were transfer students.
- %	- %	7.69 %	of new students in Apprenticesnip programs were transfer students.

5582

Table 4.34

Number and Percent of New Students in Day Post-Secondary Programs Who Are Nontransfer or Transfer Students

District 12 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	1969	1970	1971
Associate Degree	394	46.68	556	56.10	559	53.60	-	-	71	73.20	76	64.96	394	627	635
College Parallel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vocational Diploma															
1-year or less	166	19.67	226	22.81	278	26.65	-	-	23	23.72	38	32.48	166	249	316
2-year	90	10.66	97	9.79	206	19.75	-	-	3	3.09	3	2.56	90	100	209
Apprentice	194	22.99	112	11.30	-	-	-	-	-	-	-	-	194	112	-
TOTALS	844	100.00	991	100.00	1,043	100.00	-	-	97	100.00	117	100.00	844	1,088	1,160

1969	1970	1971	
- %	8.92 %	10.09 %	of new students were transfer students.
- %	11.32 %	11.97 %	of new students in Associate Degree programs were transfer students.
- %	10.16 %	7.81 %	of new students in Vocational Diploma programs were transfer students.
- %	- %	- %	of new students in Apprenticeship programs were transfer students.

5583

Table 4.35

Number and Percent of New Students in Day Post-Secondary Programs Who Are Nontransfer or Transfer Students

District 13 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971		1969	1970	1971
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Associate Degree	330	41.46	308	37.84	570	49.22	36	15.72	70	67.31	152	74.88	366	378	722
College Parallel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vocational Diploma															
1-year or less	372	46.73	419	51.47	458	39.55	21	9.17	28	26.92	43	21.18	393	447	501
2-year	43	5.40	55	6.76	59	5.09	5	2.18	6	5.77	8	3.94	48	61	67
Apprentice	51	6.41	32	3.93	71	6.13	167	72.93	-	-	-	-	218	32	71
TOTALS	796	100.00	814	100.00	1,158	100.00	229	100.00	104	100.00	203	100.00	1,025	918	1,361

1969	1970	1971	
22.34 %	11.33 %	14.92 %	of new students were transfer students.
9.84 %	18.52 %	21.05 %	of new students in Associate Degree programs were transfer students.
5.90 %	6.69 %	8.98 %	of new students in Vocational Diploma programs were transfer students.
76.61 %	- %	- %	of new students in Apprenticeship programs were transfer students.

5584

Table 4.36

Number and Percent of New Students in Day Post-Secondary Programs
Who Are Nontransfer or Transfer Students

District 14 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971		1969	1970	1971
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Associate Degree	272	51.71	143	34.88	145	32.08	54	51.92	9	21.95	27	33.75	326	152	172
College Parallel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vocational Diploma															
1-year or less	128	24.33	184	44.88	247	54.65	14	13.46	16	39.02	26	32.50	142	200	273
2-year	76	14.45	45	10.98	39	8.63	6	5.77	1	2.44	6	7.50	82	46	45
Apprentice	50	9.51	38	9.27	21	4.65	30	28.85	15	36.59	21	26.25	80	53	42
TOTALS	526	100.00	410	100.00	452	100.00	104	100.00	41	100.00	80	100.00	630	451	532

1969	1970	1971	
16.51 %	9.09%	15.04 %	of new students were transfer students.
16.56 %	5.92%	15.70 %	of new students in Associate Degree programs were transfer students.
8.93 %	6.91%	10.06 %	of new students in Vocational Diploma programs were transfer students.
37.50 %	28.30%	50.00 %	of new students in Apprenticeship programs were transfer students.

5585

Table 4.37

Number and Percent of New Students in Day Post-Secondary Programs
Who Are Nontransfer or Transfer Students

District 15 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971		1969	1970	1971
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
sociate Degree	538	66.67	316	56.53	328	60.07	109	82.58	53	86.89	54	79.41	647	369	382
llege Farallel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
:ational Diploma															
1-year or less	185	22.92	178	31.84	148	27.11	12	9.09	7	11.48	9	13.24	197	185	157
2-year	84	10.41	50	8.94	55	10.07	11	8.33	1	1.64	4	5.88	95	51	59
prentice	-	-	15	2.68	15	2.75	-	-	-	-	1	1.47	-	15	16
TOTALS	807	100.00	559	100.00	546	100.00	132	100.00	61	100.00	68	100.00	939	620	614

1969	1970	1971	
.06 %	9.84 %	11.07 %	of new students were transfer students.
.85 %	14.36 %	14.14 %	of new students in Associate Degree programs were transfer students.
.88 %	3.39 %	6.02 %	of new students in Vocational Diploma programs were transfer students.
- %	- %	6.25 %	of new students in Apprenticeship programs were transfer students.

5566

Table 4.38

Number and Percent of New Students in Day Post-Secondary Programs Who Are Nontransfer or Transfer Students

District 16 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971				
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	1969	1970	1971
Associate Degree	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
College Parallel	-	-	202	52.47	182	49.06	-	-	66	87.65	56	86.15	-	268	238
Vocational Diploma															
1-year or less	120	88.89	156	40.52	182	49.06	-	-	19	22.35	9	13.85	120	175	191
2-year	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apprentice	15	11.11	27	7.01	7	1.89	-	-	-	-	-	-	15	27	7
TOTALS	135	100.00	385	100.00	371	100.00	-	-	85	100.00	65	100.00	135	470	436

1969	1970	1971	
- %	18.09 %	14.91 %	of new students were transfer students.
- %	- %	- %	of new students in Associate Degree programs were transfer students.
- %	10.85 %	4.71 %	of new students in Vocational Diploma programs were transfer students.
- %	- %	- %	of new students in Apprenticeship programs were transfer students.
-- %	24.63 %	23.53 %	of new students in College Parallel programs were transfer students.

5587

Table 4.39

Number and Percent of New Students in Day Post-Secondary Programs
Who Are Nontransfer or Transfer Students

District 17 - Fall 1969, 1970, 1971

Program	Nontransfer New Students						New Students Who Are Transfers						Total Number of New Students		
	1969		1970		1971		1969		1970		1971		1969	1970	1971
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			
Associate Degree	72	12.57	88	11.73	111	14.62	-	-	-	-	4	13.79	72	88	111
College Parallel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vocational Diploma															
1-year or less	351	61.26	403	53.73	369	48.62	-	-	-	-	21	72.42	351	403	369
2-year	150	26.18	174	23.20	210	27.67	-	-	-	-	4	13.79	150	174	210
Apprentice	-	-	85	11.33	69	9.09	-	-	-	-	-	-	-	85	69
TOTALS	573	100.00	750	100.00	759	100.00	-	-	-	-	29	100.00	573	750	759

1969	1970	1971	
- %	- %	3.82 %	of new students were transfer students.
- %	- %	3.60 %	of new students in Associate Degree programs were transfer students.
- %	- %	5.69 %	of new students in Vocational Diploma programs were transfer students.
- %	- %	0 %	of new students in Apprenticeship programs were transfer students.

5588

Characteristics of Transfer Students

Sex, Age, and Veterans. Table 4.40 shows the distribution of transfer students by sex, age, and number of veterans, The percentage of males and females of all transfer students or new students is not known. The distribution in the sample of 55.5% males and 44.5% females is similar to the usual distribution of students in VTAE schools.

The median age of all transfer students was 22. The mean ages of Practical Nursing, Associate Degree Nursing, Funeral Service, and Agriculture students were all four or five years above the mean age of 22.6. The oldest transfer students were a 56-year-old woman in a Business program and a 55-year-old woman in Associate Degree Nursing.

A total of 201 (17.8%) of the 1,129 transfer students in the sample and 32.1% of the 627 males were veterans.

Grade Point Average Before Transfer. Table 4.41 shows that about one-third (30%) of the transfer students who transferred from a college or university had a grade point below 2.0. However, in the Health Occupations only 16% had a grade point below 2.0. Service Occupations had only 20% below 2.0 and 17% in the 3.0 and above category, because of the generally good academic records of a large group of Funeral Service students. The lowest previous grade point averages were recorded by General Education (College Parallel) students (41% below 2.0).

Credits Earned and Number of Semesters Enrolled before Transfer. The mean number of semesters attended by transfer students of four-year colleges and universities before transfer was 2.4 semesters. The mean number of semesters attended was at least two semesters for all classifications of programs used in this study. The mean number of credits earned at four-year colleges and universities was 32. The mean number of credits earned before transfer by district varied from 21 to 44 credits. Comparisons of the number of credits earned by transfer students by district cannot be made because of the great differences in the number in the sample from each district.

Table 4.40

Summary of All VTAE Districts

1971 Transfer Students in Sample By Division, Sex, Age, and Veterans

Instructional Division	No.	Males No.	Males %	Females No.	Females %	Mean Age	Age Range	Veterans No.	Veterans %
Agriculture	16	15	93.8	1	6.2	25.2	19 - 42	6	37.5
Business	439	225	51.2	214	48.7	22.5	17 - 56	76	17.3
General Education	93	57	61.3	36	38.7	23.2	18 - 50	24	25.8
Graphic and Applied Arts	42	26	61.9	16	38.1	22.6	18 - 45	2	4.8
Health Occupations	220	17	7.8	203	92.2	24.3	18 - 55	5	2.3
Service Occupations	89	61	68.5	28	31.5	23.3	19 - 51	12	13.5
Technical or Industrial	230	22	98.3	4	1.7	21.6	18 - 42	71	30.9
Totals All Divisions	1,129	627	55.5	502	44.5	22.8	17 - 56	201	17.8

Table 4.41

Grade Point Averages of Transfer Students At College or University Previously Attended*

	3.0 and Above		2.9 - 2.5		2.4 - 2.0		Below 2.0	
	N	%	N	%	N	%	N	%
All Transfer Students	117	13%	209	23%	313	34%	275	30%
Agriculture	3	22%	1	11%	6	44%	2	22%
Business	49	13%	80	21%	131	33%	129	33%
Graphic & Applied Arts	3	9%	7	21%	15	44%	9	26%
Health Occupations	28	18%	50	32%	55	35%	25	16%
Service Occupations	12	17%	21	29%	24	33%	15	21%
Technical & Industrial	14	8%	35	20%	71	41%	55	30%
General Education	8	9%	15	16%	32	34%	39	41%

*Attempted 10 or more credits.

Percentages are rounded off and may not add to 100%.

Year of High School Graduation. About 60% of the transfer students in the sample graduated from high school within four years of enrollment at a VTAE school (1970 to 1967). About 80% of the transfer students graduated from high school in the last six years.

Number of Years Between Transfer. Table 4.42 shows that a majority of transfer students in the sample (72%) transferred to a VTAE school within a year or two after leaving the other post-secondary institution.

Table 4.42

Year Transfer Students Last Attended Another Post-Secondary Institution

	1971 No.	1970 No.	1969-1965 No.	1964 or Earlier No.	Total No.
Agriculture	2	2	3	3	10
Business	234	89	76	34	433
General Education	31	29	30	3	93
Graphic and Applied Arts	16	11	7	2	36
Health	99	51	39	27	216
Service	46	20	12	11	89
Technical or Industrial	116	51	48	9	224
TOTALS	544	253	215	89	1,101
PERCENTAGES	49%	23%	20%	8%	100%

First Program Choice of Transfer Students. A total of 8% (93 of 1,101) of the transfer students indicated the program in which they were enrolled was not their first choice. Programs that two or more transfer students indicated was their first choice are as follows:

Data Processing	10
Mechanical Design or Drafting	9
Registered Nursing	7
Automotive	7
Secretarial or Clerical	6
Accounting	5
Licensed Practical Nurse	4
Dental Assistant	4
Commercial Art	3
Medical Assistant	2
Fashion Merchandising	2

Transfer Students' Reasons for Transfer

Transfer students were asked the following question on the questionnaire: "Why did you transfer from a college, university, branch campus, or proprietary school to a vocational-technical school?" They were asked to rank their most important reasons in order of importance. As is shown in Table 4.43, the most important reason given for transfer was a "Change in occupational objectives." Some other general findings concerning reasons for change are the following:

1. Students who selected "Programs or courses offered" as the most important reason for transfer in most cases also indicated "Change in occupational objectives" as a reason for transfer.

2. Responses of "Other" as the most important reason usually specified that interest in a particular program or occupation was the reason for their transfer.

3. About 20% of the transfer students indicated that "Learn specific employment skills" was one reason for transferring.

An analysis of responses of transfer students by classification indicated the following:

1. A total of 59% of the Health Occupations transfers indicated "Change in occupational objectives" or "Programs or courses offered" as the most important reason for transfer.

2. A total of 52% of the Service Occupations transfer students indicated that "Change in occupational objectives" or "Programs or courses offered" as the most important reason for transfer.

3. About 26% of the General Education transfers indicated they "Lacked finances to continue at other school" as a reason for transfer. This reason was not mentioned frequently by transfer students other than General Education Students.

4. About 10% (94 out of 923) of the transfer students indicated as most important reason 1, 2, or 3 that transfer was to "Earn credits to return to four-year school." More of these responses were from General Education students than any other classification.

5. About 20% of the transfer students indicated that "Poor grades at a four-year school" was one reason for transfer. General Education transfers most frequently gave this as one reason.

Influences on Transfer Students' Decision To Enroll in VTAE Program

Transfer students were asked the following question in the questionnaire: "What most greatly influenced your decision to enroll at this VTAE school?" They were asked to rank the three most important influences. The possible responses to this question were designed to include a variety of things, including both individuals who had some influence on students and printed materials. When the questionnaire was tested in District 9, only a few students indicated "Other" as a primary influence. As is shown in Table 4.44, "Other" was indicated as the most important influence by transfer students on their decision to enroll in a VTAE program. When this response was specified by transfer students, they most frequently indicated that they made the decision to transfer themselves, and their primary motivation was a specific program. Marriage was an influence that was specified as "Other" in a few cases.

"Experience on a Job" was indicated as the most important influence on their decision to enroll by 21% of the Health Occupations transfers and 16% of the Service Occupations transfers.

"Parents" were indicated to be one of the most important influences by about 30% of the transfer students. The "VTAE Catalog" was indicated as one of the most important influences by almost 30% of the transfer students.

Table 4.43

RANKING OF TRANSFER STUDENTS AS TO REASON FOR TRANSFER

Ranking of Most Important Reason For Transfer	No.	%
1. Change in occupational objective	201	22%
2. Programs or courses offered	127	14%
3. Other	89	10%
4. Lacked finances to continue at other school	87	9%
5. Learn specific employment skills	82	9%
6. Dissatisfied with four-year program	75	8%
7. Poor grades at four-year school	73	8%
8. Dissatisfaction with other school	60	6%
9. Complete a two-year associate degree	44	5%
10. To earn credits to return to a four-year school	32	3%
11. Moved from location of college previously attended	21	2%
12. Location	19	2%
13. Prefer smaller school	7	1%
14. Availability of housing	3	0%
15. Avoid the draft	2	0%
16. Athletic program at this school	1	0%
17. Originally could not enroll in VTAE program because of lack of space	0	0%
	923	

Total Ranking of Reasons--
First (x3), Second (x2), Third (x1)

1. Change in occupational objective	973
2. Programs or courses offered	813
3. Learn specific employment skills	619
4. Lacked finances to continue at other school	439
5. Dissatisfied with four-year program	409
6. Poor grades at four-year school	379
7. Dissatisfaction with other school	357
8. Other	309
9. Complete a two-year associate degree	234
10. Location	330
11. To earn credits to return to a four-year school	196
12. Moved from location of college previously attended	100
13. Prefer smaller school	73
14. Availability of housing	27
15. Athletic program at this school	19
16. Avoid the draft	16
17. Originally could not enroll in VTAE program because of lack of space	6

Ranking of Second Most Important Reason For Transfer	No.	%
1. Change in occupational objective	141	17%
2. Learn specific employment skills	141	17%
3. Programs or courses offered	109	13%
4. Dissatisfied with four-year program	62	8%
5. Lacked finances to continue at other school	58	7%
6. Complete a two-year associate degree	56	7%
7. Location	54	7%
8. Dissatisfaction with other school	54	7%
9. Poor grades at four-year school	48	6%
10. To earn credits to return to a four-year school	38	5%
11. Other	18	2%
12. Prefer smaller school	15	2%
13. Moved from location of college previously attended	12	1%
14. Athletic program at this school	7	1%
15. Availability of housing	7	1%
16. Avoid the draft	5	1%
17. Originally could not enroll in VTAE program because of lack of space	3	0%
	828	

Ranking of Third Most Important Reason For Transfer	No.	
1. Programs or courses offered	113	15%
2. Change in occupational objective	88	11%
3. Learn specific employment skills	81	10%
4. Location	79	10%
5. Dissatisfaction with other school	69	9%
6. Poor grades at four-year school	64	8%
7. Lacked finances to continue at other school	62	8%
8. Complete a two-year associate degree	61	8%
9. Dissatisfied with four-year program	60	8%
10. Other	27	3%
11. To earn credits to return to a four-year school	24	3%
12. Prefer smaller school	22	3%
13. Moved from location of college previously attended	13	2%
14. Availability of housing	4	1%
15. Avoid the draft	3	1%
16. Athletic program at this school	2	0%
17. Originally could not enroll in VTAE program because of lack of space	0	0%
	772	

APPENDIX I

Accounting. "I selected this course because of past experience in Accounting - three years' finance work in the Army."

Accounting. "I would like to just get things organized and know that in two years I can obtain a job in Accounting, but I am keeping in mind the possibility of returning to a four-year program so as to qualify for the CPA exam."

Accounting Clerk. "I didn't like, and didn't do well in, subjects required for basic studies at the university*. I lost interest in my subject. I decided to try my hand at Bookkeeping here, since it was inexpensive and for a shorter period of time. If I don't do well in Bookkeeping, I can always go back to the university, if I want."

Business Administration. "I wish to major in Finance in order to get a better job. I've always been interested in business activities and never liked the four-year colleges' way of obtaining training in that field."

Business Administration. "I have worked for five years for the same employer in the capacity of Assistant Manager to his food business and liked the work. I also lacked finances to continue at the university in my Forestry major. I became dissatisfied with the program there because of the lack of job opportunities for graduates. Last, I am in love, and my girl lives here, and that's where I wanted to be."

Data Processing. "The reason I selected Data Processing as my field of study is the contact I had with computers while in the service. Although I did not work with computers directly, I saw enough to arouse my interest."

Business Data Processing. "This program gives the best training in this field and in the shortest time with little cost."

Data Processing. "While attending the university, I was required to take some business classes which involved working with the computer. I then became interested in computers. I didn't feel that the university could offer a chance to work with the computer as much as I wanted. A friend of mine told me about this course, and I decided to try it."

*Names of colleges and universities are omitted in all cases.

Table 4.44

RANKING OF TRANSFER STUDENTS AS TO MOST IMPORTANT INFLUENCE ON DECISION TO ENROLL AT VTAE SCHOOL

Ranked First Most Important Influence	No.	%
1. Other	331	33%
2. Experience on a job	124	12%
3. VTAE school catalog	92	9%
4. Former students of this school	86	9%
5. Parents	78	8%
6. Student friends at this school	74	7%
7. Other friends	64	6%
8. College advisor	51	5%
9. VTAE school brochures	27	3%
10. VTAE school counselor	22	2%
11. Employer	19	2%
12. VTAE instructor	18	2%
13. High School counselor	17	2%
14. Newspaper publicity	14	1%
	1,017	

Total Ranking of Influences-- First (x3), Second (x2), Third (x1)	
1. Other	1,155
2. Experience on a job	566
3. Parents	548
4. VTAE school catalog	545
5. Former students of this school	445
6. Other friends	436
7. Student friends at this school	405
8. VTAE school brochures	290
9. College advisor	245
10. VTAE school counselor	202
11. Newspaper publicity	156
12. Employer	148
13. High school counselor	138
14. VTAE instructor	98

55597

Ranked Second Most Important Influence		
1. Parents	110	13%
2. VTAE school catalog	99	12%
3. Other friends	83	10%
4. Experience on a job	78	10%
5. VTAE school brochures	74	9%
6. Former students of this school	71	9%
7. Student friends at this school	65	8%
8. Other	56	7%
9. VTAE school counselor	50	6%
10. Newspaper publicity	32	4%
11. Employer	30	4%
12. High School counselor	29	4%
13. College advisor	27	3%
14. VTAE instructor	14	2%
	818	

Ranked Third Most Important Influence		
1. Parents	104	15%
2. Other friends	78	11%
3. VTAE school catalog	71	10%
4. VTAE school brochures	61	9%
5. Student friends at this school	53	8%
6. Newspaper publicity	50	7%
7. Other	50	7%
8. Former students of this school	45	6%
9. College advisor	38	5%
10. Experience on a job	38	5%
11. VTAE school counselor	36	5%
12. Employer	31	4%
13. High School counselor	24	4%
14. VTAE instructor	16	2%
	700	

APPENDIX I

Marketing. "Marketing is a field of several job opportunities, all of which are interesting and creative for today's modern working woman."

Marketing. "I changed my major for the reason that I did not see much of a future in being a business teacher. I selected Marketing because I seemed interested in it at the time."

Fashion Merchandising. "I was always interested in Fashion Merchandising, but upon graduation from high school I believe I was ill-prepared or personally couldn't handle college-level work. Unfortunately, I spent two years at the university before discovering the vocational school. Parents, former students from school, and the catalog made me decide to come to school and start all over again to try to make a future for myself. I'm very pleased with my program and hope that I am able to continue with confidence on my particular program with successful results."

Secretarial Science. "I took some typing and shorthand at the university, and I enjoyed them very much. I never had any experience with secretarial work in high school, so it's completely new and different."

Secretarial Science. "My expenses were too great at the university and work load too much. In the field of Secretarial Science, jobs are more available closer to my home. It won't take as long to complete this course to receive my Associate Degree."

General Clerical. "I worked as a secretary in the Business Office and the Maintenance Department at the university and discovered I really enjoyed that type of work. I never had any courses for doing secretarial work in high school, so I decided to come here and learn the various skills so I could get a job as a secretary or something in that line."

College Parallel
(General Education)

"I'm in Liberal studies so I can continue earning college credits so if and when I decide what I want to do, I can transfer these credits to another college and have most of the requirements met."

"It is easier to get into the swing of studying again full time after being away from it for two years than stepping into it at the university. I would have been out of less money had I decided against going on to school and quit after awhile."

Changes in Occupational Objectives by Transfer Students

Transfer students were asked to indicate their occupational objective while they were attending the other post-secondary institution and also what their occupational objective was when they enrolled in a VTAE school. Table 4.45 shows the changes of occupational objectives of transfer students by type of program in which these students are enrolled in VTAE schools. Because many students changed their objective from teaching (Education) to some other area, this type of change is listed as a separate column in Table 4.45. Some of the findings concerning changes in occupational objectives are the following:

1. About one-fourth of the transfer students (24%) were undecided as to occupational objective while attending former school.

2. About one-third of the General Education students (34%) were undecided.

3. A total of 44% of the transfer students have changed their occupational objective to an entirely different occupational area.

4. A total of 61% of the General Education and 56% of the Health Occupations transfers have changed their objective to a different occupational area.

5. Only 27% of the Agriculture transfers changed their occupational objective.

6. The number (231) and percentage (22%) of transfer students who changed their occupational objective from teaching to some other area was the same as all other changes of occupational objectives combined.

7. A total of 38% of the General Education and 30% of the Health Occupations transfer students changed their objective from teaching. Many young women who were enrolled in teaching programs at four-year schools transferred to Nursing or other health occupations at VTAE schools.

8. About a third (31%) of the transfer students still had objectives in the same occupational area. The goal in most cases was now an Associate Degree,

"I chose Liberal studies because I eventually plan on transferring to the university and receiving my degree. I feel on a whole the program is real good, especially for older students."

"Because the Nursing program was closed when I enrolled, I enrolled in General Education to further credits to obtain a degree. I'm enrolling (in the future) in Nursing so I may proceed on to my objective - R.N.A. Past experience in the medical field (Army) has given me the confidence to continue on in becoming a nurse anesthetist."

"Because I want to transfer to a four-year school."

"I am in General Education which enables me the advantage of taking some Business courses and later transfer to a four-year college."

"Accumulation of transferrable credits and exploration and development of talents and aptitudes in various areas of study."

"Since I had changed my mind so often, after getting a taste of what the fields of study were like, I decided to apply my credits toward a general degree, then continue on in Industrial Design for a four-year degree."

"For second chance at four-year college. Also, to get most of the course requirements for Medical Technology."

Graphic and Applied Arts

Interior Design. "I have always been interested in Interior Design. After the demand for teachers declined, I felt an education in a specialized field as important and demanding as design would be my next step. I love people and being with them."

Printing. "I found that at college there were no courses which pertained to my area of interest. In order to graduate, you are required to take a lot of meaningless courses which have nothing to do with your job."

Printing. "I feel as though in college most of your students are going there just for their parents' and for their own pride. When I came over here, I had my doubts as to what would happen - whether I would do well or not. At the present time, I am very happy with my situation and my decision. I think vocational schools are very much underrated. More people or young students will attend vocational schools as time goes on, because the demand for the "College Joe" is dwindling."

ERIC

Table 4.45

Changes in Occupational Preferences of Transfer Students

Fall 1971

Occupational Area	Number in Sample	Undecided As to Objective at Former Post-Secondary School	Occupational Objective Has Changed (Education Not Included) *	Occupational Objective Was Originally in Education but Has Now Changed	Occupational Objective Has Not Changed or Is In the Same Occupational Area As before Transfer**
		Percent	Percent	Percent	Percent
Agriculture	13	27%	9%	18%	45%
Business	403	25%	21%	22%	32%
General Education	93	34%	23%	38%	5%
Graphic and Applied Arts	39	26%	26%	22%	26%
Health Occupations	171	16%	26%	30%	27%
Service Occupations	89	19%	26%	21%	34%
Technical or Industrial	227	25%	22%	23%	42%
TOTAL	1,035	24%	22%	22%	31%

*Enrolled in a VTAE program that is in a different occupational area than at former post-secondary school.

*Examples	Former Objective	Present Objective
Same Objective	Teacher	Teacher
Different Objective but Same Occupational Area	(Registered Nurse	(Medical Assistant
	(Electrical Engineer	(Electronics Technician
	(Accountant	(Programmer

Note: Percentages are rounded off and may not add to 100% in all cases.

Photography. "I would like to obtain an income with something I enjoy."

Visual Communications. "Since I had decided to get into photography, the new program here at MATC seemed to be the most comprehensive and technical available. The low tuition and costs were also a factor."

Health Occupations

Associate Degree--Nursing. "Nursing is something I've always been interested in, and the two-year Associate Degree is a faster and more direct way to become a nurse than through the four-year program. Since you begin to study nursing techniques right away, you can find out faster if nursing is for you. Also, after completing two years and upon receiving a title as an R.N., you know if there is any special field you'd like to work with, and you can go on to graduate work with something specific in mind."

Associate Degree--Nursing. "I choose Nursing as a primary career. This school offered a two-year Associate Degree program in Nursing. I had approximately two years G.I. Bill benefits left. My area VTAE district was willing to cover tuition by reciprocity. I could, therefore, realistically plan a career."

Associate Degree--Nursing. "I was on a Teaching program and, as we all know, students in Teaching haven't much of a job opportunity after they graduate; so my aunt told me about this program, and I applied."

Associate Degree--Nursing. "It's two years, inexpensive, do not have to 'live in.'"

Associate Degree--Nursing. "I selected this program because it is only two years and because of finances. Afterwards, I can work as an R.N. and still continue school part time for my bachelor's degree."

Licensed Practical Nursing. "I selected the Practical Nursing program because I enjoyed my work as a N.A. and therefore wanted to continue in the nursing field. I feel this is a wonderful program because it teaches us not only nursing procedures but also the understanding of people."

Licensed Practical Nursing. "I haven't got time to go to school for four years, so I chose the thing closest to my objective."

instead of a Bachelor's Degree. For example, someone enrolled in a four-year Accounting program might be enrolled in an Associate Degree program in Business.

9. A total of 42% of the Technical or Industrial transfer students had occupational objectives that were in the same general occupational area. For example, a student enrolled in an Electrical or Mechanical Engineer objective changes to an Electrical or Mechanical Technology program.

Future Educational Plans

Transfer students were asked to answer the following question: "What is the highest academic degree or diploma you eventually intend to obtain?" The responses to this question are summarized in Table 4.46. General Education transfer students are listed separately in Table 4.46 because their future educational plans are different from transfer students in other types of programs. About one-third (36%) of the transfer students other than General Education indicated their future educational plans included earning at least a Bachelor's Degree. A total of 91% of the General Education transfer students indicated they plan to earn at least a Bachelor's Degree.

APPENDIX I

Licensed Practical Nursing. "My husband will be going to college, and I need to make more money to support us. If I have to work, I may as well do something I enjoy, so I chose Nursing."

Inhalation Therapy. "I originally intended to go into the medical field. MATC had an excellent program in Inhalation Therapy. It is also a field with a great future."

Dental Lab Technology. "To see if I was really interested in dentistry; and if I didn't, I wouldn't spend six years finding it out."

Dental Hygiene. "I decided to go into Dental Hygiene because it is an open, well-paying field for a young woman. It has many opportunities for advancement and for serving the public. Also, it is only two years of school, which is better than going for four years. The work a Dental Hygienist does is very interesting and seems very worthwhile."

Dental Assistant. "Become a certified Dental Assistant, be able to find a decent profession and work at it in future years."

Dental Assistant. "It looked interesting, and it's a one-year program."

Medical Assistant. "I had often considered medical technology as a career, but I did not care to invest the time nor money that it would require. I was disgusted with the four-year college, since I had to take so many irrelevant (I felt) required courses. So I quit and worked a semester. But I saw no future in the job and found it not much of a challenge. So I decided to return to school. Since I am getting married in June, I wanted a short course that would train me in specific employment skills. So I chose the Medical Assistant program, and I'm very satisfied with my decision."

Medical Assistant. "Because it's a challenge and I want to get a little bite out of the field with this to see if it's what I really want and then maybe go on."

Occupational Therapy Assistant. "I wanted to be in the Occupational Therapy field, but I didn't want to go for five years."

Occupational Therapy Assistant. "I had a change in vocational decision, which cannot be fulfilled at college. So far, I am very happy with both the occupation and the school I've selected."

Table 4.46

Future Academic Degree or Diploma Goals of

Fall 1971 Transfer Students

	Total		General Education Students		All Other Transfer Students	
	No.	%	No.	%	No.	%
Certificate or Diploma	221	21	2	2	219	23
Associate Degree	336	32	1	1	335	35
Bachelor's Degree	289	27	49	54	240	25
Master's Degree	112	11	26	29	86	9
Ph.D.	24	2	7	8	17	2
None or Other*	75	7	3	5	70	6
	1,057	100%	88	99%	967	100%

*Other was specified by some as meeting special requirements for a certificate, license for employment, or to pass qualifying examination for specific positions, such as Funeral Director, Teacher Aide, etc.

Operating Room Assistant. "The Licensed Practical Nursing program was filled. The counselor suggested Operating Room Assistant for my needs. (Desire to get married; need for financial support by a specific employment skill.)"

Operating Room Assistant. "It is a very interesting program, and I feel through this I will be able to help people and the community. It is a good profession for a woman and easy to make money through this program for a start towards a good life and marriage."

Operating Room Assistant. "I did some operating room work in the Navy, but I could not go into the same work without further training."

Optometric Assistant. "I am interested in science, but I didn't want to go to college for four years."

Service Occupations

Barbering. "The reasons for selecting this program are barbering is a respected occupation, an occupation which is conducted in a clean and pleasant atmosphere; an occupation which involves training and schooling and a period of apprenticeship which filters out those who are just looking for an easy job."

Child Care and Development. "I was very dissatisfied with the program I was in before this. It was far too general and far too long, when you stop to consider the probability of an assured job when you graduate. The course I am presently enrolled in promises that, and I very much enjoy my classes. I like the experience I'm receiving and feel very satisfied with what I'm accomplishing."

Child Care and Development. "Where else is such a good course available? And why aren't VTAE schools pushed more to "college-prep" students? In high school I never heard so much as a word about anything but college, and that was a mistake. You can't fit everyone in the same mold. And I guess your public relations and publicity could be better."

Conservation. "I wanted Conservation, and it was a toss-up between here and a university. I chose this school because of the two-year program."

Cosmetology. "This program offered skills that I wished to have. What I learn will always be useful to me, even if I don't take employment in this field."

CHAPTER V

SUMMARY AND RECOMMENDATIONS FOR FURTHER STUDY

As a summary to this study, a discussion of the more significant findings will be made for each of the objectives of the study. The findings are limited to transfer students in day full-time post-secondary programs which include Associate Degree, Vocational Diploma, and Apprentice programs. A sample of 1,129 Fall 1971 transfer students was used to obtain findings for Objectives 2, 3, and 4.

1. To determine the number of students transferring to each of the Wisconsin vocational-technical school districts and the schools from which these students transferred.

   Because not all districts reported the number of transfer students in 1969 and 1970, a comparison of numbers of transfer students cannot be made for all VTAE districts in the State. However, 11 VTAE districts that had a total of 85% of the transfer students in 1971 reported to the State VTAE Office in each of the last three years, and comparisons can be made of numbers of transfer students from 1969 to 1971 in these districts. Findings a through g are based on data from Districts 2, 3, 4, 5, 6, 9, 10, 11, 13, 14, and 15:

   a. The total number of all transfer students in day post-secondary programs from all other post-secondary schools increased from 1,650 in 1969 to 2,162 in 1971, which is an increase of 32%.

   b. The number of transfer students from four-year colleges and universities increased by 52% from 1,125 in 1969 to 1,712 in 1971.

   c. In the 11 districts the increase in the number of transfer students from four-year colleges and universities from 1970 to 1971 (26%) was greater than the increase from 1969 to 1970 (21%).

   d. District 4 (Madison Area Technical College) had an increase of 233 transfer students from four-year colleges and universities from 1969 to 1971, which represents over one-third of the increase for all 11

Police Science. "I am interested in learning as much about my job, Policeman, as possible. I feel the Police courses offered at this school will help me to do my job better. Also, it will soon be necessary to have at least an Associate Degree in Police Science if a person wants to be promoted on the job."

Funeral Service. "I have to do something, I feel, to help others and/or more importantly because of the interest I have in the field."

Funeral Service. "I had no choice. It is the only school in the state that offers Funeral Service."

Hotel and Restaurant Cookery. "I have always been interested in cooking, and I heard there was a good course offered here at Eau Claire. After attending a university for two and one-half years, I realized that there was no certainty I would ever find a job in my area of interest. Since I commuted to the university for over two years, it wouldn't inconvenience me to come to vocational school. So, I decided to come, and I came."

Hotel and Restaurant Cookery. "I became bored with the job I had before. Cooking is something that I enjoyed."

Police Science. "The program is relevant to my chosen vocation, and I can identify with the instructors because they have experience in the field of police work and are proud of their accomplishments."

Technical or Industrial

Air Conditioning and Refrigeration Technology. "In the service I became interested in technical fields, and that was my job in service, as a technician. I went back to the university after service but found I was wasting time there, because the four-year school was not offering me what I wanted. I eventually would like to obtain a Bachelor's Degree in Liberal Arts to widen my education but not necessarily to use as a prime tool for occupation."

Air Conditioning and Refrigeration Technology. "I like to work with my hands and mind. The field is growing, and opportunities for success are excellent."

Air Conditioning, Refrigeration, and Heating. "I like to work with my hands and to use my head on tough problems."

districts. District 4 had the largest increase of transfer students, from 285 in 1969 to 737 in 1971, and had more transfer students than any other VTAE district in 1971.

e. The number of transfers from private vocational-technical schools increased by 103 (71%) from 1970 to 1971 (145 in 1970 to 248 in 1971).

f. The number of transfer students to District 9 (Milwaukee Area Technical College) has leveled off between 650 and 725 since 1966. The number and proportion of students coming directly from high school to District 9 is increasing.

g. A large decrease in the number of transfers from one VTAE district to another (394 to 159 from 1969 to 1970) is the result of the combination of local VTAE schools into districts.

Findings h through o are based on data from all districts:

h. About 16% of all new students enrolled in post-secondary day programs in the fall of 1971 at VTAE district schools were transfer students. The highest percentage of transfer students was found in District 4. About 29% of new students enrolled in day post-secondary programs in District 4 were transfer students in 1971.

i. In each year, the greatest proportion of transfers came from the former State University System. The number of transfers from the nine state universities increased from 572 in 1969 to 589 in 1970 to 932 in 1971.

j. A total of 81.1% of all transfer students to VTAE districts were from four-year colleges and universities in 1971, and almost one-half of this total (36.6%) were from the nine former state universities. If the 227 transfer students from other VTAE districts are not included, then the transfer from four-year colleges and universities is 84.5%, and the percentage from the former state universities is 40.3%.

k. About one-half of the transfer students to VTAE schools enrolled in Associate Degree programs.

Chemical Technology. "It is a short course which will qualify me for a semi-skilled job in the area of my interest."

Aviation - Pilot Training. "College not my bag. Flight a long-time interest."

Aviation - Pilot Training. "Good reputation of KTI Aviation program."

Automotive Technology. "You have to be happy in your work to be successful; and, as an engineer, I felt that I wouldn't be happy. I worked for a mechanic for years and then for an implement dealer last summer and decided I'd be happier as a mechanic."

Auto Mechanics. "Because of the job situation that the United States is currently faced with, college graduates are too many for number of jobs."

Auto Mechanics. "Because I decided that Auto Mechanics was something I really liked; and if I get drafted, I have training in something."

Auto Body Repairman. "People will always be wrecking cars; if I get good at repairing them, I'll always have a job for financial security for my wife and two children. I can be more useful in society as an auto body repairman than as a Wildlife Manager and make more money."

Civil Structural Technology. "I enrolled in Civil Structural Technology here because of the course selection. I felt that there were too many unrelated courses to take at the college before I would receive courses in Architectural Drafting."

Civil Structural Technology. "Great amount of practical application studies. Credits transferrable to a university. Experienced instructors in your field. Saved me commuting to a university for two years, because my wife has a good job, making moving difficult."

Electrical Technology. "I have a high interest in math, mechanics, and repairing things, and it (this program) seemed to be the most interesting field for myself."

Electrical Power Distribution. "I was an electrician in the Navy and liked it a lot, so I decided to carry on in this field."

TV Telecasting. "After working and being involved in this type of work, I found it to be more interesting and more creative than teaching."

l. The percentage of transfers in College Parallel programs has decreased from 27.9% in 1969 to 23.8% in 1971.

m. The percentage of transfers to Vocational Diploma programs has increased from 15.7% to 22.5% from 1969 to 1971.

n. The percentage of transfer students enrolled in Apprentice programs decreased from 8.0% in 1969 to 2.3% in 1971.

o. The number of transfer students to VTAE schools may not increase as much in the future as from 1969 to 1971, because a higher proportion of high school graduates are enrolling in VTAE programs directly after high school.

2. To indicate the reasons students give for transferring and for selecting specific programs.

The most important reason given for transfer by Fall 1971 students in the study was a "Change in occupational objective." The students indicated that, in most cases, they made the decision to enroll in a specific program themselves. Parents were the most influential individuals and the VTAE catalog the most important printed material in helping them to make a decision on a program. In most cases the reason for transfer was related to a specific program and employment.

Comments of transfer students who are veterans indicate that an important reason for the selection of specific programs in the Technical, Industrial, or Business areas was their work experience in the service.

3. To indicate changes in career objectives by transfer students.

a. About one-fourth of the Fall 1971 transfer students (24%) were undecided as to occupational objective while attending former school.

b. A total of 44% of the transfer students have changed their occupational objective to an entirely different area.

APPENDIX I

Industrial Electronics Technology. "I have just been discharged from the Army. I have attended college and have several college credits. My interests for future job opportunities lie in the Electronics field, and I feel that this school offers me a good basic foundation in Electronics."

Industrial Electronics Technology. "I was trained as a Radar Technician in the U.S.A.F. and became interested in Electronics as a result. I feel the Associate Degree program I am enrolled in is best suited to my objectives and my experience as compared to enrolling in a four-year program."

Fluid Power Technology. "Military experience plus many reports of this field being wide open. Also, this field of work interests me. I am interested in power equipment, industrial efficiency, and new fields in Fluid Power; i.e., Aerospace."

Mechanical Design Technology. "I am interested in machines and their design and maintenance. I disliked college and their unimportant required courses. At this VTAE school, you learn the fundamentals of a job, which to me is more important."

Mechanical Design Technology. "The biggest reason for my leaving college was my enlistment in the Air Force, brought on by a sense of futility with little motivation on my part toward doing quality academic work of which I thought myself capable. At that time in my life, I had a little maturing to do. I feel the course material offered here is as thorough and complex, possibly more difficult, than that offered in pre-engineering courses in college. I began in a pre-engineering program at Eau Claire, so I know something of what is offered. The field of the sciences and related subjects is probably somewhat less comprehensive than it was in college. Generally speaking, I am satisfied with what is being offered at this school."

Mechanical Drafting. "I selected Mechanical Drafting because I want a job in this field, and I like the work. College is just too much money. At VTAE I pay one-fourth of college, and I learn more."

Sheet Metal Fabrication. "I have selected this program because while attending a four-year college I was not getting the technical experience and shop practice I wanted."

Welding. "As I see now, my former plans of teaching are scratched until I don't have to borrow money to get my degree. This is cheaper, and so I one year hope to be able to earn some good money and pay off my college debts."

c. A total of 22% of the Fall 1971 transfer students changed their occupational objective from teaching.

d. A total of 38% of the General Education and 30% of the Health Occupations transfer students changed their objective from teaching. Many young women who were enrolled in Education programs at four-year schools transferred to Nursing or other Health Occupations at VTAE schools.

e. About one-third (31%) of the transfer students still had objectives in the same occupational area. The goal in most cases was now an Associate Degree, instead of a Bachelor's Degree. For example, someone enrolled in a four-year Accounting program might be enrolled in an Associate Degree program in Business.

f. About one-third (36%) of the transfer students other than General Education indicated their future educational plans included earning at least a Bachelor's Degree. A total of 91% of the General Education transfer students indicated they plan to earn at least a Bachelor's Degree.

4. To determine characteristics of transfer students, such as sex, age, veterans, number of credits earned, and grade point average at the school from which the student transferred.

a. Median age of transfer students was 22.

b. A total of 32% of the male transfer students were veterans.

c. In the sample of transfer students, 55.5% were males and 44.5% were females.

d. The mean number of semesters of attendance at four-year colleges and universities before transfer was 2.4, and the mean number of credits earned was 32.

e. About one-third (30%) of the transfer students who transferred from a four-year college or university indicated they had a grade point of below 2.0.

APPENDIX II

Wisconsin Board of Vocational, Technical
and Adult Education
137 East Wilson Street
Madison, Wisconsin 53703

Eugene Lehrmann, Director

COMMUNICATION BULLETIN 72-16

VTAE Student Transfer Study

August 23, 1971

To the District Directors
Wisconsin Vocational, Technical
and Adult Education

Dear Colleague:

The State Board has approved (pending funds) a state-wide research project to study college, university and proprietary school transfer students who enroll in our post-secondary VTAE system. Mr. Dennis Redovich of the Milwaukee Area Technical College is project director.

An increasing number of college and university students are transferring into our system. We feel this is a very important study in an attempt to answer such questions as: (1) Number of students transferring, (2) Reasons for transferring, (3) Changes in career objectives, and (4) Other factors.

These students will eventually become a part of follow-up studies from which important comparative data will be obtained in the future. The results of the study should be of interest to guidance counselors, curriculum planners, state-level decision makers in establishing tuition rates and administrative patterns of higher education, and researchers for further in-depth studies.

The purpose of this letter is to request your cooperation in this study by completing Forms 1-A, 1-B, 1-C, and administering the student questionnaire to all new transfer students during orientation sessions in September, 1971.

For the purpose of this study, a transfer student is one who registered previously at a post-secondary public or private college or university or proprietary institution including branch campuses and has registered this fall or is now enrolled to pursue a program full-time in a VTAE district. He may be a transfer student who is enrolling for the first time (new transfer), or he may have enrolled previously in a VTAE school as a transfer student and is continuing this year (continuing transfer), or he may have been enrolled in a VTAE school prior to enrolling in a college, university or proprietary school including branch campuses and is now re-entering a VTAE school (re-entry transfer).

f. About 60% of the transfer students in the sample graduated from high school within four years of enrollment at a VTAE school (1970 to 1967).

g. A majority of transfer students in the sample transferred to a VTAE school within a year or two after leaving the other post-secondary institution. Only four transfer students in the sample had earned bachelor's degrees. Two of these were in Funeral Service.

Suggestions for Further Study

1. A report on the number of transfer students by district should be done annually. District 9 will tabulate transfer data for Fall 1972 enrollments if data is provided by the State VTAE Office.

2. An analysis of transfer students in individual programs in which relatively large numbers of transfer students enroll could be done at the district level.

3. A state-wide study of transfer students, including all post-secondary institutions in Wisconsin, such as those done by the CCHE in previous years, might be done. This would involve the cooperation of researchers in the University of Wisconsin System and the VTAE System.

4. Studies comparing characteristics of transfer students and native students should be done at the district level. Some studies of this type have been done in District 9.[14]

[14]Donald W. Weidensee, "Comparison of Transfer to Native Students at Milwaukee Area Technical College," May 1972.

APPENDIX II

Form 1-A calls for the number of (new transfer) students from post-secondary public, private and proprietary colleges, universities and schools including branch campuses who enter your VTAE district in a day program for the first time during the fall of 1971 as of October 1, 1971. This information should be provided by institution from which transferred and by type of VTAE program.

Form 1-B calls for the number of (continuing transfer) students who transferred from post-secondary public, private and proprietary colleges, universities and schools including branch campuses to your VTAE district in previous years since 1965 and who may or may not have interrupted their training, and are this year continuing with the same or different VTAE day program in your district. This would include those transfers who are continuing from last year. This information should be provided by institution from which transferring and by type of program.

Form 1-C calls for the number of students (re-entry transfer) who were previously enrolled in a full-time VTAE day program in any VTAE district, transferred to a post-secondary public, private or proprietary college, university or school including branch campuses and are now transferring from that institution or another post-secondary institution into your VTAE district. This information should be provided by institution from which transferring and by type of VTAE program.

The VTAE Transfer Student Questionnaire is to be administered to new transfer students indicated in Form 1-A only.

In this study do not include transfers from Wisconsin VTAE schools or new transfers from college parallel programs of Madison Area Technical College, Milwaukee Area Technical College, or Nicolet College and Technical Institute.

Districts may wish to gather additional information from students or school records, e.g. grade point average, test scores, rank in class, perceptions and expectations of the college or university, reasons for dissatisfaction with college, etc. Some additional in-depth studies will be conducted in the future. Therefore it is important to maintain lists of persons participating in this study.

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Please return the completed Forms and questionnaires to the RCU in our office not later than October 20, 1971. A completed report will be sent to each district.

If you should desire further information, please contact the RCU or Mr. Redovich of MATC.

Sincerely,

Eugene Lehrmann

Eugene Lehrmann
State Director

EL/rjk/gao

Enc.

Unpublished

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APPENDIX III

VOCATIONAL TECHNICAL ADULT EDUCATION (VTAE) TRANSFER STUDENT QUESTIONNAIRE

This questionnaire is part of a state-wide study of students who have transferred from a college, university, branch campus, or proprietary school to a VTAE district school. Your answers will be kept in confidence, and your name will not be used in this study. Use back of sheet whenever necessary to elaborate on answers.

1. Social Security Number_____ 2. Age_____ 3. Sex: Male_____ Female_____

4. Home Address (City/Town and State)_____

5. Year graduated from high school_____ 6. Veteran? Yes_____ No_____

7. a. What college, university, branch campus, or proprietary school did you last attend?_____

   b. When did you originally enroll in the above school? (month & year)_____

   c. When did you leave? (month & year)_____

   d. How many total credits did you earn?_____

   e. What was your major, or planned major? (Example: Engineering, Nursing)_____

   _____

   f. How many semester credits were you carrying when you left the above school?_____

   g. Was your grade point (on a 4-point scale) between 2.0 and 2.5_____;

   2.5 and 3.0_____; above 3.0_____; below 2.0_____?

   h. What was your occupational objective?_____

   i. List any other schools attended since high school_____

8. Why did you transfer from a college, university, branch campus, or proprietary school to a vocational-technical school? Rank the three most important reasons 1, 2, 3, indicating the most important with a 1.

_____ 1. Programs or courses offered
_____ 2. Lacked finances to continue at other school
_____ 3. To earn credits to return to a four-year school
_____ 4. Change in occupational objective
_____ 5. Location
_____ 6. Availability of housing
_____ 7. Moved from location of college previously attended
_____ 8. Dissatisfied with four-year program
_____ 9. Poor grades at four-year school
_____ 10. Prefer smaller school
_____ 11. Athletic program at this school
_____ 12. Complete a two-year associate degree
_____ 13. Learn specific employment skills
_____ 14. Avoid the draft
_____ 15. Originally could not enroll in VTAE program because of lack of space
_____ 16. Dissatisfaction with other school
_____ 17. Other (please specify)

APPENDIX I

Comments of Fall 1971 Transfer Students

The following are selected comments of transfer students. They are representative of the hundreds of comments that were made on the questionnaire. The program listed preceding each comment indicates the area in which the transfer student is now enrolled.

Agriculture

Production Agriculture. "I thought it would be of some value to me in the field in which I am now employed, as a feed mill manager and also part-time farmer."

Horticulture (Landscaping). "Horticulture is a field I have always been interested in. I have been dissatisfied with my past life's work. Therefore, I have decided to try this field."

Farm Equipment Mechanic. "I selected this program because I needed a program that has a future for me, and I've always liked working on machinery. This program will give me a good basis for farming."

Agriculture-Business. "On separation from the Navy, I got a job selling for a construction company. I sold to farmers and found they were getting the short end of the deal for a long time, so I decided I'd like to get an education in agriculture-business to try to set a few things straight."

Business

Accounting. "I enjoy working with accounting problems and like the job opportunities available to Associate Degree holders."

Accounting. "I found that a four-year school was not right for me. I want some sort of training before I get married so that I have something to fall back on, if necessary. I had bookkeeping in high school and found that I liked it and was fairly good in it."

Accounting. "I have had much experience in industry in supervision, time study, quality control, some personnel work, and always had a desire to know more about the financial part of manufacturing."

9. a. Check type of program in which you are currently enrolled: Associate Degree____; One-year Diploma____; Two-year Diploma____; Apprentice____.

b. Name of program _____

c. Is this program your first choice. Yes _____ No _____

d. If no, what was your first choice? _____

e. What is your occupational objective now? _____

f. Have you attended a vocational-technical school before? Yes_____ No_____

If yes, when?_____ Program_____ Where_____

Part-time_____ Full-time_____ Number of Semesters_____

g. Do you plan to return to a four-year college, university, or branch campus in the future? Yes_____ No_____

10. What most greatly influenced your decision to enroll at this VTAE school? Rank the three most important influences 1, 2, 3, indicating the most important with a 1.

_____ 1. Parents
_____ 2. High School counselor
_____ 3. College advisor
_____ 4. Student friends at this school
_____ 5. Former students of this school
_____ 6. Other friends
_____ 7. Experience on a job
_____ 8. Employer
_____ 9. VTAE school counselor
_____ 10. VTAE instructor
_____ 11. VTAE school catalog
_____ 12. VTAE school brochures
_____ 13. Newspaper publicity
_____ 14. Other (please specify)

11. What is the highest academic degree or diploma you eventually intend to obtain? (check one)

_____ 1. None
_____ 2. Certificate or diploma
_____ 3. Associate degree
_____ 4. Bachelor's degree
_____ 5. Master's degree
_____ 6. Ph D
_____ 7. Other (please specify)_____

12. Give your reasons for selecting the program in which you are now enrolling and any other comments or suggestions you might have.

_____

_____

_____

_____

(Use other side if necessary.)

5924

To District _____ Semester _____ Year _____

School	Associate Degree Number	%	College Parallel Number	%	One-year Vocational Diploma Number	%	Two-year Vocational Diploma Number	%	Apprentice Number	%	Total Number	%
University of Wisconsin and Centers												
Madison												
Milwaukee												
Green Bay and Shorewood												
Parkside												
Baraboo												
Fox Valley (Menasha)												
Kenosha												
Manitowoc												
Marathon												
Marinette												
Marshfield												
Racine												
Rock County (Janesville)												
Sheboygan												
Washington County (West Bend)												
Waukesha												
Other Centers (Please specify)												
Totals												

APPENDIX IV

To District _____ Semester _____ Year _____

School	Associate Degree Number	%	College Parallel Number	%	One-year Vocational Diploma Number	%	Two-year Vocational Diploma Number	%	Apprentice Number	%	Total Number	%
			State Universities and Branches									
Eau Claire												
LaCrosse												
Oshkosh												
Platteville												
River Falls												
Stevens Point												
Stout												
Superior												
Whitewater												
Barron County (Rice Lake)												
Fond du Lac												
Medford												
Richland Center												
Totals												

APPENDIX IV

5625

To District_____ Semester_____ Year_____

School	Associate Degree Number	%	College Parallel Number	%	One-year Vocational Diploma Number	%	Two-year Vocational Diploma Number	%	Apprentice Number	%	Total Number	%
Wisconsin Private Colleges (4-year) or Proprietary Schools												
Marquette												
Alverno												
Beloit												
Cardinal Stritch												
Carroll												
Carthage												
Dominican												
Edgewood												
Holy Family												
Holy Redeemer												
Lakeland												
Lawrence University												
Layton School of Art												
Marian												
Milton												
Milw. School of Engineering												
Mount Mary												
Northland												
Northwestern												
Ripon												
St. Norbert												
Viterbo												
Wis. College Conservatory												
De Sales												
Other (Please specify)												
Totals												

5626

To District _____ Semester _____ Year _____

School	Associate Degree Number	%	College Parallel Number	%	One-year Vocational Diploma Number	%	Two-year Vocational Diploma Number	%	Apprentice Number	%	Total Number	%
Out-of-State Public and Private Colleges or Proprietary Schools												
Please Specify												
Totals												
GRAND TOTALS												

5628

To District _____ Semester _____ Year _____

School	Associate Degree Number	%	College Parallel Number	%	One-year Vocational Diploma Number	%	Two-year Vocational Diploma Number	%	Apprentice Number	%	Total Number	%
University of Wisconsin and Centers												
Madison												
Milwaukee												
Green Bay and Shorewood												
Parkside												
Baraboo												
Fox Valley (Menasha)												
Kenosha												
Manitowoc												
Marathon												
Marinette												
Marshfield												
Racine												
Rock County (Janesville)												
Sheboygan												
Washington County (West Bend)												
Waukesha												
Other Centers (Please specify)												
Totals												

To District_____ Semester_____ Year_____

School	Associate Degree Number	%	College Parallel Number	%	One-year Vocational Diploma Number	%	Two-year Vocational Diploma Number	%	Apprentice Number	%	Total Number	%
State Universities and Branches												
Eau Claire												
LaCrosse												
Oshkosh												
Platteville												
River Falls												
Stevens Point												
Stout												
Superior												
Whitewater												
Barron County (Rice Lake)												
Fond du Lac												
Medford												
Richland Center												
Totals												

APPENDIX IV

To District_____ Semester_____ Year_____

School	Associate Degree Number	%	College Parallel Number	%	One-year Vocational Diploma Number	%	Two-year Vocational Diploma Number	%	Apprentice Number	%	Total Number	%
Wisconsin Private Colleges (4-year) or Proprietary Schools												
Marquette												
Alverno												
Beloit												
Cardinal Stritch												
Carroll												
Carthage												
Dominican												
Edgewood												
Holy Family												
Holy Redeemer												
Lakeland												
Lawrence University												
Layton School of Art												
Marian												
Milton												
Milw. School of Engineering												
Mount Mary												
Northland												
Northwestern												
Ripon												
St. Norbert												
Viterbo												
Wis. College Conservatory												
De Sales												
Other (Please specify)												
Totals												

56.30

To District _____ Semester _____ Year _____

School	Associate Degree Number	%	College Parallel Number	%	One-year Vocational Diploma Number	%	Two-year Vocational Diploma Number	%	Apprentice Number	%	Total Number	%
Out-of-State Public and Private Colleges or Proprietary Schools												
Please Specify												
Totals												
GRAND TOTALS												

5631

APPENDIX IV

5632

To District _____ Semester _____ Year _____

School	Associate Degree Number	%	College Parallel Number	%	One-year Vocational Diploma Number	%	Two-year Vocational Diploma Number	%	Apprentice Number	%	Total Number	%
University of Wisconsin and Centers												
Madison												
Milwaukee												
Green Bay and Shorewood												
Parkside												
Baraboo												
Fox Valley (Menasha)												
Kenosha												
Manitowoc												
Marathon												
Marinette												
Marshfield												
Racine												
Rock County (Janesville)												
Sheboygan												
Washington County (West Bend)												
Waukesha												
Other Centers (Please specify)												
Totals												

To District _____ Semester _____ Year _____

5633

School	Associate Degree Number	%	College Parallel Number	%	One-year Vocational Diploma Number	%	Two-year Vocational Diploma Number	%	Apprentice Number	%	Total Number	%
State Universities and Branches												
Eau Claire												
LaCrosse												
Oshkosh												
Platteville												
River Falls												
Stevens Point												
Stout												
Superior												
Whitewater												
Barron County (Rice Lake)												
Fond du Lac												
Medford												
Richland Center												
Totals												

APPENDIX IV

To District _____ Semester _____ Year _____

School	Associate Degree Number	%	College Parallel Number	%	One-year Vocational Diploma Number	%	Two-year Vocational Diploma Number	%	Apprentice Number	%	Total Number	%
Wisconsin Private Colleges (4-year) or Proprietary Schools												
Marquette												
Alverno												
Beloit												
Cardinal Stritch												
Carroll												
Carthage												
Dominican												
Edgewood												
Holy Family												
Holy Redeemer												
Lakeland												
Lawrence University												
Layton School of Art												
Marian												
Milton												
Milw. School of Engineering												
Mount Mary												
Northland												
Northwestern												
Ripon												
St. Norbert												
Viterbo												
Wis. College Conservatory												
De Sales												
Other (Please specify)												
Totals												

5634

To District _____ Semester _____ Year _____

School	Associate Degree Number	%	College Parallel Number	%	One-year Vocational Diploma Number	%	Two-year Vocational Diploma Number	%	Apprentice Number	%	Total Number	%
Out-of-State Public and Private Colleges or Proprietary Schools												
Please Specify												
Totals												
GRAND TOTALS												

VT 016 488
KARGEL, CHARLES W.
KARGEL BOOK SHELVING WORK SAMPLE. FINAL REPORT.

STOUT STATE UNIVERSITY, MENOMONIE, WIS. CENTER FOR VOCATIONAL, TECHNICAL AND ADULT EDUCATION.
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ABSTRACT - THE CENTRAL PROBLEM OF THIS FEDERALLY FUNDED DEVELOPMENTAL RESEARCH PROJECT INVOLVED THE DEVELOPMENT OF AN ORIGINAL WORK SAMPLE TO BE USED IN VOCATIONAL REHABILITATION AND IN ANY AREA INVOLVED IN VOCATIONAL EVALUATION. THE "KARGEL BOOK SHELVING WORK SAMPLE" MEASURES A PERSON'S ABILITY TO MEET THE PHYSICAL DEMANDS OF SHELVING OBJECTS, HIS ABILITY TO FOLLOW A SIMPLE ORDER OF FILING AND TO ESTIMATE HIS POTENTIAL FOR TRAINING FOR EMPLOYMENT AS A LIBRARY PAGE, A SCHOOL LIBRARY AIDE, AN AUTO PARTS SHELVER, STOCK CLERK, AND OTHER RELATED AREAS. THE ACTUAL WORK SAMPLE CONSISTS OF A BOOKCASE WITH SIX SHELVES, A PORTABLE BOOK CART STATIONED NEXT TO THE BOOKCASE, 42 BOOKS OF VARIOUS SIZES AND SHAPES MARKED WITH A LETTER AND A NUMERAL, AND A MANUAL FOR THE EVALUATOR. IN FIELD TESTING THE WORK SAMPLE, IT WAS FOUND THAT THE SPECIFIC INSTRUCTIONS TO THE CLIENT WERE NOT CLEARLY UNDERSTOOD BY A FEW OF THE CLIENTS. MINOR REVISIONS WERE MADE IN THIS SECTION. OVERALL, THE PRELIMINARY RESULTS INDICATE THAT THE WORK SAMPLE IS RELIABLE AND AN EXCELLENT EVALUATION TOOL. (AUTHOR/AG)

FINAL REPORT
Project No. 19-019-151-222-D

KARGEL BOOK SHELVING WORK SAMPLE

June, 1972

VT016488

WISCONSIN BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
Madison, Wisconsin

5637

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Final Report

Project No. 19-019-151-222-D

KARGEL BOOK SHELVING WORK SAMPLE

Charles W. Kargel

Center for Vocational, Technical and Adult Education
University of Wisconsin - Stout
Menomonie, Wisconsin

June 30, 1972

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Charles W. Kargel

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Chapter 1

INTRODUCTION

Summary

The central problem of this developmental research project involved the development of an original work sample to be used in Vocational Rehabilitation and in any area involved in vocational evaluation. The "Kargel Book Shelving Work Sample" measures a person's ability to meet the physical demands of shelving objects, his ability to follow a simple order of filing and to estimate his potential for training for employment as a library page, a school library aide, an auto parts shelver, stock clerk and other related areas.

The actual work sample consists of a bookcase with six (6) shelves, a portable book cart stationed next to the bookcase, forty-two (42) books of assorted size and shape marked with a letter and a numeral facing up on the book cart and a manual for the evaluator.

The evaluator explains the work sample to the client verbally and points out the position of all the materials used in the work sample. The clients are told to place each book on the shelves in alphabetical and numerical order, starting from the upper left hand corner and moving to the right and down. The client is told to work as fast as possible. The evaluator will stress accuracy of placements. The evaluator answers any questions that the client has about the work sample. If there are no questions, the client is told to begin Part I. The evaluator measures the amount of time spent on the task with a stop watch and observes the client's behavior. On completing the work, the evaluator checks for incorrect placements and records the number of correct placements and the time spent on the work on the evaluation sheet. Part II involves returning the books to the book cart with the letters and the numbers facing up and in numerical order. The basic procedure is the same as in Part I. The final step is for the evaluator to make his judgments concerning the client's performance and behavior.

In field testing the work sample, it was found that the specific instructions to the client were not clearly understood by a few of the clients. Minor revisions were made in this section. Overall, the preliminary results indicate that the work sample is reliable and an excellent evaluation tool.

Statement of the Problem

The central problem of this developmental research project involved the development of an original work sample to be used in Vocational Rehabilitation and in any area involved in vocational

evaluation. A work sample was developed to measure a person's ability to meet the physical demands of shelving objects, his ability to follow a simple order of filing and to estimate his potential for training for employment as a library page, a school library aide, an auto parts shelver, stock clerk and other related areas. The work sample will be an evaluation tool used with persons with any type of handicap.

Objectives

This study focused on two objectives:

1. To develop a book shelving work sample designed to evaluate the following criteria:

Manual dexterity	Ability to kneel
Eye-hand coordination	Ability to reach
Work pace	Ability to push a cart
Ability to stoop	Ability to file in order

2. To design procedures for administering the work sample.

3. To determine the reliability of the data collected from the the administration of the work sample.

Framework for the Study

The "Kargel Book Shelving Work Sample" is primarily concerned with the physical aspects of shelving objects. It is also concerned with following a simple "letter-number combination" filing order. There are many available jobs in the auto parts industry, food markets, libraries, drug stores and other areas where the shelving of objects is part of the work. Employment opportunities in these areas are increasing, and a person who is able to file in order has employment potential. Persons employed in these areas will be required to shelve objects according to the particular filing order used in each and will be trained to use that order.

In using the "Kargel Book Shelving Work Sample," the client takes books from a cart and places them on shelves in the appropriate order, and then returns the books to the book cart in order. The work performance traits and attributes are to be evaluated from data compiled during the administration of the work sample. The evaluator should compare the client's score with established norms and note any critical behavior during

his contact. All results should be recorded on the Task Observation Record, as found in Appendix B.

The "Kargel Book Shelving Work Sample" is not directed toward a specific occupation, but rather toward any occupation where the work involves the shelving of objects.

Purpose

The purpose of the "Kargel Book Shelving Work Sample" is to evaluate a client's performance in shelving objects. It is concerned with the client's physical ability to complete the task and follow a simple filing order.

The "Kargel Book Shelving Work Sample" is designed to be used in vocational evaluation with any client who demonstrates an interest in, and a potential for, work as a shelver of objects. It will estimate a client's potential for training and employment as a library page, school library aide, parts clerk, food market stock clerk and other areas involving the shelving of objects. The evaluation will focus on the client's performance in each of the following:

Manual dexterity

Eye-hand coordination

Ability to stoop

Ability to reach

Ability to file in order

Worker Requirements

Those clients who enter occupations where the work involves shelving will be required to use the filing order peculiar to the job. Because one shelving job may involve the use of a more difficult or complex filing order than another, the Dictionary of Occupational Titles (D.O.T.) data level will fluctuate according to the complexity of data. The data level may be six or three, depending on the job area and the complexity of the filing order. The people level and things level are the same regardless of the type of filing order required by the job. The client will have no significant relationship with people (8) and will function at the handling level for things (7). The minimum general educational development (G.E.D.) level would be "2".

The "Kargel Book Shelving Work Sample" is related to specific jobs; the D.O.T. titles and codes are listed on the following page:

Stock Clerk (Clerical) 223.387

Stock Service Clerk

Parts Clerk

Prescription Clerk

Property Custodian

Refrigerator Man

Salvage Clerk

Steel Cutter

Stockman, Tin Plate

Page (Library) 109.687

Shelver

Shelving Clerk

Stock Clerk

Review of the Literature

In reviewing the literature, a number of test batteries, work samples and publications were examined. It was found that while many instruments measure a person's ability to file in order, none were primarily concerned with the physical aspects of shelving objects. The tasks involved in all of the instruments reviewed, with the exception of the "Bussard Mail Sorting Work Sample" (1971), were sedentary. It was also found that in many different business concerns, non-professional and non-skilled persons are being hired and trained for positions that require them to shelve objects in order. An example of this can be seen in libraries. Many articles in library journals are concerned with non-professional staff and book reshelving. D. C. Gross (1957), in the Library Journal, relates to the training of non-professional staff in libraries. Benford (1968), in his article "Analysis of Book Reshelving", discusses a study of the criteria involved in reshelving books in libraries.

The trend in America is toward more leisure time. More libraries will be needed to fill America's need. With more libraries, there will be an increased need for non-professional employees. There are opportunities for training and employment in areas other than libraries. The Occupational Outlook Handbook (1970-71) suggests that many industries

where the shelving of objects is part of the work are growing and expanding. For example, the automobile industry builds more cars each year because of an increased demand for them by the public. With an increase in the number of automobiles in service, there will also be an increased need for auto parts. A person working in an auto parts store will shelve new stock, reshelve returned merchandise, and rearrange stock using part numbers. The part numbers, in almost every case, consist of a series of letters and numbers. Libraries, auto parts companies and other business concerns will hire non-skilled persons and train them in the specific filing order used in each case.

In using the "Kargel Book Shelving Work Sample", a client's interest can be in one of many occupations involving shelving. For example, a client with an interest in and knowledge of automobiles and automobile parts may be suited for employment as an auto parts clerk. The "Kargel Book Shelving Work Sample" will help determine his potential for this kind of work.

The strengths of the "Kargel Book Shelving Work Sample" lie in the fact that the client is more physically active and that the shelving of objects is not limited to one occupational area. Few filing work samples include physical aspects in their evaluation.

The "Kargel Book Shelving Work Sample" is not limited to clerical areas; it relates to several occupational areas involving shelving. For example, the light metals industry will stock pile materials according to type, weight, size and shape. The person in charge of, or working in, this area will use these criteria for keeping the materials in order.

Chapter 2

METHODS AND PROCEDURES

In developing the "Kargel Book Shelving Work Sample", the review of related literature indicated a need for a work sample that would accurately and objectively evaluate an individual's potential for jobs where the shelving of objects is part or all of the work. After determining the general worker traits and performing a job analysis, the "Kargel Book Shelving Work Sample" developed into an instrument that would focus on the physical aspects of shelving objects in order.

Although the use of books closely relates the work sample to library work, its intent is to relate to other jobs such as will be found in food markets, drug stores, auto parts stores, etc.

The "Kargel Book Shelving Work Sample" was set up in such a way as to have the client as physically active as possible. In completing the task, the client must reach, handle, arrange and stoop, bend or kneel. While being physically active during the task, the client must also arrange the books in the proper order.

The "Kargel Book Shelving Work Sample" requires the close attention of the evaluator to insure an accurate appraisal of the client's ability and potential. The observation notes and scores will help the evaluator in his appraisal and in his decision making.

If it is necessary to repeat the instructions to the client or explain any area of uncertainty, the evaluator must indicate this in his observation notes. It will not affect the client's raw score, but should be considered in his overall evaluation. The raw score, obtained by counting the number of correct placements in both Parts I and II, and the time for Parts I and II are compared with client and industrial norms. This will give the evaluator a scale on which to judge his client's performance.

Client norms will be collected through the use of the Work Sample in the Evaluation and Training Center at the University of Wisconsin - Stout. Industrial norms will be obtained by administering the Work Sample to persons in the community employed in areas where the shelving of objects is all or part of the job. The data collected in establishing the industrial norms will also be used in establishing Concurrent Validity.

Prerequisites

Clients taking the "Kargel Book Shelving Work Sample" should have a third grade reading level and a second grade arithmetic level. The client's achievement level can be measured by the Wide Range Achievement Test (W.R.A.T.).

The primary concern of the "Kargel Book Shelving Work Sample" is with the physical aspects of shelving objects, while being aware that being able to follow a simple filing order is necessary for most shelving jobs. The work sample should be used with other work samples and tests concerned with specific filing orders if the evaluator feels that it is applicable in his client's case. For example, the "Bussard Mail Sorting Work Sample" employing number (zip code) filing or the "VGRS-File 80-Clerical" employing both alphabetical and numerical filing orders could be selected for use to further assess the client's ability to file in order. The evaluator may wish to use the "Omang Auto Partsman Work Sample" (1969) as a supplement with clients demonstrating an interest in auto parts work.

A high school education, or equivalent, may be necessary for entry level employment in some occupations involving the shelving of objects. This should be kept in mind when the evaluator makes his recommendations. A client with average or above average performance in the "Kargel Book Shelving Work Sample" can be considered capable of meeting the physical requirements of shelving and having the potential for learning a specific filing order regardless of his formal education.

Administration and Method

The "Kargel Book Shelving Work Sample" should be used in work evaluation with clients who demonstrate an interest in and potential for occupations where the shelving of objects is part of the job.

Auto parts stores, libraries, food markets, drug stores and many other concerns hire employees to fill positions where part of the work involves the shelving of objects. Each concern will train the employee to use the filing order they use. The work sample will evaluate a client's ability to follow a simple filing order and his ability to perform the task.

General Instruction

The client prerequisites for the work sample include having a third grade reading level and second grade arithmetic level as measured by the Wide Range Achievement Test or equivalent.

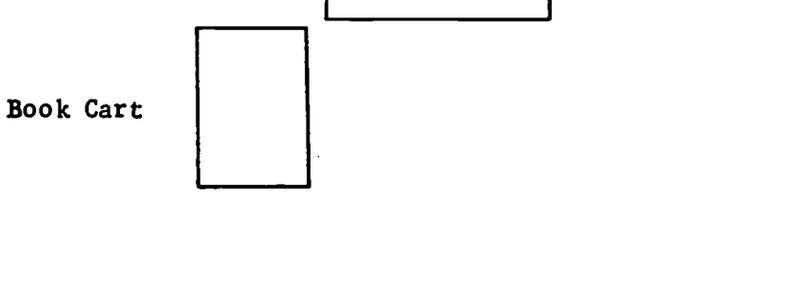
The "Kargel Book Shelving Work Sample" should be administered in two parts: (1) the transfer of books from the book cart to the book shelves in the proper order, and (2) removing the books from the shelves and replacing them on the book cart in the proper order. Emphasis should be placed on making the correct placements. The time taken for each part of the work sample and the total time should be noted on the Task Observation Record, or other observation sheet, with the number of correct placements made by the client.

Testing Conditions

The test area should be adequately lighted and free from gross noise or distractions. The position of the book cart and book shelves should be as illustrated in Figure 1 below. The evaluator and client should stand near the work sample.

Figure 1

Work Sample Layout
Topview



Equipment

The equipment used in the work sample includes:

1. A book cart
2. Forty-two books
3. Book shelves
4. A stop watch or time clock
5. An Administration Manual
6. A Task Observation Record or other observation sheet

Timing Instructions

1. The time needed to complete the entire work sample is approximately twenty (20) minutes.
2. Each part of the work sample is to be timed with a stop watch or time clock.

3. For Part I, the stop watch is started when the client is told to begin the task and stopped when all of the books are placed on the shelves.

4. For Part II, the stop watch is started when the client is told to begin the task and stopped when all of the books are placed on the book cart.

5. The time spent on Parts I and II should be recorded separately and then totaled on the Task Observation Record.

Specific Instructions to the Evaluator

The evaluator should read the Administration Manual and be familiar with the following:

1. The client prerequisites

2. The physical layout of the work sample (see Figure 1)

3. The timing procedures

4. The specific instructions to the client

5. The scoring method

6. The Task Observation Record

Specific Instructions to the Client

THIS WORK SAMPLE WILL BE USED TO MEASURE YOUR POTENTIAL FOR WORK IN OCCUPATIONS WHERE THE SHELVING OF OBJECTS IS PART OF THE JOB. FOR EXAMPLE, A PERSON WHO WORKS IN AN AUTO PARTS STORE WILL OFTEN BE REQUIRED TO SHELVE AUTO PARTS. A STOCK CLERK IN A FOOD MARKET WILL SHELVE GROCERIES. A LIBRARY AIDE TRANSFERS BOOKS THAT HAVE BEEN IN USE TO THEIR PROPER PLACE ON THE BOOK SHELVES.

Part I

YOUR FIRST TASK WILL BE TO MOVE THE BOOKS FROM THE BOOK CART TO THE BOOK SHELVES. The evaluator should point out the position of the book cart and bookcase. THE ORDER IN WHICH THE BOOKS ARE PLACED ON THE BOOK SHELVES IS VERY IMPORTANT. EACH BOOK HAS A "LETTER-NUMBER COMBINATION" CODE AT THE BOTTOM OF THE END BINDING. The evaluator should point out this code to the client. THE BOOKS MUST BE PLACED IN ALPHABETICAL AND NUMERICAL ORDER STARTING FROM THE TOP SHELF, MOVING FROM THE LEFT TO THE RIGHT ON EACH SHELF AND DOWN TO THE NEXT SHELF. The evaluator should demonstrate the proper sequence using motions. YOU WILL PLACE SEVEN (7)

BOOKS ON EACH OF THE SIX (6) SHELVES. DO YOU HAVE ANY QUESTIONS? The evaluator should answer any questions or repeat instructions if necessary and note the fact that points were clarified or that directions were repeated on the Task Observation Record. If there are no questions or when all questions have been answered, say READY, BEGIN.

Part II

YOUR SECOND TASK WILL BE TO RETURN THE BOOKS TO THE BOOK CART. THERE ARE TWO ROWS ON THE BOOK CART. THE ROW FURTHEST FROM YOU WILL HOLD THE BOOKS NUMBERED ONE (1) THROUGH TWENTY-ONE (21), AND THE ROW CLOSEST TO YOU WILL HOLD BOOKS NUMBERED TWENTY-TWO (22) TO FORTY-TWO (42). The evaluator should point to the rows on the book cart. EACH BOOK HAS A NUMBER ON THE TOP PART OF THE END BINDING. The evaluator should point out the numbers. TAKE THE BOOKS FROM THE BOOK SHELVES AND PLACE THEM ON THE BOOK CART IN NUMERICAL ORDER FROM ONE (1) TO FORTY-TWO (42). DO YOU HAVE ANY QUESTIONS? The evaluator should answer any questions or repeat the instructions if necessary and note the fact that points were clarified or that directions were repeated on the Task Observation Record. If there are no questions or when all questions have been answered, say READY, BEGIN.

Scoring

The evaluator should record all data on the Task Observation Record. After completing each part of the work sample, the evaluator should record the time taken to complete the task and the number of correct placements. The number of correct placements is computed by subtracting the number of incorrect placements from the number of possible correct placements (42). The correct order in which the books should be placed on the shelves is as follows in Table 1. A copy of the Task Observation Record is reproduced in Appendix B.

Table 1

Key

Shelf No.	Code Categories	Correct Order						
1	Numeric	7	1	13	19	25	26	2
	Alph-Numeric	A-1	B-3	C-3	C-13	D-2	E-2	E-22
2	Numeric	8	14	20	21	27	3	9
	Alph-Numeric	F-8	G-2	H-9	I-32	K-4	K-14	K-24
3	Numeric	15	16	22	28	4	30	11
	Alph-Numeric	K-34	L-2	M-15	N-5	O-10	P-21	Q-6
4	Numeric	17	39	41	23	35	29	33
	Alph-Numeric	R-16	R-19	S-2	S-20	T-14	T-19	T-22
5	Numeric	40	10	42	37	6	12	36
	Alph-Numeric	U-3	U-17	V-5	V-10	V-12	W-8	W-14
6	Numeric	18	32	38	34	24	31	5
	Alph-Numeric	X-6	X-10	Y-13	Y-17	Y-19	Z-13	Z-23

Chapter 3

FINDINGS

Data Collection

The "Kargel Book Shelving Work Sample" will be used with clients in the Evaluation and Training Center at the University of Wisconsin - Stout. After each administration of the work sample, all appropriate data will be put on a card and filed until there is a sufficient number of administrations to establish the client norm. The client's name, age and sex, the date of administration, the time taken for completing the tasks and the quality rating will be included on each card. After approximately fifteen administrations of the work sample to Evaluation and Training Center clients, the average total time for Parts I and II was found to be fifteen minutes. The average number of errors was three for Parts I and II combined. The procedure used in establishing client norms will also be used in establishing industrial norms. The work sample will be administered to persons in the community involved in work where the shelving of objects is all or part of the job. The industrial norm group will be made up of auto partsmen, stock clerks, and library pages. The data collected in the administration of the work sample to the industrial norm group will also be used in establishing Concurrent Validity. The time and quality score will be compared with the employer's rating of the individual. The employer will be asked to rate his employee above average, average or below average in the time taken to shelve objects and the accuracy in which the objects are placed on the shelves. These ratings will be compared with the employee's performance on the work sample.

Clues for Relating Applicants

Some clues for relating applicants and requirements for a position where shelving of objects is all or part of the work include expressed or tested interest in clerical work or related work experience.

Methods of Entry

Graduation from high school is often an entry level requirement for jobs involving the shelving of objects in order. However, there are positions available that will only require the person to be trainable in the use of the filing order peculiar to the job. As stated in the prerequisites in Chapter 2, a person with a third grade reading level and second grade arithmetic level would possess the potential for training and employment as a shelver of objects.

Adaptability of the Work Sample

Classifications related to the shelving of objects in order are: Inspecting and Stock Checking (.382; .384; .387; .484; .487) p. 271; Routine Checking and Recording (.588; .688) p. 289; Tending (.855) p. 447; Classifying, Filing and Related Work (.388) p. 276; and Sorting, Inspecting, Measuring, and Related Work (.484; .485; .487; .584; .587; .683; .684; .685; .687) p. 282 (Dictionary of Occupational Titles, Volume II).

Results of Administration

Reliability

A study of reliability using Dennis Dunn's method of estimating the reliability of work samples (1971) showed that the "Kargel Book Shelving Work Sample" was reliable and met the minimum standard of 85% for Parts I and II combined. See Tables 2 and 3. Learning was seen to be the element responsible for not reaching 100% reliability. This is a problem common to all work samples.

Performance

Tables 4 and 5 show the performance of ten clients in two administrations of each part of the work sample. All of the subjects took less time on their second trial to complete the work sample. A majority had no trouble placing the "books" in correct sequence.

Table 2

Reliability Study for Part I of Work Sample

Part I

Trial I

TRIAL II	A	B	C
A	2 20%	2 20%	
B		5 50%	
C			1 10%

Percentage of Reliability - E + A + I = 80%

A = Above Average
B = Average
C = Below Average

Table 3

Reliability Study for Part II of Work Sample

Part II

Trial I

TRIAL II	A	B	C
A			
B		7 70%	1 10%
C			2 20%

Percentage of Reliability - E + A + I = 90%

A = Above Average
B = Average
C = Below Average

Table 4

Learning Curve Graph Based on Time

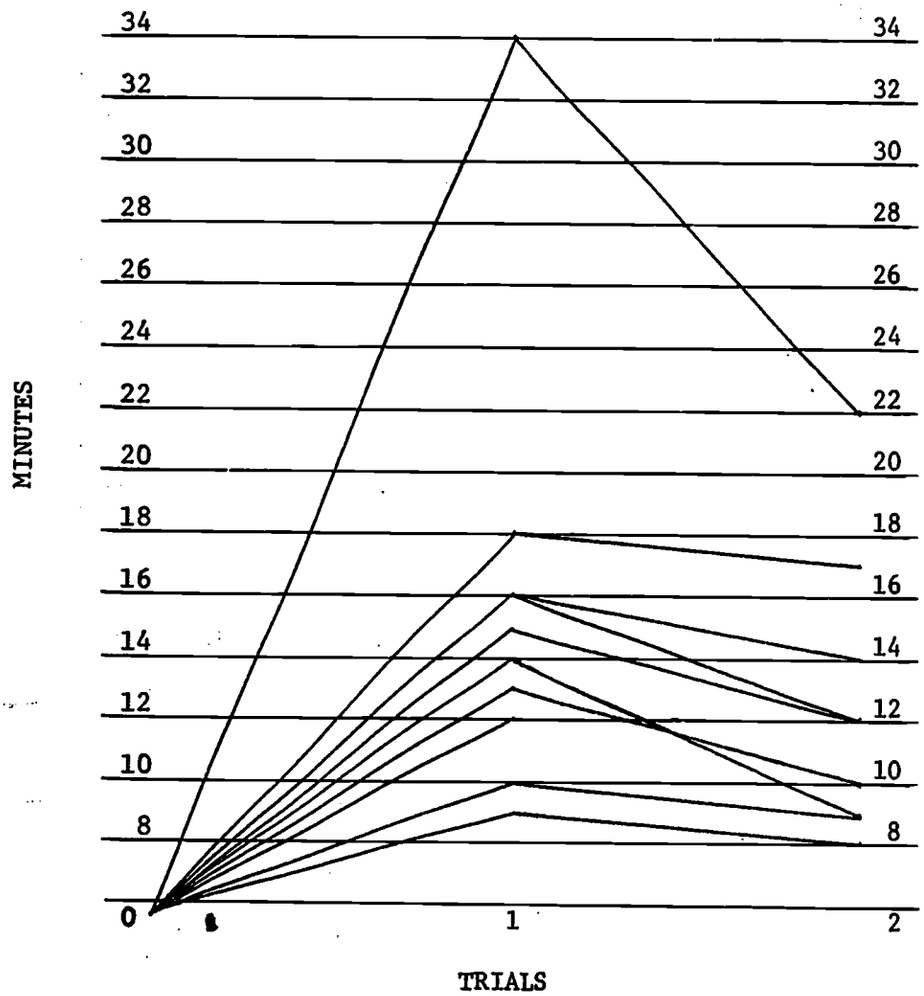
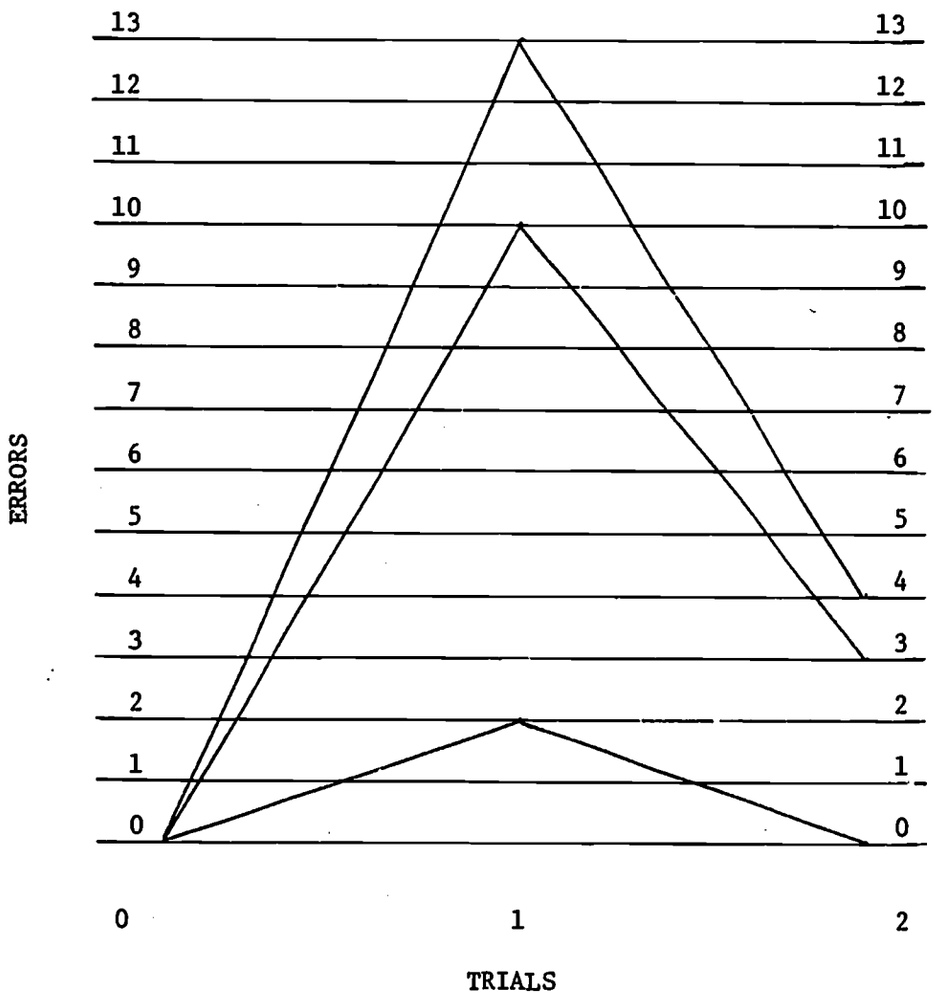


Table 5

Learning Curve Graph-Based on Quality*



* Seven clients had zero errors on both trials.

Chapter 4

CONCLUSIONS

In using the "Kargel Book Shelving Work Sample" with approximately fifteen clients in the Evaluation and Training Center at the University of Wisconsin - Stout, it was found that the specific instructions to the client in the administration section needed revision. There were cases where the client did not completely understand the instructions. The instructions were revised and now seem easier to understand. The evaluators who used the work sample had no problems in understanding the procedures involved in administering the work sample. Their comments concerning the work sample were very favorable.

To increase the amount of client time on the work sample when using it as a physical capacities test, it can be administered two or more times. The number of books used in the work sample could also be increased to improve it as a physical capacities test. An increase in the number of books, however, would require an additional book cart, larger book cart or alteration of the original book cart.

The work sample could be used as part of a clerical work sample battery with existing work samples such as the "Omang Auto Partsman Work Sample" (1969) or with work samples involving inventory taking and bookkeeping.

The purpose of the work sample is to evaluate a person's performance in shelving objects. In field testing the work sample, the preliminary results indicate that it is reliable and that it is an excellent evaluation tool.

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APPENDIX A

Equipment and Materials

1.	Forty-two books	$ 0.00
	Source: Donated by University of Wisconsin - Stout students	
2.	Book Cart	0.00
	Source: Built from supplies in the University of Wisconsin - Stout Evaluation and Training Center inventory	
3.	Book Case	0.00
	Source: Built from supplies in the University of Wisconsin - Stout Evaluation and Training Center inventory	
4.	Ream of bond paper	1.25
	Source: Any Business Supply Office	
5.	Printing Costs	20.00
TOTAL COSTS		$21.25

FILMED FROM BEST AVAILABLE COPY

APPENDIX B

1)
IN -------

OUT ------

Cum. T.____

2)
IN -------

OUT ------

Cum. T.____

3)
IN -------

OUT ------

Cum. T.____

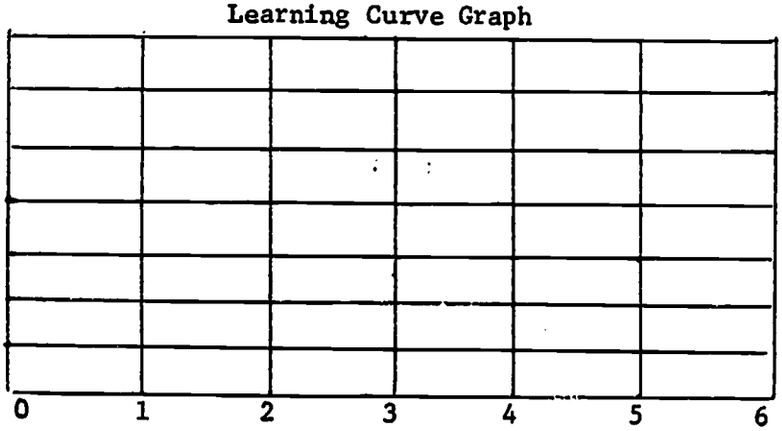
4)
IN -------

OUT ------

Cum. T.____
Total
Time _____

TRIAL	Assembly Min. : Sec.	Disassembly Min. : Sec.
1	:	:
2	:	:
3	:	:
4	:	:
5	:	:
6	:	:

Learning Curve Graph



NORM USED: _____ PERCENTILE: _____

ADDITIONAL COMMENTS:

TASK OBSERVATION RECORD

___Followed directions
___Worked steadily
___Demonstrated work rhythm
___Organization and planning ability
___Improved speed with task repetition
___Frustration tolerance
___Distractability
___Required supervision
___Complained of illness
___Dexterity(Dx MDx BMC EHFC EHC)
___Other behaviors

(Suggested behaviors to observe; can be utilized as a checklist)

Explain Client Behavior:

Productivity rating _____

Quality Rating_____

ETC Norms 1-25% 26-75% 76-99%

Elapsed Time _____

Errors _____

Date _____ Time _____ Task _____

Name _____ Evaluator _____

appendix no. ____

VT 016 489
WILSON, JANE
INTERNSHIP EMPLOYMENT. A MODEL FOR ASSOCIATE DEGREE FASHION MERCHANDISING PROGRAMS. FINAL REPORT.

MADISON AREA TECHNICAL COLL., WIS.
WISCONSIN STATE BOARD OF VOCATIONAL, TECHNICAL, AND ADULT EDUCATION, MADISON;OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 30JUN72 44P.

DESCRIPTORS - *MERCHANDISING; CLOTHING; POST SECONDARY EDUCATION; *INTERNSHIP PROGRAMS; *MODELS; *PROGRAM DEVELOPMENT; *ASSOCIATE DEGREES; DISTRIBUTIVE EDUCATION; BUSINESS EDUCATION; PROGRAM EVALUATION; WORK EXPERIENCE PROGRAMS; INSTRUCTOR COORDINATORS

ABSTRACT - THE PURPOSE OF THIS PROJECT WAS TO DEVELOP A MODEL FOR A FULL-TIME SUPERVISED WORK EXPERIENCE PROGRAM SUITABLE FOR POSTSECONDARY STUDENTS IN AN ASSOCIATE DEGREE PROGRAM IN FASHION MERCHANDISING. THE PROPOSED INTERNSHIP CONSISTS OF A MINIMUM OF 125 HOURS OF FULL-TIME WORK EXPERIENCE TO BE COMPLETED DURING THE STUDENT'S THIRD OR FOURTH SEMESTER OF COURSEWORK. IN ADDITION TO DESCRIBING THE GENERAL CHARACTERISTICS OF THE INTERNSHIP PROGRAM, THIS REPORT ALSO: (1) OUTLINES THE RESPONSIBILITIES OF THE TEACHER-COORDINATOR, (2) LISTS THE ADVANTAGES OF UTILIZING THIS PARTICULAR INTERNSHIP PROGRAM, (3) DESCRIBES ACTIVITIES WHICH SHOULD TAKE PLACE PRIOR TO ESTABLISHING AN INTERNSHIP PROGRAM, INCLUDING SUCH ACTIVITIES AS DETERMINING STUDENT INTEREST, SELECTING

Project No. 04.039.151.312
June 30, 1972

INTERNSHIP EMPLOYMENT

A MODEL FOR ASSOCIATE DEGREE FASHION MERCHANDISING PROGRAMS

VT016469

WISCONSIN BOARD OF
VOCATIONAL, TECHNICAL & ADULT EDUCATION
Madison, Wisconsin
5670

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Final Report

04.039.151.312

Internship Employment

A Model for Associate Degree Fashion Merchandising Programs

Jane Wilson

Madison Area Technical College

Madison, Wisconsin

June 30, 1972

The research reported herein was performed pursuant to a grant or contract with the Wisconsin Board of Vocational, Technical and Adult Education, partially reimbursed from an allocation of Federal funds from the U. S. Office of Education, U. S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official State Board or U.S. Office of Education position or policy.

5671

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Participating Members of the Madison Area Technical College (MATC) Fashion Advisory Committee:

Mrs. Velma Easton, Training Supervisor
Gimbels, Hilldale

Miss Jeanne Hanson, Manager (MATC Graduate)
Susie's Casuals, West Towne

Mr. Tom Johnson, Personnel Manager
Penney's, East Towne

Mrs. Jane Kampen, Fashion Coordinator
Manchesters

Mr. Al Perk, Buyer
The Emporium

Mrs. Mary Voth, Personnel Director
Sears, West Towne

Also:

Dr. Harland Samson, Teacher-Educator, Distributive Education, University of Wisconsin

Guidelines for Cooperative Vocational Education in Community Colleges and Guide for Cooperative Vocational Education from which numerous criteria and forms were adapted.

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Section I. Introduction

Background and Purpose
Objectives of Internship Employment

INTRODUCTION

BACKGROUND AND PURPOSE

The purpose of this project was to develop a model for a full-time, supervised work experience program suitable for Associate Degree Fashion Merchandising students at the post-high school level. This program will be implemented by Madison Area Technical College in the fall of 1972. Specifically, the project director sought to identify the necessary procedures for implementing and supervising such a program and the forms and materials that would have to be utilized. The result was a "model" rather than suggestions or guidelines which would be applicable to Madison Area Technical College and vocational, technical schools in the state as well. The model will be subject to change after initial implementation and evaluation of the program during the 1972-73 school year.

Many resources concerning cooperative education, work experience, and work-study programs were researched to formulate the model for Internship Employment. No evidence of a specific model or format for a full-time, supervised work experience program as described in this project was found. The intent of the project director was not to duplicate existing materials but rather to adapt them effectively to the specific end use.

The Fashion Advisory Committee at Madison Area Technical College provided valuable assistance in development of the model for Internship Employment. A sample of the Fashion Advisory Committee Questionnaire utilized for this project may be found in Appendix A.

The project was written in a manner that assumes the necessary procedure for approval of a program of this nature has been completed.

OBJECTIVES OF INTERNSHIP EMPLOYMENT

The following objectives of the Internship Employment program were identified:

1. To bridge the gap between graduation and job placement of Fashion Merchandising students by identifying entry positions leading to advancement in fashion merchandising employment.

2. To expand and enhance the educational skill, knowledge and additudinal preparation of Fashion Merchandising students through a full-time, supervised work experience-school seminar educational program.

3. To evaluate the relevancy of the Fashion Merchandising curriculum through employers' evaluation of student performance on the job.

Section II. Description of the Internship Employment Program

Terminology
General Description
Teacher-Coordinator Responsibilities
Advantages of Internship Employment

DESCRIPTION OF THE INTERNSHIP EMPLOYMENT PROGRAM

This section defines the terminology relative to Internship Employment, describes the general characteristics of the program, outlines the responsibilities of the teacher-coordinator, and lists the advantages of utilizing this particular program.

TERMINOLOGY

The following terminology was developed to relate to the Internship Employment program.

1. Internship Employment - is the name given to the program designed to provide full-time, supervised work experience for Associate Degree Fashion Merchandising students during their third or fourth semester.

2. Intern - identifies the participating Fashion Merchandising student or "trainee."

3. Intern Sponsor - identifies the individual designated to provide supervision and training for the Intern during Internship Employment.

4. Internship Assignment - is the name of the firm or the "training station" where the Intern will participate in a full-time supervised work experience under the Internship Employment program.

5. Internship Seminar - required sessions meeting once a week prior to and after Internship Employment for all students who participate in the program.

GENERAL DESCRIPTION

The Internship Employment program is designed to provide full-time, supervised work experience for Associate Degree Fashion Merchandising students at the post-high school level. Students will participate in this program during their third or fourth semester and will be free of classroom schedules for a four and one half week period beginning approximately the middle of November, therefore, Monday, November 13, 1972 of this year. In addition, the participating student-intern must agree to be employed during the Christmas Vacation period through the first week in January based on the employer's need at the particular Internship Assignment. During this period of time the Intern will work under supervision in fashion merchandising related employment. A minimum of 125 hours of full-time work experience should be accumulated during the Internship Employment period. Three credits will be granted for satisfactory completion of Internship Employment.

In order to make this program feasible, the Fashion Merchandising curriculum must be structured so that students are scheduled to take only Marketing or Fashion Merchandising courses during the fall semester, thereby avoiding conflicts with other departments or divisions within the school such as General Education or Home Economics. A sample Fashion Merchandising curriculum with this structure may be found in Appendix B.

To accommodate the Internship Employment program, decisions must be made by Marketing and Fashion Merchandising administrators and staff members as to the manner in which Marketing and Fashion Merchandising courses will be taught during this semester. For example, some courses may be accelerated through an additional hour per week, others may contain individualized instruction units which can be completed throughout the semester.

Fashion Merchandising students who elect Internship Employment will be required to participate in a weekly Internship Seminar conducted by the Teacher-Coordinator in charge of the program. A discussion of the topics to be covered during the Internship Seminar will appear in Section III.

The teacher-coordinator will make a minimum of two contacts with the Intern Sponsor during the Intern's employment and a minimum of two individual sessions will be held with each student-Intern during their Internship Employment. If feasible, at least one group session involving all or a portion of the participating Interns will be held. Written and oral evaluations will be made by Intern Sponsors. An Internship Program Workbook* will be completed by each participant during their Internship Employment. The teacher-coordinator should review the workbook thoroughly as she may wish to make certain deletions if not appropriate for the Internship Assignment. Weekly reports from the Intern will be sent to the teacher-coordinator during the Internship Employment period.

Final decisions as to placement in Internship Assignments may occur early in the fall semester through November 1. November 1 should be the deadline, unless unusual problems arise, in order to allow adequate time for final arrangements with employers, student counseling, and preparation for the actual Internship Employment.

TEACHER-COORDINATOR RESPONSIBILITIES

The teacher-coordinator is most likely to have many other responsibilities within the total scope of her position in addition to Internship Employment. However, listed below are the major areas of responsibility which relate directly to the Internship Employment program.

*The Internship Program Workbook is published by Flower Publishing Company, New York and may be obtained from Howard W. Sams, 4300 West 62nd Street, Indianapolis, Indiana 46268. The cost to the student would be about $8.50. An instructor's manual is also available for $5.00.

has been approved. These include: determining initial student interest in the program; selecting prospective students; conducting the Internship Seminar; securing Internship Assignments; visiting employers; and counseling and evaluating student-Interns during the Internship Employment period. The major areas of responsibility will be discussed in greater depth in Sections III and IV. Of course, initiating and maintaining good public relations will always be an important aspect of the teacher-coordinator's job.

ADVANTAGES OF INTERNSHIP EMPLOYMENT

Advantages of this type of work experience program for Fashion Merchandising students at the post-high school level include the following:

1. Internship Employment differentiates post-high school students from high school co-op or DECA students on the job.

2. Internship Employment provides a full-time experience rather than one obtained in bits and pieces. Also, Internship Employment provides a more sophisticated type of experience, since many post-high school students have already gained part-time work experience through their own efforts or in high school cooperative programs.

3. The Internship Employment program exhibits a great deal of flexibility for participating employers. It does not demand a maximum number of hours which some employers might find difficult to fulfill, but offers a suggested minimum instead.

4. Internship Employment provides a "happy medium" between high school cooperative programs which are a highly structured part of the total curriculum and work-study programs at the two-year or four-year college level which offer little or no supervision and may not offer full-time work experience.

Section III. Activities Prior to Internship Employment

Determining Initial Interest of Students
Selecting Students
Conducting the Internship Seminar
Securing Internship Assignments
Selecting Intern Sponsors
Internship Agreements

ACTIVITIES PRIOR TO INTERNSHIP EMPLOYMENT

This section describes the activities which must take place prior to Internship Employment in order to insure a successful, well-organized program. These activities include: determining initial interest of students; selecting students; conducting the Internship Seminar; securing Internship Assignments; selecting Intern Sponsors and developing Internship Agreements.

DETERMINING INITIAL INTEREST OF STUDENTS

It is important for the teacher-coordinator to have a preliminary indication of the number of Fashion Merchandising students who wish to participate in Internship Employment and some insight into their specific interests relative to work experience. Valuable information can be related to and obtained from second and third semester students toward the end of the spring semester. The size of the Fashion Merchandising program will determine the approach used. If the program is a large one with two or more sections, the teacher-coordinator may wish to hold a special meeting specifically for the purpose of explaining Internship Employment. In smaller programs the same information can be related in a Fashion Merchandising class. In either case, a questionnaire should be utilized by the teacher-coordinator to obtain information she desires. A sample questionnaire may be found in Appendix C.

SELECTING STUDENTS

Selecting students is somewhat of a misnomer in relation to Internship Employment. Actually, Internship Employment is an elective for students already enrolled in the two-year Associate Degree Fashion Merchandising program. As a result, this does not commit students to participating in Internship Employment upon initial enrollment and allows flexibility for those who may be unable to participate for various reasons. On the other hand, students should be strongly encouraged to participate or to seek some alternative form of gaining work experience. (At Madison Area Technical College, students who do not elect Internship Employment are required to take Small Store Operation for three credits. In this course, students actually run a small store located within the college.)

Students who do wish to elect Internship Employment must be third or fourth semester students having satisfactorily completed a major portion of the required academic course work. However, selection of the student by an employer will be the actual determining factor as to whether the student will be able to participate in Internship Employment. The teacher-coordinator may wish to counsel or discourage students whom she feels will not profit from the experience. But, if a student wishes to interview with prospective employers for an Intern position he or she should be given the opportunity. Some employers may request the teacher-coordinator to "pre-select" students based on a description of his particular needs. In this case the teacher-coordinator will have to make a careful appraisal and selection of prospective Interns who appear to fill the indicated requirements.

CONDUCTING THE INTERNSHIP SEMINAR

Conducting an effective Internship Seminar is of vital importance. The teacher-coordinator through the Internship Seminar sessions should help each student "set the stage" for a successful Internship Employment experience.

Description of Internship Seminar - Internship Seminar is required for all students who wish to participate in Internship Employment. The purpose of the seminar is to provide information, prepare students for interviews, finalize placement, and ready students for actual work experience. Eight sessions will meet prior to Internship Employment and two afterward. Student evaluation will follow completion of Internship Employment.

Objectives of Internship Seminar - The objectives of the Internship Seminar are the following:

1. To give the student a complete understanding of Internship Employment relative to its purpose; procedures; and student, employer, and teacher-coordinator responsibilities.

2. To ready the student for full-time work experience in terms of attitude and personal appearance.

3. To enable the student to conduct himself effectively in a job interview.

4. To finalize placement of students in Internship Assignments.

5. To refresh knowledges and skills prior to actual Internship Employment.

6. To provide a channel of communication for student concerns and/or problems.

7. To provide for evaluation of the Internship Employment experience.

A list of specific topics to be covered during Internship Seminar sessions may be found in Appendix D.

SECURING INTERNSHIP ASSIGNMENTS

One of the primary concerns of the teacher-coordinator will be that of finding and selecting appropriate Internship Assignments where students may obtain work experience.

Methods of Securing Internship Assignments - Listed below are several methods of securing employers who are willing to provide one or more Internship Assignments.

1. Advisory Committees - Advisory committees are an excellent source. Participating members are most likely to be among your most productive supporters.

2. Solicitation Letters - Solicitation letters explaining Internship Employment and inviting participation may be used to reach prospective employers. A sample letter can be found in Appendix E.

3. Direct Personal Contacts - Contacts may be made in person or by phone to enlist interested employers. Contacts in person are more time consuming and may not be feasible in a larger community. A sample Teacher-Coordinator's Call Report form may be found in Appendix F.

4. Students Already Employed - Internship Assignments may be obtained where students already are employed. However, it is important that the place of employment meet the standards or criteria which have been set down for selecting an Internship Assignment.

Evaluating Prospective Internship Assignments - Internship Assignments will greatly determine the success of the Internship Employment experience. Once prospective employers have been identified, the teacher-coordinator should evaluate the suitability of each as an Internship Assignment. The following guidelines may be used:

1. Internship Assignments should have the potential to provide employment that is challenging and worthy of the student's learning time and efforts.

2. The policies and practices of the potential Internship Assignments should be such that the community will approve of their participation in the program. The community will be critical if the participating firms do not have a good reputation.

3. The management and the employees in potential Internship Assignments should be committed to the objectives of Internship Employment and be willing to plan appropriate supervision for Interns.

4. Internship Assignments should be matched to the capabilities and interests of students.

5. It is essential that the Internship Assignment provide Intern Sponsors who are competent in their occupations, who are able and willing to train students, and who serve as worthy models for students to emulate.

6. Internship Assignments should furnish work environments which are conducive to good health, to safety, and to the development of job satisfaction in students.

Prospective Intern Interviews - Prospective Interns will make arrangements for securing Internship Assignments in much the same manner they would if seeking full-time employment. First, however, the procedure students are to follow, interview techniques, and personal appearance will be covered in Internship Seminar sessions. Next, individual conferences with the teacher-coordinator will be held. Then, students may begin to contact those employers who were determined to be suitable as Internship Assignments. Although previous communication between the teacher-coordinator and prospective employers may occur, students will still be required to contact employers for actual interview arrangements. A card identifying each student as a prospective Intern will be presented along with completed resume. See Appendix G and Appendix H for samples of each.

When the student secures an Internship Assignment, a Student Information Form should be filled out for the teacher-coordinator's file. A sample form may be found in Appendix I.

SELECTING INTERN SPONSORS

The selection of the individuals who will serve as Intern Sponsors is extremely important. The effectiveness of these individuals will greatly determine the quality of the learning experience Interns receive. The Intern Sponsor in some situations may be the employer or manager of a firm, but in the majority of cases will be a supervisor or experienced employee who will be able to work closely with the student-Intern at all times. If possible, the selection of an Intern Sponsor should be made jointly by the teacher-coordinator who knows the student well and by the employer who is familiar with the capabilities of his employees. Some guidelines for selection of Intern Sponsors that will prove helpful to the teacher-coordinator and employer are:

1. Technical competence in the occupation to be taught.

2. Ability to organize and conduct job instruction training.

3. Worthy personal traits and work habits which the student can emulate.

4. Ability to communicate and relate to superiors, co-workers and subordinates.

5. Interest and attitude toward training and toward the type of student who will be enrolled.

6. Specific skills or attitudes required in working with students having special needs (e.g. slow learner, or student who lacks self-confidence).

7. Willingness to work with the teacher-coordinator in evaluating student progress.

Intern Sponsor Development - Serving as an Intern Sponsor may be a new experience for many of the individuals selected. Even though they have been chosen because of their potential ability, Intern Sponsors may need help from the teacher-coordinator. If possible, each Intern Sponsor should be included in planning sessions with the employer and teacher-coordinator so he understands the purpose of the arrangement and the role he is to perform. A printed guideline or "Handbook for Intern Sponsors" describing the program and the duties of the Intern Sponsor should be supplied by the teacher-coordinator. Other possibilities for assistance would include group sessions or conferences with a number of Intern Sponsors as well as individual contacts or follow-up calls by the teacher-coordinator.

INTERNSHIP AGREEMENTS

When an employer has hired a student or students for Internship Employment, it is advisable for the teacher-coordinator to obtain an Internship Agreement if possible. It may be that not all employers will be willing or able to sign a written agreement. However, giving them the option is part of the flexibility of this particular program. It still remains the teacher-coordinator's decision as to whether she wishes to utilize the employer without a written agreement.

Before an Internship Agreement is signed, the teacher-coordinator should review with the employer the objectives of Internship Employment, and the advantages it offers to himself, the student, the college, and the community. She should make certain that the employer understands his responsibilities in providing the Internship Assignment.

A sample Internship Agreement may be found in Appendix J.

Section IV. Activities During The Actual Internship Employment Period

Teacher-Coordinator Visits
Counseling Interns
Evaluating Intern Performance

ACTIVITIES DURING THE ACTUAL INTERNSHIP EMPLOYMENT PERIOD

This section describes the activities which will occur during the actual Internship Employment period. These activities are teacher-coordinator visits, counseling Interns and evaluation of Intern performance.

TEACHER-COORDINATOR VISITS

The teacher-coordinator may visit an Intern Sponsor and/or employer for a number of reasons. These include:

1. To obtain a clear understanding of the job duties and responsibilities expected of the Intern.

2. To become familiar with the organization's operation.

3. To work with the Intern Sponsor who is supervising the Intern.

4. To obtain an evaluation of the Intern's performance.

A minimum of two contacts by the teacher-coordinator should be made during the Internship Employment period. Personal contacts are preferable, but one contact could be made by phone if necessary. The actual number of visits made will be determined by the employer's attitude toward visits, the success of the student on the job, the geographical location of the Internship Assignment, and the work load of the teacher-coordinator. Appendix K contains a sample form for recording information about contacts made.

Due to unforeseen circumstances, it may be possible that a student-Intern's job is terminated before the training period is over. If possible, the teacher-coordinator should obtain a written statement in the Internship Agreement to insure that a conference between the employer, the student, and the teacher-coordinator be held prior to notification of termination. If the situation is warranted, the teacher-coordinator should assist the student in finding another Internship Assignment.

COUNSELING INTERNS

As students enter into Internship Employment, it is to be expected that they will encounter problems for which they need help. The teacher-coordinator should be readily available, either in person or by telephone, to provide assistance. Keeping the lines of communication open will not only give the student a chance to ask for advice but will also give the teacher-coordinator a chance to point out ways in which the student can improve his or her performance on the job. As previously mentioned, the teacher-coordinator should meet individually with each Intern at least two times during the Internship Employment period. These meetings may take place at school or any other convenient location for both where privacy can be attained. The first student conference can serve to provide the teacher-coordinator with the Intern's view of his or her Internship Assignment. After a visit with the Intern Sponsor and/or employer, a second conference can be arranged with the Intern. At this meeting, the teacher-coordinator will have a more complete picture of the Internship Assignment situation.

As explained earlier, each Intern will submit a weekly report to the teacher-coordinator (See Appendix L). Comments which appear on these reports may stimulate the teacher-coordinator to contact a student-Intern, perhaps for discussion of what may be a potential problem or to provide encouragement to pursue more of a particular activity or experience.

EVALUATION OF INTERN PERFORMANCE

Each Intern will experience at least two formal written evaluations during Internship Employment. Formal evaluation of the Intern's performance during Internship Employment may be accomplished in several ways.

1. The use of evaluation forms provided by the firm where the Intern is employed. Many firms or employers will prefer to use this method, since they often must supply these evaluations anyway. Secondly, the student is then evaluated on the same basis as other company employees.

2. The use of evaluation forms supplied by the school. If the employer does not have a form he wishes to utilize the teacher-coordinator should supply one. Sample forms may be found in Appendix M .

3. The use of evaluation forms prepared by participating Interns to be filled out by the Intern Sponsor and/or employer. This method is one which could be effectively used in addition to the use of either employer or school forms. The idea has been well received by both students and employers because it gives the student an opportunity to identify areas of concern which were not previously covered.

Regardless of the type of evaluation forms used, it is beneficial for the student to prepare an identical rating sheet for self-evaluation and comparison with the Intern Sponsor's and/or employer's rating. Then, the evaluation forms should be discussed thoroughly with the Intern.

Section V. Evaluation of Internship Employment

Record Keeping
Factors Requiring Evaluation
Methods of Evaluation

EVALUATION OF INTERNSHIP EMPLOYMENT

This section describes the importance of record keeping relative to Internship Employment, the factors requiring evaluation, and suggested methods for program evaluation.

RECORD KEEPING

The teacher-coordinator should maintain complete and continuous records relative to Internship Employment to assist in evaluation after completion of the program. Records that should be kept include:

1. Teacher-Coordinator Call Reports
2. Copies of Internship Agreements
3. Student Information Forms
4. Weekly Reports completed by Interns
5. Copies of Intern Evaluation Forms

Samples of these forms are included in the Appendices as already indicated.

FACTORS REQUIRING EVALUATION

The teacher-coordinator should be responsible for developing evaluative tools for Internship Employment. Such tools should describe and measure the program characteristics and student outcomes.

Some factors which will require evaluation include:

1. Organization of the Internship Employment program and procedures for implementation
2. Relevance of the Fashion Merchandising curriculum to work experience
3. Student selection and Internship Assignment placement
4. Student reaction
5. Intern Sponsor reaction
6. Employer reaction
7. Instructor reaction
8. Accomplishment of program objectives
9. Placement and follow-up of graduating Interns

Each teacher-coordinator and school administration will have to make specific decisions about the evaluative factors they wish to consider.

METHODS OF EVALUATION

Major methods of evaluating the Internship Employment program should include the following:

1. Analysis of the records and data compiled by the teacher-coordinator concerning Internship Employment.

2. Separate questionnaires devised to be filled out by Interns, Intern Sponsors, and employers who participated, and by teachers who were affected instructionally by the Internship Employment program.

3. Follow-up studies of participating Interns upon graduation.

A well documented evaluation of Internship Employment will provide the teacher-coordinator and the school with a basis for implementing program improvements.

Appendix K

TEACHER-COORDINATOR'S CALL REPORT

INTERNSHIP EMPLOYMENT
TEACHER-COORDINATOR'S CALL REPORT
(For calls on cooperating employers)

Date and Hour of Call _____

Internship Assignment _____

Address _____ Telephone _____

Name of Person Interviewed _____ Title _____

Best Time to Call _____ Appointment Necessary? _____
Hour Day

Date of Next Call _____ For purpose of _____

Name of Intern discussed _____

Number of hours employed _____ Salary _____

Intern's strong points _____

_____

Intern's weak points _____

_____

Action to be taken and by whom _____

_____

Type of follow-up:
Personal _____
Phone _____
None _____
When _____

Time spent on interview _____

Further comments:

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Section VI. Appendices

Appendix L

INTERNSHIP EMPLOYMENT REPORT
(To be completed weekly by the Intern)

INTERNSHIP EMPLOYMENT REPORT

Name _____ Week of _____

Internship Assignment _____

Please complete and mail on Monday of each week to:

Day	Department	Jobs Performed	Hours Worked
Sunday			
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			

Total number of hours worked this week _____

Total salary for this week _____

Total gross sales for week _____
Total returns _____
Selling cost percent for week _____

Time absent from work: Days _____ Hours _____
Reason for absences: _____

Number of personal conferences with Intern Sponsor _____

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Appendix A

MODEL INTERNSHIP RESEARCH

Fashion Advisory Committee Questionnaire

1. What name do you feel should be given to this program:
   _Internship
   _Fashion Internship
   _Fashion Merchandising Internship
   _Retail Internship
   _Field Internship
   _Internship Employment
   _Internship-Field Experience Program
   _Fashion Internship Employment Experience Program
   _None are appropriate
   _Other suggestions (list below)

2. Other terminology:
   For student - Trainee? Intern? Other?
   For employer - Training Sponsor? Intern Sponsor? Internship Advisor? supervision Employer Sponsor? Other?
   For store - Training Station? Internship Station? Internship Agency? Internship Location? Other?

3. Please estimate the number of students you feel could be employed on a full-time basis by your organization during the designated program period. _____

4. By what date would you positively be able to determine the number of students you would or could take during this period under the outlined conditions? _____

5. Would you anticipate any difficulty in being able to assign the selected student(s) to an appropriate supervisor?

6. How would you like to select the Internship participants or how do you feel they should be selected? (i.e. send interested students to your store to apply, set up interview sessions at MATC, other?)

7. What would be the latest date you would be able to accept students under the conditions of this program? _____ What would be the earliest date? _____ What would be the most desirable date? _____

8. Would or could any initial training be given prior to the time students were actually free to work full-time?

9. How many hours would full-time constitute in your store?

10. What do you feel would be the minimum number of hours the student should accumulate in order to consider the program an effective learning experience? _____ What would be the maximum? _____

11. What would be the salary for Internship participants? _____

12. Would a handbook or set of guidelines for the employer/supervisor be helpful? _____

Page 2
INTERNSHIP EMPLOYMENT REPORT

1. What problems did you encounter this week? _____

_____

How did you solve them? _____

_____

Are there problems with which you would like help? If so, describe _____

_____

2. What new jobs or procedures did you learn this week? _____

_____

_____

3. What mistakes did you make? How did you handle the situation?

_____

_____

4. Describe any new experiences you had this week. _____

_____

_____

5. Describe experiences or skills you would like to gain. _____

_____

6. Make additional comments here. _____

_____

_____

Submitted by _____

13. How many visits or contacts do you feel should be made by the teacher-coordinator during the Internship period? __. In person? By phone?

14. How many formal evaluations do you feel should be made during this period of time? _____

15. What kind of evaluation form do you feel should be used? (i.e., your store's, the college's, a combination of both, one prepared by the student, other)

16. What topics do you feel should be covered in the orientation or pre-internship sessions which the students will be required to participate in? (at the college)

17. What is your opinion of the Internship Program Workbook?

18. Would your organization have any reservations about signing a training agreement?

19. How would you feel about students wearing a badge during working hours identifying them as MATC Intern?

20. Please use the space below and the back for any additional comments or suggestions.

Appendix M
STUDENT EVALUATION FORMS

SAMPLE I

Internship Employment Evaluation Form
First Progress Report

Intern's Name _____ Internship Assignment _____
Department _____ Intern Sponsor _____

1. DEPENDABILITY: Is the student regular, on time, and careful to notify in advance when unavoidably absent?
Very Reliable ( ) Usually reliable ( ) Unreliable ( )
Comments: _____

2. COOPERATION: Does the student keep the rules, follow instructions, and exhibit an attitude of helpfulness?
Very cooperative ( ) Generally cooperative ( ) Uncooperative ( )
Comments: _____

3. APPEARANCE: Does the student dress neatly and appropriately for the position?
Very neat and appropriate ( ) Generally Satisfactory ( )
Unsatisfactory ( )
Comments: _____

4. PUBLIC RELATIONS: Does the student meet people well, establish good personal relations, and create good public relations for the company?
Very satisfactory ( ) Moderately satisfactory ( ) Very poor ( )
Comments: _____

5. INTEREST IN LEARNING: Does the student make the most of the learning opportunities available in this situation?
Very interested ( ) Moderately satisfactory ( ) Very Poor ( )
Comments: _____

6. ABILITY TO LEARN: Does the student evidence ability to learn this kind of work?
Very quick to learn ( ) Learns readily ( ) Rather slow ( )
Very slow ( )
Comments: _____

7. INITIATIVE: Does the student exhibit initiative? Does he do his work without being told?
Above average initiative ( ) Occasional initiative ( ) Needs constant direction ( )
Comments: _____

8. ACCURACY: Is the student accurate in his work? Does he take care in checking his work before submission?
Very few errors ( ) Occasional errors ( ) Often careless ( ) Very careless ( )
Comments: _____

Appendix B

FASHION MERCHANDISING

Course Name	1st sem. credits	2nd sem. credits
FIRST YEAR		
Communication Skills I	3	
Principles of Marketing	3	
Orientation	0	
Principles of Design	3	
Principles of Fashion Merchandising	3	
Business Mathematics I	3	
Elective	2	
Fashion Industries		3
Principles of Salesmanship		3
Communication Skills II		3
Visual Merchandising		3
Clothing Design and Selection		3
Elective		2
	17	17
SECOND YEAR		
Fashion Promotion and Coordination	2	
Merchandise Mathematics	3	
Principles of Advertising	3	
Principles of Retailing	3	
*Small Store Operation I	2-3	
Elective	3	
Fashion Show Techniques		1
American Institutions		3
Occupational Research and Analysis		3
Business Economics		3
Retail Buying		3
Psychology of Human Relations		3
Elective		2
	16-17	18

Electives

Textiles for Merchandising	2
Fashion Construction	2
Non-Textiles	2
Speech	2
Typewriting I	3
Advertising and Public Relations Campaigns	2
Business Law	3
Internship Employment Program	3
Small Store Operation II	2

*Two credits required for participants in Internship
Three credits required for those not participating in Internship

SAMPLE I

First Progress Report
Page 2

9. SPEED: Does the student do her work with reasonable speed?
Very fast ( ) Moderate ( ) Slow ( ) Very Slow ( )
Comments: _____

10. SELF-CONFIDENCE: Is student self-conscious or self-possessed?
Extremely self-conscious ( ) Self-conscious ( ) At ease ( )
Over confident ( ) Conceited ( )
Comments: _____

11. How can the school help this person become a better employee? ___

_____

_____

12. What do you like about her most? _____

_____

13. What are her special weaknesses? _____

_____

14. Have you discussed this employee's progress with her? Yes __ No __

15. What grade would you assign to this student's work so far?

(A) Excellent (B) Good (C) Fair (D) Improvement needed

16. What comments would you like to make about the program, your company's participation, needed improvements, etc.?_____

_____

_____

_____

Appendix C

INTERNSHIP EMPLOYMENT INITIAL INTEREST FORM

Name of Prospective Enrollee _____

Home Address _____

Madison Address _____ Phone _____

Grade Point Average At MATC _____ High School _____

I plan to return to MATC in Fashion Merchandising in the Fall:

_____ definately _____ probably _____ unsure

I am interested in participating in INTERNSHIP EMPLOYMENT FOR SURE _____
I would like more time to think about it _____

Presently working? Yes No
If yes, where? # of hours

position held? Department

Salary? Name of supervisor

List previous work experience in retailing.

Name of Company	Position held	Dates of employment

Where would you most like to be placed for Internship Employment? (i.e. type of store, location, type of merchandise, etc. List several possibilities. If you are presently working, would you consider this?)

Explain why you think you would like to participate in the Internship Employment program.

SAMPLE II
INTERNSHIP EMPLOYMENT EVALUATION FORM

INTERNSHIP EMPLOYMENT EVALUATION FORM
(To be used primarily in counseling with the student after the work experience)

INTERN'S NAME: _____
INTERNSHIP ASSIGNMENT _____
DATES OF EMPLOYMENT (from-to): _____
STUDENT'S WORK ASSIGNMENTS: _____
Department: _____
Job Title: _____
Duties _____

	Superior	Good	Satisfactory	Poor	Unable to Rate
PROFESSIONAL QUALIFICATIONS					
1. Promptness and regularity of attendance					
2. Thoroughness in following instructions					
3. Quickness in learning departmental policies and procedures					
4. Ability to relate job assignments to departmental and total store goals					
5. Ability to perform under pressure					
HUMAN RELATIONSHIPS					
1. Ability to accept constructive criticism					
2. Open-mindedness (willingness to listen and learn					
3. Relationships with others: Co-workers					
Supervisors					
Those supervised					
4. Ability to inspire enthusiasm and loyalty in others					
INITIATIVE					
1. Resourcefulness in discharging responsibilities					
2. Acceptance of responsibilities beyond those specifically delegated					

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Appendix D

INTERNSHIP SEMINAR

TOPICS TO BE COVERED:

Session I - Introduction - Description and explanation of program; outline for Internship Seminar; student questionnaire. Assignment -Salesmanship Refresher Unit, due Session V.

Session II - Personal appearance - For interviews and during Internship Employment.

Session III - Job interview techniques.

Session IV - Procedure for interviewing for Internship Employment.

Session V - Refresher unit in Salesmanship due; Role playing. *

Session VI - How to get the most out of Internship Employment; Do's and Don'ts for the Intern.

Session VII - Customer service and worker attitudes.

Session VIII - Discussion session, student concerns regarding Internship Employment.

November 1 - Deadline for Internship Assignments

Session IX - Internship Program Workbook, directions for use of; revisions; change to be made.

Session X - Final session before Internship Employment begins; wrap-up procedures, questions, and concerns.

INTERNSHIP EMPLOYMENT November 13, 1972 - January 8, 1973

Session XI - Review of experiences.

Session XII - Evaluation of Internship Employment experience.

*Individual conferences with students will also be scheduled prior to Internship Employment.

	Superior	Good	Satisfactory	Poor	Unable to Rate
DEPENDABILITY					
1. Ability to make decisions without undue delay					
2. Quality of judgments					
3. Capacity to carry our work assignments:					
From a quality standpoint					
From a quantity standpoint					
4. Accuracy					
COMMUNICATION					
1. Ability to state ideas clearly and effectively to others					
2. Ability in written self-expression					
APPEARANCE					
1. Neatness and personal grooming habits					
2. Poise					
3. Personal taste					

MATURITY
Did this student appear mature enough to handle situations generally confronting junior executives in your organization?
Yes___ No___ Possibly___
Comments:

APTITUDE FOR RETAILING
Do you think this student will be able to develop into a successful retailer?
Yes___ No___ Possibly___
Comments:

STUDENT'S STRONG POINTS (please list and describe)

STUDENT'S CHIEF WEAKNESSES (please list and describe)

We would appreciate having any additional comments you might care to make with regard to this student, pertaining to: 1) developments throughout the work period; 2) any significant attitudes or performances during the period; 3) your suggestions regarding possible improvement or development needed. (Please use back for comments.)
Signature of Rater:_____
Title or Position: _____
Date of Rating: _____

MADISON AREA TECHNICAL COLLEGE

211 NORTH CARROLL, MADISON, WISCONSIN 53703 · 608 257-6711

NORMAN P. MITBY
District Director

Appendix E

Employer Solicitation Letter

_____

_____

_____

_____

Dear Sir:

Retailers and educators alike recognize the value of linking students to the business world through planned, supervised work experience while they are still enrolled in college.

This fall, Madison Area Technical College (MATC) will initiate an Internship Employment program specifically designed for third or fourth semester Associate Degree Fashion Merchandising students. Under this program, qualified students will be free from classroom responsibilities to work full-time in a fashion related or retailing position from November 13, 1972 to January 8, 1973. It is hoped that participating students will be able to accumulate a minimum of 125 hours of work experience during this period of time.

The employer who elects to participate in the Internship Employment program will experience numerous benefits. These benefits include:

1. The students who wish to participate are motivated individuals with definate career objectives who may become permanent employees.

2. Students are available during a peak business period.

3. The employer selects the student or students he will employ and has the assistance of the teacher-coordinator responsible for the program in dealing with any student-employee problems which may occur.

4. The Internship Employment program is a flexible one with capacity for adjustment to the individual employer's situation and needs.

5. Participation by the employer will enhance business-school relationships and contribute to community interest as well.

AREA BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION DISTRICT NO. 4

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Walter Brink · Francis E. Kohn · Dr. Ray Rueckert

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Knowles, Asa S. and Associates, Handbook of Cooperative Education. San Francisco, California: Josssey-Bass, Inc, 1971.

Mason, Ralph E., and Haines, Peter G., Cooperative Occupational Education and Work Experience in the Curriculum. Danville, Illinois: Interstate Publishers and Printers, Inc., 1965.

Guide for Cooperative Vocational Education. Minneapolis, Minnesota, University of Minnesota, College of Education, Division of Vocational and Technical Education, 1969.

A Professional Guide for Establishing a Successful Fashion Merchandising Program. Manchester, Missouri: Gregg/McGraw-Hill, 1972.

Willis, Tolson, "California Group Trains Young Talent for Changing Sales Image." Style for Men, December 30, 1970, p. 8.

OTHER RESOURCES USED

College Catalogs and Materials From:

The Bassist School of Fashion Careers - Portland, Oregon

Ellsworth College - Iowa Falls, Iowa

Fashion Institute of Technology - New York, New York

Laboratory Institute of Merchandising - New York, New York

Pratt Institute - Brooklyn, New York

Tobe-Coburn School for Fashion Careers - New York, New York

The Internship Employment program can effectively serve the interests of both students and businessmen. It should not be overlooked. If you would like additional information, please feel free to call Mrs. Jane Wilson, Teacher-Coordinator in charge of Internship Employment at 257-6711, Extension 251. If you are interested in providing work experience under this program for one or more students, simply fill out the enclosed postage-paid card and return to the college. Mrs. Wilson will then contact you to make further arrangements.

Sincerely,

Robert V. Ahrens
Associate Chairman, Marketing

Enclosure

VT 016 490
CURRENT RESEARCH PROJECT GRANTS. DIVISION OF NURSING.

PUBLIC HEALTH SERVICE (DHEW), WASHINGTON, D.C. DIV. OF NURSING.
MF AVAILABLE IN VT-ERIC SET.
DHEW-PUB-(NIH) 72-88
PUB DATE - OCT71 10P.

DESCRIPTORS - *RESEARCH PROJECTS; *GRANTS; *NURSING; *HEALTH EDUCATION; *DIRECTORIES

ABSTRACT - THIS LIST OF RESEARCH PROJECTS, CURRENT AS OF OCTOBER 1, 1971, COVERS NURSING AND HEALTH RELATED RESEARCH SUPPORTED BY THE NURSING RESEARCH PROJECT GRANTS PROGRAM. NAMES OF INDIVIDUAL INVESTIGATORS, THE INSTITUTION EACH REPRESENTS, THE PROJECT TITLES, AND THE STATE AND GRANT NUMBERS ARE PROVIDED. (AG)

Appendix F

TEACHER-COORDINATOR'S CALL REPORT

INTERNSHIP EMPLOYMENT
TEACHER-COORDINATOR'S CALL REPORT
(For initial calls on prospective employers)

Date and Hour of call _____
Name of Business _____
Address _____ Telephone _____
Name of Person Interviewed _____ Title _____
Best Time to Call _____ Appointment Necessary ? _____
Hour Day
Date of Next Call _____ For purpose of _____

Number of Interns wanted _____
Number to be interviewed _____
Appointment dates for prospective Interns:
_____
_____
_____
Person students should talk to: _____
Names of students suggested:
_____
_____
Employer's comment on Internship Employment program _____
_____
Employment problems mentioned: _____
_____
Follow-up required _____
Time spent on interview _____
Personal Data And Comments: _____
_____
_____

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service National Institutes of Health

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

CURRENT RESEARCH PROJECT GRANTS

Division of Nursing

Appendix G

This card will be taken to the interview by the student.

INTERNSHIP EMPLOYMENT PROGRAM

MADISON AREA TECHNICAL COLLEGE

INTRODUCTION CARD

Miss
Mrs.
Mr. _____

Company _____ Address _____

_____ is applying for the position

of Intern for _____

Date _____ _____
Teacher-Coordinator

5702

DISCRIMINATION PROHIBITED--Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Therefore, the Nursing Research Project Grants, like every program or activity receiving Federal assistance from the Department of Health, Education, and Welfare, must be operated in compliance with this law.

DHEW Publication No. (NIH) 72-88
Revised October 1971

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service - National Institutes of Health
Bureau of Health Manpower Education
Division of Nursing
9000 Rockville Pike - Bethesda, Maryland 20014

Appendix H

PERSONAL DATA

Personal Data

Name

Last | First | Middle | Mr., Miss, Mrs.

Present Address

Street | City | State

Local Phone

Permanent Address

Street | City | State

Permanent Phone

Social Security Number	Birth Date	Marital Status	Height	Weight

Employment Objective

Job Desired

1st Choice | 2nd Choice | 3rd Choice

Date Available for Employment

Long Range Career Objective

Education

Name and Location of Last High School

Diploma

Graduation Date

MATC Program Completed	Grade Point Average	Diploma or Degree	Graduation Date

Other MATC Programs or Courses

Activities, Honors

Name and Location of Other Post High Schools	Dates Attended From	Dates Attended To	Diploma or Degree	Program or Major Subject

Employment Part & Full Time

Name and Address of Employers (present or most recent first)	Part or Full Time	Job Title	Supervisor	Dates Employed From	Dates Employed To

Military Service

Selective Service or Reserve Status

Anticipated Military Duty

Branch | From | To

Previous Service

Branch | From | To | Rank | Specialty

Additional Information

Special Qualifications, Interests, Abilities

Madison Area Technical College
211 North Carroll Street
Madison, Wisconsin 53703

5703

STUDENT SERVICES

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Appendix 1

Student Information Form

INTERNSHIP EMPLOYMENT
STUDENT INFORMATION FORM
(To be filled out by Intern when Internship Assignment is obtained)

Intern's Name _____ Date _____

Madison Address _____

Home Address _____

Internship Assignment _____

Type of Business _____

Average Number of Hours per Week _____

Salary per Hour or per Week _____

Job Title _____

Description of Duties _____

Address of Internship Assignment _____

Name of Intern Sponsor _____

Title or position held by Intern Sponsor _____

Names of other Immediate Supervisors and their titles, if any _____

_____

Business Phone _____

Madison Phone _____

Home Phone _____

Additional Comments

Introduction

The Nursing Research Project Grants program has since 1955 supported studies dealing with all aspects of nursing practice, organization and delivery of nursing services to the patient, nursing education, nursing as an occupation, and ways of communicating research findings. Recently the program has supported studies dealing with the effects of skilled nursing intervention in the hospital, home, and community, the assessment of quality nursing care, and the expanded role of the nurse in diverse settings. In addition to awards to individual investigators to pursue discrete research problems, awards have been made to service and educational institutions with high potential for research to strengthen and expand research activities, particularly in the clinical or practice area, through the provision of personnel and resources.

Responding to requests from persons interested in nursing and health related research, the Division of Nursing of the National Institutes of Health is issuing this list of research projects current as of October 1, 1971. More detailed information about individual projects may be obtained by writing to the principal investigator.

Information about the procedures for applying to receive a grant award is contained in Public Health Service Publication No. 1101 (Research and Research Training Grants), available from the Division of Nursing.

Appendix J

INTERNSHIP AGREEMENT

_____ agrees to employ _____
Internship Assignment Student

for the purpose of gaining practical knowledge and work experience in the area of _____ from _____
Beginning Date

to _____.
Closing Date

PROVISIONS

1. The student, while employed, shall be deemed an Intern and an Intern Sponsor will be assigned for supervision.

2. The Intern shall adhere to all rules and regulations of the Internship Assignment.

3. The Intern enters this program to learn as much as the employer can provide in the nature of job information, skills and attitudes.

4. The Intern is expected to be honest, punctual, cooperative, courteous, and willing to learn. Personal appearance must be appropriate for the employment situation.

5. The employer agrees to hire the student-Intern on a full-time basis during Internship Employment. The employer is urged to provide a minimum of 125 hours of work experience during this period.

6. A salary commensurate with the Intern's ability and experience will be paid by the employer.

7. The school will provide a teacher-coordinator to counsel the student-Intern. She will make a minimum of two contacts with the Intern Sponsor and/or employer during the Internship Employment period.

8. If for any reason it is necessary to terminate an Intern, a conference between the employer, the student and the teacher-coordinator must be held prior to notification of termination.

Employer _____

Student _____

Teacher-Coordinator _____

Current Nursing Research Grants

State and Grant No.	*Investigator*	*Institution*	*Title*
Arizona			
NU 00358	Krueger, Janelle	University of Arizona Tucson	Research Development
California			
NU 00273	Kramer, Marlene F.	University of California Medical Center San Francisco	Anticipatory Socialization and Chosen Work Locale
NU 00346	Yett, Donald E.	University of Southern California Los Angeles	Returns on Training by Type of Nurse and State
NU 00376	Fleshman, Ruth	University of California Medical Center San Francisco	Commune Health Education
NU 00410	McLaughlin, Frank	University of California San Francisco	Interpersonal Feedback and Leadership in Small Groups
Colorado			
NU 00289	Elliott, Jo Eleanor	Western Interstate Commission for Higher Education Boulder	Conferences-Communicating Nursing Research Results - Improving Nursing Practice Through Research

State and Grant No.	*Investigator*	*Institution*	*Title*
Colorado, Con't.			
NU 00415	Berthold, Jeanne	Western Interstate Commission for Higher Education Boulder	Regional Program for Nursing Research and Development
Connecticut			
NU 00023 (GM 6675)*	Henderson, Virginia	Yale University New Haven	Index to Research in Nursing
NU 00314	Arnstein, Margaret	Yale University New Haven	Research Development Project
NU 00370	Slavinsky, Ann	Yale University New Haven	Nursing with Chronically Ill Psychiatric Outpatients
Georgia			
NU 00390	Fuller, Ellen	Emory University Atlanta	Sympathetic Responses of the Uterine Circulation
Hawaii			
NU 00403	Felton, Geraldene	University of Hawaii Honolulu	Rhythmic Correlates of Shift Work
Iowa			
NU 00387	Jacox, Ada	University of Iowa Iowa City	Psychosocial Contingencies of the Pain Experience

*GN or GM numbers indicate support by the National Institute of General Medical Sciences prior to July 1, 1963.

State and Grant No.	*Investigator*	*Institution*	*Title*
Kansas			
NU 00312	Butts, Stanley	University of Kansas Medical Center Kansas City	Research Development Grant
NU 00405	Butts, Stanley	University of Kansas Medical Center Kansas City	A Descriptive Study of the Patient-Hospital Interface
Maryland			
NU 00366	Murphy, Marion	University of Maryland Baltimore	Research Development Program
NU 00412	Kirby, Nell A.	Johns Hopkins University Baltimore	Teaching Spinal Cord Injured People
Massachusetts			
NU 00365 (NU 00268)	Berkowitz, Norman H.	Boston College Chestnut Hill	The Development of a Measure of Role Concept
Michigan			
NU 00361	Werley, Harriet	Wayne State University Detroit	Research Development--Center for Nursing Research
NU 00398	Wandelt, Mabel	Wayne State University Detroit	Measuring Quality of Nursing Care: A Think Conference
NU 00416	Werley, Harriet	Wayne State University Detroit	Survey of Professionals Regarding Family Planning

State and Grant No.	*Investigator*	*Institution*	*Title*
New York			
NU 00308	Alfano, Genrose	Montefiore Hospital and Medical Center Bronx	Long-Term Effects of an Experimental Nursing Process
NU 00322	Jacobi, Eileen	American Nurses' Association, Inc. New York City	Nursing Research Conference: Nurses in Research
NU 00399	Buchholz, Patricia	Columbia University New York City	Hospital Teaching of Patients with Heart Failure
North Carolina			
NU 00343	Conart, Lucy	University of North Carolina Chapel Hill	School of Nursing Research Development Grant
Ohio			
NU 00069 (GM 10661)*	Schlotfeldt, Rozella M.	Case Western Reserve University Cleveland	Research Development Grant
NU 00310	Anderson, Ruth	Case Western Reserve University Cleveland	Planned Change in a University Medical Center
NU 00347	King, Imogene	Ohio State University Columbus	Research Development Program
NU 00380	Kruse, Lorane	Ohio State University Columbus	The Leadership Role of the Nurse
NU 00401	Daubenmire, M. Jean	Ohio State University Columbus	A Study of the Interactive Communicative Process

*GN or GM numbers indicate support by the National Institute of General Medical Sciences prior to July 1, 1963.

State and Grant No.	*Investigator*	*Institution*	*Title*
Pennsylvania			
NU 00263	Meltzer, Lawrence E.	Presbyterian-University of Pennsylvania Medical Center Philadelphia	Specialized Nursing Care in Acute Circulatory Failure
Tennessee			
NU 00426 (NU 00386)	Walston, Kenneth	Vanderbilt University Nashville	Factors Influencing Information Disclosure to Nurses
Utah			
NU 00383	Quinn, Mildred	University of Utah Salt Lake City	Research Development Project
NU 00408	Dyer, Elaine	Veterans Administration Hospital Salt Lake City	Improving Quality Care Through Performance Ratings
Virginia			
NU 00345	Lohr, Mary	University of Virginia Charlottesville	Researcher Development: Clinical Studies in Nursing
Washington			
NU 00369	Batey, Marjorie	University of Washington Seattle	Action Program in Nursing Research Facilitation

State and Grant No.	*Investigator*	*Institution*	*Title*
Wisconsin			
NU 00302 (NU 00183)	Leventhal, Howard	The University of Wisconsin Madison	Measurement and Control of Distress
NU 00341	Kolthoff, Norma	The University of Wisconsin Madison	Institutional Nursing Research Development
NU 00413	Thielbar, Gerald	The University of Wisconsin Madison	Structural Effects on Nursing Practice

VT 016 492
CAWEIN, PAUL E.
IMPLEMENTING A K-12 CAREER DEVELOPMENT PROGRAM IN THE DISTRICT OF COLUMBIA. INTERIM REPORT.

DISTRICT OF COLUMBIA PUBLIC SCHOOLS, WASHINGTON, D.C.
BUREAU OF ADULT, VOCATIONAL, AND TECHNICAL EDUCATION (DHEW/OE), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
OEC-070-4785(361)
PUB DATE - 30JUN71 93P.

DESCRIPTORS - *VOCATIONAL DEVELOPMENT; *DEVELOPMENTAL PROGRAMS; *CAREER EDUCATION; ELEMENTARY GRADES; SECONDARY GRADES; *GUIDANCE SERVICES; PILOT PROJECTS; *EDUCATIONAL RESEARCH; WORKSHOPS; CURRICULUM DEVELOPMENT
IDENTIFIERS - *EXEMPLARY PROJECTS

ABSTRACT - THE GOALS OF THIS CAREER DEVELOPMENT PROJECT WERE TO: (1) DESIGN A PATTERN OF CAREER FOUNDATIONS AT THE ELEMENTARY SCHOOL LEVEL, (2) DESIGN A PATTERN OF CAREER SURVEY THROUGH A RESTRUCTURING OF THE CURRICULUM AROUND CAREER CLUSTERS AT THE JUNIOR HIGH SCHOOL LEVEL, (3) DESIGN A PLAN FOR CAREER EXPLORATION AND PREPARATION FOR ALL HIGH SCHOOL STUDENTS, AND (4) INITIATE THE EXPANSION OF GUIDANCE AND COUNSELING SERVICES. THE STRATEGY FOR OPERATIONS DURING FISCAL YEAR 1970 CENTERED AROUND INTRODUCING THE CONCEPTUAL DESIGN OF CAREER DEVELOPMENT TO THE COMMUNITY IN GENERAL WITH IN-DEPTH STUDY FOR PERSONS IN THE SPECIFIC AREA SELECTED FOR THE EXEMPLARY PROJECT. A 4-WEEK ORIENTATION WORKSHOP WAS CONDUCTED FOR SELECTED PERSONNEL, AND CURRICULUM DEVELOPMENT WAS BEGUN DURING THIS WORKSHOP. WORKSHOPS WERE ALSO CONDUCTED OVER THE COURSE OF THE SCHOOL YEAR INVOLVING THE PILOT TEACHERS, ADMINISTRATORS IN THE PILOT SCHOOLS, SUBJECT DEPARTMENT, AND OUTSIDE CONSULTANTS TO REFINE THE OBJECTIVES AND PLANS FOR CURRICULUM. PLANS WERE DEVELOPED FOR AN EXTENSIVE CURRICULUM DEVELOPMENT PROJECT TO BE EFFECTED DURING THE SUMMER OF 1971. AN EVALUATION REPORT OF THE FIRST YEAR ACTIVITIES IS INCLUDED IN THIS PUBLICATION. (SB)

INTERIM REPORT

Project No. 0-361-0137
Contract No. OEC-070-4785(361)

FILMED FROM BEST AVAILABLE COPY

Dr. Paul E. Cawein
D.C. Public Schools
415-12th Street, N.W.
Washington, D.C. 20004

June 30, 1971

VT015492

5726

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EDUCATION & WELFARE
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INTERIM REPORT

Project No. 0-361-0137
Contract No. OEC-070-4785(361)

Dr. Paul E. Cawein
D.C. Public Schools
415-12th Street, N. W.
Washington, D.C. 20004

June 30, 1971

5721

INTERIM REPORT

Project No. 0-361-0137
Contract No. OEC-070-4785(361)

Implementing A K-12 Career Development Program in the District of Columbia

Exemplary Project in Vocational Education
Conducted Under
Part D of Public Law 90-576

The project reported herein was performed pursuant to a contract with the Bureau of Adult, Vocational, and Technical Education, Office of Education, U.S. Department of Health, Education, and Welfare. Contractors express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

Dr. Paul E. Cawein
D.C. Public Schools
415-12th Street, N.W.
Washington, D.C. 20004

June 30, 1971

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Interim Report

Summary of the Report

a. Time Period Covered: June 15, 1970 through June 30, 1971

b. Goals and Objectives of the Project

To design a test pattern of "career foundations through the integration of new curriculum methods and materials within two pilot elementary schools, as the first stage in a five-year plan for city-wide implementation of the career development program;

To design a test pattern of "career survey" through a re-structuring of the curriculum around career clusters within two pilot junior high schools, as the first stage in a five-year plan for the city-wide implementation of the career development program;

To design a plan for the phasing in of a pattern of "career exploration: and specialized "career preparation" for all high school students, including the redesign of existing vocational programs and the developing of a broad range of new programs and cooperative work-study activities, and to test selected programs with pilot groups of students;

To initiate the expansion of occupational guidance and counselling, and the establishment of cooperative relations with District and metropolitan employment services, manpower agencies, etc for the initial placement of all students at the completion of schooling.

c. Procedures followed

The strategy for operations during the first year centered around introducing the conceptual design of career development to the community in general with in-depth study for persons in the specific area selected for the exemplary project. Since the idea of career training for all students was new and threatening to many members of the community, both lay and professional, the situation was very sensitive at the outset. Thus a process of gradual orientation was begun, increasing in thrust as time passed. The following procedures, then, were pursued:

- Selection of an area for the pilot project
- Selection of schools and teachers
- Initial presentation of the conceptual design to the community, lay and professional, where the pilot will be instituted; follow-up presentations
- Orientation workshop for selected personnel
- Continuing in-service for selected personnel in preparation for the opening of mini-schools
- Survey of and selection of instructional supplies and equipment for use in mini-schools
- Initial steps in curriculum design for mini-schools
- Exploration of resources both within the school and in the city which might serve the program
- Planning the mini-school operation
- Revision of lists of teachers, counselors who will participate in the exemplary project
- Selection of consultants to assist in curriculum development

d. Results; Accomplishments

The Spingarn Instructional Unit, an area in the far northeast and near southeast sections of the city, was selected as the site of the exemplary project. Two elementary schools, Webb and Young and two junior high schools, Browne and Evans, were volunteered by their principals for the project. Teachers from grades 1-6, and from seven basic content areas in grades 7 and 8 volunteered to participate.

A four-week orientation workshop was conducted for selected personnel which included not only teachers and counselors, but also representatives from the subject matter departmental offices and elementary supervision. Curriculum development was begun during this workshop.

Workshops were conducted over the course of the school year involving the pilot teachers, administrators in the pilot schools, subject departments, and outside consultants to refine the objectives and plans for curriculum.

Dissemination of information concerning the concept of career training for all students began early and continued throughout the year, extending to the business community as well.

Plans were developed for an extensive curriculum development project to be effected during the summer of 1971, assisted by consultants at both levels.

Two assistant directors were hired by the Board of Education to assume the role of leadership for the teams in the project, to assist with planning; to continue in-service training for the teachers; and to coordinate the project.

e. Evaluation

A contract for annual evaluation by an outside evaluator has been assigned to the North Carolina State University at Raleigh under Contract 10-161.

f. Conclusions and Recommendations

Tentatively, the exemplary project has moved well and promises to be ready to move into the next stages - curriculum development and the establishment of the four mini-schools on schedule.

It is recommended, however, that a full-time director be appointed as soon as possible to afford maximum leadership for the program. Hopefully, the Director will be able to alleviate some of the problems which the project faces at this time.

Body of the Report

a. The Problem

Extensive studies authorized by the Board of Education of the District of Columbia, notably those by Odell Mae Connell Associates in 1965; Dr. Harry A. Passow of Teachers College, Columbia University, 1967; the Vocational Education Advisory Council, 1967 and the Executive Study Group, 1968, have highlighted inadequacies in the existing educational program of the public schools of the District of Columbia. Such studies focus upon matters of relevancy since statistics indicate that of a school population of more than 151,000, 43% are socio-economically disadvantaged; approximately 90% are minority group members; and at least 40% drop out prior to high school graduation.

Viewing these statistics with grave concern, the Board of Education established a Task Force on Vocational Education in 1969, charged with the responsibility of developing a design focusing upon (1) vocationally oriented programs for all levels of instruction and (2) specialized vocational training directed toward specific career objectives. The report of the Task Force was approved by the Board of Education in July, 1969.

The Task Force found that preparation for the world of work should be an inevitable, primary objective of the public schools, serving both the societal need and the individual needs of all students. This guiding principle maintains whether the student plans to continue his education in an institution of higher learning or to enter the world of work while still in the public school or upon completion of high school. Thus, the curriculum must address itself to all three groups, revamping to become more effective in meeting the needs of all - especially the prospective dropout.

Traditionally, vocational programs at the high school level have suffered a second class status in spite of the fact that graduates from such programs enjoy the distinction of possessing marketable skills as well as academic preparation which equip them for entry into the world of work and/or higher education. This negative societal evaluation has discouraged many students and their families. Its impact upon self esteem has been devastating. It must be admitted however, that the narrow range of existing vocational programs has contributed to the problem.

Recognizing the intricacies of the problem, the Task Force established certain propositions upon which an entirely new concept must be founded if essential change is to be effected in the thinking of the community. The seven propositions are as follows:1/

1. Career Development must be an integral part of a relevant program of education at all levels of instruction.

2. Career Development must focus upon expanding an awareness of the range of present and future opportunities, upon the development of marketable skills and upon stimulating a positive personal response to the challenge and rewards of the world of work based upon a sense of dignity of all work.

3. Career Development must be the cooperative responsibility of all instructional units, with curriculum guidance and counselling activities closely coordinated.

4. Career Development must be offered in a variety of flexible patterns to serve realistically the needs and aspirations of individual students:

    a. All students must be encouraged and assisted to continue their formal education at least through high school, in conjunction with part-time or full-time employment where desired.

    b. All students must be encouraged to develop a marketable skill prior to leaving school.

    c. All students must be prepared for continuing education to expand their level of post secondary competence and to meet new career requirements resulting from technological changes, and must be stimulated to continue their career development in joint union and employer apprenticeship and special training programs, technical schools, colleges and institutions of specialized education after high school.

5. Career Development, including specialized vocational programs, must be designed in a fashion which facilitates maximum interaction among students throughout their high school careers.

1/ D.C. Public Schools:
Task Force Report on Vocational Education , May 1969, pp.11-18

6. Career development must include placement and related follow-up services; present attention given to college entrance must be replicated for students entering other forms of continuing education and for students entering directly into the job market.

7. Career development must aid the handicapped to attain the broadest possible career aspirations within the mainstream of student activities, supported by special educational programs and facilities where necessary.

b. Goals and objectives of the project

The goals of the Career Development Program as set forth in the exemplary project are two-fold, yet each is a part of the other. The implementation objectives provide for the fulfillment of the student objectives.

The objectives of the student include:

1. Developing an awareness of the range and possibilities of the world of work;

2. Attaining adequate preparation for entry into the world of work at whatever level; marketable skills

3. Developing self esteem and a realization of the dignity of work.

To the end of providing for all students a climate where these objectives can be realized, the exemplary project sets forth four goals: 1/

> To design and test a pattern of "career foundations" through the integration of new curriculum methods and materials within pilot elementary schools, as the first stage in a five-year plan for city-wide implementation.
>
> To design and test a pattern of "career survey" through a restructuring of the curriculum around career clusters within (two) pilot junior high schools, as the first stage in a five-year plan for city-wide implementation.
>
> To design a plan for the phasing in of a pattern of "career exploration" and specialized "career preparation" for all high school students, including the redesign of existing

1/ Proposal for Exemplary Program or Project in Vocational Education, p. 34

programs and the developing of a broad range of new programs and cooperative work-study activities, and to test selected programs with pilot groups of students.

To initiate the expansion of occupational guidance and counseling, and the establishment of cooperative relations with District and metropolitan employment services, manpower agencies, etc., for the initial placement of all students at the completion of schooling.

Description

The strategy for the first year centered about

1. Selection of an area in which to locate the exemplary project;
2. Selection of schools and personnel within the area;
3. Introduction of the conceptual design of career development to the community at large with in-depth study for persons in the specific area selected;
4. In-service training for all concerned personnel;
5. Continuing in-service training for personnel;
6. Planning for curriculum development for the mini-schools with consultants;
7. Principals' preparation for mini-schools
8. Survey and selection of instructional supplies and equipment for use in the mini-schools;
9. Procurement of equipment and supplies;
10. Exploration of resources within the schools and in the city which may serve the program;
11. Revision and amendments of the lists of teachers, counselors who will participate in the exemplary project;
12. Acquisition of staff personnel to provide leadership for the project.

To coordinate with an existing program, the "Five-year Plan for Decentralization of Instructional Services in the Public Schools of the District of Columbia," the Spingarn Instructional Unit, the prototype for that program, was selected as the site of the exemplary project. The Unit is composed of twenty-three schools in the far northeast and near southeast sections of the city. This area includes one senior high school, one vocational high school, four junior high schools and seventeen elementary schools. The Unit is organized on the feeder school principle.

Webb and Young Elementary Schools and Browne and Evans Junior High Schools were volunteered by their principals as sites for the project. One team of teachers, K-6, was selected from each elementary school; and one team comprising the following subject areas was selected from each junior high school: English, mathematics, social studies, science, industrial arts, home economics, business, physical education.

The dissemination of the Task Force Report to the community began early in 1970 with a slide assisted presentation to the Advisory Committee and principals of the Spingarn Unit. All presentations were followed by question-answer periods during which much profitable exchange took place. Later presentations included a presentation to one of the seminars at the annual meeting of the Board of Trade, in which the Superintendent of Schools participated; presentations to the Vocational Education Council and to a workshop sponsored by the Vocational Education Council.

A four-week orientation workshop, 1/ conducted July 13 through August 11, 1970, marked the beginning of formal in-service training for personnel of the project.

The members of the teams together with representatives from the English, Mathematics, Science, and Industrial Arts departmental offices and the department of elementary supervision worked together on the learning tasks. The operating Assistant Superintendents - Elementary Education, Secondary Schools, Vocational Schools; the President of the Board of Education and the Acting Superintendent of Schools visited the workshop, making visible their support of the program.

Selected teachers from other programs participated in the instructional program in the following areas: the Senesh Program, industrial arts, tri-wall carpentry and innovations in curriculum. Other consultants served the workshop in the area of Technology for Children, Urban Problems, Motivation and Education, Industrial Arts, reading and the Systems Approach to Teaching and Learning. Field trips for the workshop were limited to a day at Washington Technical

1/ See Appendix

Institute to permit participants to explore a wide range of career opportunities within the city and areas selected by participants for exploration as they began to develop sample units.

Thirty-nine persons participated in the workshop.

In-service training continued throughout the year in the form of bi-weekly seminars for the four team leaders (selected by the teams near the close of the workshop); Saturday Workshops beginning late in January, 1971; team meetings with the four schools and periodic meetings with the Acting Director. The seminars were planning sessions in which the Acting Director checked on the progress of the teams in curriculum development including reports on tryouts and revisions of units developed. In the Saturday Workshops, all teams continued their personal development through the study of innovative materials and methods, hands-on experiences of various kinds including tool technology, and techniques of curriculum development including further work with the Systems Approach and an exchange of materials developed by members of the teams.

Early in the fourth quarter, planning for a curriculum workshop for summer, 1971, began as we moved toward the opening of mini-schools in the fall of that year. Approval was granted by the U.S. Office of Education for reprogramming funds to cover a contract to Metropolitan Educational Council of Washington, D.C. for the development of curriculum for grades seven (7) and eight (8) following the cluster pattern recommended by the U.S. Office. 1/ Simultaneously plans for curriculum development grades K-6 were made and a consultant secured.

At a conference held at Manressa under the direction of the consultants under Contract to the Metropolitan Educational Council, June 4-6, 1971, plans for the summer workshop for junior high school personnel were developed as well as a pattern for the curriculum project. 2/ This conference involving leaders and consultants was reported to the teacher teams at a meeting on June 10, 1971.

Concurrent workshops - for elementary and secondary teams - were held at Browne Junior High School June 28 through July 30, 1971. 3/

In May the four principals concerned met with the Acting Director to discuss the logistics for establishing the mini-schools within their buildings. Among the matters discussed in these planning sessions were location, space, flexible scheduling, administration and released time for team planning. By the close of the Planning sessions, each school had a basic plan of operations subject to modification as needed.

1/ Developmental Scheme - Appendix
2/ Appendix - Summary of Manressa Conference
3/ Appendix - Workshop Agenda

Though actual procurement of instructional materials was actually delayed until the beginning of fiscal 1972, most of the groundwork for this process occurred during the spring of 1971.

All team members were committees of one to search for suitable materials with specific attention to flexibility and multiple use. Reading levels were extremely significant. Exhibits of instructional materials were an integral part of all workshops as the group moved toward full implementation. The counselors on the teams were extremely valuable in this area, for they seemed to find the time to set up files of promising materials.

An ongoing investigation of community resources added the following agencies to the list of resources willing to cooperate with the program:

American Personnel and Guidance Association
The National Portrait Gallery
The Archieves of the United States
The D.C. Recreation Department
The Boy Scouts of America, Careers Component
Local Hospitals
The Department of Commerce
The Department of Labor
The Department of Interior
The Department of Transportation

Resignations, one leave of absence and requests from one principal led to revisions of the teacher teams prior to the summer workshop. In the process, home economics was added to the list of subject areas and all schools now have one counselor on the team. 1/

At the end of the fourth quarter, June 24, 1970, the first administrative and supervisory personnel was hired by the Board of Education. An Assistant Director was employed for each level (2) to provide leadership, coordination, in-service programs and other services as assigned for the teacher teams.

d. Results and accomplishments of the project

1. Information concerning the career development design has been disseminated throughout the far northeast and near southeast area of the city to professional and lay members of the community in which the project is to be launched as well as to

1/ See Appendix Current Team Lists

members of the Vocational Education Council, 1/ the Board of Trade, the administrative staff of D.C. Schools, the members of the staffs of the departmental offices and the department of elementary supervision.

2. Staff Development Activities:

a. Orientation Workshop, July 13 - August 7, 1970, 2/ for personnel selected to begin the project in four public schools

Personnel in Workshop

Teachers	33
Counselors	1
Departmental personnel	
Supportive services	5
Total	39

During the Workshop, the first trial instruments 3/ for self-evaluation were developed and used.

Professional assistance in the development of the Workshop was also used.

b. Seminars for team leaders for planning and organization

c. Saturday Workshops: January - May, 1971 for members of all teams.

Topics for the Workshops included:

Development of learning systems
Development of behavioral objectives
Tool technology
Tri-wall Carpentry
Curriculum development
Selection of instructional materials

d. In-building team meetings

Focus - Team planning

Curriculum development

1/ Appendix - Program Manressa Conference
2/ Appendix - Career Development, A Workshop for Teachers
3/ Appendix - Exhibits A and B

3. Plans for an extensive curriculum development project 1/ to be held during 5 weeks of the summer of 1971 were developed during the fourth quarter, the secondary workshop under a contract to the Metropolitan Education Council for Staff Development. Consultants for the secondary project were appointed to serve before and during the Workshop and to continue throughout the school year 1971-72.

At a conference at the Manressa Conference Center June 4-6, 1971, plans for the junior high school curriculum project were mapped out by consultants, team leaders and curriculum writers. Following this conference, a report was made to the total team membership - junior high - so that final arrangements could be made for implementation of the plan.

During the same period, plans were made for the elementary workshop and a curriculum consultant was secured.

The principal of Browne Junior High School agreed to house the Curriculum Workshop in an area of the building adequate for the operation at no cost to the project and physical plans were completed speedily.

4. A contract for an annual evaluation of the project by an outside evaluator was let to the North Carolina State University at Raleigh, N.C. under Contract number 10-161, and the evaluation was begun. 1/

5. The first professional staff members were engaged at the end of June, 1971, giving the project its first full-time leadership. One assistant was hired for each level to provide leadership and supervision for the teams; to assist with planning; to continue in-service training for teachers and to coordinate the project. This addition proved helpful in spite of the fact that the assistants had little input in planning for the summer staff development and curriculum effort.

Conclusions, implications and recommendations for the future

Given administrative problem beyond the control of the Acting Director, the absence of full-time professional staff, and the normal reluctance of communities to accept radically different concepts, and the in-house limitations of school systems, the exemplary project seems on its way toward implementing the conceptual design within the limits of the strategy set for the first year.

1/ Appendix - Contract with North Carolina State University, Raleigh

The community has shown considerable advances in awareness of the concept and the beginnings of change in attitude toward the idea of career training for all students. The significant word here is all; the community has always accepted the idea of vocational training, especially for "other people's children;" Recently educators and parents from areas outside the Spingarn Instructional Unit, the site of the project, have begun to ask questions, to request copies of the Task Force Report and to sound the director out on the possibility of incorporating such a program in their areas. This is progress.

School personnel within the Unit and residents of the community seem ready to move ahead to the active stage of implementation. However there are many persons, both within the schools and in the community, who still have grave reservations.

Both elementary teams seem ready as they approach the curriculum workshops; the secondary teams seem less confident and for real reasons. They have had little regular time for team planning and many members have had no prior experience with curriculum research or development.

Both elementary schools have solved most of their logistical problems involved with the opening of mini-schools. Browne Junior High School is nearly ready; Evans is still having problems.

It is fair to assume, we believe, that if the summer workshops produce viable curriculum modules as planned, and if the plans for presentation of the concept to the children selected for the mini-schools and their parents are executed, the project will be able to move into implementation on schedule.

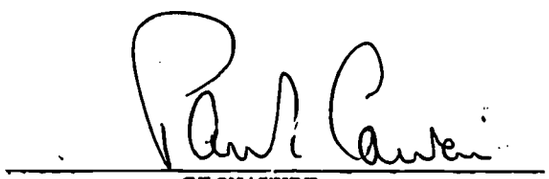
Recommendations

In order to [illegible]re smooth operation within the exemplary project it is essential that certain organizational tasks be accomplished speedily. It is therefore recommended:

That a Director be appointed immediately;

That following the appointment of a Director, housing for the staff of the project be secured to facilitate operation of the project; that this facility include space for storage of instructional materials and supplies;

That an efficient system for procurement and delivery of instructional materials and supplies be instituted together with personnel to effect distribution.



SIGNATURE

DATE

FIRST YEAR EVALUATION OF THE WASHINGTON, D. C. EXEMPLARY PROGRAM ENTITLED "IMPLEMENTING A K-12 CAREER DEVELOPMENT PROGRAM IN THE PUBLIC SCHOOLS OF THE DISTRICT OF COLUMBIA"

Robert L. Morgan

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CENTER FOR OCCUPATIONAL EDUCATION

North Carolina State University at Raleigh

Raleigh, North Carolina

August, 1971

Contract No. 10-161

INTRODUCTION

The exemplary program now being undertaken in the Washington, D. C. school system is a new, innovative and non-traditional program. The long-range objective of the program is the implementation of Career Education as a part of the regular education of all students K-12. This objective is ambitious and worthwhile, and the planning and preparation outlined in the proposal for the program reflect great care in attempting to insure that the objectives are ultimately achieved. Under the terms of the original exemplary grant proposal, the program was to be implemented during the first year covered in the three-year research grant. The three-year implementation phase had four process objectives:

> To design and test a pattern of "career foundations" through the integration of new curriculum methods and materials within (four) pilot elementary schools, as the first stage in a five-year plan for city-wide implementation.
>
> To design and test a pattern of "career survey" through a restructuring of the curriculum around career clusters within (two) pilot junior high schools, as the first stage in a five-year plan for the city-wide implementation.
>
> To design a plan for the phasing in of a pattern of "career exploration" and specialized "career preparation" for all high school students, including the redesign of existing vocational programs and the developing of a broad range of new programs and cooperative workstudy activities, and to test selected programs with pilot groups of students.
>
> To initiate the expansion of occupational guidance and counseling, and the establishment of cooperative relations with District and metropolitan employment services, manpower agencies, etc., for the initial placement of all students at the completion of schooling. (Proposal submitted to the U. S. Office of Education.)

While these stated objectives deal entirely with the establishment and expansion of new curriculum and patterns of instruction, it is clear

to anyone dealing with the project that a major focus has been the establishment of a climate of support for the career education concept inside and outside of the school system.

The contracting for this third party evaluation did not take place until June of 1971. As a result, serious restrictions were placed on the type of evaluation which could be undertaken. This late involvement necessitated the completion of a rather general and open-ended evaluation. Because events could not be followed as they occurred, over the full course of the year, this report is based primarily on interviews with Washington, D. C. public school personnel. Twenty-six persons were finally interviewed, including 8 teachers, 16 administrators, a member of the state advisory council, and the acting project director. The only other data available to the evaluator was an instrument which had been administered to the teachers participating in the workshops. This instrument, administered on a pretest-posttest basis, was designed to measure teachers' attitudes towards vocational education.

Although the late involvement of the evaluator is unlikely to have grave consequences for the actual outcome of the project, it does have several unfortunate effects. First, it makes the reasons for the success or failure of the project more difficult to determine. Second, and more importantly, the lateness of the evaluation meant that the evaluator could not provide inputs to help correct problems which seem to have arisen during the school year.

First-Year Objectives (July, 1970 - June, 1971)

Due to the lateness of the authorization for funding, the planned

activities for the first year were not undertaken as set forth in the proposal. Rather, with the permission of the U. S. Office of Education, a modified and much reduced set of objectives were substituted. This evaluation will deal with these modified objectives and attempt to assess how well these objectives have been met.

The objectives of the program at the elementary school level were to lay the groundwork in two elementary schools for full scale pilot activities scheduled to begin the school year 1971-1972. A summer workshop followed by Saturday workshops during the year were to train a nucleus of teachers and support their trying out new activities in the classroom. The detailed objectives for the summer workshop were stated as follows.

> To recruit a group of volunteer teachers, and to orient this group to the need for reassessing the pattern and content of elementary education in general; specifically, the group will focus on the need for an emphasis on such elements as self-expression and creativity which may include a broad range of areas such as the use of tools and techniques; economic understanding, which should encompass the development of an understanding of economic positions in society; and to develop an awareness of potential for group and individual cooperation activities. Furthermore, the orientation will prepare the teachers in curriculum development, including the consideration of clearly stated behavioral criteria and a variety of educational techniques which will enable them to provide leadership in designing and testing new patterns of elementary education, while providing a sound foundation of career exploration and preparation.

The objectives at the junior high school level similarly restructured to lay the groundwork in two junior high schools for full scale pilot activities scheduled to begin in the school year 1971-1972. The detailed objectives of the summer activities were the same as the above with the following additions.

To add to the elementary school objectives an interdisciplinary understanding; this will include an awareness of common learning objectives and behavioral skills across developed subject matter areas, which should provide a basis for greater cooperation in learning activities and as a basis for developing an integrated instructional program.

At the administrative level this first year was a crucial one in the establishment of support for Career Development Education. Although the Board of Education had approved the Career Development Concept in July of 1969, no implementation action has occurred prior to the summer of 1970. The school system was without a superintendent from the fall of 1969 until the appointment of Dr. Hugh J. Scott on October 1, 1970. The Assistant Superintendent for Vocational Education (State Director) went on terminal sick leave in September of 1969, and a new State Director was not officially appointed by the Board of Education until July 1, 1971. Quite naturally there were delays in establishing system-wide priorities throughout this period.

There were also delays in the appointment of key administrative positions including the Project Director and the assistant director for this Career Development Implementation Project. The entire administrative responsibility was left in the hands of Dr. Paul S. Cawein, an executive assistant to the Deputy Superintendent, whose major involvement in the school budget and other system-wide responsibilities left little time for this project.

Winning full administrative backing for the program with this climate was essential if the project was to move forward its long range objective of implementing K-12 Career Development Education for all students. While not officially stated in the project proposal, this object

of establishing a climate of support was a critical element in the year's activities.

First-Year Training Activities

In order to achieve the revised objectives for the first year of the project, two types of training activities were undertaken: a summer workshop and Saturday workshops. Details of both of these activities are presented below.

The summer workshop. There were 30 participants in the summer workshop which began on July 13, 1970, and ended on August 7, 1970. The topics covered were:

a. The Career Development Concept
b. The Motivation-Achievement Sector
c. Experience with Wood
d. Tri-wall Carpentry
e. Technology for Children
f. Presentations of Related Projects in the System
g. The Systems Approach
h. The City Simulation
i. The Clark Report
j. Curriculum Development

In written responses to the question of how the workshop may have been improved, the teachers reflected a general satisfaction with the workshop as a whole. Almost unanimously, teachers agreed that the city simulation should have been omitted. Likewise, many teachers felt that the systems approach might have received more attention. Several teachers felt that the objectives of the workshop were not clear, and that the

relationship between career development and workshop activities was somewhat unclear. Almost all of the participants were concerned with how the several segments related to Career Development. While this workshop obviously had a significant impact upon the teachers, as indicated below, it is unfortunate that the teachers were never brought to an understanding of the broad and complex concept of Career Development.

A questionnaire (unnamed) was given to the participants before and after the completion of the workshop. The results are presented in Appendix 1. The items with an asterisk are significant at the .05 alpha level. The results generally reflected an increased awareness of the need of elementary occupational education, and a feeling that occupational education may be used to alleviate social problems. If the items were treated as a scale, rather than individual items, one could conclude that there was a statistically significant shift to a more positive attitude toward occupational education as a result of the workshop ($T = 3.123$, significant at the .05 alpha level). An item by item review offers a more technically sound analysis of the responses. A review of the complete breakdown in Appendix 1 is recommended. All items reported as significant, reflect a change in the desired direction.

The school-year workshop meetings. Approximately one Saturday a month, beginning in January, the elementary and junior high teachers met separately for workshops with specialists in curriculum planning and occupational educators. The teacher teams in each also met weekly. The elementary teachers discussed actual activities which they were trying out while the junior high school teachers discussed plans for the next year.

No objective data was available to evaluate the effects of the workshops or these meetings; however, interviews with teachers indicated that the workshops did not produce very much in the way of testable ideas, except at Webb Elementary School. The teachers attributed workshop failures to two causes: (1) materials were not supplied until late in the school year, and (2) the objectives of the meetings were not clear.

Before leaving the topic of these school year activities, it must be mentioned that while they did not produce concrete results, they did maintain teacher interest in the program, and in the evaluator's opinion contributed greatly to the generally good attitude that was present in the workshops which began in the summer of 1971. The workshops also provided an excellent knowledge base for the curriculum development activities being undertaken during the summer of 1971.

First-Year Administrative Activities

The most significant success of the project during this initial year was in the establishment of Career Development Education as a clear commitment for the school system. Four major actions were taken by the Board of Education upon the recommendations of the new superintendent. Career Development Education was included as one of the four major priority areas for the entire school system in the fiscal year 1972 budget request currently before the Congress. In submitting capital budget requests to the Presidential Bicentennial Commission, the Board of Education included only two items: the major one being the construction of high school level career development centers. In July of 1971, the Board of Education established a Department of Career Development Programs which

draws together for the first time, vocational education, industrial arts, home economics, business education and in-school Neighborhood Youth Corps programs. (See Appendix 2 for statement of Mission and Responsibility for the Department of Career Development Programs.) Finally, an Assistant Superintendent has been appointed to head this new department.

One of the most important requirements for Vocational Education Exemplary Grants under Part D of the Vocational Amendments of 1968 was the provision that successful program elements be continued and expanded systems. It is clear that with the D. C. Public Schools the climate of support and the necessary administrative structure has been established.

It goes without saying that any project of this nature requires a certain amount of day-to-day administrative activity. However, this section of the evaluation report is not concerned with the routine administrative duties of project personnel, but rather with major administrative acts or decisions which have influenced the direction of the project.

The most important decision made on the part of the project's administrative staff was that funds had been committed to the project too late for the establishment of full pilot activities in the fall of 1970, and the delay of pilot activities until the fall of 1971. As has already been noted early in this report, this decision had a great impact on the program itself. Based on a review of the situation that obtained when the decision was made to reduce the scope of the program for the first year, the decision seems to have been a correct one. It is possible that the full implementation phase could have been undertaken since some plans had already been made for summer workshops, however, lead time for the project would have been very short and given the supply problems which

occurred later the entire implementation program could have been seriously undermined.

A follow-up of this decision was the commitment to spend the first year of the project developing the competencies of teachers who would participate in the program. This decision was both good and bad in terms of the eventual success of the program. The summer workshop was effective in interesting teachers in the program but their expectations were that the program would be undertaken in the fall of 1970. They were expecting that equipment and supplies would be readily available, including procedures for direct purchase. Delays in release of funds and the greatly extended time required between ordering and delivery of equipment and supplies caused these expectations to remain largely unfulfilled until late in the school year, thereby dampening the enthusiasm of the teachers. This loss of teacher enthusiasm is potentially serious, and it would seem that the problem could have been avoided. Nevertheless, there does seem to have been some benefit in terms of teacher experience and increased knowledge coming out of the educational program.

One major decision related to the staffing of administrative positions for the project. Perhaps it would be more appropriate to refer to this as a major non-decision. It was impossible for the evaluator to determine whether the failure to hire a full time project director last year will have egregious effect on the potential of this project. However, no project director has been hired even at this late date, and assistant directors for elementary and junior high school were hired only recently (June 1, 1971). It is believed that any further failure to hire a director will have serious implications for the success of the entire program. If any single factor presently threatens the ultimate

success of the project, it is that the new project director will have very little planning time, if any.

It is significant to note that only one-third of the project allotment for the first year was spent during fiscal year 1971. The remaining two-thirds has been carried forward into fiscal year 1972 under a contract extension with the U. S. Office of Education. These savings have been committed to a contract with the Metropolitan Education Council for Staff Development to gain outside assistance in the development of curriculum materials for the junior high school component. The Council is composed of representatives of the several universities in the Washington metropolitan area. It has been contracted to redesign the curriculum for grades 7 and 8. Since the contractor has assembled a very competent staff to work on this project, the probability of developing an excellent curriculum seems quite high. An excellent set of review procedures for the curriculum and its development also appear to have been established. These factors should contribute greatly to the probability of success of the junior high "Career Survey" sequence. It also has excellent potential for the involvement of higher education in the total career development concept.

Conclusions

If one characteristic was used to describe the activities of the D. C. Exemplary Program last year, it would be the establishment of a "climate" for the pilot programs to be installed next fall. The climate was evidenced by general excitement of the participating teachers, by overwhelming middle management support in the D. C. Public School administrative personnel, and by the full backing of the program by principals

in the schools which have been choosen as pilot sites. This "climate" can largely be attributed to the acting project director's communication activities. Each person interviewed by the author had a general idea of what the project was all about, and how the program was progressing. Admittedly in many cases the information was quite sketchy, but considering the failure of the D. C. Public Schools to appoint a full time project director, the communication linkages were amazing. In a sense, this was a by-product of the training and administrative activities which were undertaken, but it deserves mention here because of its potential importance to the ultimate success of the project.

So far as the modified objectives specified in the introductory section of the report are concerned, it is the opinion of the evaluator that they have been attained to a reasonable degree. The limitations placed on the evaluation itself preclude any quantitative statements about the actual degree to which they have been attained in large part because no hard data exist on which to base judgments. Interviews with the teachers themselves indicate that they have a high interest in the program and a better knowledge of the role of vocational education in an elementary school setting. As with any new program there have been many problems but the D. C. School System has made a good start.

General Comments and Recommendations

While the previous sections were addressed specifically to the objectives for fiscal year 1971, this section is addressed to the future activities which have been specified in the proposal. The elementary and junior high school components that were originally specified are progressing quite nicely, however, it is felt that the rationale and program

for both programs and their logical linkage should be more explicitly spelled out. At the high school level there is no evidence that even rudimentary planning has begun. It seems imperative that if the K-12 idea is ever to be reached pilot high school level activities should be undertaken and vocational offerings currently available should be assessed.

It is also felt that since the project activities have differed so greatly from the original proposal that a new plan including the evaluation component should be developed for the Washington, D. C. Exemplary Project specifying projected activities, and reviewing and possibly modifying the existing objectives. The high school segment should be central to such a plan. The Project Director should be hired before this activity is undertaken, as well as the third party evaluator in order to assure maximum effectiveness.

A new materials and supplies procurement system should be established for this program. Already it is quite evident that supplies and materials are essential for the success of the program. A time lag of more than two weeks between the ordering and receipt of goods in this year's operation may be disastrous.

Finally, it is recommended that communication linkages that have been established be maintained and reinforced. Perhaps a monthly newsletter specifying ongoing project activities would be effective.

APPENDIX 1

Variable	Item	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	T-test
1	Career development education is a major answer to the problem of unemployment.	2.093	0.777	1.600	0.770	2.511*
2	Career development education is too costly in terms of money, time and effort.	4.000	0.842	4.400	0.563	2.182*
3	High school students who want to take vocational education are not mature enough to profit from them.	4.125	0.707	4.000	0.787	0.658
4	Good vocational education will aid in attracting new industries to an area.	2.281	0.683	2.033	0.614	1.498
5	Vocational education can't prepare students for the wide range of job opportunities available to them.	3.718	1.054	3.200	1.270	1.753
6	Taking a vocational education program hinders students from further education after high school.	4.125	0.659	4.100	0.884	0.126
7	The school system should provide a wide variety of vocational programs at the secondary level to fit the needs and abilities of the students not going to college.	1.468	0.507	1.466	0.507	0.016
8	Vocational education makes enough students useful members of society to justify its cost.	2.187	0.895	2.033	0.808	0.709
9	Industry is not assuming enough responsibility for providing vocational education.	1.968	0.782	2.033	0.668	0.348
10	Providing high school students with skills for earning a living is as important as skills for social living.	1.375	0.491	1.433	0.504	0.461

Variable	Item	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	T-test
11	It is more important to provide students with a sound basic education than to use their time for vocational education or career development education.	3.906	0.892	4.000	0.870	0.418
12	All students at the high school level should be involved in career development courses.	2.281	1.084	1.833	0.912	1.753
13	The present vocational education programs provided in District are not diverse and extensive enough to serve the needs of the students.	2.031	0.822	1.800	0.805	1.117
14	Almost all students are interested in receiving some degree or career development beginning in the elementary school.	2.375	0.832	2.333	0.802	0.200
15	Bright students, even though interested in the area, should be discouraged from enrolling in vocational education programs.	4.343	0.700	4.400	0.674	0.321
16	Career development education at the secondary level should be of a broad general nature rather than preparing for a specific occupation.	3.031	1.031	2.733	1.284	1.009
17	Elementary schools are not assuming enough responsibility for providing career development education.	2.343	0.745	1.800	0.610	3.131*
18	Junior high schools are not assuming enough responsibility for providing career development education.	2.187	0.692	1.833	0.698	2.003*
19	Senior high schools are not assuming enough responsibility for providing career development education.	2.250	0.718	1.800	0.664	2.555*

Variable	Item	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	T-test
20	Vocational education in high school is unnecessary since students can receive vocational training while on the job.	4.312	0.470	4.266	0.520	0.363
21	There should be more money set aside in the school budget for career development education.	2.031	0.694	1.533	0.507	3.204*
22	Many more students would enroll in vocational education programs if the programs offered were more diverse and/or extensive.	1.875	0.707	1.700	0.534	1.093
23	I would like to see the values of career development education made known to more parents than is now the case.	1.593	0.498	1.366	0.490	1.806
24	I am opposed to expanding career oriented education programs when so many students need the basic subjects.	4.125	0.659	4.300	0.466	1.198
25	I believe the concept of career development education is more realistic than our present limited vocational education programs.	2.031	0.694	1.633	0.556	2.479*
26	The schools are now doing an adequate job of informing the parents of the importance and value of career development education.	4.062	0.669	4.400	0.498	2.240*
27	Present vocational education programs are not effectively preparing students for today's world of work.	2.375	0.793	2.133	0.973	1.074
28	A major cause of dropouts is the failure of the schools to offer programs diverse enough to meet the needs, interests and abilities of all students.	1.593	0.712	1.366	0.490	1.453

5759

Variable	Item	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	T-test
29	Students in vocational education programs are often stereotyped as being of low intelligence and coming from low income families.	2.250	1.047	2.133	1.008	0.446
30	I feel that any "low status" stereotype of vocational education programs should be removed by expanding the programs to career development education for all students.	1.906	0.588	1.466	0.507	3.141*
31	Public schools have no obligations for providing school dropouts with training for an occupation.	4.062	0.800	4.266	0.944	0.920
32	Career development education should be limited to the high school level.	4.281	0.683	4.666	0.479	2.555*
33	The students who take vocational education programs in high school often lack too many other scholastic skills.	2.812	0.895	2.733	0.868	0.352
34	Vocational education in high schools does an adequate job of preparing our students for entrance into an occupation.	3.218	0.941	3.633	0.850	1.815
35	Schools and local industry should work more closely together to provide career development.	1.625	0.491	1.333	0.479	2.361*
36	I would cooperate with others in order to develop the best career development education program in the District.	1.562	0.504	1.333	0.479	1.831
37	I am thoroughly sold on offering career development education at all levels of instruction for all students.	1.843	0.807	1.300	0.466	3.218*

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Variable	Item	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	T-test
38	Career development education will encourage and assist students at all levels to improve their basic skills.	1.906	0.689	1.400	0.498	3.295*
39	The public schools have a responsibility to provide for the career placement of all students when they leave high school, whether that is in a first level full time job or in continuing education.	2.500	1.047	1.666	0.606	3.800*
40	Our present junior high school education is too much structured around academic disciplines.	2.031	0.897	2.033	0.889	0.009
41	Career development education is primarily the responsibility of guidance counselors.	3.531	1.436	4.000	1.462	1.272
42	Teachers do not adequately understand the educational programs of students at the levels before and after that where they teach.	2.343	0.865	2.066	0.827	1.286
43	Junior high school curriculum should provide an opportunity for students to explore the range of career options in our society.	1.593	0.498	1.433	0.504	1.258
44	Improving education in the District is primarily a matter of more money, and not of changing curriculum or educational programs.	4.250	0.915	4.200	0.805	0.227
45	An interdisciplinary approach to education is more realistic than one which follows traditional academic disciplines.	1.875	0.609	1.566	0.568	2.057*
46	Students at the elementary level are not interested in careers.	4.031	0.594	4.333	0.479	2.192*

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Variable	Item	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	T-test
47	Career development education would encourage more of our students to continue their education in college or other post high school education.	1.906	0.465	1.633	0.490	2.248*
48	Teachers of different subject areas should work together in teams to provide learning activities for students.	1.625	0.609	1.400	0.498	1.585
49	The development of manipulative skill, including the use of hand tools and simple machinery, should be a part of the educational program of all students beginning in the elementary school.	1.687	0.592	1.433	0.504	1.813

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APPENDIX 2

DEPARTMENT OF CAREER DEVELOPMENT PROGRAMS

Statement

of

Mission and Responsibility

MISSION: TO PROVIDE ALL STUDENTS, INCLUDING OUT-OF-SCHOOL YOUTH AND ADULTS, WITH THE THEORETICAL UNDERSTANDING AND SPECIALIZED MARKETABLE SKILLS REQUIRED FOR IMMEDIATE EMPLOYMENT IN A REALISTIC CAREER-ENTRY JOB OF THEIR CHOICE, OR AS A BACKGROUND FOR CONTINUED EDUCATION IN UNIVERSITY, TECHNICAL SCHOOL OR UNION AND EMPLOYER TRAINING PROGRAMS.

RESPONSIBILITIES:

Elementary School Level

To stimulate and support "Career Foundations" at the elementary level: The development of a concept of a career in the world of work should begin in the elementary school through the study of the social, economic, technological and occupational patterns of our democratically diverse society, and through independent and cooperative educational experiences designed to develop personal pride in responsible and creative achievement.

The Department carries no administrative responsibilities at the elementary level. It is responsible, however, for using resources available under the Vocational Education Act and the knowledge and expertise available among its staff to stimulate and support the Operating Departments and the Division of Instructional Services in strengthening "Career Foundations" education at the elementary level.

Junior High School Level

To coordinate "Career Survey" programs at the junior high level: The survey of present and future career opportunities in our society should be a part of curriculum of all students at the junior high level, to provide them with an understanding of the broad range of human endeavor which undergrids a technological society, to introduce them to the knowledge and skills required for a rewarding career, and to stimulate realistic career aspirations, along with personal pride in responsible and creative achievement.

The Department carries no administrative responsibilities at the junior high level, except for

the establishment and administration of special programs for potential dropouts carried on separately or in conjunction with its high school level programs. Because of the unique relationship between Industrial Arts, Home Economics, Business Education and Career Development Education, the supervisory staff associated with these disciplines are placed within the Department. The Department is responsible for using these capabilities and other resources available under the Vocational Education Act along with the knowledge and expertise among its staff to assist the Operating Departments and the Division of Instructional Services in coordinating "Career Survey" programs at the junior high school level for all students.

High School Level

To administer a flexible pattern of "Career Exploration" and "Skilled Training" programs at the high school level: Specialized programs at the high school level should provide the opportunity for all students, boys and girls, to explore in depth their various interests and abilities, ranging from the single or multi-skilled occupations to those demanding a high degree of theoretical, manipulative and academic skills. Workstudy programs, in which on the job experiences and earning opportunities are a part of the educational experience should be developed cooperatively with local business and agencies. Career sampling and advanced career oriented academic programs should be provided to stimulate and strengthen the plans and aspirations of college bound students. All programs must be designed to provide the competencies required for entrance into the occupations for which they are specialization. Career counseling, placement and follow-up services should be provided for all students as a transition to full-time employment or continued education in university, technical school or union and employer training programs.

The Department carries administrative responsibility for all activities supported under the Vocational Education Act, including the present vocational high schools, and for all new instructional centers designed to provide expanded opportunities for "Career Exploration" and "Skill Training." It shall be responsible for supervising and coordinating all such programs carried on in regular high schools, including those currently associated with, industrial arts, business education, and home economics, in cooperation with the several Operating Departments and

the Division of Instructional Services. Because of the unique relationship between career development and part-time work experiences, the Department shall have administrative responsibility for the Work Scholarship Programs. It shall be responsible for supervising and coordinating all such programs carried on in the schools in cooperation with the D. C. Manpower Administration and other business, labor, government and community groups. It shall be responsible for establishing a pattern of career guidance and placement for all students in cooperation with the Guidance Division in the Department of Pupil Personnel Services. The Assistant Superintendent for Career Development Programs shall serve as the State Director of Vocational Education, and shall be responsible for reviewing and coordinating both public and private vocational and technical educational programs in the District of Columbia in cooperation with the Vocational Education Advisory Council, and public and private organizations.

Post High School Level

<u>To administer and coordinate a broad range of "Career Entry" and "Career Development" training programs for out-of-school youth and adults</u>: Specialized programs should be provided for youth and adults outside of the formal school cycle who wish to prepare for a new occupation or study for advancement in their chosen field. Programs should be specifically designed to recruit the dropout, the unemployed and underemployed, and to meet the special needs of the Spanish-speaking and other minority groups with unique needs. These and all aspects of the educational programs of the schools should be planned and implemented with the advice and cooperation of management, labor, civic and trade organizations, the community at large, and institutions of higher education, in particular, the Washington Technical Institute and the Federal City College.

The Department shall have administrative responsibility for all programs for out-of-school youth and adults conducted under the Vocational Education Act, and under contract with or in cooperation with the D. C. Manpower Administration, the U. S. Department of Labor and other public and private agencies. It shall be responsible for planning and coordinating career development programs for adults, in close cooperation with the Department of Adult and Continuing Education, and with all agencies, public and private, in the District.

Staff Development and Teacher Training	To conduct an on-going pattern of staff development and teacher training for all personnel associated with career orinted educational programs: Workshops, formal training courses and internships in occupational settings should be provided to strengthen the knowledge, skill, and professional capabilities of teachers, administrators, and counselors. All activities should be designed so that the learning activities of students will prepare them with realistic, up-to-date knowledge and skills.

The Department carries administrative responsibility for all programs authorized and funded under Part F of the Educational Professions Development Act (also designated as Title II of the Vocational Education Amendments of 1968). It is responsible for working closely with the Department of Staff Development of the D. C. Public School and all public and private institutions of higher education in the Metropolitan area to assure the highest quality of pre-service and in-service training for teachers, counselors and other personnel involved in vocational, technical and other career oriented educational activities at all levels of instruction.

APPENDICES

CAREER DEVELOPMENT CONFERENCE
Manresa on Severn
February 6 - 7, 1970

Tentative Agenda

CAREER DEVELOPMENT EDUCATION IN THE DISTRICT OF COLUMBIA

Friday, February 6

12:30 P.M. Registration

1:30 Opening of Conference
General Chairman - Robert G. Kvarnes

2:00 Plenary Session
Chairman - Benjamin J. Henley

I. The Task Force
Report on Career Development
Dorothy Hobbs
Members of the Task Force

II. The Need for Community Involvement in a Career Development Program
Keynote Speaker - Samuel J. Simmons
Assistant Secretary
HUD

3:00 Coffee Break

3:30 - 5:00 Plenary Session
Chairman - Francis Gregory

A Panel Presentation and Discussion
An overview of the current career education in the Public Schools of the District of Columbia

Lawrence Baylor	MDTA Skill Center
Paul Cawein	Career Development Program Planning
Larry Cuban	COP Program
Frank Lawrence	Vocational Schools
Robert McKee	Metropolitan Educational Council Plan
Otto Pragan	Vocational Education State Plan
George Rhodes	Secondary Schools
Marguerite Selden	Adult Education
Sol Silverman	Industrial Arts - COP Program

6:00 - 7:00 Cocktails

7:00 Dinner - Dr. Howard Mathews, Speaker
Director, Division of Manpower Development and Training
United States Office of Education

8:00 - 10:00 Workshop Groups
These groups will meet and share reactions, information and ideas regarding the implications of the Career Development Program for the total Washington Community. Leaders, recorders and resource people will be appointed for each group.

Saturday - February 7th

8:00	Breakfast
9:00	Plenary Session Chairman - Barbara Simmons
	Brief Report from Friday evening Workshop Groups Martha Rashid - George Washington University Roland Goddu - Catholic University
9:30	Topic: A Charge to the Group Speaker to be announced
10:30	Coffee Break
11:00	Workshop Groups What outcomes do we want to emerge from this Conference?
12:30 - 2:00	Lunch
	Plenary Session Chairman - Nicholas Loope
	Reports from Saturday morning Workshop Groups What has happened? What are our next steps?
2:00 - 4:00	Plenary Session Chairman - Robert G. Kvarnes
	A Panel Discussion CATALYSTS IN THE NATIONS CAPITAL FOR CAREER DEVELOPMENT EDUCATION

Panelists

Norman Nickens	Chairman
Marion Barry	Pride
James Coates	Board of Education
Paul Cooke	D. C. Teachers College
Cleveland Dennard	Washington Technical Institute
Philip Daugherty	City Council
Walter Fauntroy	MICCO
Horace Holmes	D. C. Manpower
Harland Randolph	Federal City College

	Conference Summary Robert G. Kvarnes
4:00	Adjournment

CAREER DEVELOPMENT

A WORKSHOP FOR TEACHERS

July 13 - August 7, 1970

Spingarn Instructional Unit

Evans Junior High School
5600 East Capital Street, N.E.
Washington, D. C.

Participating Schools

Browne Junior High School
Mrs. Marguerite Pettigrew, Principal

Evans Junior High School
Mr. George E. Galloway Principal

Webb Elementary School
Mrs. Vivian Dean, Principal

Young Elementary School
Mrs. Mattie Spottswood, Principal

Dr. Paul Cawein
Executive Assistant to Deputy
Superintendent for Instruction

Mrs. Bessie Etheridge
Acting Director
Spingarn Instructional Unit

SUNDAY, JULY 12, 1970

5:30 - 7:30 P.M.

RECEPTION FOR

* Conference Participants
* Community Representatives
* Task Force Members
* School Administrators

PARISH HALL

CHURCH OF ATONEMENT

52nd and East Capital Street, S.E.

5771

CAREER DEVELOPMENT WORKSHOP

Evans Junior High School

First Week - July 13-17, 1970

ROOMS 102
149
150
151

MONDAY, JULY 13

8:00 - 9:00	Registration Mrs. Etheridge and Staff
9:30 -10:30	Keynote Address Francis Gregory, Chairman Vocational Education Advisory Council
9:30 -10:30	An Endorsement of the Career Development Program in the District of Columbia School Board and Administration Representatives Frank Lawrence, Chairman (Acting Assistant Superintendent for Vocational Education)
10:30 -10:45	Coffee Break
10:45 -12:00	Slide Presentation of the Career Development Program Cawein and Task Force
12:00 -12:30	Lunch / Bring Lunch
12:30 - 1:30	Reaction to the Slide Presentation by Participants of Workshop Cawein and Task Force
1:30 - 2:30	Scope and Sequence of the Workshop Schedules (etc.) Mrs. Etheridge and Staff

First Week - Continued

TUESDAY, JULY 14

8:00 - 8:15	Reaction Time Mrs. Etheridge and Staff
8:15 -10:30	Technology for Children - New Jersey Project Richard Harnack, Associate Director of Technology for Children Program
10:30 -10:45	Coffee Break
10:45 -12:00	An Overview of Current Curriculum Development and its Relationship to Career Development Dr. Paul Cawein
12:00 -12:30	Lunch
12:30 - 2:30	The Career Development Program in Georgia Marian Scott Georgia State Department of Education

WEDNESDAY, JULY 15

8:00 - 4:00	Motivation and Education Sterling Institute, Behavioral Science 2021 L Street, N.W.

THURSDAY, JULY 16

8:00 - 4:00	Motivation and Education Sterling Institute, Behavioral Science 2021 L Street, N.W.

FRIDAY, JULY 17

9:30 - 1:00	Visit to Washington Technical Institute 4100 Connecticut Avenue Building No. 2 - Auditorium Fourth Floor
1:30 - 2:30	Luncheon Meeting 4727 39th Street, N.W.

Second Week - July 20-24, 1970

MONDAY, JULY 20

8:00 - 8:15	Reaction Time Mrs. Etheridge and Staff
8:15 -12:00	Elementary - Senesh Materials Joan Brown Model School Division Junior High - SIAM Project IACP Sol Silverman, Supervising Director Industrial Arts Steve Starbuck
12:00 -12:30	LUNCH
12:00 - 2:30	Elementary School Participants - Use of Tools Virgil Ewing, Industrial Arts Teacher Junior High School Participants - An Approach to Curriculur Development Alburquerque Schools E. P. Tangman, Assistant Director of Trade and Industrial Education D. C. Public Schools

TUESDAY, JULY 21

8:00 - 8:15	Reaction Time Mrs. Etheridge and Staff
8:15 -12:00	Elementary School Participants - Tri Wall Workshop Donald Green Model School Division Junior High School Participants - Hands on Experience in Science, Math, Social Studies, English Ewing
12:00 -12:30	Lunch
12:30 - 2:30	Elementary School Participants - Hands on Experience in Scinece, Math, Social Studies Ewing

Second Week - Continued

12:30 - 2:30	Junior High School Participants - Innovations in Curriculum and Scheduling at the Junior High School Level Langley Junior High School Johnson Junior High School

WEDNESDAY, JULY 22

8:00 -12:00	A Systems Approach to Curriculum Development Mrs. Gwen Austin Curriculum Specialist Urban Teacher Corps
12:00 -12:30	Lunch
12:30 - 2:30	A Process of Curriculum Development E. P. Tangman

THURSDAY, JULY 23

8:00 -12:00	A Systems Approach to Curriculum Development (Continued) Mrs. Gwen Austin
12:00 -12:30	Lunch
12:30 - 2:30	A Process of Curriculum Development E. P. Tangman

FRIDAY, JULY 24

8:00 -12:00	A Systems Approach to Curriculum Development (Continued) - Mrs. Gwen Austin
12:00 -12:30	Lunch
12:30 - 2:30	A Process of Curriculum Development - E.P.Tangman

Third Week - July 27-31, 1970

MONDAY, JULY 27	
8:00 - 2:30	Curriculum Development Errickson/Tangman
TUESDAY, JULY 28	
8:00 - 2:30	Curriculum Development Errickson/Tangman
WEDNESDAY, JULY 29	
8:00 - 2:30	Curriculum Development Errickson/Tangman
THURSDAY, JULY 30	
8:00 - 2:30	Curriculum Development Errickson/Tangman
FRIDAY, JULY 31	
8:00 -12:00	Curriculum Development Errickson/Tangman
12:00 -12:30	Lunch
12:30 - 2:30	Introduction to the "City" Simulation

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Fourth Week - August 3-7, 1970

MONDAY, AUGUST 3

9:00 - 5:00 — The "City" Simulation
Applied
Simulations International
1100 - 17th Street, N.W.

TUESDAY, AUGUST 4

9:00 - 5:00 — The "City" Simulation
Applied
Simulations International
1100 - 17th Street, N.W.

WEDNESDAY, AUGUST 5

8:00 - 2:30 — Planning for the Year Ahead
Cawein/Etheridge

THURSDAY, AUGUST 6

8:00 - 2:30 — Planning for the Year Ahead
Cawein/Etheridge

FRIDAY, AUGUST 7

8:00 - 2:30 — Planning for the Year Ahead
Cawein/Etheridge

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CAREER DEVELOPMENT WORKSHOP

PARTICIPANTS
1970

1.	Aldrich, Mr. Herbert P.	Young	22.	Lyons, Mr. David A.	Browne
2.	Briles, Mr. David J.	Evans	23.	Marshall, Mrs. Cora	Young
3.	Callahan, Mrs. Izzeta	Browne	24.	Moore, Mrs. Evangeline	Browne
4.	Clark, Mrs. Audrey D.	Webb	25.	Murphy, Miss Martha	Young
5.	Di Paola, Mr. Michael F.	Evans	26.	Page, Mrs. Joyce C.	Evans
6.	Du Bose, Mrs. Olene	Webb	27.	Perkins, Mrs. Rita	Browne
7.	Fenner, Miss Margaret M.	Evans	28.	Pierce, Reuben	Science Dept.
8.	Gebo, Mrs. Dora R.	Eng. Dept.	29.	Pierce, Mrs. Rosella H.	Young
9.	Gordon, Mrs. Zelmar S.	Browne	30.	Plummer, Mr. Harold B.	Evans
10.	Hamilton, Miss Gloria J.	Browne	31.	Prather, Mrs. Pearl	Browne
11.	Harris, Mrs. Nancy I.	Browne	32.	Scipio, Leon D.	Browne
12.	Holliday, Mrs. Edna V.	Evans	33.	Sharpe, Mr. Rowan	Webb
13.	Holliday, Mrs. Jewyll J.	Evans	34.	Smith, Miss Doris J.	Young
14.	Hunsucker, Mr. David	Browne	35.	Stewart, Mrs. Betty S.	Webb
15.	Ingram, Mrs. Calantha K.	Young	36.	Vaughn, Mr. James W.	Evans
16.	Jones, Mrs. Elizabeth	Elem. Super.	37.	Webb, Mrs. Sherene	Elem. Super.
17.	Karsten, Miss Christine K.	Webb	38.	Whatley, Mrs. Annie Y.	Webb
18.	Lee, Mr. Milton C.	Hist. Dept.	39.	White, Mr. Cab C.	Webb
19.	Lewis, Dorothy M.	Read Ctr.	40.	Williams, Mrs. Geneva B.	Webb
20.	Lewis, Mrs. Emma M.	Math Dept.	41.	Silverman, Mr. Sol	Indus. Arts
21.	Lyles, Mrs. Deborah A.	Young			

PUBLIC SCHOOLS OF THE DISTRICT OF COLUMBIA

CAREER DEVELOPMENT PROGRAM

(This is a confidential questionaire. All responses will be used only within statiscal tables. No effort will be made to identify individual respondants.)

Part A

1. What is your present position? (check one)

classroom teacher	_____
counselor	_____
principal	_____
subject supervisor	_____
administrator	_____
parent	_____
other	_____

2. Where did you work? (check one)

elementary school	_____
junior high school	_____
high school	_____
vocational high school	_____
central office	_____
other	_____

3. How many years have you been professionally associated with education? (check one)

Less than 5 years	_____
5 - 10 years	_____
10 - 15 years	_____
15 - 20 years	_____
more than 20 years	_____

4. What work experiences have you had other than in the field of education?

Full Time _____

_____

_____

Parttime _____

_____

_____

_____

5. Male _____ Female _____

PART II.

For the purposes of the questions in this section, please use the following definitions.

COLLEGE PREPARATORY EDUCATION... a sequence of courses or a body of educational activities, K-12, prescribed for students who wish to continue their education following high school.

VOCATIONAL EDUCATION... a sequence of courses, or a body of educational activities, at the high school level, prescribed for students who wish to enter full-time employment in specified trade areas immediately following high school.

CAREER DEVELOPMENT EDUCATION...a sequence of courses, or a body of educational activities, k-12, designed to expand students awareness of the full range of career options open to them and to prepare them to enter full time employment and /or to continue their education following high school.

Directions: On the next pages you are to circle the response which corresponds most closely to your feelings about education in the public schools of the District of Columbia.

Example: Some high school students are too undisciplined to employ. SA A U D SD

Key: SA = Strongly Agree
A = Agree
U = Uncertain
(D) = Disagree
SD = Strongly Disagree

This person disagreed with the item to some extent and has indicated this by circling "D" (Disagree)

Do not spend too much time on any particular item. There are no right or wrong answers. Merely circle the abbreviation which most nearly indicates your true teeling. When your feeling falls between two choices, select the closer one. Please answer every item.

BEGIN HERE: Circle one

1. Career Development Education is a major answer to the problem of unemployment. SA A U D SD

2. Career Development Education is too costly in terms of money, time and effort. SA A U D SD

3. High school students who want to take vocational education programs are usually not mature enough to profit from them. SA A U D SD

4. Good vocational education programs in schools will aid in attracting new industries to an area. SA A U D SD

5. Vocational education programs cannot possible prepare high school students for the wide range of job opportunities available to them. SA A U D SD

6. Taking a vocational education program hinders students from further education after high school. SA A U D SD

7. The school system should provide a wide variety of vocational programs at the secondary level to fit the needs and abilities of the student not going to college. SA A U D SD

8. Vocational education makes enough students useful members of society to justify its cost. SA A U D SD

9. Industry is not assuming enough responsibility for providing vocational education. SA A U D SD

10. Providing high school students with skills for earning a living is as important as skills for social living. SA A U D SD

11. It is more important to provide students with a sound basic education than to use their time for vocational education or Career Development Education. SA A U D SD

12. All students at the high school level should be involved in Career Development courses. SA A U D SD

13. The present vocational education programs provided in the district are not diverse and extensive enough to serve the needs of the students. SA A U D SD

14. Almost all students are interested in receiving some degree or Career Development beginning in the elementary school. SA A U D SD

15. Bright students, even though interested in the area, should be discouraged from enrolling in vocational education programs. SA A U D SD

16. Career Development Education at the secondary level should be of a broad general nature rather than preparing for a specific occupation. SA A U D SD

17. Elementary schools are not assuming enough responsibility for providing Career Development Education. SA A U D SD

18. Junior high schools are not assuming enough responsibility for providing Career Development Education. SA A U D SD

19. Senior high schools are not assuming enough responsibility for providing Career Development Education. SA A U D SD

20. Vocational education in high school is unnecessary since students can receive vocational training while on the job. SA A U D SD

21. There should be more money set aside in the school budget for Career Development Education. SA A U D SD

22. Many more students would enroll in vocational education programs if the programs offered were more diverse and/or extensive. SA A U D SD

23. I would like to see the values of Career Development Education made known to more parents than is now the case. SA A U D SD

24. I am opposed to expanding Career Oriented Education programs when so many students need the basic subjects. SA A U D SD

25. I believe the concept of Career Development Education is more realistic than our present limited vocational Education programs. SA A U D SD

26. The schools are now doing an adequate job of imforming the parents of the importance and value of Career Development Education. SA A U D SD

27. Present vocational education programs are not effectively preparing students for today's world of work. SA A U D SD

28. A major cause of dropouts is the failure of the schools to offer programs diverse enough to meet the needs, interests, and abilities of <u>all</u> students. SA A U D SD

29. Students in vocational education programs are often stereotyped as being of low intelligence and coming from low income families. SA A U D SD

30. I feel that any "low status" stereotype of vocational education programs should be removed by expanding the programs to Career Development Education for all students. SA A U D SD

31. Public schools have no obligations for providing school dropouts with training for an occupation. SA A U D SD

32. Career Development Education should be limited to the high school level. SA A U D SD

33. The students who take vocational education programs in high school often lack too many other scholastic skills. SA A U D SD

34. Vocational Education in high school does an adequate job of preparing our students for entrance into an occupation. SA A U D SD

35. Schools and local industry should work more closely together to provide Career Development. SA A U D SD

36. I would cooperate with others in order to develop the best Career Development Education program for the District. SA A U D SD

37. I am thoroughly sold on offering Career Development Education at all levles of instruction for all students. SA A U D SD

38. Career Development Education will encourage and assist students at all levels to improve their basic skill. SA A U D SD

39. The public schools have a responsibility to provide for the Career placement of all students when they leave high school, whether that is in a first level full time job, or in continuing education. SA A U D SD

40. Our present junior high school education is too much structured aroung Academic disiciplines. SA A U D SD

41. Career Development Education is primarily the responsibilit of quidance counselors.

42. Teachers do not adequately understand the educational programs of students at the levels before or after that where they teach. SA A U D SD

43. Junior high school curriculum should provide an opportunity for students to explore the range of Career options in our society. SA A U D SD

44. Improving education in the District is primarily a matter of more money, and not of changing curriculum or educational programs. SA A U D SD

45. An interdisciplinary approach to education is more realistic than one which follows traditional academic disciplines. SA A U D SD

46. Students at the elementary level are not interested in careers. SA A U D SD

47. Career Development Education would encourage more of our students to continue their education in college or other post high school education. SA A U D SD

48. Teachers of different subject areas should work together in teams to provide learning activities for students. SA A U D SD

49. The development of manipulative skill, including the use of hand tools and simple machinery, should be a part of the educational program of all students beginning in the elementary school. SA A U D SD

50. Check the type of high school program which would be best for the District.

a. _____ students go either to an area (academic) high school or to a vocational high school.

b. _____ all students go to area high schools and parttime to a specialized Career Development Center for college oriented, or job preparation programs in the area of their career interest.

c. _____ all students go to area high schools and be released parttime for work-study with potential employers.

d. _____ all area high schools be expanded into comprehensive high schools with both College Preparatory and Vocational Education Program.

PART D.

1. What programs should the District Schools have for all students to assist them with their Career Development?

2. To what extent and how should Career Development Education be expanded to all levels of the school system?

THE CAREER DEVELOPMENT PROGRAM

ORIENTATION WORKSHOP
July 13 - August 7, 1970

EVALUATION

1. Using the scale 1-5 (5 = the highest rank), indicate the segment of the workshop most beneficial to you.

   A. The motivation-achievement sector _____

   B. Experience with wood _____

   C. Tri-wall carpentry _____

   D. Experiences with Mrs. Errickson - Technology for Children _____

   E. Presentations of projects in process _____

   F. The Systems Approach - Mrs. Austin 1

   G. The Systems Approach - Mr. Tangman _____

   H. The City Simulation _____

   I. The Clark Report - Dr. Newton _____

2. What aspect of Career Development do you feel will be most difficult to implement at your level? Be specific.

3. How would you have improved the organization and operation of the Workshop? What would you have included? Omitted? BE SPECIFIC.

A Proposal to Develop 7th and 8th Grade Curriculum for the Career Development Program of the District of Columbia Public Schools

The Metropolitan Educational Council
for Staff Development

Elaine C. Melmed
Program Coordinator

FEBRUARY 1971

I. Introduction

In May 1969 a plan for Career Development in the District of Columbia Public Schools was presented to the Board of Education.

The plan recommended that a sequential career development program be developed for all students K-12, with close ties to the world of work and further career specialization. The plan went on to broadly outline the objectives for students at each of the three school levels.

Objectives:

Elementary School Level... in conjunction with continued efforts to upgrade student achievement in the basic skills of reading, writing and arthmetic which are essential Career Foundations, new curriculum will be introduced focusing on the economic realties underlying our society, upon the expanding role of technology in modern life, and the introduction of a range of learning experiences, including manipulative skills, to strengthen the self confidence of students.

Junior High School Level... the curriculum in grades seven and eight for all students will be redesigned to relate academic studies to a comprehensive Survey of Careers in our society, including the pattern of work, the requirements for job entry and the knowledge and technology underlying the several clusters of careers.

High School Level... a comprehensive pattern of education for all students will be established with all students registered jointly in their area high school and in one of several Career Development Centers. Each Career Development Center will focus upon a single cluster of careers, will establish close ties to business, industry, governmental and professional institutions, and will provide general and specialized vocational and related academic courses. A flexible pattern of full-time and part-time study along with extensive cooperative work-study

Form No. 3-A- 12
3/70

GOVERNMENT OF THE DISTRICT OF COLUMBIA
THE NATION'S CAPITAL
BUREAU OF PROCUREMENT

Mi:im

NEGOTIATED SERVICES CONTRACT DEPARTMENT OF Public Sc

CONTRACT NO. 71320 DATED JUN 4 1971 Page No. 1 of 5 pa

ject to the terms and conditions on the reverse, the Government of the District of Columbia and the contractor hereby contract for the services of t
ctor in the manner and for the remuneration prescribed herein.

velopment

SPECIFICATIONS OF THE SERVICES

ARTICLE I - SCOPE OF WORK

The Metropolitan Educational Council for Staff Development (hereinafter referred to as the Contractor) agrees to furnish all necessary personnel, facilities and materials and otherwise do all things necessary to develop and implement a curriculum for the Junior High School Career Development program. In connection therewith, the following services shall be provided:

(a) Redesign the 7th and 8th grade Junior High School curriculum so that the academic subjects (English, Social Studies, Math, Science, Industrial Arts, Music, Art, Health Safety and Guidance) are intergrated and related producing comprehensive curriculum modules for the Career Development program.

PERIOD OF CONTRACT:
From 6-1-71
To 5-31-72

100 0X 9990 861 00 610 2554 = $82,634.65
100 9X 9990 441 00 610 2554 = $47,117.74

PAYMENT TO BE: Monthly ☐ Upon completion ☐ or as specified on page

PAYMENT TERMS: percent discount for payment in days

Certified that the service described herein is properly authorized by Reorganization Order or other authority

Benjamin J. Stanley
Deputy Vice Superintendent

Certified as to availability of funds:
M.E.R. No. 160/71091
C. T. Washington
Accounting Officer, D.C.

CONTRACTOR'S ACCEPTANCE:
The Metropolitan Educational Council for Staff Development
Signature of Authorized Representative: Elaine C. Nelmed
Title: Program Coordinator
Date: May

Mailing Address of Contractor: 1610 New Hampshire Avenue, Washington, D. C. 20009
Telephone No.: NO-7-3008

(CORPORATE SEAL) (Contractor should not perform any service under this contract until the contract has been accepted by the District)

ACCEPTANCE BY THE DISTRICT:

Signature of Contracting Officer
Title: ACTING Procurement Officer, D.C.
Date: JUN 4 1971

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and job sampling programs should eliminate the concept of "drop-out", and place all students on a career ladder in full-time employment or continuing education.

In July 1969 the plan was approved in concept by the Board of Education.

Later that year Federal funds under the Exemplary Programs of the Vocational Education Act of 1968 were made available to support the development of detailed curriculum and the retraining of instructional personnel.

During the 1969-1970 school year, four schools, two elementary (Webb and Young) and two junior high schools (Browne and Evans) were selected to become the pilot schools for launching the Career Development program.

A four week workshop for some 30 teachers from the above schools during the summer of 1970 marked the start of the Career Development program. Content for the workshop included experience in Motivation - Achievement techniques; Technology for Children; the application of industrial arts skills to the traditional curriculum; the systems approach to teaching and learning; and the preparation of integrated learning packages.

During the 1970-1971 school year this group of teachers has been meeting weekly and in four Saturday workshops to plan and further the planning of the Career Development program at their schools.

As a result of the above experiences, consultations with the participating teachers and administrators, and observations in classrooms, it has become evident this year that an intensive effort in curriculum development for the 7th and 8th grades is needed if the program is to become operational in September of 1971 at the Junior High School level. The total revision of the current curriculum, and the integration of the traditionally separated subject matter areas must be accomplished at an excellerated pace. While the teachers who are involved in the program feel competent to serve as productive members of a curriculum development team, they are aware that they lack both the time and the highly specialized skills needed to develop new innovative curricula.

N.S. CONTRACT NO. 71320 AMENDMENT NO. DATED

CONTRACTOR'S NAME AND ADDRESS The Metropolitan Educational Council for Staff Development
1610 New Hampshire Avenue, Washington, D.C. 20009

SPECIFICATIONS OF THE SERVICES

(b) Pilot test the curriculum models, evaluate and restructure before putting into use.

(c) Research the development of Career Cluster literature and relate to the development of curriculum.

The Contractor shall be required to provide the services listed in Exhibit "A", attached hereto and hereby made a part hereof. Said Exhibit consist of pages 1 through 6.

ARTICLE II - DELIVERABLE MATERIAL

1. The Contractor shall submit as an end product eight (8) Curriculum Career Modules. Said modules shall contain the following items:

   1. A Rationale
   2. Objectives
   3. Criteria Test Items
   4. Learning Activities
   5. Related Content
   6. Media and Materials
   7. Pre-test
   8. Pre-requisites for learning
   9. Post-Test

2. The first four (4) modules shall be due September 1, 1971 with the remaining four (4) due May 14, 1972.

ARTICLE III - SUBMISSION OF MATERIAL

All Documents requested herein shall be delivered to the following address:

D.C. Public Schools
Office of the Deputy Superintendent
Room 1207
415 Twelfth Street, N.W.
Washington, D.C. 20004

The Metropolitan Educational Council for Staff Development therefore proposes to assist the school system in developing a new 7th and 8th grade Junior High School curriculum which will incorporate and encompass the objectives outlined in the "Plan for Career Development in the Public Schools of the District of Columbia" (May, 1969), which may be summarized as follows:

Junior High Career Development Objectives

(a) That students should be provided with the opportunity to explore the full range of career opportunities in our society

(b) That there should be an integration of all relevant curriculum areas at the seventh and eighth grade levels

(c) That students will continue to learn the central concepts and skills currently associated with the now separate and distinct subjects, but these concepts and skills would be structured around the several clusters of career opportunities in our society.

II. Proposed Pattern of Assistance

The Metropolitan Educational Council will put together a team of specialists in curriculum development drawn from the metropolitan area universities and colleges. This team will work cooperatively with the teachers from Browne and Evans Junior High Schools in producing the prototype 7th and 8th grade Career Development curriculum to be used by the Junior High Schools of the District of Columbia. This curriculum will include the following:

1) Comprehensive statement of learning objectives in behavioral terms

2) The integration of mathematics, science, communications, the social sciences and the arts curriculum to meet learning objectives

3) The maximum use of the community resources

4) The use of a wide range of reading materials at all levels of

Form No. B.P. 12B
REV. 3/70

GOVERNMENT OF THE DISTRICT OF COLUMBIA
THE NATION'S CAPITAL
BUREAU OF PROCUREMENT

CONTINUATION SHEET

N.S. CONTRACT NO. 71320 AMENDMENT NO. _____ DATED _____

CONTRACTOR'S NAME AND ADDRESS The Metropolitan Educational Council for Staff Development
1610 New Hampshire Avenue, Washington, D.C. 20009

SPECIFICATIONS OF THE SERVICES

ARTICLE IV - PROPERTY OWNERSHIP CLAUSE

It shall be the agreement of and by all parties to this contract and all contracts made pursuant hereto, that the Government of the District of Columbia and the U.S. Office of Education shall immediately acquire and retain all property rights in any inventions, plans, discoveries, copyrights, publishable materials and artistic works developed during the performance of this contract. The word "property" is used here to signify not only the physical thing abovementioned, but the right of creation and disposition of and over the intangible aspects of any and all interest subject to be of exchangeable value.

ARTICLE V - PATENT RIGHTS

Exhibit "D" Article I, Equal Employment Opportunity; Article II, Restriction on Payments; Article III, Examination of Records; Article IV, Disputes; Article V, Copyright and Publications; Article VI, Patent Rights are hereby made a part hereof. These provisions are in additions to and are not in lieu of the General provision set forth on page 2 above.

ARTICLE VI - PAYMENT

Upon receipt of a certified invoice and upon approval by the Deputy Superintendent, the Contractor will be paid in accordance with the following schedule:

July 14, 1971	-	$32,438.15
September 14, 1971	-	$32,438.15
November 15, 1971	-	$16,219.07
January 14, 1972	-	$16,219.07
March 14, 1972	-	$16,219.07
Upon Completion	-	$16,219.03

ARTICLE VII - CONTRACT AMOUNT

Contract Shall be completed for the sum of One Hundred Twenty-Nine Thousand Seven Hundred Fifty-Two Dollars and Fifty-Nine Cents ($129,752.59).

ARTICLE VIII - PERIOD OF CONTRACT

June 1, 1971 through May 14, 1972

5804

4. DEPARTMENT

of difficulty and sophistication

5) The extensive use of inquiry, problem solving and experimentation in the arriving at solutions and procedures to follow

6) The effective and meaningful use of "role playing" as a technique for greater student involvement and direction by the student

7) The extensive use of a broad range of student instructional or learning activities including "hands on" activities

8) The development of experiences in keeping with the behavioral characteristics and developmental tasks of youth.

A. Organization Structure

1. Curriculum Review Committee

The Metropolitan Educational Council for Staff Development will form a Curriculum Review Committee made up of faculty or deans from its member institutions who have experience and interest in developing a curriculum for the 7th and 8th grade which integrates the major academic disciplines and emphasises the career cluster concept. This Curriculum Review Committee shall not exceed 12 members. Its primary function will be to assist in the initial planning of the program and to review and evaluate the work of the Curriculum Development Team. After assessing the major strengths of their faculty they will identify the curriculum specialists from their institutions who will form the working Curriculum Development Team.

Members of the Curriculum Review Committee will come from:

American University
Catholic University
D.C. Teachers College
Federal City College
Gallaudet College
The George Washington University
Howard University
Trinity College
University of Maryland
Washington School of Psychiatry
Washington Technical Institute

Form No. B.P. 12B
REV. 3/70

GOVERNMENT OF THE DISTRICT OF COLUMBIA
THE NATION'S CAPITAL
BUREAU OF PROCUREMENT

CONTINUATION SHEET

N.S. CONTRACT NO. 71320 AMENOMENT NO. _____ DATED _____

CONTRACTOR'S NAME AND ADDRESS The Metropolitan Educational Council for Staff Development
1610 New Hampshire Avenue, Washington, D.C. 20009

SPECIFICATIONS OF THE SERVICES

ARTICLE IX - SPECIAL PROVISIONS

Contractor shall furnish with his invoice for payment a complete detailed cost breakdown of all expenditures made or obligations incurred for his contract during the period for which payment is requested. Authorization for payment to contractor shall be made by the Department to the Accounting Division, D.C., based upon this cost breakdown which shall correspond to the amount of payment requested in the contract.

J. DEPARTMENT

2. Curriculum Development Team

(a) College and University Personnel

The Curriculum Review Committee in consultation with the staff of the D.C. Public Schools, including the Junior High Teacher Teams, will screen and select the college/university faculty members who will work on the curriculum team. People representing the following disciplines would be needed:

1. English
2. Math
3. Science
4. Social Sciences (Economics)
5. Industrial Arts
6. Counseling (Job or Career)
7. Art/Music

The faculty members selected could come from either the schools of education or the liberal arts school of the several universities associated with the Metro-Council, but each would need to be familiar with the new secondary school curriculum in their area. In addition, a commitment to the principle of integrated curriculum with a career cluster orientation would be essential. In terms of time, a part-time commitment of two days a week during the month of June, plus full-time for 6 weeks in the summer of 1971 and one day per week from September 1971 to June 1972 will be required.

(b) D.C. Public School Personnel

The Public School personnel on the Curriculum Development Team would be made up of the 15 teachers and supervisors from Browne and Evans Junior High Schools.

The team commitment of this group would be two hours per week, in June and full-time for six weeks during the summer of 1971. During the 1971-72 school year the team would be involved fulltime in implementing the curriculum with a group of approximately 100 7th and 8th grade students in each of the two junior high schools.

SUMMARY OF
MANRESA CONFERENCE

FRIDAY, JUNE 4, 1971
THRU
SUNDAY, JUNE 6, 1971

AND

SUMMER WORKSHOP

June 21 - July 30, 1971

Manresa Conference

The Manresa Conference was held from Friday evening June 4, 1971 through Sunday afternoon June 6, 1971. The following individuals participated:

Dr. Donald Bullock, Catholic University
Mrs. Olivia H. Calhoun, Browne Jr. High School
Dr. Paul E. Cawein, D. C. Public Schools
Mr. Reginald Elliot, Georgetown University
Mr. George Galloway, Principal, Evans Jr. High School
Mrs. Barbara Gregory, Federal City College
Dr. Stephen Kappel, Maryland University
Mrs. Virgie Madison, Curriculum Coordinator
Mrs. Elaine C. Melmed, Metropolitan Educational Council for Staff Development
Miss Joyce Page, Evans Jr. High School
Mrs. Marguerite Pettigrew, Principal, Browne Jr. High School
Dr. Mary Rodgers, D. C. Teachers College
Dr. Daniel Sinick, George Washington University
Mrs. Laura Smith, Federal City College
Mr. Walter Young, Federal City College

Basically, three things were accomplished at Manresa:

(1) Presentation of background information and case histories of the student/parent population that would benefit from the career curriculum by Mrs. Virgie M. Madison; (2) presentation of a tentative curriculum design format for discussion and evaluation from which evolved a tentative operational format; and (3) Dr. Cawein's summary of the proposed five-year evolvement and the tentative cluster (module) grouping for the phase I development.

Summer Workshop: Career Curriculum Development Project

The Career Curriculum Development Workshop began Monday, June 21, 1971 at Browne Jr. High School. The following persons were present: Dr. Donald Bullock, Technical writer; Mrs. Olivia H. Calhoun, Browne Jr. High School Team Leader; Mrs. Barbara Gregory, Home Economics Specialist, Federal City College; Dr. Stephen Kappel, Technical Assistant-Writer; Mrs. Edna McClellan, Social Studies Consultant; Mrs. Virgie H. Madison, Curriculum Coordinator;

3. Additional Personnel

(a) Curriculum Coordinator

The Coordinator of the 7th and 8th grade curriculum development program will serve full-time from the period of May 1971 to June 1972. His duties would be to organize and coordinate all aspects of the program. He will set work schedules, plan meetings, order materials and supplies, select consultants, issue progress reports, organize and reproduce materials, and plan and supervise the six week work session of the curriculum team. He will follow-up the testing, evaluation and revision of the curriculum developed.

(b) Curriculum Writer and Researcher

The Curriculum Writer and Researcher will be responsible for the editing and final composition of the curriculum prepared by the Curriculum Development Team and the two teacher teams. He will research and make available curriculum and materials produced elsewhere that might be adapted and used by the Curriculum Development Team.

(c) Instructional Specialist

The Instructional Specialist will identify and solve problems in the optimum use of the newly prepared curriculum materials and methods in the classroom. He will assist teachers in developing specific lesson plans and selecting consultants, field trips, etc.

B. Time Table

March 1971

1. Meeting of the Board of Directors of the Metropolitan Educational Council for Staff Development.

Miss Joyce C. Page, Evans Jr. High School Team Leader; Dr. Mary C. Rodgers, English Specialist, D. C. Teachers College; Laura J. Smith, Instructional Specialist, Federal City College; Howard S. White, Science Specialist, McKinley High School; Lynwood F. Williamson, Industrial Arts Specialist, Browne Jr. High School; and, Walter M. Young, Mathematics Specialist, Federal City College. Later, Mrs. Louise C. Iannone replaced Dr. Sinick and Mrs. Martha Mead joined us as Business Specialist, Maryland University. Upon the resignation of Mrs. Madison, Mrs. Ellen F. Datcher assumed the role of Coordinator. The two teacher teams from the Evans and Browne Junior High Schools reported a week later.

During the first week the procedure for completing the mammoth writing project was established. Operationally, each of the two technical writers was assigned to a team: Dr. Bullock to Browne (grade 8) and Dr. Kappel to Evans (grade 7), with the two team leaders acting as liaison between them. The teachers were assigned to their respective specialists to develop and make first drafts of the units in their particular disciplines.

The Project proceeded with the usual "birth" pains and personnel attrition of any new operation. In retrospect, however, many of the problems in developing the first four modules will, I believe, serve to better refine those of the second semester, namely:

(a) consultation with Dr. Cawein and his staff prior to and during the writing of a module to ascertain if the sufficiency of career information in the various units is being met to his satisfaction;

(b) the need for close communication between consultants and teachers in deciding upon activities for clusters and topics so as to reduce needless transportation costs and overlapping;

(c) a standardized format of the things to be considered in a unit;

(d) some degree of uniformity in the nomenclature used in the units; and,

(e) the establishment of tentative dates for the completion of the next three modules for both grades 7 and 8.

Two modules were completed in draft form for both grade levels by July 30, 1971: for grade 7, Consumer and Homemaking and Communications and Media; and, grade 8, Public Service Occupations and Health Occupations.

Then, for the next three weeks the production phase moved to Catholic University and the Washington School of Psychiatry for final completion.

Happily (for everyone), the target date of August 23, 1971 was met!

Olivia H. Calhoun
Writer/Editor

3. Additional Personnal

(a) Curriculum Coordinator

The Coordinator of the 7th and 8th grade curriculum development program will serve full-time from the period of May 1971 to June 1972. His duties would be to organize and coordinate all aspects of the program. He will set work schedules, plan meetings, order materials and supplies, select consultants, issue progress reports, organize and reproduce materials, and plan and supervise the six week work session of the curriculum team. He will follow-up the testing, evaluation and revision of the curriculum developed.

(b) Curriculum Writer and Researcher

The Curriculum Writer and Researcher will be responsible for the editing and final composition of the curriculum prepared by the Curriculum Development Team and the two teacher teams. He will research and make available curriculum and materials produced elsewhere that might be adapted and used by the Curriculum Development Team.

(c) Instructional Specialist

The Instructional Specialist will identify and solve problems in the optimum use of the newly prepared curriculum materials and methods in the classroom. He will assist teachers in developing specific lesson plans and selecting consultants, field trips, etc.

B. Time Table

March 1971

1. Meeting of the Board of Directors of the Metropolitan Educational Council for Staff Development.

SUGGESTED TOPIC LISTINGS

GRADE 7

1. AGRI-BUSINESS, NATURAL RESOURCES, MARINE SCIENCE

   A. Pollution
   B. Getting Rid of Waste
   C. Recycling Waste
   D. Farming
   E. Oceanography
   F. Conservation

2. CONSTRUCTION AND ENVIRONMENT

   A. Urban Planning
   B. Sanitation
   C. Zoning
   D. Law Enforcement
   E. Sex Education
   F. Preserving a City
   G. Urban VS. Rural

   A. Planning a Building
   B. Climatic Influence on Construction
   C. Urban and Suburban Construction
   D. Safety Requirements and Permits
   E. Demography-controlling population growth and decline

3. COMMUNICATIONS AND MEDIA

   A. Advertising
   B. Propaganda
   C. Journalism
   D. Publishing
   E. Commercial Art
   F. Film Making
   G. Radio Announcing

   H. Public Oratory
   I. Censorship
   J. Programming
   K. Photography
   L. Library
   M. Periodicals
   N. Transatlantic Communication

4. FINE ARTS AND HUMANITIES

   A. Drama
   B Art (Painting)
   C. Crafts
   D. Musician
   E. Writing
   F. The Dance

5. CONSUMER AND HOMEMAKING

   A. Buying (Retail and Wholesale)
   B. Housing
   C. Child Care (children's carnival, babysitting club, children's literature, foods for children, novelty recipes
   D. Nutrition
   E. Clothing
   F. Family relations
   G. Inspections and regulatory agencies (FDA, AGRI, FCC. Good Housekeeping, Family Circle, Parent Magazine, B.B. Bureau)

2. Selection of the Curriculum Review Committee.

April 1971

1. Meeting of the Curriculum Review Committee and in cooperation with the Teacher Planning Group identification and selection of college and university members of the Curriculum Development Team.

2. Identification and selection of the Program Coordinator and and other staff.

May 1971

1. Orientation and planning meetings of the Curriculum Development Teams and the Program Coordinator.

June 1971

1. Research and gathering materials.

2. Identification of the career clusters, occupations and sub-units to be developed.

3. Planning for the intensive 6 week curriculum development workshop.

4. Production of one prototype career cluster unit to be used as a model for the development of others during the 6 week session.

July and August 1971

1. Intensive curriculum development units to be produced will contain:

a. A Rationale
b. Objectives
c. Criteria Test Items
d. Learning Activities
e. Related Content
f. Media and Materials
g. Pre-test
h. Prerequisites for learning

Designing of teaching strategies to include:

a. Theory
b. Demonstration
c. Experience as a learner
d. Peer teaching
e. Practice with children
f. Decision making

SUGGESTED TOPIC LISTINGS

GRADE 8

1. TRANSPORTATION

   A. Public Transportation (City)
   B. Interstate Transportation
   C. Air
   D. Water

2. HEALTH OCCUPATIONS

   A. The Hospital
   B. Community Health Services (well-baby clinic, dental and out patient clinics)
   C. Drug Abuse
   D. Alcohol and Tobacco

3. HOSPITALITY, RECREATION AND PERSONAL SERVICES

   A. Recreational Resources
   B. Recreation and Employment Opportunities
   C. Recreation as a Path to Future Educational and Professional Opportunities
   D. Recreation as an Organized Social Activity: Family, School Community
   E. Hotel-Motel Management
   F. Barbering and Cosmetology, Motuary Science

4. MARKETING AND DISTRIBUTION, BUSINESS AND OFFICE OCCUPATION

   A. Data Processing
   B. Secretarial and Clerical Services
   C. Management and Administrative
   D. Office Machines
   E. Distribution and Processing (means of distributing, foods (frozen), geography/price relationship, seasonal, supply and demand)

5. PUBLIC SERVICE OPERATIONS

   A. Municipal
      1. Education
      2. Sanitation
      3. Law Enforcement
      4. Social Services
      5. Health Services
   B. Federal
      1. Health, Education and Welfare
      2. Supportive Services
         a. Park Services
         b. F.B.I.

September 1971 to June 1972

1. Pilot testing and restructuring of the teaching units.

III. Outcomes

(a) The Curriculum teams will produce by the end of the 6 week summer session complete curriculum units for at least four of the career clusters to be identified for the Washington, D.C. Area. These units will be ready for testing on a group of 100 children in the Browne and Evans Junior High Schools in the school year of 1971-72.

(b) Over the course of the school year curriculum for the remainder of the clusters will be developed.

(c) The Instructional Specialist on the Curriculum Development Team will assist in planning and initiating a pattern of involvement for the teachers in the Evans and Browne Junior High Schools who are not members of the initial teams. He will prepare them for the implementation of the new 7th and 8th grade Career Development Curriculum for the total student population in these grades, beginning in September, 1972.

GRADE 8 (Continued)

4. MARKETING, DISTRIBUTION, AND MANUFACTURE

A. Craftsmanship
B. Types of Equipment Used
C. Food Manufacture (candy factories, etc.)
D. Textile and Clothing Industry
E. Foundry
F. Prefabrication and prepackaging

BUDGET - JUNE 1971 TO JUNE 1972
(12 Months)

Direct Cost

Personnel

1.	Curriculum Coordinator	$ 18,000	
2.	Curriculum Writer/Researcher (60%)	8,000	
3.	Instructional Specialist (50%)	8,000	
4.	Univ. Curric. Spec. (7; 2 mos. @$2,500)	17,500	
5.	Univ. Curric. Spec. (7; 10 mos. @ $500)	35,000	
6.	Secretary (100%)	7,000	
7.	Consultants	2,000	
8.	FICA & Benefits @ 10% of items 1-4 & 6	5,850	
			$101,350

Materials & Supplies

9.	Office supplies	2,500	
10.	Educational materials	4,000	

Communication & Reproduction

11.	Telephone	500	
12.	Duplicating & Postage	500	

Travel

13.	Out of City	3,000	
			$ 10,500

Total Direct Cost		$111,850
Indirect Cost		
14.	10% of Total	11,185
GRAND TOTAL		$123,035

Career Development Exemplary Project
Junior High Schools
Curriculum Consultants

Dr. Donald H. Bullock	Education Catholic University
Mrs. Olivia H. Calhoun	Metropolitan Council for Staff Development
Mr. Peter J. McCarthy	Music Trinity College
Mrs. Edna W. McClellan	Social Studies University of Maryland
Mrs. Martha Mead	Business Education University of Maryland
Dr. Mary C. Rodgers	English D.C. Teachers College
Mrs. Laura J. Smith	Instructional Specialist Federal City College
Mr. Walter M. Young	Mathematics Federal City College

APPENDIX I

The Metropolitan Educational Council for Staff Development

The Public Schools of the District of Columbia
Vocational Education Exemplary Project: Implementing a K-12
Career Development Program

ANNOTATED BIBLIOGRAPHY

Handbook for Hands-On and Related Activities for Career Development on the Elementary Level. (First Draft for Pilot Use Only)

This handbook was prepared by the elementary teachers involved in the pilot schools to outline their plans to integrate hands-on activities--economic, technological and career oriented instruction with learning activities designed to support the development of the basic skills of reading, writing and arithmetic essential to "Career Foundations". The elementary curriculum focuses upon building career foundations. It follows a conceptual approach in teaching the economic realities underlying our society and the expanding role of technology in modern life. A major emphasis is given to the introduction of a broad range of learning experiences including manipulative skills employing the methods developed by the New Jersey State Department of Education, "Technology for Children Project".

The handbook has been most closely tied to a social studies curriculum developed by Lawrence Senesh and published by Science Research Associates. The materials titled "Our Working World" and "Man A Course Of Studies" are used in grades 1-6.

Curriculum Survey Guide, An Interdisciplinary Course of Study, Providing a Survey of Career Opportunities in Our Society for Grades 7 & 8. (First Draft for Pilot Use Only)

This curriculum has been prepared by junior high teachers and university specialists under a subcontract with the Metropolitan Education Council for Staff Development, Washington, D. C.

The curriculum is structured around 10 modules, based upon the 15 career clusters suggested by the U.S. Office of Education, emphasizing career opportunities prevalent in the metropolitan area of the District of Columbia. The modules are: Communication and Media; Consumer and Homemaking; Construction and Environment; Fine Arts and Communication; Agri-Business, Natural Resources and Marine Science; Recreation, Hospitality and Personal Services; Health Occupations; Manufacturing, Marketing and Distribution, Business; Transportation; and Public Services.

Each module includes a restructuring of all subject areas into a scope and sequence corresponding with the career clusters encompassed by each module. This structure provides a focus upon the "real" world activities represented by the clusters, and the essential ties which exist between the "real" world and the world of school and academic knowledge. Through the curriculum, students are provided with a comprehensive survey of the full range of present and future career options.

For further information contact:

Dr. Paul E. Cawein, Assistant Superintendent
Department of Career Development Programs
415 Twelfth Street, N. W. Suite 1001
Washington, D. C. 20004

Area Code 202/737-5298

II. The Metropolitan Educational Council for Staff Development

Responding to the critical need for expanded training and curriculum development programs in the metropolitan area of Washington, D.C., the Metropolitan Educational Council for Staff Development was formed on July 1, 1969. The formation of the Council grew out of a March 1969 conference sponsored by the District of Columbia Public Schools System and the National Capital Area Educational Forum. Recognizing that the nation's capital should be providing leadership in community and educational development, the Metropolitan Educational Council's mission is to show how educational institutions, working cooperatively, can multiply their impact. The Council facilitates exchange, cooperation, and working relationships among the supporting institutions and others in designing and developing curriculum and training programs.

(1) The member institutions of the Council are:

American University Department of Education	Howard University College of Liberal Arts
Catholic University of America	Federal City College
District of Columbia Public Schools	Gallaudet College
District of Columbia Teachers College	The George Washington University School of Education
Washington School of Psychiatry	Trinity College
	University of Maryland College of Education
	Washington Technical Institute

(2) The official representatives of the Council's Board of Directors are for the most part the Deans or Chairmen of Schools of Education Departments. In the case of D.C. Teachers College, the president of that institution serves as the official representative. The following lists the names and titles of the Council's Board of Directors for January 1971 to December 1971.

Teacher Participant Workshop

Thursday, June 10, 1971

Carver School 3:00 - 5:00 P.M.

AGENDA

3:30 p.m.	Assemble
	Introductions
	Staff Participants
3:45 p.m.	Report of Manresa Conference
	Summary Curriculum Model Cluster Model Questions - Discussion
4:45 p.m.	Announcements - Assignments, etc.
5:00 p.m.	Dismissal

Board of Directors

Dr. Robert G. Kvarnes - Chairman
Director, Washington School of
Psychiatry

Dr. Paul Cooke - President
D. C. Teachers College

Mr. Leroy Dillard - Assistant to the Vice Superintendent
D.C. Public Schools

Dr. Edward Ducharme - M.A.T. Program
Trinity College

Sister Mary Sarah Fasenmyer - Acting Dean
School of Education
Catholic University

Dr. James Guines - Associate Superintendent
D.C. Public Schools

Dr. Herman Howard - Chairman
Teacher Education Division
Federal City College

Mr. Robert McKee - Director
AMIDS
Washington Technical Institute

Mrs. Elaine C. Melmed - Program Coordinator
Metropolitan Educational Council for Staff Development

Dr. James Raths - Director
Bureau of Educational Research & Field Services
University of Maryland

Dr. Evaretta Rutherford - Chairman
Department of Education
Howard University

Dr. John S. Schuchman - Acting Dean
Gallaudet College

Dr. Rodney Tillman - Dean
School of Education
The George Washington University

Dr. Ralph Whitfield - Chairman
Department of Education
American University

Mrs. Elizabeth C. Williams - Acting Director
Office of Staff Development
D.C. Public Schools

ERIC

5814

CAREER CLUSTER MODULES AND TOPICS

Grade 7

I. CONSUMER AND HOMEMAKING

1. Buying
2. Child Care
3. Nutrition
4. Clothing
5. Family Relations
6. Housing and Household Management

II. COMMUNICATIONS AND MEDIA

1. Advertising
2. Film and Photography
3. Radio and Television
4. Journalism and Publishing
5. Library and Periodicals
6. Transocean Communications

III. FINE ARTS AND HUMANITIES

1. Drama and Literature
2. Music
3. The Dance
4. Arts (Painting)
5. Crafts

IV. CONSTRUCTION AND ENVIRONMENT

1. Urban Renewal and Development
2. Urban and Suburban Construction and Planning
3. Megalopolis
4. Demography

V. AGRI-BUSINESS, NATURAL RESOURCES, MARINE SCIENCE

1. Natural Resources
2. Ecology (pollution)
3. Landscaping
4. Conservation
5. Oceanography

CAREER CLUSTER MODULES AND TOPICS

Grade 8

I. PUBLIC SERVICE OCCUPATIONS

1. Education
2. Public Utilities
3. Community Social and Health Services
4. Law Enforcement
5. Fire Department
6. The Postal Service

II. HEALTH OCCUPATIONS

1. The Hospital
2. Preventive Medicine
3. Drug Use and Abuse
4. Alcohol and Tobacco

III. MANUFACTURING, MARKETING AND DISTRIBUTION, BUSINESS AND OFFICE OCCUPATIONS

1. Marketing and Distribution
2. Food Manufacturing
3. Data Processing and Automation
4. Administration, Management, and Labor
5. Secretarial and Clerical Services
6. Office Machines
7. Types of Equipment Used in Manufacturing, Marketing and Distribution, Business and Office Occupations
8. Metal Manufacturing and Fabrication
9. Metal Fabrication and Repair Shop
10. Textile and Clothing Industry
11. Regulatory Agencies

IV. TRANSPORTATION

1. Ground Transportation
2. Intermodal Transportation
3. Air Transportation (Career)

APPENDIX II

Metropolitan Educational Council's Charter

Adopted -- June 1969

CAREER CLUSTER MODULES AND TOPICS

Grade 8

IV. TRANSPORTATION (cont.)

4. Water
5. Subterranean (The Metro)

V. HOSPITALITY, RECREATION AND PERSONAL SERVICE OCCUPATIONS

1. Recreational Resources
2. Recreation as a Path to Educational, Employment and Professional Opportunities
3. Barbering
4. Cosmetology
5. Mortuary Science
6. Hotel-Motel Management

5815

DISTRICT OF COLUMBIA PUBLIC SCHOOLS

CAREER DEVELOPMENT CURRICULUM

Grades 7 and 8

For Further Information
Call or Write
Olivia L. Calhoun
1010 Massachusetts Avenue, N. W.
Washington, D. C. 20001
Telephone: 637-00003 Extension 2

CAREER DEVELOPMENT EXEMPLARY PROJECT

Saturday Workshop

October 16, 1971

AGENDA

9:00	Coffee and Doughnuts	
9:30	Overview of Implementation	Mesdames Datcher Holliday Jones
10:00	Person to Person (Discussion of problems with units already prepared, types of children, techniques for use of activities and certain materials in the curriculum guide).	Consultants/Teachers
11:00	Lunch	
12:15	Teacher/Consultant review of new units being prepared for Cluster III, Second Semester 1971-72.	
3:00	Dismissal	

Career Development Program
Exemplary Project
Elementary
June, 1972

Webb School	Grade
Colclough, Alma	5
Curley, Jane	2
Jeffries, Olene	2
Karsten, Chris	1
Robinson, Maurice	Science
Sharpe, Rowan	6
Stewart, Betty	3
Tucci, Edith	Counselor
Whatley, Annie	4
White, Cab	6

Young School	
Albert, Larry	Science
Aldrich, Herbert	4
Ingram, Calantha	5
Knox, Macon	6
Lucas, Rosie	5
Lyles, Deborah	2
Marshall, Cora	2
Morris, Martha	3
Pierce, Rosella	1
Smith, Doris	3
Sneed, Shirley	5
Thornton, Lydia	Counselor

Career Development Program
Junior High Schools
Team Roster
June 31, 1971

* Team Leader

Browne

Mrs. Annie U. Beard	Social Studies
Mrs. Elizabeth S. Childs	Special Education
Mrs. Rose Anne Elliott	Art
Mrs. Zelmar S. Gordon	Business Education
Mrs. Nancy I. Harris	Physical Education
* Mrs. Lillian H. Jones	Guidance
Mr. Roger B. Kyles	Mathematics
Mrs. Nell La Beach	English
Mr. David A. Lyons	Industrial Arts, Woodworking
Mrs. Evangeline S. Moore	Home Economics
Mr. Joseph M. Stills	General Science
Mr. Lynwood F. Williamson	Industrial Arts

Evans

Mrs. Patricia A. Barnes	Health and Physical Education
Mr. David J. Briles	Mathematics
Mrs. Izetta C. Callahan	Business
Miss Geraldine Cook	General Science
Mrs. Faye M. Dixon	Social Studies
Mrs. Edna V. Holliday	Music
* Mrs. Jewyll Holliday	Guidance
Mrs. Marilyn Levitt	English
Mr. Harold B. Plummer	Health & Physical Education
Mrs. Harriett L. Richardson	Home Economics
Mr. James W. Vaughn	Industrial Arts

VT 016 526
CRONIN, F.P., AND OTHERS
EVALUATIVE PLANNING RESEARCH PROJECT IN VOCATIONAL EDUCATION FOR OHIO DIVISION OF CORRECTION INSTITUTIONS.

OHIO STATE DEPT. OF MENTAL HYGIENE AND CORRECTION, COLUMBUS.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 72 16P.

DESCRIPTORS - *RESEARCH PROJECTS; *CORRECTIVE INSTITUTIONS; CORRECTIONAL EDUCATION; CORRECTIONAL REHABILITATION; PRISONERS; *CURRICULUM DEVELOPMENT; *VOCATIONAL REHABILITATION; *VOCATIONAL EDUCATION; JOB SKILLS
IDENTIFIERS - OHIO DIVISION OF CORRECTION; REHABILITATION PROGRAMS; FORMATIVE EVALUATION

ABSTRACT - THIS PROJECT, INITIATED BY THE OHIO DIVISION OF CORRECTION, IS AN ATTEMPT TO BROADEN THE SCOPE OF EXISTING EDUCATION IN PENAL INSTITUTIONS TO INCLUDE MEANINGFUL VOCATIONALLY-ORIENTED EXPERIENCES WHICH AID IN THE REHABILITATION OF INMATES. CONDUCTED OVER A 7-MONTH PERIOD, THE PROGRAM WAS DEVELOPED IN 4 PHASES WHICH INVOLVED: (1) EXAMINING EXISTING VOCATIONAL PROGRAMS IN PENAL INSTITUTIONS WITHIN THE STATE, (2) MAKING LITERARY SEARCHES AND CONDUCTING PERSONAL INTERVIEWS WITH INMATES, (3) ENGAGING IN STUDIES OF SUCCESSFUL VOCATIONAL PROGRAMS OF THIS KIND OPERATING IN OTHER STATES, AND (4) DEVELOPING A DIVISION-WIDE VOCATIONALLY-ORIENTED EDUCATION PROGRAM. PLANS FOR CURRICULUM IMPLEMENTATION AND ESTIMATED OPERATION COSTS ARE INCLUDED AS WELL AS AN ORGANIZATIONAL CHART EXPLAINING THE MODULAR STRUCTURE OF PROGRAM. (SN)

Title of Project:	Evaluative Planning Research Project in Vocational Education for Ohio Division of Correction Institutions
Project Organization:	Division of Correction - State of Ohio
Initiator:	Bennett J. Cooper, Commissioner Division of Correction 614-469-2215 Bennett J. Cooper
Project Director:	F. P. Cronin, Director of Education Services Division of Correction 614-469-2188 F. P. Cronin
Transmitted by:	D. R. Purkey, Consultant in Vocational Education for Ohio Division of Correction 614-743-2237 D R Purkey
Duration of Activity:	November 1, 1971 through June 30, 1972
Purpose of Grant:	(ii)
Use of Funds:	(1) (3)
Total State Funds Expended:	$63,099.64
Date Transmitted:	June 29, 1972

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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VT016526

Title of Project:	Evaluative Planning Research Project in Vocational Education for Ohio Division of Correction Institutions
Principal Investigator:	F. P. Cronin, Etal
Contracting Agency:	Division of Correction - State of Ohio
Amount of State Funds Expended:	$63,099.64
Beginning & Ending Dates:	November 1, 1971 through June 30, 1972
1. Statement of Problem:	The purpose of this project was to study all vocational training and develop guidelines for realigning the various independent institutional programs into a division wide program with emphasis on individualized vocational instruction for the student.
2. Statement of Objectives:	The objective of the project was to study the present status of vocational education within the correctional institutions, recommend and structure a division wide vocational education program with emphasis on treatment and rehabilitation of the inmate.
3. Description of Activities:	The "Consultant Team" studied the existing vocational programs in Ohio's adult correctional institutions, studied the literature and research on inmate treatment, studied successful vocational education programs conducted in penal institutions in neighboring states and developed a plan for vocational education that would be division wide. They also developed a "pilot curriculum" and organization charts for administrating such programs.
4. Techniques of Evaluation of Objectives:	Regular monthly meetings were held to review procedures in light of the objective. Instruments for evaluation and data gathering were developed and used. Numerous conferences were held with penal officials to gather information and ideas. The final report was reviewed by the entire "Consultant Team."
5. Contribution to Education:	By developing a "Program of Vocational Education" for Ohio penal institutions it is hoped it may become a factor in further development of vocational education as a "treatment tool" to assist in the process of rehabilitating an inmate to a useful person in a free society. This project should serve as the groundwork for further research and development of vocational education in penal institutions.

THE NARRATIVE REPORT

1. PROBLEM

The present educational program in Ohio's penal institutions is fragmented. Each institution initiates and operates its own independent education system, which includes limited vocational education.

Students are withdrawn from classes for many reasons, making the total educational process less effective.

The purpose of this project was to study all vocational training and develop guidelines for realigning the various independent institutional programs into a division wide program with emphasis on individualized vocational instruction for the learner.

A review of the literature includes the following:

a. Ohio Adult Parole Authority Annual Report for 1971
b. Furlough Program Guidelines - Gilbert, Gordon, Weisenberg
c. Development of Correctional Information System - Dinitz and Allen
d. The Ohio Citizens' Task Force on Corrections - Task Force Committee
e. Educational Philosophy for Maximum Security Prison - Southern Ohio Correctional Facility - Office of Continuing Education of Ohio University
f. Standards for Vocational Education - Ohio State Department of Education
g. Facilities for Vocational Education - Ohio State Department of Education
h. Use of Correctional Trade Training - Michigan Department of Correction
i. The Draper Project - U. S. Department of Labor
j. Role of Teacher for the Effective Use of P. I. in Correctional Settings - January, 1968, Journal of Corrections
k. Job Testing and the Disadvantaged - A.P.A. Task Force on Employment Testing of Minority Groups
l. Learning Disabilities and Juvenile Delinquency - Duling-Eddy-Risko, 1970
m. A Critical Analysis of Individually Prescribed Instruction - Duda - Educational Tech. - 1970
n. A Model for Correctional Education - George Mocker - Journal of Correction
o. America's Manpower Needs for the 70's - Goldsten - A.V.A. Journal
p. Prisoners: Men or Animals - Hemtof
q. Numerous current articles and publications from penal institutions
r. Division Response to Task Force Report - Division of Correction

The consultant team took into consideration all the recent advances in subject matter and learning theory. Evidence is apparent by the extended reading, research and investigations made by the committee. (Further abstracts are in Appendix)

2. OBJECTIVES

a. Study the present status of vocational education in the adult institutions within the Division of Correction.
b. Develop an administrative structure for an educational program and especially vocational education.
c. Develop division wide vocational education programs that will be "tailor made" for correctional institutions.
d. Develop a "sample curriculum" for a program of vocational education.
e. Develop a facilities plan and identify equipment and costs for vocational education.
f. Develop the probable operational costs, including the personnel salaries, necessary to operate the educational system.

3. DESCRIPTION OF ACTIVITIES

The consultants started the project by studying the status of vocational education in the seven adult institutions in the state. In order to divide the responsibilities they were placed into the following institutional study committees.

Chillicothe Correctional Institute - Lindsay Ratliff
Lebanon Correctional Institution - Donald R. Neff, D. R. Purkey
London Correctional Institution - James H. Broadbent
Marion Correctional Institution - Dallas Cornett, Dr. Kenneth C. Hoedt
Ohio Reformatory for Women (Marysville) - John Irvine
Ohio Penitentiary (Columbus) - Donald R. Neff
Ohio State Reformatory (Mansfield) - Dr. Max Lerner, John Oguich

In addition, the following committees were assigned to an "area of concern" for in-depth study.

Educational Program Study Committee - Donald R. Neff, Dallas Cornett, Dr. Max Lerner, James H. Broadbent
Staff Study Committee - James H. Broadbent, Lindsay Ratliff, Dr. Kenneth C. Hoedt
Equipment and Facilities Study Committee - Dr. Max Lerner, John Irvine, D. R. Purkey
Trainee Study Committee - Dr. Kenneth C. Hoedt, John Oguich, D. R. Purkey

Each committee spent considerable time in the institutions. As a result numerous workshops were held where committee members could compare observations and research, as well as inform the entire consultant team.

Following the writing of the "status reports" by each committee and report of each institution (Part I), the second phase began. It included search of literature, research (Appendix), personal interviews and other means to secure all information available on "an ideal vocational program for penal institutions." This was followed by the third phase, pre-arranged studies of vocational education programs in neighboring states. (Summary in Appendix).

The final phase of the activity was the formulating of recommendations for a division wide educational program with special emphasis on vocational education. (Complete report in Part II).

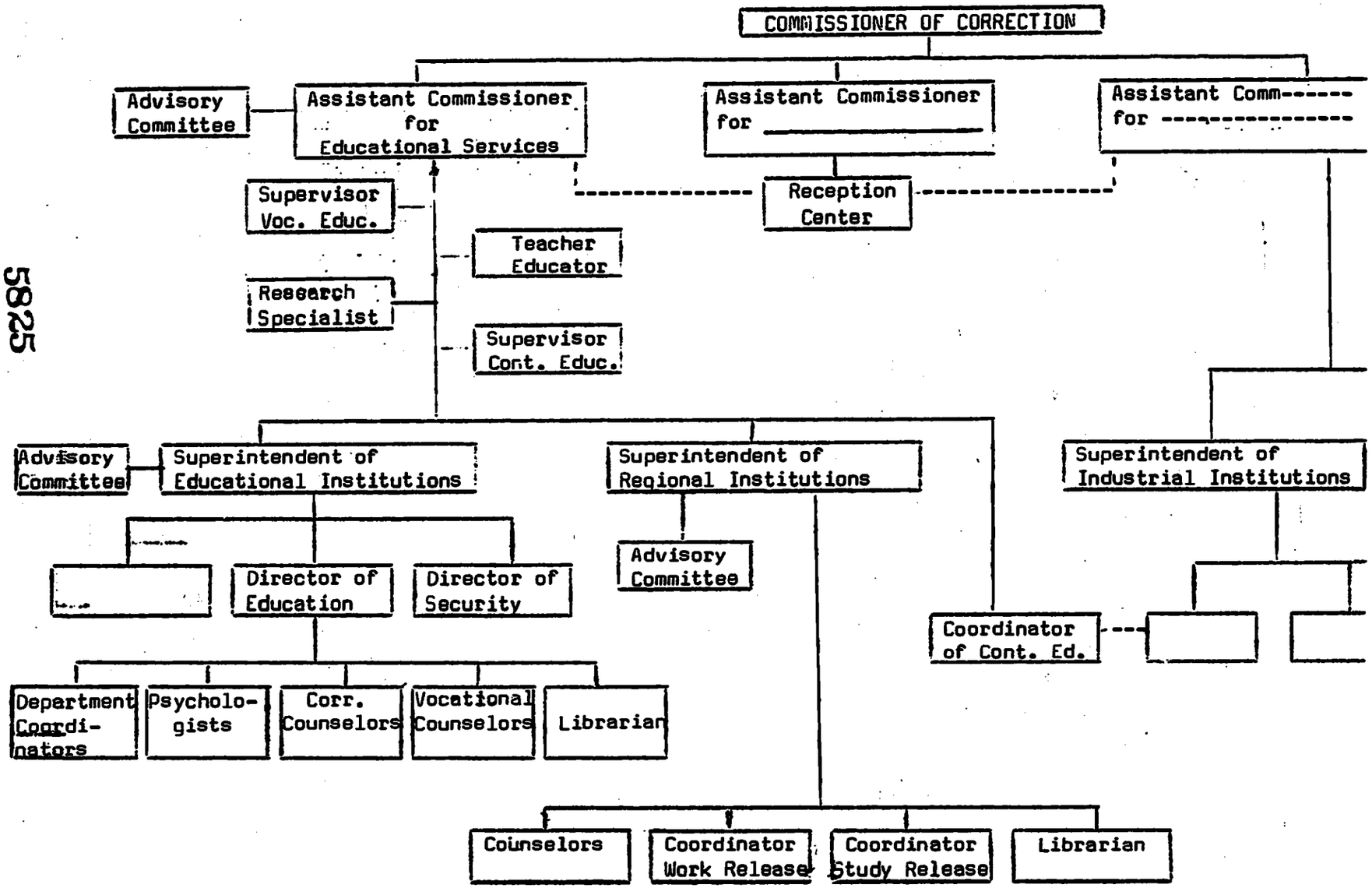
4. TECHNIQUES OF EVALUATION OF OBJECTIVES

a. Status reports - Each committee completed a status study (complete report in Part I) which showed the Division of Correction could not place a very high priority on education in the penal institutions. The competition for funds caused education to be under-developed. Incentives for education were not present. Facilities and salaries were not attracting adequate personnel. Several of the institutions had made more progress than others, due to the administrative and financial interest.

There was no division wide educational system as determined by the Consulting Team. Vocational education was very inadequate. Many areas were understaffed and given physical facilities that were not conducive to learning.

b. Administration - Through study, research, and visits to other institutions the committee developed an administrative structure that in their opinion would be able to effectively administer a divison wide educational program.

The administration chart on the following page is an attempt to place education in the main stream. It is not a complete organization for the Division of Correction, but does indicate the administration for education in relationship to other personnel.


COMMISSIONER OF CORRECTION
Advisory Committee
Assistant Commissioner for Educational Services
Assistant Commissioner for _____
Assistant Comm------ for ----------
Supervisor Voc. Educ.
Teacher Educator
Research Specialist
Supervisor Cont. Educ.
Reception Center
Advisory Committee
Superintendent of Educational Institutions
Superintendent of Regional Institutions
Superintendent of Industrial Institutions
Director of Education
Director of Security
Advisory Committee
Coordinator of Cont. Ed.
Department Coordi-nators
Psycholo-gists
Corr. Counselors
Vocational Counselors
Librarian
Counselors
Coordinator Work Release
Coordinator Study Release
Librarian

c. Develop division wide vocational programs - After considerable research and study the consulting team developed a division wide vocational education program as a part of the total education offerings. Complete description can be found in Part II. Following is a summary of the recommendation.

Marion and Lebanon should be developed as the two major educational institutions; Marion for adults, Lebanon for younger adults.

Programs at Lebanon would include auto mechanics, auto body repair, car care, diesel mechanics, motorized equipment operator, small engine repair, diversified health occupations, food service, business and office occupations, masonry, electrical trades, carpentry, drafting (construction), plumbing, heating, air conditioning cooling systems, plastering, painting and decorating, communications electronics, welding (pipe and structural), business machine repair, major appliance and vending machine repair, and graphics.

Programs at Marion would include auto mechanics, auto body repair, diesel mechanics, medical laboratory assistant, food service, business machine repair, horticulture, custodial training, building maintenance, masonry, electrical trades, communications electronics, electro-mechanics, welding and metal fabrication, power plant operator, and machine trades.

In addition, continuing education programs were recommended which would include basic education, developmental education, avocational and recreational programs.

The consulting team also recommended cooperative vocational education offerings as a part of the release programs in proposed community based institutions.

Educational release exchange programs were also recommended for all institutions where possible, allowing students to be released for study at nearby educational institutions and/or instructors from the educational institutions teaching at the correctional institution.

The women's institution at Marysville would need to continue programs in cosmetology, as well as continuing and developmental education; and create vocational programs in fabric care, food service, medical care, home and community services, business and office occupations. The educational facilities should be utilized for education and all programs should be located in this facility.

The Lucasville facility, because of its maximum security, would

need to continue its educational programs as reported in the Ohio University Study, "Proposed Educational Programming for the Southern Ohio Correctional Facility."

Each of the vocational programs were divided into modules. Each module had several units of instruction. The units of instruction were divided into lesson plans.

Through this procedure lesson plans could be developed for programmed individualized instruction. Students could be admitted to a program at any time there was a vacancy.

d. Sample curriculum - Space does not permit the complete curriculum as developed for auto mechanics to be printed here. This can be reviewed in the body of the report in Part II.

Using auto mechanics only, as an example, the overall objective would be to develop an auto mechanic. An intermediate objective, or job level, would be "repair ignition system" (one of nine). The ignition system would then be reduced to performance objectives (such as trouble shoot and repair of distributor, coil, etc.). Each of these divided into skill training units could be an individual lesson plan.

e. Facilities and equipment for vocational education - Each of the "proposed educational institutions" were studied by a committee of the consulting team. The facility was measured and examined. A line drawing was developed for each institution and all vocational departments were placed in the institution with an equipment budget. (Complete report in Part II).

f. Costs - The following chart is a summary of the estimated costs of the programming in the two educational institutions.

	MARION	LEBANON
Estimated cost of equipment	700,000.00	677,000.00
Estimated cost of remodeling and new facilities	1,181,000.00	1,128,380.00
Estimated cost of operation per year of educational portion	684,800.00	1,104,800.00

5. CONTRIBUTION TO EDUCATION

a. The consulting team developed an educational program that would assist in the treatment of inmates. Since all inmates are adults, a program of vocational education was developed as the core curriculum.

The study develops vocational education into a treatment program that will assist in rehabilitating the inmate. Adequate facilities, competent staff, and necessary incentives were woven into the recommendations.

Two institutions were stipulated as temporary vocational education centers, eventually to be replaced by smaller area institutions. Smaller "release centers" were recommended for supervised work release and study release.

A comprehensive reception center was recommended that includes educators as a part of the professional staff. Their objectives would be to place inmates in the most desirable programs based on their needs. Educators and vocational guidance counselors would be given the responsibility of "following up" of the inmate.

The findings of this study can be applied to any State Division of Corrections. Segments of the recommendations could be used by any state without adopting the entire list.

b. Further studies are recommended in the following areas:
   1. Applications of "pre vocational" programs in penal institutions.
   2. Development of institution based work adjustment program for the handicapped or inmates with special needs.
   3. Curriculum development for penal institutions with individualized instruction, programmed learning, and identification of hard and soft ware to accompany it.
   4. The best methods in education for inmate treatment.
   5. Planning vocational education curriculum for adult correctional institutions. (This would include work evaluation and work adjustment.)
   6. Survey the projected needs of inmates and develop an educational program to satisfy this need.

c. The results of this study will be highlighted and presented to the staff of Corrections, Vocational Education, and others, at a meeting in June. Complete copies of the study will also be available for all states where information was gathered, and to all interested individuals.

HIGHLIGHTS OF RECOMMENDATIONS

The Division should:

1. Adopt a philosophy and commit itself to the concept of rehabilitation of inmates through education. All aspects of institutional life should be coordinated around an educational program, which uses Vocational Education as the core. The Division's educational efforts should be considered as one state-wide school system.

2. Determine the specific role of each correctional institution, concentrating all educational programs into specialized institutions and work experience in the others. All institutions must provide meaningful incentives that will motivate inmates and reflect the value of work. Vocational Education will become the major tool in treatment at the two specialized educational institutions.

3. Strive to have the State Legislature provide a direct "line item" appropriation for the education offered by the Division of Corrections school.

4. Construct small "Regional Correctional Institutions" housing approximately 300 individuals, near metro centers to assist inmates to adjust from the strict institution living to the freedoms of release; to enable inmates to compete with people on the outside and to profit from community facilities and programs.

5. Assign the responsibility and authority for the supervision of inmates on release programs, including parole, job placement and follow-up, to a team from the Regional Correction Institution.

6. Move swiftly in the creation of a "Reception Center" near Columbus, but not at Ohio Penitentiary, staffed with professionals (including educators) to receive, counsel, and classify for assignment, inmates to institutions and programs.

7. Recognize that educational programs can be no better than their staff. The total staff, including security, needs to be dedicated to the concept of rehabilitating inmates through educational processes. A need exists to recruit, supervise and provide in-service training for its personnel.

8. Initiate efforts to raze the buildings and facilities of the Ohio Reformatory in Mansfield and the Ohio Penitentiary in Columbus as soon as possible. In addition to the immediate need for the "Reception Center" and the six "Regional Correctional Institutions", the long-range plan should include the erection of several minimum security "Area Educational Institutions", each to accommodate 500 inmates.

HIGHLIGHTS OF RECOMMENDATIONS (continued)

9. Develop citizens advisory committees on a state-wide and local basis to assist in the continued development of vocational education programs tailored to meet the needs of inmates regardless of their capabilities or length of sentence.

10. Attempt to improve the image of correctional education by improving lines of communication not only within the Division between institutions but to all other agencies who may assist corrections in the development of its educational offerings.

11. Conduct additional studies to further develop many of the concepts contained in this report.

PERSONNEL

F. PATRICK CRONIN, PROJECT DIRECTOR

Mr. Cronin is now serving as Director of Educational Services for the Division of Correction. He formerly held the position of Director of Education at Marion Correctional Institution. Mr. Cronin earned his Master's Degree at Ball State University in Psychology and Guidance and Counseling. His post master's education includes: advanced psychology at the University of Dayton; guidance counseling and psychology under a federal scholarship at Ball State University; and guidance counseling, psychology, and vocational education under a federal scholarship at Ohio University.

DR. MAX J. LERNER, CONSULTANT CHAIRMAN

Dr. Lerner is Vice Chancellor for Two-Year Campuses for the Ohio Board of Regents. He served as President of Lorain County Community College from 1963 to 1971. He received his Ed. D. in School Administration at Western Reserve University. His past work experience also includes: teacher of industrial education, physics, and mathematics; supervisor of industrial and adult education; director of adult education. He has received many awards for educational leadership in Ohio.

D. R. PURKEY, CONSULTANT CO-CHAIRMAN

Mr. Purkey is presently serving in a consulting capacity on Program Planning and Facilities Development with several school districts. He recently retired as Assistant Director of Planning and Administration for the State Department of Vocational Education. He received his Master's Degree in Education at Ohio State University. His post master's work includes work at University of Minnesota, Miami University, and Ohio State University. He is presently serving on the State Advisory Council for Vocational-Technical Education.

JAMES H. BROADBENT, CONSULTANT

Mr. Broadbent is a Doctoral Candidate at Ohio State University Division of Vocational-Technical Education, under an Educational Professions Development Act grant for leadership development in vocational education. He received his Master's Degree from Western Michigan University. He has had ten years teaching experience in junior and senior high industrial arts and vocational education. He has recently been appointed as Director of Vocational and Continuing Education of the Elkhart Area Career Center, at Elkhart, Indiana.

DALLAS CORNETT, CONSULTANT

Mr. Cornett is the Director of the Four County Joint Vocational High School in Archbold, Ohio. He received his Master's Degree from Ohio State University. His previous work experiences are teacher, guidance counselor, and high school principal.

PERSONNEL (continued)

DR. KENNETH C. HOEDT, CONSULTANT

Dr. Hoedt is Coordinator of Reeearch and Services for the College of Education at University of Akron. He received his Ph. D. in Counseling and Guidance from the University of Wisconsin. His teaching experiences include career development, basic statistics, research seminar, counseling, test and measurement.

JOHN H. IRVINE, CONSULTANT

Mr. Irvine is Supervisor of Eastland Vocational Center in Groveport, Ohio. He received his Master's Degree in Vocational Education and Educational Administration from Ohio State University. He recently served eight years on the Reynoldsburg Board of Education; serving as president for three years.

DONALD R. NEFF, CONSULTANT

Mr. Neff is a Doctoral Candidate at Ohio State University Division of Vocational-Technical Education, under the Educational Professions Development Act award for leadership development in vocational education. He received his Master's Degree in Industrial Education from the University of Illinois. His thirteen years teaching experiences include: woodworking, metalworking, electricity, drafting, and auto mechanics. He served three years as a Diversified Cooperative Training Coordinator.

JOHN A. OGUICH, CONSULTANT

Mr. Oguich is Director of the Cuyahoga Valley Vocational Center. He received his Master's Degree from Ohio State University. His teaching experiences include mathematics, industrial arts, and vocational machine shop. His administrative duties have included posts at Eastland Vocational Center, Ohio Department of Education, and Hamilton County Joint Vocational School.

LINDSAY RATLIFF, CONSULTANT

Mr. Ratliff is Director-Supervisor of Pike County Joint Vocational School. He attended the University of Cincinnati and Turrill Technical School at Cincinnati. He served a four year apprenticeship program in tool and die making at Baldwin-Lima-Hamilton in Hamilton, Ohio. Before becoming Director-Supervisor at Pike County Vocational School he served as their machine trade instructor and assistant supervisor.

DELORES O'BRIEN, CONSULTING SECRETARY

Mrs. O'Brien has served the HEW Vocational Education Research Project as Consulting Secretary in a full-time capacity. She is an active church worker, currently serving as the church treasurer and as a volunteer secretary to the pastor. Her previous work experiences include: executive secretary and assistant to a high school principal, secretary to a city safety-service director, and cashier of a major life insurance company.

Project Expenditures

Title of Project: Evaluative Planning Research Project in Vocational Education for Ohio Division of Correction Institutions

Project Organization: Division of Correction - State of Ohio

Project Beginning and Ending Dates: November 1, 1971 through June 30, 1972

Category of Expenditures	Nov. 1, 1971-June 30, 1972 STATE FUNDS	LOCAL FUNDS
1. Personnel (position titles; percent of time on project and yearly salary; for consultants, number of days and rate)	$47,638.27	$17,421.20
2. Employee Benefits (itemize benefits such as social security, retirement group insurance, etc.)		$ 1,742.12
3. Travel (in and out-of-state for regular and consultant personnel; fares and/or mileage at allowable rate; number of days per diem and rate)	$12,646.97	
4. Supplies and Materials (describe)	$ 564.40	
5. Communications (itemize postage, telephone, etc.)		
6. Services: a. Duplication and Reproduction b. Statistical c. Testing d. Other		
7. Final Report (twenty five copies)	$ 2,250.00	
8. Equipment (rental; small, essential items may be purchased if less expensive)		
9. Other		
10. Total	$63,099.64	$19,163.32

Project Expenditures

1. **Personnel**

State

$37,750.00	Nine consultants - Total of 755 days at $50.00 per day
6,012.72	One consulting secretary
3,875.55	For eleven (2 and 3 days) meetings for all personnel; three (1 day) planning meetings of project director, secretary, and consultant committee chairman; two (1 day) meetings for selected correctional management personnel.

Local

13,000.00	Project Director's salary
1,621.20	Total of 35 days, ranging from $35.44 to $62.80 per day, for for institution personnel accompanying consulting team on out-of-state trips
2,800.00	Estimate - Minimum of 80 days of correctional personnel involvement in project, at minimum of $35.00 per day

2. **Employee Benefits**

$ 1,742.12	Estimate - 10% of Project Director and all correctional personnel salaries as listed above.

3. **Travel**

$ 5,967.25	In-State travel for Project Director, Consultants and Secretary
5,458.24	Out-of-state travel for Project Director and Consultants
1,221.48	Out-of-state travel for selected correctional personnel

4. **Supplies and materials**

$ 564.40	Cassette tapes for consultant meetings; printed forms as required by State of Ohio for vouchering, etc.; film for out-of-state trips; secretarial supplies (paper, paper clips, rubber bands, staples, stenographer books, mailing, envelopes, etc.); photo copy machine supplies.

7. Final Report

$ 2,250.00

This actually is a maximum estimated figure. Since this report is due to the Division of Vocational Education of the State Department of Ohio by June 30, 1972, and the complete report has not yet been processed by the State of Ohio Division of Printing, no official amount could be given.

This includes the following items:

175 programs for oral presentation meeting
1460 pamphlets of highlight recommendations
225 copies of complete report, including
- Part I - Findings
- Part II - Recommendations
- Part III - This official report
- Part IV - Appendix

VT 016 527
BAILEY, LARRY J.
FACILITATING CAREER DEVELOPMENT AT THE ELEMENTARY SCHOOL LEVEL (CAREER DEVELOPMENT FOR CHILDREN PROJECT).

SOUTHERN ILLINOIS UNIV., CARBONDALE. DEPT. OF OCCUPATIONAL EDUCATION.
ILLINOIS STATE BOARD OF VOCATIONAL EDUCATION AND REHABILITATION, SPRINGFIELD
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - MAY71 66P.

DESCRIPTORS - *VOCATIONAL DEVELOPMENT; *CAREER EDUCATION; *DEVELOPMENTAL PROGRAMS; ELEMENTARY GRADES; SECONDARY GRADES; *OCCUPATIONAL GUIDANCE; PROGRAM BUDGETING; TEACHING TECHNIQUES; RESOURCE MATERIALS; DECISION MAKING; *PROGRAM DESCRIPTIONS
IDENTIFIERS - *ILLINOIS

ABSTRACT - IN RESPONSE TO THE NEED TO ASSIST YOUTH IN CAREER PLANNING AND DECISION-MAKING, A RESEARCH PROJECT WAS BEGUN IN MARCH 1970 AT SOUTHERN ILLINOIS UNIVERSITY IN COOPERATION WITH THE ILLINOIS STATE BOARD OF VOCATIONAL EDUCATION AND REHABILITATION. THE GOAL OF THE PROJECT, ENTITLED THE CAREER DEVELOPMENT FOR CHILDREN PROJECT, IS TO DEVELOP AN EXEMPLARY CAREER GUIDANCE PROGRAM FOR ELEMENTARY AND JUNIOR HIGH STUDENTS BY MEANS OF DEVELOPMENTAL EXPERIENCES WHICH FACILITATE VOCATIONAL MATURITY, ENHANCE SELF-AWARENESS, AND HELP FORMULATE OCCUPATIONAL PREFERENCES. ACTIVITIES RELATED TO INSTRUCTIONAL MATERIALS, FIELD-TESTING, AND INSERVICE TEACHER EDUCATION ARE DESCRIBED. RESULTING FROM A SYNTHESIS AND APPLICATION OF CAREER DEVELOPMENT THEORY AND RESEARCH, THE PROJECT USES TEACHING TECHNIQUES SUCH AS ROLE PLAYING, SIMULATION, AND PROBLEM SOLVING. A SUMMARY OF PROFESSIONAL ACTIVITIES, A PRELIMINARY BUDGET, AND RESOURCE MATERIALS ARE INCLUDED. THIS DOCUMENT CONSTITUTES A REQUEST FOR EXTENSION OF THE ILLINOIS BOARD FOR VOCATIONAL EDUCATION AND REHABILITATION GRANT FOR THIS PROJECT BY ITS PRINCIPAL INVESTIGATOR. (AG)

ERIC

Career Development for Children Project
Technical and Industrial Education
Southern Illinois University at Carbondale

VT016527

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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Request for Extension of Illinois Board for Vocational Education and Rehabilitation Grant (IBVER-RDB-A0-003)

Facilitating Career Development at the Elementary School Level (Career Development for Children Project)

by

Larry J. Bailey
Principal Investigator

Department of Occupational Education
Southern Illinois University at Carbondale

May 1971

Request for Extension of Illinois Board for
Vocational Education and Rehabilitation Grant
(IBVER-RDB-AO-003)

Title: Facilitating Career Development at the Elementary School Level (Career Development for Children Project).

Principal Investigator: Dr. Larry J. Bailey, Department of Occupational Education, Southern Illinois University.

Contracting Agency: Board of Trustees, Southern Illinois University Carbondale, Illinois.

Duration of Activities: July 1, 1971 to June 30, 1972.

INTRODUCTION

> "It seems to me emphasis should be placed in the lower grades of our elementary schools on improving counseling and guidance (both of parents and youngsters), on new and better courses on the world of work and the value of a marketable skill."
>
> James W. Cook[1]

The above comments by the Chairman of the Illinois Board of Vocational Education and Rehabilitation is a manifestation of the widespread concern for traditional approaches to public school education. Growing unemployment among better educated segments of American society and the growing cry of young people for education that has personal relevance has

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[1] Cook, J.W. Manpower coordinator on problems, policies. Illinois Labor Bulletin. 1970, 31(4), 5.

caused many people to re-examine the role of education and the universal worth of a college degree. Charles Silberman, in his best selling book Crisis in the Classroom[2], seems to sum up the feelings of many young people: "What these students understand, far better than their parents, is that the choice of a career involves far more than a choice of how to earn a livelihood, they understand...that the question "What shall I do?" really means "What shall I do with myself?"

In response to the need to assist youth in career planning and decision-making, a research project was begun in March 1970 at Southern Illinois University in cooperation with the Illinois State Board of Vocational Education and Rehabilitation. Entitled the Career Development for Children Project the goal of the project is to develop an examplary career guidance program for elementary and junior high school students. This will be accomplished through a series of carefully articulated developmental experiences beginning in grade one.

PURPOSE OF THE STUDY

Career Development for Children Project is designed to involve children, beginning in elementary school, in experiences which will facilitate the broad goal of "vocational maturity." Vocational maturity is used to denote something different than traditional vocational education which

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[2] Silberman, C. Crisis in the Classroom. New York: Random House, 1970.

is usually geared to specific skill training or in the elementary grades, to a study of specific occupations. This curriculum is not aimed at teaching manipulative skills or presenting sterotyped pictures of the work community. Under the basic hypothesis that a realistic career choice is the result of a developmental process beginning in early childhood, CDCP aims at providing direct decision-making experiences. Attention is focused on the child in relation to broad interest areas and worker roles. The overall goal of the project is to allow the student to gain adequate knowledge about himself and the world of work, and adequate experience in relating the two, to make more intelligent career related decisions.

Since it is not desirable to have children make specific occupational choices, the intermediate goal for the project, at approximately the grade eight level, is to have students formulate a tentative occupational preference which will aid them in making decisions about their choice of high school curriculum. The term "occupational preference" is used here rather than "occupational choice" to symbolize a number of occupationally-related activities for which liking is indicated. The tentativeness of the preference is the indication that it is not a specific preference of the type which may prevail at a later stage. Occupational choice is used to indicate an individual's positive intent to enter a specific occupation.

CURRICULUM FRAMEWORK

The purpose, assumption, and project goals for the Career Develop-

ment for Children Project resulted from a synthesis and application of career development theory and research[3]. A curriculum framework was then developed which outlines three developmental stages: the Awareness Stage (Grades 1-3), Accomodation Stage (Grades 4-6), and the Exploration Stage (Grades 7-8). Within each stage there are several levels, each with a specific emphasis and theme. Following are the levels within the three stages, which correspond approximately to grade levels.

Awareness Stage

I. Activity. As a starting point for learning about self and the broad world of work, the child needs to be aware that day to day activities are purposeful and should be able to identify some of the reasons for human activity. Specific objectives will be concerned with having students identify and compare their activities throughout the day; develop broad definitions of work and play; and discuss activities of self and others in terms of broad work-play classifications.

II. Interests and "Fantasy" Preferences. Unit II builds on Unit I by moving from awareness of human activity, from broadening understanding of work and play, from classification of activities to identifying relationships between what a person likes to do and possible future occupational roles. Here we are attempting to use the natural tendencies of children to fantasize about oc-

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[3]A comprehensive description of the curriculum outline may be found in Bailey, L.J. A curriculum model for facilitating career development. Career Development for Children Project, March 1971, 25pp.

cupations, as a base of knowledge to develop more realistic attitudes and understandings.

III. Occupational Roles. In Unit III the child will be introduced to the classification of work activity in terms of goods and services production. An examination of the necessity for both goods and services will lead to an understanding of the interdependence of occupational roles. A consideration of various worker roles involved in the production of a service or good is designed to show the range of possible occupations within student's areas of interest.

Accomodation Stage

IV. Self Appraisal. At this level, self appraisal becomes more meaningful as students examine their interests and abilities for changes as a result of maturity and education. Opportunities are provided for individuals to express interests, exercise talents, and explore areas in which to develop new interests and abilities. The focus on self understanding is intended to be a further step in assisting the process of self-concept formation.

V. Occupational Families. In Unit V students become more familiar with occupational classifications and a wide range of possible occupational roles. An understanding of goods and services classification are extended to include a familiarity with

"occupational families" which are contained within the goods and service classifications. An important aspect of this level is that students will, in a laboratory situation, "try on" occupational roles representing each of several specific job families.

VI. Understanding Career Development. The purpose of this level is to make students aware of the need to formulate preferences and make decisions, and to introduce the fact that individuals do have some control over their future career by careful planning and decision-making. Students will also become acquainted with the multiplicity of factors that influence vocational behavior and development. Experiences will be structured which relate the importance of attitudes toward education and planning one's own future to orderly and successful career development.

Exploration Stage

VII. Economics and Career Planning. At this level concepts and principles related to economics and manpower will be introduced. An understanding of the changing nature of manpower supply and demand will provide students with an overall view of employment trends in the 1970's and 1980's. The importance of education and training for effective participation in economic life will be emphasized. Finally, the study of relationships among the economic, social, and psychological aspects of work is designed

to help students better understand the reasons why people work, and help them to identify those factors of work which are of primary importance to them.

VIII. Exploration and Decision-Making. The formulation of a generalized occupational preference and the preparation of an educational plan begins by helping students to become aware of the need to decide on a future occupational goal. This awareness will hopefully increase the motivation for students to study and accumulate information about the many occupations that will be available to them. A unit on self-understanding will be introduced in which the students relate knowledge discovered about themselves to the occupational roles they have studied. The culmination of this unit will be the planning of a projected high school program that is compatable with self characteristics and occupational goals.

APPROACH FOR IMPLEMENTATION

As has been mentioned earlier the Career Development for Children Project is not limited to the traditional study of "community helpers" that characterize many occupational information programs. In terms of a developmental model aimed at broadening a child's view of work, it simply does not seem legitimate to take such an approach. As Charles Silberman says in Crisis in the Classroom, "For children who may still be in the labor force in 2030, nothing could be more wildly impractical

than an education designed to prepare them for specific vocations or professions..." Consistent with career development theory which specifies development from general to specific, the CDCP curriculum focuses on job families and broad interest areas instead of specific job titles. For example, rather than acquaint elementary age students with the occupation of licensed practical nurse, children are shown how the physican, nurse, inhalation therapist, x-ray technician, nurse aide, and dietician interact as part of the health care team.

From a teaching standpoint, CDCP has tried to build into the curriculum experiences that will require concrete activities in addition to vicarious ones. Techniques such as role playing, gaming and simulation, and problem solving will receive high priority in conjunction with personal guidance experiences. Rather than have children only study about production lines, for example, they will have an opportunity to engage in manufacturing activities in the classroom; to see first-hand the inter-relatedness of workers; to simulate the role of different workers. In addition to goods producing occupations, students will participate in group activities representing personal and public service occupations.

Teacher led discussion sessions, will of course, continue to be of great importance in allowing children to express the meaning that these different kinds of experiences have. The sophisication and comprehensiveness of these kinds of direct experiences will vary greatly between the first and sixth grades. The important thing for the teacher to keep in mind is that the curriculum is designed to allow the children to par-

ticipate in various experiences so they will have, on a personal level, an idea of what certain kinds of work are like and will be able to see how these kinds of work "fit" with their emerging concepts of themselves.

SUMMARY OF PROFESSIONAL ACTIVITIES

The primary activities of the Career Development for Children Project during the period from July 1, 1970 to June 30, 1971 were:

- -completion and documentation of a curriculum model for Grades 1-8
- -continuing implementation of a career-oriented curriculum through development and testing of curriculum materials
- -dissemination of descriptive materials to parents, local school personnel, teacher and counselor educators, professional organizations, and officials in state and federal governmental agencies
- -cementing cooperative relationships with potential field test centers
- -improving the Project's career development library through up-dating and acquisitions
- -providing reference materials to teachers and teacher trainees throughout the state
- -providing guest lectures for various classes in occupational education and guidance at Southern Illinois University
- -providing consultant services and conducting in-service training programs for local school districts
- -presenting programs at state and national conventions
- -exploring potential relationships with commercial publishing companies for production of curriculum materials
- -planning for nationwide implementation of career development programs at the elementary and junior-high school levels

Publications:

1. Bailey, L. J. Career development for children project. Occupational Education Quarterly, 1970, 2(2), 4-5.

2. _____ & Turner, K. G. Computerized career information and exploration. Occupational Education Quarterly, 1970, 2(4), 1-3.

3. _____, Nystrom, D. C. & Zimmermann, B. Elementary school career development. Manuscript accepted for publication in the Illinois Vocational Progress, (in press).

4. _____ & Nystrom, D. C. Career development at the elementary school level. Manuscript submitted for publication, 1970.

5. _____ & Zimmermann, B. Children's conceptions of "work" and "play". Career Development for Children Project, February 1971, 8 pp.

6. _____ A curriculum model for facilitating career development. Career Development for Children Project, March 1971, 25pp.

7. Turner, K. Self-actualization in career development. Career Development for Children Project, April 1971, 35 pp.

Presentations:

8. Bailey, L. J. & Nystrom, D. C. "Career development for children and youth." Chicago: Illinois Vocational Association Convention, March 13, 1970.

9. _____ & _____. "Career development for children." Alton, Illinois: In-service Teacher Workshop, May 4, 1970.

10. _____. "Career development for children project: An introduction." Chicago: State of Illinois Advisory Council on Vocational Education, November 13, 1970.

11. _____. "Career development for children." Southern Illinois University: Phi Delta Kappa Meeting, January 6, 1971.

12. _____. "Career development for children." Chicago: Illinois Vocational Association Convention, March 5, 1971.

13. _____. "Facilitating career development." Orion, Illinois: In-service Teacher Workshop, March 15, 1971.

14. _____. "Career development for children." Hardin County Teacher's Association Annual Meeting, April 6, 1971.

15. _____. "Career development at the elementary school level." Maimi Beach: American Industrial Arts Association Convention, April 23, 1971.

16. _____. "Development of a model for facilitating career development." Bowling Green, Ohio: Bowling Green State University Faculty Seminar, May 3, 1971.

PROCEDURE

Following is a description of procedures and activities for Fiscal 1972. Activities will be related to three primary areas: instructional materials, field-testing, and in-service teacher education.

Instructional Materials:

At the conclusion of Fiscal 1971 preliminary forms of teacher's guides and supporting instructional materials will have been completed for levels I, II, III, VII, and major units within level VIII. During the summer 1971 the remaining units for these levels and materials sufficient for field testing will be completed.

Primary activities for levels IV, V, VI are in process and are scheduled for completion in Fall of 1971. Preliminary forms of teacher's manuals and student instructional materials will be available for these levels at the beginning of the second semester 1972.

Once the instructional materials are finished and evaluations have

been completed, a decision will be made in cooperation with appropriate DVTE personnel and potential publishers regarding production for state and nationwide implementation. The experiences of several national curriculum projects in recent years has clearly demonstrated the desirability of involving commercial publishers in the dissemination phases of curriculum development.

Field-Testing:

The primary focus of evaluation to date has been the continuous and systematic assessment of objectives, materials, and instructional strategies. The project has utilized all manner of expertise including students, classroom teachers and counselors, curriculum specialists, commercial publishers, and professional illustrators to provide feedback data. The emphasis has been on individual and small group evaluations, with replications, rather than large scale testing. This is the method employed by publishers in developing and evaluating instructional materials preparatory to more extended field-testing.

The project has also worked in close cooperation with Alton and Mascoutah school districts in preparing the curriculum materials. Try-out of materials will take place in these school districts during FY 1972. In the summer of 1971 the project will work closely with the Research Development Unit and other units in DVTE in planning for field-testing in other locations throughout the state.

In-Service Teacher Education:

In-service and preservice education will continue in FY 1972 after the fashion in which it was done during the previous year. Conducting in-service workshops for teachers, counselors, and administrators has been found to be a very successful way of introducing the career development approach. Materials designed to educate teachers to their role in the career development process will continue to be disseminated. It is expected that the project's role in pre-service education will increase through seminars and special classes conducted for undergraduate and graduate students at Southern Illinois University.

During the summer of 1972 a series of short-term teacher education workshops will be offerred on the SIU campus. The workshops, conducted for both credit and non-credit will be designed to assist practitioners in developing schema for implementing career development programs at several levels of the elementary school.

PERSONNEL AND STAFFING PATTERN

Project Director:

Dr. Ronald W. Stadt, 10% time for twelve months (Total, 1.2 man-months)

Principal Investigator:

Dr. Larry J. Bailey, 100% time for three months and 75% time for nine months (Total, 9.75 man-months)

Associate Investigator:

Dr. Dennis C. Nystrom, 25% time for twelve months (Total, 3.0 man-months)

Researchers:

Mrs. Barbara Zimmermann, 100% time for twelve months (Total, 12.0 man-months)

Mr. Kenne G. Turner, 100% time for twelve months (Total, 12.0 man-months)

Research Assistants:

Two individuals unnamed, 50% time each for twelve months (Total, 12.0 man-months)

Consultants:

Dr. Norman C. Gysbers, Associate Professor of Education and Director of Guidance Services, University Laboratory School, University of Missouri.

Dr. Edwin L. Herr, Professor of Education and Chairman of Graduate Programs in Counselor Education, Pennsylvania State University.

Dr. Earl J. Moore, Associate Professor of Education, University of Missouri.

Dr. Richard A. Swanson, Associate Professor, Department of Industrial Education, Bowling Green State University.

May 7, 1971

PRELIMINARY BUDGET

Fiscal Year 1972 (July 1, 1971 - June 30, 1972)

	BVER	SIU	TOTAL
A. Personnel (Salary and fringe benefits)			
1. Project Director Stadt, Ronald 10% for 12 mos. @ $2266		$ 2,719	$ 2,719
2. Principal Investigator Bailey, Larry 100% for 3 months @1755 75% for 9 months @$1755		5,265 11,846	5,265 11,846
3. Associate Investigator Nystrom, Dennis 25% for 12 months @1579		4,737	4,737
4. Researchers Zimmermann, Barbara 100% for 12 months @997	$11,964		11,964
Turner, Kenne G. 100% for 12 months @975	$11,700		11,700
5. Graduate Assistants 2 unnamed 50% for 12 months @620	3,720	3,720	7,440
6. Secretary 100% for 12 months @419	5,028		5,028
Subtotal Personnel	$32,412	$28,287	$60,699
B. Consultants 14 days @$75 per day	1,050		1,050
C. Travel			
1. Project Staff 45 days @ $22 per diem plus mileage @ 10¢ per mile	2,000		2,000
convention travel		900	900

2. Consultants 14 days @ $22 per diem plus mileage @ 10¢ per mile or equivalent air-coach fare	1,500	1,500
D. Supplies and Services		
1. Office Supplies	500	500
2. Postage	500	500
3. Telephone	350	350
4. Reference materials	400	400
5. Xerox service & misc. duplication	500	500
E. Instructional Materials		
1. Level I: Print teacher's manual and consumable student materials. Duplicate 15 sets of visual materials	1,000	1,000
2. Level II: Complete and print teacher's manual and student materials. Duplicate 15 sets of visual materials	2,000	2,000
3. Level III: Complete prototype goods-service game and duplicate 15 copies. Complete and produce teacher's manual and remaining student materials	2,000	2,000
4. Level IV. Prepare preliminary student activities and materials, tryout, and revise. Complete and produce instructional materials and teacher's manual. Duplicate 15 copies of supporting visual materials.	4,000	4,000
5. Level V: Develop text and exploratory activities for the five occupational families. Tryout and revise. Complete and produce revised instructional materials and teacher's manual. Produce 15 sets of vocational exploratory kits.	5,000	5,000

6. Level VI: Develop self-study and group guidance units for introducing career planning. Tryout and revise. Complete and produce revised instructional materials and teacher's manual. Produce 15 sets of visual materials.	4,000		4,000
7. Level VII: Revise and illustrate finished text on Relating Economics to Career Planning. Revise teacher's manual and prepare transparency package. Produce 1000 copies of student text and 200 teachers manuals and transparency originals.	8,000		8,000
8. Level VIII: Complete remaining units for this level. Print teacher's manuals and student learning packages. Duplicate 15 sets of visual materials.	6,000		6,000
TOTAL Direct Costs	$71,212	$29,187	$100,399
Indirect Costs 10%	$ 7,121	$ 2,919	$ 10,040
TOTAL Project Costs	$78,333	$32,106	$110,439

APPENDIX A

REPRESENTATIVE ENDORSEMENTS

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

MAY 17 1971

May 12, 1971

Dr. Larry J. Bailey
School of Technology
Southern Illinois University
Carbondale, Illinois 62901

Dear Dr. Bailey:

Commissioner Sidney Marland, has asked me to reply to your letter of April 26, 1971, regarding your project on Career Development for Children.

We are most interested in learning more about your project with respect to the instructional objectives which you established, the present state of development of your curriculum materials, the criteria used in selecting the cities or communities in which to pilot test the program and related information.

I would very much appreciate receiving four copies of your annotated bibliography and Curriculum Model for Facilitating Career Development as well as other materials which you feel would be useful to our understanding of your program effort.

On behalf of Dr. Marland, let me thank you for bringing your project to our attention and for sharing with us some of your materials.

Sincerely yours,

Paul R. Messier

Paul R. Messier
Director
Division of Development

FILMED FROM BEST AVAILABLE COPY

MRS. PAULINE JOSLYN, PRESIDENT
WILLIAM HUCKLE, VICE-PRESIDENT
MRS. SARAH WELLER, CLERK
MRS. LOIS HAMILTON, TREASURER

BOARD OF COOPERATIVE EDUCATIONAL SERVICES
WASHINGTON, WARREN AND HAMILTON COUNTIES
WASHINGTON COUNTY BUILDING ANNEX
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JAMES H. FOGARTY, DIRECTOR OF OCCUPATIONAL EDUCATION
FREDERICK L. CHAMPAGNE, ASSISTANT DIRECTOR OF OCCUPATIONAL EDUCATION
KENNETH L. MEASECK, GUIDANCE COORDINATOR OCCUPATIONAL EDUCATION
COLIN H. GRAY, JR., COORDINATOR OF SPECIAL EDUCATION
ERIK M. JAGER, DIRECTOR OF INSTRUCTIONAL COMMUNICATIONS

December 23, 1970

Dr. Larry Bailey
South Illinois University
Corbondale, Illinois

Dear Dr. Bailey:

David Pritchard, Senior Programs Officer with the Division of Adult, Library and Vocational Education, Health Education and Welfare Office has advised me that you have collected information on career development as it related to guidance and the curriculum.

I am in the process of preparing a five year vocational guidance plan for region 7 in New York State and plan to include a proposed guidance program K-14 with emphasis on the career development theory.

I would be grateful to receive curriculum guides, rationale and other information relevant to the topic.

Please accept my appreciation in advance for whatever you can do to assist me in my efforts.

Respectfully yours

Fred Champagne

Fred L. Champagne
Assistant Director of
Occupational Education

FLC:jh

62

PURDUE UNIVERSITY
SCHOOL OF TECHNOLOGY
LAFAYETTE, INDIANA 47907

DEPARTMENT OF
INDUSTRIAL EDUCATION
138 Michael Golden Labs

July 17, 1970

Dr. Larry J. Bailey
Department of Technical and
Industrial Education
Southern Illinois University
Carbondale, Illinois 62901

Dear Larry:

I was most interested to notice the information about your project on "Career Development for Children" described in the summer of Occupational Education Quarterly.

It sounds as if you have undertaken a significant task which should make an important contribution to our understanding of the way children become interested in careers and move toward them.

Please add my name to your mailing list. I will be most interested in following you progress and reading working papers which result from the projects activities.

Best wishes.

Sincerely,

Dan

Daniel L. Householder
Professor & Chairman
Industrial Arts Section

DLH/re

JUL 20 1970

MAR 1 19..

State of Wisconsin \ DEPARTMENT OF PUBLIC INSTRUCTION

William C. Kahl
State Superintendent

Archie A. Buchmiller
Deputy State Superintendent

DIVISION OF INSTRUCTIONAL SERVICES
ROBERT C. VAN RAALTE, ASSISTANT SUPERINTENDENT
WISCONSIN HALL, 126 LANGDON STREET
MADISON, WISCONSIN 53702

February 25, 1971

Larry J. Bailey, Ph.D.
Assistant Professor
Technical and Industrial Education
Southern Illinois University
Carbondale, Illinois

Dear Dr. Bailey:

I have just read through a small booklet entitled, "Career Development for Children Project," given to me by Mr. Thomas Lonergan, Illinois Department of Educational Staff, and found it most interesting. With the able aid of Norman Gysbers, we in Wisconsin, have attempted a similar project on a grade K-12 level. We are at the very formal stages of our project and would appreciate any descriptive information you may have on your literature review, grade structure of vocational development, vocational development tasks, behavior tasks, etc.

I will be happy to share with you our materials after they go through the present editing.

Sincerely,

Harry N. Drier, Supervisor
Guidance and Counseling Services

HND/jmw

McKNIGHT PUBLISHING COMPANY

ZIP CODE 61701 AREA CODE 309
BLOOMINGTON, ILLINOIS • TELEPHONE 967-9041

McKNIGHT

June 19, 1970

Dr. Larry J. Bailey
Dept. of Tech. & Ind. Ed.
Southern Illinois University
Carbondale, Illinois 62901

Dear Dr. Bailey:

Please add my name to the mailing list for the Career Development Project. I'd like to keep posted on the work that is in progress.

If you have materials now that would be more descriptive than the recent outline in the Industrial Education Newsletter, I'd appreciate having them.

Sincerely,

W. D. Stephens
President

WS/nb

JUL 22 1970

APR 15 1971

State of Illinois
Office of the Superintendent of Public Instruction
Springfield, Illinois 62706

Michael J. Bakalis
Superintendent

April 13, 1971

Dr. Larry J. Bailey
Career Development for Children Project
School of Technology
Southern Illinois University
Carbondale, Illinois 62901

Dear Dr. Bailey:

Thank you for the project materials you recently sent to me. I will distribute them to our guidance staff who I know are interested in the project and will make good use of the materials. Thank you also, for the article for our Newsletter. It should appear in an issue before school is out.

I believe I mentioned a seminar being planned in the Rockford area this spring on Career Awareness and I hoped you would be able to make a presentation. I regret to inform you that because of too many conflicts of dates we are having to postpone the seminar - probably until early fall. I will let you know when this program is on again.

Hopefully, yet this spring, I plan to visit your project and spend some time learning more about the program and materials. Thank you again for your cooperation and I trust I will see you in the near future.

Sincerely,

Thomas J. Lonergan

Thomas J. Lonergan
Guidance Supervisor
Program Innovations and
Pupil Personnel Services

TJL:ld

OCT 23 1970

UNIVERSITY OF ARKANSAS
FAYETTEVILLE

DEPARTMENT
VOCATIONAL TEACHER EDUCATION

October 20, 1970

Dr. Larry J. Bailey, Assistant Professor
Technical & Industrial Education
Southern Illinois University
Carbondale, Illinois 62901

Dear Sir:

Dr. Norman C. Gysbers of University of Missouri has called to my attention that you are presently engaged in developing curriculum guides on career development K-12. We are attempting to develop a program to obtain curriculum materials to be used in an exemplary program (grades 5-12), combining career development and general cooperative education. We are very interested in obtaining any material that you may have available or any sources of these materials that you can share with us.

If you could send us any material that you have available and place us on your mailing list for any future material, we would be most appreciative.

Should you like we would be glad to place you on our mailing list should we develop or obtain any material that may be useful to you.

Sincerely,

Frank W. Adelman

Frank W. Adelman
Graduate Assistant
Vocational Education

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A Non-Profit Educational Organization to Coordinate, Service, Encourage and Improve Economic Education

Ohio Council on Economic Education

COLLEGE OF BUSINESS ADMINISTRATION BENTLEY HALL
OHIO UNIVERSITY ATHENS, OHIO 45701 TELEPHONE (614) 594-5547

December 30, 1970

Dr. Larry J. Bailey
Principal Investigator
Career Development for Children Project
School of Technology
Southern Illinois University
Carbondale, Illinois 62901

Dear Dr. Bailey

From Phill Powell in Arkansas, I learned of your work in world of work and career development orientation for elementary school children. May I please be sent a copy or draft of your progress in this material and study. Please bill me if there is a charge for copies you send.

I am especially interested in material and research in career orientation, economic education, and consumer education combinations in the elementary grades.

Thank you.

Sincerely

Byron Hollinger
Director of School Relations

BH/gl

5864

NOV 9 1970

COMMONWEALTH OF KENTUCKY

Department of Education

DIVISION OF VOCATIONAL EDUCATION

FRANKFORT 40601

November 5, 1970

Mr. Larry Bailey
Southern Illinois University
Carbondale, Illinois

Dear Sir:

At a recent Kentucky Personnel Guidance Association meeting, Dr. Norman Gysbers, who was our guest speaker, called my attention to the work that you are doing on the career development for children project.

If you have material that can be sent out, I would appreciate receiving it. We in Kentucky are struggling with this concept and dire need of any help we can get in this area.

Thank you for your time.

Sincerely,

Doug McKinley

Doug McKinley, Coordinator
Division of Vocational Education

DM/jb

FEB 25 1971

IACP industrial arts curriculum project
THE OHIO STATE UNIVERSITY • 1712 NEIL AVENUE • COLUMBUS, OHIO 43210 • TELEPHONE: 614, 422-7471

CO-DIRECTORS
DONALD G. LUX
WILLIS E. RAY

ASSOCIATE DIRECTORS
James J. Buffer
Evaluation
A. Dean Hauenstein
Curriculum Development
Henry J. Sredl
Dissemination
University of Illinois
Division

February 22, 1971

Dr. Larry Bailey
Technology Building
Room D 43-45
Southern Illinois University
Carbondale, Illinois 62901

Dear Dr. Bailey:

I have recently heard of your efforts in developing curriculum for elementary school children in relation to Career Development. It is my understanding that you have developed a conceptual model for this developmental work. As one interested in curriculum development, I would appreciate your sending me any information, brochure, or material which describes your project and its objectives.

Enclosed is a brochure of the project I have been associated with for the past six years. Looking forward to hearing from you.

Sincerely,

Dean Hauenstein

A. Dean Hauenstein
Assistant Director
Curriculum Development

ADH/js

An innovative curriculum development project headquartered at THE OHIO STATE UNIVERSITY, in cooperation with the UNIVERSITY OF ILLINOIS, and supported by a grant from the UNITED STATES OFFICE OF EDUCATION.

STATE OF CONNECTICUT

MATTATUCK COMMUNITY COLLEGE
411 HIGHLAND AVENUE - WATERBURY, CONNECTICUT 06708

TEL. 757-9661

June 29, 1970

Dr. Larry J. Bailey
Dept. of Technical and Industrial Education
Southern Illinois University
Carbondale, Illinois 62901

Dear Dr. Bailey:

I would appreciate being placed on the mailing list to receive the periodic progress reports and papers to be distributed relating to your Career Development Project. It sounds like an interesting and much-needed area of research.

JUL 7 1970

Thank you for your assistance.

Sincerely yours,

MATTATUCK COMMUNITY COLLEGE

Robert F. Litro

Dr. Robert F. Litro, Director
Business Division

RFL/rd

Iowa State University of Science and Technology Ames, Iowa 50010

APR 2 1971
APR 5 1971

Department of Agricultural Education
220 Curtiss Hall
Telephone: 515-294-5872

April 1, 1971

Dr. Larry J. Bailey, Assistant Professor
School of Technology, Southern Illinois University
Carbondale, Illinois 62901

Dear Dr. Bailey:

We are embarking on a study in the area of precareer education, Kindergarten through 8th grade. We would appreaciate very much receiving any information you have in this area and also to be placed on your mailing list for more current information.

Our project is funded from the state of Iowa and at this time we are in the process of obtaining and reviewing the materials that are being used in public education.

Thank you for your time and interest.

Sincerely,

Sally A. Sundberg

Sally A. Sundberg
Research Associate

SS:bs

APPENDIX B

DISSEMINATION BROCHURE

FOR PARENTS

ERIC

Career Development for Children Project *

21,741 choices for a career

By MYRON BRENTON

To the Parent:

Growing unemployment among better educated segments of American society and the cry of many young people for education that has personal relevance, are causing many people to re-examine the role of education and the universal worth of a college degree. Youth, now, more than any other time in recent history are asking themselves, "What shall I do with myself?" The indications are clear; education has failed to adequately assist young people with their career planning and decision-making. In response to this need, a research project is being conducted at Southern Illinois University entitled the *Career Development for Children Project.* The purpose of the program is to develop a career-oriented curriculum for Illinois students in grades one through eight. The emphasis will be on developing an awareness and understanding of "self" and the "world of work" which students can utilize in making more intelligent and realistic career decisions. Education for career development, however, is not the exclusive responsibility of the schools. Parents inevitably influence the developing attitudes and resultant choices of their children. The article which follows recently appeared in *The New York Times Magazine.* It has been reprinted for distribution to parents with the hope that it will contribute to their understanding of how they may assist the career development of their children.

Larry J. Bailey
Principal Investigator
Career Development for Children Project

THE surp ising results of a new study on career choice should change the prevalent view that parents have little or no influence on their children.

Dr. Raymond C. Doane of the University of Connecticut asked 2,000 high school students who had been most influential in helping them reach whatever career decisions they had made. About half of the youngsters reported that their parents had carried the most weight.

In more authoritarian and less complicated times, a parent's task in preparing his child for the future was relatively easy. There were fewer kinds of jobs and they were more visible: it was fairly evident what most people did for a living. Children more or less obediently followed their parents' wishes; they became apprentices, worked alongside their fathers or followed the upward mobility my-son-the-doctor syndrome.

Today, the U.S. Government's "Dictionary of Occupational Titles" has 21,741 entries, an increase of more than 6,000 over the previous edition published five years earlier. And most people spend their working hours hidden behind the walls of offices, factories and laboratories so that children have no idea of what daddy does between 9 and 5.

Another difference between today and yesterday is that many young people question the very concept of work. They view business as a conglomerate of cut-throat enterprises that impose a crushing conformity upon their employes. They insist that nothing on God's earth inspires them to even consider a career, or they point to the draft and claim it is useless to plan ahead. Their attitude seems to be based on the assumption that mothers and fathers can and will support children indefinitely. It seldom occurs to them that retirement forces drastic financial adjustments on most parents, that the time will eventually come when they must leave the nest and that it is better if they have learned how to fly.

These changed—and changing—patterns add new dimensions to the parent's role. As Paul Sharar, executive director of the YMCA's Counseling and Testing Service in Manhattan, explains, "If (parents) are trying to interest their children in many things, letting them explore possibilities, not being either overdirective or removed from contact, they're practicing career guidance."

Yet, this is more difficult than one would suspect. The very fact that parents are parents is a handicap. It's in the nature of adolescents to rebel against parental advice. And parents, who have, after all, a tremendous ego investment in their young, tend to lack objectivity. "They have definite ideas of what

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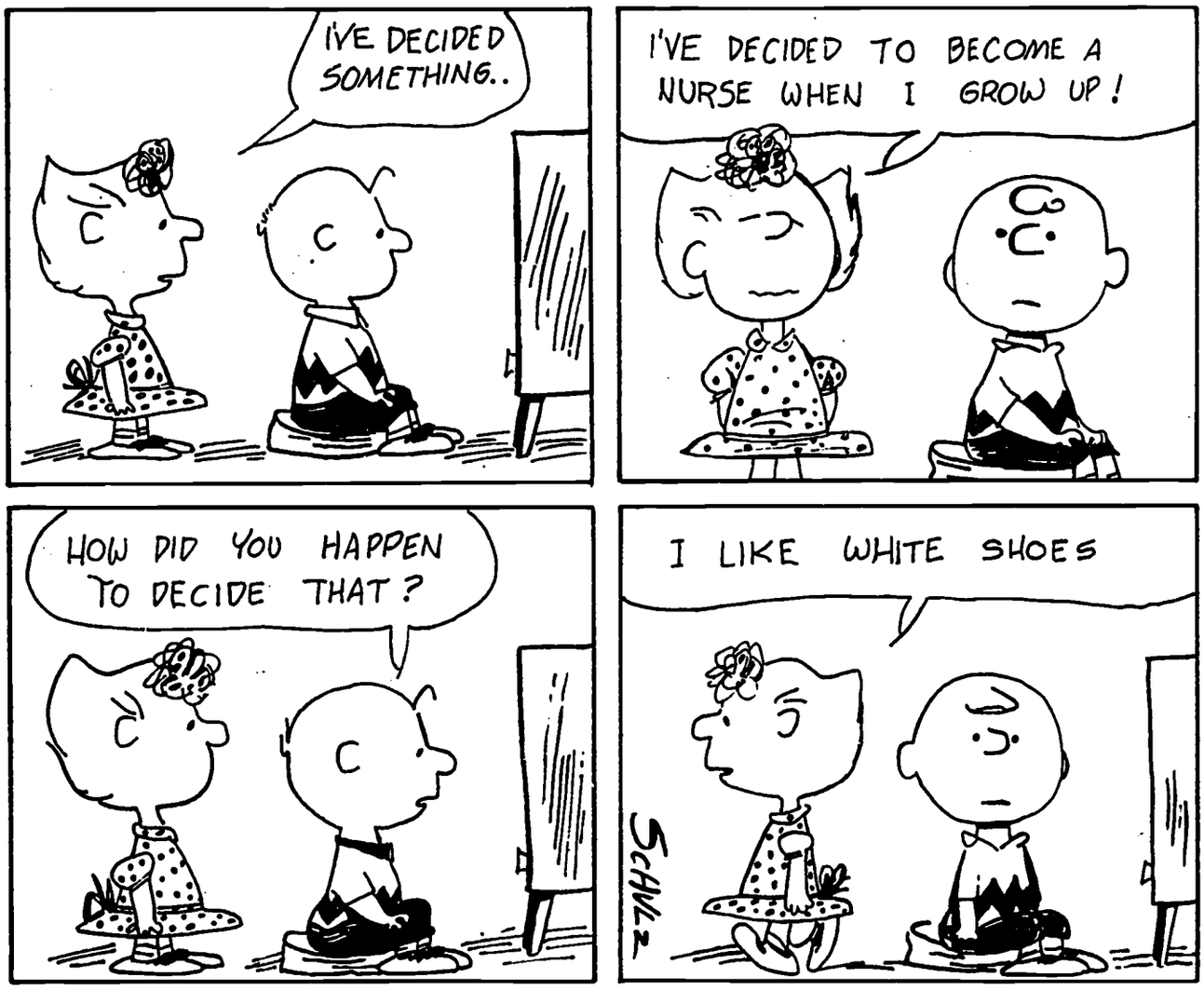

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they want for their children," says Dr. Martin R. Katz, a psychologist at Educational Testing Service. "They have values they want to impose. Their approach is apt to be, 'This is my image of you, this is what I want you to be.' "

This is usually counterproductive. Real incentive and enthusiasm for a career comes from the knowledge that it's part of one's own unfolding: a career taken on to please one's parents can easily backfire. Not every bright, normal child is suited to go to college—or, for that matter, wants to—but if a parent insists that it's the only passport to the good life, he's planting the seeds of discontent or failure. Some children would make better craftsmen than doctors, lawyers or accountants, but many middle-class parents see this as a manifestation of downward mobility and are horrified.

Objectivity may come easier if parents possess a few insights into vocational development theories. Career development actually begins in early childhood when youngsters play at fantasy occupations. They choose roles in terms of people they identify with. A 5-year-old, impressed by the gentle reassurance his pediatrician offers, may say, "I want to be a doctor." Another child, thirsting for adventure, may announce, "I'm going to be an astronaut!" Children can neither project themselves into their adult future nor judge their own abilities and personalities, but even the most outrageous occupational fantasy helps to build a child's confidence, and parents should refrain from making fun of it.

The seventh or eighth grade seems to be a real pivotal point. Some experts ascribe this to genetic reasons but, in any event, in the traditional school structure it's when children are first allowed to choose a few of their courses. From then on opportunities increase to make curriculum choices that are directly or indirectly tied to eventual careers. Guidance people stress that, because adolescence is such an unstable period, career decisions made at this time are still very tentative. Even the teen-ager who states, "I'm going into medicine," or whatever, usually has hidden doubts.

"Not infrequently a boy will give this kind of answer," says Paul Sharar of the YMCA, "just because everyone is asking him what he's going to become. It serves as a buffer."

The fact that about 50 per cent of college freshmen change their majors illustrates the tentative nature of adolescent decision-making. There's no "right" time for making a career decision. Each child reaches the point in terms of his own development at his own pace. For this reason, and also because occupational requirements change so rapidly these days, young people should be careful not to box themselves in when making career-related decisions. They should allow for as many alternatives as possible.

How can parents help to bridge the gulf between the classroom and the world of work? For one thing, they can draw their children into their own occupational lives as early as possible. Teachers encounter many children as old as 9 or 10 who have only the vaguest concept of what their fathers do for a living. The father who occasionally takes his 5-year-old to his office and explains what's going on will give the child an image of work, something the youngster will never get from seeing dad do his usual disappearing act each morning.

On a more sophisticated level, exploring career possibilities with relatives, friends and professional acquaintances can be very helpful. Pointing to the teen-age quest for independence, Dr. Katz suggests that parents engage in a "cultural exchange program" in which one parent serves as a supplementary career counselor to another's youngster.

Adults have a tendency to overemphasize the material aspects of various businesses and professions rather than the inherent satisfactions. One of the best ways to show a youngster that work can be creative and rewarding is to expose him to people who find their work fulfilling and satisfying.

This is particularly important today when a growing number of youngsters not only reject the idea of following in their fathers' footsteps, but are totally disinterested in any career. There are students so far removed from the world of work, so lacking in any occupational identity, that they have built up a whole system of negative mythology about all pursuits for pay. "A lot of kids don't know what they want to do—or don't want to do anything—because they've never done anything," said one distraught father whose college dropout son drifts around the fringes of the Berkeley University community.

The more actively a youth can explore and test his interests and capacities, the more perceptive he will be about what really appeals to him as an occupation in adult life. But how can he get this diversity of work experience? How can he explore the "guts" of a potentially interesting field? The problem is becoming more difficult every year. Occupational researchers are developing "simulated work samples"—a series of programmed learning materials about various fields—to be used in conjunction with a computer. No matter how effective these may turn out to be, nothing gives the feel of work so much as work itself. Some guidance expects would like to see work-study programs a normal feature of every child's schooling, including those in college preparatory programs as well as youngsters in vocational and commercial tracks. Outside of school, children should be encouraged to do paid chores for neighbors and friends. After-school and summer jobs are other excellent ways to get valuable work experience. Unfortunately, such opportunities seem scarcer and scarcer; summer jobs were extremely difficult to find this year. Even more unfortunately, the few such jobs available in these difficult economic days seldom match a child's real interests.

But there are many rewarding—but unpaid—ways teenagers can get work experience. There are university-run summer institutes in scientific and artistic fields. Hahnemann Medical College and Hospital in Philadelphia, for example, offers a bio-science program for talented high schoolers who participate as research assistants. Doing volunteer work for institutions or causes is another way to experience actual work situations. Volunteers get a chance to grapple with major social problems and get a glimpse of fields they may never have known existed, like activist law or city planning.

Children can also be helped to widen their horizons by working with their hands as well as their minds. One father, whose high school son was at loose ends during the summer, bought an old car engine for the boy to tinker with. "It opened up a whole new world to him," the father reports. "And he's thinking now that he may want to become an engineer."

The computer will necessariiy play an increasingly important role in career guidance because of the sheer volume of occupational information now available, but parents have not become outmoded—nor are they likely to become so—as sources of career advice. Their single most valuable resource is probably the Labor Department's "Occupational Outlook Handbook," which gives the requirements, wages, working conditions and employment outlook for more than 500 occupations and professions. And "The Dictionary of Occupational Titles," which lists and groups all job categories, is also useful. Both books are available in most libraries.

There's no shortage of career books on specific occupations. Some are informative, but too many present a shallow, idealized view of the professions they are "selling." A unique approach to reader involvement is taken in two new career books by Bernard Asbell, "What Lawyers Do" and "Careers in Urban Planning" (Wyden). Eschewing the how-to approach, they consist of lengthy tape-recorded interviews with a number of young adult professionals in these occupations, who talk candidly and intimately about the joys and agonies of their work.

Parents can look into and help strengthen the vocational programs in their children's schools. The Fathers Club of the Bronx High School of Science's Parents Association, for instance, sponsors a very effective Career Evening in which professionals in the physical and social sciences give informal talks and answer questions. Parents can also work with school counselors and P.T.A.'s in promoting community career exploration programs. In one community, high school seniors spend a day with a professional in a field that interests them, observing him as he goes about his duties.

If a youth is floundering or feels himself pushed in a vocational direction he doesn't want to pursue, professional intervention is sometimes useful. A talk with the school guidance counselor may help. So may an outside career counseling and testing service. The American Board of Counseling Services in Washington, D.C. publishes a list of accredited agencies.

The most crucial thing parents can do in terms of career guidance is probably the most difficult of all —to help their children explore and examine their own values and encourage their independence, and to allow them to make their own decisions as early as possible. Youngsters who are drawn into decision-making almost as soon as they're able to verbalize; who are allowed to test themselves, to build up their self-confidence and develop their autonomy—such children have the best chance of developing a clear sense of direction in life and of making responsible career decisions.

A constellation of factors having to do with a person's self-concept and the kinds of gratifications he requires play a part in his ultimate choice of occupation. Parents can't very well prevent their children from making what turns out to be an unwise choice. They can, however, minimize the risk of that happening by practicing the most essential element of good career counseling—recognizing that their function is not to direct their children's choice but to aid them in the process of choosing. ■

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APPENDIX C

DESCRIPTION OF CURRICULUM MODEL

A CURRICULUM MODEL FOR FACILITATING CAREER DEVELOPMENT

BY

Larry J. Bailey
Principal Investigator

Career Development for Children Project
Technical and Industrial Education
Southern Illinois University at Carbondale

in cooperation with

Research Development Unit
Division of Vocational and Technical Education
Board of Vocational Education and Rehabilitation
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PREFACE

American public education is becoming increasingly cognizant of the relevance of education for employment. The Advisory Council on Vocational Education recognized that education is the crucial element in preparation for a successful working career at any occupational level. If education is preparation for life, and if practically everyone's life and opportunities for self-expression and self-fulfillment include work, then only the successfully employable are successfully educated. The world of work and the problems of preparation for it, access to it, and successful performance in it are becoming increasingly complex. Out of the changing social and economic environment of the past two decades, however, has emerged clearer concepts of career development which can be translated into operational guidelines to assist in educational program development. The project which follows is designed to be one approach for applying knowledge of career development theory and research to the design of a functional and logically consistent curriculum framework.

L.J.B.

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A CURRICULUM MODEL FOR FACILITATING CAREER DEVELOPMENT

Introduction

Recent years have witnessed an increased interest in implementing programs variously described as The World of Work, Occupational Information, Careers, etc. A comprehensive survey of such programs has been completed by Bailey (1970). With few exceptions, however, these programs fall far short of facilitating the type of behavior they seek to develop. An almost universal weakness of the programs is that they emphasize vicarious experiences rather than direct; they are static rather than dynamic. Hunt (1970) criticizes traditional career programs because they focus on telling children about the world of work rather than providing them the opportunities to engage in it. Thus the programs concentrate on "dispensing information" instead of "developing competencies." Their weaknesses may be traced, in part, to the absence of a rationale derived from the body of literature and research on career development and supported by a knowledge of child growth and development.

Theory and Rationale

Since the beginning of the modern era of career guidance in the early fifties, the body of literature and research related to vocational behavior has multiplied exponentially.

The search for unifying constructs and principles of vocational behavior has been accompanied by a surge in the area of theory building. The present status of career development theory has receivd extensive treatment in many recent publications. Osipow's Theories of Career Development (1968), Kroll, Dinklage, Lee, Morley, and Wilson's Career Development: Growth and Crisis (1970), Zaccaria's Theories of Occupational Choice and Vocational Development (1970), and collections of readings by Roth, Hershenson, and Hillard (1970) and Zytowski (1968) are current examples.

As theoretical orientations and models of career development have come to be better understood, researchers and practioners have sought to validate theory and implement career guidance practices derived from theory. The most up-to-date review and synthesis of research on vocational behavior is Crites's book entitled Vocational Psychology (1969). Additional closely related reviews have been completed by Perrone (1966), Tennyson (1968), and Holland and Whitney (1969).

Clearly, no shortage of concepts and principles for career development exists. However, if a hard criterion is used, that is, replicated studies whose results have been proven in the field over a period of years, then one would have to conclude that very little, which is systematic in nature, is really known about career development (Osipow, 1969).

Herr (1970) points out, however, that while no one approach yields the comprehensiveness of explanation one might wish, collectively there exists a conceptual frame

of reference which views vocational development and decision-making through the lenses of many disciplines. There is emerging a set of constructs and propositions, some tested and some not, which serve to explain differential decision behavior and trends in the vocational aspects of development. Using a realistic criterion, certain heuristic statements can be made regarding the nature of career development:

1. Career development is considered to be one aspect of the individual's total development. It is most profitably viewed as longitudinal in nature and based on principles of developmental psychology. Vocational behavior develops over time through processes of growth and learning.
2. The theories of career development acknowledge a wide range of factors which determine or at least influence the process of human development (Zaccaria, 1970). Career development is integrated to the total fabric of personality development and is the result of the synthesis of many personal, social, and vocational factors as one matures (Herr, 1970).
3. The unfolding of an individual's career development beginning in early childhood is seen as relatively continuous and long term, but divided into stages or life periods for purposes of description and presentation (Zaccaria, 1970).

4. Each vocational life stage involves meeting and learning to cope with critical developmental tasks. Many of these developmental tasks center on the acquisition of coping mechanisms and mastery behavior which subsume career related choices and adjustments. The choices which an individual makes and the manner in which he enacts the resultant roles form a life sequence known as his career pattern (Ashcraft, 1966).
5. Vocational behavior and career selection develop from less effective behavior and unrealistic or fantasy choice to more complex behavior and more realistic choosing. Career selection becomes increasingly reality-oriented and more realistic as one moves toward the choice itself (Herr, 1970).
6. An individual's striving to arrive at an appropriate vocational goal may be interpreted as a search for a work role that is harmonious with the need structures resulting from the gratification and frustration of early life, as a search for the new ego identity that marks the adolescent stage, or as an attempt to implement an already emerging self-concept (Ashcraft, 1966).
7. Vocational development theories support the existence and causal role of inner, tensional states, which depending on the focus of the theory, are variously described as interests, needs, values, personality characteristics, or life styles (Zytowski, 1965).

The Timing of Career Activities

The research and commentary on career development indicates, beyond any reasonable doubt, that systematic career planning must begin at the elementary school level. Elementary age youth need the opportunity to continuously and systematically explore, from an internal frame of reference, their values, attitudes, and interests in relation to the wide range of educational and career opportunities which may be available to them so that they will avoid premature educational and occupational foreclosure (Gysbers, 1969).

The kindergarten to sixth grade level is the most reasonable place to begin examining the career development process. Children show an interest in the world of work at a remarkably early age. Even before their explicit interest in the world of work, children are exposed to events which shape aspects of their personal development related to work (Osipow, 1969).

Herr (1969, 1970) also concurrs that intervention in career development must begin during the first decade of life. This is the nursery of human nature and the time when the attitudes are formed which later become manifest in vocational commitment or rejection. Youngsters in elementary schools must be exposed to experiences which are meaningful in terms of their individual characteristics and to information which is accurate if they are not to carry residuals of exaggeration and overromanticized occupational stereotypes into later decision-processing.

The timing for prevocational orientation may be crucial. According to Sherman (1967) once students get involved in the junior high school milieu their own social and physical maturation and the existing organizational structures and the rewards offered from these environments in which they live all influence them. If students are helped to focus on career development prior to becoming a part of this milieu, it could help them to build a kind of core attitude toward their personal future which might provide a slightly different perspective on the many other concerns of this age.

Bottoms and Matheny (1969) indicate that concern for career development cannot be a one-shot approach that takes place at the junior or senior high level. It is too late when the student reaches the point of making the transition from school to work. Career development should be conceived as a pyramid offering a broad base of exploratory experiences at the elementary and junior high school levels and gradually narrowing to a decision point as the student acquires appropriate preparation for his next step beyond school. Such a vocational development theme could serve as a common thread to unify the educational effort at all levels.

Purpose of the Study

In response to the need for a systematic, organized approach to career development, a research project was begun in March 1970 at Southern Illinois University in cooperation with the Illinois State Board of Vocational Education and Rehabilitation (Bailey, 1969). Entitled the Career

Development for Children Project the program is designed to involve children, beginning in elementary school, in experiences which will facilitate the ultimate goal of vocational maturity. The intermediate goal, at approximately the grade eight level, is to assist the student in formulating a tentative occupational preference. This will be accomplished through a series of carefully articulated developmental experiences beginning in grade one.

Assumptions

A primary assumption of the project is that career development is one aspect of the continuing and fluid processes of growth and learning. Maturing in a vocational sense involves coping with the developmental tasks of a given life stage, in part, through a series of integrated decisions.

Career development as a decision-making process is intimately linked with attempts to implement the self-concept. The second assumption states that an individual's occupational preference is an expression of his idea of the kind of person he is.

A third assumption is that the "quality" of a decision is determined by the type, amount, and validity of the various data entering the decision. All other things remaining constant, an increase in the accuracy and comprehensiveness of data about one's self and the world of work should correspondingly enhance career decision-making (Kroll, 1970).

The final assumption has profound implications for education. The knowledge, skills, attitudes and motivation

The TRANSLATION of self-concept into occupational terms is theorized by Super to proceed in several ways. (1) Identification with an adult sometimes leads to a desire to play his occupational role. (2) Experience in a role in which one is cast may lead to the discovery of a vocational translation of one's self concepts. (3) Awareness of the fact that one has attributes which are said to be important in a certain field of work may lead one to look into that occupation; and the investigation may lead to the confirmation of the idea that the role expectations of that occupation are such that one would do well in it and enjoy it.

The IMPLEMENTATION of self concepts is the result of these processes as professional training is entered or as education is completed and the young man or woman moves from school or college into the world of work. In an early phase, the premedical student enters medical school, proud of his developing sense of professional identity. In a later phase, the young engineering graduate gets his first job as an engineer, and rejoices in his new title, symbol of his having converted a self concept into a reality. At the other extreme, the high school drop-out who never did well in his studies, who was never accepted by his classmates, and who is fired from the job that he finally got only after a number of rejections, finds the occupational translation of his self concept as "failure" confirmed and implemented. It is important that positive conceptions of self be developed prior and during the translation into occupational roles. After a series

essential for career planning and decision-making can be fostered and developed. Presented simply, career development can and should be systematically influenced.

Definition of Terms

Considerable confusion results from misuse of the following words: career, occupation, vocation and job. The interrelation of these four terms can be schematically represented as follows:

Career > Occupation = Vocation > Job

This is to read "Career is greater than occupation, which is equal to vocation, which is greater than job." A career--a longitudinal, developmental concept--usually embraces more than a single occupation and certainly more than a single job. The succession of jobs within the sequence of occupations constitutes a career (Sinick, 1970).

Career development is conceived of as one aspect of general human development. It denotes the lifelong sequence and pattern of an individual's work-related behavior, including all work-relevant experiences and activities before and after entry into a formal occupation. Career development is a continual process of working out a synthesis or compromise between the self and the reality opportunities and limitations of the world of work (Kroll, 1970). The term vocational development is often used synonymously with career development.

of negative experiences, it takes a great deal of re-education to help develop more positive self concepts.

Theories related to self concept formation, and related research, support the existence of multiple dimensions of self. The representation in Figure 2 of three aspects of self has been borrowed from Barry and Wolfe (1962) to illustrate that an individual's self concept includes the person's own view of himself; his perception of how others view him; and his idea of the person that he would like to be. These three phases of self-concept coalesce to form an individual's total picture of himself: a picture that influences the person in all his actions, thoughts and feelings. A curriculum designed to facilitate career development, then, must also provide experiences and activities which allow students opportunities to formulate, translate, and implement these three aspects of self. Although the processes of self concept formation and the relationship among dimensions of self outlined here, remains to be demonstrated, the utility of this approach for the curriculum specialist is to convey the notion that concepts of self can be meaningfully described and orderly persented. Curriculum development, field testing, and evaluation must follow to assess the validity of these formulations.

Summary

Career development programs initiated at the elementary school level must be systematically organized, the core of which is a sound conceptual model. The curricular design for the Career Development for Children Project is based on a

The concept of vocational development leads logically to that of vocational maturity (Super, 1957). Vocational maturity is used to denote the degree of development, the place reached on the career development continuum. Vocational maturity may be thought of as vocational age, conceptually similar to mental age and may be described in terms of types of behavior, e.g., behavior manifested in coping with the developmental tasks of a given life stage.

The term occupational preference is used here to distinguish it from both occupational choice and occupational aspiration. Crites (1969) differentiates between the three on the basis of the extent to which reality is the basis for choosing. When an individual specifies an occupational preference, he considers what his possible future occupation will be, not his intention to enter a specific occupation (choice) or what his fantasy (aspiration) occupation might be. Super (1963) indicates that the formulation of a general occupational preference actually serves as the symbol of a number of related activities for which liking is indicated. The tentativeness of the preference is the indication that it is not a specific preference of the type which may prevail at a later stage. The behaviors in this area are largely verbal since the implementing of preferences is rare in the early and middle teens, although they may be instrumental, as when the pupil is active in the Future Teachers Association in high school.

systems approach which clearly states purpose and objectives. Content related to the world of work is selected for its ability to achieve the stated behavioral outcomes. The instructional processes are specifically structured to take into consideration the three dimensions of self and the nature of self-concept formation.

A series of well-planned activities such as gaming and simulation, role playing, group projects, vocational exploratory experiences, etc. will be implemented to assist students in coping with the demands of each vocational developmental task. Specifically designed and articulated activities will help to provide children and youth with a realistic understanding of self and the world of work, which can be translated into the intermediate goal of formulating an occupational preference and the ultimate goal of vocational maturity. Career programs thus conceived have the potential for providing a core of experiences around which all future educational and occupational goals revolve.

An individual's self-concept includes three things: (1) the person's own intimate view of himself or his ego; (2) his perception of how others view him or his idea of his social self; (3) and his idea of the person he would like to be or his ideal self. Thus, self-concepts are composed not only of private inner thoughts, feelings, attitudes, and values, but also of experiences, expectations, attitudes, values and opinions derived from other people and their cultures (Barry and Wolfe, 1962).

Procedure

Following is a suggested outline for career development in grades one through eight. "The unfolding of an individual's career development beginning in early childhood is seen as relatively continuous and long term, but divided into stages or life periods for purposes of description and presentation" (Zaccaria, 1970). For each of the developmental stages there is assigned a Vocational Developmental Task which is: (1) appropriately synchronized in terms of a child's general development, and (2) is an essential element in career planning and decision-making. The concept of developmental stages and tasks comes from the principle that there are periods when an individual is ready for certain kinds of learning. If the task is introduced before or after the "teachable moment" efficiency in learning the task is significantly reduced. After a statement of the vocational developmental task, the Rationale explains why the goal task is appropriate.

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AWARENESS STAGE: GRADES 1-3

Vocational Developmental Task:

Becoming aware of self and the world of work.

Rationale:

The interests of the child in early elementary school are largely centered around himself, his family, and his immediate environment. Since vocational maturity involves both knowledge of self and the world of work, the early grades of school can use the natural self-interest tendencies of the child to build a foundation of information about both areas. He can begin to learn about himself as a person distinct from other children in the class, defined in part by his environment--his unique family, his unique home. At the same time, he can be exposed to broad concepts about the world of work in the context of his self-centered world--occupational roles of members of his family, of workers who come to his home, of people who serve him. As the child explores home, school, and community, the importance and interdependence of workers can be stressed. Youngsters should also be helped to develop positive attitudes toward the world of work and the value of each individual's contribution. By increasing the awareness of self and the world of work, children begin to see a positive relationship between the two. Finally, it is central at this level to cause students to consider and evaluate their occupational "fantasy preferences." Such preferences can serve as a base of knowledge from which to develop more realistic attitudes and understanding.

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A PILOT TEST OF AN EVALUATION SYSTEM FOR VOCATIONAL EDUCATION LEADERSHIP AND PROFESSIONAL DEVELOPMENT ACTIVITIES. A FINAL REPORT.

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DESCRIPTORS - *VOCATIONAL EDUCATION; VOCATIONAL DEVELOPMENT; PROFESSIONAL TRAINING; *LEADERSHIP TRAINING; MANPOWER DEVELOPMENT; *MODELS; *PERSONNEL EVALUATION; *PILOT PROJECTS; PROGRAM EVALUATION; SYSTEMS DEVELOPMENT

ABSTRACT - THIS PROJECT WAS CONDUCTED TO PILOT TEST THE EVALUATION MODEL DEVELOPED IN A FEDERALLY FUNDED PROJECT ENTITLED "AN EVALUATION SYSTEM FOR VOCATIONAL EDUCATION LEADERSHIP AND PROFESSIONAL DEVELOPMENT ACTIVITIES." FOLLOWING TESTS OF THE PROCEDURES AND MATERIALS OF THE MODEL IN TENNESSEE AND CALIFORNIA, THE MODEL WAS REVISED CONSIDERABLY. SPECIFICALLY, THE PILOT TEST WAS DESIGNED TO DETERMINE: (1) WHETHER OR NOT THE MODEL COULD EVALUATE THE PERSONNEL DEVELOPMENT PROGRAMS IN TENNESSEE AND CALIFORNIA, (2) APPLICABILITY OF THE MODEL TO OTHER STATES, AND (3) THE POTENTIAL OF THE MODEL, WITH MODIFICATION, TO EVALUATE PROJECTS OTHER THAN THE KIND FUNDED UNDER SECTION 553 OF PART F OF THE 1968 VOCATIONAL AMENDMENTS. CHANGES IN THE MODEL ARE DETAILED, AND SAMPLE OBSERVATION AND INTERVIEW SCHEDULES ARE APPENDED. (AG)

ACCOMMODATION STAGE: GRADES 4-6

Vocational Developmental Task:

Relating growing knowledge of self and the world of work to the process of career development.

Rationale:

In the latter part of elementary school the child becomes increasingly responsive to the demands of his teachers and parents and pressures to perform well in school become acute. This stage appears right for introducing basic concepts of career development. Students should be made aware of the longitudinal, integrated, and dynamic nature of vocational behavior. Self appraisal, knowledge of the world of work, and perhaps school work as a whole, may become more meaningful as the student's attention is turned toward the future and his role in preparing for it. At this level the study and understanding of work roles are extended to include the concepts of job families and interest-area families. Self appraisal becomes more meaningful as individuals are caused to think about changes due to maturation and learning, and understand that certain self elements are related to various occupational roles. An attitude of "planfullness" should be promoted by assisting students in making decisions and outlining future actions. Concrete experience continues to be an important part of the program with much more responsibility attached to role playing and reality testing.

EXPLORATION STAGE: GRADES 7-8

Vocational Developmental Task:

Preparing to make an intelligent choice of career.

Rationale:

At the junior high school level, youth are faced with the necessity of making a choice of educational curriculum prior to entering high school. Confrontation with choice of curriculum and an understanding of the relationship between education and career results in an awareness of the need to plan for a future occupation. The ability to be more adept at one's career planning and occupational decision-making, however, is contingent upon being adequately prepared for the task. This stage is designed to provide students with a sound basis for making these important decisions. Occupational preparation reaches a more sophisticated level with study by all students of the economic and industrial systems by which goods and services are produced and distributed. A greater appreciation is gained of the economic and social value that different forms of work have in society. Means are provided to aid the student in studying a few selected occupational groups intensively. Exploration in school and extracurricular activities are increased as the individual tests hypotheses about himself and assumes many different occupational roles. Understanding and acceptance of significant data about self prompts him to compare and evaluate information discovered about workers

A FINAL REPORT

A PILOT TEST OF AN EVALUATION SYSTEM FOR VOCATIONAL EDUCATION LEADERSHIP AND PROFESSIONAL DEVELOPMENT ACTIVITIES

Warren L. Lasell
Richard P. Coatney
Ronald D. Daugherty

The Center for Vocational and Technical Education
The Ohio State University
1900 Kenny Road
Columbus, Ohio 43210

VT016532

5903

in the occupational areas he has studied. The ability to be more adept at one's career planning and vocational decision-making is manifested in the commitment and formulation of an educational-occupational plan based on sound information and selective use of resources.

Method

The process of career development is shown graphically in Figure 1.* The formulation of a tentative occupational preference, at approximately the grade eight level, is characterized as a decision-making process which results from the application of knowledge and accumulated behavior regarding self and the world of work.

The specification of stages and vocational developmental tasks is important in identifying purpose and objectives for curriculum development. The Career Development for Children Project may be conceived as a program designed to help the individual achieve certain of his developmental tasks. A developmental task is midway between an individual need and a societal demand. It partakes of the nature of both (Havighurst, 1953). As such, it is a useful concept for relating vocational behavior to curriculum planning.

Each vocational developmental task may be described in terms of the behaviors which constitute the task. These behaviors are then translated into instructional outcomes which the student must master to successfully cope with each vocational developmental task. Following is an example of

*The scope of this project is limited to Grades 1-8.

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A FINAL REPORT
ON A PROJECT CONDUCTED UNDER
PROJECT NO. 02-2592
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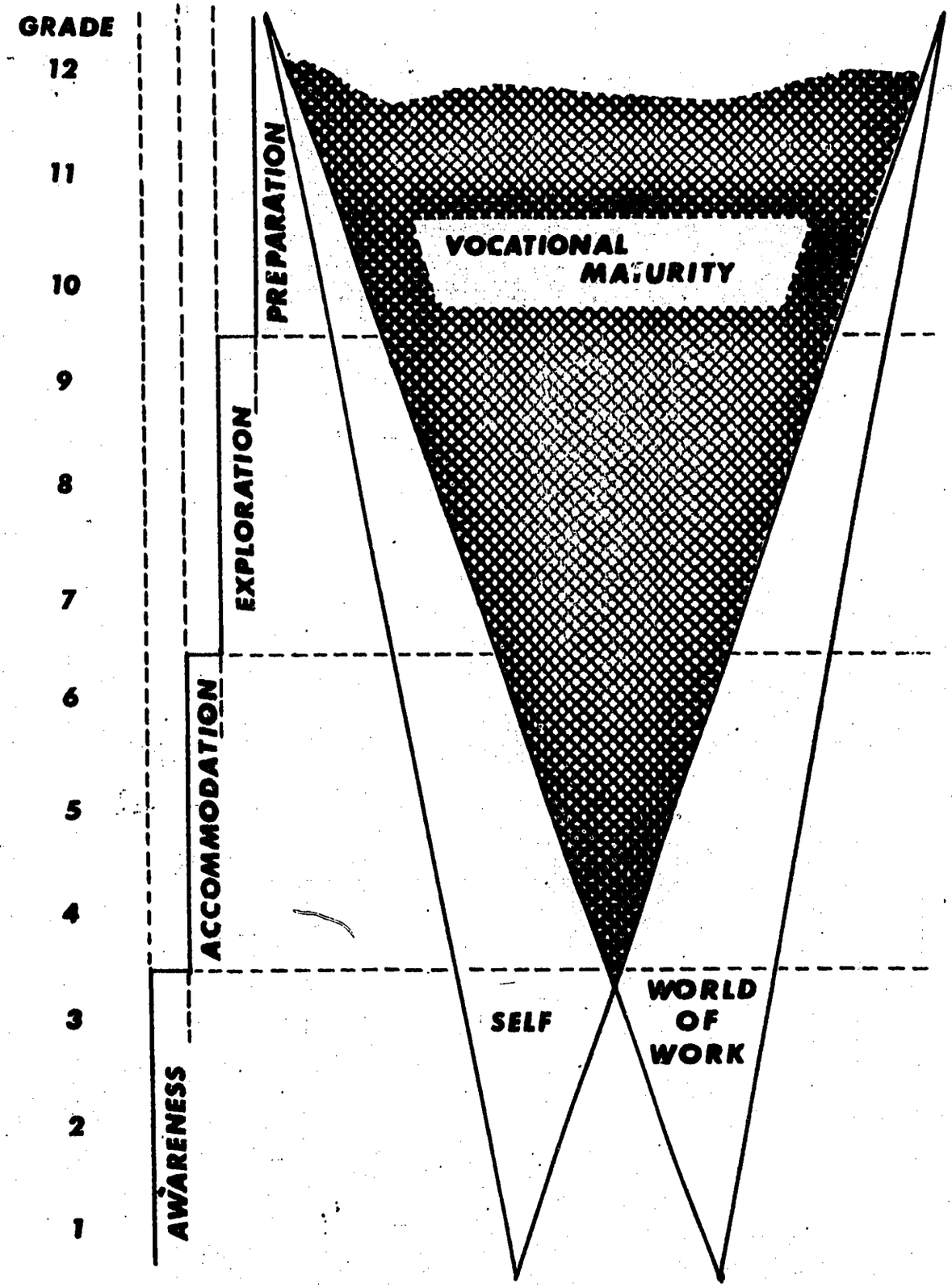


CURRICULUM DEVELOPMENT FRAMEWORK

FIG. NO. 1

FOREWARD

This project was conducted to pilot test the evaluation model developed in the project entitled "An Evaluation System for Vocational Education Leadership and Professional Development Activities." Most of the procedures and materials of the model were tested in Tennessee and California. Following the pilot test, the model was revised considerably to the form attached to this document.

The services of the following are recognized in completing the project: Ronald D. Daugherty, project director and Warren L. Lasell and Richard P. Coatney.

Appreciation is also extended to persons in Tennessee and California who made the pilot test possible: William Harrison, assistant commissioner for vocational-technical education in Tennessee; Ronald L. Hubright, coordinator, education personnel development in Tennessee; Wesley P. Smith, director of vocational education in California; and James W. Becket, coordinator, professional development education in California.

We wish to acknowledge the contributions of the following reviewers for the model: Daniel E. Koble, N. L. McCaslin, and Wayne Schroeder, research and development specialists, The Center for Vocational and Technical Education.

Robert E. Taylor
Director
The Center for Vocational
and Technical Education

how the vocational developmental task for the Awareness Stage is delineated into instructional objectives.

AWARENESS STAGE:

General Objective:

A. Understands that activity is stimulated by purpose.

Rationale:

As a starting point for learning about self and the broad world of work the child needs to be aware that day to day activities are purposeful and should be able to identify some of the reasons for human activity.

Specific Objectives:

1. Identifies (lists?) own activities throughout a day
   - 1.1. Identifies those activities he "has to do"
   - 1.2. Of activities he "has to do", identifies some that he would do even if he didn't "have to"
   - 1.3. Identifies general likes and dislikes from daily activities
   - 1.4. Compares own likes, dislikes and "has to's" with those of other children in group
2. Develops broad definitions of work and play
   - 2.1. Becomes aware of reasons why people work and play
   - 2.2. Recognizes both commonalities and differences between work and play
   - 2.3. Identifies some characteristics of work and play in terms of mental and physical attributes, when and where it is performed, etc.
3. Discusses activities of self and others in terms of broad work-play classifications
   - 3.1. Identifies own activites as work or play
   - 3.2. Relates work and play classification to things he likes to do, things he has to do

This document is the final report of the project entitled "A Pilot Test of an Evaluation System for Vocational Education Leadership and Professional Development Activities." The text of the report is arranged in the format for final reports contained in Appendix A of the Handbook for Directors of projects funded under parts D and F of the Education Professions Development Act (U. S. Office of Education, January 15, 1972). The evaluation model tested and subsequently revised is submitted with this report.

1. Restate all of the objectives (anticipated outcomes) as originally stated in the plan of operation or, if applicable, as modified during the operation of the project.

The objective of the project was to pilot test, in Tennessee and California, the Model to Evaluate Inservice Personnel Development in Vocational-Technical Education. The evaluation model was developed in the U. S. Office of Education-funded project entitled "An Evaluation System for Vocational Education Leadership and Professional Development Activities."

The pilot test was limited because of the short amount of time and limited funds available for it. Although most of the components and procedures were tested, two were not. The data collected with the survey forms were prepared by the project staff, not by state personnel as was proposed in the model. Instructions for the preparation of data, both by hand and by computer, were written after the pilot test. Also, the state evaluation team consisted of three rather than five persons, and team members conducted the meeting in the presence of project staff. Although project staff members were only observers and did not participate in the meeting, questions of clarification were sometimes asked of them.

The anticipated outcome of the project was a tested model which could be used by most, if not all, state divisions of vocational education to evaluate personnel development activities. More specifically, the pilot test was designed to determine: (1) whether the model could evaluate the personnel development programs in the two states where the model was pilot tested, (2) applicability of the model in other states, and (3) the potential of the model, with modficiation, to evaluate projects other than the kind funded under section 553 of part F of the 1968 vocational amendments.

2. State the actual outcomes of the project or sub-project and describe the instruments used to measure the outcomes.

The pilot test was conducted in two phases. The first phase was a test of the components in two phases. The first phase was a test of the components and procedures of the model in Tennessee

3.3. Considers work and play activities of others in terms of things they like to do and have to do

Implementing the Curriculum Model

The curriculum design embodied in the Career Development for Children Project views the individual from a developmental perspective. Each person is seen progressing through a number of vocational life stages, each involving specific demands and requirements. Career choice is regarded not as a specific event, but rather a process which emerges over time as the individual pursues career related goals (Zaccaria, 1970). Basically, the individual does not choose an occupation, but rather makes a series of occupational and occupationally-related choices at different life stages which, when taken cumulatively, result in vocational development rather than an occupational choice, per se.

Within this generalized developmental framework the project borrows heavily from self-concept theories of career development. Viewed from this perspective, the self is regarded as a learned attribute progressing from birth and differentiating steadily through childhood, adolescence, and beyond like an unfolding spiral (Kroll, 1970). Career development and the more limited aspect of formulating an occupational choice is conceptualized as the process of implementing a self-concept. In expressing an occupational preference a person is putting into occupational terminology his idea of the kind of person he is (Super, 1963).

during April and May of 1972. As a result of this phase, several changes were made in the evaluation model. A list of the changes resulting from that phase follows:

a. The model was edited to clarify the meaning of both materials and procedures. For example, wording was changed to make materials more readable. Also, instructions were given to have the state coordinator of personnel development send a project summary or abstract as advance material to members of the state evaluation team. Finally, a sampling information sheet was included with the data, to provide figures on population, sample size, and percentage responding for each project and for the entire program.

b. The model was changed to include provisions for state personnel to send advance information to members of the state evaluation team (SET) before its meeting. Accordingly, the staff sent descriptions of personnel development projects to be evaluated in California and procedures of the evaluation to members of the California SET (second phase of the test) before they met.

c. The substantive focus of the evaluation model was modified somewhat. More emphasis was placed upon data related to the achievement of program and project objectives. In addition, data were no longer broken out according to the economic indicators of the agencies in which the project participants worked.

The second phase of the pilot test was conducted in California during May and June. The following are changes in the model that resulted from both phases of the pilot test, but particularly from the California phase.

(1) A preface was added to the model.

(2) Instructions for making and using program and project description sheets were included.

(3) Instructions for the SET meeting were modified.
--Provisions for orientation of the SET members were included.
--The role of the state coordinator of personnel development was described in more detail.
--State evaluation team members were specifically instructed to use their professional judgment in dealing with the evaluation data.
--The state coordinator of personnel development was instructed to select one of the SET members as chairman of the team when he selected the team.

The implication for practice, of these points of view, should be obvious. Assuming that career development involves a sequence of decision in which the individual seeks to implement a self-concept, the purpose of curriculum, then, must be to enhance decision-making skills and foster self-concept development. Practitioners should not help people only at the more identifiable "choice points," but also during the periods leading up to the choice points (Zaccaria, 1970).

The operationalization of self-concept development may be outlined in Figure 2. Donald Super has consistently described career development as the formation and implementation of a self-concept in the context of the world of work. According to Super (1963) the concept of self evolves through the processes of FORMATION, TRANSLATION, and IMPLEMENTATION.

In infancy the individual begins the first process of forming a concept of himself, developing a sense of identity as a person distinct from but at the same time resembling other persons. Exploration appears to be the first phase of FORMATION and a continuing process. Just as the infant plays with his toes, or holds his hand in front of his face to observe the movements of his fingers, so the adolescent tries his hand at writing poetry, or admires the skill revealed by the masterpiece he has produced in the studio. The self is an object of exploration as it develops and changes. Self differentiation is a second phase in the development of the self-concept. The small boy, son of his father, is aware of the fact that he is smaller, weaker, a

--The SET chairman was given the responsibility to chair the meeting and insure delivery of the evaluation report to the state director of vocational education.

d. Several changes were made in the instructions for distributing and collecting data, analyzing data, and conducting the SET meeting. The changes were made to clarify the meaning of instructions through better wording and the addition of information which had not been included before.

e. The computer program was edited.

f. The surveys of the model were edited to make them more consistent with the analyzed data presented to members of the team during the SET meeting.

g. In several components of the model, instructions and descriptions emphasized that the model can be altered to fit the individual needs of states using it.

Project staff members used interview and observation schedules to evaluate the operation of the evaluation model in the pilot test. The observation schedule is attached as Appendix 1 and the interview schedules are Appendix 2. Data from the schedules were used to make the modifications described above.

The staff observed the state evaluation team meetings in both Tennessee and California. In addition, they observed the flow of surveys into and from the field in order to determine the clarity of instructions for collecting data with the survey forms of the evaluation model. These observations resulted in the detection of several minor errors in the instructions which made it difficult for either the state coordinator of personnel development or the SET members to perform certain necessary functions in the evaluation.

The staff interviewed the state director of vocational education in Tennessee, the state coordinators of personnel development in Tennessee and California, and members of the state evaluation teams in both states. These persons provided support for numerous procedures and materials of the model and made suggestions for changes in others. Persons from both states indicated it was very likely that they would use the evaluation model during the next fiscal year to evaluate personnel development in vocational education.

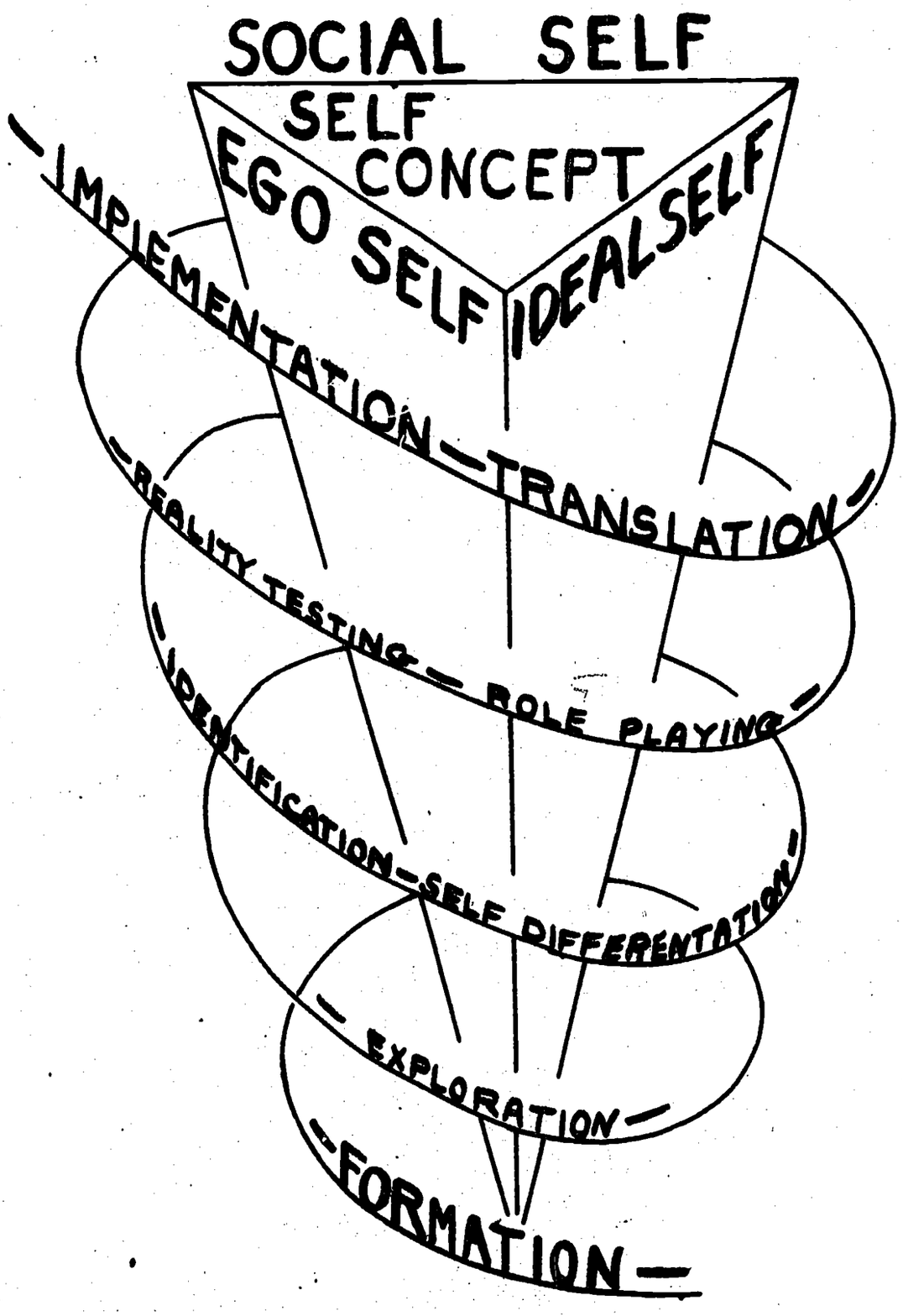

SOCIAL SELF
SELF CONCEPT
EGO SELF IDEALSELF
IMPLEMENTATION—TRANSLATION
REALITY TESTING — ROLE PLAYING
IDENTIFICATION—SELF DIFFERENTATION
EXPLORATION
FORMATION

FIG. NO. 2

3. State the reason for discrepancies between the anticipated and actual outcomes.

There were no discrepancies between anticipated and actual outcomes. Results of the observations and the interviews suggested that the model will function in many situations. The pilot test did not, however, reveal the types of situations or circumstances in which the model will not work. State coordinators of personnel development in the two states indicated that data obtained through the evaluation would be helpful to them in planning future programs. Also, the pilot test did not yield information on the potential of the model to evaluate projects other than the kind funded under section 553 of part F of the 1968 amendments.

4. If plans have been made for follow-up evaluation, indicate the date when additional information will be available.

There are no plans for a follow-up evaluation at this time. The evaluation model is submitted with this report to the Office of Education pursuant to the terms of Grant Number OEG-0-72-0051 (725), Project Number 02-2592.

5. State any observations which might be helpful to others considering embarking on a venture such as this one.

a. More time is needed to conduct a pilot test such as this. The late funding of the grant award did not allow sufficient time to contact states, negotiate agreements to conduct the pilot test of the total model. As a result, the California phase of the pilot test was not completed until two weeks before June 30, the original project deadline. This did not allow sufficient time to make the changes in the evaluation model necessary as a result of the California phase of the test.

b. The use of two states with very different personnel development programs was helpful. In this case, the staff received indications of how well the evaluation model would work in a state with a large program and one with a small program.

c. The use of numerous reviewers and critics to react to the model and parts of it was particularly beneficial in the development of the evaluation model. Some 20 persons of the 30 who were asked reacted to the materials.

6. State any final recommendations which would be useful to the bureau in administering the program under which you received your grant.

The recommendations which follow do not relate to the administration of the program but to the diseemination of the evaluation model. It is recommended that:

milk drinker but not a coffee drinker, and so forth. These are the beginnings of self differentiation. Identification is another process which goes on more or less simultaneously with differentiation. The boy-child, aware of similarities between himself and his mother, aware and also envious of his father's strength and power, identifies with his father and strives in various ways to be like him. This is less true of the girl-child, whose adult counterparts more often work at home or, if they go to work, tend to talk about it less than the man and seem less involved in their occupation. Children are channeled along occupational lines to the degree that they can identify with realistic role models. Role playing is a type of behavior which accompanies or follows identification. The small boy who identifies with his father seeks to emulate him: in his imagination or in his overt behavior the boy acts as he thinks his father does, later he bats left-handed because the baseball player with whom he now identifies is left-handed. Whether the role playing is largely imaginative or overtly participatory it gives some opportunity to try the role on for size, to see how valid the concept of oneself actually is. Reality testing stems as readily from role playing as role playing does from identification. Life offers many opportunities for reality testing, in the form of children's play, in school courses, in extra-curricular activities, and in part-time or temporary employment. These reality testing experiences strengthen or modify self concepts, and confirm or contradict the way in which they have been tentatively translated into occupational roles.

a. The U. S. Office of Education provide The Center for Vocational and Technical Education the funds to produce 200 sets of the evaluation model.

b. The Center for Vocational and Technical Education distribute copies of the model on a specimen basis in the following manner:
   --One copy to each of the state coordinators of personnel development in the 50 states.
   --Additional copies to key teacher education departments suggested by the state coordinators.

c. The Center communicate the limitations on validation of the model to users to insure that they do not believe extensive field testing has been conducted.

d. The Center provide a brief orientation workshop, funded by the U. S. Office of Education, for training state coordinators and others willing to pay travel and lodging expenses in the use of the model.

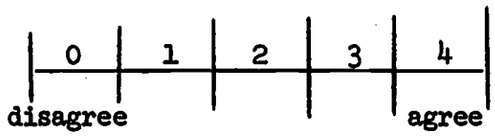
APPENDICES

APPENDIX 1

Observation Schedule

Observation Schedule
(SET Meeting)

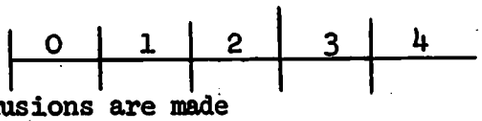
1. There is little discussion designed to clarify the functions of the SET.



2. Use the space which follows to record the number of positive remarks made by SET members about information collected in the evaluation or elicited by the questions in AID. (Positive remarks are those which are favorable toward the information.)

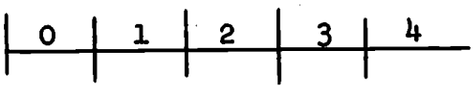
3. Use the space which follows to record the number of negative remarks made by SET members about information collected in the evaluation or elicited by questions in the aid for interpreting data (AID). (Negative remarks are those which are neither favorable nor neutral toward the information.)

4. SET members draw conclusions about state programs easily.



0 - no conclusions are made
1 - few (1-3) are reached slowly
2 - few (1-3) are reached quickly
3 - some (4-6) are reached
4 - several (more than 6) are reached

5. The conclusions are well-founded



0 - no basis for conclusion
1 - seem arbitrary
2 - partially based upon data
3 - most seem based on evidence
4 - all seem based on evidence and seem logical

6. The state evaluation team easily made recommendation which seemed to follow from the data considered in the meeting.

0	1	2	3	4

0 - disagree
1 - disagree slightly
2 - neither agree nor disagree
3 - agree slightly
4 - agree

7. What has happened as a result of the evaluation report?

8. A group of judges will rate the evaluation report on the basis of criteria developed by the project staff.

APPENDIX 2

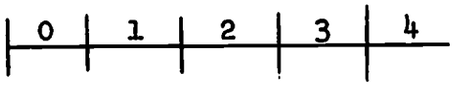
Interview Schedules

Interview Schedule
(SET Members)

1. Were instructions for the evaluation clear and understandable? (probe)

2. Was the aid for interpreting data (AID) useful to you?

3. Rate AID on its usefulness on a scale of 0-4 with 0 being of no use and 4 extremely useful.



4. How could the SET be helped to perform its functions?

5. Did you have adequate time to perform the SET functions?

6. Is the model presented in a logical manner?

7. How much training will be required for SET's to use this model? What kind of training should be given? What advance literature should be provided?

Interview Schedule
(State Coordinator of Personnel Development)

1. Are the sampling procedures workable?

2. Can data be collected in the amount of time allowed in the pilot test?

3. Will states conducting the evaluation have any particular problems in securing a high response rate (80% or more)?

4. Are the procedures used to select the SET workable?

5. Is the model organized logically? E.g., the seven documents? format of documents? That part they use?

6. Can the model be used in programs of different size with several different kinds of projects?

7. Will the cost of this evaluation be reasonable?

8. Can the evaluation operate within the time frame of the state program to provide information for planning future programs? Where should the evaluation be conducted?

9. What training will be necessary for states to use the evaluation model?

10. Can the procedures of the evaluation model be used by other states?

11. What information provided by the SET was most useful? Least useful?

12. What additional information should be included in the evaluation?

Final Report

Project No. WV-71-R-11

Grant No. DVE-15-WV-71-R-11

Home Nursing Aide Training For The High School Senior Girl

Kathleen M. Hoth, R.N.

William R. Moore
Superintendent
Fayette County Board of Education
Fayetteville, West Virginia

May 1972

West Virginia
State Board of Education
State Department of Education
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Final Report

Project No. WV-71-R-11

Grant No. DVE-15-WV-71-R-11

Home Nursing Aide Training For the High School Senior Girl

Gene R. Bowling
Director of Vocational Education
Fayette County

Fayetteville, West Virginia.
May 1972

The work presented or reported herein was performed pursuant to a grant (or contract) with the State Board of Education, Division of Vocational Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the State Board of Education, and no official endorsement by the State Board of Education shall be inferred.

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Division of Vocational Education

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ACKNOWLEDGEMENTS

The major problem in the establishment of this Home Nursing Aide program was one of communication. After the questionnaire was mailed, this communication barrier was broken. Doctors, Directors of Nursing Service in hospitals, Directors of Nursing Homes, and employment agency personnel suddenly know that this program existed and forty percent of the people answering the questionnaire volunteered to serve on the Crafts and Advisory Committee. With this break through in communication, I was brought into contact with many lay people who wanted to know more about this program. Mr. Jack Hamra, Program Chairman, invited me to speak to the Montgomery Lion's Club where the response and interest expressed by the members was overwhelming. Mrs. Leonard Nelson of Montgomery, submitted publicity on this program to the Charleston Gazette. Mrs. Norma Buckbee, Director of Headstart, brought me in touch with Mrs. Mary Lou Rubenstein of the Council of Community Services, of Charleston, who feels she can promote employment for these girls. WTIP for Action wanted to help with the communication link because they felt the program had been needed in this location for some time. Mr. Mel Burka, manager of WTIP/WTIO-FM, Mr. Caldo, manager of WMON, and Mr. Robert Thomas, the manager of WOAY-AM-FM all ran public service announcements about this service. (See Appendix A) I wish to express my gratitude to all of these people for helping me present this program before the communities in the Upper Kanawha Valley. But especially I wish to extend my thanks to Mr. Gene R. Bowling, Director of Vocational Education in Fayette County, and the following members of the Crafts and Advisory Committee for all the time they have devoted to derive the successful solution to this problem of communication:

John W. Whitlock, M. D., Beckley
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Mary A. McCarty, R. N., Charleston
Charles M. Smith, Charleston
Veronica Hoston, Page
Eva Miller, R. N., Glen Ferris

SUMMARY

The Home Nursing Aide course at the Boomer Vocational Center in Fayette County, was designed to prepare the high school student to care for the ill in the home in order to eliminate high costs of institutional care, to free hospital and nursing home beds for those acutely ill or for the advanced cases that can not be cared for at home, to relieve the emotional anxieties of the family of patients and to provide jobs for students upon graduation from high school.

The major problem besetting this training has been one of communication; one of informing the individual in the community that this trained personnel was available. Since the potential employer was not aware that this trained personnel was available, I was unable to find employment in-state for these students, therefore, the caliber and the number of girls applying for this training has deteriorated each year.

This grant enabled me to make a survey in the Beckley-Charleston-Summersville areas by means of a questionnaire (See Appendix C) which was mailed to doctors, hospitals, nursing homes, and employment agencies in order to derive answers to:

1. Employment possibilities in these locations for Home Nursing Aides.
2. The best method of placement for these aides.
3. The possibilities of setting up a registry for these aides.
4. Discovering health occupations and related field personnel willing to standarize requirements. (Crafts and Advisory Committee)

The results of this survey have far surpassed expectations. Health occupations personnel and lay people were most receptive to the program, emphasizing the need for the establishment of this field of employment for the good of the students, for the good of the families in the situation of having a loved one needing limited nursing care in a home situation, and for the good of the community.

The major results of this survey were:

1. The affirmation of the need for the Home Nursing Aides.
2. The employment placement is to be handled by the Capitol Employment Agency in Charleston.

3. The establishement of communication links among health occupation members, the lay community, and the Home Nursing Aide program.
4. The establishment of a diversified Crafts and Advisory Committee. (See Appendix D)
5. The recommendation that this program be established in Kanawha County.
6. The recommendation for the hiring of a Vocational Counselor for Fayette County, to work toward better selection of students for the program and to act as a liaison between the schools and the employment agency for better placement of the students upon graduation.

BACKGROUND FOR THIS STUDY

With the fear of admission to a hospital decreasing and the insurance coverage increasing, more and more people are being institutionalized; however, bed space and the availability of nursing care is decreasing. As this decrease continues, costs of institutional care increases.

I feel the Home Nursing Aide can relieve this situation by caring for the chronically ill patients in a home setting, thereby, releasing bed space and nursing care personnel in the institutions, which in turn, will reduce the costs. By caring for the patient at home, the Home Nursing Aide can relieve financial and emotional burdens on the family members. Also, in this area of employment, there will be an increase in job opportunities for trained high school graduates who can not or will not continue post-graduate education.

The students in this nine month pilot program, located at the Boomer Vocational Center in Fayette County, are trained in a basic course (See Appendix B) designed to teach the students to apply the nursing fundamentals to care for infants, babies, children, and adults in a home situation. Incorporated into this course are three Red Cross courses:

1. Mother's Aide
2. Home Nursing

and 3. Mother and Child Care.

Upon successful completion of these Red Cross courses, the students are nationally certified by the American Red Cross.

In the first year the students were advised of the goals of this pilot program and any student with an interest or curiosity about the nursing field was encouraged to enroll. Some students felt that they could obtain an interesting, good job upon graduation.

The major problem of this program was one of communication. In almost every other field of employment there is a focal point of employment, for instance, the Board of Education for teachers. In this valley, domestic help is another area of employment that does not have a focal point for employment, since it, too, is done on an individual basis. However, the placement possibilities differ in that the State Employment Agencies are willing to intercede in the domestic help field since it is an established field. The Home Nursing Aide field is new and as yet untried. The State Employment Agencies have not yet been willing to forge into this field. Also, doctors, hospitals and potential employers in the community were not aware that this help was available. When an individual had a loved one needing limited nursing care the choice was: place the patient in a nursing home, if they were lucky enough to find one that had a bed available and if they had the financial background to afford it, or bring the patient home from the hospital and contact the State Employment Agency for help. What they would get was usually an untrained individual who had signed up for domestic work.

This lack of communication made in-state placement extremely low. With no in-state placement, the majority of the girls in the classes following were of lower intelligence and capability and lacked interest in working in the field after graduation. Those who wanted in the health occupations field would not enroll because there were no foreseeable job offerings.

This grant enable the communication line to be opened. The main effort of the grant was to send a questionnaire (See Appendix C) to doctors and other health occupations personnel in the Beckley-Charleston-Summersville areas to acquaint these people with the program and estimate the employment possibilities in these areas.

The purposes of this survey were to derive answers to:

1. Employment possibilities in the above mentioned areas.
2. The best method of placement of these aides.
3. The possibility of setting up registries for aides.
4. Discovering health occupations and related field personnel willing to standardize requirements. (Crafts and Advisory Committee)

METHODS

A questionnaire concerning employment possibilities, necessary performance standards, medical areas of practice, and best employment placement was mailed to doctors, State Employment Agencies, private employment agencies, Directors of Nursing Service in hospitals, and nursing homes in the Beckley-Charleston-Summersville areas. (See Appendix C)

The response to these questionnaires was gratifying, as they encompassed all fields of health occupations, and included additional comments of interest.

The breakdown of the fifty one persons answering is as follows:

Doctors	40
Employment Agencies (State)	1
Employment Agencies (Private)	1
Directors of Nursing Service	6
Controller Rural Health Service	1
Nursing Home Directors	2
TOTAL	51

The results were most favorable in that 83 percent stated that they could utilize Home Nursing Aides. Of the 17 percent who said they could not use Home Nursing Aides in their field, 43 percent were interested in the program and stated that the Home Nursing Aide field should be established and encouraged in other locations in West Virginia. (See Table I) The response was so enthusiastic that an Advisory Committee was established from numberous health occupation fields covering widespread locations. (See Appendix D) The breakdown of the committee is as follows:

POSITION			
Doctors	4	Beckley	4
Nurses	4		
Inservice Education Director	1	Charleston	4
Private Employment Agency	1		
Former Student	1	Upper Kanawha Valley	3
TOTAL	11		

The widespread area of locations represented and the diversity of the positions of the members of the Crafts and Advisory Committee gives an insight into the need for the establishment of this field of the health occupations in more locations of West Virginia. Distance prevented the committee from having the four meetings as planned. Instead, we were able to have only one lengthy meeting because of the travel time and expense assumed by the members participating. However, the meeting was extremely worthwhile as the following general points were developed:

1. Course content approved. (See Appendix B)
2. Placement to be made through Capitol Employment Agency, Charleston, with two types of employment set up.
3. Vocational counselor in Fayette County to be hired.
4. Establishment of more programs for Home Nursing Aides in West Virginia

RESULTS

Survey of Placement Results (See Appendix E)

The survey of 107 high school students ranging in ages from sixteen to eighteen located in seven counties: Boone, Kanawha, Fayette, Raleigh, Wyoming, Clay, and Nicholas, bore out my premise that in the Home Nursing Aide field the possibilities of getting a job without the interest of an employment agency was nil. An applicant does not know where to apply; does not know where or how to contact an individual looking for trained nursing care in a home situation. A potential employer does not know where to locate a Home Nursing Aide. The situation to placing home aides at this time can be likened to two ships passing in a dark, foggy night with neither knowing that the other is there. An open link of communication is needed.

The conclusion can also be reached by these findings that there will be few students applying for training in this field since they do not know enough about the type of work or future employment possibilities to consider it in their field of career selection. (See Table IV)

Questionnaire Results

1. The questionnaire brought the program into the view of doctors, hospitals, and other health related occupations. (See Appendix C) It established the needed communication line between health personnel and the lay public. (See Acknowledgements)

2. The establishment of a Crafts and Advisory Committee from diversified health occupations and from three locations (Beckley-Charleston-Summersville) was accomplished. The response to being asked to serve on this committee was overwhelming. Twenty of the fifty-one persons answering the questionnaire were willing to serve on the committee. In addition, many who said that they did not have the time to serve, wrote notes stating that if any difficulties were encountered, to notify them and they would try to help. Eleven people were able to participate in our organizational meeting. (See Appendix D)

3. This questionnaire determined the medical areas involved to aid the Crafts and Advisory Committee to approve course content. The medical areas of the diseases or conditions that these aides would be most involved with are listed in the order of importance as evaluated by the health occupations questionnaire:

1. Geriatrics.
2. Cardiovascular.
3. Cancer.
4. Post-natal.
5. Post-operative.
6. Pediatric.
7. Respiratory.

4. In the fall of 1972, all instructors in the various fields of health occupations in the high schools of West Virginia met for a workship under the auspices of Mr. J. Jackson Townsend, State Supervisor of Vocational Industrial Education, to develop a basic outline for all of the health occupations. This basic outline would be adapted by the individual instructor to fit the needs of her particular course. Adaptation of this course content (See Appendix B) was approved by the Crafts and Advisory Committee to act in lieu of establishing an agency to set standards of performance.

5. The questionnaire results also showed that the opinions of employment placement were varied. (See Table II) The Crafts and Advisory Committee decided to have a private employment agency to assume the employment placement for these students.

It was agreed that employment for these students would not be accomplished through the state employment agencies for two reasons: 1. The local state employment agency has not found employment for any graduates of this program in the last three years, and 2. All officers of the state employment agencies sent their questionnaires back unanswered, with a notation that this should be referred to the local office in Montgomery.

It was decided not to work employment through the hospitals because being the instructor of the program was a full-time job and being a liaison counselor was a full-time job. One person can not fulfill both jobs to benefit the students.

The two feeder schools are Montgomery High School and Gauley Bridge High School. Gauley Bridge High School has 445 students with one guidance counselor who must use her time with the college bound students. Montgomery High School has 800 students with two guidance counselors whose time is utilized in the same manner. Therefore, it was decided not to work employment placement rhough the schools.

It was decided that the opportunity for placement should be granted to Capitol Employment Agency in Charleston because of their enthusiasm for the need of this program and their willingness to hire personnel to interview and appraise the following people about the program: doctors, hospitals, social workers, potential employers, and potential employees.

6. Interviews of [redacted] students for placement has begun and employment started.

RECOMMENDATIONS

A. The following recommendations were derived from the results of the survey of placement results:

1. Based on the survey of placement results, it is recommended to start Vocational Guidance and Career Selection with students prior to their reaching the age of entering Vocational Education classes. It was further recommended that this be achieved by the hiring of a Vocational Education Guidance and Placement Counselor for the county if not for the individual school.

The academic teachers, principals, and guidance counselors should be acquainted with the Vocational Education classes offered in their locations, encouraged to visit classes in operation, and encouraged to recommend them to the 80 percent of the high school students unable to pursue a college education.

The Vocational Education Department at local, county, and state levels should contact and encourage employment agencies to constructively work on placement of these trained aides to create an open communication link between potential employers and trained aides.

B. The following recommendations are derived as a result of the questionnaire and the activities it begot:

1. The results of the questionnaire proved the need for the Home Nurses Aides is great; so great that to be able to fill the employment needs, other programs should be established in West Virginia. (See Table I) The questionnaire established that 83 percent of the fifty-one persons answering, could employ an estimated 115 Home Nursing Aides. This program is geared to training only forty students per nine month school term. Therefore, the premise that this is an employable field is proved.

The Crafts and Advisory Committee recommended having another Home Nursing Aide Program established in Kanawha County. Carver Vocational Center was recommended because of its proximity to Charleston where there are more job opportunities. A letter to this effect was mailed to the State Vocational Education Director, the Kanawha County School Board, and the Director of the Carver Vocational School.

2. Although the results from the questionnaire showed 62 percent in favor of an agency for standards of performance, 19 percent were against it.

3. It was recommended that a representative from the Capitol Employment Agency should contact the State Director of Vocational Education and the Fayette County Director of Vocational Education to recommend the hiring of a Vocational Counselor to promote better selection of students into the program and effect better placement of students after graduation. This counselor should work as a liaison agent between the schools and the employment agency.

4. There was one long meeting instead of the projected four short meetings of the Crafts and Advisory Committee because of two reasons: 1. the length of time involved in driving to Boomer for the meeting, and 2. the expense of the travel time.

With the opening of new programs in the Charleston area the persons interested in serving on committees for Home Nursing Aides could do so in their own locations. The extra time spent at meetings instead of in traveling would benefit both programs, the existing one and the new offspring. It would be simpler for the instructors to periodically merge to exchange ideas from the Crafts Committee.

APPENDIXES

APPENDIX A

NEWS RELEASE

April 12, 1972
Public Service Announcement
For Immediate Release
Approximately :35

Trained personnel to care for patients at home following hospitalization is now available in the Charleston-Montgomery area. Graduates of the Home Nurse's Aide program are qualified to attend the sick when institutional care is no longer required.

The Home Nurse's Aide program is a nine-month course taught at the Boomer Vocational School. The program is approved by the State Department of Vocational Education -- and graduates are certified by the American Red Cross in these areas:

-- care of children and a home when the mother is unable to,

-- care of the sick after returning home, and

-- pre-natal information and care of the newborn child.

For additional information regarding Home Nurse's Aides, call 344-9664.

APPENDIX B

VOCATIONAL HOME NURSING AIDE
COURSE CONTENT

UNIT

I. Introduction of Home Nursing

A. The Training Program

1. Responsibility during training
   a. Student
   b. Instructor
   c. School
   d. Grading systems

2. Shop Facilities
   a. Acquainting the student
   b. Safety
      1. Personal protection
      2. Operation of equipment
      3. Fire hazards and policies
   c. Shop procedures
      1. Work dress
      2. Tool dispensing
      3. Live work
      4. Simulated work
      5. Class organization
      6. Class conduct
      7. Clean-up assignment

B. Career Selection

1. Obligations
   a. Employer
   b. Employee

2. Ethical Conduct

3. Responsibilities of HNA
   a. Patient
   b. Patient's room
   c. Patient's equipment
   d. Family relationship
   e. Visitors

4. Application Process
   a. Letters of application
   b. Forms
   c. Interview
   d. Resignation

5. Budgeting

a. Automatic withdrawals
b. Voluntary withdrawals
c. Savings
d. Insurance
e. Take home pay

II. Asepsis

A. Importance

B. Types

1. Disinfection
2. Sterilization

C. Methods and procedures

III. Basic First Aide

A. Critical Injuries

1. Stoppage of breathing
2. Copius bleeding
3. Shock
4. Sucking chest wounds

B. Less Critical Injuries

1. Fractures
2. Sprains, strains, dislocations
3. Minor wounds
4. Burns

C. Proper Transportation and Handling

IV. Red Cross Mother's Aide Course

A. Child Growth and Development, Cleanliness

1. Human needs
2. Discipline
3. Toy criteria
4. Safety measures
5. Spread of disease by cleanliness
   a. Handwashing
   b. Dishwashing
   c. Toilet habits
6. Development by ages

B. Handling The Small Baby

1. Diapering and holding the baby
2. Safe holds for baby
3. Bathing the baby

C. Hazards, Emergency and Safety Measures

1. Hazards of different age groups
2. Emergency First Aide

   a. Mild wounds
   b. Burns
   c. Poisoning
   d. Mouth-to-mouth resuscitation
   e. Manual artificial respiration
      1. Chest pressure-arm lift
      2. Back pressure-arm lift
      3. Back pressure-hip lift
      4. Back pressure-hip roll
   f. Choking

3. Personal Safety measures

   a. Stranger involvement outside the home
   b. Stranger involvement in the home
   c. Obscene telephone calls
   d. Prowlers
   e. Attempted entry
   f. Peeping toms
   g. Fire department and uses
   h. Preventing emergencies

D. Food, Recreation, Discipline

1. Scheduling Activities
2. Preparing meals, feeding children

   a. Food edible in different age groups
   b. Guidelines for feeding young
   c. Guidelines for preparing foods for children
   d. Guidelines in feeding babies
   e. Holding and feeding babies
   f. Disciplining children
   g. Coping with crying
   h. Amusing a child

V. Anatomy, Physiology, and Diseases of systems

A. Basic Body Structure

1. Cell
2. Tissue
3. Organ
4. System

B. Basic Body Structure and Disease

1. Cause of disease
2. Cancer

   a. Disease
   b. Difference between malignant and benign tumors

3. Defense of disease

C. Body systems

1. Skeleton

   a. Functions
   b. Structural groups
   c. Joints
   d. Differences in skeleton of make, female, and child
   e. Deformities
   f. Bone injuries
   g. Arthritis

2. Muscular system

   a. Functions
   b. Types of movements
   c. Types of muscles
   d. Body mechanics
   e. Muscular dystrophy
   f. Muscular atrophy
   g. Contractures

3. Respiratory system

   a. Organs
   b. Functions
   c. TB
   d. Croup
   e. Pneumonia
   f. Lung cancer
   g. Emphysema
   h. Asthma
   i. Obstruction of air passage between mouth and lungs

4. Circulatory system

   a. Heart
   b. Blood Vessels
   c. Blood
   d. Lymphatic system
   e. CVA

f. Thrombophilibitis
g. Pulmonary infarction
h. MI
i. Coronary infarction
j. Artherioslerosis
k. Compression of blood vessels
l. Hemorrhage
m. Blood disorders

5. Nervous System

a. Brain
b. Spinal cord
c. Perepheral nervous system
d. Auxiliary sense organs
e. Paralysis
f. Epilepsy
g. Brain damage
h. Conjuntivitis
i. Glaucoma
j. Cateract
k. Accumulated wax
l. Otitis media

6. Digestive system

a. Organs
b. Functions
c. Accessary organs
d. Gastric ulcers
e. Obstructions
f. Hepatitis
h. Gallstones
h. Diabetis mellitus

7. Urinary system

a. Organs
b. Functions
c. Bladder stones
d. Kidney stones
e. Cyctitis
f. Uremia

8. Endocrine glands

a. Glands
b. Functions
c. Tetany
d. Goiter
e. Hyperthyroidism
f. Hypothyroidism

9. Skin

a. Composition
b. Functions
c. Appendages
d. Dermatitis
e. Fungus infection
f. Head and body lice
g. Boils
h. Warts
i. Herpes
j. Acne
k. Urticaria

VI. Red Cross Nursing Course

A. Maintaining Health

1. Essentials of Nursing Care

a. Nursing fundamentals
b. Attitudes

2. Living habits that promote health

a. Health habits
b. Prevention to maintain health

3. Preventing the spread of disease

a. Providing for safe disposal of waste
b. Hand washing
c. Wearing a coverall

4. Choosing a well-balanced diet

a. Characteristics of a well-balance diet
b. Sources of nutrients
c. Functions of nutrients
d. Relations of nutrients to each other

5. Keeping the family health record

a. Type of information needed
b. When needed
c. Value

B. Recognizing Illness

1. Observing evidence of illness

   a. Skin
   b. Eyes
   c. Nose
   d. Mouth and throat
   e. General behavior
   f. Digestion
   g. Elimination
   h. Temperature
   i. Pain
   j. Pulse and respiration
   k. Differences between reactions of extremely young and aged

2. Inspecting the throat
3. Taking temperature
4. Cleaning thermometer

   a. Disinfectant method
   b. Soap, water and friction method

5. Taking pulse
6. Taking respiration
7. Keeping the patient's daily record
8. Application of Nursing fundamentals to skills

C. Positioning and body mechanics

1. Psychological aspects of illness
2. Reasons for putting patient to bed
3. Care of patient with long-term illness

   a. Positions in bed (important)
   b. Rest and quiet
   c. Ease of movement
   d. Prevention of further contamination

4. Body mechanics and good posture

   a. Conservation HNA energy
   b. Key points in developing
   c. Preparing the patient to move in bed
   d. Putting the patient to bed
   e. Positions in bed
      1. Side-lying
      2. Supine
      3. Prone

f. Moving the patient in bed
g. Proping the patient in positions
h. Mechanical items for comfort
i. Reasons for learning a definite way to give care to the patient in bed

D. Personal Services for the Bed Patient

1. Elimination
   a. Giving bed pan
   b. Removing bed pan
   c. Giving bed pan to helpless
   d. Removing bed pan from helpless
   e. Giving urinal
   f. Removing urinal
   h. Intake and output
   h. Use of commode

2. Baths
   a. Who get bed baths
   b. Purposes
   c. Room and patient preparation for bath
   d. Giving a bed bath
   e. Back care
   f. Observation to make while giving bed bath
   g. Considerations to take into account when bathing aged

3. General hygiene and grooming
   a. AM care
   b. PM care
   c. Skin care
   d. Fingernails and toenail care
   e. Shaving care
   f. Arranging hair
   g. Oral hygiene
   h. Oral hygiene for helpless
   i. Denture care
   j. Services that add to patient comfort

4. Accident prevention as a responsibility of the HNA
   a. Awareness of potential dangers to self
   b. Awareness of potential dangers to patient
   c. Preventative steps to decrease hazards

5. Physical examination
   a. Types
   b. Procedures
   c. Equipment
   d. Positions

E. Changing of Bed Linens and Transfer Activities

1. Beds
   a. Types of linens
   b. Open bed
   c. Closed Bed
   d. Occupies bed

2. Getting the patient out of bed
   a. Advantages
   b. Euipment and articles needed
   c. Helping the patient to dangle
   d. Helping the patient to a chair
   e. Getting the patient back to bed

3. Walking
   a. Helping the patient out of bed
   b. Preparing the patient to walk
   c. Helping the patient to walk

F. Diets, Medications and Treatments

1. Diets
   a. Types
   b. Modifying each type from regular diet
   c. Foods allowed on each type
   d. Keypoints in stimulating interest in food
   e. Feeding the patient helpless
   f. Feeding the blind patient
   g. Disposal of uneaten foods

2. Medicines
   a. Doctor's orders
   b. Five rights
   c. Helping the patient swallow large pills
   d. Storage of medicines in home
   e. Disposal of unused drugs

3. Treatments
   a. Purposes in general
   b. How to lessen the danger of infection
   c. Purposes for hot
   d. Purpose for cold
   e. Preparing and applying a hot water bag
   f. Removing and caring for hot water bag
   g. Hot moist compresses
   h. Improvesed croup tents
   i. Giving and applying ice collar
   j. Removing and caring for ice collar
   k. Applying cold compresses
   l. Irrigations
   m. Home emergencies (Review of first aid)

VII. Red Cross Mother and Child Care Course

A. Anatomy and Physiology of Reproductive System

1. Female
2. Male
3. Menstrual cycle

B. Pregnancy

1. Body structure and steps of growth before brith
   a. Fertilization
   b. Implantation
   c. Significance of female pelvis
   d. Divisions of pregnancy
   e. Placenta
   f. Amniotic fluid
   g. Umbilical cord
   h. Symptoms and signs of pregnancy
      1. Physical
      2. Emotional

C. Prenatal Period

1. Premarital health examinations
2. Adjustments needed during peiod
3. Natural childbirth
4. Prenatal first examination
5. Continued prenatal examinations
6. Discomforts of pregnancy
7. Signals of possible danger

D. Birth of Baby

1. Hospital Delivery
   a. Plans to make before due date
   b. Booming-in
   c. Identification of mother

2. Estimation of baby's birth date

3. Labor and delivery of baby and placenta
   a. Signs of approaching delivery
   b. Beginning of labor
   c. Preparing for delivery
   d. Immediate care of mother on admission
   e. First stage of labor
   f. Second stage of labor
   g. Immediate care of newborn
   h. Characteristics of newborn
   i. Third stage of labor
   j. Immediate care of mother
   k. Postpartum period

4. Regular medical supervision of mother and child
   a. PKU
   b. Follow-up exams for mother

5. Premature child
   a. Definition
   b. Causes
   c. Care

E. Baby's Supply and Needs

1. Preparing baby supplies
   a. General consideration for clothing
   b. Bedding
   c. Types and amounts of clothing
   d. Bed
   e. Toilet tray
   f. Bathtub
   g. Diaper pail

2. Home from the hospital
   a. Emotional fatigue
   b. Physical fatigue
   c. Birth certificate

3. What to expect and what to do for baby in early days
   a. Baby's natural skills
      1. Respiratory reflexes
      2. Nursing reflexes
      3. Defense mechanisms
   b. Weight
   c. Feeding
      1. Breast
      2. Formula
         a. Equipment needed
         b. Sterilization methods
         c. Mixing formula
   d. Bowel elimination
      1. Habits
      2. Diaper service
      3. Washing diapers
      4. Disposable diapers
   e. Crying
   f. Fontanels
   g. Muscular control
   h. Sleep
   i. Protection against infection

F. Food for the Pregnant and Nursing Mother

1. Nutrition
   a. Food needs
   b. Good diets
   c. Nutrient needs
   d. Balance in diet
   e. Individual weight

2. Feedings
   a. Breast
   b. Bottle
   c. Self demand schedule
   d. Techniques of breat feeding

G. The Baby's Bath

1. Handwashing
2. Preparing for the bath
3. Bathing the baby
4. Dressing the baby
5. Returning the baby to bed
6. Care of baby's nails
7. Holds for baby

H. The baby's First Year

1. Development of the baby in the first year
   a. Physical
   b. Social
   c. Mental
   d. Sequence

2. Continued medical supervision
   a. Checkups
   b. Immunization

3. Food needs
   a. Quantity of food
   b. Introduction new foods
   d. Vitamins and solid foods
   d. Habits
   e. Weaning

4. Sleeping
5. Pacifiers
6. Teething
7. Toilet training
8. Toys
9. Talking
10. Playpens

11. Care of the sick infant
    a. Taking temperature
    b. Common cold
    c. Croup
    d. Diarrhea
    e. Ear ache
    f. Colic

12. Hazards and accident prevention
    a. Hazards for infant
    b. Hazards for todler
    c. Poison control centers
    d. Air conditioning or heat rash

13. Traveling with a small baby
14. Baby sitters and day nurseries

VIII. Blood Pressure

A. Review of circulatory system
B. Equipment
D. Procedure
D. Recording

VIX. Enemas

A. Types

1. Cleansing
2. Retention

B. Review of digestive system
C. Equipment
D. Procedure
E. Clean-up

X. Catheterizations

A. Sterile technique
B. Review urinary system
C. Equipment
D. Procedure-retention
E. Procedure-foley
F. Irrigations
G. Clean-up
H. Specimens

XI. Vaginal Douche

A. Purposes
B. Procedures
C. Points to remember

XII. Isolation Technique

A. Psychological Aspects
B. Nature of communicable disease
C. Germs
D. Protection of the nursing assistant
E. Protection technique preventing the spread of disease

XIII. Care of the Dying Patient

A. Emotional Needs

1. Patient
2. Family

B. Sign of Approaching Death

XIV. Extended Care (Geriatrics, Rehabilitation)

A. Concept of Aging

1. Home environment
2. Physical setting
3. Basic human needs

B. Signs and Symptoms of Illness
C. Specific Conditions
1. Cardiac
2. CVA
3. Cancer
4. Arterioclerosis
5. Diabetis
6. Respiratory tract disorders and diseases
7. Urinary diseases and conditions
8. Allergy and skin disorders
9. Endocrine disorders
10. Disorders of liver and gall bladder

D. Special Care
1. Skin
2. Mouth
3. Nutrition
4. Elimination
5. Reactions to medications
6. Knowledge of colostomy care
7. Physical therapy
8. TLC
9. Review of body mechanics

APPENDIX C

INTRODUCTION TO QUESTIONNAIRE

DATE: September 15, 1971

Dear Health Occupation Member:

For the past three years, the Fayette County Board of Education has sponsored a Home Nursing Aide program for high school senior girls. The aim of this pilot program is to train girls, who would not go on to higher schooling, for jobs taking care of the ill in the home situation. Secondarily, the aim is to train girls so they can adapt, with some in-service training, to institutional work. To enable this program to fulfill its obligations to the students and the community, I would appreciate your taking the time to fill out and return the enclosed questionnaire. Where you feel comment is necessary to clarify your response, please mark with an asterick and use the blank sheet at the end of the questionnaire for your comments.

When completed, please return form to:

Kathleen Hoth, R. N.
Boomer School #2
Boomer, West Virginia 25031

Sincerely,

William R. Moore
Superintendent of Schools
Fayette County

Kathleen Hoth, R. N.
Instructor
Home Nursing Aide

FILMED FROM BEST AVAILABLE COPY

QUESTIONNAIRE

_____ 1. Name

_____ 2. Business address (please include zip code)

_____

_____

_____

_____ 3. Your area of practice

_____ 4. Miles emcompasing your area of practice

ANSWER BY PLACING AN "X" IN THE BLANKS HEADED "YES" OR "NO"

YES NO

___ ___ 1. In your practice, do you feel you could utilize the services of trained home nurses aides?

If YES, do you feel they would:

___ ___ 2. Aide you in giving better care.

___ ___ 3. Aid the patient to get better care?

___ ___ 4. Benefit the family by relieving financial worries due to the high institutional rates that would become unnecessary if the patients have home care?

___ ___ 5. Benefit other patients needing institutional care by reducing the cost since chronic cases would no longer be taking up room and services to be offered in the institution?

___ ___ 6. Benefit other patients needing institutional care by allowing more bed space to be available?

___ ___ 7. Benefit the patient's family by relieving emotional pressures?

___ ___ 8. Other reasons (please expound below)

___ ___ 9. Do you feel that a licensing agency (similar in function to state boards) should be set up to maintain uniformity of standards?

Do you feel hiring would be best done through.

YES NO

___ ___ 10. An employment agency?

___ ___ 11. A hospital placement board?

___ ___ 12. Setting up a placement office in the schools?

___ ___ 13. A doctor's office?

___ ___ 14. Other? _____

___ ___ 15. Would you be interested in being on an advisory committee to help this program realize its fullest potential?

_____ 1. How many trained home aides do you feel you could assist in getting employment in your area?

PLEASE RATE THE FOLLOWING NUMERICALLY IN SEQUENTIAL ORDER:

The home nursing aide would be responsible for the following types of patients:

_____ A. Geriatric

_____ B. Pediatric

_____ C. Cardiovascular

_____ D. Respiratory

_____ E. Care of new-borns and mothers

_____ F. Recouperative post-operative

_____ G. Cancer

_____ H. Other (Specify) _____

APPENDIX D

CRAFTS AND ADVISORY COMMITTEE

Beckley Area

John W. Whitlock, M. D.
P. O. Box 1029
Beckley, West Virginia 25801

Eugene Warvariv, M. D.
Southern West Virginia Clinic
P. O. Box 50
Beckley, West Virginia 25801

Mary G. Thomas, R. N., Director
Field Nursing Service
Mountaineer Family Health Plan, Inc.
P. O. Box 1149
Beckley, West Virginia 25801

Lonnie Winston, B. S., M. T.
In-Service Education Director
Mountaineer Family Health Plan, Inc.
Beckley, West Virginia 25801

Charleston Area

Adla Adi, M. D.
401 Medical Arts Building
Charleston, West Virginia 25301

Mary A. McCarty, R. N.
Director Nursing Service
St. Francis Hospital
333 Laidley Street
Charleston, West Virginia 25301

Bert Bradford, Jr., M. D.
Kanawha Medical Building
Charleston, West Virginia 25301

Charles M. Smith
Capital Employment Agency
308 Knight Building
Charleston, West Virginia 25301

Upper Kanawha Valley Area

Veronica Hoston
Former Student
Page, West Virginia

Kathleen Hoth, R. N.
Bocmer Vocational Center
Boomer, West Virginia 25301

Eva Miller, R. N.
Coordinator
Fayette County School Health Service
Glen Ferris, West Virginia

APPENDIX E

Placement Survey

AGE:____

In the space following the listed occupations, name the place where one should apply for a job in the various occupation areas. If you do not know, place an "X" in the space.

1. Policeman _____
2. Florist _____
3. Doctor _____
4. Dishwasher _____
5. Auto Mechanic _____
6. Short Order Cook _____
7. Lab Technician _____
8. Minister _____
9. Cab Driver _____
10. Welder _____
11. Electrician _____
12. Plumber _____
13. Carpenter _____
14. Dentist _____
15. Teacher _____
16. Home Nursing Aide _____

TABLES

TABLE I

UTILIZATION POSSIBILITIES OF HOME NURSING AIDES

Results of answers to the question No. 1 on the questionnaire:

Can you utilize home nursing aides?

PRO	83%
CON	17%
NO OPINION	0%

Number of home nursing aides employable by areas:

AREA	NUMBER ANSWERED	REPORTED NUMBER OF AIDES TO EMPLOY
Charleston	22	45-73
Beckley	10	15-17
Montgomery	3	5
Smithers	1	?
Gauley Bridge	1	10
Richwood	1	?
Dunbar	1	2
Hilltop	1	several
Fayetteville	1	6-8
Oak Hill	1	?

TABLE [redacted]

EMPLOYMENT PLACEMENT RESULTS

Employment placement would best be set up through:

Employment office	23%
Hospital	42%
School	29%
Doctor's office	9%
Other types**	21%

** Most of this 21% favored a combination of employment office--hospital--school.

TABLE III

A. Standards of Performance Results

Results of answers to question No. 9 of the questionnaire:

Do you feel that a licensing agency (similar in function to state boards) should be set up to maintain uniformity of standards?

Pro	62%
CON	19%
NO OPINION	19%

B. Order of Importance of Medical Areas of Nursing Care by Home Nursing Aides:

1. Geriatrics
2. Cardiovascular
3. Cancer
4. Post-natal
5. Post-operative
6. Pediatric
7. Respiratory

TABLE IV

EMPLOYMENT FOCAL POINT RESULTS

Sixteen to eighteen year olds' knowledge of where to apply for the following jobs?

	KNOW	DON'T KNOW
Teacher	93%	7%
Short order cook	87%	13%
Policeman	87%	13%
Dishwasher	83%	17%
Doctor	82%	18%
Florist	79%	21%
Auto mechanic	78%	22%
Cab driver	77%	23%
Electrician	74%	26%
Minister	73%	27%
Lab technician	64%	38%
Carpenter	63%	37%
Welder	58%	42%
Plumber	44%	56%
Dentist	44%	56%
Home Nursing Aide	11% **	89%

**11% of those surveyed were former students of the HNA program.

VT 016 559
INDIVIDUALIZED INSTRUCTION AND DIFFERENTIATED STAFFING. A REPORT OF THE ACTIVITIES AND FINDINGS OF THE FOX VALLEY TECHNICAL INSTITUTE DIFFERENTIATED STAFFING STUDY COMMITTEE.

FOX VALLEY TECHNICAL INST., APPLETON, WIS.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - DEC71 46P.

DESCRIPTORS - *DIFFERENTIATED STAFFS;
*TECHNICAL INSTITUTES; INSTRUCTIONAL STAFF; SUBPROFESSIONALS; MASTER TEACHERS; PARAPROFESSIONAL SCHOOL PERSONNEL; TEACHER AIDES; POST SECONDARY EDUCATION; *VOCATIONAL EDUCATION; ANCILLARY SERVICES; *MODELS; ADMINISTRATIVE PERSONNEL; INDIVIDUALIZED INSTRUCTION

ABSTRACT - A COMMITTEE OF 11 TEACHERS AND SUPERVISORS OF THE FOX VALLEY TECHNICAL INSTITUTE WAS APPOINTED TO STUDY THE PRESENT STAFFING PATTERN, RESEARCH STAFFING PATTERNS IN OTHER SYSTEMS, DEVELOP A STAFFING MODEL, AND PROVIDE GUIDANCE IN IMPLEMENTING THE MODEL. THE STAFFING MODEL RECOMMENDED BY THE COMMITTEE INCLUDES: (1) SIX DIVISIONAL SUPERVISORS WHO HAVE TOTAL RESPONSIBILITY FOR INSTRUCTIONAL PROGRAMS WITHIN THE DIVISION, (2) ONE OR MORE FIELD CONSULTANTS TO AID THE DIVISIONAL SUPERVISOR BY OBTAINING FIELD INFORMATION ABOUT DIVISION PROGRAMS AND IMPLEMENTING COURSES THAT ARE NOT PART OF A STRUCTURAL PROGRAM, (3) DEPARTMENT COORDINATORS, (4) COURSE SPECIALISTS WHO PREPARE, IMPLEMENT, AND EVALUATE CURRICULUM IN VARIOUS SPECIALIZED INSTRUCTIONAL AREAS OF THE DEPARTMENT, (5) INSTRUCTORS WHO ENGAGE ALMOST EXCLUSIVELY IN THE ACTUAL INSTRUCTIONAL ACTIVITY OF THE DEPARTMENT, (6) EDUCATIONAL AIDES TO ASSIST THE INSTRUCTORS, AND (7) ADMINISTRATIVE AND ANCILLARY STAFF. THIS PUBLICATION, WHICH IS INTENDED FOR DISCUSSION PURPOSES ONLY, DESCRIBES THE COMMITTEE'S ACTIVITIES IN DEVELOPING THE STAFFING MODEL. ILLUSTRATIONS OF THE MODEL'S COMPONENTS ARE APPENDED. (SB)

FOR DISCUSSION PURPOSES ONLY

Individualized Instruction and Differentiated Staffing

Fox Valley Technical Institute
December 1971

5963

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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A REPORT OF THE ACTIVITIES AND FINDINGS OF THE FOX VALLEY TECHNICAL INSTITUTE DIFFERENTIATED STAFFING STUDY COMMITTEE

FOX VALLEY TECHNICAL INSTITUTE

VOCATIONAL, TECHNICAL AND ADULT EDUCATION

DISTRICT 12

January, 1972

5964

A REPORT OF THE ACTIVITIES AND FINDINGS
OF THE FOX VALLEY TECHNICAL INSTITUTE
DIFFERENTIATED STAFFING STUDY COMMITTEE

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CHAPTER I

INTRODUCTION

This report is written in order to summarize the activities and findings of a staff committee of Fox Valley Technical Institute, the Differentiated Staffing Study Committee. This committee was organized during the summer of 1970 in order to study an educational concept known as differentiated staffing.

During its May, 1970 meeting, the Fox Valley Technical Institute Educational Planning Committee, following a report given by S. J. Spanbauer, Assistant Director, recommended that a study of staffing patterns for vocational-technical education be undertaken within the system. It also recommended that a committee representing the various departments of the school be appointed by the Director to conduct this study. Further, the committee submitted a list of recommended staff members to serve on this committee.

COMMITTEE APPOINTMENT

Following the recommendations of the FVTI Educational Planning Committee, the District Director appointed the following persons to serve on a committee to be known as "The Fox Valley Technical Institute Differentiated Staffing Study Committee."

Stanley J. Spanbauer	-Assistant Director (Chairman)
Thomas Arndt	-Instructor (Co-Chairman)
Jerome Wolf	-Instructional Supervisor
Lee Schuff	-Instructional Media Specialist
Bill Ihlenfeldt	-Student Services Supervisor
Phil LaBorde	-Instructor (General Education)
Merlin Gentz	-Instructor (Agriculture)
Marion Wenzel	-Instructor (Health Occupations)
Solange North	-Instructor (Business Education)

Joe Benkowski -Instructor (Trades & Industry)
Gail Treu -Instructor (Home Economics)

All committee members who were recommended by the Educational Planning Committee and appointed by the District Director, accepted their appointment and the initial meeting was held on October 5, 1970.

COMMITTEE OBJECTIVES

During the initial meeting of the committee, the Chairman, S. J. Spanbauer informed the group that it had been appointed to serve the following functions:

1. To study our present staffing pattern.
2. To research staffing patterns in other systems.
3. To develop a proposal which will recommend a tentative staffing model for the system.
4. To provide guidance to the administration, if it were decided to implement a staffing model.

Using these general objectives as guidelines, a number of specific objectives were developed and pursued by the committee during the 1970-71 school year. These were as follows:

1. To develop a communication's system for the dissemination of information to the staff which would allow for feedback to the committee to occur.
2. To conduct a task analysis of the instructional process in order to gain information concerning tasks being performed by the staff and competencies required for the completion of the tasks.
3. To make recommendations and to assist in the planning of in-service programs focusing around the subjects of "Individualized Instruction" and "Differentiated Staffing."
4. To prepare, review, and approve an educational program which outlines a rationale for individualized instruction and differentiated staffing.

5. To continue intensive research of individualized instruction and differentiated staffing through:

   a. Reading articles and periodicals on these subjects.

   b. Listening to and viewing presentations on these subjects.

   c. Visiting other schools with innovative staffing patterns and examples of individualized instructional systems.

6. To plan and to make arrangements for a post-school curriculum workshop.

7. To establish guidelines for and to assist in the selection of participants in special curriculum projects.

8. To develop a tentative model of differentiated staffing for post-secondary vocational-technical schools.

9. To write a comprehensive report containing the activities and findings of the committee.

CHAPTER II

DEFINITION OF TERMS

The following list of terms, together with the Committee definitions, is provided in order that the reader interprets this report as intended by the Committee:

Instructional package--instructional materials organized so that a student may complete an individualized concept, unit, or course.

Behavioral objective--a goal stated in measurable performance terms.

Learning Lab--a student-centered learning environment, containing all the necessary materials and equipment required for the learning process.

Carrel--partitioned or enclosed table or area that is used for individual study.

Median--point at which an equal number of values exist above and below.

Level of agreement--numerical score used in research which indicates the degree of variation of response.

Team Teaching--the cooperative developing, teaching, and evaluation of a unit or course by two or more staff members.

Self-contained classroom--the traditional instructor-controlled, closed-door classroom.

Differentiated Staffing--a concept of educational staffing centered around the individual student which involves a team of professional and para-professionals performing different roles, in accordance with rewards based on performance review.

Master teacher--a name generally given to a lead instructor in a differentiated staff.

Teacher--an individual with a high degree of acedemic training and/or occupational experience with some experience in pedagogy.

Faculty Senate--a group of faculty and administrative personnel who meet to make recommendations for the good of the school.

Para-professional--a name often given to one who provides supporting services in education.

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Teaching assistant--a name often given to one who provides supporting services during the instructional process.

Clerical aide--a name often given to one who provides general clerical and record keeping assistance to the instructor.

Individualized Instruction--a form of teaching requiring educational materials and methods designed to meet the abilities of the individual student in order that he may successfully proceed through a course at his own rate of progress.

Course specialist--a person who is capable of assuming responsibilty for teaching and curriculum development in one specific instructional area.

Programmed instruction--a set of self-study materials used on an individual basis which provides for frequency of student response and immediate feedback to the learner.

Team leader--a name given to the individual responsible for a team teaching group.

Technical assistant--a name given to one who has special training and skills which are utilized in the educational process.

Intern--a college or university student preparing to enter the teaching profession who as a part of his training program is temporarily assigned as a salaried member of an instructional team.

Task analysis--an interpretation of data obtained about a particular job or process.

Model--a graphic illustration of a concept, principle, or idea in order to show the relationship of parts to the whole.

Position paper--a report in writing which represents the unanimous opinion of a person or a group about a concept, principle, or subject.

Media--all instructional material used by the instructor or the student during the learning process.

CHAPTER III

SUMMARY OF COMMITTEE ACTIVITIES

Since its formation during the Summer of 1970, the Differentiated Staffing Study Committee planned and participated in numerous activities. These activities are summarized below and, where necessary, further information is given in succeeding chapters of this report.

May, 1970

1. Fox Valley Technical Institute Educational Planning Committee recommended that a study be conducted.

2. Educational Planning Committee recommended staff members to serve on the study committee.

Summer, 1970

3. District Director approved study of individualized instruction and differentiated staffing.

4. District Director appointed staff members to study committee.

5. Appointments to the committee were accepted by staff members.

October, 1970

6. Initial meeting of Differentiated Staffing Study Committee was held on October 5, 1970, at District Central Administrative Offices.

7. General Objectives of the Committee were outlined to the members by administration.

8. Solange North appointed Committee Recorder; Lee Schuff appointed as Research Disseminator and Filer.

November, 1970

9. Sub-committees worked on task analysis and communication flow.

10. Lansing Community College at Lansing, Michigan, was visited by Committee members.

December, 1970

11. Slide-sound program, "Rationale for Innovation," developed.

January, 1971

12. Committee reviewed and revised slide-sound program.

13. Dr. Alan Osterndorf, Superintendent of Menasha Public schools, met with the committee to discuss the program being implemented in Menasha.

14. Staff In-service program held. Committee members participated in discussion of individualized instruction and differentiated staffing (See Appendix "A").

February, 1971

16. Federal Project, Phase I, approved by Wisconsin Board of Vocational Technical and Adult Education.

17. Curriculum Project Proposal draft formulated and approved for submission to staff.

March, 1971

18. Task Analysis Instrument completed and approved by the committee.

April, 1971

19. Oakland Community College, Detroit, Michigan, visited by a member of the committee.

20. Central Nebraska Technical College, Hastings, Nebraska, was visited by committee members and administration.

21. Task Analysis instrument distributed to staff.

22. Plans made for curriculum workshop in June.

May, 1971

23. Wilson Campus School, Mankato State University, and Mankato Vocational-Technical School visited by Committee.

24. Committee established position concerning educational concepts for Fox Valley Technical Institute. This position paper was published in DATELINE.

25. Sub-Committees appointed to develop model of differentiated staffing and to write report of activities and findings by Committee.

Summer, 1971

26. Curriculum workshop for staff conducted by Robert Harrington, Dean of Instruction, and John Vonnes, Media Specialist, from Central Nebraska Technical College, Hastings, Nebraska.

27. Selected staff members participated in preparing instructional packages.

28. Media technicians employed to assist staff in the preparation of materials.

29. Federal Project, Phase II, approved by Wisconsin Board of Vocational, Technical and Adult Education.

30. Differentiated Staffing Study Committee met to develop tentative model of differentiated staffing and to compile a report of findings and activities of the past year.

September, 1971

31. Committee met to review and revise model of differentiated staffing (1st draft).

October, 1971

32. Committee met with District Administrative Staff to obtain administrative reaction to model (2nd draft).

November, 1971

33. Committee met to review and revise model of differentiated staffing (3rd draft).

December, 1971

34. Committee met to review and revise model of differentiated staffing (4th draft).

35. Plans were formulated for Curriculum Development for 1972.

CHAPTER IV

VISITATION TO OTHER SCHOOLS

One of the objectives of the committee during the year was to research differentiated staffing models and individualized instruction techniques by visiting schools with innovative staffing patterns and examples of individualized instructional systems. The following schools were visited by the committee members and Administration:

LANSING COMMUNITY COLLEGE
LANSING, MICHIGAN

November 16-17, 1971

Lansing Community College, Lansing, Michigan, was visited by Committee members because it has been somewhat of a "pioneer" in the field of individualized instruction on an automated basis. Their objective has been to build a curriculum which could be equally effective as classroom teaching and yet truly individualized to meet the needs of each student--thus enabling them to truly "start" progress from that point to higher levels.

They are accomplishing their objectives by building an office education curriculum consisting of hundreds of short, single-concept units of instruction in each area of the program. These units are programmed on various media including 8mm sound film, slides, and tapes, loaded in cartridges for ease of use in individual carrels with special equipment. Courses are then designed for each student by including or omitting specific units or groups of units according to individual needs.

Lansing Community College has made the entire curriculum available to schools who face the same problems of trying to adapt a rigid and restricted curriculum to the widely varying needs of individual students.

OAKLAND COMMUNITY COLLEGE
DETROIT, MICHIGAN

March 25-26, 1971

Oakland Community College is a multi-campus, two-year institution which provides vocational-technical and academic-transfer program for students in the Detroit metropolitan area. During the 1970-71 school year, approximately 10,000 students enrolled in liberal arts, college transfer programs.

The college has developed a new approach to learning, offering the student a wide variety of instructional sequences and situations following the systems approach to instruction. Learning laboratories have been set up with instructional materials, equipment and other resources provided each student in the laboratories. Most programs are established following independent instructional sequences which use media such as audio-tapes, visual displays, programmed materials and laboratory experimental set-ups. Large and small group assembly sessions are provided students on a scheduled basis but the bulk of the instruction occurs in the learning laboratories.

In order to produce the audio-visual materials, the college administration commissioned a publishing company, Litwin Associates, to develop the materials in cooperation with the instructors.

Discussions with faculty members indicate mixed feelings about the use of commercially prepared materials as opposed to traditional methods of instruction. Most resentment centered around the lack of faculty involvement in decisions which concern them during the instructional process. There appears to be two schools of faculty opinion at Oakland; one enthusiastically pursuing individualized instruction and the other group rather vigorously opposed to the concept.

CENTRAL NEBRASKA TECHNICAL COLLEGE
HASTINGS, NEBRASKA

April 5-6, 1971

Central Nebraska Technical College opened in 1966 with an enrollment of 196 students. An educational system designed to meet the needs of the people required training, retraining, and upgrading of vocational skills, the school offers 28 associate degree and 28 vocational programs. These are divided into the transportation division, fabrication division, agriculture department, dental department, and practical nursing school. Recently the school received North Central accreditation.

The college has an open-door policy in that any student age 16 or older may be admitted on any day throughout the year. Each student is assigned an advisor (each advisor has 35 advisees) and together they plan a program which meets the needs of the individual student. The student then proceeds at his own pace through the course of study.

There are no classrooms at Central Nebraska Technical College. All instruction occurs in a laboratory or shop. Each lab or shop has several carrels to which the students go for individualized instruction. No formal lectures are permitted. Information to be relayed to the student by the teacher is recorded on a cassette and the student listens to this in the carrel. The school has no central library. Each lab has its own books, magazines, pamphlets, teaching films and other materials for easy access to the student. But, in order to satisfy North Central accreditation requirements, the school must soon develop a modest central library. When starting a course, the student receives a course outline, study guide, information sheets, and inventory sheets.

Each student must attend laboratory for four hours per day, either 8 a.m. to 12 noon or 1 p.m. to 5 p.m. General education courses are scheduled in the opposite block. Attendance is taken, but no mandatory attendance requirement exists. A graduation ceremony is held in the spring, but students finish a program on any day in the year.

Central Nebraska Technical College has ten classifications of instructional personnel. Emphasis is placed on the instructor's industrial or business experience and the average instructor at CNTC has 8 to 12 years of vocational experience. All teachers are employed for 40 hours per week-8 a.m. to 12 noon and 1 p.m. to 5 p.m.-and are expected to be in school for those 40 hours. Each teacher receives one-half day per week for preparation and curriculum development as well as four hours per week for student conferences. Teachers generally are in the lab and teaching a maximum of 32 hours per week. Each division has a division chairman who has complete control over the lab during the day, thus insuring that staff members are providing individual help to students. Division meetings are held weekly during which time the labs are closed for student use. With this type of educational program, free time is available for conferences, substitute teachers are not necessary, and each student is able to proceed at his own rate.

Four people are employed in the instructional media department headed by John Vonnes. Teachers are taught to do their own photography, film preparation, and recording. While some commercially prepared films are available, the individual teachers are encouraged to prepare their own audio-visual material.

Student enrollment during the 1969-70 school year was 1,075 day students and 725 night students. The drop-out rate was 4.8%. The placement record was 97% employment in related occupations.

WILSON CAMPUS SCHOOL
MANKATO, MINNESOTA

May 20-21, 1971

Wilson Campus School at Mankato State College, Minnesota, is engaged in some 63 changes in its approach to educating students. A few of them involve personalized programming, matching students and teachers, student development of curricula, optional attendance, smorgasbord scheduling, individualized learning, 12-month school year, student freedom, individual progress reports, all-day Kindergarten, emphasis on affective domain, five-phase instruction, and a nongraded K-12 country school environment.

Because the Wilson program is based on individual-diagnosis-and-prescription philosophy, the school sees its moderately differentiated staff in the image of a hospital:

1. Doctors--master teachers who are on call 26 hours a day.
2. Nurses--regular teachers who work shorter hours and do not have the same training as doctors.
3. Nurses'aides-- paraprofessionals who assist with instruction supervision, and clerical and special areas such as audio-visual.
4. Candy Stripers--parent volunteers and student teachers who are with us for short periods of time on a nonpaid basis.

Dr. Don E. Glines, the present director of Wilson Campus School will start a division within the School of Education at Mankato State College, that will have basically the same concept of humane education as that within the Campus School.

The Botany Department of the Mankato State College has a program within that department where the complete course has been changed to the individualized learning concept.

CHAPTER VII

RECOMMENDATIONS FOR FOX VALLEY TECHNICAL INSTITUTE

Effective Target Date: September, 1975 as Deadline.

The following recommendations are submitted for consideration by the Staff and Board of Fox Valley Technical Institute. These recommendations are being made after over a year's research and study revolving around the concept of individualized instruction and differentiated staffing.

The reader should refer to Appendix "H" which is a position paper which was unanimously approved by the Differentiated Staffing Study Committee in May, 1971. That position paper forms the Central theme for the following specific recommendations:

1. Each Department will develop a specific three-year schedule to meet the deadline for implementation of the recommendations in this report. This schedule shall include:
   a. Specific courses to be individualized and date of completion.
   b. Persons responsible for each course's development.
   c. Specific provisions for advanced standing requirements of the Department.
   d. The schedules shall be submitted to the Division Supervisor no later than March 1, 1972.
2. Programs will be divided into units rather than courses.
3. In the development of units in the above time table each department should consider establishing department policies according to the following philosophy:
   a. The student is the most important individual in the school, He is the purpose for the school's existance. Therefore, his individual needs will be our primary concern.
   b. To meet the individual needs it is essential that each student should:
      1. Be able to enroll in any program at any time.
      2. Be able to progress at a rate consistant with his ability and needs.

It is safe to assume that this concept of instruction as well as the coming of Dr. Glines to Mankato State will assure a new approach to education for those college students who volunteer for this new program.

CHAPTER V

INSTRUCTIONAL TASK ANALYSIS

To study the possibility of changing instructional staffing patterns within our system, the Differentiated Staffing Committee developed an instrument to study the various patterns of tasks now being performed by our staff members. The survey instrument was divided into ten major categories which dealt with tasks relative to:

PROGRAM PLANNING, DEVELOPMENT AND EVALUATION-Conducting community surveys, maintaining an advisory committee, planning lessons, selecting instructional resources and developing instructional materials.

INSTRUCTIONAL PLANNING-Structuring courses, designing course units, planning lessons, selecting instructional resources and developing instructional materials.

INSTRUCTION-EXECUTION-Directing student activities, group interaction, instructional strategies, instructional presentations and educational media.

INSTRUCTION-EVALUATION-Evaluating student performance, developing tests, administering and analyzing tests, and evaluating instruction.

MANAGEMENT-Preparing budgets, procuring supplies and materials, maintaining records, maintaining shops and laboratories, and providing for the safety of students.

GUIDANCE-Obtaining information on students, counseling students, placement of students, and advisory functions.

STUDENT ORGANIZATIONS-Planning, organizing, advising, and participating in student clubs and organizations.

3. Be able to obtain a certificate of achievement at any point in his program and a degree or diploma at the successful termination of that program.

4. Be able to attain advanced standing in any unit in which he can demonstrate competency.

5. Have access to a certified teacher at any time during the school day.

6. Have access to all units at all times during the school day.

7. Be assigned to a program advisor who will advise him in the development of a unit sequence to meet his unique needs.

8. Be able to, with the guidance of his advisor, determine a flexible schedule according to his needs.

4. In order to implement the above recommendations it is essential that the following administrative guidelines be established:

   a. Outline specific information needed for annual reports such as attendance, grades, credits, and/or hours, etc.

   b. Implementation of a revised student evaluation system developed by a joint faculty-administrative study committee.

   c. Provide facilities and staff to meet the needs of the student for a longer day and school year.

   d. Establish a philosophy to guide Departments in the establishment of course fees.

   e. Establish guidelines for budget control and distribution.

   f. Implementation of a faculty senate to act in an advisory capacity to administration and staff.

   g. Implementation and enforcement of the lines of accountability.

   h. Establish an attendance policy consistant with the concepts of individualized instruction.

   i. Develop a means of determining credits earned for each subject area.

   j. Establish a workload standard that allows for the various levels of instruction and complexity of instructional tasks.

5. It is further recommended that the Faculty Senate, if established following the suggestion of this report, further study the implications of implementation of this staffing model at Fox Valley Technical Institute.

PROFESSIONAL GROWTH AND DEVELOPMENT-Participating in various professional growth activities of educators.

SCHOOL COMMUNITY RELATIONS-Promoting and publicizing programs and maintaining community relations.

COORDINATION-Pre-school counseling and selection, work experience coordination, and all categories of on-the-job instruction.

The tasks used in the instrument were derived from Cattrell's study of 1967. His tasks were discussed and modified by the Differentiated Staffing Committee to arrive at the 267 tasks utilized. The instrument required that staff members respond to the 267 tasks with respect to the approximate frequency that they performed each task and the level of competency required for each. Frequency categories included:

1. Never
2. Yearly
3. Monthly
4. Weekly
5. Daily

Level of competency categories include:

1. Para-professional
3. Teacher
5. Person with advanced training and experience

The total faculty and administrative staff of Fox Valley Technical Schools were asked to complete the survey on a voluntary basis. In addition copies were sent to each of the 17 other vocational districts for completion. A total of 111 surveys were completed and returned. Of this total 71 were instructors and the remainder were para-professionals, coordinators, supervisors and administrators. The percentage of Fox Valley Technical Institute instructors responding to the instrument was 62%.

While the Differentiated Staffing Study Committee feels confident that the staffing model, as it affects the individual instructor in an individualized instructional setting will be effective and efficient, more specific input from ancillary and administrative personnel is suggested when implementing and evaluating the total staffing model. Administrative, Supervisory, and Instructional Staff functions will continue to change with the implementation of individualized instruction programs and the need for continuous evaluation of this model is critical.

The data derived from the instrument was programmed into the computer and printouts were generated in order to show responses for each of the following areas:

1. Composite (total population)
2. Instructors
3. Administrators, supervisors, counselors
4. Total composite for District 12
5. Composite for outside Districts
6. Composite for each instructional division within District 12

The statistical results indicated a median score for each task for both the instructional staff and the administrative staff in the areas of frequency and level of competency. The median score was utilized because it was affected less by extreme scores than either the mode or the mean. A level of agreement score was also tabulated to indicate the degree of variation of the respondents on any task. This will be valuable for determining the validity of the task responses.

Dr. Orville Nelson, Research Analyst, Stout State University, served as a statistical consultant to the Differentiated Staffing Committee and met with them during August 1971 to explain the results. He analyzed and interpreted the data to the committee and offered suggestions for using this information to develop a tentative model of differentiated staffing.

A Fox Valley Technical Institute Publication, "Instructional Task Analysis," December, 1971, contains the results of this intensive survey. Copies are available from the school.

SUMMARY

The Differentiated Staffing Study Committee recommends that there be appointed six Divisional Supervisors who have total responsibility for instructional programs within the Division. To assist him with this responsibility, one or more Field Consultants should be assigned to each Division with the responsibility of obtaining field information about Division programs and implementing courses that are not a part of a structural program.

Each Department of the school should have a person who teaches and is responsible for Department Coordination. Course Specialists should be selected in order to prepare, implement and evaluate curriculum in various specialized instructional areas of the Department.

The person classified as "Instructor" engages almost exclusively in the actual instructional activity of the Department. Assisting him are Educational Aides which are classified according to function and educational and occupational experiences as Instructional Assistants, Occupational Specialists, or Instructor Aides.

Supporting this instructional staffing model are administrative and ancillary staff involved with Instructional Resources, Research, Curriculum Coordination, Personnel Recruitment and Orientation, In-Service Training, Extension Services, Special Education Coordination, Staffing Scheduling and Certification, Student Services, Public Relations and Financial Affairs.

CHAPTER VI

DIFFERENTIATED STAFFING MODEL

With a program of Individualized Instruction, it is imperative that staffing patterns are studied in order to determine whether it is necessary to modify existing structures. For this reason, the Fox Valley Technical Institute Differentiated Staffing Study Committee researched staffing patterns and developed a tentative staffing model which it felt would be effective in a post-secondary vocational-technical educational system. The following guidelines were agreed upon by the Committee:

1. The professional instructor must always remain the focal point of the instructional process. While the paraprofessional may become involved in instruction, the professional instructor will always diagnose, prescribe and evaluate instruction for the individual student. The Committee feels that a professional instructor should be assigned to the classroom or laboratory whenever the structured process of instruction is occurring.

2. The differentiated staffing model should serve as a general framework from which specific school departments may implement all or part of the framework as it applies to that department.

3. The differentiated staffing model which is described in this chapter includes a suggested staffing pattern for those who are actively engaged in everyday instruction or supervision. While an overall administrative organizational structure is shown, the focal point of this model does not include detailed information on ancillary and administrative services.

4. In some cases, because of the size of the Division, it may be necessary for suggested positions to be combined with one person performing the functions of two positions. Likewise, it may be necessary for two departments to be combined, for administrative purposes, especially when a new program or department is organized.

5. The Committee strongly urges that all phases of vocational-technical education which are part of associate degree, diploma, or certificate requirements be included as full-time departmental responsibilities.

APPENDIX "A"

EVALUATION
TEACHER EDUCATION PROGRAM
Differentiated Staffing
January 26, 1971

11 Excellent
19 Very Good
16 Good
3 Fair
1 Poor

COMMENTS:

Slide presentation was excellent. Group meetings brought out many of the feelings and fears of the faculty members. This demonstrated a lack of open-mindedness in many of the members.

I definitely feel the committee should continue to study this and relate back to the staff.

The questions in our section were good. The teacher had many misunderstandings cleared up. The group gave the committee several good suggestions and ideas.

There is much confusion concerning this issue. I think the ideas are good. We must know more.

What is differentiated staffing?

Didn't take down our questions..which they asked for.

They think the communication between faculty and committee members should be improved.

Because of the newness of the program research, many questions remained unanswered.

Slides were excellent--discussion groups were very enlightening--am looking forward to hearing further ideas from the study committee.

Could use more information on differentiated staffing as the committee makes progress.

The groups were excellent, good comments, and interaction.

Hope to see additional work done in this area before next faculty presentation so as to clear up the many questions in our minds.

Audio-visual presentation was not very effective in audience setting. Presentation was a hodge-podge of facts and opinions. Very "elementary". Not so many questions were answered in the individual groups.

6. The Committee supports a program of staff accountability which fosters an effective system of program planning and budgeting. The Committee cautions the Administration and Board to refer to the District Philosophy of "providing quality education for employment to all persons," recognizing that program costs will differ markedly depending on factors such as program orientation, equipment, staff, supplies, and facilities.

THE MODEL

Appendix "B" illustrates an overall model depicting the relationship between the learning environment and the world of work. It graphically represents the inter-relation that exists between the learner and his goals for employment. The flow of information through the educational cycle is a closed-loop system which links the past, present, and the future to determine or predict the methods and curriculum necessary to accomplish tasks in the world of work.

Appendix "C" shows an amplification of that part of the model shown in appendix "B" that depicts the functions necessary to carry information from the world of work and deliver products to the world of work that are capable of performing the tasks.

The student has been placed as the central point of this model (shown in Appendix "C"), to emphasize the fact that he is recognized as the focal point of all activities in the District, either directly or indirectly. The center portion of the model includes those staff positions that are engaged in the instructional personal contact with the student and the breadth of accountability and responsibility that the staff member has. No attempt has been made to assign percentages of contact as this would vary with individual students.

Much more study is needed to go into this. Many questions are still unanswered. Many problems in the differentiated staffing.

I am still in the dark on an explanation of exactly what this is.

I personnally would welcome professional evaluation and related constructive suggestions.

Still have to have more information relative to differentiated staffing in the area of accounting.

Lots of unanswered questions in the smaller groups. Lee Schuff's presentation was excellent.

Put the whole subject in better perspective.

Define differentiated staffing.

Doesn't appear to be well understood at this time. Probably some good and questionable values in any method.

Presentation very good but I am not entirely sold on differentiated staffing as was explained. I believe we are doing that now.

I appreciate the opportunity to discuss differentiated staffing. I only wish that it was more clearly defined.

Would like a definition of differentiated staffing.

Slide presentation was very well done. Follow-up discussion got "off the track" in our group.

Many questions left unanswered. Relationship of staff to administrators very unclear.

Extremely interesting and effectively portrayed.

We should have more meetings later.

Would like to know more about it. The group method was good.

What is it? How will it operate?

Audio-visual materials were outstanding. Presentation was very effective method for motivating staff. I am sure they realize that something must be done to re-examine the educational system in this age of accountability, but suggest that some of the negative reactions are based on insecurity because of the uncertainty about what will happen to the individual.

It shows relative amounts of time and accountability.

POSITION DESCRIPTIONS

No attempt has been made to write detailed descriptions for the various position of this staffing model. It suggested that the reader refer to the pamphlet, "Instructional Task Analysis," Fox Valley Technical Institute, December, 1971, for specific information regarding an intensive task listing survey conducted in 1971. It contains a hierarchical listing of tasks based on their complexity and frequency of performance. While that study may be referred to for implementation of this model, it is felt that some months of experience will provide more realistic data about position responsibilities.

Appendix "D" depicts an overall administrative and supervisory organizational model. The District Board as policy makers for the system provide the basis under which the administration and staff function. The District Director is the chief Administration Officer of the District, and he is assisted by the Deputy Director. The Deputy Director, who is in charge of overall school operations and planning, is assisted by four administrators.

Administrator Functions

The District Director, the Deputy Director, and the administrators of Instructional Services, Extended Services, Student Services, and Financial Affairs form the administrative team which is responsible for decision making in order to implement Board policy.

Lets pursue it further.

It was good to become more aware of this but more details are needed.

Use of audio-visual was good. He seemed to have difficulty in justifying the system.

Needs more development before being initiated.

Needs much more delving into and explaining.

At lunch it was discussed but there still hasn't been a good definition of differentiated staffing.

SUMMARY OF STAFF COMMENTS

5 Does not know what differentiated staffing is.

25 Is interested and would like more study and reports on the differentiated staffing.

18 Felt they came away better informed.

2 Seemed enthusiastic about the possibility of differentiated staffing being implemented.

The planning and decision making of this team form the basis under which other members of the staff will function.

The Administration of Instructional Services has the overall responsibility for administration and coordination of:

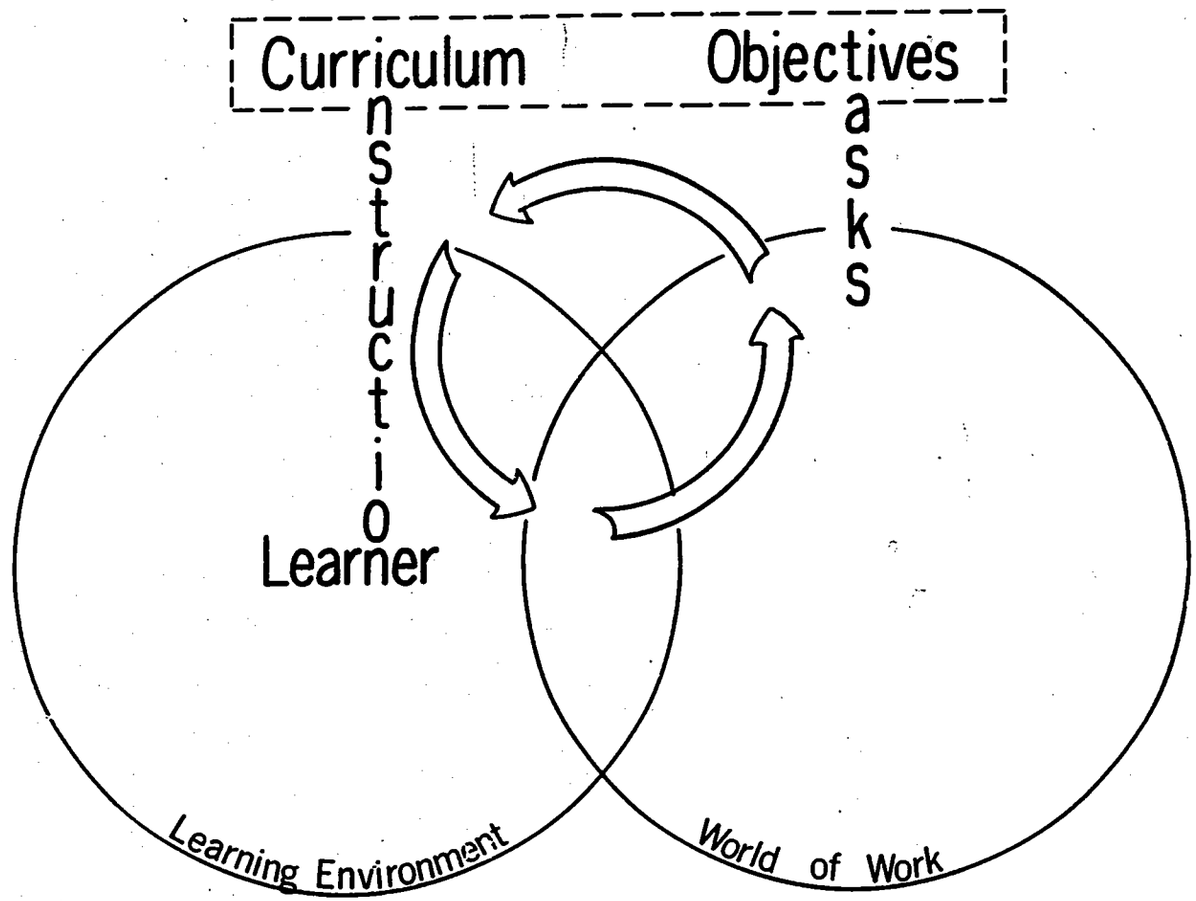
1. Instructional Media Services.
2. Library Services.
3. Curriculum Coordination.
4. Teacher Education.
5. Instructor Scheduling.
6. Instructor Recruitment.
7. Instructor Employment and Certification.
8. The budget for the programs and activities under his jurisdiction.

The Administration of Extended Services has the overall responsibility for administration and coordination of:

1. All Part-Time classes that are not a part of regular structured programs.
2. Special Seminars and Workshops.
3. Supervision of Outlying Centers.
4. Special Programs for Disadvantaged and Minority groups.
5. The budget for the programs and activities under his jurisdiction.

The Administrator of Student Services has the responsibility for the administration and coordination of:

1. Counseling Services.
2. Financial Aides.
3. Student Activities.
4. Student Health Services.
5. Student Testing Services.
6. Admissions.
7. Student Housing.



APPENDIX B
OVERALL MODEL

6060

8. High School Relations.

9. Placement Services.

10. The budget for the programs and activities under his jurisdiction.

The Administrator of Financial Affairs is responsible for the administration and coordination of:

1. School Accounting and Cost Analysis.

2. Systems Analysis.

3. Payroll.

4. Budget Coordination and Implementation.

5. Data Processing Administrative Operations and Services.

6. The budget for the programs and activities under his jurisdiction.

To support the administration staff of the District it is recommended that Supervisors be appointed for the following educational Divisions:

Agriculture Education
Business and Marketing Education
Health Occupations Education
Home and Community Services Education
Trades and Industry Education
General Education

Division Supervisor Functions

The Division Supervisor is responsible for the total operation of the Division of his responsibility. The Supervisor should have considerable teaching experience in the Division of his responsibility with recent education and occupational experience. The Division Supervisor:

1. Coordinates inter-department relationships.

2. Coordinates research with program implementation.

3. Acts as curriculum advisor and coordinator.

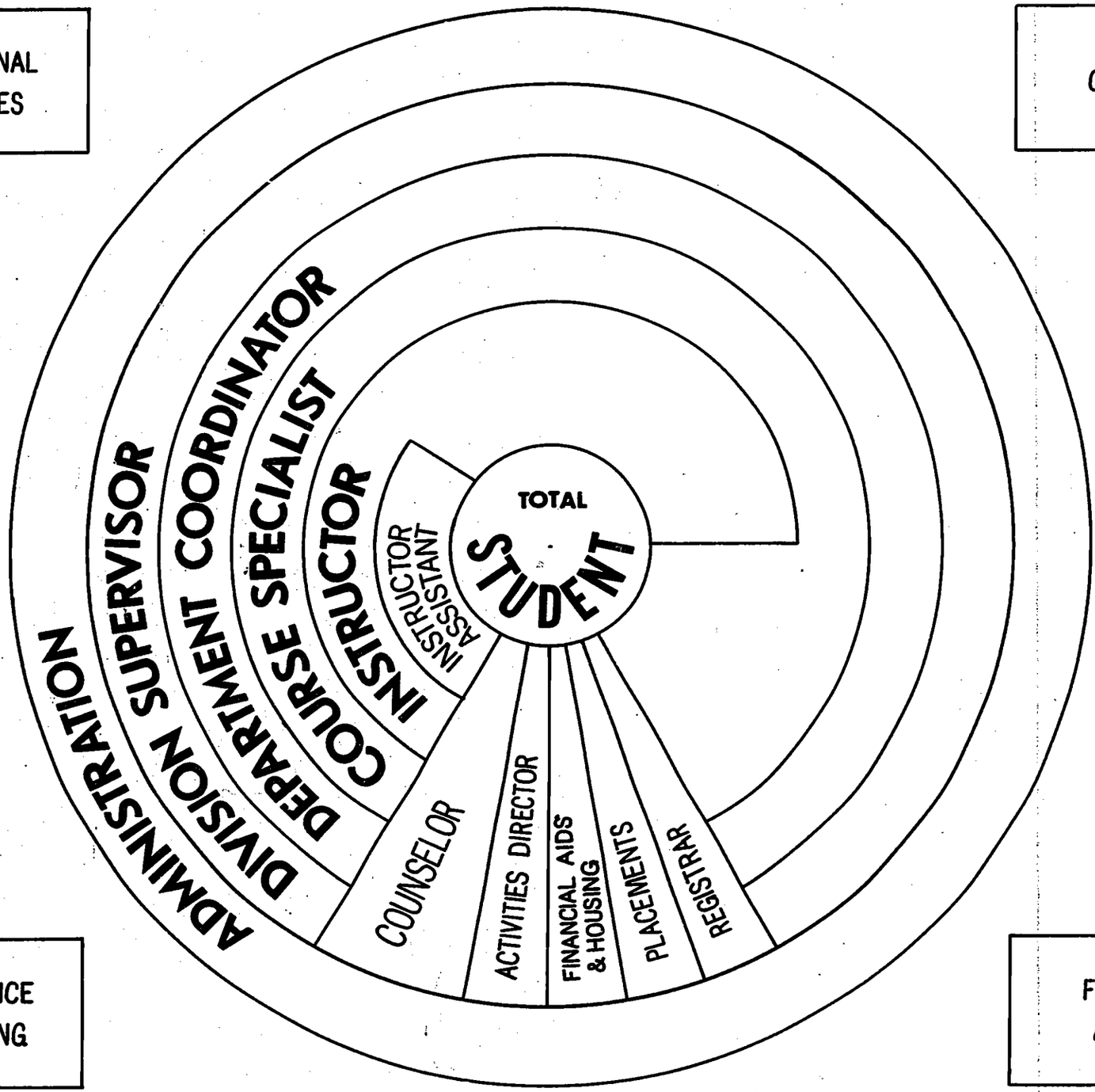
4. Recommends actions to be taken in personnel affairs within his Division.

5. Is accountable for the total budget in his Division.

6. Aids Instructors in course development and evaluation.

EDUCATIONAL RESOURCES

CLERICAL



MAINTENANCE ENGINEERING

FINANCIAL AFFAIRS

APPENDIX C
FUNCTIONAL MODEL

6001

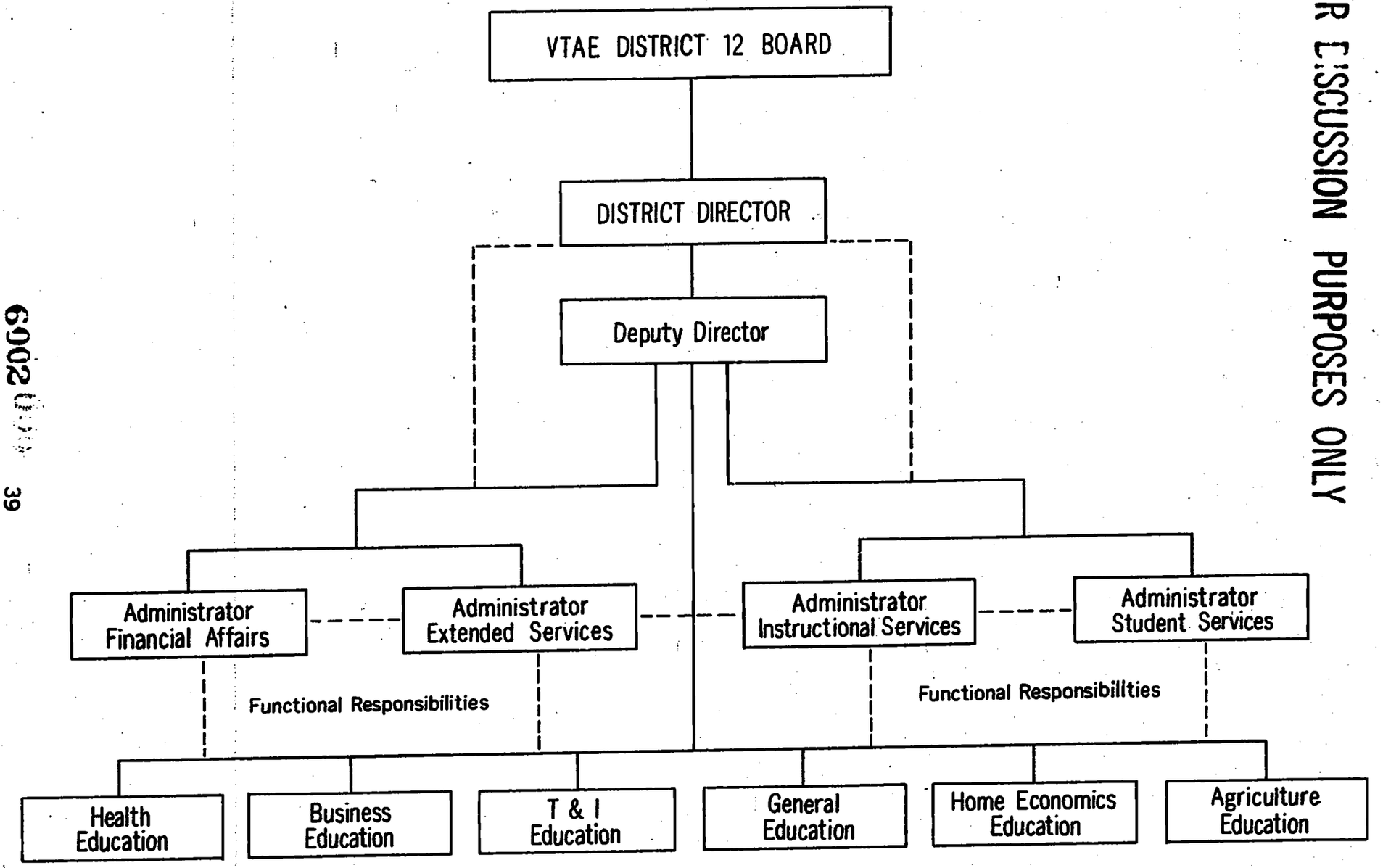
In Appendix "E" the reader will find a model which shows the relationship of the Division Supervisor to other members of the departments. It also shows a Division structure with Field Consultants, Department Coordinators, Subject Specialists, Instructors, Interns, and Instructional Assistants. This model would be appropriate for Departments with eight or more staff members. The model shown in Appendix "F" could be used for Departments with six staff members. Appendix "G" shows a model for Departments with two members.

Field Consultant Functions

There should be at least one Field Consultant for each instructional division. A Field Consultant responsible for Apprentice Coordination is assigned to the Trades and Industry Division. A Field Consultant responsible for Special Education, including Pre-Technical Education, High School Credit Education, Basic Adult Education, and programs for disadvantaged and handicapped is assigned to the General Education Division. The Field Consultant is:

1. Field Representative of the Division who is responsible for ascertaining the needs which exists in the world of work.
2. Responsible for working closely through the Division Supervisor to coordinate his research with department course offerings.
3. Responsible for forming advisory committees and for serving as educational representative until such time as a department coordinator is appointed.
4. Responsible for determining and implementing courses that are not a part of a structured program.

FOR DISCUSSION PURPOSES ONLY



APPENDIX D

Administrative – Supervisory Instructor Model

Department Coordinator Functions

Each Department of the School should have a coordinator who is recognized as the specialist of the Department. The Department Coordinator is, in all cases, involved in the teaching process. The Department Coordinator:

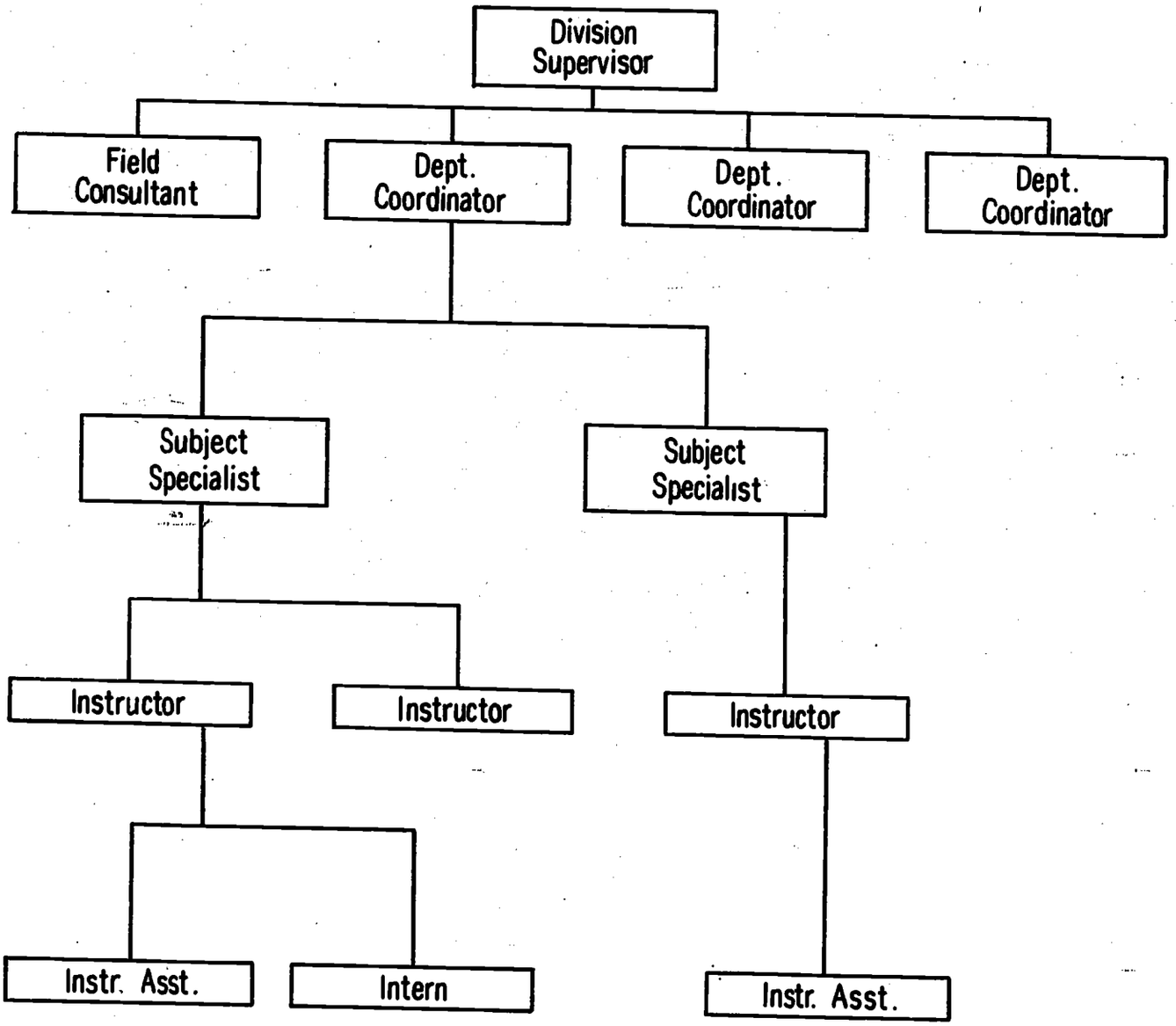
1. Works with Advisory Committee in his field.
2. Implements the curriculum in his department.
3. Is responsible for budget accountability of his department.
4. Prepares budget through recommendations of his staff.
5. Is involved in the teaching process.
6. Will serve as student advisor.
7. Will diagnose, prescribe, and evaluate instruction for the individual student.
8. Is responsible for the assignment of interns and instructional assistants.
9. Will also serve as a Subject Specialist and/or Instructor in his department.

Subject Specialist Functions

The Subject Specialist is chosen because of his specialization in a particular instructional area. A person may be a Subject Specialist for more than one instructional area and/or may also serve as an Instructor. Time for preparation of instructional packages, individual strategies and instructional media is given the Subject Specialist as a part of his assignment. The Subject Specialist:

1. Will prepare, implement and evaluate curriculum in his specialized area which may be a single subject, multiple subject, or a total program.
2. Will function as the team leader for his specialized area.
3. May be a teaching member of some other team.
4. Will serve as student advisor and counselor.

FOR DISCUSSION PURPOSES ONLY



APPENDIX E

A Division Model which shows a structure for a Department with eight or more members.

5. Will make budget recommendations for his specialized area.

6. Will meet with the Advisory Committee as necessary.

7. Is directly responsible for the functioning of instructional assistants on his team.

Instructor Functions

The Instructors primary function is to be actively engaged in the teaching process. This person serves as an important member of the instructional team from the viewpoint of evaluation and input of the curriculum but the active development and revision of the curriculum remains the prime responsibility of the subject specialist. The Instructor:

1. Implements the instructional process under the direction of the Subject Specialist.

2. May be a subject specialist in some other area.

3. Will be a student advisor.

4. Is directly responsible for the functioning of the Instructional Assistants.

5. Will diagnose, prescribe and evaluate instruction for the individual student.

6. Will make recommendations to the subject specialist for budgeting, purchasing and curriculum revision.

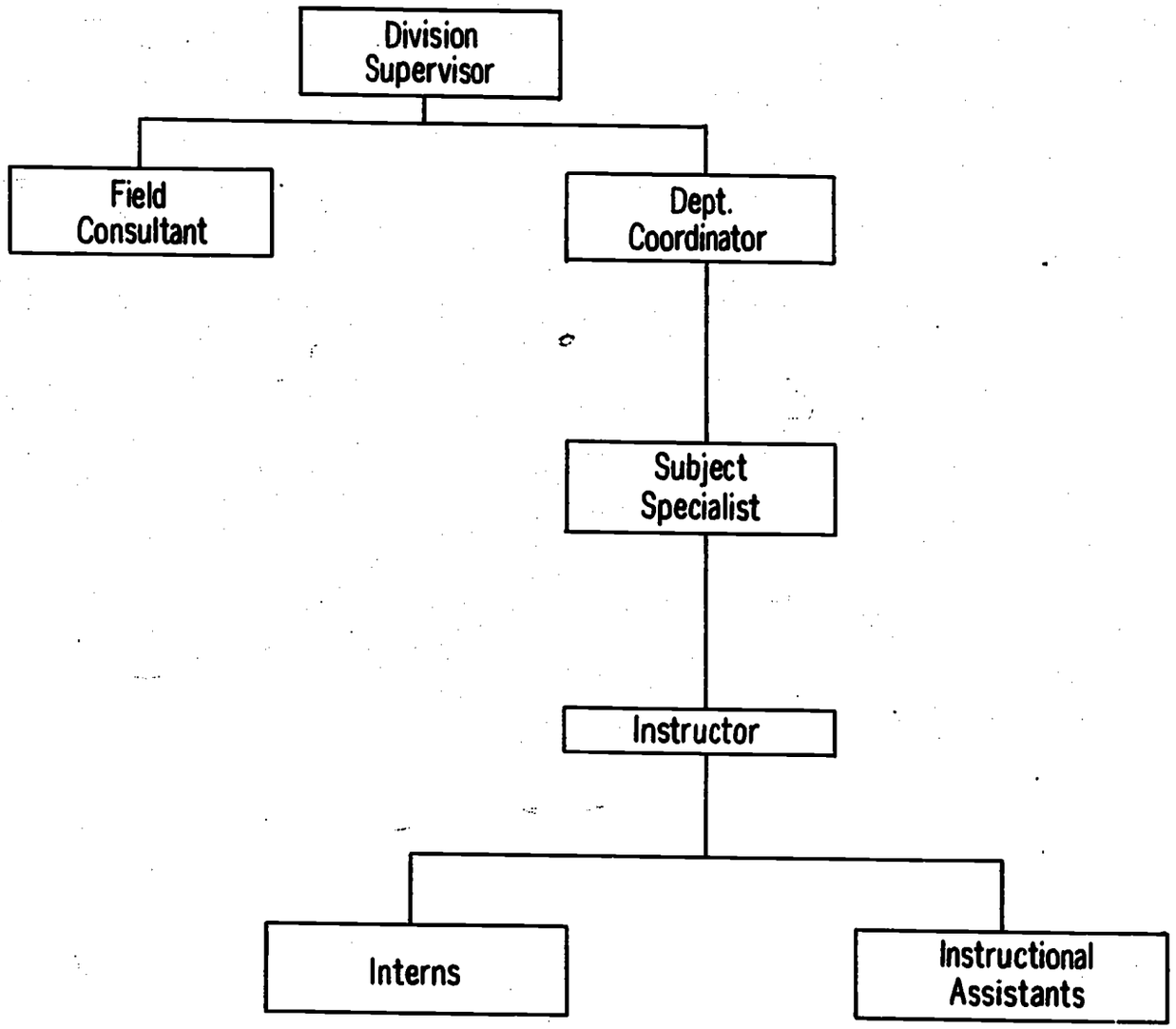
7. Is responsible for maintaining appropriate student records.

8. Will meet with the Subject Specialist to help evaluate instructional materials.

Intern

The Intern is the person who is completing a university degree and is assigned to a department as a member of the instructional staff. A beginning instructor with little or no experience teaching in post-secondary vocational-technical education may also be classified initially as an Intern Instructor.

FOR DISCUSSION PURPOSES ONLY



APPENDIX F
A sample Department Structure (Six members)

An intern should be given experiences which will assist him in the teaching profession. These experiences will include:

1. An intensive orientation program.
2. Observations of veteran staff members as they pursue their responsibilities.
3. Student Advising.
4. Implementing the instructional process under the direction of a subject specialist.
5. Diagnosing, prescribing and evaluating instruction.
6. Maintaining appropriate student records.
7. Preparing instructional materials, including media.

Instructional Assistant Functions

An Instructional Assistant is an educational aide with some specialized training or experience in a particular subject area. This person may be assigned to a Department as follows:

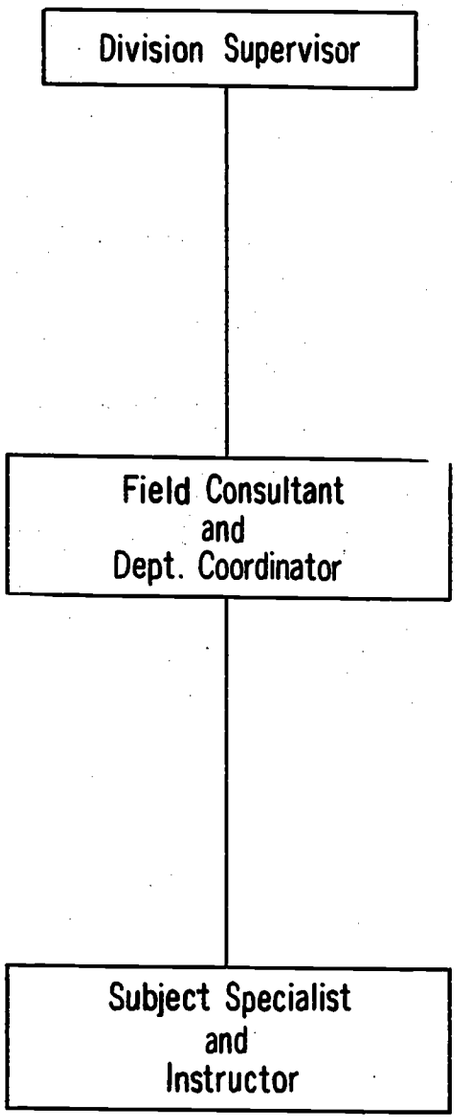
1. Is directly involved with student instruction under the direction of a professional.
2. Is responsible to the instructor.
3. Is supervised and evaluated by the Department Coordinator.

Occupational Specialist Functions

The Occupational Specialist is an educational aide who is assigned to a particular department or division. He is a specialist with considerable occupational experience.

1. He will assist in instruction by providing occupational experience in the shop or lab.
2. He will not, on his own, prescribe, diagnose or evaluate student instruction.

FOR DISCUSSION PURPOSES ONLY



APPENDIX G

A sample Department Structure (Two members)

3. He may be responsible to the Department Coordinator, Course Specialist, or Instructor.

4. He will be supervised and evaluated by the Department Coordinator.

Instructor's Aide Functions

The Instructor's Aide is an educational aide who is assigned to a particular department or division. His function is primarily clerical in nature. Specific duties include:

1. Monitoring student instructions under the direct supervision of an instructor.

2. He does not necessarily possess occupational experience. He does not prescribe, diagnose, or evaluate student instruction.

3. He may be responsible to the Department Coordinator, Course Specialist, or Instructor.

4. He will be supervised and evaluated by the Department Coordinator.

APPENDIX "H"

Committee Position Paper, May, 1971

1. FVTI should proceed toward implementation of individualized instruction.

2. The system should explore the possibility of open scheduleing as the committee feels that this innovation is very feasible at FVTI. The possibility of an experimental and control group within a Department at the start appears desirable.

3. There is a definite place for Para-Professionals in the instructional process of FVTI.

4. The present grading system at FVTI should be studied.

5. FVTI should move quickly toward allowing students to enroll in most programs at any time during the year.

6. FVTI should move quickly toward having programs available on a year round basis. Schools would remain open all year.

7. FVTI should extend the school day and offer credit courses for Associate Degree and Vocational Diploma during the evening hours.

8. All staff members, with the exception of the Directors, should be assigned a portion of their time to a teaching assignment.

9. Decisions involving the actual instructional process should be made after cooperative agreement by those involved in the process.

10. Student attendance requirements should be at the discretion of the Departments.

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VTAE Planning Base
Southeastern Wisconsin

Vocational, Technical and Adult Education District 9

Caudill Rowlett Scott
Houston, Texas

October 1971

VT016561

FOREWORD

In 1965 the Legislature of the State of Wisconsin passed a bill which created a State-wide system of vocational, technical and adult education districts. The purpose of the legislation was to better serve the educational needs of all the people of the State. The responsibility of coordinating the development of the VTAE Districts was assigned to the Wisconsin Board of Vocational, Technical and Adult Education in Madison.

VTAE Districts 6, 7, 8 and 9 were formed between 1966 and 1969 in the highly populated southeastern part of the State. Together, these four Districts comprise most of what is known as the Southeastern Wisconsin Region. Rapidly expanding educational needs in this area require complex planning on the part of VTAE District administrators. A basic prerequisite for such planning is a thorough understanding of each District's service area. To satisfy this initial planning requirement, the four VTAE Districts together obtained the consulting services of the firm of Caudill Rowlett Scott in May of 1971. CRS was at that time engaged in studies of the Milwaukee area as part of a planning contract with the University of Wisconsin - Milwaukee.

The purpose of this study is to provide VTAE District administrators and planners with an information source which will aid decision making in their long range planning endeavors.

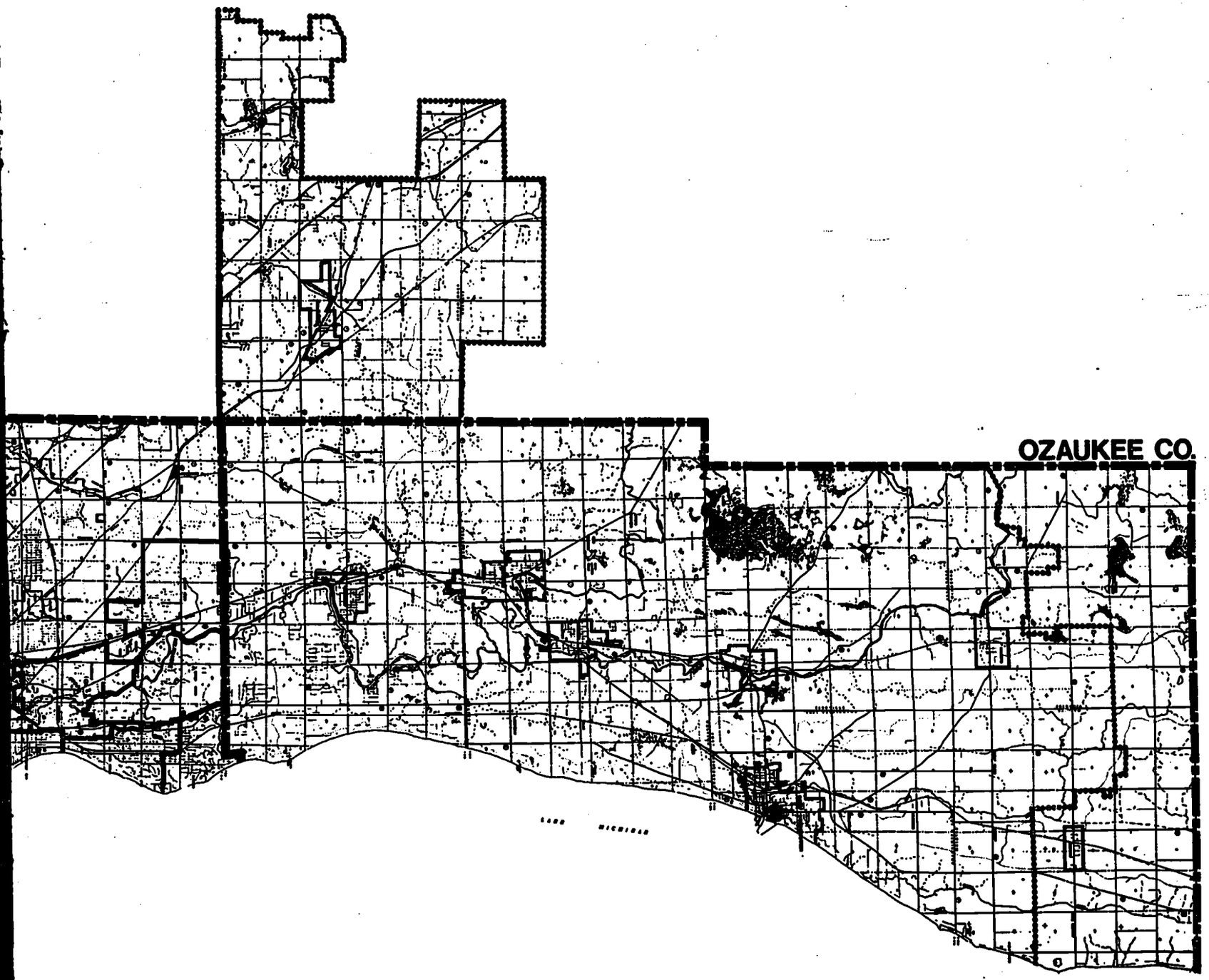
The results of the study are contained in four reports, one for each of the VTAE Districts. Each report is subdivided into seven sections; Population, Land Use, Transportation and Utilities, High School Graduates, Post-Secondary Educational Opportunities, VTAE Enrollments and Occupational Demand. The map on the following page delineates the boundaries of the VTAE District for which this report was prepared.

Note: On July 1, 1971 VTAE Districts 6 and 7 were merged to form a new District 6. Therefore, any references to District 7 in this report should be interpreted to mean the Racine County component of the new District. VTAE District 6 is defined as it was prior to the merger and includes Kenosha and Walworth Counties.

VTAE DISTRICT 9

N

MILWAUKEE CO.


OZAUKEE CO.

ACKNOWLEDGEMENTS

Caudill Rowlett Scott gratefully acknowledges the assistance of many individuals and agencies during the development of this study. Dr. George A. Parkinson of VTAE District 9 is worthy of special mention as project administrator. Reference must also be made to the cooperation and guidance received from the project representatives of each District; Dr. William Becker in District 6, Mr. Nicholas Covelli in District 7, Mr. Walter Winter in District 8 and Mr. Dennis Redovich in District 9.

The supply of data for the study was largely due to the cooperation of the following agencies; Southeastern Wisconsin Regional Planning Commission (SEWRPC), Wisconsin Board of Vocational, Technical and Adult Education, Wisconsin Coordinating Council for Higher Education (CCHE) and the Wisconsin State Employment Service (WSES).

Caudill Rowlett Scott is also indebted to the many business and industrial leaders in the VTAE Districts who offered their assistance in the development of the occupational demand aspect of the study. Finally, credit is due to Dr. Grant Venn of the American Association of School Administrators in Washington and formerly Associate Commissioner for Adult, Vocational and Technical Education in HEW, who acted as a consultant on future occupational demand and vocational-technical training needs.

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Population

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POPULATION - SOUTHEASTERN WISCONSIN REGION

Historical Growth

The Southeastern Wisconsin Region has experienced an impressive growth pattern. Between 1900 and 1960 the Region's growth rate was more than double that of the State and far exceeded that of the Nation. Population growth is shown in Table 1.1, page 1.5 and graphically on page 1.8. Tremendous growth occurred between 1950 and 1960. The population of the Region grew by 332,996 people, a 27% increase compared to 15% for the State and 18% for the Nation. In the decade of the 60's the Region's growth rate reduced to 11.6% which almost mirrored the State figure of 11.8%. The national growth rate for this period was 13.9%, somewhat greater than the Region's yet far less than that of the individual counties with the exception of Milwaukee County.

According to the 1970 Census of Population, over 1.7 million people live in the Southeastern Wisconsin Region. Milwaukee County contributed 60% of this total, whereas in 1960 the County had represented 66% of the regional total.

Projected Growth

Recent population projections by the Wisconsin Department of Health and Social Services indicate that the Region will contain just over 2 million people by the year 1985. These projections are shown in Table 1.2, page 1.6 and are shown graphically as extensions of historical trends on page 1.8. Between 1970 and 1980 the population of the Region is expected to increase 9.7%, as compared to 8.6% for the State. The population increase within the Region during this decade will account for 44.4% of the total State increase, whereas in the previous decade the Region contributed 39.1% of the total. The graph shows that all counties, with the exceptions of Racine and Milwaukee, are expected to experience growth rates in the next 15 years which are slightly less than in the period 1960-70. The Racine Couty graph shows a continuation of the 60's growth rate while the Milwaukee County graph shows a slight decline between 1970 and 1975, then minor growth through 1985.

Natural Increase and Migration

The components of population growth from 1950 to 1960 and from 1960 to 1970 are shown in Table 1.3, page 1.7. The rate of natural increase, about 18% during the 50's, dropped to around

13% for the 1960 to 1970 period. The strong out-migration from Milwaukee County during the last decade is worthy of note. Most of this loss can be accounted for by the population shift to contiguous counties as the Milwaukee urban area expanded. The remainder, however, has effected a net out-migration for the Region of 20,907.

Density

In 1940, 82% of the regional population lived in urban areas. By 1970, 88% of the population was urbanized. In this span of 30 years the population density of the Region increased by 262 people per square mile. The present population density of the Region stands at about 670 people per square mile. Density figures range from about 4,350 in Milwaukee County to about 110 in Walworth County. Population density data is presented graphically for the Region on page 1.10.

Growth Areas 1960-1970

The map on page 1.11 shows population growth from 1960 to 1970 plotted by minor civil division. When analyzed in conjunction with the map showing population density, it shows that the areas of greatest percentage increase are generally located peripherally to the areas of highest density. This is a reflection of "urban sprawl". Southern Ozaukee County and southeastern Washington County have experienced considerable growth due to the overflow from Milwaukee. The northeastern and eastern parts of Waukesha County grew tremendously as in-fill occurred between the higher densities of Milwaukee and Waukesha. Similarly, considerable growth has occurred in the area between the densities of Racine and Milwaukee.

Age

An analysis of regional population by age in 1970 reveals a definite prominence of the age groups 0-4 and 5-17. Projections made by the Department of Health and Social Services indicate that there will be lessening of this prominence in the next 15 years due to a strong increase in the population aged 18 to 44. Although the population aged 0-4 is expected to increase considerably, the composite age group 0-17 is projected to show only a slight increase overall.

Population aged 24 or less is displayed geographically on page 1.12. Comparing this map with the density map on page 1.10 results in the observation that generally the younger populations do not live in the areas of highest density. Comparison with the population change map on page 1.11 indicates that the areas with higher percentages of people under 25 coincide somewhat with places of greatest growth between 1960 and 1970.

The population by age data included in the demographic tables at the end of this section shows both population aged under 18 and aged 18-24.

Minorities

In 1970 minorities represented 7% of the total population in the Southeastern Wisconsin Region. The map on page 1.13 shows the highest percentage of the minority population located in cities of Milwaukee and Racine. Elsewhere in the Region the percentage of minorities is very low. The term minorities here represents all races other than white, but generally can be interpreted to mean the Negro race since other races contribute almost negligible percentages as shown in the demographic tables which follow.

It should be noted that the U.S. Bureau of the Census includes Spanish-Americans in the white category of race. Consequently these people do not constitute a portion of the minority population presented in the tables and maps of this report.

At the time this report was compiled no current and/or valid data was available on the Spanish speaking ethnic group in the Southeastern Wisconsin Region. It is estimated, however, that about 23,500 Spanish-Americans presently live in the Region, with about 58% of this number concentrated in the Cities of Milwaukee and Waukesha. The Bureau of the Census will publish data on this ethnic group when the Fourth Count Summary Tapes are released early in 1972.

The Indian population of the Region is currently estimated at about 4000 people, and has been treated as a minority group in this report. Approximately 75% of the Indian population resides in the central part of the City of Milwaukee.

Income

At the time of writing this report no income data was available from 1970 Census of Population. As a substitute, data from the Census of Housing was utilized. The percentage of rental units under $100/month and the percentage of owner-occupied units valued under $15,000 are both tabulated at the end of this section. Homes under $15,000 was the set of data selected for mapping. The regional map on page 1.14 indicates two areas of particular note, one to the north and west of Milwaukee and the other between Milwaukee and Racine, both showing relatively small percentages of lower income housing.

TABLE NO. 1.1 - HISTORICAL POPULATIONS

COUNTY	1940	% CHANGE	1950	% CHANGE	1960	% CHANGE	1970
Kenosha	63,505	18.5	75,238	33.7	100,615	17.2	117,917
Milwaukee	766,885	13.6	871,047	18.9	1,036,041	1.7	1,054,063
Ozaukee	18,985	23.0	23,361	64.6	38,441	41.6	54,421
Racine	94,047	16.5	109,585	29.4	141,781	20.5	170,838
Walworth	33,103	25.6	41,584	25.9	52,368	21.2	63,444
Washington	28,430	19.2	33,902	36.0	46,119	38.4	63,839
Waukesha	62,744	36.9	85,901	84.2	158,249	46.2	231,365
Southeastern Wisconsin Region	1,067,699	16.2	1,240,618	26.8	1,573,614	11.6	1,755,887
State Total	3,137,587	9.5	3,434,575	15.1	3,951,777	11.8	4,417,933
Nation	131,669,275	14.5	150,697,361	18.4	178,464,236	13.9	203,184,772

Source: U.S. Bureau of the Census[28,29]

6024

TABLE NO. 1.2 - POPULATION PROJECTIONS

COUNTY	1970	% CHANGE	1975	% CHANGE	1980	% CHANGE	1985
Kenosha	117,917	5.0	123,800	5.7	130,900	6.3	139,200
Milwaukee	1,054,063	-0.2	1,052,000	0.9	1,061,600	1.7	1,079,500
Ozaukee	54,421	13.6	61,800	14.1	70,500	15.6	81,500
Racine	170,838	8.2	184,900	9.6	202,600	11.2	225,200
Walworth	63,444	5.3	66,800	6.1	70,900	6.6	75,600
Washington	63,839	14.2	72,900	14.9	83,800	16.1	97,300
Waukesha	231,365	14.6	265,200	15.0	305,100	16.5	355,500
Southeastern Wisconsin Region	1,755,887	5.2	1,847,400	4.2	1,925,400	6.7	2,053,800
State Total	4,417,933	3.7	4,582,500	4.7	4,799,900	5.8	5,077,900
Nation	203,184,772	5.5	214,384,000	na	na.	na.	240,747,000

Source: U.S. Bureau of the Census
Wisconsin Department of Health and Social Services[27]

TABLE NO. 1.3 - NATURAL INCREASE AND MIGRATION - 1950 TO 1960 AND 1960 TO 1970

COUNTY	1950 POPULATION	RESIDENT BIRTHS 1950-1960	RESIDENT DEATHS 1950-1960	NATURAL INCREASE 1950-1960	1960 POPULATION	NET MIGRATION 1950-1960
Kenosha	75,238	21,768	7,836	13,932	100,615	11,445
Milwaukee	871,047	240,017	89,876	150,141	1,036,041	14,853
Ozaukee	23,361	8,379	2,455	5,924	38,441	9,156
Racine	109,585	32,747	11,275	21,472	141,781	10,724
Walworth	41,584	10,964	5,232	5,732	52,368	5,052
Washington	33,902	10,921	3,420	7,501	46,119	4,716
Waukesha	85,901	28,863	9,117	19,746	158,249	52,602
Region	1,240,618	353,659	129,211	224,448	1,573,614	108,548

COUNTY	1960 POPULATION	RESIDENT BIRTHS 1960-1970	RESIDENT DEATHS 1960-1970	NATURAL INCREASE 1960-1970	1970 POPULATION	NET MIGRATION 1960-1970
Kenosha	100,615	24,587	9,462	15,125	117,917	2,177
Milwaukee	1,036,041	223,705	100,955	122,750	1,054,063	-104,728
Ozaukee	38,441	9,155	3,078	6,077	54,421	9,903
Racine	141,781	33,956	13,309	20,647	170,838	8,410
Walworth	52,368	10,591	5,953	4,638	63,444	6,438
Washington	46,119	12,479	4,286	8,193	63,839	9,527
Waukesha	158,249	38,640	12,890	25,750	231,365	47,366
Region	1,573,614	353,113	149,933	203,180	1,755,887	-20,907

Source: Wisconsin Department of Administration
U.S. Bureau of the Census
SEWRPC

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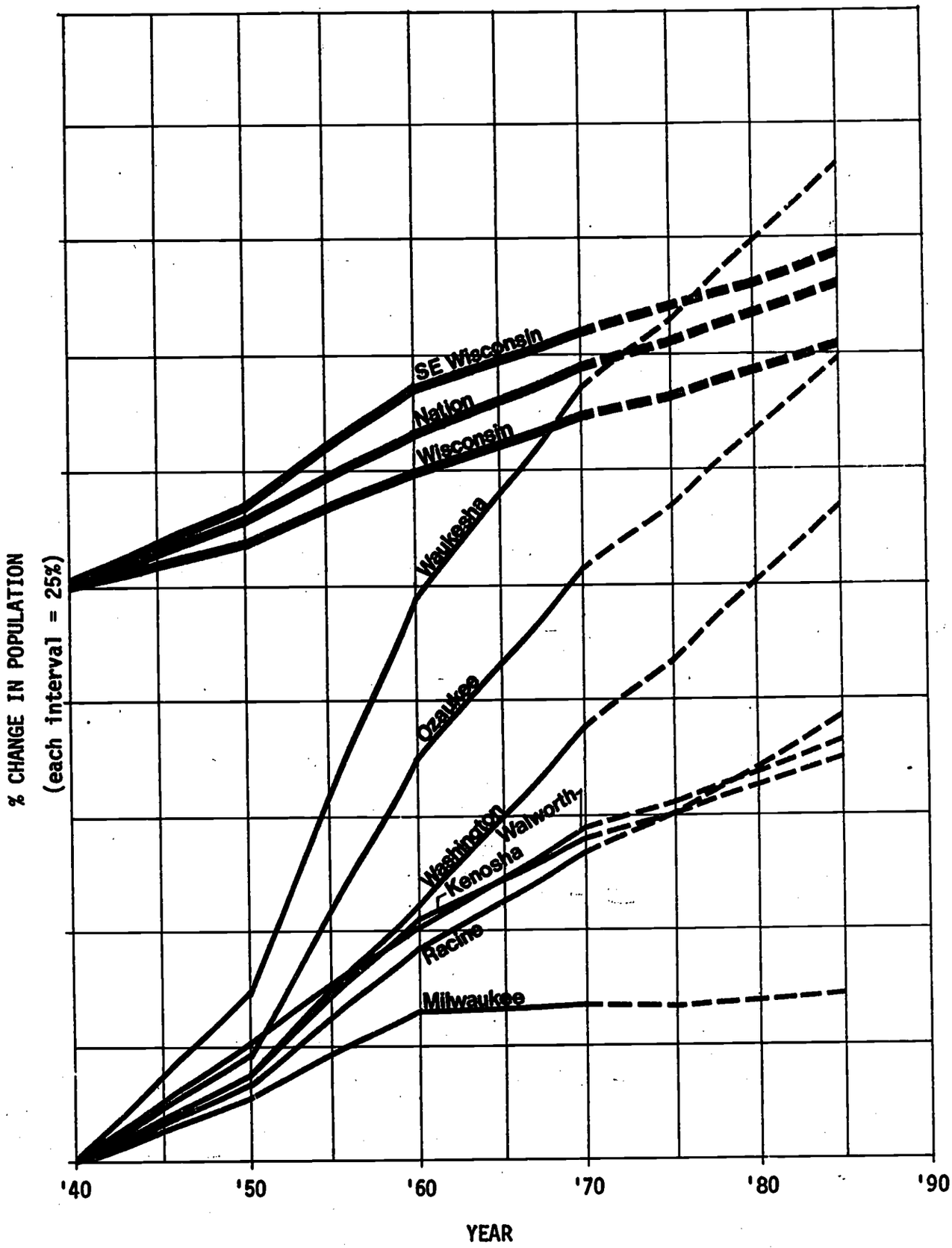
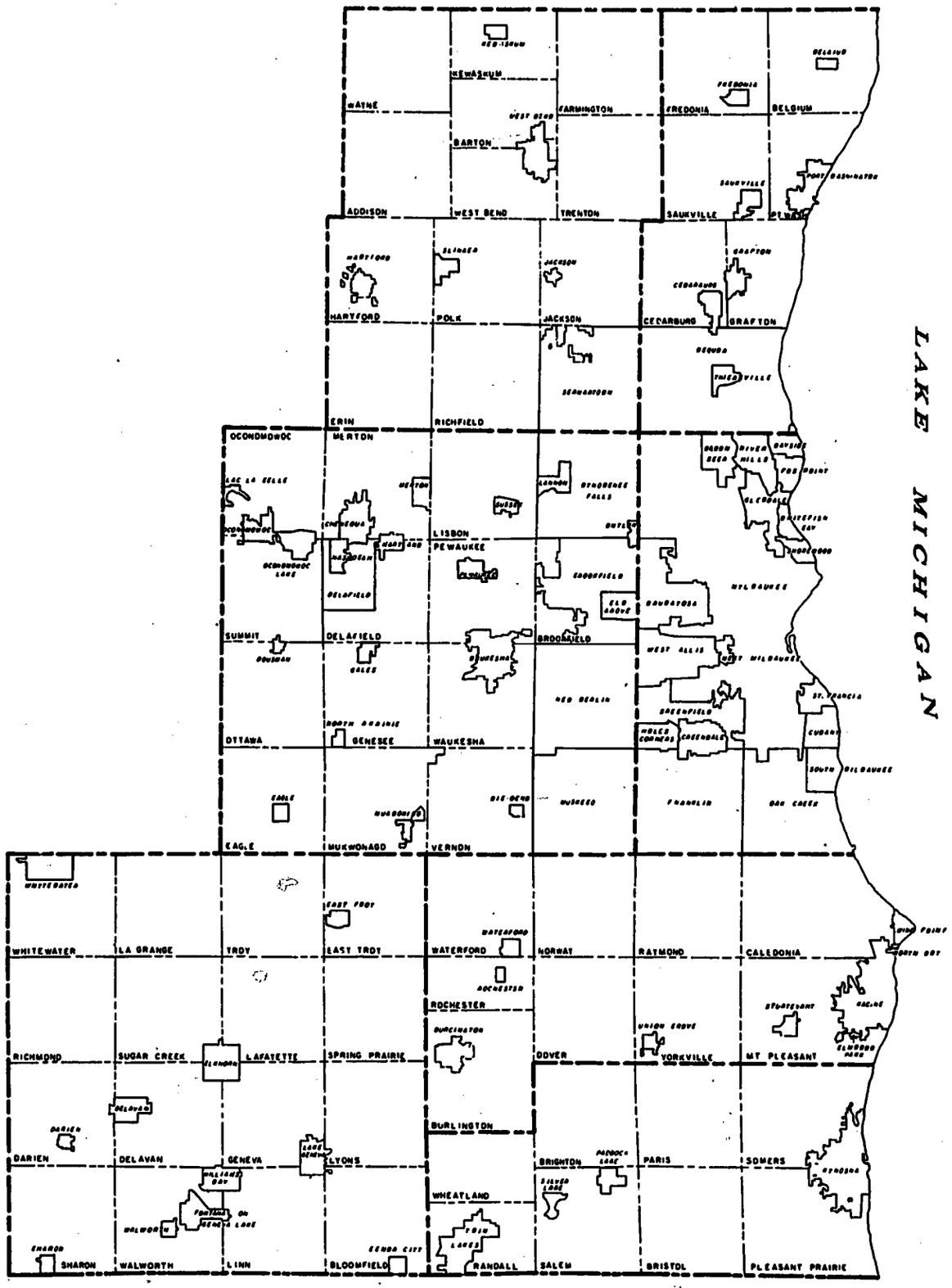


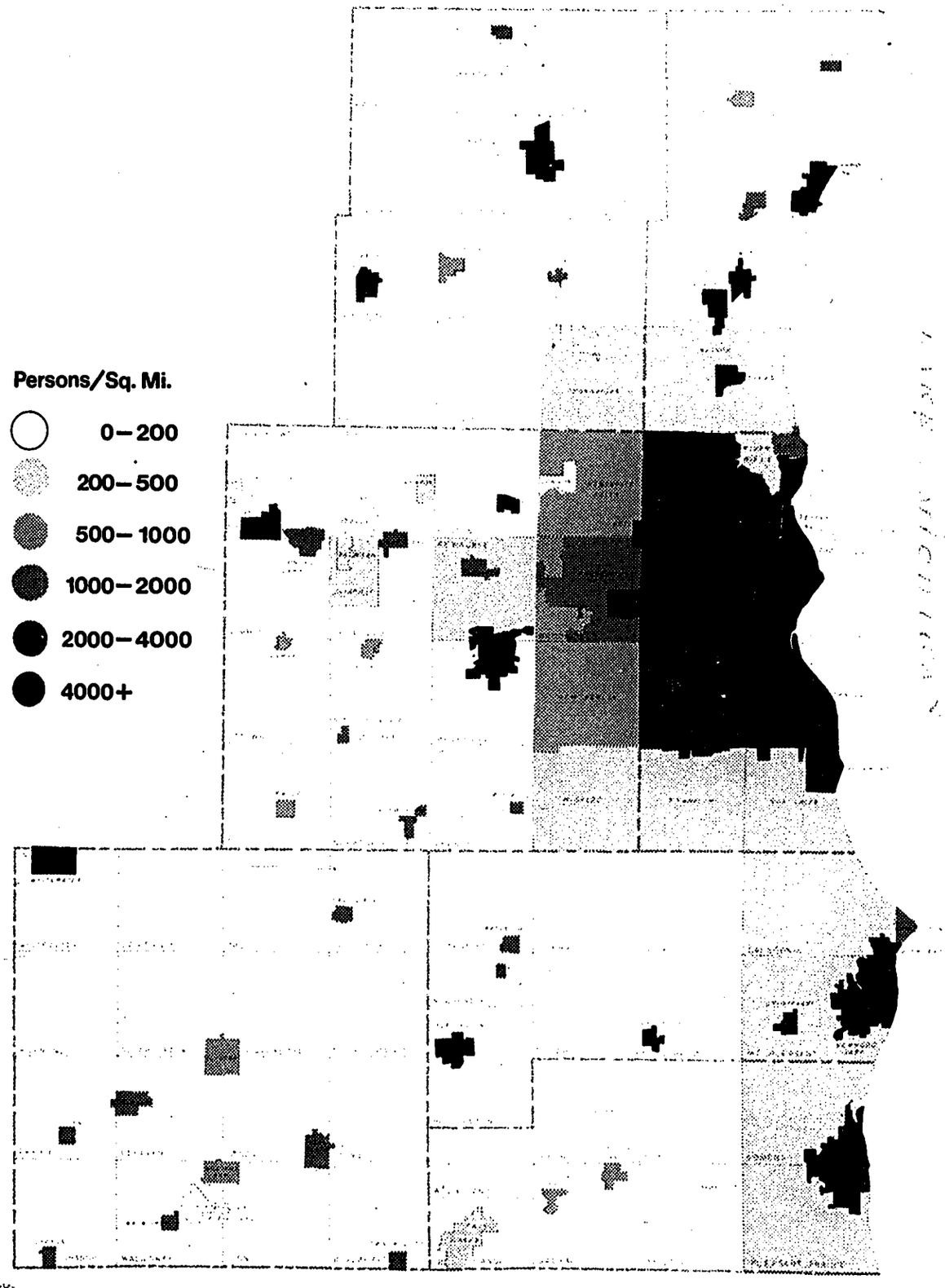
Note: Percent change in population is calculated independently for each interval of years as shown in Tables 1.1 and 1.2

6027

% Population Change

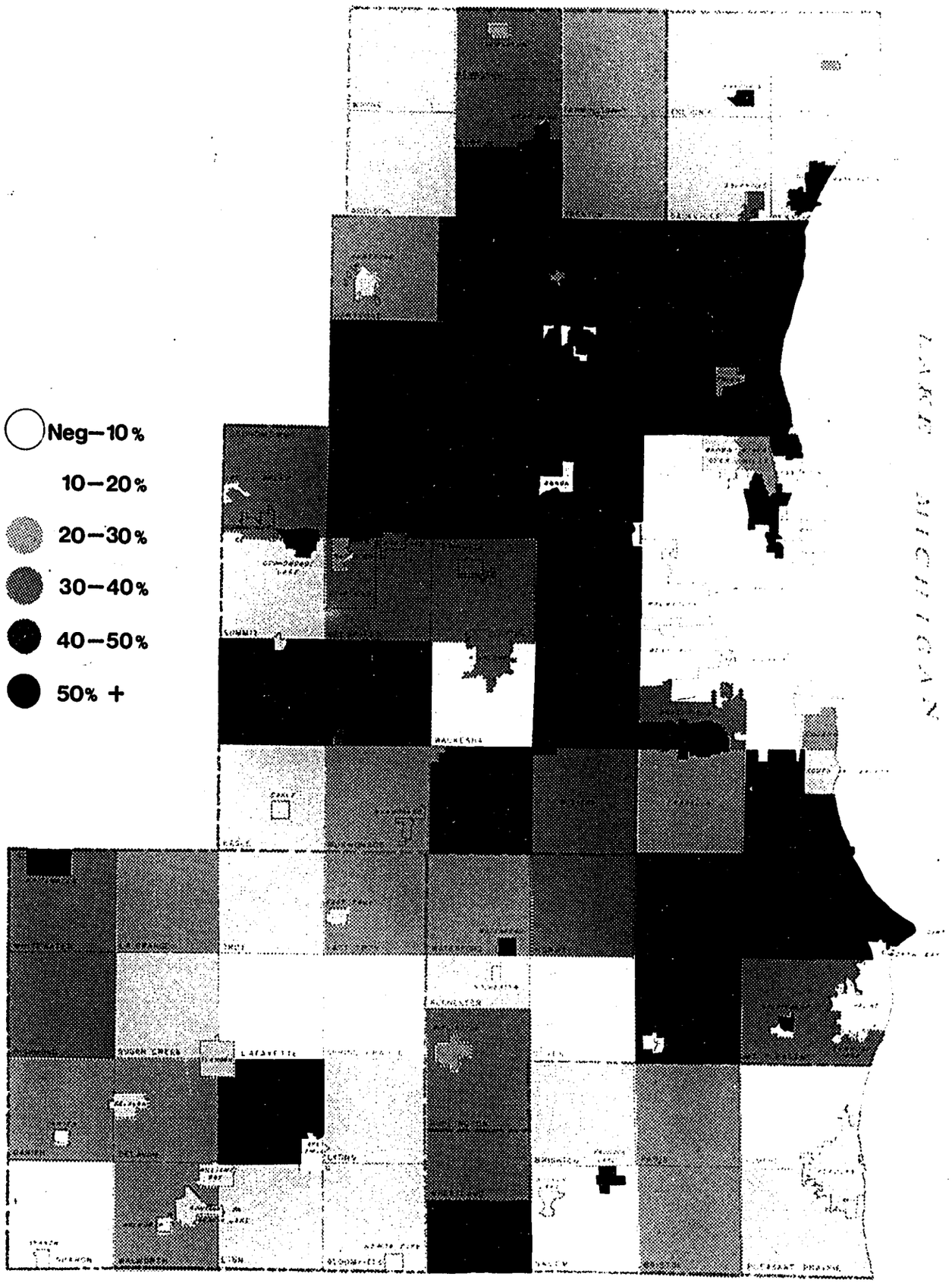


SOUTHEASTERN WISCONSIN REGION



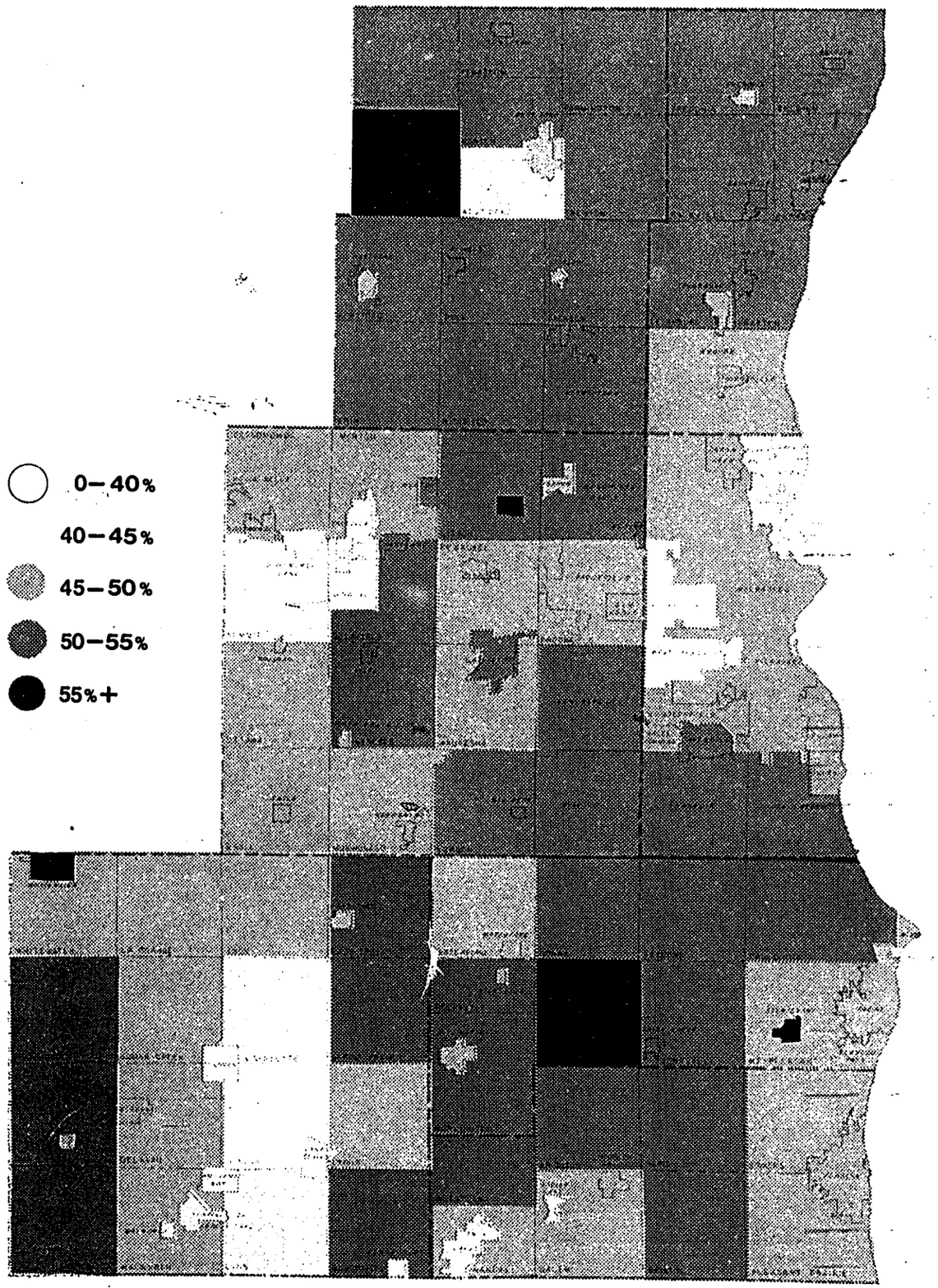
SOUTHEASTERN
WISCONSIN REGION

Population Density



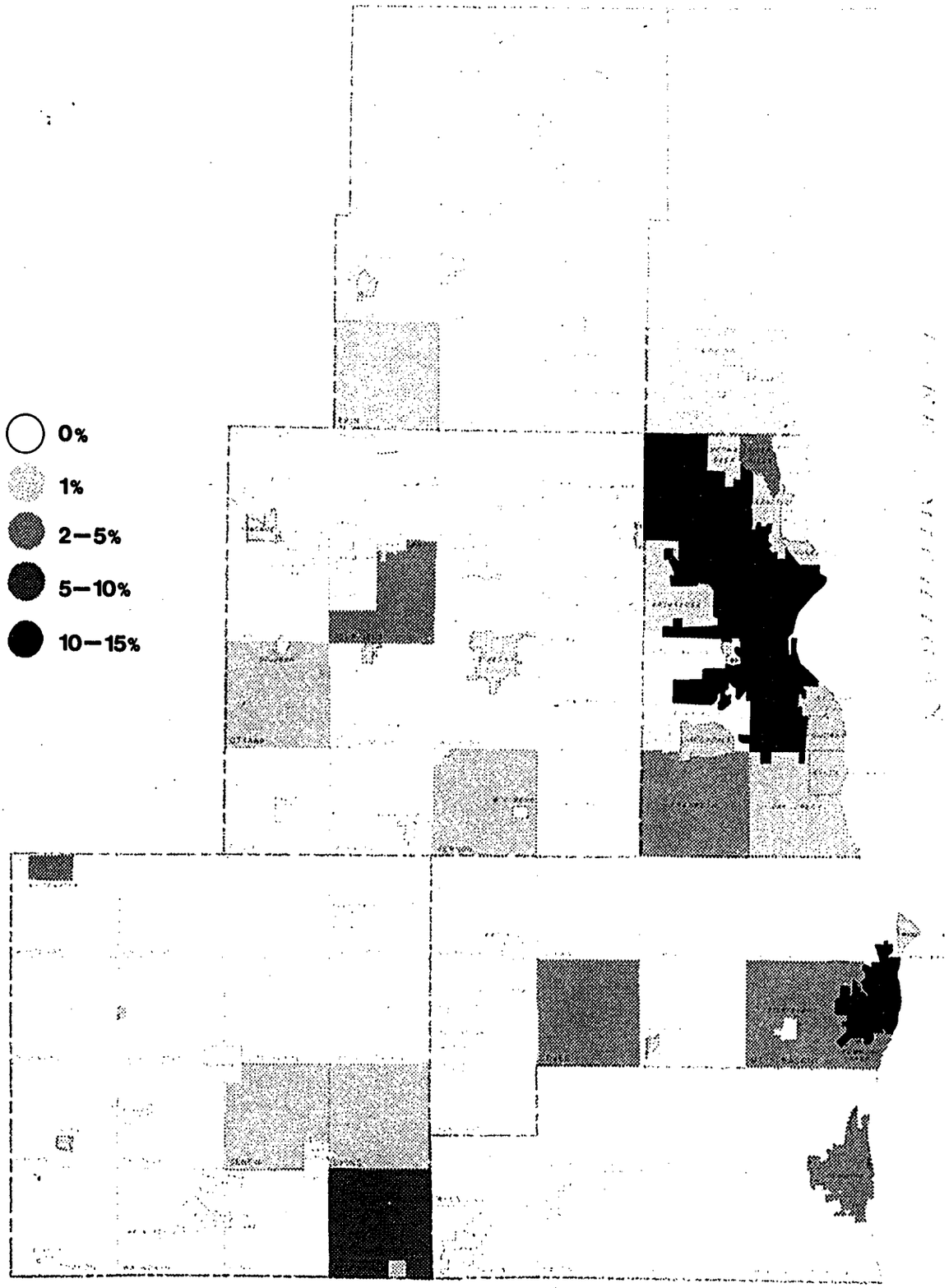
SOUTHEASTERN WISCONSIN REGION 6030

Population Change 60–70



SOUTHEASTERN
WISCONSIN REGION

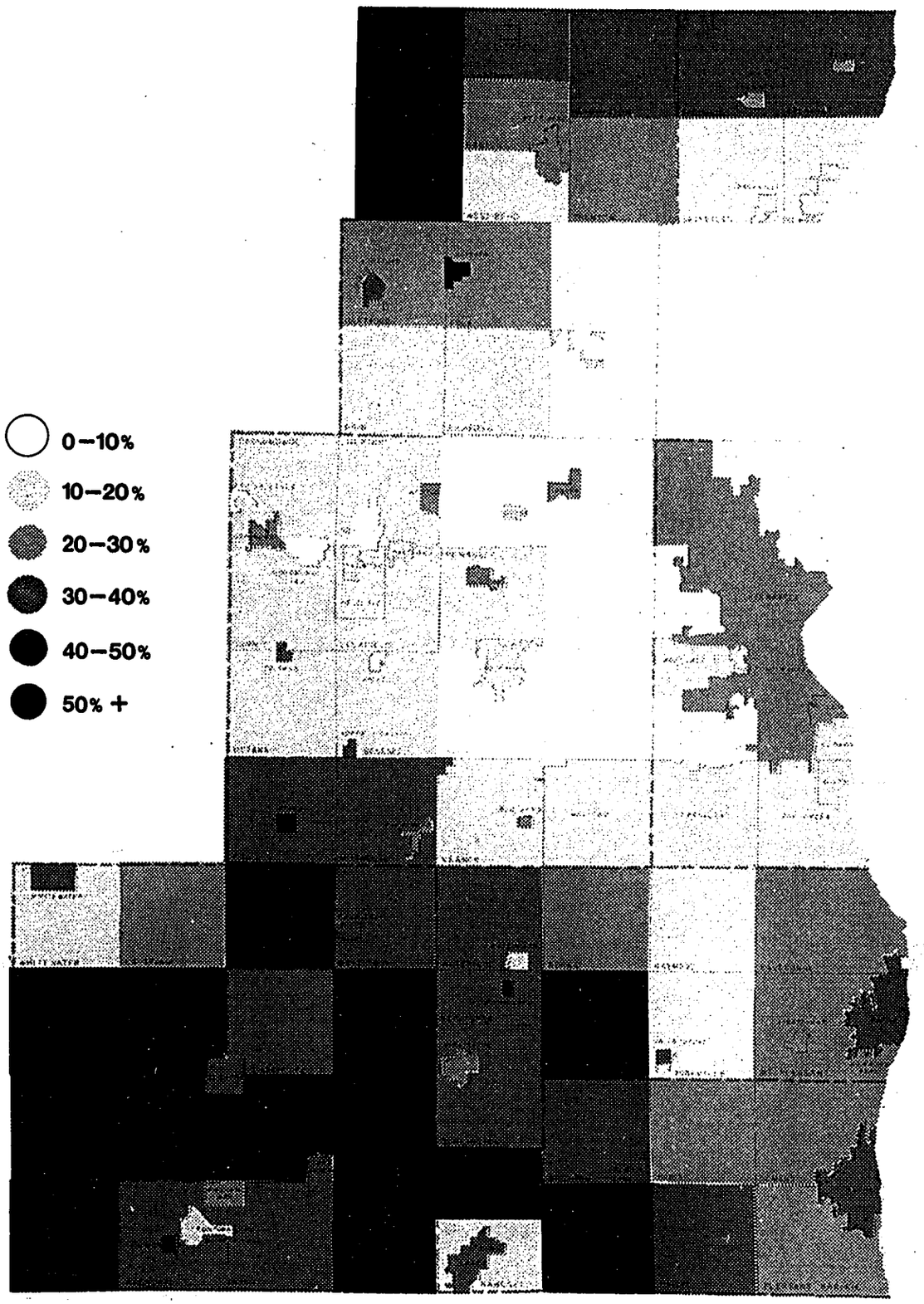
Age Under 24



SOUTHEASTERN
WISCONSIN REGION

6932

Minority Groups



SOUTHEASTERN
WISCONSIN REGION

6033

Homes Under $15,000

POPULATION - VTAE DISTRICT 9

Historical and Projected Growth

District 9 is composed of Milwaukee County, most of Ozaukee County, and the Germantown area of southeastern Washington County. The population growth pattern of Milwaukee County is unique in the Region. The graph on page 1.8 shows the relatively low percentage increase in the County population over the past 30 years. In the 50's the population grew by some 165,000 people, but between 1960 and 1970 the increase amounted to less than 19,000 people. This severe reduction of the growth rate is shown graphically on page 1.17 . Population projections for Milwaukee County show a slight decline to 1975, then an increase through 1985, for an overall growth of about 25,000 people.

Approximately 11% of the Washington County population and 92% of the Ozaukee County population reside in District 9. Both these counties have maintained high rates of growth in the past 20 years due to the expansion of the Milwaukee urban area. The graphs on pages 1.18 and 1.19 indicate the populations of these counties are expected to increase at slightly higher rates through 1985. Ozaukee County is forecast to grow by some 27,000 people in this 15 year period.

Natural Increase and Migration

The population growth reduction experienced in Milwaukee County during the 60's was due largely to heavy out-migration. Almost 105,000 people left the County between 1960 and 1970. The rate of natural increase in the County during the 60's was about 27,000 people less than in the previous decade. In Ozaukee County both natural increase and in-migration were slightly higher in the 60's. Washington County in-migration between 1960 and 1970 was more than double that of the 50's, while population growth due to natural increase rose slightly.

Density and Growth Areas 1960-1970

Almost 95% of the District 9 population resides in Milwaukee County. This concentration of people is illustrated on page 1.10 and in more detail for the City of Milwaukee on page 1.27.

Between 1960 and 1970 the Milwaukee County population grew by only 1.7% due largely to the loss of about 24,000 people from the City of Milwaukee. There were, however, some municipalities within the County which made considerable gains in population. The most notable increase occurred in the Village of Greendale, which more than doubled its population during the 60's. While the map on page 1.11 and the tables which follow show most of the recent growth to have been in the southern part of the County, substantial population gains have also occurred in the northwestern part of the City of Milwaukee. This fact is illustrated by the Residential Land Use Change 1963-1970 map in the following section of the report.

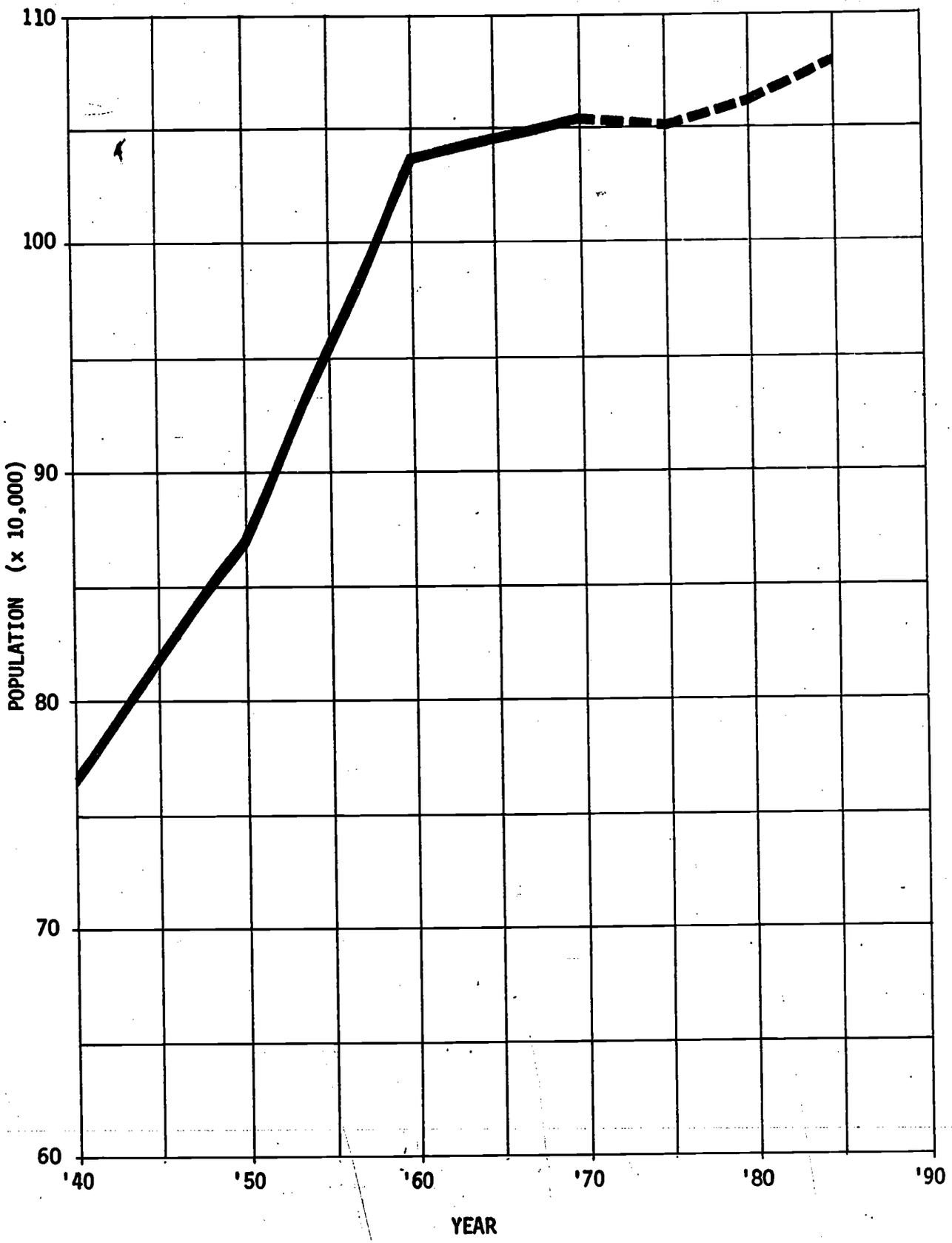
The expansion of the Milwaukee urban area has affected considerable population growth in southern Ozaukee County and in the Germantown area of Washington County. The Thiensville-Mequon area grew by some 4,200 people between 1960 and 1970, while the Cedarburg and Grafton areas expanded by about 4,000 and 3,400 people respectively. The City of Port Washington grew by roughly 2,700 people during the 60's, as did the Germantown area.

Age, Minorities and Income

The changing nature of the Milwaukee, Ozaukee and Washington County age group profiles is presented graphically on pages 1.20 through 1.22 . The current prominence of the population age group 5-17 in all three counties will disappear in the next 15 years. In Milwaukee County this age group is projected to decline by about 50,000 people by 1980, while the population aged 18 to 44 will increase considerably. The most notable gain in the County is forecast for the 25-34 age group with an increase of over 70,000 people. This age category will also show the most substantial gains in Ozaukee and Washington Counties.

Age, minority and home value distributions are plotted for the whole District on pages 1.12 through 1.14 and for the prime urban area of Milwaukee on pages 1.28 through 1.30 . Generally, the younger populations of the District are located in areas of lower population density. Particularly low percentages of young people are evident in the municipalities of Shorewood, Wauwatosa and West Milwaukee. Minority groups comprise approximately 11% of the Milwaukee County population and less than 1% of the Ozaukee and Washington County populations. The highest percentage of minorities exists in the central part of the City of Milwaukee where relatively high density occurs. The Spanish-American population of Milwaukee County is estimated at a little over 10,000 people and is highly concentrated in the central part of the City. A very high percentage of lower income housing also characterizes the central area of the City of Milwaukee.

MILWAUKEE COUNTY



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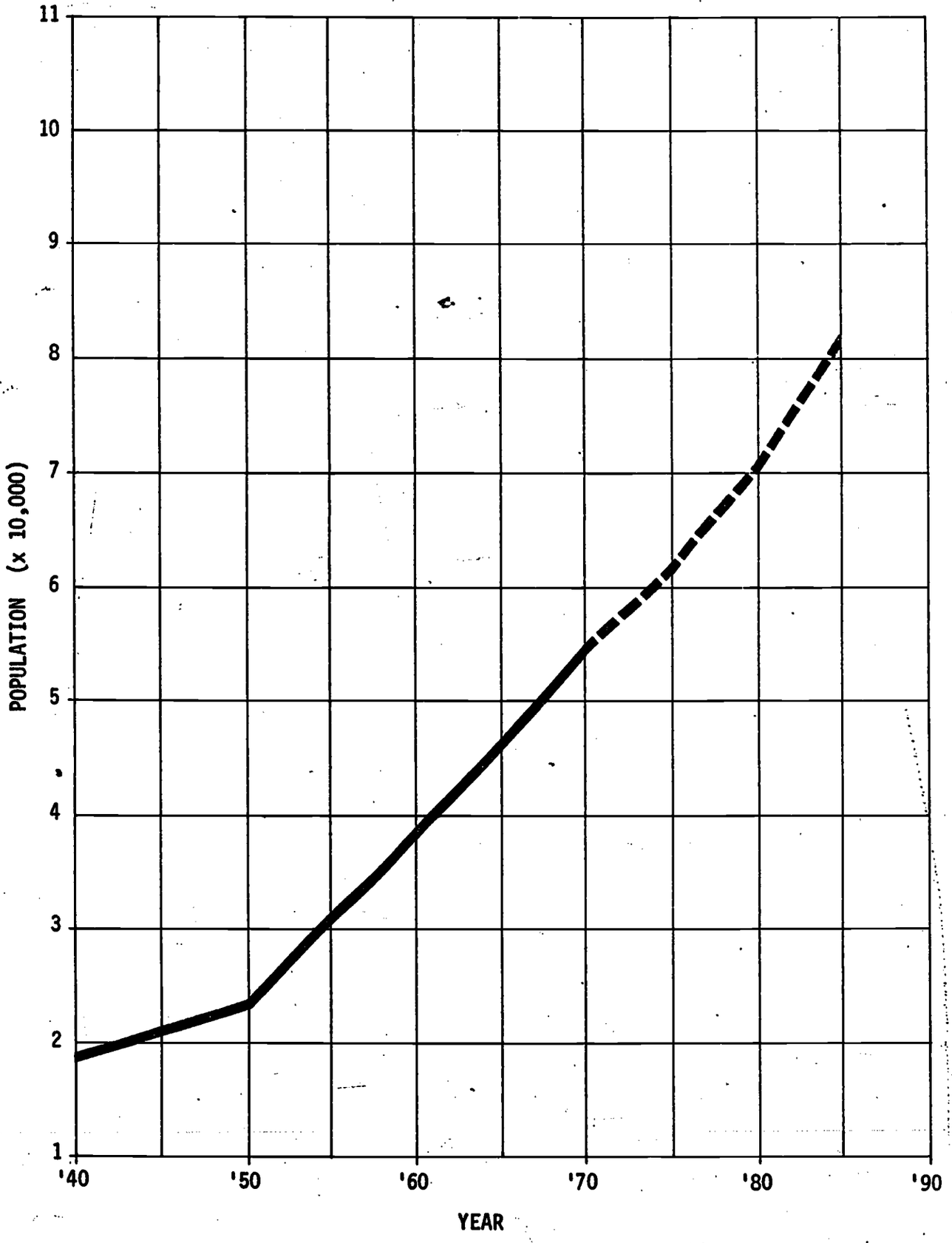
Population Growth

OZAUKEE COUNTY



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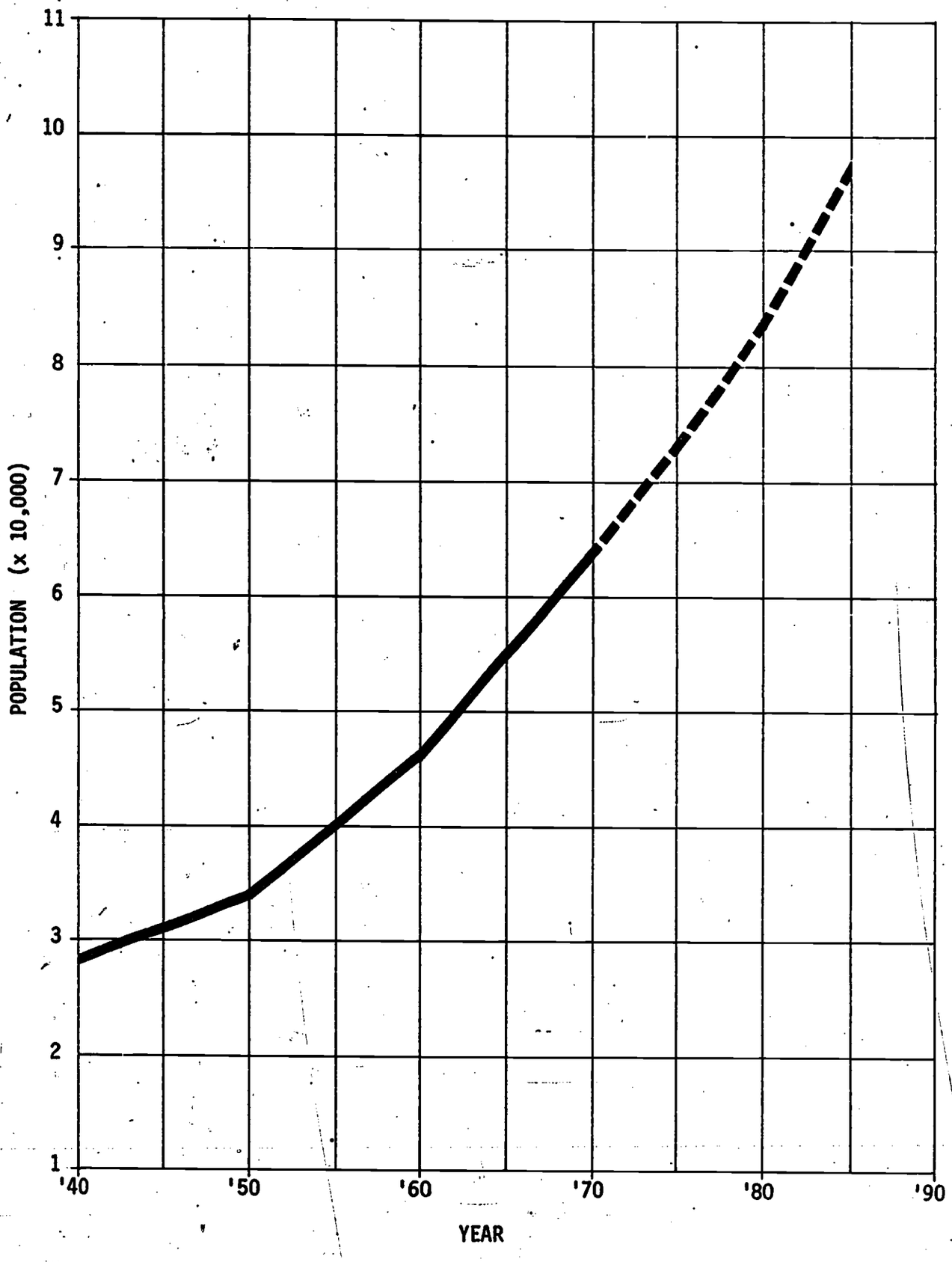
Population Growth

WASHINGTON COUNTY



Population Growth

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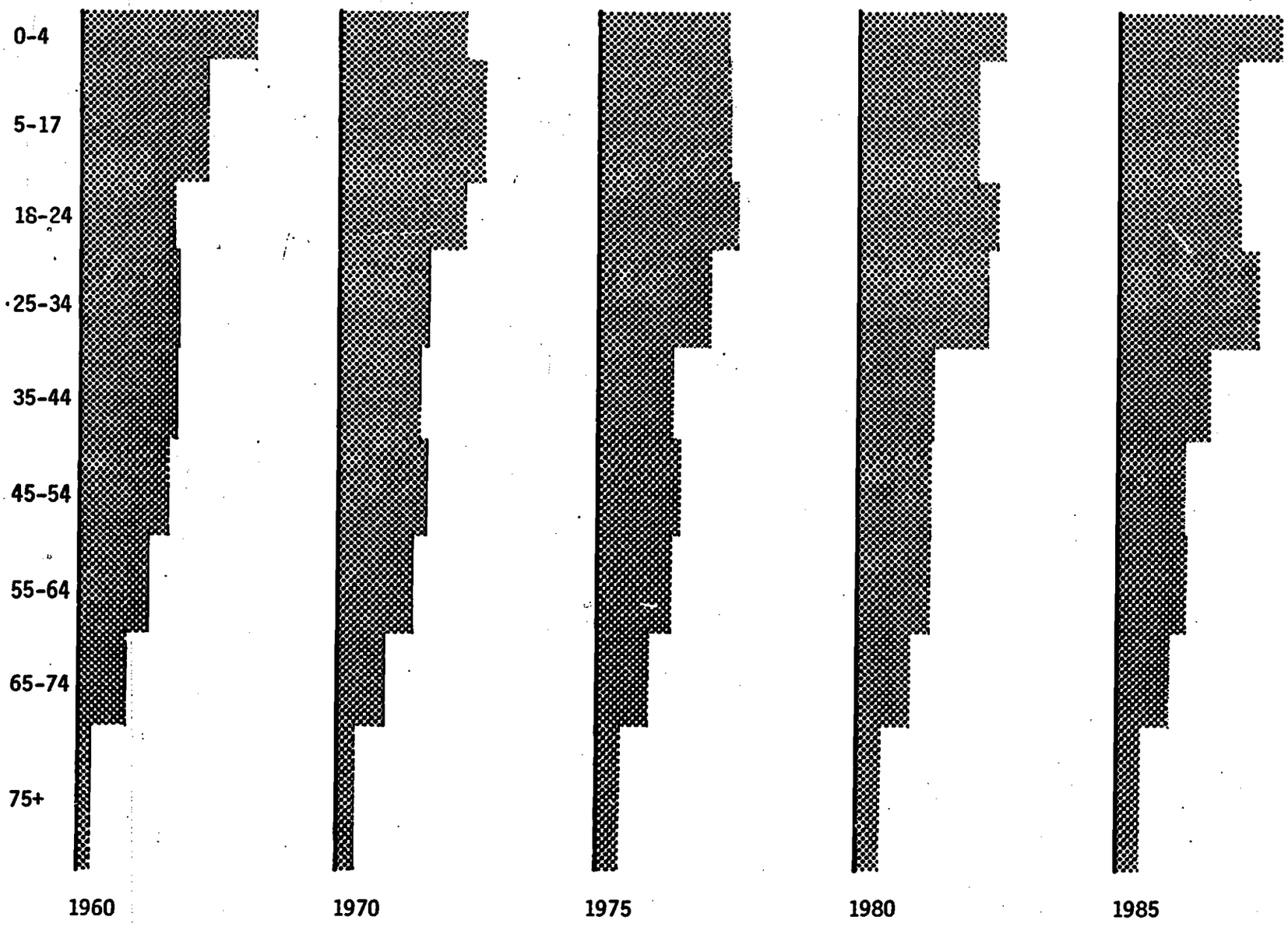
MILWAUKEE COUNTY



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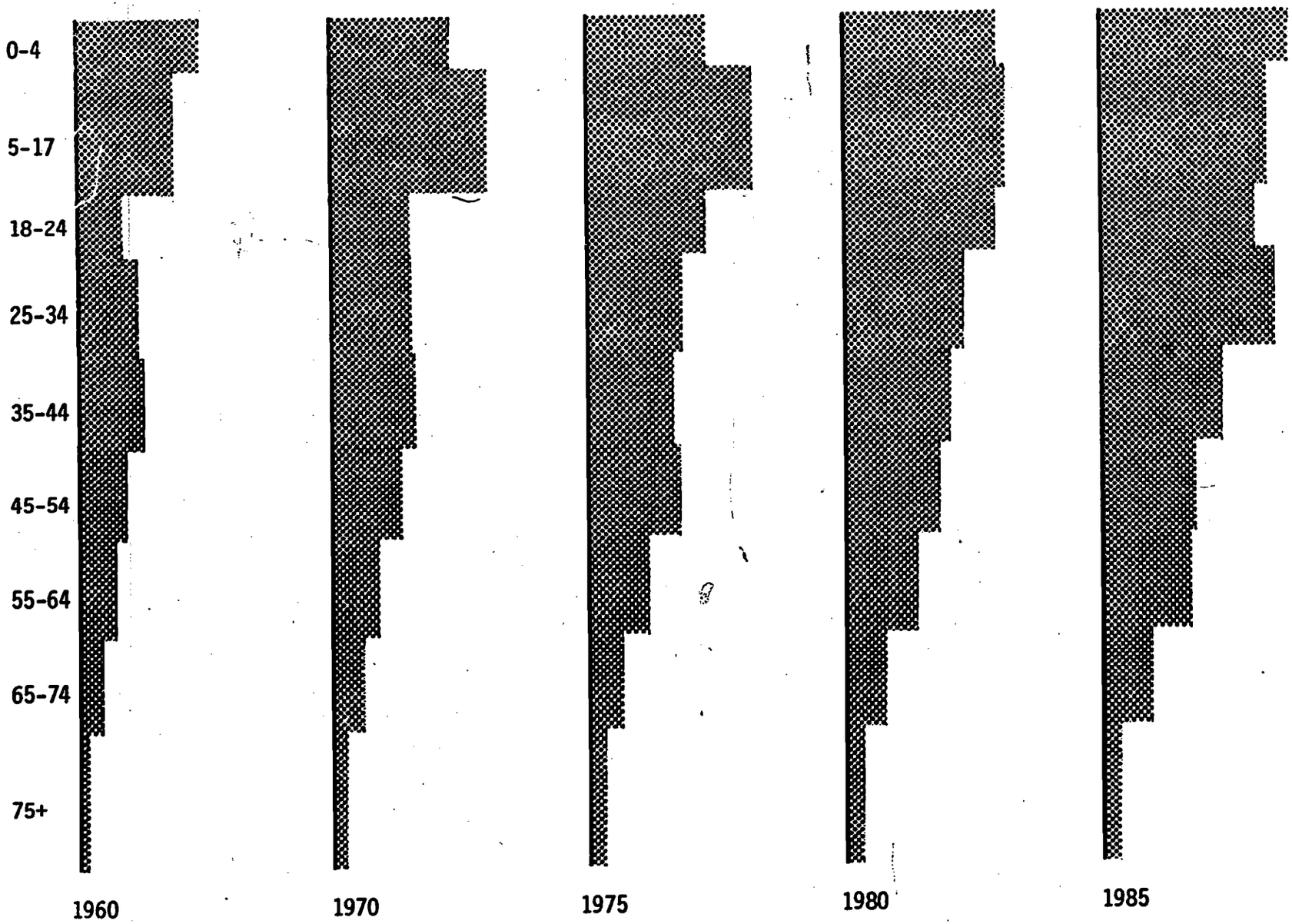
Age Group Profiles

OZAUKEE COUNTY



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Age Group Profiles

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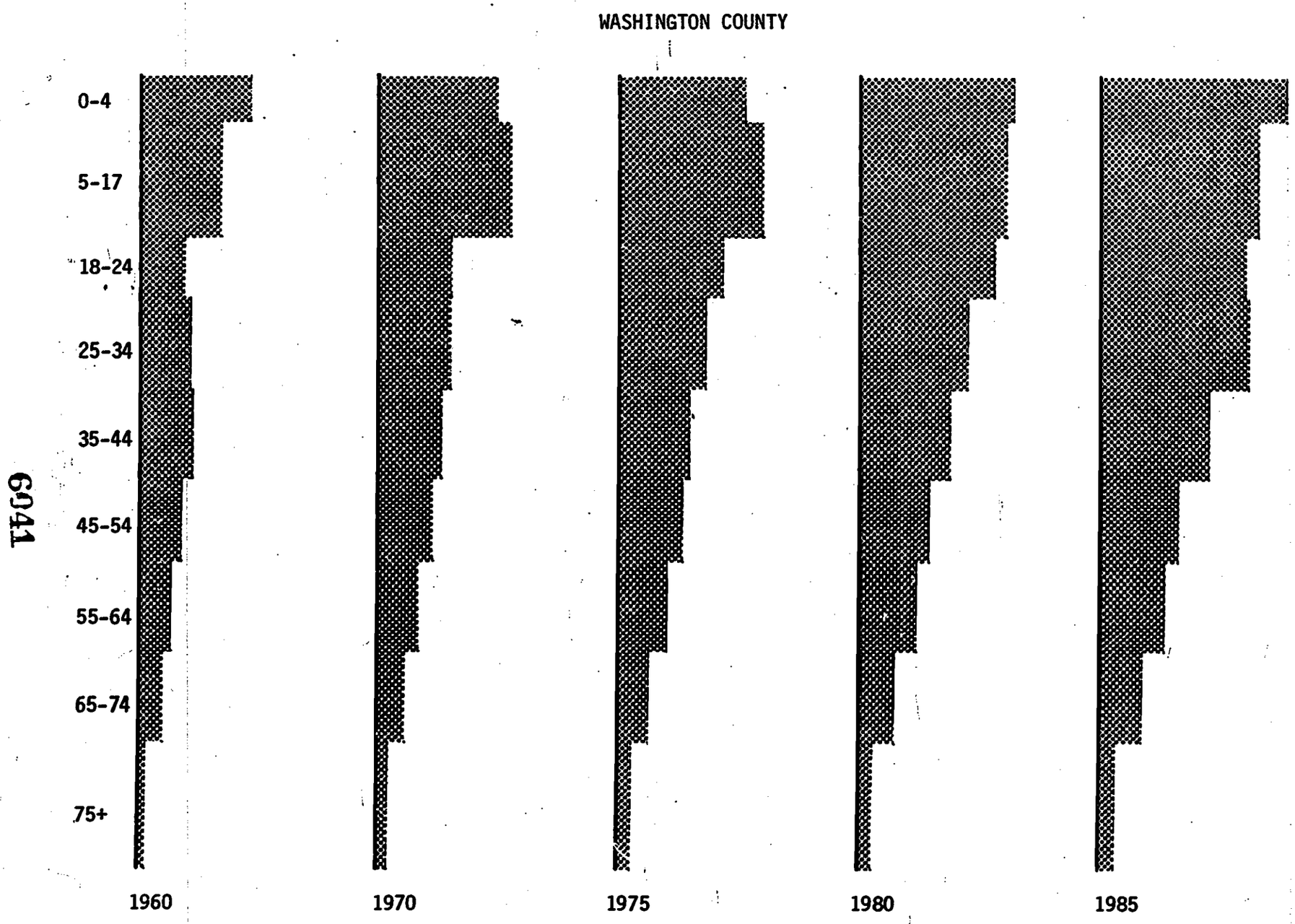

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Age Group Profiles

TABLE NO. 1.4 - AGE GROUP PROFILES

MILWAUKEE COUNTY

AGE GROUP	1960	1970	1975	1980	1985
0-4	121,597	89,354	90,000	102,190	113,260
5,6	103,479	39,085			
7-9		61,813			
10-13	85,811	83,726			
14		20,284			
15	13,229	20,100			
16,17	27,905	38,043			
	230,424	263,051	236,010	212,430	213,560
18,19	25,731	36,436			
20	65,383	17,238			
21		16,976			
22-24		52,575			
	91,114	123,225	134,560	135,460	118,560
25-34	139,356	126,283	152,550	182,320	196,590
35-44	136,481	116,334	105,490	106,940	129,230
45-54	123,042	121,087	114,980	101,120	91,670
55-59	53,442	55,334			
60,61	46,095	20,508			
62-64		27,549			
	99,537	103,391	102,660	101,940	96,650
65-74	65,287	69,366	71,160	73,250	72,680
75+	29,203	41,972	44,610	45,990	47,290

Source: U.S. Bureau of the Census[29]
Wisconsin Department of Health and Social Services[27]

TABLE NO. 1.5 - AGE GROUP PROFILES

OZAUKEE COUNTY

AGE GROUP	1960	1970	1975	1980	1985
0-4	5,178	5,074	5,110	6,380	7,900
5,6	4,976	2,509			
7-9		4,165			
10-13	3,822	5,553			
14		1,290			
15	587	1,308			
16,17	1,079	2,340			
	10,464	17,165	18,070	17,500	18,250
18,19	762	1,577			
20		641			
21	1,809	540			
22-24		1,815			
	2,571	4,573	6,980	8,810	9,060
25-34	5,026	6,717	7,830	10,020	14,620
35-44	5,358	6,998	6,960	8,780	10,190
45-54	3,993	5,957	7,390	7,860	7,860
55-59	1,590	2,280			
60,61	1,390	740			
62-64		948			
	2,980	3,968	4,980	5,970	7,430
65-74	1,922	2,469	2,720	3,290	4,130
75+	949	1,500	1,730	1,920	2,130

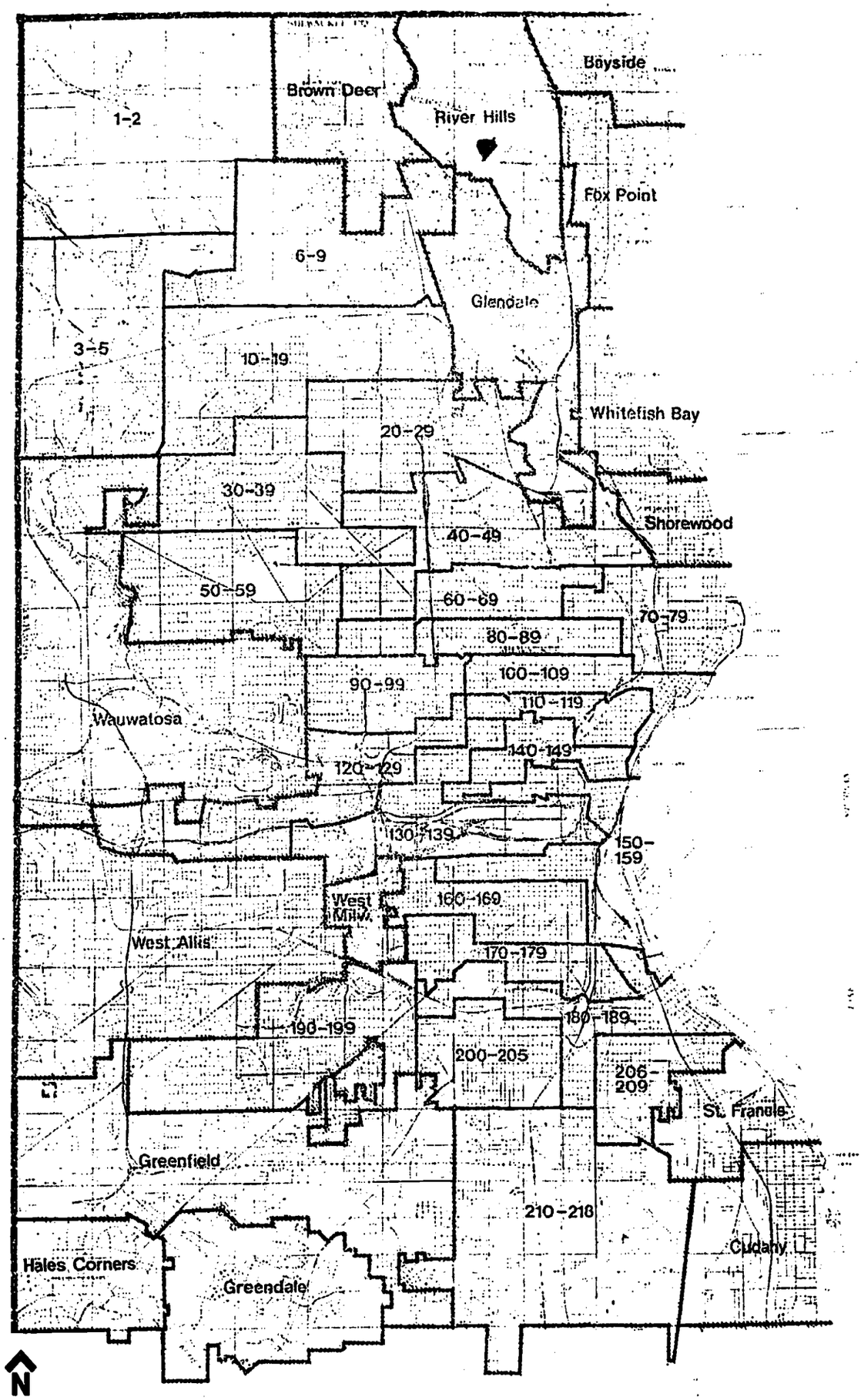
Source: U.S. Bureau of the Census [29]
Wisconsin Department of Health and Social Services [27]

TABLE NO. 1.6 - AGE GROUP PROFILES

WASHINGTON COUNTY

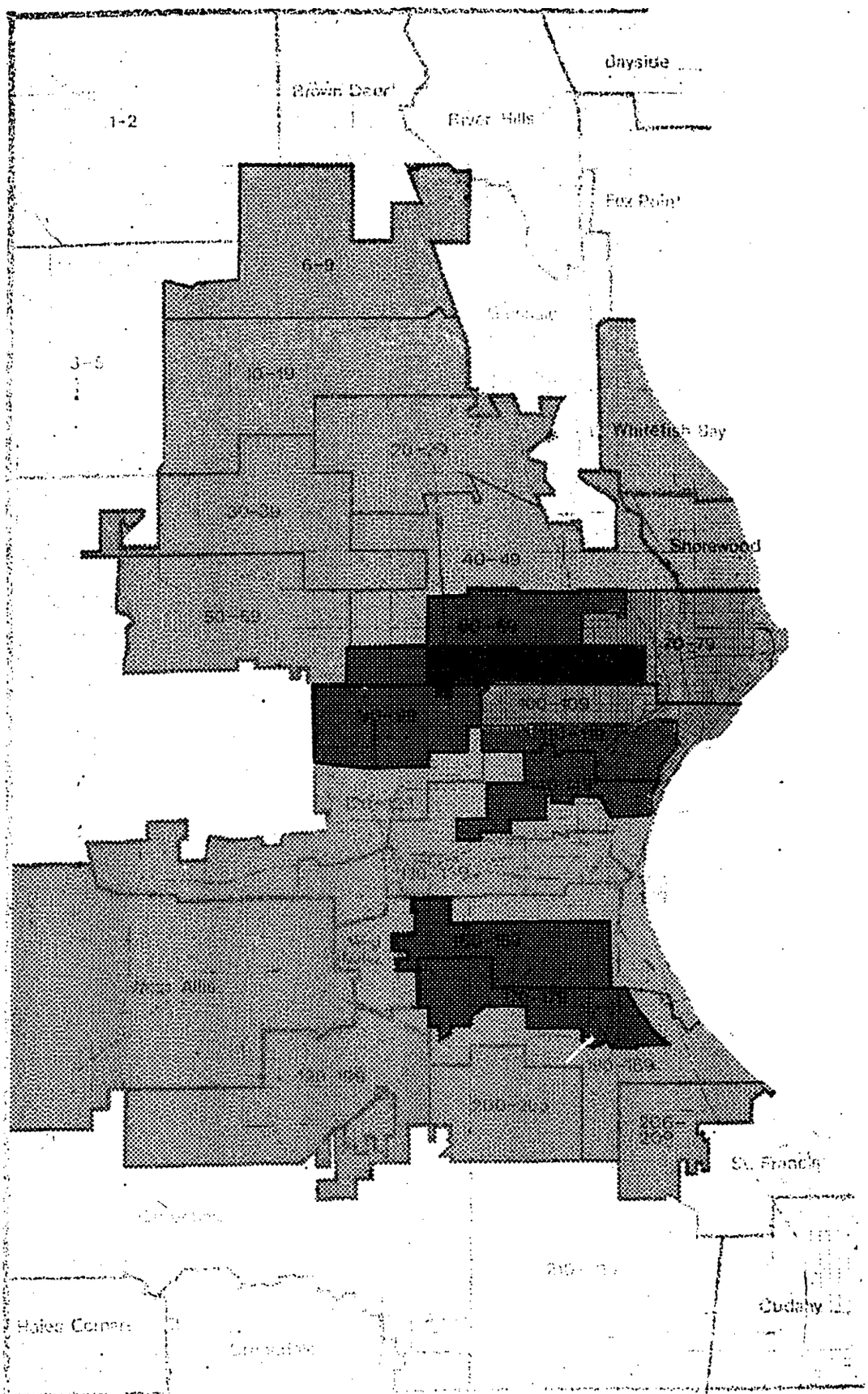
AGE GROUP	1960	1970	1975	1980	1985
0-4	6,251	6,627	7,120	8,640	10,480
5,6	5,573	3,222			
7-9		4,823			
10-13	4,588	6,201			
14		1,428			
15	658	1,355			
16,17	1,424	2,496			
	12,243	19,525	21,170	21,610	23,280
18,19	961	1,930			
20	2,509	800			
21		705			
22-24		2,444			
	3,470	5,879	8,220	10,510	11,330
25-34	5,759	8,347	9,870	12,120	16,700
35-44	5,807	7,269	8,010	10,320	12,160
45-54	4,684	6,259	7,300	7,920	8,760
55-59	1,954	2,604			
60,61	1,730	896			
62-64		1,186			
	3,684	4,686	5,500	6,250	7,290
65-74	2,752	3,098	3,420	3,970	4,650
75+	1,469	2,149	2,280	2,440	2,660

Source: U.S. Bureau of the Census[29]
Wisconsin Department of Health and Social Services[27]



CENSUS TRACTS
MILWAUKEE CITY

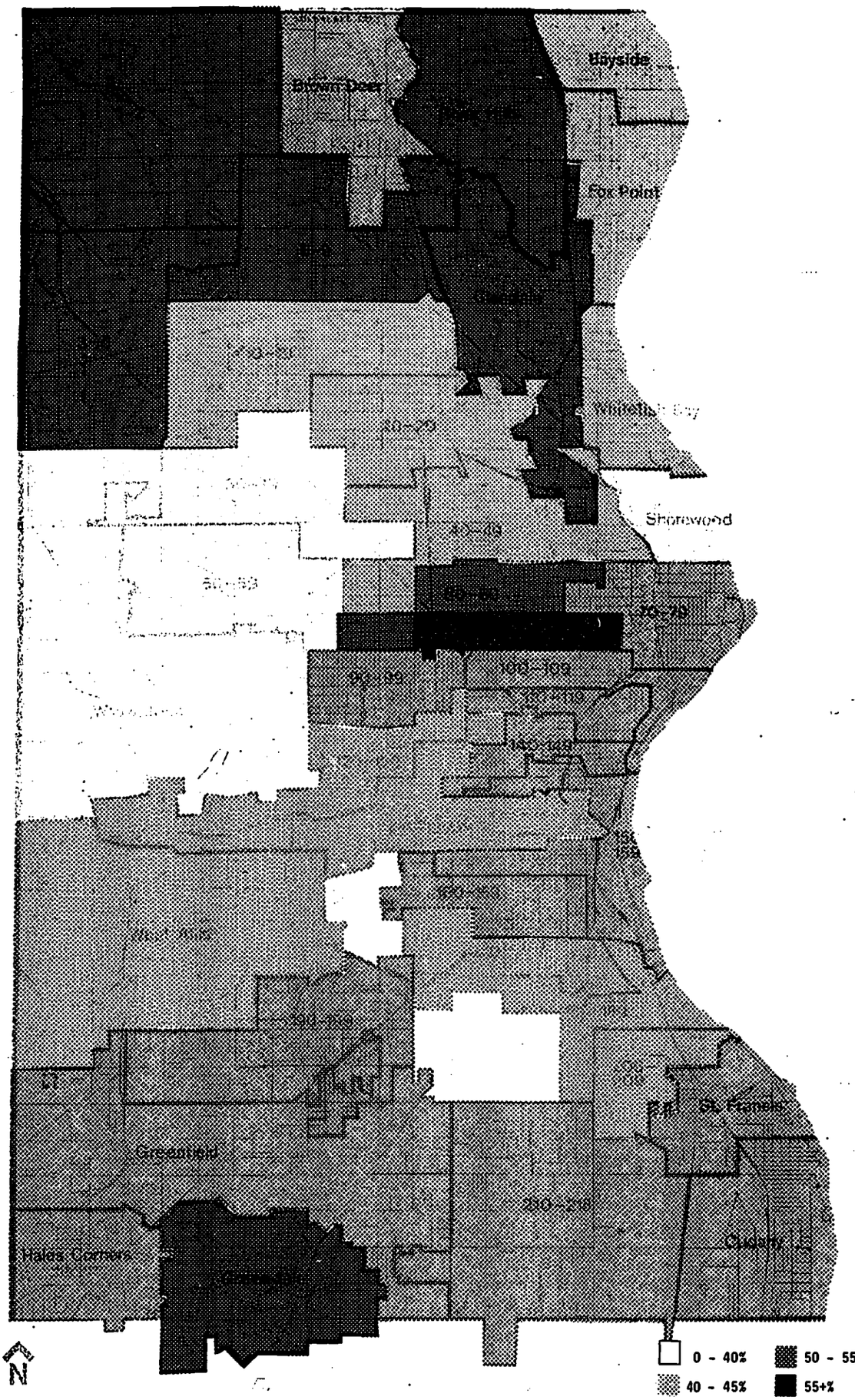
6045



CENSUS TRACTS
MILWAUKEE CITY

6046

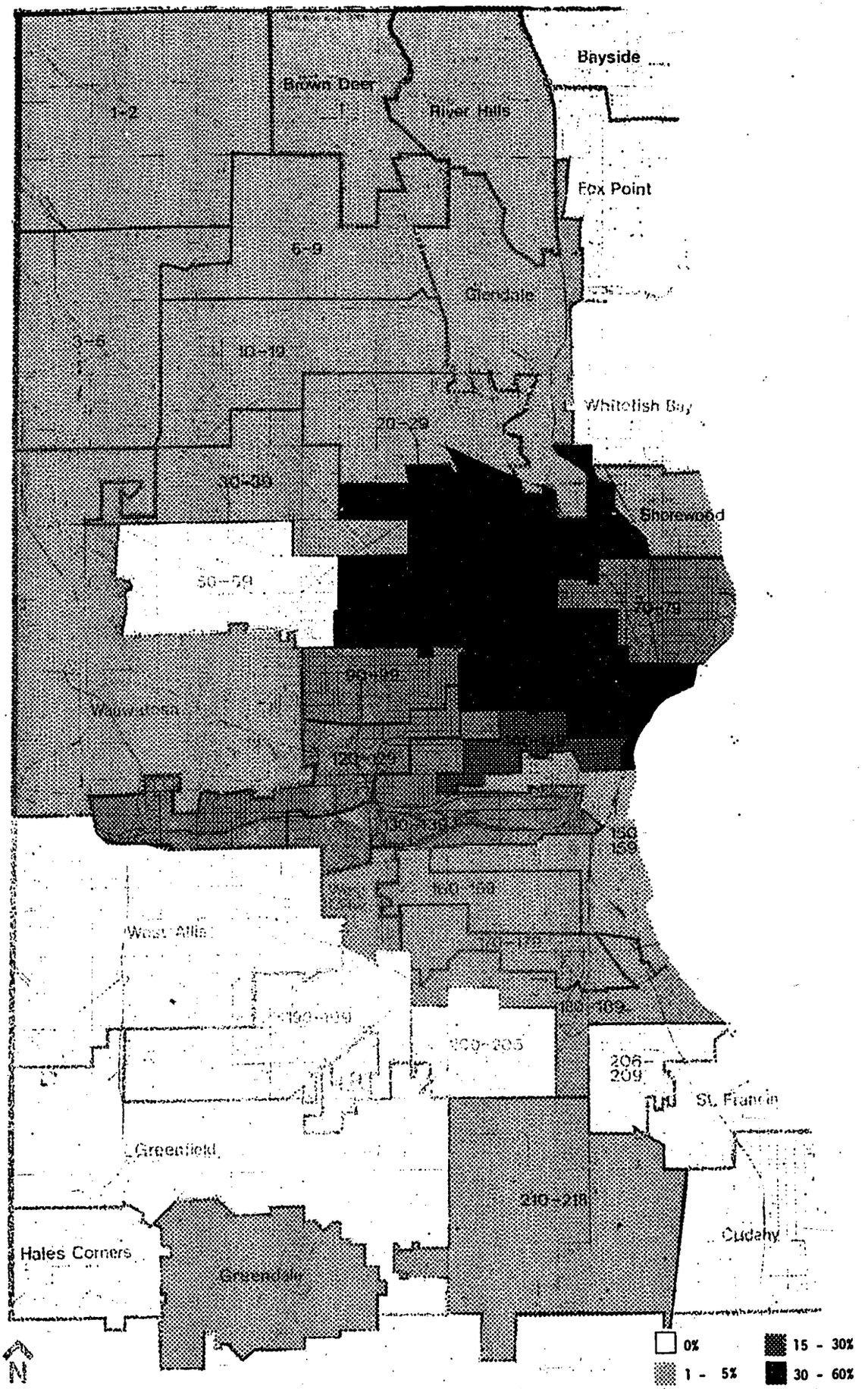
Population Density



CENSUS TRACTS
MILWAUKEE CITY

6947

Age Under 24



CENSUS TRACTS
MILWAUKEE CITY

6048

Minority Groups

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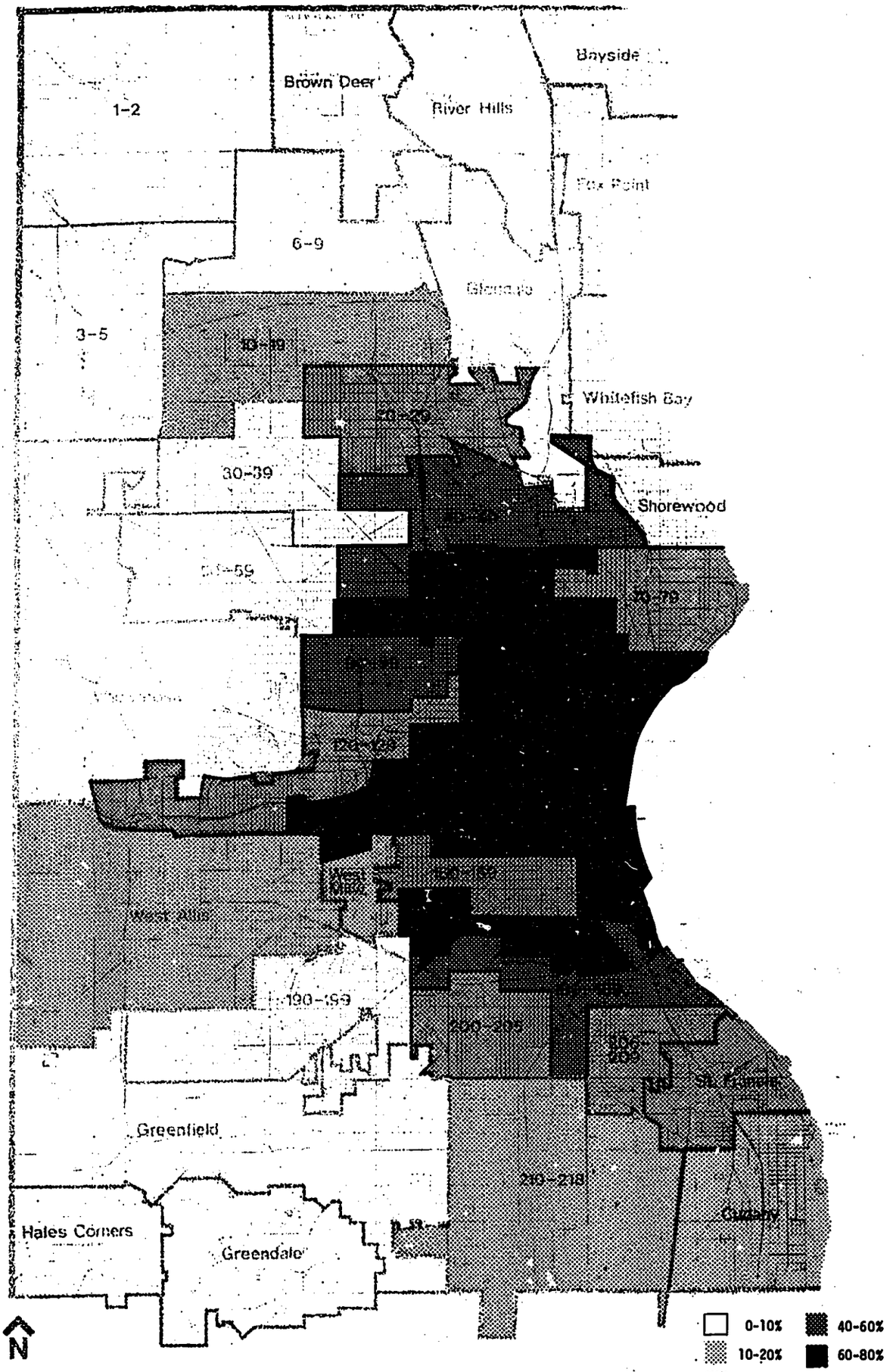

CENSUS TRACTS
MILWAUKEE CITY

6049

Homes Under $15,000

TABLE NO. 1.7 - MINOR CIVIL DIVISION DATA 1960 & 1970

MILWUAKEE COUNTY

	POPULATION 1960	POPULATION 1970	% CHANGE	AREA SQ.MI.	DENSITY 1970 POP./SQ.MI.
Bayside Village (Part)	3078	4338	41	2.3	1886
Brown Deer Village	11280	12622	12	4.4	2867
Cudahy City	17975	22078	23	4.8	4600
Fox Point Village	7315	7937	9	2.9	2737
Franklin City	10000	12247	22	34.6	354
Glendale City	9537	13436	41	5.9	2277
Greendale Village	6843	15089	121	5.6	2694
Greenfield City	17635	24424	38	12.1	2019
Hale Corners Village	5549	7771	40	3.2	2428
Milwaukee City	741324	717099	-3	96.0	7470
Oak Creek City	9372	13901	48	28.4	489
River Hills Village	1257	1561	24	5.3	294
St. Francis City	10065	10489	4	2.6	4034
Shorewood Village	15990	15576	-3	1.6	9735
South Milwaukee City	20307	23297	15	4.8	4854

6050

TABLE NO. 1.7 - MINOR CIVIL DIVISION DATA 1960 & 1970

MILWAUKEE COUNTY (CONTINUED)

	POPULATION 1960	POPULATION 1970	% CHANGE	AREA SQ.MI.	DENSITY 1970 POP./SQ.MI.
Wauwatosa City	56923	58676	3	13.2	4445
West Allis City	68157	71723	5	11.4	6291
West Milwaukee Village	5043	4405	-13	1.1	4005
Whitefish Bay Village	18390	17394	-5	2.1	8283
County Total	1036041	1054063	2	242.2	4352

Source: U.S. Bureau of the Census[29]
SEWRPC[20]

6051

TABLE NO. 1.8 - MINOR CIVIL DIVISION DATA 1970

MILWUAKEE COUNTY

	AGE %		NON-WHITE RACE %[1]		HOUSING UNITS % OWNER-OCC.	HOUSING UNITS % RENTER-OCC.
	< 18	18-24	NEGRO	OTHER	VAL. < $15,000	RENT < $100
Bayside Village (Part)	38	6	0	0	0	33
Brown Deer Village	40	8	1	0	2	5
Cudahy City	37	11	0	0	17	52
Fox Point Village	35	8	0	0	0	21
Franklin City	43	9	1	1	11	57
Glendale City	34	7	0	1	2	33
Greendale Village	45	7	0	1	1	11
Greenfield City	37	10	0	0	8	11
Hale Corners Village	38	9	0	0	2	11
Milwaukee City	33	13	15	1	29	56
Oak Creek City	44	8	0	1	12	34
River Hills Village	32	11	2	0	2	38
St. Francis City	34	14	0	0	21	34
Shorewood Village	28	9	0	1	2	14
South Milwaukee City	39	10	0	1	13	55

TABLE NO. 1.8 - MINOR CIVIL DIVISION DATA 1970

MILWAUKEE COUNTY (CONTINUED)

	AGE %		NON-WHITE RACE %[1]		HOUSING UNITS	
	< 18	18-24	NEGRO	OTHER	% OWNER-OCC. VAL. < $15,000	% RENTER-OCC. RENT < $100
Wauwatosa City	31	8	1	0	3	21
West Allis City	32	11	0	0	18	40
West Milwaukee Village	22	12	0	1	18	57
Whitefish Bay Village	35	7	0	0	1	6
County Total	33	12	10	1	20	51

Source: U.S. Bureau of the Census[29]
SEWRPC[14]

Notes: 1. Racial percentages less than .5% are rounded to 0%.

TABLE NO. 1.9 - MINOR CIVIL DIVISION DATA 1960 & 1970

OZAUKEE COUNTY

	POPULATION 1960	POPULATION 1970	% CHANGE	AREA SQ.MI.	DENSITY 1970 POP./SQ.MI.
Bayside Village (Part)	103	123	19	0.1	1230
Belgium Town	1646	1625	-1	37.0	44
Belgium Village	643	809	26	0.6	1348
Cedarburg City	5191	7697	48	2.2	3499
Cedarburg Town	2248	3774	68	27.9	135
Fredonia Town	1475	1746	18	35.2	50
Fredonia Village	710	1045	47	1.1	950
Grafton Town	1996	3127	57	22.0	142
Grafton Village	3740	5998	60	1.7	3528
Mequon City	8543	12110	42	46.9	258
Port Washington City	5984	8752	46	2.4	3647
Port Washington Town	1303	1528	17	20.1	76
Saukville Town	1306	1516	16	35.1	43
Saukville Village	1038	1389	34	1.3	1068
Thiensville Village	2507	3182	27	1.0	3182
County Total	38441	54421	42	234.5	232

Source: U.S. Bureau of the Census[29]
SEWRPC[20]

TABLE NO. 1.10 - MINOR CIVIL DIVISION DATA 1970

OZAUKEE COUNTY

	AGE %		NON-WHITE RACE %[1]		HOUSING UNITS % OWNER-OCC.	HOUSING UNITS % RENTER-OCC.
	< 18	18-24	NEGRO	OTHER	VAL. < $15,000	RENT < $100
Bayside Village (Part)	40	7	0	2	0	0
Belgium Town	41	10	0	0	32	65
Belgium Village	42	11	0	0	20	71
Cedarburg City	38	9	0	0	7	41
Cedarburg Town	43	8	0	0	3	45
Fredonia Town	44	9	0	0	36	85
Fredonia Village	41	8	0	0	20	52
Grafton Town	41	9	0	0	5	32
Grafton Village	44	8	0	0	5	37
Mequon City	39	8	1	0	3	41
Port Washington City	42	9	0	0	17	64
Port Washington Town	42	10	0	0	12	69
Saukville Town	41	9	0	0	16	73
Saukville Village	43	10	0	0	16	67
Thiensville Village	40	7	0	0	2	36
County Total	41	8	0	0	9	50

Source: U.S. Bureau of the Census[29]
SEWRPC[15]

Notes: 1. Racial percentages less than .5% are rounded to 0%.

TABLE NO. 1.11- MINOR CIVIL DIVISION DATA 1960 & 1970

WASHINGTON COUNTY

	POPULATION 1960	POPULATION 1970	% CHANGE	AREA SQ.MI.	DENSITY 1970 POP./SQ.MI.
Addison Town	2072	2375	15	36.0	66
Barton Town	1204	1624	35	21.3	76
Erin Town	1133	1641	45	36.0	46
Farmington Town	1433	1734	21	36.8	47
Germantown Town	3984	416	-90	1.8	231
Germantown Village	622	6974	1021	34.3	203
Hartford City	5627	6499	16	2.1	3095
Hartford Town	1870	2368	27	34.8	68
Jackson Town	1576	2844	81	36.1	79
Jackson Village	458	561	23	0.5	1122
Kewaskum Town	987	1166	30	23.3	50
Kewaskum Village	1572	1926	23	1.0	1926
Polk Town	2090	3040	46	34.6	88
Richfield Town	3172	5923	87	36.3	163
Slinger Village	1141	1022	-10	1.6	639

TABLE NO. 1.11- MINOR CIVIL DIVISION DATA 1960 & 1970

WASHINGTON COUNTY (CONTINUED)

	POPULATION 1960	POPULATION 1970	% CHANGE	AREA SQ.MI.	DENSITY 1970 POP./SQ.MI.
Trenton Town	2057	3178	20	35.7	89
Wayne Town	1081	1214	12	35.8	34
West Bend City	9969	16555	66	4.6	3599
West Bend Town	1992	2779	40	22.9	121
County Total	46119	63839	38	435.5	147

Source: U.S. Bureau of the Census[29]
SEWRPC[20]

TABLE NO. 1.12 - MINOR CIVIL DIVISION DATA 1970

WASHINGTON COUNTY

	AGE %		NON-WHITE RACE %[1]		HOUSING UNITS	
	< 18	18-24	NEGRO	OTHER	% OWNER-OCC. VAL. < $15,000	% RENTER-OCC. RENT < $100
Addison Town	44	11	0	0	45	82
Barton Town	43	10	0	0	25	80
Erin Town	44	6	0	1	19	73
Farmington Town	43	9	0	0	35	71
Germantown Town	41	9	0	0	18	50
Germantown Village	45	8	0	0	7	42
Hartford City	36	10	0	1	38	69
Hartford Town	41	9	0	0	23	60
Jackson Town	45	7	0	0	8	67
Jackson Village	39	10	0	0	38	59
Kewaskum Village	39	12	0	0	32	70
Kewaskum Town	43	10	0	0	31	79
Polk Town	41	9	0	0	27	60
Richfield Town	45	7	0	0	16	66
Slinger Village	40	13	0	0	41	77

TABLE NO. 1.12 - MINOR CIVIL DIVISION DATA 1970

WASHINGTON COUNTY (CONTINUED)

	AGE %		NON-WHITE RACE %[1]		HOUSING UNITS % OWNER-OCC. VAL. < $15,000	HOUSING UNITS % RENTER-OCC. RENT < $100
	< 18	18-24	NEGRO	OTHER		
Trenton Town	43	9	0	0	20	73
Wayne Town	42	10	0	0	60	77
West Bend City	39	10	0	0	20	57
West Bend Town	36	8	0	0	17	37
County Total	41	9	0	0	22	61

Source: U.S. Bureau of the Census[29]
SEWRPC[18]

Notes: 1. Racial percentages less than .5% are rounded to 0%.

TABLE NO.1.13- CENSUS TRACT DATA 1970

MILWAUKEE COUNTY

TRACT NO.	POP.	AREA SQ.MI.	DENSITY POP./SQ.MI.	AGE % <18	AGE % 18-24	NON-WHITE RACE %[1] NEGRO	NON-WHITE RACE %[1] OTHER	HOUSING % OWNER-OCC. VAL. < $ 15,000	HOUSING % RENTER-OCC. RENT < $100
1-2	2,878	10.19	282	40	8	2	0	4	30
3-5	15,630	6.64	2,353	39	12	1	1	3	2
6-9	20,123	3.71	6,347	44	10	1	0	5	13
10-19	41,525	5.68	7,310	41	12	3	1	15	24
20-29	30,147	3.89	7,749	31	11	3	1	33	42
30-39	36,655	4.32	8,484	26	10	1	0	6	14
40-49	44,114	4.62	9,548	32	11	40	1	45	57
50-59	37,857	4.37	8,662	24	10	0	0	8	19
60-69	41,228	2.18	18,911	41	11	61	1	75	80
70-79	35,073	2.83	12,393	26	19	10	1	39	41
80-89	30,330	1.45	20,917	43	12	70	1	95	93
90-99	33,294	2.12	15,704	35	11	6	2	45	66
100-109	28,118	1.97	14,273	34	15	56	1	88	60

6060

TABLE NO. 1.13- CENSUS TRACT DATA 1970

MILWAUKEE COUNTY (CONTINUED)

TRACT NO.	POP.	AREA SQ.MI.	DENSITY POP./SQ.MI.	AGE % <18	AGE % 18-24	NON-WHITE RACE %[1] NEGRO	NON-WHITE RACE %[1] OTHER	HOUSING % OWNER-OCC. VAL. < 15,000	HOUSING % RENTER-OCC RENT < $100
110-119	19,075	1.25	15,260	30	17	42	2	90	78
120-129	28,573	3.60	7,936	31	12	5	2	32	54
130-139	22,351	3.89	5,745	23	18	11	2	63	57
140-149	21,336	1.38	15,460	16	30	19	3	85	61
150-159	18,683	3.32	5,627	28	20	1	2	80	79
160-169	33,853	2.10	16,120	34	11	0	1	33	82
170-179	29,588	1.92	15,410	32	12	0	1	65	78
180-189	26,330	2.92	9,017	33	11	0	1	49	68
190-199	49,261	5.61	8,780	35	11	0	0	9	11
200-205	21,398	2.59	8,261	27	12	0	0	21	42
206-209	18,976	1.92	9,883	31	11	0	0	24	42
210-218	30,612	9.70	3,155	39	10	0	1	10	12

Source: U.S. Bureau of the Census
SEWRPC[12]

Notes: 1. Racial percentages less than .5% are rounded to 0%.

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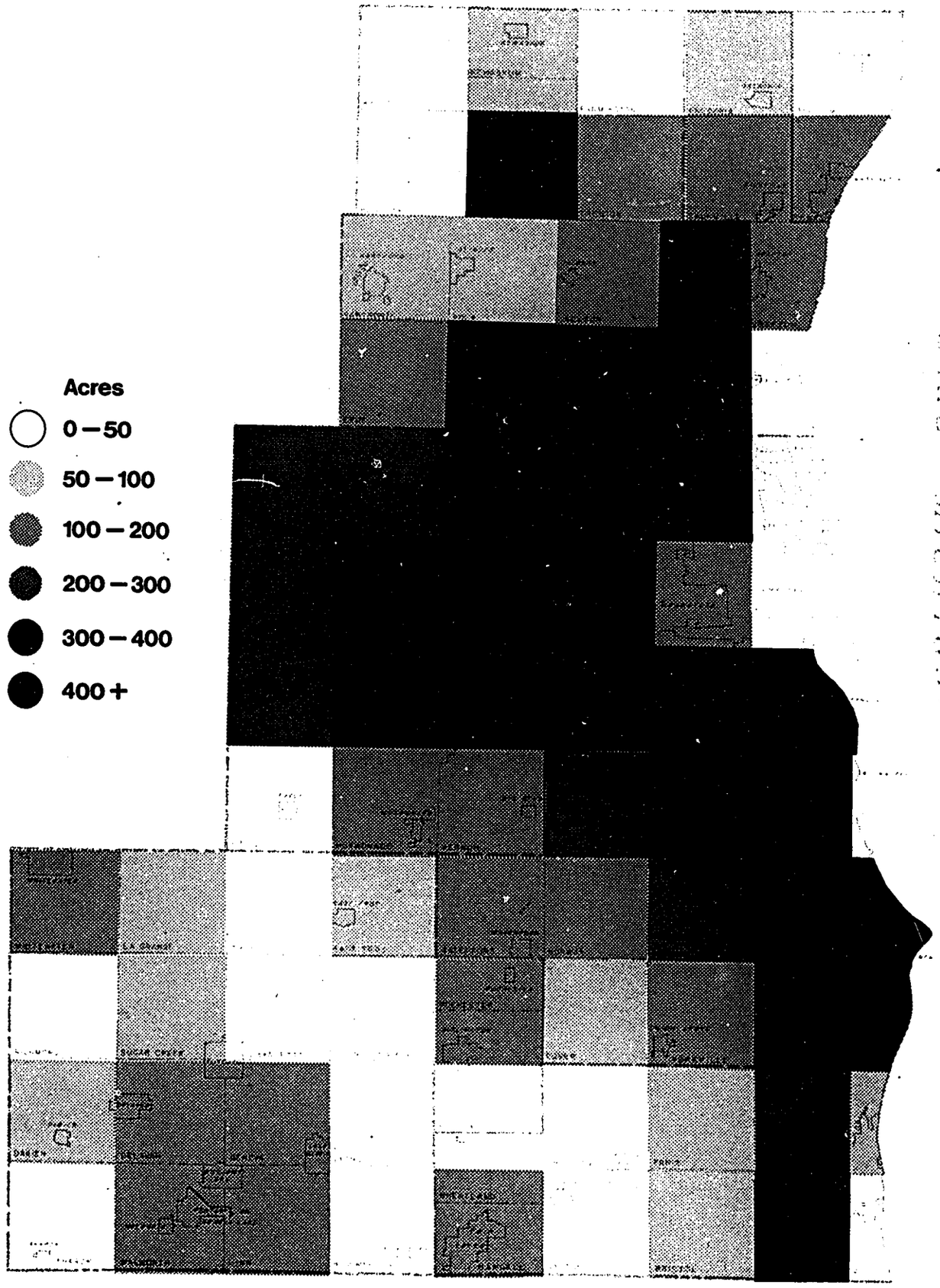
Land Use

LAND USE

The Southeastern Wisconsin Regional Planning Commission (SEWRPC) has monitored regional land use change between 1963 and 1970. Some of this data is mapped on the following pages to show where recent residential and industrial growth has occurred within the Region. The town ranges shown in the following tables are located by the map on page 2.4. Ranges number from 15 to 23 in the west to east direction across the Region while townships number from 100 to 1200 in the south to north direction.

Residential land use change information is intended to supplement population growth trends discussed in the previous section of the report. The map on page 2.2 illustrates quite well the suburbanization of the Region which is now in progress. The industrial land use change map illustrates the trend toward decentralization of industry as land becomes too scarce or too expensive in the more urban areas, and it becomes more and more feasible to locate industry in suburban or even rural areas.

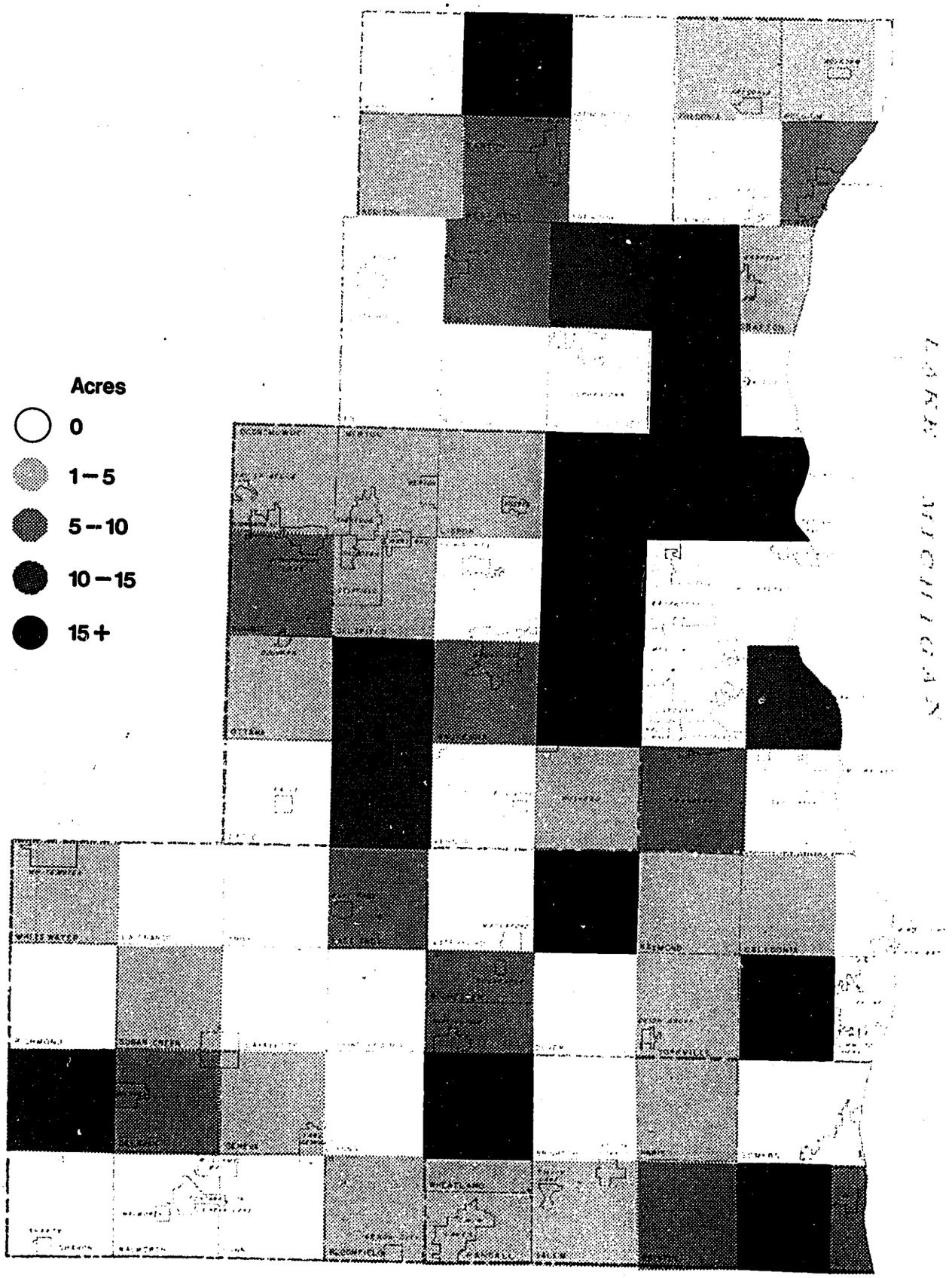
SEWRPC's proposed 1990 land use and the flood plains of the District are also presented in this section. At the time this report was compiled only the Milwaukee, Fox, Root and Des Plaines River flood plains had been delineated. The map which follows shows general areas in the District which have been prone to flooding in the past 100 years. Detailed large scale maps of the flood plains are available from SEWRPC, or the U.S. Army Corps. of Engineers for the Des Plaines River flood plain. SEWRPC is currently engaged in a study of the Menomonee River watershed which is scheduled for completion in early 1973. The Soil Conservation Service of the Department of Agriculture will complete a study of the Pike River watershed in November 1971. The delineation of other flood plains in the Region has not yet been undertaken.



SOUTHEASTERN WISCONSIN REGION

6064

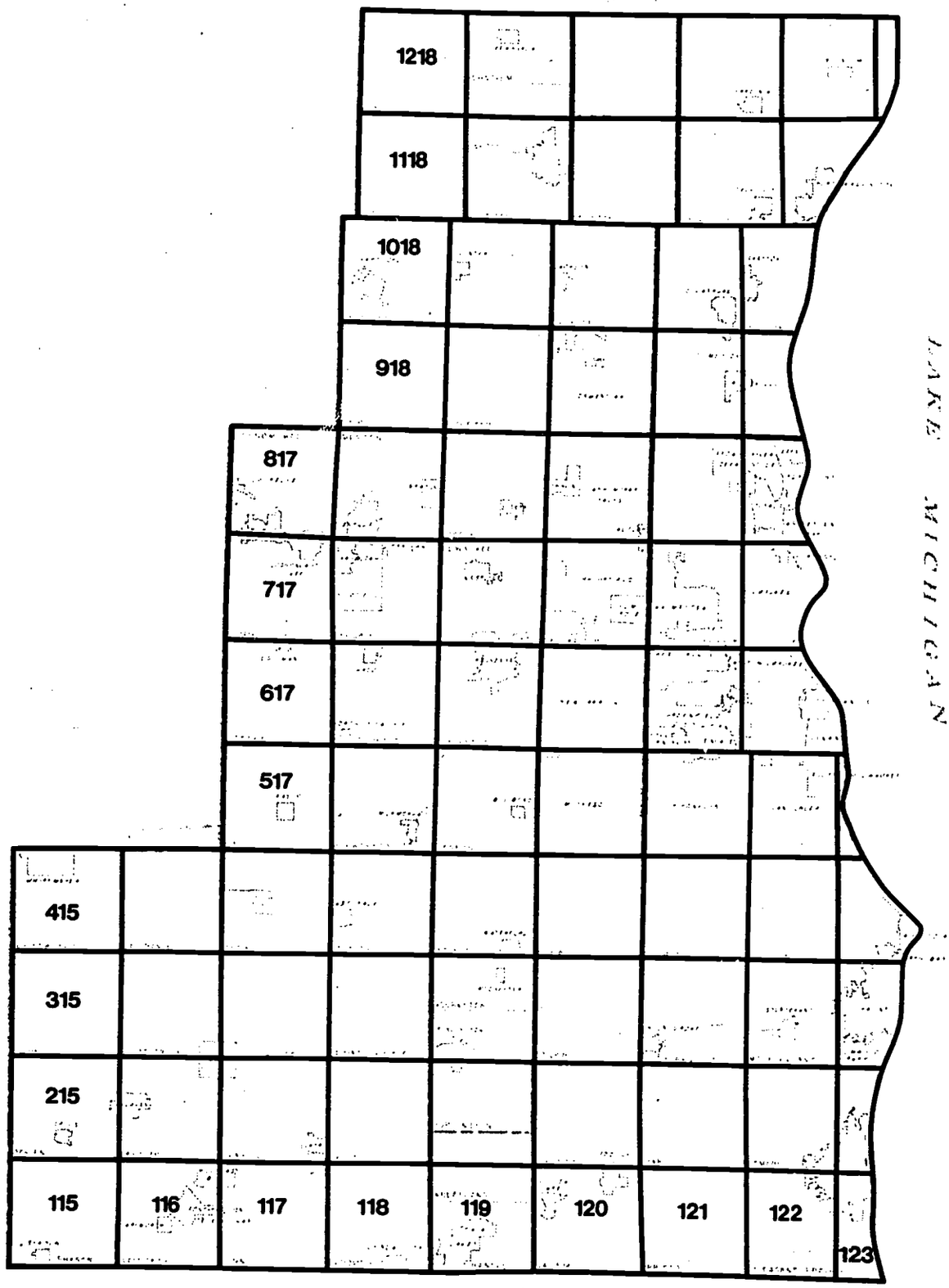
Residential Land Use Change 1963–1970



SOUTHEASTERN WISCONSIN REGION

6065

Industrial Land Use Change 1963–1970



SOUTHEASTERN
WISCONSIN REGION

Town Ranges

TABLE NO. 2.1 - LAND USE CHANGE DATA 1963 - 1970

MILWAUKEE COUNTY

TOWN RANGE NO.	TOTAL ACRES	RESIDENTIAL AREA IN ACRES 1963	RESIDENTIAL AREA IN ACRES 1970	RESIDENTIAL ACRES CHANGE	RESIDENTIAL % CHANGE	INDUSTRIAL AREA IN ACRES 1963	INDUSTRIAL AREA IN ACRES 1970	INDUSTRIAL ACRES CHANGE	INDUSTRIAL % CHANGE
521	23,058.77	1833.86	2316.86	482.50	26	22.34	27.39	5.05	23
522	21,338.71	2414.59	2758.12	343.53	14	424.13	357.97	-66.16	-16
523	157.06	0	0	0	0	0	0	0	0
621	23,244.09	8044.95	8978.51	933.56	12	471.33	439.00	-32.00	-7
622	16,838.04	4575.02	4925.32	350.30	8	348.90	363.00	15.00	4
721	23,498.43	8731.17	8853.16	121.99	1	634.67	616.56	-18.11	-3
722	12,913.69	4368.70	4061.97	-306.73	-7	572.50	510.58	-61.92	-11
821	23,319.86	4297.22	5511.29	1214.07	28	267.99	379.28	111.29	42
822	10,695.93	5389.93	5390.80	0.87	0	34.69	50.80	16.11	46

Source: SEWRPC[34]

6067

TABLE NO. 2.2 - LAND USE CHANGE DATA 1963 - 1970

OZAUKEE COUNTY

TOWN RANGE		RESIDENTIAL				INDUSTRIAL			
NO.	TOTAL ACRES	AREA IN ACRES 1963	AREA IN ACRES 1970	ACRES CHANGE	% CHANGE	AREA IN ACRES 1963	AREA IN ACRES 1970	ACRES CHANGE	% CHANGE
921	23,097.90	2106.31	2545.77	439.46	21	17.44	40.76	23.32	134
922	7,666.93	1721.59	1766.09	44.50	3	0	0	0	0
1021	23,059.14	1222.56	1993.85	771.29	63	69.75	105.03	35.28	51
1022	11,282.02	457.18	580.44	123.26	27	38.75	40.91	2.16	6
1121	23,285.17	428.41	537.96	109.55	26	16.94	15.37	-1.57	-9
1122	14,387.87	918.40	1090.33	171.93	19	45.99	52.22	6.23	14
1221	23,183.45	253.33	346.62	93.29	37	16.56	19.21	2.65	16
1222	23,007.03	292.16	319.31	27.15	9	10.84	11.37	0.53	5
1223	1,043.75	168.77	178.31	9.31	6	0	0	0	0

Source: SEWRPC[34]

TABLE NO. 2.3 - LAND USE CHANGE DATA 1963 - 1970

WASHINGTON COUNTY

TOWN RANGE		RESIDENTIAL				INDUSTRIAL			
NO.	TOTAL ACRES	AREA IN ACRES 1963	AREA IN ACRES 1970	ACRES CHANGE	% CHANGE	AREA IN ACRES 1963	AREA IN ACRES 1970	ACRES CHANGE	% CHANGE
918	23,064.00	237.58	395.94	158.36	67	0	0	0	0
919	23,256.91	709.19	1192.35	483.16	68	0	0	0	0
920	23,105.64	764.58	1123.64	359.06	47	4.96	4.96	0	0
1018	23,565.65	780.40	877.59	97.19	12	38.76	36.63	-2.13	-5
1019	23,177.74	557.63	639.53	81.90	15	8.99	15.12	6.13	68
1020	23,408.73	358.19	517.57	159.38	44	13.15	23.80	10.65	81
1118	23,084.11	269.74	302.31	32.57	12	17.23	20.11	2.88	17
1119	23,184.66	1612.75	1981.98	369.23	23	110.62	117.32	6.70	6
1120	23,182.67	427.28	590.95	163.67	38	0.64	0.64	0	0
1218	22,888.32	147.21	182.81	35.60	24	0	0	0	0
1219	23,286.22	337.75	418.06	80.31	24	79.71	17.95	61.76	-77
1220	23,528.75	347.01	386.34	39.33	11	0	0	0	0

Source: SEWRPC[34]

High Density Residential (22.9–59.2 Persons per Acre)

Medium Density Residential (7.3–22.8 Persons per Acre)

Low Density Residential (0.5–7.2 Persons per Acre)

Major Retail and Service

Major Industrial

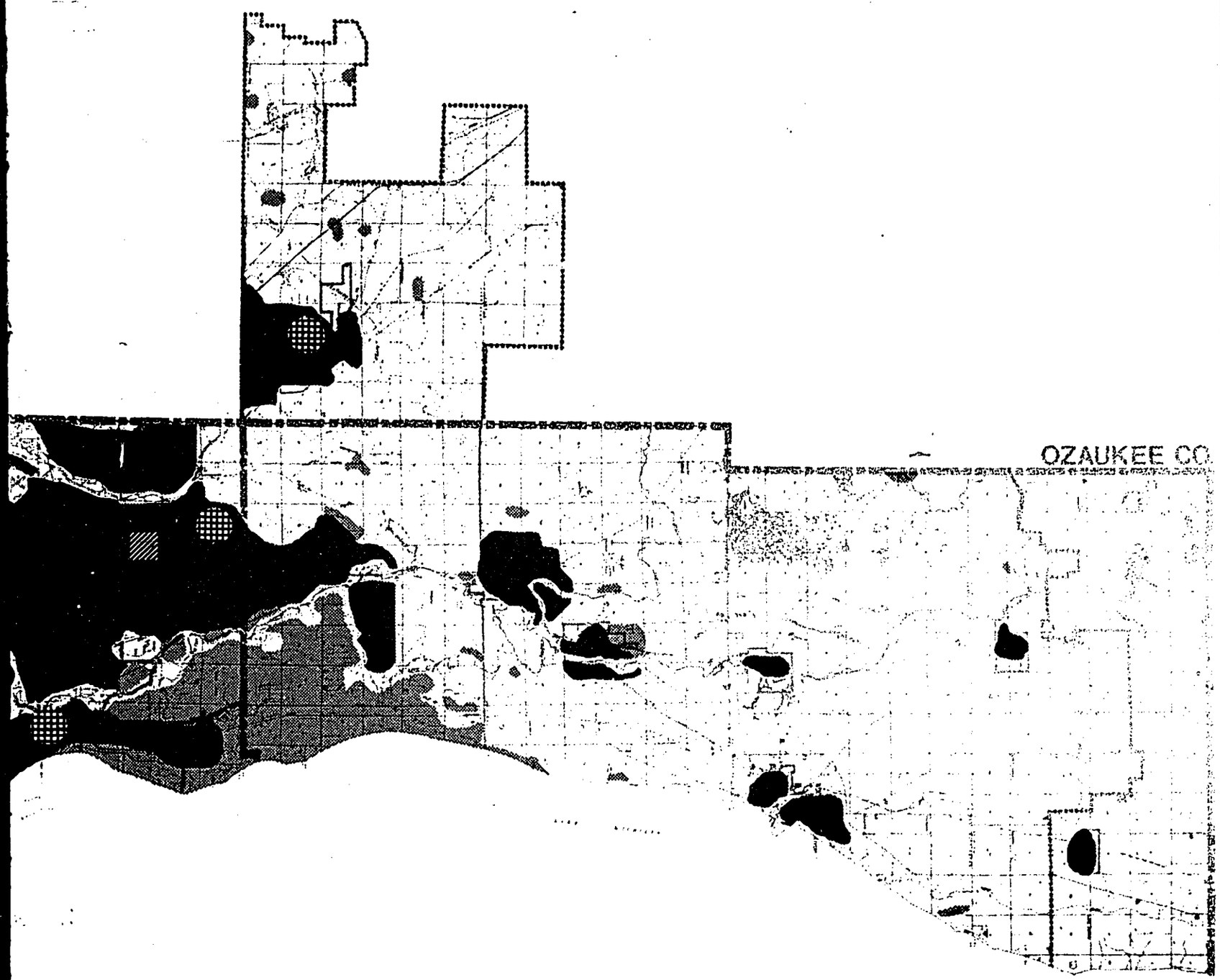
N

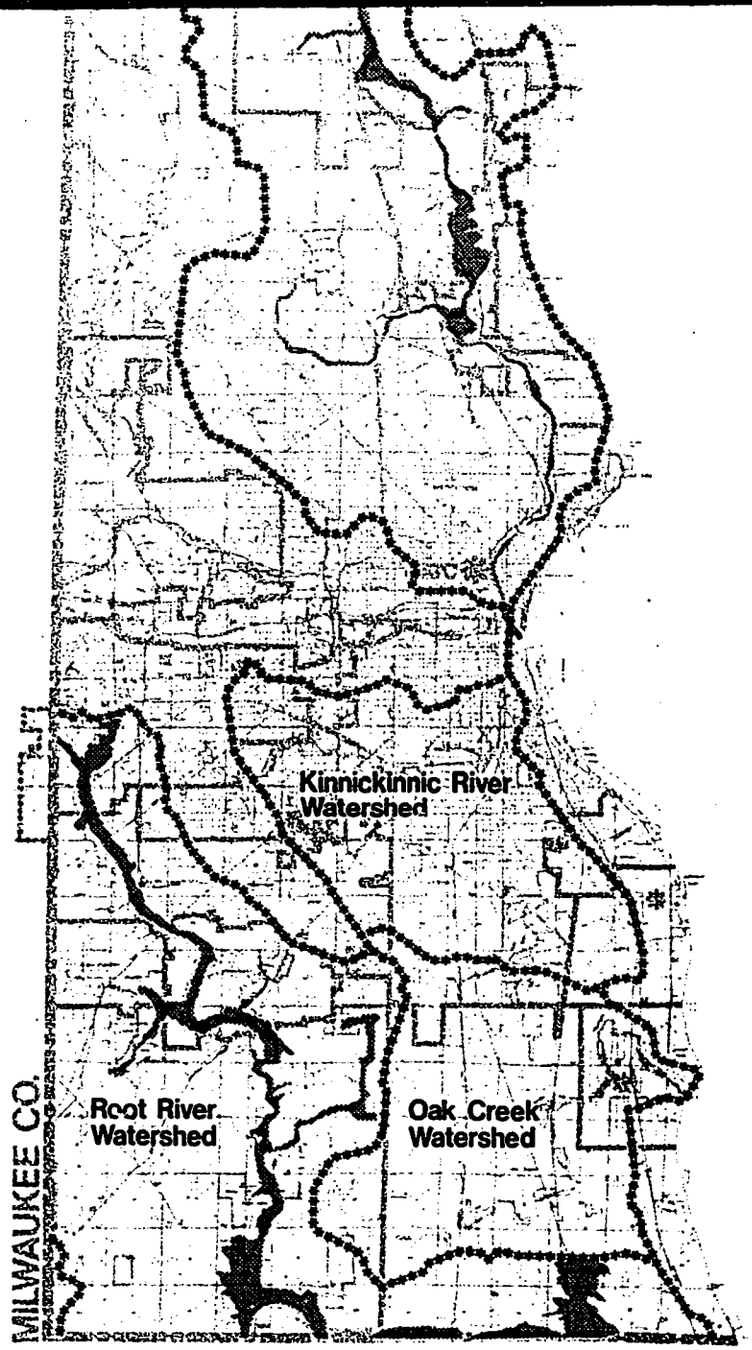
1 0 1 2 3 MILES

VTAE DISTRICT 9

1990 Land Use

6079


OZAUKEE CO



100 Year Flood Inundation Area

Watershed Boundary

N

1 0 1 2 3 MILES

VTAE DISTRICT 9

Flood Plains

ERIC

Menomonee River Watershed
Milwaukee River Watershed
Sauk Creek Watershed
Sheboygan River Watershed

Transportation & Utilities

TRANSPORTATION & UTILITIES - VTAE DISTRICT 9

Transportation

The existing and proposed highway systems of District 9 are shown on page 3.3. Almost all of the proposed freeways indicated in Milwaukee County are scheduled for completion prior to 1980. The only exception is a 2½ mile stretch of the new Bay Freeway, shown just to the North of Timmerman Airport on the map, which is recommended for construction between 1980 and 1990. The southern extension of the Stadium freeway from W. National Ave. to the Airport Freeway should be complete in 1974. The northerly extension of this freeway to State Highway 167 near Mequon in Ozaukee County is proposed for the late 70's, with further extension to the Sheboygan County line in the following decade. Construction of the Lake Freeway south to the Racine County line, the Belt Freeway westward into Waukesha County and the Park Freeway joining the Lake and Stadium Freeways should all be complete before 1980. The section of the Bay Freeway between the North-South and Stadium Freeways, and the Milwaukee River Parkway which links it to the northern end of the Lake Freeway are also scheduled for completion before 1980 although progress has been delayed due to relocation disputes. The section of freeway leading off I94 to General Mitchell Field should be in operation in 1973. Prior to 1980 in Ozaukee County, the North-South Freeway will be extended to the Grafton interchange, then northeasterly to the Sheboygan County line.

Existing mass transit service in the District, shown on page 3.4 is defined as routes upon which there is an average of at least one bus per hour between 6 A.M. and 8 P.M.

A rapid transit system has recently been proposed for the Milwaukee area. In July 1971 the Milwaukee County Mass Transit Technical Planning Study was produced in final draft form for the Milwaukee County Expressway and Transportation Commission. Information contained in the Study, and summarized here, is subject to change following review by study staff, transit committees and several governmental agencies.

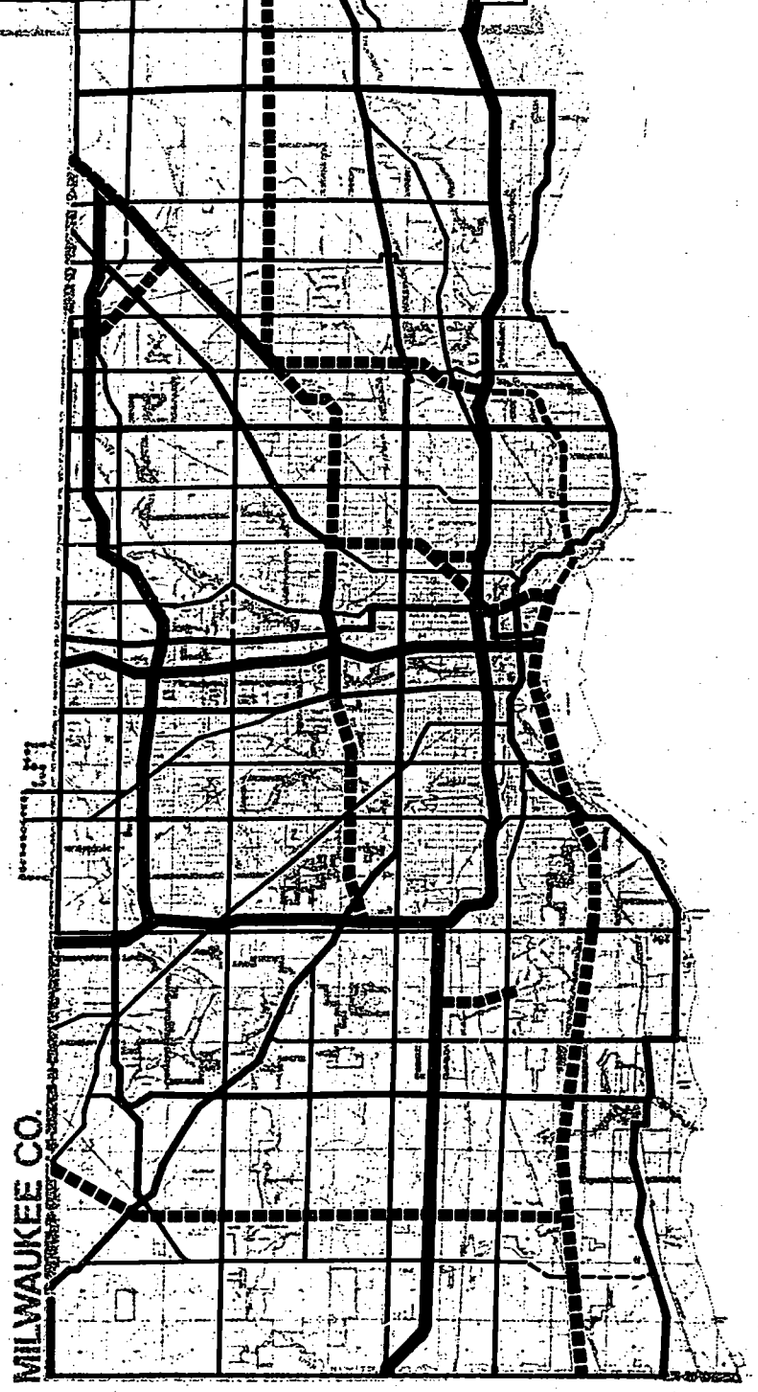
Briefly, it has been concluded that the most appropriate system for Milwaukee in the years ahead is a bus rapid transit system, utilizing the Milwaukee County network of freeways and a two-lane, grade-separated exclusive bus transitway which would bypass rush-hour congestion on the East-West freeway. The eventual

routing of the proposed system is mapped on page 3.5 . Modern turbine powered buses are to be scheduled in sufficient numbers on the rapid transit system to provide a seat for every passenger even during rush periods. Moving at peak hour headways of 5 to 10 minutes, the buses will operate at speeds of 40 to 60 mph on the freeways, and 60 mph on the exclusive transitway.

Passengers will gain access to the system by walking, by feeder bus, by being driven, and by driving and parking their cars in convenient "park-n-ride" facilities. The existing local transit service will have to be modified to provide feeder service to the rapid transit system. The plan provides for 37 stations with parking for nearly 33,000 automobiles, and two stations without parking facilities. These stations and their phasing are shown on page 3.5 and are described further in the table which follows. The downtown distribution of passengers will be linear, with service concentrated along Wisconsin Avenue.

Utilities

At the time this study was conducted no information was readily available regarding utility service areas in the District. SEWRPC, however, is currently in the process of compiling such information and is expected to publish the Regional Sanitary Sewer System Study in the summer of 1972. Pending issue of this detailed information, it is a simple matter to approximate existing and future service areas. Generally services are available or quite easily obtainable within the boundaries of incorporated cities and villages. In addition, there are about 6 sanitary districts and a few lake areas in the Region where services can be found. Outside of incorporated area or sanitary district limits, no funding assistance will be available for the installation of services unless annexation occurs. Since the supply of services depends upon intensive land use, reference to the projected land use map in the previous section of this report will be helpful in locating probable future service areas. Proximity to the sewage treatment plants shown on page 3.8 also indicates existing or potential service areas.



Existing	Proposed	
▬▬▬	▪▪▪▪▪▪▪▪	Freeway
▬▬▬	- - - - - - - -	Major Highway
▬▬▬	- - - - - - - -	Local Highway

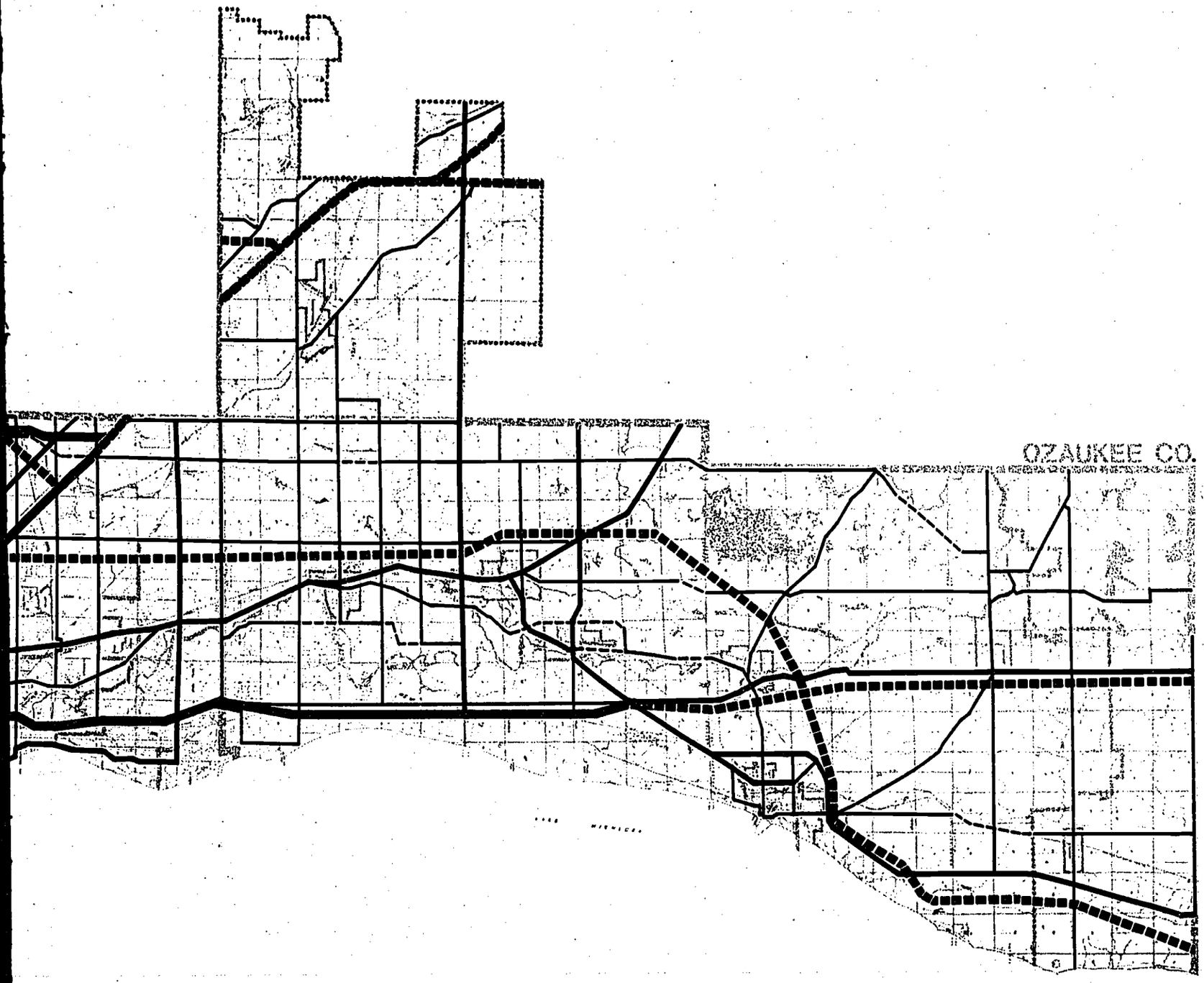
N

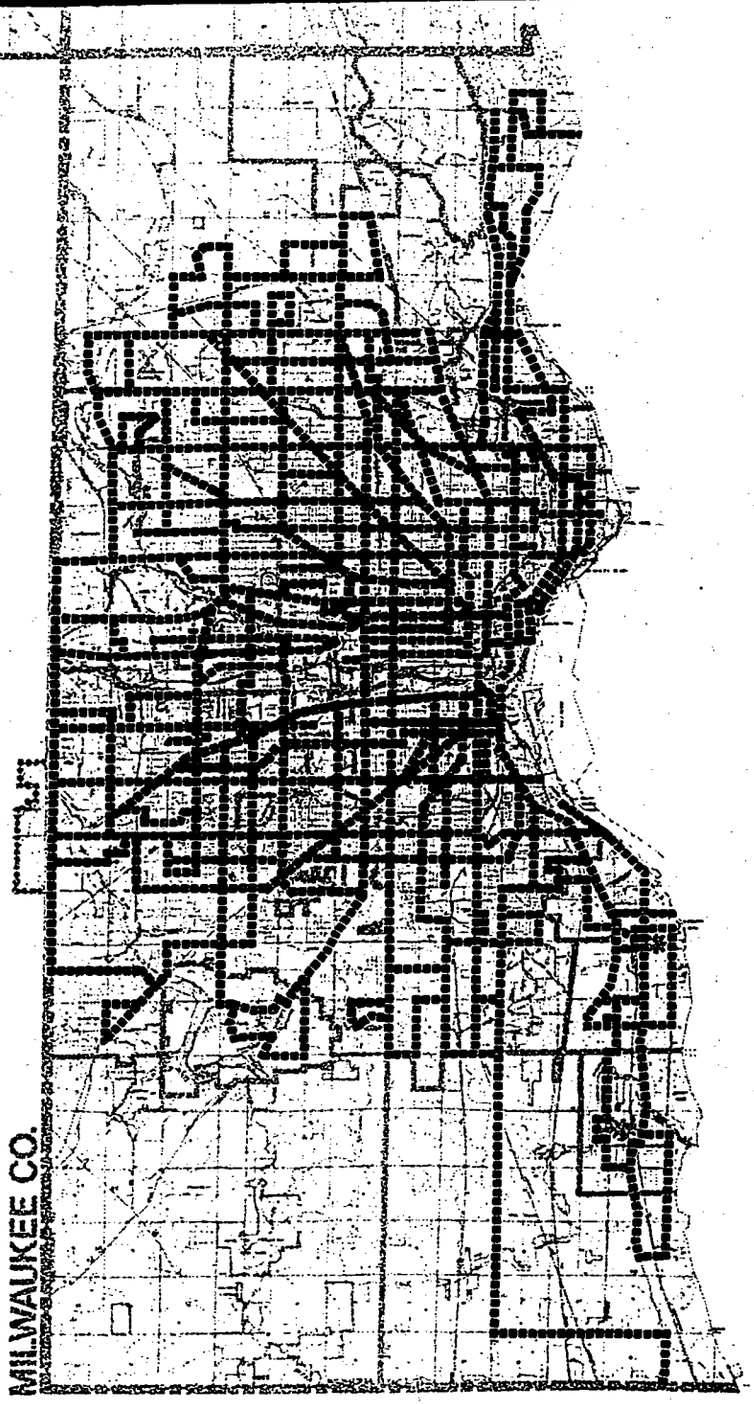
1 0 1 2 3 MILES

VTAE DISTRICT 9

Highway System

6077


OZAUKEE CO.



N

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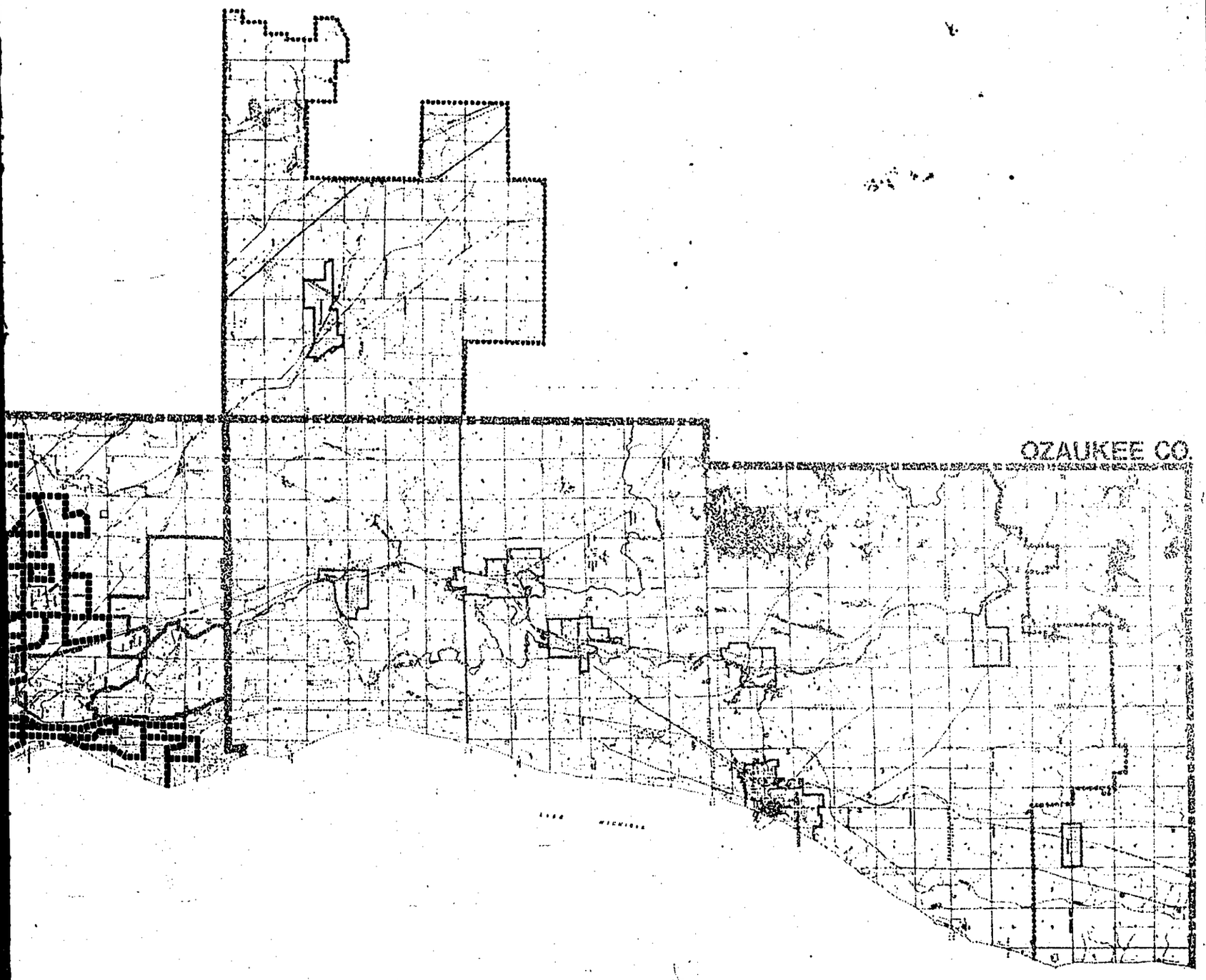
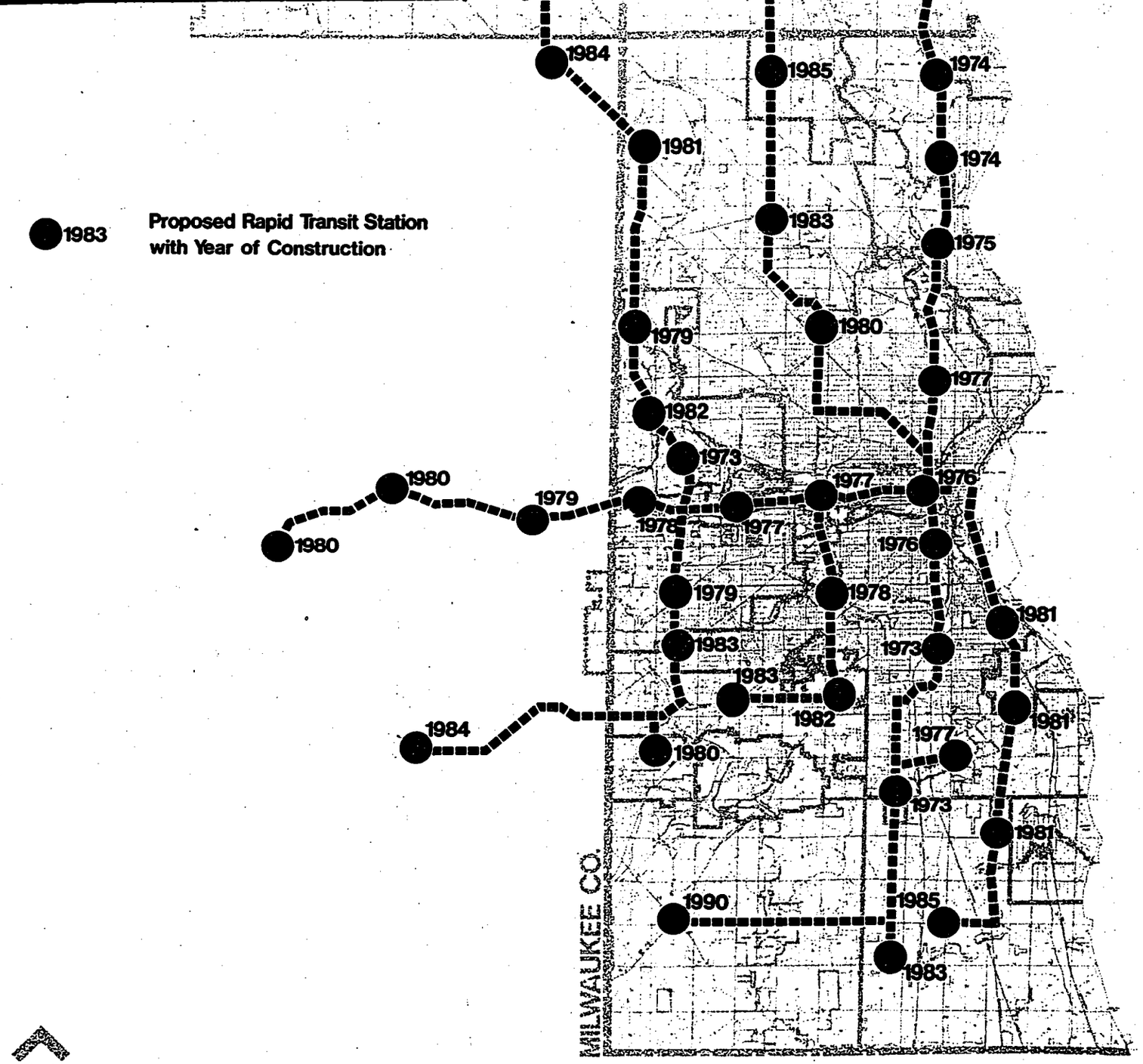
VTAE DISTRICT 9 Mass Transit System 1970

6079


OZAUKEE CO.



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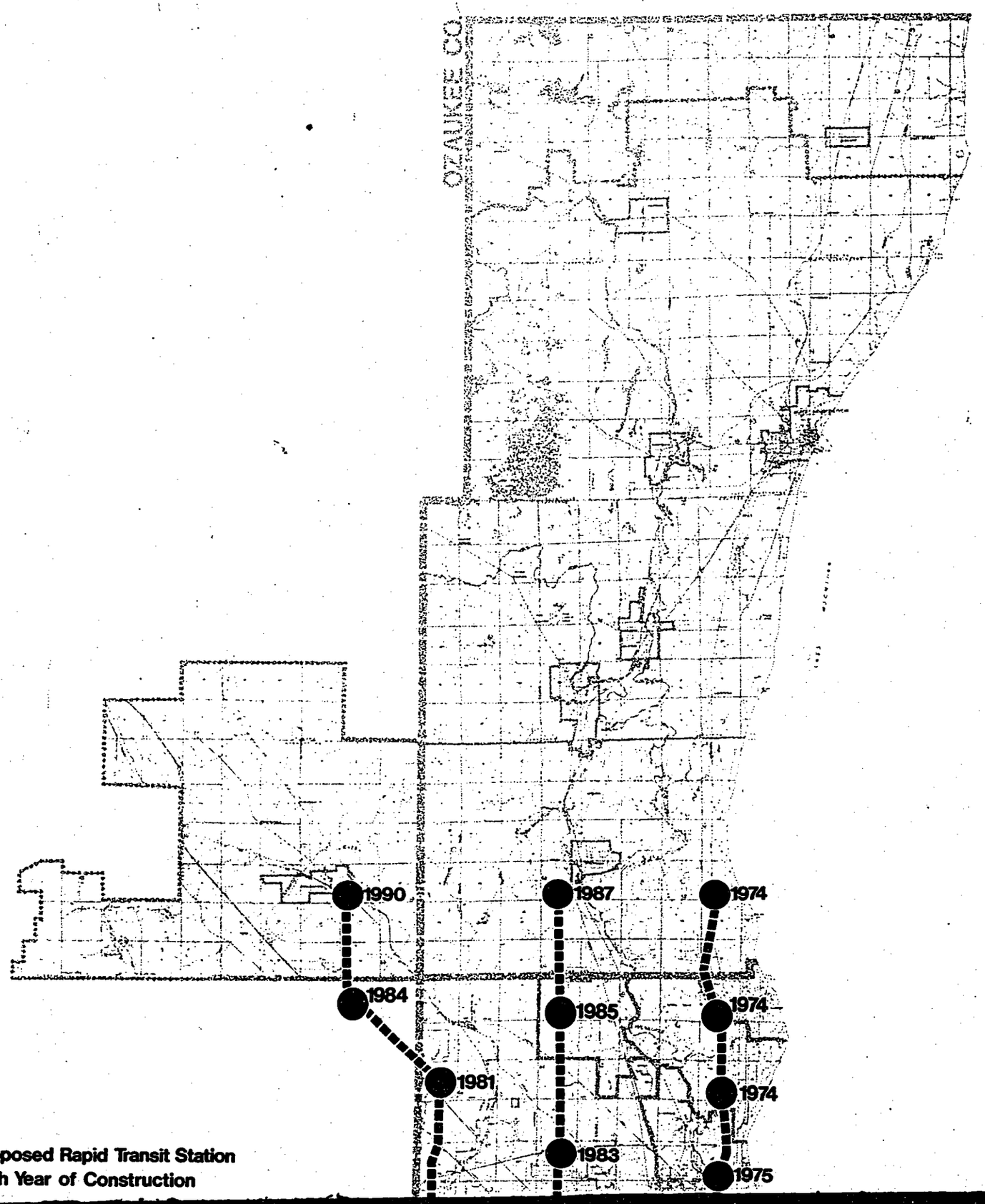
VTAE DISTRICT 9 Prop. Rapid Transit System



1983 Proposed Rapid Transit Station with Year of Construction

ERIC

TABLE NO. 3.1 - PROPOSED RAPID TRANSIT SYSTEM STATISTICS

MILWAUKEE AREA

NUMBER	STATION	LOCATION		TRIP TIME TO CENTRAL AREA	DAILY BOARDING	PARKING SPACES
	Transitway	-	Marquette	0	4,800	0
1237	Transitway	-	VA Center	17	3,400	300
1226	Transitway	-	State Fair Park	18	10,000	1,480
1145	Transitway	-	Curtis Road	23	1,000	400
1207	I 94	-	Brookfield	28	1,850	610
833	I 94	-	Blue Mound	35	1,320	640
1204		Waukesha		43	4,830	1,670
1178		Germantown		44	1,440	670
1179		Menomonee Falls		37	2,090	940
1184	US 45	-	STH 145	33	4,930	1,620
1185	US 45	-	Capitol Drive	29	3,370	1,250
1188	US 45	-	Mayfair	25	2,720	900
1191	US 45	-	County Institutions	23	970	200
1210	I 894	-	National Avenue	26	2,230	730
1221	I 894	-	Beloit Road	28	1,140	500
1216	US 45	-	Hales Corners	32	3,120	1,210
1211		New Berlin		35	2,870	1,450
1167	US 41	-	Thiensville	36	1,400	680
1170	US 41	-	Brown Deer Road	28	1,940	840
1173	US 41	-	Florist Avenue	26	4,150	1,760
1200	US 41	-	Capitol Court	24	6,000	2,030
1234	US 41	-	Jackson Park	21	5,350	1,330
1144	US 41	-	I 894	25	1,870	290
1229	I 894	-	76th Street	29	1,640	570
1150	US 141	-	Mequon Road	37	780	320
1155	US 141	-	Brown Deer Road	35	920	450
1158	US 141	-	Good Hope Road	28	1,360	280

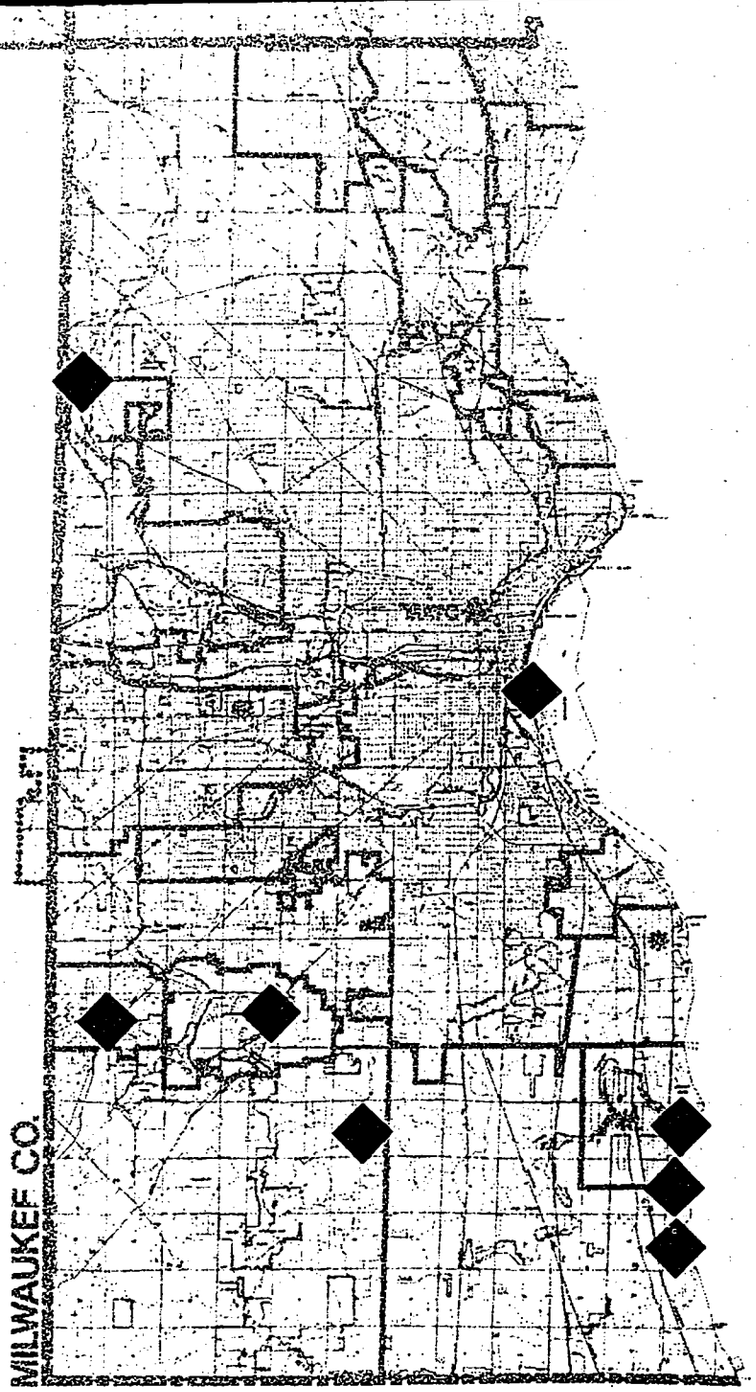
6083

TABLE NO. 3.1 - PROPOSED RAPID TRANSIT SYSTEM STATISTICS

MILWAUKEE AREA

NUMBER	STATION	LOCATION		TRIP TIME TO CENTRAL AREA	DAILY BOARDING	PARKING SPACES
1159	US 141	-	Silver Spring Road	26	2,790	730
1194	US 141	-	Locust Street	18	2,560	680
1257	I 94	-	Mitchell Street	22	4,500	0
1255	I 94	-	Holt-Morgan Avenue	24	5,060	1,790
1261	I 94	-	Airport	29	870	340
1248	I 94	-	College Avenue	31	2,270	910
1242	Belt Fwy	-	Loomis Road	42	1,070	550
1245	I 94	-	Ryan Road	35	1,320	650
1273	Lake Fwy	-	Oklahoma Avenue	20	6,560	1,400
1270	Lake Fwy	-	Layton Avenue	28	2,230	400
1267	Lake Fwy	-	Rawson Avenue	29	2,320	1,270
1264	Belt Fwy	-	Howell Avenue	33	2,720	1,290

Source: Milwaukee County Department of Public Works[37]



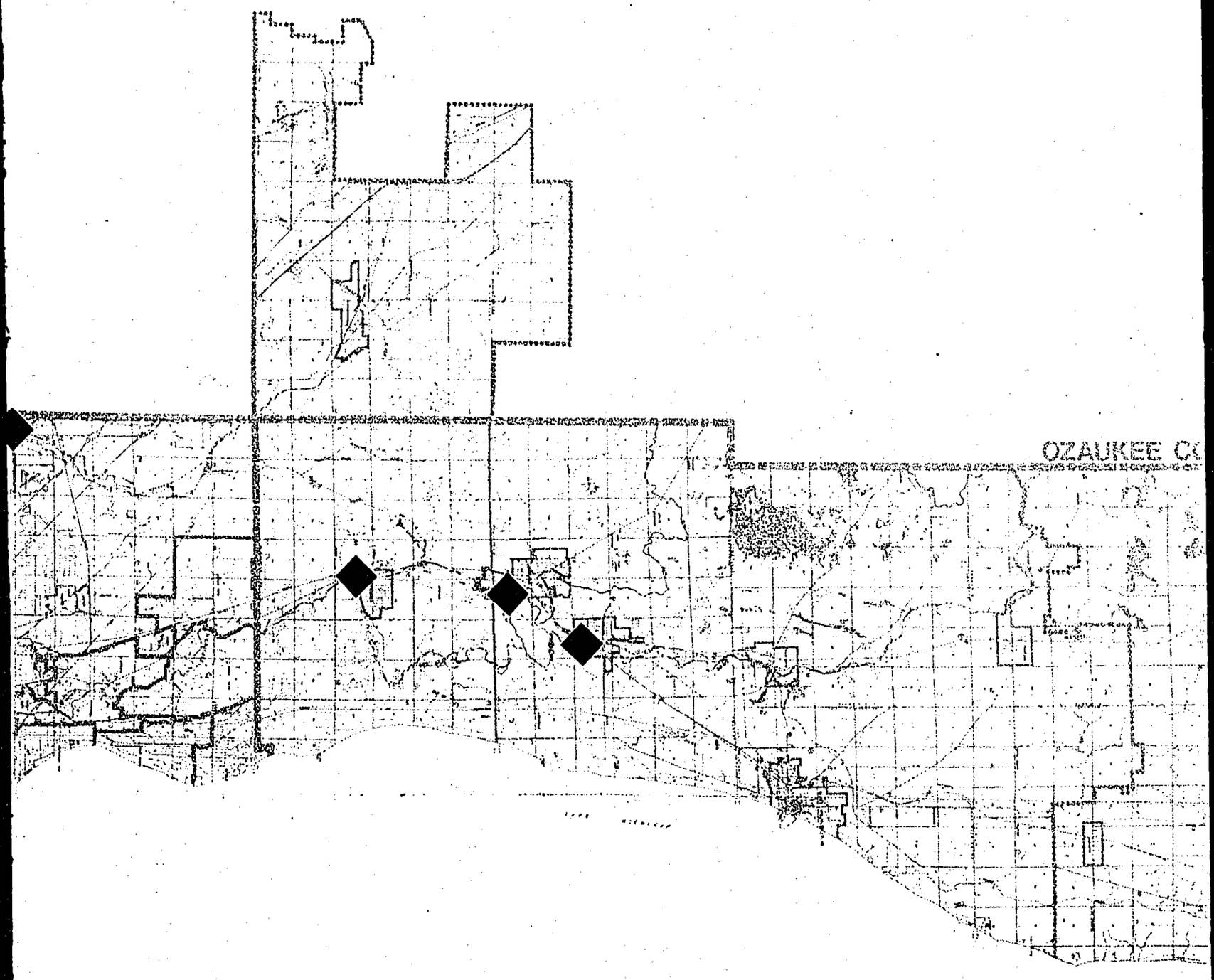
Municipally Owned
Sewage Treatment Plant

N

1 0 1 2 3 MILES

6085

VTAE DISTRICT 9 Sewage Treatment Plants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High School Graduates

HIGH SCHOOL GRADUATES

In 1970 the Southeastern Wisconsin Region produced approximately 28,000 high school graduates, which represents almost a 75% increase over the number of graduates ten years earlier. Between 1960 and 1970 the Region increased its share of Wisconsin's total graduates from 34% to 37%. Graduates of private high schools in the Region have steadily decreased in number since the mid 60's. Whereas in 1960 private high school graduates accounted for about 26% of the seven county total, they composed only 16% of the total in 1970.

Historical and projected high school graduates are tabulated and presented graphically for the District on the following pages. Generally, the number of graduates is projected to increase through the late 70's then level off or decline somewhat in the early 80's.

Locations of public and private secondary schools in the District are shown on the map at the end of this section.

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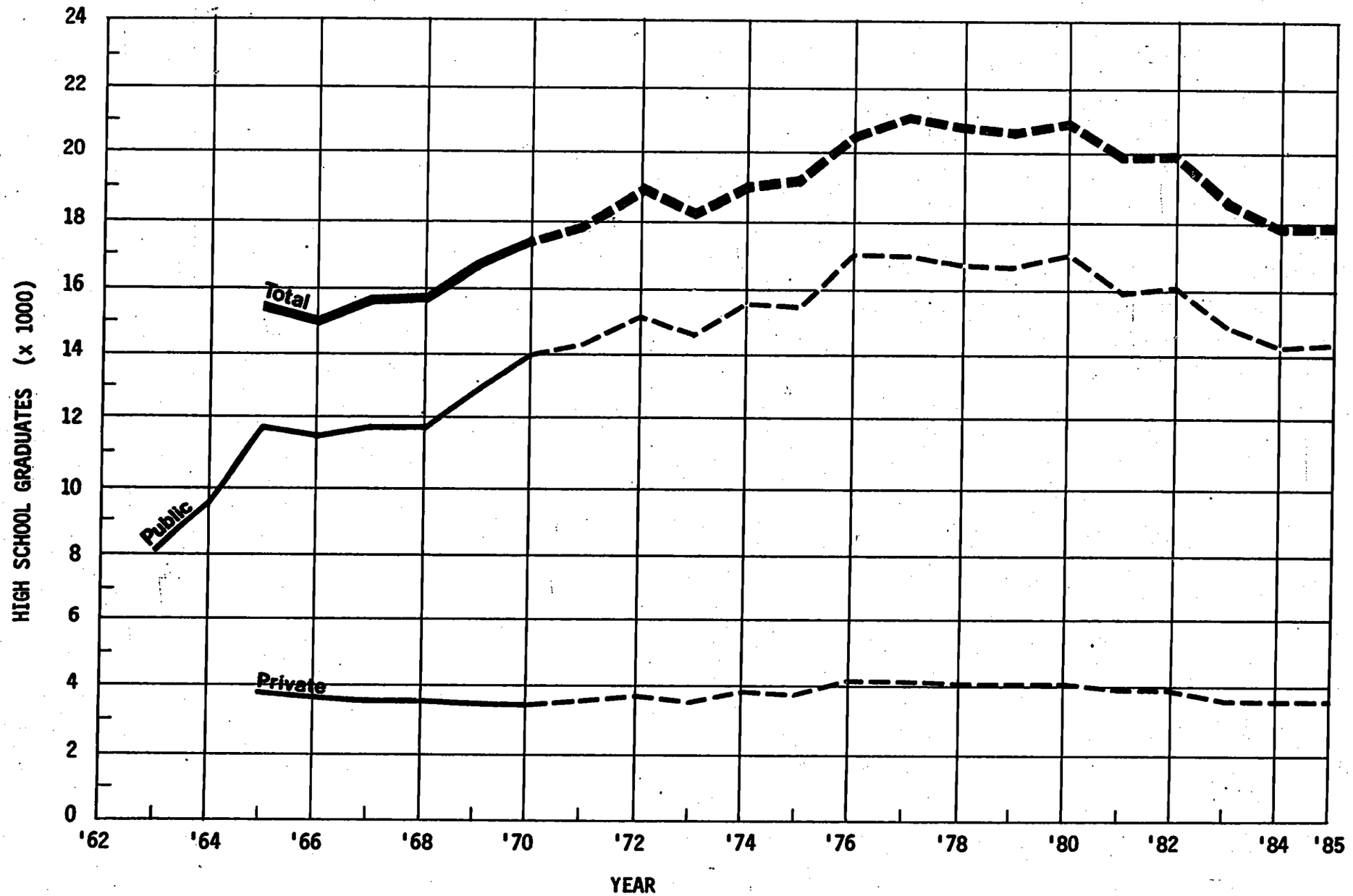
VTAE DISTRICT 9



High School Graduates

TABLE NO. 4.1 - HISTORICAL PUBLIC HIGH SCHOOL GRADUATES

VTAE DISTRICT 9

PUBLIC SCHOOL DISTRICT	1963	1964	1965	1966	1967	1968	1969	1970
Brown Deer	177	190	213	236	244	254	255	228
Cedarburg	133	116	140	166	164	172	176	219
Cudahy	148	194	240	237	275	250	295	258
Franklin			104	115	132	145	166	168
Fredonia					39	41	57	64
Germantown	78	78	97	105	137	131	139	174
Glendale-Nicolet UHS	223	284	381	338	368	400	482	475
Grafton	54	70	94	119	132	127	143	163
Greendale	117	178	161	146	165	184	227	220
Greenfield	173	211	302	271	254	286	305	316
Milwaukee	4,671	5,492	6,566	6,370	6,461	6,313	6,887	7,792
Oak Creek	119	163	201	223	260	251	275	276
Port Washington	167	186	247	190	181	167	193	222
St. Franis			136	123	153	151	169	173
Shorewood	165	190	198	176	192	190	207	204

TABLE NO. 4.1 - HISTORICAL PUBLIC HIGH SCHOOL GRADUATES

VTAE DISTRICT 9 (CONTINUED)

PUBLIC SCHOOL DISTRICT	1963	1964	1965	1966	1967	1968	1969	1970
South Milwaukee	210	228	286	347	343	354	381	398
Thiensville-Mequon UHS	110	147	169	203	248	248	286	292
Wauwatosa	539	638	709	662	670	718	748	744
West Allis	674	803	1,007	971	969	941	1,034	1,057
Whitefish Bay	240	246	276	270	260	273	278	297
Whitnall-Hales Corners	114	17[illegible]	168	155	155	175	214	200
District Total	8,112	9,588	11,695	11,423	11,802	11,771	12,917	13,940

Source: Wisconsin Department of Public Instruction[66]
(with adjustments by individual School District administrators).

TABLE NO. 4.2 - PROJECTED PUBLIC HIGH SCHOOL GRADUATES

VTAE DISTRICT 9

PUBLIC SCHOOL DISTRICT	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Brown Deer	235*	249*	240*	256*	253*	278*	279*	273*	274*	274*	262*	263*	245*	235*	236*
Cedarburg	226*	238*	230*	246*	243*	267*	268*	262*	263*	263*	252*	253*	235*	226*	227*
Cudany	315	343	357	376	368	378	400	402	386	433	456	454	454	455	455
Franklin	200	220	205	274	300	350	375	400	401*	402*	385*	386*	359*	345*	346*
Fredonia	58	75	72	84	72	59	60	83	103	55	81	61	66	68	75
Germantown	164	198	226	275	237	229	229	265	234	208	209	258	222	203	204*
Glendale-Nicolet UHS	524	555	570	575	565	557	549	541	533	525	525	525	525	525	525
Grafton	164	186	188	194	218	229	240	242	238	235	243	255	260	250*	251*
Greendale	261	310	320	330	360	360	375	375	375	375	375	375	375	375	375
Greenfield	325*	343*	331*	354*	349*	384*	385*	377*	378*	379*	363*	364*	338*	325*	326*
Milwaukee	7858	8196	7407	8132	7735	8888	8976	8564	8664	8761	8092	8102	7212	6774	6774
Oak Creek	291	336	328	346	383	417	418*	409*	410*	411*	393*	394*	366*	352*	353*
Port Washington	256	287	294	327	339	345	371	438	423	431	447	449*	417*	401*	403*
St. Francis	193	200	210	215	210	205	200	196*	197*	197*	186*	187*	174*	167*	168
Shorewood	198	190	235	206	206	225	200	200	200	200	200	200	200	200	200
S. Milwaukee	420	425	450	500	500	525	500	500	500	500	500	525	500	500	500

6092

TABLE NO. 4.2 - PROJECTED PUBLIC HIGH SCHOOL GRADUATES

VTAE DISTRICT 9 (CONTINUED)

PUBLIC SCHOOL DISTRICT	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Thiensville-Mequon UHS	311	343	350	372	405	444	389	432	452	480	504	529	557	586	626
Wauwatosa	762	748	792	810	810	864	880	832	834*	835*	799*	802*	746*	717*	720*
West Allis	1062	1092	1225	1125	1235	1300	1260	1200	1175	1100	1075	1075	1100	1050	1050
Whitefish Bay	300	360	320	340	325	325	325	325	325	325	325	280	260	260	260
Whitnall-Hales Corners	233	246	259	270	289	300	310	315	310	310	305	300	300	310	310
District Total	14356	15140	14609	15607	15402	16929	16988	16631	16675	16699	15977	16037	14911	14324	14384

Source: School District administrators

Note: *Interpolated values from existing graduate projections.

TABLE NO. 4.3 - PUBLIC AND PRIVATE HIGH SCHOOL GRADUATES

	1965			1966			1967		
	PUBLIC	PRIVATE	TOTAL	PUBLIC	PRIVATE	TOTAL	PUBLIC	PRIVATE	TOTAL
VTAE District 6	2,096	509	2,605	2,009	463	2,472	2,228	407	2,635
Kenosha County	1,215	449	1,664	1,166	397	1,563	1,323	357	1,680
Walworth County	881	60	941	843	66	909	905	50	955
VTAE District 7									
Racine County	1,781	641	2,422	1,812	515	2,327	2,001	521	2,522
Total Districts 6 & 7	3,877	1,150	5,027	3,821	978	4,799	4,229	928	5,157
VTAE District 8									
Waukesha County+	2,908	331	3,239	2,971	367	3,338	3,085	337	3,422
VTAE District 9	11,635	3,803	15,438	11,404	3,611	15,015	12,125	3,466	15,591
Milwaukee County	10,888	3,764	14,652	10,621	3,562	14,183	11,224	3,431	14,655
Ozaukee County+	747	39	786	783	49	832	901	35	936

Source: Wisconsin Department of Public Instruction.[66]
Wisconsin Coordinating Council for Higher Education.[71]

Notes: + Includes VTAE District area outside County lines.

TABLE NO. 4.3 - PUBLIC AND PRIVATE HIGH SCHOOL GRADUATES (CONTINUED)

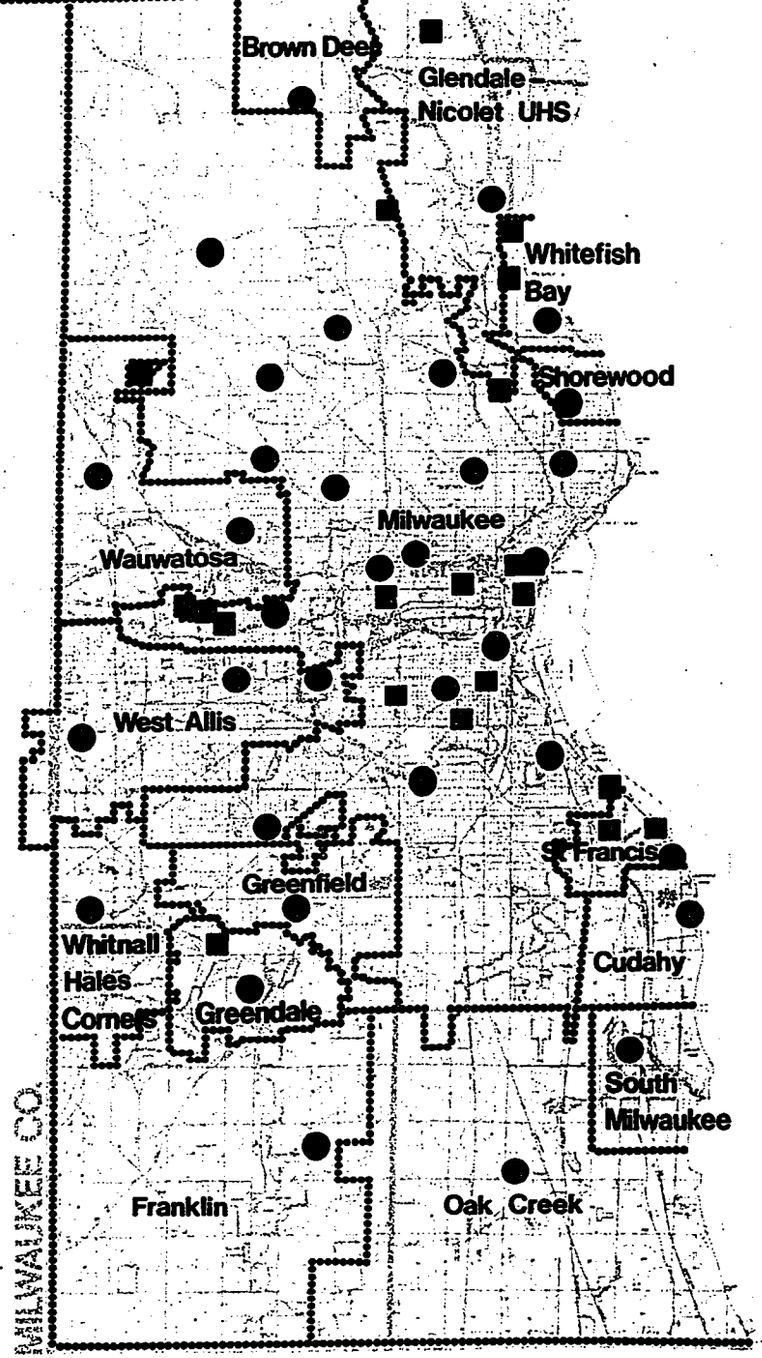
	1968			1969			1970		
	PUBLIC	PRIVATE	TOTAL	PUBLIC	PRIVATE	TOTAL	PUBLIC	PRIVATE	TOTAL
VTAE District 6	2,154	390	2,544	2,399	356	2,755	2,514	328	2,842
Kenosha County	1,298	337	1,635	1,422	301	1,723	1,531	288	1,819
Walworth County	856	53	909	977	55	1,032	983	40	1,023
VTAE District 7									
Racine County	2,023	507	2,530	2,292	483	2,775	2,330	499	2,829
Total Districts 6 & 7	4,177	897	5,074	4,691	839	5,530	4,844	827	5,671
VTAE District 8									
Waukesha County+	3,363	335	3,698	3,791	323	4,114	3,922	325	4,247
VTAE District 9	12,133	3,526	15,659	13,173	3,430	16,603	13,927	3,416	17,343
Milwaukee County	11,247	3,504	14,751	12,179	3,408	15,587	12,793	3,388	16,181
Ozaukee County +	886	22	908	994	22	1,016	1,134	28	1,162

Source: Wisconsin Department of Public Instruction.[66]
Wisconsin Coordinating Council for Higher Education.[71]

Notes: + Includes VTAE District area outside County lines.

TABLE NO. 4.4 - PROJECTED PUBLIC AND PRIVATE HIGH SCHOOL GRADUATES

DISTRICT	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Dist.6 Total	3044	3205	3464	3456	3662	3696	3889	4068	3856	3873	4003	3854	3872	4044	3763
Public	2694	2836	3066	3059	3241	3271	3442	3600	3413	3428	3543	3411	3427	3579	3330
Private	350	369	398	397	421	425	447	468	443	445	460	443	445	465	433
Dist.7 Total	2949	3028	3666	3649	3590	3799	3925	3961	4041	4024	3947	3939	3956	3908	3799
Public	2430	2495	3021	3015	2958	3130	3234	3264	3330	3316	3252	3246	3260	3220	3130
Private	519	533	645	644	632	669	691	697	711	708	695	693	696	688	669
Dist.8 Total	4607	5153	5407	5737	6095	6498	6897	7044	7586	7484	7428	7749	7338	7230	7109
Public	4252	4756	4991	5295	5626	5998	6366	6502	7002	6908	6856	7152	6773	6673	6562
Private	355	397	416	442	469	500	531	542	584	576	572	597	565	557	547
Dist.9 Total	17887	18854	18186	19435	19180	21082	21155	20711	20765	20795	19896	19971	18569	17838	17912
Public	14356	15140	14609	15607	15402	16929	16988	16631	16675	16699	15977	16037	14911	14324	14384
Private	3521	3714	3577	3828	3778	4153	4167	4080	4090	4096	3919	3934	3658	3514	3528



School District Boundary

Public High School

Private High School

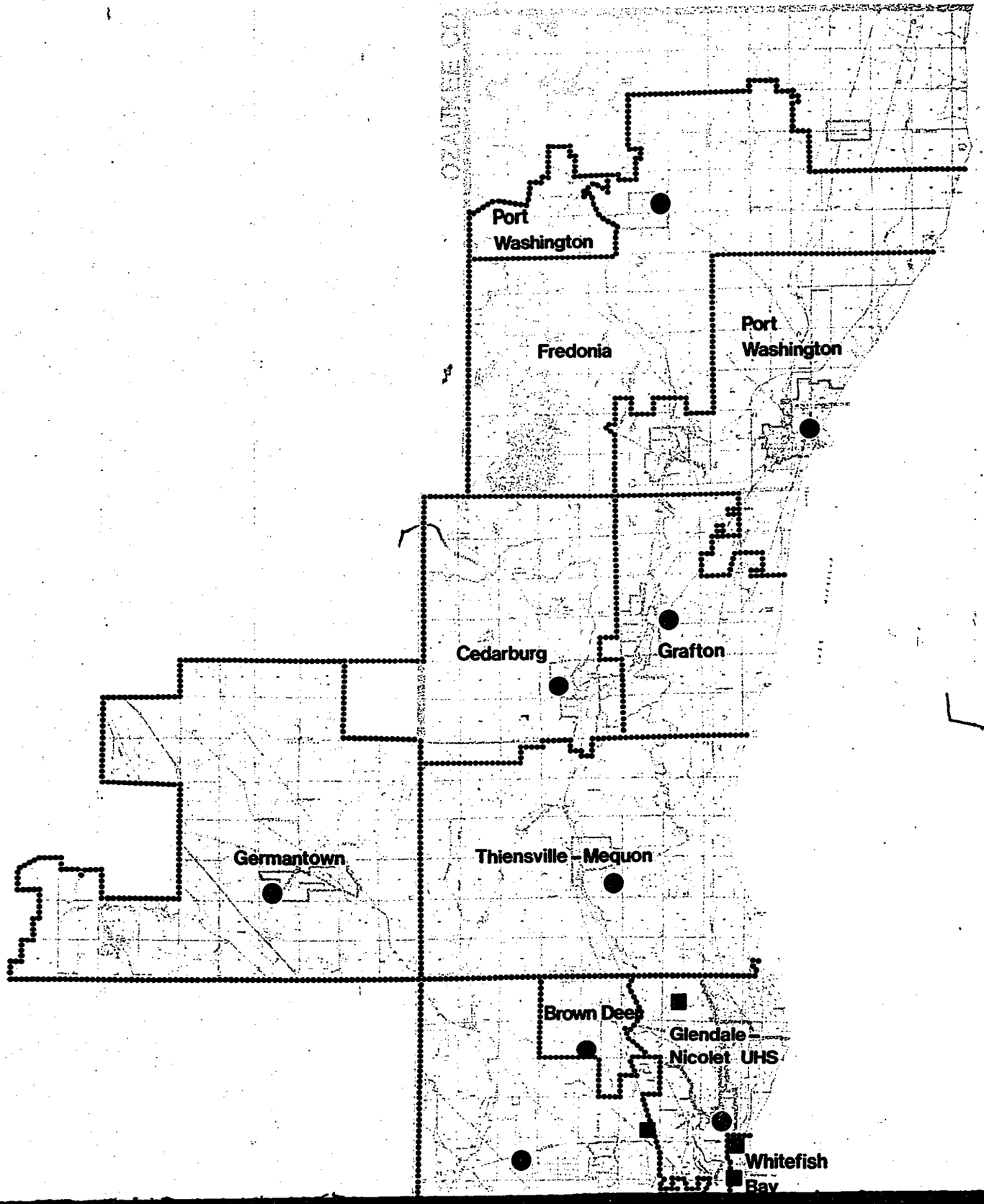
N

1 0 1 2 3 MILES

VTAE DISTRICT 9

Secondary Schools

6097


Port
Washington
Fredonia
Port
Washington
Cedarburg
Grafton
Germantown
Thiensville – Mequon
Brown Deer
Glendale –
Nicolet UHS
Whitefish
Bay

6098

Post-Secondary Educational Opportunities

6099

ERIC Full Text Provided by ERIC

POST-SECONDARY EDUCATIONAL OPPORTUNITIES - VTAE DISTRICT 9

While the final section of this report deals with the demand for vocational-technical education, this section documents the existing supply of such training.

The information presented in Table 5.1 was developed by means of a survey conducted by the Milwaukee Area Technical College in the spring and summer of 1971. A complete description of the survey and further information is contained in the MATC report entitled "Vocational and Technical Education Programs Sponsored by the Private Sector in VTAE District 9".

Since there will continue to be a tremendous demand for vocational-technical training related to the health and medical occupations, an additional analysis was conducted of the current para-medical program offerings in the Southeastern Wisconsin Region. The results of this study are presented in Table 5.2.

Also tabulated in this section are recent enrollments and program offerings of colleges in District 9. This information completes the analysis of all post-secondary educational opportunities in the area served by MATC.

TABLE NO. 5.1 - POST-SECONDARY EDUCATION, NON-PUBLIC VOCATIONAL TRAINING

VTAE DISTRICT 9

CATEGORY	NO. OF SCHOOLS SURVEYED	NO. OF RESPONSES	AVERAGE ANNUAL COMPOSITE ENROLLMENT OF RESPONDING SCHOOLS
Aircraft Schools	6	4	280
Apprentice Training Programs	11	4	na
Art Schools	4	4	100
Beauty Schools	8	6	1298
Business & Secretarial Schools	23	21	4472
Correspondence Schools	7	5	407
Driving Schools	19	9	300
Educational Consultants	10	8	na
Industrial & Technical Trade Schools	26	22	4822
Medical and Dental Ass't & Technical Schools	10	10	211
Modeling Schools	6	3	800
Nurses Schools	5	5	274
Public Speaking Instruction	2	1	1800
Radio & Television Broadcasting Schools	5	4	100
Real Estate Schools	5	4	1000
Sales Training	12	6	3000
Special Academic Education Schools	16	4	1000
Wig Schools	3	2	130

Source: Milwaukee Area Technical College[73]

TABLE NO. 5.2 - PARA-MEDICAL PROGRAM OFFERINGS

SOUTHEASTERN WISCONSIN REGION

INSTITUTIONS	Certified Lab Assistant	Cytotechnology	Dental Assistant	Dental Hygiene	Dental Lab Technician	Dietitian	Environmental Health Technician	Inhalation Therapy	Medical Assistant	Medical Social Worker	Medical Technician	Nurse Anesthetist	Nurse Assistant	Nurse - Licensed Practical	Nurse - Training Leading to RN	Occupational Therapy	Operating Room Assistant	Physical Therapy	Radiology Technician	Speech Pathology & Audiology	Ward Clerk
Alverno College, Milwaukee															X						
Cardinal Stritch College, Milwaukee						X															
Columbia Hospital, Milwaukee											X				X				X		
Doctors Hospital, Milwaukee											X								X		
Elmbrook Memorial Hospital, Brookfield											X								X		
Evangelical Deaconess Hospital, Milwaukee											X				X				X		
Kenosha Memorial Hospital, Kenosha											X								X		
Kenosha Technical Institute, Kenosha			X						X				X	X			X				
Lutheran Hospital, Milwaukee											X								X		
Marquette University, Milwaukee				X											X			X		X	
Milwaukee Area Technical College, Milwaukee			X	X	X		X	X	X				X	X	X		X				
Milwaukee Children's Hospital, Milwaukee											X										
Milwaukee County General Hospital, Milwaukee	X	X									X	X			X				X		
Milwaukee County Institutions, Milwaukee						X															
Mt. Mary College, Milwaukee						X					X					X					
Mt. Sinai Hospital, Milwaukee											X								X		
Sacred Heart School, Milwaukee														X							
St. Catherine's Hospital, Kenosha											X								X		
St. Francis Hospital, Milwaukee	X																				
St. Joseph's Hospital, Milwaukee											X								X		
St. Luke's Hospital, Milwaukee		X									X								X		
St. Luke's Hospital, Racine											X				X						
St. Mary's Hospital, Milwaukee											X								X		
St. Mary's Hospital, Racine											X								X		
St. Michael's Hospital, Milwaukee											X								X		
Trinity Memorial Hospital, Cudahy											X								X		
University of Wisconsin, Milwaukee										X					X					X	
Waukesha County Technical Institute, Pewaukee									X				X	X			X				X
Waukesha Memorial Hospital, Waukesha											X		X						X		
West Allis Memorial Hospital, West Allis											X										

TABLE NO. 5.3 - POST-SECONDARY EDUCATION, COLLEGES

VTAE DISTRICT 9

INSTITUTION	TYPE	ENROLLMENT FALL 1970	PROGRAMS
Alverno College Milwaukee	University	890	Liberal Arts (incl. Assoc. Degree)
Cardinal Stritch College Milwaukee	University	662	Liberal Arts (incl. Assoc. Degree)
Concordia College Milwaukee	Jr. College	291	Liberal Arts (Assoc. Degree)
Layton School of Art Milwaukee	Professional	276	Art
Marquette University Milwaukee	University	10,678	Liberal Arts, Engineering, Business Admin., Journalism, Nursing, Law, Dentistry, Speech, Physical Therapy, (incl. Assoc. Degree)
Medical College of Wisconsin Milwaukee	Professional	431	Medical
Milwaukee Area Technical College Milwaukee & Ozaukee Counties	VTAE	27,479	Vocational, technical and adult education.
Milwaukee School of Engineering Milwaukee	Technical	2,245	Industrial, technical and professional (incl. Assoc. Degree)
Mount Mary College Milwaukee	University	860	Liberal Arts, Dietetics, Teacher Educ., Med. Tech., Occ. Therapy, Business, Secretarial, Social Work, Publishing, Home Economics, Fashion Design.
Sacred Heart School Milwaukee	Theological	51	Practical Nursing and Seminary

TABLE NO. 5.3 - POST-SECONDARY EDUCATION, COLLEGES

VTAE DISTRICT 9 (CONTINUED)

INSTITUTION	TYPE	ENROLLMENT FALL 1970	PROGRAMS
St. Francis De Sales College Milwaukee	Theological	165	Liberal Arts, majors in Theology and Philosophy
St. Francis School of Pastoral Ministry Milwaukee	Theological	160	Theology
University of Wisconsin Milwaukee	University	20,822	Liberal Arts, Engineering, Architecture, Education Fine Arts, Nursing, Library Science, Social Welfare
Wisconsin College-Conservatory Milwaukee	Professional	73	Liberal Arts, Music
Wisconsin Lutheran Seminary Mequon	Theological	208	Theology

Source: Wisconsin Coordinating Council for Higher Education[96]
Metropolitan Milwaukee Association of Commerce[1]

VTAE Enrollment

VTAE ENROLLMENT - UNITED STATES & WISCONSIN

Vocational-technical education in the United States has grown tremendously in recent years. The table on page 6.2 shows that total enrollments rose to over 7½ million students in 1968, more than double the enrollment level of 1960. The most significant increase occurred in the office program area where enrollments grew by over 1.7 million students between 1964 and 1968. Other substantial gains where made by the home economics and trade and industry program areas. The greatest percentage increase during the 1960-68 period, was in health programs where enrollments rose by over 250%. Enrollments in technical and office programs grew by almost 160% and 140% respectively.

Statistics reported by the Wisconsin Board of Vocational, Technical and Adult Education indicate that total VTAE enrollments in the State increased by about 58% between 1960 and 1970. Data published for the 1969-70 school year shows 38% of total enrollment in the trade and industry field, 25% in home economics, 21% in office occupations, 7% in distributive education, 5% in health occupations and 4% in agricultural fields.

In 1969, the Wisconsin Coordinating Council for Higher Education (CCHE) produced State-wide VTAE enrollment projections through 1984 for four general program types; College Transfer, Associate Degree, Vocational Diploma, and Apprenticeship and Unclassified.[94] These projections are shown in tabular and graphic form on the following pages. Total fall enrollments were forecast to increase by about 33% between 1971 and 1980, then decline through 1984. Vocational Diploma programs where projected to show the greatest enrollment increase during the 70's.

In the spring of 1968, CCHE surveyed Wisconsin high school seniors to determine their plans for the following year.[92] Approximately 65% of the students surveyed intended to continue their education, and about 12% expected to enroll at VTAE schools. To accommodate the fact that new students at VTAE schools come from quite a wide range of high school graduating classes, it was determined that about 20% of the seniors expected eventually to attend a vocational-technical-adult school.

TABLE NO. 6.1 - HISTORICAL VOCATIONAL EDUCATION ENROLLMENTS

UNITED STATES

PROGRAM TYPE	ENROLLMENT (X 1000) 60	61	62	63	64	65	66	67	68
Agriculture	796.2	805.3	822.7	827.8	860.6	887.5	907.4	935.2	851.2
Distributive	303.8	306.1	321.1	309.6	334.1	333.3	420.4	481.0	574.8
Health	40.3	47.3	49.0	54.0	59.0	66.8	83.7	115.1	141.0
Home Economics	1,588.1	1,610.3	1,725.7	1,839.5	2,022.1	2,098.5	1,897.7	2,187.0	2,283.3
Office	0.0	0.0	0.0	0.0	0.0	730.9	1,238.0	1,572.3	1,736.0
Technical	101.3	123.0	149.0	184.6	221.2	225.7	253.8	266.1	269.8
Trades & Industry	938.5	963.6	1,005.4	1,001.8	1,069.3	1,087.8	1,269.1	1,490.8	1,628.5[2]
Total	3,768.1	3,855.6	4,072.7	4,217.2	4,566.4	5,430.6	6,070.1	7,047.5	7,533.9[1]

Source: U.S. Department of Health, Education and Welfare.[79]

Notes: 1. Includes 49,297 enrolled in other classes, not classified by occupational category.
2. Includes 1,056 enrolled in Fishery occupations.

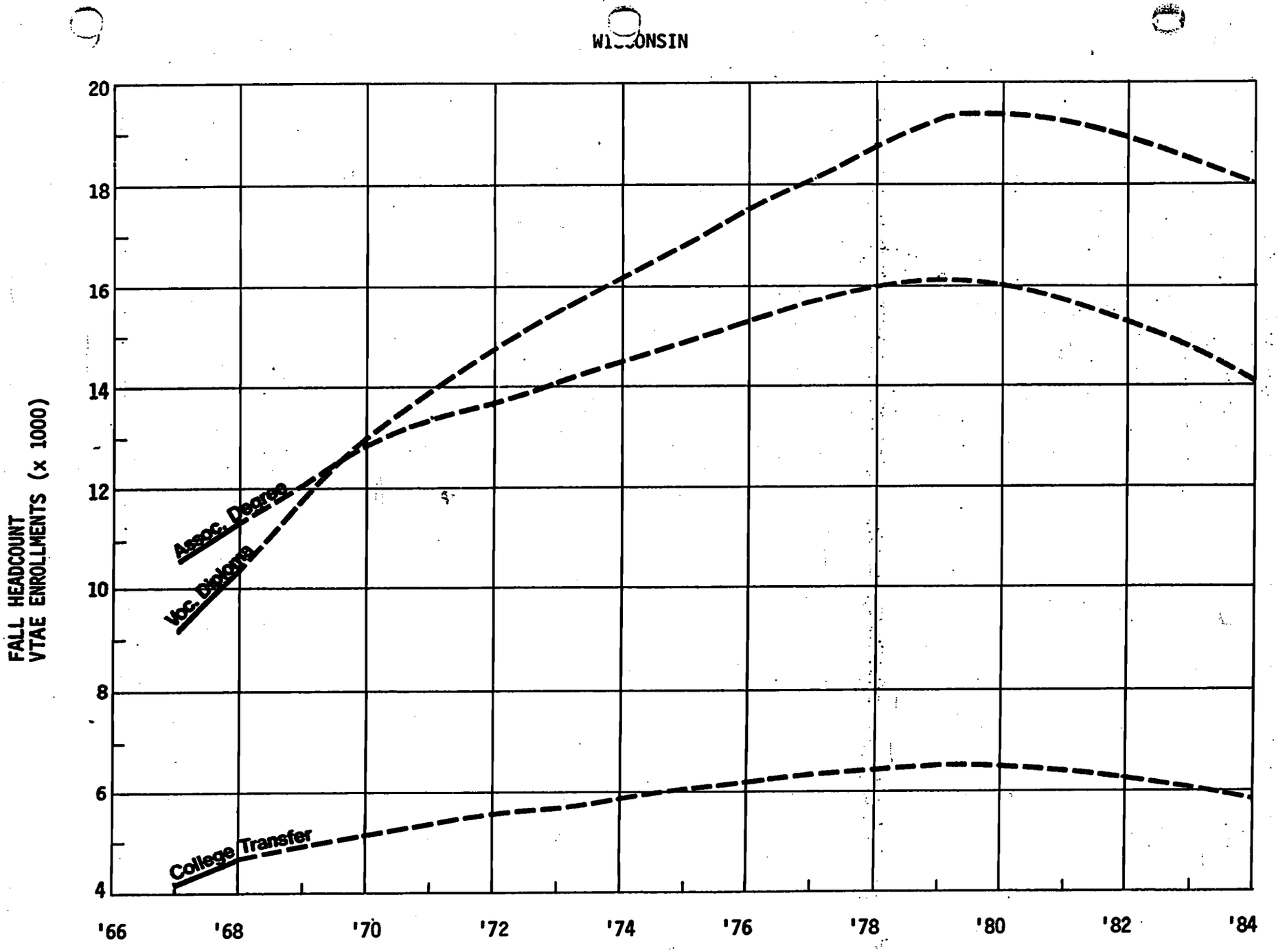
TABLE NO. 6.2 - HISTORICAL VTAE CUMULATIVE HEADCOUNT ENROLLMENTS[1]

WISCONSIN

1950-51	107,318	1960-61	153,512
1951-52	112,907	1961-62	162,214
1952-53	115,089	1962-63	168,885
1953-54	115,009	1963-64	177,456
1954-55	119,076	1964-65	185,608
1955-56	124,032	1965-66	188,503
1956-57	131,817	1966-67	186,665
1957-58	132,746	1967-68	207,194
1958-59	142,986	1968-69	202,464
1959-60	140,346	1969-70	221,465

Source: Wisconsin Board of Vocational, Technical and Adult Education.[100]

Notes: 1. Includes all day, evening and summer students, aided and non-aided.



VTAE Enrollments

TABLE NO. 6.3 - CCHE PROJECTIONS OF VTAE FALL HEADCOUNT ENROLLMENTS

WISCONSIN

PROGRAM	1971	1972	1973 33	1974	1975	1976	1977
College Transfer	5,387	5,569	5,727	5,884	6,049	6,216	6,357
Associate Degree	13,403	13,597	14,082	14,466	14,875	15,277	15,653
Vocational Diploma[1]	13,951	14,717	15,535	16,173	16,842	17,495	18,145
Apprentice & Unclass.	7,520	8,053	8,764	9,199	9,657	10,132	10,593
Total	40,261	41,936	44,108	45,722	47,423	49,120	50,748

Source: Wisconsin Coordinating Council for Higher Education[94]

Notes: 1. Includes only 1 and 2 year Vocational Diploma programs.

TABLE NO. 6.3 - CCHE PROJECTIONS OF VTAE FALL HEADCOUNT ENROLLMENTS (CONTINUED)

WISCONSIN

PROGRAM	1978	1979	1980	1981	1982	1983	1984
College Transfer	6,478	6,559	6,541	6,421	6,255	6,048	5,807
Associate Degree	16,000	16,155	16,034	15,691	15,259	14,726	14,120
Vocational Diploma[1]	18,782	19,225	19,342	19,216	18,954	18,538	18,039
Apprentice & Unclass.	11,091	11,507	11,749	11,788	11,732	11,585	11,336
Total	52,351	53,446	53,666	53,116	52,200	50,897	49,302

Source: Wisconsin Coordinating Coucil for Higher Education[94]

Notes: 1. Includes only 1 and 2 year Vocational Diploma programs.

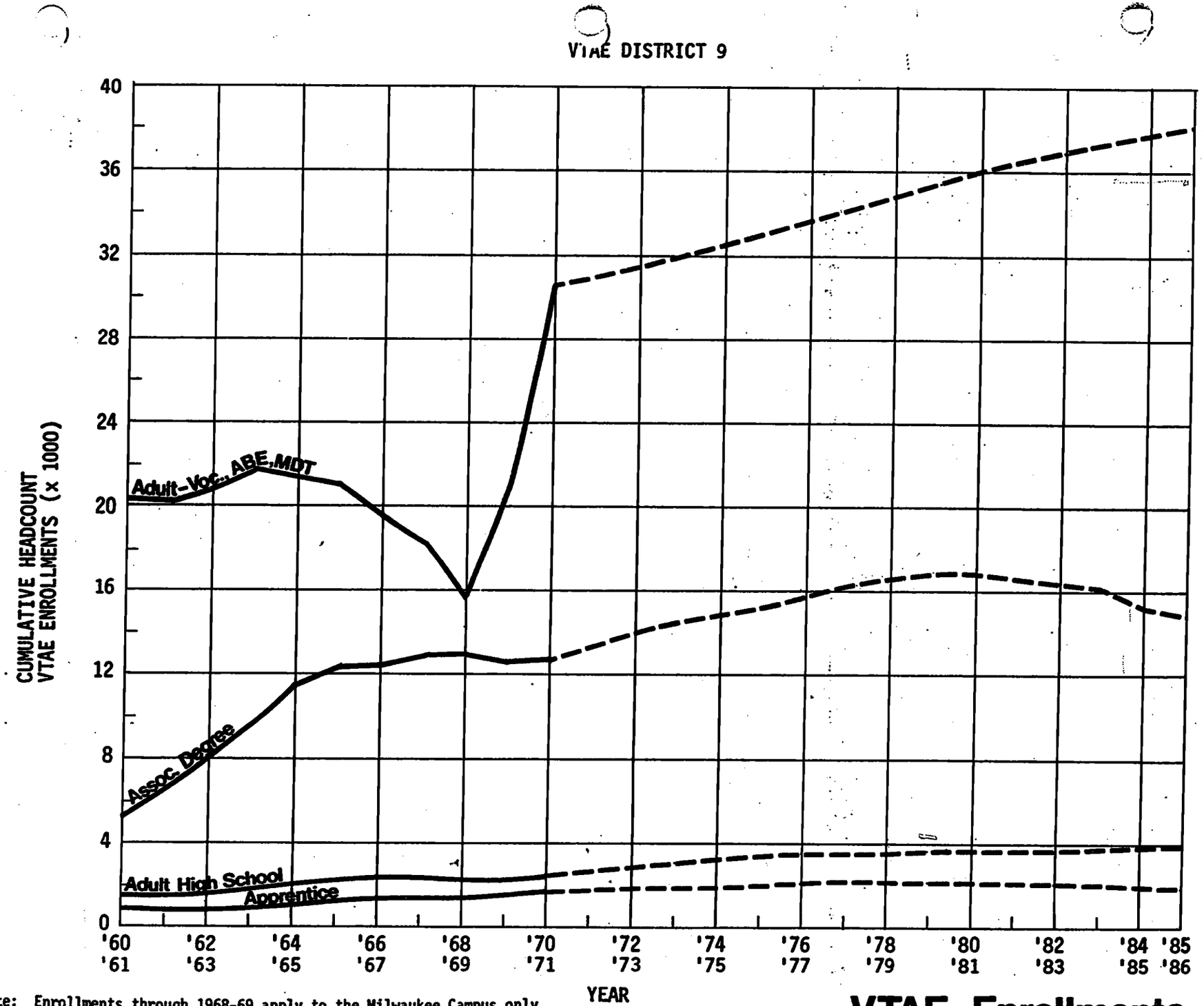
VTAE ENROLLMENT - DISTRICT 9

Historical and projected VTAE enrollments in District 9 are presented in graphic and tabular form on the following pages. Two sets of enrollment data are included. Fall headcount refers to actual enrollments in the fifth week of school while cumulative headcount enrollment accounts for all students who were registered at any time during the year. Both sets of data include day and evening students.

On July 1, 1969 the Milwaukee Area Technical College became part of the State-wide network of vocational, technical and adult education districts. At that time District 9 facilities included the main campus in downtown Milwaukee and the Cudahy and West Allis campuses. On July 1, 1970 two additional day campuses at South Milwaukee and Port Washington were added to the District. Thirteen evening centers were added during 1970-71. The downtown campus of MATC is the comprehensive center of District 9, offering programs in all areas listed on the following tables. The other campuses and evening adult centers in the district offer mainly adult-vocational and adult high school programs, but can also offer the first year of some associate degree programs.

Historical enrollment data for the Milwaukee campus of MATC was available back to 1960 but no total District data was available for years prior to 1969. Projections were based upon historical relationships between enrollment and either high school graduates in previous years or population by age group. Since there are many extraneous and often unquantifiable factors that will continue to influence VTAE enrollment levels, these projections must be regarded as general long term forecasts which will require periodic re-evaluation. One such factor, which has not been accommodated by these enrollment projections, is the future addition of new campuses or evening centers.

The maps which conclude this section show the geographic distribution of VTAE District 9 students (cumulative headcount) in the school year 1970-71.



Note: Enrollments through 1968-69 apply to the Milwaukee Campus only.
Enrollments after 1968-69 apply to all campuses in District 9.

VTAE Enrollments

TABLE NO.6.4 .- HISTORICAL VTAE ENROLLMENTS (CUMULATIVE HEADCOUNT)[1]

VTAE DISTRICT 9

PROGRAM	60-61	61-62	62-63	63-64	64-65	65-66	66-67	67-68	68-69	69-70[3]	70-71[4]
Associate Degree Applied Science										7,014	7,027
Arts - Gen. Ed.										5,416	5,625
Total	5,321	6,737	8,082	9,596	11,494	12,340	12,376	12,807	12,889	12,430	12,652
Adult-Vocational[2]	20,311	20,274	20,751	21,627	21,283	20,991	19,695	18,230	14,294	19,730	29,460
ABE & MDT									1,395	1,345	1,152
Adult High School	1,480	1,515	1,589	1,927	2,056	2,238	2,411	2,417	2,301	2,278	2,507
Apprentice	962	909	817	920	1,033	1,217	1,365	1,366	1,286	1,494	1,672
Continuation	2,305	1,848	1,816	1,809	1,770	1,515	1,297	1,337	1,223	1,064	904[5]
Total All Programs	30,379	31,283	33,055	35,879	37,636	38,301	37,144	36,157	33,388	38,341	48,347

Notes:
1. Cumulative headcount enrollment, including day, evening, and summer students.
2. For the years 1960-61 to 1967-68, this includes ABE and MDT.
3. Includes Milwaukee, Cudahy, and West Allis campuses only. Cudahy and West Allis campuses were included in District 9 on July 1, 1969.
4. Includes all day and evening campuses as of the second semester 1970-71. Two additional day campuses were added to District 9 on July 1, 1970.
5. Continuation changed to High School Age Youth Programs in 1970-71.

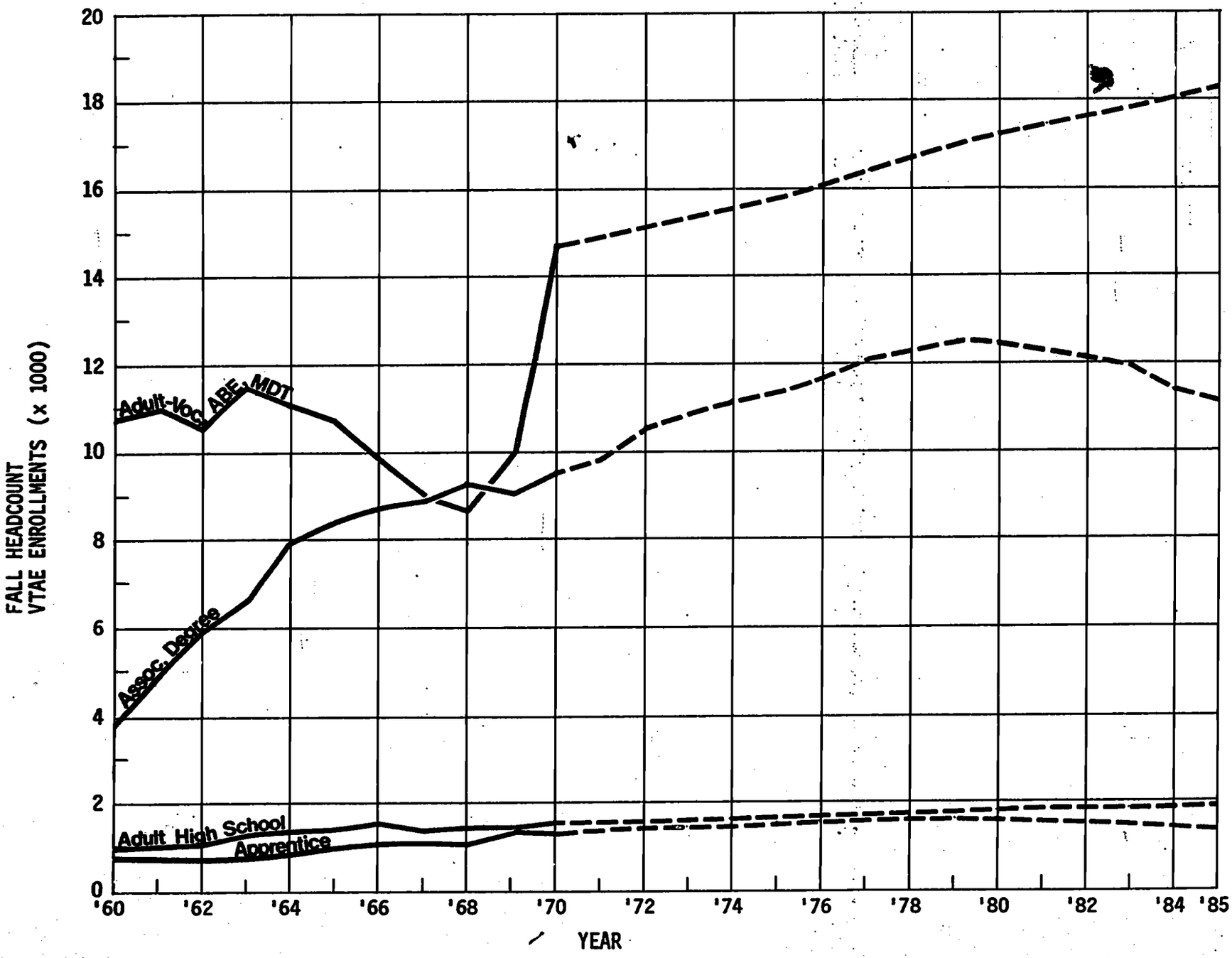
TABLE NO. 6.5 - PROJECTED VTAE ENROLLMENTS (CUMULATIVE HEADCOUNT)[1]

VTAE DISTRICT 9

PROGRAM	'71-'72	'72-'73	'73-'74	'74-'75	'75-'76	'76-'77	'77-'78	'78-'79	'79-'80	'80-'81	'81-'82	'82-'83	'83-'84	'84-'85	'85-'86
Associate Degreee	13300	14145	14568	14987	15251	15700	16297	16554	16873	16816	16563	16412	16115	15374	14975
Applied Science	7418	7889	8126	8359	8506	8756	9090	9234	9412	9380	9238	9155	8907	8576	8352
Arts - General Ed.	5882	6256	6442	6628	6745	6944	7207	7320	7461	7436	7325	7257	7208	6798	6623
Adult-Voc., ABE,MDT	31094	31576	32058	32540	33022	33627	34232	34837	35442	36047	36460	36873	37287	37700	38113
Adult High School	2678	2856	3037	3222	3415	3470	3528	3583	3640	3695	3729	3764	3798	3832	3867
Apprenticeship	1770	1863	1898	1946	2015	2102	2206	2185	2166	2169	2124	2081	2012	1900	1866

Notes: 1. Cumulative headcount enrollment, including day, evening, and summer students.s
Excludes High School Age Youth Programs.

VTAE DISTRICT 9



Note: Enrollments through 1968 apply to the Milwaukee Campus only.
Enrollments after 1968 apply to all campuses in District 9.

VTAE Enrollments

TABLE NO. 6.6 - HISTORICAL DAY AND EVENING VTAE FALL ENROLLMENTS[1]

VTAE DISTRICT 9

PROGRAM	1960 DAY	1960 EVE	1960 TOTAL	1961 DAY	1961 EVE	1961 TOTAL	1962 DAY	1962 EVE	1962 TOTAL	1963 DAY	1963 EVE	1963 TOTAL
Associate Degree												
Applied Science												
Arts - Gen. Ed.												
Total	1,817	2,002	3,819	2,351	2,549	4,900	2,871	3,043	5,914	3,231	3,413	6,644
Adult-Voc. ABE,MDT	2,248	8,528	10,776	2,268	8,723	10,991	2,373	8,164	10,537	2,872	8,555	11,427
Adult H.S.	275	686	961	296	705	1,001	309	697	1,006	448	832	1,280
Apprentice	752	--	752	742	--	742	689	--	689	728	--	728
Continuation	1,466	--	1,466	1,090	--	1,090	993	--	993	1,020	--	1,020
Total All Programs	6,558	11,216	17,774	6,747	11,977	18,724	7,235	11,904	19,139	8,299	12,800	21,099
Full Time Equivalents[2]			5,875			6,421			6,809			7,879

TABLE NO. 6.6 - HISTORICAL DAY AND EVENING VTAE FALL ENROLLMENTS[1]

VTAE DISTRICT 9 (CONTINUED)

PROGRAM	1964 DAY	1964 EVE	1964 TOTAL	1965 DAY	1965 EVE	1965 TOTAL	1966 DAY	1966 EVE	1966 TOTAL	1967 DAY	1967 EVE	1967 TOTAL
Associate Degree												
Applied Science												
Arts - Gen. Ed.												
Total	3,947	3,997	7,944	4,408	3,938	8,346	4,622	4,101	8,723	4,980	3,876	8,856
Adult-Voc. ABE, MDT	3,000	8,072	11,072	3,001	7,717	10,718	3,119	6,819	9,938	3,124	5,871	8,995
Adult H.S.	502	856	1,358	472	877	1,349	640	920	1,560	511	812	1,323
Apprentice	807	--	807	949	--	949	1,044	--	1,044	1,068	--	1,068
Continuation	964	--	964	874	--	874	664	--	664	685	--	685
Total All Programs	9,220	12,925	22,145	9,704	12,532	22,236	10,089	11,840	21,929	10,368	10,559	20,927
Full Time Equivalents[2]			8,702			9,134			9,908			9,805

TABLE NO. 6.6 - HISTORICAL DAY AND EVENING VTAE FALL ENROLLMENTS[1]

VTAE DISTRICT 9 (CONTINUED)

PROGRAM	1968 DAY	1968 EVE	1968 TOTAL	1969[3] DAY	1969[3] EVE	1969[3] TOTAL	1970[4] DAY	1970[4] EVE	1970[4] TOTAL
Associate Degree									
Applied Science	3,163	2,162	5,325	3,076	2,173	5,249	3,381	2,246	5,627
Arts - Gen. Ed.	2,127	1,847	3,974	1,937	1,839	3,776	1,951	1,954	3,905
Total	5,290	4,009	9,299	5,013	4,012	9,025	5,332	4,200	9,532
Adult-Voc, ABE, MDT	2,705	5,905	8,610	3,455	7,353	10,808	4,483	10,168	14,651
Adult H.S.	573	850	1,423	526	883	1,409	678	855	1,533
Apprentice	1,019	--	1,019	1,125	368	1,493	953	367	1,320
Continuation	691	--	691	559	--	559	429	14	443[5]
Total All Programs	10,278	10,764	21,042	10,678	12,616	23,294	11,875	15,604	27,479
Full Time Equivalents[2]			10,211			10,277			11,551

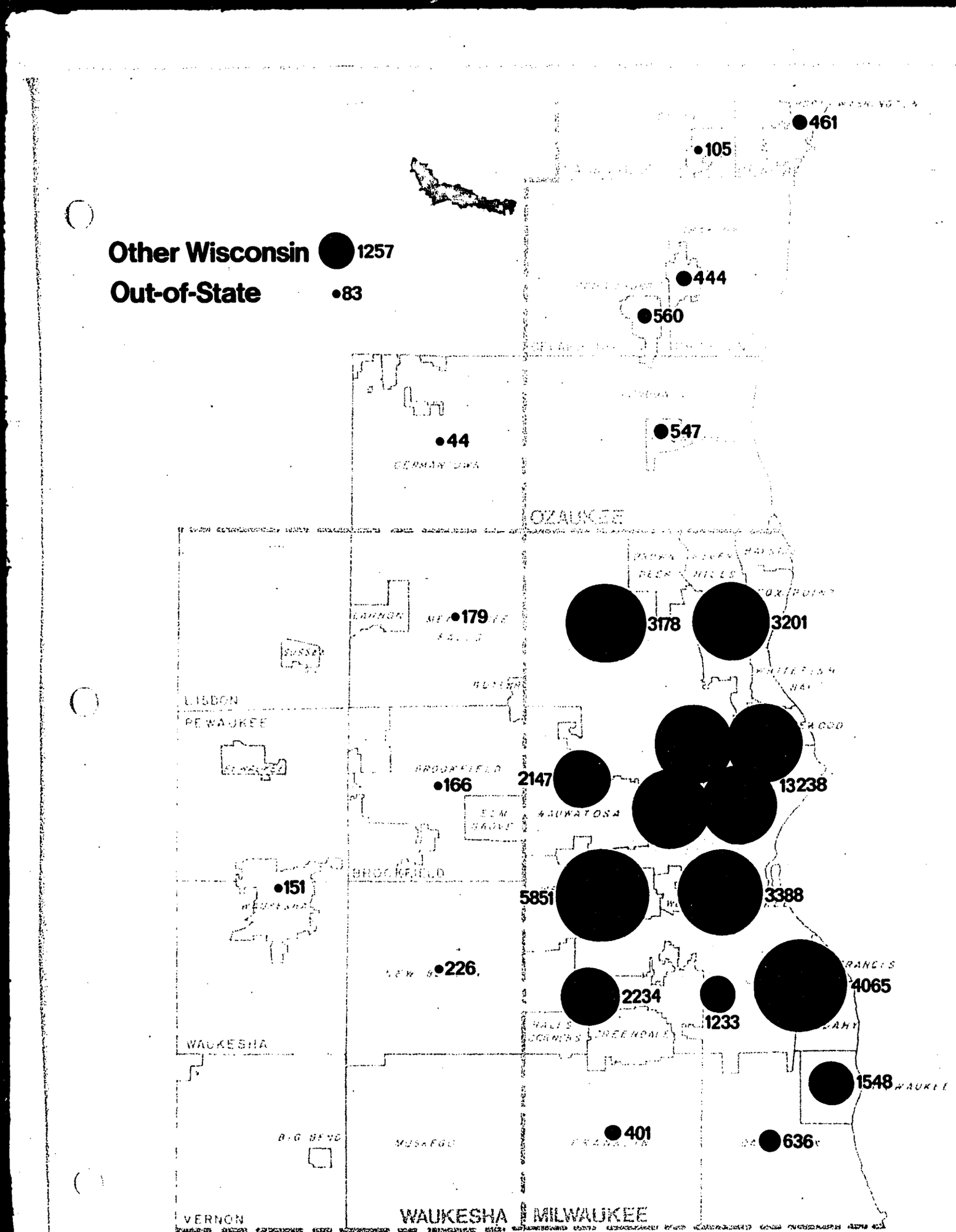
Notes:
1. Headcount enrollment as of 5th week of school.
2. An FTE is 15 credits for Associate Degree level students. Adult-Vocational, Adult High School, Apprentice, and Continuation are calculated by separate formula.
3. Includes Milwaukee, Cudahy, and West Allis campuses only. Cudahy and West Allis campuses were included in District 9 on July 1, 1969.
4. Includes all day and evening campuses as of Fall 1970. Two additional day campuses were included in District 9 on July 1, 1970.
5. Continuation changed to High School Age Youth Programs in 1970-71.

TABLE NO. 6.7 - PROJECTED VTAE FALL ENROLLMENTS[1]

VTAE DISTRICT 9

PROGRAM	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Associate Degree	9855	10482	10796	11106	11301	11634	12076	12267	12504	12461	12273	12162	11934	11393	11096
Applied Science	5828	6199	6385	6568	6683	6880	7142	7255	7395	7370	7258	7193	6999	6738	6562
Arts - General Ed.	4027	4283	4411	4538	4618	4754	4934	5012	5109	5091	5015	4969	4935	4655	4534
Adult-Voc.,ABE,MDT	14882	15112	15343	15573	15804	16094	16383	16673	16962	17252	17450	17648	17845	18043	18241
Adult High School	1558	1583	1607	1632	1657	1687	1718	1748	1779	1809	1830	1851	1872	1892	1913
Apprentice	1377	1436	1449	1472	1510	1575	1652	1637	1622	1625	1591	1559	1507	1424	1398

Notes: 1. Day and evening headcount enrollment as of 5th week of school.
Excludes High School Age Youth Programs.



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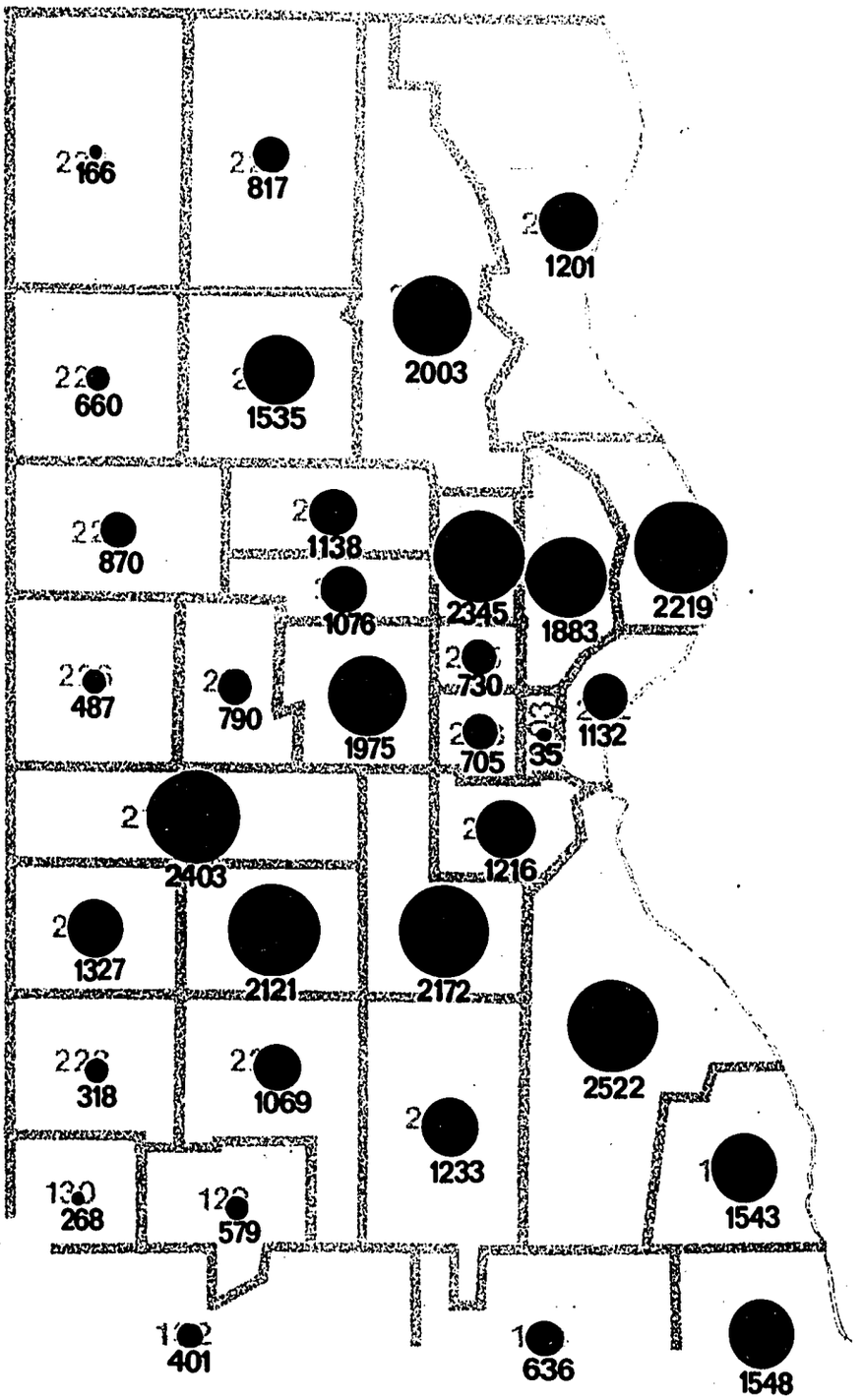
VTAE District 9
Enrollment Distribution 70-71



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MILWAUKEE
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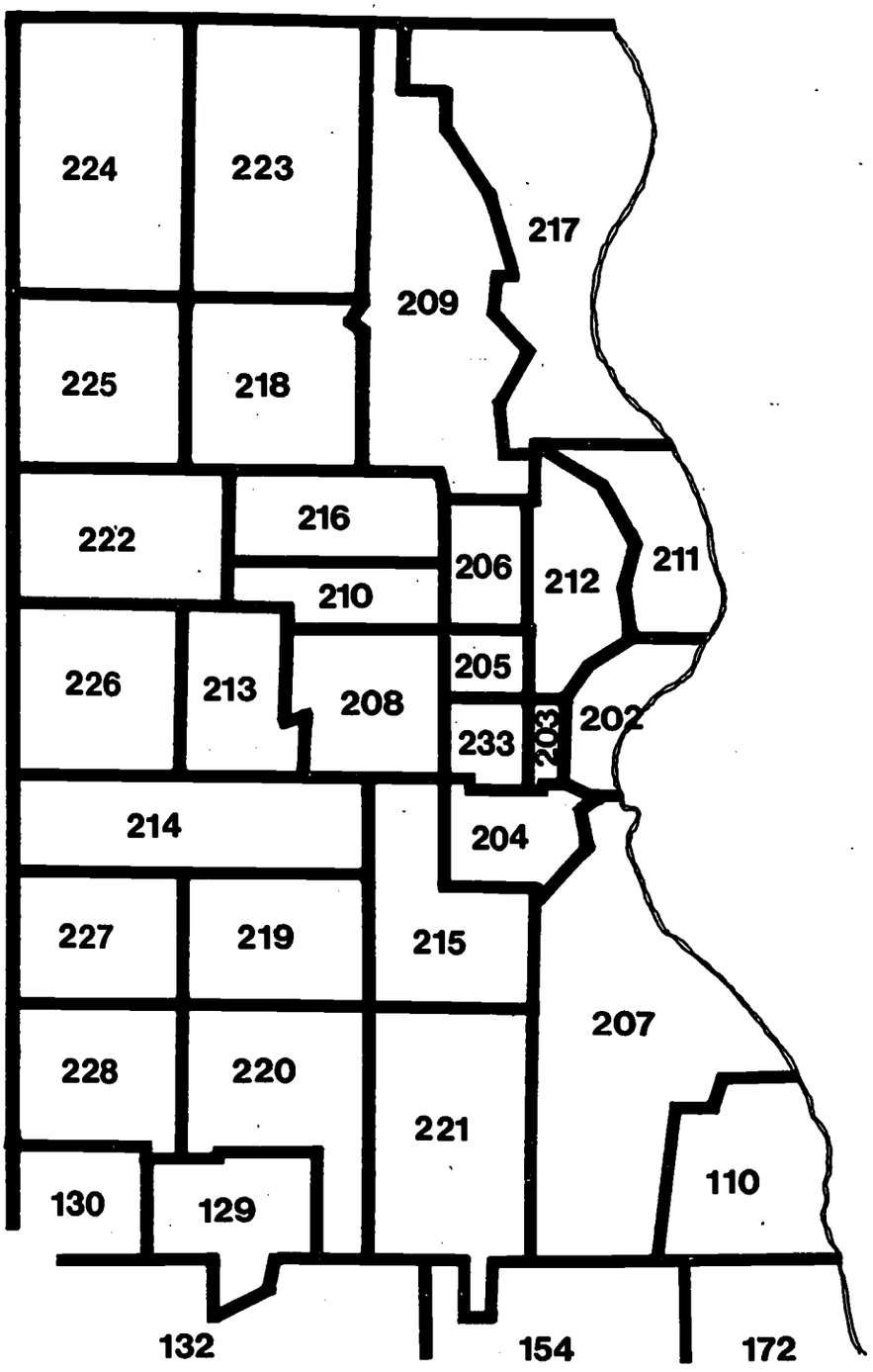
VTAE District 9
Enrollment Distribution 70-71



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OCCUPATIONAL DEMAND - UNITED STATES

General

Probably the most significant change in U.S. employment since 1947 has been the rapid increase in the number of white collar and service workers in relation to blue collar and farm workers. White collar workers outnumbered the blue collar workers for the first time in 1956. By 1980 they will account for 51% of all employed workers, while blue collar will represent about 33%.

The most dramatic change in recent years has been the shift in employment towards the service producing industries. In 1950 50% of the workers were in the service industries. By 1980 this figure will have increased to around 70%. Despite higher output in the goods producing industries, their share of total employment will drop to around 30% due to the impact of automation. The only goods producing industry expected to show a sizeable growth in the 70's is contract construction. Mining and agriculture will decline and manufacturing will grow at a slower rate than in the 60's.

The composition of the work force will also change in the next 10 years. There will be a dramatic increase in the number of workers in the age groups 25-34, and they will be better educated. The number of women in the work force will increase considerably. Growth in part-time opportunities will match the increase in the number of workers who prefer part-time jobs.

Generally, the decade is expected to be one of strong economic growth accompanied by intensive work force growth. Most of this work force growth, 94%, will be attributable to the population increase, with the remaining 6% due to a slight increase in the labor force participation rate. Each of the major industrial sectors will experience this growth in a different manner.

Agriculture

The trend in this industry has been and will continue to be one of declining employment and increasing productivity. Since 1947 agricultural employment has declined by almost 50% while output increased by about 40%. The major factor in this trend is increased farm efficiency resulting from the greater use of equipment and scientific farming techniques on increasingly larger farms.

Although this overall decline in employment is expected to continue through 1980, the demand will increase for some types of workers, including farm managers, equipment operators, equipment mechanics and repairmen, veterinarians, professional and technical workers, and agricultural service workers (packers, shippers, etc.).

Mining

The trend in this industry has been similar to that in agriculture. Employment has declined while output has increased due to technological innovations. Mechanization and improved methods are reducing manpower requirements. This overall employment decline is expected to continue through 1980, but a sizable increase is forecast in non-metallic minerals mining, except fuels, primarily due to the demand for construction materials.

Proportionally, there will be a shift towards clerical, professional and technical workers with a decline in operatives and laborers. There will be a greater proportion of mechanics and repairmen due to the increased use of complex mining and production equipment.

Contract Construction

Employment in this industry rose sharply between 1947 and 1956, declined slightly to 1961, and has since advanced steadily. In the 70's contract construction is forecast to grow at nearly twice the rate experienced in the past decade. This will be largely due to tremendous housing needs, highway construction and an expanded investment in industrial plants. The greatest employment increase is expected to be in heavy construction due to highway development programs. A rapid increase should occur in special trades due to the effects of prefabrication, increased use of air-conditioning and more complex electrical systems. Residential construction will increase to keep up with population growth, causing a moderate to rapid employment increase in general contracting.

In some areas employment growth will be limited by the increased use of more efficient materials, better handling equipment, prefabricated building components, new construction materials and other technological innovations. Proportionally, there will be an increase in mechanics, highway equipment operators and professional and technical workers and a decline in carpenters, painters and general laborers.

Manufacturing

The past decade has witnessed substantial employment growth in manufacturing, due largely to increased production for the Vietnam war build-up. Greatest increases have occured in the production of durable goods, whereas increased output per worker has offset similar employment gains in non-durable goods.

Employment in manufacturing during the 70's will experience a moderate increase, but at a somewhat slower pace than in the 60's. Industries that have been affected by the war are expected to return to prewar levels of production. Employment growth in durable goods will continue to be greater than in non-durable goods. The increased application of technological innovations will continue to reduce unit labor requirements. These developments include numerical control techniques, new metal processing methods, machinery improvements, improved materials handling, new and improved raw materials and products, instrumentation, automatic controls and electronic computers. The increased use of such complex equipment will shift the distribution of workers from machine tenders and material handlers to skilled maintenance and repairmen.

Transportation and Utilities

Since 1947 there has been virtually no employment increase in the transportation industry overall but there have been considerable changes in its components. Rapid growth in motor freight and air transportation employment was offset by a rapid decline in rail and pipeline transportation.

In the next decade a small employment gain is expected in the transportation and utilities sector, but there will be a decline in the sector's percentage of total employment. Railroad employment should increase due to increased freight volume. Local, suburban and interurban passenger transit is expected to show little change. Motor freight transportation and warehousing will increase substantially, mainly in the area of local goods distribution.

Air transportation should experience a continued high rate of growth, with demand mainly for stewards, stewardesses, aircraft servicing personnel, traffic agents and reservation clerks. Proportionally there will be a reduction in general aircraft mechanics and an increase in airframe and systems mechanics due to the increasing complexity of electrical, electronic, hydraulic and other aircraft systems.

Utilities employment has remained at a fairly constant level in the past decade and little or no change is expected in the 70's. A very large increase in the demand for products and services will be offset by technological advances. Corresponding to these advances, there will be an increase in the proportion of engineers, technicians and other professionals in utilities employment.

The communications industry will experience a rapid employment increase in telephone services, the demand being mainly for professional and technical personnel and craftsmen. In radio and TV, however, there is expected to be little demand for professional and technical personnel as employment in this industry increases at a moderate rate. Employment in telegraph communications should decline in the 70's.

Wholesale and Retail Trade

There has been a rapid rise in trade employment since 1947. The increase has been somewhat greater in retail than in wholesale trade because the latter has been effected more by mechanization. Generally the personal nature of retailing insulates the industry from substantial changes due to technological innovations.

In the 70's there will be a rapid employment increase in both retail and wholesale trade. In retailing the demand will be mainly for clerical workers, food and drink service personnel, craftsmen, mechanics and repairmen. In wholesale trade demand will be heavy for foremen, mechanics and repairmen to supervise and maintain equipment. The most rapid growth areas in wholesale trade will be motor vehicles, automotive equipment and machinery.

Finance, Insurance and Real Estate

Employment in this sector of the economy showed tremendous growth in the past 20 years but has slowed recently due to the expanded use of computers and related equipment in record keeping operations. In the 70's growth is expected to be somewhat slower than in the previous decade due to the use of EDP equipment. Employment in real estate, however, will grow at a slightly faster rate than it did in the 60's.

Services and Miscellaneous

The services and miscellaneous sector has grown tremendously since World War II due to population increases, an increase in disposable income, expanding economic activity and a growing demand for services that add to people's convenience and comfort. The

fastest growth occurred in the miscellaneous business services category, which includes management consulting, research and development, consumer credit reporting, building maintenance and advertising. Medical and other health services increased greatly in the past few years due to an increased number of very young and very old persons and increased expenditures for health and medical care.

Employment in the service industries is expected to continue to grow at a pace greater than that of total employment. This growth will be attributed to continued population growth, an expanding interest in preventive medicine and the rehabilitation of handicapped, more frequent use of beauty parlors, restaurants, etc., a rise in income levels, more leisure time and an increase in the number of working housewives. The service industries generally are less affected by technological developments than other industries.

The most rapid growth will occur in miscellaneous business services, with employment almost doubling by 1980. This will be due to a heavier reliance of firms upon advertising services to sell their products; on accounting, auditing, bookkeeping and computing services to handle their record keeping; on contract maintenance firms; and on audit bureaus and collection agencies to cope with expanding consumer credit.

Educational services employment will continue to grow rapidly. There will be tremendous employment growth in health and medical services and in hotels and other lodging. There also will be considerable growth in the social welfare occupations at the para-professional level due to a shortage of four-year graduates, new team strategies and fewer job entry barriers based on race than in other occupations. Auto repair services will see a decline in the need for general mechanics and repairmen due to a new emphasis on replacement rather than repair. Extended warranties will tend to bring automobile repair business to dealers where there will be a need for diagnosticians and mechanic specialists.

Government

Historical growth in this sector has been faster than any other. Most of the increase in government employment has been at the state and local levels due primarily to rapid growth in educational activities.

As the population continues to grow and becomes more urban, public health, sanitation, welfare and protective services will expand. This will cause a considerable increase in demand for workers at the state and local levels of government. Almost half of this demand will be for professional, administrative and technical workers. Federal employment is expected to rise only slightly.

From a recent survey covering 130 cities with populations in excess of 100,000, a ranking was obtained showing the relative public service manpower needs between 1965 and 1975:[80]

1.	Education	84,602
2.	Police	37,408
3.	Health and Hospitals	34,534
4.	Welfare	26,909
5.	Recreation and Parks	18,896
6.	Fire	14,994
7.	General Administration	13,940
8.	Sanitation	13,586
9.	Urban Renewal	12,198
10.	Highway/Traffic	9,786
11.	Library	5,619
12.	Housing Codes and Inspection	5,199
13.	Anti-Pollution Enforcement	1,748

Occupational Trends

The U.S. Department of Labor, Bureau of Labor Statistics has recently published occupational employment projections for the period 1968-1980. Highlights of these projections are presented in Table 7.1, page 7.8.

The proportion of semi-skilled and unskilled workers in the labor force will decline rapidly in the next decade. Professional, technical and kindred employment growth will continue to lead all other occupational categories. The number of professional and technical workers is forecast to increase by 50% between 1968 and 1980. Managers, officials and proprietors will increase at a rate somewhat less than that of total employment while the sales personnel rate will be slightly greater. The number of clerical workers should grow rapidly but at a slower rate than in the 60's. Service workers will expand at a rate almost 1½ times that of total employment.

A tremendous increase in technical manpower employment is expected through 1980, although the rate of growth will be slighly slower than in the 60's. The demand for technicians will be heaviest in physics and mathematics, engineering, machinery, electrical equipment and building design services.

Occupational demand is created not only by employment growth but also by the turn-over of personnel. The greatest replacement rates occur among clerical and service personnel or in industries with a high percentage of women workers:

INDUSTRY	% WOMEN[124]
Communications	50%
Finance, Insurance and Real Estate	50%
Wholesale and Retail Trade	40%
Manufacturing	27%
Air Transportation	25%

TABLE NO. 7.1 - SELECTED OCCUPATIONAL EMPLOYMENT PROJECTIONS 1968-1980

UNITED STATES

OCCUPATIONAL GROUP/OCCUPATION	% CHANGE 1968-1980	AVER. ANNUAL OPENINGS 1968-1980 NUMBER	RANKING[1]
Professional & Technical Workers	50.1	777,000	
Engineering & Science Technicians	43.2	31,000	12
Draftsmen	48.1	15,300	23
Programmers	129.0	23,000	16
Dental Hygienists	109.4	2,400	31
Dental Lab Technicians	38.9	2,100	32
Medical Lab Workers	90.0	12,800	25
Radiological Technologists	60.0	7,300	30
Managers, Officials, & Proprietors	22.2	380,000	
Clerical Workers	35.1	912,000	
Stenographers & Secretaries	36.8	237,000	1
Bookkeeping Workers	18.9	78,000	6
Office Machine Operators	39.4	25,000	14
Computer Operators	129.0	20,400	19
Dental Assistants	50.0	9,000	28
Sales Workers	29.1	263,000	
Retail Trade Salesworkers	24.0	150,000	2
Wholesale Trade Salesworkers	29.5	25,200	15
Craftsmen & Foremen	21.8	396,000	
Plumbers & Pipefitters	43.9	19,500	21
Construction Machine Operators	43.9	14,800	24
Motor Vehicle Mechanics	21.1	20,000	20
Aircraft Mechanics	70.4	9,700	27
Business Machine Servicemen	73.9	8,500	29
Operatives	10.4	426,000	
Truckdrivers, Local	21.9	37,000	11
Truckdrivers, Over-the-Road	24.7	21,600	18
Assemblers	8.4	26,000	13
Inspectors (Manufacturing)	8.5	19,200	22
Welders & Oxygen and Arc Cutters	40.6	23,000	17
Gasoline Service Station Attendants	15.9	10,900	26
Service Workers	39.6	752,000	
Private Household Workers	14.8	121,000	3
Hospital Attendants	87.5	100,000	4
Licensed Practical Nurses	87.5	48,000	8
Building Custodians	32.7	80,000	5
Cooks & Chefs	33.2	48,000	9
Waitors & Waitresses	28.3	67,000	7
Cosmetologists	42.9	38,000	10

Source: U.S. Department of Labor [120]

Notes: 1. Ranking of the 32 selected occupations only.
2. Data for 232 occupations listed in Appendix.

OCCUPATIONAL DEMAND - WISCONSIN

General

The composition of Wisconsin's work force is compared with that of the Nation in Table 7.2, page 7.10. The State's industry mix is somewhat different from the Nation's. The greatest difference is in agriculture, where the proportion of Wisconsin's work force is about double the national average. This indicates that farm employment in the State has not shrunk in size relative to other industries as much as it has nationally. Wisconsin also has a higher proportion of its work force in manufacturing and the "other workers" category. The comparative sizes of Wisconsin's work force in the remaining industries are somewhat less than those of the Nation.

Since 1955 the composition of Wisconsin's work force has changed considerably as shown in Table 7.3, page 7.11. The proportion of the work force engaged in manufacturing has declined slightly, not because there has been a reduction in the number of workers, but because there has been comparatively greater growth in other industries. Trades, Service and Miscellaneous and Government all increased their share of total employment while Agriculture, Mining and Other Non-Farm showed a decrease.

The non-white labor force in the North Central Region of the Country is expected to increase at a rate twice as fast as the total labor force in the next decade.

In Wisconsin, as it was in the national projections, job growth in the service producing industries will be faster than in the goods producing industries. The Wisconsin State Employment Service has projected the following percentage change in employment by major industry group:[145]

Goods Producing Industries		-2.5
Non-Agricultural	3.3	
Mining	16.0	
Contract Construction	9.9	
Manufacturing	2.2	
Agriculture, Forestry, Fisheries	-25.0	
Service Producing Industries		16.9
Transport & Utilities	4.8	
Trade	14.1	
Finance, Insurance, Real Estate	12.7	
Services	22.3	
Government	18.7	
Total		8.5%

TABLE NO. 7.2 - PERCENTAGE DISTRIBUTION OF THE WORK FORCE, 1969

UNITED STATES AND WISCONSIN

INDUSTRY	UNITED STATES EMPL. (1,000)	UNITED STATES PERCENT	WISCONSIN EMPL. (1,000)	WISCONSIN PERCENT
Agriculture	3,606	4.5	168.0	8.8
Mining	619	0.8	2.6	0.1
Construction	3,437	4.3	66.9	3.5
Manufacturing	20,170	25.0	518.0	27.3
Transportation, Communications, and Public Utilities	4,431	5.5	79.5	4.2
Wholesale & Retail Trade	14,645	18.1	323.1	17.0
Finance, Insurance, & Real Estate	3,557	4.4	59.0	3.1
Service and Miscellaneous	11,212	13.9	217.0	11.4
Government	12,204	15.1	254.9	13.4
Other Workers	4,022	5.0	143.1	7.5
Unemployed	2,831	3.5	63.7	3.4
Total	80,733	100.0	1,899.4	100.0

Source: Wisconsin Department of Local Affairs and Development[108]

TABLE NO. 7.3 - HISTORICAL PERCENTAGE DISTRIBUTION OF THE WORK FORCE

WISCONSIN

INDUSTRY	1955	1960	1965	1969
Agriculture	17.15	14.20	11.29	8.84
Mining	.25	.23	.16	.14
Construction	3.61	3.40	3.73	3.52
Manufacturing	29.08	27.95	28.25	27.27
Transportation, Communications, and Public Utilities	4.92	4.52	4.30	4.19
Wholesale & Retail Trade	14.29	14.81	15.68	17.01
Finance, Insurance, & Real Estate	2.44	2.77	2.96	3.11
Service & Miscellaneous	7.43	8.76	10.17	11.42
Government	8.32	9.91	11.54	13.42
Other Workers	9.34	9.40	8.75	7.53
Unemployed	2.96	3.94	3.42	3.35
Total	100.00	100.00	100.00	100.00

Source: Wisconsin Department of Local Affairs and Development[108]

Wisconsin's twenty largest growth industries are ranked according to their projected employment gain 1968-75 in Table 7.4, page 7.14 .

Wisconsin employment trends by major industry group generally correspond to those mentioned previously for the Nation.

Agriculture

The fairly constant decline in agricultural employment which has been experienced in the past ten years is expected to continue through the next decade. There will be an increased demand, however, in some agricultural oriented occupations as noted in the previous discussion of national trends.

Mining

Slight employment growth is projected in this industry, mainly due to a small increase in the mining of non-metallic minerals such as sand, gravel, stone and clay.

Contract Construction

The substantial employment growth rate of the 60's in contract construction should continue in the next ten years, sustained mainly by heavy construction work (highway and sewer).

Manufacturing

Durable goods manufacturing employment increased substantially in the last decade and will continue to increase but at a somewhat slower rate in the 70's. Employment in electrical machinery equipment and supplies, farm machinery and equipment, miscellaneous machinery and the primary metals industries will experience the greatest growth.

Employment in non-durable goods manufacturing will show no growth overall, but some employment gains are expected in the manufacturing of miscellaneous plastic products and paperboard containers and boxes.

Transportation, Communications and Utilities

Overall employment in this industry group has increased very slowly and will continue to do so in the 70's. Substantial employment increases in trucking and air transportation, along with a slight increase in railroad commuter service, will more than offset losses in other areas.

Wholesale and Retail Trade

A continued rapid rate of growth is forecast for both retail and wholesale trade employment. General Merchandise retailing and Miscellaneous Retail Stores are two of the highest projected growth industries in Wisconsin.

Finance, Insurance and Real Estate

Employment growth in this industry group has been moderate in the past decade, and is projected to be slightly less in the 70's. Most of the growth will be due to increases in bank and credit agency employment.

Services

As in the national projections, the services industry group in Wisconsin has the highest projected employment growth rate. Medical and other health services, educational services and miscellaneous business services, all are among the top projected growth industries in Wisconsin. Medical and other health services employment is expected to show the greatest increase, and, along with miscellaneous business services, the increase will be at a rate substantially greater than was experienced in the past decade. Although educational services will show considerable employment gains in the 70's, its rate of growth will be somewhat less than it was between 1960 and 1970.

Government

Government employment is expected to continue its rapid rate of increase in Wisconsin. Local public administration presently contributes over one-half of total government employment and is ranked fifth among Wisconsin's largest projected growth industries.

TABLE NO. 7.4 - TWENTY LARGEST GROWTH INDUSTRIES 1968-1975

WISCONSIN

RANK	INDUSTRY	PROJECTED EMPLOYMENT GAIN 1968-1975
1	Medical & Other Health Services	40,300
2	General Merchandising (Retail)	19,200
3	Educational Services (Includes State & Local Gov.)	16,100
4	Miscellaneous Business Services	13,600
5	Local Public Administration	8,800
6	Contract Construction	8,600
7	Bank and Credit Agencies	7,200
8	Miscellaneous Retail Stores	5,600
9	Electrical Machinery Equipment & Supplies (Manufacturing)	5,600
10	Miscellaneous Plastics Products (Manufacturing)	5,300
11	Food Stores	4,800
12	Nonprofit Welfare and Religious Organizations	4,400
13	Hotels and Other Lodging Places	3,700
14	Eating and Drinking Places	3,400
15	Miscellaneous Machinery Manufacturing	3,000
16	Farm Machinery and Equipment (Manufacturing)	2,800
17	Auto Dealers and Gas Stations	2,700
18	Other Personal Services	2,600
19	State Public Administration	2,400
20	Other Repair Services	2,200

Source: Wisconsin State Employment Service[145]

OCCUPATIONAL DEMAND - SOUTHEASTERN WISCONSIN REGION

Economic activity in an area relates directly to the area's population trends. Migration into or out of an area depends basically on the availability of jobs. Between 1940 and 1963 the labor force in the Southeastern Wisconsin Region grew by almost 50% while the national increase was about 37%. This relative growth is reflected by the population change graph in the first section of the report. The graph also reflects the fact that labor force growth has been fastest in Waukesha and Ozaukee Counties while Milwaukee County grew at the slowest pace of all seven counties.

Recent labor force and employment trends are presented in graphic and tabular form on the following pages for the Milwaukee, Racine and Kenosha Standard Metropolitan Statistical Areas. The Milwaukee SMSA consists of Milwaukee, Ozaukee, Washington and Waukesha Counties while the Racine and Kenosha SMSA's each consist of a single county. The Milwaukee SMSA labor force grew fairly consistently between 1960 and 1970, adding about 80,000 persons for an increase of about 14%. In Racine there was also a relatively continuous upward trend in the labor force with a rate of growth of about 27%. The Kenosha SMSA, on the other hand, experienced no overall growth in the labor force although there was considerable change during the period 1960 to 1970. Kenosha also differs from the other SMSA's in that its employment rate varied a full 5.5%, while Milwaukee and Racine unemployment rates varies only 2.9% and 2.4% respectively.

Historically the Southeastern Wisconsin Region labor force has contained a higher proportion of skilled and semi-skilled workers than the rest of the Nation. Continued rapid increases in skill levels will tend to raise the proportion of professional and technical workers in the Region and decrease the proportion of unskilled workers.

Geographically, Milwaukee County has been and will continue to be the center of economic activity in the Region. In the past decade, however, Milwaukee County has lost some of its economic dominance. The County's portion of total regional employment has reduced from 75% in 1962 to about 70% in 1970. The surrounding Counties of Ozaukee, Waukesha, and Racine all increased their share of the total. Waukesha County grew most notably, rising from about 5% in 1962 to almost 9% of total employment in 1970. Aside from Milwaukee, Kenosha was the only other county to exhibit a decline in its share of regional economic activity, dropping from 6.4% of total employment in 1962 to 5.0% in 1970.

The trend toward a decreasing concentration of economic activity in Milwaukee County with increases in the peripheral counties is expected to continue in the decade of the 70's. This follows the general national trend of decentralization of manufacturing, distribution and services from highly urbanized areas to suburban and rural areas.

The structure of the Southeastern Wisconsin economy is dominated by manufacturing as shown graphically on page 7.17. In 1970 the proportion of the Region's work force engaged in manufacturing was about 34%, much greater than the national figure of 25%. In Racine and Kenosha SMSA's the percentages are even higher, at about 40% and 42% respectively. In the past ten years manufacturing has lost some of its dominance in the Region, as it has nationally. In the Milwaukee SMSA, manufacturing employment reduced from 38% of total employment in 1960 to 33% in 1970. The reduction was even greater in the Kenosha SMSA, from 52% in 1960 to 42% in 1970. Despite these reductions, manufacturing will continue to be the Region's largest employer by far through the next decade.

Manufacturing in the Region is heavily concentrated in durable goods production, particularly machinery, electrical equipment and transportation equipment. There is also a considerable amount of employment in the production of primary and fabricated metal products. Employment in non-durable goods production is relatively low except for the printing and publishing industry and the food and beverage industry. Substantial employment in the beverage industry is, of course, largely attributed to the major breweries of Milwaukee.

Although manufacturing is the most important industry group in the Region, it is also the most difficult for which to make employment projections. Industrial activity in the Region is concentrated in the production of capital goods, which depends heavily on two quite unpredictable factors, the general economic situation of the Nation and the nature of the export market. Historical employment trends for the Region's three SMSA's are presented on pages 7.20 to 7.22 . These graphs show the tremendous fluctuations that have occurred in manufacturing employment in the past ten years, particularly in the Kenosha and Milwaukee SMSA's.

In 1966 the Southeastern Wisconsin Regional Planning Commission (SEWRPC) developed employment forecasts for the major industry groups.[39] These forecasts, based upon employment data from the Wisconsin Industrial Commission are shown graphically on page 7.26. Between 1970 and 1980 employment in manufacturing is expected to increase by 24,400 workers. While this absolute in-

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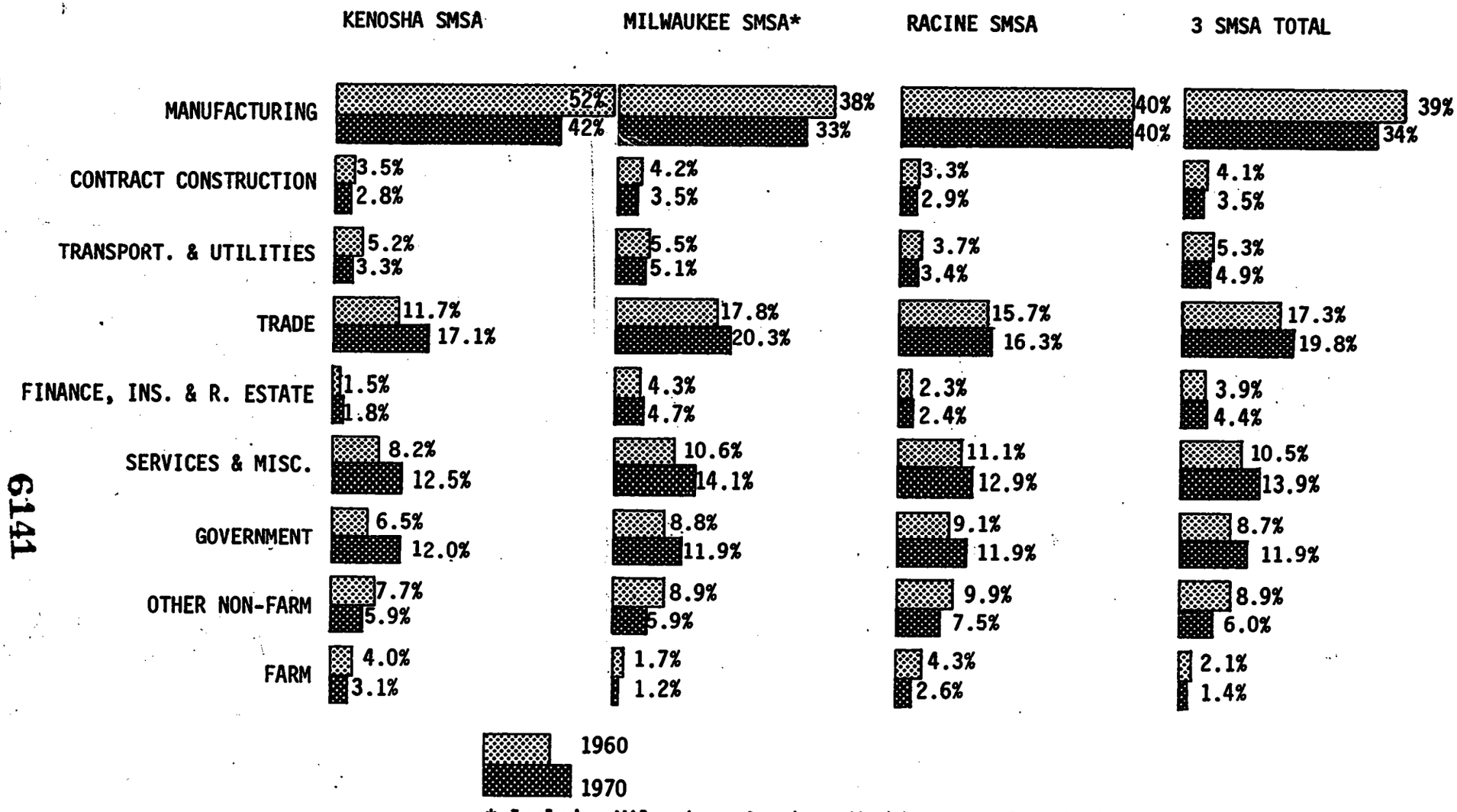


* Includes Milwaukee, Ozaukee, Washington and Waukesha Counties.

Labor Force Composition

crease ranks second in all the industry groups, the percentage increase is lower, at 9%, than all the other jndustry groups with the exception of agriculture. SEWRPC's forecasts for the various component industries in the manufacturing group are presented in Table 7.8, page 7.27. By far the greatest employment increases are forecast for electrical equipment manufacturing. Other major increases are expected in transportation equipment and machinery production. Food and beverages employment is expected to decrease due to the effects of automation. All other manufacturing industries are forecast to increase except for textile, apparel and leather products which shows no gain through 1990.

In the past decade the Southeastern Wisconsin Region economy has shifted away from Manufacturing somewhat and is becoming more and more oriented towards other industry groups, particularly Government, Services and Miscellaneous, and Wholesale and Retail Trade. The relative growth of these industries is shown graphically on pages 7.17 and 7.26 .

Service industry employment is projected to increase most rapidly in the Region. This corresponds with projections for both the State and the Nation. Between 1970 and 1980 regional employment in the service industries is forecast to increase by 70,600 workers, which represents a rise of about 38%. By far the largest share of this increase will be in health and medical services. Other sizeable gains will be in educational services and miscellaneous business services.

Retail and wholesale trade employment should continue its rapid rate of growth through 1980. An increase in retailing should occur largely in areas peripheral to Milwaukee where suburbanization is creating high population growth trends. Reference to the Population and Land Use sections of this report will be helpful in locating these areas of growth.

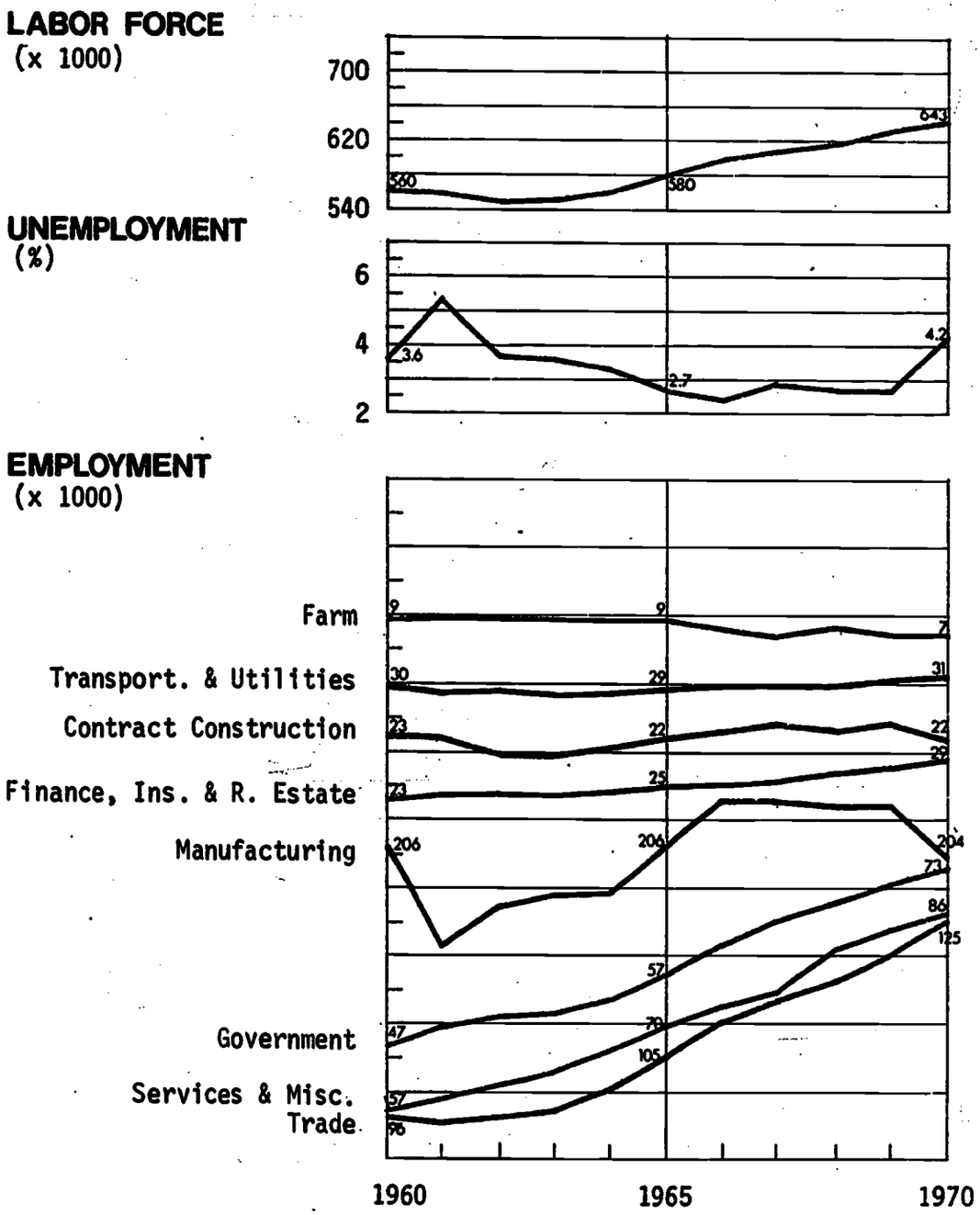
Local government employment has also shown substantial increases in the past decade. This trend should continue as population increases occur in the Region and as the need to solve urban problems becomes more critical.

Regional employment in the remaining industry groups will grow at more moderate rates with the exception of Agriculture which will continue its long term decline.

Although occupational demand will vary to some extent between Districts, it is worthwhile to look at some occupational projections for the Milwaukee SMSA, which represents over 80% of

total regional employment. The projections tabulated on page 7.28 were made in 1968 by the Wisconsin State Employment Service (WSES). They coincide with the projected national trend of higher demand for professional, technical and kindred workers. Clerical and Kindred ranks number one in this short range projection of occupational demand, due largely to the high turnover rate in occupations where there is a high percentage of women workers.

MILWAUKEE SMSA*



* Includes Milwaukee, Ozaukee, Washington and Waukesha Counties.

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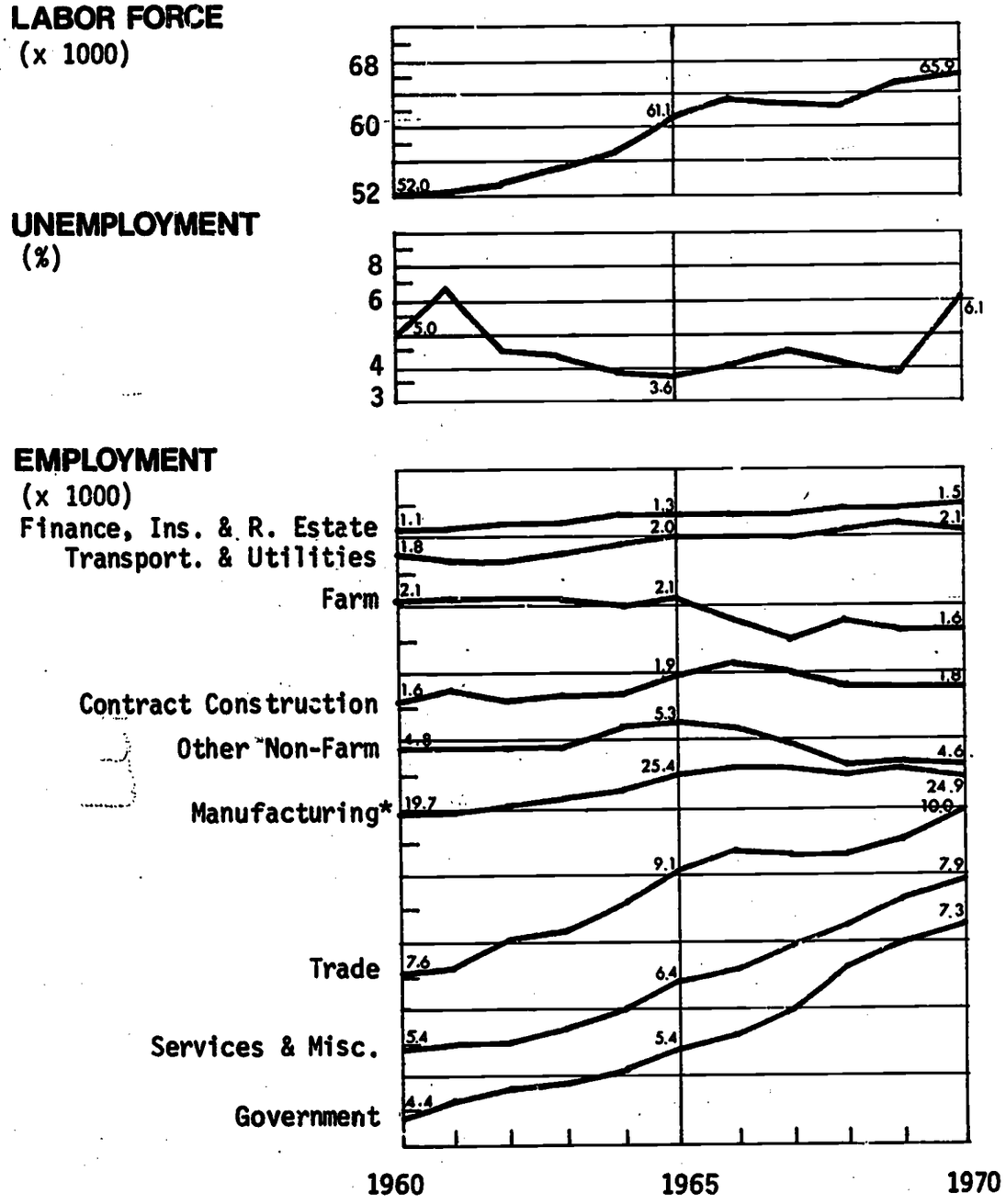
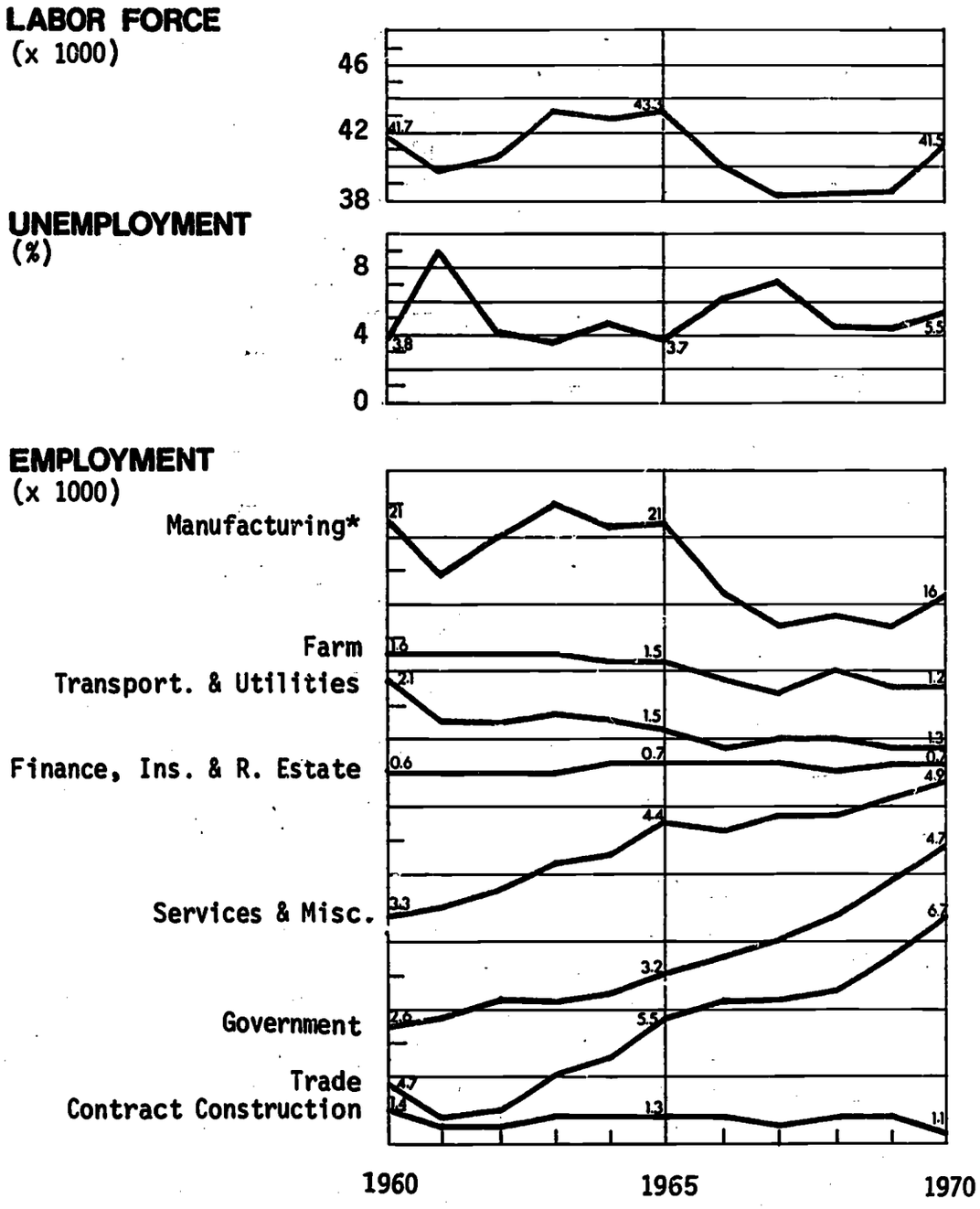
RACINE SMSA



* Manufacturing is plotted at 5 times scale of other industry groups.

KENOSHA SMSA



* Manufacturing is plotted at 5 times scale of other industry groups.

TABLE NO. 7.5 - EMPLOYMENT TRENDS[1]

MILWAUKEE SMSA[2]

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1975
Civilian Work Force	559.6	557.5	548.5	550.2	560.3	579.9	597.9	608.2	618.4	632.1	643.1	
Unemployment %	3.6	5.3	3.7	3.6	3.3	2.7	2.4	2.9	2.7	2.7	4.2	
Employment (in thousands)	539.3	527.9	528.0	530.3	540.9	563.4	583.0	589.0	600.6	613.1	613.1	651.7
Manufacturing	206.3	191.5	196.9	198.0	198.3	206.4	213.8	212.6	211.9	212.1	203.8	216.6
Contract Const.	22.5	22.0	19.9	19.5	20.7	22.0	23.2	24.2	23.2	24.1	21.7	25.5
Trans. & Util.	29.5	28.7	28.8	28.4	28.6	29.3	29.8	29.8	29.8	30.8	31.2	31.2
Wholesale Trade / Retail Trade	96.1	95.4	96.2	97.0	100.4	104.9	109.9	112.8	115.5	120.3	124.7	131.8
Finance, Ins. & R.Estate	23.0	23.7	23.8	23.6	24.1	24.8	25.1	25.6	26.8	27.9	29.0	30.2
Services & Misc.	57.2	58.7	61.2	62.9	66.0	69.5	72.5	74.5	80.7	83.9	86.3	98.7
Government	47.3	49.7	50.9	51.6	53.4	57.3	61.6	64.9	67.8	70.5	72.8	80.5
Other Non-Farm	47.9	48.8	41.2	40.2	40.3	40.2	39.1	37.6	36.5	36.4	35.9	31.1
Farm	9.4	9.6	9.4	9.4	9.1	9.3	8.0	6.9	8.2	7.1	7.2	6.1
Workers Involved in Labor-Mgmt. Disputes	0.0	0.2	0.4	0.2	1.1	0.5	0.7	1.3	0.9	1.8	3.0	

Source: Wisconsin State Employment Service.[132]

Notes: 1. Wage and salary employment.
2. Includes Milwaukee, Ozaukee, Washington and Waukesha Counties.

TABLE NO. 7.6 - EMPLOYMENT TRENDS[1]

RACINE SMSA

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Civilian Work Force	52.0	52.3	53.7	55.3	57.8	61.1	63.3	63.2	63.1	65.0	65.9
Unemployment %	5.0	6.3	4.6	4.3	3.9	3.6	4.1	4.5	4.1	3.8	6.1
Employment (in thousands)	48.5	49.0	51.2	53.0	55.5	58.8	60.7	60.3	60.4	62.3	61.5
Manufacturing	19.7	19.6	21.2	22.2	23.6	25.4	26.6	26.4	25.3	26.3	24.9
Contract Construction	1.6	1.8	1.6	1.7	1.7	1.9	2.2	2.0	1.8	1.8	1.8
Trans. & Utilities	1.8	1.7	1.7	1.8	1.9	2.0	2.0	2.0	2.1	2.2	2.1
Wholesale Trade	7.6	7.7	8.1	8.3	8.6	9.1	9.4	9.3	1.7	1.6	1.6
Retail Trade									7.6	8.0	8.4
Finance, Ins. & R. Estate	1.1	1.1	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.5
Services & Misc.	5.4	5.5	5.5	5.7	6.0	6.4	6.6	6.9	7.3	7.7	7.9
Government	4.4	4.7	4.8	4.9	5.1	5.4	5.7	6.0	6.7	7.0	7.3
Other Non-Farm	4.8	4.8	4.8	4.8	5.2	5.3	5.2	4.9	4.6	4.7	4.6
Farm	2.1	2.1	2.1	2.1	2.0	2.1	1.8	1.5	1.8	1.6	1.6
Workers Involved in Labor-Mgmt. Disputes	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.3

Source: Wisconsin State Employment Service.[137]

Notes: 1. Wage and salary employment

TABLE NO. 7.7- EMPLOYMENT TRENDS[1]

KENOSHA SMSA

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Civilian Work Force	41.7	39.8	40.5	43.4	42.9	43.3	40.0	38.3	38.4	38.6	41.5
Unemployment %	3.8	9.0	4.1	3.5	4.7	3.7	6.2	7.2	4.5	4.4	5.5
Employment (in thousands)	40.1	36.2	38.8	41.8	40.8	41.7	37.4	35.0	36.5	36.4	39.2
Manufacturing	20.8	17.7	20.0	22.0	20.6	20.7	16.7	14.7	15.3	14.6	16.4
Contract Construction	1.4	1.2	1.2	1.3	1.3	1.3	1.3	1.2	1.3	1.3	1.1
Trans. & Utilities	2.1	1.6	1.6	1.7	1.6	1.5	1.3	1.4	1.4	1.3	1.3
Wholesale Trade	4.7	4.3	4.4	4.8	5.0	5.5	5.7	5.7	0.6	0.6	0.6
Retail Trade									5.2	5.6	6.1
Finance, Ins. & R. Estate	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.6	0.7	0.7
Services & Misc.	3.3	3.4	3.6	3.9	4.0	4.4	4.3	4.5	4.5	4.7	4.9
Government	2.6	2.7	2.9	2.9	3.0	3.2	3.4	3.6	3.9	4.3	4.7
Other Non-Farm	3.1	3.1	3.0	3.1	3.1	2.9	2.7	2.2	2.2	2.1	2.3
Farm	1.6	1.6	1.6	1.6	1.5	1.5	1.3	1.1	1.4	1.2	1.2
Workers Involved in Labor-Mgmt. Disputes	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.2	0.6	0.0

Source: Wisconsin State Employment Service.[136]

Notes: 1. Wage and salary employment.

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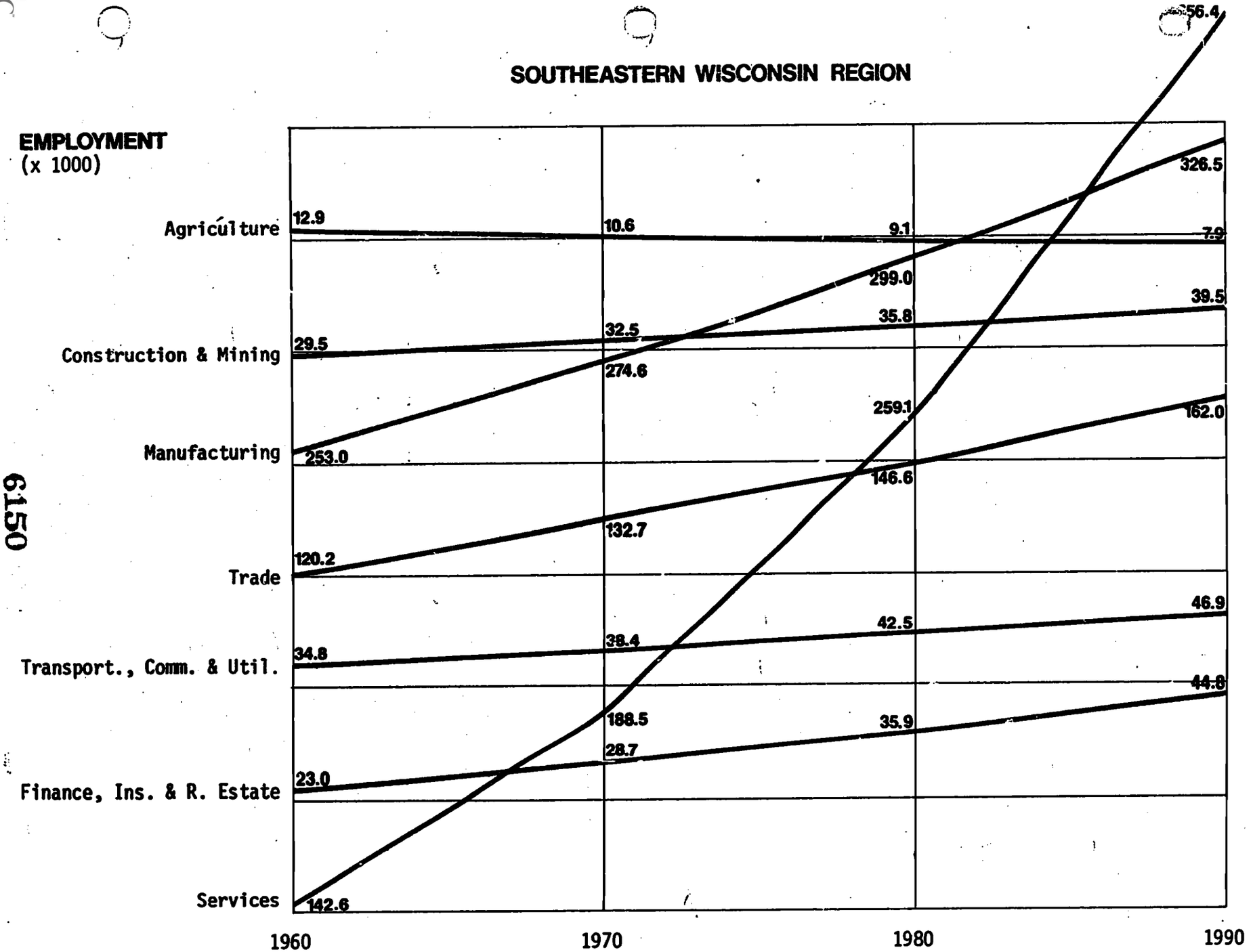

Employment Forecast to 1990

TABLE NO. 7.8 - MANUFACTURING EMPLOYMENT FORECASTS

SOUTHEASTERN WISCONSIN REGION

INDUSTRY TYPE	EMPLOYMENT (x 1000) 1970	GROWTH	1980	GROWTH	1990
Food & Related Products	20.3	-1.0	19.3	-1.0	18.3
Textile, Apparel, Leather Products	14.2	0.0	14.2	0.0	14.2
Paper & Wood Products	9.9	0.3	10.2	0.5	10.7
Printing & Publishing	18.5	2.4	20.9	2.8	23.7
Chemical & Related Products	4.5	0.8	5.3	0.5	5.8
Primary Metal Products	20.9	1.6	22.5	1.8	24.3
Fabricated Metal Products	19.2	1.0	20.2	1.1	21.3
Machinery	62.4	3.2	65.6	3.4	69.0
Electrical Equipment	47.5	10.4	57.9	12.7	70.6
Transportation Equipment	36.9	3.9	40.8	4.2	45.0
Instruments & Related Products	3.8	0.6	4.4	0.5	4.9
Miscellaneous Manufacturing Products	16.5	1.2	17.7	1.0	18.7

Source: SEWRPC[39]

TABLE NO. 7.9 - PROJECTED EMPLOYMENT GAIN 1968-75 BY OCCUPATIONAL GROUP

MILWAUKEE SMSA

RANK	OCCUPATION	PROJECTED EMPLOYMENT GAIN 1968-75
1	Clerical and Kindred	19,707
	Stenos, Typists, & Secretaries	4,349
	Office Machine Operators	2,834
	Other	12,524
2	Professional, Technical and Kindred	17,010
	Engineers, Technical	3,088
	Natural Scientists	213
	Technicians (except Medical & Dental)	1,005
	Medical & Other Health Workers (incl. Medical & Dental)	2,920
	Teachers	2,663
	Social Scientists	114
	Others	7,007
3	Operatives and Kindred	14,379
	Selected Transport. & Utility	3,988
	Semi-skilled Metalworking	1,775
	Semi-skilled Textile	241
	Other	8,375
4	Craftsman, Foremen and Kindred	13,763
	Construction	2,498
	Foremen	2,692
	Metalworking	94
	Mechanics & Repairmen	5,820
	Printing Trades	556
	Transportation & Public Utilities	287
	Other	1,816
5	Service Workers	12,176
	Private Household	2,061
	Protection Service	798
	Waiters, Cooks, Bartenders	3,082
	Other	6,235
6	Sales	6,242
7	Managers, Officials and Proprietors	6,073
8	Laborers (except Farm and Mine)	1,350
9	Farmers and Farm Workers	300

Source: Wisconsin State Employment Service[142]

OCCUPATIONAL DEMAND - VTAE DISTRICT 9

Economic growth characteristics vary considerably between the different geographic areas of District 9. The City of Milwaukee and its older suburban areas together are representative of a mature economy in which the rate of growth is slow. On the other hand, such peripheral areas as southern Ozaukee County and southeastern Washington County are experiencing quite rapid economic growth and rapidly developing employment opportunities. In recent years there has been a movement of both population and industry away from the density of Milwaukee and settlement in the urban fringe areas. This trend has created problems in the central city, particularly among minority groups who cannot or will not leave the area.

Despite its slow growth and internal problems, Milwaukee County will remain the major center of economic activity in the Southeastern Wisconsin Region for at least the next decade. Employment in Milwaukee County currently represents almost 70% of the total employment in the Region. Between 1960 and 1970 the County's employment gain of about 60,000 workers represented approximately 33% of the total regional employment increase.

The Milwaukee SMSA is the geographic unit most often used in analysis of employment trends. In 1970, employment within the boundaries of VTAE District 9 represented between 87 and 90% of the total for the SMSA. The graph on page 7.17 shows the change in labor force composition between 1960 and 1970. The trend towards the service producing industries is well illustrated by the relative growth in the Trade, Finance Insurance and Real Estate, Services, and Government industry groups. The employment profile in the SMSA as of May 1971 is shown in Table 7.10, page 7.30 .

Manufacturing is still the largest employer in the Milwaukee SMSA, although there has been a loss in emphasis since 1960. Currently, over 75% of manufacturing employment is involved in durable goods production, particularly machinery, primary and fabricated metal products, and transportation equipment. Non-durable goods production is centered in the food and beverage and the printing, publishing and advertising industries.

The graph on page 7.20 shows the high degree of fluctuation which has occurred in manufacturing employment over the past decade in the SMSA. This is the result of change in the overall economic situation, changing industrial and governmental needs, and change in the export market, all of which affect the demand for durable goods. Whereas there has been a downward trend in Milwaukee County since 1966, manufacturing employment levels have continued to rise in Ozaukee County.

TABLE NO. 7.10 - EMPLOYMENT PROFILE, MAY 1971

MILWAUKEE SMSA

RANK	INDUSTRY GROUP		EMPLOYMENT	
1	Manufacturing			191,300
	Durable Goods		143,500	
	Non-Electrical Machinery	53,700		
	Electrical Machinery	30,500		
	Fabricated Metal Products	18,800		
	Primary Metal Industries	16,700		
	Transportation Equipment	12,900		
	Other	10,900		
	Non-Durable Goods		47,700	
	Food & Kindred Products	15,900		
	Printing, Publishing & Allied Products	11,500		
	Other	20,300		
2	Wholesale & Retail Trade		123,500	
	Retail Trade	94,300		
	Wholesale Trade	29,200		
3	Services & Miscellaneous			91,400
4	Government			73,700
5	Transportation & Utilities			30,900
6	Finance, Insurance & Real Estate			29,200
7	Contract Construction			17,400
	Other Non-Farm			34,800
	Farm			6,800

Source: Wisconsin State Employment Service[139]

Note: Totals may not add due to rounding.

The trend in manufacturing occupations has been toward increased specialization and higher skill levels. Production methods are becoming more and more sophisticated. The result will be a decrease in demand for unskilled labor accompanied by a substantial need for those who understand and can cope with new processing equipment. There will be a particular need for those familiar with numerical control techniques. Short term occupational demand related to manufacturing appears to be greatest for industrial engineering technicians, mechanical draftsmen, tool and die makers, arc welders, machinists and machine operators.

Retail and Wholesale Trade is the second largest industry group in the Milwaukee SMSA, representing about 20% of total employment. Substantial employment increases in this group during the past decade were due mainly to gains in retailing. Wholesale trade in both Milwaukee and Ozaukee Counties has shown relatively minor employment gains. Retail trade employment will continue to grow in Milwaukee as the city remains the purchasing center for the expanding regional population. This growth, however, will be at a somewhat slower pace than in the 60's due to the trend toward decentralization of retail activity within the Region. Southern Ozaukee County, southeastern Washington County, and neighboring Waukesha County will experience higher growth rates for this same reason.

Within District 9, the greatest short term demand in retailing occupations is forecast for store managers, assistant managers and general sales personnel.

The service industries show the highest growth potential in the District as they do for the Region, the State, and the Nation. The historical employment pattern for the service industries of the Milwaukee SMSA is depicted graphically on page 7.20 Employment in this sector grew by about 27,000 workers during the past decade in Milwaukee County and by about 620 workers in Ozaukee County. This figure for Ozaukee represents a growth of over 100% since 1960. Service industry employment will continue to grow at these rates through 1980.

One of the major long term training needs in District 9 will be for health and medical technicians. The demand for these workers will be sustained by an increasing number of people seeking medical services and the trend towards specialization in the medical field. Another factor supporting training needs in health occupations is that most workers in this field must be certified. Wisconsin State Employment Service data reveals a particular demand for general duty and practical nurses, medical technologists, dental hygienists and medical lab assistants.

Increased certification and licensing in other service industries such as electrical appliance repair and auto mechanics could generate additional training needs in these areas.

Over the past decade employment in the government sector grew by over 25,000 workers in the Milwaukee SMSA. This growth, mainly in local government is expected to continue at a more subdued rate in the 70's.

Employment growth can be expected at considerably less volume in some of the other industry groups. Finance, insurance and real estate employment should continue its steady upward trend in Milwaukee County, as should employment in transportation and utilities. Contract construction activity should expand in southern Ozaukee and southeastern Washington Counties due to the projected population growth in these areas.

The greatest short term occupational demand in District 9 is for clerical workers, which coincides with the estimate shown for the entire Milwaukee SMSA on page 7.28 . Another major training need is for technical workers, a fact which has been mentioned previously under the discussions of manufacturing and health services. The trend toward higher skill levels in industry is creating an increased demand for technical workers. Many tasks are being identified in which technicians can efficiently supplement or even replace professionals.

The present Nation-wide concern for conservation of the environment should create entirely new jobs. Although these jobs and their training requirements are presently undefined, it seems reasonable to speculate that there will be a need for technicians who can help monitor air, water, and noise pollution levels and can document results. Training these technicians may involve instruction in ecology and courses which explain the effects of pollution upon the health of humans, animals and vegetation. A few programs in environmental health have recently been created at several medical schools in the Country. With this commitment at the professional level, it is logical to assume that there will soon be a need for sub-professional training in the environmental health field.

Similar training needs may evolve for industrial safety technicians. The increase in government regulations covering manufacturing operations could generate a need for workers who can use noise, toxicity and radiation monitoring equipment. To be most effective these technicians should also have some knowledge of the relevant federal laws and regulations.

TABLE NO. 7.11 - EMPLOYMENT[1] TRENDS

MILWAUKEE COUNTY

	1962	1964	1965	1966	1967	1968	1969	1970
Employment	364,484	364,777	380,134	400,241	410,270	410,210	417,828	424,026
Agric., Forestry, Fisheries	414	405	440	491	501	537	527	517
Mining	67	46	51	49	44	47	85	59
Contract Construction	14,608	14,700	16,360	17,860	17,983	16,542	16,113	14,669
Manufacturing	176,584	172,025	177,212	187,721	187,306	183,058	182,038	180,263
Transportion & Utilities	21,337	20,858	20,781	19,524	20,905	21,034	21,615	24,732
Wholesale Trade	25,085	24,478	24,758	25,751	27,010	27,051	27,950	27,700
Retail Trade	58,226	59,653	62,607	66,807	70,513	70,471	73,417	74,629
Finance, Ins., & R. Estate	20,662	21,332	22,090	22,994	23,608	24,723	25,485	26,651
Services	46,987	51,034	55,578	58,721	61,988	66,330	70,285	74,279
Unclassified	514	246	257	323	412	417	313	527

Source: U.S. Bureau of the Census[109]

Note: 1. Mid-March employment as defined in County Business Patterns, U.S. Bureau of the Census

TABLE NO. 7.12 - EMPLOYMENT[1] TRENDS

OZAUKEE COUNTY

	1962	1964	1965	1966	1967	1968	1969	1970
Employment	8,135	9,712	10,565	11,210	12,110	12,742	13,180	14,032
Agric., Forestry, Fisheries	37	34	40	45	46	72	70	99
Mining	D	14	14	21	16	30	33	18
Contract Construction	355	423	509	484	476	540	590	622
Manufacturing	4,923	6,114	6,699	7,054	7,740	8,079	8,262	8,792
Transportation & Utilities	456	564	548	642	594	628	640	599
Wholesale Trade	148	195	209	269	294	270	261	268
Retail Trade	1,328	1,519	1,637	1,722	1,874	1,979	2,068	2,134
Finance, Ins., & R. Estate	286	198	212	213	237	256	283	289
Services	565	628	680	741	796	847	952	1,181
Unclassified	D	23	17	19	37	41	21	30

Source: U.S. Bureau of the Census[109]

Note: 1. Mid-March employment as defined in County Business Patterns, U.S. Bureau of the Census
D. Figures withheld to avoid disclosure of operations of individual reporting units.

TABLE NO.7.13 - EMPLOYMENT[1] TRENDS

WASHINGTON COUNTY

	1962	1964	1965	1966	1967	1968	1969	1970
Employment	10,363	11,601	12,748	14,365	14,988	15,797	16,754	17,514
Agric., Forestry, Fisheries	28	D	41	40	31	54	49	51
Mining	23	21	26	40	26	34	67	44
Contract Construction	458	482	514	675	572	645	655	581
Manufacturing	5,673	6,433	7,050	8,081	8,664	8,978	9,401	9,791
Transportation & Utilities	576	620	683	822	709	821	810	822
Wholesale Trade	242	285	289	277	326	345	301	325
Retail Trade	1,568	1,664	1,901	2,122	2,166	2,187	2,469	2,559
Finance, Ins., & R. Estate	382	407	442	433	439	405	366	557
Services	1,370	1,667	1,789	1,861	2,039	2,285	2,587	2,723
Unclassified	43	D	13	14	16	43	49	61

Source: U.S. Bureau of the Census[109]

Note: 1. Mid-March employment as defined in County Business Patterns, U.S. Bureau of the Census
D. Figures withheld to avoid disclosure of operations of individual reporting units.

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Summary

SUMMARY - VTAE DISTRICT 9

* The population growth rate of the Southeastern Wisconsin Region during the 60's was less than that of the Nation for the first time since 1900.

* All counties, with the exception of Milwaukee, however, grew at rates greater than the national average between 1960 and 1970.

* Regional population growth in the 70's will be less than it was in the last decade.

* Between 1960 and 1970 there was a net out-migration of about 21,000 people from the Southeastern Wisconsin Region.

* Population density has begun to be more evenly distributed in the Region. Major growth is occurring peripheral to areas of higher density. This "suburbanization" has been effected by problems encountered in high density areas, improved transportation facilities and the trend toward decentralization of business and industry.

* The current prominence of the population age group 5-17 will diminish in the next 15 years. The population aged 25 to 34 is forecast to show the most substantial gains through 1985.

* Minority racial groups represent about 7% of the regional population and are located mainly in the Cities of Milwaukee and Racine. In addition, approximately 23,500 Spanish-Americans live in the Region, with about 43% of this number located in the City of Milwaukee.

* Population projections for Milwaukee County show a slight decline from 1970 to 1975, then an increase through 1985, for an overall growth of about 25,000 people. Washington and Ozaukee County populations are forecast to increase by about 34,000 and 27,000 people respectively in this 15 year period.

* The greatest population growth rates in District 9 have occurred in southern and northwestern Milwaukee County, southern Ozaukee County and in the Germantown area of Washington County.

* Industry is tending to decentralize in the Region as land becomes too scarce or too expensive in the more urban areas, and it becomes more and more feasible to locate industry in suburban or even rural areas.

* A rapid transit system has been proposed for the Milwaukee Area. The plan, if implemented, would provide high speed bus service to most of Milwaukee County, parts of eastern Waukesha County, southern Ozaukee County and the Germantown area of Washington County.

* Generally, the annual number of high school graduates in the Region is projected to increase to 1980 then level off or decline somewhat to 1985.

* Total VTAE enrollments in Wisconsin are projected to increase by about 33% between 1971 and 1980 then decline through 1984. Vocational Diploma programs are projected to show the greatest enrollment increase during the 70's.

* VTAE enrollments in District 9 are projected to increase most substantially in the Associate Degree and Adult-Vocational program areas.

* Regional employment growth will be faster in the service producing industries than in the goods producing industries.

* Rising skill levels in industry will increase the demand for vocational-technical training in the Region.

* Clerical, professional, technical and service occupations will experience the greatest employment growth during the 70's.

* One of the major long term training needs in the Region and the Nation will be for health and medical technicians.

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86. Wisconsin Coordinating Council for Higher Education, Enrollment Planning Maximums for Wisconsin's Public Universities, Madison, Wisconsin, January 1969.

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METHODOLOGY - VTAE DISTRICT 9 ENROLLMENT PROJECTIONS

Fall Headcount

Historical enrollments in each program area were correlated with either the total number of public high school graduates from previous years or the population within an age group. No accurate population by age group data was available for the years 1961 thru 1969. These figures were determined by a straight-line interpolation between 1960 and 1970 census data. A graphical plot was produced of each set of historical correlations to reveal trends. These trends were used to project future correlations values, which were then applied to projected high school graduate or population by age group data to obtain projected enrollments in the various program areas.

Very limited historical data was available for District-wide fall headcount enrollments in the Adult-Vocational, Adult High School and Apprentice program areas. Milwaukee Campus enrollments, however, were available back to 1960 and were utilized to establish trends.

Program Area	Correlation Variable	Correlation Value Projections
Assoc. Degree	Public high school graduates previous four years.	Constant '70-'85.
Adult-Vocational	Population aged 18-44.	Constant '70-'85.
Adult High School	Population aged 18-44.	Constant '70-'85.
Apprentice	Public high school graduates previous two years.	Constant '70-'85.

Cumulative Headcount

Enrollments were projected using the same methodology as for fall headcount with the following exceptions: (1) The Adult High School correlation value was projected to increase to '75 then remain constant to '85. (2) A continued slight increase was projected for the Apprentice correlation value to '75, then held as a constant '75-'85.

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94. Wisconsin Coordinating Council for Higher Education, Statewide Estimates and Projections of College Transfer, Associate Degree, Vocational Diploma and Apprenticeship Enrollments Vocational-Technical-Adult Schools, Madison, Wisconsin, July 1969.

95. Wisconsin Coordinating Council for Higher Education, Ten-Year Academic Plan 1970-1980, Madison, Wisconsin, July 1969.

96. Wisconsin Coordinating Council for Higher Education, Wisconsin Collegiate Enrollments, Madison, Wisconsin, November 1970.

97. Wisconsin Coordinating Council for Higher Education, Wisconsin High School Graduates 1957-1966, Collegiate New Freshmen 1959-1966, and 1966 Wisconsin Students Enrolled in Vocational-Technical Schools as a First Post-High School Experience, Madison, Wisconsin.

98. Wisconsin Board of Vocational, Technical and Adult Education, Informational Materials, Madison, Wisconsin, March 1969.

99. Wisconsin Board of Vocational and Adult Education, Post-High School Vocational-Technical Education in Wisconsin, Madison, Wisconsin, August 1964.

100. Wisconsin Board of Vocational, Technical and Adult Education, Summary Enrollment Statistics 1949-50 - 1969-70, Madison, Wisconsin.

1970-71 CUMULATIVE HEADCOUNT ENROLLMENT BY PLACE OF RESIDENCE

VTAE DISTRICT 9

ZIP CODE/MCD	DAY	EVENING	TOTAL
53202 Milwaukee	421	711	1,132
53203 Milwaukee	19	16	35
53204 Milwaukee	522	694	1,216
53205 Milwaukee	452	278	730
53206 Milwaukee	1,264	1,081	2,345
53207 Milwaukee	931	1,591	2,522
53208 Milwaukee	822	1,153	1,975
53209 Milwaukee Brown Deer Glendale	731	1,272	2,003
53210 Milwaukee	473	603	1,076
53211 Milwaukee Shorewood	438	1,781	2,219
53212 Milwaukee	1,012	871	1,883
53213 Milwaukee Wauwatosa	293	297	790
53214 West Allis	841	1,562	2,403
53215 Milwaukee	756	1,416	2,172

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Occupational Demand

102. State of Wisconsin, Cooperative Area Manpower Planning System, Wisconsin Area Camps Plans Fiscal Year-71 Part A., Madison, Wisconsin 1970.

103. State of Wisconsin, Cooperative Area Manpower Planning System, Wisconsin Area Camps Plans Fiscal Year-71 Part B., Madison, Wisconsin 1970.

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105. State of Wisconsin, Department of Industry, Labor and Human Relations, Wisconsin Work Force, January 1971, Madison, Wisconsin, February 1971.

106. State of Wisconsin, Department of Industry, Labor and Human Relations, Wisconsin Work Force, February 1971, Madison, Wisconsin, March 1971.

107. State of Wisconsin, Department of Industry, Labor and Human Relations, Wisconsin Work Force, April 1971, Madison, Wisconsin, May 1971.

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109. U.S. Department of Commerce, Bureau of the Census, County Business Patterns, Wisconsin 1962 (also 1964 thru 1970), Washington D.C.

110. U.S. Department of Labor, Bureau of Labor Statistics, A Bibliography of Manpower Projections for the North Central Region, Chicago, Illinois, September 1968.

111. U.S. Department of Labor, Bureau of Labor Statistics, Characteristics of Workers in Large States and SMSA's-1970, Washington D.C., 1971.

ZIP CODE/MCD	DAY	EVENING	TOTAL
53228 Milwaukee West Allis Greenfield	103	215	318
53233 Milwaukee	308	397	705
53110 Cudahy	584	959	1,543
53129 Greendale	121	458	579
53130 Hales Corners	107	161	268
53132 Franklin	86	315	401
53154 Oak Creek	142	494	636
53172 South Milwaukee	680	868	1,548
53012 Cedarburg	127	433	560
53024 Grafton	87	357	444
53074 Port Washington	167	294	461
53080 Saukville	22	83	105
53092 Mequon Thiensville	119	428	547

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117. U.S. Department of Labor, Bureau of Labor Statistics, The Employment Situation: April 1971, Washington D.C., May 1971.

118. U.S. Department of Labor, Bureau of Labor Statistics, Major Programs 1970 Bureau of Labor Statistics, Washington D.C., 1970.

119. U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Statistics, 1960-67, Washington D.C., 1970.

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121. U.S. Department of Labor, Bureau of Labor Statistics, Technician Manpower 1966-80, Washington D.C., March 1970.

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123. U.S. Department of Labor, Bureau of Labor Statistics, Tomorrow's Manpower Needs, Volume II National Trends and Outlook: Industry Employment and Occupational Structure, Washington D.C., February 1969.

ZIP CODE/MCD	DAY	EVENING	TOTAL
53216 Milwaukee	453	685	1,138
53217 Whitefish Bay Fox Point Bayside	179	1,022	1,201
53218 Milwaukee	646	889	1,535
53219 West Allis	739	1,382	2,121
53220 Milwaukee Greenfield	272	797	1,069
53221 Milwaukee Greenfield	359	874	1,233
53222 Milwaukee Wauwatosa	367	503	870
53223 Milwaukee Brown Deer	179	638	817
53224 Milwaukee Brown Deer	56	110	166
53225 Milwaukee Wauwatosa	216	444	660
53226 Milwaukee Wauwatosa	194	293	487
53227 West Allis	440	887	1,327

124. U.S. Department of Labor, Bureau of Labor Statistics, Tomorrow's Manpower Needs, Volume III National Trends and Outlook: Occupational Employment, Washington D.C., February 1969.

125. U.S Department of Labor, Bureau of Labor Statistics, Tomorrow's Manpower Needs, Volume IV The National Industry-Occupational Matrix and Other Manpower Data, Washington D.C., February 1969.

126. U.S. Department of Labor, Bureau of Labor Statistics, Unemployment by Region and in Largest States, Washington D.C., 1970.

127. U.S. Department of Labor, Bureau of Labor Statistics, The U.S. Economy in 1980, A Summary of BLS Projections, Washington D.C., 1970.

128. U.S. Department of Labor, Bureau of Labor Statistics, The U.S. Labor Force: Projections to 1985, Washington D.C., 1970.

129. U.S. Department of Labor, U.S. Manpower in the 1970's Opportunity & Challenge, Washington D.C., 1970.

130. Wisconsin State Employment Service, Occupational Opportunities Information for Wisconsin, Madison, Wisconsin, December 1968.

131. Wisconsin State Employment Service, Occupational Opportunities Information for Wisconsin, Madison, Wisconsin, December 1970.

132. Wisconsin State Employment Service, Annual Manpower Planning Report, Milwaukee SMSA, Milwaukee, Wisconsin, December 1970.

133. Wisconsin State Employment Service, Annual Manpower Planning Report, Waukesha County Fiscal Year 1972, Waukesha, Wisconsin.

134. Wisconsin State Employment Service, Area Manpower Review, Milwaukee, Wisconsin, March 1971.

135. Wisconsin State Employment Service, Hard to Fill Occupations and Continuing Demand Occupations Within SBVTAE School Districts, Madison, Wisconsin, November 1968.

136. Wisconsin State Employment Service, labor force estimates for 1960 - 1970, Kenosha SMSA.

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ZIP CODE/MCD	DAY	EVENING	TOTAL
53005 Brookfield	88	78	166
53051 Menomonee Falls	75	104	179
53151 New Berlin	97	129	226
53166 Waukesha	79	72	151
53022 Germantown	20	24	44
Total Other Wisconsin Zip Codes	750	507	1,257
Out-of-State Zip Codes	21	35	56
Illinois Zip Codes	27	6	33

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139. Wisconsin State Employment Service, Manpower Report for The Milwaukee Area, Milwaukee, Wisconsin, May 1971.

140. Wisconsin State Employment Service, Manpower Report for The Waukesha Area, Waukesha, Wisconsin, January thru July 1970.

141. Wisconsin State Employment Service, Manpower Report for The Waukesha Area, Waukesha, Wisconsin, January thru July 1971.

142. Wisconsin State Employment Service, Milwaukee Adult Office, Past, Present & Future Employment by Industry and Occupation, Milwaukee, Wisconsin.

143. Wisconsin State Employment Service, Occupational Opportunities Information for Wisconsin, Madison, Wisconsin, March 1971.

144. Wisconsin State Employment Service, Summary of Project Vision, June 1970.

145. Wisconsin State Employment Service, Wisconsin Manpower Projections 1960-1968-1975, Madison, Wisconsin, April 1970.

TAILED OCCUPATIONAL PROJECTIONS 1968 - 1980
NITED STATES

Occupation	Vocational education codes[1]	Estimated employment, 1968	Projected requirements, 1980	Percent change 1968-80	Average annual openings, 1968–80		
					Total	Employment change	Replacement needs
Professional and technical occupations		10,325,000	15,500,000	50.1	777,000	431,000	346,000
Business administration and related professions:							
Accountants		500,000	720,000	43.4	33,000	19,000	14,000
Advertising workers	04.01	140,000	155,000	8.1	5,700	950	4,750
Marketing research workers	04.01	20,000	42,000	105.8	2,700	1,800	900
Personnel workers	14.06	110,000	155,000	42.9	6,900	3,900	3,000
Public relations workers		100,000	165,000	64.0	8,800	5,300	3,500
Clergymen:							
Protestant clergymen		244,000	295,000	20.1	11,000	4,100	6,900
Rabbis		6,000	7,100	20.1	300	100	200
Roman Catholic priests		62,000	75,000	20.1	2,800	1,000	1,800
Conservation occupations:							
Foresters		25,000	32,000	28.0	1,000	600	400
Forestry aides	16.0603	13,000	20,000	57.3	900	600	300
Range managers		4,000	5,200	30.0	200	100	100
Counseling occupations:							
Employment counselors		5,300	10,800	102.3	700	450	250
Rehabilitation counselors		12,000	21,000	72.6	1,050	700	350
School counselors		54,000	75,000	41.8	3,800	1,900	1,900
Engineers		1,100,000	1,500,000	40.2	73,400	36,000	[2]37,400
Aerospace		65,000	75,000	16.3	1,400	900	500
Agricultural		12,000	14,500	20.0	400	200	200
Ceramic		10,000	12,000	20.0	400	200	200
Chemical		50,000	67,000	25.8	1,600	1,100	500
Civil		180,000	270,000	48.9	11,500	7,400	4,100
Electrical		230,000	345,000	49.0	12,500	9,500	3,000
Industrial		120,000	185,000	56.5	7,200	5,500	1,700
Mechanical		215,000	275,000	27.6	8,600	5,200	3,400
Metallurgical		6,000	8,500	42.4	300	200	100
Mining		5,000	5,300	6.0	100	25	75
Health service occupations	07.000						
Physicians		295,000	450,000	53.1	20,000	13,000	7,000
Osteopathic physicians		12,000	18,500	54.2	800	500	300
Dentists		100,000	120,000	31.7	4,900	2,600	2,300
Dental hygienists	07.0102 16.0301	16,000	33,500	109.4	2,400	1,500	900
Dental laboratory technicians	07.0103	27,000	37,500	38.9	2,100	900	1,200
Registered nurses	07.0301 16.0305	660,000	1,000,000	51.5	65,000	28,000	37,000
Optometrists		17,000	21,000	23.5	800	300	500
Pharmacists		121,000	130,000	7.0	4,400	700	3,700
Podiatrists		8,500	9,500	11.8	200	100	100
Chiropractors		16,000	19,000	18.8	900	250	650
Occupational therapists		7,000	19,000	171.4	1,500	1,000	500
Physical therapists		14,000	36,000	157.1	2,800	1,800	1,000
Speech pathologists and audiologists		18,000	33,000	83.3	2,300	1,300	1,000
Medical laboratory workers	07.02 16.0303	100,000	190,000	90.0	12,800	7,500	5,300
Radiological technologists	07.0501, 02, 03 16.0304	75,000	120,000	60.0	7,300	3,800	3,500
Medical record librarians		12,000	20,000	66.7	1,400	700	700
Dietitians		30,000	42,100	40.3	2,700	1,000	1,700
Hospital administrators		15,000	22,000	46.7	900	600	300
Sanitarians		10,000	14,000	41.0	600	300	300
Veterinarians		24,000	34,000	41.7	1,400	800	600
Mathematics and related occupations:							
Mathematicians		65,000	110,000	60.4	8,400	3,500	[3]4,900
Statisticians		23,000	33,000	45.9	1,000	900	700
Actuaries		4,000	6,700	59.5	300	200	100

Occupation	Vocational education codes[1]	Estimated employment, 1968	Projected requirements, 1980	Percent change 1968-80	Average annual openings, 1968–80		
					Total	Employment change	Replacement needs
Professional and technical occupations—Continued							
Natural science occupations:							
Environmental scientists:							
Geologists		22,800	27,100	18.9	800	400	400
Geophysicists		6,800	8,600	26.5	300	150	150
Meteorologists		4,000	5,500	34.1	200	100	100
Oceanographers		5,200	9,700	85.4	500	400	100
Life science occupations:							
Life scientists		170,000	240,000	41.1	15,200	5,800	[4]9,400
Biochemists		11,000	17,000	55.5	700	500	200
Physical scientists:							
Chemists		130,000	200,000	55.7	12,500	6,000	[4]6,800
Physicists		45,000	75,000	63.9	4,600	2,400	[4]2,200
Astronomers		1,400	1,900	35.7	100	50	50
Performing artists:							
Actors and actresses		14,000	19,500	32.4	900	400	500
Dancers		23,000	27,500	18.3	1,400	400	1,000
Musicians and music teachers		166,000	190,000	13.8	8,600	1,900	6,700
Singers and singing teachers		60,000	70,000	14.2	3,100	700	2,400
Social scientists:							
Anthropologists		3,000	4,100	36.4	200	100	100
Economists		31,000	48,000	54.6	2,200	1,400	800
Geographers		3,900	5,200	32.0	200	100	100
Historians		14,000	19,000	35.7	800	400	400
Political scientists		11,400	17,000	49.1	600	450	350
Sociologists		10,000	14,000	37.8	600	300	200
Teachers:							
College and university teachers		286,000	395,000	37.8	17,000	9,000	8,000
Kindergarten and elementary school teachers		1,230,000	1,270,000	3.3	99,000	3,300	[5]95,700
Secondary school teachers		940,000	1,085,000	13.6	101,000	11,000	[5]90,000
Technicians:							
Draftsmen	17.13	295,000	435,000	48.1	15,300	11,800	3,500
Engineering and science	16.01	620,000	800,000	43.2	31,000	22,000	9,000
Writing occupations:							
Newspaper reporters		37,000	45,000	21.6	1,800	650	1,150
Technical writers		30,000	35,000	29.2	1,300	700	600
Other professional and related occupations:							
Airline dispatchers		1,200	1,600	33.3	50	25	25
Air traffic controllers	17.0403	14,600	18,000	23.5	425	225	200
Architects		34,000	50,000	47.1	2,300	1,300	1,000
Broadcast technicians	16.0108	20,000	23,000	14.9	400	250	150
College placement officers		2,500	4,000	60.0	200	125	75
Commercial artists	17.07 17.19	50,000	57,000	13.0	1,900	500	1,400
Flight engineers	17.0402	7,500	12,000	59.3	225	125	100
Ground radio operators and teletypists		8,200	10,000	21.6	225	125	100
Home economists		100,000	130,000	30.0	7,800	2,500	5,300
Industrial designers	17.0703	10,000	11,500	15.0	300	100	200
Interior designers and decorators	17.0701 .0702	15,000	17,300	15.0	700	200	500

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Appendix

Occupation	Vocational education codes[1]	Estimated employment, 1968	Projected requirements, 1980	Percent change 1968-80	Average annual openings, 1968–80		
					Total	Employment change	Replacement needs
Professional and technical occupations—Continued							
Landscape architects		8,500	11,500	35.3	500	250	250
Lawyers		270,000	335,000	22.7	14,500	5,500	9,000
Librarians		106,000	135,000	28.6	8,200	2,500	5,700
Meteorologists		50,000	64,000	15.9	1,700	700	1,000
Photographers		60,000	72,000	18.0	2,200	900	1,300
Other professional and technical occupations—Continued							
Pilots and copilots	16.0601	52,000	114,000	116.9	1,800	1,100	700
Programmers	16.0401						
	14.0203	175,000	400,000	129.0	23,000	19,000	4,000
Psychologists		32,000	58,000	81.3	3,100	2,200	900
Radio and television announcers		14,000	16,000	14.9	600	200	400
Recreation workers		40,000	70,000	75.0	4,100	2,500	1,600
Social workers		160,000	270,000	68.7	16,700	9,000	7,700
Surveyors		45,000	68,000	50.2	2,600	1,900	700
Systems analysts	14.0204	150,000	425,000	183.0	27,000	23,000	4,000
Urban planners		7,000	13,500	93.0	800	600	200
Managerial occupations		7,776,000	9,500,000	22.2	330,000	144,000	236,000
Bank officers		125,000	193,000	53.8	9,900	5,600	4,300
Conductors (railroad)		38,000	39,000	2.7	2,500	1,000	1,500
Industrial traffic managers		15,000	17,000	10.4	500	150	350
Managers and assistants (hotels)	04.10	150,000	198,000	27.6	9,500	3,600	5,900
Purchasing agents	04.99	140,000	185,000	27.2	6,700	3,300	3,400
Clerical and related occupations		12,803,000	17,300,000	35.1	912,000	375,000	537,000
Bank clerks		400,000	512,000	28.8	29,500	9,500	20,000
Bank tellers	04.04, 14.0105	230,000	337,000	46.2	20,000	8,000	12,000
Bookkeeping workers	14.0102, 14.0104	1,200,000	1,500,000	18.9	78,000	20,000	58,000
Cashiers	04.08, 14.0103	730,000	1,110,000	50.6	69,000	31,000	38,000
Clerks (railroad)		93,000	89,000	-4.8	2,700	-400	3,100
Dental assistants	07.0101	100,000	150,000	50.0	9,000	4,400	4,600
Electronic computer operating personnel	14.0201, .0202, 02.0201	175,000	400,000	129.0	20,400	18,800	1,600
Front office clerks (hotels)	04.10	50,000	69,000	27.6	3,200	1,250	1,950
Library technicians		70,000	125,000	77.1	9,000	4,500	4,500
Mail carriers	14.0403	245,000	335,000	36.2	12,200	7,400	4,800
Office machine operators	0301.0404	325,000	460,000	39.4	25,000	10,000	15,000
Postal clerks	14.0403	290,000	385,000	32.8	14,600	7,900	6,700
Receptionists	14.0405	240,000	400,000	65.6	30,000	13,000	17,000
Shipping and receiving clerks	14.0503	370,000	437,000	18.1	12,400	5,400	7,000
Station agents (railroad)		10,900	5,200	-52.1	-225	-475	250
Stenographers and secretaries	14.07	2,650,000	3,650,000	36.8	237,000	82,000	155,000
Telegraphers, telephoners, and towermen (railroad)		13,200	12,700	-3.8	100	-50	150
Telephone operators	14.0401	400,000	480,000	20.9	28,000	6,900	21,100
Traffic agents and clerks (civil aviation)		37,500	60,000	60.1	2,600	1,500	1,100
Typists	14.09	700,000	930,000	36.8	63,000	21,000	42,000
Sales occupations		4,647,000	6,000,000	29.1	263,000	113,000	150,000
Insurance agents and brokers	04.13	410,000	480,000	16.9	16,200	5,800	10,400
Manufacturers' salesmen		500,000	735,000	47.1	32,000	19,500	12,500

Occupation	Vocational education codes[1]	Estimated employment, 1968	Projected requirements, 1980	Percent change 1968-80	Average annual openings, 1968–80		
					Total	Employment change	Replacement needs
Sales occupations—Continued							
Real estate salesmen and brokers	04.17	225,000	270,000	20.1	14,200	3,800	10,400
Retail trade salesworkers		2,800,000	3,460,000	24.0	150,000	55,000	95,000
Automobile parts countermen	04.03	65,000	80,000	23.1	2,500	1,250	1,250
Automobile salesmen	04.03	120,000	145,000	20.8	4,400	2,100	2,300
Automobile service advisors	04.03	10,000	12,500	25.0	300	200	100
Securities salesmen	04.04	135,000	170,000	24.0	7,400	2,800	4,600
Wholesale trade salesworkers		530,000	695,000	29.5	25,200	13,200	12,000
Craftsmen		10,015,000	12,200,000	21.8	396,000	182,000	214,000
Building trades:							
Asbestos and insulating workers		22,000	28,000	27.3	800	500	300
Bricklayers	17.1004	200,000	260,000	30.0	8,400	5,000	3,400
Carpenters	17.1001	869,000	1,075,000	23.7	39,300	17,200	22,100
Cement masons (cement and concrete finishers)	17.1099	60,000	90,000	50.0	3,600	2,500	1,100
Electricians (construction)	17.1002	190,000	270,000	42.1	10,500	6,700	3,800
Elevator constructors	17.1099	14,500	18,000	24.1	500	300	200
Floor covering installers	17.1099	37,000	47,000	27.0	1,700	800	900
Glaziers	17.1009	9,000	13,000	44.4	500	350	150
Lathers	17.1006	30,000	38,000	26.7	1,250	650	600
Operating engineers (construction machinery operators)	17.100302	285,000	410,000	43.9	14,800	10,400	4,400
Painters and paperhangers	17.1005	430,000	510,000	18.6	18,200	6,700	11,500
Plasterers	17.1006	40,000	40,000	0.0	700		700
Plumbers and pipefitters	17.1007	330,000	475,000	43.9	19,500	12,100	7,400
Roofers	17.1010	55,000	80,000	45.5	3,000	2,100	900
Sheet-metal workers	17.2205	50,000	70,000	40.0	2,500	1,700	800
Stonemasons, marble setters, tile setters, and terrazzo workers	17.1004	30,000	35,000	16.7	850	350	500
Structural-, ornamental-, and reinforcing-iron workers; riggers; and machine movers	17.1099	75,000	105,000	40.0	3,900	2,500	1,400
Machine occupations:							
All-round machinists (includes layout men, instrument makers—mechanical)	17.2302, .2303	400,000	450,000	12.5	12,600	4,200	8,400
Setup men (machine tools)	17.2302, .2303	70,000	85,000	26.9	2,500	1,500	1,100
Tool and die makers	17.2307	150,000	160,000	6.7	3,700	800	2,900
Mechanics and repairmen:							
Air-conditioning, refrigeration, and heating mechanics	17.01	100,000	140,000	40.0	5,000	3,300	1,700
Aircraft mechanics	17.0401	135,000	230,000	70.4	9,700	7,900	1,800
Appliance servicemen	17.02	205,000	260,000	26.8	8,600	4,600	4,000
Automobile body repairmen	17.0301	100,000	125,000	25.0	3,500	2,100	1,400
Automobile mechanics	17.0302, .0303, 17.12	615,000	745,000	21.1	20,000	11,300	8,750
Bowling-pin machine mechanics		6,500	6,000	-7.7	50	-50	100
Business machine servicemen	17.06	115,000	200,000	73.9	8,500	7,100	1,400

METHODOLOGY - POPULATION PROJECTIONS BY WISCONSIN DEPARTMENT OF HEALTH AND SOCIAL SERVICES

The projection model developed for this effort is based on two considerations:

1. The requirement that age-sex-county distributions be made for each projection year.
2. The chastening experience of having made and published projections and of comparing those projections for 1970 with the Census of Population for 1970.

The former dictated that a version of the Cohort Survival Method be used, the latter indicated what changes and refinements in the model needed to be made.

The Cohort Survival Method begins with an observed population distribution (here 1970 Census Population) and moves that population through time and age in step-wise fashion (here five-year steps), applying at each step the three variables which effect population change, in accordance with explicit assumptions about the behavior of those variables. After discussing the lessons of our 1969 efforts, the three variables--Fertility, Mortality, and Net Migration--and the assumptions which account for their behavior in this model will be discussed. The procedures followed in the operation of the model are then discussed, and the cautions about interpretations of the projections will conclude this section. The mathematical formulations are gathered in a technical appendix for those who wish to delve into that thicket.

A comparison of the earlier projection to 1970 with the 1970 Census (as thus far available) reveals three sources of error:

1. Constraining the projected State total to the U.S. Bureau of the Census state projection caused our projection to be biased low.
2. Constraining the projected County totals to previously prepared county total projections had the effect of oversimplifying the model.

Occupation	Vocational education codes[1]	Estimated employment, 1968	Projected requirements, 1980	Percent change 1968-80	Average annual openings, 1968-80		
					Total	Employment change	Replacement needs
Craftsmen—Continued							
Electric sign servicemen		6,100	8,200	34.4	300	200	100
Farm equipment mechanics		40,000	45,000	12.5	1,100	400	700
Industrial machinery repairmen		175,000	220,000	25.7	7,550	3,750	3,800
Instrument repairmen	17.21, .2101	85,000	120,000	41.2	4,600	2,900	1,700
Maintenance electricians	17.1002, 17.14	240,000	315,000	31.3	10,800	6,300	4,500
Millwrights	17.1099	75,000	85,000	13.3	2,400	900	1,500
Television and radio service technicians		125,000	145,000	16.0	3,000	1,700	1,300
Truck mechanics and bus mechanics		110,000	130,000	18.2	2,900	1,400	1,500
Vending machine mechanics		16,000	20,000	25.0	650	350	300
Watch repairmen	17.2102	20,000	21,000	5.0	1,400	800	600
Printing (graphic arts) occupations:							
Bookbinders and related workers		30,000	25,000	-16.7	400	-400	800
Composing room occupations		190,000	180,000	-5.3	3,200	-800	4,000
Electrotypers and stereotypers		8,000	6,000	-25.0	-25	-175	150
Lithographic occupations		73,000	80,000	9.6	1,800	600	1,200
Photoengravers		18,000	18,000	0.0	300	0	300
Printing pressmen and assistants		90,000	105,000	16.7	2,850	1,250	1,600
Telephone industry occupations:							
Central office craftsmen	17.1501	80,000	92,000	15.8	2,700	1,000	1,700
Central office equipment installers	17.1501	22,000	22,000	0.0	400	0	400
Linemen and cable splicers	17.1402	40,000	39,000	6.8	600	200	400
Telephone and PBX installers and repairmen		86,000	100,000	16.9	3,000	1,200	1,800
Other crafts occupations:							
Automobile trimmers and installation men (automobile upholsterers)	17.35	8,000	10,000	25.0	350	175	175
Blacksmiths	17.2399	15,000	14,000	-6.7	500	-100	600
Boilermaking occupations	17.1099	25,000	30,000	20.0	1,000	400	600
Dispensing opticians and optical mechanics	7.0501	22,000	23,000	4.5	500	100	400
Foremen		1,444,000	1,730,000	19.8	56,200	24,000	32,200
Furniture upholsterers	17.35	32,000	33,000	3.1	800	100	700
Jewelers and jewelry repairmen		25,000	25,000	0.0	200	0	200
Locomotive engineers		35,000	33,000	-5.7	1,350	-150	1,500
Locomotive firemen (helpers)		19,000	14,100	-25.8	-200	-400	200
Motion picture projectionists		16,000	18,000	12.5	750	150	600
Shoe repairmen	17.3402	30,000	30,000	0.0	1,500	0	1,500
Shop trades (railroad)		87,000	85,000	-2.3	2,250	-150	2,400
Stationary engineers	17.32	260,000	275,000	5.8	7,050	1,250	5,800
Operatives		13,955,000	15,400,000	10.4	426,000	120,000	306,000
Driving occupations							
Busdrivers, intercity	04.19	24,000	28,000	17.5	900	350	550
Busdrivers, local transit	04.19	65,000	56,000	-13.9	500	-800	1,300
Routemen	04.06	235,000	250,000	5.1	3,800	1,000	2,800
Taxidrivers	04.19	85,000	75,000	-10.7	1,900	-700	1,900
Truckdrivers, local		1,200,000	1,450,000	21.9	37,000	21,500	15,500
Truckdrivers, over-the-road		640,000	800,000	24.7	21,600	13,200	8,400
Operatives—Continued							
Other operative occupations							
Assemblers		785,000	850,000	8.4	26,000	5,500	20,500
Automobile painters		30,000	35,000	25.0	1,200	600	600
Brakemen (railroad)		74,000	70,000	-5.2	1,000	-300	1,300
Electroplaters		13,000	15,700	20.8	600	200	400
Gasoline service station attendants	04.16	400,000	475,000	15.9	10,900	6,200	4,700
Inspectors (manufacturing)		585,000	635,000	8.5	19,200	4,200	15,000
Machine tool operators	17.2302 .2303	500,000	520,000	4.0	10,500	1,700	8,800
Meat cutters		200,000	200,000	2.6	4,500	400	4,100
Photographic laboratory occupations	17.0901	30,000	39,000	29.9	1,600	750	850
Power truck operators		163,000	183,000	12.2	4,100	1,500	2,600
Production painters		160,000	170,000	6.5	4,000	1,100	2,900
Signal department workers (railroad)		12,100	11,600	-4.3	-450	-550	100
Stationary firemen (boiler)		73,000	58,000	-20.6	-600	-1,300	700
Waste water treatment plant operators	17.3203	23,500	40,000	68.9	2,500	1,400	1,100
Welders and oxygen and arc cutters	17.2306	460,000	675,000	46.6	23,000	16,000	7,000
Laborers nonfarm		3,555,000	3,500,000	-1.5	60,000	-4,000	64,000
Bridge and building workers (railroad)		11,200	10,900	-2.7	275	-25	300
Track workers (railroad)		57,000	55,000	-3.7	1,300	-200	1,500
Construction laborers and hod carriers		750,000	925,000	23.3	29,000	15,000	14,000
Service occupations		9,381,000	13,100,000	39.6	752,000	310,000	442,000
Barbers	17.2601	210,000	260,000	23.8	12,800	4,200	8,600
Bellmen and bell captains (hotels)	04.10	30,000	32,000	10.6	1,100	300	800
Building custodians	17.11	1,100,000	1,460,000	32.7	80,000	30,000	50,000
Cooks and chefs		670,000	900,000	33.2	48,000	19,000	29,000
Cosmetologists	17.2602	475,000	685,000	42.9	38,000	17,000	21,000
FBI special agents		6,600	...	...	...	...	...
Firefighters	17.2601	180,000	245,000	34.0	7,700	5,200	2,500
Licensed practical nurses	7.0302	320,000	600,000	87.5	48,000	23,000	25,000
Hospital attendants	7.0303, 04	800,000	1,500,000	87.5	100,000	58,000	42,000
Housekeepers and assistants (hotels)	04.10	25,000	35,000	27.6	2,400	600	1,800
Police officers (municipal)	16.0605	285,000	360,000	27.5	15,000	6,500	8,500
Private household workers		1,700,000	1,920,000	14.8	121,000	21,000	100,000
State police officers	16.0605	35,000	52,000	47.7	2,800	1,700	1,100
Stewardesses (civil aviation)	04.19	25,000	65,000	150.7	...	...	...
Waiters and waitresses	04.07 17.2904	960,000	1,240,000	28.3	67,000	23,000	44,000
Farm workers		3,464,000	2,600,000	-33.0	25,000	...	25,000

[1] Vocational Education Codes are from *Vocational Education and Occupations*, U.S. Department of Health, Education, and Welfare, Offices of Education and U.S. Department of Labor Manpower Administration, U.S. Government Printing Office, 1968.

[2] Includes an estimated 20,400 replacements for those who transfer to other occupations. Replacements for the selected branches of engineering do not include transfer losses.

[3] Includes an estimated 3,800 replacements for those who transfer to other occupations.

[4] Includes an estimated 9,300 replacements for those who transfer to other occupations.

[5] Includes an estimated 3,700 replacements for those who transfer to other occupations.

[6] Includes an estimated 1,400 replacements for those who transfer to other occupations.

[7] Includes annual replacements of 53,000 who die and retire, 38,000 who shift to another profession, and 4,700 who take the place of sub-standard teachers.

[8] Includes annual replacements of 23,000 who die and retire, 58,000 who shift to another profession, and 2,600 who take the place of sub-standard teachers.

NOTE: Percents may not agree with totals because of rounding.

3. The Mortality and Fertility assumptions both turned out to be too high and thus had the effect of distorting the age distribution. With too many births and too many deaths we projected relatively too many young and too few old.

In the light of this experience, we decided:

1. Not to constrain the projections to any prior State total or County total projection.
2. To adjust downward our mortality schedule and fertility assumption.

In addition the model was programmed for computer operation in order that the dynamics might be examined more explicitly and the effects of changes in assumptions evaluated. This projection model operates under the following assumptions:

1. The errors in the data series used are small, consistent over time, and of small consequence. The data series involved are the age-sex-county distributions of the 1960 and 1970 Census of Population, the birth and death registration systems, and the enrollments of state universities. (The 1970 Census reports available when this work was done did not include age groups by five-year disaggregations. These were estimated from the 1960 data.)
2. With regard to Mortality, it is assumed that no significant changes in the latest observed age-sex specific mortality rates will occur during the projection period. This is consistent with recent experience and applies both to deaths postponed by medical breakthroughs on the one hand, and to catastrophic events or epidemics on the other. Note that no mortality differentials by county are assumed.

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MAXWELL, DAVID KENT
INDUSTRIAL TRAINING PROGRAMS OPEN TO INDUSTRIAL EDUCATION TEACHERS.

MF AVAILABLE IN VT-ERIC SET.
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DESCRIPTORS - *INDUSTRIAL EDUCATION; MASTERS THESES; *INDUSTRIAL TRAINING; *INSERVICE EDUCATION; *SCHOOL INDUSTRY RELATIONSHIP; *COMMUNITY SURVEYS; ELECTRONICS; METALS; POWER MECHANICS; TEACHER EDUCATION

ABSTRACT - THE PURPOSE OF THIS STUDY WAS TO DEVELOP A SOURCE OF INFORMATION ABOUT INDUSTRIAL TRAINING PROGRAMS AVAILABLE TO INDUSTRIAL EDUCATION PERSONNEL. THUS, A SURVEY OF 372 ORGANIZATIONS RESULTED IN 45 BUSINESSES REPORTING THAT THEY COULD PROVIDE TRAINING. THE RETURNED QUESTIONNAIRES WERE ALSO USED TO WRITE UP BRIEF COURSE DESCRIPTIONS EXPLAINING THE NATURE OF FIVE TYPES OF COURSES. THESE COURSES WERE ELECTRONICS, METAL TECHNOLOGY, POWER MECHANICS, WOOD TECHNOLOGY, AND PROGRAMS OFFERING COMBINATIONS OF ELECTRONICS, METAL TECHNOLOGY, AND POWER MECHANICS. BENEFITS OBTAINED FROM THE COMPLIATION OF THIS DATA INCLUDED THE FOLLOWING: (1) TEACHERS WERE PROVIDED WITH DESCRIPTIVE INFORMATION ABOUT COURSES IN WHICH THEY COULD ENROLL, (2) THIS LIST OF COURSES WAS MORE EXTENSIVE THAN MOST TEACHERS WOULD HAVE TIME OR FUNDS TO SEEK OUT FOR THEIR OWN USE, (3) THIS COVERAGE OF AVAILABLE TRAINING PROGRAMS GAVE TEACHERS THE OPPORTUNITY TO SELECT THE PROGRAM THAT BEST SUITED THEIR NEEDS, (4) LOW-COST TRAINING OPPORTUNITIES WERE SHOWN TO BE AVAILABLE AT NUMEROUS LOCATIONS, (5) THE DATA INDICATED THE DESIRE OF INDUSTRY TO ASSIST IN THE IMPROVEMENT OF INSTRUCTION, AND (6) THE LISTING OF NAMES AND ADDRESSES PROVIDED AN OPPORTUNITY FOR THE READER TO COMMUNICATE WITH ORGANIZATIONS HAVING TRAINING PROGRAMS. (AUTHOR/JS)

3. With respect to Fertility, our experience and assumptions are more complex.

   a. The fertility rates of the several counties differ substantially, therefore county specific rates are used.

   b. Fertility rates have been declining in a long historical sweep for 150 years or more, except for the singular explosion after World War II extending from 1946 to 1960. In the 1960's the decline resumed and was quite precipitous. This model assumes a continued decline in fertility on a more gentle slope toward a net reproduction rate of one in the year 2010. (A net reproduction rate of one means that each cohort of women bears exactly enough children so that its daughters replace their mothers.)

A brief reminder of the relationship of fertility rates to the number of births is in order. The former are only one of the two variables which determine the latter. The other is the number of women of childbearing age. We have entered a period in which the childbearing population is so large, compared to five or ten years ago, that birth rates are likely to increase even while fertility rates continue to decline. The childbearing population in 1985 is already with us. Applying different fertility rates to that population will illustrate the respective roles of the fertility rates and of the population base in producing the live birth yield. The 1960 population of women produced 99,493 live births. If the 1985 population experienced the fertility rates of 1960, they would produce 184,000. The 1970 population bore 77,455 infants in 1970. If their 1985 counterparts bore at those rates they would produce 130,000. This projection model assumes further declines in fertility rates.

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INDUSTRIAL TRAINING PROGRAMS OPEN TO INDUSTRIAL EDUCATION TEACHERS

by

David Kent Maxwell

A Field Study Submitted to the
Graduate Faculty in Partial Fulfillment of
The Requirements for the Degree of
MASTER OF EDUCATION

Major Subject: Industrial Education

Approved:

Lowell L. Caneer
In Charge of Major Work

Lowell L. Caneer
Head of Major Department

J.B. Pace
Dean of Graduate College

Iowa State University
Of Science and Technology
Ames, Iowa

1969

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Yet even at these substantially lower rates, the women in 1985 are projected to have nearly 110,000 births.

Migration is the most enigmatic of the population variables. We have no registration of migrants and the periodic Censuses gives us only dim intimations of the flows of immigration. Furthermore, whereas all births increase the population and all deaths deplete it, migration is a dual flow, immigrants augmenting the population and out migrants diminishing it. One of the ways demographers attempt to grasp this nettle is to compare the observed population in a census year with the population which would have been enumerated in the absence of migration. The difference between the observed and the expected populations is called net migrants (the excess of one flow over the other).

4. Because migration is highly age and sex specific and differentials by county are large, rates are computed for each age-sex-county cell.
5. The migration assumption which informs these projections is that these specific rates will persist through the projection period.

PROCEDURE

1. The computer reads in the 1970 expected population and the 1970 Census Population, each sex, by five year age groups, by county. From these arrays the intercensal migration and rates are computed.
2. A schedule of mortality rates is then read in; base period fertility data is read and fertility rates computed.
3. These three arrays of rates are then applied successively to the 1970 Census Population to produce a 1975 projection, to the projected 1975 population for 1980, to the 1980 projection for 1985, and to the 1985 projection for 1990.

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4. The computer finally aggregates the county projections into the age groups to be published and independently rounds all cells. (Independent rounding means that totals are rounded after summing unrounded numbers and may not equal the sum of the rounded cells.)

5. The output of the computer program is a deck of punched cards which can be used to prepare tables with appropriate titles and labels in camera-ready form.

EXCEPTIONAL TREATMENT

Because of absence of data or because of aberrations in the data, certain counties received exceptional treatment.

1. Menominee County was created in 1961 from the Reservation parts of Shawano and Oconto Counties. The 1960 Census data had to be adjusted in these three counties.

2. Sauk County was undercounted in 1960 when a part of the City of Baraboo was not processed. The age-sex distribution for these people not being available, it was estimated from the Baraboo reported distribution and added into the Sauk County data. This was necessary to avoid the appearance of spurious in migration. The adjustment may distort the age distribution and migration rates for Sauk County to some extent.

3. The State University counties presented special problems. The State Universities experienced great increases in enrollment between 1960 and 1970. The expected 1970 population was computed from the 1960 Census of Population. The enrollment increase was therefore not included in the State University counties. This was not a problem for the current students who appeared to the model as in migrants. But after graduation they should become

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out migrants. Because the 1960 Census showed much lower enrollment levels and the graduated students don't appear in the 1970 Expected Population, they do not out migrate. In fact they persist through the projection steps to become 40-49 year olds in 1990. Moreover the female students augmented the childbearing population and thus increased the birth yields of these counties. This cluster of anomalies was dealt with as follows;

a. The differences between the 1960 and 1970 enrollments by sex by campus were computed.

b. The sum of these increases was then removed from all 72 counties proportionally to the size of their population in these age groups.

c. The differences were then added to the expected population of the State University counties.

d. The large graduate enrollment on the Madison and Milwaukee campuses necessitated a similar adjustment in the next older age group.

The effect of these adjustments is a much more realistic movement of students into and subsequently out of the populations of the State University counties.

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METHODOLOGY - POPULATION DENSITY

Minor Civil Divisions

Areas used in the calculation of MCD population densities were obtained from SEWRPC's Planning Guide #5, Floodland and Shoreland Development Guide, published in January 1969. These areas were valid in January 1967.

Census Tracts

Areas used in the calculation of census tract population densities were not readily available from any one source at the time this report was compiled. It was necessary, therefore, to measure individual tracts and calculate the area of each. This task was accomplished by an automated area analysis of 1970 census tract maps using a digitizer and an IBM 1130 computer. Due to the small scale of the maps used, the resultant tract areas are merely good approximations of the actual.

METHODOLOGY - HIGH SCHOOL GRADUATES PROJECTIONS

Public High School Graduates

Projections were compiled from questionnaires sent to the administrator of each high school district. Response to the survey was very good although some administrators were unable to provide projections through 1985. Missing projections were interpolated from those that were available. This was accomplished by calculating the percent change of the total available projections for each year, and applying these rates of change to all incomplete district projections.

Private and Total High School Graduates

Historical ratios of public to total high school graduates were graphed and analyzed. It appeared that the recent trend towards an increased proportion of public school graduates had reached its peak in 1969. Therefore the ratio of public to total graduates was assumed to remain at the 1970 level through 1985. This constant ratio was applied to projected public graduate figures in order to obtain total graduates in each year. Private high school graduates, then, were represented by the difference between public and total graduate figures.

INTRODUCTION

Many industrial groups conduct educational programs in which industrial education personnel are permitted to participate. Each year American industries provide opportunities for teachers to participate in workshops, service school courses, clinics, factory mobile training, and other instructional programs. One important objective of these programs has been to upgrade the teacher's knowledge of his subject matter area.

This work with teachers seems to be a good investment according to Len Boschke, Service School Manager at Evinrude Motors. They know that they can improve the skills of a number of teachers, and these teachers can extend the benefits of this training to a large number of students. In this way Evinrude hopes to effectively improve the learning opportunities available to the young men who will eventually be selected as outboard motor mechanics.

The Problem

The most serious problem or limitation of the industrial training programs available to industrial education teachers is that teachers have not been able to learn of these opportunities for instruction. In some instances industrial course offerings have been announced in professional magazines and newsletters, but many of the courses are not announced in

publications read by teachers. Course information has not been directed toward teachers because the courses frequently have been organized to serve the needs of other groups, and enrollment of teachers has been possible only as a special privilege. This research was directed toward development of a comprehensive source of information about training programs available to industrial education personnel.

Purposes and Objectives of the Study

The purposes of this study were to provide a listing of industrial courses in which industrial education teachers may enroll and to organize information about the courses in such a manner that the listing would be useful to a person interested in learning about specific types of courses.

The following objectives served as guidelines in the study:

1. To identify those industrial training programs in which industrial education teachers may participate.
2. To obtain basic information about these programs.
3. To make the listing as inclusive as possible.
4. To organize the information obtained about the various programs according to characteristics of the work offered.
5. To present the information in such a way as to make this research paper a valuable reference for persons seeking information about a given training program.

Scope of the Investigation

The scope of this investigation was limited to locating and presenting information about industrial training programs that are available and that can provide training for teachers. No effort was made to evaluate or compare the merits of these courses.

Course listings were restricted to those that may be utilized by teachers of industrial education. More specifically, information was sought concerning courses in the following areas: power mechanics, wood technology, metal technology (including welding and foundry), and electronics. Only courses offered in the United States were considered, and courses offered through trade schools were considered only in cases where special provisions (reduced tuition, special instruction, teaching materials, or special services) were made for industrial education teachers.

Emphasis was placed on locating all available programs covering material pertaining to any of the four selected subject areas. No assurance can be given that excellent programs were not overlooked.

REVIEW OF LITERATURE

The review of literature revealed only one research paper that contained information directly related to this study. The 1965-1966 issue of Master's Theses in Education contained information about a Master of Arts thesis written by Charles Oxe (8).

The thesis by Oxe was confined to training programs pertinent to automechanics. Eighty-one organizations were represented in the study, and some industries were shown to offer courses in many areas of automechanics. Topics covered in the courses included ignition systems, brakes, engine overhaul, fuel systems, transmissions, differentials, air conditioning, exhaust systems, wheel balancing and alignment, lubrication, and body and fender work. Oxe completed his study in 1966, and this researcher did not discover any additional automechanics training programs which have become available since that time.

A discussion with Dr. Howe, Associate Professor in Education, revealed that several training programs had been reported in a study recently conducted to learn the status of vocational teachers. A list of the programs named was made available for this research and later provided a part of the mailing list in this study.

PROCEDURE

After the review of literature, the direction of this research project was re-examined because the thesis by Oxe (8) was devoted to discussion of a large number of training programs that were originally expected to comprise an important part of this study. It was observed that no small engines courses were covered in the study by Oxe and that no mention was made of training programs in electronics, metal technology, or wood technology. The decision was made to continue this study and concentrate on coverage of training programs not included in the study by Oxe. Evidence at this point indicated that this research would be quite extensive because, even after excluding training programs in auto-mechanics, a mailing list consisting of 372 organizations had been accumulated.

Mailing List

The questionnaire method was selected for securing data for this study. The main factor that led to this choice was that no other method of communication was economically feasible for contacting the 372 organizations located in diverse locations in the United States.

Assembly of the mailing list involved drawing together information obtained from many sources. A recipe file was used to assist in the arrangement of names and addresses of

organizations selected for consideration in the study. The name and address of each organization was listed on a 3 x 5 card, and these cards, hereafter referred to as address cards, were filed alphabetically by organization name. The entire collection of address cards formed the mailing list.

One technique used in selecting organizations for the mailing list was to discuss this project with individuals likely to have had contact with industrial training programs. They were asked to name any training programs with which they were familiar and suggest methods for locating others. (See Appendix A). Several organization names were added to the mailing list as the result of these discussions.

All of the manufacturers listed in Small Engines Service Manual (11), Chain Saw Service Manual (3), and Outboard Motor Service Manual (9) were included in the mailing list because five of these manufacturers were known to have permitted teachers to participate in service courses.

The ASTD (American Society for Training and Development) Membership Directory (1) and Thomas Register of American Manufacturers (12) were used in combination to select other organizations. First the ASTD Membership Directory was used to identify individuals who might be involved in work pertaining to power mechanics, metal technology, electronics, and/or wood technology. Because of their membership in ASTD these individuals were known to be involved in some type of

instructional work. The organizations employing these ASTD members were then checked individually in the Thomas Register to determine if they were involved in work directly related to power mechanics, metal technology, electronics, or wood technology. If so, the organization name was added to the mailing list.

School Shop, American Vocational Journal, and Industrial Arts and Vocational Education magazines (January 1964 through June 1968) were scanned. Organizations announcing or reporting training programs in these magazines were included in the mailing list.

Airlines were included in the mailing list because the ASTD Membership Directory listed names of instructors of aviation mechanics. Some airlines were known to have provided training for vocational teachers (as indicated in the study of the status of vocational teachers).

Collection of Data

Data was collected by the mailing of two letters and questionnaires. The first letter was sent to all organizations included in the mailing list. The second letter went only to those organizations which replied to the first letter indicating that they had a training program and that they would be pleased to participate in the study.

The first letter was a letter of introduction and inquiry. (See Appendix B). It was sent to the Director

of Public Relations for the organization being contacted. It explained the nature of the study and requested information about the training program conducted by the organization. A self-addressed postal card accompanied the letter (see Appendix C), and the reader was asked to check one of three statements which most correctly described the training program within his company. The three statements were as follows:

1. We have a training program and will be pleased to participate in the study.
2. We have no provision for permitting teachers to participate in our program.
3. We have no training program.

The postal cards that were returned from this mailing were sorted, and only those organizations indicating that they had a program and would participate in the study were selected to receive the second letter. The cards from those organizations indicating that they could not provide training opportunities for industrial education personnel were placed in a different card file. The cards left in the original file represented organizations which did not reply to the first letter.

The second letter (see Appendix D) was accompanied by a questionnaire (see Appendix E). The letter served to remind the reader about the study, and it requested the completion and return of the questionnaire. The questionnaire asked for information about the training program. A self-addressed, stamped envelope was enclosed for the reply to this letter.

By November 22, 1968, a total of 140 organizations had not replied to the first letter. On November 26 a duplicate of the original letter was mailed to one-fifth of this group. The letter and enclosed postal card were identical to those sent in the first mailing, but this time a note was stapled to the letter. (See Appendix F). The note indicated that response to the first letter had not been received and that return of the enclosed postal card would assure the researcher that a representative of the organization had received the letter. Twenty-eight organizations, 20 percent of the total 140, were selected at random to receive this duplicate letter.

A follow-up questionnaire was sent (February 4, 1969) to 19 organizations which had not returned the earlier questionnaire. The following items were included in this mailing:

1. A copy of the original letter (see Appendix B).
2. A copy of the letter which accompanied the original questionnaire (see Appendix D).
3. A note explaining the nature of this follow-up letter. (See Appendix F).
4. A self-addressed, stamped envelope.

Analyses of returned questionnaires and discussions with sales personnel led to the discovery of eight additional training centers. The directors of training at these schools were sent questionnaires.

FINDINGS

Introduction

The basic objectives of this research were to locate training programs and describe the courses offered. The extent to which this research was a success can be partially determined by the information in the following tables:

Table 1. Response to the mailing of the first letter.

Number sent	Number returned		Unaccounted for
372	With programs	45	140
	No available program	180	
	Returned undelivered	7	
	Total	232	

Table 2. Response to the second letter.

Number sent	Questionnaires returned	Unaccounted for
45	26	19

Table 3. Response to the follow-up mailing (duplicate of the first letter).

Number sent	Postal cards returned		Unaccounted for
28	With no programs	18	10
	With programs	0	

A total of 39 organizations reported training programs including work related to electronics, metal technology, power mechanics, and/or wood technology. Only three organizations, after having indicated that they would participate in the study, failed to return a questionnaire describing their program. The remaining three organizations reported training programs that did not include topics in electronics, metal technology, power mechanics, or wood technology.

Individual training programs were found to differ widely in content, but most programs had certain basic similarities. Because of this, the reader may assume the following to be true about each program listed:

1. The participant must furnish his own transportation to and from the school.
2. The participant pays for his own room and board.
3. The programs are free to teachers (no tuition or fees for materials are charged).
4. Exceptions to any of the three statements above will be mentioned in the course description.
5. Some colleges and universities allow credit for participation in certain training programs, but the participant must make arrangements with the college and pay the tuition involved.

Program Descriptions

Electronics programs

Buck Engineering Company, Inc.
Post Office Box 686
Farmingdale, New Jersey 07727

Lab-Volt summer workshops are conducted on college campuses and are open to all industrial arts teachers. These workshops vary in length and content depending upon the topic and level of the program. Each workshop is specially tailored to meet specific needs in the area where it is conducted. These programs are arranged yearly and have included the subjects of basic electricity and electronics, transistors, vacuum tubes, and semiconductors.

These workshops are announced in "E/E Teaching News." Teachers may have their names placed on the mailing list for this free publication by writing to Buck Engineering. For further information write to Mr. J. E. Murphy.

De Vry Industries
3956 West Belmont Avenue
Chicago, Illinois 60618

De Vry conducts week-end workshops and summer seminars. The content and length of these courses varies, but in all cases the content is closely related to De Vry systems for teaching electronics. Specific courses have covered the following topics: transistorized automotive analyzer, low-voltage power supply, and the basic electricity trainer.

The summer seminars are generally conducted on college campuses and run from two to three weeks in length. For further information see a De Vry serviceman or write the Chicago office.

Electrolab Corporation
Post Office Box 326
Liverpool, New York 13088

Teachers of electricity or electronics at the senior high or community college level may receive one to three days of instruction in this program. A mobile facility is used, and (on special arrangement) training can be provided at any North American location. The course includes information about motors, generators, and electrical controls. For additional information write to Mr. John S. Taylor.

Electronic Aids, Inc.
6101 Falls Road
Baltimore 16, Maryland

Each year Electronic Aids schedules three one-week training periods for purchasers of their equipment. The training sessions are designed to help prepare the teacher for using materials sold by Electronic Aids. Instruction takes place in Baltimore, and meal and lodging expenses are usually paid by Electronic Aids. Contact your local Electronic Aids representative to request training or to obtain further information.

Electronic Industries Association
2001 Eye Street, Northwest
Washington, D. C. 20006

Electronics teachers may participate in any of several courses conducted by the Electronic Industries Association. These national, regional, and local workshops are aimed at updating teacher skills. They are usually about 10 days in length and are usually conducted on college campuses. Topics in almost every area of electronics have been presented in these courses. Ten workshops at various locations in the nation are planned for the summer of 1969.

These workshops are directed by Professor Frank R. Steckel, Industrial Arts Department, Appalachian Teachers College, Boone, North Carolina. Details about workshops to be held in the future may be obtained by writing Professor Steckel.

Fabri-Tek Incorporated
5901 South County Road 18
Minneapolis, Minnesota 55436

Fabri-Tek offers a 10-day course in computer programming and electronics for teachers who expect to teach these topics using the Fabri-Tek system. Course content includes training in maintenance as well as programming. Non-customers are asked to pay tuition.

Further information may be obtained by writing Mr. Craig Loebig, Senior Administrator - Educational Products Division.

Science Electronics, Inc.
195 Massachusetts Avenue
Cambridge 39, Massachusetts

Science Electronics conducts special training programs. This organization specializes in electricity and electronics training materials. A local instructor conducts the training, and the content and length of the program depend upon the size of the group and its requirements.

For further information write the Marketing Department of General Electronic Laboratories, at the above address.

United Electronics Laboratories
3947 Park Drive
Louisville, Kentucky 40216

United Electronics Laboratories offers a correspondence course for teachers of electronics who are recommended by their principals. The course consists of 45 lessons pertaining to basic electronics. Lessons include such topics as circuit diagrams, electron theory, Ohm's Law, magnets and electromagnets, cells and batteries, direct current measuring instruments, radar principles, coils, transformers, series-parallel circuits, capacitors, soldering, AC meters, coils and capacitors in combination, transistor and tube numbering systems and basing arrangements, power supplies, semiconductors, vacuum tube characteristics, microphones, headphones, loudspeakers, voltage amplifiers, power amplifiers, transistor amplifiers, detector circuits, radio frequency amplifiers, oscillators, the superhetrodyne receiver, and volume and tone controls.

Lab exercises include assembly of a multimeter and a power supply. All necessary tools, soldering equipment, and materials are furnished free of charge by United Electronics, and these items become the property of the participant when he completes the course.

For additional information write to Mr. O. S. Hammer.

Zenith Radio Corporation
1900 North Austin Avenue
Chicago, Illinois 60639

Electronics teachers recommended by their principals may be permitted, by special arrangement, to participate in the Zenith television and radio troubleshooting course. This 40-day course is conducted in training centers located in Chicago, Illinois; Springfield, Missouri; and Sioux City, Iowa. The program permits a limited number of industrial arts teachers to sit in on regular repair programs for factory personnel.

Write to Mr. David D. Dalenberg, Manager of Employee Development, for further information.

Metal technology

All-State Welding Alloys Company, Inc.
Post Office Box 350
White Plains, New York 10602

All-State offers a three-day course in welding. The course includes basic identification of metals, fundamentals of welding metallurgy, use of the oxyacetylene torch, use of thin-flowing brazing and soldering alloys, practice and

techniques in the use of various bead-forming brazing and braze-welding alloys, shielded metal arc welding, and the use of various manual arc welding electrodes. Schools are maintained in each of the company's plants in the United States, Canada, and abroad. Lunch is furnished at this school.

Enrollment can be arranged through the main office. Write to the Director of Technical Training.

American Foundrymen's Society
Golf and Wolf Roads
Des Plaines, Illinois 60016

American Foundrymen's Society conducts a three-day course for metalworking teachers, patternmaking teachers, supervisors of industrial arts, and college professors in the field of industrial arts and engineering. The course includes history of cast metals, new developments in casting, moulding practice, new audio-visual aids, sand technology, casting methods, melting practice, laboratory facilities, and casting projects. These seminars are conducted in a college or a university which offers preparation for industrial arts teaching and which also has a metalcasting lab available. Room and board are furnished.

For further information write to Mr. Fred Schlegg.

American Society for Metals
Metals Park, Ohio 44073

This organization sponsors and co-sponsors various educational activities. These include institutes and seminars pertaining to metallurgy. Much of the work is conducted on the campus of Kent State University, but in 1967 a two-week seminar in materials science was held at the national headquarters in Metals Park. Content of the most recently offered course includes mechanisms which determine the properties of metals, selection and applications of materials in industry, and demonstrations of equipment and techniques for materials testing and metallographic examination of the micro-structures of materials.

For further information write to Mr. Edward Langer.

American Welding Society
345 East 47th Street
New York, New York 10017

This society conducts a two-day course pertaining to each of the following topics: design for welding, electron beam welding, gas shielded welding processes, testing and inspection of welds, and welding of aluminum. These courses are primarily designed to keep engineers abreast of developments in new materials, processes, and equipment. The fee for each two-day course is $80, and the fee covers instruction, text materials, and all classroom facilities.

Mr. A. L. Phillips can provide further information.

Cincinnati Milling Machine Company
4701 Marburg Avenue
Cincinnati, Ohio 45209

Cincinnati offers 4½-day customer seminars to assist teachers in schools which have purchased Cincinnati electrical machining equipment. These training sessions are conducted at the Cincinnati, Ohio plant. Three separate courses are offered: electrical discharge machining (EDM), electrochemical machining (ECM), and electrolytic grinding (ELG).

For further information write to either a Cincinnati sales representative or the Supervisor of Training and Administrative Services, Electrical Machining Division of the Cincinnati Milling Machine Company.

Eutectic Corporation
40-40 172nd Street
Flushing, New York 11358

Eutectic offers a five-day course in welding. The course covers the proper application of Eutectic's low heat input process of joining metals at much lower heat than the melting point of the base metal. Materials used include low temperature welding alloys for both torch and arc welders. Materials welded during the course include the white metal series (aluminum, magnesium, and zinc alloys), steel, cast iron, copper and copper alloys, hard surfacing and overlays, tool and die steels, and stainless steel. A study of the properties of the various metals is an integral part of the course.

Training programs are conducted in Los Angeles, San Francisco, Salt Lake City, Denver, Minneapolis, St. Louis, Chicago, Cleveland, Detroit, Atlanta, Boston, and New York. A $25 fee is required for participation in this program. Special demonstrations can be conducted by a local Eutectic representative at almost any location, but these demonstrations are restricted to a limited number of topics and do not constitute an entire course.

The Flushing office can provide additional information.

Fisher Governor Company
Marshalltown, Iowa 50158

Machine shop teachers are preferred for this two-week course. The first six days of the course are the same for all machine operators. Instruction includes orientation, blueprint reading, safety, machining operations, measuring equipment, and IBM work reporting. The last four days of the course include special instruction in one of the following areas: turret lathe operation, engine lathe operation, or drill press operation.

Mr. Charles R. Colwell can provide further information.

Hobart Welding School
Trade Square East
Troy, Ohio 45373

Hobart offers a two-week refresher course for industrial education personnel. A registration fee of $75 is payable in advance, and the participant provides his own work clothes,

protective clothing, and gloves. Hobart furnishes all welding equipment and a helmet.

The following topics are among those included in the course: welding processes, procedures, and fundamentals; arc welding symbols; shielded arc welding and power sources; electrode identification and selection; new welding processes; weld testing, metal identification; metal-arc and twin carbon-arc welding, brazing, and surfacing; oxyacetylene welding and cutting; oxyacetylene brazing and aluminum welding; TIG welding; microwire welding; and problems of teaching welding.

Hobart also conducts four special courses for supervisors: welding fundamentals for supervisors and engineers, practical welding for supervisors, arc welding inspection and quality control, and gas shielded arc welding processes. Each of these are one-week courses and require a $100 registration fee. They include welding topics of special interest to supervisors in industry, but the work could also be valuable to teachers.

For further information write to Mrs. Peggy Drennan, Registrar.

Hyster Company
Kewanee, Illinois 61443

Hyster offers courses for teachers who are within driving distance of the Kewanee plant. Instruction is on an hourly basis, and teachers are given instruction in topics closely related to the material they teach. Participants must be recommended by their administrators. The courses offered

cover topics in machine shop, welding, management training and development, purchasing, production and inventory control, and statistics and dynamics.

Mr. Joseph Wittmeyer can provide further information.

Lincoln Electric Company
22301 St. Clair Avenue
Cleveland, Ohio 44117

Lincoln conducts a five-day course for teachers of arc welding. The course provides an opportunity for the teacher to act as an observer at the welding school and also to develop his own welding skills. The Lincoln staff is also available to assist the teacher in planning a course of instruction in welding. A new course starts every Monday of the year. This course for teachers does not require tuition, and it should not be confused with the extensive program of arc welding courses offered to individuals seeking vocational training. The vocational courses cover almost every aspect of arc welding. To participate in any of these courses, a teacher would pay the usual tuition.

Mr. Richard Sabo can provide additional information.

North American Rockwell Corporation
Aerospace and Systems Group
1700 East Imperial Highway
El Segundo, California 90245

Each year North American Rockwell conducts a three- to five-day program consisting of workshops and tours. Teachers from local school districts are briefed by key technical, scientific, and management personnel on the "state-of-the-art"

and future skills requirements in the aerospace industry. The objective of the program is to make the teachers more aware of any lack in currency of skills and capabilities. Participants are given an opportunity to observe the environment in which various skills are used and to observe these skills in action. The teacher learns about the machines and tools currently in use and about the nature of the products worked on by the skilled.

For further information write to Mr. F. G. Rizzardi, Manager of Professional and Technical Development.

Sheldon Machine Company, Inc.
428 North Knox Avenue
Chicago, Illinois 60641

Sheldon conducts a one-week program at the plant in Chicago for teachers whose schools have purchased Sheldon machines. A distributor who sells a machine may assume transportation, meal, and lodging expenses a trainee incurs while attending the program, but arrangements of this type must be made at the time the machine is purchased.

The purpose of the program is to familiarize the instructor with the care, operation, and maintenance of the Sheldon machine tools his school has purchased. Instruction includes technical information on process engineering; tooling, setup and operation of turret lathes; setup and operation of tracer lathes; demonstrations on tooling with carbide, ceramic, and diamond tools; and a basic discussion

on numerically controlled machine tools.

Mr. K. D. Weeks, Sales Manager, can provide further information.

Smith Welding Equipment Division, Tescom Corporation
2633 Southeast Fourth Street
Minneapolis, Minnesota 55414

Tescom Corporation offers a one-week training program in welding through their Smith Welding Equipment Division. Courses are offered in Oklahoma, Louisiana, Kansas, Mississippi, Arkansas, and other states. The courses include oxyacetylene welding, cutting, heating, hard surfacing, and other aspects of welding.

Mr. Nat Merriwhether, Sales Manager, can provide further information.

Power mechanics

Briggs & Stratton Corporation
Post Office Box 702
Milwaukee, Wisconsin 53201

Briggs and Stratton Corporation holds two, 40-hour, one-week sessions in the last part of August specifically for teachers. Applications are taken on a first-come-first-served basis to a limit of 24 students per class. The course covers use of service manuals, engine theory, and actual shop work in the repair of Briggs and Stratton engines. It differs from the regular dealer classes in that more stress is placed on theory and teaching, and less on warranties and parts.

For further information write to Mr. C. S. Johnson.

Cummins Engine Company, Inc.
Columbus, Indiana 47201

The Cummins training program is from 5 to 25 days in length and is primarily intended for teachers of diesel technology. Participants are accepted on the basis of a recommendation from an administrator, and preference is given to teachers from schools which include the Cummins engine in their program. In-plant and mobile facilities are used for this instruction. The course for vocational teachers can be covered in five days. The maximum class size is ten persons.

Topics covered include the operation, maintenance, repair and rebuilding, and troubleshooting of all models of Cummins engines and related accessories. Courses of instruction include basic maintenance (40 hours), advanced maintenance (40 hours), engine rebuild (80 hours), fuel systems (40 hours), training coordinator development (20 hours), instructor development (60 hours), and special training.

Mr. H. M. Percifield, General Manager of Service Training, can provide additional information.

Eaton Axle Division, Eaton Yale & Towne, Inc.
739 East 140th Street
Cleveland, Ohio 44110

Eaton Axle Division conducts a two-day course in truck axle maintenance and repair in which industrial arts teachers may participate. Classroom discussions include function of truck axles, identification of various axle types, and difference in axle design. Shopwork practice includes disassembly,

reassembly, and adjustment of Eaton Axles. A plant tour is included to show how parts are fabricated, inspected, and tested.

For further information write the Eaton Technical Training Center.

General Motors Corporation
Earthmoving Equipment Division
Hudson, Ohio 44236

General Motors offers training relative to its earth-moving equipment in mobile facilities and at its factory school in Hudson, Ohio. Enrollment must be arranged through local dealer service managers. Courses vary in length from five to six days. The courses offered include instruction in the following areas: crawler tractors, loaders, scrapers, engines, transmissions, and hydraulics.

For further information write Mr. Eric J. Hutchison, Supervisor of Service Training.

International Harvester Company
401 North Michigan Avenue
Chicago, Illinois 60611

This five-day course is available to industrial arts teachers who teach potential farm equipment servicemen. Instruction is given in three subject areas: diesel, hydraulics, and academic (use of the service library and information about fluids, fuels, and filters). The diesel course includes basic diesel; fuel injection pump overhaul, calibration, and adjustment; troubleshooting; and nozzle servicing. The

hydraulics course includes basic hydraulics; pumps, valves, and cylinders; draft sensing; adjustments and testing; power steering; and multiple control valve systems combining power steering, torque amplifier, brakes, and lubrication. The training facilities used for this program are near Ottawa, Illinois.

For further information write to Mr. C. S. Crutcher.

Kiekhaefer Mercury
Fond du Lac, Wisconsin 54935

Kiekhaefer Mercury, the manufacturers of Mercury outboard motors, has training centers at all of its branch office locations, but industrial arts teachers are asked to enroll only at the main plant in Fond du Lac. This training program features a one-week course for experienced outboard motor mechanics and a two-week course for beginners.

The one-week course includes six-cylinder model gear shift, ignition, carburetion, electric starting, and lower unit; four-cylinder ignition and electric starting; Merc 250 transmission; two-cylinder gear shift, ignition, and lower unit; attaching and correctly adjusting remote controls; and timing, testing, and adjusting the preceding engines.

The two-week beginner course includes all phases of timing, testing, adjusting, ignition, carburetion, electric starting, and lower units; repair of various models of gear shifts; boat rigging; and remote control installations.

Write to Mr. John Freund, Service School Registrar.

Lauson-Power Products
Division of Tecumseh Products Company
900 North Street
Grafton, Wisconsin 53024

Tecumseh offers two courses. Participants in these courses pay tuition, but the following items are furnished: lodging, lunch, transportation to and from the hotel, Thursday evening banquet, and all tools and special equipment.

The five-day engine school costs $35. It includes instruction in the following areas: four-stroke-cycle engines, two-stroke-cycle engines, solid state ignition systems, new electric starters, new alternator systems, and outboard powerheads.

The two-day peerless course costs $15. It covers the following topics: three-speed and four-speed transaxles, transmissions, differentials, hydrostatic drive gear boxes, right-angle drives and T-drives, component teardown, and manual reading.

For additional information write to the parts depot in Grafton.

Lombard Power Equipment Division
American-Lincoln Corporation
Post Office Box 794 MO
518 South St. Clair Street
Toledo, Ohio 43601

Lombard conducts one-day automated service schools for dealers and shop personnel at various points throughout the United States. Teachers may arrange to participate in the

course at a dealer location, or they may arrange for a special program, involving six or more teachers, at a location of their choice. An automated classroom is used. All materials and equipment are delivered by van for complete scheduling flexibility. Completely automated audio-visual teaching techniques are used throughout the program.

For further information contact Mr. Clifford C. Adams, Division Manager.

Outboard Marine Corporation (OMC)

Evinrude Motors
4143 North 27th Street
Milwaukee, Wisconsin
Attention: Richard Baley,
Service School Manager

Johnson Motors
701 Sand Street
Waukegan, Illinois
Attention: L. R. Sereno,
Manager of Service Educ.

Lawn-Boy
Outboard Marine Corporation
Galesburg, Illinois 61401
Attention: Jack E. Northrup

OMC Training Center
16 Daniel Road
Fairfield, New Jersey 07006

OMC Training Center
35 Northeast 179th Street
Miami, Florida 33169

OMC Training Center
2657 Brenner Drive
Dallas, Texas 75220

OMC Training Center
363 Shaw Road
South San Francisco, California 94080

The following courses are available at various OMC training centers. In parentheses following each course is a list of the training center locations where the course is offered. Industrial arts teachers may enroll in these courses when dealer service personnel enrollment is below capacity.

Lawn-Boy service training includes two days (2½ days at Galesburg) of classroom instruction, troubleshooting, tear-down, and reassembly. The course includes a tour of the factory, discussions about new products, and any current service problems that might be occurring. (Dallas, Fairfield, Galesburg, Miami, and South San Francisco)

Lawn-Boy offers a 2½-day advanced course for persons who have completed the basic course. This course covers trouble-shooting plus additional work in ignition and carburetion. (Galesburg)

Lawn-Boy also offers a four-day combination course. This course covers the same material that is covered in the basic course, but an additional 1½ days are spent working on riding mowers. (Galesburg)

Pioneer Chain Saws are covered in two-day training sessions. The Pioneer course includes operating principles, repairs, adjustments, cleaning and inspection, chain and bar maintenance, and other services. (Dallas, Fairfield, Miami, and South San Francisco)

Snowmobiles may be studied in a course recently added at two OMC training centers. (Fairfield and South San Francisco)

The Comprehensive Outboard course runs for two weeks. Topics covered include engine theory and construction, operation of two- and four-stroke-cycle engines, ignition systems, fuel systems, pistons and piston rings, cylinders, lower

units, electrical equipment, intake and exhaust systems, crankcase scavenge, engine maintenance, and the requirements of a standard motor. During the workshop the participant disassembles and reassembles several outboard motors. After reassembly the motors are tested, and corrections must be made if the motor fails to operate in accordance with factory standards. (Evinrude at Milwaukee, Johnson at Waukegan, Dallas, Fairfield, Miami, and South San Francisco)

Advanced Outboards and Troubleshooting is a one-week course which follows the comprehensive course. (Evinrude at Milwaukee, Johnson at Waukegan, Dallas, Fairfield, Miami, and South San Francisco)

Stern Drive is a one-week course which includes repair, service, and installation of OMC stern drive units. (Johnson at Waukegan, Dallas, Fairfield, Miami, and South San Francisco)

Skee Horse and Air-Buoy are one-week courses dealing with service and repair of these units. (Milwaukee and Waukegan)

Rust Tractor Company
1801 Fourth Street Northwest
Albuquerque, New Mexico 87103

Vocational school instructors and teachers with experience in a trade are preferred for this training program. The course would be useful to teachers who teach about diesel engines, hydraulics, electricity, and/or welding. Scholastic ability is considered in the selection of participants. The course can vary in length from two days to four weeks. It is designed to provide training for company service personnel.

Basics covered include diagnosing problems and troubleshooting.

Write to Mr. Elvin Adle, Training Manager.

Vickers Incorporated
Post Office Box 302
Troy, Michigan 48084

Teachers of fluid power programs may apply for participation in the training program conducted by the Vickers Hydraulics School. Each application will be considered on its own merit (type of school represented by the applicant, courses offered, and students served). The industrial hydraulics program lasts ten days, and the mobile hydraulics program and the servo courses each last five days. The function of the school is to impart practical information in the application, operation, and maintenance of hydraulic equipment. Four different courses cover hydraulic applications on aerospace products, servo mechanisms, mobile equipment, and industrial machinery.

Write to Mr. George Altland, Manager of Customer Training.

Wood technology

American Plywood Association
1119 A Street
Tacoma, Washington 98401

This non-profit trade association does not offer courses as such, but one of their functions includes promotion of softwood plywood. Their Field Service Division has 60 people located throughout the United States who can provide assistance concerning the use of plywood. They regularly

give presentations to students in industrial arts and vocational education. The meetings may be on an annual basis or may be scheduled as requested by the professor. The presentations are devoted to basic information on use of plywood. They can be scheduled by an instructor at any college in the country simply by writing to any of the following regional offices of the organization:

Post Office Box 90550
East Point Branch
Atlanta, Georgia 30344

203 Washington Square Bldg.
306 South Washington Street
Royal Oak, Michigan 48067

201 East Ogden Avenue
Hinsdale, Illinois 60521

3228 East Broadway
Long Beach, California 90803

2331 Gus Thomasson Road
Room 132
Dallas, Texas 75228

4901 West 77th Street
Pentagon Office Park
Room 130
Minneapolis, Minnesota 55435

225 West Winton Avenue
Hayward, California 94544

119 A Street
Tacoma, Washington 98401

1625 I Street Northwest
Suite 902
Washington, D. C. 20006

Post Office Box 1114
Englewood Cliffs, New Jersey
07632

Hardwood Plywood Manufacturers Association
Post Office Box 6246
Arlington, Virginia 22206

This organization does not conduct a regular training program, but it does conduct special programs to promote the use of hardwood plywood and to provide information about it.

For further information write to Mr. Clark E. McDonald.

Programs offering combinations of electronics, metal technology, and power mechanics

Go-Power Systems
1880 Embarcadero Road
Palo Alto, California 94303

Go-Power conducts a five-day seminar at the plant in Palo Alto for teachers who desire to learn more about utilizing Go-Power equipment in instructional programs. The teacher learns to develop problem-solving techniques through the use of instructional systems in the field of power technology. Teachers learn to utilize engine analysis, electric motor analysis, measurement techniques, thermal systems, and materials testing to develop problem-solving abilities in their students.

For further information write to Mr. Neal Williams.

Scott-Engineering Sciences
1400 South-West 8th Street,
Pompano Beach, Florida 33060

Scott-Engineering conducts training sessions to teach instructors about Scott products and their applications to industrial arts. The sessions can vary from two days to one week in length, and Scott will cooperate in setting up an institute or workshop in any area where interest is shown (at the plant, on college campuses, or in private schools). Topics that can be covered include fluid power systems, air conditioning, aerodynamics, subsonic wind tunnels, heat exchanger systems, materials test systems, and turbofans.

Scott provides the opportunity for instruction in the use of every piece of equipment they sell.

For further information write to Mr. Peter C. Zanetti.

Sikorsky Aircraft, Division of United Aircraft Corp.
North Main Street
Stratford, Connecticut

Teachers, primarily from area schools, can be accepted as summer employees at Sikorsky and be assigned to the training department to pursue a program specifically tailored to their specialties and interests. Individuals participating in this program are paid a salary of approximately $500 per month while working a minimum of eight weeks as a full-time employee. The program is divided into three phases. The first phase includes two weeks of orientation to company training programs, methods, facilities, and resources. The second phase includes four weeks of actual hands-on experience in work assignments related to the teacher's basic interests and specialties. The third phase involves rotational-observation tours into selected areas, summary seminars, and final report preparation.

Mr. Vesse A. Brainard, Supervisor of Training, can provide additional information.

Technical Education and Manufacturing Company, Inc.
161 Vester
Ferndale, Michigan 48220

Teachers of metalworking, power mechanics and/or fluid power may participate in the three-day T.E.A.M. workshops for purchasers, or potential purchasers, of T.E.A.M. equipment. Training can be conducted at the plant, on a college campus, or at the school where the equipment was purchased. Three workshops, each three days in length, are offered, and their content is outlined below:

1. Fluid power.
   a. Hydraulics.
   b. Pneumatics.
   c. Fluidics.

2. Machine instrumentation.
   a. Machine technology.
   b. Machinability.
   c. Cutting principles.

3. Numerical control.
   a. Drill.
   b. Mill.
   c. Lathe.

For further information write Mr. E. Konopka.

DISCUSSION

The procedures used for obtaining data for this study seemed quite satisfactory since there was no evidence to indicate that any well-known program was missed. Certain revisions in the procedures, however, might have enabled the researcher to list additional information about available courses. Other revisions could have resulted in more direct contact with the persons responding to the questionnaire. In general, the research progressed approximately as planned.

The response to the letter of introduction (see Appendix B) would have been more useful if a place had been provided on the postal card for including the name of the person to whom the questionnaire should have been sent. In several cases persons responding to the questionnaire indicated that they had not seen the first letter, and they were not familiar with the exact nature of the study. This confusion could have been avoided if the person who responded to the first letter had also received the questionnaire.

Most questions on the questionnaires were fully answered either by written response or by training program brochures. However, some respondents indicated that tuition was charged to participants in their program, and they did not explain how much the tuition was. A question asking for the specific amount of tuition required could have provided additional information of importance.

The scarcity of training programs in wood technology should not be interpreted as a lack of interest by organizations in the woodworking industry. Lack of training programs was possibly due to the fact that much of the instruction which takes place in the woodworking industries is along the lines of on-the-job training. Lumber companies indicated that they would be pleased to put on demonstrations relating to use of lumber, plywood, and other wood products. Milling companies invited teachers to arrange plant tours, and manufacturers of adhesives, wood by-products, and finishes offered instructional materials including a great deal of free literature.

The follow-up letter sent to those organizations not responding to the letter introducing the study (see Appendix B) elicited a response from only 64 percent of the organizations selected. Since none of these organizations reported training programs, the researcher concluded that additional follow-up mailings of this type were not likely to produce significant numbers of additional training programs.

Although this study did not include the multitude of plant tours and brief promotional programs conducted by most of the industries included in the survey, great interest was shown in providing these services to educators. Some organizations also indicated that they could not list regular training programs available to industrial education personnel, but that they could occasionally permit a few teachers to participate

in local programs of interest (work-study programs, promotional programs, and in some cases employee training sessions). The researcher concluded that while this study identified training programs offered by large organizations, many small organizations did not report training programs because they were able to accommodate only local people.

SUMMARY

The purpose of this study was to develop a source of information about industrial training programs available to industrial education personnel. A total of 372 organizations were asked if they could provide such a service. A questionnaire was sent to the 45 organizations which reported that they could provide training. The returned questionnaires were used to write up brief course descriptions explaining the nature of each course. Five types of courses were listed: electronics, metal technology, power mechanics, wood technology, and programs offering combinations of electronics, metal technology, and power mechanics. Benefits obtained from the compilation of this data included the following:

1. Teachers were provided with descriptive information about courses in which they could enroll.
2. This list of courses was more extensive than most teachers would have time or funds to seek out for their own use.
3. This coverage of available training programs gave teachers the opportunity to select the program that best suited their needs. Otherwise, they would be restricted to those programs which came to their attention merely by chance.
4. Low-cost training opportunities were shown to be available at numerous locations.

5. The data indicated the desire of industry to assist in the improvement of instruction.
6. The listing of names and addresses provided an opportunity for the reader to communicate with organizations having training programs.

A total of 39 organizations reported training programs, and more than 70 different courses were found to be available.

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APPENDIX A

Acknowledgements

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Special thanks is extended to the following individuals who discussed this study with the researcher and made timely suggestions which contributed to improvement of the project.

Mr. Lowell L. Carver, Major Professor

Dr. Dwight Bensend and Dr. Trevor Howe, Minor Professors

Mr. Walter Dietrick, Assistant Professor of Industrial Ed.

Mr. Glenn Dukes, Power Mechanics Instructor

Mr. Gerald Parks, Assistant Professor of Industrial Ed.

Mr. Alvie Sarchett, Assistant Professor of Industrial Ed.

Mr. Albert Sherick, Associate Professor of Industrial Ed.

Mr. Claude Siegler, Electronics Instructor

Mr. James Socknat, Manpower Development

Mr. Burt Watkins, Engineering Extension Service

Mr. Weldo Wegner, Center for Industrial Research and Service

Mr. Merle Wiener, Associate Professor of Industrial Ed.

Patience and cooperation were supplied by the researcher's wife and three children. Encouragement and assistance were also provided by fellow staff members at Bondurant-Farrar Community Schools. These contributions were sincerely appreciated.

APPENDIX B

Letter introducing the study

(Iowa State University Letterhead)
August 28, 1968

Dear Sir:

Your assistance is needed in locating organizations which have training programs that can accommodate industrial arts teachers. Each year American industries extend opportunities for industrial arts teachers to participate in: workshops, service school courses, clinics, factory mobile training, and other instructional programs. These programs offer valuable experience which enables the teacher to prepare more thoroughly those students who are potential industrial employees.

Your training programs are of interest to us if they offer preparation in the areas of: metal technology (welding, foundary, machining, or other topics in metallurgy), wood technology (lumber grading, drying procedures, adhesives, etc.), electronics, and power mechanics (engine repair or service, hydraulics, fuels, lubrication, equipment repair, and maintenance).

It will be impossible to obtain information about all of the courses available across the country, but you will want to have your company represented.

Your organization can assist us by returning the enclosed, pre-addressed postal card. Please mark and return the card even if you cannot accept teachers in your training program. Its return will assure us that you have had the opportunity to consider this letter. If you are able to permit teachers to participate in any phase of the training conducted by your company, please check in the proper place on the card. Those organizations which indicate they can assist teachers through their training programs will be sent a brief questionnaire. The questionnaire will ask basic questions about your training program and will encourage you to send any other pertinent information you feel would help explain your instructional offerings.

Our task is to organize (index) the information obtained about the various programs so teachers can more easily locate information about courses they are interested in. The information we obtain will be organized in the form of a field study (for partial fulfillment of the requirements for my Master's Degree), and it will then be condensed for dissemination to industrial arts teachers across the state of Iowa. We are anxious to include information about your program in this important educational study.

Sincerely,

(Signature)

David K. Maxwell, Teacher of Industrial Arts and Graduate Student

(Signature)

L. L. Carver, Chairman of Industrial Education Curriculum

APPENDIX C

Format of the postal card which accompanied the letter introducing the study

☐ We have a training program and will be pleased to participate in the study.

☐ We have no provision for permitting teachers to participate in our program.

☐ We have no training program.

(Place an "X" in the box preceding the statement which most nearly describes your situation.)

APPENDIX D

Letter sent with questionnaire

(Iowa State University Letterhead)
November 20, 1968

Dear Sir:

A few weeks ago you received a letter asking if your training program includes work in which industrial arts teachers may participate. I was pleased to receive the reply that you do offer a service of this type and that you would be pleased to have your company represented in the survey.

The questionnaire attached to this letter asks for specific information needed to complete the study. Please answer every item on the questionnaire to the best of your ability. I will be pleased to receive brochures or other information that you feel will help to explain your program. A pre-addressed, stamped envelope is enclosed for your convenience in the return of the questionnaire.

Sincerely,

(Signature)

David K. Maxwell, Graduate Student and
Industrial Arts Teacher

Approved by,

(Signature)

Lowell L. Carver, Chairman
Industrial Education

NOTE: Correspondence reaches me more directly if mailed to the following address:

David K. Maxwell
Mingo, Iowa 50168

APPENDIX E

Questionnaire

QUESTIONNAIRE

INSTRUCTIONS: Please respond to every question. You are encouraged to include additional information which you feel will assist in more clearly explaining your training program.

1. What criteria are used as guidelines in selecting teachers to participate in your program? (Place an X in the blanks preceding statements that best describe your criteria.)

_____ Application only (all teachers who apply are accepted).

_____ All industrial arts teachers that apply.

_____ Persons who teach specific courses. (Please list those courses a teacher must be teaching in order to qualify for participation; for instance: electronics teachers, metal-working teachers, electricity teachers, etc.)

_____ Recommendations from administrators.

_____ Scholastic ability (college grade-point or other achievement records).

_____ Other criteria (please explain).

2. Is your training program open only to purchasers of equipment you sell?

_____ yes _____ no

3. The length of the course is _____ days.

4. Briefly outline the work covered in the course(s), or enclose a brochure or other literature you have which describes the course content.

5. In what city, or cities, is this instruction offered? Please list the location of every training center within the U. S. where industrial arts teachers can receive instruction sponsored by your organization. Organizations which do not have permanent training centers should explain how they select training locations.

6. What type of training facilities are used in your program?

____ In-plant	____ College campus	____ Others (Please specify)
____ Mobile	____ Private schools	

7. What expenses must the teacher be prepared to meet while taking the course?

____ Board	____ Tuition	____ Other expenses (Please specify)
____ Room	____ Materials	
____ Transportation	____ Tools	

8. Please list the name and address of the person who should be contacted by persons wishing to enroll in the course.

9. Please feel free to write any additional information you feel would be helpful in more accurately answering any of the preceding questions.

APPENDIX F

Note that accompanied the follow-up questionnaire

Dear Mr. _____:

I have not received a reply to the attached letter which was sent to your Public Relations Director in November. Somebody did reply to the August letter, also attached, and the reply indicated that your organization would be pleased to participate in this study. I'm not sure if the November letter was:

1. Lost in the mail.
2. Not delivered to the same person who received the August letter.
3. Was received and answered but did not return to me.

I am very anxious to include your organization in this study. Your assistance will be greatly appreciated if you will either complete and return the enclosed questionnaire or forward these materials to the individual in your organization who is best qualified to do so.

Sincerely,

(Signature)

VT 016 563
REHABILITATION EDUCATION.

OHIO STATE DEPT. OF MENTAL HYGIENE AND CORRECTION, COLUMBUS.;OHIO STATE DEPT. OF EDUCATION, COLUMBUS. DIV. OF VOCATIONAL EDUCATION.
OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 218P.

DESCRIPTORS - *VOCATIONAL EDUCATION; *CORRECTIONAL REHABILITATION; *REHABILITATION PROGRAMS; *CORRECTIVE INSTITUTIONS; INSTITUTIONALIZED (PERSONS); *EDUCATIONAL PROGRAMS; CRIMINALS; PRISONERS; INDIVIDUALIZED INSTRUCTION; CURRICULUM DEVELOPMENT; PROGRAM DEVELOPMENT; CORRECTIONAL EDUCATION

ABSTRACT - THE PURPOSE OF THIS PROJECT WAS TO STUDY ALL VOCATIONAL TRAINING WITHIN OHIO CORRECTIONAL INSTITUTIONS AND DEVELOP GUIDELINES FOR REALIGNING THE VARIOUS INDEPENDENT INSTITUTIONAL PROGRAMS INTO A DIVISION-WIDE PROGRAM WITH EMPHASIS ON INDIVIDUALIZED VOCATIONAL INSTRUCTION FOR THE STUDENT. TO ACHIEVE THE OBJECTIVES OF THE PROJECT, THE CONSULTANT TEAM: (1) STUDIED THE EXISTING VOCATIONAL PROGRAMS IN OHIO'S ADULT CORRECTIONAL INSTITUTIONS, (2) REVIEWED THE LITERATURE AND RESEARCH ON INMATE TREATMENT, (3) EXAMINED SUCCESSFUL VOCATIONAL EDUCATION PROGRAMS CONDUCTED IN PENAL INSTITUTIONS IN NEIGHBORING STATES, (4) DEVELOPED A DIVISION-WIDE PLAN FOR VOCATIONAL EDUCATION, AND (5) DEVELOPED A PILOT CURRICULUM AND ORGANIZATION CHARTS FOR ADMINISTRATING SUCH PROGRAMS. SECTIONS OF THIS REPORT PRESENT: (1) THE FINDINGS RESULTING FROM AN EXAMINATION OF CURRENT PROGRAMS AND PRACTICES IN EIGHT CORRECTIONAL INSTITUTIONS, (2) RECOMMENDATIONS CONCERNING ADVISORY COMMITTEES, PRISON STAFF, STAFF DEVELOPMENT, PAROLE, TYPES OF EDUCATIONAL PROGRAMS, CURRICULUM OFFERINGS, FACILITIES, AND EXPENDITURES, AND (3) A DIGEST OF THE TOTAL REPORT. GUIDELINES FOR INSERVICE TRAINING PROGRAMS, SAMPLE MODULES OF INSTRUCTION AND OBJECTIVES, DISCUSSION OF A SYSTEMS APPROACH TO CURRICULUM DEVELOPMENT, AND OTHER PROJECT ACTIVITIES ARE APPENDED. (SB)

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Rehabilitation

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6254

Evaluative Research Planning Project
in Vocational Education for
Ohio Department of Correction and Rehabilitation

"The project presented or reported herein was performed pursuant to a grant from the U.S. Office of Education, Department of Health, Education, and Welfare, through the Division of Vocational Education, State of Ohio. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education, and no official endorsement by the U.S. Office of Education should be inferred."

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PREFACE

The Ohio Division of Correction, in cooperation with the Division of Vocational Education of the State Department of Education, employed nine consultants to evaluate current vocational education programs within the Division of Correction and to present recommendations as to how these programs could be more meaningful in the rehabilitation process. The consulting team spent eight months in completing this project and preparing the following report.

Part I presents the findings of current programs and practices.

Part II addresses itself to a series of recommendations to improve the educational offerings.

Part III represents a digest of the total report, as a partial fulfillment of the obligation of the grant.

Considerable supportive data is found in the appendix of this document.

The consulting team suggests that the Division of Correction, the Governor of Ohio, and the state legislators give serious consideration to these recommendations. We believe that implementation of these recommendations will be of great assistance to the Division of Correction in attempts to rehabilitate the inmate population.

PERSONNEL

F. PATRICK CRONIN, PROJECT DIRECTOR

Mr. Cronin is now serving as Director of Educational Services for the Division of Correction. He formerly held the position of Director of Education at Marion Correctional Institution. Mr. Cronin earned his Master's Degree at Ball State University in Psychology and Guidance and Counseling. His post master's education includes: advanced psychology at the University of Dayton; guidance counseling and psychology under a federal scholarship at Ball State University; and guidance counseling, psychology, and vocational education under a federal scholarship at Ohio University.

DR. MAX J. LERNER, CONSULTANT CHAIRMAN

Dr. Lerner is Vice Chancellor for Two-Year Campuses for the Ohio Board of Regents. He served as President of Lorain County Community College from 1963 to 1971. He received his Ed. D. in School Administration at Western Reserve University. His past work experience also includes: teacher of industrial education, physics, and mathematics; supervisor of industrial and adult education; director of adult education. He has received many awards for educational leadership in Ohio.

D. R. PURKEY, CONSULTANT CO-CHAIRMAN

Mr. Purkey is presently serving in a consulting capacity on Program Planning and Facilities Development with several school districts. He recently retired as Assistant Director of Planning and Administration for the State Department of Vocational Education. He received his Master's Degree in Education at Ohio State University. His post master's work includes work at University of Minnesota, Miami University, and Ohio State University. He is presently serving on the State Advisory Council for Vocational-Technical Education.

JAMES H. BROADBENT, CONSULTANT

Mr. Broadbent is a Doctoral Candidate at Ohio State University Division of Vocational-Technical Education, under an Educational Professions Development Act grant for leadership development in vocational education. He received his Master's Degree from Western Michigan University. He has had ten years teaching experience in junior and senior high industrial arts and vocational education. He has recently been appointed as Director of Vocational and Continuing Education of the Elkhart Area Career Center, at Elkhart, Indiana.

DALLAS CORNETT, CONSULTANT

Mr. Cornett is the Director of the Four County Joint Vocational High School in Archbold, Ohio. He received his Master's Degree from Ohio State University. His previous work experiences are teacher, guidance counselor, and high school principal.

PERSONNEL (continued)

DR. KENNETH C. HOEDT, CONSULTANT

Dr. Hoedt ie Coordinator of Research and Services for the College of Education at University of Akron. He received his Ph. D. in Counseling and Guidance from the University of Wisconsin. His teaching experiences include career development, basic statistics, research seminar, counseling, test and measurement.

JOHN H. IRVINE, CONSULTANT

Mr. Irvine is Supervisor of Eastland Vocational Center in Groveport, Ohio. He received his Master's Degree in Vocational Education and Educational Administration from Ohio State University. He recently served eight years on the Reynoldsburg Board of Education; serving as president for three years.

DONALD R. NEFF, CONSULTANT

Mr. Neff is a Doctoral Candidate at Ohio State University Division of Vocational-Technical Education, under the Educational Professions Development Act award for leadership development in vocational education. He received his Master's Degree in Industrial Education from the University of Illinois. His thirteen years teaching experiences include: woodworking, metalworking, electricity, drafting, and auto mechanics. He served three years as a Diversified Cooperative Training Coordinator.

JOHN A. OGUICH, CONSULTANT

Mr. Oguich is Director of the Cuyahoga Valley Vocational Center. He received his Master's Degree from Ohio State University. His teaching experiences include mathematics, industrial arts, and vocational machine shop. His administrative duties have included posts at Eastland Vocational Center, Ohio Department of Education, and Hamilton County Joint Vocational School.

LINDSAY RATLIFF, CONSULTANT

Mr. Ratliff is Director-Supervisor of Pike County Joint Vocational School. He attended the University of Cincinnati and Turrill Technical School at Cincinnati. He served a four year apprenticeship program in tool and die making at Baldwin-Lima-Hamilton in Hamilton, Ohio. Before becoming Director-Supervisor at Pike County Vocational School he served as their machine trade instructor and assistant supervisor.

DELORES O'BRIEN, CONSULTING SECRETARY

Mrs. O'Brian has served the HEW Vocational Education Research Project as Consulting Secretary in a full-time capacity. She is an active church worker, currently serving as the church treasurer and as a volunteer secretary to the pastor. Her previous work experiences include: executive secretary and assistant to a high school principal, secretary to a city safety-service director, and cashier of a major life insurance company.

HIGHLIGHT OF RECOMMENDATIONS

The Division should:

EDUCATIONAL SYSTEMS

Adopt a philosophy and commit itself to the concept of rehabilitation of inmates through education. All aspects of institutional life should be coordinated around an educational program, which uses vocational education as the core. The Division's educational efforts should be considered as one state-wide school system.

SPECIALIZATION

Determine the specific role of each Correctional Institution, concentrating all educational programs into specialized institutions and work experience in the others. All institutions must provide meaningful incentives that will motivate inmates and reflect the value of work. Vocational education will become the major tool in treatment at the two specialized educational institutions.

DOLLARS

Strive to have the State Legislature provide a direct "line item" appropriation for the education offered by the Division of Correction School.

FREEDOM OF RELEASE

Construct small "Regional Correctional Institutions" housing approximately 300 individuals, near metro centers, to assist inmates to adjust from the strict institution living to the freedoms of release; to enable inmates to compete with people on the outside and to profit from community facilities and programs.

TEAM APPROACH

Assign the responsibility and authority for the supervision of inmates on release programs, including parole, job placement and follow-up, to a team from the Regional Correctional Institution.

PLACEMENT

Move swiftly in the creation of a . . . . . "Reception Center" near Columbus, not not at Ohio Penitentiary, staffed with professionals (including educators) to receive, counsel, and classify for assignment, inmates to institutions and programs.

STAFFING

Recognize that educational programs can be no better than their staff. The total staff, including security, needs to be dedicated to the concept of rehabilitating inmates through educational processes. A need exists to recruit, supervise, and provide in-service training for its personnel.

NEW FACILITIES

Initiate efforts to raze the buildings and facilities of the Ohio Reformatory in Mansfield and the Ohio Penitentiary in Columbus as soon as possible. In addition to the immediate need for the "Reception Center" and the six "Regional Correctional Institutions", the long-range plan should include the erection of several minimum security "Area Educational Institutions", each to accommodate 500 inmates.

ADVISORY

Develop citizens advisory committees on a state-wide and local basis to assist in the continued development of vocational education programs tailored to meet the needs of inmates regardless of their academic capabilities or length of sentence.

MEET THE NEEDS

Attempt to improve the image of correctional education by improving lines of communication not only within the Division between institutions, but to all other agencies who may assist corrections in the development of its educational offerings.

MORE

Conduct additional studies to further develop many of the concepts contained in this report.

PART I

FINDINGS

PART I

FINDINGS

The consultants realize they are not penologists. They are educators. The following report reflects this fact. Their aim has been to present this report in a manner in which a penologist can employ it to strengthen the Division's educational program.

The consultants are aware of many good features in Ohio's present penal system. It was not the consultant's objective to review the strong points, nor analyze the total program, but to critically observe, as a vocational education team, and recommend for correction such vocational education areas as appear in need of attention. In the eyes of the consultant committee, there are many apparent weaknesses in the educational system.

In all educational programs money seems to be the dominant factor. Penal institutions' educational budgets are no exception. Without adequate funds, no group can develop a sound educational program, no matter how hard they may try. The vocational education programs in all Ohio's penal institutions are grossly inadequate. The lack of funds is apparently the major fault as seen in many different ways. For example, adequate staffing is impossible. In many areas we found uncertified and unqualified teaching and educational administrative personnel. The use of inmate instructors is not effective, according to inmates.

It is our opinion that education, especially vocational education, does not hold a very high priority in treatment. This is shown by the apparent lack of a Division-wide educational program. There is no extensive diagnostic program for each inmate with emphasis on vocational education.

In another important aspect of a vocational education program, the committee failed to find in Ohio's penal institutions a well-planned, Division-wide in-service training program for all involved personnel. This not only extends to instructors and administrators, but to security personnel as well.

Regardless of the type of institution, the community in which the institution is located, should be involved. Advisory committees, which include community people were not found to be involved in the educational program.

During the consultants' visits to the penal institutions, idleness was apparent. Vocational education would assist in eliminating this problem. The apparent necessity to call students out of class for any other assignment is a further limiting factor to the effectiveness of the current educational efforts.

All phases of the institutional operation are not now geared to

education. The maintenance shops, Ohio Penal Industries (O.P.I.), service centers, etc., could become cooperative educational experiences.

The consulting team sub-divided itself into several committees to evaluate the present educational components within each of Ohio's correctional institutions. Their status reports, by institution, follow.

OHIO PENITENTIARY (COLUMBUS)

Introduction - With the completion of the Southern Ohio Correctional Facility and the pending evacuation of the present Ohio Penitentiary, it would serve no purpose to expand or to improve the vocational education programs within this institution.

Statistical Summary - Twenty-five percent of the current inmate population scored at the fifth grade level, or below, on student grade-level tests. Testing also revealed the average grade level of all inmates to be that of the seventh grade. Most inmates are weak in vocational skills; thus, it is apparent that a great number are in need of vocational educational services.

Vocational Programs - Vocational programs are as follows: auto-mechanics--16 students; carpentry--7 students; welding--5 students; small appliances--4 students; radio and television--3 students; typewriter repair--1 student; watch repair--1 student; machine shop apprentice--1 student, (the machine shop apprentice program is not part of the institution's vocational school).

Most instructors in the vocational school are inmate/teachers. There are no prerequisites for vocational teachers. About forty inmates participate in the vocational education classes. The courses are 26 weeks in length and classes are in operation all day on working days.

General Education Programs - Participation in the academic school is voluntary, although officials frequently advise men to enroll in the school program. Students attend class on a part-time basis during a working day. Most classes meet three times a week. About 600 men have been enrolled in the school during the past year. It was stated by the principal that enrollment has remained fairly constant for some time. A larger enrollment is not possible without additional resources and staffing. The basic academic courses offered are arithmetic, general science, languages, social studies, and literature. Enrichment courses include Afro-American history, logic, bookkeeping, and personal finance. Some provision is also made to provide time for interested inmates to prepare themselves for high school equivalency examinations.

Both academic and vocational schools lack audio-visual equipment and test materials. The library facilities are extremely limited and most unattractive.

During the past year the Ohio Penitentiary offered its first college course to inmates. The course, Introductory Psychology, was attended by twenty men. This experience proved that there is sufficient inmate interest to justify the presence of college studies.

Educational Staff - Currently the vocational programs are under the guidance of two civilians, one guard who is qualified as an auto-mechanics instructor, and several guards who observe the activities. The vocational director is certified as an auto-mechanics instructor. He does no teaching. One guard has taken an auto-mechanics course, and is therefore said to be qualified to teach this subject. The general educational staff consists of a principal, three teachers, and approximately twenty inmates (clerical and custodial functions). All three academic teachers meet state certification requirements.

General Observations - There were no written objectives for the vocational program. Text and reference materials seem to be adequate for a "maintenance" program, but not for education purposes. The auto-mechanics program and the carpentry program are the only ones which have even a minimum amount of space. In both cases, the inmates can receive related instruction time as well as work time. All other programs are on-the-job-training (O.J.T.) programs serving few inmate students and not organized as educational programs. Inmate instructors receive one month "Good Time" credit for each three months spent as an instructor. Academic and vocational programs are housed separately and, in the opinion of the consulting team, there is little communication or coordination between them. The library offers virtually no specialized services for the vocational student. Security problems appear to limit the program due to the design of the facilities, and the nature of the inmates. Actual observation of the activities is almost impossible.

MARION CORRECTION INSTITUTION

Introduction - The buildings of the Marion Correctional Institution are relatively new, having been completed in 1956. Designed originally as a training school, need dictated that the institution be transformed into an adult correction center in which treatment was primarily work-oriented through maintenance programs and O.P.I. activities. Basic and vocational education programs have been added to the rehabilitation effort.

Statistical Summary - The inmate population consists of 923 persons in the main complex and 206 in the honor dormitory. The average stay is 23 months in length. The inmates' average educational level is that of the seventh grade. The institution consists of 1,300 acres, with 65 acres of stockade area. A 925 acre farm produces crops and livestock.

Physical Facilities - The physical facility is relatively new and readily adaptable to a first-class vocational training program. Considerable alteration of the space allotment would be needed, but this would not be a major problem.

Maintenance shops, in some cases, appear to have been allocated more space than needed. Of particular note was the amount of space allocated to the carpentry shop. Development of efficient work habits is impeded by what appears to be poor work patterns.

Vocational Programs - The following vocational programs were in evidence: Masonry, radio and television repair, auto-mechanics, auto transmissions, body repair, and welding. All programs, with the exception of welding, are inadequately housed and in need of additional new equipment. In some cases, additional staffing is also needed. Limitations on the length of the instructional period in selected programs (Example: Radio and television), impede the provision for advanced training for inmates capable of benefiting from extended vocational education experiences.

Some measure of the dedication of the vocational instructors and ancillary personnel is reflected in what they have accomplished with a minimum of space and financial support. Vocational programs have, and continue to be, developed. Goals have been established. Curricula are available, and usable skills are being learned by the inmate.

General Education Programs - Much of the teaching in adult basic educational programs is done by inmates who have had little training to prepare them to be teachers. This practice is not desirable, according to the inmates.

Educational Staff - There appears to be a dedication among the professional staff to the rehabilitation of inmates at the Marion Correctional Institution. It is questionable, however, if there is agreement as to how this should be accomplished. At all levels there is an acceptance of the idea that many inmates need vocational counseling, basic education and/or vocational education. High level staff personnel, including the superintendent, appear to support well-organized, vocationally-oriented experiences for inmates. There were some indications, however, that a substantial number of the guards lack a total commitment to formal vocational education programs.

General Observations - Routine work assignments in selected areas are marked by a pattern of activity during certain periods of the day and by corresponding prolonged periods of idleness. It is not unusual to find more inmates assigned to a work area than are really needed. The cause of this condition appears to be related to the size of the inmate population and the limited number of work and educational stations available.

Data concerning the inmates suggests that approximately 80 percent of them, when committed, are unskilled in terms of vocational proficiency. At the same time 81 percent have scholastic aptitude scores above the 90th percentile.

Inmates are screened for admission into vocational training programs

using the following criteria: Scores on the General Aptitude Test Battery (G.A.T.B.) and the Adult Test of Basic Skills; interviews with the educational program director, and the length of time to serve. Insofar as could be determined, these criteria are indiscriminately used with all inmates who apply for admission into a program. Vocationally-related problems encountered include: Not being able to live in the honor dormitory and be enrolled in an educational program at the same time; finishing an educational program and still having an extended period of time to serve at Marion; limited number of work assignments related to occupational skills acquired in a vocational program; and inadequate occupational placement and follow-up of inmates after release.

Comments by the present educational director indicate that he feels someone with more training in vocational guidance should be directing the screening of inmates for vocational programs.

O.P.I. activities at Marion seem overstaffed by inmates, take up too much space, and are seasonal in terms of units of production. Rather than teaching good work habits, inmates are apt to sit around for extended periods of time with little to do. Efficiency is at a minimum, and an extremely low rate of remuneration may very well reinforce the idea that it does not pay to work. In terms of providing vocational skills that an inmate can use when he is released, O.P.I. activities, such as the garment shop, appear to have a minimum of value.

CHILLICOTHE CORRECTIONAL INSTITUTE

Introduction - Ohio has a five-year lease with the federal government on the Chillicothe Correctional Institute. There are 77 separate buildings within the institution.

Statistical Summary - The majority of inmates housed at Chillicothe are between the ages of 42 and 50. Sixty-five percent of the inmates have physical limitations.

Physical Facilities - The physical plant is appropriate for most vocational education programs, but the prison population, equipment, and staff are inappropriate for vocational education. Maintenance seems to be a major problem within the institution. Since Ohio does not own the facility and may be occupying it on a temporary basis, the practicality of implementing vocational programs within the institution is, at this time, questionable.

Vocational Programs - For the most part, vocational programs at Chillicothe are offered through work assignments in the various shops. This arrangement allows maximum time for machine and other skilled work under the direction of a maintenance foreman.

At Sherman School, (the academic facility), the instruction presently being offered is mainly in the area of personal typing, with students

being given instruction individually. At the present time, there are ten old, but usable, typewriters available for educational use within the institution.

Emphasis on mechanical drawing has been increased by the recent addition of blueprinting. For the future, it is hoped that a drawing can be made, the blueprint run, and the finished product turned out within another facility on the premises. Course offerings in small appliance repair, and radio and television repair, have been offered for several semesters. Many students receive practical experience, but still need technical equipment and tools for this kind of instruction.

General Education Programs - By participation in both elementary programs and secondary programs, an inmate student can secure a complete elementary and secondary education. Promotion from one level to another allows the student to progress from his starting level through the eighth grade level. The eighth grade level is certified by the Ohio Equivalency Test.

The secondary program is designed to meet the needs of inmate students who have progressed beyond the elementary program and show a desire to continue their education. Courses in this program are available to the students who, by nature of outside scholastic achievements, or by achievement test (S.A.T.) results, demonstrate an educational competency in the high school range.

Educational Staff - The school is staffed by eight civilian teachers. In terms of certification, training, and years of teaching experience, this teaching staff is most competent and capable to meet the needs of the average inmate. A good day-to-day working relationship exists between inmate students and the civilian teachers. Needless to say, the advantages of such an open give-and-take are obvious in terms of rehabilitation and altered patterns of behavior.

General Observations - Most people employed at Chillicothe were hired as correctional officers and promoted into other positions. Some became vocational instructors. The vocational teachers are not professionally qualified and vocational education is almost non-existent at the institution.

Interest in educational pursuits exists within the institution, but staff and facilities are not adequate to meet the needs of inmates. Any vocational programs which would help them find employment on the outside are urgently requested by the inmates.

LEBANON CORRECTIONAL INSTITUTION

Introduction - The Lebanon Correctional Institution is one of the two newest correctional facilities now in operation. It encompasses

1,950 acres of land, of which 1,100 acres is under cultivation. The population is composed of younger inmates. It seems reasonable that this institution should have a major emphasis on the education of these residents.

Statistical Summary - Lebanon houses 1,343 inmates from 46 counties in western Ohio; the age range is from 18 to 30 years. The average age is 22½ years. The average length of stay is 13 months, 22 days. The majority of inmates are from broken homes and have limited education. The average grade level is 7.7. Forty-nine percent of the inmates are black. One hundred forty-nine inmates participate in drug rehabilitation programs.

General Physical Facilities - The facility is relatively new, clean, neat, and could have the appearance of a college campus. The present educational programs are housed in reasonably adequate facilities, except for the air-conditioning program and the radio and television program, both of which could use more space. Space could be made available through better allotment of space in the present O.P.I. shops, or, when one or two of the O.P.I. shops is moved to the Southern Ohio Correctional Facility.

Vocational Programs - Currently there are seven vocational education specialties in operation. They are: Air-conditioning and refrigeration--14 enrolled; auto-mechanics--16 enrolled; graphic arts--10 enrolled; radio and television repair--13 enrolled; key punch and data processing--23 enrolled; food service--15 enrolled; and welding, with 32 enrolled.

All of the vocational programs functioning in this institution are well-organized and well-planned. Each program utilizes about one-third of its total time for related class work. All programs have written goals and objectives. The textbooks are, for the most part, current and in adequate supply.

This institution has a dental technology class which is not a part of the vocational education department. This class is conducted as an apprenticeship program by a licensed dental technologist and is recognized as an accredited training program. Those inmates who complete the courses receive state certificates as registered technologists.

General Education Programs - There is a definite split between the academic education program and the vocational education program. There is little apparent cooperation at this time. They are housed apart and have offices in different sections of the building. Each gives no consideration to the other when scheduling, or planning programs.

Educational Staff - The vocational education staff is made up of eight certified vocational teachers, each of whom is teaching in his area of certification. The vocational supervisor is an experienced vocational business education instructor who is certified as a vocational teacher and vocational supervisor. The data processing program was

organized as a separate program under a contract with American University. However, within this fiscal year, this program will become part of the vocational education department, as the university contract will expire and the institutional staff will assume full responsibility.

The educational background of the staff members includes: One M.A. degree, one B.S. degree, and seven high school graduates. They have an average of 6.5 years of teaching experience and are of an average age of 37 years.

General Observations - The present administration seems oriented toward education. The library probably contains more books than any other library in the Division and has approximately 13 shelves of vocationally-related reference books.

This institution has one of the better potentials for becoming an educational correctional institution. All indications are favorable toward education; a good program exists, it has a youthful population, it is located near three large industrial centers, it has the space, and it has a good public image.

OHIO STATE REFORMATORY (MANSFIELD)

Introduction - All inmates are first offenders who have been sentenced for a felony. Most of the inmates are from the northern part of the state. The institution is old, and the building and facilities seem to be obsolete for serving the presently housed inmates.

Statistical Summary - Statistics are as follows: Inmate population--2,085; honor camp population--263; C.P.I.--240; full-time trainees (vocational and academic)--526; number enrolled in college programs--60; average age of inmate--22 years; average length of stay--19 months; percent of secondary school dropouts--90; actual average grade achievement level--9th grade; tested achievement level--6.5 grade.

Physical Facilities - This institution is about 90 years old and is in need of repairs. The complex is dark, dingy, and overcrowded. The overcrowded living conditions and the poor general environment undoubtedly cannot help reflecting on the narrow educational parameters that exist in the institution.

Vocational Programs - Vocational programs now offered are: Radio and television repair, masonry, welding, appliance repair, barbering, meat cutting, tailoring, machine trades, and automotive repair. The inmates attend classes six hours each work day. The vocational classes are six months in duration. Inmates must start classes at the beginning of a six month session. Selection and consideration for entering vocational programs is through the use of "kites."

The vocational education programs lack instructional equipment,

adequate space allocations, and evidence of curriculum planning. The absence of advisory committees and the lack of teacher training are obvious deterrents to achieving program excellence. The programs are also hampered by the fact that they are in separate facilities and therefore difficult to coordinate.

Instructional equipment in most of the programs is either non-existent or outdated. An example of this is the printing program. Ninety percent of the equipment in this shop would be considered obsolete by people in the industry. The entire operation is centered around linotype and platen presses. This equipment is used only sparingly by industry today. Offset lithography, photographic type-setting and offset platemaking processes were conspicuous by their absence.

Most of the programs would not meet the state standards for space requirements for particular vocational programs. The welding shop, for example, occupies only about half of the space that is normally required for such a program.

General Education Programs - The academic program appears to be inadequate. Though there is a planned schedule of classes and programs, they seem to be poorly organized. Discipline in class is lax. Attendance is low. The facilities, however, are adequate, and all teachers meet state certification requirements.

Educational Staff - Even under the poorest of instructional conditions, some excellent performances were evident. However, in most instances, too many inmates observed were idle or involved in meaningless projects. The need for teacher training in shop organization, development of task analysis, and in understanding inmate motivation was most evident.

General Observations - Interviews of 13 inmates brought forth the following facts.

A career orientation program does not exist, and the inmates indicate their interest in a program by using a "write." All of the inmates interviewed seemed to be unaware of the many occupations that exist in our complex industrial society. Some were not even aware of the vocational programs offered at the institution.

The emphasis is on obtaining a high school diploma rather than on vocational training. The value of struggling through five or six years of junior high and high school classes at the expense of vocational training is questionable. This is especially true since a General Educational Development (G.E.D.) high school equivalency can be obtained in a much shorter period of time.

Vocational training must exist at several different levels. The 13 inmates interviewed appeared to fall into an intelligence quotient range of 75 to 130 (estimated). If this is a truly representative group of

inmates, it would indicate the need for a wide range of diversity in program levels.

Inmates indicated the need for incentives to be built into the training programs. They suggested that incentives could come in the form of a higher wage, more "Good Time," etc. The view is that incentives could create better motivation and hence better training alertness.

Inmates sometimes must wait as much as a year to get into a vocational program.

The general feeling of the inmates is that some correction officers are against inmates attending school.

LONDON CORRECTIONAL INSTITUTION

Introduction - Information for this status report has been gathered from the following sources: Institutional visitation observations; interviews with institutional administrators, staff members, teachers, and inmates; the 1969-70 annual report of the London Correctional Institution.

Statistical Summary - This is not a receiving institution. Approximately 800 men per year are transferred from the Ohio Penitentiary. The present population is 1,360 men. The average length of stay is 22 months. The average age of the inmates is 32 years. The average tested grade level achievement of the inmates is 6.7, with 30 percent scoring below the 25th percentile norm on standardized tests. Sixty percent of the inmate population is black.

Physical Facilities - The London Correctional Institution was completed about 1925. It was built to accommodate 1,500 to 1,800 men. It has a total of 77 buildings on 3,000 acres of land. The inmates are housed in open dormitories of 100 to 200 men in each. Three cell blocks provide a total of 203 cells. An honor dormitory presently houses 300 men.

London, like Chillicothe, has a complex of 77 buildings. However, London differs in the fact that all living and working spaces are connected under one roof, except for farm and dairy buildings.

Educational Programs (Vocational and General) - The educational facilities are housed in the basement of one wing of the main building. A vacated dormitory provides additional space. The basic time of operation is during the evenings between 5 p.m. and 8 p.m., and on Saturday mornings. This coincides with inmates' free time.

There are approximately 400 inmates participating in the educational program. The curriculum includes the following subject areas: Elementary education--two semester (4½ months each); a high school program, consisting of self-study; auto-mechanics--an 8 to 9 months course; masonry

and bricklaying--a 5 months course; basic skills (custodial maintenance)--30 weeks course; drafting and blueprint reading--a 16 week course; clerical record keeping--one semester (4½ months); and dairy production--a 19 weeks course, plus 90 days of on-the-job training.

Training activities are carried on in the maintenance shops, at the prison farm, and within the Ohio Penal Industries (O.P.I.). There are four men participating in an approved apprenticeship program in the machine shop. Other maintenance shops include plumbing, electrical, carpentry, paint, automotive, and power plant. These shops informally accommodate approximately 100 men.

The prison farm has 200 inmates assigned to its work force. Activities include the raising of vegetables, grain, and livestock, as well as dairy production. This work program is not recognized as a vocational agricultural program.

The O.P.I. at London consists of three active industries and provides employment for 270 inmates. These industries are a garment factory, a brush factory, and a soap factory.

The custodial maintenance programs seem to be written above the comprehension level of the inmates in that program.

Educational Staff - The staff is composed of five certified public school teachers and one correctional officer. Of the six teaching staff members, only one is a full-time teacher at the London institution, and he is teaching two courses (auto-mechanics and dairy production) in which he has had limited work experience and educational training. None of the teachers are certified in the areas in which they are teaching, and most have had little or no occupational experience in their instructional areas.

Staff members seemed to be interested and dedicated to their work in the educational program and appear to be doing a reasonably good job considering the limited facilities and resources available.

General Observations - The operating philosophy of the London Correctional Institution is that all inmates will work at institutional job assignments. Although the institution is considered to be a medium security facility, there seems to be considerable emphasis on the security and control of inmates.

The educational facility, located in the basement and securely locked behind large steel doors, suggests that there is limited access to education and that it is second to custody and control, in terms of priority.

The philosophy that men are more motivated to education after a hard day of work, and the fact that they must give up other privileges to attend classes, are not adequate reasons to justify limiting educational opportunities to the evening hours.

The facilities of the school are limited in space and equipment; however, everything seemed to be well organized and maintained. The inmates participating in the programs appear quite serious and interested in the course work. It is evident that the school principal is all business and would tolerate no nonsense from the inmate students.

Vocational education programs at London are limited to auto-mechanics, masonry, and custodial maintenance. The drafting course is more related to an industrial arts course, and the dairy processing course is more of an on-the-job training program than a formal vocational course.

There seems to be little evidence of coordination among the educational program, the institutional maintenance program, and the O.P.I. toward vocational education goals for inmates.

Those persons making the most impact on the promotion of the vocational education program at London are the associate superintendent of treatment and the principal. They utilize a theoretical team approach for program development based on studies of inmates, and the recommendations of staff members, inmates, and outside sources.

OHIO REFORMATORY FOR WOMEN (MARYSVILLE)

Introduction - This is Ohio's only correctional institution serving the state's female population.

Statistical Summary - The number of inmates is 270. The average age of the inmates is 26. The average length of confinement is 16 months. The average grade level of the inmates is 7.5. The attitude toward vocational education is fair to good.

Physical Facilities - In general, the condition of the buildings on this campus-type facility is average to good. Housing for the women is adequate. The food service area is not designed for effective and efficient operation. The school facilities (Clearview School) is a sound, well-constructed building. The academic programs and home economics program are housed in this building. Some educational time is alloted for keypunch instruction in the O.P.I. keypunch program located in the school.

There are other programs that are housed in the various buildings throughout the campus. Cosmetology is located in the same building with various O.P.I. operations. Food service, meat cutting, and baking are taking place in another building.

Vocational Education - IBM keypunch instruction is offered in cooperation with and/or for the Ohio Penal Industries. Cosmetology is a 1,500 hour registered program that leads to state certification.

Home economics is a non-vocational course offering, with emphasis

in feeding, clothing, housing, budgeting, child care, and relationships in the home and community.

Food service is offered via on-the-job training, with one hour of related instruction per week. Meat cutting, baking and sewing have no related instruction, but are offered via on-the-job training.

With the exception of the cosmetology program, all programs are provided strictly to satisfy the needs of the institution.

General Education - Clearview School is an ungraded school offering four phases of general academic education. Phase IV is comparable to primary grade levels. To be eligible to advance to Phase III a student must achieve at the 4th grade level (as measured on the California Achievement Test). Phase III is comparable to the intermediate grades. To be eligible for advancement to Phase II a score at 7th grade level must be attained. Phase II is comparable to grades 8 thru 12. Phase I encompasses graduate courses in commercial studies, special tutorial programs and Bureau of Vocational Rehabilitation sponsored college courses.

The vocational programs are not necessarily considered to be under the jurisdiction of the educational department.

Educational Staff (Vocational Only) - Cosmetology has professional, state-certified instructors. Three instructors are registered. Other instructional areas could possibly have their teachers certified as instructors, but at the present time they are not.

SOUTHERN OHIO CORRECTIONAL FACILITY (LUCASVILLE)

Introduction - A long shakedown period is scheduled to follow the opening of the institution, and the facility's maximum capacity of 1,625 inmates may not be reached for at least a year thereafter.

All vocational programs are tentative and no equipment has been purchased to date (March, 1972). The following information is based on a predicted population. The vocational programs listed are those recommended to the Commissioner of Corrections, by the Ohio University group, on February 19, 1972.

Statistical Summary - Predicted statistics are as follows: Inmate population--1,625; Honor camps--unknown; O.P.I.--200; Full-time vocational students--360; Apprenticeship programs--20; and the Maintenance programs--800 participating inmates.

Physical Facilities - All inmates will be housed in single cells with each cell block having its own day room for inmate recreation.

Most of the inmates will be classed as maximum security prisoners. There will be one cell block for medium security prisoners (cadre) and one cell block for death row prisoners.

The new facility is well-lighted and almost all inmates are able to view the grounds from their cells. It also appears that the facility will be easy to keep clean because of tiled floors and walls.

One of the real problems concerning the facility seems to be in the planning and implementation of education programs. The vocational programs were planned after the building structure was completed.

Vocational Programs - Vocational programs recommended are: Auto body repairs; automotive; welding; appliance repair; machine trades; radio and television repair; heating and air-conditioning; diesel mechanics; and horticulture. Inmates will attend classes 4.5 hours per day. All instruction will be modular, allowing an inmate to enter any program at the beginning of each month. Objectives and course outlines have been prepared for each of the vocational programs.

All vocational programs will be housed in one wing of the building, sharing space with O.P.I. and the maintenance operations. Space allocations in all instances, will meet the minimum state standards set by the Division of Vocational Education.

Equipment lists have been compiled for all programs. The proposed instructional equipment expenditure will amount to nearly $400,000. No figure is available for the architectural changes that will have to be made.

General Education Program - It is recommended that a complete high school credit program be developed at the institution, along with a G.E.D. and Adult Basic Education (A.B.E.) program.

Educational Staff - Instructional staff members have not been hired to date. It has been suggested that M.D.T.A. and other teachers with adult education experience be recruited for the teaching positions.

STUDY COMMITTEE REPORTS

The consulting team, for pupose of efficiency also sub-divided itself into four committees to examine existing educational programs across institutional lines. These committees were; vocational education study committee, staff study committee, equipment and facilities study committee, and trainee study committee. Each of these reports follow.

VOCATIONAL EDUCATION STUDY COMMITTEE REPORT

Introduction - The purpose of the vocational education study committee was to determine the status of existing vocational education programs within the adult correctional institutions operating under the Division of Corrections of the State of Ohio, during the period November 1, 1971, to February 1, 1972.

Each institution was visited; inmates, instructors, and administrative personnel interviewed; educational materials examined; facilities and equipment viewed; and classrooms and laboratories observed. Reports of these visits were compiled; information assembled; and evaluations made for the preparation of this report.

General Observations - Personnel assigned to vocational education generally have done an exceptional job within the limits of training, space, finances, equipment, and materials available. There is evidence of sincere effort and dedication on the part of individual persons assigned to vocational education.

Particular institutions exhibit exceptional creativity and quality of programs in certain limited areas.

Quality vocational education, however, (as defined by vocational education experts), is practically non-existent in most correctional institutions. There is a lack of coordinated philosophy and development of programs, both among and within institutions.

There is no definite commitment and real dedication to the purposes of vocational education.

The scarcity of qualified personnel, the dearth of materials, equipment and assigned space is evident.

There is little interchange of ideas and resources among the services and professional staffs and the educational personnel.

The environment in the laboratories and the classrooms is not conducive to vocational learning and is not compatible with the outside world of work.

Program Planning - Most of the institutions have a written philosophy, goals and objectives, and course descriptions for their vocational programs. These appear to be adequate. It appears, however, that many of these concepts are not being carried out. There is no state-wide coordination of the philosophy, goals, and objectives for rehabilitative vocational education.

There seems to be little input of ideas and data in the planning of programs from groups such as the Adult Parole Authority, the Ohio Bureau of Employment Services, and others. Recent developments within the Manpower Development Training programs, and the Bureau of Vocational Rehabilitation, indicate possibilities for such cooperation. There is little evidence of liaison between the Division of Vocational Education of the State Department of Education and the Division of Correction of the State of Ohio.

Enrollment in vocational programs is limited because of the number of course offerings and facilities available for this purpose. The most

prevalent reason for enrollment is to better insure a good record for parole. Deterrents to enrollment include: Peer pressure, conflict with free time, the length of the courses, and inflexibility of program scheduling.

Selection procedures for students vary within the Division of Correction and are not generally based on standardized criteria. Vocational education is not available to all inmates.

The needs of the institutions tend to receive priority, and be met over the needs of inmates.

Surveys and data gathering procedures are not being used for planning and development of programs.

No vocational follow-up procedures are clearly outlined for the inmate between initial parole and final release from parole.

Work assignments within institutions rarely correlate with inmate training.

Quality of Instruction - The same general methods of instruction are used that are prevalent in vocational education in public secondary schools.

The allotment of time for most vocational programs is inadequate.

Most of the practical shop experiences are limited in nature and are not related to the specific objectives of the course. The maintenance needs of equipment and buildings and facilities would seem to offer an opportunity for such practical experience.

Persons assigned as vocational education instructors appear to be generally competent in their area of vocational experience. Inmate instructors are used in a few programs; the peer relationships are observed to destroy the educational climate for classes and laboratory training. The use of inmates as aides to the instructor is also a questionable practice. The presence of security personnel in the classroom may further limit the learning environment.

There are no female instructors in vocational education in the male adult correction institutions.

The quality of instruction and participation by the student is severely limited by the physical allocation of space, materials, and equipment.

Textbooks are generally outdated.

Reference materials are in short supply except for service manuals in limited areas.

Institutional libraries contain almost no resources related to vocational education. Libraries are not accessible to the inmates during enough of their free time.

Audio-visual materials and equipment are, for all practical purposes, non-existent. Other teaching aids and materials are limited, both in number and in availability.

Community resources are used to a limited degree. Advisory committees are not used except in a few apprenticeship programs.

There is little liaison between the Division of Correction and the State Department of Education, the Division of Vocational Education, local vocational schools,and other educational institutions.

Placement is not a function of the present vocational programs. However, a few contacts are made by individual instructors to assist their students.

There is little correlation of instruction between basic educational skills and vocational training.

At present there seems to be a lack of commitment and dedication to the purposes of vocational education throughout the institutions, as evidenced by allotments of space, personnel, resources, and finances.

The on-the-job training provided by the maintenance departments and the O.P.I. are geared to meet the needs of the respective institutions and are not practical for consideration as training for employment.

Each power plant, except Marysville, trains individuals as firemen and stationary engineers. These programs are not correlated with the vocational education programs. This training is usually a self-study program which enables the inmate to take the state test when he feels he is ready. No formal or direct instruction is used in this program. This program is not a part of the vocational education department.

Table I which follows, is a compilation of the institutions' educational data that has been assembled.

TABLE I

EDUCATIONAL DATA

Y = Yes N = No

	Chillicothe	Ohio Penitentiary	Lebanon	London	Mansfield	Marion	Marysville
1. Have a written philosophy for the vocational education program.	N	N	Y	Y	Y	Y	Y
2. Have written goals and objectives for vocational education programs.	N	N	Y	Y	Y	Y	Y
3. Have written course descriptions for vocational classes.	N	Y	Y	Y	Y	Y	Y
4. Evidences cooperation with the Adult Parole Authority, Ohio Penal Industries, Ohio Employment Services, etc., in planning	N	N	N	N	N	N	Y
5. Text materials are current (within five years)	N	Y	Y	N	Y	Y	N
6. Reference materials are available and used.	N	Y	Y	Y	Y	Y	N
7. Trainees can begin training in a class							
any time	Y	Y	N	N	N	N	N
semester	Y	N	Y	Y	Y	Y	Y
8. The enrollment is voluntary.	Y	Y	Y	Y	Y	Y	Y
9. Apparent deterrents to enrollment in vocational education							
peer pressure	N	Y	N	N	Y	N	N
time of day	N	N	N	Y	N	N	N
age	Y	N	N	N	N	N	N
10. Vocational educators utilize resources of other rehabilitation services to a significant degree	N	N	Y	Y	N	N	Y
11. Vocational and academic teachers cooperate and work together	Y	N	N	Y	N	Y	Y
12. Advisory committees are used	N	N	N	N	N	N	N
13. Outside groups, public schools, etc., are utilized for educational purposes to a significant degree	N	N	N	N	N	N	N
14. Shop and related instruction is coordinated	N	N	N	Y	Y	Y	Y
15. Employ a modular course design	N	N	N	N	N	N	N
16. Individualized instruction is used in most related classes	N	Y	N	N	N	N	Y

TABLE I (continued)

EDUCATIONAL DATA

	Chillicothe	Ohio Penitentiary	Lebanon	London	Mansfield	Marion	Marysville
17. Multi-media instructional materials are available and used	N	N	N	N	N	N	N
18. Library provides additional reference materials for vocational students (effort to provide material is made)	N	N	Y	N	N	N	N
19. Selection procedure includes							
longevity	Y	Y	Y	Y	N	Y	Y
student abilities	N	N	Y	Y	N	N	N
occupational skill level	N	N	N	N	N	N	N
20. Apparent student motivation for enrollment							
parole	Y	Y	Y	Y	Y	Y	Y
want to learn	Y	Y	Y	Y	Y	Y	Y
get out of work assignments	N	N	N	N	N	N	Y
21. The program appears to change the attitude of inmates	N	N	Y	Y	N	Y	Y
22. Follow-up	N	N	Y	N	N	N	N
23. Instructors (irregardless of qualifications) appear to be competent, confident, and are capable of teaching	N	N	Y	Y	Y	Y	Y
24. Security problems limit the program	N	Y	N	N	N	N	N
25. Utilize outside films, demonstrations, etc. in the instructional programs	Y	N	N	N	N	N	N
26. Standardized tests are utilized in counseling students							
GATB	N	N	Y	N	N	Y	Y
SAT	Y	Y	N	Y	N	N	N
Minnesota Paper Form	N	Y	N	N	N	N	N
California Test of Adult Basic Education	N	N	N	N	N	Y	N
Bennett Mechanical Comprehension	N	Y	N	N	N	N	N
Kuder Interest Inventory	N	N	Y	N	N	N	N
27. Vocational programs available (as claimed by the institutions)							
Air conditioning and refrigeration	N	N	Y	N	Y	N	N
Auto body	N	N	N	Y	N	Y	N
Auto mechanics	N	Y	Y	Y	Y	Y	N
Auto transmission	N	N	N	N	N	Y	N
Basic skills (custodial)	N	N	N	Y	N	Y	N
Business and office	N	N	N	N	N	N	Y

TABLE I (continued)

EDUCATIONAL DATA

27. Vocational programs available (as claimed by the institutions) (continued)	Chillicothe	Ohio Penitentiary	Lebanon	London	Mansfield	Marion	Marysville
Carpentry	N	Y	N	N	N	N	N
Cosmetology	N	N	N	N	N	N	Y
Dairy production	N	N	N	Y	N	N	N
Data processing	N	N	Y	N	N	N	Y
Drafting and blueprint	N	N	N	Y	N	N	N
Food service	N	N	Y	N	N	N	N
Graphic arts	N	N	Y	N	N	N	N
Home economics	N	N	N	N	N	N	Y
Masonry	N	N	N	Y	Y	Y	N
Medical laboratory assistant	N	N	N	N	N	Y	N
Record keeping	N	N	N	Y	N	N	N
Radio - TV	N	Y	Y	N	Y	Y	N
Small appliance	N	Y	N	N	N	N	N
Tailoring	N	N	N	N	Y	N	N
Typewriter repair	N	Y	N	N	N	N	N
Watch repair	N	Y	N	N	N	N	N
Welding	N	Y	Y	N	Y	Y	N

Note: This table is based upon total programs. Individual instructors or classes within the institution may vary.

STAFF STUDY COMMITTEE REPORT

Purpose - It was the purpose of this committee to examine the present status of the vocational education teaching staff in the seven adult correctional institutions, with regard to professional preparation, occupational experience, and such other factors as may have a bearing on the success of vocational education programs in the institutions.

The information presented here was derived from the following sources: Visitations to all of the institutions; interviews with the educational directors and staff of the institutions; data provided from members of the Vocational Research Team; and observations of the staff study committee.

A questionnaire containing 18 questions was used as a basis for compilation of the data for this report. This instrument and the findings it generated are incorporated in Table II.

General Observations - The person providing the greatest impact for

vocational program and implementation in the institutions is, in most cases, the school principal or director. Generally, he works closely with the institutional superintendent, or the assistant superintendent of treatment, in program development. In all cases, the superintendent must give his approval before a program is implemented.

Determining the educational philosophy for the institution is the responsibility of the superintendent. Many factors seem to affect how he determines this educational philosophy. Some of these are the educational backgrounds and experiences of the superintendents and their administrative staffs; the inmate population; custodial security requirements (minimum, medium, or maximum); physical facilities; and financial considerations.

The greatest number of full-time vocational teachers are found in three institutions: Marion, Lebanon, and Mansfield.

Part-time teachers are used to a greater extent at London because of the evening programs. Lebanon utilizes institutional staff members with other primary duties as part-time teachers.

Seventy-seven percent of the institutional vocational teachers are certified by the Ohio Department of Education.

Only 65.7 percent of the vocational teachers are certified in the subject areas in which they are teaching, and most hold only temporary certification.

Approximately 66 percent of the vocational teachers have had occupational experience in the areas they are teaching. There is a range of from 1 to 35 years in their experience.

One vocational teacher has less than a high school education. The majority have graduated from high school and five have a B.S., or B.A. degree.

Four school principals, or education directors, hold master's degrees; two hold B.S. degrees; and one is a high school graduate.

The average age of vocational teaching staff members is 45 years.

Teaching experience of staff members is mainly limited to institutional teaching. Part-time teachers have greater experience in teaching outside the correctional setting.

Improved salaries is the greatest motivational incentive for attracting qualified staff. Supplemental income is the greatest attraction for part-time teachers and most teachers interviewed said they found the work interesting.

Only the Ohio Penitentiary uses inmates as vocational teachers. In most cases the teachers have completed the program or have occupational experience in the area in which they teach.

All institutions use inmate teacher aides to a great extent.

None of the institutions offer any pre-service teacher education programs for vocational staff.

None of the institutions use any in-service teacher improvement programs.

The responsibility for providing pre-service or in-service education for vocational staff is not clearly defined in most institutions.

Most educational staff members have no orientation and little knowledge as to the operation of the total institution.

There seems to be good communication among vocational education staff members, but little communication between the vocational and academic educational staff. This may be accounted for by the separation of vocational facilities from the academic facilities and because some principals tend to place academic teachers on a higher status level.

All vocational teachers interviewed said they would be very interested in participating in meaningful in-service teacher education programs.

Teacher Competence and Quality - A notable fact that needs to be brought to the attention of all is the total lack of vocational teacher education and training of the teachers in the correctional institutions. This clearly points to the need for Division-wide, in-service, teacher education programs.

The occupational trade experience of the teachers is, for the most part, outstanding. Many have a considerable number of years of experience, have owned and operated their own businesses, or have worked in supervisory capacities which involved the instruction and training of employees.

Recognition needs to be given to the fact that most of the teachers are sincerely interested in their work, and are attempting to do an effective job of teaching the inmates. However, it is obvious that some of the teachers do not distinguish between industrial arts and vocational education.

Despite the lack of formal vocational education of the teachers, the limited equipment and facilities, the problems of movement and security of the students, the resistance to education of inmates by some correctional officers and some administrators, together with other problems inherent to a correctional institution, vocational education is taking place because of the efforts of vocational teachers and administrators.

TABLE II

FINDINGS OF STAFF STUDY COMMITTEE

	London	Marion	Lebanon	Mansfield	Marysville	Chillicothe	Ohio Penitentiary
1. Who determines most impact for program development and implementation in the institution							
Superintendent						X	
Assistant Superintendent-Treatment	X						
School Principal or Director	X	X	X	X	X		X
2. Who determines the educational philosophy for the institution							
Superintendent		X	X	X	X	X	X
Assistant Superintendent-Treatment	X						
School Principal or Director	X	X					
3. Number of full-time vocational teachers	1	5	6	7	3	1	1
4. Number of part-time vocational teachers	3	1	4	1	2	0	0
5. Number of vocational teachers certified by the Ohio Department of Education	3	5	6	7	5	0	1
6. Number of teachers certified in the area they are teaching	0	5	5	7	5	0	1
7. Number of teachers who have had occupational experience in the areas they are teaching	0	5	7	7	4	1	0
8. Educational background of teachers							
Less than high school		1					
G. E. D.		2	1			1	
High school graduate	1	2	6	8	4		1
B. S. degree	2	1	1		1		
M. A. degree							

TABLE II (continued)

FINDINGS OF STAFF STUDY COMMITTEE

	London	Marion	Lebanon	Mansfield	Marysville	Chillicothe	Ohio Penitentiary
9. Educational background of School Principal or Director							
High school							1
B. S. degree					1	1	
M. A. degree	1	1	1	1			
10. Average age of teaching staff	47	53	37	50	30	48	51
11. Average number of years teaching experience							
Outside the institution	14	0	2	1	0	0	0
Inside the institution	8	4	4.5	5	2	5	4
12. What motivational incentives attract qualified teaching staff							
Improved salary	1	5	5	6	3	1	1
Supplemental income	3	1		2	2		
Fringe benefits							
Job security							
Interesting work	4		3	5	3		
13. Number of inmates used as teachers	0	0	0	0	0	0	6
14. Number of inmates used as teacher aides	6	15	19	15	5	6	2
15. Are there any pre-service education programs for teachers	no	no	no	no	no	no	no
16. Are there any in-service teacher improvement programs used	no	no	no	no	no	no	no

TABLE II (continued)

FINDINGS OF STAFF STUDY COMMITTEE

	London	Marion	Lebanon	Mansfield	Marysville	Chillicothe	Ohio Penitentiary
17. Who is reeponsible for pre-service and in-service education of staff							
Superintendent							
Associate Superintendent-Treatment	X					X	X
School Principal		X	X	X	X		
18. Are educational staff members oriented as to the operation of the total institution	no	no	no	no	no	no	no
19. Is there good communication between educational staff members	yes	yes	no	yes	yes	yes	yes
20. Number of teachers that would like to have in-service training	4	5	6	7	4	1	1
21. Number of teachers not interested in in-service training	0	0	0	0	0	0	0

EQUIPMENT AND FACILITIES REPORT

Introduction - The consulting team felt it was important to consider the quality and quantity of both the educational equipment and the physical facilities provided for vocational education within the institutions. To objectively judge the equipment and facilities a check list of 26 questions was designed and tested in one institution. After some minor changes in the measuring instrument, the revised check list was used to record the committee's findings in each institution visited.

Table III, following, provides a summary of the findings on equipment and facilities. A rating of '1' indicates excellent; '2' indicates good; '3' indicates fair; '4' indicates poor; and '5' indicates the subject item or condition was non-existent.

General Observations - In some cases, the committee found satisfactory facilities and educational equipment used to provide vocational education. However, the general overall observation is that the physical facilities in use at the current time in the correctional institutions of Ohio are below satisfactory standards for providing meaningful vocational programs.

Few related classrooms are available for the instructional programs. Most of the teaching laboratories are not of proper size to conduct meaningful vocational programs. The committee observed the same course in electrical appliance repair being taught in two different institutions. In one institution the laboratory was much too small to carry on a meaningful program, while in the other institution the shop facilities for the same trade class were much too large.

There is a critical shortage of adequate washup and locker facilities for the learners and adequate storage facilities are not provided. Even when large areas are available for vocational education, the storage spaces are not supplied with the necessary shelving, or partitioning. Little storage is available for jobs in progress and for supplies of educational materials, such as mock-ups.

The committee is particularly concerned that the facilities for vocational education are not generally located near the facilities used for academic education. All too often the vocational facilities are located in isolated places within the institutions. This arrangement fosters an impression that vocational education is not closely related to academic education.

Although new welding machines are in use in two vocational welding programs, generally speaking, the equipment used for vocational education purposes leaves much to be desired. In many instances, the equipment in use is government surplus, or has been donated, and is not necessarily designed for, not conducive to, good training. Much of the equipment in use in the institutions would be considered obsolete by potential employers. The equipment used for vocational training purposes should be compatible with that in use by the potential employers of the graduates.

Every institution visited has some type of library facility. However, the libraries are not located near the vocational facilities and, all too often, the libraries are not open enough during the day for maximum use by the learners. Few recent publication dates could be found in the library sections dealing with technical and vocational training. With some exceptions, the libraries were drab, lacking in color and comfort.

The standards of safety practices within the shop areas need to be upgraded if vocational education graduates are to learn the proper habits to be applied on the job after release from the institution. Safety practices and instruction are important segments of vocational education.

Although the committee found some isolated programs adequately housed and with satisfactory equipment, this condition was not common. Most vocational education programs are poorly housed and poorly equipped. The committee is cognizant of the efforts put forth by the institutional superintendents and the faculties to promote the limited vocational offerings currently in existence. The committee wishes to compliment these dedicated individuals for their efforts. However, if meaningful vocational education programs are to exist for the betterment of inmate rehabilitation, substantial amounts of money will be needed to provide the equipment and facilities necessary in which to conduct efficient and productive programs.

TABLE III

EQUIPMENT AND FACILITIES

Code: 1 - Excellent
2 - Good
3 - Fair
4 - Poor
5 - Non-existent

	Chillicothe	Ohio Penitentiary	Lebanon	London	Mansfield	Marion	Marysville
1. What is the general condition of related classrooms:							
a. Lighting	3	3	2	3	4	3	3
b. Heating	3	3	2	3	4	3	3
c. Ventilation	3	4	4	2	4	4	3
d. Cleanliness	4	4	2	2	4	2	3
2. Size of the related classroom	3	3	2	3	4	4	3
3. What is the general condition of the laboratories?	2	3	2	2	4	3	2
a. Lighting	2	3	2	3	3	3	3
b. Heating	3	3	2	3	3	3	3
c. Ventilation	3	3	3	3	4	3	3
d. Cleanliness	2	4	3	2	4	2	2
4. Size of the laboratory (shop)	2	4	2	3	4	3	3
5. Respective location of shop and related rooms	3	3	2	4	3	3	4
6. Adequacy of washup and locker facilities	4	3	3	4	4	3	3
7. Adequacy of tool storage and checkout system	4	3	3	3	4	3	3
8. Storage facilities for jobs and supplies	5	4	4	4	4	4	3
9. Storage facilities for educational material (mock-ups)	4	4	4	4	4	4	4
10. Adequacy of office space for teachers	3	3	3	3	3	3	3

TABLE III(continued)

EQUIPMENT AND FACILITIES

	Chillicothe	Ohio Penitentiary	Lebanon	London	Mansfield	Marion	Marysville
11. Location of vocational facilities in relationship to academic facilities	4	4	2	4	4	4	3
12. Adequate facilities as viewed by present staff	3	3	2	3	3	3	3
13. General condition of shop equipment	3	4	3	3	4	2	3
14. Age of equipment appropriate to training objectives	4	4	3	3	4	3	2
15. Availability of audio-visual equipment	3	4	3	4	4	3	3
16. Availability of audio-visual material	3	4	2	3	3	2	3
17. Availability of library facilities	4	4	2	2	4	3	3
18. Relevancy of textbook materials	4	4	3	3	3	3	3
19. Supply of textbooks	4	3	3	3	3	3	3
20. Adequacy of educational supplies	3	3	3	3	3	2	3
21. Arrangements to replace obsolete equipment	5	4	4	4	4	4	4
22. Method of requisitioning supplies	3	3	3	3	3	3	3
23. Provisions for maintenance of equipment	4	3	3	4	4	4	4
24. Shop safety practices	4	4	3	3	4	3	3
25. Utilization of shop and related facilities	3	3	2	4	3	2	2
26. Design of educational facility to provide security with minimum effort	2	4	2	2	2	2	2

Note: When the consulting team visited Lucasville the facility for vocational education was not completed. Therefore, it was impossible to evaluate their physical facilities.

TRAINEE STUDY COMMITTEE REPORT

Introduction - Approximately 9,800 men and women are presently incarcerated within the correctional system of Ohio. About 4,000 of this group are released annually, after completing sentences, or becoming eligible for parole. Unfortunately, another 4,000 people will, during this period, be sentenced by the courts and will enter the system, keeping the population relatively stable. The population though stable is not static, as is to be seen in the statistics contained in this report. The stability and mobility of the inmate population, the age range, the intelligence quotient ranges, etc., are all important considerations for determining training programs for inmates. The results of a questionnaire which elicited these facts at each of the seven institutions is also contained in this report.

The data presented herein were collected by the sub-committees of the consulting team. Collection procedures included visits to correctional institutions; interviews with inmates, guards, and administrators; a questionnaire survey; and the review of data collected by other sub-committees and research teams.

The information reported is considered to be accurate within a range that permits program planning. However, in some instances this report reflects judgments based upon experiences rather than actual measurements of inmate characteristics at a particular point in time. This limitation is caused by the continual population change taking place within each institution. The average period of incarceration for all adult correctional institutions is approximately 23 months, hence small deviations may be expected from data collected during different time periods. Collection of data was also restricted by the limited facilities currently available in the Division of Correction to maintain data files.

Exploration of How People Enter the Ohio Penal System - The courts in the various counties sentence criminals to be incarcerated within the Ohio penal system. The Ohio State Reformatory (OSR), the Ohio Reformatory for Women (ORW), and the Ohio Penitentiary (OP) are the three main institutions and points of entry for persons convicted of felonies in Ohio's Common Pleas Courts.

The Ohio Reformatory for Women is the only prison for women in the state and is, therefore, a self-contained institution. This is not true of either the Ohio State Reformatory or the Ohio Penitentiary.

Four categories of inmates enter into the Ohio penal system at OSR in Mansfield, Ohio: 1. First time offenders convicted of a felony who are under 30 years of age; 2. Judges may also sentence men between the ages of 21 and 30 to this facility; 3. Youthful offenders under 21, if convicted of a felony; and 4. The Ohio Youth Commission (OYC) may transfer incorrigible inmates from its institutions.

Men over 30 years of age who have been convicted of a felony, and men

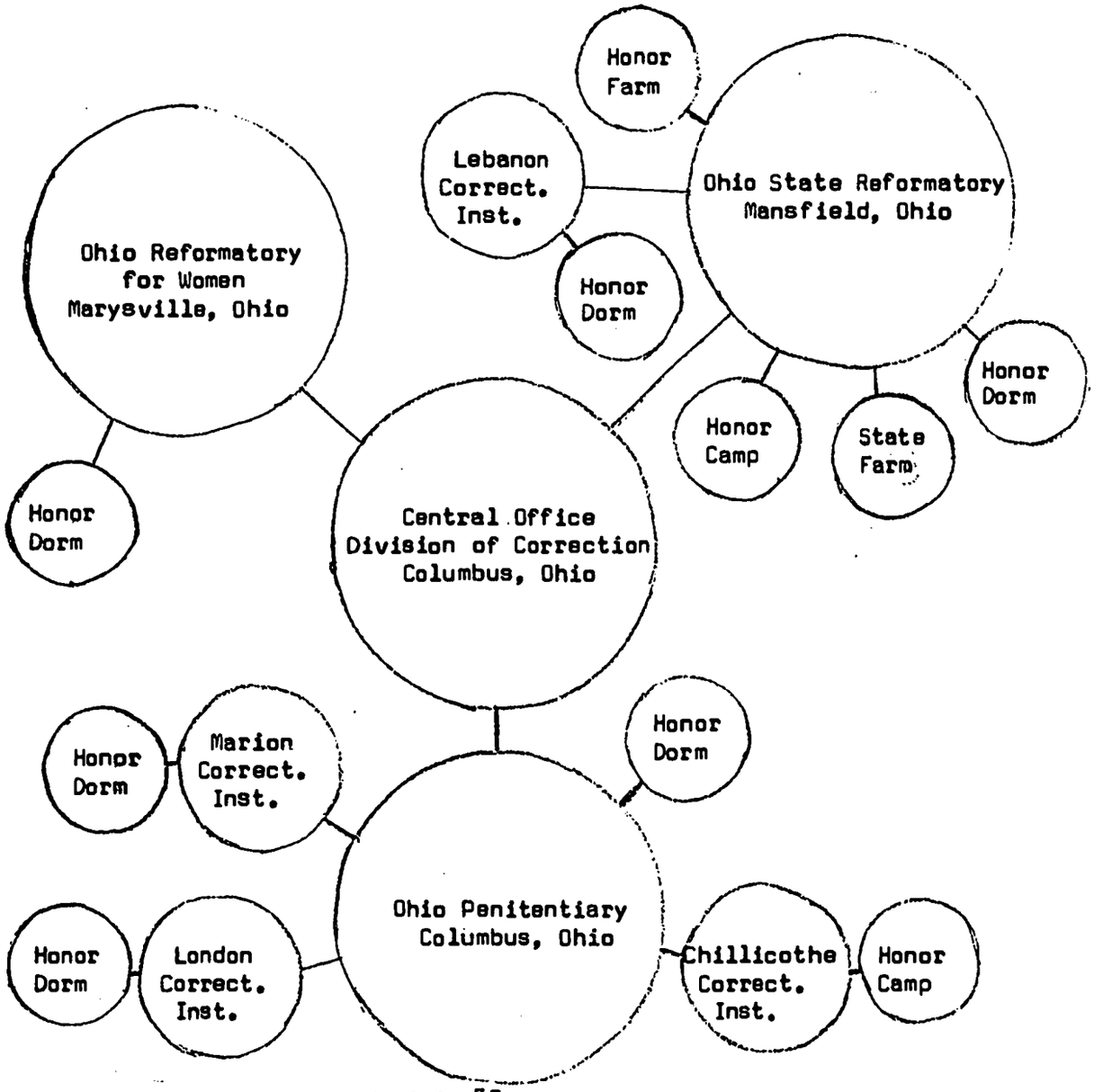
between 21 and 30 who are specifically sentenced, must go to the OP. Also, regardless of age, men convicted of murder, treason, or sedition, must go to the OP. Table IV depicts the receiving units and satellite operations.

A study conducted in 1969 reports that 1,895 individuals were sentenced to the Ohio State Reformatory; 1,799 to the Ohio Penitentiary; and 167 to the Ohio State Reformatory for Women.

In the case of the Ohio Penitentiary, the courts are not the only source of the inmate population. When men sentenced to OSR reach age 30, they are no longer considered youthful offenders and, consequently, they are transferred to the OP.

TABLE IV

RECEIVING UNITS AND SATELLITE OPERATIONS



Parole violators are also sent to the OP. Table V , gives a more complete picture.

TABLE V

INMATES IN THE OHIO PENITENTIARY

Month	Year	No. of Inmates to O. P. From Courts	No. of Inmates to O. P. from O. S. R.	Returned Parole Violators
July	1969	139	8	7
August	1969	104	6	3
September	1969	129	9	4
October	1969	142	16	3
November	1969	150	11	3
December	1969	155	4	3
January	1970	139	8	1
February	1970	177	2	3
March	1970	183	36	6
April	1970	147	17	2
May	1970	155	27	6
June	1970	154	27	4
TOTALS		1774	171	45

It should be noted that these figures are somewhat incomplete as they do not account for approximately 100 inmates who are transferred to the OP from other institutions within the Ohio penal system. The reasons for such transfers generally fall into two categories: 1. Disciplinary, e.g., rioters at medium security institutions and escapees are sent back to maximum security at the OP; and 2. Medical and legal causes that necessitate the inmate's being proximate to appropriate facilities in Columbus.

The Nature of the Crime and Selection of a Training Program - In the opinion of the consulting team, the nature of the crime should be considered when placing inmates in vocational training programs. Some offenders should not be allowed to enter programs where they will be in contact with the public. However, it is, perhaps, not sensible to preclude the enrollment of one convicted of theft in an automotive program. Auto theft is a crime that is usually committed only once, or is committed in conjunction with another crime. Table VI indicates that the heaviest concentration of criminal offenses is for robbery and breaking and entering, two crimes that should not have any bearing on the selection of inmates for particular purposes.

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TABLE VI

INMATES IN OHIO ADULT CORRECTIONAL INSTITUTIONS, BY INSTITUTION AND BY OFFENSE AS OF JUNE 30, 1969

OFFENSE	TOTAL	OHIO STATE REFORM.	OHIO REFORM. WOMEN	LONDON CORRECT. INST.	OHIO PENIT.	MARION CORRECT. INST.	LEBANON CORRECT. INST.	CHILLICOTHE CORRECT. INST.
FIRST DEGREE MURDER...	384	1	13	32	205	45	..	88
SECOND DEGREE MURDER..	476	..	27	57	234	72	..	86
FIRST DEGREE MANSLAUGHTER.....	311	59	28	45	47	42	26	64
SECOND DEGREE MANSLAUGHTER.....	19	4	..	1	1	6	3	4
RAPE.....	336	84	2	39	75	42	35	59
ROBBERY---ARMED AND UNARMED.....	2260	678	27	255	607	197	340	156
AGGRAVATED ASSAULT....	487	118	17	97	93	53	49	60
BURGLARY--BREAKING OR ENTERING.....	2326	603	14	377	410	274	450	198
LARCENY--THEFT, EXCEPT AUTO THEFT.....	518	138	32	74	83	64	97	30
AUTO THEFT.....	573	222	4	53	97	53	110	34
FORGERY AND COUNTER-FEITING.....	818	107	68	182	166	110	92	93
EMBEZZLEMENT AND FRAUD.....	283	37	31	68	50	36	24	37
STOLEN PROPERTY-BUYING RECEIVING, POSSESSING.....	131	23	4	24	28	10	31	11
WEAPONS-CARRYING, POSSESSING, ETC.....	61	9	1	6	20	10	9	6
PROSTITUTION AND COMMERCIALIZED VICE.	44	13	3	5	12	6	1	4
SEX OFFENSE - EXCEPT RAPE.....	314	55	1	33	53	38	21	113
OFFENSE AGAINST THE FAMILY AND CHILDREN.....	89	10	10	20	15	12	8	14
NARCOTIC DRUG LAWS....	387	57	36	75	73	52	47	47
DISORDERLY CONDUCT....	7	1	..	2	..	3	..	1
ALL OTHER OFFENSES....	203	46	7	23	58	18	35	16
TOTALS	10,027	2,265	325	1,468	2,327	1,143	1,378	1,121

Result of Institutional Survey - Reported in Table VII is data related to the average age, period of incarceration, grade equivalent, grade completed in school, and scholastic aptitude of inmates in Ohio correctional institutions.

TABLE VII
EDUCATION BEFORE INCARCERATION

Institution	Number	Average Age	Average Incarceration	Average Grade Equiv.	Average Schooling	Average I. Q.
London	1360	33	22 mos.	6.7	7	97
Chillicothe	993	44	36 mos.	7.0	7	96
Columbus	1850	30	24 mos.	6.5	7	100
Marion	1129	33	22 mos.	7.0	8	101
Lebanon	1400	23	14 mos.	7.0	10	100
Manefield	2085	21	18 mos.	6.5	9	90
Marysville	270	26	15 mos.	7.5	N/R*	N/R*

(March, 1972) * N/R means not reported

Educationally Deficient - Ninety percent of the inmates incarcerated in Ohio's penal system dropped out of school and have achieved to approximately the seventh grade level. If these individuals aspire to an occupation which demands educational proficiency beyond that possessed, an attempt to develop needed proficiency should be made while enrolled in a vocational program. The inmates should not be barred from a vocational program because of low prior achievement. The goal to achieve in a vocational program can reinforce attitudes concerning the necessity for academic achievement.

Further inspection of available data suggests that, with the exception of Chillicothe, a majority of incarcerated persons are well within an age range that would permit them to benefit from a combined academic and vocational education experience.

Information related to the academic progress of potential trainees indicates that, on the average, they operate academically at a sixth to seventh grade equivalency level. Data from one institution, (Marion), showed that about 80 percent of the inmates are classified as being unskilled at the time of their initial incarceration. This assessment is not surprising when note is taken of the fact that inmates, generally, have completed only eight to nine years of formal schooling. Scholastic

aptitude scores, available on inmates in correctional institutions, suggest that many appear to have the potential for success in educational programs that go beyond their present levels of attainment.

Estimates (made by the correctional institutions) of inmates who could succeed in a vocational education program that goes beyond basic skills, and the percent of inmates currently in vocational programs are reported in Table VIII.

TABLE VIII

VOCATIONAL EDUCATION PARTICIPATION VERSUS APTITUDE

Institution	Percent of Inmates who are Participating in Vocational Programs	Percent of Inmates who could benefit from vocational study beyond basic skills
London	17.0	70
Chillicothe	3.7	?
Columbus	?	?
Marion	9.0	60
Lebanon	12.0	50
Mansfield	20.0	15

Further inspection of the data in the above table indicates that a large percentage of inmates could benefit from vocational study beyond just basic skills. Care must be used when interpreting this data as the figures related to persons in training do not reflect inmates in academic programs.

Records indicate that approximately 75 percent of the nearly 10,000 men and women incarcerated in the adult correctional institutions in Ohio are unskilled in any trade. Present vocational facilities at Mansfield, Lebanon, Marion, Columbus, Marysville, and Chillicothe can, at best, accommodate approximately less than 10 percent of this total.

Urban Setting - As might be expected on the basis of population density, data in Table IX indicates that most inmates came from an urban setting. Cuyahoga County is a leader in providing inmates for the institutions, followed by Hamilton, Franklin, and Summit counties.

TABLE IX

INMATE PERCENTAGE BY POPULATION DENSITY BEFORE INCARCERATION

	Large Cities	Small Cities	Rural Areas
London	59%	10%	31%
Chillicothe	?	?	?
Columbus	?	?	?
Marion	70%	15%	15%
Lebanon	60%	30%	10%
Mansfield	80%	15%	5%

Information in the above table is based upon estimates but there would appear to be little doubt that a large majority of men in prisons come from an urban setting. If the trend is for prisoners to return to urban settings, rehabilitation programs may have to be geared to this trend.

Range of Individual Differences - The range of individual differences between education and mental ability is wide. Some inmates have a high school diploma but no trade, a few have worked in some trade, but do not poseess a high school diploma. Most have neither a diploma, nor a trade.

Inmate reading abilities ranged from illiterate, to that of the college level.

The intelligence quotients of the inmates ranged from the low 70's (mentally retarded) to 140.

Refer to the following Ohio Penitentiary studies, Table X through Table XV for intelligence quotients, I. Q. ranges, ages, educational levels, occupational groupings, types of offenses, and number of felony convictions. These Ohio Penitentiary studies though outdated, (1969), are the only real source of such information available at present. The research for the studies was conducted by Frank Fortkamp as a preliminary to the Ohio University project to study the Southern Ohio Correctional Facility.

TABLE X

INTELLIGENCE LEVEL INMATE POPULATION - JUNE 30, 1969 - OHIO PENITENTIARY

Intelligence Level	No. of Inmates	Percent
Mentally Deficient (less than 67)	24	1.0
Inferior (68-79)	159	6.8
Dull Normal (80-89)	468	20.1
Normal (90-114)	931	40.1
Bright Normal (115-124)	361	15.5
Superior (125 and up)	135	5.8
Unknown	249	10.7
	2327	100.0

TABLE XI

AGE OF INMATES - OHIO PENITENTIARY

Age	No. of Inmates	Percent
Under 20	9	0.39
20-24	227	9.76
25-29	528	22.68
30-34	491	21.10
35-39	358	15.38
40-44	310	13.32
45-49	185	7.95
50-54	113	4.86
55-59	51	2.19
60-64	30	1.29
65 and over	25	1.08
	2327	100.00

Age calculated by subtracting year of birth from 1969
Average Age - 35.4

TABLE XII

INMATE'S EDUCATIONAL LEVEL (at time of admission) - OHIO PENITENTIARY

	No. of Inmates	Percent
Illiterate	3	0.13
1st Grade	6	0.26
2nd Grade	13	0.56
3rd Grade	33	1.42
4th Grade	45	1.93
5th Grade	51	2.19
6th Grade	110	4.73
7th Grade	163	7.00
8th Grade	389	16.73
9th Grade	351	15.08
10th Grade	374	16.07
11th Grade	272	11.69
12th Grade	361	15.51
1 Year College	31	1.33
2 Years College	25	1.07
3 Years College	12	.52
4 Years College	14	.60
Attended Graduate School	4	.17
Unknown	70	3.01
Totals	2,327	100.00

TABLE XIII

MAJOR OCCUPATION GROUPS (at time of admission) - OHIO PENITENTIARY

	No. of Inmates	Percent
Professional	39	1.68
Semi-Professional	40	1.72
Managers and officials	24	1.03
Clerical and kindred occupations	50	2.15
Sales and kindred occupations	67	2.88
Domestic servants	4	0.17
Personal service occupations	207	8.90
Protective service occupations	3	0.13
Building service workers and porters	42	1.80
Agricultural occupations	39	1.68
Fishery occupations	0	0.00
Forestry and hunting occupations	0	0.00
Skilled tradesmen	498	21.40
Semi-skilled	275	11.82
Laborers and unskilled	919	39.48
Pensions and/or welfare	3	0.13
Students	19	0.82
No occupation or income	21	0.90
Occupation unknown	77	3.31
Totals	2327	100.00

TABLE XIV

*TYPES OF OFFENSES - OHIO PENITENTIARY

	No. of Inmates	Percent
1st Degree Murder	205	8.81
2nd Degree Murder	234	10.06
1st Degree Manslaughter	47	2.02
2nd Degree Manslaughter	1	0.04
Rape	75	3.22
Robbery	607	26.08
Aggravated Assault	93	4.00
Burglary	410	17.62
Larceny	83	3.57
Auto Theft	97	4.17
Forgery and Counterfeiting	166	7.13
Embezzlement and Fraud	50	2.15
Stolen Property	28	1.20
Weapons	20	0.86
Prostitution and Commercialized Vice	12	0.52
Sex Offenses	53	2.28
Offenses Against Family and Children	15	0.64
Narcotics	73	3.14
Offenses not Classified Above	58	2.49
Totals	2327	100.00

* Counting only the most serious offenses for inmates serving time for multiple offenses.

TABLE XV

*NUMBER OF FELONY CONVICTIONS - OHIO PENITENTIARY

Number	No. of Inmates	Percent
0	11	0.47
1	596	25.61
2	731	31.41
3	354	15.21
4	214	9.20
5	87	3.74
6	43	1.85
7	16	0.69
8	3	0.13
9	3	0.13
10 or more	3	0.13
Unknown	266	11.43
Totals	2327	100.00

* Includes the conviction which resulted in last commitment to O.P.

Developing Inmate Readiness - Prison officials cite inmate readiness and willingness to accept training as a major problem. Prison officials feel, generally, that inmate trainees will not respond to the teaching of abstract subjects. They said that inmates' reactions are usually negative toward the learning of such abstract subjects as English and mathematics.

A fact generally accepted by prison officials is that inmate trainees must be stimulated to accept the goals of mathematics and English as being imperative to vocational skill development.

Why Inmates Participate in Vocational Programs - Below are reported the views of correctional institution officials regarding why inmates participate in existing vocational programs. Data was collected from just one official in each of the five institutions reporting, hence, it must be interpreted in terms of a limited sample.

TABLE XVI

REASONS FOR PARTICIPATION

Reason	1 Ratings	2 Ratings	3 Ratings	4 Ratings	5 Ratings	6 Ratings
To have something interesting to do	-	4	1	-	-	-
To get out of work	-	-	-	1	3	1
Prepare for a job	3	-	2	-	-	-
Get a better job in prison	-	-	1	2	2	-
Get a parole	3	1	1	-	-	-
Develop a hobby	-	-	-	1	-	4

It is important to note that prison officials who responded, feel that prisoners have generally positive reasons for participating in vocational education programs (prepare for a job, get a parole, and have something interesting to do). "To get out of work" generally had low ratings as to why inmates participated in vocational programs. The fact that, to have something interesting to do was checked by four of the five respondents as the second most important reason for participating in a vocational education program suggests something about conditions within the correctional institutions.

Comments by prison officials related to inmate education problems associated with having an effective vocational education program include

the need for vocational guidance, development of study habits, follow-up and job placement, coordination of all aspects of the rehabilitation program, and inmate goal orientation on a realistic level.

Inmate Movement - Records indicate that approximately 4,000 inmates are released each year and replaced by another 4,000 new inmates. This is a 40 percent turnover in one year. In addition to this turnover, there are many transfers within the system each month. Statistics indicate that in the month of June, 1970, 345 inmates were shifted from one institution to another. If this figure held true for each month of the year, a total of 4,140 inmates would have been shifted from one institution to another. These figures have a tremendous implication as far as training of inmates is concerned.

It is recommended that the transfer of inmates from one institution to another be kept to a minimum. This is especially true of the institutions geared more toward training than custody. In any case, the training institutions should accept inmates at the beginning of each month in all programs.

Reflections of a Testing Program - General Aptitude Test Battery scores, from what could be a biased sample of men from the Marion Correctional Institute, suggest that care must be taken in assigning inmates to programs that involve a considerable amount of motor coordination, finger dexterity, and manual dexterity. A majority of the 343 inmates tested had scores below 94 in these three areas. The director of treatment at Chillicothe suggested that the overall population at that particular institute was low in mechanical aptitude. Because the population at Chillicothe is not representative of that at other institutions, and because the Marion sample could be biased, concerns referred to above need further investigation.

Available data suggests that, in terms of academic and vocational potential, there are significant numbers of inmates at all ability levels. Many are at a level that suggests they could benefit from only the most basic of skill training. Other inmates, however, could benefit from vocational programs geared to prepare them to perform semi and highly skilled tasks.

Attempts are made to provide counseling to inmates before they are placed in vocational education programs. However, a lack of counseling personnel and limited training precludes the establishment of a sophisticated vocational counseling program that includes dimensions of evaluation, assignment to a vocational treatment experience, job placement and follow-up. Of particular concern is the need inmates have for help in finding suitable employment after being released.

Estimates of the value of O.P.I. activities to develop good work habits, or to facilitate the development of vocational skills needed when the inmate is released, are varied. General estimates are that O.P.I. activities vary from helpful to no real help, with an occasional

activity ranked as very helpful. Low pay, seasonal work, inefficient use of manpower, antiquated work methods, and training on jobs with limited demand outside of the correctional institutions, are all important areas of concern.

The fact that about 90 percent of first offenders are school dropouts, and that a majority of the present inmates are classified as unskilled or semi-skilled, demonstrates the need for extended training.

PART II

RECOMMENDATIONS

Addressing itself to the needs for expanded vocational education offerings for the inmate population, the consulting team became involved in many aspects of the Division of Correction. Significant changes must take place throughout the administration and operation of the Division to meet the total rehabilitation processes envisioned by the consulting team.

Rehabilitation of individuals confined in correctional institutions has always been of primary importance to the Division of Correction. These efforts, however, have been fragmented and ineffective, due primarily to the lack of a system-wide approach. Inadequate communications among institutions, and between the corrections institutions and the Adult Parole Authority, also seriously hamper the rehabilitation attempt.

Observation of rehabilitation programs in selected states, including Ohio, suggests the need for a highly organized and integrated program of rehabilitation. A system-wide philosophy must be developed and objectives stemming from this philosophy must be vigorously pursued. Disciplined action, by inmates, teachers, officers, and administrators, at all levels within the Division of Correction, must be directed toward rehabilitation.

The consulting team believes that the rehabilitation objective can best be met through a system-wide educational program. This educational program must contain a strong emphasis in vocational education. The ability to find and hold a job, once the inmate has been released, is of utmost importance. Through a system-wide educational program we believe inmates can develop not only salable skills but proper attitudes conducive to employment. Education, in effect, is a socialization process. The inmate without the abilities to locate and hold a satisfactory job will have little chance of successfully adjusting to society's pressures.

The overall approach outlined on the following pages envisions more than a stereotyped concept of education; it deals with any and all educational, vocational and attitudinal needs appropriate to each individual in the development of whole persons.

It is commonly recognized that an individual goes through a traumatic experience when he is first incarcerated, having lost many of the social freedoms to which he has been accustomed. It is important, too, to recognize the magnitude of the adjustment that must be made when one is released. It is often frightening to an individual who has lived in a correctional institution for several years, where life is highly regimented, to be given his freedom and to be faced with making decisions for himself.

The consulting team is recommending a step-by-step procedure that will assist in the rehabilitation process of moving the inmate from the highly structured setting in which his life is strongly regimented, with little freedom, to an environment of freedom upon release.

Just as the educational program must progress from a basically structured approach for the newly incarcerated inmates to a more flexible concept for those who are nearing parole, so must other variables that affect the rehabilitation process. In many respects these other variables may be thought of as incentives to encourage the inmates in their adjustment. For example: the living quarters should be different in the maximum security industrial institution from those in an educational institution or Regional Correction Institution. In the maximum security institution the traditional cell blocks are probably necessary; in the Regional Correction Institution, however, the living quarters should more nearly duplicate those that the trainee will experience when he has obtained his freedom.

The remuneration that inmates receive should also vary as the inmate progresses in his rehabilitation. All inmates should be paid on the basis of their individual production whether involved in an educational program, employed in one of the penal industries, or working on the farm. Wages should be a primary incentive to encourage proper work habits and production. A system should be devised which takes into account not only the amount of money paid, but also the method of handling the inmates' finances. Traditionally, an inmate never sees the actual cash; his remuneration is credited to his account. This system may be needed in the maximum security work institutions, but consideration should be given in the minimum security institutions to paying trainees the state minimum wage in cash, and, in turn, charging for his room and board. Adjustment in living facilities and remuneration are but a few of the incentives that should be incorporated into a total rehabilitative program. Others might be in the numbers and dress of the security guards; the number of phone calls the inmate may receive; visitation policies; and the inmates' uniforms.

Each institution should be different, not only in its programs, but also in its approach to the treatment of inmates. The consultants have evaluated the present educational programs and recommend that educational objectives can be better met by concentrating educational efforts in a few institutions, rather than providing a smattering in each institution. Each individual institution should have its own identity and its own commitment within the state-wide system. In our opinion, it is more important that inmates be assigned to institutions that will provide the proper rehabilitation program than it is to assign inmates on a geographic basis. Later in this report we discuss each institution's role in a state-wide education system.

All offenders committed by the courts should be sentenced to the Division of Correction and should be delivered to a new Reception Center to be established in or near Columbus, Ohio. After a complete diagnosis by the professional staff (which should be accomplished within one to four weeks) the inmate would then be transferred to the institution that can contribute the most to his rehabilitation.

The diagnostic team may recommend a delay in educational programming for certain incoming inmates until they are found to be psychologically ready to successfully undertake an educational program. These inmates should be assigned to an industrial institution. Other individuals who have served previous terms, or who may be considered as maximum security risks may also be sent directly to industrial institutions. The majority of the inmates, however, should be sent directly to one of the "educational institutions" and participate in a vocational training program.

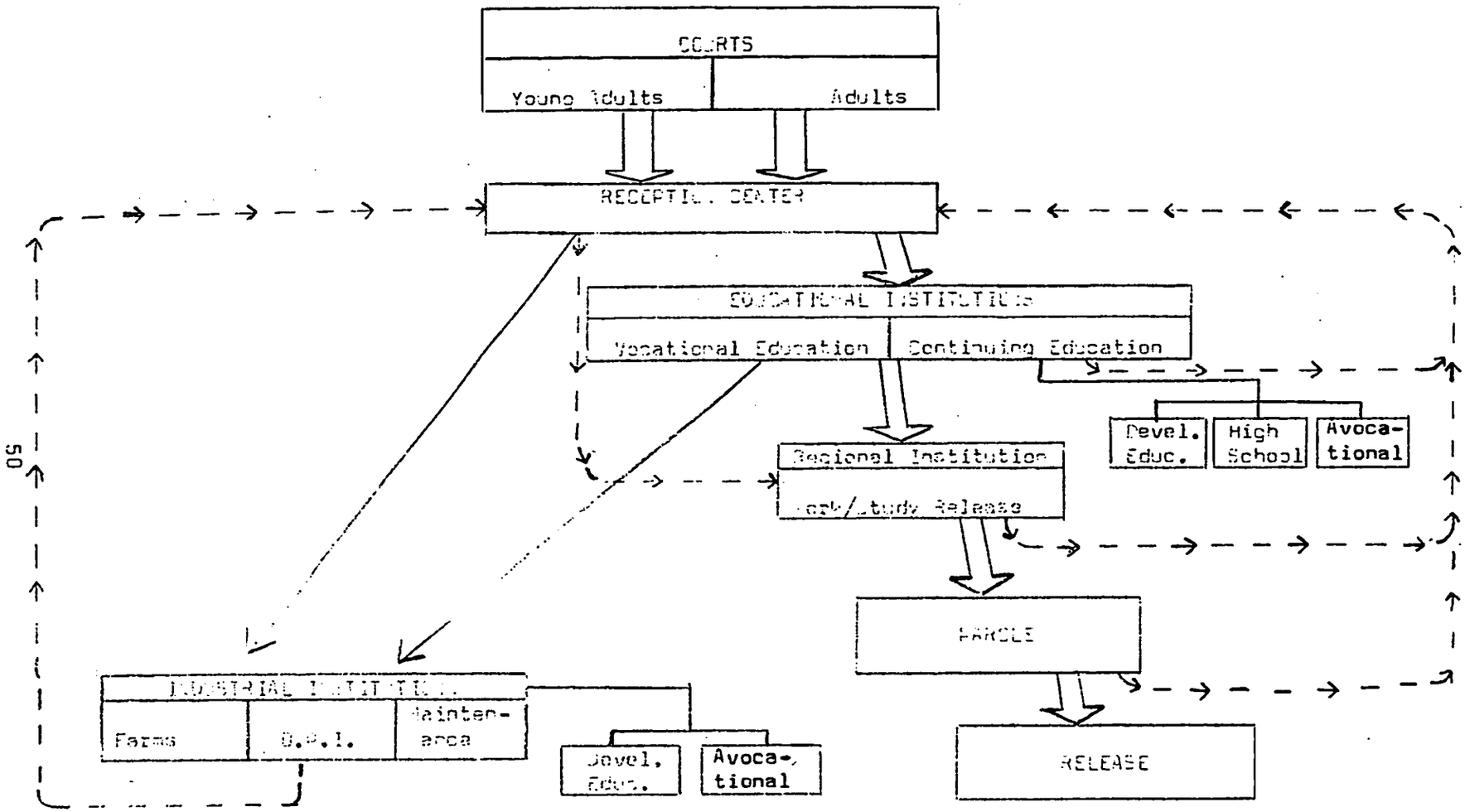
As a general rule, the majority of individuals sent to an educational institution should be eligible for parole within a two-year period. An individualized educational program for each inmate assigned to an educational institution is necessary so that the program will fit his specific needs. For example: the inmate that is expected to spend many years within the Division of Correction would be provided with a program to acquire the skills and attitudes necessary for him to perform institutional services once transferred to an industrial institution. He may spend one to three years within the educational institution to develop these skills prior to transfer. Once reassigned to the industrial institution, he would continue his educational program through "on-the-job-training", individual study for the General Educational Development test (G.E.D.) and, as appropriate, attend hobby and recreational classes.

Another example would be that of an inmate who is to be paroled within two years. He would be provided with a program designed to develop the basic skills necessary in the educational institution and would later be transferred to a Regional Correctional Institution for participation in a work or study release experience. At the Regional Correctional Institution, the inmate would be released to attend classes in a nearby vocational school, technical institute, college, or university; or be released for cooperative work experience in a nearby business or industry.

Upon satisfactory completion of the work or study release experience the inmate, under the supervision of the Division of Correction, would be placed on parole to live and work in the community. Educational coordination personnel would be available to further assist in the adjustment from institutional life to the freedom of the community.

The following table graphically portrays the routing of inmates through the Division of Correction. This diagram is followed by more specific recommendations. (Table XVII)

TABLE XVII
ORGANIZATION OF THE DIVISION



RECEPTION CENTER

The consulting team supports the Reception Center concept and believes that all individuals committed to the Division of Correction by the courts should be assigned to the Reception Center. The Reception Center should fall under the direct supervision of an Assistant Commissioner for the Reception Center. Later in the recommendations we suggest that a permanent Reception Center be built near Columbus. In the meantime, space could be found at the Lucasville institution to temporarily house the facility. We do not support the view that the antiquated Ohio Penitentiary is to be used for this purpose.

The Reception Center would provide five major functions:

(1) Custody
(2) Medical Examinations
(3) Data Gathering
(4) Diagnosis and Assignment
(5) Record Keeping

The proposed administrative organization, shown in table XVIII, shows the data gathering and record maintenance functions within the operation of the computer center.

Custody - It is anticipated that the Reception Center process would require the inmates to be housed in the Reception Center from one to six weeks. The male inmates should be housed in the Columbus installation. The female inmates, of necessity, would be housed at Marysville in a satellite operation of the main Reception Center.

Experience indicates that young, first-time offenders often learn bad habits from the older, more experienced, previous offenders; therefore, arrangements should be made for housing in individual cells with separation of the men on the basis of age and level of crime sophistication. Security officers will be needed to assure the custody of the inmates.

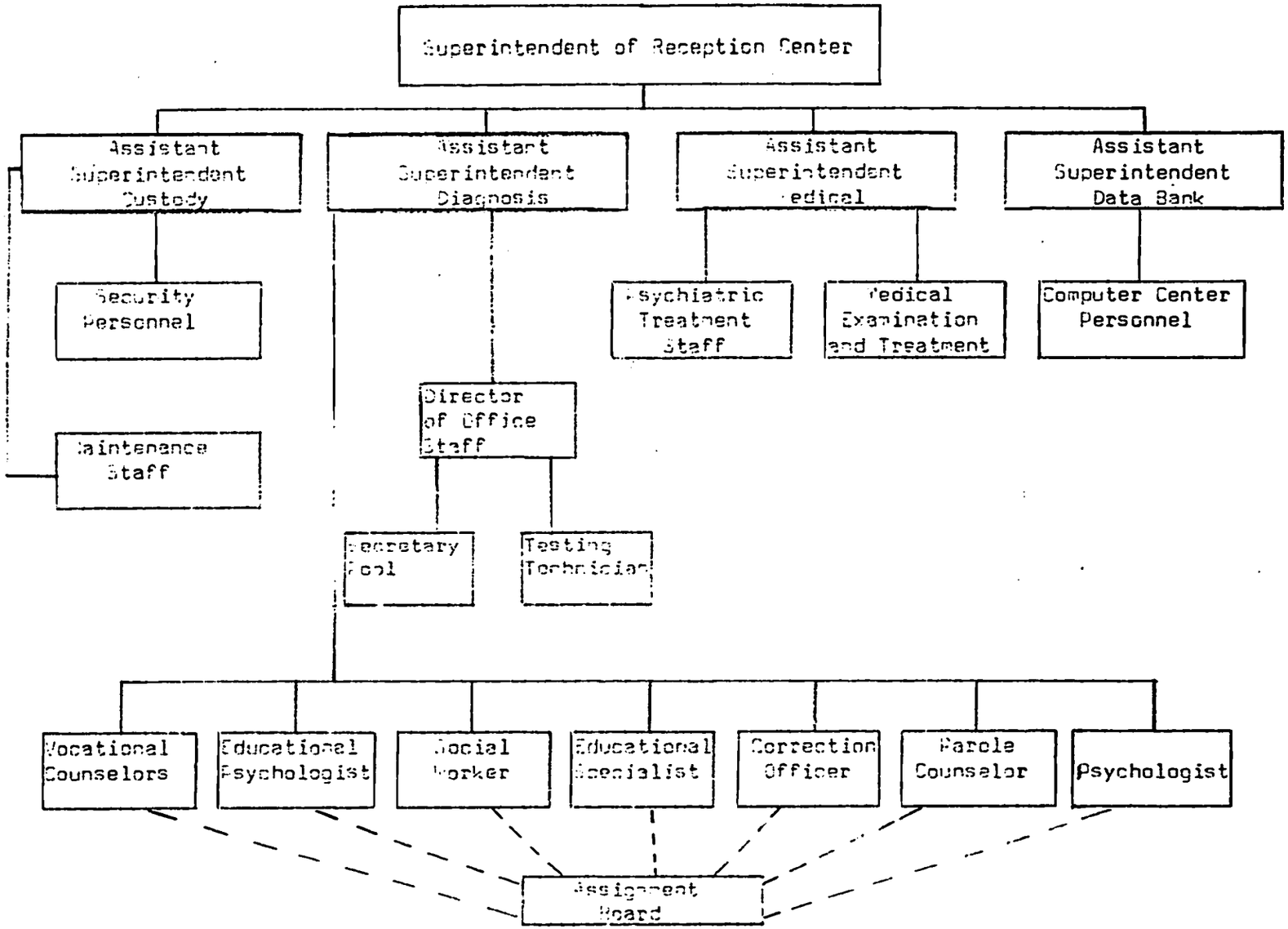
Medical Examinations - Each newly assigned inmate would undergo a complete physical examination; not only to ascertain and correct health problems and physical impairments that may affect his rehabilitation process, but also to protect others with whom he may come into contact.

Within the walls of the Reception Center should be housed a hospital operated by the Division of Correction in which major surgery can be performed. Every effort should be made to employ a full-time, competent medical staff to provide all services.

Data Gathering - Every attempt should be made to coordinate information collected by the court with that needed by the Division of Correction. Information regarding the educational and social background of the individual obtained by agencies prior to commitment to the Reception Center should be forwarded with the inmate.

TABLE XVIII

ADMINISTRATIVE ORGANIZATION OF RECEPTION CENTER



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A data gatherine procedure should be established to secure information such as high school records, birth certificates, results of presentence investigations, fingerprints, and certain test results within a few days after arrival of the inmate. Test technicians should administer and score all group tests deemed necessary by the diagnostic team.

All standardized testing is to be administered in the Reception Center. It should not be necessary for additional tests to be administered at the individual institutions operated by the Division of Correction. In the event that such testing does become necessary, it should be carried out by representatives of the diagnostic team.

Members of the diagnostic team would conduct in-depth interviews with each new inmate and also administer more sophisticated tests and/or inventories to obtain data necessary to correctly develop a program for each new inmate within a total rehabilitation program.

All data should be compiled and transferred to a data processing center on standardized forms so that it can all be captured by a comprehensive data processing system.

Diagnosis and Assignment - Once the necessary data has been collected, it should be evaluated by members of the diagnostic team to determine the interest, capabilities and potentialities of each individual. The team should analyze the past attitudes and record to determine what might be done by the Division of Correction to rehabilitate the individual for an early return to society.

The diagnostic team will be composed of a group of individual specialists that will provide specific input concerning each individual inmate. The members of the diagnostic team should include vocational counselors, educational psychologists, social workers, educational specialists, correctional officers, a parole counselor, and a psychiatrist. Members of the diagnostic team will prepare recommendations concerning each individual inmate to submit to the Assignment Board of its consideration. The three-member Assignment Board will be composed of a correctional psychologist, a vocational education specialist, and a parole officer.

After evaluation and study of all data, the Assignment Board should assign the individual inmate to a specific rehabilitation program (not a particular curriculum) in the correctional institution that can contribute the most to the inmate's rehabilitation. The Board should also assign each inmate to an individual case worker who will follow his progress through the rehabilitation process from the time of commitment to final release. The case worker will periodically review the progress of the inmates assigned to him and, with cooperation from members of the diagnostic team, make recommendations for consideration by the Assignment Board. For example: If an individual inmate is in need of reassignment to a different institution for a different program, the case worker should be notified so that he can organize the necessary information

relative to possible reassignment for consideration by the Assignment Board. Case workers will be headquartered at the Reception Center. Their function is not that of an individual counselor, but they are to be employed as resource persons and ombudsmen representing the inmates included in their case load.

The Assignment Board should, at the time of assignment, notify the individual inmate of his training potential and explain why the inmate is being placed in a particular sequence of rehabilitation efforts. The inmate should also be informed of the minimum time he must spend before his case will be considered for parole.

Three general options are open to the Assignment Board in the assignment of inmates: an industrial institution, an educational institution, or Regional Correctional Institution.

(1) Industrial Institution - Inmates considered to be maximum security risks should be assigned to the maximum security industrial institutions. Inmates who have prohibitive physical or mental handicaps, or who are considered too old to participate, should be assigned to a specialized industrial institution. In addition, there are some inmates who, in the best judgment of the diagnostic team, may not profit from an educational experience at the time of confinement and should be assigned temporarily to an industrial institution.

(2) Educational Institution - The consulting team firmly believes that the majority of inmates entering the Division of Correction should be assigned to an educational program within an educational institution. The consulting team visualizes that short-term inmates (those expested to serve less than three years), may be routed through the educational processes in a different manner from the long-term inmates.

(a) Short-term - Short-term inmates should spend enough time in a minimum security educational institution to complete a regularly scheduled rehabilitation, or training program. At the time the inmate satisfactorily completes this program, he should be transferred to a minimum security Regional Correctional Institution wherein the inmate would spend his working hours outside the institution in an educational setting, or in a cooperative work experience. The final period of the inmate's rehabilitation should be spent on parole and under the supervision of an educational parole counselor.

(b) Long-term - The long-term inmate should be assigned to an educational program within a medium security educational institution to prepare him to provide services once he has completed his training program. Once the long-term inmate has developed sufficient levels of skills, he should be reassigned to a work institution to provide those services

for which he was trained and to continue his education through an "on-the-job-training" concept. Consideration should be given to assigning selected inmates with needed skills to other state institutions such as state hospitals and the Division of Natural Resources.

(3) Regional Correctional Institutions - A few inmates, because of unusual circumstances, may be psychologically ready for immediate assignment to a Regional Correctional Institution. The consulting team believes this option should be open, but should be used with great discretion.

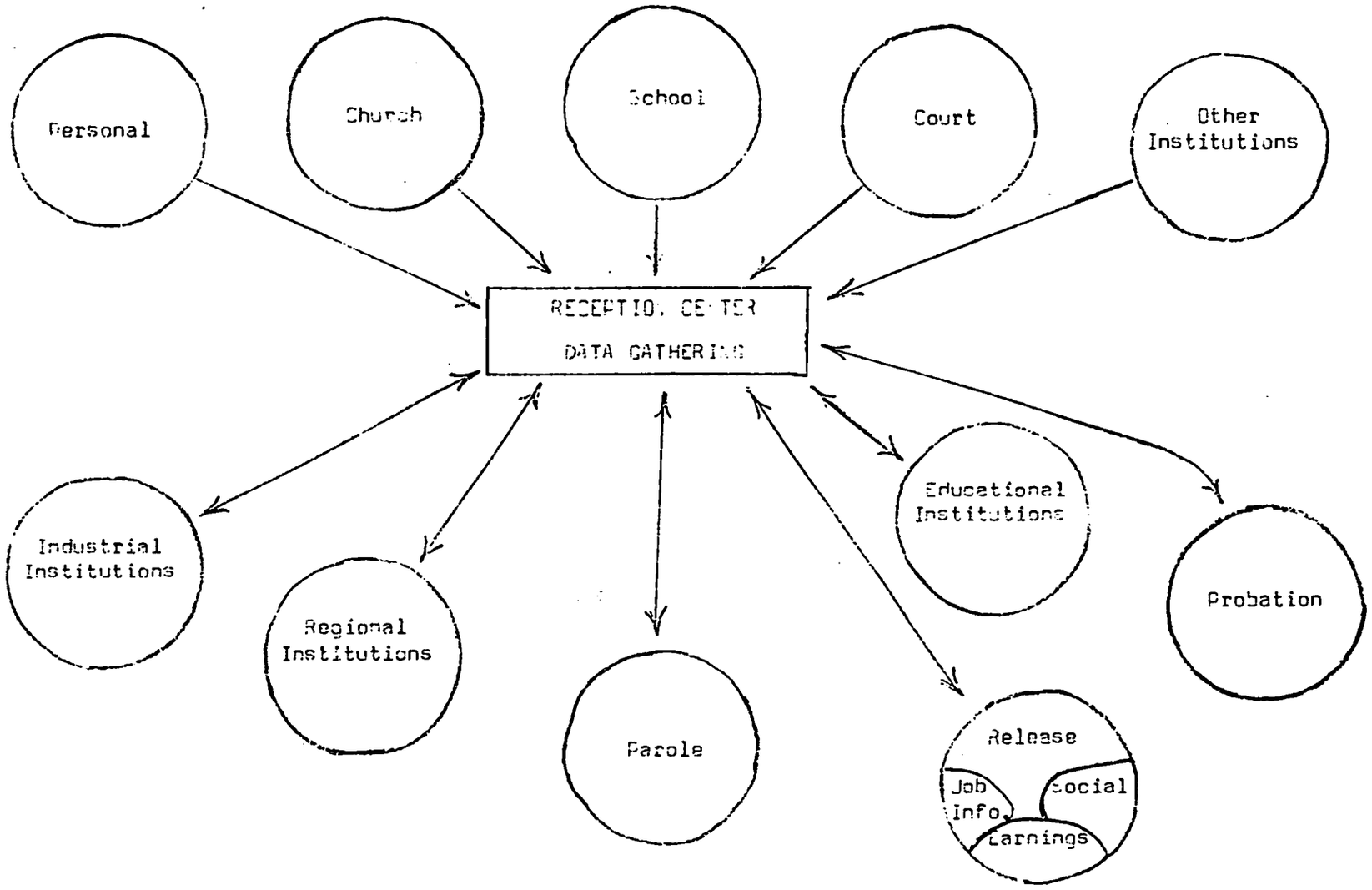
Records Keeping - An integral part of the Reception Center should be a complete and modern data processing system. The data processing staff should provide a centralized record-keeping function for all inmates. The records should include significant information regarding the inmate from the time of pre-commitment through the rehabilitation process; including parole, job placement and follow-up. A computerized record of data concerning each inmate maintained in a central location and with necessary computer terminals located in each institution should minimize the entire record-keeping function. A system of standarized records and reports should be developed to ease in the communications problem.

The record-keeping system should be compatible with, and a part of, the newly developed nationwide Criminal Justice Communications Center in order that information can be shared with other states and the federal government.

Table XIX, following, graphically indicates the sources, flow, and employment of inmate information.

TABLE XIX

FLOW OF INFORMATION AND RECORD KEEPING



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INDUSTRIAL INSTITUTIONS

Traditionally, the Division of Correction has relied heavily upon the work institution concept; the theory being that rehabilitation takes place through work experiences in facilities that theoretically simulate business and industrial establishments. In all work institutions there is production of some salable items. The consulting team is concerned, however, about the quality and quantity of the manufactured products, the equipment, the attitudes of the supervisors and inmates regarding their tasks, and the lack of a close tie between production and education. The industries do not simulate comparable industries on the outside. There appears to be considerable featherbedding, which encourages poor work habits and attitudes on the part of inmates.

The consulting team suggests that certain correctional institutions be designated as industrial institutions. The primary role of the industrial institution should be the rehabilitation of inmates. The actual production of manufactured products should be secondary to rehabilitation. It is recommended that Ohio Penal Industries (O. P. I.) activities and vocational education develop compatible and coordinated objectives so as to accomplish the rehabilitative goals. Through joint cooperation, meaningful vocational education programs should be developed within the industrial institutions in the form of "on-the-job-training." The effort needs to be efficient and productive, with full financial reward to the inmate.

Preferably, each inmate assigned to an industrial institution should have previously developed basic vocational skills, either before incarceration, or during a previous assignment at an educational institution; however exceptions could be granted a few inmates who are not psychologically ready for education.

An attempt should be made through "on-the-job-training" to provide the inmate an opportunity to maintain and further develop his skills. Although inmates assigned to industrial institutions spend the majority of their time at a work station, the institution should maintain an educational program in which the inmates can participate on a part-time basis.

Each industrial institution should have on its staff a coordinator of education who works directly for the divisional superintendent of education in cooperation with the institution's superintendent. His function would be to coordinate all educational programs, both formal and informal, conducted by the industrial institution. The coordinator of education should have a budget allocation provided by the Division office for the express purpose of education.

Formal courses in developmental educational and hobby courses might be taught by specialized public school teachers employed on a part-time basis for such purposes.

Serious consideration should be given by the Division to include a career orientation program as a regular part of the rehabilitation process for inmates of the institution. This activity could be carried on during the "non-working time" of each inmate. Through a series of discussions, films, speakers, and programmed learning sources, inmates could become better acquainted with the job opportunities available to them.

A satisfactory library should be maintained in each industrial institution for use by the inmate population. It is important that the library be open for those hours in the day convenient to the inmates.

Correspondence courses and G.E.D. examinations should be encouraged and administered through the coordinator.

EDUCATIONAL INSTITUTIONS

The major thrust of the educational program should be concentrated in two specific educational institutions. The rehabilitation of inmates can probably best be accomplished through an organized educational program wherein a team of educators, and other support personnel work in close harmony, concentrating on the many factors that contribute to the rehabilitation of an individual.

To assure the commitment to education, nearly all personnel employed in the specialized educational institution should be educators, psychologists, or guidance personnel with a common philosophy and a commitment to rehabilitate inmates through education. The concentration of personnel within the institution would be largely that of educators. Security guards may be needed to maintain the gates and guard houses. A new concept of providing security counselors to work with inmates should be explored. Table XXI, appearing later in this report, illustrates the proposed administrative organization.

The policies of the educational institution should deal with a complete educational program including continuing as well as vocational education. The current practice of referring to academic schools and vocational schools as separate identities should be discontinued.

The two educational institutions should operate high school programs to serve the needs of that segment of inmate population which would benefit from this type of educational effort. The high school should provide credit courses in both vocational and general subjects. It is important, however, that the total educational program not be limited to traditional high school subjects, time schedules, and credits. The educational institutions must be innovative in providing more flexible scheduling. Inmates should also be permitted to qualify for a G.E.D. high school equivalency in all institutions.

The educational offerings of the educational institutions must be of such scope as to make available programs at various levels of academic competence. For example: Programs should be designed for the high school graduate, for the eighth grade levels, and for those with less than an eighth grade education.

The thrust of the educational program should be centered around job preparation within a group of occupational choices. The development of respect for the world of work and alterations in the individuals' attitudes are important aspects of vocational education and should be stressed within all vocational classes.

A typical inmate in the educational institution should spend three hours per day in a vocational laboratory; two hours per day in a related classroom; and two hours per day in general high school subjects. However, it is important that this schedule fluctuate with the needs of the individual students. Some may not need, nor desire, high school credit courses. Their schedule, therefore, would permit more time for vocational subjects. All vocational curricula must have both laboratory and related classroom experiences.

The course content of vocational education should match realistically the abilities of the inmate and the job opportunities available in the community to which the inmate will return.

All educational curricula should be constructed on a modular plan. The modules should be designed to permit the inmate to complete a module in two or three weeks. Several specific modules would be selected to comprise the educational program for an individual inmate. Both the number of modules selected and the level of their difficulty would depend upon the needs and length of confinement for the individual inmate. This module approach would permit inmates new to the institution to be assigned to an educational program shortly after their arrival. A sample curriculum is provided later in this report.

To realize the full benefits of the educational concept, the inmates must identify with a peer group. Due to the size of the two proposed educational institutions, every effort must be made to develop the concept of a school within a school. We recommend that the school be divided into five separate departments. Perhaps it would be advantageous for inmates assigned to a department to wear a different colored uniform than that of inmates in other departments. An educational team consisting of a coordinator, teachers, guidance counselors, and social workers should have the responsibility for the operation of each of the departments.

To facilitate the integrated record-keeping function, each educational institution should be provided with a computer terminal linked to the main computer at the Reception Center.

An adequate, attractive library is an important phase of the educational process and must be available in each educational institution. These

libraries should be open for inmates' use for a longer period of time than is presently provided.

Inmates assigned to the educational institution must spend the majority of their time in school with a significant amount of time in laboratories and related instruction. Preferred time is daytime hours, but maximum utilization of facilities is important. The time schedule for individual inmates must relate to a total commitment to education. Support personnel in the institution, such as psychiatrists and social workers, must arrange their working hours to times when inmates are not involved in the instructional program. During those hours of the day when the inmate is not participating in a formal education program, he should be encouraged to participate in hobby courses, recreational activities, and individual study and research.

WORK/STUDY RELEASE
(REGIONAL CORRECTIONAL INSTITUTIONS)

Concept - Before release, all inmates should be channeled through the work/study release process. Inmates satisfactorily completing the educational programs and who are eligible for parole within one year, should then have the opportunity to continue their educational pursuits and be housed in a facility more compatible to everyday living.

The terminology for this phase of the rehabilitation process is somewhat vague. There seems to be a great deal of overlap in some of the current terminology and/or definitions regarding furlough and pre-release activities. For the purpose of this report we will consider "Work/Study Release" to be all those activities which permit an imate to be released during the large portion of the normal day to participate in educational or work activities outside of the institution. The consulting team believes that if stronger emphasis is placed on this concept it will aid the inmate before he is paroled in his adjustment from a maximum and medium security institution to living outside the walls. The consultants conceive Work/Study Release to be different from what we have witnessed in many states. It must be more than a "half-way house" concept. It must be an exposure in group living under supervision combined with a continual planned program of rehabilitation.

Study Release - The study release concept permits those inmates who have been involved in the educational process to continue this activity in vocational schools, technical institutes, colleges and universities, and avoids the Division of Correction's needless duplication of expensive facilities.

Inmates competing for grades with regular students on the outside may also be beneficial. By necessity, the Division must find a source of funds to pay the tuition for those inmates enrolling in public schools and colleges, but this concept may prove more economical than attempting to provide all the educational programs within the institution. The Ohio legislature should provide money for this purpose in a manner similar

to the present concept employed at Central State University. Further, compensation should be paid the inmate/student comparable to that which will be earned by those in a work release program. Division officials should also investigate the possibility of federal funds for this purpose based on the Newgate concept.

Vocational courses in the inmate's selected field should be available within the community, and the activities should be planned and supervised by the coordinator of study release. The Division should also consider the establishment of a program similar to the public school's vocational Diversified Co-operative Training (D. C. T.) concept. Students enrolled in a high school program of D.C.T. receive much of the related instruction as a group, yet within a given group some students may be specializing in welding, while others are pointing toward auto mechanics or other fields.

Work Release - The work release program would be applicable to inmates, whether released from educational or industrial institutions. To be effective, the work release concept must have considerable coordination between the institution and the employer. The institution should be responsible for locating satisfactory employment opportunities for the inmates which will have some chance of continuance once the inmate has been paroled and released. An intricate part of the work release program is some related training specifically designed to assist the inmate in developing the knowledge and attitudes necessary to provide the services required by the employer. This coordination should be provided by a coordinator of work release.

Other Considerations Regarding A Work/Study Release -

All inmates should:

- Spend several months on work/study release before parole.
- Participate in group counseling sessions.
- Receive the federal minimum wage and be charged room and board.
- Be released for a portion of the day for community-based programs.
- Be privileged to make telephone calls.
- Handle their own money.
- Be under the supervision of the staff of the Regional Correctional Institution.
- Be transported to and from their community-based programs in unmarked institutional vehicles.
- Be eligible for parole after satisfactory progress.

The consulting team believes that a work/study release program can be successful only if outside activities are closely coordinated with related instruction, group counseling, and other related efforts. We suggest that these concepts be combined in Regional Correctional Institutions.

Although the main educational thrust will occur in the community, adequate facilities should be provided for basic hobby and recreation courses within the regional institution to provide related instruction to inmates on work/study release.

Consideration should be given to programmed learning. By this method individualized instructional programs can be made available to each inmate regardless of his educational program or academic level. These modern concepts have application to education within all correctional institutions.

The Regional Correctional Institution is primarily a housing unit for those individuals progressing toward parole. The inmates will spend their normal day in an educational program or work experience in a community-based program, but the Division of Correction must still provide all other services for this inmate as he adjusts to society.

Previously we have indicated that inmates on work/study release should receive the same pay and they should be permitted to handle their own money. To provide funds for this purpose consideration should be given to the concept of depositing all money received for services rendered by work release inmates into a rotating fund, from which all inmates on release program would be paid.

Temporary Facilities - In order to immediately implement this concept, the consultants support using such facilities as the honor dormatories at Lebanon, Marion, and such other institutions as have available space for this purpose--on a temporary basis. Further, it may be necessary for the Division of Correction to furnish station wagons to transport its learners from their housing units to the schools, colleges, or work stations in the community.

The consultants strongly support the intention of the Division of providing additional temporary facilities in Canton, Columbus, Cleveland, and Cincinnati.

Permanent Facilities - The consulting team strongly recommends that Regional Correctional Institutions be built as a permanent solution for this problem. Each Regional Correctional Institution would house approximately 300 inmates, with one to be located near Cleveland, Toledo, Cincinnati, Canton, Columbus, and Youngstown. It is most important that they be located near vocational schools, technical institutes, community colleges, and other educational institutions, as well as cooperative employment opportunities for inmate trainees.

Both young adult (under 30 years of age), and older adult (30 years of age and older), inmates may be served in the Regional Correctional Institution.

Since most of the inmates are being prepared for re-entry into society, the consulting team visualizes the Regional Correctional Institutions being architecturally designed so as to avoid resembling the typical correctional institutions, both from the exterior and the interior. It is recommended that a nationally known and reputable architectural firm be employed to develop the plans for a minimum security institution in which inmates can be nearly as free to circulate as they would be in

society. The housing units should be designed so that approximately 25 inmates live in a unit. This would permit young adult inmates to be separated from the older adult inmates and convey to each individual a sense of belonging to a small group.

In addition to the basic housing concept, the Regional Correctional Institution should have central facilities such as adequate libraries, counseling rooms, study areas, recreation facilities, and office spaces. Office space should be provided for such social agencies as Vocational Rehabilitation, Ohio Employment Services, and Parole Officials, in order that these services can be available to inmates as needed.

To facilitate the integrated record-keeping function, each Regional Correctional Institution should be provided with a computer terminal linked to the main computer in the Reception Center.

Regional Jail - Although not directly allied with the Division of Correction, there are many problems that exist within the county jail. These jails appear to be much worse than the state correctional institutions. Many offenders spend several months in a county jail in deplorable conditions awaiting sentence or release. Those who eventually are sentenced to the Division of Correction have learned many bad habits that must be extinguished. When considering the needs of individuals, the consulting team believes that it must be concerned about those committed from the time they are arrested through their return to society.

Under the present trend of voter rejection of tax levies, it does not seem feasible to expect sufficient money to become available for the erection of 88 new county jails. If funds were available, the need for each county to have its own jail still would not seem necessary. We suggest that the state give consideration to erecting and operating a state-wide system of regional jails. Since the concept of the maximum security regional jail is not compatible with the concept described herein of Regional Correctional Institutions, the regional jails should not be incorporated into the Regional Correctional Institutions.

PAROLE AND FOLLOW-UP

Concept - Once the inmate has satisfactorily completed his work/study release experience, the inmate should be paroled so as to continue his educational and/or work experience under limited supervision of the Division of Correction.

The consulting team is deeply concerned about the separation of functions as they currently exist between the correctional institutions and the Adult Parole Authority. There appears to be limited communication and coordination between the two agencies. When one considers the inmate as an individual it seems that one agency, and ideally, one case worker, should be concerned with an imate from the time of his initial confinement

until his final release. The advantages and efficiencies of this arrangement will become even more apparent with the advent of the diagnosis and assignment, and the record keeping services provided by the Reception Center. One set of records should suffice.

The consulting team visualizes parole as another step in the total rehabilitation process of assisting the inmate to make the adjustment from institutional living to community living. Currently the parole authority has four main functions: (1) administration and research, (2) parole board, (3) parole supervision, and (4) probation development. We suggest that consideration be given to restructuring the Ohio Adult Parole Authority to make it more compatible with the new concept.

(1) Administration Research - The division staff includes several research specialists. They should assume the responsibility for all research needed within the Division of Correction.

(2) Adult Parole Board - The Adult Parole Board should continue to be an agency that determines when an inmate is to be paroled. The Parole Board should inform an inmate at the Reception Center of the minimum time he must spend before his case will be considered for parole.

If the rehabilitation process, as outlined in this report, is to be successful, the Adult Parole Board must rely heavily on the advice and counsel of members of the educational team and data supplied by the record-keeping system to reach their decisions regarding parole.

(3) Parole Supervision - With the advent of the Regional Correctional Institutions in close proximity to the larger cities, it is important that the supervision of parolees become the function of the Regional Correctional Institutions' staff. This part of the Adult Parole Authority operation should be reconstituted to make it an intricate part of the new concept. By this method the staff can remain fully acquainted with the inmate's progress via observation during the work/study release experience. The basic difference between work/study release and parole is in the housing arrangement. The supervision is basically the same and should be carried on by the same staff. The individuals assigned the responsibility for parole supervision should have their offices located in the Regional Correctional Institutions and should be a part of the staff of those institutions.

The progress of the inmate on parole must be reported back to central record keeping at the Reception Center to permit the diagnostic team to assess the effectiveness of the rehabilitation process.

The entire concept of rehabilitation for those inmates following

the vocational education plan is structured around a team approach dealing with a cluster of occupations. It is most important for a member of the educational team, in cooperation with the case worker, to follow the individual inmate from initial commitment to the institution, through the work/study release process in the Regional Correctional Institution, parole, and, eventually, job placement.

Job placement programs are crucial to the successful post-release adjustment efforts of ex-offenders. It is recommended that the Division of Correction assist all parolees in finding satisfactory employment. This can best be accomplished by the staff at the Regional Correctional Institution.

(4) Probationary Supervision - The Adult Parole Authority currently has within it a probationary department which supervises those offenders placed on probation by the courts, rather than committed to an institution. The basic difference between probation and parole is that in the case of probation the sentence is suspended and the probationer is not sent to prison. Since most individuals on probation reside in the same large cities that are to have Regional Correctional Institutions nearby, this responsibility should also be a function of the staff of the Regional Correctional Institution. The current probation staff should be reassigned and become part of the staff of the Regional Correctional Institution for operation and housing.

ADVISORY COMMITTEES

Vocational educators, for many years, have been successfully using citizen's advisory committees to keep their programs relevant to the needs of society. Since many employers still have a stereotyped image of ex-prisoners, it is advisable for the Division to involve potential employers on advisory committees so that they might observe and contribute to the rehabilitation efforts.

The members of advisory committees can assist the institution in decisions regarding equipment, space, teacher qualifications and educational programs, and may be of assistance in obtaining the necessary funds to conduct the educational program.

The Assistant Commissioner for Educational Services should have a state-wide educational advisory committee to assist him in the overall state plan for the education of inmates.

The Superintendent of each educational correctional institution and Superintendent of each regional correctional institution should have its own advisory committee to help in the decision-making process regarding vocational education.

Additional occupational advisory committees will be needed for each vocational program, composed of individuals who have been successful in their particular professional field. For example: Educational institutions offering auto mechanics should have an auto mechanics advisory committee.

Each advisory committee should consist of from six to ten individuals. Experience seems to indicate that individuals with current or recent firsthand job experience make the best members of occupational advisory committees. The state-wide advisory committee should be composed of individuals who have a state-wide reputation in their particular field of endeavor.

In addition to the need for formal advisory committees, the Division should encourage visits from many other outside groups. An informed citizenry can be of assistance to the Division.

STAFF

One of the most pressing needs for the Division of Correction is for the development of a well-trained staff. A much greater involvement of the entire staff in the rehabilitation process is necessary. Lines of communication must be opened so that all individuals in the Division of Correction know their responsibility and authority in the decision-making process.

All members of the correctional staff must be committed to the concept of rehabilitation of inmates through the educational processes. They must believe that each individual released must have the capabilities to find and hold a job.

The use of inmate instructors raises serious questions in the minds of the consulting team. We strongly recommend that this practice be discontinued; that the instructional program be carried out by full-time, professional educators.

The consulting team is recommending some additional staff members, but we believe that through adequate management processes many present positions may be re-oriented to a different function. For example: Fewer security officers will be needed in some educational institutions if we employ qualified teachers.

The consulting team observes that vacancies occurring within the Division are most generally filled through a promotional process, often with little regard for the individual's qualifications. A clearly defined career ladder should be established, with job descriptions for each position in the ladder. The job description should include specific qualifications for the position. In order to inject "fresh blood" into the system, strong consideration should be given to filling some of these vacancies by individuals from outside the Division.

All persons employed by the Division should be free of prejudice and have good mental health.

The Division needs to define its staff in terms of professionals, para-professionals, and support personnel. Many functions can be carried on within the Division by para-professionals trained to provide specific functions. A line Organization Chart is presented in Table XX to help in clarifying job relationships.

The following is a list of titles needed to facilitate a new emphasis on education within the Division of Correction:

A. DIVISIONAL STAFF

Assistant Commissioner for Educational Services - Salary range between $20,000. and $25,000. This individual should be the keystone of the staff. His duties would include the overall supervision and promotion of the educational system for the entire Division. Educational programs should exist in all correctional and in many community-based institutions. The Assistant Commissioner for Educational Services would supervise the activities of the diagnostic and assignment section of the reception center; maintain close liaison with the State Department of Education; administer the Division's educational budget; and supervise all personnel associated with the educational system. The individual appointed to this position should have the qualifications generally accepted for a Superintendent of Schools and should possess some background in vocational education and institutional management.

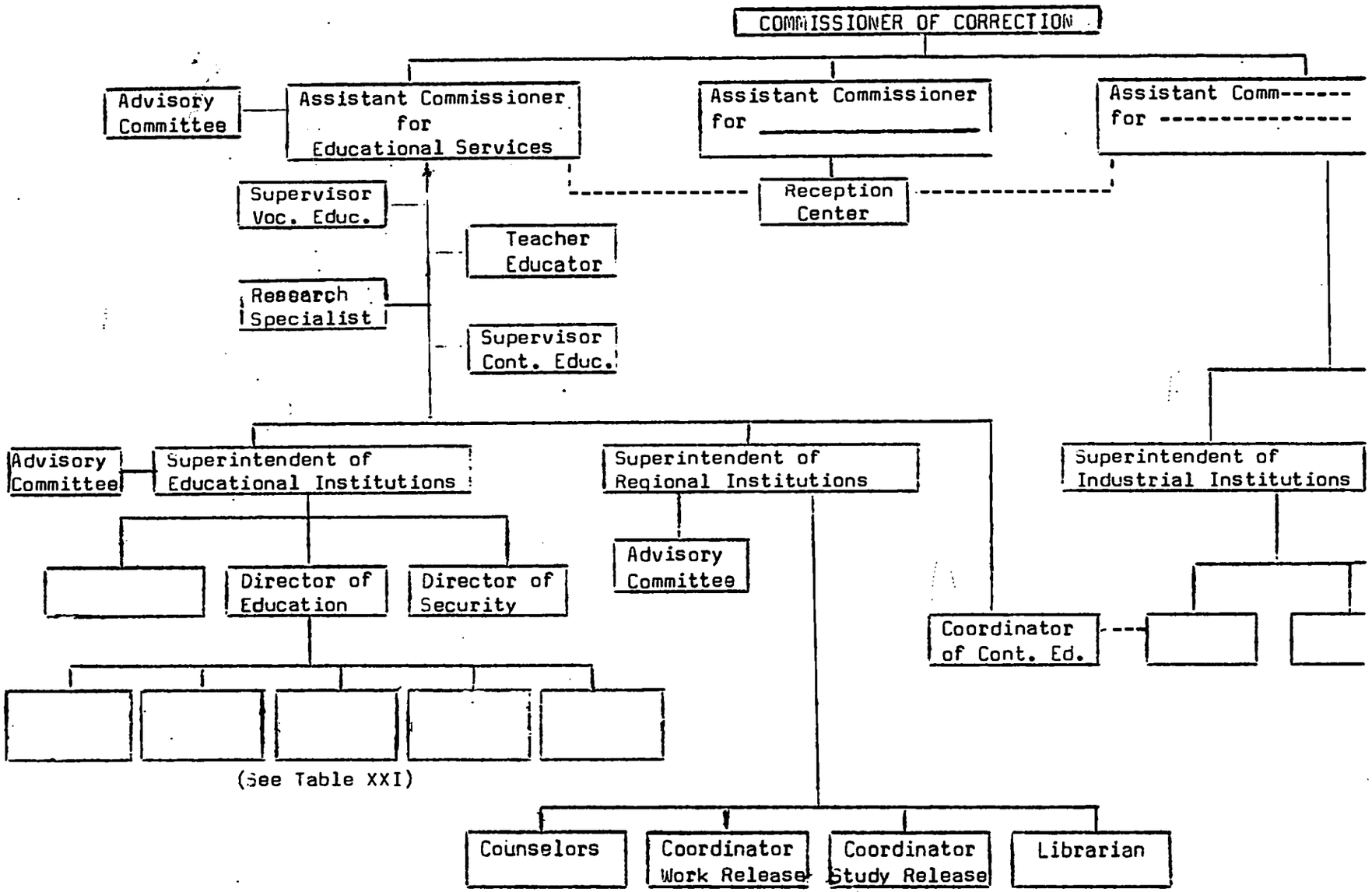
Supervisor for Vocational Education - Salary range between $15,000. and $20,000. This individual would work under the immediate direction of the Assistant Commissioner. He would supervise all vocationally-oriented programs sponsored by the Division of Correction; maintain close liaison with the State Department of Education and community-based programs. He would perform such other educational duties as assigned by the Assistant Commissioner. Qualifications for this position are the same as those required for supervisors in the Division of Vocational Education.

Supervisor of Continuing Education - Salary range between $15,000. and $20,000. Under the immediate supervision of the Assistant Commissioner he would be responsible for the supervision of developmental education, high school programs, and recreational and avocational courses. He would maintain close liaison with the State Department of Education and community-based programs and assume such other duties as assigned by the Assistant Commissioner. Qualifications for this position should be comparable to those for a high school principal.

Teacher Educator - Salary range between $10,000. and $20,000. This individual would provide in-service training for the

TABLE XX

DIVISIONAL EDUCATIONAL SERVICES



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vocational teachers in the Division. He would work under the direction of the Assistant Commissioner and in cooperation with The Ohio State University.

Research Specialist - Salary range between $16,000. and $20,000. Under the direction of the Assistant Commissioner, he should conduct an ongoing research program as to the effectiveness of the educational program as it attempts to rehabilitate offenders. In addition, he should be charged with the responsibility of working with all federal and state grants concerned with the educational program.

B. RECEPTION CENTER STAFF

Superintendent of Reception Center - Salary range between $20,000. and $25,000. The superintendent of the reception center should have a background in medical, psychological, educational, or the behavioral science, and should have some administrative experience. His duties would consist of coordinating the four major divisions of the reception center: Custody, Diagnosis, Medical and Correctional Data Bank.

Assistant Superintendent-Custody - Salary range between $15,000. and $20,000. The assistant superintendent-custody should be knowledgeable of and have had experience in correctional institution security. In addition, he should understand and accept a philosophy of rehabilitation compatible with the goals of the reception center. His duties would consist of assuring security within the reception center using methods that are as humane and as psychologically non-threatening as possible. The assistant superintendent-custody shall also be responsible for general maintenance of the reception center.

Assistant Superintendent-Diagnosis - Salary range between $20,000. and $25,000. The assistant superintendent-diagnosis should be a psychiatrist or Ph. D. psychologist whose orientation includes sophistication in both the diagnosis and treatment of learning and emotional problems. His duties would include directing and coordinating the activities of the diagnostic team, initiating new diagnostic procedures and developing a positive mental health atmosphere within the reception center. He would also be responsible for assuring that the goals of the diagnostic section of the reception center are attained.

Assistant Superintendent-Medical - Salary range between $20,000. and $25,000. The assistant superintendent-medical should be a medical doctor with experience as a director of a medical center or hospital. His responsibilities would consist of coordinating the activities of the medical section of the reception center. His section would also be involved in medical diagnosis and treatment. Supervision of the psychiatric treatment staff would also be his responsibility.

Assistant Superintendent-Data Bank - Salary range between $18,000. and $23,000. The assistant superintendent-data bank would be responsible for coordinating all activities related to collecting, maintaining and retrieving, in a usable form, data concerning inmates in the correctional institutions throughout the State of Ohio. He would coordinate the activities of the computer center and, upon request, facilitate provision of data to diagnostic, treatment, administrative and research personnel of the Division of Correction. His qualifications should include previous experience in directing a data bank or computer center.

Vocational Counselors - Salary range between $10,000. and $17,000. Vocational counselors should hold a Master's Degree in counseling and have a knowledge of the vocational programs and aptitudes needed for success in varied vocations. They would be responsible for assessing the vocational potential of inmates, analyzing the implications of inmates' previous employment patterns, obtaining indicants of the inmate's interests and, on the basis of such information, be prepared to recommend a vocational program that will have a high likelyhood of meeting an inmate's needs when released, or during an extended period of incarceration.

Educational Psychologists - Salary range between $12,000. and $18,000. Educational psychologists should hold a Master's Degree in School Psychology. They should be knowledgeable in making diagnoses of learning problems that go well beyond the administering of tests to determine inmates' intelligence quotients. They should be responsible for analyzing data related to the inmate's present achievement level and data related to problems that impede learning in order to recommend treatments that will facilitate learning.

Social Case Workers - Salary range between $9,000. and $13,000. Social case workers should hold a degree in social case work. They would be responsible for seeing to the collection and analysis of environmental information related to conditions that evoke appropriate and inappropriate behavior by inmates. On the basis of this data they would make recommendations regarding the rehabilitation needs of inmates to meet environmental pressures. In addition to the above, each inmate would be assigned to a social case worker whose responsibility it would be to maintain continuing liaison between the inmate and personnel in the diagnostic center, maintain up-to-date records and provide follow-up treatment results.

Educational Specialists - Salary range between $8,000. and $14,000. The educational specialists may be at either the Bachelor's or Master's Degree level. They should be well trained in procedures to overcome specific learning problems. On the basis of data gathered they should be prepared to make specific recommendations related to the point at which instruction should begin. The

educational specialists should be particularly conversant in methods and procedures applicable to adults. Because of the emphasis on vocational education the educational specialists should be familiar with vocational curricula and the level of general education needed for an inmate to be successful in various vocational programs.

Correction Officers - Salary range between $8,000. and $12,000. Correction officers need to be well trained in security problems presented by various kinds of inmates, in rehabilitation methods, in the characteristics of various correctional institutions which facilitate or impede security, in the effect of security regulations upon inmates, and in the characteristics of security personnel in various institutions. Correction officers should have some post-high school education in social science areas in addition to having the potential to extend their training beyond the high school level. It would be the responsibility of the correction officers to provide input into the diagnostic team related to security problems unique to a particular inmate. Recommendations of the diagnostic team would take into account problems of security as detailed by the correction officer.

Parole Counselors - Salary range $10,000. and $15,000. The parole counselors should be well educated in legal rights of inmates, laws that effect inmates and protect society, parole procedures, and rehabilitation policies and procedures. It will be the parole counselors' responsibility to provide legal input into the diagnostic team's deliberations so as to protect the inmate and keep recommendations within the law. In addition, the parole counselor would assess possible parole dates for individual inmates in terms of rehabilitative accomplishments.

Psychologist - Salary range $15,000. and $23,000. The psychologist should be at the Master's Degree plus thirty hours, or at the Ph.D. level in clinical psychology. He should be experienced in the diagnosis of emotional problems and in their treatment. A practicum or internship in the use of projective instruments should be a prerequisite. In addition to the above, sophistication in the handling of drug and sex problems should be required.

Testing Technicians - Salary range between $8,000. and $11,000. Testing technicians should have undergraduate degrees in psychology. They would be responsible for group testing, and collection of routine data only. They would not do individual testing using projective instruments, apperception tests, or individual intelligence tests, such as the WAIS. They would not conduct interviews to gather any data other than factual information.

Office Manager - Salary range between $10,000. and $14,000. The office manager should have a Bachelor's Degree in office

management or equivalent experience. It would be his responsibility to supervise the secretarial staff, schedule testing, and provide general supervision of the office staff of the entire reception center.

Security Officers - Salary range between $8,000. and $10,000. Security officers should have a minimum of a high school education, be familiar with security and mental health problems within correctional institutions, have completed an orientation program, and be oriented toward the needs of inmates that will facilitate rehabilitation.

Delimitation of the performance of the reception center staff in the medical and data bank sections was not considered to be within the purview of the vocational research team.

C. EDUCATIONAL INSTITUTION'S STAFF

Superintendent - Salary range between $20,000. and $22,000. The superintendent would be charged with the responsibility for the complete educational institution. With the advice of the assistant commissioner for educational services he would employ qualified staff to conduct the educational programs of the institution, the cadre of individuals to maintain and operate the institution, plus the correctional officers. The individual assuming this position should be qualified and have experience in both school administration and corrections.

Director of Education - Salary range between $15,000. and $20,000. He would be responsible to the superintendent of the institution and maintain close liaison with the Division's educational office. He would have responsibility for recommending the employment of all educational staff members; administer the educational budget for the institution, and maintain broad supervisory responsibilities for the educational offerings. This individual should have the qualifications similar to those necessary to qualify for a principal of a vocational high school. He would also serve as the principal for the chartered high school.

Coordinators of Occupational Departments - Salary range between $12,000. and $14,000. Each department within an educational institution should be coordinated by a team captain who provides leadership to a group of teachers, counselors, and a psychologist for a specific group of inmates assigned to that group. This individual should possess a degree and teaching experience in an approved vocational program.

Coordinators of Continuing Education - Salary range between $12,000. and $18,000. This individual should organize and promote the continuing education courses to supplement the vocational classes. In addition, he would organize courses in developmental

education, recreational and avocational classes not normally a part of the high school offerings. He should possess a degree and teaching experience at the high school level.

Librarian - Salary range $10,000. and $15,000. This individual would organize and operate the instructional library to support the educational program. In addition, he must be cognizant of all other inmate needs regarding adequate library facilities. He should possess a Master's Degree in Library Science.

Guidance Counselors - Salary range between $10,000. and $15,000. A guidance counselor will be assigned to each occupations group to assist the teachers with supportive services in their educational efforts with inmates. He would assume many of the responsibilities now shouldered by social workers. This concept is more than a change in title because it is intended that guidance counselors would assume broader responsibilities in assisting in job placement and follow-up. Guidance counslors should meet the general qualifications for certification as a vocational counselor in a public school.

Vocational Teachers - Salary range between $9,000. and $10,000. Vocational teachers will instruct both laboratory and related experiences for approximately 20 inmates. As their specific assignment would be to teach in one area within the occupational groups, they should meet the same standards as prescribed by the State Department of Education's Division of Certification.

Continuing Education Teachers - Salary range between $9,000. and $10,000. for nine months. Because of the uniqueness of education within the Division of Correction, the general education teachers must be supportive to the vocational education concept.

Educational Psychologists - Salary range between $9,000. and $12,000. This individual would provide psychological services and lend support to the guidance counselors and teachers of several clusters of occupations. One psychologist should probably be assigned for each three groups of occupations. The psychologist should possess a degree, at least a Master's, and considerable educational experience before entering the Division of Correction.

Correction Counselors - Salary range between $8,000. and $10,000. The correction counselors must function as a key component in the rehabilitation process and would assume most of the responsibilities presently conducted by the correction officers in their day-to-day contacts with the inmate population. This position should be considered as para-professional, requiring appropriate education beyond high school.

Correction Officers - Salary range between $6,000. and $8,000. These individuals would be responsible for general security and

man the gates and guard houses, but would not directly relate to the inmates. Correction officers should be considered as para-professional and possess appropriate education beyond high school.

D. INDUSTRIAL INSTITUTION'S STAFF

The thrust of the educational program within the Division of Correction would take place in institutions other than industrial institutions. However, the consulting team recognizes the need for some educational programs within the industrial institution. These would be carried out basically through "on-the-job-training" programs in connection with the work experience. Each institution, in addition, should have an array of developmental courses, recreational, avocational and correspondence courses, plus programmed instruction. All members of the staff within an industrial institution should be sympathetic to the rehabilitation of inmates. We have elected to describe only the function of the key educational administrator.

Coordinator of Continuing Education - Salary range between $12,000. and $15,000. The only full time educator within the industrial institution would be the coordinator of continuing education. He would be responsible to the Division supervisor of continuing education and would supervise the educational programs described above. Most of the teaching functions would be performed by high school teachers employed on a part-time basis. He should possess a degree and teaching experience at the high school level.

E. REGIONAL CORRECTIONAL INSTITUTION'S STAFF

Superintendent - Salary range between $20,000. and $22,000. The superintendent of these new institutions should be individuals experienced and qualified in educational administration, parole and corrections. They should have broad supervisory responsibilities for all members of the regional correctional staff. They must possess the ability to communicate to the public the processes and functions of their unique institution programs. Most of their programs would be community-based.

Guidance Counselors - Salary range between $10,000. and $15,000. These important members of the institutional staff would provide personal and vocational counseling to the inmate population. They should possess a baccalaureate degree in guidance.

Coordinators of Work Release - Salary range between $10,000. and $15,000. The responsibility of locating satisfactory work experiences for inmates assigned to work release programs would be the responsibility of the coordinator. As it is expected that the individual inmate would continue in the same job once he has obtained parole status, it would be necessary for the coordinator to continue to serve this inmate. The inmate-coordinator ratio should

be approximately fifty-to-one. The coordinator should possess a baccalaureate degree and experience in vocational education.

Coordinators of Study Release - Salary range between $10,000. and $15,000. The responsibility to supervise the activities of inmates on study release status would be the coordinators' responsibility. These individuals must maintain close liaison with vocational schools, technical institutes, and community colleges within the geographic area. Another area of responsibility would be to develop working relationships with these schools in regard to the payment of fees and the purchase of books. They should possess a baccalaureate degree in education.

Specialized Coordinator - Salary range between $10,000. and $15,000. In another section of this report, we are recommending the establishment of a program similar to those in operation in vocational schools, such as Diversified Cooperative Training. Each of these programs established would require a coordinator capable of coordinating related instruction with the job experience.

Psychologists - Salary range between $9,000. and $10,000. These individuals would provide psychological services and lend support to the guidance counselors and other regional correctional institution staff members. The psychologists should possess a Master's degree and considerable educational experience before entering the Division of Correction.

Correction Counselors - Salary range between $9,000. and $10,000. They must function as a key component in the rehabilitation process and assume most of the responsibilities presently conducted in the correction officers day-to-day contacts with the inmate population. These positions should be considered para-professional, with appropriate education beyond high school required.

STAFF DEVELOPMENT

The consulting team is aware that within the educational institution most of the educational staff will be new employees. A small group of staff members presently employed must be retained. New individuals employed to provide educational services in any institution, should be selected on the basis of their interest, ability, and qualifications that will provide the unique educational programs needed to rehabilitate inmates. Because of this uniqueness, it is of vital importance that the Division embark on a staff recruitment and selection program.

Pay Schedule - The financial remuneration presently received by educators within the institution is not competitive with what these same individuals would make in an educational institution outside. In order to attract and retain competent educators, the entire pay structure must be upgraded.

It is strongly recommended that the Commissioner of Corrections obtain from the legislature an education budget of sufficient amount to implement the recommendations contained in this report. It is time for the state to recognize that though rehabilitation costs money, it is cheaper than having individuals return to prison on a regular basis. A direct appropriation for education should be obtained from the legislature, rather than the past practice of trying to obtain funds for education from institutional budgets and through other segments of the state government.

The consulting team recommends that the Division, in cooperation with the State Department of Personnel, interpret the present state salary schedule as one for nine months service. Teachers providing twelve months of service should receive additional compensation.

Pre-Service Training - It is necessary for the Division to provide pre-service training for all individuals entering employment with the Division. This pre-service program should be different for various types of staff members and must include custodial and treatment familiarization.

The newly established Correction Academy should concentrate its efforts in providing pre-service programs for new correctional employees with particular emphasis on the training of correctional officers.

All new teachers employed in corrections should be provided four weeks of pre-service training, working directly with an experienced, correctional education teacher.

In-Service Training - Some in-service training programs can be provided by the Correction Academy; however, services provided by colleges and universities may be of more value to members of the educational staff.

For the purpose of discussion, we are separating in-service staff development programs into two categories:

(1) Informal - Those staff meetings, seminars and planning sessions which take place within an institution to establish goals, better communication and coordination of the entire education program. These sessions should involve all members of the educational team concerned with the occupational groups, including counselors and psychologists. These sessions should be conducted on a periodic basis when teachers can be released from their teaching assignments.

(2) Formal - Those staff development activities that generally occur outside the institution but are closely aligned to collegiate credit.

Consideration should be given to providing in-service staff development programs for vocational teachers from selected public universities.

This approach has worked satisfactorily in providing similar services to vocational teachers in the public high schools. In Appendix of this report will be found additional recommendations regarding in-service training programs.

The consulting team is supportive of the concept of releasing correctional personnel from their job assignments to pursue courses in higher education in colleges and universities, and to pay the college fees for those choosing to follow this route.

Consideration should be given by the Division to releasing certain numbers of teachers during the summer months, with pay, so that they might attend classes on a university campus in pursuit of a higher academic degree. Summers are suggested because of the availability of selected vocational high school teachers who could substitute within the correctional institutions for this period of time.

TYPES OF PROGRAMS

Developmental Education - The consultants are concerned about the current concept of presenting basic education subject matter in the traditional manner; assuming that one must complete the traditional fifth grade math before he can move to sixth, seventh, or eighth grade math. This concept does not fit the correctional setting and may be unfair to the older inmate, many of whom were not successful in the public schools where the subject matter was presented in this traditional fashion.

We recommend that the concept of offering elementary courses in subject matter be discontinued for the new concept of developmental education. This newer concept operates in two parts; offering some fundamental courses in mathematics, reading, English, but with the subject matter broken down into modules having certain educational objectives. Because of the individual differences that exist between inmates, some may complete their objectives in one week while others may spend several weeks on the same module.

Many of the materials employed can be presented through programmed learning techniques available in new educational media.

The second part of developmental education is a learning laboratory to which inmates may be referred by other educators, or to which the inmate may, upon his own initiative, take advantage of the laboratory. The laboratory staff would be available to assist inmates with specific help to solve educational deficiencies as they are discovered. The laboratory would be equipped with modern educational media equipment such as oscilliscopes, tape recorders, projectors, strip films, and programmed learning machines.

Apprenticeship - The concept of training apprentices within the

Division of Correction is receiving some attention by the Division. The consultants believe that extreme care must be executed in the development of apprenticeship programs. Bona fide apprenticeship programs within the State of Ohio require two or five years to complete and include a minimum of 144 clock hours of related instruction per year. Since few inmates will be spending this amount of time within the institution, it does not seem likely that inmates will complete the program while they are incarcerated, therefore apprenticeship programs must be coordinated with and be applicable to apprenticeship programs existing in the community to which the inmate will return. These programs will require a great deal of coordination, not only with the Ohio Apprenticeship Council and other state groups, but with apprenticeship committees for specific trade areas in the larger cities to which inmates plan to return. Time spent on apprenticeship training in a correctional institution will lose its effectiveness if credit is not gained for the time spent when he returns to his community.

High School - It is desirable for most trainees to achieve a high school diploma, as it may be of importance upon release. The chartered high school approach should be continued, but we should not over-emphasize the high school credit or diploma in the development of the individual. The emphasis should be in preparing the man with the skills and attitudes to find and hold a job.

Avocational and Recreational Classes - There exists a vital need for an enlargement of these classes. They not only help the inmate constructively spend a great deal of time within the institution, but they may also help him develop a hobby that will carry over to his life after release.

Manpower - Several meaningful manpower programs were observed in our visits to correctional institutions. One of the forces that brought these about was a means of obtaining money to provide the vocational program. Although this effort should be continued, the Division must obtain sufficient funds from the Ohio Legislature for an adequate educational budget to provide the educational programs.

Correspondence Courses - Currently many inmates participate in correspondence courses offered through a variety of agencies. These programs seems to be beneficial to the inmate. Some standardized procedure should be used to evaluate the legitimacy of the parent company and the financial relationship with the individual inmate.

Co-Operative Programs - Many high school students have gained vocational training through such cooperative ventures as "Distributive Education" and "Diversified Cooperative Training." Programs similar to these should be developed for those inmates being housed in regional correctional institutions.

On-the-Job-Training - These programs must be structured so that work

experiences are closely coordinated with the necessary related instruction. This includes a great deal more than just work experience.

INSTITUTIONAL GOALS

The Division of Correction currently operates eight institutions of correction. The consulting team has visited each institution on many occasions and recommends that the future role of each institution be specified and inmates be assigned to institutions on the basis of rehabilitative services that can be provided the inmate.

The consulting team recognizes the magnitude of implementing these recommendations and suggests that this might be done in two phases. Phase I could be completed within a matter of one year. Phase II may be prolonged for two or three years, depending upon the financial commitment on the part of the Ohio Legislature.

A. PHASE I

1. Mansfield - The consulting team agrees with the task force report that the Mansfield institution can no longer serve a rehabilitation function. We are recommending that it be razed as soon as a satisfactory means can be found to house the inmates in other institutions. Some educational equipment presently in use at the Mansfield Reformatory should be shipped to one of the new educational institutions. Selected members of the educational staff should be offered transfers.

2. Ohio Penitentiary - The consulting team supports the recommendation of the Division of Correction that the Ohio Penitentiary be razed. Some vocational educational equipment should be transferred to one of the educational institutions and selected staff members be offered transfers. We do not believe that this institution should be used as a reception center. The buildings and site should be sold and the Division use the money from the sale of property to erect a new reception center near the outskirts of Columbus. The Division should examine the possibilities of locating the reception center in the Lucasville institution until an adequate facility can be built near Columbus.

3. Chillicothe - This institution should be designated as a medium security, adult industrial institution. The educational program should include "on-the-job-training," and avocational and recreational courses primarily taught by part-time teachers. Since the institution is not owned by the State of Ohio, it may not ultimately fit into the master plan of the Division of Correction. Therefore, no large amount of money should be expended in the development of new and expensive programs.

4. London - The character of the London Correctional Institution should not be substantially changed from what it is today. It should be designated as a medium security, adult industrial institution. It should continue its tradition of offering evening, part-time educational programs in high school classes conducted by a part-time teaching staff. It needs, however, to develop a stronger emphasis on developmental, avocational and recreational courses. The current vocational programs should be phased out, and the equipment transferred to one of the educational institutions. Its emphasis on vocational education should be focused on meaningful "on-the-job-training" programs.

5. Lucasville - This new institution located in southern Ohio should be described as a maximum security, industiral institution with primary emphasis for the adult inmate. Because all inmates who are considered maximum security risks will be housed in this institution, some educational programs must be available for the inmate population. It is also important to note that the average length of stay of inmates in this institution will be considerably longer than in other institutions. There should be ample opportunity for inmates to finish a complete educational program during their period of confinement.

   Some correctional officials have indicated to the consultants that there is a likelihood that younger maximum security risk inmates may also be housed at the Southern Ohio Correctional Facility. Should this occur, the educational programs should be expanded. The consulting team supports the recommendation made by the Ohio University educational study. The education program should contain vocational programs, "on-the-job-training", high school credit courses, developmental education, plus avocational and recreational programs.

6. Marysville - Presently this is the only correctional institution in Ohio for women. Women of all ages are confined here. The inmate population is small, in comparison with that of the male institutions. The consulting team recommends that Marysville continue to function as an institution for women, with an expansion of its educational program as follows:

   a. The current school buildings should be enlarged to accommodate vocational programs such as cosmetology, which currently exists in an isolated portion of the institution.

   b. The avocational and recreational courses should be expanded.

   c. Embark on a meaningful developmental education program.

d. Consider new vocational programs in medical care, office education, fabric care, food service, medical care, home and community services, and continuing education.

In the event the decision is made to abandon Marysville as a women's institution, some consideration should be given to using the facility as a regional correction institution for the Columbus area on a temporary basis. Its location is not completely satisfactory for the regional concept.

7. Marion - The buildings, attitudes and interests of the staff seem to be conducive to education. It is recommended that Marion be designated temporarily as an educational institution for adults to accommodate approximately 650 inmates, over 30 years of age. In the long-range plans, Marion should revert to a medium security industrial institution, once the new Area Educational Institutions have been erected as specified in Phase II of the recommendations.

   a. All C.P.I. should be removed from the institution.

   b. The space presently assigned to C.P.I. and maintenance should be redesigned into groups of laboratories and classrooms for an expanded educational program.

   c. Since all members of the staff of an educational institution must have similar goals and philosophies, an opportunity should be given to current members of the staff at Marion to attend in-service training programs to develop this new concept. Those who can make the adjustment should be retained; others should be replaced.

   d. The present dormitories should be sub-divided by walls to create individual living quarters for the inmate population.

   e. The library facilities should be greatly expanded.

   f. The present honor dormitory should be used as a visiting area.

8. Lebanon - Historically the Lebanon Correctional Institution has shown an interest in education and currently has some excellent programs in operation. The consulting team recommends that Lebanon be designated temporarily as an educational institution for young adults to accommodate approximately 900 inmates, under 30 years of age. In the long-range plans Lebanon should revert to a medium security industrial institution, once the new Area Educational Institutions have been erected as specified in Phase II of the recommendations.

The following changes would be necessary to fully implement the consulting team's version of an educational institution:

a. All O.P.I. should be removed from the institution.

b. The space presently assigned to O.P.I. and maintenance should be redesigned into groups of laboratories and classrooms to provide for the educational program.

c. Since all members of the staff of an educational institution must have similar goals and philosophies, an opportunity should be given to current members of the staff at Lebanon to attend in-service training programs to develop this new concept. Those who can make the adjustment should be retained. The others should be replaced.

d. The library facilities should be expanded.

9. Regional Correctional Institutions - The consulting team strongly supports the efforts that are taking place within the Division of Correction regarding reintegration centers and halfway houses.

As a temporary solution, such facilities as halfway houses, honor dormitories, and the like can be used for this purpose. As a permanent solution we recommend that new regional correctional institutions be built near the larger cities to provide an even larger expansion of this concept.

B. PHASE II

The Division must secure sufficient funds to erect several smaller correctional institutions, each with a specfic purpose and ultimately eliminate Chillicothe and London as correctional institutions. Once the new Area Educational Institutions are built, Marion and Lebanon can accommodate the inmates housed at these institutions. These long-range plans should include the following:

1. A new reception center, to be erected near the State Capitol.

2. The construction of six regional correctional institutions, described in more detail in other sections of this report.

3. A small maximum security institution may be needed to house those youthful offenders who cannot adjust to the more lenient concepts provided in the educational institutions. It may not be desirable to house these younger inmates at Lucasville.

4. Several Area Educational Institutions (erected for this specific purpose), each housing approximately 500 inmates, will be

needed as replacements for the institutions at Lebanon and Marion.

5. There exists a need to coordinate a state-wide system of regional jails to replace many of the county jails currently in operation.

ADMINISTRATIVE ORGANIZATION OF AN EDUCATIONAL INSTITUTION

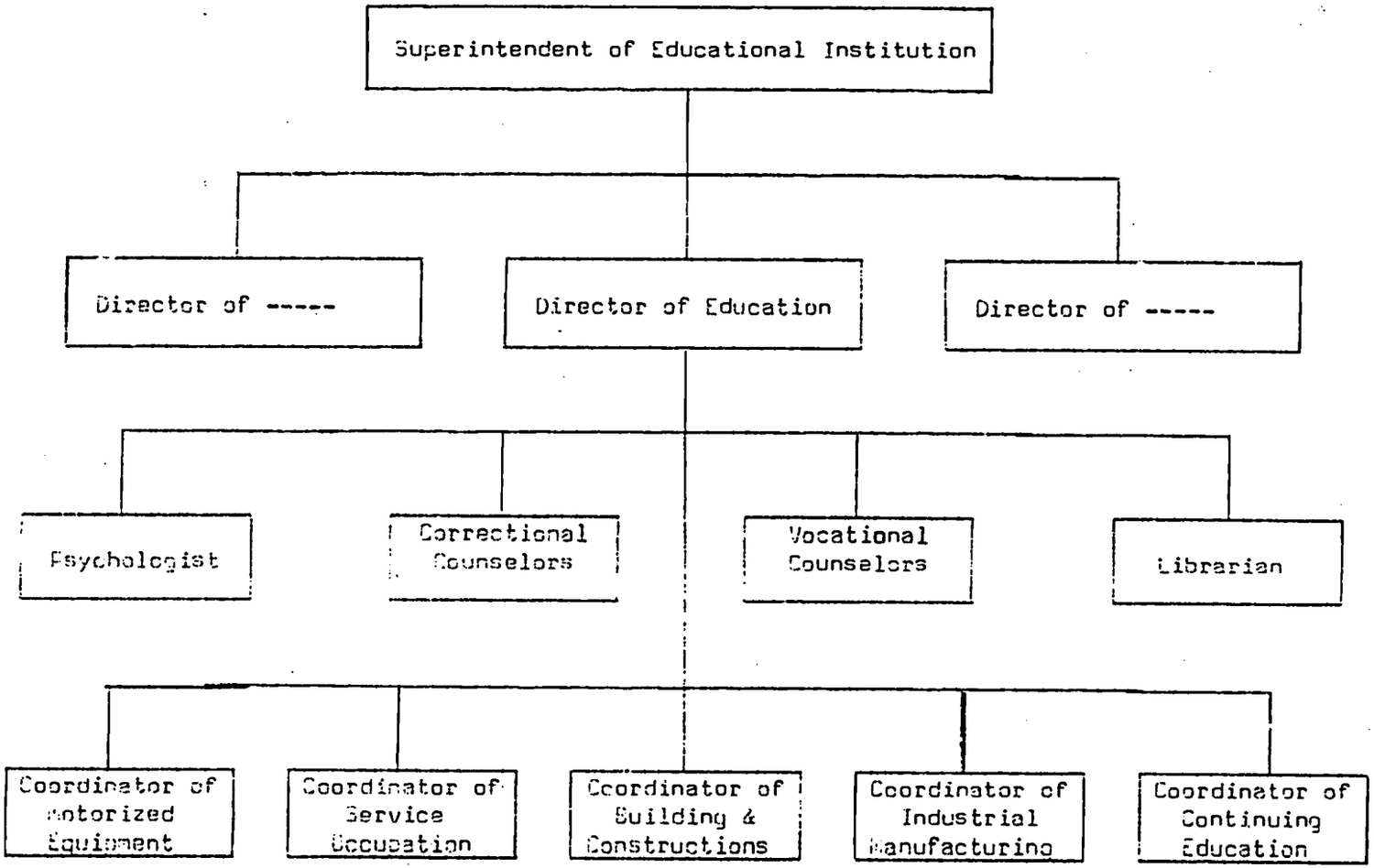
As previously stated in this report, it is of extreme importance that the philosophies of the institution and all members of its staff be in harmony with the educational philosophies. A key individual working directly for the superintendent of an educational institution would be the director of education. He would be responsible for the functions of the following five departments: (1) Motorized Equipment Service, (2) Service Occupations, (3) Building and Construction, (4) Industrial and Manufacturing, and (5) Continuing Education.

The purposes for recommending five separate departments are two-fold: To simplify the administrative structure, but mainly to create a "school within a school concept." The consultants visualize each department as handling between 150 and 200 inmates, thus presenting a probability of inmates relating to their own group within the department. The concept envisions a team of educators within a department, working with a group of inmates and generating a close personal identification. For the sake of identification, it is strongly urged that this group of inmates be kept together, not only within their educational department, but in their housing units as well as in recreational pursuits.

Each department must coordinate its activities and supply educational services to other departments. There must be a free and complete exchange of ideas. The attached organizational chart should help clarify the organizational pattern. (Table XXI)

TABLE XXI

ORGANIZATION OF EDUCATIONAL INSTITUTION



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EDUCATIONAL PROGRAMS

Each of the five departments would be responsible for an array of educational programs. For example: The motorized equipment service department would offer educational programs in auto mechanics, auto body, diesel mechanics, etc. Because of the age of the inmates, the educational program within a department would vary between the Marion and Lebanon institutions. The consultants do not recommend the same vocational programs for older inmates as their age would hinder them in their employment opportunities in some occupational fields once they are released.

The educational programs described here may require several months for an imate to complete. Realizing that inmates are constantly arriving and leaving, provisions have been built into the educational program to accommodate this situation. Each program is composed of several self-contained learning modules. A module is a smaller segment of the complete educational program. Inmates completing a given module, or a series of modules before leaving the educational institution would have sufficient information regarding that segment of the occupation so that he can successfully meet his initial employment opportunities, or further schooling.

Each of the modules is further subdivided into units of instruction. It is conceivable that a given inmate may best be served through the selection of several units of instruction, perhaps from different modules in planning his individual vocational program. The following list of modules, categorized by educational programs for each of the two educational institutions, are the consultants' recommendations. We believe that these educational programs, properly structured and administered to the inmate population, will make it possible to rehabilitate most of the inmates assigned.

LEBANON

DEPARTMENT OF MOTORIZED EQUIPMENT SERVICES

A. Auto Mechanics

1. Electrical & Ignition
2. Fuel Systems
3. Transmissions
4. Brakes
5. Engine Overhaul
6. Drive Systems
7. Steering Systems
8. Cooling Systems
9. Exhaust

B. Auto Body Repair

1. Hardware & Trim
2. Shaping Metals
3. Body Panel Repairs
4. Fiber Glass Repair
5. Frame & Unit Body
6. Refinishing
7. Estimating
8. Welding & Brazing

C. Car Care

1. Transport Automobiles
2. Wash and Clean Automobiles
3. Change Battery
4. Charge Battery
5. Change Flat Tires
6. Repair Flat Tires
7. Make Some Minor Adjustments
8. Replace Some Parts
9. Lubrication
10. New Car Clean Up
11. Used Car Clean Up

D. Diesel Mechanics

1. Fuel Injection System
2. Charging System
3. Starting System
4. Engine Overhaul
5. Transmission
6. Wheel Alignment
7. Braking System
8. Drive Line

E. Motorized Equipment Operator

1. Driving
2. Hydraulic Systems
3. Preventive Maintenance
4. Safety

F. Small Engine Repair

1. Ignition
2. Fuel
3. Overhaul

LEBANON

DEPARTMENT OF SERVICE OCCUPATIONS

A. Divereified Health Occupations

1. Dental Laboratory
2. EEG Technician (Electroencephalograph)
3. EKG Technician (Electrocardiogram)
4. Inhalation Therapy
5. Medical Laboratory
6. Medical Records
7. Occupational Therapy Assistant
8. Orderly Services
9. Physical Therapy Assistant
10. Radiological Technologist

B. Food Service

1. Cooking
2. Baking
3. Meat Cutting
4. Restaurant Management and Service
5. Food Processing

C. Business and Office

1. General Clerical
2. Intensive Office Education
3. Accounting
4. Computer Programming
5. Small Business Machines Operation

LEBANON - DEPARTMENT OF BUILDING AND CONSTRUCTION

A. Masonry
1. Measure and Stake Out Plot
2. Excavation for Structure
3. Construct Concrete Forms
4. Erect Brick, Block, and Stone Walls
5. Masonry Units
6. Workmanship of Brick Walls
7. Brick Bonds
8. Fireplaces - Chimneys
9. Arches
10. Walk Patios
11. Estimating
12. Pour and Finish Concrete

B. Electrical Trades
1. Residential Wiring
2. Commercial Wiring

C. Carpentry
1. Construction Material
2. Framing
3. Finish Exterior
4. Finish Interior

D. Drafting (Construction)
1. Electrical
2. Pipe
3. Structural
4. Wood Constructions
5. Foundation Plans
6. Floor Plans
7. Elevations
8. Sectional Views
9. Materials of Construction

E. Plumbing
1. Codes
2. Pipe and Fittings
3. Cold Water Supply
4. Hot Water Supply
5. Drainage Systems

F. Heating
1. Types of Heating and Humidifying
2. Gas Furances
3. Hydronic Heating
4. Oil Burners
5. Pilot Lights
6. Humidifiers
7. Electric Heat
8. Thermostats
9. Relays
10. Furnace Controls
11. Air Cleaners and Filters
12. Estimating

G. Air Conditioning Cooling Systems
1. Comfort Cooling
2. Self Contained Systems
3. Central Systems
4. Remote Systems
5. Console Air Conditioners
6. Residential Central Systems
7. Window Units
8. Dehumidifying Equipment
9. Estimating

H. Plastering
1. Mixing Plaster Mortar
2. Lathing and Plaster Base
3. Applying Plaster
4. Scratch and Brown Coats
5. Finish Coat
6. Stucco
7. Acoustic Tile and Plaster
8. Dry Wall

I. Painting and Decorating
1. Painting & Materials
2. Wall Covering
3. Floor Covering
4. Commercial Painting
5. Industrial Painting
6. Residential Painting

LEBANON
DEPARTMENT OF INDUSTRIAL AND MANUFACTURING

A. Communications Electronics
   1. Basic Electronics
   2. Principal of Antenna
   3. Modulation
   4. Detection
   5. Transmitters
   6. Receivers

B. Welding (Pipe and Structural)
   1. Welding Equipment & Tools
   2. Oxyacetylene, Welding, Cutting - Soft and Silver Soldering
   3. Blueprints
   4. Electrode
   5. Tungsten and Inert Gas
   6. Metal and Inert Gas - MIG
   7. Carbon Arc
   8. Resistance
   9. Scarfing

C. Business Machine Repair
   1. Basic Electricity and Electronics
   2. Gears, Linkages and Drive Mechanisms
   3. Servo-mechanisms
   4. Mechanical Modification Procedures
   5. Cleaning, Maintenance & Records

D. Major Appliance & Vending Repair
   1. General Merchandise Vending
   2. Vending Machine Circuit Schematics
   3. Plumbing
   4. Refrigeration & Heating
   5. Coin & Currency Device
   6. Carbon Dioxide Systems

E. Graphics Program
   1. Offset Copy Preparation
   2. Offset Camerawork
   3. Offset Stripping
   4. Offset Platemaking
   5. Offset Presswork
   6. Bindery Operation
   7. Letter Press Operation
   8. Silk Screen Printing

DEPARTMENT OF CONTINUING AND DEVELOPMENTAL EDUCATION

A. High School (Credit and Non-Credit)

B. Developmental Education Program
   1. Adult Basic Eoucation
   2. Consumer Education
   3. Home and Community Living

C. Avocational and Recreational

D. Driver Education

MARION

DEPARTMENT OF MOTORIZED EQUIPMENT SERVICES

A. Auto Mechanics

1. Electrical & Ignition
2. Fuel System
3. Transmissions
4. Brakes
5. Engine Overhaul
6. Drive Systems
7. Steering System
8. Cooling System
9. Exhaust

B. Auto Body Repair

1. Hardware & Trim
2. Shaping Metals
3. Body Panel Repairs
4. Fiber Glass Repair
5. Frame & Unit Body
6. Refinishing
7. Estimating
8. Welding & Brazing

C. Diesel Mechanics

1. Fuel Injection System
2. Charging System
3. Starting System
4. Engine Overhaul
5. Transmission
6. Wheel Alignment
7. Braking System
8. Drive Line

MARION

DEPARTMENT OF SERVICE OCCUPATIONS

A. Medical Laboratory Aesistant
   1. Anatomy, Physiology and General Pathology
   2. Blood Banking
   3. Bacteriology, Serology and Parasitology
   4. Clinical Chemistry
   5. Hematology
   6. Electrocardiography

B. Food Service
   1. Menu Planning
   2. Food Preparation and Cooking
   3. Sanitation and Safety
   4. Distribution and Service
   5. Control of Food Cost
   6. Purchasing, Receiving, Storage
   7. Laws & Regulations Affecting Food Services

C. Business Machine Repair
   1. Basic Electricity and Electronics
   2. Gears, Linkages and Drive Mechanisms
   3. Servo-mechanisms
   4. Mechanical Modification Procedures
   5. Cleaning, Maintenance and Records

D. Horticulture
   1. Identification and Classification of Weedy and Herbaceous Plants
   2. Propagation of Woody and Herbaceous Plants
   3. Production of Woody and Herbaceous Plants
   4. Soil Science & Management
   5. Types, Use, and Maintenance of Plant-Growing Structures
   6. Control of Plant Diseases and Pests
   7. Identification and Control of Weeds
   8. Marketing of Woody and Herbaceous Plants
   9. Establishment and Maintenance of Lawns and Turf
   10. Use of Hand Tools and Small Power Equipment

E. Custodial Training
   1. Use of Waxes and Cleaning Compounds
   2. Floor Covering Care
   3. Sanitation
   4. Maintenance of Heating and Cooling Equipment
   5. Cleaning Schedules

F. Building Maintenance
   1. Maintenance of Heating & Air Conditioning Equipment
   2. Carpentry Repairs
   3. Electrical Repairs
   4. Masonry and Concrete Repairs
   5. Plumbing Repairs
   6. Lawn Care
   7. Directing Custodial Services
   8. Fire and Building Code Regulations

MARION

DEPARTMENT OF BUILDING AND CONSTRUCTION

A. Masonry

1. Construction of Brick Veneer Walls, Brick Veneer Corners, Piers and Pilasters
2. Long Wall Construction, including Concrete Block, Brick Veneer, and Solid Brick Walls
3. Lead Construction (Block, Brick, Solid Brick)
4. Building Code Requirements
5. Mortar Mix Requirements

B. Electrical Trades

1. National Electric Code
2. Motors and Motor Controls
3. Basic Electricity
4. Electrical Hardware
5. Industrial Control Systems

MARION

DEPARTMENT OF INDUSTRIAL AND MANUFACTURING

A. Communications Electronics
   1. Basic Electronics
   2. Principal of Antenna
   3. Modulation
   4. Detection
   5. Transmitters
   6. Receivers

B. Electro-Mechanics
   1. Electricity
   2. Electronics - Analog
   3. Electronics - Digital
   4. Electromechanical Devices
   5. Fluid Power and Fluidics
   6. Feedback and Servo-mechanisms
   7. Gear and Linkages
   8. Industrial Controls
   9. Instrumentation Process Control

C. Welding and Metal Fabrication
   1. Shielded Metal-Arc Welding Processes
   2. Gas Shielded-Arc Welding
   3. Special Arc Processes
   4. Oxygen-Acetylene Processes
   5. Metal Forming Equipment and Machine Processes
   6. Measurement and Layout
   7. Hand Processes
   8. Metallurgy

D. Power Plant Operator
   1. Boiler Room Practice
   2. Generating Room Practice
   3. Distribution Board
   4. Licensing Examination Preparation

E. Machine Trades
   1. Engine Lathe
   2. Horizontal Mill Operator
   3. Vertical Mill Operator
   4. Shaper Operator
   5. Quality Control
   6. Turret Lathe
   7. Electrical Discharge Machine
   8. Precision Grinding Operations

DEPARTMENT OF CONTINUING AND DEVELOPMENTAL EDUCATION

A. High School (Credit and Non-Credit)

B. Developmental Education
   1. Adult Basic Education
   2. Consumer Education
   3. Home and Community Living

C. Avocational and Recreational

D. Driver Education

CURRICULA AND CURRICULUM PLANNING

The consultants, in the previous sections of this report, outlined recommendations regarding the educational programs and the modules that compose the educational program. They further defined that the modules must be broken down into units of instruction so that it is easy to move inmates into and out of a program in relatively short time intervals. The consultants further believe that each unit of instruction must be broken down into lesson plans. Most of the instructional program within the correction setting must be individualized. In order to accomplish this objective, each teacher must have a series of lesson plans and job sheets so that he can select the proper combination of these two documents to prepare the proper educational program to meet the individual needs of the inmate.

Curricula must be planned to serve an average class size of approximately fifteen students with extreme care being exercised to closely relate laboratory and related training.

The consulting team does not recommend any specific amount of time necessary to complete a program because time limits should be based upon the individual needs and capabilities. However, our concept does visualize that inmates will be available the entire day for school activities and will not be assigned to work tasks, or other activities.

Cincinnati school officials have computerized their units of instructions/or lesson plans. Each of these are constructed around a potential task. Since many of these individual tasks may be performed by several individuals in other educational modules or even educational programs, the computer can help select the proper ones to individualize the instructional program. For example: The educational program entitled "Building Maintenance" is broken down into the following modules -- painting, plastering, carpentry, machine repair, sheet metal, blueprint reading, outdoor maintenance, electricity, and plumbing. Within the painting unit of instruction are operation sheets regarding the care of brushes, the painting of metal, wood, etc. It is conceivable that the persons in auto body programs may use some of these same job sheets within the auto body program. We believe the educators within the Division of Correction should follow with great interest the program currently being developed by the Cincinnati Public Schools. The consultants have examined the Cincinnati concept and believe that it has great merit for the unique schedule problems which exist within correctional institutions.

An emerging approach to curriculum planning is based upon the mission concept. This concept recognizes an overall objective, an intermediate objective, and a performance objective. The overall objective may be to train an auto mechanic, but realizing that because of the individual's academic or mechanical capabilities, or the length of the training program, some individuals may end up with job skills only in ignition systems, charging systems, etc. This in effect could be the intermediate objective.

In either case, the performance objective is so designed as to include a task listing and details for each task regardless of which commendation may fit the needs of the individual. Curricula planned around this concept should ease the problem involved in correctional education of moving inmates into and out of training programs.

The following automotive curriculum, designed around the mission concept, is offered as an example. It is recommended that all curricula planned for the Division of Corrections follow this general concept. If the present educational staff does not have sufficient time, or knowledge, to develop these curricula, perhaps the Division should seek a special grant for this purpose.

SUGGESTED AUTOMOTIVE MECHANIC PROGRAM

Percent of Time Required for Each Module

Ignition System	15%	Comfort Control System	3%
Charging System	10%	Body Services	2%
Braking System	7%	Auxiliary Systems	5%
Differential	5%	Clutch - Drive Line	1%
Engines	15%	Suspension System	4%
Transmission	20%	Fuel Systems	9%

Mission Objective - To train total auto mechanics.

The inmate will be able to diagnose and troubleshoot automotive components and systems in order to repair or replace the malfunctioning components or systems. The inmate will also be capable of performing routine maintenance on the systems requiring such.

Specifically, the repair, replacement, or maintenance involves the following systems and the basic components in each system: Fuel, exhaust, starting, ignition, engine, charging, comfort control, suspension, steering, brake, wheel and tires, driving axles and drive shaft, transmission, body services, and all auxiliary equipment.

Intermediate Objective

In most cases it will not be possible to completely train an auto mechanic capable of performing all the functions contained in the stated mission objective. This process would require a longer period of time than is available in correctional institutions; therefore, the intermediate objective may be to train an individual who is knowledgeable about the ignition system, another about the charging system, and still another about brakes, or any combination of skills necessary to find a job within the auto mechanics field.

Intermediate Objective Modules or Job Specialties

These are Ignition System, Charging System, Braking System, Differential, Engines, Transmission, Comfort Control System, Body Services,

Auxiliary System, Clutch-Drive Line, Suspension System, and Fuel System.

Performance Objective (Units of Instruction, Lesson Plans or Task List Detailing)

To prepare an individual for a particular intermediate objective, he must learn certain skills and related information. The following illustrates "modules", broken down into "units of instruction" (signified by capital letters) and lesson plans (signified by numbers).

I. Ignition System

Skill Training	Related
A. Distributor	
1. Remove from car (Place on distributor tester)	Study functions of distributor, particularly the relationship between timing, advance, power generated and heat build-up due to incorrect timing advance.
2. Check dwell angle	
3. Check mechanical and vacuum advance - adjust	
4. Replace breaker points and condenser if necessary--adjust to specifications.	
5. Replace in car--check distributor cap and rotor for wear--replace if needed	Cover operation of single and dual diaphragm distributors.
6. Rotate distributor to adjust to timing specifications.	Cover mechanical and vacuum advance.
B. Coil	
1. Disconnect leads	Study operation of coil and its function in the ignition system.
2. Check primary and secondary windings	
3. Replace if necessary or reconnect leads.	
C. Spark Plugs and wires	
1. Note plug location relative to the cylinder; remove leads --check resistance of ignition leads.	Discuss heat range selection for spark plugs.
2. Remove spark plugs	Review type of ignition wires that can be used and why such is selected.
3. Check cylinder compression if doing tune up.	
4. Identify type of plugs	Discuss use of ohmmeters.

C. Spark Plugs and Wires (continued)

5. Decide whether to clean, adjust and/or replace plugs.	Discuss use of plug scope.
6. Adjust and clean plugs if appropriate	
7. Reinsert plugs in engine-torque to specifications.	
8. Connect leads to appropriate plugs.	
9. Check engine firing for maximum performance.	

II. Starting/Charging System

Skill Training	Related

A. Battery

1. Check terminals for corrosion and tightness.	Explain amphere rating and selection of such.
2. Check water level.	
3. Check condition of battery with volt-amp-alternator testor. Check individual cells with hydrometer.	Discuss preventive maintenance.
4. Replace if any of the cells appear to be defective. Recharge if reading shows less than maximum charge.	
5. Check condition of ground cable and starter cable. Replace if insulation is worn.	

B. Alternator/Generator

1. Check for loose wiring connections.	Discuss the basic differences between generator and alternator.
2. Check drive belt and adjust to specifications.	
3. Connect alternator/generator tester to proper leads.	Discuss AC - DC circuits and function of each in the automotive system.
4. With engine running, check output amperage.	
5. If amperage output is below specification, remove alternator/generator from car. Replace or rebuild.	

C. Voltage Regulator

1. Check alternator or generator to be sure that current is being supplied to the regulator.	Discuss use of regulator in the DC electrical system.
2. Hook up regulator tester to system wiring harness.	
3. Check output of regulator with accessories both on and off.	Compare efficiency of solid-state regulator vs. mechanical type.
4. If output beyond regulator is low, replace unit--do not attempt adjustment.	

D. Starter, Solenoid, Resistor

1. Check resistor with ohm meter --replace if ohm reading across resistor is too high, or too low.	Study Ohm's law and magnetic fields.
2. Check solenoid by hocking volt/amp meter to distribution side of solenoid. Attempt to start car. Replace solenoid if current is not being directed to starter.	Discuss use and care of volt/amp tester.
3. If the first two tests prove that the components are functioning properly, connect voltmeter to system.	
4. Check draw on starter cranking system. If starter amperage draw is greater than specified or starter drive does not engage--replace or rebuild.	

PHYSICAL FACILITIES FOR EDUCATIONAL INSTITUTIONS

The consulting team was impressed with the Wisconsin Correctional Institution at Fox Lake. This institution houses approximately 500 men. The physical facilities of the institution are unique. Rather than steel bars or heavy security screen, most of the buildings are surrounded by a hollow cement block masonry screen. This type of construction offers a pleasing view from both the interior and exterior of the buildings and provides a medium degree of security from within selected buildings. There is considerable walking distance between the different buildings within the institution.

The men are housed in single rooms which are eight by ten feet and contain a bed, combination desk-dresser, chair, and a closet for clothing. There are two double-hung windows in each room that can be opened from

the inside. Each housing unit contains 96 single rooms and one correctional officer is responsible for supervising the entire building. The housing units are built in the form of an "H" and are subdivided into four separate wings containing 24 rooms each. For each wing, there is a dayroom and congregate shower, toilet, and water facilities.

The team was also impressed with the correctional institution at Vienna, Illinois. This institution was similar to the Fox Lake facility.

Undoubtedly the long-range plans for the Ohio Divison of Correction should contain several facilities similar to Fox Lake or Vienna as "Area Educational Institutions."

Because of the urgency to get programs in operation, the consultants are suggesting that immediate use be made of the correctional instiutions at Marion and Lebanon as educational institutions. Both facilities are too large to serve this intended purpose as a permanent solution. Information contained later in this report indicates that sufficient space can be made available for the recommended educational programs with some remodeling. The dormitory space at the Marion institution should be subdivided into individual rooms to provide each inmate with some privacy.

Appendix provides a plan showing how present space can be redivided into classrooms, laboratories and other educational spaces. When a professional architectural firm is employed to design these spaces in detail, consideration should be given to creating an educational suite for each department. Each educational suite should contain its own laboratories, classrooms, counseling offices, and space for other supportive services. The suite concept permits the staff and inmates to interrelate and assists inmates in identifying with a group with a common cause, as well as leading to better control over the movement of inmates.

FINANCIAL

The recommended changes contained in this report can only be accomplished if the necessary financial resources are made available. The consultants are suggesting that the necessary revenues might be made available in two phases. Phase I should be accomplished at once. Phase II should then follow at the earliest practicable date following the legislature's generation of necessary funds.

PHASE I

Fifty educational programs will be offered in two educational institutions, spanning 37 different occupational areas. It will be necessary for the Division to employ 138 educational personnel to offer the educational programs for the 1,778 inmates. This latter figure represents the number of inmates that may be served at any one time, as it is expected that the population within the educational institutions will be transient. The number served in any one year, therefore, will be significantly greater than 1,778. Tables XXII and XXIII summarize the educational programs and other significant data for each educational institution.

TABLE XXII

RECOMMENDED EDUCATIONAL PROGRAMS FOR LEBANON

Programs by Department	No. of Programs	No. of Units	Pupil Enrollment (Maxim.)	Shop-Lab Area No.	Shop-Lab Area Sq.ft.	New Equipment Cost	No. of Teachers	No. of Related Rooms
Motorized Equipment Service								
Automotive Mechanics	1	2	40	1	6,000	25,000.	2	1
Auto Body Repair	1	2	40	1	6,000	22,000.	2	1
Car Care	1	2	40	1	6,000	9,000.	2	1
Diesel Mechanics	1	2	40	1	5,000	32,000.	2	1
Motorized Equipment Operator	1	2	20				2	1
Small Engine Repair	1	2	40	1	3,500	10,000.	2	1
Service Occupations								
Business Education:								
Accounting	1	2	40	1	1,500	50,000.	2	1
Computer Programming * (Obl. Shift)	2	4	40	1	2,000		4	1
General Clerical *	1	2	40	1	1,500	10,000.	2	1
Intensive Office Education	1	2	40	1	1,500	30,000.	2	1
Small Business Machines	1	2	40	1	1,500	35,000.	2	1
Food Services:**						50,000.		
Bakers	1	1	10				1	
Cooks	1	1	10				1	
Food Processing	1	1	10				1	
Meat Cutting	1	1	10				1	
Restaurant Management	1	1	10				1	

* Use Existing Equipment
** Use Existing Facilities, Equipment, and Related Classrooms

TABLE XXII (continued)

RECOMMENDED EDUCATIONAL PROGRAMS FOR LEBANON

Programs by Department	No. of Programs	No. of Units	Pupil Enrollment (Maxim.)	Shop-Lab Area No.	Shop-Lab Area Sq.Ft.	New Equipment Cost	No. of Teachers	No. of Related Rooms
Service Occupations (continued)								
Diversified Health Occupations **	2	2				$75,000.	2	
Dental Lab Technician			5					
EEG Technician			2					
EKG Technician			2					
Inhalation Therapy			4					
Medical Laboratory Technician			5					
Medical Records Technician			5					
Occupational Therapy Assistant			5					
Orderly Services			5					
Physical Therapy Assistant			5					
Radiological Technician			2					
Building and Construction								
Carpentry	1	2	40	1	5,000	$14,000.	2	1
Drafting	1	2	40	1	2,000	10,000.	2	1
Electrical	1	2	40	1	2,400	30,000.	2	1
Heating and Air Cond.	1	2	40	1	3,000	20,000.	2	1
Masonry	1	2	40	1	3,000	9,000.	2	1
Painting and Decorating	1	2	40	1	3,000	10,000.	2	1
Plastering	1	2	40	1	3,000	10,000.	2	1
Plumbing	1	2	40	1	2,400	12,000.	2	1

** Use Existing Facilities, Equipment, and Related Classrooms

TABLE XXII (continued)

RECOMMENDED EDUCATIONAL PROGRAMS FOR LEBANON

Programs by Department	No. of Programs	No. of Units	Pupil Enrollment (Maxim.)	Shop-Lab Area No.	Shop-Lab Area Sq.Ft.	New Equipment Cost	No. of Teachers	No. of Related Rooms
Industrial and Manufacturing								
Business Machine Repair	1	2	40	1	3,000	$12,000.	2	1
Communication Electronics	1	2	40	1	2,400	30,000.	2	1
Graphics	1	2	40	1	6,000	100,000.	2	1
Major Appliance and Vending Repair	1	2	40	1	3,600	15,000.	2	1
Welding (Double Shift)	2	4	80	1	12,000	50,000.	4	1
Continuing and Developmental Education							10	
TOTALS	33	59	1,070	23	85,300	$677,000.	69	24

** Use Existing Facilities, Equipment, and Related Classrooms

TABLE XXIII

RECOMMENDED EDUCATIONAL PROGRAMS FOR MARION

Programs by Department	No. of Programs	No. of Units	Pupil Enrollment (Maxim.)	Shop-Lab Area No.-Sq. Ft.		New Equipment Cost	No. of Teachers	No. of Related Rooms
Motorized Equipment Service								
Automotive Mechanics	1	2	40	1	12,000	$25,000.	2	1
Automobile Body Repair	1	2	40	1	6,000	15,000.	2	1
Diesel-Truck Mechanics	1	2	40	1	12,000	45,000.	2	1
Service Occupations								
Building Maintenance	1	2	40	1	6,000	15,000.	2	1
Business Machine Repair	1	2	40	1	3,000	20,000.	2	1
Custodial Training	1	2	40	1	2,000	20,000.	2	1
Food Service	1	2	48	1	4,000	40,000.	2	1
Horticulture	1	2	48	1	4,000	70,000.	2	1
Medical Lab Assistant	1	2	40	1	2,000	40,000.	2	1
Business Office Education	1	2	48	1	3,000	50,000.	2	1
Building and Construction								
Electrical Trades	1	2	48	1	3,000	30,000.	2	1
Masonry	1	2	48	1	3,000	10,000.	2	1
Industrial and Manufacturing								
Communications/ Electronics	1	2	48	1	2,500	40,000.	2	1
Electro-Mechanics	1	2	48	1	2,500	40,000.	2	1
Welding/Metal Fabrication	1	2	40	1	6,000	50,000.	4	1
Machine Trades	1	2	48	1	6,000	190,000.	2	1
Power Plant Operator	1	0	4	0	0	0	0 (Correspondence)	0
Continuing and Developmental Education							5	
TOTALS	17	32	708	16	77,000	$700,000.	39	16

The cost of providing the educational personnel for the two educational institutions as recommended in this report, plus the lump sum operational cost (to cover educational supplies and equipment), will total approximately $1,789,600. per year. Details of this calculation are based on assumptions contained in Table XXIV. These estimated costs compare favorably with the experience of vocational education in the public schools in Ohio. This cost does not include the institution's operational personnel. The change in rehabilitation emphasis at these institutions signifies a different type of personnel, with some increased cost. The suggested educational costs may be significantly less than the amounts indicated since Marion and Lebanon presently employ a full compliment of personnel necessary to operate the institutions as presently conceived.

TABLE XXIV

ESTIMATED YEARLY OPERATING COST
of
THE TWO EDUCATIONAL INSTITUTIONS

	Cost Each	Marion No.--Amount		Lebanon No.--Amount	
Superintendent of Education	$21,000.	1	$21,000.	1	$21,000.
Director	18,000.	1	18,000.	1	18,000.
Coordinator of Occupational Departments	15,000	4	60,000.	4	60,000.
Coordinator of Continuing Education	15,000.	1	15,000.	1	15,000.
Vocational Counselors	13,500.	2	27,000.	4	54,000.
Vocational Teachers (Salary & Fringe Benefits)	11,700.	34	397,800.	59	690,300.
Continuing Education Teachers (Salary & Fringe Benefits)	10,000.	5	50,000.	10	100,000.
Educational Psychologists (Salary & Fringe Benefits)	9,000.	1	9,000.	2	18,000.
Correctional Counselors	8,000	4	32,000.	5	40,000.
Supply & Replacement Cost Vocational Unit	1,500.	34	51,000.	59	88,500.
Correspondence (Power Plant Operator)	1,000.	4	4,000.	-	-- ---
TOTAL ESTIMATED YEARLY OPERATING COST			$684,800.		$1,104,800.

Most of the educational programs offered by the Division of Correction would be concentrated in the two educational institutions. However, contained in this report are some educational programs recommended for the industrial institutions, with emphasis on the Southern Ohio Correctional Facility and Marysville. Table XXV represents the consultants best estimate of the number of people needed, and the cost of making these educational programs viable.

TABLE XXV

ESTIMATED ANNUAL OPERATING COST FOR EDUCATIONAL PROGRAMS OTHER THAN THE TWO EDUCATIONAL INSTITUTIONS

Chillicothe	Educational Coordinator	$13,000.	
	Part-time Teachers	45,000.	
	Educational Supplies	5,000.	$ 63,000.
London	Educational Coordinator	13,000.	
	Part-time Teachers	45,000.	
	Educational Supplies	5,000.	63,000.
Lucasville	Educational Coordinator	15,000.	
	Teachers, Full-time (10)	210,600.	
	Educational Supplies	31,000.	256,600.
Marysville	Educational Coordinator	13,000.	
	Teachers, Full-time (6)	70,200.	
	Educational Supplies	10,000	93,200.
Divisional Staff	Assistant Commissioner of Education	23,000.	
	Vocational Education Supervisor	16,000.	
	Continuing Education Supervisor	16,000.	
	Teacher Educator	16,000.	
	Research Specialist	16,000.	
	Educational Supplies and Travel	35,000.	124,000.
	TOTAL		$599,800.

Taking into consideration all the suggested operational costs, as well as funds to pay tuition fees, transportation costs, contracted services, and similar charges, the consultants recommend that the annual appropriation for the educational portion of corrections be approximately $3 million. It is further recommended that the Division seek a line-item appropriation from the Ohio Legislature to provide this money for educational purposes. This line-item appropriation would be similar to the ones presently operated by the division for "prisoner compensation" and "center for readjustment." These two are classified as "special purpose" appropriations. A special purpose line-item appropriation for education would assure a continued commitment to the educational programs.

In addition to these funds, every effort should be extended to obtain such federal funds as are available through programs such as Manpower Training and Newgate.

Suggested annual operational costs for the educational portion of corrections are compiled in Table XXVI.

TABLE XXVI
PHASE I
EDUCATION PROGRAMS
ANNUAL OPERATION COST

In Educational Institutions	$1,789,600.
In Industrial Institutions	475,800.
In Division Offices	124,000.
Other	610,600.
TOTAL	$3,000,000.

The Assistant Commissioner for Educational Services should have the authority and the responsibility to operate all educational programs offered by the Division through this appropriation.

In addition to the annual operating cost of the educational program, the Division will need to secure additional funds for remodeling of some existing spaces within the two proposed educational institutions and for the purchase of educational equipment. The consultants estimate that the remodeling costs will be $2,259,380. and the cost of equipment will be $1,377,000. This represents a total of $3,636,380.

Phase I also includes the construction and operation of a new Reception Center. Some sources indicate that the proposed Reception Center

would cost approximately $12,000,000. to erect and would require approximately $4,600,000. annually to operate.

PHASE II

Within Phase II the consultants suggest the construction of six Regional Correctional Institutions. Without the assistance of professional architectural services, the consultants had to rely on the combined opinions of several individuals in arriving at construction costs of approximately $4,000,000. each. The cost of constructing the six institutions therefore, would be approximately $24,000,000.

Based upon the experience of the Division, the average cost to maintain an inmate in this setting would be approximately $10.00 per day per man, thus representing an annual operation cost of $1,095,000. for each institution. Based upon this assumption, the annual operating cost for the six Regional Correctional Institutions would be $6,570,000. It is important to note that the consultants are recommending that all inmates housed in the Regional Correctional Institutions be paid a salary and then charged board and room. Since many of the inmates will be on a work/release program, they will produce some funds which may be used for inmate pay. This procedure would reduce the Division's financial commitment.

In addition to the six Regional Correctional Institutions, there is a need to construct several Area Educational Institutions similar to the ones visited by the consultants at Fox Lake, Wisconsin, and Vienna, Illinois.

It is estimated that to duplicate that facility (housing approximately 500 men), the cost would be approximately $12,000,000. Assuming that three such institutions are needed, the total cost of construction would be $36,000,000. Because the present Chillicothe and London institutions would no longer be needed as correctional institutions, the total Divisional operating cost should not be significantly altered by the advent of new Area Educational Institutions.

In summary, Phase I and II will require a commitment of approximately $75,636,380. to remodel, construct, and equip facilities for implementation of the recommendations contained in this report. Further, a significant increase in the operating budget will also be needed to provide the staff and supplies to carry out these recommendations.

True, this is a large sum of money, but an effective rehabilitation effort may ultimately result in a large saving of money for society.

The consultants firmly believe that the State Legislature should make a strong commitment to this program, permitting the Division of Correction to progress in a planned, organized effort of rehabilitation for those members of our society so vitally in need of this assistance. Thus, the State of Ohio can retain and extend its national and moral leadership in progressive penology, while providing both short and long term economic gains for the state and its citizenry.

PART III

OFFICIAL REPORT

to the

State Department of Education

Division of Vocational Education

Title of Project:	Evaluative Planning Research Project in Vocational Education for Ohio Division of Correction Institutions
Project Organization:	Division of Correction - State of Ohio
Initiator:	Bennett J. Cooper, Commissioner Division of Correction 614-469-2215
Project Director:	F. P. Cronin, Director of Education Services Division of Correction 614-469-2188
Transmitted by:	D. R. Purkey, Consultant in Vocational Education for Ohio Division of Correction 614-743-2237
Duration of Activity:	November 1, 1971 through June 30, 1972
Purpose of Grant:	(ii)
Use of Funds:	(1) (3)
Total State Funds Expended:	$63,099.64
Date Transmitted:	June 29, 1972

6369

Title of Project:	Evaluative Planning Research Project in Vocational Education for Ohio Division of Correction Institutions
Principal Investigator:	F. P. Cronin, Etal
Contracting Agency:	Division of Correction - State of Ohio
Amount of State Funds Expended:	$63,099.64
Beginning & Ending Dates:	November 1, 1971 through June 30, 1972
1. Statement of Problem:	The purpose of this project was to study all vocational training and develop guidelines for realigning the various independent institutional programs into a division wide program with emphasis on individualized vocational instruction for the student.
2. Statement of Objectives:	The objective of the project was to study the present status of vocational education within the correctional institutions, recommend and structure a division wide vocational education program with emphasis on treatment and rehabilitation of the inmate.
3. Description of Activities:	The "Consultant Team" studied the existing vocational programs in Ohio's adult correctional institutions, studied the literature and research on inmate treatment, studied successful vocational education programs conducted in penal institutions in neighboring states and developed a plan for vocational education that would be division wide. They also developed a "pilot curriculum" and organization charts for administrating such programs.
4. Techniques of Evaluation of Objectives:	Regular monthly meetings were held to review procedures in light of the objective. Instruments for evaluation and data gathering were developed and used. Numerous conferences were held with penal officials to gather information and ideas. The final report was reviewed by the entire "Consultant Team."
5. Contribution to Education:	By developing a "Program of Vocational Education" for Ohio penal institutions it is hoped it may become a factor in further development of vocational education as a "treatment tool" to assist in the process of rehabilitating an inmate to a useful person in a free society. This project should serve as the groundwork for further research and development of vocational education in penal institutions.

THE NARRATIVE REPORT

1. PROBLEM

The present educational program in Ohio's penal institutions is fragmented. Each institution initiates and operates its own independent education system, which includes limited vocational education.

Students are withdrawn from classes for many reasons, making the total educational process less effective.

The purpose of this project was to study all vocational training and develop guidelines for realigning the various independent institutional programs into a division wide program with emphasis on individualized vocational instruction for the learner.

A review of the literature includes the following:

a. Ohio Adult Parole Authority Annual Report for 1971
b. Furlough Program Guidelines - Gilbert, Gordon, Weisenberg
c. Development of Correctional Information System - Dinitz and Allen
d. The Ohio Citizens' Task Force on Corrections - Task Force Committee
e. Educational Philosophy for Maximum Security Prison - Southern Ohio Correctional Facility - Office of Continuing Education of Ohio University
f. Standards for Vocational Education - Ohio State Department of Education
g. Facilities for Vocational Education - Ohio State Department of Education
h. Use of Correctional Trade Training - Michigan Department of Correction
i. The Draper Project - U. S. Department of Labor
j. Role of Teacher for the Effective Use of P. I. in Correctional Settings - January, 1968, Journal of Corrections
k. Job Testing and the Disadvantaged - A.P.A. Task Force on Employment Testing of Minority Groups
l. Learning Disabilities and Juvenile Delinquency - Duling-Eddy-Risko, 1970
m. A Critical Analysis of Individually Prescribed Instruction - Duda - Educational Tech. - 1970
n. A Model for Correctional Education - George Mocker - Journal of Correction
o. America's Manpower Needs for the 70's - Goldsten - A.V.A. Journal
p. Prisoners: Men or Animals - Hemtof
q. Numerous current articles and publications from penal institutions
r. Division Response to Task Force Report - Division of Correction

The consultant team took into consideration all the recent advances in subject matter and learning theory. Evidence is apparent by the extended reading, research and investigations made by the committee. (Further abstracts are in Appendix C)

2. OBJECTIVES

a. Study the present status of vocational education in the adult institutions within the Division of Correction.
b. Develop an administrative structure for an educational program and especially vocational education.
c. Develop division wide vocational education programs that will be "tailor made" for correctional institutions.
d. Develop a "sample curriculum" for a program of vocational education.
e. Develop a facilities plan and identify equipment and costs for vocational education.
f. Develop the probable operational costs, including the personnel salaries, necessary to operate the educational system.

3. DESCRIPTION OF ACTIVITIES

The consultants started the project by studying the status of vocational education in the seven adult institutions in the state. In order to divide the responsibilities they were placed into the following institutional study committees.

Chillicothe Correctional Institute - Lindsay Ratliff
Lebanon Correctional Institution - Donald R. Neff, D. R. Purkey
London Correctional Institution - James H. Broadbent
Marion Correctional Institution - Dallas Cornett, Dr. Kenneth C. Hoedt
Ohio Reformatory for Women (Marysville) - John Irvine
Ohio Penitentiary (Columbus) - Donald R. Neff
Ohio State Reformatory (Mansfield) - Dr. Max Lerner, John Oguich

In addition, the following committees were assigned to an "area of concern" for in-depth study.

Educational Program Study Committee - Donald R. Neff, Dallas Cornett, Dr. Max Lerner, James H. Broadbent
Staff Study Committee - James H. Broadbent, Lindsay Ratliff, Dr. Kenneth C. Hoedt
Equipment and Facilities Study Committee - Dr. Max Lerner, John Irvine, D. R. Purkey
Trainee Study Committee - Dr. Kenneth C. Hoedt, John Oguich, D. R. Purkey

Each committee spent considerable time in the institutions. As a result numerous workshops were held where committee members could compare observations and research, as well as inform the entire consultant team.

Following the writing of the "status reports" by each committee and report of each institution (Part I), the second phase began. It included search of literature, research (Appendix C), personal interviews and other means to secure all information available on "an ideal vocational program for penal institutions." This was followed by the third phase, pre-arranged studies of vocational education programs in neighboring states. (Summary in Appendix D).

The final phase of the activity was the formulating of recommendations for a division wide educational program with special emphasis on vocational education. (Complete report in Part II).

4. TECHNIQUES OF EVALUATION OF OBJECTIVES

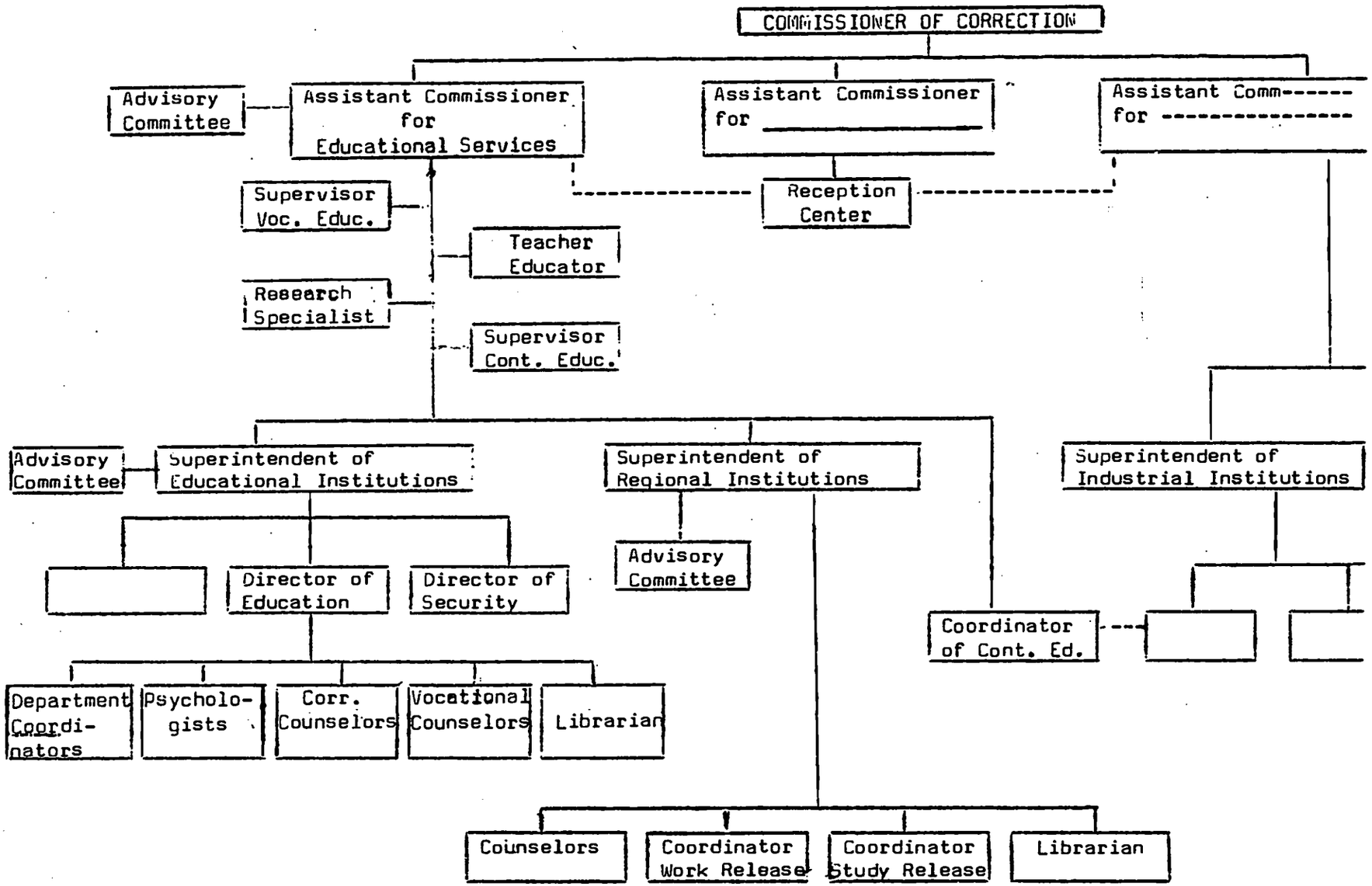
a. Status reports - Each committee completed a status study (complete report in Part I) which showed the Division of Correction could not place a very high priority on education in the penal institutions. The competition for funds caused education to be under-developed. Incentives for education were not present. Facilities and salaries were not attracting adequate personnel. Several of the institutions had made more progress than others, due to the administrative and financial interest.

There was no division wide educational system as determined by the Consulting Team. Vocational education was very inadequate. Many areas were understaffed and given physical facilities that were not conducive to learning.

b. Administration - Through study, research, and visits to other institutions the committee developed an administrative structure that in their opinion would be able to effectively administer a divison wide educational program.

The administration chart on the following page is an attempt to place education in the main stream. It is not a complete organization for the Division of Correction, but does indicate the administration for education in relationship to other personnel.

TABLE XXVII
DIVISION EDUCATIONAL SERVICES



6374

c. Develop division wide vocational programs - After considerable research and study the consulting team developed a division wide vocational education program as a part of the total education offerings. Complete description can be found in Part II. Following is a summary of the recommendation.

Marion and Lebanon should be developed as the two major educational institutions; Marion for adults, Lebanon for younger adults.

Programs at Lebanon would include auto mechanics, auto body repair, car care, diesel mechanics, motorized equipment operator, small engine repair, diversified health occupations, food service, business and office occupations, masonry, electrical trades, carpentry, drafting (construction), plumbing, heating, air conditioning cooling systems, plastering, painting and decorating, communications electronics, welding (pipe and structural), business machine repair, major appliance and vending machine repair, and graphics.

Programs at Marion would include auto mechanics, auto body repair, diesel mechanics, medical laboratory assistant, food service, business machine repair, horticulture, custodial training, building maintenance, masonry, electrical trades, communications electronics, electro-mechanics, welding and metal fabrication, power plant operator, and machine trades.

In addition, continuing education programs were recommended which would include basic education, developmental education, avocational and recreational programs.

The consulting team also recommended cooperative vocational education offerings as a part of the release programs in proposed community based institutions.

Educational release exchange programs were also recommended for all institutions where possible, allowing students to be released for study at nearby educational institutions and/or instructors from the educational institutions teaching at the correctional institution.

The women's institution at Marysville would need to continue programs in cosmetology, as well as continuing and developmental education; and create vocational programs in fabric care, food service, medical care, home and community services, business and office occupations. The educational facilities should be utilized for education and all programs should be located in this facility.

The Lucasville facility, because of its maximum security, would

need to continue its educational programs as reported in the Ohio University Study, "Proposed Educational Programming for the Southern Ohio Correctional Facility."

Each of the vocational programs were divided into modules. Each module had several units of instruction. The units of instruction were divided into lesson plans.

Through this procedure lesson plans could be developed for programmed individualized instruction. Students could be admitted to a program at any time there was a vacancy.

d. Sample curriculum - Space does not permit the complete curriculum as developed for auto mechanics to be printed here. This can be reviewed in the body of the report in Part II.

Using auto mechanics only, as an example, the overall objective would be to develop an auto mechanic. An intermediate objective, or job level, would be "repair ignition system" (one of nine). The ignition system would then be reduced to performance objectives (such as trouble shoot and repair of distributor, coil, etc.). Each of these divided into skill training units could be an individual lesson plan.

e. Facilities and equipment for vocational education - Each of the "proposed educational institutions" were studied by a committee of the consulting team. The facility was measured and examined. A line drawing was developed for each institution and all vocational departments were placed in the institution with an equipment budget. (Complete report in Part II).

f. Costs - The following chart is a summary of the estimated costs of the programming in the two educational institutions.

TABLE XXVIII
PROGRAMMING COSTS

	MARION	LEBANON
Estimated cost of equipment	$ 700,000.00	$ 677,000.00
Estimated cost of remodeling and new facilities	1,181,000.00	1,128,380.00
Estimated cost of operation per year of educational portion	684,800.00	1,104,800.00

5. CONTRIBUTION TO EDUCATION

a. The consulting team developed an educational program that would assist in the treatment of inmates. Since all inmates are adults, a program of vocational education was developed as the core curriculum.

The study develops vocational education into a treatment program that will assist in rehabilitating the inmate. Adequate facilities, competent staff, and necessary incentives were woven into the recommendations.

Two institutions were stipulated as temporary vocational education centers, eventually to be replaced by smaller area institutions. Smaller "release centers" were recommended for supervised work release and study release.

A comprehensive reception center was recommended that includes educators as a part of the professional staff. Their objectives would be to place inmates in the most desirable programs based on their needs. Educators and vocational guidance counselors would be given the responsibility of "following up" of the inmate.

The findings of this study can be applied to any State Division of Corrections. Segments of the recommendations could be used by any state without adopting the entire list.

b. Further studies are recommended in the following areas:
   1. Applications of "pre vocational" programs in penal institutions.
   2. Development of institution based work adjustment program for the handicapped or inmates with special needs.
   3. Curriculum development for penal institutions with individualized instruction, programmed learning, and identification of hard and soft ware to accompany it.
   4. The best methods in education for inmate treatment.
   5. Planning vocational education curriculum for adult correctional institutions. (This would include work evaluation and work adjustment.)
   6. Survey the projected needs of inmates and develop an educational program to satisfy this need.

c. The results of this study will be highlighted and presented to the staff of Corrections, Vocational Education, and others, at a meeting in June. Complete copies of the study will also be available for all states where information was gathered, and to all interested individuals.

HIGHLIGHTS OF RECOMMENDATIONS

The Division should:

1. Adopt a philosophy and commit itself to the concept of rehabilitation of inmates through education. All aspects of institutional life should be coordinated around an educational program, which uses Vocational Education as the core. The Division's educational efforts should be considered as one state-wide school system.

2. Determine the specific role of each correctional institution, concentrating all educational programs into specialized institutions and work experience in the others. All institutions must provide meaningful incentives that will motivate inmates and reflect the value of work. Vocational Education will become the major tool in treatment at the two specialized educational institutions.

3. Strive to have the State Legislature provide a direct "line item" appropriation for the education offered by the Division of Corrections school.

4. Construct small "Regional Correctional Institutions" housing approximately 300 individuals, near metro centers to assist inmates to adjust from the strict institution living to the freedoms of release; to enable inmates to compete with people on the outside and to profit from community facilities and programs.

5. Assign the responsibility and authority for the supervision of inmates on release programs, including parole, job placement and follow-up, to a team from the Regional Correction Institution.

6. Move swiftly in the creation of a "Reception Center" near Columbus, but not at Ohio Penitentiary, staffed with professionals (including educators) to receive, counsel, and classify for assignment, inmates to institutions and programs.

7. Recognize that educational programs can be no better than their staff. The total staff, including security, needs to be dedicated to the concept of rehabilitating inmates through educational processes. A need exists to recruit, supervise and provide in-service training for its personnel.

8. Initiate efforts to raze the buildings and facilities of the Ohio Reformatory in Mansfield and the Ohio Penitentiary in Columbus as soon as possible. In addition to the immediate need for the "Reception Center" and the six "Regional Correctional Institutions", the long-range plan should include the erection of several minimum security "Area Educational Institutions", each to accommodate 500 inmates.

9. Develop citizens advisory committees on a state-wide and local basis to assist in the continued development of vocational education programs tailored to meet the needs of inmates regardless of their capabilities or length of sentence.

10. Attempt to improve the image of correctional education by improving lines of communication not only within the Division between institutions but to all other agencies who may assist corrections in the development of its educational offerings.

11. Conduct additional studies to further develop many of the concepts contained in this report.

PERSONNEL

F. PATRICK CRONIN, PROJECT DIRECTOR

Mr. Cronin is now serving as Director of Educational Services for the Division of Correction. He formerly held the position of Director of Education at Marion Correctional Institution. Mr. Cronin earned his Master's Degree at Ball State University in Psychology and Guidance and Counseling. His post master's education includes: advanced psychology at the University of Dayton; guidance counseling and psychology under a federal scholarship at Ball State University; and guidance counseling, psychology, and vocational education under a federal scholarship at Ohio University.

DR. MAX J. LERNER, CONSULTANT CHAIRMAN

Dr. Lerner is Vice Chancellor for Two-Year Campuses for the Ohio Board of Regents. He served as President of Lorain County Community College from 1963 to 1971. He received his Ed. D. in School Administration at Western Reserve University. His past work experience also includes: teacher of industrial education, physics, and mathematics; supervisor of industrial and adult education; director of adult education. He has received many awards for educational leadership in Ohio.

D. R. PURKEY, CONSULTANT CO-CHAIRMAN

Mr. Purkey is presently serving in a consulting capacity on Program Planning and Facilities Development with several school districts. He recently retired as Assistant Director of Planning and Administration for the State Department of Vocational Education. He received his Master's Degree in Education at Ohio State University. His post master's work includes work at University of Minnesota, Miami University, and Ohio State University. He is presently serving on the State Advisory Council for Vocational-Technical Education.

JAMES H. BROADBENT, CONSULTANT

Mr. Broadbent is a Doctoral Candidate at Ohio State University Division of Vocational-Technical Education, under an Educational Professions Development Act grant for leadership development in vocational education. He received his Master's Degree from Western Michigan University. He has had ten years teaching experience in junior and senior high industrial arts and vocational education. He has recently been appointed as Director of Vocational and Continuing Education of the Elkhart Area Career Center, at Elkhart, Indiana.

DALLAS CORNETT, CONSULTANT

Mr. Cornett is the Director of the Four County Joint Vocational High School in Archbold, Ohio. He received his Master's Degree from Ohio State University. His previous work experiences are teacher, guidance counselor, and high school principal.

DR. KENNETH C. HOEDT, CONSULTANT

Dr. Hoedt is Coordinator of Research and Services for the College of Education at Univereity of Akron. He received his Ph. D. in Counseling and Guidance from the University of Wisconsin. His teaching experiences include career development, basic statistics, research seminar, counseling, test and measurement.

JOHN H. IRVINE, CONSULTANT

Mr. Irvine is Supervisor of Eastland Vocational Center in Groveport, Ohio. He received his Master's Degree in Vocational Education and Educational Administration from Ohio State University. He recently served eight years on the Reynoldsburg Board of Education; serving as president for three years.

DONALD R. NEFF, CONSULTANT

Mr. Neff is a Doctoral Candidate at Ohio State University Division of Vocational-Technical Education, under the Educational Professions Development Act award for leadership development in vocational education. He received his Master's Degree in Industrial Education from the University of Illinois. His thirteen years teaching experiences include: woodworking, metalworking, electricity, drafting, and auto mechanics. He served three years as a Diversified Cooperative Training Coordinator.

JOHN A. OGUICH, CONSULTANT

Mr. Oguich is Director of the Cuyahoga Valley Vocational Center. He received his Master's Degree from Ohio State University. His teaching experiences include mathematics, industrial arts, and vocational machine shop. His administrative duties have included posts at Eastland Vocational Center, Ohio Department of Education, and Hamilton County Joint Vocational School.

LINDSAY RATLIFF, CONSULTANT

Mr. Ratliff is Director-Supervisor of Pike County Joint Vocational School. He attended the University of Cincinnati and Turrill Technical School at Cincinnati. He served a four year apprenticeship program in tool and die making at Baldwin-Lima-Hamilton in Hamilton, Ohio. Before becoming Director-Supervisor at Pike County Vocational School he served as their machine trade instructor and assistant supervisor.

DELORES O'BRIEN, CONSULTING SECRETARY

Mrs. O'Brien has served the HEW Vocational Education Research Project as Consulting Secretary in a full-time capacity. She is an active church worker, currently serving as the church treasurer and as a volunteer secretary to the pastor. Her previous work experiences include: executive secretary and assistant to a high school principal, secretary to a city safety-service director, and cashier of a major life insurance company.

Project Expenditures

Title of Project: Evaluative Planning Research Project in Vocational Education for Ohio Division of Correction Institutions

Project Organization: Division of Correction - State of Ohio

Project Beginning and Ending Dates: November 1, 1971 through June 30, 1972

Category of Expenditures	Nov. 1, 1971-June 30, 1972	
	STATE FUNDS	LOCAL FUNDS
1. Personnel (position titles; percent of time on project and yearly salary; for consultants, number of days and rate)	$47,638.27	$17,421.20
2. Employee Benefits (itemize benefits such as social security, retirement group insurance, etc.)		$ 1,742.12
3. Travel (in and out-of-state for regular and consultant personnel; fares and/or mileage at allowable rate; number of days per diem and rate)	$12,646.97	
4. Supplies and Materials (describe)	$ 564.40	
5. Communications (itemize postage, telephone, etc.)		
6. Services: a. Duplication and Reproduction b. Statistical c. Testing d. Other		
7. Final Report (twenty five copies)	$ 2,250.00	
8. Equipment (rental; small, essential items may be purchased if less expensive)		
9. Other		
10. Total	$63,099.64	$19,163.32

Project Expenditures

1. Personnel

State

$37,750.00	Nine consultants - Total of 755 days at $50.00 per day
6,012.72	One consulting secretary
3,875.55	For eleven (2 and 3 days) meetings for all personnel; three (1 day) planning meetings of project director, secretary, and consultant committee chairman; two (1 day) meetings for selected correctional management personnel.

Local

13,000.00	Project Director's salary
1,621.20	Total of 35 days, ranging from $35.44 to $62.80 per day, for for institution personnel accompanying consulting team on out-of-state trips
2,800.00	Estimate - Minimum of 80 days of correctional personnel involvement in project, at minimum of $35.00 per day

2. Employee Benefits

$ 1,742.12	Estimate - 10% of Project Director and all correctional personnel salaries as listed above.

3. Travel

$ 5,967.25	In-State travel for Project Director, Consultants and Secretary
5,458.24	Out-of-state travel for Project Director and Consultants
1,221.48	Out-of-state travel for selected correctional personnel

4. Supplies and materials

$ 564.40	Cassette tapes for consultant meetings; printed forms as required by State of Ohio for vouchering, etc.; film for out-of-state trips; secretarial supplies (paper, paper clips, rubber bands, staples, stenographer books, mailing, envelopes, etc.); photo copy machine supplies.

7. Final Report

$ 2,250.00

This actually is a maximum estimated figure. Since this report is due to the Division of Vocational Education of the State Department of Ohio by June 30, 1972, and the complete report has not yet been processed by the State of Ohio Division of Printing, no official amount could be given.

This includes the following items:

175 programs for oral presentation meeting
1460 pamphlets of highlight recommendations
225 copies of complete report, including
- Part I - Findings
- Part II - Recommendations
- Part III - This official report
- Part IV - Appendix

PART IV

APPENDIX

APPENDIX A

GUIDELINES FOR CONDUCTING AN EFFECTIVE IN-SERVICE TRAINING PROGRAM FOR VOCATIONAL TEACHERS IN CORRECTIONAL INSTITUTIONS

APPENDIX A

GUIDELINES FOR CONDUCTING AN EFFECTIVE IN-SERVICE TRAINING PROGRAM FOR VOCATIONAL TEACHERS IN CORRECTIONAL INSTITUTIONS

STATEMENT OF POLICY

To have a successful vocational teacher in-service training program, the Division of Correction must create an environment conducive to the program for which it operates. Such a program should make provision for the professional and technical growth of the teacher and also to meet the requirements as established by the Certification Division of the State Department of Education.

The teacher education program should be connected with a university that is sympathetic toward innovative types of in-service training for correctional teachers. This would include a course structure essential to the needs of students. All courses should carry college credit toward certification requirements.

NEED FOR A TEACHER EDUCATION PROGRAM

A qualified teacher is the prime requisite for a successful educational program which adequately prepares inmates for employment. The teacher must be occupationally competent in the area of instruction to be provided. On the basis of a strong industrial background, a carefully planned program of pre-service and in-service education should be available. Such a program will enable the teacher to receive the necessary information and skills in teaching in the shortest possible time.

The following plan is designed to meet the needs of each individual teacher as a result of an evaluation of his teaching position.

PLANNING THE TEACHER EDUCATION PROGRAM

Interviewing the Prospective Teacher - The applicant should be informed in regard to the program of teacher education at the time of the initial interview. Misunderstanding can be avoided if the plan is presented in detail and the individual is made aware of his responsibility.

It is highly desirable that the applicant be interviewed by the Director of Education to insure that he will meet correctional institution employment policies and state certification requirements.

Acquainting Teachers with Facilities - Prior to the pre-service training, the Director of Education should acquaint the new teacher with the physical facilities, curriculum, instructional materials, tools, equipment and teaching schedule. The information will provide the basis for an effective and valuable pre-service training.

PRE-SERVICE TRAINING

Pre-service training should be designed to aid the new teacher by bringing to his attention the essential elements of successful correctional teaching. It is intended that through this training, the new instructor will gain a perspective of his job.

Pre-service training should include: a background of institutional life, problems of security, teaching procedures, and regulations regarding inmate population.

Security and administrative personnel should also be included in the regular pre-service training program. This training will familiarize them with the objectives of the educational offerings.

IN-SERVICE TRAINING

Introduction to Vocational Teaching Methods and Practices - A series of instructional units should be prepared by the teacher educator. The following areas should be included in these units: lesson plans, discipline procedures, rapport with students, shop organization, teaching techniques, terminology, maintenance, use of teaching aids, housekeeping, mannerisms and safety measures.

The teacher educator should place emphasis on cooperative attitude, promptness, efficiency in reporting and attendance. He should direct the teacher in the selection of textbooks, supplemental teaching aids, supplies and equipment.

A definite time schedule must be established by the teacher educator for observation of the new teacher in the classroom and laboratory. An evaluation of the instructor's progress should be noted at this time. The teacher educator should also assist the teacher with course content and revision of lesson plans.

Professional Growth - The teacher educator should encourage all new instructors toward educational development. He may meet with each instructor through individual conferences to help him attain his goals.

Classes should be arranged for college credit through the cooperating university, and specialists should be called on when needed.

The teacher educator should stimulate professional growth in the instructors by encouraging them to join professional and civic organizations. He should plan workshops, conferences and tours to busines and industry.

Responsibilities to the Institution - The teacher educator must act as a liaison between correctional teachers and teachers in the public school system. It is his responsibility to establish good working

relationships between vocational instructors in correctional institutions and vocational instructors in the area vocational schools -- the same relationship should exist between administrative personnel.

The teacher educator must work closely with the institutional administration, teachers and the reception center to secure the best educational program for each inmate to facilitate employment upon release.

* * *

The outline of certification requirements for teachers in vocational education shall be found on Pages 61 through 72 of Laws and Regulations Governing Teacher Education and Certification, for the State of Ohio. In this outline, a list of courses and professional preparation necessary to meet state certification standards can be obtained.

* * *

The following pages are suggested as a supplemental guide.

GUIDELINES FOR CONDUCTING AN EFFECTIVE IN-SERVICE TRAINING PROGRAM FOR VOCATIONAL TEACHERS IN CORRECTIONAL INSTITUTIONS

Prior to in-service Directors of Vocational Education in each institution should be involved with both the recruitment and selection of new instructors.

A. Recruitment-Recommendations can come from any of the following groups:
   1. Advisory Council Committee Members
   2. Current staff members
   3. Mass media communication
   4. Part-time instructors
   5. Professional organizations

B. Selection-Basic characteristic to look for in new instructor is the ability to relate with inmates.

C. What to look for in a candidate.
   1. Ability to express himself
   2. Attitudes toward prisons and inmates
   3. Personal living standards
   4. Breadth and depth of trade knowledge

D. Analyzing qualifications for:
   1. Certification adopted by division
   2. Experiences to fit the specific job
      a. Considering the course of study
      b. Relating to students
      c. Philosophy and nature of prison

E. Explain the nature of the specific program for which the individual is being interviewed.
   1. Requirements for obtaining the initial and future certifications
   2. Additional teaching responsibilities in the classroom beyond the specific trade .
   3. Additional responsibilities beyond the specific classroom and laboratory assigned
   4. Explain curriculum and tour facilities

F. Certification forms-to be completed and registration in pre-service workshop.

G. Orientation day activities
   1. Professional organizations
   2. Acquaint new people with the central administration
   3. Explain contractual ethics and responsibilities to the system

During in-service depends upon pre-service preparation. General concerns are:

1. Orientate the instructor two or three days immediately prior to beginning work
2. Coordinate schedules of instructor and teacher-educator so that they can meet together
3. Observation of instructor in shop and classroom
4. Help develop rapport between new people and other faculty members and staff
5. Review and revise lesson plans
6. Assist with course contents
7. Evaluation of instructor
8. Follow-up with teacher-educator recommendations after a conference with instructor, teacher-educator and director of education

The following guidelines are enumerated realizing that the director's role and job situation varies widely as to location and personnel.

Orientation from the time the teacher arrives through the first grading period.

A. Objectives
   1. Vocational class
   2. Program (vocational)
   3. Building
   4. Student

B. Policies and Procedures--State, Prison and Building
   1. Attendance reporting
   2. Discipline
   3. Counseling
   4. Inventory
   5. Handling equipment and materials
   6. Requisitions
   7. Sick leave
   8. Assembly procedures
   9. Staff meetings
   10. Use of equipment
   11. Shop maintenance
   12. Classroom management
   13. Grading procedures

C. Developing Human Relationships
   1. With administrators
   2. With fellow educators
   3. With custodial staff
   4. With students
   5. With craft advisory committees

D. Review Teacher's Organization and Preparation for First Week of School

E. Familiarize with Facilities

Coordination with Teacher Educator

A. Planning time schedule
   1. Observation
   2. Conference
      a. Teacher and Teacher-Educator
      b. Teacher-Educator and Director and Coordinator
      c. Teacher, Teacher-Educator, Director and Coordinator
B. Planning for group and individual meetings
C. Assist teacher-educator in identifying weaknesses and strengths of instructor
D. Supplement teacher-educator program

Evaluation of Teacher

A. Observation of lab and related classes
   1. Methods of discipline procedures
   2. Mannerisms
   3. Use of planning
   4. Use of teaching techniques
   5. Use of language, terminology
   6. Use of teaching aids
   7. Housekeeping
   8. Maintenance
   9. Rapport with students
   10. Safety measures
   11. Appearance
   12. Shop organization
   13. Use of time
B. Cooperation/attitude
C. Efficiency in reporting
D. Attendance and promptness
E. Extra duties assigned

Encourage Professional Growth

A. Continuing formal education
B. Joining professional organizations
C. Joining civic organizations
D. Attending workshops and conferences
E. Visitations
F. Visit business and industry
G. Keep up to date in trade area
H. Work with craft committees

Review and Revise Lesson Plans

Assisting with Course Content

A. Selection of textbook and supplemental materials
B. Selection of visual aid materials
C. Selection of equipment and supplies

Post In-Service General Concerns are:

1. Day-to-day relationships are more necessary following completion of work with teacher-educator.
2. Have teacher-educators conduct classes in area so that teachers do not need to travel long distances to get additional courses.
3. Encourage teachers to use or get professional days to visit other programs in other prisons.
4. Work for extended time to allow instructors to attend industrial workshops and training schools.
5. Develop in teacher-educators concern for practical, down-to-earth, common sense instruction.
6. Develop in teachers a desire to participate in vocational education organizations after completing requirements for certification. (OVA, AVA, etc.)
7. Encourage and enhance instructor's opportunity for continued professional and trade growth by up-dating skills and knowledge through trade publications and organizations.

The improvement of teaching skills is a continuing process, not to terminate with the conclusion of the formal teacher-education program.

A quality, continuing teacher improvement program is a shared responsibility, requiring active participation of both administration and instructor.

The scope and intensity of the continuing teacher improvement program will depend upon the individual needs of each instructor, as determined by the instructor and the institution director.

Some areas of teacher improvements in which the director can be expected to work are listed below, and while it is understood that many of these areas have been covered by the formal teacher-educator, it is felt that these items warrant continuing attention.

The following areas may be used for consideration:

A. Interpretation of test scores in school and student records:
   1. Vocational interest tests
   2. Aptitude testing
   3. Performance testing

B. Professional Growth and Skills
   1. Establish and up-date personal library
   2. Awareness of prison policies
   3. Continue formal education
   4. Joining professional organizations
   5. Attendance at manufacturer's workshops and others

C. Interdepartmental Communications
   1. Selection, training and follow-up in all trade areas
   2. Administrative, faculty, and inmate commitments

D. Use and Operation of Audio-Visual Equipment
   1. Sources of films and resource materials
   2. Operational training

E. Reinforcement of Shop Management Practices
   1. Continued shop safety practices and procedures
   2. Housekeeping
   3. Care and maintenance of equipment
   4. Organizational procedures

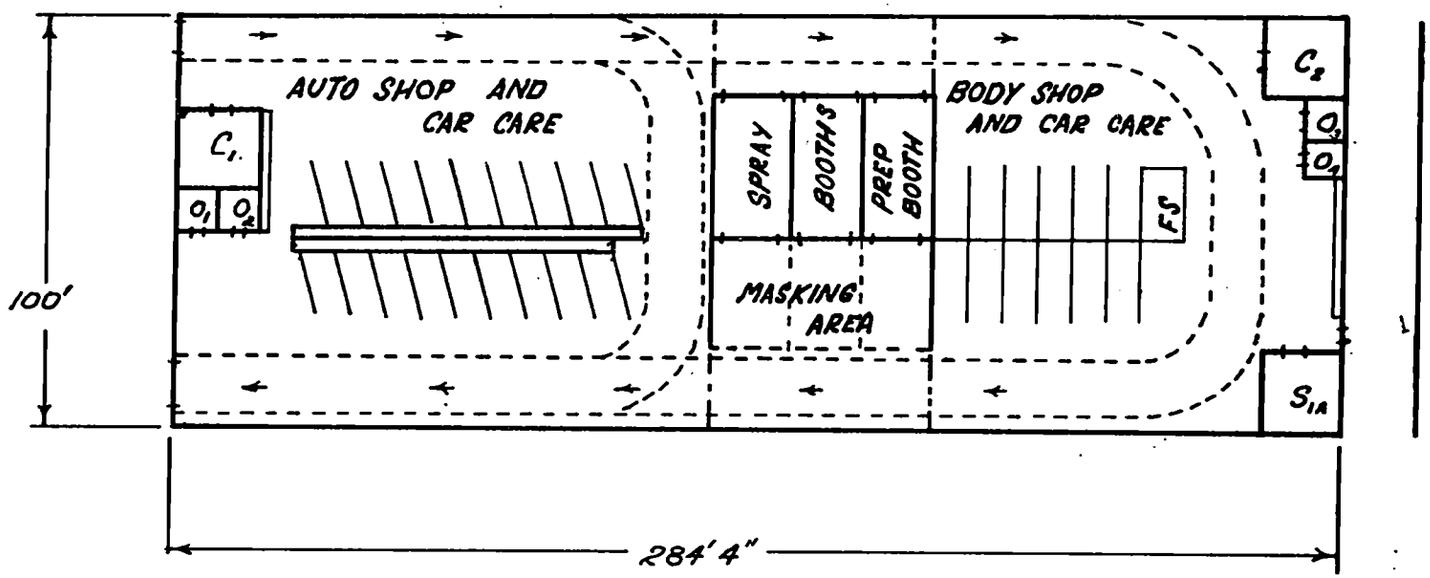
F. Up-Date the Courses of Study
   1. Test construction
   2. Lesson plans
   3. Curriculum development

G. Use of Professional Visitation Days to Share Ideas
   1. Business and industry
   2. Other prisons
   3. Professional meetings

APPENDIX B

LEBANON PHYSICAL PLANT PLANS

MARION PHYSICAL PLANT PLANS



PROPOSED

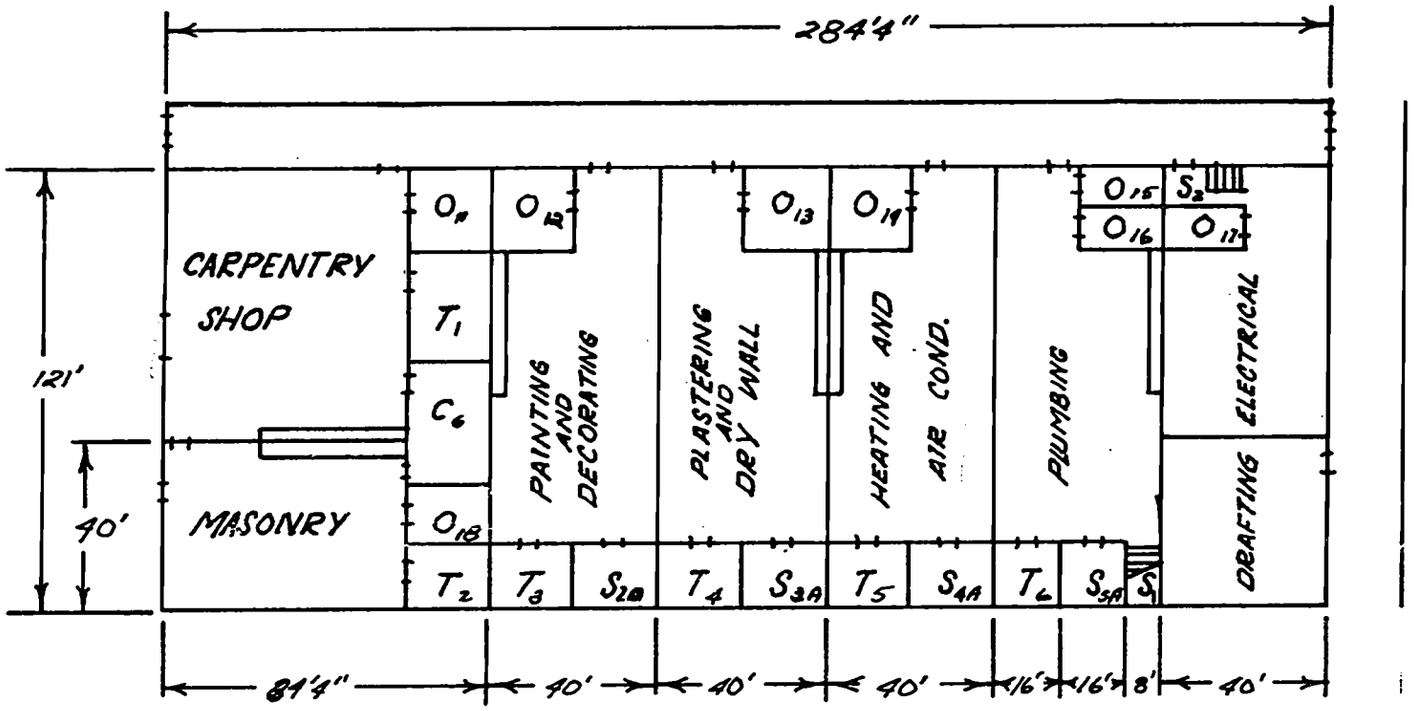
DEPARTMENT OF TRANSPORTATION (Motorized Equipment)

LEBANON CORRECTION INSTITUTION

6386

ERIC

6357

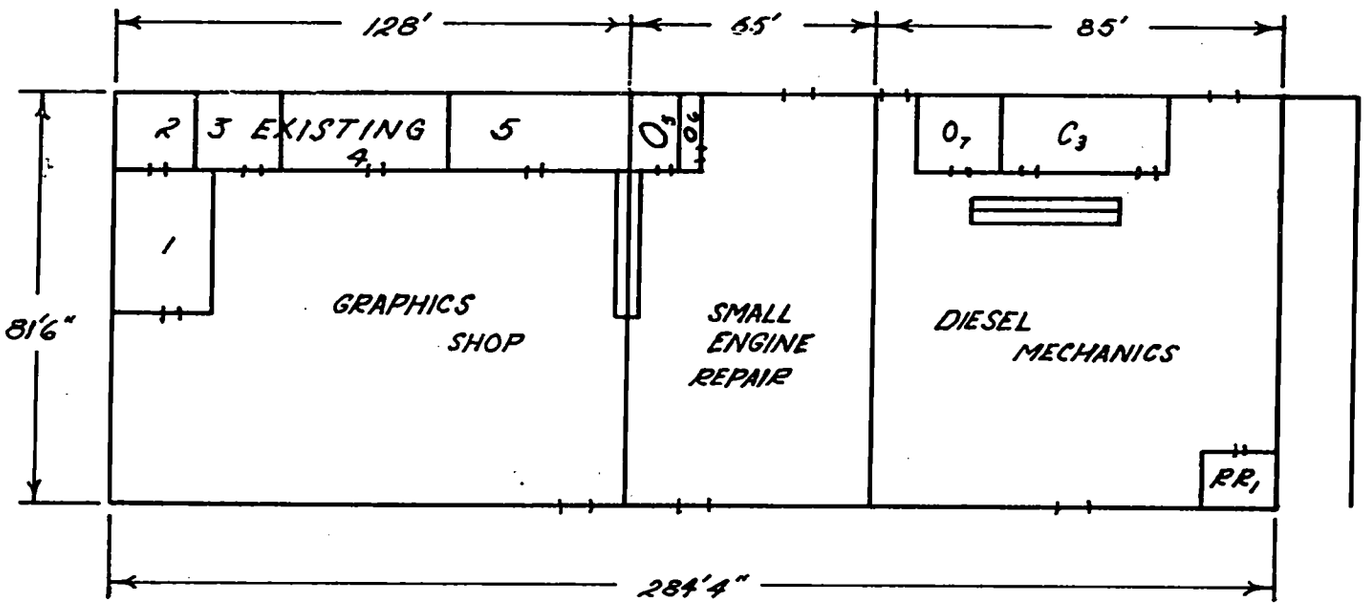


PROPOSED

DEPARTMENT OF BUILDING AND CONSTRUCTION

LEBANON CORRECTIONAL INSTITUTION

ERIC

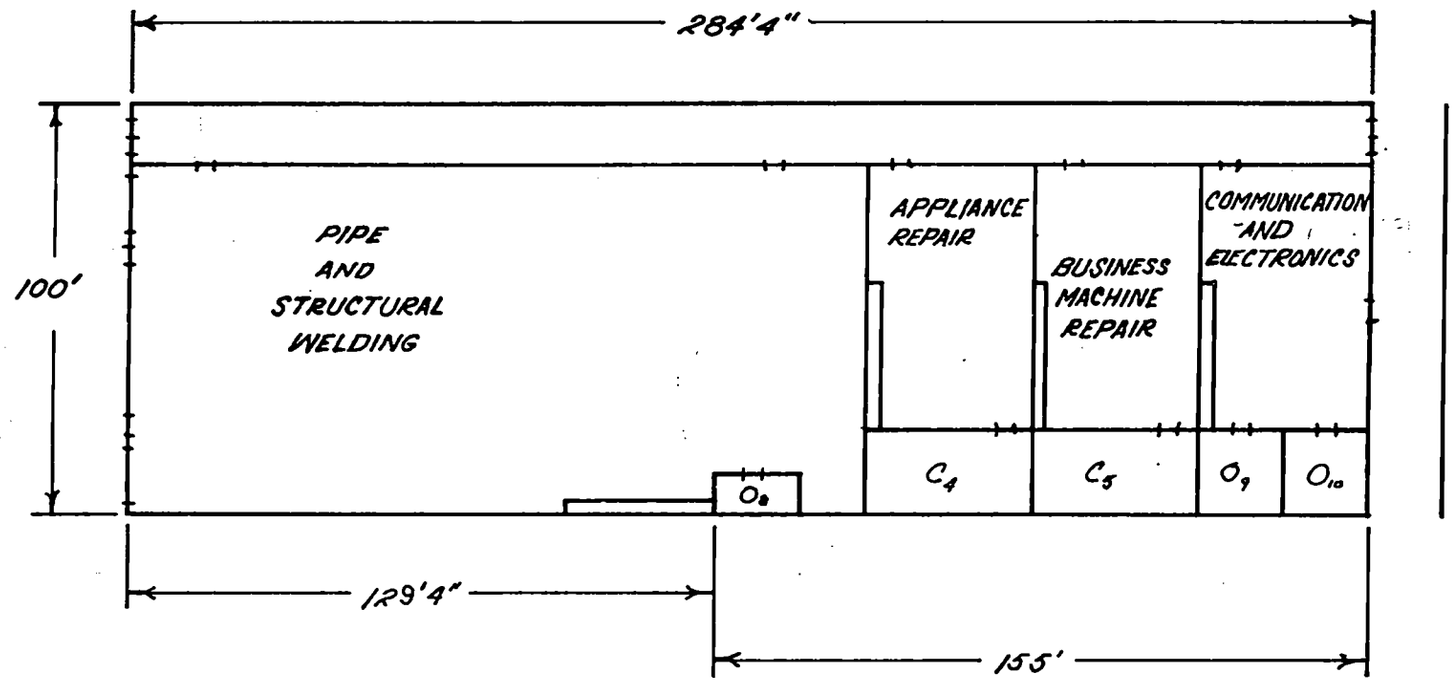


PROPOSED

DEPARTMENT OF INDUSTRY AND MANUFACTURING

LEBANON CORRECTIONAL INSTITUTION

ERIC



PROPOSED

DEPARTMENT OF INDUSTRY AND MANUFACTURING

LEBANON CORRECTIONAL INSTITUTION

CLASS ROOMS
C_1 = 20'X20'
C_2 = 20x20
C_3 = 20x40
C_4 = 20x40
C_5 = 20x40
C_6 = 20x40

TOOL ROOMS
T_1 = 20x20
T_2 = 20x20
T_3 = 20x20
T_4 = 20x20
T_5 = 20x20
T_6 = 20x20

OFFICE'S
O_1 = 10x10
O_2 = 10x10
O_3 = 10x10
O_6 = 13x20
O_6 = 7x20
O_7 = 20x20
O_8 = 10x20
O_9 = 20x20
O_{10} = 20x20
O_{11} = 20x20
O_{12} = 20x20
O_{13} = 20x20
O_{14} = 20x20
O_{15} = 10x20
O_{16} = 10x20
O_{17} = 10x20
O_{18} = 20x20

STORAGE ROOMS
S_1A = 20x22
S_2A = 20x20
S_3A = 20x20
S_4A = 20x20
S_5A = 20x20

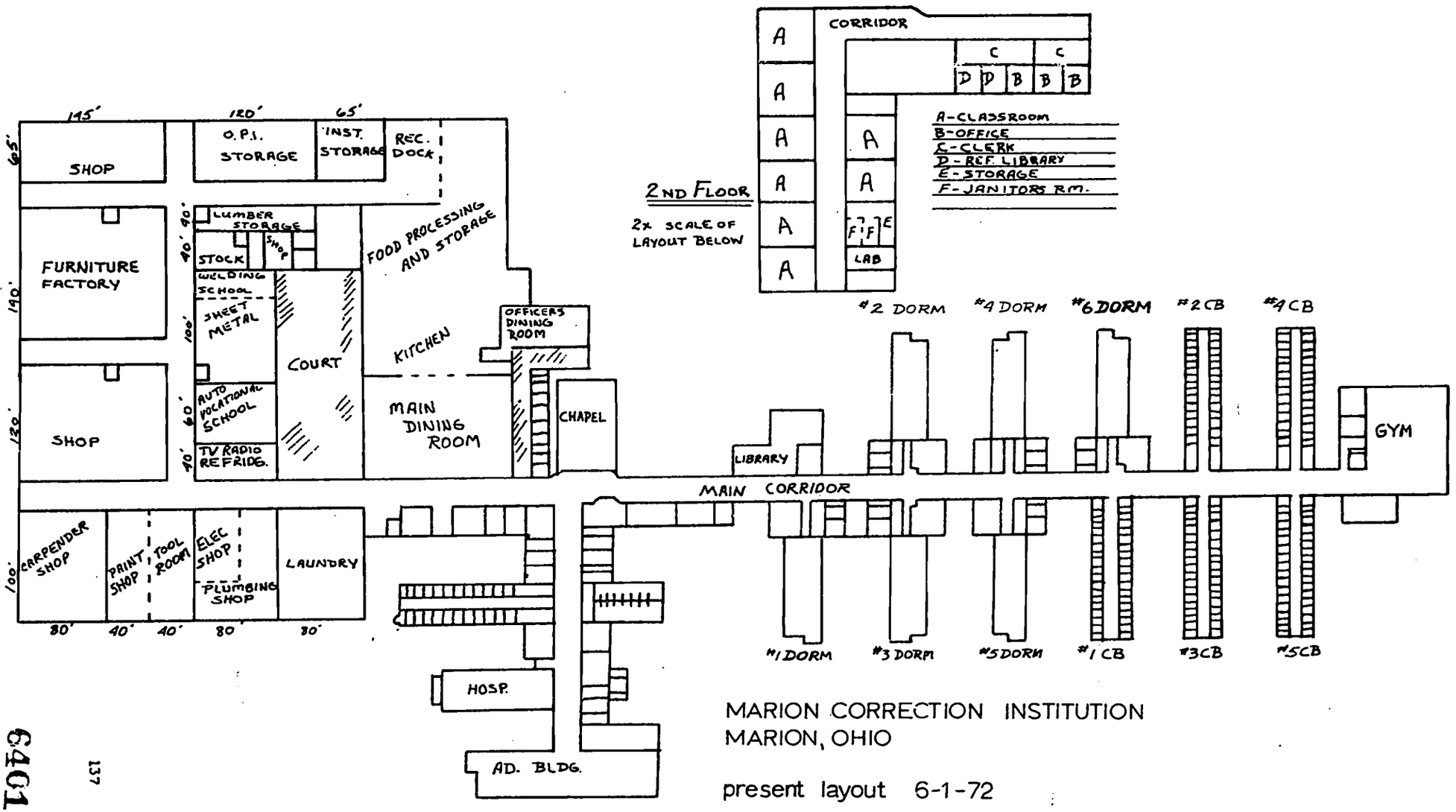
LAb ROOMS
1 = 24x36
2 = 20x20
3 = 20x20
4 = 20x40
5 = 20x48

REST ROOMS
R-R = 15

HALL - WIDTH = 17'5"
CORRIDORS = 15'11"
STUDY STALLS - WIDTH = 2'10"
LENGTH = 3'

LEBANON CORRECTIONAL INSTITUTION

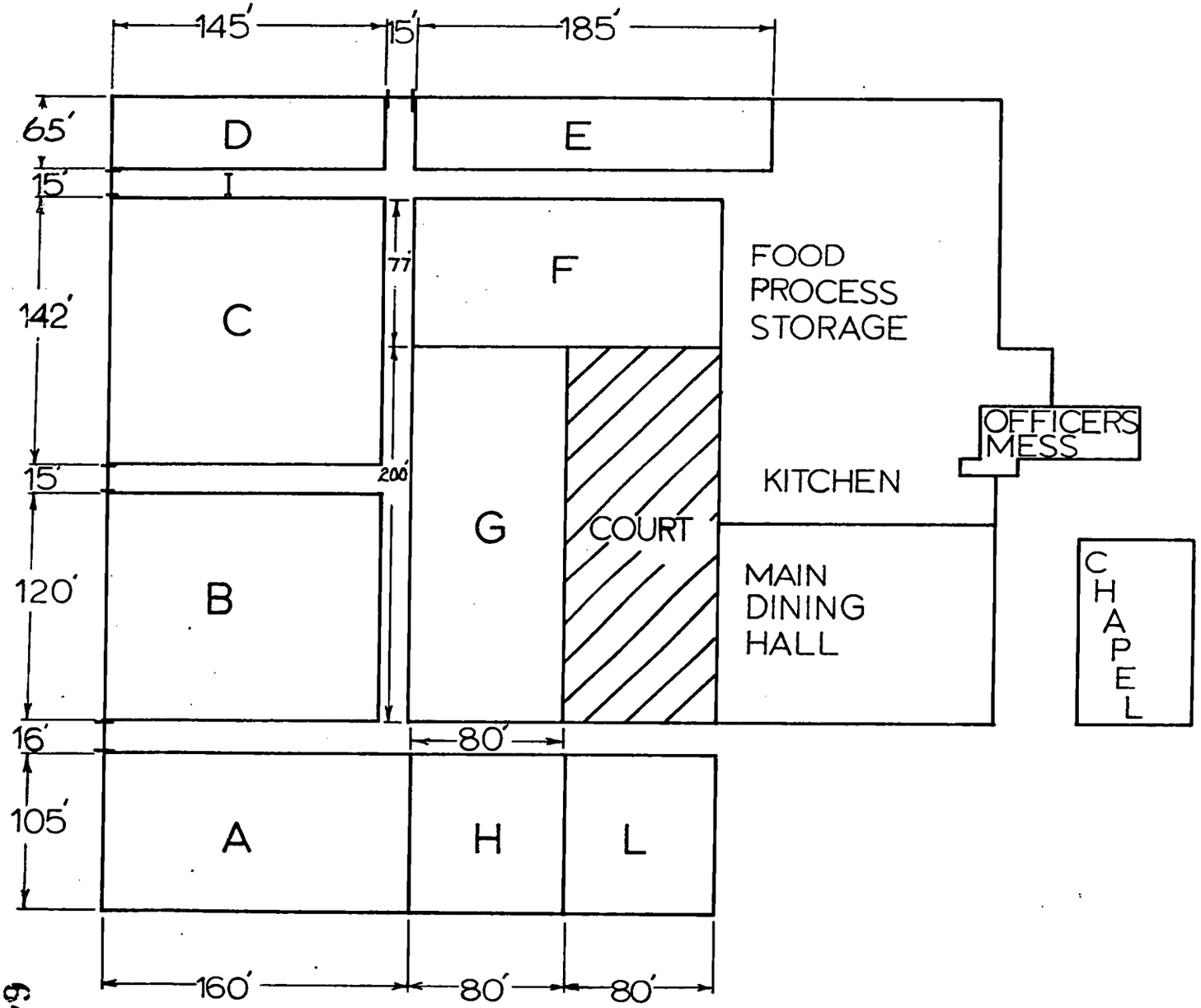
6400



MARION CORRECTION INSTITUTION
MARION, OHIO

present layout 6-1-72

6401



Shop space assignment Marion Correctional Institutional Vocational Education Research Project

See the attached sheet for space assignments..A, B, CID, G.

Space H is to be maintenance for the building, not educational.

Space L is the laundry.

Space E is to be welding and fabrication.

Space F is to be storage and warehousing.

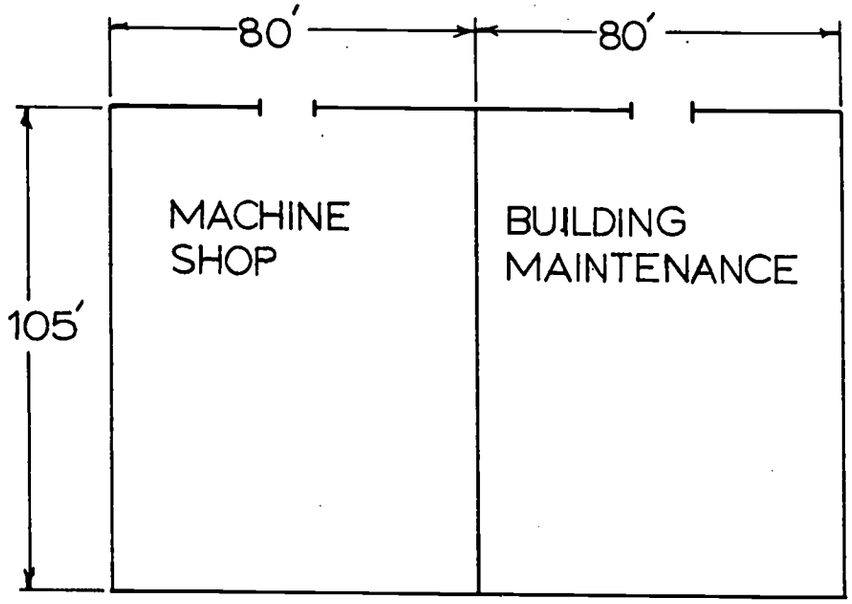
Food Service - build a room next to the officer's mess.

Medical laboratory - enlarge the present space allottment to 2000 square feet.

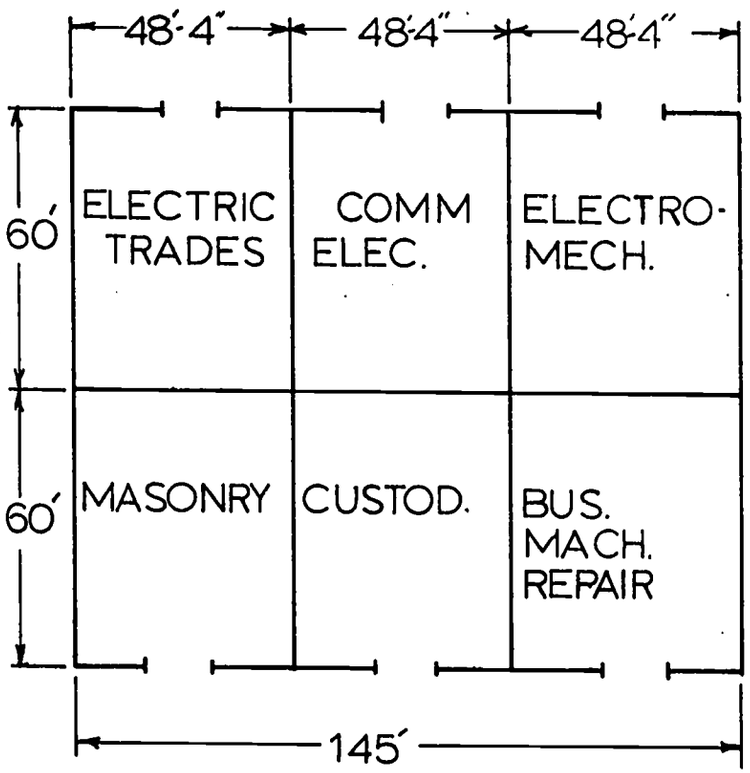
Greenhouse will need to be new construction.

64062

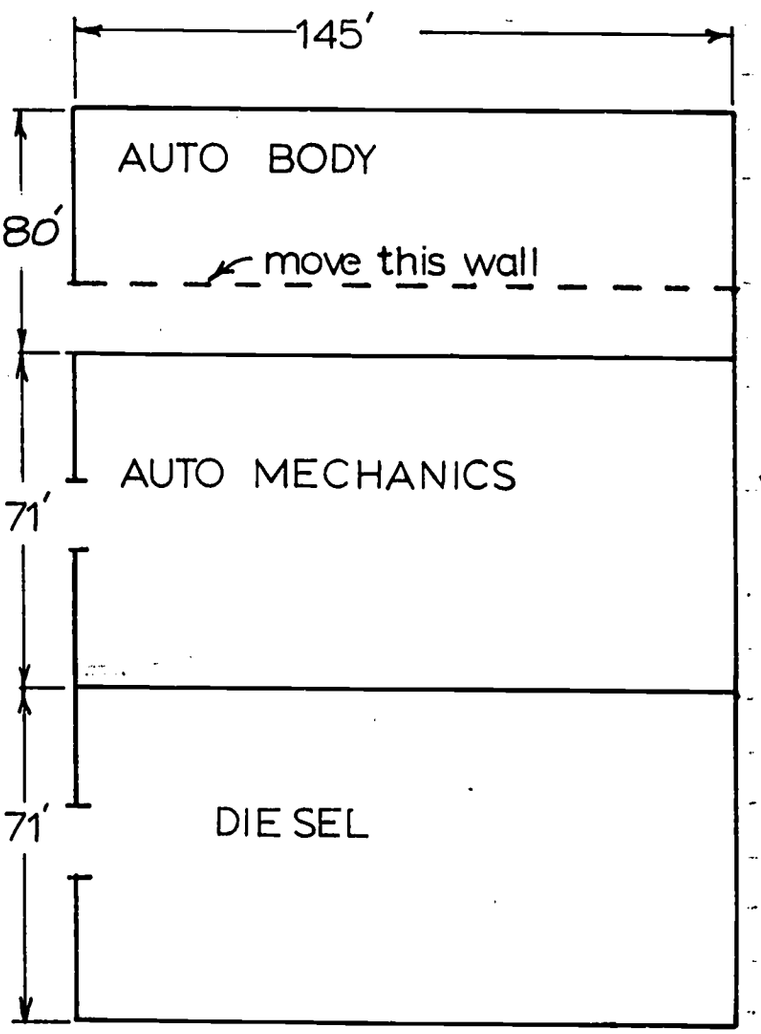
PROPOSED LAYOUT 6 - 1 - 72 MARION CORRECTIONAL INSTITUTION



SECTION "A"



SECTION "B"

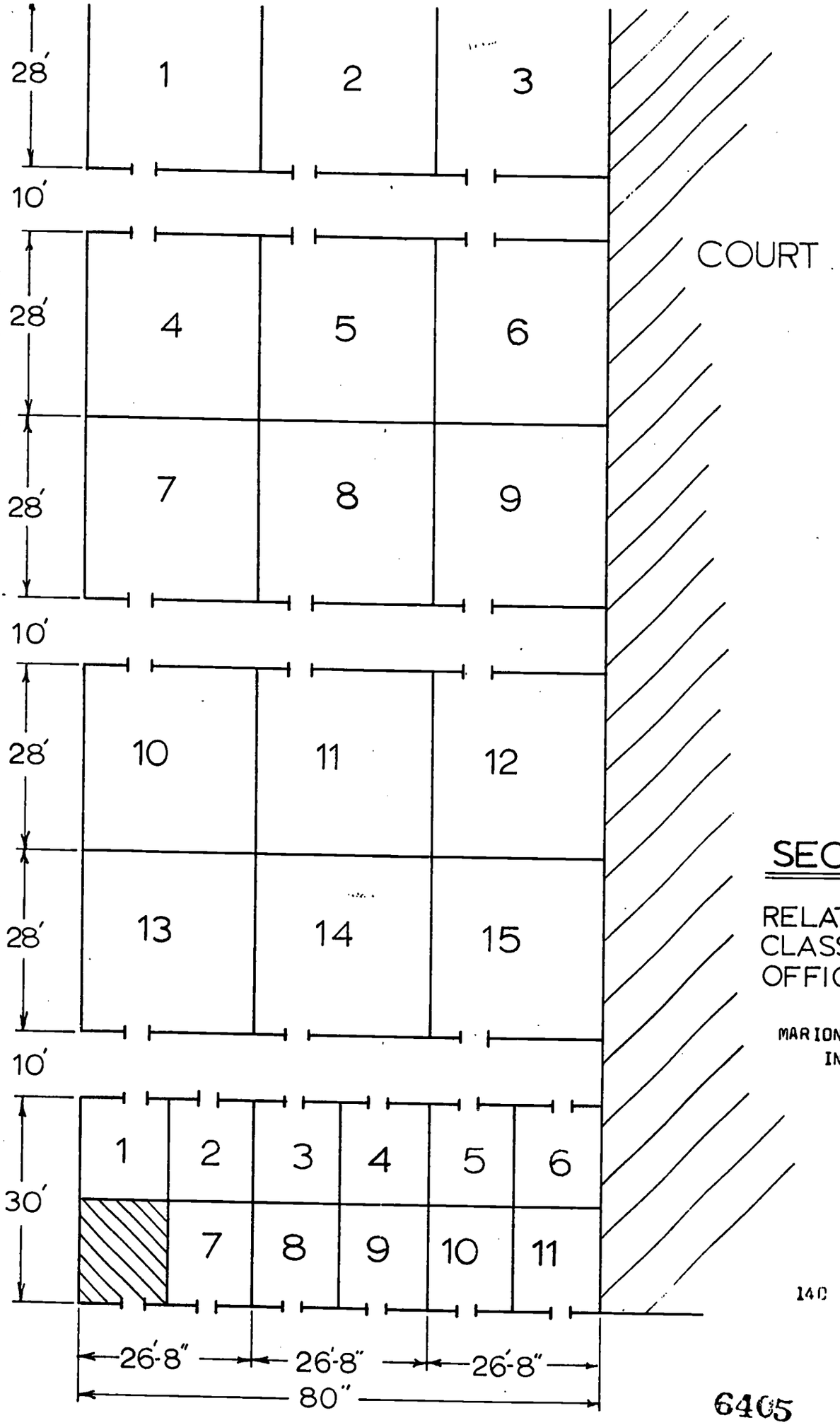


SECTION D-I-C

MARION CORRECTIONAL INSTITUTION

APPENDIX C

RELATED RESEARCH



SECTION "G"

RELATED CLASSROOM-OFFICES

MARION CORRECTIONAL INSTITUTION

APPENDIX C

RELATED RESEARCH

Introduction - An extensive review of the literature revealed a widespread recognition and concern of the importance of education as a method of inmate rehabilitation but there seems to be a general dearth of books or studies devoted to correctional education.

A number of studies have been completed as unpublished reports to funding agencies, intra-organizational accounts of institutional studies, and conference papers and proceedings which appear irregularly or are distributed to a limited clientele but there appears to be little universal knowledge of the nature and extent of education and training programs or the results of those programs in the state and national penal institutions.

Some emperical studies have appeared which are directly concerned with correctional rehabilitation efforts and parole effectiveness, and indirectly concerned with numerous elements which contribute to the success of the parolee. Evidence demonstrates how some inmates have achieved literacy and how others have made academic achievements of diverse sorts; many prisoners have satisfied the requirements of various educational institutions. On the vocational education side, there are those who have acquired a salable skill, developed a cluster of vocational abilities, or achieved a vocational proficiency of high order.

Although a few small studies have been directed at certain phases of the education programs, the majority of research which was reviewed has been done as an appendage to some other major area of interest.

Correctional Education Effectiveness - A bench mark study, and probably the most comprehensive research on prison parole systems and related influences was completed and reported in book form by Daniel Glaser, a research sociologist at the University of Illinois.[1] This long term study, financed by the Ford Foundation, was based on extensive observation, large numbers of interviews and the study of numerous case records. Several assistants spent an entire year in each of five different institutions of the Federal Prison System and a second year in several U. S. Probation and Parole Offices. The research methods involved some thousands of Federal prisoners and ex-prisoners.

In Glaser's study a card containing nine statements under the heading of "What An Inmate Might Try to Get or Do in Prison and Why" was presented to the inmate interviewees. Even granting the probable tendency of inmates to try to describe themselves favorably, it is of interest that, considering all interviews collectively, learning a trade or in other ways

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[1] Daniel Glaser, The Effectiveness of A Prison and Parole System, The Bobbs-Merrill Company Inc., Indianapolis, Indiana, 1964.

preparing for a job opportunity outside of prison was the first interest of most inmates at every prison studied. It was the most frequent among the nine interests covered on the card both as a first choice and when totaling first, second, and third choices. The initial high interest in trade and related studies declined somewhat during the course of imprisonment at all the institutions studied.

A study made by the Presidents' Task Force on Corrections points out that:

> "those who become involved in crime and delinquency frequently have a history of failure or retardation in school, caused or compounded by the inability of many schools in slum areas to interest students and their tendency to ignore or push them out when they fail or cause disruptions."[2]

It is such a condition that warranted the remarks of Glaser in a follow-up article to his report on studies of the federal prison system:

> "Training school and reformatory inmates are particularly likely not only to be far behind in school but to associate education with their failure and rejection. Even if they come from higher income areas, inmates tend to be the most maladjusted people in their groups. Consequently, their academic attainments are often far below what their intelligence test scores indicate they are capable of attaining, and even the scores are often deflated by their hostility and insecurity in test taking, as is evident by sharp increases in scores when their confidence is increased. The problem in instructing them is essentially to make learning a more relevant and rewarding experience for them, rather than a situation where they anticipate only failure and humiliation."[3]

The results of several studies indicate that participation in school programs is significantly related to post-release success.

Zink,[4] in his "pilot study", found a high positive correlation between prison school attendance and socially accepted post-release conduct. Saden,[5] reported significantly higher proportions of success for parolees who had been students in the prison school as compared to non-student

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2 President's Commission on Law Enforcement and Administration of Justice, Task Force Report: Corrections, (1967)

3 Daniel Glaser, "The Effectiveness of Correctional Education", AMERICAN JOURNAL OF CORRECTION, Vol. 28, March-April, 1966, pp. 4-9.

4 Theodore M. Zink, "A Study of the Effect of Prison Education on Societal Adjustment" (unpublished Ph.D. dissertation, Temple University, 1962).

5. S. J. Saden, "Correctional Research at Jackson Prison," JOURNAL OF CORRECTIONAL EDUCATION, October, 1962, Vol. XIV, pp. 22-26.

parolees. Glenn,[6] found statistically significant difference which occurred in favor of those who participated in educational programs with regard to parole success.

In a report to a conference on Education and Training in Correctional Institutions, Curtis C. Aller[7] cited lessons learned based on the experiences of prison training research projects under MDTA conducted at Rikers Island in New York City and experimental and demonstration projects at Draper Correctional Institution in Elmore, Alabama, and Lorton Youth Center in Lorton, Virginia.

The Rikers Island Study, appropriately titled "Restoration of Youth Through Training" (RYT), divided 264, 16-21 year old males into two groups. An experimental group of 137 trainees received an eight-week IBM machine training course and remedial education supportive services. The control group of non-trainee consisted of 127 men who received none of these services. A one-year follow-up study compared the employment, recidivism, and other experiences of the groups.

At Draper, programmed learning material was relied upon to give youth vocational skills in such occupational fields as barbering, electrical appliance repair work, and automotive mechanics. Vocational training was implemented by intensive vocational, personal, and family counseling, and basic education. Similarly, vocational training courses were given in food services, welding, and building maintenance in "Project Challenge" at Lorton. The unique features were the substantial inmate choice in vocational selection, experimentation with remedial education materials, and extensive post-release support.

The findings of these MDTA research projects reveal several points of interest. (1) The rate of recidivism for youthful offenders can be reduced as a result of vocational training, remedial education, and supportive service programs such as counseling and basic education. (2) Youthful offenders in short-term correctional institutions can absorb and benefit from programs of vocational training given in a prison setting. (3) Although as a group, offenders appear sufficiently motivated to want to improve their prospective employment status, the lack of suitable training programs in prisons denies them the opportunity to fulfill this objective and may often contribute to high recidivism rates.

Success or Failure - In measuring the success or failure of a prison

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John W. Glenn, "Status and Effectiveness of General and Vocational Education Programs in Correctional Institutions in Missouri" (unpublished Ph.D. dissertation, University of Missouri, 1966).

7.

Curtis C. Aller, "Lessons Learned From Vocational Training Programs Given in a Prison Setting", (paper presented at a conference on correctional education at the University of Wisconsin, Madison, June, 1968). pp. 4

program, the chief and often the only indicator of reformation has been recidivism. The shallowness and possible invalidity of this measurement has been recognized. However, no workable alternative has appeared. Because of its clarity and because of administrative convenience, the statistically simple variable - rate of recidivism - remains the chief measurement of reformation. Furthermore, in most studies related to reformation or postprison behavior, ex-offenders have been divided, usually by the criterion of recidivism, into two groups -- success or failures. Again this is usually done for the sake of statistical crispness.[8]

Glaser suggests that: "To permit brief generalizations, it is convenient to classify released prisoners as either "success" or "failures" with reference to their reformation. Such classification makes the statistical statements and tables in this book less complex than they otherwise would be."[9]

One of the chief objectives of the imprisonment of offenders is their reformation. Ideally, changes are to be effected so that the offender will not continue to commit law infractions when he leaves prison. There is, of course, little agreement on exactly what changes will accomplish this reformation or how these changes are to be brought about, and sociologists have emphasized changes in criminal values. It has been suggested that the central task of penal administration is to effect changes in the criminal value system.

In Hazelrigg's book, a discussion is presented on "adjunct programs" as those parts of the correctional process which are not directed specifically at the modification of attitudes, but which do play an auxiliary role in rehabilitation. Vocational education is a case in point. Persons are not criminals because of a lack of job skills but rather because of unfavorable attitudes toward work. Treatment should be directed toward modification of such attitudes. However, those offenders who exhibit negative attitudes toward work frequently have poor work habits and are deficient in vocational skills. In such cases vocational education could play an important part in the rehabilitation of the individual, provided he also undergoes attitude modification.

Evidence shows that many semi-professional criminals exhibit extremely spotty work records, poorly developed work habits, and negative attitudes toward work. One part of the treatment problem involves changes in attitudes toward work, so that the offender will verbalize sentiments other than those implied in the statement that "only slobs work." However, it may be argued that attitude change alone will not be sufficient to ensure

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8 John Irwin, The Felon, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1970, p. 174.

9 Daniel Glaser, The Effectiveness of A Prison and Parole System, pp. 54

parole success. Favorable work attitudes may not insulate an offender from illegal behavior unless he also has an opportunity to engage in noncriminal employment. On these grounds, there is much to be said in the case of semi-professionals for vocational training as a valuable adjunct to treatment.

An additional, related point is that the combination of group treatment and vocational or educational training should be designed to adjust the criminal to the realities of life outside the walls. Offenders cannot realistically look forward to interesting, highly paid jobs upon release even when they have received vocational training. For some semi-professional criminals, law-abiding jobs will not pay as well as crime, but such consequences as additional and more lengthy prison terms make the criminalistic alternative to law-abiding behavior unprofitable. It is this view of the choices open to the offender which must be made clear to him.[10]

California Department of Corrections recently reported on their study of vocational training within the Department of Corrections. A survey was conducted between November, 1968, and April, 1969, to assess the effectiveness of vocational training in terms of two criteria. The primary criterion was the number of parolees being placed in the trades in which they received training in the institution or in related trades, and the secondary criterion was parole outcome.

In the course of the survey, the records of approximately 6,000 inmates and parolees were surveyed. Of these, 729 were found to have qualified vocational training in the "major" trades. The data collected indicated that among the 1967-68 releases with training in the vocational programs covered in the survey, 35 percent were placed in their trades of training in their initial jobs. At six months and one year, the corresponding percentages were almost identical. As for parole outcome, the vocational trainees were divided into two groups -- those whose initial jobs were in the trade or related to the trade and those whose initial jobs were not. The vocational groups were compared with other parolees who had no vocational training but had worked in correctional industries or other institutional job assignments. The data for the six-month parole follow-up showed the highest percentage of favorable outcomes to be that of the group of vocational trainees whose initial jobs were in their trades of training.[11]

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10 Lawrence Hazelrigg, Editor, Prison Within Society, A Reader in Penology, Doubleday & Company, Inc., Garden City, New York, 1968. pp. 344.

11 Robert M. Dickover, Verner E. Maynard, and James A. Painter, "A Study of Vocational Training in the California Department of Corrections", Research Report No. 40, Research Division Department of Corrections, State of California, January, 1971, pp. 4-30.

Evrard relates the ability of the parolee to maintain steady full-time employment as a major element of parole success. He points out three important benefits of employment to the parolee:

> "First there is the financial obligation to his family; he can pay his court costs, fines, and taxes; and he can pay debts that were incurred prior to arrest and incarceration. Second there is the psychological aspect. Again, by paying his own way he can be a man and thereby prove his worth to society. He is independent. He can take pride in doing a good job. Third there is the time element. If a parolee maintains steady employment he must work eight hours a day, he will then need at least eight hours a day for rest and refreshment. This leaves only eight hours remaining in which he could get into trouble. When not working, he has twenty-four hours a day to get into trouble. One does not have to be a mathematical genius to realize that by keeping the offender on the job, we diminish by two-thirds the amount of time he can get into trouble."[12]

SUMMARY

The examples cited in this review of related research tend to show not only that vocational education in prison achieves approximate or intermediate objectives, but also that it achieves correction as evidenced by offender's parole success. The possibility of pointing to a particular vocational or academic course or, for that matter, an institutional work experience in prison as specifically reducing recidivism is remote. However, these efforts must be considered vehicles for many variables that also affect the success of the parolee. Evidence from the research would suggest that the value of vocational education alone to prepare inmates for parole success is questionable, but one is inclined to believe that it may be as good, if not better, a vehicle for communicating with offenders as any.

Some significant differences were identified between treatment clients and controls with reference to recidivism and overall employment. The studies did not show positive impact on the performance of the offender. However, some combinations of offender characteristics and treatment did indicate positive employment impact. There is a great need for refinement of research techniques to identify the positive rehabilitative values in correctional education programs.

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[12] Franklin H. Evrard, Successful Parole, Charles C. Thomas - Publisher, Springfield, Illinois, 1971.

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APPENDIX D

OUT-OF-STATE VISITS

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OUT-OF-STATE VISITS

Following a three month investigation, including visits to each of Ohio's correctional institutions, the project director and the consulting team embarked on a series of out-of-state trips to examine corrections in eight other states. A special expression of thanks is extended to all individuals in the states who hosted members of our team. We are indebted to the following individuals who coordinated our visits to their respective states:

Alabama - Mr. John Watkins, Warden of Draper Correctional Institution;
Florida - Mr. T. P. Jones, Director of Education for Florida Division of Corrections and Clarence Collier, Director of In-Service Education for the Florida Division of Corrections and the University of Southern Florida;
Illinois - Mr. A. M. Monahan, Assistant Director of the Adult Division of the Department of Corrections;
Minnesota - Mr. A. F. Maresh, Educational Coordinator for Minnesota Department of Corrections and Dr. Nathan Mandel, Director of Research and Planning of Minnesota Department of Corrections;
Texas - Dr. Lane Murray, Superintendent of Windham School District of the Texas Department of Corrections and Charles Whitson, Vocational Assistant Administrator for Windham School District of Texas Department of Corrections;
West Virginia - Mr. Anthony Eden, Vocational School Coordinator for the Robert F. Kennedy Youth Center; and
Wisconsin - Mr. Allen Harbort, Superintendent of Education of Wisconsin Department of Correction.

The project director and each consultant prepared a special report concerning their observations during these out-of-state visits. The following is a summary of their major findings.

ALABAMA

The group visited: Draper Correctional Institution; a Pre-release and Work-release Center; J. F. Ingram Vocational School; and the Rehabilitation Research Foundation.

The Draper Institution is designed for maximum security, but functions as a medium security institution. Approximately 900 men are housed in a dormitory setting. The warden, Mr. Watkins, believes that meaningful vocational education is a good basis for rehabilitation.

A specially designed vocational school, operated by the State Department of Education, is located near the Draper institution and serves the inmate population. Studies indicate that inmates can learn vocational skills. Inmates released from the vocational school have a 32 percent recidivism rate as compared with 70 percent for the general population. Officials at the school believe that the "token economy program" can be used with almost any type of treatment program.

FLORIDA

The group visited: Florida Correctional Institution at Lowell; Reception and Medical Center at Lake Butler; Florida State Prison at Raiford; Sumter Correctional Institution at Bushnell; Community Correctional Center at Jacksonville; Central Florida Junior College; and the Coordinator for Community Services.

The stated purpose of the Florida institutions include, in part, the following: "To modify the attitude of those in custody to such an extent their actions will be law abiding and they will be equipped with a salable skill."

Sumter Correctional Institution was constructed with the intention of using education as a major tool to treatment. However, the lack of adequate financing on a continuing basis has hampered this effort.

The work-release center at Jacksonville is a successful operation.

The new reception center has just been constructed and new operational concepts are in the planning stage.

Corrections officials have an excellent relationship with the Florida Junior College system and an excellent "in-service" training program is in operation for the para-professional staff.

ILLINOIS

The group visited: Vienna Correctional Center; Southern Illinois Work Release Center, "House of Glass"; Diagnostic Center; Illinois State Penitentiary, Statesville Branch; Southern Illinois University Center for the Study of Crime, Delinquency and Corrections; and Lewis College.

The Vienna Correctional Center was of particular interest. This is a minimum security institution, with no fences or bars, and is designed for education---the main ingredient for treatment. Plans are made for several similar institutions to be opened soon in Illinois. Vienna is programmed to serve 600 inmates and is architecturally designed to serve this purpose. Success is indicated in the fact that only 18 men have "walked away" from Vienna from the total of approximately 1,300 different men who have been served since 1969.

Southern Illinois University is active in corrections; especially in preparing academic teachers for the Division of Correction.

The work release center, "House of Glass", is also located in Carbondale. The persons interviewed believe that community acceptance of this center is dependent on an active advisory committee and support from the local police department.

KENTUCKY

The group visited the Federal Youth Center at Ashland, a reformatory which was built in 1938. Approximately half of the inmates are engaged in an educational program, with considerable emphasis placed on the preparation for the G. E. D. examination. All 23 members of the educational staff meet the minimum requirements for state certification. Four vocational courses are available for the inmate population.

MINNESOTA

The group visited: Stillwater State Prison; Reformatory for Men at St. Cloud; Onoka-Hennipen Area Vocational Center; and the University of Minnesota. The consultants also visited the State Department of Vocational Education and the Adult Parole Authority.

A total of 362 inmates have participated in the work-release program. The results indicate that 59 percent of the work-release participants were successful; 39 percent were terminated as failures; 18 percent violated the work-release rules; 21 percent escaped; and 2 percent were terminated because of illness.

There appears to exist a strong cooperative effort between the Department of Correction and the State Department of Education.

Correction officials are planning a "contract-release program." The theory of this program is basically that inmates who live up to performance objectives would be guaranteed release within a designated period of time.

The University of Minnesota has enjoyed success with a "Newgate Program" in cooperation with the Department of Corrections. The consultants were impressed with the outstanding research program in operation within the Department of Correction.

TEXAS

The group visited: Ferguson Unit at Midway; Wynne Unit at Huntsville; Eastham Unit at Weldon; and Lee Community College.

Recent legislation created a statewide school system to include all correctional institutions. This school system has been named the Windham School District. The funds for this school district are a part of the public school foundation program. The physical facilities use the open concept and are successful in their operation of vocational clusters.

All vocational education programs are staffed by certified teachers. The educational institutions use a great deal of individualized instruction. In addition to these educational opportunities, approximately 1,000 inmates are enrolled in Texas junior colleges.

WEST VIRGINIA

The group visited the Robert F. Kennedy Youth Center. This center is a minimum security campus-type facility, operating pre-vocational rather than in-depth vocational training. All residents of this center are full-time students in the program. Counseling services, both individual and group, are conducted after school hours. The consultants were of the opinion that the "Token Economy Programs" are not making a significant contribution in this institution.

WISCONSIN

The group visited: Wisconsin Correctional Institution at Fox Lake; and Oregon Farm and Pre-Release Facility.

This state is currently planning a new statewide system of education within the correctional setting. The reception center processes approximately 200 inmates a month and is housed in an antiquated prison.

The Fox Lake facility is a medium security institution, constructed in 1962 for approximately $9.5 million, which houses 500 inmates. The facility was dedicated to education, with adequate laboratories and classrooms. Several inmates from Fox Lake are engaged in a work-study release program. Work-release centers are also operated in other sections of the state with some success. The state is planning additional educational institutions for some future date.

APPENDIX E

SAMPLE PHYSICAL SPECIFICATIONS

APPENDIX E

SAMPLE SPECIFICATIONS FOR AUTOMOTIVE SHOP

A. CAPACITY

1. Maximum: 24 trainees
2. Average: 20 trainees
3. 12,000 square feet

B. LOCATION

1. Avoid sharp turns at entrance way
2. Bull pen area should be provided for storage of at least 10 cars that are in various stages of completion
3. Area should be located next to the Auto Body Shop
4. Direct access for entrance and exit doors of a drive-through type of shop.

C. EQUIPMENT AND FACILITIES

1. Doors
   a. Two overhead doors, power operated, with safety stops, 12' x 12'
   b. Personnel doors beside overhead doors, 48" wide
2. Minimum 14 foot ceiling
3. Water cooler
4. Emergency electrical shut-off switch in center of each wall
5. Electrical master control switch, lock-type
6. Mercury vapor lighting preferred
7. Interior walls should be glazed, light colored block, or some other smooth ceramic surface, for a height of not less than 8 feet. Remainder of structure should be fire-proof and of light colored materials.
8. Hot and cold water supply
9. Sewer system must be provided with special grease and sand traps, prior to enclosing of conduits. Floor should have a large grate-covered gutter along the aisle area.
10. Electrical outlets should be placed at 10 foot intervals. Outlets should be the water-proof type. They should be placed at least 4 feet above the floor.
11. Lighting - Minimum illumination of 100 foot candles at 30 inches above the floor level.
12. Special buzzer for clean-up purposes should be installed
13. Heating - In addition to the normal heating, air cleaning and ventilating, it is necessary to consider such items as comfortable floor temperature, effective hot air compensation for heat loss at outside door areas, and zone control heating.
14. An overhead exhaust system should be supplied. The exhaust system should be designed to allow for corrosive condensate.

SAMPLE SPECIFICATIONS FOR AUTOMOTIVE SHOP (continued)

15. 230 volage should be supplied to the shop
16. 100 pound capacity compressed air lines should be provided every 20 feet on the wall.

D. AUXILIARY SPACE

1. Individual lockers, toilet and wash area, 400 square feet
2. Outside storage "bull pen" for 10 cars, screened by walls
3. Office and conference area with telephone, 150 square feet
4. Tools and parts area, 250 square feet
5. Machine shop area, 400 square feet
6. One wall outlet or ceiling drop for 250 AMP AC/DC arc welder (220 Volt, 1 phase)
7. Waste oil tanks (2,000 gallon)

E. LIFTS

1. Four automobile lifts should be installed by the general contractor

F. STEAM CLEANING RAMP

1. Outside building, with 110 V and 220 V outlets

SAMPLE SPECIFICATIONS FOR ELECTRO-MECHANICS PROGRAM

A. CAPACITY

1. Maximum: 24 trainees
2. Average: 20 trainees
3. 2,500 square feet required for lab

B. LOCATION

1. "Light shop" area
2. Adjacent to Business Machines Repair

C. FACILITIES

1. 4' wide personnel door
2. 10' x 12' outside entrance
3. Floor material that is resistant to hydraulic fluid
4. Compressed air (100 PSI) to each student bench
5. Overhead 110/220-V buss ducts
6. 110-V wall plugs around perimeter of room
7. Drinking fountain

D. AUXILIARY SPACE

1. 300 square feet for storage
2. 150 square feet for office
3. 150 square feet for tool room

SAMPLE SPECIFICATIONS FOR AUTOMOTIVE BODY SHOP

A. CAPACITY

1. Maximum: 20 trainees
2. Average: 16 - 18 trainees
3. 6,000 square feet

B. LOCATION

1. Direct access to entrance door
2. Next to Automotive Shop
3. Completely enclosed with four walls, in "heavy shop" area of building

C. FACILITIES

1. Doors
   a. Two overhead doors, power operated, with safety stops, 12' x 12'
   b. Personnel doors beside overhead doors - 48" wide
2. Minimum 14' ceiling
3. Water cooler
4. Emergency electrical shut-off switch in center of each wall
5. Electrical master control switch, lock-type
6. Mercury vapor lighting preferred
7. Interior walk should be glazed, light colored block, or some other smooth ceramic surface, for a height of not less than 8 feet. The remainder of the structure should be fireproof and of light colored material.
8. A hot and cold water supply should be provided
9. The sewer system must be provided with special grease and sand traps, prior to the enclosing of the conduits
10. Electrical outlets should be placed at 10 foot intervals. Outlets should be water-proof type. They should be placed at least 4 feet above the floor.
11. Lighting - Minimum illumination of 100 foot candles at 30 inches above floor level
12. A special buzzer for clean up purposes should be installed
13. Heating - In addition to the normal heating, air cleaning and ventilating, it is necesaary to consider such items as comfortable floor temperatures, effective hot air compensation for heat loss at outside door areas, and zone control heating.
14. 230 voltage should be supplied to the shop - one outlet
15. 100 pound capacity compressed air lines should be provided every 10 feet on the wall.

SAMPLE SPECIFICATIONS FOR AUTOMOTIVE BODY SHOP (Continued)

C. FACILITIES (continued)

16. Paint spray booth, 15' x 30', arranged so that cars may be driven in and small groups may observe demonstrations. Must have observation windows and independent compressed air supply.
17. Car stalls
    a. 12 stalls
    b. Minimum width each stall - 15 feet
    c. One stall by overhead door to have 5' high wall separating it from other areas. Hot and cold water, with separate in-floor drain, for washing cars.
    d. Post (metal) set in floor, extending up 4" with rings at three stalls, well anchored (to be used, with chains and hydraulic hand tools, for pulling).
18. Ventilation and exhaust system in accordance with fire underwriters
19. Concrete floor, treated, with slope of 1/8" per foot 4' from wall to centered drains (no large open grates)
20. Maximum use of sound absorption materials should be made in this area to keep noise at a minimum

D. AUXILIARY SPACE

1. Individual lockers, toilet and wash area - 400 square feet
2. Storage
    a. Outside storage lot "bull pen" with room for 10 cars, screened by fence or wall
    b. Centralized outside storage bins for scrap, close to Automotive Body Shop
    c. Storage area over spray booths for large panels
    d. Outside storage shed for paint and solvents - 200 square feet
    e. Office and conference area with telephone service - 150 square feet
    f. Tool and parts area - 200 square feet
    g. Equipment storage - 500 square feet
    h. Concrete apron outside, extending 20' from building
    i. Small, sheltered area near paint booth, for paint mixing (4 walls). Compressed air with regulator, electricity, water and drain available.
    j. Arc and gas welding facilities must be provided

E. AUTOMATIC LIFTS

1. 1 required - should be installed by the general contractor

SAMPLE SPECIFICATIONS FOR TRUCK MECHANICS SHOP

A. CAPACITY

1. Maximum: 20 trainees
2. Average: 16 - 18 trainees
3. 12,000 square feet

B. LOCATION

1. Located next to Automotive Shop
2. Easy access to service road
3. No sharp turns to entrance

C. FACILITIES

1. Water cooler
2. Storage room - 200 square feet
3. Tool room - 200 square feet
4. White room (dust-proof room for fuel injector testing) 300 square feet (two 220-V outlets required)
5. Floor drain system
6. 5" drops, overhead drops for exhaust system
7. Overhead doors, 12' x 16', with 4' personnel door
8. Compressed air every 15' on wall, 4' above floor, with air regulator and oil cleaner
9. Overhead coil-type crane
10. Drive-over pit for vehicle lubrication and inspection, if code allows
11. Hot and cold water near truck entrance door
12. Ceiling at least 18'
13. Concrete floor with hardener and sealer
14. Heavy duty hoist, two column (fore and aft type), suitable for lifting 1T, 1-1/2T and 2T short and long wheel-base trucks, complete with air connections
15. Roof vent with wall switch (high volume) 2-speed fan control
16. Electric outlets, 110-V, ceiling for reel-type drops
17. Waste oil storage tanks (2,000 gallon capacity)

SAMPLE SPECIFICATIONS FOR MEDICAL LABORATORY

A. CAPACITY

1. Maximum: 24 trainees
2. Average: 16 - 18 trainees
3. 2,000 square feet

B. LOCATION

1. Locate near hospital area.

C. FACILITIES

1. Room should be air conditioned, with humidity control
2. Reagents storage - 200 square feet
3. Laboratory tables with hot and cold water and special tops should be provided. One sink should be provided for every two work stations.
4. 220-V should be provided for sterilization unit
5. 110-V wall outlets should be provided every 10 feet around perimeter of the room
6. Student lab tables should have a provision for natural gas and 110-V electrical outlets for every two trainees
7. Emergency shower should be provided in one corner of the room
8. An office, with telephone, should be provided for the instructor - 150 square feet
9. Standing-height work cabinets (with storage) should be installed around the periphery of the room

SAMPLE SPECIFICATIONS FOR BUSINESS MACHINES REPAIR

A. CAPACITY

1. Maximum: 24 trainees
2. Average: 20 trainees
3. 3,000 square feet required for lab

B. LOCATION

1. "Light shop" area
2. Adjacent to Electro-Mechanics and Electrical areas

C. FACILITIES

1. 4' wide personnel door
2. Ceiling height - 12' minimum
3. Vinyl tile flooring
4. 110/220-V wall plus (10 amp circuits) for each work station (24 stations)
5. Panic electric shut-down on each wall
6. Air conditioned and humidity controlled
7. Compressed air at each two work stations
8. 10' outside door entrance
9. Hot and cold water, with drain
10. Drinking fountain

D. AUXILIARY SPACE

1. Equipment storage room - 300 square feet
2. Office - 150 square feet
3. Tool room - 150 square feet

SAMPLE SPECIFICATIONS FOR HORTICULTURAL PROGRAM

A. CLASSROOM

1. Minimum 720 square feet (to accommodate 24 trainees)
2. 12 study tables, 30" x 72"
3. 25 chairs
4. Demonstration desk
5. Book shelves

B. LABORATORY

1. Minimum 1200 square feet
2. 12 work benches
3. 24 stools
4. Plant cooler (80 sq. ft.) - refrigeration unit
5. Sink area with hot and cold water
6. Cost of greenhouse and equipment - $70,000.

C. STORAGE AREA

1. 200 square feet
2. Area must be adequate to store:
   a. Chemicals
   b. Fertilizers
   c. Hand tools
   d. Equipment
   e. Consumable supplies

D. SOIL PREPARATION AND POTTING ROOM

1. 800 square feet
2. 40 foot work bench area
3. 3 soil storage bins, 4' x 6' x 6'
4. 1 pot storage bin, 4' x 6' x 6'
5. Sink and water availability
6. 220 Vac outlet (optional)
7. This area can be used for landscaping equipment storage

E. GREENHOUSE

A minimum of 3,000 square feet of greenhouse space must be provided. The greenhouse should be a standard aluminum frame glass house as manufactured by a reputable greenhouse manufacturer. The greenhouse should be located on the southern side of the main building.

E. GREENHOUSE (continued)

Bays of 10' 3-3/4", consisting of five lights of 24" wide glass, are to be used in designing the greenhouse structure.

The greenhouse shall consist of two separate growing compartments, individually climatized in order to meet growing requirements of various crops.

1. Electric - The laboratory and greenhouse facility shall be equipped with 100 amp electrical service to assure ample current for welding, soil sterilization, etc. Overhead lighting in the greenhouse will be single rows of incandexcent lights placed at ten foot intervals. Waterproof, duplex outlets should be located to service all benches.

2. Water - The greenhouse facility should be supplied by a 2" cold water main line to assure adequate supply of water for irrigating greenhouse crops and provide a hook-up for outdoor irrigation. At least two 3/4" hose bibs should be located in each greenhouse compartment.

3. Heating - The heating will be of a peripheral type; either hot water or steam. It should be of a capacity to maintain a 60° temperature at a minus 30° outdoor temperature. If the main plant heating unit supplies the major source of heat for the greenhouse, a supplementary heating unit must be available to maintain the desired temperature level when the main plant system is shut down on weekends, holidays, etc.

4. Cooling - The cooling of each compartment should be individually controlled, and should consist of two exhaust fans (one end of the greenhouse) pulling outside air through a water-soaked excelsior pad at the other end of the greenhouse. Fan-jet ventilation should be provided in each house, also.

5. Floors - A concrete floor should be provided in the first compartment, pitched toward two central floor drains equipped with dirt traps. The second compartment needs only a concrete main aisle.

F. OUTDOOR GROWING AREA

1. Minimum of 3 acres (tillable land)

SAMPLE SPECIFICATIONS FOR HORTICULTURAL PROGRAMS (continued)

F. OUTDOOR GROWING AREA (continued)

2. Use should include:
   a. Specimen plantings
   b. Developing arboretums
   c. Lining out nursery stock
   d. Lathe or shade house
   e. Experimental and demonstration plots

SAMPLE SPECIFICATIONS FOR CUSTODIAL TRAINING PROGRAM

A. CAPACITY

1. Maximum: 20 trainees
2. Average: 16 trainees
3. 5,000 square feet

B. LOCATION

1. "heavy shop" area, near the Building Maintenance and Masonry Programs
2. Access to outside drive

C. FACILITIES

1. Door to hall corridor should be 4' wide to facilitate moving of equipment
2. 4' personnel door to outside drive required
3. 3 different types of water cooler
4. 115 V, 208 V outlets (wall type)
5. Compressed air (100 PSI)
6. Mop cleaning area, with typical custodial-type arrangements
7. 3 different types of sink arrangements, with different materials for basins
8. Various types of floor treatments, with various materials
9. Various types of wall treatments
10. 3 different types of lighting systems
11. 3 different types of ceilings

D. AUXILIARY SPACE

1. 800 square feet of warehouse cleaning material storage area
2. 400 square feet of equipment storage area

SAMPLE SPECIFICATIONS FOR BUILDING MAINTENANCE PROGRAM

A. CAPACITY

1. Maximum: 24 trainees
2. Average: 20 trainees
3. 5,000 square feet required

B. LOCATION

1. Adjacent to Masonry Program
2. "Heavy shop" area

C. FACILITIES

1. Overhead door, 12' x 12'
2. Personnel door, 4' wide
3. 3/4" drop natural gas, 1 place
4. 110/220 V wall outlets
5. Hot and cold water, 3 places with drains
6. Overhead drops, 110 V. AC and 220 V. AC
7. Floors (wood, vinyl, carpeting, terrazzo)
8. Exhaust hood over soldering area
9. Panic button, each wall
10. Compressed air, 100 PSI, tow lines
11. Ceiling heights - 18'

D. AUXILIARY SPACE

1. Storage - 300 square feet
2. Tool Room - 200 square feet

E. SPECIAL CONSIDERATION

1. Mercury vapor lighting
2. Fluorescent lighting
3. Mock walls to simulate house construction
4. Various types of floor treatments
5. Various types of wall treatments

SAMPLE SPECIFICATIONS FOR MASONRY PROGRAM

A. CAPACITY

1. Maximum: 24 trainees
2. Average: 20 trainees
3. 3,000 square feet

B. LOCATION

1. "Heavy shop" area
2. Located adjacent to Building Maintenance Program

C. FACILITIES

1. Overhead door - 20' wide, 18' high
2. Personnel door - 4' wide
3. Open, 18', ceiling
4. Compressed air, 100 PSI
5. Concrete floor with hardener and sealer
6. Several cold water faucets, both inside and outside
7. Outside storage - 800 square feet
8. Floor drains, inside and outside
9. Radiant heat - overhead units, Col-Ray-Vac
10. 110 V wall outlets and 4 ceiling drops
11. Water cooler

D. AUXILIARY SPACE

1. Tool room - 300 square feet
2. Chalkboards and tackboards

SAMPLE SPECIFICATIONS FOR INDUSTRIAL ELECTRICITY

A. CAPACITY

1. Maximum: 24 trainees
2. Average: 20 trainees
3. 3,000 square feet

B. LOCATION

1. "Heavy shop" area
2. Access from outside drive

C. FACILITIES

1. Overhead door, 12' x 12', power operated, with safety switch
2. 48" personnel exit door next to overhead door
3. Overhead buss bars - 110/330 V, 3 phase, 4 wire, 15 feet apart
4. Power cut-off switches should be placed at the center of each wall
5. 110-V outlets should be placed around the perimeter of the room
6. Ceiling - 12' minimum
7. Floor should be wood (non conductor), end grain construction

D. AUXILIARY SPACE

1. Locker/wash-up area - 400 square feet
2. 48 student storage lockers
3. Caged storage and tool room with shelving for materials and equipment. Counter front pull-down gate to lock. 300 square feet.
4. Instructor's office and conference area - 150 square feet

SAMPLE SPECIFICATIONS FOR COMMUNICATIONS ELECTRONICS

A. CAPACITY

1. Maximum: 24 trainees
2. Average: 20 trainees
3. 2,500 square feet required for Lab

B. LOCATION

1. "Light shop" area
2. Adjacent to Electro-Mechanics and Industrial Electricity

C. FACILITIES

1. 4' wide personnel door
2. Ceiling height 12' minimum (closed)
3. Wood end grain or vinyl tile floor
4. 110/220 V. wall plugs
5. 110/220 V. overhead electrical services (stub ups preferred to test benches, if feasible)
6. Central antennae system 75 ohm, 300 ohm, 30 ohm (coaxial cable), 40 db minimum booster and distributor (to each work station)
7. Outside 10' door, if possible
8. Panic electric shut-down, each wall
9. Lab table should have drawers to accomodate component storage

D. AUXILIARY SPACE

1. Equipment room - 200 square feet
2. Storage space - 200 square feet

SPECIFICATIONS FOR MACHINE TRADES AREA

A. CAPACITY

1. Maximum: 24 trainees
2. Average: 20 trainees
3. 6,000 square feet

B. LOCATION

1. "Heavy shop" area
2. Access from outside drive

C. FACILITIES

1. Panic electric shut-down on each wall
2. Water cooler
3. 230/460 power supply, 50 horsepower load, at least 3 buss ducts
4. Heavy floor - concrete treated with sealer and hardened
5. Outside overhead door, 12' x 12', personnel door 48" wide
6. Compressed air with regulator and drier. Locations to be noted after equipment layout is made. (100 PSI required)
   NOTE: EDM, Jig Grinder, etc. may require compressed air.
7. Hot and cold water, with at least 3 floor drains
8. Natural gas may be required for heat-treating furnace
9. Open ceiling acceptable
10. Sound absorption materials used where possible

D. AUXILIARY SPACE

1. Tool crib, wire mesh enclosed, with tray attached to door - 300 square feet
2. Steel storage area, 300 square feet
3. Wash-up sink (semi-circular, industrial type)
4. Individual lockers for trainees (48), for project storage

SPECIFICATIONS FOR WELDING AND METAL FABRICATION PROGRAM

A. CAPACITY

1. Maximum: 40 trainees (20 Welding, 20 Metal Fabrication)
2. Average: 40 trainees
3. 6,000 square feet (3,000 square feet for each lab)

B. LOCATION

1. "Heavy shop" area
2. Adjacent to Machine Trades area

C. FACILITIES

1. Ceiling height - 18'
2. Personnel doors - 4' wide
3. Outside door, overhead type, 12' x 16'
4. 2 separate exhaust systems, one for arc welding booths and one for oxy-acetylene and gas forges
5. Central gas manifold system
6. 220/440 V 3-phase for welders, amperage draw on each line to correspond to the draw on each specific welder
7. All welders to operate on separate electrical source
8. Separate specifications to be developed for oxy-acetylene system
9. 20 overhead buss ducts for each area, 220/440 V 3-phase
10. Floor to be concrete, treated with hardener and sealer
11. Separate specifications to be developed for welding booths
12. Cold water to be supplied to TIG welders (also drains)
13. Compressed air on walls (100 PSI)

D. AUXILIARY SPACE

1. Tool room - 150 square feet
2. Storage room - 200 square feet
3. Office - 150 square feet

APPENDIX F

CURRICULUM DEVELOPMENT - A SYSTEMS APPROACH

APPENDIX F

CURRICULUM DEVELOPMENT
A SYSTEMS APPROACH

WHAT IS THE SYSTEMS APPROACH?

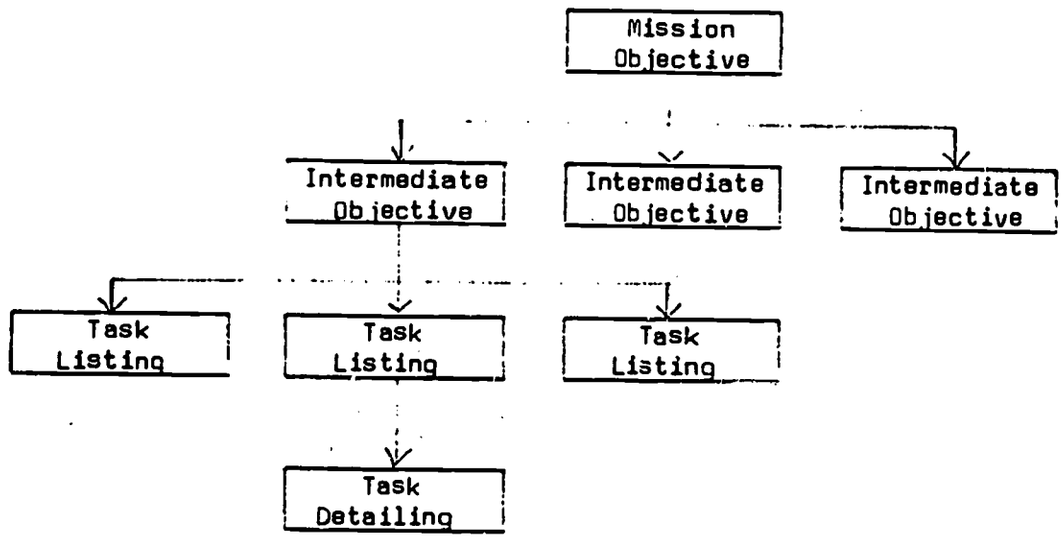
The systems approach is a way of dealing with problems in complex structuree that has been developed in response to the growth in size and complexity of our modern institutions. Essentially, the systems approach is a way of thinking about the curriculum under consideration. "It provides a framework for visualizing internal and external environmental factors as an integrated whole."

The systems concept or viewpoint is the simple recognition that any curriculum is a system made up of modules, each of which has its own goals. The administrator realizes that he can achieve the overall goals of the curriculum only by viewing the entire system and seeking to understand and measure the interrelationships and to integrate them in a fashion which enables the instructor to efficiently pursue the objectives of the program.

In summary, the systems approach, then, is a way of approaching the development of curriculum wherein primary attention is focused not upon the elements of the curriculum, one at a time, but upon the totality of the particular curriculum and the interrelationships of the elements as they relate to the curriculum as a whole. The table below outlines the systems approach.

TABLE XXIX

SYSTEMS APPROACH - CURRICULUM DEVELOPMENT



In the systems approach the following steps are necessary.

Step 1 - Develop Mission Objective.

Step 2 - Develop Intermediate Objectives. There can be one or more intermediate objectives in the system. This step can also be referred to as a Job Level or Module.

Step 3 - For each Intermediate Objective develop a List of Tasks or Performance Objectives. This step could be referred to as a Unit of Instruction.

Step 4 - For each Task Listing develop a Detailed Listing of the steps required to perform the task (Lesson Plan).

DISCUSSION OF THE SYSTEMS CONCEPT

An emerging concept of curriculum planning is conceived around the mission concept. This concept recognizes an overall objective, an intermediate objective and a performance objective. The concept recognizes, as in the following detailed automotive curriculum, that the overall objective is to train an auto mechanic but recognizes that because of the individual's academic or mechanical capabilities or the length of the training program, some individuals may end up with job skills only in ignition systems, charging systems, etc. In either case, the performance objective is so designed as to include a task listing and details regarding each task. Curriculums planned around this concept should ease the problem involved in correctional education of slotting inmates in and out of training programs. The following automotive curriculum, designed around the mission concept, is an example. It is recommended that all curriculums be planned in three phases, as described herein.

If the present educational staff does not have sufficient time or knowledge to develop these curriculums, perhaps the Division could seek a special grant for this purpose.

REASONS FOR USING THE SYSTEMS APPROACH

A. To establish course objectives
B. To give teachers necessary direction
C. To prevent duplication of instruction
D. To avoid omission of important subject matter
E. To facilitate evaluation of program and instruction
F. To serve as a basis for curriculum revision
G. To evaluate requests for equipment and supplies
H. To evaluate "outside" projects
I. To fulfill legal requirements

GENERAL APPROACH

A. Single curriculum guides will be developed for two year programs.
B. Each curriculum guide will provide for intermediate objectives centered around levels of achievement, specific job descriptions or job levels.
C. Instructions should be planned so inmates can progress through the various levels of achievement at their own rate.

D. It must be understood that not all inmates will be capable of mastering all objectives.
E. Curriculum guides for vocational subjects will include all materials to be covered in the laboratories as well as the applicable portion of the related time subject matter.
F. Special consideration will be given to individual subjects, not related to laboratory instruction, taught as a part of related time.
G. A three phase approach will be used in the program of curriculum development.

PHASE 1

A. Stating objectives in behavioral terms:
An objective describes a desired outcome. It is a description of a performance the student is expected to demonstrate. It tells what the student is to be like as a result of the learning experience. An objective represents a clear statement of instructional intent that can be measured in behavioral terms.
B. Development of mission objective:
The mission objective establishes the kinds of things the student should be able to do at the end of the course that will facilitate his becoming a skilled craftsman in the least amount of time. The statements, items or experiences as are necessary to describe the desired behavior of the student at the time he completes the course.
C. Development of intermediate objectives:
The intermediate objectives are developed in the same manner as the mission objectives except they include only the desired outcomes for each job level, job description, or level of achievement. It should be remembered that not all students will achieve all of the intermediate objectives.
D. Task analysis sequencing:
A task is a logically related set of actions required for completion of an objective. The first step in the task analysis is to list all of the tasks that might be included in achieving each objective. After the preliminary task lists have been compiled, they should be checked with advisory committees.
E. Selection of measuring instruments:
Using the objectives as a guide, post-test items should be selected to find out how well each student meets the objectives. The object is to determine how well the student's performance coincides with the performance called for in the objective.

PHASE 2

A. Revise task listing and sequencing as necessary.
B. Task detailing:
The second step in task analysis is to list the steps involved in each of the tasks on the list in terms of what the person does when performing the step. This is important to avoid spending too much time teaching a different but relatively important topic,

or. to forget to include something that is easy to teach, but that is absolutely essential to learn.

C. Edit and rewrite, using standard format.

PHASE 3

A. Development of instructional procedures, etc.
B. Selection of teaching materials, aid, etc.
C. Consolidation of Phase 1, 2 and 3.
D. Printing of complete curriculum guide for each subject area.

EXAMPLE OF SYSTEMS APPROACH for AUTO MECHANICS

BRAKE AND EXHAUST

A. Remove old brake shoes
   1. Inspect return springs
   2. Inspect hold down springs
   3. Inspect adjusting mechanisms
   4. Reassemble shoe assemblies
B. Inspect drums
   1. Measure
   2. Machine
   3. Are shoes to match
C. Disassemble wheel cylinders
   1. Clean and inspect
   2. Hone
   3. Measure
   4. Reassemble
D. Disassemble master cylinder
   1. Clean and inspect
   2. Hone
   3. Measure
   4. Reassemble
   5. Bleed system
E. Repair or replace lines
   1. Flange or flare tubing
      a. Single flare
      b. Double flare
   2. Bleed system
F. Repack front wheel bearings
   1. Disassemble
   2. Clean
   3. Inspect
   4. Repack or replace
   5. Reassemble
   6. Adjust
   7. Secure
G. Adjust brakes
   1. Minor
   2. Major
   3. Mechanical and selfadjusters
H. Exhaust system
   1. Remove
   2. Replace
   3. Fit or adjust

COOLING SYSTEM AND HEATING

A. Radiator
   1. Remove and replace
B. Cores
   1. Clean and back flush
   2. Remove and replace
   3. Repair

COOLING SYSTEM AND HEATING (continued)

C. Caps
   1. Test pressure cap
D. Distribution tube
   1. Remove and replace
E. Expansion plugs and frain cocks
   1. Remove and replace
F. Fan Assembly
   1. Adjust fan belt
   2. Remove and replace
G. Pump assembly
   1. Remove
   2. Repair
   3. Replace
H. Thermostats
   1. Remove
   2. Test
   3. Replace
I. Temperature gauge units
   1. Inspect
   2. Remove and replace
J. Hose and clamps
   1. Remove
   2. Check
   3. Replace
K. Coolants
   1. Water
   2. Alcohols
   3. Ethylene glycel
L. Heater core
   1. Remove
   2. Test and fix
   3. Replace
M. Controls
   1. Remove
   2. Replace
   3. Adjust
N. Defroster hose
   1. Remove
   2. Replace
O. Vent cables
   1. Remove
   2. Replace
P. Vent tubes
   1. Remove
   2. Replace

STEERING AND SUSPENSION

A. Shock absorbers
   1. Inspect and check bushings
   2. Remove
   3. Replace
B. Leaf springs
   1. Replace springs or a leaf
   2. Replace center belt
C. Coil spring
   1. Remove
   2. Replace
D. Air bags
   1. Inspect, remove, repair, and replace compressor
   2. Check and adjust standing height
   3. Clean and service valves
E. Tension bar
   1. Adjust rear anchor adjustment belt
   2. Remove
   3. Replace

STEERING AND SUSPENSION (continued)

F. Mountings
   1. Remove
   2. Replace shackles

G. Ball joints
   1. Inspect for wear or damage
   2. Remove
   3. Replace defected joints

H. King pins
   1. Check for wear
   2. Remove
   3. Install bushings
   4. Replace

I. Pitman arm
   1. Remove
   2. Replace

J. Drag link
   1. Remove
   2. Adjust
   3. Replace

K. Idler arm
   1. Remove
   2. Install bushings
   3. Replace

L. Steering arm
   1. Remove
   2. Replace

M. Tie rods
   1. Remove
   2. Replace

N. Steering gear
   1. Check play
   2. Remove, repair, and replace
   3. Adjust

O. Column assembly
   1. Remove and replace
   2. Align shifting levers

P. Front wheel run out
   1. Adjust front wheel bearings

Q. Caster, camber, and king pin inclination
   1. Check and adjust

R. Toe in
   1. Check and adjust

S. Toe out on turns
   1. Check steering arms

T. Power linkage type
   1. Inspect, clean, and adjust
   2. Remove
   3. Replace

U. Power integral type
   1. Remove, clean, and inspect
   2. Rebuild
   3. Adjust and install

V. Pump
   1. Rebuild
   2. Belt adjustment

W. Wheel bearing
   1. Refer to C-5

DRIVE LINE

A. Clutch (dry)
   1. Adjust clutch pedal linkage
   2. Remove and install new clutch assembly

B. Clutch (wet)
   1. Adjust clutch pedal linkage
   2. Remove and install new clutch assembly
   3. Check fluid level

DRIVE LINE (continued)

C. Standard transmission
   1. Check and adjust shifting linkage
      2. Remove, repair, and replace
D. Overdrive transmission
   1. Check electrical system
   2. Adjust kickdown switch
      3. Remove, repair, and replace
E. Automatic transmission
   1. Test and diagnose
   2. Make adjustments
      3. Remove and replace
      4. Repair and adjust
F. Universal joint
   1. Remove
   2. Rebuild
      3. Replace
G. Propeller shaft
   1. Clean and inspect
      2. Replace
H. Slip joint
   1. Remove and replace
I. Carrier and case
   1. Remove
   2. Check, align, and adjust
      3. Replace
J. Rear axle housing
   1. Clean and inspect
      2. Check alignment
K. Rear axle
   1. Remove, check, and replace
   2. Replace seal
      3. Replace bearing
      4. Replace studs

FUEL SYSTEM

A. Gauge unit
   1. Test
   2. Remove
      3. Replace
B. Vents
   1. Check opening
C. Fill pipes
   1. Clean and tighten
D. Tank
   1. Remove, clean, and repair
E. Tank filter
   1. Remove, clean, and replace
F. Lines and fittings
   1. Inspect
G. Single mechanical pump
   1. Test
   2. Repair or replace
H. Combination mechanical pump
   1. Test
   2. Repair or replace
I. Electrical pump
   1. Test
   2. Repair or replace
J. Basic theory
   1. Understand the function of the carburetor

FUEL SYSTEM (continued)

K. Filters
   1. Inspect, clean, and replace
   2. Install new gasket

L. Single and multiple barrel
   1. Remove and disassemble
   2. Clean and inspect
   3. Assemble, calibrate, and adjust

M. Aircleaners and silencer
   1. Remove
   2. Clean
   3. Replace element
   4. Change oil

N. Automatic choke
   1. Clean and adjust
   2. Clean heat tube
   3. Test and adjust electric automatic choke

ENGINE REBUILDER

A. Lifters and tappers
   1. Remove and disassemble
   2. Clean and test
   3. Replace
   4. Adjust tappets

B. Valves and seats
   1. Test compression
   2. Remove and replace valves
   3. Grind valve seats
   4. Check and correct valve seat width
   5. Reface stem ends
   6. Replace valve seats
   7. Face valves

C. Valve springs
   1. Inspect, measure and test
   2. Install

D. Valve guides
   1. Check for wear
   2. Remove and replace (old type)
   3. Recondition (new type)

E. Rocker arm assembly and push rods
   1. Remove, disassemble, and clean
   2. Reface rocker arms
   3. Check push rods for alignment and length

F. Camshaft and bearings
   1. Check excessive oil throw-off
   2. Check and inspect

G. Camshaft drive
   1. Remove and replace
   2. Inspect
   3. Valve timing

H. Piston
   1. Ridge ream cylinder
   2. Check marking on piston and rod assembly
   3. Remove, clean, and inspect piston assembly
   4. Resize
   5. Recut top ring groove
   6. Install piston assembly

I. Rings
   1. Remove
   2. Clean ring groove
   3. Check fit in cylinder and piston
   4. Installation

J. Piston pins
   1. Remove
   2. Reassemble

ENGINE REBUILDER (continued)

K. Connecting rods
   1. Check oil passages
   2. Align piston and rod assembly
L. Cylinder block and bore
   1. Clean and inspect
   2. Mike cylinders
   3. Remove and replace expansion plugs
   4. Bore, hone, and clean
M. Crankshaft
   1. Check journals for out of round, taper, and seering
   2. Check oil passages
N. Main bearings
   1. Check excessive oil throw-off
   2. Remove, inspect, and replace bearing caps
   3. Align oil passages
   4. Check crankshaft and play
O. Connecting rod bearings
   1. Check excessive oil throw-off
   2. Remove
   3. Check for defects
   4. Check clearance
   5. Replace
P. Oil seals
   1. Remove and replace
Q. Fly wheel
   1. Remove and replace
   2. Install ring gear
R. Vibration damper
   1. Remove, check, and replace
S. Cylinder heads
   1. Inspect and clean
T. Gaskets
   1. Inspect and replace
U. Bolts and studs
   1. Inspect and clean
V. Intake manifold
   1. Move and clean
   2. Inspect and install
W. Exhaust manifold
   1. Remove and clean
   2. Inspect and install
X. Heat control valve
   1. Check for opening
   2. Replace
Y. Ventilating system
   1. Replace filter element
   2. Clean and inspect
Z. Oil pump assembly
   1. Remove and replace
   2. Rebuild
   3. Check oil pressure regulator
AA. Gaskets and seals
   1. Prepare and install
BB. Oil pan
   1. Remove and clean
   2. Inspect and replace

ELECTRICAL SYSTEM COMPLETE

A. Battery
   1. Inspect and test
B. Testing
   1. Visual inspection
   2. Check specific gravity
   3. Check voltage
C. Servicing
   1. Clean and add water
D. Cables
   1. Voltage drop test
   2. Inspect and clean terminals

(CRANKING SYSTEM)

E. Starter switch
   1. Voltage drop test
   2. Remove and replace
   3. Repair solenoid switch
F. Cranking motor
   1. Test
   2. Remove
   3. Check and replace starter drive
   4. Rebuild starter motor
   5. Replace

(CHARGING SYSTEM)

G. Wiring
   1. Inspect and clean terminals
   2. Voltage drop test
H. Alternator
   1. Test, remove, and inspect
   2. Rebuild
   3. Replace
I. Rectifier
   1. Test, clean, and inspect
J. Indicator
   1. Check and replace
K. D.C. generator
   1. Test, remove, and inspect
   2. Rebuild generator
   3. Replace
L. Generator regulator
   1. Test, clean, and inspect
   2. Calibrate

(IGNITION SYSTEM)

M. Wiring
   1. Visual inspection
   2. Test for resistance in primary circuit
   3. Test for resistance in secondary circuit
N. Ignition switch
   1. Test for resistance
O. Coil
   1. Test primary winding
   2. Test secondary winding
P. Condenser
   1. Test insulation, capacity and series resistance
Q. Spark plugs
   1. Remove and inspect
   2. Clean, adjust, and test
   3. Install
R. Distributor
   1. Remove noting clock position of rotor
   2. Clean and visually inspect for electrical and mechanical defects
   3. Replace defective parts, te test, and adjust
   4. Install and set timing

ELECTRICAL SYSTEM COMPLETE (continued)
(LIGHTING AND SIGNAL SYSTEMS)

S. Wiring
   1. Inspect for external damage
   2. Check resistances
T. Lights
   1. Remove and replace
   2. Check resistance
U. Fuses and circuit breakers
   1. Replace fuses
   2. Test resistance and capacity of circuit breakers
V. Signals
   1. Test flasher
   2. Check horn system
   3. Check stop lights and switch

TUNE-UP SPECIALIST (To be Able to Diagnose the Problem First)

A. Check storage battery
   Refer to Electrical System A, B, C, D.
B. Check cranking system
   Refer to Electrical System E and F
C. Check charging system
   Refer to Electrical System G, H, I, J, K, L
D. Check fuel system
   Refer to Fuel System G, H, I, J, K, L, M
E. Check ignition system
   Refer to Electrical System M, N, O, P, Q, R
F. Timing
   1. Initial
   2. Mechanical advance
   3. Vacuum advance
G. Compression test
   1. Wet test
   2. Dry test
H. Servicing the air pollution system
I. Valve tappets
   Refer to Engine Rebuilder A
J. Remove and replace any part pertaining to the running of the vehicle (Rebuild any part)

AUTO SERVICE MECHANIC

A. To be able to perform any or all of the duties covered in this outline.

APPENDIX G

SAMPLES OF MISSION OBJECTIVES

APPENDIX G

SAMPLE OF MISSION OBJECTIVES

AUTOMOBILE BODY REPAIRS

To develop skills in the use of body bump tools; to repair or replace damaged sheet metal; to grind, file, weld for restoration and repainting; to replace frames and realign; to replace panels.

DIESEL MECHANICS

To troubleshoot diesel engines, their component parts, and auxiliary systems; to develop skill in the use of automotive hand tools, portable power tools that are to be used for the disassembly, checking, repair or replacement of defective components or systems, as well as precision measuring and testing instruments; to maintain preventative maintenance procedures with emphasis on positive employee attitudes.

MEDICAL LABORATORY ASSISTANT

To prepare a person to work under the direct supervision of the medical technologists and pathologist performing routine techniques in urinalysis, blood banking, hematology, chemistry, bacteriology, seralogy, immunology, parasitology, and electrocardiography.

FOOD SERVICE

To develop the skilled techniques of menu planning, food preparation, quality and cost, and table service techniques; related theory and actual experience will include procedures for safety, sanitation, recipe selection and adjusting, cost estimation and purchasing, nutritional value of foods, money handling and record keeping. Students will prepare and season foods, cook soups, meats, vegetables, and desserts for parties (catering) or prepare specialized trays or dishes upon request. Experiences with equipment include blenders, mixers, food grinders, meat slicers, electric and gas ranges, hot tops, broilers, stack ovens, compartment steamers and various accessory utensils used in commercial and residential kitchens.

BUSINESS MACHINES REPAIR

To clean, modify, repair and maintain both stationary and portable office equipment; to service typewriters, adding machines, calculators, accounting machines, keypunch machines, and unit record equipment such as sorters, card punches, collators on decollators.

HORTICULTURE

To have the student develop a knowledge of lawns, shrubs, annual and perennial flowers, pest and disease control, soil structure, fertility, and other information that enables him to plant and maintain beautiful landscapes. He provides a service in the area of design, selection, and maintenance of most plant life. He will possess fundamental knowledge of the methods of propagation by seeding, grafting, layering, and cutting. He is acquainted with the various plant diseases and physiology. He is able to provide sketches of landscaping design to various clients to meet their specifications. Often he is required to supervise non-skilled helpers. The student will be able to drive a truck, meet customers, and be acquainted with and operate manual equipment. During the off-season, he may be required to participate in tree surgery or other forms of work related to his job. He is often required to keep systematic charts showing planting areas and maintain customer records pertaining to plant maintenance or rotation.

CUSTODIAL TRAINING

To develop a knowledge of cleaning procedures in conjunction with the efficient use of cleaning chemicals, compounds; to develop a cleaning and maintenance schedule for all areas of responsibility; to clean and sanitize restrooms; to clean walls, windows, and floor coverings efficiently.

BUILDING MAINTENANCE

To develop the manipulative and technical skills in order to function as a building maintenance mechanic some of his duties would be: To replace or repair defective electrical devises; to gain the skill to correctly repair brick and block and other simple masonry items; repair concrete walks and other small areas of concrete; to change door locks; install fire and smoke safety devices; install shelves, cabinets and other wood fixtures; lay carpeting; be able to construct sheds or other small buildings; to repair plumbing lines or fixtures; to clean and maintain heating and cooling equipment; and direct custodial services.

MASONRY

To develop skills in layout and bonding of brick veneer walls and units having right angles; to develop skills and understanding of continuous bond, throkgh methods, when constructing long walls having doors and windows; to construct the lead; to place ceramic tile; and to construct fireplaces.

ELECTRICAL TRADES

To design, install and maintain both residential and commercial electrical wiring systems. These systems would consist of alarm systems, residential and commercial lighting, automatic controls, electrical motors, and other electrical control devices.

COMMUNICATIONS ELECTRONICS

To install, maintain and service amplitude and frequency modulated home and automobile receivers, transistorized radios, monochrome and television systems, high fidelity amplifiers, and tape recorders; to read circuit diagrams and codes of values; and to select component substitutes and install radio and television antennae.

ELECTRO-MECHANICS

To design, troubleshoot, repair and replace electromechanical devices, feed back and servomechanisms, fluid power systems and instrumentation process control.

WELDING AND METAL FABRICATION

To develop manipulative skill both in the art of welding and jig preparation. The student will be able to join two pieces of metal to form one precision part by arc, gas or spot welding. He will be able to specify the type of metal that will meet specific job specifications. He will also be able to select the welding process that will yield an acceptable finished product. He will also be experienced in silver and lead soldering techniques. To develop skills in the fabrication of metals, using working drawings. To shear and form metals, using fabricating machines as shears, brakes, bending tools and punch and drill presses. In essence, he will be able to construct, join and finish, two pieces of metal according to print specifications and to repair broken or perforated articles.

POWER PLANT OPERATOR

To develop the knowledge required to become an attendant engineer, chief engineer of a central station power plant, or interested in obtaining a first-class engineer's license.

MACHINES TRADES

To read and interpret mechanical drawings and perform mathematical calculations required for layout and machining of a mechanical part or mechanical assembly; to operate the various machine tools in order to produce the mechanical parts or assemblies described by the working drawings; to heat treat or prescribe such for the finished product; to inspect machined products for accuracy; to originate and design components for mechanical assemblies from ideas. The fabricated assemblies will include drill jigs, assembly fixture, punch press dies, etc. Job titles would include tool and die maker, toolroom machinist, and maintenance machinist.

APPENDIX H

SAMPLE MODULES OF INSTRUCTION

APPENDIX K

SAMPLE MODULES OF INSTRUCTION

AUTO BODY

1. Welding
   a. Oxyacetylene welding
   b. Arc welding
2. Hardware and trim
   a. Glass channels - glass moldings
   b. Locks and controls
   c. Body molding bumpers, grill
3. Techniques of shaping metal
   a. Fundamental procedures
   b. Hydraulic power units
4. Body panel repairs
   a. Straightening
   b. Replacements
   c. Body alignment
5. Fiber glass repair
   a. Fiber glass panels
   b. Molded panels
6. Frame and unit body
   a. Damage conditions
   b. Repair
   c. Hydraulic equipment
   d. Frame alignment
   e. Wheel alignment
7. Refinishing
   a. Refinishing equipment
   b. Power sanders
   c. Protecting coverings
   d. Surface preparations
   e. Color coats
8. Estimating

CAR CARE

1. Transport automobiles
   a. Have valid drivers license
   b. Be able to drive both standard and automatic transmission
2. Wash and clean automobile
   a. Wash
   b. Polish or wax
   c. Clean windows
   d. Clean interior
3. Change battery
   a. Remove
   b. Clean
   c. Replace
4. Charge battery
   a. Check specific gravity
   b. Hook-up charger

CAR CARE (continued)

5. Change flat tires
   a. Use of different types of jacks
   b. Proper way to remove tire and jack from holder in trunk
   c. Remove and replace hubcap

6. Repair flat tires
   a. Remove tire from wheel
   b. Finding leak
   c. Repair leak
      1. Tubeless
      2. Tube-type
   d. Remount tire on wheel

7. Make some minor adjustments
   a. Engine idle speed
   b. Adjustments of belts

8. Replace some parts
   a. Lights
   b. Belts
   c. Hoses
   d. Fuses
   e. Some accessories

9. Lubrication man
   a. Engine oil
   b. Oil filters
   c. Lubricate chassis
   d. Check tires
   e. Lights
   f. Check for oil leaks
   g. Adjust brakes
   h. Under-coating
   i. Minor body adjustments
   j. Tire repair
   k. Tire rotation
   l. General inspection
   m. Tire blancing
   n. Replace parts

10. New car clean-up
    a. Visual check
    b. Inspect auto for damage
    c. Write out repair order
    d. If repair order has been written, examine areas stated on work order
    e. Wash auto
    f. Open trunk, remove wheel discs or hub cap and install on wheels
    g. Remove floor mats and install in proper positions
    h. Clean trunk - vacuum cleaner and damp cloth
    i. Open all doors. Vacuum sweep inside of car. Use damp cloth packet tray in rear. Remove dust from back seats first, then dust from dash compartments and front seats. Clean all glass on inside. Remove cleaning equipment. Check to insure proper cleanliness.
    j. Open hood.
       1. Check engine oil level
       2. Visual check on battery, air cleaner, etc.
       3. Wash or clean engine
       4. Clean up under hood, hood edges and inside fender and grill

CAR CARE (continued)

5. Close hood
6. Rub out or polish car as work order states
7. Clean all glass - deliver to service manager

11. Used car clean-up
    a. Same as above
    b. Restore as necessary

SMALL ENGINE REPAIR

1. Cylinder heads
    a. Combustion chamber
    b. Compression ratio
    c. Heat dissipation
    d. Removal
    e. Replacement of head (tightening sequences)

2. Cylinder
    a. Inspection
    b. Repair

3. Valves
    a. Inlet
    b. Exhaust or outlet
    c. Valve guides

4. Camshaft
    a. Design and construction
    b. Inspection
    c. Camshaft function

5. Crankshaft
    a. Design and construction
    b. Function
    c. Inspection
    d. Remove and replace crank

6. Pistons
    a. Design and construction
    b. Piston pin
    c. Ring bands
    d. Piston skirt
    e. Bone and stroke

7. Connecting rod
    a. Design and construction
    b. Lubrication
    c. Bearing fit
    d. Remove and replace connecting rod

8. Lubricating system
    a. Types and grades of oils
    b. Aid to cooling engine
    c. Types of oil pumps

9. Ignition system
    a. Magnets
    b. Coils
    c. Condenser
    d. Ignition points
    e. Timing
    f. Circuits

SMALL ENGINE REPAIR (continued)

10. Electrical systems
    a. Generator
    b. Alternators
    c. Regulator
    d. Starter

11. Welding and brazing and soldering
    a. Oxygen--acetylene
    b. Repair
        1. Estimate repair cost
        2. Estimate repair time
        3. Make any necessary repairs

FOOD SERVICE PROGRAM

1. Cooking
    a. Appetizers, canapes and cocktails
    b. Beverages
    c. Desserts
    d. Main dishes
    e. Salads
    f. Vegetables

2. Baking
    a. Bread
    b. Pastries
    c. Cakes
    d. Pies
    e. Frostings and filllings
    f. Cookies

3. Meat cutting
    a. Beef
    b. Pork
    c. Lamb
    d. Poultry
    e. Fish

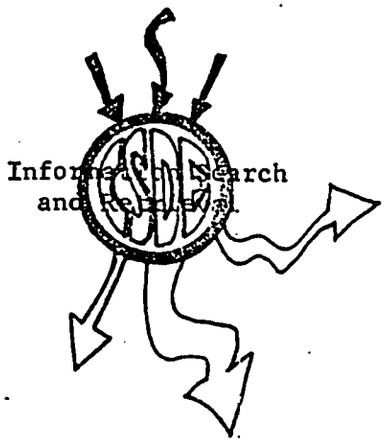
4. Restaurant Management and Service

5. Food processing
    a. Freezing
    b. Canning
    c. Sanitation
    d. Dairy products

MASONRY CONSTRUCTION

1. Measure and stake out plot
    a. Locate lot pins and shoot elevation with builders transit
    b. Locate structure on lot
    c. Erect batter boards
    d. Stretch lines
    e. Test trueness of structure layout

2. Excavation for structure
    a. Estimate cost of excavation
    b. Trench for footers
    c. Excavate hole
    d. Dig utility hook-up ditches
    e. Dig septic tank and sewage lines



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Second
PRELIMINARY DRAFT
for review purposes only

SOURCES OF INFORMATION ON CAREER EDUCATION

A RESOURCE DOCUMENT

Prepared for the

CAREER EDUCATION TASK FORCE
California State Department of Education

by the

Information Search and Retrieval
Project

Office of Program Planning and Development
California State Department of Education

VT016571

Sacramento, California
April 25, 1972

MASONRY CONSTRUCTION (continued)

3. Construct concrete forms
   a. Set grade stakes for trench footers
   b. Construct footer forms
   c. Erect wall forms
   d. Construct floor, walk, or patio forms

4. Erect brick, block, and stone walls
   a. Layout foundation perimeter
   b. Mix mortar properly
   c. Lay up corner leads
   d. Stretch lines between corner leads
   e. Lay block or brick to lines
   f. Strike or point joints
   g. Demonstrate the proper use of tools in doing the previous steps
   h. Lay up piers or center wall

5. Brick
   a. History of brick
   b. Slide-man and masonry

6. Masonry units
   a. Specifications for brick
   b. Size of brick
   c. Modular dimensions
   d. Different kind of mortar
   e. How mortar is mixed
   f. Metal ties
   g. Slide modular masonry

7. Workmanship of brick walls
   a. Proper design
   b. Expansion joints
   c. Full head joints
   d. Full bed joints
   e. Parging

8. Brick bonds
   a. Bonding of brick
   b. All types of bonds
   c. Slide - 'Prologue in Masonry'

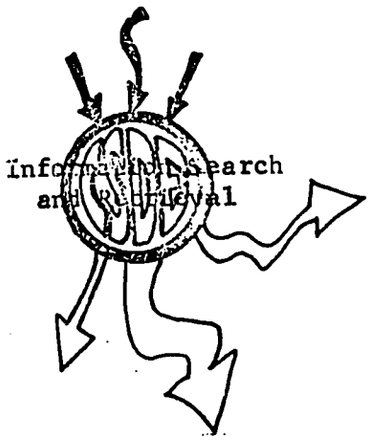
9. Brick walls
   a. Bearing walls
   b. Cavity walls
   c. Slide-contemporary bearing walls

10. Fireplaces - Chimneys
   a. Clean out door
   b. Ash pit
   c. Fire brick
   d. Damper
   e. Smoke shelf
   f. Smoke dome
   g. Flue lining
   h. Flashing

11. Arches
   a. Wood centers
   b. Skew back
   c. Span
   d. Keystone

12. Walk patios
   a. Bed
   b. Screen
   c. Mortar joints
   d. Drainage

State Department of Education
Sacramento, California 95814
Room 455, April 25, 1972



CAREER EDUCATION

What it is: Career education has been defined as the process of preparing students for a productive life of work through extending their choices of occupations by (1) gaining job skills and (2) increasing learning in all subject fields and educational levels. Emphasis on career planning would continue from kindergarten through adulthood.

Why it is needed: High school graduates need to have the ability to earn an income in some type of position. Even the college-bound student should have job skills in the event he needs to earn income and so he has an adequate understanding of the world of work. His success or failure will depend on how well he has learned to work with others and whether or not proper attitudes have been developed concerning the value of work, how an occupation will influence one's entire life, and the wise use of leisure time.

What could be done to implement career education? Educational institutions need wider access to sources of information on career education in order to provide more effective programs. New planning to relate career education to the various facets of the curriculum is needed. College entrance requirements should be reconsidered.

Problems: Before a measure of success in career education can be achieved, an answer needs to be found regarding the lack of job opportunities and outlets in a number of geographic areas. Many high school graduates are faced with locating occupational opportunities at some distance from their home. Solutions will also need to be found to the present high rate of unemployment.

*** *** *** ***

To find how to review a preliminary draft of a document titled "Sources of Information on Career Education", including a bibliography on the subject, write or visit the Information Search and Retrieval Project, Room 455, State Department of Education, 721 Capitol Mall, Sacramento, California 95814 or call (916) 445-6857. For consultation regarding career education write the Task Force on Career Education at the same street address or call (916) 445-2575.

MASONRY CONSTRUCTION (continued)

13. Estimating
    a. Blue prints
    b. Take off

14. Pour and finish concrete
    a. Smooth finish with float and trowel
    b. Rough finish with broom or sand
    c. Install expansion joints
    d. Properly use edgers

15. Cleaning masonry
    a. Acid solution - hand washing
    b. Sandblasting
    c. High pressure steam

ELECTRICITY

1. Residential wiring
    a. Blue print reading
        1. Read an architectural layout
        2. Place necessary symbols on layout
    b. Calculate proper load distribution and wire size
        1. Use National Electric Code Book
        2. Determine building size from layout
        3. Evaluate for number of circuits
        4. Estimate power consumation
        5. Determine service demand
    c. Install devices in proper location
        1. Install duplex receptacles and switches
        2. Install 3 way and 4 way switches where needed
        3. Install 220 volt range and dryer outlets
        4. Install service equipment
        5. Install work boxes, ceiling pans, handy boxes, etc.
        6. Install service ground
        7. Install ground rod
        8. Install special appliance circuits
        9. Use National Electric Code book in reference to residential wiring
        10. Install low voltage circuits
    d. Electric heat
        1. Check national and local electric
        2. Estimate heat loss
        3. Install ceiling heating units
        4. Install heating thermostats
        5. Install baseboard type electric heating units
        6. Install bath wall heaters
    e. Heating and air conditioning controls
        1. Install low voltage transformer
        2. Install (2 and 3 wire) thermostat
        3. Install (4 and 5 wire) thermostats for heating and cooling

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ELECTRICITY (continued)

2. Commercial wiring
   a. Blue print reading
      1. Read and draw commercial wiring symbols
      2. Read and draw architectural symbols
   b. Determine proper installation and load distribution
      1. Calculate proper load distribution
      2. Determine proper wire size by use of AWG
   c. Installation of wire-ways
      1. Bend and thread conduit
      2. Install wire moulds
      3. Buss duct
      4. Install metallic-non metallic tubing
      5. Install trolley duct
      6. Install felxible conduit
   d. Installing electrical apparatus in hazard locations
      1. Install explosion proof device
      2. Install water-tite, weatherproof and dust proof fittings
      3. Use sealing compounds
      4. Install isolation transformer

CARPENTRY

1. Construction material handler
   a. Handling materials
   b. Handling and storage of materials
   c. Lumber sizes and types of wood
   d. Construction tools
   e. Hardware supplies

2. Rough carpenters helper
   a. To demonstrate the ability to perform all taske required of a material handler
   b. To construct a deck on a foundation

3. Rough carpenter
   a. To demonstrate the ability to perform all tasks required of the rough carpenter helper
   b. To estimate cost of all rough structural materials and labor
   c. To layout and cut all etructural materials used in deck construction
   d. To layout and cut all structural materials used in exterior and interior wall construction
   e. To layout, cut and frame in ceilings
   f. To layout, cut and frame all types of roofs
   g. To apply exterior trim and siding

INTRODUCTION

This document on sources of information for use in career education has been developed for the use of the Career Education Task Force, California State Department of Education. Because of the critical needs in this area and because of the much more comprehensive scope of student preparation that this kind of education is taking now by comparison with the more narrow traditional scope, an intensive effort has been made to compile a source guide that will be of real value and help to anyone using its content.

The term "career education" is so new that it is not to be found either in the Encyclopedia of Educational Research or in the ten-volume Encyclopedia of Education.

The one component of career education which is most fully developed is vocational education. Much of the literature cited in this document reflects that development. Career education is the kind of preparation that leads school youth to jobs and careers that will fulfill their lives--whatever types of work their employment may be. And according to a report to the California State Board of Education, "Curriculum must combine vocational and academic subject matter in activities that are meaningful to students."[1]

Dr. Wilson Riles, California State Superintendent of Public Instruction, has stated that:

---

[1] A Policy and System Study of California Vocational Education. Prepared by Arthur D. Little, Inc. Sacramento State Board of Education, 1970, p. 5.

CARPENTRY (continued)

4. Finish carpenters helper
   a. To construct exterior and interior walls
   b. To construct ceiling frame
   c. To construct roof framing
   d. Lay finish floors
   e. To trim out closet interiors
   f. To apply interior wall and ceiling finishes
   g. To trim windows and doors
   h. To apply interior trim moldings
   i. To install cabinets and built-ins

5. Finish carpenter
   a. To estimate materials and labor for all interior trim and its application
   b. To demonstrate the ability to perform all tasks required of a finish carpenters helper
   c. To hang all types of doors
   d. To layout and construct conventional cabinets
   e. To layout, cut, and install paneling
   f. To layout, cut, and install finish stairways

DRAFTING

1. Electrical drawings
   a. General outlets
   b. Convenience outlets
   c. Switches
   d. Panels
   e. Circuits
   f. Auxiliary systems
   g. House wiring connections

2. Piping drawing
   a. Kinds of pipes
   b. Screwed fitting
   c. Butt-welded fittings
   d. Flanged fittings
   e. Flanged joints
   f. Welded joints

3. Structural drawings
   a. Angles
   b. Channels
   c. Tees
   d. Plates
   e. I - beams
   f. Bearing piles
   g. Specifications
   h. Framing systems
   i. Abbreviated shape designations

4. Wood constructions
   a. Framing plans
   b. Section drawings
   c. Isometric representation
   d. Terminology
   e. Materials symbols

> The vocations helped build this country, and the vocations ought to be built into our school system in a fundamental way, not as an appendage. There are few things more relevant than a job. Our schools ought to realistically reflect this fact. Students should be introduced to the widest possible career options, and at an early age. They should have an equal chance to develop their talents, whatever they may be. Career decisions should be based upon competent guidance and concerted program design--not upon chance.[2]

Speaking before the 33rd session of the International Conference on Education, the U. S. Commissioner of Education, Dr. Sidney Marland stated:

> Career education is designed to give every youngster a genuine choice, as well as the intellectual and occupational skills necessary to back it up. Career education is not merely a substitute for "vocational education" or "general education," or "college-preparatory education." Rather, it is a blending of all three into an entirely new curriculum. The fundamental concept of career education is that all educational experiences--curriculum, instruction, and counseling--should be geared to preparation for economic independence, personal fulfillment, and an appreciation for the dignity of work.[3]

Career education has been defined in this way:

> What is career education? It is a comprehensive educational program focused on careers, which begins in early childhood and continues throughout the adult years. It provides for a broad approach to preparation for citizenship, career development and for life in a world where leisure time is increasing. It involves all students and all educators. The emphasis is on individualized instruction, articulated from grade level to grade level. Career education permits each student to realistically assess personal attributes and aspirations, explore occupational opportunities, make a realistic occupational choice, and receive the necessary instruction to develop "Salable Skills" for entry into The World of Work.[4]

It is concerned with the most effective new approaches to instruction. According to this concept, which is being increasingly accepted in American education but needs to be implemented to a far greater extent, the following

---

[2]Wilson C. Riles public statement. Spring, 1971.

[3]Sidney P. Marland, Jr. "Career Education.: Address given before the Thirty-third Session of the International Conference on Education, Geneva, Switzerland, September 15-23, 1971.

[4]"Career Education." Sacramento: Career Education Task Force, California State Department of Education, January 31, 1972, p. 1.

DRAFTING (continued)

5. Foundation plans
   a. Top view of foundation
   b. Distance from reference and boundary points to footing
   c. Locations of supporting beams and columns
   d. Wall materials
   e. Wall openings
   f. Symbols designating construction materials

6. Floor plans
   a. Outside shape
   b. Room arrangements
   c. Auxiliary areas
   d. Built-in features
   e. Stairways
   f. Openings
   g. Electrical, heating and plumbing details

7. Elevations

8. Sectional views

9. Materials of construction
   a. Woods
      1. Softwoods
      2. Hardwoods
      3. Lumber defects
      4. Grading
      5. Plywood
      6. Glue-laminated timbers
   b. Plastics - Thermosetting
      1. Alkyds
      2. Allyls
      3. Caseins
      4. Melamines
      5. Epoxies
      6. Phenolics
      7. Polyesters
      8. Silicones
      9. Ureas
      10. Urethanes
   c. Ceramics, glass, carbons and mica
      1. Mechanical ceramics
      2. Electrical ceramics
      3. Refractory ceramics
      4. Cermets
      5. Carbon and graphits
      6. Mica and mica products
   d. Concrete masonry building units
      1. Concrete block
      2. Cast stone
      3. Facing slabs
      4. Cellular concrete blocks
      5. Concrete additives
   e. Brick and tile
      1. Manufacture
      2. Types, sizes and designs
      3. Brick bond
      4. Structural clay tile
      5. Load bearing tile
      6. Partition tile
      7. Furring tile
      8. Furring tile
      9. Facing tile
      10. Terra-cotta

PLUMBING

1. Pipe and fittings
   a. Brass pipe and fittings
   b. Copper tubing and fittings
   c. Lead pipe and connections
   d. Plastic pipe and fittings
   e. Bituminized fiber sewer pipe
   f. Transite pipe
   g. Glass pipe and fittings

applies:

> Any students who graduate from high school should have the ability to earn an income in some type of position. Even if the person plans to go on to college, he should have training as a laboratory technician [for example] in case he needs to earn income and also to understand better this area in the world of work.[5]

In the fall of 1971, a large California school district published a leaflet which included the following statement about career education:

> We believe that it should be the policy of our school district to provide Career Education for all youth and adults of the district to the end that:
> --No student drops out of school who is not prepared to enter the world of work
> --No student graduates who does not have salable skills for productive work or college education
> --No adult is denied an educational opportunity to become properly employable[6]

In career education the whole individual is considered, as well as all individuals. This wholeness of approach is vigorously supported by such writers as Grant Venn[7] and G. Brian Jones.[8] Among other things, "attitudes need to be developed in this area; for instance, concerning the value of work and how it will influence one's whole life, his leisure time, and his income."[9]

Although many occupation-oriented activities have been proceeding in California schools for some time, such as vocational-technical education

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[5]Memorandum, Information Search and Retrieval Project, California State Department of Education, February 1, 1972.

[6]"Career Education and Career Advisers." Los Angeles: Los Angeles Unified School District, 1972, p. 5.

[7]Grant Venn, Man, Education, and Manpower. Washington, D.C.: American Association of School Administrators, 1970.

[8]G. Brian Jones, Planning and Implementing a Comprehensive Career System of Individualized Guidance. Palo Alto, Calif.: American Institute for Research in Behavioral Sciences, 1970.

[9]Op. cit., Memorandum.

PLUMBING (continued)

2. Soil pipe
   a. Joining soil pipe and fittings
   b. Drainage traps
   c. Floor and area drains
   d. Roof flashings
   e. Closet bends
   f. Miscellaneous soil pipe fittings
   g. Back water valves
   h. Increasers and reducers
   i. Insertable joints

3. Cold water supply
   a. Glove, gate and check valves
   b. Water meters, curb boxes and strainers
   c. Pressure valves and bypass
   d. House service pipe - basement water mains
   e. Water pressure and hydrostatic pressure
   f. Friction loss in pipes and friction loss of head
   g. Sources and solvency of water

4. Drainage systems
   a. Fixture units
   b. Soil stacks and stack inlet fittings
   c. Waste and vent stacks
   d. Loss of trap seals
   e. Continuous vent and wet vent
   f. Loop and circuit vents
   g. Cross connections
   h. Fixture and grease traps
   i. Garage sand traps
   j. Rain leaders
   k. Sumps and cellar drainers
   l. Blow-off tanks

5. Hot water supply
   a. The British thermal unit and the expansion of water
   b. Conduction-convection-radiation
   c. Automatic storage gas water heater
   d. Thermostats
   e. Lever, spring-types and diaphragm relief valves
   f. Electric water heaters
   g. Summer-winter hookup
   h. Indirect heater-steam boiler
   i. Solar heaters

HEATING AND AIR CONDITIONING

HEATING

1. Types of heating and humidifying
2. Heating equipment
3. Gas furnaces
4. Gas burners
5. Fuel gases
6. Pilot lights
7. Gas burner installation
8. Humidifiers
9. Electric heat
10. Natural convection electric heat
11. Forced air electric heat
12. Thermostats
13. Relays
14. Limit controls
15. Heating controls and circuits
16. Heating thermostats
17. Furnace controls

programs (industrial arts education, homemaking, business education, agriculture, and other segments), work experience, work-study programs, the statewide apprenticeship program, and so forth, modern surveys show the need for broader coverage, wider extension, and more relevant usage in that aspect of schooling that prepares youth for the outside world. The report to the State Board of Education, cited in footnote 1, has many important recommendations to make about improving the occupational and guidance programs in California schools. The SCPE Report of 1969 contains serious discussions about existing programs in the state. "There is an obvious need," the report says, "to strengthen secondary education for those who continue on to college and to provide occupation-oriented training..."[10] And Grant Venn's 1970 book, cited in footnote 5, contains solid recommendations for a broadly inclusive, well-integrated career education program for all American schools.

Governor Ronald Reagan stated in a speech at a meeting of the National Association of Secondary School Principals in Anaheim, March 22:

> There is a growing feeling among the public, among legislators and even in education, that perhaps we have stressed college preparation too much in our public school systems. And we haven't done as much as we should in preparing youngsters for the culture within which they are going to live, and also giving them the skills they need to find and hold a job in an increasingly technical economy.
>
> Career education is the new mainstream theme for educational reform in America. It is an area of opportunity in education that I believe we must develop if we are to meet realistically the educational needs of all our young people.[11]

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[10] Citizens for the 21st Century: Long-Range Considerations for California Elementary and Secondary Education. A Report from the State Committee on Public Education to the California State Board of Education. Sacramento: State Committee on Public Education, 1969, p. 142.

[11] "Governor Reagan's statement, "Human Resources HRD Development Special Bulletin," No. 19, 1972, p. 1.

HEATING AND AIR CONDITIONING (continued)

AIR CONDITIONING COOLING SYSTEMS

1. Comfort cooling
2. Self contained systems
3. Window units
4. Servicing window units
5. Residential central systems
6. Quick connect coupling
7. Installing central syetems
8. Servicing central systems
9. Console air conditioners
10. Installing and servicing consoles
11. Remote systems
12. Large comfort cooling systems
13. Dehumidifying equipment

PLASTERING

1. Mixing plaster mortar
   a. Mixing base-coat materials
   b. Lime mortar
   c. Gypsum mortar
   d. Mixing finishing materials
   e. Putty coat
   f. Sand finish
   g. Keene's cement finish
   h. Mixing Portland cement materials
   i. Mixing lightweight aggregate materials
   j. Mixing acoustic materials
   k. Adding color

2. Lathing and plaster bases
   a. Development of laths
   b. Wood laths
   c. Gypsum board laths
   d. Gypsum partitions
   e. Insulation board laths
   f. Suspended ceilings using board laths
   g. Metal laths
   h. Metal lath partitions
   i. Suspended ceilings using metal laths
   j. Metal laths for stucco
   k. Masonry bases

3. Applying plaster
   a. Before applying mortar
   b. Applying mortar with hawk and trowel
   c. Using the darby
   d. Trimming
   e. Establishing dots and screeds
   f. Filling in walls and ceilings to screeds
   g. Plastering beams
   h. Lining, dotting, and stripping beams
   i. Squaring a room

4. Scratch and brown coats
   a. Base-coat plastering
   b. Applying the scratch coat on various bases
   c. Applying browning on various bases
   d. Lime mortar, scratch & brown coats
   e. Lightweight aggregates, scratch and brown coats
   f. Acoustic plaster, scratch and brown coats

5. Finish coat
   a. Applying finish coat
   b. Putty coat
   c. Sand finish
   d. Keene's cement finish
   e. Interior Portland cement work
   f. Color finishes
   g. Texture work
   h. Imitation brick, stone, and wood

The very rapid growth of California industry, population, and economy; the fact that for the state's nearly 7,000 public schools there are only 4,109 counselors[12]; and the fact that young people need better preparation and guidance in a swiftly changing world--these and other hard realities about the 1970s point to the urgent need for effective career education programs everywhere in the state.

It is hoped, therefore, that this collection of relevant citations will be of genuine value to any persons taking part in career education.

The information for these entries was derived mainly from the following: materials in the California State Department of Education's Information Search and Retrieval Project and the Career Education Task Force quarters; California facilities of the nationwide ERIC System; the California State Library; the public library system in Sacramento; the library at Sacramento State College as well as the Regional Curriculum Materials Depository housed on that campus; library facilities at the University of California, Davis; and the U. S. Government Printing Office in Washington, D. C.

Serious effort has been made to include and describe as many current and recent sources as possible. In certain instances, sources with some years behind them have been cited because of their persisting worth and relevance.

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[12] Salaries and Salary Schedules for Administrators and Special Services Certificated Personnel, 1970-71. Burlingame, Calif.: California Teachers Association, 1971. (Information on counselors is on pp. 118-38.)

PLASTERING (continued)

6. Stucco
   a. Good building construction
   b. Adequate flashing
   c. Applying stucco on various bases
   d. Stucco on masonry
   e. Stucco on frame
   f. Scratch coat
   g. Brown coat
   h. Finish coat
   i. Curing stucco
   j. Stucco textures
   k. Cement wash

7. Acoustic tile and plaster
   a. Acoustic materials
   b. Acoustic tile and tile patterns
   c. Acoustic plaster
   d. Applying acoustic tile and acoustic plaster
   e. Stippling acoustic finish

COMMUNICATION ELECTRONICS

1. Basic electronics
   a. Basic amplifiers
   b. Radiation
   c. Modulation
   d. De-modulation

2. Principal of Antenna

3. Modulation
   a. AM
   b. FM

4. Detection

5. Transmitters

6. Receivers

WELDING

1. Welding Equipment and tools
   a. Cylinder
   b. Regulator
   c. Flash back arrester
   d. Oxyacetylene torch
   e. Machines
   f. DC welder
   g. AC-DC combination
   h. AC-DC combination with high frequency
   i. Resistance welder
   j. Scarfing equipment
   k. Grinding equipment
   l. Common hand tools
   m. Protective clothing
   n. Structural metal shapes

2. Oxyacetylene, welding, cutting, soft and silver soldering and brazing

3. Blueprints
   a. Types of blueprints
   b. Template layouts and cutting
   c. Welding symbols

Part I

THE NATURE OF STUDENTS IN THE 1970s

This section lists sources that should provide valuable information on children, youth, and adults of our time -- young people across the nation who are inside or outside our educational systems. These materials address themselves to a number of important questions -- for example: What are boys and girls of the 1970s like? What are their goals in life? Why are they dissatisfied and often rebellious? What are the causes of student unrest, violence, alienation, and disorientation? Why do so many youngsters drop out of school at an early age? How is it that so many school enrollees make wrong decisions about their careers, or no decisions at all? The materials also throw light on growth and development, levels of ability and intelligence, the influence of modern communication media, socioeconomic pressures and influences, ecological and military-political threats, and other factors and issues that are vitally germane to career education programs in our schools. The focus in this selected list is on a better understanding of our American youth.

Abrell, Ronald C., and Charles C. Hanna. "High School Student Unrest Reconsidered," High School Journal, LIV (March, 1971), 396-404.

A study dealing with activism, educational change, student attitudes, and degree of student participation in high school life.

Ackerly, Doug. "An Activist Student Comments," NASSP Bulletin, LV (February, 1971), 13-19.

A candid, discussion of educational changes, standards of behavior, the power structure, the relevance of education, student opinion, and teacher-student relationships.

Advisory Task Force Report to the White House Conference on Youth, 1971. Washington, D.C.: White House Conference on Youth, 1971.

An essential source of information on dropouts, attitudes toward education, educational opportunities, the relevance of education, youth problems, students' goals, and other pressing matters.

WELDING (continued)

4. Stick electrode welding
   a. Selection of metal

5. Tungsten and inert gas welding - TIG
   a. Selection of metal - job casement

6. Metal and inerg gas - MIG
   a. Job casement - types of metal

7. Carbon arc welding
   a. Job casement - metal identification

8. Resistance welding

9. Scarfing

10. Underwater welding and burning

11. Submerged arc welding

12. Plasma arc and plasma needle arc welding and cutting

13. Laser beam welding

GRAPHICS

1. Offset copy preparation
   a. Typographic layout
   b. Photographic arrangements
   c. Artwork
   d. Cold type composition

2. Offset camerawork
   a. Camera controls
   b. Lamps
   c. Lithographic films
   d. Offset negatives

3. Offset stripping
   a. Equipment
   b. Fastening negatives
   c. Photo-composing machines

4. Offset platemaking
   a. Chemistry of platemaking
   b. Vacuum frame
   c. Zinc albumin plate
   d. Deep etch plate
   e. Pre-sensitized plates

Betz, Robert. Counselor Image in the Secondary Schools of Kalamazoo, Michigan. Kalamazoo, Mich.: Educator Feedback Center, Kalamazoo Public Schools, 1970.

This report includes student opinions of counselors, reactions to guidance, the performance of counselors, relationships between students and counselors, and degree of effectiveness of counseling and guidance.

Bryant, Barbara. High School Students Look at Their World. Columbus, Ohio: R. H. Goettler and Associates, 1970.

A 1970 study of Ohio high school students -- their attitudes and feelings, their goals and aspirations, their problems and complaints, their evaluations or educational methods and patterns, their opinions of society and the modern world, and so on.

"The Children of Change," Kaiser Aluminum News, XXVII (May, 1969). Available from: Kaiser Center 866, Oakland, Calif.

A discussion of the many and varied pressures and influences upon the children of our times, with emphasis upon the rapid changes that are characteristic of contemporary American life.

Citizens for the 21st Century: Long-Range Considerations for California Elementary and Secondary Education. A Report from the State Committee on Public Education to the California State Board of Education. Sacramento: State Committee on Public Education, 1969.

Often referred to as the "SCPE Report," this document contains information about many facets of public school education in California. There is material on pupil characteristics, youth problems, student unrest, critical urban factors, socio-economic pressures, disadvantaged children, the need for more meaningful education in our schools, present and future needs of children and youth.

Cook, Lloyd Allen, and Elaine Forsyth Cook. A Sociological Approach to Education: A Revision of Community Backgrounds of Education. New York: McGraw-Hill Book Co., 1950 (Second edition).

After more than 20 years, this work on society and education still applies to many segments and issues of American public education. Counselors, teachers, community leaders, and others involved in the guidance and training of youth, will find here a study of socio-economic and cultural influences on young people, of community mores, of youth opinions, attitudes, and reactions.

Cook, Lloyd Allen, and Elaine Forsyth Cook. A Sociological Approach to Education. New York: McGraw-Hill Book Co., 1960 (Third edition).

See the annotation for the Second Edition. This revision is updated by ten years and has additional useful data. Both editions should be used together if it is possible to do so.

GRAPHICS (continued)

5. Offset presswork
   a. Press preparation
      1. Load and set feeder
      2. Adjust feeder and jogger guide
      3. Set delivery
      4. Set impressing of cylinder
      5. Adjustment for paper
      6. Ink system and rollers
      7. Dampening rollers
      8. Packing of rubber blanket
      9. Attaching plates and cylinders
      10. Obtaining image position
      11. Balancing water and ink systems
   b. Elimination of press troubles
   c. Registering additional colors
   d. Running half-tones

6. Bindery operation
   a. Cutting
   b. Folding
   c. Stitching

7. Letter press operation

8. Silk screen printing

MAJOR APPLIANCE AND VENDING MACHINE REPAIR

1. Vending machine circuit schematics
   a. Symbols
   b. Schematic drawings
   c. Pictorial drawings
   d. Typical vending machine circuits
   e. Vending machine electrical theory
      1. Gauging electric relays
      2. Controls and switches
      3. Meters
      4. Motor
      5. Electrical codes
   f. Servicing timers and controls
      1. Nomenclature
      2. Vending cycles
      3. Controls
      4. Cycle timers
      5. Timing motors
      6. Cycle cams
      7. Relays
      8. Switches
      9. Solenoid valves
      10. Trouble shooting
      11. Maintenance and repair

2. Plumbing principles
   a. Health and safety codes
   b. Safety procedures
   c. Water systems
   d. Water pumps
   e. Types of water tanks
   f. Servicing of plumbing
      1. Installations
      2. Filters
      3. Conditioners
      4. Water pumps
      5. Trouble shooting
      6. Maintenance and repair

Covey, Barbara L. Teaching Gifted Students English Usage in Grades Seven Through Nine. Prepared for the Division of Special Education. Sacramento: California State Department of Education, 1970.

Although the focus here is on teaching English, there is much information on modern youth, talented or not. The document includes descriptions of the unrest, energy, and awareness that characterize youth in the 1970s and useful information about the nation's communications media.

Dalton, Elizabeth L. "Pupil Selection of Teachers," Educational Leadership, XXVIII (February, 1971), 476-79.

Discusses how pupils often look at teachers and how they might choose them if they could; includes information on teacher characteristics and the evaluation and selection of teachers.

Davis, Allison. Psychology of the Child in the Middle Class. Pittsburgh: University of Pittsburgh Press, 1960.

A social educator explores the effects of community mores and strictures upon middle-class children and examines some critical problems that involve degree of awareness and educational values.

Davis, Luke (senior student, McCallum High School, Austin, Texas). "The Realities -- The Challenge," Educational Leadership, XXIX (December, 1971), 232-33.

A Student writer identifies the serious problems that young people face today. One of his large themes is that getting along with each other is a vital need.

Della-Dora, Delmo. "What's Bothering Us?" Educational Leadership, XXIX (December, 1971), 225-28.

The principal of a middle school in Mill Valley, California, writes about problems and issues that are on many students' minds. He tells what some schools in the country are doing about these problems and suggests what more can be done.

Drisooll, Andrea H. "A Student View of Campus Disruption," Journal of the National Association of Women Deans and Counselors, Winter, 1971.

About student alienation, student attitudes and behavior, youth's values and opinions, student participation.

Educational and Vocational History of the Class Entering Bronx Community College in September, 1965. New York: City University of New York and the Bronx Community College, 1970.

This study of students' educational experiences and preparation focuses on vocational follow-up in postcollege years and includes student opinions.

Encyclopedia of Educational Research (Fourth edition). American Educational Research Association. Edited by Robert L. Ebol. New York: Macmillan Co., 1969.

3. Refrigeration principles
   a. Thermodynamics
   b. Refrigeration components
   c. Safety procedures
   d. Refrigeration servicing
      1. Components
      2. Testing and charging units
      3. Exchanging units and components
      4. Trouble shooting
      5. Maintenance and repair

4. Coin and currency device principles
   a. Nomenclature
   b. Acceptors and rejectors
   c. Changers
   d. Steppers and accumulators
   e. Electrical application
   f. Servicing of devices
      1. Dismantling and reassembling
      2. Adjusting
      3. Electrical application
      4. Trouble shooting
      5. Maintenance and repair

5. General merchandise vending
   a. Operating principles
   b. Component functions
   c. Correct settings
   d. Disassemble and reassemble
   e. Common malfunctions
   f. Trouble shooting
   g. Maintenance and repair
   h. Food vending
      1. Operating principles
      2. Component functions
      3. Correct settings
      4. Disassemble and reassemble
      5. Common malfunctions
      6. Trouble shooting
      7. Maintenance and repair
   i. Beverage vending
      1. Operating principles
      2. Component functions
      3. Correct settings
      4. Disassemble and reassemble
      5. Common malfunctions
      6. Trouble shooting
      7. Maintenance and repair

6. Principles of carbon dioxide systems
   a. Safety controls
   b. Health codes
   c. Methods of carbonization
   d. Use of carbon dioxide to dispense drinks
   e. Interstate Commerce Commission requirements
   f. Servicing carbon dioxide systems
      1. High and low pressure gauges
      2. Regulators
      3. Trouble shooting
      4. Maintenance and repair

This source contains much information on the characteristics and needs of school children and youth; discusses the dropout problem at length; examines educational programs, student-teacher relationships, youth problems, occupational preparation, guidance and counseling, and other matters that involve career planning.

Ferguson, Donald G. The New Morality of Teenagers -- The New Student Voice. Paper presented at the American Association of School Administrators' Convention, Atlantic City, N.J., February 14-18, 1970. Washington, D.C.: American Association of School Administrators, 1970.

Concerns youth activism, conflict, unrest; values and attitudes of modern youth; student reactions; curriculum development and developmental programs; student motivation; the needs of today's youth.

Flemmings, Vincent C. Student Unrest in the High Schools: A Position Paper. New York: Center for Urban Education (105 Madison Ave., New York 10016), 1970.

Deals with student unrest and conflict, alienation, attitudes; social problems; educational goals.

Friedenberg, Edgar Z. The Vanishing Adolescent. Boston: The Beacon Press, 1959.

A commentary on the roles, needs, and goals of youth in an age of transition.

Handbook for Junior High School Education in California. Prepared by Adin D. Henderson. Sacramento: California State Department of Education, 1969.

Contains some specific information on the characteristics and needs of boys and girls at the junior high school level.

High Schools in 1970: A Study of the Student-School Relationship. Edited by A. C. Erlick. Lafayette, Ind.: Purdue Opinion Panel, Purdue University, 1970.

Has information on student opinions and attitudes, academic achievement, educational goals, counseling services.

Holt, John. How Children Fail. New York: Pitman Publishing Corp., 1964. (Paperback currently available from Dell Publishing Co., Inc., New York.)

Provides insights into children's school experiences, pupil-teacher relationships, fear and failure, the reality of learning, the damaging effects of discouragement.

Holt, John. How Children Learn. New York: Pitman Publishing Corp., 1967. (Paperback currently available from Dell Publishing Co., Inc., New York.)

This Holt sequel focuses on the need for a flexible learning environment, on the child's deep capacity for learning, on matters of motivation and encouragement. Both these books are drawn from the author's own experiences as a teacher.

MAJOR APPLIANCE AND VENDING MACHINE REPAIR (continued)

7. Food and beverage heating methods
   a. Heating methods
   b. Controls, switches, and fuses
   c. Servicing units
      1. Heating unit
      2. Controls
      3. Switches
      4. Trouble shooting

"Leadership Development Programs Encourage Youth to Remain in the Region," Appalachia, IV (September, 1970), 1-16.

Concerns community involvement, youth opportunities, student opinion, leadership training.

Lifton, Fred B. "Why Are We So Scared of Our Kids?" American School Board Journal, CLVIII (March, 1971), 48-50.

An appraisal of the real needs of youth; an effort to understand what they think and feel and hope to find. Educational trends and student projects are discussed.

McCandless, Boyd R. Adolescents: Behavior and Development. Hinsdale, Ill.: The Dryden Press, Inc., 1970.

This book seeks for a better understanding of our teenage youth -- their problems, growth, goals, reasons for behavior.

McCarthy, Barry W., and Alan L. Berman. "A Student-Operated Crisis Center," Personnel and Guidance Journal, XLIX (March, 1971), 523-28.

An account of youth's capacity for caring and doing for others; factors of motivation, guidance, mental health, and involvement are discussed.

McLuhan, H. Marshall. Understanding Media: The Extensions of Man. New York: New American Library, Inc., 1964.

(See annotation below.)

McLuhan, H. Marshall, and Quentin Fiore. The Medium Is the Massage: An Inventory of Effects. New York: Random House, Inc., 1967.

McLuhan, Canadian educator and author, is known particularly for his writings on modern communications and mass media. His books have particular relevance for the environment, development, outlook, and attitudes of children and youth.

Nolen, Pamela (senior, Shorecrest High School, Seattle, Wash.). "Coming of Age in a Work-Oriented World," Educational Leadership, XXIX (December, 1971), 234-36.

A graduating high schools senior's plea for society to change its view as to what constitutes a mature person. It is her belief that too often an "adult" is equated with one who has a job. She feels that a young man or woman who goes on with higher education may also be quite mature and quite adult.

The Peace Corps Reader. Washington, D.C.: Office of Public Information, The Peace Corps, 1968. (Free copies available from The Peace Corps, Washington, D.C. 20525.)

Contains 28 articles by members of the Corps -- not only information about this agency but also a collection of youth attitudes and opinions.

Piaget, Jean. Language and Thought of the Child (Third edition). New York: Humanities Press, Inc., 1959.

This Swiss psychologist's works on child psychology can be considered for application to the learning environment and educational development of young people in elementary and secondary schools. Many educators have already put his principles to use.

Pratte, Richard. "The New Sensorium: The New Student," School and Society, XCIX (March, 1971), 160-63.

Urges educators everywhere to pay far more attention to the views, the thinking, the values, and the needs of modern youth, who are living in a much different environment than that of a generation ago.

Profile of the School Dropout. Edited by Daniel Schreiber. New York: Random House, Inc., 1967.

Information about the dropout problem, which continues to be a priority issue in American education.

Report of the National Advisory Commission on Civil Disorders. Otto Kerner, Chairman. Washington, D.C.: U. S. Government Printing Office, 1968. (Also available from Bantam Books, Inc., New York, 1968; edited by the New York Times.)

Much information here about youth unrest, causes of youth conflict, alienation, disadvantagement; value clashes between the new and the older generation, between the young person and society; youth's views on authority, the "establishment," education; needs and goals of children and youth.

Rhodes, James A. Vocational Education and Guidance: A System for the Seventies. Columbus, Ohio: Charles E. Merrill Publishing Co., 1970.

Intended not only for career education personnel but for all educators at all levels. Discusses education-employment problems, social forces, the curriculum, resources, career orientation and exploration, occupational preparation, work-adjustment programs, preparing for change. Elementary through high school and beyond.

Rogers, Carl R. "Can Schools Grow Persons?" Educational Leadership, XXIX (December, 1971), 215-17.

Personal involvement and respect for the young individual are key themes of this statement. "No institution, no carefully planned program or curriculum, can grow persons. Only persons can grow persons." (215)

Schrag, Pater. "After Kent State: The First Hundred Days." Saturday Review, LIII (August 29, 1970), 12-15, 32.

Deals with youth's efforts to be heard; with activism, violence, student opinion, student organizations and participation.

VT 016 571
SOURCES OF INFORMATION ON CAREER EDUCATION. A RESOURCE DOCUMENT. (SECOND PRELIMINARY DRAFT FOR REVIEW PURPOSES ONLY).

CALIFORNIA STATE DEPT. OF EDUCATION, SACRAMENTO.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 25APR72 92P.

DESCRIPTORS - *CAREER EDUCATION; *ANNOTATED BIBLIOGRAPHIES; *EDUCATIONAL RESOURCES; CURRICULUM DEVELOPMENT; EDUCATIONAL OBJECTIVES; PROGRAM DEVELOPMENT; PROGRAM EVALUATION; INSTRUCTIONAL MEDIA; OCCUPATIONAL INFORMATION; VOCATIONAL COUNSELING; OCCUPATIONAL GUIDANCE; *INFORMATION SOURCES

ABSTRACT - THIS PRELIMINARY DRAFT CONTAINS SOURCES OF INFORMATION PERTAINING TO IMPORTANT CONSIDERATIONS IN DEVELOPING AND IMPLEMENTING CAREER EDUCATION PROGRAMS. THE SOURCES ARE CATEGORIZED ACCORDING TO THESE TOPICS: (1) THE NATURE OF STUDENTS IN THE 1970S, (2) THE OCCUPATIONAL MARKET, (3) STATEMENTS OF OBJECTIVES, (4) METHODS OF DEVELOPING CURRICULUM, (5) TEACHER-STUDENT RESOURCE MATERIALS, (6) MATERIALS AND SOURCES OF INFORMATION FOR COUNSELORS AND OTHER GUIDANCE PERSONNEL, AND (7) EVALUATION GUIDELINES. EACH TOPIC IS INTRODUCED BY A BRIEF OVERVIEW, FOLLOWED BY A LISTING OF PERTINENT SOURCES, ARRANGED ALPHABETICALLY BY AUTHOR. CITATIONS INCLUDE TITLE, JOURNAL OR PUBLICATION SOURCE, DATE OF PUBLICATION, AND A BRIEF ANNOTATION. A BIBLIOGRAPHY OF RELATED SOURCES INCLUDING PRINTED AND AUDIO-VISUAL MATERIALS IS PROVIDED. (SB)

Silberman, Charles E. Crisis in the Classroom: The Remaking of American Education. New York: Random House, Inc., 1970. (Available in paperback as a Vintage Book, Random House.)

John Fisher, President of Teachers College, Columbia University, has called this book "one of the most significant statements on education to appear since World War II." A carefully written, thorough work that aims to provide a better understanding of the students in our schools

Society Today. A CRM Book, with 39 Contributing Consultants. Del Mar, Calif.: Communications Research Machines, Inc., 1971.

Contains material on youth unrest and alienation; see especially pages 472-74.

Stogdill, Ralph M., and Nicholas P. Coady. "Preferences of Vocational Students for Different Styles of Supervisory Behavior," Personnel Psychology, XXIII (Fall, 1970), 309-12.

Deals with student opinions and attitudes, vocational education, the performance of supervisors and other personnel.

Strang, Ruth. The Adolescent Views Himself: A Psychology of Adolescence. New York: McGraw-Hill Book Co., 1957.

A source of information on the growth, development, emotions, thinking, and maturation of young people in their teen year.

Venn, Grant. Man, Education, and Manpower. Washington, D.C.: American Association of School Administrators, 1970.

A major contribution on youth and careers, this book contains information, criticism, data, and suggestions for solutions to problems. A tool for personnel dealing with youth and career planning.

Weber, Evelyn. Early Childhood Education: Perspectives on Change. Worthington, Ohio: Charles A. Jones Publishing Co., 1970.

Contains helpful information on the child's early years in the learning environment.

"What Do High School Students Think? A Report from Schools Throughout the Country," News from Scholastic, January 17, 1972 (Scholastic Magazines, Inc., 50 W. 44th St., New York, N.Y. 10036), 1-2.

Voluntary comments by high school youth across America about modern issues -- based on polls and surveys.

"What's Troubling High School Students?" Today's Education, LIX (September, 1970), 32-39.

Concerns youth unrest, the attitudes and goals of modern American students, critical problems in the learning environment, student-authority relationships.

Wisniewski, Richard. "Coping with the Establishment," Educational Leadership, XXIX (December, 1971), 245-48.

An educator at the University of Wisconsin challenges his own profession to practice what it teaches, to listen to the often justified compl nts of students and not brush them aside.

Youth: Change and Challenge. Edited by Erik H. Erikson. New York: Basic Books, Inc., 1963.

Explores from different points of view the life of young people as they live it in an era of radical changes and severe transition; throws light on youth attitudes, goals, and values and seeks to help the adult world understand the very real problems which children and youth face nearly everywhere today.

Part II

THE OCCUPATIONAL MARKET

Part II provides listings of sources having to do with the current occupational market in the United States and some projections into the future. These materials should yield useful and important information and data on employment opportunities, job outlook, occupational trends; job requirements and qualifications; jobs available to youth (to teenagers without a college education or without special preparation, to students who have completed certain skill courses in high school, to youth after two years of community college technical training, to young adults after baccalaureate, master's, and doctoral degrees); and sources of current job supply and demand data. Some information on job possibilities abroad is also included.

While occupational conditions are subject to shifts and changes, most of the information available from these sources is fundamental and useful. Up-to-the-minute data on job status or change can be obtained by enlisting the help of one or several of the agencies reported in Part VI of this document, under Subsection B.

American Indians in California: Population, Education, Employment, Income. Fair Employment Practices Commission. San Francisco: California State Department of Industrial Relations, 1965.

A study about the Indian minority in this state. Examines factors of low income, disadvantagement, rural-urban differences, employment opportunities, employment levels, academic achievement.

Brinker, Paul, and Wendell H. Russell. Resources for Southern Manpower Development. Oak Ridge, Tenn.: Oak Ridge Institute of Nuclear Studies, 1965.

A detailed study containing statistics and other information on human resources in the South, employment data, the status of industry, educational programs, job training, manpower development, and academic achievement.

Californians of Spanish Surname: Population, Employment, Income, Education. Fair Employment Practices Commission. San Francisco: California State Department of Industrial Relations, 1964.

Another minority study that examines problems and needs of Mexican Americans: low income, disadvantagement, urban immigration, employment levels and problems, job opportunities, academic achievement.

Career Opportunities: A Series of Articles Designed to Help Guide Young People to a Better Future (Ninth revision). Career Information Service. New York: New York Life Insurance Co., 1969 (paperback, 420 pages). (Free copies available from the company upon request.)

This handbook contains 57 job descriptions -- from "Accountant" to "Youth Services." In each case it tells what the work is like and reports on current salaries, opportunities to get hired, the job requirements and qualifications (including educational background), and where to write for additional sources of information. It can be used both by counselors and counselees in career planning. It is a quick reference to the occupational market across the country. Revised about every two year.

Youth, parents, counselors, and other interested persons can obtain free copies by writing: Career Information Service, New York Life Insurance Co., Box 51, Madison Square Station, New York, N.Y. 10010.

Dictionary of Occupational Titles (Third edition). Vol. I: Definitions of Titles; Vol. II: Occupational Classification. Washington, D.C.: Manpower Administration, U. S. Department of Labor, 1965. (Several supplements have been published since 1965; these contain updated information.)

Volume I contains names and definitions of the various occupations in the American economy, arranged alphabetically according to job titles. There are 21,741 separate occupations defined, and these are known by 13,809 additional titles; thus a total of 35,550 titles are defined. Volume II serves as a method of grouping jobs having the same basic occupational, individual, or worker characteristics to help the user to discern relationships among occupations; it also serves as a standard approach to classifying the abilities, vocational experiences, and potentials of workers.

This major source "serves as a barometer of job changes in the economy and provides a necessary tool in the drive to reduce unemployment and to build and improve the nation's manpower resources." -- from the Foreword, Vol. I, p. ix. It is considered an accurate reflector of the occupational market and should be available to all persons involved in career education.

"Educational and National Manpower." American Association of School Administrators, NEA. Hot Line, II (July, 1969).

A relevant article for anyone wanting information and direction about the job outlook, manpower needs, educational requirements, and wise career planning.

Education and Training: Learning for Jobs. 1968 Report of the Secretary of Health, Education, and Welfare to the Congress on the Manpower Development and Training Act. Washington, D.C.: U. S. Department of Health, Education, and Welfare, 1968.

A booklet that can be obtained by writing the U. S. Government Printing Office (Superintendent of Documents) in Washington, D. C.

The Encyclopedia of Careers and Vocational Guidance. In two volumes. Edited by William E. Hopke. Vol. I: Planning Your Career; Vol. II: Careers and Occupations. Garden City, N.Y.: Doubleday & Co., Inc. (in cooperation with J. G. Ferguson Publishing Co., Chicago), 1967.

This is a tool for career planning that should be made available to counseling and guidance personnel in the schools. It is considered a basic source of information on the broad spectrum of jobs and professions throughout the country. Contains detailed, reliable information and data.

Volume I contains articles on occupational trends, current job status, work content, career planning, and so on. There are two supplements at the back of this volume: "Accredited Colleges and Universities"; and "Books of Additional Information," about many types of jobs and careers, arranged according to occupational category.

Volume II contains information about all the occupations and professions. Each description includes the following: a history of this type of work, the nature of the work, requirements and qualifications, special requirements, opportunities for experience and exploration, methods of job entry, advancement on the job, the employment outlook for this kind of job, earnings, work conditions, social and psychological factors, and sources of additional information.

Feingold, S. Norman, and Sol Swerdloff. Occupations and Careers. New York: McGraw-Hill Book Co., 1969 (text edition).

A source book for counselors, guidance people, career planners, parents, teachers, and others interested in guiding young people; it is especially adapted to student use.

Gardiner, Glenn L. How You Can Get the Job You Want. New York: Harper and Row, Publishers, 1962.

Advice for the student with respect to job planning and preparation, choice of work, and steps that should be taken to find employment in the kind of work to which the student is best suited.

Handbook of Job Facts. Compiled by Norma Thiemann. Chicago: Science Research Associates, Inc., 1971.

Detailed facts about duties, education, training, special qualifications, advancement, earnings, and outlook for 300 key jobs. Kit for in-depth exploration is available.

Harbison, Frederick, and Charles A. Myers. Education, Manpower, and Economic Growth. A Joint Project of the Industrial Relations Section, Princeton University, and the Industrial Relations Section, Massachusetts Institute of Technology. New York: McGraw-Hill Book Co., 1964.

Although eight years old, this is a useful source for its information on the relationships between educational preparation and the occupational market, manpower needs, the economic growth of the nation, and the importance of realistic career planning in the schools.

Hay, John E., and Others. "Student Part-time Jobs: Relevant or Nonrelevant," Vocational Guidance Quarterly, XIX (December, 1970), 113-18.

This paper discusses student employment, the job market, academic achievement, training for the future, employment opportunities, and other matters in this area.

Investment for Tomorrow: A Report of the Presidential Task Force on Career Advancement. Washington, D.C.: Civil Service Commission, 1967. (ERIC ED 041 199)

A source of information on manpower needs, interagency cooperation, technical institutes, administrative personnel, and career planning.

A Job Corps Study. Report of the Commissioner of Education required by Public Law 90-576. Washington, D.C.: Office of Education, U. S. Department of Health, Education, and Welfare, 1968.

Supplies information on the purposes, functions, and effects of the Job Corps.

Kalachek, Edward. "Determinants of Teenage Employment," Journal of Human Resources, IV (Winter, 1969), 3-21.

Discusses a number of factors, problems, conditions involving part-time and full-time employment of teenage youth.

Kimbrell, Grady, and Ben S. Vineyard. Succeeding in the World of Work. Bloomington, Ill.: McKnight & McKnight Publishing Co., 1970.

A student-oriented book on job choices and opportunities, how to apply for a job, progress on the job, personal effectiveness, money management, the use of bank services, consumer problems, credit, insurance, social security, further training, and other matters.

Manpower and Education. Educational Policies Commission. Washington. D. C.: National Education Association, 1956.

Has material on career planning. Many of the observations made are still relevant.

Manpower Education in a Growing Economy. Edited by Robert L. Daroy and Philip E. Powell. Athens, Ohio: Center for Economic Education, College of Business Administration, Ohio University, 1968.

Supplies information on educational programs, job preparation, manpower needs, the national economy.

"Marland on Career Education," American Education, VII (November, 1971), pp. 25-28. Reprint available for 10 cents under HE 5.280:80076, Superintendent of Documents, Washington, D.C. 20402.

Response by Commissioner Marland to questions seeking clearer definition of concept of career education. Questions posed to him by editors of American Education.

The Nation's Manpower Programs. National Manpower Policy Task Force, Washington, D.C.: U. S. Government Printing Office, 1969.

This booklet is available from the Superintendent of Documents, U. S. Government Printing Office, in Washington, D.C.

Negro Californians: Population, Employment, Income, Education. (Supplement added.) Fair Employment Practices Commission. San Francisco: California State Department of Industrial Relations, 1963.

A minority report on the Negroes of this state: low income, disadvantagement, urban immigration, educational preparation and achievement, employment opportunities, employment levels, job conditions.

Occupational Exploration Briefs, Grades 9-12. Chicago: Science Research Associates, Inc., 1971.

This recently developed series consists of 400 four-page illustrated summaries of major jobs in the United States. Each summary covers a job history, duties, working conditions, qualifications, training necessary, earnings, advancement, job locations, and job outlook, as well as additional sources of information.

Occupational Literature (Revised edition). Annotated Bibliography prepared by Gertrude Forrester. New York: H. W. Wilson Co., 1971.

Another tool for students, counselors, school libraries, and other persons or departments involved in career education. A carefully prepared guide with information about many jobs, occupations, and professions. Books, pamphlets, reports, booklets, reprints of articles, periodicals, educational series, special publications, and so on are arranged and described according to types of occupations.

Occupational Outlook Handbook: Employment Information on Occupations for Use in Guidance (1970-71 edition). Bureau of Labor Statistics, Bulletin No. 1650. Washington, D.C.: U. S. Department of Labor, 1971.

Considered a major tool for all counselors and any other persons involved in career education, this large work contains information on more than 600 occupations and major industries. Reprints of individual sections of the Handbook are available from the Government Printing Office. A revised edition of the Handbook is published every two years. Each job description tells about the following: the nature of the work; where this kind of employment can be found; requirements, training, qualifications; possibilities of advancement; employment outlook; earnings, wages; working conditions; where to go for more information.

Some of the material in connection with parts of this Handbook are free. For the Handbook itself and reprints of individual sections, write: Occupational Outlook Publications, Bureau of Labor Statistics, Washington, D.C. 20402.

Orr, John David. Migration of Rural Young Adults in Nebraska. Doctoral Dissertation, University of Nebraska. Ann Arbor, Mich.: University Microfilms, Inc. (300 N. Zeeb Road, 48106), 1967.

Contains information about rural areas, geographic location, agriculture, educational environment, educational achievement, graduates from rural high schools and what happens to them, job opportunities, and analyses of data.

Paradis, Adrian Alexis. You and the Next Decade. New York: David McKay Co., Inc., 1965. (For grade ten upward.)

Focuses on occupational and career trends and helps the student to plan more adequately for post-high school years.

Plusch, James Oscar. A Study of the Employment Problems and Prospects of a Selected Group of Male Occupationally Oriented High School Graduates. Ann Arbor, Mich.: University Microfilms, Inc. (300 N. Zeeb Road, 48106), 1967.

A vocational follow-up study of high school graduates (young male adults) in full-time jobs after high school. Examines relationships between academic achievement and progress on the job and choice of job; job opportunities for these graduates; problems on the job; occupational aspirations and mobility; and other factors.

Students' Guide to Occupational Opportunities and Their Lifetime Earnings. Compiled by Juvenal L. Angel, Director, Modern Vocational Trends Bureau. New York: World Trade Academy Press, Inc., 1967 (distributed by Simon and Schuster, Inc., New York, N.Y. 10003).

An aid for counselors and students. Contains detailed information about job opportunities and qualifications, and what kind of advancement and earnings can be expected.

Tomorrow's Manpower Needs. In several volumes. Bulletin No. 1606, Bureau of Labor Statistics. Washington, D.C.: U. S. Department of Labor, 1969. (ERIC ED 032 398, ED 032 399; ED 032 400)*

Some relevant material here for the planning phase of career education. Contains a study of employment patterns, employment projections, specific manpower needs in the nation now and later, occupations, economic factors, and so on. Tabular data included.

U. S. Manpower in the 1970's: Opportunity and Challenge. Washington, D. C.: U. S. Department of Labor, 1971.

The information in this brochure, illustrated by colored tables, deals largely with the major and long-range trends that can be identified now and also focuses on important changes ahead.

Venn, Grant. Man, Education, and Manpower. Washington, D.C.: American Association of School Administrators, 1970.

This well-known book contains much information about the American labor market, the deficiencies of our schools in preparing youth for careers, and recommendations for effective career education programs in the schools.

Vocational Education and Occupations. Prepared jointly by the Office of Education, U.S. Department of Health, Education, and Welfare, and the Manpower Administration, U.S. Department of Labor. Washington, D.C.: U.S. Government Printing Office, 1969.

This document for counselors and career planners, easily available, contains information on the appropriate content in instructional programs to prepare youth for many occupations of a vocational-technical nature (e.g., animal science, dental work, accounting, physical therapy, business office work, printing and bookbinding, woodworking, law enforcement, welding, electronics, forestry, maritime jobs, and the like). The jobs and job types are tied in with the Dictionary of Occupational Titles (q.v.).

"This document will aid those concerned with educational planning for manpower needs to measure more accurately the extent of such needs and the potential contribution of vocational education to the supply of manpower in this country." --from the Introduction, p. ix. Copies can be ordered from the Superintendent of Documents, U. S. Government Printing Office, Washington, D.C. 20402.

*Citations such as this mean that the document is in the Educational Resources Information Center (ERIC) on microfiche and may read on microfiche filed by the number indicated in the nearest ERIC collection. A list of these collections is available from the Information Search and Retrieval Project, California State Department of Education, Sacramento, CA 95814.

Wolff, Laurence, and Others. Some Workforce Requirements Implied by Current Manpower Forecasts. Harvard University, 1969. (ERIC ED 052 489).

Forecasts of opportunities and requirements that will face the American labor force are discussed. The emphasis is on exploring the distribution of skills, temperaments, etc., of the labor force in 1960 and, projectively, in 1975.

Young, Anne M. "Employment of High School Graduates and Dropouts," Monthly Labor Review, May, 1971, 33-38.

This article is a special Labor Force Report which examined the job status in October, 1970, of new high school graduates as well as dropouts from high school. The report also related college enrollment rates at that time to family income. The author is in the Division of Labor Force Studies, Bureau of Labor Statistics, Washington, D.C.

Youth Resources Manual for Coordinators. President's Council on Youth Opportunity. Washington, D.C.: U.S. Government Printing Office, March, 1971.

A handbook for career planning; contains employment data, information on occupational education, the fuller use of educational resources, recreation and the arts, transportation, drug use and abuse, public contacts and public information, national foundations, and so forth. The manual has 31 appendixes.

Part III

STATEMENTS OF OBJECTIVES

Clear statements of objectives on "career education" as this term applies to effective preparation for adult responsibility, to a well-integrated educational-occupational curriculum, and to career guidance and training experiences that take place all the way through school -- such statements are not numerous. Lists of goals and purposes dealing with traditional vocational-technical education abound; but only in very recent years has there emerged a small but significant body of writing that delineates realistically broad, comprehensive career education programs and that pinpoints relevant objectives for them.

The entries that follow identify sources where lists of objectives, goals, and purposes and statements of philosophy about career education may be found. There is variation among them; some lists and statements are quite detailed; some are brief. But the general direction is toward wholeness and continuity of preparation. These entries, of course, are selective; and new statements will continue to be formulated across the country.

Because of the singleness of focus in this section, annotations have been omitted.

Bailey, John A. Career Development Concepts -- Significance and Utility. Reno, Nev.: University of Nevada, College of Education, 1967. (ERIC ED 017 942).

Baugh, Douglas S., and William E. Martin. Total Career Capability for All: A Career-Development Program Model. Fort Wayne, Ind.: Fort Wayne Community Schools, 1970. (ERIC ED 044 719)

Bowman, Gardaw, and Gordon J. Klopf. New Careers and Roles in the American School. Prepared for the Office of Economic Opportunity. New York: Bank Street College of Education, 1968.

Bush, Donald O., and Others. The World of Working and Learning. Greeley, Colo.: Rocky Mountain Educational Laboratory, Inc., 1969.

Career Development Activities: Grades 5, 6, 7. Abington School District, Pennsylvania. Washington, D.C.: Office of Education, U. S. Department of Health, Education, and Welfare, 1968.

Career Development Workshop: Conference Report. Topeka, Kansas: Kansas State Department of Education, 1969.

Career Education. DHEW Publication No. (OE) 72-39. Washington, D.C.: Office of Education, U.S. Department of Health, Education, and Welfare, 1971.

"Career Education: Operation Plan." Developed by the Career Education Task Force. Sacramento: California State Department of Education, February, 1972 (processed).

Career Guidance: A California Model for Career Development, K-Adult. Prepared by a Task Force under the direction of the Bureau of Pupil Personnel Services. Bruce L. Lowrey, Project Director. Sacramento: California State Department of Education, 1971. (Preliminary Draft.)

Choice or Chance: Career Planning and Development. Grades 7, 8, 9. Hayward, Calif.: Office of the Alameda County Superintendent of Schools, 1968.

Crews, A. C. "Career-Oriented Curriculum: Cobb County Model," American Vocational Journal, XLIV (1969), 17.

"Education for Becoming" (theme of special issue), Educational Leadership, XXIX (December, 1971), 215-76.

Education for Occupations. Bureau of Occupational Education Research. Albany, N. Y.: University of the State of New York, 1967.

The Encyclopedia of Careers and Vocational Guidance. In two volumes. (Cited in Part II. Refer to Vol. I of this work for statements of objectives, goals, philosophy, planning, and the like.)

Encyclopedia of Education. In ten volumes. Lee C. Deighton, Editor-in-chief. New York: Macmillian Company and the Free Press (Crowell-Collier Educational Corp.), 1971.

Encyclopedia of Educational Research (Fourth edition). (Cited in Part I.)

Feldman, M. J. "Why Manpower Training Should Be a Public School Mission," American Vocational Journal, XLII (November, 1967), 26-28.

Fine, Sidney A. Guidelines for the Design of New Careers. Kalamazoo, Mich.: W. E. Upjohn Institute for Employment Research, 1967.

Gribbons, Warren D., and Paul R. Lohnes. Career Development. Weston, Mass.: Regis College, 1966. (ERIC ED 010 282)

A Guide for Teachers of a Course in Career Exploration, Grades 8, 9, 10. Oklahoma Vocational Research Coordinating Unit. Stillwater, Okla.: Curriculum and Instructional Materials Center, Oklahoma State Department for Vocational and Technical Education, 1971.

Guidelines for the Occupational Training of the Disadvantaged. Bureau of Manpower Development and Training, New York State Education Department. Oswego, N.Y.: Department of Vocational-Technical Education, State University of New York, 1968.

Hamilton, Jack A., and G. Brian Jones. Integrating and Evaluating Career Information in a Developmental Guidance Program. Palo Alto, Calif.: American Institutes for Research (P. O. Box 1113), 1970.

Hansen, Lorraine Sundal, and Others. Career Guidance Practices in School and Community. Ann Arbor, Mich.: ERIC Clearinghouse on Counseling and Personnel Services, 1970.

Horyna, Larry L., and Others. Working, Learning, and Career Planning: A Cooperative Approach to Human Resource Development. Greeley, Colo.: Rocky Mountain Educational Laboratory, Inc., 1969.

Implications of Career Development Theory and Research for Counselor Education. New York: Teachers College, Columbia University, 1967.

Investment for Tomorrow: A Report of the Presidential Task Force on Career Advancement.
(Cited in Part II.)

Jones, G. Brian. Planning and Implementing a Comprehensive Career System of Individualized Guidance. American Personnel and Guidance Association and the Santa Clara (California) Unified School District. Palo Alto, Calif.: American Institute for Research in Behavioral Sciences, 1970.

Man: His Life and Work -- A Career Orientation Manual for Teachers of Seventh and Eighth Grade Social Studies. Cincinnati, Ohio: Cincinnati Public Schools, 1970.

Manpower Education in a Growing Economy.
(Cited in Part II on p. 18.)

Marland, Sidney P., Jr. Career Education: More Than a Name. Washington, D.C.: U. S. Department of Health, Education, and Welfare, Office of the Commissioner of Education, 1971. (ERIC ED 050 295).

_____. "Career Education Now." Address given at the 1971 Convention of the National Association of Secondary School Principals, Sam Houston Coliseum, Houston, Texas, January 23, 1971. Washington, D.C.: Office of the Commissioner of Education, U.S. Department of Health, Education, and Welfare, 1971.

_____ "Educating for the Real World." Address given at the Twelfth Annual Banquet of the Jefferson County Chamber of Commerce, Harpers Ferry, West Virginia, May 26, 1971. Washington, D.C.: Office of the Commissioner of Education, U.S. Department of Health, Education, and Welfare, 1971.

_____ "Education's Time of Questioning." Address given before the National PTA Convention, Civic Center, Oklahoma City, Oklahoma, May 24, 1971. Washington, D.C.: Office of the Commissioner of Education, U. S. Department of Health, Education, and Welfare, 1971.

Matheny, K. B. "The Role of the Middle School in Career Development," American Vocational Journal, XLIV (1969), 18-21.

Mullen, Margaret J. A Volunteer Program in Vocational Information and Career Guidance for Secondary Schools: A Handbook. Redwood City, Calif.: Sequoia Union High School District, May, 1968. (ERIC ED 024 809).

Occupational Orientation: An Introduction to the World of Work. Teachers' Handbook, preliminary draft. Mississippi State University, Curriculum Coordinating Unit. Jackson, Miss.: Mississippi State Department of Education, 1969.

Platt, Allen H. Room to Grow: "Something Special for All Kids." Philadelphia: Philadelphia School District, 1969. (ERIC ED 033 403).

A Policy and System Study of California Vocational Education: A Framework for Program Development of a New, Comprehensive, and Integrated Approach to Education and Work. A Report Prepared for the California State Board of Education by Arthur D. Little, Inc. Sacramento: California State Board of Education, 1970.

A Program of Career Development in Portland Public Schools. Portland, Ore.: Portland Public Schools, Office of Career Education, June, 1971.

Project VIEW. (See under Vocational Information for Education and Work in this list.)

Report of the Subcommittee on Career Guidance of the Committee on Specialized Personnel. Washington, D.C.: Manpower Administration (DOL), Office of Manpower Research, 1967. (ED 025 786).

A Review of the Education Professions Development Act in California. Sacramento: California Council on Vocational Education and Technical Training, July, 1971.

Tompkins, Ellsworth. "The Role of Education in Developing Human Resources," North Central Association Quarterly, Fall, 1964, 184-95.

Venn, Grant. Man, Education, and Manpower.
(Cited in Parts II, p. 20.)

Vocational Education: Innovations Revolutionize Career Training. Special Report, Education U.S.A. Washington, D.C.: National School Public Relations Association (1201 16th St., NW, 20036), 1971.

Vocational Information for Education and Work (Project VIEW). Vocational information system serving youth and counselors. Includes the monograph, Project View: History and Development, prepared by Edwin A. Whitfield and George A. Glaeser (1963). San Diego: Regional Center for Career Information, Department of Education, San Diego County.

The World of Work: Increasing the Vocational Awareness of Elementary School Children. A Guidebook for Teachers and Guidance Counselors. Trenton, N.J.: New Jersey State Department of Education, Division of Vocational Education, 1969. (ERIC ED 038 511)

The W. O. W. Program, World of Work Series: Introduction to Attitudes. Teacher Workshop Materials (kindergarten through grade six), prepared by Dean P. Talagan and Bruce C. Perryman. Cheyenne, Wyo.: Wyoming State Department of Education, 1970.

Youth Resources Manual for Coordinators.
(Cited in Part II, p. 21.)

Part IV

METHODS OF DEVELOPING CURRICULUM

Increasing efforts are being made in different parts of the nation -- in schools and school systems, on college campuses, at research centers -- to devise and test methods of developing career education curricula. The following is a list of sources that may be of help in this area. The list includes publications on methodology; reports of projects, pilot programs, and field tests; and other selected examples.

Agan, R. J., and Others. The Development and Demonstration of a Coordinated and Integrated Program of Occupational Information, Selection, and Preparation in a Secondary School: Final Report. Manhattan, Kans.: Kansas State University, 1968.

This source provides information on ways of developing a comprehensive career-education type of curriculum in a high school, as well as on the effects of the curriculum in actual operation. The project described in this resource book was carried out at Paola High School in Kansas, with good results. Much information here about occupational data, career guidance, career planning, curriculum development, teaching guides.

Bailey, L. J. Career Development for Children Project. Carbondale, Ill.: School of Technology, Technical and Industrial Education, February, 1969.

Stresses the importance of developing appropriate instructional components and curriculum materials to enable each student, as he proceeds through school, to learn about the world of work at higher levels of specificity.

Banathy, Bela H. and Michael H. E. Ward, "Initial Systems Analysis of Employer-Based Career Education," Preliminary Report, Vol. 1, Berkeley, Calif.: Career Education Project, Task Force I, Far West Laboratory for Educational Research and Development, September 3, 1971.

Describes the concept of employer-based career education and outlines some design parameters and feasibility dimensions which relate to the concept. The feasibility of alternative models of employer-based career education to be examined in subsequent reports.

Bargh, Douglas S., and William E. Martin. Total Career Capability for All: A Career-Development Program Model. Fort Wayne, Ind.: Fort Wayne Community Schools, 1970. (ERIC ED 044 719)

Tells about a model developed for students at all grade levels in the public school of Fort Wayne. Deals with developing and applying a comprehensive curriculum that gives youth occupational information and guidance and solid career motivation from their earliest years in elementary school through to the end of high school. Discusses such factors as decision making, career planning, developmental guidance, human development, individual growth and understanding, work attitudes, educational and career objectives, and vocational counseling.

Benham, L. G. "Vocational Challenge: A Comprehensive High School's Program," NASSP Bulletin, LI (1967), 15-23.

Report on a comprehensive, all-fields program for career education and guidance for all students in a secondary school. Provides useful guidelines.

Bohn, Martin J., and Others. The Educational and Career Exploration System: Field Trial and Evaluation. Washington, D.C.: American Educational Research Association; and New York: Teachers College, Columbia University, 1970.

A curriculum-counseling-guidance system developed for high school students and tested in actual operation; included concepts of total career planning and preparation, with details of career directions and educational goals. Vocational counseling upgraded to be more timely and more relevant.

"Career Education: A Handbook for Implementation," U. S. Office of Education, Department of Health, Education, and Welfare. February, 1972. 102p.

Discusses key concepts of career education and why career education is needed; shows some examples in practice and offers strategies for implementation in schools.

Career Guidance: A California Model for Career Development, K-Adult. Prepared by a Task Force under the direction of the Bureau of Pupil Personnel Services. Bruce L. Lowrey, Project Director. Sacramento: California State Department of Education, 1971. (Preliminary Draft.)

Discusses the rationale for career education; presents a model for career guidance; develops objectives and suggests ways of implementing them; considers the evaluation of career guidance programs.

CEDaR Catalog of Selected Educational Development and Research Programs, Projects, and Products (Second edition). Denver, Colo.: Council for Educational Development and Research, Inc. (1860 Lincoln St., 80203), September, 1971.

Contains details about current programs, projects, and products of 11 educational laboratories and nine university-based research and development centers. Some of the material in this 439-page book deals with career education, career planning, occupational counseling, and related topics.

Choice or Chance: Career Planning and Development. Grades 7, 8, 9. Hayward, Calif.: Office of the Alameda County Superintendent of Schools, 1968.

A 108-page document that tells about a three-year unit designed to help the junior high school student develop positive attitudes toward work and society. Includes information on the manner in which this unit was developed.

Edington, Everett D. Development of Vocational Education Programs for American Indians: Final Report. University Park, N. Mex.: New Mexico State University, 1970. (ERIC ED 039 960).

Information on the process of developing workable and effective career-oriented programs for Indian youth and adults.

Evaluation of a Comprehensive Planning Unit for Development of an Educational and Occupational Planning Program for Out-of-School Youth. St. Cloud, Minn.: Independent School District Number 742, 1967.

Describes methods of developing an educational-occupational program to rehabilitate dropouts and to prevent dropping out; details of educational and career planning are supplied.

Hanson, Lorraine Sundal, and Others. Career Guidance Practices in School and Community. Ann Arbor, Mich.: ERIC Clearinghouse on Counseling and Personnel Services, 1970.

Provides insights into developing tools and curricula for effective career education programs involving both the school and the community.

"Information and Data Sources for Research and Planning in Vocational Education." Washington, D.C.: National Advisory Council on Vocational Education, 1971. (ERIC ED 053 298).

A response to problems encountered by the National Advisory Council on Vocational Education, this 41 page report makes available major sources of statistics and information on vocational education. Twelve sources reviewed.

Krumboltz, John D., and Others. Vocational Problem-Solving Experiences for Stimulating Career Exploration and Interest: Final Report. Stanford, Calif.: School of Education, Stanford University, 1967. (ERIC ED 015 517).

Provides information on methods of designing an experiential program for occupational guidance and career motivation.

Mullen, Margaret J. A Volunteer Program in Vocational Information and Career Guidance for Secondary Schools: A Handbook. Redwood City, Calif.: Sequoia Union High School District, May, 1968. (ERIC ED 024 809).

Has specific pointers about the design and development of a workable career education program for high school students.

O'Connor, Dorothy, and Mary Lee Satterfield. Suggested Units of Study for Occupational Training Program. Titusville, Fla.: Brevard County Board of Public Instruction, 1966.

Describes some of the ways of developing materials and curricula in a career-oriented program.

A Pilot Project to Develop a Program of Occupational Training for School-Alienated Youth: Final Report and Related Materials. Hartford, Conn.: Connecticut State Board of Education, Center for Vocational Arts, 1969.

Ways and means of developing a relevant program of guidance and training for youth with serious educational problems. Information on design and methodology.

Project VISION (Vocational Information System Involving Occupational Needs): An Experiment with Occupational Needs Projection Techniques. Madison, Wisc.: Wisconsin State Employment Service, 1970.

A large book containing information on methods and techniques of determining occupational needs and developing programs and curricula to upgrade career education.

Sherman, Vivian S. Trial and Testing of an Experimental Guidance Curriculum: Final Report. Palo Alto, Calif.: American Institute for Research in Behavioral Sciences, 1967.

Design and techniques in the development of curriculum for guidance and occupational preparation.

Smith, Rex M. The Comprehensive Educational Program for West Virginia Schools. Charelston, W. Va.: West Virginia State Department of Education, 1964.

Covers all subjects and fields, guidance services, vocational education, career preparation; design and development of the program.

Smith, Wesley P., "Career Education: A Bridge to Relevancy in the Public Schools." Sacramento, Calif.: California State Department of Education, May, 1971.

Based on assumption that it is the school's responsibility to provide every student with an opportunity for a career that will fulfill his obligation to a society that expects all to be workers. Goes from this assumption into an in-depth discussion of how

career education can operate to allow the schools to fulfill their responsibility to the student. Suggests the creation of a Department of Education Task Force on Career Education to examine all aspects of career education.

_____ "Responsibility of the High School for Occupational Preparation," California Journal of Secondary Education, XXX (May, 1958), 291-295.

Discusses how occupational preparation has only been accorded minimum attention in high schools. Stresses that the effectiveness of a pupil's learning rests heavily on the degree to which he has an occupational goal. Concludes this will give new meaning and significance to a student.

_____ "Secondary Education for Vocational Competence in a Changing Occupational World, A Symposium Introduction," California Journal of Secondary Education, XXX (May, 1958), 290.

Calls the high school the formal steppingstone into the occupational world. Stresses that preparation for occupations is much more than the imparting of specific job skills to students.

"Suggested Teaching-Learning Approaches for Career Development in the Curriculum." Minneapolis, Minn.: University of Minnesota, College of Education, 1968. 182p. (ERIC ED 053 289)

A report covering teacher-formulated behavioral objectives, together with rationales and teaching-learning approaches, for career development programs.

Thompson, Albert S., and Others. The Educational and Career Exploration System: Field Trial and Evaluation in Montclair High School. New York: Teachers College, Columbia University, 1970.

Provides information on the origins, design, and development of this career-education-oriented system for secondary school boys and girls. Developmental and trial techniques described.

Vocational Education: Innovations Revolutionize Career Training. Special Report, Education U.S.A. Washington, D.C.: National School Public Relations Association (1201 16th St., NW, 20036), 1971.

A recently published document that contains information on the design and development of career education innovations. Material on methodology included.

Vocational Instructional Materials for Special Population Groups. Portland, Ore.: Northwest Regional Educational Laboratory (ongoing project).

Deals with vocational instructional materials and methods for use with disadvantaged and handicapped persons.

Part V

TEACHER-STUDENT RESOURCE MATERIALS

Numerous guides and resource materials are being designed and implemented in school systems around the country to benefit vocational and occupational education programs. More recently, materials for the broader and more comprehensive career education programs have been developed and will continue to be created. Forthcoming products and publications for these broad-based career-integrated curricula will be even more relevant and finer-lined as time goes on.

This section supplies lists of teacher and student resources having to do with career education and occupational preparation -- curriculum guides, instructional materials, special guides and kits, projects, products, manuals, handbooks, catalogues, bibliographies, indexes, audio-visual aids, and other kinds of resources.

Two lists are provided here: one for California sources and one for out-of-state sources. These entries, of course, are selective. Further information on California resource materials can be obtained from the State Curriculum Materials Depository, housed at Sacramento State College; from the California State Department of Education in Sacramento; and from offices of county superintendents of schools throughout the state. Additional information about out-of-state sources may be available from city and county libraries; from the State Library in Sacramento; and particularly by means of the nationwide Educational Resources Information Center (ERIC) system. The California State Department of Education's Information Search and Retrieval Project is linked with the ERIC system and has access to many files, indexes, and abstracts on educational-occupational resource materials.

Both teacher sources and student sources are cited here inasmuch as in many or most cases, both the young person and the instructor would be involved in the activity called for. Part VIII. B. has a listing of other educational media which are primarily instructional materials such as films and recordings.

A. CALIFORNIA SOURCES

A-8 English Educational Decisions Unit. Los Angeles: Los Angeles Unified School District, 1968.

This 45-page publication was designed to help the pupil to understand educational opportunities; to learn why educational planning is emphasized in the first semester of grade 8; to think about career planning; and to base choices on a realistic appraisal of his achievements, aptitudes, and broad vocational interest.

Apprenticeship Handbook for Educators. Sacramento: California State Department of Education, 1964.

A source book on the apprenticeship program in California schools for youth and young adults. Many kinds of crafts, trades, and technical occupations are discussed, as well as the presentation of courses and methods of instruction.

Basic Employment Information: A Handbook for Students in Occupational Classes. Los Angeles: Los Angeles Unified School District, 1967.

This 102-page book is intended for senior high school students. It contains basic job information and provides guidelines on finding employment and sustaining oneself on a beginning job.

"California Department of Education, Bureau of Industrial Education Instructional Materials," revised annually.

A price list of apprenticeship, technical education, fire service training, and other industrial education materials. List available upon request from the Bureau of Industrial Education, California State Department of Education, Sacramento, California 95814.

Career Development Services Department. San Diego: San Diego City Unified School District, 1969.

An 83-page document for students. It supplies a systematic plan whereby young people, while still in school, can obtain realistic employment experience through part-time work. They can perform their work and still attend classes.

"Career Education." Career Education Task Force, California State Department of Education, January 31, 1972.

A 4-page flyer outlining career education definition, program goals, educational level components; lists members of California State Department of Education Career Education Task Force.

Career Guidance: A California Model for Career Development, K-Adult. (Cited and annotated in Part IV)

Career Information Director. Prepared by the Greater San Diego Industry Education Council. San Diego: Regional Career Information Center, San Diego County Department of Education, September, 1970.

This publication has much information on where to find specific information on various kinds of work throughout San Diego County. Businesses, industries, professional organizations, and so on are listed.

Choice or Chance: Career Planning and Development, Grades 7, 8, 9. Hayward, Calif.: Office of the Alameda County Superintendent of Schools, 1968.

A 108-page publication that tells about a three-year unit designed to help the junior high school student develop positive attitudes toward work and society. Includes motivational aids toward career planning.

Ellis, Betty W. Careers Related to Industrial Education. Los Angeles: Los Angeles Unified School District, 1964.

Although eight years old, this document has information that is still pertinent to counselors, teachers, and students. The contents involve career planning, occupational guidance, industrial education, employment opportunities, and job placement.

A Guide for Industrial Arts Education in California. Sacramento: California State Department of Education, 1970.

This document describes the many segments of industrial arts education in the public schools of the state, course contents, methods of instruction, safety practices, student projects, relatedness to the world of jobs, and other topics.

A Guide for Occupational Education in the Secondary Schools. San Diego: San Diego City Unified School District, 1968.

This 85-page guide book was developed to assist school personnel in getting a better understanding of the occupational program and to provide guidance to high school students. Many curricula included; for example: Agriculture, Data Processing, Electronics, Health, Homemaking, Industrial-Metal, Woodworking.

A Guide for Teaching Courses in the Dental-Assisting Curriculum. San Diego: San Diego City Unified School District, 1969.

The object of this guide is to provide a comprehensive plan for teaching courses in this occupational area and to improve the effectiveness of the instructional program. Includes course outlines, citations of relevant textbooks and periodicals, and supplementary references.

A Guide to Work Experience Education and Employment Practice: A Program for Senior High Schools (1969 Revision). Publication No. 403. Division of Instructional Planning and Services. Los Angeles: Los Angeles Unified School District, 1969.

This source is intended to help the senior high school student get ready for the world of work. Information for students, teachers, counselors, and other personnel involved in career education.

Handbook and Course of Study for the Continuation High School. Eureka, Calif.: Eureka City Schools, 1968.

The program described in this 255-page book leads toward a high school diploma; prepares students for entrance into occupational training; and provides, for certain students, schooling to accompany employment--schooling that would contribute to their best immediate and long-term interests.

Handbook for Junior High School Education in California. Prepared by Adin D. Henderson. Sacramento: California State Department of Education, 1969.

This source contains a good deal of information dealing with educational and vocational plans for the future. Planned for persons concerned with junior high schools.

Handbook on Work Experience Education. Alameda, Calif.: Alameda City Unified School District, 1967.

A manual prepared to answer questions raised by students who are participating in a variety of work-experience education programs.

Handbook on Work Experience Education: A Guide to the Organization and Operation of Work Experience Education Programs (1965 edition). Sacramento: California State Department of Education, 1965.

A comprehensive, detailed guide on work experience programs in California public schools.

Industrial Arts Course Outlines: Grades Seven, Eight, and Nine. Sacramento: California State Department of Education, 1965.

Supplies detailed information on industrial arts education at these grade levels.

Mullen, Margaret J. A Volunteer Program in Vocational Information and Career Guidance for Secondary Schools: A Handbook. Redwood City, Calif.: Sequoia Union High School District, May, 1968. (ERIC 024 809).

(Cited in Parts III and IV.)

Principles, Objectives, and Curricula for Programs in the Education of Mentally Gifted Minors: Kindergarten Through Grade Twelve. Division of Special Education. Sacramento: California State Department of Education, 1971.

Discusses more effective ways of educating talented children and youth. Has implications for career planning and seeks to stimulate serious thinking about making better use of gifted individuals in today's society.

Project FEAST (Foods Education and Service Technology). Food services educational kit. San Francisco: City College of San Francisco, 1971.

A studont-oriented kit of program descriptions, explanations, and bibliographies about careers in the food services, as well as a paper written on the project itself. There are brochures on the food service, hospitality, and hotel service fields and other related topics, as well as announcements and a variety of special references.

Project VIEW: History and Development. Prepared by Edwin A. Whitfield and George A. Glaeser. San Diego: Department of Education, San Diego County, November, 1968.

This document is part of the overall Project VIEW program. See annotation in this list under Vocational Information for Education and Work.

"Questions and Answers Regarding San Diego County Regional Occupation Program." San Diego: Office of the San Diego County Superintendent of Schools, January, 1971.

A specially prepared paper. Contained information about this ongoing program; contains flow charts, guidelines, data, and other items.

"Selected Publications of the California State Department of Education," revised annually.

Lists Department publications some of which related to career education. Available upon request from the Fiscal Office, California State Department of Education, Sacramento, California 95814.

Sherman, Vivian S. Trial and Testing of an Experimental Guidance Curriculum: Final Report. Palo Alto, Calif.: American Institute for Research in Behavioral Sciences, 1967.

Has information on career planning, curriculum development, occupational and vocational guidance, ways and means of relevant guidance. A field-tested program.

Vocational Information for Education and Work (Project VIEW). Vocational information system serving youth and counselors. Includes the monograph, Project VIEW: History and Development, prepared by Edwin A. Whitfield and George A Glaeser (1968). San Diego: Regional Center for Career Information, Department of Education, San Diego County.

This is considered a workable system that assists both the student and the counselor to keep up-to-date on jobs, job trends, career opportunities, sources of information, and other matters. Teachers also can derive insights and helpful information from it. The program has already received favorable reaction. A variety of audiovisual aids and other products are available to the student in this system.

Work Experience Education Course of Study and Curriculum Guide, Secondary Schools: Guide and Student Handbook. Placentia, Calif.: Placentia Unified School District, 1968.

A 76-page publication that describes this district's work-experience education program for high school students. The program is planned to motivate the youth of the community to live and work as effective adults in the business and industrial world.

Work-Study Handbook for Educable Mentally Retarded Minors Enrolled in High School Programs in California Public Schools. Prepared for the Division of Special Education by L. Wayne Campbell, Medford Todd, and Everett V. O'Rourke. Sacramento: California State Department of Education, 1971.

A special aid for use in developing the educational and vocational potential of educable mentally retarded boys and girls.

B. OUT-OF-STATE SOURCES

Agan, R. J., and Others. The Development and Demonstration of a Coordinated and Integrated Program of Occupational Information, Selection, and Preparation in a Secondary School: Final Report. Manhattan, Kans.: Kansas State University, 1968. (ERIC ED 022 961).

A relevant program of vocational guidance and career preparation put to practical use in Paola High School in Kansas.

Baugh, Douglas S., and William E. Martin. Total Career Capability for All: A Career-Development Program Model. Fort Wayne, Ind.: Fort Wayne Community Schools, 1970.

An information source for personnel involved in career education. Career-oriented program is integrated with the educational curriculum for all elementary, junior high, and senior high school students. Contains information on human development, educational objectives, individual growth, career planning, occupational information, career choices, employment information, employment opportunities, vocational counseling, work attitudes, job satisfaction, and other topics.

Beamm, H. E., and J. R. Clary. Introduction to Vocations: Teacher's Guide. Raleigh, N.C.: North Carolina Department of Public Instruction, Division of Vocational Education, 1968.

This course on careers and vocations offers the following major learning experiences: (1) understanding economic processes; (2) discovering occupational opportunities and requirements; (3) exploring work opportunities and requirements; (4) performing job tasks; (5) self-appraising vocational interests and aptitudes; and (6) exploring educational and other training or retraining opportunities.

Books for Occupational Education Programs: A List for Community Colleges, Technical Institutes, and Vocational Schools. Prepared by Edward Mapp, Chief Librarian, New York City Community College. New York: R. R. Bowker Co., 1971.

A carefully prepared publication that cites books and other published works dealing with vocational and occupational preparation. This source can also be used in high schools.

Business Guide: An Integrated Secondary-Post Secondary Curriculum Guide. Salt Lake City: Utah State Board for Vocational-Technical Education, 1970.

This resource was designed (1) to give students knowledge and experience involving work in the business field; and (2) to acquaint students with job qualifications and employment applications.

Career Opportunities: A Series of Articles Designed to Help Guide Young People to a Better Future. (Complete citation and annotation appear in Part II, p. 15.)

This 420-page paperback, available free of charge from the New York Life Insurance Company, can be made available to students, especially those in junior and senior high schools and four-year high schools. A convenient aid to all young people and to anyone involved in counseling and guidance.

Career Orientation, Grade 7 and 8: A Unified Approach. "Careers" series, Division of Instructional Services. Cincinnati, Ohio: Cincinnati Public Schools, 1971.

A group of five publications on career orientation, information, and guidance: four activity manuals, one each on English, Social Studies, Mathematics, and Science; and one book of guidelines encompassing a broad curriculum.

Career-Orientation Guide: Career Development Activities, Grades 5, 6, 7. Abington School District, Pennsylvania. Washington, D.C.: Office of Education, U. S. Department of Health, Education, and Welfare, 1968.

Introduces intermediate-grade pupils to the world of occupations and careers. Supplies career information, instructional materials, guidelines on curriculum development. Involves career planning and career choices.

Career Selection Education Program, 1965-1968: Report. Edited by E. H. Digneo and T. Shaya. Santa Fe, N. Mex.: New Mexico Western States Small Schools Project, 1968. (ERIC ED 029 725)

A detailed report on active career-education programs conducted in selected New Mexico high schools. This project was designed to help rural youth to prepare more effectively for the world of work. Ample information included on methods, approaches, resources, and experiences.

CEDaR Catalog of Selected Educational Development and Research Programs, Projects, and Products (Second edition). Denver, Colo.: Council for Educational Development and Research, Inc. (1860 Lincoln St., 80203), September, 1971.

This 439-page book has an abundance of detail on current programs, projects, and products of 11 educational laboratories in the nation and nine university-based research and development centers. Vocational guidance and career preparation are included in the program offerings.

Chapman, E. N. Your Attitude Is Changing. Chicago: Science Research Associates, Inc., 1966.

This book, written for junior high, senior high, and four-year high school students, concerns (1) attitudes; (2) the job world; and (3) success on the job.

Curriculum Guide: Junior-Senior High School. Compiled by Ray Alston and Florence Moody. Charlotte, N.C.: Charlotte-Mecklenburg Public Schools, 1969.

Provides curriculum guidelines and other aids for arithmetic, health, language arts, reading, science, social studies, vocational education; concerned also with handicapped children and gifted children. Suggestions for career preparation are included.

Definitions of Terms in Vocational, Technical, and Practical Arts Education. Washington, D.C.: American Technical Association, 1964.

Although this booklet needs updating, much of the content is still relevant and useful.

Developing Vocational Education Programs in the Public Schools. Compiled by the ERIC Clearinghouse on Educational Management, University of Oregon, Eugene, Oregon. Washington, D.C.: American Association of School Administrators, March, 1971.

This is No. 17 of the ERIC ABSTRACT SERIES, containing abstracts or resumes of recently published documents in the field of vocational-occupational education programs.

Education Index (cumulative and continuous). Bronx, N.Y.: H.W. Wilson Co.

A basic source for educators, including those engaged in vocational preparation and career education. Has many references to articles, periodicals, books, monographs, reports, and other materials in general and specific fields of education. Available in the California State Department of Education's Information Search and Retrieval Project, the State Library, and in most city and college libraries.

ERIC System. (See under Research in Education: Annual Index in this list.)

Facilitating Career Development: An Annotated Bibliography. Edited by Larry J. Bailey. Springfield, Ill.: Illinois State Board of Vocational Education and Rehabilitation (in cooperation with Southern Illinois University, Carbondale), 1970.

An aid for teachers, students, counselors, and other persons involved in career education and vocational guidance. Contains many references to books, reports, and other materials dealing with occupational information, career planning, vocational guidance, experimental programs, vocational development and adjustment, and so on.

Food Trades! Resource Unit for Special Classes. Houston, Tex.: Houston Independent School District, 1968.

An introduction to the world of work -- designed to assist teachers, coordinators, and supervisors of special education in guiding students toward successful job placement. Acquaints students with job requirements and employment opportunities.

Gamble, R. R. Clinical Teaching with Computer Aids: The Bartlesville System. Bartlesville, Okla.: Bartlesville Public Schools; Stillwater, Okla.: Oklahoma State University, Research Foundation, 1969. (ERIC ED 033 376)

Report for public school teachers using the clinical teaching approach; discusses the functions and advantages of computer assistance for both students and teachers.

A Guide for Developmental Vocational Guidance, Grades K-12. Oklahoma City, Okla.: Oklahoma State Department of Education, 1968. (ERIC ED 026 532).

A resource guide containing information on classroom guidance programs in elementary and secondary schools, occupational guidance, career planning.

A Guide for Teachers of a Course in Career Exploration, Grades 8, 9, 10. Oklahoma Vocational Research Coordinating Unit. Stillwater, Okla.: Curriculum and Instructional Materials Center, Oklahoma State Department for Vocational and Technical Education, 1971.

A recent publication on career planning, career opportunities. occupational information, vocational guidance, resource materials, and other facets of career education and exploration for students at these grade levels.

Guidelines for the Occupational Training of the Disadvantaged. Bureau of Manpower Development and Training, New York State Education Department. Oswego, N.Y.: Department of Vocational-Technical Education, State University of New York, 1968.

A source book on that facet of career education which must consider the educational-vocational needs of disadvantaged children and youth. Contains material on individualized instruction, resource materials, occupational guidance, occupational training, and other matters.

Maddox, Marion E. An Annotated Bibliography for Occupational Surveys. Little Rock, Ark.: Arkansas State Department of Education, Division of Vocational Education, 1969.

An annotated bibliography for teachers and students on educational needs, manpower needs, occupational information, research coordinating units, resource materials, vocational education, and so on.

Man: His Life and Work -- A Career Orientation Manual for Teachers of Seventh and Eighth Grade Social Studies. Cincinnati, Ohio: Cincinnati Public Schools, 1970.

A source dealing with career planning, career opportunities, multimedia instruction, educational and vocational values, socio-economic and cultural factors, the nature of society in our times.

Mitchell, E. F., and Others. Industrial Arts and Vocational Education in Grades K-12: Final Report. Greenwood, Miss.: Leflore County Schools, October, 1968.

Deals with program development and comprehensive programs in this field of education and training.

1971 Catalog of Books, Bulletins, and Pamphlets. Chicago: Educational Materials Center, National Restaurant Association, 1971.

An index to films, books, training guides, and other materials in the food service occupations.

Occupational Exploration Briefs, Grades 9-12. (SRA)
(Cited and annotated in Part II. A very useful resource.)

Occupational Literature (Revised edition). Library resource.
(Cited and annotated in Part II. An important basic tool.)

Occupational Orientation: An Introduction to the World of Work. Teachers' Handbook, preliminary draft. Mississippi State University, Curriculum Coordinating Unit. Jackson, Miss.: Mississippi State Department of Education, 1969.

Has information for teachers who are involved in and concerned with career education. Includes career planning and course organization.

O'Connor, Dorothy, and Mary Lee Satterfield. Suggested Units of Study for Occupational Training Program. Titusville, Fla.: Brevard County Board of Public Instruction, 1966.

The content of this resource publication is useful for its concern with adolescents, vocational education, consumer education, money management, social skills, exceptional children, experience through field trips.

Official Manual of Future Farmers of America. Alexandria, Va.: Future Farmers Supply Service, 1968.

Contains information on farming, agronomy, agriculture, stock raising, and other aspects of this occupational area.

The Peace Corps Reader. Washington, D.C.: Office of Public Information, The Peace Corps, 1968.

This publication can easily be made available to students no matter where they attend school. Consisting of 28 articles by members of the Corps, it provides reports describing into the vocation of helping other people in other countries and enables the young reader to get a clearer view of the world in which he lives, with its varied cultures and needs.

A Pilot Project to Develop a Program of Occupational Training for School-Alienated Youth: Final Report and Related Materials. Hartford, Conn.: Connecticut State Board of Education, Center for Vocational Arts, 1969.

A serviceable source of information on occupational and career preparation for a special population of distressed youth, on multimedia instruction, on work-experience findings, on youth problems.

Pointer, Avis Y., and Jacob R. Fishman. New Careers: Entry-Level Training for the Human Service Aide. Washington, D.C.: New Careers Institute, University Research Corp., 1968.

Contains information on the field of human services; deals with curriculum development in connection with career planning; is concerned with evaluating educational preparation and specific training; discusses job preparation and on-the-job training; includes program descriptions.

Project VISION (Vocational Information System Involving Occupational Needs): An Experiment with Occupational Needs Projection Techniques. Madison, Wisc.: Wisconsin State Employment Service, 1970.

This large book deals with information needs, occupational surveys, the provision of occupational information and ways of getting it in the first place, the labor market, employment opportunities, curriculum planning and vocational education, evaluation of career education, and other matters. Particularly helpful are its employment projections and its information on occupational trends and patterns.

Research in Education: Annual Index. Education Resources Information Center (ERIC). Washington, D.C.: U. S. Government Printing Office, Washington, D. C. 20402. (Published annually)

This source and the system of which it is a part are considered of special importance to career education. The annual publication is an index to résumés appearing in the monthly issues of Research in Education. The résumés pertain to significant educational literature available.

The literature abstracted in this system pertains to reports from research projects funded by the U. S. Office of Education and also other reports and documents collected by the clearinghouses in the ERIC national network. The ERIC system consists of the central staff in Washington, D.C., and 19 clearinghouses across the country.

The ERIC headquarters is located in the Office of Education, 400 Maryland Ave., S.W., Washington, D.C. 20202. For the benefit of career education personnel, the Clearinghouse for Counseling and Personnel Services is located at the University of Michigan, Ann Arbor, Michigan; and the Clearinghouse for Vocational and Technical Education is located at Ohio State University, Columbus, Ohio.

The California State Department of Education is linked to the ERIC system. The Annual Index, the monthly issues of Research in Education containing the abstracts, microfiche materials, printout facilities, and other related resources are housed in the Education Building in Sacramento in the Information Search and Retrieval Project quarters. ERIC materials are also to be found in a number of colleges and universities around the country and in other education-related institutions, centers, or agencies. Availability is increasing each year.

Smith, Rex M. The Comprehensive Educational Program for West Virginia Schools. Charleston, W.Va.: West Virginia State Department of Education, 1964.

Provides information and guidelines about a realistically broad educational program for all levels of public school education. Its scope includes all subject fields, guidance services, vocational education, and career preparation.

Special Education: A Curriculum Guide. Edited by Edward S. Stark. Springfield, Ill.: Charles C. Thomas, Publisher, 1969.

Content on training children who need special education; deals with vocational education, work-study programs, sheltered workshops, self-care skills, subject-matter coverage, health, and other matters.

SRA 1972 Catalog. Chicago: Science Research Associates, Inc., 1971.

This source for career education is available for use by professional personnel and especially by students themselves. Examples of materials for student use include the following:

Our Working World: grades 1, 2, 3
Job Experience Kits, Grades 8-12
Occupational Exploration Briefs, Grades 9-12

A variety of literature, audiovisual aids, project guides, devices, products, and other materials is available from this firm.

Thompson, Albert S., and Others. The Educational and Career Exploration System: Field Trial and Evaluation in Montclair High School.
(Cited and annotated in Part IV.)

Vetter, Louise, and Barbara J. Sethney. Planning Ahead for the World of Work: Development and Field Testing of Curriculum Materials for Secondary School Girls. Kit of Research Report Abstract, Teacher Manual, Student Materials, Transparency Masters. Research and Development Series No. 46. Columbus, Ohio: Center for Vocational and Technical Education, Ohio State University, January, 1971.

Practical materials for teacher and student. Information in this package for career planning and occupational exploration.

The World of Work: Increasing the Vocational Awareness of Elementary School Children. (ERIC ED 038 511).
(Cited in Part III, p. 26.)

Youth Resources Manual for Coordinators.
(Cited and annotated in Part II, p. 21.)

Part VI

MATERIALS AND SOURCES OF INFORMATION FOR COUNSELORS AND OTHER GUIDANCE PERSONNEL

This section is intended to help anyone involved in the counseling and guidance functions of career education and other personnel who may be doing related work. As in Part V, there are two subsections here: the first dealing with important basic sources of information and certain useful reports; the second, with the names and addresses of various publishing houses, agencies, institutions, commercial firms, and other originating sources where useful information can be obtained.

While these lists are not exhaustive, an effort has been made to include entries of major importance.

A. IMPORTANT BASIC SOURCES AND USEFUL REPORTS

Bailey, John A. Career Development Concepts -- Significance and Utility. Reno, Nev.: University of Nevada, College of Education, 1967.

This report contains information and data on occupational guidance, group guidance, vocational development, rating scales, and other matters.

Beall, L. "Vocational Choice: The Impossible Fantasy and the Improbable Choice," Journal of Counseling Psychology, XIV (1967), 86-92.

The roles of the counselor, especially his diagnostic task of assessing the student-client's impulses and defenses regarding vocational matters, stressed throughout this article.

Bohn, M. J., and D. E. Super. "The Computer in Counseling and Guidance Programs," Educational Technology, IX (1969), 29-31.

Roles and functions of computer technology in student guidance, and problems yet to be settled.

Books for Occupational Education Programs: A List for Community Colleges, Technical Institutes, and Vocational Schools.

(Cited and annotated in Part V. This source can be used also for high schools.)

Bowman, Gardaw, and Gordon J. Klopf. New Careers and Roles in the American School. Prepared for the Office of Economic Opportunity. New York: Bank Street College of Education, 1968.

Discusses changes in the needs of modern youth and new socioeconomic patterns across the nation, and therefore new roles and approaches in schools and school systems. Has relevancy for career education.

Brownstein, Samuel C., and Mitchel Weiner. You Can Win a Scholarship. Woodbury, N. Y.: Barron's Educational Series, Inc., 1971.

Materials of interest to students in grades ten to twelve planning to enter a career via college.

Bush, Donald C., and Others. Between Education and the World of Work: The Image of the World of Work. Greeley, Colo.: Rocky Mountain Educational Laboratory, Inc., 1969.

There are several companion volumes concerning this field of study. This report deals with student attitudes (mainly at the junior high school level), vocational guidance and development, job information, career planning and career choices.

"Career Education and Career Advisers." Division of Career and Continuing Education. Los Angeles: Los Angeles Unified School District, 1972 (brochure).

This small but useful publication describes the roles and the value of "career advisers" in helping students in many different ways. In this school district they belong to the counseling staff and play an important part in the district's program of career education.

Career Guidance: A California Model for Career Development, K-Adult. (Cited and annotated in Part IV).

Career Opportunities: A Series of Articles Designed to Help Guide Young People to a Better Future (Ninth revision), 1969. (Cited and annotated in Parts II and V.)

This useful 420-page paperback is available free of charge from the New York Life Insurance Company. Containing 57 job descriptions, this tool can be obtained for any students who wants it.

Write: Career Information Services
New York Life Insurance Co.
Box 51, Madison Square Station
New York, N. Y. 10010

Citizens for the 21st Century: Long-Range Considerations for California Elementary and Secondary Education. ("The SCPE Report") (Cited and annotated in Part I.)

College Costs Today. Career Information Service. New York: New York Life Insurance Co. (latest updated version now available).

Another useful tool from this firm. It contains detailed information on preparing for college and the financial costs at more than 1,000 colleges for men and women in the United States and Canada. Like its companion volume on careers, it is free of charge. Write to the same address given above.

D & R Report: Vocational Education. Special report of the Council for Educational Development and Research, Inc., 1860 Lincoln St., Denver, Colo. 80203. (Vol. I, No. 4, Fall, 1971, issue of the D & R Report.)

Contents of this special issue are on many aspects of vocational and career education, including adult education, sources of information, guidance, programs, curricula, trends, schools, employment and employers.

Developing Vocational Education Programs in the Public Schools.
(Cited and annotated in Part V-B, page 39)

Dictionary of Occupational Titles (Third edition).
(Cited and annotated in Part II. Highly important source.)

Education and Training: Learning for Jobs. 1968 federal report.
(Cited and annotated in Part II.)

Education for Occupations. Bureau of Occupational Education Research. Albany, N.Y.: University of the State of New York, 1967.

Concerned with more effective and more relevant occupational and career preparation in systems of education.

Education Index.
(Cited and annotated in Part V.)

Educators' Guide to Free Guidance Materials. Compiled and edited by Mary H. Saterstrom and J. M. Steph. Randolph, Wisc.: Educators' Progress Service, Inc., 1971.

This is the tenth edition of a compendium for counseling and guidance personnel. Many guidance materials around the country are available free of charge; but without this kind of reference, it would be difficult to know where to look and whom to write.

Eggeman, Donald F., and Others. Problems in the Transition from School to Work as Perceived by Youth Opportunity Center Counselors: A National Survey -- Final Report. Research Series No. 53. Columbus, Ohio: Ohio State University, Center for Vocational and Technical Training, 1969.

Concerns youth attitudes and problems, adjustment problems in the world of work, job training, counseling services, attitudes of teachers and counselors, instructional materials, occupational guidance, personality problems, and other matters.

Encyclopedia of Associations (Sixth edition). In three volumes. Detroit, Mich.: Gale Research Co., 1970. Vol. I: National Organizations of the United States (trade, business, commercial, agricultural, government, military, scientific, educational and cultural, engineering, social welfare, health, medical, public affairs, fraternal, religious, veterans, hobby, athletic, general, labor unions, chambers of commerce, and so forth); Vol. II: Geographic and Executive Index; Vol. III: New Associations and Projects (looseleaf).

A major source of information. Volume I, especially has content on what services these organizations perform, what publications are available, complete addresses, and other data. Much of this content is helpful for career-education purposes. The California State Library has a complete 1970 set.

The Encyclopedia of Careers and Vocational Guidance. In two volumes.
(Cited and annotated in Part II.)

Encyclopedia of Education. In ten volumes. Lee C. Deighton, Editor-in-chief. New York: Macmillan Company and the Free Press (Crowell-Collier Educational Corp.), 1971.

A thorough, comprehensive source of information on many aspects, funtions, and approaches in the field of education. Has considerable content on occupational preparation, vocational guidance, career-oriented curricula, and related topics. Located in Information Search and Retrieval Project, California State Department of Education.

Encyclopedia of Educational Research (Fourth edition).
(Cited and annotated in Part I. Important source.)

ERIC System. (See under Research in Education: Annual Index in this list.)

Facilitating Career Development: An Annotated Bibliography.
(Cited and annotated in Part V. A valuable aid.)

Feingold, S. Norman. Several publications on scholarships and loans are available. Cambridge, Mass.: Bellman Publishing Co.

Source material especially for those students who want to go on to higher education but cannot do so unless they have outside help.

Feingold, S. Norman, and Sol Swerdloff. Occupations and Careers (Text edition).
(Cited and annotated in Part II.)

Fine, Sidney A. Guidelines for the Design of New Careers. Kalamazoo, Mich.: W. E. Upjohn Institute for Employment Research, 1967.

Content on employment and career research and findings. Published in booklet form.

Gardiner, Glenn L. How You Can Get the Job You Want.
(Cited and annotated in Part II.)

Garraty, John A., Walter Adams, and Cyril J. H. Taylor. The New Guide to Study Abroad. New York: Harper and Row, Publishers, 1969.

Considered an essential source, this book has information, pointers, facts, and data on study, travel, and jobs abroad. Contents deal with such topics and matters as the following: overseas study programs, international and experimental programs, work-and-travel-abroad programs, living with a foreign family, volunteer work camps, The Peace Corps, having work-study experiences in other countries, UNESCO, the American Field Service Committee, American Student Information Service (ASIS), International Student Information Service (ISIS), and so on.

Guidance in the Elementary School. Vol. XXXVI, No. 7. Frankfort, Ken.: Kentucky State Department of Education, Division of Guidance Services, 1968. (ERIC ED 032 594)

Discusses roles of all school personnel involved in the elementary-level guidance program. Contains a thorough presentation on counseling services, as well as on information services and relevant resources.

A Guide for Industrial Arts Education in California.
(Cited and annotated in Part V.)

Guidelines for Pupil Personnel Services in the Elementary School. Sacramento: California State Department of Education, 1967.

Still a relevant source in this area of public schooling.

Guidelines for the Occupational Training of the Disadvantaged.
(Cited and annotated in Part V.)

Gysbers, N. C., and E. J. Moore. "Cooperative Work Experience as a Guidance Setting," American Vocational Journal, XLIII (1968), 16-61

The authors believe that counselors should be an integral part of the cooperative education team. A major emphasis is on the allocation of classroom and on-the-job time to mastering specific occupational skills.

Handbook for Community Adult School Counselors (Revised edition). Division of Adult Education. Los Angeles: Los Angeles Unified School District, 1971.

Discusses administrative policies, interviewing, testing, credit evaluation, records, citizenship problems, veterans, vocational counseling, high school graduation requirements, community agencies, college counseling.

Handbook of Job Facts. Compiled by Norma Thiemann. Chicago: Science Research Associates, Inc., 1971.

A manual for use by student and counselor.

Handbook on Work Experience Education.
(Cited and annotated in Part V.)

Hansen, Lorraine Sundal, and Others. Career Guidance Practices in School and Community.
(Cited and annotated in Part IV.)

Hill, G. E. The Guidance of Elementary School Children. Albany, N.Y.: New York State Education Department, Bureau of Guidance, 1968. (ERIC ED 028 463)

The author addresses himself to some major questions involving the functions of and the need for guidance services in the elementary school. Discusses current problems and implications for the future.

Hoppock, Robert. The Use and Misuse of Occupational Information. New York: New York University, 1970. (ERIC ED 037 749).

This report is concerned with career choice, career opportunities, counseling, guidance, occupational choices, adequate occupational information, vocational directions, vocational follow-up.

Horyna, Larry L., and Others. Working, Learning, and Career Planning: A Cooperative Approach to Human Resource Development. Greeley, Colo.: Rocky Mountain Educational Laboratory, Inc., 1969. (ERIC ED 034 874).

Contains useful references to works on career education and occupational counseling; it deals with career planning, human resources, manpower development, vocational education, and program evaluation. The factor of cooperative effort is stressed here.

"Instructional Materials." List of California Apprenticeship Publications, Technical Education Publications, and Fire Service Training Publications. Sacramento: California State Department of Education, August, 1971.

An aid for counselors and students inclined toward crafts, trades, skilled technical occupations, and the like.

For other vocational education publications, consult the Vocational Education Section, Wesley P. Smith, Director, Education Building, 721 Capitol Mall, Sacramento 95814.

Investment for Tomorrow: A Report of the Presidential Task Force on Career Advancement.
(Cited and annotated in Part II.)

Job Placement Services: A Guidebook for Counselors. Prepared by Thomas W. Gambino and Robert A. Briant. Trenton, N.J.: New Jersey State Department of Education, 1969.

A publication for counselors and other guidance personnel in the public schools. Prepared under the direction of the Division of Vocational Education in Trenton.

Jones, G. Brian. Planning and Implementing a Comprehensive Career System of Individualized Guidance. American Personnel and Guidance Association and the Santa Clara Unified School District. Palo Alto, Calif.: American Institute for Research in Behavioral Sciences, 1970.

This document deals with the goals and importance of individualized guidance, career education and career planning, guidance objectives and programs, occupational guidance, program evaluation, and other salient factors.

Kimbrell, Grady, and Ben S. Vineyard. Succeeding in the World of Work. (Cited and annotated in Part II).

Lovejoy, Clarence E. Lovejoy's Career and Vocational School Guide. New York: Simon and Schuster, 1967.

A useful source for boys and girls enrolled in grades seven through twelve.

Lovejoy, Clarence E. Lovejoy's College Guide. New York: Simon and Schuster, 1968.

Has information about colleges and universities.

Marland, Sidney P., Jr. Career Education: More Than a Name. Washington, D.C.: U. S. Department of Health, Education, and Welfare, Office of the Commissioner of Education, 1971. (See Part III for other Marland citations.)

This report (originally an address) has to do with new trends and patterns in the vocational-occupational preparation of the young. Carefully examines career education, career opportunities, educational finances, vocational development, and other matters.

McKee, Richard. Financial Assistance for College Students. Washington, D.C.: Superintendent of Documents, U. S. Government Printing Office. (Latest edition should be requested.)

This source can be helpful to college-bound students who need financial aid. Since it is revised from time to time to keep abreast of the rapidly changing college scene, the latest edition should be sought.

Mullen, Margaret J. A Volunteer Program in Vocational Information and Career Guidance for Secondary Schools: A Handbook.
(Cited and annotated in Parts IV and V.)

The Nation's Manpower Programs. National Manpower Policy Task Force.
(Cited and annotated in Part II.)

National Directory of Schools and Vocations (Third edition). Prepared by A. E. Miller and Betty I. Brown. North Springfield, Pa.: State School Publications, 1967.

Provides addresses of schools.

Occupational Exploration Briefs, Grades 9-12. (SRA)
(Cited and annotated in Part II. An excellent aid to students.)

Occupational Literature (Revised edition). Library publication.
(Cited and annotated in Part II.)

Occupational Outlook Handbook: Employment Information on Occupations for Use in Guidance (1970-71 edition).
(Cited and annotated in Part II.) Considered an essential source in the field of career education.

A Policy and System Study of California Vocational Education: A Framework for Program Development of a New, Comprehensive, and Integrated Approach to Education and Work. A Report Prepared for the California State Board of Education by Arthur D. Little, Inc. Sacramento: California State Board of Education, 1970.

A report about the status of vocational education in California schools. Has some harsh things to say about it and even calls it inadequate. Contains good material on what to do to remedy the situation. Discusses goals, objectives; makes recommendations.

Project VIEW: History and Development. See under Vocational Information for Education and Work, Part V, p. 36.

Public Affairs Information Service Bulletin (P.A.I.S.). Cumulative and continuous. New York: Public Affairs Information Service, Inc.

This is a useful index to articles, books, pamphlets, brochures, monographs, leaflets, and the like, regarding public affairs, public services, political issues, nearly all kinds of activities and projects that are of public interest.

Report of the National Advisory Commission on Civil Disorders.
(Cited and annotated in Part I.) Considered a source of major importance. Has excellent insights into the causes of youth problems and conflict. There is set of guidelines on page 251 concerning the improvement of vocational education across the country.

Research in Education: Education Resources Information Center (ERIC). Monthly issues and semi-annual and annual indexes.
(Cited and annotated in detail in Part V. These documents are part of the ERIC nationwide system of educational information search, retrieval, and dissemination. The system is of major importance to personnel involved in career education.)

Research Visibility, 1967-68. Washington, D.C.: American Vocational Association (1510 H St., NW, 20005), 1968.

Contains reports on selected research studies in vocational, technical, and practical arts education -- reprinted from the American Vocational Journal. More recent edition should be available.

Rhodes, James A. Vocational Education and Guidance: A System for the Seventies. (Cited and annotated in Part I).

"Selected Publications of the California State Department of Education." Fiscal Office. Sacramento: California State Department of Education, 1971.

This is the latest list. Contains a number of references to works published by the Department dealing with, or related to, certain aspects of career education, guidance, work orientation, vocational preparation, and the like.

Sorenson, Garth. Toward an Instructional Model for Counseling. Los Angeles: University of California, 1967. (ERIC ED 015 518).

A helpful report on the goals and the roles of the counselor.

SRA Catalog. Revised annually.
(Cited and annotated, Parts II and V. Describes a number of career-related, job-oriented materials for student use.)

Steffire, Buford. Theories of Counseling. New York: McGraw-Hill Book Co., 1965.

A source book for personnel involved in counseling and guidance.

Students' Guide to Occupational Opportunities and Their Lifetime Earnings. Compiled by Juvenal L. Angel, Director, Modern Vocational Trends Bureau.
(Cited and annotated in Part II.)

A "summary report" on the status of vocational education in California public schools is being prepared currently by the Vocational Education Section in the California State Department of Education, Sacramento. It is scheduled for publication in the spring of 1972.

Tomorrow's Manpower Needs. U. S. Department of Labor.
(Cited and annotated in Part II.)

Traxler, Arthur E., and Robert D. North. Techniques of Guidance. New York: Harper and Row, Publishers, 1966.

A source for counselors and other guidance personnel. Calls for greater knowledge of and attention to the needs of youth.

Van Hoose, W. H. Guidance for Total Development. Detroit, Mich.: Wayne State University, 1969. (ERIC ED 031 762)

Kay functions of elementary school guidance as discussed in this publication include the following: child study, early identification of children with special needs, counseling, work with other adults, career development, and coordination of school and community resources for guidance.

Venn, Grant. Man, Education, and Manpower.
(Cited and annotated in Parts I and II. Has abundant information and recommedations.)

Vocational Education: Innovations Revolutionize Career Training.
(Cited and annotated in Part IV.)

Vocational Education and Occupations. Federal publication.
(Cited and annotated in Part II. Useful source.)

Vocational Information for Education and Work (Project VIEW). San Diego.
(Cited and annotated in Part V, p. 36. A useful system serving both youth and counselors.)

Work-Study Handbook for Educable Mentally Retarded Minors Enrolled in High School Programs in California Public Schools.
(Cited and annotated in Part V. Solid content; useful source book on many counts.)

Youth Resources Manual for Coordinators. President's Council on Youth Opportunity.
(Cited and annotated in Part II.)

B. PLACES AND LOCATIONS

American Council on Education, 1 Dupont Circle, NW, Washington, D.C., 20036. (Various materials available.)

American Field Service Committee, 160 N. 15th St., Philadelphia, Pa., 19102. (Supplies information and help regarding overseas programs, overseas voluntoer work camps, and the like.)

American Personnel and Guidance Association, 1607 New Hampshire Ave., NW, Washington, D.C. 20009. (Materials on counseling and guidance available.)

American Vocational Association, 1510 H St., NW, Washington, D.C., 20005. (Reports, various materials can be requested.)

The Armed Forces: For information on the Air Force, Army, Marine Corps, and Navy, consult offices in the Federal Building, 805 I St., Sacramento, or your nearest Federal Building.

Bellman Publishing Co., P.O. Box 172, Cambridge, Mass. (More than 70 monographs about careers and occupations are published by this firm.)

B'Nai B'Rith Vocational Service, 1640 Rhode Island Ave., NW, Washington, D.C. 20036 (Provides 40 briefs on vocational information.)

California Commission on Teacher Preparation and Licensing, 1020 O St., Sacramento. (Supplies literature on requirements and qualifications for teachers, administrators, counseling and guidance personnel, specialists, vocational instructors, adult education teachers, and other educational personnel.)

California Community Colleges, 1507 - 21st St., Sacramento. (Considerable amount of literature available on the state system of community colleges, locations, curricula, occupational and career programs, and so on.)

California State College Trustees, 1127 - 11th St., Sacramento. (Supplies lists and literature about the locations, facilities, and programs of all the state colleges in California.)

California State Department of Education, 721 Capitol Mall, Sacramento 95814.

Much literature and numerous publications originating from and involving the following:

Career Education Task Force, Paul Peters
Vocational Education Section, Wesley P. Smith (agricultural education, business education, homemaking, industrial education, manpower development and training, research coordination)
Bureau of Pupil Personnel Services, Division of Instruction (guidance and counseling)
Division of Instruction (driver education, aviation education, adult education, health and P. E., industrial arts, American Indian education, and other programs)
Division of Special Education (programs for handicapped and gifted children)
Division of Compensatory Education (programs to help the disadvantaged, children of migrant workers, and others with critical needs)
Bureau of Publications (for index to publications originating from the California State Department of Education)
Fiscal Office (for purchase or free acquisition of Department publications and literature)

Division of Libraries, including the State Library (Lib. & Courts Bldg.) (outstanding collections and materials, including recent and new literature on occupational and career education)
California Maritime Academy, Vallejo (catalogs and brochures available on the Academy's programs, with useful information on the maritime vocation)

Information Search and Retrieval Project, Dr. John Church (materials primarily for Department staff but available for public use in Room 455: the complete collection of ERIC microfiche and indexes; periodicals and indexes to them; pamphlets; professional books).

California State Department of Human Resources Development, 800 Capitol Mall, Sacramento. (Much printed literature provided on many different types of work.) In particular, consult the following:
Farm Labor (see Rural Manpower Services)
Industrial-Service, 1303 - 7th St., Sacramento
Professional Clerical-Sales, 1303 - 7th St., Sacramento
Rural Manpower Services, 3911 W. Capitol Ave., West Sacramento
Youth Opportunity Center, 3211 S St., Sacramento

California State Department of Industrial Relations, 714 P St., Sacramento; write especially to the state headquarters: 455 Golden Gate Ave., P. O. Box 603, San Francisco. (Publications, brochures, and other materials on many facets of industry-related occupations, work conditions, kinds of jobs, locations, requirements, laws and regulations, and so forth.)

California State Personnel Board -- Recruitment and Field Services Division, 801 Capitol Mall, Sacramento 95814. (Information on job opportunities and job qualifications supplied upon request.)

California Teachers Association, 1705 Murchison Drive, Burlingame, 94010. (Provides a series of research bulletins and other useful materials and literature.)

Careers, Box 135, Largo, Fla. (Many career briefs and summaries available; write for listings.)

Center for Vocational and Technical Education, Ohio State University, 1900 Kenny Road, Columbus, Ohio 43210. (Provides a number of publications on the world of work; curriculum materials for student and teacher; research report abstracts; descriptions of methods of information dissemination.)

Community College Vocational Cooperative Education: write San Mateo Junior College District, San Mateo, Calif.

Coordinating Council for Higher Education, 1020 - 12th St., Sacramento. (Publishes reports, bulletins, and other literature on higher education in California.)

Council for Educational Development and Research, Inc., 1860 Lincoln St., Denver, Colo. 80203. (Publishes the periodical, D & R Report, and the CEDaR Catalog of Selected Educational Development and Research Programs, Projects, and Products. Some good material available on career education approaches and programs.)

Coward-McCann, Inc., 200 Madison Ave., New York, N.Y. ("THE COLBY BOOKS" on various kinds of work and jobs -- designed especially for the elementary grades.)

Dodd, Mead and Co., 79 Madison Ave., New York, N.Y. ("DODD, MEAD CAREER BOOKS" -- numbering over 80 books in the series; these are semiautobiographical.)

E. P. Dutton & Co., Inc., 201 Park Ave. South, New York, N.Y. ("DUTTON BOOKS ON CAREERS"-- suitable for senior high school students and college students.)

ERIC System. Write: Educational Resources Information Center (ERIC), U. S. Office of Education, 400 Maryland Ave., SW, Washington, D.C., 20202. (Major source for valuable educational information; see Research in Education in Part V, Subsection B, p. 43, for detailed information.)

Federal Job Information Center (Civil Service Commission), Federal and Courthouse Bldg., 650 Capitol Mall, Sacramento. (Job specifications, lists, leaflets, brochures, and other materials available.)

Finney Company, 3350 Gorham Avenue, Minneapolis, Minn. (Publishes many briefs and monographs on occupations, with broad coverage -- good for high school students.)

Follett Counseling Information System (FCIS): Follett Systems, a Division of Follett Educational Corporation. Palo Alto, Calif.

(Provides supportive guidance services for schools. Student booklets, parent guides, counselor's manuals, audiovisual aids, and other materials are available.)

Future Farmers of America (national headquarters), U. S. Office of Education, Washington, D.C. 20202. (Materials on farming and agriculture available; activity descriptions of this agency.)

Harper and Row, Publishers, 49 E. 33rd St., New York, N.Y. ("SO YOU WANT TO BE" Career Books -- especially useful for college-bound youth; deal mainly with the professions.)

Institute for Research, 537 S. Dearborn St., Chicago, Ill. ("CAREER RESEARCH MONOGRAPHS" series -- information on many kinds of occupations.)

J. B. Lippincott Co., East Washington Square, Philadelphia, Pa. ("INFORMAL VOCATIONAL STUDIES" -- deal especially with active, exciting types of work; recommended for youth in grades 8-11.)

The Macmillan Company, 60 Fifth Ave., New York, N.Y. ("THE MACMILLAN CAREER BOOKS" -- fairly large, in-depth books with much information.)

Julian Messner, Inc., 8 W. 40th St., New York, N.Y. ("MESSNER CAREER BOOKS" -- designed especially for junior and senior high school students.)

Michigan Employment Security Commission, 7310 Woodward Ave., Detroit, Mich. ("MICHIGAN OCCUPATIONAL GUIDE SERIES" -- well recommended for both students and counselors.)

National Education Association (NEA), 1201 - 16th St., NW, Washington, D.C. 20036. (An abundance of published materials available from this agency and from its affiliates; write for information on documents and materials.)

National School Public Relations Association, 1201 - 16th St., NW, Washington, D.C. 20036. (Publishes Education U.S.A.; also publishes special reports, such as Vocational Education: Innovations Revolutionize Career Training, 1971; High School Student Unrest, 1969; Urban School Crisis, 1970.

New York Life Insurance Co., Career Information Service, Box 51, Madison Square Station, New York, N.Y. (About 60 booklets on individual careers; also a valuable 420-page paperback, Career Opportunities. These useful materials are free of charge; should be made easily accessible to students in junior high schools, senior and four-year high schools, and community colleges.)

Northwest Regional Educational Laboratory, 400 Lindsay Bldg., 710 S.W. Second Ave., Portland, Ore. 97204. (Multimedia; self-instructional systems on crafts and trades for high school students; publications on vocational education for disadvantaged and handicapped persons; and other materials.)

Popular Library, Inc., 355 Lexington Ave., New York, N.Y. 10017. ("YOUR FUTURE" paperbacks on many different fields of work.)

G. P. Putnam's Sons, 200 Madison Ave., New York, N.Y. ("PUTNAM'S CAREER GUIDES" -- for youth in grades 6-10.)

Research Publishing Co., Inc., P. O. Box 245, Boston, Mass. (Publishes "AMERICAN OCCUPATIONS MONOGRAPHS" and "AMERICAN TRADES MONOGRAPHS.")

Rochester Institute of Technology, 65 Plymouth Ave. South, Rochester, N.Y. (Publishes the "VOCATIONAL GUIDANCE SERIES.")

Science Research Associates, 259 East Erie St., Chicago, Ill. 60611; or write the West Coast branch office: 165 University Ave., Rm. 201, Palo Alto, Calif. 94301. (Publishes SRA catalogs annually and many materials, series, and products on career preparation especially for student use. See Parts II and V for detailed descriptions.)

Southwestern Cooperative Educational Laboratory (SWCEL), 117 Richmond Dr., N.E., Albuquerque, N. Mex. 87106. (Materials on employment preparation, finance, buying skills, and so on -- especially for Spanish-speaking persons.)

U. S. Civil Service Commission, Washington, D.C. (A number of booklets on occupations are available.)

U. S. Department of Labor, Bureau of Labor Statistics, Washington, D.C. (Publishes the Occupational Outlook Handbook -- cited and annotated in Part II; also furnishes reprints from the Handbook. Provides a variety of other useful materials.)

U. S. Department of Labor (Manpower Administration, Veterans Employment Service, Bureau of Apprenticeship and Training), Federal Bldg., 805 I St., Sacramento. (Variety of materials available within these agencies.)

U. S. Department of Labor, U. S. Employment Service, Washington, D.C. (Publishes the Dictionary of Occupational Titles described in Part II; also provides an "OCCUPATIONAL GUIDES" series; furnishes employment aids of various kinds.)

U. S. Department of the Interior, Washington, D.C. (A large number and broad variety of materials and publications -- dealing with the National Park Service, American Indians, public land management, mineral resources, fish and wildlife, water and power, and other important federal functions and types of careers.)

U. S. Departments of other areas of responsibility (Washington, D.C.):
Department of Agriculture (containing the Forest Service and the Soil Conservation Service)
Department of Commerce
Department of Health, Education, and Welfare (esp. Office of Eduoation)
Department of Transportation (containing the U. S. Coast Guard and administrations for aviation, highways, and railroads)
(Much information available from these and other agencies in the federal government; literature and publications easily obtainable.)

U. S. Government Printing Office, Superintendent of Documents, Washington, D.C. 20402. (This is a major source of valuable information on many kinds of jobs, crafts, trades, professions, specializations. Lists and catalogs show the titles and prices of numerous available documents, books, reports, brochures, and other materials. Write the Superintendent of Documents for the specific information desired.)

U. S. National Commission for UNESCO, Department of State, Washington, D.C. 20520. (Another important source of information on work-study programs abroad, overseas careers, overseas service opportunities, educational facilities abroad, special kinds of work and experiences in other countries, and the like.)

U. S. Post Office Department, Federal Bldg., 805 I Street, Sacramento. (A large amount of information is available from this agency on certain types of federal careers and federal sources of information about vocations.)

Universal Publishing and Distributing Corp, 800 Second Ave., New York, N. Y. ("VOCATIONAL GUIDANCE MANUALS" series available.)

Veterans Administration, Washington, D.C. (Career pamphlets furnished upon request.)

Franklin Watts, Inc., 575 Lexington Ave., New York, N. Y. 10022. (Publishes "THE PROFESSIONS AND WHAT THEY DO" books -- quite full coverage of information on the professions; geared toward grades 7-10.)

The following list consists of some general sources of information that offer possibilities for publications and other materials on occupations and careers:

Business school catalogs: typing, shorthand, office practice, comptometry, accounting, key-punching and data processing.

Career pamphlets in school and public libraries.

Community college catalogs: two-year terminal courses (leading to such jobs as electronics technician, engineering aide, dental hygienist, executive secretary, designer, draftsman, laboratory technician, and so forth; also two-year transfer courses leading to four-year college).

Job descriptions and information in pamphlets supplied by private business and industry. (See "Private industry" below.)

Libraries: school, community, college, university, state and federal facilities; also county libraries.

Magazine articles on jobs and careers.

Newspapers -- especially large urban papers -- sometimes carry a special "School and Career Guide." Also newspapers may have features and special articles on occupations and careers.

Private industry (aeronautical, agricultural, business, commercial, electronics, graphic arts, industrial, maritime, and other kinds of occupational areas): leaflets, brochures, and other materials are often available upon request.

School counselors and other guidance personnel.

Trade school catalogs: descriptions of courses through which, in a year or less, one can learn air conditioning, refrigeration, auto mechanics, skilled machinist trades, repair work, and so on.

Visits to school from the outside; e.g., representatives from colleges, business schools, industries, and so forth; also, school "Career Days" or "Know Your Future Day," when consultants in many fields tell about work in their occupations.

Some college campuses have effective career-preparation courses and activities, as well as work-learn programs. One example close at hand is the Work-Learn Program at the University of California, Davis. This is an active project that appears to be have good results. For information on this type of vocation-oriented program, see or write:

Dr. Vern Scott (Department of Water Sciences)
Director, Work-Learn Program
University of California
Davis, Calif. 95616

It may be of interest to college-bound high school seniors that many paying student jobs are currently available in Europe and that any American college student willing to work can earn a trip to Europe. The Student Overseas Services (SOS), a Luxembourg student organization, will obtain a job, work permit, visa, and other necessary papers for any American college student who applies. Students may obtain the information and materials they need by sending their name, address, educational institution, and $1 (for handling and postage) to the following:

SOS -- Student Overseas Services
Box 5173
Santa Barbara, Calif. 93108

Part VII

EVALUATION GUIDELINES

Information on evaluating "career education" in the contemporary, comprehensive sense of that term is not plentiful. Some contributions to this kind of evaluation have begun to appear in the past several years, and the indications are that, in proportion to the nation's manpower and educational needs, the number of such contributions will grow. Educational laboratories, colleges and universities, and other education-related institutions and agencies are paying increasing attention to developing evaluation techniques and guidelines for nearly all phases of education. It is especially recommended that career education personnel make use of the ERIC System (discussed in Part V, Subsection B, under the entry, Research in Education) in order to keep abreast of current developments in evaluating career education and guidance.

Because this section deals with evaluation alone, annotations have been omitted. All of the following selected sources are concerned, in varying degree, with the evaluation of career education and career-oriented programs.

Analysis of State Programs in Community Centered Post High School Education. Denver, Colo.: Education Commission of the States, 1968.

Annual Report, 1969: Center for Studies in Vocational and Technical Education. Madison, Wisc.: University of Wisconsin, Industrial Relations Research Institute, 1969.

Bohn, Martin J., and Others. The Educational and Career Exploration System: Field Trial and Evaluation. Washington, D.C.: American Educational Research Association; and New York: Teachers College, Columbia University, 1970. (ERIC ED 038 661).

"A Brief Description of the Massachusetts-New York Evaluation Service Center." A paper developed by William G. Conroy, Jr., and Louis A. Cohen, Project Managers. Amherst, Mass.: Massachusetts-New York Evaluation Service Center for Occupational Education, 1970.

Bush, Donald O., and Others. The World of Working and Learning. Greeley, Colo.: Rocky Mountain Educational Laboratory, Inc., 1969.

Career Guidance: A California Model for Career Development, K-Adult. (Cited and annotated in Part IV).

Conroy, William G., Jr., and Louis A. Cohen. A Planning Document: Massachusetts and New York Evaluation Service Center for Occupational Education. Research Coordinating Unit. Albany, N.Y.: University of the State of New York, the State Education Department, Bureau of Occupational Education Research, May, 1970.

"The Contributions of the Bureau of Occupational Education Research Towards Establishing an Education Evaluation System." Special paper. Albany, N.Y.: University of the State of New York, the State Education Department, Bureau of Occupational Education Research, October, 1971.

Evaluation of a Comprehensive Planning Unit for Development of an Educational and Occupational Planning Program for Out-of-School Youth. St. Cloud, Minn.: Independent School District Number 742, 1967.

Facilitating Career Development: An Annotated Bibliography. Edited by Larry J. Bailey. Springfield, Ill.: Illinois State Board of Vocational Education and Rehabilitation (in cooperation with Southern Illinois University, Carbondale), 1970.

Finch, Curtis R., and David C. Bjorkquist. "Review and Critique of Process Measures in Occupational Education Evaluation," Journal of Industrial Teacher Education, VII (Summer, 1970), 37-42.

Follow-up Study to Assess Curriculum Development Institute and Evaluate Guide to Curriculum Development: Final Report. Edited by Ralph W. Matthews. Corvallis, Ore.: Oregon State University, 1969.

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Part VIII

A BIBLIOGRAPHY OF RELATED SOURCES

The function of the eighth and final part of this document is to supply a list of carefully selected sources that should bring additional information and insights to career education personnel. In Part A are printed supplemental sources which are (1) writings that have a direct or indirect bearing upon career education; and (2) writings that can throw some light on the human condition, on that society in which our young people have to live and grow and make their way. "The world is my country, all mankind are my brethren"[1] might well be one of the watchwords of the adult who makes career education his profession. The more he knows about the environments, the pressures, the problems, the good things and the bad things with which young people in this decade must deal, the more he will reach these youth and even help to light a new fire in their minds. Some of the sources in this list have the capability of adding just that extra dimension of understanding which all of us in education can afford to take on.

Part B, Other Educational Media, includes films, filmstrips, overhead transparencies, and recordings which can be used by students in classes or while being counselled.

None of these entries have appeared before in this document. The lists are literally supplements.

All of the writings are available in some way: in bookstores, in public and college libraries, or through such search and retrieval networks as the nationwide ERIC System. The media are available from instructional materials centers, producers, or distributors.

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[1] Thomas Paine, The Rights of Man.

A. Print

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B. Other Educational Media

All citations except for a few marked by asterisks have been taken from the following 1971 indexes prepared by the National Information Center for Educational Media (NICEM) at the University of Southern California in Los Angeles:

Index To 35mm Educational Filmstrips

Index To 16mm Educational Filmstrips

Index To 8mm Motion Cartridges

Index To Educational Overhead Transparencies

Index To Educational Records

Index To Educational Audio Tapes

These indexes indicate the distributors of the items cited. These and other media indexes are on file in the California State Department of Education's Information Search and Retrieval Project quarters as well as in many public and college libraries. Those items marked by a double asterisk are on display in the quarters of the Department's Career Education Task Force.

35mm Educational Filmstrips

"ABC's of Getting and Keeping a Job." H*
Eye Gate House, Inc., 1969. A series of sound filmstrips:
"ABC's of Getting and Keeping a Job, The"
"Applying for the Job You Want"
"Budgeting Your Money"
"Health Rules to Follow"
"Labor Unions"
"On the Job"
"Preparing for the Job You Want"
"Quitstrip"

"Achieving Success in the World of Jobs." J-H
Society for Visual Education, Inc., 1970. A sound filmstrip - audio tape 48 Frames
Introduces Francisco Vasquez, a Puerto Rican boy who came close to quitting school. Shows his difficulty [illegible] the job world, he would have to 'quit gooing around' and apply himself. From the job opportunities now group I series.

"Applying for the Job You Want." H
Eye Gate House, Inc., 1969. A sound filmstrip - record
From the ABC's of Getting and Keeping a Job series.

"Art Careers in Advertising." J-H
Educational Dimensions Corp., 1968. A sound filmstrip - record 80 Frames
Describes the work of an art director. Discusses the importance of being visually oriented and having artistic interests as well as the ability to work with others.

"Busy Office, Busy People." P-I
Educational Enrichment Materials, Inc., 1969. A sound filmstrip - record 38 Frames
Introduces the people and machines of a specific office, stressing the value of education and good work habits. Gives children an insight into the various occupations vital to the smooth flow of community life. From the community helpers series.

"Card Punch Training Course." H A
Educational Developmental Labs (Div. of Mc Graw-Hill), 1964. A filmstrip 15 Frames
Uses numeric, alphabetic, and dexterity-building exercises to teach speed and accuracy in the operation of the card punch keyboard.

"Careers Ahead." J-H
Andrew Jergens Co., 1970. A filmstrip with script 44 Frames
Aids high school girls in thinking about a future career. Discusses jobs that are open to high school and college graduates and special training schools which may be attended. Describes the importance of good grooming in applying for a job.

"Careers for Women in Armed Forces." J A
Visual Education Consultants. A b & w filmstrip with captions
Discusses both professional and technical training opportunities offered by the Armed Forces for the young woman of today.

"Careers in Filmmaking, PT 1." J A
Educational Dimensions Corp., 1970. A sound filmstrip - record 64 Frames
Presents an informative overview of job opportunities in the film industry, featuring interviews with Reggie Wells, Dick Young and Andy Warhol who tell how to prepare for various careers in film and describe advantages and disadvantages of jobs in this field. Gives a step-by-step account of professional filmmaking procedures and illustrates use of equipment.

"Careers in Filmmaking, PT 2." J A
Educational Dimensions Corp., 1970. A sound filmstrip - record 67 Frames
Presents an informative overview of job opportunities in the film industry, featuring interviews with Reggie Wells, Dick Young and Andy Warhol who tell how to prepare for various careers in film and describe advantages and disadvantages of jobs in this field. Emphasizes the difference between academic filmmaking and creation of films for business and industry.

"Careers in Government Service." H
J. B. Lippincott Co., 1958. A filmstrip. 10 Frames
Describes the numerous vocational opportunities and the chance for service in government work. From the Our American Government series.

"Careers in Health." 41 Frames
Popular Science Publishing Co., 1968. A filmstrip
Describes the effects of science and technology on the health field and discusses its implications for young people in planning a career in health. From the High School Guidance series.

"Careers in Illustration." J-H
Educational Dimensions Corp., 1968. A sound filmstrip - record 80 Frames
Discusses the ups and downs of a career as an illustrator and the types of schools and training an aspiring illustrator and every artist should seek.

"Careers in Military Electronics." 41 Frames
Canada Dept. of National Defence, 1968. A filmstrip with captions
Presents a vocational guidance filmstrip, intended primarily for use in high schools, describing various opportunities for employment and the training necessary in the field of military electronics.

"Careers in Natural Resources Management." H
Vocational Education Productions, California State Polytechnic College, 1969. A filmstrip with script 51 Frames
Explains typical jobs including fishery technician, game management employee, park maintenance worker and park ranger. Points the way to new careers. From the New Careers in Agriculture series.

"Careers in Ornamental Horticulture." H
Vocational Education Productions, California State Polytechnic College, 1969. A filmstrip with script 51 Frames
Explains career opportunities in ornamental horticulture including jobs as plant propagators, florists' growers, landscape gardeners, turf specialists and ground maintenance workers. From the New Careers in Agriculture series.

*In this place in each citation is the symbol for grade level: K, preschool to kindergarten; P, primary; I, intermediate; J, junior high school; H, high school; T, teacher education; A, adult education, IND, industrial use.
All film materials are color unless "b & w" is listed in the part of the citation following the publication date, to indicate black and white.

"Careers in Photography." J-H
Educational Dimensions Corp., 1968. A sound filmstrip - record 86 Frames
Explains the opportunities available to young people interested in photography. Tells how they can go about entering this challenging field.

"Careers in Teaching." 50 Frames
Society for Visual Education, Inc., (Div. The Singer Co.) A filmstrip
Lists the opportunities available to those who are interested in pursuing a teaching career. Stresses those qualities which are essential to a good teacher.

"Careers in Television - Producing Advertising Commercials." J-H
Educational Dimensions Corp., 1968. A sound filmstrip - record 80 Frames
Presents a Demonstration of various stages in the making of a commercial by a producer of television commercials. Includes a discussion of the careers available in the television field.

"Careers in the Fine Arts." J-H
Educational Dimensions Corp., 1969. A sound filmstrip - record 80 Frames
Lloyd Goodrich, Advisory Director of the Whitney Museum of American Art, explains how to arrange a first exhibition and outlines the problems and opportunities for a person seeking a career as a painter or a sculptor.

"Careers in the World of Computers." J-H
Educational Dimensions Corp., 1969. A sound filmstrip - record 80 Frames
Covers careers in computers for high school graduates and features Don Ridge of IBM.

"Careers in the World of Tommorrow." H
American Institute of Men's and Boy's Wear, 1968. A filmstrip with captions 52 Frames
Describes various career choices and discusses the importance of adequate preparation through education and the development of personal qualities such as character, judgment and good deportment.

"Choosing a Career." J-H
Family Films, Inc., 1971. A sound filmstrip - record 51 Frames
Features older teens as they talk about important factors in considering a career, changing career plans after decisions have been made, how a person can discover what his 'thing' is and the importance of financial success. From the Life Issues of Older Teens series.

"Clerical and Stock Work." J-H
Avid Training Systems, (Div. of Pll and E Electronics) A sound filmstrip - record 75 Frames
From the Employment Opportunities series.

"Clerical Worker as a Career." J-H
International Film Bureau, 1969. A sound filmstrip - record 51 Frames
Follows an office practice class as it tours a corporation to observe workers on the job. From the Office Education Series 1 series.

"Construction Worker." J-H
Mc Graw-Hill Textfilms, 1970. A sound filmstrip - record 78 Frames
Views the world of adult work so adolescents can make intelligent decisions about their future. Describes the prevocational skills and attitudes needed in order to become a construction worker. From the World of Work, Set 2 series.

"Dental Hygienist." J-H
Film Assoc., (BFA Educational Media), 1968. 62 Frames
A filmstrip with captions
Presents an overall picture of the work of the dental hygienist, including work opportunities and requirements. From the Nursing as a Career series.

"Do's and Dont's During an Interview." J-H
Graphic Research, Inc., 1969. A sound filmstrip - record 38 Frames
Emphasizes the personal qualities and qualification of the applicant and discusses ways of replying to questions posed by an interviewer and the kinds of tests that may be required during an interview.

"Do's and Dont's During an Interview." J-H
International Film Bureau. A sound filmstrip - record 38 Frames
Discusses the employer's appraisal form with special emphasis on personal qualities and qualifications of the applicant. From the Office Education Series 2 series.

"Firemen at Work." K-P
Herbert M. Elkins Co., 1968. A filmstrip with captions 46 Frames
Uses photographs telling about firemen on the job and what they learn to do, equipment they operate and how they fight a fire. From the Community Helpers series.

"Garment Worker." J-H
Mc Graw-Hill Textfilms, 1969. A sound filmstrip - record 76 Frames
Views the world of adult work so that adolescents can make intelligent decisions about their future. Describes the prevocational skills and attitudes needed in order to become a garment worker. From the World of Work, Set 2 series.

"Getting Along on the Job. Pt 1." J-H A
Avid Training Systems, (Div. of Pll and E Electronics), 1969. A sound filmstrip - record 38 Frames
From the Work Habits and Attitudes series.

"Getting Along on the Job. Pt 2." J-H A
Avid Training Systems, (Div. of Pll and E Electronics), 1969. A sound filmstrip - record 61 Frames
From the Work Habits and Attitudes series.

"Getting Along on the Job. Pt 3." J-H A
Avid Training Systems, (Div. of Pll and E Electronics), 1969. A sound filmstrip - record 55 Frames
From the Work Habits and Attitudes series.

"Getting Along on the Job., Pt 4." J-H A
Avid Training Systems, (Div. of Pll and E Electronics), 1969. A sound filmstrip - record 48 Frames
From the Work Habits and Attitudes series.

"I Want to be a Teacher." P
Educational Enrichment Materials, Inc., 1969. 30 Frames
A sound filmstrip - record
An explanation of the training, responsibilities, problems and rewards of being a teacher, as revealed in the make-believe play of a group of children.

"So Farming for Me." I A
Visual Education Consultants. A b & w filmstrip with captions
Answers some of the questions which young people have regarding farming as a career. Points out the pitfalls as well as the rewards of this work.

"Job Application Letter and Resume." J-H
Graphic Research, Inc., 1969. A sound filmstrip - record 49 Frames
Focuses on the content of a resume and explains the content and typewritten form of the accompanying letter. From the Office Education series.

"Job Application Sources." J-H
Graphic Research, Inc., 1969. A sound filmstrip - record 43 Frames
Presents the different types of media and agencies to which one may apply for positions, the advantages of each, the requirements such as testing and personal interviews and the type of waiting list on which the applicant may be placed. From the Job Education series.

"Job Attitudes - A Job that Goes Someplace, Pt 1." H
Guidance Assoc. Harcourt, Brace and World. 76 Frames
A sound filmstrip - audio tape
Shows youngsters how meaningful work is an intrinsic part of a full and interesting life. Explains criteria for selecting such work, ways to apply for a job and on-job attitudes conducive to advancement and personal satisfaction. Emphasizes the experiences of interviewed youngsters and professional employment counselors.

"Job Attitudes - A Job that Goes Someplace, Pt 2." J-H
Guidance Assoc. Harcourt, Brace and World. 70 Frames
1970. A sound filmstrip - audio tape
Portrays meaningful work as an intrinsic part of a full and interesting life. Explains criteria for selecting such work, describes ways to apply for a job, and discusses on-the-job attitudes conducive to advancement and personal satisfaction. Emphasizes the experiences of interviewed youngsters and professional employment counselors.

"Job Attitudes - A Job that Goes Someplace, Pt 2." H
Guidance Assoc. Harcourt, Brace and World. 79 Frames
A sound filmstrip - audio tape
Shows youngsters how meaningful work is an intrinsic part of a full and interesting life. Explains criteria for selecting such work, ways to apply for a job and on-job attitudes conducive to advancement and personal satisfaction. Emphasizes the experiences of interviewed youngsters and professional employment counselors.

"Job Opportunities in a Department Store." J-H
Society for Visual Education, Inc., (Div. The 58 Frames
Singer Co.), 1970. A sound filmstrip - audio tape
Includes non-selling jobs in seven areas of a department store-receiving rooms, stock room, computer room, sales audit department, credit department, restaurant and kitchen. Reviews function and requirements of the job of a sales person. From the Job Opportunities Now, Group I series.

"Job Opportunities in a Hospital." J-H
Society for Visual Education, Inc., (Div. The 64 Frames
Singer Co.), 1970. A sound filmstrip - audio tape
Covers seven hospital jobs at the non-professional level, starting in the diet kitchen and ending with the job of licensed practical nurse. Concludes with a review of career opportunities as specialized medical technician in the operating room, laboratory and physical therapy department. From the Job Opportunities Now, Group I series.

"Job Opportunities in a Restaurant." J-H
Society for Visual Education, Inc., (Div. The 61 Frames
Singer Co.), 1970. A sound filmstrip - audio tape
Provides a brief discussion of the advantages of restaurant work for students. Examines 12 specific kitchen jobs, from dishwasher to head chef, as well as the jobs of waitress, busboy, hostess and cashier. From the Job Opportunities Now, Group I series.

"Job Opportunities in a Supermarket." J-H
Society for Visual Education, Inc., (Div. The 57 Frames
Singer Co.), 1970. A sound filmstrip - audio tape
Discusses work of stock clerks, department managers, meat cutters, cashiers, bookkeepers and store managers. Emphasizes the advantages of flexible rapid advancement. From the Job Opportunities Now, Group I series.

"Job Outlook for Youth, The." J-H
Visual Education Consultants. A b l w filmstrip with captions
Stresses that 26 million new young workers during the 1960's will provide a job competition situation never before experienced by American youth. Analyses this competition and emphasizes the poor job prospect for young people who leave school too early. Emphasizes the importance of education in promotions and and lifetime earnings.

"Making It - As a Beautician." J-H A
Filmstrip House. A sound filmstrip - record 53 Frames
Shows how a Cuban girl completes night school to work as a beautician, making her financially independent. From the Making It series.

"Making It - As a Computer Operator." J-H A
Filmstrip House. A sound filmstrip - record 52 Frames
Illustrates how a black boy from the South operates a computer after an on-the-job training course. From the Making It series.

"Making It - As a Hospital Technician." J-H A
Filmstrip House. A sound filmstrip - record 54 Frames
Presents a young Afro-American now working as an inhalation therapist in a large hospital. From the Making It series.

"Making It - As a Teacher." J-H A
Filmstrip House. A sound filmstrip - record
Shows a black girl, born in a poverty-stricken slum, successfully teaching in a predominately white suburb. From the Making It series.

"Marketing Careers." J-H
Graphic Research, Inc., 1969. A sound film- 60 Frames
strip - record
Examines the requirements and conditions of employment in retail marketing occupations and familiarizes students with the types of jobs available. From the Distributive Education series.

"Policeman, The." K-P
Herbert M. Elkins Co., 1968. A filmstrip with 25 Frames
captions
Follows a policeman as he performs his many duties. Includes teacher guide frames and vocabulary lists. From the Community Helpers series.

"Postmen, The." K-P
Herbert M. Elkins Co., 1968. A filmstrip with captions 34 Frames
Photographs a story familiarizing the pupil with mailing of letters, packages, postage and how the mail is processed. Follows a letter from one post office to another and shows delivery by postman and mail truck. From the Community Helpers series.

"Preparing for an Interview." J-H
Graphic Research, Inc., 1969. A sound filmstrip - record 49 Frames
Reviews the phoned or written interview request, appropriate dress for the occasion and preparation for the interview such as learning about the company, the application form required by most companies and the references usually required when applying for a position. From the Office Education series.

"Registered Nurses - Qualifications and Education." J-H
Stephen Bosustow Productions, 1968. A filmstrip with captions 55 Frames
Reviews the qualifications and education necessary to become a registered nurse, and lists various organizations where a person may learn more about a nursing career. From the Nursing as a Career series.

"Registered Nurses - Types of Job and Opportunities." J-H
Stephen Bosustow Productions, 1968. A filmstrip with captions 57 Frames
Describes various areas of job opportunities open to registered nurses. Includes hospitals, nursing homes, industrial plants in the United States and in foreign countries, the Armed Forces and the World Health Organizations of the United Nations. From the Nursing as a Career series.

"Restaurant Worker." J-H
Mc Graw-Hill Textfilms, 1970. A sound filmstrip - record 84 Frames
Views the world of adult work, so that adolescent can make intelligent decisions about their future. Describes the prevocational skills and attitudes needed in order to become a restaurant worker. From the World of Work, Set 2 series.

"Retail Salesperson." J-H
Mc Graw-Hill Textfilms. 1970. A sound filmstrip - record 81 Frames
Views the world of adult work, so that adolescents can make intelligent decisions about their future. Describes the prevocational skills and attitudes needed in order to become a retail salesperson. From the world of Work, Set 2 series

"So You Want to be a Secretary." J-H
International Film Bureau, 1969. A sound filmstrip - record 48 Frames
Compares a secretary who does everything wrong with one who does everything right. From the Office Education, Series 1 series.

"Truck Driver." J-H
Mc Graw-Hill Textfilms. 1970. A sound filmstrip - record 80 Frames
Views the world of adult work, so that adolescents can make intelligent decisions about their futures. Describes the prevocational skills and attitudes needed in order to become a truck driver. From the World of Work, Set 2 series.

"Vocational Objectives." J-H
International Film Bureau, 1969. A sound filmstrip - record 50 Frames
Focuses attention on the secretary in specific jobs such as the stenographic pool, the law office, the medical office and an educational institution. Outlines qualifications and different kinds of positions available in these fields. From the Office Education, Series 1 series.

"Vocations - Medical Careers, Set 1 - Nurses - A Series." H A
Applied Learning Systems, Inc., 1971. A sound filmstrip
Covers basic points about careers in ten areas of nursing, most of which do not require degrees beyond high school or college. Includes public health, psychiatric, vocational, hospital and doctor's office positions.

"Vocations - Medical Careers, Set 2 - Technicians - A Series." H A
Applied Learning Systems, Inc., 1971. A sound filmstrip
Covers basic opportunities in health careers as technicians, such as medical records, operating room, laboratory and psychiatric technician.

"Vocations - Medical Careers, Set 3 - Aides - A Series." H A
Applied Learning Systems, Inc., 1971. A sound filmstrip
Covers basic opportunities in health careers as aids, such as medical transcriber, dental assistant, clerks and food service worker.

"Vocations - Medical Careers, Set 4 - Administrators - A Series." H A
Applied Learning Systems, Inc., 1971. A sound filmstrip
Covers basic opportunities in health careers as administrators, such as hospital, personnel, medical record librarian and medical photographer.

"Vocations - Medical Careers, Set 5 - Therapists - A Series." H A
Applied Learning Systems. Inc., 1971. A sound filmstrip
Covers basic opportunities in health careers as therapists, such as physical, speech, radiation, and occupational therapy.

16mm Educational Films

"Air Traffic Controller - Don't Call Me, I'll Call You." J-H
Mc Graw-Hill Textfilms, 1968. A 16mm film optical sound 9 Minutes
Covers a tense but typical moment for an air traffic controller as he guides a plane through departure from the Los Angeles International Airport. From the See a Job series.

"Air Transportation." H A
Vocational Guidance Films, 1946. A 16mm b & w film optical sound 11 Minutes
Provides a behind-the-scenes look at a commercial airline--reservations, sales, flight crew, ground servicing and airport personnel. Outlines the qualifications of personnel. From the Your Life Work series.

"Airplane Mechanic, The."
U. S. Office of Education. A 16mm b & w film optical sound — 9 Minutes
Discusses the duties, skills and responsibilities of an airplane mechanic.

"Architectural Careers."
Halewyn Films, Ltd., 1969. A 16mm film optical sound — J-H A — 14 Minutes
Discusses architectural career opportunities as architect, landscape architect or architectural draftsman/technologist, with emphasis on the changing role of the architect in modern society as he changes from the master builder to one of a highly specialized, multi-disciplinary team. Points out the differences in small, medium and very large architectural firms. From the Careers series.

"Aviation Workshop."
Federal Aviation Administration, 1966. A 16mm film optical sound — P-H T — 29 Minutes
Looks at careers in the Federal Aviation Administration. Presents sequences from other FAA motion pictures describing activities of the air traffic service, flight standards service, office of aviation medicine, FAA Academy, systems research and development service.

"Baking Industry, The."
Vocational Guidance Films, 1946. A 16mm b & w film optical sound — IND — 11 Minutes
Surveys the jobs available in the baking industry. Shows the steps in making bread in a large bakery. Describes the opportunities for training in the baking industry and discusses the problems of working in or owning a small retail bakery. From the Your Life Work Films series.

"Bookkeeping - Occupations and Opportunities."
John Paul Jones Assoc., 1969. A 16mm film optical sound — J-H — 15 Minutes
Traces the history of bookkeeping from early Babylonians, Egyptians and Romans through modern times. Shows the importance of keeping accurate records in financial matters and in business inventories.

"Broiling."
National Educational Media, Inc., 1967. A 16mm film optical sound — J A — 8 Minutes
Demonstrates proper broiling procedures for meats, fish and poultry. Shows how to mark meats, test for doneness and care for equipment. From the Professional Food Preparation and Service Program series.

"Builders of Tomorrow."
National Youth Administration, 1939. A 16mm film optical sound — 22 Minutes
Presents a girl and boy searching for a job after high school graduation and describes their experiences with the National Youth Administration.

"Building Job Satisfaction and Morale."
American Management Assoc., Inc., 1967. A 16mm film optical sound — 27 Minutes
Dr. James J. Cribbin identifies the main sources of job motivational problems and discusses the latest research in the field of motivation, dividing 'Hygienic Factors,' such as wages, working conditions and security from what he describes as 'the real motivators.' From the Developing Supervisory Leadership Skills series, No. 8.

"Building Trades - The House Builders."
Universal Education and Visual Arts, 1969. A 16mm film optical sound — J-H — 15 Minutes
Traces the steps in constructing the first house in a new development, from clearing the land to applying the last coat of paint. Stresses the importance of having each group perform efficiently. Explains that a construction worker must be part mathematician, draftsman, physicist, chemist and metallugist.

"C L U."
Life Underwriters Assoc. of Canada., 1966. A 16mm b & w film optical sound — 13 Minutes
Discusses the life underwriter and his services. Demonstrates the scope of service, actual studies undertaken, ethical standards and number of years necessary. Traces the career of a young insurance salesman from the time he decides to take the C L U training until he is designated chartered life underwriter.

"Cafeteria Service."
National Educational Media, Inc., 1971. A 16mm film optical sound — 9 Minutes
Demonstrates basic job responsibilities of food servers in cafeterias. From the Professional Food Preparation and Service Program series.

"Cap."
Floyd S. Jr., Cornelsion., 1959. A 16mm film optical sound — H — 16 Minutes
Promotes interest in nursing by presenting the highlights of a nurse's training program. Examines various areas of nursing.

**"Career Education."
A 16mm sound motion picture, produced by the Olympus Research Corporation, Salt Lake City, Utah, for the U.S. Office of Education. Washington, D.C.: Office of Education, U. S. Department of Health, Education, and Welfare, 1972.

"Careers in Broadcast News."
Radio TV News Directors Assn., 1969. A 16mm film optical sound — J-H — 10 Minutes
Visualizes the working environment of a news broadcaster. Describes the personal and professional qualities of a broadcast newsman, whose main objective is to tell a story objectively and truthfully.

"Ceramic Tile Workers."
AFL-CIO, Education Department, 1959. A 16mm b & w film optical sound — H A — 14 Minutes
Describes the work of ceramic tile workers. Demonstrates the modern methods used to bring ceramic tile designs into the average home. From the Americans at Work series.

"Chemical Engineer, The."
American Institute of Chemical Engineers, 1964. A 16mm film optical sound — J-H A — 27 Minutes
Discusses what jobs a chemical engineer does and why one should become a chemical engineer.

"Choosing Your Life's Work."
Southern Baptist Convention. A 16mm b & w film optical sound — H — 15 Minutes
Tells how two boys decide on their vocations by talking with their families and minister, taking aptitude tests and researching various vocations.

**This is in Career Education Office.

"Cindy Visits the Fire Department." I
Lem Bailey Productions, 1969. A 16mm film optical sound 14 Minutes
Discusses the many duties and activities of firemen, explains that they must be ready at all times to drop whatever they might be doing to answer calls for aid. Traces the history of helmets, fire engines, fire hydrants, and volunteer fire departments. Describes firemen's duties, recreation, meals and training.

"Commercial Photographer, The." J-H
Mc Graw-Hill Textfilms, 1969. A 16mm film optical sound 10 Minutes
Covers one day in the life of Duane Bey, a free-lance commercial photographer. Illustrates Duane's freedom in his free-lance work and the artistic judgment and businesslike organization that makes a free-lance photographer successful. From the See a Job series.

"CPA." H A
American Institute of Certified Public Accountants, 1960. A 16mm b & w film optical sound 28 Minutes
Follows one day's activities of a certified public accountant. Describes the nature and significance of the field as an occupation.

"Design for Life." J-H A
Sterling Movies U.S.A., 1956. A 16mm film optical sound 12 Minutes
Centers around a vigorous discussion between father and son over the boy's career. Shows services of pharmacists in several fields.

"Designing a Curriculum (DACUM)."
National Film Board of Canada, 1969. A 16mm film optical sound 14 Minutes
Explains to potential instructors how to design a curriculum to fit the needs of individual students. Involves both teacher and student in designing a suitable study program to fit the pupil's ability and illustrates this method with a student who has decided to become a cook, examining the different courses from which he can choose.

"Do You Think a Job is the Answer." H A
National Educational TV and Radio Center, 1969. A 16mm b & w film optical sound 68 Minutes
Examines the attempts of private industry in Detroit to hire and train the hard-core unemployed. Explains that auto companies are filling bottom-level jobs and that Detroit Blacks are challenging these policies and seeking programs with better opportunities for advancement. From the Public Broadcast Laboratory series.

"Door, The." H
Daniel, Mann, Johnson, Mendenhall. A 16mm film optical sound 18 Minutes
Stresses a knowledge of high school math and science in order to open the door to college and jobs in the aerospace field. Shows a counselor and a student discussing course selection.

"Duties of a Secretary." J-H
National Educational Films. A 16mm b & w film optical sound 30 Minutes
Provides the audience with an understanding of the plus values of a secretarial position.

"Dynamic Careers through Agriculture." J-H A
Charles Pfizer and Co., 1959. A 16mm film optical sound 28 Minutes
Shows the opportunities open to young people in various aspects of the agricultural industry. Explains that basic training in agriculture is useful preparation for careers in such fields as scientific research and in all phases of business.

"Engineering Makes a World of Difference." J-H
Kansas Engineering Society, Inc., 1968. A 16mm film optical sound
Describes the many areas of technology which the engineering profession dominates and encourages people to consider engineering as a career.

"Exciting Careers in Engineering." H
Walter J. Klein Co., Ltd., 1970. A 16mm film optical sound 14 Minutes
Acquaints the inquiring student with career opportunities in various fields of engineering.

"Forestry and Forest Industries." J-H
Vocational Guidance Films, 1946. A 16mm b & w film optical sound 11 Minutes
Shows the work of forest rangers and of people who harvest, process and distribute forest products. Explains the work of the logger, lumberjack, trimmer and grader. From the Your Life Work series.

"Goals and Dreams."
United Air Lines, A 16mm film optical sound 33 Minutes
Features Marilyn Van Derbur, former Miss America, high school valedictorian and university Phi Beta Kappa, talking to youth on matters relevent to them--the nature of happiness and the purpose of life.

"Heating and Air Conditioning." J-H
Vocational Guidance Films, 1945. A 16mm b & w film optical sound 11 Minutes
Shows how air conditioning and heating units are constructed, installed and serviced. Cites the job opportunities in the air conditioning industry, and indicates the educational requirements. From the Your Life Work series.

"Introduction to Accounting." J-H A
Business Education Films, (Div. of Alden Films), 1963. A 16mm b & w film optical sound 15 Minutes
Shows the historical introduction to accounting, its importance, uses, sources of information, records, reports and opportunities in the field.

"Is This for Me." J-H A
Cathedral Films, Inc. A 16mm b & w film optical sound 45 Minutes
Presents the story of a young boy who decides if the ministry is for him as a vocation by staying for a week in the home of his pastor.

"It's Up to You." I-H A
Vocational Films, 1969. A 16mm film optical sound 11 Minutes
Points out that in choosing a career the final choice belongs to the person whose decision it is. From the So You Want to Choose a Career series.

"It's Your Future." J-H
California Dept. of Industrial Relations, 1970. A 16mm film optical sound 13 Minutes

Tells the story of apprenticeship and how to earn while learning. Outlines various apprentic trades and encourages attention to certain studies such as math and English.

"Job Interview - Men." J-H
Dimension Films, 1967. A 16mm film optical sound 17 Minutes
Three young applicants are interviewed for trainee positions, and the viewers are asked to evaluate the applicants as an employer would. The interviews provide a basis for a discussion ranging from appearance and attitude of applicants to goals and long-range preparation for employment.

"Job Interview - Woman." J-H
Dimension Films, 1967. A 16mm film optical sound 16 Minutes
Three young applicants are interviewed for trainee positions, and the viewers are asked to evaluate the applicants as an employer would. The interviews provide a basis for a discussion ranging from appearance and attitude of applicants to goals and long-range preparation for employment.

"Jobs and Advancement - On the Move." J-H
Mc Graw-Hill Textfilms, 1969. A 16mm film optical sound 13 Minutes
Presents a vocational guidance film for junior and senior high school students using dramatized situations to discuss jobs and advancement.

"Jobs and Interviews - Getting Started." J-H
Mc Graw-Hill Textfilms, 1969. A 16mm film optical sound 15 Minutes
Dramatizes, in non-academic situations, the pre-vocational skills and attitudes young people must acquire. Presents as much factual information as possible, but the emphasis is on the internal feelings of the characters as they are confronted with decisions and choices.

"Jobs and Their Environments - On the Job." J-H
Mc Graw-Hill Textfilms, 1969. A 16mm film optical sound 14 Minutes
Dramatizes, in non-academic situations, the pre-vocational skills and attitudes young people must acquire. Presents as much factual information as possible, but the emphasis is on the internal feelings of the characters as they are confronted with decisions and choices.

"Jobs for Men - Where Am I Going." J-H
Mc Graw-Hill Textfilms, 1969. A 16mm film optical sound 11 Minutes
Uses dramatized incidents to point out skills and attitudes which young men must acquire in order to secure jobs. Emphasizes the role of internal feelings when confronted with decisions and choices. From the World of Work series.

"Jobs for Women - Where Are You Going, Virginia?" J-H
Mc Graw-Hill Textfilms, 1969. A 16mm film optical sound 11 Minutes
Dramatizes, in non-academic situations, the pre-vocational skills and attitudes young people must acquire. Presents as much factual information as possible, but the emphasis is on the internal feelings of the characters as they are confronted with decisions and choices.

"Jobs in the World of Work - A Good Place to Be." J-H
Mc Graw-Hill Textfilms, 1969. A 16mm film optical sound 12 Minutes
Provides vocational guidance for junior and senior high school students. Dramatizes situations in discussing jobs.

"Librarian, The." J-H
Vocational Guidance Films, 1947. A 16mm b & w film optical sound 11 Minutes
Shows the work of the cataloger, the school librarian, the reference librarian, the librarian who works with children and the librarian who specializes in a field. From the Your Life Work series.

"Machinist, The - You Always Do the Best Job You Can." J-H
Mc Graw-Hill Textfilms, 1968. A 16mm film optical sound 9 Minutes
Shows the challenge and satisfaction of working, as experienced by a machinist who gains gratification and self-respect through his ability to do his job well. From the See a Job series.

"Modelling Careers." J-H A
Halewyn Films, Ltd., 1969. A 16mm film optical sound 15 Minutes
Examines the career opportunities in modelling for both sexes, stressing the value of modelling training regardless of final choice of career. From the Careers series.

"NEM System, The." J A
National Educational Media, Inc., 1969. A 16mm film optical sound 8 Minutes
Describes NEM's concept in employee training and motivation and demonstrates how to use films in the professional food preparation and service program. From the Professional Food Preparation and Service Program series.

"New Horizons in Education." I-H A
Dibie-Dash Productions. A 16mm film optical sound 20 Minutes
Points out the importance of choosing an occupation intelligently and emphasizes the role of the school counselor. Shows three youths investigating occupations that require less than a college education. Offers four vignettes of the lives and vocations of people from different ethnic groups and visits nine persons in their job environment.

"Newspaper - Behind the Scenes." I-J
Charles Cahill and Assoc., Inc., 1970. A 16mm film optical sound 15 Minutes
Outlines major factors in producing a modern newspaper including printing, graphics, presses and provides insight into the many jobs available in newspaper publishing.

"Nurse, Please." H
ANA-NLN Film Service, 1954. A 16mm b & w film optical sound 28 Minutes
Presents the practical nursing field as a challenging one for those who can qualify. Demonstrates the requirements for education and the responsibilities of the job.

"Occupations and Opportunities - Drafting." J-H
John Paul Jones, 1968. A 16mm film optical sound 13 Minutes
Stresses that drafting is the professional language of architects, engineers and designers in many fields and that it offers endless career possibilities.

"Ophthalmic Careers, Pt 1." J-H
Halewyn Films, Ltd., 1969. A 16mm film optical sound 17 Minutes
Discusses the career possibilities in the refractive field of optometry. Describes the processes involved in the grinding and manufacture of eyeglasses based on prescriptions. From the Career series.

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"Ophthalmic Careers, Pt 2." J-H
Halewyn Films, Ltd., 1969. A 16mm film optical sound 20 Minutes
Discusses the ophthalmic careers involving medicine, such as the medical specialists and surgeon and the medical assistants to the ophthalmologists, The retail businessman who dispenses eyeglasses, and the skilled technician who makes and fits artificial eyes. From the Careers series.

"Optometry - A Career with Vision." H A
American Optometric Assn., 1965. A 16mm film optical sound 15 Minutes
Shows the optometrist in his education, his practice and in his community.

"Pharmacist, The." H
Vocational Guidance Films, 1946. A 16mm b & w film optical sound 11 Minutes
Portrays the various types of work in pharmacy, the training necessary and where it may be obtained. From the Your Life Work series.

"Photography." H
Vocational Guidance Films, 1946. A 16mm b & w film optical sound 11 Minutes
Depicts the uses of photography in industry, science, publications, advertising and entertainment. Shows work and qualifications of illustrative, commercial, newsreel, portrait and motion picture photographers. From the Your Life Work series.

"Plumbing." H
Vocational Guidance Films, 1945. A 16mm b & w film optical sound 11 Minutes
Describes the plumbing trade. Specifies the skills, education and apprenticeship period necessary for plumbers. Shows the tools of the trade. From the Your Life Work series.

"Poultry Raising." H
Vocational Guidance Films, 1946. A 16mm b & w film optical sound 11 Minutes
Reviews scientific poultry raising including specialized methods and research, training and procedures for beginning a poultry farm and marketing the products. From the Your Life Work series.

"Printing." H A
Vocational Guidance Films, 1947. A 16mm b & w film optical sound 11 Minutes
Illustrates the opportunities and training available in the field of printing. Shows hand typesetting, linotype, monotype, display, make-up and layout. From the Your Life Work series.

"Recording Engineer, The." J-H
Mc Graw-Hill Textfilms, 1969. A 16mm film optical sound 11 Minutes
Shows the excitement, challenge and satisfaction of the work of a recording engineer. Follows a recording engineer during a typical day at work. From the See a Job series.

"Salesmanship - Career Opportunities." J-H A
Gilbert Altschul Productions, 1966. A 16mm b & w film optical sound 15 Minutes
Presents vocational opportunities available in a sales career. Discusses qualifications, techniques, compensation methods, training and sales tools needed in this career. Shows the importance of the salesman in the marketing and industrial complex.

"So You Want to be a Tool and Die or Mold Maker." J-H T
Telecine Film Studios, Inc. (Vocational Film Div.), 1967. A 16mm film optical sound 11 Minutes
Shows the role of the tool and die worker. Sets forth the requirements for the apprenticeship program and defines its principal components. Reveals opportunities for advancement and the status and income of this career.

"Teaching." H
Vocational Guidance Films, 1946. A 16mm b & w film optical sound 11 Minutes
States the contribution of teachers to American democracy. Presents the traits of good teaching, the attractions in teaching, the educational requirements, and the various types of teaching jobs. From the Your Life Work series.

"Telephone and Telegraph." H
Vocational Guidance Films, 1946. A 16mm b & w film optical sound 11 Minutes
Discusses the jobs and job qualifications in the telephone and telegraph industries. From the Your Life Work series.

"This is Pharmacy - The Edge of Decision." J-H A
American Pharmaceutical Assn., 1966. A 16mm film optical sound 27 Minutes
Surveys the broad range of possibilities for careers in pharmacy by following a graduating class of pharmacy students as they discuss their plans for the future. Describes the role of the pharmacist in hospitals, retail business, research and industry.

"To Be a Performer." J-H
Churchill Films, 1970. A 16mm film optical sound 35 Minutes
Follows Jeff Solow, a young cellist of great promise, recording the substance of his working life. Designed for music study and vocational education. From the To Be a Musician series.

"Tommy Looks at Careers - Trucking." J-H A
B. F. Goodrich Co. A 16mm film optical sound 25 Minutes
Tommy, a teenager who won a high school 'career fair' for his research on careers in transportation finds that trucking is a large enterprise presenting excellent career opportunities.

"Training in the Food Service Industry." J A
National Educational Media, Inc., 1967. A 16mm film optical sound 8 Minutes
Demonstrates how to train employees in food preparation and service. From the Professional Food Preparation and Service Program series.

"Transportation." H
Vocational Guidance Films, 1946. A 16mm b & w film optical sound 11 Minutes
Surveys the employment requirements of bus, truck and taxi drivers and gives the number of people employed in these occupations. From the Your Life Work series.

"TV Talent Coordinator, The." J-H
Mc Graw-Hill Textfilms, 1969. A 16mm film optical sound 12 Minutes
Shows the excitement, challenge and satisfaction of the work of a TV talent coordinator. Follows a TV talent coordinator during a typical day of work. From the See a Job series.

"You and the Aerospace Future." H
Crawley Films, Ltd., 1966. A 16mm film optical sound 22 Minutes

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Shows Canadian aviation industry and the people who maintain it and hold jobs in it. Points out that school is for all people who want to get ahead and encourages young people to stay in school.

"You Can Be a Doctor." J-H
International Afro-American Museum, Inc., 1969. A 16mm film optical sound 15 Minutes
Encourages young people, especially those with inadequate training and finances, to strive to earn a degree in medicine.

"Your Career in Aeronautical engineering." J-H
Rarig's Inc., 1962. A 16mm film optical sound 27 Minutes
Explores careers in aeronautical engineering, including the importance of mathematics, highlights of college course material and scenes from industry showing graduate application of technical training. From the Your Career series.

"Your Career in Architecture." H
Rarig's Inc., 1962. A 16mm film optical sound 27 Minutes
Reviews the education needed for a career as an architect. Includes a view of the five-year college course and the three-year apprentice period. From the Your Career series.

"Your Career in Architecture." J-H A
Rarig's Inc., 1956. A 16mm film optical sound 28 Minutes
Presents the type of character, interests and abilities required to enter the field of architecture. Shows the training required in high school and college to meet professional requirements. Explains what can be accomplished in this field.

"Your Career in Hotel Management." H
Rarig's Inc., 1962. A 16mm film optical sound 27 Minutes
Reviews the education recommended for a career in hotel management. Surveys preparatory courses and shows many of the career opportunities available to a person trained in this field. From the Your Career series.

"Your Career in Journalism." H
Rarig's Inc., 1962. A 16mm film optical sound 27 Minutes
Reviews the liberal arts education recommended for a career in journalism. Presents a view of beginning jobs in reporting and describes some specialized jobs. From the Your Career series.

"Your Career in Law." (2nd Edition) H
Rarig's Inc., 1962. A 16mm film optical sound 27 Minutes
Stresses reading comprehension and capacity, love for words and respect for truth as the mark of the future lawyer. A mock trial in a law school illustrates professional study of torts, contracts, property rights and other aspects of the law. From the Your Career series.

"Your Career in Meteorology." H
Rarig's Inc., 1962. A 16mm film optical sound 27 Minutes
Reviews the education necessary for a career in the field of meteorology. Describes preparatory courses and shows various areas of specialization within each field. From the Your Career series.

"Your Career in Pharmacy."
Modern Talking Picture Service, 1956. A 16mm film optical sound 28 Minutes
Depicts the type of character, interests and abilities required to enter the field. Shows the training required in high school and college to meet professional requirements. Describes what can be accomplished in the field.

"Your Career in the Paper Industry." J-H
American Paper and Pulp Assoc. A 16mm film optical sound 21 Minutes
Demonstrates by means of animation and live action, the vast scope of the paper industry, and shows the career opportunities and living conditions. Traces the history of the paper from clay tablets, papyrus, early mills and movable type to the present day.

8mm Motion Cartridges

"Automation Techniques in Modern Industry." J-H
Doubleday Multimedia, 1970. An S8mm b & w cartridge silent
Shows how methods of industrial production vary with technology in modern industry and have increased to allow for greater efficiency and production. From the Life in the City series.

"Careers - Agri-Business." J-H
Doubleday Multimedia, 1970. An S8mm b & w cartridge silent 12 Minutes
Gives the students a general feel of the future of careers in the field of agri-business. From the Careers in the Seventies series.

"Careers - Clerical." J-H
Doubleday Multimedia, 1970. An S8mm b & w cartridge silent 9 Minutes
Gives the students a general feel of the type of future careers available in the clerical field. From the Careers in the Seventies series.

"Careers - Communication." J-H
Doubleday Multimedia, 1970. An S8mm b & w cartridge silent 12 Minutes
Gives the students a general feel for the future careers in communications field. From the Careers in the Seventies series.

"Careers - Construction." J-H
Doubleday Multimedia, 1970. An S8mm b & w cartridge silent 9 Minutes
Gives the students a general feel for the future of careers in the field of construction. From the Careers in the Seventies series.

"Careers - Education." J-H
Doubleday Multimedia, 1970. An S8mm b & w cartridge silent 12 Minutes
Gives the students the general feel of the future careers in the field of education. From the Careers in the Seventies series.

"Careers - General Services." J-H
Doubleday Multimedia, 1970. An S8mm b & w cartridge silent 9 Minutes
Gives the students the general feel of the future of careers in general services. From the Careers in the Seventies series.

"Careers - Government Service." J-H
Doubleday Multimedia, 1970. An S8mm b & w cartridge silent 9 Minutes
Gives the students a general feel for the future of careers in the field of governmental services. From the Careers in the Seventies series.

AN EVALUATION OF THE USE OF THE 4-H GAME, "LET'S EAT"

Summary of Findings

I. Introduction

The 4-H game, "Let's Eat," was developed for use with the 4-H project, "Food, Let's Begin." Despite some dissatisfaction with the quantity production of the game, it was distributed to 4-H agents in the early part of 1968. Because of concern over the actual use of the game and difficulties that might have arisen by those using it, the Office of Extension Studies was asked to undertake an evaluation study of its usage.

The study was designed to include the 4-H agents responsible for 4-H home economics programs and 4-H leaders to whom these agents had given the game for use with their clubs. The objectives for studying the agents were: 1) to obtain from them a list of the 4-H leaders to whom the game had been given so as to provide the leader population that would subsequently be surveyed, 2) to ascertain the methods by which the game was distributed to the leaders, and 3) to obtain a general evaluation by the 4-H agents of the game as a tool for teaching 4-H members about food and of their own orientation to the game. The 4-H leaders were to be studied: 1) to ascertain the manner in which they were given the game, 2) to determine whether or not they had used it, 3) to ascertain how they had used it and the number and age of club members with whom it had been used, 4) to obtain the leaders' evaluation of the game and through them the 4-H members' evaluation of it, 5) to ascertain the leaders' evaluation of their orientation for using the game, and 6) to secure from the leaders suggested changes in the game.

"Careers - Health Services." J-H
Doubleday Multimedia. 1970. An S8mm b & w cartridge silent 11 Minutes
Gives the students a general feel of the type of future careers available in the health services field. From the Careers in the Seventies series.

"Careers - Leisure Industries." J-H
Doubleday Multimedia, 1970. An S8mm b & w cartridge silent 9 Minutes
Gives the students a feel of the general area and career opportunities in the leisure services. From the Careers in the Seventies series.

"Careers - Making a Choice." J-H
Doubleday Multimedia, 1970. An S8mm b & w cartridge silent
Gives the students a general feel for the future careers in the fields of employment and helps them decide upon which set of criteria they should base their final choice. From the Careers in the Seventies series.

"Careers - Mechanical." J-H
Doubleday Multimedia, 1970. An S8mm b & w cartridge silent 12 Minutes
Gives the students a general feel of the type of future careers available in the mechanical field. From the Careers in the Seventies series.

"Careers - Sales." J-H
Doubleday Multimedia, 1970. An S8mm b & w cartridge silent 11 Minutes
Gives the students a general feel of future careers in sales and puts forward a few of the basic facts concerning it. From the Careers in the Seventies series.

"Careers - Technical." J-H
Doubleday Multimedia, 1970. An S8mm b & w cartridge silent 13 Minutes
Gives the students a general feel of the future careers in technical positions in the seventies. From the careers in the seventies series.

"Job Opportunities--A Series." J-H
Encyclopedia Britannica, 1970. An 8mm cartridge silent film series
Presents an on-the-job review of vocations to acquaint the student with various professions. Gives a real look at the work and diversity of jobs within each trade and emphasizes the need for a high school education in qualifying for each trade.

Air Conditioning and Refrigeration Mechanics	4 Minutes
Airplane Mechanics	4 Minutes
All-round Machinists	4 Minutes
Appliance Servicemen	4 Minutes
Assembly Occupations - Electronics	4 Minutes
Automobile Mechanics	4 Minutes
Automotive Body Repairmen	4 Minutes
Bricklayers	4 Minutes
Carpenters	4 Minutes
Cement Masons	4 Minutes
Cooks and Chefs	4 Minutes
Cosmetologists	4 Minutes
Customer Service Occupations	4 Minutes
Dental Assistants	4 Minutes
Dental Hygienists	4 Minutes
Dental Laboratory Technicians	4 Minutes
Dispensing Opticians and Optical Laboratory Technicians	4 Minutes
Electricians	4 Minutes
Firefighters	4 Minutes
Forestry Aids	4 Minutes
Gasoline Service Station Attendants	4 Minutes
Glaziers	4 Minutes
Licensed Practical Nurses	4 Minutes
Linemen and Cable Splicers	4 Minutes
Local Transit Bus Driver	4 Minutes
Local Truckdrivers	4 Minutes
Machining Occupations - Electronics	4 Minutes
Mail Carriers	4 Minutes
Medical Technologists	4 Minutes
Operating Engineers	4 Minutes
Over the Road Truckdrivers	4 Minutes
Painters and Paperhangers	4 Minutes
Photographers	4 Minutes
Plumbers and Pipefitters	4 Minutes
Policemen and Policewomen	4 Minutes
Postal Clerks	4 Minutes
Registered Professional Nurses	4 Minutes
Retail Salesmen and Saleswomen	4 Minutes
Routemen	4 Minutes
Sheet Metal Workers	4 Minutes
Stewardesses	4 Minutes
Surveyors	4 Minutes
Telephone and PBX Installers	4 Minutes
Telephone Craftsmen	4 Minutes
Television and Radio Service Technicians	4 Minutes
Transmission and Distribution Occupations	4 Minutes
Truck and Bus Mechanics	4 Minutes
Vending Machine Mechanics	4 Minutes
Waiters and Waitresses	4 Minutes
Welders Oxygen and Arc Cutters	4 Minutes

Educational Overhead Transparencies

"Accounting - A Guide to Decisions - A Series." H
Minnesota Mining and Manufacturing Co.
Contains occupationally oriented material designed to help a student become an efficient office worker.

"Accounting - Records and Controls - A Series." H
Minnesota Mining and Manufacturing Co.
Contains occupationally oriented material designed to help a student become an efficient office worker.

"Basic Computer Systems." H
Educational Record Sales. An 8x10 prepared transparency
Discusses computer concepts such as numbering systems, internal memory, programming flow charts and other technical aspects of computer science. From the Computer Concepts series.

"Basic Salon Shaping." H A
Minnesota Mining and Manufacturing Co., 1966. An 8x10 prepared transparency
Shows styling techniques and principles of design. From the Cosmetology - Hair Styling, Part 1 series.

"Blueprint Reading - A Series." H
Teenifax Corp.
Covers the basic skills involved in the reading and interpretation of technical drawings. Deals with the fundamentals of drafting concepts and means of visualization and explains the drawing of actual details. Includes six complete projects embodying all of the concepts taught--six phase CAM, small steelhammer, flange, C-clamp, tool maker's vise and tap wrench.

"Bookkeeping - A Series." H
United Transparencies, Inc. 8x10 prepared transparencies
Presents the fundamentals of bookkeeping.

Survey questionnaires were prepared for both the agents and leaders. The questionnaires were mailed to both groups. Of 55 4-H agents (home economists) to whom the agent questionnaires were sent, returns were received from 52; and of the 289 4-H leaders to whom leader questionnaires were sent (and received by them), 217, or 75 percent, made returns.

II. 4-H Agents Responsible for the 4-H Game

A. Distribution of 4-H Game, "Let's Eat"

1. Extent of distribution. 4-H agents in 41 of the 52 4-H county divisions reporting had distributed one or more games. A total of 338 leaders in 39 divisions reporting were given one or more games. About one third of the potential leaders who might be expected to use the game had been given one or more games.
2. Reasons leaders were not given game. The principal reason the game had not been given to the 665 leaders whose club programs included the project, "Food, Let's Begin," was their clubs had taken the project before the game was available.
3. Methods of distribution. The largest number (26) of the 39 divisions distributing the 4-H game gave it to 133 leaders at personal conferences between the leaders and agents. Next in terms of number of divisions was having leaders pick it up at the 4-H office or by mailing it to them without conference or other instructions with 16 divisions giving the game to 61 leaders in this way. The method in third position was at a leader training meeting with 14 divisions giving the game to 109 leaders.
4. What done when distributed at training meeting. The three things done most frequently at the training meeting were in rank order: discussed relation of

Balance Sheet
Bookkeeping Cycle
Cash Journal
Cash Receipts Journal
Combination Journal
General Journal
Ledger Accounts
T Accounts Balance Column Ledger
T Accounts General Ledger
T Accounts Two Column Ledger
Work Sheet

"Business." H A
United Transparencies, Inc. An 8x10 prepared transparency
Provides information on the major areas of everyday business and economics. From the Principles of Business and Economics series.

"Career Planning - A Series." H
Minnesota Mining and Manufacturing Co.
Contains occupationally oriented material designed to help a student become an efficient office worker.

"Careers in Distribution - Communications." H A
Minnesota Mining and Manufacturing Co., 1967. An 8x10 prepared transparency
From the Introduction to Distributive Education series.

"Careers in Distribution - Financing." H A
Minnesota Mining and Manufacturing Co., 1967. An 8x10 prepared transparency
From the Introduction to Distributive Education series.

"Careers in Distribution - Management." H A
Minnesota Mining and Manufacturing Co., 1967. An 8x10 prepared transparency
From the Introduction to Distributive Education series.

"Careers in Distribution - Record Keeping." H A
Minnesota Mining and Manufacturing Co., 1967. An 8x10 prepared transparency
From the Introduction to Distributive Education series.

"Careers in Distribution - Sales." H A
Minnesota Mining and Manufacturing Co., 1967. An 8x10 prepared transparency
From the Introduction to Distributive Education series.

"Careers in Distribution - Service." H A
Minnesota Mining and Manufacturing Co., 1967. An 8x10 prepared transparency
From the Introduction to Distributive Education series.

"Careers in Distribution - Transportation." H A
Minnesota Mining and Manufacturing Co., 1967. An 8x10 prepared transparency
From the Introduction to Distributive Education series.

"Careers with Users of Computers." H
Educational Record Sales. An 8x10 prepared transparency
Explains the two types of computer systems and discusses key punching, the use of symbols and electronic data processing.
From the Basic Computer Systems series.

"Computer Concepts - A Series." H
Educational Record Sales. 8x10 prepared transparencies
Discusses computer concepts such as numbering systems, internal memory, programming flow charts and other technical aspects of computer science.

Basic Computer Systems
Binary Addition and Subtraction
Binary Multiplication and Division
Binary Numbering System
Choice of Facilities for Computer Users
Computer Hardware Terminology I
Computer Hardware Terminology II
Computer Programming
Computer Size and Speed Characteristics
Computer Software Terminology
Computer Systems Terminology
Computer Time-Sharing Systems
How Computer Logic Circuits Work
Internal Memory of Computer
Numbering Systems Used in Computers
Program Flow Charts

**"Elementary Guide for Career Development: Grades 1 - 6."
Prepared by Lee Laws, Guidance Coordinator, Education Service Center, Austin, Texas: Education Service Center, Region XIII (6504 Tracor Lane), 1970. ("Career Transparencies" for this book and also a Discussion Guide for the transparencies are available from the Center.)

"Succeeding at Work - Following Rules - A Series." H A
United Transparencies, Inc. 8x10 prepared transparencies
Provides guidance to people who will be holding jobs for the first time. Illustrates how to follow rules at work.

Doing Your Work 'Later'
Giving Notice
Goofing Off
Keeping Equipment Clean
Litter Bugs
Lunch Hour Time
Review - Following Rules, No. 1
Review - Following Rules, No. 2
Rules for Dress
Sick Leave Rules
Smoking Rules
Vacation Rules
Watching for Signs
Working Hours
Working Overtime

"Succeeding at Work - Good Manners at Work - A Series." H A
United Transparencies, Inc. 8x10 prepared transparencies
Provides guidance to people who will be holding jobs for the first time. Illustrates good manners at work.

Being Polite and Trustworthy
Bus Manners
Consideration for Others - Good Manners at Work
Dealing with the Boss
Distractions
Driving Manners
Equipment and Supplies
Errands and Meetings
Party Manners
Pride in Appearance
Review Page - Good Manners Away from the Job
Review Page - Good Manners on the Job
Table Manners
Telephone Manners
Vacation Manners

game to project, "Food, Let's Begin," pointed out purpose back of game, and following instructions game was played by all leaders. All three of these things were combined for six of the 11 divisions which reported.

5. What done when distributed at a personal conference between leader and agent. The two things done most frequently at personal conferences in rank order were: discussed relation of game to project, "Food, Let's Begin" and discussed purpose back of game. Six of the 23 divisions reporting combined these two activities. Only seven of the 23 divisions reporting reviewed instructions and did practice runs with leaders.
6. Agents' judgment of the adequacy of leader orientation for use of 4-H game. Only five, or 15 percent, of the 33 agents who had distributed the game to one or more leaders and who reported, considered the orientation of their leaders to the 4-H game to be adequate.

B. Agents' Evaluation of Their Orientation for Use of Game

1. Judgment as to adequacy. Of the 38 agents reporting only seven, or 18 percent, considered their orientation adequate.

C. Agents' General Evaluation of Game

1. A useful tool or not. Twenty-three, or 59 percent, of the 39 agents reporting thought the game was a useful tool.

III. 4-H Club Leaders to Whom Games Were Given

A. Distribution of Game

1. Methods of distribution. Of the 192 leaders reporting,[1] the largest number (62), or 32 percent,

[1] Questionnaires were returned by 217 leaders.

"Succeeding at Work - Keeping Healthy at Work - A Series." H A
United Transparencies, Inc. 8x10 prepared transparencies
Provides guidance to people who will be holding jobs for the first time. Shows how to keep healthy at work.

- Attitudes and Emotions
- Cleanliness
- Clothing
- Exercise
- Following Directions
- Health Habits
- Health Hazards
- Interests and Hobbies
- Medical Check-Ups
- Medication
- Nutrition
- Posture
- Rest and Sleep
- Review Page - Keeping Healthy Away from the Job
- Review Page - Keeping Healthy While at Work

"Succeeding at Work - Keeping Safe at Work - A Series." H A
United Transparencies, Inc. 8x10 prepared transparencies
Provides guidance to people who will be holding jobs for the first time. Illustrates safety measures while at work.

- Accidents
- Carelessness
- Controlling Emotions for Safety
- Dressing for Safety
- Explosives
- First Aid
- Health Practices for Safety
- Keeping Informed
- Review Page - Safety Away from the Job
- Review Page - Safety on the Job
- Safe Surroundings
- Safety After Working Hours
- Safety for Others
- Safety Precautions
- Safety Rules for Driving

"Succeeding at Work - Learning More About Your Job - A Series." H A
United Transparencies, Inc. 8x10 prepared transparencies
Provides guidance to people who will be holding jobs for the first time. Shows how to learn more about the job.

- Accept Extra Duties
- Ask for Information
- Attend Meetings
- Experiment
- Learn Consideration for Customers
- Learn Good Manners
- Learn How to Find Answers
- Learn Safety Practices
- Observe
- Practice Good Ethics
- Review Page - Basic Things
- Review Page - Extras
- Study
- Teach Others
- Think and Suggest

"Succeeding at Work - Making Friends at Work - A Series." H A
United Transparencies, Inc. 8x10 prepared transparencies
Provides guidance to people who will be holding jobs for the first time. Illustrates how to make friends at work.

- Being Friendly Away from the Job
- Consideration for Others - Making Friends at Work
- Dependability
- Friendliness to Maids, Janitors
- Friendliness to New Employees
- Friendliness Toward the Boss
- Getting Acquainted
- Helping and Asking for Help
- Kindness and Honesty
- Neatness and Cleanliness
- Politeness
- Review - Making Friends at Work, No. 1
- Review - Making Friends at Work, No. 2
- Sharing
- Voice and Speech

Educational Records

"Artistic Interest Occupations." J-H
H. Wilson Corp. A 33 1/3 RPM 12 Inch Record 1 Side***
Offers the fields of commercial art, fine arts and architecture as possible areas for artistic occupations. From the Exploring the World of Work series.

"Career Guidance, Set 1 - Exploring the World of Work." 12 Sides
Demco Educational Corp. A 33 1/3 RPM 12 Inch Record
Discusses career opportunities and occupations.

- Introducing the World of Work, Pt 1 - 40,000 Occupations, The Need for Planning
- Introducing the World of Work, Pt 2 - An Approach to Studying Occupations

"Career Guidance, Set 2 - Planning Beyond High School." J-H
Demco Educational Corp. A 33 1/3 RPM 12 Inch Record 12 Sides
Implants concept that success in work is often related to education and explains the many forms of education available.

"Careers in Selling." 2 Sides
Folkways/Scholastic Records. A 33 1/3 RPM 12 Inch Record
Interviews Alfred C. Fuller who speaks on careers in selling.

"Clerical Interest Occupations." J-H
H. Wilson Corp. A 33 1/3 RPM 12 Inch Record 1 Side
Shows that the secretary, bookkeeper and travel agent have been able to find their interests met in these fields. From the Exploring the World of Work series.

"Computational Interest Occupations." J-H
H. Wilson Corp. A 33 1/3 RPM 12 Inch Record 1 Side
Points out that the fields of accounting, statistics, or computer operation could satisfy an interest in computational occupations. From the Exploring the World of Work series.

*** All recordings are monaural.

reported the game picked up, given, or mailed to them without conference or other instructions. The second ranking method was at leader training meeting with 52 leaders, or 27 percent of the 192 reporting this procedure and the third ranking method reported by 44 leaders, or 23 percent, was at personal conference with 4-H agent.[1]

2. What done when game was given out. Of the 184 leaders reporting, 88 or 48 percent, indicated that they received the game with no instructions.[2] The second ranking thing done was 4-H agent discussed the relation of the game to the project, "Food, Let's Begin" with 71, or 39 percent of the 184 leaders, mentioning this method.[3]

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[1]The rank order of the three leading methods of giving out the game reported by agents was in terms of number of leaders involved: 1) at personal conference between leader and agent, 2) at leader training meeting, and 3) picked up by leaders at office or mailed to them without conference or other instructions. It is hardly correct to consider the difference in rank order of these leading methods of giving out the game as contradictory because the leaders involved in reporting were not identical with those reported by the agents.

[2]This figure of 88 is greater than the figure 62 who indicated specifically that the game was picked up, given or mailed to them without conference or other instructions. The other 26 were presumably scattered among other methods of distribution for which there were no indications of instructions being given.

[3]Because of a necessary difference in handling the data for agents and leaders reporting on what done when game was given out, it is not possible to compare in any accurate way the information on this item which agents and leaders gave. Sixteen, or 41 percent, of 39 divisions reporting (involving 61 leaders) were reported by agents to have given out the game without instructions. The number of leaders thus reported (61) is less than the 88 leaders who reported no instructions given. The difference may be due in part to estimates of numbers which agents gave in their questionnaires.

"Helping is a Good Thing, Pt 1." K-P
Society for Visual Education, Inc. A 33 1/3 RPM 12 Inch Record 2 Sides
Supplies little listeners with information necessary in understanding themselves and their roles as family members, students and friends. Provides simple singing story-lessons that cover a broad spectrum of topics ranging from citizenship to hygiene and guidance. From The Child and His World series.

Sanitation Man
Fireman
Teacher
Bus Driver
Nurse
Doctor
Policeman
Librarian

"Helping is a Good Thing, Pt 2." K-P
Society for Visual Education, Inc. A 33 1/3 RPM 12 Inch Record 2 Sides
Supplies little listeners with information necessary in understanding themselves and their roles as family members, students and friends. Provides simple singing story-lessons that cover a broad spectrum of topics ranging from citizenship to hygiene and guidance. From The Child and His World series.

I Help at Home
I Help at School
I Help a Friend
I Help the City
I Help a New Child
I Help Animals
I Help a Neighbor
I Help Myself

"Introducing the World of Work, Pt 1." J-H
H. Wilson Corp. A 33 1/3 RPM 12 Inch Record 1 Side
Presents the necessity of planning for a job with the opportunity covering over 40,000 occupations. From the Exploring the World of Work series.

"Introducing the World of Work, Pt 2." J-H
H. Wilson Corp. A 33 1/3 RPM 12 Inch Record 1 Side
Presents an approach to studying occupations. From the Exploring the World of Work series.

"Just a Secretary." H A
Demco Educational Corp. A 33 1/3 RPM 12 Inch Record 2 Sides
Explores multiple duties and responsibilities of the secretary, such as typing, dictation, shorthand, answering the phone. Points out importance and esteem business places on graduates.

"Just a Secretary." J-H
Learning Arts. A 33 1/3 RPM 12 Inch Record 2 Sides
Presents the many varied roles of a secretary as she functions as not only a typist and stenographer, but also as a diplomat, economist, English professor, psychologist, communications expert, protector, official hostess and many more.

"Just a Teller." J-H A
Demco Educational Corp. A 33 1/3 RPM 12 Inch Record 2 Sides
Portrays various skills needed to cope with situations that arise when dealing with the public and fellow employees.

"Just a Teller." J-H
Learning Arts. A 33 1/3 RPM 12 Inch Record 2 Sides
Introduces high school students to the variety-field job as a bank teller, the job that requires one to be a diplomat, psychologist, accountant, financial advisor and one-man-band.

"Literary/Musical Interest Occupations." J-H
H. Wilson Corp. A 33 1/3 RPM 12 Inch Record 1 Side
Presents the writer, librarian and musician as people in literary and musical occupations. From the Exploring the World of Work series.

"Look is Natural." J-H A
Learning Arts. A 33 1/3 RPM 12 Inch Record 2 Sides
Provides a sensible and up-to-date guide to good grooming, directed primarily to the office worker and high school girls and boys.

"Look is Natural, The." H A
Demco Educational Corp. A 33 1/3 RPM 12 Inch Record 2 Sides
Dramatizes how a large institution feels employees should dress to create a desirable public image. Discusses good grooming, make-up and suitable dress for male and female.

"Mechanical Interest Occupations." J-H
H. Wilson Corp. A 33 1/3 RPM 12 Inch Record 1 Side
Shows the areas of engineering, construction trades and production managing that could meet the mechanically inclined. From the Exploring the World of Work series.

"Parkinson's Law." H
Learning Arts. A 33 1/3 RPM 12 Inch Record 2 Sides
Professor C. Northcote Parkinson explains his law 'work expands to fill the time available for its completion' as well as other observations on committees, how to succeed in business and others.

"Persuasive Interest Occupations." J-H
H. Wilson Corp. A 33 1/3 RPM 12 Inch Record 1 Side
Shows that the fields of sales, advertising and reporting could satisfy an interest in this area. From the Exploring the World of Work series.

"Scientific Interest Occupations." J-H
H. Wilson Corp. A 33 1/3 RPM 12 Inch Record 1 Side
Guides and describes the fields of the engineer, geologist and health scientist in the field of science. From the Exploring the World of Work series.

"Social Service Interest Occupations." J-H
H. Wilson Corp. A 33 1/3 RPM 12 Inch Record 1 Side
Offers the areas of the clergy, social work and teaching as an outlet for interests in social service. From the Exploring the World of Work series.

"Vocational Decisions." J-H
Learning Arts. A 33 1/3 RPM 12 Inch Record 4 Sides
Helps students be aware of the occupational opportunities available to them and suggests ways in which they can develop their own potentials. Presents factual information to inform students of the importance in matching their abilities and interests with potential vocational decisions.
An Introduction to Vocation
The World of Work
Counseling in Vocational Decision

"What Do You Want to be When You Grow Up." K-P
Learning Arts. A 33 1/3 RPM 12 Inch Record 2 Sides
Ed Mc Mahon with cast presents dramatic sketches to introduce children to the work of the railroad engineer, zoo veterinarian, aquanaut, secretary, sound effects engineer, nurse and astronaut.

"Women in the World of Work." J-H
H. Wilson Corp. A 33 1/3 RPM 12 Inch Record 1 Side

B. Use of Game with 4-H Club Members

1. Number of leaders who used or did not use game. Of the 217 leaders returning questionnaires, 100, or 46 percent, had used the game and 117, or 54 percent, had not used it. Of the 117 who had not used it, 35 expected to in the fall of 1968. The two main reasons given for nonuse were: club took project, "Food, Let's Begin," before game was available and lack of time at club meetings to play game.
2. Methods of using game in connection with project, "Food, Let's Begin."[1] In terms of frequency of mention, the first and second ranking methods by which the game was used with the project, "Food, Let's Begin," were used it as a summary at end of project and used it to introduce project.
3. Number of 4-H members using the game. The total number of members who had played or tried to play the game as reported by 98 leaders was 803. Approximately 52 percent of the total club membership of the leaders reporting had played or tried to play the game. For the 98 leaders reporting, the mean number of members per leader playing or trying to play the game was 8.2.[2]
4. Age grouping of members playing game. The game was used predominantly with the age group 9-11.

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[1] From this point on, the data were provided almost exclusively by those leaders using the game.

[2] A close examination of the leaders' questionnaires suggests that some leaders gave the number of members participating in the project, "Food, Let's Begin," rather than the number in the club.

Shows how women need to plan a double career, their need for education and the trends of working women for the future. From the Exploring the World of Work series.

"World of Work, Set 1." J-H
Learning Art. A 33 1/3 RPM 12 Inch Record 6 Sides
Covers a different occupation that young men and women with little or no vocational training can enter. Explains what the job consist of, what their responsibilities will be and gives details on entering, qualifying for and getting started in the occupation in question so that the viewer can do some planning for himself armed with the vital knowledge.

Computational Interest Occupations
Introducing the World of Work, Pt 1
Introducing the World of Work, Pt 2
Literary and Musical Interest Occupations
Mechanical Interest Occupations
Outdoor Interest Occupations
Persuasive Interest Occupations
Scientific Interest Occupations
Social Service Interest Occupations
Women in the World of Work

"Fireman and His Work, The." P
Minnesota Mining and Manufacturing Co. A 18 Minutes
1 7/8 IPS Audio Tape Cassette
Examines the contributions of the fireman to community safety. Creates an awareness of fire dangers and the need for fire safety.

Educational Audio Tapes

"About that High School Record." H
Indiana University, 1961. A 3 3/4 IPS 1 Track 14 Minutes****
Audio Tape
Explains the purpose of cumulative records in high school and their value as a source of guidance and as a basis for building plans for the future. From the Making Good series.

"Airline Stewardess, The." J-H A
WUOM Radio Station, University of Michigan. 15 Minutes
A 3 3/4 IPS 2 Track Audio Tape
Interviews an airline hostess in her plane and in the operations room. Includes an interview with the station agent who discusses the requirements for being a hostess or stewardess. From the Sky Trails series.

"Careers - A Series." J-H
Tapes Unlimited, (Div. of Education Unlimited Corp.) 1 7/8 IPS Audio Tape Cassettes
Presents a study of 12 Major industries, giving the student a broader outlook before committing himself to a course of study.

Construction
Distribution
Education
Graphic Arts
Health Services
Hotels, Motels, Restaurants
Industry
Law
Mass Communication
Security and Protection
Selling
Transportation

"Education for Journalism." H A
WUOM Radio Station, University of Michigan. 30 Minutes
A 3 3/4 IPS 2 Track Audio Tape
Newsmen and teachers comment on education in the field of journalism can discuss the best ways future newsmen and prepare themselves. Explains what subjects should be studied and the amount of formal education required to become a journalist. From the News in Twentieth Century America series.

"Exploring the World of Work - A Series." J-H
H. Wilson Corp. 1 7/8 IPS Audio Tape Cassettes
Uses the interest areas of the Kuder Vocational Preference Record to focus on the different kinds of career opportunities open to young people.

Artistic Interest Occupations
Clerical Interest Occupations

"Flight Crew." J-H A
WUOM Radio Station, University of Michigan. 15 Minutes
A 3 3/4 IPS 2 Track Audio Tape
Presents a panel discussion between three pilots flying military, scheduled and corporation planes. Mentions their works and background. From the Sky Trails series.

"Foreign Correspondent, The." H A
WUOM Radio Station, University of Michigan. 30 Minutes
A 3 3/4 IPS 2 Track Audio Tape
Introduces several journalists who voice their opinions on the foreign correspondent, his work, his status and some of the problems which confront him. From the News in Twentieth Century America series.

"Getting Along With Others." H
Indiana University, 1961. A 3 3/4 IPS 1 Track 14 Minutes
Audio Tape
Dramatizes how it pays to be courteous, to prevent trouble with one's neighbors and to avoid antagonizing people. Stresses the importance of making a good impression on others. From the Making Good series.

"Getting Ready for Your Job." H
Indiana University, 1961. A 3 3/4 IPS 1 Track 14 Minutes
Audio Tape
Discusses a variety of interests which are helpful in obtaining a job. Suggests participation in high school activities and clubs as a means of cultivating new interests. From the Making Good series.

"Interview - A Series." H
Imperial Productions, Inc., (Educational Div.)
1 7/8 IPS Audio Tape Cassettes
Presents actual on-the-job interviews for students seeking vocational guidance. Gives an account of the occupations in which they are interested.

Accountant
Advertising
Appliance Serviceman
Architect
Assembler
Auto Mechanic
Biologist
Carpenter
Chemist
Commercial Artist
Commercial Photographer
Cosmetologist
Counselor
Dental Hygienist
Dental Technician
Draftsman
Electrician
Electronic Technician
Elementary Teacher

****All tapes are monaural.

C. Evaluation of Their Orientation for Use of Game by Leaders

1. Judgment as to adequacy. Of the 92 leaders reporting 42, or 45 percent, considered their orientation very adequate.[1]

D. Indirect Evaluation of Game by Members as Reported by Club Leaders

1. Impressions of reactions of members. About half of the leaders having girls in their clubs thought they were moderately interested and the same was true for those having boys. Only a few leaders reported negative reactions of members playing or trying to play the game.

2. Recalled comments made by members. Of 71 leaders who listed one or more comments about the game made by members, 25, or 35 percent, listed a positive comment only. Negative comments only were listed by 14, or 20 percent. When all negative comments including those combined with positive and mixed comments are added together, the percentage is 54 compared to 66 percent for all positive comments including combinations. Subclasses of frequently listed positive comments were: good way to learn food selection for balanced meals, it's fun, and enjoyed playing game and wanted to play often. Subclasses of frequently listed negative comments were: too difficult to understand rules and no fun or too boring.

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[1] A comparison of the agents' and leaders' evaluation of the adequacy of orientation of the latter shows the agents were somewhat more severe than the leaders in their judgment of the adequacy of the leaders' orientation.

Grocery Store Clerk
Heavy Machine Operator
Insurance Broker
Laundry Routeman
Lawyer
Librarian
Local Truck Driver
Machinist
Medical Technician
Medical X-Ray Technician
Musician
Nurse, Practical
Nurse, Registered
Physician
Pilot, Copilot
Plumber-Pipefitter
Policeman
Printer
Programmer
Public Relations
Real Estate Broker
Retail Saleswoman
Secondary Teacher
Secretary
Social Worker
Stationary Engineer
Stewardess, Airline
Switchboard Operator
Technical Writer
Tool and Die Maker
TV and Radio Serviceman

"Making Good - A Series." H
Indiana University, 1961. 3 3/4 IPS 1 Track Audio Tapes 11-15 Minutes each
Presents young people with problems they will face in the future--vocations they will enter and the families they will establish.

About that High School Record
About Your Home Life
Activities - Are They Worth It
Are You Worth It
Can You Land the Job
Can You Say It
Do You Have What It Takes
Getting Along with Others
Getting Ready for Your Job
Growing Into Maturity
Home Sweet Home
How About a Date
How Do I Look
How Do You Measure Up
Interests Pay Dividends
Introduction to You, An
Let's Face It
Let's Look at Jobs
Let's Look at the Records
Message to the Stag Line, A
More About Choosing Your Job
Oh Those Academic Walls
Open and Closed Doors
Particulars on Extra Curricular
Personality's the Thing
Reaching for Maturity
So What is Maturity
Something to Interest Everybody
Success - It's Up to You
Teachers are People Too
Test Me on this One
Time on Your Hands
Truth About Yourself, The
What Can You Do
What Do You Know
What is Normal Behavior
What is Normal Growth
What's on Your Mind
Working to Learn
Working to Learn and Learning to Work
You Take It from Here
You're on Your Own
Your Health and Your Personality
Yourself and Your Job

"World of Work - A Series. H
Indiana University. 3 3/4 IPS 1 Track Audio Tapes 15 Minutes each
Explains the main factors involved in choosing an occupation.

Choosing Your Occupation
Getting a Job
How You Can Study Occupations
Interests, Aptitudes and Skills
It's a Big World
It's a Changing World
Knowing Yourself
Military Service
Occupations in Your Community
Personality and Occupations
Preparing for Your Occupation
Preparing Through Experience

Games and Kits

**"Career Information Kit." H
Chicago: Science Research Associates, Inc., 259 Erie Street, Illinois, 60611. Western Office: 165 University Ave., Room 201, Palo Alto, Calif. 94301. 1971.
For grades 9-14, contains 600 pieces of occupational literature.

**"Focus of Self Development Kit, Stage 1 - Awareness." K-P
Chicago: Science Research Associates, Inc., 259 Erie Street, Illinois, 60611. Western Office: 165 University Ave., Room 201, Palo Alto, Calif. 94301. 1970.
Contains five 36 frame filmstrips with four 10" 33 1/3 RPM story records, twenty 17x22" photographs, easel, and pupil activity book titled "Here I Am."

**"Focus of Self Development Kit, Stage 2 - Responding." P
Chicago: Science Research Associates, Inc., 259 Erie Street, Illinois, 60611. Western Office: 165 University Ave., Room 201, Palo Alto, Calif. 94301. 1971.
For grades 2-4, contains six 36 frame full color filmstrips with four 12" 33 1/3 RPM story records, twenty 17x22" photographs, easel, and pupil activity booklet titled, "The Me I Know."

**"Job Experience Kit." J-H
Chicago: Science Research Associates, Inc., 259 Erie Street, Illinois, 60611. Western Office: 165 University Ave., Room 201, Palo Alto, Calif. 94301. 1970.
For grades 8-12, contains answer pads and comprehensive users guide in each kit for 20 occupations.

**"Life Career Game." J-H
New York: Western Publishing Company, Inc., 1967.
For junior high and senior high school level, contains teacher manual, pictures to illustrate each of the four eight page profiles. Provides opportunity for student to try out the career-decision making process regarding choice of leisure, working/helping, or studying by identifying with a ficticious person.

E. Evaluation of Game by Leaders

1. What leaders judged the game realizes. The percent of leaders (N=96) who agreed that the game realized the following five potential objectives was:

Objectives	Percent
Game helps players realize there is a variety of food in each food group from which to make daily food choices.	96
Game acquaints players with types of foods which are similar in food value.	85
Game teaches players number of servings recommended for each of four basic food groups.	84
Game acquaints players with amount of food considered average serving.	64
Game will get players to accept those foods that are especially good sources of certain nutrients.	41

2. Evidence of application. Of the 96 leaders who reported, only 16, or 17 percent, thought they had evidence that the members who played the game or tried to play it had learned something which they had applied to their diet.

3. Leader would use game again. Of the 91 leaders reporting, 72, or 79 percent indicated they would use the game again.

F. Some Specific Evaluations of Game by Leaders

1. Clarity of rules. Forty-seven percent of the 98 leaders reporting thought the rules were unclear.

2. Completeness of rules. Forty-three percent of the 94 leaders reporting considered the rules not complete enough.

3. Role of dealer. Fifty-two percent of 97 leaders reporting thought the game proceeds faster if the dealer does not play.

**"Occupational Explnration Kit." II
Chicago: Science Research Associates, Inc., 259 Erie Street, Illinois, 60611. Western Office: 165 University Ave., Room 201, Palo Alto, Calif. 94301. 1971.
For grades 9-12, contains Occusan coding device, occupational briefs, job family booklets, guidance series booklets and 25 student record books.

**"Widening Occupational Roles Kit." I-J
Chicago: Science Research Associates, Inc., 259 Erie Street, Illinois, 60611. Western Office: 165 University Ave., Room 201, Palo Alto, Calif. 94301. 1967.
For grades 6-9, contains 400 junior occupational briefs, five guide booklets, 35 student record books, and five color filmstrips.

**"The World of Construction, an Industrial Arts Curriculum Project Kit." H
Bloomington, Illinois: McKnight and McKnight Publishing Co., 1970.
Consists of a 554 page textbook, a 306 page teacher guide, and a 358 page laboratory manual. The publishers are under contract with Ohio State University Research Foundation. Various tools, equipment, and materials are available from the publishing company in conjunction with these kits.

**"The World of Manufacturing, an Industrial Arts Curriculum Project Kit." H
Bloomington, Illinois: McKnight and McKnight Publishing Co., 1971.
Consists of a 524 page textbook, a 365 page teacher guide, and a 375 page laboratory manual. The publishers are under contract with Ohio State University Research Foundation. Various tools, equipment, and materials are available from the publishing company in conjunction with these kits.

4. Immediate objective of game. Of the 93 leaders reporting, only 16, or 17 percent, thought that none of their members playing or trying to play the game recognized that the immediate objective was not to be the first one out.
5. Figuring the score. Of the 94 leaders reporting, 23, or 24 percent, thought all or most of those playing or trying to play the game had difficulty figuring the score.
6. Complexity of game. Of the 94 leaders reporting, 24, or 26 percent, thought all or most of the members playing or trying to play the game found it too complicated.
7. Estimated time required to learn the game. In general, the leaders appeared to be overly optimistic about the specific amount of time required to learn the game. The average for the 71 leaders reporting was 27 minutes.
8. Opinions about time required to learn game. Of the 86 leaders reporting, 31, or 36 percent, thought the time required to learn the game was too great (an apparent contradiction of (7) above).
9. Number of practice games required to learn game. Of the 61 leaders reporting, the mean number of practice games considered necessary to learn how to play was 2.5 games.

G. Suggestions by Leaders for Changes in Rules of Game

1. Of the 72 leaders reporting and planning to use the game again, 25, or 35 percent, made suggestions for changes in the rules. The most frequently mentioned suggestion was clearer or simpler rules.

VT 016 598
ALEXANDER, FRANK D.
AN EVALUATION OF THE USE OF THE 4-H GAME, "LET'S EAT.".

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MF AVAILABLE IN VT-ERIC SET.
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DESCRIPTORS - *STATISTICAL STUDIES; *EDUCATIONAL GAMES; *NUTRITION; *HOME ECONOMICS EDUCATION; HEALTH EDUCATION; *EVALUATION

ABSTRACT - INITIATED BY A 4-H EXTENSION PROGRAM LEADER, THIS EVALUATION EFFORT SOUGHT TO DETERMINE THE EXTENT AND MANNER OF UTILIZATION OF A 4-H GAME DESIGNED TO SUPPLEMENT AN EXISTING NUTRITION PROJECT. THE TITLE OF THE GAME WAS "LET'S EAT." DATA WERE OBTAINED BY DISTRIBUTING QUESTIONNAIRES TO 55 HOME ECONOMISTS AND 289 GROUP LEADERS. FINDINGS FROM THE RETURN OF INSTRUMENTS BY 52 OF THE HOME ECONOMISTS AND 217 4-H LEADERS INDICATE A GENERAL ACCEPTANCE AND WIDE USE OF THE GAME AS AN INSTRUCTIONAL AID. CRITICISMS AND RECOMMENDATIONS FOR IMPROVEMENT ARE INCLUDED THROUGHOUT THE STUDY. (SN)

ERIC

Some Observations for Guiding Decision Making Regarding Future Use of Game

1. The game was not fully utilized when made available in the first half of 1968 because the project, "Food, Let's Begin," had already been taught. Future use should be coordinated with the teaching of that project.[1]
2. Almost three fifths of the 4-H agents whose leaders had been given the game considered it a useful tool. This would indicate that a majority of the agents whose leaders had had an opportunity to use the game had a positive attitude toward it.
3. The 4-H leaders who had used the game generally had a positive attitude toward it. A good majority of them considered that four of five major objectives of the game were attained and over three fourths of them would use it again. These facts suggest that the game should probably be given further trial.
4. About half of the leaders using the game thought that both their female and male members were moderately interested. This suggests some reservations on the part of leaders regarding members' reactions to playing the game despite the willingness of a large majority of the leaders to use it again.
5. The information regarding methods of distributing the game and orientation of leaders for its use suggests more careful and thoughtful planning by the agents in this respect.
6. In view of the opinion of the 4-H agents that their own orientation for the use of the game was not especially adequate, more attention should be given to this activity.

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[1] This may have been accomplished by the divisions planning to use the game in the fall of 1968.

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EDUCATION & WELFARE
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AN EVALUATION OF THE USE OF THE 4-H GAME, "LET'S EAT"

Special Report No. 21

Office of Extension Studies

New York State Colleges of Agriculture and Home Economics
Statutory Colleges of the State University
at Cornell University
Ithaca, New York

December, 1968

VT016598

7. The game was reported to have been used with about 800 4-H members, which was approximately one half of the total club members reported by the leaders who used the game. Perhaps some judgment needs to be made as to level of expectancy regarding extent of use of the game by club members.
8. It should be remembered that the evaluations and criticisms of the game were made on the basis of experience with 4-H members who were predominantly in the 9-11 age group.
9. The leaders reported that they had used the game in connection with the project, "Food, Let's Begin," either as an introduction or as a summary of it. This information should provide clues for training leaders in the use of the game.
10. Certain specific evaluations of the game in the form of criticisms should be noted for possible revisions of the game. These are:
    a. Rules are not clear.
    b. Rules are not complete.
    c. A faster game results if dealer does not play.
    d. Figuring the score is difficult.
    e. The game is too complicated.
    f. Too much time is required to learn the game.
11. The text of the report ends with a list of suggested changes in the rules of the game. In addition, on pages 39 and 40 there are lists of comments by leaders relating to the clarity and completeness of rules. These lists should be examined if revision of the rules is undertaken.

Author: Frank D. Alexander, Extension Studies Analyst

AN EVALUATION OF THE USE OF THE 4-H GAME, "LET'S EAT"

Introduction

The 4-H game, "Let's Eat," was developed by Janet Clay White for use with the 4-H project, "Food, Let's Begin." At the State 4-H Club Congress in June, 1967, the 4-H agents responsible for home economics had the opportunity to observe a group of 10-and 11-year-old boys and girls play the game using a prototype which a New York printing firm had produced after collaboration with its inventor. When the games were produced in quantity, they were of poorer quality than the model used in the demonstration at the State 4-H Club Congress. It was finally decided, despite their somewhat poor quality, to release the games to counties on a no-charge basis and to evaluate the effectiveness of the game after a trial period.

A letter was sent to 4-H agents indicating the availability of the game, the conditions under which it was being offered to the counties, and how to order it. In January, 1968 a majority of the agents who ordered sets of the game picked them up when attending the Extension Conference. Additional directions for the use of the game were sent to the agents on April 2, 1968 with an indication that an evaluation of its use was being planned. Shortly before April 2, 1968, Lois McGurk, Assistant Professor of Extension and Extension Program Leader, and Mildred Dunn, Associate Professor of Food and Nutrition, had requested the Office of Extension Studies to undertake with their assistance an evaluation study which would be concerned with whether or not the game was actually being used to any extent and, if so, what difficulties 4-H agents and leaders were encountering as they undertook to use it.

PREFACE

This study was undertaken at the request of Lois McGurk, Extension 4-H Program Leader, and Mildred Dunn, Associate Professor of Food and Nutrition. It seeks to discover the extent and manner of utilization of a 4-H game entitled, "Let's Eat," which was developed to serve as a supplement to the 4-H project, "Food, Let's Begin." Because of delays in production, it was not possible to utilize the game fully during the first half of 1968. However, it was thought that the 4-H agents and leaders would have had enough experience with the game to be able to evaluate it as a teaching tool. Since the use of a game to supplement a 4-H nutrition project was experimental, a systematic effort to evaluate its use and effectiveness was considered necessary. The study provides those responsible for the 4-H nutrition program with indicators as to whether the game has been a useful educational tool and at the same time presents suggestions for its revision if further use is contemplated. Also, the necessity for more effective orientation of both agents and leaders in the use of the game is emphasized.

Purpose of the Study

An evaluation study was, therefore, designed which would include the 4-H agents responsible for 4-H home economics programs and the 4-H club leaders to whom the agents had given the game for use with their clubs. The objectives for studying the agents were: 1) to obtain from them a list of the 4-H leaders to whom the game had been given so as to provide the leader population that would subsequently be surveyed, 2) to ascertain the methods by which the game was distributed to the leaders, and 3) to obtain a general evaluation by the 4-H agents of the game as a tool for teaching 4-H members about food and of their own orientation to the game.

The 4-H leaders who were listed as recipients of the game were to be surveyed for the following purposes: 1) to ascertain the manner in which they were given the game, 2) to determine whether or not they had used it, 3) to ascertain how they had used it and the number and age of club members with whom it had been used, 4) to obtain the leaders' evaluation of the game and through them the 4-H members' evaluation of it, 5) to ascertain the leaders' evaluation of their orientation for using the game, and 6) to secure from the leaders suggested changes in the game.

Methodology

A survey questionnaire for the 4-H agents (home economists) responsible for handling the 4-H game was prepared by the Office of Extension Studies with assistance from Mildred Dunn and Lois McGurk (see Appendix A). The questionnaire was given a very limited pre-test. It was then mailed to the 4-H agents (home economists) in the 55 4-H county divisions in the state.[1] A copy of the covering letter and questionnaire were

[1]Putnam and Westchester counties are served by one division.

also sent to each of the leaders of the county 4-H divisions. A second mailing was made to the agents who failed to respond to the first mailing. This second mailing was followed by telephone calls to the agents who did not respond to the second mailing. Returns were finally received from 52 agents (or divisions).

A survey questionnaire for 4-H leaders to whom the game had been given was also prepared by the Office of Extension Studies with the assistance of Mildred Dunn and Lois McGurk (see Appendix B). Because of pressure to move ahead with the survey, no pre-test was made of this questionnaire. It was mailed to 290 4-H leaders whose names the 4-H agents had provided in their questionnaires as the leaders to whom they had given the 4-H game, "Let's Eat." A copy of the covering letter and questionnaire were also sent to each 4-H agent (home economist) so she would be informed as to the substance of the survey. Only 289 leaders actually received the questionnaire since one questionnaire was returned with indication of address unknown. Of the 289 who received the questionnaire, 217, or 75 percent, made a return. To secure this return those leaders who did not respond to the first mailing were sent a second questionnaire and at the same time a list of their names was sent to the 4-H agent (home economist) in their county requesting telephone calls to the leaders urging returns. After about three weeks, these agents were called and reminded to contact the leaders who had not at that time made their returns, urging them to do so.

4-H Agents Responsible for the 4-H Game

Distribution of 4-H Game, "Let's Eat"

Extent of distribution. The 4-H agents responsible for home economics in 41 of the 52 4-H county divisions reporting

had given the 4-H game to one or more leaders (Table 1). In 11 divisions no games had been distributed to leaders. A total of

Table 1

Report of 4-H Divisions Relative to Disposition Of 4-H Game, "Let's Eat"

Number of divisions reporting	52[a]
Number of divisions where one or more leaders were given game	41[b]
Number of divisions where no leader was given game	11
Number of leaders given game (in 39 divisions; number not specified in two divisions)	338
Average (mean) number of leaders per division given game	8.7
Number of games given out (in 38 divisions; three gave no information)	344
Number of leaders teaching or expecting to teach the project, "Food, Let's Begin," not given game	665[c]

[a] Cattaraugus was called and reported that a questionnaire would not be returned. Putnam and Westchester counties are combined, being served by one division. No returns from the Fulton or Genesee divisions were received.

[b] Seven divisions of these 41 reported having given games to all leaders responsible for the project, "Food, Let's Begin."

[c] This number (665) was reported by 33 divisions with three additional divisions giving no information, nine not specifying the number of leaders who should have been given the game but with none being given a game, and seven having given the game to all leaders whose club programs included the project, "Food, Let's Begin." This adds to the 52 divisions reporting.

338 leaders[1] in 39 divisions reporting were given one or more games. The number of leaders whose club programs included the project, "Food, Let's Begin," for which the game was intended to be a supporting learning experience and who were not given the game was 665.[2]

Thus, while the figures on number of leaders given the game and number of leaders not given the game can hardly be considered an accurate sum of all leaders who would be expected to use the game, the sum of the two numbers can be used as the base for estimating the percent of potential leaders who might use it. This would mean that about one third of the potential leaders had been given one or more games at the time of the survey. The 344 games given the leaders in 38 divisions constituted 20 percent of the total number (1733) of games which the 4-H agents had taken for distribution.

Reasons leaders not given game. The principal reason the game had not been given to the 665 leaders whose club programs included the project, "Food, Let's Begin," was their clubs had taken the project before the game was available. Of the 45 divisions which had given out no games or had not given all "Food, Let's Begin" project leaders their games, 30 had not given the game to some or all of their leaders for this reason. Moreover, in these 30 divisions at least 451 leaders were reported as not receiving the game (Table 2).[3]

---

[1] Only 290 leaders were sent questionnaires to secure the information used in the section of the study dealing with 4-H leaders. Forty-eight of the 338 leaders given one or more games were not included in the 290 because they were either leaders who would not use the game until later or represented small numbers in counties where the plan was to have a large number use the game later.

[2] This number (665) was reported by 33 divisions with three additional divisions giving no information, nine not specifying the number of leaders who should have received the game but with none being given a game, and seven having given the game to all leaders whose club programs included the project, "Food, Let's Begin." This add to the 52 divisions reporting.

[3] Six of the 30 divisions gave no information on number of leaders not receiving the game.

Table 2

Number and Percent of 4-H Divisions According to Reasons Leaders Were Not Given 4-H Game, "Let's Eat," with Number of Leaders Not Given Game

Reasons leaders were not given games	4-H divisions		Number of leaders not given game
	Number	Percent (N=45)	
Club took project, "Food, Let's Begin," before game was available	30	67	451[a]
Leaders thought game too difficult for members	2	4	3
Leaders thought game not suitable for age of members	1	2	3
Leaders thought members did not like to play sitting games	0	0	0
Leaders thought there was not enough time at club meetings to play the game	2	4	7
Other reasons:	19	42	201[b]
Did not attend training meeting or demonstrations when games were introduced and taught	5		
Have not picked up games from Cornell	4		
Received games after training sessions over	2		
Have not taken project yet	1		
One game given per club and some clubs have more than one leader	1		
Agent injured in car accident so cancelled distribution of games	1		
Many clubs have only one member enrolled in project	1		
Games are being given out as leaders come into office or agent visits them. Several taught project but decided to use game next year because of tight program	1		
Had provided original Fo-Nu game at the training meeting	1		
Decided to introduce game in fall at training sessions	1		
4-H leaders did not pick up game from 4-H office	1		

[a]Six of the 30 divisions gave no information on number of leaders.

[b]Six of the 19 divisions gave no information on number of leaders.

Methods of distribution. The largest number (26) of the 39 divisions distributing the 4-H game gave it to leaders at personal conferences between leader and agent (Table 3). The procedure was also the one through which the greatest number (133) of leaders received the game. The next ranking procedure

Table 3

Number and Percent of 4-H Divisions Distributing The 4-H Game, "Let's Eat," to One or More Leaders According to Methods of Distribution, with Number Of Leaders to Whom Game Was Given

Methods of distribution	4-H divisions		Number of leaders given game[a]
	Number	Percent (N=39)	
At personal conference between leader and agent	26	67	133
Picked up by leaders at office or mailed to them without conference or other instructions	16	41	61[b]
At a leader training meeting	14[c]	36	109
Picked up by leaders with letter of explanation from 4-H agent	3	8	20[d]
At Leaders' Association Meeting or county demonstration day	1	3	14

[a] No information on how one leader was given game.

[b] One division gave no information on number of leaders.

[c] At two of these training meetings games for the leaders were not available and were subsequently mailed or otherwise delivered to them.

[d] One division gave no information on number of leaders.

in terms of number of divisions using it was picked up by leaders at office or mailed to them without conference or other instructions (16 divisions). However, only 61 leaders received the game by this method, whereas 109 received it at leader training meeting which was in third position for the number (14) of divisions using it.[1]

What done when distributed at training meeting. In the 11 county divisions distributing the game at a training meeting and reporting, the following things were those done more frequently (Table 4):

1) Discussed relation of game to project, "Food, Let's Begin" (91%)
2) Pointed out purpose back of the game (82%)
3) Following instructions game was played by all leaders (73%)

The combination of things done at these training sessions that occurred most frequently (6 divisions, or 55 percent of the 11 divisions) included these same three things. Thus, for the 109 leaders who were given the game at a training meeting, it appears the agents did a fair job of introducing it.

What done when distributed at a personal conference between leader and agent. In the 23 county divisions distributing the game at a personal conference and reporting, the following things were those done more frequently (Table 5):

1) Discussed relation of game to project, "Food, Let's Begin" (91%)
2) Discussed purpose back of game (70%)

On the other hand, only seven, or 30 percent, of the 23 divisions reviewed instructions and did practice runs with leaders.[2] Thus, it seems that the conference procedure was not as effectively used for distribution of the games as it might have been.

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[1] At two of these training meetings the games were not available for the leaders and were subsequently mailed or otherwise delivered to them.

[2] The 4-H agents in four additional divisions reviewed the instructions for the game, but did no practice runs with leaders.

Table 4

Number and Percentage Distribution of 4-H Divisions According to Whether or Not Certain Selected Things Were Done at Training Meeting at Which 4-H Game, "Let's Eat," Was Given Out

	What was done at training meeting[a]		4-H divisions Yes	No	Total	No information
(1)	Following instructions game was played by all leaders	No.	8	3	11	3
		%	73	27	100	
(2)	Following instructions game was demonstrated by a group of leaders	No.	0	11	11	3
		%	--	100	100	
(3)	Discussed relation of game to project, "Food, Let's Begin"	No.	10	1	11	3
		%	91	9	100	
(4)	Pointed out purpose back of the game	No.	9	2	11	3
		%	82	18	100	
(5)	Went over instructions with them	No.	1	10	11	3
		%	9	91	100	

[a]Distribution of divisions by combinations of things done:

Combinations	4-H divisions Number	Percent
1	1	9
1 & 3	1	9
3 & 4	2	18
3, 4, & 5	1	9
1, 3, & 4	6	55
Total	11	100

Table 5

Number and Percentage Distribution of 4-H Divisions According to Whether or Not Certain Selected Things Were Done at Leader-Agent Conference at Which 4-H Game, "Let's Eat," Was Given Out

	What was done at leader-agent conference		4-H divisions Yes	No	Total	No information
(1)	Reviewed instructions and did practice run with leaders	No.	7	16	23	1
		%	30	70	100	
(2)	Discussed relation of game to project, "Food, Let's Begin"	No.	21	2	23	1
		%	91	9	100	
(3)	Discussed purpose back of the game	No.	16	7	23	1
		%	70	30	100	
(4)	Other things done:	No.	9	14	23	1
		%	39	61	100	
	Reviewed instructions	4				
	Showed how they could adapt it to their own situation	1				
	Used the game with new club members to illustrate learning about food groups in project	1				
	Gave them instruction corrections and discussed enough so they felt they could play it in their clubs	1				
	Only briefly explained to leader how she might use to help her with project (group well underway with the project)	1				
	Suggested ways to introduce games to members--also suggested that Junior Leaders be taught to use game	1				

[a]Distribution of divisions by combinations of things done:

Combinations	4-H divisions Number	Percent
1	1	4
2	4	18
4	1	4
2 & 3	6	26
2 & 4	1	4
1, 2, & 3	3	13
2, 3, & 4	4	18
1, 2, 3, & 4	3	13
Total	23	100
No information	1	

The combination of things done at the leader-agent conferences which occurred most frequently (six divisions, or 26 percent of 23 divisions) was discussed relation of game to project, "Food, Let's Begin," and discussed purpose back of the game. Only three, or 13 percent, of the 23 divisions combined all three classes of things done and other at leader-agent conferences.

Agents' judgment of the adequacy of leader orientation for use of 4-H game. Only five, or 15 percent, of 33 agents who had distributed the game to one or more leaders and who reported, thought the orientation of their leaders to the 4-H game was adequate; 15, or 46 percent, considered it partially adequate; and 11, or 33 percent, indicated it as inadequate (Table 6). One considered the orientation adequate for some, inadequate for others and another didn't know.

Comments of agents following the question on adequacy of orientation of leaders were:

Comments	No. of agents
Game not available when project was taught.	5
Leaders need opportunity for actually playing game.	5
Leaders had questions regarding rules.	4
Agent didn't fully understand game.	4
Did not have adequate time to acquaint leaders with game.	3
Game should be taught at leader training session.	2
Some 4-H leaders can read material and make use of it with understanding. Others need to be shown step by step.	1
These leaders (those given game) wanted to try the new game and it was given to them with the understanding that in the future they would receive more adequate training for using it.	1
They all seemed very enthused.	1
It was as adequate as the rules are or were.	1
Do not know--have not had reactions from leaders.	1
Without a home economist to push home economics projects, it's difficult to do this adequately.	1
I have not been available to work with leaders during the spring.	1
No orientation was really done. To date have only had one request for further assistance.	1
Total	31

Table 6

Number and Percentage Distribution of 4-H Agents Who Had Distributed the 4-H Game, "Let's Eat," to One or More Leaders According to Opinion as to Adequacy of Orientation of Leaders for Use of Game

Leader orientation	4-H agents	
	Number	Percent
Adequate	5	15
Partially adequate	15	46
Inadequate	11	33
Adequate for some, inadequate for others	1	3
Don't know	1	3
Total	33[a]	100

[a]No information: 8; games not obtained by leaders: 11

Agents' Evaluation of Their Orientation for Use of Game

Judgment as to adequacy. Of the 38 agents who reported, only seven, or 18 percent, considered their orientation for its use had been adequate (Table 7). As many as 14, or 37 percent, thought their orientation inadequate, and 15, or 40 percent, considered it only partially adequate.

Table 7

Number and Percentage Distribution of 4-H Agents According to Opinion as to Adequacy of Orientation Of Agents for Use of 4-H Game, "Let's Eat"

Agent orientation	4-H agents	
	Number	Percent
Adequate	7	18
Partially adequate	15	40
Inadequate	14	37
No orientation	2	5
Total	38[a]	100

[a]No information: 14 (This large number of agents giving no information is primarily due to a misunderstanding of the questionnaire.)

Agents' General Evaluation of Game

A useful tool or not. Twenty-three, or 59 percent, of the 39 agents reporting thought the game was a useful tool, but 15, or 38 percent, were uncertain, and one indicated it was not a useful tool (Table 8).[1]

Table 8

Number and Percentage Distribution of 4-H Agents According to Whether or Not Considered 4-H Game, "Let's Eat," a Useful Tool

Game a useful tool	4-H agents	
	Number	Percent
Yes	23	59
No	1	3
Uncertain	15	38
Total	39[a]	100

[a]Game not used: 10; no information: 3

4-H Club Leaders to Whom Games Were Given

Distribution of Game

Methods of distribution. Of the 217 leaders who returned questionnaires, 192 indicated how they received the game (Table 9). The largest number (62), or 32 percent, reported the game picked up, given, or mailed to leader without conference or other instructions. The second ranking method of receiving the game was at leader training meeting, reported by 52 leaders, or 27 percent of the 192, and the third ranking method reported by 44 leaders, or 23 percent, was at personal conference with 4-H

[1]See Appendix C for classified comments by agents about the game.

agent.[1]

Table 9

Number and Percentage Distribution of 4-H Leaders According to Methods Used in Distributing 4-H Game, "Let's Eat"

Methods of distribution	Leaders	
	Number	Percent
At leader training meeting	52	27
At personal conference with 4-H agent	44	23
Picked up, given, or mailed to leader without conference or other instructions	62	32
Picked up, mailed, or given to leader with a letter of explanation	11	6
Given to leader by another leader or mother	9	5
At a club organization meeting	4	2
At Demonstration Day, committee meeting, or program planning meeting, or leader training meeting not related to project	10	5
Total	192[a]	100

[a]No information: 25

What done when game was given out. Of the 184 leaders reporting, 88, or 48 percent, indicated that they received the game with no instructions (Table 10).[2] Ranking second was 4-H

[1]The rank order of the three leading methods of giving out the game reported by agents was in terms of number of leaders involved: 1) at personal conference between leader and agent, 2) at leader training meeting, and 3) picked up by leaders at office or mailed to them without conference or other instructions. It is hardly correct to consider the difference in rank order of these leading methods of giving out the game as contradictory because the leaders involved in reporting were not identical with those reported by the agents.

[2]This figure of 88 is greater than the figure 62 who indicated specifically that the game was picked up, given, or mailed to them without conference or other instructions. The other 26 were presumably scattered among other methods of distribution for which there were no indications of instructions being given.

Table 10

Number and Percent of 4-H Leaders According to What Done When Game Was Given Out[a]

What done	Mentions	
	Number	Percent (N=184)[b]
Following instructions game was played by leaders or members in case of club organization meeting with agent and leader present	35	19
Following instructions game was demonstrated by a group of leaders while others observed	5	3
4-H agent reviewed instructions and did a sort of practice run with leader	14	8
4-H agent explained or reviewed instructions with leader	2	1
4-H agent discussed the relation of the game to project, "Food, Let's Begin"	71	39
4-H agent discussed the purpose back of the game	66	36
Other	6	3
No instructions given	88	48

[a]Because of the manner in which the respondents answered the questions for obtaining data on what was done when the game was given out, it was necessary to combine the answers from these questions and to disregard their original intent. It is hoped that the combination does not do too much violence to the answers.

[b]No information: 33

agent discussed the relation of the game to the project, "Food, Let's Begin" with 71, or 39 percent of the 184 leaders, mentioning this method. In third position was 4-H agent discussed the purpose back of the game with 66, or 36 percent of the 184

leaders, mentioning.[1]

Use of Game with 4-H Club Members

Number of leaders who used and did not use game. Of the 217 leaders returning questionnaires, 100, or 46 percent, had used the game (Table 11). On the other hand, 117, or 54 percent, had not used the game, but 35 of the 117 indicated it would be used in the fall of 1968.

Table 11

Number and Percentage Distribution of 4-H Leaders According to Whether or Not Have Used Game with Club Members

Used game	Leaders	
	Number	Percent
Yes	100	46
No	82	38
Will use in fall, 1968	35	16
Total	217	100

[1]Because of a necessary difference in handling the data for agents and leaders reporting on what done when game was given out, it is not possible to compare in any accurate way the information on this item which agents and leaders gave. Sixteen, or 41 percent, of 39 divisions reporting (involving 61 leaders) were reported by agents to have given out the game without instructions. The number of leaders thus reported (61) is less than the 88 leaders who reported no instructions given. The difference may be due in part to estimates of numbers which agents gave in their questionnaires.

The classes of reasons given by 106 of the 117 who had not used the game were in rank order of mention (except other):

Classes of reasons		Number of mentions[1] (N=106)
Club took project, "Food, Let's Begin" before game was available		40
Lack of time at club meeting to play game		38
Game was considered too difficult for members		18
Club was not taking project, "Food, Let's Begin," nor expecting to when game was made available		9
Thought game not suitable for age of club members		7
Members do not like to play sitting games		3
Other reasons		33
Will be using it with project, "Food, Let's Begin," in fall	10	
Lack of time to fit game in	10	
Leader was not one to teach project	3	
More interested in cooking than playing game	2	
Illness of leader or in leader's family	2	
Group taking project too large	1	
Only two members took project	1	
Junior project leader and her advisor found instructions to game confusing so decided not to attempt playing it	1	
Leader didn't see "too much point in it"	1	
Leader's first year in 4-H	1	
Didn't take project because of lack of leaders	1	

The two major categories of reasons according to frequencies of mentions are: club took project, "Food, Let's Begin," before game was available (40 mentions) and lack of time at club meeting to play game (38 mentions).

Methods of using game in connection with project, "Food, Let's Begin."[2] Six different methods of using the game in connection with the project, "Food, Let's Begin," were reported

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[1] Seventy of the leaders made only one mention, 31 made two, and five made three.

[2] From this point on, the data were provided almost exclusively by those leaders using the game.

by the leaders (Table 12). Simply using the game at regular club meetings, regardless of project being taken, was also reported by six leaders. The first ranking method of using the game in connection with the project, "Food, Let's Begin," was: used it as a summary at end of the project with 52, or 53 percent, of the 99 leaders reporting this method. The second ranking method reported by 28, or 28 percent, of the 99 leaders was: used it to introduce the project. A number of the leaders used various combinations of the methods listed in Table 12.

Table 12

Number and Percent of 4-H Leaders Using Game According to Different Methods by Which Game Was Used with Project, "Food, Let's Begin"

Different methods used[a]	Leaders	
	Number	Percent (N=99)[b]
1. Used it as summary at end of project	52	53
2. Used it to introduce the project	28	28
3. As recreation part of meeting or as game while waiting for others to finish project or to fill in time after lesson	16	16
4. Used at each meeting as project progressed	12	12
5. Used to help stress importance of nutrition and the four basic food groups	8	8
6. Used it as review and to see how much girls had learned	4	4
7. Used at regular meeting of club regardless of project being taken	6	6

[a]Actually, various combinations of a number of these different methods were used.

[b]No information: 1

Number of 4-H members using the game. The total number of 4-H members who had played or tried to play the game as reported by 98 leaders was 803. Ninety-two leaders who used the game reported their club memberships. These 92 clubs had a total membership of 1441 of which 754, or 52 percent, had played or tried to play the game.[1]

The distribution of the leaders (or clubs) according to number of club members playing or trying to play the game is given in Table 13. The range in members playing or trying to play was from 3 to 40. Fifty, or about half (51 percent) of the leaders had from 6 to 10 members who played or tried to play the game. Only four had 16 or more members playing or trying to play, but 30, or almost one third, had five or less members playing or trying to play the game.

Table 13

Number and Percentage Distribution of 4-H Leaders Using Game According to Number of Their Club Members Who Had Played or Tried to Play the Game

Number of members who had played or tried to play the game		Leaders	
		Number	Percent
1 - 5		30	31
6 - 10		50	51
11 - 15		14	14
16+		4	4
	Total	98[a]	100
	Mean	8.2	

[a]No information: 2

[1]A close examination of the leaders' questionnaires suggests that some leaders gave the number of members participating in the project, "Food, Let's Begin," rather than number in the club.

For the 98 leaders (or clubs) the mean number of members per leader (or club) playing or trying to play the game was 8.2. The mean number of members in the clubs of 92 leaders reporting was 15.7. Thus, on the average, about one half of the members of clubs played or tried to play the game. The actual mean percent of club members for the 93 clubs reporting who played or tried to play the game was 67.[1]

Age groupings of members playing game. The percentage distribution according to age of 679 club members whose ages were reported by leaders and who played or tried to play the game was as follows:

Age group	Percent
9 - 11	71
12 - 14	25
15 - 18	4
Total	100

Since information on the age distributions of total club memberships was not obtained, it is not possible to compare the above distribution with total membership of the particular clubs involved. So the data in the above tabulation can only be used to indicate the distribution of those who played or tried to play the game. It is quite obvious that the game was predominantly used with the 9-11 age group.[2] This conclusion is further verified when the age groups of the various clubs are examined. Thus, of the 86 clubs on which data were reported for ages of those playing or trying to play the game and for

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[1] Data were obtained on percent of club members who played or tried to play the game for 93 clubs even though actual numbers of club members were given for only 92 clubs. This was because one leader who failed to give number of club members indicated that all members played or tried to play the game.

[2] For the state as a whole, the percentage distribution of 4-H members according to the three age groups used here in 1966-67 was: 9-11, 62 percent; 12-14, 27 percent; and 15-18, 11 percent. The small number of those 19 years of age in the state total was excluded in calculating these percentages.

which numbers in the clubs were given, 39 had 100 percent of their participants in the 9-11 age group. Only seven clubs had 100 percent of their participants in the 12-14 age group, and only one had all of its participants in the 15-18 age group. In 22 other clubs from 60 to 90 percent of the participants were in the 9-11 age group. Only eight clubs had from 60 to 90 percent of their participants in the 12-14 age group, and no club had this percentage range for the 15-18 age group. The age distribution of participants for the remaining nine clubs was a mixture of ages with the percentages for the three age groups being distributed between 12 and 57 percent.

Evaluation of Their Orientation for Use of Game by Leaders

Judgment as to adequacy. Of the 92 leaders reporting and using the game, 42, or 45 percent, considered their orientation for using the game was adequate. However, 19, or 21 percent, thought the orientation inadequate, and 32, or 35 percent, considered it only partially adequate (Table 14).

Table 14

Number and Percentage Distribution of 4-H Leaders Using Game According to Their Evaluation of Their Orientation to Use of Game

Evaluation of orientation	Leaders	
	Number	Percent
Adequate	42	45
Partially adequate	31	34
Inadequate	19	21
Total	92[a]	100

[a]No information: 8

A comparison of the 4-H agents' evaluation of their orientation of leaders for the use of the game and of the leaders' judgment of their orientation follows:

Evaluation of orientation	Percent 4-H agents (N=33)	Percent 4-H leaders (N=92)
Adequate	15	45
Partially adequate	46	34
Inadequate	33	21
Adequate for some, inadequate for others	3	--
Didn't know	3	--
Total	100	100

It is quite obvious from the above tabulation that the agents were somewhat more severe than the leaders in the evaluation of the orientation of leaders for using the game.

Indirect Evaluation of Game by Members as Reported by Club Leaders[1]

Impressions of reactions of members. The leaders were asked to give their impressions of the reactions of their club members by sex to the games. Table 15 records their impressions. About half of the leaders having girls in their clubs thought they were moderately interested and the same was true for those having boys. Over one third of those having girls reported they were enthusiastic and just about one third having boys thought they were enthusiastic. A few leaders reported negative reactions or mixed reactions for girl members.

[1] While some of the evaluations given by leaders both in this section and the section on Some Specific Evaluations of Game by Leaders cover both younger and older club members, the participants were so predominantly in the 9-11 age group it was thought that further analysis by age groupings of clubs would be relatively useless.

Table 15

Number and Percentage Distribution of 4-H Leaders Using Game According to Their Members' Reactions to Game

Members' reactions to game	Leaders			
	Girl members		Boy members	
	Number	Percent	Number	Percent
Enthusiastic	37	38	9	33
Moderately interested	47	49	13	48
Not interested	6	6	4	15
Negative	2	2	1	4
Mixed--some interested, some not	5	5	--	--
Total	97	100	27	100
No girls	3		--	
No boys	--		73	

Recalled comments made by members. The leaders were asked to list important comments made by members about the game. Of 71 leaders who listed one or more comments, 25, or 35 percent, gave only a positive comment and an additional 22, or 31 percent, gave positive comments along with negative or mixed ones (Table 16). Negative comments only were somewhat less frequently

Table 16

Number and Percentage Distribution of 4-H Leaders Using Game According to Comments Made by Their Club Members

Comments made by club members	Leaders	
	Number	Percent
Positive comments	25	35
Negative comments	14	20
Mixed comments	7	10
Positive and negative comments	17	24
Negative and mixed comments	3	4
Positive, negative and mixed comments	4	6
Positive and mixed comments	1	1
Total	71[a]	100

[a]None listed: 28; no information: 1

listed (by 14, or 20 percent) than positive ones only (25, or 35 percent). Moreover, when all negative comments including those combined with positive and mixed comments are added together, the percentage is 54 compared to 66 percent for all positive comments including combinations. The subclasses of positive, negative, and mixed comments listed by the 71 leaders follow:

Classes and subclasses of comments	No. of times listed
Positive comments	
Good way to learn food selection for balanced meals	22
It's fun	14
Enjoyed playing game and wanted to play often	13
Liked making a game of project work	8
Helped to learn about the Basic Four--the 4-4-3-2 way[1]	6
Taught about size of servings	2
Miscellaneous positive comments	10
Total	75
Negative comments	
Too difficult to understand the rules	23
No fun or too boring	10
Took too long	3
Too much like school work	3
Prefer cooking to playing games	3
Miscellaneous criticisms	9
Total	51
Mixed comments	
Thought it would be fun if they could understand it better	8
Too involved for younger members but useful for older ones	5
Miscellaneous mixed comments	2
Total	15

[1] The 4-4-3-2 way refers to the following recommendation for a 9-12 year old child: 4 servings of fruit and vegetables, 4 servings of breads and cereals, 3 servings of milk, 2 servings of meat.

Evaluation of Game by Leaders

What leaders judged the game realizes. The leaders were asked to indicate if they agreed, disagreed, or were uncertain about whether the game attained five major potential objectives.[1] The following tabulation gives for each of the objectives the percent of leaders who agreed:

Objectives	Percent agreeing (N=96)[2]
1. Game helps players realize there is a variety of food in each food group from which to make daily food choices	96
2. Game acquaints players with types of foods which are similar in food value	85
3. Game teaches players number of servings recommended for each of basic food groups	84
4. Game acquaints players with amount of food considered average serving	64
5. Game will get players to accept those foods that are especially good sources of certain nutrients	41

For three of the five objectives the percentages agreeing that in their judgment these objectives of the game were attained were relatively high. For objective number 4, game acquaints players with amount of food considered average serving, the percentage agreeing was slightly less than two thirds. In the case of this objective, 26 percent were uncertain and 10 percent disagreed. Objective 5, game will get players to accept those foods that are especially good sources of certain nutrients, received the smallest percent (41) of those agreeing, with 39 percent uncertain and 20 percent disagreeing. Thus, on the crucial objective relating to behavior considered desirable,

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[1] It should be recognized that in judging these objectives the leaders were reacting in a highly generalized manner so that the words attained or realized should be accepted with reservations relative to what actually happened to the 4-H members who played or tried to play the game.

[2] Ninety-five leaders gave information for objective number 5.

the leaders were somewhat skeptical. Undoubtedly, they were influenced by their recognition that the first four objectives were knowledge matters, whereas the latter related to behavior, which even if attained, they would not be aware of in many instances.

Of the 96 leaders who gave their reactions to the five potential objectives of the game, the mean number of objectives which they agreed were attained was 3.7 (Table 17). Twenty-seven, or 28 percent, of them agreed that all five objectives were realized. The highest percent (35) was agreement as to the attainment of four objectives. Only five of the leaders agreed that none or only one objective was realized.

Table 17

Number and Percentage Distribution of 4-H Leaders Using Game According to Number of Potential Objectives Which In Their Judgment They Agreed Were Attained

Number of objectives attained	Leaders	
	Number	Percent
None	2	2
1	3	3
2	8	8
3	23	24
4	33	35
5 (all)	27	28
Total	96[a]	100
Mean	3.7	

[a]No information: 4

Evidence of application. Of the 96 leaders who reported, only 16, or 17 percent, thought they had evidence that the members who had played the game or tried to play it had learned something which they had applied to their diet (Table 18).

Table 18

Number and Percentage Distribution of 4-H Leaders Using Game According to Evidence Given as to Whether Members Have Applied What They Learned to Their Own Diet

Members have applied what learned to own diet	Leaders	
	Number	Percent
Evidence given	16	17
No evidence given	80	83
Total	96[a]	100

[a]No information: 4

This, of course, was a difficult, if not impossible, question to answer accurately since most of those who had played the game had also participated in the project, "Food, Let's Begin," and it would be hard to say from which experience applied learning had resulted. The evidence which the 16 leaders cited follows:

Evidence	Number of leaders
Members have reported to leader that they have followed the 4-4-3-2 plan or are more aware of improper eating habits	6
Leader's family is more conscious of food values and balanced diet (leader's children in club)	4
Mothers have told leader that their children tell them what foods are needed for a balanced diet	4
Planned, cooked and served a meal for the group and showed they had benefited from the game	2

Leader would use game again. As another approach to leader evaluation of the game, they were asked if they would use the game again when teaching the project, "Food, Let's Begin." Seventy-two, or 79 percent, of the 91 answering the question

indicated they would use the game again (Table 19). Only 14, or 15 percent, would not, and five, or six percent, were uncertain.

Table 19

Number and Percentage Distribution of 4-H Leaders According to Whether They Would Use Game Again When Teaching Project, "Food, Let's Begin"

Would use game again	Leaders	
	Number	Percent
Yes	72	79
No	14	15
Uncertain	5	6
Total	91[a]	100

[a]No information: 4; did not use game with project, "Food, Let's Begin": 5

Some Specific Evaluations of Game by Leaders

Clarity of rules. Just slightly over one half (53 percent) of the 98 leaders reporting thought the rules of the game were clear, while 47 percent considered them unclear (Table 20).[1]

Table 20

Number and Percentage Distribution of 4-H Leaders Using Game According to Whether or Not They Thought the Rules For the Game Were Clear

Rules for game clear	Leaders	
	Number	Percent
Yes	52	53
No	46	47
Total	98[a]	100

[a]No information: 2

[1]No opportunity was given in questionnaire for checking don't know or uncertain.

A list of the comments of some who considered the rules unclear is given below. It should be useful in any attempt to revise the rules.

Comments	Number of leaders
Takes too long to figure out rules and explain	6
Rules are not clear enough for younger children	4
Rules concerning extra cards not clear	3
So confused that they are uncertain about whether or not they played game correctly	3
Too many rules, repetitious	3
Confusing and difficult to follow	2
Not thorough enough, do not explain fully enough	2
Members had trouble concerning laying down cards in order, for one meal, and distribution of choice cards (not clear)	1
It wasn't clear about taking turns, also the choice cards and impossibility of having no cards left on food board	1
It took me awhile to figure out on the board discard 3--take three and the keeping of food tickets (not clear)	1
It was not quite clear whether you had to wait to change hands until everyone was ready for next hand	1
Unclear about dealing out cards, when to lay down, order of play was unclear	1
It is confusing as to how many turns and how many cards each one may have when a group is playing	1
Rules on snacks were confusing	1
Scoring rules	1
I had to revise giving out cards so game would not be too frustrating	1
Did not realize object was to be last one out	1
Total	33[1]

Completeness of rules. A little over one half (57 percent) of the 94 leaders answering the question as to whether or not the rules were complete enough thought they were (Table 21).

[1]Thirteen of the 46 leaders who indicated the rules were not clear gave no comments.

Table 21

Number and Percentage Distribution of 4-H Leaders Using Game According to Whether or Not They Thought Rules for the Game Were Complete Enough

Rules for game complete enough	Leaders	
	Number	Percent
Yes	54	57
No	40	43
Total	94[a]	100

[a]No information: 6

This question tended to overlap on the one preceding it which dealt with the clarity of the rules. The comments of 28 of the 40 leaders who thought the rules not complete enough are given below. These comments along with those on the rules not being clear should be helpful in any revision of the rules that may be undertaken.

Comments	Number of leaders
Rules not complete on laying down cards and dealing extra cards to players	8
Rules hard to understand; need to be put more simply	5
Rules do not explain fully enough; more detail needed	4
No explanation of what to do with the chore cards or the plain cards	3
Scoring rules need to be more precise	3
Difficulty in determining the aim of the game	2
Had no way of knowing if game was played right	1
Leader ended up by having to read and re-read the rule book and give opinion	1
Made no sense in many respects	1
Total	28

Role of dealer. Fifty, or about one half (52 percent) of the 97 leaders reporting thought the game would proceed faster if the dealer did not play, but as high as 46 percent didn't know (Table 22).

Table 22

Number and Percentage Distribution of 4-H Leaders Using Game According to Whether or Not They Thought Playing Of Game Proceeds Faster If Dealer Does Not Play

Game proceeds faster if dealer does not play	Leaders	
	Number	Percent
Yes	50	52
No	2	2
Don't know	45	46
Total	97[a]	100

[a]No information: 3

Immediate objective of game. Of the 93 leaders reporting, 44, or 47 percent, thought that all or most of the members playing or trying to play the game recognized that the immediate objective of the game was not to be the first person out (Table 23). However, 16, or 17 percent, thought that none of their members playing or trying to play the game recognized this.

Table 23

Number and Percentage Distribution of 4-H Leaders Using Game According to Whether or Not They Thought Members Recognized That the Immediate Objective of The Game Was Not To Be the First One Out

Members recognized that objective of game was not to be first one out	Leaders	
	Number	Percent
All did	11	12
Most did	33	35
Some did	24	26
A few did	9	10
None did	16	17
Total	93[a]	100

[a]No information: 7

Figuring the score. Of 94 leaders reporting, 23, or 24 percent, thought all or most of those playing or trying to play the game had difficulty figuring the score (Table 24). However, a large number, 41, or 44 percent, of the leaders thought that few or none of their members had difficulty.

Table 24

Number and Percentage Distribution of 4-H Leaders Using Game According to Whether or Not They Thought Members Had Difficulty Figuring the Score

Members had difficulty figuring the score	Leaders	
	Number	Percent
All did	11	11
Most did	12	13
Some did	28	30
A few did	28	30
None did	13	14
Didn't get that far	2	2
Total	94[a]	100

[a]No information: 6

Complexity of game. Of the 94 leaders reporting, 24, or 26 percent, thought all or most of the members playing or trying to play the game found it too complicated (Table 25). On the other hand, 50, or slightly over one half (53 percent), thought that few or none found it too complicated.

Twenty-four of the leaders who indicated that some, most, or all of the members who played or tried to play the game and found it too complicated, also made comments about the game's complexity. These comments with the number making them follow:

Comments	Number of leaders
It takes too long to understand the rules	10
It is easier after playing game a few times	6
Younger members found game confusing and difficult	5
Haven't played game enough to understand	2
We made it simpler--eliminated some of the scoring	1
Total	24

Table 25

Number and Percentage Distribution of 4-H Leaders Using Game According to Whether or Not Members Found Game Too Complicated

Members found game too complicated	Leaders	
	Number	Percent
All did	14	15
Most did	10	11
Some did	20	21
A few did	26	28
None did	24	25
Total	94[a]	100

[a]No information: 6

Estimated time required to learn game. Only 71 leaders gave an estimate of the time needed by members to learn the game (Table 26). In general the leaders seemed overly optimistic. Thus, the mean estimate was 27 minutes, or slightly less than one half hour.

Table 26

Number and Percentage Distribution of 4-H Leaders Using Game According to Amount of Time Required For Their Members to Learn Game

Time required in minutes	Leaders	
	Number	Percent
5 - 10	12	16
11 - 15	15	21
16 - 20	15	21
21 - 30	19	26
45	2	3
60	5	7
90+	3	6
Total	71[a]	100
Mean		27 minutes

[a]Impossible to estimate or still have not learned game: 8; no information: 21

Rather unusual was the report by 27, or 37 percent, of the leaders that the time required for learning the game was under 16 minutes. Ten, or 16 percent, estimated from 45 to 120 minutes were required.

Opinions about time required to learn game. Of the 86 leaders reporting, 55, or 64 percent, thought the amount of time required was all right, but 31, or 36 percent, thought it was too great (Table 27).

Table 27

Number and Percentage Distribution of 4-H Leaders Using Game According to Their Opinions About Time Required to Learn Game

Opinions about time required to learn game	Leaders	
	Number	Percent
All right	55	64
Too great	31	36
Total	86[a]	100

[a]No information: 14

Number of practice games required to learn game. The 61 leaders reporting indicated that the mean number of practice games required before the group could play it without asking for help was 2.5 games (Table 28). Sixteen, or 26 percent, of the leaders reported only one game was needed, whereas 10, or 17 percent, indicated from four to six games were required.

Suggestions by Leaders for Changes in Rules of Game

Of the 72 leaders reporting and planning to use game again,

Table 28

Number and Percentage Distribution of 4-H Leaders Using Game According to Number of Practice Games Required Before Group Could Play Without Asking for Help

Number of practice games required	Leaders	
	Number	Percent
1	16	26
2	16	26
3	19	31
4	4	7
5	4	7
6	2	3
Total	61[a]	100
Mean	2.5	

[a]Asked no help: 1; impossible to estimate or still do not understand game: 17; no information: 21.

25, or 35 percent, made suggestions for changes in the rules. The changes mentioned by these 25 leaders are presented below:

Suggested changes	Number of mentions (N=25)
Clearer or simpler rules	8
Better explanation of "choice cards" and discarding cards	7
Clarification of rules for "going out," order of play, etc.	5
Use of "duty cards" and plain cards was not clear	4
Dealer should not play; need older person to figure score	3
More precise rules on scoring	3
More variety needed	2
Is it O.K. to ask the leaders questions about foods during the game?	1
What are the arrows on the board for?	1
The rule, "never look at face side until game is over," slows the learning of amount to a serving.	1

APPENDIX A

AGENT'S QUESTIONNAIRE

Agent's Questionnaire

Name_____

County_____

1. Will you list the names and addresses of your leaders who were given the 4-H food game, "Let's Eat," and indicate how many sets were given each. The leaders whom you list, or a random sample of them, will be sent a questionnaire for their evaluation of the game, "Let's Eat."

	Name	Address	Name of food project with which expected to use game	No. of sets given
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				

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2. How many of your leaders teaching or expecting to teach the project, "Food, Let's Begin," have not been given the 4-H food game?

   1)_____Number (Enter "0" if none.)

3. Will you indicate the reasons the leaders for whom a count was entered in question 2 were not given the 4-H food game: (Enter an estimated number of leaders for each item that is applicable.)

   1)_____Club took the project, "Food, Let's Begin," before game was available

   2)_____Leaders thought the game was too difficult for members

   3)_____Leaders thought the game was not suitable for the age of their club members

   4)_____Leaders thought members did not like to play sitting games

   5)_____Leaders thought there was not enough time at club meetings to play the game

   6)_____Other (Write in.)_____

4. If you listed one or more names under question 1, will you indicate how the game was given to the leaders: (Enter an estimated number of leaders for each item that is applicable; note item no. 6.)

   1)_____At leaders' training meeting

   2)_____At personal conferences between leader and agent

   3)_____Picked up by leaders at office or mailed to them without conference or other instructions

   4)_____Picked up by leaders with a letter of explanation from the 4-H agent

   5)_____Mailed to leaders with a letter of explanation from the 4-H agent

   6)_____Other (Write in.)_____

5. If you checked (1) in question 4, will you indicate what was done at the training meeting: (Check as many as apply; note item no. 6.)

   1)_____Following instructions the game was played by all leaders

   2)_____Following instructions the game was demonstrated by a group of leaders

3)_____Discussed the relation of the game to the project, "Food, Let's Begin"

4)_____Pointed out the purpose back of the game

5)_____Other (Write in.)_____

6)_____Did not check (1) in question 4

6. If you checked (2) in question 4, will you indicate what you usually did in the conference: (Check as many as apply or write in after other; note item no. 5.)

1)_____Reviewed instructions and did a practice run with leaders

2)_____Discussed the relation of the game to the project, "Food, Let's Begin"

3)_____Discussed purpose back of game

4)_____Other (Write in.)_____

5)_____Did not check (2) in question 4

7. Do you think your orientation of leaders for using the game was: (Check one.)

1)_____Adequate

2)_____Partially adequate

3)_____Inadequate

Please comment on your answer:_____

_____

8. Do you consider the game a useful tool for teaching 4-H members about food? (Check one.)

1)_____Yes

2)_____No

3)_____Uncertain

9. Do you consider your own orientation to the game was:

1)_____Adequate

2)_____Partially adequate

3)_____Inadequate

Any additional comments about the game or its use:

_____

_____

_____

APPENDIX B

LEADER'S QUESTIONNAIRE

Leader's Questionnaire

Name_____

County_____

1. How were you given the 4-H game, "Let's Eat"? (Check answer that applies or write in.)

   1)_____At a leader training meeting

   2)_____At a personal conference with 4-H agent

   3)_____Picked up at office or mailed to me without conference or other instructions

   4)_____Mailed to me with a letter of explanation from the 4-H agent

   5)_____Other (Write in.)_____

2. If you checked (1) in question 1, will you indicate what was done when the game was given out: (Check as many as apply or write in after other; note item no. 6.)

   1)_____Following instructions the game was played by the leaders

   2)_____Following instructions the game was demonstrated by a group of leaders while others observed

   3)_____The 4-H agent discussed (with questions being answered) the relation of the game to the project, "Food, Let's Begin"

   4)_____The 4-H agent discussed (with questions being answered) the purpose back of the game

   5)_____Other (Write in.)_____

   6)_____Did not check (1)

3. If you checked (2) in question 1, will you indicate what was done when you conferred with the 4-H agent: (Check as many as apply or write in after other; note item no. 5.)

   1)_____4-H agent reviewed instructions and did a sort of practice run with me

   2)_____4-H agent discussed with me the relation of the game to the project, "Food, Let's Begin"

   3)_____4-H agent discussed with me the purpose back of the game

   4)_____Other (Write in.)_____

   5)_____Did not check (2) in question 1

4. Have you used the 4-H game with your club members? (Check one.)

   1)_____Yes

   2)_____No

5. If your answer to question 4 was no, will you indicate why you have not used the game: (Check as many as apply and write in other if necessary.)

   1)_____Club took the project, "Food, Let's Begin" before game was available

   2)_____Club was not taking the project, "Food, Let's Begin," nor expecting to when game was made available

   3)_____Game was considered too difficult for members

   4)_____I thought the game was not suitable for the age of club members

   5)_____Members do not like to play sitting games

   6)_____Lack of time at club meeting to play the game

   7)_____Other (Write in.)_____

IF YOUR ANSWER TO QUESTION 4 WAS YES, CONTINUE; IF NO, STOP HERE.

---

6. What are some of the ways you have used the game in connection with the project, "Food, Let's Begin"? (Check as many as apply; note item no. 4.)

   1)_____Used it to introduce the project

   2)_____Used it as a summary at the end of the project

   3)_____Other (Write in.)_____

   4)_____Game was not used with the project, "Food, Let's Begin"

7. How many of your 4-H club members have played or tried to play the game? (Note item no. 2.)

   1)_____Number

   2)_____Give number of members in club

8. Will you indicate what age groups were involved in playing the game? (Enter number or numbers.)

   1)_____Number in 9-11 age group

   2)_____Number in 12-14 age group

   3)_____Number in 15-18 age group

9. What is your general impression of the reactions of the members of your club to the game?

	Girls (Check one.)	Boys (Check one.)
1) Enthusiastic	_____	_____
2) Moderately interested	_____	_____
3) Not interested	_____	_____
4) Negative	_____	_____

10. Will you list any important comments which your club members have made about the game:

1) Positive comments:

(1)_____
(2)_____
(3)_____
(4)_____

2) Negative comments:

(1)_____
(2)_____
(3)_____
(4)_____

3) Mixed comments (partially negative and partially positive)

(1)_____
(2)_____
(3)_____
(4)_____

11. Did you think the rules for the game were clear? (Check one.)

1)_____Yes

2)_____No

3)_____If no, will you comment:_____

12. Did you think the rules were complete enough? (Check one.)

1)_____Yes

2)_____No

3)_____If no, will you comment:_____

13. Do you think the playing of the game proceeds faster if the dealer does not play? (Check one.)

1)_____Yes

2)_____No

3)_____Don't know (because no comparison made)

14. Do you think the members recognized that the object of the game was not to be the first one out? (Check one.)

1)_____All did

2)_____Most did

3)_____Some did

4)_____A few did

5)_____None did

15. Did the members have difficulty figuring the score? (Check one.)

1)_____All did

2)_____Most did

3)_____Some did

4)_____A few did

5)_____None did

6) If (1), (2), or (3) are checked, will you comment:

_____

16. Did the members find the game too complicated? (Check one.)

1)_____All did

2)_____Most did

3)_____Some did

4)_____A few did

5)_____None did

6) If (1), (2), or (3) are checked, will you comment:

_____

17. How much time did you find it required for members to learn the game? (Fill in blank.)

1)_____Estimated number of minutes

18. How did you feel about the time required to learn the game? (Check one.)

1)_____Amount of time required was all right

2)_____Amount of time required was too great

19. How many practice games were required before your group could play without asking for help?

1)_____Estimated number of games

20. Will you give your reaction to the following:

1) The game acquaints the players with the types of foods which are similar in food value. (Check one.)

(1)_____Agree

(2)_____Disagree

(3)_____Uncertain

2) The game teaches the players the number of servings that are recommended for each of the four basic food groups. (Check one.)

(1)_____Agree

(2)_____Disagree

(3)_____Uncertain

3) The game acquaints the players with the amount of food considered an average serving. (Check one.)

(1)_____Agree

(2)_____Disagree

(3)_____Uncertain

4) The game helps the players realize there is a variety of foods in each group from which to make daily food choices. (Check one.)

(1)_____Agree

(2)_____Disagree

(3)_____Uncertain

5) The game will get the players to accept those foods that are especially good sources of certain nutrients such as, calcium in milk, Vitamin A in carrots, and protein in fish. (Check one.)

(1)_____Agree

(2)_____Disagree

(3)_____Uncertain

21. Will you cite any evidence that you have gotten that the members who have played the game have applied what they learned to their own diet:

1)_____I have no evidence

2) The evidence I have is:_____

_____

22. Would you use the game again when teaching the project, "Food, Let's Begin"? (Check one; note item no. 3.)

1)_____Yes

2)_____No

3)_____Did not use it with the project, "Food, Let's Begin"

23. If yes to question 22, please suggest any changes in the rules which you consider necessary: (Write in.)

1)_____

2)_____

3)_____

24. Now that you have used the game, do you consider that your orientation to its use was: (Check one.)

1)_____Adequate

2)_____Partially adequate

3)_____Inadequate

APPENDIX C

COMMENTS BY AGENTS ABOUT THE 4-H GAME, "LET'S EAT"

Comments by Agents About the 4-H Game, "Let's Eat"

I. Games will be used in fall:

1. When the games arrived most of our clubs had completed the "Food, Let's Begin" project. Consequently, we notified leaders by letter that the game was available, but very few responded. In the fall of 1968, we will include the game in our leader training. We would be most happy to complete further evaluation after the use of the games in the fall.

2. I have not given the game to any leaders at this time. I do plan to use it when I teach the next leader training school for "Food, Let's Begin" in October.

3. I did not plan to give out games this spring since most leaders had completed teaching project. We are planning a promotion of game at Jr. Fair in August and introducing it when we teach "Food, Let's Begin" this fall. This would be more valid if completed next December or January.

4. Members of the 4-H Home Economics Program Development Committee (leaders with experience) expressed interest in and were given the games to use, but we do not plan to distribute the games officially until this fall when leader training will be offered. Because I doubt if the leaders have used the games, I would rather not commit them to evaluate the games until next year.

5. I expect we will do more with this in the fall when we have leader training in foods.

6. That my own orientation has not been adequate is probably due to that I just work now and then. I will get more oriented with the game this fall when I work for a while.

II. Instructions for use of game need clarifying:

1. There are some steps in the directions that are still unclear to me--however, I think it still can be used and be useful without following the directions to the "letter." I have basically used this approach with my leaders.

2. Changes in directions will be helpful. Such questions as, "After one person goes out, do the others get to finish their 'day' or does it all stop there?" and, "Are all participants supposed to have the same number of cards at all times?"

3. It is very difficult to follow the directions that came with the game.

4. I felt the directions were hard to understand and should have been written so a young 4-H member could easily understand the rules. Not suitable for 9 and 10 year-olds without a great deal of use of it.

5. The yellow rule book does need some clarification especially on choice cards. I sent a letter to the leaders with the additional rules sent to agents. As yet I haven't heard of any reactions to these new rules. It seems leaders are involved with dress revue now so I don't think they have used it very much. In playing it with small groups, the players seem to learn from it very fast. They know spinach is good for them so they put it in their meals. It also seems to be very helpful in remembering nuts are in the meat group and which one eggs belong to. After they play it through a few times, servings seem to play an important part. I played it with one group who hadn't taken the project yet and after explaining the 4-4-3-2 way, they did very well. In the future, the game will be a very important part of leader-training meetings in "Food, Let's Begin." As I am able to visit with leaders I'll try to answer their questions.

III. Generally favorable comments:

1. I think this is excellent. A group of junior leaders gave the orientation at each area demonstration. Boys and girls alike were interested and further thought they learned something. When I tried it at junior leader meeting, the boys were really surprised at their enjoyment. I've also tried it with kids in the neighborhood not in 4-H to the conclusion that members learn something in 4-H.

2. I think it could be a very useful teaching tool, if leaders were properly oriented to its use and purpose.

3. In Monroe County the game was explained to the Nutrition Committee, a group of county and city persons engaged in nutrition education. They felt it would have its greatest value as a tool for low-income adults learning nutrition.

4. It's great for home economics classes, etc. in schools, too.

IV. Game should be directed to older members:

1. I believe the game should be used by 2nd or 3rd year food project members. Rules seem to be too complicated.
2. May be too difficult for beginners. I have planned to use this with new leaders in the fall and study would be more meaningful then.
3. I think that it is too complicated for children of the age group intended (10 years old) and not exciting enough.

V. Comparison with game originally introduced:

1. I felt the original game which we played had as much or more potential as a teaching tool. It seems difficult for the players to get adequate 3 meals which follows the 4-4-3-2 way. It has not been really tried in the clubs for a long enough time to really evaluate.
2. At the time of my orientation at Club Congress (1967) I did think it was adequate. However, now it seems the agents should have played the game themselves to get the "feel" of it. Several rules of play could be clarified.
3. I find it hard to teach others something I haven't actually done myself. Our original training was so different than the finished product that it was hard to correlate the two. Watching the children play at club congress didn't help much because you couldn't really see what they were doing and their comments were enthusiasm, not "what they were doing" type of comments. The leaders who have used the game feel it has problems, but members and junior leaders like it. We are grateful to have the games to use.

VI. Too soon to adequately evaluate:

1. Too early for adequate evaluation.
2. I have not had enough feedback from leaders as yet.
3. I really won't be able to give an accurate account until the game is used on a larger scale.

VII. Unfavorable comments:

1. Does not meet intended purpose; cheap; not professional; waste of time, effort and money; original game much better; more use by more leaders will be revealing, I'm sure.

2. From what I've heard from other agents, the game is difficult to explain. Since we decided to hold off with it until fall, I haven't sat down to study the rules. Mrs. _____, our county leader for this project took one home to study. I'm not impressed with the game materials as they seem colorless. In a one-day meeting to present the project, "Food, Let's Begin," I'm not sure how much time should be spent in learning how to play the game. I'll know better when I've had some experience with it. Box is too big for the contents.

VIII. Miscellaneous:

1. It seems in most cases, that the project meetings are after school and that time is at a premium. Therefore, I don't think the games are being used as much as they could be if more time were available for the meetings.
2. I did not teach this workshop.

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GASPERECZ, ANDREW H., AND OTHERS
AN ADMINISTRATOR'S HANDBOOK FOR INDUSTRIAL ARTS IN LOUISIANA SCHOOLS.

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ABSTRACT - GENERATED IN THIS HANDBOOK ARE IDEAS AND SUGGESTIONS FOR THE DEVELOPMENT OF A STATE-WIDE INDUSTRIAL ARTS PROGRAM IN LOUISIANA. TOPICS COVERED INCLUDE: (1) A RATIONALE UNDERLYING THE STUDY OF INDUSTRIAL ARTS, (2) REASONS FOR STUDYING INDUSTRIAL ARTS, (3) OBJECTIVES AND A STATEMENT OF GOALS, (4) A DISCUSSION OF THE DIFFERENCE BETWEEN INDUSTRIAL ARTS AND VOCATIONAL EDUCATION, AND (5) PROGRAM IMPLEMENTATION PLANS AND SUGGESTIONS. THIS MANUAL, FOR USE IN PLANNING PROGRAMS, HAS BEEN PREPARED BY THE DIRECTOR OF INDUSTRIAL ARTS EDUCATION AND OTHERS UNDER THE DIRECTION OF THE ASSISTANT SUPERINTENDENT OF VOCATIONAL EDUCATION IN LOUISIANA. (SN)

STATE DEPARTMENT OF EDUCATION OF LOUISIANA

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AN ADMINISTRATOR'S HANDBOOK FOR INDUSTRIAL ARTS IN LOUISIANA SCHOOLS

Prepared by:

ANDREW H. GASPERECZ, Director
JOHN O. MURPHY, JR., Supervisor
JOHN A. DOBBS, Supervisor
INDUSTRIAL ARTS EDUCATION

Under the direction of:

THOMAS S. DEVELOY
Assistant Superintendent
Vocational Education

Issued by:

State Department of Public Education
William J. Dodd, Superintendent

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RATICNALE UNDERLYING THE STUDY OF INDUSTRIAL ARTS

The major purposes of the school are to acquaint youth with the nature of the culture in which he lives and of which he is a part and to provide experiences that will uncover, develop, release individual potential. Within these broad goals are the passing on of man's accumulative heritage, the transmitting of the democratic way of life, the improving of the American way of life and the meeting of individual and societal needs.

Since the American culture is distinctly and uniquely characterized as industrial and/or technological, it becomes the function of schools to give every student an insight and understanding of the technological nature of the culture. This is what the program of Industrial Arts in American schools strives to do in discharging its role and responsibility to youth. It acquaints persons of all ages and both sexes with the technological environment, with American industry, and with the many components of the material culture.

Recognizing man's native potential for reasoning and problem solving, for imagining and creating, for constructing and expressing with materials - from which comes technology, industry, the material culture and the technological environment -- Industrial Arts capitalizes on this rich potential and gears its content and experiences to those that contribute to the growth and development of human beings commensurate with potentialities. Thus, Industrial Arts is a basic and fundamental study for all persons regardless of educational goal or occupational pursuit.

REASONS FOR STUDYING INDUSTRIAL ARTS

There are many reasons for studying Industrial Arts. Among them are the following:

*All persons need to know about the technological environment, the material culture, and industry because they are economically, socially and emotionally affected by them.
*All persons must make a career choice from an extremely large and increasing

number of occupations that are affected by technology; therefore, they should have opportunities to develop interest, uncover talents, explore technical and applied science fields and study occupations.

*All persons must select, buy, use and maintain the products of industry--houses, automobiles, appliances, clothes, furniture, and items of a never ending list. A knowledge of products, their characteristics, qualities, advantages and disadvantages makes for intelligent consumption.

*All persons need recreational, leisure time, and avocational outlets. With the workweek decreasing in length this role becomes increasingly important.

*All persons need to have opportunities to develop planning, creative, problem solving and technical skills in harmony with our democratic way of life of seeking the better way.

DEFINITION AND OBJECTIVES

A GUIDING DEFINITION

INDUSTRIAL ARTS is the study of TECHNOLOGY: the MATERIAL CULTURE--its evolution, utilization, and significance; of INDUSTRY--its organization, materials, occupations, processes and products; of the TECHNOLOGICAL ENVIRONMENT-America's industries and man-made resources, and of the problems and benefits resulting from the technological and industrial nature of society.

In the total program specific objectives should be devised for the various age and grade levels of the school from the elementary grades through the adult program. The objectives would not be the same for all learners, especially the slow and the gifted. The following primary objectives are considered to be attainable and should be emphasized in Louisiana school programs.

OBJECTIVES OF INDUSTRIAL ARTS

1. To develop in each student an insight and understanding of industry and its place in the culture.
2. To discover and develop talents, aptitudes, interests and potentialities of individuals for the technical pursuits and applied sciences.
3. To develop in each student a knowledge of occupations, an understanding of industrial processes and the practical application of scientific principles.
4. To develop in each student basic skill in the proper use of common industrial tools, machines and processes.
5. To develop problem solving and creative abilities relating to the materials, processes and products of industry.

DIFFERENCE BETWEEN INDUSTRIAL ARTS AND VOCATIONAL EDUCATION

"What is the difference between industrial arts and vocational education?" On paper and to the untrained eye the two programs may appear to be doing similar things in the areas of trade and industry. In reality, they are not. The youth who is enrolled in vocational education differs from those who have enrolled in industrial arts or home economics in that he or she has made a specific commitment to an occupational choice. The program of instruction in the vocational-technical school is designed to teach him the skills and concepts necessary for him to enter the trade of his choice and to facilitate his subsequent growth and development on the job.

Industrial arts holds the above five educational objectives as its unique contribution to the total general education of all children.

Industrial arts and home economics are courses selected by the large portion of the student body who either (1) have not made final commitment concerning the direction of their future educational or training goals or (2) feel that the broad general approach to

the study of technology will contribute to their success in their chosen destiny. These two fields service the large mass of students in the elementary, middle school and high school who want to understand the "world of things" and the "origin of things," whether in the home or in industry. Students want to know how the real world operates - - what are its forces - - what are the opportunities. Exploration of the world of technology with an emphasis on self identity contributes to a child's ability to make a discriminating selection of his best alternatives in life. While both home economics and industrial arts contribute to these understandings, the specific concern here is with industrial arts.

SUGGESTED READINGS

American Council of Industrial Arts Supervisors, Industrial Arts Education: Purpose, Program, Facilities, Instruction, Supervision American Industrial Arts Association, Washington, D. C. 1969.

Bulletin No. 1197 Industrial Arts Education for Louisiana Schools State Department of Education, Baton Rouge, Louisiana, 1971

Bulletin No. 1207 Elementary School Industrial Arts, Interaction Technology for Children, A Positive Approach to Education for a Changing Society"

Delmar W. Olson, A New Industrial Arts Education for American Schools, A Prospectus, North Carolina State University, January, 1970

Delmar W. Olson, Industrial Arts and Technology, Englewood Cliffs: Prentice Hall, Inc., 1963

RELATIONSHIPS OF INDUSTRIAL ARTS TO THE TOTAL PROGRAM OF EDUCATION

Industrial arts education has many characteristics that are common with other subject fields, such as,

content, principles, academic skills, knowledges, and attitudes. The following examples indicate some typical relationships:

Relationship of Industrial Arts to Vocational-Industrial Education

Students in industrial arts have exploratory experiences, develop basic skills, and acquire technical knowledges that provide a realistic basis for occupational choice and specialized occupational preparation. Vocational-industrial education, as specialized occupation preparation, equips youth for gainful employment in industrial occupations. In addition to this direct prevocational relationship, other educational objectives are met through industrial arts education.

The Relationship of Industrial Arts to the Practical Arts

Practical arts educational experiences are frequently grouped into courses in the areas of home economics, business education, general agriculture, and industrial arts. These areas are alike in that they provide a type of functional education which focuses upon the study of the production and utilization of the nation's resources, both human and material. Occupational competency is not the major goal of the practical arts; rather, the learning experiences deal broadly with consumer knowledge, family living, basic skills related to tools and materials, and a study of technological developments related to production of raw materials as well as products.

The Relationship of Industrial Arts To Guidance

To provide opportunities for individuals to have a wide variety of exploratory experiences upon which decisions can be based is a desirable outcome of a formal educational program. The guidance services of a school provide a systematic framework for this exploration, and to assist individuals in the assessment of their assets and liabilities. Industrial arts education contributes to the broad guidance function as it provides opportunities for laboratory experiences

and information related to tools, materials, processes, and products of industry. These experiences have broad educational, as well as occupational, implications for future decisions.

Relationship of Industrial Arts to Fine Arts

Students in industrial arts apply knowledge of materials and tool processes in the study and construction of objects d'art which are esthetically pleasing. Objectives of industrial arts emphasize development of the ability to recognize and appreciate work which is artistically and structurally sound. Opportunities are sought in all phases of the program for creative expression whether it be related to art, to scientific principles relating to the production and transmission of musical sounds, or to the practical solution of technical problems posed in the staging of a dramatics production.

Relationship of Industrial Arts to Language Arts

Communication skills are an essential part of the studies in industrial arts. Vocabulary is increased and enriched through the understanding and use of industrial terms. Special language skills are developed by writing and presenting technical reports, preparing specifications, and materials orders as well as utilizing handbooks, catalogues, and reference materials.

Relationship of Industrial Arts to Mathematics

Students in industrial arts rely heavily on mathematical skills. Extensive use is made of measuring processes including the study of linear and angular relationships existing in geometric shapes. Accuracy and computational skills are developed. A wide range of experiences is provided in the use of symbols and formulas. Skills are acquired in the estimating and judging of size, quantity, and fit.

Relationship of Industrial Arts to Science

Students in industrial arts are given opportunities for research, investigation, and experimentation.

The scientific method is used in solving problems. Opportunities are provided for the application of scientific principles in the production and servicing of products. Mechanical skills are developed which are necessary in the construction of equipment for scientific experimentation.

Relationship of Industrial Arts to Social Studies

Effective human relations are developed by the industrial arts students' participation in shop management, by working together, and by sharing tools and facilities. Students become familiar with methods of industrial production and the distribution of manufactured goods. Problems may be studied in such a way as to arouse a wide interest in the occupations of people in many walks of life. Emphasis is placed on conservation when studying human and physical resources. Industrial materials and production methods are studied. A knowledge of history and geography may be gained through the study of industry.

CURRICULUM FOR THE ELEMENTARY SCHOOL

Career Awareness
"Interactive Technology for Children"

K - 6

At the introductory level (K-6), students are informed about the wide range of careers as they relate to the student himself, understanding of work roles, and concepts of job families.

Industrial Arts, at the elementary school level, is an essential part of the education of every child. It deals with the way man thinks about and applies scientific theories and principles to control his physical environment. It provides opportunities for developing concepts related to the child's aesthetic and utilitarian needs. These concepts are developed through concrete experiences, including the manipulation of tools and materials, the management of processes, and other methods of discovery. Industrial Arts at the elementary school level includes:

(1) knowledge of technology; (2) development of psychomotor skills; and (3) development of attitudes and understandings of how technology influences society.

SUGGESTED AREAS OF INDUSTRY FOR STUDY

1. Manufacturing
2. Transportation
3. Communication
4. Construction
5. Power
6. Services

Elementary school industrial arts programs fall into the following general categories:

Limited Classroom Program

The majority of the elementary school industrial arts programs fall into this category. The term "limited" refers to the classroom time allowed for the subject, to the tools and materials available and to the direct assistance available from an industrial arts consultant. The activity is usually integrated with other subjects of the elementary curriculum such as geography, history, science, language arts, art through tool skills, experimentation, problem solving, and the appreciation of various industrial processes.

Comprehensive Classroom Program

In this type of program the classroom teacher has the advantage of regular assistance from an industrial arts consultant. School visitations by the consultant are frequent, and usually many teachers of several grades are involved in the industrial arts program. A course of study is set up for all grades, and there is planned articulation from grade to grade.

Laboratory Program

The trained industrial arts teacher who leads a laboratory program has a dual role to play in the elementary school. He directs a balanced industrial arts program for the children of the school in cooperation with the classroom teachers, and he gives these teachers

sufficient in-service training to be fully aware of the total needs of the children.

Traveling Teacher Program

The traveling industrial arts teacher functions in about the same way as the laboratory teacher. He works in the classroom, in a laboratory, or in a multipurpose room.

He visits two or more schools on a regular schedule, teaches children and plans the program with the classroom teachers and the local administrator; the work centers around local needs.

Mobile Laboratory Program

The mobile laboratory has been used mostly in rural areas where schools are far apart, and each school is unable to afford tools and equipment of its own. This mobile unit may serve as a laboratory for tools, and equipment may be moved to other work areas.

Central Laboratory Program

Certain circumstances may require the establishment of centralized industrial arts laboratories. Children would travel to the center on a regularly scheduled basis. Programs would be conducted by an industrial arts teacher in a facility designed for comprehensive industrial arts activities.

Summer School Enrichment Program

Art, music, drama, science, and industrial arts activities have been highly successful in various summer school organizations. Rather than spend a full summer school day on one subject, there have been some rather innovative combinations such as theater arts, math-science, etc., all combined with industrial arts.

CURRICULUM FOR THE SECONDARY LEVEL

SCOPE AND SEQUENCE

It is becoming more important that youth move into the senior high school with some ability to choose intelligently those subjects which will fit him more capably to enter successfully the world of work. Eighty-seven percent of high school graduates do not go to college. Industrial arts is one area of instruction which has great opportunity to provide career information about and interpretation of the world of industry.

The major areas of instruction have been suggested as (1) drawing, (2) woods, (3) metals, (4) electricity/electronics, (5) power mechanics, (6) graphic arts, (7) industrial crafts, and (8) plastics. On the senior high school level, instruction in industrial arts must assume a greater role in career education. This stress on the vocational aspect before employment in industry or prior to additional educational preparation will take two directions.

The first will be aimed at increasing the employability of the individual youth in an area of industry of his choosing when he terminates high school. If he decides that his capabilities and interests lie in the metals area of industry, he should have the opportunity to pursue concentration courses which include work in machine metals, welding, sheet metal work, foundry, blueprint reading, and similiar types of industrial arts work. Of equal importance will be his choice of appropriate mathematics, science, English, and other academic subjects which will provide him with necessary supporting knowledge to progress in any employment he may secure in the metal industries. Specific skills and progress and machine techniques will necessarily have to be provided by industry. The purpose of industrial arts work in the senior high school will be to provide and develop in the youth the ability to adapt his skills, techniques, and career information to the changing

demands of the industry in which he may be employed.

The second direction that industrial arts instruction in the senior high school will assume is that of providing basic courses and career information needed by youth prior to entrance into engineering or vocational-technical schools on the post-high school level.

Because of recent trends in our society, industrial arts must assume duties in the field of education that go beyond that of the general. Industrial arts departments must assume more responsibility for career education.

Students need assistance in developing adequate self-concepts, inter-personal skills, problem-solving and decision-making techniques, as well as assistance in making vocational and career choices. The industrial arts teacher attempts to present career choices realistically. His role does not replace that of the guidance counselor, but reinforces it. Industrial arts teachers and guidance counselors work together to make the student's school experience more meaningful.

Industrial arts can be a very important part of the educational experience. It offers experiences that help students make career choices, helps develop self-realization through "hands on" lab activities, and helps the student cope effectively with his culture and the rapid technological change of his society.

Industrial arts programs nationally have not kept pace with technological change. More specifically, there have not been enough innovative and exemplary programs implemented in Louisiana. Not enough Louisiana school districts offer articulated broad, exploratory programs which reflect study of all aspects of industry. It has been difficult to bring about change through program development. It has also been difficult for schools to adopt new processes and to keep up with changes in technology.

Industrial arts curricula once derived content from dissimilar bases, such as materials, machines, processes, and occupations. The result was extreme fragmentation. Activities have not been tied to other school disciplines to make them more relevant and meaningful. The dissemination of occupational information and consumer knowledge to develop career awareness has not been adequately stressed. In addition to this, professional schools are listing as entrance requirements courses in mechanical drawing and strongly recommending industrial arts laboratory courses in metal, electricity and power mechanics. Thus, high school courses in industrial arts are acquiring a status as college preparatory.

SUGGESTED INDUSTRIAL ARTS PROGRAM

JUNIOR HIGH SCHOOLS
Career Orientation and Occupational Exploratory (7-9)

At the intermediate level (7-9), students explore the various occupations through hands-on experiences and field observation, in addition to classroom instruction.

Grade 7 (Optional)
* "The World of Construction" IACP - 36 weeks

or

Grade 7			
Planning and Sketching 6 weeks	Wood Craft 6 weeks	Art metal and Jewelry 6 weeks	Leather 6 weeks

Grade 7	
Ceramics 6 weeks	Plastics 6 weeks

An exploratory type program offering experiences in four to six different areas, 6 to 9 weeks in each area.

Industrial crafts areas other than those above may be substituted if desired. These are typical, however, and it is important that the areas offered be of the crafts type.

Grade 8 (Optional)
* "The World of Manufacturing" IACP - 36 weeks

or

Grade 8			
Mechanical Drawing 6 weeks	Woodwork 6 weeks	Metalwork 6 weeks	Electricity 6 weeks

Grade 8	
Power Mechanics 6 weeks	Graphic Arts 6 weeks

An exploratory type program offering experiences in four to six different areas, 6 to 9 weeks in each area.

* IACP is an innovative curriculum development for junior high school industrial arts.

A sequence of two one-year courses, THE WORLD OF CONSTRUCTION and THE WORLD OF MANUFACTURING, the IACP curriculum is a career orientation to the two management-personnel-production systems that industry uses to produce our man-made world of structures and products.

IACP students study, discuss, and perform actual and simulated construction and manufacturing industry operations and management practices. They learn what to expect in the world of work: what kinds of jobs there are, what people do, how each worker contributes

to the economic system, how labor and management relate. They recognize levels of work responsibility and their varying knowledge and skill demands. IACP students participate in the communication of ideas, specifications and orders in laboratory experiences with managed production systems.

McKnight & McKnight Publishing Company of Bloomington, Illinois has been selected by OSURF and approved by the U. S. Commissioner of Education as the exclusive publisher and distributor for the IACP Programs. The Fourth (commercial) Edition of THE WORLD OF CONSTRUCTION was published in fall 1970. The Fourth Edition of THE WORLD OF MANUFACTURING was introduced at the beginning of fall 1971 classes.

More information about THE WORLD OF CONSTRUCTION and THE WORLD OF MANUFACTURING may be obtained from:

Industrial Arts Curriculum Project
1712 Neil Avenue
Columbus, Ohio 43210
614/422-7471

McKnight & McKnight Publishing Company
Route 66
Bloomington, Illinois 61701
309/663-1341

Grade 9 Course 1

The ninth grade work is normally set up on two areas of work with 18 weeks devoted to each. The areas should include at least two of the following: drawing, woodwork, electricity/electronics, metalwork, power mechanics, and graphic arts.

Elective for any ninth grade student who has had the eighth grade course above.

Mechanical Drawing	Electricity/Electronics
18 weeks	18 weeks

Tryout courses providing additional finding values, each course one semester in length, afford

information and experiences needed in choosing a full year course in later years.

The course listed below is for students coming from a school that did not offer industrial arts at the seventh or eighth grade level.

Mechanical Drawing	Woodwork	Electricity Electronics	Power
9 weeks	9 weeks	9 weeks	9 weeks

An exploratory type program offering experiences in two to four different areas, 9 to 18 weeks.

Exploratory areas such as metalwork and graphic arts may be substituted above, but those listed are typical.

SENIOR HIGH SCHOOLS

Prevocation-Occupational Preparatory and Career Information

(10-12)

At the advanced level (10-12), students continue in-depth experiences, prepare more specifically through classroom, laboratory and field experience activities, and for further education. Placement in an occupation or in further education are options open to all students at this level.

Grade 10 Course II Elective	
18 weeks course chosen from an area taken previously	18 weeks course chosen from an area taken previously

One full year course to be elected by the student on the basis of interests and ability. Advanced courses for superior students and those who have prevocational needs.

or

Full 36 weeks course in one area chosen from 18 weeks course taken previously.

Tryout courses providing additional finding values as well as some development of skills and information.

Courses may be 18 or 36 weeks in length.

Grade 11 Course III Elective

Full 36 weeks course in one area taken previously as an 18 weeks course or a 36 weeks course.

Grade 12 Course IV Elective

One of the courses listed below:

Advanced Mechanical Drafting or Architectural Drafting or Engineering Drafting (Architectural and Machine) 36 weeks

or

Advanced Woodwork (mass production, problem solving, carpentry) 36 weeks

or

Advanced Metals (Machine Shop and Welding) 36 weeks

or

Advanced Electricity-Electronics 36 weeks

or

Power Mechanics 36 weeks

or

Graphic Arts (Printing, Silk Screen, Lithography) 36 weeks

These are typical, however, other areas may be substituted.

COOPERATIVE PART-TIME TRAINING

A cooperative part-time training program of instruction can be provided for youth who have occupational objectives in industrial jobs. Instruction can be offered for those who are preparing to enter the world of work upon graduation with occupational objectives in vocations requiring competencies in the fields of (1) Drafting, (2) Woodworking, (3) Metalworking, (4) Electricity/Electronics, (5) Power Mechanics, (6) Graphic Arts and (7) Plastics.

The instructional program shall be under the supervision of the industrial arts teacher and a written agreement must be made between the employer, the trainee and the school.

Cooperative part-time training in Industrial Arts was approved by the State Board of Education at its June 28, 1968 meeting which amends Bulletin No. 741, Handbook for School Administrators, Revised 1966.

Cooperative part-time training may be pursued by students in the 11th or 12th year or both provided their basic sciences and other general knowledge courses are taken during the first two years of high school.

This increases the maximum number of units allowable for industrial arts and industrial arts cooperative work experience to a possible 8 units during a 4-year high school period.

INSTRUCTION

TIME ALLOTMENT	NO. OF SEMESTERS
1 hr. of class work daily and an average of 15 hrs. a week of work experience in a 2 yr. program	2 or 4

COOPERATIVE PART-TIME TRAINING PROGRAMS	GRADE MIN. 16 YRS. POSSIBLE UNITS		MAXIMUM CREDIT
	11	12	
Industrial Arts	3	3	6

A. Students enrolled in these curricula should receive 1 unit of credit for related classroom instruction where each class meets 1 hour each day 5 times per week for a total of 5 hours each week.

B. Students enrolled in these curricula should be provided, in addition to the related classroom instruction, 15 hours each week of cooperative work experience for which they receive 2 units of credit.

C. The cooperative work experience program should be carried out under the supervision of a competent teacher - one trained in the area in which experience is being obtained.

D. It is requested that physical education be waived as a requirement for students in Vocational Education who are participating in cooperative work experience programs.

CAUTION: The minimum age for cooperative work experience in hazardous occupations is 18 years of age.

Grade 13 and 14 Occupational Specialization at the Post High School Level

At the post-secondary and adult levels, opportunities are provided for entrance and exit at any level, at any time, in the individual's career development.

One full year course, listed above, is to be elected by the student on the basis of interest and ability. Advanced courses are for superior students and those who have prevocational needs. These courses will provide necessary prevocational skills and career information applicable to initial employment and to develop in the youth the ability to adapt his skills, techniques and information to the changing demands of the industry in which he may be employed. Secondly, they provide basic courses and career information for youths entering engineering or vocational-technical schools on the post-high school level.

With a capable teacher operating within the framework of clearly stipulated objectives an effective industrial arts program may be organized for each grade level from the elementary school to adult education. Of course, each level at which a program is presented will impose its own limitations on the nature of the offerings. For example, at the elementary school level the program will primarily consist of activities which involve manipulative and related experiences which enhance the broad units of learning at this level. Nevertheless it can also provide an excellent vehicle for creative expression encompassing a great variety of materials.

At the junior high school level pupils need experience which will help them in planning their future and which will provide opportunities for them to explore their own capabilities and the physical world about them. A properly structured industrial arts program can provide these opportunities. The multipurpose laboratory is especially well suited to permit the breadth of experiences recommended at this level.

Industrial arts at the senior high school level should offer a technical prevocational curriculum for those who will not pursue formal education beyond high school. On the other hand, for college-bound students it offers a number of possibilities. Such courses as drafting, electronics, metalwork, and mechanics would be very helpful to pre-engineering or science students.

Naturally the industrial arts courses would be of direct benefit to those who plan to become teachers of the subject area. For other college-bound students the chief benefit may be the discovery of constructive, satisfying leisure pursuits. Thus, the prevocational aspect of senior high school industrial arts is designed to build both a broad base for later specialization and a degree of competency in a limited area.

School enrollment and the size of the physical plant are additional factors which influence the type of industrial arts program to be offered in a given

school. Enrollment is an especially important consideration at the senior high school level. Conversely, the physical size of the school probably would be of least importance at the elementary school level since industrial arts activities are usually conducted by the regular classroom teacher as a part of the normal classroom activities. Larger schools might find it possible to provide special activity areas for industrial arts with an industrial arts teacher to serve as a consultant to the regular teacher. However, this arrangement probably would not be feasible in small schools.

Enrollment at the junior high school level would have considerable influence on a program. Where only one industrial arts teacher is available he must use a multipurpose laboratory in which the number and extent of exploratory experiences would be somewhat limited. Where larger enrollment permits more than one teacher, the use of the single-area type of laboratory can provide more extensive experience in a greater number of areas.

It is at the senior high school level that the nature and scope of the industrial arts program would be most affected by school enrollment. Industrial arts is no less an essential part of the curriculum for a small high school than for a large high school, but a series of single-area laboratories makes possible a greater achievement of the objectives of industrial arts than would a single multipurpose laboratory which would be necessitated by the limited enrollment of a small school.

Another factor which affects the industrial arts program is that the curriculum must be designed to meet the educational needs of the community served by the school. The program for a school where most of the graduates go to college would be different from that for a school where the majority of students will seek employment at the completion of high school. In addition, the nature of the industries and businesses in the area, the skills they require of prospective employees, and the number of jobs available in a given skill would indicate the need for certain shifts in

emphasis in the course offerings of the program.

Finally, a basic structural relationship exists between industrial arts and the machines, tools, equipment, materials, and ideas--the subject matter of industrial arts. The use and appreciation of this subject matter must be varied to contribute to the most effective education of the students participating in each program.

GROUPINGS

The principle means of grouping students at the secondary level in industrial arts programs is heterogenous. Because the program is designed to afford opportunities in a great diversity of activities, both boys and girls, gifted and non-gifted, can benefit in the same class when the curriculum designs and approaches to teaching described herein are implemented.

To meet the diverse needs and interests of students in the large secondary school (1,600 or more enrollment) homogeneous grouping provides a means for offering different types of courses each with unique purposes at the same grade level. When grouping by interest and ability three major types of programs emerge, each of which is oriented to correlating major curricular functions with student needs: (1) culturally and socially oriented, (2) occupationally and technically oriented, (3) recreational and consumer oriented.

The culturally and socially oriented program has a central theme of integrating the humanities and related sciences into industrial arts activities. A program concentrating on these functions is designed principally for the college-bound student planning to enter professional fields related to architecture, engineering or the sciences.

The occupationally and technically oriented program should be planned to meet the needs of the

general education or pre-vocational student who will be entering the world of work upon completion of high school or graduation from a community college. This program should be very broad while providing students with experiences that will develop understandings of technology, industry, and occupations that may assist them in making choices in the world of work. This type of industrial arts program should be offered before the 11th grade so that the student may enroll in vocational courses in the 11th and 12th grades.

The recreational and consumer oriented program should be planned for any boy or girl who is interested in the subject for the recreational and/or consumer benefits.

PURPOSEFUL TEACHING METHODS

So often industrial arts has been less effective than intended because teachers did not write or follow course outlines, unit plans, or daily lesson plans and allowed their industrial arts courses to become practically 100 percent activity, with learning taking place incidentally rather than purposefully.

Balancing Classroom and Laboratory Activities

Industrial arts should be taught in a purposeful manner with some attention given to the value of appropriate textbooks, outside-of-class assignments, supervised study, written examinations, performance tests, and the like. Some of the newer innovative programs are criticized for placing too much emphasis on classroom activity and evaluative techniques. Such criticism may be justified. However, it should be remembered that traditional programs which are practically devoid of classroom activity can defeat the purpose of industrial arts as well as programs which involve too much classroom activity and insufficient laboratory activity. Some authorities have suggested that approximately 25 percent of the available time be devoted to classroom activities and 75 percent to laboratory-type activities. Teachers are encouraged to study this matter carefully

and attempt to strike a balance between classroom and laboratory activities that proves to be most effective in helping the student to learn.

Activities Appropriate to the Classroom

Classroom activity should be as carefully planned as activity that is carried on in the laboratory. A variety of classroom activities may be used appropriately in industrial arts courses. Some activities which seem especially useful and others that seem to require special comment are discussed here.

Use of textbooks. Textbooks are as important as tools in present-day industrial arts. Early educational construction activities did not involve using textbooks, for the primary emphasis was on development of skill in using tools. Nothing could replace activities in the laboratory in the attainment of such a goal. As an extra precaution in this, it was common for laboratory classes to meet double periods.

Since industrial arts classes have been placed on the same time schedule as other classes and goals have come to include the attainment of certain knowledge, attitudes, interests, appreciations, and skills, the need for using textbooks in industrial arts courses has become imperative. Out-of-class reading assignments can be given that will familiarize students with processes that are to be demonstrated, and the demonstration can then proceed with more understanding and efficiency. Similiar assignments covering related information will permit in-class time to be used more profitably in discussion.

Many other occasions exist for improving instruction in industrial arts through the use of good textbooks; in fact, textbooks are used in industrial arts just as they are in other courses, except perhaps to a lesser extent. It is important that the time devoted to reading activity not jeopardize the laboratory time that must be reserved for manipulative activity if industrial arts is to make the type of unique contribution it should.

Lecture-Discussion. One of the oldest teaching methods which is used a great deal in formal education is the lecture. Unfortunately, as it is commonly used, it is one of the least effective methods of instruction. Its value in industrial arts is undoubtedly more limited than in disciplines such as social science; but as industrial arts courses become more technical in nature, some increase in the use of this teaching method may be appropriate. At such times careful preparation should be made and many illustrations be used - - flip charts, overhead transparencies, and oral illustrations. Pertinent questions should be directed to students to encourage their involvement and to see if main ideas are being understood.

Team Teaching

It is becoming increasingly difficult for a single teacher to be highly competent in several industrial arts subject matter areas. Although large numbers of teachers must still attempt to do an acceptable job of teaching in more than one area, some teaching situations could use team teaching to good advantage. Where school systems operate a multipurpose laboratory with two or more teachers involved, teach teaching might improve the instructional program. Many large junior high schools could take advantage of such an arrangement.

In large schools which offer several sections of the same course, the two or more instructors involved could easily form a team which would capitalize on the special teaching abilities and skills or knowledge of each.

Team teaching could also take place on an informal basis with teachers of different courses changing places for short periods of time, to teach units in the instructor's area of speciality to the other class.

Properly organized, this method should provide participating instructors more time for research and

planning, resulting in richer content being presented to classes in a more efficient and understandable manner.

Programmed Instruction

One of the newer methods of presenting content for a unit of course is by programmed instruction. The initial furor over teaching machines died down as it came to be realized that the machine was comparable to the covers of a book whereas the program, the equivalent of the text of a book, was the heart of any teaching machine. Although many programs are designed to be used in specific machines, a number have been produced in book form or in ways that require very unsophisticated gadgets or none at all. Regardless of the form in which it appears, programmed instruction is being used a great deal in industrial and military training programs and to a considerable extent in formal education. It requires that the learner be an active participant in the learning process and provides high retention, an effective means for individualizing instruction, and greater opportunity for teachers to increase their effectiveness through individual contacts with students. Research has shown programmed instruction to be effective at all educational and ability levels and in many different subject matter areas, including industrial arts.

Resource Speakers, Field Trips, and other Community Resources

The industrial arts teacher should be alert to the community resources that exist in his immediate area and opportunities that exist for improving instruction by utilization of them.

Resource Speaker. Persons from industry are willing and often enthusiastic about speaking to a group about an industry or some aspect of it in which they have some expertise.

Field Trips. It is not possible to duplicate the physical setting of industry in the industrial

arts laboratory. However, it is possible to take the students to an industry where they can see the various talents, equipment, and teamwork needed to produce a product. Through field trips, students will be able to associate industrial methods and activities with the experiences they have encountered in the laboratory. It is important that the teacher provide adequate orientation for the students before the trip so they will know what to look for. After the field trip, a discussion of what was seen is most appropriate to emphasize concepts which have been taught in the classroom. As more and more small industries develop in Louisiana, it seems unlikely that any school will be so far from an industrial plant of some kind that the instructor cannot include one or more valuable field trips in his instructional program.

Other Community Resources. Some local suppliers are willing to bring equipment into the school laboratory and demonstrate a process which is so new that little published material exists. Few methods are more effective in capturing the interest of students, enriching instruction, and keeping the industrial arts program up to date. An alert, conscientious teacher will usually find other community resources that may be utilized to good advantage.

Activities Appropriate to the Industrial Arts Laboratory

Forerunners of industrial arts placed emphasis on various types of construction activity. Manual training emphasized acquiring skill with hand tools through wooded joint exercises. Sloyd focused on construction of articles that would have a utilization value in the home. Manual arts stressed that useful, take-home projects should be artistically satisfying. Industrial arts has capitalized on the inherent interest of construction and generally has considered the project a vehicle for learning.

The emphasis of industrial arts on the project sometimes has resulted in unfortunate situations where

the public relations value of large projects takes precedence over their relevance to learning; where teachers involve themselves almost 100 percent in individual supervision of students engaged in project construction with learning taking place incidentally rather than resulting from teaching certain important subject matter in each course on purpose; and where projects become the end goal rather than only one important means to the end. It should be realized that certain types of activity are more appropriate for changing certain types of behavior, and that choices should be made accordingly, keeping in mind some of the newer types of activity as well as the more traditional ones.

Projects. Traditional, take-home projects are useful when they involve students in learning those things specified by the teacher in his course outline. Many large projects involve much repetitious work requiring skills of a rather low order. Under such circumstances, the student receives a diminished educational return on his investment of time and money. All projects, but especially the large showy ones, should be carefully evaluated and rejected as educationally unsuitable if they are found to involve work that is repetitious in nature. Due consideration should be given to the interest that is inherent in the construction of projects selected by students to meet specific needs but this should always be secondary to the one important question of whether the learning that results from building the project is educationally desirable.

Exercises. Although many industrial arts teachers feel there is a stigma attached to exercises, certain well-designed exercise work is most appropriate when perceptual motor skills are to be acquired. Many students find exercises quite challenging and are strongly motivated to perform the exercises until they can demonstrate a high degree of skill in each. Some students, however, are not so challenged by this approach. The interest of these students can usually be maintained by allowing project work between

exercises which involve only those skills mastered in previous exercises.

Experiments. Although the value of laboratory experiments has long been recognized by some teachers, it was not until some of the recent work in industrial arts curriculum lent status to this type of activity that laboratory experiments were given the impetus they deserved. Even though such activities result in a report rather than a project, experiments are capable of generating a great deal of student interest. Experiments should be well conceived and executed precisely, with data carefully recorded so that acceptable written reports may be made. Several shop experiment titles from the metal area are provided for illustrative purposes:

-An experiment in fluidity of aluminum at various temperatures
-An experiment to determine the best temperature for pouring a certain casting
-An experiment to determine the superiority, if any, of electrodes of the same AWS classification made by different manufacturers
-An experiment to illustrate the manner in which aluminum flows during the spinning process

The following publication should be of value to teachers and students who are interested in activity of this nature:

> Experiments with Materials and Products of Industry, Arthur W. Ear., McKnight and McKnight Publishing Company, Bloomington, Illinois 61701, 1960.

Group Projects

In the past the common vehicle of learning in industrial arts has been the project designed and constructed by the individual student. But little of modern industry is based on the turning out of products which have been designed and constructed by individual craftsmen. A group project, where several

students are involved with the problem of design, construction of the various components, and assembly of a one-of-a-kind finished project, is somewhat more representative of the team approach used in modern industry than the typical project approach. A machine or device needed for the laboratory might be suitable for such a project.

Mass Production

Modern industry could not exist if it were not for mass production. The individual student project has some elements of industry insofar as design and construction of a pilot model is concerned, but it has little in common with the complex organization which enables industry to produce large quantities of items in the quickest, cheapest way possible.

If industrial arts is to realize one of its most important goals--that of developing an understanding of industry--some time during the latter portion of all basic industrial arts courses should be given over to a simulation of industry that is as valid as school laboratory facilities will allow. The mass production of some small product, with the students involved with both the design of the product and of the necessary jigs and fixtures needed for production, followed by the production of the component parts and assembly and finishing of the product, will do more for the development of an understanding of modern industry than mere words could ever do.

Wholesome guidance value may accrue from such activity, with students learning important things about themselves, such as their possession of a flair for organization, a distaste for dirty words, an interest in things requiring meticulous attention to fine detail, and a low tolerance for monotonous type work. A strong leaning toward a specific occupation may appear, or an abiding interest in the conditions and problems surrounding industrial employment may be developed.

Suggestions for organizing and carrying out a

unit in mass production may be found in the professional journals. Teachers who have tried this method and are enthusiastic about the impact it has on students often submit articles containing information of value to the teacher who has yet to use mass production.

Two publications which may be useful are:

> Manufacturing in the School Shop, Robert W. Haws and Carl J. Schaefer, American Technical Society, Chicago, Illinois, 1960.
>
> Industrial Techniques in the School Shop, Irvin Sexton, Bruce Publishing Company, Milwaukee, Wisconsin, 1955

Student Demonstrations

It is generally accepted that one seldom learns anything quite as well as when he is faced with the problem of passing on his information or skill to someone else. This is sufficient justification for involving students in the giving of demonstrations. There are a number of ways in which students can be so involved. In advanced courses in Industrial arts, it is not uncommon to find students who have become sufficiently competent in a certain procedure on an out-of-school basis or in some other school to give a demonstration which the teacher would ordinarily present to the class. Also, students from advanced classes can be used to assist the teacher in giving some of the demonstrations which are presented to classes of beginners. It is, of course, important that the teacher go over details with student demonstrators ahead of time to ascertain that the presentation will be up to standard.

PROJECTED ACTIVITIES

1. Assist all industrial arts teachers, career education directors, and school administrators in incorporating the function-based four

technologies approach with:

a. workshops and in-service conferences,
b. personal visits and planning meetings,
c. long-range planning assistance, and
d. resource materials.

2. Assist school districts in establishing and articulating the K-12 industrial arts thrust incorporating broad exploratory programs and career opportunity awareness by:
   a. working with faculties on in-service education,
   b. holding workshops involving entire school staffs (interdisciplinary), and
   c. working with area or local career education coordinators.

3. Encourage and assist local teachers' organizations to maintain programs which will help schools keep up to date on new industrial developments by involving people from local industry.

4. Encourage and assist local school districts to involve all teachers in multidisciplinary activities which help make all school subjects relevant to the world of work. Promote workshops and in-service activities.

Types of Laboratories

Industrial Arts is a planned program of educational experiences requiring special facilities. The three major types of laboratory organizations are the multipurpose, the single-field laboratory and the area laboratory.

Multipurpose Laboratory

The multipurpose laboratory is organized to provide equipment for facilities necessary to offer

experiences in a number of industrial fields. The selected activities are usually conducted in one laboratory and by one instructor. Examples of industrial fields offered are: drafting, graphic arts, metalworking, electricity-electronics, woodworking, transportation, industrial crafts.

The most common objectives of multipurpose laboratories are to: serve boys and girls at any grade level, offer opportunities for experimentation and fabrication, acquaint students with a wide variety of industrial areas within selected fields, assist in vocational guidance.

Single-field Laboratory

Single-field laboratories may have all of the same objectives listed for the multipurpose laboratories. Activities are organized in clusters of industrial areas all relating to the same field. An example of a cluster in graphic arts is: bookbinding, presswork, photography, silk screening, and linoleum block printing. A second example in the metalworking field is: metal machinery, foundry, bench metal, sheet metal and welding.

Single-field laboratories are organized to offer new experiences and greater depth in a specific cluster of areas.

Area Laboratory

Area laboratories are organized to offer instruction in a single industrial area on a prevocational basis. The prime objective in organization is to offer instruction in a particular area and should be taught to 11th and 12th grade students to serve as a feeder program to our vocational-technical schools. Examples of areas are: auto mechanics, welding, upholstery, architectural drafting.

Many factors determine how many and what kind of laboratories the individual school should have. Among the factors are: size of school, pattern of school organization, clientele to be served, funds available,

scope, and class size.

To determine the size of a laboratory it is suggested that it be determined not on the basis of a number of square feet per student but on the ensuing needs of a program concept:

1. the basis of the tools, machines, equipment, and instruments that are to be housed
2. the number of students to be taught
3. the space needed for work stations and aisles of travel
4. auxiliary rooms, lecture areas, etc.

Table 1 has been prepared as a practical approach to the problem of providing adequate space for industrial arts activities.

(SEE TABLE I SUGGESTED SPACE DEVELOPMENT)

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Table 1

SUGGESTED SPACE DEVELOPMENT

ITEM	Minimum Space Required (Sq. Ft.)	Multipurpose Laboratories				Manufacturing and Construction		Communications		Power and Transportation	
		N	A	N	A	N	A	N	A	N	A
Standard bench and work space—1 student	36	24	864	24	864	24	864	24	864	5	180
Average machine	15	15	225	20	300	20	300	10	150	15	225
Project storage	120	1	120	2	240	3	360	1*	120	1	120
Material storage	200	1	200	1	200	1	200	½	100	1†	200
Conference and research center	144	1	144	1	144	1	144	1	144	1	144
Group work areas	300	1	300	1	300	1	300	1	300	1	300
Lecture center 24 seats	360	1	360	1	360	1	360	.....	.....	1	360
Finishing area or room	108	1	108	1	108	1	108	1	108	.....	.....
Construction	144	1	144	2	288	4	576	.....	.....	.....	.....
Aisle of travel	500	1	500	1	500	1	500	1	500	1½	750
Teacher's office or area	120	1	120	1	120	1	120	1	120	1	120
Total square footage per 21-student lab	..	.....	3,085	.....	3,424	.....	3,901	.....	2,406	.....	2,399

N - Number per laboratory; A - Area required (sq. ft.); * - dark room; † - sound proof room.

The shape of the room is less important than the total area, but from the point of safety in supervision of machine work and in point of teacher fatigue in covering the distance all day long, a room of 2 to 3 ratio is preferable.

There are other basic facilities to consider in planning a laboratory. These are presented in Table 2.

TABLE 2

Important Facilities to be Included in Industrial Arts Laboratories

Item	Description	Amt. per Laboratory
Location	Outside of wall available to driveway	
Lighting		
Natural:	2 sides natural or overhead skylight	
Artificial:	Indirect overhead, intensity measured at bench height-- 75 to 100 footcandles	
Walls	Acoustic plaster	Over dado
Ceiling	12' high, acoustic plaster	All over
Floor	Tile or strip wood over concrete, with concrete at hot or greasy work areas	
Partitions	Transparent glass	From dado to ceiling
Wall space	Unencumbered for panels, 6' x 20' displays, etc.	6' x 20'
Doors	Double to corridor, transparent glass; outside door, half glass to any inner store rooms	
Gas	1 1/2" pipe	3 outlets per lab
Air	30-100 lbs. constant pressure	3 outlets
Water-h&c	Washing sink,half round	1 to wash 4 students
	Slop sink, with trap for clay or plaster work	1 only
	Bubbler	1 only
Power	115 volts-30 amp. 230 volts-60 amp. buss bar or grid system	1 convenience outlet for each machine, 5 for future use
Control panel	Safety switch type	1 located in lab
Climate controlled Exhaust	For heating and casting unit	1 per lab
Bulletin Board	4' x 12' or equal	1 per lab
Chalk Board	4' x 12' or equal	1 per lab

ORGANIZATIONAL PLAN OF LABORATORIES

Courses in industrial arts are usually organized in one of the following ways:

Career Awareness

Grade Level	Student Characteristics Physical, Mental, Emotional	Available Facilities	Suggested Range of Activities
K	Large muscle development Arm and leg skills Energetic and restless Self-centered Resents interference with play Some sharing with peers Some imaginative play Likes to manipulate	Regular classroom and special equipment	
1	Security a primary need Companionship important Large muscle activities Does things for himself Likes to help Self-assertive Short interest span Sensitive to attitudes	Regular classroom and special equipment	Transportation: truck, auto, bus, train, plane Manufacturing: saws, hammers, Service: auto, street cleaning Mail
2	Hand-eye coordination poor Needs rhythmic activities Needs involvement Ready to work with numbers Needs friendly encouragement Eager to learn new things Concern for right and wrong Likes people and their work	same as above	Communication: telephone Construction: houses, materials Power: air, steam, wind Service: milkman, snowplow, fire-fighter

3	Slow steady skeletal growth Muscle skills increase Some understanding of time Interested in various media Accident prone Interested in other lands Likes maps, collections	Regular classroom and special equipment	Manufacturing: iron, glass, paper, clay, food, textiles Power: simple machines, electricity Transportation: truck, trains, airplanes, helicopter, rockets, ships
4	Can follow instructions Generally responsible Some reading difficulty Needs organized activity Likes how things work Eye-hand coordination good Construction work crude Likes physical activity	Regular classroom and special equipment	Power: wind, animal, water, steam, gas, elec., rocket, Transportation: sled, bike, train, auto, bus, truck, plane, helicopter, ships Construction: houses of different lands
5	Eye functions complete Likes group participation Vigorous activity needed Highly physical skills Beginning to read widely Safety awareness	Regular classroom and special equipment	Construction: materials, rail, canal, harbor, locks, Manufacturing: food, products, wood product, textiles Power: hydro-electric
6	Beginning rapid growth gains self-confidence Gang interests Increasing social maturity Vague about abstractions World interests vs. local Likes to go	Regular classroom and special equipment	Communication: writing, newspaper, radio, telegraph, telephone Construction: houses, roads Manufacturing: metals, ceramics, chemicals, oil, coal, paper Wood Power: piston, turbine, jet Service: water systems

MIDDLE SCHOOL

7	Poor muscular control Mental growth slows Highly organized activities Likes adult approval Some ability to generalize Enjoys results of own effort Some group interaction	*One laboratory and combination drawing room-classroom	IACP - World of Construction. Sites, surveying, drawings, specs., labor, clearing, foundations, concrete, forms, floors, openings, roofs Wood or General shop 180 days, 40 min. periods, 25 students per class, or Traditional Program
8	Rapid biological change Awkwardness common Strong Individualism Competitive Peer prestige important Seek and test independence Rise in emotional problems Needs personal achievements	*One laboratory and combination drawing room-classroom	IACP - World of Manufacturing. History, economics, R & D computers, design, models, management, planning, production, labor materials, metal or general shop. 180 days, 40 min., periods, 25 students per class - or Traditional program
9	Self-conscious about faults Generally overconfident May reach literate capacity Muscle control improved Developing independence Emotional frustrations Likes group approval	*One multipurpose laboratory and drafting room-classroom	Mechanical drawing, woodwork, electricity/electronics, power

*The number of laboratories will vary according to enrollment

Total School Enrollment	Number of Laboratories*
to 400	Two
400 to 750	Three
750 to 1000	Four
1000 to 1250	Five
1250 to 1500	Six

If the school enrollment exceeds the largest total shown in the table, an additional laboratory should be provided for each additional 250 pupils.

The term enrollment is used to include boys and girls. These same enrollments would apply to the elementary schools offering work in the 7th and 8th grades.

At the senior high school level, laboratories must provide for more concentration, hence less of the exploratory type experiences are needed and more emphasis is placed on specialization. The suggested number of laboratories above applies also to senior high schools.

It should be kept in mind that the enrollments given in the foregoing table are only rough estimates. In some communities almost every boy in junior and senior high school will elect to take industrial art courses and more laboratories will be needed than indicated in the table.

*It is assumed here that one of the laboratories above will be the classroom and/or drawing laboratory.

Prevocational-Occupational Preparatory and Career Information

Grade Level	Student Characteristics	Available Facilities	Suggested Range of Activities
10	Hardening of muscles Awkwardness ending Bone growth completed Ready for higher skills Looking for paying jobs Superficial vocational interests	(See List Below)	
11	Needs creative expression Needs manipulative expression Peer status resolved Developing career interests Different educational values		
12	Interested in sociological change Break with family security Mental ability may peak Accepts real career goals		

AVAILABLE FACILITIES:	SUGGESTED RANGE OF ACTIVITIES
Junior High Level (7-8-9) One Laboratory and Combination drawing room-classroom Multipurpose laboratory	Woodcraft, plastics, leather, art metal, jewelry, Keene cement, planning and sketching, graphic arts, woodwork, metalwork, electricity, power, and mechanical drawing
Two laboratories and Combination drawing room-classroom	
Multipurpose laboratory (7th and 8th grade)	(World of Construction and Manufacturing) or (Planning and sketching, mechanical drawing, woodcraft, plastics, leather, art metal, ceramics)
Multipurpose laboratory (9th grade)	Woodwork, metalwork, electricity-electronics, power, graphic arts
Three laboratories and combination drawing room-classroom	
Multipurpose laboratory (7th grade)	(World of Construction) or (Planning and sketching, mechanical drawing, woodcraft, plastics, graphic arts)
Multipurpose laboratory (8th grade)	(World of Manufacturing) or Art metals, jewelry, leather, electricity, ceramics)
Multipurpose laboratory (9tn grade)	Woodwork, metalwork, electricity-electronics, power mechanics, graphic arts
Four laboratories and drawing room	
Multipurpose laboratory	Planning and sketching, mechanical drawing, woodcraft, plastics, graphic arts
Multipurpose laboratory (8th grade)	Art metals, jewelry, leather, ceramics
Multipurpose laboratory (9th grade)	Metalwork, electricity, power
Multipurpose Laboratory (9th grade)	Woodwork, graphic arts

Senior High Level (9-12) **One laboratory and drawing room**	
Multipurpose laboratory	Mechanical drawing, woodwork, metalwork, electricity, power mechanics, graphic arts
Two laboratories and drawing room	
Multipurpose laboratory	Mechanical drawing, metalwork, electricity, power mechanics
Multipurpose laboratory	Woodwork, graphic arts
Three laboratories and drawing room	
Multipurpose laboratory	Mechanical drawing, metalwork, and power mechanics
Single field laboratory	Electricity-Electronics
Single field laboratory	Graphic arts
Four laboratories (single field)	
Drafting laboratory	Technical drawing and graphic arts
Electronics laboratory	Electricity and electronics
Metals laboratory	Metalwork and power mechanics
Woods laboratory	Woodwork
Five laboratories (single field)	
Drafting laboratory	Technical drawing
Electronics laboratory	Electricity and electronics
Metals laboratory	Metalwork and power mechanics
Woods laboratory	Woodwork
Graphic arts laboratory	Graphic arts
Six laboratories (single field)	
Drafting laboratory	Technical drawing
Metals laboratory	Metalwork
Woods laboratory	Woodwork

Graphic arts laboratory	Graphic arts
Electronics laboratory	Electricity and electronics
Power mechanics laboratory	Power mechanics

Guidelines for Selecting Equipment

Industrial Arts equipment needs should be determined by the objectives of the program, the laboratory organization, the class size and facility size.

Specific items should be chosen by evaluating in terms of the following basic guidelines. The equipment chosen should:

1. provide meaningful and educationally sound learning experiences within the context of the specific programs objectives;
2. be designed to minimize obsolescence and allow for maximum flexibility; (it must be recognized that in a world of change the school will need to "re-tool" periodically just as industry does);
3. be unit type machines designed for major processes (e.g., circular saws, drill press and milling machine);
4. be equipped with effective guards and devices to insure the safety of the student;
5. accommodate the age, strength, height and mentality of the students in the class;
6. be of a size or capacity which will accommodate the majority of the activities to be carried out;
7. be compatible with the power supply and utilities available

Suggested Reading

Equipment Guide Committee of the American Industrial Arts Association. A Guide for Equipping Industrial Arts Education Facilities. Washington, D. C.: American Industrial Arts Association, 1967

Modern School Shop Planning, Parkken Publications, Inc., Ann Arbor, 1968.

Financial Guidelines

Materials and Supplies

When planning the financing of consumable or expendable items, a

distinction should be made between the terms materials and supplies and the method of financing each.

Materials should be defined as those items which make a substantial and identifiable part of a project that is designed and retained by the student (e.g., paper, plastic, metal, transistors, etc.).

Supplies should be defined as those items which are consumed in the learning process and which are not practical to measure as a part of a student project (e.g., glue, ink, sandpaper, screws, solder, etc.).

When this distinction is made, it is recommended that the school division provide the initial stock of both supplies and materials to get the program started. Students should purchase materials used and the school division should replenish materials and replace supplies by appropriation through the annual budget.

It should be noted that tools which cost less than $5 and have an expected life of less than five years are generally considered as supplies.

To implement and continue the program an annual budget of $13.50 per student per year of instruction is needed. An exception may be mechanical drawing programs which need an annual budget of $4 per student per year of instruction when taught by conventional methods.

Inventory of Needs

When the laboratory is well equipped, there is still a need to purchase equipment in order to keep it fully operative. Tools and equipment become worn, broken and outdated and need to be repaired and replaced. The teacher must maintain constantly up-to-date inventories and records of his laboratory needs and be able to provide information concerning the amount of money needed each year to repair or replace what has become outdated, broken or lost.

Program Evaluation

The evaluation of an Industrial Arts program should take into consideration seven major aspects: organization, offerings, staff, activities, instructional materials, physical facilities, and student development. These seven aspects are divided into general guiding principles of evaluation in the following statements.

I. The program organization should--
   be available to all students.
   have schedules and class sizes compatible with the offerings.
   have realistic and adequate financial support for the total program.

II. The nature of the program's offerings should--
   cover information and experiences related to contemporary technology.
   have a well-organized program related to the ability, interests and needs of students.
   have survey or exploratory experiences with a variety of tools, materials and processes.

III. The program should be staffed with--
   teachers who have a sound philosophy of Industrial Arts education.
   teachers fully certified to meet State requirements.
   teachers who are well informed about current educational research and literature.
   teachers who discuss educational problems with fellow teachers, administrators and the lay public.

IV. The instructional activities should--
   be related to student needs and program objectives.

represent adequate teacher planning and preparation for instructional activities.
show evidence of effective teaching.

V. The instructional materials should--
include the use of up-to-date teaching guides.
include the availability of quality primary resource materials.
include various instructional media.

VI. The physical facilities for the program should have--
satisfactory space and layout of laboratory.
provisions for adequate and appropriate storage.
adequate machinery and equipment.
health and safety precautions conscientiously observed.

VII. The student development should be measured in terms of meeting the behavioral changes that were expected.

It is recommended that for a complete detailed evaluation of Industrial Arts the evaluative criteria published by the Southern Association of Schools and Colleges be used.

Copies of the criteria may be obtained from:

National Study of Secondary School Evaluation
c/o Publications Division
American Council of Education
1785 Massachusetts Avenue, NW
Washington, D. C. 20006

Maintenance Needs

The school division should provide a budget or a means for maintaining equipment. The maintenance

budget should be planned in cooperation with the teacher or supervisor annually.

All major repairs to equipment should be maintained by equipment suppliers, service contracts or by other agreements.

Suggested Reading--

Joseph A. Schad, Practices, Opinion, Recommendations, Dealing with Financing Consumable Supplies for Industrial Arts Classes, Virginia Polytechnic Institute, 1962.

Financial Assistance

Industrial Arts is eligible for federal funds under Title III of the National Defense Education Act.

Federal funds for equipment, teaching materials and aids, minor remodeling of buildings for industrial arts, inservice training of industrial arts teachers, and loans to private schools for improving industrial arts program are available.

Schools interested in qualifying for such funds may secure appropriate forms from the Coordinator, Title III, National Defense Education Act, State Department of Education, Post Office Box 44064, Baton Rouge, Louisiana 70804. A number of schools in the state have received industrial arts equipment with funds provided by the legislature.

The initiative for securing federal funds rests with the individual teacher or local school district. The following publication contains detailed information on the above legislation as well as other sources of federal funds under other legislative acts, such as the Elementary and Secondary Education Act of 1965, PL 89-10 and the Higher Education Act of 1965.

Federal Aid for Industrial Arts

The American Industrial Arts Association, 1201 16th Street, Washington, D. C. 20036 $3.75 (soft cover).

Available from the Industrial Arts Education Section is a publication entitled, Industrial Arts Education for Louisiana Schools, Bulletin No. 1197, which parallels the format used by the National Study of Secondary School Evaluation. This publication contains positive statements descriptive of a quality program for Louisiana.

Teacher Certification for Industrial Arts
General Requirements

1. General Industrial Arts Education

A minimum of 46 semester hours of credit designed to develop a broad cultural background, is required. The work must be taken in the five areas listed below:

a. English: A minimum of 12 semester hours, including at least 3 semester hours in grammar and three hours in composition.

b. Social studies (anthropology, economics, geography, history, political science, sociology, and survey of social science): A minimum of 12 semester hours, including at least 3 semester hours in United States history.

c. Science: A minimum of 12 semester hours, including at least 3 semester hours in biological science and at least 3 semester hours in physical science.

d. Mathematics: A minimum of 6 semester hours.

e. Health and physical education: A minimum of 4 semester hours.

2. Professional Education - Industrial Arts

A minimum of 18 semester hours of credit in professional teacher-education courses is required. The

work must be taken in the four areas listed below:

a. At least 3 semester hours of history of education, introduction to education, foundations of education, and/or philosophy of education.

b. At least 3 semester hours in educational psychology and/or principles of teaching.

c. At least 6 semester hours in student teaching in Industrial Arts. The student teaching shall be under the control and supervision of the institution in which the student teacher is enrolled. Whether or not the school in which the student teaching is done is administered by the institution, the regular teacher under whose direction the student teaching takes place shall be a representative of or approved by the school of education or department of education of the institution and shall be certified as a supervisor of student teaching.

   The application for certification shall indicate that the applicant has earned credit in student teaching by devoting at least one semester (mininum of 90 clock hours) to directed observation, participation, conferences with the supervisor, and actual teaching. Not less than 60 clock hours shall be in actual teaching.

d. At least 6 semester hours of professional education appropriate to the secondary level, including 3 semester hours in adolescent psychology.

3. Specialized Academic Education

The minimum requirements for Industrial Arts Education, in addition to the general education and professional education listed above, are as follows:

> For Industrial Arts: a minimum of 36 hours of industrial arts courses, including (1) at least 6 semester hours of credit in one particular activity for authorization to teach that particular activity on the unit-shop basis, and (2) at least 3 semester hours of credit for authorization to teach each additional activity on a general-shop basis, the course to include woodwork, metals (general, sheet, art), drawing, auto mechanics, crafts (leather, lapidary, plastics, raffia), electricity, home mechanics and fine arts (design, ceramics).

Effective September 1, 1975 the requirements will be changed as follows:

> 48 semester hours in courses for developing a speciality required for teaching two related occupational fields with a minimum of 12 semester hours in the specific field and 6 related hours in each field to be certified. Fields of certification are:

1. Construction and Woodwork
2. Metalwork
3. Power
4. Electronics
5. Drafting
6. Refrigeration and Air Conditioning
7. Small Appliances
8. Graphic Arts
9. Crafts

CONSULTATIVE SERVICES

Industrial Arts programs in Louisiana are supervised at the State level through the Industrial Arts Education Section of the State Department of Education.

The services rendered through this office are to assist the local school divisions through activities that lead to the improvement of instruction in Industrial Arts programs.

Typical assistance provided:

Planning new and revised programs

Developing instructional materials

Determining equipment needs

Designing facilities

Developing and assisting with in-service programs

Coordinating and assisting in evaluations

Administration of Industrial Arts Club activities

In addition to the services of the State Department of Education there are colleges in Louisiana which prepare Industrial Arts teachers which also assist local school divisions upon written request.

Louisiana State University
Department of Industrial
and Technical Education
Baton Rouge, La., 70803

Northwestern State Univ.
Department of Industrial
Education and Technology
Natchitoches, La. 71457

Southeastern Louisiana Univ.
Department of Industrial Technology
Hammond, La. 70401

Univ. of Southwestern La.
Department of Industrial and Technical Education
Lafayette, La. 70501

Grambling College
Department of Industrial Arts
Grambling, La. 71245

Southern University
ROTC Building
Department of Industrial Arts
Baton Rouge, La. 70813

SOURCES OF INDUSTRIAL ARTS TEACHERS

There are over two hundred colleges and universities throughout the United States that offer a baccalaureate degree with a major in Industrial Arts Education. Approximately four thousand students complete the educational requirements yearly that qualify them for standard teaching certificates with an endorsement in Industrial Arts.

VIRGINIA

Hampton Institute
Hampton, Virginia 23368

Norfolk State College
Norfolk, Virginia 23504

Old Dominion University
Norfolk, Virginia 23508

Virginia Polytechnic Institute
Blacksburg, Virginia 24061

1 Virginia State College
Petersburg, Virginia 23803

ALABAMA

Alabama A. & M. College
Normal, Alabama 35762

1,3 Auburn University
Auburn, Alabama 36830

Tuskegee Institute
Tuskegee Institute, Ala. 36088

University of Alabama
University, Alabama 35486

ARIZONA

1,2 Northern Arizona University
Flagstaff, Arizona 86001

1,2,3 Arizona State University
Tempe, Arizona

ARKANSAS

Arkansas A. & M. College
College Heights, Arkansas 71633

Arkansas State Teachers College
Conway, Arkansas 72032

University of Arkansas
Fayetteville, Arkansas 72701

CALIFORNIA

California State College
Long Beach, California 90804

California State Polytechnic College
San Luis Obispo, California 93401

1 Chico State College
Chico, California 95927

1 Fresno State College
Fresno, California 93726

*3 Humboldt State College
Arcata, California 95521

1 Long Beach State College
Long Beach, California 90808

1 Los Angeles State College of Applied Arts & Science
Los Angeles, California 90032

1 Pacific Union College
Angwin, California 94508

1 San Diego State College
San Diego, California 92120

1 San Francisco State College
San Francisco, California 94132

1 San Jose State College
San Jose, California 95114

*1,3 University of California
Los Angeles, California 90024

COLORADO

1 Adams State College
Alamosa, Colorado 81101

1,2,3 Colorado State College
Greeley, Colorado 80631

1 Colorado State University
Fort Collins, Colorado 80522

Southern Colorado State College
Pueblo, Colorado 81005

Western State College of Colorado
Gunnison, Colorado 81230

CONNECTICUT

1,2 Central Connecticut State College
New Britain, Connecticut 06050

*1,2,3 University of Connecticut
Storrs, Connecticut 06268

FLORIDA

Florida A. & M. University
Tallahassee, Florida 32307

Florida Southern College
Lakeland, Florida 33802

FLORIDA (continued)

1 Florida State University
Tallahassee, Florida 32306

University of Miami
Coral Gables, Florida 33124

GEORGIA

Berry College
Mount Berry, Georgia 30149

1,2 Georgia Southern College
Statesboro, Georgia 30458

Savannah State College
Savannah, Georgia 31404

1,2 University of Georgia
Athens, Georgia 30602

HAWAII

Church College of Hawaii
Laie, Oahu, Hawaii 96762

1 University of Hawaii
Honolulu, Hawaii 96822

IDAHO

University of Idaho
Moscow, Idaho 83844

ILLINOIS

1 Bradley University
Peoria, Illinois 61606

1 Chicago Teachers College
Chicago, Illinois 60621

1 Eastern Illinois University
Charleston, Illinois 61920

1 Illinois State University
Normal, Illinois 61761

1,2 Northern Illinois University
DeKalb, Illinois 60115

1,2,3 Southern Illinois University
Carbondale, Illinois 62901

1,2,3 University of Illinois
Urbana, Illinois 61803

Western Illinois University
Macomb, Illinois 61455

INDIANA

1,2,3 Ball State University
Muncie, Indiana 47304

1,2 Indiana State University
Terre Haute, Indiana 47809

1,3 Purdue University
Lafayette, Indiana 47907

IOWA

1,2 Iowa State University
Ames, Iowa 50010

1,2 State College of Iowa
Cedar Falls, Iowa 50613

Westmar College
Le Mars, Iowa 51031

William Penn College
Oskaloosa, Iowa 53577

KANSAS

Bethel College
North Newton, Kansas 66117

1 Fort Hays Kansas State College
Hays, Kansas 67602

Friends University
Wichita, Kansas 67213

1,2 Kansas State College of
Pittsburg
Pittsburg, Kansas 66762

1 Kansas State Teachers College
Emporia, Kansas 66801

Kansas University
Manhattan, Kansas 66504

McPherson College
McPherson, Kansas 67460

Wichita State University
Wichita, Kansas 67220

KENTUCKY

Berea College
Berea, Kentucky 40403

1,2 Eastern Kentucky State College
Richmond, Kentucky 40476

Kentucky State College
Frankfort, Kentucky 40601

KENTUCKY (continued)

1 Morehead State College
Morehead, Kentucky 40351

1,2 Murray State College
Murray, Kentucky 42071

1 Western Kentucky State College
Bowling Green, Kentucky 42102

LOUISIANA

Grambling College
Grambling, Louisiana 71245

1 Louisiana State University
Baton Rouge, Louisiana 70803

1 Northwestern State College
Natchitoches, Louisiana 71457

Southeastern Louisiana College
Hammond, Louisiana 70402

1 Southern University and
A. & M. College
Baton Rouge, Louisiana 70813

University of Southwestern
Louisiana
Lafayette, Louisiana 70501

MAINE

1 Gorham State College
Gorham, Maine 04038

MARYLAND

Maryland State College
Princess Anne, Maryland 21853

1,2,3 University of Maryland
College Park, Maryland 20740

MASSACHUSETTS

State College at Fitchburg
Fitchburg, Massachusetts 01420

MICHIGAN

Andrews University
Berrien Springs, Michigan 49104

1 Central Michigan University
Mt. Pleasant, Michigan 48858

1,2 Eastern Michigan University
Ypsilanti, Michigan 48197

1,2,3 Michigan State University
East Lansing, Michigan 48823

1 Northern Michigan University
Marquette, Michigan 49855

1,2,3 University of Michigan
Ann Arbor, Michigan 48104

1,2,3 Wayne State University
Detroit, Michigan 48202

1,2 Western Michigan University
Kalamazoo, Michigan 49001

MINNESOTA

Bemidji State College
Bemidji, Minnesota 56601

1 Mankato State College
Mankato, Minnesota 56001

1 Moorhead State College
Moorhead, Minnesota 56560

1,3 University of Minnesota
Minneapolis, Minnesota 55455

University of Minnesota, Duluth
Duluth, Minnesota 55812

1 Winona State College
Winona, Minnesota 55987

MISSISSIPPI

Alcorn A. & M. College
Lorman, Mississippi 39096

Jackson State College
Jackson, Mississippi 39201

1 Mississippi State College
State College, Mississippi 39762

Mississippi State College
Itta Bena, Mississippi 38941

1 University of Southern
Mississippi
Hattiesburg, Mississippi 39401

MISSOURI

1,2 Central Missouri State College
Warrenburg, Missouri 64093

Lincoln University
Jefferson City, Missouri 65101

MISSOURI (continued)

1 Northeast Missour State Teachers College
Kirkville, Missouri 63501

Northwest Missouri State College
Maryville, Missouri 64468

Southeast Missouri State College
Cape Girardeau, Missouri 63701

Southwest Missouri State College
Springfield, Missouri 65802

1,2,3 University of Missouri
Columbia, Missouri 65201

MONTANA

Montana State University
Bozeman, Montana 59715

Northern Montana College
Harve, Montana 59501

Western Montana College
Dillon, Montana 59725

NEBRASKA

Chadron State College
Chadron, Nebraska 69337

1 Kearney State College
Kearney, Nebraska 68847

Peru State College
Peru, Nebraska 68421

University of Nebraska Teachers College
Lincoln, Nebraska 68508

University of Omaha
Omaha, Nebraska 68104

Wayne State College
Wayne, Nebraska 68787

NEW HAMPSHIRE

Keene State College
Keene, New Hampshire 03431

NEW JERSEY

Glassboro State College
Glassboro, New Jersey 08028

1 Montclair State College
Montclair State College,
New Jersey 07043

1 Newark State College
Union, New Jersey 07083

1 Trenton State College
Trenton, New Jersey 08625

NEW MEXICO

1 Eastern New Mexico University
Portales, New Mexico 88130

1 New Mexico Highlands University
Las Vegas, New Mexico 87701

1 University of New Mexico
Albuquerque, New Mexico 87106

NEW YORK

1 The City College
New York, New York 10031

*1,2,3 Columbia University
New York, New York 10027

1,2,3 New York University
New York, New York 10003

1 State University College of Buffalo
Buffalo, New York 14222

1 State University College
Oswego, New York 13126

NORTH CAROLINA

1 The Agricultural and Technical College of North Carolina
Greensboro, North Carolina 27411

1 Appalachian State University
Boone, North Carolina 28608

1 East Carolina University
Greenville, North Carolina 27834

Elizabeth City State College
Elizabeth City, North Carolina 27909

1,3 North Carolina State University at Raleigh
Raleigh, North Carolina 27607

NORTH CAROLINA (continued)

Western Carolina University
Cullowhee, North Carolina 28723

NORTH DAKOTA

University of North Dakota
Ellendale, North Dakota 58436

1 University of North Dakota
Grand Forks, North Dakota 58202

OHIO

Bowling Green State University
Bowling Green, Ohio 43402

Central State University
Wilberforce, Ohio 45384

1 Kent State University
Kent, Ohio 44240

1 Miami University
Oxford, Ohio 45056

Ohio Northern University
Ada, Ohio 45056

1,3 Ohio State University
Columbus, Ohio 43210

1 Ohio University
Athens, Ohio, 45701

Wilmington College
Wilmington, Ohio 45177

OKLAHOMA

1 Central State College
Edmond, Oklahoma 73034

East Central State College
Ada, Oklahoma 74820

1 Northeastern State College
Tahlequah, Oklahoma 74464

Langston University
Langston, Oklahoma 73050

1 Northwestern State College
Alva, Oklahoma 73717

1,3 Oklahoma State University
Stillwater, Oklahoma 74075

Panhandle A. & M. College
Goodwell, Oklahoma 73939

*1 Southeastern State College
Durant, Oklahoma 74701

1 Southwestern State College
Weatherford, Oklahoma 73096

*1 University of Oklahoma
Norman, Oklahoma 73069

OREGON

1,3 Oregon State University
Corvallis, Oregon 97331

PENNSYLVANIA

1 California State College
California, Pennsylvania 15419

Cheyney State College
Cheyney, Pennsylvania 19319

1 Millersville State College
Millersville, Pennsylvania 17551

1,3 Pennsylvania State University
University Park, Pennsylvania 16802

*1 University of Pennsylvania
Philadelphia, Pennsylvania 19104

RHODE ISLAND

Rhode Island College
Providence, Rhode Island 02908

SOUTH CAROLINA

1 Clemson University
Clemson, South Carolina 29631

1 South Carolina State College
Orangeburg, South Carolina 29115

SOUTH DAKOTA

1 Black Hills State College
Spearfish, South Dakota 57783

General Beadle State College
Madison, South Dakota 57042

1 Northern State College
Aberdeen, South Dakota 57401

South Dakota State University
Brooklings, South Dakota 57007

Southern State College
Springfield, South Dakota 57062

TENNESSEE

Austin Peay State College
Clarksville, Tennessee 37040

1 East Tennessee State University
Johnson City, Tennessee 37602

Memphis State University
Memphis, Tennessee 35111

6691

TENNESSEE (continued)

1 Middle Tennessee State University
Murfreesboro, Tennessee 37130

Tennessee A. & I. State University
Nashville, Tennessee 37203

University of Tennessee
Knoxville, Tennessee 37916

TEXAS

Abilene Christian College
Abilene, Texas 79601

1,3 East Texas State University
Commerce, Texas 75428

1,3 North Texas State University
Denton, Texas 76203

*1 Prairie View A. & M. College
Prairie View, Texas 77445

1 Sam Houston State College
Huntsville, Texas 77340

1 Southwest Texas State College
San Marcos, Texas 76888

1 Sul Ross State College
Alpine, Texas 79830

1,3 Texas A. & M. University
College Station, Texas 77843

1 Texas College of Arts and Industries
Kingsville, Texas 78363

Texas Southern University
Houston, Texas 77004

University of Houston
Houston, Texas 77004

West Texas State University
Canyon, Texas 79015

UTAH

1,3 Brigham Young University
Provo, Utah 84601

1,3 Utah State University
Logan, Utah 84321

WASHINGTON

1 Central Washington State College
Ellensburg, Washington 98926

1 Eastern Washington State College
Cheney, Washington 99004

1 University of Washington
Seattle, Washington 98105

Walla Walla College
College Place, Washington 99324

1,3 Washington State University
Pullman, Washington 99163

1,2 Western Washington State College
Bellingham, Washington 98225

WEST VIRGINIA

Fairmont State College
Fairmont, West Virginia 26554

West Virginia Institute of Technology
Montgomery, West Virginia 25136

West Virginia State College
Institute, West Virginia 25112

1,2,3 West Virginia University
Morgantown, West Virginia 26505

WISCONSIN

1 Stout State University
Menomonie, Wisconsin 54751

1 Wisconsin State University
Platteville, Wisconsin 53818

WYOMING

1 University of Wyoming
Laramie, Wyoming 82071

1 Master's Degree in Industrial Arts, or Education with minor in Industrial Arts.
2 Sixth Year Program.
3 Doctor's Degree in Industrial Arts, or Education with minor in Industrial Arts.
* No Undergraduate Course.

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FUTURE LOUISIANA INDUSTRIAL ARTS

Industrial arts classes have traditionally offered students the first opportunities to explore the processes of industry. Perhaps the most unique contribution of Industrial Arts has been to give students "hands on" experience with tools. Although many changes will most likely occur in Louisiana Industrial Arts in the next few years, Industrial Arts educators do not plan to initiate this philosophy. Nevertheless, change will take place and persons planning Industrial Arts programs for the school systems in this state should be aware of the possibilities.

Indications are that the overall objectives of Industrial Arts will place greater emphasis upon the career orientation type program. For example, an additional plan is to provide greater career awareness activities in elementary grades, occupational exploratory programs in middle schools and junior high schools, occupational preparatory instruction (occupational clusters) in grades eleven and twelve and occupational specialization at the post high school level.

The traditional Industrial Arts areas of woodworking, metalworking, electricity/electronics, etc., will most likely be absorbed by a broader base program. Occupational clusters such as manufacturing, construction, communications, transportation, and services probably will be the fields of the new technology.

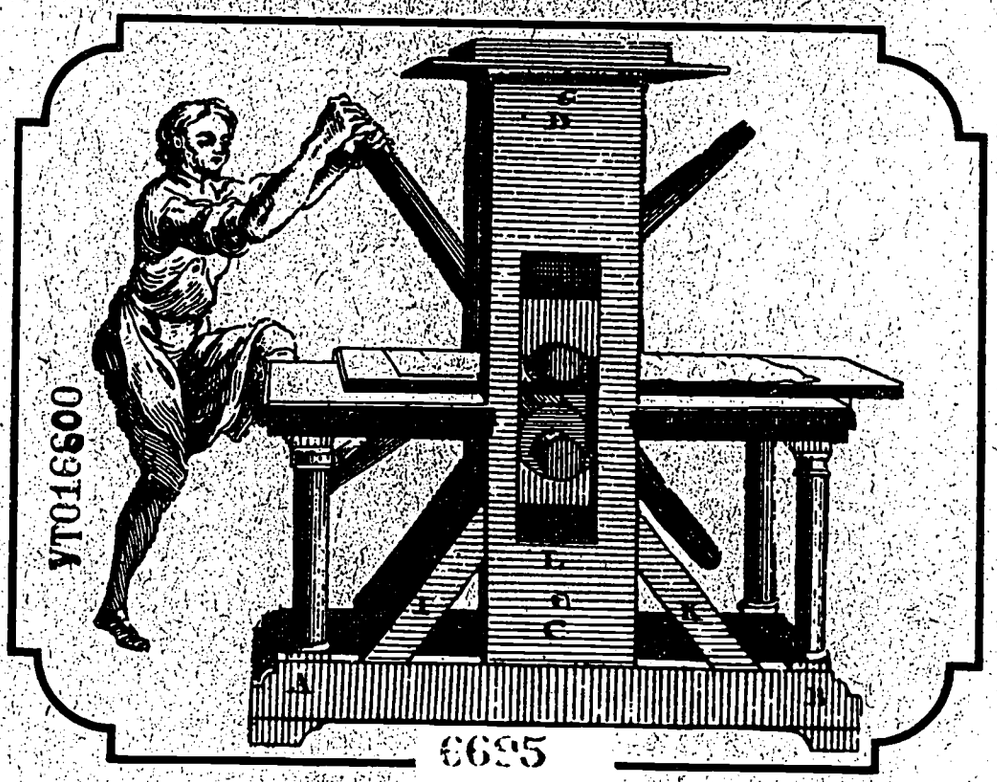
VT 016 600
SELECTED PUBLICATIONS--DIVISION OF NURSING.
PUBLIC HEALTH SERVICE (DHEW), ARLINGTON, VA.
DIV. OF NURSING.
MF AVAILABLE IN VT-ERIC SET.
DHEW-PUB-NIH-72-83
PUB DATE - DEC71 11P.

DESCRIPTORS - *BIBLIOGRAPHIES; *NURSING; *EDUCATIONAL PROGRAMS; *HEALTH PERSONNEL; HEALTH OCCUPATIONS EDUCATION; *GOVERNMENT PUBLICATIONS

ABSTRACT - THIS ANNOTATED BIBLIOGRAPHY CONTAINS SOME 50 SELECTED PUBLICATIONS IN NURSING DATING FROM 1958 TO 1971. LISTINGS ARE ARRANGED ALPHABETICALLY AND GROUPED UNDER THE FOLLOWING HEADINGS: (1) DIVISION OF NURSING PROGRAM, (2) LEGISLATION ON NURSE TRAINING, (3) NURSING MANPOWER, (4) NURSING SERVICES IN HOSPITALS, (5) PUBLIC HEALTH NURSING, (6) NURSING EDUCATION, (7) NURSING RESEARCH AND RESEARCH TRAINING, AND (8) NURSE TRAINING MATERIALS. (SN)

DIVISION OF NURSING

SELECTED PUBLICATIONS



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DIVISION OF NURSING

SELECTED PUBLICATIONS

Revised December 1971

DHEW Publication No. (NIH) 72-83

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service National Institutes of Health
Bureau of Health Manpower Education
Division of Nursing
Bethesda, Maryland 20014

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NURSING EDUCATION	6
NURSING RESEARCH AND RESEARCH TRAINING	7
NURSE TRAINING MATERIALS	8

Division of Nursing Program

Facts About the Division of Nursing. 1970.
A fact sheet describing the functions and programs of the Division of Nursing.

Program Review Report: Nurse Training Act of 1964. PHS Pub. No. 1740. December 1967, 78 pages, 55¢.
Report submitted to Congress in January 1968 by the Program Review Committee appointed to review the Nurse Training Act of 1964 and recommend whether the Act should be continued, extended, or modified.

Legislation on Nurse Training

Note: The publications in this section describe the provisions of Title II: Nurse Training, Health Manpower Act of 1968, and list grants awarded under its various authorities. The legislation was extended and modified by the Nurse Training Act of 1971, which will be described in brochures to be published by the Division of Nursing in 1972.

Title II: Nurse Training. PHS Pub. No. 1154. Rev. 1969.

Professional Nurse Traineeships. PHS Pub. No. 1154-1. Rev. 1969.

Schools Offering Nurse Traineeships for Full-Time Academic Study 1971-1972. DHEW Pub. No. (NIH) 72-85. July 1971.

Short-Term Training Courses. DHEW Pub. No. (NIH) 72-84. July 1971.

Special Project Grants for Improvement in Nurse Training. PHS Pub. No. 1154-2. Rev. 1969.

A single free copy may be obtained from the Division of Nursing. Multiple copies may be purchased at prices shown from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402

Legislation on Nurse Training -- Continued

Special Project Grants Awarded for Improvement in Nurse Training. June 1965-1971. DHEW Pub. No. (NIH) 72-86.

Institutional Grants for Schools of Nursing. PHS Pub. No. 1154-3. Rev. 1969.

Nursing Scholarships and Nursing Student Loans: Information for Schools. PHS Pub. No. 1154-4. Rev. 1969.

Construction Grants for Schools of Nursing. PHS Pub. No. 1154-5. Rev. 1969.

Construction Grants Awarded to Schools of Nursing. December 1965-June 1971. DHEW Pub. No. (NIH) 72-89. July 1971.

Nursing Student Loan Program: Career Information. DHEW Pub. No. (NIH) 72-80. Rev. April 1969.

Nursing Scholarship Program: Career Information. DHEW Pub. No. (NIH) 72-81. Rev. April 1969.

A Guide for Repayment, Deferment, and Cancellation of Nursing Student Loans. December 1969.

Nursing Manpower

Community Planning for Nursing in the District of Columbia Metropolitan Area. PHS Pub. No. 1676. May 1967, 143 pages, $1.

Statistics for the nursing situation in a metropolitan area presented within the framework of socioeconomic data considered relevant to long-range planning.

A single free copy may be obtained from the Division of Nursing. Multiple copies may be purchased at prices shown from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402

Nursing Manpower -- Continued

Health Manpower Source Book, Section 2, Nursing Personnel. PHS Pub. No. 263. Rev. 1969. 144 pages, tables, figures, $1.50.

Data on registered and practical nurses, including numbers, general distribution, licensure training, and field of practice. Each set of tables is preceded by a discussion of methods used in making estimates and an evaluation of sources and background material needed for accurate interpretation of the data.

LPN'S--1967. An Inventory of Licensed Practical Nurses. Eleanor D. Marshall, Evelyn B. Moses. American Nurses' Association Research and Statistics Department. January 1971, 105 pages, tables, figures, $1.

Data from first national census of employed and inactive licensed practical nurses throughout the country. Data includes age and marital status, basis of original license, employment setting, distribution, and ratio of employed per 100,000 population by county, State, and metropolitian area.

Nurses in Public Health. PHS Pub. No. 785. Rev. 1969, 75¢.

Report of the number, educational preparation, and other characteristics of nurses employed for public health work in the United States, Puerto Rico, the Virgin Islands, and Guam, January 1968.

Nurse Supply and Needs. DHEW Pub. No. (NIH) 72-90. Rev. 1971.

Fact sheet on current nursing statistics.

Source Book for Community Planning for Nursing in South Dakota. 1969, 232 pages, tables, figures, $2.

A compilation of data on the nursing needs and resources relevant to developing a long-range plan for improved nursing services in South Dakota.

A single free copy may be obtained from the Division of Nursing. Multiple copies may be purchased at prices shown from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402

"Census of Nurses in Public Health." D. E. Roberts, V. K. Saba, H. K. Allen. American Journal of Nursing, Vol. 70, No. 11, November 1970. (Reprint)

"Nurse Manpower: Yesterday, Today, and Tomorrow." Eugene Levine. American Journal of Nursing. Vol. 69, No. 2, February 1969. (Reprint)

Nursing Services in Hospitals

How to Study Nursing Activities in a Patient Unit. PHS Pub. No. 370. Rev. 1964, 142 pages, tables, $1.25.
An intermittent sampling method hospitals can use to plan better staffing by studying distribution of time spent by all nursing personnel.

Patients and Personnel Speak. PHS Pub. No. 527. Rev. 1964, 40 pages, illustrated, 35¢.
A study method for use by hospital personnel to find out what patients and personnel think of the nursing care patients are receiving. Sample questionnaires, methodology for scoring the checklists, bibliography.

A single free copy may be obtained from the Division of Nursing. Multiple copies may be purchased at prices shown from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402

Public Health Nursing

Feet First. June 1970, 45 pages, 60¢.
A simplified teaching manual of preventive foot care for patients, especially older people and diabetics.

How to Determine Nursing Expenditures in Small Health Agencies. PHS Pub. No. 902. Rev. 1966, 54 pages, 40¢.
A procedure developed by the Public Health Service in cooperation with the National League for Nursing to enable small health agencies arrive at expenditures for nursing service on direct service work units.

How to Study Patient Progress. PHS Pub. No. 1169. April 196 , 121 pages, tables, figures.
Report of a study designed to test a methodology for documenting the progress of patients receiving public health nursing care.

"Epidemiologic Analysis in School Populations as a Basis for Change in School Nursing Practice." D. E. Roberts, D. Basco, C. Slome, J. H. Glasser, G. Handy. American Journal of Public Health, Vol. 59, No. 12, December 1969. (Reprint)

"Epidemiologic Analysis of Outcomes in Maternal and Infant Health in Evaluating Effectiveness of Three Patient Care Teams. M. Kauffman, A. Cummingham. American Journal of Public Health, Vol. 60, No. 9, September 1970. (Reprint)

A single free copy may be obtained from the Division of Nursing. Multiple copies may be purchased at prices shown from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402

Nursing Education

A Guide for Projecting Space Needs for Schools of Nursing. PHS Pub. No. 1474. 1966, 28 pages.
Suggestions for programing a facility for nursing education useful both to the faculty of a school of nursing and to schools considering expanded enrollment.

Cooperative Planning for a School of Nursing Within A Health Science Complex. Elizabeth J. Worthy and Dorothy M. Crowley. November 1970, 26 pages, 25¢.
A monograph reporting the experiences of joint planning for construction of a school of nursing within a university health science complex.

Educational Technology and the Teaching-Learning Process: A Selected Bibliography. Rev. 1969 56 pages.
An introduction to the literature on the teaching-learning process and on the various new approaches in teaching technology.

Future Directions of Doctoral Education for Nursing. Report of a Conference, January 20, 1971. DHEW Pub. No. (NIH) 72-82, September 1971, 157 pages, $1.50.
Report of a conference that explored evolving trends in nursing education and the implications of these trends for support of research training for nurses through the Division of Nursing.

Literature Relating to Neurological and Neurosurgical Nursing. Margaret Hulburt. 1970, 95 pages, 60¢.
A bibliography of about 1,000 references to literature on neurological and neurosurgical nursing. Dates range from 1817 through 1967 with a few entries for 1968-70.

Refresher Programs for Inactive Professional Nurses. PHS Pub. No. 1611. April 1967, 50 pages, 25¢.
A guide to assist in the development of refresher programs for the inactive professional nurse.

A single free copy may be obtained from the Division of Nursing. Multiple copies may be purchased at prices shown from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402

Nursing Education -- Continued

"Dimensions of Involvement." Gretchen A. Osgood. Nursing Outlook, Vol. 17, No. 9, September 1969. (Reprint)

"Joint Preparation for Clinical Nurse Specialists. Ava S. Dilworth. Nursing Outlook, Vol. 18, No. 9, September 1970. (Reprint)

Nursing Research and Research Training

Current Research Project Grants: Division of Nursing. DHEW Pub. No. (NIH) 72-88. Rev. October 1971.
A list of Division-supported project grants funded through October 1, 1971.

Nursing Home Research Study: Quantitative Measurement of Nursing Services. Eleanor M. McKnight. October 1970, 54 pages, 60¢.
Provides data for a factual basis on which to propose minimal staffing patterns for nursing homes.

Research and Research Training Grants: Division of Nursing. PHS Pub. No. 1101. Rev. 1970, 10 pages, 15¢.
General information about Nurse Scientist Graduate Training Grants, Special Fellowships in Nursing Research, Nursing Research Project Grants.

Research in Nursing 1955-1968. PHS Pub. No. 1356. Rev. 1969, 91 pages.
A summary listing of projects supported by the Division of Nursing's extramural research grants program from 1955 to 1968.

"Research Grant Applications: What They Are Not and Should Be." Susan R. Gortner. Nursing Research, Vol. 20, No. 4, July-August 1971. (Reprint)

"Statistics: A Tool for Nurses." Eugene Levine. International Nursing Review, 1968, Vol. 15, No. 3. (Reprint)

A single free copy may be obtained from the Division of Nursing. Multiple copies may be purchased at prices shown from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402

Nurse Training Materials

Closed Drainage of the Chest: A Programed Course for Nurses. PHS Pub. No. 1337. 1965, 226 pages, $1.50.

A programed self-instruction course to teach nurses how to care for patients who have undergone intrathoracic surgery.

Elementary Rehabilitation Nursing Care. PHS Pub. No. 1436. April 1966, 100 pages, 25 line drawings, 55¢.

A manual for teaching the fundamentals of rehabilitation nursing care to nursing and ancillary personnel in nursing homes, hospitals, convalescent facilities and public health agencies.

How to be a Nurse's Aide in a Nursing Home. Prepared by U.S. Public Health Service and American Nursing Home Association. 1958, 2d ed., 195 pages, $2.50. (Purchase from American Nursing Home Association, 1025 Connecticut Avenue, Washington, D.C. 20036.)

A teaching manual using simple, illustrated lessons to teach nursing aide procedures, emphasizing rehabilitation and other needs of aged and chronically ill patients.

The National Survey of Audiovisual Materials for Nursing. The American Journal of Nursing Company. 1970, 243 pages, $10. (Purchase from the American Journal of Nursing Company, Educational Services Division, 10 Columbus Circle, New York, N.Y. 10019.)

Report of a national survey of audiovisual materials for nursing education conducted by the ANA-NLN Film Service in 1968-69, under Contract Number PH 108-69-08 with the Division of Nursing.

A single free copy may be obtained from the Division of Nursing. Multiple copies may be purchased at prices shown from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402

VT 016 604
A COMPREHENSIVE PLAN FOR PROFESSIONAL STAFF DEVELOPMENT.

WISCONSIN STATE BOARD OF VOCATIONAL, TECHNICAL, AND ADULT EDUCATION, MADISON.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 71 78P.

DESCRIPTORS - *PROGRAM PLANNING; MANPOWER DEVELOPMENT; PROFESSIONAL CONTINUING EDUCATION; *ADULT VOCATIONAL EDUCATION; *PROFESSIONAL PERSONNEL; *STATE PROGRAMS; JOB DEVELOPMENT; *STAFF IMPROVEMENT; PROBLEM SOLVING; RESOURCE MATERIALS; MODELS; CERTIFICATION
IDENTIFIERS - *WISCONSIN; EPDA; EDUCATION PROFESSIONS DEVELOPMENT ACT

ABSTRACT - THIS COMPREHENSIVE PLAN FOR PROFESSIONAL STAFF DEVELOPMENT IN WISCONSIN IN VOCATIONAL, TECHNICAL, AND ADULT EDUCATION DESCRIBES A PROGRAM MODEL WHICH FOCUSES ON PROBLEM SOLVING APPROACHES AT THE LOCAL, DISTRICT, AND STATE LEVELS. A SURVEY OF INSERVICE AND PRESERVICE NEEDS IS ESTABLISHED THROUGH: (1) VISITATION INTERVIEWS, (2) LETTER SURVEYS, AND (3) INPUT PROVIDED BY EDUCATION PROFESSIONS DEVELOPMENT ADVISORY COMMITTEE MEMBERS. STATE STAFF MEMBERS ACT AS RESOURCE SPEAKERS AND ADVISORS FOR DISTRICT INSERVICE PROGRAMS. STATE PRIORITY PROBLEMS AND OBJECTIVES FOR LEADERSHIP DEVELOPMENT ARE DETAILED. STATE CERTIFICATION REQUIREMENTS FOR PROFESSIONAL STAFF PERSONNEL ARE DISCUSSED, AND A WIDE RANGE OF RESOURCE MATERIALS IS INCLUDED. (AG)

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THE CENTER FOR VOCATIONAL
AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY

JUN 1 9 1972

A COMPREHENSIVE PLAN

FOR PROFESSIONAL STAFF DEVELOPMENT

Prepared Under

The Educational Professional Development Act

Part F, Section 553

Wisconsin Technical Project Assistant Grant

WISCONSIN BOARD OF

VOCATIONAL, TECHNICAL AND ADULT EDUCATION

1971

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A COMPREHENSIVE PLAN

FOR PROFESSIONAL STAFF DEVELOPMENT

Prepared Under

The Educational Professional Development Act

Part F, Section 553

Wisconsin Technical Project Assistant Grant

WISCONSIN BOARD OF

VOCATIONAL, TECHNICAL AND ADULT EDUCATION

1971

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CHAPTER 1

WISCONSIN - POLICIES FOR STAFF DEVELOPMENT

SECTION 1.0 - ADMINISTRATIVE RESPONSIBILITY AND LEADERSHIP

The Wisconsin Board of Vocational, Technical and Adult Education professional staff administratively functions under three major divisions. These are:

1. The Division of Educational Development and Special Services.
2. The Division of Occupational Services.
3. The Division of Administrative Services

The administrative responsibility for professional staff development is centered in the Division of Educational Development and Special Services. Among its many responsibilities this division is responsible for professional staff recruitment, development, and certification.

The State Board of Vocational, Technical and Adult Education recognizes that professional staff development is one of the critical problems it is presently contending with.

The Program Administrator of the Division of Educational Development and Special Services has assigned a top priority to the establishment of a full time professional staff member position which will be assigned the responsibility of staff development. A secondary priority has been assigned to a technical assistant to assist in this area of administrative responsibility.

Pending approval of a new staff position, responsibilities related to professional staff development have been assigned to another staff member within the division.

Duties incumbent with the Professional Staff Development Consultant position include, but are not necessarily limited to, the following:

1. Assist the districts in the recruitment of professional staff members.
2. Assist the districts in developing in-service programs for up-grading the skills of professional staff members.
3. Assist professional staff members in the development of their respective professional development program to achieve standard certification status.

4. Work with EPD Advisory Committee members in the identification of staff development problems, and in the development of EPDA projects to alleviate identified problems.
5. Maintain close liaison with baccalaureate degree granting institutions to assure that the professional development needs of the vocational system are being met.
6. Maintain close liaison with vocational districts to assure that their staff development needs are being met.
7. Maintain close liaison with the Department of Public Instruction staff members to assure that their agency needs are being met.
8. Insure that problems related to professional staff development are accorded prompt and proper consideration.

SECTION 1.1 - DESIGN OF PERSONNEL DEVELOPMENT PROGRAM

Figure 1 illustrates the Wisconsin Personnel Development Model.

As is illustrated in the model, professional development of vocational education personnel is focused at the local level. In general, professional development problems are identified at the local level.

The dual educational systems, secondary and post-secondary, have supervisory staff members responsible for a staff development program within their local educational organizations. In the secondary schools these staff members are the Local Vocational Education Coordinators (LVEC); in the post-secondary system an EPD staff member is designated. These staff members at the local level are charged with responsibility for:

1. Maintaining liaison with state office staff members to insure that district needs are being met.
2. Maintaining liaison with representative universities to insure that resources are available for staff development.
3. Working with district staff members to insure that continuing professional growth in-service programs are available.
4. Assist individual staff members in the development of their individual professional growth program.
5. Insuring that problems peculiar to the district are accorded prompt and proper consideration.

As it is illustrated in Figure 1, problems which can be solved at the local level through cooperation with local resource units are resolved at that level.

State Leadership

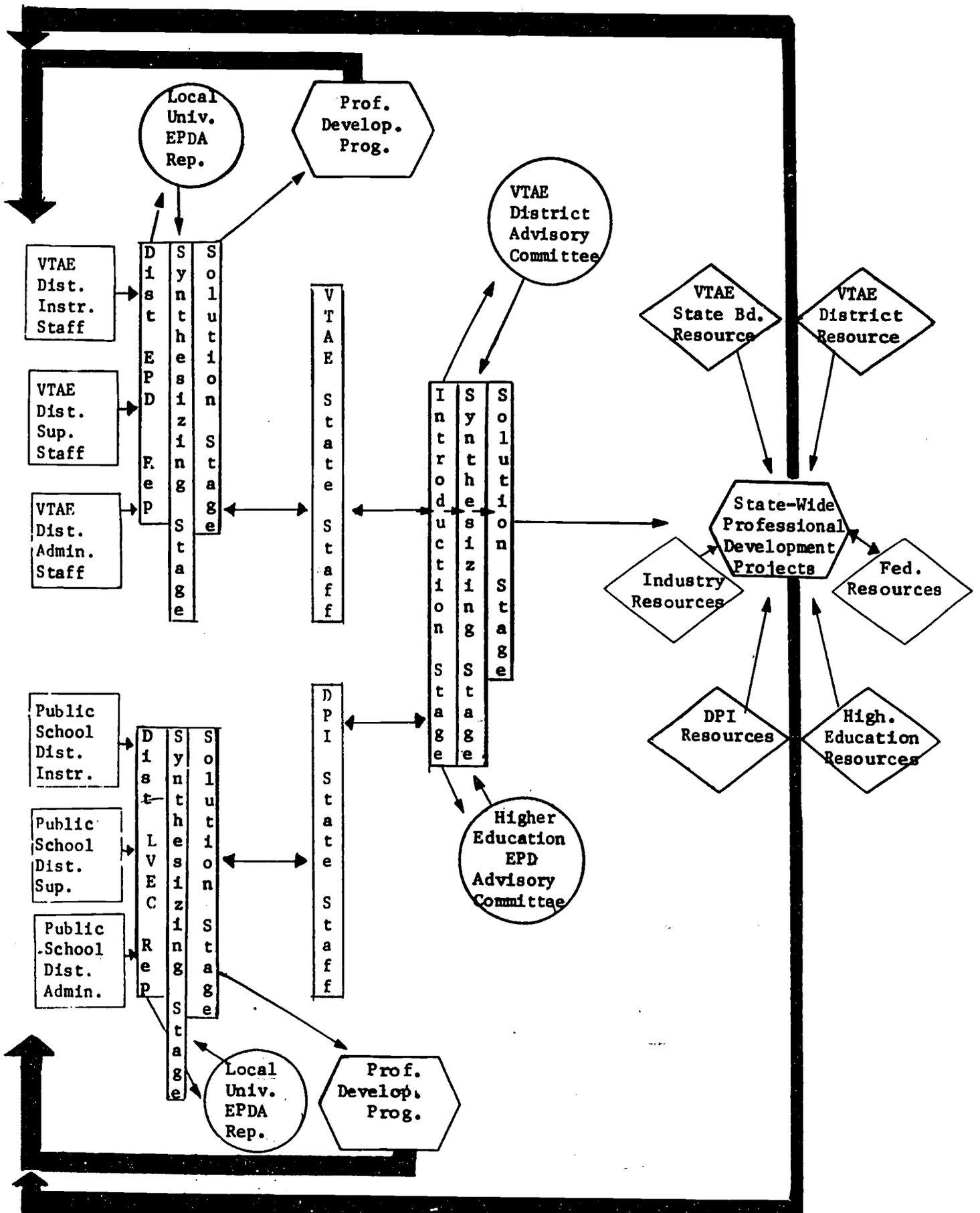
A number of problems annually arise which are common throughout the state, or which cannot be resolved at the local level. These problems are referred to their respective DPI or VTAE state staff members for solution.

As is noted in the personnel development model state staff members use District and Higher Education EPD Advisory Committee members in the solution of problems of state wide concern.

Proposal Utilization

The professional development model indicates that, at the state level, projects required to alleviate professional development problems will be

WISCONSIN PERSONNEL DEVELOPMENT
PROGRAM MODEL



solicited from any agency, industry, or individual qualified and interested in developing project to solve staff development problems.

All projects expected to solve staff development problems will incorporate (1) evaluation criteria and methodology, and (2) program information dissemination procedures as a part of the project operation.

The total effort is directed towards problem identification and problem solution at the local district level. Problems which are of a state wide nature are referred to the state staff level where efforts are made to incorporate the expertise and resources available at that level to provide problem solution through projected projects.

SECTION 1.2 - POLICIES AND PROCEDURES FOR PERSONNEL DEVELOPMENT SYSTEM

The Wisconsin State Board of Vocational, Technical, and Adult Education is the sole agency responsible for the administration of Part F, Section 553, provisions of the Educational Professions Development Act (Title V of the Higher Education Act of 1965), and the Regulations issued with respect thereto.

Internally the professional development program will be administered under the Division of Educational Development and Special Services. A professional staff member within this division is assigned the responsibility of professional staff development.

A staff committee made up of respresentatives from the three divisions of the State Board of Vocational, Technical, and Adult Education, plus a representative of the Department of Public Instruction is utilized. It insures that a continuing and appropriate professional development program is available to meet the needs of vocational education in Wisconsin.

Specifically, this committee will insure that an annual review of the professional development program is accomplished, and they will function as a proposal review committee in the processing of EPDA projects submitted under Part F, Section 553. They will further serve as an advisory committee in matters pertaining to EPD.

The State Board or the Department of Public Instruction may enter into formal and informal agreements with public or private institutions of higher learning. These agreements may include research, pre-service training, in-service training, and other functions which may be available to vocational, technical, and adult education.

A. Pre-Service training - The pre-services education of school personnel shall be the responsibility of the Cooperative universities. Pre-service programs shall be established and modified in accordance with recommendations made by the university staff, the State Director of Vocational, Technical, and Adult Education, the State Superintendent of Public Instruction, and other interested parties. The members of the state staffs may contribute to the pre-service training of teachers through meetings and conferences with teacher educators, through involvements on state advisory committees and other kinds of coordinative or liaison committees. Teacher educators and members of the state staffs will identify pre-service or in-service training needs and suggest appropriate courses at the pre-service or in-service level. These activities will be conducted by the Administrator of Professional Development under the Education Professions Development Act.

B. In-service training -- In-service education shall be the joint responsibility of the state board staff or the state department, the local districts and cooperative universities. Activities, such as workshops, seminars, meetings, resident and extension collegiate courses, summer institutes, industrial experience programs, industrial exchange programs and sabbatical leaves may be used for in-service education.

C. Exchange programs - Exchange programs between the State Board of Vocational, Technical and Adult Education, the Department of Public Instruction, local districts; and cooperating universities, public agencies, or private industry may be undertaken to solve personnel development problems.

The requirements for program design and program standards will be those listed under Part F, Section 553 and, as specified in financial provisions and grant terms and conditions established by OE policies currently in effect. Such eligibility provisions as may be required by cooperating institutions to assure the fulfillment of the objective of the act will be considered in the development of vocational and technical programs in Wisconsin.

SECTION 1.3 - ADVISORY COMMITTEES

An EPD Advisory Committee has been established to assist in the statewide effort to provide an ongoing educational development program for professional national educators in Wisconsin.

The EPD Advisory Committee membership is made up as follows:

Agency	No. of Members
Vocational, Technical and Adult Education Districts	2
Secondary School Districts (one school LVEC, one CESA LVEC)	2
Business/Industry	2
Wisconsin Advisory Council	1
University of Wisconsin System	1
Wisconsin State University System	1

The EPD Advisory Committee is responsible for the following:

1. Assist in the statewide effort to provide an ongoing educational development program for professinal educators in Wisconsin.
2. Assure that an appropriate professional development program is available to meet the needs of vocational education in Wisconsin.
3. Insure that an annual review of the professional development program is accomplished.
4. Act as a referent group for all problems relating to staff development.
5. Assist in identifying problem areas of professional development.
6. Assist in identifying resources available to solve emerging problems.
7. Advise appropriate staff members in matters pertaining to professional staff development.

EPD Representatives have been identified, to date, in all VTAE Districts, and all public four year university campuses throughout Wisconsin, to assist in developing a statewide system of professional staff development in Wisconsin.

Chapter II

PERSONNEL DEVELOPMENT

SECTION 1.4 - ENCOURAGING & CONDUCTING PROFESSIONAL DEVELOPMENT OF PERSONNEL

The resultant process of encouraging and conducting personnel development programs for vocational educators in Wisconsin is accomplished through the blending of several problem solving approaches.

Problem solving at the district level is considered to be of paramount importance. The majority of personnel problems will be identified at that level; they may be solved at that level; and as was previously identified in the Wisconsin Personnel Development Program Model (Fig. 1) have their greatest impact at that level.

To encourage a strong support for staff development at the local level, the state has urged each district to appoint a supervisory staff member the responsibility of providing an on-going professional development program. Each district has appointed such a supervisory position. These district members also serve on the state level Comprehensive EPD Advisory Committee.

To insure that the professional development program is professionally oriented, versus management oriented, each district has been urged to develop a District Professional Development Plan. State staff members have provided guidelines for District plan considerations. All of the districts are currently in a plan development program.

State staff supervisory personnel representing the various occupational and support programs, in their visits throughout the state, are constantly analyzing personnel development problems. Annually the three divisions of the State Board staff prepare Professional Development calendars. These calendars reflect the planned workshops, seminars, and in-service programs which the state staff members plan to conduct during the coming year. See 1970-71 Calendar of Called Conferences and Events, Appendix F.

State staff members act as resource speakers and advisors for district in-service programs, and they also assist the local districts in identifying other resource experts to solve particular problems.

On a master plan in-service and pre-service basis statewide staff development problems are identified through a multiple process. A survey of needs is established through (1) visitation interviews, (2) letter surveys, and (3) input provided by EPD Advisory Committee members.

University of Wisconsin and Wisconsin State University representatives are made aware of pre-service staff development needs through the EPD Advisory Committee; and through staff meetings between VTAE, DPI, UW and WSU staff representatives.

Wisconsin Universities specialize in specific vocational services areas. Staff development needs which require program changes, or which require program emphasis are directed directly to the involved university by the appropriate agency teacher certification administrator.

The state staff assumes the responsibility of coordinating efforts to obtain resources required to conduct staff development programs, and insures that all necessary agencies have maximum input into project development.

SECTION 1.5 - IN-SERVICE AND PRE-SERVICE PERSONNEL DEVELOPMENT

In-service and pre-service personnel development programs are on-going functions of the State Director of Vocational, Technical and Adult Education, the State Superintendent of Public Instruction, the multiple state universities, and the local school districts.

In-service programs are primarily the function of the individual school districts. In-service programs are conducted at the local level to fit the unique needs of each individual district and the professional staff members therein. In-service developmental programs unique to different disciplines and occupational areas, are considered to be an obligation of the state. The Wisconsin Personnel Development program model, Figure 1, emphasizes that in-service programs are primarily the function of the local VTAE or DPI School District.

State and district staff members work closely with universities in establishing extension type credit programs which will assist their staff members in maintaining a planned, sequential professional development program.

Pre-service training is mainly a function of the two university systems. The traditional baccalaureate degree programs for training occupational instructors for the Wisconsin vocational system have not been able to keep pace with the needs of the rapidly growing system.

Studies will be undertaken to determine what new educational approaches may be established to insure that a continuous, adequate source of professional staff members are available.

1.6 REQUIREMENTS FOR PERSONNEL POST SECONDARY

Certification requirements for professional staff personnel are established under Wisconsin statutes, Chapter A-V-1 of the Wisconsin Administrative Code, entitled Requirements for Certification For Wisconsin Teachers of Vocational, Technical and Adult Education specifically lists these requirements. See Appendix A.

These requirements define the various professional positions common throughout the system; in addition the educational background, occupational experience required for certification, and the professional experience necessary for promotion or to maintain certification status are explained.

When it is felt necessary, recommendations for certification requirements are made for inclusion in and revision of state statutes, by staff members assigned certification responsibilities. The process of developing certification standards is an evolutionary continuum. Annually an ad hoc committee made up of appropriate district staff representatives is created to review certification requirements.

Recommendations for change, if any, are made to appropriate state staff members. These staff members, in turn, submit recommended changes to the entire state staff for review and recommendations. From this process recommendations for change are made to the State Board of Vocational, Technical and Adult Education for their deliberation and ultimate recommendation for the legislative processes.

Applications for professional employment in the Wisconsin vocational system, post secondary, are made upon a standard state form for all personnel. See appendix B. District and state staff members responsible for certification evaluate these applications to determine certification status.

Certification information on all professional personnel employed in the post-secondary system are maintained in a computer bank for annual appraisal. Staff members who do not maintain a personal professional development program which will enable them to achieve standard certification status, according to an established time table, will be uncertified for their position.

Annual State financial aids to the individual vocational districts are based upon a full time equivalent student basis. The annual report submitted by each district indicates how many full time equivalent students are taught each year by each instructor. Districts are not granted state aid for those students taught by uncertified instructors. The concept of tying state financial aids to teacher certification proves to be an excellent incentive, for the districts, in their efforts to maintain qualified professional staffs.

Secondary

Secondary school professional staff members certification requirements are established by State Statutes and Wisconsin Administrative Code authority. Certification standards appropriate to vocational educators are enclosed in Appendix C.

1.7 DEVELOPING THE CAPABILITY TO MEET PERSONNEL NEEDS

Personnel needs are identified through the process described in the Personnel Development Program Model, see Figure 1. Once these needs are established the higher education institutions, other public agencies, or the various private industries which may be of value in solving the personnel development problem are contacted for their support and assistance in project/program development.

Local advisory committees, state advisory committees, the EPD Advisory Committees, professional organizations, and all other avenues are utilized to gain other agency support for personnel development programs.

Institutions, agencies and industries which have expressed interest in assisting the vocational system, and in many instances have done so for a period of time, provide the main thrust of input to personnel development.

It has been identified that approximately one-third of the new professional staff members are trained in Wisconsin universities, one-third are trained in out-of-state universities, and one-third from industry. New concepts of teacher development are being discussed with different universities throughout the state. Advanced accreditation for industrial/business experience, and for other external education are being explored.

New methods of developing vocational educators through the university systems are presently being examined.

CHAPTER III

RESOURCE DEVELOPMENT AND UTILIZATION

SECTION 1.8 - UTILIZATION OF OTHER RESOURCES

A number of other agencies, institutions of higher education, and industries assist the vocational system in personnel development.

Specifically teacher preparation programs are conducted on all of the campuses of the University of Wisconsin System and the Wisconsin State University system. The major portion of the undergraduate training, in the traditional vocational area, is conducted at the University of Wisconsin -Madison; and the state university campuses at Stout State University - Menomonie; Wisconsin State University, Whitewater, Wisconsin State University - Platteville, and Wisconsin State University - River Falls.

In-service training programs are conducted through several mediums of education. Some of these are college extension programs, district in-service programs, and state wide seminars and workshops designed to meet specific needs.

Stout State University conducts a statewide college credit extension program which specifically gears a major portion of its efforts towards helping vocational education staff members achieve standard certification status as far as their educational requirements are concerned.

Professional organizations, advisory committees, private industry, and individuals play a very important role in the statewide programs generated for professional staff development.

SECTION 1.9 REVIEW AND EVALUATION OF THE PROFESSIONAL DEVELOPMENT OF PERSONNEL

The review and evaluation of professional development of personnel will be done on an annual basis. The EPD Staff Advisory Committee will assist the Professional Staff Development Consultant in assessing and evaluating the current status of professional staff development.

Assessment will include (1) review of the previous year's activities to determine accomplishments, and (2) identification of new problems through the processes described in the personnel development model.

This annual personnel assessment will have a two-fold value, the first benefit being that of annually determining what has been accomplished, during the past year, in the way of professional staff development. This assessment will (1) assist in the development of the annual report, and (2) act as a measuring device to determine how well the professional development program is progressing towards its predetermined goals.

Annually a report will be prepared to formally present the data gathered.

The second benefit to be derived from an annual assessment is that of identifying critical areas of staff needs.

Emerging occupational programs are annually being developed. These newly developed programs require the preparation of new types of instructors. The complexity of the university system in Wisconsin, one in which no single institution can totally satisfy the professional staff needs of the vocational system, is such that new staff development will require a cooperate and flexible approach if it is to start to meet the pre-service needs of the vocational system. Research programs, in the area of staff development will be undertaken to identify the pre-service needs of the Wisconsin Vocational System.

Professional staff development pre-service needs will be made known to the University delivery system via (1) the EPD Advisory Committee, and (2) through direct negotiation with the appropriate university.

In-service training for further development of staff members is the cooperative responsibility of the districts, the state staff and cooperating institutions, agencies and industries.

Specific program needs will be determined annually by State staff members through field survey methods. These will include on-sight visitations of EPD staff representatives, and questionnaire surveys of the various program areas. In-service projects and seminars will be based on survey determined needs.

Once the program needs for the future are determined, they will be placed in the personnel development program process described in the model noted in figure 1. Specific projects will be determined, priorities will be assigned, and the proposed projects will be developed.

The decision making process will evolve around the determined priorities and the resource allocations available.

SECTION 2.0 - IDENTIFICATION AND DEVELOPMENT OF PROSPECTIVE EPDA COOPERATIVE ARRANGEMENT PROPOSALS

All projects to be considered for EPDA funding will fall under the category of staff development needs which have been identified in the comprehensive plan for staff development. These projects will focus on solving statewide problems, or they will have significance in statewide application. These problems which have been identified as short and long range problems will have been assigned priority rankings.

Projects which request EPDA funding will have undergone the processes identified in the Wisconsin Personnel Development Program Model Figure 1, which in its final process analyzes and attempts to obtain all possible resources available to solve the problem in question.

The problems which are identified and listed as EPD Priorities in section 2.1 are those which have been selected for their impact potential in vocational education within Wisconsin; and these are problems which will not otherwise have their needs met due to lack of funds available from sources other than EPDA.

SECTION 2.1 - DETERMINING PRIORITIES

The identification of personnel needs, which are of statewide concern, was explained in Section 1.4. Once the individual needs have been identified, they must be delineated in an objective manner.

The Wisconsin Vocational System has three major professional staff development concerns. These are:

1. Leadership professional development and growth.
2. Supportive staff professional development and growth.
3. Instructional staff professional development and growth.

Within these three categories all problems of short and long range nature may be located.

A number of staff development problems were identified through the processes detailed in section 1.4. A listing of identified problems are detailed in Appendix H.

Problems which are listed below were selected as priority problems by virture of needs determined by criteria established by the Staff EPD Committee. Subprojects to alleviate personnel development problems identified in the state plan will be given priority consideration by state staff members.

PRIORITY PROBLEMS

Item One — Leadership Intern Program.
Objective - To establish an intern program, which will utilize the resources of the State Board of Vocational, Technical and Adult Education, the University of Wisconsin, and local vocational districts to insure an ongoing annual input of two established vocational educators into a doctoral candidate program. The first two interns should be enrolled during the 1971-72 school year.

Item Two — LVEC Leadership Workshop
Objective - To conduct a leadership workshop over a two year period of LVEC's. The purpose of the workshop is to (1) further develop the general and special vocational education competence of LVEC's who occupy newly formed positions of leadership and responsibility, and (2) provide special staff direction through the Department of Public Instruction to assist teacher educators in developing needed pre-service courses and in providing for a continuing in-service program for all LVEC's in the state.

Item Three — A leadership conference for 40 post secondary staff members.
Objective - To establish a one week leadership conference during the 1971-72 school year for a minimum of 40 post secondary staff members. This conference for administrative personnel, or potential administrative personnel should address itself to the broad aspects of vocational administrative problems currently facing the Wisconsin post secondary vocational system.

Item Four — Secondary School Administrators Orientation Workshop
Objective - To acquaint Secondary School Administrators with the educational goals and the program value of vocational education. This project should develop workshops in strategic locations throughout Wisconsin, during the 1971-72 school year, which will provide vocational education orientation to Secondary School Administrators.

Item Five	Nurse Educator Graduate Program Objective - To educationally upgrade Nurse Educators, in the Wisconsin Vocational System, to prepare them for projected expansions of LPN programs and the development of ADN programs. This program should utilize the resources available to the State Board of Vocational, Technical and Adult Education, the two university systems in Wisconsin, and the local school districts, to place two nurse educators in Master's Degree programs on a full-time school year basis.
Item Six	Secondary school vocational educator workshop for orientation to the needs of the handicapped and disadvantaged students. Objective - To develop in-service programs which will orient secondary school vocational educators to the needs of disadvantaged and handicapped students. Two pilot program workshops should be established in the 1971-72 school year to serve a minimum of 30 vocational educators each.
Item Seven	General Educator Orientation Workshops Objective - To develop workshops which will orient general educators to vocational education needs which vary from those found in normal teacher preparation programs. The workshops will serve the following purposes, (1) develop a commonality of objectives for general education instructors, (2) provide these instructors with an insight and a philosophy which will allow them to work with adult students with a wide range of background interests, abilities, educational and/or other handicaps, and educational, social, and/or other disadvantages. To begin meeting these needs two workshops serving a minimum of 20 general educators should be established during the 1971-72 school year.
Item Eight	Develop Pilot Seminars Program for Secondary School Guidance Counselors Objective - To develop a sequential seminar program, during the 1971-72 school year, which can be utilized to orient high school guidance counselors to the career development concepts applicable to vocational education. The developed seminar program should be implemented in at least two strategic locations during the 1971-72 school year.
Item Nine	Nurse educators workshops to meet minimum ADN requirements Objective - To establish one week workshops to upgrade existing Nurse educators to meet the minimum requirements to become ADN instructors. Starting in the 1971-72 school, and covering a three year project, three one week sequential workshops should be established to meet the needs of a minimum of fifteen nurse educators.
Item Ten	To establish a formal in-service program for the training of a minimum of 500 part-time staff members Objective - There exists a need to establish a formal program of in-service training throughout the state for part-time staff workers. Pilot in-service programs for part-time staff members in 3 VTAE Districts during the 1971-72 school year, to train 300 staff workers, should be developed.

The following check list has been adopted for the purpose of rating proposals as they are submitted to the State Board for review. On the basis of these criteria projects which may develop might be considered as having a higher merit by the committee than those listed in items 1-10 above, thus leading to a reordering of project ranking.

PROJECT:

CATEGORY
- Administrative Leadership Development ☐
- Teacher Development ☐
- Supportive Staff Development ☐

Voc. Area
- 01 - Agricultural ☐
- 04 - Distributive Education ☐
- 07 - Health Occupations Education ☐
- 09 - Home Economics ☐
- 14 - Office Occupation ☐
- 16 & 17 Trade and Industry ☐
- Other ☐

Check List for EPDA	5	4	3	2	1
1. Need					
a. Non-existent program or in-adequate existing program					
b. Lack of capability of present staff					
c. Extent and nature State District Local					
2. Practicability and Specificity					
a. Workability methods					
b. Time table					
c. Extent of meeting need					
d. Cost					
e. Implementation - analysis					
3. Desirability - Benefit - Impact					
a. Nature and size of population					
b. Geographical area reached					
4. Capability to meet identified need					
a. Staff					
b. Funding from other sources					

SECTION 2.2 - SIGNIFICANCE OF SUB-PROJECTS

Priority problems identified in section 2.1 are considered to be of statewide concern, versus local concern, thus they will be given top consideration in resource allocations.

Because the selection process in effect originates from the local level, it is felt that they will be of particular value in serving the local students, institutions and districts. This process of local identification is indicated in Figure 1.

The listed priorities do not necessarily reflect the personnel development concerns of the local automonous school district. Problems unique to the local district will be given attention by the individual school district. State staff consultants will be available to the local district for assistance, upon request from the local district.

The information required in a sub-project proposal such as need, objectives, evaluation, etc. are identified in the prospectus writing format detailed in Appendix E.

The Staff EPD Advisory Committee is responsible for reviewing proposals, and for recommending acceptance or rejection at the state level.

SECTION 2.3 - PHASING IN PROJECT RESULTS

Personnel development projects conducted by the local districts which are of statewide concern will be assisted and supervised by state staff members assigned this responsibility. Evaluation procedures will be conducted by additional state staff members assigned this responsibility.

Projects which are developed as a result of the function of EPD Advisory Committee actions will be approved on a proposal basis. Inherent in such planning is the evaluation capability; all projects will be evaluated to determine the final project output.

Those projects which are of significant value will be replicated in other statewide locations under the guidance of state staff members, and in cooperation with the local districts and other agencies.

EPD Advisory Committee members will be utilized as liaison members with all other state educational agencies to disseminate project information.

Project information which is of public interest will be given proper news media release through district and/or state public information personnel.

SECTION 2.4 - PROCEDURES FOR OBTAINING PROPOSALS

Applications for professional development projects will be received from any agency or institution or combination thereof, eligible under the policies, rules and regulations established by the Wisconsin Board of Vocational, Technical and Adult Education.

Information concerning the availability of funds and the procedures for submitting applications will be disseminated among the cooperating institutions and agencies. Programs which require specific expertise, or for which special projects are required will be developed by appropriate agencies through solicitation by the

State Board of Vocational, Technical and Adult Education.

All applications for staff development programs under Part F, Section 553, will be submitted to the Department of Health, Education, and Welfare, by the Wisconsin State Board of Vocational, Technical and Adult Education. Vocational, Technical and Adult Education Districts, secondary school districts, higher education institutions, cooperative industries, and other agencies wishing to obtain financial assistance under this act will submit prospectuses to the State Board for evaluation and priority rating.

Projects to be considered will be evaluated in accordance with the priorities established in Section 2.1.

See Appendix E.

The State Staff EPD Advisory Committee is responsible for reviewing applications and proposals, and for recommending the acceptance or rejections of these proposals at the State level.

The prospectuses submitted to the State Board of Vocational, Technical and Adult Education will be reviewed to determine their appropriateness according to state priorities and federal statutes, rules and regulations.

Criteria for selection of prospectuses for further processing will indicate the following:

1. Does it agree with the problems for staff development established in section 2.1 of this manual?
2. Pre-service training - does the program create greater understanding and commitment of colleges and universities to the unique needs of vocational education professional staff needs?
3. Does the project involve a new approach to staff recruitment?
4. Does the project involve professional staff members dealing with the handicapped and disadvantaged?
5. Does the project provide assistance for programs which are of a statewide nature?
6. Does the project provide for a continuing impact on professional development programs?
7. Does the project involved an in-service program which could be replicated in other areas of the state; and is it of a continuing professional development nature?
8. Is it a program which the existing teacher education staff cannot provide?
9. Does the project involve a cooperative interchange proposal with industry, other areas of higher education, or other governmental agencies?
10. Are the proposed personnel involved and the facilities available adequate to carry out the proposed project?
11. Are the cost estimates reasonable in terms of expected results?
12. Does the program serve as the vehicle to familiarize staff members with new curricular materials?

The review committee will be responsible for three actions in regard to proposed applications:

1. Approval, in which case the application will be forwarded to the federal level for review and further action.
2. Disapproval, in which case the proposal will be returned to the initiator with a statement of the reasons for disapproval.

3. Deferral, in which case the initiator will receive are advisory regarding the re-submission of the proposal. In each case, the applicant will receive notification of the action taken and suggested alternatives for further action.

SECTION 2.5 - COORDINATION WITH RESOURCES AND OTHER PROGRAMS

Inter-agency groups, including representatives from higher education will be used to coordinate the efforts in the various agencies under the variety of federal and local funding resources. Cooperative arrangements will be developed so that the several agencies may be involved.

The EPD Advisory Committees have been established in such a manner to assure the involvement of other agencies.

The Wisconsin Personnel Development Program Model, identified in Figure 1, indicates that the total process is designed to secure adequate assistance for local, state, and federal resources.

Some of the vocational districts in Wisconsin are eligible for EPDA funding under the Higher Educations Act. Districts who qualify for these funds submit project proposals directly to the federal level for review and acceptance. The prospectuses submitted for these aids would not duplicate those submitted for funding under the Vocational Education Act.

EPDA, B-2 Funding, has not been used to date for the preparation of Vocational Educators. This avenue of funding will be explored during the 1971-72 school year to further assist in developing professional development programs for vocational educators.

A projected financial statement identifying the resource of all anticipated funding will be requested with each project prospectus.

SECTION 2.6 - SUPPLEMENT FUNDS

The federal funds requested under Part F, EPDA, funding will be used to supplement and to extend other funds which would be available in the absence of EPDA funding.

At no time will EPDA funding be utilized to support existing available funds for professional development.

The EPDA Advisory Committee members, as one of their major functions, will attempt to satisfy all personnel development needs through a variety of funding resources.

SECTION 3.0 - EQUITABLE PARTICIPATION

Consistent with the Wisconsin State Law and the Regulations of EPDA, Part F, the Wisconsin Board of Vocational, Technical and Adult Education has adopted a non-discrimination Policy with respect to services to personnel in private schools.

CHAPTER IV
STAFF IMPROVEMENT

SECTION 4.0 - LEADERSHIP DEVELOPMENT PROGRAM

Leadership development has been accorded a top priority for vocational education in Wisconsin. One of the objectives identified in Section 2.1 is stated: "To insure that a representative number of Wisconsin Vocational Educators annually receive awards sponsored under this section (Section 552, Part F, EPDA Act). Representation goals would be based on insuring that minimum allocations provided by the Department of Health, Education and Welfare are filled". This problem - priority emphasizes that the Wisconsin vocational system is committed to utilizing available fellowship funds.

It is intended that any candidate awarded EPDA fellowships will be returned to a position of leadership in the Wisconsin vocational system upon completion of this educational program.

To insure that EPDA funded leadership development projects are phased into the Wisconsin teacher education delivery system the state board staff members work very closely with the University of Wisconsin graduate departments of Educational Administration and Curriculum and Instruction in developing appropriate fellowship programs at both the Master's and Doctoral Degree levels.

In addition, staff members work with the other institutions in the University of Wisconsin system and the Wisconsin State University system in developing appropriate Master's and Specialist Degrees.

To insure that all possible vocational educators receive fellowship award announcements the State Board of Vocational, Technical and Adult Education disseminates fellowship announcements on a state-wide mailing similar to that enclosed in Appendix G.

In accordance with the ranking priorities listed heavy emphasis will be placed on: (1) official transcripts and application; (2) personal interviews of candidates; and (3) recommendations made by appropriate VTAE District Directors and other knowledgeable persons.

SECTION 5.0 - FAMILARING TEACHERS WITH NEW CURRICULAR MATERIALS

A high priority will be assigned to pre-service or in-service training projects designed to familarize teachers with new curricular materials.

A number of the problems identified in Section 2.1 reflect the need for this type of familarization.

CHAPTER V
ASSESSMENT PROCEDURES AND DATA

SECTION 1.0 - EDUCATIONAL PERSONNEL NEEDS (CURRENT AND PROJECTED)

The tables enclosed in Appendix D reflect the kind of information which will be annually collected for assessment and projection purposes.

Table Ia entitled Present and Projected Needs for Vocational Education Personnel reflects the number of professional vocational education personnel currently employed in secondary (s), post-secondary (PS) and adult (A) programs.

Current numbers employed will be determined through data collected from the VTAE Districts and the Department of Public Instruction and will reflect figures reported in the State Plan.

Projected employee needs will be based on current information available and will reflect short-term and long-range objectives of the Wisconsin vocational system.

SECTION 1.1 - EXPENDITURES OF FEDERAL, P.L. 90-576, FUNDS REQUIRED TO MEET NEEDS (CURRENT AND PROPOSED)

Table Ib entitled Current and Proposed Expenditures of Federal Funds for Vocational Education Personnel Development is used to reflect the current and predicted federal funds which will be required to meet present and projected needs reflected in Table Ia.

Current information will be determined through data collected from VTAE Districts, the Department of Public Instruction, and the two state University systems.

Future needs will be projected on information included in Table Ia.

SECTION 1.2 - EXPENDITURES OF LOCAL AND STATE FUNDING REQUIRED TO MEET NEEDS (CURRENT AND PROPOSED)

Table Ic entitled Expenditures of Local and State Funding Required to Meet Needs (Current and Projected) is used to reflect the current and projected state and local funds which will be required to meet the current and projected needs reflected in Table Ia.

The majority of funds utilized to develop vocational education professional personnel will come from state and local funding. Current information will be determined through data collected from VTAE Districts, the Department of Public Instruction, the two state university systems and the State Board of Vocational, Technical and Adult Education.

Future needs will be projected on information included in Table Ia.

SECTION 2.0 - EDUCATIONAL PERSONNEL ENROLLMENT IN PROFESSIONAL DEVELOPMENT PROGRAM (CURRENT AND PROJECTED)

Table IIa entitled Current and Projected Enrollments in Professional Development Programs is designed to report the numbers of vocational educators enrolled in in-service programs, and the numbers of prospective vocational educators enrolled in pre-service programs. Numbers included reflect staff members in secondary, post-secondary, and adult education.

In-service information will be secured from data supplied by the VTAE Districts and the Department of Public Instruction, and will reflect figures reported in the State Plan.

The complexity of the higher education system in Wisconsin, i.e. multiple university systems and multiple institutions, with no single institution designated as a vocational education institution, preclude the possibility of determining the numbers of future vocational educators presently enrolled in training programs.

Projected enrollments will be based on current data collected.

SECTION 2.1 - EXPENDITURE OF FEDERAL, P.L. 90-576, FUNDS TO BE AVAILABLE FOR EDUCATIONAL PERSONNEL DEVELOPMENT (CURRENT AND PROJECTED)

Table IIb entitled Funds Expected to be Available for Professional Personnel Development is utilized to reflect funds expended under P.L. 90-576, Part B (Regular Vocational Education Programs, Part F Consumer and Homemaking Education Programs, and Part G Cooperative Vocational Education Programs) for professional personnel development.

The required data will be collected from the Department of Public Instruction and the State Board of Vocational, Technical and Adult Education. This information will be obtained from project proposals submitted under Parts B, F, and G.

Projected expenditures will be based on current personnel and fiscal data.

SECTION 2.2 - EXPENDITURES OF LOCAL AND STATE FUNDS TO BE AVAILABLE FOR PERSONNEL DEVELOPMENT (CURRENT AND PROJECTED)

Table IIc entitled Funds Expected to be Available for Professional Personnel Development (Current and Projected - State and Local) reflects the funds currently expended and those which will be expended by state and local systems to meet the needs reflected in Table IIa. These funds will reflect state and local expenditures in staff development in programs identified in Parts B, F, and G.

Information for this table will be obtained from VTAE Districts, the State University systems, the Department of Public Instruction and the State Board of Vocational, Technical and Adult Education.

Projected expenditures will be based on current personnel and fiscal data.

SECTION 3.0 - VOCATIONAL EDUCATION PERSONNEL DEVELOPMENT PLAN

Table III entitled 1972-73 Financial Plan for Professional Personnel Development Based on Funds Available or Anticipated is utilized to sum up the estimated personnel development expenditures identified in Table IIb and IIc. These estimated funds are based on projected enrollments in Table IIa.

Expenditures necessary to satisfy unmet personnel needs are determined by subtracting expenditures listed in Tables IIb and IIc from those listed in Tables Ib and Ic. Estimated monies to be obtained from ''Other Sources'' and EPDA funding will be listed on this form.

Funds allocated to meet the personnel development needs of the Wisconsin vocational system will be determined on a priority basis. Priorities established in this plan will provide the background basis for professional development emphasis during the coming fiscal year of operation.

Needs of state-wide concern will be provided major emphasis by state staff members. Local VTAE Districts are expected to expend their resources on both state and locally identified personnel problems.

It is anticipated that personnel development funds will be limited at the local, state, and federal levels. Management decisions will be made at the state level concerning which needs will be met to best serve the Wisconsin Educational system.

SECTION 4.0 - VOCATIONAL EDUCATION PERSONNEL NEEDS

Personnel development needs for the dual Wisconsin vocational system have been established through a process of: (1) establishing numerical needs which are noted in Table Ia, Appendix D; and (2) reviewing with EPD Advisory Committee members, VTAE and DPI State Staff members, local school district vocational staff members, and university staff members, the specific needs which they have identified as appropriate to the Wisconsin Vocational system today.

Personal interviews, and written requests to all appropriate agencies identified a number of personnel development problems. These problems, in total, are listed in Appendix H. A number of these problems will be funded through state, local, or federal projects other than EPDA funding.

Priority projects for EPDA funding were identified in section 2.1, and they are as follows:

Item One	Leadership Intern Program
Item Two	LVEC Leadership Workshop
Item Three	Nurse Educator Graduate Program
Item Four	Secondary School Administrator's Orientation Workshops
Item Five	General Educator Presentation Workshop
Item Six	Secondary school vocational educator workshop for orientation to the needs of the handicapped and disadvantaged student.
Item Seven	Nurse educator workshops to meet minimum ADN requirements
Item Eight	Secondary school vocational educator workshop for orientation to the problems of the urban society.
Item Nine	A leadership conference for 40 post secondary staff members
Item Ten	Develop pilot seminar program for secondary school guidance counselors

Resources required to meet projected needs are identified in Appendix D, Tables Ib and Ic. Projected resources which will be available to meet personel development needs are identified in Tables IIb and IIc.

Table III, Appendix D, indicate that an additional $113,700.00 would be required to meet projected staff development needs. It is anticipated that $99,575.00 in EPDA funds will be required to offset these which may be found through other sources such as local school districts, business, industry or additional federal funding sources.

APPENDIX

EXPLANATION
OF
CHAPTER A-V-1

WISCONSIN ADMINISTRATIVE CODE

REQUIREMENTS
FOR CERTIFICATION

FOR WISCONSIN
TEACHERS
OF VOCATIONAL, TECHNICAL
AND ADULT EDUCATION

JAN., 1971

Wisconsin Board of Vocational, Technical and Adult Education
Eugene I. Lehrmann, State Director
6731

Wisconsin Board of
Vocational, Technical
and Adult Education

Part-Time Personnel Requirements for Approval

A-V-1.02
A-V-1.03

Title	Education, Occupational Experience, Teaching Experience
Part-time Teachers Academic Subjects Part-time Teachers Vocational Subjects	Educational and occupational experience shall be appropriate to the subject being taught as evaluated by the Wisconsin Board of Vocational, Technical & Adult Education Staff. In general, the requirements which apply for Provisional Certification are used to evaluate part-time personnel. See A-V 1.04
Part-time Teachers Crafts and Recreational Subjects	Evaluation is made by the Wisconsin Board of Vocational, Technical and Adult Education.
Part-time Teachers Driver Education	Valid Wisconsin Teacher's license. Valid Wisconsin driver's license with 2 yrs. of satisfactory driving experience prior to employment. 3 cr. - Basic driver education 3 cr. - Safety education 3 cr. - Advanced driver education
Part-time personnel are subject to re-examination every year.	

ED 073 202

	3 cr. - Basic driver education 3 cr. - Safety education 3 cr. - Advanced driver education
Part-time personnel are subject to re-examination every year.	

Wisconsin Board of
Vocational, Technical
and Adult Education

2 yr.-Provisional Certificate Requirements

A-V-1.04

Title	Education Within last 10 years	Occupational Experience Within last 10 years	Teaching Experience
Teacher Assistants	2 yrs. of college, jr. college or accredited technical program. Appropriate work experience may be substituted for max. of 1 yr. equivalency.	None	———
Teachers	Bachelor's degree (or equivalent)	12 months - in teaching field.	———
Academic Subject Teachers Librarians Instructional Media-Specialists	Bachelor's degree	3 months - can be in any field except education.	———
Guidance Counselors	Master's degree in guidance and counseling	12 months - can be in any field except education.	3 yrs.
Supervisors Coordinators & other Supervisory Personnel	Bachelor's degree in appropriate field (or equivalent)	12 months - should be able to qualify as a teacher in some field.	3 yrs.
Directors and Assistant Directors	Master's degree in appropriate field	24 months - should be able to qualify as a teacher in some field.	3 yrs.
Other Administrative Personnel	Master's degree (or equivalent)	24 months - should be able to qualify as a teacher in some field.	3 yrs.

Note -

Education - Apprenticeship and journeyman experience in the skilled trades for a combined total of 7 yrs. shall be equivalent to a baccalaureate degree. The above plus a baccalaureate degree shall be equivalent to a master's degree. 6 sem. cr. each 2 yr. period or equivalent is necessary toward fulfilling the requirements for a standard certificate.

Occupational Experience - 2 months occupational experience or equivalent is necessary each 2 yr. period to work toward fulfilling requirements for a standard certificate. Approved education may be substituted for 1/2 of the required work experience.

Wisconsin Board of
Vocational, Technical
and Adult Education

5 yr. - Standard Certificate Requirements

A-V-1.05

Title Full-Time Personnel	Education	Occupational Experience - 33	Professional Experience - 34
Teacher Assistants Other Ancillary Personnel	21. Philosophy of VTAE in Wisconsin - 2 cr.	None	3 yr. in certified position
Teachers Academic Subject Teachers	21. Philosophy of VTAE in Wisconsin - 2 cr. 22. Teaching Methods - 2 cr. 23. Educational Psychology - 2 cr. 24. Educational Evaluation - 2 cr. 25. Guidance and Counseling - 2 cr. 26. Bachelor's Degree (or equivalent) 27. Major in teaching area	Teachers - 24 months in teaching area Academic Subject Teachers - 6 months in any occupation except education	3 yr. in certified position
Supervisors Coordinators Guidance Counselors Librarians Instructional Media-Specialists	21. Philosophy of VTAE in Wisconsin - 2 cr. 22. Teaching Methods - 2 cr. 23. Educational Psychology - 2 cr. 24. Educational Evaluation - 2 cr. 25. Guidance and Counseling - 2 cr. 26. Bachelor's Degree (or equivalent) 27. Major in teaching area 28. Coordination - 2 cr. 29. Supervision - 2 cr. 30. Public Relations - 2 cr. 31. Master's degree or equivalent in appropriate field	Supervisors, Coordinators, Guidance Counselors - 24 months - should be able to qualify as teacher Librarians, Instructional Media-Specialists - 6 months	3 yr. in certified position
Directors Assistant Directors Other Administrative Personnel	21. Philosophy of VTAE in Wisconsin - 2 cr. 22. Teaching Methods - 2 cr. 23. Educational Psychology - 2 cr. 24. Educational Evaluation - 2 cr. 25. Guidance and Counseling - 2 cr. 26. Bachelor's Degree (or equivalent) 27. Major in teaching area 28. Coordination - 2 cr. 29. Supervision - 2 cr. 30. Public Relations - 2 cr. 31. Master's Degree in appropriate field 32. Administration - 4 cr.	24 months - should be able to qualify as teacher	3 yr. in certified position

Life Certificate - Issued to teachers, supervisors, coordinators, counselors and directors who hold or are eligible for a standard 5-yr. certificate and attained age 55.

S734

PERSONNEL APPLICATION

VE-CE-112

WISCONSIN BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION

DISTRICT OR SCHOOL NO.	SOCIAL SEC. NO.	NAME (LAST, FIRST, MIDDLE)	PRESENT ADDRESS (STREET, CITY, STATE, ZIP)	TELEPHONE NO. (AREA CODE & NO.)

PRESENT EMPLOYER	EMPLOYER'S ADDRESS (ST., CITY, STATE ZIP)	PLACE OF BIRTH (CITY, STATE, COUNTRY)	DATE OF BIRTH (MONTH, DAY, YEAR)

PRESENT ANNUAL SALARY	EARNED IN NO. OF MONTHS	SALARY DESIRED	DATE AVAILABLE	TITLE OF POSITION APPLYING FOR:	MARITAL STATUS	SEX	NO. OF CHILDREN
					☐ SINGLE ☐ WIDOWED ☐ DIVORCED ☐ MARRIED ☐ SEPARATED	☐ MALE ☐ FEMALE	

EDUCATIONAL PREPARATION
(High School, College, Univ., Tech. & Special Training)

NAME OF INSTITUTION	LOCATION STREET	LOCATION CITY	LOCATION STATE	PERIOD ATTEND	DATE GRAD.	DEGREE	NUMBER CREDITS	MAJOR	MINORS

IMPORTANT: ORIGNAL TRANSCRIPT of COLLEGE, UNIVERSITY, or TECHNICAL SCHOOL CREDITS must be submitted where certification is requested.

REFERENCES

NAME	ADDRESS (NUMBER, STREET, CITY, STATE)	TYPE OF BUSINESS	TITLE

APPENDIX C

Certification Standards for Local Vocational Education Coordinators
(LVEC'S)
[Certification Code P.I. 3.03(6)]

I. For a three-year license the applicant must possess evidence of vocational education and administrative competencies; credentials to include the following:

A. A baccalaureate or higher degree with a major in a vocational subject area or related area as identified by the state superintendent.

B. College-level course work in the following areas:

1. issues, principles or philosophy of vocational education
2. organization and administration of cooperative vocational programs
3. curriculum planning and development
4. supervision of instruction
5. guidance with an emphasis on career development
6. administration of public school districts

C. Work experience outside of teaching to include at least 2,000 hours in one or more occupational fields. Collegiate field experience resulting in college credit may be used to satisfy occupational requirements, each contact hour counting up to three clock hours of occupational experience. Workshops may be substituted for occupational experience as follows: one clock hours of approved workshop experience counts up to three clock hours of occupational experience. Approved by the State Superintendent is required.

D. Three years of successful teaching in a vocational subject area identified as such by the State Superintendent, or two years of secondary teaching in vocational subject areas and an additional two years in administration and/or guidance.

II. A five-year license will be granted upon presentation of evidence of three years of successful employment as a Local Vocational Education Coordinator during the period of the three-year license.

III. Five-year certificates may be renewed by presenting evidence of the completion of the five semester hours of collegiate credit or four hundred and seventy-five clock hours of appropriate occupational experience which contributes to broadening the vocational competency of the applicant may be substituted for college credit. Collegiate field experience resulting in college credit may be used to satisfy occupational requirements, each contact hour counting up to three clock hours of occupational experience. Workshops may be substituted for occupational experience as follows: one clock hour of approved workshop experience counts up to three clock hours of occupational experience. Workshops must have prior approval of the State Superintendent. These requirements are to be fulfilled within the immediate preceding five-year period.

Wisconsin Department of Public Instruction
126 Langdon Street
Madison, Wisconsin 53702

CLARIFICATION OF LOCAL VOCATIONAL EDUCATION COORDINATOR CERTIFICATION REQUIREMENTS

I. Vocational and Related Areas
   - A. Agriculture
   - B. Business Education
   - C. Home Economics
   - D. Industrial Education
   - E. Distributive Education
   - F. Vocational Guidance

   (Note: Areas other than those listed above will be considered if the candidate has had extensive work experience which included a substantial involvement in industry training programs upon recommendation of the Director of the Bureau for Career and Manpower Development.)

II. Work Experience--the 2,000 hours can be a total of hours in various occupations; must be approved by DPI, Bureau for Career and Manpower Development.

III. Professional Course Work--courses with the following titles will generally satisfy the particular requirement.
   - A. Principles, Issues or Philosophy of Vocational Education
   - B. Organization and Operation (Methods) of Cooperative Vocational Programs
   - C. Curriculum--General Coverage
     1. Curriculum Planning
     2. Curriculum Development
     3. Secondary School Curriculum

   (Note: Curriculum courses in specialized areas will be acceptable only if the course description of syllabus indicates that the course covered the broad concepts of planning, developing, and implementing curriculum.)
   - D. Supervision or Improvement of Instruction
   - E. Guidance with Vocational Emphasis
     1. Principles of Guidance
     2. Techniques of Guidance
     3. Career Development of Youth
     4. Education and Occupational Information
     5. Seminars in Career Development
   - F. Educational Administration
     1. Administration and Organization of Public Schools
     2. The Principal--Secondary Schools
     3. School Business Mangement
     4. Administative Behavior
     5. School Law

Additional Notes

Completion of the M.S. in Vocational Education (LVEC Program) can substitute up to one year of the teaching requirement in vocational subject areas; approval by DPI, Bureau for Career and Manpower Development is required.

Courses which deal primarily with post-high school or adult programs, i.e., "Coordination" or "Administration of Vocational-Technical Education," will not meet the above certification requirements.

TEACHER QUALIFICATIONS AND REQUIREMENTS

1. Capstone Course Teachers

Vocational education teachers must obtain special certification to teach the capstone course in the high school vocational education program and to meet reimbursed program standards. These special certification standards build on basic standards for the traditional subject areas. Vocational education teachers who qualify for teaching a capstone course also may teach in the sequence courses.

Teachers of agriculture in the four-year sequence of the traditional vocational agriculture program are required to have the basic vocational agriculture license. Teachers of agri-business should also have related work experience.

Teachers of wage-earning home economics are not required at present to obtain special certification. However, to teach a capstone course they must have the regular home economics license plus related work experience and the principles or issues of vocational education course.

Teachers of capstone courses are responsible for all activities which help develop vocational competencies desired in capstone course graduates. Certification requirements contain the minimum qualifications for positions in the local education agencies with respect to teachers of vocational courses.

2. Coordinating Teachers

Vocational teachers who teach and coordinate capstone courses which employ the cooperative education method must meet additional special requirements. Coordinating teachers must satisfactorily complete a college course in the organization and administration of cooperative education programs prior to their becoming involved in cooperative education.

The coordinating teacher carries on all functions and duties with respect to the teaching of the in-school capstone course and the supervision and coordination of student and employer activities on the job. A coordinating teacher helps to conduct community surveys, meets with advisory committees, and helps identify, select, and develop local training stations for students who participate in cooperative education programs.

3. Applying for Licensure

All teaching licenses are issued by the Bureau of Teacher Education of the Department of Public Instruction. Applications, using the Teacher Credential form PI-C-2 (Rev. 12-1-69), should be submitted along with a $5 processing fee.

CERTIFICATION STANDARDS FOR TEACHERS IN VOCATIONAL PROGRAMS
Certification Code P.I. 3.03(5)

"TEACHERS IN VOCATIONAL PROGRAMS. Three-year non-renewable license designated business and office--vocational; trades and industry--vocational (including drafting, power mechanics, industrial woodworking, building construction, metal working, electronics-electricity, and graphic arts); and distributive education--vocational may be issued.

(a) Applicants must complete a 34-semester hour major in business education, industrial arts, or distributive education and a course in principles, issues, or philosophy of vocational education.

(b) Certification designated business and office--vocational and trades and industry--vocational requires completion of occupational experience totaling 2,000 hours during the 10-year period preceding the effective date of certification. Up to two-fifths of the occupational experience may be secured by earning university graduate credits in appropriate technical subjects or workshops, one semester hour counting as 95 clock hours of occupational experience and one clock hour of approved workshop experience counting as up to three clock hours of occupational experience. Workshops must have prior approval of the state superintendent.

(c) Certification designated distributive education--vocational requires completion of occupational experience totaling 4,000 hours under the conditions outlined in 3.03(5)(b).

(d) Collegiate field experience (cooperative educational programs) resulting in college credit may be used to satisfy occupational experience requirements, each hour worked counting as up to three clock hours of occupational experience. Prior approval by the state superintendent of collegiate field experience programs is required.

(e) A five-year renewable certificate may be granted upon completion of three years of successful teaching in a position requiring Wisconsin vocational certification for the subjects endorsed on the three-year license and upon completion of three semester hours of appropriate collegiate credit. Two hundred eighty-five clock hours of appropriate occupational experience may be substituted for the three hours of collegiate credit. Workshops may also be substituted as in 3.03(5)(b).

(f) Five-year certificates may be renewed by presenting evidence of completion of five semester hours of appropriate collegiate credit or 475 clock hours of appropriate occupational experience. Workshops may be substituted as in 3.03(5)(b).

(g) There is no unlimited certification in certification categories designated vocational."

CERTIFICATION STANDARDS FOR TEACHERS OF AGRICULTURE AND HOME ECONOMICS

1. Teachers of Agriculture

a. Production Agriculture

Teachers of agriculture who teach in the traditional four-year sequence, which has as its primary purpose that of preparing students for production agriculture, are fully qualified to teach those courses under the regular certification for agriculture teachers. Those programs are eligible for federal reimbursement based on teachers meeting regular certification standards.

b. Off-farm Occupational Programs

Teachers of agriculture who teach agri-business and other special agriculture courses which relate to employment opportunities in agriculture, but other than

production agriculture, are partially qualified for teaching in those courses if they possess the regular agriculture license. However, in addition, agriculture teachers must have work experience in the occupational area(s) for which their students are being prepared, it is also necessary for teachers of agriculture to have completed a course in the issues or principles of vocational education (such a course is generally taken as part of the undergraduate program in agriculture education).

c. Cooperative Education in Agriculture

Agriculture programs which place on jobs as part of their course requirement are considered to be cooperative education, and the teachers of those programs must have completed the course in the organization and administration of cooperative education prior to their becoming involved with the placement of students on jobs and the selection of training stations for such programs. This requirement does not apply, however, to those situations in which students work on farms and have farm projects which are part of the regular, traditional agriculture production program.

2. Teachers of Home Economics

a. Home Economics General

Home economics teachers who teach the traditional program in home economics are fully qualified if they meet the regular certification standards for home economics teachers. Although the traditional program of home economics is not reimburseable under the Federal Vocational Education Act, at the present time, such programs do play an important part in a total comprehensive program of vocational education since they help to prepare boys and girls for the dual role of homemaker (also a "vocation") and wage earner. These programs are especially important in terms of the foundation of sequence courses upon which some vocational education capstone courses are built.

b. Consumer-Homemaking Education

Teachers of consumer-homemaking education programs must have the basic certification required for all home economics teachers but in addition must have some particular course work or workshop experience in the area of consumer education. Consumer education tends to be integrated throughout the total home economics general program, but consumer-homemaking education program places a special emphasis on consumer education as part of home economics and attempts to integrate all consumer education efforts of a school district under the direction of a home economics teacher. Therefore, special expertise or background in consumer education is essential.

c. Wage-Earning Home Economics

Teachers of home economics who teach in courses which are identified as capstone and which relate directly to wage-earning occupations which utilize home economics skills and knowledge, in addition to the basic home economics license requirement must possess the following:

1. At least six months of work experience related to the occupational area(s) for which young people are being prepared;
2. Completion of a course in the issues or principles of vocational education.

Frequently the wage-earning program also utilizes the cooperative education method; it is essential that the home economics teacher complete a course in the organization and administration of cooperative education programs prior to their placing students on jobs or selecting training stations in which students will participate.

A special license is not issued at this time for our teachers in wage-earning home economics programs; however, the above requirements are essential to approval of a wage-earning home economics program for federal funding purposes and teachers are deemed qualified when the program is approved for funding.

REQUIREMENTS OF GUIDANCE COUNSELORS FUNDED UNDER (VEA 68)

1. Be a Wisconsin licensed school counselor.

2. Have a personal orientation to the world of work which should include at least wo years of non-professional occupational experience after high school graduation or its equivalency.

3. Have an understanding of the methodology of vocational education. (Take a course in Issues, Principles, or Methods in Vocational Education.)

4. Have professional preparation in career development through a combination of course work, workshops, seminars and inservice activities.

Requests for additional information regarding the above should be addressed to Harry N. Drier, Supervisor - Guidance Services, 126 Langdon Street, Madison, Wisconsin 53702.

Quotable Quote from Third Report of the National Advisory Council on Vocational Education, July 10, 1970.

Schools should invest as much in follow-up and counseling for those who drop out as for those who remain in school. School systems need to establish programs for the young people who have had their first employment experience and are ready for further education. The adult high schools and the cooperative programs which are being established in many cities are healthy developments which must be encouraged.

TABLE Ia

Present and Projected Needs for Vocational Education Personnel

(Obtained from Part II, Table 6)

Areas of Occupational Specialization	Numbers of Personnel Employed	Projected Numbers of Personnel Needed Each School Year to Meet the Vocational Education Objectives in Part II of the State Plan											
	1970-71		1971-72		1972-73		1973-74		1974-75		1975-76	
	P	I	P	I	P	I	P	I	P	I	P	I
Total (unduplicated) 1/ S		989		1064		1144		1242		1355		1533
PS		1708		1800		1895		1998		2050		2230
A		2182		2290		2450		2595		2809		2985
Vocational Programs (Specified by OE Code)												
2.		345		349		352		356		361		364
4.		406		416		439		460		503		509
7.		341		365		390		418		454		479
9.01		227		282		350		462		539		651
9.02		17		23		30		36		42		50
14.		1793		1874		1958		2040		2149		2234
16.		453		473		493		513		542		562
17.		1565		1646		1730		1790		1894		1971
Other (specify)												
Ancillary												
Administration												
Guidance and Counseling		66		75		85		90		95		100
Exemplary Programs		1		2		3		3		3		3
Other (specify) 2/												
Supporting												
Cooperative		60		65		70		75		78		80
Disadvantaged		220		225		235		240		245		250
Handicapped		18		20		24		27		30		30
Remedial												
Other (specify)												

- P - Preservice
- I - Inservice
- S - Secondary
- PS - Post-secondary
- A - Adult

1/ Count personnel only once even though responsible for two or more programs, i.e., consumer and homemaking education and home economics gainful.

2/ Count separately any local school superintendents and community or junior college presidents being trained for vocational education.

Table Ib
Current and Proposed Expenditures of Federal Funds for
Vocational Education Personnel Development 1/
(Obtained from Part II, Table 8)

Category of Expenditure (PL90-576)		Current Expenditures 1970-71	Proposed Expenditure of Funds by School Year 1971-72	1972-73	1973-74	1974-75	1975-76
Grand Total	1. Total 2/	32,161,634	38,267,660	45,405,038	53,133,158	55,974,482	61,353,693
	2. EPD	102,453	144,684	204,322	265,666	307,860	367,517
	3. % (2 of 1)	.32%	.4%	.45%	.5%	.55%	.6%
Regular State Vocational Education Programs (Part B)	1. Total 2/	30,638,668	35,867,660	41,997,338	48,541,158	50,832,982	54,697,693
	2. EPD	102,726	144,684	204,322	265,666	307,860	367,517
	3. % (2 of 1)	.33%	.4%	.48%	.54%	.6%	.67%
Consumer and Homemaking Education Programs (Part F)	1. Total 2/	1,130,250	1,650,000	2,408,700	3,360,000	3,672,500	4,845,000
	2. EPD	--	NONE	NONE	NONE	NONE	NONE
	3. % (2 of 1)	593,670	0%	0%	0%	0%	0%
Cooperative Vocational Education Programs (Part G)	1. Total 2/	--	770,000	999,000	1,232,000	1,469,000	1,710,000
	2. EPD	--	NONE	NONE	NONE	NONE	NONE
	3. % (2 of 1)		0%	0%	0%	0%	0%

1/ Need for Federal funds to meet the personnel requirements specified in Table Ia.
2/ Total Federal funds, current and proposed, which will be required to meet the specified needs.
EPD - Educational Personnel Development.

Table Ic
Current and Proposed Expenditures of State and Local Funds
for Professional Personnel Development 1/
(Obtained from Part II, Table 8)

Category of Expenditure		Current Expenditures	Proposed Expenditure of Funds by School Year				
		1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
Grand Total	1. Total 2/	53,742,624	59,913,740	66,803,308	77,627,738	85,892,498	92,678,115
	2. EPD	1,199,821	1,403,300	1,642,000	1,915,050	2,183,450	2,407,050
	3. %(2 of 1)	2.2%	2.3%	2.5%	2.5%	2.5%	2.6%
Regular State Vocational Education Programs	1. Total 2/	51,690,688	57,053,740	62,996,008	72,811,738	79,507,998	85,553,115
	2. EPD	1,079,726	1,236,200	1,417,000	1,599,900	1,788,050	1,938,450
	3. %(2 of 1)	2.08%	2.2%	2.2%	2.2%	2.2%	2.3%
Consumer and Homemaking Education Programs	1. Total 2/	373,285	550,000	810,300	1,120,000	1,977,500	1,995,000
	2. EPD	90,194	137,250	190,000	273,900	348,600	420,600
	3. %(2 of 1)	24%	25%	23%	24%	18%	21%
Cooperative Vocational Education Programs	1. Total 2/	1,780,317	2,310,000	2,997,000	3,696,000	4,407,000	5,130,000
	2. EPD	213,638	29,250	35,000	41,250	46,800	48,000
	3. %(2 of 1)	1.2%	1.2%	1.2%	1.1%	1.1%	1%

1/ Need for State and Local funds to meet the personnel requirements specified in Table Ic.
2/ Total State and Local funds, current and proposed, which will be required to meet needs in the categories listed as indicated in Table VII, Part II, of State Plan.
EPD - Educational Personnel Development.

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Table IIa

Current and Projected Enrollments in Professional Personnel Development Programs 4/
(Obtained from Part II, Table 7)

Areas of Occupational Specialization		Numbers of Personnel Enrolled 3/		Projected Numbers of Personnel to be Enrolled by School Year 4/									
		1970-71		1971-72		1972-73		1973-74		1974-75		1975-76	
		P	I	P	I	P	I	P	I	P	I	P	I
Total (Unduplicated) 1/	S	415	993	699	1263	780	1557	777	1810	716	2004	655	2127
	PS	278	1036	291	1151	295	1237	305	1326	309	1423	319	1505
	A		2626		2926		3226		3526		3826		4126
Vocational Programs (specified by OE code)													
01. Agriculture		68	313	74	317	74	319	77	323	77	323	78	329
04. Distributive Ed.		18	44	19	50	41	52	42	15	55	71	74	73
07. Health			103		141		173		206		239		275
09.01 Comp. Homemaking		140	51	143	51	163	102	166	102	166	102	169	102
09.02 Voc. Homemaking		5	52	10	68	10	85	20	99	54	128	25	168
14. Office Occupations		94	498	104	545	111	658	124	781	131	900	138	936
16. Technical		15	54	16	56	17	53	18	60	19	62	20	64
17. Trades/Industry		54	434	61	489	61	544	61	607	71	635	92	674
Other (specify)		8	33	9	35	10	37	11	39	12	41	13	43
Ancillary													
Administration		38	112	44	128	80	155	60	182	60	208	61	235
Guidance & Counseling		261	105	517	259	517	310	518	362	416	362	315	363
Exemplary Programs													
Other (specify) 2/													
Supporting													
Cooperative		42	117	36	124	51	148	82	172	69	207	86	247
Disadvantaged		42	171	46	247	61	170	61	300	61	324	61	270
Handicapped		42	11	36	72	31	33	36	35	56	37	31	39
Remedial													
Other (specify)		20	464	22	526	30	634	47	767	43	893	52	936

P - Preservice
I - Inservice
S - Secondary
PS - Postsecondary
A - Adult

1/ Count an enrollment only once even though preparing for two programs, i.e., consumer and homemaking education and home economics gainful.

2/ Count separately any local school superintendents and community or junior college presidents being trained in vocational education.

3/ Including those enrolled in programs currently supported by EPDA funds.

4/ Based on established trends, present facilities and staff availability, and planned increases in capacity of teacher education resources.

Table IIb.

Funds Expected to be Available for Professional Personnel Development
(Current and Projected - Federal) 1/
(Obtained from Part III, Table 1)

Category of Funding (Federal: P.L. 90-576)		Current Expenditures 1970-71	Funds Expected to be Available by School Year 1971-72	1972-73	1973-74	1974-75	1975-76
Grand Total	1. Total 1/	7,517,674	8,886,049	10,443,158	12,220,626	12,874,131	14,088,165
	2. EPD	102,453	144,684	204,322	265,666	307,860	367,517
	3. % (2 of 1)	1.4%	1.6%	2%	2.2%	2.4%	2.6%
Regular Vocational Education Programs (Fed: Part B)	1. Total 1/	6,917,529	7,965,778	9,172,874	10,529,426	10,964,431	12,602,710
	2. EPD	102,453	144,684	204,322	265,666	307,860	367,517
	3. % (2 of 1)	1.5%	1.8%	2.2%	2.5%	2.8%	2.9%
Consumer and Homemaking Education Programs (Fed: Part F)	1. Total 1/	366,730	531,667	770,784	1,075,200	1,175,200	1,550,460
	2. EPD	--	NONE	NONE	NONE	NONE	NONE
	3. % (2 of 1)	--	0%	0%	0%	0%	0%
Cooperative Vocational Education Programs (Fed: Part G)	1. Total 1/	302,328	388,604	499,500	616,000	734,500	855,055
	2. EPD	--	NONE	NONE	NONE	NONE	NONE
	3. % (2 of 1)	--	0%	0%	0%	0%	0%

1/ Total funds expected to be available for the categories listed from Federal funds from parts B, F, and G of P.L. 90-576 based on the enrollments in Table IIa.
EPD - Educational Personnel Development

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Table IIc.

Funds Expected to be Available for Professional Personnel Development
(Current and Projected - State and Local) 1/
(Obtained from Part III, Table 1)

Category of Funding (State and Local)		Current Expenditures 1970-71	Funds Expected to be Available by School Year 1971-72	1972-73	1973-74	1974-75	1975-76
Grand Total	1. Total 1/	41,659,878	46,291,723	51,438,547	59,773,358	66,137,223	71,362,149
	2. EPD	974,974	1,232,600	1,558,300	1,901,100	2,187,500	2,385,500
	3. % (2 of 1)	2.3%	2.7%	3.0%	3.2%	3.3%	3.3%
Regular State Vocational Education Programs	1. Total 1/	41,411,903	45,921,250	50,921,620	59,076,718	64,991,968	70,179,309
	2. EPD	907,169	1,123,250	1,390,800	1,695,950	1,925,300	2,075,300
	3. % (2 of 1)	2.2%	2.4%	2.7%	2.9%	3.0%	3.0%
Consumer and Homemaking Education Programs	1. Total 1/	184,249	270,473	397,047	548,600	968,975	977,550
	2. EPD	30,641	53,550	93,500	110,550	138,000	162,000
	3. % (2 of 1)	16.6%	19.8%	23.5%	20.1%	14.2%	16.6%
Cooperative Vocational Education Programs	1. Total 1/	83,417	100,000	119,880	147,840	176,280	203,200
	2. EPD	42,076	55,800	74,000	94,600	124,200	148,200
	3. % (2 of 1)	50.4%	55.8%	61.7%	64.0%	70.5%	72.2%

1/ Total funds expected to be available from State and local sources which will be required to meet the enrollments in Table IIa.
EPD - Educational Personnel Development

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Table III

1972-73 Financial Plan for Professional Personnel Development
Based on Funds Available or Anticipated

Category of Expenditure	Funds Expected to be Available for School Year 1972-73 1/			Total Funds Needed for Unmet Personnel Needs	Additional Funding to be Requested 3/	
	Total	Federal	State and Local	2/	Other Sources	EPDA
Regular Vocational Education Programs (Federal -Part B)	$1,594,122	$204,322	$1,390,800	$1,621,322	NONE	$27,200
Consumer and Homemaking Education (Federal-Part F)	93,500	NONE	93,500	190,000	$24,125	72,375
Cooperative Vocational Programs (Federal-Part G)	74,000	NONE	74,000	35,000	NONE	NONE
Grand Total	$1,761,622	$204,322	$1,558,300	$1,846,322	$24,125	$99,575

1/ Funds expected to be available are from Table IIb and IIc.
2/ Funds needed for unmet personnel needs are from Ib and Ic.
3/ The difference between the total funds needed for personnel development (Tables Ib and Ic) and the total funds expected to be available (Tables IIb and IIc).

APPENDIX E

Format For Writing Section 553 EPDA
Project Prospectus

The following is a guide for writing an EPDA project prospectus.

I. COVER SHEET INFORMATION

The prospectus must have a cover sheet which includes the following information:

1. The program to which the prospectus is being submitted (i.e. Vocational Education Personnel Program, part F indicate sections 552 or 553.)

2. The program or programs to which information copies of this prospectus are being sent, if any. (See following section on "Information Copies.")

3. The name and address of the institution or agency submitting the prospectus.

4. The name, title, office address, and office telephone number of the director. If different, provide an address and telephone number where the director or someone designated by him can be reached.

5. The title of the proposed project. Limit the title to 100 characters, including spaces and punctuation.

6. The beginning and ending dates of the proposed training activities.

7. The total amount of funds requested for operation of the project during the period ending June 30, 1972.

8. The total number of participants to be trained.

9. Signatures:

   a. Project director
   b. Authorized representative of the institution or agency.

See appendixes A & B

II. Body of Prospectus

All information included should be limited to 20 double-spaced typewritter pages.

A. Need

1. Briefly outline the need, in the proposed project area, which exists in Wisconsin. These needs would be oriented to the development of professional staff members associated with vocational education.

2. Needs which have a statewide impact on professional staff development are of importance.

B. Objectives

1. Define objectives for this proposal. Indicate the specific professional areas which the program is designed to serve, i.e., preparation of administrative or supervisory personnel, research specialists, teacher educators, call staff personnel, etc. The objectives must be sharply defined, clearly stated, capable of being attained and measurable.

2. Indicate definitions, assumptions, hypothesis and theoretical framework if these apply.

C. Program Design

1. In this category emphasis should be placed on how this proposal will meet the stated objectives. These should include:

   a. Specific areas of instruction to be covered.
   b. Length of the program.

2. If applicable cooperative arrangements with other educational institutions or other agencies should be described.

3. Relate the impact this program will have in the State of Wisconsin as it pertains to vocational education staff development.

D. Staff Resources

1. List all professional staff who will be connected with the proposed program. This would include:

   a. Staff members names.
   b. Educational backgrounds.
   c. A brief narrative of competencies and experiences.
   d. His present occupational responsibilities.

E. Participants

1. List numbers of participants involved.

2. List types of participants using such possible criteria as:

   a. Job description
   b. Educational background
   c. Location

3. List any other pertinent descriptive information.

F. Evaluation

1. Describe arrangements for measuring program effectiveness and how such information will be used for improving the program.

2. Project what information will be available to substantiated project success.

3. Will follow up studies be used?

G. Estimated Budget

1. The estimated budget information should be written in a narrative form listing information requested on the Budget Summary form, VE Form 7203-1, included is the appendix C. For the prospectus do not complete and attach a budget summary form.

2. In determining position costs calculate these on full-time, half time, on a part-time basis using the staff member's actual salary or prevailing institutional salaries where actual staff members are unknown.

3. Be realistic and comprehensive in budget estimates.

III. Additional information on EPDA Prospectus writing.

A. Enclose five copies of prospectus with attached cover sheets.

B. Prospectus must be typed, double spaced, in black ink, on 8 1/2 X 11 paper. Use staples (not spiral bindings) to bind the prospectus. Individual copies of the prospectus should not be bound in any type of folder or faulty cover. If this is done, such covers will be torn off and discarded.

C. Selections of projects to be further submitted by the State Board of Vocational, Technical and Adult Education will be made by a committee composed of state VTAE Board staff members. Criteria for selection will be forthcoming. Priorities of selected projects will be established by the same committee.

D. Essentially we are talking about programs that will be funded for operation in the 1971-72 school year. This program should provide the impetus for a sound program of professional staff development of vocational educators in the State of Wisconsin. Do not procrastinate - start your long range staff development planning now. A deadline date for prospectus submission will be established.

A P P E N D I X

APPENDIX A - SAMPLE COVER SHEET

APPENDIX B - SAMPLE COVER SHEET

APPENDIX C - SAMPLE BUDGET

APPENDIX A

SUBMITTED TO:	DR. WILLIAM LOOMIS VOCATIONAL AND TECHNICAL EDUCATION PROGRAM P.O. BOX 1600 CITY POST OFFICE WASHINGTON, D. C. 20013
SUBMITTED BY:	Eugene Lehrmann MR. ~~G. L. GREIBER~~, STATE DIRECTOR WISCONSIN BOARD OF VOCATIONAL, TECHNICAL & ADULT ED. 137 EAST WILSON STREET MADISON, WISCONSIN 53703 TELEPHONE: 608 - 266-1770
DIRECTOR:	MR. ROLAND KROGSTAD AND MR. DONALD M. BRILL SUPERVISOR, RESEARCH COORDINATING UNIT WISCONSIN BOARD OF VOCATIONAL, TECHNICAL & ADULT ED. 137 EAST WILSON STREET MADISON, WISCONSIN 53703
TITLE:	A PROFESSIONAL DEVELOPMENT PROGRAM FOR VOCATIONAL, TECHNICAL AND ADULT EDUCATION IN WISCONSIN
LENGTH:	JANUARY 1970 TO JANUARY 1973
PROJECT STATUS:	NEW
FUNDS REQUESTED:	(FIRST YEAR - MULTI. YR. PROJECT) $140,148.00
NATURE OF PROGRAM:	ADMINISTRATIVE INTERNSHIP
NUMBER OF PARTICIPANTS:	24 MASTERS 4 DOCTORS
SIGNATURES:	_____ _____ _____

APPENDIX B

PROSPECTUS FOR TRAINING TEACHERS OF TEACHERS IN VOCATIONAL EDUCATION SUBMITTED UNDER PART F OF THE VOCATIONAL AND TECHNICAL EDUCATION PROGRAM IN THE BUREAU OF EDUCATIONAL PERSONNEL DEVELOPMENT

1. Submitted To:	E.P.D.A. Part F - Vocational and Technical Education
2. Other Programs from which Support is Requested:	None
3. Applicant Institution:	Stout State University Menomonie, Wisconsin 54751
4. Project Director:	Dr. Robert Rudiger Department Chairman Department of Industrial Teacher Education Stout State University Menomonie, Wisconsin 54751 Phone: 715/235-5541, Ext. 255
5. Title:	In-service Institute for Call Staff Vocational Technical Teacher Trainers
6. Duration of Project:	June 8, 1970 - June 12, 1970
7. Project Classification:	New
8. Direct Costs Requested (excluding stipends):	$2,350.00
9. Number of Participants:	15
10. Approvals	

_____
Dr. Robert Rudiger, Project Director

_____
Dr. William J. Micheels, President
Stout State University

APPENDIX C DISCUSSION PURPOSES ONLY

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202
EDUCATIONAL PERSONNEL DEVELOPMENT PROGRAMS
BUDGET SUMMARY

BUDGET BUREAU NO. 51-R0759
APPROVAL EXPIRES: 11/30/69

TITLE OF PROJECT REPORTED

NAME AND ADDRESS OF INSTITUTION (City, State, ZIP Code)

	A. DIRECT COST-ADMINISTRATIVE & INSTRUCTIONAL STAFF SALARIES		PART C	PART D	TOTAL
1	DIRECTOR				
2	SECRETARIAL AND CLERICAL				
3	OTHER ADMINISTRATIVE SUPPORTING STAFF				
4	FULL-TIME INSTRUCTORS	NO.			
5	PART-TIME INSTRUCTORS	NO.			
6	LABORATORY ASSISTANTS	NO.			
7	INSTRUCTIONAL ASSISTANTS	NO.			
8	LECTURERS AND/OR CONSULTANTS	NO.			
9	*SUBTOTAL FOR SALARIES (Sum of Lines 1 through 8)*				
	B. OTHER DIRECT COSTS				
10	EMPLOYEE SERVICES AND BENEFITS				
11	TRAVEL				
12	OFFICE SUPPLIES, DUPLICATING, PUBLICITY, COMMUNICATIONS				
13	INSTRUCTIONAL SUPPLIES, ETC.				
14	REQUIRED FEES				
15	EQUIPMENT RENTAL AND/OR DEPRECIATION *(if applicable)*				
16	*SUBTOTAL FOR OTHER DIRECT COSTS (Sum of Lines 10 thru 15)*				
17	TOTAL DIRECT COSTS *(Sum of Lines 9 and 16)*				
	C. STIPEND SUPPORT *(Federal participants)*				
18	PARTICIPANTS	NO.			
19	DEPENDENTS	NO.			
20	TOTAL STIPEND SUPPORT *(Sum of Lines 18 and 19)*				
21	TOTAL DIRECT AND STIPEND COSTS *(Sum of Lines 17 and 20)*				
22	INDIRECT COSTS *(8 percent of Line 21)*				
23	GRAND TOTAL *(Sum of Lines 21 and 22)*				

OE FORM 7203-1, 6/69

APPENDIX F

WISCONSIN BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
137 East Wilson Street, Madison, Wisconsin 53703
C. L. Greiber, Director

September 30, 1970

I.L. 71-50
Subject: 1970-71 Calendar of Called Conferences and Events

To the District Directors
Wisconsin Schools of Vocational,
Technical and Adult Education

Dear Co-Worker:

Copies of the 1970-71 "Called Conferences" are enclosed for your information.

The called conferences have been designed to improve the quality of education in our districts. Participation by your district would be of great importance.

In addition, a listing of meetings is enclosed for your information. These meetings have been called by other agencies, such as the U. S. Office of Education, Administrators' Association and State Advisory Committees.

If you should desire further information, please feel free to contact us.

Sincerely,

C. L. Greiber

C. L. Greiber
State Director

pr

Enc.

Board of Vocational, Technical and Adult Education
Called Conferences

Date	Title	Staff Responsibility	City
September 1-3	Data Processing Teachers Wksp.	V. Swenson	Milwaukee
September 10	Nursing Assistant Workshop	B. Palen	La Crosse
October 15-17	Adult Basic Education Teacher Aide Seminar	C. Martin	Madison
October 20-21	Teacher Training Workshop - Welding	S. Munson	Appleton
October 21	Seminar for Instructional Television Producers	R. Johnson	Milwaukee
October 29-30	General Education Coordinators and Supervisors Meeting	R. Johnson	Madison
November 17	Traffic Safety Specialist Workshop	O. Mehlberg	Madison
November 24	State Typewriting Teachers' Workshop	J. Urness	Madison
December 15	Office Educ., Dist. Educ. and T & I Coordinators Occupational Ext. Wksp.	V. Swenson G. Kinsler	Eau Claire
December 16	Office Educ., Dist. Educ. and T & I Coordinators Occupational Ext. Wksp.	V. Swenson G. Kinsler	Appleton
December 17	Office Educ., Dist. Educ. and T & I Coordinators Occupational Ext. Wksp.	V. Swenson G. Kinsler	Waukesha
December 17	Practical Nursing Instructors' Workshop (tentative)	C. Schloemer	Madison
December 1970	Library Workshop (Occupational Extension Course)	H. Scheve	Madison
January 15, 1971	Teacher Training Workshop - Production & Manufacturing Technology	A. Potthast	Milwaukee
January 24-February 5	Adult Basic Education Teacher Aide Seminar	C. Martin	Madison
January 1971	Health Occupations Coordinators' Conf.	C. Schloemer	Madison
January 1971	General Education Coordinators and Supervisors Meeting	R. Johnson	*
February 16	Traffic Safety Specialist Workshop	O. Mehlberg	Madison
February 18-19	Librarian-Media Specialist Conf.	C. Zenor	Rhinelander
March 5	Teacher Training Workshop - Air Conditioning, Instrumentation and Refrigeration	A. Potthast	La Crosse
March 11-13	State DECA (WDEA) Leadership Conf.	V. Swenson	Green Lake

Date	Title	Staff Responsibility	City
March 26	Driver-Safety Workshop	O. Mehlberg	Stevens Point
April 1-3	State OEA (WBEC) Leadership Conf.	V. Swenson	Green Lake
April 22-23	Teacher Training Workshop - Mechanical Design and Drafting	A. Potthast	Wisconsin Rapids
April 1971	Adult Basic Education Teacher Aide Seminar	C. Martin	Madison
April 1971	General Education Coordinators and Supervisors Meeting	R. Johnson	*
Spring 1971	Practical Nursing Coordinators' Conf.	C. Schloemer	Madison
May 13	Medical Assistants Faculty Workshop	B. Palen	Sheboygan
May 18	Traffic Safety Specialist Workshop	O. Mehlberg	Madison
May 27	Operating Room Assistants Faculty Workshop	B. Palen	Madison
July 10-14	Summer Conference for Young and Adult Farmer Instructors	D. Beyl	Madison
Week Starting August 16	Professional Growth Week	L. Allwardt	*

*Places to be announced

Calendar of Events for the School Year 1970-71

Date	Title	Staff Responsibility	City
August 23, 1970	Regional Fire Training School	G. Christianson	Monroe
September 1-3	Data Processing Teachers Wksp.	V. Swenson	Milwaukee
September 10	Nursing Assistant Workshop	B. Palen	La Crosse
September 12	Course of Study Committee for Young & Adult Farmer Programs	D. Beyl	Appleton
September 13	Regional Fire Training School	G. Christianson	Ladysmith
September 16	Statewide CAMPS Seminar	M. Bodine	Wausau
September 17	Review-Planning Meeting - Participants at National Rural Inst.	R. Krogstad	Madison
September 18	Family Living Education Conf.	C. Nickel	Milwaukee
September 19	Driver Education Wksp. (WDTSEA)	O. Mehlberg	Milwaukee
September 20	Regional Fire Training School	G. Christianson	Biron
September 22	Driver Education Wksp. (WDTSEA)	O. Mehlberg	Platteville
September 23	Driver Education Wksp. (WDTSEA)	O. Mehlberg	Whitewater
September 24	Adult Education Association of Wisconsin Committee Workshops	R. Krogstad	Wisconsin Dells
September 25	East Central Guidance Conference	L. Celley	Oshkosh
September 25-26	DECA Presidents' Seminar	V. Swenson	Wisconsin Dells
September 29	Research Committee of Administrators' Association	R. Krogstad	Madison
September 29	Driver Education Wksp. (WDTSEA)	O. Mehlberg	Menomonie
September 29	Wisconsin Association of Student Financial Aid Administrators	B. McConnell	Green Bay
September 30	Student Financial Aid Tripartite Meeting U.S.O.E.	B. McConnell	Green Bay
September 30	Driver Education Wksp. (WDTSEA)	O. Mehlberg	La Crosse
September 30	Food Service Advisory Committee Meeting	H. Scheve	Madison
October 5	OEA Local Officers' Workshop	V. Swenson	Green Lake
October 6	Driver Education Wksp. (WDTSEA)	O. Mehlberg	Ashland
October 6	Teacher Certification Comm. Mtg.	L. Allwardt	*

Date	Title	Staff Responsibility	City
October 6	Review and Planning Meeting "Vocational Education for Metropolitan Areas"	H. Sahakian	Madison
October 6	Drive-In Workshop for High School Counselors	B. McConnell	Stevens Point
October 6	Advisory Committee for Distributive Education	V. Swenson	Madison
October 7	Driver Education Wksp. (WDTSEA)	O. Mehlberg	Eagle River
October 7	Drive-In Workshop for High School Counselors	B. McConnell	Milwaukee
October 8	Wisconsin Association of Institutional Research Meeting	R. Krogstad	Rhinelander
October 8	Annual Guidance Conference	L. Celley	Whitewater
October 13	Driver Education Wksp. (WDTSEA)	O. Mehlberg	Algoma
October 13	Drive-In Workshop for High School Counselors	B. McConnell	Rice Lake
October 13-15	Institute "Attitudes and Misconceptions About the Handicapped"	H. Sahakian	Madison
October 14	Driver Education Wksp. (WDTSEA)	O. Mehlberg	Wausau
October 14	Drive-In Workshop for High School Counselors	B. McConnell	Appleton
October 14-15	Farm Progress Days	D. Beyl	Sun Prairie
October 15	Drive-In Workshop for High School Counselors	B. McConnell	Richland Center.
October 15-17	Adult Basic Education Teacher Aide Seminar	C. Martin	Madison
October 20-21	Teacher Training Wksp. - Welding	S. Munson	Appleton
October 20-22	Institute "Attitudes and Misconceptions About the Handicapped"	H. Sahakian	Madison
October 21	Drive-In Workshop for High School Counselors	B. McConnell	Milwaukee
October 21	Seminar for Instructional Television Producers	R. Johnson	Milwaukee
October 22	District In-Service Training	V. Swenson	Wausau
October 22	Driver Education Adv. Comm. Mtg.	O. Mehlberg	Milwaukee

Date	Title	Staff Responsibility	City
October 22	Drive-In Workshop for High School Counselors	B. McConnell	Kenosha
October 23	Homemakers Clubs Conference Planning Committee	C. Nickel	Madison
October 25-30	AEA-USA Conference	R. Krogstad	Atlanta, Georgia
October 26-30	National Safety Congress	O. Mehlberg	Chicago, Illinois
October 29-30	General Education Coordinators and Supervisors Meeting	R. Johnson	Madison
October 30-31	Instructional Services Association of Wisconsin	C. Zenor	Waukesha
October 1970	State Advisory Committee - Nursing Education	C. Schloemer	Madison
October 1970	Wis. Nurses Assoc. Annual Mtg.	C. Schloemer	Milwaukee
October 1970	Interior Design Adv. Comm. Mtg.	H. Scheve	Madison
October 1970	Home Management Adv. Comm. Mtg.	H. Scheve	Madison
October 1970	Advanced Cosmetology Advisory Committee Meeting	H. Scheve	Madison
October 1970	Environmental Control Comm. Mtg.		Madison
October 1970	T & I Youth Club Adv. Comm. Mtg.	O. Mehlberg	Wausau
November 3-5	Wisconsin Education Association		Milwaukee
November 5-6	Wisconsin Personnel and Guidance Association Meeting	L. Celley	Stevens Point
November 10-11	District In-Service Training	V. Swenson	Kenosha
November 13	State Advisory Para-Medical Committee Meeting	B. Palen	Madison
November 13-14	Commercial Driving School Curriculum	O. Mehlberg	Wisconsin Dells
November 17	Traffic Safety Specialist Wksp.	O. Mehlberg	Madison
November 22-24	Midwest Association of Student Financial Aid Administrators	B. McConnell	Kansas City, Missouri
November 22-24	Association of Allied Health Professions	C. Schloemer	Chicago, Illinois
November 24	State Typewriting Teachers' Wksp.	J. Urness	Madison
November 1970	Course of Study Committee for Young & Adult Farmer Programs	D. Beyl	Appleton
November 1970	Course of Study Committee for Young & Adult Farmer Programs	D. Beyl	*

Date	Title	Staff Responsibility	City
November 1970	Conference on Rural and Metropolitan Vocational Education Needs and Exemplary Programs	H. Sahakian	*
November 1970	Animal Technician Comm. Mtg.	D. Beyl	Madison
November-December	Agriculture Income Tax Workshops	D. Beyl	*
December 8	Teacher Certification Comm. Mtg.	L. Allwardt	*
December 11	State Advisory Para-Dental Committee Meeting	B. Palen	Madison
December 15	State Adv. Comm. on Continuing Education of Licensed Practical Nurses	B. Palen	Madison
December 15	Office Educ., Dist. Educ. and T & I Coordinators Occupational Extension Workshop	V. Swenson G. Kinsler	Eau Claire
December 16	Office Educ., Dist. Educ. and T & I Coordinators Occupational Extension Workshop	V. Swenson G. Kinsler	Appleton
December 17	Office Educ., Dist. Educ. and T & I Coordinators Occupational Extension Workshop	V. Swenson G. Kinsler	Waukesha
December 17	Practical Nursing Instructors' Workshop (tentative)	C. Schloemer	Madison
December 1970	Library Workshop (Occupational Extension Course)	H. Scheve	Madison
December 1970	State Advisory Committee for Young & Adult Farmer Program	D. Beyl	Madison
December 1970	State Adv. Conservation Program	D. Beyl	Madison
December 1970	State Advisory Committee Agri-Business Program	D. Beyl	Madison
January 15, 1971	Teacher Training Workshop - Production & Manufacturing Tech.	A. Potthast	Milwaukee
January 24-February 5	Adult Basic Education Teacher Aide Seminar	C. Martin	Madison
January 1971	Health Occupations Coordinators' Conference	C. Schloemer	Madison
January 1971	General Education Coordinators and Supervisors Meeting	R. Johnson	*
January 1971	Pesticides Conference	D. Beyl	Madison

Date	Title	Staff Responsibility	City
February 2	District In-Service Training	V. Swenson	Appleton
February 3-4	Regional Fire Training School	G. Christianson	Spooner
February 9	Teacher Certification Comm. Mtg.	L. Allwardt	*
February 10	Farm Labor Conference	D. Beyl	Appleton
February 11	Farm Labor Conference	D. Beyl	Sparta
February 11	Regional Fire Training School	G. Christianson	Kiel
February 16	Traffic Safety Specialist Wksp.	O. Mehlberg	Madison
February 18	Regional Fire Training School	G. Christianson	Plymouth
February 18-19	Librarian-Media Specialist Conf.	C. Zenor	Rhinelander
February 1971	State Advisory Committee - Nursing Education	C. Schloemer	Madison
February 1971	Course of Study Committee for Young & Adult Farmer Program	D. Beyl	Appleton
February 1971	Course of Study Committee for Young & Adult Farmer Program	D. Beyl	*
February 1971	Fertilizers and Lime Conference	D. Beyl	Madison
February 1971	State Advisory Committee Horticulture Program	D. Beyl	Kenosha
February 1971	Stout Guidance Conference	L. Celley	Menomonie
March 5	Teacher Training Workshop - Air Conditioning, Instrumentation and Refrigeration	A. Potthast	La Crosse
March 11-13	State DECA (WDEA) Leadership Conference	V. Swenson	Green Lake
March 19-20	Instructional Services Association of Wisconsin	C. Zenor	Antigo
March 26	Driver-Safety Workshop	O. Mehlberg	Stevens Point
March 27	Wisconsin Driver Traffic Safety Education Workshop	O. Mehlberg	Stevens Point
March 1971	Early Childhood Adv. Comm. Mtg.	C. Nickel	Madison
March 1971	American Association of Junior Colleges	C. Schloemer	Washington, D. C.
March 1971	In-Service Meetings for Young and Adult Farmer Instructors	D. Beyl	*

Date	Title	Staff Responsibility	City
March 30-31-April 1	U. S. Office of Education Region V Distributive Education Conf.	V. Swenson	Benton Harbor, Michigan
April 1-3	State OEA (WBEC) Leadership Conf.	V. Swenson	Green Lake
April 6	Teacher Certification Comm. Mtg.	L. Allwardt	*
April 15-16	Wisconsin Safety Conference	O. Mehlberg	Milwaukee
April 21-22	Instructors' Seminar (Fire Trg.)	G. Christianson	Marshfield
April 22	Dental Auxiliaries Faculties Workshop	B. Palen	Milwaukee
April 22-23	Teacher Training Workshop - Mechanical Design & Drafting	A. Potthast	Wisconsin Rapids
April 22-25	National DECA Leadership Conf.	V. Swenson	San Antonio, Texas
April 23-24	Adult Education Association of Wisconsin	R. Johnson	*
April 1971	Adult Basic Education Teacher Aide Seminar	C. Martin	Madison
April 1971	General Education Coordinators and Supervisors Meeting	R. Johnson	*
Spring 1971	Practical Nursing Coordinators' Conference	C. Schloemer	Madison
May 2-4	National OEA Leadership Conf.	V. Swenson	Indianapolis, Ind.
May 6-7	Wisconsin Association for Vocational and Adult Education		Milwaukee
May 11-12	Arson Seminar	G. Christianson	La Crosse
May 13	State Conference Vocational Homemakers Clubs	C. Nickel	Green Lake
May 13	Medical Assistants Faculty Wksp.	B. Palen	Sheboygan
May 18	Traffic Safety Specialist Wksp.	O. Mehlberg	Madison
May 19-20	Mechanics' Seminar (Fire Trg.)	G. Christianson	Oshkosh
May 27	Operating Room Assistants Faculty Workshop	B. Palen	Madison
May 1971	State Advisory Para-Medical Committee Meeting	B. Palen	Madison
May 1971	National League for Nursing	C. Schloemer	St. Louis, Mo. ?
June 3-4	Aerial and Ladder School	G. Christianson	West Allis

Date	Title	Staff Responsibility	City
June 18-19	Aircraft Firefighting School	G. Christianson	Madison
June 1971	Vocational Research Practice Seminar	R. Krogstad	Menomonie
June 1971	State Advisory Committee Food Manufacturing	D. Beyl	Fond du Lac
June 1971	State Advisory Para-Dental Committee Meeting	B. Palen	Madison
July 10-14	Summer Conference for Young and Adult Farmer Instructors	D. Beyl	Madison
July 13-15	Farm Progress Days	D. Beyl	West Salem
Week Starting August 16	Professional Growth Week	L. Allwardt	*
August 17	Traffic Safety Specialist Wksp.	O. Mehlberg	Madison
August 23-27	American Driver Traffic Safety Education Conference	O. Mehlberg	Springfield, Ill.
Dates to be set	Inter-Agency Regional Meetings on the Handicapped	H. Sahakian	*
Dates to be set	District Teacher Training	C. Martin	*

*Places to be announced

APPENDIX G

WISCONSIN BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
137 East Wilson Street - Madison, Wisconsin 53703
Eugene I. Lehrmann, Director

March 8, 1971

I.L. 71-91
Subject: EPDA, Section 552, Doctoral Fellowship Announcement

To the District Directors
Wisconsin Vocational, Technical
and Adult Education

Dear Co-worker:

The State Board of Vocational, Technical and Adult Education recently received notice concerning the Leadership Development Program (Section 552, Part F of Public Law 90-35, EPDA).

Section 552, Part F of Public Law 90-35 (EPDA) was designed to assist selected institutions of higher education in developing and strengthening their vocational-technical education graduate programs to help alleviate the critical need for qualified leadership personnel in this field.

Awards for the 1971-72 year will make available fifty-six appointments, on a national basis, for vocational educators to engage in full time study leading to a doctoral degree. Information concerning monetary allowances and length of involvement are detailed in the enclosed reproduction of the announcement made in the January edition of the American Vocational Journal.

Universities receiving Section 552 grants for the coming year are:

Kansas State University
University of Kentucky
Michigan State University
University of Missouri
Temple University (Philadelphia, Pa.)
University of Tennessee
Texas A & M University

Wisconsin has been allocated one nominee for a fellowship for the 1971-72 year. In addition to the principal nominee the state is allowed to submit names of first and second alternates.

Leadership development for the Wisconsin Vocational system has been granted a top priority in our professional staff development program. It is requested that you give this information the widest dissemination possible within your district.

Additional doctoral fellowship are being explored at this date, information received from applicants will be placed on file for possible eligibility in other fellowship programs.

Enclosed you will find copies of application procedures and an application form which are to be used for this program. Additional copies are available upon request.

All applicants will be notified of their status immediately after April 16, 1971

Successful nominee's applications will be referred by the U. S. Office of Education's Bureau of Educational Personnel Development to the appropriate institution. The university involved will notify the nominee of its decision at the earliest possible date.

Please note that the deadline for receipt of these applications, in the state office, is April 2, 1971.

Sincerely,

Eugene Lehrmann

Eugene Lehrmann
State Director

EL/jwc/gao

Enc.

Wisconsin Board of Vocational, Technical and Adult Education
137 East Wilson Street
Madison, Wisconsin 53703
February 25, 1971

SUBJECT: PROCEDURES FOR SELECTION OF NOMINEES UNDER SECTION 552, PART F OF PUBLIC LAW 90-35 (EPDA)

1. The State Director and his staff, acting on behalf of the Wisconsin Board of Vocational, Technical and Adult Education accepts responsibility for the selection of nominees.

2. Each applicant must submit a completed application form (attached) with transcripts of credentials to the State Director on or before April 2, 1971.

3. Each nominee must indicate his first choice of participating institutions and also those institutions he would be unwilling to attend.

4. The tentative list of candidates will be screened and verified by ascertaining from the individual:

   a. His interest in participating in the program.

   b. His professional status as it may affect his participation.

      1. Willingness to leave present employment.

      2. Eligibility with present employer for leave.

   c. Academic qualifications.

5. A tentative list of nominees with a first and second alternate for each allocation along with the completed application form and credentials will be submitted to Bureau for Educational Personnel Development (BEPD) before April 16, 1971.

6. Nominees, alternates and unsuccessful candidates will be notified simultaneously by the State Director indicating that further action on the nominees and alternates and referral to approved institutions are the responsibility of the Commissioner of Education.

CONFUSED?

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123 W. Taft Drive
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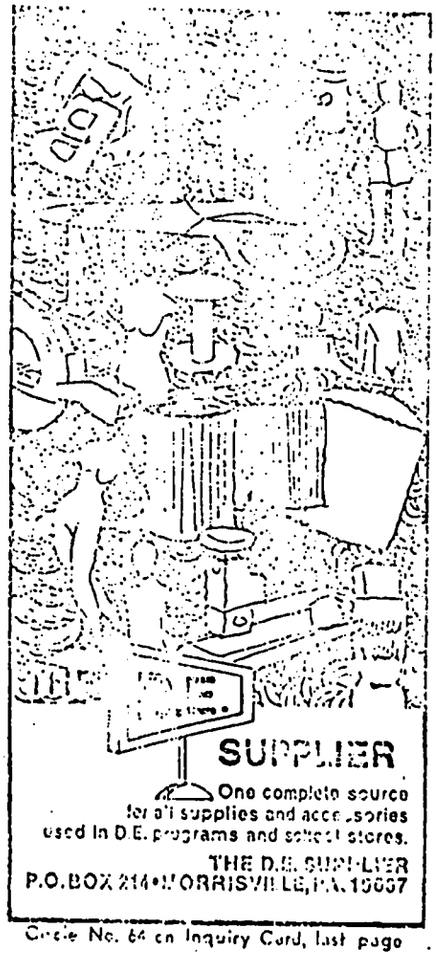

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NEWS ROUNDUP

USOE Announces 56 Teacher Study Awards

Fifty-six vocational teachers in 30 states will be chosen for Leadership Development Awards, enabling them to engage in full-time study leading to a doctoral degree, beginning in the fall of 1971, according to an announcement from the U.S. Office of Education.

Each award will carry a yearly allowance of $3,500 plus $500 for each dependent, exempt from Federal tax, and will be for no less than two or more than three years. If a summer session is involved the allowance is increased by $700 plus $100 per dependent.

Normally, according to the Office of Education announcement, it is assumed the candidate has a master's degree and will be beginning his doctoral program, to be completed within three years including internship and research requirements. Particular emphasis in the awards program is given to teachers interested in efforts to help disadvantaged and handicapped persons, and especially to those with the potential for leadership in such activities. There is no restriction on the basis of race, color or national origin.

While the Federal program contemplates awards to 56 teachers, the Office of Education announcement states that additional awards may be available in some states from sources other than Federal funds.

As a result of awards already made, 20 states have been designated in which no additional awards will be made for the 1971-72 academic year. Those states are Alaska, Arizona, Arkansas, Colorado, Delaware, Hawaii, Idaho, Kansas, Maine, Minnesota, Montana, Nevada, New Hampshire, New Mexico, North Dakota, Oregon, Rhode Island, South Dakota, Utah, Vermont; also the District of Columbia, Guam, and Trust Territories.

In other states, interested applicants should contact the State Director of Vocational Education.

Training To Operate New Equipment Offered

National Technology Center, Inc., Kansas City, Mo., has announced plans to make available to area vocational-technical schools, technical institutes, junior and community colleges, and universities specialized in-structional services (seminars) on one-two week basis. A feature of th integrated training concept provid students and teachers hands-on experience on the latest equipm guided by nationally known experts.

Presently, programs will be offere in the areas of Mini-Illan Drafti Methods and Techniques, N/C Pl ter Design-Drafting Methods, Elec tronics, and Technical Teacher Trai ing. Development services for ne aviation programs will also be avai able by aviation experts.

Carl S. Barber, former USO Technical Education Program office has been appointed executive directo of the Center.

Banks Upgrade Skills Of Undereducated Adults

The American Institute of Banking, New York Chapter, has signed a $660,000 contract with Edu cational Development Laboratories a division of McGraw-Hill, for th training of 480 undereducated adult employed by member banks in coo eration with the U.S. Department o Labor's JOBS program.

EDL McGraw-Hill will provid the teaching staff, curriculum, instructional material and specialized equip ment needed for trainees to develop skills in the basic language arts, mathematics, sciences, and social studies.

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PRIORITIES FOR PREPARATION

OF

TENTATIVE LIST OF CANDIDATES

1. Academic requirements: Master's Degree in appropriate field, GPA, Miller Analogy and GRE Scores, etc.

2. Experience and contribution in Vocational, Technical and Adult Education in Wisconsin.

3. Potential leadership role and contribution to Wisconsin Vocational, Technical and Adult Education.

   a. State Staff
   b. Local Administration
   c. Local Supervision
   d. Other Personnel

4. Special qualifications for institution involved - language, entrance requirements, etc.

PRIORITIES FOR RANKING NOMINEES AND ALTERNATES

1. Official transcript and application form.

2. Two years or more experience in VTAE.

3. Personal interview -

   Commitment to Vocational, Technical and Adult Education
   Education, Philosophy
   Personality, etc.

4. Recommendations.

5. References.

6. Internship opportunity, leaves of absence, sabbatical, etc.

7. Consideration will be given to specific admission requirements of the institution(s) involved.

APPLICATION FOR VOCATIONAL-TECHNICAL LEADERSHIP DEVELOPMENT PROGRAM
DOCTORAL PLAN UNDER EPDA, PART F, 552

Full Legal Name: Last	First	Middle	Maiden	If you are not U.S. citizen, your visa type	Visa type

Address -- Number & Street, R.D., or Post Office Box Number

City State Zip Code

EDUCATION

High School: Name	City	State/Country	Voc. Ed. or Academic	Graduation Month/Year

Name and location (City, State, Zip Code) of college, university, other formal post-high school educational program, listing the most recent first.

Name	City/State/Country	Dates attended from/to	Credits Semester Hours	Completed quarter hours	Type of Degree	Year of Degree

Chief undergraduate college subjects	Credits completed Sem. hrs.	Qtr. hrs.	Chief Graduate college subjects	Credits Completed Sem. hrs.	Qtr. hrs.

Major field of study at highest level of college work

EXPERIENCE

Educational, scientific, business, professional, military: if taught, state subjects

Position	Employer	Location	Inclusive Dates

HONORS, AWARDS, FELLOWSHIPS RECEIVED:

FOREIGN LANGUAGES: Reading, speaking, understanding, writing:

SPECIAL QUALIFICATIONS, SKILLS: (licenses, skills with machines, patents or inventions, publications, public speaking, memberships in professional or scientific societies, etc.

(Use back of page if necessary)

Attach an official transcript of college and other school credits.

Choice of Institution

1st _____

2nd _____

Institutions unwilling to attend

1. _____

2. _____

3. _____

4. _____

Please attach to your application, all undergraduate and graduate transcripts, Miller analogy test scores, GRE scores, or any qualifying graduate examination scores you may have. If you have not taken any qualifying graduate examinations, please state this on the back of your application.

If you are selected as an alternate will you be prepared to accept a leadership development award

☐ On short notice (at the beginning of the academic year)

☐ At the quarter break

☐ At the semester break

APPENDIX H

A LIST OF IDENTIFIED PERSONNEL DEVELOPMENT PROBLEMS

LEADERSHIP DEVELOPMENT

Problem - The rapid expansion of the post high school Vocational, Technical and Adult Education system in Wisconsin, through the development of a statewide system of area vocational districts, has created a serious problem in the development of educational leaders to staff the system at all levels of administrative responsibility. This normal problem of growth is further compounded into a greater difficulty when it is aggravated by the greater social demands, and managerial expertise which is required today to adequately administer an educational enterprise.

An additional concern is the fact that the system traditionally has been occupationally oriented, pursuit of advanced degrees on the part of its leaders has been the exception. There is some legitimate concern that for lack of these qualifications, leadership and policy working positions will be forfeited to educators without specific background, knowledge or interest in vocational education. It is therefore exceedingly urgent that persons concerned in this field qualify themselves to compete for leadership at the policy level.

Objective - To establish an intern program, which will utilize the resources of the State Board of Vocational, Technical and Adult Education, the University of Wisconsin, and local vocational districts to insure an ongoing annual input of two established vocational educators into a doctoral candidate program. The first two interns should be enrolled during the 1971-72 school year.

Problem - To insure that the Wisconsin Vocational system, secondary and post secondary, obtains representative appointments into Doctoral level programs sponsored under Section 552, Part F of Public Law 90-35 (EPDA).

Section 552, Part F of the Educational Professions Development Act, is entitled the Leadership Development Program. This program is designed to increase the supply of qualified high level leadership personnel in vocational and technical education. Universities offering graduate study at the doctoral level in a comprehensive program of vocational education are eligible for grants under this act. Vocational staff members receiving two year grants under this section would assist in alleviating identified leadership problems.

Objective - To insure that a representative number of Wisconsin Vocational Educators annually receive awards sponsored under this section. Representation goals would be based on insuring that minimum allocations provided by the Department of Health, Education and Welfare are filled.

Problem - To establish an advanced graduate study program for Vocational Educators committed to a career as Adult Basic Educators.

Because the Adult Basic Education program is new in conception and implementation, a majority of the professional staff members have

Problem - There exists a need to develop an instructor evaluation program which may be utilized by the various districts to assess staff effectiveness.

Objective - To develop during the 1972-73 school year an instructional evaluation program which may be utilized by VTAE Districts.

Problem - Establish a one week workshop for preparing nursing instructors to meet minimum requirements to teach in ADN programs.

The Wisconsin vocational system is rapidly developing new Associate Degree, Registered Nursing Programs. Additional programs will be developed to meet the needs established by the discontinuance of existing hospital training programs. The technical competence required by staff members to teach in ADN programs is more rigid than that required for LPN programs. There exists a need, now, to upgrade present staff members to meet future needs.

Objective - To support the establishment of a one week workshop during the 1971-72 school year to upgrade nursing instructors to meet ADN requirements. To obtain a minimum of 20 students to attend such a conference.

Problem - A statewide program of cooperation with industries should be established to provide occupational experience for instructors of the vocational system needing this assistance.

Objective - By the 1973-74 school year a statewide program designed to offer occupational experience to vocational educators should be established.

Problem - A cooperative program between districts and industry should be considered to specifically assist general education staff members in determining how their disciplines apply to the world of work.

Objective - By the 1973-74 school year a cooperative program should be established to address itself to the problem described.

entered the program with traditional education preparation which does not reflect an Adult Basic Education background. There is a need for leadership and teacher trainer expertise in this area dealing with disadvantaged clientele.

Objective - To develop an intern fellowship program which will allow one participant to pursue a Doctoral Degree in Adult Education at the University of Wisconsin, for a two year period, and also be employed as a one half time teacher trainer staff member in the State Board of Vocational, Technical and Adult Education. This program would be conducted during the 1971-72 and 1972-73.

Problem - A leadership conference, of one week duration, should be conducted for 40 post secondary staff members.

The development of vocational districts, accompanied by enlarged administrative staffs, has created a state wide influx of administrative staff members who do not necessarily have their philosophical roots grounded in vocational education. District problems which they address themselves to are normally related to their specific position. A conference of administrative personnel or potential administrators, covering the broad aspects of vocational education administrative problems would be of value to this group.

Objective - Conduct a leadership workshop during the 1971-72 school year.

Problem - A leadership development program for 20 secondary system LVEC's should be conducted.

The Vocational Education Act of 1963 provided new directions for vocational education, at the secondary level, in Wisconsin. This new emphasis has developed a statewide group of Local Vocational Education Coordinators (LVEC's) who are the administrators of vocational education at the secondary level.

This new educational development has evidenced the need to: (1) further develop the general and special vocational education competence of LVEC's who occupy newly formed positions of leadership and responsibility; and: (2) provide special staff direction through the Department of Public Instruction to assist teacher educators in developing needed pre-service courses and in providing for a continuing in-service program for all LVEC's in the state.

Objective - Conduct a leadership workshop to serve a select group of 20 LVEC's during the 1971-72 and 1972-73 school years.

Problem - To upgrade additional nurse educators educationally through full time attendance in masters degree level educational programs.

The expansion of LPN programs and the rapid development of ADN programs has created a need for greater numbers of nurse educators with masters level graduate training. The ADN program requires these kinds of staff members as instructors and the health occupations field in general has a greatly increased need for educators with advanced degrees.

Objective - To utilize resources available to the State Board of Vocational,

Technical and Adult Education, the two university systems in Wisconsin, and the local vocational districts, to further the educational stature of two nurse educators in the Wisconsin Vocational system during the 1971-72 school year.

Problem - There exists a need to develop in-service programs to serve the specific unique needs of the District Directors. These should be meaningful, regorous, academic programs to provide administrative expertise not normally provided in their educational and work-experience background.

Objective - To develop a program during the 1971-72 school year, which may be initially implemented for the in-service training of District Directors. To sponsor at least one training program for these administrators.

Problem - There exists a need to develop administrative evaluation programs which serve as the basis to determine the effectiveness of district administrative staff members.

Objective - To develop during the 1972-73 school year an administrative evaluation program which may be utilized by VTAE Districts.

Problem - Exchange of State and/or District personnel with universities should be studied.

Objective - Personnel exchange programs with universities should be undertaken by the 1973-74 school year.

SUPPORTIVE STAFF DEVELOPMENT

Problem - Develop seminar programs for High School guidance counselors which will provide them with meaningful programs in career orientation and career development activities for vocational students.

High school guidance counselors lack background information on the values of vocational education training on both the secondary and post-secondary levels. Seminar programs to direct them to vocational education should be established.

Objective - Establish a pilot program during the 1971-72 school year to direct high school guidance counselors to vocational education.

Problem - Joint appointments of district personnel with CESA Agencies and secondary schools should be studied.

Objective - Personnel exchange programs with CESA Agencies or secondary schools should be undertaken by the VTAE Districts by the 1973-74 school year.

Problem - There exists a need to develop workshops for supportive staff personnel directed towards specific timely issues such as Information Systems Development, fiscal year conversions, and other district/state management relationships.

Objective - To establish a minimum of two workshops during the 1971-72 school year for those supportive staff members affected.

INSTRUCTIONAL STAFF DEVELOPMENT

Problem - To establish a recruitment program which will provide assistance to the individual districts in the recruitment of professional staff members.

Occupationally competent, certified professional staff members for the Wisconsin Vocational-Technical System are difficult to recruit. This is especially true of occupational instructors employed in the health field and for newly developing programs. The advent of area development has greatly increased the demand for new staff members, this same development has apparently lessened the state staff's capability to assist in staff recruitment, this may be due to the fact that no new staff members have been made available to assist the districts in this matter. A formalized and on-going staff recruitment program is required to assist in solving this problem.

Objective - To develop a program of recruitment which may be utilized by the various districts to recruit professional staff members.

Problem - To develop teacher preparation programs to meet the unique needs of vocational education. Some of the teacher preparation problems currently facing vocational education are:

1. To meet the teacher preparation needs for new and fugure emerging occupational programs which will be established in the vocational system and for which there are no teacher preparation programs available.
2. The health occupations field is one of the fastest growing service areas in the Wisconsin vocational system today. There is a need to develop a comprehensive teacher preparation program for the health occupations.
3. There is a need to develop a teacher preparation program for ''tradesmen'' instructors and other instructors who enter the vocational system with less than baccalaureate degree preparation.
4. There is a need to develop teacher preparation programs to prepare general education teachers with a background which stresses the unique needs of vocational education.

There are very few teacher preparation programs available for vocational education in Wisconsin. Studies should be undertaken and action implemented to correct this situation.

Objective - To establish teacher preparation programs to serve the Wisconsin vocational education systems.

Problem - To establish a formal in-service program for the training of a minimum of 500 part time staff members.

The advent of vocational district development has greatly increased the field services obligation of the Wisconsin Vocational system. Presently there are over 4,000 part-time instructors employed as instructors in the vocational system. The vast majority of these staff members have not been provided with the necessary in-service programs which help them identify themselves with vocational education.

There exists a need to establish a formal program of in-service training, throughout the state for part-time staff members. Areas to be covered by mini-courses are:

1. Philosophy and Principles of Vocational Education.
2. Methods and Techniques for Teaching Adults.
3. Methods and Techniques for Serving Persons with Special Needs.
4. Psychology Motivation, characteristics and needs of the adult learner.
5. Counseling and Interviewing Adult Students.
6. Evaluation of Effectiveness and Results of Service.

Objective - To support the Establishment of Formal in-service programs for part-time staff members in 3 VTAE Districts during the 1971-72 school year. Initial programs to train 300.

Problem - To establish an in-service institute for call-staff vocational-technical teachers trainers.

The rapid expansion of vocational districts full-time instructional staff has led to the expansion of collegiate level extension courses to assist these new staff members in obtaining standard certification status. To meet this need extension courses have been established by Stout State University, throughout Wisconsin utilizing selected approved district personnel as instructors.

There exists a need to establish a two week institute for these extension instructors to insure a continuity and cohesiveness of instruction.

Objective - Conduct a two week teacher training workshop during the 1971-72 school year for 20 call staff extension instructors.

Problem - To establish seminar programs for Adult Basic Education instructors, areas requiring emphasis are: evaluation, curriculum development, content area workshops, use of para-professionals in the classroom.

Many Adult Basic Education instructors have background area preparation in elementary instruction. These staff members need upgrading training in professional expertise to work with adults. Specific seminars designed to serve statewide staff members are needed to upgrade these personnel.

Objective - To conduct a seminar program in evaluation for ABE staff members. The seminar will consist of five two day meetings during the 1971-72 school year and will serve a minimum of 20 participants, and will be conducted at the University of Wisconsin.

Problem - To establish workshops to serve general education instructors. One or two week workshops for practioners of Communications, Mathematics, Science, and Social Science subjects should be established.

New emphasis on general education subjects has created a large influx of general education staff members. Generally speaking these staff members received a professional training which was oriented to the needs of secondary level, college bound students.

There exists a need for workshops which will serve the purposes of (1) developing a commonality of objectives for general education instructors, (2) provide these instructors with an insight and a philosophy which will allow them to work with adult students with a wide range of background interests, and abilities and (3) serve as the base for future local in-service programs.

Objective - To conduct a minimum of two general education workshops, for a minimum of 20 students each, during the 1971-72 school year.

Problem - To conduct workshops for Adult Basic Education para-professionals emphasizing classroom effectiveness for these staff members.

A number of para-professional staff members are utilized in the Adult Basic Education program. These staff members are in need of a training program which will assist them in becoming more effective in the classroom.

Objective - To conduct a workshop which will cover two 2-day weekends, and one weeks duration. The workshop will stress classroom effectiveness for para-professionals and will serve a minimum of 20 personnel. The workshop should be conducted during the 1971-72 school year.

Problem - Provide in-service workshop for high school administrators which will provide them with a vocational-technical orientation.

A large number of high school administrators are not familar with the goals established for vocational education; nor are they aware of the potential program value which can be derived from vocational education programs.

Objective - To establish workshops which will provide school administrators with an orientation towards vocational education. This program will be conducted during the 1971-72 school year.

Problem - Develop workshop programs for High School vocational educators which will provide them with a better understanding of the problems of the urban society and how vocational education might relate to those problems.

Objective - To develop workshops for high school educators to solve the identified problem. The workshop should be established by the 1972-73 school year.

Problem - In-service workshop programs must be developed for high school vocational educators which will help them relate their teaching to the needs of handicapped and disadvantaged students.

Objective - To develop workshops for high school vocational educators. The workshop should be established by the 1972-73 school year.

Problem - Develop an in-service program for high school general educators which will direct them to the benefits which students can derive from a vocational program.

Objective - Establish a pilot program during the 1971-72 school year to orient high school guidance counselors to vocational education.

Problem - A program should be established to determine what skills will be needed by future teachers of technical subjects.

Objective - Projects should be established by the 1973-74 school year to address itself to the problem described.

Problem - A program should be established which will identify emerging occupations which will determine future staff needs.

Objective - Projects should be established by the 1973-74 school year to address itself to the problem described.

Problem - A program should be established to determine what skills will be needed by future teachers of general education subjects.

Objective - Projects should be established by the 1973-74 school year to address itself to the problem described.

Problem - There is a need to design training programs that will help teachers in vocational education and academic related areas to identify alternatives to traditional education programs in terms of serving dropouts and potential dropouts.

Objective - Projects should be established by the 1973-74 school year to address itself to the problem described.

Problem - Formal occupational experience programs for staff members requiring this training should be established by two districts.

It has long been recognized that occupational experience is the ''backbone'' of the vocational educating expertise. Many staff members require upgrading through additional occupational experience. It is known that the ''ideal'' situation regarding occupational experience programs, is for the local educational unit to arrange agreement with local industries. To date very little has been done in this area of instructor development.

Attempts should be made to establish pilot programs, of occupational training agreements, in at least two of the eighteen vocational districts.

Objective - Encourage two VTAE districts to develop cooperative exchange programs with local industries during the 1971-72 school year.

Problem - There exists a need for the development of courses by universities to prepare post-secondary teachers in the classroom use of educational technology.

Objective - Universities and colleges, within the State of Wisconsin, should be contacted by the 1972-73 school year to determine which institutions may be in a position to offer these services.

Problem - There exists a need for annual on-going sequential nursing educator workshops to up-grade nursing instructors.

Objective - Work with the U. of Wisconsin-Madison to insure that an annual program of workshops are established to seve the identified need.

Problem - There exists a need to develop an instructor evaluation program which may be utilized by the various districts to assess staff effectiveness.

Objective - To develop during the 1972-73 school year an instructional evaluation program which may be utilized by VTAE Districts.

Problem - Establish a one week workshop for preparing nursing instructors to meet minimum requirements to teach in ADN programs.

The Wisconsin vocational system is rapidly developing new Associate Degree, Registered Nursing Programs. Additional programs will be developed to meet the needs established by the discontinuance of existing hospital training programs. The technical competence required by staff members to teach in ADN programs is more rigid than that required for LPN programs. There exists a need, now, to upgrade present staff members to meet future needs.

Objective - To support the establishment of a one week workshop during the 1971-72 school year to upgrade nursing instructors to meet ADN requirements. To obtain a minimum of 20 students to attend such a conference.

Problem - A statewide program of cooperation with industries should be established to provide occupational experience for instructors of the vocational system needing this assistance.

Objective - By the 1973-74 school year a statewide program designed to offer occupational experience to vocational educators should be established.

Problem - A cooperative program between districts and industry should be considered to specifically assist general education staff members in determining how their disciplines apply to the world of work.

Objective - By the 1973-74 school year a cooperative program should be established to address itself to the problem described.

SECTION 5.0 - VOCATIONAL TEACHER EDUCATION INSTITUTION DIRECTORY

The higher education systems in Wisconsin, providing teacher preparation programs are to be found under three major systems. These are:

1) The University of Wisconsin (UW) system
2) The Wisconsin State University (WSU) system, and
3) The private colleges and universities.

The multiple systems, with a large number of individual institutions, is such that no single university or college has been designated as a vocational education teacher preparation institution.

Institutions developing teachers in Wisconsin are listed below:

University of Wisconsin - Madison Campus

Name and Address

The University of Wisconsin
School of Education
123 Education Building
Madison, Wisconsin 53706

Vocational Teacher Educator

Dr. Merle E. Strong, Educational Administration
Dr. Harland Samson - Distributive Education
Dr. Elizabeth A. Monts, Chairman, Department of Home Economics Education and Extension
Dr. Walter R. Bjoraker - Agriculture Extension Education
Dr. Russel J. Hosler - Office and Business Education

Service Area Offered

Agriculture Education
Distributive Education
Office and Business Education
Home Economics
Administration

Degrees Awarded	BS	MS	EDS	Ph.D.
Agriculture Education	6	3		0
Distributive Education	0	4		2
Office and Business Education	7	5		2
Home Economics	23	5		0
Administration	0	33	5	41

Wisconsin State Universities System

Name and Address

Wisconsin State University - Platteville
Platteville, Wisconsin 53818

Vocational Teacher Educator

Dr. Charles De Nure - Dean, College of Agriculture
George J. Brown, Ed. D. - Dean, College of Industry

Service Areas Offered

Agriculture Education
Industrial Technology

Degrees Awarded	BS	MS
Agricultural Education	15	11
Industrial Arts	32	11

Name and Address

Wisconsin State University - River Falls
River Falls, Wisconsin 54022

Vocational Teacher Educator

Marvin Thompson - Chairman, Department of Agricultural Education

Service Area Offered

Agriculture Education

Degrees Awarded	BS	MS
Agriculture Education	30	9

Name and Address

Wisconsin State University - Stevens Point
Stevens Point, Wisconsin 54881

Vocational Teacher Educator

Dr. Agnes Jones, Dean - School of Home Economics

Service Areas Offered

Home Economics

Degrees Awarded	BS	MS
Home Economics	38	10

Name and Address

Stout State University
Menomonie, Wisconsin

Vocational Teacher Education

J. Anthony Samenfink, Ed. D. - Dean, School of Home Economics
Herbert A. Anderson, Ed. D. - Dean, School of Applied Science and Technology
E. Robert Rudiger, Ed. D. - Chairman, Department of Industrial Teacher Education
Robert W. Cameron, Ed.D - Chairman, Department of Marketing and Distributive Education

Service Area Offered

Vocational Education
Home Economics
Distributive Education
Industrial Arts

Degrees Awarded	BS	MS	EdS
Distributive Education	9	0	
Home Economics	150	13	
Industrial Arts	181	53	1
Vocational Education	—	—	—

Name and Address

Wisconsin State University - Whitewater
Whitewater, Wisconsin 53190

Vocational Teacher Educator

Dr. David Goodman - Chairman, Business Education

Service Area Offered

Business Education

Degrees Awarded	BS	MS
Business Education	57	16

VT 016 615
ANNUAL REPORT. DEPARTMENT OF AGRICULTURAL EDUCATION, 1970-71.

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ABSTRACT - THIS ANNUAL REPORT OF THE DEPARTMENT OF AGRICULTURAL EDUCATION AT THE OHIO STATE UNIVERSITY FOR 1970-71 CONTAINS DESCRIPTIVE AND EVALUATIVE INFORMATION PERTAINING TO: (1) THE UNDERGRADUATE AND GRADUATE PROGRAM, (2) STUDIES COMPLETED OR IN PROGRESS BY STUDENTS AND STAFF, (3) INSERVICE EDUCATION PROGRAMS, (4) INTERNATIONAL EDUCATION, (5) TECHNICAL EDUCATION, (6) CURRICULUM MATERIALS SERVICES, (7) PUBLIC INFORMATION, (8) FACILITIES, (9) ALUMNI ASSOCIATION, (10) LONG RANGE PLANNING ACTIVITIES, AND (11) STAFF SERVICES. SOME HIGHLIGHTS FOR THE YEAR INCLUDE: (1) CURRICULA HAVE BEEN DEVELOPED IN COOPERATION WITH THE OTHER DEPARTMENTS IN THE COLLEGE OF AGRICULTURE FOR THE PURPOSE OF PREPARING PROSPECTIVE TEACHERS IN SPECIALIZED AREAS OF HORTICULTURE, AGRICULTURAL BUSINESS, FOOD PROCESSING, AGRICULTURAL RESOURCES, (2) THE TOTAL UNDERGRADUATE AND GRADUATE STUDENT REGISTRATION IN AGRICULTURAL EDUCATION COURSES WAS 1,173, AND (3) RESEARCH, WHICH WAS ACCOMPLISHED PRIMARILY THROUGH THE PH.D. DEGREE PROGRAMS, CONTRIBUTED TO THE DEVELOPMENT OF SOME OF THE NEWER PROGRAMS, INCLUDING PREVOCATIONAL EDUCATION, JOINT VOCATIONAL SCHOOLS, HANDICAPPED YOUTH, AND COMMUNICATION NETWORKS. AN ANNUAL REPORT FOR 1969-70 IS AVAILABLE AS VT 016 616 IN THIS ISSUE. (SB)

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Annual Report Department of Agricultural Education 1970-71

Issued by

DEPARTMENT OF AGRICULTURAL EDUCATION
COLLEGE OF AGRICULTURE AND HOME ECONOMICS
THE OHIO STATE UNIVERSITY

in cooperation with

DIVISION OF VOCATIONAL EDUCATION
OHIO DEPARTMENT OF EDUCATION

AUGUST, 1970

VT016615

6786

FOREWORD

This is the annual report of the Department of Agricultural Education for 1970-71. The information reported herein serves somewhat as a history and as a basis for evaluation. It was prepared by the staff for the purpose of making further improvement in the Department.

Members of the agricultural education staff recognize and appreciate the significant contribution of other individuals and groups particularly the supervisors of vocational agriculture and other personnel of the State Department of Education, the administration and faculty of the College of Agriculture and Home Economics and the College of Education, personnel of the Cooperative Extension Service, and the Ohio Agricultural Research and Development Center.

Ralph E. Bender, Chairman

6786A

SOME HIGHLIGHTS

--72 students were qualified for certification to teach vocational agriculture; 41 were placed in such positions. Five other students recruited from industry were qualified for teaching through the in-service education program. The supply did not meet the demand even though a vigorous program of recruitment has been conducted.

--The number of declared majors ranged from 164 to 172. This does not include freshmen and sophomores enrolled in University College who will be pursuing an agricultural education program.

--Curricula have been developed in cooperation with the other departments in the College for the purpose of preparing prospective teachers in specialized areas of horticulture, agricultural business, agricultural equipment, food processing, agricultural resources and forestry in addition to production agriculture. New certification standards involving each of these taxonomies are to be in effect as of January 1, 1972.

--Changes within the agricultural education courses included:

A program of two weeks of observation and participation experience as a part of Agricultural Education 200, Introduction to Agricultural Education

Programmed instruction introduced in both Agricultural Education 200 and 230. A study carrel was placed in the Agricultural Library.

Micro-teaching through the use of videotape used extensively in the undergraduate program.

--74 students participated in student teaching that was provided in 31 schools and 25 county extension centers.

--15 undergraduates received agricultural education scholarships.

--The total undergraduate and graduate student registration in agricultural education courses was 1,173.

--235 students from 24 states and 3 foreign countries majoring in agricultural education were enrolled in programs beyond the Bachelor's degree. Much of this enrollment was a program of three-week workshops during the 1970 summer quarter. Off-campus courses were offered during the autumn and spring quarters.

--75 new and returning teachers of vocational agriculture were supervised by the staff in agricultural education.

--19 students from 12 states and 2 foreign countries received the Ph.D. degree. Only 14 students received the Master's degree.

--A graduate seminar on Data Analysis was offered for the first time.

--Research, which was accomplished primarily through the Ph.D. degree programs, contributed to the development of some of the newer programs, including pre-vocational education, joint vocational schools, technical education, handicapped youth, and communication networks and innovative potential of a state division of vocational education.

--A project on "Development and Dissemination of Courses of Study and Instructional Materials for Environmental Science and Protection Programs" was started January 1. The 18-months project is funded by a $34,922.50 grant from the Division of Vocational Education, Ohio Department of Education.

--732 different curriculum material items were made available to Ohio teachers. An additional 109 items, available from commercial sources, were listed in the published catalog which teachers could order directly from the source.

--Plans for the operation of the two-year program in technical agriculture to be established at the OARDC in Wooster are progressing.

--A long-time program for agricultural education focusing on 1975, 1985, and 2000 was completed in cooperation with the total long-time program of the College.

ANNUAL REPORT

1970-1971

The Ohio State University is the only institution for preparing teachers of vocational agriculture and other agricultural education personnel in Ohio. The program for such preparation is conducted by the Department of Agricultural Education in the College of Agriculture and Home Economics.

The Department, which is housed in the Agricultural Administration Building, comprises 14 faculty members (8 are part time) and six secretaries as the agricultural education staff. Thirty-five others with ranks of instructor or higher including emeriti have academic appointments in the Department.

Undergraduate Program

Students enter the program of agricultural education by declaring a major in the Department usually in their junior year upon completing the requirements of the University College. Some transfer from other departments in the College or from other colleges. It is most desirable that students declare their majors in agricultural education early in their college careers so that they can utilize the counsel of Departmental advisers in planning their educational programs and can have extended participation with other majors in the activities of the Agricultural Education Society.

Willard Wolf has continued to serve as coordinating adviser of the Department. He assigns new majors to the staff on the basis of interests of the student and the competency and load of the various staff members. The number of advisees per staff for this past year ranged from 1 to 52. Boucher, Jenkins, and Woodin advised freshmen and sophomores in University College in addition to some agricultural education majors.

Declared Majors in the Department

The undergraduate majors in the Department of Agricultural Education for the past five years are reported in Table 1.

TABLE 1

NUMBER OF DECLARED MAJORS IN AGRICULTURAL EDUCATION

Quarter	1966-67	1967-68	1968-69	1969-70*	1970-71*
Autumn	159	166	191	166	164
Winter	183	171	199	177	165
Spring	183	190	207	181	172

*Freshmen and some sophomores enrolled in University College.

In 1970-71, there was a slight decrease in the number of declared majors in the Department compared to the enrollment in 1968-69. However, when comparing the 1970-71 enrollment with the enrollments of 1966-67, 1967-68, and 1968-69, the decrease is more pronounced. This was influenced by the advent of the University College in 1969-70 in which all beginning students enroll for three quarters and can continue for another three quarters. Even so, the decrease in enrollment in the Department was less than the decrease in the College of Agriculture as evidenced by enrollments of 2,071 in 1968-69, 1,550 in 1969-70, and 1,523 in 1970-71.

The Department of Agricultural Education in 1970-71 ranked fourth in the number of majors in the College and was exceeded by animal science, natural science, and agricultural economics and rural sociology. The popularity of such fields as veterinary medicine, ecology, and agribusiness and the somewhat less prestigeous image of farming and teaching quite likely affected enrollment adversely in the Department of Agricultural Education. The change in the draft laws which no longer gives special exemptions for teachers may also be affecting interest in agricultural education. On the positive side would be the many employment opportunities for students graduating with certificates in positions with salaries ranging upward to $9,200. If graduating seniors in departments other than agricultural education in the next year or so continue to have difficulty in securing favorable employment, there could likely be an increase of interest in teaching and subsequently in agricultural education.

The number of graduates in the College of Agriculture and Home Economics qualifying to teach vocational agriculture during the past five years is shown in Table 2.

TABLE 2

NUMBER QUALIFYING TO TEACH VOCATIONAL AGRICULTURE

Item	1966-67	1967-68	1968-69	1969-70	1970-71
Regular Graduates	54	51	62	58	54
Others	4	5	9	14	18
TOTAL	58	56	71	72	72

It may be noticed that the qualifying graduates for the past three years ranged from 71 to 72 and is slightly higher than for the two years previous. Another item that may be of interest is the number of "Others" qualifying to teach. This may reflect a change in objective of students because of economic conditions. That is, in 1970-71, 17 students either late in their college careers or after completing their Bachelor's degree returned to meet the qualifications for teaching. Whether the increase from four in 1966-67 to 18 in 1970-71 indicates a trend that will be continued in the years to come will be interesting to watch.

Course Enrollment

The enrollment for the courses in the Department of Agricultural Education for 1970-71 and for each of the four years previous is presented in Table 3. The courses from 200 to and including 581, 582, and 583 are for undergraduates. The first two, 200 and 230, prepare students for the courses in experience 380.01, 380.02, and 380.03 and student teaching 581, 582, and 583. Agricultural Education 420 is Program Development in Cooperative Extension. Although advanced undergraduates may enroll in the courses 621 to 693, the number doing so is relatively small.

The overall enrollment in the undergraduate courses is less than it was for the previous years. However, for student teaching 581, 582, and 583, the numbers are similar to those of 1969-70 and appreciably higher than for the other three years. The usual indication of supply of graduates for teaching is the number of completions in student teaching. Accordingly, the supply of graduates is relatively high compared to 1966-67, 1967-68, and 1968-69 and similar to 1969-70.

The outlook for graduates for 1971-72 is somewhat reflected in the number enrolled in 230. From an examination of the enrollments in 230 for the five years, one could conclude that the numbers in 581, 582,

TABLE 3

ENROLLMENT IN AGRICULTURAL EDUCATION COURSES

Course Number	Number Enrolled				
	1966-67	1967-68	1968-69	1969-70	1970-71
200	123	122	134	133	121
230	67	83	72	81	72
380.01	61	51	75	56	35
380.02				1	2
380.03				36	39
420	11	15	12	8	17
581	49	56	64	73	73
582	49	56	64	73	73
583	49	56	64	73	73
621	19	16	13	19	24
622	10	13	3	14	3
631	42	25	33	49	33
640	49	29	20	34	12
641	27	15	17	20	16
642	11	13	13	11	43
684			28	52	56
693	125	103	74	57	71
743			4		11
744	7	3	4	7	4
770	21	18	12	12	11
790	84	70	47	21	
790.12					23
790.23					14
790.25					12
794			8	22	
795	80	44	41	31	
795.01					14
795.02					12
795.03					40
795.04					19
795.05					34
810			17	16	41
811	20	20	25	22	10
812	15	10	12	14	7
823	16	34	36	36	13
885	22	25	28	32	28
886			21	21	18
889		5	2	6	5
995				13	17
999	54	47	61	65	77

and 583 for next year would be a few less than the 73 enrolled in 1970-71. Factors altering the final outcome for next year would be an increase of students transferring to the Department in the last year of college and returnees with Bachelor's degrees needing one, two, or three more quarters of course work to qualify for certification.

Recruitment

Recruitment activities of the Department held a high priority during the year because of the growth of the area vocational centers and the need for teachers with specialized competencies for new programs of vocational agriculture.

The Recruitment Commission of the Ohio Vocational Agricultural Teachers' Association, advised by Woodin, directed a number of activities involving teachers of vocational agriculture. These activities included the recognition of "Teacher of Teachers" through the award of certificates; a recruitment luncheon at the FFA Convention under the direction of Boucher; and a recruitment exhibit which was shown at The Ohio State Fair, the FFA Convention, and the Farm Science Review. The Department provided a special kit on recruitment for all vocational agriculture teachers which included three overhead transparencies, a teaching plan, and selected student materials.

Vocational agriculture teachers were strong supporters of two Career Days sponsored by the College of Agriculture and Home Economics which attracted over 700 prospective students. Youth and Science Day was also well supported by vocational agriculture teachers and extension agents. All recruitment activities of the Department have been closely coordinated with the College of Agriculture and Home Economics.

Arrangements were also made for the distribution of information on careers in agriculture and teaching vocational agriculture to Ohio's 3,000 guidance counselors.

Woodin completed five years as Chairman of the Professional Personnel Recruitment Committee of the Agricultural Education Division of the American Vocational Association. During the past year this committee's major effort was to develop a set of slides for national distribution showing the work of the teacher of vocational agriculture. The committee also distributed posters and folders to teachers and worked with 43 state recruitment commissions.

Student Financial Assistance

Financial assistance to students in agricultural education is available through the College and University as it is to all students attending The Ohio State University. However, there are three special funds supervised by Wolf for majors in the Department:

1. The Lester B. Harner Scholarship provides $1,000 or more from the estate of Lester B. Harner and administered by Ralph Harner, retired teacher of vocational agriculture.

2. The Agricultural Education Scholarship which provides $1,500. This amount is determined by the interest earned from the contributions to The Ohio State University Development Fund specifically designated by donors for the Agricultural Education Scholarships.

3. The Processed Limestone Association which provides $400 to one student each year.

This past year the following undergraduates received departmental scholarships: Gary Cook, Chandlersville; James Burns, Belpre; Albert Penn, Mt. Gilead; Harold Rowles, Bremen; Larry Brubaker, Smithville; Larry Lorentz, Lakeville; James Skeeles, Sullivan; James Cooper, Bucyrus; Michael Titer, Springfield; Tom Roetgerman, Minster; John Varner, Belle Center; Dennis Baker, Bradford; John Fetters, Ironton; Don Bucher, Circleville; and William Massey, Malta.

Curriculum and Course Changes

Changes in the curriculum were made in all course offerings to get ready for some rather drastic changes on January 1, 1972, at which time the new certification standards will go into effect. The proposals for course changes and some renumbering were made and approved by the Committee on Instruction and are now being considered by the Office of Academic Affairs. Curricula are available for each of seven taxonomies including production agriculture, horticulture, food processing, agricultural resources, agricultural equipment, agricultural business, and forestry.

A program of two weeks of observation and participation experience was included as a part of the introductory course, Agricultural Education 200.

Programmed instruction was introduced in both Agricultural Education 200 and in Agricultural Education 230. A carrel is presently available in the Agricultural Library and others will be added as needed. Boucher developed a unit of instruction utilizing slide presentations and a tape recording on international education.

Micro-teaching through the use of videotape is being used extensively in Agricultural Education 200, 230, 581, 582, and 583. The videotape equipment has also found use in many of the other courses.

The staff recognizes that undergraduate courses are designed to assist students to make a successful entry into teaching but that additional professional preparation is required beyond the Bachelor's degree if they are to approach optimal proficiency in the field. Thus, it becomes necessary for a teacher to enroll in post-graduate work,

hopefully in programs earning the Master's or Ph.D. degrees. The incentives for graduate work including increases in salary make advanced degrees almost a necessity if a teacher is to continue in the profession. The staff encourages students to be prepared for entry into the Graduate School. Students whose undergraduate grade point hour is below 2.7 are asked to take the Graduate Record Examination so that they might qualify or otherwise learn what they need to do for admission to the Graduate School. It is assumed that students being accustomed to examinations as undergraduates would do better with the GRE than they would later on. However, in spite of encouragement, some 30 students whose point hour was less than 2.7 did not avail themselves of the exam.

Departmental Field Experience Program

During the past year, 74 students were enrolled for student teaching. They received field experience in 31 cooperating centers in agricultural education and 25 county extension centers. Nine undergraduates completed field experience in employment positions, and 60 undergraduates were placed for field experience programs in Agricultural Education 380.01 and 380.03. Two students were placed for special field experience in extension, Agricultural Education 380.02. The distribution of undergraduate students according to placement in agricultural education and agricultural extension centers is shown in the accompanying Tables 4 and 5.

An innovation in this year's program was that of assigning a student teacher to a cooperating school and to an extension center in the same county. The coordination between the extension agent and the agriculture teacher provided the student teacher with timely and worthwhile experiences throughout the quarter. Another innovation was a cooperating teachers' and agents' meeting at the beginning of the quarter rather than at the end. At this meeting the agents and teachers identified objectives for the quarter and discussed plans for coordinating the total experience program. Final evaluation of the student teacher by the cooperating agent and teacher was performed during a visit by the University personnel.

Sixty-three student teachers were placed in 25 cooperating centers for extension experiences as a part of student teaching. Two seminars were held to prepare the student teachers for the learning experiences in which they should engage during their extension field experience. Topics discussed during the seminars were area extension programs, extension program development, working with agricultural related agencies, socio-economic aspects related to community educational programs, and relevant issues facing extension in the future.

Visitations were made to each of the cooperating extension centers and consultations were held with student teachers and the cooperating agent. Comments by student teachers indicated a very favorable reaction toward the instructional efforts provided by extension faculty serving

TABLE 4

STUDENT TEACHING COOPERATING COUNTIES
AND THE QUARTERS THEY HAD TRAINEES

County	380.02	Number of Trainees, Student Teaching Autumn	Winter	Spring
Allen		2		
Ashland				2
Coshocton				1
Crawford				2
Darke			2	
Erie				1
Fairfield		2	2	2
Fulton		1		
Greene				1
Hancock			2	2
Henry	1	2		
Knox		1	1	2
Licking		1	2	2
Logan				2
Medina				2
Montgomery			2	
Perry			1	
Pickaway	1	2	2	2
Preble			2	
Shelby			2	
Union		2	2	2
Wayne				1
Williams		2		
Wyandot				2
Van Wert		2		
TOTAL	2	17	20	26

as cooperating instructors. They regarded the extension experience as a part of their overall student teaching and one of the contributing factors to their understanding more about the community and the educational programs therein.

During seminars held concurrently with student teaching attention was given to concerns such as planning for instruction, providing for student occupational experience, the organization of youth leadership programs, organizing post-secondary education, techniques of instruction and the evaluation of teaching and student performance.

TABLE 5

COOPERATING SCHOOLS AND THE QUARTERS THEY HAD TRAINEES IN STUDENT TEACHING AND OTHER FIELD EXPERIENCE

	Number of Students				
			Student Teaching		
School	380.01	380.03	Autumn	Winter	Spring
Anna	2			2	
Ansonia				2	
Big Walnut	1	2	1		2
Buckeye Valley	1	1	2	2	
Caldwell		1			
Cloverlead		1			2
Colonel Crawford	1	2			2
Crestview			1		
Eaton				2	
EHOVE		1			1
Elmwood				2	
Fairfield Union		2		1	1
Four County			1		
Garaway		1			2
Greenville	1	1		2	
Hardin Northern					2
Hilliard		1			
Jonathon Alder	2	1		2	2
Kenton	1	1			2
Liberty Union	1			2	
Licking Heights	1		1		
Lincolnview	2		1		
Loudonville	1	1			2
Lynchburg	1				
Madison Plains	2	2	2		2
Marysville	2	2	2		2
New Madison		1			
North Union				1	
Patrick Henry	2		2		
Perkins		1			1
River View		2			1
Southwest Licking	1				
Spencerville	2		2		
Talawanda	2				
Tinora	1	1	2		
Warren		1			
Wauseon		1			
West Liberty Salem		1			
West Tech		1			
Westerville		2		2	2
Wynford					2
Special Assignment			7	1	1
Other		2			
TOTAL	27	33	24	21	29

For the first time through the use of new video equipment, it was possible to have closed circuit TV observation of teaching during a seminar. Student teachers were able to observe and discuss the teaching of a high school class by one of their group, without the intrusion of presence in the classroom.

While much benefit is gained from the seminars for student teachers to meet and discuss common problems, there is prospect that the number of such meetings will need to be reduced because of the wider placement of trainees to provide experience in the subject area in which they desire to be certified to teach. It is anticipated that beginning, mid-term, and closing seminars may be continued.

A Cooperating Teacher Workshop, Agricultural Education 790.20, 3 hours, was conducted June 15-July 2. Thirty-four teachers enrolled in the workshop including three from Michigan.

Student teachers were reimbursed ten cents per mile in attending student teacher seminars and farm-home and occupational program visits. The student teachers also receive mileage from agricultural extension for activities in which they participate during their assignment to a county office. Mileage per student teacher varies to the extent of the distance the trainee travels to the seminar locations. The placement of student teachers in their desired taxonomy area will tend to increase the mileage used in attending seminars.

During the 1970-71 year, 74 student teachers drove a total of 18,906 miles in vocational agriculture. The cost was $1,890.60 with an average of $32.60 per trainee. A total of 9,436 miles were driven in extension activities at a cost of $943.60 and an average of $22.47 per trainee. During the past eight years 382 student teachers have averaged about $31.73 in vocational agriculture and about $21.25 in extension.

Agricultural Education Society

The undergraduate majors who are members of the Agricultural Education Society plan and conduct with their adviser, Willard Wolf, a program of activities to develop professional competence through experiences that are not generally provided in course work. The program emphasizes the development of competence in leadership by member participation in such roles whether in meetings of the society, committee functions, or in cooperative undertakings with other students in the University and College.

Members engage in forums and symposiums, conduct social and educational meetings, plan presentations, prepare exhibits, and maintain a decorum and appearance befitting the profession.

The society meets regularly on the second and fourth Tuesdays of the month with meetings starting at 7:00 p.m. and ending about 8:30 p.m. Included is a business session, an educational program, and time for socializing and refreshments.

The society sponsors a steak fry, a faculty-student get together, a Christmas party with students at the Columbus State Institute (school for mentally retarded) during the autumn quarter; a banquet, exchange with an Agricultural Education Society (Cornell University in 1971) during the winter quarter; and a recruitment luncheon, a lunchstand to feed 2,000 plus FFA members attending the State Judging Contests, and a leadership training weekend at Camp Muskingum during the spring quarter.

The society members prepare a printed yearly program of activities including roster of officers, officer and faculty editorials, calendar of events, monthly activities, duties and responsibilities of officers, goals with ways and means for eight major activities, budget, and constitution. A scrapbook is maintained and kept in the departmental reception room. The society prepares a quarterly publication "The Townshend Educator" featuring major articles associated with the profession, current issues and problems, timely announcements, reports of society activities, and personal items.

Conflicts with class sessions, work schedules, and other curricular and extra-curricular activities affect member participation in the program of the society. However, compared with other departmental organizations, the AES is recognized as doing well. The attendance at the regular meetings this past year ranged from 40 to 120. The banquet and steak fry each attracted in excess of 200 including 100 members. The bi-monthly executive meetings held on the first and third Tuesday of each month usually have 15 or more in attendance.

Students in agricultural education regard the activities of the society as worthwhile. They conduct their activities in a professional manner. Their performance and participation indicate their regard for this part of their professional pre-service education.

Placement

During the year 72 students were certified to teach vocational agriculture. Of this number, 54 were regularly qualified with the remainder being graduates of other departments or returning for special training. Of the 72 certified, 41 were placed as teachers of vocational agriculture, three in Extension, and two continued in their educational pursuits through the Graduate School. As may be noted in Table 6, 26 were classified in other related fields in education and agriculture or inducted into the service.

TABLE 6

NUMBER OF GRADUATES TRAINED AND PLACED
IN VARIOUS OCCUPATIONS FOR A SELECT NUMBER OF YEARS

Year	Number of Men Trained	Number Placed			
		Vocational Agriculture	Extension	Graduate School	Other, Inc. Armed Services
1970-71	72	41	3	2	26
1969-70	72	39	3	4	26
1968-69	71	45	2	4	20
1967-68	56	37	0	4	15
1966-67	58	35	5	4	14
1965-66	56	36	1	3	16
1964-65	40	33	1	2	5
1963-64	37	24	1	1	8
1962-63	34	21	2	2	9
1961-62	44	22	3	5	14
1960-61	54	24	11	4	15
1959-60	46	20	6	2	18
1958-59	69	35	4	10	20
1957-58	55	30	9	4	12
1956-57	54	25	4	5	20
1955-56	42	32	5	2	3
1954-55	29	20	1	0	8
1953-54	29	15	3	1	10
1952-53	32	18	2	3	9
1951-52	46	35	2	2	7

Graduate Program

The importance of the graduate program in the Department to the in-service education of teachers is indicated by the fact that about one of every four teachers in the state was enrolled during the past year. A total of 126 Ohio teachers were enrolled in at least one course or workshop during the year. In addition, 41 persons in extension and 68 others were enrolled, making a total of 235 different individuals who participated in the graduate program. Students from 24 states and 3 foreign countries were enrolled in the graduate program in addition to those from Ohio.

During the year 14 Master's degrees and 19 Ph.D. degrees were awarded. The number of Ph.D. degrees set a new record for the Department, while the number of Master's degrees was low due in part to the 2.7 admission requirement of the Graduate School.

TABLE 7

ENROLLMENT OF OHIO TEACHERS OF VOCATIONAL AGRICULTURE AND OTHERS MAJORING IN AGRICULTURAL EDUCATION IN PROGRAMS BEYOND THE B.SC. DEGREE

Year	Enrollment			
	Ohio Teachers	Extension Personnel	Others	Total
1970-71	126	41	68	235
1969-70	104	24	55	183
1968-69	89	18	63	170
1967-68	78	28	53	159
1966-67	92	14	49	155
1965-66	99	29	38	166
1964-65	101	28	36	165
1963-64	107	34	40	181
1962-63	91	38	39	168
1961-62	96	37	36	169
1960-61	102	40	28	170
1959-60	101	45	26	172
1958-59	100	0	88	188
1957-58	102	0	70	172
1956-57	101	0	34	135
1955-56	121	0	27	148
1954-55	93	0	34	127
1953-54	114	0	27	141
1952-53	93	0	27	120
1951-52	80	0	29	109
1950-51	76	0	36	106
1949-50	88	0	14	102
1948-49	76	0	16	92
1947-48	58	0	11	69

During the academic year the departmental offerings on campus included Agricultural Education 641, 810, and 811 in the autumn quarter; 631, 795.02, and 885 during the winter quarter; and 640, 642, 770, and 886 during the spring quarter. During each quarter special problems, research and seminars were offered. Separate sections in 811 and 823 were conducted for extension personnel. Off-campus offerings during the year included Agricultural Education 744, Practicum in Teaching Farm Business Planning, and Agricultural Education 622, Continuing Education in Agriculture, and Agricultural Education 642, Youth Organizations, during the autumn quarter. The spring quarter offering was limited to 770, Evaluation in Agricultural Education.

An increased number of teachers participated in this year's workshops which were conducted at the beginning of the summer quarter. Areas of special courses included farm business planning and analysis, agricultural business, agronomy, animal science, environmental protection, poultry, and horticulture. Internships were conducted in agricultural business, horticulture, and agricultural mechanics.

The graduate lecture series in agricultural education was especially interesting this year due to the variety of backgrounds and interests of the three speakers. About 50 graduate students and faculty attended each of these lectures. The speakers were as follows:

Dr. David Young, Director . . . . . May 13
Educational Personnel Development Center
Division of Education
University of Maryland
College Park, Maryland

Dr. James Bayton, Chairman . . . . . April 13
Department of Psychology
Howard University
Washington, D. C.

Dr. Philip Teske . . . . . Feb. 11
Research Specialist
Division of Vocational Education
U. S. Office of Education
Washington, D. C.

Graduate students in agricultural education assumed responsibility for organizing and conducting a series of "brown bagger" luncheons. The program at these luncheons featured the particular state or country represented by the graduate student including some emphasis upon the programs of agricultural education. In addition to the brown baggers of the Department, graduate students and faculty of the Department participated generally in the brown bagger program sponsored by the faculty and graduate students at the Center for Vocational and Technical Education where speakers from the various disciplines of the University made presentations followed with discussion. These programs provided a medium through which graduate students and faculty members became better acquainted as well as adding knowledge not typically included in course work.

Research

A graduate seminar on Data Analysis (Agricultural Education 795.05, Research and Evaluation) was offered for the first time during the autumn quarter, 1970. The seminar, designed for Ph.D. candidates who have completed at least one year of graduate study, deals with the application and interpretation of parametric and nonparametric statistics to research in vocational-technical and extension education. Warmbrod directed the seminar.

Bender directs the continuing study of students and graduates of post-secondary technical agriculture programs in Ohio. Maynard Iverson served as the graduate research associate for the project during 1970-71. The project is funded by the Ohio Agricultural Research and Development Center. The following report of the project was issued during the year:

Iverson, Maynard J. and Ralph E. Bender. "Agricultural Technician Education in Ohio 1969-70."

The Department's Six-Year Academic Plan and the Long Range Plan of the Department (Life 2000) call for an expanded research and development program in agricultural education. Specifically, the long range plans call for expanded efforts and increased support for the Department's research and development program from the Ohio Agricultural Research and Development Center. During 1970-71 an initial effort toward implementing these plans was the submission of a proposal on "Employment Demand and Training Needs in Nonfarm Agribusiness" to OARDC for funding. The proposed research was designed to provide data basic to current and long range planning of educational programs for the agribusiness industry and to develop models for collecting and disseminating information about employment demand in agribusiness. The project was not funded.

A project on "Development and Dissemination of Courses of Study and Instructional Materials for Environmental Science and Protection Programs" was begun in January 1971. The eighteen-months project is funded by a $34,922.50 grant from the Division of Vocational Education, Ohio Department of Education. Ridenour serves as project director. Warmbrod directs the research phase of the project which is concerned with identifying and estimating present and emerging occupations in environmental protection and determining the competencies required for entry into these occupations. John Hillison is a graduate research associate assigned to the project. Two additional graduate research associates will be appointed in July 1971.

Four Ph.D. candidates in the Department received funds for conducting dissertation research during 1970-71. Richard Welton's study, "Relationship of Student Characteristics and Program Policies to Participation in FFA," was partially financed by the Board of Directors of the National FFA Organization. University College, The Ohio State University, financed Alan Sheppard's study of "Educational-Vocational Decision and Indecision in College Freshmen." Earl Russell received a grant from the U. S. Office of Education through the Center for Vocational and Technical Education for his research on "Development of an Instrument to Measure the Change Orientation of Vocational Teachers." The Cooperative Extension Service funded John Oren's research on "An Appraisal by Clientele of the Ohio Cooperative Extension Service."

During 1970-71, the following publications were issued in the Department's research series in agricultural education.

Budke, Wesley E. and Ralph J. Woodin. "Guidelines for the Development of Prevocational Education Programs at the Junior High School Level." October 1970.

Iverson, Maynard J. and Ralph E. Bender. "Agricultural Technician Education in Ohio 1969-70." February 1971.

Lewis, Wiley B. and Ralph J. Woodin. "Agricultural Mechanics as Performed on Ohio Farms in Comparison with Offerings in Vocational Agriculture." August 1970.

Wilson and two graduate students (Charles Urbanic and Maynard Iverson) attended the Central States Regional Research Conference in Agricultural Education, Alexandria, Minnesota, August 1970.

Faculty members in the Department directed 19 Ph.D. dissertations which were completed in 1970-71. Faculty members are currently supervising 32 Ph.D. dissertations that are in progress.

Studies Completed

Ph.D. Dissertations

Archer, Beverly B. "Agricultural Work Experience Programs for Academically Handicapped Youth in Secondary Schools." (Warmbrod)

Blanton, Lloyd H. "Communication Networks and Innovative Potential of a State Division of Vocational Education." (Bender)

Budke, Wesley E. "Guidelines for the Development of Prevocational Education at the Junior High School Level." (Woodin)

Edsall, Richard H. "Vocational Agriculture Programs in Joint Vocational Schools, Participating Local Schools, and Non-Participating Local Schools." (Warmbrod)

Efionayi, Joseph A. B. "The Newsletter as a Communication Medium in Teaching Low-Income Homemakers." (Cunningham)

El-Zoobi, Ahmad M. "Agricultural Extension and Rural Development in Syria 1955-1968." (Cunningham)

Feck, Vincent J. "Characteristics and Professional Competency Needs of Teachers of Agriculture in Two-Year Technical Institutes or Colleges in the United States." (Bender)

Garrison, Dan D. "Guidance and Counseling Activities Pertaining to Post-High School Educational and Occupational Opportunities in Agriculture." (Bender)

Iverson, Maynard J. "Guidelines for the Development of Student Organizations Associated with Agricultural Programs at Two-Year, Post-Secondary Educational Institutions in the United States." (Bender)

Leidheiser, Paul C. "An Evaluation of Supervisory Task Importance and Performance in the Ohio Cooperative Extension Service." (McCormick)

Long, Gilbert A. "Personnel Responsible for Decisions Influencing Vocational Education in Local Schools." (Wilson)

Mulvana, John B. "Advisory Committees for Agricultural Education in the Public Secondary Schools of Ohio." (Wolf)

Oaklief, Charles R. "Junior College Community Service Personnels' Cognition of the Cooperative Extension Service." (McCormick)

Oren, Jr., John W. "An Appraisal by Clientele of the Ohio Cooperative Extension Service." (Cunningham)

Schmitt, Henry E. "A Model for Preparing Secondary Teachers of Agriculture from Minority Populations." (Bender)

Sheppard, Nathaniel. "Educational-Vocational Decision and Indecision in College Freshmen." (Warmbrod)

Urbanic, Charles E. "Effectiveness of the Use of a Student Reference in Teaching Ornamental Horticulture to High School Students." (Woodin)

Welton, Richard F. "Relationship of Student Characteristics and Program Policies to Participation in FFA." (Bender)

Young, Richard E. "The Effectiveness of a Correspondence Course for New 4-H Leaders." (Cunningham)

Research Completed by Staff

Bender, Ralph E. "The 1970 Occupations of Recent Graduates of Vocational Agriculture in Ohio." January 1971.

Boucher, Leon W. "A Survey of Teacher Preparation Programs in Agricultural Education in the United States, 1970-71."

Iverson, Maynard J. "1970-71 Directory of Post-Secondary Education in Agricultural and Natural Resource Occupations," Department of Agricultural Education, November 1970.

Starling, John T. "Farm Business Analysis Report of 187 Farms from Programs Conducted by Teachers of Vocational Agriculture."

Woodin, Ralph J. "Supply and Demand for Teachers of Vocational Agriculture in 1970." Staff study.

Woodin, Ralph J. "An Evaluation of the 1970 Annual Conference of Teachers of Vocational Agriculture in Ohio." Staff study.

Studies in Progress

Ph.D. Dissertations

Adams, Richard N. "The Development of a Program of Continuing Education at the Clark County Technical Institute." (Bender)

Beasley, Gary. "The Development and Evaluation of an Instructional Package for Preparing Potential Users of the Educational Resources Information Center (ERIC) System." (Taylor)

Bloss, Norman F. "The Influence of Agricultural Education on Vocational Maturity." (Warmbrod)

Breedlove, Frank. "Responsibilities of Supervisors of Agricultural Programs in Area Vocational Schools." (Wilson)

Byers, Charles. "Relationship of Selected Factors to the Extent of Student Supervision by Teachers of Agriculture." (Bender)

Cobb, Nimrod. "In-Service Education Activities of Teachers of Vocational Agriculture in Alabama." (Woodin)

DeYoung, Larry. "Videotape as a Medium of Instruction in the Ohio Cooperative Extension Service." (Cunningham)

Hillison, John. "Manpower Needs in Environmental Management." (Warmbrod)

Hutchings, Ronald P. "Evaluation of Methods for Selection of Beef Animals for Feedlots." (Bender)

Kunzru, Omkar. "Perceptions of the Role of the Area Extension Agent in Program Development." (Cunningham)

Lindamood, John. "Continuing Education Programs for the Dairy Food Industry." (McCormick)

Lumpkin, Oliver R. "Some Special Needs of Disadvantaged Rural Youth in Southern High Schools." (Bender)

McCutcheon, J. Randall. "Evaluating Alternative Forms of Disseminating Research Reports." (Taylor)

Miller, James R. "A Theoretical Model to Improve the Extension Outreach of The Ohio State University." (McCormick)

Morgan, John P. "Benefits and Costs of an Adult Education Program for Farmers." (Woodin)

Myers, Donald. "The Effectiveness of Traditional Lecture and Telelecture in Teaching Adults." (McCormick)

Parkhurst, Carmen. "The Information Sources and Educational Needs of Commercial Poultrymen in Ohio." (Cunningham)

Pittman, Joe. "The Application of Motivational Theory to Extension Personnel." (Cunningham)

Rapp, Gene. "Perceptions of the Role of an Agricultural Technician." (Bender)

Rathore, Omkar S. "Adoption of Extension Innovations Among State Extension Specialists and Area Extension Agents in Ohio Cooperative Extension Service." (Cunningham)

Reeves, Wade H. "Contribution of the Church to Programs of Agricultural Education in Less Developed Countries." (Bender)

Reid, Richard A. "Evaluation Activities of State Advisory Councils for Vocational-Technical Education." (Woodin)

Roediger, Roger. "Analysis of Teacher Competencies in Using Multi-Media for Individualized Instruction." (Woodin)

Russell, Earl B. "Development of an Instrument to Measure the Change Orientation of Vocational Teachers." (Warmbrod)

Sanders, Emerson. "The Motivations of Present and Former 4-H Club Leaders." (Cunningham)

Soobitsky, Joel. "Perceived Training Needs of Urban Cooperative Extension Agents Working with Disadvantaged Audiences." (Cunningham)

Sponaugle, Adam J. "Attitudes and Perceptions of Guidance Counselors Toward Vocational Education." (Warmbrod)

Steele, Doris H. "Opinion Leadership in Family Living Among Low Income Homemakers in the Expanded Nutrition Program in Ohio." (Cunningham)

Thaxton, Louis. "Projections of Vocational Education for the Trust Territory." (Wilson)

Vice, Billy. "Variables Related to the Offering of Continuing Education in Agriculture." (Bender)

Wotowiec, Peter. "In-Service Education Needs of Ohio Teachers of Vocational Horticulture." (Woodin)

Zurbrick, Phillip R. "Effectiveness of a Teacher Reference Utilizing an Inductive Mode of Teaching and Principles Approach in Teaching High School Vocational Agriculture Students." (Bender)

Staff Research

Bender, Ralph E. "Occupations of Recent Graduates of Vocational Agriculture in Ohio."

Bender, Ralph E. "Continuation Study of Agricultural Technician Education in Ohio" (with James Cummins).

Cunningham, Clarence J. "Validation of Personnel Selection Instruments in the Cooperative Extension Service."

Starling, John T. "A Determination of the Number of Opportunities for Vocational Agriculture Graduates to Enter Farming."

Woodin, Ralph J. "Recruitment Activities of Ohio Teachers of Agriculture." Staff study.

Woodin, Ralph J. "Supply and Demand for Teachers of Vocational Agriculture in 1971." Staff study.

In-Service Education Program for New Teachers

An in-service educational program for 75 new teachers of vocational agriculture was conducted. The purpose of the program was to further develop the competencies needed by teachers to plan, organize, conduct, and evaluate their total program of vocational agriculture in local communities.

The program consisted of approximately 70 clock hours of workshops, small group seminars, and individual consultation which was planned and conducted by Guiler and Starling. A three-day workshop was held in July to assist new teachers who held a four-year provisional certificate in planning their individual curriculums and the total vocational agriculture program for the high school in which they were employed as a first-year teacher. A five-day workshop was held in August for those teachers who held a one-year teaching certificate. This time was largely devoted to policies and procedures acceptable in local schools, methods of teaching, and planning a vocational agriculture curriculum, classroom techniques, reports and report forms, occupational experience programs, FFA program of activities, continuing education and a multitude of other responsibilities that are charged to the new teacher of vocational agriculture. Every teacher had the experience of giving a demonstration on videotape and evaluated by teachers observing.

The following is a brief outline of the total in-service activity and purpose conducted for all new teachers during the year.

The New Teacher Program Schedule of
In-Service Training Activities, 1970-71

In order to provide all new teachers of vocational agriculture with adequate and effective in-service training, the following schedule was conducted.

Date	Activity and Purpose	Location
July 8	Orientation program and dinner Outline total in-service program	Raney Commons, OSU campus 5:00-7:30 p.m.
July 8-10	Annual Teachers' Conference In-Service - professional	Agr. Administration Building Auditorium
July 28- 29-30	Three-day workshop for all new teachers with four-year provisional certificate - curriculum planning	Agr. Administration Building Auditorium
August 18-22	Five-day workshop for all new teachers with special 1-year teaching certificates - curriculum and methods	Agr. Administration Building Auditorium
September	One-half day seminar Youth organization	In geographical area of your school
October	Individual visit--classroom problems and adult education	In local school
November	One-half day seminar--teaching occupational experiences	In geographical area of your school
December 28-29	Two-day workshop--curriculum adjustments and total program	Agr. Administration Building Auditorium
January	Individual visit--occupational experience records and agr. mechanics	In local school
February	One-half day seminar--agricultural mechanics and FFA	In geographical area
March	Individual visit--teaching methods and individual evaluation	In local school
April	Individual visit--inventories, individual evaluation	In local school
May	One-half day seminar--year end closing school year--evaluation	In geographical area
May	Evaluation and summary of new teachers' performance by school administrators	By mail

TABLE 8

NUMBER AND STATUS OF NEW AND RETURNING TEACHERS OF VOCATIONAL AGRICULTURE EMPLOYED IN OHIO HIGH SCHOOLS DURING PAST FIVE YEARS

Status	Sept. 1 1966	Sept. 1 1967	Sept. 1 1968	Sept. 1 1969	Sept. 1 1970
New Ohio Teachers Employed	33	38	34	56	45
Returning Ohio Teachers	4	2	4	2	1
Out-of-State Teachers	1	1	4	2	3
Ohio Trainees on Special Placement	0	7	17	21	8
New Ohio Teachers Employed After September 1, 1969	8	2	3	3	8*
TOTAL	46	50	63	84	75

*Three teachers were replacements for those drafted in armed services.

A two-day seminar was conducted December 28-29 for all new teachers at The Ohio State University in the Agricultural Administration Auditorium. The purpose of this workshop was to evaluate progress, improve plans for curriculum, identify problems, and share experiences. In addition, each new teacher was observed three or more times during the school year by teacher educators and supervisors.

Vocational agriculture has rapidly become more diversified and not all production agriculture as in the past. This is indicated by the number of new teachers employed in specialized areas of vocational agriculture. Eight teachers were on special placement (temporary certificate) due to the shortage of fully trained personnel for special fields such as agricultural equipment and mechanics, horticulture, conservation, and agricultural business.

A role perception-expectation study initiated in 1965 by Guiler was continued through 1971 involving all new and returning teachers to help the Department of Agricultural Education assess the relative effectiveness of the internship program afforded teachers during their first year of employment.

TABLE 9

NUMBER OF NEW AND RETURNING OHIO TEACHERS
AS SHOWN BY AREA OF SPECIALIZATION DURING PAST TWO YEARS
1969-71 SCHOOL YEARS

Area of Specialization	Number of New Teachers 1969-70	1970-71
Production Agriculture 0100	45	47
Agricultural Business and Supplies 0200	2	3
Agricultural-Industrial Equipment and Service 0300	6	7
Ornamental Horticulture 0500	15	12
Farm Business Planning and Analysis 9900	3	0
Agricultural Resources	0	3
Agricultural Work Experience (AWE) 9900	12	3
TOTAL	84	75

An evaluation of new and returning teachers of vocational agriculture is made by school administrators at mid-year and at the end of the school year. These data are used for basis of individual teacher counseling and to further enhance the total in-service education program.

In-Service Education for All Teachers of Vocational Agriculture

The in-service education program which is a cooperative effort between the supervisory staff, State Department of Education, and the teacher education staff was designed to further develop competency in teaching vocational agriculture. This program during the past year was coordinated by Welch Barnett and Gilbert Guiler.

During July and August of 1970, teachers participated in ten individual non-credit, in-service education workshops held at various locations throughout the state. The area of technical agriculture presented and the number of teachers enrolled were as follows:

Summer Workshops
Non-Credit, In-Service
July 1, 1970 - June 30, 1971

Title	Attendance	Dates	Location
Soil and Water Management	28	July 13-16, 1970	EHOVE JVS
Field Operation of Combines	42	July 13, 1970	Waterford
Farm Appraisal	41	July 21-22, 1970	McConnelsville
Animal Nutrition	16	July 20-23, 1970	Wapakoneta
Livestock Breeding	27	July 20-23, 1970	Four County JVS
Teaching Methods in Farm Mechanics	36	July 20-23, 1970	Shelby
Confinement Housing of Livestock	32	July 28-29, 1970	Bowling Green
Field Operation of Haying Equipment	38	July 28, 1970	Waterford
Farm Appraisal	34	July 28-29, 1970	Wapakoneta
Turf Management	32	August 17-19, 1970	Marysville

During the period June 15-July 2, 1971, there were 169 teachers enrolled in 15 different professional courses, technical courses, and workshops as follows:

Course Number	Course Title	Enrollment	Instructor
Agr. Edu. 621	Curriculum Planning	35	Guiler
Agr. Edu. 631	Methods of Teaching Vo-Ag	29	Bender
Agr. Edu. 684.40	Horticulture, Intern	5	Woodin, Davis
Agr. Edu. 684.40	Agribusiness, Intern	3	Watkins, Wolf
Agr. Edu. 790.12	Agribusiness, 1st year	25	Watkins, Wolf
Agr. Edu. 790.15	Agr. Equip. & Mech., Intern	5	Johnson, Hummel
Agr. Edu. 790.16	Conservation Education	21	Guiler, Barnett
Agr. Edu. 790.20	Cooperating Teachers	34	Wilson, Boucher
Agr. Edu. 790.23	Continuing Education, FBPA	10	Starling
Agr. Edu. 794	Agribusiness, 2nd year	11	Ridenour
Agr. Econ. 594	Farm Business Management	11	Shaudys
Agr. Eng. 550	Agricultural Engineering	10	Taiganides, White
Agronomy 594	Weed Control and Plant Identification	39	Herr, Stroube, Bendixen
Animal Sci. 594	Current Problems in Animal Science	41	Cline, Cahill
Poult. Sci. 594	Current Problems in Poultry	3	Barr

The Annual Conference for Teachers of Vocational Agriculture was held July 8, 9, and 10. It was conducted primarily by the State Department of Education in cooperation with the Ohio Vocational Agricultural Teachers' Association.

During the year teacher education staff members assisted in planning and conducting the teachers' conference, the State Young Farmer Conference, the Ohio FFA Convention, the Annual Vocational Agriculture State Judging Contests, the Ohio Junior Fair Program, and the In-Service Education Program for Teachers of Vocational Agriculture.

International Education

The Department continued to support programs of international education in the University. Leon Boucher serves as coordinator of the Department's international program and represents the Department on the College International Task Force which identified long range objectives. He also represents the Department on the International Agricultural Advisory Committee for the College of Agriculture and Home Economics, Ohio Agricultural Research and Development Center, and the Ohio Cooperative Extension Service.

A special task force was established during the year to negotiate a contract with the Peace Corps for an agricultural internship program for India participants; the Department is participating in this task force area.

Ahmad M. El-Zoobi of Syria received his Ph.D. degree in agricultural education. His dissertation concerned "Agricultural Extension and Rural Development in Syria 1955-1968." Joseph A. B. Efionayi of Nigeria also received his Ph.D. degree with the study of "The Newsletter as a Communication Medium in Teaching Low-Income Homemakers."

Other foreign nationals continuing studies in agricultural education were Omkar Rathore, Omkar Kunzru, and (Miss) Sumita Roy of India. Dr. Y. P. Singh of India pursued post-doctoral studies in agricultural education, and Joaquim Engler of Brazil included an area of emphasis in agricultural education.

Arthur Deisher, a major in agricultural education, was selected for the International Farm Youth Exchange Program. He will be participating in England. Several of the agricultural education graduates and their wives are serving in the Peace Corps in Viet Nam, India, Samoa, and South America.

A number of foreign visitors and missionaries visited the Department this year. Office conferences were held for some, while visits to departments of vocational agriculture in public secondary schools were arranged for others.

Staff members were asked to review teacher preparation programs in selected foreign countries. A continual communication process is in effect between the foreign national graduates in agricultural education and the Department staff.

Technical Education and the Agricultural Technical Institute

Developmental work connected with the establishment of the Agricultural Technical Institute at Wooster continued during 1970-71. Jerry Halterman, Director of the Institute, has had as a continuing assignment to direct this project. Progress was made in a number of major areas including physical plant, site, dormitory, academic program, educational services and student relations program, institutional service program, and administrative and public information programs.

Physical Plant and Related Facilities

Building Facilities--Starting with schematic plans of the various areas specified in the program of requirements, the project architect, the University architect and staff, and representatives of the using agency have, during the year, completed the design and developmental work necessary for contractors to start construction. In turn, preliminary, basic, and final (working) drawings were prepared and accepted. Included in the plans were facilities for classrooms, teaching laboratories, faculty and administrative offices, library-learning resources center, student services areas, and mechanical services. Bids were opened on May 19, 1971 and contracts awarded successful bidders to initiate construction during the month of June.

Utility Services--Arrangements were completed for sanitary sewer and water services to be provided to the Institute through a cooperative project with the city of Wooster and The Ohio State University participating. Gas, electrical and telephone services are to be provided by public utility firms offering services in the area in which the Institute is located.

Fixed Equipment--Specifications for fixed equipment were detailed at the time the working drawings were prepared. A bid of $145,000 to furnish this equipment was accepted.

Site--A site plan anticipating a long range development of the central campus was prepared under the direction of Mr. Jean Hansford in the Office of Campus Planning.

Dormitories--The need for two student dormitories was projected and their location recommended on the long range site development plan.

Academic Program

Award of Associate Degree--Request was made during the year of a number of groups for approval by the College of Agriculture and Home Economics to award an associate of applied science degree upon graduates completing the prescribed course of study at the Institute. In sequence, the groups granting their approval of the request included: The Council on Academic Affairs, The Faculty Council, The Ohio State University Board of Trustees, and The Ohio Board of Regents.

Curriculums--A number of consultants and graduate research associates developed suggested courses to include in each of several technologies to be offered at the Institute. Special focus was made upon extended course outlines for courses in the following categories: basic studies; basic biological and physical sciences; mathematics; agricultural business; and technical courses. Much work remains to be done in each of these areas.

Library-Learning Resources Center Program--A plan for the continued development and operation of the program for the library-learning resources center at the Institute was agreed upon by representatives of the College and The Ohio State University Libraries.

Educational Services and Student Relations Program

Educational Services--Tentative guidelines, standards and procedures for student recruitment, selection, admission, orientation, registration, academic procedures, probation, retention and records have been drafted for further study and refinement.

Student Personnel Services--A program to provide students with services related to testing, counseling, guidance, placement and follow-up, health and medical, residence, work study and financial aids and scholarships has been prepared in rough draft.

Student Relations--Standards, policies, and procedures for the administration and coordination of the student activities and relations program (extra curricular activities, student government, student organizations, citizenship) have been proposed.

Administrative

Financial--Guidelines and proposals pertaining to financial aspects of the Institute have been treated in the following documents prepared during the year:

1. Six-Year Academic Plan
2. Capital Outlay Plan for Phase II
3. Operational Budget, 1971-72
4. Operational Budget, 1972-73
5. Operational Budget, 1973-74

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Personnel--Personnel needs have been projected for each of the next three annual fiscal periods. Included are appointments anticipated for all faculty and staff positions.

Official Plan--An "Official Plan" of the Institute was prepared and forwarded to Vice President Robinson's office for submission to the Ohio Board of Regents as per the requirement of this latter body.

Curriculum Materials Service

The Ohio Agricultural Curriculum Materials Service is a cooperative activity sponsored by the Agricultural Education Service, State Department of Education, and the Department of Agricultural Education. The purpose of the Service is the improvement of instruction in local agricultural education programs. The activities of the Service are under the direction of Harlan Ridenour.

An advisory group composed of local agricultural education teachers and representatives of the supervisory and teacher education staffs served to assist the Service in establishing priorities for developmental projects. When needed, special advisory groups in specific program areas, composed of experienced teachers, staff members, and representatives from industry and government, are assembled to assist the Service with specific developmental projects.

The Curriculum Materials Service assists in the identification of instructional materials needs. A search from all known available sources is then made to identify available materials. Such materials are evaluated by the Service with the assistance of selected teachers and program area specialists. These available materials suitable for use in Ohio programs are then cataloged and made available to Ohio teachers through the Curriculum Materials Service. A total of 732 such items were made available to Ohio teachers. An additional 109 items, available from commercial sources, were listed which teachers could order directly from the source.

In those areas in which suitable instructional materials are not available, the Curriculum Materials Service prepares those items which support the curricula of Ohio teachers. The 1971 catalog lists 87 such items.

The materials published by the Ohio Agricultural Education Service during the 1970-71 fiscal year were as follows:

Manuals--

An Aid to the Identification of 70 Crop and Weed Plants (Revision)
Fundamentals of Plant Identification Workbook
Seed Production of Some Common Field Crops (Revision)
Farm Business Planning and Analysis Teaching Units
Profit Maximizing Principles (Revision)
Agri-Business, Is It for Me?

Deciding on and Locating Your Kind of Job, Agricultural Work Experience (AWE 1)
Getting Your Job (AWE 2)
Savings and Checking Accounts (AWE 3)
Credit (AWE 4)
The Nursery Worker Part I
The Nursery Worker Part II
Individual Study Guide for Drying Corn on the Farm

Slide Series--
Some Identifying Characteristics of 70 Crop and Weed Plants (Revision)
Fundamentals of Plant Identification
Soil and Its Properties
Liming Acid Soils
AWE - A Vocational Program with a Special Accent
The Early Growth of Corn
The Late Growth of Corn

Transparencies--
Plows and Plowing
Livestock Breeding
Interpretation of Farm Business Analysis

Materials Currently Under Development

Manuals--
Insects and Agriculture
Insects Important for Livestock
Insects Important for Field Crops
Insects Important for Horticultural Crops
Livestock Feeding
Plant Diseases
You and Your Records (AWE 5)
Money Management (AWE 6)
Holding a Job (AWE 7)
Social Agencies and Services (AWE 8)
Personal Development (AWE 9)
Ladder Safety
Fork Lift Safety
Safe Use of Jacks and Hoists
Money Management for the Farm Business
Business Procedures and Records
Human Relations in Business
Money Management in Business
Marketing Agricultural Products
Selling and Salesmanship
Advertising and Promotion
Agricultural Chemicals
Environmental Protection Occupations Materials

Slide Series--
- Tillage for Field Crops
- Poinsettia
- Shrubs for Landscaping
- Trees for Landscaping
- Trip Through a Pig Factory
- Safe Use of Ladders

Transparencies--
- Farm Business Planning and Analysis
- Livestock Feeding

Materials from a variety of sources were distributed through the Curriculum Materials Service--
- Film and Video Tape Catalog--Cooperative Extension Service
- Ohio Agricultural Education News--Department of Agricultural Education
- Soil Conservation District News--SCS
- Ohio Herd Development Observer--Department of Dairy Science, OSU
- The Ohio Future Farmer--Ohio FFA Association
- Ohio Young Farmer--Young Farmer Association

The Curriculum Materials Service is a member of the American Association for Vocational Instructional Materials. The Director for the Ohio Service serves as a member and Secretary for the American Association Board of Directors. As a result of the participation, a total of 21 publications, 5 film strips, 6 color slide series, and 3 transparency sets are available to Ohio teachers through the Ohio Service. The Service issues three catalogs as follows:

Ohio Curriculum Materials--listing materials developed and produced by the Ohio Service plus selected items that are collected from other sources.

Curriculum Materials--which lists materials which are purchased from other sources for resale to Ohio teachers.

AAVIM Teaching Aids--which lists the materials produced by the American Association for Vocational Instructional Materials.

Materials developed and produced by the Ohio Agricultural Education Curriculum Materials Service have been distributed to schools, farmers, and industry on a national basis.

A research project to identify environmental protection occupations is being conducted. A task analysis will be made and instructional materials developed for the vocational education level.

Farm Business Planning and Analysis

Approximately 600 farm operators received farm business planning and analysis instruction through programs conducted by teachers of vocational agriculture during the past year. This instruction was provided by eight full-time and four part-time adult instructors as well as 42 regular high school teachers who provided instruction for 4 to 6 couples beyond the contractual day.

A recent summary of farms which was submitted for computer analysis showed an average capital investment of almost $100,000 per farm, so this instructional program had an influence on farm business investments of about $60 million.

In-service training in farm business planning and analysis and related areas was provided for teachers by Starling in cooperation with staff members from the Department of Agricultural Economics and the Cooperative Extension Service. This training was provided by (1) an off-campus class held during the autumn quarter at Morgan Local High School in which 15 teachers and one county agent were enrolled; (2) two summer workshops which were conducted on a half-day basis for a period of 12 days in which 28 teachers were enrolled; and (3) small group meetings held at various locations throughout Ohio which were attended by 54 different teachers.

The following instructional materials were prepared or revised for teacher use:

A set of 43 "Farm Business Planning and Analysis Teaching Units" (300 pages)
A set of 12 transparency masters "Interpretation of Farm Business Analysis"
"Farm Business Planning and Analysis Filing System" (Revised 1971)
"Thumb Rules and Guidelines for Use in Farm Business Planning and Analysis Programs" (Revised 1971)

Public Information

Faculty members of the Deparcment contributed to public information on agricultural education at local, state, and national levels. At the national level Warmbrod completed his final year of a three-year term as Editor of The Agricultural Education Magazine; Bender prepared ten issues of "TEACH," a newsletter for staff members and graduate students; Boucher edited "Ohio Agricultural Education News," which is published quarterly and distributed to all teachers in the state and has a total mailing list of 975.

Articles by members of the staff have appeared in The American Vocational Journal, The Agricultural Education Magazine, The Ohio Vocational Reporter, The National Future Farmer, The Ohio Farmer, and the Professional Nutritionist.

Several members of the staff assisted teachers and supervisors in publicizing vocational agriculture activities at The Ohio State Fair, the FFA Convention, the YFA Convention, and the Annual Teachers' Conference.

Other public information activities of the faculty included Bender's completing his final year as President of the Agricultural Education Division of the AVA; Guiler's service as Membership Secretary of the Ohio Vocational Association; and Boucher's service as a member of the Public Information Committee of the AVA.

Facilities

The Department is provided 13 offices, 5 secretarial stations, one conference room, three rooms for 30 plus graduate students, two readily available classrooms, and such others as needed in the Agricultural Administration Building.

Finances for the year limited the additions to facilities to the following: two IBM typewriters, one electric stapler, two filing cabinets, four secretarial chairs, one credenza cabinet, one tape recorder and carrying case, videotape splicing kit and television tables, one slide projector and slide trays, one mounting press, and one heavy duty paper punch.

Space for staff and storage is urgently needed. The lack of air conditioning is effecting staff efficiency. Considering the work load of the staff in the Department during the summer months, it seems most essential that provisions be made to include air conditioning in the College budget for the remaining part of the Agricultural Administration Building not now benefiting from this facility.

Long range plans call for a new construction south of the Agricultural Administration Building and Stadium Drive to house the Department of Agricultural Education as well as the other departments of vocational education on the campus, the Agricultural Library, and a Teaching-Learning Center for the College. The target date for the project has not been determined.

The preliminary planning for the Vocational-Technical facilities is being done by representatives of the various vocational services. They are:

Willard H. Wolf . . . . . Agricultural Education
William Jennings . . . . Business and Office Education
Neal Vivian . . . . . Distributive Education
Ralph Orr . . . . . Technical Education
Marie Dirks . . . . . Home Economics Education

The first report was presented in June 1971. It gives the historical background, functions, uniqueness, impact, service areas, priorities, minimum number and room sizes, number of offices and rooms, office size, room area requirements, room specialization, and faculty locations.

The report, after a critical reviewing by Deans Roy M. Kottman and Luvern Cunningham and the five involved departments of vocational education, should provide suggestions for the next steps in planning by the Facilities Planning Committee.

Alumni Association

The Agricultural Education Alumni Association was formally organized February 13, 1970. To date 475 of the 1,600 graduates of the Department have paid dues of $1.50 to the College Alumni Association and 50 cents to the Departmental Association. During the next year it is hoped more of the alumni will become active participants in the Association.

During the year the following agricultural education graduates served on the Departmental Alumni Executive Committee: Warren G. Weiler, Franklin Miller, Harold Cyster, Harland Martin, Donald B. Robinson, Hal Richard, Calvin Leimbach, James Haskins, Harold Thoburn, and Robert Smith. At the annual meeting, February 19, 1971, Glenn Griffith was elected to take the place of James Haskins who moved out of state. Willard Wolf served as Secretary of the Association.

An "Abridged History of the Department of Agricultural Education and Directory of Alumni" was prepared and sent to the 1,600 plus alumni of the Department. Two letters were mailed to the members of the alumni during the year--one to announce the mailing of the History and Directory, the need for contributions to the Agricultural Education Scholarship Fund, and to call attention to the urgency for alumni to actively recruit students for careers in agriculture; and the second letter was a part of the College Alumni Association mailing. It included a program for Alumni Day, February 13, 1971 and materials for pre-registration.

Warren Weiler, President of the Departmental Alumni Association, serves as the departmental representative on the Executive Committee of the College Alumni Association and is the elected treasurer of the College Alumni.

Long Range Planning in Agricultural Education

The report "Agricultural Education in 'Life 2000'" which was issued in April 1971 represents the conclusion of nearly two years' work in projecting plans for the Department of Agricultural Education to the years 1985 and 2000. The departmental effort was a part of the long range study made by the College of Agriculture and Home Economics.

Several members of the faculty served on various task forces as well as the Task Force of the Department of Agricultural Education. Members of the Agricultural Education Task Force included Leon Boucher, Clarence Cunningham, Darrell Parks, Robert Warmbrod, Richard Wilson, and Ralph Woodin, chairman.

Goals and projections of the Department are included in the 35-page publication which was distributed to members of the faculty, departmental chairmen of the University, and the Agricultural Education Division of the State Department of Education, and other interested persons.

Among the goals of the Department were those dealing with undergraduate preparation of teachers, graduate education, certification of teachers from the agricultural industry, in-service education for beginning teachers and extension personnel. Other sections dealt with international agriculture, the development of a learning resource center, and research and development of the Department. Additional sections of the plan dealt with the further development of curriculum materials, differentiated staffing, and plans for faculty renewal.

The long range planning in agricultural education was aided greatly by a program "Management by Objectives" that was sponsored by the Division of Vocational Education of the State Department of Education. James Dougan, as chairman, his staff of supervisors, and teacher educators met frequently during the year to establish quantifiable objectives and activities that were desirable to meet such objectives. In this program projections were made to 1975 rather than to 1985 or the year 2000 that characterized the University Plan. It was projected that by 1975 there would be 976 units of agricultural education or teaching positions in Ohio. This would necessitate at least 117 teachers per year needed for replacement in addition to the 50 per year for growth. The demand of 167 persons to enter programs for teaching vocational agriculture would require 280 qualified graduates per year. This assumes that 60 per cent of those who were qualified to teach would enter the profession. These projections are made on the basis of ideal conditions including the availability of resources necessary to develop programs.

The long range planning of the Department envisions a faculty of 26 resident instructors, 14 secretaries, and 30 teaching and research associates needed to develop the total program in agricultural education for the year 1985.

THE STAFF IN AGRICULTURAL EDUCATION, 1970-71

Name and Title	Sources for Salary: Teach Educ	Supvn in Vo-Ag	Coop Ext	Other	Notes
Professors					
Bender, Ralph E.	X		X		Chairman of Department
Gehres, Albert F.			X		
Guiler, Gilbert S.	X				Professor 7-1-70
Halterman, Jerry J.				College of Agriculture	Director, Technical School at Wooster
Johnson, Carlton E.				Dept. of Agr. Engineer.	In charge of agr. mechanics
McCormick, Robert W.	X			University Administration	Assistant Vice President in charge of Continuing Education
Ritchie, Austin E.				College of Agr. Admin.	Assistant Dean
Robinson, D. B.					Professor Emeritus
Taylor, Robert E.				Center for Voc.-Tech. Ed.	Director of Center
Warmbrod, J. Robert	X				
Wilson, Richard H.	X				
Wolf, Willard H.	X				
Wood, Wilbur B.					Professor Emeritus
Woodin, Ralph J.	X				
Associate Professors					
Bolender, Elbert O.					Emeritus, Supervisor of Voc. Agr.
Boucher, Leon W.	X				
Cunningham, Clarence J.	X		X		
Hull, William L.				Center for Voc.-Tech. Ed.	
Jenkins, David D.	X		X		Associate Professor 7-1-70
Schroeder, Wayne E.				Center for Voc.-Tech. Ed.	
Assistant Professors					
Borcher, Sidney D.				Center for Voc.-Tech. Ed.	Started 7-15-70
Geyer, Richard E.				OARDC & College Admin.	
Lifer, Charles W.			X		Assistant Director, 4-H
Magisos, Joel H.				Center for Voc.-Tech. Ed.	
McCracken, J. David				Center for Voc.-Tech. Ed.	Started 7-1-70
Oren, John W., Jr.			X		Started 1-1-71
Robinson, Ted R.				University Administration	Vice President, Student Affairs
Ruble, Floyd J.					Emeritus, Supervisor of Voc. Agr.

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THE STAFF IN AGRICULTURAL EDUCATION (CONTINUED)

Name and Title	Sources for Salary: Teach Educ	Supvn in Vo-Ag	Coop Ext	Other	Notes
Instructors					
Archer, Clyde F.				Biological Sciences	Assistant Dean
Pulse, Paul F.		X			
Swartz, Dennis C.				College of Agr. Admin.	Terminated 6-30-71
Waliser, Don H.				College of Agr. Admin.	Secretary of College
Young, Richard E.	X		X		Started 12-1-70
Consultants					
Barnett, C. Welch		X			
Carr, Harold				Research & Survey	Terminated 9-16-70
Davis, John H.		X			
Dougan, James E.					Asst. Director of Vocational Education
Koon, Robert H.				Research & Survey	Started 1-1-71
Kosbab, George C.				Research & Survey	Started 1-1-71
Lintner, Julius H.				College of Agr. Admin.	Technical education with Halterman 3-8-71 to 5-27-71
Morgan, John P.		X			Started 8-15-70
Parks, Darrell L.		X			Terminated 8-7-70
Parks, Thomas				Research & Survey	Terminated 7-29-70
Ridenour, Harlan E.		X			Director, Curriculum Materials Service
Starling, John T.	X	X			Farm Business Planning Specialist
Sterling, George A.				Research & Survey	Started 8-1-70
Tower, C. O.				Research & Survey	Director
Watkins, John W.		X			
Coordinator					
Gutilla, John J.				Research & Survey	Started 9-7-70
Assistants					
Freeman, Paul		X			FBPA, July, Aug., A,S
Shannon, Theodore P.		X			Instructional materials, Sept.,A,W,S

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THE STAFF IN AGRICULTURAL EDUCATION (CONTINUED)

Name and Title	Sources for Salary: Teach Educ	Supvn in Vo-Ag	Coop Ext	Other	Notes
Associates					
Bloss, Norman F.	X				Technical education with Halterman,W,S
Hillison, John H.		X			Instructional materials, Su,A,W,S
Hutchings, Ronald P.	X				Technical education with Halterman, Su,A,W,S
Iverson, Maynard J.				OARDC	Evaluation of technical education, Su,A,W,S
Morgan, John P.		X			Instructional materials, July-Aug. 15
Reid, Richard A.		X			Instructional materials, July,Aug,Oct
Schmitt, Henry E.	X				Assisted in undergraduate teaching, Su,A
Urbanic, Charles E.		X			Instructional materials, Su,A,W,S
Welton, Richard F.	X				Personnel needs for agr. edu., Su
Wotowiec, Peter J.		X			Instructional materials, A,W,S
Zurbrick, Phillip R.				College of Agr. Admin.	Technical education with Halterman, May, June

Regular Clerical Staff--Polly Blackburn, Susan Byrd, Martha Ervin, Louise Goodall, Mary Krieger, Jill Maxwell, Zelma Parker, Connie Rummel, Barbara Satchell, and Susan Wenger.

Part-time Clerical Staff--James Burns, Martha DePassio, Gerry Ervin, Jeanne Ervin, Lois Haynes, Margaret Jonesku, Shirley Kosbab, David Linkhart, Joanne Lux, Susan Prodell, Evelyn Roediger, Stephen Roediger, and Grace Stearns.

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SOME STAFF SERVICES AND PUBLICATIONS
(As Reported by Staff and Not Included Elsewhere in the Report)

Ralph E. Bender, Professor and Chairman

American Vocational Association
Chairman of Constitution Committee
Made Life Honorary Member, NVATA, December 1970
Consultant, U. S. Office of Education
Participant, USOE National Seminar on Agricultural Education in Transition, Denver, Colorado, May 1971
Member of Planning Committee and Keynote Speaker in sectional meeting dealing with the development of public information programs
Chairman, University Centennial Awards Committee
Member, University Faculty Council
College Committees:
Chairman, President's Club
Member, Executive Committee
Long-Range Task Force Committees--Resident Instruction and Organization and Structure
Member, Planning Committee to develop program for improvement of resident instruction
Received Citation for Meritorious Service from the American Institute of Cooperation, December 1970
Keynote Speaker, Annual Conference of Virginia Vocational Agriculture Teachers' Association, June 1971 - "Accountability in Agricultural Education"
Address, Central States Seminar in Chicago, "Professionalism in the Future Design for Agribusiness Education," February 1971
Member, Ohio FFA Board of Trustees
Member, Youth Committee, American Institute on Cooperation

Publications:
"The 1970 Occupations of Recent Graduates of Vocational Agriculture in Ohio," Department of Agricultural Education, The Ohio State University, January 1971.
"Agricultural Education Technician Education in Ohio 1969-70" (A Research Report with Maynard J. Iverson), Department of Agricultural Education, The Ohio State University, February 1971.
"Teacher Preparation for the Culturally Different" (with Henry E. Schmitt), The Agricultural Education Magazine, May 1971.

Gilbert S. Guiler, Professor

Chairman, Program Nomination Committee of COASTA Organization, AVA
State Membership Secretary, Ohio Vocational Association and AVA
Member, Membership Committee of Agricultural Division, AVA
Member, Ohio Vocational Association Board of Directors
Member, Ohio FFA Board of Trustees

Guiler (continued)

Member, The Century Club, The Ohio State University Development Fund
Member, College of Agriculture Library Committee

Publications:
"The Ohio Vocational Association Reporter," Membership Report and articles in each of the six volumes

Jerry J. Halterman, Professor

Director, Agricultural Technical Institute, Wooster
Member, Task Force on Organization and Structure of the College, OARDC, and OCES
Member, Resident Instruction Planning Team Long-Range Study
Secretary, Ohio Agricultural Technician Education Coordinating Committee
Member, Ohio Board of Regents Master Plan Review Committee on Technical Education
Member, College Executive Committee

Publication:
"Teacher Education for Technical Education in Agriculture," The Agricultural Education Magazine, July 1970.

Carlton E. Johnson, Professor (Department of Agricultural Engineering and Member of Graduate Faculty, Agricultural Education)

American Society of Agricultural Engineers:
Chairman, A-214 Committee on Instruction in Mechanized Agriculture
Member, A-202 Steering Committee Education and Research Department
Representative, American National Standards Institute, Committee Z 53.1, Safety Color Code
Member, Ad Hoc Visiting Committee of the Engineering Technology, Engineering Council for Professional Development
Member, State Advisory Committee for Technical Education in Agriculture
Member, Advisory Committee, Clark County Technical Institute
Member, Safety Committee, College of Engineering
Honorary Chairman, Nominating Committee, Gamma Sigma Delta
Chairman, AA for VIM Subject Matter Committee
Member, Finance Committee, Ohio Vocational Agricultural Teachers' Association
Member, National FFA Committee to select Agricultural Proficiency Award Winner in Agricultural Mechanics for 1970
Awarded a certificate and a watch for 30 years of service to vocational agriculture by OVATA

Publication:
"Appropriate Terminology for Agricultural Mechanics Education," Proceedings Summer Institute in Agricultural Mechanics Education, Southern Region, Virginia Polytechnic Institute and State University, Blacksburg, Virginia, August 1970.

Robert W. McCormick, Professor (and Assistant Vice President for Continuing Education and Director, Center for Tomorrow)

Executive Council, Office of Educational Services
Vice Chairman, Administrative Advisory Committee on Continuing Education
Vice President, Board of Trustees, United Community Council
Chairman, Development Committee, United Community Council
Executive Committee, Council on Extension, National Association of State Universities and Land-Grant Colleges
Chairman, Committee on Staff Development, National Association of State Universities and Land-Grant Colleges
Committee on Technology Utilization, National Association of State Universities and Land-Grant Colleges
Vice Chairman, Section on Continuing Education for the Professions, National University Extension Association

Robert E. Taylor, Professor (and Director, Center for Vocational and Technical Education, and ERIC Clearinghouse for Vocational and Technical Education, and Professor of Education)

Executive Committee, College of Agriculture and Home Economics
Ad Hoc Committee, Technical Education in Agriculture, College of Agriculture and Home Economics
Academic Faculty for Vocational and Technical Education, College of Education
Advisory Committee, Center for Human Resources Research

Publications:
"Vocational Education," Teacher's Handbook (co-author). Glenview, Illinois: Scott, Foresman and Company.
"Research and Development in Vocational Education," The Encyclopedia of Education. New York: The Macmillan Company (co-author).
"Implications for Agricultural Education--The Vocational Education Amendments of 1968," The Agricultural Education Magazine, Vol. 42, No. 1.
"VT-ERIC: Purposes, Programs, Projections," Journal of Educational Data Processing (co-author). Vol. 7, No. 2, April 1970.

J. Robert Warmbrod, Professor

Chairman, Task Force on Development and Maintenance of Professional Competence, College of Agriculture
Member, Committee for Research and Training Programs Involving Human Subjects, College of Agriculture
Member, Committee on Recruitment of Black Students, College of Agriculture
Member, Planning Committee for Vocational-Technical Education Centennial Awards Banquet, College of Education

Warmbrod (continued)

Alternate Member, Graduate Council, The Ohio State University
Member, Long Range Planning Committee (Life 2000), Department of Agricultural Education
Proceedings Recorder, Agricultural Education Division, American Vocational Association
Editorial Adviser, Occupational Education Series, Charles E. Merrill Publishing Company
Participant, American Educational Research Association Training Session on "Nonparametric Statistics in Educational Research," New York City, February 1971.
Consulting Editor and Secretary, Editing-Managing Board, The Agricultural Education Magazine.
Visiting Professor, Pennsylvania State University, Summer 1970

Publications:
Editor, The Agricultural Education Magazine. Following editorials were written:
"The 'Vo-Ag' Model and Post-Secondary Programs." 43:3-4; July 1970.
"What Priority for Adult Education?" 43:27-28; August 1970.
"Is FFA Acting Its Age?" 43:55-56; September 1970.
"The Basis for Effective Teaching." 43:79-80; October 1970.
"Enhancing the Impact of Graduate Students' Research." 43:107-108; November 1970.
"A Point-of-View About Vo-Ag's Survival." 43:135-136; December 1970.
"Evaluating Outcomes: Some Problems of Interpretation." Journal of the American Association of Teacher Educators in Agriculture 11:1-10; September 1970.
"Proceedings of the Agricultural Education Division." Convention Proceedings Digest, American Vocational Association, New Orleans, Louisiana, December 4-9, 1970, pp. 115-132.
"Considerations in Analyzing and Interpreting Data for Program Evaluation." Paper presented at the Central States Seminar in Agribusiness and Natural Resources Education, Chicago, February 1971.

Richard H. Wilson, Professor

Chairman, College Graduate Education and Research Committee
Member, Task Force in Agricultural Education Committee
Member, Professional Competence Task Force for College Long Range Planning Committee
Chairman, Regional Research Committee for Community College, Agricultural Staff Study.

Willard H. Wolf, Professor

Secretary-Treasurer, Agricultural Education Alumni Association
Chairman, College Coordinating Counselors that:
Prepared a new Faculty Handbook for Advisers
Conducted two seminars for new advisers
Planned three meetings for faculty advisers
Chairman, College Subcommittee for the Agricultural Residence Hall
Member, Committee for Residence Halls for College Students of Agriculture and Natural Resources
Member, College Committee for Academic Assistance Program--in charge of chemistry tutoring for AAP students
Member, College Committee for Honorary Degrees
Member, Committee of Joint Agriculture and Education Colleges Vocational Facilities Committee
Department Coordinator of Agricultural Education Scholarships

Publications:
Faculty Editor, Townshend Educator
Edited and prepared much of the copy for "Agricultural Business Workshop Report for 1971."

Ralph J. Woodin, Professor

Chairman, Professional Personnel Recruitment Committee, Agricultural Education Division, AVA
Member, Vocational Education Curriculum Committee, College of Education
Member, Recruitment Committee of the College of Agriculture
Member, Technical Education Advisory Committee, College of Agriculture
Member, Board of Control "The Agricultural Student," College of Agriculture
Chairman and Editor, "Agricultural Education in 'Life 2000'"
Member, Overall Planning Team for Long Range Planning in Agriculture 1985-2000
Member, Youth Committee, American Institute of Cooperation

Publications:
"Strategies for Preparing Teachers to Reach and Teach the Disadvantaged" (with Henry E. Schmitt), American Vocational Journal, November 1970.
"An Appraisal of the 1970 Conference of Ohio Teachers of Vocational Agriculture," Department of Agricultural Education, August 1970.
"Supply and Demand for Teachers of Vocational Agriculture in 1970," Department of Agricultural Education, December 1970.
"Record of Supervised Occupational Experience for Students of Vocational Horticulture" (with Kenneth A. Parker), Ohio Agricultural Education Curriculum Materials Service, August 1970.

Woodin (continued)

"Guidelines for the Development of Prevocational Education at the Junior High School Level" (with Wesley Budke), Research Series in Agricultural Education, Department of Agricultural Education, October 1970.
"Agricultural Mechanics as Performed on Ohio Farms in Comparison with Offerings in Vocational Agriculture" (with Wiley Lewis), Research Series in Agricultural Education, Department of Agricultural Education, August 1970.
"Finding Teachers for the Seventies," The Agricultural Education Magazine, April 1971.
"Agricultural Education in 'Life 2000'" (Editor), Department of Agricultural Education, April 1971.
"Look Ahead to Teaching Vocational Agriculture," A set of 30 slides and accompanying script. World in Color Products, Elmira, New York.

Leon W. Boucher, Associate Professor

Chairman, College Honors Committee
Faculty Adviser, College Academic Assistance Program
Secretary, Gamma Sigma Delta
Member, College Committee on Petitions, Dismissals, and Discipline
Member, American Vocational Association Public Information Committee
Adviser, College Chorus
Member, University Blue Ribbon Committee on Internal Communications
Member, College International Agriculture Advisory Committee

Publications:
Editor, "The Ohio Agricultural Education News," quarterly.
"A Survey of Teacher Preparation Programs in Agricultural Education in the United States 1970-71," Department of Agricultural Education, June 1971.

Clarence J. Cunningham, Associate Professor (and Assistant Director, Staff Development and Program Analysis, Cooperative Extension Service)

Chairman, ECOP Subcommittee on Program Development and Management Systems
Member, College Committee on Instruction
Member, College Executive Committee
Member, College Cooperative Extension Service Administrative Cabinet
Member, National Extension Curriculum Seminar
Member, Adult Education Association of USA
Member, Commission on Professors of Adult Education
Member, College Graduate Education and Research Committee
Chairman, College of Agriculture and Home Economics Faculty Conference Committee
Visiting Professor, Colorado State University, June 1971

Cunningham (continued)

Publications:
Research in Brief Editor, Journal of Extension
"Building Evaluation into Your Extension Program," Speech at National Housing Conference, Atlanta, Georgia, November 1970.

David D. Jenkins, Associate Professor (and State Leader, Professional Improvement, Cooperative Extension Service)

Member, Steering Committee, National Extension Curriculum Development Seminar
Member, Ad Hoc Publications Committee, National Extension Curriculum Development Seminar
Ohio's Liaison, Journal of Extension, Extension Journal, Inc., Madison, Wisconsin
Member, Committee on Undergraduate Faculty Adviser's Meetings, College of Agriculture
Member, Task Force on Development and Maintenance of Professional Competence, College of Agriculture
Member, Educational Program Committee, The Ohio Farm and Home Electrification Council, Inc.
Member, Committee on Resident Improvement of Quality of Instruction, College of Agriculture

Publication:
"Leadership for Community Development," in Selected Readings in Community Development, Ohio Cooperative Extension Service, August 1970.

John T. Starling, Assistant Professor (and Supervisor for Vocational Education, State Department of Education)

Member, Task Force Committee to revise and write procedures for Analysis of Farm Business Records
Member, Committee to develop procedures whereby the Agricultural Education Service and the Cooperative Extension Service work cooperatively on the Farm Business Analysis Program
Member, Swine Improvement Committee

Publications:
"Occupational Experience Report Form" (revision)
"Farm Business Planning and Analysis Teaching Units" (revision)
"Thumb Rules for Use in Farm Business Planning and Analysis" (revision)
"Interpretation of Farm Business Analysis" (with Roediger and Freeman), Transparency Masters.

Richard E. Young, Instructor (and Leader, Studies and Evaluation, Cooperative Extension Service)

Adviser, OSU Farm Bureau Youth Council

Publication:
"The Effectiveness of a Correspondence Course for New 4-H Leaders," Ph.D. Dissertation, December 1970.

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VT 016 616
ANNUAL REPORT. DEPARTMENT OF AGRICULTURAL EDUCATION, 1969-70.

OHIO STATE UNIV., COLUMBUS. DEPT. OF AGRICULTURAL EDUCATION.;OHIO STATE DEPT. OF EDUCATION, COLUMBUS. DIV. OF VOCATIONAL EDUCATION.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - SEP70 43P.

DESCRIPTORS - *ANNUAL REPORTS; *AGRICULTURAL EDUCATION; *PROGRAM EVALUATION; *EDUCATIONAL RESEARCH; INSERVICE EDUCATION; TECHNICAL EDUCATION; GRADUATE STUDY; UNDERGRADUATE STUDY; INSTRUCTIONAL MATERIALS; EDUCATIONAL FACILITIES; PROGRAM PLANNING; STUDENT ENROLLMENT

ABSTRACT - THIS ANNUAL REPORT OF THE DEPARTMENT OF AGRICULTURAL EDUCATION AT OHIO STATE UNIVERSITY FOR 1969-70 CONTAINS DESCRIPTIVE AND EVALUATIVE INFORMATION PERTAINING TO: (1) THE UNDERGRADUATE AND GRADUATE PROGRAMS, (2) STUDIES COMPLETED OR IN PROGRESS BY STUDENTS AND STAFF, (3) INSERVICE EDUCATION PROGRAMS, (4) INTERNATIONAL EDUCATION, (5) TECHNICAL EDUCATION, (6) CURRICULUM MATERIALS SERVICE, (7) PUBLIC INFORMATION PROGRAM, (8) FACILITIES, (9) ALUMNI ASSOCIATION, (10) LONG-RANGE PLANNING ACTIVITIES, AND (11) STAFF SERVICES. SOME HIGHLIGHTS FOR THE YEAR INCLUDE: (1) THE NUMBER OF DECLARED MAJORS RANGED FROM 166 TO 181, (2) THE TOTAL UNDERGRADUATE AND GRADUATE STUDENT REGISTRATION IN AGRICULTURAL EDUCATION COURSES WAS 1,108, (3) RESEARCH, WHICH WAS PRIMARILY ACCOMPLISHED THROUGH PH.D. DEGREE PROGRAMS CENTERED ON A NUMBER OF NEWER DEVELOPMENTS INCLUDING THE USE OF VIDEOTAPING, PERFORMANCE OBJECTIVES, SELF-LEARNING CENTERS, COMMUNICATION PATTERNS, AND RESOURCE DEVELOPMENT, AND (4) A FOLLOW-UP STUDY OF STUDENTS ENROLLED IN THE SEVERAL TECHNICAL PROGRAMS THROUGHOUT OHIO WAS CONTINUED. AN ANNUAL REPORT FOR 1970-71 IS AVAILABLE AS VT 016 615 IN THIS ISSUE. (SB)

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Annual Report - Department of Agricultural Education 1969-70

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Department of Agricultural Education
College of Agriculture and Home Economics
The Ohio State University

in cooperation with

Division of Vocational Education
Ohio Department of Education

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FOREWORD

This is the annual report of the Department of Agricultural Education for 1969-70. The information reported herein serves somewhat as a history and as a basis for evaluation. It was prepared by the staff for the purpose of making further improvement in the department.

Members of the agricultural education staff recognize and appreciate the significant contribution of other individuals and groups particularly the supervisors of vocational agriculture and other personnel of the State Department of Education, the administration and faculty of the College of Agriculture and Home Economics and the College of Education, personnel of the Cooperative Extension Service, and the Ohio Agricultural Research and Development Center.

Ralph E. Bender, Chairman

SOME HIGHLIGHTS

--72 students were qualified for certification as teachers of vocational agriculture.

--73 students participated in student teaching that was conducted in 30 schools and 22 cooperating county Extension centers.

--The number of declared majors ranged from 166 to 181. This was approximately 25 lower than the year previous; however, all of the freshmen and many of the sophomores interested in agricultural education were enrolled in University College and have not yet declared majors. Special emphasis upon recruitment has been continued.

--Only 5 undergraduates received Agricultural Education Scholarships.

--The total undergraduate and graduate student registration in agricultural education courses was 1,108.

--183 students from 21 states and 3 foreign countries majoring in agricultural education were enrolled in programs beyond the Bachelor's degree. Much of this enrollment was a program of three-week workshops during the 1969 summer quarter. Off-campus courses were offered autumn and spring quarters.

--84 teachers were included in the new and returning teacher program. They received special supervision through the teacher education staff.

--12 students from 8 states were recipients of the Ph.D. degree. Only 7 students received the Master's degree.

--Research, which was primarily accomplished through Ph.D. degree programs, centered on a number of newer developments including the use of videotaping, performance objectives, self-learning centers, communication patterns, and resource development.

--A follow-up study of students enrolled in the several technical programs throughout Ohio was continued. Plans for the establishment and operation of the specialized two-year post-secondary program to be established in Wooster at OARDC are progressing.

--Curriculum materials were developed and disseminated. About 70,000 items were ordered by Ohio teachers. The 3 catalogs distributed by the Vocational Agriculture Service listed a total of 1,130 different curriculum materials.

--An Alumni Association was organized on February 8, 1969. A history was prepared; an abridged edition of the history and directory was assembled for distribution to alumni members.

--Two videotape machines and recorders were secured and used in undergraduate and graduate courses in addition to student teaching.

--Plans for the development of a long-time program for agricultural education were initiated and advanced.

ANNUAL REPORT

1969-1970

Undergraduate Program

The number of undergraduates in the department reported in Table 1 for 1969-70 is not exactly comparable to the other years listed. The reorganization of the University's undergraduate program by the introduction of the University College has had its effect on freshman and sophomore enrollment in departments of professional colleges. Previous to the University College a student could declare his major at the end of the first quarter, but presently he cannot declare his major until the end of the third quarter. In addition, the overall effect of the University College has been that students have not declared their major until the end of their sophomore and at the beginning of their junior years. Consequently, present enrollees in the Department of Agricultural Education will have no freshmen and relatively few sophomores. Even so, it may be noticed in Table 1 that the enrollment in the department has not decreased as much as one might expect.

TABLE 1

NUMBER OF DECLARED MAJORS IN AGRICULTURAL EDUCATION

Quarter	1965-66	1966-67	1967-68	1968-69	1969-70*
Autumn	165	159	166	191	166
Winter	167	183	171	199	177
Spring	162	183	190	207	181

*Freshmen and some sophomores enrolled in University College.

There may be several factors affecting the number of majors enrolled in the department in the immediate future. Students graduating with certificates have had no problems in securing employment with salaries ranging upwards to $9,200. This is at a time when economic conditions have affected the availability of jobs for graduates with salaries on an average of less than what were received by beginning teachers. A review of the supply and demand for teachers for the past few years indicates favorable employment conditions for majors in agricultural education compared with other majors in the College and possibly for the University in general. A likely negative effect would

be the change in the regulations for deferrment from military service made effective April 23, 1970. It has been assumed that some students entered into the program of agricultural education because it offered deferrment possibilities.

TABLE 2

ENROLLMENT IN AGRICULTURAL EDUCATION COURSES

Course Number	Number Enrolled				
	1965-66	1966-67	1967-68	1968-69	1969-70
200	136	123	122	134	133
230	70	67	83	72	81
380.01	49	61	51	75	56
380.02					1
380.03					36
420	15	11	15	12	8
581	44	49	56	64	73
582	44	49	56	64	73
583	44	49	56	64	73
621	19	19	16	13	19
622	23	10	13	3	14
631	45	42	25	33	49
640	51	49	29	20	34
641	3	27	15	17	20
642	38	11	13	13	11
684	0	0	0	28	52
693	129	125	103	74	57
743	12	0	0	4	0
744	16	7	3	4	7
770	25	21	18	12	12
790	27	84	70	47	21
794	0	0	0	8	22
795	62	80	44	41	31
810	0	0	0	17	16
811	25	20	20	25	22
812	15	15	10	12	14
823	30	16	34	36	36
885	26	22	25	28	32
886	0	0	0	21	21
889	2	0	5	2	6
995	0	0	0	0	13
999	51	54	47	61	65

Number of Enrollees

The overall undergraduate enrollment was larger in 1969-70 than any of the four previous years. Major increases were in the special field experience courses, Agricultural Education 380, and in student teaching as may be noted in Table 2. There were as many in Agricultural Education 200 in 1969-70 as there were the year before. However, there were nine more in 230 than in the year previous. Although some of the students in Agricultural Education 230 had student teaching during the year, the majority of these students will enroll in student teaching during 1970-71. The total number of enrollees for the undergraduate courses including student teaching 581, 582, and 583 totaled 526 for 1969-70; 473 for 1968-69; 424 for 1967-68; 398 for 1966-67; and 387 for 1965-66. (These totals are not given in the table.) This tends to support the possibility that the number of majors may not be the best index in predicting the number of graduates who will qualify for teaching vocational agriculture.

TABLE 3

NUMBER QUALIFYING
TO TEACH VOCATIONAL AGRICULTURE

Item	1965-66	1966-67	1967-68	1968-69	1969-70
Regular Graduates	48	54	51	62	58
Others	8	4	5	9	14
TOTAL	56	58	56	71	72

The number of graduates of the College of Agriculture and Home Economics qualifying to teach vocational agriculture during the past few years including 1969-70 is shown in Table 3. It may be noticed that the number of regular graduates although lower than last year is considerably higher than for the years previous to 1968-69. These individuals were majors in the department who met the teacher certification requirements. The number of other students, 14, qualifying for certificates to teach vocational agriculture during the year exceeded the numbers in previous years.

Recruitment

New agricultural programs in the area vocational centers and additional teachers of agricultural work experience have contributed to the growth in number of teaching positions in vocational agriculture during the past year. As a result, an intensified effort has been made to recruit specialized teachers for these new programs. Among the recruitment activities carried out during the past year were the recognition of "Teachers of Teachers;" a special mailing to all teachers containing materials to be used in career selection; a Recruitment Luncheon at the FFA Convention under the direction of Leon Boucher; and a portable Recruitment Exhibit which has been shown at the Ohio State Fair, the FFA Convention, and the Farm Science Review.

These recruitment activities have been closely coordinated with the College of Agriculture and Home Economics and have been supported by the Ohio Vocational Agricultural Teachers' Association and the Extension Service.

Two Career Days sponsored by the College attracted approximately 500 prospective students. As in the past, many of these student groups came to the University under the direction of vocational agriculture teachers and Extension agents. Youth and Science Day was also supported by these same people.

The Recruitment Commission of the Ohio Vocational Agricultural Teachers' Association held two meetings during the year and served as a coordinating body in planning and directing recruitment activities. This Commission, advised by Woodin, has come to be one of the most important of the teachers' associations.

Woodin also served as Chairman of the Professional Personnel Recruitment Committee of the Agricultural Education Division of the American Vocational Association. During the past year this committee contacted each teacher of vocational agriculture in the nation providing them with posters and brochures emphasizing the need for teachers to interest their better students in becoming teachers.

Student Assistance Program

Majors in agricultural education have access to financial assistance through programs provided by the University and the College of Agriculture. In addition, there are three programs specifically committed to majors in agricultural education. These three are:

1. The Lester B. Harner Scholarship which provides $500 or more from the estate of Lester B. Harner and administered by Ralph Harner, retired teacher of vocational agriculture.

2. The Agricultural Education Scholarship which provides $900. This amount is determined by the interest earned from the contributions to The Ohio State University Development Fund specifically designated for the Agricultural Education Scholarships.

3. The Processed Limestone Association which provides $400 to one student each year.

This past year the following undergraduates received departmental scholarships: Harmon Conrad, Sterling, Ohio; Ron Fuller, Freeport, Ohio; Paul Snyder, New Carlisle, Ohio; Jim Kreinbrink, Findlay, Ohio; and Tom Archer, Sidney, Ohio.

Curriculum and Course Changes

No major changes were made in the curriculum or the course offerings in the Department of Agricultural Education for the year 1969-70. However, the staff encouraged majors to enroll in field experience courses in addition to student teaching. Consequently, 93 students were enrolled for such courses, Agricultural Education 380.01, 380.02, and 380.03, during the school year which is an increase in enrollment over the past years. In the courses Agricultural Education 200 and 230 some major changes were made in the program--one being micro-teaching through the use of videotape and the other is individual and group participation in discussion and laboratory experiences.

The staff recognizes that undergraduate courses are designed to prepare students to make a successful entry into the teaching profession but that additional professional work is required beyond the Bachelor of Science for a teacher to become proficient in the work. Thus, it becomes necessary for a teacher to enroll in post-graduate work, hopefully in programs earning the Master's or Ph.D. degrees. The incentives for graduate work including increases in salary makes advanced degrees almost a necessity if a teacher is to continue in the profession. The staff encourages students to be prepared for entry into the Graduate School. Students whose undergraduate grade point hour is below 2.7 are asked to take the Graduate Record Examination so that they might qualify or otherwise learn what they need to do for admission to the Graduate School. It is assumed that students being accustomed to examinations as undergraduates would do better with the GRE than they would later on. However, in spite of encouragement, some 30 students whose point hour was less than 2.7 did not avail themselves of the exam.

Departmental Field Experience Program

The department provides for student teaching experience and the programming of other field experience activities uniquely appropriate to the needs of individual undergraduate students. Students enroll for student teaching under the course numbers Agricultural Education 581, 582, and 583. Agricultural Education 380.01 is reserved for September student teaching experience with enrollment for credit in one of the following quarters. Credit is allowed on the basis of one hour per week term with a minimum of three weeks. Agricultural Education 380.02 is Cooperative Extension field experience planned and programmed under the direction of designated personnel having Cooperative Extension responsibilities. Credit hours are arranged on the basis of one credit hour per week of experience. Agricultural Education 380.03 is reserved for specially programmed experience in vocational agriculture or certain other appropriate areas of agricultural education. Generally credit may be earned on the basis of one hour credit per week of experience.

During the past year 73 students were enrolled for student teaching. They received field experience in 30 vocational agriculture training centers and 33 County Extension centers. Five undergraduates completed field experience on special assignments in employment positions. Forty-seven undergraduates were placed for field experience programs in Agricultural Education 380.01 and 380.03. One student was placed for special field experience in Extension, Agricultural Education 380.02. The distribution of undergraduate students according to placement in vocational agriculture and Extension centers over Ohio is shown in the accompanying Tables 4 and 6.

Because of the large number of cooperating instructors and the widespread training center locations, coordination efforts are most important. To accomplish this end, as well as to assist in the cooperative evaluation of trainee performance, several cooperating instructor conferences were held. In the September conference special attention was given to the concern of providing trainees with adequate experience in the use of instructional materials in the training centers. A feature of the December conference was acquainting cooperating instructors with the new University College. Through the efforts of Dean Zimmerman and his staff, the program was reviewed in conjunction with a tour of the facilities. The winter quarter conference devoted attention to a review of the participating experiences trainees should have while student teaching.

Departmental personnel involved with the student teaching and other field experience programs were Richard Wilson, David Jenkins, Leon Boucher, and Charles Lifer, as well as other individual staff members who often supervised their own advisees while placed for Agricultural Education 380.03.

Instructional seminar sessions are scheduled as a part of the field experience program. Trainees experienced a beginning and closing seminar during September field experience and later three seminars in vocational agriculture and three seminars in Agricultural Extension during student teaching. These seminars were directed by the University instructor who also supervised a particular group of trainees in a given area of the state.

TABLE 4

STUDENT TEACHING COOPERATING COUNTIES
AND THE QUARTERS THEY HAD TRAINEES

County	380.02	Number of Trainees, Student Teaching		
		Autumn	Winter	Spring
Allen		2	2	2
Ashland		2	0	2
Columbiana		0	0	2
Erie		0	2	0
Fulton		0	2	0
Guernsey	1	0	0	2
Hancock		0	1	2
Jackson		2	0	0
Jefferson		0	0	2
Logan		2	2	0
Mahoning		0	0	1
Marion		0	2	2
Medina		1	0	2
Ottawa		0	2	0
Pickaway		2	2	1
Ross		2	2	0
Sandusky		0	2	2
Scioto		2	0	0
Union		2	2	2
Wayne		0	0	2
Williams		0	2	0
Wood		2	2	0
TOTAL	1	19	25	24

TABLE 5

HONORARIUM FOR COOPERATING TEACHERS

	Number of Trainees	Amount
A.	Student Teaching - Each student per quarter	$100
B.	Field Experience (Agricultural Education 380) Each trainee	$ 25

TABLE 6

COOPERATING SCHOOLS AND THE QUARTERS THEY HAD TRAINEES
STUDENT TEACHING AND AGRICULTURAL EDUCATION 380

School	Number of Students				
	Agricultural Education		Student Teaching		
	380.01	380.03	Autumn	Winter	Spring
Anna		1		2	2
Ansonia	1			2	
Archbold	2				
Big Walnut		1		2	1
Buckeye Valley		1		2	2
Cloverleaf		1			2
Crestview	2		2		
Elgin	1	1			
Fort Frye	1				
Greenville	1			2	
Hardin-Northern	1		1		2
Indian Lake	1			2	2
Kenton	2		2		2
Liberty Union	3		2	2	
Licking Heights		2		2	1
Lincolnview	2		2		
Loudonville		1			2
Lynchburg-Clay		1			
Marysville	1	2	1		2
Madison Plains		1	2	2	2
Milton-Union		1		2	
Ottoville	2		2		
Perkins		1			
Southwest Licking			1		2
Talawanda	1			2	
Tecumseh	1				
Tinora	1	1	2		
Urbana		1			
Westerville	3	1	2	3	
Wynford	1	1			2
Special assignment for student teaching			5		
Other*		2			
TOTAL	27	20	24	25	24

*Field experience enrollments other than those with a regular training center.

TABLE 7

SUMMARY OF STUDENT TEACHER TRAVEL
IN VOCATIONAL AGRICULTURE AND EXTENSION BY QUARTERS AND YEARS

Period	Vocational Agriculture			Extension		
	Total Miles Driven	Mileage Cost	Average Cost Per Trainee	Total Miles Driven	Mileage Cost	Average Cost Per Trainee
Autumn 1969 24 trainees*[1]	5,216	$ 469.44	$26.08	4,870	$ 443.70	$24.65
Winter 1970 25 trainees[2]	4,696	422.64	21.13	7,826	704.31	28.17
Spring 1970 24 trainees[3]	4,082	367.40	16.70	6,713	604.17	26.26
Entire Year 1969-70 73 trainees	13,994	1,259.48	20.99	19,409	1,752.18	26.54
Entire Year 1968-69 63 trainees	20,950	1,889.90	29.99	17,079	1,539.17	24.43
Entire Year 1967-68 49 trainees	18,695	1,682.55	35.05	13,799	1,240.91	25.32
Entire Year 1966-67 49 trainees	17,575	1,581.75	31.16	5,838	551.92	27.24
Entire Year 1965-66 38 trainees	17,669	1,582.85	41.65	7,759	698.31	29.10
Entire Year 1964-65 47 trainees	20,650	1,859.04	39.55			
Entire Year 1963-64 40 trainees	14,971	1,347.34	33.68			
Entire Year 1962-63 23 trainees	10,232	920.88	40.04			

*Does not include $199.08 to support 9 students in September field experience.
[1]One trainee had no mileage; five were on special assignment.
[2]Five trainees had no mileage.
[3]Two trainees had no mileage.

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Agricultural Education Society

The undergraduate organization of majors in agricultural education plans and conducts a challenging program. It has the benefit of very competent student leaders who were so recognized by both the College and the University. In 1969-70 there were slightly over a hundred members and the adviser, Willard H. Wolf.

The program emphasizes the development of competencies needed by leaders in agriculture which are usually not provided through course work. It includes such experiences as presiding at meetings, working with committees, participating in forums and symposiums, conducting social and educational meetings, planning presentations, preparing exhibits, and maintaining a decorum befitting the profession.

During the year the Society sponsored a steak fry, a faculty-student get together, a Christmas party at the Columbus State School, a banquet commemorating the centennial of the University and the 84th year for the Society, a visit to the Michigan State University Department of Agricultural Education, a Recruitment Luncheon, and an exhibit for the Ohio State Fair and the Farm Science Review as well as for the FFA Convention. The members of the organization provided the lunch for the FFA students at the judging contest and served coffee and donuts to the teachers of vocational agriculture at their annual conference.

The program of the Society is usually planned at a special meeting held at Camp Muskingum. After the program is accepted by the members, at a regular meeting, it is edited by the adviser and assistant adviser and then submitted for publication. During the year the members prepare a quarterly publication, "The Educator." The publication features articles associated with the profession and current problems and issues. It includes timely announcements, reports of Society activities, and such personal items as engagements, marriages, births, honors, and awards. The Society meets regularly on the second and fourth Tuesdays of the month with meetings starting at 7:00 p.m. and concluding at 8:30 p.m. The meetings are planned to conduct the Society's business, to provide programs of interest, to get better acquainted with fellow members, and to enjoy refreshments.

Placement

During the year 72 students were certified to teach vocational agriculture. Of this number, 58 were regularly qualified with the remainder being graduates of other departments or returning for special training. Of the 72 certified, 39 were placed as teachers of vocational agriculture, three in Extension, and four continued in their educational pursuits through the Graduate School. As may be noted in Table 8, 26 were classified in other related fields in education and agriculture or inducted into the service. This is the highest number classified in such a category since the records of placement were kept.

TABLE 8

NUMBER OF GRADUATES TRAINED AND PLACED
IN VARIOUS OCCUPATIONS FOR A SELECT NUMBER OF YEARS

Year	Number of Men Trained	Number Placed			
		Vocational Agriculture	Extension	Graduate School	Other, Inc. Armed Services
1969-70	72	39	3	4	26
1968-69	71	45	2	4	20
1967-68	56	37	0	4	15
1966-67	58	35	5	4	14
1965-66	56	36	1	3	16
1964-65	40	33	1	2	5
1963-64	37	24	1	1	8
1962-63	34	21	2	2	9
1961-62	44	22	3	5	14
1960-61	54	24	11	4	15
1959-60	46	20	6	2	18
1958-59	69	35	4	10	20
1957-58	55	30	9	4	12
1956-57	54	25	4	5	20
1955-56	42	32	5	2	3
1954-55	29	20	1	0	8
1953-54	29	15	3	1	10
1952-53	32	18	2	3	9
1951-52	46	35	2	2	7

Graduate Program

Students from 21 states and three foreign countries were enrolled in the graduate program in agricultural education. Seven Master's degrees and 12 Ph.D. degrees were awarded majors during the year. The number of Ph.D.'s was as high as any year on record; however, the number of Master's degree recipients was low due primarily to the discouraging aspect in not meeting the admission standards to the Graduate School of 2.7 for all work undertaken. Even though a number of students were admitted with a lower cumulative average, favorable GRE scores, and good recommendations, the teachers and others seem to have some fear in taking the GRE. More and more they are pursuing work at other institutions even though the programs are not as appropriate as they should be. We are attempting to correct this problem by getting our undergraduates to complete the GRE before graduation.

As may be noted in Table 9, 183 different persons were enrolled in work beyond the Bachelor's degree. This large number is primarily due to an increased number of teachers who participated in three-week

workshops that were conducted in specialized programs during the early portion of the summer quarter. A policy of having teachers participate in a special workshop previous to initiating new or different programs has been followed. Areas of special emphasis have included farm business planning and analysis, agricultural business, agricultural mechanics, and horticulture.

During the academic year the departmental offerings on campus included Agricultural Education 641, 810, and 811 in the autumn quarter; 631, 823, and 885 during the winter quarter; and 640, 642, 770, 811, and 886 in the spring quarter. During each of the quarters special problems, research, and seminars were offered. Separate sections in 811 and 823 were conducted for Extension personnel.

TABLE 9

ENROLLMENT OF OHIO TEACHERS OF VOCATIONAL AGRICULTURE AND OTHERS MAJORING IN AGRICULTURAL EDUCATION IN PROGRAMS BEYOND THE B.SC. DEGREE

	Enrollment			
Year	Ohio Teachers	Extension Personnel	Others	Total
1969-70	104	24	55	183
1968-69	89	18	63	170
1967-68	78	28	53	159
1966-67	92	14	49	155
1965-66	99	29	38	166
1964-65	101	28	36	165
1963-64	107	34	40	181
1962-63	91	38	39	168
1961-62	96	37	36	169
1960-61	102	40	28	170
1959-60	101	45	26	172
1958-59	100	0	88	188
1957-58	102	0	70	172
1956-57	101	0	34	135
1955-56	121	0	27	148
1954-55	93	0	34	127
1953-54	114	0	27	141
1952-53	93	0	27	120
1951-52	80	0	29	109
1950-51	76	0	36	106
1949-50	88	0	14	102
1948-49	76	0	16	92
1947-48	58	0	11	69

The department continued to offer off-campus courses which included Agricultural Education 744, Practicum in Teaching Farm Business Planning, and Agricultural Education 622, Continuing Education in Agriculture during the autumn quarter; the spring quarter offerings included 642, Youth Organizations, and 770, Evaluation in Agricultural Education.

The staff critically reviewed all of the courses in agricultural education. Many titles and course descriptions were revised to broaden the program to include more emphasis upon vocational and technical education. These revisions have been approved and will be included in the bulletins as of autumn quarter, 1971.

Research

A new course, Agricultural Education 995 (Research Seminar), was offered for the first time during the 1970 summer quarter. This seminar completes the department's recently revised three-course sequence in research methods and design in which Ph.D. candidates enroll. The research seminar is jointly staffed by Cunningham, Warmbrod, and Woodin.

During 1969-70, the research project on "The Testing of Video-Tape Recordings Related to Critical Moments in Teaching" was continued. Boucher is principal investigator for the project which was funded by a grant from the University Research Council.

In September 1969, the final report was published on the National Seminar on Agricultural Occupations Program Development in Area Vocational Schools. This project was funded by the Bureau of Research, U. S. Office of Education (Project No. 7-0773). Bender served as project director. The final report of the project was prepared by Bender and Warmbrod.

The continuing project involving a study of students and graduates of post-secondary technical agriculture programs in Ohio was continued during the year. This project is funded by the Ohio Agricultural Research and Development Center as a part of the North Central Agricultural Experiment Station Project NC-86. The project is directed by Bender. A report of the project (Student and Program Characteristics of Technical Agriculture Programs in Ohio by Iverson, Feck, and Bender) was published in April 1970.

Another research project of the department is a study designed to estimate the current and projected manpower needs in Ohio for persons requiring knowledge and skill in agriculture. During 1969-70, a study was made of the manpower requirements in agricultural supply firms. Warmbrod directs this project.

During 1969-70, the following publications were issued in the department's research series in agricultural education.

Hedges, Lowell E. and Woodin, Ralph J. "The Feasibility of Using Micro-Teaching and Video-Tape Review in Training Prospective Teachers of Vocational Agriculture."

Herring, Donald R. and Wolf, Willard H. "Guidelines for Organizing and Operating Multiple Teacher Departments of Vocational Agriculture."

Iverson, Maynard J., Feck, Vincent J., and Bender, Ralph E. "Student and Program Characteristics of Technical Agriculture Programs in Ohio."

Lifer, Charles W., McCormick, Robert W., and Cunningham, Clarence J. "An Evaluation of Self-Learning Centers in Adult Education."

Parks, Darrell L. and Bender, Ralph E. "Attitudes and Principles Regarding Vocational Education in Ohio."

Lifer, Warmbrod, Wilson, Woodin, and seven graduate students attended the Central Region Research Conference in Agricultural Education held at the University of Illinois, July 29-31, 1969.

All members of the department were engaged in supervising research of Ph.D. and Master's candidates.

Studies Completed

Ph.D. Dissertations

Bice, Garry R. "The Relationship of Group Structural Properties and Communication Behavior Patterns to Opinion Leadership Among Teachers." (Taylor)

Bishop, Douglas D. "Effectiveness of Prior Exposure to Performance Objectives as a Technique for Improvement of Student Recall and Retention." (Hensel)

Cameron, Walter A. "Remote In-Service Vocational-Technical Teacher Education for Beginning Teachers." (Bender)

Hedges, Lowell E. "The Feasibility of Using Videotape Techniques in Pre-Service Teacher Education in Agriculture." (Woodin)

Lewis, Wiley B. "Agricultural Mechanics as Performed on Ohio Farms in Comparison with Offerings in Vocational Agriculture." (Woodin)

Lifer, Charles W. "An Evaluation of Self-Learning Centers in Adult Education." (McCormick)

McCracken, John David. "The Utilization of Information by State Supervisory and Teacher Education Personnel in Vocational and Technical Education." (Taylor)

Pierce, Atheal. "A Relationship Between Intrinsic and Extrinsic Job Satisfaction and the Performance of Prospective Teachers." (Wolf)

Smith, Wendell L. "Outdoor Recreational Resource Development Through Vocational Agriculture and the Cooperative Extension Service." (Bender)

Terry, Howard Robert. "Composite Profiles of Agricultural Machinery Occupations as Derived from Comparative Analyses Across Incumbents." (Hensel)

Utzinger, James D. "Educational Opportunities in Horticulture for Ohio Youth." (Bender)

Zimmer, Theodore A. "Occupational and Educational Characteristics of Male Graduates of Non-Metropolitan Ohio Schools in Which Vocational Agriculture Was Offered." (Wilson)

Master's Theses

McClanahan, Joseph C. "Senior 4-H Camp Programs and Procedures as Perceived by Older 4-H Club Members." (Cunningham)

Lovingood, Miles. "Perceptions of Agricultural Students at Clark County Technical Institute Concerning Vocational Choice and Technical Education." (Johnson)

Research Completed by Staff

Bender, Ralph E. "The 1969 Occupations of Recent Graduates of Vocational Agriculture in Ohio."

Bender, Ralph E. and Warmbrod, J. Robert. "Agricultural Occupations Program Development in Area Vocational Schools," Final Report, Project No. 7-0773, Bureau of Research, U. S. Office of Education.

Iverson, Maynard J., Feck, Vincent J., and Bender, Ralph E. "Student and Program Characteristics of Technical Agriculture Programs in Ohio."

Woodin, Ralph J. "Supply and Demand for Teachers of Vocational Agriculture in 1969."

Studies in Progress

Ph.D. Dissertations

Archer, Beverly B. "Agricultural Work Experience Programs for Academically Handicapped Youth in Secondary Schools." (Warmbrod)

Blanton, Lloyd H. "Communication Networks and Innovation Potential: Description of a State Division of Vocational Education." (Bender)

Budke, Wesley E. "Guidelines for the Development of Prevocational Education Programs at the Junior High School Level." (Woodin)

Edsall, Richard H. "Vocational Agriculture Programs in Joint Vocational Schools, Participating Local Schools, and Non-Participating Local Schools." (Warmbrod)

Efionayi, Joseph. "The Newsletter as a Communications Medium in Teaching Low-Income Homemakers." (Cunningham)

El-Zoobi, A. M. "Extension Education and Agricultural Development in Syria." (Cunningham)

Feck, Vincent J. "Guidelines for Planning and Developing Teacher Education Programs for Teachers of Agriculture in Two-Year Technical Institutes or Colleges." (Bender)

Garrison, Dan D. "Guidance and Counseling of Prospective Agricultural Technical Education Students in Ohio." (Bender)

Iverson, Maynard J. "Guidelines for the Development of Student Organizations in Post-Secondary Agricultural Technician Education Programs." (Bender)

Kunzru, Omkar N. "Perceptions of the Role of the Area Extension Agent in Extension Program Development." (Cunningham)

Leidheiser, Paul. "An Evaluation of the Importance of Tasks of Ohio Extension District Supervisors and the Performance of These Tasks." (McCormick)

Long, Gilbert A. "Personnel Responsible for Decisions Influencing Vocational Education." (Wilson)

Lumpkin, Oliver. "Some Special Needs of Disadvantaged Rural Youth in High Schools of the South." (Bender)

Miller, James R. "Development of a Theoretical Model for Reorganization of the Ohio Cooperative Extension Service." (McCormick)

Morgan, John P. "Benefits and Costs of an Adult Education Program for Farmers." (Woodin)

Mulvana, John B. "The Organization, Function, and Utilization of Agricultural Advisory Committees in the Public Secondary Schools of Ohio." (Wolf)

Myers, Donald K. "The Effectiveness of Traditional Lecture and Telelecture in Teaching Adults." (McCormick)

Oaklief, Charles. "Junior College Community Service Directors' Cognition of the Cooperative Extension Service." (McCormick)

Oren, Jr., John W. "An Appraisal by Clientele of the Ohio Cooperative Extension Service." (Cunningham)

Parkhurst, Carmen R. "Sources of Information Used by Commercial Poultrymen in Ohio." (Cunningham)

Rapp, Gene E. "Perceptions of the Role of an Agricultural Technician." (Bender)

Rathore, Omkar S. "The Adoption of Educational Program Innovations Among Area Extension Agents in Ohio." (Cunningham)

Reeves, Wade H. "Church-Related Programs in Agricultural Education in Cameroun and Uganda, Africa." (Bender)

Russell, Earl B. "Development of an Instrument to Assess the Change Orientation of Vocational Teachers." (Warmbrod)

Schmitt, Henry E. "Preparing Agricultural Education Teachers for the Disadvantaged." (Bender)

Sheppard, N. A. "Vocational Certainty and Indecision in College Freshmen at The Ohio State University." (Warmbrod)

Soobitsky, Joel R. "Perceived Training Needs of Urban Cooperative Extension Agents Working with Disadvantaged Audiences." (Cunningham)

Steele, Doris H. "The Identification of Opinion Leadership in Family Living Among Low Income Homemakers." (Cunningham)

Urbanic, Charles E. "Effectiveness of the Use of a Student Reference in Teaching Ornamental Horticulture to High School Students." (Woodin)

Vice, Billy J. "Variables Related to the Offering of Continuing Education in Agriculture." (Bender)

Welton, Richard F. "Relationship of Student Characteristics and Program Policies to Participation in FFA." (Bender)

Young, Richard E. "The Effectiveness of a Correspondence Course for New 4-H Leaders." (Cunningham)

Staff Research

Bender, Ralph E. "Occupations of 1970 Vocational Agriculture Graduates in Ohio."

Cunningham, Clarence J. "Validation of Personnel Selection Instruments in the Cooperative Extension Service."

Woodin, Ralph J. "Supply and Demand for Teachers of Vocational Agriculture in 1970."

In-Service Education Program for New Teachers

An intensive in-service educational program for 84 new teachers of vocational agriculture was conducted. The purpose of the program was to further develop the competencies needed by teachers to plan, organize, conduct, and evaluate their total program of vocational agriculture in local communities.

The program consisted of approximately 70 clock hours of workshops, small group seminars, and individual consultation which were planned and conducted by Guiler and Starling. A three-day workshop was held in July to assist new teachers who held a four-year provisional certificate in planning their individual curriculums and the total vocational agriculture program for the high school in which they were employed as a first-year teacher. A five-day workshop was held in August for those teachers who held a one-year teaching certificate. This time was largely devoted to methods of teaching and planning a vocational agriculture curriculum. Every teacher had the experience of giving a demonstration on videotape and then evaluated by teachers observing.

The following is a brief outline of the total in-service activity and purpose conducted for all new teachers during the year.

The New Teacher Program Schedule of
In-Service Training Activities, 1969-70

In order to provide all new teachers of vocational agriculture with adequate and effective in-service training, the following schedule has been planned.

Date	Activity and Purpose	Location
July 7	Orientation program and dinner Outline total in-service program	Raney Commons, OSU campus 5:00-7:30 p.m.
July 7-9	Annual Teachers' Conference In-service - professional	Agr. Administration Building Auditorium
July 28-29-30	Three-day workshop for all new teachers with four-year provisional certificate - curriculum planning	Agr. Administration Building Auditorium
August 18-22	Five-day workshop for all new teachers with special 1-year teaching certificates - curriculum and methods	Agr. Administration Building Auditorium
September	One-half day seminar Youth organization	In geographical area of your school
October	Individual visit--classroom problems and adult education	In your school
November	One-half day seminar--teaching occupational experiences	In geographical area of your school
December 29-30	Two-day workshop--curriculum adjustments and total program	Agr. Administration Building Auditorium
January	Individual visit--occupational experience records and agr. mechanics	In school
February	One-half day seminar--agricultural mechanics and FFA	In geographical area
March	Individual visit--teaching methods and individual evaluation	In school
April	Individual visit--inventories, individual evaluation	In school
May	One-half day seminar--year end closing school year--evaluation	In geographical area
May	Evaluation and summary of new teacher program	

TABLE 10

NUMBER AND STATUS OF NEW AND RETURNING TEACHERS OF VOCATIONAL AGRICULTURE EMPLOYED IN OHIO HIGH SCHOOLS DURING PAST FOUR YEARS

Status	Sept. 1 1966	Sept. 1 1967	Sept. 1 1968	Sept. 1 1969
New Ohio Teachers Employed	33	38	34	56
Returning Ohio Teachers	4	2	4	2
Out-of-State Teachers	1	1	4	2
Ohio Trainees and Other Personnel on Special Placement	0	7	17	21
New Ohio Teachers Employed After September 1, 1969	8	2	3	3
TOTAL	46	50	63	84

A mid-year two-day workshop/seminar was conducted December 29-30 for all new and returning teachers at The Ohio State University in the Agricultural Administration Auditorium. The purpose of this workshop was to evaluate progress, improve plans for curriculum, identify problems and share experiences. In addition, each new and returning teacher was observed approximately three times during the school year by teacher educators and supervisors.

Vocational agriculture has rapidly become more diversified and not all production agriculture as in the past. This is indicated by the number of new teachers employed in specialized areas of vocational agriculture. A large number of teachers were on special placement (temporary certificate) due to the shortage of fully trained personnel for special fields such as agricultural equipment and mechanics, horticulture, conservation, and agricultural business.

A role perception-expectation study was initiated in 1965 by Guiler and continued through 1970 involving all new and returning teachers to help the Department of Agricultural Education assess the relative effectiveness of the internship program afforded teachers during their first year of employment. The results of this study should provide additional insights into the further structuring of the internship programs.

TABLE 11

NUMBER OF NEW AND RETURNING OHIO TEACHERS
AS SHOWN BY AREA OF SPECIALIZATION
1969-70 SCHOOL YEAR

Area of Specialization	Number of New Teachers
Production Agriculture 0100	45
Agricultural Business and Supplies 0200	2
Agricultural-Industrial Equipment and Service 0300	6
Ornamental Horticulture 0500	15
Farm Business Planning and Analysis 9900	3
Agricultural Work Experience (DAY) 9900	12
TOTAL	84

An evaluation of new and returning teachers of vocational agriculture is made by school administrations at mid-year and at the end of the school year. These data are used for basis of individual teacher counseling and to further enhance the total in-service program.

In-Service Education for All Teachers of Vocational Agriculture

The in-service education program which is a cooperative effort between the supervisory staff, State Department of Education, and the teacher education staff was designed to further develop competency in teaching vocational agriculture. This program was coordinated by Welch Barnett and Gilbert Guiler.

During July and August of 1969, teachers participated in seven individual non-credit, in-service education workshops held at various locations throughout the state. The area of technical agriculture presented and the number of teachers enrolled were as follows:

Name of Workshop	Location	No. of Teachers	Dates
Spray Painting School	The DeVilbiss Co. 300 Phillips Ave. P. O. Box 913 Toledo, Ohio	11	Aug. 21-22, 1969
Laying Concrete Block and Finishing Concrete	Mount Blanchard	24	July 23-24, 1969
Animal Nutrition	Springfield	28	Aug. 5-8, 1969
Soil Fertility and Water Management	Nelsonville	32	Aug. 11-14, 1969
Basic Electricity	Bowling Green	42	Aug. 12-13, 1969
Hobard Welding School	Troy, Ohio	8	August 1969

During the period June 15-July 2, 1970, there were 153 teachers enrolled in 13 different professional courses, technical courses, and workshops as follows:

Professional Courses

		Instructor	Enrollment
Agr. Educ. 621	Curriculum Planning	Guiler	25
Agr. Educ. 631	Methods of Teaching	Bender	22
Agr. Educ. 641	Occupational Experience	Woodin	14
Agr. Educ. 642	Youth Organizations	Boucher	17
Agr. Educ. 795.04	Program Planning	Warmbrod	19
Agr. Educ. 810	Principles of Voc. Educ.	Woodin	17

Technical Courses

Agr. Engr. 594	Hydraulics	Johnson	7
Agr. Engr. 594	Agricultural Mechanics	Johnson	10

Full-Time Workshops

Agr. Educ. 684	Agr. Business and Supplies Intern	Wolf and Watkins	6
Agr. Educ. 684	Agr. Equipment and Mechanics Intern	Hummel	7
Agr. Educ. 684	Horticulture Intern	Parks and Davis	11
Agr. Educ. 790.12	Agr. Business & Supplies	Wolf and Watkins	31
Agr. Educ. 790.23	Continuing Education (FBPA)	Starling	16
Agr. Educ. 790.25	Disadvantaged Youth	Wilson and Crabbe	14

The Annual Conference for Teachers of Vocational Agriculture was held July 7, 8, and 9. It was conducted primarily by the State Department of Education in cooperation with the Ohio Vocational Agricultural Teachers' Association. It was devoted to the theme "Planning for More Effective Teaching."

During the year teacher education staff members assisted in planning and conducting the teachers' conference, the State Young Farmer Conference, the Ohio FFA Convention, the Annual Vocational Agriculture State Judging Contests, the Ohio Junior Fair Program, and the In-Service Education Program for Teachers of Vocational Agriculture.

International Education

The department continued to support University programs of international education with Leon Boucher as Departmental Coordinator. The department was represented by him on the College International Task Force which developed goals and projected needs in international education through the next 15 and 30 year period.

Five foreign nationals are pursuing a Ph.D. degree in agricultural education. They are Y. P. Singh, O. S. Rathore, and Omkar Kunzru from India, Ahmad ElZoobi from Syria, and Joseph Efionayi from Nigeria. Joaquim Engler of Brazil is taking a minor area in agricultural education in his Ph.D. program. Abdul Wahaj of Afghanistan spent three quarters in the Department of Agricultural Education receiving credit toward a Master's program.

The department cooperated with the International Farm Youth Exchange program and one agricultural education graduate major participated in the IFYE program in India. Seven foreign visitors from four countries (Cyprus, Zambia, Brazil, and India) were provided conducted tours to selected vocational agriculture programs in Ohio. Staff members also were called upon as consultants to review agricultural education proposals relating to the training of teachers in selected foreign countries. The department expresses its willingness to cooperate in any way possible with the College and University Offices of International Affairs to promote programs of teacher education, vocational agriculture, and agricultural extension.

Technical Education and the Agricultural Technical Institute

During the past two years Jerry Halterman, Director Designate of the Agricultural Technical Institute, Wooster, has been engaged in developing plans for the establishment and operation of this specialized two-year post-secondary institution. Building upon the preliminary work completed by Bender and Woodin of this department in 1965-66, Halterman has during this past year made significant gains with the project. Included among those accomplishments considered most important are:

1. The Director Designate of the Institute visited established technical institutes in Wisconsin, Michigan, Ohio, and New York.

2. Tentative curriculums for each of 13 agricultural technologies were prepared.

3. The College of Agriculture and Home Economics joined in organizing the Ohio Agricultural Technician Education Coordinating Committee, a state-wide group of persons representing educational institutions and agencies which have a vital interest in technical education in agriculture.

4. Preparation was made of a comprehensive "Administrative Guide" for use in the establishment and operation of the technical institute.

5. An allocation of three million dollars for the establishment of an Agricultural Technical Institute, Ohio State University - Wooster was included in H. B. 531 passed by the 108th Ohio General Assembly in August 1969.

6. A thirty-acre plot of land located approximately one-fourth mile southeast of the new auditorium building and along State Route 250 on the OARDC campus has been designated as the site for the central campus of the technical institute.

7. The need for additional land to be used as land laboratories for the Institute was reviewed in December 1969 at a meeting held at the OARDC and attended by representatives of the Ohio Board of Regents, the office of The Ohio State University Vice President for Business and Finance, The Ohio State University College of Agriculture and Home Economics, the OARDC, and the Physical Plant Subcommittee of the General Ad Hoc Committee, "Technician Education in Agriculture." The need for approximately 170 acres for this purpose was demonstrated. The concensus of the group was that land needed to support the instructional program be secured.

8. An "Official Plan for The Ohio State University Technical Institute of Agriculture" was prepared and submitted by the College to James A. Robinson, Vice President for Academic Affairs.

9. The "Program of Requirements" (Educational Specifications) for the first phase of the Institute project was prepared by the College and the Office of Campus Planning. In February 1970, the President's Cabinet and the Board of Trustees, The Ohio State University, adopted the program as presented in this document and forwarded it to the Ohio Board of Regents.

10. The Board of Trustees of The Ohio State University at their March 1970 meeting appointed the firm of Tuckman and Canute, Akron, as architect for the project as proposed in the Program of Requirements.

11. The Ohio Controlling Board, upon request, released funds to be used in planning the initial phase of the Institute.

12. Limited resources of the Institute have made it necessary to propose the building of the physical plant in phases. Facilities to be included in Phase I are intended to serve a student body of some 300 students. Instruction will be offered in specialized areas related to agricultural research and laboratory technology, agricultural chemicals, soil fertility and plant nutrition, general crops production, ornamental and landscape horticulture, and wood science.

13. Additional facilities are proposed in Phase II which will increase the capacity to serve a total of 750 students. Expansion of curricular offerings to include specialized studies in animal science, food technology, and agricultural mechanics is also proposed.

It is anticipated that the instructional program of the Institute will be initiated during the fall of 1972. The objectives of the Institute include:

1. To offer a post-high school college level program in selected agricultural technologies each one of which is directed toward occupational placement upon completion by the student.

2. To qualify each graduate with regard to their distinctive abilities, level of occupational competence, and specialized training appropriate for agricultural technicians. Emphasis is upon technical and cognitive skill and understanding in contrast to manipulative skill; upon skill and ability to make practical applications of theoretical knowledge in performing specific tasks in a specialized field; and upon the preparation for occupational proficiency in families or clusters of jobs.

3. To offer formal programs of instruction for:

   a. Persons desiring to acquire entry level occupational qualifications.
   b. Employed persons desiring upgrading or retraining in a formal academic setting.
   c. Retraining of unemployed workers.
   d. Training or retraining of handicapped or disadvantaged persons.
   e. Partial preparation of persons interested in becoming teachers of technical education.
   f. Pre-technical preparation for qualified persons who need additional time and assistance to overcome deficiencies in their educational achievement.

Curriculum Materials Service

The Ohio Agricultural Education Curriculum Materials Service continued as a cooperative activity sponsored by the Agricultural Education Service, State Department of Education, and the Department of Agricultural Education for the purpose of improving instruction in vocational agriculture. The activities of the Service were under the direction of Harlan Ridenour, who served as coordinator.

An advisory group composed of teachers of vocational agriculture and representatives of the supervisory and teacher education staffs served to review the activities of the Service and to recommend policy changes. From time to time special advisory groups in subject matter areas composed of experienced teachers, staff members, and representatives from industry were called together to develop areas of need.

After curriculum materials needs were identified, the first step taken by the Curriculum Materials Service was to search for existing materials that would provide suitable educational experiences for students.

The sources of these materials were as follows: Vocational Curriculum Materials Services in other states, the Cooperative Extension Services in the various states, the U. S. Department of Agriculture, Foundation programs, The Center for Vocational and Technical Education, and commercial sources. A catalog listing 696 printed and audio-visual items that could be ordered through the Service by teachers was published. About 70,000 such items were ordered by the Ohio vocational agriculture teachers. The catalog also listed an additional 315 items that could be ordered direct from their source by teachers.

When curriculum materials needs could not be supplied by available materials, the Service took steps to prepare the required materials. A catalog listing the materials produced by the Service was prepared and distributed to Ohio teachers of vocational agriculture and agricultural education services in other states. The spring 1970 catalog listed a total of 87 items that have been developed by the Ohio Agricultural Education Curriculum Materials Service. The development of materials required the constant revision of existing materials to keep the information current.

The materials prepared and published by the Ohio Agricultural Education Curriculum Materials Service during the 1969-70 fiscal year were as follows:

Manuals--

AGDEX, A System for Classifying and Filing Publications (Revision)
Corn Drying, 139 pp.
Livestock Breeding, 194 pp. (Revision)
Poultry Judging, 22 pp.
Weed Control, Cultural and Chemical, 111 pp.

Combines and Combining, 105 pp. (Revision)
Individual Study Guide in Electrical Systems for the Gasoline Engine, 212 pp.
Individual Study Guide on Carburetion, 112 pp.
Corn Pickers and Picking Corn, 137 pp.
Office Procedures Used in the Agricultural Services, Student Manual, 86 pp. (Revision)
Office Procedures Used in the Agricultural Services, Test and Answer Supplement, 64 pp.
Business Practices for Agricultural Machinery Dealers, 94 pp. (Revision)
- Part I. Parts Department, 100 pp. (Revision)
- Part II. Shop Service, 60 pp. (Revision)
- Part III. Equipment Sales, 70 pp. (Revision)
- Teacher's Guide, 51 pp.

The Greenhouse Worker, 152 pp.
Agricultural Conservation Education, A Course of Study, 24 pp.

Slides--
Installing the AGDEX Filing System, 29 slides
Geranium, 30 slides

Transparencies and transparency masters--
Principles of Weed Control, 46 transparencies

Materials Currently Under Development

Manuals--
Plant Growth and Nutrition
Insurance for the Farmer
Grain Marketing
Livestock Marketing Game
Livestock Marketing (Revision)
Livestock Feeding
Nursery Worker
Garden Center Worker
Turf Management
Balers
Identification of Ohio Plants (Revision)
Fundamentals of Plant Identification (Revision)
Seed Production (Revision)
Soil Conservation Service Aid
Drainage

Slides--
Identification of Ornamental Shrubs
Identification of Ornamental Trees
Principles of Corn Picker Operation
Poinsettias
Soil Properties
Tillage Systems
Fertilizing Crops
Fundamentals of Plant Identification (Revision)
Identification of Ohio Plants (Revision)

Transparency Masters--
Plant Growth and Nutrition
Livestock Feeding
Plows and Plowing
Livestock Breeding

Periodicals and Newsletters (The following periodicals and newsletters were made available to Ohio teachers of vocational agriculture)

Film and Video Tape Catalog--Cooperative Extension Service
Announcements and Notes on Instructional Materials--Vocational Agriculture Curriculum Materials Service
Ohio Agricultural Education News--Department of Agricultural Education and Division of Vocational Agriculture, quarterly
Soil Conservation District News--Soil Conservation Services
Ohio Herd Improvement Observer--Department of Dairy Science, OSU
The Ohio Future Farmer--Ohio FFA Association
The Ohio Young Farmer News--Ohio Vocational Agriculture Service
College of Agriculture Placement Office Newsletter
Agronomic Tips
Ohio Report on Research and Development--Ohio Agricultural Research and Development Center
Buckeye Publications--Cooperative Extension Service

Extension Publications (OSU)

A total of four Cooperative Extension Service publications were made available for distribution to Ohio teachers.

Ohio Agricultural Research and Development Center

One copy each of the 1969-70 publication of the OARDC was distributed to each teacher of vocational agriculture through the Center's mailing room.

Guidance Materials (OSU and Department of Agricultural Education) distributed to teachers

Look Ahead--Poster
Department of Vocational Agriculture with Agricultural Education Majors Enrolled, 1969
Facts on Jobs in Agricultural Education
For You a Bright Future in Teaching
Choose Agriculture--Poster
Letter to teachers from Chairman, Agricultural Education Division, AVA Recruitment Commission for Agricultural Education
Agricultural Education Careers
Financial Aids for Students at OSU
Letter--Ohio Recruitment for Agricultural Education
Be an Influential American
Freshmen Admission at The Ohio State University
Agriculture and Natural Resources
Student's Program of Courses in Agricultural Education
Rewarding Career in a Dynamic Industry--Agriculture

The Ohio Agricultural Education Curriculum Materials Service was a member of the American Association for Vocational Instructional Materials. The Director of the Ohio Service served as a member and secretary of the American Association Board of Directors. As a result of the participation, a total of 21 publications, 9 filmstrips, and 2 transparency sets are available to Ohio teachers through the Ohio Curriculum Materials Service.

The three catalogs distributed by the Ohio Agricultural Education Curriculum Materials Service listed a total of 1,130 different curriculum materials items that could be obtained by teachers. Each of the curriculum areas was represented.

Materials were distributed on a national basis. Some items have been adopted by industry for use in their training programs.

Public Information

The centennial of The Ohio State University provided an opportunity for a special program of public information which resulted in the recognition of 120 alumni of the department from 21 states, two Canadian provinces (Quebec and Ontario), and two foreign countries (Pakistan and India) in connection with the centennial of the College of Agriculture and Home Economics. The development of an Agricultural Education Alumni Organization, of which Willard Wolf is executive secretary-treasurer, was another result of this year's centennial activities.

Several publications were produced and edited by members of the agricultural education staff and provided public information on the program. Warmbrod is completing his final year of a three-year term as Editor of The Agricultural Education Magazine, the professional journal of agricultural education. Boucher edited the "Ohio Agricultural Education News," published quarterly and distributed to all teachers in the state. Bender edited "Teach," a newsletter for staff members and graduate students. A number of other publications have carried pictures and articles regarding the Ohio program, and they include the "Ohio Vocational Reporter," the "National Future Farmer," and "The Ohio Farmer."

Members of the staff gave assistance to teachers and worked with supervisors in publicizing events at the Ohio State Fair, the FFA Convention, the Young Farmers' Convention, and the Annual Teachers' Conference.

Other public relations activities of the staff members include Bender's responsibility as President of the Agricultural Education Division of the AVA and Vice President of the AVA; Guiler's service as Membership Secretary of the Ohio Vocational Association; and Boucher's service as a member of the Public Information Committee of the AVA.

Facilities

The department is housed in the Agricultural Administration Building. Its facilities include 13 offices for staff, 5 secretarial stations, one conference room, and three rooms to accommodate 25 graduate students.

During the year videotape machines and recorders were secured, including two Shibaden SV-700U Recorders, two HV-15 cameras with 12.5mm, 25mm, and 90mm zoom lens, and two monitors (one 12" and one 19"). Also secured were one new copying machine and one IBM typewriter.

The facilities of the department are taxed to the limit. An urgent need is for storage space to accommodate a growing Curriculum Materials Service. The efficiency of the staff is handicapped by not having air conditioning. Probably no other department in the College has as heavy a teaching load as the Department of Agricultural Education during the summer quarter. It is the only set of offices in the Agricultural Administration Building without air conditioning.

Alumni Association

The Agricultural Education Alumni Association was organized on February 8, 1969. The members of the Executive Committee were Warren Weiler, President; Donald B. Robinson, Vice President; Willard H. Wolf, Executive Secretary-Treasurer; and James Haskins, Calvin Leimbach, Harland Martin, Franklin Miller, Harold Oyster, Harold Richard, Robert Smith, and Harold Thoburn. The meetings of the Executive Committee were held--one on August 26, 1969 and the other on April 10, 1970.

A meeting of the alumni was planned and conducted on February 12 and 13, 1970, at the time of the College alumni get together. A special program was also planned for the agricultural alumni on Friday, February 13, with 160 in attendance. The Association adopted guidelines called "Operating Policies" and action was taken to hold the next meeting in February 1971.

Committees of the Association were active during the year preparing a directory and digest of the departmental history. The Executive Committee is meeting in late summer or early fall of 1970. At this meeting plans are to be developed to facilitate county or district organization for the promotion of agricultural education at all levels. Emphasis will be placed on recruitment of students for the Department of Agricultural Education and the procurement of finances to assist students majoring in agricultural education.

Long-Range Planning in Agricultural Education

The department was a part of a long-range planning study made by the College of Agriculture and Home Economics during 1970. Most members of the faculty served on various task forces of the College and in addition contributed to a long-range plan for the department. The long-range study attempted to develop a blueprint for future action on the part of the College and the department, looking forward to the years 1985-2000.

The task force for the Department of Agricultural Education included Leon Boucher, Clarence Cunningham, Darrell Parks, Robert Warmbrod, Richard Wilson, and Ralph Woodin, chairman. This committee held a series of meetings from October through May which provided the basis for a 27-page report which was organized in terms of the future environment of the department, the future role and mission of the department, and future programs of the department in broad outline.

Goals for the department were established in terms of undergraduate preparation of teachers, graduate education, certification of teachers from the agricultural industry, in-service education for beginning teachers and Extension personnel. Other sections dealt with international agricultural education, the development of a learning resource center, and needed expansion in research and development of the department.

Also receiving attention in the long-time plan were the plans for the development of curriculum materials, differentiated staffing, and plans for staff renewal.

Projections were developed for numbers of teachers and programs in Ohio high schools for the years 1985 and 2000. Total enrollments of high school plus adult enrollment were expected to move from 29,691 in 1970 to 33,500 in 1985 and to require a total of 810 teachers in 1985.

THE STAFF IN AGRICULTURAL EDUCATION, 1969-70

Name and Title	Sources for Salary: Teach Educ	Supvn in Vo-Ag	Coop Ext	Other	Notes
Professors					
Bender, Ralph E.	X		X		Chairman of Department
Gehres, Albert F.			X		Started 5/1/70
Halterman, Jerry J.				College of Agriculture	Director Designate of Technical School at Wooster
Johnson, Carlton E.				Dept. of Agr. Engineer.	In charge of agr. mechanics
Kirby, Edwin L.			X		Terminated 8/31/69
McCormick, Robert W.	X			University Administration	Asst. Vice President in charge of Continuing Education
Ritchie, Austin E.				College of Agr. Admin.	Assistant Dean
Robinson, D. B.					Professor Emeritus 7/1/69
Taylor, Robert E.				Center for Voc.-Tech. Ed.	Director of Center
Warmbrod, J. Robert	X				
Wilson, Richard H.	X				
Wolf, Willard H.	X				
Wood, Wilbur B.					Professor Emeritus
Woodin, Ralph J.	X				
Associate Professors					
Bolender, Elbert O.					Emeritus, Supervisor of Voc. Agr.
Boucher, Leon W.	X				
Cunningham, Clarence J.	X		X		
Guiler, Gilbert S.	X				
Hensel, James W.				Center for Voc.-Tech. Ed.	Terminated 9/15/69
Hull, William L.				Center for Voc.-Tech. Ed.	Started 7/1/69
Schroeder, Wayne E.				Center for Voc.-Tech. Ed.	Started 10/1/69
Assistant Professors					
Cameron, Walter A.				Center for Voc.-Tech. Ed.	Started 9/1/69; terminated 6/30/70
Geyer, Richard E.			X	OARDC & College Admin.	Started 9/1/69
Jenkins, David D.	X		X		
Lester, Herschel T.				Center for Voc.-Tech. Ed.	Terminated 8/31/69
Lifer, Charles W.	X		X		Inst. 7/69-12/69; Asst. Prof. 1/1/70
Magisos, Joel H.				Center for Voc.-Tech. Ed.	
Robinson, Ted R.				University Administration	Asst. Director of Admissions
Ruble, Floyd J.					Emeritus Supervisor

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THE STAFF IN AGRICULTURAL EDUCATION (CONTINUED)

Name and Title	Sources for Salary: Teach Educ	Supvn in Vo-Ag	Coop Ext.	Other	Notes
Instructors					
Archer, Clyde F.				Biological Sciences	Assistant Dean
Pulse, Paul F.		X			
Swartz, Dennis C.				College of Agr. Admin.	Counselor 3/14/70
Waliser, Don				College of Agr. Admin.	Secretary of College 3/14/70
Young, Richard			X		
Consultants					
Barnett, C. Welch		X			
Carr, Harold				Research & Survey	
Davis, John H.		X			
Dougan, James E.					Asst. Director of Vocational Education
Parks, Darrell L.		X			
Parks, Thomas				Research & Survey	Started 7/1/69
Ridenour, Harlan E.		X			Director, Curriculum Materials
Starling, John T.	X	X			Farm Business Planning Specialist
Tower, C. O.				Research & Survey	Director
Watkins, John W.		X			
Associates					
Bloss, Norman F.		X			Instructional materials, Su,A,W,S
Budke, Wesley E.		X			Instructional materials, A,W,S
Iverson, Maynard J.				OARDC	Eval. of technical educ., Su,A,W,S
Lewis, Wiley B.		X			Instructional materials, A,W
Long, Gilbert A.	X				Personnel needs for agr. ed., July & Aug.
Morgan, John P.		X			Instructional materials, Aug.,Sept.,A,W,S
Mulvana, John B.		X			Instructional materials, A,W,S
Schmitt, Henry E.	X				Assisted in undergrad. teaching, Su,A,W,S
Urbanic, Charles E.		X			Instructional materials, June 16,Su,A,W,S
Vice, Billy J.		X			Instructional materials, July
Welton, Richard F.	X				Personnel needs for agr. ed., Su,A,W,S

Regular Clerical Staff--Polly Blackburn, Mary Eaton, Martha Ervin, Louise Goodall, Marjorie Hill, Mary Krieger, Jill Maxwell, Zelma Parker, Connie Rummel, Barbara Satchell, and Susan Wenger.

Part-time Clerical Staff--John Aldrich, Anne Amspoker, Francis Bergman, Virginia Boucher, James Burns, Mildred Dumas, Susan Engel, Jeanne Ervin, Sue Falzerano, Margaret Gossweiler, Muriel Guiler, Sandra Gutilla, Gayle Iverson, Joanna Kister, Shirley Kosbab, Joan Lyle, Marian Parks, Peggy Penrod, Susan Prodell, Evelyn Roediger, Virginia Sergent, Grace Twine, Iva Vening, and Christine Wenger.

ERIC

SOME STAFF SERVICES AND PUBLICATIONS
(As Reported by Staff and Not Included Elsewhere in the Report)

Ralph E. Bender, Professor and Chairman

American Vocational Association
Vice President and Member Board of Directors
President of Agricultural Education Division
Consultant, U. S. Office of Education
U. S. Office of Education Committee, National Outlook in Agricultural Education
Chairman, University Centennial Award Winners Committee
Member of College Executive Committee, President's Club Committee, Resident Instruction Long-Range Task Force, and Organization and Structure Task Force
University Faculty Council (alternate)
Member, Ohio FFA Board of Trustees

Publications:
"The 1969 Occupations of Recent Graduates of Vocational Agriculture in Ohio," Department of Agricultural Education, The Ohio State University, January 1970 (mimeo).
"Attitudes and Principles Regarding Vocational Education in Ohio," (A Research Report with Darrell Parks) Department of Agricultural Education, The Ohio State University, January 1970.
"Agricultural Occupations Program Development in Area Vocational Schools" (Ralph E. Bender, Director, and J. Robert Warmbrod, Editor), Department of Agricultural Education, The Ohio State University and U. S. Office of Education, September 1969.
"Role of High School Vocational Agriculture in Occupational Decision Making," Department of Agricultural Education, The Ohio State University, October 9, 1969 (mimeo).
"Student and Program Characteristics of Technical Agriculture Programs in Ohio" (A Research Report with Maynard Iverson and Vincent Feck), Department of Agricultural Education, The Ohio State University, April 1970.
"AVA Is Effective--But More Leadership Is Needed," The Agricultural Education Magazine, June 1970.
"Helps in Mastering Parliamentary Procedure" (Revision of W. F. Stewart bulletin with Guiler and Woodin), 1970.

Jerry J. Halterman, Professor

Director Designate, Agricultural Technical Institute, Wooster.
Member, Task Force on Organization and Structure of the College, OARDC, and OCES
Member, Resident Instruction Planning Team Long-Range Study
Secretary, Ohio Agricultural Technician Education Coordinating Committee
Member, Ohio Board of Regents Master Plan Review Committee on Technical Education

Carlton E. Johnson, Professor (Department of Agricultural Engineering and Member of Graduate Faculty, Agricultural Education)

Member, Centennial Committee, College of Agriculture
Chairman, Committee on Instruction in Agricultural Mechanization, American Society of Agricultural Engineers
Chairman, Permanent Reference Committee, American Association for Vocational Instructional Materials
Member, Long-Range Committee, Development and Maintenance of Professional Competence Task Force, College of Agriculture
President, Gamma Sigma Delta, 1969-70

Robert W. McCormick, Professor (and Assistant Vice President for Continuing Education and Director, Center for Tomorrow)

Vice Chairman, Administrative Advisory Committee on Continuing Education
Member, Office of Educational Services Executive Committee
Member, Advisory Committee on Labor Education and Research Service
Committee on Industrial Extension, NASULGC
Committee on Staff Development and Training, Council on Extension, NASULGC

Robert E. Taylor, Professor (and Director, Center for Vocational and Technical Education, and ERIC Clearinghouse for Vocational and Technical Education)

Graduate Council, Policy and Standards Committee and Elections Committee
Executive Committee, Graduate School
Graduate Education and Research Committee, College of Agriculture
Ad Hoc Committee, Technical Education in Agriculture, College of Agriculture
Academic Faculty for Vocational and Technical Education, College of Education
Advisory Committee, Center for Human Resources Research

Publications:
"Vocational Education," Teacher's Handbook. Glenview, Illinois: Scott, Foresman and Company. (Co-author) (at press)
"Research and Development in Vocational Education," The Encyclopedia of Education. New York: The Macmillan Company. (Co-author) (at press)
"Implications for Agricultural Education--the Vocational Education Amendments of 1968," The Agricultural Education Magazine, Vol. 42, No. 1.
"VT-ERIC: Purposes, Programs, Projections," Journal of Educational Data Processing (co-author). Vol. 7, No. 2, April 1970.

J. Robert Warmbrod, Professor

Chairman, Task Force on Development and Maintenance of Professional Competence, College of Agriculture
Proceedings Recorder, Agricultural Education Division, American Vocational Association
Publications Committee, American Association of Teacher Educators in Agriculture
Editorial Adviser, Occupational Education Series, Charles E. Merrill Publishing Company
Participant, AVA Research Training Session on "Program/Project Management," Boston, Massachusetts, December 3-5, 1969
Participant, American Educational Research Association Presession on "Multivariate Statistical Analysis in Educational Research," University of Chicago, February 26-March 2, 1970.
Participant, Survey Research Workshop, College of Education, The Ohio State University, May 11-13, 1970
Participant, College of Education Research Retreat, Burr Oak Lodge, January 22-23, 1970

Publications:
Editor, The Agricultural Education Magazine. Following editorials were written:
"What Impedes Vocational Education?" 42:3-4; July 1969
"Vocational Education and Career Exploration." 42:27-28; August 1969
"Projects: Use and Abuse." 42:55-56; September 1969
"School-Industry Cooperation." 42:111-112; November 1969
"Are We Ready for the Seventies?" 42:135-136; December 1969
"Teachers Determine Program Effectiveness." 42:163-164; January 1970
"Agricultural Education in the City." 42:191-192; February 1970
"Is a 'New' Vocational Education Emerging?" 42:215-216; March 1970
"Prospects in Perspective." 42:271-272; May 1970
"Possible Principle-Practice Gap in Evaluation." 42:299-300; June 1970
"Agricultural Education Division." AVA Convention Proceedings Digest, Boston, Massachusetts, December 6-10, 1969
"Summary of Research on the Economics of Vocational-Technical Education." Paper presented at a session of the Research and Evaluation Department, American Vocational Association, December 1969
"Interpreting Evaluation Findings." Paper presented at a Workshop on Developing Procedures and Techniques for Evaluating Manpower Development and Training Act Programs, Louisville, Kentucky, May 1970.

Richard H. Wilson, Professor

Member, College Graduate Education and Research Committee
Member, College Film Review Committee
Member, College Task Force on Development and Maintenance of Professional Competence
Regional Vice President, American Association of Teacher Educators in Agriculture
Member, Publications Committee, Agriculture Section, AVA

Publication:
"Assistantships and Fellowships in Agricultural Education, 1970-71," The Agricultural Education Magazine, January 1970.

Willard H. Wolf, Professor

Chairman, College Committee on Programs and Activities
Chairman, Centennial Publicity Committee
Member, College Centennial Committee, Committee on Honorary Degrees, and Committee on Academic Assistance Program
Coordinator, Chemistry tutoring for Academic Assistance Program
College Committee for selecting awardees for Processed Limestone Scholarships and National Agricultural Youth Institute
Chairman, Gamma Sigma Delta Committee for Selecting College Teaching Award
Secretary-Treasurer, Department of Agricultural Education Alumni Association

Publications:
Coordinator and Editor of the publication "History of the Department of Agricultural Education," The Ohio State University
Editor of the Digest "History of Agricultural Education" for the members of the Alumni Association
Coordinator of the Directory of Graduates of the Department of Agricultural Education
"Livestock Enterprise Record Book" and "Crop Enterprise Record Book," revision with John Starling
Member of the National Committee on preparing the 1969 edition of "Supervised Occupational Experience in Agriculture"

Ralph J. Woodin, Professor

Member, Advisory Council, American Vocational Association
Chairman, Professional Personnel Recruitment Committee, Agricultural Education Division, AVA
Member, Teacher Education Study Committee, College of Education
Member, Vocational Education Curriculum Committee, College of Education
Recruitment Committee, College of Agriculture
Technical Education Advisory Committee, College of Agriculture

Woodin (Continued)

Board of Control, "The Agricultural Student," College of Agriculture
Member, Task Force on Natural Resources Development for Ohio, 1985-2000
Member, Task Force on Agricultural Education for Ohio, 1985-2000
Member, Overall Planning Team for Long-Range Planning in Agriculture, 1985-2000

Publications:
"AGDEX" - second edition, with Howard L. Miller, Publications Department, AVA, Washington, D. C., December 1969
"An Appraisal of the 1969 Conference of Ohio Teachers of Vocational Agriculture," Department of Agricultural Education, August 1969 (mimeo).
"A Five-Year Plan for a Department of Vocational Agriculture," Department of Agricultural Education, July 1970 (mimeo)
"The Feasibility of Using Video Tape Techniques in Pre-Service Teacher Education in Agriculture" (with Lowell E. Hedges), Research Series in Agricultural Education, Department of Agricultural Education, June 1970.
"Catching Up on the Supply of Teachers of Agriculture," The Agricultural Education Magazine, Vol. 42, No. 11, May 1970.
Revision, "Helps in Mastering Parliamentary Procedure" by W. F. Stewart (with Bender and Guiler), March 1970
Revision, "Appraising the Vocational Agriculture Program," Department of Agricultural Education, The Ohio State University, May 1970 (mimeo)
"Using the AGDEX Filing System," a series of slides with accompanying script and student exercises. Publications Department, AVA, Washington, D. C., January 1970.
"Teacher Education for the Future," with the Teacher Education Study Committee, College of Education, The Ohio State University, March 1970
"Agricultural Education in 1985 and 2000," Editor, Report of a Task Force in Agricultural Education, The Ohio State University, June 1970 (mimeo)

Leon W. Boucher, Associate Professor

Member, College Honors Committee
Member, College Academic Assistance Program Committee
Treasurer, Gamma Sigma Delta
Member, College Committee on Petitions, Dismissals, and Discipline
Adviser, College Chorus
Member, Public Information Committee, AVA
Participant, National Seminar on Vocational Teacher Education, Knoxville, Tennessee

Publications:
Editor, "The Ohio Agricultural Education News," quarterly
Grain Storage and Quality Control, Book Review in The Agricultural Education Magazine, February 1970

Clarence J. Cunningham, Associate Professor (and Assistant Director, Staff Development and Program Analysis, Cooperative Extension Service)

Member, College Committee on Instruction
Member, College Executive Committee
Member, College Cooperative Extension Service Administrative Cabinet
Member, National Extension Curriculum Seminar
Member, Adult Education Association of USA
Member, Commission on Professors of Adult Education

Publication:
"A New Thrust, Research with 8mm Films to Reach New Audiences," Ohio Cooperative Extension Service (with Lifer)

Gilbert S. Guiler, Associate Professor

Chairman, Program Planning Committee of COASTA Organization, AVA
State Membership Secretary, Ohio Vocational Association and AVA
Member, Membership Committee of Agricultural Division, AVA
Member, Ohio Vocational Association Board of Directors
Member, Ohio FFA Board of Trustees
Member, The Century Club, The Ohio State University Development Fund
Member, College of Agriculture Library Committee

Publications:
"The Ohio Vocational Association Reporter," Membership Report and articles in each of the four volumes
"How First Year Teachers Perceive Their Abilities," The Agricultural Education Magazine, Vol. 42, No. 12, June 1970

David D. Jenkins, Assistant Professor (and State Leader, Professional Improvement, Cooperative Extension Service)

Member, Steering Committee, National Extension Curriculum Development Seminar
Member, Ad Hoc Publications Committee, National Extension Curriculum Development Seminar
Ohio's Liaison, Journal of Extension, Extension Journal, Inc., Madison, Wisconsin
Member, American Institute of Cooperation, Young Farmers Committee, College of Agriculture
Member, Committee on Undergraduate Faculty Advisors' Meetings, College of Agriculture
Member, Task Force on Development and Maintenance of Professional Competence, College of Agriculture
Member, Educational Program Committee, The Ohio Farm and Home Electrification Council, Inc.

Charles W. Lifer, Assistant Professor (and State Leader, Extension Studies and Evaluation, Cooperative Extension Service)

Member, Committee on Recruitment, College of Agriculture
Adviser, University Farm Bureau Youth Organization

Publications:
"Ohio's Early History Comes to Life," The Ohio Farmer, May 1970.
"A New Thrust, Research with 8mm Films to Reach New Audiences," Ohio Cooperative Extension Service (with Cunningham)

John T. Starling, Assistant Professor (and Supervisor for Vocational Education, State Department of Education)

Member, Task Force Committee to revise and write procedures for Analysis of Farm Business Records
Member, Committee to develop a proposal whereby the Agricultural Education Service and the Cooperative Extension Service work cooperatively on the Farm Business Analysis Program
Member, Swine Improvement Committee

Publication:
Revision of "Livestock Enterprise Record Book" and "Crop Enterprise Record Book" (with Wolf)

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CAREER EDUCATION IN PUERTO RICO.

PUERTO RICO STATE DEPT. OF EDUCATION, HATO REY. AREA FOR VOCATIONAL AND TECHNICAL EDUCATION.
MF AVAILABLE IN VT-ERIC SET.
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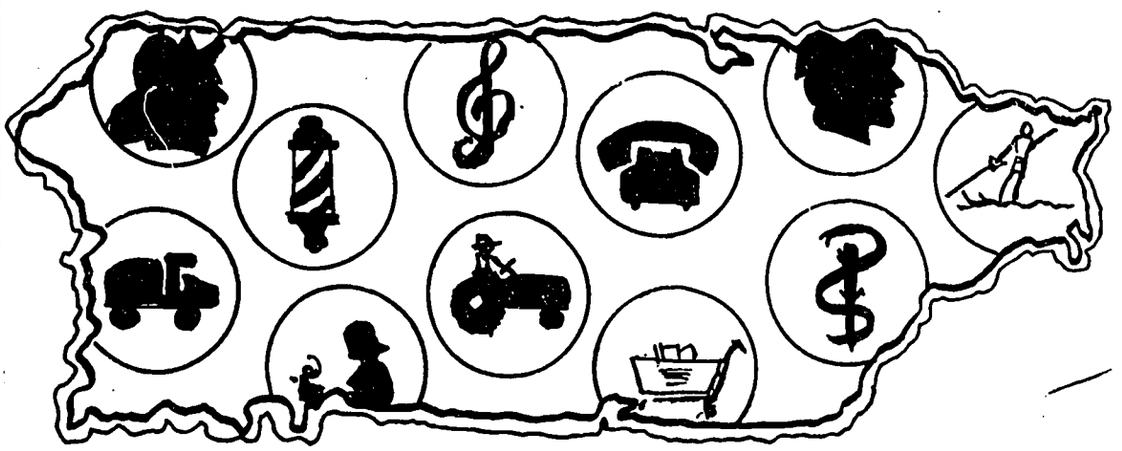
IDENTIFIERS - *PUERTO RICO

ABSTRACT - THIS DOCUMENT CONTAINS DESCRIPTIONS OF SEVEN OF THE SPECIAL CAREER EDUCATION PROJECTS DEVELOPED IN PUERTO RICO TO HELP STUDENTS BECOME AWARE OF THE OORLD OF WORK AND ITS POSSIBILITIES. FOUR PROJECTS PROVIDED CAREER ORIENTATION AND PREPARATION PROGRAMS FOP ELEMENTARY, JUNIOR HIGH, AND SENIOR HIGH SCHOOL STUDENTS IN DIFFERENT SCHOOOL DISTRICTS. ANOTHER PROJECT FOCUSED ON DEVELOPING INNOVATIVE METHODS FOR HANDICAPPED AND DISADVANTAGED CHILDREN AT ALL GRADE LEVELS TO PREPARE FOR OCCUPATIONAL TRAINING, WITH WORK EXPERIENCE FOR THE OLDER STUDENTS. IN A PROJECT FOR SECONDARY SCHOOL STUDENTS, AN INTRODUCTION TO OCCUPATIONS CURRICULUM WAS DEVELOPED TO PROVIDE INFORMATION TO HELP THE STUDENTS PLAN THEIR OCCUPATIONAL AND EDUCATION DECISIONS. IN ANOTHER COUNTRYWIDE PROJECT SIX 2-MINUTE FILMS WERE PREPARED TO GIVE JUNIOR AND SENIOR HIGH STUDENTS A GENERAL VIEW OF THE OCCUPATIONAL WORLD AND INFORMATION FOR MAKING CAREER PLANS. THE FILMS WILL BE USED IN THE SIX EDUCATIONAL REGIONS OF PUERTO RICO. (MF)

Commonwealth of Puerto Rico
DEPARTMENT OF EDUCATION
Vocational and Technical Education Program
San Juan, Puerto Rico

CAREER



EDUCATION

IN PUERTO RICO

1972

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COMMONWEALTH OF PUERTO RICO
DEPARTMENT OF EDUCATION
VOCATIONAL AND TECHNICAL EDUCATION PROGRAM
RESEARCH COORDINATING UNIT

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CAREER EDUCATION

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Introduction

A vital problem today in Puerto Rico is the harmonizing of personal achievement with the needs of a society many times larger and more intricate than that of early days. Educators have become dramatically aware of a new obligation in an era when full utilization of all talents is essential to the country's future well being. Our responsibility is to provide educational experiences that will inspire, among all students if possible, the unusual rather than the perfunctory effort.

A major goal of public education in Puerto Rico is to develop economic as well as occupational competency in students. To meet this goal implies leading our youngsters to discover productive means of earning their living according to their needs and interests.

To help our students become aware and explore into the world of work and into their needs and interests, the Vocational and Technical Education Program of the Commonwealth of Puerto Rico is developing some projects in specific areas.

This document includes a general description of seven of the major Career Education projects under development in the Commonwealth of Puerto Rico by the Guidance Program and the Research Coordinating Unit of the Vocational and Technical Education Program.

TITLE : Carolina School District Sequential Approach to Career Orientation and Preparation

OBJECTIVES :

The project has been designed with the aim of providing the youngsters of the schools involved in the program a series of vocational education experiences which will enable them to adapt to the challenge of a world where a technological revolution is taking place. The will as well be placed in the community as productive selfsatisfied citizens.

The program effort is directed toward expanding the students self awareness to an occupational structure, starting at the elementary level.

DESCRIPTION :

Elementary level

During the first year, fifth and sixth graders were participants of an extensive occupational orientation to increase awareness of the World of Work through: conventional instructions, audiovisual aids, community resources and people, and visits to business and industry and the area vocational school.

At the present time, all elementary students in schools participating in the project are included in the World of Work orientation through the present curriculum.

Junior level

At the junior high level a career orientation program was developed. The World of Construction Program, from the Ohio State University, was adapted and translated to Spanish.

During the second year of project operation all eighth graders boys in Salvador Brau and Jesús T. Piñero Rural Junior High School group and one group in Eduardo J. Saldaña Urban School will benefit from the World of Construction Program. The World of Manufacturing Program will be initiated in two urban junior high schools: Facundo Bueso and José M. Lázaro.

Girls of two schools received career orientation emphasizing job opportunities for women through a Home Economics course concerning educational opportunities at the senior and post-secondary schools levels.

The Introduction to Occupations course have been implemented in Eduardo J. Saldaña, urban junior high school, with ninth grade students.

A curriculum guide for occupational exploration was developed implementing the cluster approach. It's being used with seventh graders.

The Occupational Guidance and Counseling Program is under implementation. It has been strengthened by instructional materials purchased or prepared by the curriculum technicians. We intend to print occupational information on microfiche system to be used with secondary students.

Senior High level

At the senior high level there is an overall emphasis on testing, counseling and guidance. Additional elements include "Crash" programs for advanced students who have not acquired entry level skills.

The placement team assist students to get full or part time jobs.

Media Center

The Media Center personnel is responsible for the development of all curricular materials needed for the operation of the project such as: curriculum guides for the programs outlined in the proposal, occupational brochures for elementary and secondary students, and other audiovisual aids. The Media Center is the major resource center for teachers, counselors, students, administrators, parents, and industry who are involved in this project.

Provisions have been made to contract consultants in the following fields related to the components of the project: career education approach, career orientation courses, guidance and counseling topics, techniques and curriculum design.

EVALUATION :

Following is a bircf of the main results and accomplishments for the first year of operation of the Project:

The in-service training for project personnel was done successfully.

Community, school personnel and industries were receptive and acccpted with enthusiam this innovative program especially for the elementary level.

The production of curricular materials for classroom use in Puerto Rico in the World of Work field.

The World of Work Program for the elementary school has been developed with great impact on education as a whole.

Guidance and counseling services were introduced in the four elementary schools and extended to the secondary level.

New career orientation and training programs have been established to take care of the needs and interests of the students.

More attention given to 12th graders in their pogress for planning their occupational future.

Other school districts expressed interest to incorporate some of the components introduced through this program to their regular school curriculum.

NEXT STEPS

Based upon the accomplishments of the Program up to now, and the experiences through the development of the project we can conclude that:

It is necessary to provide broad occupational orientation to all the elementary students, not only to the 5th and 6th graders.

The teachers of the regular school program can participate in a career education program if adequate training is given to them.

The activities offered at the junior high level need to be reinforced so as to provide the female students direct experiences in occupational exploration and other activities for 7th and 9th graders.

It is necessary to continue providing training activities to the whole staff in charge of the direction of the regular program and to the personnel participating in the implementation of this project.

It is necessary to provide more curriculum and instructional materials to teachers and counselors.

A group guidance program should be reinforced at the secondary level, since the large number of students make impossible the individual contact by counselors and students.

It is necessary to establish a Career Education Center in the district.

Dissemination activities will be emphasized through invitation to other school districts personnel to observe program development and share information and instructional materials. Mass media will be used to let the community know the school accomplishments.

TITLE : Introduction to Occupations

OBJECTIVES :

The purpose of the project is to:

1. Provide information in a systematic way on occupational and educational opportunities.
2. Orient secondary level students on occupational and educational requirements for future career decisions.
3. Develop and test methods and materials to strengthen and expand the guidance program and to develop effective interrelation between occupational and academic courses.

DESCRIPTION :

The project provides for the organization and establishments of a course in occupational orientation and educational planning for secondary schools students aimed at providing information in a systematic way to help students in planning for educational and occupational decisions. The proposal will be carried out in three phases.

The project consists of the organization of five one-semester courses for secondary school students. This approach is a new idea to answer youth's questions as to who am I, where am I going, how attainable are my plans and aspriations, and what must I do to reach my goals, and how all these fit into the world of work.

This course will introduce the students to a much broader scope of occupations than the ten or twelve traditional occupations which seem to be the limit of their knowledge at present.

EVALUATION :

Vocational and educational dissemination about the world of work has reached 3,305 secondary school students.

The course "Introduction to Occupations" was broadly discussed among the school superintendents and school directors.

Demonstration classes were offered in two school districts to teachers, directors and superintendents.

The students answered an evaluation questionnaire in which they expressed their appreaciation for the course and the benefits derived from it.

94% expressed the course helped them to make better occupational decisions.

54% of the students expressed their satisfaction because they had opportunity to know themselves and to improve their social relations, they felt satisfied with the experiences related wity the world of work.

School and community relations were strengthened through the visits made by students and teachers to different industries and agencies where they could observe workers in their jobs.

NEXT STEPS :

The curriculum developed under this program will be used in regular group guidance classes with ninth and tenth grade students. Teachers will be trained in methodology for selection, revision and preparation of curricular materials, such as lessons, modules, and use of different audio-visual aids.

The Introduction to Occupations curriculum will be part of the career education curriculum projects initiated this year.

TITLE : The Humacao School District Career Education Program

OBJECTIVES :

a. to develop and implement a program at the elementary school level designed to increase awareness of students in terms of the broad range of options open to them in the world of work

b. improve the guidance and counseling services at all grade levels.

c. improve career orientation and exploratory experiences at the junior high school level, and

d. establish a placement service to insure the placement of all exiting students in either a job, a post-secondary occupational program, or a baccalaureate program.

DESCRIPTION :

The career educational project in Humacao School District consists of four educational components: Elementary, Junior, Guidance and Counseling and the Placement components.

Elementary School Componet:

The program will operate in eight of the elementary schools included in the project site. The elementary school curriculum will be revised to incorporate career awareness experiences to re-focus the elementary subjects around the career development theme.

Junior High School Component:

At the junior level the program will operate in six schools. Two laboratories will be equipped to provide junior high students basis industrial study areas, one to include wood, metal, electronics, drawing and drafting and the second one will provide exploratory experiences and in-service occupation ares such as distribution and marketing, office, health and food services.

Guidance and Counseling Components:

Three counselors, one at the junior high school and two at the senior high school level, serve the schools which comprise the project site. There are no counselors at the elementary school level. Twelve counselors will be employed to service these schools, 5 of them for the elementary, 4 elementary and junior high school and 3 urban junior and senior.

Counseling personnel will be provided with an in-service training of a six-weeks duration, planned and operated with assistance from consultants from the Commonwealth Department of Education and the university level.

The counselors will be expected to carry on a complete and articulated program of guidance an counseling at all level grades, K through 12. The model program will have the following characteristics, among others:

1. It will be based on systems concepts, particulary those presently associated with evaluation and change process models in education.

2. It will define guidance criteria in terms of students behavioral objectives.

3. It will stress program objectives which are realistic possibilities within the resources of the participating schools.

4. It will provide for corrective feedback based on evaluation of the achievements of the program.

Placement Component

As an extension to the guidance and counseling component, a placement service will be established in the senior high school. The placement officer will work in cooperation with the guidance counselors, the cooperative education coordinators, the vocational teachers, and the local employment security agency. A survey of job opportunities in the district will be conducted so as to refer those students who wish to work part-time while in school, for students who wish to drop out of school and work fulltime, and for students graduating from the 12th grade.

Assistance will also be provided to high school students desiring summer work during their vacation period.

EVALUATION

Because this project is being initiated, we do not have product outcomes to describe at this moment.

NEXT STEPS :

Plans are under way for evaluating pupil behavioral changes, acquiring more guidance materials, improving in-service training for personnel and securing consultative services for general appraisal and better programming.

TITLE : Innovations to Prepare Disadvantaged Children for the World of Work

OVERALL OBJECTIVE:

The overall purpose of the Project is to find new and better ways of helping the child beginning at the elementary grades to explore the world of work, to discover his own potential and develop that potential so that he will have a real place in the developed economy of Puerto Rico. It is also aimed to develop innovative methods to prepare youth in needs of occupational training for the world of work with emphasis on the disadvantaged and handicapped students.

DESCRIPTION:

This project aims to develop innovative educational methods to prepare disadvantaged children in the San Sebastián School District for the world of work. Relying heavily upon participation of the school and the community, the project will cover three educational levels: elementary, junior, and senior high. The primary target group will be all the students in the school district in the urban and rural areas including the handicapped, while the target group will also involve potential drop-outs between 10-14 years old, and parents.

An innovative feature of the program will be a "team approach" involving the joint efforts of the three educational areas of the Department: the Regular, Vocational and Technical and Extension and Cultural, at all three levels: headquarters, regional and district.

The educational experience which the students will undergo will give them a sense of self-fulfillment and of competence for entering the world of work.

The educational offerings, including occupational training, will be based on student's characteristics and on occupational trends. The curriculum, from kindergarten through high school, will be geared wherever possible toward the world of work.

The program objective will be geared toward five components: instruction, staff development, community participation, handicapped and administration. It will include preparation, revision and test of educational materials at all grade levels, the organization and development of training courses based on the findings of the investigations carried out during the first year.

Students at the senior high level will have the opportunity to participate in (1) two year agricultural training program, soil surveying and leveling, farm machinery operation, sugar mill laboratory, and related areas in farming; (2) work experiences; (3) courses such as mathematics for vocational students, conversational English, business routines in a simulated business office, seamstress, interior decoration, Introduction to Occupations, bilingual secretary, and a course in health occupations.

Students at the junior high school will be exposed to the world of work. This experience will focus the occupations available in San Sebastián and the surrounding regions. It is expected that the community involvement in this project will produce offers for work experiences in: cafeteria, gas stations, offices, hospital, farm and other suitable places, Two groups of students will participate in one of the two courses which will be offered, one in agricultural mechanics and the other in manufacturing.

Elementary school curriculum will provide the students with concepts of the world of work. Students at this level will also receive guidance and counseling services.

The handicapped students component will be based on the students psychological evaluations. Students will be placed in regular and special classes. Resource teachers for handicapped students in regular classroom will provide the opportunity to reach a larger number of children. Students will be considered in an individual basis for vocational education.

A survey of handicapped school age population will be conducted so as to plan for future educational programs. Handicapped students will be provided with intensive guidance and counseling services.

Students in all target schools will be provided with guidance and counseling services. Individual and group occupational guidance and counseling will be emphasized at the junior and high school levels. A guidance center including placement service will be established at the senior school. The placement team will include labor and industry representatives, teachers, counselors and a placement officer.

Tenth grade students will be able to participate in the course, Introduction to Occupations. The course will be based on activities about selfunderstandings, career planning and exploration of cluster of occupations.

Courses or short term seminars in such subjects as family living and consumer education will be used to enlist parents to supplement the school's efforts to prepare the youngsters for the world of work.

EVALUATION:

Summary for the preliminary evaluation findings for overall project objectives.

1. Students

   a. Progress was observed in 76.4% of the students participating in the

first part of the course in agricultural mechanics as determined by post-test.

b. Improvement in the reading ability of fourth, sixth and seventh graders slow readers was achieved. In the elementary level, 70% of the fourth grades enrolled in the course, improved their skills in reading and so up-graded the Spanish class. In the sixth grade, 77% of the students participating in the course improvement their reading ability. One hundred per cent of the pupils in the fourth and sixth grades were promoted. In the seventh grade, 58% of the students enrolled in the course improved their initial condition in reading.

c. A group of 20 junior and senior high school students had the opportunity to participate in the work experience program. Students and employers were satisfied with the outcomes of this program.

d. Kindergarten, first and second grade pupils of the target schools had the opportunity to begin the exploration of the worls of work. Improvement in their perception of the world of work is indicated by the post-student-teacher controlled conversation.

e. Three guidance sessions were initiated for seventh, eighth and ninth grade pupils. They had the opportunity to discuss personal problems and also about educational and vocational areas of their interest.

f. A positive change of attitude was observed in potential dropouts. A total of 95% of them were retained in school. Attention was also given to the improvement of their reading skills.

g. A group of twenty one twelfth graders had the opportunity to participate in the Conversational English Course. Positive changes were observed in the students attitude toward the English language. A total of 66 2/3% obtained higher grades in their English class. Only 33 1/3% maintained their previous grades. Progress in their oral command of English was observed throughout the administration of the post recorded test.

2. Teachers

Teachers in colaboration with the Media Center Personnel are working in the revision, adaptation and preparation of the following curricula:

Agriculture course

Farm machinery

Remedial reading

Work experience program

Guidance for elementary level

Personal, educational and vocational guidance curriculum for seventh, eighth and ninth grade students

3. Parents

A group of parents at the elementary and secondary level had the opportunity to participate in 59 guidance sessions. They held 37 meetings at the elementary school, 14 at the intermediate and 8 at the senior high school. Parents post evaluations questionnaires indicated that these activities were of practical use for them.

NEXT STEPS: OR PROJECTION

On the basis of the results of systematic evaluation done during the first year, it is expected to extend the program to another district in the Northwest Region.

TITLE : Production of six films for dissemination of occupational information to junior and senior high school students (2 minutes each, 16 mm in black and white)

OBJECTIVES :

1. To provide, on an experimental basis, filmed materials to counselors and teachers for more effective and interesting group guidance activities leading to personally satisfactory educational and occupational planning.
2. Train teachers and counselors in the use of these filmed materials and other similar materials to enrich and expand group guidance activities.
3. Broaden the student's vision of his occupational opportunities through a better understanding of the relationship between academic subjects and the world of work.
4. Orient parents and the community in general on the value of guidance activities in helping Puerto Rican youth plan for their future by involving these persons in an evaluation of the films prepared under this project.

DESCRIPTION :

This project is designed to prepare six two-minute movie films to give junior and senior high school students a general view of the occupational world and valuable information for making educational and occupational plans.

Specific objectives of the proposed project are: to show the relationship between academic courses and the world of work, i. e. occupational opportunities based on courses in biology, chemistry and physics, mathematics, language arts, physical sciences (geology, geography, etc.), and social sciences.

As a result of this project it is hoped: (1) to encourage students to look for information about the world of work and educational and occupational opportunities; (2) to acquaint the community with the services offered by the Guidance and Counseling Program of the Department of Education; (3) to help the students prepare for career decisions.

The films prepared under this project will provide materials to teacher and counselors in motivating young people for career planning. They will help teachers to introduce topics about the changing nature of occupations, industries, and career planning and its implications in terms of career choices.

EVALUATION :

Through this project, the following films were produced:

1. Explore the Field of Mathematics
2. The Arts of Language and the World of Work
3. Occupational Opportunities in the Science of Chemistry and Physics
4. The enviromental Sciences and the Occupations

5. Biology and the Occupations

6. The Social Sciences and the Occupations

Twenty six (26) counselors, seventy nine (79) teachers and five (5) school principals received in-service training in the best possible use of the films and also participated in evaluating the instructional materials. In this evaluation 3,099 students participated by answering a questionnaire for this purpose. A pre and post evaluation was conducted.

NEXT STEPS :

During this year, films are available for all school districts. Six (6) copies of each, are placed in the six Educational Regions.

Career Education Programs are aware of these resourceful materials and have planned for the utilization of them.

TITLE : Career Education Program at Palmarejo Rural Second Unit in Lajas School District, to Acquaint Elementary and Junior High School Students with Career Possibilities

DESCRIPTION :

This project is designed to acquaint elementary and junior high school students at Palmarejo Rural Second Unit School in Lajas School District with the occupational world. It will enrich the actual educational offerings at Palmarejo Second Rural Unit School through the integration of the different subjects of the curriculum. Content about the world of work will be added and academic and pre-vocational educational activities will be provided. Guidance and counseling services will operate with the career development approach.

Beginning in the fourth grade and up to the sixth grade, the student is exposed to the world of work including the various occupations available. Skills needed for working in such occupations, attitudes, personal characteristics in relation to working conditions and preparation for different jobs are explored through laboratory experiences, field trips, classroom activities, such as games, use of audiovisual media, readings, group discussions, interviews, and other creative activities. Emphasis is placed upon the participation of teachers and students in the preparation and adaptation of curricular materials being used. Community resources will be utilized as needed.

At the junior high school level, these experiences are intensified, focusing on the world of manufacturing, agri-business, office and service occupations. Students at this level will explore deeply into occupational

clusters such as horticulture, heavy machine operation, child and convalescent care, bakery, floristry, craftmanship (straw, seeds, shells, wood, clay and metal) sewing, stitching, and the positions related to clerks, receptionists, and telephonists. Ninth graders will select one or more occupations and learn the skills needed to work in such occupations. Intensive counseling and guidance services will be provided from the first grade so as to help students learn their interests and develop their abilities in relation to present educational and occupational possibilities.

A total of 686 students from grades one to nine will benefit from the program. Out of this total 315 are girls and 371 are boys between the ages of 6 to 16.

EVALUATION

The major source of data for use in the evaluation will be a series of required reports from staff members and a continuing journal maintained by the guidance counselors to cover the various activities, meetings and decisions. Results of students post tests will be utilized in preparing data for reports to be used in the Advisory Commitee meetings and other occasions.

Accounting will be made of the world of work orientation activities at the elementary school level. Records will be kept of the number of students involved at each grade along with descriptions of the activities in which they have participated.

Teacher-made tests will be used to measure the achievement and attitudes changes expected to occur. At junior high school level, records will be kept about the following:

a. number and results of testing and interview programs designed to give the students insight into his interests and aptitudes

b. time working with students in counseling sessions and number of students who have participated in these sessions

c. follow up of these students

d. record of number of students placed, their satisfaction and that of their teachers and/or employers

e. separate records of activities will be kept (counseling, testing, training)

The journal of activities will be reviewed periodically by an evaluation group under the consultation with the superintendent of schools.

Each component will keep records of all the activities being developed.

TITLE : Career Development Program at the Rodríguez Cabrero Elementary School, Grades K to 6, in the East San Juan School District

OBJECTIVES :

To implement a common curriculum which will portray a broad view of the many different occupations that are present in the world of work. It will also portray vocational education as a natural and essential component of the total education process.

DESCRIPTION :

The Career Development Program will be a special project offered at the Rodríguez Cabrero Elementary School.

Making use of the "child readiness" present in children whose age-range is typical of that of elementary students, a series of educational experiences related with the world of work will be offered to provide them with necessary criteria to select their own field of work for the future. It will permit the children to extend their vision of the world and understand the importance of their role in it.

The program will provide for three developmental phases: (1) world exposure and self awareness; (2) career and aspirational awareness; and (3) experimentation and role finding. During this time the student will experience different alternatives that will encourage him to explore, inquire and make occupational decisions. As the program is developed, he will be familiarized with all kinds of career opportunities at all levels. Emphasis will be placed on

the realtionship of skills, attitudes, personal characterists and academic or vocational preparation that is required for different occupations.

The personnel participating in the project will be a project director, school director, guidance counselor, child specialist consultants and teachers.

The results will be measured by complete orientation toward the world of work and validation of the correlated curriculum of academic and vocational classes.

A total of 1,056 students from grades one to sixth will benefit from the program. The student age range is from 6 to 15 years.

EVALUATION :

The following measuring instruments will be developed and utilized for evaluating the stated objectives of the pilot-project: complete orientation toward the world of work; validity of the correlated curriculum of the academic and vocational classes; and comparison of the effectiveness of this career developmental program between other elementary schools in relation to academic achievement, absences and retention of students in school.

(Llorens Torres Elementary School will be used as a control factor)

1. Performance Test to measure pre and post program pupil achievement in manipulative skills will be developed.
2. Observation sheets to evaluate performance of the students.

3. Follow up studies that will prove the decrease of dropouts, and absenteeism.

4. Achievement tests to measure pre and post program achievement of students in related academic areas.

5. Comparative test (using control and experimental groups) to establish the effectiveness of the correlated curriculum and the traditional curriculum utilized in another elementary school. (Llorens Torres Elementary School)

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WALDMAN, ELIZABETH; GOVER, KATHRYN R.
MARITAL AND FAMILY CHARACTERISTICS OF THE LABOR FORCE.

BUREAU OF LABOR STATISTICS (DOL), WASHINGTON, D.C.
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ABSTRACT - ANALYZED IN THIS SPECIAL REPORT IS THE DEGREE OF LABOR FORCE PARTICIPATION RELATIVE TO MINORITY RACES, MARRIED WOMEN WITH CHILDREN, FEMALE HEADS OF FAMILIES, SINGLE PEOPLE, AND OTHERS CHARGED WITH THE RESPONSIBILITY OF CARING FOR FAMILIES. THE DATA PRESENTED ARE BASED ON ANNUAL NATIONWIDE SURVEYS DESIGNED TO STUDY THE MARITAL AND FAMILY CHARACTERISTICS OF WORKERS. INCLUDED AS EXPLANATORY DEVICES ARE: (1) AN APPENDIX LISTING SUPPLEMENTARY MATERIALS PROVIDED IN THE PUBLICATION, (2) DESCRIPTIONS OF THE SAMPLE POPULATION AND CONCEPTS UPON WHICH THE INFORMATION IS PREDICATED, AND (3) STATISTICAL TABLES USED IN THE ANALYTICAL PROCESS. (SN)

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Marital and Family Characteristics of the Labor Force, March 1971

Special Labor Force Report 144

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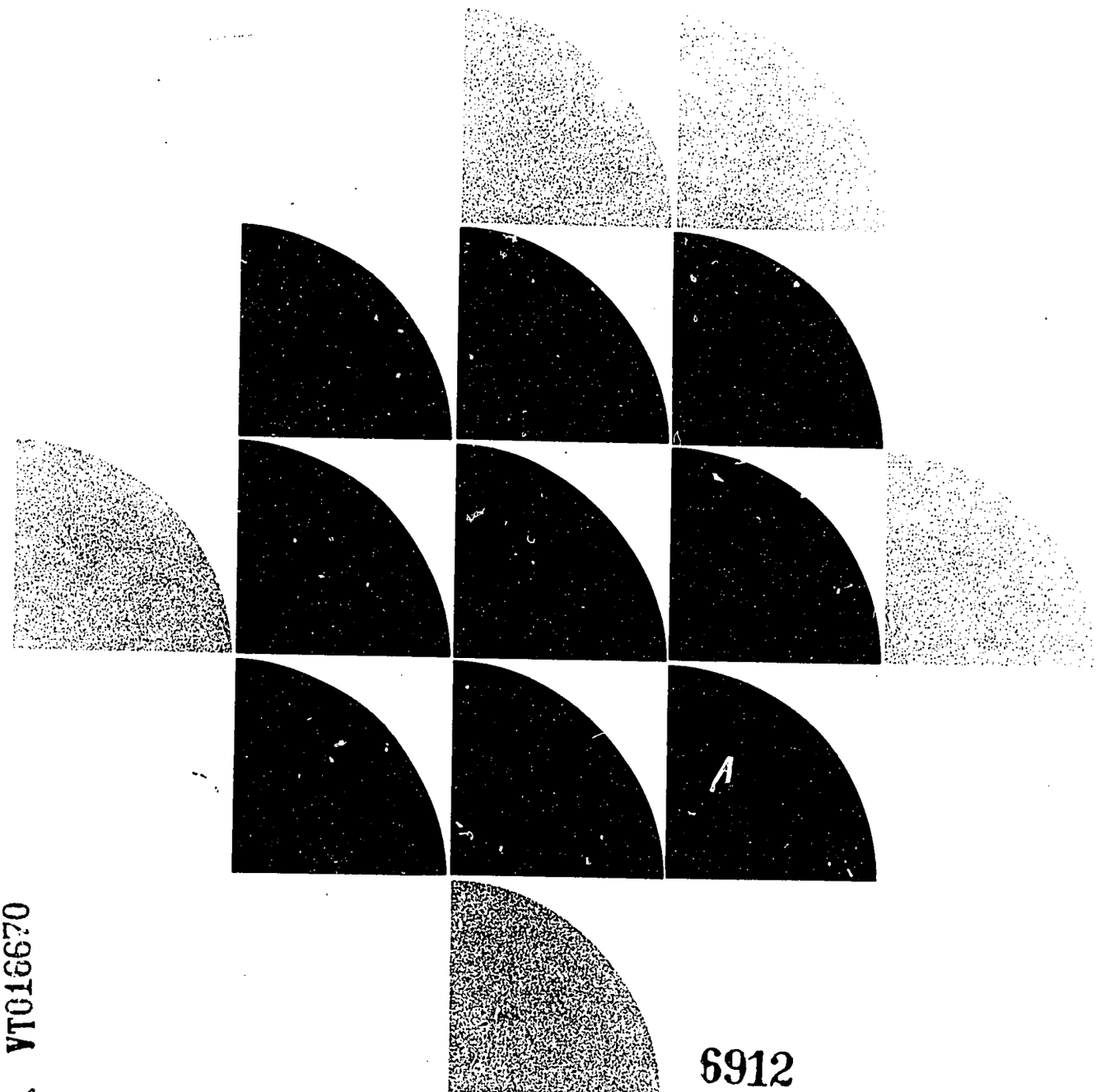

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Following is a list of reprints of Special Labor Force Reports which have been published in the *Monthly Labor Review* since September 1967. Copies may be obtained while the supply lasts upon request to the Bureau of Labor Statistics or to any of its regional offices.

Number	
95	Education of Adult Workers in 1975
96	Jobless Trends in 20 Large Metropolitan Areas
97	Work Plans of Men Not in the Labor Force, February 1967
98	Employment of School Age Youth, October 1967
99	Unemployment in the American Family
100	Employment of High School Graduates and Dropouts
101	Employment of the Nation's Urban Poor
102	The Negro Job Situation: Has It Improved?
103	Educational Attainment of Workers, March 1968
104	Men in Poverty Neighborhoods: A Status Report
105	Effect of the Census Undercount on Labor Force Estimates
106	Job Losers, Leavers, and Entrants
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132	Young Workers and Their Earnings
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140	Educational Attainment of Workers, March 1971
141	Work Experience of the Population in 1970
142	Employment and Unemployment in 1971
143	Usual Weekly Earnings of American Workers, 1971

Marital and family characteristics of the labor force

Special Labor Force Report shows that married women accounted for a smaller share of the labor force growth in the year ending in March 1971 than in the past decade

ELIZABETH WALDMAN AND KATHRYN R. GOVER

MARRIED WOMEN, who had registered large gains in the labor force through most of the 1960's, constituted only a small part of the increase in the labor force over the year ending in March 1971. Single men led the annual rise, as cutbacks in the military draft and a steady flow of returning veterans helped boost the number of single men in the civilian population.

Single men accounted for 43 percent of the annual increase in the labor force, and married women accounted for 16 percent, down from 30 to 45 percent in recent years. Over the year, the number of married men in the labor force did not change significantly, but their labor force participation rate fell to the lowest recorded (86 percent) in 25 years. These changes took place in a year in which the overall labor force rose by a modest 975,000, less than half the increase of the previous year. (See table 1.)

This article, based on annual nationwide surveys of the marital and family characteristics of workers, examines labor force participation of minority races, married women with children, women who head families, and other groups in the population. The article also analyzes unemployment of persons who head families.[1]

Participation rates

Minority races. In March 1971, the labor force participation rate for men of Negro and other minority races continued to be lower than the rate for white men.[2] (See table 2.) This relationship, which has obtained for many years, is due partly to the different marital composition of the two groups of men. Single, divorced, separated, or widowed men usually have considerably lower participation rates than married men. Since a greater proportion of Negro men are not married, their overall participation rate is lower than that for white men. About one-third of all Negro men were single in March 1971 compared with one-fourth of all white men. The proportion of all Negro men who were divorced, widowed, or separated was nearly twice that of white men.

Unlike the case of men in the minority races, the overall labor force participation rate for Negro women was, as in the past, higher than the rate for white women. Another difference is that Negro married women have had high participation rates than white married women. To a lesser degree this also was true for women who were divorced, widowed, or separated. The participation rates for single Negro women have been consistently lower than the rates for single white women.

The difference between the participation rates of women in the white and minority races, which had been shrinking slowly through the 1950's and early 1960's, dropped considerably during the last half of the 1960's. From 1961 to 1971, the participation rate for Negro women edged up from 48 to 49 percent, while the rate for white women rose from 37 to 42 percent.

Several elements are responsible for this narrowing of the differential. In the latter 1960's, the proportion of Negro women who were single spurted upward. The larger share exerted a downward pull on the overall rates because worker rates for single Negro women were lower than for those who were married. At the same time, the proportion of white women who were single inched up, not materially affecting the overall rate for white women. Moreover, the labor force rate for widowed, divorced, or separated women decreased from 49 percent in 1967 to 43 percent in 1971 for Negro women, while the rate for white women in this category

Elizabeth Waldman is an economist and Kathryn R. Gover a social science research analyst in the Division of Labor Force Studies, Bureau of Labor Statistics.

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remained unchanged.

Underlying the higher concentration of Negro single persons in the labor force are trends in population growth.[3] Because of higher post-World War II fertility rates, the minority races have a greater concentration of teenagers and young adults than has the white race. During the 1960's, the Negro population 18 to 24 years old grew roughly 5 times as fast as the white population of the same ages. Moreover, the persistence of higher fertility rates for Negroes indicates that the population and labor force will continue to be younger for Negroes than for whites during the 1970's.

Married women. As stated earlier, married women (husband present) accounted for very little of the overall annual increase in the civilian labor force. Their labor force participation rate of 41 percent was unchanged over the year. Also failing to increase were the number and proportion of married women in the labor force who had school and preschool age children. (See table 3.) This lack of growth may be only temporary, stemming from the difficulty of finding jobs during a period of high unemployment. In March 1971, the unemployment rate for married women was 5.9 percent, the highest recorded since the recession of 1961, when it was 7.0 percent. As in other years, unemployment rates in March 1971 were highest for mothers of the youngest children—11.7 percent for wives with children under age 3; 8.3 percent, with children 3 to 5; and 5.2 percent for those with children 6 to 17 years old.

During the latter half of the 1960's, the magnitude of the increases in the labor force participation rates of young wives with or without children was affected by such elements as growth of job opportunities, an increase in the number of newlyweds who preferred two salaries in a period of rising prices, and declining fertility rates. Since 1966, the number of wives 20 to 24 years old in the population grew by about 14 percent, while the number in

Table 1. Employment status of persons 16 years old and over, by marital status, sex, and color, March 1970 and March 1971

(Numbers in thousands)

Marital status, sex, and color	March 1970						March 1971					
	Total population	Labor force					Total population	Labor force				
		Total [1]		Employed	Unemployed			Total [1]		Employed	Unemployed	
		Number	Percent of population		Number	Percent of labor force		Number	Percent of population		Number	Percent of labor force
ALL PERSONS												
Men	66,193	51,621	78.0	48,379	2,081	4.0	67,678	52,150	77.1	47,978	3,008	5.8
Married, wife present	45,055	39,138	86.9	37,103	1,020	2.6	45,443	39,058	85.9	36,620	1,441	3.7
Married, wife absent	1,729	1,055	61.6	983	70	6.6	1,864	1,239	66.5	1,103	121	9.8
Widowed	2,110	673	31.9	624	48	7.1	1,995	573	28.7	552	21	3.7
Divorced	1,577	1,200	76.1	1,117	74	6.2	1,829	1,317	72.0	1,195	115	8.7
Single	15,722	9,545	60.7	8,552	869	9.1	16,547	9,963	60.2	8,508	1,310	13.1
Women	73,261	31,233	42.6	29,581	1,652	5.3	74,580	31,681	42.5	29,515	2,166	6.8
Married, husband present	45,055	18,377	40.8	17,497	880	4.8	45,443	18,530	40.8	17,445	1,085	5.9
Married, husband absent	2,730	1,422	52.1	1,325	97	6.8	2,888	1,456	50.4	1,307	149	10.2
Widowed	9,640	2,542	26.4	2,463	79	3.1	9,788	2,516	25.7	2,423	93	3.7
Divorced	2,695	1,927	71.5	1,823	104	5.4	2,829	1,992	70.4	1,852	140	7.0
Single	13,141	6,965	53.0	6,473	492	7.1	13,632	7,187	52.7	6,488	699	9.7
NEGRO AND OTHER RACES												
Men	7,087	5,169	72.9	4,738	330	6.4	7,281	5,227	71.8	4,674	450	8.6
Married, wife present	3,757	3,264	86.9	3,045	123	3.8	3,772	3,215	85.2	2,958	163	5.1
Married, wife absent	542	347	64.0	325	21	6.1	541	366	67.7	328	34	9.3
Widowed	322	114	35.4	108	6	5.3	283	98	34.6	95	3	3.1
Divorced	224	155	69.2	148	7	4.5	230	149	64.8	132	17	11.4
Single	2,242	1,289	57.5	1,112	173	13.4	2,455	1,399	57.0	1,161	233	16.7
Women	8,120	3,935	48.5	3,614	321	8.2	8,365	4,007	47.9	3,596	411	10.3
Married, husband present	3,783	1,986	52.5	1,854	132	6.6	3,760	1,975	52.5	1,823	152	7.7
Married, husband absent	981	527	53.7	477	50	9.5	984	488	49.6	426	62	12.7
Widowed	1,128	351	31.1	336	15	4.3	1,124	312	27.8	301	11	3.5
Divorced	363	257	70.8	245	12	4.7	435	295	67.8	277	18	6.1
Single	1,865	814	43.6	702	112	13.8	2,062	937	45.4	769	168	17.9

[1] The male labor force includes members of the Armed Forces living off post or with their families on post, not shown separately.

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the labor force increased by 40 percent. In 1966, 38 percent of all married women these ages were in the work force; in March 1971 the proportion was 47 percent.

Fertility, education, age of children, and husband's income are important, and often interrelated, determinants of a married woman's participation in the work force. The pronounced inverse relationship between labor force participation and fertility is shown in the following tabulation of children born during the lifetime of women ever married, age 35 to 44, as of 1969:

	Children per thousand women ever married
All women	3,141
In labor force	2,876
Employed	2,852
Full time	2,667
Part time	3,160
Unemployed	3,424
Not in labor force	3,388

Fertility was lower for women in the labor force than for those not in the labor force and for women who held full-time rather than part-time jobs.[4]

The same inverse relationship held between educational attainment and fertility. Generally women with the least education had the highest fertility. As of 1969, the number of children born during the lifetime of women ever married, 35 to 44 years old, ranged from 4.16 for women who had completed less than 8 years of school to 2.90 for high school graduates and to 2.73 for college graduates.

Educational attainment of women, as measured in years of schooling completed, is closely related to their rate of labor force participation. The more education women have, the more likely they are to be in the labor force; and the more education employed women have, the higher their earnings.

Over half of those married women who completed 4 years of college were in the labor force in March 1971. Among wives who were high school graduates, 44 percent were in the labor force, compared with 33 percent of those who completed 11 years of school or less, partly reflecting the high proportion of these latter women in older age groups. Within each income and family category, college graduates had the highest participation rates.

Women as family heads

In the first half of the 1960's, the number of families headed by women grew at about the same rate as all others, and they accounted for about 10 percent of all American families. This proportion began to inch upward in the latter 1960's, and by March 1971 it was 11.5 percent. During the year ending in March 1971, an unusually large number of families headed by women were added to the population (375,000) and labor force (270,000). These additions brought the totals to 6 million families; 54 percent of the women who headed them were in the labor force. The unemployment rate for these women stood at 7.1 percent, up from 5.6 percent in March 1970, and the highest rate since 1961.

The large increment in the number of female-headed families in 1970–71 was due to divorces and separations, rather than deaths of husbands. The number of widowed family heads in the population

Table 2. Population and labor force, by race and marital status, March 1967 and 1971

Sex and marital status	March 1967		March 1971	
	White	Negro and other races	White	Negro and other races
MEN	Percent distribution of population			
Total	100.0	100.0	100.0	100.0
Married, wife present	70.5	55.7	69.0	51.8
Single	21.6	27.9	23.3	33.7
Other marital status [1]	7.9	16.4	7.7	14.5
	Labor force participation rate			
Total	78.5	74.3	77.7	71.8
Married, wife present	86.9	87.2	86.0	85.2
Single	60.2	56.3	60.8	57.0
Other marital status [1]	53.3	61.5	54.3	58.2
	Percent distribution of labor force			
Total	100.0	100.0	100.0	100.0
Married, wife present	78.0	65.3	76.4	61.5
Single	16.6	21.1	18.3	26.8
Other marital status [1]	5.4	13.6	5.4	11.7
WOMEN	Percent distribution of population			
Total	100.0	100.0	100.0	100.0
Married, husband present	63.9	48.9	63.0	44.9
Single	16.5	19.4	17.5	24.6
Other marital status [1]	19.6	31.7	19.6	30.4
	Labor force participation rate			
Total	38.7	47.4	41.8	47.9
Married, husband present	35.8	47.8	39.7	52.5
Single	51.7	43.8	54 0	45.4
Other marital status [1]	37.5	49.0	37.6	43.1
	Percent distribution of labor force			
Total	100.0	100.0	100.0	100.0
Married, husband present	59.0	49.3	59.8	49.3
Single	22.0	17.9	22.6	23.4
Other marital status [1]	19.0	32.8	17.6	27.3

[1] Includes widowed, divorced, and married, spouse absent.

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Table 3. Labor force participation rates[1] of married women, husband present, by presence and age of children, March 1960–March 1971

Year	All wives	No children under 18 years	With children under 18 years				
			Total	6 to 17 years only	Under 6 years		
					Total	3 to 5 years, none under 3 years	Under 3 years
1960	30.5	34.7	27.6	39.0	18.6	25.1	15.3
1961	32.7	37.3	29.6	41.7	20.0	25.5	17.0
1962	32.7	36.1	30.3	41.8	21.3	27.2	18.2
1963	33.7	37.4	31.2	41.5	22.5	28.5	19.4
1964	34.4	37.8	32.0	43.0	22.7	26.7	20.5
1965	34.7	38.3	32.2	42.7	23.3	29.2	20.0
1966	35.4	38.4	33.2	43.7	24.2	29.1	21.2
1967	36.8	38.9	35.3	45.0	26.5	31.7	23.3
1968	38 3	40.1	36.9	46.9	27.6	34.0	23.4
1969	39.6	41.0	38.6	48.6	28.5	34.7	24.2
1970	40.8	42.2	39.7	49.2	30.3	37.0	25.8
1971	40.8	42.1	39.7	49.4	29.6	36.1	25.7

[1] Labor force as percent of population.

did not change between March 1970 and March 1971, while the number divorced or separated increased by about 335,000. In 1970, the national divorce total (an all-time peak of 715,000) was nearly 75 percent above the 1962 level, with two-thirds of the increase occurring since 1967.[5]

The chance for divorced and separated women to be in the labor force is generally much greater than for wives or widows. In March 1971, 70 percent of all divorcees, including those who were not family heads, and 50 percent of all separated women were in the labor force, compared with about 41 percent of all wives and only 26 percent of all widows.

Among the most obvious elements that account for the differences in labor force rates are the presence and age of children, and the need for self support. In March 1971, the proportion of divorcees with preschool age children (13 percent) was considerably lower than for married (20 percent) or separated women (24 percent). Even so, with children under 6 years old, divorcees had a much greater labor force participation rate—62 percent—than the other mothers of young children—30 and 41 percent, respectively—suggesting that many either receive no child support payments or find them insufficient.

Unemployment

Between March 1970 and March 1971, the economy did not provide enough jobs to absorb the smaller-than-usual increase in the labor force, and unemployment rose.

Single persons. Single men and women, whose unemployment rates usually exceed those of persons in other marital groups, registered the highest unemployment rates in March 1971. The jobless rate for single men was 13.1 percent; for single women, 9.7 percent; and for single persons of Negro and other races, a towering 17.2 percent.

Youthfulness of single labor force participants and the substantial proportion of these young persons still in school partially explain the high unemployment rates. Two-thirds of the single men and women in the labor force are under 25 years old, and approximately 40 percent of these are students. For students, the ability to find a job is hampered by limitations on the hours they are free to work and on location.

Husband-wife families. Joblessness among men who head families rose over the year by 380,000 to 1,350,000 in March 1971, and their unemployment rate, at 3.5 percent, was the highest since the mid-1960's. (See table 4.) The higher rate represented increases in job losses rather than voluntary job leaving. Unemployment rates for the family's primary breadwinner began to rise as economic activity wound down during 1970. The number of these men who worked less than a full year had increased

Table 4. Employment status of family head in husband-wife families and labor force status of wife and other family members, March 1969–March 1971

Labor force status and relationship to head	1969, total	1970, total	1971		
			Total	White	Negro and other races
HEAD EMPLOYED					
Number (thousands)	37,523	37,667	37,146	34,196	2,950
Percent distribution	100.0	100.0	100.0	100.0	100.0
Wife or other member in labor force	51.8	53.1	53.4	52.5	63.7
Wife only in labor force	33.4	34.3	34.5	33.5	45.8
Wife and other member in labor force	8.9	9.3	9.1	8.9	11.1
Other member only in labor force	9.5	9.4	9.8	10.0	6.8
Neither wife nor other member in labor force	48.2	46.9	46.6	47.5	36.3
HEAD UNEMPLOYED					
Number (thousands)	621	972	1,350	1,197	153
As percent of heads in labor force	1.6	2.5	3.5	3.4	4.9
Percent distribution	100.0	100.0	100.0	100.0	100.0
Wife or other member in labor force	51.7	56.1	57.2	56.2	64.7
Wife only in labor force	36.2	41.3	41.2	39.8	51.6
Wife and other member in labor force	8.3	7.6	10.5	10.8	8.5
Other member only in labor force	7.2	6.7	5.5	5.6	4.6
Neither wife nor other member in labor force	48.3	43.9	42.8	43.8	35.3

by 14 percent from 1969 to 1970, to 8.1 million. The proportion who gave unemployment as a major reason for having worked part year in 1970 increased to 45 percent from 36 percent in 1969. Among the other reasons given were illness and retirement.

Long-term unemployment and part-time work for involuntary reasons rose over the year. In March 1971, one-third of all unemployed husbands had been looking for work 15 weeks or more; a year earlier, one-fifth had been jobless that long. About 485,000 employed husbands who usually worked 35 hours or more (full time) on jobs in nonagricultural industries were working part time in March 1971 because of slack work or for other economic reasons.

Rising unemployment among family heads, both men and women, affected median family income. Family income in 1970, by employment status of family head and presence of children in March 1971, is shown in table 5.

Compared with the families headed by jobholding men or women, the families whose chief provider was unemployed had considerably lower levels of living, on average, whether they were young families with small children or older ones with no school or preschool age children at home. Obviously, women whose husbands are unemployed have a greater economic need to work. In March 1971, half of the wives of unemployed men were in the labor force compared with 44 percent of the wives of employed men. The jobless rate of women with unemployed husbands, typically 2.5 to 3 times the rate of wives with employed husbands, was 14.5 percent, compared to 5.6 percent for women with employed husbands.

When wives with unemployed husbands do work during the year, their relative contribution to family income is apparently substantially higher than that of the working wives of employed men. Among fathers unemployed in March 1971, median family income in 1970 was $9,945 if a wife was in the labor force, 44 percent more than the $6,900 if she was not. In contrast, for employed fathers, median family income was $12,625 if a wife was working, only 16 percent more than the $10,840 if she was not working.

Despite the increase in unemployment among married men over the year, the overall relative contribution a working wife made to family income did not change and was about the same as it has been for at least a decade. In 1970, the median proportion of income contributed by the wife's earnings was 27 percent, ranging from 39 percent for wives who had worked full time all year to 16 percent for those who worked less than a full year or all year at part-time jobs. About half of all working wives supplied between 20 and 50 percent of their family's income, while only 2 percent supplied 75 percent or more. Median family income in 1970 was about $9,175 when the wife did not work, $11,940 if she worked at all, and $13,960 if she worked all year at a full-time job. □

Table 5. Median family income in 1970, by employment status of family head and presence and age of children, March 1971

Presence and age of children	Husband-wife families		Families with female head	
	Employed	Unemployed	Employed	Unemployed
Total	$11,567	$8,510	$6,450	$3,680
No children under 18 years	11,370	8,570	8,010	(1)
With children 6 to 17 years	12,990	10,580	6,240	4,050
With children under 6 years	10,100	7,210	4,470	2,820

[1] Median income not shown where base is less than 75,000.

FOOTNOTES

[1] This article is based primarily on information from supplementary questions in the March 1971 monthly survey of the labor force, conducted for the Bureau of Labor Statistics by the Bureau of the Census through its Current Population Survey. Most of the monthly data presented here relate to the population 16 years old and over, including inmates of institutions and those members of the Armed Forces living off post or with their families on post (1,164,000 in March 1971). Sampling variability may be relatively large in cases where numbers are small. Therefore, small differences between estimates or percentages based on them should be used and interpreted with caution.

This is the 13th in a series of reports on this subject. The most recent contained data for March 1970 and was published in the *Monthly Labor Review*, March 1971, pp. 46–50. It was reprinted with additional tabular data and an explanatory note as Special Labor Force Report No. 130.

[2] Unless otherwise indicated, data for all persons other than white are used in this report to represent data for Negroes, since the latter constitute about 92 percent of all persons other than white in the United States.

[3] See *Summary of Demographic Projections, Current Population Reports, Population Estimates*, U.S. Bureau of the Census, Series P–25, No. 388, March 14, 1968, pp. 8–10.

[4] See *Fertility Indicators: 1970*, U.S. Bureau of the Census, Series P–23, No. 36, April 16, 1971, pp. 53–56.

[5] See *Monthly Vital Statistics Report, Annual Summary, 1970*, Public Health Service, Vol. 19, No. 13, September 21, 1971.

Appendix

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Explanatory note

ESTIMATES in this report are based on supplementary questions in the March 1971 Current Population Survey conducted and tabulated for the Bureau of Labor Statistics by the Bureau of the Census. Basic labor force concepts, sample design, estimating methods, and reliability of the data are described briefly in the following sections. 1/

DEFINITIONS AND EXPLANATIONS

Population Coverage. Each month, trained interviewers collect information from a sample of about 50,000 households in 449 areas in 863 counties and independent cities with coverage in each of the 50 States and the District of Columbia. Estimates in this report include persons 16 years old and over in the civilian population, including inmates of institutions, in the calendar week ended March 13, 1971. Members of the Armed Forces living off post or with their families on post (1,164,000 in March 1971) were also included, but all other members of the Armed Forces were excluded.

Marital Status. Persons are classified into the following categories according to their marital status at the time of interview: Single; married, spouse present; and other marital status. The classification "married, spouse present" applies to husband and wife if both are reported as members of the same household even though one may be temporarily absent on business, vacation, on a visit, in a hospital, and the like at the time of interview. The term "other marital status" applies to persons who are married, spouse absent, widowed, or divorced.

Family. The term "family" as used here refers to a group of two persons or more related by blood, marriage, or adoption, and residing together; such persons are counted as members of one family. One person in each family is designated as the "head." This person is usually regarded as the head by members of the family. Married women are not classified as heads if their husbands are living with them at the time of the survey. A lodger and his wife who are not related to the head of the family, or a resident employee whose wife lives with him are considered a separate family. However, a married couple or parent-child group related to the head of the family and sharing his living quarters is treated not as a separate family but as part of the head's family. The expression "husband-wife family" indicates that the head of the family is a married man whose wife (and perhaps other family members) lives with him.

Children. Data on children refer to "own" children of the family head and include sons and daughters, stepchildren, and adopted children.

Age. The age classification is based on the age of the person at his last birthday.

Color. The term "color" refers to the division of the population into two groups--white and Negro and other races. Other races include Indians, Japanese, Chinese, and any other race expect white and Negro.

Employed. Employed persons are all those who during the survey week (a) did any work at all as paid employees or in their own business or profession, or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family, or (b) did not work but had jobs or businesses from which they were temporarily absent because of illness, bad weather, vacation, labor-management dispute, or personal reasons, whether they were paid by their employers for the time off, or were seeking other jobs.

Unemployed. Unemployed persons are all those who did not work during the survey week, made specific efforts to find a job within the preceding 4 weeks, and were available for work during the survey week or would have been available except for temporary illness. Also included as unemployed are those who did not work at all, were available for work, and (a) were waiting to be called back to a job from which they had been laid off, or (b) were waiting to report to a new wage or salary job within 30 days.

Labor Force. The civilian labor force comprises all persons classified as employed or unemployed according to the above definitions. In this report, the labor force also includes members of the Armed Forces who at the time of the survey were living off post or were living on post with their families.

Labor Force Participation Rate. The labor force participation rate is the percent of the population in the labor force.

Not in Labor Force. All persons not classified as employed or unemployed are defined as "not in the labor force." In this report, inmates of institutions are also included in the "not in labor force" group. Persons doing only incidental unpaid family work (less than 15 hours) are also classified as not in the civilian labor force.

Full-Time and Part-Time Workers. Full-time workers are persons who worked 35 hours or more during the survey week, or who usually work full time but worked 1 to 34 hours during the survey week. Part-time workers are those who usually work 1 to 34 hours and worked 1 to 34 hours during the survey week. Persons with a job but not at work during the survey week are classified according to whether they usually work full or part time.

Weeks Worked. Persons with work experience are classified according to the number of weeks in which they did any work during the year as civilians for pay or profit (including paid vacations and sick leave) or worked without pay on a family-operated farm or business.

Year-Round Full-Time Workers. Year-round full-time workers are persons who worked primarily at full-time jobs for 50 weeks or more.

Part-Year Workers. Part-year workers are persons who worked either full time or part time for 1 to 49 weeks.

Occupation, Industry, and Class of Worker. Data on occupation, industry, and class of worker refer to the job held in the survey week. Persons with 2 jobs or more are classified in the job at which they worked the greatest number of hours in the survey week. The occupation and industry categories in this report are the major groups used in the 1960 Census of Population.

Farm and Nonfarm Residence. The farm population refers to persons residing on farms in rural areas. The nonfarm population comprises residents in urban areas and rural persons not residing on farms. The definition of residence in the report is the same as that used in the 1960 Census of Population.

Income. Income is the total amount of money income from (1) money wages and salaries, (2) net income from self-employment, (3) Social Security, (4) dividends, interest (on savings and bonds), net rental income, and income from estates and trusts, (5) public assistance, (6) unemployment compensation, government employee pensions, and veterans' payments, and (7) private pensions, annuities, alimony, regular contributions from persons not living in the same household, net royalties, and other periodic income. The amount received represents income before deductions for personal taxes, Social Security, savings bonds, union dues, health insurance, and the like. The total income of a family is the algebraic sum of the amounts received by all persons in the family.

Earnings. Earnings are all money income of $1 or more from wages and salaries, and net money income of $1 or more from farm and nonfarm self-employment.

Median. The median is the value which divides the items into two equal parts, one having values above the median, and the other having values below the median.

Sums of Distribution. Sums of individual items, whether absolute numbers or percentages, may not equal totals because of independent rounding of totals and components. Percentage totals, however, are always shown as 100 percent.

RELIABILITY OF THE ESTIMATES

Estimating Procedure. The estimating procedure used in this survey inflates weighted sample results to independent estimates of the civilian noninstitutional population by age, sex, and color. These independent estimates are based on statistics from the 1960 Census of Population and other data on births, deaths, immigration, emigration, and strength of the Armed Forces. To these figures were added the members of the Armed Forces living with their families off or on post and the institutional population.

Variability. Since the estimates are based on a sample, they may differ somewhat from the figures that would have been obtained if a complete census had been taken using the same schedules and procedures. As in any survey, the results are also subject to errors of response and reporting. These may be relatively large in the case of persons with irregular attachment to the labor force.

The standard error is primarily a measure of sampling variability, that is, of the variations that might occur by chance because a sample rather than the entire population is surveyed. As calculated for this report, the standard error also partially measures the effect of response and enumeration errors but does not measure any systematic biases in the data. The chances are about 2 out of 3 that an estimate from the sample would differ from a complete census by less than the standard error. The chances are about 19 out of 20 that the difference would be less than twice the standard error. Tables 1 and 2 show approximations of the standard errors of various characteristics. They should be interpreted as indicators of the order of magnitude of the standard error rather than a precise standard error for any specific item.

The following example illustrates their use. An estimated 18,530,000 married women were in the labor force in March 1971. From table 1, the chances are about 2 out of 3 that the difference between the sample estimate and a complete census count would be less than 100,100. The chances are about 19 out of 20 that the difference would be less than 200,200. The 18,530,000 married women represented 40.8 percent of all married women in the population. Table 2 shows the standard error of 40.8 percent with a base of 45,443,000 to be about 0.2 percent. Thus, the chances are 2 out of 3 that a complete census count would have resulted in a figure between 41.0 percent and 40.6 percent, and 19 out of 20 that the figure would have been between 41.2 and 40.4 percent.

The reliability of an estimated percentage that is based on sample data for both the size of the numerator and denominator, depends on the size of the percentage and the size of the total upon which the percentage is based. Estimated percentages are relatively more reliable than the corresponding absolute estimates of the numerator of the percentage, particularly if the percentage is large (50 percent or greater).

1/ For a more complete description of the methodology, see Concepts and Methods Used in Manpower Statistics from the Current Population Survey (BLS Report No. 313).

Table 1. Standard errors of estimated numbers

(In thousands)

Size of estimate	Standard error (68 chances out of 100)	Size of estimate	Standard error (68 chances out of 100)
20	4	1,000	31
30	5	2,500	47
40	6	5,000	64
50	7	10,000	87
100	9	25,000	110
250	16	--	--
500	22	--	--

Table 2. Standard errors of estimated percentages

(68 chances out of 100)

Estimated percentage	Base of estimated percentage (thousands)						
	500	1,000	2,500	5,000	10,000	25,000	50,000
1 or 99	0.4	0.2	0.1	0.1	0.1	0.1	(1/)
2 or 98	.5	.3	.2	.1	.1	.1	0.1
5 or 95	.8	.6	.4	.3	.2	.1	.1
10 or 90	1.1	.8	.6	.3	.2	.2	.1
15 or 85	1.3	.9	.7	.4	.3	.2	.1
20 or 80	1.4	1.0	.8	.5	.3	.2	.1
25 or 75	1.6	1.1	.8	.5	.3	.2	.1
35 or 65	1.7	1.2	.9	.5	.4	.3	.2
50	1.8	1.3	1.0	.6	.4	.3	.2

1/ Standard error is less than 0.05 of 1 percentage point.

Supplementary tables

Table A. Employment status of the population, by marital status, sex, and color, March 1971

(Numbers in thousands)

Marital status, sex, and color	Population	Labor force					Not in labor force
		Total 1/		Employed	Unemployed		
		Number	Percent of population		Number	Percent of labor force	
ALL PERSONS							
Men	67,678	52,150	77.1	47,978	3,008	5.8	15,528
Single	16,547	9,963	60.2	8,508	1,310	13.1	6,584
Married	47,307	40,297	85.2	37,723	1,562	3.9	7,010
Wife present	45,443	39,058	85.9	36,620	1,441	3.7	6,385
Wife absent	1,864	1,239	66.5	1,103	121	9.8	625
Widowed	1,995	573	28.7	552	21	3.7	1,422
Divorced	1,829	1,317	72.0	1,195	115	8.7	512
Women	74,580	31,681	42.5	29,515	2,166	6.8	42,899
Single	13,632	7,187	52.7	6,488	699	9.7	6,445
Married	48,331	19,986	41.4	18,752	1,234	6.2	28,345
Husband present	45,443	18,530	40.8	17,445	1,085	5.9	26,913
Husband absent in Armed Forces	282	127	45.0	109	18	14.2	155
Husband absent for other reasons	2,606	1,329	51.0	1,198	131	9.9	1,277
Widowed	9,788	2,516	25.7	2,423	93	3.7	7,272
Divorced	2,829	1,992	70.4	1,852	140	7.0	837
NEGRO AND OTHER RACES							
Men	7,281	5,227	71.8	4,674	450	8.6	2,054
Single	2,455	1,399	57.0	1,161	233	16.7	1,056
Married	4,313	3,581	83.0	3,286	197	5.5	732
Wife present	3,772	3,215	85.2	2,958	163	5.1	557
Wife absent	541	366	67.7	328	34	9.3	175
Widowed	283	98	34.6	95	3	3.1	185
Divorced	230	149	64.8	132	17	11.4	81
Women	8,365	4,007	47.9	3,596	411	10.3	4,358
Single	2,062	937	45.4	769	168	17.9	1,125
Married	4,744	2,463	51.9	2,249	214	8.7	2,281
Husband present	3,760	1,975	52.5	1,823	152	7.7	1,785
Husband absent	984	488	49.6	426	62	12.7	496
Widowed	1,124	312	27.8	301	11	3.5	812
Divorced	435	295	67.8	277	18	6.1	140

1/ The male labor force includes members of the Armed Forces living off post or with their families on post, not shown separately.

In these tables, the population, unless otherwise noted, includes all persons 16 years old and over in the civilian population and members of the Armed Forces living off post or with their families on post--1,164,000 in March 1971.

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Table B. Population and labor force, by marital status, age, and sex, March 1971

(Numbers in thousands)

Population, labor force, and age	Men				Women			
	Total	Single	Married, wife present	Other marital status 1/	Total	Single	Married, husband present	Other marital status 1/
POPULATION								
Total, 16 years old and over	67,678	16,547	45,443	5,688	74,580	13,632	45,443	15,505
16 to 19 years	7,499	7,176	275	48	7,547	6,529	866	152
16 and 17 years	3,969	3,918	33	18	3,877	3,688	147	42
18 and 19 years	3,530	3,258	242	30	3,670	2,841	719	110
20 to 24 years	7,825	4,380	3,185	260	8,754	3,213	4,842	699
25 to 34 years	12,589	2,214	9,576	799	12,954	1,254	10,297	1,403
25 to 29 years	6,861	1,511	4,943	407	7,051	846	5,466	739
30 to 34 years	5,728	703	4,633	392	5,903	408	4,831	664
35 to 44 years	11,144	839	9,506	799	11,650	603	9,541	1,506
45 to 54 years	11,323	827	9,540	956	12,177	553	9,470	2,154
55 to 64 years	8,816	508	7,421	887	9,878	633	6,418	2,827
55 to 59 years	4,824	251	4,167	406	5,306	310	3,681	1,315
60 to 64 years	3,992	257	3,254	481	4,572	323	2,737	1,512
65 years and over	8,482	603	5,940	1,939	11,620	847	4,009	6,764
65 to 69 years	3,168	271	2,430	467	3,829	292	1,915	1,622
70 years and over	5,314	332	3,510	1,472	7,791	555	2,094	5,142
Median age (years)	40.3	21.3	45.2	54.8	41.9	20.4	42.0	61.5
LABOR FORCE								
Total, 16 years old and over	52,150	9,963	39,058	3,129	31,681	7,187	18,530	5,964
16 to 19 years	3,653	3,370	250	33	2,972	2,585	320	67
16 and 17 years	1,549	1,511	29	9	1,204	1,167	27	10
18 and 19 years	2,104	1,859	221	24	1,768	1,418	293	57
20 to 24 years	6,240	3,002	3,018	220	4,915	2,220	2,276	419
25 to 34 years	11,899	1,868	9,361	670	5,933	973	4,106	854
25 to 29 years	6,416	1,266	4,802	348	3,216	660	2,102	454
30 to 34 years	5,483	602	4,559	322	2,717	313	2,004	400
35 to 44 years	10,611	665	9,302	644	6,001	439	4,539	1,023
45 to 54 years	10,537	635	9,158	744	6,518	410	4,634	1,474
55 to 64 years	7,174	294	6,315	565	4,294	413	2,358	1,523
55 to 59 years	4,230	160	3,761	309	2,557	228	1,519	810
60 to 64 years	2,944	134	2,554	256	1,737	185	839	713
65 years and over	2,036	129	1,654	253	1,048	147	297	604
65 to 69 years	1,192	87	982	123	641	86	210	345
70 years and over	844	42	672	130	407	61	87	259
Median age (years)	39.0	22.7	42.4	45.0	38.4	22.3	40.6	49.2
LABOR FORCE AS PERCENT OF POPULATION								
Total, 16 years old and over	77.1	60.2	85.9	55.0	42.5	52.7	40.8	38.5
16 to 19 years	48.7	47.0	90.9	(2/)	39.4	39.6	37.0	44.1
16 and 17 years	39.0	38.6	(2/)	(2/)	31.1	31.6	18.4	(2/)
18 and 19 years	59.6	57.1	91.3	(2/)	48.2	49.9	40.8	51.8
20 to 24 years	79.7	68.5	94.8	84.6	56.1	69.1	47.0	59.9
25 to 34 years	94.5	84.4	97.8	83.9	45.8	77.6	39.9	60.9
25 to 29 years	93.5	83.8	97.1	85.5	45.6	78.0	38.5	61.4
30 to 34 years	95.7	85.6	98.4	82.1	46.0	76.7	41.5	60.2
35 to 44 years	95.2	79.3	97.9	80.6	51.5	72.8	47.6	67.9
45 to 54 years	93.1	76.8	96.0	77.8	53.5	74.1	48.9	68.4
55 to 64 years	81.4	57.9	85.1	63.7	43.5	65.2	36.7	53.9
55 to 59 years	87.7	63.7	90.3	76.1	48.2	73.5	41.3	61.6
60 to 64 years	73.7	52.1	78.5	53.2	38.0	57.3	30.7	47.2
65 years and over	24.0	21.4	27.8	13.0	9.0	17.4	7.4	8.9
65 to 69 years	37.6	32.1	40.4	26.3	16.7	29.5	11.0	21.3
70 years and over	15.9	12.6	19.1	8.8	5.2	11.0	4.2	5.0

1/ Includes widowed, divorced, and married, spouse absent.
2/ Percent not shown where base is less than 75,000.

Table B-1. Population and labor force, by marital status, age, sex, and color, March 1971

(Numbers in thousands)

Population, labor force, age, and color	Men				Women			
	Total	Single	Married, wife present	Other marital status 1/	Total	Single	Married, husband present	Other marital status 1/
WHITE								
POPULATION								
Total, 16 years old and over	60,397	14,092	41,671	4,634	66,215	11,570	41,683	12,962
16 to 19 years	6,478	6,178	258	42	6,484	5,591	773	120
20 to 24 years	6,823	3,679	2,923	221	7,607	2,667	4,396	544
25 to 34 years	11,142	1,817	8,698	627	11,333	935	9,391	1,007
35 to 44 years	9,944	681	8,684	579	10,209	476	8,653	1,080
45 to 54 years	10,225	707	8,769	749	10,900	481	8,742	1,677
55 to 64 years	8,019	455	6,852	712	8,962	597	5,950	2,415
65 years and over	7,766	575	5,487	1,704	10,720	823	3,773	6,119
Median age (years)	40.8	21.2	45.3	56.4	42.5	20.4	42.3	63.5
LABOR FORCE								
Total, 16 years old and over	46,923	8,564	35,843	2,516	27,674	6,250	16,555	4,869
16 to 19 years	3,262	2,999	233	30	2,673	2,316	292	65
20 to 24 years	5,454	2,507	2,764	183	4,282	1,909	2,041	332
25 to 34 years	10,630	1,570	8,517	543	4,961	759	3,568	634
35 to 44 years	9,347	546	8,512	489	5,122	364	4,006	752
45 to 54 years	9,606	556	8,452	598	5,790	362	4,233	1,195
55 to 64 years	6,568	261	5,848	459	3,889	398	2,141	1,350
65 years and over	1,856	125	1,517	214	957	142	274	541
Median age (years)	39.3	22.6	42.5	45.2	38.8	22.1	40.9	50.5
LABOR FORCE AS PERCENT OF POPULATION								
Total, 16 years old and over	77.7	60.8	86.0	54.3	41.8	54.0	39.7	37.6
16 to 19 years	50.4	48.5	90.3	(2/)	41.2	41.4	37.8	54.2
20 to 24 years	79.9	68.1	94.6	82.8	56.3	71.6	46.4	61.0
25 to 34 years	95.4	86.4	97.9	86.6	43.8	81.2	38.0	63.0
35 to 44 years	96.0	80.2	98.0	84.5	50.2	76.5	46.3	69.6
45 to 54 years	93.9	78.6	96.4	79.8	53.1	75.3	48.4	71.3
55 to 64 years	81.9	57.4	85.3	64.5	43.4	66.7	36.0	55.9
65 years and over	23.9	21.7	27.6	12.6	8.9	17.3	7.3	8.8
NEGRO AND OTHER RACES								
POPULATION								
Total, 16 years old and over	7,281	2,455	3,772	1,054	8,365	2,062	3,760	2,543
16 to 19 years	1,021	998	17	6	1,063	938	93	32
20 to 24 years	1,002	701	262	39	1,147	546	446	155
25 to 34 years	1,447	397	878	172	1,621	319	906	396
35 to 44 years	1,200	158	822	220	1,441	127	888	426
45 to 54 years	1,098	120	771	207	1,277	72	728	477
55 to 64 years	797	53	569	175	916	36	468	412
65 years and over	716	28	453	235	900	24	231	645
Median age (years)	36.4	21.6	43.9	49.3	37.4	20.9	39.9	50.5
LABOR FORCE								
Total, 16 years old and over	5,227	1,399	3,215	613	4,007	937	1,975	1,095
16 to 19 years	391	371	17	3	299	269	28	2
20 to 24 years	786	495	254	37	633	311	235	87
25 to 34 years	1,269	298	844	127	972	214	538	220
35 to 44 years	1,064	119	790	155	879	75	533	271
45 to 54 years	931	79	706	146	728	48	401	279
55 to 64 years	606	33	467	106	405	15	217	173
65 years and over	180	4	137	39	91	5	23	63
Median age (years)	36.6	23.3	41.2	44.0	36.1	23.2	38.5	43.8
LABOR FORCE AS PERCENT OF POPULATION								
Total, 16 years old and over	71.8	57.0	85.2	58.2	47.9	45.4	52.5	43.1
16 to 19 years	38.3	37.2	(2/)	(2/)	28.1	28.7	30.1	(2/)
20 to 24 years	78.4	70.6	96.9	(2/)	55.2	57.0	52.7	56.1
25 to 34 years	87.7	75.1	96.1	73.8	60.0	67.1	59.4	55.6
35 to 44 years	88.7	75.3	96.1	70.5	61.0	59.1	60.0	63.6
45 to 54 years	84.8	65.8	91.6	70.5	57.0	(2/)	55.1	58.5
55 to 64 years	76.0	(2/)	82.1	60.6	44.2	(2/)	46.4	42.0
65 years and over	25.1	(2/)	30.2	16.6	10.1	(2/)	10.0	9.8

1/ Includes widowed, divorced, and married, spouse absent.
2/ Percent not shown where base is less than 75,000.

Table C. Employment status of the female population, by marital status and residence, March 1971

Marital status and residence	Percent of population in labor force	Percent distribution of labor force						
		Total	Employed					Unemployed
			Total	Agriculture	Nonagriculture			
					Total	Full time 1/	Part time 1/	
ALL MARITAL GROUPS								
Total	42.5	100.0	93.2	1.4	91.8	65.7	26.0	6.8
Nonfarm	42.7	100.0	93.1	.6	92.5	66.3	26.2	6.9
Farm	36.4	100.0	95.5	24.0	71.5	49.5	22.0	4.5
SINGLE								
Total	52.7	100.0	90.3	.9	89.5	58.9	30.6	9.7
Nonfarm	53.3	100.0	90.3	.5	89.7	59.3	30.4	9.7
Farm	40.7	100.0	92.2	11.9	80.3	43.6	36.7	7.8
MARRIED, HUSBAND PRESENT								
Total	40.8	100.0	94.1	1.7	92.4	66.0	26.4	5.9
Nonfarm	41.0	100.0	94.0	.6	93.4	66.7	26.7	6.0
Farm	36.9	100.0	96.8	25.8	70.9	52.2	18.7	3.2
OTHER MARITAL STATUS 2/								
Total	38.5	100.0	93.5	1.1	92.4	73.2	19.2	6.5
Nonfarm	38.6	100.0	93.6	.5	93.0	73.8	19.3	6.4
Farm	27.1	100.0	93.1	35.3	57.8	41.2	16.7	6.9

1/ Full-time workers are persons who during the survey week worked 35 hours or more and those who usually work full time but worked 1 to 34 hours. Part-time workers are persons who usually work 1 to 34 hours and worked 1 to 34 hours during the survey week. Persons with a job but not at work during the survey week are classified according to whether they usually work full or part time.
2/ Includes widowed, divorced, and married, spouse absent.

Table D. Employment status of the female population and of married women, husband present, by color and residence, March 1971

Color, marital status, and residence	Percent of population in labor force	Percent distribution of labor force						
		Total	Employed					Unemployed
			Total	Agriculture	Nonagriculture			
					Total	Full time 1/	Part time 1/	
WHITE								
ALL WOMEN								
Total	41.8	100.0	93.7	1.5	92.1	65.8	26.4	6.3
Nonfarm	42.0	100.0	93.6	.6	93.0	66.4	26.6	6.4
Farm	37.1	100.0	95.7	25.1	70.6	48.9	21.6	4.3
MARRIED, HUSBAND PRESENT								
Total	39.7	100.0	94.4	1.8	92.5	65.7	26.8	5.6
Nonfarm	39.9	100.0	94.3	.6	93.6	66.5	27.2	5.7
Farm	37.3	100.0	96.6	26.9	69.8	51.0	18.8	3.4
NEGRO AND OTHER RACES								
ALL WOMEN								
Total	47.9	100.0	89.7	.6	89.1	65.6	23.5	10.3
Nonfarm	48.4	100.0	89.7	.6	89.1	65.7	23.4	10.3
Farm	26.2	(2/)	-	-	-	-	-	-
MARRIED, HUSBAND PRESENT								
Total	52.5	100.0	92.3	.6	91.7	68.6	23.1	7.7
Nonfarm	53.2	100.0	92.2	.6	91.6	68.4	23.2	7.8
Farm	29.8	(2/)	-	-	-	-	-	-

1/ For definition of full-time and part-time workers, see footnote 1, table C.
2/ Percent not shown where base is less than 75,000.

Table E. Major occupation group of employed persons, by full-time and part-time status, marital status, sex, and selected age groups, March 1971

(Percent distribution)

Major occupation group and full-time and part-time employment status	Men				Women											
	16 years old and over				16 years old and over				16 to 34 years old				35 years old and over			
	Total	Single	Married, wife present	Other marital status 1/	Total	Single	Married, husband present	Other marital status 1/	Total	Single	Married, husband present	Other marital status 1/	Total	Single	Married, husband present	Other marital status 1/
ALL EMPLOYED PERSONS																
All occupation groups: Number (thousands)	47,978	8,508	36,620	2,850	29,515	6,488	17,445	5,582	12,405	5,108	6,085	1,212	17,110	1,380	11,360	4,370
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	14.0	13.6	14.4	9.6	15.2	16.8	16.0	11.0	16.7	14.8	19.2	11.9	14.1	24.0	14.2	10.8
Farmers and farm managers	3.2	1.7	3.6	3.1	.2	(3/)	.2	.7	.1	(3/)	.2	-	.3	.1	.2	.8
Managers and administrators, except farm	15.1	5.1	17.6	12.0	4.9	3.0	5.2	6.1	2.2	1.6	2.3	4.0	6.9	8.4	6.7	6.7
Clerical and kindred workers	6.7	10.0	6.1	5.4	33.7	39.3	33.2	28.8	39.4	40.8	38.1	39.5	29.6	33.4	30.5	25.9
Sales workers	6.0	6.4	6.1	4.4	7.0	6.8	7.5	5.8	6.4	7.7	5.8	3.4	7.4	3.0	8.4	6.4
Craftsmen, foremen, and kindred workers	19.3	10.4	21.5	17.8	1.2	1.1	1.2	1.1	.9	.8	.9	1.4	1.4	1.9	1.4	1.1
Operatives and kindred workers	18.4	19.8	17.8	22.6	13.1	7.9	14.4	15.0	10.6	6.9	13.2	13.7	14.8	11.7	15.0	15.3
Private household workers	.1	.3	(3/)	.1	5.4	7.7	3.4	9.0	4.7	7.9	2.2	4.0	5.9	7.0	4.0	10.3
Service workers, except private household	8.3	13.9	6.7	11.5	17.4	15.9	16.8	21.1	17.2	17.6	16.2	21.1	17.5	9.5	17.1	21.1
Farm laborers and foremen	1.7	4.5	1.0	2.9	1.0	.7	1.3	.4	.7	.7	.8	.5	1.1	.6	1.5	.4
Laborers, except farm and mine	7.2	14.4	5.2	10.6	1.0	1.0	1.0	1.0	1.0	1.1	1.0	.7	.9	.5	.9	1.0
FULL-TIME WORKERS 2/																
All occupation groups	90.5	68.4	95.5	91.2	71.4	65.7	71.1	78.8	68.2	59.4	72.4	84.6	73.7	89.1	70.4	77.3
Professional, technical, and kindred workers	12.9	10.9	13.7	9.0	11.9	14.3	11.7	9.7	13.0	12.3	14.0	11.0	11.1	22.0	10.5	9.4
Farmers and farm managers	2.7	1.4	3.1	2.2	.1	(3/)	.1	.2	(3/)	(3/)	.1	-	.1	-	.1	.3
Managers and administrators, except farm	14.6	4.8	17.2	11.5	4.2	2.8	4.3	5.3	1.8	1.5	1.8	3.6	5.9	7.9	5.6	5.8
Clerical and kindred workers	5.9	6.6	5.8	5.1	26.2	28.9	25.3	25.9	30.3	28.3	30.8	36.4	23.3	31.4	22.4	23.1
Sales workers	5.2	3.4	5.7	3.8	3.3	1.9	3.8	3.6	2.2	1.8	2.4	2.6	4.2	2.4	4.5	3.8
Craftsmen, foremen, and kindred workers	18.6	9.0	21.0	16.8	.9	.8	1.0	.9	.7	.6	.7	1.0	1.2	1.8	1.2	.8
Operatives and kindred workers	17.2	15.0	17.3	21.8	11.5	6.8	12.6	13.5	9.2	5.6	11.5	12.6	13.2	11.2	13.2	13.8
Private household workers	(3/)	(3/)	(3/)	.1	1.6	2.0	0.9	3.5	1.2	1.4	.9	1.4	2.0	4.5	.9	4.1
Service workers, except private household	6.4	6.5	6.1	9.5	10.4	7.1	10.1	15.2	8.9	7.1	9.2	15.0	11.4	7.1	10.5	15.2
Farm laborers and foremen	1.2	2.6	.8	2.4	.5	.2	.6	.3	.3	.2	.4	.4	.6	.3	.8	.2
Laborers, except farm and mine	5.7	8.3	4.8	9.0	.7	.6	.6	.8	.6	.6	.7	.7	.7	.5	.6	.8
PART-TIME WORKERS 2/																
All occupation groups	9.5	31.6	4.5	8.8	28.6	34.3	28.9	21.2	31.8	40.6	27.6	15.4	26.3	10.9	29.6	22.7
Professional, technical, and kindred workers	1.1	2.8	.7	.6	3.3	2.4	4.3	1.3	3.7	2.5	5.3	.9	3.0	2.0	3.7	1.4
Farmers and farm managers	.5	.3	.5	1.0	.1	(3/)	.1	.5	.1	-	.1	-	.2	.1	.1	.6
Managers and administrators, except farm	.4	.3	.5	.5	.7	.2	.9	.8	.4	.1	.5	.3	1.0	.5	1.1	.9
Clerical and kindred workers	.8	3.4	.3	.3	7.5	10.3	7.8	2.9	9.1	12.6	7.3	3.1	6.3	2.0	8.1	2.9
Sales workers	.8	3.0	.3	.6	3.7	4.8	3.7	2.2	4.2	5.9	3.4	.9	3.3	.7	3.8	2.6
Craftsmen, foremen, and kindred workers	.8	1.5	.6	1.0	.2	.2	.2	.2	.3	.3	.2	.3	.2	.1	.2	.2
Operatives and kindred workers	1.3	4.8	.5	.8	1.5	1.2	1.7	1.5	1.5	1.3	1.6	1.1	1.6	.5	1.8	1.6
Private household workers	.1	.2	(3/)	-	3.8	5.6	2.5	5.5	3.6	6.5	1.3	2.6	3.9	2.5	3.1	6.3
Service workers, except private household	1.9	.4	.6	1.9	7.0	8.7	6.7	6.0	8.3	10.5	6.9	6.1	6.1	2.4	6.6	5.9
Farm laborers and foremen	.5	1.8	.2	.5	.5	.4	.6	.1	.4	.4	.4	.1	.5	.3	.7	.1
Laborers, except farm and mine	1.5	6.0	.4	1.6	.3	.4	.3	.1	.4	.5	.3	-	.2	-	.3	.2

1/ Includes widowed, divorced, and married, spouse absent.

2/ For definition of full-time and part-time workers, see footnote 1, table C.

3/ Less than 0.05 percent.

Table E-1. Major occupation group of employed women, by marital status, color, and selected age groups, March 1971

(Percent distribution)

Major occupation group and color	16 years old and over				16 to 34 years old				35 years old and over			
	Total	Single	Married, husband present	Other marital status 1/	Total	Single	Married, husband present	Other marital status 1/	Total	Single	Married, husband present	Other marital status 1/
ALL EMPLOYED WOMEN												
WHITE												
All occupation groups:												
Number (thousands)	25,919	5,719	15,622	4,578	10,798	4,476	5,381	941	15,121	1,243	10,241	3,637
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	15.8	17.6	16.2	11.8	17.1	15.4	19.5	11.5	14.8	25.7	14.5	11.9
Farmers and farm managers	.3	(2/)	.2	.8	.1	(2/)	.2	-	.4	.1	.2	1.0
Managers and administrators, except farm	5.2	3.3	5.4	7.1	2.4	1.7	2.4	5.1	7.3	9.2	7.0	7.5
Clerical and kindred workers	35.4	40.2	34.8	31.6	40.4	41.6	39.3	41.8	31.8	35.3	32.4	29.1
Sales workers	7.6	7.1	8.0	6.6	6.7	8.1	6.2	3.2	8.1	3.4	9.0	7.4
Craftsmen, foremen, and kindred workers	1.2	1.1	1.3	1.2	1.0	.9	.9	1.7	1.4	2.0	1.5	1.1
Operatives and kindred workers	12.8	7.3	14.2	15.0	9.9	6.2	12.5	13.1	14.8	11.4	15.0	15.4
Private household workers	3.7	7.1	1.9	5.4	4.3	7.8	1.6	2.5	3.2	4.6	2.1	6.2
Service workers, except private household	16.1	14.7	15.7	19.4	16.4	16.7	15.5	20.0	16.0	7.5	15.8	19.2
Farm laborers and foremen	1.0	.7	1.3	.3	.7	.7	.8	.7	1.2	.6	1.6	.2
Laborers, except farm and mine	.9	.8	1.0	.9	1.0	1.0	1.0	.4	.9	.3	.9	1.0
NEGRO AND OTHER RACES												
All occupation groups:												
Number (thousands)	3,596	769	1,823	1,004	1,607	632	704	271	1,989	137	1,119	733
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	11.4	10.5	13.9	7.5	14.2	10.9	17.5	13.1	9.1	8.8	11.6	5.5
Farmers and farm managers	(2/)	-	.1	-	-	-	-	-	.1	-	.1	-
Managers and administrators, except farm	2.3	.9	3.2	1.9	1.0	.8	1.6	-	3.4	1.5	4.2	2.6
Clerical and kindred workers	21.2	32.2	19.4	16.1	32.1	35.7	29.1	31.7	12.5	16.1	13.4	10.4
Sales workers	3.0	4.4	2.9	2.3	4.2	5.4	3.1	4.1	2.1	-	2.7	1.6
Craftsmen, foremen, and kindred workers	.7	.5	.8	.7	.6	.5	.7	.4	.9	.7	.9	.8
Operatives and kindred workers	15.0	12.3	16.1	15.1	15.2	12.0	17.9	15.7	14.9	13.9	15.0	14.9
Private household workers	17.8	12.1	16.1	25.2	8.0	8.5	7.1	9.0	25.7	28.5	21.8	31.1
Service workers, except private household	26.6	24.7	26.1	29.1	22.9	24.0	21.2	24.6	29.6	27.7	29.1	30.7
Farm laborers and foremen	.7	.5	.7	1.0	.6	.5	1.0	-	.8	.7	.4	1.4
Laborers, except farm and mine	1.1	1.8	.8	1.2	1.2	1.7	.7	1.5	1.0	2.2	.8	1.1

1/ Includes widowed, divorced, and married, spouse absent.
2/ Less than 0.05 percent.

Table F. Labor force and marital status of ever-married women, by age, presence and age of children, and color, March 197.

(Numbers in thousands)

Age of women, presence and age of children, and color	All ever-married women			Married women, husband present			Other ever-married women 1/		
	Population	Labor force		Population	Labor force		Population	Labor force	
		Number	Percent of population		Number	Percent of population		Number	Percent of population
ALL PERSONS									
Total	60,948	24,494	40.2	45,443	18,530	40.8	15,505	5,964	38.5
No children under 18 years old	32,020	12,293	38.4	20,025	8,432	42.1	11,995	3,861	32.2
16 to 34 years	4,094	2,822	68.9	3,431	2,347	68.4	663	475	71.6
16 to 24 years	2,626	1,774	67.6	2,240	1,526	68.1	386	248	64.2
25 to 34 years	1,468	1,048	71.4	1,191	821	68.9	277	227	81.9
35 years and over	27,926	9,471	33.9	16,594	6,085	36.7	11,332	3,386	29.9
35 to 44 years	1,876	1,199	63.9	1,417	875	61.8	459	324	70.6
45 years and over	26,050	8,272	31.8	15,177	5,210	34.3	10,873	3,062	28.2
45 to 54 years	6,640	3,734	56.2	5,240	2,745	52.4	1,400	989	70.6
55 years and over	19,410	4,538	23.4	9,937	2,465	24.8	9,473	2,073	21.9
Children 6 to 17 years old only	15,152	7,874	52.0	13,008	6,424	49.4	2,144	1,450	67.6
16 to 34 years	3,049	1,699	55.7	2,600	1,380	53.1	449	319	71.0
16 to 24 years	81	43	53.1	68	34	(2/)	13	9	(2/)
25 to 34 years	2,968	1,656	55.8	2,532	1,346	53.2	436	310	71.1
35 years and over	12,103	6,175	51.0	10,408	5,044	48.5	1,695	1,131	66.7
35 to 44 years	6,820	3,659	53.7	5,948	3,043	51.2	872	616	70.6
45 years and over	5,283	2,516	47.6	4,460	2,001	44.9	823	515	62.6
45 to 54 years	4,675	2,272	48.6	3,970	1,811	45.6	705	461	65.4
55 years and over	608	244	40.1	490	190	38.8	118	54	45.8
Children under 6 years old	13,776	4,327	31.4	12,410	3,674	29.6	1,366	653	47.8
16 to 34 years	11,116	3,521	31.7	9,974	2,975	29.8	1,142	546	47.8
16 to 24 years	3,852	1,265	32.8	3,400	1,036	30.5	452	229	50.7
16 to 19 years	458	116	25.3	401	95	23.7	57	21	(2/)
20 to 24 years	3,394	1,149	33.9	2,999	941	31.4	395	208	52.7
25 to 34 years	7,264	2,256	31.1	6,574	1,939	29.5	690	317	45.9
35 years and over	2,660	806	30.3	2,436	699	28.7	224	107	47.8
35 to 44 years	2,351	704	29.9	2,176	621	28.5	175	83	47.4
45 years and over	309	102	33.0	260	78	30.0	49	24	(2/)
Children 3 to 5 years old, none under 3 years	5,267	2,025	38.4	4,655	1,680	36.1	612	345	56.4
16 to 34 years	3,656	1,473	40.3	3,187	1,197	37.6	469	276	58.8
16 to 24 years	633	296	46.8	527	218	41.4	106	78	73.6
25 to 34 years	3,023	1,177	38.9	2,660	979	36.8	363	198	54.5
35 years and over	1,611	552	34.3	1,468	483	32.9	143	69	48.3
35 to 44 years	1,384	481	34.8	1,276	429	33.6	108	52	48.1
45 years and over	227	71	31.3	192	54	28.1	35	17	(2/)
Children under 3 years old	8,509	2,302	27.1	7,755	1,994	25.7	754	308	40.8
16 to 34 years	7,460	2,048	27.5	6,787	1,778	26.2	673	270	40.1
16 to 24 years	3,219	969	30.1	2,873	818	28.5	346	151	43.6
16 to 19 years	438	109	24.9	381	89	23.4	57	20	(2/)
20 to 24 years	2,781	860	30.9	2,492	729	29.3	289	131	45.3
25 to 34 years	4,241	1,079	25.4	3,914	960	24.5	327	119	36.4
35 years and over	1,049	254	24.2	968	216	22.3	81	38	46.9
35 to 44 years	967	223	23.1	900	192	21.3	67	31	(2/)
45 years and over	82	31	37.8	68	24	(2/)	14	7	(2/)
NEGRO AND OTHER RACES									
Total	6,303	3,070	48.7	3,760	1,975	52.5	2,543	1,095	43.1
No children under 18 years old	3,071	1,329	43.3	1,506	779	51.7	1,565	550	35.1
16 to 34 years	406	272	67.0	282	203	72.2	124	69	55.6
35 years and over	2,665	1,057	39.7	1,224	576	47.1	1,441	481	33.4
Children 6 to 17 years old only	1,579	968	61.3	1,018	616	60.5	561	352	62.7
16 to 34 years	363	256	70.5	226	160	70.8	137	96	70.1
35 years and over	1,216	712	58.6	792	456	57.6	424	256	60.4
Children under 6 years old	1,653	773	46.8	1,236	580	46.9	417	193	46.3
16 to 34 years	1,259	582	46.2	937	438	46.7	322	144	44.7
35 years and over	394	191	48.5	299	142	47.5	95	49	51.6

1/ Includes widowed, divorced, and married, spouse absent.
2/ Percent not shown where base is less than 75,000.

Table C. Employment and marital status of ever-married women, by presence and age of children, and color. March 1971

(Numbers in thousands)

Marital status, presence and age of children, and color	Total	Labor force							
		Employed						Unemployed	
		Total employed	Nonagriculture				Agriculture	Number	Percent of labor force
			Number	Percent distribution					
				Total	Full time 1/	Part time 1/			
ALL PERSONS									
ALL EVER-MARRIED WOMEN									
Total	24,494	23,027	22,642	100.0	73.4	26.6	385	1,467	6.0
No children under 18 years	12,293	11,730	11,535	100.0	79.0	21.0	195	563	4.6
Children 6 to 17 years only	7,874	7,440	7,315	100.0	68.4	31.6	125	434	5.5
Children under 6 years	4,327	3,857	3,792	100.0	66.0	34.0	65	470	10.9
Children under 3 years	2,302	2,018	1,985	100.0	64.4	35.6	33	284	12.3
MARRIED WOMEN, HUSBAND PRESENT									
Total	18,530	17,445	17,127	100.0	71.5	28.5	318	1,085	5.9
No children under 18 years	8,432	8,054	7,899	100.0	79.1	20.9	155	378	4.5
Children 6 to 17 years only	6,424	6,091	5,984	100.0	65.8	34.2	107	333	5.2
Children under 6 years	3,674	3,300	3,244	100.0	63.3	36.7	56	374	10.2
Children under 3 years	1,994	1,760	1,731	100.0	62.2	37.8	29	234	11.7
OTHER EVER-MARRIED WOMEN 2/									
Total	5,964	5,582	5,515	100.0	79.3	20.7	67	382	6.4
No children under 18 years	3,861	3,676	3,636	100.0	78.6	21.4	40	185	4.8
Children 6 to 17 years only	1,450	1,349	1,331	100.0	80.1	19.9	18	101	7.0
Children under 6 years	653	557	548	100.0	81.6	18.4	9	96	14.7
Children under 3 years	308	258	254	100.0	79.9	20.1	4	50	16.2
NEGRO AND OTHER RACES									
ALL EVER-MARRIED WOMEN									
Total	3,070	2,827	2,803	100.0	74.5	25.5	24	243	7.9
No children under 18 years	1,329	1,251	1,242	100.0	71.1	28.9	9	78	5.9
Children 6 to 17 years only	968	898	890	100.0	75.6	24.4	8	70	7.2
Children under 6 years	773	678	671	100.0	79.4	20.6	7	95	12.3
MARRIED WOMEN, HUSBAND PRESENT									
Total	1,975	1,823	1,810	100.0	74.6	25.4	13	152	7.7
No children under 18 years	779	732	725	100.0	71.3	28.7	7	47	6.0
Children 6 to 17 years only	616	575	573	100.0	74.9	25.1	2	41	6.7
Children under 6 years	580	516	512	100.0	78.9	21.1	4	64	11.0
OTHER EVER-MARRIED WOMEN 2/									
Total	1,095	1,004	993	100.0	74.4	25.6	11	91	8.3
No children under 18 years	550	519	517	100.0	70.8	29.2	2	31	5.6
Children 6 to 17 years only	352	323	317	100.0	77.0	23.0	6	29	8.2
Children under 6 years	193	162	159	100.0	81.1	18.9	3	31	16.1

1/ For definition of full-time and part-time workers, see footnote 1, table C.
2/ Includes widowed, divorced, and married, spouse absent.

Table H. Percent distribution and labor force participation rates of married women, husband present, by presence and age of children, and residence, March 1971

Presence and age of children	Total			Nonfarm			Farm		
	Percent distribution		Percent of population in labor force	Percent distribution		Percent of population in labor force	Percent distribution		Percent of population in labor force
	Wives in labor force	Wives not in labor force		Wives in labor force	Wives not in labor force		Wives in labor force	Wives not in labor force	
Total	100.0	100.0	40.8	100.0	100.0	41.0	100.0	100.0	36.9
No children under 18 years old	45.5	43.1	42.1	45.6	42.8	42.5	44.2	49.5	34.3
Children 6 to 17 years only	34.7	24.5	49.4	34.4	24.4	49.5	40.4	25.7	47.9
12 to 17 years	15.5	9.9	51.9	15.3	9.8	52.1	19.7	11.7	49.5
6 to 11 years	7.3	5.6	47.4	7.3	5.6	47.6	6.2	4.9	42.7
12 to 17 and 6 to 11 years	11.9	9.0	47.6	11.7	9.0	47.6	14.5	9.0	48.3
Children under 6 years old only	10.0	16.2	30.0	10.3	16.6	30.1	5.1	9.4	24.1
3 to 5 years	2.8	2.7	41.6	2.9	2.8	41.8	1.7	1.9	(1/)
Under 3 years	5.1	8.3	29.9	5.2	8.5	29.8	2.5	3.4	(1/)
3 to 5 and under 3 years	2.1	5.2	21.9	2.2	5.2	22.3	.9	4.2	(1/)
Children 6 to 17 and under 6 years old	9.8	16.3	29.2	9.8	16.3	29.3	10.2	15.5	27.9
12 to 17 years and under 6 years old	1.0	1.1	37.9	1.0	1.2	37.5	1.1	.7	(1/)
3 to 5 years	.7	.7	41.0	.7	.7	40.5	.6	.3	(1/)
Under 3 years	.2	.3	35.9	.2	.3	35.5	.4	.3	(1/)
3 to 5 and under 3 years	.1	.2	(1/)	.1	.2	(1/)	.1	.1	(1/)
6 to 11 years and under 6 years	5.8	10.4	27.8	5.9	10.6	27.7	5.2	7.7	28.4
3 to 5 years	3.6	5.1	32.7	3.6	5.2	32.3	3.7	3.1	(1/)
Under 3 years	1.2	2.6	24.8	1.3	2.7	24.9	.7	1.7	(1/)
3 to 5 and under 3 years	1.0	2.7	19.7	1.0	2.7	20.1	.7	2.9	(1/)
12 to 17 and 6 to 11 years and under 6 years	2.9	4.7	30.0	2.9	4.6	30.5	3.9	7.0	24.4
3 to 5 years	1.9	2.5	34.6	1.9	2.4	35.9	1.2	3.9	(1/)
Under 3 years	.6	1.3	25.8	.6	1.2	25.6	1.2	2.0	(1/)
3 to 5 and under 3 years	.4	.9	21.5	.3	.9	19.7	1.4	1.2	(1/)

1/ Percent not shown where base is less than 75,000.

Table 1. Percent distribution and labor force participation rates of married women, husband present, by color, presence and age of children, residence, and region (South and other), March 1971

Color, region, and presence and age of children	Total			Nonfarm			Farm		
	Percent distribution		Percent of population in labor force	Percent distribution		Percent of population in labor force	Percent distribution		Percent of population in labor force
	Labor force	Not in labor force		Labor force	Not in labor force		Labor force	Not in labor force	
WHITE									
United States	100.0	100.0	39.7	100.0	100.0	39.9	100.0	100.0	37.3
No children under 18 years old	46.2	43.2	41.3	46.3	42.9	41.7	44.9	49.6	34.9
Children 6 to 17 years only	35.1	24.6	48.4	34.9	24.5	48.5	40.2	26.3	47.4
Children under 6 years	18.7	32.2	27.6	18.8	32.6	27.7	14.9	24.1	26.8
None under 3 years	8.5	11.1	33.6	8.5	11.2	33.7	6.9	9.1	31.0
Some under 3 years	10.1	21.1	24.0	10.2	21.4	24.0	8.0	14.9	24.0
South	100.0	100.0	40.6	100.0	100.0	40.8	100.0	100.0	37.0
No children under 18 years old	45.7	45.4	40.7	45.5	44.5	41.3	48.9	58.9	32.8
Children 6 to 17 years only	34.2	24.6	48.7	33.9	24.8	48.5	40.3	22.5	51.2
Children under 6 years	20.1	29.9	31.4	20.6	30.7	31.6	10.8	18.6	25.4
None under 3 years	9.5	10.7	37.7	9.7	10.8	38.2	4.9	8.1	(1/)
Some under 3 years	10.6	19.3	27.3	10.9	19.9	27.4	6.0	10.5	(1/)
United States, excluding South	100.0	100.0	39.3	100.0	100.0	39.4	100.0	100.0	37.3
No children under 18 years old	46.4	42.3	41.5	46.6	42.2	41.8	42.7	44.5	36.4
Children 6 to 17 years only	35.5	24.6	48.3	35.3	24.4	48.5	40.1	28.4	45.6
Children under 6 years	18.1	33.1	26.2	18.1	33.4	26.1	17.1	27.1	27.3
None under 3 years	8.1	11.3	31.9	8.1	11.4	31.8	8.1	13.7	33.1
Some under 3 years	9.9	21.8	22.8	10.0	22.0	22.8	9.1	17.4	23.7
NEGRO AND OTHER RACES									
United States	100.0	100.0	52.5	100.0	100.0	53.2	(1/)	100.0	29.8
No children under 18 years old	39.5	41.0	51.7	39.6	40.7	52.8	-	48.8	(1/)
Children 6 to 17 years only	31.1	22.2	60.5	30.8	22.6	61.1	-	14.6	(1/)
Children under 6 years	29.4	36.8	47.1	29.5	36.8	48.0	-	36.6	(1/)
None under 3 years	13.5	10.5	58.9	13.5	10.5	59.5	-	9.8	(1/)
Some under 3 years	15.9	26.3	40.3	16.1	26.3	41.3	-	26.8	(1/)
South	100.0	100.0	53.4	100.0	100.0	55.0	(1/)	100.0	27.6
No children under 18 years old	36.9	44.4	48.8	37.1	43.9	50.9	-	50.0	(1/)
Children 6 to 17 years only	31.9	21.8	62.7	31.4	22.4	63.2	-	15.8	(1/)
Children under 6 years	31.2	33.8	51.4	31.4	33.8	53.2	-	34.2	(1/)
None under 3 years	15.4	11.5	60.5	15.3	11.6	61.7	-	10.5	(1/)
Some under 3 years	15.8	22.3	44.9	16.1	22.1	47.1	-	23.7	(1/)
United States, excluding South	100.0	100.0	52.0	100.0	100.0	52.0	(1/)	(1/)	(1/)
No children under 18 years old	42.0	38.0	54.5	42.0	38.0	54.5	-	-	(1/)
Children 6 to 17 years only	30.4	22.6	59.3	30.3	22.7	59.1	-	-	(1/)
Children under 6 years	27.6	39.5	43.1	27.8	39.3	43.4	-	-	(1/)
None under 3 years	11.6	9.5	57.0	11.7	9.6	57.0	-	-	-
Some under 3 years	16.0	29.9	36.7	16.1	29.7	37.0	-	-	(1/)

1/ Percent not shown where base is less than 75,000.

Table J. Labor force participation rates 1/ of married women, husband present, by income of husband in 1970, by age of wife, presence and age of children, and color, March 1971

Age of wife, presence and age of children, and color	Income of husband						Age of wife, presence and age of children, and color	Income of husband					
	Total	Under $3,000	$3,000 to $4,999	$5,000 to $6,999	$7,000 to $9,999	$10,000 and over		Total	Under $3,000	$3,000 to $4,999	$5,000 to $6,999	$7,000 to $9,999	$10,000 and over
ALL PERSONS							WHITE						
All wives	40.8	34.7	40.1	46.3	46.0	36.9	All wives	39.7	34.1	38.2	44.9	44.9	36.3
No children under 18 years old	42.1	31.5	37.2	47.4	50.9	43.3	No children under 18 years old	41.3	31.1	35.6	46.0	50.2	42.5
16 to 34 years	68.4	65.6	62.6	70.5	71.9	67.7	Children 6 to 17 years only	48.4	52.2	55.4	56.9	53.8	42.2
35 to 54 years	54.4	54.7	60.4	59.9	57.3	48.6	Children under 6 years	27.6	34.7	31.4	34.1	30.7	20.5
55 years and over	24.8	20.0	21.9	26.8	31.1	28.4	NEGRO AND OTHER RACES						
Children 6 to 17 years only	49.4	51.6	56.0	57.8	55.0	42.6	All wives	52.5	39.4	51.9	57.4	59.8	56.1
16 to 34 years	53.1	53.5	65.7	63.0	53.2	47.1	No children under 18 years old	51.7	35.5	52.7	62.4	60.0	69.7
35 to 44 years	51.2	57.4	56.7	60.5	58.6	43.7	Children 6 to 17 years only	60.5	51.0	58.9	64.5	69.8	55.5
45 years and over	44.9	46.2	50.4	51.2	51.2	38.6	Children under 6 years	46.9	40.5	46.2	47.8	51.1	46.7
Children under 6 years old	29.6	36.1	34.6	36.0	32.3	21.6							
16 to 24 years	30.5	30.4	30.2	35.2	30.3	22.8							
25 to 34 years	29.5	43.3	39.1	36.3	33.5	21.0							
35 years and over	28.7	35.7	37.8	37.1	31.9	22.5							

1/ Labor force as a percent of population.

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Table K. Married women, husband present, by income of husband in 1970, by labor force status and age of wife, and presence and age of children, March 1

(Percent distribution)

Labor force status and age of wife, and presence and age of children	All wives (thousands)	Income of husband								Median income of husband
		Total	Under $1,000	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $4,999	$5,000 to $6,999	$7,000 to $9,995	$10,000 and over	
LABOR FORCE										
Total	18,530	100.0	2.9	3.5	4.3	12.1	17.1	28.6	31.6	$8,070
No children under 18 years old	8,432	100.0	4.0	5.5	6.2	14.5	17.2	25.8	26.8	7,310
16 to 34 years	2,347	100.0	3.8	4.7	6.9	16.0	21.3	28.2	19.1	6,743
35 years and over	6,085	100.0	4.1	5.7	5.9	13.9	15.7	24.9	29.8	7,573
35 to 44 years	875	100.0	3.4	1.9	3.4	13.4	17.6	29.3	31.0	8,055
45 years and over	5,210	100.0	4.2	6.4	6.3	14.0	15.3	24.2	29.6	7,475
Children 6 to 17 years old only	6,424	100.0	1.8	1.6	2.4	9.0	14.7	29.6	40.8	9,069
16 to 34 years	1,380	100.0	1.3	1.8	1.8	9.9	16.9	31.0	37.3	8,778
35 years and over	5,044	100.0	1.9	1.6	2.6	8.7	14.1	29.3	41.8	9,155
35 to 44 years	3,043	100.0	1.7	1.2	2.2	7.8	13.9	30.3	43.0	9,302
45 years and over	2,001	100.0	2.3	2.2	3.1	10.2	14.5	27.8	39.9	8,907
Children under 6 years old	3,674	100.0	2.0	2.0	3.2	12.0	21.0	33.3	26.3	7,866
16 to 34 years	2,975	100.0	1.9	1.9	3.5	12.5	22.1	34.5	23.6	7,703
35 years and over	699	100.0	2.7	2.6	2.0	10.0	16.6	28.5	37.6	8,704
NOT IN LABOR FORCE										
Total	26,913	100.0	2.5	5.3	5.9	12.4	13.7	23.1	37.1	8,330
No children under 18 years old	11,593	100.0	3.8	10.1	10.7	17.7	13.9	18.2	25.6	6,098
16 to 34 years	1,084	100.0	4.9	3.9	8.5	20.4	19.1	23.6	19.5	6,282
35 years and over	10,509	100.0	3.7	10.8	11.0	17.4	13.4	17.6	26.2	6,071
35 to 44 years	542	100.0	2.6	3.5	3.1	9.8	13.5	24.5	43.0	9,143
45 years and over	9,967	100.0	3.7	11.2	11.4	17.8	13.4	17.2	25.3	5,877
Children 6 to 17 years old only	6,584	100.0	1.6	1.8	1.9	6.9	10.5	23.6	53.7	10,000+
16 to 34 years	1,220	100.0	1.3	1.3	2.2	5.8	11.2	30.7	47.4	9,744
35 years and over	5,364	100.0	1.7	1.9	1.9	7.1	10.3	22.0	55.1	10,000+
35 to 44 years	2,905	100.0	1.3	1.3	1.4	6.2	9.5	22.4	57.9	10,000+
45 years and over	2,459	100.0	2.2	2.6	2.5	8.2	11.3	21.6	51.8	10,000+
Children under 6 years old	8,736	100.0	1.3	1.7	2.5	9.6	15.7	29.3	40.0	8,975
16 to 34 years	6,999	100.0	1.3	1.7	2.5	10.3	16.8	30.5	36.9	8,716
35 years and over	1,737	100.0	1.1	1.7	2.5	6.6	11.3	24.5	52.3	10,000+

Table L. Labor force status of nonfarm married women, husband present, by income of husband in 1970, color, and presence and age of children, March 1971

(Percent distribution)

Color and presence and age of children	Wife in labor force, by income of husband									Wife not in labor force, by income of husband								
	Total	Under $1,000	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $4,999	$5,000 to $6,999	$7,000 to $9,999	$10,000 and over	Median income	Total	Under $1,000	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $4,999	$5,000 to $6,999	$7,000 to $9,999	$10,000 and over	Median income
WHITE																		
Total	100.0	2.3	3.0	3.8	10.6	16.5	29.5	34.3	$8,401	100.0	1.9	4.8	5.3	11.4	13.1	23.6	39.9	$ 8,713
No children under 18 years old	100.0	3.4	5.1	5.6	13.5	16.9	26.6	28.9	7,619	100.0	3.0	9.4	10.1	17.2	14.0	18.5	27.8	6,472
Children 6 to 17 years only	100.0	1.3	1.0	1.9	7.3	13.7	30.4	44.4	9,446	100.0	1.1	1.1	1.4	5.6	9.5	24.0	57.3	10,640
Children under 6 years	100.0	1.3	1.7	2.9	9.8	20.5	35.2	28.6	8,179	100.0	.9	1.5	1.9	8.2	14.8	30.1	42.6	9,261
NEGRO AND OTHER RACES																		
Total	100.0	3.6	5.7	6.0	20.6	22.7	26.1	15.3	6,242	100.0	6.3	10.1	9.1	21.2	19.1	20.4	13.9	5,352
No children under 18 years old	100.0	5.0	8.1	9.2	21.3	20.8	22.7	12.9	5,621	100.0	9.4	18.2	14.3	20.8	13.7	17.3	6.3	3,778
Children 6 to 17 years only	100.0	1.8	5.5	4.1	18.1	22.9	29.5	18.1	6,7[illegible]	100.0	5.2	7.6	4.2	20.1	20.1	20.1	22.9	6,299
Children under 6 years	100.0	3.5	2.8	3.7	22.3	25.0	27.1	15.7	6,431	100.0	3.5	2.7	6.3	22.3	24.4	24.1	16.7	6,250

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Table M. Work experience in 1970 of married women, husband present, by presence and age of children and age of husband, March 1971

Presence and age of children and age of husband	Percent of civilian noninstitutional population with work experience	Percent distribution of wives with work experience							
		Total	Full time 1/				Part time 2/		
			Total	50 to 52 weeks	27 to 49 weeks	1 to 26 weeks	Total	27 weeks or more	1 to 26 weeks
Total	50.7	100.0	68.4	40.8	13.7	13.9	31.6	18.6	13.1
No children under 18 years old	49.9	100.0	75.4	52.2	13.1	10.1	24.6	16.1	8.5
Husband under 45 years	80.3	100.0	84.7	52.3	17.0	15.4	15.3	8.1	7.2
Husband 45 to 64 years	53.7	100.0	74.2	55.2	11.7	7.3	25.8	17.9	7.9
Husband 65 years and over	22.5	100.0	57.5	39.2	9.3	9.0	42.5	28.0	14.5
Children 6 to 17 years old only	57.7	100.0	63.0	39.5	12.6	10.9	37.0	23.3	13.7
Children 3 to 5 years old, none under 3 years	47.0	100.0	60.8	31.0	12.6	17.2	39.2	20.9	18.3
Children under 3 years old	42.7	100.0	64.1	15.4	18.8	30.0	35.9	13.7	22.2

1/ Worked 35 hours or more per week during a majority of the weeks worked.
2/ Worked less than 35 hours per week during a majority of the weeks worked.

Table N. Work experience in 1970 of married women, husband present, by work experience in 1970 of husband, March 1971

Work experience of husband	Percent of wives with work experience 1/	Percent distribution of wives with work experience							
		Total	Full time 2/				Part time 3/		
			Total	50 to 52 weeks	27 to 49 weeks	1 to 26 weeks	Total	27 weeks or more	1 to 26 weeks
Total	50.7	100.0	68.4	40.8	13.7	13.9	31.6	18.6	13.1
Worked during the year	54.1	100.0	68.3	40.7	13.7	13.9	31.7	18.5	13.2
Year-round worker	53.7	100.0	67.1	42.2	12.5	12.4	32.9	20.1	12.8
Full time	54.0	100.0	67.4	42.3	12.5	12.6	32.6	19.8	12.8
Part time	46.9	100.0	56.6	39.0	10.1	7.5	43.4	31.3	12.1
Part-year worker	55.8	100.0	72.7	35.1	18.2	19.5	27.3	12.9	14.4
27 to 49 weeks	56.0	100.0	71.6	34.6	18.5	18.5	28.4	13.8	14.6
With unemployment 4/	56.2	100.0	72.9	33.8	17.8	21.2	27.1	11.7	15.4
1 to 26 weeks	55.1	100.0	75.5	36.4	17.3	21.7	24.5	10.6	13.9
With unemployment 4/	59.1	100.0	76.9	33.2	19.6	24.1	23.1	9.8	13.3
Did not work during the year	23.3	100.0	69.4	43.5	13.4	12.5	30.6	18.9	11.6

1/ Data relate to the civilian noninstitutional population 16 years old and over.
2/ Worked 35 hours or more per week during a majority of the weeks worked.
3/ Worked less than 35 hours per week during a majority of the weeks worked.
4/ Unemployment reported as major reason for part-time work.

Table O. Income of husband-wife families in 1970, by work experience of nonfarm wives in 1970 and color, March 1971 1/

(Percent distribution)

Work experience of wife of family head and color	Family income									
	Total	Under $2,000	$2,000 to $2,999	$3,000 to $4,999	$5,000 to $6,999	$7,000 to $9,999	$10,000 to $14,999	$15,000 to $19,999	$20,000 and more	Median family income
All nonfarm wives	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	$10,785
Worked during the year	50.4	21.0	21.3	31.6	41.9	47.2	57.1	64.4	57.9	12,125
50 to 52 weeks, full time 2/	20.6	4.0	2.5	6.1	9.1	13.6	24.1	36.5	34.8	14,106
27 to 49 weeks, full time 2/	7.1	2.0	1.7	3.8	7.1	6.9	9.0	8.7	5.5	11,782
1 to 26 weeks, full time, 2/ or 1 to 52 weeks, part time 3/	22.7	15.0	17.0	21.6	25.7	26.6	23.9	19.2	17.6	10,264
Did not work during the year	49.6	79.0	78.7	68.4	58.1	52.8	42.9	35.6	42.1	9,303
White	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	11,023
Worked during the year	49.3	20.8	18.7	29.5	40.0	45.8	55.8	63.1	56.7	12,346
50 to 52 weeks, full time 2/	19.9	3.9	2.2	5.7	8.3	12.7	22.9	35.1	33.6	14,300
27 to 49 weeks, full time 2/	6.9	2.3	1.3	3.8	6.6	6.5	8.8	8.4	5.2	11,984
1 to 26 weeks, full time, 2/ or 1 to 52 weeks, part time 3/	22.5	14.7	15.1	19.9	25.1	26.6	24.1	19.7	17.9	10,626
Did not work during the year	50.7	79.2	81.3	70.5	60.0	54.2	44.2	36.9	43.3	9,533
Negro and other races	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	8,323
Worked during the year	61.9	21.5	37.1	45.9	55.1	61.6	75.3	85.7	85.9	9,805
50 to 52 weeks, full time 2/	27.9	4.8	4.5	9.1	15.1	22.5	41.6	60.7	62.7	12,530
27 to 49 weeks, full time 2/	10.0	.5	3.9	3.7	10.8	11.8	12.5	13.5	13.0	9,835
1 to 26 weeks, full time 2/, or 1 to 52 weeks, part time 3/	24.0	16.1	28.7	33.0	29.2	27.3	21.3	11.5	10.3	7,227
Did not work during the year	38.1	78.5	62.9	54.1	44.9	38.4	24.7	14.3	14.1	6,232

1/ Data relate to the civilian noninstitutional population 16 years of age and over.
2/ Worked 35 hours or more per week during a majority of the weeks worked.
3/ Worked less than 35 hours per week during a majority of the weeks worked.

Table P. Employment status of married women, husband present, by employment status and occupation group of husband, March 1971

Employment status and occupation group of husband	All persons				
	Married women, husband present				
	Population (thousands)	Labor force			
		Percent of population	Percent distribution		
			Total	Employed	Unemployed
Population	45,443	40.8	100.0	94.1	5.9
Labor force 1/	39,058	43.8	100.0	94.0	6.0
Employed	36,620	44.0	100.0	94.5	5.5
Professional, technical, and kindred workers	5,263	41.2	100.0	96.7	3.3
Medical and other health workers	537	34.6	100.0	98.9	1.1
Teachers, except college	603	57.0	100.0	97.7	2.3
Other professional, technical, and kindred workers	4,123	39.7	100.0	96.3	3.7
Farmers and farm managers	1,307	37.9	100.0	98.0	2.0
Managers and administrators, except farm	6,466	43.2	100.0	97.3	2.7
Salaried workers	4,864	40.4	100.0	96.8	3.2
Self-employed workers in retail trade	753	58.3	100.0	99.1	.9
Self-employed workers, except retail trade	849	45.5	100.0	97.9	2.1
Clerical and kindred workers	2,221	51.5	100.0	95.6	4.4
Sales workers	2,223	46.7	100.0	95.6	4.4
Retail trade	653	52.8	100.0	94.5	5.5
Other sales workers	1,570	44.1	100.0	96.1	3.9
Craftsman, foreman, and kindred workers	7,894	42.6	100.0	93.8	6.2
Carpenters	677	39.9	100.0	93.7	6.3
Construction craftsmen, except carpenters	1,566	38.7	100.0	92.6	7.4
Mechanics and repairmen	1,937	44.0	100.0	93.2	6.8
Metal craftsmen, except mechanics	981	45.1	100.0	92.8	7.2
Other craftsmen and kindred workers	1,571	43.2	100.0	94.7	5.3
Foremen, not elsewhere classified	1,162	44.1	100.0	96.1	3.9
Operatives and kindred workers	6,502	45.9	100.0	91.3	8.7
Drivers and deliverymen	1,832	46.6	100.0	92.9	7.1
Other operatives and kindred workers	4,670	45.6	100.0	90.7	9.3
Durable goods manufacturing	2,628	45.8	100.0	89.7	10.3
Nondurable goods manufacturing	1,105	47.7	100.0	91.5	8.5
Other industries	937	42.5	100.0	92.7	7.3
Service workers	2,478	48.9	100.0	93.6	6.4
Protective service and private household workers	858	44.8	100.0	95.8	4.2
Other service workers	1,620	51.1	100.0	92.5	7.5
Farm laborers and foremen	355	34.1	100.0	90.9	9.1
Laborers, except farm and mine	1,911	42.3	100.0	89.7	10.3
Unemployed	1,441	50.2	100.0	85.5	14.5
Not in labor force	6,385	21.9	100.0	95.4	4.6

1/ Includes members of the Armed Forces living off post or with their families on post, not shown separately.

Table Q. Occupation group of employed married women, husband present, by employment status and occupation group of husband, March 1971

(Percent distribution)

Employment status and occupation group of husband	Total employed wives (thousands)	Occupation group of employed wives																	
		Total	Professional, technical, and kindred workers			Farmers and farm managers	Managers and administrators, except farm		Clerical and kindred workers		Sales workers	Craftsmen, foremen, and kindred workers	Operatives and kindred workers		Private household workers	Service workers, except private household		Farm laborers and foremen	Laborers, except farm and mine
			Medical and other health workers	Teachers, except college	Other		Salaried	Self-employed	Stenographers, typists, and secretaries	Other			Manufacturing	Other industries		Waitresses, cooks, and bartenders	Other		
Population	17,445	100.0	4.2	7.4	4.4	0.2	3.5	1.6	11.2	22.0	7.4	1.2	11.6	2.7	3.4	5.1	11.6	1.3	1.0
Labor force 1/	16,111	100.0	4.2	7.4	4.4	0.2	3.5	1.7	11.6	22.7	7.4	1.2	11.5	2.7	3.0	5.0	11.4	1.3	0.9
Employed	15,251	100.0	4.3	7.4	4.4	.2	3.6	1.7	11.6	22.8	7.4	1.2	11.4	2.6	3.0	4.9	11.2	1.4	.9
Professional, technical, and kindred workers	2,100	100.0	8.6	21.5	12.2	.1	3.2	1.0	15.6	18.7	6.1	.3	2.5	.8	1.5	1.4	6.4	.1	.1
Medical and health workers	184	100.0	19.6	16.8	12.5	-	-	1.6	10.9	22.8	9.8	-	-	-	-	-	5.4	-	.5
Teachers, except college	336	100.0	5.7	44.3	8.0	-	5.1	.3	11.6	14.0	3.6	.3	.9	-	.3	.6	5.1	-	.3
Other professional, technical, and kindred workers	1,580	100.0	7.9	17.1	13.1	.1	3.2	1.0	17.0	19.2	6.2	.3	3.1	1.0	1.9	1.8	6.8	.2	.1
Farmers and farm managers	486	100.0	1.6	8.2	2.1	2.3	2.5	.8	3.9	11.1	4.9	1.9	10.9	2.7	.8	2.9	9.5	33.0	.8
Managers and administrators, except farm	2,721	100.0	4.2	8.5	5.4	-	5.9	5.2	13.5	28.5	10.7	.6	3.8	2.2	.3	4.2	5.9	(2/)	1.1
Salaried workers	1,908	100.0	4.9	10.1	6.8	-	7.0	1.4	15.4	28.5	8.2	.7	4.0	2.1	.2	3.2	6.5	-	.8
Self-employed workers in retail trade	435	100.0	2.5	3.4	2.1	-	2.8	15.4	5.3	22.3	25.1	.7	4.1	2.3	.2	7.8	3.2	.2	2.5
Self-employed workers, except retail trade	378	100.0	2.4	5.8	1.9	-	3.7	12.7	13.5	35.2	6.9	-	2.6	2.9	.8	5.0	5.8	-	.8
Clerical and kindred workers	1,095	100.0	5.1	5.7	3.5	.1	4.2	1.5	12.4	30.8	7.7	2.0	8.1	1.2	2.3	4.0	10.8	.3	.4
Sales workers	992	100.0	7.9	9.2	4.2	-	4.5	1.2	16.4	23.5	12.5	1.3	4.2	.8	.7	3.0	9.6	-	.8
Retail trade	326	100.0	4.3	6.4	1.5	-	3.4	1.2	16.0	25.8	14.1	2.1	4.0	.3	1.8	6.1	12.0	-	.9
Other sales workers	666	100.0	9.6	10.5	5.6	-	5.1	1.2	16.7	22.4	11.7	.9	4.4	1.1	.2	1.5	8.4	-	.8
Craftsmen, foremen, and kindred workers	3,158	100.0	3.3	4.1	2.7	.2	3.0	1.2	11.2	23.2	7.5	1.9	15.5	3.6	3.0	5.8	12.9	.2	.6
Carpenters	253	100.0	2.4	4.0	3.6	.8	3.6	1.6	5.1	22.1	6.3	2.4	20.9	2.0	4.0	4.0	15.0	1.2	1.2
Construction craftsmen, except carpenters	561	100.0	3.2	4.1	2.3	.2	3.4	1.1	10.5	21.3	7.3	1.1	12.7	5.4	5.0	6.6	14.8	.2	.9
Mechanics and repairmen	795	100.0	2.8	5.5	2.5	.1	1.8	1.5	12.1	20.6	8.8	2.3	16.3	2.4	1.9	7.3	13.9	.1	.1
Metal craftsmen, except mechanics	411	100.0	2.0	3.4	2.4	-	2.0	1.5	9.5	22.9	8.0	2.4	20.2	3.4	1.7	5.4	14.1	.2	.7
Other craftsmen and kindred workers	644	100.0	4.2	2.6	2.2	-	3.3	.5	14.5	28.1	7.9	2.6	10.9	3.9	2.5	5.3	10.6	.2	.8
Foremen, not elsewhere classified	494	100.0	4.5	4.1	3.9	.4	4.9	1.4	11.0	24.1	5.1	.8	16.6	4.1	3.9	4.5	10.3	-	.6
Operatives and kindred workers	2,728	100.0	2.1	2.4	1.9	(2/)	2.8	.7	8.5	20.9	5.4	1.4	23.0	3.7	4.3	6.7	14.1	.6	1.5
Drivers and deliverymen	794	100.0	1.9	2.1	2.6	-	3.7	.6	8.2	23.2	7.3	1.6	16.6	3.5	5.0	7.7	13.2	1.0	1.5
Other operatives and kindred workers	1,934	100.0	2.2	2.5	1.7	.1	2.4	.8	8.6	19.9	4.7	1.3	25.6	3.8	3.9	6.3	14.4	.4	1.5
Durable goods manufacturing	1,082	100.0	2.0	2.1	1.7	-	3.4	.4	9.4	20.4	4.8	1.2	24.0	3.4	3.5	7.1	15.2	.4	1.0
Nondurable goods manufacturing	483	100.0	2.7	1.9	1.7	-	.4	.6	7.5	18.0	2.9	1.9	38.6	3.1	3.3	3.1	11.6	-	2.7
Other industries	369	100.0	2.2	4.6	1.6	.3	1.9	2.2	7.9	21.1	6.5	1.1	13.3	5.7	6.0	7.9	16.0	.8	1.1
Service workers	1,134	100.0	2.7	3.9	3.0	.1	2.7	1.1	10.3	20.3	5.3	.6	12.5	2.8	7.1	9.0	16.9	.4	1.1
Protective service and private household workers	368	100.0	5.4	4.9	5.2	-	2.2	1.1	14.9	28.8	5.7	.5	10.3	1.6	2.4	3.3	11.1	1.1	1.4
Other service workers	766	100.0	1.4	3.4	2.0	.1	3.0	1.0	8.1	16.2	5.1	.7	13.6	3.4	9.3	11.8	19.7	.1	1.0
Farm laborers and foremen	110	100.0	-	4.5	.9	3.6	-	.9	3.6	13.6	6.4	-	10.9	7.3	22.7	3.6	14.5	7.3	-
Laborers, except farm and mine	727	100.0	2.9	2.5	1.5	-	1.7	.1	7.3	18.0	3.6	1.2	16.8	4.8	9.8	6.2	21.1	.6	1.9
Unemployed	616	100.0	2.1	4.1	2.6	-	3.6	.2	9.3	19.7	7.3	1.8	18.9	3.4	1.5	7.8	16.3	.3	1.3
Not in labor force	1,334	100.0	4.0	7.3	4.5	.4	3.7	1.3	7.4	13.9	7.9	1.2	12.8	3.8	8.6	6.8	14.6	.8	1.1

1/ Includes wives of members of Armed Forces living off post or with their families on post, not shown separately.
2/ Less than 0.05 percent.

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Table R. Employed married women, husband present, by occupation group, age, and presence and age of children, March 1971

(Percent distribution)

Occupation group	Total wives	Presence and age of children					
		No children under 18 years				Children 6 to 17 years only	Children under 6 years
		Total	Age of wife				
			16 to 24 years	25 to 54 years	55 years and over		
Total employed: Number (thousands)	17,445	8,054	1,388	4,281	2,385	6,091	3,300
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	16.0	16.3	21.6	16.1	13.7	14.7	17.7
Medical and other health workers	4.2	3.7	5.4	3.7	2.7	4.0	5.8
Teachers, except college	7.4	7.7	11.3	6.9	6.9	6.8	7.9
Other professional, technical, and kindred workers	4.4	5.0	4.9	5.5	4.1	3.9	4.0
Farmers and farm managers	.2	.2	-	.1	.3	.2	.2
Managers and administrators, except farm	5.2	6.6	1.1	7.3	8.5	4.9	2.2
Salaried workers	3.6	4.6	1.0	4.9	6.0	3.5	1.3
Self-employed workers	1.6	2.0	.1	2.4	2.5	1.5	1.0
Clerical and kindred workers	33.2	34.2	52.8	33.6	24.4	33.7	29.8
Stenographers, typists, and secretaries	11.2	11.8	25.3	10.4	6.4	10.8	10.7
Other clerical and kindred workers	22.0	22.4	27.5	23.2	18.0	22.9	19.2
Sales workers	7.4	7.0	4.5	6.5	9.6	7.8	7.7
Craftsmen, foremen, and kindred workers	1.2	1.1	.3	1.4	1.0	1.5	1.1
Operatives and kindred workers	14.4	13.7	6.2	15.8	14.2	14.3	16.2
Manufacturing	11.6	11.1	5.3	13.1	10.9	11.4	13.3
Other industries	2.8	2.6	.9	2.6	3.4	3.0	2.9
Private household workers	3.4	3.6	1.2	2.6	6.9	3.2	3.1
Service workers, except private household	16.8	14.9	11.0	14.5	17.8	17.7	19.7
Waitresses, cooks, and bartenders	5.1	4.4	2.5	4.5	5.2	5.9	5.6
Other service workers	11.6	10.5	8.4	10.0	12.7	11.7	14.2
Farm laborers and foremen	1.3	1.4	.6	1.2	2.3	1.1	1.2
Laborers, except farm and mine	.9	1.0	.7	.9	1.2	.9	1.0

Table S. Employment status of wife and other family members, by employment status of head of husband-wife family, March 1971

(Percent distribution)

Employment status of wife and other family members 1/	Total family heads	Employment status of family head											
		Labor force											Not in labor force
		Total	Employed						Unemployed				
			Total	Agriculture	Nonagriculture				Total	Less than 5 weeks	5 to 14 weeks	15 weeks and over	
					Full time 2/		Part time 3/						
					Total	Part time for economic reasons	Total	Part time for economic reasons					
ALL HUSBAND-WIFE FAMILIES													
Total: Number (thousands)	44,739	38,496	37,146	1,805	33,977	486	1,364	176	1,350	407	516	427	6,243
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wife or other member employed 4/	47.2	50.3	50.4	49.1	50.6	46.5	47.0	46.6	49.1	45.7	48.8	52.7	27.9
Wife or other member unemployed; none employed	3.0	3.2	3.0	2.0	3.1	4.3	2.1	8.0	8.1	8.1	7.6	8.7	1.6
Neither wife nor other member in labor force	49.8	46.5	46.6	48.9	46.3	49.2	50.8	45.5	42.8	46.2	43.6	38.6	70.6
All husband-wife families	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wife in labor force	40.8	43.9	43.6	37.1	44.0	43.2	41.6	43.8	51.7	48.4	51.0	55.7	21.9
Wife employed	38.5	41.3	41.2	35.6	41.6	38.5	40.3	39.2	44.5	40.3	44.2	48.9	21.0
Other member employed 4/	7.1	7.7	7.8	8.6	7.8	6.6	4.5	5.7	7.0	5.2	7.4	8.4	2.9
Other member unemployed; none employed	.9	.9	.9	.5	.9	.2	.5	1.7	2.1	1.7	1.0	4.0	.3
No other member in labor force; some 16 years and over	7.3	8.1	8.2	7.5	8.4	9.9	4.2	6.3	6.0	4.7	4.5	9.1	2.6
No other member in labor force; none 16 years and over	23.2	24.6	24.4	19.0	24.4	21.8	31.0	25.6	29.3	28.7	31.4	27.4	15.1
Wife unemployed	2.3	2.6	2.4	1.4	2.5	4.7	1.3	4.5	7.2	8.1	6.8	6.8	1.0
Other member employed 4/	.3	.4	.4	.3	.4	1.2	.1	.6	.8	1.0	.6	.9	.1
Other member unemployed; none employed	.1	.1	.1	.1	.1	-	.1	-	.5	-	.6	.9	-
No other member in labor force; some 16 years and over	.3	.3	.3	.4	.3	.8	.3	1.1	1.3	1.7	.8	1.6	.2
No other member in labor force; none 16 years and over	1.6	1.7	1.6	.7	1.7	2.7	.9	2.8	4.5	5.4	4.8	3.3	.7
Wife not in labor force	59.2	56.1	56.4	62.9	56.0	56.8	58.4	56.3	48.3	51.6	49.0	44.3	78.1
Other member employed 4/	8.4	8.6	8.8	13.2	8.6	6.8	6.7	6.8	3.8	4.4	4.1	2.8	6.8
Other member unemployed; none employed	1.0	1.0	1.0	.8	1.0	.8	.9	4.0	1.7	1.0	1.4	2.8	.7
No other member in labor force; some 16 years and over	9.2	9.7	9.8	11.2	9.9	9.9	6.1	8.0	6.2	5.4	6.2	7.0	6.2
No other member in labor force; none 16 years and over	40.6	36.8	36.8	37.7	36.5	39.3	44.8	37.5	36.6	40.8	37.4	31.6	64.3

1/ Data on other members include one person or more.
2/ Includes members of the Armed Forces living off post or with their families on post, as well as persons who during the survey week worked 35 hours or more, those who usually work full time but worked 1 to 34 hours, and persons with a job but not at work who usually work full time.
3/ Includes persons who worked 1 to 34 hours and usually work 1 to 34 hours and persons with a job but not at work who usually work part time.
4/ May also include some others unemployed.

Table T. Employment status of family heads and other family members, by type of family and color, March 1971

(Percent distribution)

Type of family, employment status of members other than head, and color	Total family heads	Employment status of family head					
		Labor force					Not in labor force
		Total		Employed 1/	Unemployed		
		Number	Percent of population		Number	Percent of labor force	
ALL PERSONS							
ALL FAMILIES							
Total: Number (thousands)	51,947	42,621	82.0	41,002	1,619	3.8	9,326
Percent	100.0	100.0	-	100.0	100.0	-	100.0
Some other member in labor force	48.2	52.0	88.3	52.0	51.9	3.8	31.4
Some other member employed 2/	45.1	48.7	88.6	48.9	43.7	3.4	28.7
Some other unemployed, none employed	3.3	3.4	85.2	3.2	8.2	9.2	2.7
No other member in labor force	51.7	48.0	76.2	48.0	48.1	3.8	68.6
HUSBAND-WIFE FAMILIES							
Total: Number (thousands)	44,739	38,496	86.0	37,146	1,350	3.5	6,243
Percent	100.0	100.0	-	100.0	100.0	-	100.0
Some other member in labor force	50.2	53.5	91.8	53.4	57.2	3.7	29.4
Some other member employed 2/	47.2	50.3	91.8	50.4	49.1	3.4	27.9
Some other unemployed, none employed	3.0	3.2	92.6	3.0	8.1	8.8	1.6
No other member in labor force	49.8	46.5	80.2	46.6	42.8	3.2	70.6
OTHER FAMILIES WITH MALE HEAD							
Total: Number (thousands)	1,258	907	72.1	867	40	4.4	351
Percent	100.0	100.0	-	100.0	(3/)	-	100.0
Some other member in labor force	41.7	41.4	71.8	42.2	-	2.7	42.5
Some other member employed 2/	37.3	36.6	71.1	37.3	-	2.7	39.0
Some other unemployed, none employed	4.4	4.7	(3/)	4.9	-	(3/)	3.5
No other member in labor force	58.3	58.6	72.7	57.8	-	5.8	57.5
FAMILIES WITH FEMALE HEAD							
Total: Number (thousands)	5,950	3,218	54.1	2,989	229	7.1	2,732
Percent	100.0	100.0	-	100.0	100.0	-	100.0
Some other member in labor force	36.0	37.2	56.0	38.1	26.0	5.0	34.5
Some other member employed 2/	30.8	32.0	56.2	33.2	16.0	3.6	29.4
Some other unemployed, none employed	5.2	5.2	54.5	4.9	10.0	13.7	5.1
No other member in labor force	64.0	62.8	53.1	61.9	74.0	8.5	65.5
NEGRO AND OTHER RACES							
ALL FAMILIES							
Total: Number (thousands)	5,413	4,069	75.2	3,828	241	5.9	1,344
Percent	100.0	100.0	-	100.0	100.0	-	100.0
Some other member in labor force	50.9	56.6	83.7	57.2	47.5	5.0	33.5
Some other member employed 2/	45.5	51.1	84.5	51.9	37.1	4.3	28.6
Some other unemployed, none employed	5.4	5.5	77.3	5.2	10.4	11.1	4.9
No other member in labor force	49.1	43.4	66.5	42.8	52.5	7.1	66.5
HUSBAND-WIFE FAMILIES							
Total: Number (thousands)	3,647	3,103	85.1	2,950	153	4.9	544
Percent	100.0	100.0	-	100.0	100.0	-	100.0
Some other member in labor force	60.4	63.7	89.8	63.7	64.7	5.0	41.4
Some other member employed 2/	55.4	58.3	89.5	58.5	53.6	4.5	39.2
Some other unemployed, none employed	5.0	5.5	93.4	5.2	11.1	10.0	2.2
No other member in labor force	39.6	36.3	78.0	36.3	35.3	4.8	58.6
OTHER FAMILIES WITH MALE HEAD							
Total: Number (thousands)	202	146	72.3	141	5	3.4	56
Percent	100.0	100.0	-	100.0	(3/)	-	(3/)
Some other member in labor force	41.5	40.8	72.3	41.5	-	(3/)	-
Some other member employed 2/	38.0	37.4	72.4	38.0	-	(3/)	-
Some other unemployed, none employed	3.5	3.4	(3/)	3.5	-	-	-
No other member in labor force	58.5	59.2	74.4	58.5	-	4.6	-
FAMILIES WITH FEMALE HEAD							
Total: Number (thousands)	1,564	820	52.4	737	83	10.1	744
Percent	100.0	100.0	-	100.0	100.0	-	100.0
Some other member in labor force	29.7	32.2	56.8	33.9	17.1	5.3	27.0
Some other member employed 2/	23.2	26.1	59.0	28.2	7.3	2.8	19.9
Some other unemployed, none employed	6.5	6.1	49.0	5.7	9.8	(3/)	7.0
No other member in labor force	70.3	67.8	50.5	66.1	82.9	12.3	73.0

1/ Includes members of the Armed Forces living off post or with their families on post.
2/ Includes families with one or more members employed regardless of the employment status of other members.
3/ Percent not shown where base is less than 75,000.

Table U. Earnings of married women, husband present, as a percent of family income in 1970, by selected characteristics, March 1971 1/

Selected Characteristics	Median percent of family income accounted for by wife's earnings	Percent distribution of wives by percent of family income accounted for by wife's earnings								
		Total	Less than 5.0	5.0 to 9.9	10.0 to 19.9	20.0 to 29.9	30.0 to 39.9	40.0 to 49.9	50.0 to 74.9	75.0 and over
Total wives with work experience---	26.7	100.0	11.0	9.8	17.1	18.2	18.4	13.4	9.8	2.4
AGE OF HEAD										
Under 25 years old----------	30.2	100.0	10.4	8.1	16.8	14.2	17.2	15.9	13.7	3.6
25 years old and over----------	26.3	100.0	11.1	10.0	17.1	18.7	18.5	13.1	9.3	2.2
RESIDENCE AND COLOR										
Nonfarm----------	26.7	100.0	10.8	9.8	17.1	18.3	18.6	13.5	9.6	2.3
White----------	26.2	100.0	11.3	10.0	17.4	18.3	18.6	13.0	9.3	2.2
Negro and other races----------	30.8	100.0	7.2	8.5	14.6	18.4	18.7	17.3	12.5	2.9
Farm----------	25.6	100.0	15.7	9.0	16.5	15.8	13.1	10.7	13.6	5.7
WORK EXPERIENCE OF WIFE										
Worked 50 to 52 weeks, full time 2/-----	38.6	100.0	.7	1.2	5.7	18.2	28.1	24.6	17.5	4.1
Worked 27 to 49 weeks, full time 2/-----	29.7	100.0	2.0	3.9	17.6	27.3	23.8	13.0	10.0	2.5
Worked 1 to 26 weeks, full time 2/ or 1 to 52 weeks, part time 3/----------	11.9	100.0	24.2	20.3	28.2	15.1	6.9	2.4	2.1	.7
FAMILY INCOME										
Under $2,000----------	28.4	100.0	22.4	9.0	11.0	9.0	6.7	5.2	9.5	27.1
$2,000 to 2,999----------	21.8	100.0	15.6	13.2	18.8	13.9	8.0	5.9	13.9	10.8
$3,000 to 4,999----------	24.8	100.0	13.4	11.9	17.5	14.7	9.1	8.1	15.5	9.7
$5,000 to 6,999----------	22.8	100.0	15.3	13.9	17.5	11.8	10.6	9.1	16.0	5.8
$7,000 to 9,999----------	23.9	100.0	13.8	11.7	18.2	16.0	14.0	12.2	11.5	2.6
$10,000 to 14,999----------	27.6	100.0	10.2	9.2	16.9	17.7	21.6	14.5	8.9	.8
$15,000 and over----------	27.9	100.0	7.8	7.5	16.4	23.1	22.4	15.7	6.5	.5
Median family income----------	-	$12,105	$10,458	$10,773	$11,902	$13,300	$13,339	$13,067	$10,169	$5,982

1/ Data relate to the civilian noninstitutional population and include only those families in which the wife had paid work experience. Therefore, they are not comparable with data published in earlier years.

2/ Worked 35 hours or more per week during a majority of the weeks worked.

3/ Worked less than 35 hours per week during a majority of the weeks worked.

Table V. Employment status of family heads, by type of family and age of head, March 1971

Type of family and age of head	Population (thousands)	Labor force 1/						
		Number (thousands)	Percent of population	Percent distribution				
				Total	Employed			Unemployed
					Agriculture	Nonagriculture		
						Total	Full time 2/	Part time 2/	
ALL FAMILIES----------	51,947	42,621	82.0	100.0	4.5	89.3	84.7	4.6	3.8
Husband-wife families----------	44,739	38,496	86.0	100.0	4.7	89.2	85.7	3.5	3.5
16 to 24 years old----------	3,200	3,033	94.8	100.0	2.8	82.1	76.6	5.4	5.8
25 to 34 years old----------	9,394	9,190	97.8	100.0	2.7	89.2	86.9	2.3	3.9
35 to 44 years old----------	9,436	9,241	97.9	100.0	3.8	90.6	89.4	1.1	2.7
45 to 54 years old----------	9,487	9,113	96.1	100.0	4.9	91.4	89.9	1.5	3.2
55 to 64 years old----------	7,372	6,271	85.1	100.0	6.5	90.0	86.2	3.8	3.5
65 years and over----------	5,850	1,648	28.2	100.0	16.0	80.3	49.2	31.1	3.6
Other families with male head----	1,258	907	72.1	100.0	9.0	85.2	81.3	4.0	4.4
16 to 34 years old----------	212	188	88.7	100.0	4.3	85.1	78.7	6.4	6.4
35 to 44 years old----------	211	194	91.9	100.0	4.6	87.6	87.1	.5	5.7
45 to 54 years old----------	305	277	90.8	100.0	8.7	88.8	88.1	.7	2.5
55 to 64 years old----------	221	187	84.6	100.0	13.4	81.8	79.1	2.7	4.8
65 years and over----------	309	61	19.7	(3/)	-	-	-	-	-
Families with female head--------	5,950	3,218	54.1	100.0	1.5	91.4	73.6	17.8	7.1
16 to 24 years old----------	466	253	54.3	100.0	-	80.2	63.6	16.6	19.8
25 to 34 years old----------	1,118	624	55.8	100.0	1.0	88.6	73.1	15.5	10.4
35 to 44 years old----------	1,197	820	68.5	100.0	1.0	92.6	77.7	14.9	6.5
45 to 54 years old----------	1,274	902	70.8	100.0	1.7	93.3	76.5	16.9	5.0
55 to 64 years old----------	881	506	57.4	100.0	2.0	95.3	75.7	19.6	2.8
65 years and over----------	1,014	113	11.1	100.0	8.0	90.3	35.4	54.9	1.8

1/ The labor force includes members of the Armed Forces living off post or with their families on post, not shown separately.

2/ For definition of full-time and part-time workers, see footnote 1, table C.

3/ Percent not shown where base is less than 75,000.

Table W. Occupation group of employed heads, by type of family, March 1971

(Percent distribution)

Occupation group	Total family heads	Male family head					Female family head
		Total	Married, wife present			Other marital status	
			Total	Under 45 years	45 years and over		
Total civilian employed: Number (thousands)	39,999	37,010	36,155	19,742	16,413	855	2,989
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Professional, technical, and kindred workers	14.2	14.4	14.5	16.9	11.6	12.3	11.7
Medical and other health workers	1.6	1.5	1.5	1.3	1.7	1.9	2.7
Teachers, except college	1.9	1.7	1.7	2.2	1.0	1.7	4.6
Other professional, technical, and kindred workers	10.8	11.3	11.3	13.4	8.8	8.7	4.4
Farmers and farm managers	3.4	3.7	3.6	2.1	5.4	6.4	.7
Managers and administrators, except farm	16.7	17.6	17.8	15.8	20.1	12.1	5.5
Salaried workers	12.6	13.3	13.4	12.9	14.0	8.6	4.5
Self-employed workers in retail trade	2.0	2.1	2.1	1.4	2.9	1.6	.7
Self-employed workers, except retail trade	2.2	2.3	2.3	1.6	3.2	1.9	.3
Clerical and kindred workers	7.8	6.1	6.0	6.0	6.1	7.3	28.6
Stenographers, typists, and secretaries	.9	.1	.1	.1	.1	.1	10.7
Other clerical and kindred workers	6.9	6.0	5.9	5.9	6.0	7.2	17.9
Sales workers	6.0	6.1	6.1	6.1	6.1	4.5	5.2
Retail trade	2.0	1.8	1.8	1.6	2.0	2.3	4.3
Other sales workers	4.0	4.3	4.3	4.5	4.1	2.2	.8
Craftsmen, foremen, and kindred workers	20.0	21.5	21.6	22.0	21.1	17.4	1.3
Carpenters	1.7	1.9	1.9	1.7	2.0	1.5	-
Construction craftsmen, except carpenters	3.9	4.3	4.3	4.5	4.0	3.5	(1/)
Mechanics and repairmen	4.9	5.3	5.3	6.0	4.4	4.7	.1
Metal craftsmen, except mechanics	2.5	2.7	2.7	2.5	2.9	2.7	.1
Other craftsmen and kindred workers	4.0	4.3	4.3	4.3	4.3	3.7	.6
Foremen, not elsewhere classified	2.9	3.1	3.2	3.0	3.4	1.4	.4
Operatives and kindred workers	17.5	17.7	17.6	19.3	15.5	20.5	16.0
Drivers and deliverymen	4.6	5.0	5.0	5.5	4.4	4.7	.3
Other operatives and kindred workers	12.9	12.7	12.6	13.9	11.1	15.8	15.7
Durable goods manufacturing	7.0	7.1	7.1	7.8	6.2	7.8	5.7
Nondurable goods manufacturing	3.3	3.0	3.0	3.4	2.5	4.8	7.2
Other industries	2.6	2.6	2.6	2.7	2.4	3.3	2.9
Private household workers	.6	(1/)	(1/)	(1/)	(1/)	.1	7.6
Service workers, except private household	7.8	6.8	6.7	5.5	8.1	9.4	21.3
Protective service workers	2.1	2.3	2.3	2.5	2.1	1.2	.3
Waiters, cooks, and bartenders	1.2	.8	.8	.7	.8	1.4	6.3
Other service workers	4.5	3.7	3.6	2.3	5.2	6.9	14.8
Farm laborers and foremen	1.0	1.0	.9	.9	1.0	2.9	.7
Paid workers	1.0	1.0	.9	.9	.9	2.9	.7
Unpaid family workers	(1/)	(1/)	(1/)	-	(1/)	-	-
Laborers, except farm and mine	4.9	5.2	5.1	5.2	5.1	7.0	1.4
Construction	1.0	1.1	1.1	1.2	1.1	1.3	-
Manufacturing	1.6	1.7	1.7	1.9	1.6	1.9	.6
Other industries	2.2	2.3	2.3	2.2	2.4	3.8	.8

1/ Less than 0.05 percent.

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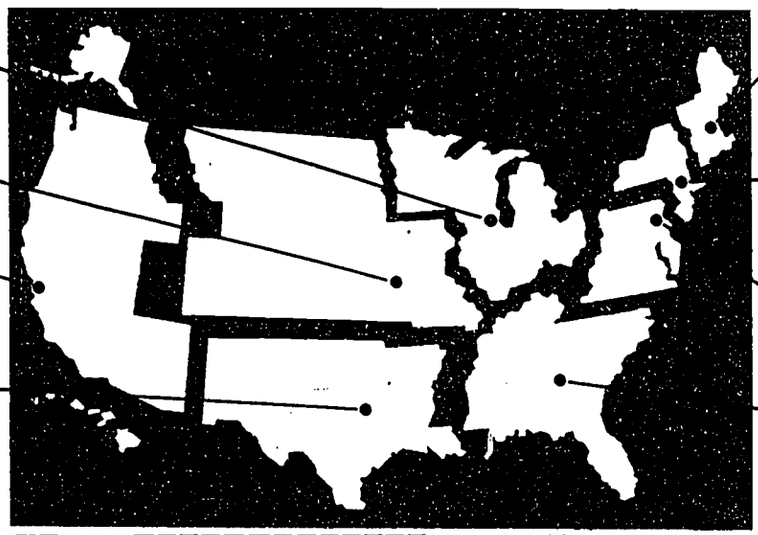

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ECONOMIC POTENTIALS FOR OHIO CATTLE FEEDING.

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ABSTRACT - THERE IS A POPULAR CONVICTION AMONG OHIO CATTLEMEN THAT NEARNESS BOTH TO POPULATION CENTERS AND TO CALF SUPPLIES GIVES OHIO FEEDLOTS SOME ADVANTAGES IN BOTH FED MARKETS AND CALF PROCUREMENT WHICH WESTERN LOTS CANNOT MATCH. THESE ADVANTAGES, IT IS BELIEVED, MAKE UP FOR ANY OHIO SHORTCOMINGS WHICH MIGHT BE DISCOVERED BY DIRECT COMPARISON OF THE FEEDLOTS THEMSELVES. THIS STUDY SOUGHT TO MAKE THESE DIRECT COMPARISONS IN THE THREE CRITICAL AREAS OF FED CATTLE MARKETS, FEEDLOT COSTS, AND CALF PROCUREMENT. COMPARISONS BETWEEN OHIO AND TEXAS DID NOT DISCLOSE ANY APPARENT ADVANTAGES FOR OHIO PRODUCERS IN FED CATTLE MARKETS DURING THE PERIOD EXAMINED. COMPARISON OF FEEDLOT OPERATIONS SHOWED AVERAGE COSTS TO BE LOWER IN TEXAS, BUT THAT EFFICIENT OHIO FEEDLOTS HAD COSTS COMPARABLE TO LARGE TEXAS LOTS. FIXED COSTS WERE LOWER IN TEXAS LOTS; FEED COSTS WERE LOWER IN OHIO LOTS. OHIO FEEDLOTS DO HAVE LOCATIONAL ADVANTAGES IN CALF PROCUREMENT, AND THESE ADVANTAGES COULD BE GREATER IF EFFORTS WERE MADE TO DEVELOP THEM. A SUMMARY ASSESSMENT OF THE COMPETITIVE SITUATION BETWEEN OHIO AND THE SOUTHERN PLAINS WOULD BE THAT FOR OHIO: (1) THERE ARE NOT APPARENT ADVANTAGES IN FED MARKETS, BUT THAT (2) THERE ARE DISTINCT ADVANTAGES IN FEEDER MARKETS, AND (3) THESE ADVANTAGES CAN BE EITHER CONFIRMED OR LOST DEPENDING UPON HOW AN OHIO FEEDLOT IS RUN. (AUTHOR)

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ECONOMIC POTENTIALS FOR OHIO CATTLE FEEDING

THOMAS T. STOUT

JAMES F. BERG

VT016671

OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER
Wooster, Ohio

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Economic Potentials for Ohio Cattle Feeding

THOMAS T. STOUT and JAMES F. BERG

SUMMARY

There is a popular conviction among Ohio cattlemen that nearness both to population centers and to calf supplies gives Ohio feedlots some advantages in both fed markets and calf procurement which western lots cannot match. These advantages, it is believed, make up for any Ohio shortcomings which might be discovered by direct comparison of the feedlots themselves. This study sought to make these direct comparisons in the three critical areas of fed cattle markets, feedlot costs, and calf procurement.

Comparisons between Ohio and Texas did not disclose any apparent advantages for Ohio producers in fed cattle markets during the period examined. Comparison of feedlot operations showed average feedlot costs to be lower in Texas, but that efficient Ohio feedlots had costs comparable to large Texas lots. Fixed costs were lower in Texas lots; feed costs were lower in efficient Ohio lots. Comparisons indicated that Ohio feedlots have locational advantages in calf procurement, and suggested that these advantages could be greater if efforts were made to develop them.

A summary assessment of the competitive situation between Ohio and the Southern Plains would appear to be that for Ohio: 1) there are no apparent advantages in fed markets, but that 2) there are distinct advantages in feeder markets, and 3) these feeder advantages can be either confirmed or lost depending upon how an Ohio feedlot is run.

INTRODUCTION

The beef industry in the United States grew substantially during the decade of the 1960's. Per capita consumption of beef increased from 85.0 lb. in 1960 to 110.5 lb. in 1969.[1] Between January 1, 1960, and January 1, 1970, the total resident population of the nation increased from approximately 179 million to 203 million.[2] Beef consumption (excluding veal) therefore increased during the decade by about 6.1 billion lb. The increase in domestic beef production during this 10-year period amounted to about 6.4 billion lb.[3]

This growth in beef production during the 1960's was characterized by at least two continuing developments. One of these was the decline in the number of dairy cattle in the United States and the other was the dramatic increase in cattle feeding. Between 1960 and 1970, the January 1 inventory of dairy cattle on U. S. farms declined from 30.2 to 21.2 million head. Milk cows decreased from 19.6 to 13.9 million head. Beef cows on U. S. farms increased between these same two dates from 26.3 to 37.4 million head.[4] Fed cattle marketings in 26 states increased from 13.9 million head in 1960 to 24.2 million head in 1969.[5]

This growth brought a significant change not only to the quality of beef consumed but also to the structure of beef production during the decade. Fed cattle marketings in 1960 amounted to about 54 percent of commercial cattle slaughter, but accounted for 71 percent of commercial cattle slaughter in 1969.[6] By 1969, the number of fed cattle marketings exceeded the total number of steers and heifers slaughtered in that year. This does not mean necessarily that all steers and heifers were fed, because feeding was not confined to these market classes. The percentage of steers and heifers fed is conjectural, but it is undoubtedly high. One USDA estimate indicated that fed steers and heifers accounted for perhaps 84.3 percent of steer and heifer slaughter in 1968.[7] The figure may be too low.[8]

This increase in cattle feeding has characteristics which are disturbing to some Corn Belt cattle feeders. One of these is the extent to which much of the growth is occurring outside of traditional Corn Belt feeding areas. A second characteristic is the extent to which cattle feeding has become a commercial feedlot enterprise rather than the supplementary sort of activity typifying Corn Belt cattle feeding. A third development is the increasing extent to which cattle feeding is concentrated in the hands of few commercial feeders of very large size. By 1969, cattle feedlots with a capacity exceeding 1000 head accounted for only 1 percent of the total number of

[1] Consumption reported periodically in Livestock and Meat Situation, Economic Research Service, U. S. Department of Agriculture.

[2] Statistical Abstract of the United States, 1970. Bureau of the Census, U. S. Department of Commerce.

[3] Livestock and Meat Statistics. Annual supplements to SB 333, Economic Research Service, USDA. Differences between domestic production and consumption are due to military consumption and foreign trade.

[4] Ibid.

[5] Ibid. 1969 estimate includes 1968 data for Nevada, North Dakota, Utah, and Wyoming, for which 1969 data were not reported.

[6] Cattle slaughter reported in Livestock and Meat Statistics.

[7] Rizek, R. L. and J. T. Larsen. Oct. 1969. Our Beef Producing Potential. Livestock and Meat Situation, LMS-169, Economic Research Service, USDA.

[8] The percentage apparently was based on an estimate of fed cattle marketings from less than 39 states, for example.

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TABLE 1.—Changes in U. S. Production of Selected Agricultural Products in Selected Census Years.

Production and Sales	1949	1954	1959	1964
	(Thousands)	(Thousands)	(Thousands)	(Thousands)
Turkeys				
Farms Reporting Sales	162	n.a.*	88	42
Sales (Head)	36,438	n.a.	80,396	104,750
Broilers				
Farms Reporting Sales	n.a.	50	42	35
Sales (Head)	n.a.	796,207	1,419,260	1,915,374
Milk				
Farms Reporting Sales	3,682	2,957	1,837	1,134
Sales (Lb.)	68,670	n.a.	97,606	105,996

*n.a.—Data not available.

Source: 1964 U. S. Census of Agriculture, Vol. II, Chapter 2. Census data for 1969 not available at publication date.

feedlots, but they produced more than half of the nation's output of fed beef.[9]

OBJECTIVES AND PROCEDURES

This study sought to determine:

1. Sources of feeder calves shipped into Ohio feedlots, and trends in the relative importance of these sources.
2. Feeder calf procurement cost differences from different sources.
3. Feedlot operating costs for operations reflecting the competitive economic potential for Ohio cattle feeding.
4. Prices received by cattle feeders for slaughter cattle.

The study did not investigate two possible aspects of cost initially contemplated for study.

1. Procurement cost differences due to variations in season of the year, methods of financing, livestock losses, and calf sex.
2. Differences in marketing costs and prices received for fed cattle due to differences in marketing channels and live-pricing accuracy as an indicator of carcass value.

Procedurally, three areas of direct comparison were sought between Ohio and Texas-Oklahoma cattle feeding operations. These were: 1) prices received for fed cattle, 2) feedlot operating costs, and 3) feeder calf procurement costs. Comparisons appear in that order in the following presentation. However, no analytical effort was devoted to a comparison of fed cattle prices in Ohio and the Southern Plains. Reported prices were accepted as a valid basis for comparision. The analytical thrust of this study is found in the analysis of feeder calf shipment patterns and feedlot operating costs.

[9]Packers and Stockyards Resume (Statistical Issue). Dec. 18, 1970. Packers and Stockyards Administration, USDA.

Actual shipment patterns of feeder calves into Ohio and Texas lots which are presented are based on records maintained in each state. Optimum interstate shipment patterns for the U. S. (which permit Ohio-Texas comparisons) were determined with transportation models.

Feedlot operating costs were determined by comparing published studies of feedlot operating costs in each state and by field work to obtain recent cost data to supplement previous Ohio studies. Such data were developed for 7,400 cattle in four participating feedlots which were selected with the expectation that they would represent the economic potential which could reasonably be expected of efficient Ohio feedlots.

The presentation which follows has been arranged to provide highlights of research results without burdening the reader with procedural considerations. Accompanying appendices provide procedural notes about the transportation models.

THE CHANGING COMPETITIVE ENVIRONMENT

Increasing Concentration of Production

The increasing concentration of production in American agriculture is well known. Crop and animal concentration figures drawn from the U. S. Census of Agriculture have been widely publicized. Turkeys, broilers, and milk production provide illustrations. For example, during the 15-year period 1949-1964, milk sales rose more than 50 percent although dairy farm numbers decreased nearly 70 percent; in the 10 years 1954-1964, broiler sales increased 140 percent while the number of producers, already highly concentrated, declined another 30 percent (Table 1).

Cattle production shared these same trends during the 1954-1964 decade. Most producers sold modest numbers of cattle in both years, but the mortality rate was most severe among small producers. Producer numbers declined from 1.9 to 1.4 million

during the decade and nearly all of the decline occurred among those individuals who sold less than 20 cattle. By 1964, 6,000 producers among 1.4 million accounted for nearly one-third of all cattle sales (Table 2).

TABLE 2.—Thousands of U. S. Farms Selling Cattle, Thousands of Cattle Sold, and Cattle Sold per Farm, Census Years, 1954 and 1964 (Calves Excluded).

Cattle Sold per Farm	Farms Selling Cattle		Total Sales, 1964	
	1954*	1964	Number	Percent
1-4	1,028	616	1,349	3.8
5-19	595	478	4,445	12.8
20-49	157	152	4,532	13.1
50-99	47	59	3,965	11.5
100-199	20	32	4,234	12.2
200 or More	12	17	4,833	14.0
500 or More†	—	6	11,248	32.6
Total All Farms	1,859	1,360	34,606	100.0

*Alaska and Hawaii not included.
†Applies only in 1964 when preceding interval was 200-499.
Source: 1964 U. S. Census of Agriculture, Vol. II, Chapter 2. Census data for 1969 not available at publication date.

Growth of Commercial Feedlots

Much of this change in cattle production is associated with the growth in cattle feeding and the emerged importance of large, commercial feedlots in the West North Central states and scattered non-Corn Belt locations, especially the Southern Plains. Between 1962 and 1969, fed cattle marketings from feedlots with more than 1,000 head annual capacity increased from 5.6 million head to approximately 12.7 million head in 32 principal cattle-feeding states, and the number of such feedlots increased from 1,517 to 2,181 (Table 3). During this same period, the marketings from these lots increased from approximately one-third to more than one-half of all fed cattle marketings. The output from feedlots of less than 1,000 head capacity fell proportionately, and the number of these relatively smaller lots declined from nearly 235,000 to less than 200,000.

Changing Regional Patterns of Cattle Feeding

The growth of cattle feeding outside the Corn Belt has been associated with factors such as the availability of feed grain and calf supplies, increased irrigation, the introduction of grain sorghum, and the substitution of sorghum for wheat.[10] In the period 1961-1969, sorghum grain production in the United States increased from 480 to 743 million bushels, and 85 percent of this production occurred in the four Plains states of Texas, Oklahoma, Kansas, and Nebraska.[11]

Comparative data for cattle feeding in 26 states in 1960 and 1969 record the impact of these developments on changing regional patterns of cattle feeding activity (Table 4). Cattle feeding increased in all regions, but at different rates. Proportionately, most growth occurred outside of the North Central Region. Between 1960 and 1969, cattle feeding increased 87.6 percent in all 26 states, but did not grow at quite this

[10]For example, see McCoy, J. H. and C. C. Hansman. April 1967. Economies of Scale in Commercial Cattle Feedlots of Kansas —Analysis of Nonfeed Costs. Tech. Bull. 151, Kansas Agricultural Experiment Station, Manhattan.

[11]Crop Production. Annual summaries for selected years, Statistical Reporting Service, USDA. Even more dramatic grain sorghum production increases occurred in the short period 1956-1961, rising from 206 to 480 million bushels in 5 years.

TABLE 3.—Number of Cattle Feedlots and Fed Cattle Marketings by Size of Feedlots, 32 Principal Feeding States, U. S., 1962-1969.

Year	Feedlots More Than 1,000 Head Capacity			Feedlots Less Than 1,000 Head Capacity		
	Number of Lots	Cattle Marketed (1,000 Head)	Percent of All Cattle Marketed	Number of Lots	Cattle Marketed (1,000 Head)	Percent of All Cattle Marketed
1962	1,517	5,572	36.5	234,646	9,689*	63.5
1963	1,579	6,118	37.6	230,825	10,156*	62.4
1964	1,668	7,050	38.9	223,071	11,094	61.1
1965	1,787	7,941	42.4	220,164	10,777	57.6
1966	1,921	9,026	44.3	215,296	11,336	55.7
1967	2,034	9,822	45.3	209,581	11,874	54.7
1968	2,080	10,823	47.0	206,516	12,217	53.0
1969	2,181	12,688†	51.5	198,200	11,957†	48.5

*Adjustments in total fed cattle marketings were made by the authors. Two estimating series report marketings before and after 1964. The early series reports 1962-64 marketings at 14.361, 15.314, and 17.074 million head. The later series reports 1964 at 18.144 million head, 6.27 percent higher. The authors have adjusted by 6.27 percent the 3 years in the older series to 15.261, 16.274, and 18.144 million head.
†Marketings from feedlots with more than 1,000 head were reported for only 22 states in 1969. Figures here include 1968 data for 10 states excluded from 1969 report. In the 22 states reported, feedlots with more than 1,000 head marketed 51.8 percent of total.
Sources: For fed cattle marketings in feedlots with less than 1,000 head in 1962-63, annual supplements to Livestock and Meat Statistics, Statistical Bulletin 333, SRS, USDA, July 1963. For all other 1962-1966 data, Number of Cattle Feedlots by Size Groups, SRS-14, Crop Reporting Board, SRS, USDA, July 1968. For 1967-69 data, Cattle on Feed, Crop Reporting Board, SRS, USDA, January issues, 1969 and 1970.

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TABLE 4.—Thousands of Fed Cattle Marketed in 26 U. S. Cattle Feeding States, Percentage Distribution by States, and Percentage Change by Years, 1960 and 1969.

Region and State	1960 Fed Cattle Marketings	1960 Percent of U.S.	1969 Fed Cattle Marketings	1969 Percent of U.S.	Percent Change 1960-69
	(Thousands)		(Thousands)		
East North Central					
Illinois	1,225	9.7	1,216	5.0	—3.1
Indiana	293	2.3	511	2.1	74.4
Michigan	180	1.4	244	1.0	35.6
Ohio	287	2.2	434	1.8	51.2
Wisconsin	164	1.3	212	0.9	29.3
Total ENC	2,179	16.9	2,617	10.8	20.1
West North Central					
Iowa	2,565	20.0	4,618	19.2	80.0
Kansas	511	4.0	1,674	6.9	227.6
Minnesota	600	4.7	803	3.3	33.8
Missouri	440	3.4	731	3.0	66.1
Nebraska	1,434	11.1	3,322	13.8	131.7
North Dakota	178	1.4	118*	0.5	—33.7
South Dakota	362	2.8	551	2.3	52.2
Total WNC	6,090	47.4	11,817	49.0	94.0
Total NC	8,269	64.3	14,434	59.8	74.6
Other Feeding States					
California	1,595	12.4	2,057	8.5	29.0
Colorado	738	5.7	1,757	7.3	138.1
Oklahoma	143	1.1	496	2.0	246.9
Texas	477	3.7	2,706	11.2	467.3
10 Other States†	1,652	12.8	2,703*	11.2	63.6
Total (26 States)	12,874	100.0	24,153*	100.0	87.6

*1968 data have been used for Nevada, North Dakota, Utah, and Wyoming, for which 1969 data were not published.

†Includes Arizona, Idaho, Montana, Nevada, New Mexico, Pennsylvania, Oregon, Utah, Washington, and Wyoming.

Source: Livestock and Meat Statistics, Statistical Reporting Service, USDA, annual supplements to Statistical Bulletin No. 333.

TABLE 5.—Thousands of Feeder Calves Shipped into Ohio, Regional Percentage Distribution of Inshipments, and Percentage Change, 1961 and 1969.

Sources of Calves	1961 Number	1961 Percent	1969 Number	1969 Percent	1969 as Percent of 1961
All Southern	148.8	61.5	259.6	80.6	174.4
Kentucky	60.8	25.1	111.4	35.5	188.2
Virginia	40.0	16.5	52.4	16.3	131.0
Tennessee	26.4	10.9	44.8	13.9	169.7
North Carolina	1.6	0.7	18.6	5.8	1162.5
West Virginia	12.2	5.1	17.5	5.4	143.4
Other Southern	7.8	3.2	11.9	3.7	152.6
All Western	46.3	19.1	33.9	10.5	73.3
All Corn Belt	24.1	10.0	16.4	5.1	68.1
All Other States	22.8	9.4	12.1	3.8	53.1
Total Ohio Inshipments	242.0	100.0	322.0	100.0	133.1

Source: Ohio Crop Reporting Service.

rate in the 12 North Central states. Consequently, the share of total fed cattle marketings for the region declined during the period from 64.3 to 59.8 percent. Cattle feeding in the East North Central states increased only 20.1 percent, and the share of marketings from the region declined from 16.9 to 10.8 percent of the total.

Most rapid growth rates occurred in Colorado, Oklahoma, and Texas. These had a significant impact on regional patterns. For example, in 1960 Texas produced about as many fed cattle as Ohio and Michigan together. By 1969, however, Texas fed more cattle than all five states combined in the East North Central region (Table 4).

Changing Patterns of Feeder Calf Movements

This growth in regions not historically associated with cattle feeding has meant new demand for calves in those regions, and changes in historic feeder calf shipment patterns. The extent of this shift in calf movements is illustrated by the changing pattern of shipments into Ohio from other states (Table 5).

During the 1960's, the number of calves shipped into Ohio increased by one-third, but all of the increase came from southern sources. All non-southern sources of feeder calves declined in importance. By 1969, Ohio purchases of western calves were being made at about three-fourths of the 1961 level. Only two-thirds as many calves came from other Corn Belt states. Purchases from other scattered states were down to about one-half of their former levels (Table 5). The increase in calf purchases from Kentucky alone (50,600) more than made up for the decline in receipts from all non-southern sources (30,800).

TABLE 6.—Steer and Heifer Prices: Annual Average Price per Hundred Received by Farmers, Selected Areas, Selected Years, 1961-1969.

Year	East North Central Region	Ohio	West South Central Region	Texas
1961	$22.40	$21.50	$21.60	$21.80
1963	21.90	21.40	21.60	21.30
1965	22.40	22.40	21.00	21.00
1967	23.80	23.80	23.60	23.70
1969	27.90	28.00	28.40	28.60
Average	$23.68	$23.42	$23.24	$23.28

Source: Agricultural Prices, Crop Reporting Board, SRS, USDA, Annual Summaries.

ANALYSIS OF COMPETITIVE ASPECTS OF FED CATTLE FEEDING AND MARKETING

Fed Cattle Markets

Less analytical effort was devoted to a comparison of fed cattle markets than to feedlot costs or calf procurement. Comparisons which appear to be relevant are rather straightforward. Relative positions of producers in Corn Belt and Southern Plains markets should be reflected in prices received for products sold. Such prices are reported regularly by the U. S. Department of Agriculture (Table 6).

Ohio serves the East Coast market and the Southern Plains is more related to the growing West Coast market. Farm prices in Ohio and Texas are all part of one national system, but they are directly backed off from different coastal centers.

While there is more slaughter capacity in Ohio than Ohio cattlemen can use, providing a multitude of competitive market alternatives, there also is no significant restriction on slaughter capacity in the

TABLE 7.—Federally Inspected Slaughter Plants and Commercial Cattle Slaughter, by Census Regions, 1960 and 1969.

Census Region	Plants Under Federal Inspection		Commercial Cattle Slaughter				Percent Change 1960-1969
	1960 Number	1969 Number	1960 Number	1960 Percent	1969 Number	1969 Percent	
			(Thousands)		(Thousands)		
North Atlantic	87	85	1,933.9	7.7	1,663.3	4.7	—14.0
East North Central	107	111	4,977.0	19.7	5,097.0	14.5	2.4
West North Central	108	147	8,765.7	34.9	14,275.9	40.4	62.9
South Atlantic	41	56	1,273.2	5.0	1,347.6	3.8	5.8
South Central	35	46	1,422.0	5.6	1,781.1	5.1	25.3
West South Central	33	80	1,825.9	7.2	3,724.5	10.6	104.0
West	119	179	5,026.6	19.9	7,347.5	20.9	46.2
U. S. (48 states)	530	704	25,224.3	100.0	35,236.9	100.0	39.7

Source: Derived from the following publications: Anthony, Willis E. Feb. 1966. Structural Changes in the Federally Inspected livestock Industry, 1950-62, Agricultural Economic Report No. 83, Economic Research Service, USDA; Livestock Slaughter, Crop Reporting Board, Statistical Reporting Service, USDA, April 1969; and Livestock and Meat Statistics, Statistical Reporting Service, USDA, annual supplements to Statistical Bulletin 333.

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Southern Plains, where slaughter facilities have expanded rapidly. During the 1960's, Federal inspected (FI) slaughter increased more rapidly in the West South Central states (which includes Texas) than in any other region of the country. While FI slaughter increased only 2.4 percent during the decade in the East North Central states, FI slaughter in the West South Central region increased 104.0 percent (Table 7).

A result of these considerations is that steer and heifer prices received by West South Central producers tended to improve during the 1960's relative to their East North Central counterparts. During the 1960's, prices received by producers in Texas were comparable to prices received in Ohio (Table 6).

If prices received are a satisfactory indicator, then it appears that Ohio cattlemen enjoy no singular advantages in fed cattle markets. Competitive advantages or disadvantages which may be associated with feedlot activity in either location would seem therefore to be confined to feeder calf procurement costs and to total costs of operating feedlots in either location. Much of the analytical effort reported in this bulletin is a comparative examination of these competitive aspects.

Feedlot Operating Costs

Fixed and Variable Costs: Most operators are aware that two kinds of costs are involved in running an enterprise—fixed costs and variable costs.[12]

The most important variable cost of operating a feedlot is feed. Variable costs have two characteristics. 1) They vary in *total* amount depending on whether the operation is large or small. The annual feed bill is large or small depending upon whether many or few cattle are fed in the course of a year. 2) However, the cost of an optimum feed ration per pound of gain does not vary with variations in the number of cattle fed. Feed cost per pound of gain does not decline as the operation grows. For example, if feed cost per pound of gain were higher in the Southern Plains than in the Corn Belt, southern feedlots would not be competitive on a feed-cost basis with the Corn Belt, and bigger southern feedlots would not solve the problem. Some other costs would have to be lower.

Fixed costs of an enterprise are the costs incurred when the physical structure is erected and the investment is committed to a purpose spanning a period of years. Fences, feedbunks, aprons, silos, and other integral and long-term investments in a feedlot facility constitute the fixed costs of the venture. The characteristics of fixed costs are that: 1) no matter how much or little volume is moved through the fixed facility, the annual bill of costs for that facility (rent, interest, depreciation, etc.) remains essentially constant; and 2) as more volume is moved through the facility, the cost per unit declines. Volume could of course be pushed too far, to a point for example that costs of physical deterioration and damage mounted rapidly.

Optimum capacity might be regarded as that capacity at which fixed costs per unit (fixed costs per pound of gain) are minimized and profit maximized. Large commercial feedlots in the Southern Plains provide an illustration. When many thousand cattle are on feed at a given time, in low-cost unsheltered enclosures, fixed costs per pound of weight gained can be very low indeed, and normally much lower than in a typical Corn Belt supplementary feeding enterprise.

Fixed Costs Comparisons: Despite small volume compared to feedlots in the Southern Plains, the present study as well as an earlier work by Blosser confirm that effectively managed Ohio feedlots produced beef during the years studied at total costs comparable to those recorded by Dietrich in his investigation of Texas-Oklahoma feedlots (Table 8). There also were evident differences in fixed and variable cost structures between Ohio and Southern Plains feedlots. Fixed costs of Ohio feedlots were determined by Blosser from participating farm account records; in the present study they were determined by standard farm appraisal techniques.

Fixed costs in both Ohio studies were two to three times higher than those recorded by Dietrich in 1966-67, approximating 2.5¢ to 2.9¢ per pound of gain in Ohio compared to 1.0¢ to 1.5¢ in Texas-Oklahoma (Table 8). Little of this cost difference would be attributable to differences in feedlot utilization; Ohio and Southern Plains lots all experienced similar average utilization rates (Table 8).[13] Low fixed costs in Southern Plains lots are associated with economies of very large scale operations which are unavailable to Ohio feedlot operators. Scale economies of Ohio and Southern Plains lots are compared in Figures 1 and 2.

Variable Costs Comparisons: Paralleling the Dietrich study, variable costs in Ohio feedlots were recorded in feed and non-feed categories. Non-feed

[12]Sometimes farmers and other businessmen refer to fixed costs as "overhead" costs, and variable expenses frequently are referred to as "out-of-pocket" costs.

[13]Degree of feedlot capacity utilization was determined by the equation:

$$\text{Feedlot Utilization} = (\text{Turnover Ratio})\ (\text{Average Days on Feed})$$

where:

$$\text{Turnover Ratio} = \frac{\text{Number of Cattle Fed Annually}}{\text{Feedlot Capacity}}$$

Ohio feedlots typically have a small turnover ratio and a large number of days on feed. Southern Plains feedlots typically feed a smaller number of days and generate a high turnover ratio.

TABLE 8.—Costs per pound of Gain by Cattle in Ohio and Texas-Oklahoma Feedlots, Selected Years, 1963-1969.

Source of Data	Average Costs per Pound of Gain (Dollars)				Percent Capacity Utilized
	Variable Costs		Fixed Costs	Total	
	Feed	Non-feed			
Ohio Field Work*					
1968-1969 Results	0.1963	0.0432	0.0288	0.2683**	67.9
Best Results	0.1641	0.0370	0.0251	0.2262**	—
Ohio Farm Accounts†					
1963-1964 168 Farms	0.1785	0.0449	0.0478	0.2512**	69.3
Best 56 Farms	0.1423	0.0348	0.0216	0.1987**	—
Texas‡					
1966-1967 Average Feedlots More Than 10,000 Head	0.1755	0.0409	0.0118	0.2282	73.0
	0.1764	0.0373	0.0098	0.2235	77.6
Oklahoma‡					
1966-1967 Average Feedlots More Than 10,000 Head	0.1873	0.0455	0.0147	0.2475	69.1
	0.1851	0.0444	0.0128	0.2420	78.6

*Original data, present study: 7,400 head.
†Blosser, R. H. April 1969. Costs of Feeding Cattle in Ohio, Res. Circ. 165, OARDC: 39,822 head.
‡Dietrich, R. A. May 1969. Costs and Economies of Size in Texas-Oklahoma Cattle Feedlot Operations, Bull 1083, Texas Agricultural Experiment Station. Study included 70 percent of all cattle fed in Texas, July 1966 through June 1967.
**Undeflated dollars. Differences between 1963-64 and 1968-69 results reflect inflationary price increases, mostly feed.

variable costs included labor, utilities, veterinary expenses, and similar smaller items which were related directly to volume of operation. Non-feed costs of this nature were similar in Ohio and in the Southern Plains, approximately 3.5¢ to 4.5¢ per pound of gain in both locations (Table 8). Thus, both the Blosser study and the present study found that Ohio feedlots compare unfavorably with Texas-Oklahoma lots in terms of fixed costs. An examination of non-feed variable costs also disclosed no counterbalancing advantage to overcome fixed cost disadvantages (Table 8). Hence the opportunity for producing the necessary saving to offset these disadvantages fell to the feeding program.

Participating Ohio feedlots showed feed costs averaging 1¢ above Oklahoma and 2¢ above Texas costs. As a consequence, average *total* costs per pound of gain in Ohio were 1¢ to 5¢ above average Texas-Oklahoma costs (Table 8). Under these circumstances, Ohio feedlot operators would not be able to survive in the long run in competition with the Southern Plains.

There was variation from this average, however, and some operations registered feed costs low enough to offset fixed cost disadvantages and yield total costs per pound of gain competitive with reported Texas-Oklahoma costs (Table 8). In terms of feed cost per pound of gain, steer calves showed the best performance among 7,400 cattle for which records were kept during 1968-69. Yearlings registered higher daily rates of gain, but not enough to compensate for higher daily feed consumption. Heifer calves compared unfavorably with either steers or yearlings in both rate of gain and feed cost per pound of gain (Table 9). All feeding programs were based on corn silage and concentrate feed rations.

The best individual enterprise results for feed costs in 1968-1969 were recorded on approximately 1,500 calves (one-third heifers) in three lots which had a feed cost of 16.41¢ per pound of gain. The

TABLE 9.—Daily Rates of Gain and Feed Cost per Pound of Gain by Weight and Sex, 7,400 Feeder Cattle, Ohio, 1968-69.

Number and Class	Average Purchase Weight	Average Sale Weight	Average Daily Rate of Gain	Average Feed Cost per Pound of Gain
	(Lb.)	(Lb.)	(Lb.)	(Cents)
1,144 Yearling Steers	786.0	1080.2	1.917	21.04
1,897 Heifer Calves	498.1	816.1	1.555	21.54
4,359 Steer Calves	418.3	942.9	1.777	18.81
7,400 Total				

Source: Original data.

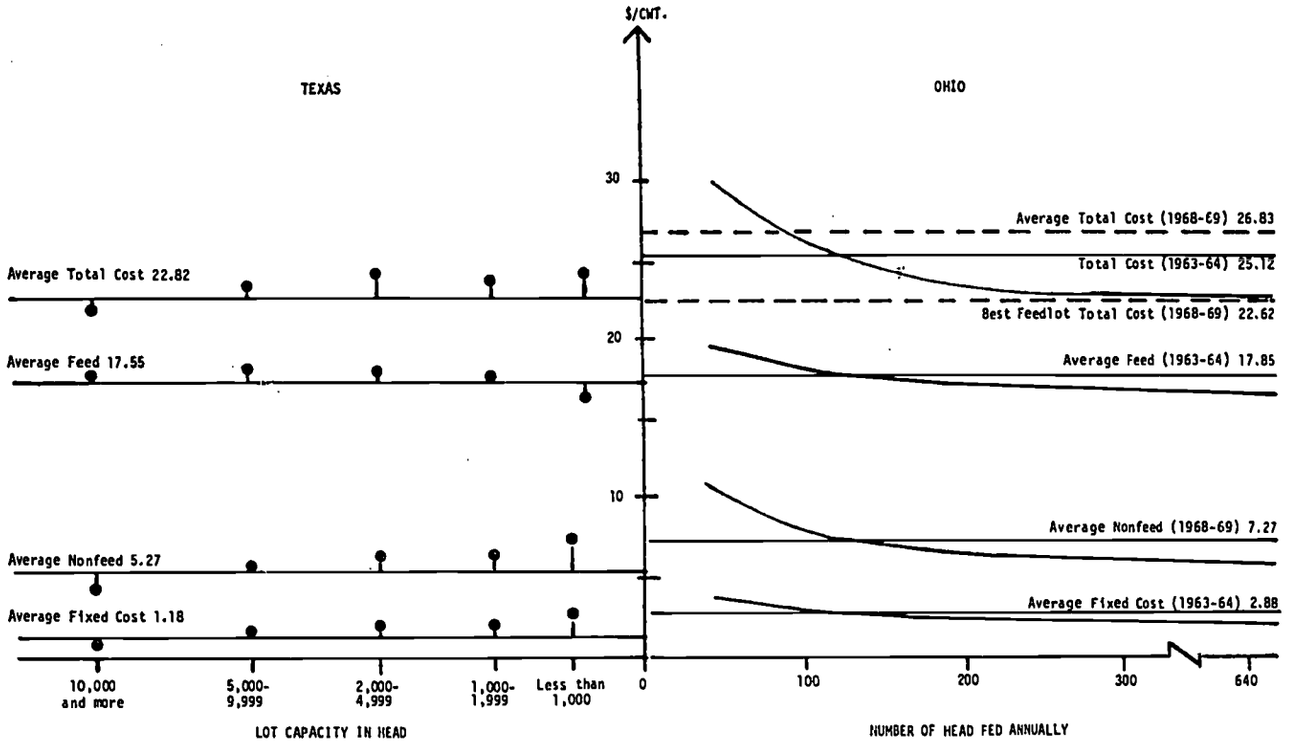

FIG. 1.—Comparative feeding costs, Texas and Ohio.

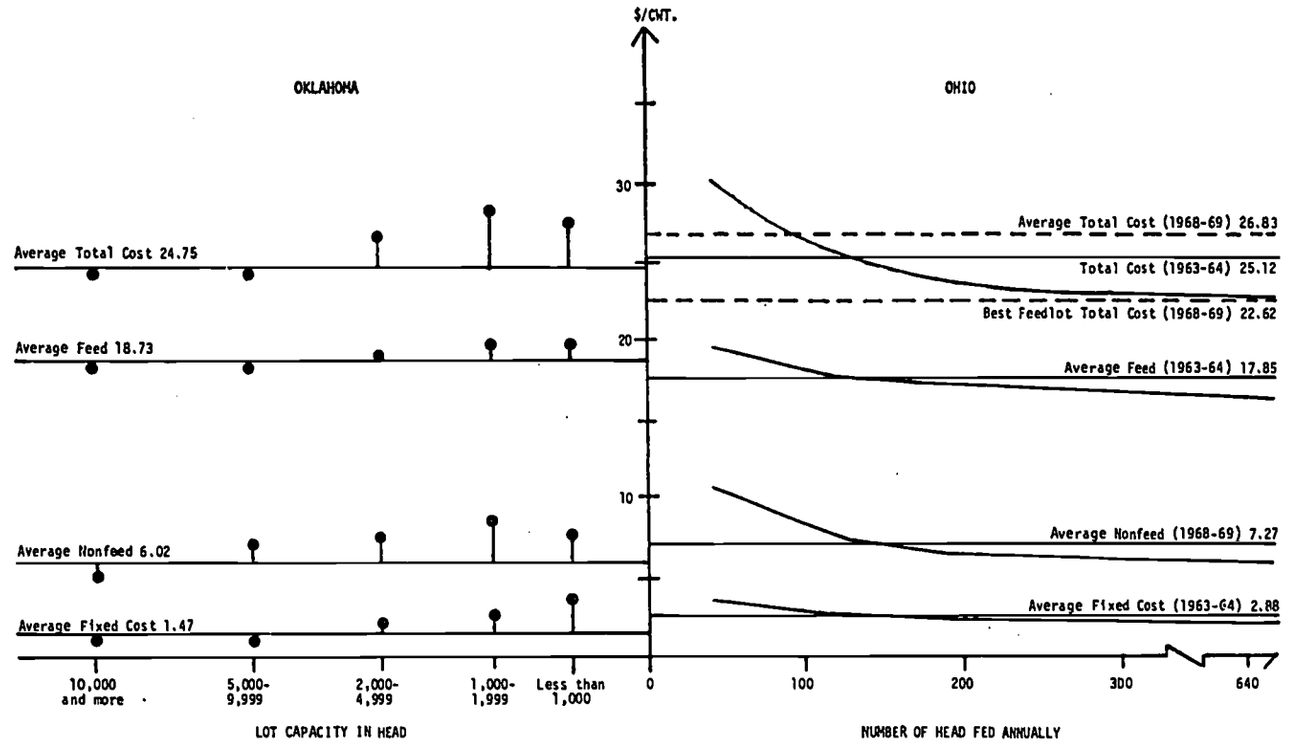

FIG. 2.—Comparative feeding costs, Oklahoma and Ohio.

best individual group of calves among 7,400 was a group of 212 steers fed 292 days from 441 to 976 lb., gaining 1.83 lb. per day and yielding a feed cost of 15.26¢ per pound of gain.

In brief summary, the Blosser study and the present analysis record fixed costs for Ohio feedlots which are higher than reported Texas-Oklahoma fixed costs. Moreover, Ohio feed costs often are higher. When this occurs, Ohio feedlots incur production expenses too costly to permit continued competition in the long run.

Effective competition requires total production costs no higher than occur in other major producing areas. To accomplish this, Ohio feedlot operators, lacking the cost-reducing economies of very large-scale operations, must concede a fixed cost disadvantage and offset it with compensatory savings in the feed program. The evidence indicates that this can be done, due perhaps to basic advantages in feed grain production (sorghum vs. corn) enjoyed by the Corn Belt.

The apparent competitive situation between Ohio and the Southern Plains might reasonably be described as one in which Southern Plains feedlots offset some disadvantages in variable feed costs by reducing fixed costs with large size, thereby realizing economies of scale. Ohio feedlots press their advantages in feed costs in order to offset disadvantageous fixed costs associated with small-scale feeding operations.

Differences in average and lowest feedlot costs per pound of gain in Ohio were large. Most of these differences were found in feed costs. Obviously, there are inefficiencies in Ohio feedlot operations. Ohio operations which can overcome these inefficiencies by avoiding elaborate facilities which add unnecessarily to fixed costs, and by attentive control of the feed budget, should be able to survive intense interregional competition in feedlot operations.

ANALYSIS OF CALF PROCUREMENT PATTERNS

Ohio-Texas Comparisons

Comparisons were made between feeder calf procurement patterns in Ohio and Texas. The comparisons were made both on the basis of estimated actual shipments reported by many states and on the basis

TABLE 10.—Transportation Costs for Ohio Inshipments: Representative Transportation Rates and the Transportation Bill for Feeder Cattle Inshipments, 1961, 1965, and 1969.

State of Origin	Per Cwt.	Per Head	1961	1965	1969
	(Dollars)		(Thousand Dollars)*		
Kentucky	0.38	1.90	115.5	183.9	217.4
Tennessee	0.73	3.65	96.4	104.8	163.5
Virginia	0.59	2.95	119.2	120.7	154.6
West Virginia	0.38	1.90	23.2	25.1	33.3
Alabama	1.07	5.35	28.9	160.5	48.7
Mississippi	1.42	7.10	—	83.1	19.9
Florida	1.82	9.10	18.2	20.9	—
North Carolina	0.92	4.60	7.4	27.6	85.6
South Carolina	1.03	5.15	—	8.8	—
Texas	2.24	11.20	116.5	149.0	87.4
Oklahoma	1.69	8.45	136.9	87.0	31.3
Kansas	1.57	7.85	54.2	50.2	55.0
Colorado	2.28	11.40	22.8	52.4	124.3
North Dakota	2.68	13.40	81.7	59.0	—
Montana	3.06	15.30	39.8	—	—
Indiana	0.38	1.90	39.5	27.0	16.7
Illinois	0.67	3.35	11.1	9.7	6.7
Minnesota	1.70	8.50	—	23.8	23.8
Missouri	1.70	8.50	—	—	23.8
Pennsylvania	0.99	4.95	10.4	26.2	22.3
Wisconsin	0.68	3.40	13.3	—	—
Total			935.0	1,219.7	1,114.3
Total Reported Inshipments (Thousand Head)			242.0	306.0	322.0
Unidentified Inshipments (Thousand Head)			18.9	10.5	12.1
Identified Inshipments (Thousand Head)			223.1	295.5	309.9
Transportation Cost per Head			$4.19	$4.13	$3.60

*All costs based on 500 lb. animals.

Source: Based on Shipments of Feeder Cattle into Ohio from Other States, Ohio Crop Reporting Service, and on transportation rates used in optimum shipment patterns, Appendix A.

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TABLE 11.—Transportation Costs for Texas Inshipments: Representative Transportation Rates and the Transportation Bill for Feeder Cattle Inshipments, 1962, 1965, and 1967.

State of Origin	Per Cwt.	Per Head	1962	1965	1967
	(Dollars)		(Thousand Dollars)*		
Alabama	1.51	7.55	244.7	417.0	333.7
Arizona	1.55	7.75	6.1	49.3	12.3
Arkansas	.90	4.50	79.1	80.5	111.8
California	2.29	11.45	1.8	13.6	8.2
Colorado	1.18	5.90	67.1	55.6	66.8
Florida	2.29	11.45	855.4	356.6	321.3
Georgia	1.79	8.95	11.6	46.9	49.8
Illinois	1.64	8.20	13.3	8.9	10.1
Iowa	1.30	6.50	20.9	38.8	47.4
Kansas	.81	4.05	25.8	35.4	36.4
Louisiana	.85	4.25	379.9	468.9	229.9
Mississippi	1.06	5.30	255.5	409.7	652.6
Missouri	1.27	6.35	32.7	22.5	47.1
Montana	2.50	12.50	65.3	9.0	4.0
Nebraska	1.25	6.25	7.8	11.0	6.1
New Mexico	1.04	5.20	1,021.9	1,435.4	2,060.9
Oklahoma	.59	2.95	153.0	264.7	483.4
South Dakota	1.79	8.95	4.1	23.0	6.6
Wisconsin	2.01	10.05	24.4	38.3	84.5
Wyoming	1.37	6.85	7.1	7.7	17.6
Total			3,277.5	3,792.8	4,590.5
Total Reported Inshipments (Thousand Head)			557.8	717.4	910.3
Unidentified Inshipments (Thousand Head)			6.7	8.2	18.6
Identified Inshipments (Thousand Head)			551.7	709.2	891.7
Transportation Cost per Head			$5.95	$5.35	$5.15

*All costs based on 500 lb. animals.

Source: Based on inshipment data from the Texas Animal Health Commission, tabulated from health certificates, and on transportation rates used in optimum shipment patterns, Appendix A.

of estimated optimal shipment patterns determined by econometric analysis.

Tables 10 and 11 summarize actual shipments into Ohio and Texas for selected years as reported by the Ohio Crop Reporting Service and the Texas Animal Health Commission. Freight costs appearing in these tables are a combination of reported costs and costs estimated by methods described in Appendix A.

TABLE 12.—Procurement Costs (Freight and Shrink) on 500 Lb. Calves into Ohio and Texas Feedlots, 1968-1969.

Procurement Cost	Ohio	Texas
Under Actual (Reported) Shipment Conditions (1969)		
Average Miles Hauled	331.5	413.9
Freight per Head	$3.06	$3.82
Shrink per Head, Lb.	29.9	41.0
Under Estimated Optimum Shipment Conditions (1968)		
Average Miles Hauled	176.6	341.3
Freight per Head	$1.63	$3.15
Shrink per Head, Lb.	18.9	29.9

Source: Distances and rates for actual shipments derived from reported data. Optimum shipments determined by statistical analyses. Shrinkage based on Tippets. Feb. 1957. In-Transit Shrinkage of Cattle, Circular 78, University of Wyoming.

Both tables reflect a shipment trend toward the optimal pattern prescribed by transportation model analysis. Inshipment trends in other states not reported here also indicated a trend toward the optimal pattern. Deviations from an optimum pattern will continue to persist, however, due to continuing imperfections not taken into account by least cost models. These include conditions such as short and long-run market price imperfections, advantageous freight rates derived from backhauls, and traditional preferences for calves of particular grade, sex, breed, and origin.

A generalized statement of the results of the Ohio-Texas comparative analysis of procurement costs appears in Table 12. Under actual shipment conditions reported in 1969, calves were shipped an average distance of nearly 415 miles to reach Texas feedlots and slightly more than 330 miles to reach Ohio feedlots. Calves shipped into Ohio feedlots traveled about 80 percent of the distance required to move calves into Texas lots. These distances were associated with transportation and shrinkage costs which also were proportionately smaller for Ohio receipts. Ohio transportation costs were about 80 percent of Texas costs; shrinkage losses on Ohio ship-

ments were about 25 percent lower than those incurred on Texas shipments. Such comparisons identify a locational advantage in calf procurement enjoyed by Ohio feedlot operators.

Moreover, this advantage to Ohio feedlot operators would be greater under an optimum pattern of interregional feeder calf shipments. Both Ohio and Texas would benefit from a more optimal flow of feeder calf movements, but the relative advantage for Ohio feedlot operators would be increased. Under the estimated optimum shipment conditions, shipments into Ohio feedlots would have moved only about half the distance required of shipments into Texas lots. Associated costs of transportation and shrinkage would have been correspondingly lower (Table 12). The interregionally competitive nature of the feeder calf market suggests that over time the interstate shipment of calves will move in the direction of the optimum pattern.

National Comparisons

Transportation models, a method of linear programming, were used to develop an optimal (least-cost) national pattern of calf shipments among 40 regions of the United States. The model requires the establishment of regional boundaries, the determination of supply and demand for calves in each region, and the determination of freight rates between selected basing points in all regions. The shipment pattern generated by the model is optimal in the sense that the pattern minimizes total transportation costs. Methods and sources used in developing this information are summarized in accompanying appendices.

Previous studies of interregional calf movements have been limited to potential domestic beef calf supplies available for feeding.[14] The present analysis affords several advantages permitting a more detailed and accurate appraisal of optimum conditions. For example, 1) imports from several points in Canada and Mexico are included in the analysis, 2) dairy calves are included in total supply, 3) the identity of beef and dairy calves is separately maintained, 4) both dairy and beef calves are optimally allocated to competing feedlot and slaughter demands, 5) feeder calves and slaughter calves move at different weights,[15] 6) the role of nonfed cattle is acknowledged, and 7) transshipments occur, i.e., individual regions simultaneously occupy both import and export roles.

All of these characteristics underlie the optimal shipment patterns identified for feeder and slaughter calves in Figures 3 and 4. Both figures reveal frequent transshipments. Figure 3, for example, shows substantial import-export activity occurring in Arizona, Kansas, Nebraska, Nevada-Utah, Oklahoma, Oregon, Wyoming, and many other regions in the East and South. To a smaller extent, the same phenomena occurred in the simpler pattern of slaughter calf movements shown in Figure 4.

The total feeder calf procurement picture was dominated by shipments received in Iowa, the largest net deficit region in the nation. A generalized movement was evident for beef and dairy calves moving into Iowa from roughly the central third of the nation. So forceful was the movement that transshipments in the direction of Iowa became common in many of the surrounding states, like iron filings aligned toward a magnetic pole. California exerted a similar attraction in the West. There was no comparable central attraction in the East.

Ohio feedlot operators optimally obtained 217,000 beef calves and 17,000 dairy calves from within the state, exported 180,000 dairy calves to feedlots in Michigan, and imported 321,000 beef calves from Kentucky and 15,000 from West Virginia. Ohio slaughtered 84,000 local dairy calves and exported another 1,000 for slaughter in New York (Figure 4).

Other Corn Belt states were identified as major competitors with Ohio for the southern calf supply. Virginia calves optimally moved to Pennsylvania feedlots and Virginia imported nearly as many feeder calves as it shipped out. States in the Deep South did not typically sell to distant markets. Most calves in those states were shipped to other nearby Southern states which subsequently transshipped to Corn Belt destinations. A detailed account of these national shipment patterns and accompanying freight costs appears in Appendix Table II.

[14] For example, see Bowser, M. F., and J. W. Goodwin. June 1968. Optimum Distribution Patterns for Feeder Cattle. Tech. Bull. T-123, Oklahoma State University, Stillwater; and Buchholz, H. E. and G. G. Judge. Sept. 1965. An Interregional Analysis of the Feed-Livestock Economy. AERR 75, Illinois Agricultural Experiment Station, Urbana.

[15] Feeder calf weights were arbitrarily set at 500 lb. Slaughter calf weights were set at 230 lb., an average slaughter weight according to USDA data. It can be shown that allocation on a cost per hundredweight basis will yield the same result when calculated on a cost per head basis using two different weight calculations.

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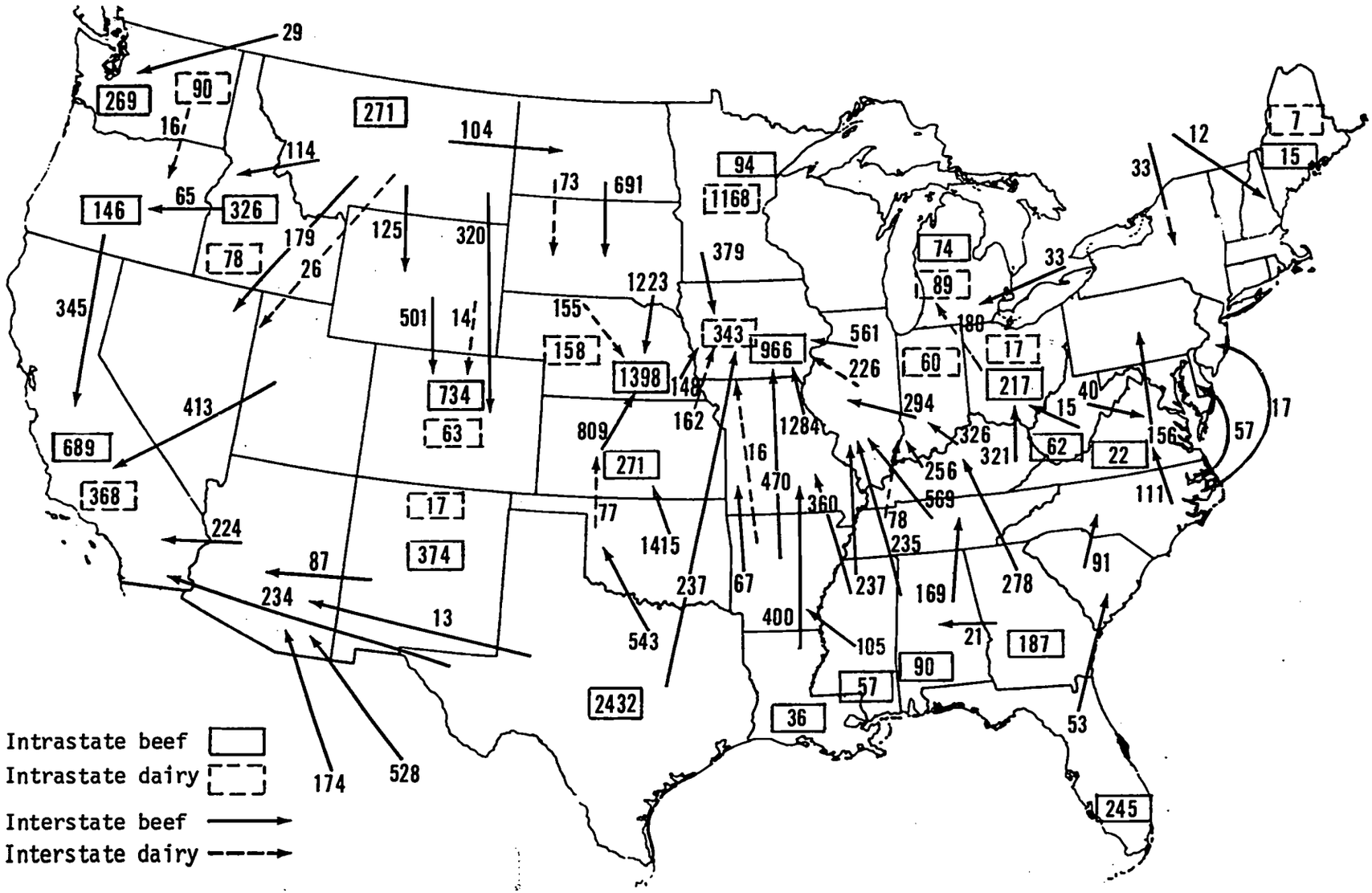

FIG. 3.—Optimal shipment patterns for feeder cattle, 1968 (1,000 head).

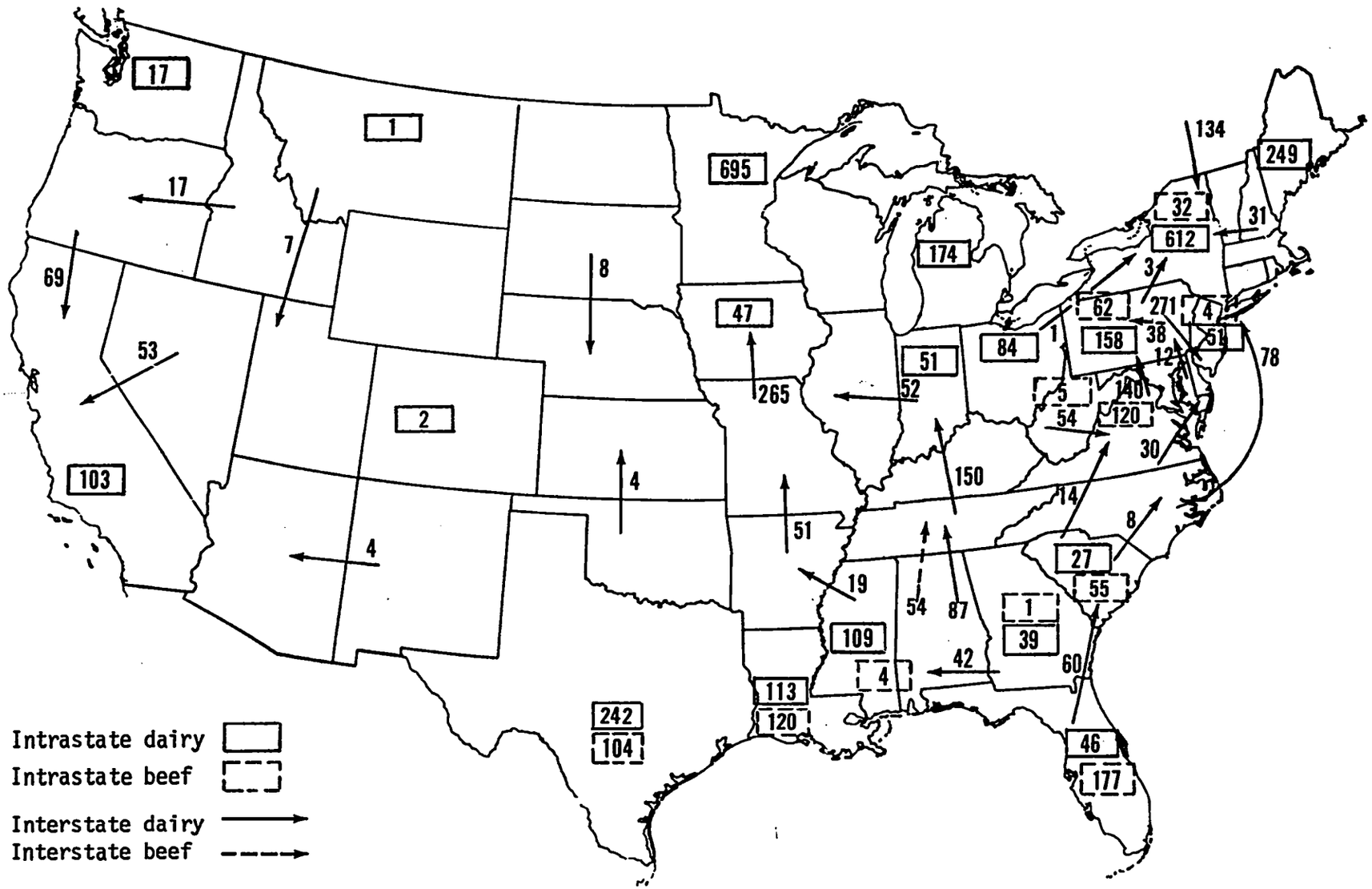

FIG. 4.—Optimal shipment patterns for slaughter calves, 1968 (1,000 head).

CONCLUSIONS

1. Cattle feeding is undergoing structural and regional changes. Many large commercial feedlots have developed in areas outside of traditional Corn Belt feeding areas.

2. Cattle feeding in Ohio increased more than 50 percent between 1960 and 1969, but the national average increase for 26 principal cattle feeding states during those same years was nearly 88 percent.

3. During 1960-1969, cattle feeding in all 12 North Central states increased 75 percent. But the regional percentage of total U. S. cattle feeding (26 states) dropped from 64.3 to 59.8 percent during the period.

4. The most rapid growth in cattle feeding occurred in the Southern Plains. Texas cattle feeding increased 467 percent from 1960 to 1969, from less than 4 percent to more than 11 percent of the 26-state supply. By 1969, Texas produced more fed cattle than all five East North Central states combined (Illinois, Indiana, Michigan, Ohio, and Wisconsin).

5. National feeder calf shipment patterns have been altered due to the growth of cattle feeding in new regions. One consequence of this is that Ohio feedlot operators buy fewer western calves and more southern calves. Between 1961 and 1969, western sources dropped from 19 percent to 10 percent of all calf shipments into Ohio, while southern sources increased from 61 percent to 81 percent.

6. On average, feedlots in the Southern Plains produced fed beef at lower costs than Ohio feedlots in years which were compared in the 1960's. A 1963-1964 Ohio study showed average Ohio feedlot costs of 25¢ per pound of gain. The present study showed costs in selected large Ohio feedlots averaged 26.8¢ per pound of gain. A Texas-Oklahoma study showed average feedlot costs of 22.8¢ to 24.8¢ per pound of gain in 1966-1967.

7. Southern Plains feedlots had lower fixed costs than Ohio feedlots. This relationship is likely to remain, due to the very large size of Southern Plains lots.

8. Effectively managed Ohio feedlots had lower variable costs than Southern Plains lots. This was accomplished by minimizing feed costs per pound of gain. When this occurred, Ohio feedlots produced fed beef as cheaply as Southern Plains lots. Average Ohio feedlots studied did not accomplish this. Study results imply that both the incentive and the opportunity are present for improved management of Ohio feedlots.

9. It is possible for Ohio feedlots to compete with Texas-Oklahoma feedlots if every effort is made to manage effectively and to minimize costs. Ohio studies show minimum costs per pound of gain of 19.9¢ (1963-1964) to 22.6¢ (1968-1969) compared to Texas-Oklahoma costs in feedlots more than 10,000 head of 22¢ to 24.2¢ per pound of gain (1966-1967).

10. Analysis of actual calf shipments in 1969 showed that Ohio feedlots enjoyed some advantage over Texas feedlots in calf procurement costs as reflected in shipping distance, freight costs, and shrinkage. Average distance on calves shipped into Ohio feedlots was 332 miles, compared to 414 miles into Texas lots. Freight into Ohio lots averaged $3.06 compared to $3.82 into Texas lots. Shrink was approximately 30 lb. in Ohio vs. 41 lb. in Texas.

11. Analysis of optimum shipment patterns of feeder calves indicated that shipping distance, freight costs, and shrinkage could be reduced on shipments into both Ohio and Texas feedlots. But reductions would be greatest into Ohio feedlots. Average shipping distances were 177 miles into Ohio lots compared to 341 miles into Texas lots. Freight would approximate $1.63 into Ohio and $3.15 into Texas lots. In the optimal shipment model, Kentucky and West Virginia appeared as optimal sources of calves for Ohio feedlots.

APPENDIX A

Optimum Shipment Patterns for Calves

Difficulties which must be overcome in determining an optimum shipment pattern for feeder calves are found in the complexity of calf movements. These are due largely to multiple transfers of ownership between origins and destinations, and in associated limits to published data which inadequately record these complexities. Estimating techniques are outlined in this and accompanying appendices.

The Basic Model

Transportation models were used to determine optimum shipment patterns between 46 regions of the United States.[16] Intrastate as well as interstate shipments were determined. Slaughter calf shipments were determined separately from feeder calf shipments. The identities of beef and dairy calves were maintained separately. Inshipments from Canada and Mexico were included in the analyses. Data published by the USDA and the Census of Agriculture provided the basic information. Required additional estimates conformed to the published series. An overview of the analytical approach appears in Appendix Figure I.

The transportation model determines optimal shipment patterns for transfer of feeder or slaughter calves from surplus to deficit regions in a manner minimizing the total transportation bill. Data requirements include quantities available for shipment from surplus regions, quantities required by deficit regions, and transportation costs between specified shipment points in each region.

A form of linear programming model, transportation models were first formulated by Hitchcock in 1941.[17] Expressed mathematically, the model is as follows:[18]

Minimize

$$T = \sum_{i=j}^{m} \sum_{j=i}^{n} C_{ij} X_{ij} \qquad (1)$$

subject to the conditions:

$$\sum_{i=j}^{m} X_{ij} > D_j \quad j = 1, 2, 3, \ldots, n \qquad (2)$$

$$\sum_{j=i}^{n} X_{ij} < S_i \quad i = 1, 2, 3, \ldots, m \qquad (3)$$

$$\sum_{i=1}^{m} S_i = \sum_{j=1}^{n} D_j \qquad (4)$$

in which, in equation

(1), T is the total transportation bill to be minimized;

(2), X_{ij} represents a shipment from any surplus (i) to any deficit (j) region, and D_j is the number of cattle to be received by any region (j);

(3), S_i is the number of cattle available for shipment from any region (i); and

(4), available supply from surplus regions (i) is equal to total demand from deficit regions (j).

What emerges from the analysis is a tableau depicting the optimum combination of shipments from surplus to deficit regions, as follows:

Origins	Destinations						
	1	2	3	. . . .	n		Total
1							S_1
2							S_2
3							S_3
.							.
.							.
.							.
m							Sm
Total	D_1	D_2	D_3	. . . .	D_n	$\sum_{i=j}^{m}$	$S_i = \sum_{j=i}^{n} D_j$

Each row corresponds to one of the m equations in equation (2) and each column represents one of the n equations in equation (3). A specific C_{ij} (transfer cost) is associated with each possible shipment. The transportation model forms a system of $m + n$ linear equations in mn unknowns, but the optimal solution is obtained by at most $m + n - 1$ positive shipments and total cost is at a minimum.

Analytical Assumptions

Such analysis requires some necessary assumptions which approximate but limit real events. These include:

1. Product homogeneity. (There is no real difference between a 500 lb. Montana beef calf and a 500 lb. Texas beef calf, for example. Breed and sex differences are ignored, except for beef-dairy distinctions.)
2. Pure competition. (There are no monopolistic operators, no one person can control prices paid or received, and there are no quarantines or other artificial restraints limiting interstate movement.)

[16] Forty U. S. regions, five regions representing exports from Mexico and Canada, and one dummy variable to equate total supply with total demand.

[17] Hitchcock, F. L. 1941. The Distribution of a Product from Several Sources to Numerous Localities. Journal of Mathematics and Physics, 2:224-230.

[18] Walker, F. E. March 22-23, 1964. Transportation and Spatial Equilibrium Models for Interregional Analysis. Paper presented at Southern Farm Management Research Committee Workshop, New Orleans.

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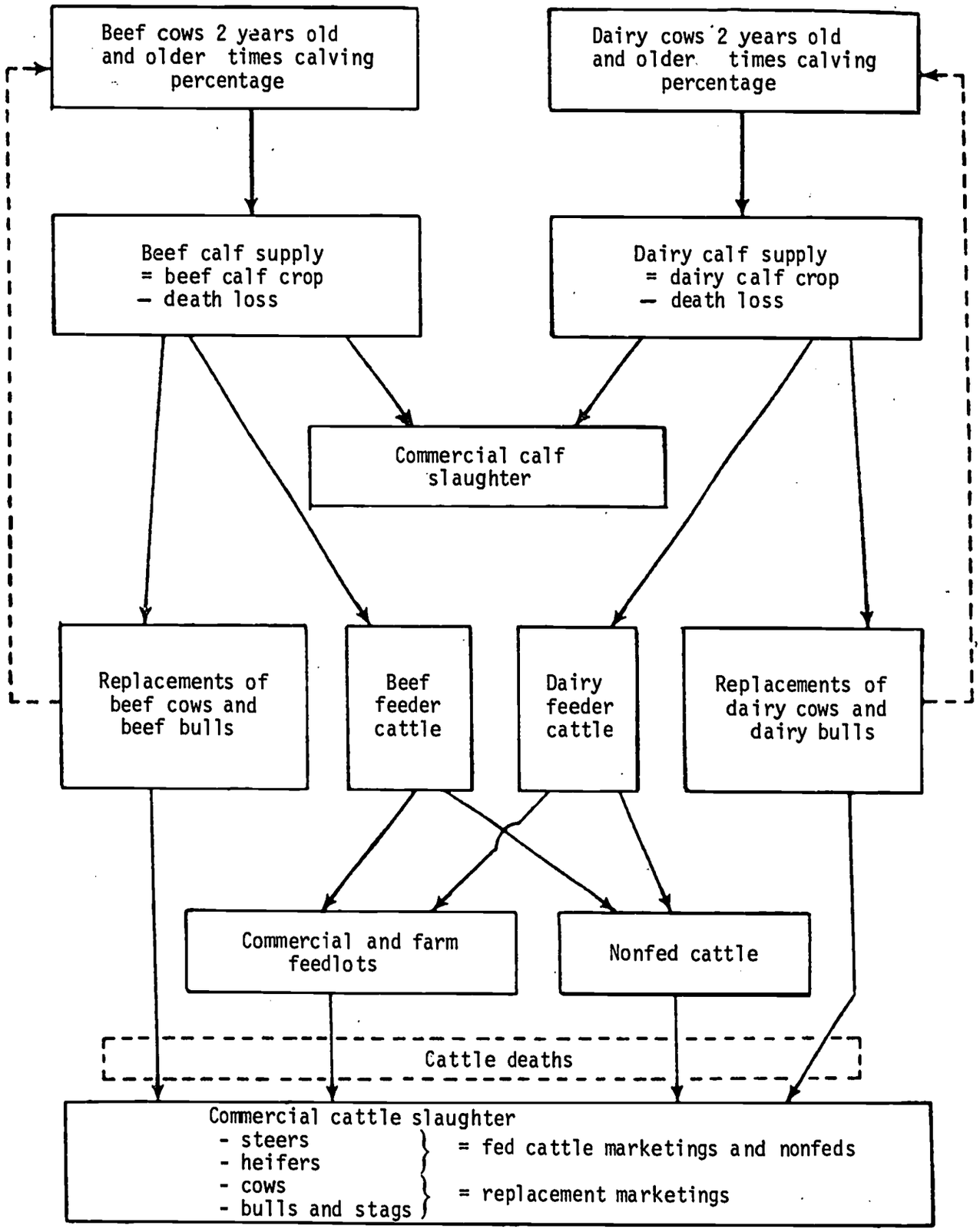

APPENDIX FIG. I.—General alternative use flow chart for calves produced in the United States, from birth to slaughter.

3. Transfer costs are independent of volume shipped. (Transfer costs are based on semi-trailer truck rates. Nobody gets a quantity discount.)
4. All shipments are represented by one shipping point for each region. (Everything received in Ohio from other regions comes to Columbus or, alternatively, shipments from other regions into Ohio are based on their transfer cost to Columbus. Similar points represent other regions.)

Regional Boundaries

Regional boundaries and shipping points used in this analysis are summarized in Appendix Table I. Each U. S. region is formed by the boundaries of a single state with the exception of regions 2-42, 10-50, 17-57, and 38-78. Mexico is represented by two basing points and Canada by three.

The double numbers identifying regions accommodate separate analyses of optimum shipments for beef calves and dairy calves to feedlot and slaughter destinations. The general matrix form of this analytical approach appears in Appendix Figure II.

Estimating Regional Supplies

(See Appendix D for Foreign Supply)

Appendix Figure I provides an overview of supply determination requirements. The following data were basic sources in the derivation of calf supplies:[19] 1) cows and heifers 2 years old and older kept for milk, 2) heifers 1 to 2 years old kept for milk, 3) beef cows 2 years old and older, 4) bulls 1 year old and older, 5) total calves born, 6) total calf deaths, and 7) total cattle deaths. Total calves born, bulls 1 years old and older, and calf deaths are not reported separately for dairy and beef. Hence, for each state, these categories were divided between dairy and beef according to the percentage of cows 2 years old and older kept for milk and beef. The implied assumption is that calving percentages, bulls per cow, and death loss percentages are the same for both beef and dairy in a given state (see Appendix B).

From initial supplies of total dairy calves born and total beef calves born, adjustments were made for bull replacements, calf death losses, and cow replacements. Bull replacement rates were assumed to be 20 percent annually for both beef and dairy. The dairy cow replacement rate was assumed to be the number of heifers 1 to 2 years old kept for milk in each state. Since beef heifers 1 to 2 years old would include feeder heifers as well as replacement heifers, an independent procedure was used to delineate the beef cow replacement rate. The 1968 beef cow replacement rate was calculated as 13.72 percent (Appendix B).[20] Hence, state-by-state net calf supplies available either for feeding or slaughter were determined using the following general equations:

[19]These are reported in Livestock and Meat Statistics, Supplement to Statistical Bulletin 333, Livestock and Poultry Inventory, and Calf Crop, all reports of the Economic Research Service, USDA.

[20]An earlier study found typical replacement rates at 12 to 14 percent. See Armstrong, D. L. and E. T. Shaudys. May 1961. Profitability of Practices Affecting the Calf Crop of Beef Herds. Res. Circ. 103, Ohio Agricultural Experiment Station (now OARDC).

APPENDIX TABLE I.—Regional Demarcation and Shipping Points.

Region			
Dairy	Beef	Regional Identity	Shipping Point
1*	1	dummy variable	
2	42	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut	Concord
3	43	New York	Syracuse
4	44	New Jersey	Trenton
5	45	Pennsylvania	Harrisburg
6	46	Ohio	Columbus
7	47	Indiana	Indianapolis
8	48	Illinois	Springfield
9	49	Michigan	Lansing
10	50	Wisconsin, Minnesota	St. Paul
11	51	Iowa	Des Moines
12	52	Missouri	Jefferson City
13	53	North Dakota	Bismarck
14	54	South Dakota	Pierre
15	55	Nebraska	Grand Island
16	56	Kansas	Wichita
17	57	Delaware, Maryland	Baltimore
18	58	Virginia	Roanoke
19	59	West Virginia	Charleston
20	60	North Carolina	Raleigh
21	61	South Carolina	Columbia
22	62	Georgia	Atlanta
23	63	Florida	Tampa
24	64	Kentucky	Lexington
25	65	Tennessee	Nashville
26	66	Alabama	Birmingham
27	67	Mississippi	Jackson
28	68	Arkansas	Little Rock
29	69	Louisiana	Alexandria
30	70	Oklahoma	Oklahoma City
31	71	Texas	Abilene
32	72	Montana	Billings
33	73	Idaho	Boise
34	74	Wyoming	Cheyenne
35	75	Colorado	Denver
36	76	New Mexico	Roswell
37	77	Arizona	Phoenix
38	78	Utah, Nevada	Ogden
39	79	Washington	Spokane
40	80	Oregon	Burn
41	81	California	Bakersfield
	82	Canada (east)	Montreal
	83	Canada (central)	Port Huron
	84	Canada (west)	Calgary
	85	Mexico (west)	Hermosillo
	86	Mexico (east)	Chihuahua

*Cell was maintained but not used in the model described.

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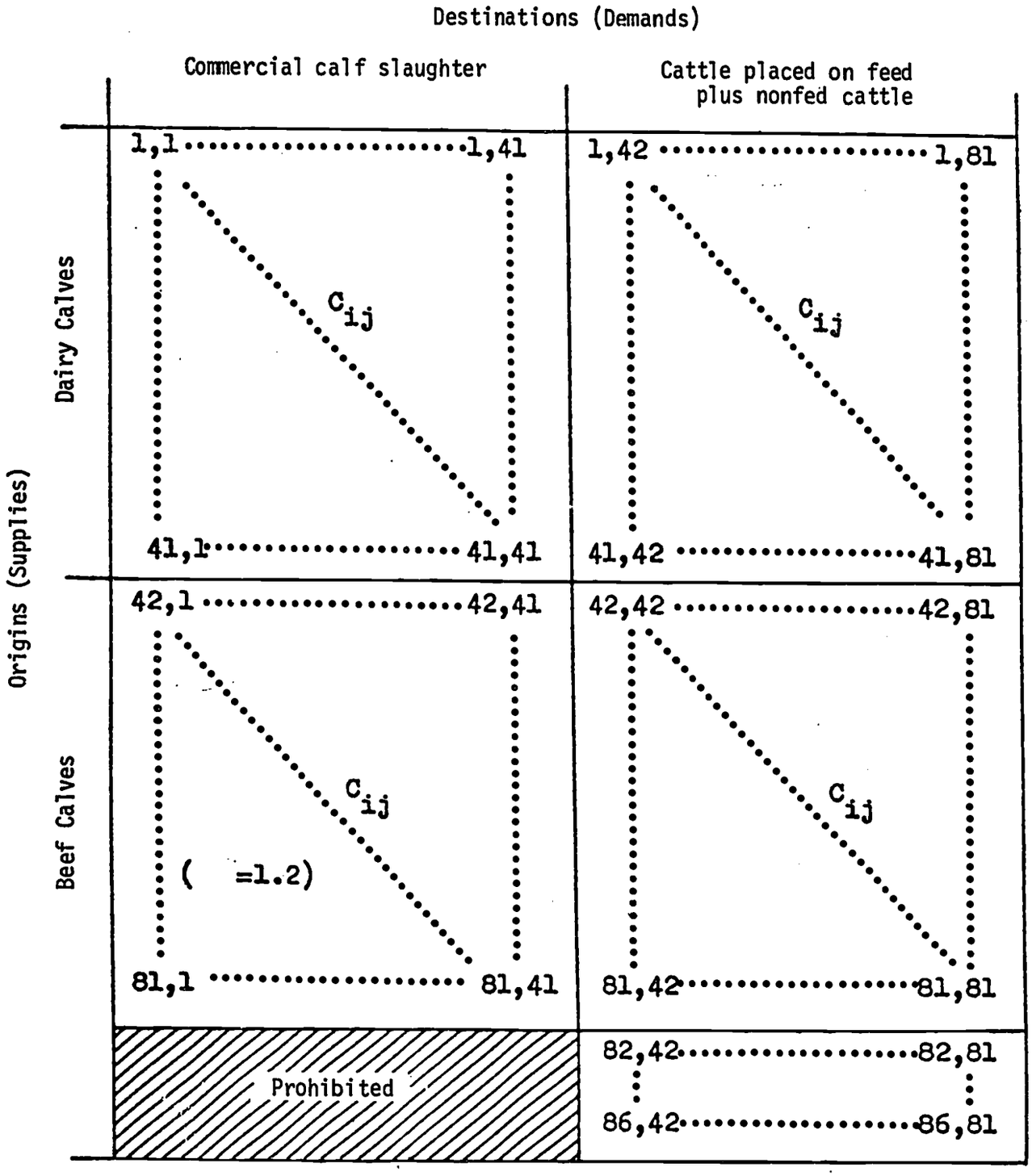

APPENDIX FIG. II.—General matrix form for the transportation analysis.

APPENDIX TABLE II (Cont.)—Allocation of Calves Sorted by Supply Regions, Number Shipped, Cost per Hundredweight, and Total Cost.

Supply Region†	Demand Region	Number Shipped	Cost per Hundred	Transportation Cost*	
				Slaughter	Feeding
				(Dollars)	
32	32	1,000	0.61	1,403	
	38	7,000	0.90	14,490	
	78	26,000	0.90		117,000
33	33	1,000	0.18	414	
	40	17,000	0.35	13,685	
	73	78,000	0.18		70,200
34	75	14,000	0.24		16,800
35	35	2,000	0.31	1,426	
	75	63,000	0.31		97,650
36	36	1,000	0.38	874	
	37	4,000	0.93	8,556	
	76	17,000	0.38		32,300
37	41	30,000	0.90	62,100	
38	41	53,000	1.22	148,718	
39	39	17,000	0.20	7,820	
	79	90,000	0.20		90,000
	80	16,000	0.66		52,800
40	41	69,000	1.44	228,528	
41	41	103,000	0.48	113,712	
	81	368,000	0.48		883,200
42	42	15,000	0.28		21,000
43	3	32,000	0.24	17,664	
44	4	4,000	0.13	1,196	
45	5	62,000	0.22	31,372	
46	46	217,000	0.25		271,250
47	48	294,000	0.38		558,600
48	51	561,000	0.54		1,514,700
49	49	74,000	0.25		92,500
50	50	94,000	0.30		141,000
	51	379,000	0.47		890,650
51	51	966,000	0.27		1,304,100
52	51	1,284,000	0.50		3,210,000
53	54	691,000	0.38		1,312,900
54	55	1,223,000	0.56		3,424,400
55	55	1,393,000	0.20		1,393,000
56	51	148,000	0.74		547,600
	55	809,000	0.56		2,265,200
	56	271,000	0.22		298,100
57	5	38,000	0.22	19,228	
58	18	120,000	0.24	66,240	
	45	156,000	0.51		397,800
	58	22,000	0.20		22,000
59	19	5,000	0.16	1,840	
	46	15,000	0.38		28,500
	58	40,000	0.38		76,000
	59	62,000	0.13		40,300
60	44	17,000	0.80		68,000
	57	64,000	0.56		179,200
	58	111,000	0.38		210,900
61	21	55,000	0.22	27,830	
	60	91,000	0.38		172,900
62	22	1,000	0.32	736	
	62	187,000	0.27		252,450
	64	278,000	0.63		875,700
	66	21,000	0.28		29,400

*Assume slaughter calves average weight equals 230 lb. and feeder cattle average weight equals 500 lb.

†Supply regions 2 through 41 are dairy calves, regions 42 through 81 are beef calves, and 82 through 86 represent foreign origins.

Source: Calculated from computer output.

APPENDIX TABLE II (Cont.)—Allocation of Calves Sorted by Supply Regions, Number Shipped, Cost per Hundredweight, and Total Cost.

Supply Region†	Demand Region	Number Shipped	Cost per Hundred	Transportation Cost*	
				Slaughter	Feeding
				(Dollars)	
63	23	177,000	0.43	175,053	
	61	53,000	0.88		233,200
	63	245,000	0.36		441,000
64	46	321,000	0.38		609,900
	47	336,000	0.38		638,400
65	48	569,000	0.66		1,877,700
66	25	54,000	0.46	57,132	
	48	235,000	1.00		1,175,000
	65	167,000	0.38		317,300
	66	90,000	0.27		121,500
67	27	4,000	0.36	3,312	
	48	237,000	1.10		1,303,500
	52	360,000	1.03		1,854,000
	67	57,000	0.30		85,500
	68	105,000	0.47		246,750
68	51	470,000	1.06		2,491,000
	52	67,000	0.65		217,750
69	29	120,000	0.23	63,480	
	52	400,000	0.98		1,960,000
	69	36,000	0.19		34,200
70	56	1,415,000	0.36		2,547,000
71	31	104,000	0.76	181,792	
	51	237,000	1.30		1,540,500
	70	543,000	0.59		1,601,850
	71	2,432,000	0.63		7,660,800
	77	13,000	1.55		100,750
	81	234,000	2.29		2,679,300
72	53	104,000	0.80		416,000
	72	271,000	0.61		826,550
	73	114,000	1.00		570,000
	74	125,000	0.88		550,000
	75	320,000	1.07		1,712,000
	78	179,000	0.90		805,500
73	73	326,000	0.18		293,400
	80	65,000	0.35		113,750
74	75	501,000	0.24		601,200
75	75	734,000	0.31		1,137,700
76	76	379,000	0.38		720,100
	77	87,000	0.93		404,550
77	81	224,000	0.90		1,008,000
78	81	413,000	1.22		2,519,300
79	79	269,000	0.20		269,000
80	80	146,000	0.32		233,600
	81	345,000	1.44		2,484,000
81	81	689,000	0.48		1,653,600
82	42	12,000	0.39		23,400
	43	33,000	0.47		77,550
83	49	33,000	0.31		51,150
84	79	29,000	0.85		123,250
85	77	174,000	0.65		565,500
86	77	528,000	1.17		3,088,800
Subtotal dairy calves (4,572,000 slaughter and 3,698,000 feeding)				4,460,708	6,689,900
Subtotal beef calves (738,000 slaughter and 24,294,000 feeding)				646,875	69,582,950
TOTAL				5,107,583	76,272,850

*Assume slaughter calves average weight equals 230 lb. and feeder cattle average weight equals 500 lb.

†Supply regions 2 through 41 are dairy calves, regions 42 through 81 are beef calves, and 82 through 86 represent foreign origins.

Source: Calculated from computer output.

APPENDIX B

Allocation of Commercial Slaughter, Death Losses, Replacement Rates

Commercial Slaughter

Federal inspected (FI) slaughter, which accounts for approximately 85 percent of commercial slaughter, is reported by slaughter categories (see Appendix Table III). Commercial slaughter is not similarly reported. The percentage distribution of FI slaughter categories was used to generate a percentage distribution for commercial slaughter. There is no evidence from previous research that this is not a satisfactory procedure. However, the procedure is subject to error to the extent that non-FI slaughter plants may tend to focus their activity on different market classes of cattle. This may be particularly true in the case of nonfed cattle, about which little is known. As nonfed cattle continue to decline in importance, problems in identification and classification of commercial slaughter will decrease.

Death Losses

Total 1968 cattle death losses were reported at 1,521,000 head.[24] This total was allocated to dairy and beef in the following manner:

348,773	from fed cattle marketings (1.5% of 23,251,000)[25]
850,000	beef cows (2.4% of 35,314,000 beef cow inventory)
322,227	dairy cows (2.2% of 14,626,000 dairy cow inventory)
1,521,000	total death losses

[24]Livestock and Meat Statistics Supplement for 1968 to Bulletin No. 333, p. 30. Statistical Reporting Service, USDA.
[25]Adjusted to include 39 states.

APPENDIX TABLE III.—Number and Percentage Distribution of Federal Inspected and Commercial Slaughter, 1968.

Slaughter Class	Federal Inspected Slaughter*	Percentage FI Slaughter	Commercial Slaughter Equivalent
Steers	15,361,000	51.9	18,178,702
Heifers	7,986,000	27.0	9,457,128
Cows	5,785,000	19.5	6,830,148
Bulls and Stags	459,000	1.6	560,422
Total	29,591,000	100.0	35,026,400*

*As reported in Livestock and Meat Statistics, Bull. 333, SRS, USDA.

Replacement Rates

From commercial cow slaughter of 6,830,148 head (Appendix Table III) and beef and dairy death rates (left), the beef cow replacement rate was derived as follows:

Commercial cow slaughter		6,830,148
Dairy cow replacement	3,575,000	
less dairy cow deaths	322,227	
Net dairy cows slaughtered		3,252,773
Net beef cows slaughtered		3,577,375
plus beef cow deaths	850,000	
plus ½ change in beef cow inventory	418,500	
Total adjustments		1,268,500
Total beef cows replaced		4,845,875

$$\text{Beef Cow Replacement Rate} = \frac{\text{Total Beef Cows Replaced}}{\text{January 1 Beef Cows 2 Years Old and Older}} = \frac{4,845,875}{35,314,000} = 13.72 \text{ percent}$$

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APPENDIX C

Allocation of Nonfed Cattle

A helpful insight for allocation of nonfed cattle is found in the 1964 Census of Agriculture which reports cattle sales in two categories: 1) all cattle sold, and 2) cattle fed grain and concentrate and sold for slaughter. The following procedure was used to estimate nonfed cattle in individual states:

All cattle sold, excluding calves (1964 Census) less cattle fattened and sold for slaughter (1964 Census) less replacement cows and bulls sold for slaughter (Appendix B) = residual of cattle marketings for other purposes.

This residual represents, in effect, the maximum number of nonfed cattle which can be allocated to any individual state. From this residual, a final allocation was determined. The collective residuals for individual states determined above yields a total (8,914,506 head) exceeding the national nonfed total (3,581,672 head). An allocation based on the national total is therefore required. However, allocation on the basis of a percentage distribution of residual marketings is unsatisfactory. For example, it might be reasonable to suppose that small Eastern states with dense population, little feeding, and large cattle deficits might yield a higher percentage of nonfed cattle in total slaughter marketings. Hence, states were divided into two categories: those in which total residual marketings were treated as nonfed marketings, and those in which the remaining possible total of nonfed cattle was allocated to individual states on the basis of the regional percentage distribution of residual marketings (see Appendix Table IV).

APPENDIX TABLE IV.—Allocation of 1968 Nonfed Cattle Marketings Based on Residual Marketings Calculated from 1964 Census.

State	Residual of Cattle Marketings for Other Purposes	Percent	Allocation of Nonfeds	Percent of Nonfeds
(States with all residual marketings treated as nonfeds)				
Maine	3,944		3,944	.11
New Hampshire	2,270		2,270	.06
Vermont	9,620		9,620	.27
Massachusetts	11,211		11,211	.31
Rhode Island	2,160		2,160	.06
Connecticut	5,234		5,234	.15
New York	18,165		18,165	.51
New Jersey	17,132		17,132	.48
Pennsylvania	18,297		18,297	.51
Ohio	134,080		134,080	3.74
Indiana	156,609		156,609	4.37
Michigan	120,131		120,131	3.35
Wisconsin	87,988		87,988	2.46
Delaware	3,137		3,137	.09
Maryland	23,732		23,732	.66
Virginia	134,101		134,101	3.74
West Virginia	62,127		62,127	1.73
North Carolina	38,943		38,943	1.09
South Carolina	27,504		27,504	.77
Geargia	68,055		68,055	1.90
Florida	125,082		125,082	3.49
Kentucky	187,660		187,660	5.25
Tennessee	117,115		117,115	3.27
Alobama	47,341		47,341	1.32
Mississippi	14,989		14,989	.42
Arkansas	79,014		79,014	2.21
Louisiana	19,146		19,146	.53
Subtotal	1,534,787		1,534,787	42.85
(States with o percentage af residual allocated os nonfeds)				
Illinois	252,641	3.42	70,010	1.95
Minnesota	308,069	4.17	85,364	2.38
Iowa	552,873	7.49	153,327	4.28
Missouri	343,938	4.66	95,394	2.66
North Dakota	157,436	2.13	43,603	1.22
Sauth Dakota	408,887	5.54	113,409	3.17
Nebraska	725,395	9.83	201,229	5.62
Kansas	992,826	13.45	275,334	7.69
Oklahoma	359,777	4.88	99,898	2.79
Texas	711,185	9.64	197,339	5.51
Montana	352,516	4.78	97,851	2.73
Idaho	206,734	2.80	57,319	1.60
Wyoming	238,454	3.23	66,121	1.85
Colorado	425,063	5.76	117,912	3.29
New Mexica	200,765	2.72	55,681	1.55
Arizona	149,948	2.03	41,556	1.16
Utah	57,560	.78	15,967	.45
Nevada	93,033	1.26	25,793	.72
Washington	175,823	2.38	48,721	1.36
Oregon	166,760	2.26	46,264	1.29
Califarnia	500,036	6.78	138,793	3.88
Subtotal	7,379,719		2,046,885	57.15
TOTAL	8,914,506		3,581,672	100.00

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APPENDIX D

Foreign Inshipments

The number, type, and location of cattle imported from Mexico and Canada were required for the analysis. In 1968, the U.S. received 702,000 head of cattle from Mexico which, based on the light weights reported, were intended principally for feeding.[26] Two points of origin were used for Mexican inshipments: Hermosillo representing western origins and Chihuahua representing eastern Mexico. Since the greatest concentration of Mexican cattle is in the eastern Gulf area, two-thirds of all Mexican inshipments (528,000) were allocated to Chihuahua.

The United States imported 322,000 cattle from Canada in 1968.[26] Careful treatment of these Canadian cattle is critical due to the length of the international boundary and to the fact that small Canadian calves move both to feedlots and to slaughter. With the assistance of the Foreign Agricultural Service, USDA, an examination was made of the unpublished record of individual Canadian inshipment transactions recorded in 1969. The examination revealed that 13 ports of entry accounted for 95.4 percent of total inshipments and 98.0 percent of all inshipments for slaughter during 4 sample months of that year.[27] Three dominant ports of entry were Montreal (eastern Canada), Port Huron (central Canada), and Calgary (western Canada); these were selected as basing points for the analysis. On the basis of the 1969 sample data, 1968 inshipments were identified for feedlot and slaughter use and proportionately allocated to each of the three basing points (Appendix Table V).

[26]U. S. Foreign Agricultural Trade by Countries, Calendar Year 1968. Foreign Agricultural Trade of the United States, monthly supplement, February 1970, Economic Research Service, USDA.

[27]Compiled from unpublished records maintained by Foreign Agricultural Service, USDA, Washington, D. C. Sample months were January, April, July, and October.

Appendix Table V.—Inshipments of Cattle from Canada. Allocation of Total Inshipments to Regional Origins, by Intended Use, 1968.

Region and Sample Ports of Entry	FAS Sample Data			Allocation of 1968 Inshipments		
	Number for Slaughter	Total Number	Percent Slaughter	Number for Slaughter	Number for Feeding	Total Inshipments
Montreal (East)	46,280	57,851	80.00	178,491	44,623	223,114
Champlain, N.Y.	20,220	22,130				
Ogdensburg, N.Y.	18,500	18,576				
Alexandria Bay, N.Y.	1,865	6,330				
Buffalo, N.Y.	1,495	5,325				
Richford, Vt.	1,900	1,910				
Highgate Springs, Vt.	2,390	2,640				
Harton, Maine	310	940				
Port Huron (Central)	2,165	10,615	20.40	8,349	32,577	40,926
Port Huron, Mich.	370	3,795				
Pembena, N. Dak.	1,795	6,820				
Calgary (West)	7,415	15,025	49.35	28,603	29,357	57,960
Sweet Grass, Mont.	2,030	3,320				
Port Idaho, Idaho	4,160	5,375				
Blaine, Wash.	1,085	2,090				
Orville, Wash.	140	4,240				
Total	55,860	83,491	66.91	215,443	106,557	322,000

Source: Sample data, Foreign Agricultural Service, and calculations.

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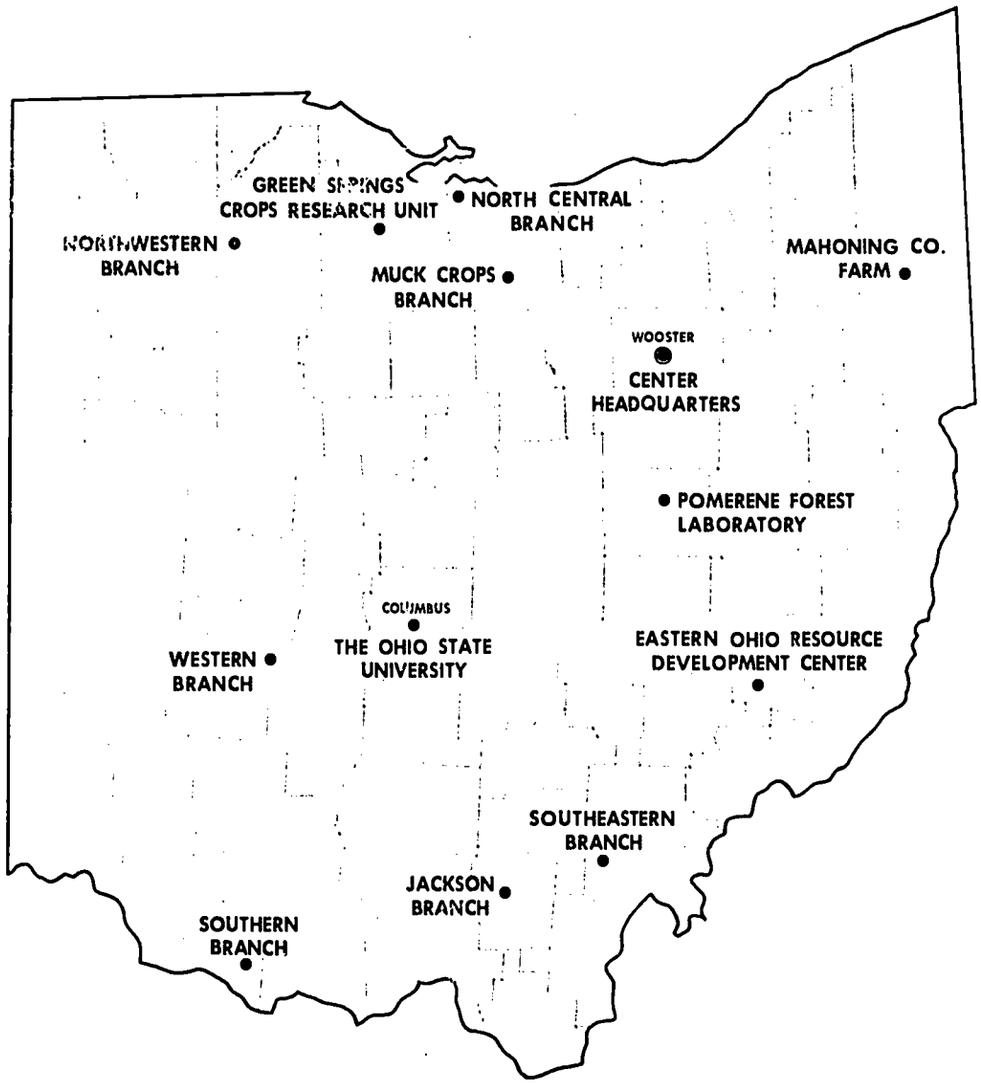

Ohio's major soil types and climatic conditions are represented at the Research Center's 13 locations. Thus, Center scientists can make field tests under conditions similar to those encountered by Ohio farmers.

Research is conducted by 15 departments on more than 6500 acres at Center headquarters in Wooster, nine branches, Green Springs Crops Research Unit, Pomerene Forest Laboratory, and The Ohio State University.

Center Headquarters, Wooster, Wayne County: 1953 acres

Eastern Ohio Resource Development Center, Caldwell, Noble County: 2053 acres

Green Springs Crops Research Unit, Green Springs, Sandusky County: 26 acres

Jackson Branch, Jackson, Jackson County: 344 acres

Mahoning County Farm, Canfield: 275 acres

Muck Crops Branch, Willard, Huron County: 15 acres

North Central Branch, Vickery, Erie County: 335 acres

Northwestern Branch, Hoytville, Wood County: 247 acres

Pomerene Forest, Laboratory, Keene Township, Coshocton County: 227 acres

Southeastern Branch, Carpenter, Meigs County: 330 acres

Southern Branch, Ripley, Brown County: 275 acres

Western Branch, South Charleston, Clark County: 428 acres

VT 016 683
BARNES, JAMES R.; BAKER, RICHARD A.
EMPLOYMENT TRENDS AND EDUCATIONAL NEEDS IN FARMING IN ALABAMA.

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DESCRIPTORS - *EMPLOYMENT TRENDS; *FARMERS; *FARM OCCUPATIONS; *EDUCATIONAL NEEDS; QUESTIONNAIRES; TABLES (DATA); STATE SURVEYS; *ADULT FARMER EDUCATION; VOCATIONAL EDUCATION; VOCATIONAL DEVELOPMENT; PARTICIPANT CHARACTERISTICS
IDENTIFIERS - *ALABAMA

ABSTRACT - THE PURPOSE OF THIS STUDY, UNDERTAKEN AS A RESEARCH AND DEVELOPMENT REPORT, WAS TO DETERMINE EMPLOYMENT TRENDS AND TRAINING NEEDS ON SELECTED ALABAMA FARMS. MAILING SURVEY QUESTIONNAIRES TO 1,100 PRODUCERS OF VARIED FARM PRODUCTS WHO WERE NOMINATED AS OUTSTANDING FARM OPERATORS PRODUCED 361 USABLE SURVEY INSTRUMENTS. SOME SIGNIFICANT FINDINGS WERE: (1) THE AVERAGE FARM SIZE WAS 1027.3 ACRES, (2) FIFTEEN PERCENT OF THE PRODUCERS WERE PART-TIME, (3) OVER 51% OF THE FARMS PRODUCED BOTH CROPS AND ONE OR MORE TYPES OF LIVESTOCK, (4) TIMBER RANKED FIRST AMONG SECONDARY PRODUCTION ENTERPRISES, (5) FARM EMPLOYMENT DECLINED AT THE RATE OF 1.62% OF FULL-TIME AND 1.96% OF PART-TIME EMPLOYEES PER YEAR FROM 1967 THROUGH 1970, (6) THE MODAL AGE CATEGORY OF RESPONDING PRODUCERS WAS 45 TO 54, AND (7) 55.7 PERCENT OF THEM STUDIED VOCATIONAL AGRICULTURE IN HIGH SCHOOL, 28.8 PERCENT ATTENDED COLLEGE AND 64 PERCENT MAJORED IN AGRICULTURE WHILE ATTENDING COLLEGE. FIVE TABLES PRESENT THE DATA. THE SURVEY INSTRUMENT IS INCLUDED. (AG)

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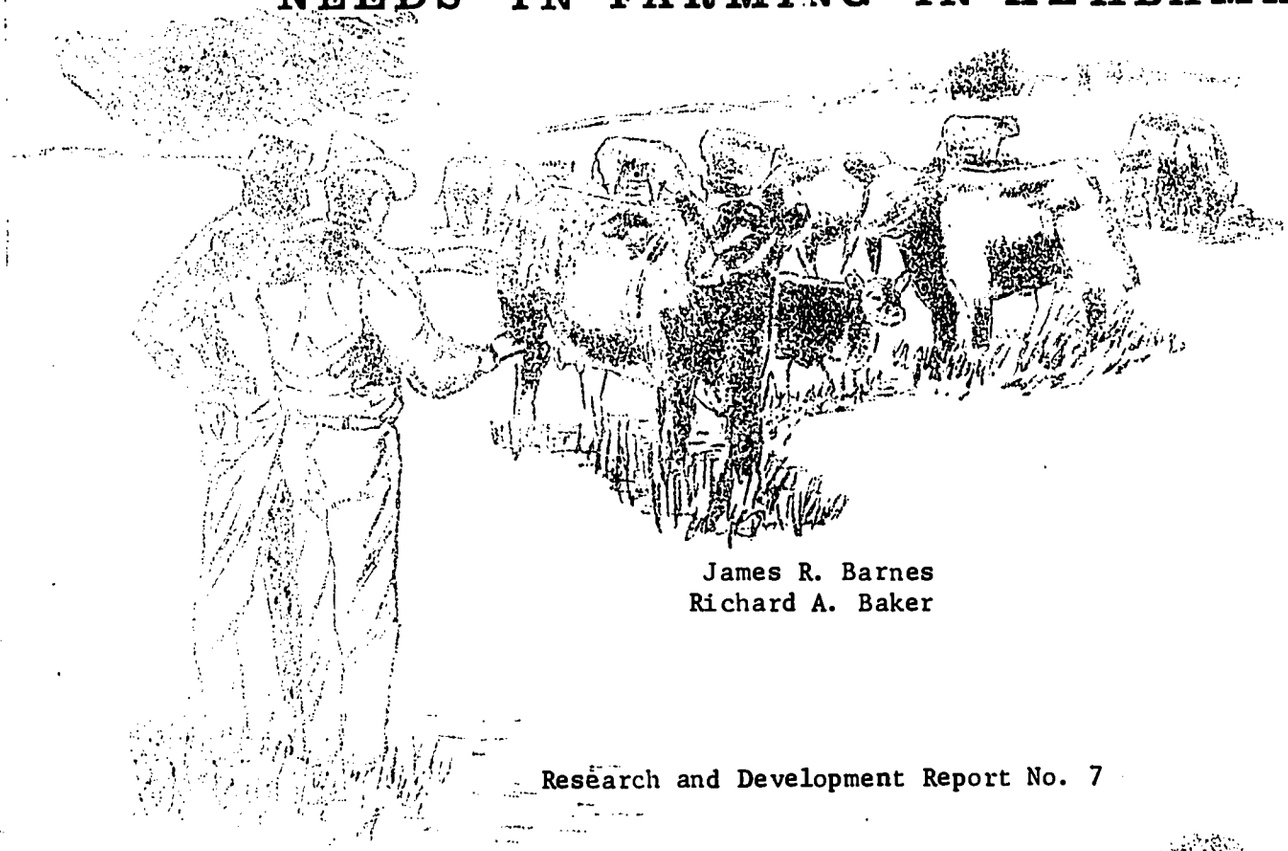
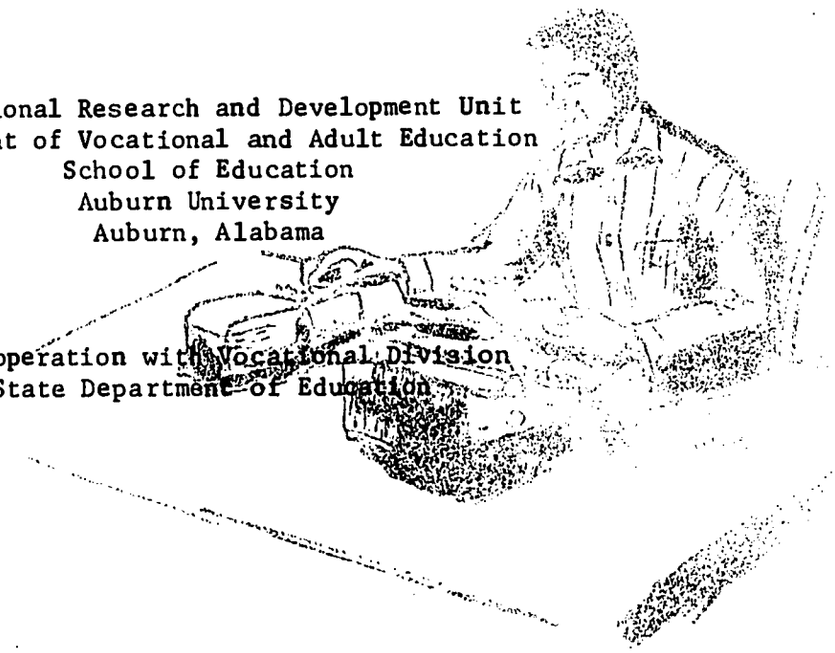


James R. Barnes
Richard A. Baker

Research and Development Report No. 7

Occupational Research and Development Unit
Department of Vocational and Adult Education
School of Education
Auburn University
Auburn, Alabama



In Cooperation with Vocational Division
State Department of Education

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The Occupational Research and Development Unit has been established as a service unit to stimulate and activate research and development activities in vocational education.

The major objectives of the unit are:

1. Stimulate activities which will result in increasing interest and improving competence in research through individual consultation and pre-service research and development training programs.

2. Provide assistance for individuals and groups in vocational education with research design and methodology.

3. CONDUCT RESEARCH IN VOCATIONAL EDUCATION.

4. Provide research and program development assistance to local and state level agencies.

5. Disseminate relevant research findings in vocational-technical education.

6. Coordinate research and research related activities in vocational education.

The Unit's efforts are directed toward serving public school programs; however, this will not be its sole concern. The Unit's role necessitates working with businesses, agencies, and organizations outside the formal structure of public education, especially those that conduct program activities that are related to or have implication for program development in vocational education.

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EMPLOYMENT TRENDS AND EDUCATIONAL NEEDS IN FARMING IN ALABAMA

James R. Barnes
Richard A. Baker

Occupational Research and Development Unit
Department of Vocational and Adult Education
School of Education
Auburn University
Auburn, Alabama

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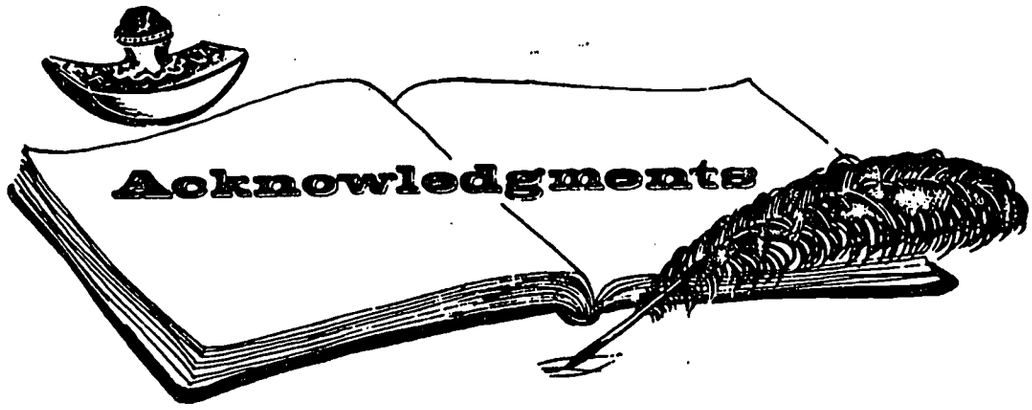

The investigators express their appreciation to all who cooperated in this study including the Alabama farmers surveyed, the following organizations:

County Extension Chairmen

Vocational Agribusiness Service

Alabama Farm Bureau

The Progressive Farmer

and to the following individuals:

Mrs. Joanie Sledge

Mr. Dan Hoagland.

SUMMARY

The primary purpose of this study was to determine employment trends and training needs on selected Alabama farms.

Survey instruments were mailed state-wide to 1110 producers, of varied farm products, nominated as outstanding farm operators. Of the producers surveyed, 362 (32.6%) returned usable instruments.

Some significant findings based on the survey were as follows:

1. The average size farm of those producers reporting was 1027.3 acres.
2. Fifteen percent of the reporting producers were part-time.
3. Over 51% of the farms were producing both crops and one or more types of livestock.
4. Timber ranked first among secondary production enterprises.
5. From 1967 through 1970, farm employment, based on the survey, declined at the rate of 1.62% of full-time and 1.96% of part-time employees per year.
6. The modal age category of responding producers was 45-54.
7. Of those producers responding to each item, 55.7% studied vocational agriculture in high school, 28.8% attended college and 64.0% majored in agriculture while attending college.

II INTRODUCTION

Few occupations have changed their complexions as have those on Alabama farms in recent years. For the current farm to operate as an economic success, its operator must manage the resources at his disposal with economic efficiency. Such efficiency requires that the operator and his employees possess the ability to perform production, managerial and other activities vital to successful farming. If vocational education programs are to meet the educational needs of today's farm workers, studies to determine such needs are vital to vocational program planning. This study was intended to provide information on employment trends and training needs of Alabama farms.

Outstanding farm operators were nominated for inclusion in this study by farm oriented organizations. Leading producers were selected for study in order to determine the training needs on commercial farms and to provide vocational curriculum planners with pertinent information from successful farmers in various production areas.

Purpose of the Study

The specific objectives of this study were:

1. To determine employment trends on selected types of Alabama farms.
2. To investigate sociological characteristics of selected outstanding farm operators in Alabama.
3. To determine frequency of performance of farm operation activities on selected farms in Alabama.
4. To determine the demand for and type of additional training needed by farmers and farm workers in Alabama.

III METHODOLOGY

The data in this report were based on a data gathering instrument (Appendix) returned by 362 farm operators in Alabama in 1970. The survey consisted of 1110 farm operators located throughout the state. Farm operators included in the survey were considered outstanding producers in various commodity areas. Survey instruments were mailed to producers recognized by the Progressive Farmer as Master Farmers, by the Alabama Farm Bureau as outstanding Young Farmers, and to producers selected by County Extension Chairman. The mailed instruments were returned by 32.6 percent of the surveyed operators.

Data from the returned instruments were transferred to data processing cards. A computer was used to compute simple frequency tabulations, percentages and measures of central tendency.

IV PRESENTATION OF DATA

Detailed Farm Data

Table 1 shows that the average size farm of the responding operators was approximately 1,027 acres. Full-time operators amounted to 84.8 percent of the total responding. Part-time operators worked off their farms over half of their working hours.

Table 1. Characteristics of Alabama Farms Surveyed, 1970

Item	Number	Mean	Percent
Acres Farmed	371,889.0	1027.3	
Full-time operator	307		84.8
Part-time operator	55		15.2
Total	362		100.0
Hours worked on farm	1,280.0	21.3	40.7
Hours worked off farm	1,868.0	27.1	59.3
Total	3,148.0		100.0
Farm Type			
Crops only	54		15.2
Cattle only	61		17.2
Swine only	13		3.7
Livestock only (beef & swine)	16		4.5
Livestock and crops	183		51.5
Miscellaneous	28		7.9
Total	355		100.0
Other Production Enterprises			
Egg	24		10.1
Broiler	22		9.3
Milk	48		20.3
Timber	143		60.3
Total	237		100.0

Farms surveyed were classified by the commodity produced. The most often occurring farm type was the combination of livestock and crops. The livestock and crops farm type accounted for 51.5 percent of all farm operations reported, while cattle only type (17.2%) and crops only type (15.2%) followed in order of greatest frequency of occurrence.

Table 2 indicates that full-time employment on the surveyed farms declined at the yearly rate of 1.62 percent over the period from 1967 through 1970. Part-time employment dropped at the faster rate of 1.96 percent yearly. Average employment per farm, both full-time and part-time, declined during the same period.

Table 2. Employment on Selected Farms in Alabama, 1967 through 1970

Item	Employment				Average Annual Change
	1967	1968	1969	1970	Percent
Employees[1]					
Full-time	1399	1355	1268	1284	-1.62
Mean	4.6	4.4	4.1	4.2	
Part-time	1544	1493	1442	1372	-1.96
Mean	6.1	5.8	5.2	4.8	

[1]Includes family labor.

Table 3 shows that over 77 percent of the employees hired on the reporting farms during the twelve months prior to the survey were part-time workers. Reported vacancies, as well as planned employee reductions, were largely part-time positions.

Table 3. Employment Characteristics on Selected Farms in Alabama, 1970

Item	Employees						
		Full-Time			Part-Time		
	Total	Number	Mean	Percent of Total	Number	Mean	Percent of Total
Hired, past 12 months	2373	539	2.8	22.7	1834	7.1	77.3
Current vacancies	684	226	2.2	33.0	458	3.7	67.0
Planned reduction	148	46	2.0	31.1	102	3.5	68.9

Detailed Farm Operator Data

Table 4 reveals that approximately 27 percent of the farm operators who responded were in the 45-54 year old age category. The 45-54 category recorded the largest number of operators; with almost 25 percent recorded in the age group 55-64, ranking second; and the 35-44 age group ranking third at just over 24 percent of total responding operators. Less than 7 percent were 65 and over, while less than 3 percent were 24 or younger.

Almost 56 percent of the responding farm operators studied vocational agriculture in high school. Over 28 percent of the operators attended college and 64 percent of those attending college majored in agriculture.

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Table 4. Characteristics of Alabama Farmers Surveyed, 1970

Item	Number	Mean	Percent
Farmers Aged:			
0-24	10		2.8
25-34	51		14.1
35-44	88		24.3
45-54	99		27.3
55-64	90		24.9
65 and over	24		6.6
Total	362		100.0
Studied Vocational Agriculture in High School			
Yes	196		55.7
No	156		44.3
Total	352		100.0
Attended College			
Yes	102		28.8
No	252		71.2
Total	354		100.0
Majored in Agriculture			
Yes	64		64.0
No	36		36.0
Total	100		100.0
Children under 18	269	2.3	

A major objective of the study was to assess the training needs of outstanding Alabama farmers. Through the means of a checklist (Appendix) farm operators were asked what activities they or their employees performed. From the same list, the operators were asked to check those activities for which they felt additional training would be helpful to themselves or their workers in the performance of those activities. The resulting table is potentially useful as a guide when planning adult extension classes, post-secondary agribusiness programs and secondary agribusiness programs.

Table 5 was developed to present the frequence with which farm operators and their employees performed various activities. Column headings one through six indicate a type of farm operation as explained in the notation at the bottom of Table 5. The first item under column number one indicates that 77.8 percent of the operators or employees of farms which produced only crops, prepared soil for planting. Column seven represents the responses of all farm operators cooperating in the survey. The first item under the column heading number seven (67.9%) indicates that 67.9 percent of all the farm types had workers performing soil preparation for planting activities.

Table 5 also contains indications by the farm operators of the kinds of activities for which additional training would be helpful for themselves or their employees. As detailed above, column numbers correspond with farm types as noted below the table. The first figure under column number one shows that 24.1 percent of the farm operators who produce only crops indicated that they or their employees need additional training in the area of soil preparation and planting. Columns seven in the "training helpful" section of Table 5, contains the combined responses of all farm types.

Table 5. Percentage Response of Farmers to Activities by Type of Farm

Activities	Percent Respondents													
	Performing Activity							Indicated training would be helpful						
	Farm Type*							Farm Type*						
Production Activities	1	2	3	4	5	6	7	1	2	3	4	5	6	7
1. Preparing soil for planting.	77.8	54.1	38.5	68.8	74.9	67.9	67.9	24.1	21.3	7.7	25.0	23.5	0.0	20.3
2. Determining quality and quantity of production items such as fertilizer & seed to purchase.	72.2	55.7	46.2	68.8	66.7	60.7	62.9	37.0	29.5	23.1	37.5	36.6	7.7	31.9
3. Planting field, grain, and forage crops.	72.2	50.8	38.5	68.8	72.7	57.1	64.6	31.5	23.0	15.4	12.5	25.7	7.1	23.1
4. Liming and fertilizing crops.	70.4	54.1	46.2	75.0	66.1	64.3	62.6	37.0	29.5	15.4	25.0	32.8	10.7	29.4
5. Using chemical weed and brush killers.	66.7	37.7	30.8	50.0	65.0	53.6	56.3	57.4	32.8	23.1	37.5	52.5	50.0	46.7
6. Controlling insects and diseases in crops.	66.7	26.2	23.1	37.5	59.6	39.3	49.7	50.0	31.1	23.1	43.8	57.9	32.1	47.0
7. Harvesting field, grain & forage crops.	64.8	44.3	30.8	50.0	68.3	57.1	59.1	25.9	14.8	23.1	0.0	25.1	10.7	20.6
8. Storing field, grain & forage crops.	55.6	36.1	30.8	43.8	62.3	53.6	52.7	25.9	18.0	15.4	12.5	23.0	3.6	19.8
9. Deciding on methods for staying within limits & tolerances for pesticides, other chemicals and production materials.	59.3	27.9	30.8	25.0	45.4	50.0	42.3	57.4	34.4	38.5	50.0	55.2	39.3	48.6
10. Selecting breeding stock.	37.0	54.1	53.8	81.3	58.5	64.3	54.4	24.1	41.0	30.8	37.5	50.8	28.6	40.9
11. Selecting feed rations.	29.6	44.3	53.8	50.0	54.1	53.6	47.3	18.5	41.0	30.8	37.5	54.1	42.9	42.9
12. Planning and using various manure disposal methods.	22.2	16.4	46.2	43.8	30.1	46.4	28.3	16.7	19.7	15.4	37.5	37.7	46.4	30.5
13. Maintaining a healthy herd or flock.	31.5	47.5	53.8	56.3	53.6	50.0	47.8	25.9	41.0	46.2	37.5	59.0	57.1	48.1
14. Managing a woodland.	27.8	29.5	7.7	50.0	32.2	28.6	29.9	29.6	24.6	15.4	31.3	42.6	28.6	34.1

*Farm Types: 1. Crops only 2. Cattle only 3. Swine only 4. Stock only 5. Crops and Stock 6. Miscellaneous 7. All farm types.

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Table 5 (cont.)

Activities	Percent Respondents													
	Performing Activity							Indicated training would be helpful						
	Farm Type*							Farm Type*						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Managerial Activities														
1. Establishing farm production goals.	64.8	44.3	46.2	37.5	57.4	42.9	52.5	48.1	26.2	23.1	18.8	36.1	28.6	33.5
2. Planning a cropping system.	74.1	36.1	30.8	43.8	64.5	35.7	55.2	35.2	21.3	15.4	12.5	33.3	14.3	27.7
3. Planning a livestock production system.	37.0	54.1	38.5	68.8	60.1	50.0	53.0	25.9	31.1	30.8	18.8	44.3	28.6	35.4
4. Keeping farm records.	72.2	52.5	53.8	75.0	62.8	60.7	61.0	44.4	31.1	30.8	18.8	41.5	35.7	37.4
5. Planning farm labor requirement.	66.7	49.2	15.4	62.5	58.5	53.6	54.9	20.4	21.3	7.7	12.5	25.1	14.3	21.2
6. Planning machinery needs.	68.5	57.4	38.5	81.3	64.5	57.1	61.5	25.9	26.2	23.1	12.5	26.2	10.7	23.6
7. Selecting sources of credit & arranging for credit, capital involved.	59.3	39.3	38.5	50.0	63.4	42.9	54.1	25.9	23.0	7.7	25.0	25.7	25.0	23.9
8. Planning records that will be most effective for management, financing, and tax returns.	63.0	39.3	53.8	62.5	52.5	46.4	50.5	53.7	41.0	38.5	37.5	54.1	42.9	48.4
9. Using outside technical or professional assistance in keeping and analyzing farm records and accounts.	37.0	26.2	38.5	25.0	38.3	25.0	33.5	38.9	24.6	15.4	6.3	41.0	32.1	33.8
10. Managing a livestock herd.	35.2	59.0	38.5	75.0	65.5	64.3	57.7	25.9	37.7	7.7	43.8	39.3	32.1	34.6
11. Managing a poultry flock.	5.6	8.2	7.7	25.0	7.1	10.7	8.0	11.1	8.2	0.0	31.3	10.4	7.1	10.2
12. Managing a broiler production unit.	1.9	11.5	7.7	0.0	6.6	7.1	6.3	13.0	11.5	7.7	12.5	10.9	10.7	11.0
13. Utilizing rental or contractual arrangements.	37.0	21.3	0.0	18.8	30.1	21.4	26.6	29.6	19.7	7.7	12.5	23.5	10.7	21.2
14. Arranging time and conditions for contract labor.	18.5	24.6	15.4	12.5	15.8	14.3	17.0	14.8	13.1	7.7	25.0	15.3	10.7	14.3
15. Choosing marketing agencies, & time, place, method & conditions of sale.	38.9	41.0	46.2	50.0	51.4	28.6	44.5	33.3	24.6	23.1	31.3	31.3	10.7	27.7

*Farm Types: 1. Crops only 2. Cattle only 3. Swine only 4. Stock only 5. Crops and Stock 6. Miscellaneous 7. All farm types

Table 5 (cont.)

Activities	Percent Respondents													
	Performing Activity							Indicated training would be helpful						
	Farm Type*							Farm Type*						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
16. Determining the kind and amount of insurance for buildings and real estate liability.	59.3	45.9	30.8	56.3	55.7	46.4	51.6	29.6	27.9	23.1	31.3	36.1	25.0	31.3
17. Determining the kind and amount of crop & livestock insurance needed.	31.5	27.9	15.4	50.0	33.9	17.9	30.5	20.4	31.1	15.4	31.3	30.6	21.4	27.2
18. Arranging time and conditions for contract machinery & other services.	33.3	19.7	7.7	12.5	30.6	21.4	26.1	20.4	19.7	7.7	18.8	19.1	10.7	17.9
19. Interpreting government programs.	53.7	37.7	23.1	50.0	49.7	25.0	44.2	55.6	29.5	15.4	43.8	51.9	32.1	44.2
20. Deciding when to use legal counsel.	42.6	36.1	7.7	50.0	40.4	46.4	38.7	27.8	31.1	7.7	25.0	33.3	17.9	28.8
21. Deciding whether outside professional management is desirable.	33.3	23.0	23.1	31.3	27.9	32.1	27.5	33.3	26.2	30.8	0.0	29.0	25.0	26.9
22. Deciding contract terms & negotiating sales contracts.	27.8	26.2	30.8	37.5	38.3	35.7	33.2	31.5	27.9	15.4	37.5	35.0	35.7	31.9
Electrification														
1. Planning electrical wiring needs.	27.8	36.1	23.1	50.0	38.8	32.1	35.2	42.6	34.4	38.5	50.0	54.1	46.4	46.4
2. Selecting electrical wiring materials.	22.2	26.2	23.1	37.5	33.3	28.6	29.1	35.2	31.1	38.5	50.0	49.7	46.4	42.6
3. Installing wiring between farm buildings.	25.9	29.5	30.8	50.0	40.4	32.1	34.9	37.0	27.9	15.4	50.0	42.6	46.4	37.9
4. Installing main switch & fuse boxes.	18.5	24.6	23.1	50.0	28.4	25.0	26.1	42.6	29.5	30.8	50.0	47.0	50.0	42.0
5. Installing interior electrical wiring.	18.5	27.9	30.8	50.0	30.1	32.1	28.3	38.9	29.5	23.1	50.0	43.2	50.0	39.3

*Farm Types: 1. Crops only 2. Cattle only 3. Swine only 4. Stock only 5. Crops and Stock 6. Miscellaneous 7. All farm types

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Table 5 (cont.)

Activities	Percent Respondents													
	Performing Activity							Indicated training would be helpful						
	Farm Type*							Farm Type*						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
6. Installing electrical switches and outlets.	25.9	29.5	38.5	50.0	37.7	35.7	34.1	35.2	27.9	23.1	37.5	37.7	42.9	34.6
7. Installing electrical lighting fixtures.	24.1	24.6	30.8	50.0	36.6	32.1	31.9	35.2	27.9	23.1	37.5	36.6	28.6	33.0
8. Selecting electric motors for farm use.	25.9	24.6	38.5	50.0	35.5	32.1	31.9	35.2	32.8	38.5	43.8	44.8	50.0	40.4
9. Replacing electrical cords & plugs.	38.9	39.3	46.2	62.5	54.1	50.0	47.8	29.6	19.7	23.1	31.3	29.5	25.0	26.6
10. Reversing the rotation of electric motors.	18.5	19.7	23.1	50.0	28.4	28.6	25.5	35.2	29.5	38.5	43.8	40.4	50.0	37.6
11. Wiring for electric motors.	9.3	14.8	15.4	43.8	20.8	25.0	18.7	37.0	31.1	30.8	50.0	44.3	35.7	39.0
12. Installing electric fences.	38.9	31.1	38.5	56.3	50.8	39.3	43.4	18.5	16.4	15.4	12.5	23.0	21.4	19.8
13. Installing electric motors on equipment.	25.9	29.5	30.8	56.3	39.9	35.7	35.2	27.8	21.3	30.8	31.3	31.1	32.1	28.3
14. Grounding frames of all electrical equipment.	22.2	21.3	30.8	62.5	29.0	32.1	27.7	27.8	27.9	15.4	18.8	39.3	39.3	33.0
Farm Mechanics														
1. Building equipment in farm shop.	51.9	34.4	7.7	25.0	49.2	32.1	42.0	37.0	34.4	7.7	37.5	36.6	39.3	34.6
2. Repairing major pieces of equipment in shop.	51.9	32.8	15.4	37.5	46.4	32.1	41.2	31.5	36.1	15.4	25.0	47.0	39.3	39.0
3. Selecting shop equipment.	40.7	36.1	7.7	50.0	53.0	39.3	44.2	27.8	24.6	15.4	18.8	27.3	25.0	25.3
4. Sharpening hand tools.	51.9	47.5	30.8	68.8	66.7	53.6	57.4	20.4	19.7	0.0	12.5	19.7	28.6	19.0
5. Replacing handles in tools.	51.9	54.1	38.5	68.8	70.5	53.6	60.7	16.7	11.5	7.7	18.8	15.3	17.9	14.6
6. Constructing equipment for use on farm.	40.7	36.1	23.1	56.3	47.0	46.4	42.6	27.8	31.1	7.7	37.5	35.5	32.1	31.6

*Farm Types: 1. Crops only 2. Cattle only 3. Swine only 4. Stock only 5. Crops and Stock 6. Miscellaneous 7. All farm types

Table 5 (cont.)

Activities	Percent Respondents													
	Performing Activity							Indicated training would be helpful						
	Farm Type*							Farm Type*						
Farm Buildings and Conveniences	1	2	3	4	5	6	7	1	2	3	4	5	6	7
1. Constructing major farm buildings.	57.4	39.3	38.5	56.3	56.3	39.3	50.3	38.9	27.9	23.1	37.5	34.4	42.9	33.5
2. Applying roofing materials.	55.6	49.2	46.2	68.8	60.7	57.1	56.0	25.9	18.0	23.1	25.0	24.0	28.6	23.1
3. Painting farm buildings.	57.4	47.5	30.8	50.0	62.3	57.1	55.5	20.4	14.8	7.7	25.0	16.4	10.7	15.9
4. Planning and building fences.	55.6	59.0	53.8	75.0	73.2	60.7	64.8	20.4	19.7	23.1	25.0	19.1	17.9	19.2
5. Installing ventilating systems in buildings.	7.4	19.7	7.7	43.8	22.4	21.4	19.5	31.5	21.3	30.8	50.0	37.2	21.4	31.9
6. Applying insulating materials.	13.0	21.3	30.8	43.8	36.1	28.6	28.8	29.6	11.5	23.1	37.5	27.3	21.4	24.2
7. Repairing farm structures.	64.8	49.2	46.2	81.3	69.4	42.9	61.3	27.8	19.7	30.8	18.8	21.3	21.4	21.7
8. Installing plumbing for water lines.	50.0	50.8	46.2	75.0	59.6	57.1	55.2	31.5	16.4	15.4	25.0	21.9	25.0	22.0
9. Installing farm water systems.	37.0	39.3	23.1	75.0	54.6	39.3	46.7	29.6	13.1	30.8	25.0	29.0	21.4	25.0
10. Constructing concrete septic tanks.	9.3	16.4	7.7	18.8	21.9	21.4	17.9	27.8	16.4	7.7	25.0	24.6	14.3	21.7
11. Repairing plumbing or water lines.	51.9	49.2	53.8	68.8	63.9	57.1	57.4	31.5	14.8	23.1	25.0	18.0	21.4	19.8
12. Constructing vertical silos.	1.9	6.6	0.0	0.0	3.8	3.6	3.6	24.1	21.3	0.0	37.5	29.5	10.7	24.5
13. Constructing trench or horizontal silos.	3.7	9.8	7.7	6.3	18.0	10.7	12.6	24.1	21.3	15.4	37.5	26.8	10.7	23.6
14. Installing bathroom fixtures.	27.8	23.0	15.4	50.0	36.6	35.7	31.9	29.6	14.8	15.4	25.0	24.6	10.7	21.7
15. Mixing concrete used on farm.	37.0	31.1	38.5	75.0	47.5	39.3	42.3	27.8	13.1	15.4	25.0	19.1	17.9	19.0
16. Buying concrete from ready-mix plant.	44.4	45.9	46.2	68.8	57.4	46.4	51.4	18.5	8.2	15.4	31.3	15.8	17.9	15.4
17. Pouring concrete on the farm.	50.0	34.4	38.5	75.0	60.7	53.6	52.5	25.9	16.4	23.1	31.3	22.4	21.4	21.7
18. Constructing building with concrete blocks.	18.5	14.8	23.1	31.3	25.7	32.1	22.8	33.3	18.0	15.4	31.3	24.6	21.4	23.9
19. Landscaping farm homestead.	27.8	23.0	15.4	56.3	35.5	28.6	31.0	42.6	21.3	15.4	43.8	36.1	17.9	31.9

*Farm Types: 1. Crops only 2. Cattle only 3. Swine only 4. Stock only 5. Crops and Stock 6. Miscllaneous
7. All farm types

Table 5 (cont.)

Activities	Percent Respondents													
	Performing Activity							Indicated training would be helpful						
	Farm Type*							Farm Type*						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
Farm Power and Machinery Activities														
1. Using roughage handling feed equipment.	22.2	31.1	7.7	31.3	45.4	50.0	36.8	14.8	19.7	7.7	18.8	19.1	10.7	17.0
2. Using feed concentrate handling equipment.	13.0	23.0	30.8	50.0	37.2	50.0	31.6	18.5	18.0	23.1	37.5	19.7	7.1	18.7
3. Usinc crop drying equipment.	27.8	1.6	7.7	12.5	32.2	10.7	22.3	25.9	19.7	7.7	31.3	25.1	14.3	22.5
4. Repainting tractors and other equipment.	48.1	29.5	7.7	43.8	42.6	25.0	37.6	33.3	24.6	7.7	31.3	24.6	17.9	24.5
5. Completely overhauling tractor engines.	29.6	8.2	0.0	25.0	18.0	21.4	17.6	42.6	27.9	15.4	43.8	47.5	25.0	39.3
6. Performing preventative maintenance on tractors & farm equipment.	66.7	45.9	30.8	75.0	63.9	64.3	59.1	38.9	24.6	15.4	18.8	35.5	25.0	31.0
7. Determining size of pulleys & belts.	35.2	19.7	15.4	43.8	36.6	32.1	31.9	35.2	31.1	15.4	37.5	31.7	17.9	29.9
8. Replacing broken or worn parts when needed.	61.1	44.3	30.8	75.0	69.9	57.1	60.4	27.8	21.3	15.4	18.8	23.0	25.0	22.5
9. Welding broken machinery parts.	53.7	32.8	15.4	43.8	48.6	39.3	43.4	35.2	26.2	15.4	25.0	39.3	42.9	34.3
10. Hardsurfacing plowshares.	33.3	9.8	0.0	6.3	26.2	10.7	20.9	35.2	16.4	15.4	18.8	32.8	17.9	27.2
11. Setting-up and adjusting farm machinery under field conditions.	70.4	37.7	15.4	56.3	68.9	53.6	58.5	25.9	27.9	7.7	12.5	27.9	25.0	25.3
12. Repairing small gasoline engines	46.3	29.5	7.7	37.5	31.1	25.0	31.3	35.2	21.3	7.7	25.0	40.4	42.9	33.8
Soil and Water Management														
1. Managing & increasing soil productivity.	61.1	49.2	30.8	62.5	58.5	57.1	54.9	46.3	39.3	15.4	43.8	47.5	32.1	42.3
2. Planning location of terraces and waterways.	37.0	27.9	7.7	37.5	32.2	25.0	30.2	44.4	26.2	7.7	43.8	48.1	28.6	39.6
3. Constructing terraces & waterways.	31.5	27.9	15.4	43.8	42.6	32.1	35.7	40.7	26.2	7.7	37.5	42.6	25.0	35.7

*Farm Types: 1. Crops only 2. Cattle only 3. Swine only 4. Stock only 5. Crops and Stock 6. Miscellaneous
7. All farm types

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Table 5 (cont.)

Activity	Percent Respondents													
	Performing Activity							Indicated training would be helpful						
	Farm Type*							Farm Type*						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
4. Determining location for farm ponds.	24.1	29.5	7.7	37.5	31.7	21.4	28.0	40.7	32.8	7.7	43.8	35.0	17.9	32.7
5. Laying out farm ponds.	11.1	21.3	0.0	43.8	14.8	10.7	15.4	46.3	27.9	15.4	37.5	39.9	21.4	35.4
6. Constructing farm ponds.	13.0	16.4	0.0	50.0	13.7	3.6	14.0	44.4	29.5	15.4	43.8	35.5	14.3	33.0
7. Managing a farm pond.	18.5	26.2	7.7	50.0	27.3	35.7	26.1	44.4	31.1	15.4	43.8	35.5	28.6	34.3
8. Installing an irrigation system.	11.1	4.9	0.0	0.0	8.7	10.7	7.7	37.0	19.7	15.4	31.3	36.1	17.9	30.2
9. Constructing drainage ditches.	29.6	24.6	30.8	62.5	35.5	17.9	31.6	48.1	26.2	23.1	31.3	43.2	21.4	37.1

*Farm Types: 1. Crops only 2. Cattle only 3. Swine only 4. Stock only 5. Crops and Stock 6. Miscellaneous 7. All farm types

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APPENDIX

SURVEY OF EMPLOYMENT OPPORTUNITIES AND EDUCATIONAL NEEDS IN FARMING

Part I. Employment

1. What is the county number on the automobile tag for the county in which your farm is located? _____

2. Record the largest number of employees working for you on the farm at any one time during the years indicate.

	1967	1968	1969	1970
Number full-time (Include family labor)	____	____	____	____
Number part-time (Do not include your children less than 18 years of age)	____	____	____	____

3. Give the number of employees you hired during the last twelve months.

Number full-time _____ Number part-time _____

4. Give the number of farm workers needed to fill present vacancies.

Number full-time _____ Number part-time _____

5. Do you plan to reduce the number of farm workers now employed on your farm?

Number full-time _____ Number part-time _____

6. Estimate the number of workers you plan to add to your operations in each of the following years.

	1971	1973	1975
Number full-time	____	____	____
Number part-time	____	____	____

7. Indicate the number of workers who left your employment during the past twelve months for the following reasons.

	Number
a. Left to accept a job on another farm.	____
b. Total number who left (include those above and others who left)	____

8. Indicate number of your children working on the farm part-time less than 18 years of age _____.

9. Indicate size of your farm operation in acres. _____

10. Are you a full-time [ ] or part-time [ ] farm operator (check one).

11. If you are part-time operator, indicate number of hours per week you are engaged in other employment activities. _____

12. If you are a part-time operator indicate number of hours per week you devote to your farming operation _____.

13. Major type of farming operation (check only one, most appropriate)

- ☐ Field crops only (cotton, corn, soybeans, other grains)
- ☐ Beef cattle only
- ☐ Swine only
- ☐ Livestock only (Swine and beef)
- ☐ Field crops and one or more types of livestock
- ☐ None of the above describe my operation

14. In addition to the category checked above (check all that apply) do you produce:

- ☐ Eggs
- ☐ Broilers
- ☐ Milk
- ☐ Timber or pulpwood

Part II. Personal Data

15. What is your age _____

16. Did you take vocational agriculture in high school? Yes ☐ No ☐

17. Are you a college graduate? Yes No

18. If you are a college graduate, was your major agriculture? Yes ☐ No ☐

Part III. Job Activities

Instructions for completing:

Check (✓) this column only if you or your farm workers perform the activities listed below.

Check (✓) this column if you feel that additional training for any of the activities listed would be helpful to you or your workers.

Production Activities	Activity Performed	Training Helpful
1. Preparing soil for planting.		
2. Determining quality and quantity of production items such as fertilizer and seed to purchase.		
3. Planting field, grain, and forage crops.		
4. Liming and fertilizing crops.		

	Activity Performed	Training Helpful
5. Using chemical weed and brush killers.		
6. Controlling insects and diseases in crops.		
7. Harvesting field, grain, and forage crops.		
8. Storing field, grain & forage crops.		
9. Deciding on methods for staying within limits and tolerances for pesticides and other chemicals or production materials.		
10. Selecting breeding stock.		
11. Selecting feed rations.		
12. Planning and using various manure disposal methods.		
13. Maintaining a healthy herd or flock.		
14. Managing a woodland.		
Managerial Activities		
1. Establishing farm production goals.		
2. Planning a cropping system.		
3. Planning a livestock production system.		
4. Keeping farm records.		
5. Planning farm labor requirement.		
6. Planning machinery needs.		
7. Selecting sources of credit and arranging for credit, capital involved.		
8. Planning records that will be most effective for management, financing, and tax returns.		
9. Using outside technical or professional assistance in keeping and analyzing farm records and accounts.		
10. Managing a livestock herd.		
11. Managing a poultry flock.		
12. Managing a broiler production unit.		
13. Utilizing rental or contractual arrangements.		
14. Arranging time and conditions for contract labor.		
15. Choosing marketing agencies, and time, place, method and conditions of sale.		
16. Determining the kind and amount of insurance for buildings and real estate liability.		
17. Determining the kind and amount of crop and livestock insurance needed.		
18. Arranging time and conditions for contract machinery and other services.		
19. Interpreting governmental programs.		
20. Deciding when to use legal counsel.		
21. Deciding whether outside professional management is desirable.		
22. Deciding contract terms, and negotiating sales contracts.		

	Activity Performed	Training Helpful
Electrification		
1. Planning electrical wiring needs.		
2. Selecting electrical wiring materials.		
3. Installing wiring between farm buildings.		
4. Installing main switch and fuse boxes.		
5. Installing interior electrical wiring.		
6. Installing electrical switches and outlets.		
7. Installing electrical lighting fixtures.		
8. Selecting electric motors for farm use.		
9. Replacing electrical cords and plugs.		
10. Reversing the rotation of electric motors.		
11. Wiring for electric motors.		
12. Installing electric fences.		
13. Installing electric motors on equipment.		
14. Grounding frames of all electrical equipment.		
Farm Mechanics		
1. Building equipment in farm shop.		
2. Repairing major pieces of equipment in shop.		
3. Selecting shop equipment.		
4. Sharpening hand tools.		
5. Replacing handles in tools.		
6. Constructing equipment for use on farm.		
Farm Buildings and Conveniences		
1. Constructing major farm buildings.		
2. Applying roofing materials.		
3. Painting farm buildings.		
4. Planning and building fences.		
5. Installing ventilating systems in buildings.		
6. Applying insulating materials.		
7. Repairing farm structures.		
8. Installing plumbing for water lines.		
9. Installing farm water systems.		
10. Constructing concrete septic tanks.		
11. Repairing plumbing or water lines.		
12. Constructing vertical silos.		
13. Constructing trench or horizontal silos.		
14. Installing bathroom fixtures.		
15. Mixing concrete used on farm.		
16. Buying concrete from ready-mix plant.		
17. Pouring concrete on the farm.		
18. Constructing building with concrete blocks.		
19. Landscaping farm homestead.		

Farm Power and Machinery Activities.	Activity Performed	Training Helpful
1. Using roughage handling feed equipment.		
2. Using feed concentrate handling equipment.		
3. Using crop drying equipment.		
4. Repainting tractors and other equipment.		
5. Completely overhauling tractor engines.		
6. Performing preventative maintenance on tractors and farm equipment.		
7. Determining size of pulleys and belts.		
8. Replacing broken or worn parts when needed.		
9. Welding broken machinery parts.		
10. Hardsurfacing plowshares.		
11. Setting-up and adjusting farm machinery under field conditions.		
12. Repairing small gasoline engines.		
Soil and Water Management		
1. Managing and increasing soil productivitiy.		
2. Planning location of terraces and waterways.		
3. Constructing terraces and waterways.		
4. Determining location for farm ponds.		
5. Laying out farm ponds.		
6. Constructing farm ponds.		
7. Managing a farm pond.		
8. Installing an irrigation system.		
9. Constructing drainage ditches.		

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ABSTRACT - TO RECOGNIZE ACHIEVEMENTS MADE BY YOUTH VOCATIONAL CLUBS IN AMERICA, AS WELL AS TO PROVIDE AN OVERVIEW OF THE IDEALS AND PURPOSES UPON WHICH THEY WERE PREDICATED, THIS PUBLICATION HAS BEEN DEVELOPED. INCLUDED AS CONTENT ARE: (1) STATEMENTS OF THE HISTORY OF THE CLUBS, (2) DESCRIPTIONS OF THE CLUBS WITHIN VOCATIONAL EDUCATION, AND (3) A BRIEF SUMMARY OF THEIR FUTURE OUTLOOKS AND GOALS. (SN)

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
OFFICE OF EDUCATION

vocational youth organizations

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This material was prepared by Edwin L. Rumpf, Special Assistant to the Associate Commissioner, Bureau of Adult, Vocational, and Technical Education, U.S. Office of Education, Washington, D.C. It was written by Dr. Rumpf in his private capacity. No official support or endorsement by the U.S. Office of Education is intended.

The need for some kind of club activity in vocational education was felt almost from the very beginning in 1917 when vocational education programs at the high school level received federal support under the Smith-Hughes Act. Although largely social and recreational in nature for students with common vocational interests, some of these clubs did include activities which were educational and self-improvement in type. Societies or clubs organized at the local level soon led to the formation of state organizations representing certain aspects of vocational education. National organizations were a natural next step.

Leading the way in this development was the Future Farmers of America, which was organized on a national basis in 1928 in Kansas City, Missouri. Since that time other youth organizations in vocational education have been formed, such as Future Homemakers of America, Distributive Education Clubs of America, Vocational Industrial Clubs of America, Future Business Leaders of America and the Office Education Association. Most of these organizations have extended the scope of their services beyond the high school to include postsecondary and young adult groups. In some cases, youth group members have served in foreign countries and youth group leaders and members have been instrumental in establishing similar organizations overseas.

Many of the purposes for which youth organizations were established are a direct outgrowth of the needs manifested in earlier years and still felt today. The AASA Yearbook, *Imperatives in Education*, emphasized that "The schools must develop creative and imaginative programs to change the boredom of idle hours into fruitful and satisfying experiences." In this regard, youth organizations have had a strong influence on the instructional program and in motivating students. Although youth organizations in vocational education may have some variations, all agree on one common theme—youth organizations are an integral part of the instructional program.

Although not exhaustive, the following statements demonstrate quite clearly the common aims and purposes of youth organizations in vocational education.

Speaking at a National Seminar to Improve the Use of Youth Organizations in Vocational Education as Teaching Devices, Floyd Johnson listed the following as common aims and purposes of vocational youth organizations:

—To develop competent, aggressive leadership

—To strengthen the confidence of young men and women in themselves and their work

—To create more interest and understanding in the intelligent selection of occupational choices

—To encourage members to improve their home, school, and community

—To encourage members in the development of individual projects and in establishing themselves in a business of their own

—To develop character, train for useful citizenship and foster patriotism

—To offer opportunity for participation in cooperative effort

—To encourage thrift

—To encourage improvement in scholarship

—To encourage the development of organized recreational activities

—To encourage participation in worthy undertakings which will improve vocational education in the various fields

—To promote international goodwill and understanding.

Margaret Blair put it in a slightly different form when she made her presentation at the National Institute on the Role of Youth Organizations in Vocational Education. "Implied, or clearly stated, all (youth

organizations) seek extended training through experiences which will:

—Strengthen critical thinking

—Strengthen leadership abilities

—Enable youth to work democratically in groups

—Strengthen creativity

—Strengthen belief in self

—Individualize instruction

—Individualize study

—Strengthen knowledge and attitudes to lead to success in work

—Emphasize the dignity of vocational education."

J. E. Dunn has strongly emphasized the effective use of vocational youth organizations to motivate students to learn.

SCOPE

The adequacy of youth organizations can be viewed in terms of quantity, quality and breadth of service. The following questions can reasonably be raised with respect to the scope of youth organizations' activities: How many students are being served by these organizations currently? Of those being served, what can one say about the quality of the service? Of those being served what can one say about the breadth of the service? One might also look at the groups presently being served in terms of those in the population not being reached.

To give some indication of the extent and scope of youth organizations in vocational education, brief summary statements concerning several of these organizations are presented here.

Originating as a part of the high school vocational agriculture curriculum, the *Future Farmers of America* (FFA) in 1970 had more than 430,000 active members in 8,200 chapters located in the nation's public schools. According to the FFA *Official Manual*, "FFA activities encourage members to learn through active participation how to conduct and take part in public meetings; to speak in public;

to buy and sell cooperatively; to solve their own problems: to finance themselves and to assume civic responsibility."

Future Homemakers of America (FHA) is a private, nonprofit national organization of almost 600,000 members incorporated under the laws of the District of Columbia. It functions through the public and private secondary school systems in the United States, Puerto Rico and American schools overseas as an integral part of the home economics education program, providing opportunities for enriched learning. Its major purpose is to improve individual, family and community living. Sponsors are the U.S. Office of Education and the American Home Economics Association.

Since its formation as a national organization in 1947, serving only youth in the high school distributive education program, the *Distributive Education Clubs of America* (DECA) has extended its program of activities to five divisions: High School, Junior Collegiate, Collegiate (for those enrolled in the distributive teacher education program), Alumni and Professional. While the dominant membership division is High School with 112,000 members, the composite membership for all divisions is presently 124,000. Meeting for its silver anniversary National Leadership Conference in San Antonio, Texas (1971), DECA noted its growth from 17 charter states to a truly national organization of all 50 states, the District of Columbia and Puerto Rico. The foundation for the creation of DECA's program of youth activities is derived from the four points of its emblem: vocational understanding, civic consciousness, social intelligence and leadership development. The symbolic wrapped package thereon connotes a well-rounded education in preparation for life.

The *Vocational Industrial Clubs of America* (VICA) is a national organization for youth preparing for futures in the trade, industrial, technical and health occupations. In their training programs, these youth acquire occupational skills necessary to enter the labor market. VICA club activities offer them personal development—in citizen-

ship, leadership and character. The Vocational Industrial Clubs of America was established in 1965 as a co-curricular activity for students in trade, industrial, technical and health occupations. Since its beginning, the organization has reached a membership of over 100,000 in 2,449 clubs in 41 states, Puerto Rico, the Virgin Islands and the District of Columbia.

In VICA, students are united by a central purpose of occupational preparation, but the student participates in VICA for *personal development.* VICA stimulates personal development by providing opportunities for developing socially acceptable behavior, good citizenship and the communications skills and abilities needed to work with other people, both youth and adults. The educational, professional, civic and social activities of VICA stress respect for the dignity of work; high standards in trade ethics, workmanship, scholarship, and safety; and patriotism, developed through the practice of democracy in club activities.

VICA enhances both the instructional program and the guidance services of the schools. Through the use of industry-labor advisory committees, community and school can be more closely welded together. This national youth organization is uniquely capable of serving the needs of inner-city youth whose problems encompass the need for gainful employment and identification with meaningful values. In addition, it encourages potential dropouts to remain in school.

The *Office Education Association* (OEA) was founded in 1966 and it is the newest youth group in vocational education. The emphasis of this group is to provide integral curricular activities for students enrolled in office occupations programs for the development of leadership abilities, competencies in office occupations and a participating interest in our private enterprise system.

The *Future Business Leaders of America* (FBLA) is composed of over 5,200 high school and postsecondary chapters and provides

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business students with opportunities that enhance their preparation for business and office occupations. Not only does this youth group stress occupational competency but it emphasizes broader concerns. One point of the FBLA Creed is, "I believe every young person should be actively interested in better social, political, community and family life."

In terms of the purposes and objectives which the youth organizations have established for themselves, their performances and results achieved warrant rather high commendation.

With only slightly over one million in vocational youth organizations among more than 5 million students enrolled in vocational education programs in our secondary schools, one can readily recognize that youth organizations in vocational education have a long way to go to provide services to all potential members. At the postsecondary level the picture is even more challenging. Within the formal school structure one must conclude that many more still need to be served.

VALUES

One review of the development of the club program indicates that various groups and individuals, identified as students, educators and business leaders, found values which attracted them and caused them to assist and participate. Some of the values expressed by these groups showed their desire to participate in terms of a perceived opportunity to:

Students

1. Participate in a group concerned with their chosen occupational field
2. Associate with recognized leaders in community activities
3. Secure prestige and recognition by participating in a variety of challenging projects
4. Pursue excellence in peer-approved activities

5. Live in a social atmosphere in which they have a feeling of acceptance

Educators

1. Present techniques for developing motivation through self-determined student goals
2. Develop, through practice, democratic principles which are essential elements of citizenship
3. Present club activities which offer an opportunity to develop an understanding and an appreciation of the free competitive system
4. Develop relationship of club activities to the classroom program as a means of motivating student achievement in the total school program
5. Present activities of the club program which will be useful in communicating essential aspects of distributive education to various community groups

Business Leaders

1. Encourage students to explore the field of distribution
2. Make a contribution in school activities
3. Plan approach for creating individual and group initiative
4. Present opportunity for students to practice elements of leadership which are essential in business
5. Plan programs which help to explain the free enterprise system

Undoubtedly, the value received by the individual from participating in youth organization activities will vary depending upon the background, needs, aspirations and motivations of the individual. Although the benefits may vary for many reasons, ample testimony is on record by persons acknowledging the benefits which they attribute to their experiences in the various youth organizations in vocational education.

What are the contributions of youth organizations in vocational

education? E. P. Hilton believes there are many but lists only a few, as follows:

"They serve to motivate, vitalize, and round out the instruction in a vocational field."

"They permit active participation in leadership functions through: (a) learning by doing, (b) planning and executing plans, (c) developing teamwork through committees and projected programs of activities."

One might express these values in different form, organize them in another way or view them from a different vantage point, but these should suffice. They serve to emphasize the concept that vocational youth organizations are an integral part of the instructional programs. These contributions are relevant for individuals, even those who are disadvantaged or handicapped, and relate to the instructional programs, the community and society as a whole. There are many who would agree with Wesley Smith, who says, "Youth organizations are the heart and soul of vocational education."

OUTLOOK

Vocational education youth groups are on the threshold of a truly significant role in the American educational system. The renowned saying, "What is past is prologue," is a more eloquent reflection of what I believe is ahead. The vocational youth groups have had worthy goals and have brought more relevancy to the curriculum. There has been emphasis upon business leadership and upon business and industry-community involvement in school club activities. But this is not enough; it is only a beginning. Numerically, we are serving a small minority of the student population.

Today's youth are expressing the need more clearly than my generation. At a recent Department of Health, Education and Welfare Fact Finding Conference on Vocational Education, Tim Renberg, a senior at Olympia Washington High School, talked about the

schools' failing the advantaged as well as the disadvantaged and of parents demanding a college degree while their youth want job skills. He said that education is too often a matter of endurance and obedience rather than independence and relevancy. This high school youth believes that the basic aims of education must be redefined and that there must be comprehensiveness in the acquisition of skills. This latter expression is the challenge to all vocational youth groups. There are new and different kinds of contributions that must be made in the future if these youth groups are to achieve their fullest potential. Sociovocational activities must be given consideration as viable roles for our youth. If our youth have the abilities necessary to achieve job competencies, community and business leadership and related roles, they have considerable contributions to give to the growing problems of drug abuse and crime. After all, many of our youth are victims of these social disorders and many of them are more knowledgeable than their own parents of the vocabulary and the mechanics of relating to and solving such social problems.

Some adults are beginning to get the message that youth should be recognized in the area of policy decisions. Youth groups could be especially effective as a sounding board in the administration and operation of vocational education. Members of youth groups have been utilized very effectively in such advisory roles at local, state and national levels. However, such involvement needs to be greatly expanded. Their input would seem to hold the greatest promise for the future as a direct means of bringing about reformation in the nationwide program of vocational education. No other group has a more vital stake in what is being planned in the educational community than our youth. It is their future and their careers that are being planned and administered, and their voice must be heard and heeded. The establishment of youth group advisory boards at all levels of government holds the promise of continuous feedback from the schools' clients as to program effectiveness. No computer or data

system can relate as effectively to the relevancy and responsiveness of vocational education as the vocational youth groups. I urge this effort to be made.

Beyond this, more of the adult population must not only be willing to recognize but to accept the contributions that young people can make in redefining national goals applying not only to our educational system but to the national concerns that cut across social, political and economic issues. Expansion of present activities of youth organizations in vocational education relating to drug abuse, to the restoration of our environment, to the improvement of the home and community in being more responsive to human needs—all these have been within the realm of youth group participation. Some of our vocational education youth groups already are active in some of these areas. Think of the potential of these organizations in outreach services alone to bring many more high school and post-high school youth into the arena of youth group activities. There are almost 14 million youth in the nation's high schools. They could benefit from the present emphasis on skill competency and business leadership. But these youth could also be the great untapped resource of our country to re-think, to re-examine, to contribute to solutions to our broad socioeconomic problems. The challenge is not beyond youth group capability at the high school level and surely not at the post-high school level. In fact, it is my deep belief that the image of vocational education will improve by such youth group involvement. Perhaps these socio vocational activities will help convert parents, too. That may take more time because the college degree is our present symbol of success. Unfortunate as this may be, it continues.

Youth groups, through expanded and comprehensive activities, can help vocational education reach its goal of serving all persons in all communities and, I might add, in a highly relevant and responsive manner. Change will come; it is just a matter of time and direction. The vocational education youth groups of this nation have the

challenge of bringing about meaningful changes so that the educational experience of youth will be eagerly anticipated and visibly rewarding.

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NEWSPAPER PRINTING IN TEXAS: A STUDY TO IDENTIFY TRENDS IN MANPOWER REQUIREMENTS FOR PRINTING OCCUPATIONS IN NEWSPAPER PLANTS IN TEXAS.

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ABSTRACT - THIS STUDY INTENDS TO DESCRIBE THE ATTITUDES OF PEOPLE INVOLVED IN CHANGES IN PRINTING OPERATIONS IN TEXAS NEWSPAPERS AND THE EXTENT TO WHICH THESE CHANGES AFFECT NEWSPAPERS IN TEXAS. TWO QUESTIONNAIRES WERE USED, ONE RECEIVING 158 REPLIES FROM 472 MAILED, REPRESENTING 33 PERCENT OF ALL TEXAS NEWSPAPERS WITH A CIRCULATION GREATER THAN 1,000, AND THE OTHER SENT TO 19 OFFICIALS OF LOCAL STEREOTYPER UNIONS IN TEXAS AND 50 NON-UNION STEREOTYPERS. OPEN-ENDED INTERVIEWS WERE CONDUCTED WITH 31 STEREOTYPERS, 42 NEWSPAPER MANAGERS, AND ONE REPRESENTATIVE EACH FROM THE TEXAS DAILY NEWSPAPERS ASSOCIATION AND THE TEXAS PRESS ASSOCIATION. A SERIES OF 14 TABLES PRESENT THE DATA, WHICH INDICATE THAT MANY LETTERPRESS NEWSPAPERS IN TEXAS WILL CHANGE TO OFFSET OPERATIONS WITHIN THE NEXT FIVE YEARS, THEREBY ELIMINATING THE NEED FOR STEREOTYPERS AND LINOTYPE OPERATORS AND PRODUCING A DECREASE OF 22 PERCENT IN PRINTING PRODUCTION WORKERS. GRAPHIC ARTS CURRICULUMS MUST TAKE THESE CHANGES INTO ACCOUNT, SINCE RETRAINING OF WORKERS BY THEIR NEWSPAPERS IS NECESSITATED. (AG)

NEWSPAPER PRINTING IN TEXAS

A Study to Identify Trends in Manpower Requirements for Printing Occupations in Newspaper Plants in Texas

Developed Jointly By The
Division of Occupational Research and Development,
Department of Occupational and Technical Education,
Texas Education Agency
and
Eastfield College of the
The Dallas County Community College District
Dallas, Texas

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I. INTRODUCTION

Many newspaper people in Texas predict that the stereotype and linotype trades will rapidly become completely obsolete. Editors, publishers, stereotypers, production managers and others connected with newspapers point to the same trend: that many newspapers in Texas presently being printed by the letterpress method will soon be printed by the offset method or by a modified letterpress system which uses a photographically produced plate. (See Table IV, Page 17)

On the national level, apparently the same trend exists although to a lesser degree.

> "There will be some opportunities for new workers to become electrotypers and stereotypers through the 1970's because of retirements, deaths, or transfers of workers to other occupations. However, the total number of electrotypers and stereotypers is expected to continue to decline moderately."[6]

This study indicates something more than a moderate decline in Texas.

Those who have already made the transition from letterpress to offset operations have varied reactions. One young foreman who had worked with hot type before making the change to cold type remarked, "Once you have made the change you never want to go back. It's so much

cleaner, faster and easier to do." A quite different reply was received from one of the older publishers, "I have been in the newspaper business 42 years, 36 in letterpress and 6 in offset. I used to be able to go to any newspaper in the country and do just about any job in the plant. Now I am a stranger in my own shop."

For some this is not simply a change in the process or the threat of unemployment, but a sharp loss of identity. Many publishers, as well as tradesmen who have been in the newspaper business for several years, have developed a strong attachment for the classic linotype and stereotyped operations. Perhaps, it has something to do with hot metal, heavy work, and the masculine concept. Making the change from a heavy metal chase and a lead plate to pieces of paper and a thin zinc or plastic plate will likely be impossible for some of them. (See Section IV, 3, A)

This report attempts to capture attitudes of the people involved in these changes and to describe the extent to which these changes effect newspapers in Texas. Statistics which reflect the picture as it presently exists do not reveal many underlying attitudes that will have a pronounced effect on how these changes will be made and, in some instances, whether they will

be made at all. These attitudes are revealed in statements that have been quoted without identifying either the originator or the newspaper. One section of the presentation of data chapter provides these statements.

The impact of these changes on graphic arts programs in Texas must certainly be considered. The newspaper industry, however, is only part of the total printing industry and some evidence indicates that the same situation does not exist to the same extent in other printing plants.[4] Therefore, recommendation for curriculum revision was tempered by this fact, although some defini'e conclusions were reached.

II. OBJECTIVES OF THE STUDY

The specific objectives proposed for this study were:

1. To determine if changes in printing operations in newspapers in Texas will lessen the need for stereotypers and other workers.
2. To determine the extent to which changes in printing operations will take place in Texas newspapers.
3. To explore the sources of workers in the new processes and the amount of formal training necessary for these skills.
4. To establish whether or not present workers can be re-trained to remain productive within the same

industry.

5. To assess how many jobs will be available to re-trained workers and what the pay rates will be.
6. To determine whether or not workers whose skills have or will become obsolete wish to undergo re-training to remain in the same industry.
7. To conduct a preliminary survey of possible sources of available fund (ex.: union funds, industry funds) to re-train workers and to provide an estimate of the costs of re-training.
8. To determine whether or not the graphic arts facilities of Eastfield College are sufficient to provide re-training of stereotypers and other workers of the printing trades and industries.

III. METHODS OF ACCOMPLISHING OBJECTIVES

Role of the Advisory Committee

An advisory committee composed of three newspaper managers and three union officials of the stereotypers union was created to validate the objectives of the study and the two questionnaires. Each member of the committee who had agreed to serve as a "judge" was mailed a copy of the questionnaires under a cover letter, and he was asked to consider each question separately and to indicate whether he considered it appropriate or inappropriate for the purposes of this study. Only four of the six judges responded as requested. The two who did not respond were stereotypers. It was later determined that these two people had become concerned about the study and expressed that "they thought this thing was getting out of hand". They apparently felt threatened because more people were becoming aware of their situation and they felt that this might put managers on the defensive. The four replies received indicated that the judges considered the objectives valid and with the exception of some wording changes, considered the questions appropriate for this study. Advisory committee members also provided information about whom to contact at the newspapers, professional organizations, and, in the case of the one actively

participating stereotyper, made it possible for interviewers to attend the Southwest Annual Stereotypers Convention in Waco.

Use of the Questionnaire

Two questionnaires were used. Questionnaire A (See Appendix) was sent to the production managers of all of the 116 daily newspapers in Texas and to all of the weekly newspapers that had a circulation greater than 1,000.[1,2] A total of 472 Questionnaire A's were mailed. There were 158 replies received, representing 33% of all newspapers in Texas with a circulation greater than 1,000.

Questionnaire B (See Appendix) was sent first to 19 union officials of local stereotyper unions in Texas in an attempt to solicit union approval for the questionnaire before mailing to individual union stereotypers. Two replies were received. Information received later at the Waco convention indicated that union membership approval was believed to be necessary before officials could respond. The 19 representatives present at the Waco convention indicated that they would respond and 12 of them agreed to be interviewed at the convention. They also indicated that their responses could be considered to be typical of the responses of all of the members of their respective local unions and that a

survey of all union stereotypers was not necessary. Questionnaire B was also sent to 50 non-union stereotypers. As of this writing, 10 replies have been received.

Personal Interviews

Two Interview Guides (See Appendix) were developed around the objectives, one for managers and one for stereotypers. The interview guides contained open-ended questions which attempt to identify attitudes of managers and workers toward the stated problem and to supply background information for the responses received from the questionnaires. The interviews were also used to discuss some aspects of the problem that could not reasonably be covered by the questionnaire. Interviews were conducted with 31 stereotypers (including union members, non-union members and union officials), 42 newspaper managers (publishers, editors, or production managers, depending on the size of the newspaper and the availability of the person) and one representative each from the Texas Daily Newspapers Association and the Texas Press Association.

Treatment of the Data

Percentages and frequency responses were presented in charts wherever it appeared that these would be useful to describe the findings. Statements from people interviewed were categorized and presented as a means of

describing the tone of the changes that are taking place and the attitudes of many of the people involved in them.

IV. SPECIFIC RESULTS ACHIEVED

The following statistical data were derived from this study:

Data Derived from the Questionnaires

Table I summarizes the number of responses obtained from the mailing of the questionnaires and the number of interviews conducted. It was noted that although the number of questionnaires mailed were almost equally divided between offset and letterpress newspapers, a substantially larger number of offset newspapers returned the questionnaires. Another interesting aspect of the study was pointed out by the small number of replies and interviews obtained from stereotypers. It was believed that the initial mailing to 19 union stereotyper leaders in Texas would provide a listing of all stereotypers and a subsequent mailing to them. Two weeks after this mailing, only one reply had been received from a local stereotypers' union. This one was from P. J. Paschal, Secretary of the Dallas Local, who helped originate this study. Mr. Paschal explained that any replies had to be approved by the union membership and the views expressed by these responses would represent the views of the entire membership for that local union. He also explained as a matter of information that the questionnaire had not been printed in a

union shop, did not have a union bug mark on it and was, therefore, not given immediate sanction by several locals. A later conversation with union officials at the 1972 Southwest Regional Electrotypers and Stereotypers Convention in Waco substantiated these comments. An invitation for interviewers to attend the Stereotypers Convention in Waco was beautifully timed and provided a means of reaching union officials that likely could not have been obtained in any other way. Not only were union officials cautious about who they gave information to, newspaper managers were often reluctant to allow stereotypers to be interviewed. The Waco convention allowed the interviewers to bypass these two hurdles by interviewing at the convention, union officials who represented large numbers of stereotypers.

TABLE I

SUMMARY OF RESPONSES

	Managers	Stereotypers
Questionnaires Mailed	472 (242 Offset) (230 Letterpress)	19 Union 50 Non Union (All Letterpress)
Responses Received	157 (99 Offset) (58 Letterpress)	3 Union 10 Non Union (All Letterpress)
Interviews Conducted	42 (22 Offset) (20 Letterpress)	31 (All Letterpress)

Table II describes the numbers of newspaper printing production people presently employed by the responding newspapers and the numbers of production people estimated by the newspapers to be working in the foreseeable future. The figure in parentheses represents the estimated total number of these workers presently employed by Texas newspapers and the future requirement using the percentage of increase or decline shown in the far right column of this chart. The estimate of the total number of workers was arrived at by totaling the known number of stereotypers at the large newspapers and adding one stereotyper for each 5,000 circulation of the other letterpress newspapers in Texas. This method indicated that the responses represented approximately 1/3 of the total figure.

The most revealing statistic of this chart is the bottom figure which shows a 22% decrease in the number of people required to produce Texas newspapers.

TABLE II

CHANGES IN THE NUMBER OF NEWSPAPER PRINTING POSITIONS IN THE FORESEEABLE FUTURE ON NEWSPAPERS WHO RESPONDED TO THE QUESTIONNAIRE

Position	Presently Employed	Employed in the Foreseeable Future	Percent of Increase or Decrease
Stereotypers	181 (526)	85 (247)	-53%
Printers (Typesetters Composition)	1,356	1,055	-22%
Bindery	99	81	-18%
Offset Platemakers	66	74	+12%
Camera Operators	107	113	+ 6%
Other	118	122	+ 3%
Pressmen	1,241	928	-25%
TOTAL	3,168	2,458	-22%

Figures in parentheses indicate the estimated total number of these positions in Texas newspapers.

Table III represents the responses received from Questionnaire A, which was sent to managers. The table indicates that no offset newspapers plan to change their basic processes and that nearly 50% of letterpress newspapers plan to change their basic processes within 5 years. It is suspected that the total percentage of letterpress newspapers who plan to change to offset or a modified letterpress operation may be higher because 80% of the 20 letterpress newspaper managers who were interviewed indicated that they plan to change within the next five years. Managers may respond more openly to personal interviews than to questionnaires received in the mail.

TABLE III

NUMBER OF NEWSPAPERS PLANNING A MAJOR CHANGE
IN PRINTING PROCESSES

Process Presently Used	Number of Responding Newspapers	Number of Responding Newspapers Planning a Major Change					
		Within 1 Year	2 Years	3 Years	4 Years	5 Years	Total Planning Change
Offset	99	-	-	-	-	-	0
Letterpress	58	6 (10%)	9 (15%)	6 (10%)	2 (4.5%)	6 (10%)	29 (49.5%)

Table IV describes the sources of workers in letterpress and offset operations as reported by the responding newspapers. Many newspapers used more than one source to fill production positions so the totals of these columns are not the same as the number of responding newspapers. Significant figures are the low number of employees obtained from junior and senior college programs and the very high number obtained from "off the street" and "other newspapers". These last two figures indicate sources that have little in common. "Off the street" indicates little or no experience and "other newspapers" indicates a high degree of experience in specific skills. The flip-flop appearance of the percentages of these responses ("off the street" and "re-train") for offset versus letterpress newspapers indicates that offset newspapers employed significantly more people with low-level skills than letterpress newspapers did.

TABLE IV

SOURCES OF WORKERS FOR NEWSPAPERS PRESENTLY USING LETTERPRESS OR OFFSET PROCESSES

Source	Number of Letterpress Newspapers (Percent of Total for this Column)		Number of Offset Newspapers	
Off the Street (With No Experience)	18	20%	48	33%
Senior Colleges	2	2%	2	1%
Junior Colleges	3	3%	2	1%
High Schools	11	12%	20	14%
Trade Schools	5	6%	14	10%
Re-train or Transfer From Other Jobs	15	16%	21	14%
Other Newspapers or Printing Companies	31	34%	37	24%
Other Sources	6	7%	5	3%

Table V describes the sources from which responding letterpress newspapers that plan to change to a new process expect to get employees to work in the new processes. This table points out that although newspapers do plan to re-train some workers in the new processes, they expect to hire some from outside sources, also. These figures substantiate the data from Table IV when another factor is taken into account. Most newspaper managers that were interviewed said they felt a moral obligation to keep people on the payroll. After the change from letterpress to offset operations has been made, it is expected that the percentages in Table V will more closely resemble the percentages in Table IV. This will occur after letterpress workers have been absorbed into the offset operations.

TABLE V

EXPECTED SOURCES OF WORKERS FOR LETTERPRESS NEWSPAPERS THAT PLAN TO CHANGE PROCESSES

Source	Number of Newspapers	
Off the Street (With No Printing Experience)	7	17%
Senior Colleges	0	0%
Re-train or Transfer from Other Jobs	14	34%
High Schools	4	10%
Other Newspapers or Printing Companies	9	22%
Junior Colleges	2	5%
Trade Schools	2	5%
Other	3	7%

Table VI describes the responses that compared wage rates for re-trained workers to those for the same workers before re-training. Responses from letter-press newspapers show what they predict will happen, whiles responses from offset operations indicate what actually took place. Apparently, workers who stayed for re-training were not disappointed with their new pay rates because 31% of offset newspaper respondents said they made more in the new processes and only 8% of letterpress respondents thought they would make more money.

TABLE VI

COMPARATIVE WAGE RATES FOR RE-TRAINED WORKERS

No Answer Or Indicated That Question Did	Less Money Than They Made Before	About The Same As They Made Before	More Than They Made Before
33 (Letterpress)	1 (Letterpress)	22 (Letterpress)	2 (Letterpress)
	4%	88%	8%
60 (Offset)	1 (Offset)	26 (Offset)	12 (Offset)
	2%	67%	31%

Data Derived from the Interviews

All tables in this section were taken from the interview guides and included both manager and stereotyper responses. Table VII describes what course of action was considered best for a worker threatened by loss of employment. 77% of all who answered this question thought it best to stay and be re-trained. 28 of 31 stereotypers or 90% not only said that re-training was the best course, but also said that they themselves want to re-train if they have the opportunity. There was a significant difference between the percentage of managers (64%) and stereotypers (90%) who thought re-training was the best course of action. Apparently, many managers thought that stereotypers should look elsewhere for employment while stereotypers thought that they should stay with the same newspapers.

TABLE VII

COURSE OF ACTION THOUGHT BEST FOR A WORKER
THREATENED BY LOSS OF EMPLOYMENT

Stay And Be Re-trained In New Skills	Keep The Same Skill And Go To Another Company	Go To Work In A Different Industry	Retire	No Answer
20 Managers	7 Managers	3 Managers	1 Manager	23 Managers
64%	23%	8%	5%	
28 Stereotypers	1 Stereotyper	1 Stereotyper	1 Stereotyper	0 Stereotypers
90%	3%	3%	3%	
48 Total	8 Total	4 Total	2 Total	23 Total
77%	13%	7%	3%	

(28 of 31 stereotypers or 90% said they wanted to re-train.)

Table VIII indicates the opinions of both newspaper managers and stereotypers regarding who would pay for re-training.

TABLE VIII

WHO WOULD PAY FOR RE-TRAINING?

Company	Employee	Union	Other	No Answer
42	6	7	3	15
72%	10%	12%	6%	

Table IX lists the equipment chosen by those who have already made a change in process and the equipment being considered for purchase by those who are planning to change. The number to the right of the equipment name is the number of times that equipment was mentioned by the group indicated.

One comment received often in regard to equipment was, "Decisions used to be easy because there were very few choices that a manager had. Now, anything you buy is outdated quickly and there are a great number of choices in types and manufacturers". The following table shows a small part of the delimma. All

responses regarding letterflex and zinc plates came from stereotypers and managers of large metropolitan newspapers that presently use four to eight stereotype plates for each page of the newspaper. Managers in these newspapers are looking for a way to use a photographically produced plate on letterpress equipment because of the large investment they have in letterpress equipment. Compugraphic was mentioned by many different sizes of newspapers.

The large number of stereotypers mentioning polymer and zinc plates can be explained by considering that most of the stereotypers interviewed were union members and from large newspapers where letterpress equipment will continue to be used. The large number of offset managers mentioning compugraphic equipment is explained by noting that all offset operations in Texas are relatively small newspapers and can more easily be converted to compugraphic or similar equipment.

TABLE IX

NUMBER OF TIMES EQUIPMENT WAS MENTIONED

Equipment	Total All Groups	Letterpress Managers	Offset Managers	Stereotypers
Polymer or Letterflex Plate	21	5	0	16
Compugraphic Systems	17	5	12	0
Zinc Plate	17	4	0	13
Gauss Press	7	4	1	2
Offset	3	0	0	3
Photon	3	2	1	0
Varityper	3	0	2	1
Brown Camera	2	0	2	0
Comp-Star 191	2	1	1	0
Cottrell V15A	1	0	1	0
Thatcher Press	1	0	1	0
Gamitrol	1	0	0	1
Spartan Camera	1	1	0	0
Justoriter	1	0	1	0
Webb Press	1	0	1	0
EMCR	1	0	1	0
IBM Selectric	1	0	1	0

Table X lists the advantages of the new processes in order of the number of times the advantage was mentioned by all of the three groups shown. (The term "new processes" includes offset printing and new platemaking and composing methods for letterpress printing.) Three of the advantages mentioned require some explanation. The advantage "cheaper" has reference to the total production operation and includes the advantage of being able to use less skilled and lower paid help. "Saves space" was cited by large downtown newspapers where space is of great concern. "No advantage" was stated by stereotypers only. A significant figure is the large number of offset managers (10) who mentioned "Better Quality" as an advantage, while only 3 letterpress managers mentioned "Better Quality" as an advantage. This figure may again reflect some of the differences between large and small newspaper operations because large newspapers who apparently will continue letterpress operations are not yet satisfied that the new plastic plates produce better quality printing than the stereotype plates.

TABLE X

NUMBER OF TIMES ADVANTAGES OF THE NEW PROCESSES WERE MENTIONED

Advantage	Total All Groups	Letterpress Managers	Offset Managers	Stereotypers
Faster	33	13	15	5
*Cheaper (Includes Lower Skill Level)	22	10	10	2
Better Quality	19	3	10	6
Cleaner	14	5	7	2
More Flexible	8	2	5	1
Help Easier To Find And Train	6	2	2	2
Eliminates A Step	5	1	0	4
Cooler	4	0	1	3
Fewer People Needed	4	4	0	0
*Saves Space	3	2	1	0
*No Advantage	3	0	0	3
Quieter	1	0	1	0
Lower Lease Cost	1	0	1	0
Availability Of Parts	1	1	0	0
Unknown	3	0	0	3

Table XI lists the disadvantages of the new processes in the order of the number of times the disadvantage was mentioned by all of the three groups shown. Stereotypers apparently thought that the greatest disadvantage of the new processes was that the new plates could not be melted and re-used. Managers of both offset and letterpress operations mentioned this disadvantage only two times. Other notable figures occur in the line marked " Re-training and Adjustment" where seven letterpress managers mentioned this, and no offset managers, most of whom had gone through the adjustment period, mentioned it as a disadvantage.

TABLE XI

NUMBER OF TIMES DISADVANTAGES OF THE NEW PROCESSES WERE MENTIONED

Disadvantage	Total All Groups	Letterpress Managers	Offset Managers	Stereotypers
No Disadvantage	20	4	13	3
Can't Re-use Metal In Plates	15	2	0	13
Supplies Are Expensive	11	5	2	4
Initial Expense	10	4	2	4
Re-training And Adjustment	8	7	0	1
Slower Plate Production	3	2	0	1
Union Problems	2	2	0	0
Corrections Slower	2	0	2	0
Difficult To Space Lines	2	0	2	0
Maintenance Of Equipment	2	1	1	0
Loss In Quality For Plastic Plate	1	1	0	0
Disposing Of Waste, Acid, Ecology	1	1	0	0
More Help Required	1	0	0	1
Unknown				

Table XII shows the responses of three groups concerning the types of workers in their plant who will be affected most strongly by the changes in processes. Numbers indicate the number of times each type of worker was mentioned by each group. Stereotypers responded more often than any other group in mentioning "composing room" and "engravers". Most of the stereotypers talked of linotype operators in relation to the composing room which explained that figure since linotype operators are not used in the new processes. Stereotypers also saw an increased need for engravers in the new processes and saw that group affected in a positive way.

TABLE XII

WORKERS MOST STRONGLY AFFECTED BY CHANGES

Types Of Workers Affected By Changes	Total All Groups	Letterpress Managers	Offset Managers	Stereotypers
Stereotypers	52	15	12	25
Composing Room	37	8	9	20
Pressmen	14	5	4	5
Engravers	12	0	0	12
All	5	4	1	0
None	3	0	3	0
Electrotypers	1	0	0	1

Table XIII indicates the number of times new skills required by the changed processes were mentioned by the groups shown in the table. It is significant that offset managers and letterpress managers named "pasteup", "camera" and "composition" as the top three skills in the new processes, and that stereotypers mentioned "engraving", first; "camera", second; and "pasteup", third. Because stereotypers are more concerned with platemaking, it is understandable that they would devote most of their attention to these skills. Managers are probably in a better position to view the overall operation and probably can identify needed skills for the whole newspaper more easily.

TABLE XIII

SKILLS REQUIRED IN THE CHANGED PROCESSES

New Skill	Total All Groups	Letterpress Managers	Offset Managers	Stereotypers
Pasteup And Layout	34	14	14	6
Camera	34	13	9	12
Engraving	24	3	2	19
Typing And Photo Composition	17	10	6	1
Offset Platemaking	11	5	1	5
Stripping	5	1	1	3
No Other Skill Required	5	0	3	2
Pressroom	4	1	2	1
Zinc Etching	4	1	0	3
Data Processing	2	2	0	0
Plastics	1	0	0	1
Electrical Engineer	1	1	0	0
Chemical Knowledge	1	1	0	0
Color Separation	1	1	0	0
Attitude-Intelligence	1	0	0	1

In discussing skills for the new processes, courses at local educational institutions were mentioned as a possible means for training. Union objections to these courses were discussed and only 11 of the 73 people interviewed thought there would be union objections to these courses. All of these people were from large metropolitan newspapers and believed that some unions would feel that their apprenticeship programs were being threatened by courses offered specifically for re-training. Table XIV lists the responses of three groups to the question, "Do you know of an existing program in a local or state educational institution that will provide the necessary skills?". Numbers in the table indicate the number of times each institution was mentioned by each group. Apparently, newspapers do not depend to any great extent on educational institutions for training in printing skills.

TABLE XIV

INSTITUTIONS MENTIONED FOR RE-TRAINING

Institution	Total All Groups	Letterpress Managers	Offset Managers	Stereotypers
I Know Of No Institution That Will Provide The Skills	48	9	14	25
Sam Houston Tech Institute	8	5	3	0
Vendor Schools	5	0	4	1
El Paso Tech High School	3	1	0	2
East Texas State University	3	2	1	0
High School Typing Programs	2	1	0	1
Texas State Technical Institute	2	0	0	2
ITU Colorado Springs	1	1	0	0
Texas Press Association Clinics	1	1	0	0
Eastfield College	1	1	0	0

Summary Statements

The following statements were selected from the summary statements made by the 73 people interviewed. They are quoted here to provide background information for the tables in this section and to give insight into some of the attitudes of the people involved in the industry.

Stereotypers' Comments About Their Trade, Their Plans, And Their Attitudes

Their Trade

"We are the last of a breed that takes pride in their work. We still want to do a good job."

"We needed re-training 15 years ago."

"Anytime I run into a young man in the business I tell him to get out."

"The union can talk a lot and keep a dying profession going for years."

"I know it's going to happen, but I hate to see it come."

"There is a possibility of a merger with the engravers union. The last merger was blocked by the Chicago and New York newspaper (stereotyper) union. They were afraid of a loss of identity and kept the rest of us from getting the 2/3 or 3/4 majority that we needed. Many large locals were in favor of the merger and most of the small locals were, too."

Their Plans And Attitudes

"If we can get the camera training we have a good chance

to get jurisdiction over camera and platemaking."
"Our union can't do anything for us right now. They can press for jurisdiction on large newspapers. We don't have a problem. Our newspaper will re-train."
"I feel fine about re-training as long as the pay stays the same."
"I have heard that the federal government has money for this kind of training."
"At one time we had 3 or 4 stereotypers. All but one of us re-trained. The other one is just sitting, growing old and waiting to die."
"The union is in a poor position now to push for jurisdiction until we gain some skill on the camera or engraving."
"We are resigned to the changeover and to re-training."
"The new equipment is ridiculously expensive. There just isn't a better way than the old stereotyper plate. The quality is high and the deadlines can be met."
When asked about re-training one stereotyper replied, "I'm ready." This response was the most predominant kind.

Comments From Managers Of Letterpress Newspapers Who Are Planning To Change To Offset Or Modified Letterpress Platemaking and Composing

<u>From Largest Newspapers</u>

"This is the best thing to happen to printing since

the change from setting type by hand to linotype. It has about the same shock value."

"The newspapers, more than a lot of places, have a moral obligation to keep people who have been with them for a time, and in the same pay bracket. The other side of that coin is that we won't be pressured by union trying to keep us from using the new processes. We have had enough experience in dealing with them to keep from falling into any traps."

"I think we could get federal funds to re-train, but newspapers in general do not want to become obligated to the federal government. We want to do our own re-training."

"All our linotype operators have already been re-trained as perforator operators, markup men and pasteup. We sent probably 20 linotype operators to typing school over a period of 2 years at the union's request and the company's expense. Only 2 became perforator operators. I believe it's hard for adults to learn typing."

"We might be able to bring people in off the street. Most of the science has been taken out of printing."

"The greatest advantage of offset is that we can reduce the manpower. We plan to terminate anybody we don't need."

"I can see new equipment that will set whole pages at a time in a satellite operation in the suburbs. It is

no longer necessary for the newspaper to be downtown because street sales are no longer as important and the cost of space here is prohibitive."

"We will take care of our people through attrition and re-training unless the union makes some move to block progress."

"Ultimately, the new processes will result in cost savings because we will need less space and fewer people. We haven't added any people since 1966 and our volume is twice what it was."

"All of the production areas are considered one by management now, not as separate compartments like the unions. I see all the unions eventually merged into one production union."

"The unions seem to think they will wake up one day and it will all be over and back the way it used to be. If they would remove the lines separating the activities, people could be absorbed easily. The engravers are ready to go along and have been easy to get along with. The stereotypers don't give us any trouble, but haven't been as agressive as they could have been in making the changeover less painful."

"I see continual re-training for the next 20 years."

Smaller Newspapers

"I do not wish to comment on what our plans are."

"I'm not sure about what we are going to do or exactly when. All the equipment decisions are made at a central office. We are part of a chain and may consolidate our printing operations with some other newspapers. I have jobs for all my people and I'm ready to get rid of all this worn-out junk."

"I'd like to send my people to a training course, but I don't think they would offer one to such a small number of people (15)."

"I'd be crazy to announce the changeover now. I have several people that would quit and leave me holding the bag. I'll send people to other offset plants to become familiar with the equipment, but I don't want to send them now and get them all hepped up about it and then have to wait like I am having to."

"The changes are coming so fast it's hard to know what to buy. It's very confusing and I don't see things calming down for a while. I'll change because everybody else is when parts, materials and people become scarce."

"Our chain has a corporate policy of helping employees whose services are no longer required as a result of technological change. Early retirement is a possibility for some."

"We have one worker who was with a paper 45 years and

left because of the change (to offset) and came here."

"I don't see any other way. Parts, equipment and supplies for letterpress aren't going to be around much longer. Mine is a very primitive shop compared to some of the new ones."

Comments From Managers Of Letterpress Newspapers Who Plan No Major Change

"We run an efficient newspaper and have good equipment. We can get letterpress equipment in excellent condition for a fraction of its original cost. We don't plan to change."

"Larger newspapers (over 100,000) are slower to change because of the large capital investment and the number of plates required for each page."

"I can make more money with hot type because I have trained help."

"We will re-train workers if the unions will let us, but we plan no changes at this time. The pressmen will resist stereotypers coming into their union because that would cut down on the number of shifts they work."

Comments From Managers Of Offset Newspapers And Newspaper Professional Organizations

"Schools need to eliminate training in hot type immediately! There are enough men to go around until the

old equipment is used up."

"I believe the unions will merge or will have no influence as the processes phase out the old skills. They won't be able to resist these changes any longer."

"I am interested in courses that will improve typesetting speeds and skills."

"We are right in the middle of the changeover right now and I'm not sure what the advantages are. Everybody has had a good attitude toward the change or we couldn't have made it. Our linotype operator had to become an electrical engineer to take care of this equipment. We blew up circuit boards and chips all over the place. The publisher has been in letterpress all his life and feels like a stranger in his own shop. I'm sure we will be glad we made the change when we get everything ironed out."

"No question about which is best. I can hire a girl right out of high school, and if she can type 60 words a minute, I can teach her to set type in two weeks. I can start her at the minimum wage and keep my advertising rates low."

"A lot of stereotypers won't be able to make the change. They get to feeling like cutting out paper dolls is woman's work and don't feel manly like when they are lifting heavy metal plates. They will follow

letterpress until it runs out."

"I am a stranger in my own shop. This has been a rapid, explosive change. Don't train anybody in hot type."

"Once you get over the initial shock of changing from hot to cold type, you never want to go back. It's so much easier and cleaner. You don't have to work as hard physically."

"Offset is a great change."

"We put the paper out in a couple of hours now, where we used to be down here all night on Thursday."

"I was in hot type for 20 years. I'd hate to go back."

"I'm sold on cold type, but I'd be sold on hot type if I were still in that situation."

"Both processes have their benefits."

"Offset has pumped life blood into the dying rural newspaper."

"People with a knowledge of letterpress learned in a small town, then moved to the big city for more money. We had to change to keep trained personnel."

"I'm completely sold on the new process. It's faster, quieter, cleaner, cooler, uses fewer people and produces better quality."

V. CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS ACHIEVED FROM THE SPECIFIC RESULTS

Conclusions - These conclusions are arranged in the same order as the Specific Objectives, Section II.

1. Many letterpress newspapers in Texas will change to offset operations within the next 5 years.

   49.5% of the letterpress newspapers who responded to the Questionnaire A indicated that they planned to make that change (See Table IV, Page 17), and 80% of the 20 letterpress newspapers interviewed said they plan to change to offset or a modified letterpress operation.

   Large newspapers in Texas have no immediate plans to change to offset operations, but most of them plan to change to a photographically produced plastic or zinc platemaking process when a good one becomes available. All of the production managers of large newspapers (1000,000 circulation or greater) interviewed have been investigating the possibilities of using photographically produced plate and indicated that it is just a matter of time until the process becomes good enough to be useable. When and if this happens, even the large newspapers will be able to use cold type composition methods more extensively, which will eliminate the need for stereotypers and linotype operators.

2. There will be a drastic reduction in the need for stereotypers and linotype operators in newspaper production in the next five years (See Tables II and III, Pages 13 & 15). These tables indicate a 53% decrease in the need for stereotypers and a 22% decrease in the need for typesetters. The 22% decrease does not show the full impact of the change in the need for linotype operators because the questionnaire did not separate cold type composition from hot type composition. This 22% decrease indicates a total reduction in force in composing rooms when the 49.5% of Texas letterpress newspapers make the changes they plan. The actual reduction in the need for linotype operators as a result of the planned change is probably close to 50%.
   The total number of people required to print Texas newspapers will decrease over the next five years. Table II figures taken from the questionnaire show a decrease of 22% in printing production workers in the foreseeable future. This was substantiated by comments received from production managers (See Section IV, 3) during the interviews.
3. Many of the people working in the new processes will be those who have been re-trained. Table V, Page 19,

shows the sources from which managers expect to get workers in the new processes. Table XIII, Page 33, lists the skills most often mentioned in the interviews as being most important in the changed processes. Offset managers who should probably be the most knowledgeable because they are already working in the new processes, mentioned pasteup, layout, camera, typing and photocomposition as the most needed skills. Engraving and offset platemaking also were mentioned often by letterpress managers and stereotypers. The length of time mentioned for a short course to supply the needed skills was in a range from 2 weeks to 2 years, but 95%, or 68 of the 71 interviewed, mentioned 2 weeks to 2 months, depending on the skill.

4. Most responding managers and stereotypers (77% of those interviewed) believe that the best course of action for a worker threatened by loss of employment is to stay with his newspaper and be re-trained (See Table VII, Page 22).

5. Responding newspapers will have fewer people working in printing production in the next five years than they do now, Table II. Pay rates for workers who are re-trained in the new processes will probably

remain about the same as before they were re-trained (See Table VI, Page 20). The increases in the number of jobs will probably occur in the areas of offset platemaking and camera operating. All other identified areas will probably show a marked decrease in the number of people employed (See Table II, Page 13).

6. Most responding stereotypers want to re-train (See Table VII, Page 22).
7. Most responding newspapers were willing to pay for re-training, although some individual employees and unions were also willing to contribute money (See Table VIII, Page 23).
8. Educational institutions who educate students for employment by newspaper production departments should emphasize layout, pasteup, camera work, engraving, typing photocomposition and offset platemaking.
9. Although the number of work stations for camera work and platemaking are limited and present facilities make no provision for engraving and photocomposition, a re-training program for stereotypers who wish to become familiar with offset processes could be completed with the present facilities at Eastfield College.

Recommendations

1. It is recommended that graphic arts programs that educate people to work in newspaper printing departments make their students aware of the changes that are occuring in newspaper printing production and emphasize offset printing processes.
2. It is recommended that a small number of schools with adequate offset facilities in the areas of the state (See Figure 1, Page 49) where there are large concentrations of stereotypers and linotype operators discuss with local newspapers the possibilities of offering courses specifically for re-training.
3. It is recommended that a study be undertaken to determine the effects of automation on the entire printing industry in Texas. This study should be directed toward determining what skills are presently used in printing, what skills will be used in the future, what levels of skill will be required, how many people will be needed and what effects changes will have on graphic arts curricula.

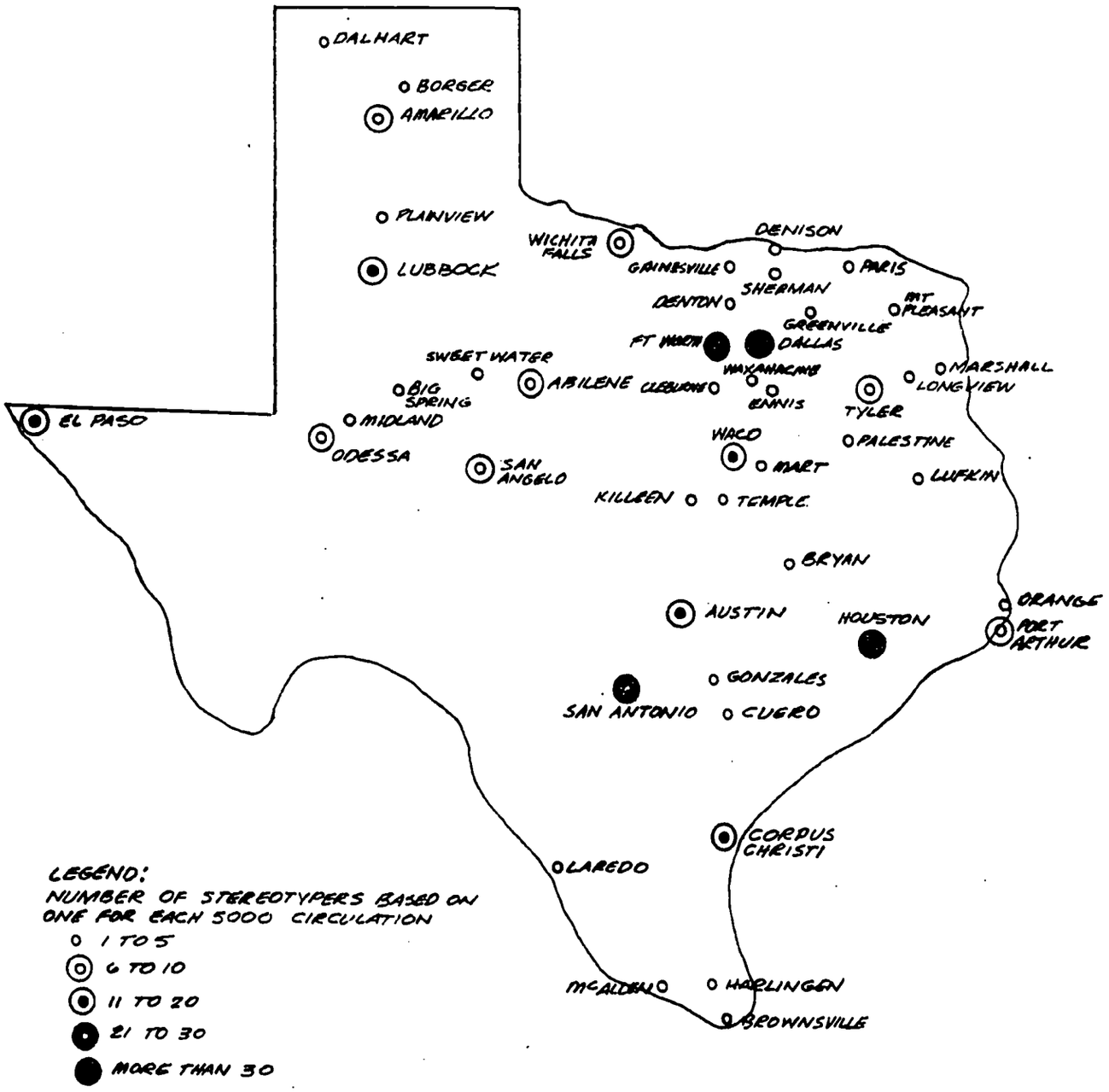

FIGURE 1 - LOCATIONS OF DAILY TEXAS NEWSPAPERS EMPLOYING STEREOTYPERS

APPENDIX

EASTFIELD COLLEGE OF THE DALLAS COUNTY JUNIOR COLLEGE DISTRICT

EASTFIELD COLLEGE

COVER LETTER

April 24, 1972

P. J. Paschal, Vice President
Dallas Sterotypers Union
Local #87
3710 Hogan Drive
Mesquite, Texas 75149

Dear Sir,

Thank you for agreeing to serve as a judge for our survey of printing manpower requirements in the newspaper industry. The attached questionnaires include all the questions in our survey that require the opinions of judges. Therefore, your responses to these two questionnaires will be all that we will ask of you unless you or one of the other judges wishes to add other questions to the questionnaire.

Please indicate whether you consider each question appropriate or inappropriate for use in this survey by placing a check in one of the shaded columns to the left of each question. Do not answer the questions at this time. If you wish to add a question please do so at the bottom of the page. A copy of the results of this survey will be mailed to you in late July or early August. Your participation is essential to the accuracy and completeness of this survey, and we are grateful that you have agreed to help us.

Sincerely,

James M. Kirkpatrick

James M. Kirkpatrick
Project Director

JMK/bab

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QUESTIONNAIRE A

PROJECT PRINTING MANPOWER

Newspaper Questionnaire

1. What is the circulation of your newspaper? _____

2. What is the major printing process used in your printing department?

_____Offset

_____Letterpress

_____Other

_____Please List

3. Do you plan to change from the major printing process indicated above?

_____No

_____Yes, When — within

_____1 year _____2 years _____3 years

_____4 years _____5 years or more

4. What will the new process be?

_____Offset

_____Other

_____Please List

_____Letterpress

_____No new process

5. How many workers are presently employed in your printing department?
How many will be employed in the foreseeable future?

Now		Foreseeable Future
_____	Stereotypers	_____
_____	Printers (Typesetters-Composition)	_____
_____	Pressmen	_____
_____	Bindery	_____
_____	Offset Platemakers	_____
_____	Camera Operators	_____
_____	Other	_____

6. What unions are represented in your printing department? (If none write none below)

_____

_____

7. From where do you get new employees to work in your printing department?

____Off-the street (with no printing experience)	____High School Programs	____Junior College Programs
____Senior College Programs	____Other Newspaper or Printing Companies	____Trade School Programs
____Retrain or transfer from other jobs	____Other	

8. From where will you get workers in the changed processes? (Do not answer if no changes are contemplated)

____Off-the-street (with no printing experience)	____High School Programs	____Junior College Programs
____Senior College Programs	____Other Newspaper or Printing Companies	Trade School Programs
____Retrain or transfer from other jobs	____Other	

9. Will most workers that are retrained for a new skill receive wages comparable to the wages they made in their obsolete skill?

____Less money than they made before	____About the same as they made before	____More than they made before
____This question does not apply to this newspaper		

10. Would your newspaper be interested in offering some of its resources (space, equipment, people to teach, money) to provide retraining of newspaper workers whose skills become obsolete? (This is not a commitment)

____Yes ____No

____Space

____Teachers

____Equipment

____Money

QUESTIONNAIRE B

PROJECT PRINTING MANPOWER

Stereotypers Questionnaire

1. Is most of your time on the job spent in making, preparing or supervising the making of stereotype plates?

   _____Yes _____No, mostly I work as a_____

2. What is the major printing process used in your printing department? _____Offset _____Letterpress _____Other

3. Does your newspaper have plans to change to another process for most of its production? _____Yes _____No

4. What skills will no longer be needed in your operation if the major equipment changes are made?

   _____Stereotypers _____Printers

   Other — Please Describe_____

   _____

5. If your present occupational skill becomes obsolete, do you wish to undergo retraining to stay in the printing field?

   _____Yes _____No

6. If you get out of printing, what field of work do you plan to enter?_____

   _____

7. Do you plan to request jurisdiction over platemaking in the new process? _____Yes _____No _____Has already been granted

8. Do you foresee competition from other employees for jurisdiction over new process platemaking?

   _____Yes _____No

9. Do you presently have an in-plant program to retrain workers whose skills have become obsolete?

   _____Yes _____No

10. Is there a stereotyper's union where you work?

    _____Yes _____No

11. Would your *union* be willing to offer some of its resources (space, people to teach, or money) to provide retraining of stereotypers to allow them to remain as productive workers in the newspaper industry?

    _____No _____Yes, _____Space _____Teachers _____Money

12. Do you think that other employees (printers etc.) on your newspaper would be willing to offer similar resources to provide for retraining? _____Yes _____No

13. Do you foresee changes in your apprenticeship programs as a result of equipment changes? _____Yes _____No

Interview Guide
(For Union Officials and Workers)

1. What is your job with this newspaper?_____.
   What is your relationship with the local stereotypers union?
   _____.

2. Does this newspaper plan to make major equipment changes such as changes from letterpress to offset in the near future? _____. Later?_____. If so, what equipment has been chosen? If not, why have they chosen not to change?_____
   _____.

3. What are the advantages of the new processes?_____
   _____. What are the disadvantages?
   _____

4. What types of workers will be affected by these changes? _____
   _____. Can these same workers be used successfully in the new processes?_____. What course of action do you believe would be best for a worker threatened by loss of employment as a result of these changes? (Look for another job within the company, go elsewhere, put pressure on the union to obtain jurisdiction, etc.)._____
   _____
   _____.

5. What skills will be necessary if major equipment changes occur?
   _____
   _____.

6. Do you know of an existing program in a local or state educational institution that will provide the necessary new skills?

Page 2

6. con't

Please comment on the program._____

_____

_____.

7. Do you believe that a short-term retraining course provided by a local high school or junior college could provide the necessary retraining for workers with obsolete skills?_____. How long should it be?_____. Who should teach it? _____. Do you foresee union objections to this? _____.Does the company have objections?_____ _____. Who would pay for it? _____. What other sources of funds do you think would be available?

_____.

What equipment should the worker be given instruction on? _____

_____.

What kinds of instruction do you think would be most effective (Lecture, lab work, small group discussions etc.). _____

_____.

8. Would you be willing to undergo retraining in the new skills?_____. How do you feel about being retrained?_____

_____

Would you attend classes at night?_____ In the day_____. Do you believe that the new processes are really that much better? _____ _____. What do you plan to do if new equipment is purchased and new skills are required?_____

_____

_____

Page 3

3. con't

What can your union do for you? _____

_____

What can your company do for you? _____

_____

9. Please make a summary statement concerning the total number of employees affected by new equipment changes, what your company plans to do about them? _____

_____

_____

_____

_____.

What your unions plan to do about them, the problem of jurisdiction, and any other statement you wish to make? _____

_____

_____

_____

_____

_____.

Interview Guide (For managers)

1. What is your job with this newspaper and what do you have to do with new equipment? PUBLISHER

2. Do you plan to make major equipment changes such as changes from letter press to offset operations in the near future? _____ Later? I.

If so, what brand names of equipment have you chosen? Or what equipment are you contemplating? N/C

If not why have you chosen not to change? BECAUSE OF THE HELP - MAKE MORE MONEY WITH HOT TYPE

3. What are the advantages of these new-processes? EXPENSIVE — FASTER

What are the disadvantages? UNKNOWN

1. What types of workers will be affected by these changes? ST. FLOOR MAIL LAYOUT OPERATOR —

Can these same workers be used successfully in the new processes? N/C. MAIL IN THIS PAPER IS VERY OLD What course faction do you believe would be best for a worker threatened by loss of employement as a result of these changes? (Look for another job within the company, go elsewhere, put pressure on the union to obtain jurisdiction, etc.).

STAY WITH CO.

5. What new skills will be necessary if major equipment changes occur?

PASTE-UP — CAMERA OPERATION

6. Do you know of an existing program in a local or state educational institution that will provide the necessary new skills? Please comment on the program. N/C

7. Do you believe that a short-term retraining course provided by a local high school or junior college could provide the necessary re-training for workers with obsolete skills? YES. How long should it be? WHAT THEY WERE TAKING. 2-3 YRS IN PRINTING. Who should teach it? EXPERT. Do you foresee union objections to this? N/C. What objection does the company have, and what be they? NONE

Who would pay for it? YES. What other sources of funds do you think would be available? FEDERAL

What equipment should the worker be given instruction on? CAMERA PASTE-UP

8. Please give some specific examples of the change in pay that a stero-typer (or another worker whose skill became obsolete) could expect after he has been trained in the new processes. (Examples, sterotype platemaker to offset platemaker.) ST. $3.80 - $4.00 SALARIES WOULD WOULD GO DOWN AND - UNSKILLED WOULD GET $1.60

3. Please give a summary statement concerning the total number of employees affected by new equipment changes, what you company plans to do about them, what your understanding with the union is about the changes, and any other statement you wish to make. WOULD NOT HAVE TO RUN ALL OVER THE GET PAPER OUT.

HOT TYPE ADVANTAGE — EASY TO DO

(2D ST.

WOMEN TO TAKE THEIR PLACE

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EVOLUTION OF THE FOOD STAMP PROGRAM.

OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER, WOOSTER.
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IDENTIFIERS - *FOOD STAMP PROGRAM

ABSTRACT - THIS PUBLICATION TRACES IN CHRONOLOGICAL ORDER THE EVENTS LEADING TO THE CREATION OF THE FOOD STAMP PROGRAM IN 1939. IT ALSO RELATES THE CONTINUING CHANGES SINCE THE 1964 ACT AND THE CHANGING PUBLIC OBJECTIVES OF THE PROGRAM. THE FOOD STAMP PROGRAM WAS DESIGNED IN THE 1930'S TO SUBSIDIZE FOOD CONSUMPTION OF LOW-INCOME PEOPLE, BOTH TO IMPROVE THEIR NUTRITION AND TO HELP FARMERS MOVE AGRICULTURAL SURPLUSES. THE 1964 LAW CHANGED THE PURPOSE OF THE PROGRAM BY REMOVING THE RESTRICTION ON FOOD SELECTION AND THUS THE STIGMA OF ALLOWING THE POOR ACCESS TO ONLY SURPLUS FOODS. OTHER CHANGES, CONTINUED GROWTH, AND THE FUTURE OF THE PROGRAM ARE OUTLINED. (MF)

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Evolution of the Food Stamp Program

DAVID R. LONG

HOWARD C. WILLIAMS

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Appendix 13

FOREWORD

The purpose of this publication is two-fold. It is an attempt to place in proper chronological order the events which led to the creation of the Food Stamp Program (not once but twice), as well as its continued changes since 1964. It also relates the changing public objectives relating to the purpose of the Food Stamp Program.

This history of the Food Stamp Program is needed to place the current operation of the program in its proper perspective before evaluating program effects. Others directly connected with food stamp operations at the local and state levels may gain insight into objectives of the entire program rather than just their respective parts. The average taxpaying citizen may also benefit from this publication and be able to better interpret program actions and results in the future.

This publication required pulling together many small pieces of information from many varied sources. For a complete listing of all references, consult Long, David R. 1970. Socio-Economic Characteristics of Some Potential Low Income Participants in the Food Stamp Program in Ohio. M.S. thesis, The Ohio State University.

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Evolution of the Food Stamp Program

DAVID R. LONG and HOWARD C. WILLIAMS

INTRODUCTION

The Food Stamp Program is designed to subsidize food consumption of low-income people to accomplish several purposes. These purposes include: 1) improving the quantity and quality of the diets of poor people who for lack of sufficient incomes are unable to provide nutritionally adequate diets for themselves or their children; 2) improving the total demand for agricultural products, thereby strengthening and increasing prices received by farmers for their products; and 3) to attain these goals through the most efficient means possible (the existing retail marketing structure).

Evolution of an Idea

At the end of the 1930's, it was estimated that as many as 30 million people had inadequate purchasing power to provide themselves with sufficient quantity or variety in their diets. At the same time, large surpluses of agricultural commodities, which existed because of excess capacity in agriculture, didn't move to the consumer. This was especially true of about 12 to 15 commodities which experienced relatively inelastic demand and which suffered most when purchasing power dwindled. Commodities in this group included dairy and poultry products, meats, and fresh fruits and vegetables.

Authority to Act

Authority to combat this situation was created under Section 32 of the amended Agriculture Act of August 24, 1935. Section 32 made possible the use of up to 30 percent of customs receipts during each calendar year and unused balances up to $300 million for encouraging the exportation and domestic consumption of agricultural commodities. Means available to accomplish increased exportation and domestic consumption included:

1. Purchases for distribution through state distributing agencies to school lunch programs, needy persons, and eligible institutions.
2. Expansion of outlets for agricultural commodities by helping needy families improve their diets through pilot food stamp projects.
3. Encouragement of exports through payments which permit the sale of surplus commodities in foreign markets.
4. Encouragement of domestic consumption by diversion from normal channels of trade to by-products and new uses.

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Using the authority of Section 32, a committee was appointed by Jesse Tapp, head of the Commodity Credit Corporation, to develop a program to use these food surpluses to help poor families. Two ideas were proposed by this committee. The first proposal was that a system of government warehouses to store the surpluses should be built and distribution of surplus foods to the poor could occur from these warehouses. The second proposal was for the establishment of a food stamp plan which would utilize the existing market system to distribute food to the poor families by giving these people free stamps to exchange for surplus commodities at the market.

No decision was made to accept either proposal until Milo Perkins succeeded Jesse Tapp as head of the Commodity Credit Corporation. Perkins favored the food stamp proposal presented by committee member D. J. Christy and drafted the necessary legislation. The result was a Food Stamp Plan which was first implemented in Rochester, N. Y., on May 19, 1939.

THE 1939 FOOD STAMP PLAN

Purposes and Expectations

The purpose of the 1939 Food Stamp Plan was at least two-fold. The first purpose was to bolster a sagging demand for specific agricultural products. A second consideration was to make these specific agricultural products available to poor families who were unable to provide themselves with sufficient foods to be properly nourished. An underlying intent of the plan was to accomplish the two purposes of the program in the most efficient manner; i.e., by using the existing retail marketing system.

The expectations of such a program were that: 1) there would be a significant net addition to demand for those agricultural commodities which were in excess supply, and this would raise prices to farmers for these products; 2) the higher farm product prices would raise farm incomes and contribute to more favorable price and income expectations; 3) poor people would have significant additions of quantity and quality to their diets; 4) food retail stores would do more business; and 5) as a result of these effects, economic activity would increase in most areas of the United States.

Provisions of 1939 Food Stamp Plan

Specific regulations stated that if a person was on public assistance, he could voluntarily buy food stamps at the minimum rate of $1 per person per week for each member of his household. For each $1, he received orange stamps which could be used to buy any food items valued

at $1. Each $1 of orange coupons bought entitled the person to 50¢ worth of blue coupons at no additional charge. These blue stamps had to be used on specified surplus commodities. The orange and the blue stamps, each valued at 25¢, were obtained from welfare agencies by participants. The store owners redeemed them by pasting them on cards and exchanging these cards for money at banks through wholesalers or at the Surplus Marketing Administration.

Results of 1939 Food Stamp Plan

Preliminary results indicated increases from 30 percent to more than 300 percent in sales of certain surplus commodities in markets where the plan was in effect. At its peak in 1941, the Food Stamp Plan helped more than 4 million people. However, the program was not long lived for at least two significant reasons. First, due to a lack of safeguards in program administration, many people sold their coupons to other individuals to get money to use for non-food items and for foods not considered in surplus. This posed a serious administrative problem. Compounding this problem was the handling of two types of coupons, which was extremely difficult and cumbersome and made further violations possible. Most significant in ending the Food Stamp Program was the outbreak of World War II. The war created jobs, raised wages, and did more to stimulate domestic and foreign agricultural demand than any food stamp program could ever hope to do. Since the program's primary emphasis was to dispose of surpluses (improve demand for certain agricultural commodities), the Food Stamp Plan was quietly shelved in 1943.

Major emphasis was placed on surplus disposal in the 1939 program. Despite this, however, many citizens felt that feeding the poor was as worthwhile as getting rid of surpluses. A statement from then Secretary of Agriculture Wallace in March 1939 verifies this:

"If this plan is fully successful, it means that the day is not far distant when all of the people of the United States will be adequately nourished. Gentlemen, it may well be that you are pioneers in one of the most significant public health movements of our time."

FURTHER DEVELOPMENTS

As the 1950's drew to a close, the forces at work in the economy again were exerting pressures not unlike those of the 1930's which culminated in the first Food Stamp Plan. The forces themselves were somewhat different. Agriculture had geared itself to war-time production levels during the 1940's and had experienced relatively high prices and general equilibrium between supply and demand of agricultural

products. Supplies of goods increased rapidly from an agricultural industry geared to meet the growth rate of demand created in the war effort through the adoption of new technology. With the end of World War II, part of the war demand for agricultural products disappeared. With relatively full employment continuing after the war, domestic consumers changed their total consumption very little. Consequently, the growth in demand was about equal to the growth in population and foreign aid programs.

A much smaller proportion of the population was experiencing difficulty in trying to maintain adequate incomes to provide the necessities of life. Authorities were made aware of these groups of poor people not by the magnitude of numbers as in the 1930's but by the growing disparity between these poor and the rest of society.

As a result of this awareness, several attempts were made in the House of Representatives and the Senate to pass bills for re-establishment of a food stamp plan. However, the administrative difficulties of the early 1940's were well established in the minds of many legislators and in the voting districts they represented. A large part of the public remembered how easily the real purpose of the program was avoided by participants and the difficulties in modifying administrative procedures to eliminate abuses.

The proposed bills drew most of their legislative support from the ranks of agriculture. This created additional problems since its supporters presented it as a multi-purpose program of strengthening agricultural demand, providing adequate diets to poor people, and as a means of stimulating general business activity through increased retail sales. Many legislators viewed it as an effort to get further price supports for agriculture since during the post-war period the nation had experienced relatively full employment, rising incomes, and excess productive capacity in agriculture evidenced in growing stocks and the withdrawal of land from cultivation.

Authority for Initiation of Pilot Project

After much debate, a bill (H.R. 8609) passed both houses of Congress in 1959 and became law. This act gave the Secretary of Agriculture the authority to conduct a pilot food stamp program using Section 32 funds to finance its operation and determine its efficacy in coming to grips with the problem. Secretary of Agriculture Ezra Taft Benson decided against starting such a program. A pilot food stamp project wasn't initiated until President John F. Kennedy issued an Executive Order in January 1961 directing that Secretary of Agriculture Orville L. Freeman establish a pilot food stamp plan in several economically depressed areas.

ED 037090

Pilot Project

The initial pilot project was established in eight areas across the United States which were experiencing high levels of unemployment.[1] Initial studies by the USDA indicated extremely favorable results with respect to increases in retail sales, increases in numbers of people with adequate diets, and increases in the demand for several agricultural products, especially livestock products. Administrative studies of these pilot projects also indicated a minimum amount of abuse and violation of the regulations by either participants or retailers.

The pilot project expanded from eight areas and a $2.4 million volume of food stamp business in 1961 to 43 areas issuing $50 million worth of food stamps in 1964. Of this amount, 37 percent or $19 million represented bonus stamps. As of January 1964, 279,000 people used food stamp coupons, with the average person spending $13.85 a month and getting $22.11 in coupon value.

The program continued to operate on an expanded pilot basis in 43 areas of 22 states, using Section 32 funds to pay the costs until June 1964.

FOOD STAMP LAW

The favorable experience with the pilot project generated enough support that another Food Stamp Bill (H.R. 10222) was passed in the House and its corresponding Senate version was passed soon after. This bill was signed into law by President Lyndon B. Johnson in August 1964.

The Food Stamp Act (PL 88-525), unlike the act of 1959 which provided discretionary authority for the Secretary of Agriculture to establish a pilot program, established operation of the program for a 3-year period. The authorized funding level was $100 million for each year, with the program no longer using Section 32 funds but depending on appropriations by Congress as a regular budget item.

Change in Purpose

The 1964 law provided for an important change in operation and a resulting change of purpose from the 1939 Food Stamp Plan. The change in operation was the removal of the restriction which allowed the use of food stamps on only a few selected food items. The effect of this program change was to make the program more palatable to potential participants by giving poor people access to most of the foods which the average U. S. consumer purchased. This removed the stigma of

[1]These eight areas were: Detroit, Mich.; Franklin County, Ill.; Floyd County, Ky.; Virginia-Hibbing-Nashwauk area in Minnesota; San Miguel County, N. M.; Silver Bow County, Mont.; Fayette County, Pa.; and McDowell County, W. Va.

allowing poor people access to only *surplus foods* and made the program administratively more manageable by eliminating some of the incentive to violate program regulations.

Besides these more apparent results, there was an indication that some change in the priority of objectives had occurred. The 1939 program had allowed only selected surplus items to be purchased with bonus stamps. This placed major emphasis on the objective of surplus disposal and minor emphasis on the objective of better nourishing diets for the poor. With the program change, a recognition of the needs of poor people gained more emphasis than it had previously enjoyed. However, the purpose of adding to net consumer demand of agricultural commodities was not overlooked. The program regulations stipulated that purchase requirements would be consistent with what the family had spent for food before entering the program. This was an effort to effectively cut off substitution of food money for non-food purposes.

Mechanics of Current Food Stamp Program

The mechanics of the current Food Stamp Program differ from those of the original pre-World War II program. In the present program, the USDA works closely with state and local welfare authorities in administering the program. Through 1970, the state welfare agencies had established eligibility requirements for various family sizes based on welfare rates imposed by each state.

Since the welfare program requirements vary from state to state, there is a certain amount of inconsistency within the system. A family might qualify for a welfare program and/or Food Stamp Program in one state but not qualify in a neighboring state.

With the exception of mixed households, all households already receiving some form of public assistance in a particular state are automatically eligible for food stamps and are certified to participate in the program if they have cooking facilities. In addition to public assistance households, many non-public assistance households are within the eligibility requirements established by their adjusted income and other factors. Other criteria for determining eligibility include doctor and dental bills which persist over long periods of time, and unusually high rent for housing. They also must have cooking facilities.

If a family is eligible, then it is certified to participate. The household may be recertified only once a year if it is a long-time public assistance household or it may be required to be recertified each month if it is a non-public assistance household and its income undergoes considerable fluctuations within the period of a year. A non-public assistance household does not become eligible unless it takes the initiative by contacting the proper agency with the necessary information.

The purchase requirement for a household depends upon its adjusted income and its family size and may change as its adjusted income and family size changes. Wide fluctuations in a household's adjusted income can cause it to be eligible one month, ineligible the next, and eligible the third. This can make certification a cumbersome process.

The Food Stamp Act of 1964 placed the minimum purchase requirement for participation in the program at $2 per person per month for the poorest of the poor people. With the exception of the very poor, the purchase requirements were set so that a particular family size with a particular income would continue to spend for food what the average family of those characteristics would normally spend before participation. In this way the bonus stamps were designed to be used for net additions to quantity and quality of diets. Participating households receive a card monthly, bimonthly, or weekly from the local welfare agency indicating the purchase requirement and the bonus dollars (in terms of stamps) to which they are entitled. The participant takes this card to a bank or welfare agency which sells the stamps and purchases his specific amount of food stamps for his particular cash outlay.

These food stamps are only accepted by participating retail stores which have also been approved by the state agency in charge of certifying retail stores. The coupons are all one kind but are of several denominations, the smallest being a 50¢ coupon. The coupons are also in booklets of various cash values. Each booklet must be signed upon purchase at the bank. The retail store cannot accept the coupons if they are detached from the booklet. Since the store reserves the right to require identification at the check-out counter, violations and abuses common under the earlier program are believed to be minimized. The coupons may be used to buy any foods except foods which specify on their label that they are imported. Exceptions in the import category which may be purchased are coffee, tea, bananas, and cocoa.

After the store owner receives the food stamps as payment for purchases by the participant, he returns the coupons to the bank where he is paid the face value of the coupons. The bank completes the final transaction by being paid from the Federal government's account for the redeemed coupons.

The administrative safeguards in this program are more numerous and more effective than in the first Food Stamp Program.

CONTINUED GROWTH

The Food Stamp Program expanded from 43 pilot areas in 1964 to 477 areas in 1966 and 848 areas in December 1967. The number of persons participating increased from 1.3 million in 1966 to 2.1 million in December 1967. In a further attempt to reach more poor people, the purchase requirement was reduced in mid-1967 to 50¢ per person per month for the lowest income people, with a maximum of $3 for a family of six or more. To further encourage poor people to participate, the first month's purchase requirement was reduced to one-half of normal. Program aides were hired from the ranks of the poor to help facilitate communication of the program to other poor people.

By the end of 1967, the bonus coupons amounted to nearly $14 million per month. In fiscal 1968, the rate of participation in existing areas jumped by 22 percent, which was much larger than the expected 15 percent increase. This large increase was due to modifications in the program which reduced initial purchase requirements by one-half and reduced the regular requirement for the poorest people to 50¢ per person per month. This required a slowdown in the rate at which new areas could enter the program since a deficit in funds would have occurred. Despite this funding problem, the Food Stamp Program had 2.6 million participants in 1968.

Administration Proposals for Changes

From 1961 to 1968, the general procedure was to fix the purchase requirement as close as one could to actual food purchases which a family could make without help and then add additional buying power to this with bonus stamps. In 1969, efforts were made to shift the emphasis of the program with several proposed amendments to the original act of 1964.

These proposed amendments stated that the total food stamp allotment should be equivalent to the cost of a nutritionally complete diet. The purchase requirement should be adjusted so that a family pays no more than 30 percent of its income for food instead of 50 to 60 percent as in many cases previously. Food stamps should be provided at no cost to those households with little or no cash income. A multi-year program should be approved with a rising level of funding which would insure a program for every area and an ultimate goal of a Food Stamp Program replacing the Commodity Distribution Program in all areas. The eligibility provisions would be revised to require the Secretary of Agriculture to establish uniform national standards instead of eligibility being linked to individual state welfare levels. In addition, the funding

level for the Food Stamp Program was to be fixed at $640 million for 1969 and for whatever amounts Congress would authorize through 1973.

The proposed amendments did not receive sufficient support by Congress. But the result of administrative attempts to reorganize the program with stronger welfare considerations resulted in the Secretary of Agriculture, under authority of the Food Stamp Act, reducing purchase requirements to participating families and increasing the bonus stamps to more nearly approximate an expenditure for food by these families consistent with the proportion of income spent for food by the average U. S. family. In December 1969, the Food Stamp Program was serving 3.6 million persons.

Continuing Changes in Purpose

The actual changes within the Food Stamp Program, although not as comprehensive as the proposed amendments, initiated a major change in the purpose of the Food Stamp Program. The major emphasis was now on the quantity and quality aspects of diets in the program rather than direct benefits to producers and retailers which previously had been considered a dual role of the program.

The reduction of purchase requirements and increase in bonus stamps eased the previous regulations which guarded against substitution of food money for non-food uses by participants. The bonus stamps no longer approximate a net addition to expenditures for foods. The fact remains that the net addition to agricultural demand is probably greater than it was before the program change, even though opportunities for substitution of non-foods for foods were increased. The much liberalized benefits have increased the volume of participation and the incomes of these participants to such an extent that the substitution effect is more than offset by an income effect resulting in increased food consumption as well as increased non-food purchases (Appendix Table I).

Since 1939 the Food Stamp Program has evolved from being predominantly agriculture oriented to being predominantly consumer oriented. The primary concern is no longer improvement in demand for agricultural products and increased farm prices, but is now a supplement to welfare programs in an effort to better nourish poor people at costs they can afford.

Changes in 1970

In 1970, other changes in the program were implemented. The first raised the maximum monthly net income restrictions for various family sizes. This makes it possible for more families to become eligible to participate in the program and broadens the base of its effectiveness

as a poverty program (Appendix Table II). Uniform eligibility standards for participants of all states were passed, but not implemented at that time.

The second change was an item which, although small, made it easier for participants and food retailers to put the program to use. Until 1970, store owners were required to give a due bill to participants for change due them on a 50¢ coupon up to 49¢. This took time and created a bookkeeping problem for the retailer. Now the retailer can give the change up to 49¢ in cash to the participant.

Another change involved being able to pay deposits on returnable bottles with food stamps. Previously these items had to be kept separate and paid for with cash by participants. This change speeds up check-out time for the retailer.

A NEW LAW AND THE FUTURE

The Food Stamp Program's evolution to a bonafide welfare program has created the need to evaluate its efficiency in terms of other welfare approaches to poverty. It might be expected that if this type of program continues as a vehicle to combat poverty, it will be modified to be consistent with other approaches. It will also be subject to the prevailing societal whims which serve as constraints on such programs. For example, in mid-1970 a Food Stamp Bill (HR 12222) was amended to include a work provision which stated that able-bodied adults be required to register for and if available accept employment as a necessary condition to obtain food stamps. The modified bill became Public Law 91-671 late in 1970. (The changes in program regulations reflecting the intent of PL 91-671 were expected to be forthcoming in 1971.) Legislation was also proposed with respect to strikers participating in the program (S 781), since this had become a heated issue in 1970 both in Congress and by the taxpaying public.

The Food Stamp Program as it has evolved over more than three decades has increased total food consumption and the quality of diets. The net addition to food expenditures as represented by bonus stamps has increased from $19 million in 1964 to nearly $1 billion for the 12-month period ending November 1970. This represents a 50-fold increase in bonus coupons compared to a 35-fold increase in participants from 280,000 to 9.3 million. Bonus stamps per participating household member have increased considerably over the life of the program. It might be expected that in the near future the number of persons participating will increase and thereafter diminish, while the amount of stamps per person issued will likely continue to increase.

APPENDIX

TABLE I.—Trends in Participation and Bonus Growth for Food Stamp Program in U. S.

Month		Participation Food Stamps	Bonus Stamps
		Persons	
1968	December	2,821,867	$ 18,401,237
1969	January	2,869,435	18,577,612
	February	3,019,638	20,671,629
	March	3,179,070	21,637,288
	April	3,205,013	21,596,242
	May	3,192,781	21,082,171
	June	3,224,233	21,586,225
	July	3,317,469	22,399,334
	August	3,343,806	22,308,989
	September	3,417,660	23,133,480
	October	3,447,246	22,960,044
	November	3,490,645	23,331,192
	December*	3,645,202	24,604,685
1970	January	3,795,455	26,873,101
	February†	4,416,450	54,856,541
	March	5,074,560	70,794,057
	April	5,629,377	80,302,489
	May	6,070,248	86,493,273
	June	6,469,946	91,591,972
	July	6,947,599	98,098,155
	August	7,171,290	100,234,744
	September	8,200,000	117,000,000
	October	8,800,000	120,800,000
	November	9,300,000	124,600,000

*New legislation effective.
†New legislation implemented
Source: USDA 4016-70.

TABLE II.—Income and Asset Requirements and Revisions for Food Stamp Participation.*

Household Size	Maximum Monthly Net Income Before March 1970	Maximum Monthly Net Income After March 1970	Maximum Liquid Assets
1	$130	$135	$1,000
2	$200	$200	$1,500
3	$225	$235	$1,500
4	$260	$270	$1,500
5	$295	$310	$1,500
6	$330	$355	$1,500
7	$365	$395	$1,500
8	$400	$435	$1,500
9	$435	$470	$1,500
10†	$470	$535	$1,500

*These data relate to Ohio's Food Stamp Program. Each state varies from these requirements because state welfare agencies determine entrance requirements.

†For households in excess of 10 members, the maximum monthly net income was $470 plus $35 for each additional member before March 1970 and after this it was $535 plus $50 for each additional member. Liquid assets remained the same.

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Green Springs Crops Research Unit, Green Springs, Sandusky County: 26 acres

Jackson Branch, Jackson, Jackson County: 344 acres

Mahoning County Farm, Canfield: 275 acres

Muck Crops Branch, Willard, Huron County: 15 acres

North Central Branch, Vickery, Erie County: 335 acres

Northwestern Branch, Hoytville, Wood County: 247 acres

Pomerene Forest Laboratory, Keene Township, Coshocton County: 227 acres

Southeastern Branch, Carpenter, Meigs County: 330 acres

Southern Branch, Ripley, Brown County: 275 acres

Western Branch, South Charleston, Clark County: 428 acres

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WOOLSEY, JAMES; PAULSEN, RUSSELL
APV--A PROPOSED RESEARCH DESIGN MODEL FOR PREDICTING EARLY STUDENT WITHDRAWAL FROM DISTRICT 15. FINAL REPORT.

NORTH CENTRAL TECHNICAL INSTITUTE, WAUSAU, WIS.
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ABSTRACT - THE PURPOSE OF THIS FEDERALLY FUNDED STUDY WAS TO TEST THE POSSIBILITY OF PREDICTING STUDENT DROPOUT BEFORE IT OCCURS AT NORTH CENTRAL TECHNICAL INSTITUTE (NCTI). THE HYPOTHESIS PREDICTED THAT A 3-DIMENSIONAL ATTRITION MODEL COULD BE DEVELOPED FOR EACH STUDENT WHICH COULD PREDICT THE LIKELIHOOD OF HIS CONTINUING OR DROPPING OUT OF THE SCHOOL. THE THREE PREDICTOR VARIABLES WERE: (1) PREDICTED ABILITY, TO INCLUDE IQ SCORES AND APTITUDE TEST SCORES; (2) DEMONSTRATED ABILITY, TO INCLUDE PAST ACADEMIC PERFORMANCE REFLECTED BY GRADE-POINT AVERAGES AND RANK IN CLASS; AND (3) ATTITUDES, MEASURED ALONG SEMANTIC DIFFERENTIAL JUDGMENTS OF SCHOOL IN GENERAL AND NCTI IN PARTICULAR. COMPUTER PROGRAMS ANALYZED DATA OBTAINED FROM WITHDRAWING, ENTERING, AND CONTINUING FRESHMEN IN ORDER TO CONSTRUCT THE DESIRED MODEL. TENTATIVE CONCLUSIONS SUGGESTED THAT THE WITHDRAWING FRESHMAN HAS A BELOW AVERAGE ATTITUDE TOWARD SCHOOL AND NCTI; HE HAS ABOVE-AVERAGE PREDICTED ABILITY, BUT IS BELOW AVERAGE IN DEMONSTRATED ABILITY, AT LEAST IN HIGH SCHOOL. ATTITUDE STUDIES SHOULD BE EXTENDED TO SHOW MORE SIGNIFICANT DIFFERENCES. FURTHER RESEARCH ALONG THESE LINES SHOULD INCLUDE THE ENTIRE STUDENT BODY. (AG)

FINAL REPORT

Project No. 15.035.151.222

APV - A PROPOSED RESEARCH DESIGN MODEL FOR PREDICTING EARLY STUDENT WITHDRAWAL FROM DISTRICT 15

JUNE, 1972

NORTH CENTRAL TECHNICAL INSTITUTE
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Final Report

Project No. 15.035.151.222

APV - A PROPOSED RESEARCH DESIGN MODEL FOR PREDICTING EARLY STUDENT WITHDRAWAL FROM DISTRICT 15

James W. Woolsey, Research Investigator

Russell Paulsen, Administrator, Research and Development

North Central Technical Institute

Wausau, Wisconsin

Lawrence B. Hoyt, District Director

June, 1972

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PREFACE

The author wishes to acknowledge the assistance offered by the following people during the course of this study:

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Mr. David Damreau, student in Data Processing at North Central Technical Institute, for assistance in developing and executing some exotic computer programs.

All of the freshmen advisors at North Central Technical Institute who administered two and sometimes three attitude tests during otherwise busy and hectic freshmen orientation programs.

James W. Woolsey

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Background for the Study

There is no doubt that early student withdrawal or the "student dropout" is a matter of concern to all engaged in post-secondary education. Indeed, the fall, 1970 in-service period at North Central Technical Institute was devoted almost entirely to the question of the student dropout.

The purpose of the study reported here was to test the possibility of predicting student dropout at North Central Technical Institute (NCTI) before it occurs. It is obvious that the reasons behind student dropout are multi-dimensional, and this study was designed to test one particular multi-dimensional predictor of early withdrawal. Students with good grades continue and dropout. Students with poor grades both continue and dropout. Students with both high and low IQ scores and aptitude test scores both continue and withdraw. Can a multi-dimensional test be designed which will, with statistical confidence, predict early withdrawal?

Hypothesis

It was predicted that a multi-dimensional attrition model could be developed for each student at NCTI and that the student's location within that model could predict the likelihood of his continuing at NCTI, or, conversely, his early withdrawal from NCTI. The hypothetical model developed was three-dimensional. The working

dimensions were tentatively labeled (1) predicted ability, to include IQ scores and aptitude test scores; (2) demonstrated ability, to include past academic performance reflected by grade-point averages (GPA) and rank in class; (3) attitudes, measured along semantic differential judgements of school in general and NCTI in particular.

The working hypothesis suggested that the student who withdrew early from NCTI would significantly differ from the continuing student on one or more of the three dimensions, and the withdrawing student's distance from the all-NCTI mean point within the attrition model would significantly differ from that of the continuing student.

Procedure

The first step in the study was to develop a single computer card format for each student at NCTI which would provide for recording the student's social security number, his major, titles for and scores for three aptitude tests, his IQ score (based on the Otis-Lennon Mental Ability Test, administered to most entering NCTI freshmen), his reading ability (reflected by scores on the Gates-McGinitie Reading Test administered to most NCTI freshmen), his high school GPA, rank in high school graduating class, five NCTI semester cumulative GPA's, and six mean attitude scores. The format and codes for the card are included in the appendix.

The second step was to develop computer programs for the statistical analysis of the raw scores entered on each student's card. Programs were also developed to transform each raw score into a common standard score (base: Mean of 50, standard deviation of 10) for purposes of summing over various test results and for developing the attrition model with equal-appearing, interval scales on each dimension. Provision was also made to enter each standard score on the student's master card.

After the programs had been developed, raw data for all students who had completed at least one semester at NCTI and who had pre-registered for the Fall 1971 semester was retrieved from student files and entered on computer punch cards. The cards were then arranged numerically by social security number and processed through the computer. Resulting printouts were identified "Continuing Students, Sept. 1971."

Complete sets of data were then retrieved for new, incoming freshmen and processed as above. This data was identified "New Students, Sept. 1971". Following this, both sets of data were combined and processed, again in numerical social security number order, and processed by computer. This last set of data provided all-school profiles, against which any individual or group could be contrasted and compared.

Two notes are in order here. First, a "cut-off" date for retrieving data was established at August 10, 1971. This was done to insure that all processing could be done prior to the close of NCTI's 1971 summer session. Dropout analysis later in the study indicated that many dropouts in the fall semester were not pre-enrolled prior to August 10. There are indications that there is a correlation between late registration at NCTI and high dropout potential. This could well be a subject of future study. Data was obtained for individual students who enrolled after August 10 and then dropped out, but it was not included in the computer analysis which established all-school and new student standard scores.

The second note in order here concerns standard scores (SS) and standard deviations (SD) reported here. All SS and SD are based on the all-school data. It will be readily apparent that those students who entered for the first time in September, 1971 were "better" on most counts than the continuing NCTI students. Many of the professional staff at NCTI had already guessed this.

Following the in-depth analysis of pre-registration data, it was determined to limit the present study to freshmen who dropped out <u>during</u> their first semester at NCTI. This determination was based on the fact that the "most dangerous" dropout semester at NCTI is the first semester. It was also felt that test information, particularly IQ, reading and aptitude would be "most fresh" for these students. Finally, it was possible to collect the attitude

data under controlled test conditions, in mass meetings, only for freshmen who met early in the new semester with their advisors.

Two sets of attitude data, then, were collected during September group meetings of freshmen with their major advisors. First, a form asking for the student's semantic differential judgement of SCHOOL IN GENERAL was completed. Following this, the student was asked to rate NCTI IN PARTICULAR. Twenty-seven semantic differential scales were used in each case. The scales had been tested for validity, factor loading and sensitivity with an NCTI student population in an earlier study (6). Lists of scales and the randomization technique used are in the appendix.

At the end of the Fall, 1971 semester at NCTI, a complete list of those freshmen who had not completed their first semester was obtained. Data was secured for those who had not pre-registered prior to August 10, 1971, and computer analysis of the freshman dropout was conducted. The computer printout generated was identified "Withdrawal student, Fall, 1971". No attention was given to withdrawal "reasons", if any were given, by the researcher. First, many of the students did not complete a formal withdrawal procedure and second, there is reason to believe that when a student does complete formal withdrawal, "the truth is not in him".

Finally, 127 students who did return for a second semester at NCTI (January, 1972) were asked, on a random basis, to complete one more NCTI IN PARTICULAR attitude survey.

RESULTS OF THE STUDY

Data Not Used

Much of data available for the average student at NCTI did not lend itself to use in the current study. First, the NCTI student scores on the Gates-McGinitie Reading Test do not lend themselves to normal curve statistical treatment required for generating standard score interval scaling for the attrition model. The highest possible score, 12.8 years, for example, was less than one SD above the NCTI mean. While the data could not be made to fit normal curve statistics, it is reproduced here for comparison purposes. No attempts were made to transform data into standard scores.

COMPARISON OF GATES-McGINITIE
READING SCORES, NCTI 1971

Returning Freshmen, Jan. 1972	Withdrawn Freshmen, Fall, 1971
RANGE: 5.5 years to 12.8	RANGE: 10.4 years to 12.8
MEAN: 12.13 N= 123	MEAN: 12.44 N=54

Grand Mean 12.2 N=177

SD=1.3 No significant difference $p > .05$

Next, the fact that freshmen take between one and three aptitude tests, depending upon their majors at NCTI, and the fact that each major has a different battery of aptitude tests, makes it extremely hazardous to attempt statistical analysis of dropout aptitude test results. There was just not enough data in any major

to make predictive judgements statistically meaningful. All data has been retained, and it is possible that meaningful analyses of these materials may be conducted as larger numbers of student dropouts add material in subsequent semesters.

Preliminary statistical treatment then indicated that sufficient data was available to construct and examine an attrition model designed along the dimensions of attitude toward NCTI; predicted ability measured on the IQ scores; and demonstrated ability, based on high school GPA and/or rank in high school graduating class. Since students in the Associate Degree-Nursing program do not take the Otis-Lennon IQ test, this meant that two students who dropped the ADN program during the first semester were not included in the attrition model. Again, their attitude and high school data have been retained for future study as numbers withdrawing build over subsequent semesters.

It was noted earlier that attitude toward NCTI IN PARTICULAR was included as a dimension of the attrition model. Both attitude toward SCHOOL and NCTI were collected during the first week the freshmen were on campus. It was hypothesized that some relationship would exist between SCHOOL (after some 12 years experience in school) and NCTI (after two or three days) but continued checking of the correlation tests between the two tests resulted in some real surprises as noted below.

COMPARISON OF FRESHMEN ATTITUDES TOWARD SCHOOL
AND TOWARD NCTI, SEPT. 1971

Based on All-school SS, Mean=50, SD=10

SCHOOL IN GENERAL	MEAN	58.6	
NCTI IN PARTICULAR	MEAN	59.3	Correlation test (Pearson r)
		N=411	r= .35 significant $p < .01$

In short, the freshmen liked NCTI better than school. Next, the differences between NCTI attitudes expressed at the beginning of the semester by withdrawing freshmen and continuing freshmen were examined. The results are shown on the next page. And last, the attitudinal differences between freshmen in September and those who continued (the first week of the January 1972 semester) were examined. The results are on the next page.

COMPARISON OF ATTITUDES TOWARD NCTI
SEPT. 1971

Freshmen who continued	MEAN	59.2	(75 randomly selected)
Freshmen dropouts	MEAN	54.3	(44 who completed NCTI attitude test)

Difference not significant $t=1.14$, $N=119$, $p>.05$

COMPARISON OF FRESHMAN ATTITUDES TOWARD NCTI
STUDENTS WHO CONTINUED AT LEAST ONE WEEK INTO SECOND SEMESTER

Fall, 1971	MEAN	59.3	N=367
January, 1972	MEAN	55.5	N-127

Differences not significant, $t=1.89$ $N=494$ $p>.05$

Some meaningful results should be noted in the above tables. While the continuing student showed a recorded but not significant drop in his attitude toward NCTI over the course of one semester, he did not drop as low as the potential dropout had scored at the beginning of the first semester. Further study of attitude in predicting dropout seems to be in order.

High school grade-point average (GPA, based on 4.00=A) and rank in high school graduating class data were analyzed in several ways. First, GPA raw scores were investigated for students whose high school transcripts recorded cumulative GPA. Next, rank in high school was treated as raw data for those students whose high schools had reported such rank. Finally, GPA was transformed to SS (based on all-school high school GPA SS), rank was transformed to SS through a rank-centile-SS transformation process (3). GPA, SS and Rank SS were then treated statistically as one body of data (2). The two most nearly significant cases are reported in tables below.

COMPARISON OF RAW GPA DATA (HIGH SCHOOL) FOR FRESHMEN, SEPT. 1971

Continuing Freshmen (Jan. 1972)	MEAN 2.66	N=28	random sample
Withdrawing freshmen	MEAN 2.39	N=12	total pop w/GPA reported

Difference not significant $t=1.01$ $N=40$ $p>.05$

COMPARISON OF GPA SS-RANK SS FOR FRESHMEN SEPT. 1971

Continuing freshmen	MEAN 53.05	N=38	random sample
Withdrawing freshmen	MEAN 52.54	N=24	total population with GPA or rank reported

Difference not significant $t=.038$ $N=62$ $p>.05$

Possibly two observations could be made on the basis of the above data. First, not all high schools report GPA and/or rank in graduating class. Second, the withdrawing freshman has higher than all-NCTI high school grades but he has slightly less GPA than does his entering colleagues.

There were significant differences noted in the analysis of raw IQ data for the September 1971 NCTI freshmen. These results are presented in tabular form below. It should be noted that the withdrawing freshman had significantly higher IQ raw scores than did his continuing counterpart.

COMPARISON OF WITHDRAWING FRESHMEN
WITH CONTINUING FRESHMEN ON THE BASIS OF IQ SCORES

Withdrawing freshmen	MEAN	112.1	N=29
Continuing freshmen	MEAN	107.8	N=62 random sample

TRANSFORMED TO STANDARD SCORES
(MEAN 50, SD 10)
BASED ON ALL-NCTI STANDARD SCORES

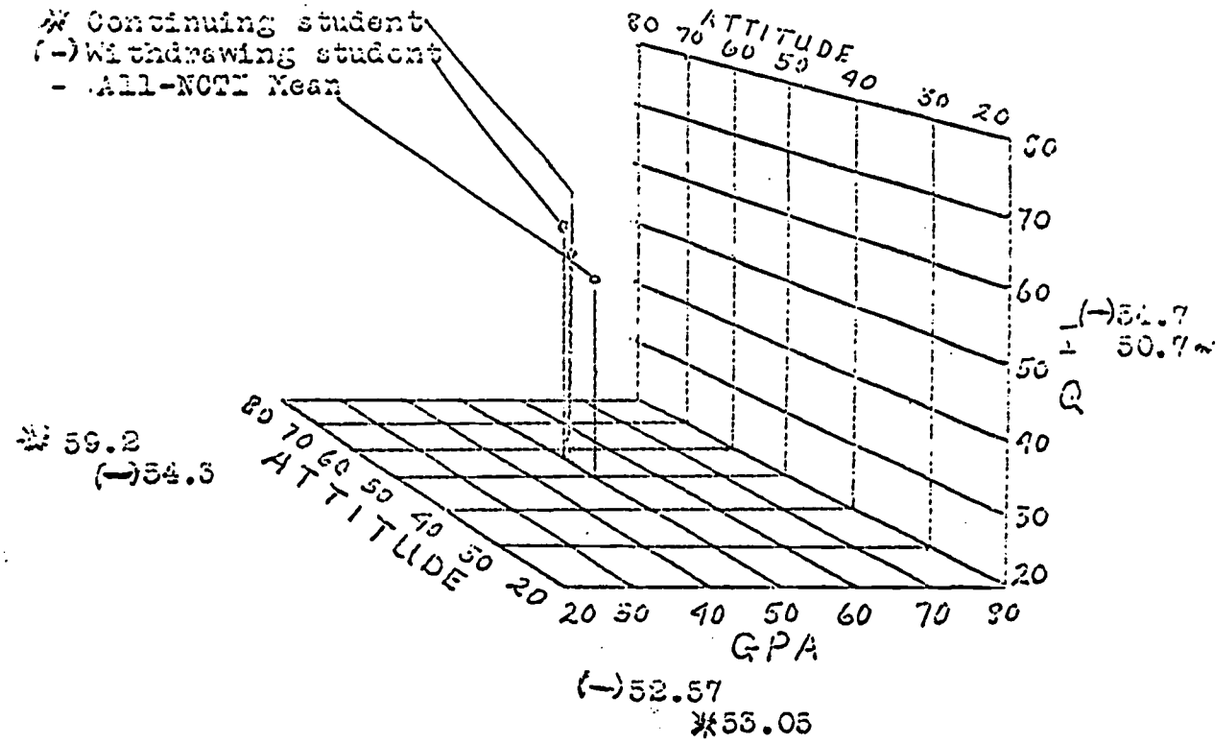
Withdrawing freshmen	MEAN	54.72	N=29
Continuing freshmen	MEAN	50.76	N=62 same as above

Raw score difference significant $t=24.7$ $N=91$ $p<.01$

At this point, some tentative conclusions could be drawn on the basis of findings noted for each of the three dimensions. It could be suggested that the withdrawing freshman has a below average attitude toward school and NCTI; he has above-average predicted ability, but is below average in demonstrated ability, at least in the typical high school setting.

The final step in the present study was to construct attrition models for continuing freshmen at NCTI and for freshmen who had withdrawn <u>during</u> their first semester at NCTI. The distance between the two groups of students was then computed, using the solid geometry generalized distance formula, where $D^2=(x-x')^2+(y-y')^2+(z-z')^2$. In this formula, D=Distance through the N-dimensional space; x and x' are coordinates on one dimension; y and y' are coordinates on a second dimension; and z and z' are coordinates on a third dimension. In this case, all dimensions and distances were measured in SS (standard scores, mean of 50, standard deviation of 10). The mean distance between the continuing student and the withdrawing student was 5.5 SS, this distance was not significant. Distance between all-NCTI students and the continuing freshman was 9.7 SS; Distance between All-NCTI and the withdrawing freshman was 6.8 SS. Again, there were no significant differences in these distances.

ATTRITION MODEL FOR FRESHMEN
NCTI, SEPTEMBER 1971



CONCLUSIONS

The study reported here resulted in tentative conclusions at best. Larger amounts of data would have provided more definite trends for detailed analysis. Such data could be readily collected and analyzed for all students at NCTI now that computer cards and programs have been designed for attrition analysis. Detailed statistical analysis of aptitude scores as applied to various majors is also suggested for future study. Finally, factor analysis of all data is suggested in order to determine the dimensionality of the attrition space.

It would certainly appear that IQ, high school accomplishments and attitude do serve to tentatively suggest dropout behavior. The combination of high IQ and relatively low high school achievement is particularly interesting as it relates to dropout behavior. Neither alone, coincidently, serves to predict dropout behavior, since NCTI has retained several students with IQ's in excess of 140. High school GPA alone is also no predictor of dropout behavior since the range of high school GPA for 78 randomly selected retained freshmen is 1.31 to 3.60. The range for all withdrawing freshmen (N=44) was 1.55 to 3.38. GPA again was computed on the 4.00=A scale.

Attitude study provides the richest ground for future study. First of all, as noted on page 8 of this report, the tests of attitude toward NCTI show definite signs of discriminating between entering freshmen,

withdrawing freshmen and continuing freshmen. It was determined early in the study that increased discrimination along two dimensions of the hypothetical attrition model would have resulted in significant distance values between groups of students within the three-dimensional model. Since IQ does now show significant differences, some increased power along one of the remaining dimensions would theoretically provide for significant distance values.

As analysis of the data for this study was being completed in early May, 1972, an article by Roger Boshier (1) appeared which reported a study of dropouts in New Zealand. Mr. Boshier attempted to predict dropout behavior only on the basis of two semantic differential tests of attitude. Mr. Boshier's respondents evaluated THE DROPOUT and the SUCCESSFUL STUDENT. He then based his dropout prediction solely on the distance between these two concepts as viewed by a single respondent. The Boshier experiment yielded insignificant differences, but some interesting facts bearing on the NCTI study should be noted. First of all, the Boshier tests showed much more discriminating powers along the attitude dimension than the NCTI concept tests used in this study. Second, Mr. Boshier suggests that in future study, he would consider the distance between the concepts THE DROPOUT and MYSELF. Theoretically, the shorter the distance between concepts, the more likelihood of that respondent dropping out.

This researcher suggests that Boshier's ideas for future study be combined with the suggestions here for more advanced study of the multi-dimensional attrition space. In short, it is suggested that Boshier's scales be used by NCTI students on the concepts THE DROPOUT and MYSELF. The resulting distance values should then be transformed to standard scores and used to plot the respondent's position along the attitude dimension of the multi-dimensional attrition model. The remaining dimensions would be as originally proposed for this study: predicted ability, including IQ scores, ACT scores and aptitude scores; and demonstrated ability, including past academic performance.

Finally, the entire student body at NCTI should be included in all phases of the next study. This would include all dropouts, non-returns and all returning students. At least one battery of the two attitude tests suggested should be given each student at the beginning of each semester. Existing programs could be used for computer analysis of all data except the raw attitude scores. Even this data could be processed electronically if efforts could be made to incorporate the mark-sense attitude forms designed and tested by this author in 1965-66 at the University of North Dakota (5).

Increased amounts of data, high-speed processing of that data and increased discrimination of the attitude dimension should, on the basis of trial runs conducted recently at NCTI, provide significant predictors of dropout behavior.

APPENDIX

7121

CARD FIELD IDENTIFICATION FOR MASTER CARDS
USED IN THE STUDY

Fields 1-9 Social Security number

Fields 10-11 Major ident.

#1 Aptitude test ident

Raw scores, test #1

#2 Aptitude test ident

Raw scores, test #2

#3 Aptitude test ident.

Raw scores, test #3

Fields 21-23 IQ raw score

Fields 24-26, Reading raw score (decimal not inc.)

Reading SS

High School GPA (decimal not included)

High School GPA SS

1st NCTI GPA (decimal not included)

1st NCTI GPA SS

2nd NCTI GPA

4th NCTI GPA

Entering attitude (raw equals SS, mean 50, SD 10)

End first semester attitude

End 2nd semester attitude

Special 2-digits codes for handicapped, indians, etc.

Special 2-digit flag codes, alert to dropout potential

Fields 75 through 80 for rank in high school graduating class. 75-77 rank, 78-80 no. in class.

Woolsey Rsrch NCTI '71

7122

IN MY OPINION, SCHOOL IS:

large	___ ___ ___ ___ ___ ___ ___	small
unusual	___ ___ ___ ___ ___ ___ ___	usual
awkward	___ ___ ___ ___ ___ ___ ___	graceful
interesting	___ ___ ___ ___ ___ ___ ___	boring
unexciting	___ ___ ___ ___ ___ ___ ___	exciting
direct	___ ___ ___ ___ ___ ___ ___	indirect
hard	___ ___ ___ ___ ___ ___ ___	soft
passive	___ ___ ___ ___ ___ ___ ___	active
perfect	___ ___ ___ ___ ___ ___ ___	imperfect
fast	___ ___ ___ ___ ___ ___ ___	slow
sharp	___ ___ ___ ___ ___ ___ ___	dull
clear	___ ___ ___ ___ ___ ___ ___	confused
weak	___ ___ ___ ___ ___ ___ ___	strong
unintelligent	___ ___ ___ ___ ___ ___ ___	intelligent
difficult	___ ___ ___ ___ ___ ___ ___	easy
complete	___ ___ ___ ___ ___ ___ ___	incomplete
false	___ ___ ___ ___ ___ ___ ___	true
ugly	___ ___ ___ ___ ___ ___ ___	beautiful
cold	___ ___ ___ ___ ___ ___ ___	hot
smooth	___ ___ ___ ___ ___ ___ ___	rough
narrow	___ ___ ___ ___ ___ ___ ___	wide
good	___ ___ ___ ___ ___ ___ ___	bad
definite	___ ___ ___ ___ ___ ___ ___	vague
simple	___ ___ ___ ___ ___ ___ ___	complex
colorful	___ ___ ___ ___ ___ ___ ___	colorless
abstract	___ ___ ___ ___ ___ ___ ___	concrete
unorganized	___ ___ ___ ___ ___ ___ ___	organized

GO TO THE NEXT PAGE

In my opinion, North Central Technical Institute is:

incomplete	___ ___ ___ ___ ___ ___ ___	complete
true	___ ___ ___ ___ ___ ___ ___	false
beautiful	___ ___ ___ ___ ___ ___ ___	ugly
hot	___ ___ ___ ___ ___ ___ ___	cold
rough	___ ___ ___ ___ ___ ___ ___	smooth
wide	___ ___ ___ ___ ___ ___ ___	narrow
bad	___ ___ ___ ___ ___ ___ ___	good
vague	___ ___ ___ ___ ___ ___ ___	definite
complex	___ ___ ___ ___ ___ ___ ___	simple
colorless	___ ___ ___ ___ ___ ___ ___	colorful
concrete	___ ___ ___ ___ ___ ___ ___	abstract
organized	___ ___ ___ ___ ___ ___ ___	unorganized
small	___ ___ ___ ___ ___ ___ ___	large
usual	___ ___ ___ ___ ___ ___ ___	unusual
graceful	___ ___ ___ ___ ___ ___ ___	awkward
boring	___ ___ ___ ___ ___ ___ ___	interesting
exciting	___ ___ ___ ___ ___ ___ ___	unexciting
indirect	___ ___ ___ ___ ___ ___ ___	direct
soft	___ ___ ___ ___ ___ ___ ___	hard
active	___ ___ ___ ___ ___ ___ ___	passive
imperfect	___ ___ ___ ___ ___ ___ ___	perfect
slow	___ ___ ___ ___ ___ ___ ___	fast
dull	___ ___ ___ ___ ___ ___ ___	sharp
confused	___ ___ ___ ___ ___ ___ ___	clear
strong	___ ___ ___ ___ ___ ___ ___	weak
intelligent	___ ___ ___ ___ ___ ___ ___	unintelligent
easy	___ ___ ___ ___ ___ ___ ___	difficult

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CAREER OPPORTUNITIES THROUGH APPRENTICESHIP.
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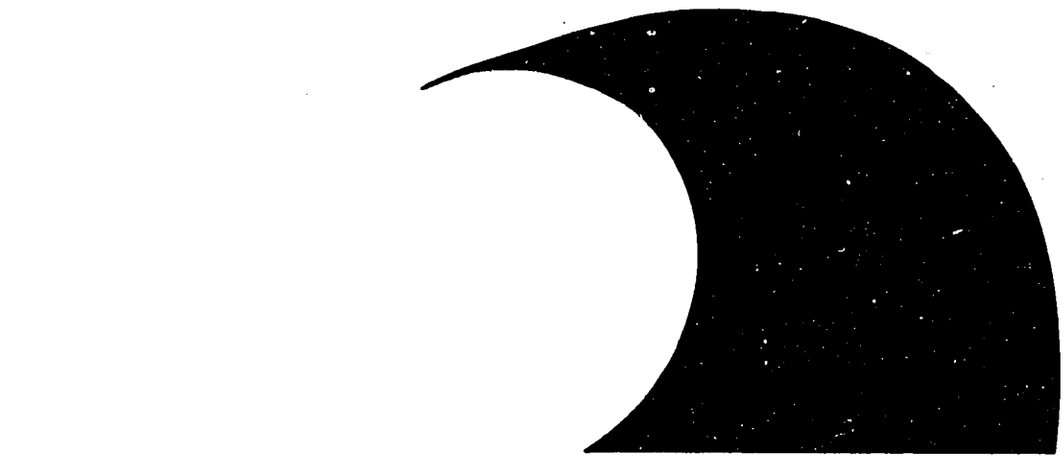
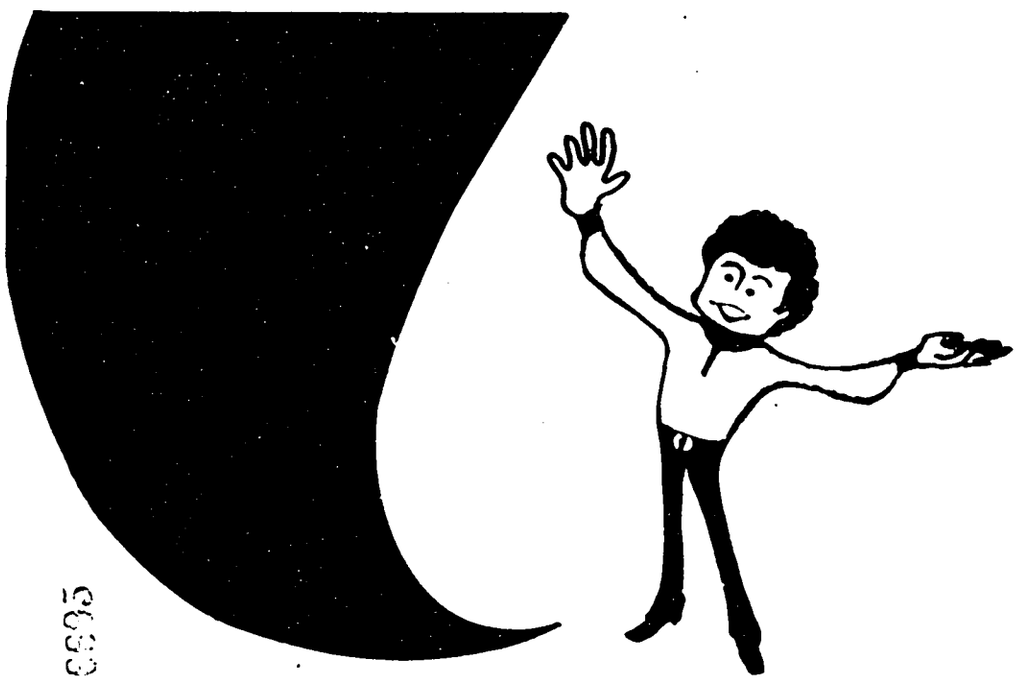
ABSTRACT - THIS GUIDE IS INTENDED FOR STUDENTS PREPARING TO CHOOSE A FUTURE CAREER AND EXAMINES APPRENTICESHIP AS A MEANS OF LEARNING WHILE DOING. IN ADDITION TO PROVIDING POINTS TO CONSIDER WHEN SELECTING AN APPRENTICESHIP AND DESCRIBING WHAT EMPLOYERS EXPECT, THIS BOOKLET PROVIDES INFORMATION DESCRIBING THE 16 MOST ACTIVE APPRENTICEABLE TRADES AT PRESENT, INCLUDING SUCH TRADES AS ELECTRICAL WIREMAN, MACHINIST, LITHOGRAPHER, TOOL AND DIEMAKER, AND BOOKBINDER. THE INFORMATION CONSISTS OF A DESCRIPTION OF THE OCCUPATION, LENGTH OF THE TRAINING TERM, AND DESIRABLE QUALIFICATIONS. THIS GUIDE IS A REVISION OF VT 009 606 (ARM SPRING 1971). (SB)





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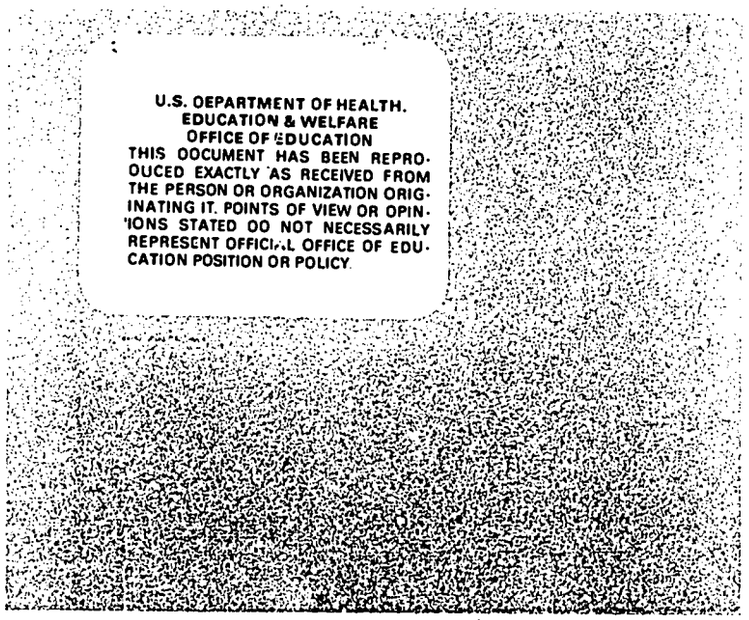
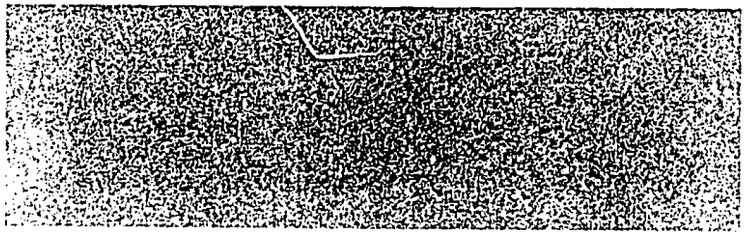


CAREER OPPORTUNITIES THROUGH

apprenticeship



EDITORS:
Glen Grau, Field Representative, Voluntary Apprenticeship Division, Minnesota Department of Labor and Industry.
Julius H. Kerlan, Consultant, Pupil Personnel Services Section, Minnesota Department of Education.

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Minnesota Department of Education, St. Paul

1972 (Revised)

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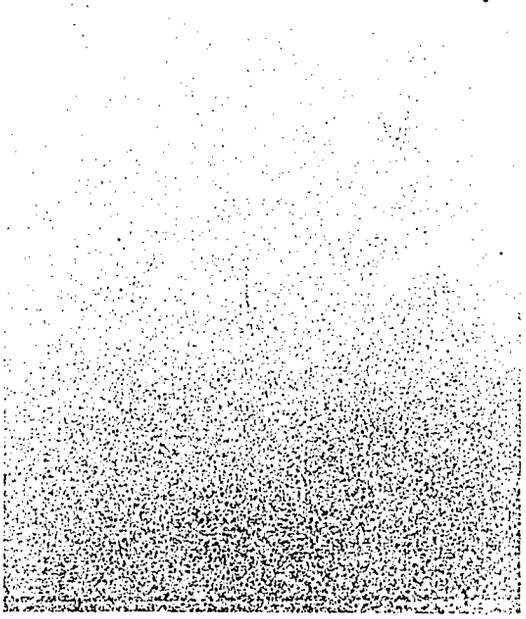


exploring and planning

Are you giving thought to your future career? In making your plans for your future, you must have knowledge of the world of work. Although you may not make a definite or final choice of a job for several years, it is not too early for you to begin to study the many ways in which people earn a living and find satisfaction in their work. One of the purposes of this booklet is to provide information about some of the apprenticeable occupations which may be helpful as you begin to think seriously about your career choice. An **apprenticeable occupation** is one whereby the worker learns the skills of a trade by direct on-the-job experience plus some classroom instruction.

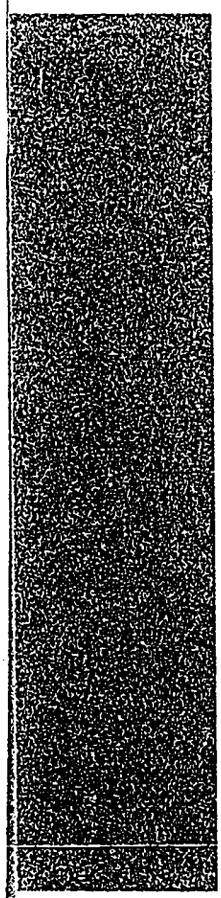
The number of occupations from which you make your choice is very large. Different occupations call for different levels of skill on the part of the worker. Each level of skill requires its own amount of training. For example, a lithographer, an occupation in the printing trades, should have vocational school training before becoming an apprentice. The space scientist must be college-trained. The laborer, on the other hand, needs little or no training for his work.

A career which you eventually choose should give you the opportunity to express yourself as a person. This is accomplished by using your talents and interests in seeking satisfaction in your work. Often in a career you learn to play a certain role on the job and in the community as well. You should be satisfied with the role you are expected to play. In a career you associate with certain kinds of people and you should enjoy working with them. Do you feel the need of satisfaction in being able to do a good job? Would you like to be recognized for your accomplishments? Would you like to be a reasonably happy productive citizen? How do you feel about earning an adequate income? Do you feel that you would like to contribute to the society of which you are a part? These are questions that may be answered through finding successful employment.

The apprenticeship program may be a way for you to reach your goals. This booklet will give information which can help you decide if apprenticeship is for you. If the program interests you, you may then wish to explore the various apprenticeable occupations.

You should talk over the various trades with your parents, teachers, counselor, and with friends and relatives who are employed in trades which interest you. You should also read the occupational materials on the trades—which are in your school library. Your counselor will have other vocational information which he can make available to you. If possible, by field trips or by other means, take advantage of opportunities to visit industry. Talk with workers and their supervisors about the opportunities and problems in the trades that you are exploring.

exploring and planning



Classes in industrial arts are other means by which you can explore industrial, trade and technical fields. Such classes may help you to find out if you are interested in working with your hands, using hand and power tools, using and reading measuring instruments, handling and understanding the nature of materials used in manufacturing and building. These classes will give you an understanding of these areas in general. In short, all of the information you can gather about yourself and about the trade requirements and opportunities should be used to help you in deciding about your career.

A great deal of time and money is required to prepare for most careers. In apprenticeship, however, you may actually **earn while you learn** in your chosen trade. An apprenticeship then can be as valuable to you as a 4-year scholarship. Since there are many more applicants for many of the apprenticeship opportunities than there are vacancies, you should also expect to find keen competition for some of these trades.

This booklet deals only with those apprenticeship programs approved by the Minnesota Apprenticeship Division, Department of Labor and Industry. You should know, however, that other training during employment is provided by some employers. It may be called either apprenticeship or on-the-job training, and its purpose is to prepare new employees for the jobs to which they will be assigned. The main difference is that the ones we are telling about in this booklet require, in all cases, a formal agreement under the directions of the Minnesota Apprenticeship Division.

publications to explore!

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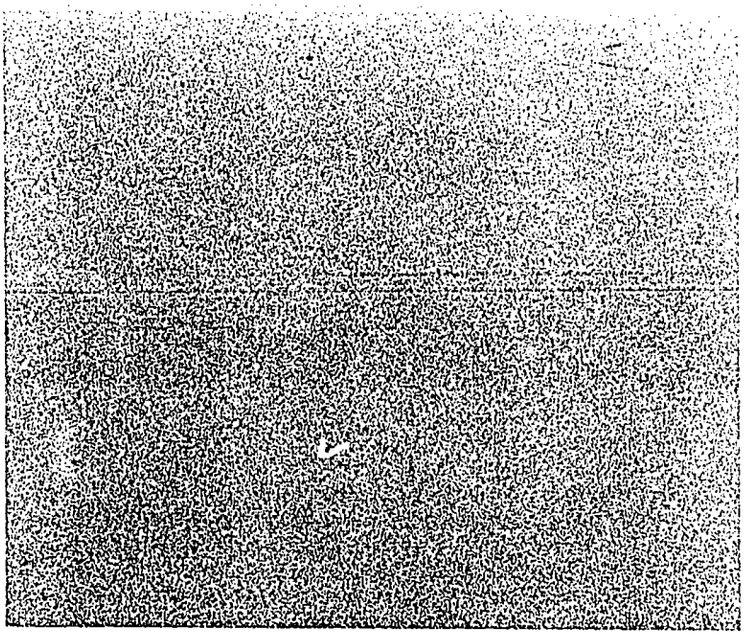
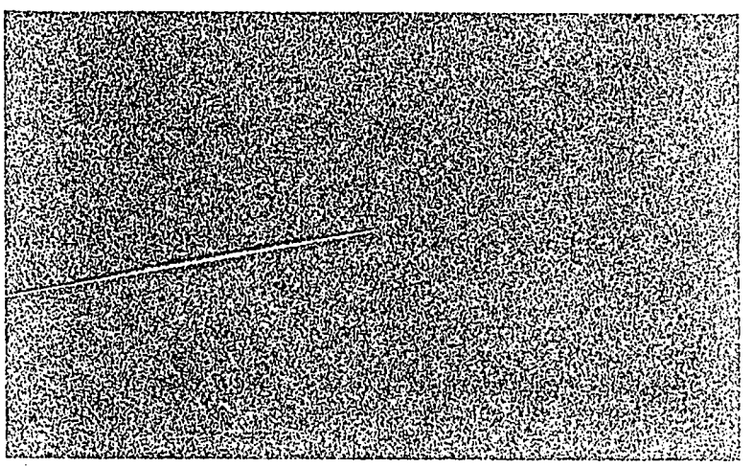


apprenticeable trades



The information which follows describes only the sixteen most active apprenticeable trades at present; namely: Electrical Wireman, Carpenter, Plumber, Machinist, Pipefitter, Auto Mechanic, Lithographer, Sheet Metal Worker, Pressman, Floor Coverer, Bricklayer, Painter and Decorator, Compositor, Tool and Diemaker, Millwright, Bookbinder, You may want to talk to your teachers, counselors, or librarian about sources of information on other occupations not included here. Page 5 may also be helpful in locating other information.

electrical wireman

Description of the Occupation:

An electrical wireman is a craftsman who installs the wires and equipment that deliver current in the construction, maintenance, and operation of electrical systems. This means he may work on new or old buildings, houses, power plants and other similar places. An electrical wireman may work indoors or outdoors, sometimes in bad weather; he may work in high places or with high voltage current, either of which is hazardous. A wireman may be employed principally by electrical contractors although he may be employed in industrial plants and by power companies. His job is a very responsible one because carelessness can result in fire, in the breakdown of expensive equipment causing production losses, in accidents, and in other bad effects.

Training Term:

The apprenticeship term for wiremen is 8000 hours in about 4 years and yearly related training. One working at this trade must have a state license. To be admitted to the license examination given by the Minnesota State Board of Electricity, the applicant is required to have a required background of knowledge and experience in the electrical field. Satisfactory completion of the apprenticeship program qualifies the apprenticeship to take the test.

Desirable Qualifications:

High school graduation is recommended. The applicant should have taken algebra, geometry, and science courses. He must be physically able to perform the necessary work. Post high school vocational courses in electricity are desirable and in some cases required.

carpenter

Description of the Occupation:

Carpentry is one of the common construction trades. Despite recent changes in tools and methods, this craft still requires many hand skills. A carpenter uses blueprints and specifications to determine the types of lumber or other materials and the sizes to be used. He then uses measuring instruments and hand or power woodworking tools to shape and fasten them together. Carpenters are employed in the erection of all types of wooden structures including form building, framing, inside and outside finishing and installation of all types of hardware. A carpenter may work indoors or outdoors. Those who go into commercial construction are often required to work on high places, hence there is much stress on safety. Although carpentry was formerly quite seasonal, modern building methods now enable the carpenter to be employed throughout the year.

Training Term:

The apprenticeship term is 7000 work hours, in approximately 3½ to 4 years plus a minimum requirement of 144 hours of related class training per year.

Desirable Qualifications:

High school graduation is recommended. Woodoworking shop in high school is helpful, as is two years of high school mathematics. The applicant to this trade should possess good health, good eyesight, and should have average physical strength in order to perform his work. He should like to work outdoors, enjoy working with his hands and with tools, and have good coordination with his hands and arms.

plumber

Description of the Occupation:

A plumber is a craftsman who installs a system of pipes and equipment to supply us with water and another system of pipes and equipment to take care of waste and sewage. This means he handles waste, sewage, and soil pipes, and vents and leader pipes for hot and cold water for homes, commercial and industrial purposes. A plumber assembles and connects fixtures and appliances. He also maintains and repairs plumbing. The plumber frequently must stand for prolonged periods and he occasionally must work in cramped or uncomfortable positions. The risks are those common to the construction industry, hence there is much emphasis on safety. A plumber is usually employed all through the year. The plumber is employed by plumbing contractors or may sometimes be self-employed.

Training Term:

The apprenticeship term is 8780 work hours in not less than 5 years, in addition to annual related training. This occupation is one which is licensed by the State of Minnesota. Knowledge and experience qualifications must be met in order for the applicant to be admitted to the license examination given by the Minnesota Department of Health. Satisfactory completion of the apprenticeship program meets the requirements for admission to the license examination.

Desirable Qualifications:

High school graduation is recommended. Preparation in high school mathematics and physical science is desirable. The applicant must be physically able to perform the necessary work. Post high school vocational courses in plumbing are desirable and, in some areas, required.

machinist

Description of the Occupation:

A machinist is a craftsman who is skilled in the use of such machine tools as the drill press, the milling machine, the lathe, the screw machine, the radial drill press, the planer, the shaper and slotter, the boring mill, the turret lathe, the grinder, and various other special machines. The machinist also reads blueprints and engineering sketches and does lay-out work. He is acquainted with a variety of metals and knows how to use the various types of cutting tools on them. He must be able to use measuring instruments. Hand work performed includes shaping, fitting and polishing of metal parts. There are strict safety regulations, since the machinist works close to high-speed machines and tools. Machinists generally work all the year round and are employed by industrial plants and machine shops.

Training Term:

The apprenticeship term is 8000 hours in not less than 4 years. In addition to this term, a minimum of 144 hours of related training per year is required.

Desirable Qualifications:

High school graduation is required. Science, drafting and mathematics are important high school subjects. Post high school vocational machine shop and mathematics courses are desirable. Mechanical aptitude is very important.

pipefitter

Description of the Occupation:

A pipefitter is a craftsman responsible for putting together, installing and maintaining all kinds of pipe systems. The pipefitter installs both high and low pressure pipes that carry hot water, steam and other liquids and gases, especially those in industrial and commercial buildings. The pipefitter may speclalize in refrigeration, gas fitting, or steam fitting. The risks are those common to all of the building trades. Most pipefitters are employed throughout the year by contractors in building construction. Others are employed as maintenance personnel in the petroleum, chemical and food processing industries.

Training Term:

The apprenticeship term is 8780 work hours in not less than 5 years. In addition to this term a minimum of 144 hours of related training per year is required. One working at this trade must have a state license. Knowledge and experience qualifications must be met before the applicant can be admitted to the license examination given by the Minnesota Department of Labor and Industry. Satisfactory completion of the apprenticeship program meets requirements for admission to the license examination.

Desirable Qualifications:

High School graduation is preferred. Courses in high school mathematics and physical science are desired. Post high school vocational courses in welding are also desirable.

auto mechanic

Description of the Occupation:

Automobile Mechanics are the largest group of repairmen in the labor force in the United States. Since automobile engines are becoming more powerful and complicated, and more automobiles are being equipped with automatic transmissions, power steering and other modern developments, the average motorist is becoming increasingly dependent on skilled automobile mechanics. These craftsmen repair and maintain passenger vehicles and light trucks. Their work may include the use and care of special tools and equipment; work on brakes, steering and front suspension; clutch, transmissions (both conventional and automatic), engine tune-up, and installing and maintaining electrical and accessory equipment. Because hazards are usually due to unsafe work habits, safety practices are stressed. At times, automobile mechanics find it necessary to work in very cramped quarters. Mechanics are employed by automobile dealers and independent repair shops.

Training Term:

The apprenticeship term is 8000 work hours in not less than 4 years. In addition to this term, a minimum of 144 hours of related training per year is required.

Desirable Qualifications:

High school graduation is preferred. An aptitude for mechanics, good eyesight and agility are necessary. Post high school vocational courses in automotive subjects are desirable.

lithographer

Description of the Occupation:

A lithographer is a craftsman in the printing trades who uses a printing method based on the principle that grease and water do not mix. This differs from the letterpress principle of an ink impression under pressure against the paper. Lithography is also referred to as a **photo offset** process because the image is not transferred directly from the plate to the paper but a rubber roller is used to lift the image from the plate and transfers it to the paper. Plates for this kind of printing are done by a photographic process.

Lithography is generally divided into 4 main areas which include camera work, stripping, platemaking, and presswork. The **camera man** starts the plate making process by photographing the copy to be printed. The stripper arranges the developed film in the proper position so that the plate can be made from it. The **platemaker** exposes the photo sensitive plate to light through the film negative and chemically develops it. **Pressmen,** assisted by helpers and workmen called feeders, prepare the press by installing the plate, ink and paper and operate the press during the actual printing. In small shops the lithographer may work in all of these areas.

Training Term:

The apprenticeship term is from 4 to 5 years. Related training may be taken at the Lithography and Photoengravers Technical Institute in the Twin Cities area. Elsewhere in the state, related training may be offered in public or private vocational schools. During each year, a minimum of 144 hours of related classroom instruction is required.

Desirable Qualifications:

The applicant should be a high school graduate. Students who have had vocational school training are definitely preferred. A wide general background training in all phases of printing is desirable; subjects such as chemistry, physics, mathematics, electronics, photography and drafting are helpful.

sheet metal worker

Description of the Occupation:

A sheet metal worker is a skilled craftsman who manufactures, installs, repairs and services all sheet metal work of U.S. No. 10 gauge or lighter metals used in all air handling systems. He also does testing and balancing of air systems and prepares shop and field sketches used in fabrication and erection. A sheet metal worker has many choices in the type of work he may do. He might work in the sign industry making signs, or do heating and ventilating, kitchen equipment, air pollution control, architectural sheet metal in connection with roofing, or general sheet metal work. It is an interesting, well paid occupation, however, there may be some seasonal unemployment.

Training Term:

The apprenticeship term is 8000 work hours in not less than 4 years. In addition to this term, a minimum of 144 hours of related training per year is required.

Desirable Qualifications:

High school graduation is preferred. Preparation in high school mathematics (including geometry), drafting, and industrial arts courses in metal is most desirable. Post high school vocational sheet metal courses provide valuable training before becoming an apprentice and in some cases are required.

pressman

Description of the Occupation:

A pressman is a skilled craftsman who prepares the printing press for operation whether the printing method is lithography, letterpress, gravure, or silk screen. This includes preparing and focusing of plates, type forms, or screens in the press; placing ink in the fountain; adjusting the press to obtain a clear and distinct image; and setting up and adjusting the feeder which passes the paper into the press. When the preparations are completed, the pressman tends the press during the run and corrects any malfunctions before paper and ink are wasted. On smaller presses one pressman is able to do the necessary work. On larger presses, a crew is used which may include pressmen, press feeders, and helpers.

Training Term:

Apprentice pressmen receive not less than four years of job training plus related classroom training. Training varies according to the kind of printing being done by the apprentice and the kind and size of press which he is called upon to operate. (Shorter training terms of two to four years apply to press feeder and assistant apprentices.)

Desirable Qualifications:

A high school education or equivalent is the general requirement for entering this apprenticeship. Some desirable subjects include chemistry and physics, some mathematics (particularly in measurement). Mechanical aptitude and good color perception are important.

floor coverer

Description of the Occupation:

The floor coverer (floor covering mechanic and floor layer) is a craftsman who installs, replaces, or repairs tile, linoleum, and other floor coverings including carpeting on floors in residential, commercial and industrial buildings. He must know how to measure, cut, match, sew and fit. He works many times in cramped quarters. on his knees, or stoops, bends and lifts. He is usually employed by floor covering contractors who may specialize in commercial, industrial or residential work. Floor covering retailers, department stores and decorators also employ floor coverers.

Training Term:

The apprenticeship term is 6000 work hours in 3 years. In addition to this term, a minimum of 144 hours of related training per year is required.

Desirable Qualifications:

High school graduation is preferred. The applicant needs good manual abilities; a neat appearance; and a pleasant, business-like manner.

bricklayer

Description of the Occupation:

A bricklayer is a craftsman who constructs walls, partitions, fireplaces, chimneys, and other structures from brick, tile, and other masonry materials. He also installs precast panels on buildings, and brick linings in industrial kilns or furnaces. The bricklayer is employed on new building construction and sewer construction or remodeling. He is exposed to most of the risks common to the construction trade. His work may be somewhat seasonal, but with modern methods bricklaying is becoming less so. The bricklayer does spend more time at outdoor work than most construction workers. He is employed by masonry contractors and general contractors.

Training Term:

The apprenticeship term is 6000 hours in three years. In addition, a minimum of 144 hours of related training per year is required.

Desirable Qualifications:

High school graduation is preferred. The applicant must be able to do careful, accurate work, be in good physical condition and have considerable strength and dexterity.

painter and decorator

Description of the Occupation:

A painter prepares the surfaces of buildings and other structures, then applies paint, varnish, enamel, lacquer, and other types of covering materials. He must be skilled in handling brushes and other painting tools in order to apply paint thoroughly, uniformly, and rapidly to any type of surface. He must also be able to mix paints, match colors, and have knowledge of paint composition and color harmony. His mechanical activities include erecting scaffolding and suspension rigging and using spray guns. Painters are employed throughout the year by painting contractors or may be self-employed. The painter may work indoors and at times, he may work in high places.

Training Term:

The apprenticeship term is 6000 work hours in 3 years plus the addition of 144 hours of related training per year.

Desirable Qualifications:

High school graduation is preferred. While in high school, subjects such as mathematics, chemistry, art, and drafting are desirable. An applicant should have manual dexterity, a discerning color sense, and he should have no skin or inhalant allergies.

compositor

Description of the Occupation:

A compositor is a craftsman in the printing trades who performs any or all of the duties concerned with setting type by hand or machine. Compositors are employed in almost every community throughout the country. Compositors work in newspaper plants, commercial printing plants, publishing houses, trade plants, advertising agencies and advertising departments of large firms. Hand compositors set type requiring very fine composition such as that used for advertising copy, and for jobs too small to be set by machine.

Typesetting machine operators set type much more rapidly than by hand—using linotype machines, monotype keyboards and casters, phototypesetting machines or teletypesetters (which perforate tape for typesetting). Compositors are now beginning to use computers in typesetting.

Training Term:

The apprenticeship term is generally six years. Related training is provided by correspondence courses through the International Typographer's Union. During each of these years a minimum of 144 hours of related classroom instruction is required.

Desirable Qualifications:

Applicants for apprenticeship should be high school graduates and should be in good physical condition. They need background in English, especially spelling, punctuation and grammar. Printing and typing courses are useful, as well as an interest in electronics and photography.

tool and diemaker

Description of the Occupation:

Tool and Die Makers are craftsmen who are skilled in the use of all types of machine tools (lathes, drill presses, milling machines, grinders, boring mills, shapers, etc.). Also, they are skilled in the use of all hand tools and precision measuring instruments. The Tool and Die Maker builds all types of tools, dies, jigs, fixtures, and gages. He makes the individual parts and assembles, inspects, and tests the finished tool or die. He must be able to read and understand blueprints and engineering sketches. It is necessary to work with different types of metals and a high degree of accuracy is required. Safe work practices are important in working with metal cutting equipment. Tool and Die Makers are employed in many industrial plants as well as in tooling job shops.

Training Term:

The apprenticeship term may range from 8,000 to 10,000 hours depending on the individual program being followed (4 to 5 years). In addition to the apprenticeship term, a minimum of 144 hours of related training per year is required.

Desirable Qualifications:

High school graduation is required. Science, drafting, and mathematics are important high school subjects. Post high school vocational tool and die, and mathematics courses are desirable. Study courses in the nature and properties of metals are also valuable. Mechanical aptitude and interest are very important.

millwright

Description of the Occupation:

Millwrights are craftsmen who assemble, erect, install and maintain all types of industrial machines and equipment. They also alter present installations and move production equipment and machines. They are skilled in the use of a wide variety of hand and power tools, welding and brazing of all types of metals and use of all types of welding equipment, optic tooling, precision measuring tools, hoists, and cranes. They work from plans, diagrams, and sketches, and must be acquainted with manufacturer's operation and maintenance publications that apply to the industrial equipment. Also, basic knowledge of electronic and/or wiring hydraulic-pneumatics, lubrication, and diesel equipment is important. Millwrights are called upon to construct the foundations or mountings of the machinery and equipment. Because the work requires moving extremely heavy machines, conveyors, etc., emphasis is placed on safe work practices. Millwrights are employed in most types of industrial and manufacturing plants, by machinery and equipment manufacturers, and by construction contractors.

Training Term:

The apprenticeship term may range from 7,000 to 8,000 hours depending on the individual program being followed (3½ to 4 years). In addition to the apprenticeship term, a minimum of 144 hours of related training per year is required. Also, schooling is always available for upgrading as different materials and equipment enter into automation.

Desirable Qualifications:

High school graduation is recommended. All apprentices must have sufficient education to take related instruction. Mechanical aptitude and interest are important. Science and mathematics are valuable high school subjects. Post high school subjects for millwrights, or in industrial maintenance is desirable.

bookbinder

Description of the Occupation:

Bookbinders are craftsmen who do all types of binding, including hand binding, and mass production by machine. They do finishing operations on other kinds of printed materials. General bindery operations include cutting, folding, stitching, sewing or gluing.

Employment in the bookbindery trade may be in a plant which prints books or periodicals, in a commercial printing plant, a large library, or in a job or trade bindery whose customers are other printers.

Some work in binderies requires having highly-skilled and artistic persons employed. Most of the work, however, is now performed by machines. Bindery workers in large plants generally perform only a limited number of hand operations. Men operate the complicated machinery, while women perform simpler tasks.

Training Term:

The apprenticeship term for skilled bookbinders is 7000 hours in 4 years. During each of these years, a minimum of 144 hours of related classroom instruction is required.

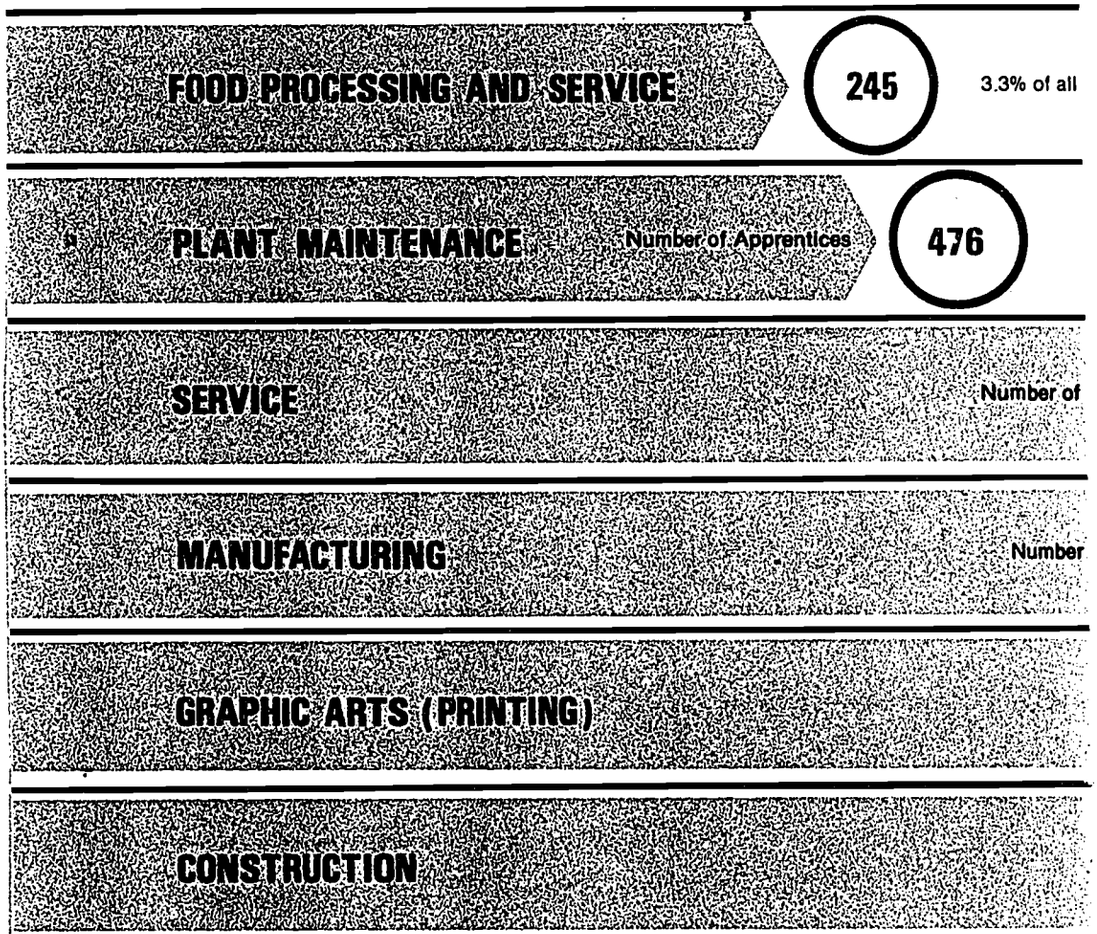
Desirable Qualifications:

Applicants should have a high school education. Mechanical aptitude, accuracy, patience and good eyesight are important qualities for an apprentice entering this trade.

7150

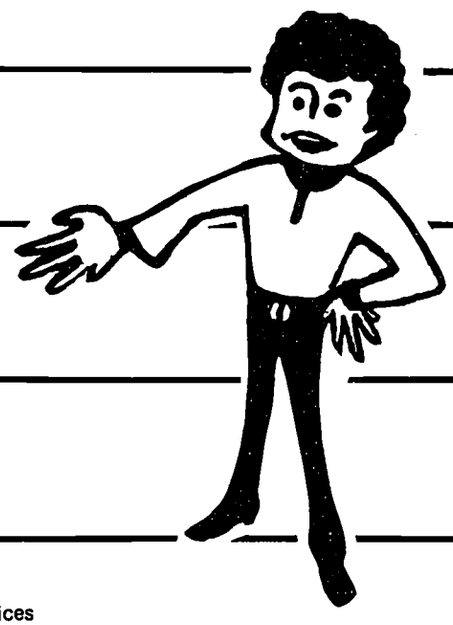
apprenticeship

DISTRIBUTION OF ACTIVE APPRENTICES BY MAJOR IN



opportunities

DUSTRIES IN MINNESOTA



Apprentices

6.4% of all Apprentices

Apprentices 898 12.0% of all Apprentices

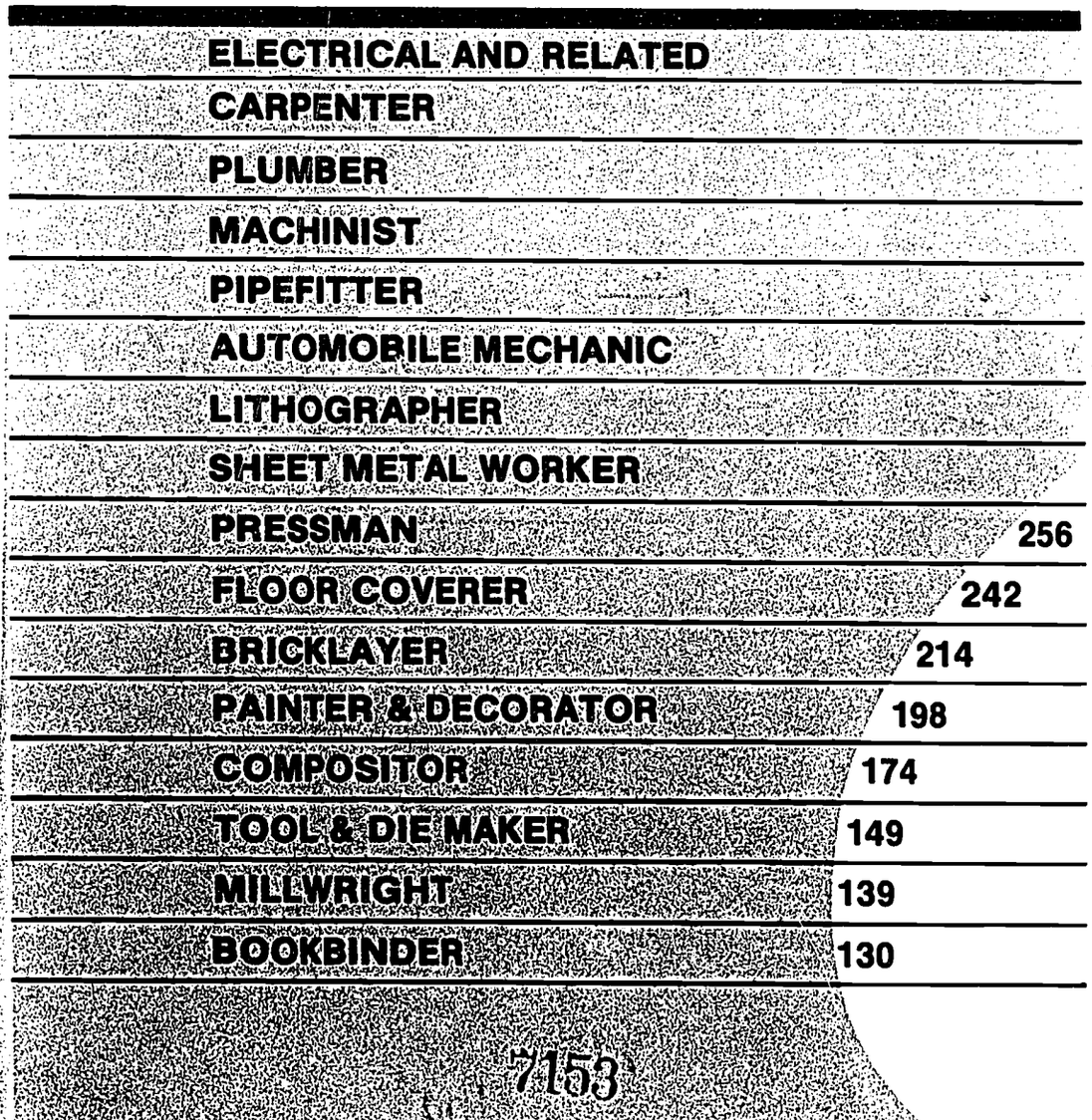
of Apprentices 962 12.9% of all Apprentices

Number of Apprentices 1010 13.5% of all Apprentices

51.9% of all Apprentices Number of Apprentices 3890

apprenticeship

DISTRIBUTION OF APPRENTICES IN THE TOP 16 TRADES



ERIC

opportunities

821

770

541

441

368

358

302

284

ED 7154

apprenticeship

DISTRIBUTION OF ACTIVE APPRENTICES BY INDUSTRY AND TRADE IN MINNESOTA

THE CONSTRUCTION INDUSTRY	NUMBER
Electrical Wireman	821
Carpenter	770
Plumber	541
Pipefitter	368
Sheet Metal Worker	284
Floor Coverer	242
Bricklayer	214
Painter—Decorator	198
Sprinklerfitter	110
Power Lineman	91
Iron Worker	81
Asbestos Worker	76
Electrical Shopman	73
Cement Mason	60
Glass Trades	60
Tile Setter	40
Plasterer	25
Roofer	11
Lather	7
Sign Hanger	6
Operating Engineer	4
Structural Layout Man	3
Marble Setter	2
Sanitary Well Constructor	1

THE SERVICE INDUSTRY	NUMBER
Automobile Mechanic	358
Painter (Automotive, Sign & Pictoral)	120
Heavy Equipment Mechanic	107
Auto Body & Fender Mechanic	66
Optical Trades	53
Dental Technician	43
Watchmaker	32
Farm Tractor & Implement Mechanic	20
Business Machine Serviceman	20
Radio & TV Technician	15
Carman	14

opportunities

THE SERVICE INDUSTRY	NUMBER
Upholsterer	8
Meter Tester	5
Office Machine Repairman	5
Refrigeration Service Mechanic	5
Motor Boat Mechanic	4
Artificial Limb Technician	4
Displayman & Lettering	4
Furniture Finisher	2
Amusement Device Repair Mechanic	2
Job Shop Welder	2
Locksmith	2
Sewing Machine Mechanic	1
Tailor	1
Aircraft Mechanic	1
Combination Telephoneman	1
Shoe Serviceman	1
Farrier	1
Laboratory Technician	1

THE MANUFACTURING INDUSTRY	NUMBER
Machinist	441
Tool & Die Maker	149
Cabinet Maker—Millman	105
Draftsman	70
Mechanical Assembler	50
Patternmaker	25
Instrument Repairman	22
Boilermaker	18
Molder	14
Jewelry Maker	14
Die Sinker	8
Roll Turner	8
Structural Assembler	8
Systems Control Technician	7
Marker Burner Trainee	5
Beveler	4
Coremaker	3
Pipe & Tubing Assembler	3
Electronics & Control Technician	2
Foundry Technician	2
Hydraulics Technician	2
Electro Mechanical Fabricator	1
Vinyl Plastisol Technician	1

THE GRAPHIC ARTS INDUSTRY	NUMBER
Lithographer	302
Pressman	256
Compositor	174
Bookbinder	130
Envelope Machine Adjuster	30
Class "C" Printer	25
Mailer	25
Photoengraver	21
Envelope Die Cutter	12
Photographers	11
Collator Operator	8
Stereotyper	6
Sheeting Machine Operator	4
Cameraman	4
Rubber and Metal Trades	1
Folding Machine Operator	1

PLANT MAINTENANCE	NUMBER
Electrical (other)	198
Millwright	139
Welder	51
Machinist (other)	35
Maintenance Machine Repairman	21
Stationary Engineer	10
Locomotive Mechanic	10
Sheet Metal (other)	9
Water Mechanic	3

FOOD PROCESSING AND SERVICE INDUSTRY	NUMBER
Meat Cutter	133
Cook	102
Baker	10

you as an apprentice

7158

know yourself

Before Choosing a Career as an Apprentice

In order to know whether or not you wish to be an apprentice, you should first think carefully about your interests, abilities, values and physical characteristics. Some trades require that you work outdoors and may require good physical condition in order to stand extreme weather conditions. Nearly all trades are based on scientific or mechanical principles and require the ability to read well, to do mathematics and to use these skills in solving problems. You might ask yourself some questions to help you in making your decision: Do I like to solve technical problems? Do I have the physical characteristics required for the work in which I am interested? Would I get a sense of satisfaction out of being a craftsman in this kind of trade?

In addition to your interests and abilities, you should also consider your attitudes and habits and see how well they fit in with the attitudes and habits that employers find desirable. Being tardy or absent or "goofing around" during work periods are traits felt to be undesirable by employers. If you have any habits which might hold back your ambitions, you may need to change your behavior to achieve your goals. If necessary, you may wish to seek help from your counselor, principal, teachers, parents or friends.

Physical requirements are often specified in apprenticeship. Your health, hearing, and eyesight must be good. Color blindness can keep you out of certain trades such as printing, electronics, or decorating. Special requirements in various areas might include strength, size and agility. Such requirements are necessary in some trades in order to avoid costly mistakes and to prevent accidents.

Looking at yourself, your interests, abilities, values and goals, should help you to relate these qualities to the opportunities which are available to you. At this time you should not decide on one trade, but keep an open mind and consider a variety of occupations. Before deciding, you should think about the occupational fields in which you believe you can find satisfaction and success. Then compare how your chosen apprenticeable occupation ranks in terms of the number of apprentices who are now employed and those who are being trained.

To become acquainted with the trades which are apprenticeable in Minnesota, see page 13. Here you will find Figure I which shows the number of active apprentices in the six major industries in Minnesota. Figure II illustrates the ranking of the 16 trades with the greatest number of active apprentices. The listing on pages 16-18 shows the number of apprentices in all of the trades that are now active in Minnesota.

MAKE A CAREFUL STUDY OF YOURSELF: DO YOU MEET THE REQUIREMENTS IN THE TRADE OR TRADES WHICH INTEREST YOU?

you and the program

Once you have been selected as an apprentice, a written agreement is made which includes the length of training program—when it begins and ends; a description of the training to be given; and the wages you will receive and other general conditions of employment.

An **apprentice** is one who is learning a skilled trade through work experience and related instruction. He works **with** and learns **from** a skilled craftsman. As an apprentice, you will be supervised by these craftsmen. These craftsmen are very competent or skilled in their particular trades and have earned the title of **journeyman** or **masters.**

You must also take **related training** to gain additional knowledge of your craft. Related training classes may be in a public or private school. If such courses are not locally available they can be furnished through home study by the Minnesota Department of Education's Trade and Industrial Unit. These required courses are in addition to the practical training you receive during your regular work day as an apprentice. Through the job experience and related training, you will eventually become a skilled craftsman. You will earn regular wages for the work you do while you are learning. Wage increases will be given at regular periods if you improve your skills as demonstrated by your work. The schedules of wages for apprentices may vary from occupation to occupation. Generally, apprentices begin training at about 50% of the wage paid qualified journeymen. Increases take place about every 6 month period until the apprentice reaches the journeyman level.

what employers expect

To an employer, an apprenticeship is an investment. He expects his investment to produce a well-trained, skilled craftsman who will be an asset to his business. If you know what the employer expects, and if you are willing to work hard to prepare yourself, your chance of being selected as an apprentice will be improved.

Today, most employers demand at least a high school diploma. If you have continued to prepare yourself beyond high school in a technical or vocational school, you have a better chance of being employed as an apprentice. Your school work (both in high school and technical school) will be reviewed by the prospective employer and compared with other applicants. (Most employers, in selecting employees, regard school records as one of the most

accurate indicators of future performance on the job. You cannot afford to have a poor school record working against you, if you desire a successful future.) It is important to remember that employers generally prefer that prospective apprentices apply soon after completion of their schooling.

make decisions

When you have a good idea of your own personal characteristics and have thoroughly studied your career choices it is time to narrow down to one or two choices. You should be careful to keep in mind your interests and abilities as you weigh the advantages and disadvantages of each trade. Try to consider all evidence in making what you expect to be your final choice.

It is entirely possible, of course, that as time goes on you may change your mind and go into another trade. Fortunately, in most cases, much of what you have learned will also apply to your second choice. Whatever may happen later, however, you should make a choice now and get started.

prepare yourself

Your teachers and counselors will be able to help you select courses in preparing for apprenticeship. With them, you can plan your school work in order to get basic skills—arithmetic, reading, and knowledge of basic science—which are necessary in order to be successful in apprenticeable trades.

Here again, industrial arts courses may be of value. You can use them to begin to develop basic hand skills and become familiar with some parts of industry. The safety rules and procedures that you can learn will be of value to you throughout your working life.

points to consider

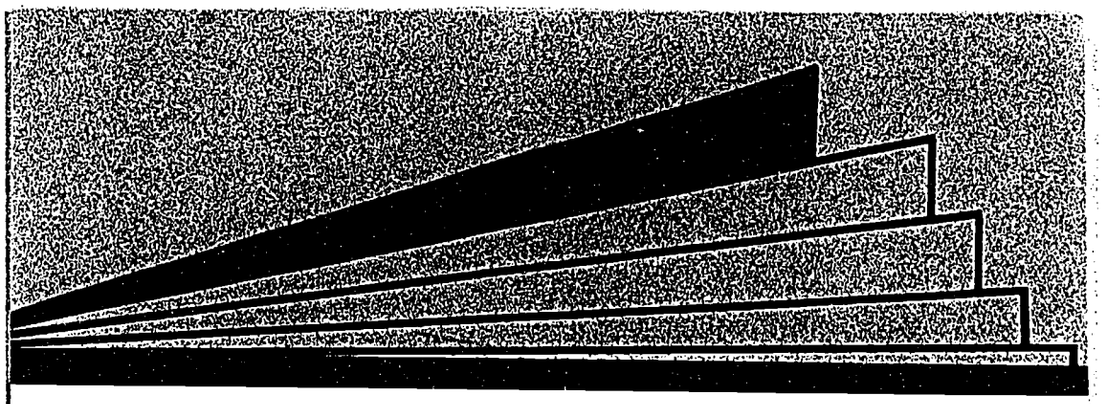
By now, you should have some general ideas whether training through the apprenticeship program is for you. You may also have developed an idea how to approach your vocational choice.

points to consider

- Study many occupations before choosing one.
- Talk to your school counselor regarding your interests and abilities.
- Talk to your parents, counselor, teachers, friends, union representatives regarding the various apprenticeable trades.
- Plan your high school courses according to your vocational interests.
- Look for part time and summer employment to test out your vocational interests.

This booklet, which has provided you with information about selected apprenticeable occupations, may be used in helping you make a choice in an occupation.

This Agreement form is completed for each apprentice of record with the Division of Apprenticeship, Minnesota Department of Labor and Industry. Copies of the agreement are furnished to interested parties signatory to the agreement.



V.A.L.Form No. 1 - Revised 1-71

State of Minnesota
Department of Labor and Industry
Division of Voluntary Apprenticeship
St. Paul, Minnesota

Prepared By

Apprentice's Soc. Sec. No.

Apprentice's V.A. Claim No.

Agreement No.

Date Approved

Director of Apprenticeship

- APPRENTICESHIP AGREEMENT -

THIS AGREEMENT, is entered into this _____ day of _____ 19_____, between:

(Employer, Joint Apprenticeship Committee; Assn. of Employers; or Organization of Employees)

and: _____, born _____, hereinafter referred to as the
(Name of Apprentice)

Apprentice. Male ☐ Female ☐

WITNESSETH, that the Employer, the Apprentice, and his or her Parent or Guardian (if the apprentice is a minor) desire to enter into an agreement of apprenticeship for the trade or craft of _____. That the apprenticeship begins _____, to continue for _____ hours less accreditation of _____ hours
(date)

with _____ remaining to be completed.

Hours work per week _____ Hours related training attendance per yr. _____
(Must be not less than 144 hours)

That the minimum graduated scale of wages, to be paid the apprentice is: (May be in percentages of journeyman wage or a rate per hour)

_____ months - hours _____ % _____ c.	_____ months - hours _____ % _____ c.
_____ months - hours _____ % _____ c.	_____ months - hours _____ % _____ c.
_____ months - hours _____ % _____ c.	_____ months - hours _____ % _____ c.
_____ months - hours _____ % _____ c.	_____ months - hours _____ % _____ c.
_____ months - hours _____ % _____ c.	_____ months - hours _____ % _____ c.
_____ months - hours _____ % _____ c.	_____ months - hours _____ % _____ c.
_____ months - hours _____ % _____ c.	_____ months - hours _____ % _____ c

Journeyman wage rate on _____ (date) was _____.

Required school time compensated? yes _____ no _____

That this agreement is subject to the approval of the State Director of Apprenticeship and is binding on the parties hereto including the provisions as stated on the reverse side hereof. Additional conditions and requirements: _____

_____ (SEAL)
Apprentice

_____
Address

_____ (SEAL)
Parent or Guardian

Approved by _____
(JAC or Org. of Employees)

Under auspices of _____

_____
Employer, JAC, Assn. of Employers or Organization of Employees

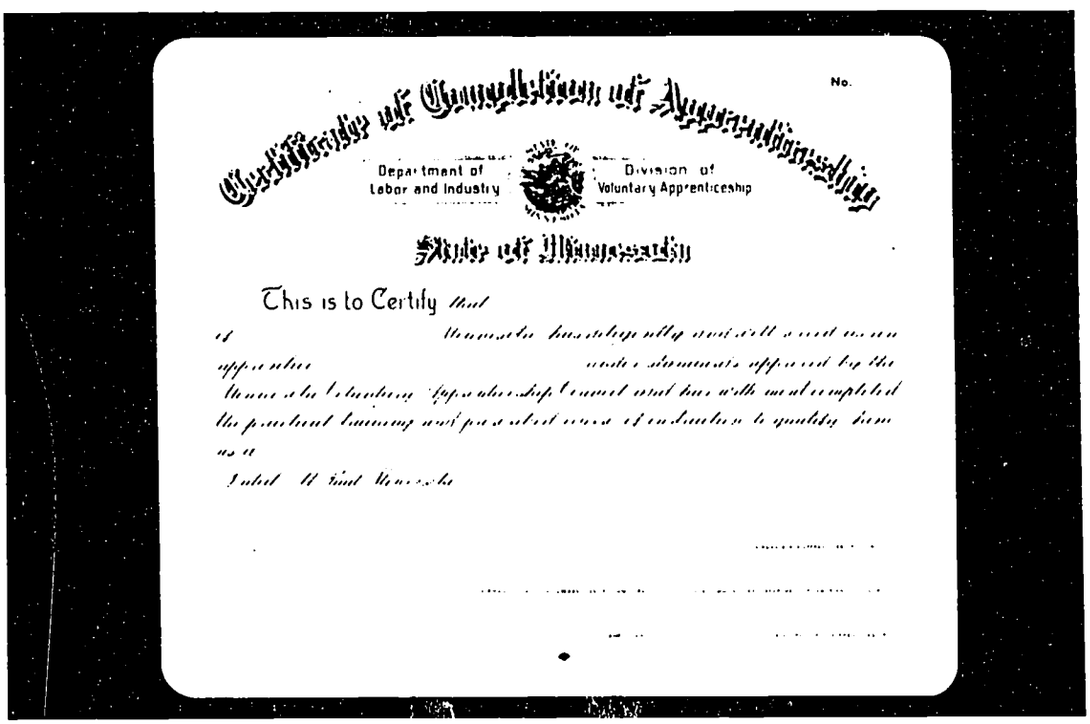
_____ (SEAL)
OFFICER

_____
Address

Officer _____

Officer _____

7164



No.

Department of Labor and Industry

Division of Voluntary Apprenticeship

This is to Certify that

At the time an apprentice completes all requirements of the apprenticeship program as specified by the apprenticeship agreement, the program sponsor forwards to the Division of Apprenticeship information to that effect with a request that the appropriate certificate be issued. Such is issued by the Division upon approval by the Director of Apprenticeship.

how to apply

for apprenticeship

Vocational School students may be helped in apprenticeable placement by their school. (For a list of Vocational-Technical Schools see the inside back cover.)

The employer, in some instances, is the first person to contact. You may also get started with the help of a joint apprenticeship committee, a union, an employer's organization, a high school or vocational school counselor, or one of the governmental organizations listed below.

Check the yellow pages of the telephone book for employers in the field and location of your choice. Contact each of these employers and apply for apprenticeable work.

The Minnesota Department of Manpower Services* may help you locate employers who may be willing to hire an apprentice. *(Formerly known as the "Minnesota Employment Service". Local offices are listed on the last page of this booklet.)

The following are governmental service organizations which you may wish to contact for help on locating an apprenticeship opportunity, for information about apprenticeships, or for the actual writing of the apprenticeship agreement:

DIVISION OF APPRENTICESHIP
MINNESOTA DEPARTMENT OF LABOR AND INDUSTRY
110 State Office Building
St. Paul, Minnesota 55101
Phone: 221-2371

BUREAU OF APPRENTICESHIP AND TRAINING
U.S. DEPARTMENT OF LABOR
134 Federal Building
316 Robert Street
St. Paul, Minnesota 55101
Phone: 725-7951 (Area Code, 612)

minnesota
department of manpower services

MINNESOTA DEPARTMENT OF MANPOWER SERVICES

ZIP	OFFICE	ADDRESS	TEL. NO.
56007	Albert Lea	1617 W. Main St.	373-3951
56308	Alexandria	1118 Broadway	763-3188
55912	Austin	105 11th Ave. N.E.	433-3457
56601	Bemidji	312 America Ave.	755-2936
56401	Brainerd	224 W. Washington St.	829-2881
56716	Crookston	114 2nd St. W.	281-3593
55802	Duluth	407 W. Superior St.	722-7491
55731	Ely	30 S. 1st Ave. E.	365-3177
56031	Fairmont	923 N. State St.	235-5518
55021	Faribault	218 Central Ave. N.	334-5531
56537	Fergus Falls	116 E. Lincoln Ave.	739-2295
55744	Grand Rapids	310 N.W. Third St.	326-6669
55746	Hibbing	505 E. Howard St.	263-3644
55343	Hopkins	135 Shady Oak Road S.	935-5521
56649	Int'l Falls	344 Third St.	283-2641
56345	Little Falls	106 1st Ave. S.E.	632-5427
56001	Mankato	633 S. Front St.	389-6723
56258	Marshall	307 W. Lyon St.	532-4433
55401	Minneapolis	309 2nd Ave. S.	333-0192
56265	Montevideo	222 N. First St.	269-8819
56560	Moorhead	1215 Center Ave.	236-2191
55051	Mora	100 S. Park St.	679-3611
56073	New Ulm	1200 S. Broadway	354-3138
55060	Owatonna	Oakdale Shopping Center, Hwy. 65 S.	451-5774
55066	Red Wing	116 Broad St.	388-3526
55901	Rochester	107 4th St. S.E.	289-3368
56301	St. Cloud	115 S. 5th Ave.	255-3266
55101	St. Paul	390 N. Robert St.	227-7301
56701	Thief River Falls	316 N. Labree Ave.	681-1100
55792	Virginia	214 N. 5th Ave.	741-6996
56201	Willmar	324 W. 3rd St.	235-3222
55987	Winona	163 Walnut St.	452-2861
56187	Worthington	321 Eleventh St.	376-3116

minnesota's
area vocational · technical schools

ZIP	SCHOOL	ADDRESS	TEL. NO
56007	Albert Lea	Albert Lea	507-373-7780
56308	Alexandria	Alexandria	612-763-3196
56303	Anoka	Anoka	612-427-1880
55912	Austin	Austin	507-437-6631
56601	Bemidji	Bemidji	218-751-4137
56401	Brainerd	300 Quince St.	218-829-2815
56220	Canby	Canby	507-223-7252
55024	Dakota County	320 3 St., Farmington	612-463-7220
56501	Detroit Lakes	Detroit Lakes	218-847-9261
55802	Duluth	Trinity Road	218-722-4731
56721	East Grand Forks	East Grand Forks	507-773-9672
55734	Eveleth	402 Roosevelt Ave.	218-741-3302
55021	Faribault	Faribault	507-334-3965
56241	Granite Falls	15th St. & 11 Ave.	612-564-4081
55746	Hibbing	505 E. 16th St.	218-262-3824
55350	Hutchinson	Hutchinson	612-896-3053
56143	Jackson	Jackson	507-847-3320
56001	Mankato	1920 Lee Blvd.	507-387-3441
55404	Minneapolis	1101 Third Ave. S.	612-396-0381
56561	Moorhead	Box 100	218-236-6277
56063	Pine City	Pine City	612-629-3844
56164	Pipestone	Pipestone	507-825-5471
55113	Ramsey-Wash. County	St. Paul	612-636-1978
55066	Red Wing	Red Wing	612-388-7181
55901	Rochester	Rochester	507-282-9411
56301	St. Cloud	1601 N. 9th Ave.	612-252-0101
55102	St. Paul	235 Marshall	612-227-9121
56479	Staples	Staples	218-894-2430
55435	Suburban Hennepin Co.	4570 W. 77 St. Minneapolis	612-546-3535
56701	Thief River Falls	Thief River Falls	218-681-5424
56482	Wadena	405 S.W. Colfax Ave.	218-631-3342
56201	Willmar	Willmar	612-235-5114
55987	Winona	1250 Homer Road	507-454-4600

VT 016 741
NEW MEXICO ANNUAL VOCATIONAL EDUCATION REPORT FOR FISCAL YEAR ENDED JUNE 30, 1970.

NEW MEXICO OCCUPATIONAL RESEARCH AND DEVELOPMENT COORDINATING UNIT, SANTA FE.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 25SEP70 83P.

DESCRIPTORS - *ANNUAL REPORTS; *VOCATIONAL EDUCATION; *STATE PROGRAMS; *PROGRAM DESCRIPTIONS; EXPENDITURES; RESEARCH PROJECTS; TABLES (DATA)
IDENTIFIERS - *NEW MEXICO

ABSTRACT - THIS ANNUAL REPORT SUMMARIZES THE VOCATIONAL EDUCATION PROJECTS AND ACTIVITIES IN NEW MEXICO FOR THE 1970 FISCAL YEAR. EXPENDITURES OF FEDERAL FUNDS, THE NUMBER OF TEACHERS AND THEIR TRAINING STATUS, AND ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS ARE TABULATED FOR THE STATE AND ALSO FOR THE CITY OF ALBUQUERQUE. VARIOUS PROGRAMS PURSUED ARE DESCRIBED AND COMMENTED ON IN ACCORDANCE WITH THE OBJECTIVES SET FORTH IN THE STATE PLAN. ACHIEVEMENTS INCLUDED RECEIVING STATE MONEY IN THE OFF-BUDGET YEAR, AN INCREASE OF 59 NEW VOCATIONAL PROGRAMS, PLANNING PROGRAMS IN RELATION TO INDUSTRY'S NEED FOR EMPLOYEES, AND EMPHASIS GIVEN TO LOCATING PROGRAMS IN DEPRESSED AREAS. PROBLEMS INCLUDED EVALUATION AND WORK EXPERIENCE NEEDS IN TEACHER TRAINING INSTITUTIONS, THE LACK OF TRAINED PERSONNEL AND THE DIFFICULTY IN RECRUITING, THE NEED FOR DATA PROCESSING FOR MORE EFFICIENT REPORTING, AND THE EVER-PRESENT PROBLEM OF FUNDING. (MF)

JUL 1 1971
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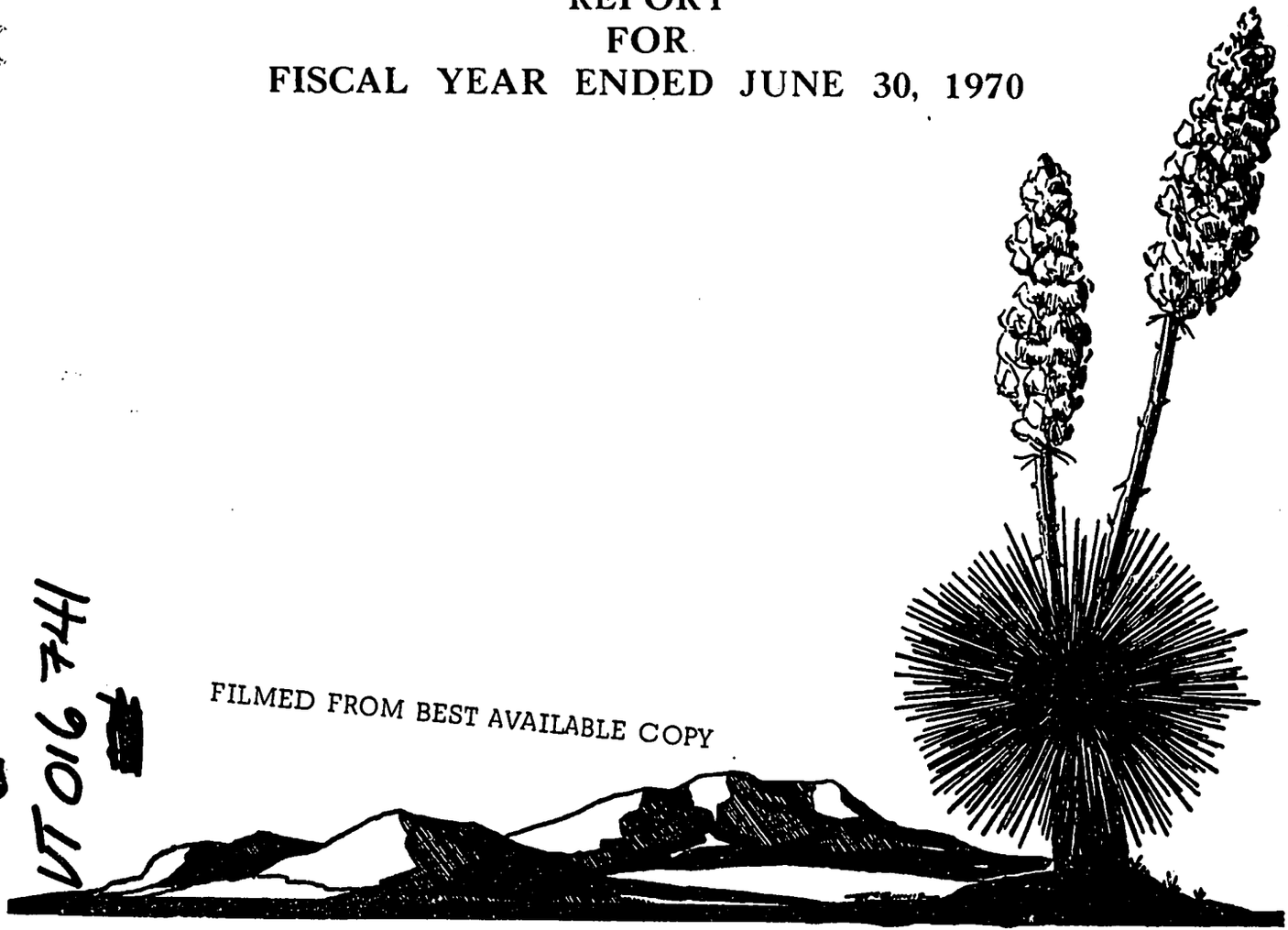
AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY

NEW MEXICO
ANNUAL VOCATIONAL EDUCATION

REPORT
FOR
FISCAL YEAR ENDED JUNE 30, 1970



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NEW MEXICO ANNUAL VOCATIONAL EDUCATION REPORT FOR FISCAL YEAR ENDED JUNE 30, 1970

Leonard J. DeLayo
Superintendent of Public Instruction

Weldon Perrin
Deputy Superintendent of Public Instruction

Ernest A. Vigil, State Director
Vocational-Technical and Adult Education

Wade Fredrickson, Assistant State Director
Vocational-Technical and Adult Education

Compiled, Written and Published By

Research Coordinating Unit

September 25, 1970

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PROGRAM DEVELOPMENT AND ACCOMPLISHMENTS

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

FINANCIAL STATEMENT AND ADJUSTMENTS OF FEDERAL FUNDS FOR VOCATIONAL EDUCATION

Read instructions on reverse before completing this form.

BUDGET BUREAU NO. 51-R0841
APPROVAL EXPIRES 3.'31,'71

STATE/OUTLYING AREA: New Mexico

FISCAL YEAR ENDING: June 30, 19 70

REPORT DUE: October 1, 1970

SECTION I - CURRENT YEAR FINANCIAL STATEMENT OF FEDERAL FUNDS

PROGRAM (1)	UNOBLIGATED FEDERAL ALLOTMENTS BROUGHT FORWARD FROM PREVIOUS FY (2)	FEDERAL ALLOTMENT (3)	TRANSFERS IN FEDERAL ALLOTMENT (4)	FEDERAL FUNDS AVAILABLE FOR EXPENDITURE (5)	FEDERAL FUNDS EXPENDED DURING YEAR (6)	UNOBLIGATED FEDERAL ALLOTMENTS CARRIED FORWARD TO NEXT FY (7)
1. VOCATIONAL EDUCATION ACT OF 1963, AS AMENDED — TOTAL	$	$ 2,515,621	$ -0-	$ 2,515,621	$ 2,431,239	$ 84,382
2. PART A SECTION 102(b) DISADVANTAGED		107,597		107,597	107,597	
3. PART B SECTION 102(a) STATE PROGRAMS		1,947,460		1,947,460	1,947,460	
4. PART C RESEARCH (State)		15,000		15,000	15,000	
5. PART D EXEMPLARY (State)		107,005		107,005	107,005	
6. PART F CONSUMER AND HOMEMAKING		94,917		94,917	94,917	
7. PART G COOPERATIVE		219,649		219,649	135,267	84,382
8. PART H WORK-STUDY		23,993		23,993	23,993	

SECTION II - ADJUSTMENTS TO PRIOR YEAR EXPENDITURE REPORTS

FISCAL YEAR	COMMON ACCOUNT NO.	FEDERAL EXPENDITURES PREVIOUSLY REPORTED	INCREASE OR (Decrease)	FEDERAL EXPENDITURES AS REVISED
1. 19	2070431	1,537,261	(9)	1,537,252
2. 19				
3. 19				
4. 19				

The expenditures of Federal funds reported above have been in accordance with the provisions of the Federal Vocational Education Acts, the policies approved thereunder and the State plan. An exact copy of the complete report has been filed with the permanent records of the State Board for Vocational Education.

SIGNATURE (State Fiscal Officer)	TITLE	DATE
[signature]	Accountant	9/22/70

SIGNATURE OF EXECUTIVE OFFICER (State Board for Vocational Education)	DATE OF CERTIFICATION
Leonard V. DeFonis	9/23/70

OE FORM 3129, 6,'70 REPLACES OE FORM 4042, 2/69. WHICH IS OBSOLETE

2175

(STATE)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

BUDGET BUREAU NO. 51-R0341
APPROVAL EXPIRES 3/31/71

EXPENDITURES FOR VOCATIONAL EDUCATION BY SOURCE, PURPOSE, AND LEVEL

Read instructions on reverse before completing this form.

STATE/OUTLYING AREA: New Mexico

DATE PREPARED: 9/22/70

FISCAL YEAR ENDING: June 30, 19 70

REPORT DUE: October 1, 1970

SECTION I – EXPENDITURES BY LEGISLATIVE PURPOSE

PROGRAM (1)	TOTAL FEDERAL (2)	TOTAL STATE/LOCAL (3)	TARGET GROUPS: REGULAR (4)	TARGET GROUPS: DISADVANTAGED (5)	TARGET GROUPS: HANDICAPPED (6)
1. TOTAL, ALL PARTS *(Sum of Lines 1-3, 13-18, 20, and 22-23)*	$ 2,431,239	$ 4,236,840	$ 4,508,700	$ 1,482,969	$ 676,410
2. PART A 102 *(b)* DISADVANTAGED SPECIAL AUTHORIZATION	107,597	8,870			
3. PART B 102 *(a)* STATE PROGRAMS TOTAL	1,947,460	3,338,026			
4. *(1)* SECONDARY	457,886	862,610			
5. *(2)* POSTSECONDARY	695,649	1,103,121			
6. *(3)* ADULT	71,046	123,632			
7. *(4)(A)* DISADVANTAGED	292,119	568,956			
8. *(4)(B)* HANDICAPPED	194,746	242,266			
9. *(5)* CONSTRUCTION *(Area Vocational Schools)*	-0-	-0-			
10. *(6)* GUIDANCE AND COUNSELING	3,688	77,811			
11. *(7)* CONTRACTED INSTRUCTION	-0-	-0-			
12. *(8)* ANCILLARY SERVICES	232,326	359,630			
13. PART C RESEARCH *(State)* RCU	15,000	23,368			
14. GRANTS	-0-	-0-			
15. PART D EXEMPLARY *(State)*	107,005	5,307			
16. PART E RESIDENTIAL SCHOOLS *(State)* CONSTRUCTION		-0-			
17. OPERATION		-0-			
18. PART F CONSUMER AND HOMEMAKING TOTAL	94,917	814,397			
19 DEPRESSED AREAS	42,437	329,034			
20. PART G COOPERATIVE TOTAL	135,267	40,874			
21. EMPLOYER REIMBURSEMENT	-0-	-0-			
22. PART H WORK-STUDY STUDENT COMPENSATION	23,993	5,998			
23. ADMINISTRATION	-0-	-0-			

SECTION II – EXPENDITURES BY TYPE OF POSTSECONDARY INSTITUTION

1. COMMUNITY COLLEGES	221,781	367,618			
2. TECHNICAL INSTITUTES	153,963	310,238			
3. VOCATIONAL TECHNICAL, OTHER	624,345	716,564			

SECTION III – EXPENDITURES BY LEVEL

1. ELEMENTARY	-0-	-0-	-0-	-0-	-0-
2. SECONDARY	1,310,496	2,688,761	2,329,523	1,237,813	431,921
3. POSTSECONDARY	1,000,089	1,394,420	1,916,539	245,156	232,764
4. ADULT	120,654	153,659	262,585	-0-	11,725

OE FORM 3131, 5-70 REPLACES OE FORM 4033, 2/69, WHICH IS OBSOLETE

71176

(STATE)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

BUDGET BUREAU NO. 51-R0841
APPROVAL EXPIRES: 3/31/71

TOTAL EXPENDITURES FOR VOCATIONAL EDUCATION BY OBJECT, PURPOSE, AND LOCATION

Read instructions before completing this form.

STATE/OUTLYING AREA: New Mexico

DATE PREPARED: 9/22/70

FISCAL YEAR ENDING: June 30, 19 70

REPORT DUE: October 1, 1970

LEGISLATIVE PURPOSES	INSTRUCTIONAL SALARIES	INSTRUCTIONAL EQUIPMENT	OTHER INSTRUCTIONAL COSTS	GUIDANCE AND COUNSELING	ADMINISTRATION, SUPERVISION, AND EVALUATION	TEACHER EDUCATION	RESEARCH AND DEMONSTRATION	CURRICULUM DEVELOPMENT
1	2	3	4	5	6	7	8	9
1. PART A 102(b) SPECIAL AUTH. DISADVANTAGED	$ 31,125	$ 67,602	$ -0-	$ -0-	$ 17,740	$ -0-	$ -0-	$ -0-
2. PART B 102(a) STATE PROGRAMS TOTAL	3,210,835	617,395	770,751	81,499	435,294	156,096	566	13,050
3. SECONDARY	893,504	200,236	226,756	-0-	129,050	156,096	566	-0-
4. POSTSECONDARY	1,345,786	181,122	258,812	-0-	277,568	-0-	-0-	13,050
5. ADULT	157,930	3,648	33,100	-0-	28,676	-0-	-0-	-0-
6. DISADVANTAGED	539,729	138,790	182,556	-0-	-0-	-0-	-0-	-0-
7. HANDICAPPED	273,886	93,599	69,527	-0-	-0-	-0-	-0-	-0-
8. GUIDANCE AND COUNSELING				81,499	-0-	-0-	-0-	-0-
9. PART C RESEARCH RCU	-0-	-0-	-0-	-0-	-0-	-0-	38,368	-0-
10. GRANTS	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
11. PART D EXEMPLARY	5,205	9,121	43,654	4,332	50,000	-0-	-0-	-0-
12. PART E RESIDENTIAL SCHOOLS OPERATION	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
13. PART F CONSUMER AND HOMEMAKING TOTAL	560,749	39,916	230,571	-0-	47,818	30,260	-0-	-0-
14. DEPRESSED AREAS	262,917	12,485	96,069	-0-	-0-	-0-	-0-	-0-
15. PART G COOPERATIVE	65,481	48,415	42,531	-0-	19,714	-0-	-0-	-0-

EXPENDITURES BY LOCATION	TOTAL FEDERAL	TOTAL STATE/LOCAL	ECONOMICALLY DEPRESSED AREAS		MODEL CITIES AREAS	
			FEDERAL	STATE/LOCAL	FEDERAL	STATE/LOCAL
1	2	3	4	5	6	7
1. TOTAL (Sum of lines 2 and 4)	$ 2,431,239	$ 4,236,840	$ 1,317,291	$ 2,840,248	$ 527,812	$ 882,280
2. SMSA	481,410	755,312	481,410	755,312	481,410	755,312
3. CENTRAL CITY	481,410	755,312	481,410	755,312	481,410	755,312
4. NON-SMSA	1,949,829	3,481,528	835,881	2,084,936	46,402	126,968

OE FORM 3132, 6/70

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

BUDGET BUREAU NO. 51-R0541
APPROVAL EXPIRES 3/31/71

PROJECT EXPENDITURES FOR VOCATIONAL AREA SCHOOL CONSTRUCTION

(Including residential schools)

VOCATIONAL EDUCATION AMENDMENTS OF 1968, APPALACHIA, AND EDA

Read instructions on reverse before completing this form

STATE/OUTLYING AREA: New Mexico

DATE PREPARED: 9/22/70

FISCAL YEAR ENDING: June 30, 19 70

REPORT DUE: October 1, 1970

PROGRAM	FEDERAL EXPENDITURES BY PUBLIC LAW	STATE AND LOCAL EXPENDITURES	NUMBER OF PROJECTS		ADDITIONAL STUDENT CAPACITY	
			NEW	EXPANSION & REMODELING	NEW PROJECTS	EXPANSION & REMODELING
1	2	3	4	5	6	7
1.	VEA 68 - NONE -					
2. TOTAL ALL PROJECTS	211	- NONE -				
3.	214					
4.	EDA					
5.	VEA 68					
6. TOTAL PROJECTS THROUGH ACQUISITION OF EXISTING FACILITY	211					
7.	214					
8.	EDA					
If Construction Funds from 211, 214 or EDA are shown on Lines 2, 3, 4, 7 or 8 list projects individually below.						
9.	VEA 68					
10.	211					
11.	214					
12.	EDA					
13.	VEA 68					
14.	211					
15.	214					
16.	EDA					
17.	VEA 68					
18.	211					
19.	214					
20.	EDA					
21.	VEA 68					
22.	211					
23.	214					
24.	EDA					
25.	VEA 68					
26.	211					
27.	214					
28.	EDA					

OE FORM 3133, [illegible]

[illegible] OF FORM 4226, 2/69, WHICH IS OBSOLETE

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STATE

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

BUDGET BUREAU NO. 51-R0841
APPROVAL EXPIRES 3/31/71

STATE/OUTLYING AREA: New Mexico

DATE PREPARED: September 1, 1970

FISCAL YEAR ENDING: June 30, 1970

REPORT DUE: October 1, 1970

NUMBER OF TEACHERS AND STATUS OF TEACHER TRAINING IN VOCATIONAL EDUCATION

Read instructions on reverse before completing this form

VOCATIONAL PROGRAMS	TOTAL UNDUPLICATED	NUMBER OF TEACHERS									NUMBER OF ENROLLEES IN TEACHER TRAINING		NUMBER COMPLETING STATE PLAN REQUIREMENT	
		SECONDARY*			POSTSECONDARY			ADULT						
		FULL-TIME	PART-TIME	TEACHER AIDES	FULL-TIME	PART-TIME	TEACHER AIDES	FULL-TIME	PART-TIME	TEACHER AIDES	PRE-SERVICE	IN-SERVICE	PRE-SERVICE	IN-SERVICE
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. TOTAL, UNDUPLICATED	729	285	(1) 94	-0-	142	(2) 29	-0-	47	(16)151	-0-	376	352	120	59
SPECIAL PROGRAMS:	XXXXXXX													
2. EXEMPLARY	XXXXXXX	-0-	-0-											
3. GROUP GUIDANCE	XXXXXXX	2	-0-											
4. PRE-POSTSECONDARY	XXXXXXX	-0-	-0-											
5. REMEDIAL	XXXXXXX	-0-	-0-											
6. COOPERATIVE, PART G	XXXXXXX	6	-0-											
7. DISADVANTAGED	XXXXXXX	3	1											
8. HANDICAPPED	XXXXXXX	1	-0-											
REGULAR OCCUPATIONAL PROGRAMS (*Specify by OE Code*)														
9. 01. AGRICULTURE	66	34	28	-0-	2	1	-0-	1	-0-	-0-	105	48	24	-0-
10. 04. DISTRIBUTION	31	18	11	-0-	1	-0-	-0-	-0-	1	-0-	3	14	2	3
11. 07. HEALTH	83	9	3	-0-	48	7	-0-	11	5	-0-	6	20	2	4
12. 09.01 COMPREHENSIVE HOMEMAKING	99	52	44	-0-	-0-	-0-	-0-	-0-	(11) 14	-0-	246	103	77	20
13. 09.02 OCCUPATIONAL PREPARATION	5	-0-	(1) 1	-0-	-0-	-0-	-0-	-0-	5	-0-	-0-	-0-	-0-	-0-
14. 14. OFFICE	208	117	-0-	-0-	38	8	-0-	35	10	-0-	11	126	10	19
15. 16. TECHNICAL	44	-0-	-0-	-0-	25	9	-0-	-0-	10	-0-	-0-	-0-	-0-	-0-
16. 17. TRADES AND INDUSTRY	191	53	7	-0-	28	(2) 4	-0-	-0-	(5) 106	-0-	5	41	5	13
17. OTHER (*Specify*) Counselors	2	2	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-

* Indicate in ( ) on the appropriate lines the number of elementary teachers.

OE FORM 3136, 6/70 REPLACES OE FORM 4047-1, 2/69, WHICH IS OBSOLETE

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STATE

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

BUDGET BUREAU NO. 51-R0841
APPROVAL EXPIRES 3-31-71

STATE OUTLYING AREA
New Mexico

DATE PREPARED
September 4, 1970

FISCAL YEAR ENDING
June 30, 1970

REPORT DUE
October 1, 1970

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS

Read instructions on reverse before completing this form

PROGRAM 1	TOTAL 2	DISADVANTAGED 3	HANDICAPPED 4	ELEMENTARY AND SECONDARY 5	POST-SECONDARY 6	ADULT 7	APPRENTICESHIP 8	WORK-STUDY 9	COOPERATIVE 10	COMPLETIONS 11	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS 12
1. GRAND TOTAL *(Unduplicated)*	34428	11579	842	21819	4927	7682	685	117	1785	11951	555
SPECIAL DATA							XXXXX				
2. EXEMPLARY	-0-	-0-	-0-	-0-	-0-	-0-	XXXXX	-0-	-0-	-0-	-0-
3. GROUP GUIDANCE	141	141	-0-	141	-0-	-0-	XXXXX	-0-	-0-	-0-	XXXXXX
4. PREPOSTSECONDARY	-0-	-0-	-0-	-0-	XXXXXX	XXXXXX	XXXXXX	-0-	-0-	-0-	XXXXXX
5. REMEDIAL	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	XXXXXX	XXXXXX
6. WORK-STUDY	117	117	-0-	104	13	XXXXXX	XXXXXX	XXXXXX	-0-	-0-	XXXXXX
7. HANDICAPPED	71	XXXXXX	71	15	-0-	56	-0-	-0-	-0-	2	1
8. DISADVANTAGED	140	140	XXXXXX	140	-0-	-0-	-0-	-0-	125	43	7
9. COOPERATIVE B	1543	455	33	1514	29	XXXXXX	XXXXXX	-0-	XXXXXX	1218	4
10. COOPERATIVE G	242	242	-0-	242	-0-	XXXXXX	XXXXXX	-0-	XXXXXX	-0-	-0-
11. MALE	13262	3387	352	7643	2202	3417	685	71	856	4678	277
12. FEMALE	21166	8192	490	14176	2725	4265	-0-	46	929	7273	278
13. BELOW GRADE 7	-0-	-0-	-0-	-0-	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	XXXXXX	XXXXXX	XXXXXX
14. GRADES 7-8	2463	770	63	2463	XXXXXX	XXXXXX	XXXXXX	XXXXXXX	-0-	XXXXXX	XXXXXX
15. GRADES 9-12	19356	7653	541	19356	XXXXXX	XXXXXX	XXXXXX	104	1785	6701	304
16. POST-SECONDARY, 1ST YEAR	3049	701	47	XXXXXXXXX	3049	XXXXXX	XXXXXX	13	-0-	2510	69
17. POST-SECONDARY, 2ND YEAR OR MORE	1878	391	32	XXXXXXXXX	1878	XXXXXX	XXXXXX	-0-	29	1628	86
18. ADULT EMPLOYED	1388	464	28	XXXXXXXXX	XXXXXX	1388	XXXXXX	XXXXXXX	XXXXXX	1112	96
19. ADULT NOT EMPLOYED	6294	1600	131	XXXXXXXXX	XXXXXX	6294	685	XXXXXXX	XXXXXX	XXXXXX	XXXXXX
20. MINORITY GROUP	17223	6797	395	11197	1687	4339	67	94	749	3939	82
OE FORM 3138											
American Indian	1051	898	86	971	43	37	3	5	10	235	35
Negro	291	120	15	252	23	16	4	2	12	95	10
Oriental	6	-0-	-0-	5	1	-0-	-0-	-0-	2	2	-0-
Spanish Surnamed American	15875	5779	294	9969	1620	4286	60	87	725	3607	37

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STATE

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS *(Cont'd)*

PROGRAM CODE	TITLE	TOTAL	DISADVANTAGED	HANDICAPPED	ELEMENTARY AND SECONDARY	POST-SECONDARY	ADULT	APPRETICESHIP	WORK-STUDY	COOPERATIVE	COMPLETIONS	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS
1		2	3	4	5	6	7	8	9	10	11	12
	OCCUPATIONAL DATA											
21.	SUBTOTAL UNDUPLICATED	34428	11579	842	21819	4927	7682	685	117	1785	11951	555
22.	01. TOTAL AGRICULTURE	(3349)	(831)	(105)	(3220)	(33)	(96)	(-0-)	(-0-)	(-0-)	(485)	(-0-)
23.	01.0100 Ag. Production	3266	831	105	3170	-0-	96	-0-	-0-	-0-	482	-0-
24.	01.0200 Ag. Supplies/Services	15	-0-	-0-	15	-0-	-0-	-0-	-0-	-0-	-0-	-0-
25.	01.0300 Ag. Mechanics	33	-0-	-0-	-0-	33	-0-	-0-	-0-	-0-	3	-0-
26.	01.0500 Ornamental Horticulture	35	-0-	-0-	35	-0-	-0-	-0-	-0-	-0-	-0-	-0-
27.	04. TOTAL DISTRIBUTION	(1870)	(301)	(46)	(1766)	(80)	(24)	(-0-)	(-0-)	(1132)	(881)	(270)
28.	04.0100 Advertising Services	46	1	1	-0-	46	-0-	-0-	-0-	-0-	17	8
29.	04.0800 General Merchandise	159	125	-0-	159	-0-	-0-	-0-	-0-	125	27	7
30.	04.1700 Real Estate	24	-0-	-0-	-0-	-0-	24	-0-	-0-	-0-	16	8
31.	04.2000 Retail Trade, (Other)	1641	175	45	1607	34	-0-	-0-	-0-	1007	821	247
32.	07. TOTAL HEALTH	(1016)	(104)	(56)	(126)	(448)	(442)	(-0-)	(-0-)	(-0-)	(546)	(-0-)
33.	07.0101 Dental Assistant	28	-0-	-0-	-0-	28	-0-	-0-	-0-	-0-	26	-0-
34.	07.0301 Nurse, Associate Degree	120	-0-	-0-	-0-	120	-0-	-0-	-0-	-0-	52	-0-
35.	07.0302 Practical(Vocational)Nurse	214	86	-0-	-0-	214	-0-	-0-	-0-	-0-	98	-0-
36.	07.0303 Nurses' Assistance (Aide)	357	16	-0-	126	86	145	-0-	-0-	-0-	322	-0-
37.	Other Occupations											
38.	07.0300 RN Refresher	83	-0-	-0-	-0-	-0-	83	-0-	-0-	-0-	-0-	-0-
39.	07.0399 Ward Clerk-Med. Assistant	93	2	-0-	-0-	-0-	93	-0-	-0-	-0-	48	-0-
40.	07.0401 Occupational Therapy	121	-0-	56	-0-	-0-	121	-0-	-0-	-0-	-0-	-0-
41.	09. TOTAL HOMEMAKING	(11962)	(5266)	(317)	(10960)	(-0-)	(1002)	(-0-)	(-0-)	(110)*	(2402)	(-0-)
42.	09.0100 Comprehensive Homemaking	11863	5176	317	10861	-0-	1002	-0-	-0-	110 *	2383	-0-
43.	09.0203 Food Management (Aztec)	22	13	-0-	22	-0-	-0-	-0-	-0-	-0-	19	-0-
44.	09.0205 Institutional Services	77	77	-0-	77	-0-	-0-	-0-	-0-	-0-	-0-	-0-
45.	14. TOTAL OFFICE	(11146)	(3825)	(225)	(3654)	(3399)	(4093)	(-0-)	(71)	(263)	(6164)	(154)
46.	14.0100 Accounting & Computing	1211	305	25	386	375	450	-0-	-0-	-0-	796	14
47.	14.0200 Bus. Data Processing Syst.	890	322	12	-0-	428	462	-0-	-0-	-0-	452	21
48.	14.0300 Filing, Office Machines	3273	1252	152	1024	968	1281	-0-	-0-	178	2156	38
49.	14.0600 Personnel, Training, Related	141	141	-0-	141	-0-	-0-	-0-	-0-	-0-	-0-	-0-
50.	14.0700 Steno, Secretarial, Related	2780	981	16	1043	841	896	-0-	71	85	1963	49
51.	14.0900 Typing, Related Occupations	2851	824	20	1060	787	1004	-0-	-0-	-0-	797	32
52.												

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OE FORM 3128, 5-70 *Coop. G. Program

STATE

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS (Cont'd)

PROGRAM CODE	TITLE	TOTAL	DISADVANTAGED	HANDICAPPED	ELEMENTARY AND SECONDARY	POST-SECONDARY	ADULT	APPRETICESHIP	WORK-STUDY	COOPERATIVE	COMPLETIONS	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS
1		2	3	4	5	6	7	8	9	10	11	12
OCCUPATIONAL DATA												
21. SUBTOTAL UNDUPLICATED												
22. 16.	TOTAL TECHNICAL	(898)	(177)	(19)	(-0-)	(482)	(416)	(-0-)	(-0-)	(-0-)	(276)	(24)
23. 16.0108	Electronics Technology	291	30	4	-0-	145	146	-0-	-0-	-0-	103	5
24. 16.0109	Electro-Mechanical Tech.	97	10	2	-0-	97	-0-	-0-	-0-	-0-	20	2
25. 16.0113	Mechanical Technology	162	63	7	-0-	162	-0-	-0-	-0-	-0-	82	8
26. 16.0117	Scientific Data Processing	348	74	6	-0-	78	270	-0-	-0-	-0-	71	9
27. 17.	TOTAL TRADES AND INDUSTRY	(4187)	(1075)	(74)	(2093)	(485)	(1609)	(685)	(46)	(280)	(1197)	(107)
28. 17.0100	Air Conditioning	4	-0-	-0-	4	-0-	-0-	-0-	-0-	4	-0-	-0-
29. 17.0200	Appliance Repair	17	10	3	2	15	-0-	-0-	-0-	2	7	-0-
30. 17.0301	Body and Fender	110	47	13	42	46	22	-0-	-0-	22	16	2
31. 17.0302	Mechanics, Auto	1287	147	3	990	66	231	-0-	-0-	127	434	41
32. 17.0400	Aviation Occupations	64	11	1	1	63	-0-	-0-	-0-	1	41	2
33. 17.0500	Blueprint Reading	34	20	3	-0-	-0-	34	-0-	-0-	-0-	12	2
34. 17.1000	Tot. Const.&Maintenance Tr.	8	8	-0-	8	-0-	-0-	-0-	-0-	-0-	-0-	-0-
35. 17.1001	Carpentry	492	121	1	247	-0-	245	245	-0-	-0-	21	3
36. 17.1002	Electricity	135	8	3	13	-0-	122	122	-0-	11	13	3
37. 17.1007	Plumbing and Pipefitting	230	4	-0-	-0-	-0-	230	230	-0-	-0-	-0-	-0-
38. 17.1100	Custodial Services	19	14	2	19	-0-	-0-	-0-	26	5	3	-0-
39. 17.1200	Diesel Mechanic	38	23	-0-	1	-0-	37	-0-	-0-	3	20	-0-
40. 17.1300	Drafting Occupations	219	30	7	71	31	117	-0-	-0-	11	50	18
41. 17.1400	Electrical Occupations	25	8	2	-0-	25	-0-	-0-	-0-	-0-	10	-0-
42. 17.1500	Electronic Occupations	322	178	5	244	33	45	-0-	-0-	7	111	6
43. 17.1600	Fabric Maintenance Service	103	39	4	16	-0-	87	-0-	20	4	72	1
44. 17.1900	Graphic Arts Occupations	150	29	8	108	-0-	42	-0-	-0-	3	68	1
45. 17.2100	Instruments Maint. &Repair	8	3	2	-0-	8	-0-	-0-	-0-	-0-	6	-0-
46. 17.2300	Metalworking Occupations	589	221	11	188	144	257	88	-0-	15	184	22
47. 17.2601	Barbering	17	13	1	-0-	17	-0-	-0-	-0-	-0-	14	-0-
48. 17.2602	Cosmetology	62	36	3	33	29	-0-	-0-	-0-	21	21	-0-
49. 17.2801	Fireman Training	3	-0-	-0-	3	-0-	-0-	-0-	-0-	3	-0-	-0-
50. 17.2802	Law Enforcement Training	41	7	-0-	-0-	-0-	41	-0-	-0-	-0-	14	-0-
51. 17.2900	Quantity Food Occupations	79	40	1	79	-0-	-0-	-0-	-0-	31	24	2
52.												

ERIC

STATE

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS *(Cont'd)*

PROGRAM CODE 1	TITLE	TOTAL 2	DISADVANTAGED 3	HANDICAPPED 4	ELEMENTARY AND SECONDARY 5	POST-SECONDARY 6	ADULT 7	APPRETICESHIP 8	WORK-STUDY 9	COOPERATIVE 10	COMPLETIONS 11	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS 12
OCCUPATIONAL DATA												
21. SUBTOTAL UNDUPLICATED												
22. 17.3000	Refrigeration	66	21	1	17	8	41	-0-	-0-	3	36	1
23. 17.3100	Small Engine Repair	7	-0-	-0-	7	-0-	-0-	-0-	-0-	7	1	-0-
24. OTHER OCCUPATIONS WITH LESS THAN												
25. 5% ENROLLMENT:												
26. 17.1003	Surveying	44	28	-0-	-0-	-0-	44	-0-	-0-	-0-	2	2
27. 17.2889	Water Treatment	14	9	-0-	-0-	-0-	14	-0-	-0-	-0-	17	1
28.												
29.												
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51.												
52.												

OE FORM 3139, 6/70

ERIC

9 4183

(ALBUQUERQUE)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

BUDGET BUREAU NO. 51-R0341
APPROVAL EXPIRES 3/31/71

EXPENDITURES FOR VOCATIONAL EDUCATION BY SOURCE, PURPOSE, AND LEVEL

Read instructions on reverse before completing this form.

STATE/OUTLYING AREA: New Mexico - Albuquerque

DATE PREPARED: 9/22/70

FISCAL YEAR ENDING: June 30, 1970

REPORT DUE: October 1, 1970

SECTION I - EXPENDITURES BY LEGISLATIVE PURPOSE

PROGRAM	TOTAL FEDERAL	TOTAL STATE/LOCAL	TARGET GROUPS		
			REGULAR	DISADVANTAGED	HANDICAPPED
1	2	3	4	5	6
1. TOTAL, ALL PARTS *(Sum of Lines 1-3, 13-18, 20, and 22-23)*	$ 481,410	$ 755,312	$ 931,504	$ 18,354	$ 286,864
2. PART A 102 *(b)* DISADVANTAGED SPECIAL AUTHORIZATION	31,125	-0-			
3. PART B 102 *(a)* STATE PROGRAMS TOTAL	405,335	641,306			
4. *(1)* SECONDARY					
5. *(2)* POSTSECONDARY	233,664	295,933			
6. *(3)* ADULT	30,755	58,301			
7. *(4)(A)* DISADVANTAGED	5,250	13,104			
8. *(4)(B)* HANDICAPPED	117,980	168,884			
9. *(5)* CONSTRUCTION *(Area Vocational Schools)*	-0-	-0-			
10. *(6)* GUIDANCE AND COUNSELING	3,000	52,507			
11. *(7)* CONTRACTED INSTRUCTION	-0-	-0-			
12. *(8)* ANCILLARY SERVICES	14,686	52,577			
13. PART C RESEARCH *(State)* RCU	-0-	1,711			
14. GRANTS	-0-	-0-			
15. PART D EXEMPLARY *(State)*	8,000	-0-			
16. PART E RESIDENTIAL SCHOOLS *(State)* CONSTRUCTION		-0-			
17. OPERATION		-0-			
18. PART F CONSUMER AND HOMEMAKING TOTAL	7,200	112,295			
19 DEPRESSED AREAS	-0-	-0-			
20. PART G COOPERATIVE TOTAL	29,750	-0-			
21. EMPLOYER REIMBURSEMENT	-0-	-0-			
22. PART H WORK-STUDY STUDENT COMPENSATION	-0-	-0-			
23. ADMINISTRATION	-0-	-0-			

SECTION II - EXPENDITURES BY TYPE OF POSTSECONDARY INSTITUTION

1. COMMUNITY COLLEGES	-0-	-0-
2. TECHNICAL INSTITUTES	-0-	-0-
3. VOCATIONAL TECHNICAL, OTHER	301,129	454,148

SECTION III - EXPENDITURES BY LEVEL

1. ELEMENTARY	-0-	-0-	-0-	-0-	-0-
2. SECONDARY	137,601	242,863	179,329	18,354	182,981
3. POSTSECONDARY	301,129	454,148	663,119	-0-	92,158
4. ADULT	42,480	58,301	89,056	-0-	11,725

OE FORM 31[illegible] REPLACES [illegible]

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(ALBUQUERQUE)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

BUDGET BUREAU NO. 51-R0641
APPROVAL EXPIRES: 3/31/71

STATE/OUTLYING AREA: New Mexico - Albuquerque

DATE PREPARED: 9/22/70

FISCAL YEAR ENDING: June 30, 19 70

REPORT DUE: October 1, 1970

TOTAL EXPENDITURES FOR VOCATIONAL EDUCATION BY OBJECT, PURPOSE, AND LOCATION

Read instructions before completing this form.

LEGISLATIVE PURPOSES	INSTRUCTIONAL SALARIES	INSTRUCTIONAL EQUIPMENT	OTHER INSTRUCTIONAL COSTS	GUIDANCE AND COUNSELING	ADMINISTRATION, SUPERVISION, AND EVALUATION	TEACHER EDUCATION	RESEARCH AND DEMONSTRATION	CURRICULUM DEVELOPMENT
1	2	3	4	5	6	7	8	9
1. PART A 102(b) SPECIAL AUTH. DISADVANTAGED	$ -0-	$ 10,000	$ 21,125	$ -0-	$ -0-	$ -0-	$ -0-	$ -0-
2. PART B 102(a) STATE PROGRAMS TOTAL	815,457	29,520	78,894	55,507	52,738	13,525	-0-	1,000
3. SECONDARY	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
4. POSTSECONDARY	482,130	-0-	47,467	-0-	52,738	13,525	-0-	1,000
5. ADULT	83,333	-0-	5,723	-0-	-0-	-0-	-0-	-0-
6. DISADVANTAGED	14,700	708	2,946	-0-	-0-	-0-	-0-	-0-
7. HANDICAPPED	235,294	28,812	22,758	-0-	-0-	-0-	-0-	-0-
8. GUIDANCE AND COUNSELING				55,507	-0-	-0-	-0-	-0-
9. PART C RESEARCH RCU	-0-	-0-	-0-	-0-	-0-	-0-	1,711	-0-
10. GRANTS	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
11. PART D EXEMPLARY	-0-	3,000	5,000	-0-	-0-	-0-	-0-	-0-
12. PART E RESIDENTIAL SCHOOLS OPERATION	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
13. PART F CONSUMER AND HOMEMAKING TOTAL	93,496	1,069	12,059	-0-	-0-	12,871	-0-	-0-
14. DEPRESSED AREAS	93,496	1,069	12,059	-0-	-0-	12,871	-0-	-0-
15. PART G COOPERATIVE	3,213	24,800	1,737	-0-	-0-	-0-	-0-	-0-

EXPENDITURES BY LOCATION	TOTAL FEDERAL	TOTAL STATE/LOCAL	ECONOMICALLY DEPRESSED AREAS		MODEL CITIES AREAS	
			FEDERAL	STATE/LOCAL	FEDERAL	STATE/LOCAL
1	2	3	4	5	6	7
1. TOTAL (Sum of lines 2 and 3)	$ 481,410	$ 755,312	$ 481,410	$ 755,312	$ 481,410	$ 755,312
2. SMSA	481,410	755,312	481,410	755,312	481,410	755,312
3. CENTRAL CITY	481,410	755,312	481,410	755,312	481,410	755,312
4. NON-SMSA	-0-	-0-	-0-	-0-	-0-	-0-

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OE FORM 3132. 5/70

ALBUQUERQUE

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

BUDGET BUREAU NO. 51-R0841
APPROVAL EXPIRES 3/31/71

STATE/OUTLYING AREA: New Mexico

DATE PREPARED: September 1, 1970

FISCAL YEAR ENDING: June 30, 1970

REPORT DUE: October 1, 1970

NUMBER OF TEACHERS AND STATUS OF TEACHER TRAINING IN VOCATIONAL EDUCATION

Read instructions on reverse before completing this form

VOCATIONAL PROGRAMS	TOTAL UNDUPLICATED	NUMBER OF TEACHERS									NUMBER OF ENROLLEES IN TEACHER TRAINING		NUMBER COMPLETING STATE PLAN REQUIREMENTS	
		SECONDARY*			POSTSECONDARY			ADULT						
		FULL-TIME	PART-TIME	TEACHER AIDES	FULL-TIME	PART-TIME	TEACHER AIDES	FULL-TIME	PART-TIME	TEACHER AIDES	PRE-SERVICE	IN-SERVICE	PRE-SERVICE	IN-SERVICE
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. TOTAL, UNDUPLICATED	194	30	8	-0-	43	7	-0-	38	68	-0-	207	145	37	11
SPECIAL PROGRAMS:	XXXXXXX													
2. EXEMPLARY	XXXXXXX	-0-	-0-											
3. GROUP GUIDANCE	XXXXXXX	-0-	-0-											
4. PRE-POSTSECONDARY	XXXXXXX	-0-	-0-											
5. REMEDIAL	XXXXXXX	-0-	-0-											
6. COOPERATIVE, PART G	XXXXXXX	-0-	1											
7. DISADVANTAGED	XXXXXXX	-0-	2											
8. HANDICAPPED	XXXXXXX	1	-0-											
REGULAR OCCUPATIONAL PROGRAMS (Specify by OE Code)														
9. 01. AGRICULTURE	1	1	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
10. 04. DISTRIBUTION	11	5	6	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
11. 07. HEALTH	11	-0-	-0-	-0-	5	1	-0-	3	2	-0-	-0-	-0-	-0-	-0-
12. 09.01 COMPREHENSIVE HOMEMAKING	10	10	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	200	84	31	1
13. 09.02 OCCUPATIONAL PREPARATION	1	0	1	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
14. 14. OFFICE	86	14	-0-	-0-	21	6	-0-	35	10	-0-	4	57	3	6
15. 16. TECHNICAL	9	-0-	-0-	-0-	9	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
16. 17. TRADE AND INDUSTRY	65	-0-	1	-0-	9	-0-	-0-	-0-	56	-0-	3	4	3	4
17. OTHER (Specify)														

*In boxes marked with the appropriate letter, the number of itinerant teachers.

OE FORM 3139 [illegible] REPLACES OE FORM 4047-1, 2/69, WHICH IS OBSOLETE

9312

12

ALBUQUERQUE

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

BUDGET BUREAU NO. 51-R0841
APPROVAL EXPIRES 3/31/71

STATE/OUTLYING AREA: New Mexico

DATE PREPARED: September 4, 1970

FISCAL YEAR ENDING: June 30, 1970

REPORT DUE: October 1, 1970

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS

Read instructions on reverse before completing this form

PROGRAM	2 TOTAL	3 DISADVANTAGED	4 HANDICAPPED	5 ELEMENTARY AND SECONDARY	6 POST-SECONDARY	7 ADULT	8 APPRENTICESHIP	9 WORK-STUDY	10 COOPERATIVE	11 COMPLETIONS	12 LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS
1											
1. GRAND TOTAL *(Unduplicated)*	11664	3515	280	3600	2050	6014	479	-0-	435	3572	258
SPECIAL DATA							XXXXXX				
2. EXEMPLARY	-0-	-0-	-0-	-0-	-0-	-0-	XXXXXX	-0-	-0-	-0-	-0-
3. GROUP GUIDANCE	-0-	-0-	-0-	-0-	-0-	-0-	XXXXXX	-0-	-0-	-0-	XXXXXX
4. PREPOSTSECONDARY	-0-	-0-	-0-	-0-	XXXXXX	XXXXXX	XXXXXX	-0-	-0-	-0-	XXXXXX
5. REMEDIAL	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	XXXXXX	XXXXXX
6. WORK-STUDY	-0-	-0-	-0-	-0-	-0-	XXXXXX	XXXXXX	XXXXXX	-0-	-0-	XXXXXX
7. HANDICAPPED	57	XXXXXX	57	-0-	-0-	57	-0-	-0-	-0-	-0-	-0-
8. DISADVANTAGED	31	31	XXXXXX	31	-0-	-0-	-0-	-0-	-0-	4	1
9. COOPERATIVE B	419	41	2	419	-0-	XXXXXX	XXXXXX	-0-	XXXXXX	318	101
10. COOPERATIVE G	16	16	-0-	16	-0-	XXXXXX	XXXXXX	-0-	XXXXXX	-0-	-0-
11. MALE	5049	1034	150	988	1063	2998	479	-0-	188	1580	127
12. FEMALE	6615	2481	130	2612	987	3016	-0-	-0-	247	1992	131
13. BELOW GRADE 7	-0-	-0-	-0-	-0-	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX	XXXXXX
14. GRADES 7-8	607	248	17	607	XXXXXX	XXXXXX	XXXXXX	XXXXXX	-0-	XXXXXX	XXXXXX
15. GRADES 9-12	2993	929	89	2993	XXXXXX	XXXXXX	XXXXXX	-0-	435	1146	118
16. POSTSECONDARY, 1ST YEAR	1351	397	24	XXXXXXXX	1351	XXXXXX	XXXXXX	-0-	-0-	1202	45
17. POSTSECONDARY, 2ND YEAR AND ABOVE	699	255	11	XXXXXXXX	699	XXXXXX	XXXXXX	-0-	-0-	605	47
18. ADULT PREPARATORY	1046	407	20	XXXXXXXX	XXXXXX	1046	XXXXXX	XXXXXX	XXXXXX	619	48
19. ADULT SUPPLEMENTAL	4968	1279	119	XXXXXXXX	XXXXXX	4968	479	XXXXXX	XXXXXX	XXXXXX	XXXXXX
20. MINORITY GROUPS	6271	2743	146	1549	1203	3529	41	-0-	239	2248	52
OE FORM 3138. [illegible]											
American Indian	102	82	10	79	10	13	-0-	-0-	10	30	12
Negro	79	40	15	50	15	14	-0-	-0-	12	29	9
Oriental	6	-0-	-0-	5	1	-0-	-0-	-0-	2	2	-0-
Spanish Surnamed American	6084	2621	121	1415	1177	3502	41	-0-	215	2187	31

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7187

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS *(Cont'd)*

PROGRAM CODE 1	TITLE	TOTAL 2	DISADVANTAGED 3	HANDICAPPED 4	ELEMENTARY AND SECONDARY 5	POST-SECONDARY 6	ADULT 7	APPRETICESHIP 8	WORK-STUDY 9	COOPERATIVE 10	COMPLETIONS 11	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS 12
OCCUPATIONAL DATA												
21. SUBTOTAL UNDUPLICATED		11664	3515	280	3600	2050	6014	479	-0-	435	3572	258
22. 01.	TOTAL AGRICULTURE	(35)	(-0-)	(-0-)	(35)	(-0-)	(-0-)	(-0-)	(-0-)	(-0-)	(13)	(-0-)
23.	01.0500 Ornamental Horticulture	35	-0-	-0-	35	-0-	-0-	-0-	-0-	-0-	13	-0-
24. 04.	TOTAL DISTRIBUTION	(736)	(36)	(4)	(736)	(-0-)	(-0-)	(-0-)	(-0-)	(403)	(302)	(114)
25.	04.0100 Advertising Services	23	-0-	-0-	23	-0-	-0-	-0-	-0-	-0-	20	3
26.	04.0800 General Merchandise	34	-0-	-0-	34	-0-	-0-	-0-	-0-	-0-	27	7
27.	04.2000 Retail Trade, (Other)	679	36	4	679	-0-	-0-	-0-	-0-	403	255	104
28. 07.	TOTAL HEALTH	(275)	(10)	(56)	(-0-)	(61)	(214)	(-0-)	(-0-)	(-0-)	(123)	(-0-)
29.	07.0302 Practical (Voc.) Nursing	61	10	-0-	-0-	61	-0-	-0-	-0-	-0-	20	-0-
30.	07.0303 Nurses Assistance (Aide)	65	-0-	-0-	-0-	-0-	65	-0-	-0-	-0-	55	-0-
31.	Other Occupations											
32.	07.0401 Occupational Therapy	56	-0-	56	-0-	-0-	56	-0-	-0-	-0-	-0-	-0-
33.	07.0904 Medical Assistant	41	-0-	-0-	-0-	-0-	41	-0-	-0-	-0-	-0-	-0-
34.	07.0999 Ward Clerk	52	-0-	-0-	-0-	-0-	52	-0-	-0-	-0-	48	-0-
35. 09.	TOTAL HOMEMAKING	(2324)	(953)	(73)	(2324)	(-0-)	(-0-)	(-0-)	(-0-)	(-0-)	(423)	(-0-)
36.	09.0100 Comprehensive Homemaking	2324	953	73	2324	-0-	-0-	-0-	-0-	-0-	423	-0-
37. 14.	TOTAL OFFICE	(6001)	(1861)	(100)	(412)	(1496)	(4093)	(-0-)	(-0-)	(16)	(2113)	(61)
38.	14.0100 Accounting and Computing	757	194	8	-0-	114	643	-0-	-0-	-0-	132	4
39.	14.0200 Business Data Processing											
40.	Systems	809	183	6	-0-	133	676	-0-	-0-	-0-	148	9
41.	14.0300 Filing, Office Machines	1543	496	38	163	468	912	-0-	-0-	16	731	14
42.	14.0700 Steno, Secretarial, Related	1433	483	29	149	392	892	-0-	-0-	-0-	644	24
43.	14.0900 Typing & Related Occupations	1459	505	19	100	389	970	-0-	-0-	-0-	458	10
44. 16.	TOTAL TECHNICAL	(721)	(262)	(15)	(-0-)	(314)	(407)	(-0-)	(-0-)	(-0-)	(220)	(30)
45.	16.0108 Electronics Technology	235	96	6	-0-	98	137	-0-	-0-	-0-	98	13
46.	16.0113 Mechanical Technology	138	69	3	-0-	138	-0-	-0-	-0-	-0-	51	8
47.	16.0117 Scientific Data Processing	348	97	6	-0-	78	270	-0-	-0-	-0-	71	9
48. 17.	TOTAL TRADES AND INDUSTRY	(1572)	(393)	(32)	(93)	(179)	(1300)	(479)	(-0-)	(16)	(378)	(53)
49.	17.0301 Body and Fender	56	45	3	-0-	34	22	-0-	-0-	-0-	15	1
50.	17.0302 Mechanics, Auto	284	93	8	16	37	231	-0-	-0-	16	83	18
51.	17.0500 Blueprint Reading	34	3	-0-	-0-	-0-	34	-0-	-0-	-0-	7	-0-
52.												

ALBUQUERQUE

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS *(Cont'd)*

PROGRAM CODE	TITLE	TOTAL	DISADVANTAGED	HANDICAPPED	ELEMENTARY AND SECONDARY	POST-SECONDARY	ADULT	APPRETICESHIP	WORK-STUDY	COOPERATIVE	COMPLETIONS	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS
1		2	3	4	5	6	7	8	9	10	11	12
OCCUPATIONAL DATA												
21. SUBTOTAL UNDUPLICATED												
22. 17.1001	Carpentry	107	-0-	-0-	-0-	-0-	107	107	-0-	-0-	-0-	-0-
23. 17.1002	Electricity	92	28	3	-0-	-0-	92	92	-0-	-0-	-0-	3
24. 17.1007	Plumbing & Pipefitting	192	-0-	-0-	-0-	-0-	192	192	-0-	-0-	-0-	-0-
25. 17.1200	Diesel Mechanic	37	8	-0-	-0-	-0-	37	-0-	-0-	-0-	12	-0-
26. 17.1300	Drafting Occupations	117	44	11	-0-	-0-	117	-0-	-0-	-0-	31	11
27. 17.1500	Electronic Occupations	77	-0-	-0-	77	-0-	-0-	-0-	-0-	-0-	-0-	-0-
28. 17.1600	Fabric Maintenance Service	87	27	3	-0-	-0-	87	-0-	-0-	-0-	38	1
29. 17.1900	Graphic Arts Occupations	42	21	-0-	-0-	-0-	42	-0-	-0-	-0-	25	1
30. 17.2300	Metalworking Occupations	365	116	4	-0-	108	257	88	-0-	-0-	117	18
31. 17.2802	Law Enforcement Training	41	7	-0-	-0-	-0-	41	-0-	-0-	-0-	14	-0-
32. 17.3000	Refrigeration	41	1	-0-	-0-	-0-	41	-0-	-0-	-0-	36	-0-
33.												
34.												
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PROGRAM DEVELOPMENT AND ACCOMPLISHMENTS - Form 3140

In Fiscal Year 1970, Vocational Education enrollments rose 15.6 percent, an increase of 4,650 students over 1969 for a total enrollment of 34,428 students.

TABLE I - ENROLLMENTS

Year	Total Enrollments	Elementary Secondary	Post Secondary	Adult	Apprenticeship
1970	34,428	21,819	4,927	7,682	(685)
1969	29,778	18,004	4,995	6,779	
Gain	4,650	3,815	(68)	903	(685)

A comparison with 1969 is shown in Table I. The secondary enrollment was 69 short of projection as estimated in Table 4, Part III of the State Plan. Adult was 2,007 over estimated total. The apprenticeship number is included in adult total.

TABLE II - COMPLETIONS

Year	Total	Secondary	Post Secondary	Adult Preparatory
1970	11,951	6,701	4,138	1,112
1969	9,714	6,057*	3,657	**

* Includes 2,084 Home Economics, Consumer and Homemaking and Gainful Occupations

** Not required for 1969

The total completions fell short 4,057 of estimated totals as shown in Table 5, Part III of the State Plan. However, there were 6,294 enrolled in adult supplement and completions were not requested by the Federal government; therefore, the objective, as stated, was met. According to Table 1, Part II we are still not meeting the requirements for employee demands. The transition from school to work in the past has been very successful and the follow-up of Fiscal Year 1970 will be completed October 15, 1970.

TABLE III - EXPENDITURES

Year	Total	Federal	State	Local	Four Corners Grant
1970	$6,668,079	$2,431,239	$ 551,139	$3,685,701	$ 68,068
1969	4,857,177	1,590,156	268,380	2,998,641	
Increase	$1,810,902	$ 841,083	$ 282,759	$ 687,060	$ 68,068

In Part II of the State Plan, Table 8, we anticipated $4,819,600 Federal monies and $4,842,400 State and local monies. These estimated funds for Vocational Education were not met as recorded in Table III - Expenditures, but a gain of $1,810,902 over 1969 was a tremendous increase for the State.

TABLE IV - PROGRAMS

	1970	1970 Projected	Increase (Decrease)
Secondary	327	277	50
Post Secondary	187	70	117
Adult	166	274	(108)
Totals	680	621	59

According to Table 4, Part III of the State Plan, it was predicted that we would have 993 continuing, expanding and new programs. Disadvantaged, handicapped and guidance and counseling programs were estimated at 92 new programs. Since funding was received April 20, 1970, this accounts for 92 programs not being started; however, 59 more programs were started than projected.

TABLE V - VOCATIONAL TEACHERS

	1970	1969
Total	729*	571*
Level		
Secondary	379	325
Post Secondary	171	147
Adult	198	151**
Special Needs		16
Total	748**	639
Program		
Agriculture	66	64
Distribution	31	28
Health	83	59
Home Economics	99	96
Office Education	208	128
Technical	44	39
Trades and Industry	191	155
Other	7	2
Total	729	571

* Unduplicated count

** Includes regular secondary and post-secondary day school teachers as follows: 1970; 1969.

Table 4, Part III of the State Plan projected 867 vocational teachers. One hundred and forty teachers were projected for the disadvantaged, handicapped, and guidance and counseling. These programs were not in operation due to lack of funds. If these programs had been in operation, the State would have had a total of 869 vocational teachers or two over projection.

Disadvantaged

The disadvantaged enrollment was 11,579. There were 8,423 secondary, 1,092 post-secondary and 2,064 adult students enrolled in vocational programs. The projected number to train was 1,000 secondary, 560 post-secondary and 600 adult

students; therefore, the objective of training disadvantaged was understated. However, as to number of specified programs, this objective was not achieved due to late funding and lack of trained personnel.

Handicapped

A total of 842 handicapped students were enrolled in vocational programs. Health Occupations had a very successful handicapped program, training 56 physically handicapped in cooperation with the Goodwill Agency in Albuquerque. Thirty-three students were enrolled in Cooperative Part B. The number of instructional programs projected was not met due to late funding and lack of trained personnel.

Research Coordinating Unit

The RCU met all objectives as stated in Part II and Part III of the State Plan, except develop a search and retrieval system, expand program of research assistantships and offer workshops to train vocational teachers in research procedures. Again, this was due to lack of funds to implement and to staff the RCU office. For further activities of the RCU, see Part C of the Act under Special Programs.

Exemplary Programs

Due to late funding, exemplary programs were not able to be started for Fiscal Year 1970; however, planning, administration and selection of exemplary projects were completed. For Fiscal Year 1971, all vocational units will have exemplary programs in progress.

State Residential Schools

For Fiscal Year 1970, two residential schools were providing for 500 students. Next Fiscal Year 1971, one more residential school will be opened; thus, meeting the quota of three as predicted for 1974. The objective of three schools is way ahead of prediction.

Consumer and Homemaking Education

Consumer and Homemaking programs at the secondary level numbered 95, representing 65 public schools. Adult programs were in operation in four schools and consisted of eight programs. A gain of 17 programs over projected programs was made. However, the number of adult programs did not meet stated objectives due to lack of State and Federal funding.

Cooperative Education - Part G

Due to late funding, only seven programs were in operation; therefore, the stated objectives were not fully met. However, administration, planning and ancillary services were initiated for expanding Cooperative Education Programs - Part G for Fiscal Year 1971.

Work-Study

Work-study programs were projected for 44 secondary schools and four post-secondary schools based on prior work-study funding when the programs were ongoing. However, due to late funding and the set-aside money for work-study, the State was only able

to fund 104 secondary students in 16 secondary schools and 13 post-secondary students in two post-secondary schools.

Articulation with Other Programs, Levels and Agencies

In cooperation with all vocational units, the following agencies were involved in Vocational Education programs:

Employment Security Commission, Albuquerque
Bureau of Business Research, Albuquerque
New Mexico State University, San Juan Branch, Farmington
New Mexico State University, Grants Branch, Grants
Luna Area Vocational School, Las Vegas
Northern New Mexico State School, El Rito
Technical-Vocational Institute, Albuquerque
Heights Beauty College, Albuquerque
Hollywood School of Modeling, Albuquerque
Albuquerque Business College, Albuquerque
Browning Commercial School, Albuquerque
Albuquerque Beauty College, Albuquerque
Southwest Computer College, Albuquerque
CEP Training Facility, Albuquerque
SER Training Facility, Albuquerque
ESC Training Facility for JEVS, Albuquerque
Bernalillo Public Schools, Bernalillo
Gallup Public Schools, Gallup
Farmington Public Schools (Evaluation), Farmington
Portales Public Schools (Evaluation), Portales
Santa Fe Public Schools, Santa Fe
St. Vincent's School of Licensed Practical Nursing, Santa Fe
OEO Training Center, Mora
Santa Fe Business College, Santa Fe
Santa Fe Beauty College, Santa Fe
OEO Training Center for NYC, etc., Santa Fe
Eastern New Mexico University, Roswell Campus
Roswell Beauty College, Roswell
Southwestern Business College, Roswell
New Mexico Junior College, Hobbs
CEP Training Facility, Santa Fe
CEP Training Facility, Gallup
CEP Training Facility, Navajo Reservation, Coyote Canyon
OEO Training Facility, Shiprock

Employer Involvement

Employer involvement with Cooperative Programs - Part B, in regard to providing training stations for the regular and disadvantaged students has been excellent. The Distributive Education students earned a total of $884,917.57 for Fiscal Year 1970. The employers are to be commended for their cooperation.

Business people were involved with some of the Mini-Grant projects and provided on-the-job participation and observation.

New industries locating in Albuquerque have signed commitments to hire a specified number of disadvantaged and handicapped personnel. They are also providing training, equipment, specifications for training, and are cooperating in all aspects.

All other aspects of Part III of the State Plan have been referred to under Part B of the Act, Special Programs and Other Information, as to financial, meeting of objectives and future planning.

State Achievements

1. The State Legislature provided $449,000 for Vocational Education in the off budget year.

2. Increase of 59 new vocational programs with an estimated 169 new programs for Fiscal Year 1971.

3. Stimulation of research through Mini-Grant projects.

4. First Annual Vocational Education Conference was planned in Fiscal Year 1970 and held August 10-14, 1970.

5. Evaluating, planning and inaugurating vocational programs according to established industry and new industry locating in the State in relation to their demand for employees.

6. Special emphasis was accorded to locating vocational programs in economically depressed areas, highly depressed areas, and high rate of youth unemployment areas in the State.

7. Improvement of Vocational Education image by publications, TV shows, radio spots, billboards and bumper stickers.

8. The Vocational Division was selected to participate in a HUD and HEW project for Program Planning Budgeting System (PPBS).

9. Apprenticeship programs were in operation.

REGULAR PROGRAMS

PART B OF THE ACT

#1 - Accomplishments for Each of the Five Categories of Persons Served

PERSONS TO BE SERVED (2.12)

Secondary

The secondary enrollment for Fiscal Year 1970 was 21,819 or 69 short of the projected figure as stated in Table 4 of Part III of the State Plan. Programs were conducted in 79 of the 89 school districts. Next Fiscal Year, 1971, the area vocational-technical schools will be training secondary schools in courses to be called mini-programs. Program offerings existed in all occupational units at the secondary level in varying programs according to size of the schools. Programs were expanded in all units to meet employment demands.

Total Federal funding for secondary programs was projected to be $1,356,447 and the actual funding amounted to $1,310,496 Federal funding and $2,688,761 State and local, for a grand total of $3,999,257. Disadvantaged and handicapped students were provided training under Part B, Part F and Part G of the Act.

Post Secondary

Enrollment at the post-secondary level was 4,927. An overprojection for Fiscal Year 1970 was made. However, for Fiscal Year 1971, the projection is 6,834 which should easily be met with the addition of one area vocational-technical school for a total of six schools in operation. Vocational post-secondary offerings were conducted by all vocational units. Health Occupations, Technical Education and Trades and Industry made an effort to meet the additional demand in their units.

The total funding projected was $1,568,511; however, the amount expended was $1,000,089 Federal and $1,394,420 State and local, for a grand total of $2,394,509.

Adult

Table 4, Part III of the State Plan projected the enrollment of 5,675 adults for training or retraining. For Fiscal Year 1970, 7,682 adults were enrolled or 2,007 more than projected. All units conducted adult programs. Apprenticeship enrollments accounted for 685 of the adults enrolled. Some adult classes were conducted under State supervision and local school districts, but mostly under the supervision of the area vocational-technical institutes.

It was estimated that $149,712 would be expended for adult programs with $84,856 from State and local sources; however, Federal monies were $120,654 expended and $153,659 from State and local, for a combined total of $274,313. Therefore, $39,745 was expended over projected figures.

Disadvantaged Persons

For Fiscal Year ending 1970, 11,579 disadvantaged students were enrolled in regular programs under Part B of the Act. Special classes for the disadvantaged were

limited due to lack of trained personnel, as well as the philosophy of the State being that disadvantaged students would be served as well or better in regular vocational programs. It was projected that special classes would enroll 1,000 secondary, 560 post-secondary and 600 at the adult level; however, only 140 secondary students were enrolled in special classes for the disadvantaged. In regular classes, it was projected that only 2,500 students would be enrolled, whereas 11,439 were served. All vocational units reported disadvantaged students.

In cooperative programs, Part B, only 455 disadvantaged were enrolled. This was short of projection. Part G monies funded seven programs with a total enrollment of 242 students.

The work-study program projected 300 students, but due to the amount of funding, only 117 students were able to participate in the program.

The priority for funding was based on the economically depressed areas as set forth in Part 2 under Part B of the Act.

The funding for work-study was $23,993 Federal and $5,998 State. Under Part B of the Act, $292,119 Federal monies and $568,956 State and local monies were expended for the disadvantaged.

Handicapped Persons

Projection was for 240 handicapped persons to be trained in occupational training with the breakdown of 140 secondary, 60 post-secondary and 40 adult. The final totals showed that 604 were provided training at the secondary level, 79 at the post-secondary level and 159 at the adult level for a total of 842; thus, far exceeding the projected total by 602. Two outstanding handicapped programs were the Health Occupations program for the physically handicapped and the Trades and Industry watch repair course.

Federal funds expended for handicapped persons under Part B were $194,746 and $242,266 State and local funds for a total of $437,012. It was projected that $152,493 Federal and $152,493 as matching funds would be used for a total of $304,986 for the handicapped; however, $132,026 more were expended than projected.

Handicapped Expenditures and Persons

Total Funds Expended for Handicapped Persons

Total expenditures for Vocational Education were $6,668,079. The handicapped persons total expenditures under Part B were $437,012 or 6.55 percent of the total Federal expended for handicapped persons.

Federal Funds Expended for Handicapped Persons

Total Federal funds expended for Vocational Education were $2,431,329. The handicapped persons Federal expenditures under Part B were $194,746 or 8 percent of the total Federal funds expended for handicapped persons.

Enrollment of Handicapped Persons by Type of Handicap

Trainable Mentally Retarded	33
Educational Mentally Retarded	147
Hard of Hearing	32
Deaf	9
Speech Impaired	32
Visually Impaired	88
Emotionally Disturbed	242
Crippled	46
Learning Disabilities	177
Other Health Impaired	36
TOTAL	842

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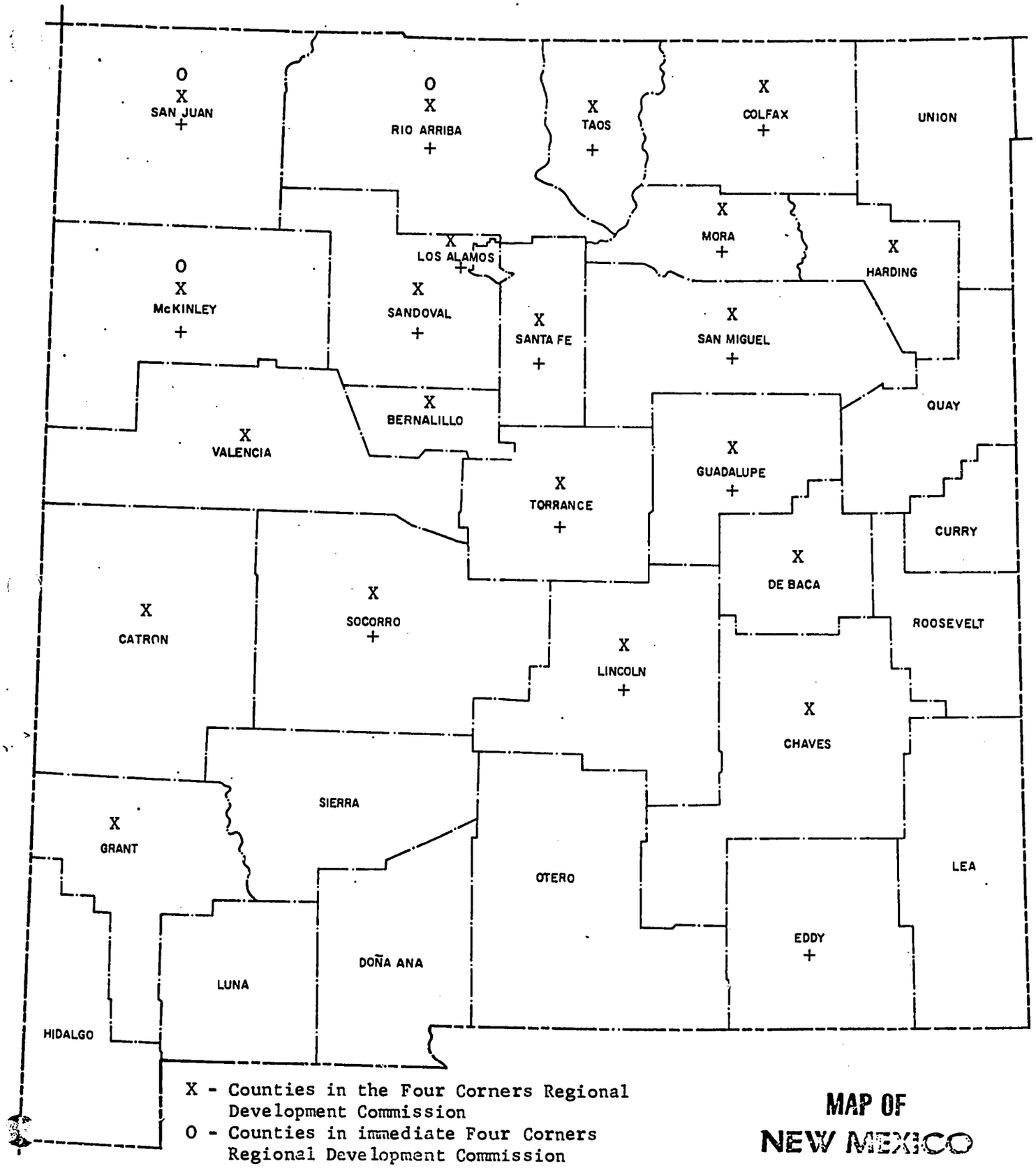
PART B OF THE ACT

#2 - Accomplishments in Terms of the Geographical Distribution of Allocations of Funds for Vocational Education for the Categories of Persons Served Part II, 2.1 and Part III, 2.13

The accomplishments are presented by vocational units. Refer to Figure 1 for Economically Depressed Areas of the State, Figure 2 for Extreme Depressed Areas of the State and Figure 3 for High Rate of General and Youth Unemployment.

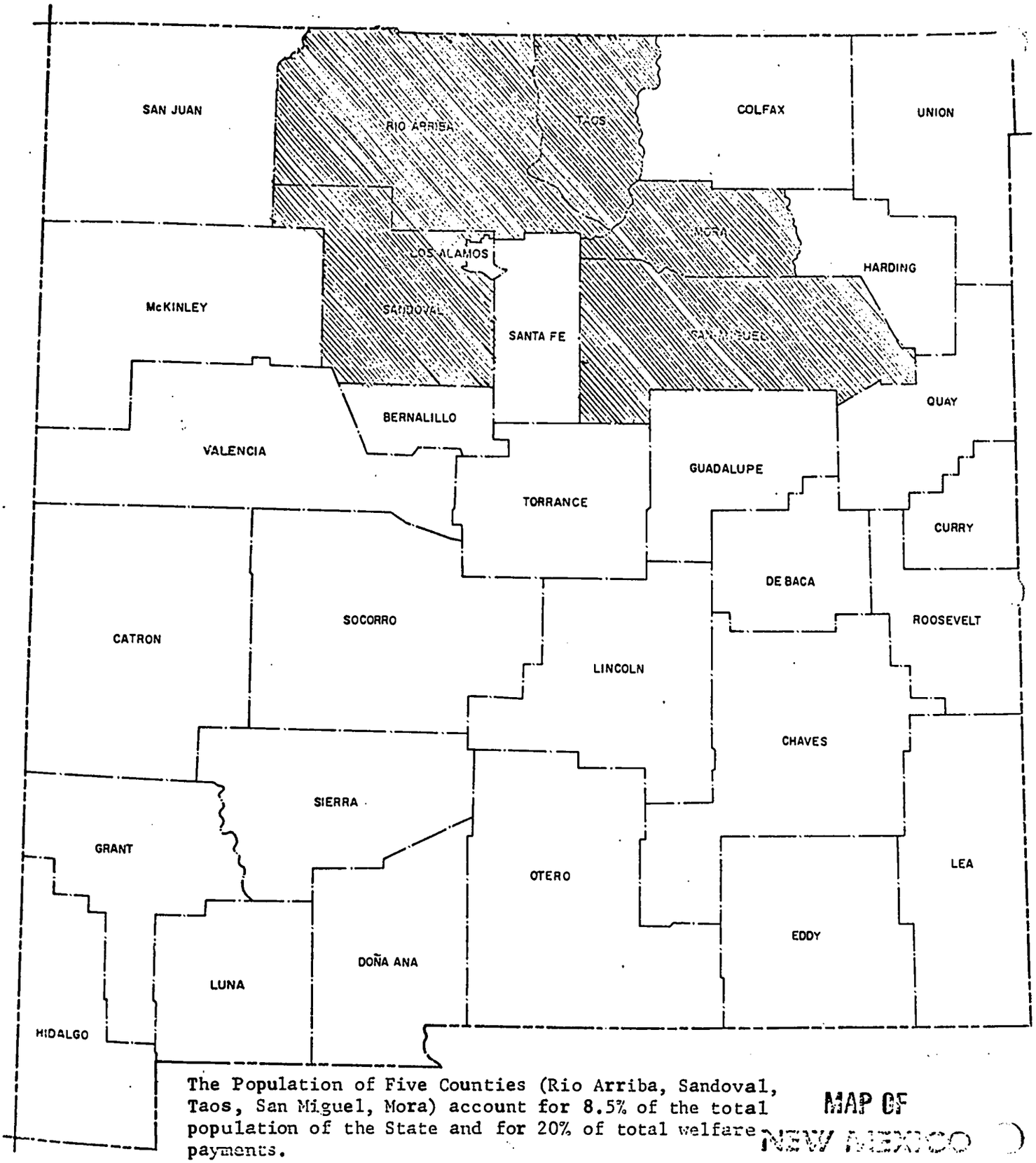
Figure 1
ECONOMICALLY DEPRESSED AREAS OF THE STATE



X - Counties in the Four Corners Regional Development Commission
O - Counties in immediate Four Corners Regional Development Commission
\+ - Counties eligible for grants in aid, EDA, Public Works and Economic Development Act

MAP OF NEW MEXICO

Figure 2
EXTREME DEPRESSED AREAS OF THE STATE



The Population of Five Counties (Rio Arriba, Sandoval, Taos, San Miguel, Mora) account for 8.5% of the total population of the State and for 20% of total welfare payments.

MAP OF NEW MEXICO

2.13-1 ECONOMICALLY DEPRESSED AND HIGH UNEMPLOYMENT AREAS

Agriculture

All counties except Guadalupe had secondary Vocational Agriculture departments. Out of 61 departments with 62 teachers, the total average cost per student was $211.05.

Programs conducted in nine high schools in the five extreme depressed counties enrolled a total of 527 students. The average number of students per teacher was 59 compared to the State average of 51 students per teacher.

Funding was $61.25 per student compared to $54 which is the statewide average. The average income per student from the extreme depressed counties for their agricultural farming program and work experience program was $165 compared to the State income average of $302.39.

Distributive Education

Distributive Education programs were conducted in nine of the counties classified as economically depressed, with five programs in Bernalillo County, two in Eddy County and four in Chaves, with one each in the remaining six counties served. Of the five counties classified as high unemployment areas, San Miguel and Guadalupe counties had Distributive Education programs.

Health Occupations

High unemployment was characteristic in 10 of the 16 counties where Health Occupations programs were in existence. For the most part, students completing HOE programs were having to move into communities that offered opportunity for employment in Health Care facilities or where there was opportunity for further education. Around 400 students were enrolled in secondary, post-secondary or adult classes.

Funding was $50 per student, probably due to cost in transporting to and from clinical facilities, and providing clinical supervision-ratio of 1-10 students.

Home Economics

Programs conducted in three out of five counties enrolled a total of 803 students. Average teacher load for this area was 89 pupils per teacher compared to 95 pupils per teacher statewide. Funding was $30 per student compared to a $25 statewide average.

Home Economics programs existed in all counties marked as economically depressed, with these exceptions: six counties within the Four Corners Regional Development Commission and of those six, four eligible for grants in aid - EDA, Public Works and Economic Development Act.

Office Education

Vocational Office Education programs were conducted in three out of five counties with 520 students enrolled.

Trades and Industry

T & I programs were conducted in four of the five counties that were designated as extreme depressed areas of the State.

T & I programs existed in all but six counties of the economically depressed counties of the State, one within the Four Corners Regional Commission, and three counties eligible for grants in aid - EDA.

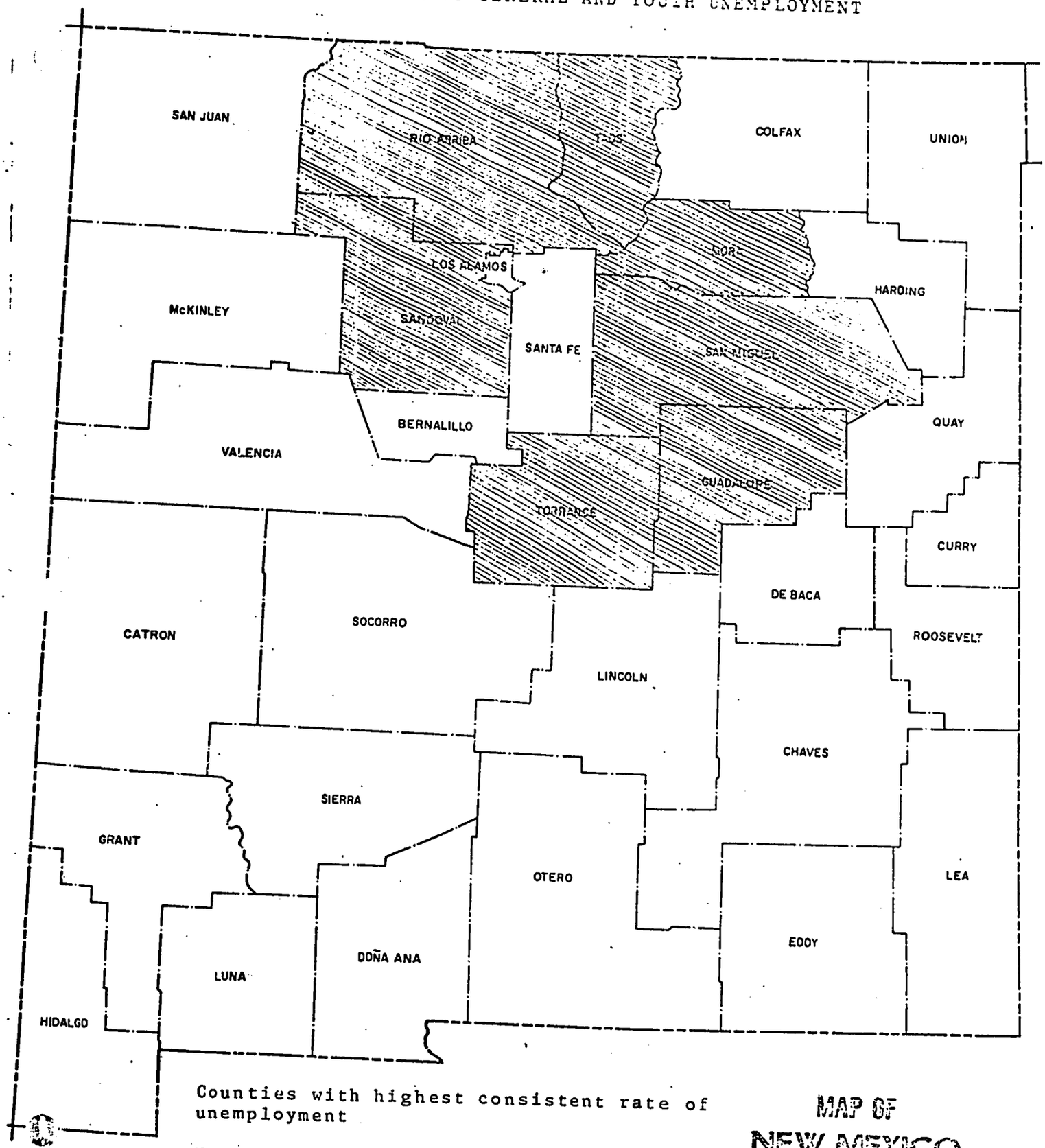
Special Needs

Programs for disadvantaged were included in regular approved vocational programs in all economically depressed and high unemployment areas in New Mexico where it was possible to work with secondary schools.

More than 30 percent of the students enrolled in regular vocational programs were disadvantaged, and in some school districts, as much as 80 percent of the students fell into this category.

Figure 3

HIGH RATES OF GENERAL AND YOUTH UNEMPLOYMENT



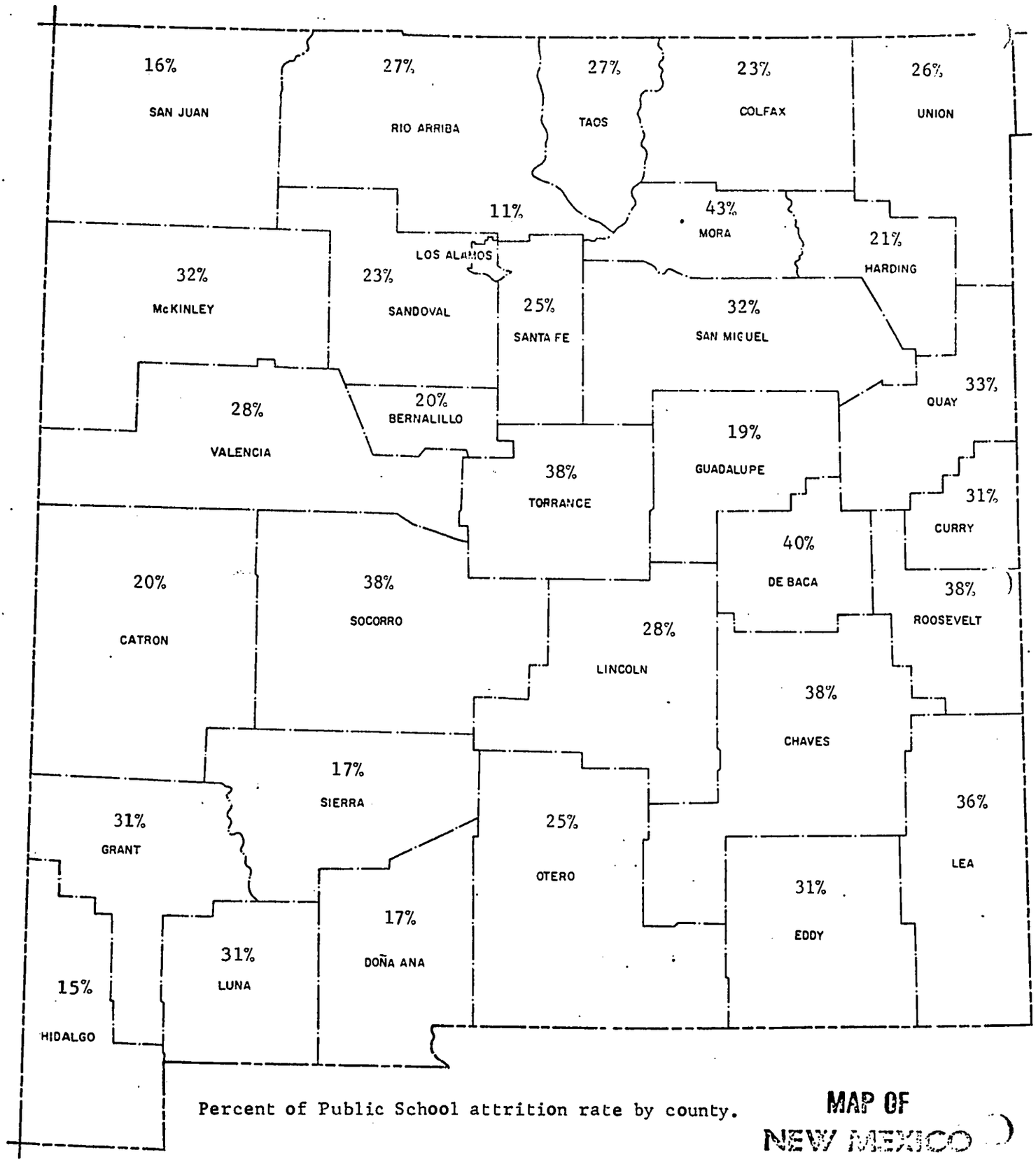
Counties with highest consistent rate of unemployment

MAP OF NEW MEXICO

Note: Percent of total State work force unemployed - 5.1 (18,000)
Percent of total State unemployed, 22 years of age or under - 40 (7,200)

7205

Figure 4
HIGH RATIO OF SCHOOL DROPOUTS



Percent of Public School attrition rate by county.

MAP OF NEW MEXICO

Figure 3 is to be used as referral to the counties listed as High Rates of General and Youth Unemployment. Figure 4 shows High Ratio of School Dropouts. Herewith is information as presented by vocational units.

2.13-2 AREAS OF HIGH YOUTH UNEMPLOYMENT AND SCHOOL DROPOUTS

Agriculture

There were 11 Vocational Agriculture programs in the seven counties designated as areas of high youth unemployment. Guadalupe County does not have a program. There were 627 students enrolled, at an average of 57 students per teacher.

The average cost per student was $212.91 compared to the State average of $211.05. Average income per student from their farming and occupational experience program was $260.94 compared to the State average of $302.39.

Thirty-six programs were conducted in 18 counties with a school dropout rate of 30 percent and above.

Distributive Education

Programs were conducted in two of the seven counties with high unemployment. Robertson High School in Las Vegas serves San Miguel County and Santa Rosa High School in Santa Rosa serves Guadalupe County. Twelve programs were conducted in seven counties of the 14 counties with a school dropout rate of 30 percent and above.

Health Occupations

Health Occupations programs existed in sixteen counties. Ten of these are characterized as depressed counties with high unemployment and 30 percent school dropout. Approximately 400 students were enrolled. Teacher-student ratio is affected by the "safety patient care factor" in that in clinical practum the ratio is 1-10 students. In the classroom it is 1-20 students.

Home Economics

Programs were conducted in five of the seven counties with high unemployment. There were 1,123 students enrolled. Average teacher load for this area was 86 pupils per teacher statewide. Funding was $31 per student compared to a $25 statewide average.

Programs were conducted in 12 of the 14 counties with a school dropout rate of 30 percent and above. Average teacher load for this area was 100 pupils per teacher compared to a 95 pupil per teacher ratio statewide. Funding was $29 per student compared to a $25 statewide average.

Office Education

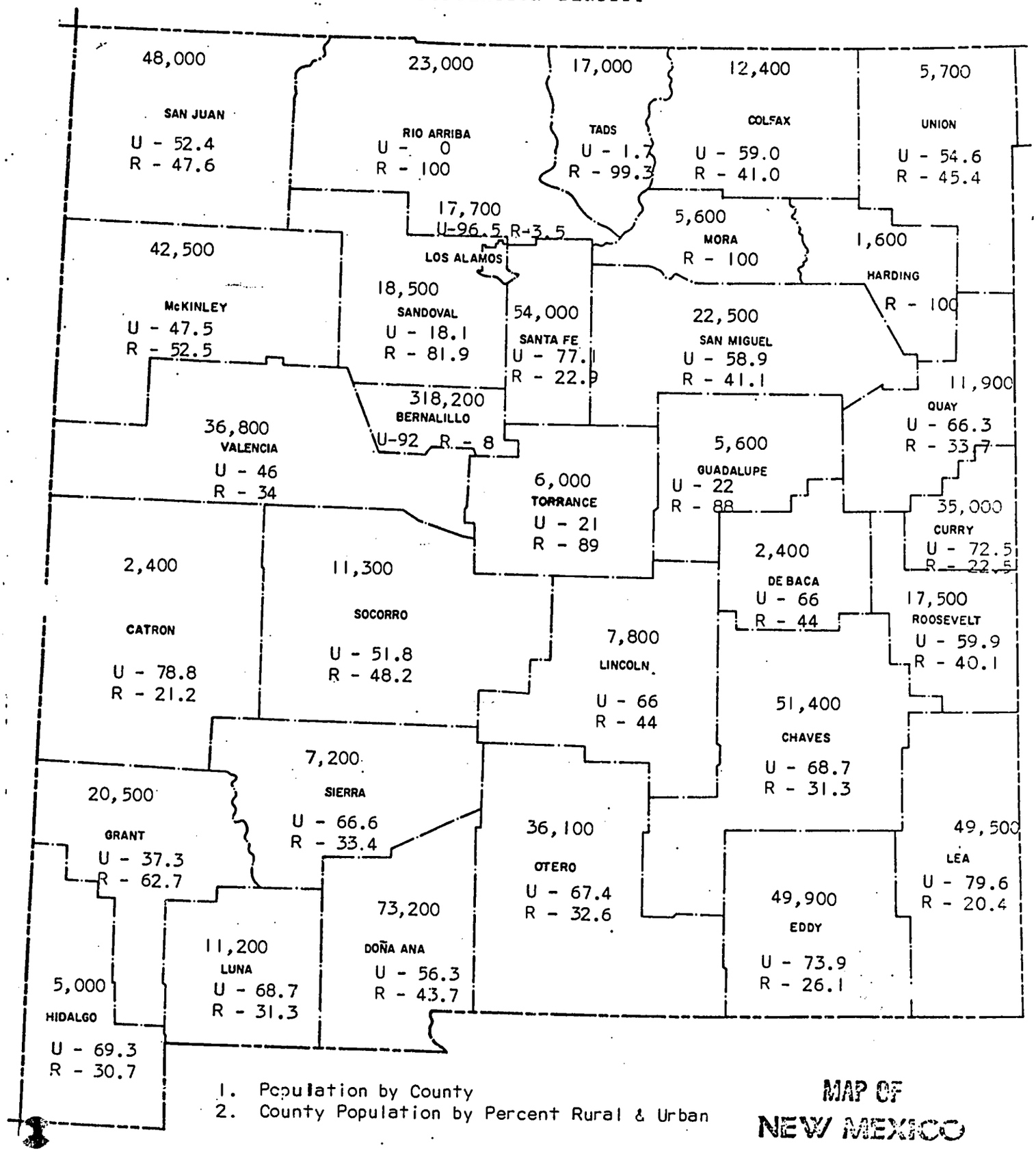
Programs were conducted in five of the seven counties with high unemployment and enrolled 962 students. Programs were conducted in 11 of the 14 counties that have a school dropout rate of 30 percent and above.

Trades and Industry

T & I programs were conducted in four of the seven counties with high unemployment rates.

Programs were conducted in ten of the 14 counties with a school dropout rate of 30 percent and above.

Figure 5
POPULATION DENSITY



1. Population by County
2. County Population by Percent Rural & Urban

MAP OF
NEW MEXICO

Figure 5 shows the urban and rural percentages, as well as population by counties. Presented are reports by vocational units.

2.13-3 AREAS OF HIGH POPULATION DENSITY

Agriculture

The two counties with high population density had four Vocational Agriculture programs with an enrollment of 237 students. The average cost per student for the four programs was $237. The average income per student from their farming program and occupational experience program was $158.86.

Distributive Education

The two counties with the highest population density had a total of seven programs funded. These programs accounted for one-third of the programs statewide and approximately 50 percent of the total enrollment.

Health Occupations

There were 13 Health Occupations programs in four counties with high population density. It was in these counties where clinical facilities (patient-care service) were available for students' experience and opportunity for employment upon course completion. Enrollments in HOE programs were around 600.

Home Economics

The two counties with the highest population density had a total of 22 programs funded. These accounted for slightly less than one-half of the total State enrollment.

Office Education

Two counties with the highest population density had a total of ten programs funded which accounted for more than half of the total State enrollment in Office Education.

Trades and Industry

The two counties with the highest population density had a total of 11 programs out of the 89 programs funded throughout the State.

PART B OF THE ACT

#3 - Accomplishments or Activities in Part III - Annual Program Plan

PROGRAMS UNDER CONTRACT (2.15)

The State Board of Education or local educational agencies did not contract with private institutions during Fiscal Year 1969-1970.

VOCATIONAL GUIDANCE AND COUNSELING (2.2)

Vocational Guidance and Counseling is not being strengthened or expanded in New Mexico as fast as anticipated, due to lack of funds and qualified personnel. However, two vocational guidance institutes were held which provided vocational training to 60 participants from local school districts.

CONSTRUCTION OF AREA SCHOOLS (2.3)

PROJECTS PLANNED (2.31)

Projected construction of an area vocational school for Fiscal Year 1971 is planned for the Clovis, New Mexico area. The school is to be named "Highplains Area Vocational School." There is not a definite timetable for construction on this school.

NEED FOR CONSTRUCTION OF AREA SCHOOLS (2.32)

Figure 6 of Part II of the State Plan indicates planned area schools. Funds for construction will come from other sources, i.e., local Economic Development Act or other Federal funds. It is believed that monies that are allocated to New Mexico under the Act should be spent on implementation and operation of additional programs.

ADMINISTRATION AND SUPERVISION OF AREA VOCATIONAL EDUCATION PROGRAMS (2.4)

ADMINISTRATION AND SUPERVISION (2.41)

The Division of Vocational Education has a minimal staff of administrators and supervisors for the anticipated programs and activities. Vocational programs, due to Federal and State appropriations, will be expanded greatly for Fiscal Year 1971.

Projected expansion in secondary, post-secondary and adult was 173 new programs. Approximate programs to start Fiscal Year 1970-1971 are 169 or four short of projection. State supervisory staff will be administering and supervising the additional programs, plus ongoing programs without any new supervisory staff programmed to be hired.

The State vocational staff had new supervisors and/or assistants in the following units: Agriculture, Distributive Education, Consumer Home Economics, Industrial Arts, Office Occupations & Business Education, Special Needs, Private and Post-Secondary Schools, Vocational Research and Trades and Industry. Staff turnover

created the problem of becoming acquainted with local administrators, vocational programs, teachers and office duties. Lack of substantial salaries to hold personnel is part of the reason for turnover of staff.

The State staff has worked very closely in consulting and making recommendations for their programs as to facilities, equipment and instructional material for the Santa Fe Vocational-Technical School and the Espanola Technical School.

The State staff made on-site visitations of ongoing programs and assisted other schools and agencies such as State Employment Security Commission, CAMPS, Model Cities, etc., to develop new vocational programs.

EVALUATION (2.42)

The State Supervisors constantly evaluate vocational programs under their supervision. An evaluation instrument was developed by each supervisor to be used for a self-evaluation by the administrators and vocational teachers. The supervisors use the instrument for their unit when making on-site visitations. The instruments have been reviewed and are undergoing revisions where applicable.

All units are acutely aware of the importance of an ongoing standardized follow-up study for vocational students.

The Research Coordinating Unit awarded contracts to the five area vocational-technical schools for a follow-up study of their 1970 graduates.

The Research Coordinating Unit is investigating a data processing procedure for enrollments and follow-up of all vocational students.

The State vocational staff participated in 33 secondary school evaluations as mandated by the State Legislature.

The evaluations and follow-up studies will aid in the upgrading of all vocational programs to best meet the needs of business, industry and students.

Behavioral objectives defining the means of evaluation are being developed by Staff and the Albuquerque City Supervisor in the area of Home Economics. The results are tentative; they will be reviewed by teachers and finalized the summer of 1971 at a university workshop. Office Education is also developing behavioral objectives.

TEACHER TRAINING (2.43)

Teacher-training institutions have been designated for all units except Health Occupations. The activities of the teacher-training institutions are given by vocational units.

Agriculture

A total of 18 teachers completed the requirements for teaching Vocational Agriculture at the one approved center--New Mexico State University.

A one-week workshop was conducted for all teachers on new innovations and a two-day orientation was conducted for all beginning teachers at New Mexico State University. The assistant teacher trainer visited all first-year teachers early in the school year to assist them in organizing and planning their Vocational Agriculture programs.

Distributive Education

The Distributive Education teacher educator from Eastern New Mexico University conducted four extension classes during the school year located at various sections of the State. A fellowship for a graduate assistant was also established for the Distributive Education program.

A two-day in-service workshop was held in Santa Fe for all Distributive Education teachers.

Health Occupations

There is not a teacher-training institution so designated.

Home Economics

A total of 97 teachers completed the State Plan requirements for teaching Vocational Home Economics. One university has implemented a strong social science requirement for its Vocational Home Economics graduates, preparing them to work with the disadvantaged and handicapped. In two universities, the home management course has been adapted to allow education majors to study social agencies and to apply management techniques and homemaking knowledge while working with welfare families and model cities programs.

Area workshops were not feasible for teachers during Fiscal Year 1970 because of the complete changeover in administration and the lack of initial groundwork. However, a four-day general conference was held for all Home Economics teachers on implementation of consumer education as an integral part of the existing comprehensive program or as a specialized course.

Office Education

The Vocational Office Education teacher educator from Eastern New Mexico University conducted four extension classes during the school year located at various sections of the State. A fellowship for a graduate assistant was also established for the Office Education program.

A two-day in-service workshop was held in Santa Fe for all Vocational Office Education teachers.

Trades and Industry

During 1969-70, Eastern New Mexico University was designated by the State Board as a T & I teacher-education institution. A full-time teacher educator was hired in May to design a curriculum for 12 semester hours of T & I courses which will be offered each year.

There were two full-time teacher educators and one part-time teacher educator offering seven courses for T & I teachers in the summer of 1970. During the 1969-70 school year, a part-time teacher educator conducted three extension courses in two educational centers in the State serving T & I teachers plus other interested teachers.

RESEARCH AND DEMONSTRATION PROJECTS (2.44)

The T & I Division has three mobile electronics buses serving five small communities and one large pre-vocational center. One unit is operated on a semester basis between two schools, while the other two are operated daily on a half-day basis between two rural schools each.

The electronics instructors are using programmed instructional materials so that each student may advance at his own rate. At the Eunice and Jal unit, the teacher has all lectures on cassette tapes so that each student may hear a lecture plus study the programmed instruction. They call upon the instructor as questions arise for individual assistance.

There is a continuing need to offer more mobile teaching units in the State to serve the small rural schools. Courses such as welding, drafting, electronics and plastics could be operated in a mobile unit.

CURRICULUM DEVELOPMENT (2.45)

Curriculum is being developed since Federal monies were allocated for this specific purpose. State vocational staff has been working with committees on the development of curricula. The progress is reported by vocational units.

Agriculture

The instructional program in Vocational Agriculture was improved during the year by providing transparency masters and instructional guides to the teachers from the State office. In-service training sessions were conducted individually and by groups on the use of the guides and transparencies. Emphasis was placed on better planning, operation and management of the Vocational Agriculture programs to allow more efficient use of time and improvement of instruction.

Distributive Education

Curriculum materials have been developed and furnished to Distributive Education teachers by both the State Department of Vocational Education, Distributive Education Division and the teacher educator at Eastern New Mexico University.

A materials center and laboratory is greatly needed to develop up-to-date materials and establish a more uniform curriculum outline statewide.

Health Occupations

Curriculum guidelines for HOE on the secondary level have been revised and will be available in the fall. A Spanish-English Glossary of Medical Terminology is being developed to aid bilingual students in communicating with patients.

Home Economics

Curriculum is being developed on a tentative basis in all areas of Home Economics. Behavioral objectives are being defined to allow teachers to work toward the accomplishment of a goal rather than a time limit. The total program is organized with an initial comprehensive curricula, subsequent one-semester specialized courses followed by a second-semester specialized course with occupational emphasis. The curriculum guide is to be completed during the summer of 1971.

Office Education

New curriculum materials were developed for all Vocational Office Education teachers and a complete curriculum guide was developed for both the intensive and cooperative programs. This guide was presented to the teachers at the first annual Vocational Office Education teachers' conference held August 10-14, 1970.

Trades and Industry

During the 1969-70 school year, a handbook was developed to assist new T & I teachers during the first year of teaching. The handbook will be used in conjunction with our teacher educator, as the teacher educator travels throughout the State assisting new teachers. Reference will be made to the information related in the handbook. An advisory guide was also compiled and printed so as to be an aid to teachers in organizing and conducting advisory committees for the respective occupational areas. A safety guide was published which would aid T & I, Technical and Industrial Arts teachers in shop safety, organization and other facets.

During 1970-71, an ICT guide will be developed plus some originals to make transparencies in safety, machine tool, carpentry and bricklaying.

Technical

More development needs to take place in technical teacher education so that a curriculum may be developed for technical teachers.

Guidance and Counseling was not able to develop curriculum centers.

STATE PROGRAMS FOR THE DISADVANTAGED (3.0)

New Mexico had 11,579 disadvantaged students enrolled in vocational courses for the year ending June 30, 1970 or approximately 33 1/3 percent of total vocational enrollments. Trades and Industry had three programs in their unit. One in Albuquerque at the junior high level and two in Bernalillo. The majority of the disadvantaged students were enrolled in regular vocational courses. There were 770 enrolled in grades seven to eight, 7,653 enrolled in secondary, 1,092 enrolled in post secondary and 2,064 enrolled in adult for a total of 11,579 or close to projection of 12,000 for Fiscal Year 1971.

New Mexico will continue special emphasis on disadvantaged students. Special programs are not planned for these students due to lack of vocational personnel and the philosophy being that disadvantaged students learn from students enrolled in regular programs.

SPECIAL PROGRAMS

PART C OF THE ACT - RESEARCH COORDINATING UNIT

The Research Coordinating Unit has met the following objectives as set forth in Part III of the State Plan - Annual Program Plan.

1. COORDINATION OF RESEARCH

An R C U Advisory Committee was appointed and two meetings were held. The committee reviewed, developed criteria, and recommended research projects for funding to the R C U Director.

The following projects were coordinated:

A Look at Vocational Education in New Mexico

An Evaluation of Post-Secondary Vocational-Technical Education in New Mexico

Area Vocational-Technical Schools in New Mexico (Brochure)

A Summary Report on Trainees in New Mexico's Area Vocational Schools

Community Investment - Advisory Committees Serving Vocational Education

Coordinated and Edited Program - New Mexico - First Annual Vocational Education Conference

Forty Mini-Grant Projects

Four Area Vocational School Follow-up Studies

New Mexico State Plan for the Administration of Vocational Education Under the Vocational Education Amendments of 1968

New Mexico Vocational Newsletter (six issues)

Policies and Procedures for Vocational-Technical Education in New Mexico

Report to State Superintendent of Public Instruction, December 1, 1968 - November 30, 1969

Vocational Education Television Series

2. STIMULATION OF RESEARCH

Vocational Mini-Grants

How to encourage beneficial vocational research with limited funds, posed a definite problem for the Research Coordinating Unit Director. Also how to stimulate participation of local vocational personnel was a definite challenge.

After investigation of the pilot Mini-Grant project that Oklahoma conducted, this idea was then adapted to the State of New Mexico.

In October 1969, an announcement of the Mini-Grant project with a proposal application, was mailed to vocational teachers, local vocational directors, and administrators. The principal concept was for fresh, new and innovative ideas with little monetary award. The top range being $500.

One hundred forty-eight Mini-Grant proposals were received. From these, the New Mexico Research Coordinating Unit Advisory Committee selected 40. Some of the ideas that were selected included development of teaching materials (video tapes and slides), new curriculum developments, involvement of industries, surveys of vocational graduates, pre-vocational orientation pilot programs, and elementary Vocational Education pilot programs. The total funding was $8,896 or an average of $222.40 per Mini-Grant.

The recipients were spread geographically as well as, at all levels of Vocational Education.

A special thanks goes to the State Vocational supervisors for their enthusiasm and cooperation in helping the Research Coordinating Unit Director inaugurate and monitor the Mini-Grant project.

The key word throughout has been "Involvement." Besides all vocational personnel and administration, a commendation for industry's involvement should be recognized.

By October 1970, the written reports will be published by the R C U. Limitations on publications will range from 1,000 to 3,000 copies and will be disseminated as follows:

Federal Agencies
State Board of Education
N. M. R C U Advisory Committee
N. M. Advisory Council for Vocational Education
All States, R C U Directors
State Legislators
Superintendents
Secondary Principals
Junior High Principals
Local Vocational Directors
Vocational Teachers (Reports pertinent to their teaching area.)
Libraries
Requests (Limitation - one, if available.)
Those receiving publications should share them with other interested persons in Vocational Education.

An evaluation questionnaire will be included with each publication. Local feedback is important for a complete evaluation and to see if our purposes have been fulfilled.

The current benefits are as follows:

(1) The development of researchers for continued small or larger research projects.

(2) That enthusiasm was generated for further research projects.

(3) The involvement of education with industry where it was applicable.

(4) That research projects were stimulated with a small amount of money.

The long-range benefits will be:

(1) For adoption of the project by local schools as presented.

(2) For adaptation of the project to local school districts and adopted for new and exciting classroom teaching.

(3) For local school administration to budget for research and conduct the Mini-Grant project at the local level.

(4) And, for school children to be stimulated to learn and to think constructively by new creative and innovative methods of teaching.

Attached is a list of approved Mini-Grants. (Appendix A)

Follow-up Studies - Area Vocational-Technical School Graduates

a. New Mexico Junior College
   Hobbs, New Mexico

b. Eastern New Mexico University - Roswell Campus
   Roswell, New Mexico

c. Northern New Mexico State School
   El Rito, New Mexico

d. San Juan Branch College - NMSU
   Farmington, New Mexico

1970 Graduates

Valley High School
Albuquerque, New Mexico

The purpose being to compare vocational graduates and academic graduates as to what they are doing five months after graduation. The college students will be surveyed the second semester to see if they remained in college.

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3. IN-HOUSE RESEARCH

a. Deficiencies of Vocational-Technical teachers in the State of New Mexico. To be redone in 1970-1971.

b. Telephone survey - surrounding states as to length of vocational teachers' contracts.

c. Telephone survey - surrounding states as to amount of state monies appropriated by their state legislative body for Vocational Education.

d. Researching, coordinating, and writing of State Plan for the Administration of Vocational Education in New Mexico.

e. Development of a survey instrument for information needed for the Federal Annual Report. It was administered to all vocational teachers, tabulated by State Supervisors, and the Federal Annual Report was written and compiled by the R C U Director.

f. Development of a questionnaire in regard to new vocational program requests for Fiscal Year 1971-1972. It was administered to superintendents, principals, and vocational coordinators of local vocational programs; tabulated by R C U personnel.

g. Coordinating, editing, and publishing of "Policies and Procedures for the Operation of Vocational Education in New Mexico."

h. Coordinating and writing of vocational news.

i. Researching, coordinating, and writing of "A Look at Vocational Education in New Mexico 1969."

j. A survey of manpower needs in industry was in progress for 1969-1970 and will be completed in the next fiscal year. This is in-house research and is related to previous surveys for the Master Plan.

k. An EPDA Part F proposal was submitted to the Federal office for the upgrading of 300 vocational teachers in relation to new work techniques and equipment.

4. DISSEMINATION OF RESEARCH

The Research Coordinating Unit has established a current mailing list of 2,448.

The list is as follows:

State Vocational Supervisors and Assistants (26)
State Advisory Council (17)
State Department of Education (12)
State Department of Finance (1)
State Government (237)
Federal Government (29)

ERIC (6)
All State R C U Directors and Vocational Directors (98)
Local School Administrators (410)
Universities (6)
Area Vocational Schools (12)
Other Special Schools (6)
Teacher Trainers (36)
Vocational Teachers (1,540)
R C U Advisory Committee (10)
Four Corners Regional Commission (2)

In 1969-1970, the R C U has disseminated 64,898 items of research, State Plans, Policies and Procedures, vocational newsletters, and other publications, as well as filling in-state and out-of-state requests.

The R C U will enlarge the mailing list for the next fiscal year to include key business and industry personnel, civic organizations, union officials, and others who are in the position to promote and help Vocational Education.

The R C U Director was in charge of a weekly television program promoting Vocational Education during 1969. For Fiscal Year 1970-1971, the series was renewed for 36 weeks. The R C U Director will again be in charge. The program will be shown at 1:00 p.m. on Tuesdays, 11:20 a.m. on Wednesdays, and 9:30 a.m. on Thursdays via Channel 5, KNME, Albuquerque, New Mexico. The KNME staff is to be commended for the free time allotted to promote Vocational Education in New Mexico.

NEW MEXICO STATE ADVISORY COUNCIL FOR VOCATIONAL-TECHNICAL EDUCATION

The Research Coordinating Unit was involved with the Advisory Council in their evaluation of post-secondary area vocational schools and secondary schools. Research was done by staff for the Advisory Council.

EVALUATION

The Assistant Director of the Research Coordinating Unit is involved with evaluation of five secondary schools as mandated by the legislature.

The R C U Director is working with the director of an E D A project in Socorro and will be involved in evaluation and dissemination of the project report.

VOCATIONAL EDUCATION TEACHERS

Vocational Education teachers have become involved in research due to the Mini-Grant project. It is felt that the research will be used and read because of close association with vocational teachers in New Mexico. Also, the project had wide publicity and vocational teachers are aware of current research being conducted.

PART D OF THE ACT - EXEMPLARY PROGRAMS AND PROJECTS

As the grant awards were not received by the Vocational Division until April 20, 1970, it was too late to start exemplary projects for Fiscal Year 1969-1970. The money designated for exemplary was expended for planning, equipment, and instructional materials, in order to start the exemplary programs in Fiscal Year 1970-1971.

Seven programs are in the final planning phases for 1970-1971. The units monitoring the programs on special projects are: Special Needs (guidance), Home Economics, Office Education, and Trades and Industry. All eight units will be monitoring their section of the mini-classes, which will be conducted by the Albuquerque Technical-Vocational Institute; thus, a minimum of one program in each vocational unit will be met as stated in Part III, 5.0 of the State Plan.

The three major objectives of creating a bridge between school and earning a living, broadening of occupational aspirations, and promotion of cooperation between public education and manpower are being met in the projects selected. The criteria for selection was followed as stated in Part III, 5.2 of the State Plan.

One major goal is that exemplary projects will be a model for other school districts. The exemplary projects will be written in final form and disseminated.

For exemplary programs, $95,128 had been estimated and after final appropriation, $107,005 will be expended.

Evaluation will be ongoing by the State staff, local administrators, and the New Mexico State Advisory Council for Vocational Education.

PART E OF THE ACT - RESIDENTIAL VOCATIONAL EDUCATION SCHOOLS

During Fiscal Year 1969-1970, two residential Vocational Education schools were in operation. For Fiscal Year 1970-1971, another residential Vocational Education school will be operating. Allocation for construction was not needed, as these facilities were acquired with the sites.

PLANNING

It is felt that three residential Vocational Education schools in New Mexico will suffice in meeting the needs of those who cannot reasonably commute. This statement was documented by a paper, "A Presentation - Limited Vocational-Technical Institutes With Dormitories or More Vocational-Technical Institutes Without Dormitories," which was prepared by the Research Coordinating Unit.

CONSTRUCTION

Funds were not allocated for construction. Funds for construction will come from other sources, i.e., local Economic Development Act or other Federal funds. It is the policy, that any monies that are allocated to New Mexico under the Act should be spent on implementation and operation of additional programs.

OPERATION OF RESIDENTIAL VOCATIONAL EDUCATION SCHOOLS

The portion of the money granted for residential Vocational Education schools will be used for capital outlay and operation.

The objective is to provide an opportunity for those students living beyond a reasonable commuting distance to attend a school that provides board and room facilities while attending classes on campus.

So far, the accomplishment of the stated objective is being realized. In the two schools in operation and the one opening, many students are able to attain a vocational-technical trade or salable skill, who otherwise, would not have had the opportunity because of distance and economical factors.

PART F OF THE ACT - CONSUMER AND HOMEMAKING EDUCATIONAL PROGRAMS

Because of budgetary restrictions, no additional programs were added to the previous year's 72 programs employing 95 teachers. However, enrollment was increased by 2,039 students. The number of males enrolled increased from 510 to 724. Emphasis was started this year, and will continue to be, on the employment potential of the student having one or more courses in Home Economics. An increased number of programs in Comsumer Education coupled with Preparation for Marriage were offered. Most of these were coeducational, which helps to account for the increase in male enrollment.

Teachers were assisted in emphasizing the dual role of homemaker-wage earner by means of a listing of job opportunities in each area of Home Economics. Additional courses, which would be advantageous to the student in making him a better employee, were also indicated. The scattered student population in New Mexico makes it imperative that a student's employment potential be defined and capitalized on within the regular homemaking program.

As written in the State Plan, "Many counties are economically depressed and the geographic distribution extends over the entire State." Although one-third of the Part F funds were to be utilized in depressed areas, New Mexico allotted 40 percent of their Part F funding.

Adult programs were conducted in clothing construction and consumer buying. Courses in nutrition and consumer education were offered but interest was not generated except in the clothing area. Teachers estimated enrollees save between $5 and $20 on garments constructed in class. Most adults continue to sew for themselves and their families or, in limited cases, are now sewing for others. In either instance, family income has been increased, consumer awareness has been sharpened and the human need for creativity is being met.

Wage earning programs have not increased because of the above mentioned situation of scattered population. An occupational class on the secondary level only "robs Peter to pay Paul" in our present comprehensive homemaking programs. We anticipate changes in Fiscal Year 1971.

New programs were developed in 37 schools during Fiscal Year 1970 and will be reimbursed vocational programs in Fiscal Year 1971.

Program evaluation is difficult. Teachers recognize outstanding instances where individual students had been helped. However, complete evaluation was not done and cannot be done until objectives with measurable evaluation criteria are established. Writing of such objectives will be started in one-third of the school districts this Fiscal Year 1971.

Changes in teacher education programs were initiated this year emphasizing practical experiences in various social agencies and with their clientele. New teachers are expected to teach with greater sensitivity.

Budgetary deficiencies prevented the establishment of one-year demonstration projects. Four Mini-Grants, which are listed under Appendix A of this report, produced results which will be introduced into the State curriculum in Fiscal Year 1971.

Curriculum development is in progress. A tentative guide is developed stressing behavioral objectives. The curriculum will be used by teachers during the school year. A final draft is planned in the summer of 1971 at a university workshop.

PART G OF THE ACT - COOPERATIVE VOCATIONAL EDUCATION PROGRAMS

COOPERATIVE PROGRAMS

Part G of the Act funds were received April 20, 1970. However, seven Cooperative Part G programs were ongoing. Funds were expended for planning, administrative, and ancillary services for Fiscal Year 1971.

Local education agencies made applications and preference was given to areas of high youth unemployment and/or school dropout. Also, on-the-job training will be realistic to secure maximum benefits for the employer, as well as the training benefits for the student.

The 100 percent Federal monies for funding will be $249,701 with a reserve of $79,000 being held for payment of employer costs to be made only when it is apparent that without such reimbursement, employers will not be able to provide on-the-job training.

Approximately 22 programs will be funded. Cooperative G programs planned will be in the units of Distributive Education (10), Office Education (5), Trades and Industry (5), Home Economics (1), and Special Needs (1).

The breakdown of programs may be adjusted, but the tentative schedule is as presented.

Evaluation will be by State vocational staff, administrators, teacher-coordinators, students and through studies of employee progress reports. Student follow-up will be a vital part of evaluation. Comparisons will be made with other vocational students. The needs of the disadvantaged will be evaluated to see if the disadvantaged are being served to the fullest extent.

Teacher-coordinators (Part G) will be given special help and will be helped in the development of special curriculum.

Necessary research needed will be conducted to determine necessary data for the success of the programs and to readjust programs when needs are determined.

PART H OF THE ACT - WORK-STUDY PROGRAMS

Due to late funding, the work-study program started the first of June 1970. The amounts of $23,993 Federal and $5,998 State monies were designated for the work-study program.

The work-study program is designed for vocational students to enable them to stay in school and gain valuable work experience, in conjunction with Vocational Education programs; thus, preparing the students for entry into the world of work.

In New Mexico, 104 students were provided jobs at the secondary level and 13 at the post-secondary level; thus, enabling the students to achieve an education by partially supporting themselves.

New Mexico fell short of the predicted 630 secondary and 20 post-secondary students that would be enrolled in work-study. Again, anticipated funding did not materialize, but the appropriation for work-study, after a year of no funding, is a step forward. Also, another factor of requiring 20 percent matching requirement with State and/or local funds limited the number of students enrolled in work-study programs, especially since Federal monies were allocated too late.

The Federal congressmen are to be commended for reinstating funds for the work-study programs which our local school administrators had endorsed as one of the better vocational offerings.

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APPENDIX A

APPROVED MINI-GRANTS

	TITLE OF PROJECT	NAME OF PERSON	SCHOOL	FUNDS
1.	Video-Tape Demonstrations of Shop Activities for Vocational Agriculture	Bill Morrison	Hatch Valley H. S.	$222
2.	Tractor Driver Training Course	Clifford G. Hansen	Shiprock H. S.	$250
3.	Farm and Ranch Demonstrations for Jemez Mountain School District	Jack B. Parker	Coronado H. S.	$300
4.	Vocational Teaching Through Use of Single Concept Films	Floyd McAlister	Portales Mun. Schs.	$169.00
5.	Youth Learning by Laboratory Practice in the Arts of Distribution	Jack Hubbard	Hagerman	$250
6.	Youth Learning by Laboratory Practice in the Arts of Distribution	Jack Hubbard	Dexter	$250
7.	Student Self-Help in Nursing Arts	Nelda Hogan, RN	St. Vincent's Hosp. Sch. of Nursing	$150
8.	Establishing and Improving Verbal Communications with Hospitalized Spanish-Speaking Patients	Edith Moore, RN	Robertson H. S.	$225
9.	Consumer Education Research	Cecilia S. Gallegos	West Las Vegas	$150
10.	The Beginning Consumers	Lelia C. Greenwald	Socorro High Sch.	$275
11.	Follow-Up Study of Previous Home Economics Students	Susie E. Ray	Moriarty Schools	$250
12.	Home Economics for the Deprived Young Mothers	Emelia Burns	Aztec High School	$250
13.	Nutrition for the Family	Edith Donaldson	Gadsden High School	$250
14.	Training for Employment	May G. Denton	New Mexico Boys' Sch.	$ 50
15.	A Self-Help Program in Industrial Metals	Orin L. Buchleiter	Sandia High Sch.	$250
16.	Course of Study in "Engineering Technology"	Raymond E. Morrison	Los Alamos High Sch.	$250

	TITLE OF PROJECT	NAME OF PERSON	SCHOOL	FUNDS
17.	Elementary Career Foundations Project	Robert M. Dorak for Mrs. House	APS - North Area	$240
18.	Develop a Computer for Adding and Subtracting Fractions	George W. Addison	Polk Jr. High Sch.	$125
19.	Veneer Application in Wood Technology	Cordell Puckett	Albuquerque H. S.	$200
20.	Development of Curriculum Slides - Only	Don Wilson	Mayfield High Sch.	$125
21.	Job, Slide Presentations (35mm color slides and cassette sound shows to demonstrate various areas of work and job skills)	Barry G. Cole	Albuquerque H. S.	$ 50
22.	Cochiti School's Talent - Productivity Program with the Work World	Phillip M. Ludi	Cochiti	$350
23.	Improving Vocational Business Education Via the Single Concept Film	John Rider	U. N. M.	$153.00
24.	Improving the Education of the Vocational Business Teacher Through the Use of Models on Video-Tape	John Rider	U. N. M.	$270
25.	Success in New Mexico	John Rider	U. N. M.	$ 52.00
26.	Job Descriptions & Critical Incidents Reports	Rosaline B. Lopez	West Las Vegas H. S.	$270
27.	Criteria of Selection of Students in Cooperative Office Education Programs	R. K. Gordon	Office Education	$100
28.	A Business Community and State Agency Survey of Santa Fe	Jack Wilson	Santa Fe High Sch.	$225
29.	Initiating Office Simulation Education at New Mexico Junior College in the Intensive Secretarial Training Program	Olive V. Church	New Mexico Jr. College	$250
30.	A Public Relations Program for Vocational Education in the Albuquerque Public Schools	Nelson W. Lowery	Albuquerque Public Schools	$210

	TITLE OF PROJECT	NAME OF PERSON	SCHOOL	FUNDS
31.	A Plan for Public Relations	John I. Mondragon	Bernalillo Public Schools	$150
32.	To Conduct a Student Survey (Juniors-Seniors) and To Print and Bind the Feasibility Study	J. M. Tejada	Luna Area Vocational-Technical School	$275
33.	Follow-Up Study of Graduates of the Albuquerque Technical-Vocational Institute	Louis E. Saavedra	Albuquerque TVI	$400
34.	Insight of Vocational Needs Through the Media of Vocational Aptitude Testing	Ruth Bearup	Silver High Sch.	$241.00
35.	Vocational Guidance Program	Sheldon Weissman	John F. Kennedy Jr. High (Espanola)	$500
36.	Development of Illustrative Visual Aids for Teaching Drafting Principles to the Slow Learner	Leslie V. Langston	ENMU-Roswell Campus	$200
37.	Development of a Room Thermostat Training Board for Teaching the Principles of Temperature Controls to Air Conditioning and Refrigeration Students	Waldo E. Johnson	ENMU-Roswell Campus	$178
38.	Audio-Visual Aids for Foundry and Welding Techniques	James W. Field	New Mexico State University	$267.00
39.	Development of Instructive Illustrations for Teaching Disassembly-Assembly, Inspection and Failure of Complex Components in Electronics and Aircraft and Power Plant Mechanics Equipment	Gerald Cady Doil Thompson	ENMU-Roswell Campus	$150
40.	Survey of Machine Shops and Factories which Employ Production Workers	J. Thomas Denton	NM Boys' School	$225
			GRAND TOTAL	$8896.00

OTHER INFORMATION REQUESTED

OTHER INFORMATION REQUESTED

1. MODEL PROGRAMS

New Mexico has some exceptional model programs. The model programs are presented as follows by Vocational Units.

AGRICULTURE

Floyd High School
Floyd, New Mexico 88118

In Production Agriculture, the Floyd Agriculture Program, Floyd High School, Floyd, New Mexico, has an outstanding program. The average cost per student for operating the program was $334.00 and the average income received, per student, from their Production Agriculture Program was $1,147.28. Members of this Vocational Agriculture Department were very active in carrying out many other activities during the year.

Valley High School
1505 Candelaria, N. E.
Albuquerque, New Mexico 87107

The Vocational Horticulture Program conducted at Valley High School, Albuquerque, New Mexico, proved to be an outstanding success. The students constructed their greenhouse, learned greenhouse management, and were placed in employment in Horticulture related occupations. The pre-enrollment jumped from 35 students for the 1969-1970 school year to 140 students for the 1970-1971 school year.

Clovis High School
1900 Thornton
Clovis, New Mexico 88101

Members of the Clovis Agriculture Department did part of their work in Agriculture Business Occupations as a pilot program and supplemented their instruction in Vocational Agriculture by visiting the latest up-to-date agriculture businesses in the surrounding areas. Members of the class were employed by some of the feedlots, feed companies, fertilizer companies, and agriculture machinery companies of the Clovis area.

DISTRIBUTIVE EDUCATION

A model Distributive Education program would be one that covers all three of the recommended areas; school related instruction, on-the-job training, and active participation in the DECA youth program. Those programs should also have the necessary Distributive Education equipment, materials, etc. that create a favorable atmosphere for this discipline of study and training. Those schools and/or programs that meet this criteria are:

	ZIP	ADDRESS	
Santa Rosa	88435	717 Third Street	Santa Rosa
Portales	88130	201 S. Knoxville	Portales
Valley	87107	1505 Candelaria, N. W.	Albuquerque
Carlsbad	88220	3000 W. Church	Carlsbad
Hobbs	88240	1300 E. Scharbauer	Hobbs
Roswell	88201	400 W. Hobbs	Roswell
Goddard	88201	701 E. Country Club Rd.	Roswell

HEALTH OCCUPATIONS

Pam Dunbar, O. T. R.
Director of Project
Goodwill Industries
1119 Edith S. E.
Albuquerque, New Mexico 87102

Exemplary Project for the Physically Handicapped - July 1969 - The Project was funded for one year with Goodwill Industries as the cooperating agency.

The uniqueness of the program had to do with utilization of an occupational therapist to investigate the area of Perceptual Motor Dysfunction among 56 physically handicapped as deterrent to vocational training and job placement. Another objective of the project was to stimulate interest in the area of Occupational Therapy as a career. Seventy-eight high school students were oriented to the area of Occupational Therapy by actually participating in the various sessions.

Still another purpose was to improve the skills of other Occupational Therapists in development of techniques in treatment of Perceptual Motor Dysfunction. Sixty-five professional personnel attended the various conferences and seminars given by the Occupational Therapist. Eleven Occupational Therapists and ten graduate students attended a special workshop on Perceptual Motor Dysfunction.

A report of the project has now gone to print and copies will be made available to Occupational Therapists.

HOME ECONOMICS

Mrs. Sylvia Moore
Snell Junior High School
Highway 180
Bayard, New Mexico 88023

Ungraded class for slow learners. Limited enrollment in class to provide individual attention. Special materials self-developed for teaching concepts and abstract ideas.

Mrs. Emma Lou Griffin
Las Cruces High School
Las Cruces, New Mexico 88001

Professional-looking handicraft articles made in the Housing Course, provided girls with a salable skill as well as a creative outlet.

Mrs. Louis Melton
Las Cruces High School
Las Cruces, New Mexico 88001

Dress Design course is taught following the basic clothing construction. Girls learn design techniques and how these can be utilized to imitate the design of a ready-made garment or a personal design. In addition, independent study is required of popular designers in the development of uni-pacs to be used in the course of study.

These examples were selected because they show how teacher initiative can meet student needs. The second and third example support the belief that a regular homemaking program can accomplish a two-phased role for students - a recognition of the value of a homemaking background, and the employment potential provided by same if and when the need arises.

OFFICE EDUCATION

Dixie McGehee
Albuquerque High School
Albuquerque, New Mexico 87102

The first cooperative Office Education class in the city of Albuquerque was so successful that the coordinator had to place some of the intensive Office Education students because of the demand from local employers.

Mrs. Olive Church
New Mexico Junior College
Hobbs, New Mexico 88240

Mrs. Olive Church received a Mini-Grant from the Research Coordinating Unit and developed the first simulated Office Education program for the State of New Mexico. This program was tried and tested in Mrs. Church's intensive post-secondary Office Education program. It proved most beneficial and will be expanded and used by both the secondary and post-secondary schools during the next school year.

POST-SECONDARY

Northern New Mexico Vocational-Technical School
El Rito, New Mexico 87530

Barbering - This is the only training program in the State. Limited to 15 students per 9 month session. This program is most successful.

Beauty College - Cosmetology - This is the only program offered in a public school. All standards are set by the State Board of Cosmetology. Limited to 35 students per year, this program is very successful.

Roswell Community College
Roswell, New Mexico 88201

Air Frame/Power Mechanics - The only course in the State. This 2-year program is certified by the F. A. A. and is successful.

Watch and Jewelry Repair - The only such course offered by a public institution and is highly successful for its attraction to those with physical handicaps.

SPECIAL NEEDS

Dexter High School
Dexter, New Mexico 88230

Disadvantaged Program - Dexter Special Needs Project is a model program. It meets the designing educational and work experience needs of disadvantaged students in New Mexico. It serves primarily disadvantaged students in a rural school district.

TRADES AND INDUSTRY

John Harbin
Eunice
Box 128
Eunice, New Mexico 88231

Jal
Box 1386
Jal, New Mexico 88252

A mobile electronic unit serves the Eunice and Jal school districts. This unit provides programmed instructional materials for the students. The teacher has all the lectures on cassette tapes so that each student may hear a lecture plus study the programmed instruction. Mobile units are the answer for smaller school districts.

RESEARCH COORDINATING UNIT

The Research Coordinating Unit funded 40 Mini-Grants, which were pilot programs, development of curriculum slides and video-tapes.

Some outstanding pilot studies were:

Cochiti School and Dixons' Apple Growing Course

This project was developed for Indian and Spanish students. Mr. Fred Dixon of the Dixon Apple Orchard conducted the course once a week for eleven weeks at the orchard. The unique feature of this project was involvement of business and school for students who are isolated from observation and participation with industry or business.

Youth Learning by Laboratory Practice in the Arts of Distribution

A very small rural school solicited equipment for a store set-up. The Distributive Education students and coordinator remodeled a building for a Distributive Education Store Simulation Project. Again community involvement was the key to success for this project.

Student Self-Help in Nursing

Three nursing procedures were chosen and 140 slides and sound tapes with information sheets for nursing students to study and review at their convenience was developed.

The Beginning Consumers

This pilot study was conducted by Lelia Greenwald, Home Economics teacher and three student aides. A fourth, fifth, and sixth grade class was used for the pilot study. The unit evolved around food analyzation and purchasing.

Job Description and Critical Incidents

Students from a small community high school spent three days at a large Federal installation observing office positions as well as going through complete application procedures. Thus, students became aware of the world of work beyond a classroom situation.

Engineering Technology

Development of curriculum and program for teaching engineering technology. The project was so successful that the Los Alamos school administration is inaugurating the program for FY 1970-1971.

Pre-Vocational Program

A junior high school provided three hours a week for work observation and participation at a work station in a small local community. This project enabled junior high students to become acquainted with the world of work at an early age. Cooperation of school administration, businesses, parents and students was the success of this pilot project.

The Mini-Grants are being published and disseminated.

Hilda Majors, Director
Research Coordinating Unit
State Department of Education
Capitol Building
Santa Fe, New Mexico 87501

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OTHER INFORMATION REQUESTED

2. VOCATIONAL YOUTH ORGANIZATIONS

Youth organizations are an integral part of Vocational Education. The young people who are members of youth associations are certainly goodwill ambassadors for the State of New Mexico in helping to change the image of Vocational Education. Through development of leadership, organizational activities, and competition, these young people will become our leading citizens of the future.

THE FUTURE FARMERS OF AMERICA (FFA)

Each of the 61 departments of Vocational Agriculture has an organized FFA chapter which is an integral part of the Agriculture Education Program that motivates leadership and improvement of citizenship. The State Association officers visit each high school's Vocational Agriculture Program each year and the FFA chapters to motivate members in leadership activities and citizenship.

The FFA organization held leadership training sessions for local chapter officers in which 54 FFA chapters with 220 chapter officers attended. The State FFA association organized a trip to the national FFA convention with 165 members attending representing 45 FFA chapters. The FFA organization conducted the State contest and awards program at New Mexico State University, with 920 members from 53 chapters attending. It cooperated with the State Fair in conducting fair activities for the FFA members where 527 members from 44 chapters attended and exhibited at the New Mexico State Fair.

Fifty-five chapters with 393 FFA members and 150 parents and guests attended the State FFA convention at the Youth Building on the State Fair grounds.

DISTRIBUTIVE EDUCATION CLUBS OF AMERICA (DECA)

DECA, an integral part of a Distributive Education Program to develop future leaders for marketing and distribution is well supported by the State in the areas of activities and services. Annual, district and State Leadership Conferences are held as established by State and nationally approved guidelines and practices. Student leadership and distributive competitions are stressed during these State sponsored activities. The State Supervisor of Distributive Education serves as the State advisor for this youth program and makes his services and materials available to local chapters of DECA. Only students enrolled in an approved Distributive Education Program may be a member of the DECA organization.

State membership in DECA is close to 1,000 and most of these members participate in activities offered at the district and/or State level and for a select few, national level.

Students are afforded many opportunities at the local, district, State and national levels of DECA to gain recognition for achievements accomplished through participation in the Distributive Education Program. Students at both the secondary and post-secondary levels of instruction received national recognition during their respective National Leadership Conference held in Minneapolis, Minnesota.

HEALTH CAREERS (HC)

During the year 1969-1970, Health Occupations did not sponsor a youth organization. However, for the year 1970-1971, guidelines are being developed for organizing a Health Careers youth organization in New Mexico.

FUTURE HOMEMAKERS OF AMERICA (FHA)

Future Homemakers of America continued to be active in New Mexico and its membership remained stable at 2,864 members. Chapters frequently emphasized "To Dare is to Care," one of the national goals by the usual parent-daughter, mother-daughter, father-daughter and adopted grandparents activities.

A new project this year was a Leadership Camp to which all State officers and a member or the advisor from all chapters were invited. This is our first step in making FHA an organization with direction so that it may benefit Vocational Home Economics students and programs. Seventeen members and six advisors attended the FHA National Meeting in New York. "Free" time was used to expose girls and advisors to the variety of occupational areas open to Home Economics students.

OFFICE EDUCATION ASSOCIATION (OEA)

The Office Education Association is the official recognized youth club for students enrolled in office occupations as a career. The membership rose to over 800 active members, and it appears that the organization will double this coming school year.

The Governor designated the week of March 15-21, 1970 as the Office Education Association Week in New Mexico with the theme "OEA--Developing Vocational Competency in Office Occupations."

The State Leadership Conference was a tremendous success with over 450 students participating. Over 50 students from both the secondary and post-secondary schools attended the National Leadership Conference held in Fort Worth, Texas.

The State was extremely proud to have a national officer elected at both the secondary and post-secondary level. These two national officers have attended the National Leadership Training Conference and have been selected to represent OEA at other National Vocational Club youth meetings.

VOCATIONAL INDUSTRIAL CLUBS OF AMERICA (VICA)

All the Trade and Industrial Programs in the State are encouraged to sponsor a VICA youth organization so that leadership abilities through participation in educational, vocational, civic, recreational and social activity may be developed in the youth of our State.

This year New Mexico VICA had 14 local chapters with a total membership of 382 active and professional members.

The New Mexico VICA held two State Officer Leadership Development sessions where the officers were given training in their duties and responsibilities, with six officers and sponsors in attendance.

Two State Conferences were held. One was held at Eastern New Mexico University, Roswell Campus, Roswell, New Mexico, to develop leadership among the members. Approximately 125 members and guests attended. The second conference was the Competitive Activities Program held at Santa Fe High School, Santa Fe, New Mexico. Eleven different contests were held with an attendance of 130 members and judges.

Eighteen members and four adult sponsors representing three local chapters from New Mexico, attended the National Leadership Conference held at St. Louis in June.

OTHER INFORMATION REQUESTED

3. FINDINGS

During Fiscal Year 1969-1970, Vocational Education Programs were in 79 of the 89 school districts in the State of New Mexico. Next Fiscal Year 1970-1971, Vocational Education Programs will be in 86 school districts. The three districts not participating are Encino (grades 9 to 12) with 11 staff members, House (grades 9 to 12) with seven staff members and Loving (grades 7 to 9) with nine staff members. Pre-vocational Education is being planned for Loving and Vocational Education Programs for Encino and House.

Vocational Education Programs at all levels need to be expanded in all school districts based upon Part II of the State Plan, Figures 1, 2, 3, 4, and 5, and the Master Plan for Vocational Education in New Mexico. Occupational and employer-expressed categories are not being met as identified in Part II, Table I of the New Mexico State Plan for the Administration of Vocational Education under the Vocational Education Amendments of 1968. The Research Coordinating Unit is working on a needs projection relating demand to supply. Also, occupational surveys for specific units will be inaugurated.

Based upon prior results as previously stated, New Mexico will inaugurate approximately 169 new programs in all units during Fiscal Year 1970-1971.

Continuing and expanding programs need to be given consideration as to updating equipment, facilities, and instructional materials.

A major problem for New Mexico is qualified vocational teachers, coordinators and supervisors. An in-house survey is being conducted as to personnel hired from out-of-state and those with substandard certification.

HOME ECONOMICS - SPECIAL PROBLEM

A continuing problem seems to be the inability of the present Home Economics Programs to meet the needs or interests of the majority of the student population. A four to six year comprehensive program becomes repetitive in content, cannot provide sound occupational preparation, is not acceptable to boys, and prevents the college bound student from enrolling by its organization.

During Fiscal Year 1971 the State is supporting considerable experimentation in Home Economics Programs to try to resolve the above situations. Many teachers, administrators and advisory committees are enthusiastic about this idea.

Semester specialized courses are anticipated, preceded by a comprehensive program emphasizing career awareness, and followed by an additional semester directed toward skills needed in occupations within the specialized area.

OFFICE EDUCATION - SPECIAL PROBLEM

The occupational area of data processing appears to be the only area in office occupations that has not had an extensive growth in the State of New Mexico, the problem being the lack of funds necessary to acquire the proper equipment for hand on training. However, an exemplary program is in process for the next school year and, hopefully, data processing programs will be developed that will not be too expensive for implementation in our New Mexico schools.

TRADES AND INDUSTRY

Occupational areas of T & I that are not presently being met are diesel mechanics and some skill and semi-skilled occupational areas of electronics.

Albuquerque's new electronics industries will be employing approximately 3,000 employees during 1970 and 1971.

STATE PROBLEMS

Teacher training institutions need to continue evaluation of and up-dating of curriculum to narrow the gap between business, industry, and education.

Teacher training institutions need to provide build-in work experience in their degree programs for Vocational Education teachers.

Teacher training institutions need to be aware of vocational teachers needed to staff vocational programs. Closer cooperation between State Vocational staff and institutions as to demand needs is required.

Data processing of data necessary for Federal and State reports is needed for more accurate reporting and the saving of many man hours for more important duties regarding programs.

One of the biggest problems in the Health Occupations area is teacher recruitment, with the required qualifications. The Board of Nursing Standards for Health Occupations instructors with B. S. and M. S. Degrees are difficult to meet.

The data available on manpower needs from the Employment Security Commission is not compatible to vocational training. Also, so much of their information is privileged.

Improved follow-up of vocational students is needed. Also, employers evaluation of students and programs is important.

Personnel is always a major factor. Lack of trained personnel for the disadvantaged and handicapped prevents starting special vocational programs in these areas.

Vocational guidance and counseling programs are not progressing due to lack of qualified vocational personnel in this area.

The high wages of industry attracts vocational teachers as well as keeping industry personnel from accepting vocational positions in our schools.

It is difficult to hire and maintain qualified State Vocational Education staff due to starting salaries, especially, when top qualified personnel are making more in the classroom as opposed to accepting a twelve month position. Also, salaries of other states attract our well qualified State staff.

Programs that need to be enlarged are adult vocational programs for training or retraining.

More mobile units are needed for the individual units to reach sparsely population areas. Mobile units should be especially geared to the smaller rural high school. Equipment, facilities, and vocational staff are not a practical investment for a limited group of students. However, their needs can be met with utilization of mobile units.

The State Legislature needs to give serious consideration to combining laws for post-secondary area vocational-technical schools and legislation is needed for the operation of private schools. This would facilitate administering and monitoring the schools involved.

Funding is an ever present problem. Data processing, manpower surveys, follow-up studies, funds for staffing, funding of vocational programs, and mobile units, as cited above, and State monies for research need to be evaluated, analyzed, and additional funding considered for the continued progress of Vocational Education.

The State vocational staff has been working on curriculum guidelines and handbooks.

Funding remains a problem for Home Economics in initiating new programs and in relieving schools with on-going programs of the financial burden of Vocational Education. The State will hopefully be more liberal in Fiscal Year 1971 in allocating adequate financial support for Vocational Home Economics Education.

It is recommended that the State should evaluate financial support of youth organizations, especially for those in economically depressed areas.

The State Legislature is to be commended for their off year budget funding of $449,000 for Vocational Education during the 1970 Legislative Session.

FEDERAL PROBLEMS

A lack of communication with the Federal office severs the continuity that should exist from the Federal level to the local level.

A newsletter with current happenings in legislature, new programs observed, new techniques being used, new visual aids and books, articles useful to supporting a Vocational Unit would be valuable to State supervisors if information was consolidated specifically for a Vocational Unit. New Mexico Vocational Units provide informative newsletters to local teachers, but only if and when the information is received.

Federal reports need more lead time. An example is receiving the final annual report forms after school was dismissed. Also, the negligence of Federal staff for not proofing final forms and the Regional and State personnel trying to work with incorrect forms and instructions. If New Mexico personnel had not been far-sighted and run a survey just before the closing of school it would have been an impossible task to provide information requested. Also, the request to relate the descriptive report to parts of the State Plan is very difficult as the guideline for the State Plan was not designed to conform to the annual reports as developed.

An outline for the EPDA Part F State Plan was coordinated to the 1969 State Plan guideline and not the revised 1970 State Plan guideline to which the EPDA Part F was to be related.

These matters just cited may seem like minor problems to the Federal staff but at the State level where the writing is actually performed, untold problems are created.

The Federal Congress is to be commended for over-riding the President's veto on funding for Vocational Education. By appropriating money in July-August, thus, planning for the current fiscal year is enhanced. A serious drawback was last fiscal year when New Mexico received its Grant Awards, April 20, 1970 when the school year was practically over. Untold work hours were required before June 30, 1970 to set up programs to be funded by the new authorized monies.

STATE ADVISORY COUNCIL

NEW MEXICO STATE ADVISORY COUNCIL FOR VOCATIONAL-TECHNICAL AND ADULT EDUCATION

COMMENDATION

The success of the Vocational Education program in New Mexico is nationally recognized in terms of pupils served, support by the public, jobs filled by graduates and success of graduates. There are new school courses and many new and promising activities going on in the State which should prove highly beneficial to the occupational readiness of our students.

The recommendations that follow are intended to encourage programs and services which will allow more people to profit from the present and planned offerings in occupational education.

RECOMMENDATIONS

In order to carry out the planned program of Vocational Education in the State of New Mexico, it is mandatory that predictable funding be provided at the Federal level. The unfortunate delay of at least eight months in finalizing the appropriation has a disastrous effect upon the development and promotion of Vocational Education in this State.

The Division of Vocational Education should accelerate its efforts to develop and implement a more effective information system which centralizes the information required for planning.

The system should provide means for obtaining and using facts which will better define and measure:

(a) Manpower needs, trends, and projections.

(b) Skills, attitudes and basic education essential for effective work in modern occupations.

(c) Motivating influences on individual's occupational choices.

Everybody in the State needs to be more informed about Vocational Education needs and programs and plans for new directions and new opportunities. Special efforts should be made to inform employers that today secondary Vocational Education is more than the old industrial arts shop whose only relationship to jobs had to do with its teachers and promoters.

ACTIVITIES

Evaluations

Post-secondary schools evaluations completed.

Secondary schools evaluations are completed.

A dissemination list of 1,000 was completed for the findings on the evaluations.

Meetings

New Mexico State Advisory Council for Vocational-Technical and Adult Education has held three meetings.

New Mexico State Advisory Council Executive Committee has held four meetings.

Members

The State Advisory Council elected to add one additional member bringing the total number of members to 17.

Actions

Subcommittees were established for each area in Vocational Education. It was agreed that youth groups will be asked to participate at the Council meetings.

The Council recommended the expansion of programs.

The Council recommended a position be established for a Director of Industrial Development.

The Council reviewed teacher certification.

The Council conducted a hearing and made suggestions for revisions and approved the State Plan for the Administration of Vocational-Technical Education Under the Vocational Education Amendments of 1968.

CONCERTED SERVICES

CONCERTED SERVICES

Bernalillo and Sandoval Counties
Mr. Henry Gonzales
P. O. Box 717
Bernalillo, New Mexico 87004

MODEL PROGRAM

Bernalillo Vocational Skills Center

In October 1966, Concerted Services was authorized by the Board of Education and the Superintendent to solicit letters from citizens, pueblo governors, community leaders, etc., seeking their support for the construction of a Vocational Skills Center in Bernalillo, New Mexico.

A proposal and information pertinent for an application was rough-drafted by the CSTE staff and coordinated with the Bernalillo schools staff. This project was patterned after the Vocational-Technical school in Carrollton, Georgia. Many conferences, meetings, correspondence and negotiations transpired between school, State and Washington officials and the congressional delegation in the processing of this application to justify utilization of Federal funds.

On May 10, 1969, three years later, a program was held dedicating the two-story circular building which now houses the electricity, electronics, carpentry, auto mechanics, agriculture, nursing, office education, printing, and drafting vocational programs. During this period of time 1,111 students have completed vocational courses. An adult training program, custodial-maintenance, a Concentrated Employment Program, was completed last year graduating about 26 men who are now gainfully employed.

This is a $500,000 facility with one phase constructed with Title I, Elementary and Secondary Education funds, and the second phase through Economic Development Administration funds in the amount of $229,000 with local funds matched by $4,000. Equipment was purchased by the Department of Vocational-Technical Education with additional funds forthcoming from the Department of Indian Education.

TITLE V PROJECT

The Title V project was started in Sandoval County as a result of information provided in Washington, D. C., during a Concerted Services Conference. The first step to initiate this program was to motivate the County Department of Health and Social Services. They were made aware of the availability of Title V funds for a Home Rejuvenation project and of the additional work that would be required.

A proposal was written by Concerted Services in cooperation with the State Title V Director and the local County Welfare office, which was submitted to the Regional Office for approval and funding. It was rejected as not feasible for funding.

On this basis, the CSTE Coordinator treked to Dallas and conferred with the Regional Director of Title V projects in an effort to stress the need for this type of program in Sandoval County, and he was invited to come to Sandoval County. The Regional Director accepted the invitation and was given a grand tour of Sandoval County. It was later after this visit that Title V was approved and funded for one year. The program proved successful and continued for two consecutive years until the phaseout of Title V.

The Home Rejuvenation project was extremely well received by the people in Sandoval County since it was a means to fulfill a long standing need to upgrade the skills of the unemployed and for the improvement of people's homes in the poverty zone. The project was efficiently and economically operated, and the instruction received by the trainees was of the highest order since they were taught good work habits and would enhance their ability to obtain employment. The trainee received training in carpentry, plastering, electricity, plumbing, and painting. The work done on the homes included adding space when needed, adding bathrooms, electricity, and above all, roof repairs and plastering. One-hundred ninety-nine homes were remodeled throughout the county including the Indian Pueblos and the Navajo hogans; 49 percent of the trainees were placed in jobs in accordance with their training.

It can be said that the trainees profited by their training in the feeling that they were better equipped to enter the employment market.

BERNALILLO RECREATION AND COMMUNITY CENTER COMMITTEE

Because of the need for recreation in Bernalillo, a committee was organized July 24, 1967 for the purpose of constructing a community center. A $60,000 adobe facility was built with donated labor provided by the OEO Mainstream Operation enrollees and 10 trainees from the Title V project; donated material and supplies. Through GSA, eight surplus steel buildings were acquired for use throughout the county as community centers. Bernalillo was allocated two which cost $1,461 to transport from Los Alamos to Bernalillo for location. A fund-raising campaign committee was formed and such activities as a bingo, a bazaar, a basketball game, and raffles were held with complete community participation. These two buildings were annexed to the adobe structure, presently serving as the Community Library and the Senior Citizens Club, as well as a meeting area.

BERNALILLO DEVELOPMENT CORPORATION

The Bernalillo Development Corporation was organized after a series of meetings on July 18, 1968 for the purpose of promoting and developing industrial, commercial, residential, recreational, and general development in Bernalillo County and Sandoval County. On November 20, 1968 ground was broken for the first industrial plant, Sandia Battery and Manufacturing Company. Over 35 industrial prospects have displayed interest in locating in Bernalillo but to date none have materialized.

San Miguel County
Mr. Henry Brito
223 Plaza
P. O. Box 1008
Las Vegas, New Mexico 87701

MODEL PROGRAM

Luna Area Vocational School

The Luna Area Vocational school is CSTE's best model program. This school will give skill and technical training to adults, dropouts, post-high youth, and high school students that will enhance and strengthen the manpower skills that will help the local, State, and nation as a whole.

The programs offered are designed to fit the individuals for useful employment in recognized occupations that will help him enjoy a more useful and happier life.

A school of this type has special significance for two groups which now lack adequate training - the youth in rural areas and the adults for whom technological advancements have radically changed the nature of their jobs.

This Luna Area Vocational School is situated in a centralized location to serve potential students from a wide area. The reality of the Luna Area Vocational school came about through the many hours of organizing, planning, researching, mass meetings, and all types of activities that promoted the establishment of this school through the fine cooperation of people from the local, State and national level.

Through the Local Employment Security Commission, we are funding that office occupations arenot adequately filled and additional training is requested for trainees who have taken short training courses and who need to master the skills better to pass state personnel exams, etc. A class to do just this is now in session with 15 enrolled.

Also, through local cafe operators it was found that a shortage of cooks is apparent and recommendations were made to the Local Employment Service to request training through the MDTA to train cooks. As a result, 20 cooks are now under training.

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

BUDGET BUREAU NO. 51-R0841
APPROVAL EXPIRES. 3/31/71

FOLLOW-UP OF PROGRAM COMPLETIONS IN SECONDARY AND POSTSECONDARY VOCATIONAL EDUCATION PROGRAMS

[X] SECONDARY [ ] POSTSECONDARY

Read instructions on reverse before completing this form

STATE/OUTLYING AREA: New Mexico

DATE PREPARED: November 9, 1970

FISCAL YEAR ENDING: June 30, 19 70

REPORT DUE: December 1, 1970

AREAS OF EMPLOYMENT	COMPLETIONS	STATUS UNKNOWN	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD	NUMBER KNOWN TO BE UNEMPLOYED
1	2	3	4	5	6	7	8
1. CONSTRUCTION AND MAINTENANCE	83	21	26	12	36	29	7
2. HEALTH	117	10	39	37	68	51	17
3. TRANSPORTATION	328	31	177	60	120	82	38
4. MANUFACTURING AND FABRICATION	76	9	22	14	45	30	15
5. SERVICE	146	2	44	25	100	86	14
6. RECREATION AND HOSPITALITY	301	28	90	70	183	142	41
7. MARKETING	516	14	233	114	269	178	91
8. AGRICULTURE	380	0	241	209	139	125	14
9. OFFICE	2309	165	792	694	1352	1001	351
10. COMMUNICATIONS	62	0	38	27	24	17	7
TOTALS	4318*	280	1702	1262	2336	1741	595

SIGNATURE (State Director) E. Virgil

OE FORM 3139, 6-70 REPLACES OE FORM 4045, 2/69, WHICH IS OBSOLETE

*09.0100 Comprehensive Homemaking (2383 students not included in follow-up report) Not required by the Federal government

Column 4 includes higher education (column 5), armed services, and those not available due to death, illness, or by choice.

58 179

12251

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

BUDGET BUREAU NO. 51-R0841
APPROVAL EXPIRES: 3/31/71

7252

FOLLOW-UP OF PROGRAM COMPLETIONS IN SECONDARY AND POSTSECONDARY VOCATIONAL EDUCATION PROGRAMS

☐ SECONDARY ☒ POSTSECONDARY

Read instructions on reverse before completing this form

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1	2	3	4	5	6	7	8
1. CONSTRUCTION AND MAINTENANCE	22	2	7	2	13	11	2
2. HEALTH	258	0	28	23	230	218	12
3. TRANSPORTATION	68	15	16	2	37	34	3
4. MANUFACTURING AND FABRICATION	231	40	65	22	126	93	33
5. SERVICE	57	2	19	7	36	32	4
6. RECREATION AND HOSPITALITY	0	0	0	0	0	0	0
7. MARKETING	41	3	10	10	28	27	1
8. AGRICULTURE	1	0	0	0	1	1	0
9. OFFICE	3435	178	540	345	2717	2540	177
10. COMMUNICATIONS	25	4	3	2	18	11	7
TOTAL	4138	244	688	413	3206	2967	239

SIGNATURE *(State Director)* E A Vigil

OE FORM 3139, 6-70 REPLACES OE FORM 404S, 2/69, WHICH IS OBSOLETE

Column 4 includes higher education (column 5), armed services, and those not available due to death, illness, or by choice.

VT 016 742
BAVER, LEONARD D.; HENDERLONG, PAUL R.
PEOPLE, CROPS, AND FOOD.

OHIO STATE UNIV., COLUMBUS. COOPERATIVE EXTENSION SERVICE.;OHIO AGRICULTUPAL RESEARCH AND DEVELOPMFNT CENTER, WOOSTER.
MF AVAILABLE IN VT-FRIC SET.
OARDC-SPEC-CIRC-98
PUB DATE - DEC70 61P.

DESCRIPTORS - *FOOD; NEEDS; *AGRICULTURAL PRODUCTION; *FIELD CROPS; *GRAINS (FOOD); NUTRITION; AGRONOMY; NATURAL RESOURCES; WORLD PROBLEMS; *POPULATION GROWTH; GRAPHS

ABSTRACT - MORE THAN HALF OF THE PEOPLE IN THE WORLD ARE HUNGRY. THE RACE BETWEEN PEOPLE AND FOOD PRODUCTION IS A CHALLENGE TO AGRICULTURAL SCIENCE. THIS PUBLICATION PROVIDES BACKGROUND MATERIAL ON THE SEVERITY OF THE PROBLEM AND THE ROLE OF AGRONOMIC CROPS IN THE WORLD'S FOOD PRODUCTION. DATA ARE PRESENTED, MOSTLY IN GRAPHIC FORM, ON FOOD REQUIREMENTS FOR THE EXPANDING WORLD POPULATION; ON THE 10 MAJOR WORLD FIELD FOOD CROPS AND THE TOP FIVE COUNTRIES IN THE PRODUCTION OF THESE CROPS; AND ON THE MAJOR WORLD FOOD CROPS, THE TOP FIVE STATES IN THEIR PRODUCTION, AND OHIO RANKINGS BY THE TOP FIVE COUNTIES. SOME OF THE DATA HAD BEEN EXHIBITED IN THE 1969 FARM SCIENCE REVIEW AT COLUMBUS, OHIO. (MF)

OARDC Special Circular 98
Extension Bulletin 533

DECEMBER 1970

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people, crops, and food

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LEONARD D. BAVER
PAUL R. HENDERLONG

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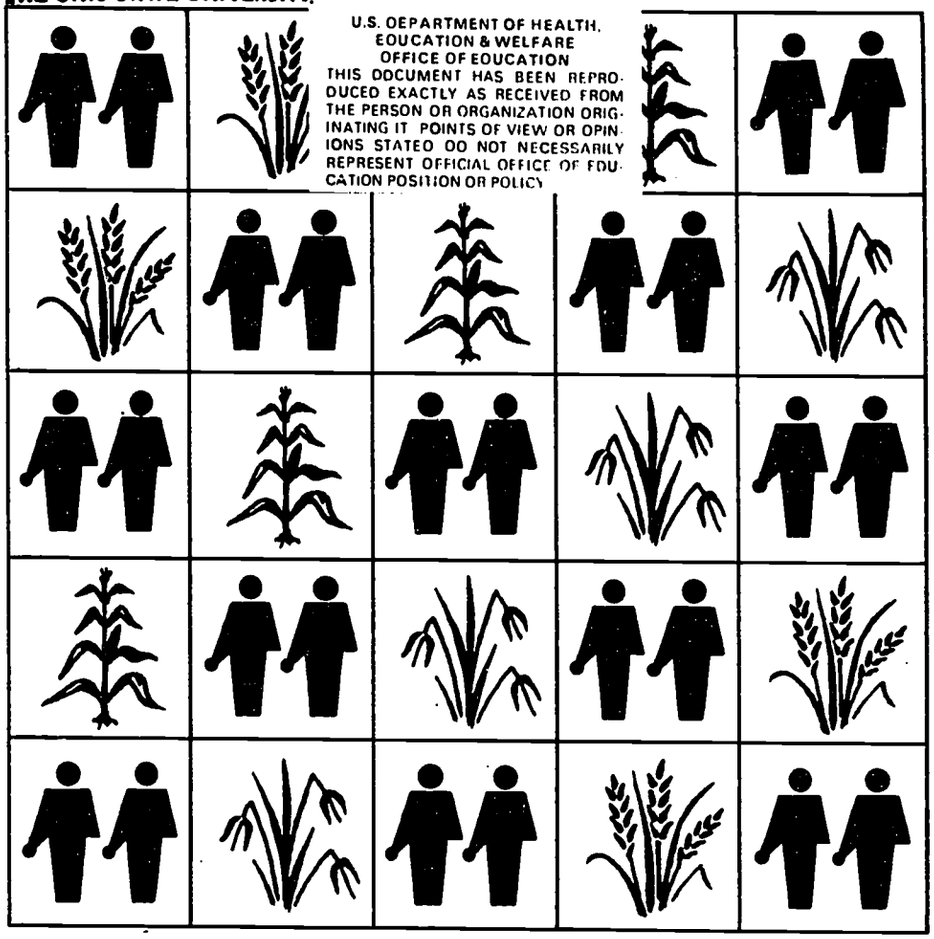

VT016742

OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER
Wooster, Ohio

COOPERATIVE EXTENSION SERVICE
THE OHIO STATE UNIVERSITY
Columbus, Ohio

7254

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National Rankings, Top Five States 39

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Ohio Rankings, Top Five Counties 53

12-70-5M

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FOREWORD

Today we hear statements from all walks of life concerning the need for increased food production for the expanding population of the world. Food requirements are centered around the ten major world field crops grown today. Field plot plantings of these ten crops at the 1969 Farm Science Review at Columbus, Ohio, created considerable public interest. Data in the exhibit showed the top five countries in the production of these crops. Many visitors suggested that this information be published, since it had such an educational impact on the world's food problems.

This material has been enlarged to show the food requirements of an exploding world population and to present the production of the ten major food crops on an international, national, and Ohio basis.

This publication is an expression of the interests, abilities, and competencies of the staff of the Department of Agronomy in the state, national, and international aspects of food production. It emphasizes the department's global program in teaching and research in international agriculture. It is hoped that the data will acquaint the reader with world food production problems and Ohio's role in helping to solve them.

G. W. Volk
Chairman, Department of Agronomy
The Ohio State University and
Ohio Agricultural Research
and Development Center

7256

SOURCES OF DATA

Section I: Possibilities of Increasing World Food Production. FFHC Basic Study No. 10, 1963, FAO, Rome.

Section II: World Agricultural Production and Trade. Statistical Report, Foreign Agriculture Service, U.S. Department of Agriculture, 1968.

Production Yearbook. FAO, Rome, Vol. 21, 1967.

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Ohio Agricultural Statistics, 1968. Ohio Crop Reporting Service, Annual Report, March 1969.

People, Crops, and Food

LEONARD D. BAVER and PAUL R. HENDERLONG

INTRODUCTION

Hunger is a major world problem. More than half of the people of the world are hungry. The world's table is set with the products of the soil. Every day 100,000 additional mouths clamor for food from this table.

Agricultural science faces the challenge to give the people of the world **Freedom from Hunger.** People must not only be fed but they must be fed better.

The world is following closely the race between people and food production. Many questions are being asked as the race proceeds over the horizon to the future.

- Will science provide the fuel to keep food production ahead of population growth?
- Are the resources of climate, soil, and water adequate to meet the demands of our exploding population?

The accompanying charts provide some background material to point out the severity of the problem and the part that agronomic crops play in the world's food production.

Section I
Food Requirements of an Exploding Population

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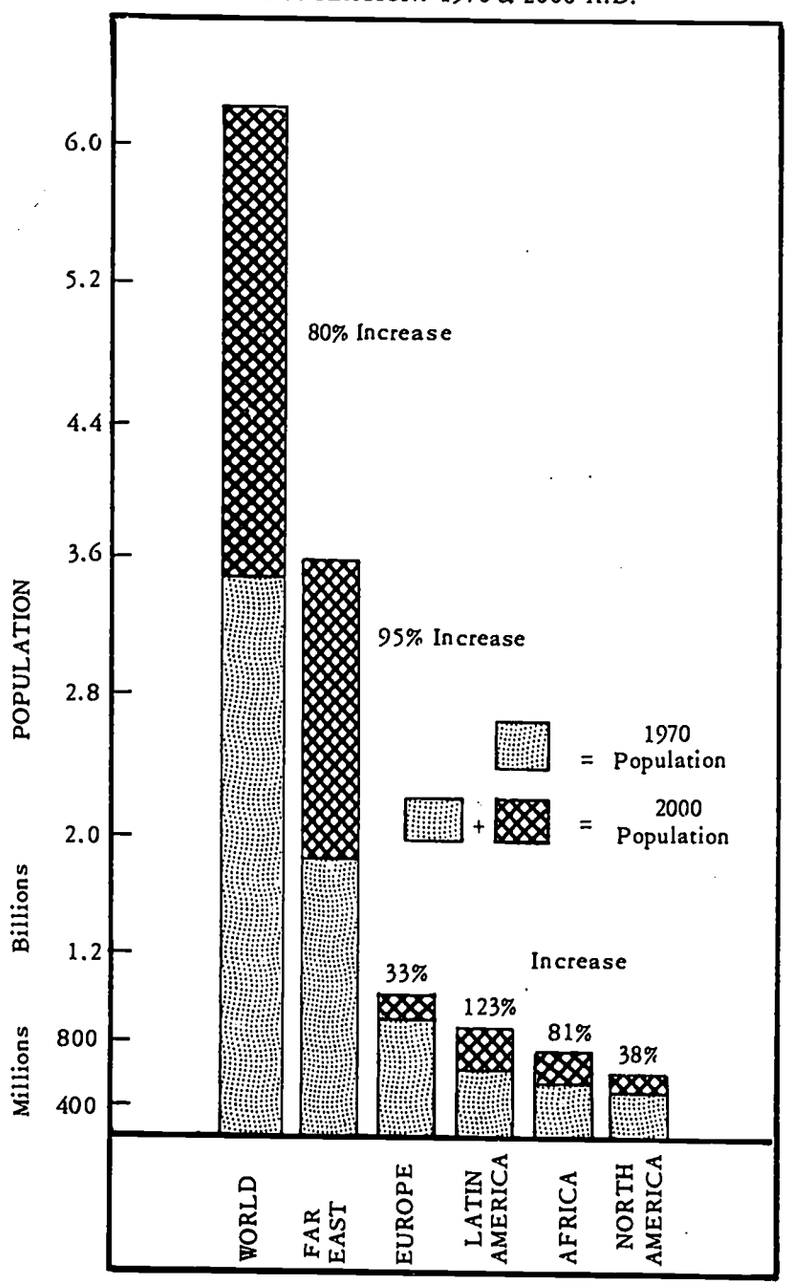
POPULATION: 1970 & 2000 A.D.

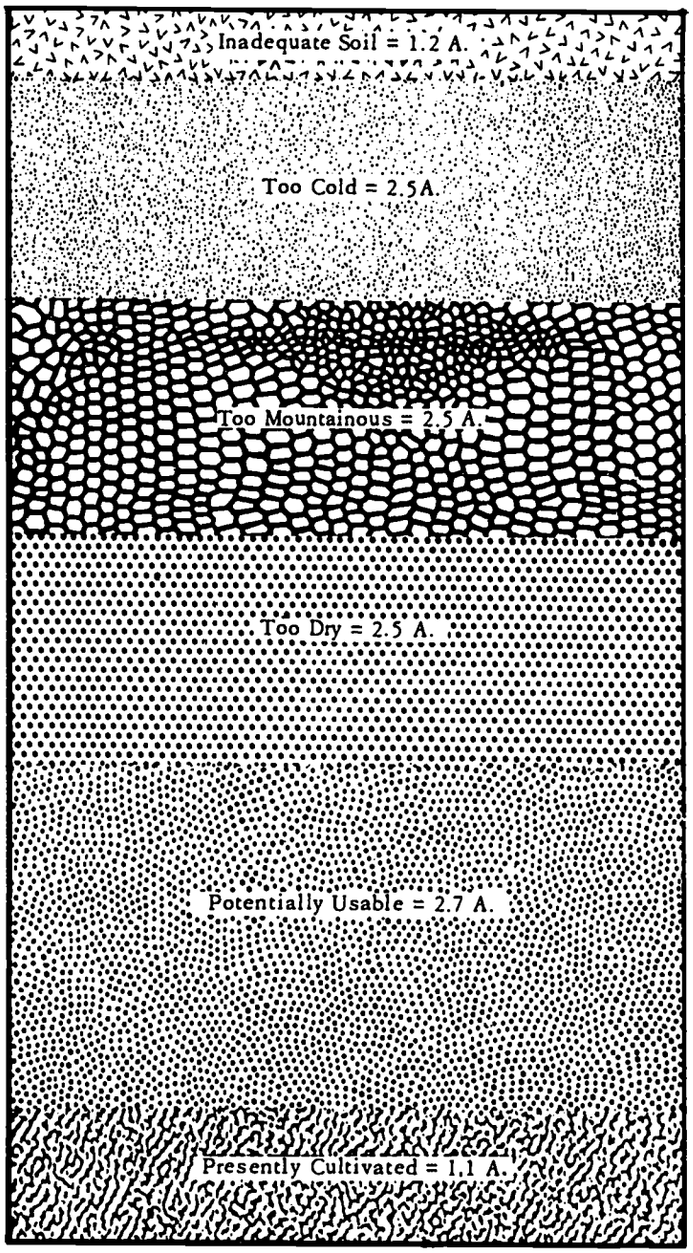


THE POPULATION EXPLOSION

- The population of the world will increase 80% from 1970 to 2000 A.D. Most of this increase will be in countries which presently have low food production per acre as well as per man hour of labor expended.
- The biggest percentage increase, 123%, will be in Latin America. The largest total increase, 1.75 billion people, and the second highest percentage, 95%, will occur in the Far East.
- The population of developed countries, such as Europe and North America, will increase about 35%.

WORLD'S SOIL RESOURCES

Acres per Person



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THE WORLD'S SOIL RESOURCES

- There are about 12.5 acres of total land area per person at the present. By the year 2000, this will be reduced to less than 6 acres.
- Only about 10% of the total land area is cultivated. This equals about 1.1 acres per person. This will be reduced to about 0.67 acre by the year 2000.
- About 26% of the present land area is potentially usable for food production. This is equal to 2.7 acres per person now or 1.6 acres in 2000.
- There are 2.5 acres per person which are too dry to cultivate at present. This area may be brought into cultivation in the future if man can produce fresh water from sea water economically with the use of atomic energy.
- The major production of the future must come from increased yields per acre of cultivated lands.

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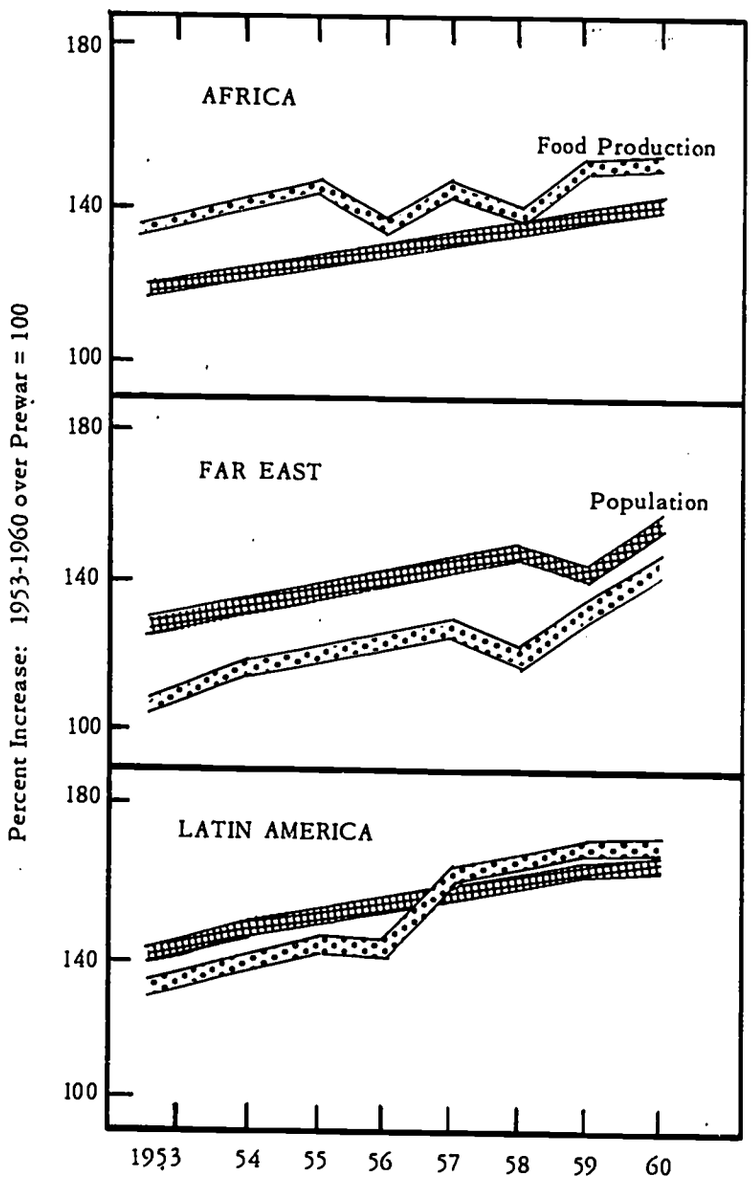
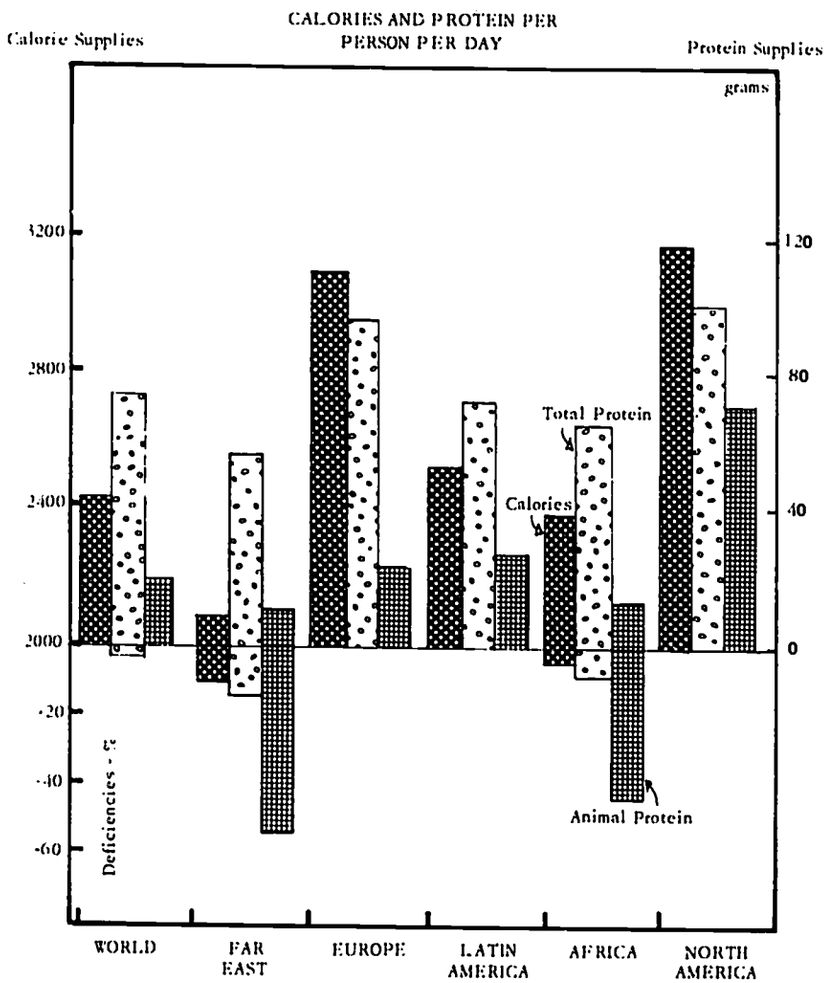
RACE BETWEEN PEOPLE AND FOOD



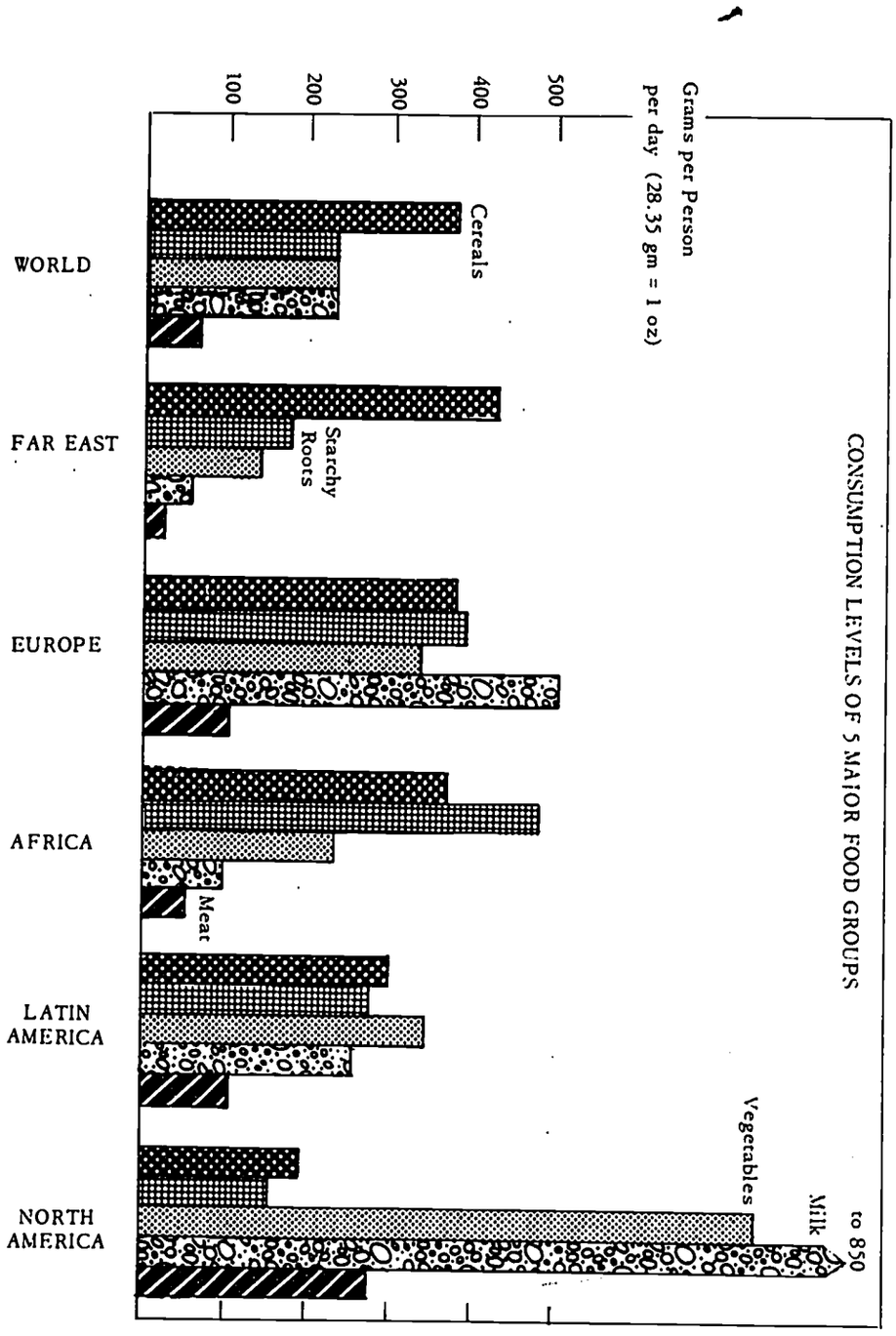
THE RACE BETWEEN PEOPLE AND FOOD PRODUCTION

- The developed countries will continue to produce food at levels in excess of their population.
- The race in the developing countries of Africa and Latin America is close. The rate of population growth is slightly higher per year than that of food production. This can be serious in the near future unless food production is increased, the birth rate is decreased, or both.
- The major race is in the Far East, where food production is lagging behind population growth. Better population control and increased food production are necessary if food is to win the race.


CALORIES AND PROTEIN PER PERSON PER DAY
Calorie Supplies
Protein Supplies
grams
3200
2800
2400
2000
-20
-40
-60
120
80
40
0
Total Protein
Calories
Animal Protein
Deficiencies - c
WORLD
FAR EAST
EUROPE
LATIN AMERICA
AFRICA
NORTH AMERICA

DEVELOPING COUNTRIES NEED PROTEIN

- The developed countries consume about 3,000 calories, 90 grams of total protein and 44 grams of animal protein per person per day.
- The developing countries consume approximately 2,100 calories, 58 grams of total protein and 9 grams of animal protein per person per day.
- Minimum standards for developing countries have been set at 2,400 calories, 70 grams of total protein and 20 grams of animal protein per day.
- The world as a whole has about a 3% deficiency in total protein. Animal protein consumption is just at the minimum level.
- The Far East has the following deficiencies: calories, 14%; total protein, 20%; animal protein, 60%.
- Africa has the following deficiencies: calories, 2%; total protein, 14%; animal protein, 45%.
- Latin America has a 4% deficiency in total protein.


CONSUMPTION LEVELS OF 5 MAJOR FOOD GROUPS
Grams per Person
per day (28.35 gm = 1 oz)
100
200
300
400
500
to 850
WORLD
FAR EAST
EUROPE
AFRICA
LATIN AMERICA
NORTH AMERICA
Cereals
Starchy Roots
Meat
Vegetables
Milk

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THE FIVE MAJOR FOOD GROUPS

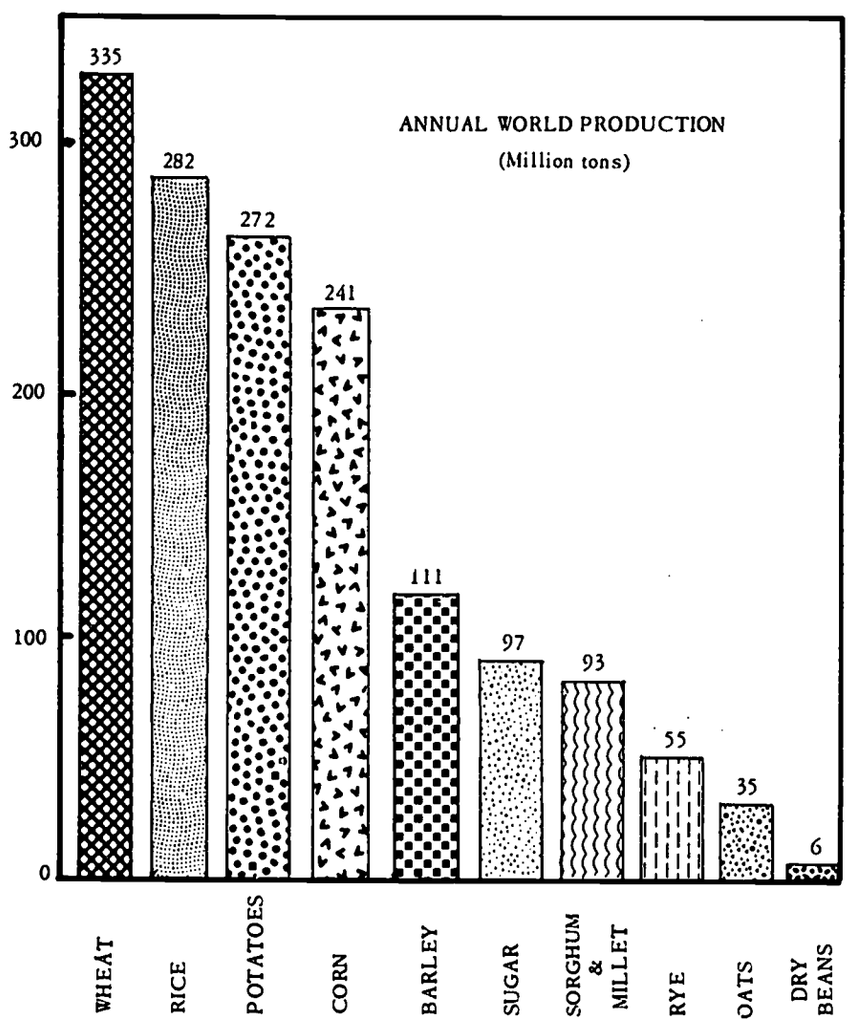
- Cereals provide the major daily food intake in developing countries:
  Far East = 46%; Africa = 26%; Latin America = 20%
- Starchy root crops are important in Africa, Europe, Latin America, and the Far East:
  Africa = 37% (cassava and yams); Europe = 19% (potatoes); Latin America = 18% (cassava and yams); Far East = 18% (cassava and yams)
- Vegetables and fruits are important in Latin America and North America:
  North America = 23%; Latin America = 22%
- Milk is consumed primarily in North America and Europe:
  North America = 40%; Europe = 26%
- Milk is deficient in the developing countries:
  Africa = −7%; Far East = −6%
- Meat is primarily a western hemisphere food:
  North America = 11%; Latin America = 8%; Africa = 3%; Far East = 3%

Section II
The Ten Major World Field Food Crops

International Rankings
Top Five Countries

7270

10 MAJOR FIELD FOOD CROPS



THE TEN MAJOR FIELD FOOD CROPS

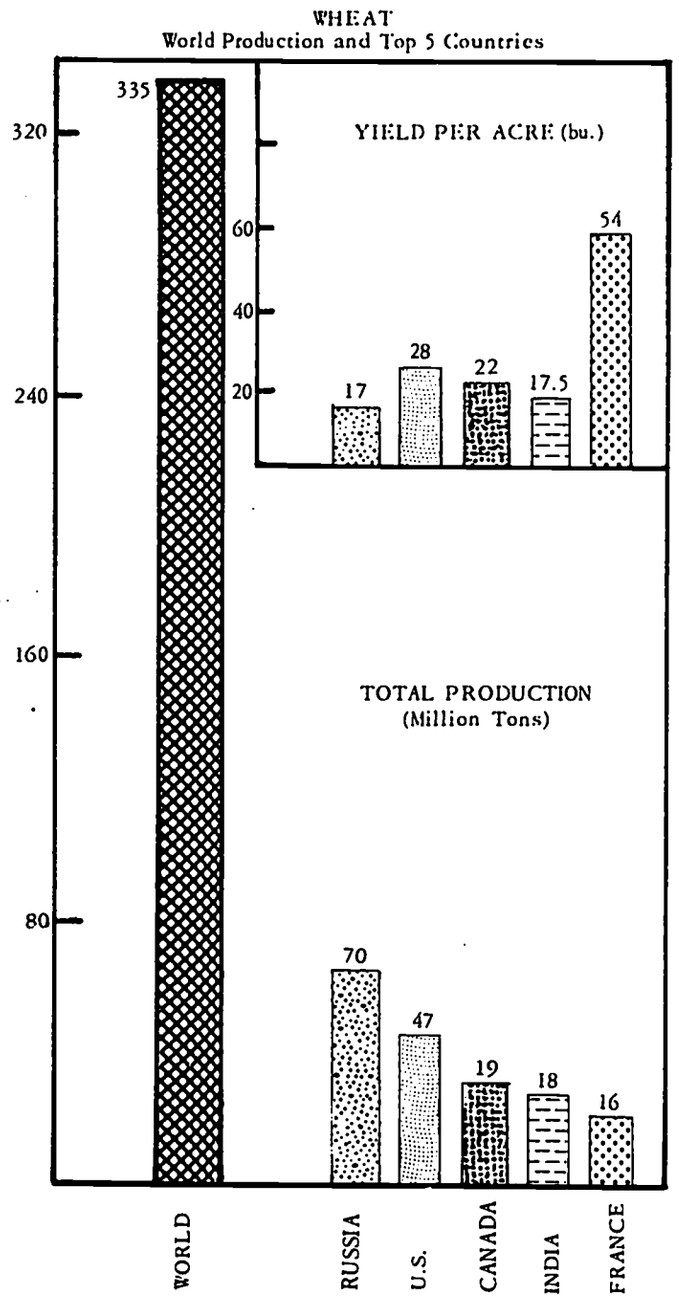
- Grain crops constitute 75% of the total tonnage represented by these ten cops:

  Small grains: wheat, barley, oats and rye = 35%

  Other grains: rice, corn, sorghum, and millet = 40%

  Wheat has taken first place primarily because of the impact of dwarf wheats in raising per acre yields.

- Potato consumption is highest in central and eastern Europe.
- Dry beans are primarily a Western Hemisphere and Mediterranean area crop.
- Russia holds five firsts, one second, and two fourths in production of the ten major food crops. It ranks third two times in yields per acre, fourth one time, and fifth four times.
- The United States holds three firsts, two seconds, two thirds, and one fourth in production. It ranks first three times, second two times, and third two times in yields per acre.

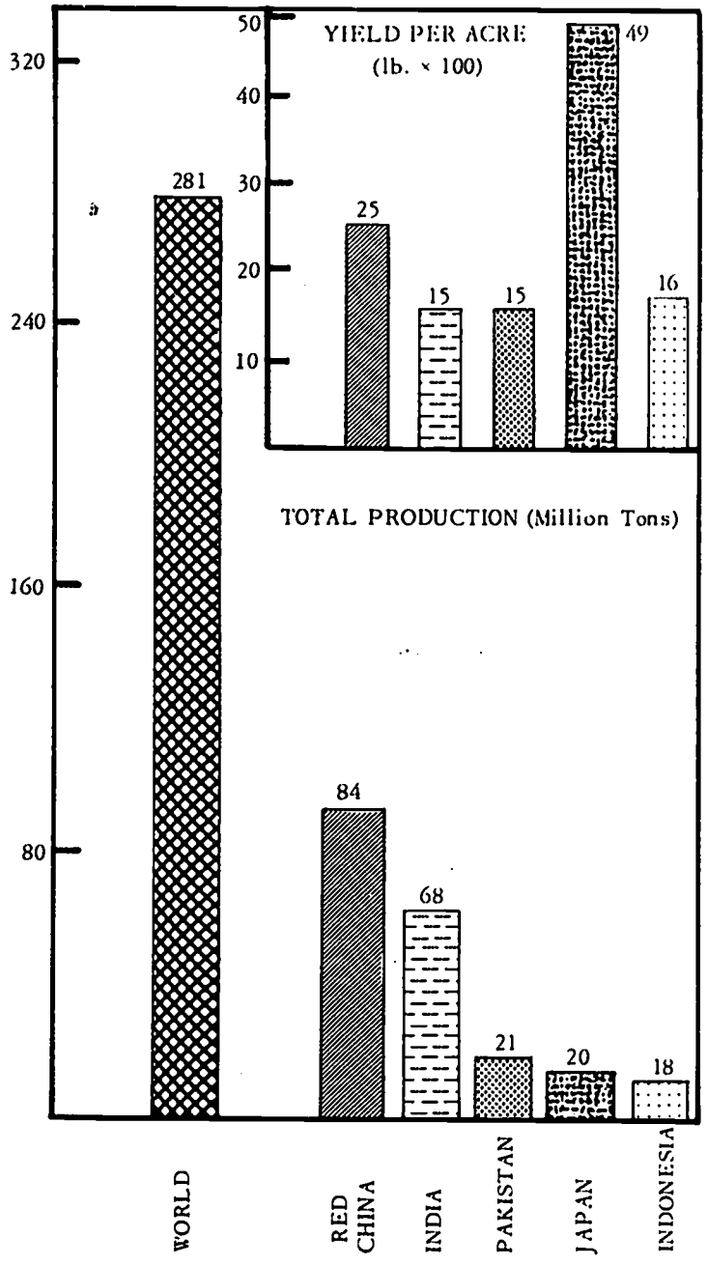

WHEAT
World Production and Top 5 Countries
YIELD PER ACRE (bu.)
60
40
20
54
28
22
17.5
17
TOTAL PRODUCTION
(Million Tons)
320
240
160
80
335
70
47
19
18
16
WORLD
RUSSIA
U.S.
CANADA
INDIA
FRANCE

7273

THE WHEAT CROP

- Russia has the largest acreage and total production. Its yields per acre are the lowest of the top five producers.
- Wheat yields in France are almost double those of the United States and more than three times those of Russia.
- The dwarf types of Mexican wheats are producing high yields in India.
- Holland has the highest average wheat yields per acre: 67 bushels (1960-64).

RICE
World Production and Top 5 Countries



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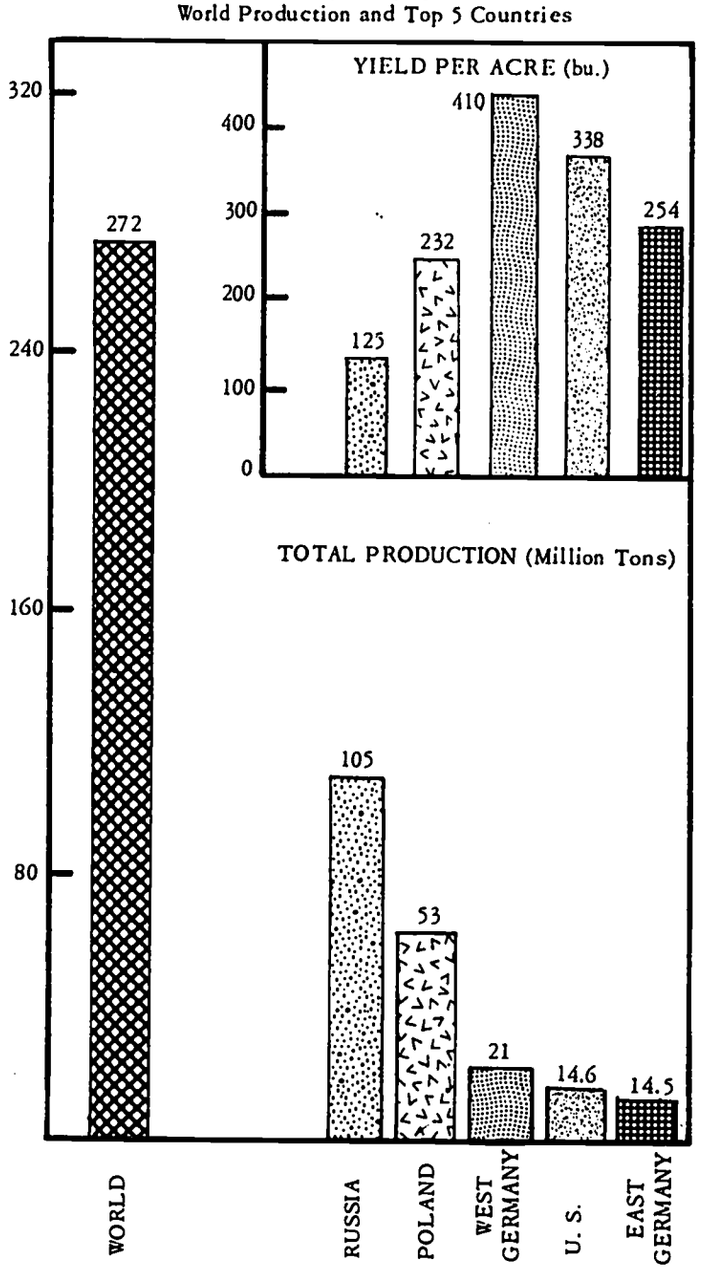
THE RICE CROP

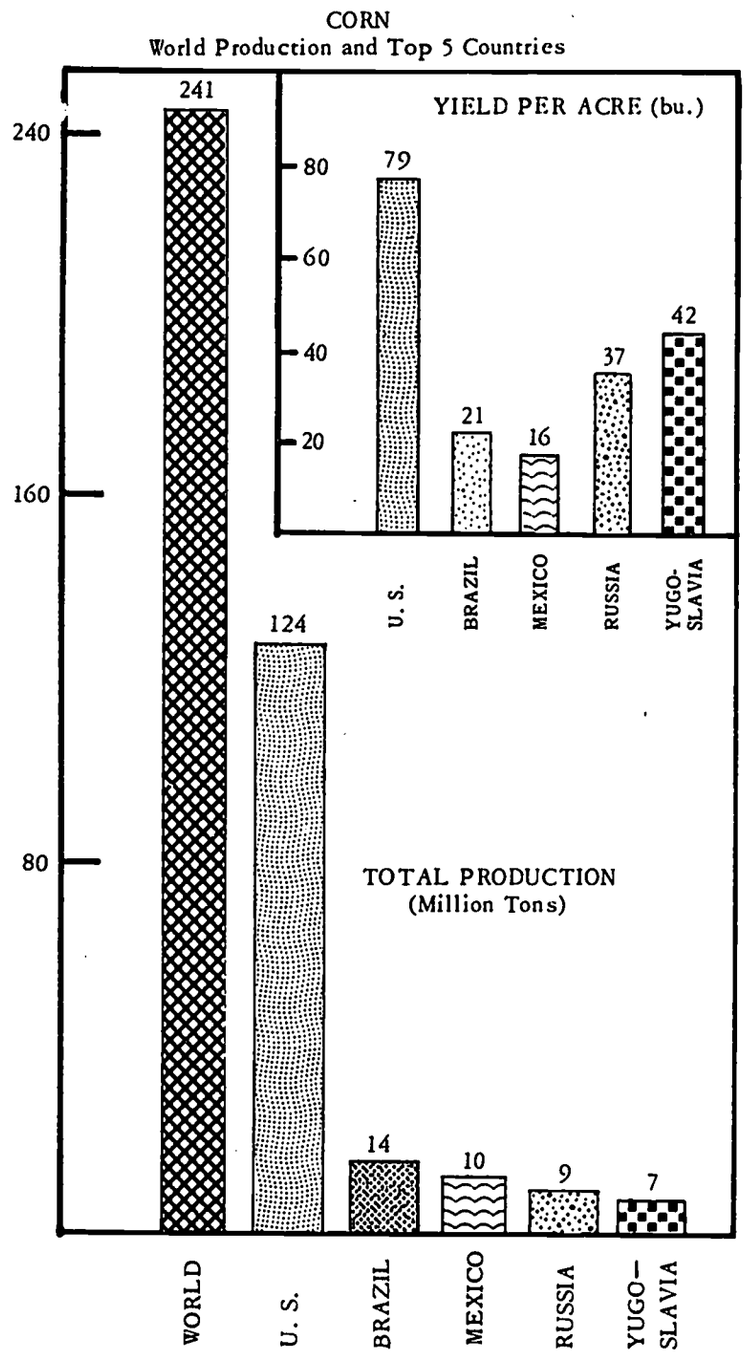
- The top five producers of rice are in the Far East.
- The majority of this rice is paddy or irrigated rice, which gives higher yields than the upland varieties.
- The rice yields in Japan are more than three times those of India, Pakistan, and Indonesia and twice those of Red China.
- The United States ranks 12th in rice production. It is grown in Arkansas, California, Louisiana, Mississippi, and Texas. Yields are about 90% as high as those of Japan.
- Australia has the highest average yield per acre — 5,400 pounds per acre (1960-64), 25% higher than Japan.

POTATOES
World Production and Top 5 Countries



THE POTATO CROP

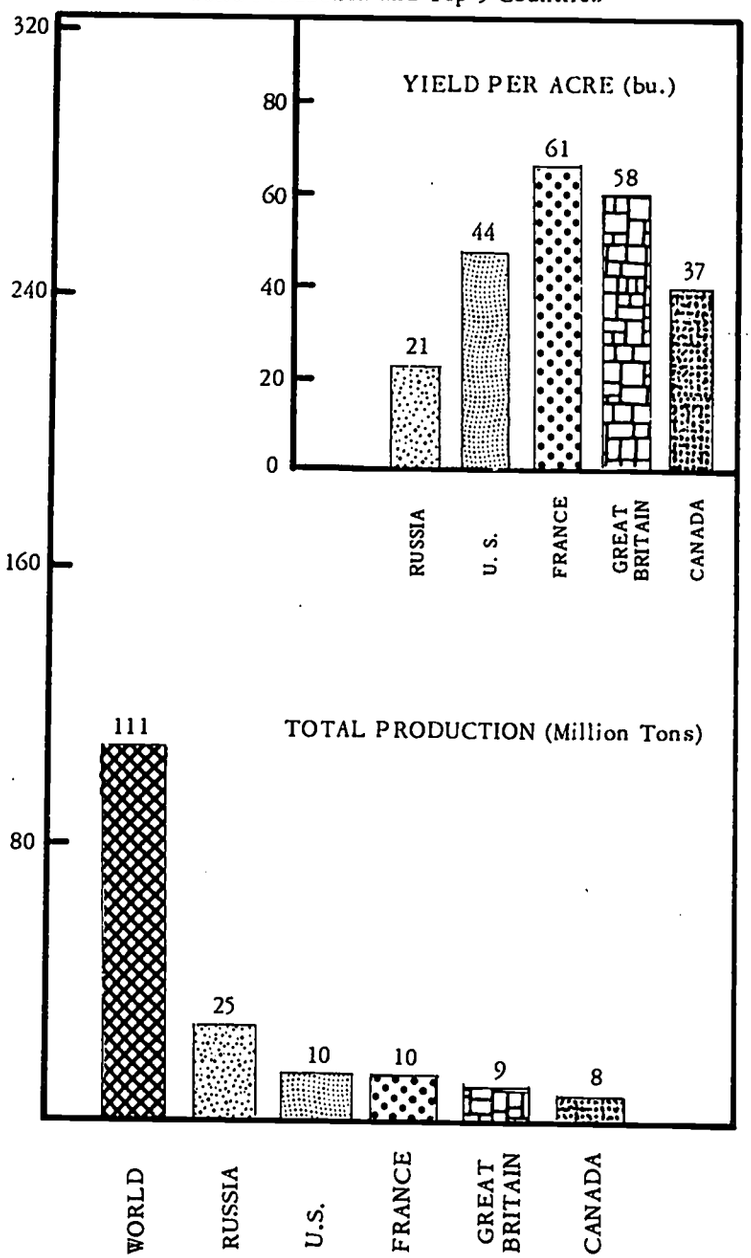
- Russia leads the world in total production but has the lowest yields per acre of the top five producers.
- West Germany has the highest per acre yields of the top five. They are 61% higher than East Germany. 76% higher than Poland, and 228% higher than Russia.
- Yields in the United States are only 18% less than those of West Germany.
- Holland has the highest average yield of all potato-producing countries — 423 bushels per acre (1963).


CORN
World Production and Top 5 Countries
YIELD PER ACRE (bu.)
80
60
40
20
79
21
16
37
42
U. S.
BRAZIL
MEXICO
RUSSIA
YUGO-SLAVIA
240
160
80
241
124
14
10
9
7
TOTAL PRODUCTION
(Million Tons)
WORLD
U. S.
BRAZIL
MEXICO
RUSSIA
YUGO-SLAVIA

THE CORN CROP

- The United States is responsible for more than 51% of the world's corn production. It has by far the highest yields per acre of the top five producers.
- The U.S. has nearly four times the per acre yields of Brazil and more than twice the per acre yields of Russia.
- New Zealand has the highest average corn yield per acre — 78 bushels (1960-64), 10% higher than the United States. However, it only grows about 20,000 acres of corn.

BARLEY
World Production and Top 5 Countries

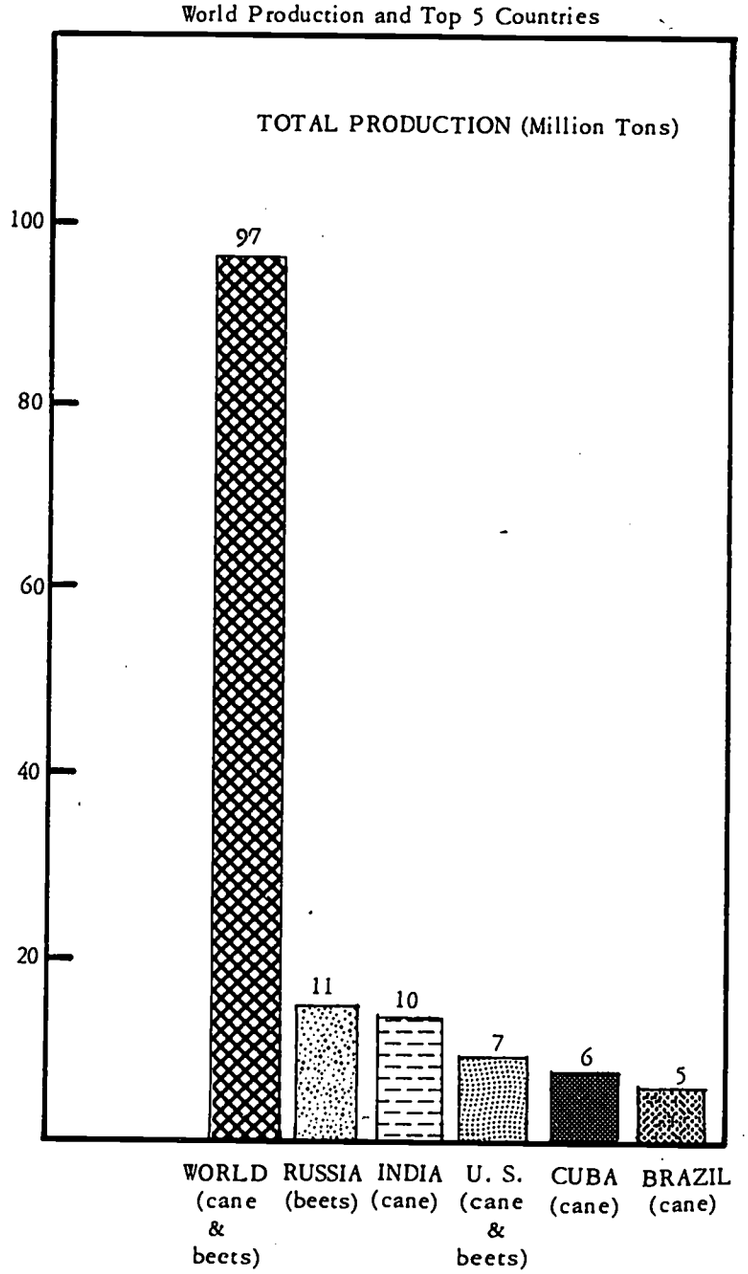


7261

THE BARLEY CROP

- Russia is the leading barley producer but has the lowest yields per acre of the top five producers.
- France has the highest per acre yields of the top five. They are 5% larger than those of Great Britain, 40% above those of the United States, 65% larger than those of Canada, and about three times the yields of Russia.
- Holland has the highest average yield of all barley producers — 67 bushels per acre (1960-64).

SUGAR
World Production and Top 5 Countries

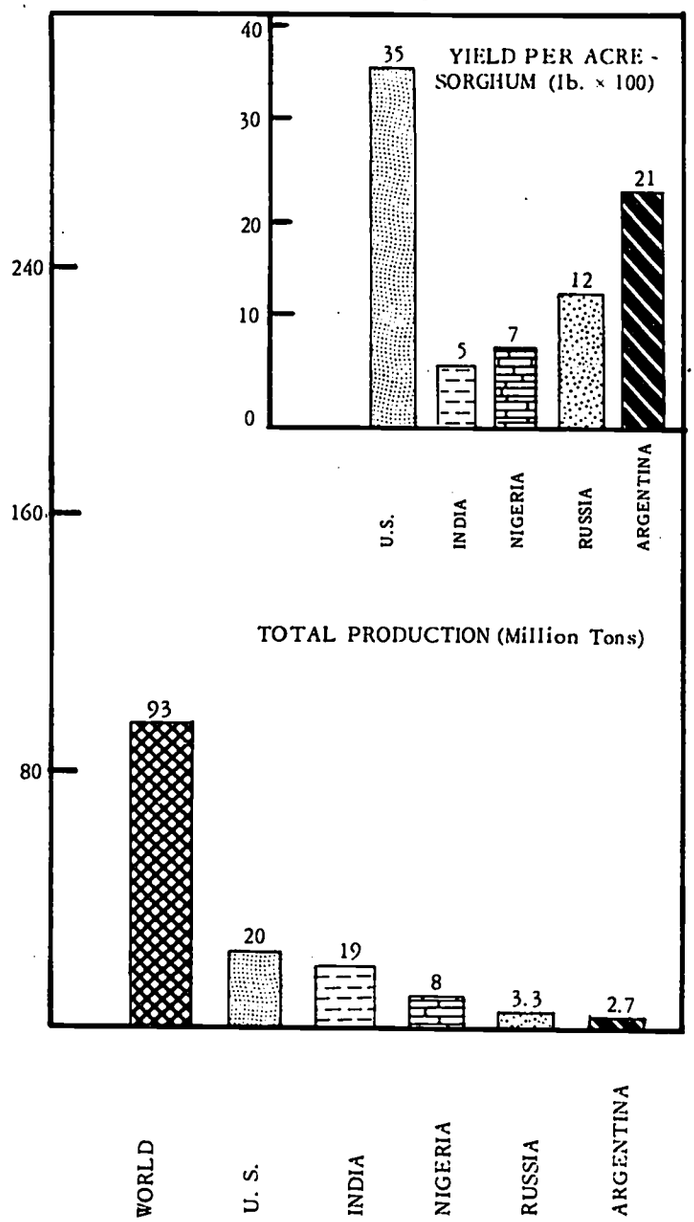


THE SUGAR CROP

- The United States produces about 7% of the total world sugar and is the only country in the top five which grows both sugar beets and sugar cane.
- Russia produces slightly more than 11% of the world's sugar as sugar beets.
- A high percentage of Indian sugar production is non-centrifugal sugar used for home consumption.

7284

SORGHUM and MILLET
World Production and Top 5 Countries

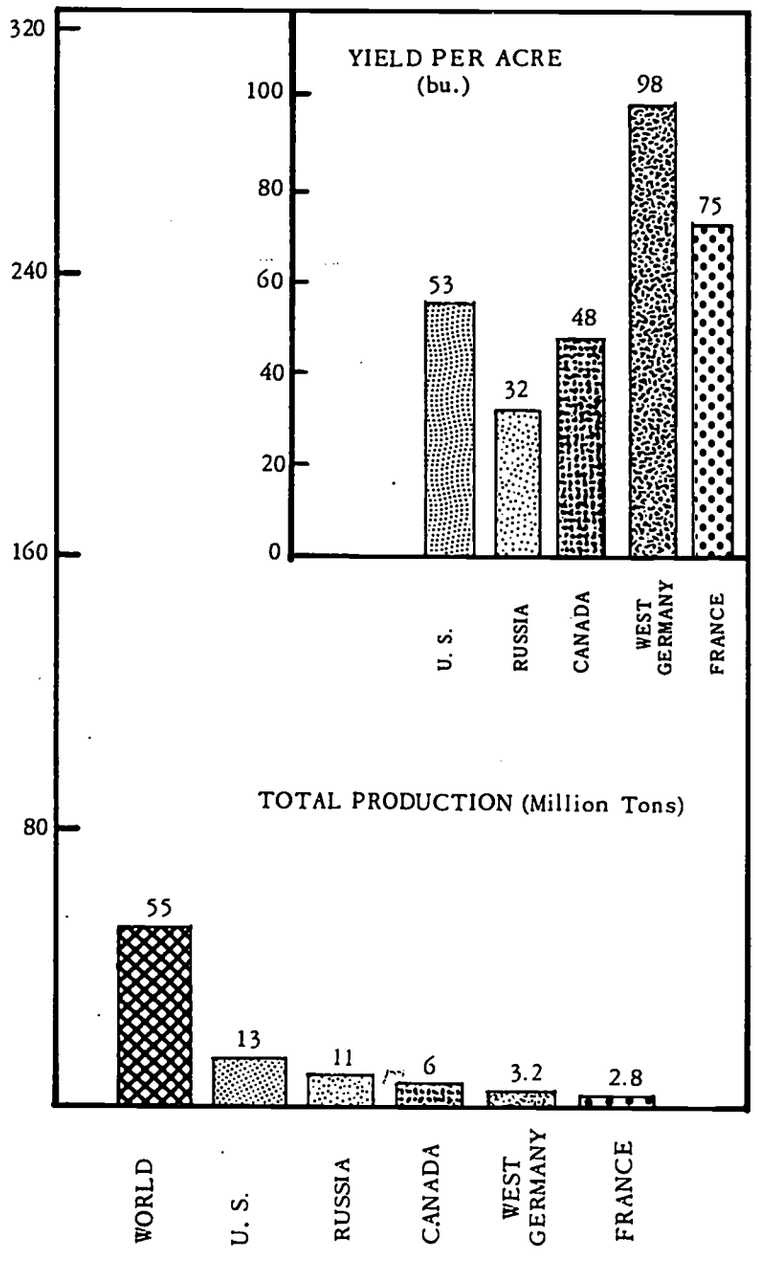


7285

GRAIN SORGHUM AND MILLET CROPS

- Grain sorghum and millet are grown in areas which are too hot and too dry for corn production.
- Grain sorghums in the United States are used for livestock feed. Most of the other producers consume the grain as human food.
- Grain sorghum and millet are known as "the poor man's cereal" in India.
- Yields in the United States are from 1.7 to 7 times those of the other top five producers.

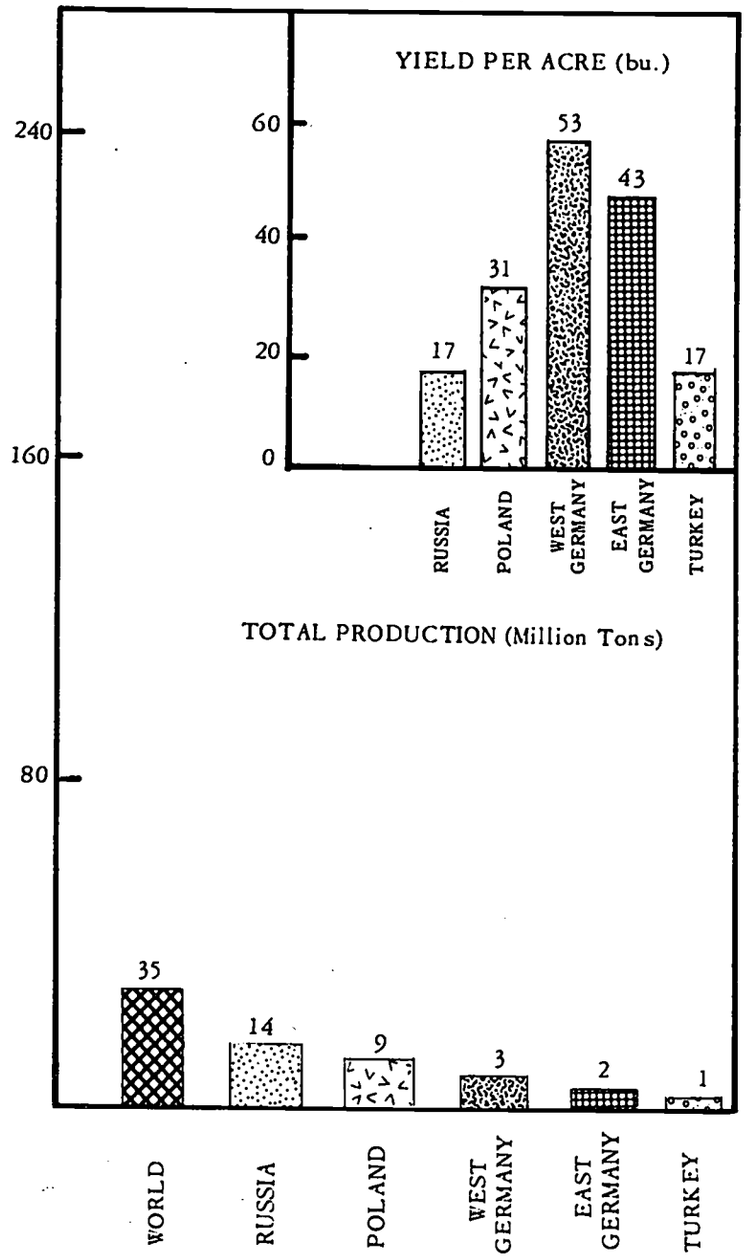
OATS
World Production and Top 5 Countries



THE OAT CROP

- The United States produces about 23.5% of the world's oats.
- West Germany has the highest per acre yields of the top five: 206% higher than Russia; 104% higher than Canada; 85% higher than the United States; and 30% higher than its closest competitor, France.
- Yields per acre in the United States are 69% larger than in Russia.
- Holland has the highest average yield of all oats producers — 104 bushels per acre (1960-64).

RYE
World Production and Top 5 Countries

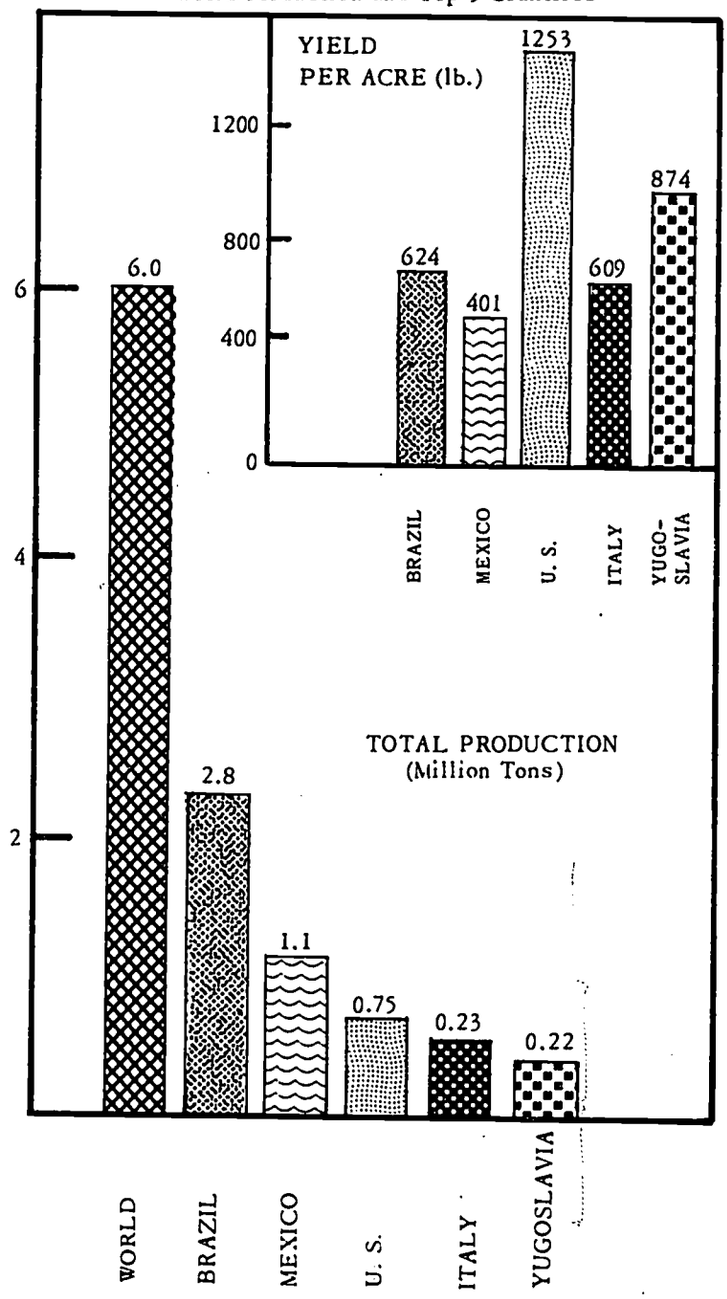


THE RYE CROP

- Russia produces about 40% of the world's rye crop. It is tied for fourth place among the top five producers in yields per acre.
- West Germany has the highest yields per acre of the top five: 212% larger than Russia and Turkey; 70% greater than Poland; and 23% above those of East Germany.
- Switzerland has the highest average yield of all rye producers — 54 bushels per acre (1960-64).

7290

DRY BEANS
World Production and Top 5 Countries



PRODUCTION OF DRY BEANS

- Dry beans primarily include all varieties of the kidney and lima types.
- Nearly two-thirds of the dry bean production is in Brazil and Mexico.
- Third ranking United States grows only 12.5% of the total world production. However, yields are the highest of the top five: 116% greater than those of Brazil and 212% above those of Mexico.
- Holland has the highest average yield of all dry bean producers — 2400 pounds per acre (1960-64), 84% above the United States average.

LEADERS IN PRODUCTION

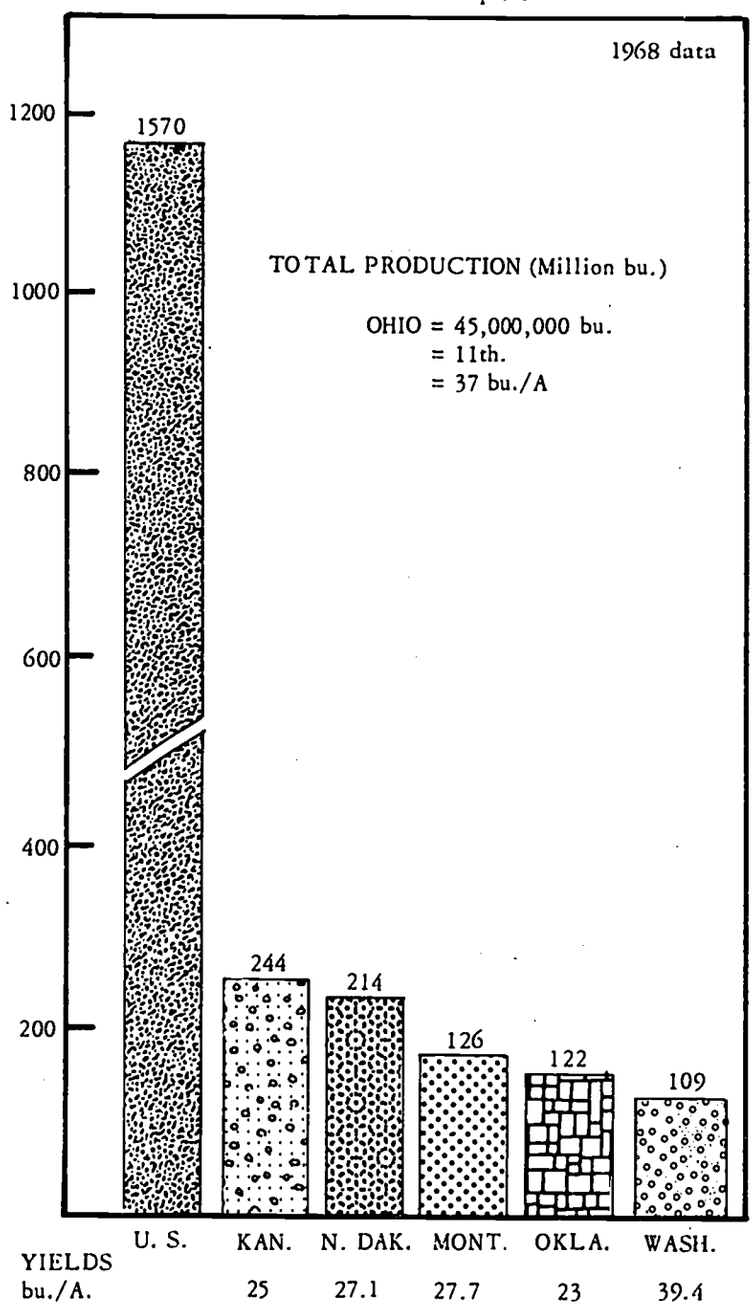
Crop	First Place		U.S. Rank	
	Total Production	Yields per Acre	Total Production	Yields per Acre
Wheat	Russia	Holland	2	25
Rice	Red China	Australia	12	3
Potatoes	Russia	Holland	4	6
Corn	United States	New Zealand	1	2
Barley	Russia	Holland	2	18
Sugar				
Cane	India	United States (Hawaii)	4	1
Beets	Russia	Holland	2	7
Sorghum and Millet	United States	Egypt	1	2
Oats	United States	Holland	1	16
Rye	Russia	Switzerland	7	14
Dry Beans	Brazil	Holland	3	5

Section III
Major World Food Crops

National Rankings
Top Five States

7294

WHEAT
U.S. Production and Top 5 States



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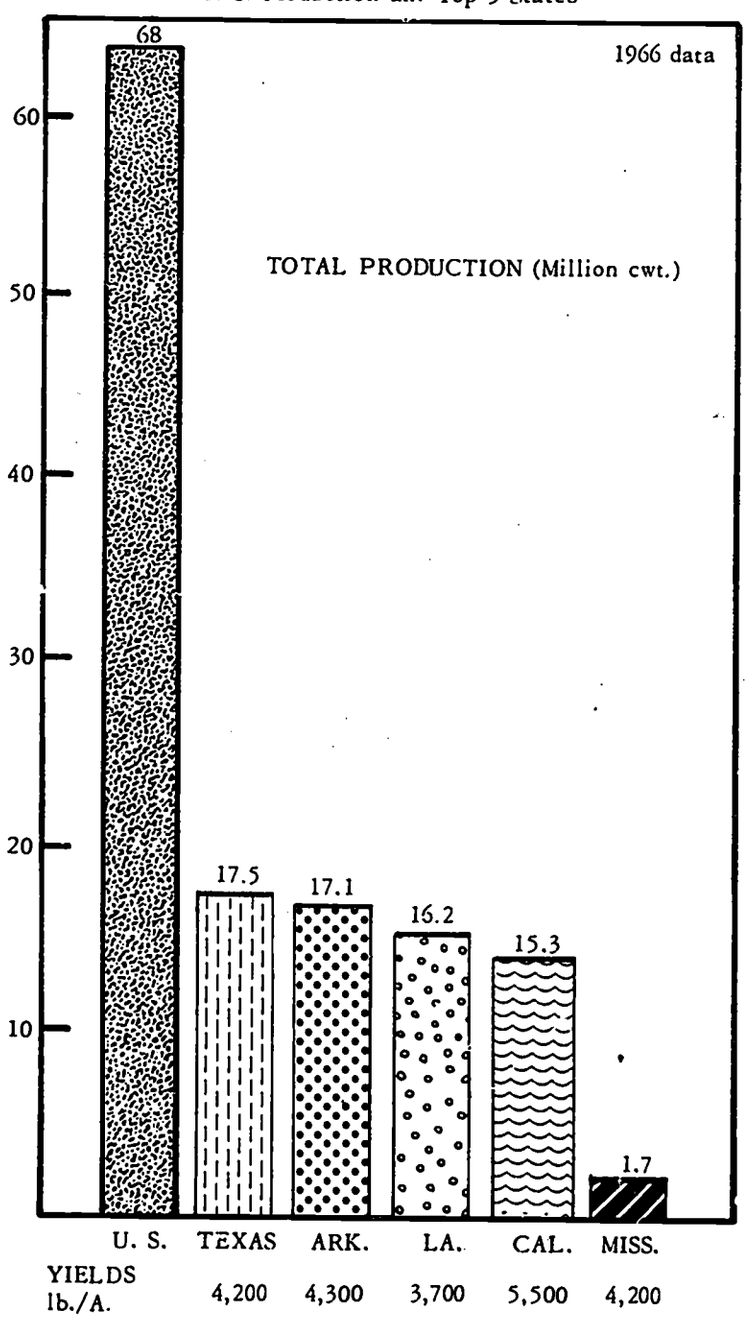
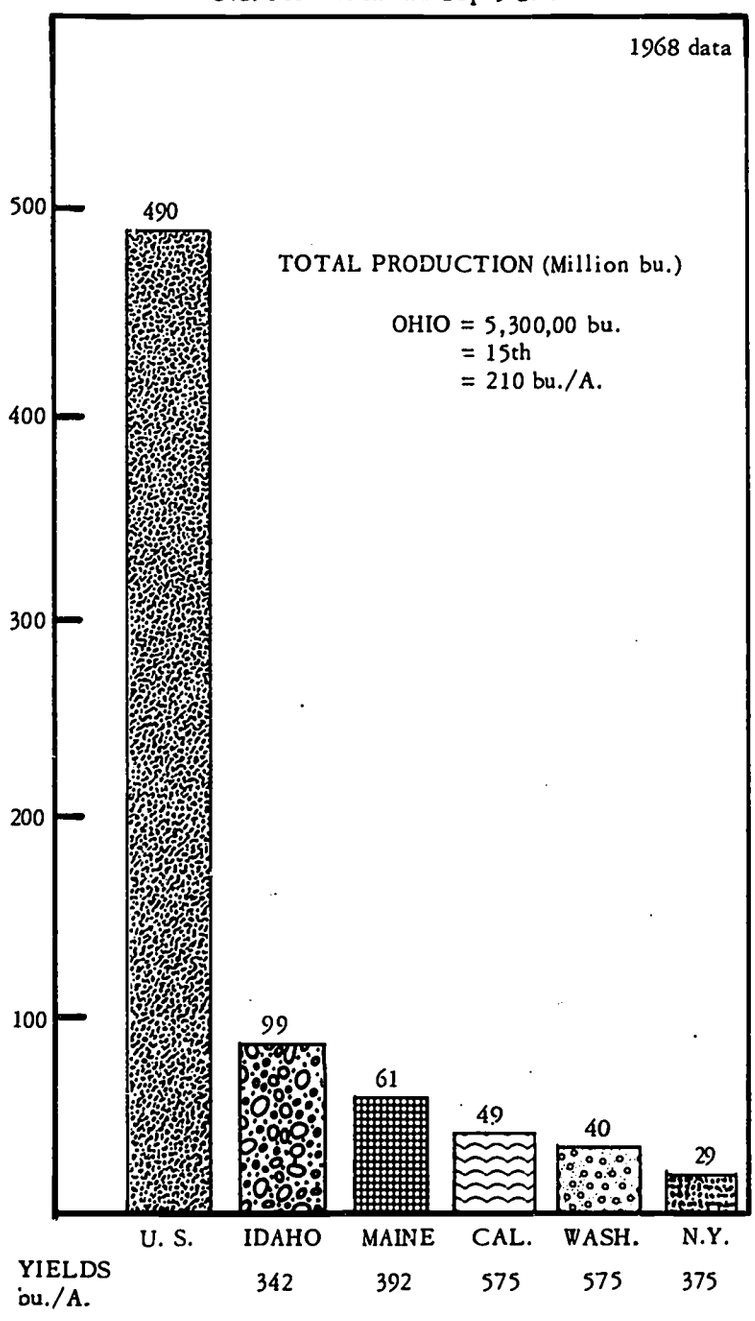
WHEAT

- Hard red winter wheat is grown in Kansas and Oklahoma.
- Hard red spring wheat represents the major production in North Dakota and Montana.
- Both white winter and white spring wheat are grown in Washington. The largest acreage is in white wheat.
- The Ohio production consists of soft red winter wheat.

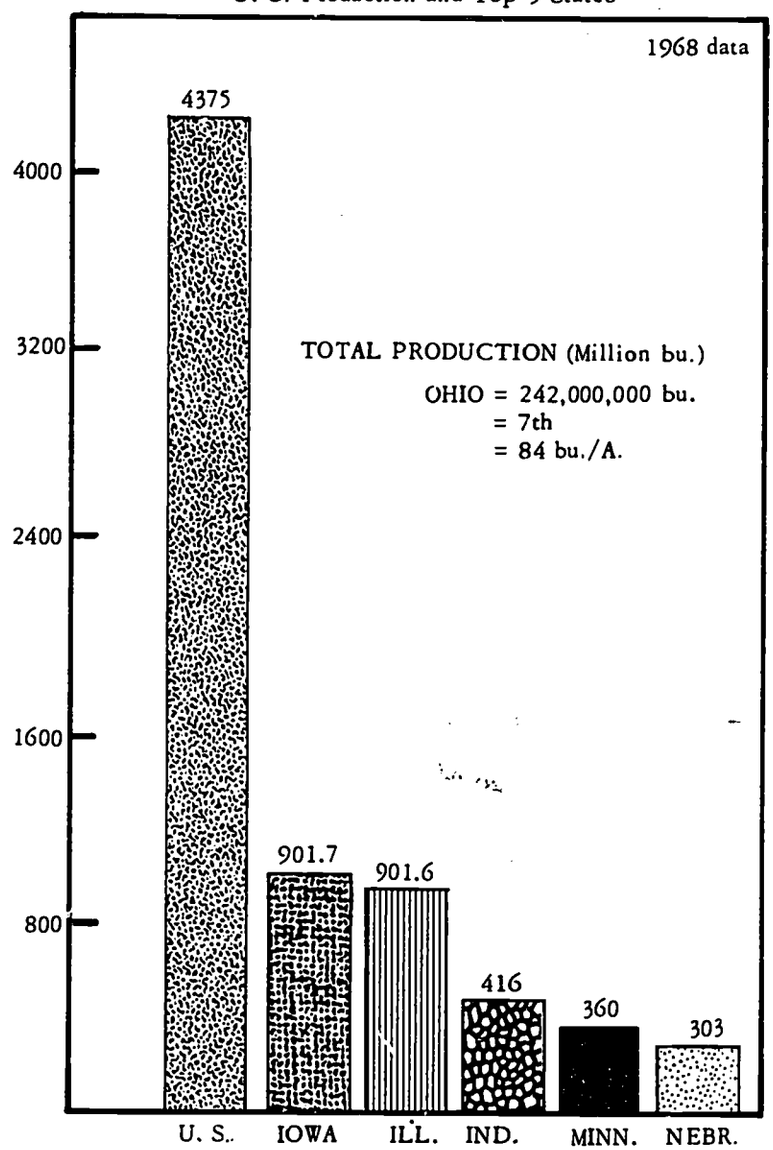
RICE
U. S. Production and Top 5 States



POTATOES
U.S. Production and Top 5 States

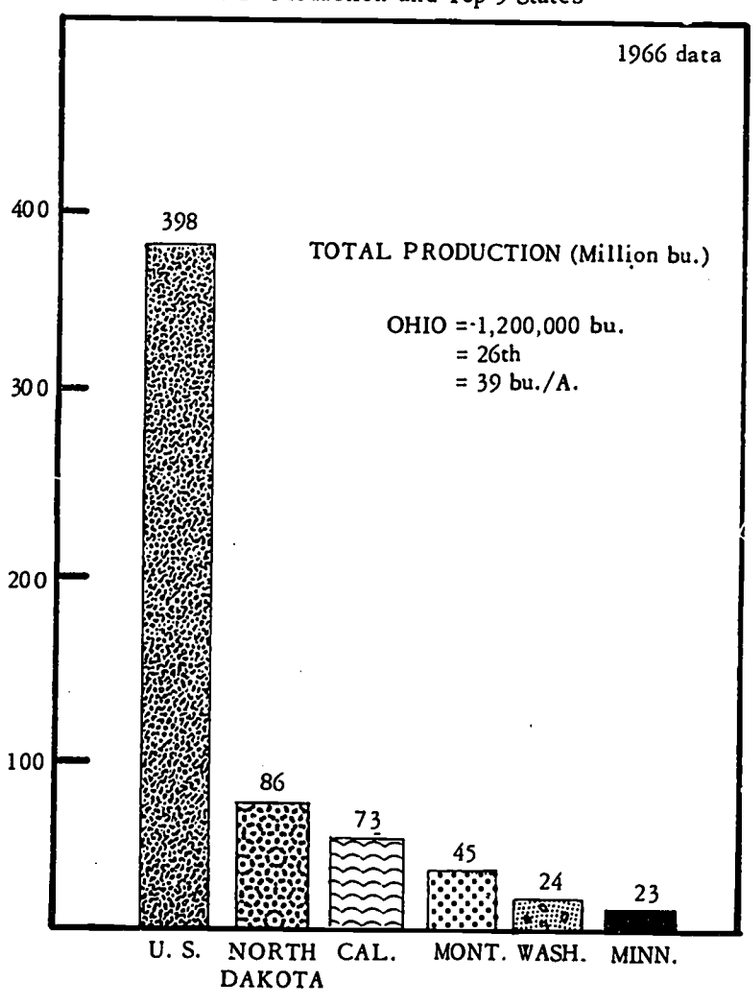


CORN
U. S. Production and Top 5 States



YIELDS bu./A.		IOWA	ILL.	IND.	MINN.	NEBR.
		78	85	82	62	59

BARLEY
U. S. Production and Top 5 States



YIELDS bu./A.		30	52	30	42	33

BARLEY

- Barley production in these five states consists of spring varieties.
- Winter barley is grown in Ohio.

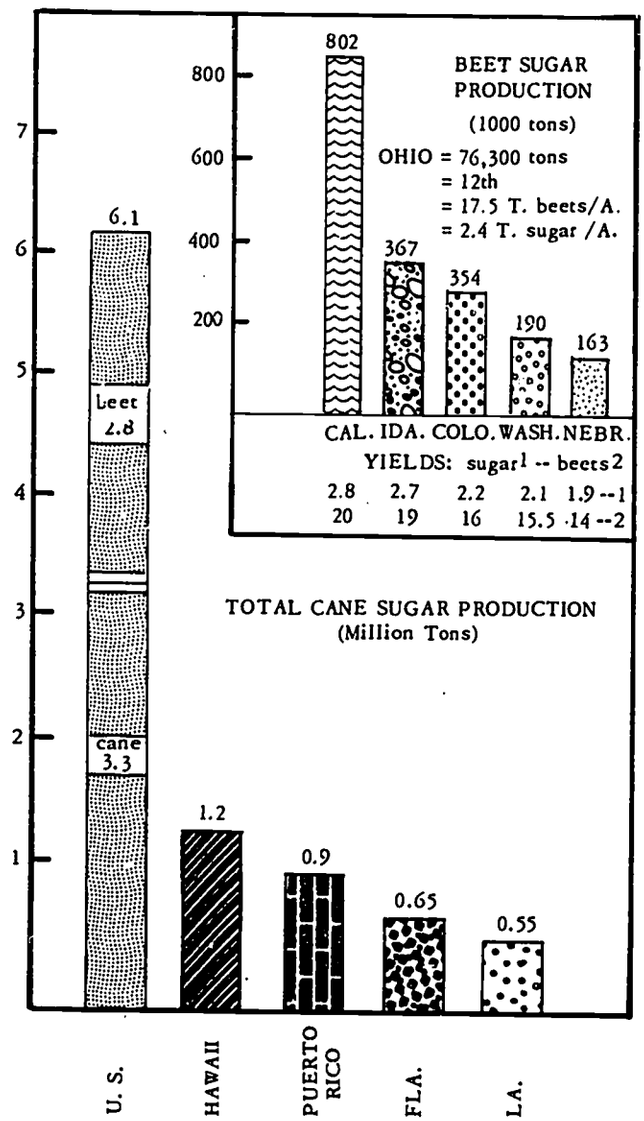
7300

SUGAR

U. S. Production of Beet and Cane Sugar

1966 data

1. Top 5 Beet States
2. Three Cane States + Puerto Rico



YIELDS:				
Sugar - T./A.	11.1	3.2	3.4	1.9

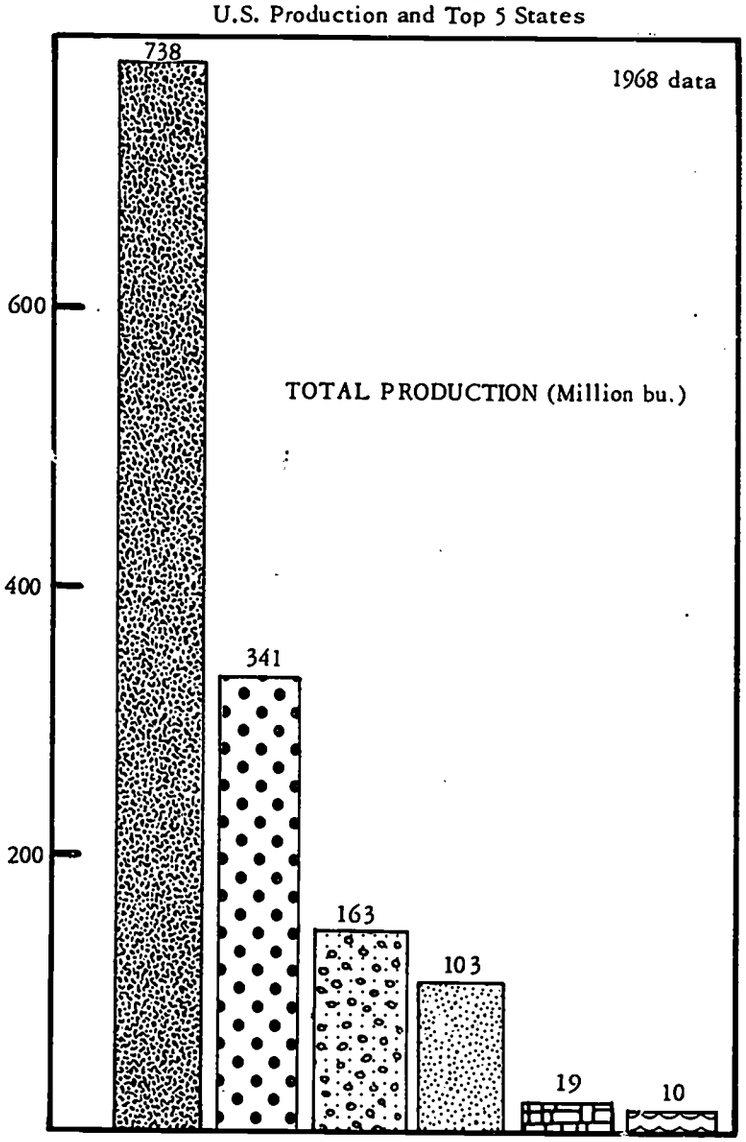
7301

SUGAR

- There are 16 sugar beet-producing states in the United States. The average yield of beets per acre was 18 tons in 1968. Acreages ranged from about 17,000 acres in Arizona to 300,000 in California. Ohio grew nearly 37,000 acres. About 7 tons of beets are required to produce 1 ton of centrifugal sugar.
- Sugar cane is grown as a 1-year crop in Florida and Louisiana. Cane is grown for 2 years in Hawaii before it is harvested. This means that the 11.1 tons of sugar per acre in 2 years is equivalent to 5.5 tons on an annual basis. There were about 300,000 acres of cane grown in Louisiana in 1968; 285,000 were grown in Florida; about 220,000 acres were grown in Hawaii, half of which were harvested. In 1966 it took 11.7 tons of cane to make 1 ton of sugar in Louisiana, 9.3 tons in Florida, and 8.9 tons in Hawaii.
- Puerto Rico grows about 270,000 acres. Part is a 1-year crop and part is 18 months. Approximately 10.7 tons of cane were required to make 1 ton of sugar in 1966.
- The Virgin Islands produced 5,000 tons of cane sugar in 1966.

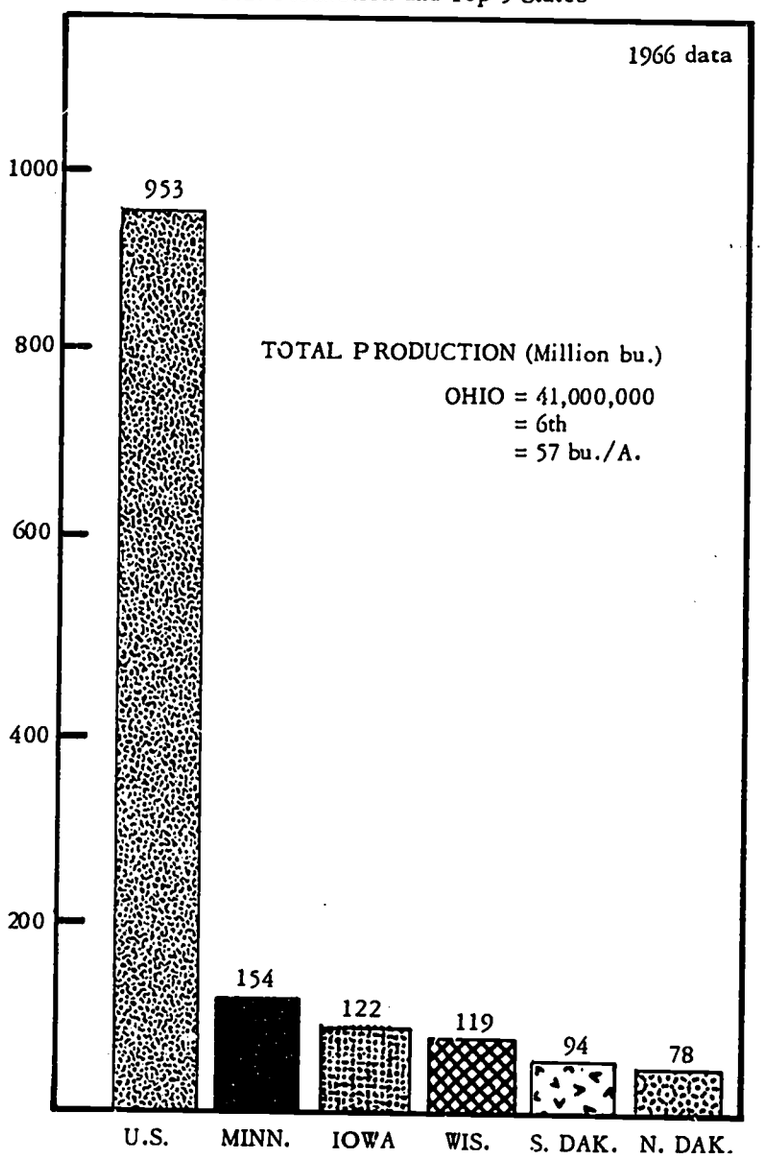
7302

GRAIN SORGHUM
U.S. Production and Top 5 States



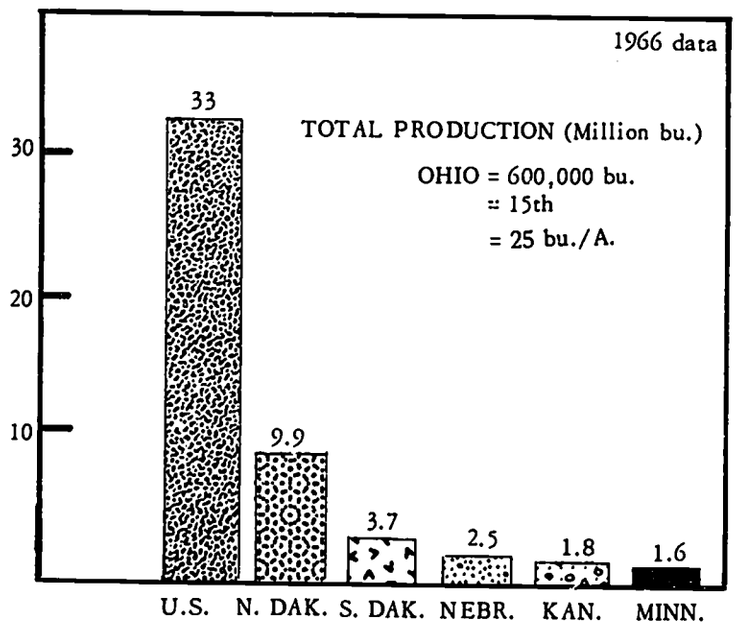
YIELDS bu./A.	U.S.	TEXAS	KAN.	NEBR.	OKLA.	CAL.
		55	47	58	41	70

OATS
U.S. Production and Top 5 States



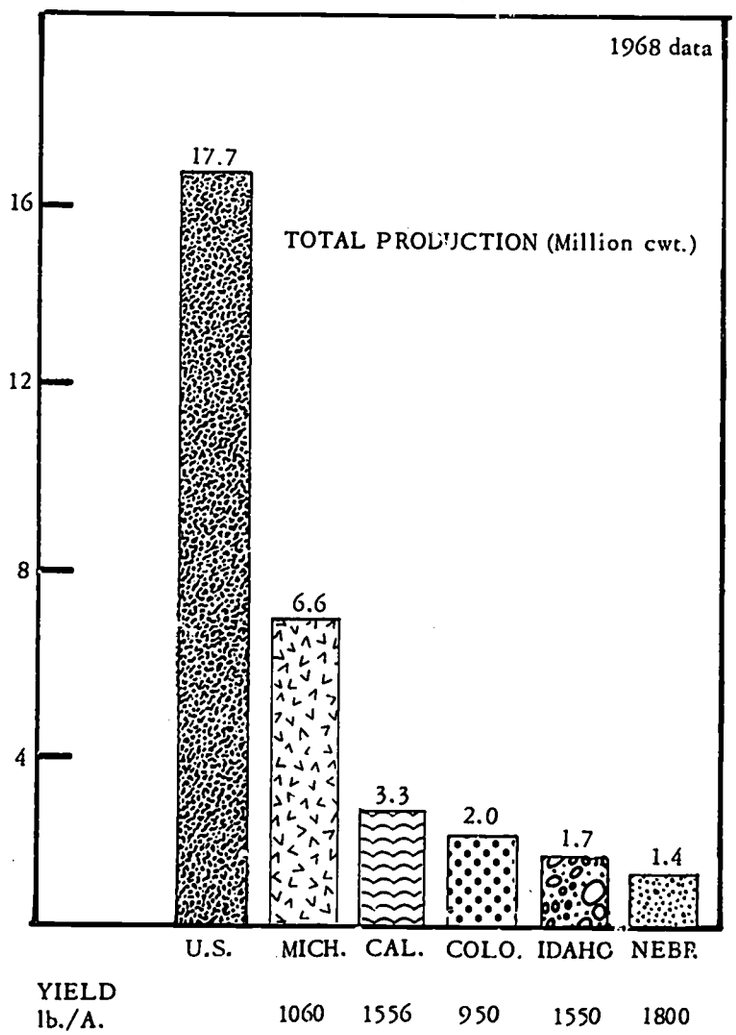
YIELDS bu./A.					
	48	45	57	38	43

RYE
U.S. Production and Top 5 States



YIELDS bu./A.		N. DAK.	S. DAK.	NEBR.	KAN.	MINN.
		23	20	17	11	18

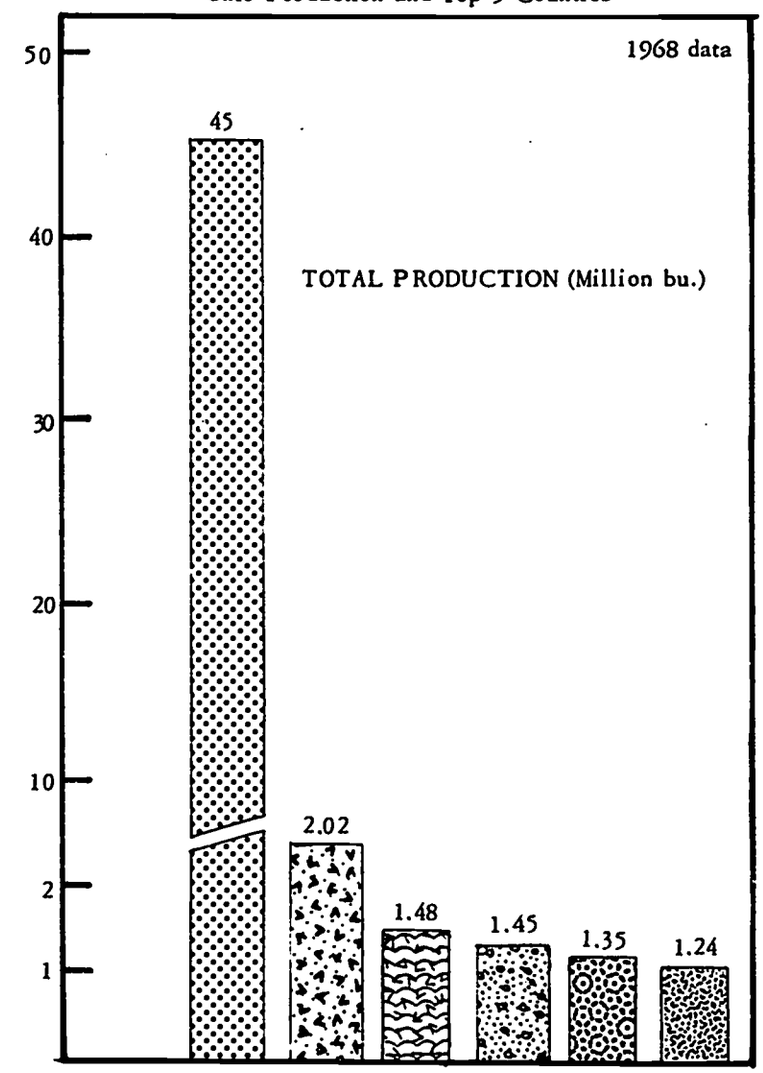
DRY BEANS
U.S. Production and Top 5 States



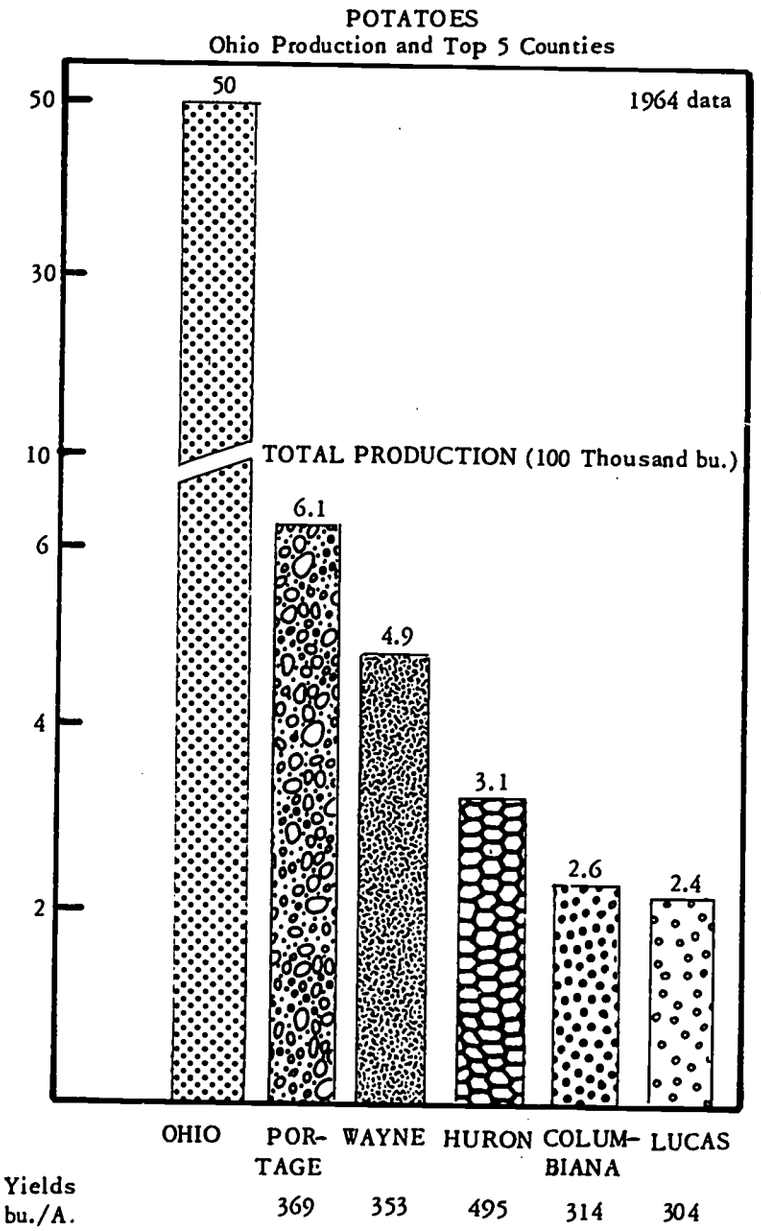
Section IV
Major World Food Crops

Ohio Rankings
Top Five Counties

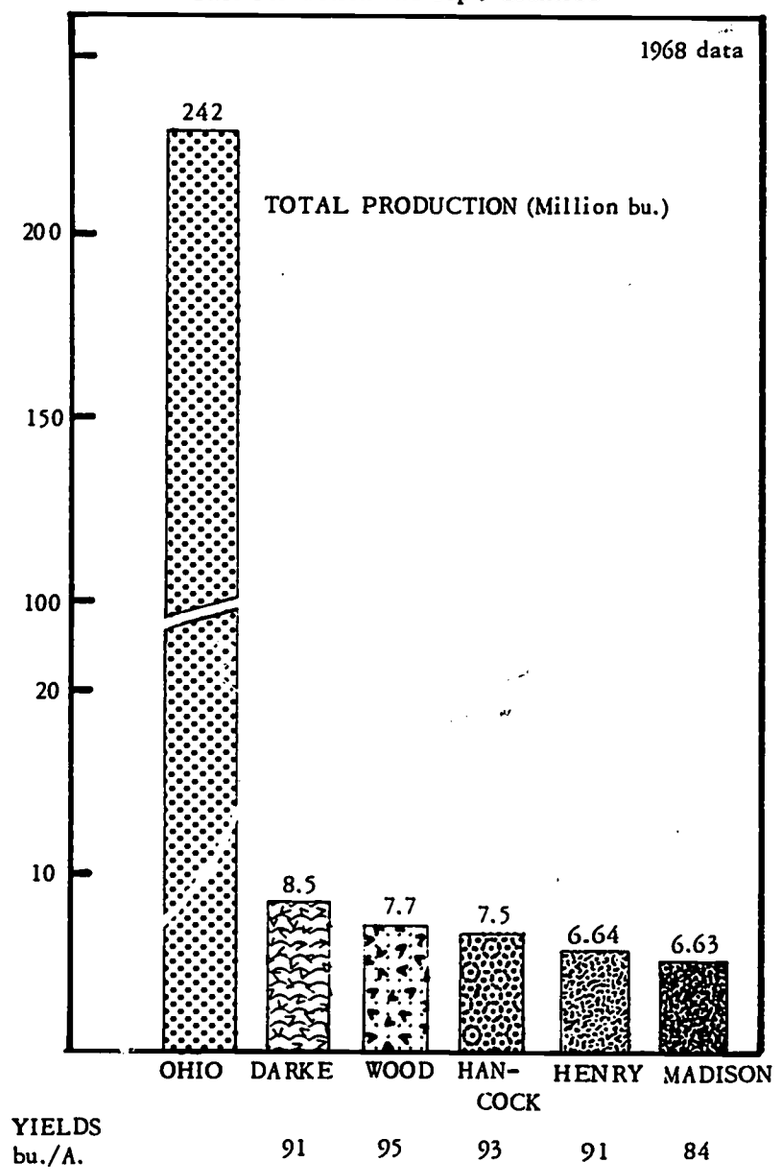
WHEAT
Ohio Production and Top 5 Counties



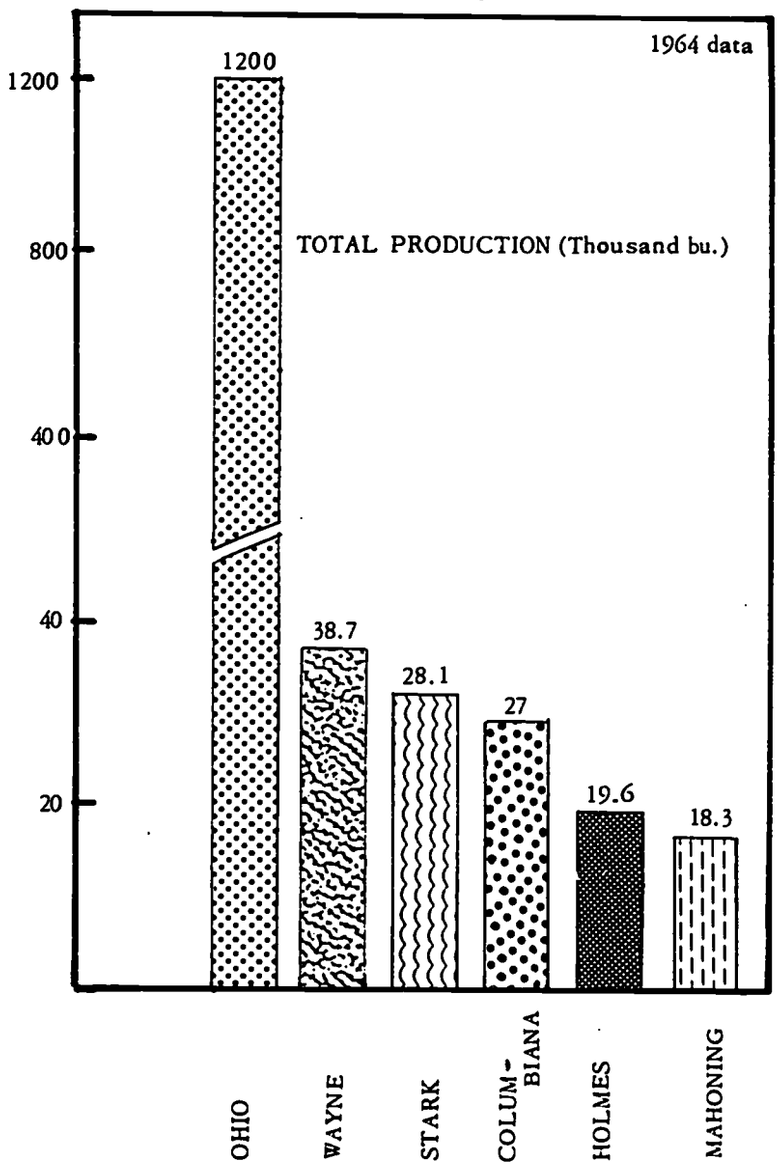
YIELDS bu./A.					
	43	40	40	41	42


POTATOES
Ohio Production and Top 5 Counties
1964 data
TOTAL PRODUCTION (100 Thousand bu.)
50
30
10
6
4
2
50
6.1
4.9
3.1
2.6
2.4
OHIO
POR-TAGE
WAYNE
HURON
COLUM-BIANA
LUCAS
Yields bu./A.
369
353
495
314
304

CORN
Ohio Production and Top 5 Counties



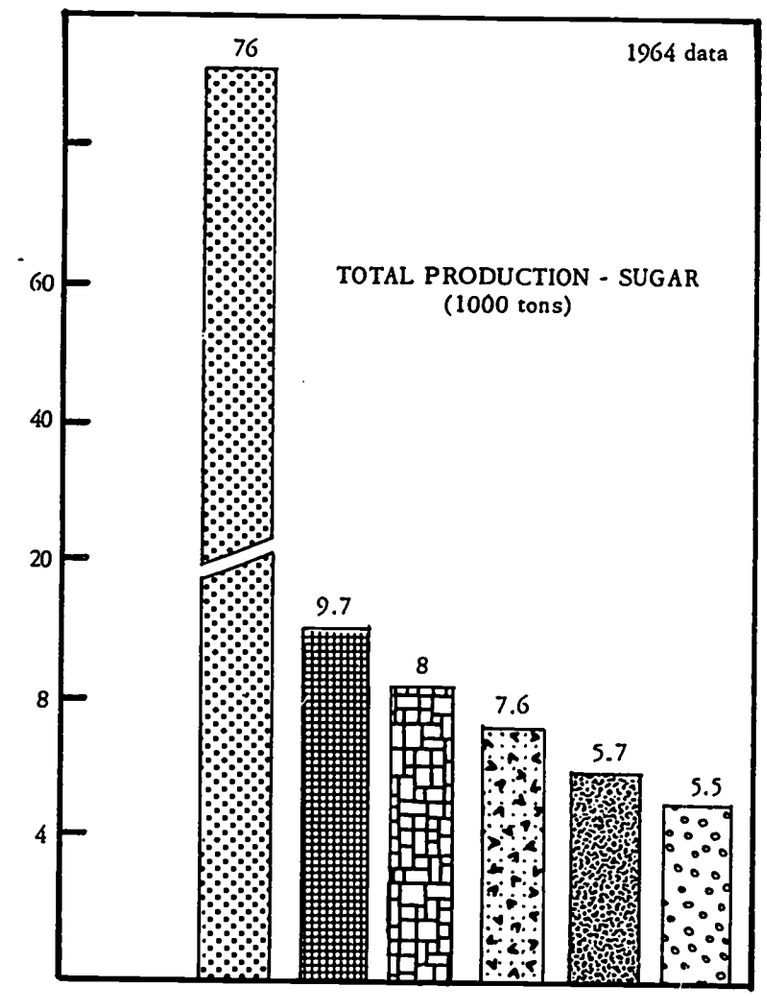
BARLEY
Ohio Production and Top 5 Counties



	OHIO	WAYNE	STARK	COLUM-BIANA	HOLMES	MAHONING
YIELDS bu./A.		50	43	50	38	53

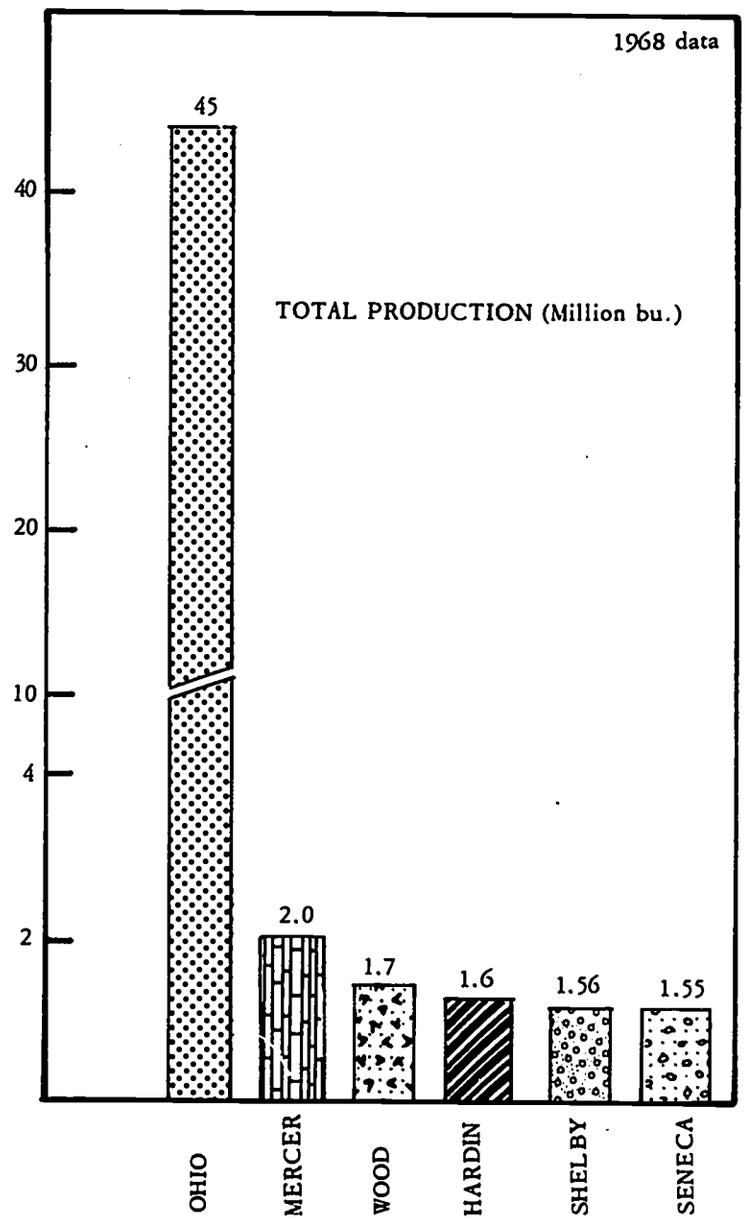
7311

SUGAR
Ohio Production and Top 5 Counties



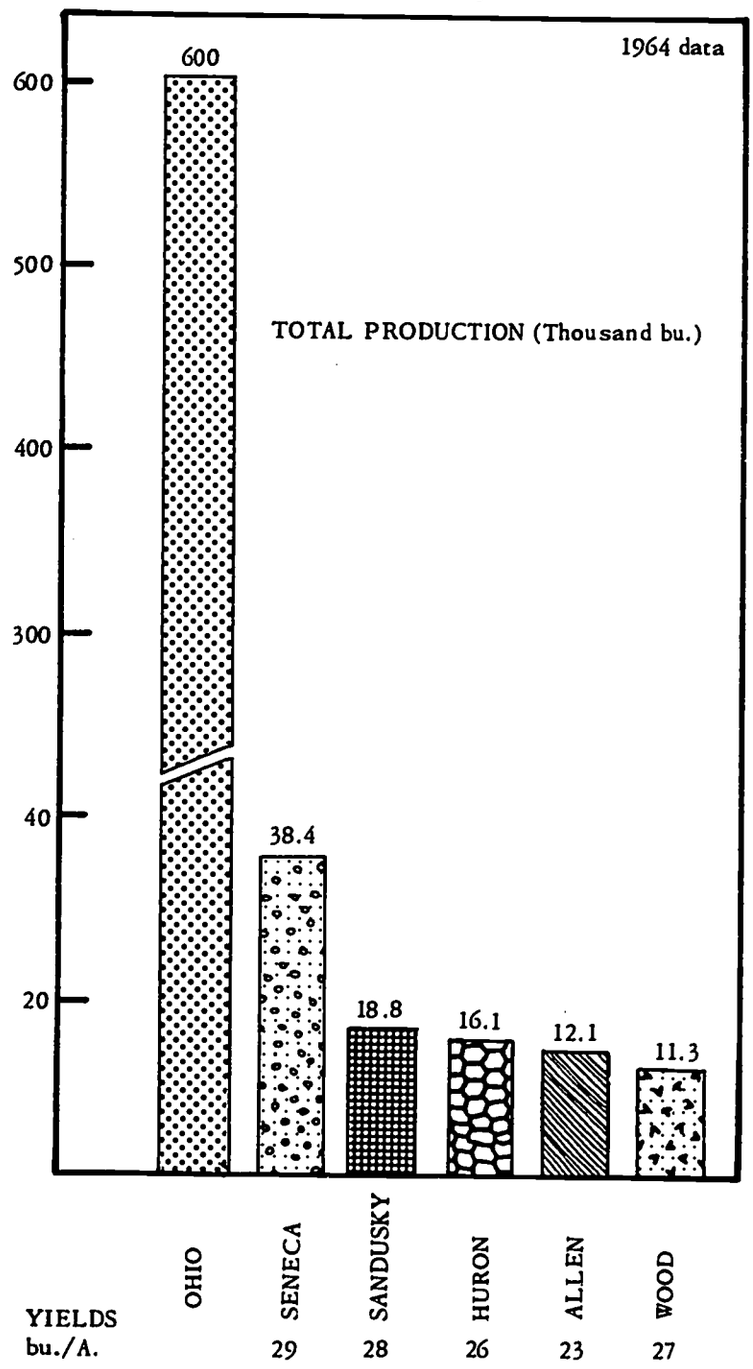
	OHIO	SANDUSKY	PUTNAM	WOOD	HENRY	LUCAS
YIELDS Ton Beets per acre		15	12	14	12	15

OATS
Ohio Production and Top 5 Counties



YIELDS bu./A.					
	72	85	72	69	79

RYE
Ohio Production and Top 5 Counties



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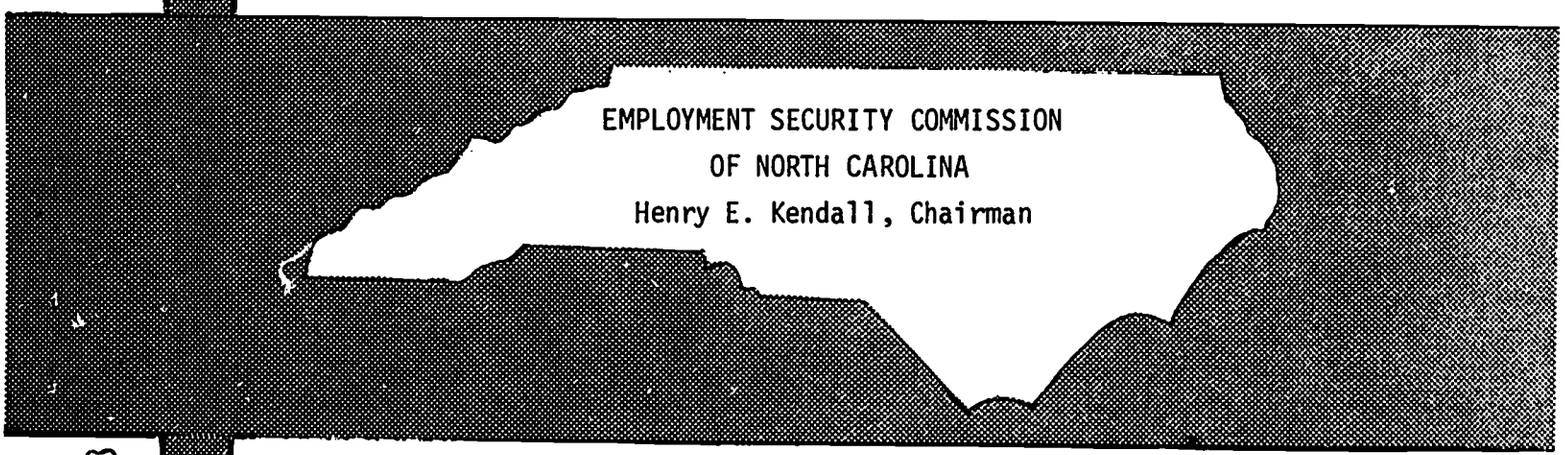
A DIGEST OF

North Carolina Manpower Needs

by industry and occupation to 1975



EMPLOYMENT SECURITY COMMISSION
OF NORTH CAROLINA
Henry E. Kendall, Chairman

Prepared By: BUREAU OF EMPLOYMENT SECURITY RESEARCH

JULY, 1971

ATO 7316

INTRODUCTION

Current and future employment data are vital for the successful implementation of vocational training programs. Realizing this, the Bureau of Employment Security Research undertook the task of meeting these data needs. This study uses the least-squares regression technique and a national industry-occupational matrix. The U. S. Bureau of Labor Statistics has developed a four-volume publication entitled Tomorrow's Manpower Needs which, along with a companion Handbook for Projecting Employment by Occupation for States and Major Areas, prepared by the U. S. Manpower Administration, served as a guidebook for our efforts.

Patterned after the national study, projections of North Carolina's manpower needs have been made to 1975, with plans already initiated to update these estimates as more current data become available. The industry and occupational estimates contained in this study were made under the following economic assumptions:

1. The national economy is expected to continue to grow at a moderate pace through target year 1975 and beyond.

2. Technological advances will continue to effect a need for more sophisticated and better trained workers.

3. North Carolina is expected to reflect moderate to substantial economic growth in a pattern not appreciably different than that experienced over the last decade.

4. Total unemployment in North Carolina will be approximately 4 percent in 1975, reflecting a slight increase over the rate experienced during the past decade.

5. New tensions may continue to emerge on several international fronts.

HIGHLIGHTS

Population and Labor Force

Total population in North Carolina is estimated to be about 5.3 million in 1975, representing an annual growth rate of 1.2 percent during the study period. The total civilian work force grew at a slightly faster pace than total population. According to 1960 Census data, the rate of participation for the state's age 14-and-over work force was 56.3 percent. In 1970, the estimated rate stands at about 60.5 percent, and this rate will probably remain fairly constant to terminal year 1975.

Industry Trends

Total employment in North Carolina is projected to increase at an average yearly rate of 2.0 percent during the survey period, slightly higher than the anticipated rate of 1.9 percent for the nation as a whole. Manufacturing will continue to grow in relative importance on the state level but decline somewhat nationally. The percentage of total state employment claimed by manufacturing will increase from about 30 percent in 1960 to nearly 35 percent in 1975.

Employment in the services industry stood at 439,625, or 21.3 percent of all workers in the state in 1968. These figures will increase to 512,665 and 22.1 percent respectively by 1975, a slightly slower rate of growth than is expected nationwide.

Service-producing industries surpassed goods-producing industries in terms of employment in 1965. Nearly 55 percent of all jobs were in the goods-producing industries in 1960, while only slightly more than 47 percent will be in these industries in 1975. Much of this transition can be traced to the sharp reduction in agricultural employment during the sixties.

Occupational Trends

Clerical and kindred workers, operatives, and professional, technical and kindred workers gained employment at the greatest rate from 1960 to 1968.

The professional, technical and kindred group is expected to lead in the rate of growth from 1968 to 1975, followed closely by sales workers and managers, officials and proprietors. As for the number of workers needed for expansion purposes, the craftsmen and clerical groups are expected to lead all occupations during the same period.

Craftsmen, foremen and kindred, clerical and service occupations will experience moderate growth from 1968 to 1975, while operatives and kindred employment will rise at a much slower rate during this period than was recorded for the 1960-1968 period.

A small decline in employment is projected for laborers, excluding farm and mine, from 1968 to 1975. The number of farmers and farm workers decreased substantially from 1960 to 1968, and a slightly reduced rate of decline is expected by 1975.

Manpower Requirements and Resources

An estimated 614,420 new job opportunities will be created from 1969 to 1975 through industrial expansion and replacement of workers because of deaths and retirements. For every 100 openings created by expansion, 144 new workers will be needed for replacement purposes. Total job opportunities during the 1969-1975 period for each occupational division are listed as follows:

Operatives and Kindred Workers	120,160
Clerical and Kindred	106,265
Service Workers	97,995
Craftsmen, Foremen and Kindred	87,265
Professional, Technical and Kindred	80,855
Sales Workers	55,775
Managers, Officials and Proprietors	51,520
Laborers, except Farm and Mine	7,845
Farmers and Farm Workers	6,740
Total, all Occupations	614,420

TABLE 1
TOTAL INDUSTRY EMPLOYMENT IN THE UNITED STATES AND NORTH CAROLINA
WITH AVERAGE ANNUAL GROWTH RATES FROM 1960 TO 1975

INDUSTRY	EMPLOYMENT (THOUSANDS)				ANNUAL GROWTH RATE 1960 - 1975	
	UNITED STATES		NORTH CAROLINA			
	1960	1975 1/	1960	1975	U. S.	N. C.
TOTAL, ALL INDUSTRIES	66,681.0	88,660.0	1,705.4	2,316.2	1.9	2.0
AGRIC., FORESTRY & FISHERIES	5,816.0	3,875.0	308.2	122.2	-2.7	-5.8
MINING	723.0	640.0	3.5	4.2	- .8	1.2
CONSTRUCTION	4,068.0	5,675.0	96.2	163.5	2.2	3.5
MANUFACTURING	17,307.0	20,625.0	522.7	804.7	1.2	2.8
DURABLE GOODS	9,749.0	11,995.0	152.0	254.0	1.4	3.4
LUMBER & WOOD PRODUCTS	688.0	615.0	38.0	32.2	- .8	-1.1
FURNITURE & FIXTURES	395.0	535.0	45.6	84.4	2.0	4.0
STONE, CLAY & GLASS	614.0	675.0	10.9	18.3	.6	3.4
FABRICATED METALS	1,362.0	1,830.0	9.8	15.0	2.0	2.8
NONELECTRICAL MACHINERY	1,499.0	2,110.0	12.4	34.6	2.3	6.3
ELECTRICAL EQUIP. & SUPPLIES	1,465.0	2,035.0	25.7	41.6	2.2	3.2
INSTRUMENTS & REL. PRODS.	403.0	540.0	0.9	6.2	2.0	10.0
OTHER DURABLES 2/	3,323.0	3,655.0	8.9	21.7	.6	5.6
NONDURABLE GOODS	7,558.0	8,630.0	370.7	550.7	.9	2.6
FOOD & KINDRED PRODS.	1,813.0	1,710.0	34.5	48.0	- .4	2.2
TEXTILE MILL PRODUCTS	919.0	890.0	224.8	293.1	- .2	1.8
APPAREL & RELATED PRODS.	1,241.0	1,550.0	36.0	100.8	1.5	6.3
PAPER & ALLIED PRODS.	597.0	790.0	14.6	18.0	1.9	1.4
PRINTING & PUBLISHING	1,114.0	1,365.0	10.1	17.3	1.4	3.5
CHEMICALS & ALLIED PRODS.	833.0	1,140.0	13.2	31.6	2.1	5.5
OTHER NONDURABLE GOODS 3/	1,041.0	1,185.0	37.3	41.9	.9	.8
TRANSP., COMM., & P. UTILITIES	4,538.0	5,390.0	76.6	120.7	1.2	3.0
WHOLESALE & RETAIL TRADE	13,365.0	18,455.0	278.1	426.3	2.1	2.8
FINANCE, INSURANCE & R. ESTATE	2,852.0	3,980.0	45.5	83.3	2.2	3.9
SERVICES	14,794.0	24,880.0	323.0	512.7	3.5	3.0
PUBLIC ADMINISTRATION 4/	3,218.0	5,140.0	51.6	78.7	3.2	2.8

1/ NATIONAL PROJECTIONS PREPARED BY THE BUREAU OF LABOR STATISTICS IN TOMORROW'S MANPOWER NEEDS, VOLUMES 1-4.
2/ INCLUDES PRIMARY METALS, TRANSPORTATION EQUIPMENT AND MISCELLANEOUS MANUFACTURING.
3/ INCLUDES TOBACCO MANUFACTURING; PETROLEUM & COAL PRODUCTS; RUBBER AND PLASTIC PRODUCTS; AND LEATHER AND LEATHER PRODUCTS.
4/ INCLUDES GOVERNMENT WORKERS ENGAGED IN ACTIVITIES UNIQUE TO GOVERNMENT; THOSE ENGAGED IN ACTIVITIES ALSO CARRIED ON BY PRIVATE ENTERPRISES ARE CLASSIFIED IN THEIR APPROPRIATE INDUSTRY.

TABLE 2
TOTAL OCCUPATIONAL EMPLOYMENT IN NORTH CAROLINA FOR 1960, 1968 AND PROJECTED 1975 WITH AVERAGE ANNUAL GROWTH RATES FROM 1960-1968 AND 1968-1975

OCCUPATIONAL GROUP	EMPLOYMENT			ANNUAL GROWTH RATE (PERCENT)	
	1960	1968	1975	1960-1968	1968-1975
TOTAL, ALL OCCUPATIONS	1,705,350	2,064,000	2,316,160	2.4	1.6
PROFESSIONAL, TECHNICAL & KINDRED	140,860	187,655	231,985	3.6	3.0
ENGINEERS, TECHNICAL	9,585	15,000	23,045	5.5	6.0
MEDICAL & OTHER HEALTH WORKERS	26,245	33,360	40,950	3.0	3.0
TEACHERS	51,095	65,380	67,295	3.1	0.4
NATURAL SCIENTISTS	2,050	3,105	4,820	5.1	6.2
SOCIAL SCIENTISTS	410	590	820	4.5	4.7
TECHNICIANS, EXC. MEDICAL & DENTAL	8,090	11,360	16,710	4.2	5.5
OTHER PROF., TECH. & KINDRED	43,385	58,860	78,345	3.8	4.1
MANAGERS, OFFICIALS & PROPRIETORS	120,420	141,985	173,725	2.1	2.9
CLERICAL AND KINDRED WORKERS	169,350	237,375	284,035	4.2	2.6
STENOS, TYPISTS AND SECRETARIES	40,655	62,190	74,900	5.2	2.7
OFFICE MACHINE OPERATORS	3,565	5,305	7,655	4.9	5.2
OTHER CLERICAL AND KINDRED	125,130	169,880	201,480	3.9	2.4
SALES WORKERS	113,655	133,925	164,030	2.1	2.9
CRAFTSMEN, FOREMEN & KINDRED WORKERS	209,820	275,660	335,210	3.4	2.8
CONSTRUCTION CRAFTSMEN	68,850	87,370	97,700	3.0	1.6
FOREMEN, N. E. C.	31,035	41,235	54,560	3.5	4.0
METALWORKING CRAFTSMEN, EXC. MECHANICS	13,325	17,890	20,700	3.7	2.1
MECHANICS AND REPAIRMEN	57,100	80,275	102,135	4.2	3.4
PAINTING TRADES CRAFTSMEN	4,155	5,410	5,685	3.3	0.7
TRANSPORTATION, PUB. UTILITY CRAFTSMEN	6,460	8,680	10,675	3.7	2.9
OTHER CRAFTSMEN & KINDRED	28,895	34,800	43,755	2.3	3.3
OPERATIVES AND KINDRED WORKERS	444,370	618,000	656,450	4.1	0.9
DRIVERS AND DELIVERYMEN	65,880	80,570	101,495	2.5	3.3
TRANSPORTATION, PUBLIC UTILITY OPERATIVES	2,420	2,675	3,020	1.3	1.7
SEMI-SKILLED METALWORKERS	172,850	269,390	271,280	5.5	0.1
SEMI-SKILLED TEXTILE OCCUPATIONS	80,925	119,405	111,890	4.8	- 0.9
OTHER OPERATIVES AND KINDRED	122,295	145,960	168,765	2.2	2.1
SERVICE WORKERS	195,800	239,615	275,550	2.5	2.0
PRIVATE HOUSEHOLD WORKERS	79,100	85,655	93,300	1.0	1.2
PROTECTIVE SERVICE WORKERS	13,300	16,655	17,340	2.8	0.6
FOOD SERVICE WORKERS	31,935	46,985	58,910	4.8	3.2
OTHER SERVICE WORKERS	71,465	90,320	106,000	2.9	2.3
LABORERS, EXCEPT FARM & MINE	90,225	95,320	93,430	0.7	-0.3
FARMERS AND FARM WORKERS	220,850	134,465	101,745	-6.1	-4.0

TABLE 3: TOTAL EMPLOYMENT IN NORTH CAROLINA BY MAJOR INDUSTRY, 1960, 1968, AND PROJECTIONS TO 1975

INDUSTRY	ANNUAL AVERAGE EMPLOYMENT			NET CHANGE	
	1960	1968	1975	1960-1975	1968-1975
TOTAL, ALL INDUSTRIES	1,705,350	2,064,000	2,316,160	610,810	252,160
AGRICULTURE, FORESTRY & FISHERIES	308,230	182,540	122,205	-186,025	- 60,335
AGRICULTURE	305,805	179,330	118,510	-187,295	- 60,820
FORESTRY	810	1,310	1,760	950	450
FISHERIES	1,615	1,900	1,935	320	35
MINING	3,535	3,865	4,200	665	335
METAL MINING	600	35	110	- 490	75
COAL MINING	0	10	10	10	0
CRUDE PETROLEUM AND NATURAL GAS	5	20	20	15	0
NONMETALLIC MINING AND QUARRYING	2,930	3,800	4,060	1,130	260
CONTRACT CONSTRUCTION	96,180	131,190	163,525	67,345	32,335
MANUFACTURING	522,650	708,585	804,660	282,010	96,075
DURABLE GOODS MANUFACTURING	151,990	215,955	253,995	102,005	38,040
LUMBER AND WOOD PRODUCTS, EXCEPT FURNITURE	37,955	33,710	32,300	- 5,655	- 1,410
LOGGING CAMPS AND CONTRACTORS	5,675	6,075	7,200	1,525	1,125
SAWMILLS, MILLWORK, MISCELLANEOUS WOOD PRODUCTS	32,280	27,635	25,100	- 7,180	- 2,535
FURNITURE AND FIXTURES	45,590	66,315	84,360	38,770	18,045
STONE, CLAY, AND GLASS	10,865	14,510	18,285	7,420	3,775
GLASS AND GLASS PRODUCTS	1,945	3,585	5,200	3,255	1,615
CEMENT, CONCRETE AND PASTER	3,955	5,160	6,450	2,495	1,290
STRUCTURAL CLAY PRODUCTS	2,670	2,945	3,390	720	445
POTTERY AND RELATED PRODUCTS	80	80	115	35	35
MISCELLANEOUS NONMETAL MINERAL AND STONE PRODUCTS	2,215	2,740	3,130	915	390
PRIMARY METAL INDUSTRIES	2,545	5,850	7,085	4,540	1,235
BLAST FURNACES AND STEEL WORKS	0	65	105	105	40
OTHER PRIMARY METAL INDUSTRIES	1,325	1,940	2,575	1,250	635
PRIMARY NONFERROUS METALS	1,220	3,845	4,405	3,185	560
FABRICATED METAL PRODUCTS, N.E.C.	9,780	13,080	14,965	5,185	1,885
MACHINERY, EXCEPT ELECTRICAL	12,390	27,245	34,590	22,200	7,345
FARM MACHINERY AND EQUIPMENT	1,355	1,940	2,660	1,305	720
OFFICE MACHINERY	315	3,720	4,300	3,985	580
MISCELLANEOUS MACHINERY	10,720	21,585	27,630	16,910	6,045
ELECTRICAL MACHINERY, EQUIPMENT AND SUPPLIES	25,655	39,885	41,590	15,935	1,705
TRANSPORTATION EQUIPMENT	3,805	6,830	8,740	4,935	1,910
MOTOR VEHICLES AND EQUIPMENT	2,085	2,610	3,300	1,215	690
AIRCRAFT AND PARTS	375	310	765	390	455
SHIP AND BOATBUILDING AND REPAIRS	1,070	1,805	2,380	1,310	575
RAILROAD AND OTHER TRANSPORTATION EQUIPMENT	275	2,105	2,295	2,020	190
PROFESSIONAL AND SCIENTIFIC INSTRUMENTS	865	3,715	6,230	5,365	2,515
INSTRUMENTS EXCEPT CLOCKS	325	2,390	4,270	3,945	1,880
WATCHES AND CLOCK DEVICES	540	1,325	1,960	1,420	635
MISCELLANEOUS MANUFACTURING	2,540	4,815	5,850	3,310	1,035
NONDURABLE GOODS MANUFACTURING	370,660	492,630	550,665	180,005	58,035
FOOD AND KINDRED PRODUCTS	34,550	40,920	47,985	13,435	7,065
MEAT PRODUCTS	7,940	11,870	14,700	6,760	2,830
DAIRY PRODUCTS	5,470	5,305	5,420	- 50	115
CANNING, PRESERVING AND FREEZING	2,135	3,305	4,775	2,640	1,470
GRAIN MILL PRODUCTS	3,995	3,855	3,980	- 15	125
BAKERY PRODUCTS	7,365	7,960	8,400	1,035	440
BEVERAGE INDUSTRIES	4,905	5,730	7,985	3,080	2,255
OTHER FOOD PRODUCTS	2,740	2,895	2,725	- 15	- 170
TOBACCO MANUFACTURES	33,600	30,670	25,920	- 7,680	- 4,750
TEXTILE MILL PRODUCTS	224,845	282,725	293,060	68,215	10,335
APPAREL, AND ACCESSORIES, AND MISCELLANEOUS PRODUCTS	36,030	70,665	100,765	64,735	30,100
PAPER AND ALLIED PRODUCTS	14,555	16,240	18,045	3,490	1,805
PULP, PAPER AND PAPER BOARD MILLS	10,000	9,625	10,380	380	755
PAPERBOARD CONTAINERS AND BOXES	3,390	5,130	5,430	2,040	300
ALL OTHER PAPER PRODUCTS	1,165	1,485	2,235	1,070	750
PRINTING, PUBLISHING, AND ALLIED PRODUCTS	10,130	14,915	17,275	7,145	2,360

TABLE 3: TOTAL EMPLOYMENT IN NORTH CAROLINA

BY MAJOR INDUSTRY, 1960, 1968, AND PROJECTIONS TO 1975 - Continued

INDUSTRY	ANNUAL AVERAGE EMPLOYMENT			NET CHANGE	
	1960	1968	1975	1960-1975	1968-1975
CHEMICALS AND ALLIED PRODUCTS	13,240	24,395	31,590	18,350	7,195
SYNTHETIC FIBERS	7,000	15,170	18,070	11,070	2,900
DRUGS AND MEDICINE	770	870	935	165	65
PAINTS, VARNISHES AND RELATED PRODUCTS	565	775	975	410	200
OTHER CHEMICALS	4,905	7,580	11,610	6,705	4,030
PETROLEUM REFINING AND RELATED INDUSTRIES	280	225	180	- 100	- 45
PETROLEUM REFINING	0	10	10	10	0
OTHER PETROLEUM AND COAL PRODUCTS	280	215	170	- 110	- 45
RUBBER AND MISCELLANEOUS PLASTIC PRODUCTS	2,395	8,465	10,305	7,910	1,840
RUBBER PRODUCTS	1,950	5,750	6,540	4,590	790
MISCELLANEOUS PLASTIC PRODUCTS	445	2,715	3,765	3,320	1,050
LEATHER AND LEATHER PRODUCTS	1,035	3,410	5,540	4,505	2,130
LEATHER TANNING AND FINISHING	220	230	250	30	20
FOOTWEAR EXCEPT RUBBER	560	2,840	4,860	4,300	2,020
ALL OTHER LEATHER PRODUCTS	255	340	430	175	90
TRANSPORTATION, COMMUNICATION AND PUBLIC UTILITIES	76,560	102,685	120,660	44,100	17,975
TRANSPORTATION	47,640	63,165	74,260	26,620	11,095
RAILROAD TRANSPORTATION	10,490	7,860	8,125	- 2,365	265
LOCAL AND INTERURBAN PASSENGER	37,150	55,305	66,135	28,985	10,830
LOCAL TRANSIT AND INTERURBAN, EXCEPT TAXIS	3,910	4,865	5,845	1,935	980
TAXIS	2,740	3,315	3,695	955	380
MOTOR FREIGHT TRANSPORTATION AND WAREHOUSING	26,110	38,240	45,345	19,235	7,105
TRUCKING	24,375	35,955	42,620	18,245	6,665
WAREHOUSING	1,735	2,285	2,725	990	440
WATER TRANSPORTATION	1,385	2,685	2,965	1,580	280
AIR TRANSPORTATION	1,780	4,025	5,620	3,840	1,595
PIPELINES	80	90	120	40	30
TRANSPORTATION SERVICES	1,145	2,085	2,545	1,400	460
COMMUNICATIONS AND PUBLIC UTILITIES	28,920	39,520	46,400	17,480	6,880
COMMUNICATIONS	14,015	20,620	24,935	10,920	4,315
TELEPHONE	11,155	16,400	20,030	8,875	3,630
TELEGRAPH	570	630	510	- 60	- 120
RADIO AND T.V.	2,290	3,590	4,395	2,105	805
ELECTRIC, GAS, AND SANITARY SERVICES	14,905	18,900	21,465	6,560	2,565
ELECTRIC, GAS, AND STEAM	10,540	12,575	14,135	3,595	1,560
WATER AND IRRIGATION	1,450	1,560	1,805	355	245
SANITARY SERVICES	2,915	4,765	5,525	2,610	760
WHOLESALE AND RETAIL TRADE	278,120	360,860	426,265	148,145	65,405
WHOLESALE TRADE	77,885	103,140	122,075	44,190	18,935
MOTOR VEHICLES AND EQUIPMENT	6,735	9,240	10,860	4,125	1,620
DRUGS AND CHEMICALS	3,520	5,540	6,985	3,465	1,445
DRY GOODS AND APPAREL	1,680	2,600	3,135	1,455	535
GROCERIES AND RELATED PRODUCTS	26,725	30,350	32,490	5,765	2,140
ELECTRICAL GOODS, PLUMBING AND HEATING SUPPLIES	7,025	9,230	11,270	4,245	2,040
MACHINERY AND EQUIPMENT	9,015	15,105	20,210	11,195	5,105
MISCELLANEOUS WHOLESALE TRADE	23,185	31,075	37,125	13,940	6,050
RETAIL TRADE	200,235	257,720	304,190	103,955	46,470
BUILDING MATERIAL, HARDWARE AND FARM EQUIPMENT	13,210	16,430	19,345	6,135	2,915
GENERAL MERCHANDISING	187,025	241,290	284,845	97,820	43,555
LIMITED PRICE STORES	10,160	9,785	9,685	- 475	- 100
OTHER GENERAL MERCHANDISE	29,460	40,705	46,400	16,940	5,695
FOOD AND DAIRY STORES	23,750	32,680	39,780	16,030	7,100
AUTO DEALERS AND GAS STATIONS	41,725	49,605	58,370	16,645	8,765
AUTO AND ACCESSORY DEALERS	24,000	29,350	35,980	11,980	6,630
GASOLINE SERVICE STATIONS	17,725	20,255	22,390	4,665	2,135
APPAREL AND ACCESSORIES	14,170	17,170	19,540	5,370	2,370
FURNITURE, HOME FURNISHING AND EQUIPMENT STORES	12,465	14,645	16,430	3,965	1,785
EATING AND DRINKING PLACES	27,945	42,375	52,915	24,970	10,540
MISCELLANEOUS RETAIL STORES	27,350	34,325	41,725	14,375	7,400
DRUG STORES	8,550	11,175	12,725	4,175	1,550
OTHER RETAIL STORES	18,800	23,150	29,000	10,200	5,850

TABLE 3: TOTAL EMPLOYMENT IN NORTH CAROLINA BY MAJOR INDUSTRY, 1960, 1968, AND PROJECTIONS TO 1975 - Continued

INDUSTRY	ANNUAL AVERAGE EMPLOYMENT			NET CHANGE	
	1960	1968	1975	1960-1975	1968-1975
FINANCE, INSURANCE AND REAL ESTATE	45,450	66,455	83,270	37,820	16,815
FINANCE	17,525	28,780	37,975	20,450	9,195
BANKS AND CREDIT AGENCIES	16,680	26,855	35,425	18,745	8,570
STOCK BROKERS AND INVESTMENT COMPANIES	845	1,925	2,550	1,705	625
INSURANCE	19,175	25,525	30,570	11,395	5,045
REAL ESTATE	8,750	12,150	14,725	5,975	2,575
SERVICES	323,030	439,675	512,665	189,635	72,990
HOTELS AND OTHER LODGING PLACES	10,320	14,280	17,970	7,650	3,690
PERSONAL SERVICES	35,365	42,475	47,100	11,735	4,625
LAUNDRIES, CLEANING, AND VALET SERVICES	18,165	19,780	19,870	1,705	90
ALL OTHER PERSONAL SERVICES	17,200	22,695	27,230	10,030	4,535
MISCELLANEOUS BUSINESS SERVICES	6,850	15,390	22,040	15,190	6,650
ADVERTISING	740	850	935	195	85
OTHER MISCELLANEOUS BUSINESS SERVICES	6,110	14,540	21,105	14,995	6,565
AUTO REPAIR SERVICES AND GARAGES	10,140	12,360	14,435	4,295	2,075
MISCELLANEOUS REPAIR SERVICES	6,305	7,840	9,690	3,385	1,850
MOTION PICTURES AND THEATRES	4,190	4,190	4,585	395	395
MISCELLANEOUS ENTERTAINMENT AND RECREATION	4,100	7,075	9,480	5,380	2,405
MEDICAL AND OTHER HEALTH SERVICES	50,435	69,545	87,165	36,730	17,620
HOSPITALS	35,695	45,725	53,730	18,035	8,005
OTHER MEDICAL AND HEALTH SERVICES	14,740	23,820	33,435	18,695	9,615
LEGAL SERVICES	3,725	4,140	5,035	1,310	895
EDUCATION SERVICES	78,240	114,680	127,820	49,580	13,140
NONPROFIT MEMBERSHIP ORGANIZATIONS	29,860	52,730	58,175	28,315	5,445
WELFARE AND RELIGIOUS ORGANIZATIONS	18,000	23,880	25,475	7,475	1,595
OTHER NONPROFIT MEMBERSHIP ORGANIZATIONS	11,860	28,850	32,700	20,840	3,850
PRIVATE HOUSEHOLDS	76,600	82,935	93,365	16,765	10,430
MISCELLANEOUS SERVICES	6,900	12,035	15,805	8,905	3,770
ENGINEERING AND ARCHITECTURAL SERVICES	3,390	5,385	7,310	3,920	1,925
ACCOUNTING AND BOOKKEEPING SERVICES	2,790	4,360	5,385	2,595	1,025
ALL OTHER PROFESSIONAL SERVICES	720	2,290	3,110	2,390	820
GOVERNMENT PUBLIC ADMINISTRATION	51,595	68,145	78,710	27,115	10,565
FEDERAL PUBLIC AOMINISTRATION	26,750	33,150	38,025	11,275	4,875
POSTAL SERVICE	10,600	10,400	11,580	980	1,180
OTHER FEDERAL PUBLIC ADMINISTRATION	16,150	22,750	26,445	10,295	3,695
STATE PUBLIC ADMINISTRATION	10,435	15,395	19,935	9,500	4,540
LOCAL PUBLIC ADMINISTRATION	14,410	19,600	20,750	6,340	1,150

TABLE 4: TOTAL EMPLOYMENT BY OCCUPATION IN NORTH CAROLINA 1960, 1968, AND PROJECTIONS TO 1975 WITH PERCENTAGE CHANGES FROM 1960-1975 AND 1968-1975

Occupation	Employment			Percent Change	
	1960	1968	1975	1960-1975	1968-1975
Total	1,705,350	2,064,000	2,316,160	36.0	12.4
Professional, Technical, and Kindred	140,860	187,655	231,985	64.7	23.6
Engineers, Technical	9,585	15,000	23,045	140.4	53.6
Engineers Aeronautical	185	375	700	278.4	86.7
Engineers Chemical	325	540	750	130.8	38.9
Engineers Civil	2,200	2,960	4,345	97.5	46.8
Engineers Electrical	2,385	3,600	5,350	124.3	48.6
Engineers Industrial	1,375	2,410	3,900	183.6	61.8
Engineers Mechanical	1,440	2,395	3,190	121.5	33.2
Engineers Metallurgical	60	110	155	158.3	40.9
Engineers Mining	30	30	30	—	—
Engineers Sales	635	1,040	1,875	195.3	80.3
Other Engineers, Technical	950	1,540	2,750	189.5	78.6
Medical, and other Health Workers	26,245	33,360	40,950	56.0	22.8
Dentists	1,290	1,555	1,930	49.6	24.1
Dietitians, Nutritionists	1,045	1,105	1,180	12.9	6.8
Nurses, Professional	13,315	16,750	20,215	51.8	20.7
Optometrists	295	335	350	18.6	4.5
Osteopaths	5	5	5	—	—
Pharmacists	1,800	2,215	2,300	27.8	3.8
Physicians, Surgeons	4,425	5,650	7,350	66.1	30.1
Psychologists	110	160	210	90.9	31.3
Technicians, Medical, Dental	2,305	3,835	5,465	141.4	42.5
Veterinarians	305	340	480	24.6	41.2
Other Medical and Health	1,350	1,410	1,465	8.5	3.8
Teachers	51,095	65,380	67,295	31.7	2.9
Teachers, Elementary	29,525	33,700	32,950	11.6	- 2.2
Teachers, Secondary	13,450	18,550	20,300	50.9	9.4
Teachers, College	4,600	8,330	8,420	83.0	1.1
Teachers, Other	3,520	4,800	5,625	59.8	17.2
Natural Scientists	2,050	3,105	4,820	135.1	55.2
Chemists	1,225	1,940	3,090	152.2	59.3
Agricultural Scientists	305	390	565	96.7	44.9
Biological Scientists	230	300	470	104.3	56.7
Geologists, Geophysicists	60	100	135	125.0	35.0
Mathematicians	45	105	175	188.9	66.7
Physicists	40	65	120	200.0	118.2
Other Natural Scientists	145	205	275	89.7	37.5
Social Scientists	410	590	820	100.0	39.0
Economists	100	150	210	110.0	40.0
Statisticians, Actuaries	225	315	430	91.1	36.5
Other Social Scientists	85	125	180	112.2	44.0
Technicians except Medical and Dental	8,090	11,360	16,710	106.6	47.1
Draftsmen	2,275	3,380	4,670	105.3	38.2
Surveyors	935	1,070	1,990	112.8	86.0
Air Traffic Controllers	40	50	55	37.5	10.0
Radio Operators	345	480	630	82.6	31.3
Technicians, Other	4,495	6,380	9,365	108.3	46.8
Other Professional, Tech. & Kindred Wkrs.	43,385	58,860	78,345	80.6	33.1
Accountants and Auditors	6,220	7,070	10,850	74.4	53.5
Airplane Pilots, Navigators	335	700	855	155.2	22.1
Architects	470	590	795	69.1	34.7
Clergymen	7,530	7,495	8,220	9.2	9.7
Designers except Design Draftsmen	640	1,035	1,550	142.2	5.0
Editors and Reporters	1,370	1,830	2,425	77.0	32.5
Lawyers and Judges	3,125	3,910	4,070	30.2	4.1
Librarians	1,960	2,690	2,685	37.0	- 0.2
Personnel and Labor Relations Workers	1,615	2,540	3,455	113.9	36.0
Photographers	890	905	975	9.6	7.7
Social and Welfare Workers	1,625	2,230	2,780	71.1	24.7
Workers in Arts, Entertainment	6,930	9,125	11,150	60.8	22.1
Professional, Technical, Kindred, N.E.C.	10,675	18,740	28,535	167.3	52.2

TABLE 4: TOTAL EMPLOYMENT BY OCCUPATION IN NORTH CAROLINA 1960, 1968, AND PROJECTIONS TO 1975 WITH PERCENTAGE CHANGES FROM 1960-1975 AND 1968-1975 - Continued

Occupation	Employment			Percent Change	
	1960	1968	1975	1960-1975	1968-1975
Managers, Officials, Proprietors	120,420	141,985	173,725	44.3	22.4
Conductors, Railroad	650	620	565	- 13.1	- 8.9
Officers, Pilots, Engineers, Shipping	360	500	590	63.9	18.0
Creditmen	1,165	1,670	2,270	94.8	35.9
Purchasing Agents	1,725	2,420	2,740	58.8	13.2
Postmasters and Assistants	1,140	1,125	1,150	0.9	2.2
Managers, Officials, Proprietors, N.E.C.	115,380	135,650	166,410	44.2	22.7
Clerical and Kindred Workers	169,350	237,375	284,035	67.7	19.7
Stenographers, Typists, Secretaries	40,655	62,190	74,900	84.2	20.4
Office Machine Operators	3,565	5,305	7,655	114.7	44.3
Other Clerical, Kindred Workers	125,130	169,880	201,480	61.0	18.6
Accounting Clerks	9,200	12,090	12,925	40.5	6.9
Bookkeepers, Hand	12,125	15,050	15,340	26.5	1.9
Bank Tellers	2,740	5,025	6,860	150.4	36.5
Cashiers	9,935	16,860	22,120	122.6	31.2
Mail Carriers	3,730	4,160	4,250	13.9	2.2
Postal Clerks	3,405	3,805	3,975	16.7	4.5
Shipping, Receiving Clerks	7,830	10,370	11,560	47.6	11.5
Telephone Operators	5,615	7,470	8,970	59.8	20.1
Clerical and Kindred, N.E.C.	70,550	95,050	115,480	63.7	21.5
Sales Workers	113,655	133,925	164,030	44.3	22.5
Craftsmen, Foreman and Kindred	209,820	275,660	335,210	59.8	21.6
Construction Craftsmen	68,850	87,370	97,700	41.9	11.8
Carpenters	29,425	34,805	38,900	32.2	11.8
Brickmasons, Stone, Tile Setters	7,335	9,300	10,750	46.6	15.6
Cement, Concrete Finishers	1,020	1,495	1,965	92.6	31.4
Electricians	5,870	7,900	8,920	52.0	12.9
Excavating, Grading Machine Operators	5,155	6,880	8,370	62.4	21.7
Painters and Paperhangers	10,940	14,770	13,975	27.8	- 5.4
Plasterers	1,275	1,650	1,820	42.7	10.3
Plumbers and Pipefitters	6,245	8,385	10,225	63.7	21.9
Roofers and Slaters	1,040	1,375	1,675	61.0	21.8
Structural Metalworkers	545	810	1,100	101.8	35.8
Foreman, N.E.C.	31,035	41,235	54,560	75.8	32.3
Metalworking, Craftsmen Except Mechanics	13,325	17,890	20,700	55.3	15.7
Machinists and Related Occupations	8,195	10,745	12,025	46.7	11.9
Blacksmiths, Forgemen, Hammermen	340	330	285	- 16.2	- 13.6
Boilermakers	255	330	420	64.7	27.3
Heat Treaters, Annealers, Temperers	60	90	100	66.7	11.1
Millwrights	645	800	970	50.4	21.2
Molders, Metal (Except Coremakers)	370	590	665	79.7	12.7
Patter Makers, Metal and Wood	250	405	480	92.0	18.5
Rollers and Roll Hands	45	70	90	100.0	28.6
Sheetmetal Workers	2,465	3,405	4,375	77.5	28.5
Toolmakers, Diemakers, Setters	700	1,125	1,290	84.3	17.7
Mechanics and Repairmen	57,100	80,275	102,135	78.9	27.2
Airplane Mechanics and Repairmen	1,130	1,980	2,300	103.5	16.2
Motor Vehicle Mechanics	20,105	28,650	34,500	71.6	20.4
Office Machine Mechanics	450	810	1,105	145.6	36.4
Radio and T.V. Mechanics	2,480	3,365	3,950	59.3	17.4
Railroad and Car Shop Mechanics	525	495	470	- 10.5	- 5.1
Other Mechanics and Repairmen	32,410	44,975	59,810	84.5	33.0
Printing Trades Craftsmen	4,155	5,410	5,685	36.8	5.1
Compositors and Typesetters	2,785	3,470	3,130	12.4	- 9.8
Electrotypers and Sterotypers	90	90	85	- 5.6	- 5.6
Engravers Except Photoengravers	245	340	385	57.1	13.2
Photoengravers, Lithographers	180	320	560	211.1	75.0
Pressmen and Plate Printers	855	1,190	1,525	78.4	28.2
Transportation, and Public Utility Craftsmen	6,460	8,680	10,675	65.2	23.0
Linemen and Servicemen	5,400	7,940	10,120	87.4	27.5
Locomotive Engineers	555	490	490	- 11.7	--
Locomotive Firemen	505	250	65	- 87.1	- 74.0

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TABLE 4: TOTAL EMPLOYMENT BY OCCUPATION IN NORTH CAROLINA 1960, 1968, AND PROJECTIONS TO 1975 WITH PERCENTAGE CHANGES FROM 1960-1975 AND 1968-1975 - Continued

OCCUPATION	EMPLOYMENT			PERCENT CHANGE	
	1960	1968	1975	1960-1975	1968-1975
OTHER CRAFTSMEN AND KINDRED WORKERS	28,895	34,800	43,755	51.4	25.7
BAKERS	1,710	1,885	1,875	9.6	- 0.5
CABINETMAKERS	2,745	3,325	3,555	29.5	6.9
CRANEMEN, DERRICKMEN, HOISTMEN	1,105	1,575	2,120	91.8	34.6
GLAZIERS	245	350	545	122.4	55.7
JEWELERS AND WATCHMAKERS	835	1,005	975	16.8	- 3.0
LOOMFIXERS	6,320	7,330	7,865	24.4	7.3
OPTICIANS, LENS GRINDERS	300	430	515	71.7	19.8
INSPECTORS, LOG AND LUMBER	1,065	990	1,130	6.1	14.1
INSPECTORS, OTHER	1,545	1,860	2,650	71.5	42.5
UPHOLSTERERS	4,590	5,660	7,130	55.3	26.0
CRAFTSMEN, KINDRED, N.E.C.	8,435	10,390	15,395	82.5	48.2
OPERATIVES AND KINDRED WORKERS	444,370	618,000	656,450	47.7	6.2
DRIVERS AND DELIVERYMEN	65,880	80,570	101,495	54.1	26.0
DRIVERS, BUS, TRUCK, TRACTOR	51,750	62,450	76,950	48.7	23.2
DELIVERYMEN, ROUTEMEN	14,130	18,120	24,545	73.7	35.5
TRANSPORTATION AND PUBLIC UTILITY OPERATORS	2,420	2,675	3,020	24.8	12.9
BRAKEMEN, SWITCHMEN, RAILROAD	1,275	1,115	1,040	- 18.4	- 6.7
POWERSTATION OPERATORS	825	1,065	1,420	72.1	33.3
SAILORS AND DECKHANDS	320	495	560	75.0	13.1
SEMISKILLED METALWORKERS	13,845	24,010	26,500	91.4	10.4
ASSEMBLERS, METALWORKING C-A	1,095	1,800	2,070	89.0	15.0
ASSEMBLERS, METALWORKING C-B	4,040	7,135	7,050	74.5	- 1.2
INSPECTORS, METALWORKING C-B	1,510	2,550	2,515	66.6	- 1.4
MACHINE TOOL OPERATORS C-B	1,880	3,150	2,910	54.8	- 7.6
ELECTROPLATERS	100	150	150	50.0	0.0
ELECTROPLATER HELPERS	180	235	235	30.6	0.0
FURNACEMEN, SMELTERMEN	180	345	360	100.0	4.3
HEATERS, METAL	10	20	25	100.0	25.0
WELDERS, FLAMECUTTERS	4,850	8,625	11,185	130.6	29.7
SEMISKILLED TEXTILE OCCUPATIONS	80,925	119,405	111,890	38.3	- 6.3
KNITTERS, LOOPERS, TOPPERS	20,495	26,040	26,290	28.3	1.0
SPINNERS, TEXTILE	14,405	16,995	12,800	- 11.1	- 24.7
WEAVERS, TEXTILE	14,405	17,090	14,250	- 1.1	- 16.6
SEWERS AND STITCHERS, MANUFACTURING	31,620	59,280	58,550	85.2	- 1.2
OTHER OPERATIVES AND KINDRED	281,300	391,340	413,545	47.0	5.7
ASBESTOS, INSULATION WORKERS	395	575	715	81.0	24.3
ATTENDANT, AUTO SERVICE, PARKING	11,035	12,675	14,425	30.7	13.8
BLASTERS AND POWDERMEN	60	80	115	91.7	43.8
LAUNDRY, DRY CLEANING OPERATORS	12,900	13,220	14,770	14.5	11.7
MINE OPERATIVES, LABORERS, N.E.C.	1,895	1,815	1,785	- 5.8	- 1.7
MEAT CUTTERS, EXCEPT MEAT PACKING	3,550	4,795	5,420	52.7	13.0
OPERATIVES AND KINDRED, N.E.C.	251,465	358,180	376,315	49.7	5.1
SERVICE WORKERS	195,800	239,615	275,550	40.7	15.0
PRIVATE HOUSEHOLD WORKERS	79,100	85,655	93,300	18.0	8.9
PROTECTIVE SERVICE	13,300	16,655	17,340	30.4	4.1
FIREMEN	2,255	2,865	2,920	29.5	1.9
POLICEMEN, OTHER LAW ENFORCEMENT OFFICERS	5,320	7,240	7,575	42.4	4.6
GUARDS, WATCHMEN, DOORKEEPERS	5,725	6,550	6,845	19.6	4.5
FOOD SERVICE WORKERS	31,935	46,985	58,910	84.5	25.4
BARTENDERS	210	305	370	76.2	21.3
COOKS EXCEPT PRIVATE HOUSEHOLD	13,695	19,560	24,310	77.5	24.3
COUNTER, FOUNTAIN WORKERS	3,400	5,765	7,400	117.6	28.4
WAITERS, WAITRESSES	14,630	21,355	26,830	83.4	25.6
OTHER SERVICE WORKERS	71,465	90,320	106,000	48.3	17.4
AIRLINE STEWARDS, STEWARDESSES	280	765	1,025	266.1	34.0
ATTENDANTS, HOSPITAL AND OTHER	7,925	11,855	15,230	92.2	28.5
CHARWOMEN AND CLEANERS	5,305	6,935	8,210	54.8	18.4
JANITORS AND SEXTONS	13,910	19,200	22,150	59.2	15.4
NURSES, PRACTICAL	4,420	5,530	6,795	53.7	22.9
OTHER SERVICE WORKERS, N.E.C.	39,625	46,035	52,590	32.7	14.2
LABORERS, EXCEPT FARM AND MINE	90,225	95,320	93,430	3.6	- 2.0
FARMERS AND FARM WORKERS	220,850	134,465	101,745	- 53.9	- 24.3

SOURCE: TOTAL INDUSTRY EMPLOYMENT DATA DISTRIBUTED ON THE BASIS OF U. S. CENSUS OF POPULATION, 1960 PC(1) 350, TABLE 121.

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TABLE 5: TOTAL WORKERS NEEDED FOR EXPANSION AND REPLACEMENT, BY OCCUPATION, IN NORTH CAROLINA FROM 1969 to 1975

Occupation	Expansion Needs	Replacement Needs	Total Demand For Workers 1969-1975
Total	252,160	362,260	614,420
Professional, Technical, and Kindred	44,330	36,525	80,855
Engineers, technical	8,045	1,295	9,340
Engineers aeronautical	325	7	332
Engineers chemical	210	49	259
Engineers civil	1,385	448	1,833
Engineers electrical	1,750	182	1,932
Engineers industrial	1,490	182	1,672
Engineers mechanical	795	210	1,005
Engineers metallurgical	45	0	45
Engineers mining	0	0	0
Engineers sales	835	91	926
Other engineers, technical	1,210	126	1,336
Medical, and other health workers	7,590	8,860	16,450
Dentists	375	335	710
Dietitians, nutritionists	75	539	614
Nurses, professional	3,465	5,159	8,624
Optometrists	15	15	30
Osteopaths	0	0	0
Pharmacists	85	420	505
Physicians, surgeons	1.700	895	2,595
Psychologists	50	7	57
Technicians, medical dental	1.630	1,090	2,720
Veterinarians	140	15	155
Other Medical and health	55	385	440
Teachers	1,915	14,035	15,950
Teachers, elementary	- 750	8,904	8,154
Teachers, secondary	1,750	2,884	4,634
Teachers, college	90	1,190	1,280
Teachers, other	825	1,057	1,882
Natural scientists	1,715	215	1,930
Chemists	1,150	145	1,295
Agricultural scientists	210	30	240
Biological scientists	170	20	190
Geologists, geophysicists	35	0	35
Mathematicians	25	0	25
Physicists	55	0	55
Other natural scientists	70	20	90
Social scientists	230	50	280
Economists	60	15	75
Statisticians, actuaries	115	20	135
Other social scientists	55	15	70
Technicians except medical and dental	5,350	425	5,775
Draftsmen	1,290	189	1,479
Surveyors	920	49	969
Air traffic controllers	5	0	5
Radio operators	150	14	164
Technicians, other	2,985	173	3,158

TABLE 5: TOTAL WORKERS NEEDED FOR EXPANSION AND REPLACEMENT, BY OCCUPATION, IN NORTH CAROLINA FROM 1969 to 1975--(continued)

Occupation	Expansion Needs	Replacement Needs	Total Demand For Workers 1969-1975
Other professional technical & kindred workers	19,485	11,645	31,130
Accountants and auditors	- 3,780	1,275	5,055
Airplane pilots, navigators	155	42	197
Architects	205	105	310
Clergymen	725	1,162	1,887
Designers except design draftsmen	515	147	662
Editors and reporters	595	420	1,015
Lawyers and judges	160	932	1,092
Librarians	- 5	826	821
Personnel and labor relations workers	915	406	1,321
Photographers	70	112	182
Social and welfare workers	550	560	1,110
Workers in arts, entertainment	2,025	2,165	4,190
Professional, technical, kindred, n.e.c.	9,795	3,493	13,288
Managers, Officials, Proprietors	31,740	19,780	51,520
Conductors, railroad	- 55	98	43
Officers, pilots, engineers, shipping	90	75	165
Creditmen	600	196	796
Purchasing agents	320	322	642
Postmasters and assistants	25	105	130
Managers, officials, proprietors, n.e.c.	30,760	18,984	49,744
Clerical and Kindred Workers	46,660	59,605	106,265
Stenographers, typists, secretaries	12,710	19,551	32,261
Office machine operators	2,350	1,498	3,848
Other clerical, kindred workers	31,600	38,556	70,156
Accounting clerks	835	3,234	4,069
Bookkeepers, hand	290	4,088	4,378
Bank tellers	1,835	1,358	3,193
Cashiers	5,260	4,515	9,775
Mail carriers	90	371	461
Postal clerks	170	553	723
Shipping, receiving clerks	1,190	1,078	2,268
Telephone operators	1,500	2,387	3,887
Clerical and kindred, n.e.c.	20,430	20,972	41,402
Sales Workers	30,105	25,670	55,775
Craftsmen, Foremen and Kindred	59,550	27,715	87,265
Construction craftsmen	10,330	9,885	20,215
Carpenters	4,095	4,907	9,002
Brickmasons, stone, tile setters	1,450	750	2,200
Cement, concrete finishers	470	364	834
Electricians	1,020	266	1,286
Excavating, grading machine operators	1,490	644	2,134
Painters and paperhangers	- 795	1,701	906
Plasterers	170	294	464
Plumbers and pipefitters	1,840	763	2,603
Roofers and slaters	300	126	426
Structural metalworkers	290	70	360
Foremen, n.e.c.	13,325	5,145	18,470

TABLE 5: TOTAL WORKERS NEEDED FOR EXPANSION AND REPLACEMENT, BY OCCUPATION, IN NORTH CAROLINA FROM 1969 to 1975--(continued)

Occupation	Expansion Needs	Replacement Needs	Total Demand For Workers 1969-1975
Metalworking craftsmen, except mechanics	2,810	1,470	4,280
Machinists and related occupation	1,280	952	2,232
Blacksmiths, forgemen, hammermen	- 45	84	39
Boilermakers	90	35	125
Heat treaters, annealers, temperers	10	0	10
Millwrights	170	63	233
Molders, metal (except coremakers)	75	28	103
Pattern makers, metal and wood	75	28	103
Rollers and roll hands	20	0	20
Sheetmetal workers	970	217	1,187
Toolmakers, diemakers, setters	165	63	228
Mechanics and repairmen	21,860	6,727	28,587
Airplane mechanics and repairmen	320	91	411
Motor vehicle mechanics	5,850	1,946	7,796
Office machine mechanics	295	77	372
Radio and T.V. mechanics	585	168	753
Railroad and car shop mechanics	- 25	49	24
Other mechanics and repairmen	14,835	4,396	19,231
Printing trades craftsmen	275	378	653
Compositors and typesetters	- 340	252	- 88
Electrotypers and stereotypers	- 5	0	- 5
Engravers except photoengravers	45	21	66
Photoengravers, lithographers	240	28	268
Pressmen and plate printers	335	77	412
Transportation, and public utility craftsmen	1,995	582	2,577
Linemen and servicemen	2,180	357	2,537
Locomotive engineers	0	190	190
Locomotive firemen	- 185	35	- 150
Other craftsmen and kindred workers	8,955	3,528	12,483
Bakers	- 10	147	137
Cabinetmakers	230	525	755
Cranemen, derrickmen, hoistmen	545	161	706
Glaziers	195	49	244
Jewelers and watchmakers	- 30	56	26
Loomfixers	535	679	1,214
Opticians, lens grinders	85	35	120
Inspectors, log and lumber	140	84	224
Inspectors, other	790	231	1,021
Upholsterers	1,470	525	1,995
Craftsmen, kindred, n.e.c.	5,005	1,036	6,041
Operatives and Kindred Workers	38,450	81,710	120,160
Drivers and deliverymen	20,925	5,278	26,203
Drivers, bus, truck, tractor	14,500	4,067	18,567
Deliverymen, routemen	6,425	1,211	7,636
Transportation and public utility operators	345	273	618
Brakemen, switchmen, railroad	- 75	105	30
Powerstation operators	355	140	495
Sailors and deckhands	65	28	93

TABLE 5: TOTAL WORKERS NEEDED FOR EXPANSION AND REPLACEMENT, BY OCCUPATION, IN NORTH CAROLINA FROM 1969 to 1975--(continued)

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Occupation	Expansion Needs	Replacement Needs	Total Demand For Workers 1969-1975
Semiskilled metalworkers	2,490	3,057	5,547
Assemblers, metalworking C-A	270	340	610
Assemblers, metalworking C-B	- 85	975	890
Inspectors, metalworking C-B	- 35	625	590
Machine tool operators C-B	- 240	360	120
Electroplaters	0	30	30
Electroplater helpers	0	45	45
Furnacemen, smeltermen	15	21	36
Heaters, metal	5	0	5
Welders, flamecutters	2,560	660	3,220
Semiskilled textile occupations	-7,515	21,308	13,793
Knitters, loopers, toppers	250	4,816	5,066
Spinners, textile	-4,195	3,038	-1,157
Weavers, textile	-2,840	2,149	- 691
Sewers and stitchers, manufacturing	- 730	11,305	10,575
Other operatives and kindred	22,205	51,795	74,000
Asbestos, insulation workers	140	49	189
Attendant, auto service, parking	1,750	770	2,520
Blasters and powdermen	35	0	35
Laundry, dry cleaning operators	1,550	3,080	4,630
Mine operatives, laborers, n.e.c.	- 30	154	124
Meat cutters, except meat packing	625	378	1,003
Operatives & kindred, n.e.c.	18,135	47,364	65,499
Service Workers	35,935	62,060	97,995
Private household workers	7,645	28,440	36,085
Protective service	685	2,443	3,128
Firemen	55	175	230
Policemen, other law enforcement officers	335	630	965
Guards, watchmen, doorkeepers	295	1,638	1,933
Food service workers	11,925	10,752	22,677
Bartenders	65	7	72
Cooks, except private household	4,750	3,997	8,747
Counter, fountain workers	1,635	1,280	2,915
Waiters, waitresses	5,475	5,467	10,942
Other service workers	15,680	20,426	36,106
Airline stewards, stewardesses	260	217	477
Attendants, hospital and other	3,375	3,472	6,847
Charwomen and cleaners	1,275	1,540	2,815
Janitors and sextons	2,950	3,192	6,142
Nurses, practical	1,265	1,995	3,260
Other service workers, n.e.c.	6,555	10,010	16,565
Laborers, except Farm and Mine	-1,890	9,735	7,845
Farmers and Farm Workers	-32,720	39,460	6,740

TABLE 6: ESTIMATED AVERAGE ANNUAL NUMBER OF WORKERS
Needed for Expansion and Replacement Purposes from 1960-1968
and Projected 1969-1975 by Occupation in North Carolina

Occupation	Needs Experienced Annual Average 1960-1968	Projected Needs Annual Average 1969-1975
Total	96,580	87,780
Professional, Technical, and Kindred	11,075	11,550
Engineers, technical	865	1,335
Engineers aeronautical	25	45
Engineers chemical	35	40
Engineers civil	160	260
Engineers electrical	180	275
Engineers industrial	155	240
Engineers mechanical	150	145
Engineers metallurgical	5	5
Engineers mining	0	0
Engineers sales	65	130
Other engineers, technical	90	195
Medical, and other health workers	2,155	2,355
Dentists	80	100
Dietitians, nutritionists	85	90
Nurses, professional	1,165	1,235
Optometrists	10	5
Osteopaths	0	0
Pharmacists	110	70
Physicians, surgeons	280	370
Psychologists	10	10
Technicians, medical, dental	350	395
Veterinarians	5	20
Other medical and health	60	60
Teachers	3,790	2,280
Teachers, elementary	1,795	1,165
Teachers, secondary	1,050	660
Teachers, college	635	185
Teachers, other	310	270
Natural scientists	165	270
Chemists	110	185
Agricultural scientists	15	30
Biological scientists	10	25
Geologists, geophysicists	5	5
Mathematicians	10	5
Physicists	5	10
Other natural scientists	10	10
Social scientists	30	40
Economists	10	10
Statisticians, actuaries	15	20
Other social scientists	5	10
Technicians except medical and dental	470	825
Draftsmen	165	210
Surveyors	25	140
Air traffic controllers	0	0

TABLE 6: ESTIMATED AVERAGE ANNUAL NUMBER OF WORKERS
Needed for Expansion and Replacement Purposes from 1960-1968
and Projected 1969-1975 by Occupation in North Carolina--Continued

Occupation	Needs Experienced Annual Average 1960-1968	Projected Needs Annual Average 1969-1975
Radio operators	20	25
Technicians, other	260	450
Other professional, technical and kindred workers	3,600	4,450
Accountants and auditors	290	720
Airplane pilots, navigators	50	30
Architects	30	45
Clergymen	160	270
Designers except design draftsmen	70	95
Editors and reporters	120	145
Lawyers and judges	230	155
Librarians	210	115
Personnel and labor relations workers	175	190
Photographers	20	25
Social and welfare workers	155	160
Workers in arts, entertainment	585	600
Professional, technical, kindred, n.e.c.	1,505	1,900
Managers, Officials, Proprietors	5,520	7,360
Conductors, railroad	10	5
Officers, pilots, engineers, shipping	30	25
Creditmen	90	115
Purchasing agents	130	90
Postmasters and assistants	15	20
Managers, officials, proprietors, n.e.c.	5,245	7,105
Clerical and Kindred Workers	17,015	15,180
Stenographers, typists, secretaries	5,485	4,610
Office machine operators	430	550
Other clerical, kindred workers	11,100	10,020
Accounting clerks	825	580
Bookkeepers, hand	950	625
Bank tellers	480	455
Cashiers	1,510	1,395
Mail carriers	105	65
Postal clerks	130	105
Shipping, receiving clerks	470	325
Telephone operators	575	555
Clerical and kindred, n.e.c.	6,055	5,915
Sales Workers	6,200	7,965
Craftsmen, Foremen and Kindred	12,185	12,470
Construction craftsmen	3,725	2,890
Carpenters	1,375	1,285
Brickmasons, stone, tile setters	355	315
Cement, concrete finishers	110	120
Electricians	290	185
Excavating, grading machine operators	305	305
Painters and paperhangers	720	130
Plasterers	90	65

TABLE 6: ESTIMATED AVERAGE ANNUAL NUMBER OF WORKERS
Needed for Expansion and Replacement Purposes from 1960-1968
and Projected 1969-1975 by Occupation in North Carolina--Continued

Occupation	Needs Experienced Annual Average 1960-1968	Projected Needs Annual Average 1969-1975
Plumbers and pipefitters	375	370
Roofers and slaters	60	65
Structural metalworkers	45	50
Foremen, n.e.c	2,010	2,640
Metalworking, craftsmen, except mechanics	780	610
Machinists and related occupations	455	320
Blacksmiths, forgemen, hammermen	10	5
Boilermakers	15	15
Heat treaters, annealers, temperers	5	0
Millwrights	30	30
Molders, metal (except coremakers)	30	15
Pattern makers, metal and wood	25	15
Rollers and roll hands	0	5
Sheetmetal workers	150	170
Toolmakers, diemakers, setters	60	35
Mechanics and repairmen	3,860	4,080
Airplane mechanics and repairmen	120	60
Motor vehicle mechanics	1,345	1,110
Office machine mechanics	55	55
Radio and T.V. mechanics	135	110
Railroad and car shop mechanics	5	5
Other mechanics and repairmen	2,200	2,740
Printing trades craftsmen	210	95
Compositors and typesetters	120	-10
Electrotypers and stereotypers	0	0
Engravers except photoengravers	15	10
Photoengravers, lithographers	20	35
Pressmen and plate printers	55	60
Transportation, and public utility craftsmen	360	370
Linemen and servicemen	370	360
Locomotive engineers	20	25
Locomotive firemen	-30	-15
Other craftsmen and kindred workers	1,240	1,785
Bakers	40	20
Cabinetmakers	150	110
Cranemen derrickmen, hoistmen	80	100
Glaziers	20	35
Jewelers and watchmakers	30	5
Loomfixers	225	175
Opticians, lens grinders	20	15
Inspectors, log and lumber	5	30
Inspectors, other	70	145
Upholsterers	210	285
Craftsmen, kindred, n.e.c	390	865
Operatives and Kindred Workers	33,375	17,165
Drivers and deliverymen	2,590	3,740
Drivers, bus, truck, tractor	1,920	2,650

TABLE 6: ESTIMATED AVERAGE ANNUAL NUMBER OF WORKERS
Needed for Expansion and Replacement Purposes from 1960-1968
and Projected 1969-1975 by Occupation in North Carolina--Continued

Occupation	Needs Experienced Annual Average 1960-1968	Projected Needs Annual Average 1969-1975
Delivery, routemen	670	1,090
Transportation and public utility operators	70	90
Brakemen, switchmen, railroad	-5	0
Powerstation operators	50	75
Sailors and deckhands	25	15
Semiskilled metalworkers	1,690	815
Assemblers, metalworking C-A	130	80
Assemblers, metalworking C-B	525	130
Inspectors, metalworking C-B	220	85
Machine tool operators C-B	210	85
Electroplaters	10	5
Electroplater helpers	15	10
Furnacemen, smeltermen	25	5
Heaters, metal	0	0
Welders, flamecutters	555	415
Semiskilled textile occupations	7,855	1,970
Knitters, loopers, toppers	1,380	725
Spinners, textile	760	-165
Weavers, textile	645	-100
Sewers and stitchers, manufacturing	5,070	1,510
Other operatives and kindred	21,170	10,550
Asbestos, insulation workers	30	30
Attendant, auto service, parking	315	360
Blasters and powdermen	5	5
Laundry, dry cleaning operators	480	660
Mine operatives, laborers, n.e.c	10	15
Meat cutters, except meat packing	210	145
Operatives and kindred, n.e.c	20,120	9,335
Service Workers	14,340	14,000
Private household workers	4,880	5,155
Protective service	770	450
Firemen	100	35
Policemen, other law enforcement officers	330	140
Guards, watchmen, doorkeepers	340	275
Food Service workers	3,415	3,240
Bartenders	10	10
Cooks except private household	1,305	1,250
Counter, fountain workers	480	415
Waiters, waitresses	1,620	1,565
Other service workers	5,275	5,155
Airline stewards, stewardesses	90	65
Attendants, hospital and other	985	980
Charwomen and cleaners	425	400
Janitors and sextons	1,120	880
Nurses, practical	425	465
Other service workers, n.e.c	2,230	2,365
Laborers except Farm and Mine	2,030	1,120
Farmers and Farm Workers	-5,160	965

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APR 2 0 1972

EVALUATION AND ACCOUNTABILITY IN VOCATIONAL-TECHNICAL EDUCATION

by
Charles R. Doty, Ph.D.
Adviser in Technical Education
Department of Vocational-Technical Education
Graduate School of Education
Rutgers University

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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State Convention
New Jersey
Vocational and Arts
Education Association

March 24, 1972

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I WILL TRY TO PROVIDE SOME ANSWERS ON THE QUESTIONS WHO, WHAT, WHEN, WHERE AND WHY CONCERNING EVALUATION AND ACCOUNTABILITY. IN ADDITION, SOME RECENT PROJECTS WILL BE REVIEWED AND A COPY OF THIS PRESENTATION AND A BIBLIOGRAPHY OF RECENT PUBLICATIONS AND SOURCES WILL BE DISTRIBUTED TO YOU.

I CANNOT PASS UP THE OPPORTUNITY TO USE AN ANALOGY FROM A REAL STORY TOWARD THIS TOPIC. ACCORDING TO THE WAYNE COUNTY PRESS OF JESUP, GEORGIA, AN INSURANCE COMPANY AGENT SWEARS THAT THE FOLLOWING IS TRUE:

A MAN BOUGHT A QUANTITY OF FINE HAVANA CIGARS ("PROBABLY MADE IN TAMPA.") HE WAS PROUD OF THESE CIGARS, AND INSURED THEM AGAINST FIRE DAMAGE.

THEN HE SMOKED THEM, EVERY ONE OF THEM.

THE PRUDENT TYPE, HE FILED A CLAIM ON HIS INSURANCE COMPANY, CLAIMING THEY ALL BURNED UP.

THE COMPANY REFUSED TO PAY, AT FIRST, AND THE CASE WENT TO COURT. THE JUDGE AGREED WITH THE CLAIMANT, RULING THAT ANY INSURANCE COMPANY STUPID ENOUGH TO INSURE CIGARS AGAINST FIRE SHOULD HAVE TO PAY THE POLICY.

THE COMPANY PAID OFF. THEN, AFTER THINKING AWHILE, FILED ARSON CHARGES AGAINST THE MAN.

THE INSURANCE MAN SWEARS HE WAS FOUND GUILTY AND SERVED TIME FOR BURNING THE CIGARS.

WHICH WOULD LEAD TO THE CONCLUSION THAT IT'S NOT NICE TO TRY AND FOOL MOTHER NATURE, OR AN INSURANCE COMPANY.

WHEN I FIRST READ THAT I THOUGHT IT WAS AN INTERESTING AND FUNNY STORY - BUT THE MORE I THOUGHT ABOUT IT THE MORE IT SEEMED THAT THIS IS GENERALLY PARALLEL TO THE DEVELOPMENT OF EDUCATIONAL

PROGRAMS. WE INITIATE INNOVATIVE PROGRAMS, SPENDING HALF OF OUR TIME TELLING EVERYONE HOW GREAT THEY ARE TO ENSURE PUBLIC ACCEPTANCE, THEN WE INSTALL THE PROGRAMS RAPIDLY WITHOUT PLANNING THE PROGRAM AND THE EVALUATION SYSTEM. (THIS IS OFTEN CAUSED BY... POLITICAL POLICY TO ENSURE THAT THE SUCCESSFUL PROGRAMS CAN BE CLAIMED FOR CREDIT BY THE PERSONS IN OFFICE - BUT WE EDUCATORS DO NOT FIGHT FOR PLANNING TIME.) THE PROGRAMS FAIL, THE PUBLIC SHOWS APATHY - THEN CHANGES ITS MIND AND DEMANDS AN INVESTIGATION AND THERE WE EDUCATORS STAND - TO BE SENTENCED.

DEFINITIONS

EVALUATION MAY BE DEFINED AS THE MEASUREMENT OF THE PROCEDURE OR PRODUCTIVITY OF AN INDIVIDUAL, PROGRAM OR INSTITUTION BASED ON CRITERIA DETERMINED BY INSTITUTIONS OF MAN'S SOCIETY AND INDIVIDUALS WITHIN THAT SOCIETY.

ACCOUNTABILITY MAY BE DEFINED AS THE RESPONSIBILITY TO PERFORM EFFICIENTLY AND EFFECTIVELY TO IMPROVE SOCIETY - AND SINCE EACH ONE OF US IS A PART OF SOCIETY WE ARE ACCOUNTABLE TO OURSELVES AS WELL AS TO OTHERS.

FOR A MORE THOROUGH ANALYSIS OF EVALUATION AND ACCOUNTABILITY ROBERT E. NORTON'S ARTICLE "THE RELATIONSHIP BETWEEN EVALUATION AND ACCOUNTABILITY" IS A GOOD SOURCE.

ATTENTION GIVEN

EVALUATION AND ACCOUNTABILITY ARE CERTAINLY RECEIVING ATTENTION. FOUR ARTICLES APPEARED IN THE AMERICAN VOCATIONAL JOURNAL, FEBRUARY 1972. THOMAS E. LONG WROTE "HUMAN RESOURCES DEVELOPMENT: WHO IS ACCOUTABLE." DR. C. THOMAS OLIVO GAVE AN EVALUATION OF THE AMERICAN VOCATIONAL ASSOCIATION IN HIS ARTICLE, "PROFESSIONAL ASSESSMENT AND ACCOUNTABILITY." ROBERT E. NORTON GAVE A

COMPREHENSIVE ANALYSIS IN THE ARTICLE, "RELATIONSHIP BETWEEN EVALUATION AND ACCOUNTABILITY." DARRELL L. WARD REPORTED "SUPERVISION AND ACCOUNTABILITY."

ALBERT SHANKER, PRESIDENT, UNITED FEDERATION OF TEACHERS, WAS WRITING ABOUT TENURE LAWS AND PROBATIONARY PERIODS (NEW YORK TIMES, 1972, E-7). TIME MAGAZINE IN ITS EDUCATION SECTION HAD THE FOLLOWING ITEM:

DEFINING TERMS

THE CALIFORNIA STATE DEPARTMENT OF EDUCATION RECENTLY DECIDED TO ISSUE "GUIDELINES" TO LOCAL SCHOOL BOARDS FOR "EVALUATING CERTIFICATED PERSONNEL." TO MAKE SURE THAT EVERYONE UNDERSTOOD, IT SOLEMNLY INCLUDED A GLOSSARY.

EVALUATOR, IT SAID, MEANS "ONE WHO EVALUATES." EVALUATEE, BY CONTRAST, IS "ONE WHO IS EVALUATED." AS FOR EVALUATION, THAT IS "THE PROCESS OF MAKING CONSIDERED JUDGMENTS CONCERNING THE PROFESSIONAL ACCOMPLISHMENTS AND COMPETENCIES OF A CERTIFICATED EMPLOYEE BASED ON A BROAD KNOWLEDGE OF THE AREA OF PERFORMANCE INVOLVED, THE CHARACTERISTICS OF THE SITUATION OF THE INDIVIDUAL BEING EVALUATED, AND THE SPECIFIC STANDARDS OF PERFORMANCE PRE-ESTABLISHED FOR THE POSITION."

(TIME, MARCH 13, 1972, 65)

ROBERT PRIMACK IN PHI DELTA KAPPAN, JUNE 1971, WROTE "ACCOUNTABILITY FOR THE HUMANISTS." ALAN A. SMALL IN THE MARCH 1972 PHI DELTA KAPPAN ASKED THE QUESTION, "ARE AMERICAN EDUCATORS HEADED FOR A COSTLY RERUN?" IN HIS ARTICLE "ACCOUNTABILITY IN VICTORIAN ENGLAND." ERIC SEVEREID, TELEVISION COMMENTATOR, RECENTLY HAD AN EDITORIAL ON EVALUATION AND THE NATION'S SCHOOLS.

THE NEW YORK TIMES, SUNDAY, MARCH 12, 1972, HAD AN EDITORIAL "THE PRICE OF SCHOOL REFORM." TIME MAGAZINE, MARCH 13, 1972, IN ITS ECONOMY SECTION RAN THE COVER STORY "EMPTY POCKETS ON A TRILLION DOLLARS A YEAR." THE NOVEMBER 1971 AMERICAN VOCATIONAL JOURNAL THEME WAS A 44 PAGE REPORT ON FOUNDATIONS FOR QUALITY: WHO IS RESPONSIBLE? ACCOUNTABILITY AND CAREER DEVELOPMENTS IN TRADE AND INDUSTRIAL EDUCATION WAS A MAJOR SYMPOSIUM TOPIC AT THE AVA CONVENTION IN 1971. THE 55TH ANNUAL MEETING OF THE NORTHWEST ASSOCIATION OF SECONDARY AND HIGHER SCHOOLS AT RENO, NEVADA, DECEMBER 1971, PROGRAM THEME WAS "EDUCATIONAL ACCOUNTABILITY" WITH THE KEYNOTE SPEECH "ACCOUNTABILITY OF VOCATIONAL-TECHNICAL EDUCATION."

BUSINESS AND INDUSTRY ARE ALSO INVOLVED IN EVALUATION. JOHN BUNTING IN THE ARTICLE "CORPORATE STRUCTURE REQUIRES RADICAL CHANGE" STATES, "THE VERY SIZE OF MANY COMPANIES PRECLUDES ANY ACCURATE EVALUATION OF THE EFFICIENCY OF THEIR INDIVIDUAL PARTS OR THE CONTRIBUTIONS OF INDIVIDUAL MANAGERS (NEW YORK TIMES, 1972, 10-F)."

AND, OF COURSE, THERE IS THE NATIONAL ADVISORY COUNCIL ON VOCATIONAL EDUCATION WHOSE VERY EXISTENCE IS BASED ON EVALUATION AND ACCOUNTABILITY.

RECENT LEGISLATION CONCERNING EVALUATION AND ACCOUNTABILITY

Efforts to make the annual evaluation reports of the State Advisory Councils on Vocational Education more effective has brought about a series of changes approved by Commissioner Marland, January 20, 1972.

These amendments, as recorded in the Federal Register, are:

Title 45 -- PUBLIC WELFARE
Chapter 1 -- Office of Education, Department of Health, Education and Welfare
Part 102 -- STATE VOCATIONAL EDUCATION PROGRAMS

ANNUAL EVALUATION REPORT

The following amendments to 45 CFR Part, 102, which is applicable to programs of vocational education administered by State boards of vocational education under the Vocational Education Act of 1963, as amened by title I of the Vocational Education Amendments of 1968 (Public Law 90-576) and by title VII of Public Law 91-230 are made to make more effective use of State advisory councils.

In 102.159, paragraphs (a) and (b) are revised as amended, 102.159 reads as follows:

(a) The State board shall submit to the Commissioner and the National Advisory Council, on or before December 1 of each year, an annual evaluation report prepared by the State advisory council pursuant to 102.23(c), in accordance with procedures established by the Commissioner. This report shall contain (1) the results of the evaluations by the State advisory council of the effectiveness of programs, services, and activities carried out under the State plan in the year under review in meeting the program objectives set forth in the long-range and annual program plans required by 102.33 and 102.34; and (2) such recommended changes in the content and administration of the State's programs, services, and activities as may be deemed by the State advisory council to be warrented by its evaluation results.

(b) The annual evaluation report of the State advisory council may be accompanied by such comments of the State board as it deems appropriate. The recommendations of the State advisory council shall be considered by the State board in developing the State plan for the ensuing year. Response in writing to each recommendation shall accompany the State plan and may include, among other matters, the results of evaluations by the State board of programs, services, and activities which support, supplement, or differ with the evaluation results of the State advisory council.

Dated: January 20, 1972
S. P. Marland, Jr., Commissioner of Education

Approved: February 2, 1972
Elliot Richardson, Secretary of DHEW

In accordance with regulations of the Federal Register, these amendments shall take effect, March 16, 1972.

ON MARCH 8, 1972 THE AMERICAN VOCATIONAL ASSOCIATION RECOMMENDATIONS TO THE HOUSE-SENATE INCLUDED THE FOLLOWING, WHICH HAS IMPLICATIONS FOR EVALUATION AND ACCOUNTABILITY IN

VOCATIONAL AND TECHNICAL EDUCATION.

"THE AVA SUPPORTS THE PURPOSE OF THE MONDALE AMENDMENT ADOPTED ON THE SENATE FLOOR WHICH REQUIRES THE U.S. COMMISSIONER OF EDUCATION TO PUBLISH A LIST OF STATE AGENCIES WHICH HE DETERMINES TO BE RELIABLE AUTHORITY AS TO THE QUALITY OF VOCATIONAL EDUCATION IN THE SEVERAL STATES. THIS AMENDMENT WILL MAKE IT POSSIBLE FOR VOCATIONAL EDUCATION INSTITUTIONS TO QUALIFY FOR FEDERAL ASSISTANCE WHERE ACCREDITATION IS AMONG THE REQUISITES FOR RECEIVING SUCH ASSISTANCE. TWO OF THE REGIONAL ACCREDITING ASSOCIATIONS HAVE ESTABLISHED COMMISSIONS ON VOCATIONAL EDUCATION, AND THE OTHER REGIONAL ACCREDITING ASSOCIATIONS ARE MOVING IN THAT DIRECTION. HOWEVER, UNTIL SUCH TIME AS THE ASSOCIATIONS IMPLEMENT ACCREDITATION PROCEDURES DESIGNED SPECIFICALLY TO SERVE THE NEEDS OF VOCATIONAL EDUCATION INSTITUTIONS, THE MONDALE AMENDMENT WILL MAKE IT POSSIBLE FOR THESE INSTITUTIONS TO MAKE USE OF FEDERAL PROGRAMS BY VIRTUE OF THE QUALITY STANDARDS PROMULGATED AND ENFORCED BY STATE EDUCATIONAL AGENCIES (3)."

RESEARCH PRIORITIES

THE STATE OF NEW JERSEY, DIVISION OF VOCATIONAL EDUCATION, HAS STATED AS ONE OF ITS RESEARCH PRIORITIES THE AREA OF EVALUATION. TOPICS WITHIN THIS PRIORITY ARE:

A) RELATIVE EFFICIENCY OF VARIOUS ORGANIZATIONAL STRUCTURES FOR PROVIDING OCCUPATIONAL EDUCATION.

B) COST-BENEFIT AND COST-EFFECTIVENESS STUDIES OF VOCATIONAL-TECHNICAL PROGRAMS.

C) MODELS FOR LEA'S TO PROVIDE VOCATIONAL GUIDANCE, JOB PLACEMENT, AND FOLLOW-UP.

D) CAREER DEVELOPMENT PROGRAM AS BASIS FOR POLICY DECISIONS.

E) STUDENT SELECTION PROCEDURES AND RECRUITMENT.

F) EDUCATIONAL PROCESSES IN SCHOOL PROGRAMS IN TERMS OF RELEVANCE AND EFFECTIVENESS.

G) TEACHER PREPARATION PROGRAMS.

PERFORMANCE EVALUATION PROJECT

"THE SUBCOMMITTEE ON TEACHER CERTIFICATION OF THE STATE BOARD OF EXAMINERS CONDUCTED A TWO-DAY "LISTENING POST" IN JANUARY, 1969. AT THIS SESSION EDUCATORS FROM ALL PARTS OF NEW JERSEY REPRESENTING ALMOST EVERY PROFESSIONAL ORGANIZATION WERE INVITED TO EXPRESS THEIR CONCERNS AND MAKE RECOMMENDATIONS REGARDING THE CERTIFICATION OF SCHOOL PERSONNEL.

FROM THE INFORMATION GATHERED AT THIS "LISTENING POST" THE SUBCOMMITTEE RECOMMENDED THAT "AN EXTENSIVE STUDY SHOULD BE MADE IN DEPTH OF WAYS OF RELATING TEACHING COMPETENCE AND PERFORMANCE CRITERIA TO TEACHER CERTIFICATION. THE STUDY SHOULD RESULT IN FORMULATION OF A PROPOSAL BY THE BOARD OF EXAMINERS FOR A WORKABLE METHOD OF EVALUATING TEACHING COMPETENCE AS A REQUIREMENT FOR CERTIFICATION." THIS RECOMMENDATION WAS APPROVED BY THE BOARD OF EXAMINERS ON MARCH 13, 1969, AND BY THE STATE BOARD OF EDUCATION ON JUNE 4, 1969.

THE RESPONSIBILITY OF CONDUCTING THIS STUDY WAS ASSIGNED TO THE OFFICE OF TEACHER EDUCATION AND CERTIFICATION IN THE STATE DEPARTMENT OF EDUCATION. THE PERFORMANCE EVALUATION PROJECT WAS ESTABLISHED WITH OFFICES AT RUTGERS AND TRENTON, AND IN APRIL OF 1970 THE STAFF WAS HIRED AND ORGANIZATION WAS BEGUN. THE TEACHER EDUCATION INSTITUTIONS IN NEW JERSEY, THE NEW JERSEY EDUCATION ASSOCIATION, AND VARIOUS ORGANIZATIONS OF PROFESSIONAL EDUCATORS WERE CONTACTED FOR RECOMMENDATIONS FROM THEIR MEMBERSHIPS TO

SERVE ON THE SIXTEEN TASK FORCES DEVELOPED TO CONDUCT THE STUDY.

THE PURPOSE OF THE PERFORMANCE EVALUATION PROJECT IS TO STUDY WAYS OF RELATING TEACHING COMPETENCE AND PERFORMANCE CRITERIA TO TEACHER CERTIFICATION. AS A MEANS OF FULFILLING THIS PURPOSE THE PROJECT IS EXAMINING THE FEASIBILITY OF A PERFORMANCE-BASED CERTIFICATION PROCESS. TO DEVELOP A WORKABLE METHOD OF EVALUATING TEACHING COMPETENCE, THE PROJECT HAS ESTABLISHED AS ITS OBJECTIVE THE IDENTIFICATION OF THE MINIMUM LEVEL OF TEACHING PERFORMANCE REQUIRED FOR INITIAL CERTIFICATION AND THE MEANS OF MEASURING THAT PERFORMANCE. THE RESULTS OF THIS STUDY WILL FORM THE BASIS OF THE RECOMMENDATIONS TO BE MADE TO THE BOARD OF EXAMINERS BY THE PERFORMANCE EVALUATION PROJECT (ROBERT A. ROTH, PERFORMANCE EVALUATION PROJECT, NOVEMBER, 1971)."

SIXTEEN TASK FORCES ARE WORKING ON CRITERIA FOR CERTIFICATION STANDARDS. THESE RANGE FROM ELEMENTARY EDUCATION, MUSIC EDUCATION TO VOCATIONAL EDUCATION. FOUR TASK FORCES ARE RELATED TO THE VOCATIONAL AREAS, HOME ECONOMICS, BUSINESS EDUCATION, INDUSTRIAL ARTS AND VOCATIONAL.

THE VOCATIONAL TASK FORCE IS CONCERNED MAINLY WITH THOSE PERSONS ENTERING EDUCATION DIRECTLY FROM INDUSTRY. THIS TASK FORCE IS CONCENTRATING ITS EFFORTS ON DEVELOPING INSTRUMENTS FOR EACH TEACHING SKILL CONSIDERED ESSENTIAL FOR A BEGINNING TEACHER. THESE TEACHING SKILLS WERE SELECTED FROM THE "MODEL CURRICULA FOR VOCATIONAL-TECHNICAL TEACHER EDUCATION" PROJECT BEING CONDUCTED BY THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION AT COLUMBUS, OHIO. THE INSTRUMENTS BEING DEVELOPED ARE PEDAGOGY IN NATURE OR HOW TO TEACH. THE OCCUPATIONAL SKILLS FOR CERTIFICATION WILL BE MEASURED USING THE TESTS CONSTRUCTED BY THE NATIONAL OCCUPATIONAL

COMPETENCY TESTING PROJECT BEING CONDUCTED AT THE DEPARTMENT OF VOCATIONAL-TECHNICAL EDUCATION, RUTGERS UNIVERSITY, AS WELL AS OBSERVING THE TEACHER'S DEMONSTRATION OF OCCUPATIONAL SKILLS WHILE TEACHING.

MODEL CURRICULA FOR VOCATIONAL AND TECHNICAL TEACHER EDUCATION

PHASE I PERFORMANCE REQUIREMENTS OF VOCATIONAL AND TECHNICAL TEACHERS

PHASE II PERFORMANCE REQUIREMENTS OF COOPERATIVE EDUCATION PERSONNEL

PHASE III COOPERATIVE DEVELOPMENT OF PROFESSIONAL EDUCATION CURRICULA

IN 1967, THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION INITIATED A RESEARCH PROJECT TO DEVELOP CURRICULA FOR THE PROFESSIONAL (PEDAGOGICAL) PREPARATION OF VOCATIONAL AND TECHNICAL TEACHERS WHO TEACH IN CLASSROOM AND LABORATORY SETTINGS, VOCATIONAL AND TECHNICAL TEACHERS OF YOUTH WITH SPECIAL NEEDS (DISADVANTAGED) AND TEACHER-COORDINATORS OF COOPERATIVE PROGRAMS.

THIS PROGRAM WAS BASED UPON THE FACT THAT EXPANDING PROGRAMS OF VOCATIONAL-TECHNICAL EDUCATION HAVE PRODUCED A CRITICAL NEED FOR THE PREPARATION AND IN-SERVICE EDUCATION OF ALL TYPES OF VOCATIONAL TEACHERS; I.E., THERE IS A DEMAND FOR PERSONNEL FOR CONVENTIONAL PROGRAMS AS WELL AS FOR NEW AND DEVELOPING PROGRAMS SUCH AS THOSE FOR YOUTH WITH SPECIAL NEEDS AND COOPERATIVE EDUCATION. A STRATEGY FOR MEETING THESE NEEDS BY IMPACTING ON THE EFFECTIVENESS AND EFFICIENCY OF TEACHER EDUCATION IS TO IDENTIFY THOSE PERFORMANCE ELEMENTS (PEDAGOGICAL) WHICH ARE COMMON ACROSS SERVICES AND THOSE UNIQUE TO EACH SERVICE. CURRICULA BASED ON SUCH A DESIGN WILL HELP INSTITUTIONS TO DEVELOP OPTIMUM USE OF TEACHER EDUCATION PERSONNEL AND TO AVOID

NONESSENTIAL ELEMENTS AND DUPLICATIONS IN PROFESSIONAL EFFORT.

THE EFFORTS OF THE FIRST TWO PHASES OF THIS PROJECT RESULTED IN THE IDENTIFICATION OF THREE HUNDRED NINETY PERFORMANCE ELEMENTS OR FUNCTIONS OF TEACHERS OF CLASSROOM AND LABORATORY SETTINGS, SPECIAL NEEDS YOUTH AND COOPERATIVE EDUCATION. OF THESE 390 ONLY ONE FUNCTION WAS JUDGED UNIQUE TO A SERVICE AREA. AGRICULTURE CLAIMED THIS UNIQUE FUNCTION - HOME VISITATIONS. ALL OTHER FUNCTIONS WERE USED BY ALL OTHER TEACHERS IN ALL OTHER SERVICE AREAS. I MIGHT ADD THAT MY EXPERIENCE HAS SHOWN THAT NO SUBJECT WHETHER ELEMENTARY EDUCATION, PHYSICS OR VOCATIONAL EDUCATION CAN CLAIM THAT ONLY IT USES SUCCESSFULLY CERTAIN TEACHING SKILLS.

ALTHOUGH THIS PROJECT WAS NOT DESIGNED SPECIFICALLY FOR EVALUATIVE PURPOSES, THE PERFORMANCE ELEMENTS AND RELATED INFORMATION CAN BE USED TO CHECK EXISTING TEACHER EDUCATION PROGRAMS.

THE THIRD PHASE OF THE PROJECT, "COOPERATIVE DEVELOPMENT OF PROFESSIONAL EDUCATION CURRICULA," INVOLVES THE STATE DEPARTMENT AND A UNIVERSITY IN EACH OF TWO STATES, MISSOURI (UNIVERSITY OF MISSOURI-COLUMBIA) AND OREGON (OREGON STATE UNIVERSITY).

THE CURRICULA TO BE DEVELOPED CONSIST OF LEARNING PACKAGES OR MODULES. THE MODULE FORMAT, AS PRESENTLY CONCEIVED, CONSISTS OF A TITLE, PREREQUISITES, DIRECTIONS, INTRODUCTION, PERFORMANCE OBJECTIVES, PRE-ASSESSMENT, LEARNING EXPERIENCES, ALTERNATE LEARNING EXPERIENCES, POST-ASSESSMENT AND REFERENCE LIST.

THE COOPERATIVE AGREEMENT AND PROJECT MANAGEMENT STRUCTURE CALL FOR THE CENTER SITE TEAM TO WORK COOPERATIVELY WITH THE DEPARTMENT HEAD AND FACULTY IN THE DEVELOPMENT AND TESTING OF

THE MODULES. EACH CENTER SITE TEAM CONSISTS OF TWO FULL-TIME RESEARCH AND DEVELOPMENT SPECIALISTS, ONE HALF-TIME GRADUATE RESEARCH ASSOCIATE, AND ONE FULL-TIME CLERICAL PERSON. THESE PERSONNEL WILL WORK WITH THE FACULTY OF THE COOPERATIVE INSTITUTION, WHICH IS CONTRIBUTING 12 MAN DAYS PER WEEK OR MORE TO WORK ON THE WRITING AND REVIEWING TEAMS.

A COORDINATING BOARD, CONSISTING OF THE PROJECT DIRECTOR, THE SITE TEAM LEADERS, THE DEPARTMENT HEADS, AND THE STATE DIRECTORS, HAS BEEN ESTABLISHED TO RESOLVE PROBLEMS AND EXPEDITE THE WORK OF THE PROJECT. THIS BOARD IS SCHEDULED TO MEET QUARTERLY.

A REVIEW BOARD, CONSISTING OF THE STATE DIRECTORS, THE DEANS, THE DIRECTOR OF THE CENTER, AND THE CENTER COORDINATOR FOR DEVELOPMENT, WILL MEET TWICE A YEAR TO EVALUATE THE PROGRESS OF THE PROJECT.

STAGE I OF THE EFFORT, WHICH BEGAN IN SEPTEMBER 1971, CONSISTS OF WRITING AND REVIEWING OF MODULES. EACH OF THE ON-SITE RESEARCH AND DEVELOPMENT SPECIALISTS LEAD WRITING TEAMS FOR THREE MODULES AND REVIEWING TEAMS FOR THREE MODULES AT A TIME. EACH MODULE IS WRITTEN BY A SMALL TEAM, REVIEWED BY ANOTHER SMALL TEAM, AND THEN REVISED AS NECESSARY. THE MODULE IS THEN REVIEWED BY THE FACULTY OF THE VOCATIONAL EDUCATION DEPARTMENT AND SENT TO THE OTHER COOPERATING INSTITUTION AND TO THE CENTER FOR REVIEW. SUGGESTIONS FOR IMPROVEMENTS ON THE MODULE ARE SYNTHESIZED BY THE CENTER PROJECT STAFF IN COLUMBUS. THE REVISED MODULES ARE RETURNED TO BOTH INSTITUTIONS FOR PILOT TESTING (STAGE II). AFTER PILOT TESTING WITH A SMALL NUMBER OF VOLUNTEERS, FACULTY AND STUDENT SUGGESTIONS FOR IMPROVEMENT OF THE

MODULE ARE SENT TO THE CENTER, WHERE THEY ARE SYNTHESIZED AND THE MODULE REVISED AGAIN. SEVENTY-TWO MODULES ARE SCHEDULED TO BE DEVELOPED AND PILOT TESTED DURING THE FIRST YEAR. (ENDING JULY 1, 1972)

IN THE SECOND YEAR, THE GOAL IS TO DEVELOP AN ADDITIONAL 36 MODULES, AS WELL AS CONCENTRATING PROJECT EFFORTS ON THE INTERMEDIATE TESTING AND FINAL TESTING (STAGE III) OF THE ORIGINAL 72 MODULES. AT THAT TIME, THE MODULES WILL BE REVISED AND HOPEFULLY MADE AVAILABLE TO OTHER INSTITUTIONS. DR. CALVIN J. COTRELL, RESEARCH SPECIALIST, CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION, IS THE PROJECT DIRECTOR.

THE NATIONAL OCCUPATIONAL COMPETENCY TESTING PROGRAM

THE NATIONAL OCCUPATIONAL COMPETENCY TESTING PROGRAM BEGAN AS A RESULT OF TWO ONE-DAY INSTITUTES AT RUTGERS UNIVERSITY IN 1966. REPRESENTATIVES FROM TWENTY-THREE STATES ATTENDED THESE INSTITUTES. THESE REPRESENTATIVES CONCLUDED THAT THE DEVELOPMENT AND IMPLEMENTATION OF AN OCCUPATIONAL COMPETENCY EXAMINATIONS PROGRAM ON A NATIONWIDE BASIS WOULD BE A MORE EFFICIENT USE OF PERSONNEL AND WOULD PROVIDE HIGHER QUALITY EXAMINATIONS. THROUGH THE EFFORTS OF DR. CARL SCHAEFER, OF RUTGERS UNIVERSITY; DR. C. THOMAS OLIVO, OF TEMPLE UNIVERSITY; AND DR. RICHARD NELSON, OF THE STATE EDUCATION DEPARTMENT, CALIFORNIA, A GRANT WAS OBTAINED FROM THE U.S. OFFICE OF EDUCATION WHICH LEAD TO THE ORGANIZATION OF THE PROJECT.

PROGRESS REPORTS ON THE PROJECT SHOW THAT TWENTY-FOUR TESTS ARE SCHEDULED FOR COMPLETION BY MAY 1972 AND TWENTY-FOUR AREA TEST CENTERS ARE EXPECTED TO BE ESTABLISHED. FORTY STATES AND FOUR TERRITORIES SENT REPRESENTATIVES TO THE CONSORTIUM MEETING

IN ST. LOUIS, MISSOURI IN MAY 1971.

THE MAJOR AREAS FOR WHICH TESTS ARE NOW IN THE COMPLETION STAGE ARE THE FOLLOWING:

AIRCRAFT INDUSTRY OCCUPATIONS	AIRPLANE MECHANIC
AUTOMOTIVE INDUSTRY OCCUPATIONS	AUTO MECHANIC
	AUTO BODY
	DIESEL ENGINE REPAIR
BUILDING INDUSTRY OCCUPATIONS	AIR CONDITIONING
	CARPENTRY
	CIVIL TECHNOLOGY
	ELECTRICIAN-INSTALLATION
	MASONRY
DRAFTING INDUSTRY OCCUPATIONS	ARCHITECTURAL DRAFTSMAN
	MECHANICAL DRAFTSMAN
ELECTRONICS INDUSTRY OCCUPATIONS	ELECTRONICS-INDUSTRIAL
ELECTRICAL INDUSTRY OCCUPATIONS	ELECTRICIAN-INDUSTRIAL
GRAPHIC ARTS INDUSTRY OCCUPATIONS	PRINTING
METAL INDUSTRY OCCUPATIONS	WELDING
PERSONAL SERVICE INDUSTRY OCCUPATIONS	COSMETOLOGY

TWELVE ADDITIONAL TESTS WHICH ARE IN PROGRESS ARE:

SMALL ENGINE REPAIR	APPLIANCE REPAIR
PLUMBING	ARCHITECTURAL TECHNOLOGY
SHEET METAL	MECHANICAL TECHNOLOGY
GARMENT PRODUCTION & DESIGN	CABINET MAKING AND MILLWORK
QUALITY FOOD COOKING	
COMMERCIAL ART	

EACH TEST WILL CONSIST OF A TWO TO THREE HOUR WRITTEN EXAMINATION AND A THREE TO FOUR HOUR PERFORMANCE EXAMINATION. FOR SECURITY REASONS PARALLEL TESTS, A AND B, HAVE BEEN AND WILL BE CONSTRUCTED FOR EACH OCCUPATIONAL AREA. NEGOTIATIONS WITH MAJOR PROFESSIONAL TESTING FIRMS ARE PLANNED FOR ADMINISTERING AND STATISTICALLY ANALYZING THE TESTS.

THE RATIONAL FOR THIS PROJECT IS BASED ON THE PROBLEM OF EVALUATING OCCUPATIONAL COMPETENCY. "EVALUATING A TRADESMAN'S OCCUPATIONAL COMPETENCY, WHETHER FOR EMPLOYMENT IN INDUSTRY, FOR ADMINISSION TO INDUSTRIAL TEACHER EDUCATION PROGRAMS, STATE CERTIFICATION, OR ADVANCED STANDING IN DEGREE PROGRAMS, HAS BEEN LARGELY A MATTER OF PERSONAL JUDGMENT. WHETHER THE CANDIDATE WAS

INTERVIEWED, OR HIS EXPERIENCE RECORD AND EMPLOYER RECOMMENDATIONS EVALUATED, OR GIVEN A WRITTEN AND/OR PERFORMANCE TEST, THE RESULTS HAVE BEEN UNCERTAIN AND SUBJECTIVE.

WHILE THERE IS A WIDELY HELD OPINION THAT WELL-CONSTRUCTED WRITTEN AND PERFORMANCE TESTS, BASED ON A THOROUGH ANALYSIS OF ALL THE COMPONENTS WHICH CONSTITUTE OCCUPATIONAL COMPETENCY, CAN PROVIDE EFFECTIVE, RELIABLE AND VALID MEASURES FOR SUCH EVALUATION, THE EFFORTS, SO FAR, HAVE BEEN LESS THAN SATISFACTORY (ADOLPH PANITZ, DECEMBER 5, 1971)."

PROGRAM OF WORK

THE AMERICAN VOCATIONAL ASSOCIATION "PROGRAM OF WORK FOR 1971" HIGHLIGHTED CONCERN FOR EVALUATION OF VOCATIONAL EDUCATION. IN A BROCHURE ON THE PROGRAM OF WORK - 1971 THE STATEMENT WAS MADE THAT "ONE OF THE MOST CHALLENGING PROPOSITIONS FACING VOCATIONAL EDUCATORS TODAY IS THIS QUESTION: 'WHERE ARE WE AND HOW WELL ARE WE DOING.'" OTHER MAJOR QUESTIONS AND COMMENTS CITED WERE:

I. ARE WE SERVING THE PEOPLE?
   - A. GUIDANCE SERVICES SHOULD BE CAREER ORIENTED.
   - B. VOCATIONAL EDUCATORS SHOULD BE INVOLVED IN PLANNING AND CARRYING OUT EXPLORATORY OCCUPATIONAL EDUCATION PROGRAMS.

II. DO YOUR SECONDARY AND POST-SECONDARY PROGRAMS COMPLEMENT AND SUPPORT EACH OTHER IN PROVIDING OPPORTUNITIES FOR VOCATIONAL EDUCATION?
   - A. EDUCATION SHOULD PROVIDE A CONTINUUM OF OPPORTUNITY.
   - B. ARTICULATION SHOULD LEAD TO UNDERSTANDING.

III. WHAT ARE THE FUNCTIONS OF STATE AND NATIONAL ADVISORY COUNCILS?

A. THE VOCATIONAL EDUCATOR SHOULD PROVIDE THE COUNCILS WITH PROGRAM INFORMATION.

B. THE VOCATIONAL EDUCATOR SHOULD BE INVOLVED IN THE ESTABLISHMENT OF EVALUATIVE CRITERIA.

IV. HOW IMPORTANT DO YOU CONSIDER PROFESSIONAL DEVELOPMENT?

A. VOCATIONAL EDUCATORS SHOULD RETURN TO THEIR OCCUPATIONAL FIELD FOR STUDY AND UPGRADING.

B. VOCATIONAL EDUCATORS SHOULD DEVELOP A SENSITIVITY TO HUMAN NEEDS.

AMERICAN VOCATIONAL ASSOCIATION NATIONAL STUDY FOR ACCREDITATION OF VOCATIONAL/TECHNICAL EDUCATION

DR. LANE C. ASH RECENTLY RELEASED THE DOCUMENT, INSTRUMENTS AND PROCEDURES FOR THE EVALUATION OF VOCATIONAL/TECHNICAL EDUCATION INSTITUTIONS AND PROGRAMS. THE AMERICAN VOCATIONAL ASSOCIATION COMMITTEE ON EVALUATION AND ACCREDITATION, ESTABLISHED IN 1963, GUIDED THIS PROJECT. THE REPORT IS A PILOT TEST EDITION FOR DISCUSSION PURPOSES ONLY. THE INSTRUMENTS INCLUDED HAVE NOT BEEN TESTED FOR THEIR FEASIBILITY, VALIDITY OR RELIABILITY. IT SHOULD ALSO BE NOTED THAT THIS STUDY WAS DIRECTED TOWARD ACCREDITATION.

LOWELL A. BURKETT IN THE PREFACE OF THIS EDITION STATED:

> ACCREDITATION IN THE PAST HAS BEEN A FUNCTION LARGELY CONCERNED WITH THE ARTICULATION OF EDUCATION, NAMELY, FACILITATING THE TRANSFER OF STUDENTS FROM ONE LEVEL OF EDUCATION TO ANOTHER AND BETWEEN INSTITUTIONS

WITH SOME CONFIDENCE IN THE PRIOR PREPARATION RECEIVED. TO THIS END ACCREDITATION HAS HELD EDUCATION ACCOUNTABLE FOR PREPARING STUDENTS FOR FURTHER EDUCATION.

NO COMPARABLE AND BALANCING FORCE HAS EXISTED FOR HOLDING EDUCATION ACCOUNTABLE FOR PREPARING STUDENTS FOR EMPLOYMENT. THE PRESENT EFFORT IS AIMED AT FILLING THAT VOID.

A LOGICAL NEXT STEP BEYOND THE PRESENT STUDY IS A STUDY LEADING TO CRITERIA AND STANDARDS FOR PRE-VOCATIONAL/TECHNICAL EDUCATION TO ASSURE SUCCESSFUL ARTICULATION (1971, PREFACE).

DR. ASH DEFINED ACCREDITATION AS THE PROCESS WHEREBY AN ORGANIZATION OR AGENCY RECOGNIZE AN INSTITUTION OR PROGRAM OR STUDY AS HAVING MET CERTAIN PRE-DETERMINED QUALIFICATIONS OR STANDARDS. IN DISCUSSING ACCREDITATION HE EXPLAINS THAT ACCREDITATION IS A VOLUNTARY PROCESS AND SERVES A NUMBER OF USEFUL FUNCTIONS: IT IS A MEANS OF SYSTEMATIC SELF-IMPROVEMENT; IT PROVIDES ACCESS TO A VARIETY OF FEDERAL BENEFITS; IT PROMOTES PUBLIC CONFIDENCE IN THE SCHOOL; IT HELPS TO IDENTIFY QUALITY PROGRAMS AND INSTITUTIONS FOR PROSPECTIVE STUDENTS, THEIR PARENTS, GUIDANCE COUNSELORS, THE PUBLIC AND FUNDING AGENCIES.

DR. ASH EXPLAINS THAT VOCATIONAL EDUCATORS WANT ACCREDITING STANDARDS AND PROCEDURES SPECIFIC TO VOCATIONAL/TECHNICAL EDUCATION THAT WILL NOT REDIRECT VOCATIONAL/TECHNICAL EDUCATION AWAY FROM ITS FUNDAMENTAL PURPOSE OF PREPARING PEOPLE FOR GAINFUL EMPLOYMENT. EVALUATION FOR ACCREDITATION SHOULD BE CONDUCTED BY AND FOR VOCATIONAL/TECHNICAL EDUCATORS. EVALUATION SHOULD BE BASED ON RESULTS AND DOCUMENTED OUTCOMES RATHER THAN

ON SOLELY THE EDUCATIVE PROCESS. ACCREDITATION SHOULD GIVE VOCATIONAL/TECHNICAL EDUCATION A STRONGER VOICE AND GREATER RESPECT IN THE TOTAL EDUCATIONAL COMMUNITY.

THREE TYPES OF INSTRUMENTS ARE GIVEN IN THE REPORT. THESE ARE:

1. AN INSTITUTIONAL FORM TO ASSESS HOW WELL THE INSTITUTION IS SERVING THE NEEDS IT IS EXPECTED TO SERVE, AND HOW WELL IT OPERATES IN SUPPORT OF ITS VOCATIONAL/TECHNICAL PROGRAMS.

2. A PROGRAM FORM TO ASSESS HOW WELL INDIVIDUAL PROGRAMS ARE PREPARING STUDENTS TO MEET OCCUPATIONAL REQUIREMENTS.

3. AN INDIVIDUAL FORM TO PERMIT INSTRUCTORS AND OTHER PROFESSIONALS ON THE SCHOOL STAFF TO ASSESS THEIR OWN WORK AND NEEDS, AND TO EXPRESS THEIR EVALUATION OF PROGRAM AND INSTITUTIONAL STRENGTHS, WEAKNESSES AND NEEDS FOR IMPROVEMENT. (THE INDIVIDUAL FORM IS THE WEAKEST OF THE INSTRUMENTS WHICH MEANS THIS PROJECT DID NOT HAVE A "BREAK THROUGH" FOR EVALUATION OF THE INDIVIDUAL INSTRUCTOR.)

THREE MAJOR STEPS ARE PLANNED FOR THE EVALUATIVE PROCESS USING THE INSTRUMENTS IN THIS REPORT. THESE STEPS ARE:

1. AN IN-DEPTH SELF-EVALUATION STUDY;

2. AN ON-SITE VERIFICATION OR AUDIT BY A TEAM OF QUALIFIED PEOPLE FROM OUTSIDE THE INSTITUTION AND;

3. A REVIEW BY AN INDEPENDENT THIRD GROUP (CONTINUOUS ACCREDITATION AGENCY), BASED ON EVIDENCE IN THE SELF-EVALUATION REPORT AND ON-SITE VISITING TEAM REPORT. THE RIGHT OF APPEAL IS ALSO PROVIDED.

EACH INSTRUMENT SHOULD (AND THIS REMEMBER HAS NOT BEEN TESTED):

PROVIDE FOR AN EVALUATION OF EACH INSTITUTION AND PROGRAM IN TERMS OF ITS OWN ANNOUNCED OBJECTIVES. (NOTE THAT THE INSTRUCTOR WAS NOT MENTIONED IN THIS STATEMENT.) I AM NOT COMPLETELY IN AGREEMENT WITH THIS STATEMENT, UNLESS THE NEXT CRITERIA FULFILLS IT, BECAUSE THERE ARE NATIONAL, STATE AND REGIONAL OBJECTIVES WHICH THE INSTITUTIONS AND PROGRAMS MUST RECOGNIZE AND MAKE AS THEIR OWN. THESE INSTRUMENTS SHOULD REVEAL THESE TYPES OF OBJECTIVES, I.E., OMISSION OF NATIONAL, STATE OR REGIONAL GOALS.

BE BASED ON MEASURABLE PERFORMANCE OBJECTIVES, BASED AT THE INSTITUTIONAL LEVEL ON SURVEYS OF POPULATION NEEDS AND MANPOWER NEEDS, AND AT THE PROGRAM LEVEL ON OCCUPATIONAL ANALYSES AND ANALYSES OF STUDENT NEEDS.

BE BASED ON A CONCEPT OF VOCATIONAL/TECHNICAL EDUCATION THAT INCLUDES RECRUITMENT, EDUCATION, PLACEMENT, FOLLOW-UP AND LIFETIME SERVICES.

THOSE PERSONS INTERESTED IN FIELD TESTING THE INSTRUMENTS IN THEIR INSTITUTIONS WILL BE EXPECTED "TO USE THE INSTRUMENTS AND PROCEDURES AS INSTRUCTED OR AGREED UPON WITH THE STAFF OF THE NATIONAL STUDY, TO SUBMIT A SELF-EVALUATION REPORT AND TO PAY THE TRAVEL, SUBSISTENCE AND INCIDENTAL COSTS OF THE ON-SITE VISIT AFTER THE SELF-EVALUATION HAS BEEN COMPLETED. MEMBERS OF THE ON-SITE VISITING TEAM ARE EXPECTED TO SERVE WITHOUT HONORARIA, AND THE NATIONAL STUDY WILL PAY THE EXPENSES OF ITS OWN STAFF MEMBERS WHO WILL SERVE AS OBSERVERS (ASH, 1971, 9)." CONSULTATION, ORIENTATION AND SUFFICIENT INSTRUMENTS FOR FIELD

TESTING WILL BE PROVIDED WITHOUT COST BY THE NATIONAL STUDY.

HUMAN RESOURCES RESEARCH ORGANIZATION

THE HUMAN RESOURCES RESEARCH ORGANIZATION IN JUNE 1971 PUBLISHED A REPORT TITLED THE DESIGN AND EVALUATION OF VOCATIONAL TECHNICAL EDUCATION CURRICULA THROUGH FUNCTIONAL JOB ANALYSIS. THE RATIONALE GIVEN FOR THIS STUDY STATES "THE EMPHASIS IN THE NATION'S SCHOOL SYSTEMS IS ON THE COGNITIVE AND AFFECTIVE DOMAINS AT THE EXPENSE OF THE PSYCHOMOTOR. THIS ACCOUNTS, AT LEAST IN PART, FOR THE LARGE PERCENTAGE OF YOUNG PEOPLE WHO LEAVE OR 'DROPOUT' BECAUSE OF DISSATISFACTION WITH SCHOOL (YAGI, 1971, 3)." "... A FRESH APPROACH NEEDS TO BE TAKEN TO THE OLD PROBLEM OF THE RELATIONSHIP BETWEEN VOCATIONAL PREPARATION AND INTELLECTUAL TRAINING. THE APPROACH PROPOSED HERE RESTS ON THE BASIC ASSUMPTION THAT THE DEVELOPMENT AND EDUCATION OF THE CLASS OF SKILLS AND KNOWLEDGE IDENTIFIED BY THE TERM PSYCHOMOTOR IS A LEGITIMATE RESPONSIBILITY OF PUBLIC EDUCATION FOR ALL PUPILS FROM THE TIME THEY ENTER THE SYSTEM IN THE SAME DEGREE AND WITH THE SAME EMPHASIS WITH WHICH THE PUBLIC SCHOOLS ASSUME RESPONSIBILITY FOR EDUCATION IN THE COGNITIVE AND AFFECTIVE DOMAINS. IN ORDER TO DEVELOP SUCH A COMPREHENSIVE CURRICULUM, A TAXONOMY, OR AT LEAST A SYSTEM WHICH INCLUDES A CLASSIFICATION OF PSYCHOMOTOR SKILLS AND KNOWLEDGE NEEDS TO BE DEVELOPED (YAGI, 1971, 4)."

A BASIC TAXONOMY OF EDUCATIONAL OBJECTIVES WAS CONSTRUCTED DURING THIS STUDY IN THE FORM OF A MATRIX OF THREE ACTIVITY AREAS WHICH ARE THINGS, DATA AND PEOPLE, FOUR LEVELS OF FUNCTIONING SUCH AS INVENTING, ANALYZING, OPERATING AND HANDLING AND THREE CATEGORIES OF INDIVIDUAL CHARACTERISTICS, THAT IS,

INFORMATION, SKILLS, WHICH INCLUDES MENTAL AND PHYSICAL, AND ATTITUDES. THIS MATRIX FORMS A 36-CATEGORY CLASSIFICATION SYSTEM WHICH WAS USED TO DESIGN A MODEL INTERVIEW SCHEDULE TO DETERMINE THE CONTENT OF A PROGRAM ON COURSE. THE GOAL OF THIS STUDY WAS GENERALLY SUCCESSFUL IN DEVELOPING A TAXONOMY OF VOCATIONAL-INDUSTRIAL EDUCATION OBJECTIVES THAT COULD BE USED NOT ONLY TO DESIGN NEW, RADICALLY DIFFERENT, COMPREHENSIVE CURRICULA, BUT ALSO TO DESCRIBE, ANALYZE, COMPARE AND EVALUATE NEW AND EXISTING EDUCATIONAL OBJECTIVES.

I HAVE FOUND THIS SOURCE TO BE VERY USEFUL FOR INSTRUCTION IN A COURSE GIVEN AT RUTGERS UNIVERSITY, COURSE CONSTRUCTION IN TRADE AND INDUSTRIAL EDUCATION. ITS GREATEST CONTRIBUTION TO MY STUDENTS HAS BEEN TO EXPAND THEIR THINKING TO ALL DOMAINS OF EDUCATIONAL OBJECTIVES WHEN ACTUALLY DESIGNING OR EVALUATING THEIR PROGRAMS OF INSTRUCTION. I RECOMMEND THIS TECHNICAL REPORT FOR YOUR FUTURE USE.

CONCLUSIONS

IN EXAMINING THE PERFORMANCE EVALUATION PROJECT BEING CONDUCTED BY THE STATE OF NEW JERSEY, THE MODEL CURRICULA FOR VOCATIONAL-TECHNICAL TEACHER EDUCATION PROJECT AT THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION, THE NATIONAL OCCUPATIONAL COMPETENCY EXAMINATIONS PROJECT AT RUTGERS UNIVERSITY AND THE AMERICAN VOCATIONAL ASSOCIATION STUDY ON EVALUATION OF VOCATIONAL/TECHNICAL EDUCATION, I REALIZED THAT THE COMBINATION OF THESE WOULD PROVIDE A COMPREHENSIVE EVALUATION OF VOCATIONAL-TECHNICAL EDUCATION. A TEACHER'S TEACHING AND OCCUPATIONAL COMPETENCY COULD BE EVALUATED, AS WELL AS HAVING THE STRUCTURE TO DEVELOP TEACHER EDUCATION PROGRAMS, AND THE ACCREDITATION OR EVALUATION OF INSTITUTIONS AND PROGRAMS COULD BE ACCOMPLISHED.

AFTER EXAMINATION OF THE LITERATURE ON EVALUATION AND ACCOUNTABILITY AND REFLECTION ON MY OWN RESEARCH EXPERIENCE, SOME HYPOTHESES ABOUT EVALUATION AND ACCOUNTABILITY CAN BE STATED. THESE ARE:

1. NO ONE LIKES TO BE EVALUATED.

2. NO ONE LIKES TO WRITE BEHAVIORAL OBJECTIVES - BECAUSE ONCE THESE ARE ON PAPER - THE PERSON IS ACCOUNTABLE FOR ACCOMPLISHING THEM.

3. NO ONE LIKES TO EVALUATE. THIS INVOLVES A FACE-TO-FACE CONFRONTATION IN WHICH ONE PERSON IS TELLING THE OTHER PERSON THAT HE OR SHE SUCCEEDED OR FAILED. AN INDUSTRIALIST ONCE TOLD ME THAT THE REASON FOR SO MUCH INEFFICIENCY IN BUSINESS AND INDUSTRY IS THAT NO ONE HAS THE DETERMINATION TO REFUSE THE PROMOTION OF ANOTHER PERSON OR TO CRITICIZE PERFORMANCE.

4. A PERSON IS HELD ACCOUNTABLE BY ANOTHER PERSON OR GROUP ONLY WHEN HIS ACTION DIRECTLY AFFECTS THE OTHER PERSON OR GROUP. RETIRED PERSONS WON'T CRITICIZE TEACHERS UNLESS TEACHERS DESIRE INCREASED SALARIES WHICH SUBSEQUENTALLY RAISE TAXES.

5. EVALUATION AND ACCOUNTABILITY WILL BE MORE AND POSSIBLY EXTREMELY PRESSING IN THE FUTURE. THERE ARE NOT ENOUGH RESOURCES FOR EVERY PERSON OR ORGANIZATION IN THIS COUNTRY OR THIS WORLD TO ALLOW INDIVIDUALS OR ORGANIZATIONS TO ESCAPE EVALUATION. READ THE TIME MAGAZINE ARTICLE "EMPTY POCKETS ON A TRILLION DOLLARS A YEAR" IF YOU WANT REINFORCEMENT OF THIS FACT.

6. THE INDIVIDUAL OR ORGANIZATION WHICH INITIATES, BY SELF INITIATIVE, EVALUATION PROCEDURES WILL BE THOSE WHO IMPROVE AND SURVIVE.

7. ALLOWING EXTERNAL INITIATION OF EVALUATION SPELLS TROUBLE FOR THE INDIVIDUAL OR ORGANIZATION CONCERNED.

8. EVALUATION AS A POLICY IS TO INCREASE INDIVIDUAL PRODUCTIVITY FOR THE SOCIETY FOR WHICH ACCOUNTABILITY IS NEEDED. YET EVALUATION PROCEDURES FOR THE INDIVIDUAL ARE THE WEAKEST.

9. EVALUATION MUST INVOLVE THE OBJECTIVES OF INTERNATIONAL, NATIONAL, STATE, REGION AND INDIVIDUALS. (FOR EXAMPLE, THE SCHOOL ONLY CONDUCTING A NEEDS ASSESSMENT IN A COUNTY IS SEVERELY LIMITING THE OPPORTUNITIES OF ITS STUDENTS.

YOU WILL NOTICE A SHEET ON THE BACK OF THE MATERIAL TO BE DISTRIBUTED. I WOULD APPRECIATE (BUT NOT POSSIBLY LIKE) YOUR EVALUATING THIS PRESENTATION.

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PLEASE RETURN

To: Charles R. Doty
Adviser in Technical Education
Department of Vocational-Technical Education
Rutgers University
10 Seminary Place
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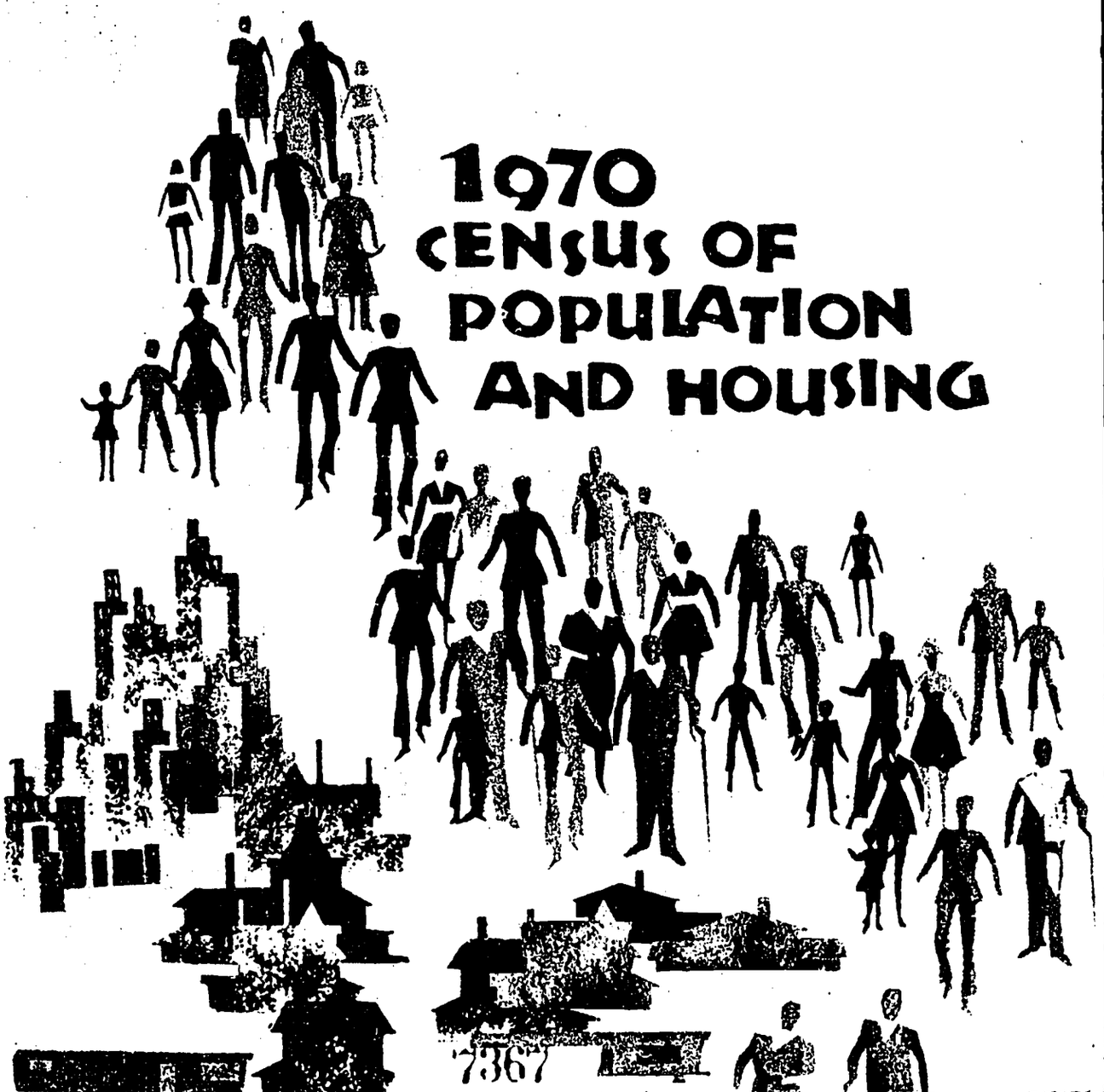

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DEMOGRAPHIC SURVEYS DIVISION

Daniel B. Levine, Chief

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The Census Employment Survey was planned and directed in the Demographic Surveys Division under the supervision of Daniel B. Levine, by Earle J. Gerson, Assistant Division Chief. This report was developed and written by George Gray, Kenneth R. Brimmer, and Gloria F. Tobor. The procedures for processing the data shown in this report were prepared under the direction of Jervis Braunstein, Assistant Division Chief; Orville Fisher and Leonard Goldberg were responsible for the manual procedures and Alfonso Episcopo and Merritte Woodward for the computer procedures.

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PHC(3)-22

1970 CENSUS OF POPULATION AND HOUSING

Employment Profiles of Selected Low-Income Areas

DETROIT, MICH.

Issued December 1971

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GENERAL

This report presents statistics from the Census Employment Survey (CES), conducted as part of the overall program of the 1970 Census of Population and Housing. Detailed socio-economic information on employment related problems was collected in each of 60 urban and seven rural areas, identified first by reference to 1960 Census data and subsequently corroborated by a variety of local sources as likely to contain relatively high proportions of persons with low income. This method of selecting the areas to be studied was used because the timing of the study precluded the use of up-to-date data from the 1970 Census and the needs of the study dictated current area appraisals. The designated areas used in the CES, therefore, differ from and are not to be confused with other low income or poverty areas that have been defined in the past for other purposes or that may be defined subsequently using information from the 1970 Decennial Census.

The need for this program developed during the final Cabinet level review of the subject content of the 1970 Census when it became clear that the Census questionnaire could not be expanded to fulfill all of the needs for data to assist in guiding Government programs in the fields of labor, housing, education, and welfare for certain critical target groups—people residing in areas having substantial numbers of families with low incomes. More extensive information was needed on such subjects as employment, unemployment, training for work, job-seeking methods, job tenure, sources and level of income, residential mobility, transportation to work, and on all factors considered deterrents to employment. Therefore, the Census Employment Survey was developed to obtain this information from persons living in 60 selected areas[1] in 51 of the Nation's largest cities and in seven rural areas.

The questionnaire and tabulation requirements of the CES in general followed the pattern established earlier by the Urban Employment Survey (UES). The areas included in the UES were in all cases smaller than the areas covered by the CES.

The UES was set up in 1968 through the joint efforts of the Manpower Administration, the Bureau of Labor Statistics, and the Bureau of the Census to examine similar kinds of problems for persons living in areas covered by the Concentrated Employment Program (CEP) of the Department of Labor. All of the manpower and job development programs in these areas had been combined under one administrative structure in order to concentrate their impact. The UES was conducted in six cities from July 1968 to July 1970. Results of the Urban Employment Survey have been published by the Bureau of Labor Statistics and may be obtained by writing to the Commissioner of the Bureau of Labor Statistics or any of the BLS Regional Offices (New York, Chicago, Atlanta, Dallas, and San Fransisco).

This series on the Census Employment Survey consists of 76 separate reports covering each individual area and nine combined reports including a U.S. Summary for the urban areas. A list of the areas and the reports appears on page II.

Content of the tables.—Tables A to N present general demographic characteristics of the population by the most important labor force and socio-economic factors. These tables include data for each race and Spanish origin group comprising 5 percent or more of the area's population, as measured by the 1970 Census of Population and Housing. In general, each table will be presented for the total population of the area, for the Negro population of the area, and the white population of the area. Whenever the proportion of persons of Spanish origin is 5 percent or more, the white group will be subdivided into white Spanish and other white. In most instances figures for other races (American Indian, Chinese, Japanese, etc.) can only be obtained by subtraction from the total. However, in the few instances where they comprise 5 percent or more of the population, they will be shown separately as "Other."

Tables 1 to 18 of the detailed characteristics tables present current labor force and employment status statistics by detailed demographic

[1] The CES areas were defined as sets of contiguous tracts that were identified as having a high proportion of families with "low income." For the most part there was only one set but in several instances more than one set of tracts were designated as the CES area. For a more detailed description of the selection process see page VII "Selection of Low-Income Area."

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categories. Since these and the following detailed characteristic tables provide significantly greater detail in the form of cross classifications than tables A to N, they are restricted to those race and Spanish origin groups representing 20 percent or more of the area's population. Their presentation for a group of less than 20 percent of the total population would result in many categories with no information.

Tables 19 to 31 present the same detailed demographic characteristics as tables 1 to 18 by the work experience of the population in the last 12 months. Information on job training and work history of the population is presented in tables 32 to 39. Detailed statistics on family income and the migration pattern of the residents of this area are presented in tables 40 to 54.

All tables are for persons 16 years of age or older unless specifically indicated otherwise.

The subcategories do not always add to the totals because of rounding the weighted figures to whole integers.

Derived figures.—This report presents data for medians as well as percents and rates. The median is the middle value in a distribution of values; i.e., the median divides the distribution into two equal parts—one-half of the cases fall below the median and one-half the cases fall above the median value. When the median falls in the last category of a distribution, the method of presentation is to show the lower limit of the category followed by a plus sign. For example, if the median falls in the category "65 years and over," it is shown as "65+."

Symbols.—The symbols used in these reports are "—", "NA", and in a few cases "Z". A dash (—) signifies zero or no data for that cell. "NA" means not applicable and is used, for example, when a median line is shown but the information to be presented is a percent. "Z" is used in those few reports where figures are shown in "thousands." Whenever the total in a cell represents so small a number that it is rounded to zero, the "Z" is used. Thus, the "Z" means there is data and the "—" means there is no data in a specific category of a table.

DATA COLLECTION PROCEDURES

On the average, in each designated area interviews were obtained from about 5,400 persons 16 years of age or older residing in about 2,750 households. However, the areas ranged from a low of 2,300 households and 4,400 persons to a high of 3,700 interviewed households with over 7,000 sample persons. The interviewing operations lasted an average of 14 weeks, but the span of data collection activities ranged from 9 weeks to 20 weeks. Some areas began enumeration in early August, while others did not begin until mid-November. All, however, were completed by early March 1971. Overall, interviews were obtained from all but 3.7 percent of the designated occupied households.

For the area covered in this report, specific data for sample size, the interviewing period, and the proportion of contacted households not participating in the survey are presented in the section "Selected Characteristics of the Survey in This Area."

Selection of low-income area.—Because of the timing of this project, 1970 census data could not be utilized in selecting urban areas for the Census Employment Survey. Fortunately the Bureau had an ongoing program of research to delineate areas with substantial numbers of persons with low incomes. This work was an extension of the Bureau's previous selection of such areas which used 1960 census data for the 101 Standard Metropolitan Statistical Areas (SMSA's) with a 1960 population of 250,000 or more. The areas were defined in terms of census tracts. Changes were made to these previously delineated areas based on more recent information acquired by the Bureau's staff from a wide variety of sources (e.g., area boundaries, and data pertaining to welfare programs, juvenile delinquency, illegitimate births, and housing conditions). Using this information, the Bureau made preliminary designations of the current areas and sent them to local experts for review. Efforts were made to solicit comments from the local person responsible for census tracts, the city planning commission, and any other agency or person recommended as knowledgeable in this area. A letter was sent to each of these persons or agencies explaining the purpose of the project and requesting suggestions for additions or deletions to the area. The recommendations received were subjected to further scrutiny by the Bureau's staff under a set of guidelines designed to assure some uniformity across the country. Thus, the final designations of the areas selected for the Census Employment Survey represent a synthesis of previous area designations, 1960 Census and other more recent socio-economic data, and the views of local knowledgeable agencies.

For 47 of the cities in this survey, a single CES survey area was selected consisting of all the census tracts meeting the criterion described above. (See pages XIII and XIV for a map and a list of the census tracts in this area.) In Chicago, Los Angeles, and Philadelphia, however, the tracts were subdivided into two separate CES survey areas per city. In New York City the tracts were subdivided into seven CES survey areas—three in Brooklyn Borough, two in Manhattan Borough, and one each in Queens Borough and Bronx Borough. Thus a total of 60 surveys were conducted in the 51 cities.

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Selection and training of personnel.—The Census Employment Survey was conducted in each area as soon as practicable after the completion of the decennial census operations. The great majority of the members of the CES data collection staff (area supervisors, crew leaders, and interviewers) were selected because they had held similar positions with the census and thus had some data-gathering experience.

The typical area office staff consisted of (a) an area supervisor, (b) a supervisory clerk, (c) three or four office clerks, (d) a crew leader for each five or six interviewers, (e) an interviewer for each one hundred assigned households. Most offices had six or seven crew leaders and from 30 to 35 interviewers. Each office had at least one person specially trained in selected quality control procedures. Overall supervision of the project was provided by personnel from the Census Bureau's permanent Data Collection Centers.

The actual data collection was preceded by an extensive training program, involving both home study and classroom work. Training for area supervisors lasted 1 week. Crew leaders received 7 days of training, including 1 day of actual interviewing experience. Interviewers were given 5 days of classroom lectures and one-half day of on-the-job training. The person selected for quality control attended the interviewer training and then received a 2-day special training session on quality control procedures. The area office staff attended either the crew leader's or the interviewer's training session and received additional specific instruction on the operations they were to perform.

Quality control of data collection.—The quality of the results of the interviewing was controlled at two levels in the field. First, the crew leader observed each interviewer at least twice and more often if needed. The first few completed forms returned by an interviewer also were reviewed carefully and thereafter all forms were scanned for completeness. Most importantly, the crew leader conducted a recheck by personal visit or telephone of one in every eight addresses assigned to the interviewer. These addresses were randomly selected and included units reported as "noninterview" as well as interviewed households. The purpose of the recheck was to make sure that interviewers were dealing properly with persons who did not wish to respond and that they had interviewed all members of the household who were 16 years of age or older. In addition, the crew leader revisited and obtained, if possible, an interview for all occupied households that were reported as "noninterview" by the interviewer. This served the dual purpose of reducing such noninterviews and acquainting the crew leader with ways to help the interviewers to obtain a high rate of completion.

The second level of control of quality was carried out in the area office. First, a complete edit of a portion of each interviewer's work was performed for each week he worked. In addition, the area office reviewed all of the interviewer's work for completeness.

Finally, a random group of addresses was selected from the entire area assignment and a specially trained interviewer (designated as a reinterviewer) returned to the household and conducted a complete reinterview with one of the persons contacted by the original interviewer. The reinterviewer was provided with the information that was originally collected. He conducted his interview and then checked his results against the information obtained by the original interviewer. If discrepancies were noted between the two interviews, the reinterviewer attempted to reconcile the differences. Discrepancies were then corrected and the reasons reported. The addresses to be included in the reinterview were selected not only to provide a check on the work of the interviewer and crew leader, but also to obtain a measure of the overall quality of the data collected.

Interviewing.—Each area office was provided with a list of addresses of housing units and special places designated to be interviewed (see Appendix B, Sample Design, Estimation, and Reliability of Estimates). The office prepared a Control Card (CES-1) for each housing unit and each designated person in special places. (See appendix C for copies of the forms used in CES.) These were grouped geographically by crew leader district. The crew leader then assigned a set of Control Cards to each interviewer in his district. The survey was conducted by personal visit to each address. The interviewer completed the Control Card by obtaining a complete list of all household members, as defined below, and some personal characteristics, such as birth date, sex, marital status, and educational attainment for all persons who were members of that household. In addition, information was gathered on selected housing characteristics—the number of rooms in the unit, whether it was owned or rented, the amounts of mortgage or rent payments, the amounts paid for monthly utilities, installment debt, and the number of cars the household had for its use. Next, a labor force questionnaire (CES-2) was completed for all civilian noninstitutional household members 16 years of age or older.

Any person, whether present or temporarily absent, whose usual place of residence was the sample address or who was staying at the address and had no usual place of residence else-

where, was considered a household member. This included all persons related to the head and any unrelated individuals living or staying there, but excluded Armed Forces members and inmates of penal or mental institutions or hospitals and homes providing long term care.

The Labor Force Questionnaire covers current employment or unemployment, current occupation, whether or not the person was employed during the past 12 months and, if so, at what occupation.

Both the Control Card and the Labor Force Questionnaire were completed by interviewing a responsible adult member 16 years of age or older. Each eligible person, however, was interviewed for himself for the Work History Booklet (CES-3). The subjects covered by this booklet were methods of seeking employment, job training, wages and salary and other income for the past 12 months, migration, earnings last week, transportation to work, and barriers to employment or advancement.

An average interview lasted about 60 minutes and covered two persons per household.

PROCESSING PROCEDURES

Clerical editing and coding.—The questionnaires were first edited for consistency and corrections made wherever possible in the Census Bureau facility at Pittsburg, Kans. In addition, certain information was transferred from the Control Card (CES-1) to the Labor Force Questionnaire (CES-2) for ease in subsequent processing.

The next step was to assign code categories to the various write-in entries. For example, individuals in sample units were grouped into families or other living arrangements; the sample person's birthplace was converted into the State or country of birth; and the critical determination of the appropriate codes to represent the occupation and industry of the person's current job, longest job held during the last 12 months, first job and the longest job ever held were placed on the record. The industry and occupation codes were subject to a system of independent verification in which a randomly selected 5 percent of each production coder's work was precoded independently by two coders. Coders failing to meet and maintain standards were reassigned. Work units that were below standard were recoded. Because of the detailed training, close supervision, and stringent quality control procedures, the final overall error rate was estimated at 2 percent for the occupation and industry coding operation.

Creation of computer record file.—The Census Employment Survey was collected using two primary forms—the Labor Force Questionnaire (CES-2) and the Work History Booklet (CES-3). Because of their different natures, two separate processes were used to place the data on tape. These two sources were subsequently merged by matching separate data for each individual respondent into one continuous record. Finally, the merged record was subject to a further edit for consistency and completeness and adjusted to independent estimates of the population. (For a discussion of these procedures see "Estimation" in appendix B.)

The Labor Force Questionnaire (CES-2) was specially designed to be processed by FOSDIC (Film Optical Sensing Device for Input to Computers). Interviewers and coding clerks marked the answers in predesignated positions which could be "read" by FOSDIC, from a microfilm copy of the questionnaire, onto computer magnetic tape.

The Work History Booklet (CES-3) data on the other hand was punched directly on a magnetic tape using a data keying device to create a continuous record. Each data field to be punched was associated with a numerical key, for example, item 2 had the key 011. After the data was punched on tapes, the data was reformatted into a more conventional record layout deleting the data keys. The verification of this data keying showed that approximately 90 percent of all Work History Booklets keyed were entirely error free. The overall error rate for all information keyed was approximately 0.32 percent.

Editing of unacceptable data.—Although every attempt is made to avoid human and mechanical errors, they will occur in any survey operation, especially in one as large and complex as the Census Employment Survey. Such errors include failure to obtain required information from respondents, obtaining inconsistent or incorrect information, and recording information incorrectly. Sampling biases occur because some of the enumerators fail to follow sampling instructions properly. Errors can occur in the field review of the interviewer's work, in the clerical editing and coding of the questionnaires, in the electronic processing and, indeed, even in the final review and publication of the materials. Careful and extensive efforts have been made in this survey to keep the errors in each step at an acceptably low level. Review of the interviewer's work, verification of the manual coding and editing, checking the tabulated figures, and ratio estimation of sample data to control totals (as discussed in appendix B) reduced the effects of the errors. Clerical editing and coding operations provided an opportunity to correct obvious errors and to assign numerical codes to those items where editing and coding required the reading of written entries.

Wherever possible, edits for consistency within each questionnaire and between questionnaires were done in the computer. Allocations or assignments of acceptable codes were made where needed. This occurred most often when information for a given item was lacking, though it was also done when the information was inconsistent with that from other acceptable entries for a person. The general procedures for handling blanks or for correcting unacceptable entries was to assign an entry for the person that was consistent with the entries for other persons with similar social and economic characteristics.

An example of this procedure is the method used in this survey of assigning or allocating wage and salary income information. The process was carried out in the following steps:

1. The computer stored a person's reported wage and salary income information (an amount or none) by age (16-24, 25-55, 55+ yrs.), sex (male, female), and the number of weeks worked in the 12 months prior to the survey (1-26 wks., 27-52 wks.), and occupational classification (white collar, skilled and semiskilled, unskilled).

2. Each person's stored wage or salary income information was retained in the computer only until a succeeding person having the same characteristics and having wage and salary income information reported was processed through the computer. Then, the reported wage or salary income of the succeeding person was substituted for the wage and salary income information previously stored.

3. When a record being processed had no wage and salary income information reported or the entry was unacceptable, the wage and salary income information retained for the last person who had the same set of characteristics on the variables shown in (1) above was inserted to replace the missing entry.

This process ensured that the distribution of the wage and salary income information assigned for persons for a given set of characteristics would correspond closely to the distribution of the wage and salary income information as actually reported in the survey for persons with the same set of characteristics living in the same area.

Similar procedures were used to allocate race, State or country of person's and parent's birth, and other sources of income.

Another type of allocation or assignment was also necessary; namely the assignment of a full set of work history characteristics for a person. This occurred if the interviewer was able to obtain the information needed to complete a Labor Force Questionnaire (CES-2) for a person but was not able to complete the Work History Booklet (CES-3) with the designated individual. A full set of entries from a Work History Booklet for a previously processed person with the same set of characteristics (age, sex, race, labor force status) was then assigned by the same process as used for the allocation of wage and salary information described above. The number of such allocations differed by geographic area, ranging from approximately 0.8 percent to 6.5 percent of sample persons. The overall rate of such substitution was 3.3 percent.

SELECTED CHARACTERISTICS OF THE SURVEY IN THIS AREA

The Census Employment Survey was conducted in 60 selected areas of 51 cities and in seven selected rural areas. The period of interviewing differed considerably and some areas were completed even before others began. The primary consideration in the timing was the availability of the Census enumerators. The population sizes of the urban CES areas varied, ranging from a low of approximately 30,000 persons in the CES area of Youngstown, Ohio, who were 16 years of age or older to a high of 370,000 persons 16 or older in the Detroit, Mich., CES area. The racial and Spanish origin characteristics of the population were also very different from area to area. To enable the analyst to better interpret the data presented in the report, specific information is given below for this area on the above items together with selected noninterview and error rates.

Interviewing began in Detroit, Mich., on August 10, 1970, and was completed by December 22, 1970. A total of 4,690 addresses was assigned of which 3,690 were occupied at the time of interview. The remainder were either vacant or proved not to be addresses having housing units. Interviews were obtained from all but 3.2 percent of the occupied households. Comparison of data for the area with the 1970 census indicates coverage of persons within households in this survey was not as complete as in the census. An estimated 94 percent of the males and 90 percent of the females enumerated in the census were included in this survey. A total of 6,791 household members 16 years of age or older lived in the interviewed households. Work History Booklets were completed for all but 3.5 percent of these persons.

The CES estimates for the total population 16 years of age or older in the tracts selected in Detroit, Mich., is 348,413. Although not shown separately in the tables, an estimate of all race and Spanish origin groups in the area shows the following:

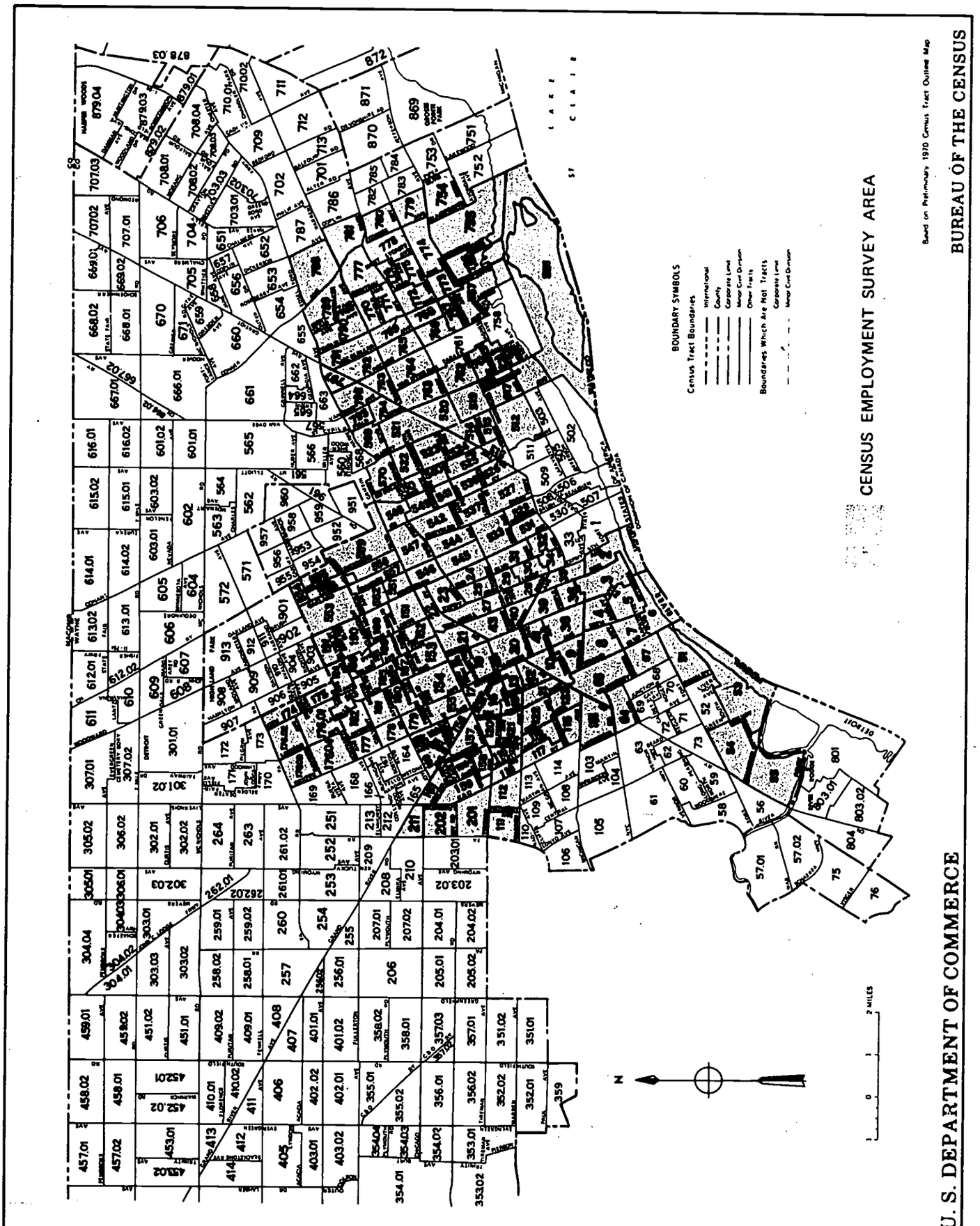
Race/Origin Characteristics of CES Area: Detroit, Mich.

Race or origin	Number	Percent of CES Area[1]
Total persons	348,413	100.0
Total Negro	255,432	73.3
Total white	86,576	24.9
Spanish	3,642	1.0
U.S. born with Spanish spoken at home	1,242	.4
Mexican and other Spanish origin	2,400	.7
Other white	82,935	23.8
Total other	6,407	1.8

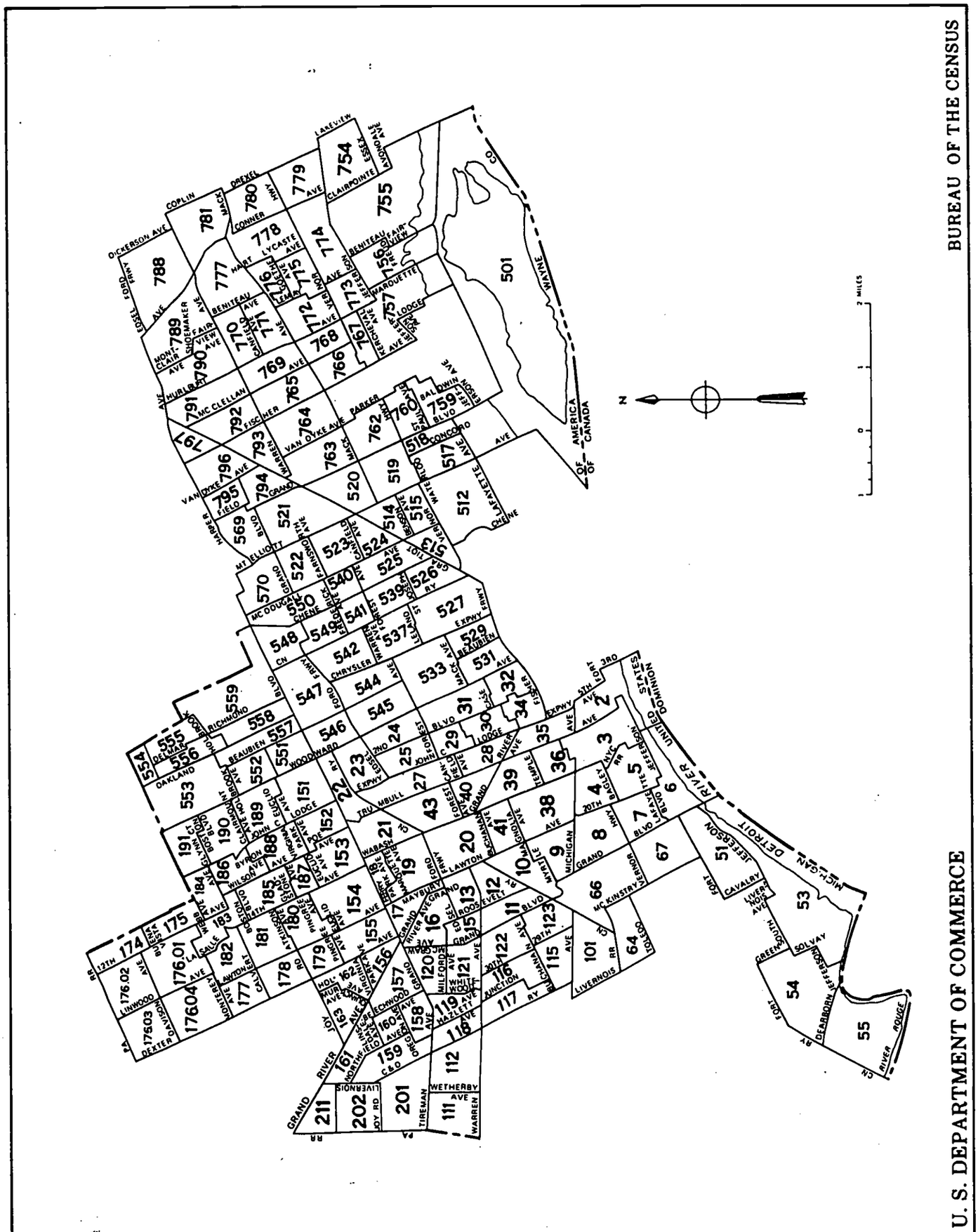
[1]Subtotals may not add to 100.0 because of rounding of weights.

DETROIT, MICH.

Portion of City Including Census Employment Survey Area



Census Employment Survey Area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Tract Composition of Census Employment Survey Area

1970 CENSUS TRACTS

Tract 2	Tract 40	Tract 160	Tract 501	Tract 550	Tract 770
3	41	161	512	551	771
4	43	162	513	552	772
5	51	163	514	553	773
6	53	174	515	554	774
7	54	175	517	555	775
8	55	176.01	518	556	776
9	64	176.02	519	557	777
10	66	176.03	520	558	778
11	67	176.04	521	559	779
12		177	522	569	780
13	101	178	523	570	781
15	111	179	524		788
16	112	180	525	754	789
17	115	181	526	755	790
18	116	182	527	756	791
19	117	183	529	757	792
20	118	184	531	759	793
21	119	185	533	760	794
22	120	186	537	762	795
23	121	187	539	763	796
24	122	188	540	764	797
25	123	189	541	765	
27	151	190	542	766	
28	152	191	544	767	
29	153		545	768	
30	154	201	546	769	
31	155	202	547		
32	156	211	548		
34	157		549		
35	158				
36	159				
38					
39					

Table A. Demographic Characteristics of Civilian Noninstitutional Population

Age Marital Status Family Status and Age	Total civilian noninstitutional population	Male				Female			
		All races	White	Negro	Other races	All races	White	Negro	Other races
AGE									
Total, 16 years and over	348 413	165 759	43 961	118 399	-	182 653	42 615	137 033	-
16 to 21 years	51 067	23 443	4 548	18 604	-	27 624	4 628	22 611	-
18 and 17 years	17 394	8 460	1 210	7 201	-	8 934	1 017	7 820	-
18 and 19 years	17 951	8 295	1 698	6 547	-	9 656	1 775	7 691	-
20 and 21 years	15 721	6 688	1 639	4 855	-	9 033	1 837	7 100	-
22 to 24 years	23 800	10 678	2 144	8 243	-	13 122	3 010	9 821	-
25 to 34 years	58 610	27 685	6 795	19 991	-	30 926	5 583	24 384	-
35 to 44 years	54 643	26 140	5 302	20 437	-	28 504	4 757	23 353	-
45 to 54 years	61 241	28 900	7 757	20 525	-	32 341	7 588	24 418	-
55 to 59 years	26 054	13 453	3 826	9 512	-	12 601	2 946	9 486	-
60 and 61 years	10 061	4 935	1 592	3 234	-	5 126	1 673	3 397	-
62 to 64 years	12 666	6 635	1 934	4 534	-	6 031	1 945	4 029	-
65 years and over	50 270	23 890	10 065	13 322	-	26 380	10 484	15 533	-
MARITAL STATUS									
Total, 16 years and over	348 413	165 759	43 961	118 399	-	182 653	42 615	137 033	-
Single	82 797	46 096	13 269	31 765	-	36 702	8 140	27 701	-
Married, spouse present	153 060	76 529	18 215	56 994	-	76 531	18 480	56 555	-
Married, spouse present in Armed Forces	314	116	57	59	-	198	-	198	-
Married, spouse absent	48 982	21 854	4 374	16 743	-	27 128	3 818	23 142	-
Widowed or divorced	63 260	21 164	8 047	12 839	-	42 095	12 178	29 437	-
FAMILY STATUS AND AGE									
Total, 16 years and over	348 413	165 759	43 961	118 399	-	182 653	42 615	137 033	-
Family head	119 846	85 425	20 341	63 534	-	34 421	4 847	29 250	-
16 to 24 years	10 457	5 705	1 422	4 234	-	4 752	485	4 266	-
25 to 54 years	71 598	48 978	10 363	37 665	-	22 620	2 807	19 645	-
55 to 64 years	20 548	16 857	4 320	12 260	-	3 691	617	3 074	-
65 years and over	17 243	13 885	4 236	9 375	-	3 358	938	2 265	-
Relative of head	149 957	36 302	6 570	29 171	-	113 656	24 288	87 046	-
16 to 24 years	55 634	23 569	3 827	19 355	-	32 066	5 530	26 002	-
25 to 54 years	66 944	10 331	2 049	8 166	-	56 613	11 895	43 367	-
55 to 64 years	15 303	1 355	346	952	-	13 947	3 415	10 252	-
65 years and over	12 076	1 047	348	698	-	11 029	3 448	7 425	-
Unrelated individual	78 609	44 033	17 050	25 694	-	34 576	13 479	20 736	-
16 to 24 years	8 776	4 847	1 443	3 258	-	3 929	1 624	2 163	-
25 to 54 years	35 953	23 416	7 441	15 121	-	12 537	3 226	9 143	-
55 to 64 years	12 930	6 811	2 686	4 068	-	6 119	2 532	3 587	-
65 years and over	20 951	8 958	5 480	3 248	-	11 992	6 098	5 843	-

Table B. Family Size and Composition of Civilian Noninstitutional Population

Family Size Families by Number of Children Under 18 Years	Total families	Families with male heads				Families with female heads			
		All races	White	Negro	Other races	All races	White	Negro	Other races
FAMILY SIZE									
Total families	119 846	85 425	20 341	63 534	-	34 421	4 847	29 250	-
Families with–									
2 persons	45 552	33 458	9 879	23 033	-	12 094	2 374	9 559	-
3 persons	21 978	14 932	3 294	11 138	-	7 046	946	6 049	-
4 persons	17 290	12 175	2 503	9 447	-	5 115	710	4 349	-
5 persons	13 746	9 779	2 236	7 487	-	3 967	322	3 589	-
6 persons	7 914	5 435	819	4 503	-	2 479	279	2 200	-
7 persons	5 394	3 259	601	2 657	-	2 135	104	2 030	-
8 persons	3 074	2 499	450	1 994	-	575	-	575	-
9 persons or more	4 899	3 889	559	3 274	-	1 010	111	899	-
Mean size of family	3.8	3.8	3.4	3.9	.0	3.8	3.2	3.9	.0
FAMILIES BY NUMBER OF CHILDREN UNDER 18 YEARS									
Total families	119 846	85 425	20 341	63 534	-	34 421	4 847	29 250	-
Families with–									
No children under 18 years	51 022	41 867	11 686	29 354	-	9 155	2 219	6 723	-
1 child	20 344	13 226	2 970	9 813	-	7 118	786	6 333	-
2 children	16 851	10 826	2 401	8 313	-	6 025	844	5 126	-
3 children	12 700	8 092	1 341	6 695	-	4 608	553	3 999	-
4 children	7 904	4 619	831	3 789	-	3 285	166	3 119	-
5 children	4 275	2 474	386	2 089	-	1 801	112	1 689	-
6 children	3 073	1 758	224	1 422	-	1 314	56	1 258	-
7 children or more	3 676	2 561	503	2 059	-	1 115	111	1 004	-
Mean number of children in families with children	2.8	2.8	2.6	2.8	.0	2.8	2.5	2.9	.0
Families with children 6 to 17 years only	29 388	19 254	3 805	15 112	-	10 134	1 174	8 905	-
Mean number of children 6 to 17 years	2.4	2.4	2.0	2.5	.0	2.3	2.0	2.4	.0
Families with children under 6 years	39 436	24 304	4 850	19 068	-	15 132	1 454	13 622	-
Mean number of children in families with children under 6 years	3.1	3.1	3.1	3.2	.0	3.2	3.0	3.2	.0

Table C. Social Characteristics of Civilian Noninstitutional Population

Veteran Status
Educational Attainment
School Enrollment
Place of Birth
Residence 5 Years Ago

	Total civilian noninstitutional population	Male				Female			
		All races	White	Negro	Other races	All races	White	Negro	Other races
VETERAN STATUS									
Civilian male, 16 years and over	165 759	165 759	43 961	118 399	-	-	-	-	-
Veteran	56 645	56 645	15 875	40 179	-	-	-	-	-
Percent of total	34.2	34.2	36.1	33.9	.0	.0	.0	.0	.0
Vietnam	9 399	9 399	1 845	7 401	-	-	-	-	-
Korea	10 361	10 361	1 798	8 563	-	-	-	-	-
World War II	26 744	26 744	7 962	18 449	-	-	-	-	-
Other service	10 141	10 141	4 270	5 766	-	-	-	-	-
Nonveteran	109 115	109 115	28 086	78 220	-	-	-	-	-
EDUCATIONAL ATTAINMENT									
Total persons, 25 years and over	273 546	131 639	37 270	91 553	-	141 908	34 976	104 601	-
No years of school completed	5 895	2 274	903	1 371	-	3 620	1 483	1 870	-
Elementary: 1 to 4 years	19 773	11 186	2 191	8 723	-	8 587	2 292	6 194	-
5 to 7 years	39 057	21 203	6 234	14 401	-	17 854	4 748	12 890	-
8 years	37 420	18 323	6 788	11 249	-	19 097	7 522	11 414	-
High school: 1 to 3 years	73 574	34 998	9 196	25 573	-	38 575	7 084	31 154	-
4 years	69 383	29 697	6 600	22 756	-	39 686	8 320	30 745	-
College: 1 to 3 years	17 710	8 048	2 292	5 359	-	9 662	2 021	7 530	-
4 years or more	10 734	5 909	3 065	2 121	-	4 825	1 517	2 803	-
Percent with less than 8 years of school	23.7	26.3	25.0	26.8	.0	21.2	24.3	20.0	.0
Percent with less than 4 years of high school	64.2	66.8	67.9	67.0	.0	61.8	66.1	60.7	.0
Median school years completed	10.5	10.2	10.0	10.3	.0	10.8	9.9	11.0	.0
Persons 25 to 34 years	58 610	27 685	6 795	19 991	-	30 926	5 583	24 384	-
No years of school completed	278	111	-	111	-	166	56	53	-
Elementary: 1 to 4 years	378	161	48	56	-	217	56	161	-
5 to 7 years	2 786	1 526	762	764	-	1 260	618	642	-
8 years	2 850	1 635	776	803	-	1 215	678	480	-
High school: 1 to 3 years	17 220	7 315	1 698	5 560	-	9 905	1 595	8 197	-
4 years	25 491	11 552	1 908	9 588	-	13 938	1 576	12 080	-
College: 1 to 3 years	5 527	3 163	544	2 450	-	2 364	392	1 916	-
4 years or more	4 081	2 221	1 059	657	-	1 860	612	855	-
Percent with less than 8 years of school	5.9	6.5	11.9	4.7	.0	5.3	13.1	3.5	.0
Percent with less than 4 years of high school	40.1	38.8	48.3	36.5	.0	41.3	53.8	39.1	.0
Median school years completed	12.2	12.3	12.1	12.3	.0	12.2	11.7	12.2	.0
SCHOOL ENROLLMENT									
Total enrolled, 16 to 24 years	27 767	14 152	2 608	11 350	-	13 614	2 063	11 261	-
16 and 17 years	12 874	6 315	629	5 637	-	6 559	628	5 883	-
18 and 19 years	7 236	3 529	676	2 854	-	3 706	662	2 900	-
20 and 21 years	3 771	2 244	820	1 376	-	1 526	431	1 047	-
22 to 24 years	3 886	2 064	483	1 483	-	1 822	342	1 432	-
Percent enrolled, 16 to 24 years	37.1	41.5	39.0	42.3	.0	33.4	27.0	34.7	.0
16 and 17 years	74.0	74.6	52.0	78.3	.0	73.4	61.8	75.2	.0
18 and 19 years	40.3	42.5	39.8	43.6	.0	38.4	37.3	37.7	.0
20 and 21 years	24.0	33.6	50.0	28.3	.0	16.9	23.5	14.8	.0
22 to 24 years	16.3	19.3	22.5	18.0	.0	13.9	11.4	14.6	.0
PLACE OF BIRTH									
Total	348 413	165 759	43 961	118 399	-	182 653	42 615	137 033	-
In this city	96 876	45 531	15 841	29 204	-	51 345	13 450	37 106	-
Percent of total	27.8	27.5	36.0	24.7	.0	28.1	31.6	27.1	.0
Not in this city, in the United States	229 292	109 091	19 426	88 744	-	120 200	20 635	98 973	-
Large city or suburb	43 037	19 584	3 991	15 335	-	23 453	3 895	19 235	-
Medium size city	23 602	11 350	2 013	9 224	-	12 252	2 428	9 767	-
Small city or town	93 231	44 292	8 525	35 490	-	48 938	8 865	39 916	-
Open country, not a farm	13 139	6 303	1 147	5 098	-	6 836	871	5 910	-
On a farm	48 586	24 368	3 201	21 000	-	24 219	3 493	20 725	-
Not available	7 697	3 194	548	2 597	-	4 502	1 083	3 419	-
Not in this city, in the South	182 876	88 150	9 063	78 548	-	94 726	7 864	86 595	-
Large city or suburb	28 641	12 521	981	11 443	-	16 120	902	15 107	-
Medium size or small city	97 075	47 041	5 108	41 657	-	50 034	4 514	45 363	-
Open country or farm	57 160	28 588	2 973	25 449	-	28 572	2 448	26 125	-
Not available	-	-	-	-	-	-	-	-	-
Puerto Rico	368	153	97	-	-	215	104	55	-
Mexico or Cuba	1 693	853	591	53	-	840	525	47	-
Other foreign born	20 184	10 131	8 007	398	-	10 052	7 900	852	-
RESIDENCE 5 YEARS AGO									
Total	348 413	165 759	43 961	118 399	-	182 653	42 615	137 033	-
In this city	288 686	135 872	35 391	98 388	-	152 814	34 427	116 241	-
Percent of total	82.9	82.0	80.5	83.1	.0	83.7	80.8	84.8	.0
Not in this city, in the United States	50 279	25 031	6 352	18 300	-	25 249	6 273	18 871	-
Large city or suburb	18 160	9 192	2 259	6 885	-	8 968	2 066	6 797	-
Medium size city	6 868	3 607	1 081	2 470	-	3 261	870	2 391	-
Small city or town	11 872	5 372	1 463	3 798	-	6 500	1 690	4 811	-
Open country, not a farm	1 532	838	197	640	-	694	93	601	-
On a farm	1 950	859	-	859	-	1 092	152	940	-
Not available	9 898	5 164	1 352	3 648	-	4 733	1 403	3 331	-
Not in this city, in the South	20 285	10 364	1 376	8 932	-	9 921	1 213	8 708	-
Large city or suburb	5 324	3 070	549	2 521	-	2 255	216	2 039	-
Medium size or small city	11 662	5 594	778	4 816	-	6 068	941	5 127	-
Open country or farm	2 791	1 452	-	1 452	-	1 339	56	1 283	-
Not available	508	248	48	143	-	260	-	260	-
Puerto Rico	-	-	-	-	-	-	-	-	-
Mexico or Cuba	298	145	145	-	-	153	153	-	-
Other foreign	5 004	2 926	1 466	581	-	2 078	901	422	-
Not available	4 145	1 786	608	1 130	-	2 359	861	1 499	-

Table D. Labor Force Characteristics of Civilian Noninstitutional Population

Employment Status Labor Force Status	Total civilian noninstitutional population	Male				Female			
		All races	White	Negro	Other races	All races	White	Negro	Other races
CURRENT EMPLOYMENT STATUS									
Total, 16 years and over	348 413	165 759	43 961	118 399	-	182 653	42 615	137 033	-
In labor force	198 401	120 242	28 908	89 083	-	78 159	14 237	62 509	-
At work	153 329	95 434	24 218	69 291	-	57 895	11 739	44 903	-
Full time schedules	122 048	80 160	20 243	58 209	-	41 888	8 214	32 534	-
41 hours or more	36 540	28 985	8 657	19 607	-	7 554	1 946	5 279	-
35 to 40 hours	85 508	51 175	11 586	38 602	-	34 333	6 268	27 255	-
Part-time schedules	31 282	15 274	3 975	11 082	-	16 007	3 525	12 369	-
Usual full-time schedule	15 534	9 441	2 063	7 216	-	6 093	1 346	4 746	-
Economic reasons	4 791	3 220	702	2 356	-	1 571	435	1 137	-
Other reasons	10 743	6 222	1 361	4 860	-	4 521	912	3 609	-
Usual part-time schedule	15 748	5 833	1 912	3 866	-	9 915	2 178	7 623	-
Economic reasons	4 440	2 036	496	1 540	-	2 404	492	1 912	-
Other reasons (including full-time workweek under 35 hours)	11 308	3 797	1 416	2 326	-	7 511	1 687	5 711	-
With a job, but not at work	17 341	10 152	1 859	8 180	-	7 189	933	6 151	-
Usual full-time schedule	14 827	9 378	1 690	7 574	-	5 449	661	4 683	-
Usual part-time schedule	2 514	774	169	605	-	1 740	272	1 468	-
Unemployed	27 730	14 656	2 830	11 613	-	13 075	1 564	11 455	-
Not in labor force	150 012	45 517	15 054	29 316	-	104 494	28 378	74 524	-
LABOR FORCE BY AGE									
Total in labor force, 16 years and over	198 401	120 242	28 908	89 083	-	78 159	14 237	62 509	-
16 and 17 years	7 312	4 370	533	3 837	-	2 942	580	2 314	-
Student	4 599	2 797	97	2 700	-	1 802	338	1 464	-
Nonstudent	2 713	1 573	436	1 137	-	1 140	242	850	-
18 and 19 years	10 911	6 391	1 267	5 075	-	4 520	863	3 611	-
Student	3 717	2 146	244	1 903	-	1 570	284	1 286	-
Nonstudent	7 194	4 244	1 023	3 172	-	2 950	579	2 325	-
20 and 21 years	10 616	5 690	1 401	4 145	-	4 926	967	3 959	-
Student	2 104	1 580	630	950	-	524	46	478	-
Nonstudent	8 512	4 110	771	3 194	-	4 402	920	3 482	-
22 to 24 years	16 711	9 676	1 903	7 579	-	7 234	1 458	5 583	-
25 to 34 years	40 991	24 949	6 075	18 137	-	16 042	2 779	12 640	-
35 to 44 years	38 022	23 169	4 793	18 092	-	14 853	1 977	12 595	-
45 to 54 years	40 583	24 250	6 738	17 008	-	16 333	2 862	13 301	-
55 to 59 years	15 837	10 461	2 866	7 538	-	5 369	780	4 590	-
60 and 61 years	5 015	3 422	1 081	2 232	-	1 597	501	1 095	-
62 to 64 years	4 866	3 272	688	2 472	-	1 594	501	1 093	-
65 years and over	7 340	4 591	1 565	2 969	-	2 748	970	1 727	-
LABOR FORCE PARTICIPATION RATES BY AGE									
Total participating, 16 years and over	56.9	72.5	65.8	75.2	.0	42.8	33.4	45.6	.0
16 and 17 years	42.0	51.7	44.0	53.3	.0	32.9	57.0	29.6	.0
Student	35.7	44.3	15.4	47.9	.0	27.5	53.8	24.9	.0
Nonstudent	60.0	73.3	75.0	72.7	.0	48.0	62.2	43.9	.0
18 and 19 years	60.8	77.0	74.6	77.5	.0	46.8	48.6	47.0	.0
Student	51.4	60.8	36.1	66.7	.0	42.4	42.8	44.4	.0
Nonstudent	67.1	89.1	100.0	85.9	.0	49.6	52.0	48.5	.0
20 and 21 years	67.5	85.1	85.4	85.4	.0	54.5	52.6	55.8	.0
Student	55.8	70.4	76.8	69.1	.0	34.3	10.7	45.6	.0
Nonstudent	71.2	92.5	94.1	91.8	.0	58.6	65.5	57.5	.0
22 to 24 years	71.1	90.6	88.8	91.9	.0	55.1	48.4	56.8	.0
25 to 34 years	69.9	90.1	89.4	90.7	.0	51.9	49.8	51.8	.0
35 to 44 years	69.6	88.6	90.4	88.5	.0	52.1	41.6	53.9	.0
45 to 54 years	66.3	83.9	86.9	82.9	.0	50.5	37.7	54.5	.0
55 to 59 years	60.8	77.8	74.9	79.2	.0	42.6	26.5	48.4	.0
60 and 61 years	49.9	69.3	67.9	69.0	.0	31.1	30.0	32.2	.0
62 to 64 years	38.4	49.3	35.6	54.5	.0	26.4	25.8	27.1	.0
65 years and over	14.6	19.2	15.5	22.3	.0	10.4	9.2	11.1	.0
MAJOR OCCUPATION GROUP OF THE CURRENTLY EMPLOYED									
Total employed, 16 years and over	170 671	105 587	26 077	77 471	-	65 084	12 673	51 054	-
White collar workers	49 062	18 815	6 177	11 971	-	30 248	7 401	22 022	-
Professional and technical	12 249	5 529	2 131	3 017	-	6 720	1 817	4 403	-
Managerial and administrative	6 268	3 835	1 326	2 395	-	2 433	659	1 774	-
Sales	5 010	1 783	698	1 085	-	3 228	1 022	2 091	-
Clerical	25 535	7 668	2 023	5 474	-	17 867	3 903	13 754	-
Blue collar workers	85 287	74 610	15 886	57 627	-	10 677	2 322	8 147	-
Craftsmen	18 609	17 411	4 997	12 149	-	1 198	211	931	-
Operatives, except transportation	44 058	35 834	6 171	28 993	-	8 224	1 999	6 072	-
Transport equipment operatives	8 966	8 706	2 039	6 667	-	259	-	259	-
Laborers, except farm	13 655	12 658	2 679	9 818	-	997	112	885	-
Service workers, except private household	30 064	11 841	3 965	7 601	-	18 223	2 776	15 229	-
Private household workers	6 099	163	-	163	-	5 937	174	5 656	-
Farm workers	159	159	49	109	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-
MAJOR OCCUPATION GROUP OF THOSE EMPLOYED ON FULL-TIME SCHEDULES									
Total employed, 16 years and over	147 617	95 760	23 295	70 643	-	51 858	9 787	40 827	-
White collar workers	42 224	16 729	5 452	10 667	-	25 494	5 853	18 816	-
Professional and technical	10 198	4 660	1 817	2 518	-	5 537	1 452	3 585	-
Managerial and administrative	5 704	3 577	1 278	2 185	-	2 127	607	1 520	-
Sales	3 776	1 324	443	881	-	2 452	713	1 624	-
Clerical	22 546	7 169	1 914	5 083	-	15 377	3 080	12 087	-
Blue collar workers	77 081	68 184	14 493	52 756	-	8 897	1 829	6 860	-
Craftsmen	16 983	16 102	4 624	11 268	-	881	48	778	-
Operatives, except transportation	40 118	33 151	5 714	26 766	-	6 967	1 725	5 089	-
Transport equipment operatives	8 287	8 028	1 774	6 254	-	259	-	259	-
Laborers, except farm	11 694	10 904	2 381	8 468	-	790	56	734	-
Service workers, except private household	25 372	10 582	3 301	7 006	-	14 790	1 931	12 756	-
Private household workers	2 782	106	-	106	-	2 675	174	2 394	-
Farm workers	159	159	49	109	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-

Table E. Earnings of Wage and Salary Workers on Full-Time Schedules, At Work Last Week

Weekly and Hourly Earnings	Total wage and salary workers on full-time schedules	Male				Female			
		All races	White	Negro	Other races	All races	White	Negro	Other races
WEEKLY EARNINGS LAST WEEK									
Total, 16 years and over	128 168	83 185	20 808	60 785	-	44 983	8 654	35 247	-
Less than $35	6 338	3 561	1 367	2 138	-	2 777	660	1 965	-
$35 to $49	3 007	971	160	811	-	2 036	387	1 649	-
$50 to $59	3 638	1 098	218	827	-	2 540	440	2 099	-
$60 to $64	3 955	1 118	449	669	-	2 837	460	2 377	-
$65 to $69	1 833	267	163	104	-	1 566	169	1 397	-
$70 to $79	4 858	1 643	539	1 104	-	3 215	416	2 750	-
$80 to $89	5 659	1 969	305	1 609	-	3 689	758	2 824	-
$90 to $99	7 222	3 395	729	2 666	-	3 828	411	3 417	-
$100 to $124	18 515	10 900	3 099	7 629	-	7 615	1 611	5 738	-
$125 to $149	20 394	15 766	3 367	12 069	-	4 628	1 350	3 165	-
$150 to $174	18 101	15 748	3 948	11 533	-	2 353	427	1 814	-
$175 to $199	7 184	6 282	1 355	4 588	-	902	275	627	-
$200 or more	15 585	13 266	3 601	9 451	-	2 320	435	1 772	-
Not available[1]	11 880	7 203	1 509	5 588	-	4 677	854	3 653	-
Median weekly earnings ....dollars..	129	146	144	146	0	94	103	92	0
HOURLY EARNINGS LAST WEEK									
Total, 16 years and over	128 168	83 185	20 808	60 785	-	44 983	8 654	35 247	-
Less than $0.75	5 674	3 304	1 253	1 946	-	2 370	586	1 576	-
$0.75 to $0.99	1 098	457	115	342	-	641	128	513	-
$1.00 to $1.14	1 908	641	228	413	-	1 268	276	991	-
$1.15 to $1.29	1 625	524	56	468	-	1 101	281	819	-
$1.30 to $1.44	2 559	842	220	568	-	1 717	278	1 439	-
$1.45 to $1.59	3 512	1 243	507	680	-	2 269	465	1 805	-
$1.60 to $1.74	2 728	673	211	461	-	2 055	108	1 895	-
$1.75 to $1.99	5 100	1 584	429	1 155	-	3 515	408	3 059	-
$2.00 to $2.24	6 533	3 302	757	2 545	-	3 231	492	2 626	-
$2.25 to $2.49	7 393	3 909	927	2 925	-	3 484	570	2 866	-
$2.50 to $2.99	17 014	10 283	2 949	7 162	-	6 731	1 365	5 148	-
$3.00 to $3.49	16 625	11 971	3 373	8 259	-	4 654	1 338	3 261	-
$3.50 to $3.99	19 209	16 121	2 501	13 137	-	3 088	544	2 544	-
$4.00 to $4.99	14 043	12 256	3 280	8 814	-	1 787	374	1 301	-
$5.00 or more	11 268	8 873	2 493	6 323	-	2 395	588	1 750	-
Not available[1]	11 880	7 203	1 509	5 588	-	4 677	854	3 653	-
Median hourly earnings ....dollars..	3.09	3.47	3.30	3.53	.00	2.39	2.61	2.34	.00

[1]Not used in computing median.

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Table F. Characteristics of the Unemployed Civilian Noninstitutional Population

Age and Family Status Unemployment Rates by Age and Family Status Other Characteristics of the Unemployed	Total unemployed	Male				Female			
		All races	White	Negro	Other races	All races	White	Negro	Other races
AGE AND FAMILY STATUS									
Total 16 years and over	27 730	14 656	2 830	11 613	-	13 075	1 564	11 455	-
16 to 21 years	9 318	5 370	729	4 545	-	3 948	482	3 465	-
Student	2 943	2 040	145	1 895	-	903	-	903	-
Nonstudent	6 375	3 330	584	2 650	-	3 044	482	2 562	-
16 to 19 years	6 456	3 984	340	3 644	-	2 472	385	2 087	-
Student	2 419	1 659	48	1 611	-	760	-	760	-
Nonstudent	4 037	2 325	292	2 033	-	1 712	385	1 328	-
20 years and over	21 274	10 671	2 490	7 969	-	10 603	1 179	9 367	-
20 to 24 years	5 628	2 625	534	1 995	-	3 003	340	2 663	-
25 to 44 years	10 464	5 158	1 111	3 931	-	5 306	621	4 629	-
45 to 54 years	3 375	1 499	450	1 049	-	1 875	111	1 765	-
55 years and over	1 808	1 389	395	994	-	419	108	311	-
Family head	7 326	4 825	1 300	3 418	-	2 501	271	2 230	-
Wife of head	4 546	-	-	-	-	4 546	630	3 860	-
Other relative of head	11 284	6 715	755	5 912	-	4 569	402	4 166	-
Unrelated individual	4 575	3 116	775	2 283	-	1 459	262	1 198	-
UNEMPLOYMENT RATES BY AGE AND FAMILY STATUS									
Total, 16 years and over	14.0	12.2	9.8	13.0	.0	16.7	11.0	18.3	.0
16 to 21 years	32.3	32.6	22.8	34.8	.0	31.9	20.0	35.1	.0
Student	28.2	31.3	15.0	34.1	.0	23.2	.0	28.0	.0
Nonstudent	34.6	33.5	26.2	35.3	.0	35.8	27.7	38.5	.0
16 to 19 years	35.4	37.0	18.9	40.9	.0	33.1	26.7	35.2	.0
Student	29.1	33.6	14.2	35.0	.0	22.5	.0	27.6	.0
Nonstudent	40.7	40.0	20.0	47.2	.0	41.9	46.9	41.8	.0
20 years and over	11.8	9.7	9.2	9.9	.0	15.0	9.2	16.6	.0
20 to 24 years	20.4	17.1	16.2	17.0	.0	24.7	14.0	27.9	.0
25 to 44 years	13.2	10.7	10.2	10.8	.0	17.2	13.1	18.3	.0
45 to 54 years	8.3	6.2	6.7	6.2	.0	11.5	3.9	13.3	.0
55 years and over	5.5	6.4	6.4	6.5	.0	3.7	3.9	3.7	.0
Family head	9.1	7.3	8.9	6.8	.0	17.6	16.9	17.8	.0
Wife of head	15.1	.0	.0	.0	.0	15.1	12.5	15.8	.0
Other relative of head	26.2	26.7	16.6	29.2	.0	25.5	14.7	28.1	.0
Unrelated individual	10.2	10.8	7.9	12.5	.0	9.2	5.4	11.1	.0
OTHER CHARACTERISTICS OF THE UNEMPLOYED									
Total, 16 years and over	27 730	14 656	2 830	11 613	-	13 075	1 564	11 455	-
Looking for full-time work	23 197	11 873	2 421	9 240	-	11 324	1 216	10 052	-
Percent of full-time labor force	12.9	10.5	9.0	11.0	.0	16.9	10.2	18.6	.0
Looking for part-time work	4 533	2 782	409	2 373	-	1 751	348	1 403	-
Duration of Unemployment									
Less than 5 weeks	11 083	5 262	1 081	4 017	-	5 821	668	5 097	-
5 to 14 weeks	7 088	3 836	728	3 060	-	3 252	371	2 881	-
15 weeks or more	4 110	2 516	594	1 922	-	1 595	57	1 537	-
27 weeks or more	5 448	3 041	427	2 615	-	2 407	468	1 939	-
Lost or laid off from last job	11 909	8 379	1 618	6 702	-	3 530	354	3 176	-
Left last job	2 361	1 170	164	851	-	1 191	153	1 038	-
Entered or reentered labor force	13 461	5 107	1 048	4 059	-	8 354	1 057	7 241	-

Table G. Problems Affecting Job Holding and Job Seeking for Civilian Noninstitutional Population

(Limited to persons 16 to 64 years, not in school and not expecting to return to school within 3 months)

Problems of Employed Persons Problems of Unemployed Persons Reasons Persons Not in the Labor Force Do Not Seek Work	Total civilian noninstitutional population	Male				Female			
		All races	White	Negro	Other races	All races	White	Negro	Other races
PROBLEMS OF EMPLOYED PERSONS IN HOLDING A JOB OR FINDING A BETTER ONE									
Total employed	153 686	95 213	23 362	69 919	-	58 472	10 779	46 435	-
With problem(s) in holding a job or finding a better one	52 265	31 599	7 739	23 294	-	20 666	3 573	16 764	-
Family responsibilities	4 652	275	55	220	-	4 376	634	3 574	-
Poor health, illness, or disability	12 845	8 270	2 211	5 889	-	4 575	981	3 538	-
Lack of skill, experience, or education	36 998	22 127	5 333	16 455	-	14 870	2 362	12 234	-
Employers think too young or too old	5 535	3 981	1 148	2 778	-	1 554	279	1 275	-
All other	4 883	3 408	959	2 393	-	1 474	274	1 200	-
1 problem only	41 102	25 993	6 148	19 336	-	15 109	2 719	12 172	-
More than 1 problem	11 163	5 606	1 592	3 959	-	5 557	854	4 591	-
No problem identified	99 150	62 396	15 129	45 900	-	36 754	6 936	28 890	-
Not available	2 270	1 218	494	724	-	1 052	271	782	-
PROBLEMS OF UNEMPLOYED PERSONS IN FINDING A JOB									
Total unemployed	23 700	11 926	2 574	9 140	-	11 774	1 462	10 256	-
With problem(s) in finding a job	12 465	5 814	1 248	4 509	-	6 650	805	5 845	-
Family responsibilities	1 706	56	-	56	-	1 650	321	1 328	-
Poor health, illness, or disability	3 000	1 832	700	1 133	-	1 167	387	781	-
Lack of skill, experience, or education	9 119	4 363	758	3 547	-	4 756	418	4 338	-
Employers think too young or too old	1 829	1 040	55	985	-	789	153	636	-
All other	1 218	655	327	328	-	563	57	506	-
1 problem only	8 691	3 959	711	3 189	-	4 732	323	4 409	-
More than 1 problem	3 774	1 856	536	1 320	-	1 918	482	1 436	-
No problem identified	7 996	4 710	1 036	3 520	-	3 285	418	2 868	-
Not available	3 240	1 401	290	1 111	-	1 838	240	1 543	-
REASONS PERSONS NOT IN THE LABOR FORCE DO NOT SEEK WORK									
Total not in labor force	90 913	19 866	5 249	14 224	-	71 048	17 580	52 483	-
Want or might want a job	29 972	6 746	1 656	5 032	-	23 226	4 140	18 866	-
Reasons not seeking work:									
Retirement	491	282	115	167	-	209	-	209	-
Family responsibilities	13 164	56	-	56	-	13 107	2 632	10 475	-
Poor health, illness, or disability	13 356	4 225	995	3 171	-	9 131	1 250	7 769	-
Looked but could not find work	7 179	1 895	487	1 408	-	5 285	734	4 551	-
Transportation problems	5 025	1 042	227	815	-	3 983	495	3 433	-
Lack of skill, experience, or education	10 615	1 323	341	983	-	9 292	1 473	7 763	-
Employers think too young or too old	2 346	830	163	666	-	1 516	280	1 181	-
All other	3 398	1 200	267	933	-	2 199	585	1 504	-
1 reason only	15 329	4 346	945	3 343	-	10 983	2 101	8 772	-
More than 1 reason	14 643	2 399	711	1 689	-	12 243	2 039	10 094	-
Do not want a job	60 941	13 120	3 593	9 192	-	47 821	13 440	33 617	-

Table H. Job Tenure, Annual Work Experience, Annual Earnings, and Income for Civilian Noninstitutional Population

Job Tenure Work Experience Annual Earnings Income	Total	Male				Female			
		All races	White	Negro	Other races	All races	White	Negro	Other races
LENGTH OF TIME ON CURRENT JOB									
Total employed	170 671	105 587	26 077	77 471	-	65 084	12 673	51 054	-
Less than 1 year	29 736	16 675	5 599	10 694	-	13 061	2 733	10 159	-
Percent of total	17.4	15.8	21.5	13.8	.0	20.1	21.6	19.9	.0
1 or 2 years	33 258	19 039	4 888	13 655	-	14 219	2 982	10 970	-
3 to 5 years	33 161	17 767	3 369	13 913	-	15 395	2 056	12 957	-
6 to 10 years	19 833	12 852	2 938	9 690	-	6 981	1 610	5 258	-
11 to 20 years	24 599	16 078	4 357	11 440	-	8 520	1 933	6 424	-
21 to 30 years	17 459	14 720	2 430	12 176	-	2 739	655	2 084	-
More than 30 years	2 781	2 399	1 012	1 330	-	382	55	327	-
Not available[1]	9 844	6 056	1 483	4 573	-	3 788	649	2 876	-
Median years on job	4.6	5.4	4.6	5.6	.0	3.7	3.4	3.7	.0
SELECTED WORK CHARACTERISTICS									
Worked 50 to 52 weeks at full time job	107 254	69 444	15 581	52 494	-	37 810	7 211	29 686	-
Unemployed 5 weeks or more	32 601	20 526	4 442	15 654	-	12 075	2 214	9 700	-
Unemployed 15 weeks or more	16 921	10 413	2 421	7 934	-	6 508	1 026	5 426	-
Did not work at all during last 12 months	134 542	40 428	13 367	26 184	-	94 114	25 377	67 296	-
Main reason was poor health, illness, or disability	36 382	13 150	3 482	9 501	-	23 232	6 117	16 797	-
ANNUAL EARNINGS OF YEAR-ROUND FULL-TIME WORKERS									
Total workers	107 254	69 444	15 581	52 494	-	37 810	7 211	29 686	-
Less than $2,000	9 884	4 427	944	3 425	-	5 457	1 067	4 333	-
$2,000 to $2,999	4 763	1 072	272	800	-	3 691	702	2 876	-
$3,000 to $3,999	8 442	2 045	627	1 361	-	6 398	993	5 258	-
$4,000 to $4,999	9 177	2 765	743	1 973	-	6 413	642	5 602	-
$5,000 to $5,999	9 789	4 330	1 006	3 324	-	5 459	842	4 416	-
$6,000 to $6,999	12 483	8 435	2 083	6 094	-	4 047	978	3 069	-
$7,000 to $7,999	16 173	13 621	2 730	10 775	-	2 552	609	1 771	-
$8,000 to $8,999	13 805	12 144	2 239	9 680	-	1 662	504	1 158	-
$9,000 to $9,999	7 722	6 860	1 220	5 422	-	862	386	476	-
$10,000 to $11,999	9 313	8 575	2 088	6 375	-	738	266	416	-
$12,000 to $14,999	3 842	3 473	828	2 417	-	369	164	205	-
$15,000 or more	1 861	1 698	800	849	-	163	57	106	-
Median earnings ..... dollars	6 985	7 889	7 796	7 895	0	4 565	5 336	4 457	0
Family heads, total	51 459	44 478	8 269	35 543	-	6 980	838	6 033	-
Less than $2,000	2 666	2 036	108	1 928	-	630	160	470	-
$2,000 to $2,999	1 125	644	168	477	-	481	169	312	-
$3,000 to $3,999	2 343	983	342	585	-	1 360	56	1 253	-
$4,000 to $4,999	2 555	1 247	258	989	-	1 308	113	1 195	-
$5,000 to $5,999	4 013	2 941	498	2 443	-	1 072	56	1 016	-
$6,000 to $6,999	6 224	5 327	921	4 293	-	897	-	897	-
$7,000 to $7,999	9 225	8 630	1 441	7 189	-	595	114	424	-
$8,000 to $8,999	8 149	7 931	1 562	6 202	-	218	114	104	-
$9,000 to $9,999	5 290	5 075	845	4 118	-	215	56	159	-
$10,000 to $11,999	6 056	6 005	1 401	4 548	-	51	-	51	-
$12,000 to $14,999	2 641	2 593	443	2 037	-	47	-	47	-
$15,000 or more	1 173	1 067	283	734	-	106	-	106	-
Median earnings ..... dollars	7 775	8 095	8 256	8 030	0	4 799	4 533	4 822	0
INCOME OF UNRELATED INDIVIDUALS									
Total unrelated individuals	78 609	44 033	17 050	25 694	-	34 576	13 479	20 736	-
Less than $1,000	16 149	7 071	2 672	4 069	-	9 078	3 515	5 563	-
$1,000 to $1,999	15 629	6 886	3 373	3 398	-	8 744	3 471	5 174	-
$2,000 to $2,999	9 053	3 514	1 950	1 506	-	5 538	2 457	3 025	-
$3,000 to $3,999	7 313	4 053	1 827	2 112	-	3 259	1 265	1 994	-
$4,000 to $4,999	4 391	1 783	963	820	-	2 609	728	1 778	-
$5,000 to $5,999	4 203	2 532	745	1 788	-	1 671	409	1 214	-
$6,000 to $6,999	4 775	4 042	1 273	2 721	-	732	320	412	-
$7,000 to $7,999	5 241	4 383	1 282	2 986	-	858	278	525	-
$8,000 to $8,999	4 392	3 587	625	2 741	-	806	278	528	-
$9,000 to $9,999	2 453	1 598	343	1 197	-	855	492	364	-
$10,000 to $11,999	2 931	2 664	919	1 690	-	267	267	-	-
$12,000 to $14,999	1 335	1 176	507	496	-	159	-	159	-
$15,000 or more	744	744	573	171	-	-	-	-	-
Median income ..... dollars	3 029	4 735	3 428	5 784	0	2 069	2 072	2 042	0

[1] Not used in computing median.

Table I. Total Family Income for Civilian Noninstitutional Population

[Includes wives in male-headed families whose head is present and a member of the Armed Forces]

Total Family Income	Total families	Families with male heads				Families with female heads			
		All races	White	Negro	Other races	All races	White	Negro	Other races
Total families	120 044	85 623	20 341	63 732	-	34 421	4 847	29 250	-
Less than $1,000	9 341	3 616	851	2 655	-	5 725	1 240	4 485	-
$1,000 to $1,999	6 289	2 971	726	2 079	-	3 318	335	2 983	-
$2,000 to $2,999	8 953	3 898	1 358	2 540	-	5 056	650	4 297	-
$3,000 to $3,999	9 621	4 490	1 562	2 822	-	5 131	554	4 526	-
$4,000 to $4,999	7 280	4 108	1 615	2 493	-	3 172	388	2 784	-
$5,000 to $5,999	6 805	4 793	1 469	3 219	-	2 012	156	1 856	-
$6,000 to $6,999	7 148	5 300	1 166	4 021	-	1 847	52	1 795	-
$7,000 to $7,999	10 141	8 505	1 586	6 863	-	1 636	165	1 471	-
$8,000 to $8,999	9 273	7 840	1 542	6 185	-	1 433	281	1 152	-
$9,000 to $9,999	8 134	6 868	1 585	5 283	-	1 266	376	890	-
$10,000 to $11,999	11 981	10 930	2 560	8 201	-	1 051	110	886	-
$12,000 to $14,999	10 899	9 688	1 696	7 823	-	1 211	163	991	-
$15,000 or more	14 178	12 615	2 625	9 546	-	1 562	377	1 134	-
Median income ..... dollars	7 506	8 684	7 916	8 866	0	3 667	3 453	3 689	0

Table J. Extent of Poverty in Civilian Noninstitutional Population

Number and Percent of Persons With Income Below the Poverty Level	Total Persons	Male				Female			
		All races	White	Negro	Other races	All races	White	Negro	Other races
Total persons, 16 years and over	348 413	165 759	43 961	118 399	-	182 653	42 615	137 033	-
NUMBER OF PERSONS WITH INCOME BELOW THE POVERTY LEVEL									
Total	82 785	30 869	10 528	19 562	-	51 916	12 651	38 676	-
Total persons in families, 16 years and over	50 113	16 019	4 116	11 569	-	34 094	5 871	27 732	-
16 to 24 years	12 544	4 144	681	3 464	-	8 400	1 067	7 284	-
25 to 64 years	29 312	7 685	2 057	5 517	-	21 627	3 761	17 529	-
65 years and over	8 257	4 190	1 379	2 589	-	4 067	1 043	2 919	-
Total unrelated individuals, 16 years and over	32 672	14 850	6 412	7 993	-	17 822	6 780	10 944	-
PERCENT BELOW THE POVERTY LEVEL									
Total persons in families, 16 years and over	18.6	13.2	15.3	12.5	.0	23.0	20.2	23.8	.0
16 to 24 years	19.0	14.2	13.0	14.7	.0	22.8	17.7	24.1	.0
25 to 64 years	16.8	9.9	12.0	9.3	.0	22.3	20.1	23.0	.0
65 years and over	28.2	28.1	30.1	25.7	.0	28.3	23.8	30.1	.0
Total unrelated individuals, 16 years and over	41.6	33.7	37.6	31.1	.0	51.5	50.3	52.8	.0

Table K. Extent of Poverty in Families of Civilian Noninstitutional Population

(Includes wives in male-headed families whose head is present and a member of the Armed Forces)

Family Size Work Experience	All families with income below the poverty level	Families with male heads				Families with female heads			
		All races	White	Negro	Other races	All races	White	Negro	Other races
All families with income below the poverty level	28 903	11 315	3 097	7 944	-	17 587	2 387	15 091	-
Families with–									
2 persons	10 411	5 493	1 693	3 636	-	4 918	886	3 979	-
3 persons	4 256	1 189	160	918	-	3 067	625	2 442	-
4 persons	4 309	1 249	328	921	-	3 061	493	2 511	-
5 persons	3 559	1 061	421	640	-	2 498	111	2 388	-
6 persons	2 054	581	56	525	-	1 473	112	1 361	-
7 persons or more	4 313	1 743	439	1 304	-	2 570	160	2 410	-
Families with–									
No children under 18 years	8 738	6 132	1 848	4 065	-	2 606	587	1 967	-
Children 8 to 17 years only	6 827	1 931	392	1 483	-	4 896	951	3 945	-
Mean number 8 to 17 years	2.5	2.6	2.0	2.8	.0	2.5	1.9	2.6	.0
Children under 6 years	13 338	3 253	857	2 396	-	10 085	849	9 180	-
Mean number of children in families with children under 6 years	3.7	4.2	4.6	4.1	.0	3.6	3.2	3.6	.0
Total families with head under age 65	23 511	7 319	1 835	5 430	-	16 192	2 179	13 957	-
Head worked 50 to 52 weeks, full time	2 374	1 843	266	1 577	-	531	113	419	-
Head worked 27 to 49 weeks, full time	1 967	1 089	420	669	-	878	104	773	-
Head worked 1 to 26 weeks, full time	2 489	1 084	379	706	-	1 405	332	1 073	-
Head worked part time	1 837	639	168	471	-	1 198	210	988	-
Head did not work at all	14 843	2 663	602	2 007	-	12 180	1 420	10 704	-
Main reason was poor health, illness, or disability	4 080	1 547	322	1 225	-	2 533	226	2 307	-
PERCENT OF FAMILIES WITH INCOME BELOW THE POVERTY LEVEL									
All families	24.1	13.2	15.2	12.5	.0	51.1	49.2	51.6	.0
Families with–									
2 persons	22.8	16.4	17.1	15.8	.0	40.7	37.3	41.6	.0
3 persons	19.4	8.0	4.9	8.2	.0	43.5	66.1	40.4	.0
4 persons	24.8	10.2	13.1	9.7	.0	59.8	69.5	57.7	.0
5 persons	25.9	10.8	18.8	8.5	.0	63.0	34.4	66.5	.0
6 persons	25.8	10.6	6.9	11.5	.0	59.4	40.2	61.9	.0
7 persons or more	32.2	18.0	27.3	16.4	.0	69.1	74.0	68.8	.0
Families with–									
No children under 18 years	17.1	14.6	15.8	13.8	.0	28.5	26.5	29.2	.0
Children 8 to 17 years only	23.2	10.0	10.3	9.8	.0	48.3	81.0	44.3	.0
Children under 6 years	33.7	13.3	17.7	12.5	.0	66.6	58.4	67.4	.0
Total families with head under age 65	22.9	10.2	11.4	10.0	.0	52.1	55.7	51.7	.0
Head worked 50 to 52 weeks, full time	4.8	4.3	3.4	4.6	.0	7.9	15.3	7.1	.0
Head worked 27 to 49 weeks, full time	9.7	6.4	9.2	5.6	.0	26.1	38.3	25.0	.0
Head worked 1 to 26 weeks, full time	36.7	25.5	29.3	23.9	.0	55.4	74.5	51.3	.0
Head worked part time	40.0	37.5	22.0	52.9	.0	41.5	48.6	40.2	.0
Head did not work at all	68.0	42.5	38.8	44.1	.0	78.3	70.1	79.7	.0
Main reason was poor health, illness, or disability	54.5	43.2	41.9	44.5	.0	64.8	57.7	66.6	.0

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Table L. Installment Debt and Charges for Rent, Mortgages, and Utilities

Installment Debt Mortgage or Rent and Utilities Persons Per Room	Total primary families	Primary families with male heads				Primary families with female heads			
		All races	White	Negro	Other races	All races	White	Negro	Other races
MONTHLY INSTALLMENT DEBT[1]									
Total families	118 693	85 087	20 341	63 249	-	33 606	4 582	28 701	-
None	46 550	30 752	10 483	19 669	-	15 798	3 261	12 322	-
Percent of total	39.2	36.1	51.5	31.1	.0	47.0	71.2	42.9	.0
$1 to $10	2 212	1 222	227	996	-	989	51	938	-
$11 to $20	5 067	2 490	559	1 877	-	2 577	164	2 413	-
$21 to $30	5 813	3 453	810	2 643	-	2 360	169	2 192	-
$31 to $40	3 570	2 478	489	1 934	-	1 091	-	1 091	-
$41 to $50	3 466	2 636	602	2 034	-	830	-	830	-
$51 to $60	4 664	3 237	624	2 558	-	1 427	113	1 257	-
$61 to $75	4 623	3 661	706	2 954	-	962	224	687	-
$76 to $100	6 986	5 314	707	4 551	-	1 672	211	1 461	-
$101 to $150	11 867	9 915	2 048	7 754	-	1 952	113	1 839	-
More than $150	17 362	15 204	2 253	12 445	-	2 159	56	2 102	-
Not available	6 514	4 725	832	3 836	-	1 789	221	1 569	-
Debt as Percent of Family Income									
None or less than 10 percent	71 663	50 016	14 288	34 907	-	21 646	3 701	17 673	-
10 to 24 percent	29 258	23 679	3 828	19 345	-	5 579	380	5 199	-
25 to 34 percent	4 087	2 983	797	2 129	-	1 104	-	1 053	-
35 to 49 percent	2 141	1 146	105	1 042	-	995	56	938	-
50 percent or more	5 030	2 537	490	1 991	-	2 493	225	2 268	-
Not available	6 514	4 725	832	3 836	-	1 789	221	1 569	-
MONTHLY MORTGAGE OR RENT AND UTILITIES									
Total families	118 693	85 087	20 341	63 249	-	33 606	4 582	28 701	-
Less than $40	20 341	16 191	5 889	10 132	-	4 150	1 409	2 689	-
$40 to $59	6 702	5 090	1 154	3 828	-	1 612	269	1 291	-
$60 to $79	20 665	14 188	4 195	9 558	-	6 478	590	5 887	-
$80 to $99	21 084	14 531	3 513	10 793	-	6 553	1 087	5 466	-
$100 to $149	33 548	23 886	3 390	20 051	-	9 663	498	8 944	-
$150 or more	7 327	6 080	661	5 419	-	1 247	56	1 191	-
No cash rent[2]	2 114	1 733	559	1 118	-	381	226	155	-
Not available[2]	3 112	2 061	707	1 298	-	1 051	113	939	-
Median ..... dollars	88	88	73	93	0	88	71	91	0
Families in public housing	3 798	1 326	273	1 053	-	2 472	334	2 138	-
Mortgage or Rent and Utilities as Percent of Family Income									
Less than 10 percent	37 702	32 211	9 275	22 380	-	5 491	1 567	3 873	-
10 to 24 percent	45 833	36 241	7 109	28 523	-	9 592	1 105	8 322	-
25 to 34 percent	10 593	5 820	1 184	4 524	-	4 773	224	4 497	-
35 percent or more	20 367	7 991	1 732	6 095	-	12 377	1 461	10 860	-
Not available	4 198	2 824	1 041	1 727	-	1 373	225	1 148	-
AVERAGE PERSONS PER ROOM									
1.00 persons or less	103 615	74 311	18 442	54 586	-	29 304	4 137	24 843	-
1.01 to 1.50 persons	10 873	7 519	1 179	6 235	-	3 354	334	3 021	-
1.51 persons or more	3 181	2 498	443	2 002	-	683	111	572	-
Not available	1 025	760	277	426	-	265	-	265	-

[1] Excludes mortgage or rent and utilities. [2] Not used in computing median.

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Table M. Training, Employment, and Job-Seeking History of Civilian Noninstitutional Population

Job Training
Occupation of First and Longest Jobs
Job-Seeking Method
Lowest Acceptable Weekly Pay

	Total	Male				Female			
		All races	White	Negro	Other races	All races	White	Negro	Other races
COMPLETION OF TRAINING									
Total with completion of training	51 240	29 475	6 445	22 237	-	21 765	3 529	17 739	-
Completed any job training since January 1961	31 337	15 054	2 720	11 935	-	16 284	2 651	13 302	-
High school, trade school, or junior college	20 409	8 184	1 442	6 344	-	12 226	2 322	9 631	-
Armed Forces[1]	3 989	3 989	997	2 992	-	-	-	-	-
Apprenticeship[1]	941	941	168	773	-	-	-	-	-
Manpower Development and Training Act	357	198	-	198	-	159	-	159	-
Neighborhood Youth Corps	2 374	1 118	55	1 063	-	1 256	-	1 256	-
All other	6 377	2 320	155	2 108	-	4 056	580	3 363	-
Completed any job training prior to 1961	20 611	14 914	3 782	10 737	-	5 698	934	4 596	-
High school, trade school, or junior college	12 418	7 303	1 635	5 501	-	5 115	934	4 014	-
Armed Forces[1]	7 078	7 078	1 590	5 431	-	-	-	-	-
Apprenticeship[1]	1 437	1 437	611	656	-	-	-	-	-
Did not complete any job training	297 173	136 285	37 516	96 163	-	160 888	39 086	119 294	-
MAJOR OCCUPATION GROUP OF FIRST REGULAR FULL-TIME JOB SINCE LEAVING SCHOOL FOR THOSE EMPLOYED ON FULL-TIME SCHEDULES									
Total employed on full-time schedules	147 617	95 760	23 295	70 643	-	51 858	9 787	40 827	-
White collar workers	24 325	9 356	3 773	5 136	-	14 969	4 271	10 210	-
Professional and technical	6 054	2 946	1 155	1 514	-	3 108	1 018	1 818	-
Managerial and administrative	1 403	1 137	580	500	-	266	162	104	-
Sales	4 070	1 495	646	849	-	2 575	713	1 805	-
Clerical	12 797	3 778	1 392	2 272	-	9 020	2 379	6 482	-
Blue collar workers	55 399	48 056	11 962	35 653	-	7 343	1 754	5 208	-
Craftsmen	6 998	6 313	2 083	4 172	-	685	154	418	-
Operatives, except transportation	27 252	21 538	5 556	15 655	-	5 714	1 496	3 950	-
Transport equipment operatives	5 592	5 592	1 158	4 434	-	-	-	-	-
Laborers, except farm	15 558	14 613	3 164	11 302	-	944	105	840	-
Service workers, except private household	21 410	10 576	1 954	8 396	-	10 833	1 429	9 292	-
Private household workers	6 159	55	-	55	-	6 104	384	5 720	-
Farm workers	9 278	8 062	1 586	6 361	-	1 216	164	1 052	-
Not available	31 046	19 654	4 020	15 043	-	11 391	1 784	9 345	-
MAJOR OCCUPATION GROUP OF LONGEST JOB SINCE LEAVING SCHOOL FOR THOSE EMPLOYED ON FULL-TIME SCHEDULES									
Total employed on full-time schedules	147 617	95 760	23 295	70 643	-	51 858	9 787	40 827	-
White collar workers	28 828	11 977	3 731	7 798	-	16 851	4 473	11 775	-
Professional and technical	7 676	3 770	1 645	1 848	-	3 906	1 301	2 333	-
Managerial and administrative	3 920	2 645	991	1 598	-	1 275	382	892	-
Sales	2 697	1 112	275	837	-	1 584	418	1 052	-
Clerical	14 534	4 449	820	3 516	-	10 085	2 372	7 499	-
Blue collar workers	63 782	54 956	12 357	42 088	-	8 826	2 034	6 527	-
Craftsmen	13 684	12 592	3 748	8 730	-	1 092	97	940	-
Operatives, except transportation	33 461	26 837	5 142	21 357	-	6 624	1 825	4 589	-
Transport equipment operatives	6 749	6 541	1 344	5 197	-	208	-	208	-
Laborers, except farm	9 888	8 986	2 124	6 804	-	902	113	789	-
Service workers, except private household	19 018	8 167	2 408	5 540	-	10 851	1 227	9 510	-
Private household workers	3 516	57	-	57	-	3 459	161	3 298	-
Farm workers	2 321	1 948	528	1 368	-	373	108	265	-
Not available	30 152	18 655	4 271	13 792	-	11 498	1 784	9 451	-
PRINCIPAL METHOD OF SEEKING WORK									
Total unemployed at any time in last 12 months	72 092	41 499	8 691	32 092	-	30 594	4 856	25 529	-
Checked with State employment service	10 613	5 536	764	4 657	-	5 077	160	4 804	-
Percent of total	14.7	13.3	8.8	14.5	.0	16.6	3.3	18.8	.0
Applied directly to employer	17 138	10 453	2 970	7 427	-	6 684	1 411	5 226	-
Asked friends or relatives	5 727	2 771	459	2 208	-	2 956	625	2 331	-
Checked newspaper	10 315	4 481	1 185	3 131	-	5 834	1 193	4 641	-
Registered with union	208	157	-	157	-	51	-	51	-
Checked with private employment agency	725	263	52	163	-	462	97	365	-
Checked with community organizations	2 344	1 099	59	1 040	-	1 245	56	1 188	-
Went to special streets or places to be picked up	225	225	-	225	-	-	-	-	-
All other methods	502	156	48	51	-	346	-	346	-
Not available	24 296	16 357	3 153	13 037	-	7 940	1 314	6 577	-
LOWEST ACCEPTABLE WEEKLY PAY									
Total unemployed at any time in last 12 months	72 092	41 499	8 691	32 092	-	30 594	4 856	25 529	-
Under $50	2 467	931	104	827	-	1 536	249	1 287	-
$50 to $59	4 496	1 676	251	1 425	-	2 819	471	2 348	-
$60 to $69	8 203	2 800	792	1 953	-	5 403	994	4 353	-
$70 to $79	4 367	1 295	145	1 150	-	3 072	418	2 607	-
$80 to $89	8 450	4 118	1 057	3 013	-	4 332	460	3 816	-
$90 to $99	1 743	585	104	481	-	1 157	104	1 054	-
$100 to $124	9 947	7 763	1 654	6 109	-	2 184	428	1 756	-
$125 to $149	2 223	1 811	250	1 463	-	412	48	364	-
$150 or more	3 006	2 430	877	1 438	-	577	106	471	-
Not available[2]	27 191	18 090	3 455	14 233	-	9 101	1 579	7 473	-
Median ....dollars.	83	101	102	99	.	73	69	74	0
Persons 16 to 21 years of age unemployed at any time in last 12 months	19 622	10 385	1 745	8 543	-	9 238	1 406	7 736	-
Under $50	1 572	760	48	712	-	812	193	619	-
$50 to $59	2 470	1 091	145	946	-	1 379	97	1 282	-
$60 to $69	3 376	1 568	242	1 326	-	1 808	242	1 567	-
$70 to $79	1 617	332	48	283	-	1 286	195	1 043	-
$80 to $89	2 719	1 245	245	1 001	-	1 474	98	1 376	-
$90 to $99	427	142	-	142	-	286	-	286	-
$100 to $124	2 192	1 857	484	1 372	-	335	48	287	-
$125 to $149	575	479	98	285	-	96	48	47	-
$150 or more	290	290	48	242	-	-	-	-	-
Not available[2]	4 384	2 622	387	2 235	-	1 762	484	1 230	-
Median ....dollars.	71	81	88	76	0	69	67	69	0

[1] Questions asked of males only. [2] Not used in computing median.

Table N. Transportation of Civilian Noninstitutional Population

Place of Work Method, Cost, and Availability of Transportation	Total civilian noninstitutional population	Male				Female			
		All races	White	Negro	Other races	All races	White	Negro	Other races
USUAL PLACE OF WORK AND METHOD OF TRANSPORTATION									
Total employed	170 671	105 587	26 077	77 471	-	65 084	12 673	51 054	-
Same address each day	161 196	99 430	24 679	72 825	-	61 765	12 071	48 449	-
Within city limits	112 328	62 376	16 793	44 376	-	49 951	10 599	38 107	-
Inner city sample area	61 054	33 176	9 983	22 479	-	27 879	6 225	21 075	-
Remainder of city	36 652	20 659	4 713	15 502	-	15 993	3 034	12 401	-
Not available	14 621	8 541	2 096	6 396	-	6 079	1 340	4 630	-
Outside city limits	48 192	36 479	7 463	28 298	-	11 713	1 424	10 289	-
Not available	676	575	424	151	-	101	48	53	-
Different address each day	4 996	3 049	611	2 326	-	1 946	274	1 616	-
Not available	4 479	3 107	787	2 320	-	1 373	327	990	-
Method of Transportation									
Bus, trolley, or taxi	53 258	23 579	4 111	18 981	-	29 679	4 006	25 190	-
Subway or railroad	-	-	-	-	-	-	-	-	-
Walk	13 704	7 578	4 002	3 356	-	6 126	2 271	3 523	-
Drive alone or in carpool	77 072	58 136	13 480	43 382	-	18 936	3 683	15 043	-
Ride with someone else	23 888	13 960	3 049	10 741	-	9 928	2 237	7 578	-
Other	7 247	4 074	1 372	2 702	-	3 173	908	2 157	-
ONE-WAY COST OF TRANSPORTATION									
Total employed using public transportation	53 258	23 579	4 111	18 981	-	29 679	4 006	25 190	-
Less than $0.25	402	104	-	51	-	298	55	242	-
$0.25 to $0.49	40 024	18 317	3 074	14 858	-	21 707	2 868	18 460	-
$0.50 to $0.74	3 959	1 712	209	1 503	-	2 247	152	2 094	-
$0.75 to $0.99	1 673	472	-	472	-	1 201	56	1 098	-
$1.00 to $1.24	594	276	-	276	-	318	56	262	-
$1.25 to $1.49	162	56	56	-	-	105	-	105	-
$1.50 or more	2 334	879	336	543	-	1 455	273	1 181	-
Not available	4 111	1 763	437	1 278	-	2 347	544	1 748	-
Total employed riding with someone else	23 888	13 960	3 049	10 741	-	9 928	2 237	7 578	-
Total who pay	17 094	10 647	1 778	8 698	-	6 448	1 328	5 006	-
Less than $0.25	103	-	-	-	-	103	48	55	-
$0.25 to $0.49	3 348	1 813	322	1 434	-	1 535	716	819	-
$0.50 to $0.74	5 723	3 880	444	3 379	-	1 842	169	1 673	-
$0.75 to $0.99	682	517	161	355	-	166	113	53	-
$1.00 to $1.24	2 594	1 608	227	1 381	-	987	56	931	-
$1.25 to $1.49	545	329	169	161	-	216	-	160	-
$1.50 or more	2 715	1 860	399	1 406	-	855	170	685	-
Not available	1 384	640	57	582	-	744	56	630	-
TIME REQUIRED TO GET TO WORK									
Total employed reporting to same address each day	161 196	99 430	24 679	72 825	-	61 765	12 071	48 449	-
Within city limits	112 328	62 376	16 793	44 376	-	49 951	10 599	38 107	-
0 to 29 minutes	75 284	43 552	13 247	29 481	-	31 732	8 395	22 512	-
30 to 39 minutes	18 524	10 566	1 700	8 704	-	7 957	1 056	6 799	-
40 to 59 minutes	10 654	5 192	951	4 184	-	5 462	277	4 976	-
60 minutes or more	5 391	2 475	673	1 695	-	2 916	327	2 589	-
Not available	2 476	592	223	311	-	1 884	544	1 230	-
Outside city limits	48 192	36 479	7 463	28 298	-	11 713	1 424	10 289	-
0 to 29 minutes	16 150	13 179	3 371	9 477	-	2 970	649	2 321	-
30 to 39 minutes	12 308	9 398	2 084	7 202	-	2 911	225	2 685	-
40 to 59 minutes	10 594	7 790	1 151	6 419	-	2 805	386	2 419	-
60 minutes or more	7 409	4 693	497	4 196	-	2 716	164	2 552	-
Not available	1 731	1 420	361	1 003	-	311	-	311	-
Not available	676	575	424	151	-	101	48	53	-
AVAILABILITY OF TRANSPORTATION FOR THE UNEMPLOYED									
Total unemployed	27 730	14 656	2 830	11 613	-	13 075	1 564	11 455	-
Licensed to drive and car is available	5 466	3 050	996	2 055	-	2 416	410	2 005	-
No car available or not licensed to drive	15 772	7 837	1 099	6 584	-	7 935	914	7 021	-
Not available	6 492	3 768	736	2 974	-	2 724	240	2 428	-
Transportation available—									
Within a 10-minute walk	20 817	10 721	1 989	8 578	-	10 096	1 276	8 820	-
Bus, trolley, or taxi	20 512	10 557	1 989	8 414	-	9 955	1 276	8 679	-
Subway or railroad	-	-	-	-	-	-	-	-	-
Not available	306	164	-	164	-	142	-	142	-
More than a 10-minute walk	110	57	57	-	-	53	-	53	-
11 to 20 minutes	110	57	57	-	-	53	-	53	-
21 to 30 minutes	-	-	-	-	-	-	-	-	-
31 to 60 minutes	-	-	-	-	-	-	-	-	-
No transportation within walking distance	362	160	48	111	-	202	48	153	-
Not reported	6 441	717	736	2 924	-	2 724	240	2 428	-

Table 1. Labor Force Status: All Races

Age and Sex Family Status Educational Attainment	Total civilian noninstitutional population	Labor force status						
		In labor force				Not in labor force	Rate of-	
		Total	Employed	Unemployed			Labor force participation	Unemployment
				Total	Lost job or on layoff from job			
AGE AND SEX								
Total, 16 years and over	348 413	196 401	170 671	27 730	11 909	150 012	56.9	14.0
Male, total	165 759	120 242	105 587	14 656	8 379	45 517	72.5	12.2
16 to 21 years, total	23 443	16 451	11 080	5 370	1 710	6 992	70.2	32.6
16 to 21 years, not in school	11 354	9 928	6 597	3 330	1 095	1 427	87.4	33.5
22 to 34 years, total	38 363	34 626	30 236	4 389	3 002	3 737	90.3	12.7
22 to 34 years, veterans of Vietnam	7 748	7 244	6 627	617	408	504	93.5	8.5
25 to 34 years	27 685	24 949	21 799	3 150	2 099	2 735	90.1	12.6
35 to 44 years	26 140	23 169	21 162	2 007	1 558	2 971	88.6	8.7
45 to 54 years	28 900	24 250	22 751	1 499	1 390	4 650	83.9	6.2
55 to 64 years	25 023	17 155	16 218	937	607	7 868	68.6	5.5
65 years and over	23 890	4 591	4 139	452	112	19 299	19.2	9.8
40 to 64 years	68 700	54 724	51 284	3 441	2 778	13 976	79.7	6.3
Female, total	182 653	78 159	65 984	13 075	3 530	104 494	42.8	16.7
16 to 21 years, total	27 624	12 388	8 441	3 948	812	15 236	44.8	31.9
16 to 21 years, not in school	15 832	8 492	5 448	3 044	668	7 340	53.6	35.8
22 to 34 years	44 048	23 276	18 696	4 580	1 129	20 771	52.8	19.7
25 to 34 years	30 926	16 042	12 989	3 053	695	14 884	51.9	19.0
35 to 44 years	28 504	14 853	12 601	2 253	905	13 650	52.1	15.2
45 to 54 years	32 341	16 333	14 457	1 875	633	16 009	50.5	11.5
55 to 64 years	23 757	8 560	8 300	260	51	15 197	36.0	3.0
65 years and over	26 380	2 748	2 590	158	-	23 632	10.4	5.8
40 to 64 years	71 915	33 473	30 151	3 322	1 113	38 441	46.5	9.9
FAMILY STATUS[1]								
Male, total	127 005	107 139	95 213	11 926	7 413	19 866	84.4	11.1
Family head	70 206	62 272	57 969	4 303	3 476	7 934	88.7	6.9
Family member	23 475	18 810	14 084	4 726	2 025	4 665	80.1	25.1
Unrelated individual	33 324	26 057	23 161	2 897	1 912	7 267	78.2	11.1
Female, total	141 294	70 247	58 472	11 774	3 340	71 048	49.7	16.8
Family head	29 448	13 438	10 990	2 448	471	16 009	45.6	18.2
No children under 18 years	6 139	3 890	3 625	265	110	2 249	63.4	6.8
Children 6 to 17 years only	9 335	4 880	4 294	586	159	4 455	52.3	12.0
Children under 6 years	13 973	4 668	3 071	1 596	202	9 306	33.4	34.2
Wife of head	67 134	29 033	24 681	4 352	1 138	38 101	43.2	15.0
No children under 18 years	29 276	11 959	10 794	1 165	471	17 316	40.9	9.7
Children 6 to 17 years only	16 613	8 105	7 002	1 103	312	8 508	48.8	13.6
Children under 6 years	21 246	8 969	6 885	2 084	355	12 277	42.2	23.2
Other family member	23 753	14 009	10 341	3 669	1 109	9 744	59.0	26.2
Unrelated individual	20 959	13 766	12 460	1 305	622	7 193	65.7	9.5
EDUCATIONAL ATTAINMENT[1]								
Male, total	127 005	107 139	95 213	11 926	7 413	19 866	84.4	11.1
Elementary: 7 years or less	23 409	17 345	15 829	1 516	1 151	6 065	74.1	8.7
8 years	14 673	12 554	11 006	1 549	973	2 118	85.6	12.3
High school: 1 to 3 years	40 070	33 453	28 009	5 444	2 944	6 616	83.5	16.3
4 years	35 209	31 234	28 603	2 631	1 925	3 975	88.7	8.4
College: 1 year or more	13 645	12 553	11 766	787	421	1 092	92.0	6.3
Female, total	141 294	70 247	58 472	11 774	3 340	71 048	49.7	16.8
Elementary: 7 years or less	17 910	5 721	4 786	935	366	12 189	31.9	16.3
8 years	14 924	6 669	5 657	1 012	156	8 255	44.7	15.2
High school: 1 to 3 years	43 976	18 884	14 791	4 092	1 069	25 093	42.9	21.7
4 years	48 993	27 954	23 187	4 768	1 382	21 039	57.1	17.1
College: 1 year or more	15 491	11 018	10 051	967	367	4 473	71.1	8.8

[1] Persons 16 to 64 years, not in school.

Table 1a. Labor Force Status: White

Age and Sex Family Status Educational Attainment	Total civilian noninstitutional population	Labor force status						
		In labor force				Not in labor force	Rate of–	
		Total	Employed	Unemployed			Labor force participation	Unemployment
				Total	Lost job or on layoff from job			
AGE AND SEX								
Total, 16 years and over	86 576	43 144	38 750	4 394	1 972	43 432	49.8	10.2
Male, total	43 961	28 908	26 077	2 830	1 618	15 054	65.8	9.8
16 to 21 years, total	4 548	3 200	2 471	729	292	1 348	70.4	22.8
16 to 21 years, not in school	2 423	2 230	1 646	584	244	193	92.0	26.2
22 to 34 years, total	8 938	7 978	7 059	919	486	960	89.3	11.5
22 to 34 years, veteran of Vietnam	1 244	1 194	1 089	105	-	49	96.0	8.8
25 to 34 years	6 795	6 075	5 301	774	390	720	89.4	12.7
35 to 44 years	5 302	4 793	4 456	337	225	509	90.4	7.0
45 to 54 years	7 757	6 738	6 287	450	392	1 019	86.9	6.7
55 to 64 years	7 352	4 634	4 351	283	112	2 717	63.0	6.1
65 years and over	10 065	1 565	1 453	112	112	8 500	15.5	7.1
40 to 64 years	18 375	14 354	13 339	1 015	672	4 021	78.1	7.1
Female, total	42 615	14 237	12 673	1 564	354	26 378	33.4	11.0
16 to 21 years, total	4 628	2 409	1 927	482	146	2 219	52.1	20.0
16 to 21 years, not in school	2 907	1 741	1 259	482	146	1 166	59.9	27.7
22 to 34 years	8 594	4 237	3 599	638	153	4 356	49.3	15.1
25 to 34 years	5 583	2 779	2 384	395	56	2 804	49.8	14.2
35 to 44 years	4 757	1 977	1 751	226	-	2 780	41.6	11.4
45 to 54 years	7 588	2 862	2 751	111	55	4 726	37.7	3.9
55 to 64 years	6 565	1 782	1 727	55	-	4 783	27.1	3.1
65 years and over	10 484	970	917	52	-	9 514	9.2	5.4
40 to 64 years	16 914	5 774	5 495	279	55	11 140	34.1	4.8
FAMILY STATUS[1]								
Male, total	31 185	25 936	23 362	2 574	1 458	5 249	83.2	9.9
Family head	15 617	13 611	12 422	1 189	923	2 007	87.2	8.7
Family member	4 771	3 963	3 305	658	251	808	83.1	16.6
Unrelated individual	10 797	8 362	7 635	727	283	2 435	77.4	8.7
Female, total	29 822	12 242	10 779	1 462	354	17 580	41.0	11.9
Family head	3 763	1 449	1 231	218	55	2 314	38.5	15.1
No children under 18 years	1 238	621	566	55	55	617	50.2	8.9
Children 6 to 17 years only	1 123	338	338	-	-	785	30.1	.0
Children under 6 years	1 401	490	327	163	-	911	35.0	33.2
Wife of head	15 458	4 770	4 190	581	194	10 687	30.9	12.2
No children under 18 years	7 547	2 725	2 562	163	49	4 823	36.1	6.0
Children 6 to 17 years only	3 343	1 003	891	112	-	2 340	30.0	11.2
Children under 6 years	4 568	1 043	737	306	145	3 525	22.8	29.3
Other family member	4 163	2 353	1 951	402	104	1 810	56.5	17.1
Unrelated individual	6 439	3 670	3 408	262		2 769	57.0	7.1
EDUCATIONAL ATTAINMENT[1]								
Male, total	31 185	25 936	23 362	2 574	1 458	5 249	83.2	9.9
Elementary: 7 years or less	6 049	4 689	4 307	382	271	1 360	77.5	8.1
8 years	4 488	3 545	2 885	660	439	943	79.0	18.6
High school: 1 to 3 years	8 985	7 263	6 631	632	258	1 722	80.8	8.7
4 years	7 141	6 313	5 566	747	435	828	88.4	11.8
College: 1 year or more	4 522	4 126	3 973	153	55	396	91.2	3.7
Female, total	29 822	12 242	10 779	1 462	354	17 560	41.0	11.9
Elementary: 7 years or less	4 304	995	827	168	56	3 308	23.1	16.9
8 years	5 387	1 819	1 618	201	48	3 568	33.8	11.1
High school: 1 to 3 years	7 925	2 737	2 206	531	55	5 188	34.5	19.4
4 years	9 213	4 802	4 288	514	146	4 410	52.1	10.7
College: 1 year or more	2 993	1 888	1 840	48	48	1 105	63.1	2.6

[1] Persons 16 to 64 years, not in school.

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Table 1b. Labor Force Status: Negro

Age and Sex Family Status Educational Attainment	Total civilian noninstitutional population	Labor force status						
		In labor force				Not in labor force	Rate of—	
		Total	Employed	Unemployed			Labor force participation	Unemployment
				Total	Lost job or on layoff from job			
AGE AND SEX								
Total, 16 years and over	255 432	151 592	128 525	23 067	9 879	103 840	59.3	15.2
Male, total	118 399	89 083	77 471	11 613	6 702	29 316	75.2	13.0
16 to 21 years, total	18 604	13 056	8 512	4 545	1 418	5 547	70.2	34.8
16 to 21 years, not in school	8 736	7 503	4 853	2 650	851	1 233	85.9	35.3
22 to 34 years, total	28 233	25 717	22 304	3 412	2 516	2 517	91.1	13.3
22 to 34 years, veteran of Vietnam	5 399	5 993	5 481	512	408	406	93.7	8.5
25 to 34 years	19 991	18 137	15 819	2 318	1 709	1 853	90.7	12.8
35 to 44 years	20 437	18 092	16 479	1 612	1 275	2 346	88.5	8.9
45 to 54 years	20 525	17 008	15 959	1 049	998	3 516	82.9	6.2
55 to 64 years	17 279	12 242	11 588	654	495	5 037	70.9	5.3
65 years and over	13 322	2 969	2 629	340	-	10 353	22.3	11.5
40 to 64 years	49 198	39 530	37 103	2 426	2 106	9 668	80.3	6.1
Female, total	137 033	62 509	51 054	11 455	3 176	74 524	45.6	18.3
16 to 21 years, total	22 611	9 884	6 419	3 465	666	12 727	43.7	35.1
16 to 21 years, not in school	12 782	6 656	4 094	2 562	522	6 125	52.1	38.5
22 to 34 years	34 205	18 223	14 280	3 943	977	15 982	53.3	21.6
25 to 34 years	24 384	12 640	9 982	2 658	639	11 744	51.8	21.0
35 to 44 years	23 353	12 595	10 624	1 971	905	10 758	53.9	15.7
45 to 54 years	24 418	13 301	11 536	1 765	577	11 117	54.5	13.3
55 to 64 years	16 913	6 778	6 573	205	51	10 135	40.1	3.0
65 years and over	15 533	1 727	1 621	106	-	13 806	11.1	6.1
40 to 64 years	54 159	27 360	24 374	2 987	1 058	26 799	50.5	10.9
FAMILY STATUS[1]								
Male, total	93 282	79 058	69 919	9 140	5 897	14 224	84.8	11.6
Family head	53 367	47 553	44 545	3 008	2 494	5 814	89.1	6.3
Family member	18 288	14 538	10 518	4 020	1 774	3 751	79.5	27.6
Unrelated individual	21 627	16 968	14 856	2 112	1 629	4 659	78.5	12.4
Female, total	109 174	56 691	46 435	10 256	2 986	52 483	51.9	18.1
Family head	25 572	11 933	9 702	2 230	416	13 639	46.7	18.7
No children under 18 years	4 844	3 212	3 002	210	55	1 632	66.3	6.5
Children 6 to 17 years only	8 212	4 543	3 956	586	159	3 669	55.3	12.9
Children under 6 years	12 516	4 178	2 744	1 434	202	8 338	33.4	34.3
Wife of head	50 285	23 573	19 867	3 715	943	26 703	46.9	15.8
No children under 18 years	21 303	8 893	7 946	946	422	12 110	42.3	10.6
Children 6 to 17 years only	12 989	6 989	5 998	991	312	6 000	53.8	14.2
Children under 6 years	16 293	7 701	5 923	1 778	210	8 592	47.3	23.1
Other family member	19 011	11 294	8 027	3 266	1 005	7 717	59.4	28.9
Unrelated individual	14 306	9 882	8 838	1 044	622	4 424	69.1	10.6
EDUCATIONAL ATTAINMENT[1]								
Male, total	93 282	79 058	69 919	9 140	5 897	14 224	84.8	11.6
Elementary: 7 years or less	16 910	12 264	11 130	1 134	880	4 647	72.5	9.2
8 years	9 898	8 781	7 951	830	476	1 117	88.7	9.5
High school: 1 to 3 years	30 614	25 834	21 119	4 715	2 686	4 780	84.4	18.3
4 years	27 743	24 702	22 818	1 884	1 489	3 041	89.0	7.6
College: 1 year or more	8 117	7 477	6 901	576	366	639	92.1	7.7
Female, total	109 174	56 691	46 435	10 256	2 986	52 483	51.9	18.1
Elementary: 7 years or less	13 224	4 623	3 857	767	310	8 600	35.0	16.6
8 years	9 479	4 793	3 982	811	108	4 686	50.6	16.9
High school: 1 to 3 years	35 568	15 929	12 367	3 562	1 014	19 640	44.8	22.4
4 years	39 071	22 723	18 525	4 198	1 236	16 348	58.2	18.5
College: 1 year or more	11 832	8 623	7 704	919	318	3 208	72.9	10.7

[1] Persons 16 to 64 years, not in school.

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Table 2. Educational Attainment by Labor Force Status: All Races

Labor Force Status Age and Sex Family Status	Total	Educational attainment						
		Elementary			High school		College	
		4 years or less (including none)	5 to 7 years	8 years	1 to 3 years	4 years	1 to 3 years	4 years or more
IN THE LABOR FORCE								
Age and Sex								
Total, 16 years and over	198 401	7 389	18 496	21 141	59 253	63 918	18 640	9 565
Male, total	120 242	5 655	13 293	13 797	38 075	33 953	10 026	5 443
16 to 21 years, total	16 451	97	625	716	7 796	5 255	1 819	143
16 to 21 years, not in school	9 928	97	625	526	4 137	3 684	765	94
22 to 34 years, total	34 626	104	1 662	1 811	9 650	14 597	4 382	2 420
22 to 34 years, veteran of Vietnam	7 244	-	-	104	888	4 242	1 626	385
25 to 34 years	24 949	104	1 469	1 480	6 755	10 416	2 838	1 888
35 to 44 years	23 169	779	2 468	2 968	8 418	6 351	1 525	659
45 to 54 years	24 250	1 991	3 667	3 893	7 519	4 933	1 153	1 094
55 to 64 years	17 155	2 058	3 894	3 452	3 969	2 254	712	817
65 years and over	4 591	626	977	957	723	564	434	311
40 to 64 years	54 724	4 606	8 985	9 433	16 333	10 238	2 837	2 292
Female, total	78 159	1 734	5 203	7 344	21 178	29 965	8 614	4 122
16 to 21 years, total	12 388	-	331	474	4 051	5 820	1 712	-
16 to 21 years, not in school	8 492	-	283	380	2 388	4 299	1 141	-
22 to 34 years, total	23 276	147	757	584	5 061	11 829	2 782	2 115
25 to 34 years	16 042	53	659	393	3 675	7 951	1 776	1 535
35 to 44 years	14 853	167	696	1 296	5 008	5 478	1 235	975
45 to 54 years	16 333	371	1 521	2 866	4 371	4 801	1 989	414
55 to 64 years	8 560	621	1 206	1 544	2 206	1 877	739	367
65 years and over	2 748	427	692	580	481	160	157	251
40 to 64 years	33 473	1 047	3 211	5 490	9 069	9 961	3 426	1 269
Family Status[1]								
Male, total	107 139	5 029	12 316	12 554	33 453	31 234	7 758	4 795
Family head	62 272	3 217	8 491	8 735	18 029	17 311	4 423	2 066
Family member	18 810	392	1 263	1 195	7 382	7 009	1 082	487
Unrelated individual	26 057	1 419	2 562	2 625	8 042	6 914	2 253	2 241
Female, total	70 247	1 306	4 415	5 669	18 884	27 954	7 397	3 621
Family head	13 438	258	791	1 486	4 356	4 904	1 276	368
No children under 18 years	3 890	258	475	755	909	953	483	57
Children 6 to 17 years only	4 880	-	210	420	1 527	1 977	587	159
Children under 6 years	4 668	-	106	310	1 920	1 974	206	151
Wife of head	29 033	318	2 179	2 838	8 276	11 084	2 915	1 423
No children under 18 years	11 959	156	1 028	1 311	3 186	4 421	1 322	537
Children 6 to 17 years only	8 105	111	629	910	2 152	3 153	732	418
Children under 6 years	8 969	51	522	617	2 939	3 510	861	468
Other family member	14 009	318	714	650	2 987	6 840	1 749	752
Unrelated individual	13 766	413	731	1 696	3 264	5 126	1 458	1 079
NOT IN THE LABOR FORCE								
Age and Sex								
Total, 16 years and over	150 012	18 996	22 576	19 179	46 209	32 794	7 641	2 617
Male, total	45 517	8 092	9 016	6 191	12 229	6 561	2 288	1 140
16 to 21 years, total	6 992	190	288	521	4 377	859	758	-
16 to 21 years, not in school	1 427	94	192	47	810	236	47	-
22 to 34 years, total	3 737	168	57	252	798	1 659	470	333
22 to 34 years, veteran of Vietnam	504	-	-	-	56	293	97	57
25 to 34 years	2 735	168	57	156	560	1 136	325	333
35 to 44 years	2 971	169	393	278	1 061	897	173	-
45 to 54 years	4 650	902	490	655	1 930	562	112	-
55 to 64 years	7 868	1 042	2 558	939	2 074	760	223	271
65 years and over	19 299	5 621	5 231	3 546	1 989	1 823	553	536
40 to 64 years	13 976	2 060	3 331	1 647	4 396	1 879	392	271
Female, total	104 494	10 904	13 559	12 988	33 980	26 233	5 354	1 476
16 to 21 years, total	15 236	47	240	332	8 754	4 568	1 248	47
16 to 21 years, not in school	7 340	47	143	189	3 760	2 911	289	-
22 to 34 years, total	20 771	619	841	1 060	8 621	8 233	927	471
25 to 34 years	14 884	330	601	822	6 230	5 987	588	325
35 to 44 years	13 650	494	1 362	1 899	5 206	3 665	752	271
45 to 54 years	16 009	1 596	2 158	2 520	4 656	4 129	847	102
55 to 64 years	15 157	1 581	3 396	2 640	3 674	2 789	740	378
65 years and over	23 632	6 567	5 563	4 537	3 060	2 848	839	207
40 to 64 years	38 441	3 615	6 209	6 082	11 127	8 586	2 177	645
Family Status[1]								
Male, total	19 866	2 375	3 689	2 118	6 616	3 975	705	387
Family head	7 934	1 023	1 786	1 122	2 381	1 355	53	214
Family member	4 665	380	810	324	1 793	1 149	209	-
Unrelated individual	7 267	972	1 094	672	2 443	1 471	442	173
Female, total	71 048	4 289	7 900	8 255	25 093	21 039	3 352	1 121
Family head	16 009	691	1 593	1 975	7 013	4 047	584	106
No children under 18 years	2 249	323	321	550	583	311	108	53
Children 6 to 17 years only	4 455	266	476	803	1 854	894	162	-
Children under 6 years	9 306	102	796	622	4 576	2 842	314	53
Wife of head	38 101	2 074	4 617	4 595	12 218	11 958	1 790	849
No children under 18 years	17 316	1 278	2 828	2 388	4 312	5 398	583	529
Children 6 to 17 years only	8 508	432	1 049	1 145	3 075	2 069	581	157
Children under 6 years	12 277	365	740	1 062	4 831	4 490	626	163
Other family member	9 744	678	1 098	729	3 566	3 422	251	-
Unrelated individual	7 193	845	593	955	2 296	1 612	726	166

[1] Persons 16 to 64 years, not in school.

Table 2a. Educational Attainment by Labor Force Status: White

Labor Force Status, Age and Sex, Family Status	Total	Educational attainment: Elementary: 4 years or less (including none)	Elementary: 5 to 7 years	Elementary: 8 years	High school: 1 to 3 years	High school: 4 years	College: 1 to 3 years	College: 4 years or more
IN THE LABOR FORCE								
Age and Sex								
Total, 16 years and over	43 144	1 501	4 830	5 943	11 288	11 798	3 749	4 033
Male, total	28 908	1 175	3 851	3 868	8 053	6 710	2 488	2 763
16 to 21 years, total	3 200	48	340	146	821	1 069	727	48
16 to 21 years, not in school	2 230	48	340	146	579	826	290	-
22 to 34 years, total	7 978	48	901	722	2 215	2 358	684	1 150
22 to 34 years, veteran of Vietnam	1 194	-	-	-	414	510	155	115
25 to 34 years	6 075	48	704	673	1 527	1 678	439	1 004
35 to 44 years	4 793	282	791	847	1 461	964	226	223
45 to 54 years	6 738	515	623	1 145	1 973	1 523	230	728
55 to 64 years	4 634	225	1 015	734	1 132	739	397	393
65 years and over	1 565	56	281	275	451	57	224	220
40 to 64 years	14 354	966	2 202	2 556	3 999	2 603	853	1 176
Female, total	14 237	327	979	2 077	3 235	5 088	1 261	1 270
16 to 21 years, total	2 409	-	48	97	824	1 200	241	-
16 to 21 years, not in school	1 741	-	48	97	484	967	145	-
22 to 34 years, total	4 237	-	387	325	774	1 429	578	744
25 to 34 years	2 779	-	338	228	530	846	336	502
35 to 44 years	1 977	112	112	113	620	792	56	171
45 to 54 years	2 862	111	112	839	636	888	225	53
55 to 64 years	1 782	-	113	446	280	726	112	106
65 years and over	970	104	207	258	103	52	50	196
40 to 64 years	5 774	111	337	1 342	1 254	2 066	392	272
Family Status[1]								
Male, total	25 936	1 119	3 570	3 545	7 263	6 313	1 777	2 349
Family head	13 611	730	2 248	2 080	3 995	2 929	1 024	604
Family member	3 963	-	578	431	1 357	1 306	163	229
Unrelated individual	8 362	389	744	1 034	1 910	2 178	591	1 516
Female, total	12 242	223	772	1 819	2 737	4 802	914	975
Family head	1 449	-	113	443	392	333	168	-
No children under 18 years	621	-	56	283	112	114	56	-
Children 6 to 17 years only	338	-	56	56	57	56	111	-
Children under 6 years	490	-	-	104	223	163	-	-
Wife of head	4 770	111	337	995	1 260	1 574	331	163
No children under 18 years	2 725	-	281	454	555	1 094	227	115
Children 6 to 17 years only	1 003	111	56	333	223	223	56	-
Children under 6 years	1 043	-	-	207	482	257	48	48
Other family member	2 353	111	265	105	442	1 170	153	107
Unrelated individual	3 670	-	57	277	643	1 726	262	705
NOT IN THE LABOR FORCE								
Age and Sex								
Total, 16 years and over	43 432	5 696	6 833	8 947	9 844	8 145	2 981	986
Male, total	15 054	2 016	2 868	3 212	3 378	2 023	1 061	497
16 to 21 years, total	1 348	48	48	48	678	241	285	-
16 to 21 years, not in school	193	-	48	-	145	-	-	-
22 to 34 years, total	960	-	57	152	219	373	105	54
22 to 34 years, veteran of Vietnam	49	-	-	-	-	-	49	..
25 to 34 years	720	-	57	103	171	230	105	54
35 to 44 years	509	59	115	58	113	107	57	-
45 to 54 years	1 019	229	-	282	397	55	56	-
55 to 64 years	2 717	227	625	451	848	339	170	58
65 years and over	8 500	1 453	2 023	2 220	1 123	908	388	385
40 to 64 years	4 021	515	683	733	1 357	448	226	58
Female, total	28 378	3 680	3 965	5 735	6 466	6 123	1 920	489
16 to 21 years, total	2 219	-	-	48	824	768	579	-
16 to 21 years, not in school	1 166	-	-	-	582	535	49	-
22 to 34 years total	4 356	354	378	498	1 791	1 069	155	111
25 to 34 years	2 804	112	281	450	1 065	729	56	111
35 to 44 years	2 780	226	506	673	675	529	114	57
45 to 54 years	4 726	443	392	1 062	1 082	1 416	330	-
55 to 64 years	4 783	279	779	1 335	1 058	941	225	167
65 years and over	9 514	2 378	1 910	2 118	1 036	1 400	518	154
40 to 64 years	11 140	892	1 396	2 733	2 590	2 693	611	224
Family Status[1]								
Male, total	5 249	515	845	943	1 722	828	339	58
Family head	2 007	279	507	770	789	162	-	-
Family member	808	57	222	59	308	162	-	-
Unrelated individual	2 435	178	116	615	625	504	339	58
Female, total	17 580	1 253	2 055	3 568	5 188	4 410	823	282
Family head	2 314	168	336	618	856	224	113	-
No children under 18 years	617	112	55	337	113	-	-	-
Children 6 to 17 years only	785	56	112	280	167	112	58	-
Children under 6 years	911	-	168	-	576	111	55	-
Wife of head	10 687	649	1 107	2 231	3 222	2 916	592	471
No children under 18 years	4 823	169	611	1 065	1 044	1 595	226	114
Children 6 to 17 years only	2 340	223	167	725	725	445	56	-
Children under 6 years	3 525	257	329	441	1 454	876	110	57
Other family member	1 810	216	335	336	379	544	-	-
Unrelated individual	2 769	220	278	384	731	726	319	111

[1] Persons 16 to 64 years, not in school.

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Table 2b. Educational Attainment by Labor Force Status: Negro

Labor Force Status, Age and Sex, Family Status	Total	Educational attainment						
		Elementary			High school		College	
		4 years or less (including none)	5 to 7 years	8 years	1 to 3 years	4 years	1 to 3 years	4 years or more
IN THE LABOR FORCE								
Age and Sex								
Total, 16 years and over	151 592	5 778	13 171	14 911	47 391	51 472	14 439	4 431
Male, total	89 083	4 371	9 101	9 701	29 666	27 024	7 142	2 078
16 to 21 years, total	13 056	48	285	570	6 830	4 136	1 092	94
16 to 21 years, not in school	7 503	48	285	380	3 413	2 808	475	94
22 to 34 years, total	25 717	-	861	1 033	7 281	12 183	3 529	829
22 to 34 years, veteran of Vietnam	5 993	-	-	104	417	3 732	1 472	270
25 to 34 years	18 137	-	764	750	5 171	8 682	2 230	541
35 to 44 years	18 092	497	1 622	2 005	6 957	5 388	1 242	380
45 to 54 years	17 008	1 476	2 931	2 692	5 488	3 296	808	316
55 to 64 years	12 242	1 779	2 765	2 718	2 837	1 515	260	367
65 years and over	2 969	570	638	682	272	506	210	91
40 to 64 years	39 530	3 586	6 556	6 762	12 277	7 522	1 814	1 011
Female, total	62 509	1 407	4 070	5 210	17 725	24 448	7 297	2 352
16 to 21 years, total	9 884	-	236	378	3 179	4 620	1 472	-
16 to 21 years, not in school	6 656	-	189	283	1 856	3 333	996	-
22 to 34 years, total	18 223	147	370	202	4 231	10 084	2 204	984
25 to 34 years	12 640	53	321	108	3 089	6 934	1 440	694
35 to 44 years	12 595	55	584	1 183	4 274	4 629	1 178	692
45 to 54 years	13 301	261	1 353	2 027	3 736	3 855	1 709	361
55 to 64 years	6 778	621	1 093	1 098	1 926	1 152	627	261
65 years and over	1 727	324	434	322	378	107	107	55
40 to 64 years	27 360	936	2 818	4 149	7 701	7 782	2 978	996
Family Status[1]								
Male, total	79 058	3 801	8 463	8 781	25 834	24 702	5 585	1 893
Family head	47 553	2 378	6 075	6 484	13 928	14 269	3 175	1 244
Family member	14 538	392	627	764	5 880	5 754	862	259
Unrelated individual	16 968	1 030	1 761	1 533	6 026	4 679	1 548	390
Female, total	56 691	1 084	3 540	4 793	15 929	22 723	6 428	2 195
Family head	11 933	258	679	1 043	3 964	4 571	1 108	310
No children under 18 years	3 212	258	419	472	797	839	427	-
Children 6 to 17 years only	4 543	-	154	364	1 470	1 921	475	159
Children under 6 years	4 178	-	106	206	1 697	1 811	206	151
Wife of head	23 583	207	1 786	1 786	6 847	9 226	2 584	1 148
No children under 18 years	8 893	156	690	799	2 630	3 099	1 095	422
Children 6 to 17 years only	6 989	-	573	577	1 816	2 930	676	418
Children under 6 years	7 701	51	522	410	2 401	3 197	813	307
Other family member	11 294	206	448	545	2 497	5 525	1 596	476
Unrelated individual	9 882	413	627	1 419	2 621	3 400	1 141	261
NOT IN THE LABOR FORCE								
Age and Sex								
Total, 16 years and over	103 840	12 759	15 406	10 070	35 889	23 900	4 507	1 309
Male, total	29 316	5 913	5 920	2 921	8 688	4 270	1 178	425
16 to 21 years, total	5 547	142	240	472	3 651	570	473	-
16 to 21 years, not in school	1 233	94	143	47	665	236	47	-
22 to 34 years, total	2 517	168	-	100	579	1 238	316	116
22 to 34 years, veteran of Vietnam	406	-	-	-	56	245	48	57
25 to 34 years	1 853	168	-	53	389	907	221	116
35 to 44 years	2 346	109	278	162	949	732	116	-
45 to 54 years	3 516	673	490	372	1 418	507	56	-
55 to 64 years	5 037	815	1 875	488	1 226	422	53	157
65 years and over	10 353	4 006	3 038	1 326	865	802	164	152
40 to 64 years	9 668	1 545	2 590	913	2 924	1 373	166	157
Female, total	74 524	6 846	9 486	7 149	27 201	19 629	3 329	884
16 to 21 years, total	12 727	47	240	283	7 833	3 655	631	47
16 to 21 years, not in school	6 125	47	143	189	3 130	2 376	240	-
22 to 34 years, total	15 982	208	462	561	6 726	7 052	716	257
25 to 34 years	11 744	161	321	372	5 109	5 145	476	161
35 to 44 years	10 758	212	800	1 226	4 531	3 136	639	214
45 to 54 years	11 117	1 097	1 766	1 458	3 518	2 658	517	102
55 to 64 years	10 135	1 247	2 617	1 305	2 559	1 680	516	211
65 years and over	13 806	4 034	3 601	2 315	2 033	1 448	321	53
40 to 64 years	26 799	2 556	4 813	3 349	8 425	5 669	1 566	421
Family Status[1]								
Male, total	14 224	1 860	2 787	1 117	4 780	3 041	366	273
Family head	5 814	744	1 278	853	1 535	1 193	53	157
Family member	3 751	322	588	207	1 485	939	209	-
Unrelated individual	4 659	794	920	57	1 760	909	103	116
Female, total	52 483	2 811	5 789	4 686	19 640	16 348	2 472	736
Family head	13 639	524	1 257	1 358	6 101	3 823	471	106
No children under 18 years	1 632	211	266	213	470	311	108	53
Children 6 to 17 years only	3 669	210	364	523	1 688	781	104	-
Children under 6 years	8 338	102	628	622	3 943	2 731	259	53
Wife of head	26 703	1 258	3 454	2 365	8 891	8 817	1 342	575
No children under 18 years	12 110	1 053	2 217	1 324	3 212	3 635	357	313
Children 6 to 17 years only	6 000	154	826	420	2 350	1 625	469	157
Children under 6 years	8 592	51	411	621	3 329	3 558	516	106
Other family member	7 717	405	763	393	3 083	2 821	251	-
Unrelated individual	4 424	625	315	571	1 565	886	407	55

[1] Persons 16 to 64 years, not in school.

Table 3. Employment Status: All Races

Age and Sex Family Status Educational Attainment	Total persons in labor force	Full-time labor force					Part-time labor force		
		Total in labor force full time	Employed on full-time schedules	On part time for economic reasons	Unemployed looking for full-time work		Total in labor force part time	Employed part time (voluntary)	Unemployed looking for part-time work
					Total	Unemployment rate for seekers of full-time work			
AGE AND SEX									
Total, 16 years and over	198 401	180 045	147 617	9 231	23 197	12.9	18 356	13 823	4 533
Male, total	120 242	112 889	95 760	5 256	11 873	10.5	7 353	4 571	2 782
16 to 21 years, total	16 451	13 166	7 922	1 439	3 804	28.9	3 285	1 719	1 566
16 to 21 years, not in school	9 928	8 785	5 110	963	2 712	30.9	1 142	523	619
22 to 34 years, total	34 626	33 455	27 695	1 795	3 965	11.9	1 170	746	424
22 to 34 years, veteran of Vietnam	7 244	6 967	6 293	217	457	6.6	278	117	160
25 to 34 years	24 949	24 114	20 175	1 071	2 868	11.9	835	553	282
35 to 44 years	23 169	22 658	19 939	823	1 896	8.4	511	399	111
45 to 54 years	24 250	23 637	21 599	711	1 328	5.6	613	441	172
55 to 64 years	17 155	16 285	15 247	326	713	4.4	870	645	225
65 years and over	4 591	3 687	3 358	161	168	4.6	904	620	284
40 to 64 years	54 724	53 014	48 553	1 471	2 989	5.6	1 711	1 259	452
Female, total	78 159	67 156	51 858	3 975	11 324	16.9	11 003	9 252	1 751
16 to 21 years, total	12 388	9 909	6 103	525	3 280	33.1	2 479	1 812	667
16 to 21 years, not in school	8 492	7 581	4 394	525	2 662	35.1	911	529	383
22 to 34 years	23 276	21 626	16 647	692	4 287	19.8	1 650	1 356	294
25 to 34 years	16 042	15 021	11 425	597	3 000	20.0	1 020	967	53
35 to 44 years	14 853	13 134	10 659	703	1 772	13.5	1 720	1 238	481
45 to 54 years	16 333	14 390	11 566	1 052	1 772	12.3	1 943	1 840	103
55 to 64 years	8 560	6 357	5 567	684	107	1.7	2 203	2 049	154
65 years and over	2 748	1 740	1 315	320	106	6.1	1 008	956	52
40 to 64 years	33 473	28 404	23 388	2 221	2 796	9.8	5 069	4 543	526
FAMILY STATUS[1]									
Male, total	107 139	102 929	88 078	4 476	10 375	10.1	4 210	2 660	1 551
Family head	62 272	60 778	54 542	2 419	3 817	6.3	1 494	1 008	486
Family member	18 810	17 352	12 214	1 152	3 987	23.0	1 458	719	739
Unrelated individual	26 057	24 799	21 323	905	2 571	10.4	1 259	933	325
Female, total	70 247	61 966	47 903	3 655	10 408	16.8	8 280	6 914	1 366
Family head	13 438	12 128	9 474	466	2 188	18.0	1 311	1 050	261
No children under 18 years	3 890	3 577	3 208	104	265	7.4	313	313	-
Children 6 to 17 years only	4 880	4 407	3 928	51	428	9.7	473	314	159
Children under 6 years	4 668	4 143	2 338	310	1 495	36.1	525	423	102
Wife of head	29 033	24 408	19 176	1 541	3 691	15.1	4 625	3 964	661
No children under 18 years	11 959	9 780	8 013	753	1 014	10.4	2 180	2 028	151
Children 6 to 17 years only	8 105	7 013	5 488	473	1 052	15.0	1 092	1 041	51
Children under 6 years	8 969	7 616	5 676	315	1 625	21.3	1 353	894	458
Other family member	14 009	12 805	8 891	537	3 377	26.4	1 205	913	292
Unrelated individual	13 766	12 626	10 362	1 111	1 152	9.1	1 140	987	153
EDUCATIONAL ATTAINMENT[1]									
Male, total	107 139	102 929	88 078	4 476	10 375	10.1	4 210	2 660	1 551
Elementary: 7 years or less	17 345	16 632	14 609	786	1 237	7.4	713	435	278
8 years	12 554	12 205	10 160	591	1 454	11.9	350	255	94
High school: 1 to 3 years	33 453	31 570	25 542	1 353	4 675	14.8	1 883	1 114	769
4 years	31 234	30 552	26 649	1 527	2 375	7.8	682	427	255
College: 1 year or more	12 553	11 970	11 118	219	633	5.3	582	429	153
Female, total	70 247	61 966	47 903	3 655	10 408	16.8	8 280	6 914	1 366
Elementary: 7 years or less	5 721	4 564	2 950	730	884	19.4	1 157	1 106	51
8 years	6 669	5 766	4 275	639	852	14.8	903	743	160
High school: 1 to 3 years	18 884	16 137	11 919	777	3 441	21.3	2 747	2 095	652
4 years	27 954	26 040	20 372	1 303	4 365	16.8	1 915	1 512	403
College: 1 year or more	11 018	9 460	8 387	207	866	9.2	1 558	1 457	101

[1] Persons 16 to 64 years, not in school.

Table 3a. Employment Status: White

Age and Sex Family Status Educational Attainment	Total persons in labor force	Full-time labor force					Part-time labor force		
		Total in labor force full time	Employed on full-time schedules	On part time for economic reasons	Unemployed looking for full-time work		Total in labor force part time	Employed part time (voluntary)	Unemployed looking for part-time work
					Total	Unemployment rate for seekers of full time work			
AGE AND SEX									
Total, 16 years and over	43 144	38 843	33 082	2 124	3 637	9.4	4 301	3 544	757
Male, total	28 908	26 914	23 295	1 198	2 421	9.0	1 994	1 584	409
16 to 21 years, total	3 200	2 429	1 553	389	487	20.1	771	530	242
16 to 21 years, not in school	2 230	1 847	1 068	389	391	21.1	383	189	193
22 to 34 years, total	7 978	7 709	6 427	419	863	11.2	269	213	56
22 to 34 years, veteran of Vietnam	1 194	1 194	1 089	-	105	8.8	-	-	-
25 to 34 years	6 075	5 855	4 815	322	718	12.3	220	164	56
35 to 44 years	4 793	4 510	4 173	111	226	5.0	283	172	111
45 to 54 years	6 738	6 624	6 116	58	450	6.8	114	.14	-
55 to 64 years	4 634	4 410	4 016	112	283	6.4	224	224	-
65 years and over	1 565	1 233	1 011	110	112	9.1	332	332	-
40 to 64 years	14 354	13 961	12 776	225	959	6.9	393	338	55
Female, total	14 237	11 929	9 787	926	1 216	10.2	2 307	1 959	348
16 to 21 years, total	2 409	1 547	1 159	48	339	21.9	863	720	143
16 to 21 years, not in school	1 741	1 308	920	48	339	25.9	433	290	143
22 to 34 years	4 237	3 768	2 955	273	541	14.4	469	372	97
25 to 34 years	2 779	2 555	1 935	224	395	15.5	224	224	-
35 to 44 years	1 977	1 751	1 413	168	169	9.7	226	169	56
45 to 54 years	2 862	2 583	2 305	167	111	4.3	279	279	-
55 to 64 years	1 782	1 616	1 394	167	55	3.4	166	166	-
65 years and over	970	664	561	103	-	.0	305	253	52
40 to 64 years	5 774	5 160	4 490	446	223	4.3	614	558	56
FAMILY STATUS[1]									
Male, total	25 936	24 663	21 410	1 040	2 213	9.0	1 273	912	361
Family head	13 611	13 170	11 507	642	1 021	7.8	440	273	168
Family member	3 963	3 664	2 909	242	513	14.0	300	155	145
Unrelated individual	8 362	7 829	6 995	156	678	8.7	533	484	48
Female, total	12 242	10 768	8 778	823	1 167	10.8	1 474	1 178	296
Family head	1 449	1 338	1 064	55	218	16.3	111	111	-
No children under 18 years	621	621	566	-	55	8.9	-	-	-
Children 6 to 17 years only	338	338	338	-	-	.0	-	-	-
Children under 6 years	490	379	161	55	163	43.0	111	111	-
Wife of head	4 770	4 015	3 356	280	379	9.4	755	554	201
No children under 18 years	2 725	2 338	2 007	168	163	7.0	386	386	-
Children 6 to 17 years only	1 003	947	780	55	112	11.8	55	55	-
Children under 6 years	1 043	730	569	56	104	14.3	313	112	201
Other family member	2 353	1 951	1 494	104	354	18.1	401	353	48
Unrelated individual	3 670	3 464	2 864	385	215	6.2	206	160	46
EDUCATIONAL ATTAINMENT[1]									
Male, total	25 936	24 663	21 410	1 040	2 213	9.0	1 273	912	361
Elementary: 7 years or less	4 689	4 462	3 887	305	270	6.1	226	115	111
8 years	3 545	3 497	2 780	56	660	18.9	48	48	-
High school: 1 to 3 years	7 263	6 748	5 954	314	479	7.1	515	362	153
4 years	6 313	6 097	5 090	309	698	11.5	216	168	48
College: 1 year or more	4 126	3 859	3 700	55	104	2.7	267	218	48
Female, total	12 242	10 768	8 778	823	1 167	10.8	1 474	1 178	296
Elementary: 7 years or less	995	940	556	216	168	17.9	55	55	-
8 years	1 819	1 708	1 285	222	201	11.8	111	111	-
High school: 1 to 3 years	2 737	2 055	1 565	113	378	18.4	682	529	153
4 years	4 802	4 450	3 814	217	419	9.4	352	258	95
College: 1 year or more	1 888	1 615	1 559	56	-	.0	273	225	48

[1] Persons 16 to 64 years, not in school.

Table 3b. Employment Status: Negro

Age and Sex Family Status Educational Attainment	Total persons in labor force	Full-time labor force					Part-time labor force		
		Total in labor force full time	Employed on full-time schedules	On part time for economic reasons	Unemployed looking for full-time work		Total in labor force part time	Employed part time (voluntary)	Unemployed looking for part-time work
					Total	Unemployment rate for seekers of full-time work			
AGE AND SEX									
Total, 16 years and over	151 592	137 706	111 470	6 945	19 291	14.0	13 886	10 110	3 776
Male, total	89 083	83 779	70 643	3 896	9 240	11.0	5 304	2 931	2 373
16 to 21 years, total	13 056	10 543	6 322	1 001	3 220	30.5	2 514	1 189	1 325
16 to 21 years, not in school	7 503	6 743	3 994	525	2 224	33.0	760	334	426
22 to 34 years, total	25 717	24 815	20 450	1 320	3 045	12.3	901	534	368
22 to 34 years, veteran of Vietnam	5 993	5 715	5 147	217	352	6.2	278	117	160
25 to 34 years	18 137	17 522	14 737	693	2 092	11.9	616	389	226
35 to 44 years	18 092	17 919	15 595	712	1 612	9.0	172	172	-
45 to 54 years	17 008	16 509	15 034	597	877	5.3	499	327	172
55 to 64 years	12 242	11 596	10 952	214	430	3.7	646	421	225
65 years and over	2 969	2 397	2 289	51	56	2.3	572	288	284
40 to 64 years	39 530	38 212	34 993	1 190	2 030	5.3	1 317	921	396
Female, total	62 509	53 927	40 827	3 049	10 052	18.6	8 582	7 179	1 403
16 to 21 years, total	9 884	8 268	4 850	477	2 941	35.6	1 616	1 092	524
16 to 21 years, not in school	6 656	6 178	3 379	477	2 322	37.6	478	239	239
22 to 34 years	18 223	17 042	12 876	419	3 746	22.0	1 181	984	197
25 to 34 years	12 640	11 844	8 866	372	2 605	22.0	796	743	53
35 to 44 years	12 595	11 158	9 078	534	1 546	13.9	1 437	1 012	425
45 to 54 years	13 301	11 693	9 147	885	1 662	14.2	1 608	1 505	103
55 to 64 years	6 778	4 741	4 174	516	51	1.1	2 037	1 883	154
65 years and over	1 727	1 025	702	217	106	10.3	703	703	-
40 to 64 years	27 360	23 019	18 728	1 775	2 516	10.9	4 341	3 871	470
FAMILY STATUS[1]									
Male, total	79 058	76 176	64 952	3 274	7 950	10.4	2 882	1 692	1 190
Family head	47 553	46 499	42 145	1 665	2 690	5.8	1 054	735	319
Family member	14 538	13 380	9 094	861	3 425	25.6	1 158	564	594
Unrelated individual	16 968	16 298	13 714	749	1 835	11.3	670	393	277
Female, total	56 691	49 998	37 981	2 832	9 185	18.4	6 693	5 622	1 071
Family head	11 933	10 733	8 563	410	1 970	18.4	1 200	939	261
No children under 18 years	3 212	2 899	2 585	104	210	7.3	313	313	-
Children 6 to 17 years only	4 543	4 070	3 591	51	428	10.8	473	314	159
Children under 6 years	4 178	3 764	2 177	255	1 332	35.4	414	312	102
Wife of head	23 583	19 827	15 310	1 261	3 256	16.4	3 756	3 296	460
No children under 18 years	8 893	7 155	5 776	584	795	11.1	1 737	1 586	151
Children 6 to 17 years only	6 989	6 009	4 652	418	940	15.6	980	929	51
Children under 6 years	7 701	6 662	4 882	259	1 521	22.8	1 039	782	257
Other family member	11 294	10 491	7 034	434	3 023	28.8	803	560	244
Unrelated individual	9 882	8 948	7 284	727	937	10.5	934	827	107
EDUCATIONAL ATTAINMENT[1]									
Male, total	79 058	76 176	64 952	3 274	7 950	10.4	2 882	1 692	1 190
Elementary: 7 years or less	12 264	11 777	10 310	460	967	8.2	487	320	167
8 years	8 781	8 480	7 265	478	736	8.7	301	207	94
High school: 1 to 3 years	25 834	24 466	19 328	1 039	4 099	16.8	1 368	751	617
4 years	24 702	24 235	21 390	1 169	1 677	6.9	466	259	207
College: 1 year or more	7 477	7 217	6 638	108	471	6.5	260	155	105
Female, total	56 691	49 998	37 981	2 832	9 185	18.4	6 693	5 622	1 071
Elementary: 7 years or less	4 623	3 578	2 348	515	715	20.0	1 045	994	51
8 years	4 793	4 001	2 933	416	651	16.3	792	633	160
High school: 1 to 3 years	15 929	13 921	10 194	664	3 063	22.0	2 008	1 509	499
4 years	22 723	21 160	16 184	1 086	3 890	18.4	1 563	1 255	308
College: 1 year or more	8 623	7 338	6 322	151	866	11.8	1 325	1 232	53

[1] Persons 16 to 64 years, not in school.

Table 4. Educational Attainment of the Employed: All Races

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group	Total	Educational attainment						
		Elementary			High school		College	
		4 years or less (including none)	5 to 7 years	8 years	1 to 3 years	4 years	1 to 3 years	4 years or more
Total employed	153 686	5 646	14 970	16 663	42 800	51 790	13 816	8 001
Professional and technical	10 633	-	316	328	592	1 994	2 093	5 311
Managerial and administrative	4 935	51	104	430	911	1 875	808	755
Sales	3 862	55	226	219	794	1 623	620	325
Clerical	22 238	257	480	811	3 799	12 198	3 880	808
Craftsmen and foremen	17 518	736	1 754	1 665	5 633	6 006	1 678	47
Operatives, except transportation	42 133	1 903	5 079	5 450	14 031	13 104	2 306	260
Transport equipment operatives	8 451	268	1 015	1 091	3 174	2 474	429	-
Laborers, except farm	12 144	864	2 368	1 925	3 204	3 247	537	-
Service workers, except private household	26 717	1 201	2 840	3 596	9 010	8 270	1 362	438
Private household workers	4 900	310	788	1 149	1 602	946	104	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	159	-	-	-	49	53	-	56
Not available	-	-	-	-	-	-	-	-
Male employed	95 213	4 546	11 284	11 006	28 009	28 603	7 132	4 634
Professional and technical	4 607	-	104	217	274	650	521	2 840
Managerial and administrative	2 869	51	53	163	546	1 178	386	491
Sales	1 177	-	113	51	56	477	205	274
Clerical	6 726	257	164	483	1 684	2 750	1 002	385
Craftsmen and foremen	16 369	736	1 706	1 613	5 210	5 648	1 408	47
Operatives, except transportation	34 168	1 579	4 379	4 363	11 151	10 230	2 205	260
Transport equipment operatives	8 192	217	1 015	1 091	2 966	2 474	429	-
Laborers, except farm	11 195	864	2 368	1 763	2 889	2 826	486	-
Service workers, except private household	9 639	842	1 380	1 261	3 071	2 317	489	280
Private household workers	113	-	-	-	113	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	159	-	-	-	49	53	-	56
Not available	-	-	-	-	-	-	-	-
Male employed on full time schedule	88 078	4 219	10 390	10 160	25 542	26 649	6 813	4 304
Professional and technical	4 178	-	57	164	217	650	521	2 569
Managerial and administrative	2 765	51	53	103	489	1 131	386	491
Sales	963	-	56	51	56	477	106	215
Clerical	6 468	257	164	483	1 583	2 587	1 002	385
Craftsmen and foremen	15 363	736	1 452	1 557	4 825	5 396	1 352	47
Operatives, except transportation	31 736	1 416	4 275	3 940	10 215	9 532	2 098	260
Transport equipment operatives	7 610	166	959	1 038	2 702	2 315	429	-
Laborers, except farm	9 958	808	2 165	1 503	2 640	2 353	486	-
Service workers, except private household	8 826	785	1 209	1 261	2 703	2 155	434	280
Private household workers	97	-	-	-	57	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	159	-	-	-	49	53	-	56
Not available	-	-	-	-	-	-	-	-
Female employed	58 472	1 100	3 686	5 657	14 791	23 187	6 684	3 367
Professional and technical	6 026	-	211	110	318	1 344	1 572	2 470
Managerial and administrative	2 066	-	51	267	365	697	422	264
Sales	2 684	55	112	168	737	1 145	415	51
Clerical	15 508	-	316	328	2 116	9 448	2 878	423
Craftsmen and foremen	1 150	-	47	52	423	358	270	-
Operatives, except transportation	7 966	324	700	1 087	2 880	2 874	100	-
Transport equipment operatives	259	51	-	-	208	-	-	-
Laborers, except farm	950	-	-	162	315	421	51	-
Service workers, except private household	17 077	359	1 460	2 334	5 940	5 953	873	159
Private household workers	4 786	310	788	1 149	1 489	946	104	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-
Female employed on full time schedule	47 903	681	2 269	4 275	11 919	20 372	5 385	3 001
Professional and technical	5 135	-	107	110	209	1 291	1 205	2 212
Managerial and administrative	1 859	-	51	267	265	644	369	264
Sales	2 058	55	112	168	472	937	314	-
Clerical	13 644	-	211	328	1 549	8 721	2 468	367
Craftsmen and foremen	881	-	47	52	317	306	159	-
Operatives, except transportation	6 861	217	591	874	2 569	2 509	100	-
Transport equipment operatives	259	51	-	-	208	-	-	-
Laborers, except farm	790	-	-	107	262	421	-	-
Service workers, except private household	14 094	255	885	1 851	5 263	4 964	719	159
Private household workers	2 322	103	264	519	805	580	52	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-

Table 4a. Educational Attainment of the Employed: White

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group	Total	Educational attainment						
		Elementary			High school		College	
		4 years or less (including none)	5 to 7 years	8 years	1 to 3 years	4 years	1 to 3 years	4 years or more
Total employed	34 142	1 286	3 848	4 503	8 837	9 855	2 593	3 220
Professional and technical	3 299	-	56	57	112	386	529	2 158
Managerial and administrative	1 398	-	-	113	225	492	342	226
Sales	1 099	55	57	168	273	272	102	170
Clerical	5 076	149	219	332	859	2 653	530	334
Craftsmen and foremen	4 840	228	548	542	1 642	1 489	390	-
Operatives, except transportation	7 914	281	1 166	1 345	2 736	1 908	375	103
Transport equipment operatives	1 830	56	274	342	671	323	164	-
Laborers, except farm	2 597	224	810	541	381	640	-	-
Service workers, except private household	5 913	291	718	958	1 867	1 690	160	228
Private household workers	127	-	-	105	23	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	-	-	-	49	-	-	-
Not available	-	-	-	-	-	-	-	-
Male employed	23 362	1 119	3 188	2 885	6 631	5 566	1 680	2 294
Professional and technical	1 778	-	-	-	56	115	212	1 395
Managerial and administrative	950	-	-	57	169	325	230	169
Sales	329	-	-	-	56	56	46	170
Clerical	1 865	149	113	163	555	496	160	229
Craftsmen and foremen	4 628	228	548	542	1 536	1 441	333	-
Operatives, except transportation	6 018	170	941	840	2 133	1 456	375	103
Transport equipment operatives	1 830	56	274	342	671	323	164	-
Laborers, except farm	2 486	224	810	486	381	584	-	-
Service workers, except private household	3 431	291	502	454	1 025	770	160	228
Private household workers	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	-	-	-	49	-	-	-
Not available	-	-	-	-	-	-	-	-
Male employed on full-time schedule	21 710	1 063	2 824	2 780	5 954	5 090	1 578	2 122
Professional and technical	1 664	-	-	-	56	115	212	1 281
Managerial and administrative	950	-	-	57	169	325	230	169
Sales	224	-	-	-	56	56	-	111
Clerical	1 809	149	113	163	555	440	160	229
Craftsmen and foremen	4 368	228	500	542	1 430	1 335	333	-
Operatives, except transportation	5 561	170	893	784	1 878	1 358	375	103
Transport equipment operatives	1 622	56	218	342	574	267	164	-
Laborers, except farm	2 236	168	714	437	332	584	-	-
Service workers, except private household	2 926	291	387	454	855	608	105	228
Private household workers	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	-	-	-	49	-	-	-
Not available	-	-	-	-	-	-	-	-
Female employed	10 779	167	660	1 618	2 206	4 288	914	926
Professional and technical	1 522	-	56	57	56	271	317	764
Managerial and administrative	449	-	-	55	56	167	113	57
Sales	770	55	57	168	217	216	56	-
Clerical	3 211	-	106	168	304	2 157	370	105
Craftsmen and foremen	211	-	-	-	106	48	57	-
Operatives, except transportation	1 896	111	225	505	603	452	-	-
Transport equipment operatives	-	-	-	-	-	-	-	-
Laborers, except farm	112	-	-	55	-	56	-	-
Service workers, except private household	2 482	-	216	504	841	920	-	-
Private household workers	127	-	-	105	23	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-
Female employed on full-time schedule	8 778	111	444	1 285	1 565	3 814	688	870
Professional and technical	1 354	-	56	57	-	271	206	764
Managerial and administrative	449	-	-	55	56	167	113	57
Sales	610	55	57	168	57	216	56	-
Clerical	2 729	-	106	168	201	1 891	314	49
Craftsmen and foremen	48	-	-	-	-	48	-	-
Operatives, except transportation	1 673	56	169	449	547	452	-	-
Transport equipment operatives	-	-	-	-	-	-	-	-
Laborers, except farm	56	-	-	-	-	56	-	-
Service workers, except private household	1 731	-	56	282	680	712	-	-
Private household workers	127	-	-	105	23	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-

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Table 4b. Educational Attainment of the Employed: Negro

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group	Total	Educational attainment						
		Elementary			High school		College	
		4 years or less (including none)	5 to 7 years	8 years	1 to 3 years	4 years	1 to 3 years	4 years or more
Total employed	116 354	4 251	10 736	11 933	33 486	41 343	10 771	3 834
Professional and technical	6 501	-	260	270	480	1 608	1 508	2 375
Managerial and administrative	3 480	51	104	318	686	1 383	465	473
Sales	2 648	-	168	51	520	1 235	518	155
Clerical	16 777	108	262	479	2 826	9 391	3 293	418
Craftsmen and foremen	12 406	507	1 205	1 123	3 943	4 460	1 119	47
Operatives, except transportation	33 396	1 569	3 742	3 991	11 142	11 035	1 818	100
Transport equipment operatives	6 622	212	741	749	2 503	2 152	265	-
Laborers, except farm	9 386	639	1 502	1 328	2 823	2 557	537	-
Service workers, except private household	20 312	854	1 964	2 580	7 038	6 522	1 144	210
Private household workers	4 716	310	788	1 044	1 524	946	104	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	109	-	-	-	-	53	-	56
Not available	-	-	-	-	-	-	-	-
Male employed	69 919	3 317	7 813	7 951	21 119	22 818	5 056	1 845
Professional and technical	2 448	-	104	217	218	535	254	1 120
Managerial and administrative	1 863	51	53	106	377	853	156	266
Sales	849	-	113	51	-	421	159	104
Clerical	4 690	108	51	320	1 071	2 254	785	100
Craftsmen and foremen	11 522	507	1 158	1 071	3 626	4 150	962	47
Operatives, except transportation	27 479	1 356	3 267	3 408	8 913	8 718	1 717	100
Transport equipment operatives	6 362	161	741	749	2 295	2 152	265	-
Laborers, except farm	8 548	639	1 502	1 221	2 508	2 192	486	-
Service workers, except private household	5 933	495	822	807	1 997	1 489	272	51
Private household workers	113	-	-	-	113	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	109	-	-	-	-	53	-	56
Not available	-	-	-	-	-	-	-	-
Male employed on full-time schedule	64 952	3 047	7 283	7 266	19 328	21 390	4 895	1 743
Professional and technical	2 188	-	57	164	161	535	254	1 018
Managerial and administrative	1 759	51	53	106	320	806	156	266
Sales	739	-	56	51	-	421	106	104
Clerical	4 488	108	51	320	977	2 146	785	100
Craftsmen and foremen	10 834	507	952	1 015	3 346	4 004	962	47
Operatives, except transportation	25 504	1 193	3 210	3 042	8 232	8 118	1 609	100
Transport equipment operatives	5 988	109	741	696	2 128	2 048	265	-
Laborers, except farm	7 663	639	1 396	1 065	2 307	1 769	486	-
Service workers, except private household	5 623	438	766	807	1 800	1 489	272	51
Private household workers	57	-	-	-	57	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	109	-	-	-	-	53	-	56
Not available	-	-	-	-	-	-	-	-
Female employed	46 435	933	2 924	3 982	12 367	18 525	5 715	1 989
Professional and technical	4 053	-	155	53	262	1 073	1 255	1 255
Managerial and administrative	1 617	-	51	211	309	530	309	206
Sales	1 799	-	55	-	520	814	359	51
Clerical	12 087	-	211	160	1 755	7 137	2 508	317
Craftsmen and foremen	884	-	47	52	317	310	157	-
Operatives, except transportation	5 917	213	475	582	2 229	2 318	100	-
Transport equipment operatives	259	51	-	-	208	-	-	-
Laborers, except farm	838	-	-	107	315	365	51	-
Service workers, except private household	14 378	359	1 141	1 773	5 041	5 033	873	159
Private household workers	4 603	310	788	1 044	1 410	946	104	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-
Female employed on full-time schedule	37 981	570	1 778	2 933	10 194	16 184	4 642	1 680
Professional and technical	3 329	-	51	53	209	1 020	999	997
Managerial and administrative	1 410	-	51	211	208	477	256	206
Sales	1 333	-	55	-	414	606	257	-
Clerical	10 705	-	106	160	1 292	6 676	2 154	317
Craftsmen and foremen	778	-	47	52	317	257	104	-
Operatives, except transportation	5 035	161	422	425	1 974	1 953	100	-
Transport equipment operatives	259	51	-	-	208	-	-	-
Laborers, except farm	734	-	-	107	262	365	-	-
Service workers, except private household	12 260	255	782	1 512	4 582	4 251	719	159
Private household workers	2 139	103	264	414	727	580	52	-
Farmers and farm managers	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-

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Table 5. Major Occupation Group of the Employed: All Races

Age and Sex Family Status	Total employed	Major occupation group										
		Professional and technical	Managerial and administrative	Sales	Clerical	Craftsmen and foremen	Operatives, except transportation	Transport equipment operatives	Laborers, except farm	Service workers, except private household	Private household workers	Farmers, farm managers, farm laborers, and foremen	Not available
EMPLOYED													
Age and Sex													
Total, 16 years and over	170 671	12 249	6 268	5 010	25 535	18 609	44 058	8 966	13 655	30 064	6 099	159	-
Male, total	105 587	5 529	3 835	1 783	7 668	17 411	35 834	8 706	12 658	11 841	163	159	-
16 to 21 years, total	11 080	478	146	476	1 285	1 191	3 345	480	2 436	1 195	49	-	-
16 to 21 years, not in school	6 597	94	49	143	620	855	2 965	194	1 292	384	-	-	-
22 to 34 years, total	30 236	2 285	1 223	258	2 201	4 617	11 934	2 462	3 083	2 124	-	49	-
22 to 34 years, veteran of Vietnam	6 627	472	485	-	723	837	2 613	593	525	330	-	49	-
25 to 34 years	21 799	1 609	931	210	1 571	3 412	8 706	1 698	2 218	1 444	-	-	-
35 to 44 years	21 162	935	551	166	1 698	4 363	7 361	2 176	1 918	1 938	56	-	-
45 to 54 years	22 751	979	711	388	1 487	4 212	7 359	1 958	2 862	2 738	57	-	-
55 to 64 years	16 218	650	384	272	834	2 612	5 125	1 402	2 231	2 599	-	109	-
65 years and over	4 139	203	820	223	163	415	710	229	129	1 248	-	-	-
40 to 64 years	51 284	2 016	1 425	712	3 475	9 353	16 997	4 770	6 033	6 280	113	109	-
Female, total	65 084	6 720	2 433	3 228	17 867	1 198	8 224	259	997	18 223	5 937	-	-
16 to 21 years, total	8 441	380	143	572	4 583	190	382	47	47	1 763	333	-	-
16 to 21 years, not in school	5 448	239	96	381	2 964	143	335	47	-	1 147	96	-	-
22 to 34 years, total	18 696	2 902	422	933	6 988	319	2 491	53	209	4 120	258	-	-
25 to 34 years	12 989	2 083	328	600	4 347	269	2 110	53	162	2 872	164	-	-
35 to 44 years	12 601	1 299	594	646	2 801	267	2 056	108	161	3 913	756	-	-
45 to 54 years	14 457	931	745	484	2 177	317	2 225	-	419	5 259	1 899	-	-
55 to 64 years	8 300	902	264	382	1 114	105	858	51	160	2 639	1 824	-	-
65 years and over	2 590	306	264	210	205	-	211	-	-	529	866	-	-
40 to 64 years	30 151	2 698	1 440	1 246	4 696	583	4 386	106	687	10 045	4 265	-	-
Family Status[1]													
Male, total	95 213	4 607	2 869	1 177	6 726	16 368	34 168	8 192	11 195	9 639	113	159	-
Family head	57 969	2 175	1 594	631	3 661	11 183	21 513	5 635	6 546	4 873	-	159	-
Family member	14 084	480	323	104	1 510	1 912	4 693	1 145	2 620	1 298	-	-	-
Unrelated individual	23 161	1 952	952	443	1 556	3 273	7 962	1 412	2 028	3 469	113	-	-
Female, total	58 472	6 026	2 066	2 684	15 508	1 150	7 966	259	950	17 077	4 786	-	-
Family head	10 990	912	211	376	2 750	159	1 542	55	267	3 880	838	-	-
No children under 18 years	3 625	271	-	215	858	-	431	-	108	1 419	322	-	-
Children 6 to 17 years only	4 294	427	164	53	1 015	53	632	55	159	1 374	362	-	-
Children under 6 years	3 071	213	47	108	877	106	479	-	-	1 088	154	-	-
Wife of head	24 681	2 204	1 173	1 184	5 959	480	4 068	106	314	7 256	1 938	-	-
No children under 18 years	10 794	1 005	650	552	2 217	325	1 629	-	209	3 141	1 066	-	-
Children 6 to 17 years only	7 002	524	319	425	1 943	102	1 177	106	53	1 992	363	-	-
Children under 6 years	6 885	674	204	207	1 799	53	1 262	-	52	2 123	509	-	-
Other family member	10 341	900	54	594	4 410	147	1 082	47	47	2 800	258	-	-
Unrelated individual	12 460	2 011	628	530	2 389	364	1 273	51	322	3 140	1 753	-	-
EMPLOYED ON FULL-TIME SCHEDULES													
Age and Sex													
Total, 16 years and over	147 617	10 198	5 704	3 776	22 546	16 983	40 118	8 287	11 694	25 372	2 782	159	-
Male, total	95 760	4 660	3 577	1 324	7 169	16 102	33 151	8 028	10 904	10 582	106	159	-
16 to 21 years, total	7 922	142	98	238	952	908	2 768	480	1 573	716	49	-	-
16 to 21 years, not in school	5 110	47	49	96	477	713	2 436	194	857	240	-	-	-
22 to 34 years, total	27 695	2 132	1 119	205	2 143	4 262	11 012	2 203	2 662	1 907	-	49	-
22 to 34 years, veteran of Vietnam	6 293	472	485	-	665	837	2 509	535	412	330	-	49	-
25 to 34 years	20 175	1 552	826	157	1 513	3 251	8 178	1 486	1 939	1 274	-	-	-
35 to 44 years	19 939	822	551	166	1 698	4 135	6 927	2 009	1 809	1 823	-	-	-
45 to 54 years	21 599	875	711	272	1 487	3 991	7 027	1 907	2 702	2 570	57	-	-
55 to 64 years	15 247	543	384	272	778	2 554	4 812	1 295	2 069	2 431	-	109	-
65 years and over	3 358	147	715	171	111	252	605	132	91	1 135	-	-	-
40 to 64 years	48 553	1 747	1 425	597	3 419	8 959	16 195	4 503	5 602	5 943	57	109	-
Female, total	51 858	5 537	2 127	2 452	15 377	881	6 967	259	790	14 790	2 676	-	-
16 to 21 years, total	6 103	192	49	331	3 720	143	335	47	-	1 097	189	-	-
16 to 21 years, not in school	4 394	192	49	237	2 579	143	335	47	-	716	96	-	-
22 to 34 years, total	16 647	2 752	369	826	6 203	159	2 279	53	209	3 538	258	-	-
25 to 34 years	11 425	2 031	275	493	3 755	159	1 945	53	162	2 387	164	-	-
35 to 44 years	10 659	976	540	432	2 476	267	1 898	108	161	3 482	321	-	-
45 to 54 years	11 566	829	745	431	1 860	261	1 757	-	368	4 301	1 014	-	-
55 to 64 years	5 567	585	211	276	1 011	52	593	51	52	2 056	680	-	-
65 years and over	1 315	204	212	157	106	-	106	-	-	316	213	-	-
40 to 64 years	23 388	2 117	1 333	977	4 166	473	3 546	106	528	8 233	1 909	-	-
Family Status[1]													
Male, total	88 078	4 178	2 765	963	6 468	15 363	31 736	7 610	9 954	8 826	57	159	-
Family head	54 542	1 962	1 594	578	3 661	10 754	19 901	5 272	6 013	4 650	-	159	-
Family member	12 214	433	276	104	1 307	1 655	4 131	1 042	2 074	1 193	-	-	-
Unrelated individual	21 323	1 783	895	281	1 500	2 955	7 704	1 296	1 867	2 984	57	-	-
Female, total	47 903	5 135	1 859	2 058	13 644	881	6 861	259	790	14 094	2 322	-	-
Family head	9 474	750	211	270	2 482	159	1 491	55	267	3 367	422	-	-
No children under 18 years	3 208	218	-	162	858	-	431	-	108	1 214	216	-	-
Children 6 to 17 years only	3 928	374	164	-	962	53	581	55	159	1 374	206	-	-
Children under 6 years	2 338	157	47	108	662	106	479	-	-	779	-	-	-
Wife of head	19 176	1 686	1 013	967	5 121	260	3 436	106	210	5 653	725	-	-
No children under 18 years	8 013	901	490	391	1 898	158	1 363	-	104	2 443	266	-	-
Children 6 to 17 years only	5 488	316	319	425	1 687	102	1 020	106	53	1 408	52	-	-
Children under 6 years	5 676	469	204	151	1 537	-	1 053	-	52	1 802	407	-	-
Other family member	8 891	745	54	446	3 968	147	1 027	47	47	2 307	102	-	-
Unrelated individual	10 362	1 955	581	375	2 072	315	907	51	266	2 767	1 072	-	-

[1] Persons 16 to 64 years, not in school.

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Table 5a. Major Occupation Group of the Employed: White

Age and Sex Family Status	Total employed	Major occupation group										
		Professional and technical	Managerial and administrative	Sales	Clerical	Craftsmen and foremen	Operatives, except transportation	Transport equipment operatives	Laborers, except farm	Service workers, except private household	Private household workers	Farmers, farm managers, farm laborers, and foremen	Not available
EMPLOYED													
Age and Sex													
Total, 16 years and over	38 750	3 948	1 985	1 720	5 926	5 208	8 170	2 039	2 791	6 741	174	49	-
Male, total	26 077	2 131	1 326	698	2 023	4 997	6 171	2 039	2 679	3 965	-	49	-
16 to 21 years, total	2 471	97	146	144	97	146	774	244	581	243	-	-	-
16 to 21 years, not in school	1 646	-	49	46	48	98	726	147	388	144	-	-	-
22 to 34 years, total	7 059	1 027	333	48	632	1 460	1 393	604	635	877	-	49	-
22 to 34 years, veteran of Vietnam	1 089	-	114	-	251	270	146	97	48	114	-	49	-
25 to 34 years	5 301	832	285	-	536	971	1 102	411	538	627	-	-	-
35 to 44 years	4 456	223	227	-	452	1 133	1 122	228	501	570	-	-	-
45 to 54 years	6 287	450	225	170	344	1 297	1 866	454	506	975	-	-	-
55 to 64 years	4 351	224	115	113	388	738	960	397	455	962	-	-	-
65 years and over	1 453	110	280	223	110	222	56	113	-	339	-	-	-
40 to 64 years	13 339	728	454	282	1 068	2 660	3 667	1 023	1 295	2 163	-	-	-
Female, total	12 673	1 817	659	1 022	3 903	211	1 999	-	112	2 776	174	-	-
16 to 21 years, total	1 927	46	-	145	1 209	48	98	-	-	286	95	-	-
16 to 21 years, not in school	1 259	-	-	48	871	48	98	-	-	145	48	-	-
22 to 34 years, total	3 599	965	112	218	1 081	107	453	-	56	607	-	-	-
25 to 34 years	2 384	725	112	170	448	57	453	-	56	363	-	-	-
35 to 44 years	1 751	226	57	113	511	-	451	-	-	393	-	-	-
45 to 54 years	2 751	108	279	166	613	56	559	-	-	891	79	-	-
55 to 64 years	1 727	272	56	225	337	-	335	-	55	446	-	-	-
65 years and over	917	200	154	155	152	-	103	-	-	154	-	-	-
40 to 64 years	5 495	550	335	504	1 233	56	1 177	-	55	1 505	79	-	-
Family Status[1]													
Male, total	23 362	1 778	950	329	1 865	4 628	6 018	1 830	2 486	3 431	-	49	-
Family head	12 422	597	337	56	923	3 297	3 480	966	1 137	1 578	-	49	-
Family member	3 305	57	164	-	382	324	857	348	780	392	-	-	-
Unrelated individual	7 635	1 123	448	272	559	1 007	1 681	515	568	1 462	-	-	-
Female, total	10 779	1 522	449	770	3 211	211	1 896	-	112	2 482	127	-	-
Family head	1 231	111	56	56	386	-	170	-	-	394	56	-	-
No children under 18 years	566	-	-	56	227	-	113	-	-	114	56	-	-
Children 6 to 17 years only	338	55	56	-	56	-	-	-	-	170	-	-	-
Children under 6 years	327	56	-	-	103	-	57	-	-	111	-	-	-
Wife of head	4 190	163	337	335	864	114	1 286	-	-	1 043	48	-	-
No children under 18 years	2 562	115	227	168	599	114	680	-	-	661	-	-	-
Children 6 to 17 years only	891	-	111	111	168	-	279	-	-	222	-	-	-
Children under 6 years	737	48	-	56	97	-	327	-	-	161	48	-	-
Other family member	1 951	274	-	153	1 051	-	111	-	-	362	-	-	-
Unrelated individual	3 408	974	55	226	910	98	329	-	112	683	23	-	-
EMPLOYED ON FULL-TIME SCHEDULES													
Age and Sex													
Total, 16 years and over	33 082	3 269	1 885	1 156	4 995	4 672	7 439	1 774	2 437	5 231	174	49	-
Male, total	23 295	1 817	1 278	443	1 914	4 624	5 714	1 774	2 381	3 301	-	49	-
16 to 21 years, total	1 553	-	98	-	97	146	485	244	339	144	-	-	-
16 to 21 years, not in school	1 068	-	49	-	48	98	437	147	194	95	-	-	-
22 to 34 years, total	6 427	922	333	48	632	1 257	1 336	451	635	763	-	49	-
22 to 34 years, veteran of Vietnam	1 089	-	114	-	251	270	146	97	48	114	-	49	-
25 to 34 years	4 815	775	285	-	536	866	1 045	258	538	513	-	-	-
35 to 44 years	4 173	223	227	-	452	1 076	1 067	228	445	455	-	-	-
45 to 54 years	6 116	450	225	111	344	1 297	1 866	454	506	863	-	-	-
55 to 64 years	4 016	168	115	113	332	738	904	342	455	850	-	-	-
65 years and over	1 011	55	280	171	57	110	56	55	-	227	-	-	-
40 to 64 years	12 776	672	454	224	1 012	2 660	3 610	967	1 239	1 938	-	-	-
Female, total	9 787	1 452	607	713	3 080	48	1 725	-	56	1 931	174	-	-
16 to 21 years, total	1 159	-	-	-	872	48	98	-	-	46	95	-	-
16 to 21 years, not in school	920	-	-	-	726	48	98	-	-	-	48	-	-
22 to 34 years, total	2 955	916	112	218	865	-	341	-	56	446	-	-	-
25 to 34 years	1 935	725	112	170	280	-	341	-	56	251	-	-	-
35 to 44 years	1 413	113	57	57	397	-	451	-	-	337	-	-	-
45 to 54 years	2 305	108	279	166	556	-	503	-	-	614	79	-	-
55 to 64 years	1 394	217	56	169	337	-	280	-	-	334	-	-	-
65 years and over	561	98	103	103	52	-	51	-	-	154	-	-	-
40 to 64 years	4 490	438	335	392	1 119	-	1 066	-	-	1 060	79	-	-
Family Status[1]													
Male, total	21 410	1 664	950	224	1 809	4 368	5 561	1 622	2 236	2 928	-	49	-
Family head	11 507	540	337	56	923	3 143	3 264	758	1 081	1 354	-	49	-
Family member	2 909	57	164	-	382	324	712	348	587	334	-	-	-
Unrelated individual	6 995	1 067	448	167	503	901	1 585	515	568	1 240	-	-	-
Female, total	8 778	1 354	449	610	2 729	48	1 673	-	56	1 731	127	-	-
Family head	1 064	55	56	56	331	-	170	-	-	339	56	-	-
No children under 18 years	566	-	-	56	227	-	113	-	-	114	56	-	-
Children 6 to 17 years only	338	55	56	-	56	-	-	-	-	170	-	-	-
Children under 6 years	161	-	-	-	48	-	57	-	-	55	-	-	-
Wife of head	3 356	163	337	223	702	-	1 174	-	-	709	48	-	-
No children under 18 years	2 007	115	227	113	437	-	624	-	-	493	-	-	-
Children 6 to 17 years only	780	-	111	111	168	-	279	-	-	111	-	-	-
Children under 6 years	569	48	-	-	97	-	271	-	-	104	48	-	-
Other family member	1 494	218	-	104	954	-	56	-	-	161	-	-	-
Unrelated individual	2 864	918	55	226	742	48	273	-	56	522	23	-	-

[1] Persons 18 to 64 years, not in school.

Table 5b. Major Occupation Group of the Employed: Negro

Age and Sex Family Status	Total employed	Major occupation group										
		Professional and technical	Managerial and administrative	Sales	Clerical	Craftsmen and foremen	Operatives, except transportation	Transport equipment operatives	Laborers, except farm	Service workers, except private household	Private household workers	Farmers, farm managers, farm laborers, and foremen	Not available
EMPLOYED													
Age and Sex													
Total, 16 years and over	128 525	7 420	4 169	3 176	19 228	13 080	35 065	6 926	10 704	22 830	5 818	109	-
Male, total	77 471	3 017	2 395	1 085	5 474	12 149	28 993	6 667	9 818	7 601	163	109	-
16 to 21 years, total	8 512	381	-	332	1 188	997	2 571	236	1 805	952	49	-	-
16 to 21 years, not in school	4 853	94	-	96	572	709	2 239	47	855	240	-	-	-
22 to 34 years, total	22 304	1 036	834	210	1 569	2 996	10 211	1 858	2 448	1 143	-	-	-
22 to 34 years, veteran of Vietnam	5 481	472	371	-	472	567	2 410	496	477	216	-	-	-
25 to 34 years	15 819	605	590	210	1 036	2 328	7 322	1 287	1 680	762	-	-	-
35 to 44 years	16 479	656	323	166	1 246	3 230	6 182	1 948	1 417	1 255	56	-	-
45 to 54 years	15 959	480	485	218	1 029	2 859	5 378	1 505	2 244	1 705	57	-	-
55 to 64 years	11 588	371	270	159	389	1 874	3 997	1 005	1 775	1 638	-	109	-
65 years and over	2 628	92	483	-	53	193	654	116	129	909	-	-	-
40 to 64 years	37 103	1 183	970	430	2 236	6 638	12 990	3 748	4 626	4 059	113	109	-
Female, total	51 054	4 403	1 774	2 091	13 754	931	6 072	259	885	15 229	5 656	-	-
16 to 21 years, total	6 419	334	143	427	3 373	141	236	47	47	1 431	238	-	-
16 to 21 years, not in school	4 094	239	96	333	2 093	94	189	47	-	955	47	-	-
22 to 34 years, total	14 280	1 549	310	658	5 752	212	1 933	53	153	3 456	202	-	-
25 to 34 years	9 982	1 020	216	374	3 842	212	1 601	53	106	2 451	108	-	-
35 to 44 years	10 624	961	536	533	2 234	267	1 605	108	161	3 463	756	-	-
45 to 54 years	11 536	823	467	260	1 564	205	1 667	-	419	4 311	1 820	-	-
55 to 64 years	6 573	630	208	157	776	105	523	51	105	2 193	1 824	-	-
65 years and over	1 621	106	109	55	53	-	108	-	-	375	815	-	-
40 to 64 years	24 374	2 148	1 104	684	3 407	471	3 209	106	632	8 426	4 186	-	-
Family Status[1]													
Male, total	69 919	2 448	1 863	849	4 690	11 522	27 479	6 362	8 548	5 933	113	109	-
Family head	44 545	1 416	1 201	574	2 623	7 717	17 755	4 669	5 297	3 183	-	109	-
Family member	10 518	422	159	104	1 070	1 539	3 730	797	1 791	906	-	-	-
Unrelated individual	14 856	609	504	171	997	2 266	5 994	897	1 460	1 844	113	-	-
Female, total	46 435	4 053	1 617	1 799	12 087	884	5 917	259	838	14 378	4 603	-	-
Family head	9 702	743	155	320	2 364	159	1 372	55	267	3 486	781	-	-
No children under 18 years	3 002	214	-	159	631	-	318	-	108	1 305	266	-	-
Children 6 to 17 years only	3 956	372	108	53	959	53	632	55	159	1 204	362	-	-
Children under 6 years	2 744	157	47	108	774	106	422	-	-	977	154	-	-
Wife of head	19 867	1 928	836	734	4 981	366	2 726	106	314	6 042	1 834	-	-
No children under 18 years	7 946	891	423	269	1 560	211	950	-	209	2 367	1 066	-	-
Children 6 to 17 years only	5 998	524	208	314	1 718	102	898	106	53	1 713	363	-	-
Children under 6 years	5 923	514	204	151	1 703	53	879	-	52	1 962	405	-	-
Other family member	8 027	457	54	441	3 262	147	874	47	47	2 439	258	-	-
Unrelated individual	8 838	925	572	304	1 479	211	944	51	210	2 411	1 730	-	-
EMPLOYED ON FULL-TIME SCHEDULES													
Age and Sex													
Total, 16 years and over	111 470	6 103	3 705	2 505	17 170	12 045	31 856	6 513	9 201	19 762	2 501	109	-
Male, total	70 643	2 518	2 185	881	5 083	11 268	26 766	6 254	8 468	7 006	106	109	-
16 to 21 years, total	6 322	142	-	238	855	714	2 282	236	1 233	572	49	-	-
16 to 21 years, not in school	3 994	47	-	96	429	567	1 999	47	663	145	-	-	-
22 to 34 years, total	20 450	989	730	157	1 510	2 901	9 345	1 752	2 027	1 040	-	-	-
22 to 34 years, veteran of Vietnam	5 147	472	371	-	413	567	2 306	438	363	216	-	-	-
25 to 34 years	14 737	605	485	157	977	2 328	6 850	1 228	1 401	705	-	-	-
35 to 44 years	15 595	599	323	166	1 246	3 059	5 802	1 781	1 363	1 255	-	-	-
45 to 54 years	15 034	376	485	161	1 029	2 637	5 047	1 454	2 140	1 650	57	-	-
55 to 64 years	10 952	320	270	159	389	1 816	3 741	954	1 614	1 581	-	109	-
65 years and over	2 289	92	377	-	53	142	548	77	91	909	-	-	-
40 to 64 years	34 993	970	970	373	2 236	6 243	12 244	3 535	4 308	3 947	57	109	-
Female, total	40 827	3 585	1 520	1 624	12 087	778	5 089	259	734	12 756	2 394	-	-
16 to 21 years, total	4 850	192	49	331	2 848	94	189	47	-	1 004	94	-	-
16 to 21 years, not in school	3 379	192	49	237	1 853	94	189	47	-	670	47	-	-
22 to 34 years, total	12 876	1 448	257	551	5 185	159	1 833	53	153	3 035	202	-	-
25 to 34 years	8 866	967	163	266	3 417	159	1 548	53	106	2 079	108	-	-
35 to 44 years	9 078	750	483	374	2 023	267	1 446	108	161	3 146	321	-	-
45 to 54 years	9 147	721	467	207	1 304	205	1 253	-	368	3 687	935	-	-
55 to 64 years	4 174	369	155	106	674	52	313	51	52	1 722	680	-	-
65 years and over	702	106	109	55	53	-	55	-	-	162	161	-	-
40 to 64 years	18 728	1 679	998	527	2 991	418	2 480	106	528	7 173	1 830	-	-
Family Status[1]													
Male, total	64 952	2 188	1 759	739	4 488	10 834	25 504	5 988	7 663	5 623	57	109	-
Family head	42 145	1 261	1 201	521	2 623	7 497	16 359	4 513	4 877	3 183	-	109	-
Family member	9 094	375	111	104	866	1 283	3 313	693	1 487	859	-	-	-
Unrelated individual	13 714	552	447	114	997	2 054	5 832	781	1 299	1 581	57	-	-
Female, total	37 981	3 329	1 410	1 333	10 705	778	5 035	259	734	12 260	2 139	-	-
Family head	8 353	637	155	214	2 151	159	1 321	55	267	3 028	366	-	-
No children under 18 years	2 585	161	-	106	631	-	318	-	108	1 100	159	-	-
Children 6 to 17 years only	3 591	319	108	-	906	53	581	55	159	1 204	206	-	-
Children under 6 years	2 177	157	47	108	614	106	422	-	-	724	-	-	-
Wife of head	15 310	1 411	676	628	4 306	260	2 206	106	210	4 887	621	-	-
No children under 18 years	5 776	787	264	163	1 403	158	739	-	104	1 893	266	-	-
Children 6 to 17 years only	4 652	316	208	314	1 463	102	741	106	53	1 297	52	-	-
Children under 6 years	4 882	308	204	151	1 440	-	726	-	52	1 698	303	-	-
Other family member	7 034	357	54	342	2 917	147	874	47	47	2 146	102	-	-
Unrelated individual	7 284	925	525	149	1 331	211	634	51	210	2 198	1 050	-	-

[1] Persons 16 to 64 years, not in school.

Table 6. Age and Sex of Employed Persons: All Races

(Limited to person 16 to 64 years, not in school)

Detailed Occupation Group	Male						Female					
	Total	16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	Total	16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years
Total employed	95 213	6 597	28 486	21 162	22 751	16 218	58 472	5 448	17 667	12 601	14 457	8 300
Professional health workers	580	47	270	109	51	102	2 271	96	1 383	162	308	322
Social and recreational workers	111	-	-	-	58	53	485	-	166	163	156	-
Religious workers	654	-	54	54	325	221	106	-	-	53	-	53
Other professional workers	3 263	47	1 624	771	546	274	3 164	143	1 105	921	468	527
Managers and administrators	2 869	49	1 174	551	711	384	2 066	96	366	594	745	264
Salaried, retail trade	958	49	315	221	265	109	427	49	166	107	52	53
Salaried, other	1 078	-	521	221	222	114	1 266	47	200	379	589	51
Self-employed, retail trade	555	-	224	109	112	110	212	-	-	53	51	108
Self-employed, other	277	-	114	-	112	51	160	-	-	55	53	52
Sales workers, retail trade	525	96	104	109	164	51	2 312	381	523	593	432	382
Sales workers, other	652	46	106	56	223	221	373	-	268	53	51	-
Postal clerks and mail carriers	897	49	255	436	157	-	884	96	416	214	55	104
Shipping and receiving clerks	1 385	47	302	549	261	225	211	-	102	56	53	-
Stock clerks and storekeepers	1 182	-	523	161	395	104	575	-	154	159	262	-
Other clerical workers	3 261	524	1 007	552	674	505	13 838	2 868	5 781	2 372	1 807	1 009
Automobile mechanics and body repairmen	2 524	142	584	991	426	381	47	47	-	-	-	-
Machinists	635	47	322	56	156	53	-	-	-	-	-	-
Mechanics and repairmen, except auto	2 076	188	624	387	437	439	108	-	-	108	-	-
Metal craftsmen, except mechanics and machinists	2 630	47	634	544	1 023	381	-	-	-	-	-	-
Carpenters	709	49	156	174	227	102	-	-	-	-	-	-
Construction craftsmen, except carpenters	2 956	192	723	948	658	435	-	-	-	-	-	-
Other craftsmen	4 839	189	1 282	1 263	1 284	820	995	96	319	159	317	105
Operatives, durable goods manufacturing	28 910	2 247	10 150	6 098	6 380	4 036	2 888	94	1 116	701	703	274
Operatives, nondurable goods manufacturing	1 983	383	515	444	375	266	1 815	144	583	657	215	216
Operatives, nonmanufacturing	3 275	335	693	820	604	823	3 263	97	792	698	1 308	368
Taxicab drivers and chauffeurs	1 312	-	484	273	329	226	108	-	-	108	-	-
Bus drivers and truck drivers	3 300	49	773	1 249	539	690	-	-	-	-	-	-
Deliverymen and routemen	1 194	47	557	106	270	214	53	-	53	-	-	-
Parking attendants	217	-	-	109	51	56	51	-	-	-	-	51
Other transport equipment operatives	2 169	98	649	439	769	215	47	47	-	-	-	-
Comtruction laborers	1 883	143	495	383	433	429	-	-	-	-	-	-
Other laborers, except farm	9 311	1 149	2 397	1 535	2 429	1 801	950	-	209	161	419	160
Cleaning service workers	4 978	143	632	1 223	1 661	1 320	3 220	95	100	535	1 802	688
Food service workers	1 990	192	434	280	569	515	5 139	239	1 446	1 506	1 314	633
Health service workers	262	-	47	-	109	106	6 291	671	2 095	1 333	1 401	791
Personal service workers	812	49	213	162	170	218	2 167	142	479	485	586	475
Protective service workers	1 596	-	655	273	228	440	261	-	-	53	157	51
Private household workers	113	-	-	56	57	-	4 786	96	211	756	1 899	1 824
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	159	-	49	-	-	109	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Total employed on full-time schedules	88 078	5 110	26 184	19 939	21 599	15 247	47 903	4 394	15 717	10 659	11 566	5 567
Professional health workers	424	-	212	109	51	51	2 063	49	1 383	109	308	213
Social and recreational workers	111	-	-	-	58	53	383	-	166	163	53	-
Religious workers	601	-	54	54	271	221	53	-	-	53	-	-
Other professional workers	3 043	47	1 624	658	495	218	2 637	143	1 004	650	468	372
Managers and administrators	2 765	49	1 070	551	711	384	1 859	49	313	540	745	211
Salaried, retail trade	958	49	315	221	265	109	374	49	166	107	52	-
Salaried, other	1 031	-	474	221	222	114	1 113	-	147	325	589	51
Self employed, retail trade	555	-	224	109	112	110	212	-	-	53	51	108
Self employed, other	220	-	57	-	112	51	160	-	-	55	53	52
Sales workers, retail trade	468	96	104	109	107	51	1 739	237	415	432	379	276
Sales workers, other	495	-	53	56	165	221	320	-	268	-	51	-
Postal clerks and mail carriers	897	49	255	436	137	-	884	96	416	214	55	104
Shipping and receiving clerks	1 385	47	302	549	261	225	211	-	102	56	53	-
Stock clerks and storekeepers	1 182	-	523	161	395	104	524	-	154	159	211	-
Other clerical workers	3 003	381	948	552	674	449	12 025	2 484	5 046	2 047	1 541	907
Automobile mechanics and body repairmen	2 382	47	536	991	426	381	47	47	-	-	-	-
Machinists	522	47	266	-	156	53	-	-	-	-	-	-
Mechanics and repairmen, except auto	1 975	141	624	387	384	439	108	-	-	108	-	-
Metal craftsmen, except mechanics and machinists	2 578	47	634	544	972	381	-	-	-	-	-	-
Carpenters	603	49	108	174	169	102	-	-	-	-	-	-
Construction craftsmen, except carpenters	2 631	192	570	834	600	435	-	-	-	-	-	-
Other craftsmen	4 672	189	1 233	1 204	1 284	762	726	96	159	159	261	52
Operatives, durable goods manufacturing	26 989	1 959	9 483	5 663	6 160	3 723	2 569	94	1 059	596	600	219
Operatives, nondurable goods manufacturing	1 838	238	515	444	375	266	1 659	144	427	657	215	216
Operatives, nonmanufacturing	2 909	238	536	820	493	823	2 633	97	792	645	942	158
Taxicab drivers and chauffeurs	1 209	-	437	273	329	171	108	-	-	108	-	-
Bus drivers and truck drivers	3 142	49	666	1 249	539	638	-	-	-	-	-	-
Deliverymen and routemen	1 095	47	508	106	219	214	53	-	53	-	-	-
Parking attendants	161	-	-	53	51	56	51	-	-	-	-	51
Other transport equipment operatives	2 003	98	592	328	769	215	47	47	-	-	-	-
Comtruction laborers	1 725	94	439	383	380	429	-	-	-	-	-	-
Othe. laborers, except farm	8 229	763	2 079	1 426	2 322	1 640	790	-	209	161	368	52
Cleaning service workers	4 494	46	470	1 167	1 548	1 262	2 631	95	100	429	1 476	530
Food service workers	1 828	145	434	222	569	458	4 090	94	1 237	1 343	943	473
Health service workers	262	-	47	-	109	106	5 892	480	1 989	1 333	1 298	791
Personal service workers	812	49	213	162	170	218	1 375	47	212	323	530	262
Protective service workers	1 430	-	598	273	173	385	106	-	-	53	53	-
Private household workers	57	-	-	-	57	-	2 322	96	211	321	1 014	680
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	159	-	49	-	-	109	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

Table 6a. Age and Sex of Employed Persons: White

(Limited to person 16 to 64 years, not in school)

Detailed Occupation Group	Male						Female					
	Total	16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	Total	16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years
Total employed	23 362	1 646	6 622	4 456	6 287	4 351	10 779	1 259	3 292	1 751	2 751	1 727
Professional health workers	163	-	163	-	-	-	543	-	432	-	-	111
Social and recreational workers	58	-	-	-	58	-	113	-	113	-	-	-
Religious workers	440	-	54	54	164	168	-	-	-	-	-	-
Other professional workers	1 116	-	663	169	228	56	866	-	370	226	108	161
Managers and administrators	950	49	333	227	225	115	449	-	56	57	279	56
Salaried, retail trade	382	49	105	58	111	58	56	-	56	-	-	-
Salaried, other	170	-	57	113	-	-	336	-	-	57	279	-
Self-employed, retail trade	340	-	171	56	55	57	56	-	-	-	-	56
Self-employed, other	59	-	-	-	59	-	-	-	-	-	-	-
Sales workers, retail trade	56	-	-	-	56	-	609	48	57	113	166	225
Sales workers, other	272	46	-	-	114	113	161	-	161	-	-	-
Postal clerks and mail carriers	-	-	-	-	-	-	152	48	48	-	55	-
Shipping and receiving clerks	426	-	145	171	-	111	56	-	-	56	-	-
Stock clerks and storekeepers	540	-	316	114	58	52	56	-	-	-	56	-
Other clerical workers	899	48	172	167	286	225	2 947	823	831	455	501	337
Automobile mechanics and body repairmen	446	-	162	225	-	59	-	-	-	-	-	-
Machinists	-	-	-	-	-	-	-	-	-	-	-	-
Mechanics and repairmen, except auto	543	-	260	58	111	114	-	-	-	-	-	-
Metal craftsmen, except mechanics and machinists	992	-	260	227	336	169	-	-	-	-	-	-
Carpenters	316	49	98	57	113	-	-	-	-	-	-	-
Construction craftsmen, except carpenters	837	48	162	340	116	170	-	-	-	-	-	-
Other craftsmen	1 495	-	421	226	622	226	211	48	107	-	56	-
Operatives, durable goods manufacturing	4 796	338	1 127	1 009	1 587	735	956	-	283	113	392	168
Operatives, nondurable goods manufacturing	476	194	-	113	111	58	667	48	113	338	56	112
Operatives, nonmanufacturing	745	193	217	-	167	168	273	49	57	-	111	55
Taxicab drivers and chauffeurs	454	-	-	57	227	170	-	-	-	-	-	-
Bus drivers and truck drivers	471	49	249	57	-	115	-	-	-	-	-	-
Deliverymen and routemen	315	-	202	-	58	55	-	-	-	-	-	-
Parking attendants	56	-	-	-	-	56	-	-	-	-	-	-
Other transport equipment operatives	534	98	153	114	169	-	-	-	-	-	-	-
Construction laborers	283	-	174	53	56	-	-	-	-	-	-	-
Other laborers, except farm	2 202	388	461	448	450	455	112	-	56	-	-	55
Cleaning service workers	1 503	96	275	284	453	395	448	-	-	-	392	56
Food service workers	1 071	48	219	172	348	283	1 083	48	420	224	279	112
Health service workers	113	-	-	-	58	55	512	97	80	112	55	167
Personal service workers	114	-	58	56	-	-	439	-	107	56	166	110
Protective service workers	630	-	228	58	116	228	-	-	-	-	-	-
Private household workers	-	-	-	-	-	-	127	48	-	-	79	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	-	49	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Total employed on full-time schedules	21 410	1 068	6 038	4 173	6 116	4 016	8 778	920	2 746	1 413	2 305	1 394
Professional health workers	106	-	106	-	-	-	487	-	432	-	-	55
Social and recreational workers	58	-	-	-	58	-	113	-	113	-	-	-
Religious workers	440	-	54	54	164	168	-	-	-	-	-	-
Other professional workers	1 060	-	663	169	228	-	753	-	370	113	108	161
Managers and administrators	950	49	333	227	225	115	449	-	56	57	279	56
Salaried, retail trade	382	49	105	58	111	58	56	-	56	-	-	-
Salaried, other	170	-	57	113	-	-	336	-	-	57	279	-
Self-employed, retail trade	340	-	171	56	55	57	56	-	-	-	-	56
Self-employed, other	59	-	-	-	59	-	-	-	-	-	-	-
Sales workers, retail trade	56	-	-	-	56	-	450	-	57	57	166	169
Sales workers, other	168	-	-	-	55	113	161	-	161	-	-	-
Postal clerks and mail carriers	-	-	-	-	-	-	152	48	48	-	55	-
Shipping and receiving clerks	426	-	145	171	-	111	56	-	-	56	-	-
Stock clerks and storekeepers	540	-	316	114	58	52	56	-	-	-	56	-
Other clerical workers	843	48	172	167	286	169	2 465	678	664	341	445	337
Automobile mechanics and body repairmen	446	-	162	225	-	59	-	-	-	-	-	-
Machinists	-	-	-	-	-	-	-	-	-	-	-	-
Mechanics and repairmen, except auto	543	-	260	58	111	114	-	-	-	-	-	-
Metal craftsmen, except mechanics and machinists	992	-	260	227	336	169	-	-	-	-	-	-
Carpenters	268	49	49	57	113	-	-	-	-	-	-	-
Construction craftsmen, except carpenters	674	48	56	283	116	170	-	-	-	-	-	-
Other craftsmen	1 445	-	371	226	622	226	48	48	-	-	-	-
Operatives, durable goods manufacturing	4 534	244	1 071	954	1 587	678	845	-	227	113	392	113
Operatives, nondurable goods manufacturing	378	97	-	113	111	58	612	48	57	338	56	112
Operatives, nonmanufacturing	649	97	217	-	167	168	217	49	57	-	55	55
Taxicab drivers and chauffeurs	399	-	-	57	227	115	-	-	-	-	-	-
Bus drivers and truck drivers	422	49	201	57	-	115	-	-	-	-	-	-
Deliverymen and routemen	266	-	154	-	58	55	-	-	-	-	-	-
Parking attendants	56	-	-	-	-	56	-	-	-	-	-	-
Other transport equipment operatives	478	98	97	114	169	-	-	-	-	-	-	-
Construction laborers	283	-	174	53	56	-	-	-	-	-	-	-
Other laborers, except farm	1 953	194	461	392	450	455	56	-	56	-	-	-
Cleaning service workers	1 226	46	217	227	340	395	336	-	-	-	280	56
Food service workers	956	48	219	114	348	226	707	-	259	224	168	55
Health service workers	113	-	-	-	58	55	415	-	80	112	55	167
Personal service workers	114	-	58	56	-	-	272	-	107	-	110	55
Protective service workers	519	-	172	58	116	173	-	-	-	-	-	-
Private household workers	-	-	-	-	-	-	127	48	-	-	79	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	-	49	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

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Table 6b. Age and Sex of Employed Persons: Negro

[Limited to person 16 to 64 years, not in school]

Detailed Occupation Group	Male						Female					
	Total	16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	Total	16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years
Total employed	69 919	4 853	21 039	16 479	15 959	11 588	46 435	4 094	13 607	10 624	11 536	6 573
Professional health workers	416	47	106	109	51	102	1 446	96	724	106	308	211
Social and recreational workers	53	-	-	-	-	53	372	-	53	163	156	-
Religious workers	214	-	-	-	161	53	106	-	-	53	-	53
Other professional workers	1 765	47	740	547	268	163	2 130	143	622	639	360	366
Managers and administrators	1 863	-	785	323	485	270	1 617	96	310	536	467	208
Salaried, retail trade	577	-	209	163	154	51	371	49	110	107	52	53
Salaried, other	852	-	408	108	222	114	930	47	200	321	310	51
Self employed, retail trade	215	-	53	53	56	53	156	-	-	53	51	52
Self employed, other	219	-	114	-	53	51	160	-	-	55	53	52
Sales workers, retail trade	469	96	104	109	108	51	1 587	333	408	480	209	157
Sales workers, other	380	-	106	56	110	108	212	-	108	53	51	-
Postal clerks and mail carriers	897	49	255	436	157	-	732	47	367	214	-	104
Shipping and receiving clerks	959	47	157	379	261	115	155	-	102	-	53	-
Stock clerks and storekeepers	643	-	207	47	337	51	518	-	154	159	205	-
Other clerical workers	2 191	476	835	384	273	223	10 681	2 046	4 796	1 861	1 306	672
Automobile mechanics and body repairmen	2 021	142	365	766	426	322	47	47	-	-	-	-
Machinists	579	47	266	56	156	53	-	-	-	-	-	-
Mechanics and repairmen, except auto	1 485	140	364	329	327	325	108	-	-	108	-	-
Metal craftsmen, except mechanics and machinists	1 638	47	374	317	687	212	-	-	-	-	-	-
Carpenters	393	-	59	117	115	102	-	-	-	-	-	-
Construction craftsmen, except carpenters	2 063	143	561	608	486	265	-	-	-	-	-	-
Other craftsmen	3 344	189	851	1 036	662	595	729	47	212	159	205	105
Operatives, durable goods manufacturing	23 667	1 908	8 805	5 031	4 677	3 245	1 876	94	777	588	311	106
Operatives, nondurable goods manufacturing	1 451	189	458	331	264	209	1 051	47	422	319	158	104
Operatives, nonmanufacturing	2 362	142	419	820	437	544	2 990	47	735	698	1 198	312
Taxicab drivers and chauffeurs	858	-	484	216	102	56	108	-	-	108	-	-
Bus drivers and truck drivers	2 829	-	524	1 192	539	575	-	-	-	-	-	-
Deliverymen and routemen	879	47	355	106	212	159	53	-	53	-	-	-
Parking attendants	161	-	-	109	51	-	51	-	-	-	-	51
Other transport equipment operatives	1 635	-	496	324	600	215	47	47	-	-	-	-
Construction laborers	1 600	143	321	330	377	429	-	-	-	-	-	-
Other laborers, except farm	6 948	712	1 936	1 087	1 867	1 346	838	-	153	161	419	105
Cleaning service workers	3 314	47	308	827	1 208	924	2 669	49	100	535	1 354	631
Food service workers	806	144	159	108	163	232	3 941	191	969	1 225	1 035	522
Health service workers	150	-	47	-	51	51	5 779	574	2 015	1 221	1 345	624
Personal service workers	698	49	155	105	170	218	1 728	142	372	429	420	365
Protective service workers	966	-	427	215	112	212	261	-	-	53	157	51
Private household workers	113	-	-	56	57	-	4 603	47	155	756	1 820	1 824
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	109	-	-	-	-	109	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Total employed on full time schedules	64 952	3 994	19 376	15 595	15 034	10 952	37 981	3 379	12 204	9 078	9 147	4 174
Professional health workers	318	-	106	109	51	51	1 292	49	724	53	308	158
Social and recreational workers	53	-	-	-	-	53	269	-	53	162	53	-
Religious workers	161	-	-	-	108	53	53	-	-	53	-	-
Other professional workers	1 657	47	740	490	217	163	1 715	143	521	481	360	211
Managers and administrators	1 759	-	681	323	485	270	1 410	49	257	483	467	155
Salaried, retail trade	577	-	209	163	154	51	318	49	110	107	52	-
Salaried, other	805	-	361	108	222	114	777	-	147	268	310	51
Self employed, retail trade	215	-	53	53	56	53	156	-	-	53	51	52
Self employed, other	161	-	57	-	53	51	160	-	-	55	53	52
Sales workers, retail trade	412	96	104	109	51	51	1 174	237	301	374	156	106
Sales workers, other	327	-	53	56	110	108	159	-	108	-	51	-
Postal clerks and mail carriers	897	49	255	436	157	-	732	47	367	214	-	104
Shipping and receiving clerks	959	47	157	379	261	115	155	-	102	-	53	-
Stock clerks and storekeepers	643	-	207	47	337	51	467	-	154	159	154	-
Other clerical workers	1 989	332	777	384	273	223	9 350	1 806	4 228	1 650	1 097	570
Automobile mechanics and body repairmen	1 879	47	317	766	426	322	47	47	-	-	-	-
Machinists	522	47	266	-	156	53	-	-	-	-	-	-
Mechanics and repairmen, except auto	1 384	93	364	329	274	325	108	-	-	108	-	-
Metal craftsmen, except mechanics and machinists	1 587	47	374	317	636	212	-	-	-	-	-	-
Carpenters	335	-	59	117	56	102	-	-	-	-	-	-
Construction craftsmen, except carpenters	1 901	143	514	551	427	265	-	-	-	-	-	-
Other craftsmen	3 227	189	861	978	662	536	623	47	159	159	205	52
Operatives, durable goods manufacturing	22 008	1 716	8 194	4 651	4 457	2 989	1 668	94	777	482	209	106
Operatives, nondurable goods manufacturing	1 404	142	458	331	264	209	950	47	321	319	158	104
Operatives, nonmanufacturing	2 093	142	262	820	326	544	2 416	47	735	645	887	102
Taxicab drivers and chauffeurs	811	-	437	216	102	56	108	-	-	108	-	-
Bus drivers and truck drivers	2 720	-	465	1 192	539	523	-	-	-	-	-	-
Deliverymen and routemen	828	47	355	106	161	159	53	-	53	-	-	-
Parking attendants	104	-	-	53	51	-	51	-	-	-	-	51
Other transport equipment operatives	1 525	-	496	214	600	215	47	47	-	-	-	-
Construction laborers	1 442	94	264	330	324	429	-	-	-	-	-	-
Other laborers, except farm	6 221	568	1 618	1 034	1 816	1 184	734	-	153	161	368	52
Cleaning service workers	3 106	-	205	827	1 208	867	2 249	49	100	429	1 196	474
Food service workers	758	96	159	108	163	232	3 326	94	920	1 119	775	417
Health service workers	150	-	47	-	51	51	5 477	480	1 909	1 221	1 243	624
Personal service workers	698	49	155	105	170	218	1 103	47	106	323	420	207
Protective service workers	911	-	427	215	57	212	106	-	-	53	53	-
Private household workers	57	-	-	-	57	-	2 139	47	155	321	935	680
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	109	-	-	-	-	109	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

Table 7. Weekly Earnings of Full-Time Wage and Salary Workers, by Age and Sex, Family Status, Educational Attainment, and Family Size: All Races

Age and Sex Family Status Educational Attainment Family Size	Total full-time wage and salary workers	Weekly earnings										Median weekly earnings (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
AGE AND SEX													
Total, 16 years and over	117 800	7 752	6 504	6 167	11 744	17 082	18 815	17 359	6 755	12 075	2 644	10 903	133
Male, total	77 133	3 760	1 951	1 650	5 101	9 870	14 445	15 202	5 853	10 502	2 165	6 634	149
16 to 21 years, total	6 489	858	332	284	711	954	1 385	1 100	97	482	-	285	126
16 to 21 years, not in school	4 249	336	143	143	664	618	1 002	620	97	435	-	191	129
22 to 34 years, total	22 313	1 006	410	421	1 124	2 940	4 651	4 519	2 076	3 326	686	1 152	151
22 to 34 years, veteran of Vietnam	5 050	158	49	-	255	425	1 115	1 303	425	951	220	148	160
25 to 34 years	16 329	767	313	227	692	2 163	3 445	3 030	1 742	2 693	541	716	153
35 to 44 years	15 597	441	159	328	1 153	1 594	2 345	3 432	1 330	2 524	610	1 680	158
45 to 54 years	18 053	765	332	395	874	2 374	3 592	3 794	1 363	2 167	598	1 798	150
55 to 64 years	12 522	483	499	222	1 094	1 706	2 286	2 032	879	1 841	219	1 260	144
65 years and over	2 160	207	218	-	145	302	185	324	108	161	51	458	128
40 to 64 years	39 763	1 471	989	892	2 466	4 804	7 404	7 840	3 239	5 376	1 255	4 027	151
Female, total	40 667	3 992	4 554	4 516	6 642	7 212	4 370	2 157	902	1 574	479	4 269	98
16 to 21 years, total	5 106	518	664	620	1 054	1 296	380	94	96	96	-	286	93
16 to 21 years, not in school	3 775	330	475	477	720	1 200	191	47	47	96	-	191	96
22 to 34 years, total	12 944	1 029	958	1 187	1 876	2 596	2 162	679	379	845	156	1 079	111
25 to 34 years	9 111	647	720	799	1 447	1 736	1 681	436	330	605	109	600	112
35 to 44 years	8 730	595	820	1 084	1 549	1 557	866	699	273	212	272	805	100
45 to 54 years	8 803	1 009	1 263	1 100	1 471	1 225	750	526	102	156	51	1 151	88
55 to 64 years	4 355	627	692	526	641	487	161	159	52	213	-	797	81
65 years and over	728	213	157	-	51	51	51	..	-	53	-	151	60
40 to 64 years	18 442	2 125	2 175	2 436	3 128	2 682	1 451	1 062	370	421	212	2 381	90
FAMILY STATUS[2]													
Male, total	71 558	2 936	1 495	1 509	4 861	9 028	13 782	14 156	5 650	10 149	1 960	6 033	150
Family head	44 579	1 442	1 064	857	2 812	5 488	8 376	8 737	3 557	6 866	1 389	3 991	152
Family member	9 631	564	258	269	627	1 353	2 390	2 271	504	852	-	543	142
Unrelated individual	17 348	929	172	383	1 421	2 188	3 015	3 149	1 590	2 430	571	1 499	150
Female, total	37 971	3 495	4 208	4 373	6 209	6 818	4 025	2 110	853	1 474	479	3 926	98
Family head	7 831	534	999	946	994	1 540	914	217	219	159	153	1 156	98
No children under 18 years	2 665	106	375	318	318	427	218	162	53	53	53	580	97
Children 6 to 17 years only	3 349	322	369	265	422	856	533	55	56	106	-	365	103
Children under 6 years	1 817	106	255	363	253	257	163	-	110	-	100	210	86
Wife of head	13 929	1 627	1 004	1 640	3 061	2 479	1 329	684	157	674	272	1 000	97
No children under 18 years	5 841	490	479	640	1 231	1 179	490	165	106	370	112	579	98
Children 6 to 17 years only	4 069	429	159	581	904	841	317	365	-	157	104	210	99
Children under 6 years	4 019	708	366	419	926	459	521	154	51	147	56	211	92
Other family member	7 441	496	891	897	973	1 389	1 027	578	155	259	-	774	103
Unrelated individual	8 771	837	1 314	890	1 182	1 409	755	631	321	381	54	996	97
EDUCATIONAL ATTAINMENT[3]													
Male, total	71 558	2 936	1 495	1 509	4 861	9 028	13 782	14 156	5 650	10 149	1 960	6 033	150
Elementary: 7 years or less	11 737	431	550	283	752	1 557	2 760	2 192	945	1 521	56	689	143
8 years	8 630	208	112	220	592	1 180	1 834	1 973	537	1 113	106	755	148
High school: 1 to 3 years	20 613	740	473	658	1 609	2 567	4 236	3 890	1 629	2 282	394	2 136	145
4 years	21 430	846	255	155	1 479	2 596	3 988	4 203	1 773	3 571	862	1 702	155
College: 1 year or more	9 148	710	105	192	428	1 129	964	1 898	767	1 662	541	750	162
Female, total	37 971	3 495	4 208	4 373	6 209	6 818	4 025	2 110	853	1 474	479	3 926	98
Elementary: 7 years or less	2 590	308	485	419	483	104	157	162	-	-	53	419	77
8 years	3 256	321	638	642	417	545	219	110	-	-	51	314	78
High school: 1 to 3 years	8 986	969	1 340	1 527	1 459	1 733	486	262	152	104	53	902	84
4 years	16 490	1 207	1 690	1 278	3 085	3 303	2 525	897	485	516	-	1 505	104
College: 1 year or more	6 648	690	55	507	767	1 133	638	679	216	854	322	787	127
FAMILY SIZE BY FAMILY HEAD[4]													
Male head, total	29 144	628	477	534	1 431	3 598	6 087	6 057	2 190	4 564	991	2 586	153
Males heading families with–													
2 persons	1 255	170	59	59	104	157	218	157	59	59	59	155	135
3 persons	5 561	106	97	153	208	565	1 656	928	418	831	96	505	147
4 persons	6 630	204	56	51	155	833	977	1 731	611	1 109	362	543	162
5 persons	6 019	47	-	165	376	1 027	1 085	1 379	310	1 203	211	215	154
6 persons	3 587	-	53	53	218	316	687	998	206	571	160	324	158
7 persons or more	6 091	102	212	53	370	700	1 464	864	587	791	104	844	145
Female head, total	5 373	475	624	628	724	1 113	696	55	219	106	100	633	98
Females heading families with–													
2 persons	1 676	169	158	157	204	433	274	55	113	-	-	112	105
3 persons	1 296	104	100	53	310	106	106	-	106	53	47	311	95
4 persons	996	151	53	316	53	213	157	-	-	-	-	53	78
5 persons	624	-	155	-	104	155	53	-	-	53	-	104	100
6 persons	361	51	106	51	-	100	53	-	-	-	-	-	72
7 persons or more	420	-	51	51	53	106	53	-	-	-	53	53	107

[1] Not used in computing median. [2] Persons 16 to 64 years, not in school. [3] Families with children under 18 years, family heads 16 to 64 years, not in school.

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Table 7a. Weekly Earnings of Full-Time Wage and Salary Workers, by Age and Sex, Family Status, Educational Attainment, and Family Size: White

Age and Sex Family Status Educational Attainment Family Size	Total full-time wage and salary workers	Weekly earnings										Median weekly earnings (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
AGE AND SEX													
Total, 16 years and over	27 343	2 395	1 462	1 024	1 881	4 269	4 547	4 158	1 461	3 149	671	2 307	136
Male, total	19 503	1 422	610	597	930	2 775	3 254	3 779	1 185	2 827	614	1 509	148
16 to 21 years, total	1 262	144	-	48	97	146	437	244	-	146	-	-	138
16 to 21 years, not in school	874	144	-	48	97	49	292	98	-	146	-	-	136
22 to 34 years, total	5 527	330	97	204	266	1 041	1 067	724	278	977	161	382	142
22 to 34 years, veteran of Vietnam	1 032	48	-	-	106	105	154	350	57	212	-	-	159
25 to 34 years	3 964	330	48	56	168	750	671	383	278	832	113	334	146
35 to 44 years	2 985	164	-	-	172	566	170	726	169	734	114	169	163
45 to 54 years	5 326	505	175	176	170	397	962	1 413	339	629	170	391	154
55 to 64 years	3 563	110	226	169	225	569	561	507	342	286	168	398	138
65 years and over	841	169	112	-	-	56	57	166	56	55	-	169	137
40 to 64 years	10 913	725	401	345	509	1 250	1 693	2 588	795	1 310	452	845	153
Female, total	7 840	973	851	427	951	1 514	1 293	378	275	322	57	798	109
16 to 21 years, total	920	-	48	97	291	339	97	-	-	-	-	48	100
16 to 21 years, not in school	824	-	48	97	291	291	97	-	-	-	-	-	98
22 to 34 years, total	2 374	261	136	48	212	338	587	211	162	266	-	152	133
25 to 34 years	1 599	165	136	-	115	338	393	113	113	170	-	56	130
35 to 44 years	1 243	169	282	112	56	170	171	-	113	-	57	112	91
45 to 54 years	1 727	333	168	113	166	393	332	112	-	-	-	111	105
55 to 64 years	1 170	161	113	56	226	224	55	55	-	55	-	225	97
65 years and over	406	49	104	-	-	51	51	-	-	-	-	151	65
40 to 64 years	3 517	663	338	169	448	730	443	167	56	55	-	448	102
FAMILY STATUS[2]													
Male, total	17 935	1 253	450	597	881	2 525	3 052	3 370	1 129	2 772	565	1 341	149
Family head	9 650	388	335	383	333	1 399	1 488	2 043	552	1 665	450	613	150
Family member	2 429	211	-	98	57	219	830	365	116	366	-	167	143
Unrelated individual	5 856	654	115	116	492	907	734	961	461	741	115	561	143
Female, total	7 177	924	748	427	951	1 358	1 137	378	275	322	57	599	108
Family head	791	114	113	-	-	169	114	56	113	-	-	112	117
No children under 18 years	396	-	56	-	-	113	114	56	-	-	-	56	125
Children 6 to 17 years only	282	114	56	-	-	56	-	-	56	-	-	-	57
Children under 6 years	113	-	-	-	-	-	-	-	57	-	-	55	187
Wife of head	2 479	384	224	273	444	605	216	106	-	57	57	113	97
No children under 18 years	1 513	169	113	113	332	389	.13	57	-	57	57	113	102
Children 6 to 17 years only	612	167	55	112	111	167	-	-	-	-	-	-	76
Children under 6 years	353	48	56	48	-	48	104	48	-	-	-	-	125
Other family member	1 308	106	105	153	97	145	419	106	-	97	-	162	125
Unrelated individual	2 519	321	306	-	411	440	388	111	162	168	-	213	114
EDUCATIONAL ATTAINMENT[3]													
Male, total	17 935	1 253	450	597	881	2 525	3 052	3 370	1 129	2 772	565	1 341	149
Elementary: 7 years or less	3 273	113	230	175	48	257	608	835	400	447	56	104	155
8 years	2 327	49	59	59	58	332	657	511	219	160	55	169	146
High school: 1 to 3 years	5 012	380	104	216	389	832	852	894	224	671	56	394	139
4 years	4 194	271	-	49	226	498	772	634	173	954	169	447	156
College: 1 year or more	3 129	440	56	99	160	607	163	496	114	540	229	226	155
Female, total	7 177	924	748	427	951	1 358	1 137	378	275	322	57	599	108
Elementary: 7 years or less	556	-	169	56	113	-	-	162	-	-	-	56	84
8 years	898	167	56	113	56	283	111	57	-	-	-	55	103
High school: 1 to 3 years	1 158	162	249	48	154	378	111	-	-	-	-	55	92
4 years	3 228	273	274	210	483	641	641	111	219	104	-	273	111
College: 1 year or more	1 336	323	-	-	145	56	274	48	56	218	57	159	146
FAMILY SIZE BY FAMILY HEAD[4]													
Male head, total	5 276	106	163	115	57	1 003	993	1 152	160	982	216	329	152
Males heading families with–													
2 persons	340	58	59	59	57	49	-	-	-	59	-	-	88
3 persons	979	-	48	-	-	152	304	160	-	218	48	48	147
4 persons	1 454	48	56	-	-	217	208	327	55	376	55	111	163
5 persons	1 139	-	-	56	-	200	224	393	48	161	56	-	156
6 persons	425	-	-	-	-	104	160	48	-	56	56	-	142
7 persons or more	938	-	-	-	-	281	97	224	56	112	-	169	151
Female head, total	395	114	56	-	-	56	-	-	113	-	-	55	65
Females heading families with–													
2 persons	340	114	56	-	-	56	-	-	113	-	-	-	65
3 persons	55	-	-	-	-	-	-	-	-	-	-	55	0
4 persons	-	-	-	-	-	-	-	-	-	-	-	-	0
5 persons	-	-	-	-	-	-	-	-	-	-	-	-	0
6 persons	-	-	-	-	-	-	-	-	-	-	-	-	0
7 persons or more	-	-	-	-	-	-	-	-	-	-	-	-	0

[1] Not used in computing median. [2] Persons 16 to 64 years, not in school. [3] Families with children under 18 years, family heads 16 to 64 years, not in school.

Table 7b. Weekly Earnings of Full-Time Wage and Salary Workers, by Age and Sex, Family Status, Educational Attainment, and Family Size: Negro

Age and Sex Family Status Educational Attainment Family Size	Total full-time wage and salary workers	Weekly earnings										Median weekly earnings (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
AGE AND SEX													
Total, 16 years and over	87 783	5 149	4 990	5 095	9 699	12 355	13 825	12 822	4 955	8 707	1 868	8 319	131
Male, total	56 038	2 282	1 287	1 053	4 116	6 924	10 861	11 155	4 329	7 511	1 502	5 019	149
16 to 21 years, total	5 179	714	332	236	614	808	948	808	97	336	-	285	120
16 to 21 years, not in school	3 327	193	143	94	567	569	710	474	97	289	-	191	126
22 to 34 years, total	15 968	676	314	217	802	1 842	3 367	3 691	1 572	2 242	524	722	153
22 to 34 years, veteran of Vietnam	3 961	109	49	-	149	320	962	896	368	739	220	148	160
25 to 34 years	11 741	436	265	171	467	1 357	2 605	2 590	1 237	1 804	428	382	154
35 to 44 years	12 556	277	159	328	981	1 028	2 175	2 651	1 161	1 790	496	1 511	156
45 to 54 years	12 334	260	157	219	704	1 920	2 518	2 324	967	1 538	379	1 350	148
55 to 64 years	8 681	317	219	53	869	1 080	1 726	1 525	481	1 498	51	862	146
65 years and over	1 319	39	106	-	145	246	128	157	51	106	51	290	125
40 to 64 years	28 180	690	535	547	1 957	3 440	5 598	5 195	2 331	4 009	753	3 124	150
Female, total	31 745	2 867	3 703	4 042	5 584	5 431	2 965	1 667	627	1 196	366	3 300	94
16 to 21 years, total	4 140	472	616	524	763	957	283	94	96	96	-	238	90
16 to 21 years, not in school	2 905	283	427	380	429	909	94	47	47	96	-	191	95
22 to 34 years, total	9 753	662	822	1 090	1 607	2 048	1 518	411	217	523	100	756	105
25 to 34 years	6 889	425	584	799	1 276	1 285	1 231	266	217	379	53	374	105
35 to 44 years	7 375	426	538	972	1 493	1 331	695	643	159	212	214	693	100
45 to 54 years	7 022	676	1 095	987	1 305	832	363	415	102	156	51	1 040	85
55 to 64 years	3 185	467	579	469	415	264	106	104	52	157	-	573	75
65 years and over	270	164	53	-	-	-	-	-	-	53	-	-	41
40 to 64 years	14 814	1 463	1 837	2 267	2 680	1 896	952	895	314	366	212	1 933	88
FAMILY STATUS[2]													
Male, total	52 079	1 626	992	911	3 923	6 331	10 400	10 520	4 182	7 213	1 345	4 635	150
Family head	34 095	998	677	474	2 424	4 089	6 664	6 637	2 780	5 145	889	3 321	151
Family member	6 991	353	258	171	570	1 076	1 561	1 751	388	486	-	376	140
Unrelated individual	10 993	276	57	266	929	1 166	2 176	2 131	1 014	1 582	456	938	153
Female, total	29 813	2 419	3 460	3 898	5 202	5 242	2 776	1 620	578	1 096	366	3 157	95
Family head	6 983	420	886	946	994	1 371	800	161	106	159	153	987	96
No children under 18 years	2 212	106	319	318	318	315	104	106	53	53	53	467	90
Children 6 to 17 years only	3 067	208	313	265	422	800	533	55	-	106	-	365	104
Children under 6 years	1 705	106	255	363	253	257	163	-	53	-	100	155	84
Wife of head	11 054	1 186	780	1 366	2 618	1 705	1 055	579	157	617	159	831	96
No children under 18 years	4 156	264	366	527	899	732	320	108	106	313	55	466	96
Children 6 to 17 years only	3 401	263	104	469	793	618	317	365	-	157	104	210	103
Children under 6 years	3 497	660	310	370	926	354	418	106	51	147	-	155	90
Other family member	5 738	342	786	696	820	1 196	608	416	155	163	-	556	100
Unrelated individual	6 038	470	1 008	890	771	970	312	464	160	158	54	783	87
EDUCATIONAL ATTAINMENT[3]													
Male, total	52 079	1 626	992	911	3 923	6 331	10 400	10 520	4 182	7 213	1 345	4 635	150
Elementary: 7 years or less	8 072	319	267	109	703	1 242	2 097	1 302	431	1 018	-	585	139
8 years	6 247	159	53	162	535	848	1 121	1 462	318	954	51	585	150
High school: 1 to 3 years	15 342	360	369	442	1 220	1 735	3 336	2 843	1 405	1 611	338	1 685	146
4 years	17 122	575	255	106	1 253	2 041	3 216	3 569	1 544	2 617	693	1 255	155
College: 1 year or more	5 296	213	49	93	212	465	631	1 345	484	1 015	263	524	165
Female, total	29 813	2 419	3 460	3 898	5 202	5 242	2 776	1 620	578	1 096	366	3 157	95
Elementary: 7 years or less	1 988	261	316	363	370	104	157	-	-	-	53	363	76
8 years	2 301	154	581	530	361	205	108	52	-	-	51	258	74
High school: 1 to 3 years	7 716	807	1 091	1 478	1 304	1 299	374	262	152	104	53	790	83
4 years	12 946	829	1 416	1 020	2 602	2 557	1 826	786	265	412	-	1 232	101
College: 1 year or more	4 861	368	55	507	565	1 077	309	519	160	580	209	514	118
FAMILY SIZE BY FAMILY HEAD[1]													
Male head, total	23 362	522	313	419	1 318	2 595	4 869	4 850	1 861	3 583	776	2 257	153
Males heading families with–													
2 persons	914	112	-	-	47	108	218	157	59	-	59	155	144
3 persons	4 357	106	49	153	208	413	1 183	768	361	613	47	456	147
4 persons	5 064	155	-	51	98	616	769	1 404	499	733	306	432	162
5 persons	4 823	47	-	109	376	827	860	986	205	1 042	155	215	153
6 persons	3 163	-	53	53	218	212	527	950	206	515	104	324	159
7 persons or more	5 041	102	212	53	370	420	1 312	584	531	679	104	675	145
Female head, total	4 921	361	567	628	724	1 057	696	55	106	106	100	520	98
Females heading families with–													
2 persons	1 279	55	102	157	204	377	274	55	-	-	-	55	106
3 persons	1 240	104	100	53	310	106	106	-	106	53	47	256	95
4 persons	996	151	53	316	53	213	157	-	-	-	-	53	78
5 persons	624	-	155	-	104	155	53	-	-	53	-	104	100
6 persons	361	51	106	51	-	100	53	-	-	-	-	-	72
7 persons or more	420	-	51	51	53	106	53	-	-	-	53	53	107

[1] Not used in computing median. [2] Persons 16 to 64 years, not in school. [3] Families with children under 18 years; family head is 16 to 64 years, not in school.

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Table 8. Weekly Earnings of Full-Time Wage and Salary Workers, by Major Occupation and Industry Groups and Hours of Work: All Races

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Hours of Work	Total full-time wage and salary workers	Weekly earnings										Median weekly earnings (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
MAJOR OCCUPATION GROUP													
Total employed	109 529	6 431	5 703	5 882	11 070	15 846	17 807	16 266	6 503	11 623	2 439	9 959	134
Professional and technical	7 344	918	96	148	211	914	977	1 162	323	1 403	385	806	158
Managerial and administrative	3 313	376	52	55	164	414	266	261	276	536	324	588	158
Sales	2 320	275	378	368	468	206	147	215	51	53	–	157	85
Clerical	16 730	840	651	967	2 519	3 944	2 814	1 727	484	1 113	165	1 506	119
Craftsmen and foremen	13 208	208	323	270	923	1 871	2 160	2 721	999	2 364	659	711	155
Operatives, except transportation	30 456	1 142	903	907	2 268	3 828	6 326	6 753	2 471	2 858	333	2 666	145
Transport equipment operatives	6 881	223	315	218	535	855	1 264	956	582	1 406	100	426	147
Laborers, except farm	8 900	265	163	261	633	1 269	2 108	1 444	709	1 019	210	819	142
Service workers, except private household	18 287	1 565	2 192	2 479	3 142	2 491	1 744	1 027	608	770	263	1 904	95
Private household workers	1 988	618	629	207	157	54	–	–	–	–	–	323	55
Farmers and farm managers	–	–	–	–	–	–	–	–	–	–	–	–	0
Farm laborers and foremen	102	–	–	–	49	–	–	–	–	–	–	53	90
Not available	–	–	–	–	–	–	–	–	–	–	–	–	0
Male, total	71 558	2 936	1 495	1 509	4 861	9 028	13 782	14 156	5 650	10 149	1 960	6 033	150
Professional and technical	3 422	442	49	101	54	386	387	474	161	653	328	387	164
Managerial and administrative	1 881	56	–	–	56	318	104	261	169	381	111	425	169
Sales	576	107	–	–	47	55	100	163	51	53	–	–	155
Clerical	5 339	325	47	160	419	800	1 187	941	272	704	165	319	144
Craftsmen and foremen	12 528	208	222	270	819	1 666	1 997	2 668	999	2 364	606	711	158
Operatives, except transportation	25 483	880	265	216	1 420	2 808	5 576	6 531	2 304	2 805	280	2 396	152
Transport equipment operatives	6 622	223	315	111	484	855	1 264	956	534	1 406	100	373	148
Laborers, except farm	8 162	265	110	153	422	1 108	2 008	1 444	657	1 019	210	765	146
Service workers, except private household	7 386	429	486	499	1 091	1 032	1 158	719	503	764	159	547	125
Private household workers	57	–	–	–	–	–	–	–	–	–	–	57	0
Farmers and farm managers	–	–	–	–	–	–	–	–	–	–	–	–	0
Farm laborers and foremen	102	–	–	–	49	–	–	–	–	–	–	53	90
Not available	–	–	–	–	–	–	–	–	–	–	–	–	0
Female, total	37 971	3 495	4 208	4 373	6 209	6 818	4 025	2 110	853	1 474	479	3 926	98
Professional and technical	3 922	477	47	48	156	528	590	688	162	750	56	419	153
Managerial and administrative	1 432	320	52	55	108	96	162	–	107	155	213	163	134
Sales	1 743	167	378	368	421	151	47	53	–	–	–	157	75
Clerical	11 391	515	604	807	2 100	3 144	1 627	786	212	409	–	1 187	110
Craftsmen and foremen	680	–	101	–	105	205	163	53	–	–	53	–	116
Operatives, except transportation	4 973	262	639	691	848	1 019	750	221	167	53	53	270	99
Transport equipment operatives	259	–	–	108	51	–	–	–	47	–	–	53	79
Laborers, except farm	738	–	53	108	211	161	100	–	52	–	–	53	97
Service workers, except private household	10 901	1 136	1 706	1 980	2 051	1 459	586	309	106	106	104	1 358	82
Private household workers	1 931	618	629	207	157	54	–	–	–	–	–	266	55
Farmers and farm managers	–	–	–	–	–	–	–	–	–	–	–	–	0
Farm laborers and foremen	–	–	–	–	–	–	–	–	–	–	–	–	0
Not available	–	–	–	–	–	–	–	–	–	–	–	–	0
MAJOR INDUSTRY GROUP													
Male, total	71 558	2 936	1 495	1 509	4 861	9 028	13 782	14 156	5 650	10 149	1 960	6 033	150
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	152	–	–	–	49	–	–	51	–	51	–	–	163
Mining	57	–	–	–	–	–	–	57	–	–	–	–	163
Construction	2 611	100	53	111	57	163	262	484	282	760	170	169	176
Durable goods manufacturing	36 186	1 095	322	320	1 792	4 535	7 979	8 851	3 442	4 527	659	2 665	153
Nondurable goods manufacturing	3 743	48	110	–	206	417	1 061	371	277	821	–	432	146
Transportation, communication, and other public utilities	4 445	225	221	103	156	452	834	825	452	805	261	112	158
Wholesale and retail trade	9 155	433	423	549	1 044	1 407	1 429	1 279	170	1 279	58	1 085	130
Finance, insurance, and real estate	1 013	59	–	–	161	201	56	262	108	115	–	51	153
Business and repair services	2 300	163	112	114	319	336	159	505	214	155	56	168	133
Personal services	976	161	110	59	214	53	55	48	53	114	–	110	92
Professional services and entertainment	3 395	432	98	101	391	593	329	253	110	486	273	329	127
Government[2]													
Educational services	828	54	–	–	–	57	223	53	–	115	220	106	200
All other government services	6 698	166	47	152	473	815	1 396	1 117	543	920	264	806	150
Not available	–	–	–	–	–	–	–	–	–	–	–	–	0
Female, total	37 971	3 495	4 208	4 373	6 209	6 818	4 025	2 110	853	1 474	479	3 926	98
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	54	–	54	–	–	–	–	–	–	–	–	–	58
Mining	–	–	–	–	–	–	–	–	–	–	–	–	0
Construction	53	–	–	–	–	53	–	–	–	–	–	–	112
Durable goods manufacturing	2 883	101	163	205	266	751	597	217	266	–	157	159	123
Nondurable goods manufacturing	1 772	106	–	428	267	315	328	57	–	104	–	168	100
Transportation, communication, and other public utilities	1 694	100	–	103	210	712	254	104	57	48	–	106	115
Wholesale and retail trade	6 634	486	1 053	1 403	1 890	727	306	53	56	–	–	659	81
Finance, insurance, and real estate	2 378	267	51	104	504	561	211	106	–	151	–	424	105
Business and repair services	731	53	98	–	153	161	48	48	–	111	–	56	109
Personal services	5 104	930	1 541	790	734	319	53	–	–	–	47	690	62
Professional services and entertainment	10 343	981	949	929	1 614	2 073	1 018	619	263	640	56	1 201	105
Government[2]													
Educational services	1 098	157	53	101	100	150	215	106	–	106	55	56	123
All other government services	5 228	315	246	310	471	996	994	800	210	314	164	406	129
Not available	–	–	–	–	–	–	–	–	–	–	–	–	0

[1] Not used in computing median. [2] Government class of worker.

Table 8. Weekly Earnings of Full-Time Wage and Salary Workers, by Major Occupation and Industry Groups and Hours of Work: All Races—Continued

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Hours of Work	Total full-time wage and salary workers	Weekly earnings										Median weekly earnings (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]
HOURS OF WORK												
Male, total	71 558	2 936	1 495	1 509	4 861	9 028	13 782	14 156	5 650	10 149	1 960	6 033	150
35 to 39 hours	2 865	153	53	160	478	267	574	310	48	435	108	279	133
40 hours	42 995	1 497	1 028	788	3 095	6 496	9 854	9 542	2 209	3 533	765	4 187	143
41 to 47 hours	6 256	151	96	173	420	635	980	1 051	700	1 300	59	693	158
48 hours	4 916	202	-	53	376	545	879	1 019	529	863	114	335	158
49 to 59 hours	9 247	222	216	277	387	806	1 171	1 914	1 235	2 219	483	318	170
60 hours or more	5 280	710	102	59	106	280	324	320	930	1 798	431	221	198
Female, total	37 971	3 495	4 208	4 373	6 209	6 818	4 025	2 110	853	1 474	479	3 926	98
35 to 39 hours	3 528	414	526	420	604	781	308	53	48	213	55	105	93
40 hours	28 380	2 551	3 257	3 108	4 800	5 237	3 064	1 686	428	897	260	3 092	98
41 to 47 hours	2 477	162	159	420	451	423	278	161	153	152	57	261	101
48 hours	1 322	57	159	263	153	211	267	157	-	-	-	54	100
49 to 59 hours	1 213	204	53	106	202	57	108	53	57	108	-	263	94
60 hours or more	851	107	53	56	-	108	-	-	166	102	106	152	179

[1] Not used in computing median.

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Table 8a. Weekly Earnings of Full-Time Wage and Salary Workers, by Major Occupation and Industry Groups and Hours of Work: White

(Limited to persons 16 to 64 years, not in school)

Major Occupation Group Major Industry Group Hours of Work	Total full-time wage and salary workers	Weekly earnings										Median weekly earnings (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
MAJOR OCCUPATION GROUP													
Total employed	25 111	2 177	1 197	1 024	1 832	3 884	4 189	3 748	1 404	3 093	623	1 940	137
Professional and technical	2 520	649	-	49	54	226	395	264	-	494	114	274	152
Managerial and administrative	944	168	-	-	55	114	106	159	113	-	115	113	143
Sales	666	111	226	56	160	56	-	-	-	-	-	56	65
Clerical	3 939	322	105	210	575	855	854	427	163	212	-	217	122
Craftsmen and foremen	3 636	56	113	106	56	716	510	679	114	725	337	225	157
Operatives, except transportation	5 880	211	56	161	219	820	1 025	1 551	507	775	56	499	154
Transport equipment operatives	1 572	-	106	-	-	326	421	162	56	445	-	56	144
Laborers, except farm	2 084	112	57	-	-	323	425	333	393	214	-	227	151
Service workers, except private household	3 820	548	534	441	663	449	453	173	59	227	-	273	90
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	49	-	-	-	49	-	-	-	-	-	-	-	90
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Male, total	17 935	1 253	450	597	881	2 525	3 052	3 370	1 129	2 772	565	1 341	149
Professional and technical	1 436	383	-	49	54	168	114	160	-	221	114	171	150
Managerial and administrative	551	56	-	-	-	114	49	159	57	-	58	58	154
Sales	56	56	-	-	-	-	-	-	-	-	-	-	0
Clerical	1 580	160	-	114	163	324	277	267	57	164	-	55	130
Craftsmen and foremen	3 588	56	113	106	56	667	510	679	114	725	337	225	157
Operatives, except transportation	4 600	211	-	48	56	378	858	1 437	394	775	56	386	161
Transport equipment operatives	1 572	-	106	-	-	326	421	162	56	445	-	56	144
Laborers, except farm	2 028	112	57	-	-	266	425	333	393	214	-	227	153
Service workers, except private household	2 474	219	174	280	502	282	397	173	59	227	-	162	103
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	49	-	-	-	49	-	-	-	-	-	-	-	90
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	7 177	924	748	427	951	1 358	1 137	378	275	322	57	599	108
Professional and technical	1 084	266	-	-	-	57	281	104	-	273	-	102	155
Managerial and administrative	392	112	-	-	55	-	56	-	56	-	57	55	126
Sales	610	55	226	56	160	56	-	-	-	-	-	56	65
Clerical	2 359	162	105	97	412	531	577	160	106	48	-	162	118
Craftsmen and foremen	48	-	-	-	-	48	-	-	-	-	-	-	113
Operatives, except transportation	1 280	-	56	112	163	442	167	114	113	-	-	113	114
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-	0
Laborers, except farm	56	-	-	-	-	56	-	-	-	-	-	-	112
Service workers, except private household	1 346	329	360	161	161	167	56	-	-	-	-	111	63
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
MAJOR INDUSTRY GROUP													
Male, total	17 935	1 253	450	597	881	2 525	3 052	3 370	1 129	2 772	565	1 341	149
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	49	-	-	-	49	-	-	-	-	-	-	-	90
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	788	-	-	-	-	116	105	58	172	226	111	-	192
Durable goods manufacturing	7 003	162	113	56	-	1 063	1 329	1 991	559	1 116	113	502	157
Nondurable goods manufacturing	1 254	48	-	-	56	160	421	114	115	227	-	113	143
Transportation, communication, and other public utilities	1 611	56	115	-	-	229	259	396	170	218	56	112	158
Wholesale and retail trade	3 331	275	107	270	380	448	541	320	-	537	58	395	128
Finance, insurance, and real estate	333	-	-	-	58	58	56	104	57	-	-	-	148
Business and repair services	911	114	59	114	114	114	55	227	-	58	56	-	118
Personal services	225	55	56	59	-	-	-	-	-	55	-	-	65
Professional services and entertainment	1 478	432	-	49	167	224	114	102	-	163	113	113	116
Government[2]													
Educational services	332	54	-	-	-	-	57	-	-	115	-	106	225
All other government services	620	56	-	49	57	115	114	58	57	57	57	-	138
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	7 177	924	748	427	951	1 358	1 137	378	275	322	57	599	108
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-	-	-	0
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	-	-	-	-	-	-	-	-	-	-	-	-	0
Durable goods manufacturing	934	48	56	48	162	225	224	56	113	-	-	-	120
Nondurable goods manufacturing	666	-	-	112	56	161	111	57	-	-	-	168	113
Transportation, communication, and other public utilities	460	-	-	48	56	249	-	-	57	48	-	-	113
Wholesale and retail trade	1 594	330	451	161	265	170	112	-	56	-	-	49	67
Finance, insurance, and real estate	699	112	-	56	154	56	48	50	-	-	-	223	93
Business and repair services	210	-	-	-	49	-	48	-	-	56	-	56	139
Personal services	327	55	113	-	-	159	-	-	-	-	-	-	64
Professional services and entertainment	1 628	323	128	-	208	227	383	104	48	161	-	46	128
Government[2]													
Educational services	112	-	-	-	-	-	56	-	-	-	-	56	138
All other government services	546	56	-	-	-	112	154	111	-	56	57	-	142
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0

[1] Not used in computing median. [2] Government class of worker.

Table 8a. Weekly Earnings of Full-Time Wage and Salary Workers, by Major Occupation and Industry Groups and Hours of Work: White–Continued

(Limited to persons 16 to 64 years, not in school)

Major Occupation Group Major Industry Group Hours of Work	Total full-time wage and salary workers	Weekly earnings										Median weekly earnings (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]
HOURS OF WORK												
Male, total	17 935	1 253	450	597	881	2 525	3 052	3 370	1 129	2 772	565	1 341	149
35 to 39 hours	1 020	104	-	103	163	112	204	55	-	164	-	114	118
40 hours	9 447	597	344	204	271	1 694	1 838	2 038	567	722	282	889	143
41 to 47 hours	1 810	55	48	114	172	159	314	278	115	390	-	165	147
48 hours	1 371	-	-	-	170	170	153	154	104	391	114	116	172
49 to 59 hours	2 938	113	58	117	105	219	542	734	229	709	56	56	162
60 hours or more	1 347	385	-	59	-	171	-	110	114	396	113	-	194
Female, total	7 177	924	748	427	951	1 358	1 137	378	275	322	57	599	108
35 to 39 hours	894	56	170	-	201	266	97	-	48	56	-	-	102
40 hours	4 802	651	578	258	651	819	762	322	57	217	-	486	106
41 to 47 hours	872	57	-	56	99	218	223	56	-	48	57	56	122
48 hours	56	-	-	56	-	-	-	-	-	-	-	-	73
49 to 59 hours	273	104	-	-	-	-	55	-	57	-	-	56	140
60 hours or more	279	55	-	56	-	55	-	-	112	-	-	-	113

[1] Not used in computing median.

Table 8b. Weekly Earnings of Full-Time Wage and Salary Workers, by Major Occupation and Industry Groups and Hours of Work: Negro

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Hours of Work	Total full-time wage and salary workers	Weekly earnings										Median weekly earnings (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
MAJOR OCCUPATION GROUP													
Total employed	81 892	4 045	4 452	4 810	9 126	11 573	13 176	12 139	4 760	8 309	1 711	7 791	132
Professional and technical	4 103	269	96	99	100	632	525	786	268	745	165	418	156
Managerial and administrative	2 314	208	52	55	53	300	161	102	163	536	209	475	181
Sales	1 596	106	152	312	308	150	147	215	51	53	-	101	93
Clerical	12 409	414	546	756	1 944	2 984	1 902	1 243	321	901	165	1 231	117
Craftsmen and foremen	9 411	151	210	164	867	1 156	1 595	1 994	828	1 638	322	486	155
Operatives, except transportation	23 859	931	794	698	2 049	2 894	5 132	5 097	1 794	2 027	276	2 167	143
Transport equipment operatives	5 308	223	209	218	535	530	844	794	526	960	100	369	148
Laborers, except farm	6 761	153	106	261	633	946	1 628	1 111	317	805	210	592	141
Service workers, except private household	14 146	971	1 658	2 038	2 479	1 927	1 242	798	493	644	263	1 631	95
Private household workers	1 932	618	629	207	157	54	-	-	-	-	-	267	55
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	53	-	-	-	-	-	-	-	-	-	-	53	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Male, total	52 079	1 626	992	911	3 923	6 331	10 400	10 520	4 182	7 213	1 345	4 635	150
Professional and technical	1 660	59	49	51	-	161	216	314	105	324	165	216	167
Managerial and administrative	1 274	-	-	-	-	204	55	102	112	381	53	367	196
Sales	520	51	-	-	47	55	100	163	51	53	-	-	155
Clerical	3 588	109	47	46	255	476	910	617	215	540	165	206	147
Craftsmen and foremen	8 835	151	109	164	762	999	1 487	1 941	828	1 638	269	486	157
Operatives, except transportation	20 270	669	212	168	1 364	2 373	4 549	4 989	1 740	1 974	223	2 010	150
Transport equipment operatives	5 049	223	209	111	484	530	844	794	478	960	100	316	150
Laborers, except farm	6 080	153	53	153	422	842	1 527	1 111	265	805	210	539	144
Service workers, except private household	4 694	210	313	218	589	692	713	490	387	537	159	384	131
Private household workers	57	-	-	-	-	-	-	-	-	-	-	57	0
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	53	-	-	-	-	-	-	-	-	-	-	53	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	29 813	2 419	3 460	3 898	5 202	5 242	2 776	1 620	578	1 096	366	3 157	95
Professional and technical	2 443	211	47	48	100	471	309	472	162	421	-	202	149
Managerial and administrative	1 040	208	52	55	53	96	106	-	51	155	156	108	138
Sales	1 076	55	152	312	261	95	47	53	-	-	-	101	79
Clerical	8 822	305	499	710	1 689	2 508	993	626	106	361	-	1 025	108
Craftsmen and foremen	576	-	101	-	105	157	108	53	-	-	53	-	113
Operatives, except transportation	3 588	262	582	531	685	521	583	108	54	53	53	157	91
Transport equipment operatives	259	-	-	108	51	-	-	-	47	-	-	53	79
Laborers, except farm	682	-	53	108	211	104	100	-	52	-	-	53	95
Service workers, except private household	9 452	761	1 345	1 819	1 890	1 235	530	309	106	106	104	1 247	84
Private household workers	1 875	618	629	207	157	54	-	-	-	-	-	210	55
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
MAJOR INDUSTRY GROUP													
Male, total	52 079	1 626	992	911	3 923	6 331	10 400	10 520	4 182	7 213	1 345	4 635	150
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	102	-	-	-	-	-	-	51	-	51	-	-	175
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	1 823	100	53	111	57	47	156	426	110	534	59	169	169
Durable goods manufacturing	28 529	932	209	264	1 792	3 472	6 376	6 707	2 713	3 354	546	2 164	151
Nondurable goods manufacturing	2 432	-	110	-	149	257	583	257	162	594	-	320	148
Transportation, communication, and other public utilities	2 721	113	106	103	156	223	575	429	225	587	204	-	157
Wholesale and retail trade	5 652	157	316	279	664	844	888	959	113	743	-	689	133
Finance, insurance, and real estate	623	59	-	-	104	143	-	157	51	57	-	51	151
Business and repair services	1 336	49	-	-	204	221	104	278	214	98	-	168	151
Personal services	751	106	53	-	214	53	55	48	53	59	-	110	97
Professional services and entertainment	1 756	-	98	51	168	370	214	151	55	323	110	216	135
Government[2]													
Educational services	440	-	-	-	-	-	167	53	-	-	220	-	300+
All other government services	5 914	109	47	103	416	701	1 281	1 002	486	814	207	748	150
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	29 813	2 419	3 460	3 898	5 202	5 242	2 776	1 620	578	1 096	366	3 157	95
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	54	-	54	-	-	-	-	-	-	-	-	-	58
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	53	-	-	-	-	53	-	-	-	-	-	-	112
Durable goods manufacturing	1 893	53	106	157	104	470	373	161	153	-	157	159	125
Nondurable goods manufacturing	1 002	106	-	267	211	154	161	-	-	104	-	-	92
Transportation, communication, and other public utilities	1 186	51	-	55	153	462	254	104	-	-	-	106	117
Wholesale and retail trade	4 925	98	602	1 242	1 625	500	195	53	-	-	-	610	83
Finance, insurance, and real estate	1 517	155	51	47	350	457	106	-	-	151	-	201	104
Business and repair services	520	53	98	-	104	161	-	48	-	55	-	-	105
Personal services	4 721	875	1 428	790	734	160	53	-	-	-	47	634	62
Professional services and entertainment	8 273	612	822	929	1 350	1 791	635	458	215	423	-	1 040	101
Government[2]													
Educational services	986	157	53	101	100	150	159	106	-	106	55	-	118
All other government services	4 681	259	246	310	471	884	841	690	210	257	106	406	127
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0

[1] Not used in computing median. [2] Government class of worker.

Table 8b. Weekly Earnings of Full-Time Wage and Salary Workers, by Major Occupation and Industry Groups and Hours of Work: Negro–Continued

(Limited to persons 16 to 64 years, not in school)

Major Occupation Group Major Industry Group Hours of Work	Total full-time wage and salary workers	Weekly earnings										Median weekly earnings (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
HOURS OF WORK													
Male, total	52 079	1 626	992	911	3 923	6 331	10 400	10 520	4 182	7 213	1 345	4 635	150
35 to 39 hours	1 733	49	-	56	314	155	370	255	48	214	108	165	139
40 hours	32 778	844	685	584	2 823	4 688	7 685	7 342	1 642	2 811	434	3 241	142
41 to 47 hours	4 282	96	47	59	248	418	666	774	528	860	59	528	161
48 hours	3 440	202	-	53	206	375	726	816	369	473	-	219	154
49 to 59 hours	6 028	110	158	159	226	586	629	1 123	895	1 454	427	262	174
60 hours or more	3 818	325	102	-	106	109	324	210	701	1 402	319	221	200
Female, total	29 813	2 419	3 460	3 898	5 202	5 242	2 776	1 620	578	1 096	366	3 157	95
35 to 39 hours	2 634	358	356	420	403	515	212	53	-	157	55	105	88
40 hours	22 816	1 805	2 680	2 802	4 092	4 306	2 246	1 252	371	624	204	2 435	96
41 to 47 hours	1 805	105	159	363	352	205	55	105	153	104	-	204	90
48 hours	1 102	-	159	207	153	163	210	157	-	-	-	54	101
49 to 59 hours	883	100	53	106	202	-	53	53	-	108	-	207	88
60 hours or more	572	52	53	-	-	53	-	-	54	102	106	152	199

[1] Not used in computing median.

Table 9. Hourly Earnings of Full-Time Wage and Salary Workers, by Age and Sex, Family Status, Educational Attainment, and Family Size: All Races

Age and Sex / Family Status / Educational Attainment / Family Size	Total full-time wage and salary workers	Hourly earnings										Median hourly earnings (dollars)
		Less than $1.25	$1.25 to $1.59	$1.60 to $1.99	$2.00 to $2.49	$2.50 to $2.99	$3.00 to $3.99	$4.00 to $4.99	$5.00 to $5.99	$6.00 to $7.49	$7.50 or more	Not available[1]	
AGE AND SEX													
Total, 16 years and over	117 800	8 625	6 802	7 167	13 163	16 066	33 657	12 896	4 835	2 553	1 132	10 903	3.10
Male, total	77 133	4 354	2 345	2 057	6 850	9 950	26 628	11 316	4 007	2 013	979	6 634	3.40
16 to 21 years, total	6 489	810	380	427	760	1 004	1 955	531	241	96	-	285	2.92
16 to 21 years, not in school	4 249	336	143	286	618	571	1 479	336	241	48	-	191	3.08
22 to 34 years, total	22 313	1 154	583	466	1 572	3 105	8 479	3 631	1 251	705	215	1 152	3.46
22 to 34 years, veteran of Vietnam	5 050	256	53	57	143	617	1 898	1 272	376	173	56	148	3.72
25 to 34 years	16 329	816	534	225	902	2 177	6 462	2 526	1 148	658	166	716	3.52
35 to 44 years	15 597	547	268	505	1 430	1 654	5 509	2 311	815	552	325	1 680	3.49
45 to 54 years	18 053	982	448	392	1 568	2 220	6 493	2 874	616	385	277	1 798	3.43
55 to 64 years	12 522	597	506	267	1 318	1 712	3 799	1 753	924	275	112	1 260	3.35
65 years and over	2 160	265	161	-	201	256	391	216	161	-	51	458	3.04
40 to 64 years	39 763	1 908	1 222	995	3 443	4 873	13 453	6 118	2 078	991	656	4 027	3.44
Female, total	40 667	4 271	4 457	5 111	6 313	6 116	7 030	1 580	828	540	153	4 269	2.40
16 to 21 years, total	5 106	471	662	764	816	1 246	669	96	47	49	-	286	2.36
16 to 21 years, not in school	3 775	330	473	622	481	1 101	433	47	47	49	-	191	2.45
22 to 34 years, total	12 944	1 138	966	1 175	2 038	2 081	2 892	841	466	168	100	1 079	2.70
25 to 34 years	9 111	756	774	693	1 563	1 461	2 169	599	275	168	53	600	2.72
35 to 44 years	8 730	704	818	1 083	1 606	1 343	1 508	488	53	269	53	805	2.46
45 to 54 years	8 803	1 062	1 271	1 355	1 263	957	1 591	51	102	-	-	1 151	2.12
55 to 64 years	4 355	683	635	579	590	489	319	52	160	53	-	797	1.99
65 years and over	728	213	105	155	-	-	51	53	-	-	-	151	1.58
40 to 64 years	18 442	2 234	2 233	2 798	2 816	2 310	2 881	370	262	106	53	2 381	2.20
FAMILY STATUS[2]													
Male, total	71 558	3 470	1 900	1 915	6 361	9 107	25 569	10 568	3 846	1 966	823	6 033	3.42
Family head	44 579	1 863	1 404	899	3 800	5 370	15 703	7 093	2 405	1 456	596	3 991	3.47
Family member	9 631	620	151	471	903	1 268	3 983	1 155	373	165	-	543	3.31
Unrelated individual	17 348	987	345	545	1 659	2 470	5 883	2 320	1 069	345	227	1 499	3.36
Female, total	37 971	3 821	4 163	4 814	5 931	5 820	6 543	1 478	781	540	153	3 926	2.41
Family head	7 831	536	1 048	1 049	1 001	1 326	1 296	161	53	53	153	1 156	2.37
No children under 18 years	2 665	159	216	478	318	319	435	53	-	53	53	580	2.34
Children 6 to 17 years only	3 349	271	524	261	375	805	641	55	53	-	-	365	2.54
Children under 6 years	1 817	106	308	310	308	202	220	53	-	-	100	210	2.13
Wife of head	13 929	1 846	1 063	1 830	2 930	2 004	2 155	423	301	377	-	1 000	2.36
No children under 18 years	5 841	543	484	790	1 247	805	854	112	156	272	-	579	2.37
Children 6 to 17 years only	4 069	486	266	527	852	837	577	212	51	53	-	210	2.44
Children under 6 years	4 019	817	313	513	831	362	724	100	94	53	-	211	2.25
Other family member	7 441	549	900	888	964	1 038	1 543	573	211	-	-	774	2.56
Unrelated individual	8 771	891	1 153	1 047	1 036	1 452	1 549	321	216	110	-	996	2.47
EDUCATIONAL ATTAINMENT[3]													
Male, total	71 558	3 470	1 900	1 915	6 361	9 107	25 569	10 568	3 846	1 966	823	6 033	3.42
Elementary: 7 years or less	11 737	547	672	319	977	1 776	4 570	1 430	538	219	-	689	3.28
8 years	8 630	317	279	166	903	1 016	3 245	1 303	371	220	55	755	3.40
High school: 1 to 3 years	20 613	793	528	716	1 818	2 826	7 326	3 163	757	382	168	2 136	3.37
4 years	21 430	1 004	255	361	2 094	2 456	7 774	3 380	1 427	707	270	1 702	3.51
College: 1 year or more	9 148	808	165	354	569	1 033	2 654	1 293	753	438	330	750	3.58
Female, total	37 971	3 821	4 163	4 814	5 931	5 820	6 543	1 478	781	540	153	3 926	2.41
Elementary: 7 years or less	2 590	467	273	525	429	157	214	106	-	-	-	419	1.90
8 years	3 256	377	739	583	433	481	272	57	-	-	-	314	1.86
High school: 1 to 3 years	8 986	1 075	1 378	1 481	1 473	1 264	1 152	105	104	-	53	902	2.07
4 years	16 490	1 156	1 610	1 718	2 935	2 731	3 845	629	259	102	-	1 505	2.56
College: 1 year or more	6 648	746	163	506	660	1 187	1 059	582	418	438	100	787	2.97
FAMILY SIZE BY FAMILY HEAD[4]													
Male head, total	28 651	797	746	526	2 259	3 660	10 801	4 529	1 414	957	376	2 586	3.48
Males heading families with–													
2 persons	1 208	228	59	102	49	110	273	114	59	59	-	155	3.23
3 persons	5 513	106	150	100	360	679	2 319	926	202	167	-	505	3.49
4 persons	6 483	257	163	53	414	833	2 365	1 165	270	256	163	543	3.55
5 persons	5 919	47	106	165	533	928	2 083	895	471	372	104	215	3.53
6 persons	3 487	-	53	53	375	316	1 638	415	153	51	109	324	3.48
7 persons or more	6 042	159	216	53	529	793	2 123	1 014	259	53	-	844	3.40
Female head, total	5 276	377	832	571	683	1 007	861	161	53	-	100	633	2.40
Females heading families with–													
2 persons	1 627	169	158	102	265	434	332	55	-	-	-	112	2.57
3 persons	1 296	104	153	104	259	53	159	106	-	-	47	311	2.25
4 persons	949	104	106	263	53	159	211	-	-	-	-	53	1.96
5 persons	624	-	206	-	53	155	53	-	53	-	-	104	2.50
6 persons	361	-	157	51	-	100	53	-	-	-	-	-	1.78
7 persons or more	420	-	51	51	53	106	53	-	-	-	53	53	2.63

[1] Not used in computing median. [2] Persons 16 to 64 years, not in school. [3] Families with children under 18 years; family heads 16 to 64 years, not in school.

Table 9a. Hourly Earnings of Full-Time Wage and Salary Workers, by Age and Sex, Family Status, Educational Attainment, and Family Size: White

Age and Sex / Family Status / Educational Attainment / Family Size	Total full-time wage and salary workers	Hourly earnings										Median hourly earnings (dollars)
		Less than $1.25	$1.25 to $1.59	$1.60 to $1.99	$2.00 to $2.49	$2.50 to $2.99	$3.00 to $3.99	$4.00 to $4.99	$5.00 to $5.99	$6.00 to $7.49	$7.50 or more	Not available[1]	
AGE AND SEX													
Total, 16 years and over	27 343	2 625	1 694	1 100	2 490	4 040	7 229	3 540	1 321	666	330	2 307	3.16
Male, total	19 503	1 595	783	584	1 580	2 789	5 500	3 223	1 057	552	330	1 569	3.37
16 to 21 years, total	1 262	144	-	97	146	243	389	146	49	48	-	-	3.07
16 to 21 years, not in school	874	144	-	97	98	49	292	97	49	48	-	-	3.25
22 to 34 years, total	5 527	330	97	261	361	1 019	1 504	808	555	104	105	382	3.41
22 to 34 years, veteran of Vietnam	1 032	48	-	57	-	155	250	417	106	-	-	-	4.07
25 to 34 years	3 964	330	48	113	167	622	1 117	565	507	104	57	334	3.58
35 to 44 years	2 985	164	57	57	342	396	1 009	453	110	171	56	169	3.44
45 to 54 years	5 326	563	292	114	338	336	1 868	1 080	174	113	57	391	3.53
55 to 64 years	3 563	166	283	55	337	681	678	622	114	115	112	398	3.09
65 years and over	841	226	55	-	56	114	52	114	55	-	-	169	2.62
40 to 64 years	10 913	841	632	226	790	1 300	3 442	1 929	397	286	225	845	3.42
Female, total	7 840	1 029	911	516	910	1 252	1 729	317	264	115	-	798	2.66
16 to 21 years, total	920	-	48	146	242	243	193	-	-	-	-	48	2.50
16 to 21 years, not in school	824	-	48	146	242	194	193	-	-	-	-	-	2.45
22 to 34 years, total	2 374	261	136	98	220	279	702	260	209	57	-	152	3.28
25 to 34 years	1 599	165	136	-	172	279	507	113	112	57	-	56	3.14
35 to 44 years	1 243	225	226	112	56	170	227	57	-	57	-	112	2.26
45 to 54 years	1 727	333	336	-	166	336	445	-	-	-	-	111	2.54
55 to 64 years	1 170	161	113	56	226	224	111	-	55	-	-	225	2.43
65 years and over	406	49	51	104	-	-	51	-	-	-	-	151	1.80
40 to 64 years	3 517	663	506	56	448	673	668	-	55	-	-	448	2.50
FAMILY STATUS[2]													
Male, total	17 935	1 369	680	584	1 330	2 482	5 351	2 962	1 002	552	282	1 341	3.41
Family head	9 650	447	506	266	658	1 552	2 761	1 675	502	445	225	613	3.44
Family member	2 429	211	-	98	57	308	894	482	164	48	-	167	3.57
Unrelated individual	5 856	711	174	220	616	622	1 697	806	336	58	57	561	3.28
Female, total	7 177	980	860	412	910	1 147	1 573	317	264	115	-	599	2.65
Family head	791	114	113	-	-	225	227	-	-	-	-	112	2.75
No children under 18 years	396	-	56	-	-	113	170	-	-	-	-	56	3.00
Children 6 to 17 years only	282	114	56	-	-	113	-	-	-	-	-	-	1.42
Children under 6 years	113	-	-	-	-	-	57	-	-	-	-	55	3.50
Wife of head	2 479	440	336	210	452	387	321	106	-	115	-	113	2.31
No children under 18 years	1 513	169	169	106	340	276	169	57	-	115	-	113	2.46
Children 6 to 17 years only	612	223	111	56	111	111	-	-	-	-	-	-	1.51
Children under 6 years	353	48	56	48	-	-	152	48	-	-	-	-	3.32
Other family member	1 388	106	161	97	145	48	467	154	48	-	-	162	3.12
Unrelated individual	2 519	321	250	105	313	486	557	57	216	-	-	213	2.80
EDUCATIONAL ATTAINMENT[2]													
Male, total	17 935	1 369	680	584	1 330	2 482	5 351	2 962	1 002	552	282	1 341	3.41
Elementary: 7 years or less	3 273	229	289	48	170	425	1 221	567	105	115	-	104	3.35
8 years	2 327	49	174	-	170	380	941	332	-	56	55	169	3.35
High school: 1 to 3 years	5 012	380	161	216	337	877	1 411	900	224	57	56	394	3.30
4 years	4 194	271	-	106	389	469	1 232	823	287	169	-	447	3.59
College: 1 year or more	3 129	440	56	213	264	331	546	341	386	155	171	226	3.57
Female, total	7 177	980	860	412	910	1 147	1 573	317	264	115	-	599	2.65
Elementary: 7 years or less	556	-	169	56	113	-	56	106	-	-	-	56	2.11
8 years	898	223	113	-	114	224	112	57	-	-	-	55	2.38
High school: 1 to 3 years	1 158	162	193	154	56	273	265	-	-	-	-	55	2.38
4 years	3 228	273	385	202	482	538	865	106	104	-	-	273	2.67
College: 1 year or more	1 336	323	-	-	145	112	274	48	161	115	-	159	3.62
FAMILY SIZE BY FAMILY HEAD[3]													
Male head, total	5 131	165	220	56	375	906	1 809	723	218	217	111	329	3.40
Males heading families with—													
2 persons	340	117	59	-	49	57	-	-	59	-	-	-	2.24
3 persons	930	-	48	-	104	207	305	162	-	56	-	48	3.27
4 persons	1 454	48	56	-	110	161	472	280	55	104	55	111	3.68
5 persons	1 091	-	-	56	-	209	496	169	104	57	-	-	3.57
6 persons	376	-	-	-	56	-	264	-	-	-	56	-	3.50
7 persons or more	936	-	57	-	56	272	272	112	-	-	-	169	3.00
Female head, total	395	114	56	-	-	113	57	-	-	-	-	55	1.60
Females heading families with—													
2 persons	340	114	56	-	-	113	57	-	-	-	-	-	1.60
3 persons	55	-	-	-	-	-	-	-	-	-	-	55	.00
4 persons	-	-	-	-	-	-	-	-	-	-	-	-	.00
5 persons	-	-	-	-	-	-	-	-	-	-	-	-	.00
6 persons	-	-	-	-	-	-	-	-	-	-	-	-	.00
7 persons or more	-	-	-	-	-	-	-	-	-	-	-	-	.00

[1] Not used in computing median. [2] Persons 16 to 64 years, not in school. [3] Families with children under 18 years; family heads 16 to 64 years, not in school.

Table 9b. Hourly Earnings of Full-Time Wage and Salary Workers, by Age and Sex, Family Status, Educational Attainment, and Family Size: Negro

Age and Sex Family Status Educational Attainment Family Size	Total full-time wage and salary workers	Hourly earnings										Median hourly earnings (dollars)
		Less than $1.25	$1.25 to $1.59	$1.60 to $1.99	$2.00 to $2.49	$2.50 to $2.99	$3.00 to $3.99	$4.00 to $4.99	$5.00 to $5.99	$6.00 to $7.49	$7.50 or more	Not available[1]	
AGE AND SEX													
Total, 16 years and over	87 783	5 687	4 998	5 968	10 454	11 637	25 551	9 082	3 514	1 773	802	8 319	3.07
Male, total	56 038	2 653	1 452	1 473	5 213	6 990	20 305	7 930	2 950	1 404	649	5 019	3.41
16 to 21 years, total	5 179	667	380	331	614	761	1 518	385	191	47	-	285	2.86
16 to 21 years, not in school	3 327	193	143	189	520	522	1 139	240	191	-	-	191	3.02
22 to 34 years, total	15 968	823	430	205	1 211	1 972	6 541	2 717	696	542	109	722	3.47
22 to 34 years, veteran of Vietnam	3 961	207	53	-	143	463	1 590	856	271	173	56	148	3.67
25 to 34 years	11 741	486	430	111	734	1 441	5 007	1 905	641	495	109	382	3.51
35 to 44 years	12 556	383	211	448	1 088	1 258	4 444	1 858	705	382	269	1 511	3.51
45 to 54 years	12 334	369	156	278	1 230	1 827	4 397	1 794	442	272	219	1 350	3.39
55 to 64 years	8 681	373	170	212	924	1 030	3 066	1 074	810	160	-	862	3.42
65 years and over	1 319	39	106	-	145	142	339	102	106	-	51	290	3.30
40 to 64 years	28 180	961	537	770	2 596	3 515	9 728	4 132	1 680	705	431	3 124	3.45
Female, total	31 745	3 033	3 546	4 495	5 241	4 647	5 246	1 151	564	369	153	3 300	2.34
16 to 21 years, total	4 140	425	614	618	574	1 003	475	96	47	49	-	238	2.30
16 to 21 years, not in school	2 905	283	425	476	240	907	239	47	47	49	-	191	2.46
22 to 34 years, total	9 753	715	830	1 029	1 657	1 640	2 190	525	257	55	100	756	2.62
25 to 34 years	6 889	478	637	693	1 278	1 068	1 661	429	163	55	53	374	2.63
35 to 44 years	7 375	479	592	970	1 550	1 117	1 282	374	53	212	53	693	2.44
45 to 54 years	7 022	729	935	1 355	1 097	621	1 091	51	102	-	-	1 040	2.03
55 to 64 years	3 185	522	522	522	364	265	208	52	104	53	-	573	1.84
65 years and over	270	164	53	-	-	-	-	53	-	-	-	-	1.03
40 to 64 years	14 814	1 571	1 727	2 742	2 368	1 580	2 158	370	207	106	53	1 933	2.13
FAMILY STATUS[2]													
Male, total	52 079	1 995	1 110	1 331	4 973	6 454	19 395	7 443	2 844	1 356	541	4 635	3.43
Family head	34 095	1 311	788	633	3 142	3 818	12 494	5 306	1 902	1 011	371	3 321	3.48
Family member	6 991	409	151	374	788	960	2 935	673	209	117	-	376	3.23
Unrelated individual	10 993	276	171	325	1 043	1 677	3 966	1 465	733	229	171	938	3.40
Female, total	29 813	2 633	3 304	4 353	4 860	4 503	4 915	1 049	517	369	153	3 157	2.35
Family head	6 983	422	935	1 049	1 001	1 101	1 069	161	53	53	153	987	2.31
No children under 18 years	2 212	159	159	478	318	207	265	53	-	53	53	467	2.16
Children 6 to 17 years only	3 067	157	468	261	375	692	641	55	53	-	-	365	2.56
Children under 6 years	1 705	106	308	310	308	202	163	53	-	-	100	155	2.08
Wife of head	11 054	1 292	727	1 619	2 421	1 447	1 834	318	301	263	-	831	2.36
No children under 18 years	4 156	317	315	684	850	471	685	55	156	157	-	466	2.34
Children 6 to 17 years only	3 401	263	155	471	740	669	577	212	51	53	-	210	2.55
Children under 6 years	3 497	713	257	465	831	306	572	51	94	53	-	155	2.22
Other family member	5 738	395	739	743	714	990	1 075	363	163	-	-	556	2.54
Unrelated individual	6 038	523	903	942	723	966	937	208	-	54	-	783	2.20
EDUCATIONAL ATTAINMENT[3]													
Male, total	52 079	1 995	1 110	1 331	4 973	6 454	19 395	7 443	2 844	1 356	541	4 635	3.43
Elementary: 7 years or less	8 072	319	330	270	749	1 293	3 181	807	433	104	-	585	3.26
8 years	6 247	268	105	166	732	637	2 247	971	371	164	-	585	3.42
High school: 1 to 3 years	15 342	413	367	499	1 481	1 949	5 714	2 263	533	325	112	1 685	3.38
4 years	17 122	733	255	255	1 705	1 987	6 428	2 557	1 140	538	270	1 255	3.50
College: 1 year or more	5 296	262	53	141	306	588	1 825	845	367	226	159	524	3.61
Female, total	29 813	2 633	3 304	4 353	4 860	4 503	4 915	1 049	517	369	153	3 157	2.35
Elementary: 7 years or less	1 988	421	104	469	317	157	157	-	-	-	-	363	1.87
8 years	2 301	154	627	583	262	256	161	-	-	-	-	258	1.78
High school: 1 to 3 years	7 716	913	1 186	1 328	1 416	935	887	105	104	-	53	790	2.05
4 years	12 946	778	1 224	1 467	2 405	2 080	2 980	524	155	102	-	1 232	2.53
College: 1 year or more	4 861	368	163	506	459	1 075	730	421	257	267	100	514	2.86
FAMILY SIZE BY FAMILY HEAD[3]													
Male head, total	23 015	632	470	470	1 884	2 753	8 600	3 748	1 196	740	265	2 257	3.50
Males heading families with–													
2 persons	867	112	-	102	-	53	273	114	-	59	-	155	3.53
3 persons	4 357	106	102	100	256	472	1 845	707	202	111	-	456	3.51
4 persons	4 917	208	51	53	304	672	1 837	885	215	151	108	432	3.53
5 persons	4 772	47	106	109	533	719	1 531	726	366	315	104	215	3.51
6 persons	3 110	-	53	53	319	316	1 373	415	153	51	53	324	3.48
7 persons or more	4 992	159	159	53	473	521	1 740	901	259	53	-	675	3.46
Female head, total	4 824	263	776	571	683	894	803	161	53	-	100	520	2.40
Females heading families with–													
2 persons	1 230	55	102	102	265	321	275	55	-	-	-	55	2.60
3 persons	1 240	104	153	104	259	53	159	106	-	-	47	256	2.25
4 persons	949	104	106	263	53	159	211	-	-	-	-	53	1.96
5 persons	624	-	206	-	53	155	53	-	53	-	-	104	2.50
6 persons	361	-	157	51	-	100	53	-	-	-	-	-	1.78
7 persons or more	420	-	51	51	53	106	53	-	-	-	53	53	2.63

[1] Not used in computing median. [2] Persons 16 to 64 years, not in school. [3] Families with children under 18 years; family heads 16 to 64 years, not in school.

Table 10. Hourly Earnings of Full-Time Wage and Salary Workers, by Major Occupation and Industry Groups and Hours of Work: All Races

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Hours of Work	Total full-time wage and salary workers	Hourly earnings										Median hourly earnings (dollars)
		Less than $1.25	$1.25 to $1.59	$1.60 to $1.99	$2.00 to $2.49	$2.50 to $2.99	$3.00 to $3.99	$4.00 to $4.99	$5.00 to $5.99	$6.00 to $7.49	$7.50 or more	Not available[1]	
MAJOR OCCUPATION GROUP													
Total employed	109 529	7 292	6 063	6 729	12 292	14 927	32 112	12 046	4 627	2 506	976	9 959	3.12
Professional and technical	7 344	1 129	51	144	322	644	1 922	962	648	493	222	806	3.69
Managerial and administrative	3 313	376	163	167	208	306	484	377	159	384	100	588	3.40
Sales	2 320	275	372	374	468	95	525	53	-	-	-	157	2.12
Clerical	16 730	894	661	1 110	2 377	3 673	4 394	1 049	692	266	108	1 506	2.89
Craftsmen and foremen	13 208	260	379	371	1 134	1 882	4 539	2 198	851	610	273	711	3.51
Operatives, except transportation	30 456	1 252	954	1 113	2 961	4 053	11 966	4 290	878	209	113	2 666	3.32
Transport equipment operatives	6 881	386	214	324	855	844	2 184	1 004	322	270	53	426	3.29
Laborers, except farm	8 900	318	110	363	797	1 102	3 349	1 404	473	165	-	819	3.41
Service workers, except private household	18 287	1 730	2 690	2 345	3 115	2 225	2 748	709	604	108	108	1 904	2.29
Private household workers	1 988	671	469	418	53	54	-	-	-	-	-	323	1.37
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.00
Farm laborers and foremen	102	-	-	-	-	49	-	-	-	-	-	53	2.75
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00
Male, total	71 558	3 470	1 900	1 915	6 361	9 107	25 569	10 568	3 846	1 966	823	6 033	3.42
Professional and technical	3 422	596	51	49	108	332	805	371	226	274	222	387	3.68
Managerial and administrative	1 881	56	56	112	100	154	271	324	57	274	53	425	3.92
Sales	576	107	-	-	47	-	369	53	-	-	-	-	3.51
Clerical	5 339	325	106	207	422	685	2 092	476	489	109	108	319	3.43
Craftsmen and foremen	12 528	260	278	371	1 029	1 622	4 378	2 198	851	610	220	711	3.55
Operatives, except transportation	25 483	933	423	377	2 006	3 348	10 619	4 233	878	156	113	2 396	3.44
Transport equipment operatives	6 622	386	214	217	804	844	2 137	1 004	322	270	53	373	3.32
Laborers, except farm	8 162	318	57	255	533	1 046	3 198	1 353	473	165	-	765	3.47
Service workers, except private household	7 386	488	714	328	1 312	1 027	1 701	556	551	108	55	547	2.83
Private household workers	57	-	-	-	-	-	-	-	-	-	-	57	.00
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.00
Farm laborers and foremen	102	-	-	-	-	49	-	-	-	-	-	53	2.75
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00
Female, total	37 971	3 821	4 163	4 814	5 931	5 820	6 543	1 478	781	540	153	3 926	2.41
Professional and technical	3 922	533	-	95	214	312	1 117	591	422	219	-	419	3.70
Managerial and administrative	1 432	320	107	55	108	152	213	53	102	111	47	163	2.82
Sales	1 743	167	372	374	421	95	156	-	-	-	-	157	1.87
Clerical	11 391	568	555	903	1 955	2 988	2 302	573	203	157	-	1 187	2.71
Craftsmen and foremen	680	-	101	-	105	260	161	-	-	-	53	-	2.76
Operatives, except transportation	4 973	320	531	736	956	705	1 347	57	-	53	-	270	2.41
Transport equipment operatives	259	-	-	108	51	-	47	-	-	-	-	53	1.98
Laborers, except farm	738	-	53	108	265	56	151	52	-	-	-	53	2.34
Service workers, except private household	10 901	1 242	1 976	2 017	1 803	1 198	1 048	153	53	-	53	1 358	1.96
Private household workers	1 931	671	469	418	53	54	-	-	-	-	-	266	1.37
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.00
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	.00
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00
MAJOR INDUSTRY GROUP													
Male, total	71 558	3 470	1 900	1 915	6 361	9 107	25 569	10 568	3 846	1 966	823	6 033	3.42
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	152	-	-	-	-	49	51	-	51	-	-	-	3.52
Mining	57	-	-	-	-	-	57	-	-	-	-	-	3.50
Construction	2 611	153	-	111	104	56	537	607	370	391	111	169	4.47
Durable goods manufacturing	36 186	1 204	424	480	2 759	5 030	15 371	6 288	1 300	438	227	2 665	3.46
Nondurable goods manufacturing	3 743	48	110	104	201	196	1 615	595	385	57	-	432	3.62
Transportation, communication, and other public utilities	4 445	336	223	205	114	438	1 610	768	369	218	53	112	3.58
Wholesale and retail trade	9 155	540	601	704	1 311	1 169	2 188	811	592	154	-	1 085	2.93
Finance, insurance, and real estate	1 013	59	-	55	163	252	222	154	-	58	-	51	2.96
Business and repair services	2 300	163	170	55	479	334	650	167	114	-	-	168	2.84
Personal services	976	161	168	-	157	109	156	-	114	-	-	110	2.41
Professional services and entertainment	3 595	587	156	49	435	661	413	113	219	323	110	329	2.81
Government[2]													
Educational services	828	54	-	-	-	57	277	58	57	57	163	106	4.01
All other government services	6 698	166	47	152	638	757	2 422	1 007	274	271	160	806	3.52
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00
Female, total	37 971	3 821	4 163	4 814	5 931	5 820	6 543	1 478	781	540	153	3 926	2.41
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	54	-	54	-	-	-	-	-	-	-	-	-	1.43
Mining	-	-	-	-	-	-	-	-	-	-	-	-	.00
Construction	53	-	-	-	-	53	-	-	-	-	-	-	2.75
Durable goods manufacturing	2 883	101	110	259	367	599	1 132	105	-	-	53	159	2.98
Nondurable goods manufacturing	1 772	162	-	317	322	210	432	57	51	53	-	168	2.50
Transportation, communication, and other public utilities	1 694	100	-	103	313	615	246	211	-	-	-	106	2.77
Wholesale and retail trade	6 634	592	1 145	1 354	1 751	667	467	-	-	-	-	659	1.98
Finance, insurance, and real estate	2 378	267	108	47	452	514	359	159	-	49	-	424	2.65
Business and repair services	731	53	151	49	104	54	103	48	56	55	-	56	2.55
Personal services	5 104	1 038	1 434	1 001	632	160	101	-	-	-	47	690	1.54
Professional services and entertainment	10 343	1 037	803	1 232	1 467	1 799	1 701	576	360	166	-	1 201	2.59
Government[2]													
Educational services	1 098	157	108	101	100	97	374	-	-	106	-	56	2.92
All other government services	5 228	315	252	352	424	1 052	1 627	322	314	111	53	406	3.07
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00

[1] Not used in computing median. [2] Government class of worker.

Table 10. Hourly Earnings of Full-Time Wage and Salary Workers, by Major Occupation and Industry Groups and Hours of Work: All Races—Continued

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Hours of Work	Total full-time wage and salary workers	Hourly earnings										Median hourly earnings (dollars)
		Less than $1.25	$1.25 to $1.59	$1.60 to $1.99	$2.00 to $2.49	$2.50 to $2.99	$3.00 to $3.99	$4.00 to $4.99	$5.00 to $5.99	$6.00 to $7.49	$7.50 or more	Not available[1]	
HOURS OF WORK													
Male, total	71 558	3 470	1 900	1 915	6 361	9 107	25 569	10 568	3 846	1 966	823	6 033	3.42
35 to 39 hours	2 865	153	53	103	314	432	621	318	106	377	108	279	3.38
40 hours	42 995	1 599	977	839	3 095	4 626	17 498	5 978	2 664	870	663	4 187	3.50
41 to 47 hours	6 256	151	210	106	642	729	1 618	1 402	425	280	-	693	3.58
48 hours	4 916	202	53	159	652	835	1 606	792	168	114	-	335	3.29
49 to 59 hours	9 247	438	391	435	1 075	1 546	2 817	1 536	369	269	53	318	3.25
60 hours or more	5 280	927	216	272	582	941	1 410	542	113	56	-	221	2.90
Female, total	37 971	3 821	4 163	4 814	5 931	5 820	6 543	1 478	781	540	153	3 926	2.41
35 to 39 hours	3 528	363	267	684	455	823	465	106	156	106	-	105	2.47
40 hours	28 380	2 607	3 058	3 307	4 800	4 129	5 227	1 163	574	323	100	3 092	2.45
41 to 47 hours	2 677	268	157	566	408	326	426	156	51	57	-	261	2.27
48 hours	1 322	110	369	153	211	267	157	-	-	-	-	54	2.00
49 to 59 hours	1 213	257	204	104	57	161	112	54	-	-	-	263	1.76
60 hours or more	851	216	108	-	-	112	156	-	-	54	53	152	2.11

[1] Not used in computing median.

Table 10a. Hourly Earnings of Full-Time Wage and Salary Workers, by Major Occupation and Industry Groups and Hours of Work: White

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Hours of Work	Total full-time wage and salary workers	Hourly earnings										Median hourly earnings (dollars)
		Less than $1.25	$1.25 to $1.59	$1.60 to $1.99	$2.00 to $2.49	$2.50 to $2.99	$3.00 to $3.99	$4.00 to $4.99	$5.00 to $5.99	$6.00 to $7.49	$7.50 or more	Not available[1]	
MAJOR OCCUPATION GROUP													
Total employed	25 111	2 350	1 540	996	2 240	3 629	6 924	3 279	1 266	666	282	1 940	3.20
Professional and technical	2 520	649	-	49	166	170	442	162	389	106	114	274	3.81
Managerial and administrative	944	168	-	57	55	162	161	139	-	115	-	113	2.92
Sales	666	111	226	56	160	-	56		-	-	-	56	1.59
Clerical	3 939	322	163	200	583	693	1 177	37.	212	-	-	217	3.00
Craftsmen and foremen	3 636	56	169	106	113	692	979	787	113	285	111	225	3.61
Operatives, except transportation	5 880	267	56	154	284	936	2 296	1 003	279	48	56	499	3.46
Transport equipment operatives	1 572	58	105	58	49	267	647	221	55	56	-	56	3.34
Laborers, except farm	2 084	112	57	-	104	264	711	449	102	56	-	227	3.55
Service workers, except private household	3 820	606	762	316	726	395	454	173	115	-	-	273	2.12
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	.00
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.00
Farm laborers and foremen	49	-	-	-	-	49	-	-	-	-	-	-	2.75
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00
Male, total	17 935	1 369	680	584	1 330	2 482	5 351	2 962	1 002	552	282	1 341	3.41
Professional and technical	1 436	383	-	49	108	114	217	58	173	48	114	171	3.53
Managerial and administrative	551	56	-	57	-	106	105	112	-	58	-	58	3.26
Sales	56	56	-	-	-	-	-	-	-	-	-	-	.00
Clerical	1 580	160	59	103	171	211	441	216	164	-	-	55	3.25
Craftsmen and foremen	3 588	56	169	106	113	644	979	787	113	285	111	225	3.64
Operatives, except transportation	4 600	211	-	48	171	600	1 854	946	279	48	56	386	3.61
Transport equipment operatives	1 572	58	105	58	49	267	647	221	55	56	-	56	3.34
Laborers, except farm	2 028	112	57	-	104	208	711	449	102	56	-	227	3.59
Service workers, except private household	2 474	277	290	162	614	283	398	173	115	-	-	162	2.39
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	.00
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.00
Farm laborers and foremen	49	-	-	-	-	49	-	-	-	-	-	-	2.75
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00
Female, total	7 177	980	860	412	910	1 147	1 573	317	264	115	-	599	2.65
Professional and technical	1 084	266	-	-	57	56	225	104	216	57	-	102	4.19
Managerial and administrative	392	112	-	-	55	56	56	-	-	57	-	55	2.51
Sales	610	55	226	56	160	-	56	-	-	-	-	56	1.59
Clerical	2 359	162	105	97	411	482	737	155	48	-	-	162	2.89
Craftsmen and foremen	48	-	-	-	-	48	-	-	-	-	-	-	2.75
Operatives, except transportation	1 280	56	56	105	114	337	442	57	-	-	-	113	2.87
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-	.00
Laborers, except farm	56	-	-	-	-	56	-	-	-	-	-	-	2.75
Service workers, except private household	1 346	329	472	154	112	112	56	-	-	-	-	111	1.48
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	.00
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.00
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	.00
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00
MAJOR INDUSTRY GROUP													
Male, total	17 935	1 369	680	584	1 330	2 482	5 351	2 962	1 002	552	282	1 341	3.41
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	49	-	-	-	-	49	-	-	-	-	-	-	2.75
Mining	-	-	-	-	-	-	-	-	-	-	-	-	.00
Construction	788	-	-	-	-	56	223	172	110	115	111	-	4.67
Durable goods manufacturing	7 003	162	113	56	381	1 061	2 715	1 565	279	113	56	502	3.56
Nondurable goods manufacturing	1 254	48	-	56	-	48	702	228	59	-	-	113	3.59
Transportation, communication, and other public utilities	1 611	114	114	58	-	107	663	331	-	113	-	112	3.58
Wholesale and retail trade	3 331	334	221	260	446	591	491	274	213	106	-	395	2.74
Finance, insurance, and real estate	333	-	-	-	114	58	56	105	-	-	-	-	2.96
Business and repair services	911	114	117	55	114	57	225	114	114	-	-	-	3.12
Personal services	225	55	115	-	-	-	-	-	55	-	-	-	1.43
Professional services and entertainment	1 478	432	-	49	219	283	105	58	57	105	57	113	2.66
Government[2]													
Educational services	332	54	-	-	-	-	57	58	57	-	-	106	4.50
All other government services	620	56	-	49	57	172	114	58	57	-	57	-	3.04
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00
Female, total	7 177	980	860	412	910	1 147	1 573	317	264	115	-	599	2.65
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-	-	-	.00
Mining	-	-	-	-	-	-	-	-	-	-	-	-	.00
Construction	-	-	-	-	-	-	-	-	-	-	-	-	.00
Durable goods manufacturing	934	48	56	48	162	225	394	-	-	-	-	-	2.89
Nondurable goods manufacturing	666	56	-	56	56	56	216	57	-	-	-	168	3.11
Transportation, communication, and other public utilities	460	-	-	48	105	201	-	106	-	-	-	-	2.69
Wholesale and retail trade	1 594	330	451	210	167	272	114	-	-	-	-	49	1.64
Finance, insurance, and real estate	699	112	56	-	154	-	105	50	-	-	-	223	2.32
Business and repair services	210	-	-	49	-	-	48	-	56	-	-	56	3.57
Personal services	327	55	168	-	-	55	48	-	-	-	-	-	1.48
Professional services and entertainment	1 628	323	128	-	266	169	383	104	152	57	-	46	3.10
Government[2]													
Educational services	112	-	-	-	-	-	56	-	-	-	-	56	3.50
All other government services	546	56	-	-	-	168	208	-	56	57	-	-	3.23
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00

[1] Not used in computing median. [2] Government class of worker.

Table 10a. Hourly Earnings of Full-Time Wage and Salary Workers, by Major Occupation and Industry Groups and Hours of Work: White--Continued

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Hours of Work	Total full-time wage and salary workers	Hourly earnings										Median hourly earnings (dollars)
		Less than $1.25	$1.25 to $1.59	$1.60 to $1.99	$2.00 to $2.49	$2.50 to $2.99	$3.00 to $3.99	$4.00 to $4.99	$5.00 to $5.99	$6.00 to $7.49	$7.50 or more	Not available[1]	
HOURS OF WORK													
Male, total	17 935	1 369	680	584	1 330	2 482	5 351	2 962	1 002	552	282	1 341	3.41
35 to 39 hours	1 020	104	-	103	-	220	207	107	-	164	-	114	3.12
40 hours	9 447	597	344	204	271	1 241	3 275	1 622	618	104	282	889	3.54
41 to 47 hours	1 810	55	162	-	227	208	487	286	163	56	-	165	3.35
48 hours	1 371	-	-	57	283	153	258	333	58	114	-	116	3.52
49 to 59 hours	2 938	170	117	162	380	547	786	556	106	56	-	56	3.15
60 hours or more	1 347	443	57	57	169	112	339	57	56	56	-	-	2.88
Female, total	7 177	980	860	412	910	1 147	1 573	317	264	115	-	599	2.65
35 to 39 hours	894	56	114	56	153	266	145	-	105	-	-	-	2.63
40 hours	4 802	651	578	258	651	545	1 147	269	160	57	-	486	2.69
41 to 47 hours	872	57	56	99	106	169	223	48	-	57	-	56	2.77
48 hours	56	-	56	-	-	-	-	-	-	-	-	-	1.43
49 to 59 hours	273	104	-	-	-	55	57	-	-	-	-	56	2.79
60 hours or more	279	111	55	-	-	112	-	-	-	-	-	-	1.43

[1] Not used in computing median.

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Table 10b. Hourly Earnings of Full-Time Wage and Salary Workers, by Major Occupation and Industry Groups and Hours of Work: Negro

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Hours of Work	Total full-time wage and salary workers	Hourly earnings										Median hourly earnings (dollars)
		Less than $1.25	$1.25 to $1.59	$1.60 to $1.99	$2.00 to $2.49	$2.50 to $2.99	$3.00 to $3.99	$4.00 to $4.99	$5.00 to $5.99	$6.00 to $7.49	$7.50 or more	Not available[1]	
MAJOR OCCUPATION GROUP													
Total employed	81 892	4 628	4 414	5 684	9 833	10 957	24 310	8 492	3 361	1 726	694	7 791	3.10
Professional and technical	4 103	375	51	95	100	417	1 368	638	259	273	108	418	3.65
Managerial and administrative	2 314	209	107	110	153	144	323	265	159	269	100	475	3.77
Sales	1 596	106	146	318	308	95	469	53	-	-	-	101	2.33
Clerical	12 409	467	497	910	1 746	2 866	3 159	678	480	266	108	1 231	2.87
Craftsmen and foremen	9 411	204	210	265	1 022	1 190	3 456	1 354	738	326	161	486	3.47
Operatives, except transportation	23 859	985	844	911	2 620	2 946	9 338	3 231	599	161	56	2 167	3.29
Transport equipment operatives	5 308	328	109	267	806	577	1 538	782	266	214	53	369	3.27
Laborers, except farm	6 761	206	53	363	693	838	2 582	955	370	109	-	592	3.37
Service workers, except private household	14 146	1 077	1 928	2 029	2 332	1 830	2 076	537	489	108	108	1 631	2.32
Private household workers	1 932	671	469	418	53	54	-	-	-	-	-	267	1.37
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.00
Farm laborers and foremen	53	-	-	-	-	-	-	-	-	-	-	53	.00
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00
Male, total	52 079	1 995	1 110	1 331	4 973	6 454	19 395	7 443	2 844	1 356	541	4 635	3.43
Professional and technical	1 660	164	51	-	-	161	475	264	53	167	108	216	3.79
Managerial and administrative	1 274	-	-	55	100	48	166	212	57	216	53	367	4.40
Sales	520	51	-	-	47	-	369	53	-	-	-	-	3.51
Clerical	3 588	109	47	103	251	474	1 594	260	325	109	108	206	3.48
Craftsmen and foremen	8 835	204	109	265	917	978	3 350	1 354	738	326	108	486	3.52
Operatives, except transportation	20 270	722	370	329	1 778	2 634	8 434	3 231	599	108	56	2 010	3.41
Transport equipment operatives	5 049	328	109	159	755	577	1 491	782	266	214	53	316	3.31
Laborers, except farm	6 080	206	-	255	428	838	2 431	904	370	109	-	539	3.44
Service workers, except private household	4 694	210	424	166	698	744	1 085	384	436	108	55	384	2.98
Private household workers	57	-	-	-	-	-	-	-	-	-	-	57	.00
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.00
Farm laborers and foremen	53	-	-	-	-	-	-	-	-	-	-	53	.00
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00
Female, total	29 813	2 633	3 304	4 353	4 860	4 503	4 915	1 049	517	369	153	3 157	2.35
Professional and technical	2 443	211	-	95	100	256	893	374	206	106	-	202	3.57
Managerial and administrative	1 040	208	107	55	53	96	157	53	102	54	47	108	3.00
Sales	1 076	55	146	318	261	95	100	-	-	-	-	101	1.96
Clerical	8 822	358	450	806	1 495	2 392	1 565	418	155	157	-	1 025	2.68
Craftsmen and foremen	576	-	101	-	105	212	106	-	-	-	53	-	2.69
Operatives, except transportation	3 588	263	474	582	842	312	904	-	-	53	-	157	2.25
Transport equipment operatives	259	-	-	108	51	-	47	-	-	-	-	53	1.98
Laborers, except farm	682	-	53	108	265	-	151	52	-	-	-	53	2.29
Service workers, except private household	9 452	867	1 504	1 863	1 634	1 086	991	153	53	-	53	1 247	2.02
Private household workers	1 875	671	469	418	53	54	-	-	-	-	-	210	1.37
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.00
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	.00
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00
MAJOR INDUSTRY GROUP													
Male, total	52 079	1 995	1 110	1 331	4 973	6 454	19 395	7 443	2 844	1 356	541	4 635	3.43
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	102	-	-	-	-	-	51	-	51	-	-	-	4.00
Mining	-	-	-	-	-	-	-	-	-	-	-	-	.00
Construction	1 823	153	-	111	104	-	315	435	260	275	-	169	4.39
Durable goods manufacturing	28 529	1 041	312	424	2 378	3 855	12 173	4 666	1 020	325	171	2 164	3.44
Nondurable goods manufacturing	2 432	-	110	47	201	148	856	368	326	57	-	320	3.64
Transportation, communication, and other public utilities	2 721	166	109	147	114	331	947	380	369	106	53	-	3.55
Wholesale and retail trade	5 652	206	380	444	807	578	1 584	537	379	47	-	689	3.07
Finance, insurance, and real estate	623	59	-	55	49	195	165	49	-	-	-	51	2.89
Business and repair services	1 336	49	-	-	365	277	425	53	-	-	-	168	2.81
Personal services	751	106	53	-	157	109	156	-	59	-	-	110	2.63
Professional services and entertainment	1 756	105	100	-	216	378	253	55	162	218	53	216	2.96
Government[2]													
Educational services	440	-	-	-	-	-	220	-	-	57	163	-	6.00
All other government services	5 914	109	47	103	581	585	2 250	900	217	271	102	748	3.54
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00
Female, total	29 813	2 633	3 304	4 353	4 860	4 503	4 915	1 049	517	369	153	3 157	2.35
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	54	-	54	-	-	-	-	-	-	-	-	-	1.43
Mining	-	-	-	-	-	-	-	-	-	-	-	-	.00
Construction	53	-	-	-	-	53	-	-	-	-	-	-	2.75
Durable goods manufacturing	1 893	53	53	210	205	318	738	105	-	-	53	159	3.07
Nondurable goods manufacturing	1 002	106	-	212	266	154	161	-	51	53	-	-	2.34
Transportation, communication, and other public utilities	1 186	51	-	55	208	414	246	106	-	-	-	106	2.80
Wholesale and retail trade	4 925	204	693	1 143	1 526	394	353	-	-	-	-	610	2.05
Finance, insurance, and real estate	1 517	155	51	47	249	457	255	53	-	49	-	201	2.70
Business and repair services	520	53	151	-	104	54	55	48	-	55	-	-	2.40
Personal services	4 721	983	1 266	1 001	632	105	53	-	-	-	47	634	1.54
Professional services and entertainment	8 273	612	675	1 232	1 145	1 574	1 318	416	208	53	-	1 040	2.53
Government[2]													
Educational services	986	157	108	101	100	97	318	-	-	106	-	-	2.78
All other government services	4 681	259	252	352	424	884	1 419	322	257	54	53	406	3.05
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.00

[1] Not used in computing median. [2] Government class of worker.

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Table 10b. Hourly Earnings of Full-Time Wage and Salary Workers, by Major Occupation and Industry Groups and Hours of Work: Negro--Continued

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Hours of Work	Total full-time wage and salary workers	Hourly earnings										Median hourly earnings (dollars)
		Less than $1.25	$1.25 to $1.59	$1.60 to $1.99	$2.00 to $2.49	$2.50 to $2.99	$3.00 to $3.99	$4.00 to $4.99	$5.00 to $5.99	$6.00 to $7.49	$7.50 or more	Not available[1]	
HOURS OF WORK													
Male, total	52 079	1 995	1 110	1 331	4 973	6 454	19 395	7 443	2 844	1 356	541	4 635	3.43
35 to 39 hours	1 733	49	-	-	314	211	414	211	106	155	108	165	3.51
40 hours	32 778	896	634	635	2 823	3 328	13 673	4 356	2 046	765	381	3 241	3.49
41 to 47 hours	4 282	96	47	106	358	521	1 131	1 010	262	224	-	528	3.66
48 hours	3 440	202	53	102	370	682	1 244	459	110	-	-	219	3.22
49 to 59 hours	6 028	268	218	273	695	999	1 863	923	263	213	53	262	3.26
60 hours or more	3 818	483	159	215	414	714	1 071	485	57	-	-	221	2.93
Female, total	29 813	2 633	3 304	4 353	4 860	4 503	4 915	1 049	517	369	153	3 157	2.35
35 to 39 hours	2 634	307	153	628	302	557	320	106	51	106	-	105	2.34
40 hours	22 816	1 805	2 480	3 001	4 092	3 472	4 024	782	414	210	100	2 435	2.40
41 to 47 hours	1 805	211	100	467	303	158	203	108	51	-	-	204	2.04
48 hours	1 102	53	313	153	163	210	157	-	-	-	-	54	2.02
49 to 59 hours	883	153	204	104	-	106	55	54	-	-	-	207	1.57
60 hours or more	572	105	53	-	-	-	156	-	-	54	53	152	3.33

[1] Not used in computing median.

Table 11. Usual Place of Work and Method of Transportation, by Major Occupation and Industry Groups and Family Status: All Races

(Limited to person 16 to 64 years, not in school)

Major Occupation Group Major Industry Group Family Status	Total employed	Usual place of work is same address each day						Method of transportation[1]					
		Within city limits				Outside city limits	Not available	Bus, trolley, or taxi	Subway or railroad	Walk	Drive alone, carpool, drive others	Ride with someone else	All other methods
		Total	Low-income area	Remainder of city	Not available								
MAJOR OCCUPATION GROUP													
Total employed	153 686	99 644	53 722	33 672	12 250	45 090	676	47 213	-	10 565	75 751	22 010	2 049
Professional and technical	10 633	7 751	4 778	2 191	782	2 125	48	2 375	-	1 203	6 204	840	108
Managerial and administrative	4 935	3 972	2 153	1 404	416	748	-	740	-	487	3 054	372	374
Sales	3 862	3 126	1 677	909	540	575	-	1 835	-	363	1 594	375	157
Clerical	22 234	17 819	9 674	6 203	1 942	3 899	97	8 986	-	1 597	9 197	3 056	218
Craftsmen and foremen	17 518	10 148	4 814	3 903	1 432	6 124	56	3 652	-	849	10 993	2 461	103
Operatives, except transportation	42 133	23 115	12 133	8 245	2 738	17 122	152	11 042	-	1 557	22 660	6 905	210
Transport equipment operatives	8 451	5 207	3 277	1 407	522	2 702	115	1 199	-	225	6 096	1 081	-
Laborers, except farm	12 144	6 270	3 049	2 051	1 171	4 594	148	2 984	-	843	6 124	2 707	-
Service workers, except private household	26 717	20 776	11 701	6 726	2 348	4 711	59	11 123	-	3 339	8 875	3 538	730
Private household workers	4 900	1 301	357	584	360	2 491	-	3 227	-	102	843	626	149
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	159	159	109	49	-	-	-	49	-	-	109	49	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	95 213	55 318	29 473	18 835	7 010	34 151	575	20 774	-	6 254	56 700	12 850	379
Professional and technical	4 607	3 103	1 909	930	265	1 285	48	814	-	607	3 028	109	57
Managerial and administrative	2 869	2 159	1 032	864	262	549	-	369	-	281	2 209	151	-
Sales	1 177	807	429	273	104	371	-	315	-	113	743	105	57
Clerical	6 726	5 100	2 927	1 779	394	1 424	48	1 728	-	657	4 140	314	-
Craftsmen and foremen	16 368	9 359	4 499	3 481	1 379	5 868	56	2 917	-	849	10 735	2 196	103
Operatives, except transportation	34 168	17 434	9 146	6 150	2 137	15 099	152	7 829	-	1 130	20 154	4 935	105
Transport equipment operatives	8 192	5 000	3 173	1 352	475	2 649	115	1 152	-	225	5 884	1 081	-
Laborers, except farm	11 195	5 695	2 683	1 894	1 118	4 273	96	2 669	-	790	5 701	2 495	-
Service workers, except private household	9 639	6 503	3 565	2 062	876	2 634	59	2 932	-	1 600	3 882	1 415	58
Private household workers	113	-	-	-	-	-	-	-	-	-	113	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	159	159	109	49	-	-	-	49	-	-	109	49	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	58 472	44 326	24 249	14 837	5 240	10 939	101	26 439	-	4 312	19 051	9 159	1 671
Professional and technical	6 026	4 648	2 869	1 262	518	839	-	1 561	-	596	3 176	731	51
Managerial and administrative	2 066	1 813	1 121	539	153	199	-	371	-	206	845	221	374
Sales	2 684	2 319	1 248	636	435	204	-	1 520	-	250	851	270	100
Clerical	15 508	12 719	6 748	4 424	1 548	2 475	48	7 258	-	940	5 058	2 741	218
Craftsmen and foremen	1 150	790	315	422	53	256	-	735	-	-	258	265	-
Operatives, except transportation	7 966	5 681	2 986	2 095	600	2 022	-	3 213	-	426	2 506	1 970	106
Transport equipment operatives	259	206	104	55	47	53	-	47	-	-	212	-	-
Laborers, except farm	950	575	366	157	53	321	53	314	-	53	423	212	-
Service workers, except private household	17 077	14 273	8 137	4 664	1 473	2 077	-	8 192	-	1 738	4 993	2 123	672
Private household workers	4 786	1 301	357	584	360	2 491	-	3 227	-	102	730	626	149
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP													
Male, total	92 087	53 731	28 265	18 735	6 731	33 377	575	20 278	-	5 972	54 690	12 567	265
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	208	101	-	101	-	56	-	49	-	-	102	106	-
Mining	57	57	-	57	-	-	-	57	-	-	-	57	-
Construction	3 633	1 147	322	435	390	1 675	-	543	-	-	2 009	1 193	-
Durable goods manufacturing	47 555	22 034	11 179	8 090	2 765	23 588	324	9 681	-	1 489	29 690	6 826	104
Nondurable goods manufacturing	5 003	4 142	2 859	765	518	655	-	1 411	-	315	2 883	441	-
Transportation, communication, and other public utilities	5 399	3 632	1 785	1 200	647	1 449	47	1 239	-	268	3 329	972	-
Wholesale and retail trade	11 161	7 965	3 710	3 199	1 057	2 667	107	2 801	-	542	5 686	1 478	58
Finance, insurance, and real estate	1 387	967	446	423	98	267	48	515	-	170	546	103	-
Business and repair services	2 930	1 892	1 038	697	157	654	-	724	-	538	1 355	381	-
Personal services	1 535	984	493	444	47	324	-	432	-	282	655	110	-
Professional services and entertainment	4 115	3 310	1 896	1 047	368	700	48	1 025	-	819	2 108	169	-
Government[2]													
Educational services	1 264	888	503	276	106	323	-	220	-	169	818	106	-
All other government services	7 840	6 616	4 034	2 002	579	1 019	-	1 581	-	379	5 509	627	104
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	56 719	42 787	23 289	14 471	5 028	10 832	101	26 058	-	4 099	18 577	8 998	1 257
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	54	54	-	54	-	-	-	54	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction	159	159	53	106	-	-	-	106	-	-	53	53	-
Durable goods manufacturing	4 381	2 000	1 487	311	203	2 222	-	934	-	111	2 268	854	49
Nondurable goods manufacturing	2 555	2 349	1 126	893	330	206	-	992	-	165	961	649	53
Transportation, communication, and other public utilities	1 794	1 529	714	768	47	265	-	914	-	56	723	153	53
Wholesale and retail trade	10 345	8 638	4 593	2 879	1 167	1 085	53	5 345	-	1 197	2 589	1 729	156
Finance, insurance, and real estate	2 951	2 418	736	1 421	261	263	-	1 448	-	105	421	475	538
Business and repair services	1 046	629	313	268	48	360	-	566	-	-	433	106	47
Personal services	9 729	5 566	2 779	1 994	793	3 118	48	6 225	-	722	1 678	1 476	155
Professional services and entertainment	13 936	12 132	7 564	3 476	1 093	1 282	-	6 260	-	1 223	4 941	1 777	155
Government[2]													
Educational services	2 730	2 098	1 373	470	255	313	-	773	-	212	1 269	364	-
All other government services	7 040	5 215	2 552	1 832	830	1 718	-	2 443	-	309	3 240	1 362	51
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] More than one method may be used. [2] Government class of workers.

Table 11. Usual Place of Work and Method of Transportation, by Major Occupation and Industry Groups and Family Status: All Races—Continued

[Limited to oersons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Family Status	Total employed	Usual place of work is same address each day						Method of transportation[1]					
		Within city limits				Outside city limits	Not available	Bus, trolley, or taxi	Subway or railroad	Walk	Drive alone, carpool, drive others	Ride with someone else	All other methods
		Total	Low-income area	Remainder of city	Not available								
FAMILY STATUS													
Male, total	95 213	55 318	29 473	18 835	7 010	34 151	575	20 774	-	6 254	56 700	12 850	379
Family head	57 969	33 065	17 626	11 089	4 349	22 014	374	9 988	-	2 531	38 990	7 675	160
Family member	14 084	8 010	3 626	3 125	1 258	4 771	201	4 970	-	655	6 132	2 274	47
Unrelated individual	23 161	14 243	8 220	4 620	1 403	7 366	-	5 816	-	3 068	11 578	2 902	171
Female, total	58 472	44 326	24 249	14 837	5 240	10 939	101	26 439	-	4 312	19 051	9 159	1 671
Family head	10 990	7 999	4 806	2 133	1 060	2 682	53	4 884	-	902	3 718	1 875	207
No children under 18 years	3 625	2 561	1 617	679	265	1 017	-	1 541	-	427	1 176	595	51
Children 6 to 17 years only	4 294	3 403	2 028	739	636	787	53	1 844	-	265	1 818	586	53
Children under 6 years	3 071	2 036	1 161	716	159	878	-	1 499	-	210	724	695	103
Wife of head	24 681	18 891	10 178	6 336	2 377	4 296	-	9 460	-	1 601	8 791	4 124	926
No children under 18 years	10 794	8 410	4 132	3 149	1 130	1 523	-	4 791	-	553	3 193	1 879	417
Children 6 to 17 years only	7 002	5 218	2 633	1 784	801	1 364	-	2 262	-	417	3 044	1 061	215
Children under 6 years	6 885	5 262	3 413	1 403	446	1 410	-	2 407	-	631	2 554	1 184	294
Other family member	10 341	8 212	4 141	3 273	798	1 456	48	5 575	-	757	2 779	1 411	108
Unrelated individual	12 460	9 224	5 124	3 095	1 005	2 505	-	6 520	-	1 052	3 763	1 749	430

[1] More than one method may be used.

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Table 11a. Usual Place of Work and Method of Transportation, by Major Occupation and Industry Groups and Family Status: White

[Limited to person 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Family Status	Total employed	Usual place of work is same address each day						Method of transportation[1]					
		Within city limits				Outside city limits	Not available	Bus, trolley, or taxi	Subway or railroad	Walk	Drive alone, carpool, drive others	Ride with someone else	All other methods
		Total	Low-income area	Remainder of city	Not available								
MAJOR OCCUPATION GROUP													
Total employed	34 142	23 617	13 973	6 876	2 768	8 220	472	7 016	-	4 900	16 693	4 884	814
Professional and technical	3 299	2 466	1 642	712	112	504	48	446	-	805	1 720	111	57
Managerial and administrative	1 398	1 176	734	442	-	222	-	170	-	113	949	170	111
Sales	1 099	885	381	282	223	157	-	383	-	105	441	226	-
Clerical	5 076	4 119	2 333	1 470	315	802	97	1 306	-	979	2 161	524	113
Craftsmen and foremen	4 840	3 124	1 744	999	382	1 377	56	1 105	-	488	2 812	548	55
Operatives, except transportation	7 914	5 028	3 214	990	824	2 462	48	1 254	-	603	4 353	1 596	48
Transport equipment operatives	1 830	1 132	657	272	203	468	115	146	-	114	1 286	162	-
Laborers, except farm	2 597	1 293	593	376	324	1 088	48	479	-	419	1 149	544	-
Service workers, except private household	5 913	4 296	2 627	1 284	385	1 060	59	1 599	-	1 276	1 823	953	382
Private household workers	127	48	48	-	-	79	-	79	-	-	-	-	48
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	49	-	49	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	49	-	-	-	49	-
Male, total	23 362	14 663	8 786	4 105	1 771	6 993	424	3 616	-	3 616	12 945	2 849	218
Professional and technical	1 778	1 224	829	341	54	392	48	170	-	435	1 011	-	57
Managerial and administrative	950	728	509	219	-	222	-	57	-	113	780	57	-
Sales	329	171	115	56	-	157	-	56	-	56	216	56	-
Clerical	1 865	1 328	838	442	48	430	48	170	-	657	932	55	-
Craftsmen and foremen	4 628	2 913	1 582	949	382	1 377	56	942	-	488	2 764	492	55
Operatives, except transportation	6 018	3 580	2 265	719	597	2 070	48	645	-	491	3 685	1 040	48
Transport equipment operatives	1 830	1 132	657	272	203	468	115	146	-	114	1 286	162	-
Laborers, except farm	2 486	1 293	593	376	324	976	48	479	-	419	1 037	544	-
Service workers, except private household	3 431	2 244	1 399	682	163	900	59	901	-	843	1 235	393	58
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	49	-	49	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	49	-	-	-	49	-
Female, total	10 779	8 954	5 187	2 771	996	1 227	48	3 400	-	1 285	3 747	2 035	596
Professional and technical	1 522	1 242	814	371	57	112	-	276	-	370	709	111	-
Managerial and administrative	449	449	225	223	-	-	-	113	-	-	169	113	111
Sales	770	714	266	225	223	-	-	327	-	48	225	170	-
Clerical	3 211	2 791	1 495	1 028	267	372	48	1 136	-	322	1 229	469	113
Craftsmen and foremen	211	211	162	49	-	-	-	163	-	-	48	56	-
Operatives, except transportation	1 896	1 447	949	272	227	392	-	609	-	112	668	556	-
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm	112	-	-	-	-	112	-	-	-	-	112	-	-
Service workers, except private household	2 482	2 052	1 227	602	223	160	-	697	-	432	588	560	324
Private household workers	127	48	48	-	-	79	-	79	-	-	-	-	48
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP													
Male, total	22 404	14 045	8 226	4 105	1 714	6 765	424	3 559	-	3 504	12 326	2 791	161
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	49	49	-	49	-	-	-	49	-	-	-	49	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction	836	223	112	53	58	500	-	58	-	-	614	222	-
Durable goods manufacturing	9 385	5 338	2 661	1 709	968	3 490	220	1 354	-	967	5 582	1 314	104
Nondurable goods manufacturing	1 620	1 290	863	217	210	330	-	487	-	97	762	331	-
Transportation, communication, and other public utilities	1 981	1 214	600	451	163	596	-	384	-	115	1 152	332	-
Wholesale and retail trade	3 799	2 623	1 592	828	203	803	107	428	-	890	1 981	271	58
Finance, insurance, and real estate	444	228	171	58	-	112	48	58	-	170	113	48	-
Business and repair services	1 129	680	566	114	-	333	-	173	-	394	564	112	-
Personal services	395	283	225	59	-	55	-	-	-	170	169	-	-
Professional services and entertainment	1 650	1 270	873	339	58	275	48	396	-	482	668	112	-
Government[2]													
Educational services	446	340	171	115	54	106	-	116	-	56	274	-	-
All other government services	669	506	392	114	-	162	-	57	-	163	448	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	10 236	8 522	4 915	2 666	941	1 171	48	3 288	-	1 228	3 692	1 979	389
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-	-	-	-	-
Durable goods manufacturing	1 325	877	819	-	57	392	-	274	-	57	600	283	-
Nondurable goods manufacturing	991	942	451	321	169	49	-	325	-	112	330	280	-
Transportation, communication, and other public utilities	460	460	153	306	-	-	-	201	-	56	154	98	-
Wholesale and retail trade	2 413	2 196	1 145	611	440	161	-	946	-	475	655	451	55
Finance, insurance, and real estate	803	580	162	304	113	56	-	251	-	-	113	162	222
Business and repair services	378	267	106	113	48	55	-	210	-	-	168	106	-
Personal services	453	270	215	-	55	134	48	190	-	48	56	55	55
Professional services and entertainment	2 396	2 026	1 385	584	57	266	-	566	-	425	1 036	432	56
Government[2]													
Educational services	278	166	166	-	-	56	-	55	-	55	112	-	-
All other government services	739	739	313	427	-	-	-	272	-	-	468	112	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] More than one method may be used. [2] Government class of workers.

Table 11a. Usual Place of Work and Method of Transportation, by Major Occupation and Industry Groups and Family Status: White--Continued

[Limited to oersons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Family Status	Total employed	Usual place of work is same address each day						Method of transportation[1]					
		Within city limits				Outside city limits	Not available	Bus, trolley, or taxi	Subway or railroad	Walk	Drive alone, carpool, drive others	Ride with someone else	All other methods
		Total	Low-income area	Remainder of city	Not available								
FAMILY STATUS													
Male, total	23 362	14 663	8 786	4 105	1 771	6 993	424	3 616	-	3 616	12 945	2 849	218
Family head	12 422	7 556	4 314	2 219	1 023	4 090	269	1 429	-	1 636	7 551	1 634	104
Family member	3 305	2 180	1 199	632	349	866	154	845	-	356	1 691	299	-
Unrelated individual	7 635	4 927	3 274	1 254	399	2 037	-	1 342	-	1 623	3 703	916	114
Female, total	10 779	8 954	5 187	2 771	996	1 227	48	3 400	-	1 285	3 747	2 035	596
Family head	1 231	1 006	845	161	-	169	-	337	-	112	444	394	55
No children under 18 years	566	397	397	-	-	169	-	169	-	57	113	226	-
Children 6 to 17 years only	338	338	225	113	-	-	-	168	-	-	170	113	-
Children under 6 years	327	272	223	48	-	-	-	-	-	55	161	56	55
Wife of head	4 190	3 583	1 830	1 144	610	384	-	1 330	-	443	1 263	941	265
No children under 18 years	2 562	2 233	1 238	712	283	162	-	947	-	283	672	606	106
Children 6 to 17 years only	891	780	278	279	223	55	-	335	-	56	111	279	111
Children under 6 years	737	571	313	153	104	167	-	48	-	104	480	56	48
Other family member	1 951	1 482	862	563	57	259	48	557	-	145	887	153	55
Unrelated individual	3 408	2 883	1 650	903	329	414	-	1 176	-	584	1 154	547	221

[1] More than one method may be used.

Table 11b. Usual Place of Work and Method of Transportation, by Major Occupation and Industry Groups and Family Status: Negro

[Limited to person 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Family Status	Total employed	Usual place of work is same address each day						Method of transportation[1]					
		Within city limits				Outside city limits	Not available	Bus, trolley, or taxi	Subway or railroad	Walk	Drive alone, carpool, drive others	Ride with someone else	All other methods
		Total	Low-income area	Remainder of city	Not available								
MAJOR OCCUPATION GROUP													
Total employed	116 354	73 780	38 562	25 842	9 376	36 152	204	39 286	-	5 161	57 566	16 842	1 235
Professional and technical	6 501	4 622	2 698	1 254	670	1 563	-	1 718	-	115	4 259	672	51
Managerial and administrative	3 480	2 796	1 418	962	416	470	-	570	-	318	2 105	202	263
Sales	2 648	2 126	1 238	628	260	418	-	1 337	-	259	1 154	149	157
Clerical	16 777	13 319	7 073	4 619	1 627	3 097	-	7 632	-	617	6 761	2 474	106
Craftsmen and foremen	12 406	6 856	3 070	2 736	1 050	4 699	-	2 492	-	362	7 963	1 912	47
Operatives, except transportation	33 396	17 653	8 761	6 978	1 914	14 270	104	9 457	-	954	17 815	5 194	162
Transport equipment operatives	6 622	4 074	2 620	1 135	319	2 233	-	1 053	-	111	4 810	919	-
Laborers, except farm	9 386	4 928	2 456	1 675	797	3 394	100	2 505	-	375	4 920	2 107	-
Service workers, except private household	20 312	16 101	8 809	5 328	1 963	3 595	-	9 374	-	1 948	6 826	2 585	348
Private household workers	4 716	1 196	309	528	360	2 412	-	3 148	-	102	843	626	100
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	109	109	109	-	-	-	-	-	-	-	109	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	69 919	39 554	20 031	14 334	5 190	26 439	151	16 730	-	2 418	42 528	9 831	161
Professional and technical	2 448	1 555	811	533	210	836	-	546	-	115	1 792	109	-
Managerial and administrative	1 863	1 431	523	646	262	271	-	312	-	112	1 429	94	-
Sales	849	636	314	217	104	213	-	259	-	57	527	49	57
Clerical	4 690	3 600	1 918	1 337	346	993	-	1 558	-	-	3 036	259	-
Craftsmen and foremen	11 522	6 333	2 917	2 418	997	4 443	-	1 974	-	362	7 754	1 704	47
Operatives, except transportation	27 479	13 573	6 829	5 204	1 541	12 640	104	6 902	-	639	16 082	3 780	56
Transport equipment operatives	6 362	3 868	2 516	1 080	272	2 181	-	1 006	-	111	4 598	919	-
Laborers, except farm	8 548	4 353	2 090	1 518	745	3 185	47	2 191	-	322	4 608	1 896	-
Service workers, except private household	5 933	4 097	2 003	1 380	713	1 678	-	1 982	-	699	2 479	1 022	-
Private household workers	113	-	-	-	-	-	-	-	-	-	113	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	109	109	109	-	-	-	-	-	-	-	109	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	46 435	34 226	18 531	11 508	4 186	9 712	53	22 556	-	2 743	15 037	7 010	1 075
Professional and technical	4 053	3 067	1 886	720	460	727	-	1 173	-	-	2 467	563	51
Managerial and administrative	1 617	1 365	895	316	153	199	-	258	-	206	676	108	263
Sales	1 799	1 490	924	411	155	204	-	1 078	-	202	626	100	100
Clerical	12 087	9 719	5 155	3 282	1 281	2 103	-	6 074	-	617	3 724	2 216	106
Craftsmen and foremen	884	523	153	317	53	256	-	517	-	-	209	208	-
Operatives, except transportation	5 917	4 081	1 933	1 774	373	1 630	-	2 555	-	314	1 734	1 414	106
Transport equipment operatives	259	206	104	55	47	53	-	47	-	-	212	-	-
Laborers, except farm	838	575	366	157	53	210	53	314	-	53	312	212	-
Service workers, except private household	14 378	12 004	6 806	3 948	1 250	1 917	-	7 392	-	1 249	4 347	1 563	348
Private household workers	4 603	1 196	309	528	360	2 412	-	3 148	-	102	730	626	100
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP													
Male, total	67 864	38 585	19 384	14 234	4 968	25 894	151	16 290	-	2 248	41 250	9 605	104
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	159	51	-	51	-	56	-	-	-	-	102	56	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction	2 797	924	210	382	332	1 174	-	485	-	-	1 395	971	-
Durable goods manufacturing	37 401	16 476	8 469	6 210	1 797	19 549	104	8 164	-	522	23 504	5 512	-
Nondurable goods manufacturing	3 327	2 796	1 996	492	309	325	-	924	-	218	2 065	110	-
Transportation, communication, and other public utilities	3 249	2 305	1 128	692	484	797	47	856	-	153	2 063	584	-
Wholesale and retail trade	7 142	5 179	2 004	2 371	804	1 806	-	2 316	-	545	3 649	1 149	-
Finance, insurance, and real estate	885	681	217	365	98	155	-	457	-	-	375	55	-
Business and repair services	1 748	1 159	418	584	157	321	-	498	-	143	791	269	-
Personal services	1 140	701	268	385	47	269	-	432	-	112	486	110	-
Professional services and entertainment	2 248	1 880	918	652	310	368	-	580	-	282	1 330	56	-
Government[2]													
Educational services	761	487	275	161	51	217	-	104	-	56	544	106	-
All other government services	7 007	5 945	3 478	1 888	579	857	-	1 475	-	216	4 946	627	104
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	45 283	33 177	17 900	11 248	4 029	9 661	53	22 345	-	2 587	14 619	6 905	868
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	54	54	-	54	-	-	-	54	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction	159	159	53	106	-	-	-	106	-	-	53	53	-
Durable goods manufacturing	2 999	1 068	611	311	146	1 829	-	660	-	54	1 612	571	49
Nondurable goods manufacturing	1 412	1 255	627	468	161	157	-	563	-	53	583	369	53
Transportation, communication, and other public utilities	1 286	1 021	512	462	47	265	-	713	-	-	521	55	53
Wholesale and retail trade	7 760	6 270	3 391	2 210	669	924	53	4 342	-	665	1 877	1 278	100
Finance, insurance, and real estate	1 930	1 620	469	1 003	147	206	-	1 036	-	105	309	256	316
Business and repair services	668	363	207	155	-	305	-	355	-	-	265	-	47
Personal services	9 219	5 240	2 563	1 938	738	2 984	-	6 035	-	674	1 622	1 421	100
Professional services and entertainment	11 042	9 721	6 020	2 665	1 035	1 016	-	5 591	-	571	3 849	1 289	98
Government[2]													
Educational services	2 453	1 932	1 207	470	255	257	-	718	-	157	1 157	364	-
All other government services	6 301	4 475	2 239	1 406	830	1 718	-	2 171	-	309	2 773	1 250	51
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] More than one method may be used. [2] Government class of workers.

Table 11b. Usual Place of Work and Method of Transportation, by Major Occupation and Industry Groups and Family Status: Negro–Continued

[Limited to oersons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Family Status	Total employed	Usual place of work is same address each day						Method of transportation[1]					
		Within city limits				Outside city limits	Not available	Bus, trolley, or taxi	Subway or railroad	Walk	Drive alone, carpool, drive others	Ride with someone else	All other methods
		Total	Low-income area	Remainder of city	Not available								
FAMILY STATUS													
Male, total	69 919	39 554	20 031	14 334	5 190	26 439	151	16 730	-	2 418	42 528	9 831	161
Family head	44 545	25 012	13 040	8 646	3 326	17 474	104	8 401	-	838	30 651	5 985	56
Family member	10 518	5 723	2 370	2 494	860	3 751	47	4 067	-	249	4 287	1 918	47
Unrelated individual	14 856	8 818	4 621	3 194	1 003	5 214	-	4 262	-	1 331	7 590	1 928	57
Female, total	46 435	34 226	18 531	11 508	4 186	9 712	53	22 556	-	2 743	15 037	7 010	1 075
Family head	9 702	6 936	3 961	1 915	1 060	2 513	53	4 547	-	733	3 274	1 481	151
No children under 18 years	3 002	2 107	1 220	621	265	848	-	1 372	-	313	1 063	369	51
Children 6 to 17 years only	3 956	3 065	1 803	626	636	787	53	1 676	-	265	1 648	473	53
Children under 6 years	2 744	1 764	938	667	159	878	-	1 499	-	155	563	639	47
Wife of head	19 867	14 740	8 121	4 909	1 710	3 912	-	7 959	-	1 044	7 359	3 125	661
No children under 18 years	7 946	5 892	2 836	2 266	790	1 361	-	3 673	-	212	2 521	1 215	311
Children 6 to 17 years only	5 998	4 325	2 298	1 449	578	1 308	-	1 927	-	361	2 820	782	104
Children under 6 years	5 923	4 523	2 988	1 194	342	1 243	-	2 359	-	470	2 017	1 128	246
Other family member	8 027	6 423	3 134	2 548	740	1 197	-	4 921	-	499	1 795	1 202	53
Unrelated individual	8 838	6 127	3 315	2 136	675	2 091	-	5 130	-	468	2 610	1 203	210

[1] More than one method may be used.

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Table 12. Usual Place of Work and Method of Transportation, by Weekly and Hourly Earnings and by Full- or Part-Time Employment Status: All Races

(Limited to persons 16 to 64 years, not in school)

Weekly Earnings / Hourly Earnings / Full- or Part-Time Employment Status	Total employed	Usual place of work is same address each day						Method of transportation[1]					
		Within city limits				Outside city limits	Not available	Bus, trolley, or taxi	Subway or railroad	Walk	Drive alone, carpool, drive others	Ride with someone else	All other methods
		Total	Low-income area	Remainder of city	Not available								
WEEKLY EARNINGS OF FULL-TIME WAGE AND SALARY WORKERS													
Total	109 529	71 950	38 489	24 726	8 734	34 532	470	32 602	-	7 274	57 359	14 875	1 099
Less than $50	6 431	4 659	2 863	1 211	586	1 721	-	2 299	-	1 227	2 229	733	361
$50 to $64	5 703	4 342	2 133	1 445	764	1 193	59	3 620	-	488	1 167	910	100
$65 to $79	5 882	4 938	3 087	1 417	434	788	-	2 964	-	753	1 469	1 044	58
$80 to $89	4 799	3 739	1 799	1 488	453	902	-	2 270	-	272	1 354	1 057	47
$90 to $99	6 271	4 566	2 316	1 816	435	1 601	53	2 275	-	673	2 641	628	-
$100 to $124	15 846	11 267	5 867	3 980	1 421	4 415	-	6 048	-	1 261	6 854	1 882	53
$125 to $149	17 807	11 679	5 635	4 379	1 664	6 077	-	3 822	-	797	10 716	3 427	101
$150 to $174	16 266	9 112	4 860	2 904	1 348	6 843	97	3 442	-	503	10 438	2 296	56
$175 to $199	6 503	3 530	2 236	975	319	2 918	-	1 227	-	210	4 676	970	-
$200 to $299	11 623	6 806	3 261	3 019	527	4 233	211	1 632	-	320	8 968	804	-
$300 or more	2 439	1 409	806	493	110	1 030	-	200	-	170	2 120	373	-
Not available[2]	9 959	5 903	3 629	1 600	674	2 811	51	2 804	-	600	4 727	749	323
Median ..... dollars	134	126	126	127	126	148	201	108	0	104	151	132	58
HOURLY EARNINGS OF FULL-TIME WAGE AND SALARY WORKERS													
Total	109 529	71 950	38 489	24 726	8 734	34 532	470	32 602	-	7 333	57 359	15 350	1 099
Less than $1.25	7 292	5 256	3 239	1 322	695	1 876	-	2 556	-	1 562	2 607	1 209	414
$1.25 to $1.59	6 063	4 742	2 419	1 511	811	1 262	59	3 317	-	708	1 276	1 171	105
$1.60 to $1.79	3 370	2 698	1 813	614	270	516	-	2 420	-	166	574	420	-
$1.80 to $1.99	3 359	2 601	1 503	837	261	648	-	1 093	-	424	1 473	369	-
$2.00 to $2.49	12 292	8 859	4 243	3 541	1 075	3 224	53	4 526	-	956	5 138	1 882	47
$2.50 to $2.99	14 927	10 457	5 549	3 965	943	4 364	-	5 284	-	1 257	6 951	1 790	53
$3.00 to $3.99	32 112	19 906	10 121	6 790	2 995	11 939	-	7 515	-	1 062	19 548	4 655	48
$4.00 to $4.99	12 046	6 511	3 644	2 277	591	5 163	212	2 150	-	377	8 439	2 290	109
$5.00 to $5.99	4 627	2 896	1 251	1 337	309	1 522	47	615	-	98	3 737	505	-
$6.00 to $7.49	2 506	1 634	863	714	57	718	48	322	-	170	1 913	202	-
$7.50 or more	976	487	216	218	53	489	-	-	-	-	1 033	106	-
Not available[2]	9 959	5 903	3 629	1 600	674	2 811	51	2 804	-	553	4 671	749	323
Median ..... dollars	3.12	2.98	2.95	2.99	3.03	3.37	4.46	2.63	.00	2.45	3.46	3.18	1.25
FULL- OR PART-TIME EMPLOYMENT STATUS													
Male, full- or part-time employed	95 213	55 318	29 473	18 835	7 010	34 151	575	20 774	-	6 312	56 700	13 326	379
On full-time schedules	88 078	51 209	27 328	17 540	6 341	32 183	474	18 859	-	5 637	53 481	12 150	331
On part time for economic reasons	4 476	2 339	1 144	735	460	1 395	101	1 236	-	458	2 039	790	-
On part time for voluntary reasons	2 660	1 769	1 001	559	209	573	-	680	-	217	1 181	385	47
Female, full- or part-time employed	58 472	44 326	24 249	14 837	5 240	10 939	101	26 439	-	4 312	19 051	9 159	1 671
On full-time schedules	47 903	37 255	20 633	12 433	4 188	9 069	53	21 177	-	2 945	17 111	7 319	1 293
On part time for economic reasons	3 655	2 828	1 469	842	517	573	-	2 329	-	531	477	791	111
On part time for voluntary reasons	6 914	4 243	2 147	1 561	534	1 297	48	2 933	-	836	1 463	1 049	266

[1] More than one method may be used. [2] Not used in computing median.

Table 12a. Usual Place of Work and Method of Transportation, by Weekly and Hourly Earnings and by Full- or Part-Time Employment Status: White

(Limited to persons 16 to 64 years, not in school)

Weekly Earnings / Hourly Earnings / Full- or Part-Time Employment Status	Total employed	Usual place of work is same address each day						Method of transportation[1]					
		Within city limits				Outside city limits	Not available	Bus, trolley, or taxi	Subway or railroad	Walk	Drive alone, carpool, drive others	Ride with someone else	All other methods
		Total	Low-income area	Remainder of city	Not available								
WEEKLY EARNINGS OF FULL-TIME WAGE AND SALARY WORKERS													
Total	25 111	17 449	10 198	5 298	1 953	6 516	319	4 806	-	3 816	12 757	3 723	383
Less than $50	2 177	1 798	1 351	282	165	380	-	339	-	912	816	113	110
$50 to $64	1 197	1 082	799	57	226	56	59	581	-	113	332	283	-
$65 to $79	1 024	968	584	222	162	56	-	162	-	490	153	217	58
$80 to $89	797	741	532	152	57	56	-	210	-	110	202	325	-
$90 to $99	1 035	864	437	379	48	171	-	258	-	447	225	105	-
$100 to $124	3 884	2 955	1 381	1 136	438	871	-	1 212	-	374	1 866	427	-
$125 to $149	4 189	3 142	1 762	1 131	249	1 047	-	741	-	538	2 267	919	48
$150 to $174	3 748	2 048	988	671	390	1 545	97	484	-	394	2 159	718	-
$175 to $199	1 404	785	623	106	56	564	-	329	-	106	849	169	-
$200 to $299	3 093	1 726	795	769	162	993	164	379	-	114	2 326	166	-
$300 or more	623	395	168	227	-	228	-	56	-	56	510	56	-
Not available[2]	1 940	945	778	167	-	549	-	55	-	162	1 052	225	167
Median ..... dollars	137	127	125	132	120	158	203	118	0	103	153	133	49
HOURLY EARNINGS OF FULL-TIME WAGE AND SALARY WORKERS													
Total	25 111	17 449	10 198	5 298	1 953	6 516	319	4 806	-	3 816	12 757	3 723	383
Less than $1.25	2 350	1 970	1 409	340	221	380	-	339	-	1 027	874	113	110
$1.25 to $1.59	1 540	1 370	1 027	116	227	111	59	525	-	286	387	339	58
$1.60 to $1.79	267	210	48	56	105	57	-	162	-	-	105	56	-
$1.80 to $1.99	729	559	454	48	56	113	-	105	-	259	260	104	-
$2.00 to $2.49	2 240	1 797	1 049	529	219	443	-	362	-	677	724	582	-
$2.50 to $2.99	3 629	2 719	1 378	1 131	210	910	-	1 042	-	484	1 774	325	-
$3.00 to $3.99	6 924	4 879	2 534	1 705	640	1 987	-	1 563	-	591	3 616	1 370	48
$4.00 to $4.99	3 279	1 676	1 010	440	226	1 336	212	492	-	217	2 126	500	-
$5.00 to $5.99	1 266	817	286	482	49	287	-	105	-	-	1 106	111	-
$6.00 to $7.49	666	397	170	227	-	173	48	56	-	113	449	-	-
$7.50 or more	282	112	55	57	-	170	-	-	-	-	338	-	-
Not available[2]	1 940	945	778	167	-	549	-	55	-	162	995	225	167
Median ..... dollars	3.20	3.01	2.90	3.20	2.92	3.57	4.48	2.94	.00	2.41	3.55	3.17	1.22
FULL- OR PART-TIME EMPLOYMENT STATUS													
Male, full- or part-time employed	23 362	14 663	8 786	4 105	1 771	6 993	424	3 616	-	3 616	12 945	2 849	218
On full-time schedules	21 410	13 387	7 938	3 936	1 513	6 479	375	3 147	-	3 189	11 993	2 687	218
On part time for economic reasons	1 040	517	420	-	97	362	48	154	-	315	411	162	-
On part time for voluntary reasons	912	759	428	169	162	153	-	314	-	112	542	-	-
Female, full- or part-time employed	10 779	8 954	5 187	2 771	996	1 227	48	3 400	-	1 285	3 747	2 035	596
On full-time schedules	8 778	7 376	4 314	2 289	773	1 067	-	2 798	-	900	3 323	1 706	429
On part time for economic reasons	823	719	335	273	111	56	-	223	-	168	216	169	111
On part time for voluntary reasons	1 178	859	538	209	112	104	48	378	-	216	208	161	55

[1] More than one method may be used.

[2] Not used in computing median.

Table 12b. Usual Place of Work and Method of Transportation, by Weekly and Hourly Earnings and by Full- or Part-Time Employment Status: Negro

[Limited to persons 16 to 64 years, not in school]

Weekly Earnings / Hourly Earnings / Full- or Part-Time Employment Status	Total employed	Usual place of work is same address each day						Method of transportation[1]					
		Within city limits				Outside city limits	Not available	Bus, trolley, or taxi	Subway or railroad	Walk	Drive alone, carpool, drive others	Ride with someone else	All other methods
		Total	Low-income area	Remainder of city	Not available								
WEEKLY EARNINGS OF FULL-TIME WAGE AND SALARY WORKERS													
Total	81 892	52 693	27 276	18 694	6 723	27 354	151	27 106	-	3 004	43 392	10 924	716
Less than $50	4 045	2 653	1 360	929	364	1 341	-	1 857	-	315	1 308	620	250
$50 to $64	4 452	3 206	1 281	1 388	538	1 137	-	2 986	-	375	836	626	100
$65 to $79	4 810	3 922	2 455	1 195	273	732	-	2 802	-	263	1 268	827	-
$80 to $89	3 890	2 998	1 267	1 336	395	789	-	2 060	-	106	1 152	676	47
$90 to $99	5 236	3 702	1 879	1 437	386	1 430	53	2 017	-	226	2 417	524	-
$100 to $124	11 573	7 980	4 267	2 730	982	3 487	-	4 730	-	716	4 875	1 455	53
$125 to $149	13 176	8 320	3 825	3 080	1 415	4 805	-	2 978	-	260	8 167	2 393	53
$150 to $174	12 139	6 837	3 758	2 120	958	5 145	-	2 845	-	53	8 068	1 578	56
$175 to $199	4 760	2 520	1 556	700	263	2 240	-	898	-	104	3 546	744	-
$200 to $299	8 309	4 917	2 302	2 250	365	3 184	47	1 091	-	207	6 583	638	-
$300 or more	1 711	909	533	266	110	802	-	94	-	57	1 554	317	-
Not available[2]	7 791	4 730	2 793	1 263	674	2 263	51	2 749	-	324	3 618	524	156
Median ....dollars..	132	125	125	124	128	145	99	104	0	102	151	132	58
HOURLY EARNINGS OF FULL-TIME WAGE AND SALARY WORKERS													
Total	81 892	52 693	27 276	18 694	6 723	27 354	151	27 106	-	3 062	43 392	11 399	716
Less than $1.25	4 628	2 972	1 573	982	417	1 496	-	2 065	-	479	1 628	1 097	304
$1.25 to $1.59	4 414	3 319	1 339	1 395	585	1 095	-	2 739	-	365	889	832	47
$1.60 to $1.79	3 103	2 487	1 765	558	165	459	-	2 258	-	166	468	364	-
$1.80 to $1.99	2 582	1 994	1 001	789	204	536	-	987	-	165	1 165	265	-
$2.00 to $2.49	9 833	6 957	3 145	2 955	857	2 723	53	4 059	-	221	4 414	1 244	47
$2.50 to $2.99	10 957	7 455	4 058	2 664	733	3 396	-	4 242	-	716	5 008	1 353	53
$3.00 to $3.99	24 310	14 584	7 368	4 861	2 355	9 517	-	5 791	-	413	15 271	3 285	-
$4.00 to $4.99	8 492	4 617	2 528	1 724	365	3 771	-	1 496	-	104	6 256	1 733	109
$5.00 to $5.99	3 361	2 079	965	855	259	1 235	47	511	-	98	2 575	394	-
$6.00 to $7.49	1 726	1 123	579	487	57	545	-	210	-	57	1 406	202	-
$7.50 or more	694	375	161	161	53	320	-	-	-	-	694	106	-
Not available[2]	7 791	4 730	2 793	1 263	674	2 263	51	2 749	-	276	3 618	524	156
Median ....dollars..	3.10	2.96	2.96	2.92	3.07	3.32	2.47	2.55	.00	2.52	3.44	3.21	1.27
FULL- OR PART-TIME EMPLOYMENT STATUS													
Male, full- or part-time employed	69 919	39 554	20 031	14 334	5 190	26 439	151	16 730	-	2 476	42 528	10 306	161
On full-time schedules	64 952	36 882	18 790	13 265	4 828	25 042	98	15 283	-	2 278	40 373	9 349	113
On part time for economic reasons	3 274	1 717	724	679	314	976	53	1 081	-	94	1 571	572	-
On part time for voluntary reasons	1 692	955	518	390	47	421	-	366	-	104	584	385	47
Female, full- or part-time employed	46 435	34 226	18 531	11 508	4 186	9 712	53	22 556	-	2 743	15 037	7 010	1 075
On full-time schedules	37 981	28 847	15 846	9 643	3 358	8 002	53	17 953	-	1 762	13 579	5 500	864
On part time for economic reasons	2 832	2 109	1 134	569	406	517	-	2 106	-	362	261	623	-
On part time for voluntary reasons	5 622	3 270	1 552	1 296	423	1 194	-	2 498	-	619	1 197	888	211

[1] More than one method may be used.

[2] Not used in computing median.

Table 13. Cost of Public Transportation to Work: All Races

[Limited to persons 16 to 64 years, not in school]

Weekly Earnings Hourly Earnings Family Status	Total employed persons using public transportation	Cost of one-way transportation[1]							
		Less than $0.25	$0.25 to $0.49	$0.50 to $0.74	$0.75 to $0.99	$1.00 to $1.24	$1.25 to $1.49	$1.50 or more	Not available
WEEKLY EARNINGS OF FULL-TIME WAGE AND SALARY WORKERS									
Total	32 169	109	24 594	2 265	832	429	110	1 117	2 713
Less than $50	2 299	-	1 769	106	101	-	-	270	53
$50 to $64	3 620	53	2 129	590	102	159	-	55	532
$65 to $79	2 964	-	2 126	313	155	52	-	52	267
$80 to $89	2 270	55	1 958	51	-	-	-	53	152
$90 to $99	2 022	-	1 554	212	-	-	-	48	207
$100 to $124	5 186	-	4 162	359	104	-	56	210	295
$125 to $149	4 575	-	3 908	157	53	-	54	103	301
$150 to $174	3 164	-	2 360	164	205	-	-	106	330
$175 to $199	1 710	-	1 379	-	59	-	-	110	162
$200 to $299	1 421	-	1 211	49	-	-	-	-	160
$300 or more	464	-	355	-	-	-	-	56	53
Not available[2]	2 474	-	1 684	264	54	219	-	54	199
Median ... dollars	110	80	113	80	113	60	124	110	104
HOURLY EARNINGS OF FULL-TIME WAGE AND SALARY WORKERS									
Total	32 602	109	24 861	2 321	891	429	110	1 117	2 766
Less than $1.25	2 989	-	2 239	215	160	-	-	270	106
$1.25 to $1.59	3 317	53	1 935	537	49	105	-	55	583
$1.60 to $1.79	2 420	-	1 744	201	208	54	-	-	214
$1.80 to $1.99	783	-	514	112	-	52	-	52	53
$2.00 to $2.49	4 311	55	3 526	315	52	-	-	101	261
$2.50 to $2.99	5 029	-	4 056	254	51	-	-	266	402
$3.00 to $3.99	7 031	-	5 768	314	162	-	110	104	572
$4.00 to $4.99	3 194	-	2 497	108	155	-	-	216	218
$5.00 to $5.99	687	-	535	47	-	-	-	-	104
$6.00 to $7.49	310	-	256	-	-	-	-	-	53
$7.50 or more	162	-	162	-	-	-	-	-	-
Not available[2]	2 371	-	1 628	217	54	219	-	54	199
Median ... dollars	2.69	2.01	2.76	2.02	2.52	1.60	3.50	2.65	2.62
FAMILY STATUS									
Male, total	21 207	104	16 618	1 527	530	276	56	629	1 467
Family head	10 422	104	7 895	683	317	106	56	258	1 002
Family member	4 970	-	4 270	291	49	56	-	209	94
Unrelated individual	5 816	-	4 452	554	164	113	-	162	371
Female, total	26 439	103	19 388	1 929	1 095	318	105	1 259	2 242
Family head	4 884	-	3 563	472	214	53	-	53	529
No children under 18 years	1 541	-	905	262	110	53	-	-	212
Children 6 to 17 years only	1 844	-	1 422	157	53	-	-	-	211
Children under 6 years	1 499	-	1 236	53	51	-	-	53	106
Wife of head	9 460	-	7 338	637	208	108	-	525	644
No children under 18 years	4 791	-	3 505	531	53	56	-	267	378
Children 6 to 17 years only	2 262	-	1 630	53	155	51	-	107	266
Children under 6 years	2 407	-	2 203	53	-	-	-	151	-
Other family member	5 575	47	4 516	250	152	-	-	266	344
Unrelated individual	6 520	55	3 972	570	521	157	105	414	725

[1] More than one method may be used. [2] Not used in computing median.

Table 13a. Cost of Public Transportation to Work: White

[Limited to persons 16 to 64 years, not in school]

Weekly Earnings Hourly Earnings Family Status	Total employed persons using public transportation	Cost of one-way transportation[1]							
		Less than $0.25	$0.25 to $0.49	$0.50 to $0.74	$0.75 to $0.99	$1.00 to $1.24	$1.25 to $1.49	$1.50 or more	Not available
WEEKLY EARNINGS OF FULL-TIME WAGE AND SALARY WORKERS									
Total	4 806	55	3 676	78	-	-	56	501	440
Less than $50	339	-	169	-	-	-	-	170	-
$50 to $64	581	-	385	23	-	-	-	-	172
$65 to $79	162	-	106	-	-	-	-	-	56
$80 to $89	210	55	105	-	-	-	-	-	49
$90 to $99	209	-	106	55	-	-	-	48	-
$100 to $124	937	-	824	-	-	-	56	57	-
$125 to $149	1 008	-	904	-	-	-	-	55	49
$150 to $174	492	-	378	-	-	-	-	57	56
$175 to $199	378	-	321	-	-	-	-	57	-
$200 to $299	323	-	267	-	-	-	-	-	56
$300 or more	56	-	-	-	-	-	-	56	-
Not available[2]	112	-	112	-	-	-	-	-	-
Median ..... dollars	123	85	128	93	0	0	113	114	78
HOURLY EARNINGS OF FULL-TIME WAGE AND SALARY WORKERS									
Total	4 806	55	3 676	78	-	-	56	501	440
Less than $1.25	339	-	169	-	-	-	-	170	-
$1.25 to $1.59	525	-	329	23	-	-	-	-	172
$1.60 to $1.79	162	-	106	-	-	-	-	-	56
$1.80 to $1.99	-	-	-	-	-	-	-	-	-
$2.00 to $2.49	418	55	210	55	-	-	-	48	49
$2.50 to $2.99	826	-	713	-	-	-	-	112	-
$3.00 to $3.99	1 609	-	1 390	-	-	-	56	57	106
$4.00 to $4.99	712	-	542	-	-	-	-	114	56
$5.00 to $5.99	105	-	105	-	-	-	-	-	-
$6.00 to $7.49	-	-	-	-	-	-	-	-	-
$7.50 or more	56	-	56	-	-	-	-	-	-
Not available[2]	55	-	55	-	-	-	-	-	-
Median ..... dollars	3.08	2.25	3.22	2.15	.00	.00	3.50	2.64	1.77
FAMILY STATUS									
Male, total	3 616	-	2 855	209	-	-	56	227	268
Family head	1 429	-	1 202	-	-	-	56	56	115
Family member	845	-	634	97	-	-	-	114	-
Unrelated individual	1 342	-	1 019	113	-	-	-	57	153
Female, total	3 400	55	2 365	101	56	56	-	273	492
Family head	337	-	168	-	56	-	-	-	113
No children under 18 years	169	-	56	-	56	-	-	-	56
Children 6 to 17 years only	168	-	112	-	-	-	-	-	56
Children under 6 years	-	-	-	-	-	-	-	-	-
Wife of head	1 330	-	831	55	-	56	-	113	275
No children under 18 years	947	-	560	55	-	56	-	56	219
Children 6 to 17 years only	335	-	223	-	-	-	-	56	56
Children under 6 years	48	-	48	-	-	-	-	-	-
Other family member	557	-	500	-	-	-	-	57	-
Unrelated individual	1 176	55	867	46	-	-	-	104	105

[1] More than one method may be used. [2] Not used in computing median.

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Table 13b. Cost of Public Transportation to Work: Negro

[Limited to persons 16 to 64 years, not in school]

Weekly Earnings Hourly Earnings Family Status	Total employed persons using public transportation	Cost of one-way transportation[1]							
		Less than $0.25	$0.25 to $0.49	$0.50 to $0.74	$0.75 to $0.99	$1.00 to $1.24	$1.25 to $1.49	$1.50 or more	Not available
WEEKLY EARNINGS OF FULL-TIME WAGE AND SALARY WORKERS									
Total	26 673	-	20 432	2 187	786	429	54	617	2 169
Less than $50	1 857	-	1 542	106	55	-	-	100	53
$50 to $64	2 986	-	1 744	567	102	159	-	55	360
$65 to $79	2 802	-	2 020	313	155	52	-	52	210
$80 to $89	2 060	-	1 853	51	-	-	-	53	103
$90 to $99	1 813	-	1 448	157	-	-	-	-	207
$100 to $124	4 201	-	3 290	359	104	-	-	153	295
$125 to $149	3 405	-	2 891	157	53	-	54	47	203
$150 to $174	2 616	-	1 981	164	205	-	-	49	217
$175 to $199	1 275	-	1 001	-	59	-	-	53	162
$200 to $299	993	-	839	49	-	-	-	-	104
$300 or more	302	-	249	-	-	-	-	-	53
Not available[2]	2 363	-	1 573	264	54	219	-	54	199
Median ..... dollars	106	0	108	79	113	60	138	108	104
HOURLY EARNINGS OF FULL-TIME WAGE AND SALARY WORKERS									
Total	27 106	-	20 698	2 243	845	429	54	617	2 222
Less than $1.25	2 498	-	1 963	215	113	-	-	100	106
$1.25 to $1.59	2 739	-	1 606	514	49	105	-	55	411
$1.60 to $1.79	2 258	-	1 638	201	208	54	-	-	157
$1.80 to $1.99	783	-	514	112	-	52	-	52	53
$2.00 to $2.49	3 845	-	3 268	260	52	-	-	53	211
$2.50 to $2.99	4 146	-	3 285	254	51	-	-	153	402
$3.00 to $3.99	5 318	-	4 322	314	162	-	54	47	418
$4.00 to $4.99	2 320	-	1 849	108	155	-	-	102	106
$5.00 to $5.99	526	-	374	47	-	-	-	-	104
$6.00 to $7.49	253	-	200	-	-	-	-	-	53
$7.50 or more	106	-	106	-	-	-	-	-	-
Not available[2]	2 315	-	1 573	217	54	219	-	54	199
Median ..... dollars	2.60	.00	2.65	2.00	2.52	1.60	3.50	2.66	2.62
FAMILY STATUS									
Male, total	17 163	51	13 435	1 318	530	276	-	401	1 151
Family head	8 834	51	6 588	683	317	106	-	202	887
Family member	4 067	-	3 578	195	49	56	-	94	94
Unrelated individual	4 262	-	3 269	441	164	113	-	105	169
Female, total	22 556	47	16 643	1 828	992	262	105	985	1 694
Family head	4 547	-	3 395	472	157	53	-	53	416
No children under 18 years	1 372	-	849	262	53	53	-	-	155
Children 8 to 17 years only	1 676	-	1 310	157	53	-	-	-	155
Children under 6 years	1 499	-	1 236	53	51	-	-	53	106
Wife of head	7 959	-	6 335	582	208	51	-	413	370
No children under 18 years	3 673	-	2 774	476	53	-	-	210	159
Children 6 to 17 years only	1 927	-	1 407	53	155	51	-	51	210
Children under 6 years	2 359	-	2 154	53	-	-	-	151	-
Other family member	4 921	47	3 919	250	152	-	-	209	344
Unrelated individual	5 130	-	2 993	525	474	157	105	310	564

[1] More than one method may be used. [2] Not used in computing median.

Table 14. Persons Not in the Labor Force and Their Desire for Work: All Races

Age and Sex Family Status Educational Attainment	Total not in labor force	Desire for work							Worked in last 12 months		
		Want regular job now								Want regular job now[1]	
		Total	Intend to look for work	May look–it depends	Do not intend to look	May want a job–it depends	Would want a job if no problem	Do not want job even if no problem	Total	Total	Intend to look[2]
AGE AND SEX											
Total, 16 to 64 years	107 081	30 790	15 548	2 187	13 055	6 860	33 128	36 303	21 795	8 336	5 326
Male, total	26 218	7 531	3 850	371	3 310	1 989	5 365	11 334	7 624	2 365	1 456
16 to 21 years, total	6 992	2 377	1 662	-	715	619	331	3 664	2 427	998	808
16 to 21 years, not in school	1 427	380	237	-	143	48	191	808	523	142	142
22 to 34 years, total	3 737	1 154	694	102	358	372	633	1 578	1 659	364	364
22 to 34 years, veteran of Vietnam	504	153	57	-	96	95	104	152	199	-	-
25 to 34 years	2 735	724	453	54	217	277	442	1 292	1 181	172	172
35 to 44 years	2 971	1 222	393	53	776	228	728	792	1 116	385	115
45 to 54 years	4 650	1 822	770	102	950	279	1 614	934	979	271	169
55 to 64 years	7 868	955	331	114	510	490	2 058	4 365	1 444	347	-
40 to 64 years	13 976	3 388	1 263	216	1 908	769	4 068	5 751	2 925	782	169
Female, total	80 863	23 260	11 698	1 816	9 746	4 871	27 763	24 969	14 171	5 971	3 870
16 to 21 years, total	15 236	6 338	4 150	189	1 999	523	2 475	5 899	5 042	2 476	1 908
16 to 21 years, not in school	7 340	3 054	1 963	142	950	-	2 141	2 145	2 430	1 147	768
22 to 34 years	20 771	7 189	3 248	629	3 312	1 106	7 789	4 688	5 065	2 353	1 171
25 to 34 years	14 884	4 614	2 203	486	1 926	909	6 069	3 292	3 345	1 405	651
35 to 44 years	13 650	3 993	2 042	268	1 684	1 017	5 555	3 086	1 211	453	374
45 to 54 years	16 009	3 627	1 466	364	1 796	1 267	7 136	3 978	1 146	423	313
55 to 64 years	15 197	2 113	793	366	954	958	4 809	7 318	1 707	266	104
40 to 64 years	38 441	8 108	3 338	892	3 878	2 598	15 020	12 715	3 128	796	525
FAMILY STATUS[3]											
Male, total	19 866	5 375	2 316	371	2 688	1 371	5 168	7 952	5 519	1 509	790
Family head	7 934	1 916	701	159	1 086	418	2 162	3 409	2 391	776	168
Family member	4 665	1 561	824	100	637	332	902	1 869	1 325	397	286
Unrelated individual	7 267	1 868	791	112	965	621	2 103	2 675	1 803	336	336
Female, total	71 048	18 932	9 000	1 769	8 163	4 295	27 321	20 501	10 965	4 307	2 579
Family head	16 009	5 355	2 942	520	1 892	1 379	6 486	2 790	2 641	1 073	707
No children under 18 years	2 249	424	214	53	157	211	910	703	425	210	53
Children 6 to 17 years only	4 455	1 627	945	165	516	426	1 657	745	585	368	312
Children under 6 years	9 306	3 303	1 782	302	1 219	741	3 919	1 342	1 632	495	342
Wife of head	36 101	6 663	3 893	781	3 989	1 917	14 980	12 541	5 172	2 114	1 337
No children under 18 years	17 316	3 382	1 636	258	1 489	804	5 530	7 600	1 909	528	370
Children 6 to 17 years only	8 508	2 225	793	371	1 061	529	3 692	2 062	959	421	212
Children under 6 years	12 277	3 056	1 464	153	1 439	584	5 758	2 879	2 304	1 165	756
Other family member	9 744	2 757	1 162	148	1 447	367	3 456	3 164	2 237	863	331
Unrelated individual	7 193	2 157	1 004	319	834	632	2 399	2 005	915	257	205
EDUCATIONAL ATTAINMENT[3]											
Male, total	19 866	5 375	2 316	371	2 688	1 371	5 168	7 952	5 519	1 509	790
Elementary: 7 years or less	6 065	1 166	329	104	732	380	1 719	2 800	1 473	343	114
8 years	2 118	537	324	54	159	281	696	604	429	158	105
High school: 1 to 3 years	6 616	1 870	727	58	1 086	387	1 876	2 484	2 200	632	357
4 years	3 975	1 464	598	155	711	219	820	1 472	1 158	376	213
College: 1 year or more	1 092	339	339	-	-	105	56	593	258	-	-
Female, total	71 048	18 932	9 000	1 769	8 163	4 295	27 321	20 501	10 965	4 307	2 579
Elementary: 7 years or less	12 189	2 398	992	210	1 197	791	4 646	4 354	959	153	153
8 years	8 255	1 628	839	105	684	694	3 450	2 483	851	360	257
High school: 1 to 3 years	25 093	8 192	4 380	565	3 247	1 401	9 689	5 810	3 382	1 589	973
4 years	21 039	5 355	2 168	733	2 454	1 298	8 108	6 278	4 568	1 848	998
College: 1 year or more	4 473	1 359	621	156	581	111	1 428	1 575	1 204	356	198

[1] Excludes "May want job–it depends" and "Would want job."

[2] Excludes "May look for work."

[3] Persons 16 to 64 years, not in school.

Table 14a. Persons Not in the Labor Force and Their Desire for Work: White

Age and Sex Family Status Educational Attainment	Total not in labor force	Desire for work								
		Want regular job now							Worked in last 12 months	
		Total	Intend to look for work	May look–it depends	Do not intend to look	May want a job–it depends	Would want a job if no problem	Do not want job even if no problem	Total	Want regular job now[1] Total	Want regular job now[1] Intend to look[2]
AGE AND SEX											
Total, 16 to 64 years	25 418	5 140	2 180	503	2 456	1 555	9 556	9 167	5 153	1 564	726
Male, total	6 554	1 513	698	168	646	580	1 394	3 066	1 985	595	260
16 to 21 years, total	1 348	290	145	–	145	243	46	769	768	145	97
16 to 21 years, not in school	193	97	48	–	48	48	–	48	97	–	–
22 to 34 years, total	960	373	269	54	49	115	156	317	372	106	106
22 to 34 years, veteran of Vietnam	49	49	–	–	49	–	–	–	–	–	–
25 to 34 years	720	276	172	54	49	115	106	223	228	57	57
35 to 44 years	509	167	58	–	109	57	58	227	225	114	58
45 to 54 years	1 019	224	111	–	112	114	567	115	55	–	–
55 to 64 years	2 717	459	115	114	230	52	568	1 638	564	230	–
40 to 64 years	4 021	739	226	114	399	166	1 193	1 923	786	287	–
Female, total	18 864	3 627	1 482	335	1 810	975	8 161	6 100	3 168	969	465
16 to 21 years, total	2 219	674	433	–	241	48	533	964	863	286	191
16 to 21 years, not in school	1 166	388	193	–	194	–	484	294	243	97	48
22 to 34 years	4 356	1 423	547	168	708	211	1 772	951	1 029	491	274
25 to 34 years	2 804	843	450	168	224	112	1 288	561	786	394	226
35 to 44 years	2 :80	528	224	56	248	112	1 350	789	305	79	–
45 to 54 years	4 726	556	112	55	389	437	2 721	1 011	472	56	–
55 to 64 years	4 783	446	166	55	225	166	1 785	2 385	500	56	–
40 to 64 years	11 140	1 395	446	167	782	603	5 239	3 903	1 084	113	–
FAMILY STATUS[3]											
Male, total	5 249	1 270	601	168	500	386	1 348	2 245	1 267	450	164
Family head	2 007	451	113	56	281	52	612	892	618	285	57
Family member	808	318	154	–	164	105	58	326	212	59	–
Unrelated individual	2 435	501	334	112	55	229	678	1 027	437	106	106
Female, total	17 580	3 214	1 186	335	1 692	926	8 113	5 327	2 422	756	322
Family head	2 314	489	168	112	209	111	1 158	556	338	113	–
No children under 16 years	617	56	–	–	56	–	279	282	113	56	–
Children 6 to 17 years only	785	224	111	112	–	56	337	169	114	56	–
Children under 6 years	911	209	56	–	153	55	543	104	111	–	–
Wife of head	10 687	1 933	748	111	1 074	496	5 188	3 070	1 675	644	322
No children under 18 years	4 823	436	210	–	226	273	2 125	1 989	606	114	57
Children 6 to 17 years only	2 340	613	112	111	390	112	1 169	446	224	56	–
Children under 6 years	3 525	884	426	–	458	111	1 894	636	845	474	265
Other family member	1 810	153	–	–	153	106	776	775	112	–	–
Unrelated individual	2 769	639	271	111	257	213	991	927	298	–	–
EDUCATIONAL ATTAINMENT[3]											
Male, total	5 249	1 270	601	168	500	386	1 348	2 245	1 267	450	164
Elementary: 7 years or less	1 360	228	113	–	115	48	341	743	331	116	57
Elementary: 8 years	943	225	171	54	–	114	381	224	107	58	58
High school: 1 to 3 years	1 722	438	48	58	332	58	453	772	443	171	–
High school: 4 years	828	321	212	56	53	109	117	281	328	105	48
College: 1 year or more	396	58	58	–	–	57	56	226	58	–	–
Female, total	17 580	3 214	1 186	335	1 692	926	8 113	5 327	2 422	756	322
Elementary: 7 years or less	3 308	536	168	111	256	49	1 394	1 330	329	–	–
Elementary: 8 years	3 568	280	56	–	224	169	1 783	1 337	281	56	–
High school: 1 to 3 years	5 188	1 443	649	56	738	295	2 490	960	818	441	217
High school: 4 years	4 410	684	202	168	314	302	2 058	1 367	713	258	106
College: 1 year or more	1 105	272	111	–	161	111	389	334	282	–	–

[1] Excludes "May want job–it depends" and "Would want job."
[2] Excludes "May look for work."
[3] Persons 16 to 64 years, not in school.

Table 14b. Persons Not in the Labor Force and Their Desire for Work: Negro

Age and Sex Family Status Educational Attainment	Total not in labor force	Desire for work							Worked in last 12 months		
		Want regular job now								Want regular job now[1]	
		Total	Intend to look for work	May look–it depends	Do not intend to look	May want a job–it depends	Would want a job if no problem	Do not want job even if no problem	Total	Total	Intend to look[2]
AGE AND SEX											
Total, 18 to 64 years	79 681	25 397	13 264	1 683	10 450	5 088	23 191	26 005	16 270	6 725	4 600
Male, total	18 963	5 970	3 104	202	2 664	1 351	3 913	7 729	5 475	1 770	1 196
18 to 21 years, total	5 547	2 039	1 469	-	570	377	285	2 847	1 610	853	711
18 to 21 years, not in school	1 233	283	189	-	94	-	191	759	427	142	142
22 to 34 years, total	2 517	781	425	47	309	257	477	1 001	1 286	258	258
22 to 34 years, veteran of Vietnam	406	104	57	-	47	95	104	104	199	-	-
25 to 34 years	1 853	449	281	-	168	162	336	906	953	114	114
35 to 44 years	2 346	1 055	335	53	667	114	670	507	833	271	57
45 to 54 years	3 516	1 599	659	102	838	166	990	762	866	271	169
55 to 64 years	5 037	496	216	-	280	438	1 490	2 613	879	117	-
40 to 64 years	9 668	2 649	1 037	102	1 509	603	2 818	3 598	2 023	496	169
Female, total	60 718	19 427	10 160	1 481	7 786	3 737	19 278	18 275	10 795	4 955	3 405
16 to 21 years, total	12 727	5 569	3 717	189	1 663	427	1 943	4 788	4 084	2 143	1 716
18 to 21 years, not in school	6 125	2 667	1 770	142	756	-	1 656	1 802	2 187	1 050	720
22 to 34 years	15 982	5 656	2 645	461	2 550	895	5 806	3 625	3 924	1 863	897
25 to 34 years	11 744	3 662	1 697	317	1 648	797	4 667	2 619	2 447	1 011	425
35 to 44 years	10 758	3 465	1 817	212	1 436	905	4 092	2 297	907	374	374
45 to 54 years	11 117	3 071	1 354	309	1 407	775	4 415	2 857	675	366	313
55 to 64 years	10 135	1 667	627	310	730	736	3 023	4 708	1 207	209	104
40 to 64 years	26 799	6 713	2 892	725	3 095	1 885	9 726	8 476	2 044	683	525
FAMILY STATUS[3]											
Male, total	14 224	4 105	1 715	202	2 188	927	3 762	5 430	4 136	1 059	626
Family head	5 814	1 495	587	102	805	365	1 493	2 460	1 773	490	110
Family member	3 751	1 243	670	100	473	169	844	1 494	1 113	339	286
Unrelated individual	4 659	1 366	457	-	910	393	1 425	1 475	1 251	230	230
Female, total	52 483	15 608	7 757	1 434	6 417	3 258	18 884	14 733	8 430	3 550	2 257
Family head	13 639	4 809	2 718	408	1 683	1 267	5 328	2 235	2 304	960	707
No children under 18 years	1 632	368	214	53	100	211	632	421	312	154	53
Children 6 to 17 years only	3 669	1 403	834	53	516	370	1 320	576	471	312	312
Children under 6 years	8 338	3 038	1 670	302	1 066	686	3 376	1 238	1 521	495	342
Wife of head	26 703	6 676	3 144	670	2 862	1 365	9 526	9 135	3 441	1 470	1 015
No children under 18 years	12 110	2 892	1 425	258	1 209	476	3 355	5 387	1 303	415	312
Children 6 to 17 years only	6 000	1 612	681	259	672	416	2 411	1 561	679	365	212
Children under 6 years	8 592	2 172	1 038	153	981	473	3 760	2 187	1 460	691	491
Other family member	7 717	2 604	1 162	148	1 295	206	2 623	2 284	2 069	863	331
Unrelated individual	4 424	1 519	733	208	578	419	1 408	1 079	616	257	205
EDUCATIONAL ATTAINMENT[3]											
Male, total	14 224	4 105	1 715	202	2 188	927	3 762	5 430	4 136	1 059	626
Elementary: 7 years or less	4 647	937	216	104	617	331	1 378	2 000	1 141	227	57
8 years	1 117	312	153	-	159	109	315	380	322	100	47
High school: 1 to 3 years	4 760	1 432	679	-	753	329	1 365	1 654	1 700	461	357
4 years	3 041	1 143	386	98	658	110	703	1 085	772	271	165
College: 1 year or more	639	281	281	-	-	48	-	311	201	-	-
Female, total	52 483	15 608	7 757	1 434	6 417	3 258	18 884	14 733	8 430	3 550	2 257
Elementary: 7 years or less	8 600	1 863	823	98	941	686	3 082	2 969	630	153	153
8 years	4 686	1 348	783	105	460	526	1 667	1 146	570	304	257
High school: 1 to 3 years	19 640	6 693	3 675	509	2 509	1 050	7 151	4 745	2 565	1 148	757
4 years	16 348	4 671	1 965	565	2 141	996	6 050	4 631	3 799	1 590	892
College: 1 year or more	3 208	1 033	510	156	367	-	934	1 241	867	356	198

[1] Excludes "May want job–it depends" and "Would want job."
[2] Excludes "May look for work."
[3] Persons 16 to 64 years, not in school.

Table 15. Persons Not in the Labor Force Who Want, Might Want, or Would Want a Regular Job Now, and Reason Not Seeking Work: All Races

Age and Sex Family Status Educational Attainment	Total not in labor force who indicate desire for work	Reasons not looking for work							
		Main reason						Secondary reason	
		Family responsibilities	Poor health, illness, or disability	Inability to find work	Transportation problems	Employers think too young or too old	Lack of skill, experience, or education	All other reasons	Inability to find work	Lack of skill, experience, or education
AGE AND SEX									
Total, 16 to 64 years	74 913	24 944	24 139	1 864	161	703	3 869	19 233	10 641	9 623
Male, total	15 042	166	8 119	457	-	343	664	5 295	2 699	704
16 to 21 years, total	3 375	-	-	190	-	190	-	2 995	713	47
16 to 21 years, not in school	666	-	-	143	-	190	-	333	286	-
22 to 34 years, total	2 159	56	964	209	-	94	268	567	424	110
22 to 34 years, veteran of Vietnam	352	-	48	47	-	-	-	257	161	-
25 to 34 years	1 444	56	725	114	-	-	172	376	282	110
35 to 44 years	2 179	53	1 729	57	-	-	112	227	505	110
45 to 54 years	3 716	56	2 827	-	-	-	114	718	558	275
55 to 64 years	3 614	-	2 599	-	-	59	169	788	499	162
40 to 64 years	8 336	56	6 318	-	-	59	283	1 620	1 335	436
Female, total	59 870	24 778	16 020	1 407	161	360	3 205	13 938	7 942	8 920
16 to 21 years, total	9 433	2 861	668	337	-	94	527	4 945	2 477	865
16 to 21 years, not in school	5 291	2 861	668	337	-	47	478	899	1 520	865
22 to 34 years	16 880	10 166	2 244	266	53	-	933	3 219	2 190	2 497
25 to 34 years	12 292	7 300	1 717	219	53	-	646	2 357	1 379	2 065
35 to 44 years	11 421	6 550	2 752	266	-	55	538	1 260	1 335	2 143
45 to 54 years	13 355	4 141	5 245	377	-	-	885	2 707	1 311	1 971
55 to 64 years	8 782	1 061	5 112	161	108	211	321	1 808	629	1 444
40 to 64 years	28 329	8 583	11 928	804	108	266	1 531	5 110	2 637	4 436
FAMILY STATUS[1]									
Male, total	12 071	166	8 119	409	-	343	607	2 427	2 272	656
Family head	4 579	109	3 210	114	-	-	107	1 038	594	487
Family member	2 843	56	1 548	143	-	343	106	647	825	-
Unrelated individual	4 650	-	3 361	152	-	-	394	742	853	170
Female, total	54 523	24 620	16 020	1 407	161	313	3 049	8 953	6 932	8 920
Family head	13 633	6 595	4 337	412	53	-	984	1 252	2 114	2 566
No children under 18 years	1 597	161	966	161	-	-	106	203	-	159
Children 6 to 17 years only	3 818	1 584	1 599	53	-	-	212	370	671	795
Children under 6 years	8 218	4 850	1 771	198	53	-	666	680	1 443	1 612
Wife of head	28 754	15 010	5 853	701	108	266	1 406	5 411	2 271	4 681
No children under 18 years	11 275	3 280	4 184	333	108	266	525	2 579	794	1 715
Children 6 to 17 years only	7 139	3 961	953	268	-	-	526	1 431	626	1 192
Children under 6 years	10 340	7 769	716	100	-	-	355	1 401	851	1 774
Other family member	6 841	2 539	2 013	195	-	47	342	1 705	1 657	770
Unrelated individual	5 295	476	3 818	99	-	-	318	585	890	902
EDUCATIONAL ATTAINMENT[1]									
Male, total	12 071	166	8 119	409	-	343	607	2 427	2 272	656
Elementary: 7 years or less	3 422	-	2 497	57	-	47	116	705	603	169
8 years	1 515	-	1 138	47	-	-	160	169	276	215
High school: 1 to 3 years	4 132	109	2 390	153	-	296	273	911	794	110
4 years	2 503	-	1 821	152	-	-	58	471	427	162
College: 1 year or more	499	56	271	-	-	-	-	172	171	-
Female, total	54 523	24 620	16 020	1 407	161	313	3 049	8 953	6 932	8 920
Elementary: 7 years or less	8 636	2 709	3 911	-	55	53	420	1 487	790	2 030
8 years	6 422	2 473	2 198	51	53	102	476	1 069	928	1 198
High school: 1 to 3 years	20 427	10 315	5 046	528	-	53	1 600	2 885	2 974	3 610
4 years	15 824	8 170	3 758	673	53	104	398	2 668	1 934	1 770
College: 1 year or more	3 214	952	1 107	155	-	-	155	845	305	312

[1] Persons 16 to 64 years, not in school.

Table 15a. **Persons Not in the Labor Force Who Want, Might Want, or Would Want a Regular Job Now, and Reason Not Seeking Work: White**

Age and Sex Family Status Educational Attainment	Total not in labor force who indicate desire for work	Reasons not looking for work								
		Main reason							Secondary reason	
		Family responsibilities	Poor health, illness, or disability	Inability to find work	Transportation problems	Employers think too young or too old	Lack of skill, experience, or education	All other reasons	Inability to find work	Lack of skill, experience, or education
AGE AND SEX										
Total, 16 to 64 years	17 139	6 422	5 615	492	-	48	866	3 696	1 570	2 806
Male, total	3 487	56	1 791	154	-	48	281	1 156	596	108
16 to 21 years, total	579	-	-	48	-	48	-	482	143	-
16 to 21 years, not in school	145	-	-	48	-	48	-	48	48	-
22 to 34 years, total	643	-	381	106	-	-	107	49	168	-
22 to 34 years, veteran of Vietnam	49	-	-	-	-	-	-	49	-	-
25 to 34 years	497	-	332	57	-	-	58	49	168	-
35 to 44 years	282	-	167	-	-	-	58	57	-	-
45 to 54 years	904	56	620	-	-	-	-	227	57	56
55 to 64 years	1 079	-	623	-	-	-	116	340	227	52
40 to 64 years	2 098	56	1 358	-	-	-	116	567	285	108
Female, total	13 652	6 366	3 823	338	-	-	585	2 540	974	2 698
16 to 21 years, total	1 303	629	48	-	-	-	146	479	388	194
16 to 21 years, not in school	920	629	48	-	-	-	146	97	194	194
22 to 34 years	3 575	2 556	214	113	-	-	217	475	195	946
25 to 34 years	2 413	1 683	166	113	-	-	168	282	-	898
35 to 44 years	2 103	1 292	506	-	-	-	56	249	-	338
45 to 54 years	3 995	1 555	1 491	168	-	-	55	726	281	720
55 to 64 years	2 676	334	1 564	56	-	-	111	612	111	500
40 to 64 years	7 851	2 562	3 336	225	-	-	222	1 507	392	1 445
FAMILY STATUS[1]										
Male, total	3 004	56	1 791	154	-	48	281	673	501	108
Family head	1 115	56	716	57	-	-	-	285	57	108
Family member	481	-	220	48	-	48	59	106	221	-
Unrelated individual	1 408	-	855	48	-	-	223	282	223	-
Female, total	13 142	6 366	3 823	338	-	-	585	2 030	781	2 698
Family head	1 862	1 096	447	-	-	-	104	214	48	557
No children under 18 years	335	112	223	-	-	-	-	-	-	-
Children 6 to 17 years only	672	226	224	-	-	-	56	166	-	224
Children under 6 years	855	759	-	-	-	-	48	48	48	334
Wife of head	8 348	4 795	1 459	338	-	-	320	1 436	313	1 751
No children under 18 years	3 285	1 098	1 125	227	-	-	48	788	216	500
Children 6 to 17 years only	2 062	1 226	279	111	-	-	111	334	-	612
Children under 6 years	3 001	2 472	55	-	-	-	161	313	97	639
Other family member	1 035	370	505	-	-	-	-	160	106	55
Unrelated individual	1 896	105	1 412	-	-	-	160	220	313	334
EDUCATIONAL ATTAINMENT[1]										
Male, total	3 004	56	1 791	154	-	48	281	673	501	108
Elementary: 7 years or less	618	-	341	57	-	-	59	161	59	56
8 years	720	-	500	-	-	-	107	112	168	-
High school: 1 to 3 years	949	56	454	48	-	48	58	285	161	-
4 years	547	-	441	48	-	-	58	-	114	52
College: 1 year or more	171	-	56	-	-	-	-	114	-	-
Female, total	13 142	6 366	3 823	338	-	-	585	2 030	781	2 698
Elementary: 7 years or less	2 148	938	554	-	-	-	168	489	167	505
8 years	2 509	1 176	785	-	-	-	55	493	56	726
High school: 1 to 3 years	4 332	2 390	1 080	168	-	-	264	430	355	981
4 years	3 326	1 640	1 016	170	-	-	48	452	153	377
College: 1 year or more	827	222	389	-	-	-	49	167	49	109

[1] Persons 16 to 64 years, not in school.

Table 15b. Persons Not in the Labor Force Who Want, Might Want, or Would Want a Regular Job Now, and Reason Not Seeking Work: Negro

Age and Sex Family Status Educational Attainment	Total not in labor force who indicate desire for work	Reasons not looking for work								
		Main reason							Secondary reason	
		Family responsibilities	Poor health, illness, or disability	Inability to find work	Transportation problems	Employers think too young or too old	Lack of skill, experience, or education	All other reasons	Inability to find work	Lack of skill, experience, or education
AGE AND SEX										
Total, 16 to 64 years	56 809	18 305	18 305	1 372	106	655	3 003	15 064	9 071	6 656
Male, total	11 334	109	6 269	303	-	295	382	3 976	2 103	595
18 to 21 years, total	2 748	-	-	142	-	142	-	2 465	570	47
18 to 21 years, not in school	521	-	-	94	-	142	-	285	238	-
22 to 34 years, total	1 516	56	583	104	-	94	161	517	256	110
22 to 34 years, veteran of Vietnam	303	-	48	47	-	-	-	208	161	-
25 to 34 years	947	56	393	57	-	-	114	327	114	110
35 to 44 years	1 838	53	1 504	57	-	-	54	170	505	110
45 to 54 years	2 755	-	2 207	-	-	-	114	434	501	218
55 to 64 years	2 477	-	1 975	-	-	59	53	390	272	109
40 to 64 years	6 124	-	4 960	-	-	59	167	938	1 050	328
Female, total	45 476	18 196	12 036	1 069	106	360	2 620	11 088	6 968	6 061
18 to 21 years, total	7 986	2 232	619	337	-	94	381	4 322	2 089	671
18 to 21 years, not in school	4 370	2 232	619	337	-	47	332	803	1 326	671
22 to 34 years	12 984	7 505	1 924	153	53	-	716	2 633	1 995	1 501
25 to 34 years	9 656	5 560	1 495	106	53	-	478	1 964	1 379	1 167
35 to 44 years	9 206	5 146	2 246	266	-	55	482	1 011	1 335	1 749
45 to 54 years	9 250	2 586	3 699	209	-	-	830	1 926	1 030	1 251
55 to 64 years	6 050	727	3 548	104	53	211	211	1 196	518	889
40 to 64 years	20 256	5 965	8 536	580	53	266	1 309	3 548	2 245	2 936
FAMILY STATUS[1]										
Male, total	8 894	109	6 269	255	-	295	326	1 640	1 771	548
Family head	3 407	53	2 494	57	-	-	107	695	536	378
Family member	2 304	56	1 270	94	-	295	47	541	605	-
Unrelated individual	3 184	-	2 506	104	-	-	171	403	630	170
Female, total	40 783	18 037	12 036	1 069	106	313	2 464	6 757	6 152	6 061
Family head	11 715	5 499	3 833	412	53	-	879	1 038	2 066	2 009
No children under 18 years	1 262	49	743	161	-	-	106	203	-	159
Children 6 to 17 years only	3 147	1 359	1 375	53	-	-	156	204	671	571
Children under 6 years	7 306	4 091	1 715	198	53	-	618	631	1 395	1 278
Wife of head	19 976	9 998	4 345	363	53	266	1 085	3 866	1 958	2 769
No children under 18 years	7 831	2 183	3 010	106	53	266	476	1 737	577	1 111
Children 6 to 17 years only	4 910	2 623	674	157	-	-	415	1 042	626	524
Children under 6 years	7 235	5 192	660	100	-	-	195	1 087	754	1 135
Other family member	5 694	2 169	1 453	195	-	47	342	1 488	1 551	715
Unrelated individual	3 399	371	2 406	99	-	-	158	365	577	568
EDUCATIONAL ATTAINMENT[1]										
Male, total	8 894	109	6 269	255	-	295	326	1 640	1 771	548
Elementary: 7 years or less	2 747	-	2 156	-	-	47	57	486	544	113
8 years	737	-	580	47	-	-	53	56	108	215
High school: 1 to 3 years	3 126	53	1 937	104	-	247	216	569	634	110
4 years	1 956	-	1 381	104	-	-	-	471	314	110
College: 1 year or more	329	56	215	-	-	-	-	57	171	-
Female, total	40 783	18 037	12 036	1 069	106	313	2 464	6 757	6 152	6 061
Elementary: 7 years or less	6 208	1 659	3 358	-	-	53	252	885	623	1 413
8 years	3 914	1 297	1 414	51	53	102	420	576	872	472
High school: 1 to 3 years	15 936	7 877	3 855	360	-	53	1 336	2 454	2 620	2 629
4 years	12 498	6 529	2 742	503	53	104	350	2 216	1 781	1 393
College: 1 year or more	2 228	674	668	155	-	-	106	624	256	153

[1] Persons 18 to 64 years, not in school.

Table 16. When Persons Not in the Labor Force Last Worked at a Regular Job: All Races

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force	When last worked									
							Want job and intend to took					
		Worked in last 12 months	Worked from 1 to 3 years ago	Worked from 3 to 5 years ago	Worked 5 or more years ago [1]	Never worked [1]	Total	Worked in last 12 months	Worked from 1 to 3 years ago	Worked from 3 to 5 years ago	Worked 5 or more years ago [1]	Never worked [1]
AGE AND SEX												
Total, 16 to 64 years	107 081	21 795	23 067	6 236	32 040	23 944	15 548	5 326	4 424	629	2 221	2 949
Male, total	26 218	7 624	7 026	1 532	5 531	4 505	3 850	1 456	1 282	105	326	682
16 to 21 years, total	6 992	2 427	856	47	144	3 519	1 662	808	285	-	-	569
16 to 21 years, not in school	1 427	523	285	-	47	571	237	142	47	-	-	48
22 to 34 years, total	3 737	1 659	1 222	48	333	475	694	364	168	48	114	-
22 to 34 years, veteran of Vietnam	504	199	143	-	57	105	57	-	-	-	57	-
25 to 34 years	2 735	1 181	940	-	284	330	453	172	168	-	114	-
35 to 44 years	2 971	1 116	625	283	777	170	393	115	171	56	51	-
45 to 54 years	4 650	979	1 388	496	1 503	284	770	169	381	-	108	113
55 to 64 years	7 868	1 444	2 936	657	2 775	56	331	-	278	-	53	-
40 to 64 years	13 976	2 925	4 552	1 378	4 723	398	1 263	169	713	56	212	113
Female, total	80 863	14 171	16 040	4 703	26 509	19 439	11 698	3 870	3 142	524	1 895	2 268
16 to 21 years, total	15 236	5 042	2 773	383	335	6 703	4 150	1 908	817	49	47	1 329
16 to 21 years, not in school	7 340	2 430	1 720	286	335	2 568	1 963	768	576	49	47	522
22 to 34 years, total	20 771	5 065	5 052	1 182	4 080	5 391	3 248	1 171	886	153	470	567
25 to 34 years	14 884	3 345	3 426	795	3 554	3 763	2 203	651	694	106	423	329
35 to 44 years	13 650	1 211	2 902	1 174	5 068	3 294	2 042	374	859	109	539	161
45 to 54 years	16 009	1 146	2 871	946	8 493	2 552	1 466	313	424	104	469	156
55 to 64 years	15 197	1 707	2 441	1 018	8 532	1 499	793	104	156	109	368	55
40 to 64 years	38 441	3 128	6 717	2 816	20 052	5 729	3 338	525	1 067	266	1 217	264
FAMILY STATUS [2]												
Male, total	19 866	5 519	6 359	1 485	5 325	1 177	2 316	790	1 044	105	273	105
Family head	7 934	2 391	2 693	692	2 046	113	701	168	480	-	53	-
Family member	4 665	1 325	1 219	619	714	789	824	286	221	105	108	105
Unrelated individual	7 267	1 803	2 448	174	2 566	276	791	336	343	-	112	-
Female, total	71 048	10 965	14 536	4 552	26 243	14 752	9 000	2 579	2 743	524	1 842	1 312
Family head	16 009	2 641	3 213	1 360	5 514	3 280	2 942	707	929	262	832	211
No children under 18 years	2 249	425	322	159	1 071	272	214	53	108	53	-	-
Children 6 to 17 years only	4 455	585	794	215	1 745	1 116	945	312	264	53	259	56
Children under 6 years	9 306	1 632	2 098	986	2 698	1 892	1 782	342	556	156	573	155
Wife of head	38 101	5 172	6 815	2 292	15 885	7 937	3 893	1 337	1 195	102	691	567
No children under 18 years	17 316	1 909	2 831	900	8 581	3 096	1 636	370	582	102	321	260
Children 6 to 17 years only	8 508	959	1 433	529	4 141	1 446	793	212	263	-	319	-
Children under 6 years	12 277	2 304	2 551	864	3 163	3 395	1 464	756	350	-	51	307
Other family member	9 744	2 237	2 428	365	1 812	2 903	1 162	331	195	53	106	478
Unrelated individual	7 193	915	2 079	535	3 032	633	1 004	205	424	107	213	55
EDUCATIONAL ATTAINMENT [3]												
Male, total	19 866	5 519	6 359	1 485	5 325	1 177	2 316	790	1 044	105	273	105
Elementary: 7 years or less	6 065	1 473	1 817	716	1 783	276	329	114	107	56	51	-
8 years	2 118	429	704	110	828	47	324	105	110	-	108	-
High school: 1 to 3 years	6 616	2 200	1 820	222	1 776	598	727	357	322	-	-	48
4 years	3 975	1 158	1 572	386	602	256	598	213	280	48	-	56
College: 1 year or more	1 092	258	445	51	337	-	339	-	225	-	114	-
Female, total	71 048	10 965	14 536	4 552	26 243	14 752	9 000	2 579	2 743	524	1 842	1 312
Elementary: 7 years or less	12 189	959	1 861	641	5 607	3 121	992	153	159	56	364	260
8 years	8 255	851	1 232	422	3 999	1 752	839	257	159	53	314	56
High school: 1 to 3 years	25 093	3 382	5 307	1 869	8 972	5 563	4 380	973	1 502	306	897	702
4 years	21 039	4 568	5 344	1 249	6 438	3 440	2 168	998	658	53	212	247
College: 1 year or more	4 473	1 204	792	372	1 228	876	621	198	265	55	55	47
MAJOR OCCUPATION GROUP [2]												
Total, previously employed	43 416	16 484	20 895	6 037	-	-	7 784	3 369	3 787	629	-	-
Professional and technical	1 563	739	668	156	-	-	149	102	47	-	-	-
Managerial and administrative	1 078	432	542	104	-	-	215	53	161	-	-	-
Sales	1 779	620	943	217	-	-	469	158	256	55	-	-
Clerical	7 986	3 972	3 431	583	-	-	1 646	991	555	100	-	-
Craftsmen and foremen	2 130	1 296	672	162	-	-	267	162	53	53	-	-
Operatives, except transportation	8 758	2 501	4 903	1 354	-	-	1 229	316	861	51	-	-
Transport equipment operatives	1 143	490	441	212	-	-	267	161	57	48	-	-
Laborers, except farm	3 037	1 040	1 565	432	-	-	643	153	385	105	-	-
Service workers, except private household	12 210	4 549	5 844	1 816	-	-	2 362	1 166	1 143	53	-	-
Private household workers	3 631	845	1 886	899	-	-	537	106	269	162	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	100	-	-	100	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1] Occupation groups not available for this category. [2] Persons 16 to 64 years, not in school.

Table 16. **When Persons Not in the Labor Force Last Worked at a Regular Job: All Races**—Continued

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force	When last worked									
		Worked in last 12 months	Worked from 1 to 3 years ago	Worked from 3 to 5 years ago	Worked 5 or more years ago[1]	Never worked[1]	Want job and intend to took				
							Total	Worked in last 12 months	Worked from 1 to 3 years ago	Worked from 3 to 5 years ago	Worked 5 or more years ago[1]	Never worked[1]
MAJOR OCCUPATION GROUP[1]—Continued												
Male, previously employed	13 363	5 519	6 359	1 485	-	-	1 938	790	1 044	105	-	-
Professional and technical	47	-	47	-	-	-	-	-	-	-	-	-
Managerial and administrative	499	221	227	51	-	-	57	-	57	-	-	-
Sales	270	106	164	-	-	-	53	-	53	-	-	-
Clerical	716	262	343	111	-	-	48	48	-	-	-	-
Craftsmen and foremen	1 761	1 144	507	110	-	-	167	114	53	-	-	-
Operatives, except transportation	3 856	1 149	2 277	430	-	-	548	59	489	-	-	-
Transport equipment operatives	1 143	490	441	212	-	-	267	161	57	48	-	-
Laborers, except farm	2 223	795	1 204	224	-	-	489	153	279	56	-	-
Service workers, except private household	2 849	1 352	1 149	347	-	-	309	254	56	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, previously employed	30 053	10 965	14 536	4 552	-	-	5 846	2 579	2 743	524	-	-
Professional and technical	1 516	739	621	156	-	-	149	102	47	-	-	-
Managerial and administrative	579	211	315	53	-	-	157	53	104	-	-	-
Sales	1 509	513	778	217	-	-	416	158	203	55	-	-
Clerical	7 270	3 709	3 089	473	-	-	1 598	943	555	100	-	-
Craftsmen and foremen	370	152	165	53	-	-	100	47	-	53	-	-
Operatives, except transportation	4 902	1 352	2 626	924	-	-	681	258	372	51	-	-
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm	814	245	361	208	-	-	155	-	106	49	-	-
Service workers, except private household	9 361	3 197	4 695	1 469	-	-	2 053	912	1 088	53	-	-
Private household workers	3 631	845	1 886	899	-	-	537	106	269	162	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	100	-	-	100	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1]Occupation groups not available for this category.

[1]Persons 16 to 64 years, not in school.

Table 16a. When Persons Not in the Labor Force Last Worked at a Regular Job: White

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force	When last worked										
		Worked in last 12 months	Worked from 1 to 3 years ago	Worked from 3 to 5 years ago	Worked 5 or more years ago[1]	Never worked[1]	Want job and intend to took					
							Total	Worked in last 12 months	Worked from 1 to 3 years ago	Worked from 3 to 5 years ago	Worked 5 or more years ago[1]	Never worked[1]
AGE AND SEX												
Total, 16 to 64 years	25 418	5 153	5 275	1 137	9 229	4 623	2 180	726	648	160	278	369
Male, total	6 554	1 985	1 956	280	1 678	656	698	260	286	48	55	48
18 to 21 years, total	1 348	768	46	-	49	484	145	97	-	-	-	48
18 to 21 years, not in school	193	97	-	-	-	97	48	-	-	-	-	48
22 to 34 years, total	960	372	437	48	48	54	269	106	115	48	-	-
22 to 34 years, veteran of Vietnam	49	-	49	-	-	-	-	-	-	-	-	-
26 to 34 years	720	228	437	-	-	54	172	57	115	-	-	-
35 to 44 years	509	225	57	-	170	57	58	58	-	-	-	-
45 to 54 years	1 019	55	342	56	505	60	111	-	56	-	55	-
55 to 64 years	2 717	564	1 073	175	905	-	115	-	115	-	-	-
40 to 64 years	4 021	786	1 416	231	1 527	60	226	-	171	-	55	-
Female, total	18 864	3 168	3 319	858	7 551	3 968	1 482	465	362	111	223	320
18 to 21 years, total	2 219	863	627	48	49	631	433	191	145	-	-	97
18 to 21 years, not in school	1 166	243	436	48	49	390	193	48	97	-	-	48
22 to 34 years, total	4 356	1 029	885	195	1 091	1 157	547	274	105	-	-	168
26 to 34 years	2 804	786	449	-	898	672	450	226	56	-	-	168
35 to 44 years	2 780	305	395	112	1 126	842	224	-	56	56	112	-
45 to 54 years	4 726	472	634	223	2 616	781	112	-	56	-	55	-
55 to 64 years	4 783	500	777	279	2 669	557	166	-	-	55	55	55
40 to 64 years	11 140	1 084	1 637	559	6 018	1 843	446	-	113	55	223	55
FAMILY STATUS[2]												
Male, total	5 249	1 267	1 861	280	1 629	214	601	164	286	48	55	48
Family head	2 007	618	663	115	611	-	113	57	56	-	-	-
Family member	808	212	229	107	106	154	154	-	57	48	-	48
Unrelated individual	2 435	437	969	58	912	60	334	106	173	-	55	-
Female, total	17 580	2 422	3 071	858	7 551	3 678	1 186	322	258	111	223	272
Family head	2 314	338	208	209	950	609	168	-	-	56	55	56
No children under 18 years	617	113	56	-	280	168	-	-	-	-	-	-
Children 6 to 17 years only	785	114	-	56	336	280	111	-	-	-	55	56
Children under 6 years	911	111	152	153	335	161	56	-	-	56	-	-
Wife of head	10 687	1 675	1 822	320	4 563	2 307	748	322	153	-	112	161
No children under 18 years	4 823	606	716	113	2 358	1 030	210	57	105	-	-	48
Children 6 to 17 years only	2 340	224	278	111	1 334	393	112	-	-	-	112	-
Children under 6 years	3 525	845	828	97	872	884	426	265	48	-	-	112
Other family member	1 810	112	320	106	728	544	-	-	-	-	-	-
Unrelated individual	2 769	298	721	223	1 310	218	271	-	105	55	55	55
EDUCATIONAL ATTAINMENT[2]												
Male, total	5 249	1 267	1 861	280	1 629	214	601	164	286	48	55	48
Elementary: 7 years or less	1 360	331	454	116	342	117	113	57	56	-	-	-
8 years	943	107	383	59	395	-	171	58	58	-	55	-
High school: 1 to 3 years	1 722	443	510	56	616	97	48	-	-	-	-	48
4 years	828	328	288	48	163	-	212	48	115	48	-	-
College: 1 year or more	396	58	225	-	114	-	58	-	58	-	-	-
Female, total	17 580	2 422	3 071	858	7 551	3 678	1 186	322	258	111	223	272
Elementary: 7 years or less	3 308	329	446	223	1 064	1 246	168	-	-	56	-	112
8 years	3 568	281	447	56	1 952	833	56	-	-	-	-	56
High school: 1 to 3 years	5 188	818	794	411	2 329	835	649	217	209	-	168	55
4 years	4 410	713	1 224	56	1 709	708	202	106	48	-	-	48
College: 1 year or more	1 105	282	160	111	497	56	111	-	-	55	55	-
MAJOR OCCUPATION GROUP[3]												
Total, previously employed	9 759	3 689	4 932	1 137	-	-	1 189	486	544	160	-	-
Professional and technical	375	218	157	-	-	-	-	-	-	-	-	-
Managerial and administrative	279	56	223	-	-	-	-	-	-	-	-	-
Sales	555	113	276	166	-	-	111	56	-	55	-	-
Clerical	2 091	923	1 054	114	-	-	346	201	145	-	-	-
Craftsmen and foremen	786	446	283	56	-	-	57	57	-	-	-	-
Operatives, except transportation	1 689	444	1 044	201	-	-	228	57	171	-	-	-
Transport equipment operatives	322	162	111	48	-	-	48	-	-	48	-	-
Laborers, except farm	547	156	391	-	-	-	173	58	115	-	-	-
Service workers, except private household	2 622	1 005	1 227	390	-	-	169	56	113	-	-	-
Private household workers	494	167	166	161	-	-	56	-	-	56	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1] Occupation groups not available for this category. [2] Persons 16 to 64 years, not in school.

Table 16a. When Persons Not in the Labor Force Last Worked at a Regular Job: White–Continued

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force	When last worked									
		Worked in last 12 months	Worked from 1 to 3 years ago	Worked from 3 to 5 years ago	Worked 5 or more years ago[1]	Never worked[1]	Want job and intend to look				
							Total	Worked in last 12 months	Worked from 1 to 3 years ago	Worked from 3 to 5 years ago	Worked 5 or more years ago[1]	Never worked[1]
MAJOR OCCUPATION GROUP[2]—Continued												
Male, previously employed	3 407	1 267	1 861	280	–	–	498	164	286	48	–	–
Professional and technical	–	–	–	–	–	–	–	–	–	–	–	–
Managerial and administrative	169	56	112	–	–	–	–	–	–	–	–	–
Sales	58	–	58	–	–	–	–	–	–	–	–	–
Clerical	221	106	58	58	–	–	48	48	–	–	–	–
Craftsmen and foremen	674	446	171	56	–	–	57	57	–	–	–	–
Operatives, except transportation	669	161	508	–	–	–	171	–	171	–	–	–
Transport equipment operatives	322	162	111	48	–	–	48	–	–	48	–	–
Laborers, except farm	449	58	391	–	–	–	173	58	115	–	–	–
Service workers, except private household	846	278	451	117	–	–	–	–	–	–	–	–
Private household workers	–	–	–	–	–	–	–	–	–	–	–	–
Farmers and farm managers	–	–	–	–	–	–	–	–	–	–	–	–
Farm laborers and foremen	–	–	–	–	–	–	–	–	–	–	–	–
Not available	–	–	–	–	–	–	–	–	–	–	–	–
Female, previously employed	6 352	2 422	3 071	858	–	–	691	322	258	111	–	–
Professional and technical	375	218	157	–	–	–	–	–	–	–	–	–
Managerial and administrative	110	–	110	–	–	–	–	–	–	–	–	–
Sales	497	113	218	166	–	–	111	56	–	55	–	–
Clerical	1 870	818	996	56	–	–	298	153	145	–	–	–
Craftsmen and foremen	112	–	112	–	–	–	–	–	–	–	–	–
Operatives, except transportation	1 020	283	536	201	–	–	57	57	–	–	–	–
Transport equipment operatives	–	–	–	–	–	–	–	–	–	–	–	–
Laborers, except farm	98	98	–	–	–	–	–	–	–	–	–	–
Service workers, except private household	1 776	728	775	273	–	–	169	56	113	–	–	–
Private household workers	494	167	166	161	–	–	56	–	–	56	–	–
Farmers and farm managers	–	–	–	–	–	–	–	–	–	–	–	–
Farm laborers and foremen	–	–	–	–	–	–	–	–	–	–	–	–
Not available	–	–	–	–	–	–	–	–	–	–	–	–

[1] Occupation groups not available for this category.

[2] Persons 16 to 64 years, not in school.

Table 16b. When Persons Not in the Labor Force Last Worked at a Regular Job: Negro

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force	When last worked									
		Worked in last 12 months	Worked from 1 to 3 years ago	Worked from 3 to 5 years ago	Worked 5 or more years ago [1]	Never worked [1]	Want job and intend to look				
							Total	Worked in last 12 months	Worked from 1 to 3 years ago	Worked from 3 to 5 years ago	Worked 5 or more years ago [1]	Never worked [1]
AGE AND SEX												
Total, 18 to 64 years	79 681	16 270	17 624	5 043	22 469	18 274	13 264	4 600	3 720	469	1 943	2 532
Male, total	18 963	5 475	5 070	1 253	3 624	3 541	3 104	1 196	996	56	271	585
18 to 21 years, total	5 547	1 610	809	47	94	2 986	1 469	711	285	-	-	472
18 to 21 years, not in school	1 233	427	285	-	47	474	189	142	47	-	-	-
22 to 34 years, total	2 517	1 286	785	-	284	161	425	258	53	-	114	-
22 to 34 years, veteran of Vietnam	406	199	94	-	57	56	57	-	-	-	57	-
25 to 34 years	1 853	953	502	-	284	114	281	114	53	-	114	-
35 to 44 years	2 346	833	568	283	548	114	335	57	171	56	51	-
45 to 54 years	3 516	866	1 045	440	941	224	659	169	325	-	53	113
55 to 64 years	5 037	879	1 863	483	1 756	56	216	-	163	-	53	-
40 to 64 years	9 668	2 023	3 136	1 147	3 025	337	1 037	169	542	56	157	113
Female, total	60 717	10 795	12 554	3 790	18 845	14 734	10 160	3 405	2 724	412	1 672	1 947
18 to 21 years, total	12 727	4 084	2 146	334	286	5 877	3 717	1 716	672	49	47	1 233
18 to 21 years, not in school	6 125	2 187	1 284	238	286	2 130	1 770	720	479	49	47	474
22 to 34 years, total	15 982	3 924	4 111	988	2 989	3 970	2 645	897	725	153	470	399
25 to 34 years	11 744	2 447	2 921	795	2 657	2 924	1 697	425	582	106	423	161
35 to 44 years	10 758	907	2 451	1 062	3 942	2 396	1 817	374	803	53	427	161
45 to 54 years	11 117	675	2 182	723	5 877	1 660	1 354	313	367	104	414	156
55 to 64 years	10 135	1 207	1 664	684	5 750	830	627	104	156	53	313	-
40 to 64 years	26 799	2 044	5 025	2 202	13 922	3 607	2 892	525	954	210	994	208
FAMILY STATUS [2]												
Male, total	14 224	4 136	4 499	1 205	3 468	915	1 715	626	758	56	218	56
Family head	5 814	1 773	2 030	577	1 322	113	587	110	424	-	53	-
Family member	3 751	1 113	990	512	549	587	670	286	164	56	108	56
Unrelated individual	4 659	1 251	1 479	116	1 597	216	457	230	170	-	57	-
Female, total	52 483	8 430	11 352	3 639	18 579	10 483	7 757	2 257	2 429	412	1 619	1 040
Family head	13 639	2 304	2 949	1 151	4 564	2 672	2 718	707	873	206	777	155
No children under 18 years	1 632	312	266	159	791	104	214	53	108	53	-	-
Children 8 to 17 years only	3 669	471	794	159	1 409	836	834	312	264	53	204	-
Children under 8 years	8 338	1 521	1 889	833	2 364	1 731	1 670	342	500	100	573	155
Wife of head	26 703	3 441	4 937	1 917	11 209	5 199	3 144	1 015	1 042	102	579	407
No children under 18 years	12 110	1 303	2 114	732	6 111	1 850	1 425	312	477	102	321	212
Children 8 to 17 years only	6 000	679	1 099	418	2 807	998	681	212	263	-	206	-
Children under 8 years	8 592	1 460	1 724	767	2 291	2 350	1 038	491	302	-	51	195
Other family member	7 717	2 066	2 108	259	1 083	2 198	1 162	331	195	53	106	478
Unrelated individual	1 424	616	1 359	312	1 722	415	733	205	320	51	157	-
EDUCATIONAL ATTAINMENT [2]												
Male, total	14 224	4 136	4 499	1 205	3 468	915	1 715	626	758	56	218	56
Elementary: 7 years or less	4 647	1 141	1 363	600	1 383	159	216	57	51	56	51	-
8 years	1 117	322	321	51	375	47	153	47	53	-	53	-
High school: 1 to 3 years	4 780	1 700	1 310	166	1 103	502	679	357	322	-	-	-
4 years	3 041	772	1 284	337	440	208	386	165	165	-	-	56
College: 1 year or more	639	201	221	51	167	-	281	-	167	-	114	-
Female, total	52 483	8 430	11 352	3 639	18 579	10 483	7 757	2 257	2 429	412	1 619	1 040
Elementary: 7 years or less	8 600	630	1 359	418	4 543	1 651	823	153	159	-	364	148
8 years	4 686	570	785	365	2 047	919	783	257	159	53	314	-
High school: 1 to 3 years	19 640	2 565	4 456	1 457	6 586	4 576	3 675	757	1 236	306	729	646
4 years	16 348	3 799	4 120	1 137	4 672	2 620	1 965	892	610	53	212	199
College: 1 year or more	3 208	867	632	262	731	717	510	198	265	-	-	47
MAJOR OCCUPATION GROUP [3]												
Total, previously employed	33 262	12 567	15 851	4 844	-	-	6 539	2 883	3 187	469	-	-
Professional and technical	1 132	465	511	156	-	-	149	102	47	-	-	-
Managerial and administrative	798	376	319	104	-	-	215	53	161	-	-	-
Sales	1 225	507	666	51	-	-	358	102	256	-	-	-
Clerical	5 784	3 048	2 322	414	-	-	1 244	790	354	100	-	-
Craftsmen and foremen	1 287	792	389	106	-	-	210	104	53	53	-	-
Operatives, except transportation	7 013	2 001	3 859	1 153	-	-	1 000	259	690	51	-	-
Transport equipment operatives	821	328	329	164	-	-	218	161	57	-	-	-
Laborers, except farm	2 491	884	1 174	432	-	-	471	95	270	105	-	-
Service workers, except private household	9 474	3 487	4 561	1 426	-	-	2 194	1 110	1 031	53	-	-
Private household workers	3 137	679	1 721	738	-	-	481	106	269	106	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	100	-	-	100	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1] Occupation groups not available for this category. [2] Persons 16 to 64 years, not in school.

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Table 16b. When Persons Not in the Labor Force Last Worked at a Regular Job: Negro–Continued

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force	When last worked									
		Worked in last 12 months	Worked from 1 to 3 years ago	Worked from 3 to 5 years ago	Worked 5 or more years ago[1]	Never worked[2]	Want job and intend to look				
							Total	Worked in last 12 months	Worked from 1 to 3 years ago	Worked from 3 to 5 years ago	Worked 5 or more years ago[1]	Never worked[2]
MAJOR OCCUPATION GROUP[3]–Continued												
Male, previously employed	9 841	4 136	4 499	1 205	-	-	1 440	626	758	56	-	-
Professional and technical	47	-	47	-	-	-	-	-	-	-	-	-
Managerial and administrative	330	164	114	51	-	-	57	-	57	-	-	-
Sales	212	106	106	-	-	-	53	-	53	-	-	-
Clerical	495	157	285	53	-	-	-	-	-	-	-	-
Craftsmen and foremen	1 029	640	336	53	-	-	110	57	53	-	-	-
Operatives, except transportation	3 187	988	1 769	430	-	-	376	59	318	-	-	-
Transport equipment operatives	821	328	329	164	-	-	218	161	57	-	-	-
Laborers, except farm	1 774	737	813	224	-	-	316	95	164	56	-	-
Service workers, except private household	1 945	1 017	698	230	-	-	309	254	56	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, previously employed	23 421	8 430	11 352	3 639	-	-	5 099	2 257	2 429	412	-	-
Professional and technical	1 085	465	464	156	-	-	149	102	47	-	-	-
Managerial and administrative	469	211	204	53	-	-	157	53	104	-	-	-
Sales	1 012	401	560	51	-	-	304	102	203	-	-	-
Clerical	5 289	2 892	2 036	361	-	-	1 244	790	354	100	-	-
Craftsmen and foremen	258	152	53	53	-	-	100	47	-	53	-	-
Operatives, except transportation	3 826	1 014	2 090	723	-	-	624	201	372	51	-	-
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm	716	147	361	208	-	-	155	-	106	49	-	-
Service workers, except private household	7 530	2 470	3 863	1 197	-	-	1 884	856	975	53	-	-
Private household workers	3 137	679	1 721	738	-	-	481	106	269	106	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	100	-	-	100	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1] Occupation groups not available for this category.

[2] Persons 16 to 64 years, not in school.

Table 17. Persons Not in the Labor Force Who Worked Within the Last 5 Years and Reason for Leaving Last Job: All Races

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force, worked in last 5 years	Reason for leaving last job							
		Family responsibilities, school, or other personal reason	Poor health, illness, or disability	Retirement or old age	Economic reasons			Unsatisfactory work arrangements	All other reasons
					Seasonal job completed	Slack work or business conditions	Temporary nonseasonal job completed		
AGE AND SEX									
Total, 16 years and over	59 654	13 622	14 302	7 406	2 475	2 988	2 263	4 142	12 457
Male, total	21 389	1 666	6 846	5 331	549	469	509	1 203	4 815
16 to 21 years, total	3 330	898	94	-	331	192	380	382	1 053
16 to 21 years, not in school	809	-	94	-	47	47	-	190	430
22 to 34 years, total	2 929	427	851	56	47	57	-	255	1 235
22 to 34 years, veteran of Vietnam	342	56	97	-	-	-	-	-	188
25 to 34 years	2 121	287	708	56	-	57	-	157	855
35 to 44 years	2 024	56	1 130	-	-	113	53	116	556
45 to 54 years	2 863	170	1 705	51	113	53	-	220	550
55 to 64 years	5 037	115	2 376	1 593	-	-	-	173	780
65 years and over	5 207	-	690	3 631	59	53	76	56	642
40 to 64 years	8 855	285	4 647	1 644	113	108	-	394	1 665
Female, total	38 265	11 955	7 455	2 075	1 926	2 519	1 754	2 939	7 641
16 to 21 years, total	8 198	3 291	385	-	571	570	711	767	1 902
16 to 21 years, not in school	4 436	1 912	240	-	142	193	332	574	1 045
22 to 34 years, total	11 300	5 158	986	-	567	454	346	1 203	2 586
25 to 34 years	7 567	3 486	701	-	327	264	106	914	1 769
35 to 44 years	5 288	1 602	1 101	-	159	434	426	491	1 075
45 to 54 years	4 964	1 066	1 947	-	366	314	108	260	903
55 to 64 years	5 166	733	2 236	432	212	478	163	218	695
65 years and over	3 350	107	800	1 643	51	268	-	-	479
40 to 64 years	12 660	2 595	4 890	432	578	1 009	323	697	2 136
FAMILY STATUS[1]									
Male, total	13 363	722	6 107	1 700	207	271	53	901	3 401
Family head	5 776	171	2 897	1 131	-	165	53	328	1 031
Family member	3 162	264	1 101	56	207	47	-	239	1 248
Unrelated individual	4 425	288	2 110	513	-	58	-	335	1 122
Female, total	30 053	10 216	6 432	432	1 243	1 820	1 278	2 538	6 095
Family head	7 215	2 452	1 365	56	361	526	465	588	1 403
No children under 18 years	906	106	317	56	53	56	110	53	153
Children 6 to 17 years only	1 594	263	530	-	102	212	53	222	213
Children under 6 years	4 715	2 083	517	-	206	257	302	313	1 037
Wife of head	14 279	5 756	2 396	159	583	830	524	1 097	2 934
No children under 18 years	5 639	1 321	1 560	159	215	418	209	321	1 436
Children 6 to 17 years only	2 921	1 068	423	-	213	159	159	265	634
Children under 6 years	5 720	3 367	413	-	156	253	156	511	865
Other family member	5 030	1 317	888	112	189	299	236	540	1 450
Unrelated individual	3 528	692	1 783	104	109	165	53	314	308
EDUCATIONAL ATTAINMENT[1]									
Male, total	13 363	722	6 107	1 700	207	271	53	901	3 401
Elementary: 7 years or less	4 006	-	2 054	873	56	110	-	105	806
8 years	1 244	114	703	164	-	58	-	-	204
High school: 1 to 3 years	4 243	437	1 809	226	56	47	53	593	1 022
4 years	3 116	172	1 164	325	47	55	-	203	1 151
College: 1 year or more	755	-	376	113	47	-	-	-	219
Female, total	30 053	10 216	6 432	432	1 243	1 820	1 278	2 538	6 095
Elementary: 7 years or less	3 461	1 025	1 206	106	55	265	-	373	430
8 years	2 504	415	961	56	105	431	56	109	371
High school: 1 to 3 years	10 558	3 514	1 972	53	308	614	813	974	2 310
4 years	11 160	4 419	1 707	163	505	459	304	1 024	2 579
College: 1 year or more	2 369	843	586	53	269	51	104	58	405
MAJOR OCCUPATION GROUP[1]									
Total, previously employed	43 416	10 938	12 539	2 132	1 450	2 090	1 330	3 439	9 496
Professional and technical	1 563	367	262	108	260	54	53	97	362
Managerial and administrative	1 078	158	490	53	-	-	-	53	323
Sales	1 779	522	483	56	55	53	47	157	406
Clerical	7 986	2 905	1 080	275	515	203	555	630	1 823
Craftsmen and foremen	2 130	157	986	170	56	57	-	106	598
Operatives, except transportation	8 758	1 354	3 092	745	100	782	157	515	2 013
Transport equipment operatives	1 143	47	601	222	-	-	-	114	158
Laborers, except farm	3 037	319	1 390	115	-	210	53	156	793
Service workers, except private household	12 210	4 229	2 575	388	417	624	362	1 399	2 216
Private household workers	3 631	832	1 580	-	47	106	104	212	747
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	100	47	-	-	-	-	-	-	53
Not available	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

Table 17. Persons Not in the Labor Force Who Worked Within the Last 5 Years and Reason for Leaving Last Job: All Races—Continued

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force, worked in last 5 years	Reason for leaving last job							
		Family responsibilities, school, or other personal reason	Poor health, illness, or disability	Retirement or old age	Economic reasons			Unsatisfactory work arrangements	All other reasons
					Seasonal job completed	Slack work or business conditions	Temporary nonseasonal job completed		
MAJOR OCCUPATION GROUP[1]—Continued									
Male, previously employed	13 363	722	6 107	1 700	207	271	53	901	3 401
Professional and technical	47	-	-	-	47	-	-	-	-
Managerial and administrative	499	-	333	-	-	-	-	53	113
Sales	270	115	106	-	-	-	-	-	49
Clerical	716	-	170	224	-	-	53	107	162
Craftsmen and foremen	1 761	57	769	170	56	57	-	106	545
Operatives, except transportation	3 856	56	1 822	635	-	55	-	200	1 087
Transport equipment operatives	1 143	47	601	222	-	-	-	114	158
Laborers, except farm	2 223	171	1 188	115	-	58	-	109	582
Service workers, except private household	2 849	275	1 118	335	104	100	-	212	705
Private household workers	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-
Female, previously employed	30 053	10 216	6 432	432	1 243	1 820	1 278	2 538	6 095
Professional and technical	1 516	367	262	108	212	54	53	97	362
Managerial and administrative	579	158	157	53	-	-	-	-	211
Sales	1 509	407	377	56	55	53	47	157	357
Clerical	7 270	2 905	910	51	515	203	502	523	1 661
Craftsmen and foremen	370	100	217	-	-	-	-	-	53
Operatives, except transportation	4 902	1 297	1 270	110	100	727	157	315	926
Transport equipment operatives	-	-	-	-	-	-	-	-	-
Laborers, except farm	814	148	202	-	-	152	53	47	212
Service workers, except private household	9 361	3 954	1 457	53	313	524	362	1 187	1 511
Private household workers	3 631	832	1 580	-	47	106	104	212	749
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	100	47	-	-	-	-	-	-	53
Not available	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

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Table 17a. Persons Not in the Labor Force Who Worked Within the Last 5 Years and Reason for Leaving Last Job: White

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force, worked in last 5 years	Reason for leaving last job							
		Family responsibilities, school, or other personal reason	Poor health, illness, or disability	Retirement or old age	Economic reasons			Unsatisfactory work arrangements	All other reasons
					Seasonal job completed	Slack work or business conditions	Temporary nonseasonal job completed		
AGE AND SEX									
Total, 16 years and over	14 505	3 233	3 053	2 926	436	698	315	1 168	2 676
Male, total	6 074	598	1 507	2 137	59	212	48	367	1 146
16 to 21 years, total	814	378	-	-	-	97	48	146	145
16 to 21 years, not in school	97	-	-	-	-	-	-	48	48
22 to 34 years, total	858	162	257	-	-	57	-	48	333
22 to 34 years, veteran of Vietnam	49	-	49	-	-	-	-	-	-
25 to 34 years	665	116	209	-	-	57	-	-	283
35 to 44 years	282	-	113	-	-	58	-	-	111
45 to 54 years	454	-	284	-	-	-	-	57	112
55 to 64 years	1 813	57	684	733	-	-	-	59	280
65 years and over	1 853	-	169	1 404	59	-	-	56	165
40 to 64 years	2 433	57	1 024	733	-	-	-	116	503
Female, total	8 432	2 635	1 546	789	378	487	267	801	1 530
16 to 21 years, total	1 538	813	98	-	48	-	48	193	337
16 to 21 years, not in school	727	388	-	-	-	-	48	145	146
22 to 34 years, total	2 109	1 156	105	-	113	48	49	162	476
25 to 34 years	1 234	671	56	-	113	-	-	112	282
35 to 44 years	812	168	136	-	-	112	56	226	113
45 to 54 years	1 329	390	438	-	55	56	56	55	278
55 to 64 years	1 556	55	613	168	109	167	56	165	222
65 years and over	1 087	52	156	620	51	103	-	-	104
40 to 64 years	3 279	502	1 165	168	165	279	113	332	556
FAMILY STATUS[1]									
Male, total	3 407	173	1 289	733	-	115	-	213	884
Family head	1 396	57	609	334	-	57	-	116	222
Family member	548	-	222	-	-	-	-	48	277
Unrelated individual	1 463	116	458	398	-	58	-	48	385
Female, total	6 352	2 104	1 269	168	278	384	217	696	1 235
Family head	755	256	-	56	-	56	56	170	160
No children under 18 years	169	-	-	56	-	56	56	-	-
Children 6 to 17 years only	170	-	-	-	-	-	-	114	56
Children under 6 years	416	256	-	-	-	-	-	56	104
Wife of head	3 817	1 471	674	-	169	217	161	377	748
No children under 18 years	1 435	219	451	-	55	56	105	217	331
Children 6 to 17 years only	613	168	111	-	56	112	-	55	111
Children under 6 years	1 769	1 085	112	-	57	48	56	104	306
Other family member	538	98	113	112	-	-	-	48	167
Unrelated individual	1 241	278	483	-	109	110	-	101	160
EDUCATIONAL ATTAINMENT[1]									
Male, total	3 407	173	1 289	733	-	115	-	213	884
Elementary: 7 years or less	901	-	452	287	-	57	-	48	57
8 years	549	57	276	108	-	58	-	-	49
High school: 1 to 3 years	1 009	58	227	169	-	-	-	116	440
4 years	665	58	277	58	-	-	-	48	224
College: 1 year or more	282	-	57	113	-	-	-	-	113
Female, total	6 352	2 104	1 269	168	278	384	217	696	1 235
Elementary: 7 years or less	998	336	222	55	55	56	-	216	56
8 years	784	56	280	56	54	169	56	56	56
High school: 1 to 3 years	2 024	822	304	-	56	48	104	105	585
4 years	1 993	669	296	56	55	110	56	262	488
College: 1 year or more	552	221	167	-	57	-	-	58	49
MAJOR OCCUPATION GROUP[1]									
Total, previously employed	9 759	2 277	2 558	901	278	499	217	909	2 119
Professional and technical	375	54	-	55	57	54	-	49	105
Managerial and administrative	279	-	113	-	-	-	-	-	166
Sales	555	170	111	56	55	-	-	56	105
Clerical	2 091	850	385	173	56	56	48	210	312
Craftsmen and foremen	786	-	283	113	-	57	-	59	274
Operatives, except transportation	1 689	249	509	165	-	169	56	161	379
Transport equipment operatives	322	-	105	111	-	-	-	-	105
Laborers, except farm	547	107	218	59	-	106	-	-	57
Service workers, except private household	2 622	686	721	169	109	56	113	318	449
Private household workers	494	160	112	-	-	-	-	55	167
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

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Table 17a. Persons Not in the Labor Force Who Worked Within the Last 5 Years and Reason for Leaving Last Job: White–Continued

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force, worked in last 5 years	Reason for leaving last job							
		Family responsibilities, school, or other personal reason	Poor health, illness, or disability	Retirement or old age	Economic reasons			Unsatisfactory work arrangements	All other reasons
					Seasonal job completed	Slack work or business conditions	Temporary nonseasonal job completed		
MAJOR OCCUPATION GROUP[1]–Continued									
Male, previously employed	3 407	173	1 289	733	-	115	-	213	884
Professional and technical	-	-	-	-	-	-	-	-	-
Managerial and administrative	169	-	113	-	-	-	-	-	56
Sales	58	58	-	-	-	-	-	-	-
Clerical	221	-	-	173	-	-	-	48	-
Craftsmen and foremen	674	-	171	113	-	57	-	59	274
Operatives, except transportation	669	-	285	109	-	-	-	106	169
Transport equipment operatives	322	-	105	111	-	-	-	-	105
Laborers, except farm	449	58	218	59	-	58	-	-	57
Service workers, except private household	846	57	396	169	-	-	-	-	224
Private household workers	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-
Female, previously employed	6 352	2 104	1 269	168	278	384	217	696	1 235
Professional and technical	375	54	-	55	57	54	-	49	105
Managerial and administrative	110	-	-	-	-	-	-	-	110
Sales	497	112	111	56	55	-	-	56	105
Clerical	1 870	850	385	-	56	56	48	162	312
Craftsmen and foremen	112	-	112	-	-	-	-	-	-
Operatives, except transportation	1 020	249	223	56	-	169	56	55	210
Transport equipment operatives	-	-	-	-	-	-	-	-	-
Laborers, except farm	98	49	-	-	-	48	-	-	-
Service workers, except private household	1 776	629	325	-	109	56	113	318	225
Private household workers	494	160	112	-	-	-	-	55	167
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-

[1] Persons 18 to 64 years, not in school.

Table 17b. Persons Not in the Labor Force Who Worked Within the Last 5 Years and Reason for Leaving Last Job: Negro

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force, worked in last 5 years	Reason for leaving last job							
		Family responsibilities, school, or other personal reason	Poor health, illness, or disability	Retirement or old age	Economic reasons: Seasonal job completed	Economic reasons: Slack work or business conditions	Economic reasons: Temporary nonseasonal job completed	Unsatisfactory work arrangements	All other reasons
AGE AND SEX									
Total, 16 years and over	44 233	10 219	10 869	4 373	2 039	2 241	1 948	2 974	9 570
Male, total	14 934	1 011	5 287	3 087	490	208	461	836	3 554
16 to 21 years, total	2 467	519	94	-	331	47	332	236	907
16 to 21 years, not in school	712	-	94	-	47	47	-	142	381
22 to 34 years, total	2 072	265	594	56	47	-	-	206	902
22 to 34 years, veteran of Vietnam	293	56	48	-	-	-	-	-	188
25 to 34 years	1 455	171	499	56	-	-	-	157	572
35 to 44 years	1 684	56	1 017	-	-	55	53	116	387
45 to 54 years	2 351	113	1 421	51	113	53	-	163	438
55 to 64 years	3 224	57	1 693	860	-	-	-	115	500
65 years and over	3 136	-	468	2 119	-	53	76	-	419
40 to 64 years	6 306	170	3 623	911	113	108	-	278	1 104
Female, total	29 299	9 208	5 583	1 287	1 549	2 032	1 487	2 138	6 016
16 to 21 years, total	6 564	2 477	287	-	523	570	663	574	1 470
16 to 21 years, not in school	3 709	1 524	240	-	142	193	283	429	899
22 to 34 years, total	9 023	3 946	770	-	453	406	296	1 041	2 110
25 to 34 years	6 164	2 758	533	-	214	264	106	801	1 487
35 to 44 years	4 420	1 377	965	-	159	321	370	265	962
45 to 54 years	3 579	675	1 454	-	311	258	51	205	625
55 to 64 years	3 554	677	1 567	264	102	311	106	53	473
65 years and over	2 159	55	540	1 023	-	166	-	-	376
40 to 64 years	9 270	2 094	3 615	264	413	730	210	364	1 581
FAMILY STATUS[1]									
Male, total	9 841	491	4 819	967	207	155	53	688	2 459
Family head	4 380	114	2 288	797	-	108	53	212	809
Family member	2 615	264	878	56	207	47	-	191	971
Unrelated individual	2 846	114	1 652	114	-	-	-	286	679
Female, total	23 421	8 000	4 995	264	965	1 436	1 060	1 842	4 860
Family head	6 403	2 195	1 308	-	361	469	408	418	1 243
No children under 18 years	736	106	317	-	53	-	53	53	153
Children 6 to 17 years only	1 424	263	530	-	102	212	53	108	157
Children under 6 years	4 243	1 826	461	-	206	257	302	257	933
Wife of head	10 295	4 172	1 667	159	415	613	363	720	2 185
No children under 18 years	4 149	1 102	1 054	159	159	362	104	104	1 104
Children 6 to 17 years only	2 195	788	312	-	157	47	159	210	522
Children under 6 years	3 951	2 282	301	-	98	204	100	406	559
Other family member	4 436	1 219	719	-	189	299	236	491	1 283
Unrelated individual	2 287	414	1 300	104	-	55	53	212	148
EDUCATIONAL ATTAINMENT[1]									
Male, total	9 841	491	4 819	967	207	155	53	688	2 459
Elementary: 7 years or less	3 105	-	1 603	587	56	53	-	57	749
8 years	695	56	427	56	-	-	-	-	155
High school: 1 to 3 years	3 176	321	1 583	57	56	47	53	477	582
4 years	2 393	114	887	267	47	55	-	155	868
College: 1 year or more	473	-	320	-	47	-	-	-	106
Female, total	23 421	8 000	4 995	264	965	1 436	1 060	1 842	4 860
Elementary: 7 years or less	2 407	632	984	51	-	209	-	157	374
8 years	1 720	359	682	-	51	262	-	53	314
High school: 1 to 3 years	8 478	2 692	1 612	53	252	565	709	870	1 725
4 years	9 056	3 751	1 299	106	450	349	248	762	2 091
College: 1 year or more	1 761	566	419	53	212	51	104	-	355
MAJOR OCCUPATION GROUP[1]									
Total, previously employed	33 262	8 491	9 814	1 231	1 172	1 591	1 113	2 530	7 319
Professional and technical	1 132	257	262	53	202	-	53	47	257
Managerial and administrative	798	158	377	53	-	-	-	53	157
Sales	1 225	352	371	-	-	53	47	100	301
Clerical	5 784	2 055	583	102	458	147	507	419	1 512
Craftsmen and foremen	1 287	157	703	57	56	-	-	47	266
Operatives, except transportation	7 013	1 104	2 527	580	100	613	100	354	1 634
Transport equipment operatives	821	47	496	110	-	-	-	114	53
Laborers, except farm	2 491	212	1 173	56	-	104	53	156	736
Service workers, except private household	9 474	3 429	1 853	219	308	568	249	1 081	1 767
Private household workers	3 137	672	1 468	-	47	106	104	157	583
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	100	47	-	-	-	-	-	-	53
Not available	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

Table 17b. **Persons Not in the Labor Force Who Worked Within the Last 5 Years and Reason for Leaving Last Job: Negro**--Continued

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force, worked in last 5 years	Reason for leaving last job						
		Family responsibilities, school, or other personal reason	Poor health, illness, or disability	Retirement or old age	Economic reasons			Unsatisfactory work arrangements	All other reasons
					Seasonal job completed	Slack work or business conditions	Temporary nonseasonal job completed		
MAJOR OCCUPATION GROUP[1]--Continued									
Male, previously employed	9 841	491	4 819	967	207	155	53	688	2 459
Professional and technical	47	-	-	-	47	-	-	-	-
Managerial and administrative	330	-	220	-	-	-	-	53	57
Sales	212	57	106	-	-	-	-	-	49
Clerical	495	-	170	51	-	-	53	59	162
Craftsmen and foremen	1 029	57	598	57	56	-	-	47	214
Operatives, except transportation	3 187	56	1 536	527	-	55	-	94	918
Transport equipment operatives	821	47	496	110	-	-	-	114	53
Laborers, except farm	1 774	113	971	56	-	-	-	109	525
Service workers, except private household	1 945	160	721	166	104	100	-	212	482
Private household workers	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-
Female, previously employed	23 421	8 000	4 995	264	965	1 436	1 060	1 842	4 860
Professional and technical	1 085	257	262	53	155	-	53	47	257
Managerial and administrative	469	158	157	53	-	-	-	-	100
Sales	1 012	295	265	-	-	53	47	100	252
Clerical	5 289	2 055	413	51	458	147	454	361	1 350
Craftsmen and foremen	258	100	105	-	-	-	-	-	53
Operatives, except transportation	3 826	1 048	990	53	100	559	100	260	716
Transport equipment operatives	-	-	-	-	-	-	-	-	-
Laborers, except farm	716	98	202	-	-	104	53	47	212
Service workers, except private household	7 530	3 269	1 132	53	204	467	249	869	1 285
Private household workers	3 137	672	1 468	-	47	106	104	157	583
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	100	47	-	-	-	-	-	-	53
Not available	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

Table 18. Persons Not in the Labor Force Who Worked Within the Last 12 Months and Reason for Leaving Last Job: All Races

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force, worked in last 12 months	Reason for leaving last job							
		Family responsibilities, school, or other personal reason	Poor health, illness, or disability	Retirement or old age	Economic reasons			Unsatisfactory work arrangements	All other reasons
					Seasonal job completed	Slack work or business conditions	Temporary nonseasonal job completed		
AGE AND SEX									
Total, 16 years and over	23 982	5 999	4 089	1 768	1 504	1 730	1 523	2 072	5 299
Male, total	8 848	993	2 232	1 336	387	361	424	836	2 279
16 to 21 years, total	2 427	615	47	-	331	192	333	240	668
16 to 21 years, not in school	523	-	47	-	47	47	-	96	286
22 to 34 years, total	1 659	264	379	56	-	57	-	255	647
22 to 34 years, veteran of Vietnam	199	56	48	-	-	-	-	-	94
25 to 34 years	1 181	171	284	56	-	57	-	157	456
35 to 44 years	1 116	-	445	-	-	58	53	116	444
45 to 54 years	979	114	431	-	56	53	-	110	214
55 to 64 years	1 444	-	618	556	-	-	-	59	211
65 years and over	1 225	-	311	724	-	-	39	56	95
40 to 64 years	2 925	114	1 218	556	56	53	-	169	759
Female, total	15 134	5 005	1 857	432	1 117	1 369	1 099	1 236	3 020
16 to 21 years, total	5 042	1 857	241	-	332	474	521	384	1 233
16 to 21 years, not in school	2 430	1 004	143	-	94	96	189	286	617
22 to 34 years, total	5 065	2 384	351	-	317	249	198	474	1 092
25 to 34 years	3 345	1 719	162	-	221	106	53	378	707
35 to 44 years	1 211	325	184	-	159	55	162	216	111
45 to 54 years	1 146	278	287	-	207	56	108	-	211
55 to 64 years	1 707	106	581	162	51	322	110	162	213
65 years and over	963	55	212	270	51	214	-	-	161
40 to 64 years	3 128	493	923	162	258	378	217	162	534
FAMILY STATUS[1]									
Male, total	5 519	332	1 921	612	104	216	53	582	1 700
Family head	2 391	57	925	384	-	110	53	217	644
Family member	1 325	160	263	56	104	47	-	145	550
Unrelated individual	1 803	115	734	172	-	58	-	220	505
Female, total	10 965	3 937	1 523	162	675	778	670	1 084	2 135
Family head	2 641	972	309	-	202	214	158	273	514
No children under 18 years	425	106	52	-	-	56	56	53	100
Children 6 to 17 years only	585	53	157	-	102	106	-	110	56
Children under 6 years	1 632	813	100	-	100	51	102	109	357
Wife of head	5 172	2 245	356	53	378	307	370	409	1 053
No children under 18 years	1 909	483	208	53	108	212	161	155	528
Children 6 to 17 years only	959	274	53	-	162	47	53	53	317
Children under 6 years	2 304	1 488	94	-	108	48	156	201	208
Other family member	2 237	672	357	55	94	200	142	244	472
Unrelated individual	915	48	502	53	-	56	-	159	96
EDUCATIONAL ATTAINMENT[1]									
Male, total	5 519	332	1 921	612	104	216	53	582	1 700
Elementary: 7 years or less	1 473	-	557	332	-	110	-	105	368
8 years	429	56	109	56	-	58	-	-	149
High school: 1 to 3 years	2 200	162	873	57	56	47	53	320	632
4 years	1 158	114	334	110	-	-	-	156	445
College: 1 year or more	258	-	48	58	47	-	-	-	106
Female, total	10 965	3 937	1 523	162	675	778	670	1 084	2 135
Elementary: 7 years or less	959	220	206	55	-	161	-	155	161
8 years	851	211	259	-	51	221	56	53	-
High school: 1 to 3 years	3 382	1 008	360	53	208	96	411	417	830
4 years	4 568	1 974	591	53	199	249	151	401	949
College: 1 year or more	1 204	525	107	-	218	51	51	58	195
MAJOR OCCUPATION GROUP[1]									
Total, previously employed	16 484	4 269	3 445	774	779	993	723	1 666	3 835
Professional and technical	739	262	-	55	212	-	-	49	160
Managerial and administrative	432	53	273	53	-	-	-	53	-
Sales	620	153	106	-	-	-	-	56	304
Clerical	3 972	1 685	260	58	312	100	353	364	840
Craftsmen and foremen	1 296	157	432	112	56	57	-	106	375
Operatives, except transportation	2 501	215	754	326	47	312	56	101	690
Transport equipment operatives	490	47	113	57	-	-	-	114	158
Laborers, except farm	1 040	106	420	56	-	106	53	47	251
Service workers, except private household	4 549	1 538	720	56	151	367	209	669	840
Private household workers	845	53	366	-	-	51	51	106	218
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

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Table 18. Persons Not in the Labor Force Who Worked Within the Last 12 Months and Reason for Leaving Last Job: All Races—Continued

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force, worked in last 12 months	Reason for leaving last job							
		Family responsibilities, school, or other personal reason	Poor health, illness, or disability	Retirement or old age	Economic reasons			Unsatisfactory work arrangements	All other reasons
					Seasonal job completed	Slack work or business conditions	Temporary nonseasonal job completed		
MAJOR OCCUPATION GROUP[1]—Continued									
Male, previously employed	5 519	332	1 921	612	104	216	53	582	1 700
Professional and technical	-	-	-	-	-	-	-	-	-
Managerial and administrative	221	-	168	-	-	-	-	53	-
Sales	106	57	-	-	-	-	-	-	49
Clerical	262	-	-	58	-	-	53	48	104
Craftsmen and foremen	1 144	57	380	112	56	57	-	106	375
Operatives, except transportation	1 149	-	494	272	-	-	-	48	334
Transport equipment operatives	490	47	113	57	-	-	-	114	158
Laborers, except farm	795	56	373	56	-	58	-	-	251
Service workers, except private household	1 352	114	394	56	47	100	-	212	429
Private household workers	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-
Female, previously employed	10 965	3 937	1 523	162	675	778	670	1 084	2 135
Professional and technical	739	262	-	55	212	-	-	49	160
Managerial and administrative	211	53	105	53	-	-	-	-	-
Sales	513	96	106	-	-	-	-	56	255
Clerical	3 709	1 685	260	-	312	100	301	316	736
Craftsmen and foremen	152	100	52	-	-	-	-	-	-
Operatives, except transportation	1 352	215	261	53	47	312	56	53	356
Transport equipment operatives	-	-	-	-	-	-	-	-	-
Laborers, except farm	245	49	47	-	-	48	53	47	-
Service workers, except private household	3 197	1 424	327	-	104	266	209	457	411
Private household workers	845	53	366	-	-	51	51	106	218
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

Table 18a. Persons Not in the Labor Force Who Worked Within the Last 12 Months and Reason for Leaving Last Job: White

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force, worked in last 12 months	Reason for leaving last job							
		Family responsibilities, school, or other personal reason	Poor health, illness, or disability	Retirement or old age	Economic reasons			Unsatisfactory work arrangements	All other reasons
					Seasonal job completed	Slack work or business conditions	Temporary nonseasonal job completed		
AGE AND SEX									
Total, 16 years and over	5 807	1 623	814	503	213	532	267	678	1 177
Male, total	2 380	378	396	396	-	212	48	309	641
16 to 21 years, total	768	332	-	-	-	97	48	146	145
16 to 21 years, not in school	97	-	-	-	-	-	-	48	48
22 to 34 years, total	372	46	-	-	-	57	-	48	220
22 to 34 years, veteran of Vietnam	-	-	-	-	-	-	-	-	-
25 to 34 years	228	-	-	-	-	57	-	-	171
35 to 44 years	225	-	56	-	-	58	-	-	111
45 to 54 years	55	-	-	-	-	-	-	-	55
55 to 64 years	564	-	283	169	-	-	-	59	54
65 years and over	396	-	56	226	-	-	-	56	56
40 to 64 years	786	-	339	169	-	-	-	59	219
Female, total	3 427	1 245	418	108	213	320	218	369	536
16 to 21 years, total	863	477	98	-	48	-	-	97	143
16 to 21 years, not in school	243	146	-	-	-	-	-	48	48
22 to 34 years, total	1 029	431	-	-	113	48	49	105	282
25 to 34 years	786	334	-	-	113	-	-	56	282
35 to 44 years	305	112	23	-	-	-	56	58	56
45 to 54 years	472	225	79	-	-	56	56	-	55
55 to 64 years	500	-	166	55	-	113	56	109	-
65 years and over	259	-	52	52	51	103	-	-	-
40 to 64 years	1 084	281	245	55	-	169	113	109	111
FAMILY STATUS[1]									
Male, total	1 267	-	339	169	-	115	-	155	488
Family head	618	-	225	112	-	57	-	59	166
Family member	212	-	59	-	-	-	-	48	105
Unrelated individual	437	-	56	58	-	58	-	48	217
Female, total	2 422	860	245	55	113	218	169	321	441
Family head	338	55	-	-	-	56	56	114	56
No children under 18 years	113	-	-	-	-	56	56	-	-
Children 6 to 17 years only	114	-	-	-	-	-	-	58	56
Children under 6 years	111	55	-	-	-	-	-	56	-
Wife of head	1 675	805	-	-	113	105	113	154	385
No children under 18 years	606	219	-	-	-	56	56	106	168
Children 6 to 17 years only	224	112	-	-	56	-	-	-	56
Children under 6 years	845	474	-	-	57	48	56	48	161
Other family member	112	-	56	55	-	-	-	-	-
Unrelated individual	298	-	189	-	-	56	-	53	-
EDUCATIONAL ATTAINMENT[1]									
Male, total	1 267	-	339	169	-	115	-	155	488
Elementary: 7 years or less	331	-	114	112	-	57	-	48	-
8 years	107	-	-	-	-	58	-	-	49
High school: 1 to 3 years	443	-	113	-	-	-	-	59	271
4 years	328	-	113	-	-	-	-	48	167
College: 1 year or more	58	-	-	58	-	-	-	-	-
Female, total	2 422	860	245	55	113	218	169	321	441
Elementary: 7 years or less	329	113	55	55	-	56	-	49	-
8 years	281	56	55	-	-	113	56	-	-
High school: 1 to 3 years	818	321	-	-	56	48	56	56	280
4 years	713	258	79	-	-	-	56	158	161
College: 1 year or more	282	111	55	-	57	-	-	58	-
MAJOR OCCUPATION GROUP[1]									
Total, previously employed	3 689	860	584	225	113	333	169	476	929
Professional and technical	218	-	-	55	57	-	-	49	56
Managerial and administrative	56	-	56	-	-	-	-	-	-
Sales	113	-	-	-	-	-	-	56	56
Clerical	923	433	111	58	56	-	-	162	104
Craftsmen and foremen	446	-	115	55	-	57	-	59	160
Operatives, except transportation	444	56	-	56	-	113	56	48	113
Transport equipment operatives	162	-	56	-	-	-	-	-	105
Laborers, except farm	156	49	-	-	-	106	-	-	-
Service workers, except private household	1 005	322	191	-	-	56	113	101	222
Private household workers	167	-	55	-	-	-	-	-	111
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

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Table 18a. Persons Not in the Labor Force Who Worked Within the Last 12 Months and Reason for Leaving Last Job: White–Continued

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force, worked in last 12 months	Reason for leaving last job							
		Family responsibilities, school, or other personal reason	Poor health, illness, or disability	Retirement or old age	Economic reasons			Unsatisfactory work arrangements	All other reasons
					Seasonal job completed	Slack work or business conditions	Temporary nonseasonal job completed		
MAJOR OCCUPATION GROUP[1]–Continued									
Male, previously employed	1 267	-	339	169	-	115	-	155	488
Professional and technical	-	-	-	-	-	-	-	-	-
Managerial and administrative	56	-	56	-	-	-	-	-	-
Sales	-	-	-	-	-	-	-	-	-
Clerical	106	-	-	58	-	-	-	48	-
Craftsmen and foremen	446	-	115	55	-	57	-	59	160
Operatives, except transportation	161	-	-	56	-	-	-	48	56
Transport equipment operatives	162	-	56	-	-	-	-	-	105
Laborers, except farm	58	-	-	-	-	58	-	-	-
Service workers, except private household	278	-	111	-	-	-	-	-	166
Private household workers	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-
Female, previously employed	2 422	860	245	55	113	218	169	321	441
Professional and technical	218	-	-	55	57	-	-	49	56
Managerial and administrative	-	-	-	-	-	-	-	-	-
Sales	113	-	-	-	-	-	-	56	56
Clerical	818	433	111	-	56	-	-	114	104
Craftsmen and foremen	-	-	-	-	-	-	-	-	-
Operatives, except transportation	283	56	-	-	-	113	56	-	57
Transport equipment operatives	-	-	-	-	-	-	-	-	-
Laborers, except farm	98	49	-	-	-	48	-	-	-
Service workers, except private household	728	322	79	-	-	56	113	101	56
Private household workers	167	-	55	-	-	-	-	-	111
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

Table 18b. Persons Not in the Labor Force Who Worked Within the Last 12 Months and Reason for Leaving Last Job: Negro

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force, worked in last 12 months	Reason for leaving last job							
		Family responsibilities, school, or other personal reason	Poor health, illness, or disability	Retirement or old age	Economic reasons			Unsatisfactory work arrangements	All other reasons
					Seasonal job completed	Slack work or business conditions	Temporary nonseasonal job completed		
AGE AND SEX									
Total, 16 years and over	17 803	4 262	3 219	1 264	1 291	1 149	1 257	1 394	3 969
Male, total	6 304	558	1 836	940	387	100	376	526	1 580
16 to 21 years, total	1 610	283	47	-	331	47	285	94	523
16 to 21 years, not in school	427	-	47	-	47	47	-	47	238
22 to 34 years, total	1 286	218	379	56	-	-	-	206	427
22 to 34 years, veteran of Vietnam	199	56	48	-	-	-	-	-	94
25 to 34 years	953	171	284	56	-	-	-	137	285
35 to 44 years	833	-	389	-	-	-	53	116	276
45 to 54 years	866	56	431	-	56	53	-	110	159
55 to 64 years	879	-	335	386	-	-	-	-	157
65 years and over	829	-	254	498	-	-	39	-	39
40 to 64 years	2 023	56	879	386	56	53	-	110	482
Female, total	11 499	3 704	1 382	324	904	1 049	881	867	2 388
16 to 21 years, total	4 084	1 380	143	-	283	474	521	287	994
16 to 21 years, not in school	2 187	858	143	-	94	96	189	238	568
22 to 34 years, total	3 924	1 897	295	-	204	200	149	369	810
25 to 34 years	2 447	1 328	106	-	108	106	53	321	425
35 to 44 years	907	213	161	-	159	55	106	159	55
45 to 54 years	675	53	208	-	207	-	51	-	156
55 to 64 years	1 207	106	415	106	51	209	53	53	213
65 years and over	704	55	160	218	-	111	-	-	161
40 to 64 years	2 044	212	678	106	258	209	104	53	423
FAMILY STATUS[1]									
Male, total	4 136	274	1 582	443	104	100	53	426	1 154
Family head	1 773	57	700	272	-	53	53	159	478
Family member	1 113	160	204	56	104	47	-	96	445
Unrelated individual	1 251	57	678	114	-	-	-	171	231
Female, total	8 430	3 021	1 222	106	562	560	501	763	1 694
Family head	2 304	916	309	-	202	157	102	159	457
No children under 18 years	312	106	52	-	-	-	-	53	100
Children 6 to 17 years only	471	53	157	-	102	106	-	53	-
Children under 6 years	1 521	757	100	-	100	51	102	53	357
Wife of head	3 441	1 384	356	53	265	203	257	255	668
No children under 18 years	1 303	265	208	53	108	155	104	49	360
Children 6 to 17 years only	679	106	53	-	106	47	53	53	261
Children under 6 years	1 460	1 014	94	-	51	-	100	153	47
Other family member	2 069	672	244	-	94	200	142	244	472
Unrelated individual	616	48	313	53	-	-	-	106	96
EDUCATIONAL ATTAINMENT[1]									
Male, total	4 136	274	1 582	443	104	100	53	426	1 154
Elementary: 7 years or less	1 141	-	443	220	-	53	-	57	368
8 years	322	56	109	56	-	-	-	-	100
High school: 1 to 3 years	1 700	104	760	57	56	47	53	262	361
4 years	772	114	222	110	-	-	-	108	219
College: 1 year or more	201	-	48	-	47	-	-	-	106
Female, total	8 430	3 021	1 222	106	562	560	501	763	1 694
Elementary: 7 years or less	630	108	151	-	-	104	-	106	161
8 years	570	154	203	-	51	108	-	53	-
High school: 1 to 3 years	2 565	686	360	53	152	47	355	361	550
4 years	3 799	1 716	456	53	199	249	94	244	788
College: 1 year or more	867	357	52	-	161	51	51	-	195
MAJOR OCCUPATION GROUP[1]									
Total, previously employed	12 567	3 295	2 804	549	666	660	554	1 190	2 848
Professional and technical	465	206	-	-	155	-	-	-	104
Managerial and administrative	376	53	216	53	-	-	-	53	-
Sales	507	153	106	-	-	-	-	-	248
Clerical	3 048	1 252	149	-	256	100	353	202	735
Craftsmen and foremen	792	157	317	57	56	-	-	47	157
Operatives, except transportation	2 001	159	698	269	47	199	-	53	576
Transport equipment operatives	328	47	56	57	-	-	-	114	53
Laborers, except farm	884	56	420	56	-	-	53	47	251
Service workers, except private household	3 487	1 158	530	56	151	310	96	567	617
Private household workers	679	53	311	-	-	51	51	106	106
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

Table 18b. Persons Not in the Labor Force Who Worked Within the Last 12 Months and Reason for Leaving Last Job: Negro–Continued

Age and Sex Family Status Educational Attainment Major Occupation Group of Last Regular Job	Total not in labor force, worked in last 12 months	Reason for leaving last job							
		Family responsibilities, school, or other personal reason	Poor health, illness, or disability	Retirement or old age	Economic reasons			Unsatisfactory work arrangements	All other reasons
					Seasonal job completed	Slack work or business conditions	Temporary nonseasonal job completed		
MAJOR OCCUPATION GROUP[1]–Continued									
Male, previously employed	4 136	274	1 582	443	104	100	53	426	1 154
Professional and technical	-	-	-	-	-	-	-	-	-
Managerial and administrative	164	-	111	-	-	-	-	53	-
Sales	106	57	-	-	-	-	-	-	49
Clerical	157	-	-	-	-	-	53	-	104
Craftsmen and foremen	640	57	265	57	56	-	-	47	157
Operatives, except transportation	988	-	494	216	-	-	-	-	278
Transport equipment operatives	328	47	56	57	-	-	-	114	53
Laborers, except farm	737	56	373	56	-	-	-	-	251
Service workers, except private household	1 017	56	282	56	47	100	-	212	262
Private household workers	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-
Female, previously employed	8 430	3 021	1 222	106	562	560	501	763	1 694
Professional and technical	465	206	-	-	155	-	-	-	104
Managerial and administrative	211	53	105	53	-	-	-	-	-
Sales	401	96	106	-	-	-	-	-	199
Clerical	2 892	1 252	149	-	256	100	301	202	632
Craftsmen and foremen	152	100	52	-	-	-	-	-	-
Operatives, except transportation	1 014	159	205	53	47	199	-	53	298
Transport equipment operatives	-	-	-	-	-	-	-	-	-
Laborers, except farm	147	-	47	-	-	-	53	47	-
Service workers, except private household	2 470	1 102	247	-	104	210	96	355	355
Private household workers	679	53	311	-	-	51	51	106	106
Farmers and farm managers	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

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Table 19. Work Experience in Last 12 Months: All Races

Age and Sex Family Status Educational Attainment	Total civilian noninstitutional population	Work experience in last 12 months										Did not work at all
		Full-time weeks worked					Part-time weeks worked					
		50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks	
AGE AND SEX												
Total, 16 years and over	348 413	107 254	30 232	18 241	12 919	15 496	8 491	3 630	3 561	4 841	9 206	134 542
Male, total	165 759	69 444	20 786	10 396	7 199	6 940	3 021	1 206	1 123	1 549	3 667	40 428
16 to 21 years, total	23 443	3 520	1 830	2 001	1 240	2 904	1 196	724	428	572	2 324	6 703
16 to 21 years, not in school	11 354	2 664	1 253	1 478	858	1 050	383	290	47	288	809	2 233
22 to 34 years, total	38 363	18 399	7 059	3 727	2 960	2 030	403	143	332	319	484	2 506
22 to 34 years, veteran of Vietnam	7 748	4 131	1 508	667	497	431	49	-	-	59	104	303
25 to 34 years	27 685	13 579	5 104	2 717	1 757	1 407	308	47	283	222	390	1 790
35 to 44 years	26 140	14 884	4 563	1 784	771	887	390	57	-	286	224	2 294
45 to 54 years	28 900	17 379	4 346	1 273	887	550	165	115	59	169	-	3 959
55 to 64 years	25 023	12 300	2 638	1 201	661	384	437	110	109	164	270	6 749
65 years and over	23 890	2 962	351	410	679	183	431	57	196	38	365	18 217
40 to 64 years	68 700	38 455	9 365	3 531	2 040	1 319	934	224	168	390	270	12 004
Female, total	182 653	37 810	9 446	7 845	5 720	8 556	5 470	2 423	2 438	3 293	5 539	94 114
16 to 21 years, total	27 624	3 009	814	1 482	1 241	3 609	1 000	570	757	767	2 278	12 095
16 to 21 years, not in school	15 832	2 295	528	1 008	1 002	2 328	479	142	333	432	856	6 429
22 to 34 years	44 048	11 433	3 101	3 127	2 214	3 031	724	414	777	623	763	17 842
25 to 34 years	30 926	7 839	1 949	2 597	1 448	1 698	534	219	535	428	426	13 253
35 to 44 years	28 504	8 183	2 095	1 151	764	646	752	539	323	317	919	12 812
45 to 54 years	32 341	9 382	1 999	1 345	852	366	1 183	214	213	791	527	15 470
55 to 64 years	23 757	4 714	1 330	583	323	588	1 108	366	262	369	892	13 222
65 years and over	26 380	1 089	108	157	325	316	702	321	106	425	159	22 672
40 to 64 years	71 915	18 953	4 566	2 628	1 614	1 165	2 723	907	585	1 319	1 694	35 761
FAMILY STATUS[1]												
Male, total	127 005	64 694	19 278	9 358	6 043	4 613	1 682	715	499	1 226	1 693	17 203
Family head	70 206	41 944	12 494	4 051	2 436	1 564	733	167	110	271	423	6 012
Family member	23 475	8 034	2 067	2 323	1 600	1 936	399	339	331	402	777	5 266
Unrelated individual	33 324	14 715	4 717	2 984	2 007	1 113	550	209	57	554	493	5 925
Female, total	141 294	35 474	8 951	6 985	5 106	6 512	4 198	1 569	1 762	2 483	3 850	64 404
Family head	29 448	6 618	1 997	1 260	1 001	1 333	637	212	532	469	836	14 553
No children under 18 years	6 139	2 343	903	107	56	167	161	-	212	51	211	1 929
Children 6 to 17 years only	9 335	2 807	376	476	374	271	208	159	159	212	265	4 028
Children under 6 years	13 973	1 469	718	677	571	895	268	53	161	206	360	8 596
Wife of head	67 134	14 399	3 743	2 989	2 297	2 353	2 096	746	735	1 315	2 026	34 434
No children under 18 years	29 276	6 872	1 441	1 444	811	379	1 162	326	163	637	840	15 199
Children 6 to 17 years only	16 613	4 166	790	536	581	634	467	267	108	525	415	8 124
Children under 6 years	21 246	3 361	1 512	1 009	905	1 339	467	153	464	153	771	11 111
Other family member	23 753	6 505	1 269	1 449	1 241	2 124	550	249	344	385	729	8 909
Unrelated individual	20 959	7 952	1 942	1 288	567	703	914	362	150	314	259	6 508
EDUCATIONAL ATTAINMENT[1]												
Male, total	127 005	64 694	19 278	9 358	6 043	4 613	1 682	715	499	1 226	1 693	17 203
Elementary: 7 years or less	23 409	10 625	3 089	1 730	709	823	369	155	109	425	311	5 063
8 years	14 673	7 861	2 626	1 120	514	388	51	57	-	55	112	1 889
High school: 1 to 3 years	40 070	18 063	6 155	3 758	2 219	1 703	585	215	59	414	899	6 001
4 years	35 209	20 116	5 095	2 257	1 946	1 329	467	145	227	274	201	3 150
College: 1 year or more	13 645	8 028	2 312	493	655	371	210	143	104	58	171	1 100
Female, total	141 294	35 474	8 951	6 985	5 106	6 512	4 198	1 569	1 762	2 483	3 850	64 404
Elementary: 7 years or less	17 910	2 586	859	365	492	259	473	208	259	313	471	11 625
8 years	14 924	2 715	960	859	269	718	650	55	321	267	263	7 847
High school: 1 to 3 years	43 976	8 338	1 949	1 506	1 788	2 490	1 475	368	524	557	1 524	23 457
4 years	48 993	15 374	3 400	3 234	2 357	2 547	1 204	619	449	1 140	911	17 758
College: 1 year or more	15 491	6 461	1 783	1 021	200	498	396	320	209	205	680	3 718

[1] Persons 16 to 64 years, not in school.

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Table 19a. Work Experience in Last 12 Months: White

Age and Sex Family Status Educational Attainment	Total civilian noninstitutional population	Work experience in last 12 months										Did not work at all
		Full-time weeks worked					Part-time weeks worked					
		50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks	
AGE AND SEX												
Total, 16 years and over	86 576	22 792	7 218	4 490	3 264	3 320	2 367	1 047	701	1 260	1 373	38 745
Male, total	43 961	15 581	5 669	2 641	1 928	1 580	1 350	520	106	583	636	13 367
16 to 21 years, total	4 548	435	486	627	436	533	484	289	48	145	241	824
16 to 21 years, not in school	2 423	242	340	436	290	244	145	144	-	97	194	292
22 to 34 years, total	8 938	3 936	1 474	933	709	598	202	-	57	156	168	706
22 to 34 years, veteran of Vietnam	1 244	683	202	203	-	107	-	-	-	-	-	48
25 to 34 years	6 795	2 714	1 230	693	563	500	202	-	57	106	168	561
35 to 44 years	5 302	2 607	1 226	283	224	57	224	57	-	115	114	395
45 to 54 years	7 757	4 310	1 359	398	278	223	55	58	-	55	-	1 021
55 to 64 years	7 352	3 281	1 014	171	111	115	169	59	-	113	58	2 262
65 years and over	10 065	1 013	110	228	170	55	216	57	-	-	56	8 160
40 to 64 years	18 375	9 123	3 205	795	557	394	448	116	-	168	58	3 511
Female, total	42 615	7 211	1 549	1 850	1 336	1 741	1 017	527	595	677	737	25 377
16 to 21 years, total	4 628	531	192	432	244	482	334	98	332	146	241	1 597
16 to 21 years, not in school	2 907	436	97	291	195	339	97	-	97	48	191	1 116
22 to 34 years	8 594	1 876	688	717	365	707	56	212	152	99	105	3 617
25 to 34 years	5 583	1 294	395	668	169	419	56	113	55	-	56	2 357
35 to 44 years	4 757	1 132	112	135	283	168	112	56	-	-	226	2 531
45 to 54 years	7 588	1 950	168	354	280	56	191	56	55	168	111	4 198
55 to 64 years	6 565	1 061	388	108	113	223	168	55	55	56	55	4 281
65 years and over	10 484	660	-	104	51	103	155	49	-	208	-	9 154
40 to 64 years	16 914	3 746	612	518	562	280	415	168	111	225	223	10 054
FAMILY STATUS[1]												
Male, total	31 185	14 036	5 365	2 175	1 612	1 137	795	317	57	535	534	4 621
Family head	15 617	7 598	3 663	900	707	435	427	116	57	104	57	1 554
Family member	4 771	1 725	451	558	212	368	48	98	-	155	145	1 011
Unrelated individual	10 797	4 714	1 250	717	694	334	319	104	-	277	332	2 056
Female, total	29 822	6 351	1 453	1 529	1 187	1 447	624	274	310	322	687	15 638
Family head	3 763	733	169	104	171	274	168	-	55	-	111	1 978
No children under 18 years	1 238	395	113	-	56	114	56	-	-	-	-	504
Children 6 to 17 years only	1 123	170	56	55	58	112	-	-	-	-	-	672
Children under 6 years	1 401	169	-	48	57	48	111	-	55	-	111	802
Wife of head	15 458	2 430	652	779	805	678	113	114	104	225	315	9 245
No children under 18 years	7 547	1 497	276	337	436	276	56	114	-	169	57	4 329
Children 6 to 17 years only	3 343	613	111	111	112	56	56	-	55	55	56	2 115
Children under 6 years	4 568	320	265	330	257	346	-	-	48	-	201	2 800
Other family member	4 163	1 111	260	193	155	208	208	56	97	48	104	1 721
Unrelated individual	6 439	2 077	372	453	55	286	135	105	55	49	158	2 693
EDUCATIONAL ATTAINMENT[1]												
Male, total	31 185	14 036	5 365	2 175	1 612	1 137	795	317	57	535	534	4 621
Elementary: 7 years or less	6 049	2 922	772	371	275	172	209	98	-	154	48	1 029
8 years	4 488	1 782	989	329	106	170	-	57	-	55	54	946
High school: 1 to 3 years	8 985	3 379	1 747	849	440	375	215	1[illegible]	-	156	163	1 545
4 years	7 141	3 539	991	626	638	210	161	-	57	113	98	707
College: 1 year or more	4 522	2 414	866	-	153	211	210	46	-	58	171	394
Female, total	29 822	6 351	1 453	1 529	1 187	1 447	624	274	310	322	687	15 638
Elementary: 7 years or less	4 304	392	282	56	332	112	55	-	48	-	111	2 915
8 years	5 387	784	218	168	113	219	225	55	111	112	56	3 327
High school: 1 to 3 years	7 925	1 107	435	265	320	440	240	56	55	49	153	4 806
4 years	9 213	3 179	262	601	317	525	105	-	48	161	255	3 759
College: 1 year or more	2 993	891	255	438	106	151	-	163	48	-	111	830

[1] Persons 16 to 64 years, not in school.

Table 19b. Work Experience in Last 12 Months: Negro

Age and Sex Family Status Educational Attainment	Total civilian noninstitutional population	Work experience in last 12 months									
		Full-time weeks worked					Part-time weeks worked				Did not work at all
		50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks	
AGE AND SEX												
Total, 16 years and over	255 432	82 181	22 071	13 418	9 445	12 119	6 124	2 526	2 702	3 581	7 784	93 480
Male, total	118 399	52 494	14 391	7 641	5 165	5 360	1 671	686	859	965	2 982	26 184
16 to 21 years, total	18 604	2 988	1 247	1 374	805	2 372	712	435	380	427	2 035	5 831
16 to 21 years, not in school	8 736	2 325	816	1 042	568	806	238	146	47	191	615	1 941
22 to 34 years, total	28 233	13 924	5 357	2 736	2 203	1 433	201	143	169	163	316	1 589
22 to 34 years, veteran of Vietnam	6 399	3 448	1 250	464	448	324	49	-	-	59	104	255
25 to 34 years	19 991	10 470	3 726	1 966	1 194	907	106	47	169	116	222	1 067
35 to 44 years	20 437	11 991	3 279	1 444	546	830	166	-	-	171	110	1 899
45 to 54 years	20 525	12 849	2 702	874	552	327	110	57	59	114	-	2 880
55 to 64 years	17 279	8 794	1 624	1 030	550	270	268	51	56	51	212	4 373
65 years and over	13 322	1 950	183	183	509	128	215	-	196	38	309	9 611
40 to 64 years	49 198	28 771	5 875	2 737	1 425	924	487	108	115	222	212	8 321
Female, total	137 033	29 686	7 680	5 777	4 281	6 760	4 453	1 840	1 843	2 616	4 802	67 296
16 to 21 years, total	22 611	2 432	573	1 002	950	3 127	666	472	425	621	2 038	10 304
16 to 21 years, not in school	12 782	1 813	432	668	807	1 989	382	142	236	383	665	5 265
22 to 34 years	34 205	8 910	2 413	2 241	1 793	2 268	668	202	624	524	658	13 904
25 to 34 years	24 384	6 091	1 554	1 759	1 223	1 223	478	106	480	428	370	10 673
35 to 44 years	23 353	6 938	1 927	1 016	481	478	640	426	323	317	694	10 113
45 to 54 years	24 418	7 375	1 717	990	572	309	992	157	157	623	417	11 107
55 to 64 years	16 913	3 653	942	474	211	364	940	310	207	313	837	8 662
65 years and over	15 533	378	108	53	274	213	547	272	106	218	159	13 207
40 to 64 years	54 159	15 094	3 841	2 109	1 052	885	2 308	682	474	1 094	1 471	25 149
FAMILY STATUS[1]												
Male, total	93 282	49 289	13 246	7 068	4 325	3 476	888	398	331	691	1 159	12 411
Family head	53 367	33 680	8 442	3 151	1 729	1 129	306	51	-	167	366	4 345
Family member	18 288	5 991	1 567	1 765	1 341	1 568	351	242	331	247	632	4 255
Unrelated individual	21 627	9 618	3 238	2 152	1 256	778	231	105	-	277	161	3 811
Female, total	109 174	28 309	7 329	5 239	3 863	5 009	3 574	1 237	1 452	2 160	3 162	47 838
Family head	25 572	5 828	1 828	1 156	830	1 058	469	212	478	469	725	12 519
No children under 18 years	4 844	1 891	790	107	-	53	104	-	212	51	211	1 424
Children 6 to 17 years only	8 212	2 637	320	420	316	159	208	159	159	212	265	3 357
Children under 6 years	12 516	1 300	718	629	514	846	157	53	106	206	249	7 738
Wife of head	50 285	11 686	2 977	2 041	1 492	1 619	1 983	575	632	1 090	1 712	24 478
No children under 18 years	21 003	5 204	1 108	1 049	376	104	1 106	212	163	468	783	10 431
Children 6 to 17 years only	12 989	3 497	679	369	469	578	411	210	53	469	359	5 897
Children under 6 years	16 293	2 985	1 191	623	648	937	467	153	416	153	570	8 151
Other family member	19 011	5 060	1 009	1 207	1 030	1 915	342	193	247	336	625	7 026
Unrelated individual	14 306	5 716	1 515	835	512	417	779	257	95	264	101	3 815
EDUCATIONAL ATTAINMENT[1]												
Male, total	93 282	49 289	13 246	7 068	4 325	3 476	888	398	331	691	1 159	12 411
Elementary: 7 years or less	16 910	7 364	2 318	1 359	434	651	161	57	56	271	263	3 977
8 years	9 898	5 907	1 523	790	408	218	51	-	-	-	57	943
High school: 1 to 3 years	30 614	14 540	4 197	2 909	1 721	1 327	370	98	59	259	736	4 399
4 years	27 743	16 414	3 990	1 631	1 260	1 119	306	145	169	161	104	2 443
College: 1 year or more	8 117	5 064	1 218	378	502	160	-	97	47	-	-	650
Female, total	109 174	28 309	7 329	5 239	3 863	5 009	3 574	1 237	1 452	2 160	3 162	47 838
Elementary: 7 years or less	13 224	2 092	577	309	160	147	418	208	210	313	360	8 430
8 years	9 479	1 931	742	634	156	498	425	-	210	156	207	4 520
High school: 1 to 3 years	35 568	7 175	1 514	1 193	1 468	1 994	1 236	254	469	508	1 371	18 387
4 years	39 071	11 880	3 080	2 633	1 985	2 022	1 099	619	401	979	656	13 718
College: 1 year or more	11 832	5 231	1 417	471	94	348	396	157	161	205	568	2 784

[1] Persons 16 to 64 years, not in school.

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Table 20. Work Experience in Last 12 Months of Wage and Salary Workers: All Races

Major Occupation Group Major Industry Group Annual Wage and Salary Earnings	Total wage and salary workers with work experience in last 12 months	Work experience in last 12 months											
		Full-time weeks worked						Part-time weeks worked					
		Total with full-time experience	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks	Total with part-time experience	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks
MAJOR OCCUPATION GROUP[1]													
Total	181 273	162 738	97 348	27 517	16 081	10 938	10 854	18 535	5 554	2 181	2 039	3 549	5 212
Professional and technical	11 200	10 261	6 605	2 088	1 022	243	303	938	322	153	160	53	250
Managerial and administrative	4 050	3 687	2 714	536	224	107	107	362	159	-	47	56	99
Sales	4 653	3 581	2 494	478	110	198	301	1 072	343	260	53	108	308
Clerical	27 469	23 712	15 376	2 715	2 554	1 480	1 588	3 757	861	397	363	558	1 578
Craftsmen and foremen	19 124	17 959	11 711	2 944	1 761	901	641	1 165	267	222	-	311	365
Operatives, except transportation	49 602	47 646	25 445	11 116	4 584	3 752	2 750	1 956	477	352	212	410	505
Transport equipment operatives	9 496	9 068	6 186	1 107	799	766	210	428	105	-	-	268	56
Laborers, except farm	14 385	13 233	7 121	2 272	1 592	1 065	1 183	1 152	467	-	170	266	249
Service workers, except private household	33 707	28 646	16 999	3 422	2 857	2 268	3 100	5 061	1 315	691	772	1 099	1 183
Private household workers	7 265	4 735	2 537	840	528	159	671	2 530	1 125	105	262	420	618
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	271	159	109	-	49	-	-	112	112	-	-	-	-
Not available	51	51	51	-	-	-	-	-	-	-	-	-	-
Male, total	106 514	101 358	62 937	18 836	9 144	5 885	4 556	5 156	1 573	664	385	1 120	1 415
Professional and technical	4 820	4 554	3 097	1 085	218	96	59	266	162	48	57	-	-
Managerial and administrative	2 215	2 215	1 719	220	113	107	55	-	-	-	-	-	-
Sales	1 167	918	644	217	57	-	-	249	145	103	-	-	-
Clerical	7 277	6 826	5 315	486	666	253	105	451	103	49	-	58	241
Craftsmen and foremen	17 762	16 865	10 923	2 889	1 658	801	594	897	215	165	-	209	308
Operatives, except transportation	39 044	38 342	21 437	9 331	3 361	2 269	1 944	702	56	192	53	96	305
Transport equipment operatives	9 190	8 762	5 980	1 060	799	766	157	428	105	-	-	268	56
Laborers, except farm	13 055	12 064	6 546	2 117	1 536	1 017	848	991	414	-	115	213	249
Service workers, except private household	11 549	10 546	7 059	1 430	686	576	795	1 003	261	107	160	220	256
Private household workers	113	57	57	-	-	-	-	56	-	-	-	56	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	271	159	109	-	49	-	-	112	112	-	-	-	-
Not available	51	51	51	-	-	-	-	-	-	-	-	-	-
Female, total	74 758	61 380	34 411	8 681	6 937	5 053	6 297	13 378	3 981	1 517	1 654	2 430	3 797
Professional and technical	6 379	5 707	3 509	1 003	804	147	244	672	160	105	103	53	250
Managerial and administrative	1 835	1 473	995	316	110	-	52	362	159	-	47	56	99
Sales	3 486	2 663	1 850	261	53	198	301	823	198	157	53	108	308
Clerical	20 192	16 886	10 061	2 228	1 888	1 227	1 482	3 306	758	348	363	500	1 337
Craftsmen and foremen	1 362	1 094	788	55	103	100	47	269	53	57	-	102	56
Operatives, except transportation	10 558	9 304	4 008	1 785	1 223	1 483	806	1 253	420	160	159	314	200
Transport equipment operatives	306	306	206	47	-	-	53	-	-	-	-	-	-
Laborers, except farm	1 330	1 169	575	154	56	47	336	161	53	-	55	53	-
Service workers, except private household	22 158	18 100	9 940	1 991	2 171	1 692	2 305	4 058	1 055	585	612	879	927
Private household workers	7 152	4 678	2 480	840	528	159	671	2 474	1 125	105	262	364	618
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP[1]													
Male, total	106 514	101 358	62 937	18 836	9 144	5 885	4 556	5 156	1 573	664	385	1 120	1 415
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	264	152	51	-	101	-	-	113	56	-	56	-	-
Mining	57	57	-	57	-	-	-	-	-	-	-	-	-
Construction	5 132	4 709	1 649	934	770	977	379	423	53	108	-	-	263
Durable goods manufacturing	52 829	52 119	31 192	11 688	4 623	2 674	1 942	709	264	143	-	96	207
Nondurable goods manufacturing	5 564	5 466	3 590	629	585	351	310	98	49	-	-	49	-
Transportation, communication, and other public utilities	5 941	5 632	3 550	1 126	409	335	213	309	104	-	-	104	100
Wholesale and retail trade	13 340	12 265	7 828	1 545	1 356	739	797	1 075	238	114	56	374	292
Finance, insurance, and real estate	1 649	1 496	905	168	58	254	111	154	49	-	-	58	47
Business and repair services	3 994	3 559	1 997	428	499	247	387	435	56	58	53	165	104
Personal services	1 747	1 302	862	108	171	-	161	445	226	-	59	56	104
Professional services and entertainment	4 498	4 135	3 284	530	115	101	104	363	153	49	-	57	104
Government[2]													
Educational services	1 562	1 246	766	381	51	-	47	316	107	48	113	-	47
All other government services	9 937	9 221	7 262	1 241	407	207	105	716	217	145	47	160	147
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	74 758	61 380	34 411	8 681	6 937	5 053	6 297	13 378	3 981	1 517	1 654	2 430	3 797
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	103	103	54	-	-	-	49	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction	195	195	53	-	-	94	47	-	-	-	-	-	-
Durable goods manufacturing	5 799	5 488	2 546	739	583	1 020	600	311	47	108	-	155	-
Nondurable goods manufacturing	3 680	3 311	1 286	684	677	372	292	369	53	57	53	49	156
Transportation, communication, and other public utilities	1 994	1 898	1 386	205	155	100	53	96	48	47	-	-	-
Wholesale and retail trade	16 345	12 913	6 638	1 309	1 558	1 433	1 975	3 432	993	218	425	729	1 067
Finance, insurance, and real estate	3 815	3 454	2 021	717	373	107	237	360	214	53	-	-	93
Business and repair services	1 615	1 088	733	47	56	98	153	527	211	-	55	47	213
Personal services	13 339	9 260	5 225	1 739	743	627	925	4 079	1 596	355	309	881	938
Professional services and entertainment	16 827	14 717	9 287	1 813	1 652	842	1 123	2 110	618	311	303	257	622
Government[2]													
Educational services	3 702	2 361	988	738	429	151	56	1 341	106	265	410	106	454
All other government services	7 345	6 592	4 196	690	711	208	787	753	94	102	100	204	253
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school, longest job as a wage and salary worker. [2] Government class of worker.

Table 20. **Work Experience in Last 12 Months of Wage and Salary Workers: All Races**—Continued

Major Occupation Group Major Industry Group Annual Wage and Salary Earnings	Total wage and salary workers with work experience in last 12 months	Work experience in last 12 months											
		Full-time weeks worked						Part-time weeks worked					
		Total with full-time experience	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks	Total with part-time experience	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks
ANNUAL WAGE AND SALARY EARNINGS[3]													
Male, total	106 514	101 358	62 937	18 836	9 144	5 885	4 556	5 156	1 573	664	385	1 120	1 415
Less than $500	4 345	3 217	1 170	307	223	254	1 263	1 129	57	-	-	261	811
$500 to $999	2 981	2 518	254	201	433	637	992	464	49	103	100	162	49
$1,000 to $1,999	6 342	4 982	1 109	539	779	1 280	1 275	1 360	587	48	59	315	352
$2,000 to $2,999	4 531	3 642	963	453	877	1 094	255	889	310	155	56	267	100
$3,000 to $3,999	5 383	4 972	1 678	1 307	1 188	685	114	410	249	105	57	-	-
$4,000 to $4,999	5 758	5 655	2 200	880	1 445	914	216	104	56	47	-	-	-
$5,000 to $5,999	8 276	8 015	4 134	1 912	1 498	424	47	261	48	156	56	-	-
$6,000 to $6,999	12 377	12 270	7 772	2 981	1 132	159	225	108	59	49	-	-	-
$7,000 to $7,999	17 644	17 587	12 968	3 737	655	113	114	56	-	-	56	-	-
$8,000 to $8,999	15 014	14 858	11 581	2 584	580	114	-	157	53	-	-	-	104
$9,000 to $9,999	8 093	8 036	6 552	1 329	56	98	-	56	56	-	-	-	-
$10,000 to $11,999	9 839	9 675	8 114	1 393	110	58	-	163	48	-	-	115	-
$12,000 to $14,999	4 394	4 394	3 188	984	166	-	56	-	-	-	-	-	-
$15,000 or more	1 537	1 537	1 256	228	-	54	-	-	-	-	-	-	-
Median ..... dollars	7 185	7 308	7 940	7 224	4 742	2 705	1 018	1 725	2 301	3 243	2 596	1 435	437
Female, total	74 758	61 380	34 411	8 681	6 937	5 053	6 297	13 378	3 981	1 517	1 654	2 430	3 797
Less than $500	11 064	7 044	1 755	838	656	659	3 136	4 020	658	210	259	315	2 577
$500 to $999	7 921	5 295	917	472	516	1 252	2 138	2 625	616	98	310	963	637
$1,000 to $1,999	8 794	6 367	1 354	754	1 457	2 089	712	2 428	720	431	267	747	263
$2,000 to $2,999	9 384	7 403	3 390	1 524	1 869	516	104	1 980	894	412	309	204	161
$3,000 to $3,999	9 922	8 878	6 137	1 213	1 210	317	-	1 044	580	312	48	104	-
$4,000 to $4,999	8 816	7 997	6 217	1 294	375	111	-	819	309	-	413	97	-
$5,000 to $5,999	5 870	5 765	4 869	526	264	53	53	105	52	-	-	-	53
$6,000 to $6,999	5 056	4 799	3 846	789	164	-	-	257	104	53	47	-	53
$7,000 to $7,999	3 131	3 078	2 443	374	212	-	48	53	-	-	-	-	53
$8,000 to $8,999	2 076	2 029	1 556	313	104	56	-	47	47	-	-	-	-
$9,000 to $9,999	969	969	756	160	-	-	53	-	-	-	-	-	-
$10,000 to $11,999	956	956	688	160	55	-	53	-	-	-	-	-	-
$12,000 to $14,999	422	422	319	103	-	-	-	-	-	-	-	-	-
$15,000 or more	377	377	163	161	53	-	-	-	-	-	-	-	-
Median ..... dollars	3 022	3 516	4 587	3 621	2 449	1 295	503	1 018	1 994	2 046	1 963	967	369

[3] Persons 16 to 64 years, not in school.

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Table 20a. Work Experience in Last 12 Months of Wage and Salary Workers: White

Major Occupation Group Major Industry Group Annual Wage and Salary Earnings	Total wage and salary workers with work experience in last 12 months	Work experience in last 12 months											
		Full-time weeks worked						Part-time weeks worked					
		Total with full-time experience	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks	Total with part-time experience	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks
MAJOR OCCUPATION GROUP[1]													
Total	38 920	34 968	19 546	6 761	3 551	2 744	2 365	3 952	1 307	592	255	802	996
Professional and technical	3 769	3 397	2 064	693	490	48	102	372	218	105	48	-	-
Managerial and administrative	1 152	1 049	719	162	169	-	-	103	-	-	-	56	46
Sales	1 197	1 046	609	226	-	99	113	151	-	46	-	56	48
Clerical	6 041	5 192	3 257	581	515	426	412	849	208	-	55	106	481
Craftsmen and foremen	5 247	4 547	2 626	1 161	266	323	172	699	104	222	-	154	219
Operatives, except transportation	9 331	9 082	4 468	2 363	942	765	545	249	-	104	-	48	97
Transport equipment operatives	2 212	2 116	1 207	493	98	213	104	97	48	-	-	48	-
Laborers, except farm	2 983	2 622	1 289	372	439	327	195	361	208	-	55	48	49
Service workers, except private household	6 636	5 699	3 251	711	582	489	667	937	385	114	97	285	56
Private household workers	191	168	56	-	-	55	56	23	23	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	162	49	-	-	49	-	-	112	112	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	25 498	23 597	13 580	5 308	2 071	1 557	1 081	1 901	795	317	-	480	309
Professional and technical	2 099	1 938	1 295	485	109	48	-	162	162	-	-	-	-
Managerial and administrative	714	714	495	106	113	-	-	-	-	-	-	-	-
Sales	215	169	56	113	-	-	-	46	-	46	-	-	-
Clerical	1 687	1 526	1 106	217	97	48	58	161	103	-	-	58	-
Craftsmen and foremen	4 979	4 443	2 521	1 161	266	323	172	537	104	165	-	104	163
Operatives, except transportation	7 048	6 855	3 346	2 081	612	328	487	193	-	48	-	48	97
Transport equipment operatives	2 212	2 116	1 207	493	98	213	104	97	48	-	-	48	-
Laborers, except farm	2 774	2 468	1 289	372	383	327	98	306	208	-	-	48	49
Service workers, except private household	3 607	3 320	2 265	280	343	271	162	287	56	58	-	173	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	162	49	-	-	49	-	-	112	112	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	13 422	11 371	5 966	1 453	1 480	1 187	1 284	2 051	512	274	255	322	687
Professional and technical	1 669	1 460	769	208	382	-	102	210	56	105	48	-	-
Managerial and administrative	438	335	224	55	55	-	-	103	-	-	-	56	46
Sales	982	878	553	114	-	99	113	105	-	-	-	56	48
Clerical	4 354	3 666	2 152	364	418	378	354	688	105	-	55	48	481
Craftsmen and foremen	267	105	105	-	-	-	-	163	-	57	-	49	56
Operatives, except transportation	2 283	2 227	1 121	282	330	437	57	55	-	55	-	-	-
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm	209	154	-	-	56	-	98	55	-	-	55	-	-
Service workers, except private household	3 029	2 379	986	431	239	218	505	650	329	56	97	112	56
Private household workers	191	168	56	-	-	55	56	23	23	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP[1]													
Male, total	25 498	23 597	13 580	5 308	2 071	1 557	1 081	1 901	795	317	-	480	309
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	105	49	-	-	49	-	-	56	56	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction	1 097	932	226	275	214	217	-	165	-	59	-	-	106
Durable goods manufacturing	9 802	9 659	5 653	2 496	714	474	322	143	48	46	-	48	-
Nondurable goods manufacturing	1 829	1 780	1 104	217	313	97	49	49	-	-	-	49	-
Transportation, communication, and other public utilities	2 102	1 998	1 062	598	-	225	113	104	104	-	-	-	-
Wholesale and retail trade	3 893	3 438	1 989	579	381	226	263	455	97	57	-	155	146
Finance, insurance, and real estate	503	445	228	56	-	104	56	58	-	-	-	58	-
Business and repair services	1 414	1 301	570	217	288	56	170	113	56	58	-	-	-
Personal services	397	229	114	56	-	-	59	168	111	-	-	-	57
Professional services and entertainment	1 711	1 549	1 233	214	-	101	-	162	106	-	-	57	-
Government[2]													
Educational services	494	438	278	160	-	-	-	56	56	-	-	-	-
All other government services	2 150	1 778	1 123	438	112	57	48	371	161	98	-	113	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	13 422	11 371	5 966	1 453	1 480	1 187	1 284	2 051	512	274	255	322	687
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	49	49	-	-	-	-	49	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-	-	-	-	-
Durable goods manufacturing	1 816	1 761	882	169	112	444	154	55	-	55	-	-	-
Nondurable goods manufacturing	1 361	1 199	450	162	273	266	48	163	-	57	-	49	56
Transportation, communication, and other public utilities	508	460	411	-	48	-	-	48	48	-	-	-	-
Wholesale and retail trade	3 907	3 161	1 495	541	328	316	482	747	216	56	48	168	258
Finance, insurance, and real estate	962	860	537	105	112	58	48	103	56	-	-	-	46
Business and repair services	440	217	161	-	56	-	-	223	56	-	55	-	111
Personal services	733	551	327	56	-	55	112	182	23	-	-	48	111
Professional services and entertainment	2 635	2 353	1 209	421	341	48	335	281	113	56	-	56	56
Government[2]													
Educational services	376	225	56	-	113	-	56	151	-	-	103	-	48
All other government services	634	536	440	-	97	-	-	98	-	49	48	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-

[1]Persons 16 to 64 years, not in school, longest job as a wage and salary worker. [2]Government class of worker.

Table 20a. Work Experience in Last 12 Months of Wage and Salary Workers: White—Continued

Major Occupation Group Major Industry Group Annual Wage and Salary Earnings	Total wage and salary workers with work experience in last 12 months	Work experience in last 12 months											
		Full-time weeks worked						Part-time weeks worked					
		Total with full-time experience	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks	Total with part-time experience	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks
ANNUAL WAGE AND SALARY EARNINGS[3]													
Male, total	25 498	23 597	13 580	5 308	2 071	1 557	1 081	1 901	795	317	-	480	309
Less than $500	1 197	849	275	97	59	46	372	349	-	-	-	146	203
$500 to $999	671	567	55	48	164	98	202	104	-	46	-	58	-
$1,000 to $1,999	1 563	1 004	232	170	113	322	168	558	394	-	-	58	106
$2,000 to $2,999	1 441	1 122	217	202	266	379	57	319	159	57	-	103	-
$3,000 to $3,999	1 763	1 561	458	392	322	275	114	203	145	58	-	-	-
$4 000 to $4,999	1 471	1 471	549	387	210	270	55	-	-	-	-	-	-
$5,000 to $5,999	2 210	2 005	949	475	471	109	-	205	48	156	-	-	-
$6,000 to $6,999	2 544	2 544	1 866	426	195	-	56	-	-	-	-	-	-
$7,000 to $7,999	3 510	3 510	2 570	726	214	-	-	-	-	-	-	-	-
$8,000 to $8,999	2 922	2 922	1 976	890	56	-	-	-	-	-	-	-	-
$9,000 to $9,999	1 606	1 606	1 220	386	-	-	-	-	-	-	-	-	-
$10,000 to $11,999	2 591	2 428	1 927	442	-	58	-	163	48	-	-	115	-
$12,000 to $14,999	1 326	1 326	772	498	-	-	56	-	-	-	-	-	-
$15,000 or more	683	683	513	170	-	-	-	-	-	-	-	-	-
Median ....dollars.	6 956	7 193	7 852	7 630	4 530	2 825	917	1 892	2 020	3 959	0	1 627	381
Female, total	13 422	11 371	5 966	1 453	1 480	1 187	1 284	2 051	512	274	255	322	687
Less than $500	1 534	1 198	209	160	105	112	612	336	79	56	-	-	201
$500 to $999	1 877	1 446	334	215	53	332	513	431	48	-	-	-	383
$1,000 to $1,999	1 558	957	-	48	384	469	55	601	-	163	110	225	104
$2,000 to $2,999	1 856	1 542	603	426	352	56	104	314	169	-	97	48	-
$3,000 to $3,999	1 545	1 377	838	113	322	105	-	167	112	55	-	-	-
$4,000 to $4,999	1 279	1 076	642	217	161	56	-	202	105	-	48	49	-
$5,000 to $5,999	842	842	793	-	48	-	-	-	-	-	-	-	-
$6,000 to $6,999	1 160	1 160	879	226	55	-	-	-	-	-	-	-	-
$7,000 to $7,999	553	553	553	-	-	-	-	-	-	-	-	-	-
$8,000 to $8,999	552	552	448	48	-	56	-	-	-	-	-	-	-
$9,000 to $9,999	279	279	279	-	-	-	-	-	-	-	-	-	-
$10,000 to $11,999	216	216	216	-	-	-	-	-	-	-	-	-	-
$12,000 to $14,999	115	115	115	-	-	-	-	-	-	-	-	-	-
$15,000 or more	57	57	57	-	-	-	-	-	-	-	-	-	-
Median ....dollars.	2 939	3 394	5 450	2 714	2 564	1 318	530	1 430	2 764	1 497	2 181	1 717	686

[3] Persons 16 to 64 years, not in school.

Table 20b. Work Experience in Last 12 Months of Wage and Salary Workers: Negro

Major Occupation Group Major Industry Group Annual Wage and Salary Earnings	Total wage and salary workers with work experience in last 12 months	Work experience in last 12 months											
		Full-time weeks worked						Part-time weeks worked					
		Total with full-time experience	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks	Total with part-time experience	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks
MAJOR OCCUPATION GROUP[1]													
Total	138 893	124 478	75 677	20 033	12 254	8 080	8 432	14 415	4 247	1 532	1 674	2 747	4 216
Professional and technical	6 484	5 974	3 993	1 225	361	195	201	510	104	48	55	53	250
Managerial and administrative	2 842	2 582	1 939	374	55	107	107	260	159	-	47	-	53
Sales	3 398	2 478	1 828	252	110	99	189	921	343	214	53	51	260
Clerical	20 991	18 082	11 738	2 076	2 039	1 054	1 176	2 908	654	397	308	452	1 098
Craftsmen and foremen	13 545	13 079	8 922	1 615	1 494	579	469	466	163	-	-	158	146
Operatives, except transportation	39 349	37 695	20 482	8 483	3 594	2 931	2 205	1 654	477	248	159	362	408
Transport equipment operatives	7 284	6 952	4 979	613	702	553	106	332	56	-	-	219	56
Laborers, except farm	11 242	10 451	5 728	1 844	1 153	738	988	791	259	-	115	218	200
Service workers, except private household	26 635	22 568	13 485	2 711	2 218	1 722	2 433	4 067	930	520	675	815	1 127
Private household workers	6 962	4 455	2 424	840	528	104	558	2 508	1 102	105	262	420	618
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	109	109	109	-	-	-	-	-	-	-	-	-	-
Not available	51	51	51	-	-	-	-	-	-	-	-	-	-
Male, total	78 869	75 724	48 046	12 917	7 015	4 270	3 476	3 146	778	346	275	640	1 106
Professional and technical	2 282	2 234	1 592	485	51	47	59	48	-	48	-	-	-
Managerial and administrative	1 444	1 444	1 168	114	-	107	55	-	-	-	-	-	-
Sales	952	750	588	104	57	-	-	202	145	57	-	-	-
Clerical	5 363	5 072	4 039	212	569	205	47	290	-	49	-	-	241
Craftsmen and foremen	12 506	12 146	8 239	1 615	1 391	479	422	360	110	-	-	104	146
Operatives, except transportation	31 227	30 771	17 644	6 980	2 749	1 941	1 457	456	56	143	-	48	208
Transport equipment operatives	6 978	6 646	4 772	566	702	553	53	332	56	-	-	219	56
Laborers, except farm	10 121	9 436	5 152	1 690	1 153	691	750	685	206	-	115	165	200
Service workers, except private household	7 724	7 007	4 634	1 150	343	248	633	716	204	49	160	47	256
Private household workers	113	57	57	-	-	-	-	56	-	-	-	56	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	109	109	109	-	-	-	-	-	-	-	-	-	-
Not available	51	51	51	-	-	-	-	-	-	-	-	-	-
Female, total	60 024	48 754	27 631	7 117	5 239	3 810	4 957	11 270	3 469	1 186	1 399	2 107	3 109
Professional and technical	4 202	3 740	2 401	739	310	147	143	462	104	-	55	53	250
Managerial and administrative	1 398	1 138	771	260	55	-	52	260	159	-	47	-	53
Sales	2 446	1 728	1 240	147	53	99	189	718	198	157	53	51	260
Clerical	15 628	13 010	7 699	1 864	1 470	849	1 129	2 618	654	348	308	452	857
Craftsmen and foremen	1 040	933	683	-	103	100	47	106	53	-	-	53	-
Operatives, except transportation	8 122	6 924	2 838	1 503	845	990	748	1 198	420	105	159	314	200
Transport equipment operatives	306	306	206	47	-	-	53	-	-	-	-	-	-
Laborers, except farm	1 121	1 015	575	154	-	47	238	106	53	-	-	53	-
Service workers, except private household	18 911	15 561	8 851	1 561	1 875	1 474	1 800	3 351	726	471	515	767	871
Private household workers	6 849	4 398	2 367	840	528	104	558	2 451	1 102	105	262	364	618
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP[1]													
Male, total	78 869	75 724	48 046	12 917	7 015	4 270	3 476	3 146	778	346	275	640	1 106
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	159	102	51	-	51	-	-	56	-	-	56	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction	3 978	3 720	1 422	601	556	761	379	259	53	49	-	-	157
Durable goods manufacturing	42 152	41 586	24 941	8 916	3 908	2 200	1 620	566	215	96	-	48	207
Nondurable goods manufacturing	3 628	3 579	2 429	364	272	254	261	49	49	-	-	-	-
Transportation, communication, and other public utilities	3 614	3 409	2 318	472	409	110	100	204	-	-	-	104	100
Wholesale and retail trade	9 227	8 607	5 677	966	975	455	534	620	142	57	56	219	146
Finance, insurance, and real estate	1 089	992	677	112	-	149	55	96	49	-	-	-	47
Business and repair services	2 527	2 258	1 427	211	212	191	217	269	-	-	-	165	104
Personal services	1 350	1 073	748	51	171	-	102	277	115	-	59	56	47
Professional services and entertainment	2 570	2 370	1 835	316	115	-	104	201	47	49	-	-	104
Government[2]													
Educational services	1 011	808	488	221	51	-	47	203	51	48	56	-	47
All other government services	7 565	7 221	6 032	687	295	150	56	345	56	47	47	47	147
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	60 024	48 754	27 631	7 117	5 239	3 810	4 957	11 270	3 469	1 186	1 399	2 107	3 109
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	54	54	54	-	-	-	-	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction	195	195	53	-	-	94	47	-	-	-	-	-	-
Durable goods manufacturing	3 927	3 672	1 664	570	471	520	446	255	47	53	-	155	-
Nondurable goods manufacturing	2 166	1 961	788	467	356	106	244	206	53	-	53	-	100
Transportation, communication, and other public utilities	1 438	1 391	926	205	107	100	53	47	-	47	-	-	-
Wholesale and retail trade	12 266	9 638	5 086	768	1 173	1 117	1 493	2 628	777	104	376	561	810
Finance, insurance, and real estate	2 634	2 377	1 266	613	261	49	189	258	158	53	-	-	47
Business and repair services	1 174	870	572	47	-	98	153	304	155	-	-	47	102
Personal services	12 494	8 597	4 842	1 683	743	572	757	3 897	1 573	355	309	833	827
Professional services and entertainment	13 639	11 810	7 693	1 336	1 198	794	788	1 829	505	255	303	200	565
Government[2]													
Educational services	3 326	2 136	932	738	316	151	-	1 189	106	265	307	106	405
All other government services	6 711	6 055	3 756	690	614	208	787	656	94	53	51	204	253
Not available	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school, longest job as a wage and salary worker. [2] Government class of worker.

Table 20b. Work Experience in Last 12 Months of Wage and Salary Workers: Negro–Continued

Major Occupation Group Major Industry Group Annual Wage and Salary Earnings	Total wage and salary workers with work experience in last 12 months	Work experience in last 12 months											
		Full-time weeks worked						Part-time weeks worked					
		Total with full-time experience	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks	Total with part-time experience	50 to 52 weeks	40 to 49 weeks	27 to 39 weeks	14 to 26 weeks	1 to 13 weeks
ANNUAL WAGE AND SALARY EARNINGS[3]													
Male, total	78 869	75 724	48 046	12 917	7 015	4 270	3 476	3 146	778	346	275	640	1 106
Less than $500	3 148	2 368	895	210	164	208	891	780	57	-	-	115	608
$500 to $999	2 200	1 893	199	153	269	482	790	307	49	57	47	104	49
$1,000 to $1,999	4 779	3 977	877	370	666	958	1 107	802	193	48	59	257	246
$2,000 to $2,999	3 090	2 520	746	251	611	714	198	569	151	98	56	164	100
$3,000 to $3,999	3 400	3 250	1 164	810	866	410	-	151	104	47	-	-	-
$4,000 to $4,999	4 238	4 135	1 602	493	1 234	644	161	104	56	47	-	-	-
$5,000 to $5,999	6 018	5 962	3 185	1 388	1 027	314	47	56	-	-	56	-	-
$6,000 to $6,999	9 575	9 468	5 648	2 556	937	159	169	108	59	49	-	-	-
$7,000 to $7,999	13 905	13 848	10 283	2 898	441	113	114	56	-	-	56	-	-
$8,000 to $8,999	11 640	11 484	9 380	1 466	525	114	-	157	53	-	-	-	104
$9,000 to $9,999	6 212	6 155	5 114	886	56	98	-	56	56	-	-	-	-
$10,000 to $11,999	7 136	7 136	6 075	951	110	-	-	-	-	-	-	-	-
$12,000 to $14,999	2 780	2 780	2 186	486	108	-	-	-	-	-	-	-	-
$15,000 or more	747	747	693	-	-	54	-	-	-	-	-	-	-
Median ....dollars..	7 215	7 310	7 944	7 079	4 754	2 681	1 051	1 606	2 596	2 697	2 563	1 392	455
Female, total	60 024	48 754	27 631	7 117	5 239	3 810	4 957	11 270	3 469	1 186	1 399	2 107	3 109
Less than $500	9 474	5 790	1 546	678	551	546	2 469	3 683	580	154	259	315	2 376
$500 to $999	6 044	3 849	584	257	463	920	1 625	2 195	568	98	310	963	255
$1,000 to $1,999	6 961	5 192	1 296	706	969	1 564	656	1 770	720	211	157	522	159
$2,000 to $2,999	7 358	5 692	2 674	1 098	1 460	460	-	1 666	725	412	212	155	161
$3,000 to $3,999	8 283	7 406	5 205	1 100	888	213	-	877	468	257	48	104	-
$4,000 to $4,999	7 369	6 753	5 407	1 077	214	55	-	617	204	-	365	47	-
$5,000 to $5,999	4 875	4 771	3 923	526	216	53	53	105	52	-	-	-	53
$6,000 to $6,999	3 785	3 527	2 967	507	53	-	-	257	104	53	47	-	53
$7,000 to $7,999	2 406	2 353	1 718	374	212	-	48	53	-	-	-	-	53
$8,000 to $8,999	1 524	1 477	1 109	264	104	-	-	47	47	-	-	-	-
$9,000 to $9,999	689	689	476	160	-	-	53	-	-	-	-	-	-
$10,000 to $11,999	628	628	416	104	55	-	53	-	-	-	-	-	-
$12,000 to $14,999	308	308	205	103	-	-	-	-	-	-	-	-	-
$15,000 or more	320	320	106	161	53	-	-	-	-	-	-	-	-
Median ....dollars..	3 021	3 520	4 464	3 744	2 436	1 281	503	945	1 815	2 314	1 827	883	327

[3] Persons 16 to 64 years, not in school.

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Table 21. Extent of Unemployment in Last 12 Months of Part-Year Workers: All Races

Age and Sex Family Status Educational Attainment	Total part-year workers in last 12 months	Extent of unemployment in last 12 months								
			Weeks of unemployment					Number of stretches		
		No unemployment	1 to 4 weeks	5 to 10 weeks	11 to 14 weeks	15 to 26 weeks	27 weeks or more	1 stretch	2 stretches	3 stretches or more
AGE AND SEX										
Total, 16 to 64 years	93 929	47 847	14 253	9 783	5 519	8 850	7 677	29 308	7 805	8 968
Male, total	50 586	21 553	8 905	6 793	3 209	5 943	4 183	18 513	5 058	5 462
16 to 21 years, total	12 023	4 626	2 623	1 720	431	1 429	1 194	4 482	1 337	1 577
16 to 21 years, not in school	6 074	2 151	1 242	769	336	953	623	2 389	674	861
22 to 34 years, total	17 054	6 211	3 001	2 522	1 474	2 246	1 602	7 211	2 058	1 575
22 to 34 years, veteran of Vietnam	3 265	1 400	468	470	343	383	200	1 022	581	262
25 to 34 years	12 007	4 425	2 139	1 750	754	1 719	1 220	5 287	1 199	1 096
35 to 44 years	8 572	3 704	1 743	1 131	548	835	612	3 286	603	980
45 to 54 years	7 398	3 575	1 048	990	333	841	612	2 261	723	839
55 to 64 years	5 538	3 437	491	430	424	593	164	1 274	338	490
40 to 64 years	17 307	9 268	2 124	2 119	923	1 823	1 050	4 787	1 497	1 755
Female, total	43 343	26 294	5 348	2 990	2 310	2 907	3 494	10 796	2 747	3 506
16 to 21 years, total	11 519	6 040	1 856	906	478	906	1 333	2 905	1 001	1 573
16 to 21 years, not in school	6 628	2 860	1 143	718	191	668	1 049	1 954	527	1 288
22 to 34 years	14 049	8 572	1 808	1 083	930	677	979	3 710	841	927
25 to 34 years	9 300	5 897	1 184	597	592	487	543	2 268	646	489
35 to 44 years	6 756	4 183	641	429	321	426	756	1 605	591	378
45 to 54 years	6 306	3 894	728	312	473	635	264	1 779	210	422
55 to 64 years	4 713	3 605	315	260	108	263	162	796	104	207
40 to 64 years	14 478	9 567	1 312	947	793	1 165	695	3 542	581	788
FAMILY STATUS[1]										
Male, total	43 425	18 485	7 382	5 602	3 019	5 467	3 471	16 133	4 204	4 603
Family head	21 516	9 448	4 202	2 774	1 505	2 193	1 394	8 068	1 736	2 265
Family member	9 775	3 612	1 422	1 275	746	1 687	1 034	3 959	1 032	1 172
Unrelated individual	12 134	5 426	1 758	1 553	767	1 587	1 042	4 106	1 437	1 165
Female, total	37 219	22 433	4 374	2 704	1 927	2 571	3 210	9 392	2 273	3 121
Family head	7 639	4 469	946	562	474	466	722	2 056	514	601
No children under 18 years	1 707	1 013	214	210	51	53	165	589	51	53
Children 6 to 17 years only	2 292	1 389	320	106	266	104	106	740	109	53
Children under 6 years	3 641	2 066	412	245	157	309	451	726	353	495
Wife of head	16 205	11 053	1 480	801	520	1 009	1 342	3 367	846	939
No children under 18 years	6 042	4 297	421	263	212	485	364	1 172	261	313
Children 6 to 17 years only	3 856	2 789	104	162	106	161	534	635	212	220
Children under 6 years	6 307	3 967	955	376	201	363	444	1 559	373	407
Other family member	7 789	3 770	1 209	733	663	580	834	2 300	702	1 017
Unrelated individual	5 585	3 141	738	608	270	516	312	1 669	212	563
EDUCATIONAL ATTAINMENT[1]										
Male, total	43 425	18 485	7 382	5 602	3 019	5 467	3 471	16 133	4 204	4 603
Elementary: 7 years or less	7 351	3 586	914	1 108	487	649	608	1 777	807	1 182
8 years	4 872	1 951	956	622	148	970	224	1 905	533	483
High school: 1 to 3 years	15 421	6 234	2 474	1 952	1 042	2 145	1 573	6 051	1 302	1 834
4 years	11 475	4 440	2 254	1 376	1 121	1 436	848	4 998	1 038	1 000
College: 1 year or more	4 306	2 275	783	544	221	267	217	1 403	525	104
Female, total	37 219	22 433	4 374	2 704	1 927	2 571	3 210	9 392	2 273	3 121
Elementary: 7 years or less	3 226	1 974	308	208	112	254	369	626	221	405
8 years	3 713	2 225	269	260	210	473	276	1 015	159	314
High school: 1 to 3 years	10 705	6 387	1 384	900	828	355	850	2 600	919	800
4 years	14 658	8 111	2 051	1 124	674	1 227	1 471	4 378	975	1 194
College: 1 year or more	4 917	3 736	362	212	102	261	243	772	-	408

[1] Persons 16 to 64 years, not in school.

Table 21a. Extent of Unemployment in Last 12 Months of Part-Year Workers: White

Age and Sex Family Status Educational Attainment	Total part-year workers in last 12 months	Extent of unemployment in last 12 months							
		Weeks of unemployment					Number of stretches		
		No unemployment	1 to 4 weeks	5 to 10 weeks	11 to 14 weeks	15 to 26 weeks	27 weeks or more	1 stretch	2 stretches	3 stretches or more
AGE AND SEX										
Total, 16 to 64 years	21 482	12 119	2 869	2 011	1 036	2 153	1 293	5 875	1 402	2 085
Male, total	12 986	6 642	2 014	1 446	463	1 718	703	3 906	1 024	1 414
16 to 21 years, total	2 805	1 397	582	193	49	437	146	729	244	435
16 to 21 years, not in school	1 745	726	388	97	49	339	146	486	194	338
22 to 34 years, total	4 095	1 696	534	573	300	713	280	1 606	325	468
22 to 34 years, veteran of Vietnam	512	213	48	97	48	106	-	202	-	98
25 to 34 years	3 317	1 405	436	427	155	615	280	1 315	276	322
35 to 44 years	2 076	1 295	388	224	57	112	-	556	169	57
45 to 54 years	2 370	1 125	284	398	58	341	165	735	228	282
55 to 64 years	1 641	1 129	227	57	-	115	113	281	59	173
40 to 64 years	5 293	3 150	615	625	58	568	277	1 291	397	455
Female, total	8 496	5 478	855	565	572	436	590	1 969	379	671
16 to 21 years, total	2 166	1 196	388	193	194	98	98	630	98	243
16 to 21 years, not in school	1 259	532	242	193	97	98	98	387	98	243
22 to 34 years	3 044	1 777	412	319	210	115	212	895	112	261
25 to 34 years	1 876	1 195	170	171	112	115	115	456	112	113
35 to 44 years	981	756	-	-	56	-	168	-	112	112
45 to 54 years	1 249	970	-	-	55	168	55	167	56	55
55 to 64 years	1 055	778	55	53	56	55	56	276	-	-
40 to 64 years	2 699	2 144	55	53	112	223	112	444	56	55
FAMILY STATUS[1]										
Male, total	11 733	5 825	1 820	1 301	463	1 620	703	3 664	974	1 269
Family head	6 039	3 170	1 098	650	251	652	218	1 790	389	690
Family member	1 986	824	345	259	97	365	97	775	194	193
Unrelated individual	3 708	1 832	376	392	116	603	389	1 099	391	386
Female, total	7 209	4 590	604	516	475	436	590	1 570	379	671
Family head	883	656	-	-	56	57	114	171	56	-
No children under 18 years	283	169	-	-	-	-	114	114	-	-
Children 6 to 17 years only	281	225	-	-	56	-	-	-	56	-
Children under 6 years	319	262	-	-	-	57	-	57	-	-
Wife of head	3 670	2 515	347	171	48	275	315	679	106	371
No children under 18 years	1 664	1 224	57	57	-	219	107	228	106	107
Children 6 to 17 years only	558	335	-	56	-	55	111	55	-	168
Children under 6 years	1 448	956	290	57	48	-	97	396	-	97
Other family member	1 122	516	97	97	259	48	106	251	161	195
Unrelated individual	1 534	903	160	248	112	55	56	470	56	105
EDUCATIONAL ATTAINMENT[1]										
Male, total	11 733	5 825	1 820	1 301	463	1 620	703	3 664	974	1 269
Elementary: 7 years or less	1 889	1 015	276	104	58	323	112	341	160	372
8 years	1 761	838	376	211	48	288	-	480	386	57
High school: 1 to 3 years	3 846	1 814	532	760	154	314	272	1 336	105	590
4 years	2 733	1 083	474	170	97	646	264	1 229	275	146
College: 1 year or more	1 504	1 075	162	56	107	49	55	276	48	104
Female, total	7 209	4 590	604	516	475	436	590	1 570	379	671
Elementary: 7 years or less	942	675	-	-	112	48	106	-	168	98
8 years	1 052	442	161	56	56	112	225	386	56	168
High school: 1 to 3 years	1 773	1 322	97	98	160	-	97	297	56	98
4 years	2 170	1 349	193	150	97	219	163	522	98	202
College: 1 year or more	1 272	802	153	212	49	56	-	365	-	106

[1] Persons 16 to 64 years, not in school.

Table 21b. Extent of Unemployment in Last 12 Months of Part-Year Workers: Negro

Age and Sex Family Status Educational Attainment	Total part-year workers in last 12 months	Extent of unemployment in last 12 months							
			Weeks of unemployment					Number of stretches		
		No unemployment	1 to 4 weeks	5 to 10 weeks	11 to 14 weeks	15 to 26 weeks	27 weeks or more	1 stretch	2 stretches	3 stretches or more
AGE AND SEX										
Total, 16 to 64 years	70 700	34 792	11 163	7 408	4 370	6 697	6 270	22 992	6 192	6 723
Male, total	36 505	14 420	6 717	5 087	2 633	4 225	3 422	14 213	3 929	3 943
16 to 21 years, total	9 073	3 181	2 041	1 430	381	992	1 048	3 705	1 093	1 094
16 to 21 years, not in school	4 233	1 377	855	624	287	614	477	1 854	479	523
22 to 34 years, total	12 520	4 354	2 409	1 786	1 117	1 533	1 322	5 375	1 684	1 108
22 to 34 years, veteran of Vietnam	2 648	1 082	420	374	295	277	200	820	581	164
25 to 34 years	8 347	2 907	1 645	1 208	542	1 104	940	3 743	923	775
35 to 44 years	6 382	2 352	1 297	906	491	723	612	2 672	434	923
45 to 54 years	4 685	2 279	707	592	220	499	389	1 468	438	501
55 to 64 years	3 844	2 255	264	373	424	478	51	993	279	317
40 to 64 years	11 619	5 894	1 452	1 494	809	1 255	715	3 438	1 042	1 244
Female, total	34 195	20 372	4 446	2 321	1 737	2 472	2 847	8 780	2 264	2 779
16 to 21 years, total	9 209	4 796	1 421	665	283	808	1 235	2 228	855	1 330
16 to 21 years, not in school	5 321	2 328	901	476	94	570	952	1 567	381	1 045
22 to 34 years	10 723	6 626	1 396	709	720	563	710	2 815	672	610
25 to 34 years	7 142	4 533	1 014	370	480	372	372	1 812	478	319
35 to 44 years	5 662	3 313	641	429	265	426	588	1 605	479	266
45 to 54 years	4 943	2 811	728	312	418	467	209	1 612	154	367
55 to 64 years	3 658	2 827	259	207	51	207	106	520	104	207
40 to 64 years	11 609	7 253	1 256	894	681	942	583	3 098	525	733
FAMILY STATUS[1]										
Male, total	30 694	12 169	5 388	4 138	2 442	3 847	2 710	12 076	3 172	3 277
Family head	15 036	6 007	3 046	2 067	1 198	1 541	1 176	6 163	1 347	1 519
Family member	7 692	2 740	1 076	968	649	1 322	938	3 136	838	979
Unrelated individual	7 967	3 423	1 266	1 103	595	984	596	2 776	988	779
Female, total	29 452	17 447	3 770	2 084	1 452	2 135	2 564	7 821	1 790	2 394
Family head	6 756	3 813	946	562	418	409	608	1 885	457	601
No children under 18 years	1 424	844	214	210	51	53	51	476	51	53
Children 6 to 17 years only	2 010	1 164	320	106	210	104	106	740	53	53
Children under 6 years	3 322	1 804	412	245	157	252	451	669	353	495
Wife of head	12 138	8 198	1 133	575	471	734	1 027	2 687	684	569
No children under 18 years	4 263	2 958	364	206	212	265	257	944	155	206
Children 6 to 17 years only	3 185	2 341	104	106	106	106	423	580	212	52
Children under 6 years	4 690	2 899	665	263	153	363	348	1 164	317	310
Other family member	6 563	3 254	1 113	588	405	532	672	2 049	493	766
Unrelated individual	3 996	2 183	578	360	158	461	256	1 200	155	458
EDUCATIONAL ATTAINMENT[1]										
Male, total	30 694	12 169	5 388	4 138	2 442	3 847	2 710	12 076	3 172	3 277
Elementary: 7 years or less	5 409	2 518	638	1 004	429	325	495	1 435	647	810
8 years	2 997	1 057	522	411	100	683	224	1 366	147	426
High school: 1 to 3 years	11 306	4 257	1 942	1 144	888	1 831	1 243	4 666	1 139	1 244
4 years	8 580	3 308	1 722	1 206	968	791	584	3 712	763	797
College: 1 year or more	2 402	1 029	564	373	57	217	162	897	477	-
Female, total	29 452	17 447	3 770	2 084	1 452	2 135	2 564	7 821	1 790	2 394
Elementary: 7 years or less	2 284	1 298	308	208	-	206	263	626	53	307
8 years	2 604	1 726	108	204	154	361	51	629	102	146
High school: 1 to 3 years	8 771	5 007	1 288	698	669	355	754	2 303	758	702
4 years	12 374	6 705	1 858	974	577	1 008	1 252	3 856	877	936
College: 1 year or more	3 420	2 711	209	-	53	205	243	407	-	303

[1] Persons 16 to 64 years, not in school.

Table 22. Extent of Unemployment in Last 12 Months of Part-Year Wage and Salary Workers: All Races

Major Occupation and Industry Groups of Longest Job Annual Wage and Salary Earnings	Total part-year wage and salary workers in last 12 months	Extent of unemployment in last 12 months							
		No unemployment	Weeks of unemployment				Number of stretches		
			1 to 4 weeks	5 to 10 weeks	11 to 14 weeks	15 to 26 weeks	27 weeks or more	1 stretch	2 stretches	3 stretches or more
MAJOR OCCUPATION GROUP[1]										
Total	78 370	39 292	11 593	8 254	4 732	7 929	6 570	25 243	6 425	7 410
Professional and technical	4 272	3 048	373	278	161	258	154	914	108	203
Managerial and administrative	1 176	915	47	-	-	159	55	262	-	-
Sales	1 816	1 105	262	199	47	154	49	362	154	196
Clerical	11 232	6 499	1 705	807	469	859	893	3 006	767	960
Craftsmen and foremen	7 146	2 864	1 338	856	414	1 191	482	2 543	711	1 028
Operatives, except transportation	23 681	10 393	4 376	3 127	1 569	2 069	2 126	9 454	1 985	1 850
Transport equipment operatives	3 206	1 556	342	260	420	369	259	1 275	212	163
Laborers, except farm	6 797	2 188	1 038	966	511	1 343	752	2 687	638	1 285
Service workers, except private household	15 393	8 739	1 591	1 342	1 067	1 114	1 539	3 649	1 685	1 320
Private household workers	3 603	1 987	521	418	54	363	261	1 094	166	357
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	-	-	-	-	49	-	-	-	49
Not available	-	-	-	-	-	-	-	-	-	-
Male, total	42 004	17 554	7 267	5 549	2 805	5 359	3 471	15 909	4 204	4 338
Professional and technical	1 562	901	325	171	57	109	-	609	-	53
Managerial and administrative	496	384	-	-	-	57	55	112	-	-
Sales	377	216	104	57	-	-	-	104	57	-
Clerical	1 858	1 052	302	162	-	199	143	391	263	153
Craftsmen and foremen	6 624	2 656	1 291	750	414	1 140	373	2 443	654	871
Operatives, except transportation	17 551	7 093	3 652	2 608	1 168	1 692	1 338	7 388	1 682	1 387
Transport equipment operatives	3 106	1 504	294	260	420	369	259	1 228	212	163
Laborers, except farm	6 096	1 935	828	966	413	1 296	657	2 382	589	1 190
Service workers, except private household	4 229	1 813	471	576	333	391	645	1 252	691	473
Private household workers	56	-	-	-	-	56	-	-	56	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	-	-	-	-	49	-	-	-	49
Not available	-	-	-	-	-	-	-	-	-	-
Female, total	36 366	21 739	4 325	2 704	1 927	2 571	3 100	9 334	2 220	3 073
Professional and technical	2 710	2 148	48	107	104	149	154	305	108	150
Managerial and administrative	681	531	47	-	-	103	-	150	-	-
Sales	1 438	889	157	142	47	154	49	257	97	196
Clerical	9 373	5 447	1 403	645	469	660	750	2 615	504	808
Craftsmen and foremen	522	208	47	107	-	51	109	100	56	158
Operatives, except transportation	6 130	3 300	724	519	421	377	788	2 065	303	462
Transport equipment operatives	100	53	47	-	-	-	-	47	-	-
Laborers, except farm	701	253	210	-	97	47	94	305	49	94
Service workers, except private household	11 164	6 925	1 120	766	734	724	894	2 396	994	848
Private household workers	3 547	1 987	521	418	54	306	261	1 094	110	357
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP[1]										
Male, total	42 004	17 554	7 267	5 549	2 805	5 359	3 471	15 909	4 204	4 338
Private Wage and Salary Worker										
Agriculture, forestry, and fisheries	157	-	-	-	-	157	-	51	-	106
Mining	57	57	-	-	-	-	-	-	-	-
Construction	3 431	865	595	169	108	1 261	433	1 064	564	938
Durable goods manufacturing	21 373	9 263	3 948	3 215	1 538	1 918	1 490	8 431	1 854	1 825
Nondurable goods manufacturing	1 925	687	515	49	295	273	106	901	191	146
Transportation, communication, and other public utilities	2 287	971	352	368	169	267	161	903	100	314
Wholesale and retail trade	5 273	2 062	871	576	307	854	604	2 039	645	528
Finance, insurance, and real estate	696	217	56	58	55	48	260	317	105	56
Business and repair services	1 941	447	319	591	57	363	164	897	375	221
Personal services	658	445	-	51	-	115	47	47	56	110
Professional services and entertainment	1 061	585	248	59	114	-	55	362	113	-
Government[2]										
Educational services	688	489	48	47	57	-	47	152	-	47
All other government services	2 459	1 467	315	367	104	102	103	745	200	47
Not available	-	-	-	-	-	-	-	-	-	-
Female, total	36 366	21 739	4 325	2 704	1 927	2 571	3 100	9 334	2 220	3 073
Private Wage and Salary Worker										
Agriculture, forestry, and fisheries	49	49	-	-	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-
Construction	142	47	-	-	-	47	47	-	47	47
Durable goods manufacturing	3 206	1 369	260	255	476	216	631	1 326	255	256
Nondurable goods manufacturing	2 341	1 052	357	368	48	310	205	627	199	463
Transportation, communication, and other public utilities	560	365	47	47	100	-	-	147	-	47
Wholesale and retail trade	8 714	5 039	960	697	526	755	736	2 032	516	1 127
Finance, insurance, and real estate	1 580	1 081	305	98	-	-	96	296	151	53
Business and repair services	671	510	55	-	-	56	49	104	56	-
Personal services	6 518	3 755	992	470	160	619	523	1 930	266	567
Professional services and entertainment	6 922	4 738	765	403	409	206	402	1 768	261	156
Government[2]										
Educational services	2 608	1 638	295	165	53	255	202	560	214	197
All other government services	3 055	2 097	289	201	155	106	208	545	255	158
Not available	-	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school, longest job as a wage and salary worker. [2] Government class of worker.

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Table 22. **Extent of Unemployment in Last 12 Months of Part-Year Wage and Salary Workers: All Races**—Continued

Major Occupation and Industry Groups of Longest Job Annual Wage and Salary Earnings	Total part-year wage and salary workers in last 12 months	Extent of unemployment in last 12 months								
		No unemployment	Weeks of unemployment					Number of stretches		
			1 to 4 weeks	5 to 10 weeks	11 to 14 weeks	15 to 26 weeks	27 weeks or more	1 stretch	2 stretches	3 stretches or more
ANNUAL WAGE AND SALARY EARNINGS[1]										
Male, total	42 004	17 554	7 267	5 549	2 805	5 359	3 471	15 909	4 204	4 338
Less than $500	3 119	1 021	453	267	209	422	745	1 148	320	630
$500 to $999	2 679	782	381	153	57	518	788	1 095	398	404
$1,000 to $1,999	4 646	1 527	455	467	156	797	1 244	1 871	486	762
$2,000 to $2,999	3 258	1 264	521	294	295	618	266	1 282	415	298
$3,000 to $3,999	3 456	1 453	371	757	276	500	98	1 336	316	350
$4,000 to $4,999	3 502	1 780	258	323	319	657	165	1 188	321	213
$5,000 to $5,999	4 094	2 016	783	363	347	479	106	1 327	431	320
$6,000 to $6,999	4 546	2 015	892	632	517	433	57	1 572	564	395
$7,000 to $7,999	4 676	1 631	1 108	1 068	371	498	-	2 095	313	638
$8,000 to $8,999	3 381	1 624	913	469	206	169	-	1 434	213	110
$9,000 to $9,999	1 484	657	364	365	-	98	-	573	152	102
$10,000 to $11,999	1 676	795	441	278	51	111	-	652	229	-
$12,000 to $14,999	1 206	821	213	114	-	57	-	221	48	116
$15,000 or more	282	167	115	-	-	-	-	115	-	-
Median ..... dollars..	5 084	5 471	6 462	6 239	5 260	3 648	1 162	5 027	4 523	3 214
Female, total	36 366	21 739	4 325	2 704	1 927	2 571	3 100	9 334	2 220	3 073
Less than $500	8 650	5 031	1 152	662	462	496	847	2 171	609	839
$500 to $999	6 387	3 699	459	346	215	656	1 012	1 526	260	903
$1,000 to $1,999	6 721	3 543	873	559	307	362	1 077	1 952	460	766
$2,000 to $2,999	5 099	3 028	562	350	366	685	109	1 250	466	355
$3,000 to $3,999	3 205	2 221	255	262	254	212	-	718	159	107
$4,000 to $4,999	2 290	1 294	465	261	160	55	55	839	108	49
$5,000 to $5,999	949	637	207	106	-	-	-	312	-	-
$6,000 to $6,999	1 106	745	199	54	109	-	-	255	53	54
$7,000 to $7,999	688	476	-	106	53	54	-	106	106	-
$8,000 to $8,999	473	320	102	-	-	51	-	153	-	-
$9,000 to $9,999	213	161	52	-	-	-	-	52	-	-
$10,000 to $11,999	268	268	-	-	-	-	-	-	-	-
$12,000 to $14,999	103	103	-	-	-	-	-	-	-	-
$15,000 or more	214	214	-	-	-	-	-	-	-	-
Median ..... dollars..	1 468	1 604	1 631	1 616	1 932	1 368	847	1 497	1 524	886

[1]Persons 16 to 64 years, not in school.

Table 22a. Extent of Unemployment in Last 12 Months of Part-Year Wage and Salary Workers: White

Major Occupation and Industry Groups of Longest Job Annual Wage and Salary Earnings	Total part-year wage and salary workers in last 12 months	Extent of unemployment in last 12 months								
			Weeks of unemployment					Number of stretches		
		No unemployment	1 to 4 weeks	5 to 10 weeks	11 to 14 weeks	15 to 26 weeks	27 weeks or more	1 stretch	2 stretches	3 stretches or more
MAJOR OCCUPATION GROUP[1]										
Total	18 066	9 750	2 375	1 817	890	1 999	1 236	5 120	1 353	1 843
Professional and technical	1 487	1 005	162	163	49	109	-	434	-	48
Managerial and administrative	433	321	-	-	-	112	-	112	-	-
Sales	588	433	57	-	-	49	49	57	49	49
Clerical	2 575	1 609	346	251	104	105	161	700	-	266
Craftsmen and foremen	2 516	945	439	317	105	436	274	864	163	545
Operatives, except transportation	4 863	2 551	911	490	201	274	435	1 466	476	370
Transport equipment operatives	957	551	105	97	106	49	48	406	-	-
Laborers, except farm	1 486	579	162	274	48	368	55	485	214	208
Service workers, except private household	3 000	1 645	193	226	276	447	214	597	451	307
Private household workers	111	111	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	-	-	-	-	49	-	-	-	49
Not available	-	-	-	-	-	-	-	-	-	-
Male, total	11 123	5 321	1 820	1 301	415	1 563	703	3 607	974	1 221
Professional and technical	642	364	113	56	-	109	-	278	-	-
Managerial and administrative	220	163	-	-	-	57	-	57	-	-
Sales	159	159	-	-	-	-	-	-	-	-
Clerical	478	275	97	58	-	48	-	97	-	106
Craftsmen and foremen	2 354	945	439	210	105	436	218	864	107	438
Operatives, except transportation	3 702	1 829	911	434	97	160	272	1 181	427	265
Transport equipment operatives	957	551	105	97	106	49	48	406	-	-
Laborers, except farm	1 277	474	106	274	-	368	55	381	214	208
Service workers, except private household	1 286	561	48	173	107	286	110	343	227	155
Private household workers	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	-	-	-	-	49	-	-	-	49
Not available	-	-	-	-	-	-	-	-	-	-
Female, total	6 944	4 430	555	516	475	436	533	1 513	379	622
Professional and technical	845	641	48	107	49	-	-	156	-	48
Managerial and administrative	213	158	-	-	-	55	-	55	-	-
Sales	430	274	57	-	-	49	49	57	49	49
Clerical	2 098	1 334	250	193	104	56	161	603	-	161
Craftsmen and foremen	163	-	-	107	-	-	56	-	56	107
Operatives, except transportation	1 161	723	-	56	105	115	163	285	48	106
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-
Laborers, except farm	209	105	55	-	48	-	-	104	-	-
Service workers, except private household	1 714	1 084	145	53	168	160	104	253	225	152
Private household workers	111	111	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP[1]										
Male, total	11 123	5 321	1 820	1 301	415	1 563	703	3 607	974	1 221
Private Wage and Salary Worker										
Agriculture, forestry, and fisheries	49	-	-	-	-	49	-	-	-	49
Mining	-	-	-	-	-	-	-	-	-	-
Construction	870	225	163	-	57	320	106	260	116	270
Durable goods manufacturing	4 100	2 047	823	604	145	318	162	1 463	266	324
Nondurable goods manufacturing	725	216	258	49	98	105	-	314	49	146
Transportation, communication, and other public utilities	936	510	104	152	58	57	55	371	-	55
Wholesale and retail trade	1 808	802	251	104	-	438	213	476	322	208
Finance, insurance, and real estate	275	170	-	-	-	48	56	48	-	56
Business and repair services	789	227	58	275	-	173	56	275	173	114
Personal services	172	172	-	-	-	-	-	-	-	-
Professional services and entertainment	372	201	-	59	58	-	55	172	-	-
Government[2]										
Educational services	160	160	-	-	-	-	-	-	-	-
All other government services	866	591	163	58	-	55	-	227	48	-
Not available	-	-	-	-	-	-	-	-	-	-
Female, total	6 944	4 430	555	516	475	436	533	1 513	379	622
Private Wage and Salary Worker										
Agriculture, forestry, and fisheries	49	49	-	-	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-	-
Durable goods manufacturing	934	506	-	48	160	57	163	331	-	98
Nondurable goods manufacturing	912	483	-	163	48	162	56	113	98	219
Transportation, communication, and other public utilities	48	-	-	-	48	-	-	48	-	-
Wholesale and retail trade	2 196	1 416	202	48	168	160	201	411	168	201
Finance, insurance, and real estate	369	321	48	-	-	-	-	48	-	-
Business and repair services	223	111	55	-	-	56	-	55	56	-
Personal services	383	279	48	-	-	-	56	48	56	-
Professional services and entertainment	1 314	954	105	150	49	-	56	303	-	56
Government[2]										
Educational services	320	166	97	57	-	-	-	106	-	48
All other government services	194	145	-	49	-	-	-	49	-	-
Not available	-	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school, longest job as a wage and salary worker. [2] Government class of worker.

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Table 22a. Extent of Unemployment in Last 12 Months of Part-Year Wage and Salary Workers: White–Continued

Major Occupation and Industry Groups of Longest Job Annual Wage and Salary Earnings	Total part-year wage and salary workers in last 12 months	Extent of unemployment in last 12 months							
			Weeks of unemployment					Number of stretches		
		No unemployment	1 to 4 weeks	5 to 10 weeks	11 to 14 weeks	15 to 26 weeks	27 weeks or more	1 stretch	2 stretches	3 stretches or more
ANNUAL WAGE AND SALARY EARNINGS[1]										
Male, total	11 123	5 321	1 820	1 301	415	1 563	703	3 607	974	1 221
Less than $500	923	517	48	49	49	156	103	103	157	146
$500 to $999	616	258	48	48	-	163	98	162	48	147
$1,000 to $1,999	937	219	49	170	-	162	337	381	56	281
$2,000 to $2,999	1 065	219	365	48	-	323	110	575	168	103
$3,000 to $3,999	1 160	505	58	381	-	217	-	332	220	104
$4,000 to $4,999	922	543	48	111	58	105	56	274	56	48
$5,000 to $5,999	1 212	896	105	-	48	163	-	155	-	162
$6,000 to $6,999	678	329	48	48	203	49	-	301	48	-
$7,000 to $7,999	940	386	161	228	-	166	-	440	-	115
$8,000 to $8,999	945	501	282	105	57	-	-	331	56	57
$9,000 to $9,999	386	169	216	-	-	-	-	216	-	-
$10,000 to $11,999	615	331	170	55	-	58	-	168	116	-
$12,000 to $14,999	554	336	162	56	-	-	-	111	48	59
$15,000 or more	170	112	57	-	-	-	-	57	-	-
Median dollars	4 934	5 446	7 864	3 878	6 258	2 929	1 449	4 913	3 260	2 357
Female, total	6 944	4 430	555	516	475	436	533	1 513	379	622
Less than $500	1 246	738	299	-	104	56	48	404	56	48
$500 to $999	1 495	1 014	56	150	56	49	169	215	162	104
$1,000 to $1,999	1 558	920	55	155	55	114	259	370	56	211
$2,000 to $2,999	1 083	519	145	48	154	161	56	307	105	153
$3,000 to $3,999	595	490	-	56	48	-	-	48	-	56
$4,000 to $4,999	532	370	-	107	-	55	-	113	-	49
$5,000 to $5,999	48	48	-	-	-	-	-	-	-	-
$6,000 to $6,999	282	225	-	-	56	-	-	56	-	-
$7,000 to $7,999	-	-	-	-	-	-	-	-	-	-
$8,000 to $8,999	105	105	-	-	-	-	-	-	-	-
$9,000 to $9,999	-	-	-	-	-	-	-	-	-	-
$10,000 to $11,999	-	-	-	-	-	-	-	-	-	-
$12,000 to $14,999	-	-	-	-	-	-	-	-	-	-
$15,000 or more	-	-	-	-	-	-	-	-	-	-
Median dollars	1 469	1 503	465	1 698	2 139	1 986	1 188	1 373	912	1 749

[1] Persons 16 to 64 years, not in school.

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Table 22b. Extent of Unemployment in Last 12 Months of Part-Year Wage and Salary Workers: Negro

Major Occupation and Industry Groups of Longest Job Annual Wage and Salary Earnings	Total part-year wage and salary workers in last 12 months	Extent of unemployment in last 12 months								
			Weeks of unemployment					Number of stretches		
		No unemployment	1 to 4 weeks	5 to 10 weeks	11 to 14 weeks	15 to 26 weeks	27 weeks or more	1 stretch	2 stretches	3 stretches or more
MAJOR OCCUPATION GROUP[1]										
Total	58 969	28 818	9 044	6 169	3 785	5 931	5 221	19 730	4 910	5 511
Professional and technical	2 387	1 875	154	-	55	149	154	250	108	154
Managerial and administrative	744	594	47	-	-	47	55	149	-	-
Sales	1 227	672	204	199	47	105	-	305	104	146
Clerical	8 599	4 832	1 359	556	365	754	732	2 306	767	694
Craftsmen and foremen	4 460	1 807	842	539	308	755	208	1 622	548	483
Operatives, except transportation	18 391	7 625	3 407	2 541	1 388	1 795	1 635	7 881	1 461	1 423
Transport equipment operatives	2 249	1 005	236	163	314	320	211	869	212	163
Laborers, except farm	5 255	1 552	876	692	462	976	697	2 202	424	1 077
Service workers, except private household	12 221	6 979	1 398	1 116	792	668	1 268	3 052	1 176	1 013
Private household workers	3 436	1 875	521	362	54	363	261	1 094	110	357
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-
Male, total	30 045	11 847	5 274	4 085	2 333	3 796	2 710	11 909	3 172	3 117
Professional and technical	690	537	154	-	-	-	-	101	-	53
Managerial and administrative	276	221	-	-	-	-	55	55	-	-
Sales	219	57	104	57	-	-	-	104	57	-
Clerical	1 323	720	206	104	-	151	143	294	263	47
Craftsmen and foremen	4 157	1 655	795	539	308	704	155	1 521	548	432
Operatives, except transportation	13 527	5 048	2 683	2 126	1 071	1 532	1 066	6 101	1 255	1 123
Transport equipment operatives	2 149	952	189	163	314	320	211	822	212	163
Laborers, except farm	4 763	1 405	722	692	413	929	602	2 001	375	983
Service workers, except private household	2 886	1 252	422	403	226	104	478	909	407	317
Private household workers	56	-	-	-	-	56	-	-	56	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-
Female, total	28 923	16 971	3 770	2 084	1 452	2 135	2 511	7 821	1 737	2 394
Professional and technical	1 697	1 339	-	-	55	149	154	149	108	102
Managerial and administrative	467	373	47	-	-	47	-	94	-	-
Sales	1 009	615	100	142	47	105	-	200	47	146
Clerical	7 275	4 112	1 153	452	365	603	589	2 012	504	647
Craftsmen and foremen	304	152	47	-	-	51	53	100	-	51
Operatives, except transportation	4 864	2 577	724	415	317	263	569	1 781	206	301
Transport equipment operatives	100	53	47	-	-	-	-	47	-	-
Laborers, except farm	492	147	154	-	49	47	94	201	49	94
Service workers, except private household	9 335	5 727	975	713	566	564	790	2 143	770	696
Private household workers	3 379	1 875	521	362	54	306	261	1 094	54	357
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP[1]										
Male, total	30 045	11 847	5 274	4 085	2 333	3 796	2 710	11 909	3 172	3 117
Private Wage and Salary Worker										
Agriculture, forestry, and fisheries	108	-	-	-	-	108	-	51	-	56
Mining	-	-	-	-	-	-	-	-	-	-
Construction	2 503	640	374	169	51	941	328	746	448	669
Durable goods manufacturing	16 996	7 102	3 067	2 505	1 393	1 600	1 328	6 805	1 588	1 501
Nondurable goods manufacturing	1 151	422	258	-	197	168	106	587	142	-
Transportation, communication, and other public utilities	1 295	405	247	216	111	210	106	532	100	259
Wholesale and retail trade	3 408	1 260	621	472	307	416	333	1 562	265	321
Finance, insurance, and real estate	363	47	56	-	55	-	204	210	105	-
Business and repair services	1 099	167	261	316	57	191	108	622	203	108
Personal services	486	273	-	51	-	115	47	47	56	110
Professional services and entertainment	688	384	248	-	56	-	-	191	113	-
Government[2]										
Educational services	471	329	48	47	-	-	47	95	-	47
All other government services	1 477	819	94	309	104	47	103	460	152	47
Not available	-	-	-	-	-	-	-	-	-	-
Female, total	28 923	16 971	3 770	2 084	1 452	2 135	2 511	7 821	1 737	2 394
Private Wage and Salary Worker										
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-
Construction	142	47	-	-	-	47	47	-	47	47
Durable goods manufacturing	2 216	863	260	207	316	159	412	995	255	102
Nondurable goods manufacturing	1 325	514	357	157	-	148	149	514	53	244
Transportation, communication, and other public utilities	512	365	47	47	52	-	-	99	-	47
Wholesale and retail trade	6 403	3 509	758	649	358	595	535	1 621	348	926
Finance, insurance, and real estate	1 211	760	257	98	-	-	96	247	151	53
Business and repair services	447	398	-	-	-	-	49	49	-	-
Personal services	6 078	3 476	943	414	160	619	467	1 882	154	567
Professional services and entertainment	5 441	3 615	660	254	359	206	346	1 464	261	100
Government[2]										
Educational services	2 288	1 472	199	108	53	255	202	454	214	149
All other government services	2 860	1 951	289	151	155	106	208	495	255	158
Not available	-	-	-	-	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school, longest job as a wage and salary worker. [2] Government class of worker.

Table 22b. Extent of Unemployment in Last 12 Months of Part-Year Wage and Salary Workers: Negro–Continued

Major Occupation and Industry Groups of Longest Job Annual Wage and Salary Earnings	Total part-year wage and salary workers in last 12 months	Extent of unemployment in last 12 months							
			Weeks of unemployment					Number of stretches		
		No unemployment	1 to 4 weeks	5 to 10 weeks	11 to 14 weeks	15 to 26 weeks	27 weeks or more	1 stretch	2 stretches	3 stretches or more
ANNUAL WAGE AND SALARY EARNINGS[1]										
Male, total	30 045	11 847	5 274	4 085	2 333	3 796	2 710	11 909	3 172	3 117
Less than $500	2 196	504	405	218	160	266	643	1 045	162	484
$500 to $999	1 952	471	332	104	57	355	633	932	292	257
$1,000 to $1,999	3 710	1 308	406	297	156	635	907	1 490	430	481
$2,000 to $2,999	2 193	1 045	155	246	295	295	156	706	247	195
$3,000 to $3,999	2 132	949	256	328	219	283	98	841	96	246
$4,000 to $4,999	2 580	1 237	209	212	261	552	109	914	265	164
$5,000 to $5,999	2 833	1 071	678	363	299	316	106	1 173	431	159
$6,000 to $6,999	3 869	1 686	844	584	314	384	57	1 272	516	395
$7,000 to $7,999	3 622	1 188	948	783	371	332	-	1 598	313	523
$8,000 to $8,999	2 208	953	573	363	149	169	-	1 045	156	53
$9,000 to $9,999	1 041	430	147	365	-	98	-	357	152	102
$10,000 to $11,999	1 061	464	270	223	51	53	-	483	113	-
$12,000 to $14,999	594	486	51	-	-	57	-	51	-	57
$15,000 or more	54	54	-	-	-	-	-	-	-	-
Median dollars	5 092	5 382	6 232	6 472	5 060	4 116	1 088	5 022	5 219	3 574
Female, total	28 923	16 971	3 770	2 084	1 452	2 135	2 511	7 821	1 737	2 394
Less than $500	7 348	4 293	853	606	358	439	799	1 767	497	791
$500 to $999	4 892	2 684	403	196	159	607	842	1 311	98	798
$1,000 to $1,999	4 945	2 509	818	355	252	248	762	1 582	355	498
$2,000 to $2,999	3 958	2 451	417	301	212	524	53	943	361	202
$3,000 to $3,999	2 610	1 731	255	205	206	212	-	669	159	51
$4,000 to $4,999	1 758	924	465	155	160	-	55	726	108	-
$5,000 to $5,999	901	588	207	106	-	-	-	312	-	-
$6,000 to $6,999	713	408	199	54	53	-	-	199	53	54
$7,000 to $7,999	688	476	-	106	53	54	-	106	106	-
$8,000 to $8,999	368	215	102	-	-	51	-	153	-	-
$9,000 to $9,999	213	161	52	-	-	-	-	52	-	-
$10,000 to $11,999	212	212	-	-	-	-	-	-	-	-
$12,000 to $14,999	103	103	-	-	-	-	-	-	-	-
$15,000 or more	214	214	-	-	-	-	-	-	-	-
Median dollars	1 449	1 601	1 769	1 675	1 833	1 085	771	1 526	1 769	754

[1] Persons 16 to 64 years, not in school.

Table 23. Main Reason for Less Than Full-Year Work: All Races

Age and Sex Family Status Educational Attainment	Main reason for less than full-year work											
	Part-year workers						Nonworkers					
	Total part-year workers	Poor health, illness, or disability	Family responsibilities	Inability to find work (unemployment)	Retirement	All other reasons	Total nonworkers	Poor health, illness, or disability	Family responsibilities	Inability to find work (unemployment)	Retirement	All other reasons
AGE AND SEX												
Total, 16 years and over	98 126	11 923	12 026	47 247	2 061	24 869	134 542	36 382	40 692	7 921	31 577	17 971
Male, total	52 866	6 226	-	29 752	1 532	15 356	40 428	13 150	-	3 208	17 182	6 888
18 to 21 years, total	12 023	429	-	4 885	47	6 661	6 703	287	-	1 564	-	4 852
16 to 21 years, not in school	6 074	382	-	3 117	47	2 528	2 233	94	-	994	-	1 144
22 to 34 years, total	17 054	1 716	-	10 760	57	4 521	2 506	1 021	-	571	57	857
22 to 34 years, veteran of Vietnam	3 265	401	-	1 959	-	906	303	57	-	199	-	47
25 to 34 years	12 007	1 324	-	7 831	57	2 796	1 790	831	-	287	57	615
35 to 44 years	8 572	1 583	-	5 584	57	1 348	2 294	1 839	-	287	114	54
45 to 54 years	7 398	1 269	-	4 710	-	1 419	3 959	2 969	-	336	166	488
55 to 64 years	5 538	1 047	-	3 060	499	931	6 749	4 093	-	217	1 931	508
65 years and over	2 280	182	-	751	872	475	18 217	2 940	-	233	14 915	129
40 to 64 years	17 307	3 291	-	10 327	499	3 190	12 004	8 019	-	782	2 154	1 050
Female, total	45 260	5 698	12 026	17 496	528	9 513	94 114	23 232	40 692	4 713	14 394	11 082
16 to 21 years, total	11 519	855	1 622	3 720	-	5 321	12 095	618	3 487	1 618	-	6 373
16 to 21 years, not in school	6 628	761	1 433	2 388	-	2 047	6 429	571	3 059	1 047	-	1 753
22 to 34 years	14 049	1 865	4 656	5 213	-	2 315	17 842	1 735	12 804	1 549	94	1 659
25 to 34 years	9 300	1 580	3 075	3 239	-	1 406	13 253	1 449	9 505	1 167	-	1 131
35 to 44 years	6 756	944	1 884	3 385	-	543	12 812	2 538	8 767	803	56	649
45 to 54 years	6 306	813	1 792	2 898	-	803	15 470	5 608	8 639	418	213	592
55 to 64 years	4 713	954	1 323	1 797	215	424	13 222	6 014	4 428	217	1 597	966
65 years and over	1 917	267	749	481	314	106	22 672	6 720	2 567	107	12 434	843
40 to 64 years	14 478	2 258	3 817	6 526	215	1 662	35 761	13 244	17 490	1 169	1 866	1 991
FAMILY STATUS[1]												
Male, total	43 425	5 900	-	26 660	661	10 205	17 203	10 017	-	2 405	2 210	2 571
Family head	21 516	3 056	-	14 374	272	3 814	6 012	3 578	-	486	1 521	427
Family member	9 775	893	-	5 460	47	3 376	5 266	2 211	-	1 574	57	1 425
Unrelated individual	12 134	1 951	-	6 826	341	3 016	5 925	4 228	-	346	632	719
Female, total	37 219	5 313	10 884	15 327	215	5 480	64 404	16 356	37 149	3 934	1 961	5 004
Family head	7 639	1 368	2 248	3 030	-	993	14 553	3 856	8 694	985	166	851
No children under 18 years	1 707	372	163	955	-	218	1 929	1 119	481	53	166	110
Children 6 to 17 years only	2 292	370	803	745	-	373	4 028	957	2 485	264	-	322
Children under 6 years	3 641	625	1 283	1 331	-	402	8 596	1 781	5 728	668	-	419
Wife of head	16 205	1 899	6 625	6 400	56	1 225	34 434	6 350	24 281	1 256	946	1 602
No children under 18 years	6 042	863	1 862	2 504	56	757	15 199	4 365	8 773	325	737	999
Children 6 to 17 years only	3 856	373	1 730	1 484	-	268	8 124	1 364	6 123	317	106	213
Children under 6 years	6 307	662	3 032	2 412	-	200	11 111	620	9 385	614	102	390
Other family member	7 789	1 099	1 379	3 082	106	2 122	8 909	2 097	3 218	1 269	312	2 012
Unrelated individual	5 585	948	631	2 815	52	1 139	6 508	4 054	956	424	536	538
EDUCATIONAL ATTAINMENT[1]												
Male, total	43 425	5 900	-	26 660	661	10 205	17 203	10 017	-	2 405	2 210	2 571
Elementary: 7 years or less	7 351	1 056	-	4 179	278	1 839	5 063	3 379	-	250	1 107	327
8 years	4 872	641	-	3 064	47	1 120	1 889	1 247	-	158	159	326
High school: 1 to 3 years	15 421	2 278	-	9 721	167	3 255	6 001	3 081	-	1 336	452	1 133
4 years	11 475	1 494	-	7 329	53	2 599	3 150	1 700	-	509	325	617
College: 1 year or more	4 306	431	-	2 368	115	1 393	1 100	612	-	153	167	168
Female, total	37 219	5 313	10 884	15 327	215	5 480	64 404	16 356	37 149	3 934	1 961	5 004
Elementary: 7 years or less	3 226	472	904	1 577	112	161	11 625	4 065	5 821	265	630	844
8 years	3 713	525	1 071	1 491	51	574	7 847	2 716	3 757	354	317	702
High school: 1 to 3 years	10 705	1 537	4 250	3 400	52	1 466	23 457	5 509	14 048	1 880	431	1 588
4 years	14 658	2 301	3 537	6 776	-	2 044	17 758	3 058	11 533	1 170	372	1 625
College: 1 year or more	4 917	478	1 121	2 083	-	1 234	3 718	1 008	1 989	264	211	245

[1] Persons 16 to 64 years, not in school.

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Table 23a. Main Reason for Less Than Full-Year Work: White

Age and Sex Family Status Educational Attainment	Main reason for less than full-year work											
	Part-year workers						Nonworkers					
	Total part-year workers	Poor health, illness, or disability	Family responsibilities	Inability to find work (unemployment)	Retirement	All other reasons	Total nonworkers	Poor health, illness, or disability	Family responsibilities	Inability to find work (unemployment)	Retirement	All other reasons
AGE AND SEX												
Total, 16 years and over	22 673	2 504	2 394	10 199	768	6 808	38 745	9 599	9 937	901	14 878	3 430
Male, total	13 663	1 548	-	7 243	398	4 474	13 367	3 482	-	325	8 271	1 290
16 to 21 years, total	2 805	144	-	1 118	-	1 543	824	98	-	48	-	678
16 to 21 years, not in school	1 745	144	-	874	-	727	292	-	-	48	-	244
22 to 34 years, total	4 095	331	-	2 350	-	1 414	706	270	-	106	57	273
22 to 34 years, veteran of Vietnam	512	106	-	300	-	106	48	-	-	48	-	-
25 to 34 years	3 317	331	-	2 010	-	976	561	221	-	58	57	225
35 to 44 years	2 076	340	-	1 116	-	620	395	284	-	56	-	54
45 to 54 years	2 370	453	-	1 416	-	502	1 021	851	-	57	56	56
55 to 64 years	1 641	281	-	1 020	114	226	2 262	1 188	-	56	788	229
65 years and over	677	-	-	224	284	169	8 160	791	-	-	7 369	-
40 to 64 years	5 293	959	-	3 101	114	1 119	3 511	2 157	-	170	845	339
Female, total	9 010	955	2 394	2 956	371	2 334	25 377	6 117	9 937	576	6 608	2 140
16 to 21 years, total	2 166	-	387	680	-	1 100	1 597	97	680	145	-	676
16 to 21 years, not in school	1 259	-	387	389	-	483	1 116	97	680	145	-	194
22 to 34 years	3 044	352	899	1 056	-	737	3 617	376	2 871	153	-	217
25 to 34 years	1 876	303	561	567	-	445	2 357	279	1 853	56	-	168
35 to 44 years	981	248	339	337	-	56	2 531	451	1 855	56	56	112
45 to 54 years	1 249	136	390	392	-	332	4 198	1 131	2 675	56	56	279
55 to 64 years	1 055	168	224	442	112	109	4 281	1 947	1 281	166	444	443
65 years and over	514	51	155	49	259	-	9 154	2 115	574	-	6 051	413
40 to 64 years	2 699	417	727	946	112	497	10 054	3 304	5 137	279	556	778
FAMILY STATUS[1]												
Male, total	11 733	1 499	-	6 727	114	3 393	4 621	2 593	-	325	902	802
Family head	6 039	732	-	3 656	56	1 594	1 554	770	-	170	501	113
Family member	1 986	212	-	1 058	-	716	1 011	450	-	97	57	407
Unrelated individual	3 708	555	-	2 013	58	1 083	2 056	1 373	-	58	343	282
Female, total	7 209	881	2 239	2 510	112	1 467	15 638	4 002	9 258	576	556	1 245
Family head	883	56	384	283	-	160	1 978	392	1 258	48	113	167
No children under 18 years	283	-	56	170	-	56	504	167	168	-	113	56
Children 6 to 17 years only	281	56	114	56	-	55	672	112	449	-	-	111
Children under 6 years	319	-	214	57	-	48	802	113	641	48	-	-
Wife of head	3 670	505	1 592	1 074	56	443	9 245	1 893	6 703	169	55	426
No children under 18 years	1 664	336	338	602	56	332	4 329	1 407	2 489	113	-	321
Children 6 to 17 years only	558	56	224	167	-	111	2 115	277	1 727	-	55	56
Children under 6 years	1 448	112	1 030	306	-	-	2 800	209	2 487	56	-	48
Other family member	1 122	162	97	566	55	242	1 721	328	865	97	112	321
Unrelated individual	1 534	158	167	586	-	623	2 693	1 389	432	263	276	332
EDUCATIONAL ATTAINMENT[1]												
Male, total	11 733	1 499	-	6 727	114	3 393	4 621	2 593	-	325	902	602
Elementary: 7 years or less	1 889	168	-	1 137	56	527	1 029	576	-	-	454	-
8 years	1 761	225	-	1 109	-	427	946	560	-	-	108	278
High school: 1 to 3 years	3 846	607	-	2 105	-	1 134	1 545	963	-	269	169	145
4 years	2 733	273	-	1 779	-	681	707	327	-	56	114	210
College: 1 year or more	1 504	226	-	596	58	624	394	168	-	-	58	168
Female, total	7 209	881	2 239	2 510	112	1 467	15 638	4 002	9 258	576	556	1 245
Elementary: 7 years or less	942	170	224	323	112	114	2 915	667	1 859	111	167	111
8 years	1 052	56	328	497	-	171	3 327	945	1 624	48	112	598
High school: 1 to 3 years	1 773	303	625	531	-	315	4 806	1 186	3 092	153	166	209
4 years	2 170	296	788	685	-	401	3 759	870	2 298	209	112	271
College: 1 year or more	1 272	56	275	474	-	468	830	334	385	55	-	56

[1] Persons 16 to 64 years, not in school.

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Table 23b. Main Reason for Less Than Full-Year Work: Negro

Age and Sex Family Status Educational Attainment	Main reason for less than full-year work											
	Part-year workers						Nonworkers					
	Total part-year workers	Poor health, illness, or disability	Family responsibilities	Inability to find work (unemployment)	Retirement	All other reasons	Total nonworkers	Poor health, illness, or disability	Family responsibilities	Inability to find work (unemployment)	Retirement	All other reasons
AGE AND SEX												
Total, 16 years and over	73 648	9 305	9 406	36 097	1 292	17 548	93 480	26 298	29 945	7 020	16 140	14 078
Male, total	38 050	4 563	-	21 888	1 135	10 464	26 184	9 501	-	2 883	8 462	5 338
16 to 21 years, total	9 073	285	-	3 720	47	5 021	5 831	189	-	1 516	-	4 126
16 to 21 years, not in school	4 233	238	-	2 195	47	1 753	1 941	94	-	946	-	901
22 to 34 years, total	12 520	1 329	-	8 183	57	2 952	1 589	752	-	465	-	372
22 to 34 years, veteran of Vietnam	2 648	238	-	1 659	-	751	255	57	-	151	-	47
25 to 34 years	8 347	936	-	5 593	57	1 762	1 067	610	-	229	-	228
35 to 44 years	6 382	1 243	-	4 411	57	671	1 899	1 555	-	231	114	-
45 to 54 years	4 685	758	-	3 066	-	861	2 880	2 060	-	279	109	432
55 to 64 years	3 844	766	-	2 040	385	653	4 373	2 848	-	161	1 086	279
65 years and over	1 545	182	-	469	588	307	9 611	2 097	-	233	7 153	129
40 to 64 years	11 619	2 274	-	6 998	385	1 962	8 321	5 747	-	612	1 252	711
Female, total	35 598	4 742	9 406	14 209	158	7 083	67 296	16 797	29 945	4 136	7 678	8 740
16 to 21 years, total	9 209	855	1 235	2 992	-	4 126	10 304	521	2 759	1 473	-	5 551
16 to 21 years, not in school	5 321	761	1 046	1 999	-	1 515	5 265	474	2 331	902	-	1 558
22 to 34 years	10 723	1 513	3 531	4 100	-	1 578	13 904	1 359	9 670	1 397	94	1 385
25 to 34 years	7 142	1 277	2 288	2 616	-	961	10 673	1 170	7 487	1 111	-	905
35 to 44 years	5 662	696	1 545	2 935	-	487	10 113	2 086	6 743	747	-	537
45 to 54 years	4 943	677	1 402	2 393	-	471	11 107	4 422	5 853	362	156	314
55 to 64 years	3 658	786	1 099	1 355	103	315	8 662	4 010	2 981	51	1 097	523
65 years and over	1 403	216	594	432	55	106	13 207	4 398	1 940	107	6 330	430
40 to 64 years	11 609	1 841	3 090	5 410	103	1 165	25 149	9 828	11 964	891	1 253	1 213
FAMILY STATUS[1]												
Male, total	30 694	4 286	-	19 370	547	6 491	12 411	7 309	-	2 080	1 252	1 769
Family head	15 036	2 267	-	10 491	216	2 062	4 345	2 752	-	316	963	314
Family member	7 692	680	-	4 353	47	2 611	4 255	1 760	-	1 477	-	1 017
Unrelated individual	7 967	1 339	-	4 526	284	1 818	3 811	2 797	-	288	288	438
Female, total	29 452	4 432	8 419	12 534	103	3 964	47 838	12 298	27 133	3 358	1 348	3 702
Family head	6 756	1 312	1 865	2 747	-	833	12 519	3 465	7 380	937	53	684
No children under 18 years	1 424	372	106	784	-	161	1 424	952	313	53	53	53
Children 6 to 17 years only	2 010	314	689	689	-	318	3 357	844	2 037	264	-	212
Children under 6 years	3 322	625	1 069	1 274	-	354	7 738	1 668	5 031	620	-	419
Wife of head	12 138	1 394	4 807	5 155	-	782	24 478	4 401	16 980	1 087	834	1 177
No children under 18 years	4 263	527	1 467	1 844	-	425	10 431	2 902	5 958	212	680	678
Children 6 to 17 years only	3 185	317	1 450	1 260	-	157	5 897	1 087	4 285	317	51	157
Children under 6 years	4 690	550	1 890	2 050	-	200	8 151	411	6 738	557	102	342
Other family member	6 563	937	1 282	2 460	51	1 832	7 026	1 269	2 250	1 173	201	1 634
Unrelated individual	3 996	790	465	2 173	52	517	3 815	2 664	523	161	260	206
EDUCATIONAL ATTAINMENT[1]												
Male, total	30 694	4 286	-	19 370	547	6 491	12 411	7 309	-	2 080	1 252	1 769
Elementary: 7 years or less	5 409	887	-	3 042	222	1 259	3 977	2 745	-	250	654	327
8 years	2 997	416	-	1 897	47	637	943	687	-	158	51	47
High school: 1 to 3 years	11 306	1 556	-	7 510	167	2 073	4 399	2 061	-	1 067	283	988
4 years	8 580	1 221	-	5 436	53	1 870	2 443	1 373	-	453	211	407
College: 1 year or more	2 402	205	-	1 487	57	654	650	444	-	153	53	-
Female, total	29 452	4 432	8 419	12 534	103	3 964	47 838	12 298	27 133	3 358	1 348	3 702
Elementary: 7 years or less	2 284	302	680	1 254	-	47	8 430	3 398	3 739	154	463	676
8 years	2 604	469	686	994	51	403	4 520	1 772	2 133	306	205	104
High school: 1 to 3 years	8 771	1 234	3 569	2 812	52	1 103	18 387	4 323	10 748	1 727	209	1 379
4 years	12 374	2 005	2 748	5 976	-	1 644	13 718	2 131	9 011	962	260	1 354
College: 1 year or more	3 420	422	734	1 498	-	767	2 784	674	1 502	209	211	189

[1] Persons 16 to 64 years, not in school.

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Table 24. Annual Wage and Salary Earnings of Year-Round Wage and Salary Workers on Full-Time Schedules, by Age and Sex, Family Status, and Educational Attainment: All Races

Age and Sex Family Status Educational Attainment	Total year-round wage and salary workers on full-time schedules	Annual wage and salary earnings										Median annual earnings (dollars)
		Less than $2,000	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $6,999	$7,000 to $7,999	$8,000 to $9,999	$10,000 to $12,499	$12,500 to $14,999	$15,000 or more	
AGE AND SEX													
Total, 16 years and over	103 837	8 015	4 712	8 282	9 033	9 681	12 480	16 120	21 151	11 239	1 594	1 530	6 977
Male, total	67 248	3 300	1 072	1 941	2 672	4 330	8 433	13 568	18 790	10 444	1 332	1 366	7 875
16 to 21 years, total	3 520	321	47	283	524	48	757	619	574	-	48	-	6 314
16 to 21 years, not in school	2 664	336	47	236	333	48	614	476	526	-	48	-	6 542
22 to 34 years, total	18 008	858	255	438	858	1 299	2 132	3 803	5 313	2 566	322	164	7 832
22 to 34 years, veteran of Vietnam	4 074	47	56	48	196	152	412	910	1 445	644	57	107	8 299
25 to 34 years	13 188	331	109	342	476	1 014	1 501	2 839	4 053	2 135	274	115	7 994
35 to 44 years	14 395	330	162	381	438	606	1 218	3 196	4 826	2 796	222	221	8 359
45 to 54 years	16 884	603	59	441	381	1 348	2 013	3 382	4 982	2 865	323	487	8 086
55 to 64 years	11 918	551	440	230	382	881	1 844	2 264	2 733	1 935	273	384	7 720
65 years and over	2 522	337	110	167	89	148	469	304	362	282	144	111	6 875
40 to 64 years	37 256	1 322	604	889	981	2 506	4 356	7 462	10 908	6 595	652	982	8 093
Female, total	36 589	4 715	3 639	6 341	6 361	5 351	4 047	2 552	2 361	795	262	163	4 566
16 to 21 years, total	3 009	664	336	333	626	765	144	142	-	-	-	-	4 275
16 to 21 years, not in school	2 295	332	240	333	482	622	144	142	-	-	-	-	4 503
22 to 34 years	11 220	982	865	1 651	1 621	2 239	1 666	865	959	216	104	53	5 220
25 to 34 years	7 675	645	436	1 172	1 188	1 185	1 140	769	861	167	57	53	5 334
35 to 44 years	7 968	960	651	1 624	1 180	1 224	969	704	433	167	-	57	4 635
45 to 54 years	9 116	1 052	1 113	1 629	2 257	634	955	683	482	311	-	-	4 338
55 to 64 years	4 345	747	522	900	677	435	208	107	487	51	157	53	4 005
65 years and over	931	310	153	204	-	55	106	53	-	50	-	-	3 011
40 to 64 years	18 209	2 337	2 074	3 504	3 848	1 704	1 704	1 171	1 236	420	157	53	4 309
FAMILY STATUS[1]													
Male, total	62 937	2 532	963	1 678	2 200	4 134	7 772	12 968	18 133	10 113	1 188	1 256	7 940
Family head	40 760	1 256	589	871	996	2 746	4 825	8 317	12 322	7 120	863	855	8 127
Family member	7 861	705	317	151	818	322	1 093	1 560	2 025	710	161	-	7 337
Unrelated individual	14 315	571	56	657	386	1 067	1 854	3 090	3 786	2 283	164	401	7 830
Female, total	34 411	4 026	3 390	6 137	6 217	4 869	3 846	2 443	2 312	745	262	163	4 587
Family head	6 566	525	426	1 309	1 259	1 019	795	595	433	51	47	106	4 812
No children under 18 years	2 343	262	47	472	374	322	267	433	113	-	-	53	5 051
Children 6 to 17 years only	2 807	155	271	418	575	644	320	162	210	51	-	-	4 973
Children under 6 years	1 416	108	108	419	310	53	208	-	110	-	47	53	4 235
Wife of head	13 712	1 862	1 088	2 397	2 772	2 102	1 538	733	687	311	164	57	4 544
No children under 18 years	6 444	863	371	1 334	1 527	794	547	368	212	208	164	57	4 429
Children 6 to 17 years only	3 960	592	214	642	789	740	416	210	316	51	-	-	4 687
Children under 6 years	3 308	417	504	421	457	568	576	155	159	51	-	-	4 684
Other family member	6 448	919	553	1 480	669	887	826	631	271	162	51	-	4 406
Unrelated individual	7 685	720	323	952	1 517	861	687	484	921	221	-	-	4 559
EDUCATIONAL ATTAINMENT[1]													
Male, total	62 937	2 532	963	1 678	2 200	4 134	7 772	12 968	18 133	10 113	1 188	1 256	7 940
Elementary: 7 years or less	10 415	664	219	339	265	704	1 960	2 833	2 171	1 099	161	-	7 373
8 years	7 577	320	266	220	211	806	591	1 766	2 325	908	58	106	7 778
High school: 1 to 3 years	17 737	600	276	607	635	969	2 354	4 069	5 075	2 390	426	336	7 843
4 years	19 400	568	155	360	713	1 101	2 021	3 683	6 610	3 697	166	326	8 333
College: 1 year or more	7 808	380	47	152	375	555	847	616	1 950	2 019	378	488	8 955
Female, total	34 411	4 026	3 390	6 137	6 217	4 869	3 846	2 443	2 312	745	262	163	4 587
Elementary: 7 years or less	2 479	528	261	787	318	157	264	107	56	-	-	-	3 572
8 years	2 559	263	312	744	529	271	221	111	55	-	-	53	3 947
High school: 1 to 3 years	8 073	898	750	2 436	1 884	850	833	106	266	51	-	-	3 981
4 years	14 942	1 980	1 651	1 541	2 485	2 935	1 941	1 172	1 182	55	-	-	4 925
College: 1 year or more	6 358	358	417	629	1 002	655	587	947	752	638	262	110	6 201

[1] Persons 16 to 64 years, not in school.

Table 24a. **Annual Wage and Salary Earnings of Year-Round Wage and Salary Workers on Full-Time Schedules, by Age and Sex, Family Status, and Educational Attainment: White**

Age and Sex Family Status Educational Attainment	Total year-round wage and salary workers on full-time schedules	Annual wage and salary earnings										Median annual earnings (dollars)
		Less than $2,000	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $6,999	$7,000 to $7,999	$8,000 to $9,999	$10,000 to $12,499	$12,500 to $14,999	$15,000 or more	
AGE AND SEX												
Total, 16 years and over	21 733	1 676	973	1 507	1 385	1 848	3 062	3 384	4 186	2 691	493	628	7 127
Male, total	15 011	829	272	570	743	1 006	2 083	2 674	3 459	2 368	435	571	7 749
16 to 21 years, total	435	-	-	-	97	-	97	48	145	-	48	-	7 500
16 to 21 years, not in school	242	-	-	-	-	-	48	-	145	-	48	-	9 000
22 to 34 years, total	3 765	203	49	56	361	324	523	468	893	665	106	115	7 780
22 to 34 years, veteran of Vietnam	683	-	-	-	48	57	105	48	261	105	-	58	8 634
25 to 34 years	2 543	57	-	56	216	276	378	219	552	616	58	115	8 252
35 to 44 years	2 551	58	56	113	57	169	338	569	679	341	113	58	7 850
45 to 54 years	4 139	175	-	176	58	111	560	964	903	1 021	56	114	8 055
55 to 64 years	3 223	223	111	113	170	344	396	568	673	341	56	227	7 447
65 years and over	898	171	55	112	-	56	169	56	165	-	55	57	6 320
40 to 64 years	8 894	456	111	402	284	513	1 069	1 815	2 142	1 591	113	398	7 888
Female, total	6 722	847	702	937	642	842	978	609	727	323	57	57	5 277
16 to 21 years, total	531	95	-	-	97	243	97	-	-	-	-	-	5 305
16 to 21 years, not in school	436	48	-	-	97	194	97	-	-	-	-	-	5 376
22 to 34 years	1 770	48	154	166	210	209	379	273	113	161	57	-	6 258
25 to 34 years	1 237	-	57	166	113	111	282	225	113	112	57	-	6 606
35 to 44 years	1 076	56	171	280	-	-	172	170	113	57	-	57	6 181
45 to 54 years	1 840	166	223	280	335	166	280	112	222	55	-	-	4 747
55 to 64 years	949	224	55	112	-	225	-	55	278	-	-	-	5 370
65 years and over	557	258	98	99	-	-	51	-	-	50	-	-	2 211
40 to 64 years	3 468	446	449	504	335	390	394	279	556	113	-	-	4 998
FAMILY STATUS[1]												
Male, total	13 580	562	217	458	549	949	1 866	2 570	3 197	2 319	380	513	7 852
Family head	7 373	108	168	285	113	442	866	1 336	2 144	1 460	225	227	8 345
Family member	1 610	112	49	-	210	105	210	337	366	171	48	-	7 349
Unrelated individual	4 597	342	-	173	226	402	790	897	686	689	106	287	7 408
Female, total	5 966	543	603	838	642	793	879	553	727	273	57	57	5 450
Family head	733	55	169	56	113	56	-	114	170	-	-	-	4 765
No children under 18 years	395	55	-	-	113	56	-	57	113	-	-	-	5 517
Children 6 to 17 years only	170	-	114	-	-	-	-	56	-	-	-	-	2 748
Children under 6 years	169	-	55	56	-	-	-	-	57	-	-	-	3 517
Wife of head	2 211	329	168	560	160	380	388	55	55	-	57	57	4 302
No children under 18 years	1 278	169	56	225	105	324	284	-	-	-	57	57	5 257
Children 6 to 17 years only	613	111	55	279	55	56	56	-	-	-	-	-	3 501
Children under 6 years	320	48	56	56	-	-	48	55	55	-	-	-	3 985
Other family member	1 054	55	106	56	97	97	266	217	55	106	-	-	6 438
Unrelated individual	1 968	103	161	165	273	260	224	168	446	168	-	-	6 098
EDUCATIONAL ATTAINMENT[1]												
Male, total	13 580	562	217	458	549	949	1 866	2 570	3 197	2 319	380	513	7 852
Elementary: 7 years or less	2 922	230	56	286	-	56	557	899	609	228	-	-	7 306
8 years	1 725	55	56	59	48	219	104	513	502	168	-	-	7 625
High school: 1 to 3 years	3 267	49	55	113	227	276	332	667	936	337	104	171	7 871
4 years	3 367	58	49	-	105	170	544	379	753	1 138	113	58	9 002
College: 1 year or more	2 299	169	-	-	169	228	328	112	396	449	164	285	8 727
Female, total	5 966	543	603	838	642	793	879	553	727	273	57	57	5 450
Elementary: 7 years or less	335	55	-	168	-	-	-	56	56	-	-	-	3 671
8 years	784	55	56	111	113	113	169	111	55	-	-	-	5 495
High school: 1 to 3 years	1 050	55	330	337	112	56	106	-	55	-	-	-	3 417
4 years	2 906	377	162	169	361	624	435	330	392	55	-	-	5 615
College: 1 year or more	891	-	55	54	56	-	169	56	168	218	57	57	8 655

[1] Persons 16 to 64 years, not in school.

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Table 24b. Annual Wage and Salary Earnings of Year-Round Wage and Salary Workers on Full-Time Schedules, by Age and Sex, Family Status, and Educational Attainment: Negro

Age and Sex Family Status Educational Attainment	Total year-round wage and salary workers on full-time schedules	Annual wage and salary earnings											Median annual earnings (dollars)
		Less than $2,000	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $6,999	$7,000 to $7,999	$8,000 to $9,999	$10,000 to $12,499	$12,500 to $14,999	$15,000 or more	
AGE AND SEX													
Total, 16 years and over	79 880	6 281	3 626	6 573	7 430	7 632	9 161	12 549	16 523	8 208	1 045	852	6 917
Male, total	50 926	2 470	800	1 314	1 880	3 324	6 092	10 778	14 889	7 792	840	746	7 889
16 to 21 years, total	2 988	621	47	283	378	48	612	570	429	-	-	-	6 191
16 to 21 years, not in school	2 325	336	47	236	283	48	517	476	381	-	-	-	6 410
22 to 34 years, total	13 703	655	206	326	496	975	1 455	3 335	4 202	1 788	216	49	7 821
22 to 34 years, veteran of Vietnam	3 391	47	56	48	148	95	307	861	1 184	538	57	49	8 225
25 to 34 years	10 250	274	109	229	259	738	1 067	2 621	3 332	1 406	216	-	7 934
35 to 44 years	11 616	272	106	268	382	436	824	2 569	4 147	2 341	109	163	8 459
45 to 54 years	12 525	428	59	265	324	237	1 453	2 418	3 967	1 786	266	324	8 040
55 to 64 years	8 469	328	329	117	212	536	1 448	1 639	1 948	1 596	160	157	7 771
65 years and over	1 625	166	55	55	89	92	300	248	196	282	89	53	7 227
40 to 64 years	27 801	866	493	487	696	1 994	3 286	5 531	8 542	4 889	483	534	8 128
Female, total	28 954	3 811	2 825	5 258	5 550	4 309	3 069	1 771	1 634	416	205	106	4 465
16 to 21 years, total	2 432	569	336	287	529	522	47	142	-	-	-	-	4 046
16 to 21 years, not in school	1 813	284	240	287	386	428	47	142	-	-	-	-	4 249
22 to 34 years	8 803	876	655	1 437	1 298	1 829	1 288	420	846	55	47	53	5 074
25 to 34 years	5 985	583	323	1 006	962	1 018	858	373	748	55	-	53	5 111
35 to 44 years	6 779	904	480	1 344	1 124	1 224	797	534	319	54	-	-	4 589
45 to 54 years	7 220	887	833	1 349	1 922	468	675	571	259	256	-	-	4 281
55 to 64 years	3 396	523	467	788	677	211	208	51	209	51	157	53	3 999
65 years and over	323	53	55	53	-	55	55	53	-	-	-	-	5 012
40 to 64 years	14 629	1 890	1 568	3 000	3 456	1 314	1 310	891	680	307	157	53	4 247
FAMILY STATUS[1]													
Male, total	48 046	1 970	746	1 164	1 602	3 185	5 648	10 283	14 494	7 510	751	693	7 944
Family head	32 721	1 148	422	530	883	2 304	3 847	6 981	9 898	5 548	582	579	8 050
Family member	5 991	593	268	151	558	217	835	1 166	1 553	539	113	-	7 321
Unrelated individual	9 334	230	56	484	160	664	966	2 135	3 043	1 424	57	114	7 986
Female, total	27 631	3 426	2 674	5 205	5 407	3 923	2 967	1 718	1 585	416	205	106	4 464
Family head	5 775	470	257	1 253	1 146	963	795	424	263	51	47	106	4 792
No children under 18 years	1 891	207	47	472	261	265	267	318	-	-	-	53	4 841
Children 6 to 17 years only	2 637	155	157	418	575	644	320	106	210	51	-	-	5 020
Children under 6 years	1 247	108	53	363	310	53	208	-	53	-	47	53	4 323
Wife of head	11 218	1 476	864	1 836	2 556	1 666	1 150	621	632	311	106	-	4 560
No children under 18 years	4 995	637	258	1 108	1 422	470	263	311	212	208	106	-	4 348
Children 6 to 17 years only	3 290	471	158	363	677	684	359	210	316	51	-	-	4 963
Children under 6 years	2 932	369	448	365	457	512	527	100	104	51	-	-	4 624
Other family member	5 080	864	448	1 375	516	693	559	357	216	-	51	-	3 893
Unrelated individual	5 559	616	1 106	741	1 189	601	463	316	474	54	-	-	4 267
EDUCATIONAL ATTAINMENT[1]													
Male, total	48 046	1 970	746	1 164	1 602	3 185	5 648	10 283	14 494	7 510	751	693	7 944
Elementary: 7 years or less	7 154	433	163	53	265	648	1 347	1 876	1 451	814	104	-	7 356
8 years	5 738	265	210	161	163	587	430	1 195	1 823	740	58	106	7 881
High school: 1 to 3 years	14 325	551	221	494	408	693	1 924	3 403	4 091	2 053	323	165	7 844
4 years	15 869	510	105	360	559	931	1 477	3 304	5 857	2 446	53	268	8 235
College: 1 year or more	4 960	212	47	96	207	326	470	505	1 272	1 458	214	154	8 971
Female, total	27 631	3 426	2 674	5 205	5 407	3 923	2 967	1 718	1 585	416	205	106	4 464
Elementary: 7 years or less	2 041	473	204	573	318	157	264	51	-	-	-	-	3 598
8 years	1 775	207	255	633	416	159	52	-	-	-	-	53	3 672
High school: 1 to 3 years	6 966	842	420	2 099	1 716	794	727	106	211	51	-	-	4 071
4 years	11 720	1 546	1 489	1 324	2 123	2 158	1 506	784	790	-	-	-	4 707
College: 1 year or more	5 129	358	305	575	833	655	418	777	584	364	205	53	5 751

[1] Persons 16 to 64 years, not in school.

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Table 25. Annual Wage and Salary Earnings of Year-Round Wage and Salary Workers on Full-Time Schedules, by Major Occupation and Industry Groups of Longest Job: All Races

(Limited to persons 16 to 64 years, not in school)

Major Occupation and Industry Groups of Longest Job in Last 12 Months	Total year-round wage and salary workers on full-time schedules	Annual wage and salary earnings											Median annual earnings (dollars)
		Less than $2,000	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $6,999	$7,000 to $7,999	$8,000 to $9,999	$10,000 to $12,499	$12,500 to $14,999	$15,000 or more	
MAJOR OCCUPATION GROUP OF LONGEST JOB IN LAST 12 MONTHS													
Total employed	97 348	6 559	4 353	7 816	8 418	9 003	11 618	15 411	20 444	10 858	1 450	1 419	7 059
Professional and technical	6 605	424	158	301	440	536	702	849	1 455	1 140	334	266	7 874
Managerial and administrative	2 714	158	-	110	-	355	218	213	644	746	47	223	8 944
Sales	2 494	311	165	585	321	262	266	266	105	161	53	-	4 582
Clerical	15 376	975	880	984	2 287	2 351	2 054	2 547	2 201	886	102	108	6 103
Craftsmen and foremen	11 711	418	-	326	634	527	1 248	1 888	3 176	2 525	583	386	8 513
Operatives, except transportation	25 445	1 252	320	1 163	968	2 125	3 348	5 304	7 240	3 462	105	157	7 668
Transport equipment operatives	6 186	205	111	229	319	429	567	812	2 437	857	53	167	8 345
Laborers, except farm	7 121	436	256	262	402	493	1 172	1 839	1 652	377	114	58	7 261
Service workers, except private household	16 999	1 847	1 570	3 332	2 030	1 707	1 774	1 695	1 481	704	58	-	4 618
Private household workers	2 537	531	891	523	157	220	108	-	53	-	-	53	2 827
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	109	-	-	-	-	-	109	-	-	-	-	-	6 500
Not available	51	-	-	-	-	51	-	-	-	-	-	-	6 500
Male, total	62 937	2 532	963	1 678	2 200	4 134	7 772	12 968	18 133	10 113	1 188	1 256	7 940
Professional and technical	5 097	169	-	49	169	170	432	307	652	712	171	266	9 776
Managerial and administrative	1 749	-	-	56	-	48	108	213	644	484	-	166	9 349
Sales	644	-	-	51	-	57	111	105	105	161	53	-	7 975
Clerical	5 315	251	208	106	214	269	485	1 395	1 396	831	51	108	7 806
Craftsmen and foremen	10 923	418	-	219	372	479	1 037	1 888	3 069	2 525	583	333	8 684
Operatives, except transportation	21 437	670	53	413	397	1 544	2 700	5 029	6 907	3 462	105	157	7 982
Transport equipment operatives	5 980	206	111	229	211	429	469	812	2 437	857	53	167	8 430
Laborers, except farm	6 546	383	204	162	304	440	1 067	1 786	1 652	377	114	58	7 400
Service workers, except private household	7 059	456	386	393	534	642	1 202	1 434	1 270	704	58	-	6 947
Private household workers	57	-	-	-	-	57	-	-	-	-	-	-	5 500
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	109	-	-	-	-	-	109	-	-	-	-	-	6 500
Not available	51	-	-	-	-	-	51	-	-	-	-	-	6 500
Female, total	34 411	4 026	3 390	6 137	6 217	4 869	3 846	2 443	2 312	745	262	163	4 587
Professional and technical	3 509	256	158	252	272	366	269	541	803	428	164	-	7 335
Managerial and administrative	995	158	-	54	-	307	110	-	-	262	47	57	5 931
Sales	1 850	311	165	534	321	205	155	160	-	-	-	-	3 842
Clerical	10 061	724	672	878	2 072	2 082	1 569	1 152	804	55	51	-	5 328
Craftsmen and foremen	788	-	-	106	262	48	211	-	106	-	-	53	5 517
Operatives, except transportation	4 008	582	267	750	570	581	648	275	334	-	-	-	4 708
Transport equipment operatives	206	-	-	-	108	-	98	-	-	-	-	-	4 956
Laborers, except farm	575	53	53	100	159	53	105	53	-	-	-	-	4 515
Service workers, except private household	9 940	1 411	1 184	2 940	2 296	1 065	572	262	211	-	-	-	3 808
Private household workers	2 480	531	891	523	157	163	108	-	53	-	-	53	2 795
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
MAJOR INDUSTRY GROUP OF LONGEST JOB IN LAST 12 MONTHS													
Male, total	62 937	2 532	963	1 678	2 200	4 134	7 772	12 968	18 133	10 113	1 188	1 256	7 940
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	51	-	-	-	-	-	-	-	-	51	-	-	11 250
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	1 649	49	-	-	47	57	432	226	392	165	222	58	8 067
Durable goods manufacturing	31 192	986	215	367	573	1 735	3 247	7 457	10 091	5 550	539	432	8 201
Nondurable goods manufacturing	3 590	53	53	108	252	207	270	860	923	755	53	56	7 990
Transportation, communication, and other public utilities	3 550	318	168	229	109	163	262	504	1 197	389	101	111	8 038
Wholesale and retail trade	7 828	486	97	490	519	761	1 041	1 511	1 742	913	159	109	7 345
Finance, insurance, and real estate	905	-	-	-	102	228	47	152	271	104	-	-	7 491
Business and repair services	1 997	210	108	47	110	57	316	372	497	223	-	57	7 406
Personal services	862	94	53	59	-	110	169	101	55	168	-	53	6 681
Professional services and entertainment	3 284	167	115	162	228	274	759	490	329	432	56	272	6 917
Government[1]													
Educational services	766	59	56	-	-	53	101	112	158	227	-	-	8 022
All other government services	7 262	111	98	215	261	488	1 127	1 183	2 477	1 136	57	108	8 119
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	34 411	4 026	3 390	6 137	6 217	4 869	3 846	2 443	2 312	745	262	163	4 587
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	54	-	-	54	-	-	-	-	-	-	-	-	3 500
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	53	53	-	-	-	-	-	-	-	-	-	-	1 000
Durable goods manufacturing	2 546	523	55	56	148	261	791	325	333	-	-	53	6 290
Nondurable goods manufacturing	1 286	-	52	326	210	108	265	165	109	51	-	-	5 506
Transportation, communication, and other public utilities	1 386	109	51	-	264	597	205	48	110	-	-	-	5 449
Wholesale and retail trade	6 638	781	878	1 787	1 567	941	349	206	159	-	-	-	3 929
Finance, insurance, and real estate	2 021	254	112	205	520	451	259	113	51	55	-	-	4 846
Business and repair services	733	-	106	147	53	-	206	54	56	111	-	-	6 293
Personal services	5 225	799	1 261	1 483	883	325	211	109	93	-	47	53	3 372
Professional services and entertainment	9 287	996	620	1 820	2 149	1 403	745	538	637	264	57	57	4 562
Government[1]													
Educational services	963	150	-	100	106	53	210	103	160	-	106	-	6 406
All other government services	4 196	362	254	159	317	729	634	782	644	263	51	-	6 437
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0

[1] Government class of worker.

7491

Table 25a. Annual Wage and Salary Earnings of Year-Round Wage and Salary Workers on Full-Time Schedules, by Major Occupation and Industry Groups of Longest Job: White

(Limited to persons 16 to 64 years, not in school)

Major Occupation and Industry Groups of Longest Job in Last 12 Months	Total year-round wage and salary workers on full-time schedules	Annual wage and salary earnings										Median annual earnings (dollars)
		Less than $2,000	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $6,999	$7,000 to $7,999	$8,000 to $9,999	$10,000 to $12,499	$12,500 to $14,999	$15,000 or more	
MAJOR OCCUPATION GROUP OF LONGEST JOB IN LAST 12 MONTHS													
Total employed	19 546	1 105	820	1 296	1 191	1 743	2 745	3 123	3 923	2 593	437	571	7 280
Professional and technical	2 064	169	-	54	169	162	385	169	283	390	171	113	7 554
Managerial and administrative	719	55	-	-	-	-	113	48	219	168	-	115	9 301
Sales	609	-	113	167	160	56	56	56	-	-	-	-	4 151
Clerical	3 257	266	224	112	372	473	538	439	499	334	-	-	6 338
Craftsmen and foremen	2 626	49	-	56	162	163	163	539	540	622	160	171	8 666
Operatives, except transportation	4 468	111	55	281	55	274	673	902	1 443	625	48	-	7 870
Transport equipment operatives	1 207	-	-	58	57	170	153	171	317	169	-	114	7 974
Laborers, except farm	1 289	172	56	59	48	-	272	342	225	56	-	58	7 108
Service workers, except private household	3 251	227	371	510	168	444	391	456	397	229	.3	-	5 787
Private household workers	56	56	-	-	-	-	-	-	-	-	-	-	1 001
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Male, total	13 580	562	217	458	549	949	1 866	2 570	3 197	2 319	380	513	7 852
Professional and technical	1 295	169	-	-	169	114	273	57	116	172	114	113	6 721
Managerial and administrative	495	-	-	-	-	-	57	48	219	112	-	58	9 298
Sales	56	-	-	-	-	-	56	-	-	-	-	-	6 500
Clerical	1 106	-	55	-	57	163	57	220	220	334	-	-	8 009
Craftsmen and foremen	2 521	49	-	56	106	115	163	539	540	622	160	171	8 860
Operatives, except transportation	3 346	-	-	56	-	274	445	735	1 163	625	48	-	8 281
Transport equipment operatives	1 207	-	-	58	57	170	153	171	317	169	-	114	7 974
Laborers, except farm	1 289	172	56	59	48	-	272	342	225	56	-	58	7 108
Service workers, except private household	2 265	171	106	229	113	114	391	456	397	229	58	-	7 017
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	5 966	543	603	838	642	793	879	553	727	73	57	57	5 450
Professional and technical	769	-	-	54	-	48	112	112	167	218	57	-	8 692
Managerial and administrative	224	55	-	-	-	-	56	-	-	55	-	57	10 019
Sales	553	-	113	167	160	56	-	56	-	-	-	-	3 976
Clerical	2 152	266	169	112	315	310	482	218	280	-	-	-	5 689
Craftsmen and foremen	105	-	-	-	56	48	-	-	-	-	-	-	4 929
Operatives, except transportation	1 121	111	55	225	55	-	228	167	280	-	-	-	6 503
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-	0
Laborers, except farm	-	-	-	-	-	-	-	-	-	-	-	-	0
Service workers, except private household	986	55	266	280	55	330	-	-	-	-	-	-	3 615
Private household workers	56	56	-	-	-	-	-	-	-	-	-	-	1 001
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
MAJOR INDUSTRY GROUP OF LONGEST JOB IN LAST 12 MONTHS													
Male, total	13 580	562	217	458	549	949	1 866	2 570	3 197	2 319	380	513	7 852
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-	-	-	0
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	226	-	-	-	-	-	-	56	57	-	55	58	9 991
Durable goods manufacturing	5 653	49	113	-	105	321	647	1 296	1 655	1 242	114	113	8 358
Nondurable goods manufacturing	1 104	-	-	55	48	-	-	382	390	172	-	56	8 339
Transportation, communication, and other public utilities	1 062	57	-	58	58	57	56	283	276	113	48	57	7 869
Wholesale and retail trade	1 989	171	49	172	55	172	397	211	315	281	106	58	6 942
Finance, insurance, and real estate	228	-	-	-	-	115	-	56	57	-	-	-	5 991
Business and repair services	570	59	55	-	-	-	116	-	227	114	-	-	8 493
Personal services	114	-	-	59	-	-	-	-	-	55	-	-	3 972
Professional services and entertainment	1 233	167	-	-	169	113	442	58	-	57	56	171	6 379
Government[1]													
Educational services	278	-	-	-	-	-	48	57	58	115	-	-	9 169
All other government services	1 123	58	-	115	114	171	160	172	162	171	-	-	6 647
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	5 966	543	603	838	642	793	879	553	727	273	57	57	5 450
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-	-	-	0
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	-	-	-	-	-	-	-	-	-	-	-	-	0
Durable goods manufacturing	882	104	55	56	48	-	225	113	280	-	-	-	6 788
Nondurable goods manufacturing	450	-	-	225	-	-	57	112	55	-	-	-	6 001
Transportation, communication, and other public utilities	411	56	-	-	-	249	-	48	57	-	-	-	5 599
Wholesale and retail trade	1 495	56	436	392	167	331	113	-	-	-	-	-	3 651
Finance, insurance, and real estate	537	104	55	-	210	-	56	56	-	55	-	-	4 521
Business and repair services	161	-	-	-	-	-	48	-	56	56	-	-	9 139
Personal services	327	167	-	56	-	-	48	55	-	-	-	-	1 960
Professional services and entertainment	1 209	56	-	109	217	109	330	56	111	106	57	57	6 342
Government[1]													
Educational services	56	-	-	-	-	-	-	56	-	-	-	-	7 500
All other government services	440	-	56	-	-	104	-	56	167	56	-	-	8 038
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0

[1] Government class of worker.

7492

Table 25b. Annual Wage and Salary Earnings of Year-Round Wage and Salary Workers on Full-Time Schedules, by Major Occupation and Industry Groups of Longest Job: Negro

[Limited to persons 16 to 64 years, not in school]

Major Occupation and Industry Groups of Longest Job in Last 12 Months	Total year-round wage and salary workers on full-time schedules	Annual wage and salary earnings											Median annual earnings (dollars)
		Less than $2,000	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $6,999	$7,000 to $7,999	$8,000 to $9,999	$10,000 to $12,499	$12,500 to $14,999	$15,000 or more	
MAJOR OCCUPATION GROUP OF LONGEST JOB IN LAST 12 MONTHS													
Total employed	75 677	5 397	3 420	6 369	7 009	7 108	8 615	12 001	16 079	7 926	956	799	6 991
Professional and technical	3 993	256	102	248	159	374	267	564	1 117	638	163	104	8 047
Managerial and administrative	1 939	103	-	54	-	355	104	164	426	578	47	108	8 892
Sales	1 828	253	51	418	161	206	210	210	105	161	53	-	5 148
Clerical	11 738	710	656	871	1 858	1 781	1 516	2 051	1 531	552	102	108	5 995
Craftsmen and foremen	8 922	368	-	270	472	364	1 037	1 349	2 636	1 789	423	215	8 457
Operatives, except transportation	20 482	1 142	265	834	913	1 851	2 619	4 286	5 692	2 723	-	157	7 611
Transport equipment operatives	4 979	206	111	172	262	259	414	641	2 120	688	53	53	8 401
Laborers, except farm	5 728	263	200	204	365	493	900	1 497	1 371	321	114	-	7 294
Service workers, except private household	13 485	1 620	1 143	2 776	2 662	1 262	1 279	1 239	1 028	475	-	-	4 452
Private household workers	2 424	475	891	523	157	164	108	-	53	-	-	53	2 827
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	109	-	-	-	-	-	109	-	-	-	-	-	6 500
Not available	51	-	-	-	-	-	51	-	-	-	-	-	6 500
Male, total	48 046	1 970	746	1 164	1 602	3 185	5 648	10 283	14 494	7 510	751	693	7 944
Professional and technical	1 592	-	-	49	-	56	110	250	480	485	57	104	9 376
Managerial and administrative	1 168	-	-	-	-	48	51	164	426	371	-	108	9 508
Sales	588	-	-	51	-	57	55	105	105	161	53	-	8 482
Clerical	4 039	251	153	106	157	106	428	1 174	1 007	497	51	108	7 696
Craftsmen and foremen	8 239	368	-	163	266	364	826	1 349	2 529	1 789	423	162	8 620
Operatives, except transportation	17 644	670	53	357	397	1 271	2 139	4 178	5 639	2 723	-	157	7 927
Transport equipment operatives	4 772	206	111	172	154	259	316	641	2 120	688	53	53	8 498
Laborers, except farm	5 152	210	147	104	206	440	795	1 444	1 371	321	114	-	7 467
Service workers, except private household	4 634	264	281	163	421	528	707	978	817	475	-	-	6 933
Private household workers	57	-	-	-	-	57	-	-	-	-	-	-	5 500
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	109	-	-	-	-	-	109	-	-	-	-	-	6 500
Not available	51	-	-	-	-	-	51	-	-	-	-	-	6 500
Female, total	27 631	3 426	2 674	5 205	5 407	3 923	2 967	1 718	1 585	416	205	106	4 464
Professional and technical	2 401	256	102	199	159	318	157	315	637	154	106	-	7 033
Managerial and administrative	771	103	-	54	-	307	53	-	-	207	47	-	5 746
Sales	1 240	253	51	367	161	149	155	104	-	-	-	-	3 859
Clerical	7 699	458	503	766	1 701	1 675	1 087	877	525	55	51	-	5 251
Craftsmen and foremen	683	-	-	106	206	-	211	-	106	-	-	53	6 137
Operatives, except transportation	2 838	472	212	477	515	581	420	108	53	-	-	-	4 501
Transport equipment operatives	206	-	-	-	108	-	98	-	-	-	-	-	4 956
Laborers, except farm	575	53	53	100	159	53	105	53	-	-	-	-	4 515
Service workers, except private household	8 851	1 356	862	2 613	2 240	735	572	262	211	-	-	-	3 845
Private household workers	2 367	475	891	523	157	106	108	-	53	-	-	53	2 795
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
MAJOR INDUSTRY GROUP OF LONGEST JOB IN LAST 12 MONTHS													
Male, total	48 046	1 970	746	1 164	1 602	3 185	5 648	10 283	14 494	7 510	751	693	7 944
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	51	-	-	-	-	-	-	-	-	51	-	-	11 250
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	1 422	49	-	-	47	57	432	170	335	165	167	-	7 741
Durable goods manufacturing	24 941	937	102	367	468	1 414	2 391	6 103	8 276	4 195	369	319	8 166
Nondurable goods manufacturing	2 429	53	53	53	204	207	270	478	533	525	53	-	7 783
Transportation, communication, and other public utilities	2 318	260	168	172	51	106	206	221	809	219	53	53	7 887
Wholesale and retail trade	5 677	314	47	319	414	589	643	1 242	1 371	632	53	51	7 412
Finance, insurance, and real estate	677	-	-	-	102	113	47	96	214	104	-	-	7 787
Business and repair services	1 427	151	53	47	110	57	200	372	271	109	-	57	7 256
Personal services	748	96	53	-	-	110	169	101	55	113	-	53	6 691
Professional services and entertainment	1 835	-	115	106	59	161	318	432	273	320	-	51	7 369
Government[1]													
Educational services	488	59	56	-	-	53	53	55	100	112	-	-	7 414
All other government services	6 032	53	98	100	147	317	918	1 011	2 257	965	57	108	8 329
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	27 631	3 426	2 674	5 205	5 407	3 923	2 967	1 718	1 585	416	205	106	4 464
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	54	-	-	54	-	-	-	-	-	-	-	-	3 500
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	53	53	-	-	-	-	-	-	-	-	-	-	1 000
Durable goods manufacturing	1 664	419	-	-	100	261	566	212	53	-	-	53	6 092
Nondurable goods manufacturing	788	-	52	53	210	108	208	53	53	51	-	-	5 730
Transportation, communication, and other public utilities	926	53	51	-	264	299	206	-	53	-	-	-	5 316
Wholesale and retail trade	5 086	668	442	1 395	1 400	610	206	206	159	-	-	-	4 027
Finance, insurance, and real estate	1 266	150	-	205	254	403	203	-	51	-	-	-	5 059
Business and repair services	572	-	106	147	53	-	157	54	-	55	-	-	4 617
Personal services	4 842	632	1 261	1 427	883	269	163	53	53	-	47	53	3 370
Professional services and entertainment	7 693	939	564	1 665	1 820	1 294	415	367	526	102	-	-	4 372
Government[1]													
Educational services	932	150	-	100	106	53	210	47	160	-	106	-	6 273
All other government services	3 756	362	197	159	317	626	638	726	477	207	51	-	6 343
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0

[1] Government class of worker.

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Table 26. Annual Wage and Salary Earnings of Part-Year and Part-Time Wage and Salary Workers, by Age and Sex, and Family Status: All Races

Age and Sex Family Status	Total part-year and part-time wage and salary workers	Annual wage and salary earnings										
		Less than $500	$500 to $999	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $7,499	$7,500 to $9,999	$10,000 to $14,999	$15,000 or more
AGE AND SEX												
Total, 16 years and over	20 184	8 305	3 440	3 955	2 012	975	605	313	255	160	163	-
Male, total	6 852	2 960	698	1 429	733	305	96	260	49	160	163	-
16 to 21 years, total	4 048	2 091	426	904	193	143	48	145	49	47	-	-
16 to 21 years, not in school	1 434	525	143	429	144	-	-	98	49	47	-	-
22 to 34 years, total	1 053	321	47	58	258	104	47	56	-	113	48	-
22 to 34 years, veteran of Vietnam	162	115	-	-	47	-	-	-	-	-	-	-
25 to 34 years	717	224	-	58	162	104	-	56	-	113	-	-
35 to 44 years	511	170	-	56	169	-	-	-	-	-	115	-
45 to 54 years	342	-	114	116	55	58	-	-	-	-	-	-
55 to 64 years	386	102	111	115	-	-	-	59	-	-	-	-
65 years and over	512	275	-	180	57	-	-	-	-	-	-	-
40 to 64 years	785	102	225	287	55	58	-	59	-	-	-	-
Female, total	13 332	5 346	2 742	2 526	1 280	670	510	53	206	-	-	-
16 to 21 years, total	4 278	2 327	951	381	286	94	190	-	47	-	-	-
16 to 21 years, not in school	1 762	712	477	96	193	47	190	-	47	-	-	-
22 to 34 years	2 576	960	516	426	203	153	265	-	53	-	-	-
25 to 34 years	1 608	529	321	328	106	56	216	-	53	-	-	-
35 to 44 years	2 046	539	436	380	266	212	55	53	106	-	-	-
45 to 54 years	1 690	680	319	481	106	102	-	-	-	-	-	-
55 to 64 years	1 731	625	360	374	317	55	-	-	-	-	-	-
65 years and over	1 011	214	160	483	101	53	-	-	-	-	-	-
40 to 64 years	4 292	1 322	844	1 130	478	211	55	-	53	-	-	-
FAMILY STATUS[1]												
Male, total	3 584	1 072	415	773	579	162	47	213	49	160	115	-
Family head	646	211	102	-	274	-	-	59	-	-	-	-
Family member	1 793	542	94	439	202	47	47	154	49	160	58	-
Unrelated individual	1 144	318	218	334	103	114	-	-	-	-	57	-
Female, total	9 397	3 361	2 009	1 708	1 086	464	510	53	206	-	-	-
Family head	1 996	623	421	369	316	53	108	-	106	-	-	-
No children under 18 years	421	134	106	51	159	-	-	-	-	-	-	-
Children 6 to 17 years only	780	253	262	55	102	-	55	-	53	-	-	-
Children under 6 years	795	265	53	263	55	53	53	-	53	-	-	-
Wife of head	4 661	1 808	887	917	525	261	210	53	-	-	-	-
No children under 18 years	1 913	786	364	441	213	-	110	-	-	-	-	-
Children 6 to 17 years only	1 541	611	310	207	207	53	100	53	-	-	-	-
Children under 6 years	1 207	410	213	270	106	201	-	-	-	-	-	-
Other family member	1 707	721	398	155	144	47	143	-	100	-	-	-
Unrelated individual	1 033	210	303	267	100	103	49	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

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Table 26a. Annual Wage and Salary Earnings of Part-Year and Part-Time Wage and Salary Workers, by Age and Sex, and Family Status: White

Age and Sex Family Status	Total part-year and part-time wage and salary workers	Annual wage and salary earnings										
		Less than $500	$500 to $999	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $7,499	$7,500 to $9,999	$10,000 to $14,999	$15,000 or more
AGE AND SEX												
Total, 16 years and over	3 988	761	822	1 259	510	218	146	156	-	-	115	-
Male, total	1 508	405	198	309	218	58	48	156	-	-	115	-
16 to 21 years, total	723	243	141	193	-	-	48	98	-	-	-	-
16 to 21 years, not in school	435	243	46	48	-	-	-	98	-	-	-	-
22 to 34 years, total	156	49	-	58	48	-	-	-	-	-	-	-
22 to 34 years, veteran of Vietnam	-	-	-	-	-	-	-	-	-	-	-	-
25 to 34 years	106	-	-	58	48	-	-	-	-	-	-	-
35 to 44 years	229	57	-	-	57	-	-	-	-	-	115	-
45 to 54 years	113	-	-	-	55	58	-	-	-	-	-	-
55 to 64 years	174	-	58	58	-	-	-	59	-	-	-	-
65 years and over	114	56	-	-	57	-	-	-	-	-	-	-
40 to 64 years	286	-	58	58	55	58	-	59	-	-	-	-
Female, total	2 480	356	623	950	292	161	98	-	-	-	-	-
16 to 21 years, total	816	195	238	192	143	-	48	-	-	-	-	-
16 to 21 years, not in school	336	97	46	48	97	-	48	-	-	-	-	-
22 to 34 years	568	48	105	211	48	105	49	-	-	-	-	-
25 to 34 years	224	-	56	112	-	56	-	-	-	-	-	-
35 to 44 years	282	56	169	56	-	-	-	-	-	-	-	-
45 to 54 years	335	56	111	168	-	-	-	-	-	-	-	-
55 to 64 years	222	-	-	167	-	55	-	-	-	-	-	-
65 years and over	257	-	-	156	101	-	-	-	-	-	-	-
40 to 64 years	671	56	168	391	-	55	-	-	-	-	-	-
FAMILY STATUS[1]												
Male, total	1 106	349	104	164	161	58	-	156	-	-	115	-
Family head	164	-	-	-	106	-	-	59	-	-	-	-
Family member	397	193	-	48	-	-	-	98	-	-	58	-
Unrelated individual	544	156	104	116	55	58	-	-	-	-	57	-
Female, total	1 539	258	383	601	145	55	98	-	-	-	-	-
Family head	165	-	111	55	-	-	-	-	-	-	-	-
No children under 18 years	-	-	-	-	-	-	-	-	-	-	-	-
Children 6 to 17 years only	165	-	111	55	-	-	-	-	-	-	-	-
Children under 6 years	-	-	-	-	-	-	-	-	-	-	-	-
Wife of head	701	209	113	330	48	-	-	-	-	-	-	-
No children under 18 years	340	56	57	227	-	-	-	-	-	-	-	-
Children 6 to 17 years only	249	153	-	48	48	-	-	-	-	-	-	-
Children under 6 years	111	-	56	55	-	-	-	-	-	-	-	-
Other family member	306	48	56	56	97	-	48	-	-	-	-	-
Unrelated individual	367	-	102	160	-	55	49	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

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Table 26b. Annual Wage and Salary Earnings of Part-Year and Part-Time Wage and Salary Workers, by Age and Sex, and Family Status: Negro

Age and Sex Family Status	Total part-year and part-time wage and salary workers	Annual wage and salary earnings										
		Less than $500	$500 to $999	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $7,499	$7,500 to $9,999	$10,000 to $14,999	$15,000 or more
AGE AND SEX												
Total, 16 years and over	15 932	7 495	2 566	2 638	1 502	700	459	157	255	160	-	-
Male, total	5 137	2 506	446	1 120	514	191	47	104	49	160	-	-
16 to 21 years, total	3 276	1 80C	285	711	193	143	-	47	49	47	-	-
16 to 21 years, not in school	1 000	283	96	380	144	-	-	-	49	47	-	-
22 to 34 years, total	792	271	47	-	210	47	47	56	-	113	-	-
22 to 34 years, veteran of Vietnam	162	115	-	-	47	-	-	-	-	-	-	-
25 to 34 years	554	224	-	-	114	47	-	56	-	113	-	-
35 to 44 years	282	114	-	56	111	-	-	-	-	-	-	-
45 to 54 years	230	-	114	116	-	-	-	-	-	-	-	-
55 to 64 years	159	102	-	57	-	-	-	-	-	-	-	-
65 years and over	398	218	-	180	-	-	-	-	-	-	-	-
40 to 64 years	446	102	114	229	-	-	-	-	-	-	-	-
Female, total	10 795	4 989	2 119	1 518	988	509	412	53	206	-	-	-
16 to 21 years, total	3 462	2 132	714	189	143	94	142	-	47	-	-	-
16 to 21 years, not in school	1 426	616	430	47	96	47	142	-	47	-	-	-
22 to 34 years	2 009	912	410	216	155	48	216	-	53	-	-	-
25 to 34 years	1 384	529	265	216	106	-	216	-	53	-	-	-
35 to 44 years	1 707	483	266	266	266	212	55	53	106	-	-	-
45 to 54 years	1 354	624	209	313	106	102	-	-	-	-	-	-
55 to 64 years	1 509	625	360	207	317	-	-	-	-	-	-	-
65 years and over	754	214	160	327	-	53	-	-	-	-	-	-
40 to 64 years	3 564	1 465	676	681	478	155	55	-	53	-	-	-
FAMILY STATUS[1]												
Male, total	2 368	723	258	609	418	47	47	56	49	160	-	-
Family head	429	211	49	-	169	-	-	-	-	-	-	-
Family member	1 396	349	94	391	202	47	47	56	49	160	-	-
Unrelated individual	543	162	114	218	48	-	-	-	-	-	-	-
Female, total	7 801	3 104	1 627	1 050	941	409	412	53	206	-	-	-
Family head	1 830	623	310	315	316	53	108	-	106	-	-	-
No children under 18 years	421	104	106	51	159	-	-	-	-	-	-	-
Children 6 to 17 years only	614	253	151	-	102	-	55	-	53	-	-	-
Children under 6 years	795	265	53	263	55	53	53	-	53	-	-	-
Wife of head	3 903	1 598	774	530	477	261	210	53	-	-	-	-
No children under 18 years	1 573	730	307	214	213	-	110	-	-	-	-	-
Children 6 to 17 years only	1 292	459	310	159	159	53	100	53	-	-	-	-
Children under 6 years	1 038	410	157	157	106	208	-	-	-	-	-	-
Other family member	1 401	672	342	98	47	47	94	-	100	-	-	-
Unrelated individual	666	210	201	107	100	48	-	-	-	-	-	-

[1] Persons 16 to 64 years, not in school.

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Table 27. Annual Wage and Salary Earnings of Part-Year and Part-Time Wage and Salary Workers, by Major Occupation and Industry Groups of Longest Job: All Races

[Limited to persons 16 to 64 years, not in school]

Major Occupation and Industry Groups of Longest Job in Last 12 Months	Total part-year and part-time wage and salary workers	Annual wage and salary earnings										
		Less than $500	$500 to $999	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5 999	$6,000 to $7,499	$7,500 to $9,999	$10.000 to $14,999	$15,000 or more
MAJOR OCCUPATION GROUP OF LONGEST JOB												
Total, part-year and part-time workers	12 981	4 433	2 424	2 481	1 665	626	557	266	255	160	115	-
Professional and technical	616	96	154	153	101	57	55	-	-	-	-	-
Managerial and administrative	203	53	93	56	-	-	-	-	-	-	-	-
Sales	729	308	103	161	-	104	-	-	53	-	-	-
Clerical	2 896	1 041	844	212	449	100	102	-	100	47	-	-
Craftsmen and foremen	898	206	56	256	223	-	49	108	-	-	-	-
Operatives, except transportation	1 479	454	53	409	48	208	153	48	49	56	-	-
Transport equipment operatives	324	171	104	-	48	-	-	-	-	-	-	-
Laborers, except farm	685	249	102	220	59	-	-	-	-	56	-	-
Service workers, except private household	3 746	1 081	655	907	580	157	143	56	53	-	115	-
Private household workers	1 405	775	258	108	157	-	55	53	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	3 584	1 072	415	773	579	162	47	213	49	160	115	-
Professional and technical	105	-	-	48	-	57	-	-	-	-	-	-
Managerial and administrative	-	-	-	-	-	-	-	-	-	-	-	-
Sales	103	-	103	-	-	-	-	-	-	-	-	-
Clerical	348	94	58	-	149	-	-	-	-	47	-	-
Craftsmen and foremen	682	206	-	199	169	-	-	108	-	-	-	-
Operatives, except transportation	646	201	53	96	48	47	47	48	49	56	-	-
Transport equipment operatives	324	171	104	-	48	-	-	-	-	-	-	-
Laborers, except farm	577	249	49	165	59	-	-	-	-	56	-	-
Service workers, except private household	742	151	47	209	105	58	-	56	-	-	115	-
Private household workers	56	-	-	56	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	9 397	3 361	2 009	1 708	1 086	464	510	53	206	-	-	-
Professional and technical	512	96	154	105	101	-	55	-	-	-	-	-
Managerial and administrative	203	53	93	56	-	-	-	-	-	-	-	-
Sales	625	308	-	161	-	104	-	-	53	-	-	-
Clerical	2 548	947	787	212	300	100	102	-	100	-	-	-
Craftsmen and foremen	216	-	56	57	53	-	49	-	-	-	-	-
Operatives, except transportation	833	253	-	313	-	161	106	-	-	-	-	-
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm	108	-	53	55	-	-	-	-	-	-	-	-
Service workers, except private household	3 003	929	608	697	474	99	143	-	53	-	-	-
Private household workers	1 349	775	258	51	157	-	55	53	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP OF LONGEST JOB												
Male, total	3 584	1 072	415	773	579	162	47	213	49	160	115	-
Private Wage and Salary Worker												
Agriculture, forestry, and fisheries	56	-	-	-	-	-	-	-	-	56	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-
Construction	370	156	49	58	49	-	-	59	-	-	-	-
Durable goods manufacturing	446	152	46	47	48	47	-	-	49	56	-	-
Nondurable goods manufacturing	49	49	-	-	-	-	-	-	-	-	-	-
Transportation, communication, and other public utilities	204	53	47	-	57	-	-	-	-	47	-	-
Wholesale and retail trade	836	407	114	96	162	-	-	-	-	-	58	-
Finance, insurance, and real estate	105	-	58	-	47	-	-	-	-	-	-	-
Business and repair services	380	57	53	153	59	58	-	-	-	-	-	-
Personal services	219	57	-	162	-	-	-	-	-	-	-	-
Professional services and entertainment	210	47	-	57	49	-	-	-	-	-	57	-
Government[1]												
Educational services	208	47	-	48	-	57	-	56	-	-	-	-
All other government services	499	47	47	152	108	-	47	98	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	9 397	3 361	2 009	1 708	1 086	464	510	53	206	-	-	-
Private Wage and Salary Worker												
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-	-	-	-
Durable goods manufacturing	264	-	-	102	-	161	-	-	-	-	-	-
Nondurable goods manufacturing	316	47	56	110	-	-	102	-	-	-	-	-
Transportation, communication, and other public utilities	47	-	-	-	-	47	-	-	-	-	-	-
Wholesale and retail trade	2 439	970	672	484	154	104	55	-	-	-	-	-
Finance, insurance, and real estate	146	47	46	-	-	-	-	-	53	-	-	-
Business and repair services	316	158	-	111	-	-	47	-	-	-	-	-
Personal services	2 483	1 030	626	313	355	51	55	53	-	-	-	-
Professional services and entertainment	1 493	457	251	272	157	101	202	-	53	-	-	-
Government[1]												
Educational services	1 235	452	206	163	366	-	-	-	47	-	-	-
All other government services	659	200	152	153	53	-	48	-	53	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1] Government class of worker.

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Table 27a. Annual Wage and Salary Earnings of Part-Year and Part-Time Wage and Salary Workers, by Major Occupation and Industry Groups of Longest Job: White

[Limited to persons 16 to 64 years, not in school]

Major Occupation and Industry Groups of Longest Job in Last 12 Months	Total part-year and part-time wage and salary workers	Annual wage and salary earnings										
		Less than $500	$500 to $999	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $7,499	$7,500 to $9,999	$10,000 to $14,999	$15,000 or more
MAJOR OCCUPATION GROUP OF LONGEST JOB												
Total, part-year and part-time workers	2 645	606	486	765	306	113	98	156	-	-	115	-
Professional and technical	154	-	-	105	48	-	-	-	-	-	-	-
Managerial and administrative	103	-	46	56	-	-	-	-	-	-	-	-
Sales	151	48	46	56	-	-	-	-	-	-	-	-
Clerical	641	97	338	158	48	-	-	-	-	-	-	-
Craftsmen and foremen	595	155	56	115	112	-	49	108	-	-	-	-
Operatives, except transportation	249	97	-	48	-	55	-	48	-	-	-	-
Transport equipment operatives	48	-	-	-	48	-	-	-	-	-	-	-
Laborers, except farm	153	98	-	55	-	-	-	-	-	-	-	-
Service workers, except private household	551	113	-	170	48	58	48	-	-	-	115	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	1 106	349	104	164	161	58	-	156	-	-	115	-
Professional and technical	-	-	-	-	-	-	-	-	-	-	-	-
Managerial and administrative	-	-	-	-	-	-	-	-	-	-	-	-
Sales	46	-	46	-	-	-	-	-	-	-	-	-
Clerical	58	-	58	-	-	-	-	-	-	-	-	-
Craftsmen and foremen	432	155	-	58	112	-	-	108	-	-	-	-
Operatives, except transportation	193	97	-	48	-	-	-	48	-	-	-	-
Transport equipment operatives	48	-	-	-	48	-	-	-	-	-	-	-
Laborers, except farm	98	98	-	-	-	-	-	-	-	-	-	-
Service workers, except private household	230	-	-	58	-	58	-	-	-	-	115	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	1 539	258	383	601	145	55	98	-	-	-	-	-
Professional and technical	154	-	-	105	48	-	-	-	-	-	-	-
Managerial and administrative	103	-	46	56	-	-	-	-	-	-	-	-
Sales	105	48	-	56	-	-	-	-	-	-	-	-
Clerical	584	97	280	158	48	-	-	-	-	-	-	-
Craftsmen and foremen	163	-	56	57	-	-	49	-	-	-	-	-
Operatives, except transportation	55	-	-	-	-	55	-	-	-	-	-	-
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm	55	-	-	55	-	-	-	-	-	-	-	-
Service workers, except private household	321	113	-	112	48	-	48	-	-	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP OF LONGEST JOB												
Male, total	1 106	349	104	164	161	58	-	156	-	-	115	-
Private Wage and Salary Worker												
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-
Construction	165	48	-	58	-	-	-	59	-	-	-	-
Durable goods manufacturing	95	48	46	-	-	-	-	-	-	-	-	-
Nondurable goods manufacturing	49	49	-	-	-	-	-	-	-	-	-	-
Transportation, communication, and other public utilities	-	-	-	-	-	-	-	-	-	-	-	-
Wholesale and retail trade	358	146	-	48	106	-	-	-	-	-	58	-
Finance, insurance, and real estate	58	-	58	-	-	-	-	-	-	-	-	-
Business and repair services	58	-	-	-	-	58	-	-	-	-	-	-
Personal services	57	57	-	-	-	-	-	-	-	-	-	-
Professional services and entertainment	57	-	-	-	-	-	-	-	-	-	57	-
Government[1]												
Educational services	-	-	-	-	-	-	-	-	-	-	-	-
All other government services	211	-	-	58	55	-	-	98	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	1 539	258	383	601	145	55	98	-	-	-	-	-
Private Wage and Salary Worker												
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-	-	-	-
Durable goods manufacturing	55	-	-	-	-	55	-	-	-	-	-	-
Nondurable goods manufacturing	163	-	56	57	-	-	49	-	-	-	-	-
Transportation, communication, and other public utilities	-	-	-	-	-	-	-	-	-	-	-	-
Wholesale and retail trade	530	153	113	216	48	-	-	-	-	-	-	-
Finance, insurance, and real estate	46	-	46	-	-	-	-	-	-	-	-	-
Business and repair services	167	56	-	111	-	-	-	-	-	-	-	-
Personal services	160	-	111	-	48	-	-	-	-	-	-	-
Professional services and entertainment	169	-	56	113	-	-	-	-	-	-	-	-
Government[1]												
Educational services	151	48	-	55	48	-	-	-	-	-	-	-
All other government services	98	-	-	49	-	-	48	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1] Government class of worker.

7498.1

Table 27b. Annual Wage and Salary Earnings of Part-Year and Part-Time Wage and Salary Workers, by Major Occupation and Industry Groups of Longest Job: Negro

[Limited to persons 16 to 64 years, not in school]

Major Occupation and Industry Groups of Longest Job in Last 12 Months	Total part-year and part-time wage and salary workers	Annual wage and salary earnings										
		Less than $500	$500 to $999	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $5,999	$6,000 to $7,499	$7,500 to $9,999	$10,000 to $14,999	$15,000 or more
MAJOR OCCUPATION GROUP OF LONGEST JOB												
Total, part-year and part-time workers	10 169	3 826	1 884	1 659	1 359	456	459	109	255	160	-	-
Professional and technical	406	96	154	48	53	-	55	-	-	-	-	-
Managerial and administrative	100	53	47	-	-	-	-	-	-	-	-	-
Sales	578	260	57	104	-	104	-	-	53	-	-	-
Clerical	2 255	945	507	53	400	100	102	-	100	47	-	-
Craftsmen and foremen	303	51	-	142	110	-	-	-	-	-	-	-
Operatives, except transportation	1 177	358	-	360	48	153	153	-	49	56	-	-
Transport equipment operatives	275	171	104	-	-	-	-	-	-	[illegible]	-	-
Laborers, except farm	532	151	102	165	59	-	-	-	-	[illegible]	-	-
Service workers, except private household	3 137	968	655	680	531	99	94	56	53	-	-	-
Private household workers	1 405	775	258	108	157	-	55	53	-	[illegible]	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	2 368	723	258	609	418	47	47	56	49	160	-	-
Professional and technical	48	-	-	48	-	-	-	-	-	-	-	-
Managerial and administrative	-	-	-	-	-	-	-	-	-	-	-	-
Sales	57	-	57	-	-	-	-	-	-	-	-	-
Clerical	290	94	-	-	149	-	-	-	-	47	-	-
Craftsmen and foremen	250	51	-	142	57	-	-	-	-	-	-	-
Operatives, except transportation	399	104	-	47	48	47	47	-	49	56	-	-
Transport equipment operatives	275	171	104	-	-	-	-	-	-	-	-	-
Laborers, except farm	480	151	49	165	59	-	-	-	-	56	-	-
Service workers, except private household	512	151	47	151	105	-	-	56	-	-	-	-
Private household workers	56	-	-	56	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	7 801	3 104	1 627	1 050	941	409	412	53	206	-	-	-
Professional and technical	358	96	154	-	53	-	55	-	-	-	-	-
Managerial and administrative	100	53	47	-	-	-	-	-	-	-	-	-
Sales	521	260	-	104	-	104	-	-	53	-	-	-
Clerical	1 964	851	507	53	251	100	102	-	100	-	-	-
Craftsmen and foremen	53	-	-	-	53	-	-	-	-	-	-	-
Operatives, except transportation	778	253	-	313	-	106	106	-	-	-	-	-
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm	53	-	53	-	-	-	-	-	-	-	-	-
Service workers, except private household	2 625	817	608	528	426	99	94	-	53	-	-	-
Private household workers	1 349	775	258	51	157	-	55	53	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP OF LONGEST JOB												
Male, total	2 368	723	[illegible]	609	418	47	47	56	49	160	-	-
Private Wage and Salary Worker												
Agriculture, forestry, and fisheries	56	-	-	-	-	-	-	-	-	56	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-
Construction	206	108	49	-	49	-	-	-	-	-	-	-
Durable goods manufacturing	351	103	-	47	48	47	-	-	49	56	-	-
Nondurable goods manufacturing	-	-	-	-	-	-	-	-	-	-	-	-
Transportation, communication, and other public utilities	204	53	47	-	57	-	-	-	-	47	-	-
Wholesale and retail trade	478	261	114	47	56	-	-	-	-	-	-	-
Finance, insurance, and real estate	47	-	-	-	47	-	-	-	-	-	-	-
Business and repair services	269	57	-	153	59	-	-	-	-	-	-	-
Personal services	162	-	-	162	-	-	-	-	-	-	-	-
Professional services and entertainment	153	47	-	57	49	-	-	-	-	-	-	-
Government[1]												
Educational services	151	47	-	48	-	-	-	56	-	-	-	-
All other government services	288	47	47	94	53	-	47	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	7 801	3 104	1 627	1 050	941	409	412	53	206	-	-	-
Private Wage and Salary Worker												
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-	-	-
Mining	-	-	-	-	-	-	-	-	-	-	-	-
Construction	-	-	-	-	-	-	-	-	-	-	-	-
Durable goods manufacturing	208	-	-	102	-	106	-	-	-	-	-	-
Nondurable goods manufacturing	153	47	-	53	-	-	53	-	-	-	-	-
Transportation, communication, and other public utilities	47	-	-	-	-	47	-	-	-	-	-	-
Wholesale and retail trade	1 852	817	560	210	106	104	55	-	-	-	-	-
Finance, insurance, and real estate	100	47	-	-	-	-	-	-	53	-	-	-
Business and repair services	149	102	-	-	-	-	47	-	-	-	-	-
Personal services	2 323	1 030	515	313	307	51	55	53	-	-	-	-
Professional services and entertainment	1 324	457	195	159	157	101	202	-	53	-	-	-
Government[1]												
Educational services	1 083	404	206	108	310	-	-	-	47	-	-	-
All other government services	561	200	152	104	53	-	-	-	53	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1] Government class of worker.

7499

Table 28. Principal Job-Seeking Methods Used by Part-Year Workers Seeking Work in the Last 12 Months, by Age and Sex, Family Status, and Educational Attainment: All Races

[Excludes the full-year unemployed]

Age and Sex Family Status Educational Attainment	Total part-year workers unemployed at any time in last 12 months	Principal job-seeking methods used										
		Checked with State employment service		Applied directly to employer	Asked friends or relatives	Checked newspapers	Registered with a union	Checked with private employment agency	Checked with a community organization	Went to special streets or places to be picked up	All other methods	Not available
		Total	Percent of total job-seeking methods									
AGE AND SEX												
Total, 16 years and over	56 409	7 852	13.9	15 875	4 925	8 078	104	672	2 081	273	660	15 888
Male, total	33 454	4 527	13.5	10 360	2 309	4 079	53	211	1 004	273	414	10 227
16 to 21 years, total	9 592	1 376	14.3	3 579	1 051	1 245	-	97	614	-	146	1 483
16 to 21 years, not in school	4 975	807	16.2	1 675	527	576	-	49	142	-	49	1 150
22 to 34 years, total	11 816	1 493	12.6	3 914	674	1 778	-	-	221	49	105	3 582
22 to 34 years, veteran of Vietnam	1 962	507	25.8	629	-	360	-	-	-	-	-	466
25 to 34 years	8 073	731	9.1	2 905	384	1 205	-	-	172	-	105	2 572
35 to 44 years	5 206	563	10.8	1 374	159	444	53	57	110	53	-	2 394
45 to 54 years	3 933	607	15.4	950	116	504	-	-	-	113	56	1 588
55 to 64 years	2 213	378	17.1	381	216	53	-	56	59	57	106	906
65 years and over	694	110	15.8	163	93	55	-	-	-	-	-	273
40 to 64 years	8 371	1 324	15.8	2 150	385	557	53	56	59	223	163	3 402
Female, total	22 954	3 326	14.5	5 516	2 617	3 999	51	461	1 077	-	247	5 661
16 to 21 years, total	7 660	1 142	14.9	2 235	1 093	1 284	-	144	618	-	143	1 001
16 to 21 years, not in school	4 621	572	12.4	1 427	619	856	-	97	238	-	47	765
22 to 34 years	7 594	980	12.9	2 371	568	1 802	-	264	249	-	-	1 360
25 to 34 years	4 751	592	12.5	1 361	326	1 029	-	217	106	-	-	1 120
35 to 44 years	3 114	424	13.6	379	326	485	-	53	106	-	53	1 287
45 to 54 years	2 735	520	19.0	369	312	323	-	-	104	-	-	1 107
55 to 64 years	1 317	156	11.8	162	211	104	51	-	-	-	51	582
65 years and over	535	103	19.2	-	108	-	-	-	-	-	-	324
40 to 64 years	5 717	888	15.5	748	739	698	51	-	158	-	51	2 384
FAMILY STATUS[1]												
Male, total	27 274	3 657	13.4	8 102	1 548	3 201	53	163	532	223	317	9 478
Family head	12 728	1 325	10.4	3 260	795	1 471	53	49	53	53	211	5 458
Family member	7 283	1 336	18.3	2 422	590	786	-	56	209	-	56	1 826
Unrelated individual	7 263	996	13.7	2 420	163	944	-	57	269	170	49	2 194
Female, total	18 625	2 602	14.0	4 458	1 986	3 379	51	359	697	-	151	4 942
Family head	3 804	461	12.1	947	367	550	-	-	155	-	-	1 324
No children under 18 years	747	51	6.9	55	104	57	-	-	-	-	-	479
Children 6 to 17 years only	1 939	251	13.0	571	159	385	-	-	102	-	-	471
Children under 6 years	1 118	159	14.2	320	104	108	-	-	53	-	-	374
Wife of head	6 576	826	12.6	1 497	459	1 535	-	162	151	-	53	1 893
No children under 18 years	2 071	409	19.7	322	102	545	-	-	51	-	-	641
Children 6 to 17 years only	3 124	313	10.0	961	304	671	-	109	47	-	53	665
Children under 6 years	1 381	104	7.5	213	53	318	-	53	53	-	-	587
Other family member	5 085	857	16.9	1 286	792	831	-	100	289	-	98	832
Unrelated individual	3 160	458	14.5	729	368	463	51	97	102	-	-	893
EDUCATIONAL ATTAINMENT[1]												
Male, total	27 274	3 657	13.4	8 102	1 548	3 201	53	163	532	223	317	9 478
Elementary: 7 years or less	4 082	588	14.4	1 444	260	163	-	56	56	223	51	1 240
8 years	3 171	463	14.6	991	200	222	-	57	59	-	55	1 124
High school: 1 to 3 years	10 044	1 714	17.1	2 552	572	1 166	53	-	359	-	-	3 627
4 years	7 696	724	9.4	2 417	264	1 276	-	49	57	-	210	2 698
College: 1 year or more	2 280	168	7.4	698	253	374	-	-	-	-	-	788
Female, total	18 625	2 602	14.0	4 458	1 986	3 379	51	359	697	-	151	4 942
Elementary: 7 years or less	1 347	157	11.6	47	266	261	51	-	94	-	51	419
8 years	1 896	256	13.5	510	268	222	-	-	-	-	-	641
High school: 1 to 3 years	5 710	1 068	18.7	1 172	618	1 062	-	56	197	-	-	1 537
4 years	7 870	971	12.3	1 913	676	1 462	-	153	357	-	100	2 239
College: 1 year or more	1 802	151	8.4	816	158	372	-	150	48	-	-	108

[1] Persons 16 to 64 years, not in school.

7500

Table 28a. Principal Job-Seeking Methods Used by Part-Year Workers Seeking Work in the Last 12 Months, by Age and Sex, Family Status, and Educational Attainment: White

(Excludes the full-year unemployed)

Age and Sex Family Status Educational Attainment	Total part-year workers unemployed at any time in last 12 months	Principal job-seeking methods used										
		Checked with State employment service		Applied directly to employer	Asked friends or relatives	Checked newspapers	Registered with a union	Checked with private employment agency	Checked with a community organization	Went to special streets or places to be picked up	All other methods	Not available
		Total	Percent of total job-seeking methods									
AGE AND SEX												
Total, 16 years and over	11 808	696	5.9	4 737	922	2 129	53	153	59	49	201	2 808
Male, total	7 712	594	7.7	3 246	405	1 135	53	-	59	49	153	2 019
16 to 21 years, total	2 081	97	4.6	1 059	292	340	-	-	-	-	49	244
16 to 21 years, not in school	1 263	48	3.8	628	194	147	-	-	-	-	49	195
22 to 34 years, total	2 591	219	8.4	1 122	57	569	-	-	-	49	48	527
22 to 34 years, veteran of Vietnam	300	49	16.5	57	-	48	-	-	-	-	-	145
25 to 34 years	2 009	169	8.4	1 024	57	375	-	-	-	-	48	335
35 to 44 years	892	-	.0	387	-	-	53	-	-	-	-	452
45 to 54 years	1 245	110	8.9	452	-	170	-	-	-	-	-	513
55 to 64 years	623	111	17.9	169	-	-	-	-	59	-	55	229
65 years and over	280	56	20.2	56	56	55	-	-	-	-	-	55
40 to 64 years	2 365	222	9.4	951	-	170	53	-	59	-	55	855
Female, total	4 096	103	2.5	1 492	517	995	-	153	-	-	48	789
16 to 21 years, total	1 255	-	.0	381	243	244	-	97	-	-	48	243
16 to 21 years, not in school	823	-	.0	143	194	146	-	97	-	-	-	243
22 to 34 years	1 791	-	.0	832	162	530	-	56	-	-	-	211
25 to 34 years	962	-	.0	394	112	286	-	56	-	-	-	113
35 to 44 years	337	-	.0	112	56	56	-	-	-	-	-	112
45 to 54 years	334	-	.0	111	-	112	-	-	-	-	-	112
55 to 64 years	276	-	.0	55	56	53	-	-	-	-	-	112
65 years and over	103	103	100.0	-	-	-	-	-	-	-	-	-
40 to 64 years	667	-	.0	222	56	115	-	-	-	-	-	223
FAMILY STATUS[1]												
Male, total	6 470	489	7.6	2 759	252	886	53	-	59	-	153	1 821
Family head	3 074	378	12.3	1 170	57	422	53	-	-	-	104	891
Family member	1 366	-	.0	713	145	203	-	-	-	-	-	306
Unrelated individual	2 030	111	5.5	876	49	261	-	-	59	-	49	624
Female, total	3 308	-	.0	1 098	419	849	-	153	-	-	-	789
Family head	385	-	.0	167	-	106	-	-	-	-	-	113
No children under 18 years	114	-	.0	-	-	57	-	-	-	-	-	56
Children 6 to 17 years only	216	-	.0	167	-	48	-	-	-	-	-	-
Children under 6 years	56	-	.0	-	-	-	-	-	-	-	-	56
Wife of head	1 486	-	.0	516	56	487	-	56	-	-	-	371
No children under 18 years	498	-	.0	57	-	277	-	-	-	-	-	163
Children 6 to 17 years only	765	-	.0	402	56	154	-	56	-	-	-	97
Children under 6 years	223	-	.0	56	-	55	-	-	-	-	-	111
Other family member	654	-	.0	146	314	98	-	-	-	-	-	97
Unrelated individual	783	-	.0	269	49	158	-	97	-	-	-	209
EDUCATIONAL ATTAINMENT[1]												
Male, total	6 470	489	7.6	2 759	252	886	53	-	59	-	153	1 821
Elementary: 7 years or less	978	111	11.4	636	57	-	-	-	-	-	-	173
Elementary: 8 years	978	48	4.9	480	48	59	-	-	59	-	55	230
High school: 1 to 3 years	2 240	105	4.7	797	48	459	53	-	-	-	-	777
High school: 4 years	1 749	224	12.8	588	49	256	-	-	-	-	98	534
College: 1 year or more	526	-	.0	258	48	112	-	-	-	-	-	107
Female, total	3 308	-	.0	1 098	419	849	-	153	-	-	-	789
Elementary: 7 years or less	266	-	.0	-	112	50	-	-	-	-	-	104
Elementary: 8 years	668	-	.0	217	56	171	-	-	-	-	-	223
High school: 1 to 3 years	772	-	.0	311	105	153	-	56	-	-	-	146
High school: 4 years	1 027	-	.0	312	145	311	-	-	-	-	-	259
College: 1 year or more	575	-	.0	258	-	164	-	97	-	-	-	56

[1] Persons 16 to 64 years, not in school.

Table 28b. Principal Job-Seeking Methods Used by Part-Year Workers Seeking Work in the Last 12 Months, by Age and Sex, Family Status, and Educational Attainment: Negro

(Excludes the full-year unemployed)

Age and Sex Family Status Educational Attainment	Total part-year workers unemployed at any time in last 12 months	Principal job-seeking methods used										
		Checked with State employment service		Applied directly to employer	Asked friends or relatives	Checked newspapers	Registered with a union	Checked with private employment agency	Checked with a community organization	Went to special streets or places to be picked up	All other methods	Not available
		Total	Percent of total job-seeking methods									
AGE AND SEX												
Total, 18 years and over	43 683	6 928	15.9	11 034	3 955	5 680	51	471	2 022	223	403	12 915
Male, total	25 090	3 817	15.2	7 057	1 855	2 733	-	163	945	223	204	8 092
16 to 21 years, total	7 366	1 279	17.4	2 520	759	808	-	49	614	-	97	1 240
18 to 21 years, not in school	3 615	759	21.0	1 047	332	332	-	49	142	-	-	955
22 to 34 years, total	8 947	1 216	13.6	2 735	568	1 152	-	-	221	-	56	2 998
22 to 34 years, veteran of Vietnam	1 662	457	27.5	572	-	312	-	-	-	-	-	321
25 to 34 years	5 834	503	8.6	1 823	326	774	-	-	172	-	56	2 179
35 to 44 years	4 256	563	13.2	987	159	444	-	57	110	53	-	1 884
45 to 54 years	2 517	439	17.4	498	116	276	-	-	-	113	-	1 075
55 to 64 years	1 589	267	16.8	212	216	53	-	56	-	57	51	677
65 years and over	414	53	12.8	106	37	-	-	-	-	-	-	218
40 to 64 years	5 835	1 045	17.9	1 198	385	329	-	56	-	223	51	2 547
Female, total	18 593	3 111	16.7	3 977	2 100	2 947	51	308	1 077	-	199	4 823
18 to 21 years, total	6 309	1 142	18.1	1 806	850	1 041	-	47	618	-	94	710
16 to 21 years, not in school	3 750	572	15.3	1 284	425	710	-	-	238	-	47	474
22 to 34 years	5 691	868	15.3	1 539	406	1 272	-	208	249	-	-	1 149
25 to 34 years	3 677	480	13.1	967	214	743	-	161	106	-	-	1 007
35 to 44 years	2 777	424	15.3	266	270	429	-	53	106	-	53	1 175
45 to 54 years	2 343	520	22.2	259	312	154	-	-	104	-	-	995
55 to 64 years	1 040	156	15.0	106	154	51	51	-	-	-	51	471
65 years and over	432	-	.0	-	108	-	-	-	-	-	-	324
40 to 64 years	4 992	888	17.8	526	683	475	51	-	158	-	51	2 160
FAMILY STATUS[1]												
Male, total	20 248	3 053	15.1	5 287	1 297	2 104	-	163	473	223	108	7 542
Family head	9 435	947	10.0	2 090	738	944	-	49	53	53	51	4 509
Family member	5 868	1 336	22.8	1 710	445	534	-	56	209	-	56	1 521
Unrelated individual	4 945	770	15.6	1 487	113	625	-	57	211	170	-	1 512
Female, total	15 099	2 489	16.5	3 360	1 567	2 472	51	206	697	-	151	4 104
Family head	3 418	461	13.5	779	367	444	-	-	155	-	-	1 211
No children under 18 years	633	51	8.1	55	104	-	-	-	-	-	-	423
Children 8 to 17 years only	1 723	251	14.6	404	159	336	-	-	102	-	-	471
Children under 8 years	1 062	159	14.9	320	104	108	-	-	53	-	-	318
Wife of head	4 976	770	15.5	981	403	990	-	106	151	-	53	1 522
No children under 18 years	1 515	409	27.0	265	102	210	-	-	51	-	-	478
Children 8 to 17 years only	2 303	257	11.2	559	247	518	-	53	47	-	53	569
Children under 8 years	1 158	104	9.0	157	53	263	-	53	53	-	-	476
Other family member	4 327	801	18.5	1 140	478	733	-	100	289	-	98	687
Unrelated individual	2 377	458	19.3	459	319	305	51	-	102	-	-	683
EDUCATIONAL ATTAINMENT[1]												
Male, total	20 248	3 053	15.1	5 287	1 297	2 104	-	163	473	223	108	7 542
Elementary: 7 years or less	3 105	477	15.4	808	202	163	-	56	56	223	51	1 068
8 years	2 135	415	19.4	512	151	163	-	57	-	-	-	837
High school: 1 to 3 years	7 650	1 551	20.3	1 756	524	610	-	-	359	-	-	2 850
4 years	5 834	500	8.6	1 829	215	963	-	49	57	-	56	2 164
College: 1 year or more	1 525	110	7.2	383	204	204	-	-	-	-	-	623
Female, total	15 099	2 489	16.5	3 360	1 567	2 472	51	206	697	-	151	4 104
Elementary: 7 years or less	1 080	157	14.5	47	154	212	51	-	94	-	51	314
8 years	1 229	256	20.8	293	211	51	-	-	-	-	-	417
High school: 1 to 3 years	4 834	1 012	20.9	861	513	909	-	-	197	-	-	1 342
4 years	6 729	915	13.6	1 601	531	1 092	-	153	357	-	100	1 979
College: 1 year or more	1 226	151	12.3	558	158	208	-	53	48	-	-	51

[1] Persons 16 to 64 years, not in school.

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Table 29. Principal Job-Seeking Methods Used by Part-Year Workers Seeking Work in the Last 12 Months, by Major Occupation and Industry Groups and Duration of Unemployment: All Races

[Limited to persons 16 to 64 years, not in school; excludes the full-year unemployed]

Major Occupation Group Major Industry Group Duration of Unemployment in Last 12 Months	Total part-year workers unemployed at any time in last 12 months	Principal job-seeking methods used										
		Checked with State employment service		Applied directly to employer	Asked friends or relatives	Checked newspapers	Registered with a union	Checked with private employment agency	Checked with a community organization	Went to special streets or places to be picked up	All other methods	Not available
		Total	Percent of total job-seeking methods									
MAJOR OCCUPATION GROUP												
Total	45 879	6 259	13.6	12 560	3 534	6 580	104	521	1 229	223	468	14 420
Professional and technical	1 672	160	9.5	553	149	442	-	-	48	-	55	264
Managerial and administrative	519	47	9.1	200	105	167	-	-	-	-	-	-
Sales	869	104	12.0	220	-	249	-	47	-	-	-	248
Clerical	6 165	792	12.8	1 916	497	1 194	-	104	347	-	157	1 139
Craftsmen and foremen	4 802	601	12.5	1 275	273	575	-	56	106	56	156	1 703
Operatives, except transportation	14 520	1 752	12.1	3 847	1 082	1 231	51	159	166	-	-	6 233
Transport equipment operatives	1 916	206	10.7	877	47	164	-	-	53	-	-	569
Laborers, except farm	5 108	836	16.4	1 337	472	669	53	-	153	110	49	1 429
Service workers, except private household	8 460	1 495	17.7	2 137	764	1 580	-	101	355	57	-	1 972
Private household workers	1 765	218	12.4	199	146	309	-	53	-	-	51	789
Farmers and farm managers	53	-	.0	-	-	-	-	-	-	-	-	53
Farm laborers and foremen	49	49	100.0	-	-	-	-	-	-	-	-	-
Not available	-	-	.0	-	-	-	-	-	-	-	-	-
Male, total	27 274	3 657	13.4	8 102	1 548	3 201	53	163	532	223	317	9 478
Professional and technical	814	58	7.1	264	-	278	-	-	-	-	55	159
Managerial and administrative	218	-	.0	106	-	112	-	-	-	-	-	-
Sales	162	57	35.4	57	-	47	-	-	-	-	-	-
Clerical	1 062	147	13.8	355	47	200	-	-	94	-	56	161
Craftsmen and foremen	4 488	601	13.4	1 275	217	471	-	56	106	56	156	1 550
Operatives, except transportation	11 284	1 180	10.5	3 226	561	767	-	106	114	-	-	5 330
Transport equipment operatives	1 869	206	11.0	830	47	164	-	-	53	-	-	569
Laborers, except farm	4 612	836	18.1	1 185	472	622	53	-	106	110	49	1 179
Service workers, except private household	2 661	467	17.6	803	204	540	-	-	59	57	-	530
Private household workers	56	56	100.0	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	.0	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	49	100.0	-	-	-	-	-	-	-	-	-
Not available	-	-	.0	-	-	-	-	-	-	-	-	-
Female, total	18 625	2 602	14.0	4 458	1 986	3 379	51	359	697	-	151	4 942
Professional and technical	858	102	11.8	289	149	164	-	-	48	-	-	106
Managerial and administrative	301	47	15.7	93	105	55	-	-	-	-	-	-
Sales	708	47	6.7	163	-	202	-	47	-	-	-	248
Clerical	5 104	645	12.6	1 561	450	994	-	104	252	-	100	998
Craftsmen and foremen	314	-	.0	-	56	104	-	-	-	-	-	153
Operatives, except transportation	3 236	571	17.7	621	521	464	51	53	53	-	-	902
Transport equipment operatives	47	-	.0	47	-	-	-	-	-	-	-	-
Laborers, except farm	496	-	.0	152	-	47	-	-	47	-	-	250
Service workers, except private household	5 799	1 028	17.7	1 333	559	1 039	-	101	296	-	-	1 442
Private household workers	1 709	162	9.5	199	146	309	-	53	-	-	51	789
Farmers and farm managers	53	-	.0	-	-	-	-	-	-	-	-	53
Farm laborers and foremen	-	-	.0	-	-	-	-	-	-	-	-	-
Not available	-	-	.0	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP												
Male, total	27 274	3 657	13.4	8 102	1 548	3 201	53	163	532	223	317	9 478
Private Wage and Salary Worker												
Agriculture, forestry, and fisheries	157	49	31.4	-	56	-	-	-	-	-	-	51
Mining	-	-	.0	-	-	-	-	-	-	-	-	-
Construction	3 043	554	18.2	815	266	220	53	56	116	53	156	755
Durable goods manufacturing	13 030	1 506	11.6	2 956	565	1 156	-	49	216	56	-	6 526
Nondurable goods manufacturing	1 438	96	6.7	707	55	259	-	-	-	-	-	321
Transportation, communication, and other public utilities	1 430	208	14.6	647	53	147	-	-	-	-	-	374
Wholesale and retail trade	3 651	524	14.4	1 458	199	688	-	-	153	-	49	579
Finance, insurance, and real estate	582	56	9.6	154	-	267	-	-	47	-	-	58
Business and repair services	1 551	106	6.8	547	104	213	-	57	-	57	-	467
Personal services	318	56	17.8	57	59	98	-	-	-	-	-	47
Professional services and entertainment	590	94	16.0	277	-	59	-	-	-	57	55	47
Government[1]												
Educational services	248	-	.0	105	47	-	-	-	-	-	-	95
All other government services	1 238	407	32.9	379	144	94	-	-	-	-	56	157
Not available	-	-	.0	-	-	-	-	-	-	-	-	-

[1] Government class of worker.

Table 29. Principal Job-Seeking Methods Used by Part-Year Workers Seeking Work in the Last 12 Months, by Major Occupation and Industry Groups and Duration of Unemployment: All Races—Continued

[Limited to persons 16 to 64 years, not in school; excludes the full-year unemployed]

Major Occupation Group Major Industry Group Duration of Unemployment in Last 12 Months	Total part-year workers unemployed at any time in last 12 months	Principal job-seeking methods used										
		Checked with State employment service		Applied directly to employer	Asked friends or relatives	Checked newspapers	Registered with a union	Checked with private employment agency	Checked with a community organization	Went to special streets or places to be picked up	All other methods	Not available
		Total	Percent of total job-seeking methods									
MAJOR INDUSTRY GROUP—Continued												
Female, total	18 625	2 602	14.0	4 458	1 986	3 379	51	359	697	-	151	4 942
Private Wage and Salary Worker												
Agriculture, forestry, and fisheries	53	-	.0	-	-	-	-	-	-	-	-	53
Mining	-	-	.0	-	-	-	-	-	-	-	-	-
Construction	94	-	.0	94	-	-	-	-	-	-	-	-
Durable goods manufacturing	1 991	372	18.7	422	158	197	51	-	100	-	-	691
Nondurable goods manufacturing	1 545	96	6.2	300	203	167	-	53	-	-	-	725
Transportation, communication, and other public utilities	195	-	.0	47	-	-	-	-	-	-	-	147
Wholesale and retail trade	4 771	853	17.9	1 244	409	1 200	-	47	101	-	-	918
Finance, insurance, and real estate	696	102	14.7	293	47	199	-	-	-	-	-	54
Business and repair services	309	-	.0	103	-	105	-	-	101	-	-	-
Personal services	3 386	425	12.5	456	618	677	-	162	-	-	51	998
Professional services and entertainment	3 054	456	14.9	857	304	417	-	97	250	-	-	673
Government[1]												
Educational services	1 237	102	8.2	347	104	319	-	-	-	-	47	318
All other government services	1 294	197	15.2	295	143	97	-	-	146	-	53	364
Not available	-	-	.0	-	-	-	-	-	-	-	-	-
DURATION OF UNEMPLOYMENT												
Male, total	27 274	3 657	13.4	8 102	1 548	3 201	53	163	532	223	317	9 478
Less than 5 weeks	9 716	1 118	11.5	2 894	440	891	53	-	104	114	161	3 940
5 to 10 weeks	5 602	576	10.3	1 136	241	846	-	106	-	56	-	2 640
11 to 14 weeks	3 019	158	5.2	1 084	221	309	-	56	47	-	104	1 038
15 to 26 weeks	5 467	1 103	20.2	1 701	483	474	-	-	106	-	51	1 549
27 to 39 weeks	2 035	544	26.7	747	106	255	-	-	274	-	-	109
40 weeks or more	1 436	158	11.0	540	56	426	-	-	-	53	-	202
1 stretch	16 401	1 801	11.0	4 394	679	2 060	-	106	320	-	-	7 041
2 stretches	4 252	650	15.3	1 416	359	361	-	-	106	166	-	1 193
3 stretches or more	6 621	1 206	18.2	2 292	511	780	53	56	106	57	317	1 244
Female, total	18 625	2 602	14.0	4 458	1 986	3 379	51	359	697	-	151	4 942
Less than 5 weeks	8 213	848	10.3	2 569	1 225	1 222	51	205	347	-	47	1 698
5 to 10 weeks	2 704	310	11.5	356	196	825	-	48	96	-	51	822
11 to 14 weeks	1 927	467	24.3	366	269	56	-	53	47	-	-	669
15 to 26 weeks	2 571	410	15.9	544	146	475	-	-	106	-	53	836
27 to 39 weeks	2 001	368	18.4	435	103	399	-	53	53	-	-	590
40 weeks or more	1 210	198	16.4	189	47	401	-	-	47	-	-	327
1 stretch	9 556	1 233	12.9	2 080	756	1 548	51	150	401	-	151	3 186
2 stretches	2 427	413	17.0	245	363	417	-	106	53	-	-	829
3 stretches or more	6 643	956	14.4	2 133	867	1 414	-	103	243	-	-	926

[1] Government class of worker.

Table 29a. Principal Job-Seeking Methods Used by Part-Year Workers Seeking Work in the Last 12 Months, by Major Occupation and Industry Groups and Duration of Unemployment: White

[Limited to persons 16 to 64 years, not in school; excludes the full-year unemployed]

Major Occupation Group Major Industry Group Duration of Unemployment in Last 12 Months	Total part-year workers unemployed at any time in last 12 months	Principal job-seeking methods used										
		Checked with State employment service		Applied directly to employer	Asked friends or relatives	Checked newspapers	Registered with a union	Checked with private employment agency	Checked with a community organization	Went to special streets or places to be picked up	All other methods	Not available
		Total	Percent of total job-seeking methods									
MAJOR OCCUPATION GROUP												
Total	9 778	489	5.0	3 857	671	1 735	53	153	59	-	153	2 610
Professional and technical	740	-	.0	300	-	385	-	-	-	-	55	-
Managerial and administrative	208	-	.0	152	-	55	-	-	-	-	-	-
Sales	156	-	.0	57	-	49	-	-	-	-	-	49
Clerical	1 286	-	.0	463	202	193	-	104	-	-	-	323
Craftsmen and foremen	1 677	168	10.0	436	163	211	-	-	-	-	48	651
Operatives, except transportation	2 408	161	6.7	1 052	153	259	-	-	-	-	-	783
Transport equipment operatives	464	-	.0	212	-	48	-	-	-	-	-	204
Laborers, except farm	1 057	55	5.2	425	97	98	53	-	-	-	49	280
Service workers, except private household	1 685	56	3.3	759	56	387	-	48	59	-	-	321
Private household workers	48	-	.0	-	-	48	-	-	-	-	-	-
Farmers and farm managers	-	-	.0	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	49	100.0	-	-	-	-	-	-	-	-	-
Not available	-	-	.0	-	-	-	-	-	-	-	-	-
Male, total	6 470	489	7.6	2 759	252	886	53	-	59	-	153	1 821
Professional and technical	430	-	.0	154	-	221	-	-	-	-	55	-
Managerial and administrative	106	-	.0	106	-	-	-	-	-	-	-	-
Sales	-	-	.0	-	-	-	-	-	-	-	-	-
Clerical	203	-	.0	48	-	97	-	-	-	-	-	58
Craftsmen and foremen	1 514	168	11.1	436	107	154	-	-	-	-	48	601
Operatives, except transportation	1 970	161	8.2	939	48	153	-	-	-	-	-	669
Transport equipment operatives	464	-	.0	212	-	48	-	-	-	-	-	204
Laborers, except farm	953	55	5.8	370	97	98	53	-	-	-	49	232
Service workers, except private household	781	56	7.2	493	-	115	-	-	59	-	-	58
Private household workers	-	-	.0	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	.0	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	49	49	100.0	-	-	-	-	-	-	-	-	-
Not available	-	-	.0	-	-	-	-	-	-	-	-	-
Female, total	3 308	-	.0	1 098	419	849	-	153	-	-	-	789
Professional and technical	310	-	.0	146	-	164	-	-	-	-	-	-
Managerial and administrative	102	-	.0	46	-	55	-	-	-	-	-	-
Sales	156	-	.0	57	-	49	-	-	-	-	-	49
Clerical	1 084	-	.0	415	202	97	-	104	-	-	-	265
Craftsmen and foremen	163	-	.0	-	56	57	-	-	-	-	-	49
Operatives, except transportation	439	-	.0	113	105	107	-	-	-	-	-	114
Transport equipment operatives	-	-	.0	-	-	-	-	-	-	-	-	-
Laborers, except farm	104	-	.0	55	-	-	-	-	-	-	-	48
Service workers, except private household	904	-	.0	265	56	271	-	48	-	-	-	263
Private household workers	48	-	.0	-	-	48	-	-	-	-	-	-
Farmers and farm managers	-	-	.0	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	.0	-	-	-	-	-	-	-	-	-
Not available	-	-	.0	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP												
Male, total	6 470	489	7.6	2 759	252	886	53	-	59	-	153	1 821
Private Wage and Salary Worker												
Agriculture, forestry, and fisheries	49	49	100.0	-	-	-	-	-	-	-	-	-
Mining	-	-	.0	-	-	-	-	-	-	-	-	-
Construction	804	113	14.0	211	107	-	53	-	-	-	48	273
Durable goods manufacturing	2 150	112	5.2	612	-	422	-	-	-	-	-	1 003
Nondurable goods manufacturing	558	-	.0	299	-	154	-	-	-	-	-	105
Transportation, communication, and other public utilities	484	55	11.4	274	-	-	-	-	-	-	-	154
Wholesale and retail trade	1 105	48	4.4	697	48	146	-	-	59	-	49	57
Finance, insurance, and real estate	161	56	34.9	104	-	-	-	-	-	-	-	-
Business and repair services	562	-	.0	169	-	164	-	-	-	-	-	228
Personal services	-	-	.0	-	-	-	-	-	-	-	-	-
Professional services and entertainment	227	-	.0	172	-	-	-	-	-	-	55	-
Government[1]												
Educational services	48	-	.0	48	-	-	-	-	-	-	-	-
All other government services	324	55	17.0	172	97	-	-	-	-	-	-	-
Not available	-	-	.0	-	-	-	-	-	-	-	-	-

[1] Government class of worker.

Table 29a. Principal Job-Seeking Methods Used by Part-Year Workers Seeking Work in the Last 12 Months, by Major Occupation and Industry Groups and Duration of Unemployment: White–Continued

[Limited to persons 16 to 64 years, not in school; excludes the full-year unemployed]

Major Occupation Group Major Industry Group Duration of Unemployment in Last 12 Months	Total part-year workers unemployed at any time in last 12 months	Principal job-seeking methods used										
		Checked with State employment service		Applied directly to employer	Asked friends or relatives	Checked newspapers	Registered with a union	Checked with private employment agency	Checked with a community organization	Went to special streets or places to be picked up	All other methods	Not available
		Total	Percent of total job-seeking methods									
MAJOR INDUSTRY GROUP–Continued												
Female, total	3 308	-	.0	1 098	419	849	-	153	-	-	-	789
Private Wage and Salary Worker												
Agriculture, forestry, and fisheries	-	-	.0	-	-	-	-	-	-	-	-	-
Mining	-	-	.0	-	-	-	-	-	-	-	-	-
Construction	-	-	.0	-	-	-	-	-	-	-	-	-
Durable goods manufacturing	429	-	.0	113	105	50	-	-	-	-	-	162
Nondurable goods manufacturing	485	-	.0	56	104	115	-	-	-	-	-	210
Transportation, communication, and other public utilities	48	-	.0	-	-	-	-	-	-	-	-	48
Wholesale and retail trade	996	-	.0	418	56	209	-	-	-	-	-	313
Finance, insurance, and real estate	143	-	.0	95	-	48	-	-	-	-	-	-
Business and repair services	112	-	.0	55	-	56	-	-	-	-	-	-
Personal services	266	-	.0	-	104	106	-	56	-	-	-	-
Professional services and entertainment	571	-	.0	258	49	110	-	97	-	-	-	56
Government[1]												
Educational services	209	-	.0	103	-	106	-	-	-	-	-	-
All other government services	49	-	.0	-	-	49	-	-	-	-	-	-
Not available	-	-	.0	-	-	-	-	-	-	-	-	-
DURATION OF UNEMPLOYMENT												
Male, total	6 470	489	7.6	2 759	252	886	53	-	59	-	153	1 821
Less than 5 weeks	2 383	216	9.1	923	97	153	53	-	-	-	105	836
5 to 10 weeks	1 301	55	4.3	438	48	322	-	-	-	-	-	438
11 to 14 weeks	463	-	.0	212	-	97	-	-	-	-	48	106
15 to 26 weeks	1 620	162	10.0	636	107	265	-	-	59	-	-	393
27 to 39 weeks	438	56	12.8	332	-	49	-	-	-	-	-	-
40 weeks or more	266	-	.0	217	-	-	-	-	-	-	-	48
1 stretch	3 722	327	8.8	1 411	49	631	-	-	-	-	-	1 303
2 stretches	974	56	5.8	375	154	157	-	-	59	-	-	174
3 stretches or more	1 774	105	5.9	972	48	98	53	-	-	-	153	344
Female, total	3 308	-	.0	1 098	419	849	-	153	-	-	-	789
Less than 5 weeks	1 292	-	.0	735	154	251	-	104	-	-	-	48
5 to 10 weeks	516	-	.0	104	48	217	-	48	-	-	-	98
11 to 14 weeks	475	-	.0	105	161	56	-	-	-	-	-	153
15 to 26 weeks	436	-	.0	57	-	169	-	-	-	-	-	209
27 to 39 weeks	421	-	.0	97	56	99	-	-	-	-	-	169
40 weeks or more	169	-	.0	-	-	57	-	-	-	-	-	112
1 stretch	1 628	-	.0	572	105	483	-	97	-	-	-	371
2 stretches	379	-	.0	-	161	113	-	-	-	-	-	105
3 stretches or more	1 302	-	.0	526	154	253	-	56	-	-	-	314

[1] Government class of worker.

7506

Table 29b. Principal Job-Seeking Methods Used by Part-Year Workers Seeking Work in the Last 12 Months, by Major Occupation and Industry Groups and Duration of Unemployment: Negro

[Limited to persons 16 to 64 years, not in school; excludes the full-year unemployed]

Major Occupation Group Major Industry Group Duration of Unemployment in Last 12 Months	Total part-year workers unemployed at any time in last 12 months	Principal job-seeking methods used										
		Checked with State employment service		Applied directly to employer	Asked friends or relatives	Checked newspapers	Registered with a union	Checked with private employment agency	Checked with a community organization	Went to special streets or places to be picked up	All other methods	Not available
		Total	Percent of total job-seeking methods									
MAJOR OCCUPATION GROUP												
Total	35 347	5 542	15.7	8 647	2 864	4 576	51	368	1 170	223	259	11 646
Professional and technical	702	102	14.5	196	149	-	-	-	48	-	-	206
Managerial and administrative	312	47	15.2	47	105	112	-	-	-	-	-	-
Sales	656	104	15.9	163	-	142	-	47	-	-	-	199
Clerical	4 879	792	16.2	1 453	295	1 001	-	-	347	-	157	836
Craftsmen and foremen	3 011	433	14.4	839	110	306	-	56	106	56	51	1 053
Operatives, except transportation	11 853	1 535	12.9	2 795	929	875	51	159	166	-	-	5 344
Transport equipment operatives	1 453	206	14.2	665	47	116	-	-	53	-	-	366
Laborers, except farm	4 051	780	19.3	912	375	571	-	-	153	110	-	1 149
Service workers, except private household	6 717	1 381	20.6	1 378	707	1 193	-	53	296	57	-	1 651
Private household workers	1 661	162	9.8	199	146	261	-	53	-	-	51	789
Farmers and farm managers	53	-	.0	-	-	-	-	-	-	-	-	53
Farm laborers and foremen	-	-	.0	-	-	-	-	-	-	-	-	-
Not available	-	-	.0	-	-	-	-	-	-	-	-	-
Male, total	20 248	3 053	15.1	5 287	1 297	2 104	-	163	473	223	108	7 542
Professional and technical	154	-	.0	53	-	-	-	-	-	-	-	101
Managerial and administrative	112	-	.0	-	-	112	-	-	-	-	-	-
Sales	162	57	35.4	57	-	47	-	-	-	-	-	-
Clerical	859	147	17.1	307	47	104	-	-	94	-	56	104
Craftsmen and foremen	2 860	433	15.1	839	110	259	-	56	106	56	51	948
Operatives, except transportation	9 160	1 020	11.1	2 287	512	518	-	106	114	-	-	4 603
Transport equipment operatives	1 405	206	14.7	618	47	116	-	-	53	-	-	366
Laborers, except farm	3 659	780	21.3	816	375	524	-	-	106	110	-	947
Service workers, except private household	1 822	353	19.4	310	204	425	-	-	-	57	-	472
Private household workers	56	56	100.0	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	.0	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	.0	-	-	-	-	-	-	-	-	-
Not available	-	-	.0	-	-	-	-	-	-	-	-	-
Female, total	15 099	2 489	16.5	3 360	1 567	2 472	51	206	697	-	151	4 104
Professional and technical	549	102	18.5	143	149	-	-	-	48	-	-	106
Managerial and administrative	199	47	23.7	47	105	-	-	-	-	-	-	-
Sales	494	47	9.6	106	-	94	-	47	-	-	-	199
Clerical	4 020	645	16.0	1 146	248	897	-	-	252	-	100	733
Craftsmen and foremen	151	-	.0	-	-	47	-	-	-	-	-	104
Operatives, except transportation	2 693	515	19.1	507	416	357	51	53	53	-	-	740
Transport equipment operatives	47	-	.0	47	-	-	-	-	-	-	-	-
Laborers, except farm	392	-	.0	96	-	47	-	-	47	-	-	201
Service workers, except private household	4 895	1 028	21.0	1 068	503	768	-	53	296	-	-	1 178
Private household workers	1 604	106	6.6	199	146	261	-	53	-	-	51	789
Farmers and farm managers	53	-	.0	-	-	-	-	-	-	-	-	53
Farm laborers and foremen	-	-	.0	-	-	-	-	-	-	-	-	-
Not available	-	-	.0	-	-	-	-	-	-	-	-	-
MAJOR INDUSTRY GROUP												
Male, total	20 248	3 053	15.1	5 287	1 297	2 104	-	163	473	223	108	7 542
Private Wage and Salary Worker												
Agriculture, forestry, and fisheries	108	-	.0	-	56	-	-	-	-	-	-	51
Mining	-	-	.0	-	-	-	-	-	-	-	-	-
Construction	2 125	441	20.8	604	159	162	-	56	116	53	51	482
Durable goods manufacturing	10 717	1 394	13.0	2 344	565	628	-	49	216	56	-	5 464
Nondurable goods manufacturing	832	96	11.6	408	55	57	-	-	-	-	-	216
Transportation, communication, and other public utilities	946	153	16.2	373	53	147	-	-	-	-	-	220
Wholesale and retail trade	2 489	418	16.8	761	151	542	-	-	94	-	-	522
Finance, insurance, and real estate	363	-	.0	49	-	267	-	-	47	-	-	-
Business and repair services	989	106	10.7	377	104	49	-	57	-	57	-	239
Personal services	318	56	17.8	57	59	98	-	-	-	-	-	47
Professional services and entertainment	363	94	26.0	105	-	59	-	-	-	57	-	47
Government[1]												
Educational services	142	-	.0	-	47	-	-	-	-	-	-	95
All other government services	856	294	34.3	207	47	94	-	-	-	-	56	157
Not available	-	-	.0	-	-	-	-	-	-	-	-	-

[1] Government class of worker.

Table 29b. Principal Job-Seeking Methods Used by Part-Year Workers Seeking Work in the Last 12 Months, by Major Occupation and Industry Groups and Duration of Unemployment: Negro—Continued

[Limited to persons 16 to 64 years, not in school; excludes the full-year unemployed]

Major Occupation Group Major Industry Group Duration of Unemployment in Last 12 Months	Total part-year workers unemployed at any time in last 12 months	Principal job-seeking methods used										
		Checked with State employment service		Applied directly to employer	Asked friends or relatives	Checked newspapers	Registered with a union	Checked with private employment agency	Checked with a community organization	Went to special streets or places to be picked up	Other methods	Not available
		Total	Percent of total job-seeking methods									
MAJOR INDUSTRY GROUP—Continued												
Female, total	15 099	2 489	16.5	3 360	1 567	2 472	51	206	697	-	151	4 104
Private Wage and Salary Worker												
Agriculture, forestry, and fisheries	53	-	.0	-	-	-	-	-	-	-	-	53
Mining	-	-	.0	-	-	-	-	-	-	-	-	-
Construction	94	-	.0	94	-	-	-	-	-	-	-	-
Durable goods manufacturing	1 505	316	21.0	309	53	147	51	-	100	-	-	529
Nondurable goods manufacturing	1 011	96	9.5	244	98	53	-	53	-	-	-	467
Transportation, communication, and other public utilities	146	-	.0	47	-	-	-	-	-	-	-	99
Wholesale and retail trade	3 717	853	22.9	826	353	933	-	47	101	-	-	605
Finance, insurance, and real estate	553	102	18.4	198	47	151	-	-	-	-	-	54
Business and repair services	198	-	.0	47	-	49	-	-	101	-	-	-
Personal services	3 064	369	12.0	456	513	571	-	106	-	-	51	998
Professional services and entertainment	2 483	456	18.4	599	255	307	-	-	250	-	-	617
Government[1]												
Educational services	1 028	102	9.9	244	104	214	-	-	-	-	47	318
All other government services	1 245	197	15.8	295	143	47	-	-	146	-	53	364
Not available	-	-	.0	-	-	-	-	-	-	-	-	-
DURATION OF UNEMPLOYMENT												
Male, total	20 248	3 053	15.1	5 287	1 297	2 104	-	163	473	223	108	7 542
Less than 5 weeks	7 111	845	11.9	1 970	344	632	-	-	104	114	56	3 046
5 to 10 weeks	4 138	521	12.6	699	193	419	-	106	-	56	-	2 144
11 to 14 weeks	2 442	158	6.5	815	221	212	-	56	47	-	-	933
15 to 26 weeks	3 847	941	24.5	1 065	376	209	-	-	47	-	51	1 156
27 to 39 weeks	1 540	430	27.9	415	106	206	-	-	274	-	-	109
40 weeks or more	1 170	158	13.5	323	56	426	-	-	-	53	-	153
1 stretch	12 286	1 416	11.5	2 926	629	1 266	-	106	320	-	-	5 622
2 stretches	3 220	537	16.7	1 042	205	204	-	-	47	166	-	1 020
3 stretches or more	4 743	1 100	23.2	1 319	463	634	-	56	106	57	108	900
Female, total	15 099	2 489	16.5	3 360	1 567	2 472	51	206	697	-	151	4 104
Less than 5 weeks	6 863	848	12.4	1 833	1 072	913	51	100	347	-	47	1 650
5 to 10 weeks	2 084	254	12.2	251	147	608	-	-	96	-	51	676
11 to 14 weeks	1 452	467	32.2	261	108	-	-	53	47	-	-	516
15 to 26 weeks	2 135	410	19.2	487	146	306	-	-	106	-	53	627
27 to 39 weeks	1 524	312	20.5	338	47	300	-	53	53	-	-	421
40 weeks or more	1 040	198	19.0	189	47	344	-	-	47	-	-	215
1 stretch	7 928	1 233	15.5	1 507	651	1 065	51	53	401	-	151	2 816
2 stretches	1 944	357	18.4	245	202	304	-	106	53	-	-	675
3 stretches or more	5 226	899	17.2	1 607	713	1 103	-	47	243	-	-	613

[1] Government class of worker.

7508 107

Table 30. Lowest Weekly Pay Acceptable to Part-Year Workers Seeking Work in the Last 12 Months, by Age and Sex, Family Status, and Educational Attainment: All Races

(Excludes the full-year unemployed)

Age and Sex Family Status Educational Attainment	Total part-year workers unemployed at any time in last 12 months	Lowest acceptable weekly pay										Median lowest acceptable weekly pay (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
AGE AND SEX													
Total, 16 years and over	56 409	1 834	8 497	5 043	8 665	9 035	2 407	1 443	160	974	105	18 246	88
Male, total	33 454	739	3 176	1 961	4 075	7 399	2 054	1 242	105	921	105	11 676	103
18 to 21 years, total	9 592	568	2 044	907	1 291	1 812	624	194	-	96	48	2 007	84
16 to 21 years, not in school	4 975	94	573	337	815	1 048	287	144	-	96	48	1 532	97
22 to 34 years, total	11 816	56	584	471	1 611	3 265	938	541	57	273	57	3 964	109
22 to 34 years, veteran of Vietnam	1 962	-	59	162	363	591	208	-	57	57	-	466	106
25 to 34 years	8 073	56	485	328	941	1 981	597	444	57	224	57	2 902	109
35 to 44 years	5 206	-	167	326	494	939	280	173	48	220	-	2 559	108
45 to 54 years	3 933	115	224	106	395	786	106	223	-	221	-	1 756	107
55 to 64 years	2 213	-	104	114	170	435	106	111	-	55	-	1 117	109
65 years and over	694	-	53	37	113	162	-	-	-	56	-	273	101
40 to 64 years	8 371	115	383	487	727	1 559	439	391	48	386	-	3 835	108
Female, total	22 954	1 094	5 321	3 082	4 590	1 636	353	201	55	52	-	6 569	73
16 to 21 years, total	7 660	476	2 615	1 096	1 474	478	143	-	-	-	-	1 379	65
16 to 21 years, not in school	4 621	239	1 380	665	1 000	286	143	-	-	-	-	908	70
22 to 34 years	7 594	251	1 541	1 292	1 588	993	108	97	55	-	-	1 669	78
25 to 34 years	4 751	108	769	810	913	703	108	-	55	-	-	1 285	81
35 to 44 years	3 114	106	490	428	534	109	-	53	-	-	-	1 395	74
45 to 54 years	2 735	102	417	213	732	-	-	51	-	-	-	1 220	80
55 to 64 years	1 317	51	156	53	262	56	102	-	-	52	-	582	88
65 years and over	535	108	103	-	-	-	-	-	-	-	-	324	48
40 to 64 years	5 717	154	792	588	1 317	109	102	104	-	52	-	2 498	81
FAMILY STATUS[2]													
Male, total	27 274	265	1 603	1 307	3 390	6 036	1 621	1 192	105	865	105	10 785	106
Family head	18 728	56	619	423	1 198	2 690	901	330	48	540	-	5 923	110
Family member	7 283	153	488	448	1 141	1 981	502	249	-	96	48	2 177	104
Unrelated individual	7 263	56	495	436	1 051	1 365	219	613	57	229	57	2 685	104
Female, total	18 625	701	3 839	2 603	3 969	1 236	353	201	55	52	-	5 615	76
Family head	3 804	102	860	520	678	157	-	-	55	-	-	1 432	71
No children under 18 years	747	-	108	55	104	-	-	-	-	-	-	479	71
Children 6 to 17 years only	1 939	102	542	356	310	104	-	-	55	-	-	471	68
Children under 6 years	1 118	-	210	110	263	53	-	-	-	-	-	482	79
Wife of head	6 576	301	1 192	1 104	1 459	257	159	150	-	-	-	1 954	76
No children under 18 years	2 071	-	327	411	480	57	55	49	-	-	-	693	78
Children 6 to 17 years only	3 124	250	759	370	769	200	53	48	-	-	-	674	73
Children under 6 years	1 381	51	106	323	210	-	51	53	-	-	-	587	76
Other family member	5 085	298	1 017	774	1 067	659	143	-	-	52	-	1 075	78
Unrelated individual	3 160	-	770	205	766	163	51	51	-	-	-	1 154	80
EDUCATIONAL ATTAINMENT[2]													
Male, total	27 274	265	1 603	1 307	3 390	6 036	1 621	1 192	105	865	105	10 785	106
Elementary: 7 years or less	4 082	112	469	148	397	966	258	56	-	329	-	1 348	106
Elementary: 8 years	3 171	-	208	215	313	749	312	53	-	-	-	1 320	106
High school: 1 to 3 years	10 044	106	503	448	1 573	2 363	378	372	48	212	-	4 042	103
High school: 4 years	7 696	47	422	496	772	1 505	566	597	57	157	-	3 077	109
College: 1 year or more	2 280	-	-	-	336	454	107	114	-	167	105	997	116
Female, total	18 625	701	3 839	2 603	3 969	1 236	353	201	55	52	-	5 615	76
Elementary: 7 years or less	1 347	51	413	153	51	209	51	-	-	-	-	419	65
Elementary: 8 years	1 896	51	563	157	324	114	-	-	-	-	-	688	64
High school: 1 to 3 years	5 710	303	1 369	819	1 019	253	150	104	55	-	-	1 637	71
High school: 4 years	7 870	242	1 286	1 474	1 759	507	151	-	-	-	-	2 449	77
College: 1 year or more	1 802	53	208	-	816	153	-	97	-	52	-	422	90

[1] Not used in computing median. [2] Persons 16 to 64 years, not in school.

Table 30a. Lowest Weekly Pay Acceptable to Part-Year Workers Seeking Work in the Last 12 Months, by Age and Sex, Family Status, and Educational Attainment: White

(Excludes the full-year unemployed)

Age and Sex Family Status Educational Attainment	Total part-year workers unemployed at any time in last 12 months	Lowest acceptable weekly pay										Median lowest acceptable weekly pay (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
AGE AND SEX													
Total, 16 years and over	11 808	256	2 003	966	1 809	2 017	509	327	105	331	48	3 436	90
Male, total	7 712	56	812	651	1 141	1 445	460	279	105	331	48	2 383	100
16 to 21 years, total	2 081	-	385	339	387	438	146	-	-	-	48	338	87
16 to 21 years, not in school	1 263	-	193	195	195	292	48	-	-	-	48	290	90
22 to 34 years, total	2 591	56	259	143	416	613	201	109	57	106	-	632	104
22 to 34 years, veteran of Vietnam	300	-	-	48	49	-	-	-	57	-	-	145	91
25 to 34 years	2 009	56	209	48	269	613	153	109	57	57	-	438	108
35 to 44 years	892	-	54	-	56	113	58	-	48	57	-	505	118
45 to 54 years	1 245	-	114	55	114	225	-	113	-	57	-	568	106
55 to 64 years	623	-	-	114	56	-	55	58	-	55	-	285	99
65 years and over	280	-	-	-	113	55	-	-	-	56	-	55	99
40 to 64 years	2 365	-	168	169	226	338	113	170	48	113	-	1 019	108
Female, total	4 096	200	1 192	316	668	572	48	48	-	-	-	1 053	71
16 to 21 years, total	1 255	145	337	147	146	95	48	-	-	-	-	337	63
16 to 21 years, not in school	823	145	192	-	98	48	48	-	-	-	-	291	59
22 to 34 years	1 791	55	584	113	357	365	-	48	-	-	-	268	80
25 to 34 years	962	55	340	113	113	170	-	-	-	-	-	171	65
35 to 44 years	337	-	112	-	-	56	-	-	-	-	-	168	61
45 to 54 years	334	-	55	55	56	-	-	-	-	-	-	167	72
55 to 64 years	276	-	-	-	108	56	-	-	-	-	-	112	95
65 years and over	103	-	103	-	-	-	-	-	-	-	-	-	57
40 to 64 years	667	-	55	55	165	56	-	-	-	-	-	335	86
FAMILY STATUS[2]													
Male, total	6 470	56	571	461	837	1 243	363	279	105	275	48	2 231	103
Family head	3 074	56	209	97	424	661	256	55	48	227	-	1 040	108
Family member	1 366	-	250	146	154	308	106	-	-	48	48	306	97
Unrelated individual	2 030	-	112	218	260	274	-	224	57	-	-	885	98
Female, total	3 308	200	895	169	570	372	48	48	-	-	-	1 007	70
Family head	385	55	161	57	-	-	-	-	-	-	-	113	57
No children under 18 years	114	-	57	-	-	-	-	-	-	-	-	56	57
Children 6 to 17 years only	216	55	104	57	-	-	-	-	-	-	-	-	57
Children under 6 years	-	-	-	-	-	-	-	-	-	-	-	56	0
Wife of head	1 486	97	428	111	364	57	-	48	-	-	-	380	68
No children under 18 years	498	-	115	-	163	57	-	-	-	-	-	163	86
Children 6 to 17 years only	765	97	313	-	201	-	-	48	-	-	-	106	61
Children under 6 years	223	-	-	111	-	-	-	-	-	-	-	111	72
Other family member	654	48	154	-	-	259	48	-	-	-	-	145	105
Unrelated individual	783	-	152	-	206	56	-	-	-	-	-	369	85
EDUCATIONAL ATTAINMENT[2]													
Male, total	6 470	56	571	461	837	1 243	363	279	105	275	48	2 231	103
Elementary: 7 years or less	978	56	255	48	115	113	48	-	-	113	-	229	82
8 years	978	-	48	59	107	334	104	-	-	-	-	327	108
High school: 1 to 3 years	2 240	-	153	145	357	271	114	115	48	105	-	931	99
4 years	1 749	-	114	209	203	315	48	164	57	-	-	638	102
College: 1 year or more	526	-	-	-	55	210	48	-	-	57	48	107	118
Female, total	3 308	200	895	169	570	372	48	48	-	-	-	1 007	70
Elementary: 7 years or less	266	-	106	-	-	56	-	-	-	-	-	104	61
8 years	668	-	163	56	112	114	-	-	-	-	-	223	80
High school: 1 to 3 years	772	103	314	-	153	-	48	-	-	-	-	153	59
4 years	1 027	97	312	113	151	97	-	-	-	-	-	259	63
College: 1 year or more	575	-	-	-	155	105	-	48	-	-	-	267	99

[1] Not used in computing median. [2] Persons 16 to 64 years, not in school.

7510 75

Table 30b. Lowest Weekly Pay Acceptable to Part-Year Workers Seeking Work in the Last 12 Months, by Age and Sex, Family Status, and Educational Attainment: Negro

(Excludes the full-year unemployed)

Age and Sex Family Status Educational Attainment	Total part-year workers unemployed at any time in last 12 months	Lowest acceptable weekly pay										Median lowest acceptable weekly pay (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
AGE AND SEX													
Total, 16 years and over	43 683	1 578	6 494	3 973	6 751	6 970	1 802	1 059	55	585	57	14 359	87
Male, total	25 090	683	2 365	1 310	2 885	5 906	1 497	906	-	532	57	8 949	103
16 to 21 years, total	7 366	568	1 659	568	904	1 325	381	194	-	96	-	1 668	81
16 to 21 years, not in school	3 615	94	380	142	619	708	191	144	-	96	-	1 242	98
22 to 34 years, total	8 947	-	325	328	1 147	2 653	737	375	-	167	57	3 159	110
22 to 34 years, veteran of Vietnam	1 662	-	59	114	313	591	208	-	-	57	-	321	107
25 to 34 years	5 834	-	276	280	672	1 368	444	279	-	167	57	2 291	109
35 to 44 years	4 256	-	113	326	438	825	222	173	-	163	-	1 997	107
45 to 54 years	2 517	115	110	51	282	561	106	111	-	106	-	1 075	107
55 to 64 years	1 589	-	104	-	113	435	51	53	-	-	-	832	109
65 years and over	414	-	53	37	-	106	-	-	-	-	-	218	101
40 to 64 years	5 835	115	214	319	501	1 221	326	221	-	216	-	2 703	108
Female, total	18 593	894	4 129	2 663	3 866	1 064	305	153	55	52	-	5 410	73
16 to 21 years, total	6 309	331	2 277	902	1 328	383	94	-	-	-	-	993	65
16 to 21 years, not in school	3 750	94	1 188	665	903	238	94	-	-	-	-	568	71
22 to 34 years	5 691	196	957	1 123	1 175	628	108	49	55	-	-	1 400	78
25 to 34 years	3 677	53	429	641	743	534	108	-	55	-	-	1 115	84
35 to 44 years	2 777	106	378	428	534	53	-	53	-	-	-	1 227	75
45 to 54 years	2 343	102	362	157	676	-	-	51	-	-	-	995	81
55 to 64 years	1 040	51	156	53	154	-	102	-	-	52	-	471	83
65 years and over	432	108	-	-	-	-	-	-	-	-	-	324	25
40 to 64 years	4 992	154	737	533	1 152	53	102	104	-	52	-	2 105	80
FAMILY STATUS[2]													
Male, total	20 248	209	1 032	847	2 553	4 744	1 210	856	-	532	57	8 209	107
Family head	9 435	-	410	327	774	1 980	644	217	-	314	-	4 768	110
Family member	5 868	153	238	302	987	1 673	347	249	-	47	-	1 872	104
Unrelated individual	4 945	56	383	218	791	1 091	219	389	-	171	57	1 569	105
Female, total	15 099	501	2 945	2 379	3 343	864	305	153	55	52	-	4 502	76
Family head	3 418	47	699	363	678	157	-	-	55	-	-	1 319	74
No children under 18 years	633	-	51	55	104	-	-	-	-	-	-	423	79
Children 6 to 17 years only	1 723	47	438	298	310	104	-	-	55	-	-	471	72
Children under 6 years	1 062	-	210	110	263	53	-	-	-	-	-	426	79
Wife of head	4 976	204	764	992	1 038	200	159	102	-	-	-	1 516	76
No children under 18 years	1 515	-	212	411	317	-	55	49	-	-	-	472	76
Children 6 to 17 years only	2 303	153	446	370	512	200	53	-	-	-	-	569	75
Children under 6 years	1 158	51	106	212	210	-	51	53	-	-	-	476	78
Other family member	4 327	250	863	718	1 067	400	94	-	-	52	-	882	77
Unrelated individual	2 377	-	618	205	560	106	51	51	-	-	-	785	78
EDUCATIONAL ATTAINMENT[2]													
Male, total	20 248	209	1 032	847	2 553	4 744	1 210	856	-	532	57	8 209	107
Elementary: 7 years or less	3 105	56	214	100	281	853	209	56	-	216	-	1 119	109
8 years	2 135	-	160	157	206	415	208	53	-	-	-	935	104
High school: 1 to 3 years	7 650	106	349	303	1 216	2 043	216	257	-	49	-	3 111	103
4 years	5 834	47	308	287	569	1 189	518	433	-	157	-	2 326	111
College: 1 year or more	1 525	-	-	-	281	244	59	57	-	110	57	718	112
Female, total	15 099	501	2 945	2 379	3 343	864	305	153	55	52	-	4 502	76
Elementary: 7 years or less	1 080	51	307	153	51	153	51	-	-	-	-	314	67
8 years	1 229	51	400	101	212	-	-	-	-	-	-	465	62
High school: 1 to 3 years	4 834	200	1 055	819	810	253	102	104	55	-	-	1 436	73
4 years	6 729	146	975	1 306	1 609	411	151	-	-	-	-	2 132	78
College: 1 year or more	1 226	53	208	-	661	47	-	49	-	52	-	155	88

[1] Not used in computing median. [2] Persons 16 to 64 years, not in school.

Table 31. Lowest Weekly Pay Acceptable to Part-Year Workers Seeking Work in the Last 12 Months, by Major Occupation and Industry Groups and Duration of Unemployment: All Races

(Limited to persons 16 to 64 years, not in school; excludes the full-year unemployed)

Major Occupation and Industry Groups of Longest Job Duration of Unemployment	Total part-year workers unemployed at any time in last 12 months	Lowest acceptable weekly pay										Median lowest acceptable weekly pay (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	... 0 or more	Not available[1]	
MAJOR OCCUPATION GROUP													
Total	45 899	966	5 442	3 911	7 359	7 272	1 974	1 393	160	917	105	16 400	92
Professional and technical	1 672	-	47	47	147	314	157	263	55	110	-	532	127
Managerial and administrative	519	-	93	105	152	-	57	-	57	-	-	55	84
Sales	869	-	152	148	102	57	57	-	-	47	-	306	78
Clerical	6 165	203	1 034	696	1 956	761	94	-	-	-	-	1 421	84
Craftsmen and foremen	4 802	160	206	-	508	1 081	309	225	-	337	57	1 920	113
Operatives, except transportation	14 520	142	984	886	1 701	2 764	727	487	48	-	48	6 684	101
Transport equipment operatives	1 916	-	111	-	451	469	161	56	-	48	-	619	104
Laborers, except farm	5 108	59	416	467	809	927	262	262	-	265	-	1 641	99
Service workers, except private household	8 460	201	2 040	1 506	1 224	845	51	100	-	111	-	2 381	72
Private household workers	1 765	202	359	56	259	53	48	-	-	-	-	787	61
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	53	0
Farm laborers and foremen	49	-	-	-	49	-	-	-	-	-	-	-	89
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Male, total	27 274	265	1 603	1 307	3 390	6 036	1 621	1 192	105	865	105	10 785	106
Professional and technical	814	-	-	-	-	161	157	166	-	57	-	274	142
Managerial and administrative	218	-	-	49	-	-	57	-	57	-	-	55	139
Sales	162	-	-	-	-	57	57	-	-	47	-	-	135
Clerical	1 062	-	148	96	249	257	47	-	-	-	-	265	92
Craftsmen and foremen	4 488	160	158	-	397	1 025	309	225	-	337	57	1 820	115
Operatives, except transportation	11 284	47	309	361	1 285	2 501	618	434	48	-	48	5 633	108
Transport equipment operatives	1 869	-	111	-	404	469	161	56	-	48	-	619	105
Laborers, except farm	4 612	59	367	467	611	927	215	262	-	265	-	1 440	102
Service workers, except private household	2 661	-	509	278	394	638	-	49	-	111	-	680	90
Private household workers	56	-	-	56	-	-	-	-	-	-	-	-	72
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	49	-	-	-	49	-	-	-	-	-	-	-	89
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	18 625	701	3 839	2 603	3 969	1 236	353	201	55	52	-	5 615	76
Professional and technical	858	-	47	47	147	154	-	97	55	52	-	259	109
Managerial and administrative	301	-	93	55	152	-	-	-	-	-	-	-	80
Sales	708	-	152	148	102	-	-	-	-	-	-	306	69
Clerical	5 104	203	886	600	1 707	504	47	-	-	-	-	1 156	83
Craftsmen and foremen	314	-	47	-	110	56	-	-	-	-	-	101	90
Operatives, except transportation	3 236	94	675	525	417	262	159	53	-	-	-	1 051	74
Transport equipment operatives	47	-	-	-	47	-	-	-	-	-	-	-	90
Laborers, except farm	496	-	49	-	198	-	47	-	-	-	-	201	89
Service workers, except private household	5 799	201	1 531	1 228	830	207	51	51	-	-	-	1 701	[illegible]
Private household workers	1 709	202	359	-	259	53	48	-	-	-	-	787	60
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	53	0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
MAJOR INDUSTRY GROUP													
Male, total	27 274	265	1 603	1 307	3 390	6 036	1 621	1 192	105	865	105	10 785	106
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	157	-	-	-	49	-	56	-	-	-	-	51	126
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	3 043	-	48	56	218	552	270	170	-	597	57	1 074	135
Durable goods manufacturing	13 030	104	525	365	1 158	2 629	714	651	48	-	-	6 835	108
Nondurable goods manufacturing	1 438	-	94	-	364	459	47	-	-	105	-	368	104
Transportation, communication, and other public utilities	1 430	-	53	53	100	634	58	111	-	-	-	422	111
Wholesale and retail trade	3 651	47	673	467	418	925	267	56	57	58	-	682	94
Finance, insurance, and real estate	582	-	-	51	145	168	48	-	-	-	-	169	101
Business and repair services	1 551	56	161	56	491	165	56	98	-	-	-	467	90
Personal services	318	59	-	155	47	57	-	-	-	-	-	-	74
Professional services and entertainment	590	-	47	55	173	212	55	-	-	-	-	47	99
Government[2]													
Educational services	248	-	-	-	-	-	48	-	-	-	-	199	137
All other government services	1 238	-	-	48	227	236	-	105	-	104	48	470	111
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	18 625	701	3 839	2 603	3 969	1 236	353	201	55	52	-	5 615	76
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-	-	53	0
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	94	-	-	-	47	-	47	-	-	-	-	-	125
Durable goods manufacturing	1 991	-	146	166	511	311	106	53	-	-	-	698	93
Nondurable goods manufacturing	1 545	47	266	105	252	-	53	-	-	-	-	821	71
Transportation, communication, and other public utilities	195	-	-	-	47	-	-	-	-	-	-	147	90
Wholesale and retail trade	4 771	195	1 503	1 021	770	47	-	-	-	-	-	1 234	66
Finance, insurance, and real estate	696	-	192	-	197	252	-	-	-	-	-	54	93
Business and repair services	309	-	-	96	213	-	-	-	-	-	-	-	85
Personal services	3 386	250	888	366	627	109	100	51	-	-	-	996	67
Professional services and entertainment	3 054	154	451	495	604	422	-	-	55	-	-	872	79
Government[2]													
Educational services	1 237	55	153	153	351	-	-	97	-	52	-	375	84
All other government services	1 294	-	240	200	348	94	47	-	-	-	-	364	81
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0

[1] Not used in computing median. [2] Government class of worker.

7512 117

Table 31. Lowest Weekly Pay Acceptable to Part-Year Workers Seeking Work in the Last 12 Months, by Major Occupation and Industry Groups and Duration of Unemployment: All Races—Con.

[Limited to persons 16 to 64 years, not in school; excludes the full-year unemployed]

Major Occupation and Industry Groups of Longest Job Duration of Unemployment	Total part-year workers unemployed at any time in last 12 months	Lowest acceptable weekly pay										Median lowest acceptable weekly pay (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]
DURATION OF UNEMPLOYMENT												
Male, total	27 274	265	1 603	1 307	3 390	6 036	1 621	1 192	105	865	105	10 785	106
Less than 5 weeks	9 716	-	548	295	1 103	1 630	720	481	48	372	48	4 470	110
5 to 10 weeks	5 602	56	434	357	518	854	267	227	-	57	-	2 832	100
11 to 14 weeks	3 019	47	49	164	471	734	145	-	-	105	-	1 304	104
15 to 26 weeks	5 467	59	469	224	528	1 531	323	321	57	167	57	1 701	109
27 to 39 weeks	2 035	103	-	161	478	854	166	49	-	58	-	166	105
40 weeks or more	1 436	-	103	106	262	433	-	114	-	106	-	311	105
1 stretch	16 401	47	625	781	1 691	3 248	782	813	105	424	57	7 827	108
2 stretches	4 252	56	362	218	383	890	273	55	-	225	48	1 241	99
3 stretches or more	6 621	162	616	307	816	1 897	566	324	-	216	-	1 717	107
Female, total	18 625	701	3 839	2 603	3 969	1 236	353	201	55	52	-	5 615	76
Less than 5 weeks	3 213	502	1 695	1 252	1 742	612	198	101	-	-	-	2 111	75
5 to 10 weeks	2 704	100	538	411	417	201	-	51	-	-	-	985	73
11 to 14 weeks	1 927	51	260	259	259	264	55	-	55	-	-	724	82
15 to 26 weeks	2 571	-	595	321	669	53	47	49	-	-	-	836	77
27 to 39 weeks	2 001	48	354	109	693	105	53	-	-	-	-	639	84
40 weeks or more	1 210	-	397	251	189	-	-	-	-	52	-	320	67
1 stretch	9 556	452	2 065	1 038	2 020	534	51	100	-	-	-	3 297	73
2 stretches	2 427	51	312	196	570	311	53	-	55	-	-	878	87
3 stretches or more	6 643	198	1 462	1 369	1 379	391	249	101	-	52	-	1 440	75

[1] Not used in computing median.

7513 A125

Table 31a. Lowest Weekly Pay Acceptable to Part-Year Workers Seeking Work in the Last 12 Months, by Major Occupation and Industry Groups and Duration of Unemployment: White

[Limited to persons 16 to 64 years, not in school; excludes the full-year unemployed]

Major Occupation and Industry Groups of Longest Job Duration of Unemployment	Total part-year workers unemployed at any time in last 12 months	Lowest acceptable weekly pay										Median lowest acceptable weekly pay (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
MAJOR OCCUPATION GROUP													
Total	9 778	256	1 466	629	1 407	1 615	411	327	105	275	48	3 238	93
Professional and technical	740	-	-	-	49	267	104	157	-	57	-	106	125
Managerial and administrative	208	-	46	105	-	-	-	-	57	-	-	-	73
Sales	156	-	57	-	49	-	-	-	-	-	-	49	63
Clerical	1 286	103	354	48	250	153	-	-	-	-	-	378	64
Craftsmen and foremen	1 677	56	56	-	253	282	48	58	-	169	-	754	108
Operatives, except transportation	2 408	-	203	210	371	385	104	58	48	-	48	980	96
Transport equipment operatives	464	-	-	-	-	104	58	-	-	48	-	253	125
Laborers, except farm	1 057	-	209	98	104	258	48	55	-	-	-	285	95
Service workers, except private household	1 685	97	539	169	283	165	-	-	-	-	-	433	64
Private household workers	48	-	-	-	-	-	48	-	-	-	-	-	137
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	49	-	-	-	49	-	-	-	-	-	-	-	89
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Male, total	6 470	56	571	461	837	1 243	363	279	105	275	48	2 231	103
Professional and technical	430	-	-	-	-	161	104	109	-	57	-	-	138
Managerial and administrative	106	-	-	49	-	-	-	-	57	-	-	-	176
Sales	-	-	-	-	-	-	-	-	-	-	-	-	0
Clerical	203	-	48	48	48	-	-	-	-	-	-	58	72
Craftsmen and foremen	1 514	56	56	-	195	226	48	58	-	169	-	705	110
Operatives, except transportation	1 970	-	97	97	371	329	104	58	48	-	48	818	100
Transport equipment operatives	464	-	-	-	-	104	58	-	-	48	-	253	125
Laborers, except farm	953	-	209	98	-	258	48	55	-	-	-	285	102
Service workers, except private household	781	-	160	169	173	165	-	-	-	-	-	114	80
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	49	-	-	-	49	-	-	-	-	-	-	-	89
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	3 308	200	895	169	570	372	48	48	-	-	-	1 007	70
Professional and technical	310	-	-	-	49	107	-	48	-	-	-	106	112
Managerial and administrative	102	-	46	55	-	-	-	-	-	-	-	-	66
Sales	156	-	57	-	49	-	-	-	-	-	-	49	63
Clerical	1 084	103	306	-	201	153	-	-	-	-	-	321	63
Craftsmen and foremen	163	-	-	-	57	56	-	-	-	-	-	49	99
Operatives, except transportation	439	-	107	113	-	56	-	-	-	-	-	162	69
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-	0
Laborers, except farm	104	-	-	-	104	-	-	-	-	-	-	-	89
Service workers, except private household	904	97	378	-	109	-	-	-	-	-	-	320	57
Private household workers	48	-	-	-	-	-	48	-	-	-	-	-	137
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
MAJOR INDUSTRY GROUP													
Male, total	6 470	56	571	461	837	1 243	363	279	105	275	48	2 231	103
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	49	-	-	-	49	-	-	-	-	-	-	-	89
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	804	-	48	-	49	57	48	58	-	169	-	374	155
Durable goods manufacturing	2 150	-	210	97	202	336	48	109	48	-	-	1 099	101
Nondurable goods manufacturing	558	-	-	-	154	250	-	-	-	48	-	105	107
Transportation, communication, and other public utilities	484	-	-	-	-	216	58	55	-	-	-	154	119
Wholesale and retail trade	1 105	-	313	261	103	211	-	-	57	-	-	160	74
Finance, insurance, and real estate	161	-	-	-	-	56	48	-	-	-	-	56	123
Business and repair services	562	56	-	-	164	57	56	-	-	-	-	228	93
Personal services	-	-	-	-	-	-	-	-	-	-	-	-	0
Professional services and entertainment	227	-	-	55	58	59	55	-	-	-	-	-	100
Government[2]													
Educational services	48	-	-	-	-	-	48	-	-	-	-	-	137
All other government services	324	-	-	48	57	-	-	58	-	57	48	55	162
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	3 308	200	895	169	570	372	48	48	-	-	-	1 007	70
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-	-	-	0
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	-	-	-	-	-	-	-	-	-	-	-	-	0
Durable goods manufacturing	429	-	50	57	48	105	-	-	-	-	-	169	89
Nondurable goods manufacturing	485	-	113	56	57	-	-	-	-	-	-	258	65
Transportation, communication, and other public utilities	-	-	-	-	-	-	-	-	-	-	-	48	0
Wholesale and retail trade	996	97	426	55	98	-	-	-	-	-	-	321	58
Finance, insurance, and real estate	143	-	46	-	48	48	-	-	-	-	-	-	90
Business and repair services	112	-	-	-	112	-	-	-	-	-	-	-	89
Personal services	266	-	106	-	56	56	48	-	-	-	-	-	89
Professional services and entertainment	571	48	105	-	101	163	-	-	-	-	-	153	90
Government[2]													
Educational services	209	55	48	-	-	-	-	48	-	-	-	57	56
All other government services	49	-	-	-	49	-	-	-	-	-	-	-	89
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0

[1] Not used in computing median. [2] Government class of worker.

7514 8175

Table 31a. Lowest Weekly Pay Acceptable to Part-Year Workers Seeking Work in the Last 12 Months, by Major Occupation and Industry Groups and Duration of Unemployment: White–Con.

[Limited to persons 16 to 64 years, not in school; excludes the full-year unemployed]

Major Occupation and Industry Groups of Longest Job Duration of Unemployment	Total part-year workers unemployed at any time in last 12 months	Lowest acceptable weekly pay										Median lowest acceptable weekly pay (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
DURATION OF UNEMPLOYMENT													
Male, total	6 470	56	571	461	837	1 243	363	279	105	275	48	2 231	103
Less than 5 weeks	2 383	-	145	195	315	313	162	-	48	113	48	1 043	101
5 to 10 weeks	1 301	-	217	48	203	226	56	113	-	-	-	438	96
11 to 14 weeks	463	-	-	48	58	49	48	-	-	105	-	154	124
15 to 26 weeks	1 620	-	209	59	157	382	97	109	57	57	-	494	109
27 to 39 weeks	438	56	-	110	104	167	-	-	-	-	-	-	90
40 weeks or more	266	-	-	-	-	105	-	58	-	-	-	103	119
1 stretch	3 722	-	171	152	471	824	106	222	105	161	-	1 510	109
2 stretches	974	-	103	162	164	162	104	-	-	57	48	174	96
3 stretches or more	1 774	56	298	147	202	257	152	58	-	57	-	548	91
Female, total	3 308	200	895	169	570	372	48	48	-	-	-	1 007	70
Less than 5 weeks	1 292	103	618	-	160	162	48	48	-	-	-	153	61
5 to 10 weeks	516	48	-	56	208	48	-	-	-	-	-	155	87
11 to 14 weeks	475	-	112	-	48	106	-	-	-	-	-	208	88
15 to 26 weeks	436	-	57	113	56	-	-	-	-	-	-	209	72
27 to 39 weeks	421	48	50	-	98	56	-	-	-	-	-	169	85
40 weeks or more	169	-	57	-	-	-	-	-	-	-	-	112	57
1 stretch	1 628	97	365	113	351	219	-	-	-	-	-	483	79
2 stretches	379	-	112	-	56	56	-	-	-	-	-	154	80
3 stretches or more	1 302	103	417	56	163	97	48	48	-	-	-	370	63

[1] Not used in computing median.

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DLRS 7515

Table 31b. Lowest Weekly Pay Acceptable to Part-Year Workers Seeking Work in the Last 12 Months, by Major Occupation and Industry Groups and Duration of Unemployment: Negro

[Limited to persons 16 to 64 years, not in school; excludes the full-year unemployed]

Major Occupation and Industry Groups of Longest Job Duration of Unemployment	Total part-year workers unemployed at any time in last 12 months	Lowest acceptable weekly pay										Median lowest acceptable weekly pay (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
MAJOR OCCUPATION GROUP													
Total	35 347	710	3 976	3 225	5 896	5 608	1 515	1 009	55	585	57	12 711	91
Professional and technical	702	-	47	47	97	47	53	49	55	52	-	254	117
Managerial and administrative	312	-	47	-	152	-	57	-	-	-	-	55	90
Sales	656	-	94	148	53	57	57	-	-	47	-	199	78
Clerical	4 879	100	680	648	1 706	608	94	-	-	-	-	1 043	85
Craftsmen and foremen	3 011	104	149	-	255	798	261	168	-	167	57	1 053	114
Operatives, except transportation	11 853	142	780	620	1 331	2 330	624	429	-	-	-	5 597	102
Transport equipment operatives	1 453	-	111	-	451	365	103	56	-	-	-	366	99
Laborers, except farm	4 051	59	206	369	706	670	214	207	-	265	-	1 357	100
Service workers, except private household	6 717	104	1 501	1 338	942	680	51	100	-	53	-	1 948	73
Private household workers	1 661	202	359	56	202	53	-	-	-	-	-	787	59
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	53	0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Male, total	20 248	209	1 032	847	2 553	4 744	1 210	856	-	532	57	8 209	107
Professional and technical	154	-	-	-	-	-	53	-	-	-	-	101	137
Managerial and administrative	112	-	-	-	-	-	57	-	-	-	-	55	137
Sales	162	-	-	-	-	57	57	-	-	47	-	-	135
Clerical	859	-	100	47	201	257	47	-	-	-	-	207	97
Craftsmen and foremen	2 860	104	102	-	202	798	261	168	-	167	57	1 001	116
Operatives, except transportation	9 160	47	212	264	914	2 124	465	377	-	-	-	4 757	108
Transport equipment operatives	1 405	-	111	-	404	365	103	56	-	-	-	366	100
Laborers, except farm	3 659	59	157	369	611	670	166	207	-	265	-	1 155	102
Service workers, except private household	1 822	-	349	110	221	473	-	49	-	53	-	567	95
Private household workers	56	-	-	56	-	-	-	-	-	-	-	-	72
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	15 099	501	2 945	2 379	3 343	864	305	153	55	52	-	4 502	76
Professional and technical	549	-	47	47	97	47	-	49	55	52	-	153	103
Managerial and administrative	199	-	47	-	152	-	-	-	-	-	-	-	86
Sales	494	-	94	148	53	-	-	-	-	-	-	199	70
Clerical	4 020	100	580	600	1 506	351	47	-	-	-	-	835	84
Craftsmen and foremen	151	-	47	-	53	-	-	-	-	-	-	51	81
Operatives, except transportation	2 693	94	568	355	417	206	159	53	-	-	-	840	76
Transport equipment operatives	47	-	-	-	47	-	-	-	-	-	-	-	90
Laborers, except farm	392	-	49	-	94	-	47	-	-	-	-	201	89
Service workers, except private household	4 895	104	1 152	1 228	721	207	51	51	-	-	-	1 381	71
Private household workers	1 604	202	359	-	202	53	-	-	-	-	-	787	58
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	53	0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
MAJOR INDUSTRY GROUP													
Male, total	20 248	209	1 032	847	2 553	4 744	1 210	856	-	532	57	8 209	107
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	108	-	-	-	-	-	56	-	-	-	-	51	137
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	2 125	-	-	56	169	495	222	113	-	428	57	586	130
Durable goods manufacturing	10 717	104	315	269	955	2 293	617	485	-	-	-	5 678	109
Nondurable goods manufacturing	832	-	94	-	210	160	47	-	-	57	-	264	98
Transportation, communication, and other public utilities	946	-	53	53	100	418	-	56	-	-	-	267	108
Wholesale and retail trade	2 489	47	360	206	315	714	267	56	-	-	-	522	101
Finance, insurance, and real estate	363	-	-	51	145	112	-	-	-	-	-	55	94
Business and repair services	989	-	161	56	327	108	-	98	-	-	-	239	89
Personal services	318	59	-	155	47	57	-	-	-	-	-	-	74
Professional services and entertainment	363	-	47	-	115	153	-	-	-	-	-	47	99
Government[2]													
Educational services	-	-	-	-	-	-	-	-	-	-	-	142	0
All other government services	856	-	-	-	169	236	-	47	-	47	-	357	108
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0
Female, total	15 099	501	2 945	2 379	3 343	864	305	153	55	52	-	4 502	76
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-	-	53	0
Mining	-	-	-	-	-	-	-	-	-	-	-	-	0
Construction	94	-	-	-	47	-	47	-	-	-	-	-	125
Durable goods manufacturing	1 505	-	96	53	463	206	106	53	-	-	-	529	94
Nondurable goods manufacturing	1 011	47	153	49	195	-	53	-	-	-	-	514	79
Transportation, communication, and other public utilities	146	-	-	-	47	-	-	-	-	-	-	99	90
Wholesale and retail trade	3 717	98	1 077	966	672	47	-	-	-	-	-	855	68
Finance, insurance, and real estate	553	-	145	-	149	204	-	-	-	-	-	54	93
Business and repair services	198	-	-	96	101	-	-	-	-	-	-	-	80
Personal services	3 064	250	782	366	515	53	51	51	-	-	-	996	65
Professional services and entertainment	2 483	106	346	495	503	259	-	-	55	-	-	719	78
Government[2]													
Educational services	1 028	-	104	153	351	-	-	49	-	52	-	318	85
All other government services	1 245	-	240	200	299	94	47	-	-	-	-	364	80
Not available	-	-	-	-	-	-	-	-	-	-	-	-	0

[1] Not used in computing median. [2] Government class of worker.

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CIAC 7516

Table 31b. Lowest Weekly Pay Acceptable to Part-Year Workers Seeking Work in the Last 12 Months, by Major Occupation and Industry Groups and Duration of Unemployment: Negro–Con.

[Limited to persons 16 to 64 years, not in school; excludes the full-year unemployed]

Major Occupation and Industry Groups of Longest Job Duration of Unemployment	Total part-year workers unemployed at any time in last 12 months	Lowest acceptable weekly pay										Median lowest acceptable weekly pay (dollars)
		Less than $50	$50 to $64	$65 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $299	$300 or more	Not available[1]	
DURATION OF UNEMPLOYMENT													
Male, total	20 248	209	1 032	847	2 553	4 744	1 210	856	-	532	57	8 209	107
Less than 5 weeks	7 111	-	403	100	788	1 268	558	481	-	259	-	3 254	112
5 to 10 weeks	4 138	56	216	308	315	628	163	57	-	57	-	2 337	100
11 to 14 weeks	2 442	47	49	116	413	684	96	-	-	-	-	1 037	102
15 to 26 weeks	3 847	59	261	165	401	1 149	227	212	-	110	57	1 207	109
27 to 39 weeks	1 540	47	-	51	374	687	166	49	-	-	-	166	107
40 weeks or more	1 170	-	103	106	262	328	-	56	-	106	-	208	100
1 stretch	12 286	47	454	630	1 220	2 424	627	534	-	263	57	6 029	108
2 stretches	3 220	56	259	56	719	728	169	55	-	110	-	1 067	99
3 stretches or more	4 743	106	319	161	614	1 591	414	266	-	159	-	1 113	109
Female, total	15 099	501	2 945	2 379	3 343	864	305	153	55	52	-	4 502	76
Less than 5 weeks	6 863	399	1 077	1 252	1 582	450	150	53	-	-	-	1 900	77
5 to 10 weeks	2 084	51	538	355	153	153	-	51	-	-	-	782	67
11 to 14 weeks	1 452	51	147	259	210	159	55	-	55	-	-	516	81
15 to 26 weeks	2 135	-	538	209	613	53	47	49	-	-	-	627	80
27 to 39 weeks	1 524	-	304	53	595	49	53	-	-	-	-	470	85
40 weeks or more	1 040	-	340	251	189	-	-	-	-	52	-	208	69
1 stretch	7 928	355	1 699	925	1 669	314	51	100	-	-	-	2 814	73
2 stretches	1 944	51	200	196	458	255	53	-	55	-	-	675	88
3 stretches or more	5 226	94	1 045	1 257	1 216	295	201	53	-	52	-	1 013	76

[1] Not used in computing median.

7517

Table 32. Extent of Job Training, by Age, Sex, and Educational Level: All Races

Age and Sex Educational Level	Extent of job training											
		Completed any job training since January 1961[1]						Completed any job training prior to 1961[1]				
	Total with completion of any job training	High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	Manpower Development and Training Act	Neighborhood Youth Corps	All other	High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	All other	Did not complete any job training
Total, 18 years and over	51 240	20 409	3 989	941	357	2 374	6 377	12 418	7 078	1 437	1 629	297 173
Male, total	29 475	8 184	3 989	941	198	1 118	2 320	7 303	7 078	1 437	886	136 285
16 to 21 years, in school	1 191	526	96	-	-	426	285	-	-	-	-	10 898
16 to 21 years, not in school	2 563	1 806	190	140	-	331	474	-	-	-	-	8 791
22 to 34 years	10 802	4 315	3 594	413	198	306	948	1 149	993	166	163	27 561
35 to 44 years	5 207	497	-	332	-	-	341	1 876	2 160	444	164	20 933
45 years and over	9 713	1 039	110	56	-	55	273	4 278	3 926	828	559	68 102
Female, total	21 765	12 226	-	-	159	1 256	4 056	5 115	-	-	743	160 888
16 to 21 years, in school	1 613	1 140	-	-	-	425	237	-	-	-	-	10 179
16 to 21 years, not in school	3 440	2 916	-	-	-	475	573	-	-	-	-	12 392
22 to 34 years	9 054	6 451	-	-	106	357	1 979	807	-	-	163	34 994
35 to 44 years	2 853	719	-	-	53	-	799	1 177	-	-	159	25 651
45 years and over	4 805	1 000	-	-	-	-	469	3 132	-	-	422	77 673
LESS THAN 12 YEARS OF SCHOOL COMPLETED												
Male, total	12 004	2 614	525	282	100	636	1 039	3 009	3 604	717	448	94 344
16 to 21 years, in school	664	190	-	-	-	331	191	-	-	-	-	7 418
16 to 21 years, not in school	1 044	711	-	-	-	143	331	-	-	-	-	5 484
22 to 34 years	2 224	947	468	113	100	162	298	268	57	-	-	12 279
35 to 44 years	2 438	219	-	169	-	-	109	775	1 000	220	55	14 097
45 years and over	5 635	547	56	-	-	-	110	1 966	2 547	497	393	55 067
Female, total	5 077	2 092	-	-	53	574	1 079	1 217	-	-	214	101 812
16 to 21 years, in school	618	192	-	-	-	236	190	-	-	-	-	6 418
16 to 21 years, not in school	666	381	-	-	-	238	94	-	-	-	-	6 526
22 to 34 years	1 361	881	-	-	-	100	324	53	-	-	108	16 329
35 to 44 years	696	266	-	-	53	-	161	163	-	-	53	15 432
45 years and over	1 736	372	-	-	-	-	309	1 001	-	-	53	57 107
12 YEARS OR MORE OF SCHOOL COMPLETED												
Male, total	17 471	5 569	3 465	659	98	482	1 281	4 294	3 474	721	438	41 940
16 to 21 years, in school	527	336	96	-	-	95	94	-	-	-	-	3 480
16 to 21 years, not in school	1 519	1 095	190	140	-	188	143	-	-	-	-	3 307
22 to 34 years	8 578	3 367	3 126	300	98	143	650	881	936	166	163	15 283
35 to 44 years	2 769	278	-	163	-	-	232	1 101	1 160	224	109	6 836
45 years and over	4 078	493	53	56	-	55	163	2 312	1 379	331	166	13 035
Female, total	16 688	10 134	-	-	106	682	2 977	3 898	-	-	529	59 076
16 to 21 years, in school	995	948	-	-	-	189	47	-	-	-	-	3 760
16 to 21 years, not in school	2 774	2 535	-	-	-	237	478	-	-	-	-	5 866
22 to 34 years	7 693	5 570	-	-	106	256	1 655	754	-	-	55	18 665
35 to 44 years	2 157	452	-	-	-	-	637	1 014	-	-	106	10 218
45 years and over	3 070	628	-	-	-	-	159	2 130	-	-	369	20 566

[1] Detail may add to more than total because of multiple responses. [2] Asked of males only.

7518

Table 32a. Extent of Job Training, by Age, Sex, and Educational Level: White

Age and Sex Educational Level	Extent of job training											
		Completed any job training since January 1961[1]						Completed any job training prior to 1961[1]				
	Total with completion of any job training	High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	Manpower Development and Training Act	Neighborhood Youth Corps	All other	High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	All other	Did not complete any job training
Total, 16 years and over	9 974	3 764	997	168	-	55	735	2 569	1 590	611	341	76 602
Male, total	6 445	1 442	997	168	-	55	155	1 635	1 590	611	285	37 516
16 to 21 years, in school	193	145	48	-	-	-	-	-	-	-	-	1 931
16 to 21 years, not in school	194	146	48	-	-	-	48	-	-	-	-	2 229
22 to 34 years	2 721	1 095	844	56	-	-	106	334	283	109	-	6 217
35 to 44 years	953	56	-	113	-	-	-	281	396	163	56	4 349
45 years and over	2 383	-	56	-	-	55	-	1 020	911	339	228	22 790
Female, total	3 529	2 322	-	-	-	-	580	934	-	-	56	39 086
16 to 21 years, in school	286	238	-	-	-	-	48	-	-	-	-	1 435
16 to 21 years, not in school	629	629	-	-	-	-	97	-	-	-	-	2 278
22 to 34 years	1 601	1 320	-	-	-	-	379	56	-	-	-	6 993
35 to 44 years	23	23	-	-	-	-	-	-	-	-	-	4 734
45 years and over	989	112	-	-	-	-	56	878	-	-	56	23 647
LESS THAN 12 YEARS OF SCHOOL COMPLETED												
Male, total	3 102	607	413	168	-	-	49	730	681	444	171	25 318
16 to 21 years, in school	48	48	-	-	-	-	-	-	-	-	-	823
16 to 21 years, not in school	48	48	-	-	-	-	-	-	-	-	-	1 259
22 to 34 years	1 031	454	357	56	-	-	49	164	-	-	-	3 184
35 to 44 years	613	56	-	113	-	-	-	170	226	105	-	3 112
45 years and over	1 361	-	56	-	-	-	-	396	455	339	171	16 942
Female, total	954	526	-	-	-	-	218	268	-	-	-	25 510
16 to 21 years, in school	193	145	-	-	-	-	48	-	-	-	-	436
16 to 21 years, not in school	48	48	-	-	-	-	-	-	-	-	-	1 163
22 to 34 years	388	276	-	-	-	-	169	-	-	-	-	4 119
35 to 44 years	-	-	-	-	-	-	-	-	-	-	-	3 038
45 years and over	324	56	-	-	-	-	-	268	-	-	-	16 754
12 YEARS OR MORE OF SCHOOL COMPLETED												
Male, total	3 343	835	584	-	-	55	105	906	909	167	114	12 198
16 to 21 years, in school	145	97	48	-	-	-	-	-	-	-	-	1 108
16 to 21 years, not in school	146	98	48	-	-	-	48	-	-	-	-	970
22 to 34 years	1 690	641	488	-	-	-	57	171	283	109	-	3 033
35 to 44 years	339	-	-	-	-	-	-	111	170	58	56	1 237
45 years and over	1 022	-	-	-	-	55	-	624	455	-	58	5 848
Female, total	1 575	1 796	-	-	-	-	362	666	-	-	56	13 577
16 to 21 years, in school	93	93	-	-	-	-	-	-	-	-	-	999
16 to 21 years, not in school	581	581	-	-	-	-	97	-	-	-	-	1 115
22 to 34 years	1 213	1 044	-	-	-	-	209	56	-	-	-	2 874
35 to 44 years	23	23	-	-	-	-	-	-	-	-	-	1 696
45 years and over	665	55	-	-	-	-	56	610	-	-	56	6 893

[1] Detail may add to more than total because of multiple responses. [2] Asked of males only.

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Table 32b. Extent of Job Training, by Age, Sex, and Educational Level: Negro

Age and Sex Educational Level	Extent of job training										
		Completed any job training since January 1961[1]						Completed any job training prior to 1961[1]				
	Total with completion of any job training	High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	Manpower Development and Training Act	Neighborhood Youth Corps	All other	High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	All other	Did not complete any job training
Total, 16 years and over	39 976	15 975	2 992	773	357	2 319	5 471	9 515	5 431	656	1 288	215 456
Male, total	22 237	6 344	2 992	773	198	1 063	2 108	5 501	5 431	656	601	96 163
16 to 21 years, in school	998	381	48	-	-	426	285	-	-	-	-	8 870
16 to 21 years, not in school	2 369	1 660	142	140	-	331	426	-	-	-	-	6 368
22 to 34 years	7 682	2 935	2 750	357	198	306	784	759	710	-	163	20 551
35 to 44 years	4 196	441	-	220	-	-	341	1 595	1 764	223	108	16 242
45 years and over	6 992	927	53	56	-	-	273	3 148	2 957	432	330	44 133
Female, total	17 739	9 631	-	-	159	1 256	3 363	4 014	-	-	687	119 294
18 to 21 years, in school	1 328	903	-	-	-	425	189	-	-	-	-	8 502
16 to 21 years, not in school	2 810	2 287	-	-	-	475	476	-	-	-	-	9 971
22 to 34 years	7 123	4 914	-	-	106	357	1 487	694	-	-	163	27 082
35 to 44 years	2 718	639	-	-	53	-	799	1 121	-	-	159	20 635
45 years and over	3 761	889	-	-	-	-	412	2 198	-	-	366	53 103
LESS THAN 12 YEARS OF SCHOOL COMPLETED												
Male, total	8 791	1 950	111	114	100	636	990	2 226	2 922	273	277	67 491
16 to 21 years, in school	616	142	-	-	-	331	191	-	-	-	-	6 547
16 to 21 years, not in school	996	663	-	-	-	143	331	-	-	-	-	4 080
22 to 34 years	1 193	493	111	57	100	162	249	104	57	-	-	8 829
35 to 44 years	1 824	163	-	56	-	-	109	605	774	115	55	10 755
45 years and over	4 163	489	-	-	-	-	110	1 517	2 091	157	222	37 280
Female, total	4 067	1 566	-	-	53	574	862	893	-	-	214	75 025
16 to 21 years, in school	425	47	-	-	-	236	142	-	-	-	-	5 934
18 to 21 years, not in school	618	332	-	-	-	238	94	-	-	-	-	5 220
22 to 34 years	973	605	-	-	-	100	155	53	-	-	108	11 934
35 to 44 years	640	266	-	-	53	-	161	106	-	-	53	12 225
45 years and over	1 412	316	-	-	-	-	309	733	-	-	53	39 712
12 YEARS OR MORE OF SCHOOL COMPLETED												
Male, total	13 445	4 394	2 881	659	98	426	1 118	3 275	2 508	383	324	28 671
16 to 21 years, in school	382	240	48	-	-	95	94	-	-	-	-	2 323
16 to 21 years, not in school	1 373	997	142	140	-	188	94	-	-	-	-	2 287
22 to 34 years	6 490	2 442	2 638	300	98	143	535	655	653	-	163	11 722
35 to 44 years	2 371	278	-	163	-	-	232	990	990	108	53	5 487
45 years and over	2 829	437	53	56	-	-	163	1 631	866	275	108	6 853
Female, total	13 672	8 065	-	-	106	682	2 501	3 121	-	-	473	44 268
16 to 21 years, in school	903	855	-	-	-	189	47	-	-	-	-	2 568
16 to 21 years, not in school	2 193	1 954	-	-	-	237	381	-	-	-	-	4 752
22 to 34 years	6 150	4 309	-	-	106	256	1 332	641	-	-	55	15 147
35 to 44 years	2 078	373	-	-	-	-	637	1 014	-	-	106	8 410
45 years and over	2 349	573	-	-	-	-	103	1 465	-	-	312	13 392

[1] Detail may add to more than total because of multiple responses. [2] Asked of males only.

ED 017520

Table 33. Extent of Job Training, by Major Occupation Group of Current Job: All Races

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group of Current Job Sex Educational Level	Extent of job training											
		Completed any job training since January 1961[1]						Completed job training prior to 1961[1]				
	Total currently employed with completion of any job training	High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	Manpower Development and Training Act	Neighborhood Youth Corps	All other	High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	All other	Did not complete any job training
Total employed	35 949	12 648	2 995	789	304	830	4 113	9 699	5 876	937	1 516	117 737
Professional and technical	4 002	1 856	271	-	-	102	478	1 172	116	-	263	6 631
Managerial and administrative	1 590	259	228	110	-	-	166	540	389	-	110	3 345
Sales	903	302	49	56	-	-	219	161	215	52	57	2 959
Clerical	7 037	3 789	318	56	106	143	1 239	1 531	555	55	166	15 197
Craftsmen and foremen	5 518	1 195	310	195	-	94	256	1 954	1 378	562	109	12 000
Operatives, except transportation	7 101	2 056	998	152	145	246	612	1 691	1 427	157	324	35 033
Transport equipment operatives	2 150	613	293	162	-	-	53	324	804	53	112	6 301
Laborers, except farm	2 043	500	358	57	-	47	310	386	652	-	-	10 101
Service workers, except private household	5 186	1 970	171	-	53	196	732	1 727	340	57	320	21 531
Private household workers	362	51	-	-	-	-	47	211	-	-	53	4 538
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	56	56	-	-	-	-	-	-	-	-	-	102
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	22 596	5 690	2 995	789	198	484	1 360	6 128	5 876	937	772	72 617
Professional and technical	1 476	751	271	-	-	-	49	332	116	-	53	3 131
Managerial and administrative	1 163	155	228	110	-	-	113	270	389	-	58	1 706
Sales	482	100	49	56	-	-	53	108	215	52	57	696
Clerical	2 313	615	318	56	53	96	168	556	555	55	110	4 413
Craftsmen and foremen	5 056	942	310	195	-	47	155	1 845	1 378	562	109	11 311
Operatives, except transportation	6 254	1 685	998	152	145	246	458	1 530	1 427	157	163	27 914
Transport equipment operatives	2 150	613	293	162	-	-	53	324	804	53	112	6 042
Laborers, except farm	1 996	452	358	57	-	47	310	386	652	-	-	9 199
Service workers, except private household	1 649	318	171	-	-	47	-	775	340	57	111	7 990
Private household workers	-	-	-	-	-	-	-	-	-	-	-	113
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	56	56	-	-	-	-	-	-	-	-	-	102
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	13 353	6 958	-	-	106	346	2 753	3 571	-	-	743	45 120
Professional and technical	2 526	1 105	-	-	-	102	429	840	-	-	210	3 500
Managerial and administrative	426	104	-	-	-	-	53	270	-	-	53	1 639
Sales	421	202	-	-	-	-	166	53	-	-	-	2 263
Clerical	4 724	3 174	-	-	53	47	1 070	975	-	-	56	10 783
Craftsmen and foremen	462	253	-	-	-	47	101	109	-	-	-	689
Operatives, except transportation	847	371	-	-	-	-	154	161	-	-	161	7 119
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	259
Laborers, except farm	47	47	-	-	-	-	-	-	-	-	-	902
Service workers, except private household	3 536	1 652	-	-	53	149	732	952	-	-	209	13 541
Private household workers	362	51	-	-	-	-	47	211	-	-	53	4 424
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
LESS THEN 12 YEARS OF SCHOOL COMPLETEO												
Total employed	11 469	2 728	476	282	153	349	1 163	3 203	2 791	492	606	68 611
Professional and technical	381	114	-	-	-	-	56	212	-	-	-	854
Managerial and administrative	168	53	-	57	-	-	-	-	-	-	58	1 329
Sales	157	100	-	56	-	-	-	-	-	-	-	1 137
Clerical	914	318	48	56	53	-	53	221	51	55	59	4 434
Craftsmen and foremen	2 281	475	115	56	-	47	49	703	775	227	-	7 507
Operatives, except transportation	3 189	632	115	57	47	153	285	934	832	157	218	23 274
Transport equipment operatives	1 004	260	150	-	-	-	-	163	428	53	55	4 544
Laborers, except farm	1 113	150	48	-	-	-	253	219	594	-	-	7 248
Service workers, except private household	2 058	627	-	-	53	149	420	647	112	-	163	14 589
Private household workers	205	-	-	-	-	-	47	104	-	-	53	3 645
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	49
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	8 712	1 693	476	282	100	200	540	2 465	2 791	492	392	46 132
Professional and technical	113	56	-	-	-	-	-	56	-	-	-	483
Managerial and administrative	168	53	-	57	-	-	-	-	-	-	58	646
Sales	56	-	-	56	-	-	-	-	-	-	-	164
Clerical	549	116	48	56	53	-	-	111	51	55	59	2 039
Craftsmen and foremen	2 128	369	115	56	-	-	49	703	775	227	-	7 138
Operatives, except transportation	2 873	579	115	57	47	153	238	825	832	157	110	18 599
Transport equipment operatives	1 004	260	150	-	-	-	-	163	428	53	55	4 285
Laborers, except farm	1 113	150	48	-	-	-	253	219	594	-	-	6 770
Service workers, except private household	709	109	-	-	-	47	-	386	112	-	111	5 845
Private household workers	-	-	-	-	-	-	-	-	-	-	-	113
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	49
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	2 756	1 036	-	-	53	149	623	739	-	-	214	22 479
Professional and technical	269	57	-	-	-	-	56	155	-	-	-	371
Managerial and administrative	-	-	-	-	-	-	-	-	-	-	-	683
Sales	[illegible]	100	-	-	-	-	-	-	-	-	-	973
Clerical	365	202	-	-	-	-	53	110	-	-	-	2 395
Craftsmen and foremen	153	106	-	-	-	47	-	-	-	-	-	369
Operatives, except transportation	316	53	-	-	-	-	47	108	-	-	108	4 675
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	259
Laborers, except farm	-	-	-	-	-	-	-	-	-	-	-	477
Service workers, except private household	1 349	518	-	-	53	102	420	261	-	-	53	8 744
Private household workers	205	-	-	-	-	-	47	104	-	-	53	3 532
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1] Detail may add to more than total because of multiple responses. [2] Asked of males only.

Table 33. Extent of Job Training, by Major Occupation Group of Current Job: All Races—Continued

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group of Current Job Sex Educational Level	Extent of job training											
	Total currently employed with completion of any job training	Completed any job training since January 1961[1]						Completed job training prior to 1961[1]				Did not complete any job training
		High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	Manpower Development and Training Act	Neighborhood Youth Corps	All other	High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	All other	
12 YEARS OR MORE OF SCHOOL COMPLETED												
Total employed	24 480	9 920	2 519	507	151	481	2 949	6 495	3 085	445	910	49 127
Professional and technical	3 621	1 743	271	-	-	102	422	961	116	-	263	5 777
Managerial and administrative	1 422	206	228	53	-	-	166	540	389	-	53	2 016
Sales	747	202	49	-	-	-	219	161	215	52	57	1 821
Clerical	6 123	3 471	269	-	53	143	1 186	1 311	504	-	108	10 763
Craftsmen and foremen	3 237	720	195	140	-	47	207	1 250	603	336	109	4 493
Operatives, except transportation	3 911	1 424	883	95	98	93	327	758	596	-	106	11 759
Transport equipment operatives	1 146	354	143	162	-	-	53	161	377	-	58	1 757
Laborers, except farm	931	349	309	57	-	47	57	167	58	-	-	2 853
Service workers, except private household	3 128	1 343	171	-	-	47	312	1 080	228	57	157	6 942
Private household workers	157	51	-	-	-	-	-	106	-	-	-	892
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	56	56	-	-	-	-	-	-	-	-	-	53
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	13 884	3 997	2 519	507	98	284	820	3 663	3 085	445	381	26 486
Professional and technical	1 363	695	271	-	-	-	49	276	116	-	53	2 648
Managerial and administrative	996	102	228	53	-	-	113	270	389	-	-	1 060
Sales	425	100	49	-	-	-	53	108	215	52	57	531
Clerical	1 764	499	269	-	-	96	168	446	504	-	51	2 374
Craftsmen and foremen	2 929	573	195	140	-	47	106	1 142	603	336	109	4 174
Operatives, except transportation	3 381	1 106	883	95	98	93	220	705	596	-	53	9 315
Transport equipment operatives	1 146	354	143	162	-	-	53	161	377	-	58	1 757
Laborers, except farm	883	302	309	57	-	47	57	167	58	-	-	2 428
Service workers, except private household	940	209	171	-	-	-	-	389	228	57	-	2 145
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	56	56	-	-	-	-	-	-	-	-	-	53
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	10 596	5 923	-	-	53	196	2 130	2 832	-	-	529	22 641
Professional and technical	2 257	1 048	-	-	-	102	373	685	-	-	210	3 129
Managerial and administrative	426	104	-	-	-	-	53	270	-	-	53	956
Sales	321	102	-	-	-	-	166	53	-	-	-	1 290
Clerical	4 360	2 972	-	-	53	47	1 018	865	-	-	56	8 389
Craftsmen and foremen	309	147	-	-	-	-	101	109	-	-	-	320
Operatives, except transportation	530	318	-	-	-	-	106	53	-	-	53	2 444
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm	47	47	-	-	-	-	-	-	-	-	-	425
Service workers, except private household	2 188	1 134	-	-	-	47	312	691	-	-	157	4 797
Private household workers	157	51	-	-	-	-	-	106	-	-	-	892
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1] Detail may add to more than total because of multiple responses. [2] Asked of males only.

137522

Table 33a. Extent of Job Training, by Major Occupation Group of Current Job: White

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group of Current Job Sex Educational Level	Total currently employed with completion of any job training	Extent of job training: Completed any job training since January 1961[1]: High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	Manpower Development and Training Act	Neighborhood Youth Corps	All other	Completed job training prior to 1961[1]: High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	All other	Did not complete any job training
Total employed	7 029	2 233	844	168	-	-	533	1 919	1 362	331	285	27 113
Professional and technical	892	497	57	-	-	-	56	225	57	-	-	2 407
Managerial and administrative	506	49	115	-	-	-	-	113	171	-	58	892
Sales	163	48	-	-	-	-	56	-	59	-	-	935
Clerical	1 482	654	97	56	-	-	266	507	56	55	56	3 594
Craftsmen and foremen	1 378	309	115	56	-	-	98	340	396	170	56	3 461
Operatives, except transportation	987	48	210	57	-	-	-	339	226	106	57	6 927
Transport equipment operatives	356	145	97	-	-	-	-	-	114	-	58	1 474
Laborers, except farm	381	48	97	-	-	-	-	116	168	-	-	2 217
Service workers, except private household	883	433	57	-	-	-	57	279	114	-	-	5 029
Private household workers	-	-	-	-	-	-	-	-	-	-	-	127
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	49
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	4 915	902	844	168	-	-	106	1 304	1 362	331	228	18 447
Professional and technical	398	170	57	-	-	-	-	114	57	-	-	1 380
Managerial and administrative	450	49	115	-	-	-	-	57	171	-	58	500
Sales	59	-	-	-	-	-	-	-	59	-	-	270
Clerical	606	114	97	56	-	-	57	227	56	55	-	1 259
Craftsmen and foremen	1 224	154	115	56	-	-	49	340	396	170	56	3 404
Operatives, except transportation	932	48	210	57	-	-	-	283	226	106	57	5 086
Transport equipment operatives	356	145	97	-	-	-	-	-	114	-	58	1 474
Laborers, except farm	381	48	97	-	-	-	-	116	168	-	-	2 105
Service workers, except private household	511	173	57	-	-	-	-	167	114	-	-	2 920
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	49
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	2 114	1 330	-	-	-	-	427	615	-	-	56	8 666
Professional and technical	494	327	-	-	-	-	56	111	-	-	-	1 027
Managerial and administrative	56	-	-	-	-	-	-	56	-	-	-	392
Sales	105	48	-	-	-	-	56	-	-	-	-	666
Clerical	877	541	-	-	-	-	209	280	-	-	56	2 334
Craftsmen and foremen	154	154	-	-	-	-	48	-	-	-	-	57
Operatives, except transportation	55	-	-	-	-	-	-	55	-	-	-	1 841
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm	-	-	-	-	-	-	-	-	-	-	-	112
Service workers, except private household	372	260	-	-	-	-	57	112	-	-	-	2 109
Private household workers	-	-	-	-	-	-	-	-	-	-	-	127
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
LESS THEN 12 YEARS OF SCHOOL COMPLETED												
Total employed	2 681	626	365	168	-	-	163	624	509	273	115	15 793
Professional and technical	113	57	-	-	-	-	56	-	-	-	-	112
Managerial and administrative	58	-	-	-	-	-	-	-	-	-	58	280
Sales	-	-	-	-	-	-	-	-	-	-	-	554
Clerical	217	-	48	56	-	-	-	58	-	55	-	1 341
Craftsmen and foremen	885	212	115	56	-	-	49	169	229	112	-	2 076
Operatives, except transportation	665	48	56	57	-	-	-	226	114	106	57	4 863
Transport equipment operatives	193	97	97	-	-	-	-	-	-	-	-	1 150
Laborers, except farm	275	48	48	-	-	-	-	116	111	-	-	1 682
Service workers, except private household	275	164	-	-	-	-	57	55	56	-	-	3 558
Private household workers	-	-	-	-	-	-	-	-	-	-	-	127
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	49
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	2 301	358	365	168	-	-	49	568	509	273	115	11 522
Professional and technical	-	-	-	-	-	-	-	-	-	-	-	56
Managerial and administrative	58	-	-	-	-	-	-	-	-	-	58	169
Sales	-	-	-	-	-	-	-	-	-	-	-	56
Clerical	217	-	48	56	-	-	-	58	-	55	-	763
Craftsmen and foremen	779	106	115	56	-	-	49	169	229	112	-	2 076
Operatives, except transportation	609	48	56	57	-	-	-	171	114	106	57	3 475
Transport equipment operatives	193	97	97	-	-	-	-	-	-	-	-	1 150
Laborers, except farm	275	48	48	-	-	-	-	116	111	-	-	1 627
Service workers, except private household	169	58	-	-	-	-	-	55	56	-	-	2 103
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	49
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	380	269	-	-	-	-	113	55	-	-	-	4 271
Professional and technical	113	57	-	-	-	-	56	-	-	-	-	56
Managerial and administrative	-	-	-	-	-	-	-	-	-	-	-	112
Sales	-	-	-	-	-	-	-	-	-	-	-	498
Clerical	-	-	-	-	-	-	-	-	-	-	-	578
Craftsmen and foremen	106	106	-	-	-	-	-	-	-	-	-	-
Operatives, except transportation	55	-	-	-	-	-	-	55	-	-	-	1 389
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm	-	-	-	-	-	-	-	-	-	-	-	55
Service workers, except private household	106	106	-	-	-	-	57	-	-	-	-	1 456
Private household workers	-	-	-	-	-	-	-	-	-	-	-	127
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1] Detail may add to more than total because of multiple responses. [2] Asked of males only.

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Table 33a. Extent of Job Training, by Major Occupation Group of Current Job: White–Continued

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group of Current Job Sex Educational Level	Total currently employed with completion of any job training	Extent of job training: Completed any job training since January 1961[1]: High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	Manpower Development and Training Act	Neighborhood Youth Corps	All other	Completed job training prior to 1961[1]: High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	All other	Did not complete any job training
12 YEARS OR MORE OF SCHOOL COMPLETED												
Total employed	4 348	1 606	479	-	-	-	371	1 295	852	58	170	11 320
Professional and technical	779	440	57	-	-	-	-	225	57	-	-	2 295
Managerial and administrative	449	49	115	-	-	-	-	113	171	-	-	612
Sales	163	48	-	-	-	-	56	-	59	-	-	382
Clerical	1 265	654	48	-	-	-	266	449	56	-	56	2 253
Craftsmen and foremen	494	97	-	-	-	-	48	171	168	58	56	1 386
Operatives, except transportation	322	-	154	-	-	-	-	113	113	-	-	2 064
Transport equipment operatives	163	48	-	-	-	-	-	-	114	-	58	324
Laborers, except farm	106	-	48	-	-	-	-	-	58	-	-	534
Service workers, except private household	608	270	57	-	-	-	-	224	58	-	-	1 471
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	2 614	545	479	-	-	-	57	736	852	58	114	6 925
Professional and technical	398	170	57	-	-	-	-	114	57	-	-	1 324
Managerial and administrative	392	49	115	-	-	-	-	57	171	-	-	331
Sales	59	-	-	-	-	-	-	-	59	-	-	214
Clerical	388	114	48	-	-	-	57	169	56	-	-	496
Craftsmen and foremen	445	48	-	-	-	-	-	171	168	58	56	1 328
Operatives, except transportation	322	-	154	-	-	-	-	113	113	-	-	1 612
Transport equipment operatives	163	48	-	-	-	-	-	-	114	-	58	324
Laborers, except farm	106	-	48	-	-	-	-	-	58	-	-	478
Service workers, except private household	341	115	57	-	-	-	-	112	58	-	-	817
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	1 734	1 062	-	-	-	-	314	560	-	-	56	4 395
Professional and technical	381	270	-	-	-	-	-	111	-	-	-	971
Managerial and administrative	56	-	-	-	-	-	-	56	-	-	-	280
Sales	105	48	-	-	-	-	56	-	-	-	-	168
Clerical	877	541	-	-	-	-	209	280	-	-	56	1 756
Craftsmen and foremen	48	48	-	-	-	-	48	-	-	-	-	57
Operatives, except transportation	-	-	-	-	-	-	-	-	-	-	-	452
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm	-	-	-	-	-	-	-	-	-	-	-	56
Service workers, except private household	267	155	-	-	-	-	-	112	-	-	-	654
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1] Detail may add to more than total because of multiple responses. [2] Asked of males only.

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Table 33b. Extent of Job Training, by Major Occupation Group of Current Job: Negro

(Limited to persons 16 to 64 years, not in school)

Major Occupation Group of Current Job Sex Educational Level	Extent of job training											
		Completed any job training since January 1961[1]						Completed job training prior to 1961[1]				
	Total currently employed with completion of any job training	High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	Manpower Development and Training Act	Neighborhood Youth Corps	All other	High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	All other	Did not complete any job training
Total employed	27 857	9 859	2 151	621	304	830	3 466	7 501	4 456	494	1 231	88 496
Professional and technical	2 828	1 077	214	-	-	102	366	947	59	-	263	3 674
Managerial and administrative	1 027	210	114	110	-	-	166	370	218	-	53	2 453
Sales	683	254	49	56	-	-	106	161	157	52	57	1 965
Clerical	5 335	3 029	221	-	106	143	973	968	442	-	110	11 441
Craftsmen and foremen	3 915	830	195	140	-	94	159	1 558	982	280	53	8 491
Operatives, except transportation	5 949	1 896	788	95	145	246	612	1 300	1 201	51	267	27 448
Transport equipment operatives	1 794	468	196	162	-	-	53	324	690	53	55	4 827
Laborers, except farm	1 663	451	261	57	-	47	310	271	483	-	-	7 724
Service workers, except private household	4 245	1 537	114	-	53	196	675	1 391	226	57	320	16 067
Private household workers	362	51	-	-	-	-	47	211	-	-	53	4 354
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	56	56	-	-	-	-	-	-	-	-	-	53
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	17 004	4 447	2 151	621	198	484	1 253	4 657	4 456	494	544	52 915
Professional and technical	908	411	214	-	-	-	49	219	59	-	53	1 540
Managerial and administrative	657	106	114	110	-	-	113	157	218	-	-	1 206
Sales	423	100	49	56	-	-	53	108	157	52	57	426
Clerical	1 592	444	221	-	53	96	111	329	442	-	110	3 098
Craftsmen and foremen	3 663	731	195	140	-	47	106	1 505	982	280	53	7 859
Operatives, except transportation	5 213	1 581	788	95	145	246	458	1 194	1 201	51	106	22 266
Transport equipment operatives	1 794	468	196	162	-	-	53	324	690	53	55	4 568
Laborers, except farm	1 615	404	261	57	-	47	310	271	483	-	-	6 933
Service workers, except private household	1 081	146	114	-	-	47	-	550	226	57	111	4 853
Private household workers	-	-	-	-	-	-	-	-	-	-	-	113
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	56	56	-	-	-	-	-	-	-	-	-	53
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	10 853	5 411	-	-	106	346	2 212	2 844	-	-	687	35 582
Professional and technical	1 919	666	-	-	-	102	317	729	-	-	210	2 134
Managerial and administrative	370	104	-	-	-	-	53	213	-	-	53	1 247
Sales	260	154	-	-	-	-	53	53	-	-	-	1 539
Clerical	3 743	2 585	-	-	53	47	861	639	-	-	-	8 343
Craftsmen and foremen	252	98	-	-	-	47	53	54	-	-	-	632
Operatives, except transportation	735	315	-	-	-	-	154	106	-	-	161	5 182
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	259
Laborers, except farm	47	47	-	-	-	-	-	-	-	-	-	791
Service workers, except private household	3 164	1 391	-	-	53	149	675	840	-	-	209	11 214
Private household workers	362	51	-	-	-	-	47	211	-	-	53	4 241
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
LESS THEN 12 YEARS OF SCHOOL COMPLETED												
Total employed	8 621	2 045	111	114	153	349	1 001	2 470	2 282	219	491	51 785
Professional and technical	268	56	-	-	-	-	-	212	-	-	-	742
Managerial and administrative	110	53	-	57	-	-	-	-	-	-	-	1 049
Sales	157	100	-	56	-	-	-	-	-	-	-	583
Clerical	582	261	-	-	53	-	53	106	51	-	59	3 093
Craftsmen and foremen	1 396	263	-	-	-	47	-	535	546	115	-	5 383
Operatives, except transportation	2 472	584	59	-	47	153	285	654	718	51	161	17 972
Transport equipment operatives	811	163	53	-	-	-	-	163	428	53	55	3 394
Laborers, except farm	838	102	-	-	-	-	253	104	483	-	-	5 454
Service workers, except private household	1 783	463	-	-	53	149	363	592	56	-	163	10 653
Private household workers	205	-	-	-	-	-	47	104	-	-	53	3 462
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	6 301	1 278	111	114	100	200	491	1 843	2 282	219	277	33 898
Professional and technical	113	56	-	-	-	-	-	56	-	-	-	427
Managerial and administrative	110	53	-	57	-	-	-	-	-	-	-	477
Sales	56	-	-	56	-	-	-	-	-	-	-	108
Clerical	274	59	-	-	53	-	-	53	51	-	59	1 276
Craftsmen and foremen	1 349	263	-	-	-	-	-	535	546	115	-	5 014
Operatives, except transportation	2 211	531	59	-	47	153	238	601	718	51	53	14 734
Transport equipment operatives	811	163	53	-	-	-	-	163	428	53	55	3 135
Laborers, except farm	838	102	-	-	-	-	253	104	483	-	-	5 032
Service workers, except private household	540	51	-	-	-	47	-	331	56	-	111	3 581
Private household workers	-	-	-	-	-	-	-	-	-	-	-	113
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Female, total	2 320	767	-	-	53	149	510	627	-	-	214	17 886
Professional and technical	155	-	-	-	-	-	-	155	-	-	-	315
Managerial and administrative	-	-	-	-	-	-	-	-	-	-	-	571
Sales	100	100	-	-	-	-	-	-	-	-	-	475
Clerical	308	202	-	-	-	-	53	54	-	-	-	1 817
Craftsmen and foremen	47	-	-	-	-	47	-	-	-	-	-	369
Operatives, except transportation	261	53	-	-	-	-	47	53	-	-	108	3 238
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	259
Laborers, except farm	-	-	-	-	-	-	-	-	-	-	-	422
Service workers, except private household	1 243	412	-	-	53	102	363	261	-	-	53	7 071
Private household workers	205	-	-	-	-	-	47	104	-	-	53	3 348
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1] Detail may add to more than total because of multiple responses. [2] Asked of males only.

Table 33b. Extent of Job Training, by Major Occupation Group of Current Job: Negro–Continued

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group of Current Job Sex Educational Level	Total currently employed with completion of any job training	Extent of job training: Completed any job training since January 1961[1]					Completed job training prior to 1961[1]				Did not complete any job training
		High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	Manpower Development and Training Act	Neighborhood Youth Corps	All other	High school, trade school, or junior college	Armed Forces[2]	Apprenticeship[2]	All other	
12 YEARS OR MORE OF SCHOOL COMPLETED												
Total employed	19 236	7 814	2 040	507	151	481	2 465	5 031	2 175	274	740	36 712
Professional and technical	2 560	1 021	214	-	-	102	366	736	59	-	263	2 932
Managerial and administrative	917	157	114	53	-	-	166	370	218	-	53	1 404
Sales	526	154	49	-	-	-	106	161	157	52	57	1 382
Clerical	4 753	2 768	221	-	53	143	920	861	391	-	51	8 348
Craftsmen and foremen	2 519	567	195	140	-	47	159	1 024	435	165	53	3 108
Operatives, except transportation	3 477	1 312	729	95	98	93	327	645	483	-	106	9 476
Transport equipment operatives	984	305	143	162	-	-	53	161	262	-	-	1 433
Laborers, except farm	825	349	261	57	-	47	57	167	-	-	-	2 269
Service workers, except private household	2 462	1 074	114	-	-	47	312	799	171	57	157	5 414
Private household workers	157	51	-	-	-	-	-	106	-	-	-	892
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	56	56	-	-	-	-	-	-	-	-	-	53
Not available	-	-	-	-	-	-	-	-	-	-	-	-
Male, total	10 703	3 170	2 040	507	98	284	763	2 814	2 175	274	267	19 016
Professional and technical	796	355	214	-	-	-	49	162	59	-	53	1 113
Managerial and administrative	547	53	114	53	-	-	113	157	218	-	-	728
Sales	367	100	49	-	-	-	53	108	157	52	57	318
Clerical	1 318	385	221	-	-	96	111	276	391	-	51	1 822
Craftsmen and foremen	2 314	469	195	140	-	47	106	970	435	165	53	2 845
Operatives, except transportation	3 003	1 050	729	95	98	93	220	592	483	-	53	7 532
Transport equipment operatives	984	305	143	162	-	-	53	161	262	-	-	1 433
Laborers, except farm	778	302	261	57	-	47	57	167	-	-	-	1 901
Service workers, except private household	541	94	114	-	-	-	-	219	171	57	-	1 271
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	56	56	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	53
Female, total	8 533	4 644	-	-	53	196	1 702	2 217	-	-	473	17 695
Professional and technical	1 764	666	-	-	-	102	317	573	-	-	210	1 818
Managerial and administrative	370	104	-	-	-	-	53	213	-	-	53	676
Sales	160	54	-	-	-	-	53	53	-	-	-	1 064
Clerical	3 435	2 383	-	-	53	47	808	585	-	-	-	6 527
Craftsmen and foremen	205	98	-	-	-	-	53	54	-	-	-	262
Operatives, except transportation	474	262	-	-	-	-	106	53	-	-	53	1 944
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm	47	47	-	-	-	-	-	-	-	-	-	369
Service workers, except private household	1 921	979	-	-	-	47	312	579	-	-	157	4 143
Private household workers	157	51	-	-	-	-	-	106	-	-	-	892
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-
Not available	-	-	-	-	-	-	-	-	-	-	-	-

[1] Detail may add to more than total because of multiple responses. [2] Asked of males only.

7526

Table 34. Extent of Job Training of Males, by Median Hourly Earnings: All Races

(Limited to males 16 to 64 years, not in school)

Median Hourly Earnings Age Educational Level	Total civilian males	Extent of job training: Completed any job training since January 1961[1]: High school, trade school, or junior college	Armed Forces	Apprenticeship	Manpower Development and Training Act	Neighborhood Youth Corps	All other	Completed job training prior to January 1961[1]	Did not complete any job training
MEDIAN HOURLY EARNINGS FOR WAGE AND SALARY WORKERS ON FULL-TIME SCHEDULES									
Total ..... dollars. .	3.49	3.36	3.80	2.75	3.49	3.70	3.61	3.45	3.38
16 to 21 years ..... dollars. .	3.11	2.74	3.50	2.25	.00	3.53	3.50	.00	3.12
22 to 64 years ..... dollars. .	3.52	3.45	3.83	3.17	3.49	3.79	3.62	3.45	3.40
22 to 34 years ..... dollars. .	3.60	3.47	3.83	4.20	3.49	3.79	3.84	3.37	3.41
35 to 64 years ..... dollars. .	3.45	3.40	2.48	2.47	.00	.00	3.20	3.46	3.39
Less Than 12 Years of School Completed									
Total ..... dollars. .	3.35	3.25	3.59	3.49	3.49	4.49	3.96	3.28	3.32
16 to 21 years ..... dollars. .	3.25	2.37	.00	.00	.00	4.50	3.50	.00	3.09
22 to 64 years ..... dollars. .	3.36	3.34	3.59	3.49	3.49	4.49	4.40	3.28	3.33
22 to 34 years ..... dollars. .	3.59	3.57	3.70	3.49	3.49	4.49	5.00	3.02	3.22
35 to 64 years ..... dollars. .	3.25	2.34	2.25	3.50	.00	.00	3.49	3.30	3.37
12 Years or More of School Completed									
Total ..... dollars. .	3.58	3.40	3.88	2.40	3.50	3.33	3.36	3.62	3.49
16 to 21 years ..... dollars. .	3.07	2.83	3.50	2.25	.00	3.01	.00	.00	3.13
22 to 64 years ..... dollars. .	3.63	3.49	3.93	2.66	3.50	3.50	3.36	3.62	3.53
22 to 34 years ..... dollars. .	3.60	3.44	3.89	4.50	3.50	3.50	3.52	3.49	3.59
35 to 64 years ..... dollars. .	3.66	3.76	7.50+	2.23	.00	.00	2.95	3.65	3.47

[1] Detail may add to more than total because of multiple responses.

Table 34a. Extent of Job Training of Males, by Median Hourly Earnings: White

[Limited to males 16 to 64 years, not in school]

Median Hourly Earnings Age Educational Level	Total civilian males	Extent of job training							
		Completed any job training since January 1961[1]						Completed job training prior to January 1961[1]	Did not complete any job training
		High school, trade school, or junior college	Armed Forces	Apprenticeship	Manpower Development and Training Act	Neighborhood Youth Corps	All other		
MEDIAN HOURLY EARNINGS FOR WAGE AND SALARY WORKERS ON FULL-TIME SCHEDULES									
Total ..... dollars..	3.48	3.32	4.10	3.49	.00	.00	3.50	3.36	3.39
16 to 21 years ..... dollars..	2.99	2.74	4.50	.00	.00	.00	.00	.00	3.31
22 to 64 years ..... dollars..	3.48	3.38	4.03	3.49	.00	.00	3.50	3.36	3.40
22 to 34 years ..... dollars..	3.65	3.38	4.13	3.49	.00	.00	3.50	3.66	3.19
35 to 64 years ..... dollars..	3.27	.00	2.25	3.50	.00	.00	.00	3.29	3.45
Less Than 12 Years of School Completed									
Total ..... dollars..	3.35	3.37	3.66	3.49	.00	.00	.00	3.24	3.32
16 to 21 years ..... dollars..	.00	.00	.00	.00	.00	.00	.00	.00	3.37
22 to 64 years ..... dollars..	3.35	3.37	3.66	3.49	.00	.00	.00	3.24	3.32
22 to 34 years ..... dollars..	3.55	3.37	3.84	3.49	.00	.00	.00	3.50	2.89
35 to 64 years ..... dollars..	3.16	.00	2.25	3.50	.00	.00	.00	3.18	3.43
12 Years or More of School Completed									
Total ..... dollars..	3.68	3.28	4.40	.00	.00	.00	3.50	3.61	3.57
16 to 21 years ..... dollars..	2.99	2.74	4.50	.00	.00	.00	.00	.00	3.25
22 to 64 years ..... dollars..	3.68	3.39	4.37	.00	.00	.00	3.50	3.61	3.64
22 to 34 years ..... dollars..	3.76	3.39	4.37	.00	.00	.00	3.50	3.99	4.02
35 to 64 years ..... dollars..	3.51	.00	.00	.00	.00	.00	.00	3.51	3.50

[1] Detail may add to more than total because of multiple responses.

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Table 34b. Extent of Job Training of Males, by Median Hourly Earnings: Negro

(Limited to males 16 to 64 years, not in school)

Median Hourly Earnings Age Educational Level	Total civilian males	Extent of job training: Completed any job training since January 1961[1]: High school, trade school, or junior college	Armed Forces	Apprenticeship	Manpower Development and Training Act	Neighborhood Youth Corps	All other	Completed job training prior to January 1961[1]	Did not complete any job training
MEDIAN HOURLY EARNINGS FOR WAGE AND SALARY WORKERS ON FULL-TIME SCHEDULES									
Total ..... dollars..	3.49	3.34	3.70	2.40	3.49	3.70	3.63	3.49	3.38
16 to 21 years ..... dollars..	3.11	2.75	3.25	2.25	.00	3.53	3.50	.00	2.99
22 to 64 years ..... dollars..	3.53	3.45	3.76	2.66	3.49	3.79	3.65	3.49	3.40
22 to 34 years ..... dollars..	3.56	3.47	3.72	4.50	3.49	3.79	3.97	3.18	3.44
35 to 64 years ..... dollars..	3.51	3.38	7.50+	2.23	.00	.00	3.20	3.53	3.38
Less Than 12 Years of School Completed									
Total ..... dollars..	3.37	3.15	3.49	.00	3.49	4.49	3.96	3.32	3.32
16 to 21 years ..... dollars..	3.25	2.37	.00	.00	.00	4.50	3.50	.00	2.86
22 to 64 years ..... dollars..	3.38	3.30	3.49	.00	3.49	4.49	4.40	3.32	3.34
22 to 34 years ..... dollars..	3.64	4.00	3.49	.00	3.49	4.49	5.00	2.52	3.28
35 to 64 years ..... dollars..	3.31	2.34	.00	.00	.00	.00	3.49	3.37	3.35
12 Years or More of School Completed									
Total ..... dollars..	3.56	3.38	3.73	2.40	3.50	3.33	3.32	3.63	3.49
16 to 21 years ..... dollars..	3.07	2.87	3.25	2.25	.00	3.01	.00	.00	3.09
22 to 64 years ..... dollars..	3.62	3.48	3.81	2.66	3.50	3.50	3.32	3.63	3.53
22 to 34 years ..... dollars..	3.54	3.41	3.77	4.50	3.50	3.50	3.53	3.38	3.57
35 to 64 years ..... dollars..	3.72	3.85	7.50+	2.23	.00	.00	2.95	3.70	3.48

[1] Detail may add to more than total because of multiple responses.

Table 35. Tenure of Current Job of Wage and Salary Workers on Full-Time Schedules, by Age and Sex, Family Status, and Educational Attainment: All Races

Age and Sex Family Status Educational Attainment	Total wage and salary workers on full-time schedules	Tenure of current job										Median years on current job
		6 months or less	7 to 11 months	1 year	2 years	3 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 30 years	More than 30 years	Not available[1]	
AGE AND SEX													
Total, 16 years and over	142 610	15 410	7 541	11 709	15 703	19 440	23 011	9 782	10 667	20 148	2 053	7 146	4.8
Male, total	92 342	9 039	4 525	6 601	9 536	10 081	15 322	5 686	7 837	16 869	1 998	4 846	6.3
18 to 21 years, total	7 922	2 431	1 339	1 383	1 431	526	144	-	-	-	-	668	1.0
18 to 21 years, not in school	5 110	1 101	766	1 098	1 192	429	47	-	-	-	-	478	1.4
22 to 34 years, total	26 916	3 919	1 905	3 200	4 461	5 241	5 592	379	336	53	-	1 831	2.8
22 to 34 years, veteran of Vietnam	6 236	841	460	717	1 222	1 398	1 287	-	-	-	-	310	2.8
25 to 34 years	19 443	2 712	1 081	2 282	2 967	3 654	4 676	379	336	53	-	1 302	3.0
35 to 44 years	19 071	1 302	443	815	1 562	1 913	4 281	1 968	3 142	2 766	-	879	8.6
45 to 54 years	20 992	1 062	617	655	1 371	1 218	3 486	1 639	2 713	7 621	56	555	15.3
55 to 64 years	14 704	325	220	443	508	916	1 439	1 480	1 352	5 878	1 700	442	20.8
65 years and over	2 736	-	-	106	204	267	380	220	294	551	241	472	14.0
40 to 64 years	46 977	2 041	1 056	1 475	2 884	3 120	7 022	4 437	5 612	16 038	1 757	1 535	15.6
Female, total	50 269	6 371	3 016	5 107	6 167	9 359	7 689	4 096	2 830	3 279	55	2 300	3.7
18 to 21 years, total	6 009	2 005	573	861	1 052	525	236	47	-	-	-	709	1.1
16 to 21 years, not in school	4 345	1 243	428	623	864	336	189	47	-	-	-	615	1.3
22 to 34 years	16 435	2 397	1 595	2 281	2 655	3 728	2 242	586	56	-	-	895	2.6
25 to 34 years	11 262	1 105	970	1 513	1 941	2 478	1 956	538	56	-	-	705	2.9
35 to 44 years	10 340	922	380	921	1 130	2 566	1 772	920	1 136	218	-	375	4.3
45 to 54 years	11 189	786	364	785	795	1 546	2 482	1 484	730	1 950	-	266	7.4
55 to 64 years	5 249	156	104	211	481	731	853	900	754	1 005	55	-	10.5
65 years and over	1 047	105	-	49	53	263	104	158	154	106	-	55	6.3
40 to 64 years	22 638	1 319	631	1 594	1 977	3 884	4 576	3 089	2 186	3 008	55	319	6.9
FAMILY STATUS[2]													
Male, total	85 283	7 323	3 555	6 066	8 894	9 575	14 651	5 466	7 543	16 318	1 757	4 136	6.8
Family head	52 658	3 563	1 512	2 591	5 142	5 543	9 061	4 046	5 545	11 848	1 467	2 339	8.8
Family member	12 043	1 757	1 424	1 596	1 633	1 602	1 910	280	400	577	-	865	2.5
Unrelated individual	20 582	2 003	619	1 879	2 119	2 430	3 680	1 141	1 598	3 893	290	932	6.1
Female, total	46 628	5 171	2 718	4 820	5 831	8 763	7 482	3 884	2 676	3 173	55	2 055	3.9
Family head	9 308	724	527	684	1 318	2 111	1 553	1 008	476	695	-	211	4.2
No children under 18 years	3 094	53	108	374	312	478	483	539	319	382	-	47	7.1
Children 8 to 17 years only	2 285	300	153	98	471	783	267	106	-	51	-	55	3.2
Children under 6 years	3 928	371	266	212	535	850	802	363	157	262	-	109	4.2
Wife of head	18 442	1 921	977	1 928	2 326	2 992	3 199	1 555	1 229	1 259	-	1 056	4.0
No children under 18 years	7 692	693	266	682	711	1 093	1 461	1 080	702	681	-	323	5.8
Children 6 to 17 years only	5 574	967	608	767	764	890	738	52	106	213	-	469	2.3
Children under 8 years	5 175	261	104	479	851	1 009	999	422	421	366	-	263	4.5
Other family member	8 785	1 379	585	1 209	1 089	1 691	1 235	372	328	263	-	634	2.8
Unrelated individual	10 094	1 146	629	1 000	1 098	1 969	1 496	948	644	956	55	154	4.1
EDUCATIONAL ATTAINMENT[2]													
Male, total	85 283	7 323	3 555	6 066	8 894	9 575	14 651	5 466	7 543	16 318	1 757	4 136	6.8
Elementary: 7 years or less	14 236	582	362	610	650	1 622	1 792	779	1 636	5 059	550	593	16.3
8 years	9 934	320	365	422	1 464	698	1 081	871	1 318	2 648	322	426	12.3
High school: 1 to 3 years	24 899	2 358	1 007	1 719	2 637	3 130	4 166	1 861	2 088	4 456	387	1 089	6.3
4 years	25 765	2 457	1 449	2 245	2 748	2 675	5 871	1 197	2 004	2 904	440	1 776	5.4
College: 1 year or more	10 448	1 605	372	1 070	1 396	1 450	1 740	758	497	1 251	58	252	3.9
Female, total	46 628	5 171	2 718	4 820	5 831	8 763	7 482	3 884	2 676	3 173	55	2 055	3.9
Elementary: 7 years or less	2 899	154	105	159	536	637	430	266	159	312	-	141	4.3
8 years	3 954	370	264	426	364	537	755	480	109	489	-	161	4.8
High school: 1 to 3 years	11 495	1 559	719	994	1 468	2 021	1 909	1 015	368	783	-	660	3.7
4 years	19 998	2 065	1 124	2 280	2 423	3 936	3 226	1 487	1 513	1 064	55	825	3.9
College: 1 year or more	8 283	1 022	507	962	1 040	1 633	1 162	636	527	525	-	269	3.6

[1] Not used in computing median. [2] Persons 18 to 64 years, not in school.

Table 35a. Tenure of Current Job of Wage and Salary Workers on Full-Time Schedules, by Age and Sex, Family Status, and Educational Attainment: White

Age and Sex Family Status Educational Attainment	Total wage and salary workers on full-time schedules	Tenure of current job											Median years on current job
		6 months or less	7 to 11 months	1 year	2 years	3 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 30 years	More than 30 years	Not available[1]	
AGE AND SEX													
Total, 18 years and over	31 645	4 686	1 588	2 451	3 728	3 287	4 440	2 594	2 704	3 823	899	1 445	4.6
Male, total	22 385	3 321	1 280	1 501	2 444	2 099	3 051	1 815	1 872	2 935	844	1 221	4.9
18 to 21 years, total	1 553	436	390	340	145	145	97	-	-	-	-	-	1.0
18 to 21 years, not in school	1 068	338	245	292	97	97	-	-	-	-	-	-	1.0
22 to 34 years, total	6 086	1 486	549	537	885	989	1 039	-	171	-	-	431	2.3
22 to 34 years, veteran of Vietnam	1 089	107	105	146	259	260	211	-	-	-	-	-	2.7
25 to 34 years	4 474	1 291	250	343	495	649	844	-	171	-	-	431	2.3
35 to 44 years	4 003	664	57	112	450	397	509	399	735	340	-	340	6.5
45 to 54 years	5 889	623	230	286	509	344	843	565	572	1 693	56	169	10.2
55 to 64 years	3 958	113	55	226	341	169	455	737	283	790	622	169	13.6
65 years and over	896	-	-	-	114	55	110	114	112	113	166	114	15.0
40 to 64 years	12 492	1 174	285	624	1 187	739	1 638	1 645	1 250	2 823	678	450	11.1
Female, total	9 260	1 364	308	950	1 284	1 188	1 389	779	832	887	55	224	4.0
18 to 21 years, total	1 064	388	146	194	240	97	-	-	-	-	-	-	1.0
18 to 21 years, not in school	872	339	48	194	193	97	-	-	-	-	-	-	1.2
22 to 34 years	2 848	588	105	482	482	524	442	57	56	-	-	112	2.4
25 to 34 years	1 878	248	56	337	337	281	394	57	56	-	-	112	2.7
35 to 44 years	1 413	282	56	113	226	112	169	113	284	57	-	-	3.5
45 to 54 years	2 195	55	-	56	225	353	559	336	53	446	-	112	8.2
55 to 64 years	1 282	-	-	55	113	53	168	168	336	333	55	-	16.2
65 years and over	458	51	-	49	-	49	50	104	103	51	-	-	11.4
40 to 64 years	4 268	111	-	225	451	462	896	618	559	779	55	112	9.6
FAMILY STATUS[2]													
Male, total	20 616	3 175	942	1 404	2 233	1 996	2 797	1 701	1 760	2 823	678	1 108	5.0
Family head	11 113	1 536	481	496	1 025	910	1 667	1 127	959	1 794	504	613	7.4
Family member	2 794	641	349	339	419	309	228	114	171	117	-	105	2.0
Unrelated individual	6 710	997	112	569	789	776	902	460	630	911	174	390	4.8
Female, total	8 401	1 216	154	901	1 238	1 090	1 282	675	730	836	55	224	4.1
Family head	951	-	-	-	112	216	227	113	57	169	-	56	7.6
No children under 18 years	452	-	-	-	56	-	56	113	57	169	-	-	15.0
Children 6 to 17 years only	161	-	-	-	55	48	57	-	-	-	-	-	4.0
Children under 6 years	338	-	-	-	-	168	114	-	-	-	-	56	4.7
Wife of head	3 202	438	-	429	548	272	562	337	226	279	-	112	4.0
No children under 18 years	1 902	278	-	220	283	49	339	282	226	113	-	112	5.9
Children 6 to 17 years only	521	104	-	153	97	-	56	-	-	111	-	-	2.0
Children under 6 years	780	55	-	56	168	223	167	55	-	55	-	-	4.0
Other family member	1 494	292	98	154	249	201	161	55	171	56	-	56	2.7
Unrelated individual	2 754	486	56	318	329	401	332	170	276	332	55	-	3.9
EDUCATIONAL ATTAINMENT[2]													
Male, total	20 616	3 175	942	1 404	2 233	1 996	2 797	1 701	1 760	2 823	678	1 108	5.0
Elementary: 7 years or less	3 887	323	253	280	229	483	336	569	284	735	168	224	8.9
Elementary: 8 years	2 723	115	205	58	556	220	226	114	513	282	168	267	6.7
High school: 1 to 3 years	5 787	1 004	170	479	500	439	770	677	396	901	113	339	5.9
High school: 4 years	4 861	913	257	365	535	306	956	171	453	455	172	277	4.4
College: 1 year or more	3 358	819	57	223	413	547	509	169	114	449	58	-	3.6
Female, total	8 401	1 216	154	901	1 238	1 090	1 282	675	730	836	55	224	4.1
Elementary: 7 years or less	556	50	-	-	113	112	113	56	56	55	-	-	5.2
Elementary: 8 years	1 123	115	-	-	-	168	337	113	55	279	-	56	8.7
High school: 1 to 3 years	1 508	331	105	112	330	78	329	169	-	-	-	55	2.5
High school: 4 years	3 655	314	49	509	523	467	449	281	560	393	55	56	4.7
College: 1 year or more	1 559	408	-	280	273	266	54	56	57	109	-	56	2.2

[1] Not used in computing median. [2] Persons 16 to 64 years, not in school.

Table 35b. Tenure of Current Job of Wage and Salary Workers on Full-Time Schedules, by Age and Sex, Family Status, and Educational Attainment: Negro

Age and Sex Family Status Educational Attainment	Total wage and salary workers on full-time schedules	Tenure of current job										Median years on current job
		6 months or less	7 to 11 months	1 year	2 years	3 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 30 years	More than 30 years	Not available[1]	
AGE AND SEX													
Total, 16 years and over	108 128	10 344	5 783	8 931	11 594	15 735	18 176	7 132	7 745	16 153	1 097	5 438	4.9
Male, total	68 306	5 393	3 188	4 935	6 817	7 774	12 044	3 872	5 799	13 762	1 097	3 625	6.8
16 to 21 years, total	6 322	1 995	950	1 042	1 237	381	47	-	-	-	-	668	1.0
16 to 21 years, not in school	3 994	762	521	806	1 047	332	47	-	-	-	-	478	1.6
22 to 34 years, total	20 012	2 166	1 299	2 548	3 406	4 099	4 497	379	165	53	-	1 400	3.0
22 to 34 years, veteran of Vietnam	5 090	734	355	572	906	1 138	1 076	-	-	-	-	310	2.8
25 to 34 years	14 346	1 252	774	1 824	2 302	2 948	3 778	379	165	53	-	872	3.4
35 to 44 years	14 954	639	387	702	1 054	1 516	3 772	1 569	2 351	2 426	-	539	8.9
45 to 54 years	14 711	381	387	320	862	819	2 528	1 074	2 084	5 870	-	386	16.9
55 to 64 years	10 467	213	165	217	167	747	929	743	1 016	4 974	1 022	273	22.0
65 years and over	1 840	-	-	106	90	212	271	106	183	438	75	359	12.9
40 to 64 years	33 756	809	771	802	1 639	2 326	5 214	2 792	4 251	13 044	1 022	1 085	17.3
Female, total	39 823	4 951	2 595	3 996	4 777	7 961	6 132	3 261	1 946	2 392	-	1 813	3.7
16 to 21 years, total	4 850	1 618	427	667	764	429	236	47	-	-	-	663	1.1
16 to 21 years, not in school	3 379	904	380	429	622	240	189	47	-	-	-	568	1.3
22 to 34 years	12 771	1 753	1 376	1 693	2 116	3 051	1 687	472	-	-	-	622	2.6
25 to 34 years	8 761	800	801	1 119	1 547	2 140	1 449	424	-	-	-	480	2.9
35 to 44 years	8 759	640	323	751	905	2 398	1 603	807	852	161	-	319	4.3
45 to 54 years	8 938	731	364	729	571	1 192	1 868	1 148	677	1 504	-	154	7.2
55 to 64 years	3 968	156	104	156	368	678	685	732	417	672	-	-	8.8
65 years and over	538	53	-	-	53	213	53	55	-	55	-	55	4.3
40 to 64 years	18 259	1 207	631	1 369	1 526	3 365	3 624	2 471	1 628	2 229	-	207	6.3
FAMILY STATUS[2]													
Male, total	63 064	3 872	2 556	4 498	6 385	7 371	11 628	3 765	5 616	13 323	1 022	3 028	7.3
Family head	40 711	1 857	1 031	2 046	4 005	4 521	7 225	2 919	4 476	9 998	907	1 726	9.2
Family member	9 037	1 116	1 075	1 256	1 165	1 244	1 682	166	171	402	-	760	2.6
Unrelated individual	13 316	899	450	1 196	1 215	1 605	2 721	681	968	2 924	116	542	6.9
Female, total	37 141	3 898	2 451	3 758	4 487	7 463	6 031	3 152	1 946	2 337	-	1 617	3.8
Family head	8 300	724	527	627	1 206	1 895	1 325	895	418	525	-	155	4.0
No children under 18 years	2 585	53	108	316	255	478	427	426	262	213	-	47	5.7
Children 6 to 17 years only	2 124	300	153	98	416	735	210	106	-	51	-	55	3.2
Children under 6 years	3 591	371	266	212	535	683	689	363	157	262	-	53	4.1
Wife of head	14 787	1 427	920	1 499	1 721	2 664	2 524	1 218	1 003	981	-	832	4.1
No children under 18 years	5 619	415	208	462	371	1 044	1 065	798	476	568	-	212	6.0
Children 6 to 17 years only	4 829	807	608	614	667	890	626	52	106	102	-	357	2.3
Children under 6 years	4 339	206	104	423	682	730	833	367	421	311	-	263	4.7
Other family member	6 928	1 086	487	950	792	1 336	1 074	261	157	207	-	578	2.8
Unrelated individual	7 126	660	516	682	769	1 568	1 108	778	368	624	-	52	4.2
EDUCATIONAL ATTAINMENT[2]													
Male, total	63 064	3 872	2 556	4 498	6 385	7 371	11 628	3 765	5 616	13 323	1 022	3 028	7.3
Elementary: 7 years or less	9 958	259	109	330	420	1 027	1 457	210	1 242	4 209	326	369	19.0
8 years	7 097	205	160	365	793	478	856	757	805	2 365	154	159	14.0
High school: 1 to 3 years	18 853	1 354	837	1 241	2 032	2 595	3 338	1 184	1 692	3 555	274	750	6.5
4 years	20 790	1 486	1 192	1 880	2 213	2 368	4 859	1 026	1 551	2 448	269	1 498	5.5
College: 1 year or more	6 367	567	258	683	927	902	1 118	589	326	746	-	252	4.4
Female, total	37 141	3 898	2 451	3 758	4 487	7 463	6 031	3 152	1 946	2 337	-	1 617	3.8
Elementary: 7 years or less	2 297	104	105	159	424	525	317	209	103	257	-	94	4.2
8 years	2 774	256	206	426	364	369	418	367	53	210	-	104	3.4
High school: 1 to 3 years	9 826	1 229	614	882	1 090	1 886	1 579	847	368	783	-	549	3.9
4 years	16 027	1 752	1 074	1 723	1 843	3 373	2 664	1 206	953	671	-	769	3.7
College: 1 year or more	6 217	558	451	569	767	1 310	1 053	523	470	416	-	100	4.1

[1] Not used in computing median. [2] Persons 16 to 64 years, not in school.

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Table 36. Tenure of Current Job of Wage and Salary Workers on Full-Time Schedules, by Major Occupation and Industry Groups and Weekly Earnings: All Races

(Limited to persons 16 to 64 years, not in school)

Major Occupation Group Major Industry Group Weekly Earnings	Total wage and salary workers on full-time schedules	Tenure of current job											Median years on current job
		6 months or less	7 to 11 months	1 year	2 years	3 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 30 years	More than 30 years	Not available[1]	
MAJOR OCCUPATION GROUP													
Total employed on full-time schedules	131 911	12 493	6 273	10 887	14 725	18 338	22 133	9 350	10 219	19 490	1 812	6 191	5.0
Professional and technical	8 984	1 230	523	1 022	673	2 032	1 344	756	434	529	169	271	3.9
Managerial and administrative	3 476	274	209	227	579	516	544	265	316	216	166	166	4.4
Sales	2 693	248	109	199	321	307	734	276	222	221	-	55	5.9
Clerical	19 902	2 370	1 095	2 415	3 010	2 733	2 776	1 454	1 523	1 631	228	667	3.5
Craftsmen and foremen	15 590	1 136	837	800	1 513	1 103	3 142	1 386	931	3 672	380	691	8.3
Operatives, except transportation	38 110	2 350	1 073	2 824	5 172	5 262	6 788	1 633	3 080	7 553	385	1 992	6.0
Transport equipment operatives	7 761	712	329	724	370	1 036	1 137	756	971	1 513	53	162	7.8
Laborers, except farm	10 744	1 145	464	789	1 084	1 428	1 213	653	1 181	1 773	165	848	5.2
Service workers, except private household	22 219	2 778	1 584	1 730	1 951	3 581	3 710	1 860	1 507	2 119	266	1 133	4.4
Private household workers	2 274	203	51	157	52	339	689	312	53	211	-	207	6.7
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.0
Farm laborers and foremen	159	49	-	-	-	-	56	-	-	53	-	-	7.7
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0
Male, total	85 283	7 323	3 555	6 066	8 894	9 575	14 651	5 466	7 543	16 318	1 757	4 136	6.8
Professional and technical	3 904	663	167	522	306	596	606	385	220	219	114	106	3.8
Managerial and administrative	1 990	162	154	171	275	305	272	106	159	109	166	110	4.2
Sales	745	100	56	47	109	49	51	107	113	56	-	55	4.3
Clerical	6 364	589	301	499	999	480	870	759	445	940	228	253	6.1
Craftsmen and foremen	14 709	1 136	783	800	1 465	840	2 983	1 227	931	3 569	380	596	8.4
Operatives, except transportation	31 355	1 833	859	2 187	3 890	3 580	5 863	1 152	2 807	7 121	385	1 680	7.1
Transport equipment operatives	7 502	712	281	671	370	983	1 082	756	971	1 461	53	162	8.0
Laborers, except farm	9 954	1 145	464	691	978	1 319	1 160	492	1 128	1 563	165	848	4.9
Service workers, except private household	8 545	934	489	478	501	1 423	1 707	483	768	1 169	266	326	5.8
Private household workers	57	-	-	-	-	-	-	-	-	57	-	-	25.5
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.0
Farm laborers and foremen	159	49	-	-	-	-	56	-	-	53	-	-	7.7
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0
Female, total	46 628	5 171	2 718	4 820	5 831	8 763	7 482	3 884	2 676	3 173	55	2 055	3.9
Professional and technical	5 080	567	356	499	367	1 436	738	371	214	310	55	165	3.9
Managerial and administrative	1 487	111	55	56	303	211	272	159	157	106	-	56	4.8
Sales	1 947	148	53	152	212	258	683	169	109	165	-	-	6.1
Clerical	13 538	1 781	794	1 916	2 011	2 254	1 906	695	1 078	691	-	413	3.1
Craftsmen and foremen	881	-	54	-	48	263	159	159	-	103	-	94	5.9
Operatives, except transportation	6 755	517	214	637	1 282	1 682	925	481	273	432	-	312	3.7
Transport equipment operatives	259	-	47	53	-	53	55	-	-	51	-	-	4.1
Laborers, except farm	790	-	-	98	106	109	53	160	53	210	-	-	10.9
Service workers, except private household	13 674	1 843	1 095	1 252	1 450	2 158	2 002	1 378	739	950	-	807	3.7
Private household workers	2 217	203	51	157	52	339	689	312	53	154	-	207	6.5
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	.0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0
MAJOR INDUSTRY GROUP													
Male, total	85 283	7 323	3 555	6 066	8 894	9 575	14 651	5 466	7 543	16 318	1 757	4 136	6.8
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	152	49	-	-	-	-	-	51	-	51	-	-	12.6
Mining	57	-	-	-	57	-	-	-	-	-	-	-	2.5
Construction	3 321	645	272	218	441	317	614	221	167	310	-	116	3.2
Durable goods manufacturing	44 723	2 540	1 130	2 954	4 862	5 154	8 017	1 991	4 317	10 453	1 100	2 206	7.9
Nondurable goods manufacturing	4 760	416	261	376	304	652	785	277	279	1 039	51	321	6.3
Transportation, communication, and other public utilities	5 038	636	571	642	264	437	556	554	488	783	-	109	4.6
Wholesale and retail trade	10 131	1 543	735	517	1 048	1 257	1 810	542	760	1 066	326	526	4.5
Finance, insurance, and real estate	1 231	205	56	211	47	49	332	111	115	56	-	49	5.3
Business and repair services	2 353	284	57	93	451	366	394	161	110	113	55	270	3.9
Personal services	1 204	100	-	383	55	113	-	160	-	284	53	56	3.6
Professional services and entertainment	3 669	591	104	196	634	486	772	385	170	108	114	109	4.0
Government[2]													
Educational services	1 157	-	57	111	56	274	163	324	58	58	-	56	6.6
All other government services	7 489	315	312	365	675	471	1 209	690	1 081	1 996	57	318	11.7
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0
Female, total	46 628	5 171	2 718	4 820	5 831	8 763	7 482	3 884	2 676	3 173	55	2 055	3.9
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	54	-	-	-	-	54	-	-	-	-	-	-	4.0
Mining	-	-	-	-	-	-	-	-	-	-	-	-	.0
Construction	159	-	-	-	159	-	-	-	-	-	-	-	2.5
Durable goods manufacturing	4 061	197	100	474	730	784	606	220	223	370	-	358	3.9
Nondurable goods manufacturing	2 293	207	100	106	430	531	267	269	168	161	-	53	4.0
Transportation, communication, and other public utilities	1 741	149	-	251	457	401	161	158	53	110	-	-	3.1
Wholesale and retail trade	8 138	1 066	568	858	737	1 197	1 866	429	419	643	-	356	4.1
Finance, insurance, and real estate	2 587	388	56	294	594	350	211	266	164	106	-	157	2.8
Business and repair services	731	101	96	48	55	162	55	107	-	108	-	-	3.8
Personal services	6 124	580	413	692	471	865	1 267	842	210	525	-	259	4.8
Professional services and entertainment	12 641	1 450	783	1 468	1 372	2 788	2 045	800	750	473	55	658	3.7
Government[2]													
Educational services	1 734	210	156	111	154	428	153	264	-	205	-	53	4.0
All other government services	6 367	823	447	519	672	1 204	853	529	688	471	-	161	4.1
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0

[1] Not used in computing median. [2] Government class of worker.

7533

Table 36. Tenure of Current Job of Wage and Salary Workers on Full-Time Schedules, by Major Occupation and Industry Groups and Weekly Earnings: All Races—Continued

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Weekly Earnings	Total wage and salary workers on full-time schedules	Tenure of current job											Median years on current job
		6 months or less	7 to 11 months	1 year	2 years	3 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 30 years	More than 30 years	Not available[1]	
WEEKLY EARNINGS													
Total wage and salary workers on full-time schedules	131 911	12 493	6 273	10 887	14 725	18 338	22 133	9 350	10 219	19 490	1 812	6 191	5.0
Less than $50	12 875	1 327	764	1 220	1 626	2 040	2 129	793	595	1 603	51	727	4.1
$50 to $64	6 849	1 214	532	1 244	673	638	953	694	214	439	53	195	2.5
$65 to $79	6 633	853	526	730	898	1 006	1 072	432	264	600	55	198	3.4
$80 to $89	5 537	830	401	540	480	892	965	322	159	641	–	306	3.8
$90 to $99	7 157	1 092	350	468	663	1 198	1 405	592	376	913	53	47	4.6
$100 to $124	17 960	2 393	876	1 191	2 956	2 602	2 973	1 234	1 090	2 061	269	316	4.1
$125 to $149	19 915	1 465	973	1 695	2 102	2 804	3 332	1 122	1 728	3 843	331	519	6.0
$150 to $174	17 874	1 280	419	1 313	1 714	2 562	2 994	1 108	2 525	3 305	391	264	7.5
$175 to $199	7 103	327	267	470	949	965	1 160	663	489	1 425	221	168	7.1
$200 to $299	12 921	865	683	1 248	1 408	1 799	2 611	770	1 099	2 064	218	156	5.7
$300 or more	2 595	217	112	97	263	331	496	273	266	485	56	–	7.8
Not available[1]	14 492	629	370	670	994	1 500	2 043	1 347	1 416	2 112	114	3 297	8.5
Median ..... dollars	132	108	119	125	126	131	134	131	151	144	153	114	NA

[1] Not used in computing median.

7534

Table 36a. Tenure of Current Job of Wage and Salary Workers on Full-Time Schedules, by Major Occupation and Industry Groups and Weekly Earnings: White

(Limited to persons 16 to 64 years, not in school)

Major Occupation Group Major Industry Group Weekly Earnings	Total wage and salary workers on full-time schedules	Tenure of current job											Median years on current job
		6 months or less	7 to 11 months	1 year	2 years	3 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 30 years	More than 30 years	Not available[1]	
MAJOR OCCUPATION GROUP													
Total employed on full-time schedules	29 037	4 391	1 096	2 305	3 471	3 086	4 079	2 376	2 490	3 659	734	1 332	4.7
Professional and technical	2 850	601	57	335	210	752	389	58	172	164	113	-	3.6
Managerial and administrative	944	57	49	111	114	106	225	55	-	111	58	56	5.1
Sales	779	-	-	-	56	159	114	170	112	168	-	-	11.8
Clerical	4 481	828	146	397	787	306	328	507	507	450	111	114	3.2
Craftsmen and foremen	4 302	595	221	278	535	164	772	514	226	619	113	266	6.5
Operatives, except transportation	7 234	679	153	428	1 261	432	897	455	911	1 350	225	445	7.5
Transport equipment operatives	1 622	299	-	203	114	154	229	224	170	173	-	56	5.3
Laborers, except farm	2 292	368	194	270	114	216	169	227	226	171	55	280	3.5
Service workers, except private household	4 541	914	275	283	281	774	956	167	167	452	59	113	4.1
Private household workers	23	-	-	-	-	23	-	-	-	-	-	-	4.0
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.0
Farm laborers and foremen	49	49	-	-	-	-	-	-	-	-	-	-	1.0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0
Male, total	20 616	3 175	942	1 404	2 233	1 996	2 797	1 701	1 760	2 823	678	1 108	5.0
Professional and technical	1 551	388	57	111	49	326	279	58	114	111	58	-	4.0
Managerial and administrative	551	-	49	55	114	106	113	-	-	56	58	-	4.1
Sales	169	-	-	-	-	-	-	56	56	56	-	-	17.5
Clerical	1 752	341	48	-	370	153	104	225	116	225	111	58	4.1
Craftsmen and foremen	4 254	595	221	278	486	164	772	514	226	619	113	266	6.6
Operatives, except transportation	5 561	573	153	315	817	320	558	342	742	1 128	225	389	8.7
Transport equipment operatives	1 622	299	-	203	114	154	229	224	170	173	-	56	5.3
Laborers, except farm	2 236	368	194	270	114	160	169	227	226	171	55	280	3.4
Service workers, except private household	2 871	561	219	172	169	612	571	55	111	283	59	58	3.9
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	.0
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.0
Farm laborers and foremen	49	49	-	-	-	-	-	-	-	-	-	-	1.0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0
Female, total	8 401	1 216	154	901	1 238	1 090	1 282	675	730	836	55	224	4.1
Professional and technical	1 299	213	-	223	161	426	110	-	57	53	55	-	3.2
Managerial and administrative	392	57	-	56	-	-	112	55	-	55	-	56	7.4
Sales	610	-	-	-	56	159	114	114	56	112	-	-	9.0
Clerical	2 729	487	98	397	417	153	223	282	392	225	-	56	2.9
Craftsmen and foremen	48	-	-	-	48	-	-	-	-	-	-	-	2.5
Operatives, except transportation	1 673	107	-	113	444	111	339	113	169	221	-	56	5.5
Transport equipment operatives	-	-	-	-	-	-	-	-	-	-	-	-	.0
Laborers, except farm	56	-	-	-	-	56	-	-	-	-	-	-	4.0
Service workers, except private household	1 570	352	56	111	112	162	385	112	55	169	-	55	4.6
Private household workers	23	-	-	-	-	23	-	-	-	-	-	-	4.0
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	.0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0
MAJOR INDUSTRY GROUP													
Male, total	20 616	3 175	942	1 404	2 233	1 996	2 797	1 701	1 760	2 823	678	1 108	5.0
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	49	49	-	-	-	-	-	-	-	-	-	-	1.0
Mining	-	-	-	-	-	-	-	-	-	-	-	-	.0
Construction	788	161	57	116	225	-	171	59	-	-	-	-	2.3
Durable goods manufacturing	8 917	952	308	584	817	742	1 237	623	1 021	1 522	452	658	7.9
Nondurable goods manufacturing	1 473	208	48	97	-	285	210	171	114	340	-	-	7.3
Transportation, communication, and other public utilities	1 821	273	97	212	164	172	57	339	113	340	-	56	4.6
Wholesale and retail trade	3 498	820	320	112	363	308	501	229	227	338	58	223	3.2
Finance, insurance, and real estate	389	104	-	-	-	-	114	56	58	56	-	-	8.9
Business and repair services	911	173	-	-	341	114	114	56	-	-	55	58	2.7
Personal services	281	-	-	115	55	-	-	55	-	-	-	56	2.0
Professional services and entertainment	1 478	321	55	-	220	212	335	55	55	55	114	56	4.1
Government[2]													
Educational services	390	-	-	111	-	164	-	-	58	58	-	-	4.0
All other government services	620	114	57	57	49	-	57	58	114	114	-	-	7.9
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0
Female, total	8 401	1 216	154	901	1 238	1 090	1 282	675	730	836	55	224	4.1
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	-	-	-	-	-	-	-	-	-	-	-	-	.0
Mining	-	-	-	-	-	-	-	-	-	-	-	-	.0
Construction	-	-	-	-	-	-	-	-	-	-	-	-	.0
Durable goods manufacturing	1 214	48	-	162	113	48	338	112	170	111	-	113	7.7
Nondurable goods manufacturing	829	107	-	-	274	112	56	56	168	55	-	-	3.6
Transportation, communication, and other public utilities	460	-	-	98	256	48	-	-	-	57	-	-	2.5
Wholesale and retail trade	1 707	153	105	113	170	272	442	170	-	225	-	56	5.1
Finance, insurance, and real estate	755	98	-	97	111	-	112	114	113	55	-	55	7.0
Business and repair services	210	49	-	48	-	56	-	-	-	56	-	-	3.3
Personal services	349	111	48	55	-	23	-	-	-	112	-	-	1.3
Professional services and entertainment	2 020	439	-	216	209	322	278	168	224	109	55	-	3.9
Government[2]													
Educational services	168	56	-	56	-	55	-	-	-	-	-	-	1.5
All other government services	691	155	-	56	104	153	56	55	55	55	-	-	3.4
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0

[1] Not used in computing median. [2] Government class of worker.

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7535

Table 36a. Tenure of Current Job of Wage and Salary Workers on Full-Time Schedules, by Major Occupation and Industry Groups and Weekly Earnings: White—Continued

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Weekly Earnings	Total wage and salary workers on full-time schedules	Tenure of current job											Median years on current job
		6 months or less	7 to 11 months	1 year	2 years	3 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 30 years	More than 30 years	Not available[1]	
WEEKLY EARNINGS													
Total wage and salary workers on full-time schedules	29 017	4 391	1 096	2 305	3 471	3 086	4 079	2 376	2 490	3 659	734	1 332	4.7
Less than $50	2 814	426	49	430	169	466	600	56	226	220	-	170	4.1
$50 to $64	1 359	453	115	113	113	56	114	115	56	225	-	-	2.0
$65 to $79	1 192	145	49	163	271	56	224	113	-	115	55	-	2.9
$80 to $89	966	314	-	57	56	258	168	57	-	55	-	-	3.4
$90 to $99	1 146	259	55	48	56	104	398	112	58	55	-	-	5.6
$100 to $124	4 257	872	145	316	864	260	559	284	395	394	56	113	2.9
$125 to $149	4 415	711	259	411	541	436	272	224	565	673	170	153	4.0
$150 to $174	4 136	542	-	278	321	630	499	626	400	729	56	56	7.7
$175 to $199	1 573	115	59	106	114	161	225	169	113	286	170	56	9.5
$200 to $299	3 424	337	203	381	583	438	686	341	112	288	55	-	4.0
$300 or more	623	114	57	-	111	58	113	-	-	113	56	-	4.0
Not available[1]	3 112	102	105	-	273	163	221	280	565	505	114	784	15.2
Median ....dollars.	136	119	135	132	129	147	123	154	138	148	162	132	NA

[1] Not used in computing median.

7536

Table 36b. Tenure of Current Job of Wage and Salary Workers on Full-Time Schedules, by Major Occupation and Industry Groups and Weekly Earnings: Negro

(Limited to persons 16 to 64 years, not in school)

Major Occupation Group Major Industry Group Weekly Earnings	Total wage and salary workers on full-time schedules	Tenure of current job											Median years on current job
		6 months or less	7 to 11 months	1 year	2 years	3 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 30 years	More than 30 years	Not available[1]	
MAJOR OCCUPATION GROUP													
Total employed on full-time schedules	100 205	7 770	5 007	8 256	10 872	14 834	17 659	6 918	7 562	15 660	1 022	4 645	5.3
Professional and technical	5 357	467	353	466	463	1 222	900	642	263	365	56	159	4.4
Managerial and administrative	2 477	216	159	116	409	410	319	210	316	104	108	110	4.4
Sales	1 856	248	109	199	265	148	563	106	110	53	-	55	4.1
Clerical	15 040	1 542	949	1 970	2 166	2 323	2 391	947	958	1 124	117	553	3.5
Craftsmen and foremen	11 127	484	616	522	930	939	2 314	872	706	3 053	267	424	9.0
Operatives, except transportation	30 052	1 614	920	2 339	3 692	4 734	5 721	1 178	2 116	6 088	104	1 546	5.8
Transport equipment operatives	6 139	413	329	521	256	881	908	532	801	1 340	53	106	8.4
Laborers, except farm	8 396	777	269	519	970	1 157	1 044	425	955	1 602	110	567	6.1
Service workers, except private household	17 456	1 806	1 252	1 447	1 670	2 703	2 754	1 693	1 284	1 667	207	973	4.5
Private household workers	2 196	203	51	157	52	316	689	312	53	211	-	151	6.8
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.0
Farm laborers and foremen	109	-	-	-	-	-	56	-	-	53	-	-	9.8
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0
Male, total	63 064	3 872	2 556	4 498	6 385	7 371	11 628	3 765	5 616	13 323	1 022	3 028	7.3
Professional and technical	2 027	169	53	304	257	270	272	328	106	108	56	106	4.3
Managerial and administrative	1 382	162	104	116	105	199	159	106	159	53	108	110	4.5
Sales	577	100	56	47	109	49	51	51	57	-	-	55	2.5
Clerical	4 441	247	253	499	630	327	708	534	272	659	117	195	6.2
Craftsmen and foremen	10 350	484	563	522	930	676	2 210	713	706	2 950	267	330	9.2
Operatives, except transportation	25 123	1 204	706	1 815	2 902	3 211	5 190	810	2 012	5 878	104	1 291	7.0
Transport equipment operatives	5 880	413	281	468	256	828	853	532	801	1 289	53	106	8.8
Laborers, except farm	7 663	777	269	421	864	1 104	991	265	902	1 392	110	567	5.6
Service workers, except private household	5 455	315	270	306	332	707	1 136	427	601	886	207	268	7.9
Private household workers	57	-	-	-	-	-	-	-	-	57	-	-	25.5
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.0
Farm laborers and foremen	109	-	-	-	-	-	56	-	-	53	-	-	9.8
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0
Female, total	37 141	3 898	2 451	3 758	4 487	7 463	6 031	3 152	1 946	2 337	-	1 617	3.8
Professional and technical	3 329	298	300	163	206	953	628	315	157	257	-	53	4.4
Managerial and administrative	1 095	54	55	-	303	211	160	104	157	51	-	-	4.3
Sales	1 280	148	53	152	156	99	512	55	53	53	-	-	5.3
Clerical	10 599	1 294	696	1 471	1 536	1 996	1 683	413	686	466	-	357	3.1
Craftsmen and foremen	778	-	54	-	-	263	104	159	-	103	-	94	6.2
Operatives, except transportation	4 929	410	214	523	790	1 523	530	369	104	210	-	255	3.5
Transport equipment operatives	259	-	47	53	-	53	55	-	-	51	-	-	4.1
Laborers, except farm	734	-	-	98	106	53	53	160	53	210	-	-	11.8
Service workers, except private household	12 000	1 491	982	1 141	1 338	1 996	1 617	1 266	684	780	-	706	3.7
Private household workers	2 139	203	51	157	52	316	689	312	53	154	-	151	6.6
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	.0
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	.0
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0
MAJOR INDUSTRY GROUP													
Male, total	63 064	3 872	2 556	4 498	6 385	7 371	11 628	3 765	5 616	13 323	1 022	3 028	7.3
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	102	-	-	-	-	-	-	51	-	51	-	-	20.0
Mining	-	-	-	-	-	-	-	-	-	-	-	-	.0
Construction	2 533	484	216	102	216	317	443	163	167	310	-	116	4.2
Durable goods manufacturing	35 094	1 531	821	2 313	3 883	4 259	6 666	1 367	3 239	8 874	592	1 548	8.0
Nondurable goods manufacturing	3 231	152	212	279	304	367	575	106	165	699	51	321	6.2
Transportation, communication, and other public utilities	3 103	306	474	430	100	265	498	215	376	386	-	53	4.6
Wholesale and retail trade	6 461	666	416	405	685	893	1 308	314	533	670	269	303	5.1
Finance, insurance, and real estate	784	100	56	153	47	49	217	55	57	-	-	49	3.4
Business and repair services	1 389	111	57	93	110	253	280	104	56	113	-	212	4.7
Personal services	922	100	-	268	-	113	-	104	-	284	53	-	4.7
Professional services and entertainment	2 030	270	49	147	358	274	382	330	115	53	-	53	4.2
Government[2]													
Educational services	710	-	-	-	56	110	163	324	-	-	-	56	9.9
All other government services	6 704	152	255	308	626	471	1 095	633	909	1 882	57	318	12.3
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0
Female, total	37 141	3 898	2 451	3 758	4 487	7 463	6 031	3 152	1 946	2 337	-	1 617	3.8
Private Wage and Salary Worker													
Agriculture, forestry, and fisheries	54	-	-	-	-	54	-	-	-	-	-	-	4.0
Mining	-	-	-	-	-	-	-	-	-	-	-	-	.0
Construction	159	-	-	-	159	-	-	-	-	-	-	-	2.5
Durable goods manufacturing	2 791	149	100	312	617	735	212	108	53	259	-	246	3.3
Nondurable goods manufacturing	1 312	101	100	106	108	371	155	213	-	106	-	53	4.2
Transportation, communication, and other public utilities	1 233	149	-	154	201	304	161	158	53	53	-	-	3.7
Wholesale and retail trade	6 316	913	405	744	567	924	1 366	259	419	418	-	300	3.8
Finance, insurance, and real estate	1 671	290	-	149	425	350	99	152	52	51	-	102	2.8
Business and repair services	520	51	96	-	55	106	55	107	-	51	-	-	4.1
Personal services	5 718	468	364	636	471	843	1 267	842	210	413	-	202	4.9
Professional services and entertainment	10 124	955	783	1 139	1 163	2 353	1 767	576	526	364	-	500	3.7
Government[2]													
Educational services	1 566	154	156	55	154	373	153	264	-	205	-	53	4.3
All other government services	5 676	668	447	463	568	1 050	796	474	633	416	-	161	4.2
Not available	-	-	-	-	-	-	-	-	-	-	-	-	.0

[1] Not used in computing median. [2] Government class of worker.

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Table 36b. Tenure of Current Job of Wage and Salary Workers on Full-Time Schedules by Major Occupation and Industry Groups and Weekly Earnings: Negro—Continued

[Limited to persons 16 to 64 years, not in school]

Major Occupation Group Major Industry Group Weekly Earnings	Total wage and salary workers on full-time schedules	Tenure of current job											Median years on current job
		6 months or less	7 to 11 months	1 year	2 years	3 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 30 years	More than 30 years	Not available[1]	
WEEKLY EARNINGS													
Total wage and salary workers on full-time schedules	100 205	7 770	5 007	8 256	10 872	14 834	17 659	6 918	7 562	15 660	1 022	4 645	5.3
Less than $50	9 804	900	715	790	1 408	1 526	1 472	737	368	1 326	51	511	4.1
$50 to $64	5 437	761	417	1 132	560	582	840	579	104	214	53	195	2.6
$65 to $79	5 393	708	477	567	627	902	848	319	264	485	-	198	3.5
$80 to $89	4 459	516	401	483	367	635	797	209	159	586	-	306	4.0
$90 to $99	6 011	833	295	420	606	1 094	1 007	480	318	857	53	47	4.5
$100 to $124	13 314	1 464	617	826	2 092	2 286	2 358	950	695	1 610	212	203	4.4
$125 to $149	14 999	641	714	1 284	1 390	2 264	2 947	899	1 162	3 170	161	366	6.7
$150 to $174	13 358	738	363	979	1 287	1 884	2 496	482	2 011	2 576	334	208	7.7
$175 to $199	5 191	155	209	307	835	747	824	494	377	1 081	51	111	6.7
$200 to $299	9 278	479	480	809	825	1 361	1 925	430	987	1 776	106	100	6.6
$300 or more	1 867	47	55	47	151	273	383	273	266	372	-	-	9.7
Not available[1]	11 095	527	265	613	721	1 280	1 764	1 067	851	1 607	-	2 400	7.7
Median ..... dollars	130	99	114	119	123	128	135	124	154	143	150	99	NA

[1] Not used in computing median.

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Table 37. Age and Sex of Those Currently Employed Full Time, by Occupation and Tenure of First Regular Full-Time Job Since Leaving School: All Races

[Limited to persons 16 to 64 years, not in school]

Detailed Occupation Group and Tenure of First Regular Full-Time Job Since Leaving School	Total employed full time	Age and sex of full-time employed									
		Male					Female				
		16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years
OCCUPATION OF FIRST REGULAR FULL-TIME JOB											
Total employed	113 047	4 249	21 860	16 464	18 490	12 898	3 823	12 467	8 997	9 180	4 618
Professional health workers	1 127	-	166	-	-	-	47	644	53	161	55
Social and recreational workers	319	-	101	-	58	-	47	56	57	-	-
Religious workers	111	-	111	-	-	-	-	-	-	-	-
Other professional workers	2 915	-	771	273	490	275	48	320	108	413	218
Managers and administrators	900	49	415	53	55	114	48	113	53	-	-
Salaried, retail trade	314	49	105	-	55	-	48	56	-	-	-
Salaried, other	481	-	262	53	-	56	-	57	53	-	-
Self-employed, retail trade	58	-	-	-	-	58	-	-	-	-	-
Self-employed, other	47	-	47	-	-	-	-	-	-	-	-
Sales workers, retail trade	2 817	48	475	166	55	57	145	733	703	217	218
Sales workers, other	580	-	260	110	-	57	47	106	-	-	-
Postal clerks and mail carriers	355	-	47	106	51	51	-	47	53	-	-
Shipping and receiving clerks	549	-	322	110	117	-	-	-	-	-	-
Stock clerks and storekeepers	1 161	47	465	53	55	164	-	108	214	55	-
Other clerical workers	7 299	-	525	115	451	216	1 150	2 542	1 245	732	322
Automobile mechanics and body repairmen	726	47	353	214	-	112	-	-	-	-	-
Mechinists	-	-	-	-	-	-	-	-	-	-	-
Mechanics and repairmen, except auto	437	-	168	55	53	56	-	-	53	52	-
Metal craftsmen, except mechanics and machinists	913	-	152	329	112	268	-	-	-	52	-
Carpenters	213	-	48	-	58	51	-	-	-	56	-
Construction craftsmen, except carpenters	1 297	-	307	337	270	383	-	-	-	-	-
Other craftsmen	2 107	144	376	550	278	339	-	155	109	156	-
Operatives, durable goods manufacturing	11 415	523	2 474	2 445	2 524	1 777	49	267	435	596	324
Operatives, nondurable goods manufacturing	3 451	96	914	834	607	217	-	359	110	314	-
Operatives, nonmanufacturing	6 398	383	1 049	938	1 149	825	96	469	481	691	316
Taxicab drivers and chauffeurs	159	-	51	-	56	51	-	-	-	-	-
Bus drivers and truck drivers	1 824	49	362	590	547	275	-	-	-	-	-
Deliverymen and routemen	1 795	49	319	499	543	385	-	-	-	-	-
Parking attendants	272	-	106	53	-	113	-	-	-	-	-
Other transportation equipment operatives	572	-	256	106	210	-	-	-	-	-	-
Construction laborers	2 446	193	527	766	492	468	-	-	-	-	-
Other laborers, except farm	9 706	380	2 159	2 524	2 297	1 563	-	364	106	209	105
Cleaning service workers	2 881	-	880	549	494	216	-	321	53	211	156
Food service workers	8 459	428	1 505	695	868	449	145	1 714	1 288	893	474
Health service workers	2 592	-	272	56	167	-	383	650	534	423	109
Personal service workers	2 203	-	425	160	599	276	47	57	212	319	109
Protective service workers	259	-	153	53	-	53	-	-	-	-	-
Private household workers	4 848	-	-	-	-	-	97	617	1 246	1 998	890
Farmers and farm managers	756	49	160	-	213	277	-	-	-	-	56
Farm laborers and foremen	6 482	49	616	713	2 056	2 103	-	53	164	316	413
Not available	22 705	1 713	4 569	3 013	3 565	1 709	1 474	2 771	1 719	1 318	853
TENURE OF FIRST REGULAR FULL-TIME JOB											
6 months or less	16 754	1 288	4 734	2 364	1 575	714	1 203	2 799	1 188	471	419
7 to 11 months	4 855	480	1 368	603	327	229	474	1 167	53	102	53
1 year	16 502	1 097	3 602	2 291	2 437	994	672	2 212	1 446	1 432	320
2 years	16 372	717	3 538	2 397	2 337	1 574	573	1 554	1 403	1 574	706
3 or 4 years	15 724	238	2 619	2 354	3 106	1 473	192	2 226	1 240	1 802	474
5 to 9 years	17 355	-	3 828	2 235	2 898	2 751	237	1 404	1 724	1 433	845
10 to 14 years	6 681	49	704	1 091	1 576	1 129	-	221	596	738	577
15 to 19 years	4 659	-	381	1 155	701	1 028	-	109	643	317	326
20 to 30 years	5 764	-	-	986	2 257	1 191	-	-	221	634	475
More than 30 years	833	-	-	-	113	669	-	-	-	-	51
Not available[1]	7 547	380	1 087	988	1 163	1 148	472	775	484	679	371
Median years on job	2.9	1.2	2.2	3.1	4.3	6.6	1.0	1.8	3.3	3.7	5.9
Percent with first job same as current job	1.9	3.4	2.0	1.0	1.2	.8	6.2	2.1	1.8	1.8	4.7

[1] Not used in computing median.

Table 37a. Age and Sex of Those Currently Employed Full Time, by Occupation and Tenure of First Regular Full-Time Job Since Leaving School: White

(Limited to persons 16 to 64 years, not in school)

Detailed Occupation Group and Tenure of First Regular Full-Time Job Since Leaving School	Total employed full time	Age and sex of full-time employed									
		Male					Female				
		16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years
OCCUPATION OF FIRST REGULAR FULL-TIME JOB											
Total employed	26 059	874	5 472	3 155	5 440	3 620	872	2 320	1 243	1 837	1 226
Professional health workers	382	-	-	-	-	-	-	274	-	53	55
Social and recreational workers	171	-	-	-	58	-	-	56	57	-	-
Religious workers	54	-	54	-	-	-	-	-	-	-	-
Other professional workers	1 195	-	493	111	55	166	48	156	-	-	164
Managers and administrators	428	49	48	-	55	114	48	113	-	-	-
Salaried, retail trade	257	49	48	-	55	-	48	56	-	-	-
Salaried, other	114	-	-	-	-	56	-	57	-	-	-
Self-employed, retail trade	58	-	-	-	-	58	-	-	-	-	-
Self-employed, other	-	-	-	-	-	-	-	-	-	-	-
Sales workers, retail trade	1 078	48	257	56	55	-	48	111	225	112	166
Sales workers, other	115	-	57	-	-	57	-	-	-	-	-
Postal clerks and mail carriers	-	-	-	-	-	-	-	-	-	-	-
Shipping and receiving clerks	230	-	115	57	59	-	-	-	-	-	-
Stock clerks and storekeepers	377	-	209	-	55	57	-	-	-	55	-
Other clerical workers	2 042	-	116	-	284	112	339	628	339	56	168
Automobile mechanics and body repairmen	153	-	153	-	-	-	-	-	-	-	-
Machinists	-	-	-	-	-	-	-	-	-	-	-
Mechanics and repairmen, except auto	111	-	-	55	-	56	-	-	-	-	-
Metal craftsmen, except mechanics and machinists	111	-	-	111	-	-	-	-	-	-	-
Carpenters	105	-	48	-	-	-	-	-	-	-	-
Construction craftsmen, except carpenters	499	-	48	112	115	223	-	-	-	56	-
Other craftsmen	825	49	170	226	167	115	-	98	-	-	-
Operatives, durable goods manufacturing	2 918	97	454	385	511	799	-	57	113	334	168
Operatives, nondurable goods manufacturing	568	-	227	57	171	-	-	-	57	55	-
Operatives, nonmanufacturing	2 196	194	438	228	730	280	48	-	-	221	56
Taxicab drivers and chauffeurs	-	-	-	-	-	-	-	-	-	-	-
Bus drivers and truck drivers	332	49	56	-	58	169	-	-	-	-	-
Deliverymen and routemen	495	-	155	114	113	114	-	-	-	-	-
Parking attendants	113	-	-	-	-	113	-	-	-	-	-
Other transportation equipment operatives	48	-	48	-	-	-	-	-	-	-	-
Construction laborers	342	-	-	115	171	56	-	-	-	-	-
Other laborers, except farm	2 030	97	410	622	568	284	-	50	-	-	-
Cleaning service workers	225	-	57	56	55	-	-	-	-	56	-
Food service workers	1 477	95	333	113	168	170	98	106	170	169	56
Health service workers	297	-	-	-	-	-	48	136	-	56	55
Personal service workers	431	-	147	-	115	-	-	57	-	56	55
Protective service workers	49	-	49	-	-	-	-	-	-	-	-
Private household workers	328	-	-	-	-	-	-	48	56	223	-
Farmers and farm managers	438	49	109	-	56	167	-	-	-	-	56
Farm laborers and foremen	1 098	-	251	169	458	164	-	-	56	-	-
Not available	4 797	146	969	567	1 365	402	193	430	169	332	225
TENURE OF FIRST REGULAR FULL-TIME JOB											
6 months or less	4 628	339	1 474	622	505	225	485	533	282	53	109
7 to 11 months	674	194	202	-	59	59	48	112	-	-	-
1 year	4 433	194	858	676	961	569	193	308	170	393	112
2 years	3 687	97	849	390	627	337	97	395	282	223	390
3 or 4 years	3 233	-	803	396	448	397	-	462	113	558	56
5 to 9 years	4 004	-	748	389	963	789	48	340	170	390	165
10 to 14 years	1 568	49	213	399	455	169	-	115	56	56	56
15 to 19 years	1 008	-	57	57	227	334	-	56	56	53	168
20 to 30 years	1 471	-	-	170	741	224	-	-	113	111	113
More than 30 years	458	-	-	-	113	345	-	-	-	-	-
Not available[1]	895	-	268	56	343	171	-	-	-	-	56
Median years on job	2.8	1.0	2.1	2.6	4.8	5.9	1.0	2.5	2.6	3.9	2.9
Percent with first job same as current job	2.5	.0	3.0	.0	3.2	1.6	5.5	.0	.0	6.0	9.1

[1] Not used in computing median.

Table 37b. Age and Sex of Those Currently Employed Full Time, by Occupation and Tenure of First Regular Full-Time Job Since Leaving School: Negro

[Limited to persons 16 to 64 years, not in school]

Detailed Occupation Group and Tenure of First Regular Full-Time Job Since Leaving School	Total employed full time	Age and sex of full-time employed									
		Male					Female				
		16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years
OCCUPATION OF FIRST REGULAR FULL-TIME JOB											
Total employed	84 347	3 327	15 619	13 197	12 658	9 000	2 905	9 379	7 642	7 230	3 391
Professional health workers	577	-	109	-	-	-	47	314	53	53	-
Social and recreational workers	149	-	101	-	-	-	47	-	-	-	-
Religious workers	-	-	-	-	-	-	-	-	-	-	-
Other professional workers	1 500	-	221	161	328	108	-	108	108	413	53
Managers and administrators	415	-	309	53	-	-	-	-	53	-	-
Salaried, retail trade	57	-	57	-	-	-	-	-	-	-	-
Salaried, other	311	-	205	53	-	-	-	-	53	-	-
Self-employed, retail trade	-	-	-	-	-	-	-	-	-	-	-
Self-employed, other	47	-	47	-	-	-	-	-	-	-	-
Sales workers, retail trade	1 682	-	218	110	-	57	96	565	479	105	52
Sales workers, other	466	-	203	110	-	-	47	106	-	-	-
Postal clerks and mail carriers	355	-	47	106	51	51	-	47	53	-	-
Shipping and receiving clerks	262	-	151	53	59	-	-	-	-	-	-
Stock clerks and storekeepers	784	47	256	53	-	106	-	108	214	-	-
Other clerical workers	5 041	-	409	115	110	104	764	1 858	850	676	154
Automobile mechanics and body repairmen	573	47	201	214	-	112	-	-	-	-	-
Machinists	-	-	-	-	-	-	-	-	-	-	-
Mechanics and repairmen, except auto	326	-	168	-	53	-	-	-	53	52	-
Metal craftsmen, except mechanics and machinists	802	-	152	219	112	268	-	-	-	52	-
Carpenters	51	-	-	-	-	51	-	-	-	-	-
Construction craftsmen, except carpenters	798	-	259	225	155	159	-	-	-	-	-
Other craftsmen	1 169	94	206	324	111	224	-	-	53	156	-
Operatives, durable goods manufacturing	8 171	427	1 972	2 060	1 900	870	49	154	322	262	156
Operatives, nondurable goods manufacturing	2 835	96	687	777	436	217	-	310	53	259	-
Operatives, nonmanufacturing	4 030	189	612	652	419	545	47	412	481	412	260
Taxicab drivers and chauffeurs	159	-	51	-	56	51	-	-	-	-	-
Bus drivers and truck drivers	1 492	-	306	590	489	106	-	-	-	-	-
Deliverymen and routemen	1 300	49	164	385	431	271	-	-	-	-	-
Parking attendants	159	-	106	53	-	-	-	-	-	-	-
Other transportation equipment operatives	523	-	208	106	210	-	-	-	-	-	-
Construction laborers	2 103	193	527	651	321	411	-	-	-	-	-
Other laborers, except farm	7 619	283	1 692	1 902	1 729	1 278	-	314	106	209	105
Cleaning service workers	2 656	-	823	493	439	216	-	321	53	154	156
Food service workers	6 699	333	1 060	582	700	222	47	1 496	1 119	724	417
Health service workers	2 295	-	272	56	167	-	334	513	534	366	53
Personal service workers	1 772	-	278	160	484	276	47	-	212	262	53
Protective service workers	210	-	104	53	-	53	-	-	-	-	-
Private household workers	4 520	-	-	-	-	-	97	569	1 190	1 774	890
Farmers and farm managers	318	-	51	-	157	109	-	-	-	-	-
Farm laborers and foremen	5 384	49	365	544	1 598	1 939	-	53	108	316	413
Not available	17 153	1 519	3 332	2 391	2 142	1 194	1 281	2 130	1 550	986	629
TENURE OF FIRST REGULAR FULL-TIME JOB											
6 months or less	11 813	949	3 106	1 742	1 070	488	717	2 161	906	363	310
7 to 11 months	4 079	285	1 165	603	269	170	380	999	53	102	53
1 year	11 565	903	2 630	1 559	1 419	424	478	1 630	1 276	1 039	208
2 years	12 357	572	2 520	2 007	1 652	1 184	476	1 159	1 121	1 351	316
3 or 4 years	12 053	238	1 654	1 958	2 601	1 076	192	1 602	1 071	1 244	418
5 to 9 years	13 020	-	3 024	1 845	1 830	1 905	189	1 006	1 497	1 043	680
10 to 14 years	4 998	-	435	693	1 121	959	-	106	540	623	520
15 to 19 years	3 595	-	324	1 042	474	694	-	53	587	264	157
20 to 30 years	4 066	-	-	816	1 401	856	-	-	108	523	362
More than 30 years	319	-	-	-	-	268	-	-	-	-	51
Not available[1]	6 483	380	762	931	820	977	472	663	484	679	315
Median years on job	2.9	1.3	2.2	3.2	4.2	6.8	1.2	1.7	3.4	3.7	6.7
Percent with first job same as current job	1.7	2.9	1.7	1.2	.4	.6	6.5	2.8	2.1	.7	3.1

[1] Not used in computing median.

7541

Table 38. Age and Sex of Those Currently Employed Full Time, by Occupation and Tenure of Longest Job Since Leaving School: All Races

[Limited to persons 16 to 64 years, not in school]

Detailed Occupation Group and Tenure of Longest Job Since Leaving School	Total employed full time	Age and sex of full-time employed									
		Male					Female				
		16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years
OCCUPATION OF LONGEST JOB SINCE LEAVING SCHOOL											
Total employed	113 047	4 249	21 860	16 464	18 490	12 898	3 823	12 467	8 997	9 180	4 618
Professional health workers	1 608	-	277	53	57	-	96	752	54	211	109
Social and recreational workers	275	-	-	-	58	-	47	113	57	-	-
Religious workers	547	-	109	54	220	163	-	-	-	-	-
Other professional workers	3 408	-	879	488	606	113	48	420	326	313	215
Managers and administrators	2 950	49	521	498	489	276	49	162	321	426	159
Retail trade	1 563	49	261	279	325	219	49	109	159	56	56
Other	1 387	-	260	219	163	56	-	53	162	370	103
Sales workers, retail trade	1 438	-	256	56	53	108	48	263	379	217	56
Sales workers, other	676	-	153	-	110	100	-	156	53	51	53
Postal clerks and mail carriers	1 177	-	161	491	157	-	-	206	55	55	51
Shipping and receiving clerks	795	-	248	221	108	113	-	49	56	-	-
Stock clerks and storekeepers	894	47	254	-	337	51	-	48	53	104	-
Other clerical workers	8 414	96	308	221	336	167	1 343	3 316	1 242	951	437
Automobile mechanics and body repairmen	1 501	47	362	444	324	324	-	-	-	-	-
Machinists	586	47	161	-	156	222	-	-	-	-	-
Mechanics and repairmen, except auto	1 331	-	464	163	270	326	-	-	108	-	-
Metal craftsmen, except mechanics and machinists	1 464	-	269	274	485	437	-	-	-	-	-
Carpenters	328	-	156	115	58	-	-	-	-	-	-
Construction craftsmen, except carpenters	1 948	94	472	506	438	436	-	-	-	-	-
Other craftsmen	3 991	144	1 105	975	449	436	96	101	266	419	-
Operatives, durable goods manufacturing	17 934	861	4 703	3 150	4 589	2 963	-	634	381	438	216
Operatives, nondurable goods manufacturing	3 277	97	654	448	490	425	48	367	224	417	107
Operatives, nonmanufacturing	3 777	96	463	711	330	282	-	630	267	681	317
Taxicab drivers and chauffeurs	556	-	167	53	166	115	-	-	55	-	-
Bus drivers and truck drivers	2 879	49	570	1 241	643	321	-	-	55	-	-
Deliverymen and routemen	854	-	312	106	215	221	-	-	-	-	-
Parking attendants	214	-	53	110	-	-	-	-	-	-	-
Other transportation equipment operatives	1 268	-	516	163	383	159	47	-	-	-	51
Construction laborers	1 947	49	334	436	594	534	-	-	-	-	-
Other laborers, except farm	5 510	382	864	1 041	1 397	1 029	-	210	161	322	105
Cleaning service workers	3 945	47	467	567	992	765	-	100	108	638	260
Food service workers	5 042	379	644	379	290	233	47	886	1 186	730	269
Health service workers	3 136	-	149	-	104	55	336	752	745	623	370
Personal service workers	1 295	-	-	49	282	112	47	57	216	374	158
Protective service workers	1 140	-	433	220	-	381	-	-	53	53	-
Private household workers	2 781	-	-	-	57	-	48	100	697	1 094	784
Farmers and farm managers	268	-	160	-	53	55	-	-	-	-	-
Farm laborers and foremen	1 740	49	462	106	271	586	-	53	56	106	51
Not available	22 153	1 715	4 754	3 125	2 926	1 391	1 522	3 092	1 825	955	849
TENURE OF LONGEST JOB SINCE LEAVING SCHOOL											
6 months or less	3 791	523	891	270	448	159	383	801	159	157	-
7 to 11 months	2 399	384	362	272	161	115	380	453	166	104	-
1 year	5 363	578	1 364	448	334	169	578	1 252	326	316	-
2 years	7 970	620	3 000	543	597	230	480	1 428	541	370	163
3 or 4 years	12 979	333	5 230	1 034	437	484	291	2 717	1 399	737	317
5 to 9 years	19 015	47	4 906	3 556	2 289	883	96	2 189	1 880	2 331	838
10 to 14 years	11 900	-	645	2 806	2 403	1 745	47	423	1 562	1 521	749
15 to 19 years	10 581	-	492	2 690	3 112	1 239	-	106	979	1 159	804
20 to 30 years	15 226	-	53	1 847	5 668	5 176	-	-	162	1 583	737
More than 30 years	1 524	-	-	-	112	1 305	-	-	-	-	107
Not available[1]	22 300	1 764	4 917	2 999	2 930	1 393	1 569	3 099	1 823	903	904
Median years on job	8.4	1.6	4.1	11.1	16.8	21.5	1.6	3.6	7.6	10.4	13.6
Percent with longest job same as current job	18.6	24.8	20.3	14.9	11.0	15.3	27.4	22.8	19.8	24.1	25.3

[1] Not used in computing median.

7542
1125

Table 38a. Age and Sex of Those Currently Employed Full Time, by Occupation and Tenure of Longest Job Since Leaving School: White

[Limited to persons 16 to 64 years, not in school]

Detailed Occupation Group and Tenure of Longest Job Since Leaving School	Total employed full time	Age and sex of full-time employed									
		Male					Female				
		16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years
OCCUPATION OF LONGEST JOB SINCE LEAVING SCHOOL											
Total employed	26 059	874	5 472	3 155	5 440	3 620	872	2 320	1 243	1 837	1 226
Professional health workers	492	-	106	-	-	-	-	274	-	56	55
Social and recreational workers	228	-	-	-	58	-	-	113	57	-	-
Religious workers	437	-	109	54	164	110	-	-	-	-	-
Other professional workers	1 363	-	487	111	171	56	-	266	56	53	162
Managers and administrators	885	49	105	114	167	171	-	56	-	167	56
Retail trade	662	49	105	58	167	115	-	56	-	56	56
Other	223	-	-	56	-	56	-	-	-	111	-
Sales workers, retail trade	323	-	105	-	-	-	48	-	57	55	56
Sales workers, other	48	-	-	-	-	-	-	48	-	-	-
Postal clerks and mail carriers	55	-	-	-	-	-	-	-	-	55	-
Shipping and receiving clerks	323	-	97	115	-	55	-	-	56	-	-
Stock clerks and storekeepers	105	-	105	-	-	-	-	-	-	-	-
Other clerical workers	2 001	48	58	56	59	55	485	565	227	167	281
Automobile mechanics and body repairmen	386	-	162	113	111	-	-	-	-	-	-
Machinists	169	-	-	-	-	169	-	-	-	-	-
Mechanics and repairmen, except auto	219	-	107	-	55	58	-	-	-	-	-
Metal craftsmen, except mechanics and machinists	558	-	107	168	114	169	-	-	-	-	-
Carpenters	106	-	49	57	-	-	-	-	-	-	-
Construction craftsmen, except carpenters	727	-	104	224	173	226	-	-	-	-	-
Other craftsmen	691	49	209	168	168	-	48	48	-	-	-
Operatives, durable goods manufacturing	3 491	97	412	444	1 136	734	-	164	113	335	56
Operatives, nondurable goods manufacturing	1 104	97	284	114	167	58	48	57	224	-	55
Operatives, nonmanufacturing	757	48	153	56	167	56	-	-	-	165	112
Taxicab drivers and chauffeurs	230	-	-	-	115	115	-	-	-	-	-
Bus drivers and truck drivers	389	49	113	-	113	114	-	-	-	-	-
Deliverymen and routemen	315	-	146	-	58	112	-	-	-	-	-
Parking attendants	-	-	-	-	-	-	-	-	-	-	-
Other transportation equipment operatives	257	-	145	57	55	-	-	-	-	-	-
Construction laborers	511	-	173	167	171	-	-	-	-	-	-
Other laborers, except farm	1 411	146	305	338	282	228	-	56	-	56	-
Cleaning service workers	952	-	105	57	340	280	-	-	-	169	-
Food service workers	1 226	95	227	114	175	116	-	106	226	56	111
Health service workers	190	-	-	-	-	55	-	79	-	-	55
Personal service workers	114	-	-	-	-	-	-	57	-	56	-
Protective service workers	342	-	115	58	-	169	-	-	-	-	-
Private household workers	161	-	-	-	-	-	48	-	-	113	-
Farmers and farm managers	164	-	109	-	-	55	-	-	-	-	-
Farm laborers and foremen	420	-	193	-	114	56	-	-	56	-	-
Not available	4 906	195	1 082	570	1 307	402	193	430	169	332	225
TENURE OF LONGEST JOB SINCE LEAVING SCHOOL											
6 months or less	1 501	192	468	107	281	56	193	202	-	-	-
7 to 11 months	521	195	48	57	57	59	48	-	56	-	-
1 year	1 650	194	428	112	170	114	194	323	57	56	-
2 years	2 031	-	709	169	113	115	146	442	168	112	56
3 or 4 years	2 623	97	1 370	116	112	113	48	264	282	167	55
5 to 9 years	3 762	-	982	562	560	393	48	546	113	557	-
10 to 14 years	3 254	-	155	848	792	788	-	57	113	220	281
15 to 19 years	1 988	-	57	509	687	170	-	-	227	56	281
20 to 30 years	3 146	-	-	275	1 415	791	-	-	56	336	273
More than 30 years	731	-	-	-	112	564	-	-	-	-	55
Not available[1]	4 851	195	1 254	399	1 141	457	193	486	169	332	225
Median years on job	8.0	1.0	3.7	11.5	15.5	14.6	1.5	2.9	4.8	8.7	16.9
Percent with longest job same as current job	19.5	44.2	26.8	12.6	11.5	17.3	27.7	24.0	18.2	18.1	18.4

[1] Not used in computing median.

Table 38b. Age and Sex of Those Currently Employed Full Time, by Occupation and Tenure of Longest Job Since Leaving School: Negro

(Limited to persons 16 to 64 years, not in school)

Detailed Occupation Group and Tenure of Longest Job Since Leaving School	Total employed full time	Age and sex of full-time employed									
		Male					Female				
		16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	16 to 21 years	22 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years
OCCUPATION OF LONGEST JOB SINCE LEAVING SCHOOL											
Total employed	84 347	3 327	15 619	13 197	12 658	9 000	2 905	9 379	7 642	7 230	3 391
Professional health workers	1 003	-	114	53	57	-	96	422	54	154	53
Social and recreational workers	47	-	-	-	-	-	47	-	-	-	-
Religious workers	109	-	-	-	56	53	-	-	-	-	-
Other professional workers	1 712	-	278	377	329	56	48	97	214	261	53
Managers and administrators	2 008	-	361	384	322	104	49	106	321	259	103
Retail trade	901	-	157	221	159	104	49	53	159	-	-
Other	1 108	-	204	163	163	-	-	53	162	259	103
Sales workers, retail trade	1 001	-	151	56	53	108	-	206	321	104	-
Sales workers, other	628	-	153	-	110	100	-	108	53	51	53
Postal clerks and mail carriers	1 121	-	161	491	157	-	-	206	55	-	51
Shipping and receiving clerks	416	-	96	106	108	58	-	49	-	-	-
Stock clerks and storekeepers	789	47	148	-	337	51	-	48	53	104	-
Other clerical workers	6 141	47	250	164	220	112	811	2 639	959	784	156
Automobile mechanics and body repairmen	1 115	47	200	331	212	324	-	-	-	-	-
Machinists	417	47	161	-	156	53	-	-	-	-	-
Mechanics and repairmen, except auto	1 111	-	357	163	215	268	-	-	108	-	-
Metal craftsmen, except mechanics and machinists	906	-	162	106	371	268	-	-	-	-	-
Carpenters	165	-	106	59	-	-	-	-	-	-	-
Construction craftsmen, except carpenters	1 221	94	368	283	265	211	-	-	-	-	-
Other craftsmen	3 245	95	896	807	280	436	47	53	266	364	-
Operatives, durable goods manufacturing	14 163	765	4 235	2 706	3 340	2 174	-	414	267	103	159
Operatives, nondurable goods manufacturing	2 124	-	371	334	323	367	-	261	-	417	51
Operatives, nonmanufacturing	2 849	47	254	655	163	168	-	572	267	516	205
Taxicab drivers and chauffeurs	326	-	167	53	51	-	-	-	55	-	-
Bus drivers and truck drivers	2 489	-	457	1 241	530	207	-	-	55	-	-
Deliverymen and routemen	539	-	166	106	157	109	-	-	-	-	-
Parking attendants	214	-	53	110	-	-	-	-	-	-	-
Other transportation equipment operatives	1 011	-	371	106	328	159	47	-	-	-	51
Construction laborers	1 436	49	161	269	422	534	-	-	-	-	-
Other laborers, except farm	4 099	236	559	703	1 115	801	-	154	161	265	105
Cleaning service workers	2 887	47	314	454	652	485	-	100	108	469	260
Food service workers	3 647	284	361	265	115	117	47	667	960	674	157
Health service workers	2 946	-	149	-	104	-	336	673	745	623	315
Personal service workers	1 181	-	-	49	282	112	47	-	216	318	158
Protective service workers	798	-	318	162	-	212	-	-	53	53	-
Private household workers	2 619	-	-	-	57	-	-	100	697	981	784
Farmers and farm managers	104	-	51	-	53	-	-	-	-	-	-
Farm laborers and foremen	1 267	49	269	106	157	476	-	53	-	106	51
Not available	16 492	1 472	3 403	2 499	1 561	876	1 328	2 451	1 656	623	624
TENURE OF LONGEST JOB SINCE LEAVING SCHOOL											
6 months or less	2 242	331	423	163	166	102	189	550	159	157	-
7 to 11 months	1 831	189	314	215	104	56	286	453	110	104	-
1 year	3 494	383	935	336	57	55	383	816	269	260	-
2 years	5 544	620	2 009	373	484	115	334	872	373	258	106
3 or 4 years	10 084	236	3 698	918	325	318	243	2 396	1 117	570	262
5 to 9 years	14 802	47	3 924	2 994	1 616	491	47	1 530	1 654	1 660	838
10 to 14 years	8 589	-	433	1 958	1 610	958	47	366	1 448	1 301	468
15 to 19 years	8 478	-	436	2 124	2 367	1 069	-	106	752	1 102	523
20 to 30 years	11 910	-	53	1 572	4 196	4 272	-	-	106	1 247	464
More than 30 years	792	-	-	-	-	741	-	-	-	-	51
Not available[1]	16 581	1 521	3 394	2 543	1 731	823	1 375	2 289	1 654	571	679
Median years on job	8.6	2.0	4.3	10.8	17.3	22.4	1.8	3.7	7.9	11.2	11.6
Percent with longest job same as current job	17.9	20.0	17.9	15.6	9.8	14.4	26.2	20.2	20.3	25.9	27.8

[1] Not used in computing median.

Table 39. Major Occupation Group of Current Job of Males Employed on Full-Time Schedules: All Races

(Limited to males 16 to 64 years, not in school)

Major Occupation Groups of Longest and First Jobs Since Leaving School for Selected Age Groups	Total males currently employed on full-time schedules	Major occupation group of current job										
		Professional and technical	Managerial and administrative	Sales	Clerical	Craftsmen and foremen	Operatives, except transportation	Transport equipment operatives	Laborers, except farm	Service workers, except private household	Private household workers	Farmers, farm managers, farm laborers, and foremen	Not available
MAJOR OCCUPATION GROUP OF LONGEST JOB													
Males, total	88 078	4 178	2 765	963	6 468	15 363	31 736	7 610	9 954	8 826	57	159	-
Same as current job	32 078	1 255	689	318	2 219	6 429	12 586	2 806	2 650	3 016	57	53	-
Different from current job	56 000	2 923	2 075	645	4 249	8 935	19 150	4 804	7 304	5 810	-	106	-
Professional and technical	3 566	2 618	115	-	114	164	219	111	108	116	-	-	-
Managerial and administrative	1 945	-	1 455	106	58	-	51	56	110	108	-	-	-
Sales	1 006	49	157	538	57	100	49	-	-	-	-	56	-
Clerical	4 339	158	157	-	3 284	103	425	47	113	53	-	-	-
Craftsmen and foremen	11 917	103	110	57	483	9 225	1 113	208	339	279	-	-	-
Operatives, except transportation	25 594	111	160	56	490	1 303	20 194	751	1 646	882	-	-	-
Transport equipment operatives	6 311	51	-	53	53	382	982	4 356	105	280	-	49	-
Laborers, except farm	8 409	56	106	-	159	689	1 446	267	5 312	373	-	-	-
Service workers, except private household	7 318	53	57	-	196	327	949	-	302	5 433	-	-	-
Private household workers	57	-	-	-	-	-	-	-	-	-	57	-	-
Farmers and farm managers	268	-	-	-	-	-	215	-	53	-	-	-	-
Farm laborers and foremen	1 627	-	-	-	97	217	575	160	309	217	-	53	-
Not available	15 721	978	447	152	1 476	2 853	5 517	1 653	1 558	1 086	-	-	-
Males, 25 to 34 years old	20 060	1 552	826	157	1 398	3 251	8 178	1 486	1 939	1 274	-	-	-
Professional and technical	1 325	881	115	-	57	57	105	-	53	57	-	-	-
Managerial and administrative	328	-	328	-	-	-	-	-	-	-	-	-	-
Sales	313	-	57	157	-	100	-	-	-	-	-	-	-
Clerical	911	57	48	-	429	-	271	47	58	-	-	-	-
Craftsmen and foremen	2 754	103	53	-	111	1 745	579	48	115	-	-	-	-
Operatives, except transportation	5 800	56	53	-	218	162	4 673	158	424	56	-	-	-
Transport equipment operatives	1 340	-	-	-	-	51	279	961	48	-	-	-	-
Laborers, except farm	1 396	-	-	-	-	203	386	-	645	162	-	-	-
Service workers, except private household	1 310	-	-	-	53	53	262	-	56	885	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	160	-	-	-	-	-	160	-	-	-	-	-	-
Farm laborers and foremen	515	-	-	-	97	107	210	-	101	-	-	-	-
Not available	3 908	454	172	-	434	774	1 251	272	437	113	-	-	-
Males, 35 to 44 years old	19 939	822	551	166	1 698	4 135	6 927	2 009	1 809	1 823	-	-	-
Professional and technical	762	652	-	-	-	-	57	53	-	-	-	-	-
Managerial and administrative	498	-	330	-	58	-	-	-	110	-	-	-	-
Sales	56	-	-	56	-	-	-	-	-	-	-	-	-
Clerical	1 213	-	-	-	996	56	53	-	55	53	-	-	-
Craftsmen and foremen	2 966	-	-	-	166	2 580	109	110	-	-	-	-	-
Operatives, except transportation	5 622	-	56	56	57	389	4 138	273	431	222	-	-	-
Transport equipment operatives	2 008	-	-	53	53	162	549	1 078	-	113	-	-	-
Laborers, except farm	1 873	56	55	-	106	113	440	58	992	53	-	-	-
Service workers, except private household	1 440	-	57	-	47	57	111	-	53	1 114	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	159	-	-	-	-	-	106	-	-	53	-	-	-
Not available	3 342	114	53	-	215	778	1 363	437	168	215	-	-	-
Males, 45 to 54 years old	21 599	875	711	272	1 487	3 991	7 027	1 907	2 702	2 570	57	-	-
Professional and technical	1 000	662	-	-	57	51	57	59	55	59	-	-	-
Managerial and administrative	544	-	386	106	-	-	51	-	-	-	-	-	-
Sales	163	-	53	110	-	-	-	-	-	-	-	-	-
Clerical	1 203	53	108	-	988	-	53	-	-	-	-	-	-
Craftsmen and foremen	2 680	-	-	-	-	2 338	169	-	-	173	-	-	-
Operatives, except transportation	6 871	-	51	-	164	443	5 275	55	493	390	-	-	-
Transport equipment operatives	1 460	51	-	-	-	56	106	1 135	-	111	-	-	-
Laborers, except farm	2 205	-	-	-	53	268	210	57	1 616	-	-	-	-
Service workers, except private household	1 780	-	-	-	-	109	170	-	51	1 450	-	-	-
Private household workers	57	-	-	-	-	-	-	-	-	-	57	-	-
Farmers and farm managers	53	-	-	-	-	-	-	-	53	-	-	-	-
Farm laborers and foremen	271	-	-	-	-	56	-	53	104	58	-	-	-
Not available	3 313	109	112	56	225	668	935	548	330	331	-	-	-
Males, 55 to 64 years old	15 247	543	384	272	778	2 554	4 812	1 295	2 069	2 431	-	109	-
Professional and technical	382	326	-	-	-	56	-	-	-	-	-	-	-
Managerial and administrative	333	-	219	-	-	-	-	56	-	58	-	-	-
Sales	377	-	-	215	57	-	49	-	-	-	-	56	-
Clerical	384	-	-	-	384	-	-	-	-	-	-	-	-
Craftsmen and foremen	2 463	-	57	57	112	1 795	112	-	224	106	-	-	-
Operatives, except transportation	4 375	55	-	-	52	167	3 659	217	58	167	-	-	-
Transport equipment operatives	975	-	-	-	-	113	-	749	56	56	-	-	-
Laborers, except farm	1 833	-	51	-	-	104	219	56	1 292	109	-	-	-
Service workers, except private household	1 874	53	-	-	-	108	170	-	-	1 543	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	55	-	-	-	-	-	55	-	-	-	-	-	-
Farm laborers and foremen	586	-	-	-	-	53	210	107	56	106	-	53	-
Not available	1 610	109	58	-	172	157	337	110	383	284	-	-	-

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Table 39. Major Occupation Group of Current Job of Males Employed on Full-Time Schedules: All Races–Continued

[Limited to males 16 to 64 years, not in school]

Major Occupation Groups of Longest and First Jobs Since Leaving School for Selected Age Groups	Total males currently employed on full-time schedules	Major occupation group of current job										
		Professional and technical	Managerial and administrative	Sales	Clerical	Craftsmen and foremen	Operatives, except transportation	Transport equipment operatives	Laborers, except farm	Service workers, except private household	Private household workers	Farmers, farm managers, farm laborers, and foremen	Not available
MAJOR OCCUPATION GROUP OF FIRST JOB													
Males, total	88 078	4 178	2 765	963	6 468	15 363	31 736	7 610	9 954	8 826	57	159	-
Same as current job	1 291	57	-	-	369	497	312	-	56	-	-	-	-
Different from current job	86 787	4 121	2 765	963	6 099	14 867	31 424	7 610	9 898	8 826	57	159	-
Professional and technical	2 688	1 036	277	104	228	323	270	59	110	281	-	-	-
Managerial and administrative	794	159	98	55	101	-	53	56	106	165	-	-	-
Sales	1 447	115	158	55	259	325	263	47	112	112	-	-	-
Clerical	3 409	256	275	51	253	371	1 392	163	158	489	-	-	-
Craftsmen and foremen	6 068	380	166	165	468	1 779	1 706	373	426	606	-	-	-
Operatives, except transportation	20 220	269	484	110	1 350	3 473	7 967	2 034	2 459	2 074	-	-	-
Transport equipment operatives	5 387	53	56	109	111	911	1 739	1 096	706	500	57	49	-
Laborers, except farm	14 150	609	420	-	1 200	2 604	5 458	694	1 806	1 302	-	56	-
Service workers, except private household	10 044	272	331	113	704	1 618	3 909	593	1 027	1 424	-	53	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	699	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	6 557	51	51	-	318	1 069	2 424	650	1 218	776	-	-	-
Not available	16 614	978	447	201	1 476	2 890	6 016	1 794	1 716	1 096	-	-	-
Males, 25 to 34 years old	20 060	1 552	826	157	1 398	3 251	8 178	1 486	1 939	1 274	-	-	-
Professional and technical	1 264	442	220	53	114	110	158	-	53	114	-	-	-
Managerial and administrative	311	104	49	-	48	-	-	-	53	57	-	-	-
Sales	542	115	-	55	47	156	112	-	-	57	-	-	-
Clerical	1 091	-	57	-	-	115	756	47	58	58	-	-	-
Craftsmen and foremen	1 451	114	53	-	-	492	539	101	152	-	-	-	-
Operatives, except transportation	3 982	48	165	-	166	601	2 031	375	318	276	-	-	-
Transport equipment operatives	905	-	-	-	-	104	323	256	164	57	-	-	-
Laborers, except farm	2 759	169	53	-	115	694	1 298	109	160	160	-	-	-
Service workers, except private household	3 103	57	114	-	323	223	1 291	274	440	382	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	160	-	-	-	-	-	160	-	-	-	-	-	-
Farm laborers and foremen	731	-	-	-	97	96	270	109	159	-	-	-	-
Not available	3 761	502	115	49	488	660	1 240	213	381	113	-	-	-
Males, 35 to 44 years old	19 939	822	551	166	1 698	4 135	6 927	2 009	1 809	1 823	-	-	-
Professional and technical	382	329	-	-	-	53	-	-	-	-	-	-	-
Managerial and administrative	53	-	-	-	-	-	-	-	-	-	-	-	-
Sales	333	-	55	-	-	112	56	-	55	55	-	-	-
Clerical	440	-	110	-	111	53	113	-	-	53	-	-	-
Craftsmen and foremen	1 591	109	56	-	320	603	333	113	-	56	-	-	-
Operatives, except transportation	5 082	-	114	-	221	1 207	1 795	808	388	549	-	-	-
Transport equipment operatives	1 531	-	-	53	111	268	604	213	115	167	-	-	-
Laborers, except farm	4 234	217	163	-	442	788	1 635	169	491	329	-	-	-
Service workers, except private household	1 903	53	-	113	214	336	584	166	213	224	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	986	-	-	-	113	108	330	109	215	111	-	-	-
Not available	3 404	114	53	-	166	607	1 476	431	280	278	-	-	-
Males, 45 to 54 years old	21 599	875	711	272	1 487	3 991	7 027	1 907	2 702	2 570	57	-	-
Professional and technical	663	107	-	-	115	104	112	59	-	167	-	-	-
Managerial and administrative	110	55	-	55	-	-	-	-	-	-	-	-	-
Sales	113	-	55	-	58	-	-	-	-	-	-	-	-
Clerical	675	107	51	-	-	55	230	116	-	115	-	-	-
Craftsmen and foremen	877	54	-	51	53	276	165	55	109	112	-	-	-
Operatives, except transportation	5 032	109	109	110	435	816	1 740	223	875	615	-	-	-
Transport equipment operatives	1 625	-	56	-	-	269	545	206	326	165	57	-	-
Laborers, except farm	3 440	170	106	-	496	551	1 301	167	373	277	-	-	-
Service workers, except private household	2 570	113	164	-	112	547	969	56	163	447	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	213	-	-	-	-	-	109	51	53	-	-	-	-
Farm laborers and foremen	2 326	51	-	-	-	485	704	272	474	341	-	-	-
Not available	3 954	109	169	56	219	887	1 153	702	328	331	-	-	-
Males, 55 to 64 years old	15 247	543	384	272	778	2 554	4 812	1 295	2 069	2 431	-	109	-
Professional and technical	332	110	57	51	-	56	-	-	57	-	-	-	-
Managerial and administrative	167	-	-	-	53	-	-	56	-	58	-	-	-
Sales	171	-	-	-	57	56	-	-	57	-	-	-	-
Clerical	484	53	57	51	-	53	56	-	53	160	-	-	-
Craftsmen and foremen	1 429	53	57	113	-	216	331	104	165	389	-	-	-
Operatives, except transportation	3 144	112	-	-	281	610	1 106	483	158	394	-	-	-
Transport equipment operatives	937	53	-	56	-	221	169	275	51	112	-	-	-
Laborers, except farm	2 473	53	51	-	51	428	699	56	591	487	-	56	-
Service workers, except private household	1 370	-	53	-	55	271	545	-	116	277	-	53	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	277	-	-	-	-	-	220	-	56	-	-	-	-
Farm laborers and foremen	2 370	-	51	-	108	381	1 024	160	323	324	-	-	-
Not available	2 094	109	58	-	172	260	663	161	441	231	-	-	-

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Table 39a. Major Occupation Group of Current Job of Males Employed on Full-Time Schedules: White

[Limited to males 16 to 64 years, not in school]

Major Occupation Groups of Longest and First Jobs Since Leaving School for Selected Age Groups	Total males currently employed on full-time schedules	Major occupation group of current job											
		Professional and technical	Managerial and administrative	Sales	Clerical	Craftsmen and foremen	Operatives, except transportation	Transport equipment operatives	Laborers, except farm	Service workers, except private household	Private household workers	Farmers, farm managers, farm laborers, and foremen	Not available
MAJOR OCCUPATION GROUP OF LONGEST JOB													
Males, total	21 410	1 664	950	224	1 809	4 368	5 561	1 622	2 236	2 928	-	49	-
Same as current job	6 440	666	220	-	542	1 409	1 940	322	612	729	-	-	-
Different from current job	14 970	998	730	224	1 266	2 960	3 621	1 299	1 624	2 199	-	49	-
Professional and technical	1 542	1 323	57	-	57	56	48	-	-	-	-	-	-
Managerial and administrative	661	-	492	55	-	-	-	56	-	58	-	-	-
Sales	218	-	57	113	-	48	-	-	-	-	-	-	-
Clerical	820	-	-	-	706	56	-	-	58	-	-	-	-
Craftsmen and foremen	3 488	56	-	-	278	2 387	435	104	57	170	-	-	-
Operatives, except transportation	4 926	56	56	-	279	494	3 441	211	218	170	-	-	-
Transport equipment operatives	1 248	-	-	-	-	56	55	811	48	227	-	49	-
Laborers, except farm	2 075	-	-	-	-	275	216	164	1 365	56	-	-	-
Service workers, except private household	2 133	-	57	-	-	113	55	-	-	1 908	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	164	-	-	-	-	-	164	-	-	-	-	-	-
Farm laborers and foremen	363	-	-	-	97	105	-	-	104	58	-	-	-
Not available	3 774	229	231	56	393	778	1 146	275	385	281	-	-	-
Males, 25 to 34 years old	4 815	775	285	-	536	866	1 045	258	538	513	-	-	-
Professional and technical	711	549	57	-	57	-	48	-	-	-	-	-	-
Managerial and administrative	56	-	56	-	-	-	-	-	-	-	-	-	-
Sales	105	-	57	-	-	48	-	-	-	-	-	-	-
Clerical	163	-	-	-	105	-	-	-	58	-	-	-	-
Craftsmen and foremen	767	56	-	-	-	502	161	48	-	-	-	-	-
Operatives, except transportation	760	56	-	-	57	105	445	48	48	-	-	-	-
Transport equipment operatives	210	-	-	-	-	-	-	161	48	-	-	-	-
Laborers, except farm	446	-	-	-	-	48	111	-	230	56	-	-	-
Service workers, except private household	400	-	-	-	-	-	-	-	-	400	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	109	-	-	-	-	-	109	-	-	-	-	-	-
Farm laborers and foremen	193	-	-	-	97	48	-	-	48	-	-	-	-
Not available	896	114	115	-	220	114	171	-	105	57	-	-	-
Males, 35 to 44 years old	4 173	223	227	-	452	1 076	1 067	228	445	455	-	-	-
Professional and technical	223	223	-	-	-	-	-	-	-	-	-	-	-
Managerial and administrative	114	-	114	-	-	-	-	-	-	-	-	-	-
Sales	-	-	-	-	-	-	-	-	-	-	-	-	-
Clerical	285	-	-	-	229	56	-	-	-	-	-	-	-
Craftsmen and foremen	842	-	-	-	166	563	56	56	-	-	-	-	-
Operatives, except transportation	1 123	-	56	-	57	114	670	57	112	57	-	-	-
Transport equipment operatives	113	-	-	-	-	-	-	-	-	113	-	-	-
Laborers, except farm	561	-	-	-	-	113	56	58	333	-	-	-	-
Service workers, except private household	342	-	57	-	-	-	-	-	-	285	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	-	-	-	-	-	-	-	-	-	-	-	-	-
Not available	570	-	-	-	-	229	284	57	-	-	-	-	-
Males, 45 to 54 years old	6 116	450	225	111	344	1 297	1 866	454	506	863	-	-	-
Professional and technical	392	392	-	-	-	-	-	-	-	-	-	-	-
Managerial and administrative	222	-	167	55	-	-	-	-	-	-	-	-	-
Sales	-	-	-	-	-	-	-	-	-	-	-	-	-
Clerical	116	-	-	-	116	-	-	-	-	-	-	-	-
Craftsmen and foremen	851	-	-	-	-	567	169	-	-	115	-	-	-
Operatives, except transportation	1 638	-	-	-	112	168	1 299	-	-	59	-	-	-
Transport equipment operatives	341	-	-	-	-	-	55	228	-	58	-	-	-
Laborers, except farm	453	-	-	-	-	113	-	57	283	-	-	-	-
Service workers, except private household	571	-	-	-	-	56	-	-	-	515	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	114	-	-	-	-	56	-	-	-	58	-	-	-
Not available	1 418	58	59	56	115	337	343	168	224	59	-	-	-
Males, 55 to 64 years old	4 016	168	115	113	332	738	904	342	455	850	-	-	-
Professional and technical	166	110	-	-	-	56	-	-	-	-	-	-	-
Managerial and administrative	171	-	57	-	-	-	-	56	-	58	-	-	-
Sales	113	-	-	113	-	-	-	-	-	-	-	-	-
Clerical	110	-	-	-	110	-	-	-	-	-	-	-	-
Craftsmen and foremen	734	-	-	-	112	510	-	-	57	55	-	-	-
Operatives, except transportation	1 018	-	-	-	52	59	737	58	58	55	-	-	-
Transport equipment operatives	341	-	-	-	-	56	-	228	-	56	-	-	-
Laborers, except farm	228	-	-	-	-	-	-	-	228	-	-	-	-
Service workers, except private household	621	-	-	-	-	56	55	-	-	509	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	55	-	-	-	-	-	55	-	-	-	-	-	-
Farm laborers and foremen	56	-	-	-	-	-	-	-	56	-	-	-	-
Not available	402	58	58	-	58	-	56	-	56	116	-	-	-

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Table 39a. Major Occupation Group of Current Job of Males Employed on Full-Time Schedules: White—Continued

[Limited to males 16 to 64 years, not in school]

Major Occupation Groups of Longest and First Jobs Since Leaving School for Selected Age Groups	Total males currently employed on full-time schedules	Major occupation group of current job										
		Professional and technical	Managerial and administrative	Sales	Clerical	Craftsmen and foremen	Operatives, except transportation	Transport equipment operatives	Laborers, except farm	Service workers, except private household	Private household workers	Farmers, farm managers, farm laborers, and foremen	Not available
MAJOR OCCUPATION GROUP OF FIRST JOB													
Males, total	21 410	1 664	950	224	1 809	4 368	5 561	1 622	2 236	2 928	-	49	-
Same as current job	450	57	-	-	116	169	108	-	-	-	-	-	-
Different from current job	20 961	1 607	950	224	1 693	4 199	5 453	1 622	2 236	2 928	-	49	-
Professional and technical	995	608	57	-	114	56	103	-	-	57	-	-	-
Managerial and administrative	322	55	49	55	48	-	-	56	-	58	-	-	-
Sales	646	115	103	-	106	105	159	-	57	-	-	-	-
Clerical	1 176	56	114	-	48	170	387	58	58	284	-	-	-
Craftsmen and foremen	1 924	168	56	56	167	610	382	104	105	275	-	-	-
Operatives, except transportation	5 232	48	170	-	444	1 180	1 493	536	689	671	-	-	-
Transport equipment operatives	1 101	-	56	56	-	275	114	324	-	227	-	49	-
Laborers, except farm	3 116	336	-	-	114	777	889	220	323	457	-	-	-
Service workers, except private household	1 753	49	112	-	114	428	274	105	227	444	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	381	-	-	-	-	-	325	-	56	-	-	-	-
Farm laborers and foremen	1 099	-	-	-	260	162	226	-	276	175	-	-	-
Not available	3 667	229	231	56	393	605	1 210	218	444	281	-	-	-
Males, 25 to 34 years old	4 815	775	285	-	536	866	1 045	258	538	513	-	-	-
Professional and technical	605	329	57	-	114	-	48	-	-	57	-	-	-
Managerial and administrative	48	-	-	-	48	-	-	-	-	-	-	-	-
Sales	218	115	-	-	-	48	54	-	-	-	-	-	-
Clerical	343	-	-	-	-	115	112	-	58	58	-	-	-
Craftsmen and foremen	542	114	-	-	-	168	163	48	48	-	-	-	-
Operatives, except transportation	981	48	56	-	57	333	226	97	107	57	-	-	-
Transport equipment operatives	113	-	-	-	-	-	-	56	-	57	-	-	-
Laborers, except farm	425	54	-	-	-	154	104	-	57	56	-	-	-
Service workers, except private household	398	-	57	-	-	-	57	57	57	171	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	109	-	-	-	-	-	109	-	-	-	-	-	-
Farm laborers and foremen	251	-	-	-	97	48	-	-	106	-	-	-	-
Not available	782	114	115	-	220	-	171	-	105	57	-	-	-
Males, 35 to 44 years old	4 173	223	237	-	452	1 076	1 067	228	445	455	-	-	-
Professional and technical	111	111	-	-	-	-	-	-	-	-	-	-	-
Managerial and administrative	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales	56	-	-	-	-	-	-	-	-	-	-	-	-
Clerical	113	-	57	-	-	-	56	-	-	-	-	-	-
Craftsmen and foremen	504	-	56	-	167	168	56	56	-	-	-	-	-
Operatives, except transportation	898	-	114	-	115	285	105	57	109	112	-	-	-
Transport equipment operatives	114	-	-	-	-	56	-	-	-	58	-	-	-
Laborers, except farm	1 303	112	-	-	114	283	453	58	112	171	-	-	-
Service workers, except private household	338	-	-	-	-	112	56	-	56	114	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	169	-	-	-	56	57	-	-	56	-	-	-	-
Not available	567	-	-	-	-	114	284	57	112	-	-	-	-
Males, 45 to 54 years old	6 116	450	225	111	344	1 297	1 866	454	506	863	-	-	-
Professional and technical	113	58	-	-	-	-	55	-	-	-	-	-	-
Managerial and administrative	110	55	-	55	-	-	-	-	-	-	-	-	-
Sales	113	-	55	-	58	-	-	-	-	-	-	-	-
Clerical	398	56	-	-	-	55	114	58	-	115	-	-	-
Craftsmen and foremen	282	54	-	-	-	114	57	-	56	-	-	-	-
Operatives, except transportation	1 580	-	-	-	112	226	620	170	224	228	-	-	-
Transport equipment operatives	226	-	56	-	-	56	114	-	-	-	-	-	-
Laborers, except farm	854	170	-	-	-	284	170	114	-	116	-	-	-
Service workers, except private household	507	-	55	-	59	113	113	-	55	113	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	56	-	-	-	-	-	56	-	-	-	-	-	-
Farm laborers and foremen	458	-	-	-	-	56	169	-	57	175	-	-	-
Not available	1 421	58	59	56	115	394	398	112	114	116	-	-	-
Males, 55 to 64 years old	4 016	168	115	113	332	738	904	342	455	850	-	-	-
Professional and technical	166	110	-	-	-	56	-	-	-	-	-	-	-
Managerial and administrative	114	-	-	-	-	-	-	56	-	58	-	-	-
Sales	114	-	-	-	-	56	-	-	57	-	-	-	-
Clerical	169	-	57	-	-	-	56	-	-	55	-	-	-
Craftsmen and foremen	451	-	-	56	-	112	56	-	-	226	-	-	-
Operatives, except transportation	1 192	-	-	-	112	287	397	115	55	226	-	-	-
Transport equipment operatives	452	-	-	56	-	114	-	170	-	112	-	-	-
Laborers, except farm	341	-	-	-	-	56	113	-	58	114	-	-	-
Service workers, except private household	170	-	-	-	55	56	-	-	59	-	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	167	-	-	-	-	-	111	-	56	-	-	-	-
Farm laborers and foremen	220	-	-	-	108	-	56	-	56	-	-	-	-
Not available	459	58	58	-	58	-	114	-	114	59	-	-	-

Table 39b. Major Occupation Group of Current Job of Males Employed on Full-Time Schedules: Negro

(Limited to males 16 to 64 years, not in school)

Major Occupation Groups of Longest and First Jobs Since Leaving School for Selected Age Groups	Total males currently employed on full-time schedules	Major occupation group of current job											
		Professional and technical	Managerial and administrative	Sales	Clerical	Craftsmen and foremen	Operatives, except transportation	Transport equipment operatives	Laborers, except farm	Service workers, except private household	Private household workers	Farmers, farm managers, farm laborers, and foremen	Not available
MAJOR OCCUPATION GROUP OF LONGEST JOB													
Males, total	64 952	2 188	1 759	739	4 488	10 834	25 504	5 988	7 663	5 623	57	109	-
Same as current job	25 192	589	470	318	1 677	4 964	10 418	2 483	2 038	2 126	57	53	-
Different from current job	39 760	1 600	1 289	421	2 811	5 870	15 087	3 504	5 624	3 497	-	56	-
Professional and technical	1 747	1 188	59	-	-	51	114	111	108	116	-	-	-
Managerial and administrative	1 228	-	907	51	58	-	51	-	110	50	-	-	-
Sales	788	49	100	425	57	51	49	-	-	-	-	56	-
Clerical	3 406	158	157	-	2 521	47	368	47	55	53	-	-	-
Craftsmen and foremen	8 316	47	110	57	205	6 782	678	103	282	51	-	-	-
Operatives, except transportation	20 330	-	104	56	212	809	16 524	540	1 373	711	-	-	-
Transport equipment operatives	5 064	51	-	53	53	326	927	3 545	56	53	-	-	-
Laborers, except farm	6 275	56	106	-	159	414	1 172	104	3 947	317	-	-	-
Service workers, except private household	3 024	53	-	-	196	214	894	-	302	3 363	-	-	-
Private household workers	57	-	-	-	-	-	-	-	-	-	57	-	-
Farmers and farm managers	104	-	-	-	-	-	51	-	53	-	-	-	-
Farm laborers and foremen	1 210	-	-	-	-	112	522	160	204	159	-	53	-
Not available	11 404	585	216	96	1 027	2 027	4 152	1 378	1 173	749	-	-	-
Males, 25 to 34 years old	14 622	605	485	157	862	2 328	6 850	1 228	1 401	705	-	-	-
Professional and technical	444	275	59	-	-	-	-	-	53	57	-	-	-
Managerial and administrative	216	-	216	-	-	-	-	-	-	-	-	-	-
Sales	208	-	-	157	-	51	-	-	-	-	-	-	-
Clerical	692	57	48	-	324	-	215	47	-	-	-	-	-
Craftsmen and foremen	1 987	47	53	-	111	1 243	419	-	115	-	-	-	-
Operatives, except transportation	4 926	-	53	-	161	56	4 115	109	376	56	-	-	-
Transport equipment operatives	1 130	-	-	-	-	51	279	800	-	-	-	-	-
Laborers, except farm	951	-	-	-	-	155	275	-	415	106	-	-	-
Service workers, except private household	854	-	-	-	53	53	262	-	56	429	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	51	-	-	-	-	-	51	-	-	-	-	-	-
Farm laborers and foremen	322	-	-	-	-	59	210	-	53	-	-	-	-
Not available	2 841	226	57	-	214	660	1 024	272	332	56	-	-	-
Males, 35 to 44 years old	15 595	599	323	166	1 246	3 059	5 802	1 781	1 363	1 255	-	-	-
Professional and technical	539	429	-	-	-	-	57	53	-	-	-	-	-
Managerial and administrative	384	-	216	-	58	-	-	-	110	-	-	-	-
Sales	56	-	-	56	-	-	-	-	-	-	-	-	-
Clerical	928	-	-	-	767	-	53	-	55	53	-	-	-
Craftsmen and foremen	2 124	-	-	-	-	2 017	53	54	-	-	-	-	-
Operatives, except transportation	4 499	-	-	56	-	274	3 468	216	319	165	-	-	-
Transport equipment operatives	1 895	-	-	53	53	162	549	1 078	-	-	-	-	-
Laborers, except farm	1 254	56	55	-	106	-	326	-	658	53	-	-	-
Service workers, except private household	1 041	-	-	-	47	57	111	-	53	773	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	159	-	-	-	-	-	106	-	-	53	-	-	-
Not available	2 716	114	53	-	215	548	1 079	380	168	159	-	-	-
Males, 45 to 54 years old	15 034	376	485	161	1 029	2 637	5 047	1 454	2 140	1 650	57	-	-
Professional and technical	501	221	-	-	-	51	57	59	55	59	-	-	-
Managerial and administrative	322	-	219	51	-	-	51	-	-	-	-	-	-
Sales	163	-	53	110	-	-	-	-	-	-	-	-	-
Clerical	1 029	53	108	-	815	-	53	-	-	-	-	-	-
Craftsmen and foremen	1 715	-	-	-	-	1 715	-	-	-	-	-	-	-
Operatives, except transportation	5 120	-	51	-	51	275	3 919	55	437	331	-	-	-
Transport equipment operatives	1 119	51	-	-	-	56	51	907	-	53	-	-	-
Laborers, except farm	1 752	-	-	-	53	155	210	-	1 333	-	-	-	-
Service workers, except private household	1 209	-	-	-	-	53	170	-	51	935	-	-	-
Private household workers	57	-	-	-	-	-	-	-	-	-	57	-	-
Farmers and farm managers	53	-	-	-	-	-	-	-	53	-	-	-	-
Farm laborers and foremen	157	-	-	-	-	-	-	53	104	-	-	-	-
Not available	1 838	51	53	-	110	331	535	380	106	272	-	-	-
Males, 55 to 64 years old	10 952	320	270	159	389	1 813	3 741	954	1 614	1 581	-	109	-
Professional and technical	216	216	-	-	-	-	-	-	-	-	-	-	-
Managerial and administrative	161	-	161	-	-	-	-	-	-	-	-	-	-
Sales	265	-	-	102	57	-	49	-	-	-	-	56	-
Clerical	274	-	-	-	274	-	-	-	-	-	-	-	-
Craftsmen and foremen	1 729	-	57	57	-	1 285	112	-	167	51	-	-	-
Operatives, except transportation	3 244	-	-	-	-	108	2 865	159	-	112	-	-	-
Transport equipment operatives	634	-	-	-	-	56	-	521	56	-	-	-	-
Laborers, except farm	1 605	-	51	-	-	104	219	56	1 064	109	-	-	-
Service workers, except private household	1 253	53	-	-	-	51	115	-	-	1 034	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	476	-	-	-	-	53	157	107	-	106	-	53	-
Not available	1 096	51	-	-	59	157	224	110	327	168	-	-	-

Table 39b. Major Occupation Group of Current Job of Males Employed on Full-Time Schedules: Negro—Continued

[Limited to males 16 to 64 years, not in school]

Major Occupation Groups of Longest and First Jobs Since Leaving School for Selected Age Groups	Total males currently employed on full-time schedules	Major occupation group of current job											
		Professional and technical	Managerial and administrative	Sales	Clerical	Craftsmen and foremen	Operatives, except transportation	Transport equipment operatives	Laborers, except farm	Service workers, except private household	Private household workers	Farmers, farm managers, farm laborers, and foremen	Not available
MAJOR OCCUPATION GROUP OF FIRST JOB													
Males, total	64 952	2 188	1 759	739	4 488	10 834	25 504	5 988	7 663	5 623	57	109	-
Same as current job	793	-	-	-	254	279	204	-	56	-	-	-	-
Different from current job	64 159	2 188	1 759	739	4 234	10 555	25 300	5 988	7 606	5 623	57	109	-
Professional and technical	1 417	379	164	104	57	210	110	59	110	224	-	-	-
Managerial and administrative	416	47	49	-	53	-	53	-	106	107	-	-	-
Sales	802	-	55	55	153	220	104	47	55	112	-	-	-
Clerical	2 119	199	161	51	205	200	891	106	100	204	-	-	-
Craftsmen and foremen	4 087	212	110	108	301	1 169	1 323	269	321	274	-	-	-
Operatives, except transportation	14 662	166	314	110	848	2 293	6 421	1 498	1 715	1 297	-	-	-
Transport equipment operatives	4 286	53	-	53	111	636	1 625	772	706	274	57	-	-
Laborers, except farm	10 978	273	420	-	1 086	1 827	4 513	474	1 483	845	-	56	-
Service workers, except private household	8 065	223	219	113	590	1 133	3 522	488	800	924	-	53	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	318	-	-	-	-	-	214	51	53	-	-	-	-
Farm laborers and foremen	5 401	51	51	-	57	907	2 140	650	942	601	-	-	-
Not available	12 403	585	216	145	1 027	2 237	4 588	1 576	1 272	758	-	-	-
Males, 25 to 34 years old	14 622	605	485	157	862	2 328	6 850	1 228	1 401	705	-	-	-
Professional and technical	489	114	107	53	-	53	53	-	53	57	-	-	-
Managerial and administrative	206	47	49	-	-	-	-	-	53	57	-	-	-
Sales	324	-	-	55	47	108	57	-	-	57	-	-	-
Clerical	692	-	57	-	-	-	588	47	-	-	-	-	-
Craftsmen and foremen	910	-	53	-	-	324	376	53	104	-	-	-	-
Operatives, except transportation	3 001	-	109	-	109	268	1 805	279	211	219	-	-	-
Transport equipment operatives	792	-	-	-	-	104	323	200	164	-	-	-	-
Laborers, except farm	2 277	114	53	-	115	541	1 137	109	104	104	-	-	-
Service workers, except private household	2 592	57	57	-	323	223	1 178	217	383	155	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	51	-	-	-	-	-	51	-	-	-	-	-	-
Farm laborers and foremen	480	-	-	-	-	47	270	109	53	-	-	-	-
Not available	2 808	273	-	49	268	660	1 012	213	276	56	-	-	-
Males, 35 to 44 years old	15 595	599	323	166	1 246	3 059	5 802	1 781	1 363	1 255	-	-	-
Professional and technical	271	217	-	-	-	53	-	-	-	-	-	-	-
Managerial and administrative	53	-	-	-	-	-	-	-	53	-	-	-	-
Sales	277	-	55	-	-	112	-	-	55	55	-	-	-
Clerical	327	-	53	-	111	53	56	-	-	53	-	-	-
Craftsmen and foremen	1 087	109	-	-	153	435	277	56	-	56	-	-	-
Operatives, except transportation	4 127	-	-	-	106	922	1 690	751	279	380	-	-	-
Transport equipment operatives	1 417	-	-	53	111	212	604	213	115	109	-	-	-
Laborers, except farm	2 932	106	163	-	328	504	1 183	111	379	158	-	-	-
Service workers, except private household	1 564	53	-	113	214	223	528	166	157	110	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and foremen	759	-	-	-	57	51	272	109	159	111	-	-	-
Not available	2 781	114	53	-	166	493	1 192	374	168	222	-	-	-
Males, 45 to 54 years old	15 034	376	485	161	1 029	2 637	5 047	1 454	2 140	1 650	57	-	-
Professional and technical	444	-	-	-	57	104	57	59	-	167	-	-	-
Managerial and administrative	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales	-	-	-	-	-	-	-	-	-	-	-	-	-
Clerical	219	51	51	-	-	-	59	59	-	-	-	-	-
Craftsmen and foremen	537	-	-	51	53	162	108	55	53	55	-	-	-
Operatives, except transportation	3 340	109	109	110	265	591	1 120	52	596	387	-	-	-
Transport equipment operatives	1 398	-	-	-	-	213	431	206	326	165	57	-	-
Laborers, except farm	2 587	-	106	-	496	267	1 131	53	373	161	-	-	-
Service workers, except private household	2 007	113	108	-	53	378	856	56	108	334	-	-	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	157	-	-	-	-	-	53	51	53	-	-	-	-
Farm laborers and foremen	1 868	51	-	-	-	428	535	272	417	166	-	-	-
Not available	2 476	51	110	-	104	493	698	590	214	215	-	-	-
Males, 55 to 64 years old	10 952	320	270	159	389	1 816	3 741	954	1 614	1 581	-	109	-
Professional and technical	165	-	57	51	-	-	-	-	57	-	-	-	-
Managerial and administrative	53	-	-	-	53	-	-	-	-	-	-	-	-
Sales	57	-	-	-	57	-	-	-	-	-	-	-	-
Clerical	315	53	-	51	-	53	-	-	53	104	-	-	-
Craftsmen and foremen	978	53	57	57	-	104	275	104	165	163	-	-	-
Operatives, except transportation	1 843	56	-	-	169	324	656	367	102	168	-	-	-
Transport equipment operatives	485	53	-	-	-	108	169	104	51	-	-	-	-
Laborers, except farm	2 132	53	51	-	51	372	586	56	534	373	-	56	-
Service workers, except private household	1 142	-	53	-	-	215	487	-	58	277	-	53	-
Private household workers	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers	109	-	-	-	-	-	109	-	-	-	-	-	-
Farm laborers and foremen	2 150	-	51	-	-	381	967	160	267	324	-	-	-
Not available	1 522	51	-	-	59	260	492	161	327	172	-	-	-

Table 40. Size of Family: All Races

[Includes wives in male-headed families whose head is present and a member of the Armed Forces]

Family income	Total families	Size of family						Total persons in families	Mean size of family
		2 persons	3 persons	4 persons	5 persons	6 persons	7 persons or more		
Total families	120 044	45 603	21 978	17 343	13 745	7 961	13 414	456 325	3.8
Families with male head, total	85 623	33 508	14 932	12 228	9 779	5 482	9 694	326 194	3.8
Less than $1,000	3 616	2 264	420	310	158	100	364	12 103	3.3
$1,000 to $1,999	2 971	1 894	460	406	53	-	158	8 371	2.8
$2,000 to $2,999	3 898	2 789	309	315	269	109	106	10 615	2.7
$3,000 to $3,999	4 490	3 253	211	217	320	271	218	13 078	2.9
$4,000 to $4,999	4 108	2 331	688	312	367	47	364	13 060	3.2
$5,000 to $5,999	4 793	2 108	758	784	508	210	424	16 827	3.5
$6,000 to $6,999	5 300	1 924	1 201	765	571	417	423	19 694	3.7
$7,000 to $7,999	8 505	3 253	1 515	1 398	992	454	893	31 901	3.8
$8,000 to $8,999	7 840	2 516	1 573	1 222	1 092	585	853	30 796	3.9
$9,000 to $9,999	6 868	2 435	991	1 278	944	477	743	26 532	3.9
$10,000 to $11,999	10 930	3 336	2 147	1 463	1 374	849	1 762	46 021	4.2
$12,000 to $14,999	9 688	2 882	2 239	1 520	1 265	734	1 049	38 614	4.0
$15,000 or more	12 615	2 525	2 422	2 236	1 866	1 229	2 337	58 580	4.6
Median income ..... dollars..	8684	7100	9362	9299	9592	10285	10368	9281	NA
Number below the poverty level	11 315	5 493	1 189	1 249	1 061	581	1 743	43 550	3.8
Percent below the poverty level	13.2	16.4	8.0	10.2	10.8	10.6	18.0	13.4	NA
Families with male head with children under 18, total	43 705	392	8 825	9 955	9 358	5 482	9 694	230 444	5.3
Less than $1,000	1 045	-	160	263	158	100	364	6 606	6.3
$1,000 to $1,999	894	-	315	369	53	-	158	3 998	4.5
$2,000 to $2,999	1 011	57	205	264	269	109	106	4 635	4.6
$3,000 to $3,999	1 232	47	158	217	320	271	218	6 509	5.3
$4,000 to $4,999	1 396	-	468	202	315	47	364	7 042	5.0
$5,000 to $5,999	2 240	59	409	629	508	210	424	11 063	4.9
$6,000 to $6,999	2 914	112	779	663	520	417	423	14 141	4.9
$7,000 to $7,999	4 841	-	1 305	1 197	992	454	893	23 960	4.9
$8,000 to $8,999	4 596	-	1 046	1 020	1 092	585	853	23 375	5.1
$9,000 to $9,999	3 951	-	560	1 227	944	477	743	20 167	5.1
$10,000 to $11,999	6 602	59	1 355	1 256	1 322	849	1 762	36 003	5.5
$12,000 to $14,999	5 258	-	1 000	1 318	1 157	734	1 049	27 787	5.3
$15,000 or more	7 726	59	1 063	1 330	1 709	1 229	2 337	45 157	5.8
Median income ..... dollars..	9451	6295	8611	9125	9478	10285	10368	9716	NA
Number below the poverty level	5 184	57	680	1 113	1 009	581	1 743	30 352	5.9
Percent below the poverty level	11.9	14.6	7.7	11.2	10.8	10.6	18.0	13.2	NA
Families with female head, total	34 421	12 094	7 046	5 115	3 967	2 479	3 720	130 131	3.8
Less than $1,000	5 725	2 270	823	734	790	370	738	21 764	3.8
$1,000 to $1,999	3 318	1 598	758	350	304	104	204	11 015	3.3
$2,000 to $2,999	5 056	1 629	1 487	1 103	359	215	263	17 163	3.4
$3,000 to $3,999	5 131	1 605	717	874	992	629	314	20 050	3.9
$4,000 to $4,999	3 172	1 064	573	534	212	155	634	12 886	4.1
$5,000 to $5,999	2 012	546	308	264	263	268	364	8 699	4.3
$6,000 to $6,999	1 847	804	363	206	263	-	212	6 474	3.5
$7,000 to $7,999	1 636	795	212	208	53	263	106	5 744	3.5
$8,000 to $8,999	1 433	545	411	108	211	-	158	5 233	3.7
$9,000 to $9,999	1 266	430	367	157	204	53	56	4 485	3.5
$10,000 to $11,999	1 051	373	256	208	55	106	53	3 733	3.6
$12,000 to $14,999	1 211	220	418	157	104	104	208	5 189	4.3
$15,000 or more	1 562	215	355	212	158	212	410	7 696	4.9
Median income ..... dollars..	3667	3472	3669	3424	3587	3916	4537	3799	NA
Number below the poverty level	17 587	4 918	3 067	3 061	2 498	1 473	2 570	72 659	4.1
Percent below the poverty level	51.1	40.7	43.5	59.8	63.0	59.4	69.1	55.8	NA
Families with female head with children under 18, total	25 266	5 211	5 342	4 702	3 911	2 428	3 673	108 684	4.3
Less than $1,000	4 562	1 308	722	633	790	370	738	19 135	4.2
$1,000 to $1,999	2 399	834	654	350	304	53	204	8 868	3.7
$2,000 to $2,999	4 101	825	1 335	1 103	359	215	263	15 101	3.7
$3,000 to $3,999	4 322	849	665	874	992	629	314	18 380	4.3
$4,000 to $4,999	2 478	422	522	534	212	155	634	11 448	4.6
$5,000 to $5,999	1 798	384	255	264	263	268	364	8 218	4.6
$6,000 to $6,999	1 098	212	206	206	263	-	212	4 819	4.4
$7,000 to $7,999	1 008	218	161	208	53	263	106	4 436	4.4
$8,000 to $8,999	841	57	307	108	211	-	158	3 945	4.7
$9,000 to $9,999	783	102	263	106	204	53	56	3 311	4.2
$10,000 to $11,999	472	-	154	104	55	106	53	2 264	4.8
$12,000 to $14,999	622	-	100	106	104	104	208	3 590	5.8
$15,000 or more	783	-	-	106	102	212	363	5 169	6.6
Median income ..... dollars..	3405	2685	2970	3302	3560	3957	4500	3645	NA
Number below the poverty level	14 981	2 820	2 711	2 960	2 498	1 422	2 570	66 605	4.5
Percent below the poverty level	59.3	54.1	50.7	63.0	63.9	58.6	70.0	61.4	NA

7551

Table 40a. Size of Family: White

(Includes wives in male-headed families whose head is present and a member of the Armed Forces)

Family income	Total families	Size of family						Total persons in families	Mean size of family
		2 persons	3 persons	4 persons	5 persons	6 persons	7 persons or more		
Total families	25 188	12 253	4 240	3 213	2 559	1 098	1 826	84 640	3.4
Families with male head, total	20 341	9 879	3 294	2 503	2 236	819	1 610	69 138	3.4
Less than $1,000	851	699	104	-	48	-	-	1 951	2.3
$1,000 to $1,999	726	447	56	112	-	-	110	2 496	3.4
$2,000 to $2,999	1 358	1 189	-	111	57	-	-	3 111	2.3
$3,000 to $3,999	1 562	1 130	-	104	160	56	112	4 599	2.9
$4,000 to $4,999	1 615	883	423	106	155	-	48	4 571	2.8
$5,000 to $5,999	1 469	738	257	161	97	104	112	4 955	3.4
$6,000 to $6,999	1 166	530	262	207	55	56	56	4 071	3.5
$7,000 to $7,999	1 586	506	312	327	168	160	113	5 960	3.8
$8,000 to $8,999	1 542	784	97	164	225	160	112	5 439	3.5
$9,000 to $9,999	1 585	662	265	385	161	56	56	5 247	3.3
$10,000 to $11,999	2 560	1 130	646	111	336	56	281	9 074	3.5
$12,000 to $14,999	1 696	507	432	326	270	-	161	6 427	3.8
$15,000 or more	2 625	675	440	388	503	171	448	11 238	4.3
Median income ..... dollars	7916	5842	9515	8747	9946	8207	10600	8535	NA
Number below the poverty level	3 097	1 693	160	328	421	56	439	11 465	3.7
Percent below the poverty level	15.2	17.1	4.9	13.1	18.8	6.9	27.3	16.6	NA
Families with male head with children under 18, total	8 655	59	1 980	2 114	2 074	819	1 610	43 188	5.0
Less than $1,000	48	-	-	-	48	-	-	242	5.0
$1,000 to $1,999	279	-	56	112	-	-	110	1 601	5.7
$2,000 to $2,999	169	-	-	111	57	-	-	733	4.3
$3,000 to $3,999	433	-	-	104	160	56	112	2 339	5.4
$4,000 to $4,999	457	-	256	48	104	-	48	1 819	4.0
$5,000 to $5,999	790	59	257	161	97	104	112	3 597	4.6
$6,000 to $6,999	527	-	153	207	55	56	56	2 684	5.1
$7,000 to $7,999	970	-	256	272	168	160	113	4 562	4.7
$8,000 to $8,999	758	-	97	164	225	160	112	3 872	5.1
$9,000 to $9,999	810	-	152	385	161	56	56	3 584	4.4
$10,000 to $11,999	1 159	-	375	111	336	56	281	6 000	5.2
$12,000 to $14,999	861	-	160	326	215	-	161	4 318	5.0
$15,000 or more	1 395	-	217	111	448	171	448	7 836	5.6
Median income ..... dollars	8864	5499	8110	8247	9761	8207	10600	9040	NA
Number below the poverty level	1 249	-	56	328	369	56	439	7 511	6.0
Percent below the poverty level	14.4	.0	2.8	15.5	17.8	6.9	27.3	17.4	NA
Families with female head, total	4 847	2 374	946	710	322	279	216	15 502	3.2
Less than $1,000	1 240	440	417	216	111	-	56	3 943	3.2
$1,000 to $1,999	335	279	56	-	-	-	-	726	2.2
$2,000 to $2,999	650	328	152	114	-	56	-	1 904	2.9
$3,000 to $3,999	554	278	56	164	-	56	-	1 715	3.1
$4,000 to $4,999	388	222	55	55	-	-	55	1 328	3.4
$5,000 to $5,999	156	-	-	-	53	55	48	933	6.0
$6,000 to $6,999	52	52	-	-	-	-	-	105	2.0
$7,000 to $7,999	165	109	-	-	-	56	-	554	3.4
$8,000 to $8,999	281	170	-	55	55	-	-	838	3.0
$9,000 to $9,999	376	221	-	51	48	-	56	1 449	3.9
$10,000 to $11,999	110	110	-	-	-	-	-	219	2.0
$12,000 to $14,999	163	56	107	-	-	-	-	433	2.7
$15,000 or more	377	109	103	55	55	55	-	1 355	3.6
Median income ..... dollars	3452	3503	2157	3154	8466	5492	4937	3811	NA
Number below the poverty level	2 387	886	625	493	111	112	160	8 077	3.4
Percent below the poverty level	49.2	37.3	66.1	69.5	34.4	40.2	74.0	52.1	NA
Families with female head with children under 18, total	2 628	624	688	554	267	279	216	10 328	3.9
Less than $1,000	927	225	369	167	111	-	56	3 170	3.4
$1,000 to $1,999	113	57	56	-	-	-	-	283	2.5
$2,000 to $2,999	436	115	152	114	-	56	-	1 477	3.4
$3,000 to $3,999	332	56	56	164	-	56	-	1 272	3.8
$4,000 to $4,999	223	57	55	55	-	-	55	997	4.5
$5,000 to $5,999	156	-	-	-	53	55	48	933	6.0
$6,000 to $6,999	-	-	-	-	-	-	-	-	.0
$7,000 to $7,999	113	56	-	-	-	56	-	450	4.0
$8,000 to $8,999	168	57	-	55	55	-	-	612	3.6
$9,000 to $9,999	104	-	-	-	48	-	56	803	7.7
$10,000 to $11,999	-	-	-	-	-	-	-	-	.0
$12,000 to $14,999	-	-	-	-	-	-	-	-	.0
$15,000 or more	55	-	-	-	-	55	-	332	6.0
Median income ..... dollars	2691	2260	933	2970	5964	5492	4937	3294	NA
Number below the poverty level	1 800	397	577	444	111	112	160	6 756	3.8
Percent below the poverty level	68.5	63.6	83.8	80.1	41.5	40.2	74.0	65.4	NA

7552
1977

Table 40b. Size of Family: Negro

[Includes wives in male-headed families whose head is present and a member of the Armed Forces]

Family Income	Total families	Size of family						Total persons in families	Mean size of family
		2 persons	3 persons	4 persons	5 persons	6 persons	7 persons or more		
Total families	92 982	32 642	17 187	13 849	11 076	6 750	11 477	365 262	3.9
Families with male head, total	63 732	23 083	11 138	9 500	7 487	4 551	7 973	251 609	3.9
Less than $1,000	2 655	1 511	261	310	109	100	364	9 877	3.7
$1,000 to $1,999	2 079	1 337	348	294	53	-	47	5 489	2.6
$2,000 to $2,999	2 540	1 600	309	204	212	109	106	7 503	3.0
$3,000 to $3,999	2 822	2 018	211	113	160	215	106	8 268	2.9
$4,000 to $4,999	2 493	1 448	264	206	212	47	316	8 489	3.4
$5,000 to $5,999	3 219	1 370	452	567	412	106	312	11 502	3.6
$6,000 to $6,999	4 021	1 394	883	501	516	361	367	15 226	3.8
$7,000 to $7,999	6 863	2 691	1 204	1 070	824	294	780	25 828	3.8
$8,000 to $8,999	6 185	1 676	1 419	1 058	867	425	740	25 072	4.1
$9,000 to $9,999	5 283	1 773	726	893	783	421	687	21 285	4.0
$10,000 to $11,999	8 201	2 206	1 443	1 351	982	793	1 426	36 054	4.4
$12,000 to $14,999	7 823	2 318	1 750	1 194	994	734	832	31 345	4.0
$15,000 or more	9 546	1 742	1 869	1 737	1 363	946	1 889	45 670	4.8
Median income ..... dollars.	8865	7350	9338	9476	9484	10625	10259	9435	NA
Number below the poverty level	7 944	3 636	918	921	640	525	1 304	31 423	4.0
Percent below the poverty level	12.5	15.8	8.2	9.7	8.5	11.5	16.4	12.5	NA
Families with male head with children under 18, total	34 328	333	6 572	7 672	7 228	4 551	7 973	183 800	5.4
Less than $1,000	941	-	104	263	109	100	364	6 196	6.6
$1,000 to $1,999	615	-	258	257	53	-	47	2 397	3.9
$2,000 to $2,999	842	57	205	153	212	109	106	3 902	4.6
$3,000 to $3,999	799	47	158	113	160	215	106	4 170	5.2
$4,000 to $4,999	940	-	212	154	212	47	316	5 223	5.6
$5,000 to $5,999	1 346	-	104	412	412	106	312	7 096	5.3
$6,000 to $6,999	2 273	112	570	399	465	361	367	11 059	4.9
$7,000 to $7,999	3 871	-	1 048	925	824	294	780	19 398	5.0
$8,000 to $8,999	3 838	-	950	856	867	425	740	19 504	5.1
$9,000 to $9,999	3 142	-	408	842	783	421	687	16 592	5.3
$10,000 to $11,999	5 275	59	923	1 145	929	793	1 426	29 110	5.5
$12,000 to $14,999	4 284	-	785	992	942	734	832	22 739	5.3
$15,000 or more	6 162	59	846	1 162	1 261	946	1 889	36 424	5.9
Median income ..... dollars.	9573	6557	8687	9362	9384	10625	10259	9814	NA
Number below the poverty level	3 879	57	568	785	640	525	1 304	22 672	5.8
Percent below the poverty level	11.3	17.1	8.6	10.2	8.9	11.5	16.4	12.3	NA
Families with female head, total	29 250	9 559	6 049	4 349	3 589	2 200	3 504	113 652	3.9
Less than $1,000	4 485	1 830	406	518	679	370	682	17 821	4.0
$1,000 to $1,999	2 983	1 319	702	350	304	104	204	10 289	3.4
$2,000 to $2,999	4 297	1 248	1 335	933	359	159	263	14 930	3.5
$3,000 to $3,999	4 526	1 276	661	710	992	573	314	18 232	4.0
$4,000 to $4,999	2 784	842	518	479	212	155	578	11 559	4.2
$5,000 to $5,999	1 856	546	308	264	210	213	316	7 765	4.2
$6,000 to $6,999	1 795	752	363	206	263	-	212	6 369	3.5
$7,000 to $7,999	1 471	686	212	208	53	206	106	5 190	3.5
$8,000 to $8,999	1 152	375	411	53	155	-	158	4 395	3.8
$9,000 to $9,999	890	210	367	106	155	53	-	3 036	3.4
$10,000 to $11,999	886	264	256	208	-	106	53	3 238	3.7
$12,000 to $14,999	991	106	311	157	104	104	208	4 641	4.7
$15,000 or more	1 134	106	201	157	102	157	410	6 187	5.5
Median income ..... dollars.	3689	3462	3880	3525	3480	3860	4499	3794	NA
Number below the poverty level	15 091	3 979	2 442	2 511	2 388	1 361	2 410	64 252	4.3
Percent below the poverty level	51.6	41.6	40.4	57.7	66.5	61.9	68.8	56.5	NA
Families with female head with children under 18, total	22 527	4 587	4 654	4 092	3 589	2 149	3 457	97 855	4.3
Less than $1,000	3 635	1 083	353	467	679	370	682	15 966	4.4
$1,000 to $1,999	2 286	777	598	350	304	53	204	8 585	3.8
$2,000 to $2,999	3 608	710	1 183	933	359	159	263	13 400	3.7
$3,000 to $3,999	3 990	793	609	710	992	573	314	17 108	4.3
$4,000 to $4,999	2 255	365	467	479	212	155	578	10 451	4.6
$5,000 to $5,999	1 642	384	255	264	210	213	316	7 285	4.4
$6,000 to $6,999	1 098	212	206	206	263	-	212	4 819	4.4
$7,000 to $7,999	895	161	161	208	53	206	106	3 986	4.5
$8,000 to $8,999	673	-	307	53	155	-	158	3 332	5.0
$9,000 to $9,999	678	102	263	106	155	53	-	2 508	3.7
$10,000 to $11,999	416	-	154	104	-	106	53	1 988	4.8
$12,000 to $14,999	622	-	100	106	104	104	208	3 590	5.8
$15,000 or more	728	-	-	106	102	157	363	4 837	6.6
Median income ..... dollars.	3473	2754	3316	3416	3480	3905	4458	3670	NA
Number below the poverty level	13 125	2 423	2 134	2 460	2 388	1 310	2 410	59 704	4.5
Percent below the poverty level	58.3	52.8	45.9	60.1	66.5	61.0	69.7	61.0	NA

Table 41. Number of Children Under 18 Years: All Races

[Includes wives in male-headed families whose head is present and a member of the Armed Forces]

Family Income	Families by number of children under 18								Total children in families		
	Total families	No children under 18	1 child	2 children	3 children	4 children	5 children	6 children or more	Total under 18 years	6 to 17 years	Under 6 years
Total families	120 044	51 072	20 344	16 952	12 747	7 904	4 275	6 749	255 934	131 557	124 377
Families with male head, total	85 623	41 917	13 226	10 927	8 140	4 619	2 474	4 320	159 112	83 249	75 863
Less than $1,000	3 616	2 571	213	210	158	53	153	258	6 482	3 476	3 006
$1,000 to $1,999	2 971	2 077	315	369	53	47	57	53	2 952	1 228	1 724
$2,000 to $2,999	3 898	2 887	315	269	212	109	-	106	3 147	1 563	1 584
$3,000 to $3,999	4 490	3 258	317	214	321	162	165	53	5 381	2 426	2 955
$4,000 to $4,999	4 108	2 712	622	100	364	47	53	212	4 739	2 278	2 461
$5,000 to $5,999	4 793	2 553	628	522	456	210	208	216	7 917	4 102	3 815
$6,000 to $6,999	5 300	2 387	1 051	718	308	413	155	268	10 067	4 986	5 081
$7,000 to $7,999	8 505	3 664	1 301	1 518	919	414	262	427	17 792	7 519	10 273
$8,000 to $8,999	7 840	3 245	1 094	1 071	1 250	381	268	532	16 986	9 226	7 760
$9,000 to $9,999	6 868	2 916	1 031	1 120	902	421	157	320	13 264	7 870	5 394
$10,000 to $11,999	10 930	4 328	2 049	1 263	1 157	799	474	860	26 637	13 704	12 934
$12,000 to $14,999	9 688	4 430	1 947	1 209	932	532	151	486	16 607	9 580	7 027
$15,000 or more	12 615	4 889	2 343	2 344	1 109	1 030	371	529	27 141	15 291	11 851
Median income ..... dollars	8684	7723	9760	9422	9034	10195	8772	9186	9351	9653	8938
Number below the poverty level	11 315	6 132	1 006	1 061	1 001	472	690	954	26 579	12 794	13 785
Percent below the poverty level	13.2	14.6	7.6	9.7	12.3	10.2	27.9	22.1	16.7	15.4	18.2
Families with female head, total	34 421	9 155	7 118	6 025	4 608	3 285	1 801	2 429	96 822	48 308	48 514
Less than $1,000	5 725	1 163	1 263	1 026	582	582	476	633	19 757	9 211	10 546
$1,000 to $1,999	3 318	919	1 084	602	202	300	53	157	7 540	3 137	4 403
$2,000 to $2,999	5 056	955	878	1 489	1 050	363	111	210	13 753	6 227	7 526
$3,000 to $3,999	5 131	809	1 053	720	771	990	578	210	18 046	8 616	9 431
$4,000 to $4,999	3 172	694	783	375	373	259	161	528	11 531	5 711	5 820
$5,000 to $5,999	2 012	214	481	362	213	265	213	264	7 354	4 242	3 112
$6,000 to $6,999	1 867	749	418	151	212	106	53	159	3 518	2 481	1 037
$7,000 to $7,999	1 636	629	429	104	213	208	-	53	3 114	2 055	1 059
$8,000 to $8,999	1 433	592	266	311	53	53	51	107	3 058	1 623	1 435
$9,000 to $9,999	1 266	484	206	261	207	53	-	56	2 609	1 335	1 274
$10,000 to $11,999	1 051	579	154	159	53	106	-	-	1 213	791	421
$12,000 to $14,999	1 211	589	-	257	312	-	-	53	2 868	1 149	1 719
$15,000 or more	1 562	779	104	208	366	-	106	-	2 460	1 730	730
Median income ..... dollars	3667	5779	3366	2963	3607	3456	3496	4010	3441	3691	3213
Number below the poverty level	17 587	2 606	3 235	3 268	2 659	2 387	1 378	2 055	67 257	31 234	36 023
Percent below the poverty level	51.1	28.5	45.4	54.2	57.7	72.7	76.5	84.6	69.5	64.7	74.3
Families with female head, children 6 to 17 years only, total	10 134	-	3 707	2 777	1 753	1 162	369	367	23 425	23 425	-
Less than $1,000	1 625	-	710	433	216	160	106	-	3 394	3 394	-
$1,000 to $1,999	793	-	479	106	155	53	-	-	1 368	1 368	-
$2,000 to $2,999	1 378	-	382	673	272	-	-	51	2 852	2 852	-
$3,000 to $3,999	1 591	-	594	416	53	474	53	-	3 747	3 747	-
$4,000 to $4,999	1 004	-	476	212	159	106	-	51	2 106	2 106	-
$5,000 to $5,999	855	-	275	155	54	212	53	106	2 602	2 602	-
$6,000 to $6,999	637	-	163	51	212	53	53	106	2 063	2 063	-
$7,000 to $7,999	583	-	269	53	157	51	-	53	1 421	1 421	-
$8,000 to $8,999	362	-	102	155	53	-	51	-	828	828	-
$9,000 to $9,999	314	-	51	104	159	-	-	-	735	735	-
$10,000 to $11,999	315	-	102	159	-	53	-	-	633	633	-
$12,000 to $14,999	104	-	-	51	53	-	-	-	261	261	-
$15,000 or more	575	-	104	208	211	-	53	-	1 416	1 416	-
Median income ..... dollars	3851	0	3522	3425	5390	3835	5983	5766	4296	4296	0
Number below the poverty level	4 896	-	1 621	1 314	750	791	159	261	12 129	12 129	-
Percent below the poverty level	48.3	.0	43.7	47.3	42.8	68.1	43.1	71.2	51.8	51.8	.0
Families with female head with children under 6 years, total	15 132	-	3 412	3 248	2 854	2 123	1 433	2 062	73 397	24 883	48 514
Less than $1,000	2 937	-	553	593	366	422	370	633	16 364	5 818	10 546
$1,000 to $1,999	1 606	-	605	496	47	247	53	157	6 173	1 769	4 403
$2,000 to $2,999	2 723	-	496	816	778	363	111	159	10 901	3 375	7 526
$3,000 to $3,999	2 731	-	459	304	719	516	525	210	14 299	4 868	9 431
$4,000 to $4,999	1 474	-	307	163	214	153	161	477	9 425	3 605	5 820
$5,000 to $5,999	943	-	206	207	159	53	160	159	4 753	1 640	3 112
$6,000 to $6,999	461	-	255	100	-	53	-	53	1 455	417	1 037
$7,000 to $7,999	425	-	161	51	56	157	-	-	1 693	634	1 059
$8,000 to $8,999	479	-	164	155	-	53	-	107	2 230	795	1 435
$9,000 to $9,999	469	-	155	157	48	53	-	56	1 874	599	1 274
$10,000 to $11,999	157	-	51	-	53	53	-	-	580	159	421
$12,000 to $14,999	518	-	-	206	259	-	-	53	2 607	888	1 719
$15,000 or more	208	-	-	-	155	-	53	-	1 044	314	730
Median income ..... dollars	3146	0	3164	2715	3328	3107	3346	3395	3251	3325	3213
Number below the poverty level	10 085	-	1 613	1 954	1 910	1 595	1 220	1 793	55 127	19 105	36 023
Percent below the poverty level	66.6	.0	47.3	60.1	66.9	75.2	85.1	87.0	75.1	76.8	74.3

7554

Table 41a. Number of Children Under 18 Years: White

(Includes wives in male-headed families whose head is present and a member of the Armed Forces)

Family Income	Families by number of children under 18								Total children in families		
	Total families	No children under 18	1 child	2 children	3 children	4 children	5 children	6 children or more	Total under 18 years	6 to 17 years	Under 6 years
Total families	25 188	13 905	3 756	3 245	1 894	997	498	895	38 430	19 297	19 133
Families with male head, total	20 341	11 686	2 970	2 401	1 341	831	386	727	29 675	14 834	14 841
Less than $1,000	851	803	-	-	48	-	-	-	193	48	145
$1,000 to $1,999	726	447	56	112	-	-	57	53	1 644	825	819
$2,000 to $2,999	1 358	1 189	-	169	-	-	-	-	338	338	-
$3,000 to $3,999	1 562	1 130	55	104	161	-	112	-	1 909	657	1 252
$4,000 to $4,999	1 615	1 158	256	48	152	-	-	-	809	277	532
$5,000 to $5,999	1 469	679	373	104	97	104	-	112	2 773	1 262	1 511
$6,000 to $6,999	1 166	639	208	207	-	56	-	56	2 073	721	1 352
$7,000 to $7,999	1 586	616	256	383	112	104	56	57	3 521	1 565	1 956
$8,000 to $8,999	1 542	784	97	106	330	113	56	56	3 099	1 804	1 295
$9,000 to $9,999	1 585	775	200	441	56	56	-	56	2 373	1 178	1 196
$10,000 to $11,999	2 560	1 401	542	112	224	56	-	224	4 021	2 185	1 836
$12,000 to $14,999	1 696	835	430	222	48	-	48	112	2 881	1 555	1 325
$15,000 or more	2 625	1 230	495	392	112	340	55	-	4 042	2 420	1 622
Median income ..... dollars	7916	6730	9910	8688	8305	9663	7411	9522	8509	8956	7925
Number below the poverty level	3 097	1 848	111	386	361	-	170	221	6 841	2 932	3 909
Percent below the poverty level	15.2	15.8	3.8	16.1	26.9	.0	44.0	30.4	23.1	19.8	26.3
Families with female head, total	4 847	2 219	786	844	553	166	112	168	8 755	4 463	4 292
Less than $1,000	1 240	313	280	368	112	111	-	56	2 412	1 566	846
$1,000 to $1,999	335	222	57	56	-	-	-	-	226	56	169
$2,000 to $2,999	650	214	115	152	114	-	56	-	1 320	735	585
$3,000 to $3,999	554	222	108	56	112	-	56	-	1 342	613	730
$4,000 to $4,999	388	165	57	55	55	-	-	55	1 271	497	775
$5,000 to $5,999	156	-	-	101	-	55	-	-	472	270	202
$6,000 to $6,999	52	52	-	-	-	-	-	-	-	-	-
$7,000 to $7,999	165	52	56	-	56	-	-	-	337	169	168
$8,000 to $8,999	281	113	113	55	-	-	-	-	278	55	223
$9,000 to $9,999	376	272	-	-	48	-	-	56	931	337	594
$10,000 to $11,999	110	110	-	-	-	-	-	-	-	-	-
$12,000 to $14,999	163	163	-	-	-	-	-	-	-	-	-
$15,000 or more	377	322	-	-	55	-	-	-	166	166	-
Median income ..... dollars	3452	4992	2485	1961	3449	5004	2999	4500	3396	2981	3748
Number below the poverty level	2 387	587	503	624	338	111	112	111	6 050	3 294	2 756
Percent below the poverty level	49.2	26.5	64.0	74.0	61.2	66.7	100.0	66.5	69.1	73.8	64.2
Families with female head, children 6 to 17 years only, total	1 174	-	559	223	281	111	-	-	2 294	2 294	-
Less than $1,000	671	-	280	223	112	56	-	-	1 287	1 287	-
$1,000 to $1,999	-	-	-	-	-	-	-	-	-	-	-
$2,000 to $2,999	228	-	115	-	114	-	-	-	455	455	-
$3,000 to $3,999	108	-	108	-	-	-	-	-	108	108	-
$4,000 to $4,999	-	-	-	-	-	-	-	-	-	-	-
$5,000 to $5,999	55	-	-	-	-	55	-	-	221	221	-
$6,000 to $6,999	-	-	-	-	-	-	-	-	-	-	-
$7,000 to $7,999	56	-	56	-	-	-	-	-	56	56	-
$8,000 to $8,999	-	-	-	-	-	-	-	-	-	-	-
$9,000 to $9,999	-	-	-	-	-	-	-	-	-	-	-
$10,000 to $11,999	-	-	-	-	-	-	-	-	-	-	-
$12,000 to $14,999	-	-	-	-	-	-	-	-	-	-	-
$15,000 or more	55	-	-	-	55	-	-	-	166	166	-
Median income ..... dollars	908	0	997	500	2249	5500	0	0	973	973	0
Number below the poverty level	951	-	446	223	226	56	-	-	1 794	1 794	-
Percent below the poverty level	81.0	.0	79.8	100.0	80.3	50.4	.0	.0	78.2	78.2	.0
Families with female head with children under 6 years, total	1 454	-	227	621	271	55	112	168	6 461	2 170	4 292
Less than $1,000	256	-	-	145	-	55	-	56	1 125	279	846
$1,000 to $1,999	113	-	57	56	-	-	-	-	226	56	169
$2,000 to $2,999	208	-	-	152	-	-	56	-	865	280	585
$3,000 to $3,999	224	-	-	56	112	-	56	-	1 235	505	730
$4,000 to $4,999	223	-	57	55	55	-	-	55	1 271	497	775
$5,000 to $5,999	101	-	-	101	-	-	-	-	250	48	202
$6,000 to $6,999	-	-	-	-	-	-	-	-	-	-	-
$7,000 to $7,999	56	-	-	-	56	-	-	-	281	112	168
$8,000 to $8,999	168	-	113	55	-	-	-	-	278	55	223
$9,000 to $9,999	104	-	-	-	48	-	-	56	931	337	594
$10,000 to $11,999	-	-	-	-	-	-	-	-	-	-	-
$12,000 to $14,999	-	-	-	-	-	-	-	-	-	-	-
$15,000 or more	-	-	-	-	-	-	-	-	-	-	-
Median income ..... dollars	3666	0	4982	2718	4428	500	2999	4500	3822	3929	3748
Number below the poverty level	849	-	57	401	112	55	112	111	4 256	1 500	2 756
Percent below the poverty level	58.4	.0	25.2	64.7	41.3	100.0	100.0	66.5	65.9	69.1	64.2

Table 41b. Number of Children Under 18 Years: Negro

(Includes wives in male-headed families whose head is present and a member of the Armed Forces)

Family Income	Families by number of children under 18								Total children in families		
	Total families	No children under 18	1 child	2 children	3 children	4 children	5 children	6 children or more	Total under 18 years	6 to 17 years	Under 6 years
Total families	92 982	36 128	16 146	13 539	10 741	6 908	3 777	5 743	215 440	110 918	104 522
Families with male head, total	63 732	29 404	9 813	8 413	6 743	3 789	2 089	3 481	127 764	67 297	60 467
Less than $1,000	2 655	1 715	157	210	109	53	153	258	6 232	3 371	2 861
$1,000 to $1,999	2 079	1 464	258	257	53	47	-	-	1 308	404	904
$2,000 to $2,999	2 540	1 698	315	100	212	109	-	106	2 809	1 225	1 584
$3,000 to $3,999	2 822	2 023	262	109	160	162	53	53	3 472	1 769	1 703
$4,000 to $4,999	2 493	1 554	365	51	212	47	53	212	3 930	2 001	1 929
$5,000 to $5,999	3 219	1 874	206	363	359	106	208	104	4 984	2 728	2 256
$6,000 to $6,999	4 021	1 748	730	512	308	357	155	212	7 881	4 208	3 673
$7,000 to $7,999	6 863	2 992	1 045	1 134	807	310	206	370	14 272	5 955	8 317
$8,000 to $8,999	6 185	2 347	997	966	920	268	212	476	13 887	7 422	6 465
$9,000 to $9,999	5 283	2 141	831	679	846	365	157	264	10 891	6 693	4 198
$10,000 to $11,999	8 201	2 927	1 451	1 151	876	743	474	580	21 947	11 075	10 872
$12,000 to $14,999	7 823	3 539	1 461	987	884	532	102	318	13 333	7 688	5 645
$15,000 or more	9 546	3 383	1 735	1 896	997	689	316	529	22 819	12 758	10 060
Median income ..... dollars	8865	7904	9719	9744	9274	10260	9179	8946	9521	9730	9188
Number below the poverty level	7 944	4 065	838	676	640	472	520	733	19 682	9 807	9 875
Percent below the poverty level	12.5	13.8	8.5	8.0	9.5	12.5	24.9	21.0	15.4	14.6	16.3
Families with female head, total	29 250	6 723	6 333	5 126	3 999	3 119	1 689	2 262	87 676	43 621	44 054
Less than $1,000	4 485	850	983	658	470	471	476	576	17 345	7 645	9 701
$1,000 to $1,999	2 983	698	1 027	546	202	300	53	157	7 315	3 081	4 234
$2,000 to $2,999	4 297	689	763	1 337	880	363	55	210	12 152	5 379	6 773
$3,000 to $3,999	4 526	536	945	664	659	990	522	210	16 704	8 003	8 701
$4,000 to $4,999	2 784	528	726	320	318	259	161	473	10 260	5 214	5 046
$5,000 to $5,999	1 856	214	481	261	213	210	213	264	6 883	3 973	2 910
$6,000 to $6,999	1 795	697	418	151	212	106	53	159	3 518	2 481	1 037
$7,000 to $7,999	1 471	576	373	104	157	208	-	53	2 777	1 886	891
$8,000 to $8,999	1 152	479	154	255	53	53	51	107	2 779	1 568	1 211
$9,000 to $9,999	890	212	206	261	159	53	-	-	1 678	998	680
$10,000 to $11,999	886	470	154	104	53	106	-	-	1 102	681	421
$12,000 to $14,999	991	369	-	257	312	-	-	53	2 868	1 149	1 719
$15,000 or more	1 134	406	104	208	311	-	106	-	2 294	1 564	730
Median income ..... dollars	3689	5774	3470	3107	3677	3455	3550	3893	3450	3746	3177
Number below the poverty level	15 091	1 967	2 732	2 643	2 265	2 276	1 266	1 943	60 926	27 828	33 098
Percent below the poverty level	51.6	29.2	43.1	51.6	56.6	73.0	75.0	85.9	69.5	63.8	75.1
Families with female head, children 6 to 17 years only, total	8 905	-	3 148	2 499	1 472	1 051	369	367	21 020	21 020	-
Less than $1,000	953	-	430	210	104	104	106	-	2 107	2 107	-
$1,000 to $1,999	793	-	479	106	155	53	-	-	1 368	1 368	-
$2,000 to $2,999	1 150	-	267	673	159	-	-	51	2 396	2 396	-
$3,000 to $3,999	1 483	-	487	416	53	474	53	-	3 640	3 640	-
$4,000 to $4,999	1 004	-	476	212	159	106	-	51	2 106	2 106	-
$5,000 to $5,999	800	-	275	155	54	157	53	106	2 381	2 381	-
$6,000 to $6,999	637	-	163	51	212	53	53	106	2 063	2 063	-
$7,000 to $7,999	526	-	212	53	157	51	-	53	1 364	1 364	-
$8,000 to $8,999	362	-	102	155	53	-	51	-	828	828	-
$9,000 to $9,999	314	-	51	104	159	-	-	-	735	735	-
$10,000 to $11,999	259	-	102	104	-	53	-	-	522	522	-
$12,000 to $14,999	104	-	-	51	53	-	-	-	261	261	-
$15,000 or more	520	-	104	208	155	-	53	-	1 250	1 250	-
Median income ..... dollars	4126	0	3875	3626	6246	3776	5983	5766	4550	4550	0
Number below the poverty level	3 945	-	1 175	1 091	524	735	159	261	10 336	10 336	-
Percent below the poverty level	44.3	.0	37.3	43.7	35.6	70.0	43.1	71.2	49.2	49.2	.0
Families with female head with children under 6 years, total	13 622	-	3 185	2 628	2 527	2 068	1 320	1 895	66 656	22 601	44 054
Less than $1,000	2 681	-	553	448	366	367	370	576	15 239	5 538	9 701
$1,000 to $1,999	1 493	-	548	440	47	247	53	157	5 947	1 713	4 234
$2,000 to $2,999	2 458	-	496	664	722	363	55	159	9 756	2 983	6 773
$3,000 to $3,999	2 507	-	459	247	606	516	469	210	13 064	4 363	8 701
$4,000 to $4,999	1 252	-	249	108	159	153	161	421	8 154	3 108	5 046
$5,000 to $5,999	842	-	206	106	159	53	160	159	4 502	1 592	2 910
$6,000 to $6,999	461	-	255	100	-	53	-	53	1 455	417	1 037
$7,000 to $7,999	369	-	161	51	-	157	-	-	1 413	522	891
$8,000 to $8,999	311	-	51	100	-	53	-	107	1 952	740	1 211
$9,000 to $9,999	364	-	155	157	-	53	-	-	943	263	680
$10,000 to $11,999	157	-	51	-	53	53	-	-	580	159	421
$12,000 to $14,999	518	-	-	206	259	-	-	53	2 607	888	1 719
$15,000 or more	208	-	-	-	155	-	53	-	1 044	314	730
Median income ..... dollars	3111	0	3041	2714	3211	3160	3388	3263	3208	3268	3177
Number below the poverty level	9 180	-	1 556	1 552	1 741	1 541	1 107	1 682	50 591	17 493	33 098
Percent below the poverty level	67.4	.0	48.9	59.1	68.9	74.5	83.9	88.8	75.9	77.4	75.1

Table 42. Fixed Monthly Expenses: All Races

Family Income	Total primary families, excluding those in public housing and those with no cash rent	Fixed monthly expenses[1]										
		Less than $40	$40 to $59	$60 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $224	$225 to $249	$250 or more	Not available
Total families	112 781	2 005	849	8 713	9 654	7 870	4 333	3 644	3 506	3 826	4 257	616	63 508
Families with male head, total	82 028	1 538	698	5 333	5 209	4 415	2 544	2 636	2 866	3 095	3 520	563	49 611
Less than $1,000	3 451	-	53	488	166	49	104	160	147	-	-	48	2 236
$1,000 to $1,999	2 628	162	-	374	264	153	216	56	111	113	47	-	1 131
$2,000 to $2,999	3 734	271	57	705	316	217	55	37	108	-	114	-	1 854
$3,000 to $3,999	4 119	213	104	704	645	315	55	162	53	102	-	-	1 767
$4,000 to $4,999	3 898	205	106	436	265	384	47	48	206	152	111	-	1 938
$5,000 to $5,999	4 515	261	-	489	584	316	152	108	111	308	216	-	1 969
$6,000 to $6,999	4 984	108	-	314	316	318	211	253	150	-	530	-	2 783
$7,000 to $7,999	8 090	-	106	589	554	455	458	252	365	472	314	47	4 478
$8,000 to $8,999	7 581	-	-	256	494	587	369	259	297	418	347	94	4 459
$9,000 to $9,999	6 708	48	-	207	480	264	211	387	163	257	307	-	4 384
$10,000 to $11,999	10 605	48	156	169	487	593	210	203	634	641	567	208	6 689
$12,000 to $14,999	9 318	-	116	379	367	212	299	438	367	313	477	55	6 295
$15,000 or more	12 396	221	-	223	270	551	157	273	155	319	489	110	9 626
Number below the poverty level	10 538	324	110	1 570	956	518	421	253	359	218	214	48	5 546
Families with male head with children under 18, total	41 968	153	152	2 014	2 323	2 032	1 395	1 469	1 664	2 036	2 276	404	26 050
Less than $1,000	1 045	-	-	157	56	-	56	53	94	-	-	48	580
$1,000 to $1,999	847	-	-	53	47	100	216	56	56	56	47	-	215
$2,000 to $2,999	1 011	-	-	108	210	-	-	-	53	-	114	-	526
$3,000 to $3,999	1 022	-	51	165	213	48	-	-	-	-	-	-	544
$4,000 to $4,999	1 341	-	-	104	152	210	47	48	100	152	53	-	475
$5,000 to $5,999	2 131	48	-	265	366	161	152	-	-	308	106	-	725
$6,000 to $6,999	2 701	-	-	212	53	159	104	200	96	-	530	-	1 348
$7,000 to $7,999	4 636	-	53	211	153	296	204	150	307	359	152	47	2 706
$8,000 to $8,999	4 497	-	-	147	217	312	258	206	242	253	298	94	2 471
$9,000 to $9,999	3 791	48	-	207	213	155	102	275	51	154	204	-	2 382
$10,000 to $11,999	6 387	-	48	112	378	371	106	47	300	437	457	159	3 972
$12,000 to $14,999	4 941	-	-	163	159	55	96	215	259	207	206	55	3 527
$15,000 or more	7 617	56	-	109	106	166	55	219	106	110	109	-	6 580
Number below the poverty level	4 920	-	-	644	580	310	319	109	252	161	214	48	2 283
Families with female head, total	30 753	467	151	3 380	4 445	3 455	1 789	1 008	640	731	738	53	13 897
Less than $1,000	4 771	56	-	524	934	355	317	210	56	-	-	-	2 319
$1,000 to $1,999	2 901	47	49	417	352	361	205	57	53	110	55	-	1 196
$2,000 to $2,999	4 394	106	-	723	1 147	727	203	53	-	-	-	-	1 434
$3,000 to $3,999	4 510	152	47	580	897	791	102	108	-	47	153	53	1 581
$4,000 to $4,999	2 953	52	-	460	490	371	108	-	102	157	161	-	1 052
$5,000 to $5,999	1 697	-	-	100	55	162	265	53	109	106	55	-	792
$6,000 to $6,999	1 794	-	55	55	155	159	53	108	47	47	55	-	1 061
$7,000 to $7,999	1 532	-	-	101	262	164	269	51	-	104	-	-	580
$8,000 to $8,999	1 377	-	-	161	-	47	110	108	-	106	53	-	791
$9,000 to $9,999	1 051	-	-	-	51	317	53	105	109	-	53	-	362
$10,000 to $11,999	1 000	-	-	53	51	-	-	-	55	-	-	-	841
$12,000 to $14,999	1 211	-	-	104	-	-	53	155	57	-	100	-	742
$15,000 or more	1 562	53	-	104	51	-	53	-	51	53	53	-	1 145
Number below the poverty level	15 140	308	49	1 871	2 969	1 978	831	373	109	157	208	53	6 234
Families with female head with children under 18, total	22 402	310	96	2 165	3 761	3 134	1 734	848	471	408	577	53	8 844
Less than $1,000	3 874	56	-	418	830	355	317	210	56	-	-	-	1 632
$1,000 to $1,999	2 093	47	49	255	299	308	205	57	53	-	55	-	765
$2,000 to $2,999	3 487	55	-	562	1 095	727	203	-	-	-	-	-	844
$3,000 to $3,999	3 701	152	47	367	844	685	102	108	-	47	153	53	1 144
$4,000 to $4,999	2 316	-	-	359	326	371	108	-	102	51	106	-	893
$5,000 to $5,999	1 483	-	-	47	55	162	265	53	109	106	55	-	631
$6,000 to $6,999	1 045	-	-	-	102	106	53	108	47	47	55	-	527
$7,000 to $7,999	956	-	-	-	160	109	214	51	-	51	-	-	371
$8,000 to $8,999	841	-	-	53	-	47	110	108	-	53	-	-	470
$9,000 to $9,999	730	-	-	-	-	264	53	48	53	-	53	-	259
$10,000 to $11,999	472	-	-	53	-	-	-	-	-	-	-	-	419
$12,000 to $14,999	622	-	-	51	-	-	53	104	-	-	47	-	367
$15,000 or more	783	-	-	-	51	-	53	-	51	53	53	-	523
Number below the poverty level	12 958	257	49	1 550	2 759	1 925	831	320	109	47	208	53	4 850

[1] Rent or mortgage, utilities, and installment debt.

Table 42a. Fixed Monthly Expenses: White

Family income	Total primary families, excluding those in public housing and those with no cash rent	Fixed monthly expenses[1]										
		Less than $40	$40 to $59	$60 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $224	$225 to $249	$250 or more	Not available
Total families	23 531	1 022	219	2 189	2 942	1 809	821	871	811	901	366	104	11 477
Families with male head, total	19 509	858	219	1 923	1 912	1 473	662	651	698	901	366	104	9 743
Less than $1,000	739	-	-	56	110	49	-	107	52	-	-	48	316
$1,000 to $1,999	726	56	-	52	114	-	114	-	56	113	-	-	220
$2,000 to $2,999	1 358	218	57	274	114	52	-	-	-	-	-	-	643
$3,000 to $3,999	1 507	105	-	322	266	48	-	56	-	-	-	-	709
$4,000 to $4,999	1 560	114	-	171	161	115	-	48	106	152	-	-	693
$5,000 to $5,999	1 356	105	-	171	218	104	104	-	-	208	57	-	388
$6,000 to $6,999	1 112	108	-	105	157	169	56	101	48	-	-	-	366
$7,000 to $7,999	1 425	-	-	162	112	48	-	-	112	-	104	-	886
$8,000 to $8,999	1 542	-	-	105	117	332	114	-	-	97	-	-	777
$9,000 to $9,999	1 529	48	-	56	273	58	56	113	56	98	49	-	721
$10,000 to $11,999	2 505	48	105	169	56	271	57	-	169	168	-	-	1 461
$12,000 to $14,999	1 640	-	57	167	109	55	105	111	49	48	59	55	824
$15,000 or more	2 512	55	-	113	106	169	55	114	48	114	-	-	1 738
Number below the poverty level	2 874	165	57	335	441	206	114	107	157	218	-	48	1 026
Families with male head with children under 18, total	8 218	97	48	714	589	586	379	323	313	738	201	104	4 126
Less than $1,000	48	-	-	-	-	-	-	-	-	-	-	48	-
$1,000 to $1,999	279	-	-	-	-	-	114	-	56	56	-	-	53
$2,000 to $2,999	169	-	-	55	57	-	-	-	-	-	-	-	56
$3,000 to $3,999	377	-	-	56	161	48	-	-	-	-	-	-	112
$4,000 to $4,999	402	-	-	-	48	-	-	48	48	152	-	-	105
$5,000 to $5,999	790	48	-	115	104	104	104	-	-	208	-	-	106
$6,000 to $6,999	473	-	-	56	-	112	-	48	48	-	-	-	208
$7,000 to $7,999	865	-	-	48	-	48	-	-	112	-	104	-	552
$8,000 to $8,999	758	-	-	48	58	57	57	-	-	-	97	-	440
$9,000 to $9,999	754	48	-	56	160	-	-	56	-	48	-	-	385
$10,000 to $11,999	1 159	-	48	112	-	159	-	-	-	168	-	-	672
$12,000 to $14,999	805	-	-	111	-	-	48	56	-	48	-	55	486
$15,000 or more	1 339	-	-	56	-	57	55	114	48	57	-	-	952
Number below the poverty level	1 138	-	-	168	218	104	114	-	104	161	-	48	221
Families with female head, total	4 022	164	-	266	1 030	336	160	219	113	-	-	-	1 735
Less than $1,000	799	56	-	48	313	-	56	-	56	-	-	-	269
$1,000 to $1,999	279	-	-	109	-	56	-	57	-	-	-	-	56
$2,000 to $2,999	650	55	-	-	328	-	48	-	-	-	-	-	219
$3,000 to $3,999	554	-	-	52	112	112	-	-	-	-	-	-	277
$4,000 to $4,999	276	52	-	-	168	55	-	-	-	-	-	-	-
$5,000 to $5,999	53	-	-	-	-	-	-	-	-	-	-	-	53
$6,000 to $6,999	52	-	-	-	52	-	-	-	-	-	-	-	-
$7,000 to $7,999	165	-	-	-	56	56	-	-	-	-	-	-	52
$8,000 to $8,999	224	-	-	-	-	-	55	57	-	-	-	-	112
$9,000 to $9,999	321	-	-	-	-	56	-	105	56	-	-	-	104
$10,000 to $11,999	110	-	-	-	-	-	-	-	-	-	-	-	110
$12,000 to $14,999	163	-	-	-	-	-	-	-	-	-	-	-	163
$15,000 or more	377	-	-	56	-	-	-	-	-	-	-	-	321
Number below the poverty level	1 841	111	-	157	753	168	104	57	56	-	-	-	434
Families with female head with children under 18, total	2 134	111	-	48	819	336	160	163	56	-	-	-	440
Less than $1,000	592	56	-	48	264	-	56	-	56	-	-	-	111
$1,000 to $1,999	113	-	-	-	-	56	-	57	-	-	-	-	-
$2,000 to $2,999	436	55	-	-	275	-	48	-	-	-	-	-	58
$3,000 to $3,999	332	-	-	-	112	112	-	-	-	-	-	-	108
$4,000 to $4,999	167	-	-	-	112	55	-	-	-	-	-	-	-
$5,000 to $5,999	53	-	-	-	-	-	-	-	-	-	-	-	53
$6,000 to $6,999	-	-	-	-	-	-	-	-	-	-	-	-	-
$7,000 to $7,999	113	-	-	-	56	56	-	-	-	-	-	-	-
$8,000 to $8,999	168	-	-	-	-	-	55	57	-	-	-	-	55
$9,000 to $9,999	104	-	-	-	-	56	-	48	-	-	-	-	-
$10,000 to $11,999	-	-	-	-	-	-	-	-	-	-	-	-	-
$12,000 to $14,999	-	-	-	-	-	-	-	-	-	-	-	-	-
$15,000 or more	55	-	-	-	-	-	-	-	-	-	-	-	55
Number below the poverty level	1 417	111	-	48	651	168	104	57	56	-	-	-	220

[1] Rent or mortgage, utilities, and installment debt.

Table 42b. Fixed Monthly Expenses: Negro

Family Income	Total primary families, excluding those in public housing and those with no cash rent	Fixed monthly expenses[1]										
		Less than $40	$40 to $59	$60 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $224	$225 to $249	$250 or more	Not available
Total families	87 486	984	577	6 311	6 603	5 897	3 512	2 773	2 638	2 813	3 779	512	51 087
Families with male head, total	61 078	680	426	3 197	3 188	2 835	1 882	1 984	2 168	2 082	3 041	459	39 135
Less than $1,000	2 655	-	53	431	-	-	104	53	94	-	-	-	1 920
$1,000 to $1,999	1 737	105	-	214	151	153	102	56	55	-	47	-	853
$2,000 to $2,999	2 376	53	-	432	202	165	55	37	108	-	114	-	1 211
$3,000 to $3,999	2 507	108	51	382	325	266	55	106	53	102	-	-	1 058
$4,000 to $4,999	2 339	91	106	265	104	268	47	-	100	-	111	-	1 245
$5,000 to $5,999	3 111	156	-	270	366	211	47	108	111	100	159	-	1 581
$6,000 to $6,999	3 759	-	-	152	159	149	155	151	102	-	474	-	2 416
$7,000 to $7,999	6 609	-	106	427	442	407	458	252	253	472	210	47	3 536
$8,000 to $8,999	5 926	-	-	152	378	255	255	259	297	418	250	94	3 568
$9,000 to $9,999	5 179	-	-	151	207	206	155	273	106	159	257	-	3 663
$10,000 to $11,999	7 932	-	51	-	431	321	153	203	464	361	567	208	5 172
$12,000 to $14,999	7 510	-	59	212	259	157	195	327	317	265	418	-	5 302
$15,000 or more	9 440	166	-	110	164	275	102	159	107	206	433	110	7 608
Number below the poverty level	7 442	159	53	1 127	458	312	308	146	202	-	214	-	4 462
Families with male head with children under 18, total	33 083	56	104	1 195	1 678	1 446	1 016	1 146	1 350	1 186	1 963	300	21 643
Less than $1,000	941	-	-	157	-	-	56	53	94	-	-	-	580
$1,000 to $1,999	568	-	-	53	47	100	102	56	-	-	47	-	162
$2,000 to $2,999	842	-	-	53	153	-	-	-	53	-	114	-	470
$3,000 to $3,999	645	-	51	109	52	-	-	-	-	-	-	-	432
$4,000 to $4,999	940	-	-	104	104	210	47	-	51	-	53	-	370
$5,000 to $5,999	1 293	-	-	102	262	56	47	-	-	100	106	-	619
$6,000 to $6,999	2 114	-	-	98	53	47	104	151	47	-	474	-	1 140
$7,000 to $7,999	3 771	-	53	162	153	247	204	150	195	359	47	47	2 155
$8,000 to $8,999	3 739	-	-	98	159	255	200	206	242	253	201	94	2 031
$9,000 to $9,999	3 038	-	-	151	53	155	102	218	51	106	204	-	1 997
$10,000 to $11,999	5 060	-	-	-	378	212	106	47	300	157	457	159	3 244
$12,000 to $14,999	4 024	-	-	53	159	55	47	159	259	159	206	-	2 928
$15,000 or more	6 110	56	-	53	106	109	-	106	58	53	53	-	5 516
Number below the poverty level	3 726	-	-	476	306	206	206	109	147	-	214	-	2 062
Families with female head, total	26 408	303	151	3 114	3 415	3 062	1 629	789	470	731	738	53	11 952
Less than $1,000	3 973	-	-	476	621	355	261	210	-	-	-	-	2 050
$1,000 to $1,999	2 622	47	49	308	352	305	205	-	53	110	55	-	1 140
$2,000 to $2,999	3 636	51	-	723	820	671	155	53	-	-	-	-	1 163
$3,000 to $3,999	3 904	152	47	527	785	679	102	108	-	47	153	53	1 252
$4,000 to $4,999	2 677	-	-	460	321	316	108	-	102	157	161	-	1 052
$5,000 to $5,999	1 644	-	-	100	55	162	265	53	109	106	55	-	739
$6,000 to $6,999	1 742	-	55	55	102	159	53	108	47	47	55	-	1 061
$7,000 to $7,999	1 367	-	-	101	206	108	269	51	-	104	-	-	528
$8,000 to $8,999	1 152	-	-	161	-	47	54	51	-	106	53	-	680
$9,000 to $9,999	730	-	-	-	51	261	53	-	53	-	53	-	259
$10,000 to $11,999	835	-	-	53	51	-	-	-	55	-	-	-	676
$12,000 to $14,999	991	-	-	104	-	-	53	155	-	-	100	-	579
$15,000 or more	1 134	53	-	47	51	-	53	-	51	53	53	-	772
Number below the poverty level	13 190	197	49	1 714	2 215	1 754	726	316	53	157	208	53	5 748
Families with female head with children under 18, total	20 157	199	96	2 117	2 942	2 742	1 574	685	415	408	577	53	8 349
Less than $1,000	3 281	-	-	369	566	355	261	210	-	-	-	-	1 520
$1,000 to $1,999	1 979	47	49	255	299	251	205	-	53	-	55	-	765
$2,000 to $2,999	2 994	-	-	562	820	671	155	-	-	-	-	-	787
$3,000 to $3,999	3 369	152	47	367	731	572	102	108	-	47	153	53	1 036
$4,000 to $4,999	2 149	-	-	359	214	316	108	-	102	51	106	-	893
$5,000 to $5,999	1 430	-	-	47	55	162	265	53	109	106	55	-	578
$6,000 to $6,999	1 045	-	-	-	102	106	53	108	47	47	55	-	527
$7,000 to $7,999	844	-	-	-	104	53	214	51	-	51	-	-	371
$8,000 to $8,999	673	-	-	53	-	47	54	51	-	53	-	-	415
$9,000 to $9,999	626	-	-	-	-	208	53	-	53	-	53	-	259
$10,000 to $11,999	416	-	-	53	-	-	-	-	-	-	-	-	363
$12,000 to $14,999	622	-	-	51	-	-	53	104	-	-	47	-	367
$15,000 or more	728	-	-	-	51	-	53	-	51	53	53	-	467
Number below the poverty level	11 485	146	49	1 502	2 108	1 701	726	263	53	47	208	53	4 630

[1] Rent or mortgage, utilities, and installment debt.

Table 43a. Monthly Charges for Mortgages, Rent, and Utilities, by Family Income: White

Family Income	Total primary families, excluding those in public housing and those with no cash rent	Monthly charges[1]											
		Less than $40	$40 to $59	$60 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $224	$225 to $249	$250 or more	Not available
Total families	112 781	20 341	6 702	20 665	21 084	23 842	9 707	3 984	1 858	898	531	56	3 112
Families with male head, total	82 028	16 191	5 090	14 188	14 531	17 111	6 775	3 319	1 537	689	478	56	2 061
Less than $1,000	3 451	1 013	431	749	315	522	260	111	-	-	-	-	49
$1,000 to $1,999	2 628	719	-	425	594	313	264	106	56	57	-	-	93
$2,000 to $2,999	3 734	1 184	104	1 075	690	221	195	52	53	-	-	-	160
$3,000 to $3,999	4 119	956	267	1 132	858	586	162	-	106	-	-	-	52
$4,000 to $4,999	3 898	1 239	154	1 122	424	431	265	102	57	-	51	-	52
$5,000 to $5,999	4 515	1 094	56	897	1 062	917	270	53	-	-	-	-	166
$6,000 to $6,999	4 984	690	300	842	1 172	1 139	362	325	-	55	51	-	47
$7,000 to $7,999	8 090	1 079	437	2 046	1 825	1 561	418	468	104	-	-	-	152
$8,000 to $8,999	7 581	1 014	421	947	1 623	2 247	429	368	102	58	-	-	372
$9,000 to $9,999	6 708	1 296	534	838	1 265	1 609	530	210	210	-	-	-	214
$10,000 to $11,999	10 605	1 742	578	1 543	1 869	2 383	1 108	419	275	149	159	56	325
$12,000 to $14,999	9 318	1 772	691	1 542	1 265	2 123	983	360	264	157	-	-	161
$15,000 or more	12 396	2 393	1 117	1 031	1 569	3 057	1 529	744	309	213	217	-	217
Number below the poverty level	10 538	2 749	591	2 237	1 759	1 479	933	323	162	57	51	-	196
Families with male head with children under 18, total	41 968	4 723	2 527	6 736	7 665	10 663	4 411	2 466	1 100	465	369	56	786
Less than $1,000	1 045	51	53	370	100	211	207	53	-	-	-	-	-
$1,000 to $1,999	847	56	-	104	159	207	210	53	56	-	-	-	-
$2,000 to $2,999	1 011	161	-	267	321	109	47	-	53	-	-	-	53
$3,000 to $3,999	1 022	161	51	221	213	214	109	-	53	-	-	-	-
$4,000 to $4,999	1 341	113	48	402	254	314	106	53	-	-	51	-	-
$5,000 to $5,999	2 131	304	56	369	575	557	270	-	-	-	-	-	-
$6,000 to $6,999	2 701	104	300	520	642	619	251	217	-	-	-	-	47
$7,000 to $7,999	4 636	324	218	1 126	1 049	1 092	208	416	51	-	-	-	152
$8,000 to $8,999	4 497	470	265	611	814	1 659	212	260	47	-	-	-	159
$9,000 to $9,999	3 791	534	262	619	680	958	264	210	157	-	-	-	106
$10,000 to $11,999	6 387	589	261	893	1 157	1 694	847	366	162	94	159	56	109
$12,000 to $14,999	4 941	593	314	640	782	1 214	726	253	212	157	-	-	51
$15,000 or more	7 617	1 263	698	593	917	1 815	953	586	309	213	159	-	110
Number below the poverty level	4 920	430	160	1 263	901	1 009	733	159	162	-	51	-	53
Families with female head, total	30 753	4 150	1 612	6 478	6 553	6 731	2 932	665	321	208	53	-	1 051
Less than $1,000	4 771	646	203	786	1 082	902	788	94	56	-	-	-	214
$1,000 to $1,999	2 901	264	155	679	774	512	362	51	53	51	-	-	-
$2,000 to $2,999	4 394	478	215	1 301	1 252	889	101	53	-	-	-	-	106
$3,000 to $3,999	4 510	526	257	841	1 101	1 316	104	106	-	-	-	-	259
$4,000 to $4,999	2 953	162	51	772	854	481	263	104	-	53	53	-	161
$5,000 to $5,999	1 697	161	51	367	272	530	263	53	-	-	-	-	-
$6,000 to $6,999	1 794	424	159	266	270	306	212	104	-	-	-	-	53
$7,000 to $7,999	1 532	158	-	363	429	371	210	-	-	-	-	-	-
$8,000 to $8,999	1 377	162	208	372	208	266	160	-	-	-	-	-	-
$9,000 to $9,999	1 051	160	108	101	107	367	106	-	53	-	-	-	49
$10,000 to $11,999	1 000	320	102	53	104	211	104	53	-	-	-	-	53
$12,000 to $14,999	1 211	267	-	314	47	269	102	-	106	53	-	-	53
$15,000 or more	1 562	421	102	263	51	312	157	47	53	51	-	-	104
Number below the poverty level	15 140	1 430	567	3 129	3 851	3 511	1 510	303	109	51	53	-	626
Families with female head with children under 18, total	22 402	1 515	818	4 732	5 279	5 823	2 513	514	268	157	53	-	731
Less than $1,000	3 874	322	106	680	925	902	682	94	56	-	-	-	107
$1,000 to $1,999	2 093	153	102	410	562	404	307	51	53	51	-	-	-
$2,000 to $2,999	3 487	159	106	1 086	1 147	781	101	53	-	-	-	-	53
$3,000 to $3,999	3 701	311	146	628	1 048	1 210	104	53	-	-	-	-	202
$4,000 to $4,999	2 316	55	-	566	690	373	263	104	-	53	53	-	161
$5,000 to $5,999	1 483	-	51	313	272	530	263	53	-	-	-	-	-
$6,000 to $6,999	1 045	153	51	159	165	253	159	53	-	-	-	-	53
$7,000 to $7,999	956	-	-	213	213	371	159	-	-	-	-	-	-
$8,000 to $8,999	841	-	102	211	155	213	160	-	-	-	-	-	-
$9,000 to $9,999	730	51	-	101	56	314	106	-	53	-	-	-	49
$10,000 to $11,999	472	102	51	53	-	159	53	53	-	-	-	-	-
$12,000 to $14,999	622	51	-	208	47	53	51	-	106	53	-	-	53
$15,000 or more	783	158	102	104	-	261	106	-	-	-	-	-	53
Number below the poverty level	12 958	835	365	2 647	3 430	3 350	1 349	303	109	51	53	-	466

[1] Rent or mortgage and utilities.

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Table 43a. Monthly Charges for Mortgages, Rent, and Utilities, by Family Income: White

Family Income	Total primary families, excluding those in public housing and those with no cash rent	Monthly charges[1]										
		Less than $40	$40 to $59	$60 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $224	$225 to $249	$250 or more	Not available
Total families	23 531	7 298	1 423	4 785	4 601	2 796	1 092	216	331	113	-	56	820
Families with male head, total	19 509	5 889	1 154	4 195	3 513	2 346	1 044	216	275	113	-	56	707
Less than $1,000	739	210	56	105	162	49	48	59	-	-	-	-	49
$1,000 to $1,999	726	226	-	52	224	-	57	53	56	57	-	-	-
$2,000 to $2,999	1 358	707	-	274	268	-	57	-	-	-	-	-	52
$3,000 to $3,999	1 507	545	-	487	266	104	52	-	-	-	-	-	52
$4,000 to $4,999	1 560	597	48	537	208	59	-	-	57	-	-	-	52
$5,000 to $5,999	1 356	380	56	171	380	145	111	-	-	-	-	-	113
$6,000 to $6,999	1 112	161	48	317	313	169	48	56	-	-	-	-	-
$7,000 to $7,999	1 425	445	113	330	207	224	-	-	-	-	-	-	104
$8,000 to $8,999	1 542	337	112	428	229	321	56	-	-	-	-	-	57
$9,000 to $9,999	1 529	383	171	274	373	168	105	-	-	-	-	-	55
$10,000 to $11,999	2 505	783	212	497	227	280	225	-	113	-	-	56	113
$12,000 to $14,999	1 640	442	55	439	273	325	56	48	-	-	-	-	-
$15,000 or more	2 512	673	281	283	384	501	226	-	48	56	-	-	59
Number below the poverty level	2 874	870	113	480	765	210	163	111	56	57	-	-	49
Families with male head with children under 18, total	8 218	1 262	650	1 935	1 494	1 735	604	101	104	56	-	56	219
Less than $1,000	48	-	-	-	-	-	48	-	-	-	-	-	-
$1,000 to $1,999	279	-	-	-	112	-	57	53	56	-	-	-	-
$2,000 to $2,999	169	56	-	55	57	-	-	-	-	-	-	-	-
$3,000 to $3,999	377	-	-	112	161	104	-	-	-	-	-	-	-
$4,000 to $4,999	402	56	48	145	152	-	-	-	-	-	-	-	-
$5,000 to $5,999	790	154	56	115	209	145	111	-	-	-	-	-	-
$6,000 to $6,999	473	-	48	209	55	112	48	-	-	-	-	-	-
$7,000 to $7,999	865	222	56	161	97	224	-	-	-	-	-	-	104
$8,000 to $8,999	758	57	112	201	114	217	56	-	-	-	-	-	-
$9,000 to $9,999	754	161	56	160	210	168	-	-	-	-	-	-	-
$10,000 to $11,999	1 159	167	104	384	-	224	168	-	-	-	-	56	56
$12,000 to $14,999	805	166	-	222	161	208	-	48	-	-	-	-	-
$15,000 or more	1 339	223	169	170	167	333	114	-	48	56	-	-	59
Number below the poverty level	1 138	56	56	264	386	161	106	53	56	-	-	-	-
Families with female head, total	4 022	1 409	269	590	1 087	450	48	-	56	-	-	-	113
Less than $1,000	799	220	48	48	313	56	-	-	56	-	-	-	56
$1,000 to $1,999	279	56	-	109	57	56	-	-	-	-	-	-	-
$2,000 to $2,999	650	160	56	56	271	58	48	-	-	-	-	-	-
$3,000 to $3,999	554	164	56	52	112	112	-	-	-	-	-	-	56
$4,000 to $4,999	276	52	-	-	168	55	-	-	-	-	-	-	-
$5,000 to $5,999	53	-	-	53	-	-	-	-	-	-	-	-	-
$6,000 to $6,999	52	-	-	-	52	-	-	-	-	-	-	-	-
$7,000 to $7,999	165	52	-	56	56	-	-	-	-	-	-	-	-
$8,000 to $8,999	224	56	-	55	-	113	-	-	-	-	-	-	-
$9,000 to $9,999	321	109	108	48	56	-	-	-	-	-	-	-	-
$10,000 to $11,999	110	110	-	-	-	-	-	-	-	-	-	-	-
$12,000 to $14,999	163	163	-	-	-	-	-	-	-	-	-	-	-
$15,000 or more	377	266	-	112	-	-	-	-	-	-	-	-	-
Number below the poverty level	1 841	383	48	213	754	281	48	-	56	-	-	-	56
Families with female head with children under 18, total	2 134	330	-	317	877	450	48	-	56	-	-	-	56
Less than $1,000	592	111	-	48	264	56	-	-	56	-	-	-	56
$1,000 to $1,999	113	-	-	-	57	56	-	-	-	-	-	-	-
$2,000 to $2,999	436	55	-	56	219	58	48	-	-	-	-	-	-
$3,000 to $3,999	332	108	-	-	112	112	-	-	-	-	-	-	-
$4,000 to $4,999	167	-	-	-	112	55	-	-	-	-	-	-	-
$5,000 to $5,999	53	-	-	53	-	-	-	-	-	-	-	-	-
$6,000 to $6,999	-	-	-	-	-	-	-	-	-	-	-	-	-
$7,000 to $7,999	113	-	-	56	56	-	-	-	-	-	-	-	-
$8,000 to $8,999	168	-	-	55	-	113	-	-	-	-	-	-	-
$9,000 to $9,999	104	-	-	48	56	-	-	-	-	-	-	-	-
$10,000 to $11,999	-	-	-	-	-	-	-	-	-	-	-	-	-
$12,000 to $14,999	-	-	-	-	-	-	-	-	-	-	-	-	-
$15,000 or more	55	55	-	-	-	-	-	-	-	-	-	-	-
Number below the poverty level	1 417	218	-	105	652	281	48	-	56	-	-	-	56

[1] Rent or mortgage and utilities.

Table 43b. Monthly Charges for Mortgages, Rent, and Utilities, by Family Income: Negro

Family Income	Total primary families, excluding those in public housing and those with no cash rent	Monthly charges[1]										
		Less than $40	$40 to $59	$60 to $79	$80 to $99	$100 to $124	$125 to $149	$150 to $174	$175 to $199	$200 to $224	$225 to $249	$250 or more	Not available
Total families	87 486	12 821	5 118	15 445	16 259	20 490	8 506	3 768	1 527	785	531	-	2 236
Families with male head, total	61 078	10 132	3 828	9 558	10 793	14 377	5 674	3 103	1 262	576	478	-	1 298
Less than $1,000	2 655	803	374	588	153	473	212	53	-	-	-	-	-
$1,000 to $1,999	1 737	436	-	265	370	313	206	53	-	-	-	-	93
$2,000 to $2,999	2 376	477	104	802	422	221	138	5:	53	-	-	-	108
$3,000 to $3,999	2 507	412	215	592	592	481	109	-	106	-	-	-	-
$4,000 to $4,999	2 339	642	106	584	216	373	265	102	-	-	51	-	-
$5,000 to $5,999	3 111	714	-	678	682	772	159	53	-	-	-	-	53
$6,000 to $6,999	3 759	529	252	468	803	971	314	268	-	55	51	-	47
$7,000 to $7,999	6 609	633	323	1 659	1 619	1 337	418	468	104	-	-	-	47
$8,000 to $8,999	5 926	677	309	518	1 394	1 926	316	368	102	58	-	-	259
$9,000 to $9,999	5 179	913	364	564	892	1 442	425	210	210	-	-	-	159
$10,000 to $11,999	7 932	903	365	1 046	1 585	2 048	883	419	162	149	159	-	212
$12,000 to $14,999	7 510	1 274	636	1 102	992	1 686	927	312	264	157	-	-	161
$15,000 or more	9 440	1 720	780	692	1 073	2 335	1 303	744	261	157	217	-	159
Number below the poverty level	7 442	1 821	478	1 594	995	1 269	770	211	106	-	51	-	146
Families with male head with children under 18, total	33 083	3 405	1 821	4 583	6 001	8 761	3 808	2 365	996	408	369	-	567
Less than $1,000	941	51	53	314	100	211	159	53	-	-	-	-	-
$1,000 to $1,999	568	56	-	104	47	207	153	-	-	-	-	-	-
$2,000 to $2,999	842	105	-	212	263	109	47	-	53	-	-	-	53
$3,000 to $3,999	645	161	51	109	52	109	109	-	53	-	-	-	-
$4,000 to $4,999	940	56	-	257	102	314	106	53	-	-	51	-	-
$5,000 to $5,999	1 293	150	-	206	366	412	159	-	-	-	-	-	-
$6,000 to $6,999	2 114	104	252	254	530	506	202	217	-	-	-	-	47
$7,000 to $7,999	3 771	102	162	965	953	867	208	416	51	-	-	-	47
$8,000 to $8,999	3 739	412	153	410	700	1 442	156	260	47	-	-	-	159
$9,000 to $9,999	3 038	374	206	460	471	790	264	210	157	-	-	-	106
$10,000 to $11,999	5 060	366	157	508	1 100	1 415	679	366	162	94	159	-	53
$12,000 to $14,999	4 024	427	314	418	621	894	726	204	212	157	-	-	51
$15,000 or more	6 110	1 040	473	367	694	1 482	839	586	261	157	159	-	51
Number below the poverty level	3 726	373	104	943	514	849	627	106	106	-	51	-	53
Families with female head, total	26 408	2 689	1 291	5 887	5 466	6 112	2 832	665	265	208	53	-	939
Less than $1,000	3 973	426	155	738	769	846	788	94	-	-	-	-	157
$1,000 to $1,999	2 622	208	155	571	717	455	362	51	53	51	-	-	-
$2,000 to $2,999	3 636	318	106	1 244	981	775	53	53	-	-	-	-	106
$3,000 to $3,999	3 904	311	200	788	988	1 204	104	106	-	-	-	-	202
$4,000 to $4,999	2 677	109	51	772	686	425	263	104	-	53	53	-	161
$5,000 to $5,999	1 644	161	51	314	272	530	263	53	-	-	-	-	-
$6,000 to $6,999	1 742	424	159	266	218	306	212	104	-	-	-	-	53
$7,000 to $7,999	1 367	106	-	307	373	371	210	-	-	-	-	-	-
$8,000 to $8,999	1 152	106	208	316	208	153	160	-	-	-	-	-	-
$9,000 to $9,999	730	51	-	53	51	367	106	-	53	-	-	-	49
$10,000 to $11,999	835	210	102	53	104	155	104	53	-	-	-	-	53
$12,000 to $14,999	991	104	-	314	47	212	102	-	106	53	-	-	53
$15,000 or more	1 134	156	102	151	51	312	106	47	53	51	-	-	104
Number below the poverty level	13 190	1 047	467	2 916	3 097	3 173	1 462	303	53	51	53	-	570
Families with female head with children under 18, total	20 157	1 185	818	4 415	4 403	5 262	2 465	514	212	157	53	-	675
Less than $1,000	3 281	210	106	631	661	846	682	94	-	-	-	-	51
$1,000 to $1,999	1 979	153	102	410	505	348	307	51	53	51	-	-	-
$2,000 to $2,999	2 994	104	106	1 030	928	667	53	53	-	-	-	-	53
$3,000 to $3,999	3 369	203	146	628	935	1 098	104	53	-	-	-	-	202
$4,000 to $4,999	2 149	55	-	566	578	317	263	104	-	53	53	-	161
$5,000 to $5,999	1 430	-	51	261	272	530	263	53	-	-	-	-	-
$6,000 to $6,999	1 045	153	51	159	165	253	159	53	-	-	-	-	53
$7,000 to $7,999	844	-	-	157	157	371	159	-	-	-	-	-	-
$8,000 to $8,999	673	-	102	155	155	100	160	-	-	-	-	-	-
$9,000 to $9,999	626	51	-	53	-	314	106	-	53	-	-	-	49
$10,000 to $11,999	416	102	51	53	-	104	53	53	-	-	-	-	-
$12,000 to $14,999	622	51	-	208	47	53	51	-	106	53	-	-	53
$15,000 or more	728	102	102	104	-	261	106	-	-	-	-	-	53
Number below the poverty level	11 485	617	365	2 542	2 777	3 013	1 301	303	53	51	53	-	410

[1] Rent or mortgage and utilities.

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Table 44. Age and Education of Head: All Races

Family income	Total heads	Age of head						Education of head[1]				
								Elementary		High school		
		16 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over	7 years or less	8 years	1 to 3 years	4 years	College—1 year or more
Total families	119 846	10 457	23 929	23 536	24 133	20 548	17 243	17 851	13 318	31 779	27 617	9 089
Families with male head, total	85 425	5 705	14 385	16 578	18 014	16 857	13 885	14 518	9 857	20 410	18 665	6 756
Less than $1,000	3 616	340	317	260	369	584	1 738	313	362	423	423	154
$1,000 to $1,999	2 971	290	218	441	167	430	1 424	268	267	413	385	163
$2,000 to $2,999	3 898	97	639	489	115	750	1 808	493	430	424	640	102
$3,000 to $3,999	4 490	243	273	543	549	917	1 966	646	369	884	576	-
$4,000 to $4,999	4 058	199	467	431	766	669	1 527	822	419	855	386	-
$5,000 to $5,999	4 793	239	1 156	480	912	1 092	913	1 440	319	1 007	897	170
$6,000 to $6,999	5 300	677	876	1 031	858	1 058	800	1 164	641	1 251	1 002	300
$7,000 to $7,999	8 405	1 155	1 646	1 561	1 720	1 673	649	1 646	1 124	2 288	1 784	672
$8,000 to $8,999	7 840	762	1 530	2 053	1 942	1 123	430	1 761	915	2 306	1 768	565
$9,000 to $9,999	6 868	345	1 107	1 303	2 071	1 404	636	963	1 003	1 972	1 812	433
$10,000 to $11,999	10 930	731	2 325	2 960	2 793	1 689	431	2 041	1 453	2 782	3 107	970
$12,000 to $14,999	9 641	289	2 134	2 110	1 915	2 248	944	1 573	944	2 451	2 493	1 075
$15,000 or more	12 615	337	1 698	2 907	3 836	3 219	619	1 388	1 611	3 354	3 393	2 152
Median income ..... dollars..	8691	7706	9112	9760	9802	9131	4023	8280	9108	9179	9841	11744
Number below the poverty level	11 315	774	1 646	1 790	1 241	1 868	3 997	1 494	1 579	1 795	1 779	370
Percent below the poverty level	13.2	13.6	11.4	10.8	6.9	11.1	28.8	10.3	16.0	8.8	9.5	5.5
Families with male head, year-round full-time worker, total	44 478	2 990	7 817	10 262	12 348	9 155	1 906	7 770	5 867	11 858	12 170	4 279
Less than $1,000	586	49	109	215	-	212	-	-	53	212	215	106
$1,000 to $1,999	359	145	-	104	56	-	53	53	47	149	56	-
$2,000 to $2,999	431	-	106	109	-	216	-	108	109	108	106	-
$3,000 to $3,999	379	-	56	53	106	109	55	162	-	109	53	-
$4,000 to $4,999	928	48	106	159	329	286	-	338	106	383	53	-
$5,000 to $5,999	1 423	48	266	222	645	166	76	379	162	326	376	56
$6,000 to $6,999	2 354	335	420	432	531	530	106	633	324	569	479	148
$7,000 to $7,999	4 781	821	970	869	1 167	701	253	1 006	801	1 159	1 111	306
$8,000 to $8,999	5 199	475	911	1 504	1 287	857	166	1 173	688	1 544	1 219	361
$9,000 to $9,999	4 714	298	856	931	1 604	760	264	589	740	1 358	1 441	272
$10,000 to $11,999	7 320	384	1 526	1 948	2 377	1 033	53	1 339	1 032	1 779	2 377	594
$12,000 to $14,999	6 301	97	1 400	1 508	1 327	1 596	373	919	732	1 651	1 899	727
$15,000 or more	9 704	290	1 090	2 210	2 918	2 687	508	1 070	1 070	2 512	2 786	1 708
Median income ..... dollars..	10318	8101	10175	10549	10377	11534	9927	9055	9902	10015	10843	13331
Number below the poverty level	1 896	243	423	643	215	320	53	266	313	570	539	106
Percent below the poverty level	4.3	8.1	5.4	6.3	1.7	3.5	2.8	3.4	5.3	4.8	4.4	2.5
Families with female head, total	34 421	4 752	9 544	6 958	6 119	3 691	3 358	3 334	3 461	11 369	8 951	2 333
Less than $1,000	5 725	1 109	1 786	1 123	582	531	593	909	597	1 609	1 310	215
$1,000 to $1,999	3 318	910	646	483	367	373	539	322	265	1 452	541	104
$2,000 to $2,999	5 056	1 010	1 550	967	626	474	428	411	584	1 649	1 557	162
$3,000 to $3,999	5 131	763	1 972	804	847	322	425	429	486	1 913	1 307	320
$4,000 to $4,999	3 172	289	1 126	641	744	210	162	260	420	1 538	477	157
$5,000 to $5,999	2 012	145	1 020	427	209	106	105	106	104	685	849	163
$6,000 to $6,999	1 847	142	325	797	213	156	215	159	159	263	797	155
$7,000 to $7,999	1 636	98	53	646	526	209	105	212	155	320	637	157
$8,000 to $8,999	1 433	47	216	213	372	476	109	-	260	477	426	161
$9,000 to $9,999	1 266	97	317	215	320	161	156	56	214	526	212	53
$10,000 to $11,999	1 051	-	106	218	469	154	105	207	51	51	216	315
$12,000 to $14,999	1 211	47	269	317	366	108	104	-	56	526	314	211
$15,000 or more	1 562	94	159	106	478	413	312	262	110	360	311	161
Median income ..... dollars..	3667	2448	3428	4240	4890	4945	3344	3244	3586	3577	3817	6466
Number below the poverty level	17 587	3 356	5 891	3 638	1 937	1 370	1 395	1 909	1 754	6 586	4 250	640
Percent below the poverty level	51.1	70.6	61.7	52.3	31.7	37.1	41.5	57.3	50.7	57.9	47.5	27.4

[1] Persons 16 to 64 years, not in school.

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Table 44a. Age and Education of Head: White

Family Income	Total heads	Age of head						Education of head[1]				
								Elementary		High school		
		16 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over	7 years or less	8 years	1 to 3 years	4 years	College–1 year or more
Total families	25 188	1 908	4 128	3 819	5 223	4 937	5 174	4 381	3 411	6 032	3 648	1 908
Families with male head, total	20 341	1 422	3 170	3 199	3 994	4 320	4 236	3 765	2 350	4 784	3 091	1 628
Less than $1,000	851	196	48	-	-	109	498	-	101	155	49	48
$1,000 to $1,999	726	-	56	165	57	56	391	56	-	170	53	56
$2,000 to $2,999	1 358	49	57	113	56	278	804	227	171	55	52	49
$3,000 to $3,999	1 562	98	217	56	171	168	853	112	211	282	56	-
$4,000 to $4,999	1 615	97	249	114	397	282	477	333	209	378	169	-
$5,000 to $5,999	1 469	97	525	169	168	454	57	483	56	436	274	114
$6,000 to $6,999	1 166	294	153	277	225	-	216	269	217	101	161	153
$7,000 to $7,999	1 586	153	257	281	447	447	-	385	272	655	169	56
$8,000 to $8,999	1 542	98	201	343	455	276	169	383	278	500	114	98
$9,000 to $9,999	1 585	147	323	501	223	281	110	169	216	436	379	225
$10,000 to $11,999	2 560	97	557	337	671	677	222	450	395	559	611	227
$12,000 to $14,999	1 696	49	249	335	285	449	328	450	-	440	333	145
$15,000 or more	2 625	48	276	507	838	844	113	448	224	617	671	456
Median income ..... dollars..	7916	6593	8108	9161	9090	9321	3534	8045	7772	8319	10226	10125
Number below the poverty level	3 097	293	427	447	281	387	1 262	338	584	437	322	105
Percent below the poverty level	15.2	20.6	13.5	14.0	7.0	9.0	29.8	9.0	24.9	9.1	10.4	6.4
Families with male head, year-round full-time worker, total	8 269	785	1 074	1 637	2 306	2 135	332	2 005	1 101	2 160	1 660	672
Less than $1,000	49	49	-	-	-	-	-	-	-	49	-	-
$1,000 to $1,999	-	-	-	-	-	-	-	-	-	-	-	-
$2,000 to $2,999	168	-	-	56	-	111	-	56	56	55	-	-
$3,000 to $3,999	56	-	56	-	-	-	-	-	-	56	-	-
$4,000 to $4,999	278	48	-	-	117	113	-	117	-	113	-	-
$5,000 to $5,999	385	48	-	169	111	56	-	112	-	112	113	-
$6,000 to $6,999	322	97	56	56	113	-	-	163	56	-	48	54
$7,000 to $7,999	917	153	201	224	169	170	-	330	161	378	-	-
$8,000 to $8,999	874	48	97	172	225	219	113	327	161	160	114	-
$9,000 to $9,999	1 154	147	275	397	223	113	-	169	160	284	322	170
$10,000 to $11,999	1 783	97	284	224	671	506	-	280	395	447	450	114
$12,000 to $14,999	602	49	48	-	173	168	164	114	-	111	164	48
$15,000 or more	1 681	48	57	339	504	678	55	337	112	395	449	285
Median income ..... dollars..	9940	7980	9462	9356	10580	11123	12973	8684	9728	9553	11036	11958
Number below the poverty level	266	98	56	112	-	-	-	-	56	105	56	-
Percent below the poverty level	3.2	12.4	5.2	6.9	.0	.0	.0	.0	5.1	4.9	3.4	.0
Families with female head, total	4 847	485	958	620	1 229	617	938	616	1 061	1 248	557	281
Less than $1,000	1 240	292	505	112	167	112	52	225	281	367	112	56
$1,000 to $1,999	335	-	57	56	56	113	52	56	56	170	-	-
$2,000 to $2,999	650	97	115	170	55	56	157	-	218	161	56	58
$3,000 to $3,999	554	-	112	112	113	113	104	112	169	169	-	-
$4,000 to $4,999	388	-	112	-	223	-	52	-	56	111	113	55
$5,000 to $5,999	156	48	-	-	55	-	53	-	-	55	48	-
$6,000 to $6,999	52	-	-	-	-	-	52	-	-	-	-	-
$7,000 to $7,999	165	-	-	56	56	-	52	56	-	-	56	-
$8,000 to $8,999	281	-	57	-	112	112	-	-	55	55	114	56
$9,000 to $9,999	376	48	-	56	113	55	104	56	112	104	-	-
$10,000 to $11,999	110	-	-	57	-	-	52	-	-	-	57	-
$12,000 to $14,999	163	-	-	-	55	56	51	-	56	55	-	-
$15,000 or more	377	-	-	-	222	-	155	111	56	-	-	55
Median income ..... dollars..	3452	896	1039	2833	4997	3245	5967	3492	2886	2540	4976	4482
Number below the poverty level	2 387	437	733	450	334	225	208	393	499	754	272	114
Percent below the poverty level	49.2	90.0	76.5	72.7	27.2	36.4	22.2	63.8	47.0	60.4	48.9	40.5

[1] Persons 16 to 64 years, not in school.

Table 44b. Age and Education of Head: Negro

Family income	Total heads	Age of head						Education of head[1]				
								Elementary		High school		
		16 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over	7 years or less	8 years	1 to 3 years	4 years	College–1 year or more
Total families	92 784	8 501	19 183	19 603	18 524	15 333	11 640	13 193	9 737	25 527	23 857	6 624
Families with male head, total	63 534	4 234	10 711	13 265	13 689	12 260	9 375	10 476	7 337	15 463	15 462	4 629
Less than $1,000	2 655	143	215	268	369	476	1 184	313	261	268	374	106
$1,000 to $1,999	2 079	290	162	276	109	374	868	212	267	244	332	106
$2,000 to $2,999	2 540	47	582	376	59	472	1 005	266	259	369	588	53
$3,000 to $3,999	2 822	145	56	487	378	695	1 061	481	159	603	520	-
$4,000 to $4,999	2 443	102	217	317	369	387	1 050	489	210	477	217	-
$5,000 to $5,999	3 219	94	574	312	744	639	855	957	263	522	622	-
$6,000 to $6,999	4 021	383	667	754	576	1 058	583	895	368	1 092	841	147
$7,000 to $7,999	6 763	1 003	1 389	1 280	1 273	1 169	649	1 261	852	1 633	1 616	559
$8,000 to $8,999	6 185	665	1 328	1 710	1 430	791	261	1 378	637	1 749	1 654	411
$9,000 to $9,999	5 283	198	784	803	1 848	1 124	526	793	787	1 535	1 433	208
$10,000 to $11,999	8 201	635	1 655	2 624	2 067	1 012	209	1 536	1 058	2 223	2 440	686
$12,000 to $14,999	7 776	240	1 829	1 719	1 630	1 743	616	1 011	944	2 011	2 160	874
$15,000 or more	9 546	289	1 253	2 341	2 837	2 320	506	884	1 274	2 737	2 666	1 479
Median income ..... dollars.	8873	7957	9242	10038	9860	9108	4542	8283	9533	9505	9712	12223
Number below the poverty level	7 944	481	1 165	1 343	960	1 481	2 513	1 156	995	1 358	1 457	265
Percent below the poverty level	12.5	11.4	10.9	10.1	7.0	12.1	26.8	11.0	13.6	8.8	9.4	5.7
Families with male head, year-round full-time worker, total	35 543	2 205	6 406	8 569	9 937	6 852	1 574	5 541	4 709	9 699	10 454	3 277
Less than $1,000	537	-	109	215	-	212	-	-	53	162	215	106
$1,000 to $1,999	359	145	-	104	56	-	53	53	47	149	56	-
$2,000 to $2,999	263	-	106	53	-	104	-	51	53	53	106	-
$3,000 to $3,999	323	-	-	53	106	109	55	162	-	53	53	-
$4,000 to $4,999	650	-	106	159	212	173	-	221	106	270	53	-
$5,000 to $5,999	982	-	210	53	534	109	76	267	162	214	263	-
$6,000 to $6,999	1 977	238	308	376	419	530	106	470	212	569	431	94
$7,000 to $7,999	3 864	668	769	644	999	531	253	676	641	781	1 111	306
$8,000 to $8,999	4 268	427	815	1 331	1 062	581	53	846	527	1 384	1 104	305
$9,000 to $9,999	3 559	151	582	534	1 381	648	264	420	580	1 074	1 119	102
$10,000 to $11,999	5 426	287	1 186	1 723	1 650	527	53	1 005	637	1 332	1 871	480
$12,000 to $14,999	5 530	47	1 296	1 452	1 155	1 372	209	692	732	1 540	1 735	623
$15,000 or more	7 805	242	920	1 871	2 365	1 954	453	678	958	2 117	2 337	1 262
Median income ..... dollars.	10394	8119	10379	10884	10243	11823	9725	9057	9998	10210	10793	13312
Number below the poverty level	1 630	145	366	531	215	320	53	266	257	464	483	106
Percent below the poverty level	4.6	6.6	5.7	6.2	2.2	4.7	3.4	4.8	5.5	4.8	4.6	3.2
Families with female head, total	29 250	4 266	8 472	6 338	4 835	3 074	2 265	2 717	2 400	10 065	8 394	1 995
Less than $1,000	4 485	817	1 282	1 011	415	419	540	684	317	1 242	1 198	159
$1,000 to $1,999	2 983	910	589	427	311	260	486	265	208	1 282	541	104
$2,000 to $2,999	4 297	914	1 379	797	571	417	219	411	365	1 432	1 500	104
$3,000 to $3,999	4 526	763	1 859	692	734	209	270	316	316	1 744	1 307	320
$4,000 to $4,999	2 784	289	1 014	641	521	210	109	260	364	1 427	365	102
$5,000 to $5,999	1 856	96	1 020	427	154	106	53	106	104	630	800	163
$6,000 to $6,999	1 795	142	325	797	213	156	162	159	159	263	797	155
$7,000 to $7,999	1 471	98	53	590	469	209	53	156	155	320	581	157
$8,000 to $8,999	1 152	47	159	213	260	364	109	-	205	422	312	104
$9,000 to $9,999	890	49	317	159	207	106	53	-	102	422	212	53
$10,000 to $11,999	886	-	106	161	413	154	53	207	51	51	159	315
$12,000 to $14,999	991	47	212	317	311	51	53	-	-	471	314	153
$15,000 or more	1 134	94	159	106	256	413	105	152	53	360	311	106
Median income ..... dollars.	3689	2523	3545	4459	4792	5694	2608	3156	3979	3691	3733	6466
Number below the poverty level	15 091	2 919	5 103	3 188	1 603	1 146	1 134	1 516	1 255	5 775	3 978	526
Percent below the poverty level	51.6	68.4	60.2	50.3	33.1	37.3	50.1	55.8	52.3	57.4	47.4	26.4

[1] Persons 16 to 64 years, not in school.

Table 45. Age and Education of Unrelated Individuals: All Races

Income	Total	Age of unrelated individuals						Education of unrelated individuals[1]				
								Elementary		High school		College– 1 year or more
		16 to 24 years	25 to 34 years	34 to 44 years	45 to 54 years	55 to 64 years	65 years and over	7 years or less	8 years	1 to 3 years	4 years	
Total unrelated individuals	78 609	8 776	11 495	10 012	14 445	12 930	20 951	8 629	5 949	16 045	15 123	8 538
Male unrelated individuals, total	44 033	4 847	8 079	6 838	8 499	6 811	8 958	6 048	3 297	10 485	8 385	5 110
Less than $1,000	7 071	716	1 190	921	1 137	969	2 138	1 092	287	1 608	948	551
$1,000 to $1,999	6 886	720	287	572	791	1 604	2 911	1 086	391	1 163	565	434
$2,000 to $2,999	3 514	338	282	395	508	508	1 483	281	395	718	370	169
$3,000 to $3,999	4 053	523	683	564	968	634	680	678	461	1 160	547	432
$4,000 to $4,999	1 783	95	334	169	403	287	495	220	113	390	338	227
$5,000 to $5,999	2 532	288	626	340	457	459	362	339	171	784	495	333
$6,000 to $6,999	4 042	864	1 198	573	567	576	265	635	106	1 025	1 123	599
$7,000 to $7,999	4 383	530	848	1 195	1 087	571	151	629	632	1 526	1 091	112
$8,000 to $8,999	3 587	578	1 144	911	460	401	93	341	343	622	1 205	789
$9,000 to $9,999	1 598	-	228	284	458	399	229	172	226	514	285	172
$10,000 to $11,999	2 664	146	629	571	972	346	-	401	57	574	958	673
$12,000 to $14,999	1 176	48	400	172	461	-	95	174	116	228	229	334
$15,000 or more	744	-	230	170	229	58	57	-	-	173	230	284
Median income ..... dollars	4735	5443	6790	6949	6225	3647	1837	4149	5353	5400	6979	6822
Number below the poverty level	14 850	1 629	1 761	1 721	2 099	2 742	4 898	2 348	959	3 112	1 609	1 042
Percent below the poverty level	33.7	33.6	21.8	25.2	24.7	40.3	54.7	38.8	29.1	29.7	19.2	20.4
Male unrelated individuals who are year round full-time workers, total	16 074	1 634	3 304	3 303	4 061	2 752	1 019	2 175	1 435	3 786	4 472	2 848
Less than $1,000	526	-	57	58	113	110	188	57	-	56	115	110
$1,000 to $1,999	558	98	57	-	114	116	172	172	-	-	57	59
$2,000 to $2,999	168	-	-	-	57	56	55	-	57	56	-	-
$3,000 to $3,999	885	141	173	170	116	173	112	58	173	333	150	59
$4,000 to $4,999	464	48	111	-	115	115	75	-	57	105	114	112
$5,000 to $5,999	1 105	96	228	113	285	346	39	169	115	230	220	333
$6,000 to $6,999	2 051	478	337	284	511	289	151	289	-	507	578	429
$7,000 to $7,999	3 058	288	568	909	685	515	94	456	517	1 070	762	112
$8,000 to $8,999	2 796	338	859	797	460	343	-	284	343	451	1 004	617
$9,000 to $9,999	1 068	-	114	229	344	344	38	172	114	346	285	114
$10,000 to $11,999	2 100	98	457	514	742	289	-	344	-	402	843	510
$12,000 to $14,999	720	48	229	115	290	-	38	174	59	57	229	164
$15,000 or more	574	-	115	115	229	58	57	-	-	173	115	230
Median income ..... dollars	7764	6907	8174	8148	8076	7332	4132	7751	7610	7565	8267	8341
Number below the poverty level	1 468	194	171	173	344	226	360	342	-	231	220	169
Percent below the poverty level	9.1	11.9	5.2	5.2	8.5	8.2	35.4	15.7	.0	6.1	4.9	5.9
Female unrelated individuals, total	34 576	3 929	3 416	3 174	5 946	6 119	11 992	2 581	2 651	5 560	6 738	3 428
Less than $1,000	9 078	1 046	545	817	1 019	2 074	3 576	900	585	1 400	1 359	782
$1,000 to $1,999	8 744	524	563	215	1 435	1 386	4 622	789	795	1 095	787	364
$2,000 to $2,999	5 538	673	281	547	946	1 012	2 080	271	366	1 015	939	630
$3,000 to $3,999	3 259	192	542	405	651	530	940	263	371	900	497	162
$4,000 to $4,999	2 609	484	443	268	889	263	262	149	211	521	951	370
$5,000 to $5,999	1 671	719	108	269	260	158	156	51	105	210	804	153
$6,000 to $6,999	732	145	168	106	159	51	103	106	107	163	205	-
$7,000 to $7,999	858	48	166	272	213	159	-	52	55	54	322	319
$8,000 to $8,999	806	49	272	112	104	268	-	-	55	104	487	160
$9,000 to $9,999	855	47	163	110	163	218	155	-	-	99	330	270
$10,000 to $11,999	267	-	112	-	55	-	99	-	-	-	55	112
$12,000 to $14,999	159	-	54	54	52	-	-	-	-	-	-	105
$15,000 or more	-	-	-	-	-	-	-	-	-	-	-	-
Median income ..... dollars	2069	2833	3791	3294	2773	1844	1552	1593	2077	2492	4023	3102
Number below the poverty level	17 822	1 766	1 274	1 032	2 297	3 407	8 046	1 692	1 274	2 549	2 242	1 251
Percent below the poverty level	51.5	45.0	37.3	32.5	38.6	55.7	67.1	65.6	48.1	45.8	33.3	36.5

[1] Persons 16 to 64 years, not in school.

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Table 45a. Age and Education of Unrelated Individuals: White

Income	Total	Age of unrelated individuals						Education of unrelated individuals[1]				
								Elementary		High school		
		16 to 24 years	25 to 34 years	34 to 44 years	45 to 54 years	55 to 64 years	65 years and over	7 years or less	8 years	1 to 3 years	4 years	College—1 year or more
Total unrelated individuals	30 530	3 066	3 908	2 288	4 471	5 218	11 578	1 983	2 310	3 910	5 134	3 900
Male unrelated individuals, total	17 050	1 443	2 436	1 645	3 360	2 686	5 480	1 428	1 649	2 536	2 681	2 503
Less than $1,000	2 672	284	283	231	399	394	1 081	292	116	443	212	382
$1,000 to $1,999	3 373	288	57	-	226	741	2 060	58	220	285	228	283
$2,000 to $2,999	1 950	195	169	224	279	226	858	111	281	167	323	113
$3,000 to $3,999	1 827	287	57	226	458	346	452	222	346	330	169	211
$4,000 to $4,999	963	-	220	56	170	173	345	58	56	170	166	169
$5,000 to $5,999	745	-	285	-	-	289	171	-	114	173	114	171
$6,000 to $6,999	1 273	195	342	169	337	115	114	230	-	173	392	219
$7,000 to $7,999	1 282	145	224	115	514	171	114	171	288	335	215	112
$8,000 to $8,999	625	-	114	226	115	114	56	-	114	170	172	112
$9,000 to $9,999	343	-	57	114	58	-	115	58	56	58	-	57
$10,000 to $11,999	919	-	229	172	459	59	-	114	57	115	405	228
$12,000 to $14,999	507	48	227	-	174	-	57	116	-	-	171	162
$15,000 or more	573	-	173	112	172	58	57	-	-	116	116	284
Median income ..... dollars. .	3428	2885	6680	6850	6609	2917	1818	6148	3682	4246	6402	5870
Number below the poverty level	6 412	717	510	344	680	1 248	2 914	407	561	839	488	722
Percent below the poverty level	37.6	49.7	20.9	20.9	20.2	46.5	53.2	28.5	34.0	33.1	18.2	28.8
Male unrelated individuals who are year-round full time workers, total	5 442	194	1 022	800	1 772	974	680	688	461	740	1 368	1 458
Less than $1,000	339	-	-	58	57	110	114	57	-	-	58	110
$1,000 to $1,999	289	-	-	-	59	58	172	58	-	-	-	59
$2,000 to $2,999	55	-	-	-	-	-	55	-	-	-	-	-
$3,000 to $3,999	285	-	-	57	59	58	112	58	59	57	-	-
$4,000 to $4,999	226	-	111	-	58	58	-	-	-	58	57	112
$5,000 to $5,999	402	-	171	-	-	232	-	-	58	116	58	171
$6,000 to $6,999	952	48	168	169	337	115	114	114	-	115	343	219
$7,000 to $7,999	838	97	57	115	399	115	56	171	230	164	106	112
$8,000 to $8,999	456	-	58	169	115	114	-	-	114	58	172	112
$9,000 to $9,999	172	-	57	58	58	-	-	58	-	58	-	57
$10,000 to $11,999	573	-	114	115	285	59	-	57	-	-	346	170
$12,000 to $14,999	394	48	172	-	174	-	-	116	-	-	171	106
$15,000 or more	460	-	115	58	172	58	57	-	-	116	58	230
Median income ..... dollars. .	7239	7500	8071	8004	7793	5883	3243	7338	7496	7150	8366	7521
Number below the poverty level	676	48	-	58	116	168	286	115	-	-	58	169
Percent below the poverty level	12.4	25.0	.0	7.3	6.6	17.2	42.0	16.7	.0	.0	4.2	11.6
Female unrelated individuals, total	13 479	1 624	1 473	643	1 110	2 532	6 098	555	661	1 374	2 452	1 397
Less than $1,000	3 515	569	225	225	136	878	1 484	167	165	349	640	476
$1,000 to $1,999	3 471	284	238	-	184	605	2 160	219	219	310	210	160
$2,000 to $2,999	2 457	240	113	170	220	386	1 329	113	55	336	161	322
$3,000 to $3,999	1 265	49	222	79	132	166	617	56	55	272	132	54
$4,000 to $4,999	728	291	170	-	111	55	102	-	55	49	273	105
$5,000 to $5,999	409	143	55	-	53	55	103	-	-	-	260	-
$6,000 to $6,999	320	48	113	-	55	-	103	-	55	57	56	-
$7,000 to $7,999	278	-	112	56	54	55	-	-	55	-	110	56
$8,000 to $8,999	278	-	56	57	-	165	-	-	-	-	278	-
$9,000 to $9,999	492	-	56	56	111	166	103	-	-	-	278	111
$10,000 to $11,999	267	-	112	-	55	-	99	-	-	-	55	112
$12,000 to $14,999	-	-	-	-	-	-	-	-	-	-	-	-
$15,000 or more	-	-	-	-	-	-	-	-	-	-	-	-
Median income ..... dollars. .	2071	2328	3975	2902	3546	1776	1748	1504	2521	2322	4701	2356
Number below the poverty level	6 780	902	519	225	267	1 377	3 492	333	331	660	797	741
Percent below the poverty level	50.3	55.5	35.2	34.9	24.0	54.4	57.3	60.0	50.1	48.1	32.5	53.0

[1] Persons 16 to 64 years, not in school.

Table 45b. Age and Education of Unrelated Individuals: Negro

Income	Total	Age of unrelated individuals						Education of unrelated individuals[1]				
								Elementary		High school		
		16 to 24 years	25 to 34 years	34 to 44 years	45 to 54 years	55 to 64 years	65 years and over	7 years or less	8 years	1 to 3 years	4 years	College—1 year or more
Total unrelated individuals	46 430	5 421	7 079	7 496	9 689	7 654	9 092	6 485	3 581	11 972	9 874	4 021
Male unrelated individuals, total	25 694	3 258	5 248	4 965	4 909	4 068	3 248	4 505	1 590	7 786	5 588	2 157
Less than $1,000	4 069	383	799	690	738	517	942	742	171	1 164	736	169
$1,000 to $1,999	3 398	433	230	572	507	863	793	1 028	170	820	337	151
$2,000 to $2,999	1 506	142	113	171	230	282	568	170	114	551	47	56
$3,000 to $3,999	2 112	236	569	338	452	288	228	456	114	830	320	163
$4,000 to $4,999	820	95	114	114	233	114	150	163	57	220	173	57
$5,000 to $5,999	1 788	288	341	340	457	170	191	339	57	610	381	162
$6,000 to $6,999	2 721	621	856	404	230	461	151	405	106	803	732	381
$7,000 to $7,999	2 986	385	568	1 022	573	400	38	458	286	1 134	876	-
$8,000 to $8,999	2 741	529	915	628	345	287	36	341	229	452	1 034	456
$9,000 to $9,999	1 197	-	171	171	343	399	114	114	171	457	285	57
$10,000 to $11,999	1 690	146	400	344	513	287	-	288	-	459	553	390
$12,000 to $14,999	496	-	114	114	230	-	38	-	116	228	-	114
$15.000 or more	171	-	57	57	57	-	-	-	-	57	114	-
Median income ..... dollars..	5783	6161	6733	6708	5830	5328	1908	3871	7118	5684	7240	6913
Number below the poverty level	7 993	863	1 142	1 378	1 362	1 437	1 812	1 884	398	2 215	1 121	320
Percent below the poverty level	31.1	26.5	21.8	27.7	27.7	35.3	55.8	41.8	25.1	28.5	20.1	14.9
Male unrelated individuals who are year-round full-time workers, total	10 248	1 342	2 225	2 332	2 232	1 778	339	1 430	916	2 998	3 046	1 228
Less than $1,000	187	-	57	-	56	-	74	-	-	56	57	-
$1,000 to $1,999	269	98	57	-	56	59	-	114	-	-	57	-
$2,000 to $2,999	113	-	-	-	57	56	-	-	57	56	-	-
$3,000 to $3,999	600	141	173	113	57	116	-	-	114	276	150	59
$4,000 to $4,999	237	48	-	-	.57	57	75	-	57	48	57	-
$5,000 to $5,999	703	96	57	113	285	114	39	169	57	114	162	162
$6,000 to $6,999	1 050	382	169	114	174	174	38	176	-	344	236	210
$7,000 to $7,999	2 162	191	511	736	286	400	38	285	229	906	656	-
$8,000 to $8,999	2 234	289	744	628	345	229	-	284	229	393	832	399
$9,000 to $9,999	896	-	57	171	287	344	38	114	114	288	285	57
$10,000 to $11,999	1 471	98	343	344	457	230	-	288	-	402	497	285
$12,000 to $14,999	210	-	57	57	59	-	38	-	59	57	-	57
$15.000 or more	114	-	-	57	57	-	-	-	-	57	57	-
Median income ..... dollars..	7921	6756	8157	8143	8257	7783	5511	7897	7753	7667	8212	8460
Number below the poverty level	792	146	171	115	228	59	74	227	-	231	162	-
Percent below the poverty level	7.7	10.9	7.7	4.9	10.2	3.3	21.9	15.9	.0	7.7	5.3	.0
Female unrelated individuals, total	20 736	2 163	1 831	2 531	4 780	3 587	5 843	1 980	1 990	4 186	4 286	1 864
Less then $1,000	5 563	478	321	593	884	1 196	2 092	733	420	1 050	720	306
$1,000 to $1,999	5 174	193	325	215	1 251	780	2 410	570	576	785	576	203
$2,000 to $2,999	3 025	434	111	377	726	626	751	158	311	679	779	252
$3,000 to $3,999	1 994	143	319	326	519	364	323	207	316	628	365	108
$4,000 to $4,999	1 778	147	217	268	778	208	160	103	156	472	678	209
$5,000 to $5,999	1 214	528	54	269	207	102	53	51	105	210	545	153
$6,000 to $6,999	412	97	55	106	104	51	-	106	52	105	149	-
$7,000 to $7,999	525	48	54	216	104	104	-	52	-	54	212	207
$8,000 to $8,999	528	49	216	55	104	104	-	-	55	104	209	160
$9,000 to $9,999	364	47	106	54	52	52	53	-	-	99	53	159
$10,000 to $11,999	-	-	-	-	-	-	-	-	-	-	-	-
$12,000 to $14,999	159	-	54	54	52	-	-	-	-	-	-	-
$15.000 or more	-	-	-	-	-	-	-	-	-	-	-	105
Median income ..... dollars..	2041	3177	3663	3416	2566	1897	1377	1587	1999	2576	3538	4420
Number below the poverty level	10 944	817	755	808	2 031	2 030	4 503	1 359	943	1 888	1 445	510
Percent below the poverty level	52.8	37.8	41.2	31.9	42.5	56.6	77.1	68.6	47.4	45.1	33.7	27.3

[1] Persons 16 to 64 years, not in school.

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Table 46. Number of Earners and Nonearners: All Races

(Limited to persons 16 to 64 years, not in school)

Family income	Total families	No earners	1 earner		2 earners or more	
			Head	Wife or other relative	Head an earner	Head not an earner
Total families	99 654	13 256	32 320	5 435	45 693	2 951
Families with male head, total	70 206	2 697	23 946	2 483	39 644	1 435
Less than $1,000	1 675	418	669	267	322	-
$1,000 to $1,999	1 496	539	582	106	211	59
$2,000 to $2,999	2 089	330	757	319	632	51
$3,000 to $3,999	2 475	432	762	375	906	-
$4,000 to $4,999	2 483	222	1 083	165	904	110
$5,000 to $5,999	3 832	277	1 862	432	1 208	53
$6,000 to $6,999	4 357	104	2 156	170	1 878	49
$7,000 to $7,999	7 515	270	4 353	216	2 621	55
$8,000 to $8,999	7 314	51	3 958	-	3 150	155
$9,000 to $9,999	6 182	-	2 907	108	2 962	205
$10,000 to $11,999	10 353	54	2 814	220	6 889	377
$12,000 to $14,999	8 536	-	1 382	106	7 047	-
$15,000 or more	11 899	-	662	-	10 914	323
Median income ..... dollars	9323	3265	7960	5023	11459	9909
Number below the poverty level	7 017	1 558	2 701	906	1 691	161
Percent below the poverty level	10.0	57.8	11.3	36.5	4.3	11.2
Families with male head with children under 18, total	41 157	962	13 667	1 021	24 764	744
Less than $1,000	789	153	215	157	263	-
$1,000 to $1,999	843	110	467	106	160	-
$2,000 to $2,999	903	-	325	216	362	-
$3,000 to $3,999	1 232	215	486	161	370	-
$4,000 to $4,999	1 092	165	466	53	357	51
$5,000 to $5,999	2 032	162	1 046	51	721	53
$6,000 to $6,999	2 607	51	1 461	57	1 038	-
$7,000 to $7,999	4 402	-	2 807	112	1 428	55
$8,000 to $8,999	4 443	51	2 245	-	2 095	51
$9,000 to $9,999	3 793	-	1 531	-	2 160	102
$10,000 to $11,999	6 397	54	1 670	53	4 353	267
$12,000 to $14,999	5 159	-	672	55	4 432	-
$15,000 or more	7 466	-	277	-	7 025	164
Median income ..... dollars	9603	4177	7853	3197	11575	10441
Number below the poverty level	4 668	535	1 973	743	1 366	51
Percent below the poverty level	11.3	55.6	14.4	72.8	5.5	6.9
Families with female head, total	29 448	10 558	8 374	2 951	6 048	1 515
Less than $1,000	4 640	3 364	853	372	51	-
$1,000 to $1,999	2 683	1 290	765	518	110	-
$2,000 to $2,999	4 363	2 690	833	421	367	51
$3,000 to $3,999	4 453	2 150	1 671	320	261	51
$4,000 to $4,999	2 852	691	1 114	151	843	53
$5,000 to $5,999	1 907	212	1 017	215	359	104
$6,000 to $6,999	1 533	53	736	161	583	-
$7,000 to $7,999	1 482	53	428	368	421	213
$8,000 to $8,999	1 324	-	380	163	725	55
$9,000 to $9,999	1 061	55	317	104	482	102
$10,000 to $11,999	840	-	-	51	633	155
$12,000 to $14,999	1 107	-	100	56	587	363
$15,000 or more	1 203	-	159	51	627	367
Median income ..... dollars	3735	2320	4058	3513	8041	11643
Number below the poverty level	15 139	9 655	2 865	1 572	787	259
Percent below the poverty level	51.4	91.4	34.2	53.3	13.0	17.1
Families with female head with children under 18, total	23 308	9 749	6 881	1 989	3 492	1 198
Less than $1,000	4 055	3 099	690	215	51	-
$1,000 to $1,999	2 195	1 069	608	518	-	-
$2,000 to $2,999	3 836	2 584	678	208	314	51
$3,000 to $3,999	3 965	2 044	1 508	157	204	51
$4,000 to $4,999	2 320	635	850	151	632	53
$5,000 to $5,999	1 746	212	1 017	106	306	104
$6,000 to $6,999	998	53	524	106	316	-
$7,000 to $7,999	955	53	269	261	159	213
$8,000 to $8,999	841	-	214	110	462	55
$9,000 to $9,999	681	-	317	104	208	51
$10,000 to $11,999	416	-	-	-	261	155
$12,000 to $14,999	622	-	100	-	263	259
$15,000 or more	678	-	106	51	316	205
Median income ..... dollars	3435	2334	3970	3336	6755	10260
Number below the poverty level	13 702	9 063	2 446	1 255	678	259
Percent below the poverty level	58.8	93.0	35.5	63.1	19.4	21.6

Table 46a. Number of Earners and Nonearners: White

(Limited to persons 16 to 64 years, not in school)

Family income	Total families	No earners	1 earner		2 earners or more	
			Head	Wife or other relative	Head an earner	Head not an earner
Total families	19 380	1 983	8 127	1 328	7 609	333
Families with male head, total	15 617	610	6 903	890	7 104	111
Less than $1,000	353	52	196	56	48	-
$1,000 to $1,999	335	57	169	53	56	-
$2,000 to $2,999	554	165	217	57	115	-
$3,000 to $3,999	660	56	339	104	161	-
$4,000 to $4,999	1 090	113	491	112	374	-
$5,000 to $5,999	1 364	113	701	169	380	-
$6,000 to $6,999	900	-	465	56	379	-
$7,000 to $7,999	1 537	54	940	55	433	55
$8,000 to $8,999	1 372	-	1 050	-	323	-
$9,000 to $9,999	1 426	-	778	55	593	-
$10,000 to $11,999	2 242	-	892	115	1 179	55
$12,000 to $14,999	1 368	-	325	55	988	-
$15,000 or more	2 415	-	340	-	2 075	-
Median income ..... dollars..	8739	3533	7928	5365	11170	10000
Number below the poverty level	1 786	331	756	271	428	-
Percent below the poverty level	11.4	54.3	11.0	30.5	6.0	.0
Families with male head with children under 18, total	8 188	170	3 837	325	3 745	111
Less than $1,000	48	-	-	-	48	-
$1,000 to $1,999	279	57	112	53	56	-
$2,000 to $2,999	114	-	56	57	-	-
$3,000 to $3,999	433	-	224	104	104	-
$4,000 to $4,999	408	56	207	-	145	-
$5,000 to $5,999	685	56	476	-	153	-
$6,000 to $6,999	472	-	360	-	112	-
$7,000 to $7,999	921	-	658	55	153	55
$8,000 to $8,999	758	-	598	-	160	-
$9,000 to $9,999	810	-	386	-	424	-
$10,000 to $11,999	1 111	-	496	-	560	55
$12,000 to $14,999	861	-	97	55	709	-
$15,000 or more	1 290	-	169	-	1 121	-
Median income ..... dollars..	8969	4487	7735	3501	11847	10000
Number below the poverty level	1 145	114	503	215	313	-
Percent below the poverty level	14.0	66.9	13.1	66.0	8.4	.0
Families with female head, total	3 763	1 373	1 224	439	505	222
Less than $1,000	1 041	656	274	111	-	-
$1,000 to $1,999	283	170	56	-	56	-
$2,000 to $2,999	493	266	227	-	-	-
$3,000 to $3,999	450	168	169	56	56	-
$4,000 to $4,999	335	56	224	-	55	-
$5,000 to $5,999	104	-	48	55	-	-
$6,000 to $6,999	-	-	-	-	-	-
$7,000 to $7,999	113	-	56	-	-	56
$8,000 to $8,999	281	-	170	55	-	55
$9,000 to $9,999	273	55	-	104	113	-
$10,000 to $11,999	57	-	-	-	57	-
$12,000 to $14,999	112	-	-	56	55	-
$15,000 or more	222	-	-	-	112	111
Median income ..... dollars..	3206	1341	3328	5944	9748	8992
Number below the poverty level	2 032	1 261	549	111	112	-
Percent below the poverty level	54.0	91.9	44.8	25.2	22.1	.0
Families with female head with children under 18, total	2 524	1 092	885	326	111	111
Less than $1,000	927	600	217	111	-	-
$1,000 to $1,999	113	57	56	-	-	-
$2,000 to $2,999	436	266	170	-	-	-
$3,000 to $3,999	281	168	113	-	-	-
$4,000 to $4,999	223	-	167	-	55	-
$5,000 to $5,999	104	-	48	55	-	-
$6,000 to $6,999	-	-	-	-	-	-
$7,000 to $7,999	113	-	56	-	-	56
$8,000 to $8,999	168	-	57	55	-	55
$9,000 to $9,999	104	-	-	104	-	-
$10,000 to $11,999	-	-	-	-	-	-
$12,000 to $14,999	-	-	-	-	-	-
$15,000 or more	55	-	-	-	55	-
Median income ..... dollars..	2571	952	2996	5944	15000+	7992
Number below the poverty level	1 749	1 092	491	111	55	-
Percent below the poverty level	69.3	100.0	55.5	34.0	50.0	.0

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Table 46b. Number of Earners and Nonearners: Negro

(Limited to persons 16 to 64 years, not in school)

Family income	Total families	No earners	1 earner		2 earners or more	
			Head	Wife or other relative	Head an earner	Head not an earner
Total families	78 939	11 160	23 758	4 049	37 353	2 618
Families with male head, total	53 367	2 030	16 608	1 536	31 867	1 325
Less than $1,000	1 322	365	473	210	274	-
$1,000 to $1,999	1 161	482	413	53	155	59
$2,000 to $2,999	1 535	165	540	262	518	51
$3,000 to $3,999	1 761	376	370	271	745	-
$4,000 to $4,999	1 393	109	592	53	530	110
$5,000 to $5,999	2 364	164	1 113	262	771	53
$6,000 to $6,999	3 343	104	1 690	56	1 443	49
$7,000 to $7,999	5 921	159	3 412	161	2 188	-
$8,000 to $8,999	5 828	51	2 795	-	2 828	155
$9,000 to $9,999	4 757	-	2 129	53	2 370	205
$10,000 to $11,999	7 943	54	1 866	104	5 598	321
$12,000 to $14,999	6 999	-	1 001	51	5 946	-
$15,000 or more	9 040	-	214	-	8 503	323
Median income ..... dollars	9459	3150	7935	3899	11469	9909
Number below the poverty level	5 231	1 227	1 945	635	1 263	161
Percent below the poverty level	9.8	60.4	11.7	41.3	4.0	12.2
Families with male head with children under 18, total	32 302	792	9 725	638	20 514	633
Less than $1,000	740	153	215	157	215	-
$1,000 to $1,999	564	53	355	53	104	-
$2,000 to $2,999	789	-	269	158	362	-
$3,000 to $3,999	799	215	262	56	266	-
$4,000 to $4,999	684	109	259	53	212	51
$5,000 to $5,999	1 243	106	522	51	512	53
$6,000 to $6,999	2 022	51	1 101	-	869	-
$7,000 to $7,999	3 481	-	2 149	56	1 275	-
$8,000 to $8,999	3 685	51	1 647	-	1 935	51
$9,000 to $9,999	2 983	-	1 145	-	1 736	102
$10,000 to $11,999	5 118	54	1 118	53	3 681	212
$12,000 to $14,999	4 186	-	575	-	3 611	-
$15,000 or more	6 008	-	108	-	5 736	164
Median income ..... dollars	9736	4017	7887	2689	11505	10556
Number below the poverty level	3 523	421	1 469	529	1 053	51
Percent below the poverty level	10.9	53.1	15.1	82.9	5.1	8.1
Families with female head, total	25 572	9 130	7 150	2 513	5 486	1 293
Less than $1,000	3 599	2 707	579	262	51	-
$1,000 to $1,999	2 400	1 120	709	518	53	-
$2,000 to $2,999	3 814	2 368	607	421	367	51
$3,000 to $3,999	4 003	1 982	1 502	263	204	51
$4,000 to $4,999	2 517	635	891	151	787	53
$5,000 to $5,999	1 803	212	969	159	359	104
$6,000 to $6,999	1 533	53	736	161	583	-
$7,000 to $7,999	1 370	53	371	368	421	157
$8,000 to $8,999	1 043	-	210	107	725	-
$9,000 to $9,999	788	-	317	-	369	102
$10,000 to $11,999	782	-	-	51	576	155
$12,000 to $14,999	938	-	100	-	475	363
$15,000 or more	981	-	159	51	515	256
Median income ..... dollars	3794	2399	4200	3211	7802	11648
Number below the poverty level	13 051	8 338	2 317	1 462	676	259
Percent below the poverty level	51.0	91.3	32.4	58.2	12.3	20.1
Families with female head with children under 18, total	20 728	8 601	5 996	1 663	3 382	1 087
Less than $1,000	3 127	2 499	473	104	51	-
$1,000 to $1,999	2 082	1 012	552	518	-	-
$2,000 to $2,999	3 344	2 262	508	208	314	51
$3,000 to $3,999	3 684	1 876	1 396	157	204	51
$4,000 to $4,999	2 098	635	682	151	577	53
$5,000 to $5,999	1 642	212	969	51	306	104
$6,000 to $6,999	998	53	524	106	316	-
$7,000 to $7,999	842	53	212	261	159	157
$8,000 to $8,999	673	-	157	54	462	-
$9,000 to $9,999	577	-	317	-	208	51
$10,000 to $11,999	416	-	-	-	261	155
$12,000 to $14,999	622	-	100	-	263	259
$15,000 or more	623	-	106	51	261	205
Median income ..... dollars	3527	2406	4101	3003	6755	10978
Number below the poverty level	11 896	7 915	1 954	1 145	622	259
Percent below the poverty level	57.4	92.0	32.6	68.8	18.4	23.9

Table 47. Source of Income: All Races

[Limited to families headed by persons 16 to 64 years, not in school]

Family Income	Total families with income	Families with only 1 source of income					Families with more than 1 source of income				
			Only source					Major source			
		Total families	Wage and salary income	Self-employment income	Transfer payments and pensions[1]	Property income and all other	Total families	Wage and salary income	Self-employment income	Transfer payments and pensions[1]	Property income and all other
Total families	98 916	66 131	48 591	384	16 234	922	32 785	26 318	214	5 417	836
Families with male head, total	69 941	47 301	41 913	278	4 620	490	22 640	20 139	214	1 923	364
Less than $1,000	1 410	1 045	620	-	425	-	365	255	-	59	51
$1,000 to $1,999	1 496	1 345	535	-	701	109	151	51	-	100	-
$2,000 to $2,999	2 089	1 506	859	51	539	56	584	478	-	53	53
$3,000 to $3,999	2 475	1 614	754	-	754	106	861	482	-	326	53
$4,000 to $4,999	2 483	1 336	1 063	-	219	53	1 147	873	-	274	-
$5,000 to $5,999	3 832	2 578	2 034	-	544	-	1 253	1 036	-	161	57
$6,000 to $6,999	4 357	3 113	2 781	59	274	-	1 243	1 047	-	47	150
$7,000 to $7,999	7 515	5 355	4 924	56	320	55	2 159	1 838	-	321	-
$8,000 to $8,999	7 314	4 857	4 750	55	51	-	2 458	2 401	-	56	-
$9,000 to $9,999	6 182	4 421	4 163	-	205	53	1 762	1 708	-	53	-
$10,000 to $11,999	10 353	7 062	6 524	57	424	57	3 291	3 017	112	163	-
$12,000 to $14,999	8 536	5 470	5 470	-	-	-	3 066	2 860	-	206	-
$15,000 or more	11 899	7 600	7 436	-	164	-	4 299	4 092	102	104	-
Median income ..... dollars..	9323	9203	9633	7521	3855	3749	9623	9941	11916	5932	5430
Number below the poverty level	6 752	4 902	2 539	51	2 040	271	1 850	1 266	-	479	104
Percent below the poverty level	9.7	10.4	6.1	18.4	44.2	55.4	8.2	6.3	.0	24.9	28.6
Families with male head with children under 18, total	41 051	27 790	25 485	56	1 978	270	13 261	12 054	163	993	51
Less than $1,000	683	477	373	-	104	-	206	206	-	-	-
$1,000 to $1,999	843	743	361	-	272	109	100	-	-	100	-
$2,000 to $2,999	903	588	372	-	216	-	315	262	-	53	-
$3,000 to $3,999	1 232	857	376	-	376	106	374	265	-	109	-
$4,000 to $4,999	1 092	510	459	-	51	-	582	364	-	218	-
$5,000 to $5,999	2 032	1 259	1 102	-	157	-	773	669	-	104	-
$6,000 to $6,999	2 607	1 871	1 763	-	108	-	736	637	-	47	51
$7,000 to $7,999	4 402	3 077	2 910	56	55	55	1 326	1 173	-	153	-
$8,000 to $8,999	4 443	3 063	3 012	-	51	-	1 380	1 380	-	-	-
$9,000 to $9,999	3 793	2 834	2 732	-	102	-	959	959	-	-	-
$10,000 to $11,999	6 397	4 291	3 970	-	321	-	2 106	1 994	112	-	-
$12,000 to $14,999	5 159	3 323	3 323	-	-	-	1 836	1 681	-	155	-
$15,000 or more	7 466	4 897	4 733	-	164	-	2 569	2 465	51	53	-
Median income ..... dollars..	9603	9511	9737	7500	4418	3245	9874	10112	11458	5151	6499
Number below the poverty level	4 563	3 133	1 900	-	1 018	215	1 430	1 009	-	421	-
Percent below the poverty level	11.1	11.3	7.5	.0	51.4	79.5	10.8	8.4	.0	42.4	.0
Families with female head, total	28 975	18 830	6 677	106	11 614	432	10 145	6 179	-	3 494	472
Less then $1,000	4 168	3 330	491	-	2 734	106	838	478	-	308	51
$1,000 to $1,999	2 683	1 708	98	-	1 554	56	975	508	-	466	-
$2,000 to $2,999	4 363	3 430	372	-	2 952	106	933	512	-	368	53
$3,000 to $3,999	4 453	2 738	537	-	2 202	-	1 715	737	-	926	51
$4,000 to $4,999	2 852	1 745	1 058	-	631	56	1 107	620	-	487	-
$5,000 to $5,999	1 907	1 052	521	53	479	-	854	537	-	264	53
$6,000 to $6,999	1 533	1 011	852	-	159	-	522	522	-	-	-
$7,000 to $7,999	1 482	906	480	-	425	-	577	474	-	103	-
$8,000 to $8,999	1 324	696	534	53	110	-	627	371	-	204	51
$9,000 to $9,999	1 061	538	374	-	164	-	523	366	-	104	53
$10,000 to $11,999	840	472	472	-	-	-	368	264	-	53	51
$12,000 to $14,999	1 107	633	525	-	51	56	475	369	-	53	53
$15,000 or more	1 203	570	365	-	154	51	634	421	-	157	55
Median income ..... dollars..	3735	3345	6308	8002	2514	2508	4553	5436	0	3652	8537
Number below the poverty level	14 666	11 079	1 108	-	9 703	268	3 587	1 661	-	1 822	104
Percent below the poverty level	50.6	58.8	16.6	.0	83.5	62.1	35.4	26.9	.0	52.1	22.1
Families with female head with children under 18, total	22 991	14 978	4 119	53	10 753	53	8 013	4 584	-	3 064	365
Less then $1,000	3 738	3 006	327	-	2 626	53	731	425	-	255	51
$1,000 to $1,999	2 195	1 436	47	-	1 389	-	759	402	-	357	-
$2,000 to $2,999	3 836	3 011	272	-	2 740	-	825	404	-	368	53
$3,000 to $3,999	3 965	2 469	427	-	2 042	-	1 496	627	-	817	51
$4,000 to $4,999	2 320	1 376	745	-	631	-	944	457	-	487	-
$5,000 to $5,999	1 746	944	521	53	371	-	801	484	-	264	53
$6,000 to $6,999	998	686	528	-	159	-	312	312	-	-	-
$7,000 to $7,999	955	587	215	-	372	-	368	316	-	51	-
$8,000 to $8,999	841	424	315	-	110	-	416	214	-	151	51
$9,000 to $9,999	681	266	157	-	109	-	415	258	-	104	53
$10,000 to $11,999	416	208	208	-	-	-	208	155	-	53	-
$12,000 to $14,999	622	252	201	-	51	-	370	264	-	53	53
$15,000 or more	678	311	157	-	154	-	368	263	-	104	-
Median income ..... dollars..	3435	3014	5464	5499	2496	500	4207	4946	0	3676	5513
Number below the poverty level	13 384	10 170	846	-	9 272	53	3 214	1 451	-	1 659	104
Percent below the poverty level	58.2	67.9	20.5	.0	86.2	100.0	40.1	31.6	.0	54.1	28.6

[1] Unemployment insurance; workmen's compensation; social security; welfare payments; and private, veterans', and government pensions.

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Table 47a. Source of Income: White

(Limited to families headed by persons 16 to 64 years, not in school)

Family Income	Total families with income	Families with only 1 source of income					Families with more than 1 source of income				
			Only source					Major source			
		Total families	Wage and salary income	Self-employment income	Transfer payments and pensions[1]	Property income and all other	Total families	Wage and salary income	Self-employment income	Transfer payments and pensions[1]	Property income and all other
Total families	19 324	13 037	9 996	113	2 590	338	6 287	5 233	55	837	162
Families with male head, total	15 617	10 492	9 102	113	1 108	169	5 125	4 576	55	387	107
Less than $1,000	353	304	195	-	109	-	49	49	-	-	-
$1,000 to $1,999	335	335	169	-	166	-	-	-	-	-	-
$2,000 to $2,999	554	502	331	-	114	56	52	52	-	-	-
$3,000 to $3,999	660	492	331	-	161	-	169	169	-	-	-
$4,000 to $4,999	1 090	596	428	-	168	-	494	382	-	112	-
$5,000 to $5,999	1 364	934	765	-	169	-	430	316	-	56	57
$6,000 to $6,999	900	642	586	-	56	-	258	209	-	-	49
$7,000 to $7,999	1 537	1 200	979	56	109	55	338	338	-	-	-
$8,000 to $8,999	1 372	760	760	-	-	-	613	556	-	56	[illegible]
$9,000 to $9,999	1 426	928	928	-	-	-	498	498	-	-	-
$10,000 to $11,999	2 242	1 568	1 399	57	55	57	674	560	55	59	-
$12,000 to $14,999	1 368	662	662	-	-	-	706	602	-	104	-
$15,000 or more	2 415	1 570	1 570	-	-	-	845	845	-	-	-
Median income ..... dollars..	8739	8317	9007	10019	4023	7503	9321	9436	11000	8442	5930
Number below the poverty level	1 786	1 461	911	-	494	56	325	325	-	-	-
Percent below the poverty level	11.4	13.9	10.0	.0	44.6	33.5	6.3	7.1	.0	.0	.0
Families with male head with children under 18, total	8 188	5 336	4 785	56	439	55	2 852	2 637	55	160	-
Less than $1,000	48	48	48	-	-	-	-	-	-	-	-
$1,000 to $1,999	279	279	112	-	166	-	-	-	-	-	-
$2,000 to $2,999	114	114	56	-	57	-	-	-	-	-	-
$3,000 to $3,999	433	320	216	-	104	-	112	112	-	-	-
$4,000 to $4,999	408	200	200	-	-	-	208	152	-	56	-
$5,000 to $5,999	685	369	369	-	-	-	316	316	-	-	-
$6,000 to $6,999	472	362	362	-	-	-	110	110	-	-	-
$7,000 to $7,999	921	754	587	56	55	55	168	168	-	-	-
$8,000 to $8,999	758	473	473	-	-	-	285	285	-	-	-
$9,000 to $9,999	810	529	529	-	-	-	281	281	-	-	-
$10,000 to $11,999	1 111	720	665	-	55	-	390	335	55	-	-
$12,000 to $14,999	861	383	383	-	-	-	478	375	-	104	-
$15,000 or more	1 290	785	785	-	-	-	504	504	-	-	-
Median income ..... dollars..	8969	8470	8935	7500	2922	7500	9811	9628	11000	12686	0
Number below the poverty level	1 145	922	593	-	328	-	224	224	-	-	-
Percent below the poverty level	14.0	17.3	12.4	.0	74.8	.0	7.8	8.5	.0	.0	.0
Families with female head, total	3 706	2 545	894	-	1 482	169	1 162	657	-	449	55
Less then $1,000	985	881	226	-	656	-	104	104	-	-	-
$1,000 to $1,999	283	170	-	-	114	56	113	-	-	113	-
$2,000 to $2,999	493	379	113	-	266	-	114	56	-	58	-
$3,000 to $3,999	450	281	113	-	168	-	169	113	-	56	-
$4,000 to $4,999	335	56	-	-	-	56	279	56	-	223	-
$5,000 to $5,999	104	104	48	-	55	-	-	-	-	-	-
$6,000 to $6,999	-	-	-	-	-	-	-	-	-	-	-
$7,000 to $7,999	113	113	56	-	56	-	-	-	-	-	-
$8,000 to $8,999	281	225	170	-	55	-	55	55	-	-	-
$9,000 to $9,999	273	168	56	-	111	-	105	105	-	-	-
$10,000 to $11,999	57	-	-	-	-	-	57	57	-	-	-
$12,000 to $14,999	112	112	55	-	-	56	-	-	-	-	-
$15,000 or more	222	56	56	-	-	-	166	111	-	-	55
Median income ..... dollars..	3206	2584	3965	0	1751	4500	4291	4987	0	3965	15000+
Number below the poverty level	1 976	1 647	387	-	1 204	56	329	104	-	225	-
Percent below the poverty level	53.3	64.7	43.2	.0	81.2	33.3	28.3	15.8	.0	50.2	.0
Families with female head with children under 18, total	2 468	1 813	499	-	1 314	-	655	319	-	336	-
Less then $1,000	871	767	168	-	599	-	104	104	-	-	-
$1,000 to $1,999	113	57	-	-	57	-	56	-	-	56	-
$2,000 to $2,999	436	379	113	-	266	-	58	-	-	58	-
$3,000 to $3,999	281	224	56	-	168	-	56	56	-	-	-
$4,000 to $4,999	223	-	-	-	-	-	223	-	-	223	-
$5,000 to $5,999	104	104	48	-	55	-	-	-	-	-	-
$6,000 to $6,999	-	-	-	-	-	-	-	-	-	-	-
$7,000 to $7,999	113	113	56	-	56	-	-	-	-	-	-
$8,000 to $8,999	168	113	57	-	55	-	55	55	-	-	-
$9,000 to $9,999	104	56	-	-	56	-	48	48	-	-	-
$10,000 to $11,999	-	-	-	-	-	-	-	-	-	-	-
$12,000 to $14,999	-	-	-	-	-	-	-	-	-	-	-
$15,000 or more	55	-	-	-	-	-	55	55	-	-	-
Median income ..... dollars..	2571	2215	2721	0	2001	0	4242	3990	0	4244	0
Number below the poverty level	1 693	1 420	329	-	1 091	-	273	104	-	169	-
Percent below the poverty level	68.6	78.3	66.0	.0	83.0	.0	41.6	32.5	.0	50.2	.0

[1] Unemployment insurance; workmen's compensation; social security; welfare payments; and private, veterans', and government pensions.

Table 47b. Source of Income: Negro

[Limited to families headed by persons 16 to 64 years, not in school]

Family Income	Total families with income	Families with only 1 source of income					Families with more than 1 source of income				
			Only source					Major source			
		Total families	Wage and salary income	Self-employment income	Transfer payments and pensions[1]	Property income and all other	Total families	Wage and salary income	Self-employment income	Transfer payments and pensions[1]	Property income and all other
Total families	78 257	51 980	37 595	271	13 531	584	26 277	20 973	159	4 471	674
Families with male head, total	53 102	35 809	31 868	165	3 455	321	17 293	15 450	159	1 426	258
Less than $1,000	1 057	741	425	-	316	-	316	206	-	59	51
$1,000 to $1,999	1 161	1 010	366	-	535	109	151	51	-	100	-
$2,000 to $2,999	1 535	1 004	528	51	425	-	531	425	-	53	53
$3,000 to $3,999	1 761	1 122	423	-	594	106	639	314	-	273	53
$4,000 to $4,999	1 393	740	635	-	51	53	653	491	-	162	-
$5,000 to $5,999	2 364	1 540	1 165	-	375	-	824	720	-	104	-
$6,000 to $6,999	3 343	2 358	2 139	59	161	-	985	838	-	47	100
$7,000 to $7,999	5 921	4 156	3 945	-	211	-	1 765	1 501	-	265	-
$8,000 to $8,999	5 828	3 983	3 877	55	51	-	1 845	1 845	-	-	-
$9,000 to $9,999	4 757	3 493	3 235	-	205	53	1 264	1 210	-	53	-
$10,000 to $11,999	7 943	5 325	4 957	-	368	-	2 618	2 457	56	104	-
$12,000 to $14,999	6 999	4 639	4 639	-	-	-	2 360	2 258	-	102	-
$15,000 or more	9 040	5 699	5 535	-	164	-	3 341	3 135	102	104	-
Median income ..... dollars	9459	9358	9751	6531	3761	3486	9740	10101	15000+	5640	3461
Number below the poverty level	4 966	3 441	1 628	51	1 546	215	1 525	941	-	479	104
Percent below the poverty level	9.4	9.6	5.1	31.1	44.8	66.9	8.8	6.1	.0	33.6	40.5
Families with male head with children under 18, total	32 197	21 844	20 147	-	1 482	215	10 353	9 361	108	833	51
Less than $1,000	634	429	324	-	104	-	206	206	-	-	-
$1,000 to $1,999	564	464	249	-	106	109	100	-	-	100	-
$2,000 to $2,999	789	474	316	-	158	-	315	262	-	53	-
$3,000 to $3,999	799	537	160	-	271	106	262	153	-	109	-
$4,000 to $4,999	684	310	259	-	51	-	374	212	-	162	-
$5,000 to $5,999	1 243	786	629	-	157	-	457	353	-	104	-
$6,000 to $6,999	2 022	1 396	1 345	-	51	-	626	527	-	47	51
$7,000 to $7,999	3 481	2 323	2 323	-	-	-	1 158	1 005	-	153	-
$8,000 to $8,999	3 685	2 590	2 539	-	51	-	1 095	1 095	-	-	-
$9,000 to $9,999	2 983	2 305	2 202	-	102	-	679	679	-	-	-
$10,000 to $11,999	5 118	3 403	3 137	-	266	-	1 715	1 659	56	-	-
$12,000 to $14,999	4 186	2 828	2 828	-	-	-	1 358	1 306	-	51	-
$15,000 or more	6 008	3 999	3 835	-	164	-	2 008	1 904	51	53	-
Median income ..... dollars	9736	9700	9876	0	5321	1984	9859	10227	11907	4950	6499
Number below the poverty level	3 417	2 211	1 307	-	689	215	1 206	786	-	421	-
Percent below the poverty level	10.6	10.1	6.5	.0	46.5	100.0	11.7	8.4	.0	50.5	.0
Families with female head, total	25 156	16 172	5 727	106	10 076	263	8 984	5 522	-	3 045	417
Less than $1,000	3 183	2 449	265	-	2 078	106	734	374	-	308	51
$1,000 to $1,999	2 400	1 538	98	-	1 440	-	862	508	-	354	-
$2,000 to $2,999	3 814	2 995	259	-	2 630	106	819	455	-	310	53
$3,000 to $3,999	4 003	2 458	424	-	2 034	-	1 545	624	-	870	51
$4,000 to $4,999	2 517	1 689	1 058	-	631	-	828	564	-	264	-
$5,000 to $5,999	1 803	949	472	53	424	-	854	537	-	264	53
$6,000 to $6,999	1 533	1 011	852	-	159	-	522	522	-	-	-
$7,000 to $7,999	1 370	793	424	-	369	-	577	474	-	103	-
$8,000 to $8,999	1 043	471	364	53	54	-	572	316	-	204	51
$9,000 to $9,999	788	370	318	-	53	-	418	261	-	104	53
$10,000 to $11,999	782	472	472	-	-	-	311	206	-	53	51
$12,000 to $14,999	938	464	413	-	51	-	475	369	-	53	53
$15,000 or more	981	513	309	-	154	51	468	311	-	157	-
Median income ..... dollars	3794	3448	6336	8002	2577	2242	4642	5437	0	3632	5997
Number below the poverty level	12 635	9 376	721	-	8 443	212	3 258	1 558	-	1 596	104
Percent below the poverty level	50.2	58.0	12.6	.0	83.8	80.5	36.3	28.2	.0	52.4	25.0
Families with female head with children under 18, total	20 467	13 109	3 620	53	9 384	53	7 358	4 265	-	2 728	365
Less than $1,000	2 867	2 239	159	-	2 027	53	628	321	-	255	51
$1,000 to $1,999	2 082	1 379	47	-	1 332	-	703	402	-	300	-
$2,000 to $2,999	3 344	2 576	159	-	2 417	-	767	404	-	310	53
$3,000 to $3,999	3 684	2 245	371	-	1 874	-	1 439	571	-	817	51
$4,000 to $4,999	2 098	1 376	745	-	631	-	722	457	-	264	-
$5,000 to $5,999	1 642	841	472	53	316	-	801	484	-	264	53
$6,000 to $6,999	998	686	528	-	159	-	312	312	-	-	-
$7,000 to $7,999	842	475	159	-	316	-	368	316	-	51	-
$8,000 to $8,999	673	312	258	-	54	-	361	159	-	151	51
$9,000 to $9,999	577	210	157	-	53	-	367	210	-	104	53
$10,000 to $11,999	416	208	208	-	-	-	208	155	-	53	-
$12,000 to $14,999	622	252	201	-	51	-	370	264	-	53	53
$15,000 or more	623	311	157	-	154	-	312	208	-	104	-
Median income ..... dollars	3527	3160	5697	5499	2551	500	4196	4947	0	3609	5513
Number below the poverty level	11 636	8 694	516	-	8 125	53	2 942	1 347	-	1 490	104
Percent below the poverty level	56.9	66.3	14.3	.0	86.6	100.0	40.0	31.6	.0	54.6	28.6

[1] Unemployment insurance, workmen's compensation, social security, welfare payments; and private, veterans', and government pensions

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Table 48. Detailed Source of Income: All Races

[Limited to families headed by persons 16 to 64 years, not in school]

Family Income From Specific Sources	Total families with income	Detailed source of income									
		Wages and salaries	Self-employment income	Workmen's compensation	Unemployment compensation	Social security	Other pensions	Welfare or public assistance	Rents	Interest or dividends	All other sources
Total families	98 916	86 016	1 846	6 367	10 349	13 492	6 828	22 807	8 254	6 300	2 843
Families with male head, total	69 941	67 180	1 518	5 490	9 255	9 191	4 761	7 060	5 670	5 551	960
Less than $500	935	623	-	53	-	315	106	206	-	-	-
$500 to $999	475	475	-	-	49	108	-	59	-	51	-
$1,000 to $1,499	578	417	-	53	-	55	-	153	56	-	-
$1,500 to $1,999	919	540	-	-	57	382	53	212	53	-	-
$2,000 to $2,999	2 089	1 759	106	53	157	433	157	540	108	51	53
$3,000 to $3,999	2 475	2 043	55	270	383	480	589	696	213	56	53
$4,000 to $4,999	2 483	2 261	48	223	382	545	284	583	384	225	-
$5,000 to $7,499	12 709	12 109	323	1 369	1 497	1 505	871	1 430	690	688	260
$7,500 to $9,999	16 491	16 273	215	1 140	2 229	1 481	1 195	1 060	1 185	1 097	161
$10,000 to $14,999	18 889	18 779	389	884	2 886	2 403	806	1 649	1 547	1 832	214
$15,000 or more	11 899	11 899	381	1 444	1 615	1 485	701	472	1 433	1 551	218
Families with male head with children under 18, total	41 051	40 031	649	3 701	6 237	3 764	2 148	5 059	3 276	2 883	214
Less than $500	521	420	-	-	-	104	-	100	-	-	-
$500 to $999	162	162	-	-	-	-	-	-	-	-	-
$1,000 to $1,499	355	302	-	-	-	-	-	153	56	-	-
$1,500 to $1,999	488	431	-	-	57	56	-	106	53	-	-
$2,000 to $2,999	903	903	-	53	157	57	105	263	-	-	-
$3,000 to $3,999	1 232	1 017	55	162	109	264	266	325	162	56	-
$4,000 to $4,999	1 092	927	48	53	209	212	56	470	165	111	-
$5,000 to $7,499	7 555	7 342	158	1 037	1 187	471	265	946	215	315	-
$7,500 to $9,999	9 722	9 615	56	767	1 316	427	544	840	648	707	-
$10,000 to $14,999	11 556	11 447	167	622	2 141	1 215	431	1 435	964	895	104
$15,000 or more	7 466	7 466	164	1 007	1 061	957	480	421	1 013	798	110
Families with female head, total	28 975	18 836	328	877	1 094	4 301	2 068	15 748	2 585	748	1 883
Less than $500	3 224	696	57	47	47	215	100	2 363	104	-	211
$500 to $999	944	580	-	-	-	104	-	629	-	-	48
$1,000 to $1,499	1 600	874	-	51	156	161	164	1 023	106	-	258
$1,500 to $1,999	1 083	519	-	-	53	161	103	869	-	51	-
$2,000 to $2,999	4 363	1 672	-	53	-	370	468	3 249	267	51	259
$3,000 to $3,999	4 453	2 303	53	108	104	741	164	3 434	471	-	314
$4,000 to $4,999	2 852	2 161	-	147	210	426	214	1 432	162	56	158
$5,000 to $7,499	4 605	4 235	53	258	318	903	317	1 483	473	104	269
$7,500 to $9,999	2 701	2 646	108	104	153	639	375	636	108	106	263
$10,000 to $14,999	1 947	1 947	-	109	-	212	53	369	473	219	51
$15,000 or more	1 203	1 203	56	-	53	369	108	262	420	159	51
Families with female head with children under 18, total	22 991	13 507	108	608	832	2 630	1 739	14 836	1 520	368	1 456
Less than $500	2 951	533	-	47	47	159	100	2 363	51	-	211
$500 to $999	786	423	-	-	-	53	-	575	-	-	48
$1,000 to $1,499	1 275	715	-	51	103	-	108	970	51	-	147
$1,500 to $1,999	920	412	-	-	53	104	103	814	-	-	-
$2,000 to $2,999	3 836	1 252	-	53	-	264	414	3 089	104	51	155
$3,000 to $3,999	3 965	1 921	-	51	104	416	55	3 165	361	-	314
$4,000 to $4,999	2 320	1 686	-	147	159	265	214	1 432	107	-	102
$5,000 to $7,499	3 435	3 064	53	101	214	582	317	1 217	263	51	269
$7,500 to $9,999	1 785	1 785	55	104	100	425	319	580	55	55	210
$10,000 to $14,999	1 039	1 039	-	53	-	155	53	369	369	106	-
$15,000 or more	678	678	-	-	53	206	55	262	158	104	-

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Table 48a. Detailed Source of Income: White

[Limited to families headed by persons 16 to 64 years, not in school]

Family Income From Specific Sources	Total families with income	Detailed source of income									
		Wages and salaries	Self-employment income	Workmen's compensation	Unemployment compensation	Social security	Other pensions	Welfare or public assistance	Rents	Interest or dividends	All other sources
Total families	19 324	17 285	828	936	2 044	3 068	1 747	2 909	1 336	2 507	382
Families with male head, total	15 617	14 896	659	823	2 044	2 225	1 296	1 205	1 057	2 226	221
Less than $500	150	98	-	-	-	52	52	-	-	-	-
$500 to $999	203	203	-	-	49	56	-	-	-	-	-
$1,000 to $1,499	56	56	-	-	-	-	-	-	-	-	-
$1,500 to $1,999	279	221	-	-	57	56	-	53	-	-	-
$2,000 to $2,999	554	389	-	-	-	166	-	114	56	-	-
$3,000 to $3,999	660	604	55	-	113	160	113	216	-	56	-
$4,000 to $4,999	1 090	978	48	55	218	331	169	265	113	225	-
$5,000 to $7,499	3 364	3 251	162	380	269	281	169	330	167	217	107
$7,500 to $9,999	3 235	3 125	56	48	562	396	283	171	331	559	-
$10,000 to $14,999	3 610	3 555	224	56	493	499	282	56	223	773	57
$15,000 or more	2 415	2 415	113	283	283	226	227	-	167	396	57
Families with male head with children under 18, total	8 188	7 907	432	483	1 384	871	561	809	725	1 218	-
Less than $500	48	48	-	-	-	-	-	-	-	-	-
$500 to $999	-	-	-	-	-	-	-	-	-	-	-
$1,000 to $1,499	-	-	-	-	-	-	-	-	-	-	-
$1,500 to $1,999	279	221	-	-	57	56	-	53	-	-	-
$2,000 to $2,999	114	114	-	-	-	57	-	57	-	-	-
$3,000 to $3,999	433	433	55	-	56	104	56	216	-	56	-
$4,000 to $4,999	408	352	48	-	104	105	-	153	56	111	-
$5,000 to $7,499	1 806	1 749	105	265	163	-	-	217	111	54	-
$7,500 to $9,999	1 839	1 783	56	48	396	111	227	57	225	397	-
$10,000 to $14,999	1 972	1 916	111	-	438	270	167	56	167	374	-
$15,000 or more	1 290	1 290	56	170	170	168	111	-	167	225	-
Families with female head, total	3 706	2 390	169	113	-	844	451	1 703	279	281	161
Less than $500	721	225	57	-	-	56	-	495	-	-	-
$500 to $999	264	160	-	-	-	-	-	104	-	-	48
$1,000 to $1,499	170	-	-	-	-	56	56	57	-	-	56
$1,500 to $1,999	113	113	-	-	-	56	56	56	-	-	-
$2,000 to $2,999	493	227	-	-	-	58	57	266	56	-	-
$3,000 to $3,999	450	282	-	56	-	169	56	225	56	-	-
$4,000 to $4,999	335	279	-	-	-	112	57	223	-	56	56
$5,000 to $7,499	216	216	-	-	-	-	-	111	-	-	-
$7,500 to $9,999	553	498	55	-	-	168	113	111	55	55	-
$10,000 to $14,999	169	169	-	56	-	56	-	-	-	114	-
$15,000 or more	222	222	56	-	-	112	55	55	111	55	-
Families with female head with children under 18, total	2 468	1 432	55	-	-	281	282	1 592	111	55	48
Less than $500	607	168	-	-	-	-	-	495	-	-	-
$500 to $999	264	160	-	-	-	-	-	104	-	-	48
$1,000 to $1,499	57	-	-	-	-	-	-	57	-	-	-
$1,500 to $1,999	56	56	-	-	-	-	56	56	-	-	-
$2,000 to $2,999	436	170	-	-	-	58	57	266	-	-	-
$3,000 to $3,999	281	113	-	-	-	56	-	168	-	-	-
$4,000 to $4,999	223	223	-	-	-	55	57	223	-	-	-
$5,000 to $7,499	216	216	-	-	-	-	-	111	-	-	-
$7,500 to $9,999	272	272	55	-	-	111	56	55	55	55	-
$10,000 to $14,999	-	-	-	-	-	-	-	-	-	-	-
$15,000 or more	55	55	-	-	-	-	55	55	55	-	-

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Table 48b. Detailed Source of Income: Negro

[Limited to families headed by persons 16 to 64 years, not in school]

Family Income From Specific Sources	Total families with income	Detailed source of income									
		Wages and salaries	Self-employment income	Workmen's compensation	Unemployment compensation	Social security	Other pensions	Welfare or public assistance	Rents	Interest or dividends	All other sources
Total families	78 257	67 508	1 018	5 432	8 192	10 256	4 968	19 677	6 862	3 681	2 461
Families with male head, total	53 102	51 119	859	4 667	7 099	6 799	3 352	5 689	4 556	3 213	739
Less than $500	785	526	-	53	-	263	53	206	-	-	-
$500 to $999	272	272	-	-	-	51	-	59	-	51	-
$1,000 to $1,499	521	360	-	53	-	55	-	153	56	-	-
$1,500 to $1,999	640	319	-	-	-	326	53	159	53	-	-
$2,000 to $2,999	1 535	1 370	106	53	157	267	157	426	51	51	53
$3,000 to $3,999	1 761	1 385	-	270	271	267	477	427	213	-	53
$4,000 to $4,999	1 393	1 284	-	168	164	214	115	317	272	-	-
$5,000 to $7,499	9 127	8 640	161	989	1 228	1 166	644	1 100	523	471	153
$7,500 to $9,999	13 085	13 034	159	1 092	1 610	1 028	855	889	798	538	161
$10,000 to $14,999	14 942	14 888	165	828	2 392	1 903	524	1 536	1 324	1 003	157
$15,000 or more	9 040	9 040	269	1 162	1 276	1 259	473	416	1 266	1 099	161
Families with male head with children under 18, total	32 197	31 457	217	3 218	4 853	2 836	1 530	4 194	2 551	1 553	214
Less than $500	472	372	-	-	-	104	-	100	-	-	-
$500 to $999	162	162	-	-	-	-	-	-	-	-	-
$1,000 to $1,499	355	302	-	-	-	-	-	153	56	-	-
$1,500 to $1,999	209	209	-	-	-	-	-	53	53	-	-
$2,000 to $2,999	789	789	-	53	157	-	105	206	-	-	-
$3,000 to $3,999	799	584	-	162	53	161	209	109	162	-	-
$4,000 to $4,999	684	574	-	53	106	108	56	317	109	-	-
$5,000 to $7,499	5 531	5 374	53	772	1 024	414	208	729	104	261	-
$7,500 to $9,999	7 883	7 832	-	719	920	316	317	783	423	310	-
$10,000 to $14,999	9 304	9 250	56	622	1 703	944	264	1 379	797	465	104
$15,000 or more	6 008	6 008	108	836	891	790	369	365	846	517	110
Families with female head, total	25 156	16 389	159	764	1 094	3 457	1 616	13 988	2 306	468	1 722
Less than $500	2 503	471	-	47	47	159	100	1 868	104	-	211
$500 to $999	680	421	-	-	-	104	-	524	-	-	-
$1,000 to $1,499	1 430	874	-	51	156	104	108	966	106	-	202
$1,500 to $1,999	970	407	-	-	53	104	47	813	-	51	-
$2,000 to $2,999	3 814	1 446	-	53	-	312	410	2 926	210	51	259
$3,000 to $3,999	4 003	2 021	53	51	104	572	108	3 210	415	-	314
$4,000 to $4,999	2 517	1 882	-	147	210	314	157	1 210	162	-	102
$5,000 to $7,499	4 389	4 019	53	258	318	903	317	1 371	473	104	269
$7,500 to $9,999	2 148	2 148	53	104	153	471	263	525	53	51	263
$10,000 to $14,999	1 721	1 721	-	53	-	155	53	369	473	106	51
$15,000 or more	981	981	-	-	53	258	53	206	309	104	51
Families with female head with children under 18, total	20 467	12 074	53	608	832	2 349	1 457	13 189	1 410	312	1 408
Less than $500	2 344	365	-	47	47	159	100	1 868	51	-	211
$500 to $999	522	263	-	-	-	53	-	471	-	-	-
$1,000 to $1,499	1 218	715	-	51	103	-	108	913	51	-	147
$1,500 to $1,999	864	355	-	-	53	104	47	758	-	-	-
$2,000 to $2,999	3 344	1 082	-	53	-	206	357	2 767	104	51	155
$3,000 to $3,999	3 684	1 808	-	51	104	359	55	2 997	361	-	314
$4,000 to $4,999	2 098	1 463	-	147	159	209	157	1 210	107	-	102
$5,000 to $7,499	3 219	2 848	53	101	214	582	317	1 105	263	51	269
$7,500 to $9,999	1 513	1 513	-	104	100	314	263	525	-	-	210
$10,000 to $14,999	1 039	1 039	-	53	-	155	53	369	369	106	-
$15,000 or more	623	623	-	-	53	206	-	206	102	104	-

Table 49. Work Experience of Head in Last 12 Months: All Races

Family income	Total families	Work experience of head in last 12 months[1]: Worked full time: 50 to 52 weeks	Worked full time: 27 to 49 weeks	Worked full time: 1 to 26 weeks	Worked part time: 50 to 52 weeks	Worked part time: 27 to 49 weeks	Worked part time: 1 to 26 weeks	Did not work at all	Worked part year, had some unemployment: Unemployed less than 5 weeks	Unemployed 5 to 14 weeks	Unemployed 15 weeks or more
Total families	99 654	48 563	19 802	6 334	1 371	1 022	1 999	20 565	1 453	2 747	811
Families with male head, total	70 206	41 944	16 545	4 000	733	277	694	6 012	1 239	2 432	646
Less than $1,000	1 675	586	251	209	51	-	-	578	-	49	108
$1,000 to $1,999	1 496	306	104	330	112	-	-	645	-	-	117
$2,000 to $2,999	2 089	431	314	322	102	-	220	701	116	158	-
$3,000 to $3,999	2 475	324	590	492	100	53	108	808	56	225	214
$4,000 to $4,999	2 483	880	583	424	48	57	53	438	110	226	56
$5,000 to $5,999	3 832	1 299	1 113	329	57	116	156	761	49	278	53
$6,000 to $6,999	4 357	2 153	1 457	316	56	51	49	274	53	152	-
$7,000 to $7,999	7 515	4 384	2 169	421	56	-	-	485	51	437	-
$8,000 to $8,999	7 314	4 985	1 918	309	-	-	-	102	106	213	49
$9,000 to $9,999	6 182	4 400	1 158	311	-	-	-	313	56	157	49
$10,000 to $11,999	10 353	7 121	2 323	269	48	-	57	535	96	208	-
$12,000 to $14,999	8 536	5 928	2 350	51	48	-	51	106	157	217	-
$15,000 or more	11 899	9 147	2 214	218	53	-	-	266	388	113	-
Median income ..... dollars..	9323	10366	8895	5676	4021	5244	4355	4688	10444	7294	3458
Number below the poverty level	7 017	1 795	1 089	1 034	317	-	322	2 461	57	158	225
Percent below the poverty level	10.0	4.3	6.6	25.8	43.2	.0	46.5	40.9	4.6	6.5	34.8
Families with male head with children under 18, total	41 157	25 407	10 170	1 905	470	110	478	2 617	2 963	4 040	748
Less than $1,000	789	377	101	53	-	-	-	257	-	-	-
$1,000 to $1,999	843	255	47	213	112	-	-	216	-	47	157
$2,000 to $2,999	903	215	257	53	53	-	110	216	-	257	106
$3,000 to $3,999	1 232	218	257	221	51	-	108	376	101	209	56
$4,000 to $4,999	1 092	312	200	209	48	-	53	269	48	253	-
$5,000 to $5,999	2 032	648	742	162	-	59	156	266	151	349	218
$6,000 to $6,999	2 607	1 349	937	106	56	51	-	108	301	470	53
$7,000 to $7,999	4 402	2 631	1 404	256	-	-	-	111	415	512	106
$8,000 to $8,999	4 443	3 026	1 158	156	-	-	-	102	523	426	53
$9,000 to $9,999	3 793	2 872	664	155	-	-	-	102	148	302	-
$10,000 to $11,999	6 397	4 226	1 642	106	48	-	-	374	530	540	-
$12,000 to $14,999	5 159	3 473	1 480	51	48	-	51	55	428	364	-
$15,000 or more	7 466	5 806	1 280	163	53	-	-	164	316	312	-
Median income ..... dollars..	9603	10391	8983	6392	4389	5936	4392	5003	8886	7848	5254
Number below the poverty level	4 668	1 484	826	595	216	-	271	1 276	202	469	371
Percent below the poverty level	11.3	5.8	8.1	31.3	46.0	.0	56.7	48.8	6.8	11.6	49.6
Families with female head, total	29 448	6 618	3 257	2 333	637	744	1 305	14 553	214	315	165
Less than $1,000	4 640	108	109	581	51	55	53	3 683	-	53	57
$1,000 to $1,999	2 683	102	202	255	56	55	204	1 809	55	53	-
$2,000 to $2,999	4 363	165	422	256	51	104	202	3 162	-	-	51
$3,000 to $3,999	4 453	480	524	506	53	53	316	2 521	-	-	56
$4,000 to $4,999	2 852	896	418	216	157	108	162	895	53	51	-
$5,000 to $5,999	1 907	739	370	159	54	55	-	530	53	-	-
$6,000 to $6,999	1 533	1 008	155	-	-	106	104	159	-	53	-
$7,000 to $7,999	1 482	587	262	-	-	-	-	634	-	53	-
$8,000 to $8,999	1 324	536	106	151	55	155	157	163	-	51	-
$9,000 to $9,999	1 061	378	159	157	-	-	53	315	-	-	-
$10,000 to $11,999	840	576	159	-	-	-	-	104	-	-	-
$12,000 to $14,999	1 107	580	212	53	51	-	-	212	53	-	-
$15,000 or more	1 203	464	159	-	108	53	53	367	-	-	-
Median income ..... dollars..	3735	6812	4887	3148	4680	4975	3610	2639	4980	4997	2491
Number below the poverty level	15 139	531	878	1 252	211	214	619	11 433	55	106	108
Percent below the poverty level	51.4	8.0	27.0	53.7	33.2	28.7	47.4	78.6	25.7	33.8	65.8
Families with female head with children under 18, total	23 308	4 275	2 247	2 110	476	532	1 043	12 624	732	1 187	557
Less than $1,000	4 055	55	56	471	51	55	53	3 314	102	111	104
$1,000 to $1,999	2 195	-	149	198	56	-	204	1 588	47	94	98
$2,000 to $2,999	3 836	165	265	256	51	104	151	2 844	-	204	-
$3,000 to $3,999	3 965	426	414	450	53	53	316	2 252	156	249	249
$4,000 to $4,999	2 320	629	314	216	53	108	162	839	161	214	53
$5,000 to $5,999	1 746	739	317	159	54	55	-	422	108	55	53
$6,000 to $6,999	998	686	100	-	-	-	53	159	53	-	-
$7,000 to $7,999	955	270	157	-	-	-	-	528	-	53	-
$8,000 to $8,999	841	317	53	151	55	104	51	110	-	102	-
$9,000 to $9,999	681	159	104	157	-	-	53	209	106	51	-
$10,000 to $11,999	416	259	104	-	-	-	-	53	-	-	-
$12,000 to $14,999	622	308	106	53	51	-	-	104	-	53	-
$15,000 or more	678	261	108	-	51	53	-	205	-	-	-
Median income ..... dollars..	3435	6179	4761	3290	4504	4498	3357	2551	4380	3738	3306
Number below the poverty level	13 702	376	724	1 085	211	159	568	10 578	253	413	308
Percent below the poverty level	58.8	8.8	32.2	51.4	44.4	29.9	54.4	83.8	34.6	34.8	55.3

[1] Heads 16 to 64 years, not in school.

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Table 49a. Work Experience of Head in Last 12 Months: White

Family Income	Total families	Work experience of head in last 12 months[1]: Worked full time: 50 to 52 weeks	Worked full time: 27 to 49 weeks	Worked full time: 1 to 26 weeks	Worked part time: 50 to 52 weeks	Worked part time: 27 to 49 weeks	Worked part time: 1 to 26 weeks	Did not work at all	Worked part year, had some unemployment: Unemployed less than 5 weeks	Worked part year, had some unemployment: Unemployed 5 to 14 weeks	Worked part year, had some unemployment: Unemployed 15 weeks or more
Total families	19 380	8 331	4 836	1 587	595	228	271	3 532	343	831	219
Families with male head, total	15 617	7 598	4 563	1 142	427	173	160	1 554	343	831	105
Less than $1,000	353	49	98	98	-	-	-	109	-	49	49
$1,000 to $1,999	335	-	56	56	112	-	-	110	-	-	-
$2,000 to $2,999	554	168	57	107	-	-	-	223	57	107	-
$3,000 to $3,999	660	56	276	112	-	-	55	161	56	115	-
$4,000 to $4,999	1 090	230	314	216	48	57	-	224	57	114	56
$5,000 to $5,999	1 364	337	354	170	57	116	48	282	-	227	-
$6,000 to $6,999	900	322	308	159	56	-	-	56	-	49	-
$7,000 to $7,999	1 537	869	335	113	56	-	-	164	-	56	-
$8,000 to $8,999	1 372	762	554	56	-	-	-	-	-	57	-
$9,000 to $9,999	1 426	1 105	265	-	-	-	-	55	56	-	-
$10,000 to $11,999	2 242	1 686	337	-	48	-	57	114	-	-	-
$12,000 to $14,999	1 368	438	826	-	48	-	-	55	59	-	-
$15,000 or more	2 415	1 578	781	56	-	-	-	-	57	56	-
Median income ..... dollars..	8739	9911	8871	4917	5924	5252	5515	4776	9012	5134	4060
Number below the poverty level	1 786	218	420	379	112	-	55	602	57	107	49
Percent below the poverty level	11.4	2.9	9.2	33.2	26.3	.0	34.5	38.8	16.7	12.8	46.8
Families with male head with children under 18, total	8 188	3 997	2 613	496	313	59	104	606	755	723	112
Less than $1,000	48	-	48	-	-	-	-	-	-	-	-
$1,000 to $1,999	279	-	-	56	112	-	-	110	-	-	-
$2,000 to $2,999	114	56	-	-	-	-	-	57	-	-	-
$3,000 to $3,999	433	56	104	112	-	-	55	104	48	-	56
$4,000 to $4,999	408	-	200	104	48	-	-	56	48	200	-
$5,000 to $5,999	685	224	242	56	-	59	48	56	-	145	56
$6,000 to $6,999	472	263	153	-	56	-	-	-	48	48	-
$7,000 to $7,999	921	642	113	56	-	-	-	111	-	-	-
$8,000 to $8,999	758	369	333	56	-	-	-	-	114	169	-
$9,000 to $9,999	810	713	97	-	-	-	-	-	48	48	-
$10,000 to $11,999	1 111	726	281	-	48	-	-	55	112	56	-
$12,000 to $14,999	861	215	542	-	48	-	-	55	224	55	-
$15,000 or more	1 290	733	500	56	-	-	-	-	112	-	-
Median income ..... dollars..	8969	9546	10117	4770	4919	5499	3937	4544	11257	6329	5000
Number below the poverty level	1 145	168	257	224	112	-	55	328	97	55	56
Percent below the poverty level	14.0	4.2	9.8	45.0	35.8	.0	53.4	54.2	12.8	7.7	50.0
Families with female head, total	3 763	733	273	445	168	55	111	1 978	-	-	114
Less than $1,000	1 041	-	56	218	-	-	-	767	-	-	57
$1,000 to $1,999	283	-	-	56	56	-	-	170	-	-	-
$2,000 to $2,999	493	113	56	58	-	-	-	266	-	-	-
$3,000 to $3,999	450	113	56	56	-	-	-	225	-	-	56
$4,000 to $4,999	335	56	-	57	-	55	111	56	-	-	-
$5,000 to $5,999	104	-	48	-	-	-	-	55	-	-	-
$6,000 to $6,999	-	-	-	-	-	-	-	-	-	-	-
$7,000 to $7,999	113	56	-	-	-	-	-	56	-	-	-
$8,000 to $8,999	281	170	-	-	55	-	-	55	-	-	-
$9,000 to $9,999	273	113	-	-	-	-	-	160	-	-	-
$10,000 to $11,999	57	57	-	-	-	-	-	-	-	-	-
$12,000 to $14,999	112	55	-	-	-	-	-	56	-	-	-
$15,000 or more	222	-	55	-	56	-	-	111	-	-	-
Median income ..... dollars..	3206	8169	3421	1086	8502	4499	4500	2300	0	0	992
Number below the poverty level	2 032	113	104	332	56	-	55	1 372	-	-	57
Percent below the poverty level	54.0	15.3	38.3	74.5	33.4	.0	50.0	69.3	.0	.0	50.4
Families with female head with children under 18, total	2 524	339	160	275	111	55	111	1 474	-	113	-
Less than $1,000	927	-	56	161	-	-	-	711	-	56	-
$1,000 to $1,999	113	-	-	-	56	-	-	57	-	-	-
$2,000 to $2,999	436	113	-	58	-	-	-	266	-	-	-
$3,000 to $3,999	281	113	-	-	-	-	-	168	-	-	-
$4,000 to $4,999	223	-	-	57	-	55	111	-	-	57	-
$5,000 to $5,999	104	-	48	-	-	-	-	55	-	-	-
$6,000 to $6,999	-	-	-	-	-	-	-	-	-	-	-
$7,000 to $7,999	113	56	-	-	-	-	-	56	-	-	-
$8,000 to $8,999	168	57	-	-	55	-	-	55	-	-	-
$9,000 to $9,999	104	-	-	-	-	-	-	104	-	-	-
$10,000 to $11,999	-	-	-	-	-	-	-	-	-	-	-
$12,000 to $14,999	-	-	-	-	-	-	-	-	-	-	-
$15,000 or more	55	-	55	-	-	-	-	-	-	-	-
Median income ..... dollars..	2571	3504	5491	857	1992	4499	4500	1948	0	4009	0
Number below the poverty level	1 749	113	104	218	56	-	55	1 202	-	56	-
Percent below the poverty level	69.3	33.2	65.4	79.2	50.4	.0	50.0	81.6	.0	49.5	.0

[1] Heads 16 to 64 years, not in school.

Table 49b. Work Experience of Head in Last 12 Months: Negro

Family Income	Total families	Work experience of head in last 12 months[1]								
		Worked full time			Worked part time			Did not work at all	Worked part year, had some unemployment		
		50 to 52 weeks	27 to 49 weeks	1 to 26 weeks	50 to 52 weeks	27 to 49 weeks	1 to 26 weeks		Unemployed less than 5 weeks	Unemployed 5 to 14 weeks	Unemployed 15 weeks or more
Total families	78 939	39 508	14 577	4 746	776	741	1 727	16 864	1 052	1 916	592
Families with male head, total	53 367	33 680	11 593	2 858	306	51	533	4 345	838	1 601	541
Less than $1,000	1 322	537	153	111	51	-	-	469	-	-	59
$1,000 to $1,999	1 161	306	47	274	-	-	-	535	-	-	117
$2,000 to $2,999	1 535	263	257	216	102	-	220	478	59	51	-
$3,000 to $3,999	1 761	268	314	380	100	-	53	647	-	110	214
$4,000 to $4,999	1 393	650	269	208	-	-	53	213	53	112	-
$5,000 to $5,999	2 364	907	711	159	-	-	107	480	49	51	53
$6,000 to $6,999	3 343	1 776	1 150	157	-	51	49	161	53	102	-
$7,000 to $7,999	5 921	3 515	1 834	308	-	-	-	264	51	380	-
$8,000 to $8,999	5 828	4 166	1 306	253	-	-	-	102	106	155	49
$9,000 to $9,999	4 757	3 296	893	311	-	-	-	258	-	157	49
$10,000 to $11,999	7 943	5 324	1 929	269	-	-	-	421	96	208	-
$12,000 to $14,999	6 999	5 322	1 524	51	-	-	51	51	98	217	-
$15,000 or more	9 040	7 352	1 207	162	53	-	-	266	273	56	-
Median income ..... dollars..	9459	10464	8833	6518	3000	6499	3883	4330	11000	7983	3442
Number below the poverty level	5 231	1 577	669	655	204	-	267	1 858	-	51	176
Percent below the poverty level	9.8	4.7	5.8	22.9	66.7	.0	50.1	42.8	.0	3.2	32.5
Families with male head with children under 18, total	32 302	21 018	7 339	1 408	157	51	374	1 954	2 208	3 205	636
Less than $1,000	740	377	53	53	-	-	-	257	-	-	-
$1,000 to $1,999	564	255	47	157	-	-	-	106	-	47	157
$2,000 to $2,999	789	159	257	53	53	-	110	158	-	257	106
$3,000 to $3,999	799	162	153	109	51	-	53	271	53	209	-
$4,000 to $4,999	684	312	-	106	-	-	53	213	-	53	-
$5,000 to $5,999	1 243	369	452	106	-	-	107	210	151	204	162
$6,000 to $6,999	2 022	1 030	784	106	-	51	-	51	253	421	53
$7,000 to $7,999	3 481	1 989	1 291	200	-	-	-	-	415	512	106
$8,000 to $8,999	3 685	2 657	825	100	-	-	-	102	410	257	53
$9,000 to $9,999	2 983	2 159	567	155	-	-	-	102	100	254	-
$10,000 to $11,999	5 118	3 389	1 305	106	-	-	-	319	417	427	-
$12,000 to $14,999	4 186	3 146	938	51	-	-	51	-	204	308	-
$15,000 or more	6 008	5 016	667	107	53	-	-	164	204	255	-
Median income ..... dollars..	9736	10630	8766	7077	3499	6499	4458	4990	8564	7801	5343
Number below the poverty level	3 523	1 315	568	372	104	-	216	948	106	414	315
Percent below the poverty level	10.9	6.3	7.7	26.4	66.3	.0	57.7	48.5	4.8	12.9	49.6
Families with female head, total	25 572	5 828	2 984	1 888	469	689	1 194	12 519	214	315	51
Less than $1,000	3 599	108	53	363	51	55	53	2 916	-	53	-
$1,000 to $1,999	2 400	102	202	198	-	55	204	1 638	55	53	-
$2,000 to $2,999	3 814	53	365	198	51	104	202	2 840	-	-	51
$3,000 to $3,999	4 003	367	468	450	53	53	316	2 297	-	-	-
$4,000 to $4,999	2 517	839	418	159	157	53	51	839	53	51	-
$5,000 to $5,999	1 803	739	322	159	54	55	-	475	53	-	-
$6,000 to $6,999	1 533	1 008	155	-	-	106	104	159	-	53	-
$7,000 to $7,999	1 370	530	262	-	-	-	-	578	-	53	-
$8,000 to $8,999	1 043	366	106	151	-	155	157	107	-	51	-
$9,000 to $9,999	788	265	159	157	-	-	53	155	-	-	-
$10,000 to $11,999	782	519	159	-	-	-	-	104	-	-	-
$12,000 to $14,999	938	467	212	53	51	-	-	155	53	-	-
$15,000 or more	981	464	104	-	51	53	53	256	-	-	-
Median income ..... dollars..	3794	6699	4965	3409	4504	5449	3435	2673	4980	4997	2499
Number below the poverty level	13 051	419	773	920	155	214	564	10 006	55	106	51
Percent below the poverty level	51.0	7.2	25.9	48.8	33.1	31.0	47.2	79.9	25.7	33.8	100.0
Families with female head with children under 18, total	20 728	3 936	2 088	1 835	365	477	932	11 095	732	1 074	557
Less than $1,000	3 127	55	-	310	51	55	53	2 603	102	55	104
$1,000 to $1,999	2 082	-	149	198	-	-	204	1 530	47	94	98
$2,000 to $2,999	3 344	53	265	198	51	104	151	2 521	-	204	-
$3,000 to $3,999	3 684	314	414	450	53	53	316	2 084	156	249	249
$4,000 to $4,999	2 098	629	314	159	53	53	51	839	161	157	53
$5,000 to $5,999	1 642	739	269	159	54	55	-	367	108	55	53
$6,000 to $6,999	998	686	100	-	-	-	53	159	53	-	-
$7,000 to $7,999	842	214	157	-	-	-	-	472	-	53	-
$8,000 to $8,999	673	259	53	151	-	104	51	54	-	102	-
$9,000 to $9,999	577	159	104	157	-	-	53	104	106	51	-
$10,000 to $11,999	416	259	104	-	-	-	-	53	-	-	-
$12,000 to $14,999	622	308	106	53	51	-	-	104	-	53	-
$15,000 or more	623	261	53	-	51	53	-	205	-	-	-
Median income ..... dollars..	3527	6260	4686	3468	4512	4497	3182	2612	4380	3736	3306
Number below the poverty level	11 896	263	620	867	155	159	513	9 320	253	357	308
Percent below the poverty level	57.4	6.7	29.7	47.3	42.5	33.3	55.0	84.0	34.6	33.3	55.3

[1] Heads 16 to 64 years, not in school.

Table 50. Major Occupation Group of Head's Longest Job in Last 12 Months: All Races

[Limited to heads 16 to 64 years, not in school, with wage and salary earnings only]

Family Income	Total heads employed in last 12 months	Major occupation group of longest job in last 12 months: Professional and technical	Managerial and administrative	Sales	Clerical	Craftsmen and foremen	Operatives, except transportation	Transport equipment operatives	Laborers, except farm	Service workers, except private household	Private household workers	Farmers, farm managers, farm laborers, and foremen	Not available
Total families	79 089	3 186	1 912	1 258	7 908	12 325	26 389	6 024	7 830	10 564	1 371	271	51
Families with male head, total	64 194	2 277	1 704	628	3 977	12 114	24 114	5 969	7 516	5 573	-	271	51
Less than $1,000	1 097	-	106	-	106	261	369	-	153	53	-	49	-
$1,000 to $1,999	851	56	56	-	-	100	364	51	53	59	-	112	-
$2,000 to $2,999	1 389	-	-	-	108	271	367	155	321	167	-	-	-
$3,000 to $3,999	1 667	55	55	102	-	326	593	49	162	325	-	-	-
$4,000 to $4,999	2 046	-	53	-	111	376	423	215	473	394	-	-	-
$5,000 to $5,999	3 070	114	56	-	207	600	1 146	211	416	320	-	-	-
$6,000 to $6,999	4 083	103	56	55	154	433	1 234	316	1 044	686	-	-	-
$7,000 to $7,999	7 030	-	56	213	358	1 270	3 024	418	757	934	-	-	-
$8,000 to $8,999	7 212	252	207	-	641	905	2 893	624	1 210	480	-	-	-
$9,000 to $9,999	5 869	56	164	49	320	949	2 253	894	740	394	-	-	51
$10,000 to $11,999	9 818	315	269	53	599	1 983	3 667	1 275	1 169	489	-	-	-
$12,000 to $14,999	8 429	358	106	-	526	2 148	3 713	795	373	412	-	-	-
$15,000 or more	11 632	967	519	157	846	2 493	4 068	967	646	861	-	109	-
Median income ..... dollars..	9640	13560	10708	7738	9945	10624	9729	10081	8313	7838	0	1766	9499
Number below the poverty level	4 557	111	162	53	212	743	1 527	266	939	382	-	162	-
Percent below the poverty level	7.1	4.9	9.5	8.4	5.3	6.1	6.3	4.5	12.5	6.9	.0	59.7	.0
Families with male head, year-round full-time worker, total	41 944	1 365	1 429	523	3 239	7 844	14 462	4 295	4 307	4 320	-	109	51
Less than $1,000	586	-	106	-	106	102	166	-	53	53	-	-	-
$1,000 to $1,999	306	-	56	-	-	100	98	51	-	-	-	-	-
$2,000 to $2,999	431	-	-	-	108	53	106	-	107	56	-	-	-
$3,000 to $3,999	324	-	-	53	-	56	109	-	-	106	-	-	-
$4,000 to $4,999	880	-	53	-	59	56	106	59	153	394	-	-	-
$5,000 to $5,999	1 299	56	56	-	106	167	540	55	102	216	-	-	-
$6,000 to $6,999	2 153	54	-	55	106	216	512	213	523	475	-	-	-
$7,000 to $7,999	4 384	-	56	157	358	841	1 578	309	434	651	-	-	-
$8,000 to $8,999	4 985	204	207	-	535	632	1 666	418	896	427	-	-	-
$9,000 to $9,999	4 400	56	111	49	264	637	1 682	789	426	335	-	-	51
$10,000 to $11,999	7 121	149	213	53	489	1 551	2 298	962	969	437	-	-	-
$12,000 to $14,999	5 928	157	106	-	475	1 379	2 706	580	159	365	-	-	-
$15,000 or more	9 147	688	465	157	634	2 054	2 894	858	484	805	-	109	-
Median income ..... dollars..	10366	15000+	11147	7980	9918	11403	10581	10524	8871	8489	0	15000+	9499
Number below the poverty level	1 795	-	162	53	106	312	692	104	313	53	-	-	-
Percent below the poverty level	4.3	.0	11.4	10.1	3.3	4.0	4.8	2.4	7.3	1.2	.0	.0	.0
Families with female head, total	14 895	910	208	629	3 931	211	2 276	55	314	4 991	1 371	-	-
Less than $1,000	958	-	-	55	204	-	-	-	-	432	267	-	-
$1,000 to $1,999	875	56	-	-	195	-	49	-	53	416	106	-	-
$2,000 to $2,999	1 200	-	-	104	256	-	157	-	49	532	102	-	-
$3,000 to $3,999	1 932	53	108	100	520	-	313	-	53	627	157	-	-
$4,000 to $4,999	1 957	-	-	53	641	53	575	55	-	422	157	-	-
$5,000 to $5,999	1 377	109	-	-	634	-	216	-	-	418	-	-	-
$6,000 to $6,999	1 374	-	-	-	524	-	55	-	53	634	108	-	-
$7,000 to $7,999	848	-	53	53	269	52	161	-	-	261	-	-	-
$8,000 to $8,999	1 161	106	-	106	208	53	214	-	53	369	51	-	-
$9,000 to $9,999	746	106	-	53	162	-	215	-	-	210	-	-	-
$10,000 to $11,999	735	314	-	-	162	-	53	-	-	102	104	-	-
$12,000 to $14,999	896	57	47	-	53	-	267	-	-	314	157	-	-
$15,000 or more	837	108	-	106	104	53	-	-	53	252	161	-	-
Median income ..... dollars..	5382	10158	3963	7059	5236	8009	5199	4500	6038	5157	4336	0	0
Number below the poverty level	3 705	109	-	102	915	-	357	-	53	1 589	579	-	-
Percent below the poverty level	24.9	12.0	.0	16.2	23.3	.0	15.7	.0	16.9	31.8	42.3	.0	.0

Table 50a. Major Occupation Group of Head's Longest Job in Last 12 Months: White

(Limited to heads 16 to 64 years, not in school, with wage and salary earnings only)

Family Income	Total heads employed in last 12 months	Major occupation group of longest job in last 12 months											
		Profes-sional and technical	Managerial and adminis-trative	Sales	Clerical	Craftsmen and foremen	Operatives, except transpor-tation	Transport equipment operatives	Laborers, except farm	Service workers, except private household	Private household workers	Farmers, farm managers, farm laborers, and foremen	Not available
Total families	15 848	869	442	113	1 478	3 578	4 578	1 194	1 249	2 073	113	162	-
Families with male head, total	14 063	757	442	56	868	3 578	4 239	1 194	1 249	1 518	-	162	-
Less than $1,000	245	-	-	-	-	49	98	-	48	-	-	49	-
$1,000 to $1,999	225	56	-	-	-	-	56	-	-	-	-	112	-
$2,000 to $2,999	331	-	-	-	55	-	57	49	56	114	-	-	-
$3,000 to $3,999	500	55	-	-	-	113	161	-	56	115	-	-	-
$4,000 to $4,999	866	-	-	-	-	266	104	105	161	230	-	-	-
$5,000 to $5,999	1 082	57	-	-	48	447	322	104	104	-	-	-	-
$6,000 to $6,999	844	103	56	-	48	56	98	112	157	212	-	-	-
$7,000 to $7,999	1 373	-	56	56	56	313	279	104	169	340	-	-	-
$8,000 to $8,999	1 372	48	48	-	110	391	548	58	168	-	-	-	-
$9,000 to $9,999	1 370	-	56	-	160	106	610	156	56	226	-	-	-
$10,000 to $11,999	2 128	56	169	-	113	449	844	168	216	113	-	-	-
$12,000 to $14,999	1 313	153	-	-	107	604	338	111	-	-	-	-	-
$15,000 or more	2 415	228	56	-	169	785	725	227	56	169	-	-	-
Median income ..... dollars.	9141	12044	10047	7500	9722	10216	9650	9419	7242	7260	0	1280	0
Number below the poverty level	1 184	111	-	-	-	105	372	56	264	113	-	162	-
Percent below the poverty level	8.4	14.7	.0	.0	.0	2.9	8.8	4.7	21.2	7.5	.0	100.0	.0
Families with male head, year-round full-time worker, total	7 598	168	329	-	603	1 858	2 185	605	665	1 184	-	-	-
Less than $1,000	49	-	-	-	-	49	-	-	-	-	-	-	-
$1,000 to $1,999	-	-	-	-	-	-	-	-	-	-	-	-	-
$2,000 to $2,999	168	-	-	-	55	-	-	-	56	56	-	-	-
$3,000 to $3,999	56	-	-	-	-	-	56	-	-	-	-	-	-
$4,000 to $4,999	230	-	-	-	-	-	-	-	-	230	-	-	-
$5,000 to $5,999	337	-	-	-	-	112	169	55	-	-	-	-	-
$6,000 to $6,999	322	54	-	-	-	-	-	56	48	163	-	-	-
$7,000 to $7,999	869	-	56	-	56	257	55	48	169	227	-	-	-
$8,000 to $8,999	762	-	48	-	110	218	217	-	168	-	-	-	-
$9,000 to $9,999	1 105	-	56	-	104	106	506	107	-	226	-	-	-
$10,000 to $11,999	1 686	-	113	-	56	393	731	112	168	113	-	-	-
$12,000 to $14,999	438	56	-	-	107	161	59	55	-	-	-	-	-
$15,000 or more	1 578	57	56	-	114	562	392	171	56	169	-	-	-
Median income ..... dollars.	9911	13587	10071	0	9766	10949	10245	10634	8351	7628	0	0	0
Number below the poverty level	218	-	-	-	-	49	112	-	56	-	-	-	-
Percent below the poverty level	2.9	.0	.0	.0	.0	2.7	5.1	.0	8.4	.0	.0	.0	.0
Families with female head, total	1 785	111	-	56	610	-	339	-	-	555	113	-	-
Less than $1,000	274	-	-	-	-	-	-	-	-	218	56	-	-
$1,000 to $1,999	113	56	-	-	-	-	-	-	-	56	-	-	-
$2,000 to $2,999	227	-	-	56	58	-	-	-	-	113	-	-	-
$3,000 to $3,999	225	-	-	-	56	-	113	-	-	56	-	-	-
$4,000 to $4,999	279	-	-	-	222	-	57	-	-	-	-	-	-
$5,000 to $5,999	48	-	-	-	48	-	-	-	-	-	-	-	-
$6,000 to $6,999	-	-	-	-	-	-	-	-	-	-	-	-	-
$7,000 to $7,999	56	-	-	-	56	-	-	-	-	-	-	-	-
$8,000 to $8,999	225	-	-	-	56	-	57	-	-	112	-	-	-
$9,000 to $9,999	113	-	-	-	56	-	56	-	-	-	-	-	-
$10,000 to $11,999	57	-	-	-	57	-	-	-	-	-	-	-	-
$12,000 to $14,999	55	-	-	-	-	-	55	-	-	-	-	-	-
$15,000 or more	112	55	-	-	-	-	-	-	-	-	56	-	-
Median income ..... dollars.	4193	1992	0	2500	4863	0	4990	0	0	2028	15000+	0	0
Number below the poverty level	660	56	-	-	161	-	-	-	-	387	56	-	-
Percent below the poverty level	37.0	50.4	.0	.0	26.4	.0	.0	.0	.0	69.7	49.9	.0	.0

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Table 50b. Major Occupation Group of Head's Longest Job in Last 12 Months: Negro

(Limited to heads 16 to 64 years, not in school, with wage and salary earnings only)

Family Income	Total heads employed in last 12 months	Major occupation group of longest job in last 12 months											
		Professional and technical	Managerial and administrative	Sales	Clerical	Craftsmen and foremen	Operatives, except transportation	Transport equipment operatives	Laborers, except farm	Service workers, except private household	Private household workers	Farmers, farm managers, farm laborers, and foremen	Not available
Total families	62 075	2 099	1 414	1 145	6 260	8 578	21 483	4 830	6 470	8 379	1 258	109	51
Families with male head, total	49 022	1 358	1 206	572	2 939	8 367	19 546	4 775	6 156	3 943	-	109	51
Less than $1,000	853	-	106	-	106	212	272	-	104	53	-	-	-
$1,000 to $1,999	627	-	56	-	-	100	308	51	53	59	-	-	-
$2,000 to $2,999	1 057	-	-	-	53	271	310	106	265	53	-	-	-
$3,000 to $3,999	1 115	-	55	102	-	214	379	49	106	210	-	-	-
$4,000 to $4,999	1 180	-	53	-	111	109	319	110	312	165	-	-	-
$5,000 to $5,999	1 884	56	-	-	159	153	776	107	312	320	-	-	-
$6,000 to $6,999	3 183	-	-	55	106	377	1 080	204	887	474	-	-	-
$7,000 to $7,999	5 657	-	-	157	302	957	2 745	314	588	594	-	-	-
$8,000 to $8,999	5 726	204	158	-	417	514	2 345	566	1 042	480	-	-	-
$9,000 to $9,999	4 499	56	108	49	159	843	1 643	738	683	168	-	-	51
$10,000 to $11,999	7 522	202	100	53	486	1 533	2 767	1 106	898	376	-	-	-
$12,000 to $14,999	6 948	204	106	-	363	1 544	3 319	684	373	356	-	-	-
$15,000 or more	8 773	634	463	157	677	1 539	3 285	740	534	636	-	109	-
Median income ..... dollars..	9741	14345	12538	7824	10231	10633	9755	10257	8432	8091	0	15000+	9499
Number below the poverty level	3 373	-	162	53	212	638	1 155	210	675	268	-	-	-
Percent below the poverty level	6.9	.0	13.5	9.2	7.2	7.6	5.9	4.4	11.0	6.8	.0	.0	.0
Families with male head, year-round full-time worker, total	33 680	1 093	1 044	523	2 523	5 929	12 108	3 689	3 587	3 024	-	109	51
Less than $1,000	537	-	106	-	106	53	166	-	53	53	-	-	-
$1,000 to $1,999	306	-	56	-	-	100	98	51	-	-	-	-	-
$2,000 to $2,999	263	-	-	-	53	53	106	-	51	-	-	-	-
$3,000 to $3,999	268	-	-	53	-	56	53	-	-	106	-	-	-
$4,000 to $4,999	650	-	53	-	59	56	106	59	153	165	-	-	-
$5,000 to $5,999	907	56	-	-	106	55	371	-	102	216	-	-	-
$6,000 to $6,999	1 776	-	-	55	106	216	456	157	475	312	-	-	-
$7,000 to $7,999	3 515	-	-	157	302	583	1 523	261	265	424	-	-	-
$8,000 to $8,999	4 166	204	158	-	368	414	1 449	418	728	427	-	-	-
$9,000 to $9,999	3 296	56	55	49	159	531	1 177	682	426	109	-	-	51
$10,000 to $11,999	5 324	149	100	53	432	1 157	1 511	850	746	325	-	-	-
$12,000 to $14,999	5 322	100	106	-	312	1 219	2 593	525	159	308	-	-	-
$15,000 or more	7 352	526	409	157	520	1 435	2 501	687	428	679	-	109	-
Median income ..... dollars..	10464	14396	13298	7980	10014	11508	10729	10510	8953	8555	0	15000+	9499
Number below the poverty level	1 577	-	162	53	106	262	579	104	257	53	-	-	-
Percent below the poverty level	4.7	.0	15.6	10.1	4.2	4.4	4.8	2.8	7.2	1.7	.0	.0	.0
Families with female head, total	13 053	741	208	573	3 321	211	1 937	55	314	4 436	1 258	-	-
Less than $1,000	684	-	-	55	204	-	-	-	-	214	211	-	-
$1,000 to $1,999	762	-	-	-	195	-	49	-	53	359	106	-	-
$2,000 to $2,999	974	-	-	47	198	-	157	-	49	420	102	-	-
$3,000 to $3,999	1 706	53	108	100	464	-	201	-	53	571	157	-	-
$4,000 to $4,999	1 678	-	-	53	419	53	518	55	-	422	157	-	-
$5,000 to $5,999	1 328	109	-	-	585	-	216	-	-	418	-	-	-
$6,000 to $6,999	1 374	-	-	-	524	-	55	-	53	634	108	-	-
$7,000 to $7,999	792	-	53	53	212	52	161	-	-	261	-	-	-
$8,000 to $8,999	935	106	-	106	151	53	157	-	53	258	51	-	-
$9,000 to $9,999	633	106	-	53	106	-	159	-	-	210	-	-	-
$10,000 to $11,999	678	314	-	-	104	-	53	-	-	102	104	-	-
$12,000 to $14,999	783	-	47	-	53	-	212	-	-	314	157	-	-
$15,000 or more	725	53	-	106	104	53	-	-	53	252	104	-	-
Median income ..... dollars..	5544	9968	3963	7590	5307	8009	5201	4500	6038	5554	4336	0	0
Number below the poverty level	3 045	53	-	102	754	-	357	-	53	1 203	523	-	-
Percent below the poverty level	23.3	7.1	.0	17.8	22.7	.0	18.4	.0	16.9	27.1	41.6	.0	.0

Table 51. Total Family Income by Wage and Salary Earnings of Family Head, and by Year-Round Full-Time Workers and Part-Year and Part-Time Workers: All Races

(Limited to heads 16 to 64 years, not in school)

Wage and Salary Earnings of Family Heads	Total family heads	Total family income									Family income below the poverty level	Percent below the poverty level
		Less than $500	$500 to $999	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $7,499	$7,500 to $9,999	$10,000 to $14,999	$15,000 or more	
YEAR-ROUND FULL-TIME WORKERS												
Family heads, total	47 067	373	162	248	543	751	1 722	8 073	11 860	14 040	9 294	1 901	4.0
Less then $500	950	373	109	51	-	51	53	102	104	106	-	637	67.1
$500 to $999	159	-	53	51	-	-	-	-	-	55	-	104	65.3
$1,000 to $1,999	625	-	-	145	106	109	115	47	-	102	-	360	57.7
$2,000 to $2,999	1 016	-	-	-	437	110	111	53	151	53	100	273	26.9
$3,000 to $3,999	2 125	-	-	-	-	481	598	475	156	257	158	160	7.5
$4,000 to $4,999	2 255	-	-	-	-	-	845	734	416	157	102	153	6.8
$5,000 to $5,999	3 765	-	-	-	-	-	-	1 986	781	783	214	160	4.3
$6,000 to $6,999	5 516	-	-	-	-	-	-	2 468	687	1 759	602	53	1.0
$7,000 to $7,999	8 913	-	-	-	-	-	-	2 207	3 338	2 508	799	-	.0
$8,000 to $8,999	7 677	-	-	-	-	-	-	-	4 233	1 899	1 545	-	.0
$9,000 to $9,999	5 078	-	-	-	-	-	-	-	1 994	1 758	1 326	-	.0
$10,000 to $11,999	5 636	-	-	-	-	-	-	-	-	3 433	2 203	-	.0
$12,000 to $14,999	2 393	-	-	-	-	-	-	-	-	1 108	1 285	-	.0
$15,000 or more	961	-	-	-	-	-	-	-	-	-	961	-	.0
Median income ..... dollars	7799	250	371	1147	2379	3219	3973	6258	8070	8620	9850	1579	NA
Male heads, total	40 501	265	162	145	378	271	827	5 846	10 894	12 884	8 830	1 370	3.4
Less then $500	686	265	109	-	-	-	53	102	104	53	-	427	62.2
$500 to $999	53	-	53	-	-	-	-	-	-	-	-	53	100.0
$1,000 to $1,999	470	-	-	145	53	109	115	47	-	-	-	307	65.5
$2,000 to $2,999	589	-	-	-	325	53	59	53	100	-	-	160	27.2
$3,000 to $3,999	816	-	-	-	-	109	282	218	102	49	55	109	13.4
$4,000 to $4,999	996	-	-	-	-	-	318	212	308	106	51	153	15.4
$5,000 to $5,999	2 746	-	-	-	-	-	-	1 287	725	520	214	107	3.9
$6,000 to $6,999	4 721	-	-	-	-	-	-	1 937	474	1 759	551	53	1.1
$7,000 to $7,999	8 317	-	-	-	-	-	-	1 990	3 232	2 296	799	-	.0
$8,000 to $8,999	7 459	-	-	-	-	-	-	-	4 015	1 899	1 545	-	.0
$9,000 to $9,999	4 863	-	-	-	-	-	-	-	1 832	1 758	1 273	-	.0
$10,000 to $11,999	5 585	-	-	-	-	-	-	-	-	3 382	2 203	-	.0
$12,000 to $14,999	2 345	-	-	-	-	-	-	-	-	1 061	1 285	-	.0
$15,000 or more	855	-	-	-	-	-	-	-	-	-	855	-	.0
Median income ..... dollars	8114	250	371	1500	2418	2498	3663	6518	8099	8873	9942	1666	NA
Female heads, total	6 566	108	-	102	165	480	896	2 228	966	1 156	464	531	8.1
Less then $500	263	108	-	51	-	51	-	-	-	53	-	210	79.9
$500 to $999	106	-	-	51	-	-	-	-	-	55	-	51	48.1
$1,000 to $1,999	155	-	-	-	53	-	-	-	-	102	-	53	34.1
$2,000 to $2,999	426	-	-	-	113	56	53	-	51	53	100	113	26.4
$3,000 to $3,999	1 309	-	-	-	-	372	316	257	53	208	102	51	3.9
$4,000 to $4,999	1 259	-	-	-	-	-	527	522	108	51	51	-	.0
$5,000 to $5,999	1 019	-	-	-	-	-	-	699	56	263	-	53	5.2
$6,000 to $6,999	795	-	-	-	-	-	-	532	212	-	51	-	.0
$7,000 to $7,999	595	-	-	-	-	-	-	217	106	272	-	-	.0
$8,000 to $8,999	218	-	-	-	-	-	-	-	218	-	-	-	.0
$9,000 to $9,999	215	-	-	-	-	-	-	-	162	-	53	-	.0
$10,000 to $11,999	51	-	-	-	-	-	-	-	-	51	-	-	.0
$12,000 to $14,999	47	-	-	-	-	-	-	-	-	47	-	-	.0
$15,000 or more	106	-	-	-	-	-	-	-	-	-	106	-	.0
Median income ..... dollars	4812	250	0	500	2265	3355	4149	5478	7026	5210	4574	1074	NA
PART-YEAR AND PART-TIME WORKERS													
Family heads, total	39 482	2 181	782	2 617	4 028	4 324	2 870	7 571	6 171	5 874	3 063	12 294	31.1
Less then $500	12 985	2 181	531	1 782	2 506	1 953	745	1 605	890	476	318	8 735	67.3
$500 to $999	1 872	-	251	314	327	206	317	207	250	-	-	1 000	53.4
$1,000 to $1,999	3 334	-	-	522	506	948	385	545	268	161	-	1 303	39.1
$2,000 to $2,999	2 515	-	-	-	689	525	366	566	161	104	104	676	26.9
$3,000 to $3,999	1 747	-	-	-	-	693	312	314	371	56	-	270	15.5
$4,000 to $4,999	2 226	-	-	-	-	-	745	734	318	268	161	100	4.5
$5,000 to $5,999	2 708	-	-	-	-	-	-	1 673	569	467	-	210	7.8
$6,000 to $6,999	3 046	-	-	-	-	-	-	1 250	368	995	432	-	.0
$7,000 to $7,999	2 904	-	-	-	-	-	-	677	850	912	465	-	.0
$8,000 to $8,999	2 895	-	-	-	-	-	-	-	1 656	693	547	-	.0
$9,000 to $9,999	1 045	-	-	-	-	-	-	-	470	417	158	-	.0
$10,000 to $11,999	1 113	-	-	-	-	-	-	-	-	841	272	-	.0
$12,000 to $14,999	922	-	-	-	-	-	-	-	-	484	438	-	.0
$15,000 or more	169	-	-	-	-	-	-	-	-	-	169	-	.0
Median income ..... dollars	2616	250	368	367	401	1003	1968	4747	6701	7450	8095	352	NA

Table 51. Total Family Income by Wage and Salary Earnings of Family Head, and by Year-Round Full-Time Workers and Part-Year and Part-Time Workers: All Races—Continued

[Limited to heads 16 to 64 years, not in school]

Wage and Salary Earnings of Family Heads	Total family heads	Total family income										Family income below the poverty level	Percent below the poverty level
		Less than $500	$500 to $999	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $7,499	$7,500 to $9,999	$10,000 to $14,999	$15,000 or more		
PART-YEAR AND PART-TIME WORKERS—Continued													
Male heads, total	25 403	617	262	865	1 444	1 769	1 550	5 881	5 075	5 295	2 644	4 158	16.5
Less than $500	5 185	617	115	534	700	645	487	1 022	479	372	215	2 339	45.1
$500 to $999	619	-	147	59	163	53	-	102	94	-	-	369	59.6
$1,000 to $1,999	1 788	-	-	272	258	434	167	384	162	110	-	749	41.9
$2,000 to $2,999	1 312	-	-	-	322	268	260	301	108	53	-	415	31.7
$3,000 to $3,999	1 157	-	-	-	-	369	208	259	264	56	-	164	14.2
$4,000 to $4,999	1 589	-	-	-	-	-	429	625	318	109	108	-	.0
$5,000 to $5,999	2 448	-	-	-	-	-	-	1 518	463	467	-	162	6.6
$6,000 to $6,999	2 732	-	-	-	-	-	-	1 097	368	942	324	-	.0
$7,000 to $7,999	2 640	-	-	-	-	-	-	572	744	859	465	-	.0
$8,000 to $8,999	2 844	-	-	-	-	-	-	-	1 604	693	547	-	.0
$9,000 to $9,999	992	-	-	-	-	-	-	-	470	364	158	-	.0
$10,000 to $11,999	1 058	-	-	-	-	-	-	-	-	786	272	-	.0
$12,000 to $14,999	871	-	-	-	-	-	-	-	-	484	387	-	.0
$15,000 or more	169	-	-	-	-	-	-	-	-	-	169	-	.0
Median income ..... dollars	5429	250	554	405	568	1429	2468	5162	7377	7627	8384	448	NA
Female heads, total	14 080	1 564	520	1 752	2 584	2 556	1 320	1 690	1 095	579	419	8 096	57.5
Less than $500	7 800	1 564	416	1 248	1 807	1 308	258	582	411	104	102	6 396	82.0
$500 to $999	1 254	-	104	255	163	153	317	105	155	-	-	631	50.3
$1,000 to $1,999	1 546	-	-	249	248	514	218	160	106	51	-	554	35.8
$2,000 to $2,999	1 203	-	-	-	367	257	106	265	53	51	104	261	21.7
$3,000 to $3,999	590	-	-	-	-	323	104	55	107	-	-	106	17.9
$4,000 to $4,999	638	-	-	-	-	-	316	110	-	159	53	100	15.7
$5,000 to $5,999	260	-	-	-	-	-	-	154	106	-	-	48	18.6
$6,000 to $6,999	314	-	-	-	-	-	-	153	-	53	108	-	.0
$7,000 to $7,999	264	-	-	-	-	-	-	106	106	53	-	-	.0
$8,000 to $8,999	51	-	-	-	-	-	-	-	51	-	-	-	.0
$9,000 to $9,999	53	-	-	-	-	-	-	-	-	53	-	-	.0
$10,000 to $11,999	55	-	-	-	-	-	-	-	-	55	-	-	.0
$12,000 to $14,999	51	-	-	-	-	-	-	-	-	-	51	-	.0
$15,000 or more	-	-	-	-	-	-	-	-	-	-	-	-	.0
Median income ..... dollars	451	250	313	351	357	488	1386	1986	939	4522	4052	316	NA

7585

Table 5la. Total Family Income by Wage and Salary Earnings of Family Head and by Year-Round Full-Time Workers and Part-Year and Part-Time Workers: White

(Limited to heads 16 to 64 years, not in school)

Wage and Salary Earnings of Family Heads	Total family heads	Total family income									Family income below the poverty level	Percent below the poverty level
		Less than $500	$500 to $999	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $7,499	$7,500 to $9,999	$10,000 to $14,999	$15,000 or more	
YEAR-ROUND FULL-TIME WORKERS												
Family heads, total	8 106	49	-	-	280	169	286	1 423	2 254	2 124	1 521	330	4.1
Less then $500	49	49	-	-	-	-	-	-	-	-	-	49	100.0
$500 to $999	55	-	-	-	-	-	-	-	-	55	-	-	.0
$1,000 to $1,999	59	-	-	-	-	-	59	-	-	-	-	-	.0
$2,000 to $2,999	337	-	-	-	280	56	-	-	-	-	-	169	50.1
$3,000 to $3,999	341	-	-	-	-	112	59	115	-	-	55	56	16.5
$4,000 to $4,999	225	-	-	-	-	-	169	-	56	-	-	-	.0
$5,000 to $5,999	498	-	-	-	-	-	-	280	161	-	57	56	11.3
$6,000 to $6,999	866	-	-	-	-	-	-	368	104	225	169	-	.0
$7,000 to $7,999	1 450	-	-	-	-	-	-	660	229	338	223	-	.0
$8,000 to $8,999	1 412	-	-	-	-	-	-	-	1 083	217	112	-	.0
$9,000 to $9,999	902	-	-	-	-	-	-	-	620	224	57	-	.0
$10,000 to $11,999	1 297	-	-	-	-	-	-	-	-	900	397	-	.0
$12,000 to $14,999	388	-	-	-	-	-	-	-	-	163	224	-	.0
$15,000 or more	227	-	-	-	-	-	-	-	-	-	227	-	.0
Median income ..... dollars..	8122	250	0	0	2499	3248	4152	6860	8532	10003	10440	2686	NA
Male heads, total	7 373	49	-	-	168	56	230	1 366	1 971	2 011	1 521	218	3.0
Less then $500	49	49	-	-	-	-	-	-	-	-	-	49	100.0
$500 to $999	-	-	-	-	-	-	-	-	-	-	-	-	.0
$1,000 to $1,999	59	-	-	-	-	-	59	-	-	-	-	-	.0
$2,000 to $2,999	168	-	-	-	168	-	-	-	-	-	-	56	33.5
$3,000 to $3,999	285	-	-	-	-	56	59	115	-	-	55	56	19.7
$4,000 to $4,999	113	-	-	-	-	-	113	-	-	-	-	-	.0
$5,000 to $5,999	442	-	-	-	-	-	-	280	105	-	57	56	12.7
$6,000 to $6,999	866	-	-	-	-	-	-	368	104	225	169	-	.0
$7,000 to $7,999	1 336	-	-	-	-	-	-	604	229	281	223	-	.0
$8,000 to $8,999	1 299	-	-	-	-	-	-	-	970	217	112	-	.0
$9,000 to $9,999	845	-	-	-	-	-	-	-	564	224	57	-	.0
$10,000 to $11,999	1 297	-	-	-	-	-	-	-	-	900	397	-	.0
$12,000 to $14,999	388	-	-	-	-	-	-	-	-	163	224	-	.0
$15,000 or more	227	-	-	-	-	-	-	-	-	-	227	-	.0
Median income ..... dollars..	8284	250	0	0	2500	3500	3959	6783	8565	10128	10440	3060	NA
Female heads, total	733	-	-	-	113	113	56	56	283	113	-	113	15.3
Less then $500	-	-	-	-	-	-	-	-	-	-	-	-	.0
$500 to $999	55	-	-	-	-	-	-	-	-	55	-	-	.0
$1,000 to $1,999	-	-	-	-	-	-	-	-	-	-	-	-	.0
$2,000 to $2,999	169	-	-	-	113	56	-	-	-	-	-	113	66.6
$3,000 to $3,999	56	-	-	-	-	56	-	-	-	-	-	-	.0
$4,000 to $4,999	113	-	-	-	-	-	56	-	56	-	-	-	.0
$5,000 to $5,999	56	-	-	-	-	-	-	-	56	-	-	-	.0
$6,000 to $6,939	-	-	-	-	-	-	-	-	-	-	-	-	.0
$7,000 to $7,999	114	-	-	-	-	-	-	56	-	57	-	-	.0
$8,000 to $8,999	114	-	-	-	-	-	-	-	114	-	-	-	.0
$9,000 to $9,999	56	-	-	-	-	-	-	-	56	-	-	-	.0
$10,000 to $11,999	-	-	-	-	-	-	-	-	-	-	-	-	.0
$12,000 to $14,999	-	-	-	-	-	-	-	-	-	-	-	-	.0
$15,000 or more	-	-	-	-	-	-	-	-	-	-	-	-	.0
Median income ..... dollars..	4764	0	0	0	2499	2997	4500	7500	8251	7016	0	2499	NA
PART-YEAR AND PART-TIME WORKERS													
Family heads, total	8 433	374	356	449	488	605	1 083	1 659	1 208	1 318	893	2 146	25.4
Less then $500	1 850	374	105	280	211	161	224	218	164	114	-	1 130	61.1
$500 to $999	477	-	251	-	115	-	111	-	-	-	-	422	88.4
$1,000 to $1,999	789	-	-	169	-	113	226	226	56	-	-	225	28.5
$2,000 to $2,999	585	-	-	-	163	163	154	48	56	-	-	154	26.3
$3,000 to $3,999	603	-	-	-	-	169	208	113	56	56	-	111	18.5
$4,000 to $4,999	376	-	-	-	-	-	160	104	-	56	55	-	.0
$5,000 to $5,999	892	-	-	-	-	-	-	635	105	153	-	104	11.7
$6,000 to $6,999	481	-	-	-	-	-	-	258	56	56	111	-	.0
$7,000 to $7,999	449	-	-	-	-	-	-	56	113	168	111	-	.0
$8,000 to $8,999	833	-	-	-	-	-	-	-	496	224	113	-	.0
$9,000 to $9,999	216	-	-	-	-	-	-	-	105	56	55	-	.0
$10,000 to $11,999	319	-	-	-	-	-	-	-	-	208	111	-	.0
$12,000 to $14,999	506	-	-	-	-	-	-	-	-	227	279	-	.0
$15,000 or more	57	-	-	-	-	-	-	-	-	-	57	-	.0
Median income ..... dollars..	3854	250	645	400	646	2181	1915	5188	7970	8249	10007	474	NA

7586

Table 51a. Total Family Income by Wage and Salary Earnings of Family Head and by Year-Round Full-Time Workers and Part-Year and Part-Time Workers: White—Continued

(Limited to heads 16 to 64 years, not in school)

Wage and Salary Earnings of Family Heads	Total family heads	Total family income										Family income below the poverty level	Percent below the poverty level
		Less than $500	$500 to $999	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $7,499	$7,500 to $9,999	$10,000 to $14,999	$15,000 or more		
PART-YEAR AND PART-TIME WORKERS—Continued													
Male heads, total	7 131	101	203	279	278	493	860	1 554	1 208	1 318	838	1 292	18.1
Less than $500	1 206	101	56	110	114	161	224	162	164	114	-	542	44.9
$500 to $999	204	-	147	-	57	-	-	-	-	-	-	204	100.0
$1,000 to $1,999	620	-	-	169	-	56	114	226	56	-	-	225	36.2
$2,000 to $2,999	529	-	-	-	107	163	154	48	56	-	-	154	29.1
$3,000 to $3,999	547	-	-	-	-	113	208	113	56	56	-	111	20.4
$4,000 to $4,999	376	-	-	-	-	-	160	104	-	56	55	-	.0
$5,000 to $5,999	844	-	-	-	-	-	-	587	105	153	-	56	6.6
$6,000 to $6,999	425	-	-	-	-	-	-	258	56	56	55	-	.0
$7,000 to $7,999	449	-	-	-	-	-	-	56	113	168	111	-	.0
$8,000 to $8,999	833	-	-	-	-	-	-	-	496	224	113	-	.0
$9,000 to $9,999	216	-	-	-	-	-	-	-	105	56	55	-	.0
$10,000 to $11,999	319	-	-	-	-	-	-	-	-	208	111	-	.0
$12,000 to $14,999	506	-	-	-	-	-	-	-	-	227	279	-	.0
$15,000 or more	57	-	-	-	-	-	-	-	-	-	57	-	.0
Median income ..... dollars..	5098	250	654	1172	717	2181	2599	5210	7970	8249	10507	755	NA
Female heads, total	1 302	273	153	170	211	113	223	104	-	-	55	854	65.6
Less than $500	644	273	48	170	97	-	-	56	-	-	-	588	91.3
$500 to $999	273	-	104	-	58	-	111	-	-	-	-	217	79.7
$1,000 to $1,999	168	-	-	-	-	56	112	-	-	-	-	-	.0
$2,000 to $2,999	56	-	-	-	56	-	-	-	-	-	-	-	.0
$3,000 to $3,999	56	-	-	-	-	56	-	-	-	-	-	-	.0
$4,000 to $4,999	-	-	-	-	-	-	-	-	-	-	-	-	.0
$5,000 to $5,999	48	-	-	-	-	-	-	48	-	-	-	48	100.0
$6,000 to $6,999	55	-	-	-	-	-	-	-	-	-	55	-	.0
$7,000 to $7,999	-	-	-	-	-	-	-	-	-	-	-	-	.0
$8,000 to $8,999	-	-	-	-	-	-	-	-	-	-	-	-	.0
$9,000 to $9,999	-	-	-	-	-	-	-	-	-	-	-	-	.0
$10,000 to $11,999	-	-	-	-	-	-	-	-	-	-	-	-	.0
$12,000 to $14,999	-	-	-	-	-	-	-	-	-	-	-	-	.0
$15,000 or more	-	-	-	-	-	-	-	-	-	-	-	-	.0
Median income ..... dollars..	512	250	634	250	575	3000	1006	465	0	0	6500	363	NA

Table 51b. Total Family Income by Wage and Salary Earnings of Family Head and by Year-Round Full-Time Workers and Part-Year and Part-Time Workers: Negro

(Limited to heads 16 to 64 years, not in school)

Wage and Salary Earnings of Family Heads	Total family heads	Total family income										Family income below the poverty level	Percent below the poverty level
		Less than $500	$500 to $999	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $7,499	$7,500 to $9,999	$10,000 to $14,999	$15,000 or more		
YEAR-ROUND FULL-TIME WORKERS													
Family heads, total	38 237	323	162	248	263	582	1 436	6 538	9 550	11 579	7 555	1 571	4.1
Less then $500	900	323	109	51	-	51	53	102	104	106	-	588	65.3
$500 to $999	104	-	53	51	-	-	-	-	-	-	-	104	100.0
$1,000 to $1,999	566	-	-	145	106	109	56	47	-	102	-	360	63.6
$2,000 to $2,999	679	-	-	-	157	53	111	53	151	53	100	104	15.3
$3,000 to $3,999	1 728	-	-	-	-	369	239	304	156	257	102	104	6.0
$4,000 to $4,999	2 029	-	-	-	-	-	676	734	359	157	102	153	7.5
$5,000 to $5,999	3 267	-	-	-	-	-	-	1 706	620	783	157	104	3.2
$6,000 to $6,999	4 538	-	-	-	-	-	-	2 045	583	1 478	433	53	1.2
$7,000 to $7,999	7 405	-	-	-	-	-	-	1 547	3 109	2 173	576	-	.0
$8,000 to $8,999	6 096	-	-	-	-	-	-	-	3 093	1 626	1 378	-	.0
$9,000 to $9,999	4 065	-	-	-	-	-	-	-	1 374	1 478	1 212	-	.0
$10,000 to $11,999	4 283	-	-	-	-	-	-	-	-	2 477	1 806	-	.0
$12,000 to $14,999	1 892	-	-	-	-	-	-	-	-	888	1 003	-	.0
$15,000 or more	685	-	-	-	-	-	-	-	-	-	685	-	.0
Median income ..... dollars..	7716	250	371	1147	2163	3210	3922	6157	7900	8418	9766	1258	NA
Male heads, total	32 462	215	162	145	210	215	597	4 367	8 866	10 593	7 091	1 152	3.5
Less then $500	637	215	109	-	-	-	53	102	104	53	-	378	59.3
$500 to $999	53	-	53	-	-	-	-	-	-	-	-	53	100.0
$1,000 to $1,999	411	-	-	145	53	109	56	47	-	-	-	307	74.8
$2,000 to $2,999	422	-	-	-	157	53	59	53	100	-	-	104	24.7
$3,000 to $3,999	475	-	-	-	-	53	223	47	102	49	-	53	11.1
$4,000 to $4,999	883	-	-	-	-	-	206	212	308	156	51	153	17.3
$5,000 to $5,999	2 304	-	-	-	-	-	-	1 006	620	520	157	51	2.2
$6,000 to $6,999	3 743	-	-	-	-	-	-	1 513	371	1 478	381	53	1.4
$7,000 to $7,999	6 981	-	-	-	-	-	-	1 386	3 003	2 015	576	-	.0
$8,000 to $8,999	5 992	-	-	-	-	-	-	-	2 989	1 626	1 378	-	.0
$9,000 to $9,999	3 906	-	-	-	-	-	-	-	1 268	1 478	1 159	-	.0
$10,000 to $11,999	4 232	-	-	-	-	-	-	-	-	2 426	1 806	-	.0
$12,000 to $14,999	1 845	-	-	-	-	-	-	-	-	841	1 003	-	.0
$15,000 or more	579	-	-	-	-	-	-	-	-	-	579	-	.0
Median income ..... dollars..	8053	250	371	1500	2331	1985	3585	6472	7941	8661	9864	1473	NA
Female heads, total	5 775	108	-	102	53	367	839	2 171	684	986	464	419	7.2
Less then $500	263	108	-	51	-	51	-	-	-	53	-	210	79.9
$500 to $999	51	-	-	51	-	-	-	-	-	-	-	51	100.0
$1,000 to $1,999	155	-	-	-	53	-	-	-	-	102	-	53	34.1
$2,000 to $2,999	257	-	-	-	-	-	53	-	51	53	100	-	.0
$3,000 to $3,999	1 253	-	-	-	-	316	316	257	53	208	102	51	4.1
$4,000 to $4,999	1 146	-	-	-	-	-	470	522	51	51	51	-	.0
$5,000 to $5,999	963	-	-	-	-	-	-	699	-	263	-	53	5.5
$6,000 to $6,999	795	-	-	-	-	-	-	532	212	-	51	-	.0
$7,000 to $7,999	424	-	-	-	-	-	-	161	106	157	-	-	.0
$8,000 to $8,999	104	-	-	-	-	-	-	-	104	-	-	-	.0
$9,000 to $9,999	159	-	-	-	-	-	-	-	106	-	53	-	.0
$10,000 to $11,999	51	-	-	-	-	-	-	-	-	51	-	-	.0
$12,000 to $14,999	47	-	-	-	-	-	-	-	-	47	-	-	.0
$15,000 or more	106	-	-	-	-	-	-	-	-	-	106	-	.0
Median income ..... dollars..	4792	250	0	500	1499	3418	4107	5438	6878	5097	4574	497	NA
PART-YEAR AND PART-TIME WORKERS													
Family heads, total	30 494	1 807	426	2 168	3 484	3 666	1 787	5 807	4 849	4 500	2 000	10 092	33.1
Less then $500	10 965	1 807	426	1 502	2 240	1 792	521	1 329	669	362	318	7 549	68.8
$500 to $999	1 342	-	-	314	212	153	207	207	250	-	-	578	43.1
$1,000 to $1,999	2 545	-	-	353	506	835	159	319	212	161	-	1 078	42.4
$2,000 to $2,999	1 930	-	-	-	526	362	212	518	104	104	104	522	27.1
$3,000 to $3,999	1 144	-	-	-	-	524	104	201	315	-	-	159	13.9
$4,000 to $4,999	1 850	-	-	-	-	-	585	630	318	212	106	100	5.4
$5,000 to $5,999	1 768	-	-	-	-	-	-	989	465	314	-	106	6.0
$6,000 to $6,999	2 565	-	-	-	-	-	-	993	312	939	321	-	.0
$7,000 to $7,999	2 398	-	-	-	-	-	-	621	736	688	353	-	.0
$8,000 to $8,999	1 892	-	-	-	-	-	-	-	1 102	469	321	-	.0
$9,000 to $9,999	829	-	-	-	-	-	-	-	365	361	102	-	.0
$10,000 to $11,999	794	-	-	-	-	-	-	-	-	633	161	-	.0
$12,000 to $14,999	417	-	-	-	-	-	-	-	-	257	159	-	.0
$15,000 or more	54	-	-	-	-	-	-	-	-	-	54	-	.0
Median income ..... dollars..	2204	250	250	361	389	633	2033	4523	6293	7230	7427	334	NA

Table 5lb. Total Family Income by Wage and Salary Earnings of Family Head and by Year-Round Full-Time Workers and Part-Year and Part-Time Workers: Negro–Continued

[Limited to heads 16 to 64 years, not in school]

Wage and Salary Earnings of Family Heads	Total family heads	Total family income										Family income below the poverty level	Percent below the poverty level
		Less than $500	$500 to $999	$1,000 to $1,999	$2,000 to $2,999	$3,000 to $3,999	$4,000 to $4,999	$5,000 to $7,499	$7,500 to $9,999	$10,000 to $14,999	$15,000 or more		
PART-YEAR AND PART-TIME WORKERS–Continued													
Male heads, total	17 772	516	59	586	1 166	1 223	690	4 221	3 753	3 921	1 637	2 906	16.3
Less than $500	3 865	516	59	424	586	484	262	803	258	258	215	1 797	46.5
$500 to $999	361	-	-	59	106	-	-	102	94	-	-	165	45.6
$1,000 to $1,999	1 167	-	-	104	258	378	53	159	106	110	-	524	44.9
$2,000 to $2,999	783	-	-	-	216	104	106	253	51	53	-	261	33.4
$3,000 to $3,999	610	-	-	-	-	257	-	146	208	-	-	53	8.7
$4,000 to $4,999	1 213	-	-	-	-	-	269	520	318	53	53	-	.0
$5,000 to $5,999	1 556	-	-	-	-	-	-	883	359	314	-	106	6.8
$6,000 to $6,999	2 306	-	-	-	-	-	-	840	312	886	269	-	.0
$7,000 to $7,999	2 134	-	-	-	-	-	-	515	631	635	353	-	.0
$8,000 to $8,999	1 841	-	-	-	-	-	-	-	1 051	469	321	-	.0
$9,000 to $9,999	776	-	-	-	-	-	-	-	365	308	102	-	.0
$10,000 to $11,999	739	-	-	-	-	-	-	-	-	578	161	-	.0
$12,000 to $14,999	366	-	-	-	-	-	-	-	-	257	108	-	.0
$15,000 or more	54	-	-	-	-	-	-	-	-	-	54	-	.0
Median income ..... dollars..	5569	250	250	345	497	1337	2278	5144	7269	7452	7797	404	NA
Female heads, total	12 722	1 291	368	1 582	2 318	2 443	1 097	1 586	1 095	579	364	7 187	56.5
Less than $500	7 100	1 291	368	1 078	1 614	1 308	258	526	411	104	102	5 752	81.0
$500 to $999	981	-	-	255	106	153	207	105	155	-	-	414	42.2
$1,000 to $1,999	1 378	-	-	249	248	458	106	160	106	51	-	554	40.2
$2,000 to $2,999	1 147	-	-	-	310	257	106	265	53	51	104	261	22.7
$3,000 to $3,999	533	-	-	-	-	267	104	55	107	-	-	106	19.8
$4,000 to $4,999	638	-	-	-	-	-	316	110	-	159	53	100	15.7
$5,000 to $5,999	212	-	-	-	-	-	-	106	106	-	-	-	.0
$6,000 to $6,999	259	-	-	-	-	-	-	153	-	53	53	-	.0
$7,000 to $7,999	264	-	-	-	-	-	-	106	106	53	-	-	.0
$8,000 to $8,999	51	-	-	-	-	-	-	-	51	-	-	-	.0
$9,000 to $9,999	53	-	-	-	-	-	-	-	-	53	-	-	.0
$10,000 to $11,999	55	-	-	-	-	-	-	-	-	55	-	-	.0
$12,000 to $14,999	51	-	-	-	-	-	-	-	-	-	51	-	.0
$15,000 or more	-	-	-	-	-	-	-	-	-	-	-	-	.0
Median income ..... dollars..	448	250	250	367	350	467	1788	2006	939	4522	2761	312	NA

Table 52. Residential Mobility of Family Head, by Total Family Income: All Races

Family Income	Total family heads	Family heads not born in this city								Family heads born in this city	Not available
			Heads not born in United States	Heads born in United States					Lived in this city			
		Total		Total	Large city or suburb	Medium city, small city, or town	Farm or rural area	Born in South: City, suburb, or town	Born in South: Farm or rural area	5 years or less	More than 5 years		
Families with male head, total	85 425	68 741	4 963	63 777	10 333	32 557	20 888	36 169	20 028	13 899	71 527	15 297	1 387
Less than $1,000	3 616	2 666	212	2 454	434	1 266	754	1 592	754	693	2 923	738	212
$1,000 to $1,999	2 971	2 491	497	1 994	221	894	879	838	823	503	2 467	364	116
$2,000 to $2,999	3 898	3 511	429	3 082	747	1 113	1 222	1 263	1 169	615	3 282	387	-
$3,000 to $3,999	4 490	3 723	529	3 194	544	1 530	1 119	1 535	1 119	594	3 896	662	106
$4,000 to $4,999	4 058	3 364	433	2 931	580	1 393	958	1 532	958	649	3 409	473	22.
$5,000 to $5,999	4 793	4 042	307	3 735	522	2 104	1 109	2 351	1 109	988	3 805	700	51
$6,000 to $6,999	5 300	4 208	-	4 208	409	2 122	1 677	2 212	1 353	972	4 329	1 039	53
$7,000 to $7,999	8 405	6 434	280	6 153	1 359	2 922	1 873	3 908	1 826	1 877	6 528	1 771	200
$8,000 to $8,999	7 840	6 000	224	5 776	999	2 793	1 984	3 173	1 934	1 342	6 498	1 787	53
$9,000 to $9,999	6 868	5 421	212	5 209	314	3 408	1 487	3 181	1 487	848	6 020	1 231	216
$10,000 to $11,999	10 930	8 359	622	7 737	1 362	3 782	2 592	4 331	2 430	1 829	9 101	2 518	53
$12,000 to $14,999	9 641	8 517	445	8 071	1 151	4 291	2 630	4 545	2 518	1 506	8 135	1 124	-
$15,000 or more	12 615	10 006	773	9 233	1 691	4 937	2 605	5 708	2 549	1 482	11 133	2 503	106
Median income ..... dollars..	8691	8673	7364	8730	8350	9056	8443	8915	8480	8101	8812	8906	6229
Number below the poverty level	11 315	9 238	873	8 364	1 677	3 783	2 904	4 318	2 792	2 244	9 072	1 645	432
Percent below the poverty level	13.2	13.4	17.6	13.1	16.2	11.6	13.9	11.9	13.9	16.1	12.7	10.8	31.2
Families with male head with children under 18, total	43 558	34 400	1 693	32 707	5 303	17 256	10 147	19 935	9 824	8 717	34 841	8 579	579
Less than $1,000	1 045	743	-	743	270	364	109	634	109	211	834	253	49
$1,000 to $1,999	894	637	112	524	-	370	155	370	98	319	575	200	57
$2,000 to $2,999	1 011	899	-	899	209	417	272	574	272	200	811	112	-
$3,000 to $3,999	1 232	1 010	56	954	221	412	321	468	321	326	906	169	53
$4,000 to $4,999	1 396	1 196	105	1 091	152	678	261	775	261	363	1 033	150	51
$5,000 to $5,999	2 240	1 928	307	1 622	256	1 100	266	1 250	266	765	1 475	261	51
$6,000 to $6,999	2 914	2 289	-	2 289	253	1 216	820	1 369	764	604	2 310	572	53
$7,000 to $7,999	4 741	3 655	112	3 543	876	1 749	918	2 463	871	1 273	3 468	1 032	53
$8,000 to $8,999	4 596	3 294	-	3 294	443	1 661	1 189	1 769	1 189	1 012	3 583	1 249	53
$9,000 to $9,999	3 951	3 220	160	3 060	154	1 960	946	1 902	946	576	3 375	626	106
$10,000 to $11,999	6 602	4 800	393	4 407	784	1 940	1 684	2 453	1 575	1 305	5 296	1 749	53
$12,000 to $14,999	5 211	4 628	112	4 515	674	2 537	1 304	2 581	1 249	1 088	4 122	583	-
$15,000 or more	7 726	6 103	336	5 766	1 012	2 852	1 902	3 328	1 902	674	7 052	1 623	-
Median income ..... dollars..	9458	9481	9967	9456	8936	9337	9806	9155	9803	9318	9741	9588	6986
Number below the poverty level	5 184	4 085	168	3 916	809	1 984	1 124	2 415	1 011	1 369	3 815	888	211
Percent below the poverty level	11.9	11.9	9.9	12.0	15.3	11.5	11.1	12.1	10.3	15.7	10.9	10.4	36.3
Families with female head, total	34 421	24 893	1 457	23 436	5 171	12 307	5 958	14 764	5 634	5 338	29 083	8 827	702
Less than $1,000	5 725	3 908	166	3 742	856	2 043	843	2 281	732	1 416	4 309	1 605	212
$1,000 to $1,999	3 318	2 095	52	2 043	523	989	531	1 152	531	515	2 803	1 168	55
$2,000 to $2,999	5 056	3 660	161	3 500	520	2 034	945	2 189	945	1 151	3 904	1 287	108
$3,000 to $3,999	5 131	3 739	216	3 524	894	1 941	688	2 523	688	462	4 668	1 336	56
$4,000 to $4,999	3 172	2 269	-	2 269	374	1 214	681	1 381	573	471	2 701	903	-
$5,000 to $5,999	2 012	1 425	53	1 372	429	624	320	947	320	423	1 589	587	-
$6,000 to $6,999	1 847	1 434	52	1 381	372	634	375	795	322	319	1 528	361	53
$7,000 to $7,999	1 636	1 481	165	1 316	365	583	368	843	368	155	1 482	155	-
$8,000 to $8,999	1 433	1 159	55	1 104	213	576	315	627	315	162	1 271	217	56
$9,000 to $9,999	1 266	793	158	635	106	370	159	314	159	53	1 214	365	109
$10,000 to $11,999	1 051	730	52	678	104	415	159	519	159	-	1 051	321	-
$12,000 to $14,999	1 211	949	57	892	311	371	210	630	159	110	1 101	210	53
$15,000 or more	1 562	1 251	270	981	104	513	364	564	364	100	1 462	312	-
Median income ..... dollars..	3667	3806	7175	3756	3824	3600	4109	3729	3994	2728	3800	3323	2779
Number below the poverty level	17 587	12 327	378	1 949	2 692	6 251	3 006	7 396	2 787	3 801	13 787	4 885	375
Percent below the poverty level	51.1	49.5	25.9	51.0	52.1	50.8	50.5	50.1	49.5	71.2	47.4	55.3	53.4
Families with female head with children under 18, total	25 266	17 445	657	16 788	4 002	8 637	4 149	10 881	3 876	4 291	20 976	7 282	540
Less than $1,000	4 562	2 954	166	2 788	643	1 410	735	1 691	624	997	3 565	1 396	212
$1,000 to $1,999	2 399	1 233	-	1 233	360	554	318	611	318	464	1 935	1 112	55
$2,000 to $2,999	4 101	2 814	56	2 758	473	1 552	733	1 712	733	1 051	3 050	1 179	108
$3,000 to $3,999	4 322	2 987	108	2 879	841	1 565	473	2 147	473	408	3 914	1 279	56
$4,000 to $4,999	2 478	1 734	-	1 734	214	1 050	471	1 165	362	471	2 007	744	-
$5,000 to $5,999	1 798	1 266	53	1 213	376	518	320	788	320	423	1 375	532	-
$6,000 to $6,999	1 098	845	-	845	318	369	159	474	106	266	832	253	-
$7,000 to $7,999	1 008	955	113	842	258	265	319	523	319	53	955	53	-
$8,000 to $8,999	841	624	55	568	104	311	154	362	154	105	735	217	-
$9,000 to $9,999	783	418	51	367	53	210	104	263	104	53	730	256	109
$10,000 to $11,999	472	363	-	363	53	259	51	312	51	-	472	108	-
$12,000 to $14,999	622	575	-	575	206	263	106	469	106	-	622	47	-
$15,000 or more	783	678	55	623	104	312	206	363	206	-	783	106	-
Median income ..... dollars..	3405	3620	3987	3606	3655	3529	3772	3688	3660	2700	3528	3005	2028
Number below the poverty level	14 981	9 987	273	9 714	2 369	4 917	2 528	6 004	2 308	3 229	11 752	4 620	375
Percent below the poverty level	59.3	57.3	41.6	57.9	56.7	56.9	60.9	55.2	59.5	75.3	56.0	63.4	69.4

7590

Table 52a. Residential Mobility of Family Head, by Total Family Income: White

Family Income	Total family heads	Family heads not born in this city									Family heads born in this city	Not available
				Heads born in United States					Lived in this city			
			Heads not born in United States			Medium city, small city, or town	Born in South					
		Total		Total	Large city or suburb		Farm or rural area	City, suburb, or town	Farm or rural area	5 years or less	More than 5 years	
Families with male head, total	20 341	13 874	3 756	10 119	1 841	5 563	2 714	3 837	2 168	3 807	16 734	6 128	339
Less than $1,000	851	477	158	319	56	263	-	210	-	213	638	318	55
$1,000 to $1,999	726	610	278	331	56	219	56	53	-	228	497	-	116
$2,000 to $2,999	1 358	1 142	429	713	217	329	166	51	114	264	1 094	216	-
$3,000 to $3,999	1 562	1 110	423	687	164	415	108	200	108	210	1 352	452	-
$4,000 to $4,999	1 615	1 189	433	756	158	486	112	313	112	275	1 340	367	59
$5,000 to $5,999	1 469	1 026	202	824	161	607	56	654	56	315	1 104	443	-
$6,000 to $6,999	1 166	858	-	858	105	324	429	268	265	375	791	308	-
$7,000 to $7,999	1 586	940	224	716	226	153	338	266	338	161	1 425	537	109
$8,000 to $8,999	1 542	1 036	113	923	160	606	157	550	108	268	1 274	506	-
$9,000 to $9,999	1 585	986	212	774	56	549	169	329	169	323	1 263	598	-
$10,000 to $11,999	2 560	1 627	565	1 062	165	618	279	336	223	337	2 224	933	-
$12,000 to $14,999	1 696	1 259	278	982	204	495	283	328	171	428	1 269	437	-
$15,000 or more	2 625	1 614	440	1 174	113	499	561	280	505	162	2 464	1 011	-
Median income ....dollars..	7916	7559	5775	7791	7012	7908	8584	7635	8847	6664	8120	8891	1983
Number below the poverty level	3 097	2 282	601	1 681	498	902	282	572	170	714	2 383	643	171
Percent below the poverty level	15.2	16.4	16.0	16.6	27.0	16.2	10.4	14.9	7.8	19.8	14.2	10.5	50.6
Families with male head with children under 18, total	8 655	5 944	1 363	4 580	739	2 454	1 387	2 281	1 163	1 968	6 687	2 654	57
Less than $1,000	48	48	-	48	-	48	-	48	-	-	48	-	-
$1,000 to $1,999	279	221	112	109	-	53	56	53	-	170	109	-	57
$2,000 to $2,999	169	114	-	114	-	-	114	-	114	-	169	55	-
$3,000 to $3,999	433	320	56	264	111	97	56	97	56	161	272	112	-
$4,000 to $4,999	457	360	105	256	48	207	-	200	-	159	298	97	-
$5,000 to $5,999	790	630	202	427	104	323	-	427	-	251	540	161	-
$6,000 to $6,999	527	423	-	423	-	158	265	158	209	104	423	104	-
$7,000 to $7,999	970	602	112	489	169	153	168	266	168	161	809	368	-
$8,000 to $8,999	758	481	-	481	48	377	55	377	55	161	596	277	-
$9,000 to $9,999	810	489	160	330	-	274	56	217	56	104	705	320	-
$10,000 to $11,999	1 159	783	336	447	56	223	168	167	112	280	879	376	-
$12,000 to $14,999	861	695	56	639	145	383	111	215	56	313	549	166	-
$15,000 or more	1 395	776	224	552	56	159	337	55	337	104	1 291	619	-
Median income ....dollars..	8864	8526	9589	8330	7622	8498	8632	7589	8639	7867	9113	9480	1499
Number below the poverty level	1 249	976	168	807	168	358	282	358	170	386	863	216	57
Percent below the poverty level	14.4	16.4	12.3	17.6	22.7	14.6	20.3	15.7	14.6	19.6	12.9	8.1	100.0
Families with female head, total	4 847	3 983	1 070	1 904	553	1 077	274	816	56	823	4 024	1 639	225
Less than $1,000	1 240	810	56	754	274	369	111	273	-	540	700	374	56
$1,000 to $1,999	335	221	52	169	113	56	-	56	-	56	279	114	-
$2,000 to $2,999	650	430	52	377	57	264	56	211	56	57	593	220	-
$3,000 to $3,999	554	329	164	165	-	165	-	165	-	56	498	169	56
$4,000 to $4,999	388	164	-	164	52	56	55	-	-	57	331	224	-
$5,000 to $5,999	156	53	53	-	-	-	-	-	-	-	156	104	-
$6,000 to $6,999	52	52	52	-	-	-	-	-	-	-	52	-	-
$7,000 to $7,999	165	165	165	-	-	-	-	-	-	-	165	-	-
$8,000 to $8,999	281	167	55	112	56	55	-	55	-	56	224	57	56
$9,000 to $9,999	376	163	107	56	-	56	-	-	-	-	376	157	56
$10,000 to $11,999	110	52	52	-	-	-	-	-	-	-	110	57	-
$12,000 to $14,999	163	107	-	107	-	55	51	55	-	-	163	56	-
$15,000 or more	377	270	270	-	-	-	-	-	-	-	377	108	-
Median income ....dollars..	3452	3251	7663	2215	1235	2430	2957	2373	2500	825	3884	3664	8000
Number below the poverty level	2 387	1 571	160	1 412	444	745	223	597	56	653	1 734	759	56
Percent below the poverty level	49.2	52.7	14.8	74.1	80.3	69.2	81.3	73.1	100.0	79.4	43.1	46.3	25.1
Families with female head with children under 18, total	2 628	1 530	440	1 090	282	586	223	538	56	555	2 073	930	169
Less than $1,000	927	599	56	543	168	263	111	215	-	328	399	272	56
$1,000 to $1,999	113	56	-	56	56	-	-	-	-	56	57	57	-
$2,000 to $2,999	436	325	-	325	57	211	56	211	56	57	379	111	-
$3,000 to $3,999	332	164	108	56	-	56	-	56	-	56	276	112	56
$4,000 to $4,999	223	55	-	55	-	-	55	-	-	57	165	167	-
$5,000 to $5,999	156	53	53	-	-	-	-	-	-	-	156	104	-
$6,000 to $6,999	-	-	-	-	-	-	-	-	-	-	-	-	-
$7,000 to $7,999	113	113	113	-	-	-	-	-	-	-	113	-	-
$8,000 to $8,999	168	111	55	55	-	55	-	55	-	-	168	57	-
$9,000 to $9,999	104	-	-	-	-	-	-	-	-	-	104	48	56
$10,000 to $11,999	-	-	-	-	-	-	-	-	-	-	-	-	-
$12,000 to $14,999	-	-	-	-	-	-	-	-	-	-	-	-	-
$15,000 or more	55	55	55	-	-	-	-	-	-	-	55	-	-
Median income ....dollars..	2691	2425	7029	1544	836	2141	2500	2254	2500	916	3005	3213	3497
Number below the poverty level	1 800	1 142	107	1 035	282	530	223	487	56	442	1 358	601	56
Percent below the poverty level	68.5	74.7	24.4	94.9	100.0	90.6	100.0	89.7	100.0	79.6	65.5	64.7	33.5

Table 52b. Residential Mobility of Family Head, by Total Family Income: Negro

Family Income	Total family heads	Family heads not born in this city									Family heads born in this city	Not available
				Heads born in United States					Lived in this city			
							Born in South					
		Total	Heads not born in United States	Total	Large city or suburb	Medium city, small city, or town	Farm or rural area	City, suburb, or town	Farm or rural area	5 years or less	More than 5 years		
Families with male head, total	63 534	53 541	216	53 325	8 435	26 825	18 065	32 277	17 751	9 747	53 787	8 945	1 048
Less than $1,000	2 655	2 079	-	2 079	378	1 004	698	1 381	698	427	2 229	420	157
$1,000 to $1,999	2 079	1 716	53	1 663	165	676	823	785	823	275	1 804	364	-
$2,000 to $2,999	2 540	2 369	-	2 369	530	783	1 056	1 211	1 056	352	2 188	171	-
$3,000 to $3,999	2 822	2 507	53	2 454	381	1 115	959	1 335	959	331	2 491	209	106
$4,000 to $4,999	2 443	2 175	-	2 175	422	907	846	1 219	846	375	2 069	106	162
$5,000 to $5,999	3 219	2 911	-	2 911	361	1 497	1 053	1 698	1 053	518	2 701	257	51
$6,000 to $6,999	4 021	3 350	-	3 350	304	1 798	1 248	1 944	1 087	597	3 424	618	52
$7,000 to $7,999	6 763	5 438	-	5 438	1 133	2 769	1 536	3 643	1 488	1 716	5 047	1 234	91
$8,000 to $8,999	6 185	4 851	55	4 796	839	2 130	1 827	2 623	1 827	1 075	5 110	1 282	53
$9,000 to $9,999	5 283	4 435	-	4 435	258	2 859	1 318	2 852	1 318	525	4 758	633	216
$10,000 to $11,999	8 201	6 620	-	6 620	1 197	3 109	2 313	3 939	2 207	1 436	6 766	1 529	53
$12,000 to $14,999	7 776	7 088	55	7 034	947	3 739	2 347	4 217	2 347	1 022	6 754	687	-
$15,000 or more	9 546	8 003	-	8 003	1 521	4 438	2 044	5 428	2 044	1 100	8 446	1 436	106
Median income ..... dollars..	8873	8887	8032	8897	8649	9275	8461	9123	8489	8311	8992	8913	7213
Number below the poverty level	7 944	6 680	53	6 627	1 180	2 881	2 566	3 746	2 566	1 476	6 467	1 002	261
Percent below the poverty level	12.5	12.5	24.6	12.4	14.0	10.7	14.2	11.6	14.5	15.1	12.0	11.2	24.9
Families with male head with children under 18, total	34 180	27 903	-	27 903	4 508	14 690	8 705	17 598	8 604	6 532	27 648	5 755	522
Less than $1,000	941	638	-	638	270	316	53	585	53	211	729	253	49
$1,000 to $1,999	615	415	-	415	-	317	98	317	98	149	466	200	-
$2,000 to $2,999	842	785	-	785	09	417	159	574	159	200	642	57	-
$3,000 to $3,999	799	690	-	690	109	315	265	372	265	165	634	56	53
$4,000 to $4,999	940	836	-	836	104	471	261	575	261	204	735	53	51
$5,000 to $5,999	1 346	1 194	-	1 194	151	777	266	822	266	410	935	100	51
$6,000 to $6,999	2 273	1 865	-	1 865	253	1 058	555	1 211	555	499	1 774	355	53
$7,000 to $7,999	3 771	3 054	-	3 054	707	1 596	751	2 197	704	1 112	2 659	665	53
$8,000 to $8,999	3 338	2 813	-	2 813	395	1 284	1 134	1 391	1 134	851	2 987	972	53
$9,000 to $9,999	3 142	2 730	-	2 730	154	1 687	890	1 685	890	472	2 670	306	106
$10,000 to $11,999	5 275	3 905	-	3 905	728	1 662	1 516	2 231	1 463	969	4 306	1 317	53
$12,000 to $14,999	4 237	3 820	-	3 820	529	2 098	1 193	2 366	1 193	720	3 518	417	-
$15,000 or more	6 162	5 158	-	5 158	900	2 694	1 565	3 273	1 565	569	5 593	1 004	-
Median income ..... dollars..	9581	9608	0	9608	9363	9471	9911	9448	9908	8398	9876	9795	7529
Number below the poverty level	3 879	3 053	-	3 053	641	1 626	786	2 056	786	983	2 895	672	153
Percent below the poverty level	11.3	10.9	.0	10.9	14.2	11.1	9.0	11.7	9.1	15.1	10.5	11.7	29.3
Families with female head, total	29 250	21 642	161	21 481	4 618	11 179	5 684	13 897	5 578	4 402	24 849	7 132	477
Less than $1,000	4 485	3 098	110	2 988	582	1 675	732	2 008	732	876	3 609	1 232	156
$1,000 to $1,999	2 583	1 874	-	1 874	410	933	531	1 095	531	459	2 524	1 054	55
$2,000 to $2,999	4 297	3 122	-	3 122	463	1 770	889	1 978	889	1 038	3 259	1 067	108
$3,000 to $3,999	4 526	3 359	-	3 359	894	1 776	688	2 358	688	406	4 119	1 167	-
$4,000 to $4,999	2 784	2 105	-	2 105	322	1 158	626	1 381	573	414	2 370	679	-
$5,000 to $5,999	1 856	1 372	-	1 372	429	624	320	947	320	423	1 433	483	-
$6,000 to $6,999	1 795	1 381	-	1 381	372	634	375	795	322	319	1 476	361	53
$7,000 to $7,999	1 471	1 316	-	1 316	365	583	368	843	368	155	1 317	155	-
$8,000 to $8,999	1 152	992	-	992	157	521	315	572	315	105	1 047	160	-
$9,000 to $9,999	890	630	51	578	106	314	159	314	159	53	837	208	53
$10,000 to $11,999	886	678	-	678	104	415	159	519	159	-	886	208	-
$12,000 to $14,999	991	785	-	785	311	315	159	575	159	53	938	153	53
$15,000 or more	1 134	930	-	930	104	462	364	513	364	100	1 033	204	-
Median income ..... dollars..	3689	3865	733	3874	3985	3726	4123	3825	4042	2880	3787	3250	2259
Number below the poverty level	15 091	10 647	110	10 538	2 248	5 506	2 784	6 799	2 731	3 091	12 000	4 126	318
Percent below the poverty level	51.6	49.2	68.2	49.1	48.7	49.3	49.0	48.9	49.0	70.2	48.3	57.9	66.8
Families with female head with children under 18, total	22 527	15 859	161	15 498	3 720	8 051	3 926	10 342	3 820	3 679	18 848	6 297	371
Less than $1,000	3 635	2 355	110	2 245	474	1 147	624	1 476	624	668	2 966	1 124	156
$1,000 to $1,999	2 286	1 176	-	1 176	304	554	318	611	318	408	1 878	1 054	55
$2,000 to $2,999	3 608	2 433	-	2 433	416	1 341	677	1 501	677	937	2 671	1 067	108
$3,000 to $3,999	3 990	2 823	-	2 823	841	1 509	473	2 091	473	352	3 638	1 167	-
$4,000 to $4,999	2 255	1 679	-	1 679	214	1 050	415	1 165	362	414	1 842	577	-
$5,000 to $5,999	1 642	1 213	-	1 213	376	518	320	788	320	423	1 219	429	-
$6,000 to $6,999	1 098	845	-	845	318	369	159	474	106	266	832	253	-
$7,000 to $7,999	895	842	-	842	258	265	319	523	319	53	842	53	-
$8,000 to $8,999	673	513	-	513	104	255	154	307	154	105	568	160	-
$9,000 to $9,999	678	418	51	367	53	210	104	263	104	53	626	208	53
$10,000 to $11,999	416	363	-	363	53	259	51	312	51	-	416	53	-
$12,000 to $14,999	622	575	-	575	206	263	106	469	106	-	622	47	-
$15,000 or more	728	623	-	623	104	312	206	363	206	-	728	106	-
Median income ..... dollars..	3473	3732	733	3742	3823	3669	3831	3782	3719	2839	3560	2957	1545
Number below the poverty level	13 125	8 788	110	8 679	1 987	4 386	2 305	5 521	2 252	2 732	10 393	4 018	318
Percent below the poverty level	58.3	55.4	68.2	55.3	53.4	54.5	58.7	53.4	59.0	74.2	55.1	63.8	85.7

Table 53. Residential Mobility of Family Head, by Size and Composition of Family: All Races

Family Size for All Families and Families With Income Below the Poverty Level	Total family heads	Family heads not born in this city								Family heads born in this city	Not available
				Heads born in United States				Lived in this city			
							Born in South				
		Total	Heads not born in United States	Total	Large city or suburb	Medium city, small city, or town	Farm or rural area	City, suburb, or town	Farm or rural area	5 years or less	More than 5 years		
FAMILY SIZE BY FAMILY HEAD													
Male head, total	85 425	68 741	4 963	63 777	10 333	32 557	20 888	36 169	20 028	13 899	71 527	15 297	1 387
Males heading families with–													
2 persons	33 458	27 048	2 672	24 375	3 959	11 829	8 588	12 174	8 108	4 377	29 081	5 764	646
3 persons	14 932	11 839	917	10 922	1 468	6 460	2 994	7 090	2 882	2 748	12 183	2 932	161
4 persons	12 175	9 573	553	9 020	1 541	4 671	2 808	5 437	2 705	2 088	10 087	2 391	211
5 persons	9 779	8 122	259	7 863	1 466	3 935	2 462	4 701	2 462	2 132	7 647	1 657	-
6 persons	5 435	4 116	282	3 834	782	1 749	1 302	2 276	1 302	886	4 549	1 266	53
7 persons or more	9 647	8 043	280	7 763	1 116	3 913	2 734	4 492	2 569	1 668	7 978	1 287	316
Male head with children under 18, total	43 558	34 400	1 693	32 707	5 303	17 256	10 147	19 935	9 824	8 717	34 841	8 579	579
Males heading families with–													
2 persons	392	223	-	223	59	117	47	176	47	112	280	116	53
3 persons	8 825	6 430	481	5 949	602	3 889	1 457	3 929	1 401	2 067	6 757	2 342	53
4 persons	9 902	7 780	498	7 283	1 278	3 704	2 301	4 414	2 199	1 852	8 049	2 017	104
5 persons	9 358	7 808	153	7 655	1 466	3 884	2 305	4 649	2 305	2 132	7 226	1 550	-
6 persons	5 435	4 116	282	3 834	782	1 749	1 302	2 276	1 302	886	4 549	1 266	53
7 persons or more	9 647	8 043	280	7 763	1 116	3 913	2 734	4 492	2 569	1 668	7 978	1 287	316
Female head, total	34 421	24 893	1 457	23 436	5 171	12 307	5 958	14 764	5 634	5 338	29 083	8 827	702
Females heading families with–													
2 persons	12 094	8 635	809	7 826	1 572	4 226	2 027	4 822	2 027	1 656	10 438	3 237	222
3 persons	7 046	4 837	51	4 785	1 078	2 663	1 044	3 243	937	1 069	5 977	1 948	262
4 persons	5 115	3 366	326	3 040	578	1 726	737	1 838	737	840	4 275	1 642	107
5 persons	3 967	3 238	159	3 079	735	1 454	890	1 933	781	830	3 136	674	54
6 persons	2 479	1 785	111	1 673	261	994	418	1 102	418	315	2 164	694	-
7 persons or more	3 720	3 032	-	3 032	946	1 244	842	1 826	734	628	3 092	632	56
Female head with children under 18, total	25 266	17 445	657	16 788	4 002	8 637	4 149	10 881	3 876	4 291	20 976	7 282	540
Females heading families with–													
2 persons	5 211	3 046	222	2 823	811	1 484	528	2 072	528	1 010	4 200	1 999	166
3 persons	5 342	3 545	-	3 545	722	2 037	786	2 361	731	764	4 578	1 641	156
4 persons	4 702	2 952	219	2 733	527	1 523	684	1 634	684	791	3 911	1 642	107
5 persons	3 911	3 183	104	3 079	735	1 454	890	1 933	781	830	3 081	674	54
6 persons	2 428	1 734	111	1 622	261	943	418	1 051	418	315	2 113	694	-
7 persons or more	3 673	2 985	-	2 985	946	1 197	842	1 779	734	581	3 092	632	56
FAMILY SIZE BY FAMILY HEAD, FOR FAMILIES WITH INCOME BELOW THE POVERTY LEVEL													
Male head, total	11 315	9 238	873	8 364	1 677	3 783	2 904	4 318	2 792	2 244	9 072	1 645	432
Males heading families with–													
2 persons	5 493	4 512	550	3 962	817	1 699	1 446	1 752	1 446	686	4 808	814	166
3 persons	1 189	1 032	104	928	51	415	462	466	406	248	941	102	55
4 persons	1 249	980	168	812	151	413	248	511	248	353	896	268	-
5 persons	1 061	1 012	51	961	330	521	110	631	110	378	682	48	-
6 persons	581	425	-	425	109	53	262	162	262	157	424	156	-
7 persons or more	1 743	1 276	-	1 276	218	683	375	795	319	422	1 321	256	211
Male head with children under 18, total	5 184	4 085	168	3 916	809	1 984	1 124	2 415	1 011	1 369	3 815	888	211
Males heading families with–													
2 persons	57	-	-	-	-	-	-	-	-	-	57	57	-
3 persons	680	578	-	578	-	362	216	362	160	96	584	102	-
4 persons	1 113	845	168	676	151	366	160	464	160	316	797	268	-
5 persons	1 009	961	-	961	330	521	110	631	110	378	631	48	-
6 persons	581	425	-	425	109	53	262	162	262	157	424	156	-
7 persons or more	1 743	1 276	-	1 276	218	683	375	795	319	422	1 321	256	211
Female head, total	17 587	12 327	378	11 949	2 692	6 251	3 006	7 396	2 787	3 801	13 787	4 885	375
Females heading families with–													
2 persons	4 918	3 262	214	3 048	653	1 758	636	2 031	636	1 058	3 860	1 490	166
3 persons	3 067	2 103	-	2 103	613	963	528	1 281	472	760	2 308	917	47
4 persons	3 061	1 784	164	1 621	317	880	423	889	423	734	2 327	1 169	107
5 persons	2 498	2 085	-	2 085	423	1 084	578	1 303	522	621	1 878	359	54
6 persons	1 473	994	-	994	106	575	314	580	314	208	1 265	479	-
7 persons or more	2 570	2 098	-	2 098	579	991	528	1 311	420	421	2 149	472	-
Female head with children under 18, total	14 981	9 987	273	9 714	2 269	4 917	2 528	6 004	2 308	3 229	11 752	4 620	375
Females heading families with–													
2 persons	2 820	1 430	110	1 320	430	629	261	945	261	735	2 084	1 224	166
3 persons	2 711	1 747	-	1 747	414	910	424	1 077	369	560	2 151	917	47
4 persons	2 960	1 684	164	1 520	317	780	423	838	423	685	2 275	1 169	107
5 persons	2 498	2 085	-	2 085	423	1 084	578	1 303	522	621	1 878	359	54
6 persons	1 422	943	-	943	106	524	314	529	314	208	1 214	479	-
7 persons or more	2 570	2 098	-	2 098	579	991	528	1 311	420	421	2 149	472	-

Table 53a. Residential Mobility of Family Head, by Size and Composition of Family: White

Family Size for All Families and Families With Income Below the Poverty Level	Total family heads	Family heads not born in this city									Family heads born in this city	Not available
		Total	Heads not born in United States	Heads born in United States				Born in South		Lived in this city		
				Total	Large city or suburb	Medium city, small city, or town	Farm or rural area	City, suburb, or town	Farm or rural area	5 years or less	More than 5 years	
FAMILY SIZE BY FAMILY HEAD												
Male head, total	20 341	13 874	3 756	10 119	1 841	5 563	2 714	3 837	2 168	3 607	16 734	6 128	339
Males heading families with–													
2 persons	9 879	6 780	1 963	4 818	1 045	2 835	938	1 339	616	1 534	8 345	2 928	171
3 persons	3 294	2 079	587	1 492	97	949	447	780	390	611	2 683	1 159	55
4 persons	2 503	1 840	441	1 399	218	694	487	695	432	602	1 901	608	55
5 persons	2 236	1 630	259	1 370	264	600	506	585	506	642	1 594	606	–
6 persons	819	442	226	216	48	56	111	56	111	56	763	378	–
7 persons or more	1 610	1 103	280	824	169	429	225	382	113	162	1 448	449	57
Male head with children under 18, total	8 655	5 944	1 363	4 580	739	2 454	1 387	2 281	1 163	1 968	6 687	2 654	57
Males heading families with–													
2 persons	59	59	–	59	–	59	–	59	–	–	59	–	–
3 persons	1 980	1 200	320	881	97	672	112	560	56	505	1 474	779	–
4 persons	2 114	1 616	386	1 231	161	638	432	639	376	602	1 511	497	–
5 persons	2 074	1 523	153	1 370	264	600	506	585	506	642	1 432	551	–
6 persons	819	442	226	216	48	56	111	56	111	56	763	378	–
7 persons or more	1 610	1 103	280	824	169	429	225	382	113	162	1 448	449	57
Female head, total	4 847	2 983	1 079	1 904	553	1 077	274	816	56	823	4 024	1 639	225
Females heading families with–													
2 persons	2 374	1 375	539	836	392	444	–	336	–	341	2 033	887	113
3 persons	946	567	51	516	104	305	107	256	–	209	737	323	56
4 persons	710	544	269	274	–	218	56	114	56	161	549	166	–
5 persons	322	274	108	166	–	110	56	110	–	56	266	48	–
6 persons	279	111	111	–	–	–	–	–	–	–	279	168	–
7 persons or more	216	111	–	111	56	–	55	–	–	56	160	48	56
Female head with children under 18, total	2 628	1 530	440	1 090	282	586	223	538	56	555	2 073	930	169
Females heading families with–													
2 persons	624	340	113	227	169	57	–	113	–	171	453	228	56
3 persons	688	361	–	361	56	249	55	201	–	161	528	271	56
4 persons	554	388	163	225	–	169	56	114	56	111	443	166	–
5 persons	267	219	53	166	–	110	56	110	–	56	211	48	–
6 persons	279	111	111	–	–	–	–	–	–	–	279	168	–
7 persons or more	216	111	–	111	56	–	55	–	–	56	160	48	56
FAMILY SIZE BY FAMILY HEAD, FOR FAMILIES WITH INCOME BELOW THE POVERTY LEVEL													
Male head, total	3 097	2 282	601	1 681	498	902	282	572	170	714	2 383	643	171
Males heading families with–													
2 persons	1 693	1 207	333	874	330	544	–	213	–	280	1 413	427	59
3 persons	160	104	48	56	–	–	56	–	–	48	111	–	55
4 persons	328	273	168	104	–	48	56	48	56	168	160	55	–
5 persons	421	372	51	321	111	152	57	97	57	160	261	48	–
6 persons	56	–	–	–	–	–	–	–	–	–	56	56	–
7 persons or more	439	326	–	326	56	157	112	213	56	57	382	56	57
Male head with children under 18, total	1 249	976	168	807	168	358	282	358	170	386	863	216	57
Males heading families with–													
2 persons	–	–	–	–	–	–	–	–	–	–	–	–	–
3 persons	56	56	–	56	–	–	56	–	–	–	56	–	–
4 persons	328	273	168	104	–	48	56	48	56	168	160	55	–
5 persons	369	321	–	321	111	152	57	97	57	160	209	48	–
6 persons	55	–	–	–	–	–	–	–	–	–	56	56	–
7 persons or more	439	326	–	326	56	157	112	213	56	57	382	56	57
Female head, total	2 387	1 571	160	1 412	444	745	223	597	56	253	1 734	759	56
Females heading families with–													
2 persons	886	558	52	506	283	222	–	227	–	227	659	272	56
3 persons	625	409	–	409	104	249	55	201	–	153	472	216	–
4 persons	493	382	107	274	–	218	56	114	56	161	333	111	–
5 persons	111	111	–	111	–	55	56	55	–	56	55	–	–
6 persons	112	–	–	–	–	–	–	–	–	–	112	112	–
7 persons or more	160	111	–	111	56	–	55	–	–	56	104	48	–
Female head with children under 18, total	1 800	1 142	107	1 035	282	530	223	483	56	442	1 358	601	56
Females heading families with–													
2 persons	397	227	–	227	169	57	–	113	–	114	283	113	56
3 persons	577	361	–	361	56	249	55	201	–	104	472	216	–
4 persons	444	333	107	225	–	169	56	114	56	111	333	111	–
5 persons	111	111	–	111	–	55	56	55	–	56	55	–	–
6 persons	112	–	–	–	–	–	–	–	–	–	112	112	–
7 persons or more	160	111	–	111	56	–	55	–	–	56	104	48	–

Table 53b. Residential Mobility of Family Head, by Size and Composition of Family: Negro

Family Size for All Families and Families With Income Below the Poverty Level	Total family heads	Family heads not born in this city										
		Total	Heads not born in United States	Heads born in United States					Lived in this city		Family heads born in this city	Not available
				Total	Large city or suburb	Medium city, small city, or town	Farm or rural area	Born in South: City, suburb, or town	Born in South: Farm or rural area	5 years or less	More than 5 years		
FAMILY SIZE BY FAMILY HEAD													
Male head, total	63 534	53 541	216	53 325	8 435	26 825	18 065	32 277	17 751	9 747	53 787	8 945	1 048
Males heading families with–													
2 persons	23 033	19 721	216	19 505	2 914	8 994	7 597	10 835	7 449	2 629	20 404	2 836	476
3 persons	11 138	9 316	-	9 316	1 372	5 453	2 491	6 310	2 439	1 863	9 275	1 716	106
4 persons	9 447	7 621	-	7 621	1 323	3 977	2 321	4 741	2 273	1 429	8 018	1 671	155
5 persons	7 487	6 492	-	6 492	1 202	3 335	1 956	4 111	1 956	1 490	5 997	994	-
6 persons	4 503	3 562	-	3 562	678	1 693	1 191	2 220	1 191	829	3 674	889	53
7 persons or more	7 925	6 828	-	6 828	947	3 372	2 509	4 055	2 456	1 506	6 419	838	259
Male head with children under 18, total	34 180	27 903	-	27 903	4 508	14 690	8 705	17 598	8 604	6 532	27 648	5 755	522
Males heading families with–													
2 persons	333	164	-	164	59	59	47	117	47	112	222	116	53
3 persons	6 572	5 012	-	5 012	506	3 218	1 289	3 368	1 289	1 401	5 171	1 507	53
4 persons	7 619	6 052	-	6 052	1 117	3 066	1 869	3 774	1 822	1 194	6 425	1 463	104
5 persons	7 228	6 285	-	6 285	1 202	3 284	1 799	4 064	1 799	1 490	5 738	943	-
6 persons	4 503	3 562	-	3 562	678	1 693	1 191	2 220	1 191	829	3 674	889	53
7 persons or more	7 925	6 828	-	6 828	947	3 372	2 509	4 055	2 456	1 506	6 419	838	259
Female head, total	29 250	21 642	161	21 481	4 618	11 179	5 684	13 897	5 578	4 402	24 849	7 132	477
Females heading families with–													
2 persons	9 559	7 099	110	6 989	1 180	3 782	2 027	4 486	2 027	1 258	8 301	2 351	110
3 persons	6 049	4 218	-	4 218	974	2 307	937	2 935	937	860	5 189	1 625	206
4 persons	4 349	2 766	-	2 766	578	1 507	681	1 724	681	623	3 726	1 476	107
5 persons	3 589	2 964	51	2 913	735	1 344	834	1 823	781	774	2 815	570	54
6 persons	2 200	1 673	-	1 673	261	994	418	1 102	418	315	1 885	527	-
7 persons or more	3 504	2 921	-	2 921	890	1 244	787	1 826	734	572	2 933	583	-
Female head with children under 18, total	22 527	15 859	161	15 698	3 720	8 051	3 926	10 342	3 820	3 679	18 848	6 297	371
Females heading families with–													
2 persons	4 587	2 706	110	2 596	642	1 427	528	1 958	528	839	3 747	1 771	110
3 persons	4 654	3 184	-	3 184	666	1 787	731	2 160	731	603	4 051	1 370	100
4 persons	4 092	2 508	-	2 508	527	1 354	628	1 571	628	623	3 469	1 476	107
5 persons	3 589	2 964	51	2 913	735	1 344	834	1 823	781	774	2 815	570	54
6 persons	2 149	1 622	-	1 622	261	943	418	1 051	418	315	1 834	527	-
7 persons or more	3 457	2 874	-	2 874	890	1 197	787	1 779	734	525	2 933	583	-
FAMILY SIZE BY FAMILY HEAD, FOR FAMILIES WITH INCOME BELOW THE POVERTY LEVEL													
Male head, total	7 944	6 680	53	6 627	1 180	2 881	2 566	3 746	2 566	1 476	6 467	1 002	475
Males heading families with–													
2 persons	3 636	3 141	53	3 088	487	1 155	1 446	1 538	1 446	356	3 285	387	108
3 persons	918	816	-	816	51	415	350	466	350	200	718	102	-
4 persons	921	708	-	708	151	365	192	463	192	184	736	213	-
5 persons	640	640	-	640	219	369	53	534	53	219	421	-	-
6 persons	525	425	-	425	109	53	262	162	262	157	368	100	-
7 persons or more	1 304	950	-	950	162	526	263	582	263	365	939	200	153
Male head with children under 18, total	3 879	3 053	-	3 053	641	1 626	786	2 056	786	983	2 895	672	153
Males heading families with–													
2 persons	57	-	-	-	-	-	-	-	-	-	57	57	-
3 persons	568	466	-	466	-	362	104	362	104	96	472	102	-
4 persons	785	572	-	572	151	317	104	416	104	147	638	213	-
5 persons	640	640	-	640	219	369	53	534	53	219	421	-	-
6 persons	525	425	-	425	109	53	262	162	262	157	368	100	-
7 persons or more	1 304	950	-	950	162	526	263	582	263	365	939	200	153
Female head, total	15 091	10 647	110	10 538	2 248	5 506	2 784	6 799	2 731	3 091	12 000	4 126	318
Females heading families with–													
2 persons	3 979	2 652	110	2 542	370	1 536	636	1 804	636	831	3 149	1 218	110
3 persons	2 442	1 694	-	1 694	509	713	472	1 080	472	607	1 835	701	47
4 persons	2 511	1 346	-	1 346	317	662	367	775	367	517	1 994	1 058	107
5 persons	2 388	1 975	-	1 975	423	1 030	522	1 248	522	564	1 823	359	54
6 persons	1 361	994	-	994	106	575	314	580	314	208	1 153	367	-
7 persons or more	2 410	1 987	-	1 987	523	991	473	1 311	420	365	2 045	423	-
Female head with children under 18, total	13 125	8 788	110	8 679	1 987	4 386	2 305	5 521	2 252	2 732	10 393	4 018	318
Females heading families with–													
2 persons	2 423	1 203	110	1 093	261	571	261	832	261	622	1 801	1 111	110
3 persons	2 134	1 386	-	1 386	357	660	369	876	369	456	1 679	701	47
4 persons	2 460	1 295	-	1 295	317	611	367	724	367	517	1 943	1 058	107
5 persons	2 388	1 975	-	1 975	423	1 030	522	1 248	522	564	1 823	359	54
6 persons	1 310	943	-	943	106	524	314	529	314	208	1 102	367	-
7 persons or more	2 410	1 987	-	1 987	523	991	473	1 311	420	365	2 045	423	-

Table 54. Residential Mobility of Family Heads and Unrelated Individuals: All Races

Age and Sex Educational Attainment	Total	Not born in this city						Lived in this city		Born in this city	Not available
		Total, not born in this city	Not born in United States	Born in United States							
				Total	Large city or suburb	Medium city, small city, or town	Farm or rural area	Born in South: City, suburb, or town	Born in South: Farm or rural area	5 years or less	More than 5 years		
AGE AND SEX OF FAMILY HEADS													
Total heads, 16 years and over	119 846	93 633	6 420	87 213	15 503	44 864	26 846	50 933	25 663	19 236	100 610	24 124	2 089
Male heads, total	85 425	68 741	4 963	63 777	10 333	32 557	20 888	36 169	20 028	13 899	71 527	15 297	1 387
16 to 21 years, total	2 169	771	98	673	191	388	94	579	47	631	1 538	1 350	49
16 to 21 years, not in school	1 686	675	98	577	191	292	94	482	47	436	1 251	1 012	-
22 to 34 years, total	17 921	12 991	1 180	11 811	2 844	6 153	2 810	7 027	2 606	6 910	11 011	4 871	59
22 to 34 years, veteran of Vietnam	2 772	1 948	49	1 899	643	913	343	1 102	343	989	1 783	824	-
25 to 34 years	14 385	10 953	1 083	9 870	2 450	4 994	2 426	5 712	2 370	5 416	8 969	3 374	59
35 to 44 years	16 578	12 467	451	12 016	2 102	6 607	3 307	7 835	3 142	2 521	14 057	3 794	317
45 to 54 years	18 014	15 101	442	14 658	1 857	7 995	4 806	8 827	4 695	1 728	16 287	2 691	223
55 to 64 years	16 857	15 135	1 064	14 071	1 970	7 107	4 994	7 645	4 770	904	15 953	1 506	216
65 years and over	13 885	12 277	1 729	10 548	1 370	4 302	4 076	4 256	4 769	1 205	12 680	1 085	523
40 to 64 years	44 589	37 493	1 731	35 762	5 012	18 867	11 883	20 717	11 438	3 923	40 666	6 499	598
Female heads, total	34 421	24 893	1 457	23 436	5 171	12 307	5 958	14 764	5 634	5 338	29 083	8 827	702
16 to 21 years, total	2 119	620	-	620	96	523	-	329	-	287	1 831	1 452	47
16 to 21 years, not in school	1 729	521	-	521	96	425	-	380	-	238	1 492	1 161	47
22 to 34 years, total	12 177	7 433	224	7 209	2 222	3 731	1 256	4 977	1 199	2 970	9 207	4 473	270
25 to 34 years	9 544	5 998	224	5 774	1 936	2 775	1 063	4 116	1 007	2 110	7 433	3 275	270
35 to 44 years	6 958	5 507	56	5 451	1 173	2 782	1 496	3 526	1 391	1 016	5 942	1 287	164
45 to 54 years	6 119	4 983	385	4 598	886	2 405	1 307	2 599	1 196	370	5 749	1 080	56
55 to 64 years	3 691	3 415	112	3 304	419	1 793	1 092	1 830	1 092	375	3 316	219	56
65 years and over	3 356	2 935	679	2 255	375	1 074	807	1 343	756	321	3 037	316	107
40 to 64 years	13 183	10 972	497	10 475	1 888	5 543	3 044	6 257	2 880	1 065	12 118	2 099	113
EDUCATIDNAL ATTAINMENT OF FAMILY HEADS[1]													
Male heads, total	70 206	55 855	3 076	52 779	8 861	27 953	15 964	31 656	15 212	12 152	58 054	13 536	815
Elementary: 7 years or less	14 518	13 271	1 056	12 215	1 051	5 369	5 794	5 875	5 624	1 917	12 601	1 080	166
8 years	9 857	8 695	386	8 309	848	4 595	2 866	5 113	2 701	1 502	8 355	1 056	106
High school: 1 to 3 years	20 410	15 251	648	14 603	2 574	7 614	4 415	9 163	4 253	3 156	17 254	4 939	220
4 years	18 665	13 556	167	13 389	3 110	7 702	2 578	8 970	2 421	3 567	15 098	4 840	270
College: 1 year or more	6 756	5 082	820	4 262	1 278	2 673	311	2 535	213	2 010	4 746	1 621	53
Female heads, total	29 448	21 303	777	20 526	4 648	10 828	5 051	13 111	4 778	4 623	24 825	7 605	539
Elementary: 7 years or less	3 334	2 660	278	2 402	267	1 086	1 050	1 199	993	738	2 595	599	54
8 years	3 461	2 912	168	2 744	266	1 644	834	1 690	782	437	3 024	493	56
High school: 1 to 3 years	11 349	7 708	163	7 546	1 805	3 840	1 901	3 604	1 845	1 728	9 641	3 443	218
4 years	8 951	6 251	56	6 194	1 888	3 466	840	4 674	732	1 447	7 504	2 546	154
College: 1 year or more	2 333	1 752	113	1 640	422	792	426	945	426	273	2 061	524	56
AGE AND SEX OF UNRELATED INDIVIDUALS													
Male, total	44 033	32 087	5 089	26 998	5 751	14 808	6 439	14 104	5 321	9 583	34 450	10 750	1 196
16 to 24 years	4 847	2 594	49	2 545	864	1 293	388	1 247	242	2 638	2 210	2 012	241
25 to 64 years	30 227	21 791	2 327	19 464	4 090	10 970	4 405	11 364	3 888	4 466	23 761	7 519	917
65 years and over	8 958	7 702	2 713	4 989	797	2 545	1 647	1 493	1 191	479	8 480	1 218	39
Female, total	34 576	26 684	3 698	22 987	4 228	12 693	6 066	11 461	5 037	6 019	28 557	6 995	897
16 to 24 years	3 929	2 203	286	1 917	437	1 197	283	817	97	2 053	1 876	1 679	46
25 to 64 years	18 655	14 041	938	13 103	2 736	7 295	3 072	7 285	2 801	3 131	15 524	4 029	586
65 years and over	11 992	10 440	2 474	7 967	1 055	4 201	2 711	3 358	2 140	835	11 157	1 287	265
EDUCATIONAL ATTAINMENT OF UNRELATED INDIVIDUALS													
Male, total	33 324	23 645	2 164	21 482	4 663	12 074	4 744	12 467	4 082	8 128	25 197	8 569	1 110
Elementary: 7 years or less	6 048	5 012	289	4 723	685	2 390	1 649	2 618	1 542	794	5 254	860	176
8 years	3 297	2 619	230	2 389	392	1 310	688	1 355	630	505	2 792	621	57
High school: 1 to 3 years	10 485	7 745	230	7 516	1 669	4 480	1 366	4 985	1 192	2 182	8 303	2 456	284
4 years	8 385	4 923	511	4 413	1 197	2 447	769	2 388	661	2 388	5 997	3 299	162
College: 1 year or more	5 110	3 345	904	2 441	721	1 448	273	1 120	56	2 259	2 851	1 334	431
Female, total	20 959	15 241	1 026	14 215	2 974	8 134	3 107	8 009	2 898	4 254	16 705	5 133	586
Elementary: 7 years or less	2 581	2 318	166	2 152	156	945	1 052	990	1 000	213	2 368	156	107
8 years	2 651	1 951	111	1 841	367	686	788	845	788	322	2 329	539	161
High school: 1 to 3 years	5 560	4 087	107	3 980	707	2 782	490	2 893	490	983	4 577	1 318	156
4 years	6 738	4 562	425	4 137	1 277	2 241	620	2 395	516	1 801	4 937	2 014	162
College: 1 year or more	3 428	2 322	217	2 105	467	1 481	157	886	104	934	2 495	1 106	-

[1] Heads 16 to 64 years, not in school.

75.96

Table 54a. Residential Mobility of Family Heads and Unrelated Individuals: White

Age and Sex Educational Attainment	Total	Not born in this city										
		Total, not born in this city	Not born in United States	Born in United States						Lived in this city		Not available
				Total	Large city or suburb	Medium city, small city, or town	Farm or rural area	Born in South		5 years or less	More than 5 years	
								City, suburb, or town	Farm or rural area			
AGE AND SEX OF FAMILY HEADS												
Total heads, 16 years and over	25 188	16 857	4 835	12 022	2 394	6 640	2 989	4 653	2 224	4 430	20 758	7 767	564
Male heads, total	20 341	13 874	3 756	10 119	1 841	5 563	2 714	3 837	2 168	3 607	16 734	6 128	339
16 to 21 years, total	440	98	49	48	-	48	-	48	-	99	341	342	-
16 to 21 years, not in school	294	98	49	48	-	48	-	48	-	99	195	196	-
22 to 34 years, total	4 153	2 729	678	2 051	516	1 228	308	1 064	153	1 649	2 503	1 424	-
22 to 34 years, veteran of Vietnam	351	302	49	253	106	99	48	98	48	147	204	49	-
25 to 34 years	3 170	2 184	581	1 603	411	983	209	862	153	1 209	1 961	986	-
35 to 44 years	3 199	2 236	393	1 843	282	943	618	774	506	563	2 636	963	-
45 to 54 years	3 994	2 421	337	2 084	115	1 233	736	1 008	677	626	3 367	1 402	171
55 to 64 years	4 320	3 138	788	2 350	394	1 064	893	507	725	168	4 151	1 127	54
65 years and over	4 236	3 253	1 511	1 742	535	1 048	160	436	108	502	3 735	870	114
40 to 64 years	10 276	6 954	1 350	5 605	622	2 961	2 022	1 954	1 739	1 131	9 145	3 096	225
Female heads, total	4 847	2 983	1 079	1 904	553	1 077	274	816	56	823	4 024	1 639	225
16 to 21 years, total	195	49	-	49	-	49	-	-	-	49	146	146	-
16 to 21 years, not in school	97	-	-	-	-	-	-	-	-	-	97	97	-
22 to 34 years, total	1 248	749	56	693	331	305	56	370	-	493	755	443	56
25 to 34 years	958	507	56	451	283	112	56	225	-	396	562	395	56
35 to 44 years	620	338	56	282	56	170	56	170	56	56	564	226	56
45 to 54 years	1 229	725	334	390	56	223	111	55	-	112	1 117	448	56
55 to 64 years	617	393	112	281	56	225	-	168	-	113	504	168	56
65 years and over	938	729	521	208	52	105	51	52	-	-	938	208	-
40 to 64 years	2 015	1 229	446	784	113	560	111	336	-	225	1 790	672	113
EDUCATIONAL ATTAINMENT OF FAMILY HEADS[1]													
Male heads, total	15 617	10 425	2 196	8 229	1 306	4 368	2 554	3 401	2 061	2 958	12 659	4 967	225
Elementary: 7 years or less	3 765	2 991	836	2 155	216	930	1 009	867	895	752	3 013	715	59
8 years	2 350	1 727	272	1 455	169	674	612	565	500	370	1 980	623	-
High school: 1 to 3 years	4 784	2 581	599	1 982	168	1 315	498	1 155	386	654	4 130	2 036	166
4 years	3 091	1 947	167	1 780	504	996	280	656	224	556	2 535	1 144	-
College: 1 year or more	1 628	1 179	322	857	249	452	155	158	56	626	1 002	449	-
Female heads, total	3 763	2 156	558	1 598	452	923	223	764	56	725	3 037	1 382	225
Elementary: 7 years or less	616	335	223	112	56	-	56	56	-	112	504	281	-
8 years	1 061	723	168	555	57	442	56	331	56	225	835	281	56
High school: 1 to 3 years	1 248	704	55	649	226	368	55	263	-	274	974	432	112
4 years	557	224	56	168	56	56	55	56	-	57	499	332	-
College: 1 year or more	281	169	55	114	56	58	-	58	-	56	224	55	56
AGE AND SEX OF UNRELATED INDIVIDUALS													
Male, total	17 050	11 312	4 054	7 258	1 930	3 925	1 404	1 472	633	3 716	13 334	5 62[illegible]	112
16 to 24 years	1 443	775	-	775	292	337	146	99	-	1 008	435	368	-
25 to 64 years	10 127	5 972	1 589	4 383	1 066	2 458	859	1 260	575	2 592	7 535	044	112
65 years and over	5 480	4 565	2 465	2 100	572	1 130	398	114	57	116	5 364	915	-
Female, total	13 479	9 498	3 165	6 333	1 017	4 052	1 264	1 175	442	2 398	11 082	3 768	213
16 to 24 years	1 624	950	190	760	245	376	139	46	-	898	725	674	-
25 to 64 years	5 758	3 630	609	3 021	468	1 943	609	721	390	1 146	4 612	1 966	162
65 years and over	6 098	4 919	2 366	2 552	305	1 732	516	407	51	353	5 745	1 128	51
EDUCATIONAL ATTAINMENT OF UNRELATED INDIVIDUALS													
Male, total	10 797	6 404	1 535	4 869	1 210	2 654	1 005	1 358	575	2 973	7 824	4 281	112
Elementary: 7 years or less	1 428	850	289	561	111	228	223	57	116	339	1 088	577	-
8 years	1 649	1 085	230	855	222	518	115	449	115	343	1 305	564	-
High school: 1 to 3 years	2 536	1 580	173	1 407	383	680	344	565	344	431	2 105	900	56
4 years	2 681	1 339	395	944	161	675	107	230	-	867	1 815	1 342	-
College: 1 year or more	2 503	1 550	448	1 102	333	553	216	57	-	993	1 511	897	56
Female, total	6 439	3 874	697	3 177	614	2 063	499	721	390	1 405	5 034	2 404	162
Elementary: 7 years or less	555	445	166	279	-	167	112	56	112	-	555	110	-
8 years	661	331	111	220	55	109	55	165	55	111	550	278	53
High school: 1 to 3 years	1 374	731	55	676	129	323	223	169	223	191	1 183	643	-
4 years	2 452	1 296	316	981	325	601	55	164	-	473	1 979	1 047	109
College: 1 year or more	1 397	1 070	49	1 021	104	863	54	167	-	630	767	326	-

[1] Heads 16 to 64 years, not in school.

Table 54b. Residential Mobility of Family Heads and Unrelated Individuals: Negro

Age and Sex Educational Attainment	Total	Not born in this city								Born in this city	Not available
		Total, not born in this city	Not born in United States	Born in United States				Lived in this city			
				Total	Large city or suburb	Medium city, small city, or town	Farm or rural area	Born in South: City, suburb, or town	Born in South: Farm or rural area	5 years or less	More than 5 years		
AGE AND SEX OF FAMILY HEADS													
Total heads, 16 years and over	92 784	75 183	377	74 806	13 054	38 004	23 749	46 173	23 330	14 149	78 636	16 077	1 525
Male heads, total	63 534	53 541	216	53 325	8 435	26 825	18 065	32 277	17 751	9 747	53 787	8 945	1 048
16 to 21 years, total	1 681	625	-	625	191	340	94	530	47	484	1 197	1 007	49
16 to 21 years, not in school	1 344	529	-	529	191	243	94	434	47	289	1 055	815	-
22 to 34 years, total	13 264	9 870	110	9 761	2 328	4 930	2 502	5 963	2 453	4 925	8 339	3 335	59
22 to 34 years, veteran of Vietnam	2 421	1 646	-	1 646	539	814	295	1 005	295	842	1 579	775	-
25 to 34 years	10 711	8 377	110	8 267	2 039	4 011	2 217	4 851	2 217	3 871	6 840	2 275	59
35 to 44 years	13 265	10 117	-	10 117	1 820	5 608	2 689	7 061	2 636	1 901	11 365	2 831	317
45 to 54 years	13 689	12 406	-	12 406	1 686	6 650	4 070	7 763	4 017	1 052	12 637	1 232	51
55 to 64 years	12 260	11 774	53	11 721	1 576	6 043	4 101	7 139	4 045	682	11 577	323	163
65 years and over	9 375	8 750	53	8 697	835	3 254	4 608	3 820	4 553	703	8 672	216	409
40 to 64 years	33 704	30 042	53	29 988	4 334	15 794	9 861	18 708	9 698	2 689	31 015	3 290	372
Female heads, total	29 250	21 642	161	21 481	4 618	11 179	5 684	13 897	5 578	4 402	24 849	7 132	477
16 to 21 years, total	1 923	570	-	570	96	474	-	429	-	238	1 685	1 306	47
16 to 21 years, not in school	1 633	521	-	521	96	425	-	380	-	238	1 395	1 064	47
22 to 34 years, total	10 815	6 571	55	6 516	1 891	3 426	1 199	4 606	1 199	2 364	8 452	4 030	214
25 to 34 years	8 472	5 378	55	5 323	1 653	2 663	1 007	3 891	1 007	1 601	6 872	2 880	214
35 to 44 years	6 338	5 169	-	5 169	1 117	2 612	1 440	3 356	1 334	959	5 378	1 061	108
45 to 54 years	4 835	4 258	51	4 207	829	2 181	1 196	2 544	1 196	258	4 577	576	-
55 to 64 years	3 074	3 023	-	3 023	362	1 568	1 092	1 722	1 092	262	2 812	51	-
65 years and over	2 265	2 050	55	1 996	322	917	756	1 240	756	321	1 944	107	107
40 to 64 years	11 114	9 742	51	9 691	1 776	4 982	2 933	5 921	2 880	840	10 273	1 371	-
EDUCATIONAL ATTAINMENT OF FAMILY HEADS[1]													
Male heads, total	53 367	44 433	108	44 324	7 499	23 416	13 410	28 200	13 151	8 703	44 664	8 345	590
Elementary: 7 years or less	10 476	10 003	55	9 948	835	4 328	4 785	4 953	4 729	1 111	9 364	365	108
8 years	7 337	6 854	-	6 854	679	3 921	2 254	4 549	2 201	1 074	6 263	377	106
High school: 1 to 3 years	15 463	12 564	-	12 564	2 406	6 242	3 917	8 008	3 868	2 454	13 009	2 846	53
4 years	15 462	11 553	-	11 553	2 550	6 706	2 297	8 314	2 197	3 011	12 451	3 639	270
College: 1 year or more	4 629	3 459	53	3 406	1 029	2 220	157	2 377	157	1 053	3 577	1 118	53
Female heads, total	25 572	19 034	106	18 928	4 196	9 905	4 828	12 347	4 722	3 784	21 788	6 223	314
Elementary: 7 years or less	2 717	2 345	55	2 290	211	1 086	993	1 142	993	626	2 091	318	54
8 years	2 400	2 188	-	2 188	208	1 202	778	1 359	725	212	2 189	212	-
High school: 1 to 3 years	10 065	6 948	51	6 897	1 579	3 473	1 845	4 341	1 845	1 398	8 667	3 011	106
4 years	8 394	6 027	-	6 027	1 832	3 410	785	4 618	732	1 390	7 005	2 214	154
College: 1 year or more	1 995	1 526	-	1 526	366	734	426	888	426	159	1 836	469	-
AGE AND SEX OF UNRELATED INDIVIDUALS													
Male, total	25 694	19 642	132	19 510	3 764	10 768	4 978	12 517	4 689	5 202	20 492	5 018	1 035
16 to 24 years	3 258	1 770	-	1 770	572	956	242	1 148	242	1 531	1 726	1 296	191
25 to 64 years	19 188	14 965	56	14 909	2 967	8 455	3 487	10 047	3 313	3 365	15 823	3 418	805
65 years and over	3 248	2 907	75	2 831	225	1 358	1 249	1 322	1 134	305	2 943	303	39
Female, total	20 736	16 872	218	16 654	3 211	8 641	4 802	10 287	4 596	3 414	17 322	3 181	683
16 to 24 years	2 163	1 157	-	1 157	193	820	145	771	97	1 059	1 104	960	46
25 to 64 years	12 730	10 244	162	10 082	2 268	5 352	2 462	6 564	2 411	1 872	10 857	2 062	424
65 years and over	5 843	5 470	56	5 414	750	2 469	2 195	2 951	2 088	482	5 361	159	213
EDUCATIONAL ATTAINMENT OF UNRELATED INDIVIDUALS													
Male, total	21 627	16 496	56	16 439	3 395	9 363	3 681	11 051	3 507	4 705	16 922	4 182	949
Elementary: 7 years or less	4 505	4 105	-	4 105	517	2 162	1 426	2 562	1 426	455	4 050	225	176
8 years	1 590	1 476	-	1 476	170	792	515	906	515	162	1 429	57	57
High school: 1 to 3 years	7 786	6 051	-	6 051	1 286	3 743	1 023	4 362	848	1 694	6 092	1 507	228
4 years	5 588	3 469	-	3 469	1 036	1 771	661	2 158	661	1 463	4 125	1 957	162
College: 1 year or more	2 157	1 395	56	1 339	387	895	56	1 063	56	932	1 226	437	325
Female, total	14 306	11 200	162	11 038	2 360	6 071	2 607	7 288	2 507	2 737	11 569	2 683	424
Elementary: 7 years or less	1 980	1 873	-	1 873	156	778	940	933	888	213	1 766	-	107
8 years	1 990	1 621	-	1 621	312	576	732	680	732	212	1 778	261	108
High school: 1 to 3 years	4 186	3 356	52	3 304	578	2 459	267	2 724	267	792	3 394	675	156
4 years	4 286	3 266	110	3 156	952	1 640	564	2 231	516	1 328	2 958	968	53
College: 1 year or more	1 864	1 084	-	1 084	362	618	104	720	104	191	1 673	780	-

[1] Heads 16 to 64 years, not in school.

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Appendix A—DEFINITIONS AND EXPLANATIONS OF SUBJECT CHARACTERISTICS

POPULATION COVERAGE . . App-1

HOUSEHOLD AND FAMILY CHARACTERISTICS App-1

PERSONAL CHARACTERISTICS App-2

LABOR FORCE CHARACTERISTICS App-3

INCOME, SOURCES OF INCOME, AND DEBT App-5

POPULATION COVERAGE

This report covers the civilian noninstitutional population of the low-income area described by the maps and the list of tracts. Unlike the 1970 census, the Census Employment Survey (CES) excluded Armed Forces members and inmates of institutions. Another important difference is the treatment of college students. The CES considered unmarried students as members of their parents' household even though they may have been living away from home when the survey was taken. The 1970 census counted students as members of the household or dormitory in which they actually resided at the time of the census.

Although Armed Forces members were not interviewed their incomes were included in the computation of total family income if they were living off post with their families. If an Armed Forces member was not living with his family, only the allotment income actually received by his family was counted.

HOUSEHOLD AND FAMILY CHARACTERISTICS

Household.—A household consists of all the persons who occupy a housing unit. A house, an apartment, a group of rooms, or a single room is regarded as a housing unit when it is occupied or intended for occupancy as separate living quarters; that is, when the occupants do not live and eat with any other persons in the structure and there is either (1) direct access from the outside or through a common hall or (2) a kitchen or complete cooking facilities for the exclusive use of the occupants.

A household includes the related family members and all the unrelated persons, if any, such as lodgers, foster children, wards, or employees who share the housing unit. A person living alone in a housing unit or a group of unrelated persons sharing a housing unit as partners is also counted as a household.

Group quarters.—Group quarters are living arrangements for institutional inmates, regardless of the number of inmates, or for other groups containing five or more persons unrelated to the person in charge. For this report, institutional inmates were not enumerated though staff personnel of institutions and other persons living in group quarters, such as residents of a rooming house, were included.

Head of household or family.—One person in each household or family is designated as the "head." The head is usually the person regarded as the head by the members of the group. Married women are not classified as heads if their husbands are living with them at the time of the survey. The number of household heads does not equal the number of family heads, because more than one family may share a household.

Family.—The term "family," as used in this report, refers to a group of two or more persons related by blood, marriage, or adoption and residing together; all such persons are considered as members of the same family. Thus, if the son of the head of the household and the son's wife are in the household, they are treated as part of the head's family. On the other hand, a lodger and his wife not related to the head of the household or an unrelated servant and his wife are considered as a separate family, and not a part of the household head's family.

Primary family.—A primary family refers to the head of a household and all other persons in the household related to the head by blood, marriage, or adoption. In the case of the primary family, the household head and the family head are the same person.

Secondary family.—A family that does not include among its members the head of a household is known as a secondary family. Members of secondary families may include persons such as guests, lodgers, or resident employees and their relatives living in a household.

Unrelated individual.—The term "unrelated individuals," as used in this report, refers to persons 16 years old and over (other than inmates of institutions) who are not living with any relatives. An unrelated individual may constitute a one-person household by himself, or he may be part of a household including one or more other families or unrelated individuals, or he may reside in group quarters such as a rooming house. Thus, a widow living by herself or with one or more other persons not related to her, a lodger not related to the head of the household or to anyone else in the household, a servant living in an employer's household with no relatives, and a resident staff member in a hospital living apart from any relatives are all examples of unrelated individuals.

Primary individual.—If the household head does not have any relatives in his household, then the head himself constitutes a primary individual. A household contains either a primary family or a primary individual. The number of primary families and individuals is identical with the number of households.

Secondary individual.—A secondary individual is a person, such as a lodger, guest, or resident employee who is not related to any other person in the household or group quarters.

Family status.—All household members may be divided into families and unrelated individuals. Family members are classified according to their relationship to the family head. The family head is the person who is regarded as the head by the members of the family. Wife of head is a woman married to and living with a family head. This category includes women in common law marriages as well as women in formal marriages. Other relative of head includes children and all other relatives of the head. Unrelated individuals are all persons not related to any other person in the household.

Size of family.—The term "size of family" refers to the number of persons who are living together and are related to each other by blood, marriage, or adoption.

PERSONAL CHARACTERISTICS

Age.—The age classification is based on the age of the person at the time that the household was enumerated. The overlap of age breaks in the tables is provided to reflect the restrictions on age imposed by some Federal training programs.

Race.—The population is divided into three groups on the basis of race: White, Negro, and "other races." The last category includes Indians, Japanese, Chinese, and any other race except white and Negro. Household members were classified into racial groups by the enumerator's observation.

If the race entry was missing for a household member, an entry was assigned according to the race of the other household members using specific rules of precedence of relationship. If there is no entry for any household member, the race is allocated by special procedures.

The Spanish origin classification is derived from information about the place of birth of the person, or the place of birth of his parents, or the language spoken in his home when he was a child.

If a person's place of birth or the place of birth of either of his parents was Puerto Rico, Mexico, Cuba, or another Latin American country, he is classified as of Spanish origin. Persons who report that Spanish was the language spoken most often in their home when they were children are also classified as of Spanish origin even though they and both of their parents were born in the United States.

In cases where parents are of different Spanish origin, "Puerto Rican" has precedence over "Spanish, Non-Puerto Rican." In other words, if the parents were born in Mexico and Puerto Rico, the person is considered Puerto Rican for the purposes of the tabulations presented in this report.

This definition differs from that used in the 1970 census inasmuch as each person marked the census item himself while the CES definition was based on the person's place of birth, or place of birth of father or mother, or Spanish spoken in the home.

Marital status.—This classification refers to the marital status at the time of enumeration. There are five categories: Married—civilian spouse present refers to a household member whose wife or husband is listed as a civilian household member. Married—Armed Forces spouse present refers to a household member whose spouse lives at home and is a member of the Armed Forces. Since only civilians are interviewed, the data on spouses in the Armed Forces is limited to the reporting of their income information. On tables referring to characteristics of the head, such as work experience in the past year, these families are omitted from the tables. This occurs in tables 7, 9, and 44 to 54. These types of families were treated as "Families with male heads" in the tables 40 to 43. Married—spouse absent refers to a household member whose spouse is not presently a member of the household. Widowed or divorced refers to a household member whose spouse is not a member due to divorce or death. Never married refers to a household member that has never married or whose only marriage has been annulled.

Veteran status.—This question is restricted to males who have been on active duty in the U.S. Armed Forces. This includes men who have been in the U.S. Army, U.S. Navy, U.S. Air Force, U.S. Marine Corps, U.S. Coast Guard, on active duty status for several months in the reserve branch of any of the above organizations, commissioned officers of the U.S. Public Health Service who have been attached to any branch of the armed services, and the National Guard in Federal service.

Veterans are classified by their most recent period of service. Serving during a major conflict such as World War I, World War II, Korean War, or the Vietnam War takes priority over peacetime service.

Years of school completed.—Data on years of school completed in this report were derived from the combination of answers to questions concerning the highest grade of school attended by the person and whether or not that grade was finished. The questions on educational attainment apply only to progress in "regular" schools. Such schools include graded public, private, and parochial elementary and high schools (both junior and senior high), colleges, universities, and profes-

sional schools, whether day schools or night schools. Thus, regular schooling is that which may advance a person toward an elementary school certificate or a high school diploma, or a college, university, or professional school degree. Schooling in other than regular schools was counted only if the credits obtained were regarded as transferable to a school in the regular school system.

The median years of school completed is defined as the value which divides the distribution into two equal groups, one having completed more schooling and one having completed less schooling than the median. These medians are expressed in terms of a continuous series of numbers representing years of school completed. For example, a median of 9.0 represents the completion of the first year of high school and a median of 13.0 means completion of the first year of college. Unlike the census, the median in this report excludes persons in the category "No school completed."

School enrollment.—A person is classified as being enrolled in school if he is currently in school or he expects to return to school within 3 months.

Job training.—The questions on job training refer to the types of training programs taken in schools, in the armed services, and in apprentice programs. These programs may be of a business or vocational nature. Information is received on completion of programs taken and whether the training was subsequently used on any job. Questions about apprentice programs and armed services training programs are restricted to males.

Place of birth.—The State or country of respondent's birthplace is given as well as the size of the place of birth. A distinction has been drawn on certain tables between places in the South and places outside the South. Those States considered in the South are as follows: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. Place of birth was also obtained for the parents of the respondents. Birthplaces of parents may determine Spanish origin.

Residential migration.—Migration patterns are determined from a battery of questions concerned with length of residence in the city and the place of residence at specific ages in the respondent's life. Length of residence in this city refers to the latest period of continuous residence and includes those persons who have never moved. Vacations and other temporary visits are not considered a break in continuity. In determining place of residence other than in this city, the State or country was obtained in addition to the size of the place. The specific age periods are birth, 5 years prior to enumeration, and at 16 years old.

There are six categories for size of place ranging from a large city of over 250,000 inhabitants to a farm.

A distinction is drawn on some of the tables between places in the South and places outside the South. For the list of places in the South, see "Place of birth."

LABOR FORCE CHARACTERISTICS

Labor force and employment status.—The definitions of labor force and employment status in this report relate to civilian persons 16 years and over. The reference period for establishing labor force status is the week preceding enumeration.

Labor force.—Persons are classified as in the labor force if they are currently employed, waiting to begin a new job, or actively seeking employment.

Employed persons comprise (1) all those who did any work at all as paid employees, or in their own business, profession, or farm, or who worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family, and (2) all those who were not working but who had jobs or businesses from which they were temporarily absent because of illness, bad weather, vacation, labor-management dispute, or personal reasons, whether or not they were paid by their employers for the time off, and whether or not they were seeking other jobs.

Each employed person is counted only once. Those who held more than one job are counted in the job at which they worked the greatest number of hours during the survey week.

Excluded from the employed group are persons whose only activity consisted of work around the house (such as own home housework, painting or repairing own homes, etc.) or volunteer work for religious, charitable, or similar organizations.

Unemployed persons comprise all persons who did not work during the survey week, who made specific efforts to find a job within the last 4 weeks, and who were available for work during the survey week (except for temporary illness). Also included as unemployed are those who did not work at all, were available for work, and (a) were waiting to be called back to a job from which they had been laid off, or (b) were waiting to report to a new wage or salary job within 30 days.

Unemployment rate.—The unemployment rate represents the number unemployed as a percent of the civilian labor force. This measure can also be computed for groups within the labor force classified by sex, age, marital status, race, etc.

Not in labor force.—This category includes persons who are not classified as employed or unemployed. These persons are further classified as

"engaged in own home housework," "in school," "unable to work" because of long-term physical or mental illness, and "other." The "other" group includes for the most part retired persons, those reported as too old to work, the voluntarily idle, and seasonal workers for whom the survey week fell in an "off" season and who were not reported as unemployed. Persons doing only incidental unpaid family work (less than 15 hours) are also classified as not in the labor force.

Full-time employed.—Persons who worked 35 hours or more last week are designated as working full time.

Part-time employed.—Persons who worked between 1 and 34 hours last week are designated as working part-time. Part-time workers are further classified by their usual status at their present job (either full-time or part-time) and by their reason for working part-time through the survey week (economic or other reasons). Economic reasons include: Slack work, material shortages, repairs to plant or equipment, start or termination of job during the week, and inability to find full-time work. Other reasons include: Labor dispute, bad weather, own illness, vacation, demands of own housework, school, no desire for full-time work, and full-time worker only during peak season.

Employed on full-time schedules.—Persons are classified on full-time schedules if they fall into one of three categories: (1) They worked 35 hours or more last week, (2) if they worked less than 35 hours last week for noneconomic reasons (holiday, labor dispute, bad weather, own illness, on vacation, too busy with housework, school, personal business, etc., did not want full-time work, full-time work week under 35 hours, and other reasons), and they usually work 35 hours or more, (3) they have a job but were not at work, yet were employed on a full-time basis.

Full- and part-time labor force.—The full-time labor force consists of persons working on full-time schedules, persons involuntarily working part-time (because full-time work is not available), and unemployed persons seeking full-time jobs. The part-time labor force consists of persons working part-time voluntarily and unemployed persons seeking part-time work. Persons with a job but not at work are classfied according to whether they usually work full-time or part-time.

Part-time and full-time jobs.—Persons are classified as having worked at full-time jobs if they worked 35 hours or more per week in a majority of the weeks worked during the year. They are classified as having worked at part-time jobs if they worked 1 to 34 hours per week in a majority of the weeks worked during the year.

Work experience.—Persons with work experience are those who worked as civilians at any time during the year at full-time or part-time jobs.

Year-round full-time workers.—Persons who worked primarily at full-time civilian jobs 50 weeks or more in the last 12 months are classified as year-round full-time workers.

Part-year workers.—Persons who worked either full-time or part-time for 1 to 49 weeks in the last 12 months are classified as part-year workers.

Main reason for part-year work.—Part-year workers are classified by the major reason for part-year work on the basis of what they were doing most of the weeks in which they did not work. Their reasons are reported as unemployment or layoff from a job, illness or disability (not including paid sick leave), taking care of home, going to school, retirement, in the Armed Forces, and other reasons. The "taking care of family or home" category was restricted to women.

Nonworkers.—Nonworkers are persons who did not work during the last 12 months. They are asked whether they looked for work during the year and, if they looked, for how many weeks. Nonworkers are classified according to the main reason for not working. Their reasons are reported as illness or disability, taking care of home, going to school, inability to find work, retired, in the Armed Forces, and other reasons.

Stretch of unemployment.—A stretch of unemployment is a continuous period of unemployment of at least 1 week's duration. A stretch is terminated by employment or withdrawal from the labor force.

Extent of unemployment.—The number of weeks accumulated in all stretches of unemployment represents the total number of weeks of unemployment during the last 12 months.

Longest job.—The occupation and industry information is collected for the longest job in the last 12 months and the longest job since leaving school. They are collected in the same manner as for the current job. A person's longest job during the last 12 months is the one at which he worked the greatest number of weeks. For most wage and salary workers, a job is defined as all the time worked for the same employer. The only exception is work for private families (domestic service, babysitting, odd jobs and the like) which is counted as a single job regardless of number of employers. Self-employment and unpaid work in family-operated enterprises are also designated as jobs for purposes of this survey. A person's longest job since leaving school is the one at which he worked the greatest number of months or years.

Occupation and industry.—The categories for industry and occupation are based on the same classification system used in the 1970 decennial census. Occupation and industry information is obtained in several items. One item refers to the current job, that is, the job held last week. If two jobs were held then the job reported was the one at which the person worked the greater number of hours. For an unemployed person, the job reported refers to the last job held. For a person who is not currently in the labor force, the last job held within the last 5 years is reported. Industry and occupation is also reported for the person's longest job in the last 12 months, the person's first regular job since leaving school, and the person's longest job since leaving school.

Usual place of employment.—Employed persons were classified as going to the same address each day or a different address each day. Those going to the same address were subdivided according to the location of their job into the following categories—low-income area (which is the area surveyed), the remainder of the city, and outside the city limits.

Tenure on job.—This category refers to the length of time a person has worked on a job without a break in service. Tenure is obtained for the current job, the first job since leaving school, and the longest job since leaving school.

Job-seeking methods.—A respondent was asked which methods he used to look for work in the last 12 months. The methods asked about were: Checked with State Employment Service, applied directly to employer, asked friends or relatives, checked newspapers, registered with a union, checked with a private employment agency, checked with a community organization, went to special streets or places to be picked up, or other ways. The respondent also indicated the most frequent method used, and the method that got the respondent his last job.

Method of transportation.—Employed persons were asked for the methods of transportation they usually use to get to work. All methods that the respondent mentioned were recorded with the result that the total shown in these tables may be less than the sum of the various parts. Some of the methods may not be applicable for a specific area which may account for blank data cells.

INCOME, SOURCES OF INCOME, AND DEBT

Income.—Each person was asked the amount of money income received in the preceding 12 months from such sources as follows: Money wages or salary, net self-employment income from farm, or nonfarm business, social security, dividends, interest, unemployment and workmen's compensation, public assistance payments, and other periodic income. The amounts received represent income before deductions for taxes, union dues, etc.

Family income.—Family income is the composite of the amounts received by all income recipients in the family from the sources listed in "Income."

Median income.—Median income is the amount which divides the distribution into two equal groups, one having incomes above the median and the other having incomes below the median. The medians for families and individuals are based on all families and individuals.

Wages or salary.—This is total money earnings received for work performed as an employee during the last 12 months. The amount reported covers an employee's gross wages, salary, tips, and commission before deductions for taxes, bonds, pensions, union dues, etc. Receipts not included as income are income in kind such as room and board.

Self-employment income.—This is net money income (gross receipts minus expenses) from one's own business, professional enterprise, or partnership.

Farm self-employment income.—This is net money income from the operation of a farm by a person on his own account, as an owner, a renter, or sharecropper. The value of fuel, food, or other farm products used for family living is not included as part of net income.

Workmen's compensation.—This category refers to payments received from public or private insurance companies for injuries incurred while on the job. The cost of this insurance must be paid by the employer and not by the employee.

Unemployment compensation.—This category refers to money received from government unemployment insurance agencies or private companies during periods of unemployment and any strike benefits received from union funds.

Social security.—This includes social security pensions, survivors' benefits, and permanent disability insurance payments made by the Social Security Administration prior to deductions for medical insurance, and railroad retirement insurance checks from the U.S. Government.

Other pensions.—These include (1) veterans' pensions, money paid periodically by the Veterans' Administration to disabled members of the Armed Forces or to survivors of deceased veterans; subsistence allowances paid to veterans for education and on-the-job training; as well as so-called

"refunds" paid to ex-servicemen as GI insurance premiums; (2) private pensions or retirement benefits paid to a retired person or his survivors by a former employer or by a union, either directly or through an insurance company; (3) government employee pensions received from retirement pensions paid by Federal, State, county, or other governmental agencies to former employees (including members or their survivors).

Public assistance or welfare payments.—These include public assistance payments such as old-age assistance, aid to families with dependent children, and aid to the blind or totally disabled.

Rents.—Rents include net income from rental of a house, store, or other property to others, and receipts from boarders or lodgers.

Dividends and interest.—These include dividends from stockholdings or membership in associations, and interest on savings or bonds.

Other income.—This includes any income which cannot be placed in the above categories. The Armed Forces pay of a husband living at home is reported here as well as allotments received from absent Armed Forces members.

Transfer payments and pensions.—Included in these are total income received from the following sources: Unemployment insurance, workmen's compensation, social security, welfare payments, and private, veterans', and government pensions.

Property income and all other.—This category includes rents, interest and dividends, and any miscellaneous income reported.

Earners.—Heads and individuals 16 to 64 years, not in school, with either wages and salary, or net self-employment from business or farm are earners.

Weekly earnings.—This represents earnings of full-time wage and salary workers last week.

Hourly earnings.—This represents weekly earnings of full-time wage and salary workers divided by the hours worked last week.

Monthly installment debt.—This is the total amount the primary family or primary individual pays each month on all long-term debts except mortgages or rent. It includes payments on cars, furniture, appliances, loans from banks and other lending institutions, and also alimony payments.

Mortgage or rent payments.—This is the total amount paid each month for mortgage or rent regardless of whether it includes interest payments, utilities, furniture, or other services.

Utility payments.—This is the amount reported as total payment for all utilities during the last calendar month.

Fixed monthly expenses.—This is the total amount paid each month on rent or mortgage, utilities, and installment debt.

Poverty level.—Families and unrelated individuals are classified as being above or below the poverty level, using the poverty index adopted by a Federal Interagency Committe in 1969.[1] This index provides a range of income cutoffs adjusted to take into account such factors as family size, sex and age of the family head, the number of children, and farm-nonfarm residence. The poverty cutoffs for farm families have been set at 85 percent of the nonfarm levels. These cutoff levels are updated every year to reflect the changes in the Consumer Price Index. The poverty thresholds used in this report were updated for changes in the cost of living between January and Spetember 1970. For the 12 month period covered by this survey, the poverty cutoffs ranged from $1,556 for a female unrelated individual 65 years old and over living on a farm to $6,904 for a nonfarm family with a male head and with seven or more persons (none under 18 years old). The poverty cutoff for a nonfarm family of four, headed by a male with a wife and two children under 18 years, was $3,880.

Percentage calculations relating to families or persons by poverty status are based on a restricted universe that excludes unrelated individuals under 16 years of age, members of the Armed Forces living in barracks, and inmates of institutions.

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[1] See Current Population Reports, Series P-23, No. 28 "Revision in Poverty Statistics, 1959 to 1968," for a more detailed description of this poverty index.

Appendix B—SAMPLE DESIGN, ESTIMATION, AND RELIABILITY OF ESTIMATES

SAMPLE DESIGN App-7
ESTIMATION App-7
RELIABILITY OF THE ESTIMATES App-7

SAMPLE DESIGN

The sample for the Census Employment Survey (CES) was selected from a computerized list of addresses and special places constructed prior to the 1970 census. After the census, there was an additional sampling operation to account for addresses and persons added during the census enumeration. A systematic sample of clusters of six units was chosen for this survey. In general, the clusters were formed by the computer with an emphasis on clustering addresses that were contiguous on the listing. The creation of the clusters was designed to put addresses of from one to six units within a single cluster. Noncontiguous addresses were occasionally put in the same cluster in order to increase the number of clusters made up of complete addresses.

For persons in housing units, the sampling unit was the set of housing units in the sample cluster with all of the occupants age 16 and over; for persons in group quarters, it was the person.

The number of occupied interviewed housing units in sample in this area is shown on page X in the section on "Selected Characteristics of the Survey in This Area."

ESTIMATION

The estimates from this survey were developed through the use of a ratio estimate to 1970 census population counts. The computer record for each sample person was first given a weight (the inverse of the probability of selection) adjusted to account for noninterviews encountered during the survey. The records were then used to prepare preliminary tallies of the CES data for the following ratio estimation cells:

Age	Male		Female	
	Negro	Non-Negro	Negro	Non-Negro
25 to 44				
45 to 64				
65 and over ..				

Within each of the cells, the ratio of the 1970 census count to the preliminary CES tally was computed and applied to the weights of all CES records in that cell. Because of differing definitions of the eligible universe, no ratio estimation was performed for persons age 16 to 24. The principle difference between CES and census definitions of eligible persons relates to the treatment of students and Armed Forces members. In CES, unmarried students living away from home were counted as members of their parent's household, while in the 1970 census they were counted as members of the household or dormitory in which they were residing. Armed Forces members were excluded from the CES but included in the 1970 census.

The effect of this procedure is to produce estimates realizing some of the gains in sampling efficiency that would have resulted had the population been stratified into the above groups before sampling. The net effect is a reduction in both the sampling error and possible bias of most statistics below what would be obtained by weighting all of the sample households and persons by a uniform factor. The reduction in sampling error will be substantial for some items and less effective for others. A by-product of this estimation procedure is that estimates from the sample tend to be consistent with the census counts for the groups used in the estimation procedure except for the differences between the population covered in this survey and in the census.

RELIABILITY OF THE ESTIMATES

Since the estimates are based on a sample, they may differ somewhat from the figures that would have been obtained if a complete census was taken using the same schedules, instructions, and interviewers. In addition to this error (called sampling variability), the results are also subject to the errors of response, nonreporting, and processing inherent in censuses as well as sample surveys.

The standard error is primarily a measure of the sampling variability, that is, of the variations that occur by chance because a sample rather than the whole of the population is surveyed. The chances are about 68 out of 100 that an estimate from the sample would differ from a complete census by less than the standard error. The chances are about 95 out of 100 that the difference would be less than twice the standard error and about 99 out of 100 that it would be less than 2-1/2 times the standard error.

The figures presented in the following tables are approximations to the standard errors of various estimates shown in this report. In order to derive standard errors that would be applicable to a wide variety of items and could be prepared at a moderate cost, a number of approximations were required. As a result, the standard errors shown provide an indication of the order of magnitude rather than the precise standard error for any specific item. These tables do not reflect the effect of response variance or bias arising in the collection or processing stages.

The standard errors in these tables are not directly applicable to differ-

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ences between two estimates. In order to estimate the standard error of a difference, the tables are to be used as described in the following two situations.

1. The standard error of a difference between a sample figure from the CES and a 1970 census complete count is the standard error of the CES statistic.
2. For a difference between two sample figures (two figures from the CES for the same or for one CES area versus another, or a CES figure versus one collected on a sample basis in the census), the standard error of the difference is approximately the square root of the sum of squares of the standard errors of each estimate considered separately. If two figures from the same CES area are being compared and there is a high positive correlation between the two characteristics, this formula will overstate the true standard error somewhat.

Table B1 gives approximate standard errors for estimated numbers of persons with a characteristic (e.g., the number of unemployed males) while table B2 gives approximate standard errors for estimated percentages (e.g., the percent of males who are unemployed). Linear interpolation in these tables will provide generally satisfactory results.

Table B1. Approximate Standard Errors of Estimated Number of Persons

(Range of 68 chances out of 100)

Estimate	Standard error		
	All races	White	Negro
1,000	230	230	250
3,000	410	400	430
5,000	520	510	550
15,000 ...	890	870	900
25,000 ...	1,130	1,110	1,070
50,000 ...	1,540	1,460	1,170
75,000 ...	1,800	1,680	870
100,000 ..	1,980	1,800	–
125,000 ..	2,100	1,840	–
150,000 ..	2,170	1,830	–
200,000 ..	2,170	1,520	–
250,000 ..	1,970	–	–
300,000 ..	1,520	–	–

Table B2. Approximate Standard Errors of Estimated Percentage of Persons

(Range of 68 chances out of 100)

Base of percentage	Estimated percentage							
	1 or 99	2 or 98	5 or 95	10 or 90	15 or 85	25 or 75	35 or 65	50
1,000	2.3	3.3	5.1	7.0	8.4	10.2	11.2	11.7
3,000	1.3	1.9	3.0	4.1	4.8	5.9	6.5	6.8
5,000	1.0	1.5	2.3	3.2	3.8	4.5	5.0	5.3
15,000	.6	.8	1.3	1.8	2.2	2.6	2.9	3.0
25,000	.5	.7	1.0	1.4	1.7	2.0	2.2	2.3
50,000	.3	.5	.7	1.0	1.2	1.4	1.6	1.7
75,000	.3	.4	.6	.8	1.0	1.2	1.3	1.4
100,000	.2	.3	.5	.7	.8	1.0	1.1	1.2
125,000	.2	.3	.5	.6	.8	.9	1.0	1.1
150,000	.2	.3	.4	.6	.7	.8	.9	1.0
200,000	.2	.2	.4	.5	.6	.7	.8	.8
250,000	.1	.2	.3	.4	.5	.6	.7	.7
350,000	.1	.2	.3	.4	.4	.5	.6	.6

Example.—Assume a table in this report shows there are an estimated 40,000 males aged 25 and older who have completed high school in the poverty area. Interpolation in table B1 shows the sampling error on an estimate of this size is about 1,380. This means the chances are 68 in 100 that a complete census would show the number in this category would differ from the estimated 40,000 by less than this amount; the chances are 95 in 100 that the complete census would differ by less than twice this amount. Assume further the report shows that 8 percent of these males are unemployed. Interpolation in table B2 shows the standard error on an estimated 8 percent on a base of 40,000 would be 1.02 percent.

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Form CES-1 CONTROL CARD

NOTICE – Your report to the Census Bureau is confidential by law (Title 13, U.S. Code). It may be seen only by sworn Census employees and may be used only for statistical purposes.

Form Approved: Budget Bureau No. 41-S69115 Approval Expires June, 1971

1. Address (House number and street) | Apartment number or other identification | Expected No. of units | 2. Letter sent Y N | 3. Segment number Detroit Region only | 4. CONTROL NUMBER (PSU) (Serial) (Check)

Form CES-1 10-10-70 | U.S. DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS

CENSUS EMPLOYMENT SURVEY
CONTROL CARD

City | State | ZIP code

5a. Are there any occupied or vacant living quarters besides your own at ...? (Read street address and apartment description from item 1)
Y – Interview separately if an extra unit | N

5b. Not used

5c. How many people are living or staying in this house (apartment)?

Line number of person (Circle Line No. of reader) 6a	NAME (last name first) What is the name of the head of this household? What are the names of all other persons who are living or staying here? List all persons staying here and all persons who usually live here who are absent. Be sure to INCLUDE infants under 1 year of age. 6b	RELATIONSHIP TO HOUSEHOLD HEAD Example: Head, wife, son, daughter-in-law, partner, lodger, lodger's wife, etc. 6c	HOUSEHOLD MEMBER 6d	FOR PERSON'S WITH "Y" IN ITEM 6d: What is ...'s date of birth? (Enter in numerals) Month 8a	Day 8b	Year 8c	AGE at end of survey week (If under 1 year of age, enter "0") 9	Is ... now married, widowed, divorced, separated, or has ... never been married? (M., WD., D., Sep., or NM) 10	RACE (W., Neg. or Oth.) 11	SEX (M – Male or F – Female) 12	PERSONS 16 YEARS OR OLDER: MALES: Did ... ever serve in the U.S. Armed Forces? 13a	Yes in 13a: When did he serve? (Enter code) 13b	ALL PERSONS: Is ... now in the Armed Forces (If "Yes" enter AF; If "No" leave blank) 14	What is the highest grade (or year) of regular school ... has ever attended? (Enter code) 15a	Did ... complete that grade? (year) 15b	IF LESS THAN E6 IN 15a: Can ... read and write English? 16	IF "NO" IN 16: Can ... read and write any other language? 17
1			Y N							M F	Y N				Y N	Y N	Y N
2			Y N							M F	Y N				Y N	Y N	Y N
3			Y N							M F	Y N				Y N	Y N	Y N
4			Y N							M F	Y N				Y N	Y N	Y N
5			Y N							M F	Y N				Y N	Y N	Y N
6			Y N							M F	Y N				Y N	Y N	Y N
7			Y N							M F	Y N				Y N	Y N	Y N
8			Y N							M F	Y N				Y N	Y N	Y N
9			Y N							M F	Y N				Y N	Y N	Y N
10			Y N							M F	Y N				Y N	Y N	Y N

Codes for 13b
Enter code in descending order of priority. Thus if person served in Vietnam and in Korea enter VN.
Vietnam Era ..... VN (Aug. '64 or later)
Korean War ..... KW (June '50 – Jan. '55)
World War II ..... WWII (Sept. '40 – July '47)
World War I ..... WWI (Apr. '17 – Nov. '18)
Other service ..... OS (All other periods)

Codes for 15a
Never attended 0
Kindergarten ..... K
Elementary E1–E8
High School H1–H4
College ..... C1–C5, C6+ (Academic)

7a. I have listed (Read names in 6b)
Have I missed –
- Any babies or small children? ..... Y N
- Any lodgers, or boarders who live here? ..... Y N
- Anyone who usually lives here but is away at present traveling, at school, or in a hospital? ..... Y N
- Anyone else staying here? ..... Y N
(Draw line under last name listed)

b. How many other people stay here some of the time?
_____ Number – If one or more ASK 7c

c. Are any of these people staying here now?
☐ Yes – List any staying here if not already listed
☐ No

d. Does anyone who is not staying here now consider this place home? (Exclude Armed Forces members)
☐ Yes – ASK 7e
☐ No – SKIP to 8a

e. Does he have some one place he usually stays?
☐ Yes – Elsewhere (End questions for this person)
☐ Yes – Here (List in 6b and consider a household member)
☐ No – ASK 7f

f. Do you expect him to return here within two months?
☐ Yes – List in 6b and consider a household member
☐ No – End questions for this person

18a. HOUSING UNIT
☐ House, apartment, flat
☐ HU in nontransient hotel, motel, etc.
☐ HU – perm. in transient hotel, motel, etc.
☐ HU in rooming house
☐ Trailer – permanent
☐ Trailer – mobile
☐ HU – not specified above (Describe in footnotes)

18b. OTHER UNITS IN SPECIAL PLACES
☐ Quarters not HU in rooming or boarding house
☐ Unit not permanent in transient hotel, motel, etc.
☐ Tent site or trailer site
☐ Other not HU (Describe in footnotes)

19. How many rooms are in this unit counting the kitchen but not the bathroom?
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 or more

20. Is this unit –
☐ Owned or being bought by you or someone in your household? (SKIP to 22)
☐ Rented for cash?
☐ Occupied without payment of cash rent?

21. For renters only
Is this apartment (house) owned by an individual, a private corporation, or is it publicly owned (e.g. public housing authority)?
☐ Private ☐ Public

22. What are your monthly mortgage (rent) payments?
1 ☐ None
2 ☐ $ 1 – 50
3 ☐ 51 – 75
4 ☐ 76 – 100
5 ☐ 101 – 125
6 ☐ 126 – 150
7 ☐ 151 – 200
8 ☐ 201 or more

23. For renters only
In addition to rent payments, do you pay separately for:
a. Electricity? Y N
b. Gas? ..... Y N
c. Water? ..... Y N
d. Oil, coal, kerosene, wood? ..... Y N

24. How much did you pay for utilities last month?
1 ☐ $1 – 10
2 ☐ 11 – 20
3 ☐ 21 – 30
4 ☐ 31 – 40
5 ☐ 41 – 50
6 ☐ 51 – 60
7 ☐ 61 or more

HOUSEHOLD HEAD AND RELATIVES ONLY

25. What are your monthly installment payments on all debts not counting your mortgage (rent) payments?
01 ☐ None
02 ☐ $ 1 – 10
03 ☐ 11 – 20
04 ☐ 21 – 30
05 ☐ 31 – 40
06 ☐ 41 – 50
07 ☐ 51 – 60
08 ☐ 61 – 75
09 ☐ 76 – 99
10 ☐ 100 – 150
11 ☐ 151 or more

26. How many cars or trucks do you have for family use?
☐ None ☐ 1 ☐ 2 ☐ 3 ☐ 4 or more

27. Not used

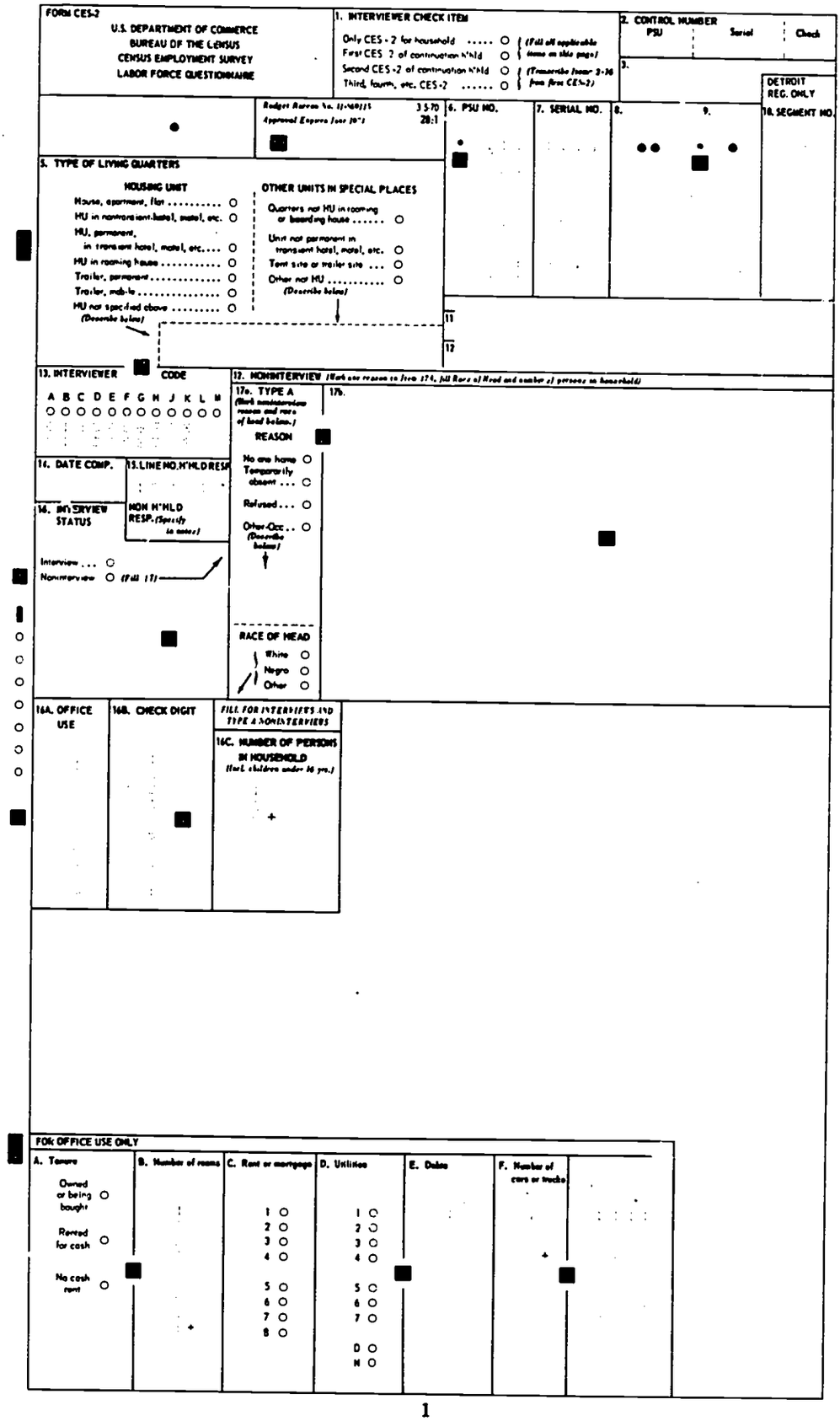
Footnotes

28. What is your telephone number? _____ ☐ No phone

29. RECORD OF VISITS AND TELEPHONE CALL BACKS

a. Tally of personal visits		
b. Tally of telephone callbacks		
c. Noninterview reason →	☐ Vacant ☐ Occupied by URE ☐ Not living quarters ☐ Nonexistent (Explain in footnotes)	Omit CES-2 and CES-3 Type A reason (Complete CES-2)
d. Number of persons in household Type A only	1	2 3+
e. Notes (on callbacks, etc.)		

Form CES-2 LABOR FORCE QUESTIONNAIRE



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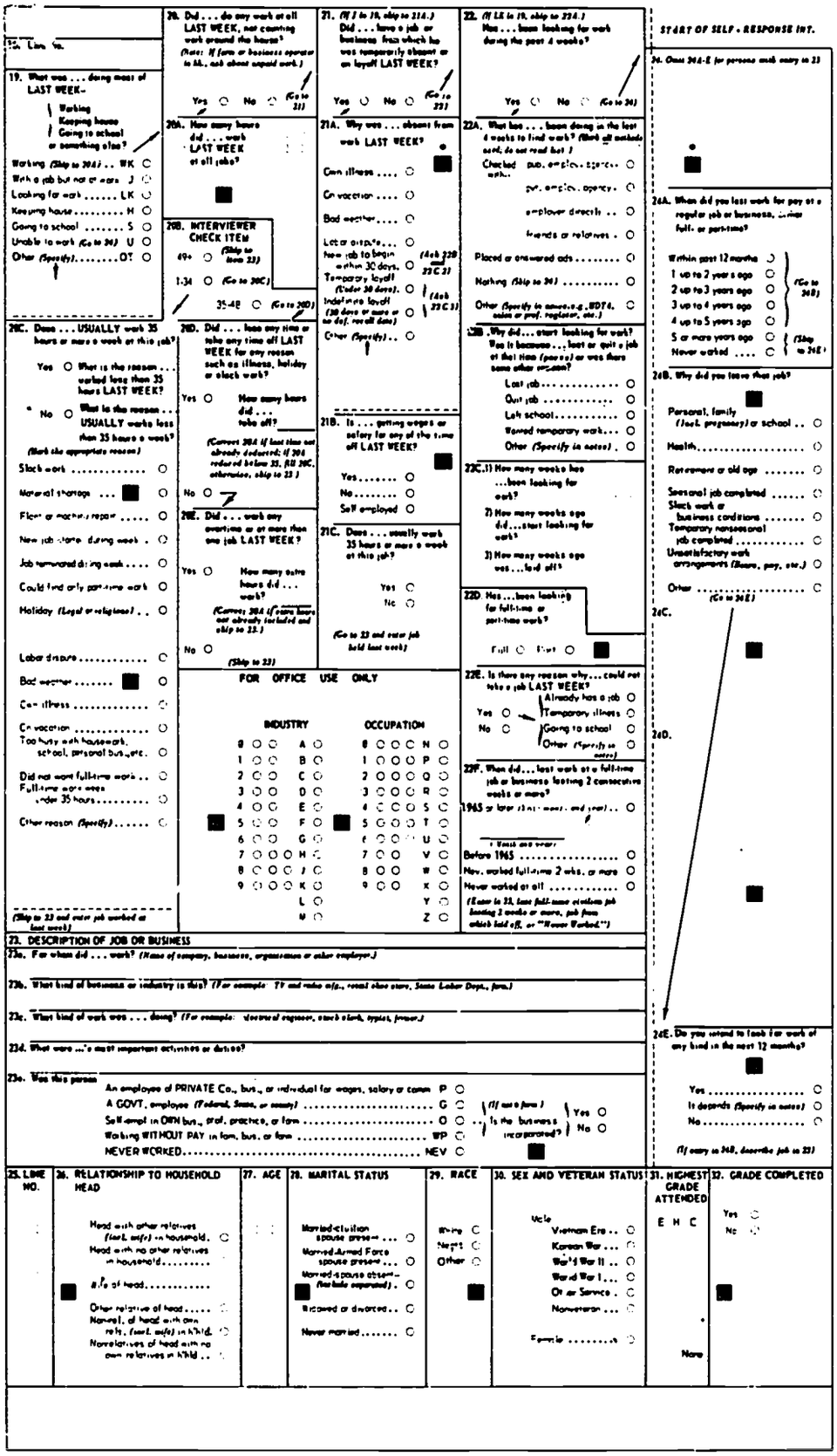
Form CES-2 LABOR FORCE QUESTIONNAIRE—Continued



19. What was ... doing most of LAST WEEK— (Working / Keeping house / Going to school / or something else?)
Working (Skip to 20A) ... WK
With a job but not at work ... J
Looking for work ... LK
Keeping house ... H
Going to school ... S
Unable to work (Go to 24) U
Other (Specify) ... OT

20. Did ... do any work at all LAST WEEK, not counting work around the house? (Note: If farm or business operated by Mr., ask about unpaid work.) Yes / No (Go to 21)

20A. How many hours did ... work LAST WEEK at all jobs?

20B. INTERVIEWER CHECK ITEM
49+ (Skip to item 23)
1-34 (Go to 20C)
35-48 (Go to 20D)

20C. Does ... USUALLY work 35 hours or more a week at this job?
Yes — What is the reason ... worked less than 35 hours LAST WEEK?
No — What is the reason ... USUALLY works less than 35 hours a week? (Mark the appropriate reason)
Slack work
Material shortage
Plant or machine repair
New job started during week
Job terminated during week
Could find only part-time work
Holiday (Legal or religious)
Labor dispute
Bad weather
Own illness
On vacation
Too busy with housework, school, personal business, etc.
Did not want full-time work
Full-time work was under 35 hours
Other reason (Specify)

20D. Did ... lose any time or take any time off LAST WEEK for any reason such as illness, holiday or slack work?
Yes — How many hours did ... take off?
No
(Correct 20A if last time not already deducted; if 20A reduced below 35, fill 20C, otherwise, skip to 23.)

20E. Did ... work any overtime or at more than one job LAST WEEK?
Yes — How many extra hours did ... work?
(Correct 20A if extra hours not already included and skip to 23.)
No (Skip to 23)

21. (If 1 in 19, skip to 21A.) Did ... have a job or business from which he was temporarily absent or on layoff LAST WEEK? Yes / No (Go to 22)

21A. Why was ... absent from work LAST WEEK?
Own illness ...
On vacation ...
Bad weather ...
Labor dispute ...
Has new job to begin within 30 days. (Ask 22B and 22C 2)
Temporary layoff (Under 30 days). (Ask 22C 3)
Indefinite layoff (30 days or more or no def. recall date) (Ask 22C 3)
Other (Specify) ...

21B. Is ... getting wages or salary for any of the time off LAST WEEK?
Yes
No
Self employed

21C. Does ... usually work 35 hours or more a week at this job?
Yes
No
(Go to 23 and enter job held last week)

22. (If LK in 19, skip to 22A.) Has ... been looking for work during the past 4 weeks? Yes / No (Go to 24)

22A. What has ... been doing in the last 4 weeks to find work? (Mark all methods used; do not read list.)
Checked pub. employ. agency with...
pvt. employ. agency
employer directly
friends or relatives
Placed or answered ads
Nothing (Skip to 24)
Other (Specify in order e.g., USTA, union or prof. register, etc.)

22B. Why did ... start looking for work? Was it because ... lost or quit a job at that time (parent) or was there some other reason?
Lost job
Quit job
Left school
Wanted temporary work
Other (Specify in order)

22C.1) How many weeks has ...been looking for work?
2) How many weeks ago did ...start looking for work?
3) How many weeks ago was ...laid off?

22D. Has ...been looking for full-time or part-time work?
Full / Part

22E. Is there any reason why ... could not take a job LAST WEEK?
Yes — Already has a job / Temporary illness / Going to school / Other (Specify in order)
No

22F. When did ... last work at a full-time job or business lasting 2 consecutive weeks or more?
1965 or later (Enter month and year)
Before 1965
Has worked full-time 2 wks. or more
Never worked at all
(If never in 22, have full-time previous job lasting 2 weeks or more, ask from which laid off, or "Never Worked")

START OF SELF-RESPONSE INT.

24. Omit 24A-E for persons ended entry in 23

24A. When did you last work for pay at a regular job or business, either full- or part-time?
Within past 12 months / 1 up to 2 years ago / 2 up to 3 years ago / 3 up to 4 years ago / 4 up to 5 years ago / 5 or more years ago (Go to 24B)
Never worked (Skip to 24E)

24B. Why did you leave that job?
Personal, family (incl. pregnancy) or school
Health
Retirement or old age
Seasonal job completed
Slack work or business conditions
Temporary nonseasonal job completed
Unsatisfactory work arrangements (hours, pay, etc.)
Other (Go to 24E)

24C.

24D.

24E. Do you intend to look for work of any kind in the next 12 months?
Yes
It depends (Specify in order)
No
(If entry in 24B, describe job in 23)

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INDUSTRY: 0 1 2 3 4 5 6 7 8 9 / A B C D E F G H J K L M

OCCUPATION: 0 1 2 3 4 5 6 7 8 9 / N P Q R S T U V W X Y Z

(Skip to 23 and enter job worked at last week)

23. DESCRIPTION OF JOB OR BUSINESS

23a. For whom did ... work? (Name of company, business, organization or other employer)

23b. What kind of business or industry is this? (For example: TV and radio mfg., retail shoe store, Texas Labor Dept., farm.)

23c. What kind of work was ... doing? (For example: electrical engineer, stock clerk, typist, farmer.)

23d. What were ...'s most important activities or duties?

23e. Was this person
An employee of PRIVATE Co., bus., or individual for wages, salary or comm. P
A GOVT. employee (Federal, State, or county) G
Self-empl in OWN bus., prof. practice, or farm O
Working WITHOUT PAY in fam. bus. or farm WP
NEVER WORKED NEV
(If self-empl) Is the business incorporated? Yes / No

25. LINE NO.	26. RELATIONSHIP TO HOUSEHOLD HEAD	27. AGE	28. MARITAL STATUS	29. RACE	30. SEX AND VETERAN STATUS	31. HIGHEST GRADE ATTENDED (E H C)	32. GRADE COMPLETED
	Head with other relatives (incl. wife) in household / Head with no other relatives in household / Wife of head / Other relative of head / Nonrel. of head with own rels. (incl. wife) in hhld. / Nonrelatives of head with no own relatives in hhld.		Married (civilian spouse present) / Married-Armed Force spouse present / Married-spouse absent (includes separated) / Widowed or divorced / Never married	White / Negro / Other	Male: Vietnam Era / Korean War / World War II / World War I / Other Service / Nonveteran / Female		Yes / No
						None	

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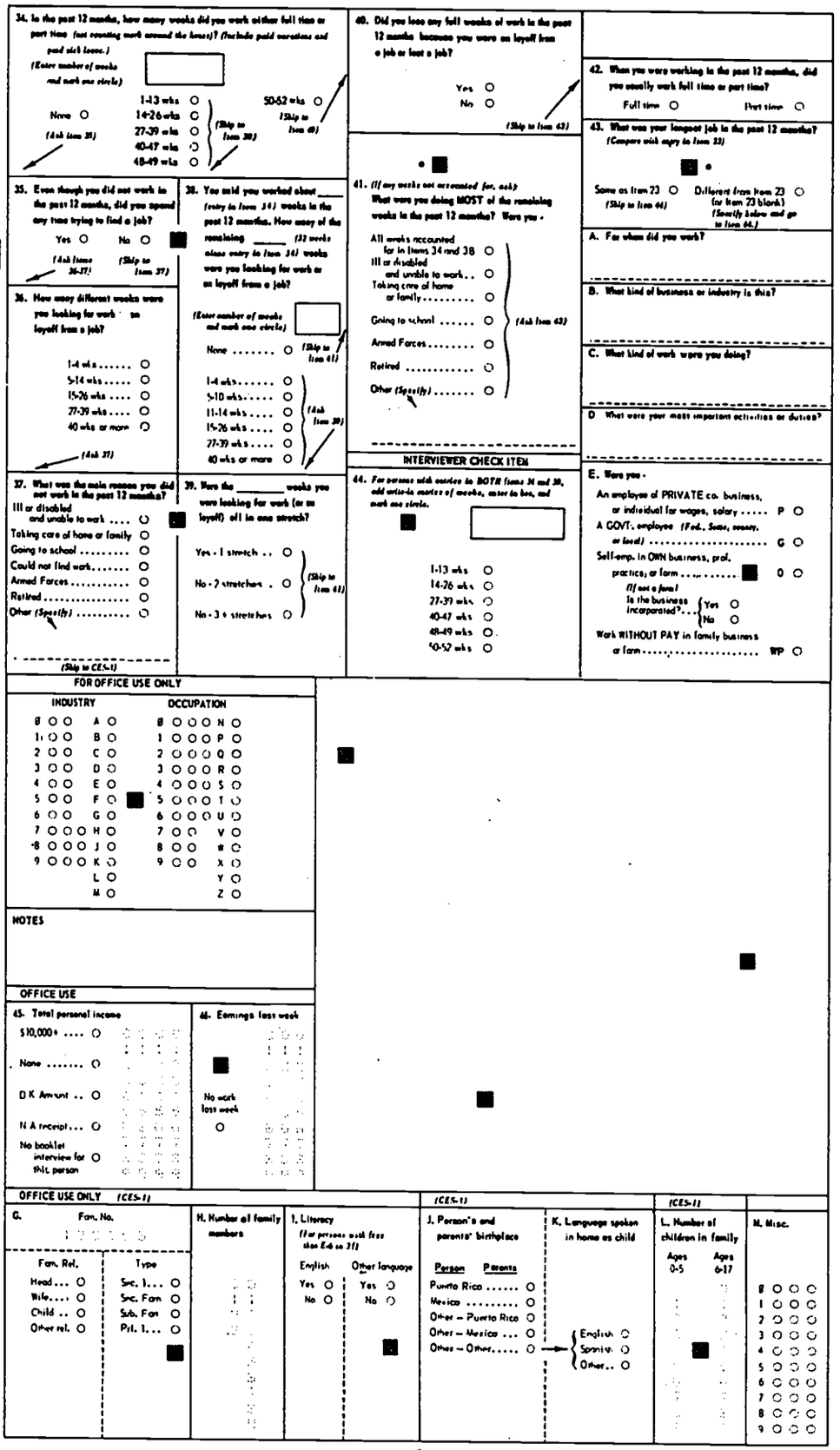
Form CES-2 LABOR FORCE QUESTIONNAIRE—Continued



34. In the past 12 months, how many weeks did you work either full time or part time (not counting work around the house)? (Include paid vacations and paid sick leave.)
(Enter number of weeks and mark one circle)
None ○ (Ask Item 35)
1-13 wks ○
14-26 wks ○
27-39 wks ○
40-47 wks ○
48-49 wks ○
50-52 wks ○
(Ship to Item 38) (Ship to Item 40)

35. Even though you did not work in the past 12 months, did you spend any time trying to find a job?
Yes ○ No ○
(Ask Items 36-37) (Ship to Item 39)

36. How many different weeks were you looking for work or on layoff from a job?
1-4 wks ○
5-14 wks ○
15-26 wks ○
27-39 wks ○
40 wks or more ○
(Ask 37)

37. What was the main reason you did not work in the past 12 months?
Ill or disabled and unable to work ○
Taking care of home or family ○
Going to school ○
Could not find work ○
Armed Forces ○
Retired ○
Other (Specify) ○
(Ship to CES-1)

38. You said you worked about ____ (entry in Item 34) weeks in the past 12 months. How many of the remaining ____ (12 weeks minus entry in Item 34) weeks were you looking for work or on layoff from a job?
(Enter number of weeks and mark one circle)
None ○ (Ship to Item 41)
1-4 wks ○
5-10 wks ○
11-14 wks ○
15-26 wks ○
27-39 wks ○
40 wks or more ○
(Ask Item 39)

39. Were the ____ weeks you were looking for work (or on layoff) all in one stretch?
Yes - 1 stretch ○
No - 2 stretches ○
No - 3+ stretches ○
(Ship to Item 41)

40. Did you lose any full weeks of work in the past 12 months because you were on layoff from a job or lost a job?
Yes ○
No ○
(Ship to Item 42)

41. (If any weeks not accounted for, ask)
What were you doing MOST of the remaining weeks in the past 12 months? Were you -
All weeks accounted for in Items 34 and 38 ○
Ill or disabled and unable to work ○
Taking care of home or family ○
Going to school ○
Armed Forces ○
Retired ○
Other (Specify) ○
(Ask Item 42)

INTERVIEWER CHECK ITEM

44. For persons with entries in BOTH Items 34 and 38, add entries in number of weeks, enter in box, and mark one circle.
1-13 wks ○
14-26 wks ○
27-39 wks ○
40-47 wks ○
48-49 wks ○
50-52 wks ○

42. When you were working in the past 12 months, did you usually work full time or part time?
Full time ○ Part time ○

43. What was your longest job in the past 12 months?
(Compare with entry in Item 23)
Same as Item 23 ○ (Ship to Item 44)
Different from Item 23 ○ (or Item 23 blank) (Specify below and go to Item 44.)

A. For whom did you work?

B. What kind of business or industry is this?

C. What kind of work were you doing?

D. What were your most important activities or duties?

E. Were you -
An employee of PRIVATE co. business, or individual for wages, salary ..... P ○
A GOVT. employee (Fed., State, county, or local) ..... G ○
Self-emp. in OWN business, prof. practice, or farm ..... O ○
(If not a farm) Is the business incorporated? Yes ○ No ○
Work WITHOUT PAY in family business or farm ..... WP ○

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INDUSTRY: 0 ○○ A ○ | 1 ○○ B ○ | 2 ○○ C ○ | 3 ○○ D ○ | 4 ○○ E ○ | 5 ○○ F ○ | 6 ○○ G ○ | 7 ○○○ H ○ | 8 ○○○ J ○ | 9 ○○○ K ○ | L ○ | M ○

OCCUPATION: 0 ○○○ N ○ | 1 ○○○ P ○ | 2 ○○○ Q ○ | 3 ○○○ R ○ | 4 ○○○ S ○ | 5 ○○○ T ○ | 6 ○○○ U ○ | 7 ○○ V ○ | 8 ○○ # ○ | 9 ○○ X ○ | Y ○ | Z ○

NOTES

OFFICE USE

45. Total personal income
$10,000+ .... ○
None ..... ○
DK Amount .. ○
NA receipt ... ○
No booklet interview for this person ○

46. Earnings last week
No work last week ○

OFFICE USE ONLY (CES-1)

G. Fam. No.

Fam. Rel.: Head ... ○ | Wife .... ○ | Child .. ○ | Other rel. ○
Type: Sec. I ... ○ | Sec. Fam ○ | Sub. Fam ○ | Pri. I ... ○

H. Number of family members

I. Literacy (If person read item on Ed on 31)
English: Yes ○ No ○
Other language: Yes ○ No ○

(CES-1)

J. Person's and parents' birthplace

	Person	Parents
Puerto Rico	○	○
Mexico	○	○
Other – Puerto Rico	○	○
Other – Mexico	○	○
Other – Other	○	○

K. Language spoken in home as child
English ○
Spanish ○
Other ○

(CES-1)

L. Number of children in family
Ages 0-5
Ages 6-17

M. Misc.
0 ○○○
1 ○○○
2 ○○○
3 ○○○
4 ○○○
5 ○○○
6 ○○○
7 ○○○
8 ○○○
9 ○○○

Form CES-3 WORK HISTORY BOOKLET—Continued

SECTION C – Continued

E HEALTH PROBLEMS – Continued

4g. When could you start to work if you had this assistance? . . . . . g.

166 1 ☐ Immediately
2 ☐ Less than 1 month
3 ☐ 1–6 months
4 ☐ More than 6 months
5 ☐ Other – *Specify* _____

C LOOKED BUT COULDN'T FIND WORK

5a. When did you last look for a job? . . . . . a.

167 1 ☐ During the past 12 months – *SKIP to 6*
2 ☐ 1 up to 2 years ago
3 ☐ 2 up to 3 years ago
4 ☐ 3 up to 4 years ago
5 ☐ 4 up to 5 years ago
6 ☐ 5 or more years ago

b. At that time how many weeks did you spend looking for a job? b.

168 _____ Weeks

c. How did you go about looking for a job? *(Mark all that apply)* c.

Anything else?

169 1 ☐ Checked with State Employment Service
2 ☐ Applied directly to an employer
3 ☐ Asked friends or relatives
4 ☐ Checked newspapers
5 ☐ Registered with union
6 ☐ Checked with private employment agency
7 ☐ Checked with other organization such as Urban League, welfare agencies and community action groups
8 ☐ Went to special streets or places
9 ☐ Other way – *Specify* _____

6. Why did you stop looking for work at that time?

171 ☐☐☐

_____

7. What kinds of jobs did you look for?

172 ☐☐☐ Occupation

8. Do you think you needed more training in order to get those kinds of jobs?

173 1 ☐ Yes
2 ☐ No

9. *(SKIP if "During past 12 months" marked in 5a)*

(Mark only one box and one amount)

a. What is the lowest pay you would accept? *(If amount given per hour, record dollars and cents; otherwise, round to the nearest dollar.)* . . . . . a.

174 ☐ Hour . . . . $_____ . _____ *(Dollars) (Cents)*

OR

175 ☐ Day
176 ☐ Week
177 ☐ Month
178 ☐ Year

$_____.00

b. Did you ever turn down a job because you couldn't get the pay you wanted? . . . . . b.

179 1 ☐ Yes
2 ☐ No

10a. Have you ever applied for a job training program? . . . . . a.

180 1 ☐ Yes – *ASK 10b*
2 ☐ No – *SKIP to 10e*

b. What kind of job were you training for? . . . . . b.

181 ☐☐☐ Occupation

c. Did you complete it? . . . . . c.

182 1 ☐ Yes – *SKIP to 11a*
2 ☐ No, never started
3 ☐ No, dropped out
ASK 10d

d. Is there any particular reason? *(Verbatim)* . . . . . d.

183 ☐☐

_____

_____

SKIP to 11a

e. Any particular reason why you didn't apply? *(Verbatim)* . . . . . e.

184 ☐☐

_____

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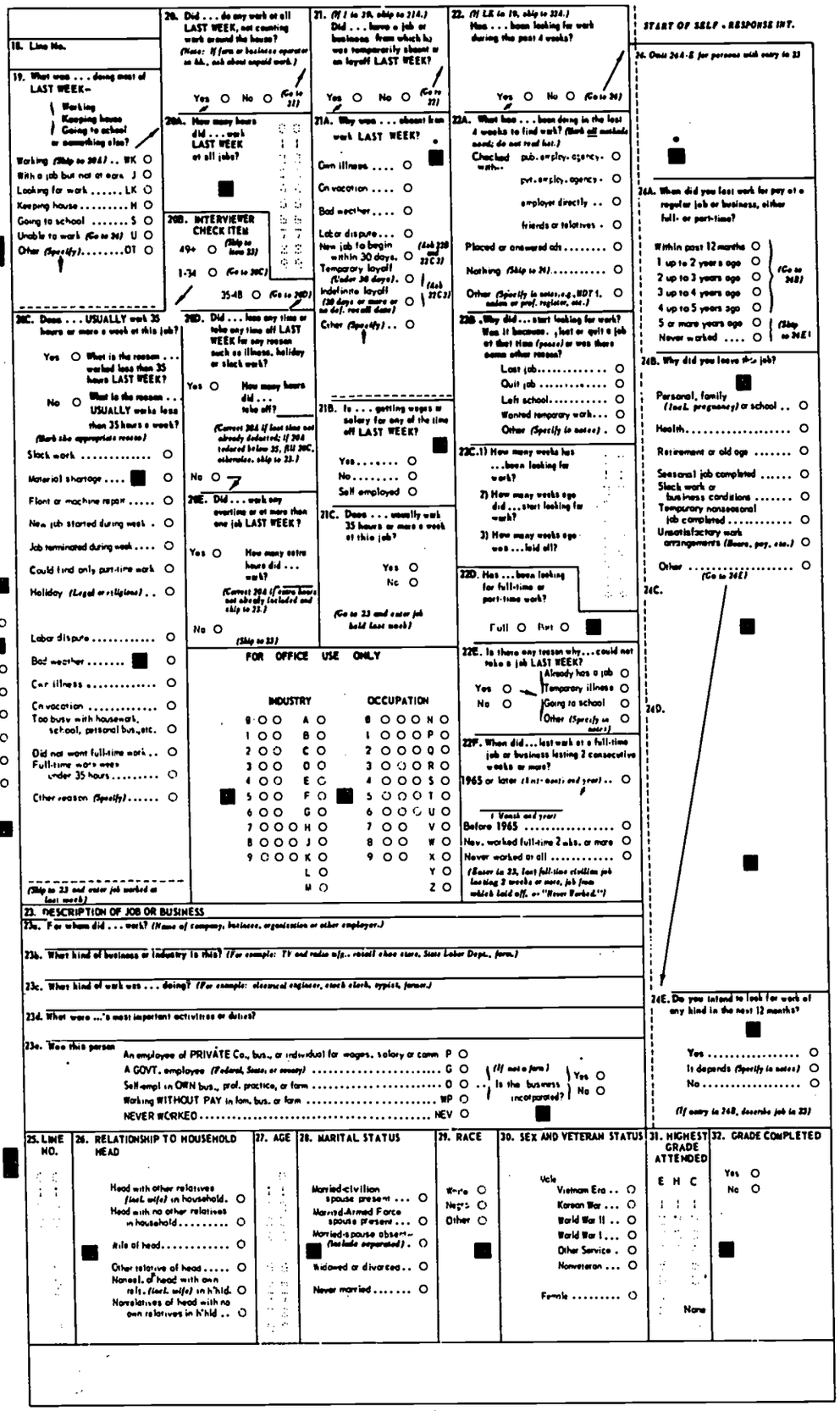
Form CES-2 LABOR FORCE QUESTIONNAIRE—Continued



18. Line No.

19. What was ... doing most of LAST WEEK—
Working / Keeping house / Going to school / or something else?
Working (Skip to 20A) .. WK O
With a job but not at work J O
Looking for work ..... LK O
Keeping house ..... H O
Going to school ..... S O
Unable to work (Go to 24) U O
Other (Specify) ..... OT O

20. Did ... do any work at all LAST WEEK, not counting work around the house? (Note: If farm or business operator or fam., ask about unpaid work.) Yes O No O (Go to 21)

20A. How many hours did ... work LAST WEEK at all jobs?

20B. INTERVIEWER CHECK ITEM (Skip to Item 23)
49+ O
1-34 O (Go to 20C)
35-48 O (Go to 20D)

20C. Does ... USUALLY work 35 hours or more a week at this job?
Yes O What is the reason ... worked less than 35 hours LAST WEEK?
No O What is the reason ... USUALLY works less than 35 hours a week?
(Mark the appropriate reason)
Slack work ..... O
Material shortage .... O
Plant or machine repair ..... O
New job started during week . O
Job terminated during week .... O
Could find only part-time work O
Holiday (Legal or religious) .. O
Labor dispute ..... O
Bad weather ..... O
Own illness ..... O
On vacation ..... O
Too busy with housework, school, personal bus., etc. O
Did not want full-time work .. O
Full-time work was under 35 hours ..... O
Other reason (Specify) ..... O
(Skip to 23 and enter job worked at last week)

20D. Did ... lose any time or take any time off LAST WEEK for any reason such as illness, holiday or slack work?
Yes O How many hours did ... take off?
(Current 20A if lost time not already deducted; if 20A reduced below 35, fill 20C, otherwise, skip to 23.)
No O

20E. Did ... work any overtime or at more than one job LAST WEEK?
Yes O How many extra hours did ... work?
(Current 20A if extra hours not already included and skip to 23.)
No O
(Skip to 23)

21. (If 1 to 20, skip to 21A.) Did ... have a job or business from which he was temporarily absent or on layoff LAST WEEK? Yes O No O (Go to 22)

21A. Why was ... absent from work LAST WEEK?
Own illness .... O
On vacation .... O
Bad weather .... O
Labor dispute ... O
New job to begin within 30 days. O (Ask 22B and 22C3)
Temporary layoff (Under 30 days). O (Ask 22C3)
Indefinite layoff (30 days or more or no def. recall date) O (Ask 22C3)
Other (Specify) .. O

21B. Is ... getting wages or salary for any of the time off LAST WEEK?
Yes ..... O
No ..... O
Self employed O

21C. Does ... usually work 35 hours or more a week at this job?
Yes O
No O
(Go to 23 and enter job held last week)

22. (If LK to 19, skip to 22A.) Has ... been looking for work during the past 4 weeks?
Yes O No O (Go to 24)

22A. What has ... been doing in the last 4 weeks to find work? (Mark all methods used; do not read list.)
Checked with— pub. employ. agency. O
pvt. employ. agency. O
employer directly .. O
friends or relatives . O
Placed or answered ads ..... O
Nothing (Skip to 24) ..... O
Other (Specify in notes, e.g., HOT, union or prof. register, etc.) O

22B. Why did ... start looking for work? Was it because ... lost or quit a job at that time (pause) or was there some other reason?
Lost job ..... O
Quit job ..... O
Left school ..... O
Wanted temporary work ... O
Other (Specify in notes) . O

22C. 1) How many weeks has ... been looking for work?
2) How many weeks ago did ... start looking for work?
3) How many weeks ago was ... laid off?

22D. Has ... been looking for full-time or part-time work?
Full O Part O

22E. Is there any reason why ... could not take a job LAST WEEK?
Yes O / No O
Already has a job O
Temporary illness O
Going to school O
Other (Specify in notes) O

22F. When did ... last work at a full-time job or business lasting 2 consecutive weeks or more?
1965 or later (Enter week and year) .. O
(Week and year)
Before 1965 ..... O
Nev. worked full-time 2 wks. or more O
Never worked at all ..... O
(Enter in 23, last full-time civilian job lasting 2 weeks or more, job from which laid off, or "Never Worked.")

START OF SELF - RESPONSE INT.

24. Omit 24A-E for persons with entry in 23

24A. When did you last work for pay at a regular job or business, either full- or part-time?
Within past 12 months O
1 up to 2 years ago O
2 up to 3 years ago O
3 up to 4 years ago O
4 up to 5 years ago O
5 or more years ago O
Never worked .... O
(Go to 24B) / (Skip to 24E!)

24B. Why did you leave this job?
Personal, family (Incl. pregnancy) or school .. O
Health ..... O
Retirement or old age ..... O
Seasonal job completed ..... O
Slack work or business conditions ..... O
Temporary nonseasonal job completed ..... O
Unsatisfactory work arrangements (Hours, pay, etc.) O
Other ..... O
(Go to 24E)

24C.

24D.

24E. Do you intend to look for work of any kind in the next 12 months?
Yes ..... O
It depends (Specify in notes) O
No ..... O
(If entry in 24B, describe job in 23)

FOR OFFICE USE ONLY

INDUSTRY		OCCUPATION	
0 O O	A O	0 O O O	N O
1 O O	B O	1 O O O	P O
2 O O	C O	2 O O O	Q O
3 O O	D O	3 O O O	R O
4 O O	E O	4 O O O	S O
5 O O	F O	5 O O O	T O
6 O O	G O	6 O O O	U O
7 O O O	H O	7 O O	V O
8 O O O	J O	8 O O	W O
9 O O O	K O	9 O O	X O
	L O		Y O
	M O		Z O

23. DESCRIPTION OF JOB OR BUSINESS

23a. For whom did ... work? (Name of company, business, organization or other employer.)

23b. What kind of business or industry is this? (For example: TV and radio mfg., retail shoe store, State Labor Dept., farm.)

23c. What kind of work was ... doing? (For example: electrical engineer, stock clerk, typist, farmer.)

23d. What were ...'s most important activities or duties?

23e. Was this person
An employee of PRIVATE Co., bus., or individual for wages, salary or comm P O
A GOVT. employee (Federal, State, or county) ..... G O
Self-empl in OWN bus., prof. practice, or farm ..... O O
Working WITHOUT PAY in fam. bus. or farm ..... WP O
NEVER WORKED ..... NEV O
(If self-empl or farm) Is the business incorporated? Yes O No O

25. LINE NO.	26. RELATIONSHIP TO HOUSEHOLD HEAD	27. AGE	28. MARITAL STATUS	29. RACE	30. SEX AND VETERAN STATUS	31. HIGHEST GRADE ATTENDED	32. GRADE COMPLETED
	Head with other relatives (Incl. wife) in household. O Head with no other relatives in household ..... O Wife of head ..... O Other relative of head ..... O Nonrel. of head with own rels. (Incl. wife) in h'hld. O Nonrelatives of head with no own relatives in h'hld .. O		Married-civilian spouse present ... O Married-Armed Force spouse present ... O Married-spouse absent—(Include separated) . O Widowed or divorced .. O Never married ..... O	White O Negro O Other O	Male Vietnam Era .. O Korean War ... O World War II .. O World War I ... O Other Service . O Nonveteran ... O Female ..... O	E H C None	Yes O No O

4

7611

Form CES-3 WORK HISTORY BOOOKLET—Continued

SECTION C – Continued

C LOOKED BUT COULDN'T FIND WORK – Continued

11a. If additional training were made available would you take it? . . a. 185
1 ☐ Yes – *SKIP to 12a*
2 ☐ It depends – *ASK 11b*
3 ☐ No – *SKIP to 12a*

b. What does it depend on? *(Mark all that apply)* . . . . . b.
4 ☐ Pay during training
5 ☐ Type of job being trained for
6 ☐ Length of training period
7 ☐ Other – *Specify* _____
GO to 12a

12a. If a job were made available, would you take it? . . . . . a. 186
1 ☐ Yes – *SKIP to next reason*
2 ☐ It depends – *ASK 12b*
3 ☐ No – *ASK 12c*

b. What does it depend on? *(Mark all that apply)* . . . . . b.
4 ☐ Pay
5 ☐ Type of job
6 ☐ Working conditions
7 ☐ Location of job
8 ☐ Other – *Specify* _____
SKIP to next reason

c. Is there any particular reason why not? *(Verbatim)* . . . . . c. 187 ☐☐
_____
_____

D TRANSPORTATION PROBLEMS

13a. Do you know of job openings that you would be willing to take if you could get transportation? . . . . . a. 188
1 ☐ Yes – *ASK 13b*
2 ☐ No – *SKIP to next reason*

b. How many miles away is the nearest job that you would take? b.
189 _____ Miles

c. What is your problem in getting there? . . . . . c. 190 ☐☐
_____
_____

E AGE

14a. Have you been told by an employer that you were too old (young)? . . . . . a. 191
1 ☐ Yes – *ASK 14b*
2 ☐ No – *SKIP to next reason*

b. Do you think you are too old (too young) to take a job? . . . . . b.
3 ☐ Yes – *SKIP to next reason*
4 ☐ No – *ASK 14c*

c. What kind of job was it that you applied for? . . . . . c. 192 ☐☐☐ Occupation

F LACK OF EXPERIENCE, EDUCATION, OR SKILL

15a. Would you be willing to go back to school to get more experience, education, or skill? . . . . . a. 193
1 ☐ Yes – *ASK 15b*
2 ☐ No – *END QUESTIONS*

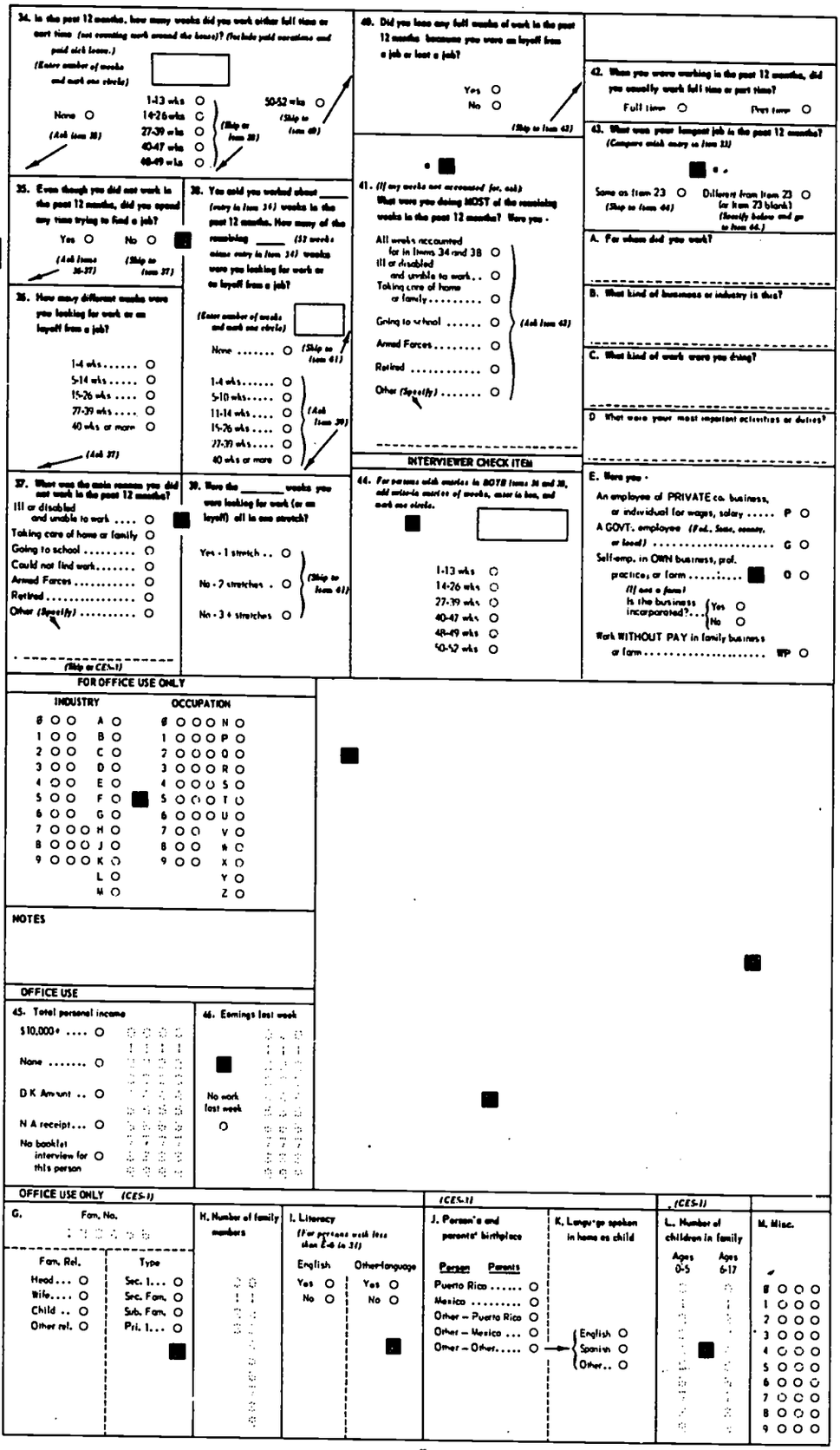
b. What do you want; basic education, job training, or something else? . . . . . b.
4 ☐ Basic education – only
5 ☐ Job training – only
6 ☐ Something else – only
7 ☐ Basic education and job training
8 ☐ Basic education and something else
9 ☐ Job training and something else
0 ☐ All three kinds

Notes

FORM CES-3 12-17-701

7625

Form CES-2 LABOR FORCE QUESTIONNAIRE—Continued



7612

Form CES-3 WORK HISTORY BOOKLET—Continued

SECTION D – For Persons in Labor Force Groups I and II *(Omit if respondent is 65 years old or older)*

1. *(If under 25)* Are you now enrolled in school or expecting to return to school within 3 months?
   194 ☐ 1 Yes – *End questions*
   ☐ 2 No

2. People have many different problems in finding and taking a job –

   (If Labor Force Group I) In your own case, do any of these problems directly affect your holding a job or finding a better one? *(Read list)*

   OR

   (If Labor Force Group II) In your own case, are any of these a problem in finding a job? *(Read list)*

   a. *(Women with own children under 14 years old)* Family responsibilities or arranging for the care of your children? . . . a.
   ★195 ☐ 1 Yes – *GO to* [A]
   ☐ 2 No

   b. Problems with your health? . . . . . b.
   ☐ 3 Yes – *GO to* [B]
   ☐ 4 No

   c. Lack of experience, education, or skill? . . . . . c.
   ☐ 5 Yes – *GO to* [C]
   ☐ 6 No

   d. *(Omit if 25–49 years old)* Employers think you are too young (too old)? . . . . . d.
   ☐ 7 Yes
   ☐ 8 No

   e. Do you have any other such problems? . . . . . e.
   196 ☐ 1 Yes → ☐ 2 No
   What is it? →
   197 ☐☐

[A] FAMILY RESPONSIBILITIES

3. What are your family responsibilities? *(Mark all that apply)*
   ★198 ☐ 1 Child care – *ASK 4*
   ☐ 2 Care of husband
   ☐ 3 Keeping house
   ☐ 4 Care of other relatives
   ☐ 5 Other – *Specify* →
   If child care not marked, SKIP to next problem marked

4. What are your problems in arranging for child care? *(Mark all that apply)*
   ★199 ☐ 1 Want to care for children myself, or child care is no problem – *SKIP to next problem*
   ☐ 2 Can't find anyone at price I can pay
   ☐ 3 Can't find anyone at any price
   ☐ 4 Don't trust baby-sitters
   ☐ 5 Never really tried to find child care
   ☐ 6 Other – *Specify* _____

5. Is there a child care center available in your neighborhood (area)?
   ★200 ☐ 1 Yes – *ASK 6*
   ☐ 2 No or don't know – *SKIP to 8*

6. Do you use it?
   ☐ 3 Yes – *SKIP to next problem*
   ☐ 4 No

7. Is there some reason why you can't use it?
   201 ☐☐
   _____
   _____

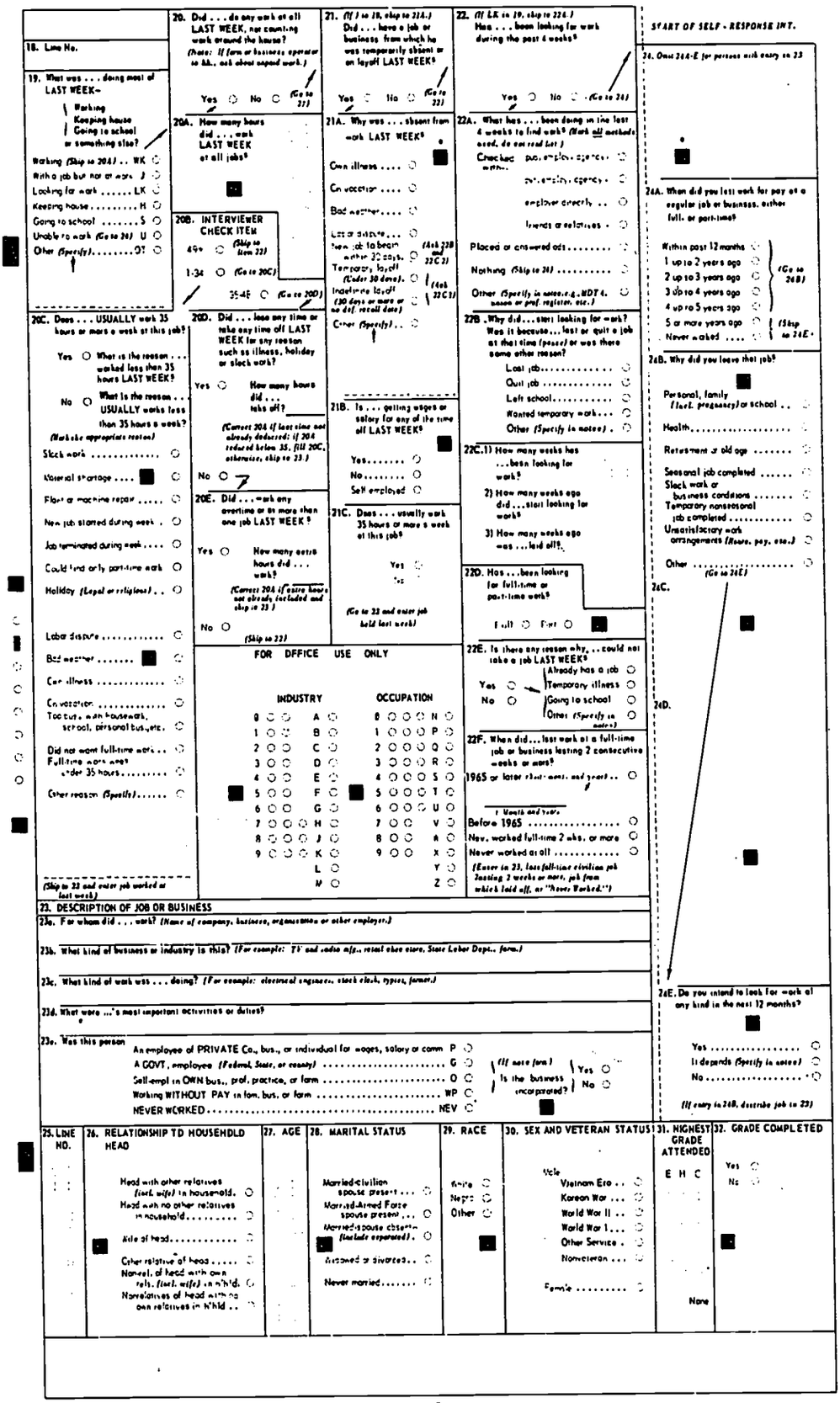
8. If a child care center were made available, would you use it?
   202 ☐ 1 Yes – *SKIP to next problem*
   ☐ 2 No – *ASK 9*
   ☐ 3 It depends – *ASK 10*

9. Any particular reason why you would not use the child care center? *(Verbatim)*
   203 ☐☐
   _____
   _____

10. On what does your use of the child care center depend? *(Verbatim)*
    204 ☐☐
    _____
    _____

Page 11

Form CES 2 LABOR FORCE QUESTIONNAIRE—Continued



18. Line No.

19. What was . . . doing most of LAST WEEK— (Working / Keeping house / Going to school / or something else?)
Working (Skip to 20A) . . WK
With a job but not at work)
Looking for work . . . . . LK
Keeping house . . . . . H
Going to school . . . . . S
Unable to work (Go to 20) U
Other (Specify) . . . . . OT

20. Did . . . do any work at all LAST WEEK, not counting work around the house? (Note: If farm or business operator to ask., ask about unpaid work.)
Yes / No (Go to 21)

20A. How many hours did . . . work LAST WEEK at all jobs?

20B. INTERVIEWER CHECK ITEM
49+ (Skip to Item 22)
1-34 (Go to 20C)
35-48 (Go to 20D)

21. (If) to 19, skip to 21A.) Did . . . have a job or business from which he was temporarily absent or on layoff LAST WEEK?
Yes / No (Go to 22)

21A. Why was . . . absent from work LAST WEEK?
Own illness . . . .
On vacation . . . .
Bad weather . . . .
Labor dispute . . .
New job to begin within 30 days. (Ask 22B and 22C.)
Temporary layoff (Under 30 days).
Indefinite layoff (30 days or more or no def. recall date) (Ask 22C.)
Other (Specify) . .

21B. Is . . . getting wages or salary for any of the time off LAST WEEK?
Yes . . . . . .
No . . . . . .
Self-employed

21C. Does . . . usually work 35 hours or more a week at this job?
Yes
No
(Go to 22 and enter job held last week)

22. (If LK in 19, skip to 22A.) Has . . . been looking for work during the past 4 weeks?
Yes / No (Go to 24)

22A. What has . . . been doing in the last 4 weeks to find work? (Work all methods used. Do not read list.)
Checked with: pub. employ. agency / private employ. agency / employer directly / friends or relatives
Placed or answered ads . . . . . .
Nothing (Skip to 24) . . . . . .
Other (Specify in notes e.g., MDTA, union or prof. register, etc.)

22B. Why did . . . start looking for work? Was it because . . . lost or quit a job at that time (pause) or was there some other reason?
Lost job . . . . . .
Quit job . . . . . .
Left school . . . . . .
Wanted temporary work . . .
Other (Specify in notes) .

22C.1) How many weeks has . . . been looking for work?
2) How many weeks ago did . . . start looking for work?
3) How many weeks ago was . . . laid off?

22D. Has . . . been looking for full-time or part-time work?
Full / Part

22E. Is there any reason why . . . could not take a job LAST WEEK?
Yes / No
Already has a job
Temporary illness
Going to school
Other (Specify in notes)

22F. When did . . . last work at a full-time job or business lasting 2 consecutive weeks or more?
1965 or later (Month and year) . .
Before 1965 . . . . . .
Nev. worked full-time 2 wks. or more
Never worked at all . . . . . .
(Enter in 23, last full-time civilian job lasting 2 weeks or more, job from which laid off, or "Never Worked.")

START OF SELF - RESPONSE INT.

24. Omit 24A-E for persons with entry on 23

24A. When did you last work for pay at a regular job or business, either full- or part-time?
Within past 12 months
1 up to 2 years ago
2 up to 3 years ago
3 up to 4 years ago
4 up to 5 years ago
5 or more years ago
Never worked
(Go to 24B) / (Skip to 24E.)

24B. Why did you leave that job?
Personal, family (incl. pregnancy) or school . .
Health . . . . . .
Retirement or old age . . . . . .
Seasonal job completed . . . . . .
Slack work or business conditions . . . . . .
Temporary nonseasonal job completed . . . . . .
Unsatisfactory work arrangements (Hours, pay, etc.)
Other . . . . . .
(Go to 24E)

24C.

24D.

24E. Do you intend to look for work of any kind in the next 12 months?
Yes . . . . . .
It depends (Specify in notes)
No . . . . . .
(If entry in 24B, describe job in 23)

20C. Does . . . USUALLY work 35 hours or more a week at this job?
Yes / What is the reason . . . worked less than 35 hours LAST WEEK?
No / What is the reason . . . USUALLY works less than 35 hours a week?
(Mark the appropriate reason)
Slack work . . . . . .
Material shortage . . . .
Plant or machine repair . . . . .
New job started during week .
Job terminated during week . . . .
Could find only part-time work
Holiday (Legal or religious) . .
Labor dispute . . . . . .
Bad weather . . . . . .
Own illness . . . . . .
On vacation . . . . . .
Took out. own housework, school, personal business, etc.
Did not want full-time work . . .
Full-time work was under 35 hours . . . . . .
Other reason (Specify) . . . . . .
(Skip to 23 and enter job worked at last week.)

20D. Did . . . lose any time or take any time off LAST WEEK for any reason such as illness, holiday or slack work?
Yes / How many hours did . . . take off?
(Correct 20A if less time not already deducted; if 20A reduced below 35, fill 20C, otherwise, skip to 23.)
No / (Skip to 23)

20E. Did . . . work any overtime or at more than one job LAST WEEK?
Yes / How many extra hours did . . . work?
(Correct 20A if extra hours not already included and skip to 23.)
No / (Skip to 23)

FOR OFFICE USE ONLY

INDUSTRY		OCCUPATION	
0	A	0	N
1	B	1	P
2	C	2	Q
3	D	3	R
4	E	4	S
5	F	5	T
6	G	6	U
7	H	7	V
8	J	8	X
9	K	9	Y
	L		Z
	M		

23. DESCRIPTION OF JOB OR BUSINESS
23a. For whom did . . . work? (Name of company, business, organization or other employer.)
23b. What kind of business or industry is this? (For example: TV and radio mfr., retail shoe store, State Labor Dept., farm.)
23c. What kind of work was . . . doing? (For example: electrical engineer, stock clerk, typist, farmer.)
23d. What were . . .'s most important activities or duties?
23e. Was this person
An employee of PRIVATE Co., bus., or individual for wages, salary or comm P
A GOVT. employee (Federal, State, or county) . . . . . G
Self-empl in OWN bus., prof. practice, or farm . . . . . O
Working WITHOUT PAY in fam. bus. or farm . . . . . WP
NEVER WORKED . . . . . NEV
(If self-empl) Is the business incorporated? Yes / No

25. LINE NO.	26. RELATIONSHIP TO HOUSEHOLD HEAD	27. AGE	28. MARITAL STATUS	29. RACE	30. SEX AND VETERAN STATUS	31. HIGHEST GRADE ATTENDED	32. GRADE COMPLETED
	Head with other relatives (incl. wife) in household Head with no other relatives in household Wife of head Other relative of head Nonrel. of head with own rels. (incl. wife) in h'hld. Nonrelatives of head with no own relatives in h'hld.		Married-civilian spouse present Married-Armed Force spouse present Married-spouse absent (includes separated) Widowed or divorced Never married	White Negro Other	Male Vietnam Era Korean War World War II World War I Other Service Nonveteran Female	E H C None	Yes No

7613

Form CES-3 WORK HISTORY BOOKLET—Continued

SECTION D – [illegible]ersons in Labor Force Group I and II – Continued

B HEALTH PROBLEMS

205 ☐☐☐☐

11. What type of health problems do you have?
(For example: heart condition, back trouble, etc.)

99 ☐ Pregnancy – *SKIP to next problem*

12. Have you been under a doctor's care for this disability or illness?

206 1 ☐ Yes
2 ☐ No

13. How long have you had the disability or illness?

3 ☐ Always
4 ☐ Less than 1 month
5 ☐ 1–5 months
6 ☐ 6–11 months
7 ☐ 12 months

14. How long do you expect it to last – less than 6 months or 6 months or more?

207 1 ☐ Less than 6 months – *SKIP to next problem*
2 ☐ 6 months or more
3 ☐ Don't know

C LACK OF EXPERIENCE, EDUCATION, OR SKILL

15a. Would you be willing to go back to school to overcome the lack of – experience, education, skill? . . . . . a.
(If Yes) – **Full time or part time?**

208 1 ☐ Yes – Full time } *ASK 15b*
2 ☐ Yes – Part time }
3 ☐ No – *End questions*

b. Which do you prefer; basic education, job training, or something else? . . . . . b.

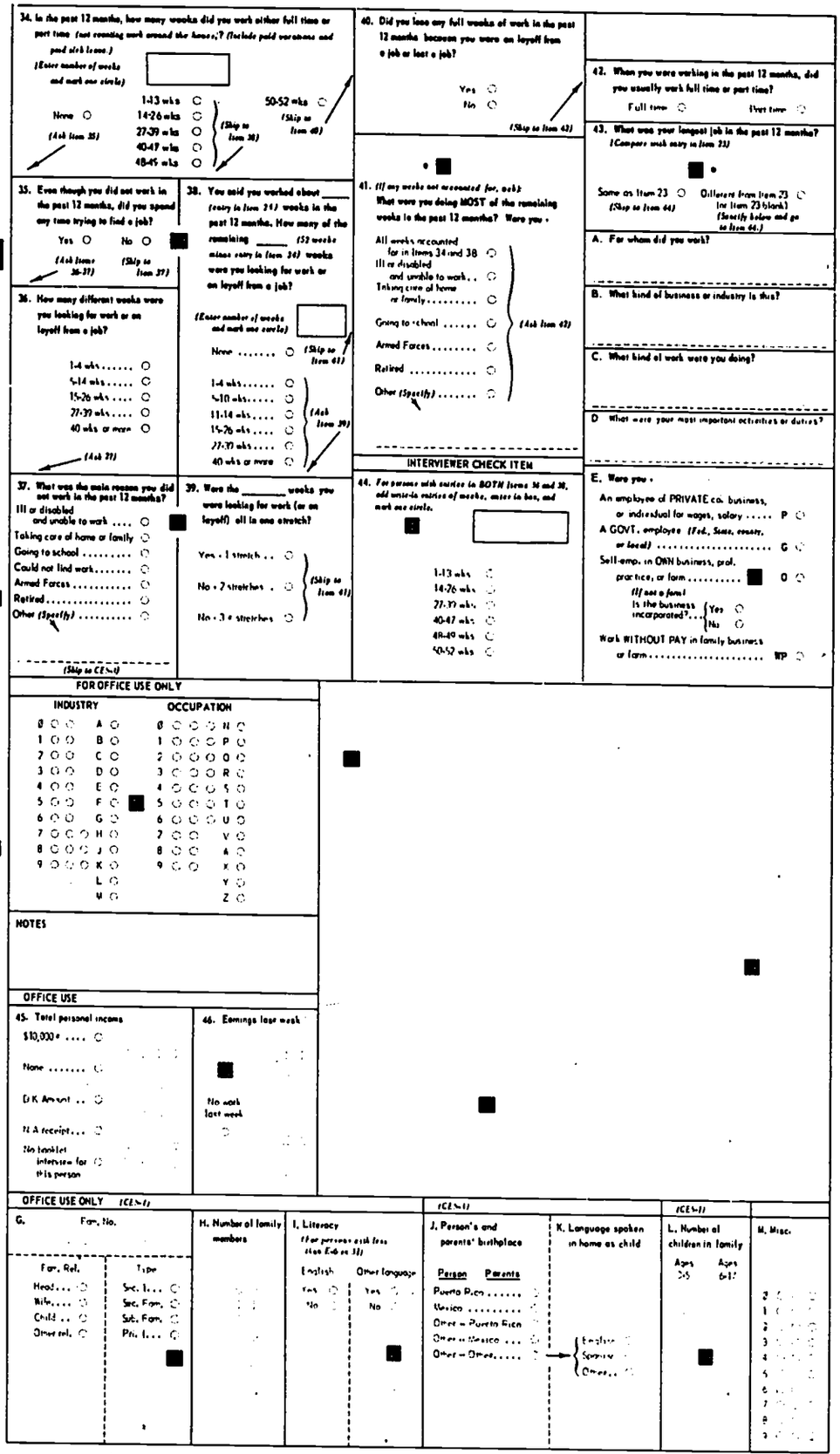
4 ☐ Basic education only
5 ☐ Job training only
6 ☐ Something else
7 ☐ Basic education and job training
8 ☐ Basic education and something else
9 ☐ Job training and something else
0 ☐ All three kinds

Notes

FORM CES-3 (5-17-70)

ERIC

Form CES-2 LABOR FORCE QUESTIONNAIRE—Continued



34. In the past 12 months, how many weeks did you work either full time or part time (not counting work around the house)? (Include paid vacations and paid sick leave.)
(Enter number of weeks and mark one circle)
None ○ (Ask Item 35)
1-13 wks ○ 14-26 wks ○ 27-39 wks ○ 40-47 wks ○ 48-49 wks ○ (Skip to Item 38)
50-52 wks ○ (Skip to Item 40)

35. Even though you did not work in the past 12 months, did you spend any time trying to find a job?
Yes ○ (Ask Items 36-37) No ○ (Skip to Item 37)

36. How many different weeks were you looking for work or on layoff from a job?
1-4 wks ○ 5-14 wks ○ 15-26 wks ○ 27-39 wks ○ 40 wks or more ○ (Ask 37)

37. What was the main reason you did not work in the past 12 months?
Ill or disabled and unable to work ○
Taking care of home or family ○
Going to school ○
Could not find work ○
Armed Forces ○
Retired ○
Other (Specify) ○
(Skip to CES-1)

38. You said you worked about ____ (entry in Item 34) weeks in the past 12 months. How many of the remaining ____ (52 weeks minus entry in Item 34) weeks were you looking for work or on layoff from a job?
(Enter number of weeks and mark one circle)
None ○ (Skip to Item 41)
1-4 wks ○ 5-10 wks ○ 11-14 wks ○ 15-26 wks ○ 27-39 wks ○ 40 wks or more ○ (Ask Item 39)

39. Were the ____ weeks you were looking for work (or on layoff) all in one stretch?
Yes - 1 stretch ○
No - 2 stretches ○
No - 3 or more stretches ○
(Skip to Item 41)

40. Did you lose any full weeks of work in the past 12 months because you were on layoff from a job or lost a job?
Yes ○
No ○ (Skip to Item 42)

41. (If any weeks not accounted for, ask:)
What were you doing MOST of the remaining weeks in the past 12 months? Were you -
All weeks accounted for in Items 34 and 38 ○
Ill or disabled and unable to work ○
Taking care of home or family ○
Going to school ○
Armed Forces ○
Retired ○
Other (Specify) ○
(Ask Item 42)

INTERVIEWER CHECK ITEM

44. For persons with entries in BOTH Items 34 and 38, add entries of weeks, enter in box, and mark one circle.
1-13 wks ○ 14-26 wks ○ 27-39 wks ○ 40-47 wks ○ 48-49 wks ○ 50-52 wks ○

42. When you were working in the past 12 months, did you usually work full time or part time?
Full time ○ Part time ○

43. What was your longest job in the past 12 months?
(Compare work entry in Item 23)
Same as Item 23 ○ (Skip to Item 44)
Different from Item 23 (or Item 23 blank) ○ (Specify below and go to Item 44.)

A. For whom did you work?

B. What kind of business or industry is this?

C. What kind of work were you doing?

D. What were your most important activities or duties?

E. Were you -
An employee of PRIVATE co. business, or individual for wages, salary ..... P ○
A GOVT. employee (Fed., State, county, or local) ..... G ○
Self-emp. in OWN business, prof. practice, or farm ..... O ○
(If not a farm) Is the business incorporated? Yes ○ No ○
Work WITHOUT PAY in family business or farm ..... WP ○

FOR OFFICE USE ONLY

INDUSTRY: 0 1 2 3 4 5 6 7 8 9 / A B C D E F G H J K L M

OCCUPATION: 0 1 2 3 4 5 6 7 8 9 / N P Q R S T U V A X Y Z

NOTES

OFFICE USE

45. Total personal income
$10,000+ ○
None ○
D/K Amount ○
N/A receipt ○
No booklet interview for this person ○

46. Earnings last week
No work last week ○

OFFICE USE ONLY (CES-1)

G. Fam. No.
Fam. Rel.: Head ○ Wife ○ Child ○ Other rel. ○
Type: Sec. I. ○ Sec. Fam. ○ Sec. Fam. ○ Pri. I. ○

H. Number of family members

I. Literacy (For persons with less than 5th grade)
English: Yes ○ No ○
Other language: Yes ○ No ○

J. Person's and parents' birthplace
Person / Parents
Puerto Rico ○
Mexico ○
Other - Puerto Rico ○
Other - Mexico ○
Other - Other ○

K. Language spoken in home as child
English ○
Spanish ○
Other ○

L. Number of children in family
Ages 0-5
Ages 6-17

M. Misc.
0 1 2 3 4 5 6 7 8 9

Appendix D.—PUBLICATION AND COMPUTER SUMMARY TAPE PROGRAM

The results of the 1970 Census of Population and Housing are being issued in the form of printed reports, microfiche copies of the printed reports, computer summary tapes, computer printouts, and microfilm. Listed below are short descriptions of the final report series and computer tapes, as currently planned. More detailed information on this program can be obtained by writing to the Publications Distribution Section, Bureau of the Census, Washington, D.C. 20233.

Population Census Reports

Volume I.
CHARACTERISTICS OF THE POPULATION
This volume will consist of 58 "parts"—number 1 for the United States, numbers 2 through 52 for the 50 States and the District of Columbia in alphabetical order, and numbers 53 through 58 for Puerto Rico, Guam, Virgin Islands, American Samoa, Canal Zone, and Trust Territory of the Pacific Islands, respectively. Each part, which will be a separate clothbound book, will contain four chapters designated as A, B, C, and D. Each chapter (for each of the 58 areas) will first be issued as an individual paperbound report in four series designated as PC(1)-A, B, C, and D, respectively. The 58 PC(1)-A reports will be specially assembled and issued in a clothbound book, designated as Part A.

- Series PC(1)-A.
  NUMBER OF INHABITANTS.

Final official population counts are presented for States, counties by urban and rural residence, standard metropolitan statistical areas (SMSA's), urbanized areas, county subdivisions, all incorporated places, and unincorporated places of 1,000 inhabitants or more.

- Series PC(1)-B.
  GENERAL POPULATION CHARACTERISTICS

Statistics on age, sex, race, marital status, and relationship to head of household are presented for States, counties by urban and rural residence, SMSA's, urbanized areas, county subdivisions, and places of 1,000 inhabitants or more.

- Series PC(1)-C.
  GENERAL SOCIAL AND ECONOMIC CHARACTERISTICS

Statistics are presented on nativity and parentage, State or country of birth, Spanish origin, mother tongue, residence 5 years ago, year moved into present house, school enrollment (public or private), years of school completed, vocational training, number of children ever born, family composition, disability, veteran status, employment status, place of work, means of transportation to work, occupation group, industry group, class of worker, and income (by type) in 1969 of families and individuals. Each subject is shown for some or all of the following areas: States, counties (by urban, rural-nonfarm, and rural-farm residence), SMSA's, urbanized areas, and places of 2,500 inhabitants or more.

- Series PC(1)-D.
  DETAILED CHARACTERISTICS

These reports will cover most of the subjects shown in Series PC(1)-C, above, presenting the data in considerable detail and cross-classified by age, race, and other characteristics. Each subject will be shown for some or all of the following areas: States (by urban, rural-nonfarm, and rural-farm residence), SMSA's, and large cities.

Volume II.
SUBJECT REPORTS
Each report in this volume, also designated as Series PC(2), will concentrate on a particular subject. Detailed information and cross-relationships will generally be provided on a national and regional level in some reports, data for States or SMSA's will also be shown. Among the characteristics to be covered are national origin and race, fertility, families, marital status, migration, education, unemployment, occupation, industry, and income.

Housing Census Reports

Volume I.
HOUSING CHARACTERISTICS FOR STATES, CITIES, AND COUNTIES
This volume will consist of 58 "parts"—number 1 for the United States, numbers 2 through 52 for the 50 States and the District of Columbia in alphabetical order, and numbers 53 through 58 for Puerto Rico, Guam, Virgin Islands, American Samoa, Canal Zone, and Trust Territory of the Pacific Islands, respectively. Each part, which will be a separate clothbound book, will contain two chapters designated as A and B. Each chapter (for each of the 58 areas) will first be issued as an individual paperbound report in two series designated as HC(1)-A and B, respectively.

- Series HC(1)-A.
  GENERAL HOUSING CHARACTERISTICS

Statistics on tenure, kitchen facilities, plumbing facilities, number of rooms, persons per room, units in structure, mobile home, telephone, value, contract rent, and vacancy status are presented for some or all of the following areas: States (by urban and rural residence), SMSA's, urbanized areas, places of 1,000 inhabitants or more, and counties.

- Series HC(1)-B.
  DETAILED HOUSING CHARACTERISTICS

Statistics are presented on a more detailed basis for the subjects included in the Series HC(1)-A reports, as well as on such additional subjects as year moved into unit, year structure built, basement, heating equipment, fuels, air conditioning, water and sewage, appliances, gross rent, and ownership of second home. Each subject is shown for some or all of the following areas: States (by urban, rural-nonfarm, and rural-farm residence), SMSA's, urbanized areas, places of 2,500 inhabitants or more, and counties (by rural and rural-farm residence).

Volume II.
METROPOLITAN HOUSING CHARACTERISTICS
These reports, also designated as Series HC(2), will cover most of the 1970 census housing subjects in considerable detail and cross-classification. There will be one report for each SMSA, presenting data for the SMSA and its central cities and places of 50,000 inhabitants or more, as well as a national summary report.

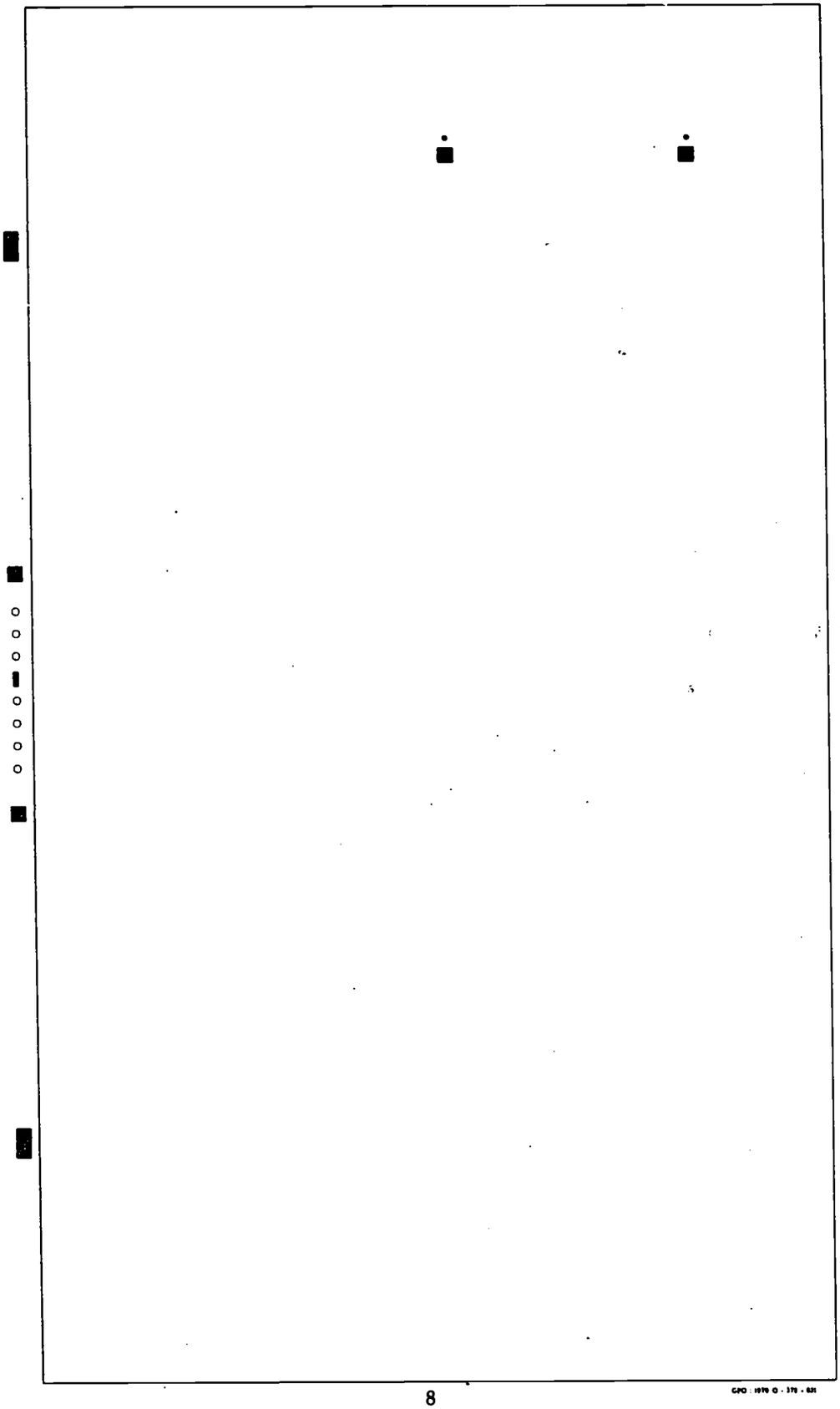
Volume III.
BLOCK STATISTICS
One report, under the designation Series HC(3), is issued for each urbanized area showing data for individual blocks on selected housing and population subjects. The series also includes reports for the communities outside urbanized areas which have contracted with the Census Bureau to provide block statistics from the 1970 census.

Volume IV.
COMPONENTS OF INVENTORY CHANGE
This volume will contain data on the disposition of the 1960 inventory and the source of the 1970 inventory, such as new construction, conversions, mergers, demolitions, and other additions and losses. Cross-tabulations of 1970 and 1960 characteristics for units that have not changed and characteristics of the present and previous residence of recent movers will also be provided. Statistics will be shown for 15 selected SMSA's and for the United States and regions.

Volume V.
RESIDENTIAL FINANCE
This volume will present data regarding the financing of privately owned nonfarm residential properties. Statistics will be shown on amount of outstanding mortgage debt, manner of acquisition of property, homeowner expenses, and other owner, property, and mortgage characteristics for the United States and regions.

ED 047628

Form CES-2 LABOR FORCE QUESTIONNAIRE—Continued



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Appendix D.—Continued

Volume VI.
ESTIMATES OF "SUBSTANDARD" HOUSING
This volume will present counts of "substandard" housing units for counties and cities, based on the number of units lacking plumbing facilities combined with estimates of units with all plumbing facilities but in "dilapidated" condition.

Volume VII.
SUBJECT REPORTS
Each report in this volume will concentrate on a particular subject. Detailed information and cross-classifications will generally be provided on a national and regional level; in some reports, data for States or SMSA's may also be shown. Among the subjects to be covered are housing charactristics by household composition, housing of minority groups and senior citizens, and households in mobile homes.

Joint Population-Housing Reports

Series PHC(1).
CENSUS TRACT REPORTS
This series will contain one report for each SMSA, showing data for most of the population and housing subjects included in the 1970 census.

Series PHC(2).
GENERAL DEMOGRAPHIC TRENDS FOR METROPOLITAN AREAS, 1960 to 1970
This series consists of one report for each State and the District of Columbia, as well as a national summary report, presenting statistics for the State and for SMSA's and their central cities and constituent counties. Comparative 1960 and 1970 data are shown on population counts by age and race and on such housing subjects as tenure, plumbing facilities, value, and contract rent.

Series PHC(3).
EMPLOYMENT PROFILES OF SELECTED LOW-INCOME AREAS
This series will consist of approximately 70 reports, each presenting statistics on the social and economic characteristics of the residents of a particular low-income area. The data relate to low-income neighborhoods in 54 cities and seven rural poverty areas. Each report will provide statistics on employment and unemployment, education, vocational training, availability for work, job history, and income, as well as on value or rent and number of rooms in the housing unit.

Additional Reports

Series PHC(E).
EVALUATION REPORTS
This open series will present the results of the extensive evaluation program conducted as an integral part of the 1970 census program, and relating to such matters as completeness of enumeration and quality of the data on characteristics.

Series PHC(R).
PROCEDURAL REPORTS
This open series presents information on various administrative and methodological aspects of the 1970 census, and will include a comprehensive procedural history of the 1970 census. The first report issued focuses on the forms and procedures used in the data collection phase of the census.

Computer Summary Tapes

The major portion of the results of the 1970 census will be produced in a set of six tabulation counts. To help meet the needs of census users, these counts are being designed to provide data with much greater subject and geographic detail than it is feasible or desirable to publish in printed reports. The data so tabulated will generally be available—subject to suppression of certain detail where necessary to protect confidentiality—on magnetic computer tape, printouts, and microfilm, at the cost of preparing the copy.

First Count—source of the PC(1)-A reports; contains about 400 cells of data on the subjects covered in the PC(1)-B and HC(1)-A reports and tabulated for each of the approximately 250,000 enumeration districts in the United States.

Second Count—source of the PC(1)-B, HC(1)-A, and part of the PHC(1) reports; contains about 3,500 cells of data covering the subjects in these reports and tabulated for the approximately 35,000 tracts and 35,000 county subdivisions in the United States.

Third Count—source of the HC(3) reports; contains about 250 cells of data on the subjects covered in the PC(1)-B and HC(1)-A reports and tabulated for approximately 1,500,000 blocks in the United States

Fourth Count—source of the PC(1)-C, HC(1)-B, and part of the PHC(1) reports; contains about 13,000 cells of data covering the subjects in these reports and tabulated for the approximately 35,000 tracts and 35,000 county subdivisions in the United States; also contains about 30,000 cells of data for each county.

Fifth Count—will contain approximately 800 cells of population and housing data for 5-digit ZIP code areas in SMSA's and 3-digit ZIP code areas outside SMSA's; the ZIP code data will be available only on tape.

Sixth Count—source of the PC(1)-D and HC(2) reports; will contain about 260,000 cells of data covering the subjects in these reports and tabulated for States, SMSA's, and large cities.

The tapes will generally be organized on a State basis. To use the First Count and Third Count tapes, it will be necessary to purchase the appropriate enumeration district and block maps.

The term "cells" used herein to indicate the scope of subject content of the several counts refers to each figure or statistic in the tabulation for a specific geographic area. For example, in the Third Count, there are six cells for a cross-classification of race by sex: three categories of race (white, Negro, other race) by two categories of sex (male, female).

In addition to the above-mentioned summary tapes, the Census Bureau will make available for purchase certain sample tape files containing population and housing characteristics as shown on individual census records. These files will contain no names or addresses, and the geograhic identification will be sufficiently broad to protect confidentiality. There will be six files, each containing a 1-percent national sample of persons and housing units. Three of the files will be drawn from the population covered by the census 15-percent sample and three from the population in the census 5-percent sample. Each of these three files will provide a different type of geographic information: One will identify individual large SMSA's and, for the rest of the country, groups of counties; the second will identify individual States and, where they are sufficiently large, will provide urban-rural and metropolitan-nonmetropolitan detail; and the third will identify State groups and size of place, with each individual record showing selected characteristics of the person's neighborhood.

Form CES-3 WORK HISTORY BOOKLET

Form Approved: Budget Bureau No. 41-S69115; Approval Expires June 1971

FORM CES-3 (8-17-70)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

CENSUS EMPLOYMENT SURVEY

WORK HISTORY BOOKLET
(For all persons 16 years old and over)

IDENTIFICATION

Control number (PSU)	(Serial)	(Check)	Line number

Age — CC item 9

CURRENT LABOR FORCE STATUS FOR THIS PERSON — *Interviewer mark from CES-2*

Group	Instructions
☐ I — Respondent WORKED or HAD A JOB last week (*Entry in CES-2 items 20A or 21B*)	*Fill sections A, B1, and D*
☐ II — Respondent LOOKING for work, on LAYOFF or WAITING TO START a new job (*Entry in CES-2 item 22C*)	*Fill sections A, B2, and D*
☐ III — Respondent — NOT IN LABOR FORCE (*Entry in CES-2 item 24A*)	*Fill sections A and C*

RECORD OF CALLS

Date	Time	Notes
1.	a.m. p.m.	
2.	a.m. p.m.	
3.	a.m. p.m.	
4.	a.m. p.m.	

REASON FOR NONINTERVIEW

Person 16+ with CES-2. items 19–24, completed

1 ☐ Temporarily absent
2 ☐ Never at home
3 ☐ Refusal
4 ☐ Other — *Specify*

SECTION A

1. **INTERVIEWER CHECK ITEM**

010
1 ☐ In past 12 months respondent DID NOT WORK and DID NOT LOOK FOR WORK — (*"No" in CES-2, item 35*) — *SKIP to item 15a*
2 ☐ LOOKED FOR WORK in past 12 months — (*Entry of 1 or more weeks in CES-2, item 36 or 38*) — *SKIP to item 3*
3 ☐ ALL OTHERS — *ASK item 2*

2. During the past 12 months did you look for work at any time?	011 1 ☐ Yes — *ASK 3* 2 ☐ No — *SKIP to 15a*
3. Now I have some questions about ways you may have looked for work. Did you check with the State Employment Service during the past 12 months?	* 012 1 ☐ Yes 2 ☐ No
4. Did you apply directly to an employer?	3 ☐ Yes 4 ☐ No
5. Did you ask your friends or relatives?	5 ☐ Yes 6 ☐ No
6. Did you check the newspapers?	7 ☐ Yes 8 ☐ No
7. During the past 12 months did you register with any union?	* 013 1 ☐ Yes 2 ☐ No
8. Did you check with a private employment agency, one supported by fees?	3 ☐ Yes 4 ☐ No
9. Did you check with organizations such as community action groups, Urban League, and welfare agencies?	5 ☐ Yes 6 ☐ No
10. *(If male)* Did you go to special streets or places where employers come to pick up workers?	7 ☐ Yes 8 ☐ No
11a. Did you use any other way to look for a job in the past 12 months? a.	014 1 ☐ Yes — *ASK 11b* 2 ☐ No — *SKIP to 12*
b. What other way did you use? b.	015 ☐☐

Page 1

VT 016 749
FARRINGTON, WILLIAM S.; WARMBROD, J. ROBERT
MANPOWER NEEDS IN ENVIRONMENTAL MANAGEMENT OCCUPATIONS IN INDUSTRIAL FIRMS IN OHIO: DEVELOPMENT AND DISSEMINATION OF COURSES OF STUDY AND INSTRUCTIONAL MATERIALS FOR ENVIRONMENTAL SCIENCE AND PROTECTION. SUMMARY OF A RESEARCH REPORT.

OHIO STATE UNIV., COLUMBUS. DEPT. OF AGRICULTURAL EDUCATION.;OHIO STATE DEPT. OF EDUCATION, COLUMBUS. AGRICULTURAL EDUCATION SERVICE.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - JUN72 10P.

DESCRIPTORS - *MANPOWER NEEDS; *EMPLOYMENT PROJECTIONS; STATISTICAL DATA; *ENVIRONMENTAL TECHNICIANS; TECHNICAL OCCUPATIONS; *INDUSTRIAL PERSONNEL; *STATE SURVEYS; PROGRAM DEVELOPMENT
IDENTIFIERS - *OHIO

ABSTRACT - THIS STUDY WAS CONDUCTED BY A CURRICULUM MATERIALS SPECIALIST AND A PROFESSOR IN AGRICULTURAL EDUCATION AS PART OF AN 18-MONTH PROJECT DESIGNED TO DEVELOP AND DISSEMINATE ENVIRONMENTAL SCIENCE AND PROTECTION COURSES OF STUDY AND INSTRUCTIONAL MATERIALS FOR VOCATIONAL EDUCATION. THE PRIMARY PURPOSE OF THIS STUDY WAS TO DETERMINE THE PRESENT AND PROJECTED MANPOWER NEEDS IN ENVIRONMENTAL MANAGEMENT IN CERTAIN OHIO INDUSTRIES IN OCCUPATIONS RELATED TO WATER TREATMENT, WASTEWATER TREATMENT, AND AIR MANAGEMENT. A RANDOMLY SELECTED SAMPLE OF 246 INDUSTRIES IN OHIO FROM 984 WHICH HAD OBTAINED A STATE PERMIT TO DISCHARGE EFFLUENTS INTO STATE WATERS WERE SENT QUESTIONNAIRES. DURING THE YEARS 1971 TO 1974, THE SURVEY FINDINGS INDICATE MINIMUM INCREASES OF: (1) TWENTY-SIX WATER TREATMENT OPERATORS, (2) THIRTEEN WATER TREATMENT LABORATORY TECHNICIANS, (3) SIXTEEN ADDITIONAL WASTEWATER TREATMENT OPERATORS, (4) THIRTY WASTEWATER TREATMENT LABORATORY TECHNICIANS, (5) TWENTY-SIX AIR MANAGEMENT INSPECTORS, (6) THIRTY-THREE AIR MANAGEMENT LABORATORY TECHNICIANS, AND (7) THIRTEEN AIR MANAGEMENT OPERATORS. FEWER THAN HALF OF THE INDUSTRIES RESPONDING REQUIRED UNION BIDDING FOR THE OCCUPATIONS STUDIED. TWO DIFFERENT STATISTICAL FORMULAS WERE USED TO ESTIMATE MANPOWER NEEDS BECAUSE OF DIFFERENCES IN NEEDS REPORTED BY EARLY AND LATE RESPONDENTS. VARIOUS TABLES PRESENT THE DATA. (AG)

Form CES-3 WORK HISTORY BOOKLET—Continued

SECTION A – Continued

12. *(ASK if two or more ways of looking for work were mentioned in 3–11)*
Of the ways you mentioned *(Read categories marked "Yes" in 3–11)*, which way did you use the most?

016
5 ☐ Check with State Employment Service
4 ☐ Apply directly to employer
5 ☐ Ask friends or relatives
6 ☐ Check newspapers
7 ☐ Register with union
8 ☐ Check private employment agency
9 ☐ Check with community organizations
0 ☐ Go to special streets
1 ☐ Other ways

13. *(ASK only if worked in past 12 months)*
Which way of looking for work got you your present (or most recent) job?

017
3 ☐ Check with State Employment Service
4 ☐ Apply directly to employer
5 ☐ Ask friends or relatives
6 ☐ Check newspapers
7 ☐ Register with union
8 ☐ Check private employment agency
9 ☐ Check with community organizations
0 ☐ Go to special streets
1 ☐ Other ways

14. The last time you looked for a job what was the lowest pay you would have accepted? *(If amount given per hour, record dollars and cents; otherwise, round to the nearest dollar.)*

(Mark only one box and one amount)

018 ☐ Hour. . . . . $_____ . _____ *(Dollars) (Cents)*

OR

019 ☐ Day
020 ☐ Week
021 ☐ Month
022 ☐ Year
$_____.00

15a. Did you complete a job training program in high school, trade school, or junior college? (Examples: vocational, business, or technical)
a. 023 1 ☐ Yes – *ASK 15b*; 2 ☐ No – *SKIP to 16 for males; 17 for females*

b. What kind of work were you trained for? (Occupation). . . . . b. 024 ☐☐☐ Occupation

c. In what year did you complete the (most recent) program? . . . . . c. 025 19_____

d. Have you ever used any of this training on any of your jobs? . . d. 026 1 ☐ Yes; 2 ☐ No } *If female, SKIP to 17a*

16a. *(If male)* Did you complete a job training course in the ARMED FORCES? *(Exclude basic training)*
a. 027 1 ☐ Yes – *ASK 16b*; 2 ☐ No; 3 ☐ Did not serve in Armed Forces } *SKIP to 16e*

b. What kind of work were you trained for? (Occupation). . . . . b. 028 ☐☐☐ Occupation

c. In what year did you complete this program? . . . . . c. 029 19_____

d. Have you ever used any of this training on any of your jobs? . . d. 030 1 ☐ Yes; 2 ☐ No

e. Have you ever started in an APPRENTICESHIP PROGRAM? . . e. 3 ☐ Yes – *ASK 16f*; 4 ☐ No – *SKIP to 17a*

f. What kind of work was that for? (Occupation) . . . . . f. 031 ☐☐☐ Occupation

g. Did you complete it? . . . . . g. 032 1 ☐ Yes 2 ☐ No

033 In what year? → 19_____

h. Have you ever used any of this training on any of your jobs? . . h. 034 1 ☐ Yes; 2 ☐ No

17a. Have you ever participated in any other training program? (Examples: Upward Bound, Job Corps, or Neighborhood Youth Corps)
a. 035 1 ☐ Yes – *ASK 17b–e*; 2 ☐ No – *SKIP to 18*

b. Which one? . . . . . b. 036 1 ☐ Upward Bound; 2 ☐ Job Corps; 3 ☐ Neighborhood Youth Corps; ☐ Other – *Specify* ☐☐☐

c. In what year did you participate? . . . . . c. 037 19_____

d. Did you complete it? . . . . . d. 038 1 ☐ Yes; 2 ☐ No

e. Have you ever used any of this training on any of your jobs? . . e. 3 ☐ Yes; 4 ☐ No

FORM CES-3 (3-17-70) Page 2

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Form CES-3 WORK HISTORY BOOKLET—Continued

SECTION A – Continued

18. During the past 12 months did you receive any money from: *(Pause)*

a. Wages, salary (tips, commissions)? . . . . . e.
039 1 ☐ Yes – How much before deductions? 040 *(Nearest dollar)* $ .00
2 ☐ No

b. Net income from your own business (farm)? . . . . . b.
041 1 ☐ Yes – How much was your –
GROSS income? . . . . . $ .00
LESS Your business expenses? $ .00
EQUALS Net income → $ .00
042 x ☐ Lost money
2 ☐ No

c. Workmen's compensation? . . . . . c.
3 ☐ Yes – How much? 043 $ .00
4 ☐ No

d. Unemployment compensation? . . . . . d.
5 ☐ Yes – How much? 044 $ .00
6 ☐ No

e. Social Security (For example: old age, survivors, disability and health insurance)? . . . . . e.
045 1 ☐ Yes – How much? 046 $ .00
2 ☐ No – *SKIP to 18f*

(1) Do you have any money withheld from your Social Security check for medicare? . . . . . (1)
3 ☐ Yes
4 ☐ No – *SKIP to 18f*

(2) *(If Yes)* – Is the *(Read amount)* you told me you received for Social Security before or after medicare has been deducted? . . . . . (2)
5 ☐ Before
6 ☐ After

f. Other pensions, such as Veterans, private employer, Government, etc.? f.
7 ☐ Yes – How much? 047 $ .00
8 ☐ No

g. Welfare or public assistance (For example: aid to dependent children, old age assistance, aid to the disabled, foster child care)? . . . . . g.
048 1 ☐ Yes – How much? 049 $ .00
2 ☐ No

h. Rents, including that from roomers and boarders? . . . . . h.
3 ☐ Yes – How much? 050 $ .00
4 ☐ No

i. Interest or dividends? . . . . . i.
5 ☐ Yes – How much? 051 $ .00
6 ☐ No

j. Did YOU have any income or assistance from a source other than those we have already mentioned? . . . . . j.
7 ☐ Yes – What was that? – *Specify* →
If Yes → How much was that? 052 $ .00
8 ☐ No

19. *NOT USED*

20a. What kind of work did you do at your first full-time regular job after leaving school? . . . . . a.
053 ☐☐☐ Occupation

b. What were your most important activities or duties? . . . . . b.
Activity
054 1 ☐ Still in school
2 ☐ Never worked at a full-time job } *SKIP to 23a*

c. What kind of business or industry was that? . . . . . c.
055 ☐☐☐ Industry
056 1 ☐ Same job as now (CES-2, Item 23) – *SKIP to 23a*

d. Were you –
1. An employee of a PRIVATE company, business or individual for wages, salary, or commissions?
2. A GOVERNMENT employee (Federal, State, county or local)?
3. SELF-EMPLOYED in OWN business, professional practice or farm?
4. Working WITHOUT PAY in family business or farm? d.
057
1 ☐ P – Private
2 ☐ G – Government
3 ☐ O – Self-employed
(If not a farm) – Is this business incorporated?
4 ☐ Yes 5 ☐ No
6 ☐ WP – Without pay

e. How long did you work at that job? . . . . . e.
058 ☐ Months
059 ☐ Years } (Number)

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Form CES-3 WORK HISTORY BOOKLET—Continued

SECTION A– Continued

21a. What type of work have you done the longest since leaving school? a. 060 ☐☐☐ Occupation

061 1 ☐ Same as CES-2, item 23c – *SKIP to 22*
2 ☐ Same as first job after leaving school – *SKIP to 23a*

b. How long did you work at that? b. 062 ☐ Months 063 ☐ Years } (Number)

22. What kind of industry was that? 064 ☐☐☐ Industry

065 1 ☐ Same as item 23b on CES-2

23a. How many years have you lived at your present address? a. 066 _____ Years
0 ☐ Less than a year – *ASK 23b*

b. How many times have you moved in the last year? b. 067 _____ Times

24. How many years have you lived within the city limits of . . . (this city)? 068 _____ Years
99 ☐ All my life – *SKIP to 28*

For items 25, 26, and 27 *Read all the categories until you obtain a "Yes" response. Mark the appropriate box and write in the name of the State or country in the space provided.*

	25. When you were born did your parents live –	26. Five years ago did you live –	27. At age 16 did you live –
c. In this city?	069 1 ☐	070 1 ☐	071 1 ☐
b. In a suburb near a large city?	2 ☐	2 ☐	2 ☐
c. In a large city (over 250,000 pop.)?	3 ☐	3 ☐	3 ☐
d. In a medium size city (50–250,000 pop.)?	4 ☐	4 ☐	4 ☐
e. In a small city or town (under 50,000 pop.)?	5 ☐	5 ☐	5 ☐
f. In open country but not on a farm?	6 ☐	6 ☐	6 ☐
g. On a farm?	7 ☐	7 ☐	7 ☐
h. In the United States? *(If Yes)* – In what State was that? *(If No)* – In what country was that?	072 ☐☐ _____	073 ☐☐ _____	074 ☐☐ _____

28. *(Omit if Mexico or Puerto Rico is person's place of birth)*

a. Was your father born in the United States? a. 075 ☐☐
(If Yes) – In what state was that?
(If No) – In what country was that?

b. Was your mother born in the United States? b. 076 ☐☐
(If Yes) – In what state was that?
(If No) – In what country was that?

29. *(Omit if Mexico or Puerto Rico is entered in items 25 or 28)*
Was a language other than English often spoken by your parents in your home when you were a child? 077 1 ☐ Yes 2 ☐ No
What language was that? 7
078 ☐ _____

Notes

FORM CES-3 (3-17-70)

7619

MANPOWER NEEDS IN ENVIRONMENTAL MANAGEMENT OCCUPATIONS IN INDUSTRIAL FIRMS IN OHIO

Research aimed at determining the manpower needs in environmental management in Ohio's municipal operations (water treatment, wastewater treatment, and air pollution management) was completed by Hillison in 1972.[1] This report is of a similar study which was designed to determine the manpower needs in comparable environmental management occupations in industrial firms in Ohio.

Purpose and Objectives

The primary purpose of this study was to determine the manpower needs in environmental management in certain Ohio industries in the occupations related to water treatment, wastewater treatment, and air management. The specific objectives of this study were to:

(1) Determine the manpower needs of industry for water treatment operators, water treatment laboratory technicians, wastewater treatment operators, wastewater treatment laboratory technicians, air management inspectors, air management laboratory technicians, and air management operators; and

(2) Determine the prevalence of union bidding for these occupations.

Procedure

The population of the study was 984 industries in Ohio that had obtained a permit from the State Department of Health to discharge effluent into state waters. This excludes plants that discharge effluents into their own holding pools or municipal sewers and plants that have no discharge effluent. A randomly selected sample of 246 industries was selected for study.

Data were secured from 65 percent of the accessible industries in the ransomly selected sample. The number of accessible industries in the sample was 230 since 16 of the 246 firms selected in the sample had "gone out of business" or "moved out of state" when data were collected. Questionnaires were sent to each of the 246 industries with a reminder card sent one week later. In this report respondents to these requests are referred to as "early respondents." One month after the first questionnaire was sent, the same questionnaire was sent again to the nonrespondents. In this report respondents to the second mailing of the questionnaire are referred to as "late respondents."

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[1] John H. Hillison and J. Robert Warmbrod. Manpower Needs In Environmental Management, Agricultural Education Department, The Ohio State University, 1972.

Form CES-3 WORK HISTORY BOOKLET—Continued

SECTION B.1 – For Persons in Labor Force Group I – (worked or had a job last week)

1. Now I'm going to ask you some more questions about your present job. How long have you been working at this job?
   085 ☐ Months
   086 ☐ Years
   } _____ (Number)

2. In addition to that job, how many other employers did you work for last week? *(NOTE: Domestic day work for various employers is considered one job.)*
   087 _____ (Number)

3. *(Omit for self-employed and unpaid family workers)* How much did you earn last week from your job(s)? *(Nearest dollar)*
   088 $ _____.00

4a. On your present job do you usually go to the same address to start each day's work? . . . . . a.
   089 1 ☐ Yes – *SKIP to 5a*
   2 ☐ No – *ASK 4b*

b. Do you report to a different address every time or what? . . . . . b.
   090 1 ☐ Different every time
   2 ☐ Other – *Specify* _____
   } *SKIP to item 6a*

5a. Do you work within the city limits of *(name of this city)*? . . . . . a.
   092 1 ☐ Yes – *ASK 5b*
   2 ☐ No – *SKIP to 6a*

b. What are the names of the two streets at the corner nearest to your place of work? . . . . . b.
   _____

OFFICE USE ONLY Intersection is:
   093 1 ☐ In inner city sample area
   2 ☐ Remainder of city

6a. On your present job how do you usually get from home to work? *(Mark all mentioned)* . . . . . a.
   094 01 ☐ Bus
   02 ☐ Trolley
   03 ☐ Railroad
   04 ☐ Subway or elevated railway
   05 ☐ Taxi
   06 ☐ Walk
   07 ☐ Drive alone
   08 ☐ Share driving (carpool)
   09 ☐ Drive others
   10 ☐ Ride with someone else – *ASK 6b*
   11 ☐ Other means – *Specify* _____

b. *(For ride with someone else)* Do you pay? . . . . . b.
   096 1 ☐ Yes – How much?
   2 ☐ No
   097 ☐ Trip
   098 ☐ Day
   099 ☐ Week
   100 ☐ Month
   } $ _____ . _____ (Dollars) (Cents)

7a. Do you use any other way at least once a week? . . . . . a.
   101 1 ☐ Yes – *ASK 7b*
   2 ☐ No – *SKIP to 8*

b. What do you use? *(Mark all ways mentioned)* . . . . . b.
   102 01 ☐ Bus
   02 ☐ Trolley
   03 ☐ Railroad
   04 ☐ Subway or elevated railway
   05 ☐ Taxi
   06 ☐ Walk
   07 ☐ Drive alone
   08 ☐ Share driving (carpool)
   09 ☐ Drive others
   10 ☐ Ride with someone else – *ASK 7c*
   11 ☐ Other means – *Specify* _____

c. *(For ride with someone else)* Do you pay? . . . . . c.
   104 1 ☐ Yes – How much?
   2 ☐ No
   105 ☐ Trip
   106 ☐ Day
   107 ☐ Week
   108 ☐ Month
   } $ _____ . _____ (Dollars) (Cents)

8. *If public transportation (categories 1–5) in items 6a or 7b –* What is the total cost of the public transportation used for the one-way trip to work by *(Name means used)* . . .?
   109 1 ☐ $.00–.24
   2 ☐ .25–.49
   3 ☐ .50–.74
   4 ☐ .75–.99
   5 ☐ $1.00–1.24
   6 ☐ 1.25–1.49
   7 ☐ 1.50–or more
   8 ☐ Don't know

9. On your present job, how long does it usually take to get from home to work?
   111 _____ Minutes

10. What time do you usually get to work?
   112 ☐ a.m.
   113 ☐ p.m.
   } _____ : _____ (Hour) (Minute) – *SKIP to Section D*

The major responsibilities of the occupations about which manpower needs were determined are defined as follows:

a. Water treatment operator -- operates and maintains equipment and performs some tests.

b. Water treatment laboratory technician -- performs tests and analyzes results.

c. Wastewater treatment operator -- collects samples, performs some tests, and general plant operation.

d. Wastewater treatment laboratory technician -- performs tests and analyzes results.

e. Air management inspector -- checks plant operations and makes recommendations to operators and technicians.

f. Air management laboratory technician -- collects samples, performs tests, and analyzes results.

g. Air management operator -- controls and maintains equipment (example: boiler).

Because the manpower needs reported by early respondents and late respondents were similar in some occupations and different in other occupations, two methods of estimating manpower needs were used. Method I took these differences into account and considered the nonrespondents and late respondents as different from the early respondents in calculating estimates. Method II considered the early respondents and late respondents to be similar and assumed the nonrespondents would respond likewise.[2] Estimates were made for full time workers and for part-time workers. The number of part-time workers were converted to full time equivalent status.

Findings

The data reported by firms from which questionnaires were received are indicated in Tables B-1 and B-2 in Appendix B. These data were used in calculating the estimates of manpower needs that are reported in Tables 1, 2, and 3 in this section of the report. Table 4 indicates how firms responded to the question pertaining to the prevalence of union bidding for the jobs studied.

---

[2] See Appendix A for a description of the procedures used in calculating estimates of manpower needs.

Form CES-3 WORK HISTORY BOOKLET—Continued

SECTION B.2 – For Persons in Labor Force Group II – (looking, waiting or on layoff)

1a. Now I have some questions about how you would get to work. Do you have a license to drive a car? . . . . . a.	114 1 ☐ Yes – *ASK 1b* 2 ☐ No – *SKIP to 2a*
b. Is there a car you could drive to work every day? . . . . . b.	3 ☐ Yes 4 ☐ No
2a. Is there public transportation within ten minutes walk of here that goes to a place where you have looked for work? . . . . . a.	115 1 ☐ Yes – *ASK 2b* 2 ☐ No – *SKIP to 3*
b. What kind of public transportation is that? . . . . . b.	Stop or station 3 ☐ Bus 4 ☐ Trolley 5 ☐ Railroad 6 ☐ Subway or elevated railway 7 ☐ Taxi stand *SKIP to Section D*
3. About how many minutes does it take you to walk to the place where public transportation stops?	117 _____ Minutes 0 ☐ No public transportation within walking distance *SKIP to Section D*

Notes

FORM CES-3 (3-17-70)

7621

TABLE 1

ESTIMATES OF THE NUMBER OF FULL TIME WORKERS IN ENVIRONMENTAL MANAGEMENT OCCUPATIONS IN INDUSTRIAL FIRMS IN OHIO: METHOD I [a]

Job	Estimated Number of Workers[b]			Change in Number of Workers	
	Employed in 1968	Employed in 1971	Needed in 1974	From 1968 to 1971	From 1971 to 1974
Water Treatment					
Operator	277	350	376	+ 73	+ 26
Laboratory Technician	90	111	124	+ 21	+ 13
Wastewater Treatment					
Operator	265	385	401	+120	+ 16
Laboratory Technician	72	81	145	+ 9	+ 64
Air Management					
Inspector	42	64	90	+ 22	+ 26
Laboratory Technician	38	42	90	+ 4	+ 48
Operator	766	702	821	- 64	+119

TABLE 2

ESTIMATES OF THE NUMBER OF FULL TIME WORKERS IN ENVIRONMENTAL MANAGEMENT OCCUPATIONS IN INDUSTRIAL FIRMS IN OHIO: METHOD II [b]

Job	Estimated Number of Workers[b]			Change in Number of Workers	
	Employed in 1968	Employed in 1971	Needed in 1974	From 1968 to 1971	From 1971 to 1974
Water Treatment					
Operator	344	416	456	+ 72	+ 40
Laboratory Technician	110	143	162	+ 33	+ 19
Wastewater Treatment					
Operator	326	430	495	+104	+ 65
Laboratory Technician	71	85	115	+ 14	+ 30
Air Management					
Inspector	51	71	162	+ 20	+ 91
Laboratory Technician	32	38	71	+ 6	+ 33
Operator	769	801	814	+ 32	+ 13

[a] See Appendix A for procedures used in calculating estimates.

[b] Estimates rounded to nearest whole number.

Form CES-3 WORK HISTORY BOOKLET—Continued

SECTION C – For Persons in Group III *(Omit if respondent is 65 or older)*

1a. Do you want a regular job now, either full or part time?

- 1 ☐ Yes
- 2 ☐ Maybe, it depends

If "Yes" or "Maybe, it depends," ASK 1b and 1c

- 3 ☐ No – *ASK 1d and 1e*

1b. From the list of reasons that I am now going to read to you, please tell me which you would consider as reasons why you are not looking for work now.

(If 60–64 years old) 1. Retirement	*(If under 25 years old)* 2. You are in school or training or waiting to start school	*(If a woman with other family members in hhld.)* 3. Family responsibilities	4. Problems with your health	5. You looked but couldn't find work	6. Transportation	*(Omit if 25–49 years old)* 7. Employers think too young (too old)	8. Lack of experience, education, or skill	9. Any other reason	*(Mark if mentioned)* 10. Don't want to work
■	■	■	■	■	■	■	■	■	■
1 ☐ Yes – *End questions*	1 ☐ Yes	1 ☐ Yes – *Fill Part* A	1 ☐ Yes – *Fill Part* B	1 ☐ Yes – *Fill Part* C	1 ☐ Yes – *Fill Part* D	1 ☐ Yes – *Fill Part* E	1 ☐ Yes – *Fill Part* F	1 ☐ Yes *Specify*	1 ☐ *End questions*
2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	

IF "NO" FOR ALL COLUMNS 1 THROUGH 9, END QUESTIONS

Is the school or training full time?
- 3 ☐ Yes
- 4 ☐ No – *End questions*

1c. *(If more than one "Yes" in 3–9 above)* You told me that the reasons you are not looking for work include *(Read all)*. Which of these is the MAIN reason?

■ | 3 ☐ | 4 ☐ | 5 ☐ | 6 ☐ | 7 ☐ | 8 ☐ | 9 ☐

1d. From the list of reasons that I am now going to read to you, please tell me which you would consider as reasons for your not wanting to work now.

(If 60–64 years old) 1. Retirement	*(If under 25 years old)* 2. You are in school or training or waiting to start school	*(If a woman with other family members in hhld.)* 3. Family responsibilities	4. Problems with your health	5. You looked but couldn't find work	6. Transportation	*(Omit if 25–49 years old)* 7. Employers think too young (too old)	8. Lack of experience, education, or skill	9. Any other reason	*(Mark if mentioned)* 10. Don't want to work
■	■	■	■	■	■	■	■	■	■
1 ☐ Yes – End ques-	1 ☐ Yes	1 ☐ Yes – *Fill Part* A	1 ☐ Yes – *Fill Part* B	1 ☐ Yes – *Fill Part* C	1 ☐ Yes – *Fill Part* D	1 ☐ Yes – *Fill Part* E	1 ☐ Yes – *Fill Part* F	1 ☐ Yes	
2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	

		If you didn't have this responsibility, would you want a job?	If this were not a problem, would you want a job?	If this were not a problem, would you want a job?	If this were not a problem, would you want a job?	If this were not a problem, would you want a job?	If this were not a problem, would you want a job?	If this were not a problem, would you want a job?	
		■	■	■	■	■	■	■	
		1 ☐ Yes – *Fill Part* A	1 ☐ Yes – *Fill Part* B	1 ☐ Yes – *Fill Part* C	1 ☐ Yes – *Fill Part* D	1 ☐ Yes – *Fill Part* E	1 ☐ Yes – *Fill Part* F	1 ☐ Yes	
		2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	2 ☐ No	

IF "NO" FOR ALL COLUMNS 1 THROUGH 9, END QUESTIONS

Is the school or training full time?
- 3 ☐ Yes
- 4 ☐ No – *End questions*

1e. *(If more than one "Yes" in 3–9 above)* You told me that the reasons you do not want to work include *(Read each)*. Which of these is the MAIN reason?

■ | 3 ☐ | 4 ☐ | 5 ☐ | 6 ☐ | 7 ☐ | 8 ☐ | 9 ☐

Page 7

ERIC

TABLE 3

ESTIMATES OF THE NUMBER OF PART-TIME WORKERS (FULL TIME EQUIVALENT) IN ENVIRONMENTAL MANAGEMENT OCCUPATIONS IN INDUSTRIAL FIRMS IN OHIO: METHOD II[a]

Job	Estimated Number of Workers[b]			Change in Number of Workers	
	Employed in 1968	Employed in 1971	Needed in 1974	From 1968 to 1971	From 1971 to 1974
Water Treatment					
Operator	173	125	127	- 48	+ 2
Laboratory Technician	52	57	61	+ 5	+ 4
Wastewater Treatment					
Operator	84	113	130	+ 29	+ 17
Laboratory Technician	64	91	92	+ 27	+ 1
Air Management					
Inspector	38	55	78	+ 17	+ 23
Laboratory Technician	26	47	71	+ 21	+ 24
Operator	113	22	86	- 91	+ 64

[a] See Appendix A for procedures used in calculating estimates.
[b] Part-time workers have been equated to full time equivalent status. Estimates rounded to nearest whole number.

TABLE 4

THE PREVALENCE OF UNION BIDDING FOR ENVIRONMENTAL MANAGEMENT OCCUPATIONS

Job	Number of Firms Responding		
	Yes	No	No Response[a]
Water Treatment			
Operator	39	31	81
Laboratory Technician	12	54	85
Wastewater Treatment			
Operator	44	32	75
Laboratory Technician	14	55	92
Air Management			
Inspector	4	55	92
Laboratory Technician	5	53	93
Operator	38	31	82

[a] Indicates that some firms were no longer in business or had no employees in the job.

Form CES-3 WORK HISTORY BOOKLET—Continued

SECTION C – Continued

A FAMILY RESPONSIBILITIES

2a. What are your family responsibilities? (Mark all that apply) — a.

153 ☐ 1 Child care – *ASK 2b*
☐ 2 Care of husband or wife
☐ 3 Keeping house
☐ 4 Care of other relatives
☐ 5 Other – *Specify* 7
} *SKIP to 3*

b. What are your problems in arranging for child care? (Mark all that apply) — b.

154 ☐ 1 Want to care for children myself or child care is no problem – *END QUESTIONS*
☐ 2 Can't find anyone at price I can pay
☐ 3 Can't find anyone at any price
☐ 4 Don't trust baby-sitters
☐ 5 Never really tried to find child care
☐ 6 Other – *Specify* 7

c. Is there a child care center available in your neighborhood? — c.

155 ☐ 1 Yes – *ASK 2d*
☐ 2 No or don't know – *SKIP to 2e*

d. Is there some reason why you can't use it? — d.

156 ☐☐
} *SKIP to 3*

e. If a child care center were made available would you use it? — e.

157 ☐ 1 Yes – *SKIP to 3*
☐ 2 No – *ASK 2f*
☐ 3 It depends – *ASK 2g*

f. Any particular reason why you would not use the child care center? *(Verbatim)* — f.

158 ☐☐
} *SKIP to 3*

g. On what does your use of the child care center depend? *(Verbatim)* — g.

159 ☐☐

3. *(ASK for married women with husband a household member)* How does your husband feel about your going to work? *(Verbatim)*

160 ☐☐

B HEALTH PROBLEMS

4a. What type of health problems do you have? (For example: heart condition, back trouble, etc.) — a.

161 ☐☐☐☐

☐ 99 Pregnancy – *SKIP to next reason*

b. Have you been under a doctor's care for this disability or illness? — b.

162 ☐ 1 Yes
☐ 2 No

c. How long have you had the disability or illness? — c.

☐ 3 Always
☐ 4 Less than 1 month
☐ 5 1–5 months
☐ 6 6–11 months
☐ 7 12 months or longer

d. How long do you expect it to last – less than 6 months or 6 months or more? — d.

163 ☐ 1 Less than 6 months – *SKIP to next reason*
☐ 2 6 months or more
☐ 3 Don't know

e. Would you be able to work if you had special arrangements or help? — e.

☐ 4 Yes – *ASK 4f*
☐ 5 No
☐ 6 Don't need help
} *SKIP to next reason*

f. What kind of special arrangements or help? *(Mark all ways mentioned)* — f.

164 ☐ 1 Doctor's care
☐ 2 Help in getting to and from work
☐ 3 An operation
☐ 4 Ramps, elevators, or special equipment at work
☐ 5 Rest periods, part-time work, light work
☐ 6 Eyeglasses, hearing aid, tooth repair
☐ 7 Crutches, braces, artificial limb
☐ 8 Other – *Specify* _____

GO to 4g

FORM CES-3 (3-17-70)

7623

Summary

Major findings were reported for two methods of estimating manpower needs because of differences in needs reported by early and late respondents. In three occupations, the late respondents reported somewhat different manpower needs than early respondents. These differences in manpower needs were most apparent in estimates of manpower needs in 1974 for wastewater treatment operators, air management inspectors and air management operators.

The estimated number of workers presently employed were very similar for both methods of projecting to the target population with the exception of air management operators. The survey indicated that a minimum increase of 26 water treatment operators would be needed during the period 1971 to 1974. The survey also indicated an increase of at least 13 water treatment laboratory technicians from 1971 to 1974. A minimum of 16 additional wastewater treatment operators will be needed during the period 1971 to 1974. Wastewater treatment laboratory technicians show an increase of at least 30 during the 1971 to 1947 period. The survey shows a minimum increase of at least 26 additional air management inspectors and at least 33 additional air management laboratory technicians will be needed to fill manpower requirement for 1974. The projections also indicate at least 13 additional air management operators will be needed by 1974.

Of the industries responding to the question regarding the requirement of union bidding for the occupations, less than half of the industries required union bidding for most of the occupations studied.

APPENDIX A

METHODS OF ESTIMATING MANPOWER NEEDS

Method I

In using Method I for estimating manpower needs it was assumed that manpower needs in industrial firms from which no response to the questionnaire was received (nonrespondents) were similar to the manpower needs of firms that responded last to the questionnaire (late respondents). Therefore, for each occupation the mean number of workers per firm for late respondent firms was assumed to be an estimate of the mean number of workers per firm for nonrespondent firms. The following formulas were used in calculating manpower estimates.

$\bar{X}_1$ = mean number of workers per firm in "early respondent" firms.

$$\bar{X}_1 = \frac{\Sigma X}{n_1}, \quad \text{where}$$

ΣX = total number of workers in the occupation in early respondent firms

n_1 = number of early respondent firms ($n_1 = 112$)

$\bar{X}_2$ = mean number of workers per firm in "late respondent" firms.

$$\bar{X}_2 = \frac{\Sigma X}{n_2}, \quad \text{where}$$

ΣX = total number of workers in the occupation in late respondent firms

n_2 = number of late respondent firms ($n_2 = 39$)

$\bar{X}_3$ = estimated mean number of workers per firm in the sample (early respondents + late respondents + nonrespondents)

$$\bar{X}_3 = \frac{\bar{X}_1 n_1 + \bar{X}_2 n_2 + \bar{X}_3 n_3}{n}, \quad \text{where}$$

n_3 = number of nonrespondent firms ($n_3 = 79$)

n = total sample size ($n_1 + n_2 + n_3 = n = 230$)

$N\bar{X}_3$ = estimated total number of workers in the population of industries ($N = 984$)

Method II

In using Method II for estimating manpower needs it was assumed that the manpower needs in the industrial firms responding to the questionnaire were representative of all firms in the population. No distinction was made between early respondents, late respondents, and nonrespondents. The following formula was used in calculating estimates for each occupation under the assumption accompanying Method II.

$\bar{X}$ = estimated mean number of workers per industrial firm

$$\bar{X} = \frac{\sum X}{n_o}, \quad \text{where}$$

$\sum X$ = total number of workers in the occupation in the "respondent" firms

n_o = number of firms responding to the questionnaire ($n_o = 151$)

$N\bar{X}$ = estimated total number of workers in the population of industries ($N = 984$)

APPENDIX B

TABLE B - 1

NUMBER OF FULL TIME WORKERS REPORTED BY FIRMS RESPONDING TO THE QUESTIONNAIRE

Job	Number of Workers		
	Employed in 1968	Employed in 1971	Needed in 1974
Water Treatment			
Operator	53	64	70
Laboratory Technician	17	22	25
Wastewater Treatment			
Operator	50	66	76
Laboratory Technician	11	13	24
Air Management			
Inspector	8	11	25
Laboratory Technician	5	6	11
Operator	118	123	125

TABLE B - 2

NUMBER OF PART-TIME WORKERS[a] REPORTED BY FIRMS RESPONDING TO THE QUESTIONNAIRE

Job	Number of Workers[a]		
	Employed in 1968	Employed in 1971	Needed in 1974
Water Treatment			
Operator	26	19	20
Laboratory Technician	8	9	9
Wastewater Treatment			
Operator	13	17	20
Laboratory Technician	10	14	14
Air Management			
Inspector	6	9	12
Laboratory Technician	4	7	11
Operator	17	18	13

[a]Part-time workers have been equated to full time equivalent status.

VT 016 752
HILL, C.M.
FOLLOW-UP STUDY OF THE GRADUATES OF NEW MEXICO TECHNICAL VOCATIONAL SCHOOL.
NEW MEXICO TECHNICAL VOCATIONAL SCHOOL, EL RITO.
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IDENTIFIERS - NEW MEXICO

ABSTRACT - DATA WERE GATHERED FROM THE 1970 GRADUATING CLASS OF THE NEW MEXICO TECHNICAL VOCATIONAL SCHOOL AT EL RITO TO SHOW THEIR STATUS THREE MONTHS AFTER GRADUATION. QUESTIONNAIRES COMPLETED BY THE GRADUATES IN 10 SKILL AREAS INCLUDED TYPE OF TRAINING, IF EMPLOYED, SALARY, TYPE OF WORK, IF UNEMPLOYED, AND IMPRESSIONS OF THE USEFULNESS OF THE SCHOOL TRAINING PROGRAMS. SURVEY RESULTS IN TEXT AND TABLES AND SOME COMMENTS FROM GRADUATES AND EMPLOYERS ARE PRESENTED IN THE REPORT. THIS SCHOOL OFFERS SPECIAL VOCATIONAL TRAINING AND EDUCATIONAL PROGRAMS TO YOUNG ADULTS WHO MIGHT NOT OTHERWISE HAVE AN OPPORTUNITY FOR POST SECONDARY EDUCATION. THE STUDY DATA WILL BE USED TO ANALYZE THE SCHOOL'S EFFECTIVENESS, TO IMPROVE ITS PROGRAMS TO MEET THE NEEDS OF BOTH EMPLOYERS AND STUDENTS IN THE COMMUNITIES SERVED, AND TO PROVIDE INCREASED PLACEMENT AND FOLLOW-UP CAPABILITIES. (MF)

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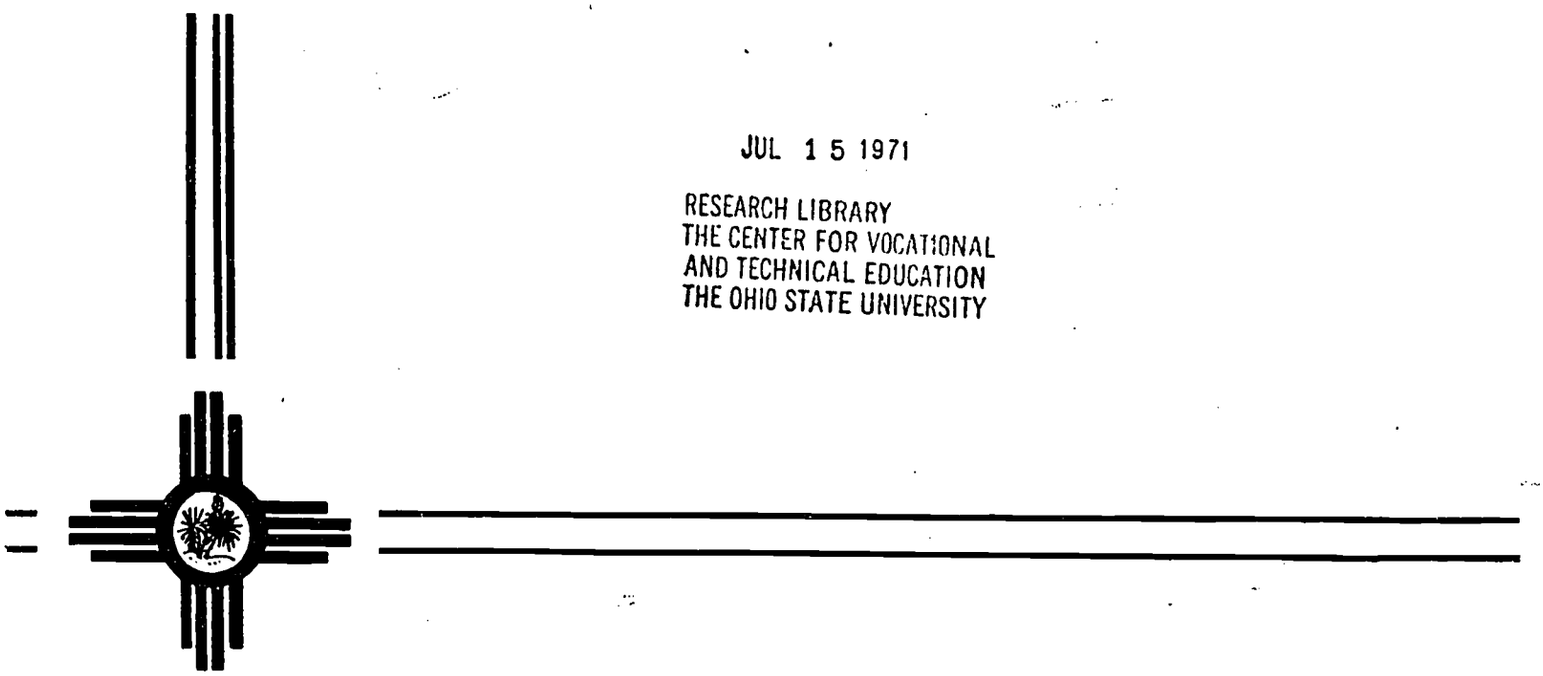

FOLLOW-UP STUDY OF THE GRADUATES

OF

NEW MEXICO TECHNICAL VOCATIONAL SCHOOL

EL RITO, NEW MEXICO

76-12

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FOLLOW-UP STUDY OF THE GRADUATES

OF

NEW MEXICO TECHNICAL VOCATIONAL SCHOOL

By
C. M. Hill

November 1970

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INTRODUCTION

Technical vocational education is important to the growth of New Mexico. For Northern New Mexico the opportunity for young people and adults to acquire productive, saleable skills is an imperative. The New Mexico Technical Vocational School (N.M.T.V.S.) at El Rito offers special vocational training and educational programs at the post secondary level to the young adults of the state who may not otherwise have the opportunity to acquire such training.

The school's boarding facilities coupled with its rapidly expanding school transportation system allows unskilled but willing students from all parts of the state to prepare for occupations and to plan for a productive life.

The school not only provides opportunity for those who might not otherwise have the opportunity for post secondary or special adult education; it also provides an important transitional stage in the lives of young people who feel the need to extricate themselves from remote areas of the state where employment opportunities are lacking. The training, education and social experiences at the school assist the students to gain the confidence and skills desirable in making a successful

move to larger communities where employment opportunities are more readily available.

The purpose of this report is to show the status of the graduates of N.M.T.V.S. for the 1969-70 school year. It is hoped that this type of study will assist in analyzing the effectiveness of the school's offerings and will lead to the development of programs and processes that will result in providing more and better offerings for the special group of young people and the communities that are served by the school.

METHOD OF SURVEY

One hundred thirty one students completed courses in ten skill areas at N.M.T.V.S. during the 1969-70 school year. Each graduating student was mailed a follow-up inquiry form in September, 1970. Through the inquiry form supplemented by telephone calls and personal contacts by members of the staff, it was possible to acquire information an all but seven of the graduates.

The form asked for the name, address, type of training completed at the school and the date of completion. A section where the graduate could check whether employed or unemployed and enter the name of the employer and the kind of work was provided. A place to indicate whether employment was full or part time and whether it was related to the training he had taken at N.M.T.V.S. was

included. Another section provided for checking monthly salary range.

The unemployed student was asked to check one or more of the categories: not looking for work; available and looking for work; I would like placement help from N.M.T.V.S.; I am in the military; going to school.

Finally the graduate was invited to write to the school about his impressions of the school and its programs and was asked to comment specifically on the following three items:

1. What was most useful about your training?
2. What else might have been included that would have helped you on your job?
3. What additional training do you feel you need now?

A sample of the inquiry form used appears on the next page.

SURVEY FORM

NEW MEXICO TECHNICAL VOCATIONAL SCHOOL
El Rito, New Mexico

FOLLOW-UP STUDY OF 1970 GRADUATES

NAME _____

ADDRESS _____ CITY _____

TRAINING TAKEN AT NMTVS _____

APPROXIMATE DATE TRAINING COMPLETED _____

Employment Status

( ) Employed

_____
Name of Employer

_____
Kind of Work

( ) Full Time ( ) Part Time
( ) Related to training taken
( ) Not related

SALARY RANGE: (monthly)
( ) Below $100 ( ) $401-$500
( ) $101-$200 ( ) $501-$600
( ) $201-$300 ( ) $601-$700
( ) $301-$400 ( ) $701 & up

( ) Unemployed
( ) Not looking for work
( ) Available and looking for work
( ) I would like placement help from NMTVS
( ) I am in the military
( ) Going to school (Where? _____)

Personal Status

( ) Male ( ) Female ( ) Single ( ) Married ( ) Other

PLEASE SEND US THE ANSWERS TO THE ABOVE QUESTIONS TODAY OR TOMORROW.

If your time permits, we would also appreciate hearing from you about our training programs. Please use the other side of this sheet to let us know (1) what was most useful about your training; (2) what else might have been included that would have helped you on your job; and (3) what additional training you feel you now need.

7648

SURVEY RESULTS BY TYPE OF TRAINING

Electrical Wiring and Maintenance

The objectives of the electrical wiring and maintenance course which covers 2160 clock hours of technical and related education is to train commercial electricians. The course includes: fundamentals of electricity, power and process control, residential wiring and code, industrial wiring and code, basic electronics and practical applications.

Eight students completed the electrical wiring and maintenance course for the period surveyed. Four of the graduates are gainfully employed; two are still unemployed. The status of the remaining two is unknown.

Only one of the employed graduates checked the salary range which was at the $300 to $400 a month level.

Auto Mechanics

The course in auto mechanics is a comprehensive program which provides 2160 clock hours of instruction and practical experience plus special emphasis in vocational mathematics, oral and written communications and human relations. Included in the course are proficiency units in automotive principles and component parts, engine tune-up, brakes and front end, drive lines and differential, engine overhaul, general repair,

automatic transmission, auto air conditioning, service management, industrial and farm engine repair, plus the servicing and repair of foreign cars.

Twelve students completed the auto mechanics course; eleven reported they were employed. The status of the remaining one is unknown. Only two graduates checked the monthly salary range. One was in the $100 to $200 range; one was in the $300 to $400 range.

Cosmetology

Sixteen hundred clock hours of training and practical experience in cosmetology are offered at N.M.T.V.S. Areas of proficiency include: theory, manicuring, permanent wave, hair styling, haircutting, shampoo and rinse, tinting and bleaching, business management, cosmetology laws and code plus sanitation and sterilization. Upon satisfactory completion of the course most students are able to pass the state board examination for cosmetologists and become licensed operators. The school has complete laboratory facilities with ample provisions for practical experience in all lines of cosmetology.

Twenty students completed the cosmetology course during the 1969-70 school term; fifteen are employed, licensed operators; two are unemployed; the status of one is unknown; one is taking advanced training; and one is not available for work. Those who checked the salary range

scale showed two in the $300 to $400 monthly range; six were in the $100 to $200 monthly range and one was making less than $100 per month.

Electrical Appliance Repair

The 1300 clock hour course in electrical appliance repair is increasing in importance in that the scarcity of skilled repairmen is becoming critical and the demand for this type of service is growing consistantly. Many of the smaller communities in Northern New Mexico have no appliance repair capability. In the past few years several of the school's graduates have succeeded in setting up their own local shops which have developed into profitable enterprises.

The course covers electrical fundamentals, fundamentals of refrigeration, small gas engines, small appliances, major appliances, vocational mathematics, oral and written communication and human relations.

Six students completed the electrical appliance repair course. Three are employed, two are unemployed and the status of the remaining one is unknown. Only one checked monthly salary; it was the $600 to $700 range

Clerk Stenographer

The clerk stenographer course of 900 clock hours includes: shorthand, transcribing, advanced typing, office practice, vocabulary building, spelling, filing,

indexing, office training, business letters, personality development and principles of record keeping. Successful completion of this course affords the opportunity for many young people of northern New Mexico to acquire a saleable skill so they can become self-supporting and possibly move on to other opportunities that may not be available to them in their own locality.

Seventeen students completed the clerk stenographer course. Sixteen are presently employed; one is still unemployed. Monthly salary range show two in the $200 to $300 bracket, thirteen in the $300 to $400 bracket and one in the $400 to $500 bracket.

Auto Body: Refinish - Repair

The auto body and paint shop at N.M.T.V.S. offers 2160 clock hours of training in a high demand skill. Components of the course consist of basic metal and paint principles, metal and paint repair, body shop operation, communications, vocational mathematics and human relations.

Six students were graduated from the paint and body shop during the 1969-70 term. Four are now gainfull employed, one is still unemployed and the status of the remaining one is unknown. Of the three reporting monthly salary range, one was in the $200 to $300 range and two were in the $300 to $400 range.

Drafting

A well-equipped and up-to-date drafting course is now part of the school's offering. The drafting course requires 2160 clock hours of training and related education. Course components consist of preliminary drafting, machine drafting, production illustration, architectural drafting, pipe drafting, structural drafting, technical mathematics, oral and written communication and human relations.

The drafting unit graduated eight students in the spring of 1970. Seven of these graduates are employed; one is not available for employment. The two reported monthly salary ranges were in the $300 to $400 bracket.

Clerk Typist

The clerk typist course involves 900 clock hours of education and training for students with little or no previous training who wish to acquire an entry capability into the commercial world. The course consists of beginning, intermediate and advanced typing, office practice, vocabulary building, spelling, filing, indexing supervised office practice, business letters and personality development. Many of the students who take the clerk typist course either go on to more advanced business courses or continue their training after they have found initial employment.

Eighteen students completed the clerk typist course in the spring of 1970. Ten are gainfully employed, seven are unemployed and one was not available for work at the time the survey was taken. Each of the nine who reported monthly salary range was in the $200 to $300 bracket.

Nurse Assistant

The nursing assistant course is an improved and expanded modification of the nurse aide program in that it encompasses a greater variety of skills and more extensive clinical experiences. The 400 clock hours of training and education includes the hospital setting, introduction to personal health and appearance, health maintenance and improvement, the human body, personality, conditions of illness mental health, family life, personal and vocational relationships, alcohol and narcotics, accidents, first aid, home nursing and the world of work. Two hundred hours of clinical practice is provided each student.

Twenty three students were graduated from the nursing assistant course. Fifteen are gainfully employed, one is unemployed and one is not available for employment. Six are entering programs for advanced training in health related fields. Of the eleven who reported monthly salary range, five were in the $100 to $200 bracket, four were in the $200 to $300 bracket and two were in the $300 to $400 bracket.

Barbering

The N.M.T.V.S. has a complete up-to-date barber training school. Upon completion of the 1300 clock hour course most students are able to pass the state board examination to become licensed barbers. The course covers scientific fundamentals of barbering; histology of hair, skin and nails; structure of head, face and neck; hair cutting; shaving; bacteriology, light therapy, disease of skin and hair; cosmetic preparations, circulatory system; laboratory practice, human relations; oral communication; hygiene; ethics in barbering; salesmanship and shop management.

Thirteen apprentice barbers were graduated from the school during the 1969-70 term. Eleven are employed; the status of one is unknown and one is in the military service. Eight checked monthly salary range on the survey form: one made below $100, two between $100 and $200, three between $200 and $300, and two between $300 and $400.

SURVEY COMPOSITE - GRADUATE FOLLOW-UP STUDY - N.M.T.V.S.

COURSE:	GRADUATES	EMPLOYED	UNEMPLOYED	CONTINUING EDUCATION	NOT AVAILABLE FOR WORK	STATUS UNKNOWN
ELECTRICITY	8	4	2	0	0	2
AUTO MECHANICS	12	11	0	0	0	1
COSMETOLOGY	20	15	2	1	1	1
ELECTRICAL APPLIANCE REPAIR	6	3	2	0	0	1
CLERK STENOGRAPHER	17	16	1	0	0	0
AUTO BODY	6	4	1	0	0	1
DRAFTING	8	7	0	0	1	0
CLERK TYPIST	18	10	7	0	1	0
NURSE ASSISTANT	23	15	1	6	1	0
BARBERING	13	11	0	0	1	1
TOTALS	131	96	16	7	5	7

7656

PERCENTAGE BREAKDOWN

Total number graduates surveyed - 131

Employed	73.3%
Available for work, not employed	12.2%
Continuing education	5.3%
Not available for work	3.9%
Status unknown	5.3%

- - - - - - - - - - - - - - -

PERCENTAGE OF GRADUATES EMPLOYED BY TYPE OF TRAINING

COURSE:	% EMPLOYED
Electricity	50.0
Auto Mechanics	92.5
Cosmetology	75.0
Electrical Appliance Repair	50.0
Clerk Stenographer	94.0
Auto Body	67.0
Drafting	87.5
Clerk Typist	55.5
Nurse Assistant	65.0
Barbering	84.5

STATUS OF UNEMPLOYED GRADUATES

An analysis of the questionnaire from those who were not employed at the time of the survey while not complete in all instances did show the following:

Available and looking for employment - - - - - 9

Would like placement assistance from N.M.T.V.S. - - - - - - - - - - - - - - - - - - - 7

Entered military service - - - - - - - - - - - 3

Continuing education or planning to continue additional training- - - - - - - - 12

7658

EMPLOYER'S COMMENTS

Following are samples of letters received by New Mexico Technical Vocational School during the spring and summer of 1970.

7659

RICHARD HALFORD AIA ARCHITECT ENGINEER
BOX 2306 20 SENA PLAZA SANTA FE NEW MEXICO 988-4656

October 9, 1970

Mr. Catanach
Northern New Mexico State School
El Rito, New Mexico

Dear Mr. Catanach:

For your information, Mr. Eloy Trujillo has been employed by this office consecutively since the first part of July. Mr. Trujillo has been doing a very fine job for us and we hope to maintain his employment for a considerable time in the future.

If there is any further information that I can supply, I will be happy to do same.

Sincerely yours,
RICHARD HALFORD AND ASSOCIATES

Richard Halford

RH:pms

7660

UNIVERSITY OF CALIFORNIA
LOS ALAMOS SCIENTIFIC LABORATORY
(CONTRACT W-7405-ENG-36)
P. O. Box 1663
Los Alamos, New Mexico 87544

IN REPLY
REFER TO: P-14-22

11 September 1970

Mr. Rudy Velarde
Northern New Mexico Technical-Vocational School
El Rito, New Mexico

RE: Larry Mascarenas

Dear Mr. Velarde:

Larry has worked with us for about three months (600 hrs). He came to us with some training in the electrical field.

During the first part of the summer we used Larry as an extra pair of hands. We were able to get a lot of equipment moved and space for our new experiment cleared. There was little need for skill and not a great deal of room for growth.

Mid-way through the summer I discussed in detail with Larry our goals and how he could best help us achieve them and also how we could best provide him with experiences which would be useful in his chosen field. It is about this period of six or seven weeks that I would like to report.

Larry has been very easy to work with. He accepts assignments well and, within the limits of his experience and training, has carried out all assignments given him.

Larry has been punctual. He is always busy. One doesn't find him involved in "bull sessions". In general he is on the job and busy throughout the day.

Larry has helped us with the installation of a 500 kilojoules 20 kilovolt capacitor bank. He has installed capacitors, overvoltage spark gaps, high voltage shorting switches and has built and installed interlock monitors on our high voltage shorting switches. In addition to standard hand tools he has used a lathe, drill press, dexion cutter, band saw, table saw, pangborn (a hydro blast cleaning machine), and has become proficient at silver soldering. He has become familiar with the safety aspects of high voltage installations.

AN EQUAL OPPORTUNITY EMPLOYER

UNIVERSITY OF CALIFORNIA
LOS ALAMOS SCIENTIFIC LABORATORY
(CONTRACT W-7405-ENG-36)
P. O. Box 1663
Los Alamos, New Mexico 87544

IN REPLY
REFER TO: MP-2

August 21, 1970

TO WHOM IT MAY CONCERN:

Manuel Roy Lopez was employed in the Laboratory's Youth Opportunity Program during the summer of 1970. Mr. Lopez's assignment was as an ASC-2 with MP-2, the group charged with the responsibility of developing, fabricating and installing the radio frequency system required to power the Los Alamos Meson Physics Facility 800 MeV Proton Accelerator. During this period Mr. Lopez spent 476 hours participating in the fabrication, modification and installation of electronic equipment associated with the logic and fault protection portion of the system.

While Mr. Lopez was only with the group a short time, he quickly became a valued member of the staff. He exhibited a keen willingness to learn, demonstrated an above-average mechanical aptitude, and seemed to be quite familiar with the material to which he was exposed in technical-vocational school.

Donald C. Hagerman
D. C. Hagerman
Group Leader, MP-2
Meson Physics Division

DCH:lr

cc: MP-2 File
Personnel Files

LEW WALLACE BUILDING
TELEPHONE 505-827-2317

STATE OF NEW MEXICO

Department of Banking

SANTA FE, NEW MEXICO
87501

May 18, 1970

Mr. Florentino Lopez, Clerk-Steno Instructor
Northern New Mexico State School
El Rito, New Mexico 87530

Dear Mr. Lopez:

We are in receipt of your letter of May 11, 1970, in which you metion summer employment for some of your students.

I am sorry but our department does not have the funds available to hire summer help.

Incidentally Henry L. Martinez is doing a fine job, and we are very pleased with him.

NMTVS Graduate

Very truly yours,

Marce Delgado

MARCE DELGADO (Mrs.)
ADMINISTRATIVE OFFICER

md

7663

State of New Mexico

Commissioner of Public Lands

ALEX J. ARMIJO
COMMISSIONER

P. O. BOX 1148
SANTA FE, NEW MEXICO

May 25, 1970

Northern New Mexico State School
El Rito, New Mexico 87530

Attention: Mr. Florentino Lopez

Gentlemen:

Thank you for your letter of May 11th.

At this date we have completed our selection of students for our summer program. However, should any changes occur which will require additional hiring, we will certainly consider the students you have referred to us.

We recognize the valuable function that Northern New Mexico State School is performing and hope to be able to help you in the future.

Very truly yours,

ALEX J. ARMIJO
LAND COMMISSIONER

7664

GRADUATE'S COMMENTS

Following are comments from graduating students of New Mexico Technical Vocational School:

Nurse Assistant's Comments:

"What I found most useful about my training was I learned many important ways to help people get well. I was very proud to be a graduate student from El Rito Vocational School, and through the help of my teachers, I will try to continue my nursing training. I plan to go on and get my LPN as soon as I can."

"Your program was very satisfactory and helped me a lot in many ways. The program included things an individual needs to know at home as well as on the job. The additional training I am going to take is LPN nursing when the N.T.V.S. opens. I would like to know when it opens (the new one being built) and any other information that may be helpful to me."

"The most successful part of my training was clinical at the Los Alamos Hospital. I learned a lot from that because it was worth studying and learning about different kinds of things."

"Everything that I do at my job was included in my training except the only difference is that I work at a nursing home."

"I think that I should go into a higher educational nursing school, but right now I love my work. I feel that the aged need me more than any hospital so right now I'll just stay with them. I also feel that any girl or boy that wants to take this course have in their own mind to participate and go along with all that has to be taken and if they do their best and it is really what they want, they'll do it like I did, and I owe it all to the N.M.T.V.S. of El Rito and teachers."

"I personally wanted instruction in New Mexican Spanish which I was told I would be able to get. NOT TRUE.

"Other things that might have been included that would have helped me on my job were experiences working with personnel, nurses and doctors."

"I would like to go to further nursing training in the future and helping my people and learn more about medicine and the experience working with people and patients. I think this training I have has helped me to be honest, helpful and I am not going to give up. I am looking forward to attend your college nursing training as soon as possible."

"I enjoyed my training program very much indeed. The thing most useful about my training was that we had two teachers. It gave us a chance to get used to more than one nurse. What was nice about them was that they both treated us all the same. If they had treated one of us better than another, some of us would have felt we were being left out. They both taught the class very nice and clearly because to my opinion I thought they explained everything as they went along."

Electrical Appliance Repair Comments:

"In reference to your letter which I received concerning the N.M.T.V.S., I greatly appreciate the training I received. I feel that this school is one of the most useful things that ever happened.

"I have conversed with several high school students and graduates to enthuse them into taking vocational training. I consider this a highly developed program, and I sure hope that it will continue to be progressive.

"I thank you sincerely for everything. I also appreciate your letter very deeply. I will try to visit you at my earliest convenience."

Electricity Comments:

"I was impressed with the many wonderful programs N.M.T.V.S. had to offer. I can only comment on the course I was enrolled in which was electricity. Our instructor did his best to teach us the trade, but I along with the rest of the students felt that wasn't enough. We studied from books and acquired enough information to do the work.

"Students learn more from on-the-job training than from books. I am sure that if the school backed up the instructor, he would find more actual work for the students to do, enabling them to learn much more.

"When I first enrolled in school, I was told the school would help us find a job. That, my friends, was a solid, undeniable myth."

Cosmetology Comments:

"I am very thankful and proud of my training at N.M.T.V.S. I am successfully employed in my home town. Everything taught us in school came in very useful."

"The only thing that I feel was left out was salesmanship. Because I learned that if you do not know how to sell products, you can lose money. I hope that you can tell the class of 1970-71 that TIME also means MONEY in you pocket. You have to be fast in order to make good money."

"My advice to this year's class is not to sit around or hide in the dispensary but to do as many customers as they can. You don't realize this until you're out to earn money."

"I feel like there was nothing else that could have helped me more. Only I feel like in the cosmetology field a person would make more money in a larger town."

Barbering Comments:

"The training I took at school was very good and very useful because I liked what I took and I enjoyed my teachers and the training. I also liked the school and everybody there very much. I don't think that anything has to be added to the school. I think everything has been running very smoothly and efficiently."

"I really enjoyed being able to attend your school. It was a great privilege. All equipment I needed was right there at the school."

"While I was there I though the faculty was very strict sometimes. But now that I have visited other colleges, I can see it was for our own good. I've got my apprentice barber license and am trying hard for my masters.

"First of all I want to thank each and everyone of you guys for the wonderful job you did while I was there. I know you all did the best you could to try to make us all successful.

"In the questions you asked, all I can say is that I got the best training from the most wonderful and smartest instructors. The whole program was taught just perfect. I don't think I would have liked it any other way. The only thing I would advise the students is to get as much practice as they can so when they start working, they can feel reliable and have confidence in themselves. When I started working, I wanted to call the boss and tell him to come and check my haircuts. It takes time to pick up your following, but my boss is trying hard to help me."

Auto Mechanics Comments:

"I am taking this few minutes to let you know why my son didn't answer your letter and questionnaire. He is presently with the military and has been since three months ago. I understand he is taking diesel mechanics in the service or something to that effect. He will be back sometime in late November or early December. He was very happy to have gone to school there and likes very much what he learned."

Auto Body Repair Comments:

"I appreciated very much what N.M.T.V.S. did for me. I am most grateful. I would also like to know if you could help me find a job."

Clerk Typist Comments:

"The training I had in El Rito has helped me a lot. The most useful were Business English, filing and learning how to operate different kinds of office machines. Also the experience I had in working in an office has helped a lot. What I feel I lack now is shorthand. There is a lot of opportunity for shorthand."

"I think the most useful thing in my training as a clerk typist was that my instructor took a personal interest in each and everyone of his students. He had a way of telling us off and then would end his lecture with a joke. Every day was different, and I always

looked forward to the next day. Any time we had a problem and couldn't seem to get the right answer, we could always go to him. He wasn't one of the many teachers who taught from 9 to 3 and then forgot about it. Working on the books in the bookstore and snack bar helped me to understand what it was I was doing.

"I believe more emphasis should be put on telephone personality. When you're answering the phone with several lines, it is hard to think what you should do. There's simply not enough time."

"I think N.M.T.V.S. is doing a great job. You have a beautiful campus, nice buildings, friendly folk, and you simply make a person feel at home. It's one place where one doesn't have to worry about riots and everyone gets along with everybody else. Keep it up."

"I would like to thank each and everyone of you who helped me while I was at El Rito. I feel it was a worthwhile year. I feel very fortunate. I am employed at the Forest Service. I started today and it seems like I'm going to enjoy it there. I'm planning on visiting you sometime this year."

"About the questions that you asked on the other side, I don't have answers to them because I haven't gotten a job yet. That is why I don't know what was most useful about the training. What else might have been included that would have helped in the job, and what additional training I feel I need now. But I am hoping to get a job this fall, and I am sure that the training I took in El Rito will help me a lot."

Clerk Stenographer Comments:

"All I have to say is that we had a great instructor, and I'm more than grateful to him."

"Most useful was the extensive shorthand I took and also my office practice. More business machine training; I could also have used more telephone practice. Right now I need nothing more, although, I feel that knowing more about machines would help. I plan to seek more information on where I could get training in accounting, IBM processing, etc."

"All in all, I feel that your class is the best in the northern part of New Mexico. Although the instructor doesn't have quite all the facilities he needs, he certainly know how to do the best with what he does have. I highly recommend you school to all my new friends who ask about you. To my instructor--congratulations on a job well done."

"Employment was possible because of training. I feel very satisfied with the training I received at N.M.T.V.S. I feel that my instructor gave me all the best possible training I could have received to successfully succeed in my job. I feel that the relationship between us students, teachers and counselors helped me a great deal in my first job, since I work in an office where I come in contact with many people. The use of different office machines could be stressed more."

All my training has been useful. The course I took is very thorough but should be extended to give one more of a chance to learn everything that is taught. I know that I could have gotten more benefit from the course if it were taught slower. I probably lack an extended steno course."

"What I have found most useful is the punctuation and the correct English. Also, my shorthand and typing. Bookkeeping is what would have really helped me on my job."

"I would most of all like to compliment my instructor. He has shown interest in his students and is explicit in his way of teaching. He has even gone out of his way to find jobs for his students."

"My training at N.M.T.V.S. has helped me to better understand my job. It has given me a knowledge of modern office practices, procedures and equipment."

1970 ENROLLMENT

NEW MEXICO TECHNICAL VOCATIONAL SCHOOL

EL RITO, NEW MEXICO

ENROLLMENT AS OF OCTOBER 27, 1970

Auto Body MDTA	11
Auto Body I	27
Auto Body II	10
Auto Mechanics I	26
Auto Mechanics II	21
Barbering	16
Cosmetology	39
Drafting I	17
Drafting II	13
Clerk Sten MDTA	28
Electrical Appliance Repair	10
Electricity I	25
Electricity II	14
Nurse Assistant	11
Clerk Steno	21
Clerk Typist	22
Office Machine Repair	15
TOTAL	326

RECOMMENDATIONS

The N.M.T.V.S. at El Rito along with its Espanola campus facilities shows promise of becoming one of the most vital and critical educational institutions in the state.

The combination of offerings at the two campuses along with the boarding facilities at the El Rito campus coupled with an extensive transportation system offers the opportunity for interested young people and adults of the state to acquire saleable occupational skills.

Many of the students who now attend this school would have no other recourse to education beyond the high school if these campuses did not exist. The school also provides opportunities for those who have dropped out of school by offering courses for general educational equivalency (G.E.D.). The G.E.D. program can frequently be taken concurrently with a skill training program.

The school at El Rito has many of the aspects and characteristics of the "Danish Folk Schools" which successfully brought education, training and cultural experiences to the peoples of that European nation.

Through concentration and vision, the N.M.T.V.S. could become one of the state's and the nation's outstanding laboratories for exploring and testing programs

in community development, multi-cultural relationships, outreach for the less advantaged youth and adults plus the initiation of socio-economic development programs for less advantaged areas.

The need for the above educational programs is critical in New Mexico and the southwest. The facilities are available and the time is at hand to develop such programs.

With this combination of components, the New Mexico leaders for human development would do well to concentrate on the expansion and development of this unique educational facility.

Increased placement and follow-up capability seems to be a high priority need at N.M.T.V.S. Perhaps this is a service that should be provided for and coordinated at the state division of vocational education. If the technical vocational schools are not able to place their graduates, the program of training becomes meaningless.

Continuous study needs to be carried on to keep programs flexible so that they meet the needs of both the students of the area and the employers. It would be senseless to continue to train young people in certain trades or skills when the labor market becomes glutted with trained people.

The N.M.T.V.S. staff with assistance from state leaders from many disciplines needs to carry on continuous long-range planning and development to avoid having the programs from becoming static and not responsive to the changing needs of the state and its people.

At the El Rito campus particularly, efforts might be made to increase offerings in the area of liberal arts education as a co-curricular activity without addition of staff or expense.

VT 016 753
A GUIDE TO WISCONSIN LAWS RELATING TO VOCATIONAL, TECHNICAL AND ADULT EDUCATION.

WISCONSIN STATE BOARD OF VOCATIONAL, TECHNICAL, AND ADULT EDUCATION, MADISON.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 70 47P.

DESCRIPTORS - *EDUCATIONAL LEGISLATION; *STATE LAWS; *VOCATIONAL EDUCATION; *TECHNICAL EDUCATION; *ADULT EDUCATION
IDENTIFIERS - *WISCONSIN

ABSTRACT - THIS COMPILATION IS A GUIDE TO WISCONSIN STATUES RELATING TO VOCATIONAL, TECHNICAL, AND ADULT EDUCATION. IT PRESENTS PERTINENT LEGISLATION IN CONDENSED FORM BY STATUTE SECTION NUMBER. (MF)

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A Guide

To WISCONSIN LAWS

Relating to

VOCATIONAL, TECHNICAL AND ADULT EDUCATION

Wisconsin Board of Vocational,

Technical and Adult Education

Madison, Wisconsin

1970

VT016753

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U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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A Guide

To WISCONSIN LAWS

Relating to

VOCATIONAL, TECHNICAL AND ADULT EDUCATION

Wisconsin Board of Vocational,

Technical and Adult Education

Madison, Wisconsin

1970

7677

A Guide To
WISCONSIN LAWS
relating to
VOCATIONAL, TECHNICAL AND
ADULT EDUCATION

CIVIL RIGHTS STATEMENT

DISCRIMINATION PROHIBITED – Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Therefore any program or activity receiving financial assistance from the Department of Health, Education, and Welfare must be operated in compliance with this law. (Also see Section 111.31 Declaration of Policy, Wisconsin Statutes and 111.32 (5).

Sample Civil Rights Statement: Services, financial aid and other benefits of the Wisconsin Board of Vocational, Technical and Adult Education are provided on a non-discriminatory basis, as required by the Civil Rights Act of 1964.

Individuals applying for or receiving assistance through this agency who believe that discrimination on the ground of race, color or national origin is being practiced by the (District) Board of Vocational, Technical and Adult Education may file a written complaint with the state agency, the federal agency or both.

Any written complaint is to be signed by the complainant, and should give in detail the time, place, pertinent facts and circumstances of the alleged discrimination and should be submitted to the State Director, Wisconsin Board of Vocational, Technical and Adult Education, 137 East Wilson Street, Madison, Wisconsin 53703.

NOTICE TO USERS OF THIS PAMPHLET: This compilation is not presented as a verbatim nor complete copy of Wisconsin statutes relating to vocational, technical and adult education and other material bearing on the subject. It is a guide only, presented in condensed form. If the reader has any questions about this material, he should refer to the complete Wisconsin statutes and also be guided by the legal advice of his attorney.

Attention also is called to the Wisconsin Administrative Code relative to Requirements For Certification and Financial Aids or as it may otherwise apply.

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LIST OF PERTINENT REFERENCES

Section Reference	
14.95 (9)	State Director a member of the interdepartmental Advisory Committee of the Commission on Aging.
15.07 (2) (d) 15.07 (5) (e)	Designates officers of Board of Vocational, Technical and Adult Education as a President, a Vice-President and a Secretary.
15.197 (7) (b)	Designates the State Director of the Board of Vocational, Technical and Adult Education or his designee as a member of the Council on Hospital Development.
15.377 (2)	Designates State Director of the Board of Vocational, Technical and Adult Education as a member of the Council on Library Development.
36.277 (6) (b)	State Director of the Board of Vocational, Technical and Adult Education or designee a member of the Advisory Council on Relations of Wisconsin Psychiatric Institute to other Institutions.
37.75	Compact for Education.
43.11 (1)	Advisory Council on Library Development.
43.60	State Radio Council (State Director a member) (2).
66.01	General Municipal Law.
66.03	Adjustment of assets and liability on division of territory.
74.00	Tax collection.
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118.13	Pupil Discrimination Prohibited.
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120.58	Transfer of property. Does not apply to Vocational Education districts.

145.03 (2)	Plumbing apprentices.
158.03 (1)	Barber schools.
158.03 (4)	Barber apprentices.
159.03 (4)	Cosmetology Institutes.
241.025	Contracts for employment. (Course of study contract.)
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895.35	Expenses in actions against municipal and school district officers.
895.43	Tort actions.
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957.07	Classes and frequency of legal notices.
985.01	Definitions (Legal notices, proceedings, publications, etc.)
985.02	Method of Notification (Legal notices, publications, and posting).

15.64 Coordinating council for higher education; creation. There is created a coordinating council for higher education consisting of 17 members, as follows:
(1) The state superintendent of public instruction.
(2) Nine citizen members nominated by the governor, and with the advice and consent of the senate appointed, to serve staggered 8-year terms.
(3) One member of the board of regents of the university of Wisconsin, selected annually by the board of regents.
(4) The president of the board of regents of the university of Wisconsin.
(5) One member of the board of regents of state universities, selected annually by the board of regents.
(6) The president of the board of regents of state universities.
(7) One member of the board of vocational, technical and adult education, selected annually by the board.
(8) The president of the board of vocational, technical and adult education.
(9) One member of the county teachers college board, appointed annually by the governor from recommendations made by the association of county teachers college boards.

15.641 Same; program responsibilities. The coordinating council for higher education shall have the program responsibilities specified for the coordinating council under subch. I of ch. 39 and ss. 36.06(10), 37.02(5), 38.13(5) and 38.155(1). In addition:
(1) EDUCATIONAL COMMUNICATIONS DIVISION. The educational communications division shall have the program responsibilities specified for the division under ss. 39.11 and 39.13.

15.643 Same; specified divisions. (1) EDUCATIONAL COMMUNICATIONS DIVISION. There is created an educational communications division which is attached to the coordinating council for higher education under s.15.03. This division is under the direction and supervision of the educational communications board, which is created to consist of the governor, the state superintendent of public instruction, the president of the university of Wisconsin, the director of the board of regents of state universities and the director of the board of vocational, technical and adult education, or their designees, and 8 members appointed for 4-year terms, of whom 4 shall be citizen members and one each shall be a representative of private higher education, a representative of private or parochial elementary or secondary education, a professional representative of public elementary and secondary education and a representative of a public school board of a district operating elementary and high school grades.

15.67 Higher educational aids board; creation. There is created a higher educational aids board consisting of 15 members, appointed to serve at the pleasure of the governor. To represent the state institutions of higher education, 5 members shall be nominated to the governor by the coordinating council for higher education from its membership. To represent all private institutions of higher education, 5 member shall be nominated to the governor by joint action of the Wisconsin association of independent colleges and universities and the Wisconsin association of presidents and deans of institutions of higher learning. To represent the general public, the governor shall appoint 5 members directly.

15.94 Board of vocational, technical and adult education; creation. There is created a board of vocational, technical and adult education consisting of 11 members, as follows:
(1) The state superintendent of public instruction or his designee.
(2) A member or designee of the industry, labor and human relations commission, selected by the commission.
(3) Nine members, of whom 3 shall be employers of labor, 3 shall be employes who do not have employing or discharging power and 3 shall be persons whose principal occupation is farming and who are actually engaged in the operation of farms, appointed for staggered 6-year terms.

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15.941 Same; program responsibilities. The board of vocational, technical and adult education shall have the program responsibilities specified for the board under ch. 38. and ss. 20.292, 39.03(7), 158.03(4), 159.08(10), 343.06(3) and 343.60(1).

15.947 Same; councils. (1) COUNCIL ON FIRE SERVICE TRAINING PROGRAMS. There is created in the board of vocational, technical and adult education a council on fire service training programs consisting of a representative of the division of emergency government designated by the administrator thereof; a representative of the department of industry, labor and human relations designated by the industry, labor and human relations commission; a representative of the commissioner of insurance designated by him; and 4 bona fide members of volunteer fire departments and 2 bona fide members of paid fire departments appointed for staggered 6-year terms. (See s. 200.17 – Fire Dept. Dues)

Budget, Appropriations

20.292 Vocational, technical and adult education, board of. There is appropriated to the board of vocational, technical and adult education for the following programs:
(1) VOCATIONAL, TECHNICAL AND ADULT EDUCATION FOR YOUTH AND ADULTS. (a) *General program operations.* The amounts in the schedule for general program operations. In case any allotment under this paragraph is made to a state university or any other wholly state-controlled educational institution, the program appropriations for the operation of such school or institution for the year in which such allotment was made shall be reduced by an amount equal to the amount of such allotment.
(b) *Student aids.* The amounts in the schedule for such scholarships as the board directs and as authorized by s. 38.13 (11) and (12) and funds to reimburse local boards which have secured national defense student loans as provided by the national defense education act of 1958, P.L. 85-864, as amended. Annually on July 1, the board shall reimburse local boards with sums equal to the amounts spent by the local boards during the prior fiscal year for obtaining federal students loans under the national defense education act of 1958, P.L. 85-864, as amended.
(bm) *Technical training scholarships for Indians.* The amounts in the schedule for technical training scholarships for Indians, as provided in s. 38.13 (10).
(c) *Fire schools.* The amounts in the schedule for supervising and conducting schools for instruction in fire protection and prevention under s. 38.14. (See 200.17 (4m)
(d) *State aid for vocational, technical and adult education.* The amounts in the schedule for state aids for districts and schools of vocational, technical and adult education, including area schools and programs, established and maintained under the supervision of the board to be distributed under ss. 38.21 and 38.60. Of the amount in the schedule for each year, not exceeding $50,000 may be spent by the board to match federal funds made available for vocational, technical and adult education by any act of congress for the purposes set forth in such act.
(g) *Text materials.* All moneys received from local vocational and adult school boards for the preparation, publication and distribution of text material.
(h) *Gifts and grants.* All moneys received from gifts, grants, bequests and devises to be used in the execution of the vocational and adult education program.
(i) *Conferences.* All moneys received for the conduct of conferences.
(m) *Federal aid for vocational and adult education.* All moneys received as federal aids for vocational and adult education programs for which the board is responsible, to be expended in conformity with the purposes and requirements of the several acts of congress under which such federal aid is granted.
(u) *Driver education.* All moneys received from the allocation made under s. 20.395 (3) (w), to be distributed to local schools of vocational, technical and adult education for operating driver training programs under ss. 38.21 (1) (b) 1 and 121.15 of this amount such sums as are necessary shall be allotted to the board for the administration of the driver education program.

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20.902 Fiscal year. (Summer Session Accounting) The fiscal year of the state commences on the first day of July in each year and closes on the next succeeding June 30. All books and accounts of the department of administration and of the state treasurer shall be kept, and all their duties shall be performed with reference to the beginning and ending of the fiscal year. All officers and persons required to render annual accounts to the department of administration and treasurer shall close such accounts on June 30 in each year, and shall render such accounts as soon thereafter as may be practicable, and the fiscal year of all departments, boards and bodies connected with the state government in any manner shall commence and close on the same dates as the fiscal year of the state. A fiscal year ending in an even-numbered calendar year may be designated as an even-numbered fiscal year, and a fiscal year ending in an odd-numbered calendar year may be designated as an odd-numbered fiscal year. For all fiscal purposes the entire summer session of any state educational institution or school under the supervision of the board of vocational, technical and adult education shall be considered as occurring in the fiscal year in which such session terminates, and expenditures therefor and revenues thereof shall be charged or credited to the appropriation for such fiscal year. All bills for printing incurred prior to the beginning of such fiscal year of such summer sessions may be paid out of current funds and replaced at the beginning of such fiscal year.

25.01 Authorized investments and loans. (1) WHAT FUNDS. The moneys belonging to the common school fund, the normal school fund, the university fund and the agricultural college fund shall be invested or loaned by the board of commissioners of public lands as such moneys accumulate in the treasury, and, the board shall keep a separate account of all investments and loans from each fund.

(2) INVESTMENTS. Any of said funds may be invested in the purchase of county bonds issued under the authority conferred by s. 59.92 (Stats. 1953), or in the purchase of bonds or notes of the United States or in securities issued under the provisions of the federal farm loan act of July 17, 1916, or in bonds of this state or in bonds issued pursuant to law by any town, village, city, county or school district of this state. All bonds, notes and other securities so purchased shall be deposited with the state treasurer.

(3) LOANS. Any of said funds may be loaned to school districts or boards of education by whatever name designated, to be used for the operation and maintenance of schools, in erecting and remodeling school buildings, teacherages, in the purchase of teacherages, teacherage sites, schoolhouse sites, bus garage sites, transportation vehicles, bus garages, school equipment, or school playgrounds, or in refunding their indebtedness, and for the purposes enumerated in s. 67.04 (6) or otherwise authorized by law; or to towns, villages, cities, counties, boards of education and local boards of vocational and adult education of any city within the state, as provided in s. 67.04 (1) to (6) or otherwise authorized by law; and every such school district, town, village, city or county, board of education and local board of vocational and adult education may borrow of the board, from said funds or either of them, such sum of money, for such time and upon such conditions as may be agreed upon between the board and the borrower; subject to the limitations, restrictions and conditions hereinafter set forth. In this chapter any such school district, town, village, city or county, board of education or local board of vocational and adult education, or all of them, may be designated by the word "municipality" or municipalities."

(4) PREFERENCES. So far as practicable the loans sought by school districts and boards of education shall be supplied before any other loan or investment authorized by this section is made, and such applications shall be acted upon in the order of time in which they have been filed.

(6) REFUNDING LOANS. Any school district may borrow from any funds described in this section to refund any indebtedness incurred for a lawful purpose and within the constitutional limitations.

Note: The term "local board of vocational and adult education" in 25.01 includes all vocational, technical and adult education boards operating schools which are supervised by the state board. See ch. 292, section 11, Laws 1965.

36.17 Summer session, educational extension, correspondence teaching. The board of regents may maintain a summer session and shall carry on educational extension and correspondence teaching and shall carry on university extension classwork in such communities as have 30 or more students and where the vocational or other educational board shall cooperate by payment of the regular extension fees. When similar courses of instruction are given at the university and at any other place of instruction in any city other than Madison, the rates of tuition per course charged to students at any such other place of instruction or for correspondence study shall be no higher than the rates of tuition charged for such courses at Madison.

CHAPTER 38 – SPECIAL SCHOOLS
(Formerly Chapter 41)

38.01 Definition. In this chapter, unless the context requires otherwise, "board" means the (State of Wisconsin) board of vocational, technical and adult education.

38.13 Board of Vocational, Technical and Adult Education. (3) The board shall have control over all state aid given to schools established under ss, 38.15 and 38.155; may employ a director and assistants for the development and supervision of such schools, and shall determine the organization, plans, scope and development of vocational, technical and adult education. All salary accounts shall be certified by the director of the board to the department of administration. All positions except that of director shall come under the classified service.

(4) The board shall cooperate with the U. S. office of education and the federal government in the execution of the provisions of the U. S. vocational education act and any federal statutes pertaining to vocational, technical and adult education and amendatory or supplementary acts thereto, and is empowered with full authority so to cooperate. The state treasurer is designated custodian of all funds allotted to this state from the appropriations made by said act, and he shall receive and provide for the proper custody and disbursement of the same in accordance with the federal statutes.

(5) The board may authorize boards of vocational, technical and adult education districts to grant associate degrees in the appropriate areas designated by the board to students who successfully complete 2 full years of post high school instruction in courses the standards of which meet requirements established by the board. The coordinating council for higher education shall determine the collegiate transfer programs and qualifications of personnel therefor. Except in cities having a population of 150,000 or more, no liberal arts collegiate transfer program shall be offered in a vocational, technical or adult education school located in any town, city or village where there is an existing public institution of higher learning.

(6) The board may accept gifts, grants, bequests and devises to be used in the execution of its functions.

(7) All moneys received by the board from grants for the conduct of conferences and proceeds from such conferences shall be deposited in the general fund and are appropriated therefrom to the board for the conduct of such conferences.

(8) To foster and maintain instruction in courses approved by the board in part-time and full-time day or evening classes, a system of vocational, technical and adult education is established. It is the intent of this section that every person 16 years of age or over who can profit thereby shall be eligible to attend such tax-supported instruction under the rules established by the board.

(9) To establish the requirements for the distribution of state aids, the determination of credits and other administrative processes, the board shall establish criteria for, classify and designate the names of such schools established by the local boards.

(10) The board shall establish rules and standards governing a scholarship program for needy Indians and may grant such scholarships to eligible persons for study at such

schools as the board determines. No such scholarship to any individual shall exceed $25 weekly.

(11) The board of vocational, technical and adult education may grant scholarships to bona fide residents of the state who, during their high school or college courses, were good students, are in financial need, possess qualifications for leadership and are enrolled in state-wide full-time associate degree and collegiate transfer programs under sub. (5). The monetary value of scholarships granted shall vary with the recipient's financial need. A scholarship granted an individual by the board under this section shall not exceed an amount equal to 67% of the financial need of the individual student as determined by the institution in conformance with procedures established by the higher educational aids board.

(12) The board may grant scholarships to bona fide residents of the state who are enrolled in state-wide full-time nonassociate and vocational diploma programs approved by the board. The monetary value of scholarships granted shall vary with the recipient's financial need. A scholarship granted an individual by the board under this section shall not exceed an amount equal to 67% of the financial need of the individual student as determined by the institution in conformance with procedures established by the higher educational aids board.

38.14 Training program for firemen. (1) PURPOSE. In order to promote safety to life and property the board of vocational, technical and adult education may establish and supervise a program of training in fire prevention and protection.

(2) ELIGIBILITY. The program shall be available to members of volunteer and paid fire departments maintained by both public and private agencies including industrial plants. (See 15.947, Council on Fire Service Training Programs)

38.146 Transportation, local. Any governing body organized under s. 38.15 (9) (ba) or (d) or 38.155 may provide transportation for students within its district or area. No state aid shall be paid for this service.

38.15 Local programs of vocational, technical and adult education. (3) In every town, village and city of over 5,000 population there shall be, and in every town, village or city of less than 5,000 population there may be a local board of vocational and adult education. Whenever a number of electors equal to 3% of those voting in the last general election for governor from any district, the schools of which are classified as integrated, shall petition the county clerk at least 30 days prior to the next election, either primary or general, for a referendum on the question of the establishment of a local program of vocational and adult education in the district, the county clerk shall provide for such referendum, at county expense, at the next election, either primary or general, and such program shall be established if a majority of those residing in the unincorporated portion of the district voting at such election and a majority of those residing in the cities and villages in the district voting in such election shall vote in favor thereof. When the creation of a district to operate a vocational and educational program contemplates the inclusion of a portion of a city then maintaining such a program, such portion of the city shall first secure, by majority vote in a city-wide referendum, approval of the electors of the city for the separation of such portion of the city from the existing district providing a vocational and adult education program; such referendum to be called by the city clerk for the next general election upon petition of 15% of the qualified electors of such portion of the city. When a referendum shall favor the establishment of a program of vocational and adult education, the school district shall appoint a local board of vocational and adult education in accordance with sub. (6) (a) and such local board shall take over and maintain schools of vocational and adult education established in cities, towns or villages within the district. The duty of the local board shall be to establish, foster and maintain schools of vocational and adult education for instruction in trades

and industries, commerce, agriculture, and household arts in part-time day, all-day and evening classes and such other courses as are enumerated in s. 38.17. Said board may take over and maintain any existing schools of similar nature. Schools created under this section shall be known as schools of vocational and adult education.

(4) Towns, cities and villages of over 5,000 population adjoining any city of the first class, which do not now maintain a school of vocational and adult education, shall not be subject to the provisions of sub. (3) applicable to towns, cities and villages of over 5,000 population, but shall be subject to the provisions of sub. (3) applicable to towns, cities and villages of less than 5,000 population, shall be liable for the tuition specified in s. 38.19, but shall not be subject to the provisions of sub. (16). Minors residing in such towns, cities and villages shall be subject to ss. 103.06 and 118.15. No local board of vocational and adult education shall by reason of this subsection be required to admit nonresidents to any school under its jurisdiction and control unless accommodations therefor are available, and shall not be required to admit such nonresidents until furnished with a certificate of residence signed by the clerk of the town, city or village in which such nonresident resides.

(5) (a) Such board, except the school district board of vocational and adult education, shall consist of the city superintendent of schools or the superintendent of the unified school district schools (or the principal of the high school, if there is no city superintendent, or the president or director of the local school board in case there is neither of the above-mentioned officers), and 4 other members, 2 employers, and 2 representative employes who have no employing or discharging power and who are not foremen or superintendents, who shall serve without pay, and who shall be appointed by the local school board, or if there is more than one local board, by such boards jointly. If there is more than one city superintendent, principal of the high school, or president or director of the local school board, the ex officio member shall be selected by the appointing boards.

(b) The term of the appointive members shall be 4 years from the first of January; provided, however, that in the first instance members shall be appointed so that the term of one member shall expire each year and that in cities of the 1st class one employe member shall be appointed to begin service in each odd-numbered year and one employer member to begin service in each even-numbered year, and that in all other cities and in villages one employe member shall be appointed to begin service in each even-numbered year and one employer member to begin service in each odd-numbered year.

(6) (a) Where school districts establish schools of vocational and adult education the board shall consist of the district school administrator and 6 other members, 3 employers, 3 representative employes who have no employing or discharging powers and who are not foremen or superintendents, 2 of whom shall reside in unincorporated areas of the district, who shall serve without pay, and who shall be appointed by the district school board.

(b) The term of the appointive members of the school district board of vocational and adult education shall be 6 years from January 1 provided, that in the first instance members shall be appointed so that the term of one member shall expire each year.

(7) The local board of vocational and adult education shall elect from its membership, a chairman and a secretary and in the case of boards of vocational and adult education appointed for school districts and area school districts, a treasurer; and with the cooperation of the board of vocational, technical and adult education shall have general supervision of the instruction in the local schools of vocational and adult education.

(8) On and after July 1, 1961, subs. (3) to (7) shall apply only to schools of vocational and adult education and local boards of vocational and adult education existing on July 1, 1961, and no new schools of vocational and adult education or local boards of vocational and adult education shall be established thereunder after June 30, 1961.

(9) LOCAL ORGANIZATIONS. On and after July 1, 1961, the local administration of schools of vocational and adult education shall be organized in one of the following manners:

(a) As a local board of vocational and adult education within a city or village.

1. Every city or village with a population of 5,000 or more shall appoint a local board unless exempted from doing so by the board of vocational, technical and adult education upon evidence that services can be made available by other methods.

2. Cities and villages with a population of 5,000 or more which do not maintain a school of vocational and adult education, and adjoin any city maintaining a school of vocational and adult education, shall not be subject to the provisions of subd. 1 applicable to cities and villages with a population of 5,000 or more, but shall be liable for the tuition specified in s. 38.19. Minors residing in such cities and villages shall be subject to ss. 118.15 and 103.06.

(b) As an area school district as provided in s. 38.155.

(ba) As an area (in this paragraph referred to as "area") vocational and adult education school comprising 2 or more contiguous high school districts, by joint resolution of the respective school boards.

1. A vocational and adult education board for the area (in this paragraph referred to as the area board) is created to consist of 7 members. The administrator of the school district having the greatest population shall be an ex officio member; but by mutual agreement, the school administrator of one of the other participating districts may be appointed as such ex officio member. The other 6 members shall include 2 employers other than farmers, who have power to employ and discharge, 2 employes who do not have power to employ or discharge, and 2 farmers who are actually engaged in the operation of a farm.

2. The 6 members shall be appointed by the school boards of the participating districts acting jointly at a time and place in the area fixed by the administrator. The administrator shall give 3 weeks' notice thereof to each school board member; and where there are fewer than 6 districts in the area, each district shall have at least one area board member. If the area comprises less than 6 high school districts, board members shall be appointed so as to make board representation proportionate to the total population of the several districts, insofar as this is possible. If the area comprises more than 6 districts, districts shall be combined for purposes of appointing board members, and board representation shall be proportionate to the total population of the various districts insofar as possible. If no agreement can be reached with respect to board membership and representation, the board of vocational, technical and adult education shall make the determination which shall be final. Upon organization, 3 members shall be appointed for 2-year terms, 2 for 4-year terms and 2 for 6-year terms. Such determination shall be by lot. Thereafter, terms shall be for 6 years and until their successors are appointed and qualified. At a sufficient time prior to expiration of terms the administrator shall give like notice to members of the school boards for the appointment of successor members on the area board.

(c) As a local board of vocational and adult education in an area comprising a union high school district or a common or unified school district operating grades one to 12 or kindergarten to 12.

(d) Upon the adoption of a resolution by the municipal governing body of a city or village maintaining a school of vocational and adult education; the board of education of a common or unified school district encompassing the city or village or the board of education of a city school system; and the village board of any village included in the city school system, each acting independently, the vocational and adult education school shall become a vocational and adult education school encompassing the entire area of such common or unified school district or city school system.

(e) No local board of vocational and adult education shall be created after July 1, 1961, without the approval of the board of vocational, technical and adult education.

(10) EFFECT OF BOUNDARY CHANGES. Territory detached from any unit maintaining a school of vocational and adult education shall cease to be liable for taxes to operate and maintain said school after the taxes levied to pay for the last year that such territory was in the unit, but such territory shall continue to be liable for its apportioned share of any indebtedness incurred by such unit attributable to the school of vocational and adult education while it was attached thereto, the apportionment to be determined and equalized annually as long as such indebtedness exists in the manner provided in s. 120.17 (8) and certified annually by the clerk of the unit to the appropriate municipal clerk as provided in s. 38.16 (2m). When a city or village ceases to operate a school of vocational and adult education pursuant to action under sub. (9) (d), the liabilities and assets of the vocational and adult school of such city or village shall become the assets and liabilities of the common or unified school district. The vocational and adult school property of the city or village shall be sold and transferred to the school district at a price equal to the then outstanding obligations of the city or village issued and incurred for such school purposes. This purchase price shall be paid to the city or village by the school district in the manner and pursuant to the provisions of s. 120.58 (1) or (2) which provisions shall be fully applicable to the payment of the purchase price under this subsection including the method of payment, the investment of the proceeds of payment by the city or village and the effect of payment in computing the city's or village's legal indebtedness after such payment.

(11) BOARD COMPOSITION. The members of the local board of vocational and adult education established on or after July 1, 1961, by a city school board, union high school board or common or unified school board shall be appointed by such board and shall consist of:

(a) The city superintendent of schools, the superintendent of the unified or common school district, or the principal of the high school if there is no city superintendent or the president or director of the local school board in case there is neither of the above-mentioned officers, and if there is more than one such superintendent, principal, president or director in the district, the ex officio member shall be selected by the appointing board; and

(b) Four other members, 2 employers and 2 representative employes who have no employing or discharging power and who are not foremen or superintendents. If the territory under the jurisdiction of a local board of vocational and adult education includes rural farming area, the board shall have 2 additional members who shall be farmers, who shall first be appointed for terms of 2 and 4 years, and thereafter for terms of 4 years.

(c) The board shall serve without pay but shall be reimbursed for their reasonable and necessary expenses incurred in the discharge of their official duties.

(d) Of the appointive members of the board of vocational and adult education first appointed one shall be for one year, one for 2 years, one for 3 years and one for 4 years and their terms shall begin on July 1. Thereafter members shall be appointed for 4-year terms. Vacancies shall be filled by the appointing authority for the unexpired term.

(e) The local board of vocational and adult education shall elect from its membership a chairman and secretary, and a treasurer shall be elected when not otherwise provided.

(f) The local board of education, for purposes of selecting the local board of vocational and adult education, is the board in charge of the public schools encompassing the local school of vocational and adult education. If there is more than one board, by such boards jointly.

(12) No state aid granted to schools of vocational and adult education and no money appropriated by the city, town, village or school district for these schools shall be spent without the approval of the local board of vocational and adult education.

(13) The local board of vocational and adult education shall employ and fix the compensation of a local director of vocational education for the development and supervision of the local work of vocational and adult education and shall also employ and fix the compensation of other supervisors, coordinators, teachers and technical advisors and experts as may be necessary for the proper execution of its duties. The qualifications and fitness of these employes shall be subject the approval of the board of vocational, technical and adult education and shall meet the requirements designated by the said board. The local board may also employ and fix the compensation of such clerical assistants, janitors and other employes as may be necessary.

(14) The board may purchase machinery, tools and supplies and purchase or lease suitable grounds or buildings for the use of such schools; rent to others any portion of such buildings and grounds not presently needed for school purposes; and erect, improve or enlarge buildings for the use of said schools. Existing school buildings and equipment shall be used as far as practicable. All conveyances, leases and contracts shall be in the name of the municipality or school district.

(15) The board may contract with the extension division of the University of Wisconsin to give instruction in such branches as the department may offer.

(16) Whenever 25 persons qualified to attend a vocational and adult education school shall file a petition therefor with the local board of vocational and adult education, the board shall establish such school, or otherwise provide facilities for such instruction as is authorized in ss. 38.13 to 38.20.

(17) (a) Said local board shall have exclusive control of the schools established by it and over all property, acquired for the use of said schools, except as otherwise provided by the statutes. Said board may sue and be sued in the name of the municipality or school district, and may prosecute or defend all suits brought under this section.

(aa) The local board of vocational and adult education, however organized, shall be subject to s. 120.48 (4).

(b) All contracts made by such local board for construction work involving the expenditure of $1,000 or more and all contracts for the purchase of materials, supplies and equipment not to be used for new construction work where the estimated cost is $2,000 or more shall be awarded to the lowest competent responsible bidder. In respect to any such contracts the board shall advertise for sealed proposals based upon a plan or profile of the work to be done and specifications therefor, or other appropriate sufficient description of the work required to be done, and the kinds or qualities of materials, equipment and supplies to be furnished, which shall be first placed on file in the office of the board for the information of bidders. The board may submit alternative plans and specifications for any contemplated public work or purchase as provided in s. 62.15 (8). Such advertisement shall be published as a class 2 notice, under ch. 985, the last insertion to be at least one day prior to the day set for the opening of the bids, and the contract may be awarded on the day the bids are opened or thereafter. The board at its option may call for competitive bids on such notice when the amounts of the expenditures involved are less than $1,000 for construction work and less than $2,000 for the purchase of materials, supplies and equipment not to be used for new construction work; and the board may call for informal bids on plans and specifications without advertised notice when the amount involved is less than $1,000 for construction work and less than $2,000 for the purchase of materials, supplies and equipment not to be used for new

construction work. A performance bond in the principal amount of the contract shall be required in such cases and on all contracts let by the board.

(c) All proposals shall be directed to the board and shall be accompanied by a surety bid bond executed by a surety corporation licensed to transact business in Wisconsin in a penal sum to be fixed by the board in dollars, but the amount thereof shall not be less than 5% nor more than 10% of the estimated cost of the construction work or the materials, equipment or supplies. In lieu of such bid bond, the bidder may accompany his bid with a certified check, a bank cashier's check or cash in the amount required by the board. In case the bidder awarded the contract shall fail or refuse to execute the contract and performance bond, the amount of the said bid bond, certified check, cashier's check or cash shall be forfeited to the city as liquidated damages. Whenever the advertisement calls for the performance of different kinds of construction work or the furnishing of different kinds or qualities of materials, equipment or supplies, such contracts may be let in whole or in part to the lowest responsible bidder for particular parts of the proposed contract. The board may reserve the right to reject any and all bids and to waive minor irregularities. The board shall fix the time of completion of the contract and may, for good reason, extend the time for completion thereof. The board shall fix the amount of liquidated damages for failure of the contractor to complete the contract at the specified time, which damages shall not in any event exceed one-half of one percent of the estimated cost involved for each day of default. All contracts shall run in the name of the city, village or school district, be executed by the chairman and secretary of the board, and except as to school districts, be counter-signed by the comptroller, and approved as to form and execution by the city or village attorney. A bidder may, by written notice to the board, withdraw his bid before the time set for opening bids, and he may file an additional bid or bids before the opening date, but when the bids are opened at the prescribed time no bidder may withdraw or amend his bid for any reason, provided that in case the bidder appears to be acting in good faith and by oversight or error he has made an improvident bid, the board can, in its discretion, reject such bid, if it be the low bid, and award the contract to the next lowest responsible bidder. The board may demand that prospective bidders prequalify as to responsibility and competence. The board may in its discretion for good reason waive liquidated damages for failure to complete at the time prescribed in the contract. The board shall insert in all contracts appropriate provisions, terms and conditions for suitable indemnity to the city against loss or expense, as to the payment of prevailing wage rates and to hours of daily work, as to payments on account to the contractor as the work progresses or deliveries are made, and in other particulars for the protection of the city.

(g) Said board may insert in such contract provisions for reasonable and lawful conditions as to hours of labor, wages, and the residence and character of workmen to be employed by the contractor, and especially such reasonable and lawful conditions as will tend to confine employment on such work, to bona fide residents of this state.

(18) (a) The board may assist in the formation of advisory committees in every occupation in the locality. Each committee shall consist of equal numbers of employers and employes selected from candidates submitted by representative organizations or associations of each occupation, and may be called upon by the local board and by the directors for advice and assistance in the selection, purchase and installation of equipment, in the preparing of lessons, in developing methods of instruction, in the development of vocational guidance, in following up young persons after they leave school, and for such other purposes as may be found desirable.

(b) The names of the members of each such advisory committee shall be filed with the board of vocational, technical and adult education at the beginning of each school year. Each such advisory committee shall meet at least once each year and reports shall be made of activities and recommendations to the board of vocational, technical and adult education.

(19) All full-time day teachers in any schools of vocational and adult education in cities of the lst class shall be employed on probation, and after successful probation for 3 years, such employment may be terminated only in the manner as hereinafter provided; teachers having taught 3 years or more in any such school shall be deemed to have served their term of probation. No teacher in any such school after such successful probation for 3 years shall thereafter be discharged except for cause and upon a written statement of the reasons therefor. In such case, the charges shall, upon such teacher's request, after 10 days' written notice thereof to such teacher, and within 30 days of such written notice, be investigated, heard and determined by the local board of vocational and adult education whose action and decision in the matter shall be final. The term "teachers" as used in this subsection shall include teachers, principal, supervisors, counselors, coordinators, technical advisors and experts, and other employes to whom the local board of vocational and adult education shall assign teaching status, but shall not include the director; nothing herein contained shall apply to the director whose election, appointment, or tenure shall be left entirely to the local board of vocational and adult education.

(20) Effective June 1, 1945, any teacher and any director heretofore or hereafter coming under sub. (19) who has attained or shall attain the age of 70 years shall be retired by the local board at the end of the school year in which he reaches the age of 70. A school year shall begin on July 1 in any year and end on June 30 of the following year.

(21) The local board may furnish teaching services, staff, supervision and administration and equipment for the purpose of conducting vocational and adult education classes in other areas within the state upon the request of the institution or municipality or school district desiring the same and with the approval of the local board, if any, of such municipality or school district, upon such reimbursement basis as shall be agreed upon. Every town, city, village and school district, and their respective governing boards may appropriate money to be paid to local boards of vocational and adult education and other communities which render services to such town, city, village or school district.

(22) No local board of vocational and adult education shall be required to admit nonresidents to any school under its jurisdiction and control unless accommodations therefor are available, and shall not be required to admit such nonresidents until furnished with a certificate of residence signed by the clerk of the town, city or village in which such nonresident resides.

(23) The local board may accept gifts, grants, bequests and devises to be used in the execution of its functions.

38.155 Vocational, Technical and Adult Education Districts. (1) Beginning as soon after September 29, 1965, as practicable, the coordinating council for higher education, in conjunction with the board of vocational, technical and adult education, shall prepare a proposed master plan for vocational, technical and adult education districts. By July 1, 1970, the board of vocational, technical and adult education shall act to include all areas in such school districts of vocational, technical and adult education as the board designates. Prior to July 1, 1970, the governing body of any county, municipality or school district operating a high school may elect, singly or in any contiguous combination, to be constituted a school district as designated by the board under this section and, if the board and the coordinating council for higher education approve, the district shall be created. Every existing local vocational and adult education board in territory included in a district created under this section shall cease at such time as the Wisconsin board declares the new district to be created.

(2) Vocational, technical and adult education districts may be established containing one

or any contiguous combination of the following units of government.
(a) Counties.
(b) Municipalities.
(c) School districts operating high schools.

(3) (a) The boundaries of a district shall not be altered unless the alteration is approved by the board of vocational, technical and adult education.

(b) The governing body of any municipality, county or school district operating a high school may request the board to detach its territory from a district and attach it to another district. If the transfer is approved by the governing body of both districts involved, the board may approve it. If the governing body of either district disapproves the transfer, the board shall determine the case on its merits.

(c) All changes in boundary lines shall take effect on July 1.

(4) Upon the creation of a vocational, technical and adult education district under this section all property, assets, claims, contracts, obligations, rights, duties and liabilities of any nature and kind relating and pertaining to the vocational and adult education schools operated in the territory of the district shall become properties, assets, claims, contracts, obligations, rights, duties and liabilities of such district; except as otherwise provided in sub. (4m).

(4m) (a) Upon the creation of a vocational, technical and adult education district under this section, all property, assets, claims, contracts, obligations, rights, duties and liabilities of any nature and kind relating and pertaining to any vocational and adult education school operated in any city or village located in the area included in such district shall remain the property, assets, claims, contracts, obligations, rights, duties and liabilities of such city or village, unless at the option of the governing body of such city or village, the whole or any portion thereof, is transferred to the district under an agreement between such city or village and the district as to the use, obligation and ownership thereof.

(b) The purchase price of such property, except as otherwise agreed upon under par. (a), shall be the fair market value as determined by an independent appraiser selected jointly by the governing bodies of the city or village and of the vocational, technical and adult education district, less any outstanding obligations against the property which shall be assumed by said district.

(c) A vocational, technical and adult education district in financing the purchase of property transferred to the district under this subsection may issue its bonds or promissory notes under ch. 67 to pay the cost thereof including assumption of outstanding obligations.

(d) The city or village shall deposit the proceeds of the sale of vocational and adult education school property in the sinking fund or funds, if any, created for payment of existing vocational and adult education school obligations and the indebtedness of such city or village shall, for purposes of computing its legal debt limit, be deemed reduced by the amount of such deposit. The city or village may invest these sinking fund moneys under s. 66.04 (2) or 67.11 (2) and (3). Bonds and notes issued by vocational, technical and adult education districts for purposes of this subsection shall not be subject to referendum. The purchase agreement shall include an irrevocable clause providing that the district shall pay annually to the city or village a sum of money equal to the amount in which the interest received by the city or village upon investments authorized hereunder is less than the amount of interest paid by the city or village on the bonds of the city or village for vocational and adult education school purposes.

(e) The vocational, technical and adult education district purchasing property under this subsection may, with approval by the city council or village board involved, pay the purchase price by issuing and delivering directly to the city or village the general obligation promissory notes or notes of the district under the provisions, including an irrevocable tax levy, of s. 67.12 (12), except that no referendum shall be held and the 10-year limitation on such notes under s. 67.12 (12) shall be inapplicable to such notes issued under this paragraph. Such notes shall mature and be payable at such times, in such amounts and at such rate of interest as will amortize and pay when due the principal and interest on the outstanding obligations of the city or village for vocational and adult education school purposes. All such notes, upon execution and delivery to the city or village, shall in all respects be held and considered as an authorized investment under s. 66.04 (2) or 67.11 (2) and (3) of the sinking fund created for payment of the city or village obligations issued for vocational and adult education school purposes and shall be offset against city or village indebtedness in computing legal debt limit to the same extent as other authorized investments of the sinking fund and such notes may be sold and hypothecated. If the offset against city or village indebtedness under this paragraph is determined to be invalid in any respect, such city or village may immediately require the district issuing to such city or village promissory notes hereunder to comply with pars. (c) and (d) to the extent necessary to cure such invalidity.

(5) A district shall be administered by a board consisting of 7 members, as follows:

(a) The members shall include 2 employers, who have power to employ and discharge, 2 employes who do not have power to employ or discharge and 2 additional members.

(b) The members appointed under par. (a) shall select a school district administrator from within the district who shall serve as an ex officio member of the board.

(c) The board members shall be appointed by the chairmen or other executive officers of the governing bodies of the units of government included in the district, acting jointly at a time and place in the district fixed by the (Wisconsin) board. If the governing bodies of the units initiating the action are all school districts operating high schools, the chairmen of the governing bodies shall be the presidents or chairmen of those school district boards comprising the area. If the governing bodies of the units initiating the action are all counties, the chairmen of the governing bodies shall be the chairmen of the county boards comprising the area. If the governing bodies of the units initiating the action are all municipalities, the chairmen or executive officers of the governing bodies shall be the presidents or chairmen of the school districts operating high schools in which any area of the new district is located. If the governing bodies of the units initiating the action are a combination of high school districts, counties and municipalities, the chairmen or executive officers of the governing bodies shall be the chairmen of the county boards of the counties in which any part of the district is located. When the (Wisconsin) board creates districts the (Wisconsin) board shall designate which governing bodies shall participate in the selection of the board members. Such designation shall be consistent with the intent of this subsection. The (Wisconsin) board shall give 3 weeks' notice thereof to each governing body; and where there are fewer than 6 units of government in the district, each unit shall have at least one board member. If the district comprises less than 6 units, board members shall be appointed so as to make board representation proportionate to the total population of the several units, so far as possible. If the area comprises more than 6 units, units shall be combined for purposes of appointing board members, and board representation shall be proportionate to the total population of the various units, so far as possible. If no agreement can be reached with respect to board membership and representation within 60 days, the (Wisconsin) board shall make the determination. Upon organization, 2 members shall be appointed for 2-year terms and 2 for 4-year terms and 2 for 6-year terms. Such determination shall be by lot. Thereafter, terms shall be for 6 years and until their successors are appointed. At a sufficient time

prior to expiration of terms, the secretary of the board shall give notice to the governing bodies for the appointment of successor members on the district board.
(d) All district board members shall take office on July 1 and shall hold office until a successor has been selected. Vacancies shall be filled as were original appointments. The officers of the district board shall be a chairman, vice chairman, secretary and treasurer. District board members shall receive their actual and necessary expenses incurred in the performance of their duties.

(6) Annually on or before October 1, the district board may levy a tax, not exceeding 2 mills on the full value of the taxable property of the district, for the purpose of making capital improvements, acquiring equipment and operating and maintaining the schools of the district, except that the 2-mill limitation is not applicable to taxes levied for the purpose of paying principal and interest on valid bonds or notes now or hereafter outstanding as provided in s. 67.035. The secretary of the district board shall file with the clerk of each city, village and town, any part of which is located in the district, a certified statement showing the amount of the levy and the proportionate amount of the tax to be spread upon the tax rolls for collection in each city, village and town. Such proportion shall be ascertained on the basis of the ratio of the full value of the taxable property of that part of the city, village or town located in the district to the full value of all taxable property in the district, as certified to the secretary by the department of taxation. Upon receipt of the certified statement from the secretary of the district board, the clerk of each city, village and town shall spread the amounts thereof upon the tax rolls for collection. When the taxes are collected, such amounts shall be paid by the clerk of each city, village and town to the treasurer of the district board.

(7) The district board may borrow money and levy taxes to be used for the purchase or construction of buildings and for additions, enlargements and improvements to buildings and for the acquisition of sites and equipment. In financing activities under this subsection, the district may issue its bonds or promissory notes under ch. 67 to pay the cost thereof.

(8) (a) The district board may accept gifts, grants, bequests and devises to be used in the execution of its functions.

(b) All moneys received by the district board shall be deposited with the treasurer of the district board. The district board treasurer shall be accountable for such funds. All expenditures shall have the approval of the treasurer or his designated representatives.
(c) No state aid granted to schools under this section and no money appropriated by the county, city, town, village or school district for these schools shall be spent without the approval of the district board.

(9) The district board shall employ and fix the compensation of a director for the development and supervision of the work of vocational, technical and adult education and shall also employ and fix the compensation of other supervisors, coordinators, teachers and technical advisors and experts as are necessary for the proper execution of its duties. The qualifications and fitness of these employes shall be subject to the approval of the (Wisconsin) board and shall meet the requirements designated by the (Wisconsin) board. The district board may also employ and fix the compensation of such clerical assistants, custodians and other employes as are necessary.

(10) The district board may purchase machinery, tools and supplies, and purchase or lease suitable grounds or buildings for the use of such schools; rent to others any portion of such buildings and grounds not presently needed for school purposes; and erect, improve or enlarge buildings for the use of said schools. Existing school buildings and equipment shall be used as far as practicable. In a county where there is a county teachers college or joint county teachers college which is to be phased out of existence prior to July 1, 1970, the district board shall utilize the existing buildings and equipment of such colleges to the extent possible. All conveyances, leases and contracts shall be in the name of the district.

(11) The district board may contract with public educational institutions for instructional services.

(12) (a) The district board shall have exclusive control of the school established by it and over all property, acquired for the use of said schools, except as otherwise provided by statute. The district board may sue and be sued in the name of the district, and may prosecute or defend all suits brought under this section.

(b) All contracts made by the district board for construction work involving the expenditure of $3,000 or more and all contracts for the purchase of materials, supplies and equipment not to be used for new construction work where the estimated cost is $3,000 or more shall be awarded to the lowest competent responsible bidders. In respect to any such contracts the district board shall advertise for sealed proposals based upon a plan or profile of the work to be done and specifications therefor, or other appropriate sufficient description of the work required to be done, and the kinds or qualities of materials, equipment and supplies to be furnished, which shall be first placed on file in the office of the district board for the information of bidders. The district board may submit alternative plans and specifications for any contemplated public work or purchase as provided in s. 62.15 (8). Such advertisement shall be published as a class 2 notice under ch. 985. The time fixed for opening of bids on work or materials that require engineering, design or fabrication shall not be earlier than 40 days after the availability of contract documents and the first publication of advertisements for bids. The district board at its option may call for competitve bids on advertised notice or for informal bids on plans and specifications without such notice when the amounts of the expenditures involved are less than $3,000 for contruction work and less than $3,000 for the purchase of materials, supplies and equipment not to be used for new construction work. A performance bond in the principal amount of the contract shall be required in such cases and on all contracts let by the district board.

(c) All proposals shall be directed to the district board and shall be accompanied by a surety bid bond executed by a surety corporation licensed to transact business in this state in a penal sum to be fixed by the district board in dollars, but the amount thereof shall not be less than 5% nor more than 10% of the estimated cost of the construction work or the materials, equipment or supplies. In lieu of such bid bond, the bidder may accompany his bid with a certified check, a bank cashier's check or cash in the amount required by the district board. In case the bidder awarded the contract fails or refuses to execute the contract and performance bond, the amount of the bid bond, certified check, cashier's check or cash shall be forfeited to the district board as liquidated damages. Whenever the advertisement calls for the performance of different kinds of construction work or the furnishing of different kinds of qualities of materials, equipment or supplies, such contracts may be let in whole or in part to the lowest responsible bidder for particular parts of the proposed contract. The district board may reserve the right to reject any and all bids and to waive minor irregularities. The district board shall fix the time of completion of the contract and may, for good reason, extend the time for completion thereof. The district board shall fix the amount of liquidated damages for failure of the contractor to complete the contract at the specified time, which damages shall not exceed one-half of one percent of the estimated cost involved for each day of default. All contracts shall run in the name of the district and be executed by the chairman and secretary of the district board. A bidder may, by written notice to the district board withdraw his bid before the time set for opening bids, and he may file additional bids before the opening date, but when the bids are opened at the prescribed time no bidder may withdraw or amend his bid for any reason. If the bidder appears to be acting in good faith and by oversight or error has made an improvident bid, the district board may reject such bid, if it is the low bid, and award the contract to the next lowest responsible bidder. The district board may demand that prospective bidders prequalify as to responsibility and competence. The district board may for good reason waive liquidated damages for failure to complete at the time prescribed in the contract. The district board shall insert in all contracts appropriate provisions, terms and conditions for suitable indemnity to the district against loss or expense, as to the payment of prevailing

wage rates and to hours of daily work, as to payments on account to the contractor as the work progresses or deliveries are made, and in other particulars for the protection of the district.
(d) The district board shall be subject to s. 120.48 (4).

(13) The district board may assist in the formation of advisory committees in every occupation in the locality. Each committee shall consist of equal numbers of employers and employes selected from candidates submitted by representative organizations or associations of each occupation, and may be called upon by the district board and by the administrator for advice and assistance in the selection, purchase and installation of equipment, in the preparing of lessons, in developing methods of instruction, in the development of vocational guidance, in following up young persons after they leave school and for such other purposes as are found desirable.

(14) Any teacher and any director who has attained or attains the age of 70 years shall be retired by the district board at the end of the school year in which he reaches the age of 70. A school year begins on July 1 in any year and ends on June 30 of the following year.

(15) The district board may furnish teaching services, staff, supervision and administration and equipment for the purpose of conducting instruction in other areas within the state upon the request of the institution or municipality or school district desiring the same and with the approval of the board, if any, of such municipality or school district, upon such reimbursement basis as shall be agreed upon. Every county, town, city, village and school district, and their respective governing boards may appropriate money to be paid to district boards which render services to such town, city, village or school district.

38.16 Estimate for maintenance; tax. (1) The local board of vocational and adult education shall annually report to the municipal clerk or school district clerk before September the amount of money required for the next fiscal year for the support of all the schools of vocational and adult education, but not including amounts required for debt service and retirement of vocational and adult education school bonds.

(2) The municipality shall levy and collect and the clerk shall spread on the roll a tax which, together with the other funds provided for the same purpose, shall be equal to the amount so required by said local board, but such tax shall not exceed 3 mills on the dollar in cities of the 1st class, or 2 mills on the dollar in all other municipalities, except that when such tax will not produce sufficient revenue in any such other municipality, that municipality may by ordinance provide that such tax shall not exceed 2 mills on the last equalized valuation on the taxable property in the municipality.

(2m) The school clerk shall certify all taxes levied for purposes of vocational and adult education to the municipal clerk. If any school district is joint, the clerk of the district school board shall certify to the clerk of each municipality the amount to be raised by each. The apportionment shall be determined and shall be equalized in the manner provided in s. 120.17 (8). The district taxes for purposes of vocational and adult education shall be entered on the next tax roll of the municipality and collected and returned as other taxes are, and shall be paid to the treasurer of the local board of vocational and adult education. The taxes for purposes of vocational and adult education together with other funds provided for the same purposes shall be equal to the amount required by the local board of vocational and adult education but such taxes shall not exceed 2 mills on the dollar.

(2p) The vocational and adult education area district board is authorized to levy on or before October 1 in any year a tax upon all the taxable property of the district for the purpose of operating and maintaining area schools of vocational and adult education. The

amount of such tax shall not exceed in any one year, 2 mills on each dollar of equalized valuation.

(a) The secretary of the area district shall deliver to the clerk of each municipality in which any part of the district is located, a certified statement showing the amount of taxes voted and the amount of taxes to be collected in that year for the payment of any loan and the portion of such taxes to be assessed in that part of the area district within the municipality which proportion shall be ascertained from the full valuation certified to him by the department of taxation.

(b) Upon receipt of such report the clerk of each such municipality shall place the same on the tax roll to be collected as are other taxes, and such money when collected shall be paid to the treasurer of such district.

(2q) The vocational and adult education area district board may incur indebtedness for the acquisition of sites, buildings and equipment for the operation of a school and levy taxes for such capital outlay and interest. When a vocational and adult education school is established by one or more counties, the funds for acquisition of sites, buildings and equipment for this school shall be requested of and approved by the county board or boards comprising the district in the manner determined in the agreement to organize the district.

(3) Whenever the local board of vocational and adult education in any city or school district shall deem it necessary to erect, or to make additions to buildings, or to purchase sites or additions to sites, the local board of vocational and adult education may inform the city council of the city or the school district board of the amount of funds needed for one or more of said purposes, and request the city council or the school district board to borrow money or to have school bonds issued and sold in accordance with the procedure provided in ch. 67 or elsewhere in the statutes for said purposes, or any 2 of said purposes combined, in the same manner as other loans are obtained or bonds are issued in such city or school district. If the local school district board and the local board of vocational and adult education deem it necessary to erect a building to be used jointly by the high school and vocational and adult education school, they may jointly request the city council or the annual school district meeting for the amount of funds needed for the purpose, and the city council or the annual school district meeting, as the case may be, may authorize loans or school bonds issued and sold, in accordance with procedure as provided in ch. 67 or elsewhere in the statutes in the same manner as other bonds are issued or loans obtained in such city or school district.

(4) Taxes for the purposes named in this section shall be in addition to all other taxes, and shall be for the use and support of the schools of vocational and adult education.

(5) The municipal clerk (or comptroller where applicable) or secretary of a board of vocational and adult education organized in a school district shall keep separate accounts of all money appropriated or otherwise provided for vocational and adult education. Said money shall be paid out as follows: The local board of vocational and adult education shall present to the town, village or city clerk a certified bill, voucher or schedule signed by its president and secretary giving the names of the claimants and the amount and nature of each claim. The municipal clerk or secretary of a board of vocational and adult education organized in a school district shall issue proper order upon such certification, to the municipal treasurer, or treasurer of a board of vocational and adult education organized in a school district, who shall pay them from the proper funds in the manner provided by s. 66.042.

(6) All money received by said board shall be paid to the town, village or city treasurer or treasurer of a board of vocational and adult education organized in a school district and are appropriated to the vocational and adult education fund.

38.17 Teachers and Courses of Study. (1) The qualifications of teachers and the courses of study in these schools shall be approved by the board of vocational, technical and adult education, and shall include English, citizenship, physical education, sanitation and hygiene, and the use of safety devices, and such other courses as the board of vocational, technical and adult education shall approve.

(2) The local board of vocational and adult education may allow pupils who have had courses equivalent to any of those offered, to substitute other courses therefor.

38.18 Requirement for Admission; Aids for Veterans. (1) The schools of vocational, technical and adult education shall be open to all residents of the municipalities or districts in which such schools are located, who are 16 years of age and who are not by law required to attend other schools, and to all persons over 16 years of age employed in said municipalities or districts, but who are residents of other municipalities or districts maintaining schools. Such nonresidents shall notify the local board of their home municipality or district. The schools shall be open to all persons 16 years of age or over who reside in municipalities or districts having local boards but in which the specific courses desired by such persons are not given if such courses are given in the municipality or district in which such persons elect to attend and the local board of such municipality or district agrees to admit them. Such nonresidents shall notify the local board of their home municipality. Any person over the age of 16 years who resides in any municipality not having such school, and who is otherwise qualified to pursue the course of study, may attend any school under the supervision of the local board. Nonresident pupils shall be subject to the same rules and regulations as resident pupils.

(2) Local boards of vocational and adult education may receive such payments as may be made by the federal veterans' administration for tuition to cover cost of training provided resident students who are enrolled in schools of vocational and adult education and who are veterans eligible for benefits under the provisions of U. S. Public Law No. 16, Chapter 22, 1st session 78th Congress and U. S. Public Law No. 346, Chapter 268, 2d session 78th Congress and any acts amendatory thereof or supplementary thereto. Local boards of vocational and adult education may receive such payments as may be made by the department of health and social services under s. 55.01 to cover cost of training provided resident students who are enrolled in schools of vocational and adult education and who are veterans not eligible for benefits under the provisions of U. S. Public Law No. 16, Chapter 22, 1st session 78th Congress and U. S. Public Law, No. 346, Chapter 268, 2d session 78th Congress and any acts amendatory thereof and supplementary thereto. No board shall accept payment in an amount which together with other receipts for the same purpose exclusive of the funds provided under s. 38.16 would be in excess of the full cost of training provided such veterans.

38.19 Nonresident Tuition; Aids for Veterans. (1) (a) The local board of vocational and adult education may charge tuition for nonresident students in an amount sufficient to pay instructional costs of providing training to such persons. Such charges shall be reviewed and, if found to be accurate, approved by the director of the board.
(b) Separate tuition rates shall be established by the local board for costs associated with the following classifications:
1. State-wide full-time.
2. Other.
(c) The tuition rates established under par. (b) shall be reduced to reflect state and federal aids, revolving income and other revenue exclusive of revenues derived from local taxes.
(d) For purposes of tuition charges a student shall be considered age 21 or over if he has reached his 21st birthday prior to the beginning of the semester or lesser time period for which enrolled.
(e) The board shall establish tuition refund policies.

(2) Before August 1 of each year, the secretary of each local board of vocational and adult education shall file with the clerk of each county and municipality from which any tuition pupil was admitted, except as provided in sub. (6), a sworn statement setting forth the residence, name, age, date of entrance and the total tuition charge for courses approved by the board of vocational, technical and adult education, for each pupil admitted from such county. This statement shall be rendered on a form prescribed by the director of the board. Within 10 days after the receipt of such statement the clerk of each municipality shall return the same to the county clerk with his certification as to the correctness of the statement, or indicating in what respects he believes such statement to be incorrect, together with all necessary factual information in support of such belief. Nothing in this subsection shall apply to tuition for any pupil who has reached 21 years of age.

(3) Where the county clerk has satisfied himself that the statements made under sub. (2) are accurate, he shall determine the total tuition charge to be collected within that portion of the county lying outside districts operating schools of vocational and adult education, and apportion the amount thereof on the basis of the ratio of the equalized valuation of that portion of each municipality within the county which lies outside districts which operate schools of vocational and adult education as certified by the board of vocational, technical and adult education to the total equalized value of all the territory within the county that lies outside districts which operate such schools, and certify the amount so obtained to the clerks of such municipalities. The aforesaid equalized valuation shall be determined and certified to the county clerk annually on or before August 15 by the department of revenue. The municipal clerk shall enter upon the next tax roll in a local column such sums as may be due for such tuition from his municipality and the amount so entered shall be collected when and as other taxes are collected. If a portion of such municipality forms a part of a vocational school district the taxable property in that portion shall be exempt from such tuition tax. In lieu of placing the amount due for vocational and adult school tuition upon the tax roll the governing body of any municipality required to pay such tuition may by resolution authorize its treasurer to pay the amount of such tuition as certified by the county clerk out of surplus municipal funds, provided no portion of such municipality forms a part of a vocational and adult school district.

(4) Before August 1 in each year, the secretary of the local board of vocational and adult education shall send to the secretary of the local board of vocational and adult education in the municipality in which the pupils reside, a sworn statement of tuition charges for pupils residing therein who had reached 21 years of age. Where pupils reside in a municipality in which no vocational and adult education school is maintained, such sworn statement of the tuition charges shall be sent to the clerk of the municipality. In either case the sworn statement shall set forth the residence, name, age, date of entrance to such school, and the amount of tuition due. This statement shall be filed as a claim against the local board or against such municipality and allowed as other claims are allowed. The secretary of the board shall, in submitting the certificate of tuition charges to the municipality of residence of tuition pupils, indicate the instructional program for which a pupil was enrolled and attended.

(5) No local board of vocational and adult education, nor any city, village or town not having a school of vocational and adult education, shall be liable under sub. (4) without its consent to pay such tuition for any pupil who has reached the age of 21 years. Nonresident students over 21 years of age may pay such nonresident tuition charge. Neither shall any board of vocational and adult education, city, village or town be liable to pay such tuition for any student unless such board or the governing body of the city, village or town is notified in writing within 30 days after enrollment that the student is attending the school of vocational and adult education.

(6) Before July 1 of each year, beginning with 1955, the secretary of each local board of vocational and adult education shall file a list of the pupils who attended that school of vocational and adult education because the specific courses desired by such persons were not given in their municipality of residence and who resided in another municipality having local board of vocational and adult education with the secretary of the board in the municipality in which such pupils reside together with a statement of the tuition due because of such pupils. This statement shall be filed as a claim against the local board of vocational and adult education and allowed as other claims are allowed.

(7) Local boards of vocational and adult education may receive such payments from the federal veterans' administration for tuition of nonresident students as may be made by the federal veterans' administration to cover cost of training provided for veterans who are enrolled in schools of vocational and adult education and who are veterans eligible for benefits under the provisions of U. S. Public Law No. 16, Chapter 22, 1st session 78th Congress and U. S. Public Law No. 346, Chapter 268, 2d session 78th Congress and any acts amendatory thereof or supplementary thereto. Local boards of vocational and adult education may receive such payments as may be made by the department of health and social services under s. 55.01 to cover cost of training provided nonresident students who are enrolled in schools of vocational and adult education and who are veterans not eligible for benefits under the provisions of U. S. Public Law No. 16, Chapter 22, 1st session 78th Congress and U. S. Public Law No. 346, Chapter 268, 2d session 78th Congress and any acts amendatory thereof and supplementary thereto. The amount authorized to be received by local boards of vocational and adult education under this subsection shall not be less than the amount specified in sub. (1) (a) but it may be in excess of such amount. No board shall accept payments in an amount which together with other receipts for the same purpose exclusive of the funds provided under s. 38.16 would be in excess of the full cost of training provided such veterans.

(8) Local boards of vocational and adult education may make charges for tuition of persons enrolled who are not residents of this state in an amount sufficient to pay for the cost of providing training to such persons. The full amount of such receipts shall be annually reported separately to the board of vocational, technical and adult education, and shall be taken into consideration when payments for state and federal aid are made under s. 20.292 (1) (d) and s. 38.21. Where the full cost of training is paid for from such receipts no state and federal aid shall be granted by the board of vocational, technical and adult education.

38.20 Charge for Materials Consumed; Sale of Products; Course Fees. (1) Students attending vocational and adult school may be required to pay for all material consumed by them in their school work at cost prices, or in lieu thereof the local board of vocational and adult education may establish a fixed sum to be paid by each student in each course, which sum shall be sufficient to cover, as nearly as may be, the cost of the material to be consumed in such course; articles manufactured in such school may be disposed of at their market value, at the discretion of the school board, and the proceeds shall be paid to the municipal treasurer for the vocational and adult education fund.

(2) The board may charge course fees, not to exceed the cost of instruction, for courses not approved for state aid.

(3) The board shall charge resident tuition at 20% of the instructional cost for state-wide, full-time collegiate transfer courses designated and approved by the state board. Nonresident tuition for these courses shall be charged in accordance with s. 38.19. No resident of a district which does not have another public higher educational institution within its boundaries shall be charged a tuition fee under this section for attending a collegiate transfer program in such district.

38.21 State Aid to Vocational and Adult Education. (1) (a) On or before a date designated in each year by the director of the board of vocational, technical and adult education the secretary of the local or district board of vocational and adult education maintaining such a school or schools shall report to the board the cost of maintaining the same; the character of the work done; the number, names, and qualifications of the teachers employed; the number of full-time students enrolled; and such other information as may be required by the board.

(b) If the board is satisfied that the district schools were maintained during the preceding year in accordance with law, the board shall certify to the department of administration in favor of each district board state aid amounts derived by the following procedure:

1. In determining the total amount of state aid that shall be paid to local and district boards, the board shall annually determine the state-wide operational cost per full-time equivalent student in post high school programs designated and approved by the board. This cost shall then be multiplied by 33% to derive a state-wide aid figure per full-time equivalent student in post high school programs designated and approved by the board. The state-wide aid per full-time equivalent student in vocational or nonassociate degree programs shall be paid at 50% of the state aid paid for each full-time equivalent student in post high school programs designated and approved by the board. The aid figure per full-time equivalent student obtained in each of the programs shall then be multiplied by the number of full-time equivalent students enrolled in each program to determine the total amount of aid due to each local board. If the appropriation available in any one year is insufficient to pay the full amount as provided for, the payments shall be prorated among the various districts entitled thereto.

2. The board shall furnish each local and district board with definitions of state-wide operational costs per full-time equivalent student, and shall prepare procedures describing the methodology for deriving operational cost per full-time student equivalent. Expenses incurred by the local and district boards in administering educational operations and programs shall be aided by the state, but the total annual amount of such expense which the district or local board certifies for state aid purposes shall not exceed 11% of the total annual instructional costs incurred by that district or local board. The board may withhold or suspend in whole or in part payment of state aids to any local or district board whose academic program or faculty does not meet minimum standards as defined by the board.

3. The board shall pay 25 cents for each student period of 50 minutes or more of actual attendance for instruction in driver training courses approved by the board but the board may in the case of behind the wheel driver training provide aids on the basis of a minimum of 10 students per class period of actual instruction regardless of the number of students actually enrolled and attending.

4. On receipt of such certificates the department of administration shall draw its several warrants accordingly payable to the treasurers of cities, towns, villages, and area districts respectively.

(2) (a) On July 1 of each year the governing body of a school maintaining part-time instruction in agriculture in accordance with s. 38.60 shall report to the board of vocational, technical and adult education in such form as the said board may require, the facts relating to the cost of maintaining such part-time instruction during the preceding school year, and the character of the work done, the number and names of teachers employed, the length of time such instruction was maintained, and such other facts as may be required.

(b) If it shall appear from such report that such classes have been maintained pursuant to law and in a manner satisfactory to the board of vocational, technical and adult education and in conformity with the state plan as accepted by the U. S. office of education, the

board of vocational, technical and adult education shall certify to the department of administration in favor of the several municipalities, including school districts, maintaining such schools an amount equal to one-third of the sums expended by each, respectively, for the wages of duly qualified and approved teachers therein during the school year. Upon receipt of such certificate, the department of administration shall draw warrants upon the state treasurer accordingly, payable to the treasurers of such municipalities, including school districts.

(3) (a) Commencing with the school year 1947-1948 no state aid shall be paid for or on account of any school of vocational and adult education for any year during which such school of vocational and adult education shall employ any person as a teacher, administrator, principal or supervisor not under a contract providing for leave of absence by reason of sickness of such person, without deduction from salary, for not less than 5 days per year and for accumulation of unused sick leave from year to year to a total of not less than 30 days but no allowance shall be paid for such absences from teaching or other educational services rendered in evening school by any person employed at least 30 hours per week in day school.

(b) This section shall not apply to persons so employed for less than 30 hours per week unless such persons are so employed more than 10 hours per week and are also employed by a board of education for a total of 30 or more hours per week for both employments. When a person is employed in such dual capacity he shall receive such proportionate part of his sick leave benefits from each employer as the number of hours employed by such employer bears to the total number of hours employed by both employers.

(c) In computing the number of hours of such employment for persons employed in more than one school of vocational and adult education, the aggregate shall be used.

38.215 Federal Aid for Vocational and Adult Education. The board of vocational, technical and adult education may enter into contracts with the federal veterans administration when so authorized by a local board of education or a board of vocational and adult education for training to be provided by the local boards of education or boards of vocational and adult education in the field of vocational agriculture to veterans eligible for benefits under the provisions of P. L. 16, ch. 22, 1st session, 78th congress and P. L. 346, ch. 268, 2nd session, 78th congress, P. L. 550, ch. 875, 2nd session, 82nd congress and any acts amendatory thereof or supplementary thereto and to receive from the federal veterans' administration such payments for tuition, supplies, materials and services, as may be granted to cover the cost of such training, and for costs of administration by the board of vocational, technical and adult education. All payments received by the board of vocational, technical and adult education under this section shall be paid within one week after receipt into the general fund and are appropriated therefrom to said board under s. 20.292 (1) (m) to be expended as provided in this section.

38.60 Part-time Instruction in Agriculture. (1) The board of vocational, technical and adult education may cooperate with any school organized under this chapter and chs. 115 and 120 in part-time instruction in agriculture for persons over 14 years of age.

(2) The person or body entitled by law to provide for the curriculum of any such school may provide for such part-time instruction and the municipality, including school districts, entitled by law to appropriate money to carry on such school may appropriate money for such purpose.

(3) The authorities entitled by law to receive and disburse funds in behalf of schools furnishing instruction under this section may receive and use for such purpose such federal funds as may be apportioned by the board of vocational, technical and adult education and all donations.

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39.31 Honor Scholarships. (1) For the purpose of recognizing and awarding scholastically talented graduates of Wisconsin high schools who are residents of the state as defined in s. 39.30, there are created honor scholarships which may be awarded to qualified students who plan to enroll as first-time, full-time freshmen at any approved, nonprofit public or private institution of higher education in Wisconsin, including first-time, full-time students enrolling in associate degree programs approved by the board of vocational, technical and adult education or nursing schools approved by the board of nursing. Honor scholarships shall be cash stipends awarded directly to students. No honor scholarships shall be awarded to persons who plan to enroll in a course of study leading to a degree in theology, divinity or religious education or to religious aspirants.

(2) Honor scholarship recipients shall receive stipends based on individual financial need which is calculated by deducting resources available to the student from total educational costs. The amount of tuition used in calculating total educational costs shall not exceed $400 for 2 semesters or its equivalent, and any amounts received under s. 39.30 shall not be included in calculating available resources. The minimum honor scholarship awarded to any student shall be $100, notwithstanding the student's need. The maximum honor scholarship awarded to a student shall be $800.

(3) Honor scholarships shall be awarded in order of rank based on criteria determined by the higher educational aids board and shall be awarded to persons scholastically ranked in the top 10% of their graduating classes, as follows:

(a) To 2 graduates at each Wisconsin public or private secondary school enrolling less than 250 students.
(b) To 4 graduates at each Wisconsin public or private secondary school enrolling 250 to 750 students.
(c) To 6 graduates at each Wisconsin public or private secondary school enrolling more than 750 students.

39.32 Student Loans. (1) In this section:
(a) "Institution of higher education" means an educational institution meeting the requirements of P. L. 89-329 for institutions covered therein and of P. L. 89-287 for business, trade, technical or vocational schools and full-time post-high school vocational, technical and adult education schools in this state.
(b) "Resident student" shall be determined under s. 36.16, so far as applicable.

(2) The board shall:
(a) Make and authorize loans to be made to resident students who have satisfactory academic records, who need financial assistance and who are desirous of attending institutions of higher education, when such loans are to assist them in meeting expenses of post-high school education in accordance with this section.
(b) Establish standards and methods for determining the amount of loans, rates of interest, financial need and other administrative procedures consistent with P. L. 89-329 and P. L. 89-287.

(3) The board may make and authorize loans to be made to students if:
(a) The student is enrolled or accepted for enrollment in an institution of higher education.
(b) The student's eligibility for a loan is certified to the board by the institution of higher education in which he is enrolled or has been accepted for enrollment.
(c) The student has a satisfactory academic record.
(d) The student is a resident student.
(e) The student needs financial assistance.

(4) Loans may be made to minors and minority shall not be a defense to the collection of a debt.
(5) The board may collect any loans made or authorized to be made by the board pursuant to this section or made prior to July 1, 1966, under s. 49.42, 1963 statutes.

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45.35 Veterans' Affairs. (6) COORDINATION DUTIES. The department of veterans' affairs shall coordinate the activities of all state agencies performing functions relating to the medical, hospital, or other remedial care, placement and training, educational, economic or vocational rehabilitation of persons who served in the armed forces of the United States at any time and who were honorably discharged, including such persons with disabilities whether or not service-connected or war-connected. In particular it shall coordinate the activities of the board of vocational, technical and adult education, state selective service administration, department of health and social services, department of industry, labor and human relations, department of public instruction, the university of Wisconsin, state universities and other educational institutions, and all other departments or agencies performing any of the functions specified, to the end that the benefits provided in this section may be made available to veterans as promptly and effectively as possible.

(9) VOCATIONAL TRAINING. The department in cooperation with the department of health and social services shall make available to disabled veterans the benefits of vocational training and guidance, including veterans who have filed claims for federal rehabilitation benefits and during the pendency of such claims. In cases where such claims are allowed and federal reimbursement is made to the state, such money shall be paid into and become a part of the veterans trust fund.

(10) PLACEMENT OF VETERANS. The department in cooperation with the department of industry, labor and human relations and state selective service administration or any other federal, state or local agency shall formulate and carry out plans for the training and placement of veterans.

45.351 Veterans (Economic Assistance). (1) The department may extend to any veteran or any of his dependents such temporary emergency aid as it deems advisable to prevent want or distress.

(2) The department of veterans affairs may lend any veteran not more than $2,000 to be used for the purchase of a business or business property or the repairing or adding to his home or business property, the construction of a garage, the education of himself or his children or to provide essential economic assistance, where the veteran's need is established to the satisfaction of the department and he is unable to meet that need from his own resources or available credit upon manageable terms. The department may prescribe loan conditions, but the interest rate shall be 3% per annum and the term shall not exceed 15 years. Loan expense may be charged to the veteran. The department may execute necessary instruments, collect interest and principal, compromise indebtedness, sue and be sued, post bonds and write off indebtedness which it deems uncollectible. Where any loan under this section is secured by a real estate mortgage, the department may exercise the rights of owners and mortgagees generally and the rights and powers set forth in s. 45.352 (6). Interest and repaid principal shall be paid into the veterans trust fund. The department may lend not more than $2,000 to any veteran's widow, whether remarried or not, or to the mother of any deceased veteran's children for the education of his minor or dependent child or children if such widow or mother is a resident of and living in this state on the date of application.

45.396 Veterans Correspondence Courses and Part-time Classroom Study. Any veteran upon the completion of any correspondence courses or part-time classroom study from the university of Wisconsin, the university of Wisconsin extension division, any state university or its extension division, or from any other institution of higher education located in Wisconsin which was accredited by the north central association of colleges and secondary schools on January 1, 1969, or from any school of vocational, technical and adult education as established under s. 38.15 receiving aids from the board of vocational,

technical and adult education, taken upon authorization of the department of veterans affairs, may be reimbursed in whole or in part for the cost of such courses, including necessary textbooks, by the department upon presentation to the department of a certificate from the school indicating that he has completed the courses and stating the cost of such courses and necessary textbooks. Benefits granted under this section shall be paid out of the appropriation under s. 20.485 (2) (um).

65.07 Power of council to levy taxes. (1) The common council of the city of Milwaukee shall have power to levy annually a tax upon all the taxable property in the city for the following purposes: (h) A vocational and adult education fund, not exceeding 3 mills. (no longer applies)

66.77 Open meetings of governmental bodies. (1) In recognition of the fact that a representative government of the American type is dependent upon an informed electorate, it is declared to be the policy of the state that the public is entitled to the fullest and most complete information regarding the affairs of government as is compatible with the conduct of governmental affairs and the transaction of governmental business.

(2) To implement and insure the public policy herein expressed, all meetings of all state and local governing and administrative bodies, boards, commissions, committees and agencies, including municipal and quasi-municipal corporations, unless otherwise expressly provided by law, shall be publicly held and open to all citizens at all times, except as hereinafter provided. No formal action of any kind, except as provided in sub. (3), shall be introduced, deliberated upon or adopted at any closed session or closed meeting of any such body, or at any reconvened open session during the same calendar day following a closed session. No adjournment of a public meeting into a closed session shall be made without public announcement of the general nature of the business to be considered at such closed session, and no other business shall be taken up at such closed session.

(3) Nothing herein contained shall prevent executive or closed sessions for purposes of:

(a) Deliberating after judicial or quasi-judicial trial or hearing;

(b) Considering employment, dismissal, promotion, demotion, compensation, licensing or discipline of any public employe or person licensed by a state board or commission or the investigation of charges against such person, unless an open meeting is requested by the employe or person charged, investigated or otherwise under discussion;

(c) Probation, parole, crime detection and prevention;

(d) Deliberating or negotiating on the purchasing of public property, the investing of public funds, or conducting other public business which for competitive or bargaining reasons require closed sessions;

(e) Financial, medical, social or personal histories and disciplinary data which may unduly damage reputations;

(f) Conferences between any local government or committee thereof, or administrative body, and its attorney concerning the legal rights and duties of such agency with regard to matters within its jurisdiction.

Chapter 67 – Municipal Borrowing and Municipal Bonds

67.01 Definitions and Interpretations. (1) "Municipality" includes a county, city, village, town, common school district, union high school district, unified school district, whether any such district is joint or otherwise, a board of education, a board of park commissioners, a vocational, technical and adult education district and any other public body empowered to borrow money and issue written obligations to repay the same out of public funds or revenues. (See remainder of section)

67.03 Grant of power to borrow; general limitations of indebtedness. (1) Except as provided in s. 67.01 (8), municipalities may borrow money and issue municipal obligations therefor only for the purposes and by the procedure specified in this chapter. The aggregate amount of indebtedness, including existing indebtedness, of any municipality shall not exceed 5% of the value of the taxable property located therein as equalized for state purposes except as follows:

(a) For any city authorized to issue bonds for school purposes, an additional 10 percent may be incurred for school purposes only, and in such cases the territory attached to the city for school purposes shall be included in the total taxable property supporting the bonds issued for school purposes.

(4) The last determination made by the department of revenue of the full value of the taxable property in any municipality, including cities with territory attached for school purposes, under this section or 70.57 or 121.06 (1), shall be the value of such property as equalized for state purposes.

(5) (a) When the last determination made by the department of revenue of the full value of the taxable property in a city authorized to issue bonds for school purposes, including territory attached to such city for school purposes, or in a school district or other municipality is not a true valuation of the taxable property therein because of change in the territory thereof, the department of revenue, upon application in writing by the clerk of such city of school district or other municipality, in such form as the department describes, shall increase or decrease the last determination in such amount as in the best judgment of the department makes proper adjustment for the change in territory and the resulting adjusted valuation shall thereupon constitute the value of the taxable property in such city, city and attached territory, school district or other municipality as equalized for state purposes.

(b) When a new city authorized to issue bonds for school purposes or a new school district or other municipality has been formed for which no determination of the full value of the taxable property therein, including territory attached for school purposes, has been made by the department of revenue, upon application in writing by the clerk of such city, school district or other municipality, in such form as the department prescribes, it shall determine according to its best judgment from all sources of information available to it the full value of the taxable property in such city, city and attached territory, school district or other municipality which valuation shall thereupon constitute the value of the taxable property in such city, city and attached territory, school district or other municipality as equalized for state purposes.

(6) The department of revenue is authorized to certify to the clerk of any city authorized to issue bonds for school purposes, or of any school district, or of any other municipality, the full value of the taxable property of such city, including territory attached for school purposes, or school district or other municipality as equalized for state purposes, when such valuation is requested for use in connection with the borrowing of money by such city, school district or other municipality.

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67.04 Purposes and specific limitations of bond issues. Municipalities are empowered to borrow money, subject to the general limitation of amounts prescribed by section 67.03, and subject in some specific cases to the further limitations prescribed by this section, and to issue bonds therefor, for the purposes enumerated in this section. Such bonds may be issued:

(1) By any county:

(z) To acquire sites and to erect or acquire and to improve and equip buildings or additions to buildings to be used as schools of vocational and adult education under s. 38.155.

(2) Cities shall not borrow money or issue bonds therefor for any purpose except only those specified in this subsection, and subject to the general limitation of amounts prescribed by section 67.03, namely:

(b) For the purchase or erection of new school buildings, or additions to old buildings or to purchase school sites, school transportation vehicles or school equipment for the purpose of providing for the educational requirements of the city including territory attached to such city for school purposes; to acquire sites and erect or enlarge buildings thereon, and to equip such new or old buildings, for parental or schools of vocational and adult education, or for use by the local board of vocational and adult education; and to do renovating, remodeling and repairing of existing buildings.

(6) By any vocational, technical and adult education district, common school district, union high school district, unified school district, whether any such district is joint or otherwise, or by any board of education, by whatever name designated, which is especially authorized to issue bonds, or by any city authorized to issue bonds for school purposes because of inclusion in a city school district whether the city school district is joint or otherwise; to purchase, erect or improve school buildings, teacherages or bus garages, to acquire schoolhouse, teacherage or bus garage sites or school playgrounds, to acquire sites and erect or enlarge buildings thereon for schools of vocational and adult education or for use by the local board of vocational and adult education and to equip such buildings with heat, light, ventilation or other necessary apparatus; to purchase school transportation vehicles; to refund indebtedness heretofore contracted; to construct at schools without the limits of cities and villages safety zones and necessary connecting ways or roads to the public highway required by s. 40.62; but no issue of bonds for purchasing a schoolhouse site, a teacherage site, or a school playground, or for purchasing or erecting a teacherage, or for purchasing school transportation vehicles, shall exceed $25,000, except in counties containing a population of 150,000 or more, where the limit of indebtedness that may be incurred for the acquisition of a schoolhouse site or addition thereto, is any sum not in excess of an amount certified by the governing body of the town, village or city in which the site is situated as reasonable and necessary for that purpose; and provided that any school district whose territory consists of a city of the 4th class or of a city of the 4th class and a part or the whole of any adjoining town or towns may borrow and issue bonds therefor up to 10% as to any such school district offering no less than grades 1 to 12 and which is at the time of incurring the indebtedness eligible for the highest level of school aids, and as to any other such school district up to 5%, and as to vocational, technical and adult education districts up to 2%, of the value of its taxable property as equalized for state purposes for the purpose of purchasing schoolhouse sites and the construction and equipment of schoolhouses. Any such school district or city including within its boundaries territory of a former school district may issue bonds to refund the unpaid principal amount of promissory notes issued by such former school district to the extent that such notes have been assigned to it under s. 66.03. Such bonds may be issued without an election and shall bear interest at a rate or rates not exceeding that borne by the notes refunded.

(7) By any common school district, unified school district or vocational, technical and adult education district, by the board thereof: to purchase the school property, including vocational school property, of a city or village therein upon abolition of a city school district or common school district or upon creation of a unified school district or upon the reorganization of vocational, vocational and adult, or vocational, technical and adult schools. Such bonds shall not be subject to a referendum.

(12) (a) By any school district, whenever the aggregate maturities of principal and interest on previous indebtedness in any calendar year exceed $3.33 1/3 for each $1,000 of its assessed valuation as determined during the preceding year. Bonds maturing in such year may be refunded in the manner provided by par. (b) in an amount not exceeding the difference between such aggregate maturities of principal and interest and a sum equal to $3.33 1/3 for each $1,000 of its assessed valuation as determined during the preceding year. The provision of this paragraph shall not affect or repeal any law authorizing the refunding of bonds by school districts but shall be supplemental thereto. In the issuing of refunding bonds under this paragraph, a school district shall proceed as provided by par. (b).

(b) The initial resolution adopted by the governing body of any such municipality shall not be submitted to the electors unless within 30 days after the recording thereof there is filed with the clerk of such municipality a petition requesting such submission, signed by electors numbering at least 10 percent of the votes cast in such municipality for governor at the last general election. If such petition is filed proceedings shall be had as provided by s. 67.05 (4), (5), (6) or (6a).

(15) By any county, village or town to purchase school transportation vehicles.

67.12 (12) Borrowing on promissory notes. (a) In addition to the powers heretofore given, any county, city, village, town, school district, vocational, technical and adult education district or town sanitary district may borrow money for the acquisition of lands for public purposes, for permanent improvements of lands, for public work or improvement, and the enlargement or extension thereof; for the acquisition, development, remodeling, construction and equipment of land, buildings and facilities for regional projects, or for equipment or machinery or for general and current municipal expenses, or to provide financial assistance to blight elimination, slum clearance, redevelopment and urban renewal programs and projects under ss. 66.43, 66.431 and 66.435; in the case of cities, villages and towns for the acquisition and development of industrial sites to the extent permitted by ss. 66.52 and 66.521; also for the purpose of making improvements, additions, extensions or enlargements to an auditorium or to an arena operated in conjunction with or as a part of such auditorium provided for under ch. 43; and in the case of counties for acquisition and transfer of real property to the state for new collegiate institutions or research facilities.

103.06 Employment of illiterate minors. No person, firm or corporation shall employ an illiterate minor over 17 years of age in any city, village or town in which a public evening school or school of vocational and adult education is maintained, unless such minor is a regular attendant at the public evening school or school of vocational and adult education. An illiterate minor within the meaning of this section is a minor who cannot read at sight and write legibly simple sentences in the English language. Attendance of 4 hours per week at the public evening school or school of vocational and adult education shall be deemed regular attendance within the meaning of this section.

103.07 Duty of parents. No parent, guardian or custodian shall permit a minor over seventeen years of age to be employed in violation of section 103.06.

103.08 Vocational school records to be filed with employer. Any minor required by section 103.06 to attend an evening school or school of vocational and adult education shall furnish to his employer each week during its session a record showing that he is a regular attendant at the evening school or school of vocational and adult education. The employer shall file all records of attendance in this office and no minor, subject to sections 103.06 to 103.11, inclusive, shall be employed unless the records of attendance or absence for valid cause during the previous week be on file.

103.09 Physician's certificate excusing attendance. Upon presentation by a minor of a certificate signed by a registered practicing physician, showing that his physical condition, or the distance necessary to be traveled, would render the required school attendance, in addition to his daily labor, prejudicial to his health, the department of industry, labor and human relations may in its discretion authorize his employment for such period as it may determine.

103.10 Penalties on employers for violations. Any person who violates or fails to comply with ss. 103.06 to 103.09 shall be fined not less than $10 nor more than $100 for each offense. Any corporation which by its agents, officers or servants violates or fails to comply with ss. 103.06 to 103.09 shall be liable to the same penalty which may be recovered against such corporation in a civil action.

103.11 Penalty on parent or guardian. Any parent or guardian who suffers or permits a minor to be employed, or suffered or permitted to work in violation of sections 103.07 and 103.08 of the statutes, shall be guilty of a misdemeanor, and upon conviction thereof, shall be fined not less than five nor more than twenty-five dollars.

CHAPTER 106. — MASTER AND APPRENTICE.

106.01 Designation of "indenture" and "apprentice."
106.02 Carpenters' apprentices.
106.03 Real estate apprenticeships excluded.

106.01 Designation of "indenture" and "apprentice." (1) The term "apprentice" shall mean any person, 16 years of age or over, who shall enter into any contract of services, express or implied, whereby he is to receive from or through his employer, in consideration for his services in whole or in part, instruction in any trade, craft or business.

(2) Every contract or agreement entered into by an apprentice with his employer shall be known as an indenture; such indenture shall be in writing and shall be executed in triplicate, one copy of which shall be delivered to the apprentice, one to be retained by the employer and one to be filed with the department of industry, labor and human relations at Madison.

(3) Any minor, 16 years of age or over, or any adult, may, by the execution of an indenture, bind himself hereinafter provided for a term of service of not less than one year.

(4) Every indenture shall be signed:
(a) By the apprentice.
(b) If the apprentice has not reached age 18, also by the father or mother; and if both the father and mother are dead or legally incapable of giving consent, then
(c) By the guardian of the minor, if any.
(d) If there is no parent or guardian with authority to sign then by a deputy of the department of industry, labor and human relations.
(e) By the employer.

(5) Every indenture shall contain:

(a) The names of the parties.

(b) The date of the birth of the person indentured.

(c) A statement of the trade, craft or business which the apprentice is to be taught, and the time at which the apprenticeship shall begin and end.

(d) An agreement stating the number of hours to be spent in work, and the number of hours to be spent in instruction. During the first 2 years of his apprenticeship, his period of instruction shall be not less than 4 hours per week or the equivalent. If the apprenticeship is for a longer period than 2 years, the total hours of instruction shall be not less than 400 hours. The total number of hours of instruction and service shall not exceed 55 per week; provided, that nothing in this paragraph shall be construed to forbid overtime work as provided in sub. (7) of this section.

(e) An agreement as to the processes, methods or plans to be taught, and the approximate time to be spent at each process, method, or plan.

(f) A statement of the compensation to be paid the apprentice.

(g) An agreement that a certificate shall be given the apprentice at the conclusion of his indenture, stating the terms of indenture.

(5i) (a) The proper persons described in sub. (4) (a) to (d) may enter into such an indenture with any organization of employes, association of employers or other similar responsible agency in this state. Such organization, association or other agency shall thereupon, with the written consent of the other parties to the indenture, and the written acceptance thereof by the proposed employer, assign the indenture to the employer, and he and the apprentice named in the indenture shall be bound by the terms thereof. Such consent and acceptance shall be executed in triplicate and one copy of each shall be delivered, respectively to the department, to the employer and to the apprentice and in each case shall be attached to the proper indenture. The approval of the department shall first be had in each transaction. Such organization, association or other agency shall have the exclusive right to assign the indenture and the apprentice shall not be permitted to enter into any other indenture. The period transpiring before assignment to an employer shall not be credited toward the period of apprenticeship.

(b) Any employer may assign his indenture, with the approval of the department and the written consent of the other parties thereto, to any association of employers, organization of employes or any other similar responsible agency in this state. The period of time in which such association, organization or other agency shall be such assignee shall not be credited as time served by the apprentice. After such assignment the association, organization or other agency shall, with the approval of the department and the written consent of the apprentice, assign the indenture to an employer but the apprentice shall not be bound by the assignment unless the employer accepts, by his signed instruments, the terms of the indenture and that he will complete the employer's unperformed obligations thereunder; each such consent and acceptance shall be executed in triplicate and one of each, respectively, shall be delivered to the department, to the assignee employer and to the apprentice and in each case shall be attached to the proper indenture. Upon acceptance the employer shall for all purposes be deemed a party to the indenture.

(c) Any employer, with the written consent, executed in triplicate, of the other parties to the indenture and the approval of the department may assign such indenture to another employer whose written acceptance shall be upon the instrument of consent. One copy of such consent and acceptance shall be delivered, respectively, to the apprentice, to the assignee employer and to the department and shall in each case be attached to the indenture in their respective possessions. After assignment, the new employer shall perform the unperformed obligations of the indenture. The department shall continue to have jurisdiction over the indenture assigned pursuant to this subsection and the parties bound after such assignment.

(5j) The department may, and it shall have power on its own motion, or on the complaint of any person, after due notice and a hearing had, make findings and issue orders declaring any indenture, contract or agreement at an end if it shall be proved at such hearing that any apprentice, employer or such organization, association or other agency is unable to continue with the obligations under the contract or has breached the same. Upon the termination of the indenture, the apprentice released therefrom shall be free to enter into a new indenture under such conditions and terms as the department may approve and which are not inconsistent with this section.

(5k) The department shall, upon request, furnish a copy if any instrument required to be filed with it under this section, to any party whose name appears on such instrument.

(6) The employer shall pay for the time the apprentice is receiving related instruction for no fewer hours than specified in sub. (5) (d) at the same rate per hour as for services. Nothing herein shall prohibit an agreement between the parties requiring the apprentice to take additional instruction on his own time in excess of the number of hours required by statute. Attendance at school shall be certified by the teacher in charge.

(7) An apprentice may be allowed to work overtime. All time in excess of the hours of labor as limited to the particular craft, industry, or business and as to the particular employer, shall be considered overtime. For overtime the apprentice's rate of pay shall be increased by the same percentage as the journeyman's rate for overtime is increased in the same industry or establishment.

(8) If either party to an indenture shall fail to perform any of the stipulations thereof, he shall forfeit not less than one dollar nor more than $100, such forfeiture to be collected on complaint of the department, and paid into the state treasury. Any indenture may be annulled by the department upon application of either party and good cause shown.

(9) It shall be the duty of the department, and it shall have power, jurisdiction and authority, to investigate, ascertain, determine and fix such reasonable classifications and to issue rules and regulations, and general or special orders and to hold hearings and make findings and render orders thereon as shall be necessary to carry out the intent and purposes of s. 106.01. Such hearings, investigations, classifications, findings and orders shall be made pursuant to the proceeding in ss. 101.01 to 101.28 which are hereby made a part hereof, so far as not inconsistent with s. 106.01; and every order of the department shall have the same force and effect as the orders issued pursuant to said ss. 101.01 to 101.28 and the penalties therein shall apply to and be imposed for any violations of s. 106.01, excepting as to the penalties provided in s. 106.01 (8). Said orders shall be subject to review in the manner provided in ch. 227.

(10) It shall be the duty of all school officers and public school teachers to cooperate with the department and employers of apprentices to furnish, in a public school or any school supported in whole or in part by public moneys, such instruction as may be required to be given apprentices.

106.02 Carpenters' apprentices. After July 1, 1943, every person, regardless of age, commencing a carpentry apprenticeship, shall be indentured under and be subject to the provisions of section 106.01, except that if the apprentice is 21 years or more of age his signature only shall be necessary to bind him. Such apprenticeship shall be for a period of 4 years except that the department of industry, labor and human relations may upon the application of the apprentice or the employer, or both, extend such term for not to exceed one year.

106.03 Real estate apprenticeships excluded. This chapter shall not apply to apprenticeships under ch. 452.

SUBCHAPTER IV.

– Right of Municipal Employes To Organize and Join Labor Organizations; Bargaining in Municipal Employment.

111.70 Municipal enployment. (1) DEFINITIONS. When used in this section: (a) "Municipal employer" means any city, county, village, town, metropolitan sewerage district, school district or any other political subdivision of the state.
(b) "Municipal employe" means any employe of a municipal employer except city and village policemen, sheriff's deputies, and county traffic officers.
(c) "Commission" means the employment relations commission.

(2) RIGHTS OF MUNICIPAL EMPLOYES. Municipal employes shall have the right of self-organization, to affiliate with labor organizations of their own choosing and the right to be represented by labor organizations of their own choice in conferences and negotiations with their municipal employers or their representatives on questions of wages, hours and conditions of employment, and such employes shall have the right to refrain from any and all such activites.

(3) PROHIBITED PRACTICES. (a) Municipal employers, their officers and agents are prohibited from:
1. Interfering with, restraining or coercing any municipal employe in the exercise of the rights provided in sub. (2).
2. Encouraging or discouraging membership in any labor organization, employe agency, committee, association or representation plan by discrimination in regard to hiring, tenure or other terms or conditions of employment.
3. Prohibiting a duly authorized representative of an organization certified pursuant to sub. (4) (d) or (j) from appearing before any governmental unit or body but nothing herein shall prevent the enactment of reasonable rules adopted by the employer necessary to maintain continuity of public service or the adoption of a negotiated agreement on the subject.

(b) Municipal employes individually or in concert with others are prohibited from:
1. Coercing, intimidating or interfering with municipal employes in the enjoyment of their legal rights including those set forth in sub. (2).
2. Attempting to induce a municipal employer to coerce, intimidate or interfere with a municipal employe in the enjoyment of his legal rights including those set forth in sub. (2).

(c) It is a prohibited practice for any person to do or cause to be done, on behalf of or in the interest of any municipal employer or employe, or in connection with or to influence the outcome of any controversy, as to employment relations, any act prohibited by pars. (a) and (b).

(4) POWERS OF THE COMMISSION. The commission shall be governed by the following provisions relating to bargaining in municipal employment:
(a) Prevention of prohibited practices. Section 111.07 shall govern procedures in all cases involving prohibited practices under this subchapter.
(b) Mediation. The commission may function as a mediator in disputes between municipal employes and their employers upon the request of both parties, and the parties may select a mediator by agreement or mutual consent.
(d) Collective bargaining units. Whenever a question arises between a municipal employer and a labor union as to whether the union represents the employes of the employer,

either the union or the municipality may petition the commission to conduct an election among said employes to determine whether they desire to be represented by a labor organization. Proceedings in representation cases shall be in accordance with ss. 111.02

(6) and 111.05 insofar as applicable, except that where the commission finds that a proposed unit includes a craft the commission shall exclude such craft from the unit. The commission shall not order an election among employes in a craft unit except on separate petition initiating representation proceedings in such craft unit.

(e) Fact finding. Fact finding may be initiated in the following circumstances: 1. If after a reasonable period of negotiation the parties are deadlocked, either party or the parties jointly may initiate fact finding; 2. Where an employer or union fails or refuses to meet and negotiate in good faith at reasonable times in a bona fide effort to arrive at a settlement.

(f) Same. Upon receipt of a petition to initiate fact findings, the commission shall make an investigation and determine whether or not the condition set forth in par. (e) 1 or 2 has been met and shall certify the results of said investigation. If the certification requires that fact finding be initiated, the commission shall appoint from a list established by the commission a qualified disinterested person or 3-member panel when jointly requested by the parties, to function as a fact finder.

(g) Same. The fact finder may establish dates and place of hearings which shall be where feasible in the jurisdiction of the municipality involved, and shall conduct said hearings pursuant to rules established by the commission. Upon request, the commission shall issue subpoenas for hearings conducted by the fact finder. The fact finder may administer oaths. Upon completion of the hearings, the fact finder shall make written findings of fact and recommendations for solution of the dispute and shall cause the same to be served on the municipal employer and the union.

(h) Parties. 1. Proceedings to prevent prohibitive practices. Any labor organization or any individual affected by prohibited practices herein is a proper party to proceedings by the commission to prevent such practice under this subchapter.

2. Fact finding cases. Only labor unions which have been certified as representative of the employes in the collective bargaining unit or which the employer has recognized as the representative of said employes shall be proper parties in initiating fact finding proceedings. Cost of fact finding proceedings shall be divided equally between said labor organizations and the employer.

(i) Agreements. Upon the completion of negotiations with a labor organization representing a majority of the employes in a collective bargaining unit, if a settlement is reached, the employer shall reduce the same to writing either in the form of an ordinance, resolution or agreement. Such agreement may include a term for which it shall remain in effect not to exceed one year. Such agreements shall be binding on the parties only if express language to that effect is contained therein.

(j) Personnel relations in law enforcement. In any case in which a majority of the members of a police or sheriff or county traffic officer department shall petition the governing body for changes or improvements in the wages, hours or working conditions and designates a representative which may be one of the petitioners or otherwise, the procedures in pars. (e) to (g) shall apply. Such representative may be required by the commission to post a cash bond in an amount determined by the commission to guarantee payment of one-half of the costs of fact finding.

(k) Civil service exception. Paragraphs (e) to (g) shall not apply to discipline or discharge cases under civil service provisions of a state statute or local ordinance.

(l) Strikes prohibited. Nothing contained in this subchapter shall constitute a grant of the right to strike by any county or municipal employee and such strikes are hereby expressly prohibited.

(m) Local ordinances control. The commission shall not initiate fact finding proceedings in any case when the municipal employer through ordinance or otherwise has established fact finding procedures substantially in compliance with this subchapter.

(5) Procedures. Any municipal employer may employ a qualified person to discharge the duties of labor negotiator and to represent such municipal employer in conferences and negotiations under this section. In cities of the 1st, 2nd or 3rd class any member including the mayor of the city council who resigns therefrom may, during the term for which he is elected, be eligible to the position of labor negotiator under this subsection, which position during said term has been created by or the selection to which is vested in such city council, and s. 66.11 (2) shall be deemed inapplicable thereto.

118.15 Compulsory school attendance. (1) (a) Unless the child has a legal excuse or has graduated from high school, any person having under his control a child who is between the ages of 7 and 16 years shall cause such child to attend school regularly during the full period and hours, religious holidays excepted, that the public or private school in which such child should be enrolled is in session until the end of the school term, quarter or semester of the school year in which he becomes 16 years of age.
(b) Unless the child has a legal excuse or has graduated from high school, any person having under his control a child who is between the ages of 7 and 18 years and who resides within a school district which also contains within its boundaries a vocational, technical and adult education school designated by the board of vocational, technical and adult education as a school with a day class program, shall cause such child to attend school regularly during the full period and hours, religious holidays excepted, that the public or private school in which such child should be enrolled is in session until the end of the school term, quarter or semester of the school year in which he becomes 18 years of age.
(c) If his parent or legal custodian and the school board of his district so determine, any child who is 16 years of age or over shall attend, in lieu of high school or on a part-time basis, a vocational, technical and adult education school.
(d) A school board may permit a pupil who is in good standing academically to attend school part-time during his last school term preceding graduation from high school.

(2) (a) If the determination is made under sub. (1) (c) that a child shall attend a vocational, technical and adult education school, the district board governing the vocational, technical and adult education school shall establish appropriate vocational and technical courses in accordance with par. (b) 1 and the school board of the district and the district board governing the vocational, technical and adult education school shall enter into a contract for such attendance.

(b) The contract shall set forth:
1. The courses at the vocational, technical and adult education school which are approved by the state superintendent as being courses for which credit will be given to meet high school graduation requirements.
2. The amount per period of instruction, not including any debt retirement cost, which the school board shall pay to the district board of the vocational, technical and adult education school for pupils attending such school. If either board sends written notice to the state superintendent or the director of the board of vocational, technical and adult education that the boards are unable to reach an agreement on the amount to be paid, the state superintendent and the director shall determine the amount within 15 days of receipt of such notice.
(c) Pupils attending a vocational, technical and adult education school under this subsection may receive general education subjects at the vocational, technical and adult education school and shall be counted as pupils enrolled in the high school for all purposes including computing state aid for the school district and contractual payments therefor by the school district shall be deemed costs of operation and maintenance. No state aid may be paid to the vocational, technical and adult education district for pupils attending the vocational, technical and adult education school under this subsection.

(d) Transportation, or board and lodging under s. 121.57 (1) (a), for pupils attending a vocational, technical and adult education school under this subsection shall be provided by the school district, and state aids shall be paid therefor, on the same basis as is transportation for pupils attending high school.

(3) This section does not apply to any child who is not in proper physical or mental condition to attend school, to any child exempted for good cause by the school board of the district in which the child resides or to any child who has completed the full 4-year high school course. The certificate of a reputable physician in general practice shall be sufficient proof that a child is unable to attend school.

Note: Sub. (3) is printed as repealed and recreated by Chap. 501, laws of 1969. It was earlier repealed and recreated by Chap. 344, laws of 1969.

(4) Instruction during the required period elsewhere than at school may be substituted for school attendance. Such instruction must be approved by the state superintendent as substantially equivalent to instruction given to children of like ages in the public or private schools where such children reside.

(5) Whoever violates this section or files a false statement under s. 118.16 (1) may be fined not less than $5 nor more than $50 or imprisoned not more than 3 months or both. In a prosecution under this subsection, if the defendant proves that he is unable to comply with the law because of the disobedience of the child in question, the action shall be dismissed and the child shall be proceeded against as delinquent under ch. 48.

118.22 Renewal of teacher contracts. (1) In this section: (a) "Teacher" means any person who holds a teacher's certificate or license issued by the state superintendent or a classification status under the board of vocational, technical and adult education and whose legal employment requires such certificate, license or classification status, but does not include part-time teachers, teachers employed by any local board of vocational, technical and adult education in a city of the 1st class or teachers employed by any board of school directors in a city of the 1st class.
(b) "Board" means a school board, district board of a vocational, technical and adult education district, board of control of a cooperative educational service agency or county handicapped children's education board, but does not include any local board of vocational, technical and adult education in a city of the 1st class or any board of school directors in a city of the 1st class.

(2) On or before March 15 of the school year during which a teacher holds a contract, the board by which the teacher is employed or an employe at the direction of the board shall give the teacher written notice of renewal or refusal to renew his contract for the ensuing school year. If no such notice is given on or before March 15, the contract then in force shall continue for the ensuing school year. A teacher who receives a notice of renewal of contract for the ensuing school year, or a teacher who does not receive a notice of renewal or refusal to renew his contract for the ensuing school year on or before March 15, shall accept or reject in writing such contract not later than the following April 15. No teacher may be employed or dismissed except by a majority vote of the full membership of the board. Nothing in this section prevents the modification or termination of a contract by mutual agreement of the teacher and the board. No such board may enter into a contract of employment with a teacher for any period of time as to which the teacher is then under a contract of employment with another board.
(3) At least 15 days prior to giving written notice of refusal to renew a teacher's contract for the ensuing school year, the employing board shall inform the teacher by preliminary notice in writing that the board is considering nonrenewal of the teacher's contract and that, if the teacher files a request therefor with the board within 5 days after receiving the preliminary notice, the teacher has the right to a private conference with the board prior to being given written notice of refusal to renew his contract.

120.48 School board meetings. (See 38.15 (17) (aa) and 38.155 (12) (d).
(4) Except in school districts operating under ch. 119, the proceedings of a school board meeting in a city school district shall be published within 45 days after the meeting as a class 1 notice, under ch. 985, in a newspaper published in the city. If no newspaper is published in the city, the proceedings may be publicized as the school board directs. The publication of the proceedings shall include a statement of each receipt and expenditure exceeding $100 except salaries, which may be listed in the aggregate.

121.15 State aid for driver education programs. To promote a uniformly effective driver education program among high school and vocational, technical and adult education school pupils, each school district operating high school grades and each school of vocational, technical and adult education shall receive $30 for each pupil of high school age who successfully completes a course in driver education approved by the department, but in no case may the state aid exceed the actual cost of instruction. If the appropriation under s. 20.255 (1) (v) is inadequate in any year to provide $30 per pupil, the state aid shall be prorated after the appropriation for administration is deducted. Such state aid shall be paid at the same time as the state aid under ss. 121.08 to 121.13 is paid.

143.17 Health examinations. (1) The provisions of sub. (2), relating to periodic physical examinations, shall apply to the county teachers colleges and schools of vocational and adult education; and to the university of Wisconsin and the state universities, except that their classified civil service personnel shall not be required to submit to general physical examinations but shall submit to chest X-ray or tuberculin tests as required in sub. (2).

(2) The governing body shall, as a condition of entering or continuing employment, require a physical examination including a chest X-ray or tuberculin test, of every person employed for 60 days or more in any fiscal year by the governing body; except that the governing body may, in the case of a new employe, permit the employe to submit proof of an examination, chest X-ray or tuberculin test which complies with this section taken within the past 2 years in lieu of requiring such examination, X-ray or test. If the reaction to the tuberculin test is positive then a chest X-ray shall be required. Additional physical examinations shall be required thereafter at intervals determined by the governing body. A chest X-ray or tuberculin test shall be required at least once every 3 years; if the reaction to such tuberculin test is positive then a chest X-ray shall be required. The employe shall be examined by a licensed physician in the employ of or under contract with the institution. If no such physician is employed or under contract, the examination shall be made by any licensed physician selected by the employe. Such physical examinations, chest X-rays or tuberculin tests shall not be required of any such employe who files with the governing body an affidavit setting forth that he depends exclusively upon prayer or spiritual means for healing in accordance with the teachings of a bona fide religious sect, denomination or organization and that he is to the best of his knowledge and belief in good health and that he claims exemption from health examination on such grounds. Notwithstanding the filing of such affidavit if there is reasonable cause to believe that such employe is suffering from an illness detrimental to the health of the pupils, the governing body may require such health examination of such employe sufficient to indicate whether or not such employe is suffering from such an illness. No employe shall be discriminated against by reason of his filing the aforementioned affidavit. The physician making such examination shall prepare a report of his examination upon a standard form prepared by the department of health and social services and the department of public instruction. Such report shall be retained in the physician's files and he shall make confidential recommendations therefrom to the governing body and to the employe on a form prepared by the department of health and social services and the department of public instruction. The recommendation form shall contain space for a certificate that the person is free from tuberculosis in a communicable form. The cost of such examinations, including X-rays and tuberculin tests, shall be paid by the individual

employe, but the governing body may arrange for the use of its facilities and qualified professional staff to carry out this function with or without charge to the employe. Not more than 30 days after the opening of each semester or similar period, each institution shall file with the department of health and social services a certificate of compliance, on a form satisfactory to the department stating that they have complied with this section.

200.17 (4m) Fire Department Dues. The aggregate payment of fire department dues by the commissioner to cities, villages and towns, maintaining fire departments manned wholly or partly by volunteer firemen, shall be reduced by an amount equal to one-half of the amount appropriated annually for fire training programs under ss. 20.292 (1) (c) and 38.14. The amount paid to each such city, village and town shall be reduced on a proportionate basis. Such amounts shall be retained in the general fund for the purposes of the appropriations made under s. 20.292 (1) (c).

CHAPTER 343 – Operator's Licenses (Motor Vehicle)

343.06 Persons not to be licensed. The Division of Motor Vehicles shall not issue a license: (3) To any person under age 18 unless such person has satisfactorily completed a course in driver education in public schools approved by the department of public instruction, or in vocational schools approved by the board of vocational, technical and adult education, and in nonpublic and private schools which meet the minimum standards set by the department of public instruction, or has satisfactorily completed a substantially equivalent course in driver training given by a school licensed by the division of motor vehicles under s. 343.61 and has attained the age of 16, except as provided in ss. 343.07 and 343.08. Such substantially equivalent course must be approved by the department of public instruction. The administrator shall prescribe rules for licensing of schools and instructors to qualify under this section. The driver education course shall be made available to every eligible student in the state. No operator's license shall be issued unless a driver's examination has been administered by the division of motor vehicles.

343.07 Instruction permits. (1) GENERAL PERMITS. Upon application therefor by a person who except for his lack of training in the operation of a motor vehicle, is qualified to obtain a license, the division of motor vehicles may issue to the applicant an instruction permit. Such permit shall be valid for a period not to exceed 6 months and entitles the permittee during scuh period and while having such permit in his immediate possession to operate a motor vehicle upon the highways, subject to the following restrictions:

343.07 (1) (a) He shall not operate a motor vehicle other than a motor-driven cycle unless he is accompanied by a person with at least 2 years of licensed driving experience occupying the seat beside him. In the case of a motor-driven cycle no passenger shall accompany the operator except that a person with at least 2 years of licensed driving experience and whose license is indorsed for motor-driven cycle operation may ride as a passenger-instructor.

(b) He shall not operate a motor vehicle if there are passengers in the vehicle other than the licensed person who is required to occupy the seat beside him, except when the motor vehicle is equipped with dual controls and is used by a school licensed under s. 343.61 to train motor vehicle operators, no more than 3 other persons may occupy seats in the vehicle other than the front seat.
(c) He shall not operate a motor vehicle during hours of darkness unless accompanied by:
1. A licensed person 25 years of age or more occupying the seat beside him, except that he may operate during hours of darkness if an accredited driver education instructor or an instructor, as defined in s. 343.60 (2), under the age of 25 is occupying the seat beside him and the instructor is teaching under the guidance of his school employer; or

2. In the case of a motor-driven cycle, a licensed person 25 years of age or more who also meets the passenger requirements of par. (a).

(2) School permits. (a) Upon application therefor by a person 16 years of age or older who is enrolled in a driver education and training course in any school or who has been accepted for instruction in driving in connection with a driver education course for teachers conducted by the university of Wisconsin or any state university in Wisconsin, and who, except for his lack of training in the operation of a motor vehicle, is qualified to obtain a license, the division may issue to the applicant a school instruction permit. Such permit shall be valid for a period not to exceed 6 months and entitles the permittee during such period and while having such permit in his immediate possession to operate a motor vehicle upon the highways subject to the restrictions imposed by sub. (1) upon holders of general instruction permits, except as otherwise provided in par. (c).

(b) Upon application by a person at least 15 years 6 months of age who is enrolled in a driver education and training course in school, which course includes practice driving and has been approved by the department of public instruction, or licensed by the division of motor vehicles under s. 343.61 the division may issue to the applicant a special school instruction permit, provided the applicant is qualified to obtain a license except for age and his lack of training in the operation of a motor vehicle and provided he can complete the driver education program not earlier than 2 months before he reaches the age of 16. Such permit is valid only for the duration of the course in which the permittee is enrolled and entitles the permittee while having such permit in his immediate possession to operate a motor vehicle within a designated area and only when an approved instructor is occupying a seat beside the permittee or he is accompanied by an authorized license examiner for the purpose of examining his ability to operate a motor vehicle. After completing the course in practice driving the permittee while having such permit in his immediate possession may operate his parent's or guardian's motor vehicle, but only at times other than hours of darkness and only while his licensed parent or guardian is occupying a seat beside him and there are no other passengers in the vehicle or while he is accompanied by an authorized license examiner for the purpose of examining his ability to operate a motor vehicle. When the student attains the age of 16 years he shall be entitled to the same privileges as any other operator holding a temporary instruction permit. Such permit shall be valid for a period not to exceed 6 months from date of issue.

(c) When a motor vehicle equipped with dual controls is used by any school, public or private, for the purpose of training motor vehicle operators and a qualified instructor or student in a driver education course for teachers conducted by any state college or university in Wisconsin occupies a seat beside the operator, not exceeding 3 other persons may occupy seats in the motor vehicle other than the front seat.

(d) The division shall not issue a permit under sub. (2) unless it has the certificate of the applicant's driver training instructor to the effect that the applicant is enrolled in a driver education and training course in a school.

(3) INSTRUCTION PERMITS; MOTOR-DRIVEN CYCLE. Any person who wishes to qualify for the operation of a motor-driven cycle must first hold a valid operator's license by qualifying with an automobile, such license being indorsed as a temporary instruction permit with reference to a motor-driven cycle or a special temporary instruction permit for motor-driven cycle operation may be issued.

TRAFFIC SAFETY SCHOOL

345.16 Penalty of compulsory safety school attendance. (1) In addition to or in lieu of other penalties provided by law for violation of chs. 346 to 348, the trial court may in its judgment of conviction order the convicted person to attend, for a certain number of school days, a traffic safety school whose course and mode of instruction is approved by the administrator of the division of motor vehicles and which is conducted by the police department of the municipality, the sheriff's office of the county or by any regularly established safety organization.

(2) This section also applies in the case of an adjudication of violation of a local traffic regulation which is in conformity with chs. 346 to 348.

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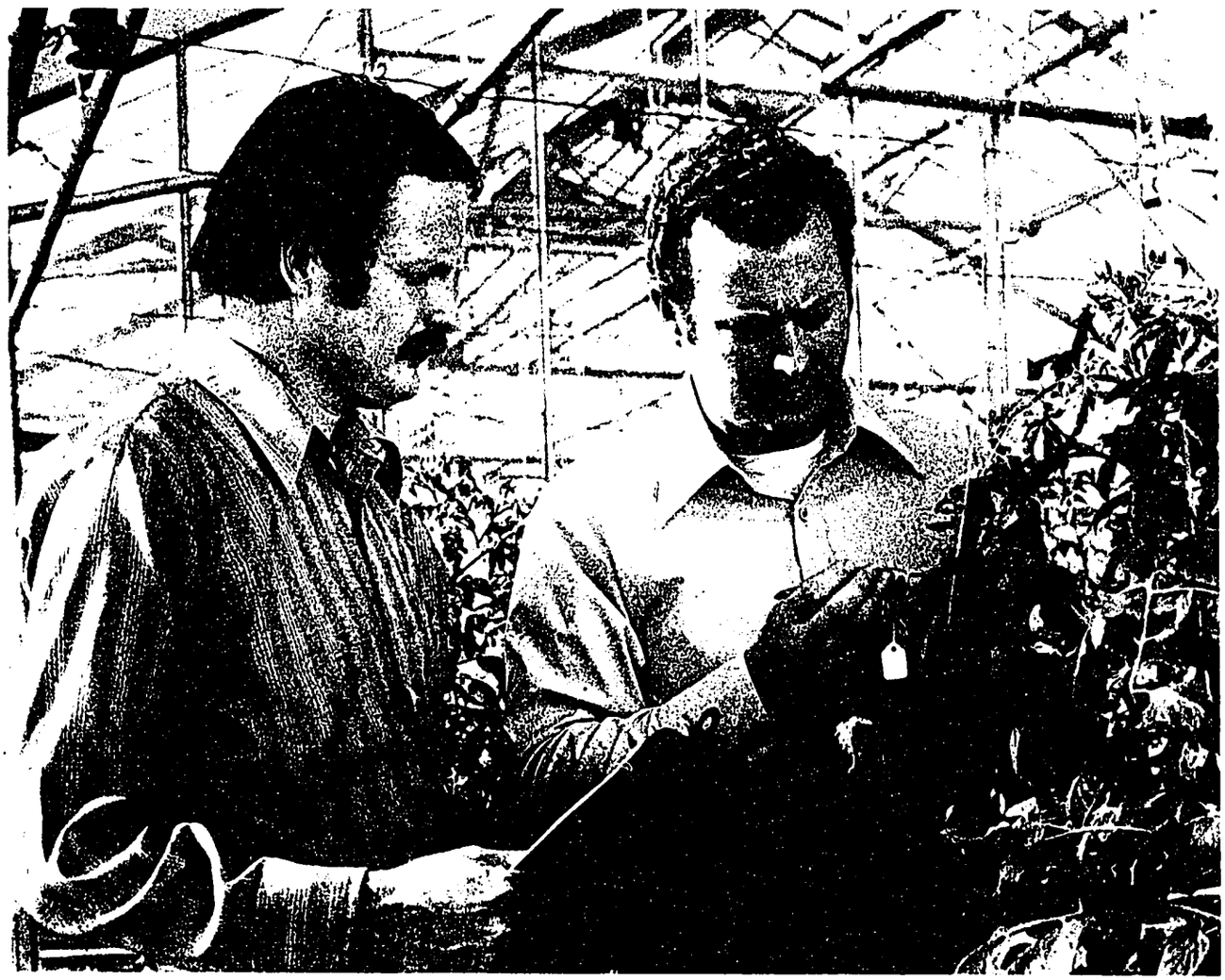
GREENHOUSE VEGETABLE RESEARCH -- 1972



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CO_2 ENRICHMENT AND TEMPERATURE EFFECTS ON YIELDS AND QUALITY OF SEVERAL NEW TMV-RESISTANT LINES AND CULTIVARS

William L. Bauerle and Dale W. Kretchman
Department of Horticulture
Ohio Agricultural Research and Development Center

TMV-resistant cultivars M-R 12 and M-R 9 comprise about 80 percent of the total commercial greenhouse tomato acreage now grown in Ohio. Of these two cultivars, M-R 12 comprises considerably more acreage than M-R 9. Little work has been completed on fruit yield and quality attributes of these TMV-resistant cultivars with response to various environmental factors. For this reason, CO_2 enrichment and varying day-temperature regimes were investigated.

Material and Methods

Seeds of the cultivars Ohio W-R 25, Ohio M-R 9, Ohio M-R 12, two bulk selection lines from L. J. Alexander (breeding lines 2401 and 2404), and one selection from the late W. N. Brown (numbered 1342) were sown in flats of peatlite mix 8 weeks prior to planting the spring crop. Seeds for the fall crop were sown 6 weeks prior to planting. Cultivars used were Ohio W-R 25, Ohio M-R 12, and advanced breeding line selections for blotchy ripening resistance and TMV-resistance (numbers 2108-1, 2108-2, 2112-1, and 909-13-1).

Seedlings were pricked-out into soil in a 4-inch clay pot after emergence. Transplanting into ground beds in the Department of Horticulture greenhouses took place the first week of January for the spring crop and the first week of August for the fall crop.

CO_2 was supplied to designated compartments immediately after transplanting of the spring crop. A timer engaged the CO_2 generator 1/2 hour before sunrise and shut it off 1 hour before sunset.

Atmospheric enrichment of CO_2 ranging from about 600 to 1200 p.p.m. was maintained during the early months of the spring crop. However, after the outside temperature began to rise and sunlight intensity increased during April, enrichment was reduced due to excessive ventilation.

CO_2 enrichment in the fall was not started until October 21 due to higher than normal outside temperatures prior to this time.

In both spring and fall crops, the day-temperature ranges of 69° to 77° F. and 73° to 81° F. were maintained on days when temperature could be controlled. At low light, the lower temperature in each case was used; as the light intensity increased, the temperatures were increased up to 77° F. or 81° F., depending on the treatment.

The cultural practices were kept as uniform as possible for all treatments. Fruit set, yield, and fruit quality data were analyzed by standard statistical procedures.

Results and Discussion

Spring Crop Cultivar Performance: For the spring crop, total yield averaged over all treatments was greater in the W-R 25 cultivar (Table 1). Data show that

TABLE 1.--Differences in Yields and Quality Between Some Cultivars and Lines of Greenhouse Tomatoes. Spring Crop 1971.

Cultivar Line	No. Fruit per Plant	Lb. Fruit per Plant	Av. Fruit Wt. - Oz.	Percent No. 1	Percent Puffy	Percent Crack	Percent Off Shape	Percent Rough	Percent Off Color	Percent Blossom End Rot
W-R 25	43.66	16.55	6.03	77.62	16.5	33.5	12.2	2.0	3.1	1.8
M-R 9	39.35	13.40	5.42	82.87	10.3	20.3	6.8	1.0	6.8	0.8
M-R 12	42.63	14.30	5.34	78.00	14.8	27.7	7.8	2.7	2.7	1.1
Line 2401	41.70	15.46	5.91	82.00	14.7	15.3	8.2	2.8	1.1	2.5
Line 2404	30.03	13.72	5.59	59.80	27.8	49.5	13.5	19.0	2.6	0.6
Line 1342	41.43	16.17	6.24	80.62	16.8	23.7	10.7	2.0	3.0	0.7
HSD 5%	N.S.	2.07	0.10	7.81	7.0	8.2	3.0	4.9	3.0	1.4

both fruit weight and number of fruit produced contributed to this increase. M-R 12 averaged only one less fruit per plant than W-R 25. However, the fruit size of M-R 12 was significantly reduced in comparison, resulting in the reduction of per pound production. M-R 9 and line 2404 also exhibited a reduction in fruit size from that of W-R 25. Line 2404 produced greater amounts of puffy, rough, and cracked fruits and less U.S. No.1 grade fruit. There were no significant differences between the other cultivars or lines with respect to puffiness, roughness, or percent No.1 fruit. Significant increases in cracking were found on W-R 25 and M-R 12 when compared to line 2401, which had the least amount. More off-shapen fruits were found on cultivar W-R 25 and line 2404. In this case, either roughness or larger fruit appears to be correlated with the number of off-shaped fruit. The percent of off-color fruits was significantly higher in cultivar M-R 9, which was attributed to its susceptibility to blotchy ripening.

Response to Carbon Dioxide: Based on means, the percent of U.S. No.1 grade fruit was significantly greater with CO_2 enrichment, with line 2401 showing the largest overall percentage (Table 2).

There were no significant differences in the fruit quality measurements between the CO_2 treatments and the various cultivars and lines (Table 3). Although not significant, puffiness, cracked, and off-shaped fruit were reduced with CO_2 enrichment.

Increase in day-temperature reduced the amount of off-shaped and rough fruit; however, fruit size was also reduced (based on overall means).

TABLE 2.--Influence of CO_2 enrichment on Yields, Size, and Percent U. S. No. 1 Grade Greenhouse Tomato Fruit. Spring Crop 1971.

Cultivar Line	CO_2	No. Fruit per Plant	Lb. Fruit per Plant	Av. Fruit Wt. - Oz.	Percent U.S. No. 1
W-R 25	-	39.93	14.53	5.81	75.75
	+	47.39	18.57	6.26	79.50
M-R 9	-	36.33	11.88	5.22	82.25
	+	42.39	14.92	5.63	83.50
M-R 12	-	39.54	12.57	5.08	76.50
	+	45.73	16.03	5.61	79.50
Line 2401	-	40.78	14.57	5.61	80.00
	+	42.62	16.35	6.13	84.00
Line 2404	-	36.83	12.23	5.28	57.75
	+	41.23	15.21	5.90	62.00
Line 1342	-	39.40	14.88	6.04	79.50
	+	43.46	17.45	6.44	81.75
HSD 5%		6.55	2.92	0.15	10.96

TABLE 3.--Influence of CO_2 Enrichment on Various Fruit Quality Characteristics of the Greenhouse Tomato. Spring Crop 1971.

Cultivar Line	CO_2	Percent Puffy	Percent Crack	Percent Off Shape	Percent Rough	Percent Off Color	Percent Blossom End Rot
W-R 25	-	17.0	37.7	13.0	2.5	2.5	2.0
	+	16.0	29.2	11.5	1.7	3.7	1.7
M-R 9	-	11.2	22.7	7.7	1.0	5.7	0.7
	+	9.5	18.0	6.0	1.0	8.0	1.0
M-R 12	-	17.0	29.2	8.2	3.2	2.0	1.2
	+	12.7	26.2	7.5	2.2	3.5	1.0
Line 2401	-	16.0	17.2	7.7	2.0	1.2	2.7
	+	13.5	13.5	8.7	3.7	1.0	2.2
Line 2404	-	31.2	51.5	12.7	18.7	1.0	0.5
	+	24.5	47.5	14.2	19.2	4.2	0.7
Line 1342	-	18.5	25.0	12.0	2.7	2.5	0.7
	+	15.2	22.5	9.5	1.2	3.5	0.7
HSD 5%		9.91	11.6	4.2	7.0	4.2	2.0

TABLE 4.--Differences in Yields and Quality Between Some Cultivars and Lines of Greenhouse Tomatoes. Fall Crop 1971.

Cultivar Line	No. Fruit per Plant	Lb. Fruit per Plant	Av. Fruit Wt. - Oz.	Percent No. 1	Percent Puffy	Percent Crack	Percent Off Shape	Percent Rough	Percent Off Color	Anther Scar*
W-R 25	27.09	7.72	4.56	67.5	33.3	14.8	12.3	11.8	4.7	1.7
M-R 12	24.37	6.71	4.40	69.2	32.6	22.0	11.0	14.3	1.3	6.1
Line 2108-1	24.67	7.52	4.88	55.5	50.3	11.0	12.0	15.8	3.2	13.3
Line 2108-2	26.36	8.09	4.92	64.6	41.0	10.2	10.3	14.1	2.2	10.1
Line 2112-1	25.79	7.96	4.93	53.0	53.3	11.6	12.8	19.1	2.6	10.1
Line 909-13	26.42	7.58	4.60	60.3	43.3	11.5	11.3	15.8	2.1	10.7
HSD 5%	N.S.	N.S.	0.09	11.9	15.2	6.4	N.S.	5.4	2.0	3.6

*Anther scar from calyx to blossom end.

Fall Crop Cultural Performance: Average total yield for the fall crop showed no significant differences between cultivars and lines (Table 4). There was an indication of a reduction in fruit size in cultivars M-R 12, W-R 25, and line 909-13 when compared to lines 2108-1, 2108-2, and 2112-1. Packout of U.S. No.1 grade fruit was significantly greater in cultivars M-R 12 and W-R 25 than it was for lines 2108-1 and 2112-1. Rough and puffy fruit was less on M-R 12 and W-R 25 than on 2108-1 and 2112-1 lines. While there was no difference in off-shaped fruit, it became apparent that anther scars were much more prevalent on M-R 12 and lines selected for blotchy ripening and TMV resistance. It was found that all numbered lines exhibited significantly more anther scars than the M-R 12 cultivar, and M-R 12 had a higher percent of anther scars than the W-R 25 cultivar.

Response to Carbon Dioxide: Data of all yield and quality measurements showed no significant response to CO_2 enrichment in the fall crop (Tables 5 and 6).

Abnormally warm outside fall temperatures prevented the maintenance of the different temperature treatments between the various test plots until the crop was mature. This could be the major reason why no differences were observed between temperature treatments.

Data indicate that yields were lower for M-R 9 and M-R 12, primarily as a result of the reduction in fruit size, when compared to W-R 25. The numbered lines selected for blotchy ripening resistance and TMV resistance had larger fruit size in both spring and fall crops. The M-R cultivars and numbered lines responded no differently than W-R 25 to CO_2 enrichment and day-temperature treatments. However, further investigations are needed before precise recommendations can be made.

TABLE 5.--Influence of CO_2 Enrichment on Yields, Size, and Percent U.S. No. 1 Grade Greenhouse Tomato Fruit. Fall Crop 1971.

Cultivar Line	CO_2	No. Fruit per Plant	Lb. Fruit per Plant	Av. Fruit Wt. - Oz.	Percent U.S. No. 1
W-R 25	-	26.08	7.37	4.52	69.2
	+	28.10	8.08	4.60	65.7
M-R 12	-	24.08	6.54	4.35	69.5
	+	24.66	6.89	4.46	69.0
Line 2108-1	-	25.27	7.41	4.70	61.5
	+	24.02	7.64	5.07	49.5
Line 2108-2	-	25.52	7.90	4.95	65.2
	+	27.21	8.29	4.89	64.0
Line 2112-1	-	25.25	7.79	4.93	53.7
	+	26.35	8.13	4.93	52.2
Line 909-13	-	26.75	7.59	4.53	59.2
	+	26.10	7.58	4.66	61.5
HSD 5%		N.S.	N.S.	N.S.	N.S.

TABLE 6.--Influence of CO_2 Enrichment on Various Fruit Quality Measurements of the Greenhouse Tomato. Fall Crop 1971.

Cultivar Line	CO_2	Percent Puffy	Percent Crack	Percent Off Shape	Percent Rough	Percent Off Color	Anther Scar*
W-R 25	-	33.0	17.0	11.7	9.0	4.7	2.2
	+	33.7	12.7	13.0	14.7	4.7	1.2
M-R 12	-	28.7	21.2	12.7	14.7	2.2	5.2
	+	36.5	22.7	9.2	14.0	0.5	7.0
Line 2108-1	-	42.5	12.2	12.0	14.5	4.0	14.0
	+	58.2	9.7	12.0	17.2	2.5	12.7
Line 2108-2	-	39.2	11.0	11.7	13.7	3.5	10.5
	+	42.7	9.5	9.0	14.5	1.0	9.7
Line 2112-1	-	52.2	13.5	13.7	17.0	2.5	10.5
	+	54.5	9.7	12.0	21.2	2.7	9.7
Line 909-13	-	44.0	11.2	11.7	16.2	3.0	10.7
	+	42.7	11.7	11.0	15.5	1.2	10.7
HSD 5%		N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

*Anther scar from calyx to blossom end.

Further improvements also are needed in these selections to reduce the severity of anther scarring.

Selection 2108-2 had the largest fruit size of all selections, although packout of U.S. No.1 grade was slightly lower than W-R 25 and M-R 12. This line exhibited very desirable quality characteristics and shows promise for introduction.

Greenhouse Vegetable Research--1972. Research Summary 58, Ohio Agricultural Research and Development Center, Wooster, Ohio. April 1972.

A COMPARISON OF DIFFERENT METHODS OF GROWING TOMATO TRANSPLANTS

William L. Bauerle
Department of Horticulture
Ohio Agricultural Research and Development Center

Several types of preformed growing media (blocks) designed for growing young plants have recently appeared on the market. The blocks are either in loaves containing several attached blocks or in individual units. These were designed to contain media for producing young plants or as media to aid in production of vegetative cuttings. Plants contained in these blocks can be mechanically transplanted. The blocks do not require sterilization and are ready to receive plants without the added labor of filling pots.

A study of the spring and fall crops of tomatoes in 1971 was undertaken to obtain information on yields and fruit quality of tomatoes whose transplants were grown in these various blocks compared with the conventional 4-inch clay, plastic, and peat pots and bare-root transplants.

Materials and Methods

In both the spring and fall crops, seeds of cultivar M-R 12 were germinated in Peatlite mix and pricked-out into the various growing media after the first appearance of true leaves. Types of blocks used in growing the transplants in the spring crop were the 0-902 (Oasis) block, BR-8 block, soil block, and the Kys-Kube block. Plants growing in these blocks were compared with plants grown in Peatlite mix which results in a non-containerized plant (bare-root) and plants grown in either a 4-inch peat, plastic, or clay pot. In the fall crop, plastic pots and soil blocks were not included. The peat, plastic, and clay pots contained a mixture of 2/3 greenhouse soil containing peanut hulls and 1/3 sphagnum peat moss. The different types of blocks and pots are shown in Figure 1.

The beds for growing the non-containerized (bare-root) plants for both crops contained a 50-50 sphagnum peat and No.2 vermiculite mixture. The nutrients added to a cubic yard (22 bushels) of this mix were: 10 lb. agricultural limestone, 2 lb. super phosphate, 1-1/2 lb. potassium nitrate, 1 oz. iron chelate 330, 1 oz. borax (from 20 Mule Team Borax). The potassium, iron chelate, and borax were dissolved in warm water and applied with a sprinkling can while mixing the peat and vermiculite together. The mixture was placed in plastic-lined 4 foot by 6 foot by 5 inch

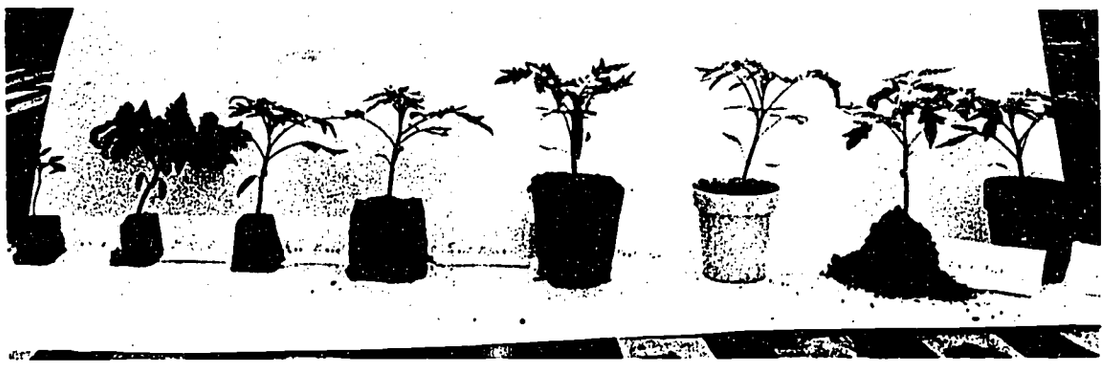

FIG. 1.--Transplant growing media. Left to right: 0-902 (Oasis), BR-8, Kys-Kube, soil block, peat pot, plastic pot, bare-root, clay pot.

bins to a depth of 5 inches, and then premoistened by overhead watering. The young seedlings were planted in the mix in a 5 X 5 square inch spacing.

The pots were planted and spaced 4 inches apart on wood racks for both crops. The blocks were placed side-by-side in plastic-lined wood flats.

Plants grown in pots for the spring crop were watered approximately twice a week as needed. However, for the fall crop it was necessary to water the clay and peat potted plants and the growing blocks almost daily after the tomato plants began to grow. It was necessary to water the Peatlite mix only three times. All plants were syringed two or three times a day for several days after pricking-out.

Plants in the mix required no additional fertilizer. The pots and growing blocks were given an application of 9-45-15 at a rate of 1/2 oz. per gallon after pricking-out and again 1 week prior to transplanting for both crops. Each plant was given 1 quart of this solution each time.

Transplanting was done in the second week of January for the spring crop and the first week of August for the fall crop. Plants of each crop were spaced at 20 inches, with 32 inches between rows. Each six-plant row was replicated eight times. At transplanting, each plant was given 1 quart of starter solution water containing 9-45-15 at 1/2 oz. per gallon. July 7 and December 21 were the completion dates for the spring and fall crop experiments.

Fruit yield, quality, and fruit set data were recorded for all plants.

Results and Discussion

Spring Crop: The number of fruits per plant and total yields showed no significant differences between the various transplant media treatments (Table 1). Average fruit weights were significantly reduced in the Oasis and BR-8 transplant treatments, while U.S. No.1 grade fruit was reduced only on the Oasis transplants. All of the tomato quality attributes which were measured showed no significant

TABLE 1.--Influence of Method of Growing Transplants on Yield and Fruit Quality. Spring Crop 1971.

Transplant Media	No. Fruit per Plant	Lb. Fruit per Plant	Av. Fruit Wt. - Oz.	Percent No.1	Percent Puffy	Percent Crack	Percent Off-Shape	Percent Rough	Percent Off-Color	Percent Blossom End Rot
Oasis	39.54	14.11	4.77	67.7	7.1	28.5	8.7	1.1	2.1	1.0
BR-8	40.06	14.02	5.04	71.0	4.7	27.4	7.0	0.8	0.3	1.5
Soil Block	42.48	15.49	5.90	83.9	6.9	31.0	7.9	0.4	3.3	1.1
Kys Kube	40.81	14.86	5.88	83.6	7.5	31.9	11.4	1.1	1.5	0.7
Peat Pot	43.96	16.25	5.52	76.7	8.6	31.9	8.1	1.3	3.5	1.0
Plastic Pot	40.29	14.88	5.90	82.7	6.1	34.0	11.0	0.6	2.0	1.2
Clay Pot	43.52	16.30	5.75	79.2	10.3	30.4	11.0	0.7	2.7	0.7
Bare Root	42.52	15.66	5.72	79.7	8.0	32.4	9.4	0.4	1.6	1.1
HSD 5%	N.S.	N.S.	.32	13.9	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

TABLE 2.--Influence of Method of Transplant Growing on Number of Fruit Set on First Eight Clusters. Fall Crop 1971.

Transplant Media	Cluster No. 1	2	3	4	5	6	7	8
Oasis	3.7	4.3	4.5	3.9	3.0	1.7	0.4	0.0
BR-8	4.2	4.4	3.7	3.9	4.0	3.8	2.5	0.8
Peat Pot	4.1	4.2	4.4	3.8	3.4	4.4	3.6	3.2
Kys Kube	4.1	4.3	3.4	3.9	3.6	3.4	2.5	0.5
Clay Pot	4.1	4.9	4.4	3.2	3.4	4.1	3.6	2.6
Bare-Root	4.6	5.2	4.1	3.3	4.2	4.0	3.6	2.1
HSD 5%	N.S.	N.S.	0.7	N.S.	N.S.	1.6	1.2	0.7

differences between transplant treatments. It is of interest to note relatively small differences between types of transplants grown and yields as the Oasis BR-8 and Kys-Kube blocks produced less desirable transplants.

Analysis of the data at various harvesting time intervals after transplanting suggested that harvest of ripe fruit occurred later on the Oasis transplanting treatment.

Fall Crop: Data on numbers of fruit set on the first eight clusters (Table 2) show no significant differences in fruit set between the treatments on clusters 1, 2, 4, and 5. BR-8 and Kys-Kube transplanting treatments were shown to reduce yields on cluster No. 3 compared with the other treatments. The 0-902 (Oasis) block treatment significantly reduced fruit set on clusters 6, 7, and 8.

The variation between treatments in the plants' physiological ages when set into the ground beds undoubtedly caused the differences observed in fruit set between the transplants grown in blocks, and the peat pot, clay pot, and bare-root transplants.

Transplants grown in blocks showed little or no fruit set on the 8th and last cluster, indicating that fruits from this cluster were not large enough to be counted and thus the plants were physiologically younger than those grown in either pots or Peatlite mix. There were no differences in fruit set between either the peat pot, clay pot, or bare-root methods of growing transplants.

Analysis of the data for yield and quality measurements further confirm the fruit set data (Table 3). Total numbers of fruits produced per plant were significantly less on the 0-902 (Oasis) and Kys-Kube block grown plants than on plants grown in peat pot, clay pot, or bare-root, which showed no differences from each other. Numbers of fruits produced on the BR-8 block grown plants were less than that of plants grown in peat pots. Total yields of tomatoes produced were less on

TABLE 3.--The Influence of Method of Growing Transplants on Yield and Fruit Quality. Fall Crop 1971.

Transplant Media	No. Fruit per Plant	Lb. Fruit per Plant	Av. Fruit Wt. - Oz.	Percent No. 1	Percent Puffy	Percent Crack	Percent Off-Shape	Percent Rough	Percent Off-Color
Oasis	18.0	5.2	4.62	71.7	38.2	20.1	13.1	21.7	2.6
BR-8	24.5	7.2	4.73	68.8	35.9	29.7	9.5	19.7	5.2
Peat Pot	30.5	8.6	4.57	68.0	32.1	34.5	9.7	16.0	2.9
Kys Kube	22.7	6.8	4.77	71.9	35.0	25.9	13.4	19.1	4.1
Clay Pot	28.6	8.2	4.57	67.0	32.4	34.7	8.1	12.2	5.1
Bare Root	28.3	8.7	4.87	67.5	34.1	29.7	8.2	14.7	3.6
HSD 5%	4.6	1.8	N.S.	N.S.	N.S.	10.5	3.6	7.6	2.8

Oasis and Kys-Kube grown plants and the percent of off-shape fruit was significantly more in these two treatments when compared to the other transplant treatments. There were no differences in the total yields of fruit from plants which were transplanted as bare-root, clay or peat pots. Less cracked fruit was found with the Oasis treatment than found on the clay or peat pot treatments. This was possibly due to a later set and maturation of fruit on the Oasis treatment under cooler fall conditions. The only difference in percentage of rough fruit produced was between Oasis and clay pot plants, with a higher percentage of rough fruit from the Oasis block grown plants.

In addition to the yield and quality differences, several problems arise when blocks are used as media for plant growing.

1. Watering cannot be accomplished effectively unless an additional container is supplied.

2. Upon growth of the seedling, a top-heavy condition occurs, making it difficult for the block to maintain the plant in an upright condition.

3. Root growth is minimal because the exposed sides dry out.

Block grown plants were equally as time consuming in maintenance as plants in clay, peat, or plastic pots. Although synthetic blocks are excellent for producing a vegetatively propagated cutting, their role in production of tomato transplants for greenhouse plant production is doubtful.

Non-containerized (bare-root) plants grown in Peatlite mix showed no fruit yield or quality differences from clay pot grown plants. This method of transplant growing shows great promise because of the low maintenance needed to produce a transplant which is also readily adaptable to mechanized transplanting into ground beds.

Greenhouse Vegetable Research--1972. Research Summary 58, Ohio Agricultural Research and Development Center, Wooster, Ohio. April 1972.

THE INFLUENCE OF POLLINATING TECHNIQUES ON TOMATO YIELDS AND QUALITY

Ted H. Short and William L. Bauerle
Departments of Agricultural Engineering and Horticulture
Ohio Agricultural Research and Development Center

It has been estimated that the labor cost for pollinating greenhouse tomatoes is about 20 percent of the gross income from the crop. With increasing costs for skilled labor, growers are interested in finding less costly pollinating techniques to replace the common hand-held electric vibrator.

The objective of this study was to evaluate the effects of different mechanical pollinating methods on yields and quality of greenhouse tomatoes. The standard vibrator and an air-blast machine were studied jointly and independently on two tomato varieties. Joint use of the vibrator and air-blast was considered because the energy requirements for pollinating are high early in the season and labor needs are low. Later, high labor demands for picking often preempt adequate time for pollinating, even though the energy requirements for pollinating may be low.

Methods and Procedure

Two cultivars, MR-12 and Moto-Red, were grown in clay pots and transplanted into ground beds on January 13, 1971. Plants were spaced at 20 inches within 32-inch wide rows, resulting in approximately 9,900 plants per acre. Each six-plant row of each cultivar was pollinated every day by one of four pollination treatments: vibrator; air-blast; vibrator until May 1, then air blast; and no mechanical device. Each treatment was replicated six times. A total of 288 plants were included in the study.

The entire experiment received normal cultural practices such as irrigation, fertilization, and pruning. Standard data were taken on fruit yields and fruit quality. In addition, a fruit count was made for each cluster and random fruits were selected for seed counts and fruit weight.

Discussion and Results

The degree of effective pollination is usually related directly to the amount of energy subjected to the tomato blossom and careful pollination with the vibrator each day is probably the upper limit of energy required. The vibrator treatment accounted for the highest yields and the highest percentage of top quality fruit (Tables 1 and 2). Extremely poor yields and quality were obtained with the no-pollination treatment. The air-blast did not shake the flowers with nearly as much force as the vibrator, but yields and fruit quality were improved. The total weight of fruit from the air-blast was 18 percent less than the vibrator treatment and the average fruit weight was reduced by 8 percent, with 15 percent fewer seeds per fruit.

It was interesting to note that the vibrator followed by air blast gave yield and quality results almost mid-way between the results of using each method separately. One would suspect that the entire reduction in yield and quality resulted during the air-blast period. In other words, there should have been no significant differences between the vibrator and vibrator to air-blast treatments before May 1, 1971. Proof of this hypothesis, however, was not found in the yield and quality

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data since it was not easy to identify flowers and fruit from each pollination method during the transition from one method to the other.

Despite the decrease in yield when pollinating by air-blast, it was much better than using nothing at all. It also was so much easier and faster than pollinating with a vibrator that growers might do equally well with it if their workers are not skillful in using the vibrator. Probably the most important consideration is that the air-blast may be used very effectively later in the season when there is not enough labor to pollinate with the vibrators.

There were fewer fruits on the early clusters when using air-blast rather than the vibrator. The early clusters on a spring crop are not only difficult to pollinate but the air-blast machine had to be throttled back on the low clusters to avoid blowing the mulch. It would have been advantageous to have used a vibrator at least until the clusters were high enough to apply the full force of the blower.

TABLE 1.--The Effects of Pollination Methods on Fruit Yields.

Pollination Method	No. Fruits per Plant	Lb. Fruit per Plant	Av. Fruit Wt. (Oz.)	Percent U.S. No. 1
Vibrator	44.96	14.14	5.12	82.00
Air Blast	40.19	11.61	4.65	76.44
Vibrator to Air Blast	42.06	13.60	5.24	80.42
Nothing	24.94	6.08	3.95	37.11
HSD 5%	3.93	1.33	0.51	5.30

TABLE 2.--The Effects of Pollination Methods on Fruit Quality.

Pollination Method	Percent Puffy	Percent Cracks	Percent Off-Shape	Percent Rough	Percent Off-Color	Percent Blossom End Rot
Vibrator	13.97	17.22	18.14	5.72	5.06	3.63
Air Blast	20.94	19.67	17.86	8.47	6.92	4.19
Vibrator to Air Blast	15.78	18.33	17.92	7.05	5.33	4.39
Nothing	56.14	31.28	19.42	41.89	12.08	7.36
HSD 5%	4.91	4.26	N.S.	7.23	4.88	2.32

Red and pink cultivars were chosen initially to determine cultivar effects on pollination. The results indicated that the red cultivar, Moto-Red, was just as difficult to pollinate as the pink cultivar, MR-12. Ease of pollination is certainly a function of cultivar, but it is not true that reds always pollinate easier than pinks. The amount of energy required to pollinate effectively probably depends more on flower morphology such as style length, pistil shape, and anther characteristics than any other factor. Efforts to genetically modify these flower parts could appreciably reduce the energy required to pollinate.

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THE EFFECTS OF POLLINATING TECHNIQUES AND FREQUENCY ON YIELDS AND QUALITY OF GREENHOUSE TOMATOES

Ted H. Short and William L. Bauerle
Departments of Agricultural Engineering and Horticulture
Ohio Agricultural Research and Development Center

The objective of this study was to evaluate the effects of different pollinating techniques and pollinating intervals on fruit yields and quality. In previous studies, Kretchman and Howlett* found that it was necessary to pollinate every day with the electric vibrator to achieve maximum yields. The pollination schedule of the air-blast and paddle-stick techniques were of special interest in this study.

Methods and Procedure

A mosaic resistant cultivar, MR-12, was grown as a fall crop. The plants were grown in Peatlite mix and transplanted into ground beds on August 9, 1971. Plants were spaced at 20 inches within 32-inch wide rows for a population of approximately 9,900 plants per acre. Each six-plant row was pollinated either with the electric vibrator, portable blower, or paddle stick. All pollinating methods were performed either every other day or every third day throughout the growing season. Six replications were used for each treatment.

The electric vibrator was used in the normal fashion. Air-blast pollinating was accomplished by walking along each row with a portable back-pack blower powered by a gasoline engine. The paddle stick was fabricated by slipping a short piece of flexible tubing over a wooden dowel. The tube end of the stick was aggressively struck against each plant.

Normal cultural practices of fertilization, pruning, and irrigation were used throughout the fall growing period. Standard fruit yield and quality data were collected for each treatment. The number of fruits per cluster and the number of seeds per fruit were also determined for each treatment.

Results and Discussion

Extending the pollination interval from every other day to every third day reduced the average fruit yield per plant by about 13 percent for the combined pollination treatments (Table 1). The longer pollination interval also resulted in smaller, lower grade fruit.

The differences in yields, grade, and defects affecting quality for the three pollinating techniques are shown in Tables 2 and 3. The total yield was reduced about 12 percent for the air-blast and about 24 percent for the paddle stick compared to the electric vibrator. Likewise there was a large difference in the percent of U.S. No. 1's resulting from each pollination treatment.

Both the paddle stick and the air blast were somewhat aggressive in moving the plants. The plant could be damaged in the striking zone of the paddle stick or it

*Kretchman, D. W. and F. S. Howlett. April 1969. The Relation of Frequency of Pollinating on Fruiting of the Greenhouse Tomato -- A Preliminary Report. Greenhouse Vegetable Research--1969. Research Summary 34, Ohio Agricultural Research and Development Center, Wooster, Ohio.

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TABLE 1.--Effects of Pollination Interval on Fruit Yields and Quality.

Data	Pollination Interval	
	Every Other Day	Every Third Day
No. Fruits per Plant	20.53	19.03 *
Lb. Fruit per Plant	5.88	5.11 **
Weight per Fruit (oz.)	4.57	4.28 **
Percent No. 1 Grade	61.04	51.37 **
Percent Fruits Puffy	49.37	57.17 *
Percent Fruits with Cracks	25.67	30.83
Percent Off-Shape Fruits	9.54	9.00
Percent Rough Fruit	28.21	35.79 **
Percent Off-Color Fruit	2.25	2.00
Percent Anther Scars	6.75	7.33

* Differences significant at odds of 99:1
** Differences significant at odds of 19:1

could be moved around appreciably when subjected to the air-blast. In either case, however, the plants in this fall crop were not noticeably damaged enough to cause gross reductions in growth and yields.

Comparing the results of the air-blast technique in this study to the results reported in the previous article, it still appears that the air-blast technique is best used as a supplemental method of pollinating on present cultivars. If cultivars are developed which pollinate easier, the possibility of air blast or other lower energy devices may be quite feasible.

TABLE 2.--Effects of Pollination Methods on Fruit Yields.

Pollination Method	No. Fruit per Plant	Lb. Fruit per Plant	Av. Fruit Wt. (Oz.)	Percent U. S. No. 1
Vibrator	21.47	6.04	4.47	63.17
Air Blast	19.11	5.31	4.43	53.92
Paddle Stick	17.29	4.60	4.25	47.83
HSD 5%	2.70	0.84	0.27	8.71

TABLE 3.--Effects of Pollination Methods on Fruit Quality.

Pollination Method	Percent Puffy	Percent Cracks	Percent Off-Shape	Percent Rough	Percent Off-Color	Percent Anther Scars
Vibrator	44.42	22.33	9.75	28.75	1.83	6.83
Air Blast	57.17	29.50	8.25	30.50	2.25	7.00
Paddle Stick	59.42	35.75	9.17	36.17	1.92	9.33
HSD 5%	11.72	10.70	3.50	10.03	2.08	4.32

FIG. 1.--Pollinating tomato blossoms with a back-pack mist blower (air blast).

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THE EFFECTS OF TEMIK INSECTICIDE ON GREENHOUSE TOMATO FRUIT YIELDS AND QUALITY

William L. Bauerle, Harvey R. Krueger, and Richard K. Lindquist
Departments of Horticulture and Entomology
Ohio Agricultural Research and Development Center

Control of whiteflies, leaf miners, and other insects on greenhouse tomatoes can be difficult with insecticides currently registered. In many cases, production systems are a major cause of insect problems.

Infestations occur both during the summer and winter. Summer infestations are difficult to prevent because insects are active outdoors and can easily enter greenhouses through the ventilators and doorways. However, during the winter in the Northern U.S., subfreezing temperatures will eliminate most outside sources of infestation and insects on a winter tomato crop generally can be traced back to the seedlings. Transplants for the spring tomato crop are often grown in close proximity to producing plants of the fall crop, and are therefore exposed to any insects present. When these young plants are transplanted into ground beds for the spring crop, they may be infested with various stages of several insect pests.

One method of dealing with this problem would be to apply an insecticide to transplants which would give virtually complete control of major insect pests during the time they are exposed to infestation from the fall crop. This is not practical with currently registered insecticides, but may be through the use of systemic insecticides.

A systemic carbamate insecticide, Temik 10G, has been shown to give excellent control of many insects on a wide range of crops, including greenhouse tomatoes.

A study was initiated in the fall of 1971 to determine the effectiveness of Temik 10G in controlling insects on greenhouse tomatoes, residue levels of the pesticide in the harvested fruit, and yields and quality of fruit produced.

Materials and Methods

Seeds of cultivar M-R 12 were germinated in Peatlite mix. The small seedlings were transferred to the Peatlite mix growing media after the first true leaves began to appear. A trough 30 inches X 108 X 5 inches was partioned with plastic into four separate compartments. One bushel of Peatlite mix was placed in each trough compartment after a given rate of Temik 10G was mixed with it. The treatment rates used were 0 (untreated), 1 g., 2 g., and 4 g. of Temik 10G per bushel.

The seedlings were placed into the media on a 5 X 5 sq. in. spacing. Because of the toxicity of the insecticide, rubber gloves were used to protect hands from contact. The young plants were allowed to grow approximately 1 month in the Temik-treated Peatlite mix before the plants were transplanted into ground beds. Four replications containing three plants each were placed into ground beds for each of the various treatments.

Fruit was harvested for residue analysis when fruit color was expressed over the whole fruit. Three fruits from each treatment were randomly selected for analysis, with at least one fruit selected from each treated plant. A Packard Gas Chromatograph No. 871 was employed in making the analysis.

TABLE 1.--Effects of Temik 10G Treatment in the Growing Medium During Transplant Development Upon the Yield and Quality of Greenhouse Tomatoes, Fall Crop 1971.

Treatment Application	No. Fruit per Plant	Lb. Fruit per Plant	Av. Fruit Wt. Oz.	Percent U.S. No.1	Percent Puffy	Percent Cracks	Percent Off-Shape	Percent Rough
0 g./bu. (Untreated)	23.24	6.43	4.43	77.5	19.5	30.0	11.7	7.7
1 g./bu.	25.50	6.69	4.19	78.2	29.2	14.5	11.2	14.0
2 g./bu	23.75	6.62	4.44	79.2	24.2	23.0	10.7	9.5
4 g./bu.	24.25	6.61	4.35	80.2	26.5	19.0	10.5	11.0
LSD 5%	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

All cultural practices were as uniform as possible throughout the study. Yield and fruit quality data were collected.

Results and Discussion

The data showed (Table 1) neither yields or quality of greenhouse tomatoes differed in any respect as a result of these applications of Temik 10G to the seedling plants.

As expected, a large number of whitefly adults and leaf miner larvae were found on the untreated plants 3 weeks after they were pricked-out. At the same time, there were no insects on any of the Temik-treated plants. Four weeks after transplanting into ground beds and 8 weeks after application of Temik 10G to the Peatlite mix, the systemic effects of Temik 10G appeared reduced and whiteflies and leaf miners began appearing on leaves of treated plants.

No marginal leaf burn was observed at the application rates of Temik 10G and the methods used in this study.

Residual toxicity in fruits from odd numbered clusters is currently being analyzed. Analysis of the first (bottom) cluster is complete at this time. Residues in fruits from clusters 1 and 2 were very low, indicating at least the possibility of eventual registration of this material. However, Temik 10G is not registered for any food crop at the present time and growers should not use it under any circumstances.

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EVALUATION OF GRANULAR SYSTEMIC INSECTICIDES FOR CONTROL OF LEAF MINERS AND WHITEFLIES ON GREENHOUSE TOMATO SEEDLINGS

R. K. Lindquist and W. L. Bauerle
Departments of Entomology and Horticulture
Ohio Agricultural Research and Development Center

Insect infestations on greenhouse tomatoes can occur in several ways. In many cases, the presence of insects on fruit-bearing plants is the result of the pests becoming established on seedlings of that particular crop. Many greenhouse tomato growers transplant seedlings which are infested with whiteflies and leaf miners. Therefore, control in the main greenhouse range becomes difficult because the insects are already well established.

There are at least two ways to reduce this problem. One is to grow seedlings for the next crop in an area isolated from the crop in production. This would lessen chances of insects moving from the more mature plants of the producing crop to the seedlings. Another method is the use of insecticides in a preventive control program. However, sprays and vapors can cause phytotoxicity, especially when applied frequently to young plants. Adequate coverage of undersides of leaves also is difficult when sprays are applied to seedlings.

Granular systemic insecticides could be useful in this type of growing situation. These materials generally are easy to apply and have a relatively long residual life.

To test this method, several granular materials were evaluated in two experiments for leaf miner *(Liriomyza munda)* and whitefly *(Trialeurodes vaporariorum)* control on greenhouse tomato seedlings. Phytotoxicity also was recorded.

Methods and Materials

Seedlings (cv. Rutgers) were grown in a peat-vermiculite mix in a series of 30 4-sq. ft. plots. Each plot contained 2 bushels of the mix and 16 seedlings. Each insecticide treatment was assigned at random to three replicates.

Application rates of materials evaluated in both experiments were the same in terms of the amounts of insecticide applied to each replicate. Rates were measured differently because of the application method utilized.

Before statistical analysis of leaf miner and whitefly infestations, data were transformed by $\sqrt{x + 1}$. However, data in the tables are those obtained prior to transformation.

Experiment 1: Materials evaluated were Temik 10G, Furadan 10G, Di-Syston 15G, and Cygon 10G. Each was tested at two rates, except Furadan which was used at three rates.

Each insecticide was incorporated into the peat-vermiculite mix approximately 48 hours before seedlings were transplanted. After 29 days, the numbers of expanded leaves per plant and leaf miners per leaf were recorded.

Experiment 2: Materials evaluated were Temik 10G, Furadan 10G, DS-15647, and

Cygon 10G. Each material again was tested at two rates, except Furadan which was used at three rates.

All insecticides were broadcast over the surface of the peat-vermiculite mix 24 hours after seedlings were transplanted.

The numbers of expanded leaves per plant, leaf miners per leaf, and whitefly nymphs on eight leaflets per plant were recorded 25 days after insecticide application.

Results

Experiment 1: Both rates of Temik and Cygon completely prevented development of leaf miner larvae for the duration of the test (Table 1). Furadan gave complete control only at the highest application rate. The highest leaf miner infestations among insecticide treatments occurred in replicates treated with Di-Syston, but statistical analysis did not indicate significant differences among the insecticides.

Whitefly populations were not measured because very low numbers occurred even on untreated plants.

TABLE 1.--Mean Number of Completed Leaf Mines per Tomato Leaf 29 Days After Incorporation of Several Granular Insecticides into Peat-Vermiculite Mix.

Material	Rate (Oz. per Cubic Yard)	Mean No. Mines per Leaf*
Temik 10G	0.67	0 a
Temik 10G	1.3	0 a
Furadan 10G	0.67	0.07 a
Furadan 10G	1.3	0.02 a
Furadan 10G	2.6	0 a
Di-Syston 15G	0.67	0.34 a
Di-Syston 15G	1.3	0.16 a
Cygon 10G	0.67	0 a
Cygon 10G	1.3	0 a
Untreated		1.68 b

*Means of three replications. Means followed by same letter are not significantly different at .05 probability level. Data transformed by $\sqrt{x + 1}$ prior to analysis.

All plants except untreated checks and those treated with Temik had some marginal necrosis on lower foliage. Necrosis was quite severe on plants in plots treated with Cygon at 1.3 oz. per cubic yard. Statistical analysis indicated no differences among treatments in numbers of expanded leaves.

Experiment 2: Temik and Cygon again completely prevented leaf miner larval development (Table 2). Some leaf miner larvae infested plants treated with other materials, although no significant differences among insecticide treatments were indicated by statistical analysis.

Several insecticides were effective against whiteflies (Table 3), but Temik gave best control at the lowest application rate. Furadan was ineffective at all rates tested.

All insecticides caused some marginal necrosis on lower foliage, and phytotoxicity was quite severe with most materials at the higher application rates. This phytotoxicity was reflected in the average number of expanded leaves per plant (Table 4). In general, the higher application rates of all materials except Furadan reduced the number of leaves.

Discussion

Incorporation of insecticides into the peat-vermiculite mix appeared to cause less phytotoxicity per ounce of insecticide than broadcast applications. This

TABLE 2.--Mean Number of Completed Leaf Mines per Tomato Leaf 28 Days After Broadcast Application of Several Granular Insecticides.

Material	Rate (Oz. per 1000 Sq. Ft.)	Mean No. Mines per Leaf*
Temik 10G	18	0 a
Temik 10G	36	0 a
Furadan 10G	18	0.25 a
Furadan 10G	36	0.22 a
Furadan 10G	72	0.05 a
DS-15647 10G	18	0.17 a
DS-15647 10G	36	0.12 a
Cygon 10G	18	0 a
Cygon 10G	36	0 a
Untreated		1.54 b

*Means of three replications. Means followed by same letter are not significantly different at .05 probability level. Data transformed by $\sqrt{x + 1}$ prior to analysis.

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TABLE 3.--Mean Number Whitefly Nymphs per Tomato Leaflet 28 Days After Broadcast Application of Several Granular Insecticides.

Material	Rate (Oz. per 1000 Sq. Ft.)	Mean No. Whiteflies per Leaflet*
Temik 10G	36	0.92 a
Cygon 10G	36	1.67 a
Temik 10G	18	1.83 a
DS-15647 10G	36	4.54 a
DS-15647 10G	18	13.38 b
Cygon 10G	18	14.79 b c
Furadan 10G	72	15.92 b c
Furadan 10G	18	23.58 c d
Furadan 10G	36	35.58 d
Untreated	--	60.33 e

*Means of three replications. Means followed by same letter are not significantly different at .05 probability level. Data transformed by $\sqrt{x + 1}$ prior to analysis.

TABLE 4.--Mean Number Expanded Leaves on Tomato Seedlings 25 Days After Broadcast Application of Granular Insecticides.

Material	Rate (Oz. per 1000 Sq. Ft.)	Mean No. Leaves per Plant*
Cygon 10G	36	3.38 a
DS-15647 10G	36	3.75 a
Temik 10G	36	3.85 a b
Furadan 10G	72	4.35 b c
Cygon 10G	18	4.44 b c
Furadan 10G	36	4.81 c
Furadan 10G	18	4.83 c
DS-15647 10G	18	4.96 c
Temik 10G	18	4.98 c
Untreated	--	5.0 c

*Means of three replications. Means followed by same letter are not significantly different at .05 probability level.

probably was due to the amount of insecticide in contact with plant roots when plants were small. Incorporation of insecticides into the mix allowed roots to contact treated areas gradually as the root system and foliage increased in size. In broadcast applications, the amount of insecticide taken up by roots probably was greatest when plants were small and less tolerant of the materials.

Considering both insect control and phytotoxicity, Temik 10G was the most effective material. Cygon 10G was effective against leaf miners at low rates, but whitefly control was obtained only at rates which were phytotoxic.

None of the materials evaluated are registered for use on greenhouse vegetables. Experiments were conducted only to evaluate their performance in controlling insects on tomato seedlings grown in a peat-vermiculite mix, and to determine the practicality of using these materials in such a plant-growing system.

Greenhouse Vegetable Research--1972. Research Summary 58, Ohio Agricultural Research and Development Center, Wooster, Ohio. April 1972.

7748

EUROPEAN GYNOECIOUS CUCUMBER VARIETY TRIAL

William L. Bauerle
Department of Horticulture
Ohio Agricultural Research and Development Center

Recent work on the European seedless cucumber in several other states and Canada has shown encouraging yield results for this crop. Greenhouse cucumbers now grown and marketed in Ohio contain seeds and are known as the U.S. type. Bees are necessary for blossom pollination with the U.S. type of cucumber because each plant has separate male and female flowers. Fruits of the U.S. cucumber are relatively short and thick. They are not uniform in color and the skin contains rough spines. Seeds from these cucumbers are rather large when the fruit is ready to be picked.

In contrast, the European type cucumber is long and thin, uniform ripening, smooth skinned, and contains no seeds at harvest (Figure 1). Bees are not necessary for pollination as the varieties are parthenocarpic (set fruit without fertilization). The varieties are also gynoecious (contain only female flowers).

The European cucumber fruit is considered to be of superior eating quality to the U.S. type cucumber. In regard to consumer acceptance, however, there are three general considerations with the European cucumber: 1) because it does not look like the U.S. type cucumber but rather like a zucchini squash, consumers seem hesitant to purchase the fruit; 2) the fruit is quite long (12 to 22 inches); and 3) the fruit contains a very thin, tender skin which reduces its shelf life.

A variety trial was conducted in the spring of 1971 to further define growing habits, fruit quality, and yield potential of four European cucumber varieties under Ohio greenhouse conditions.

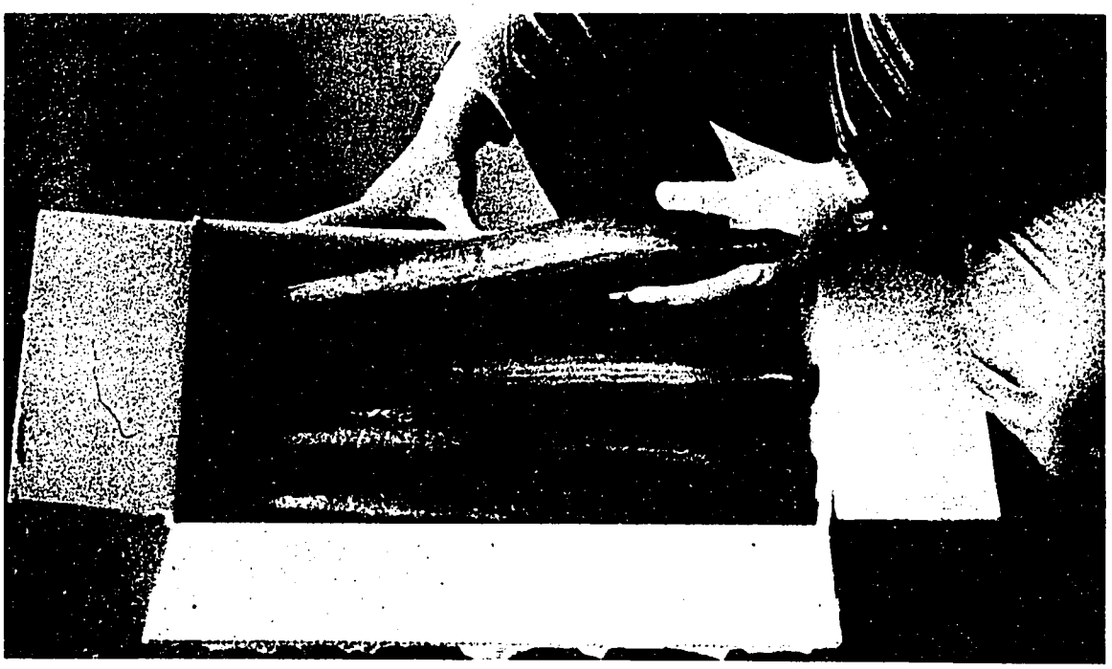

FIG. 1.--The European type cucumber packed for market.

Methods

The four varieties grown in this study were: Femspot, Femfrance, Femdan, and Femland. Three replications were used, with each replication containing six plants. Seeds were sown in Kys-Kube blocks on January 5, 1971. Transplanting was accomplished January 19 into troughs 30 inches wide by 108 inches long and 6 inches deep. Each trough contained Pro-Mix, a Peatlite mix consisting of equal parts of peat and vermiculite with added nutrients. A plant population of 6,000 plants per acre was used.

A Chapin double-wall tubing system was used to water each trough. Two lengths of tubing were drawn over the top of each trough and connected to a Gewa fertilizer proportioner. With each watering, the plants were given fertilizer on a constant feed schedule consisting of 200 p.p.m. nitrogen, 150 p.p.m. potassium, and 150 p.p.m. calcium. Small amounts of chelated iron and magnesium were also fed into the system and 50 p.p.m. phosphorus was added periodically when needed. Foliar analysis of the leaves was performed throughout the growing period.

Plants were trained to a string similar to the conventional method used for tomatoes, and were pruned to a single main leader. Temperature regimes used were 80° F. to 85° F. when sunlight was plentiful and 75° F. to 80° F. during cloudy weather. Night temperatures were 10° F. below those used during the day. All fruits below the fifth leaf were picked off to allow the plant to obtain good vegetative growth before fruiting. Fruits were harvested when they approached a 12-inch length because good fruit quality and diameter were apparent at this stage.

Results and Discussion

The plants grew well in the Peatlite mix. It appeared that the central leader training system may not be the proper method of growing cucumbers of this type because a cucumber plant generally has a higher production potential on lateral shoots. It appears that several nodes should have been allowed to form on laterals before growth was terminated.

No differences in yields between the varieties were found. This may have been due to variations in temperature within the greenhouse compartment. Yield data, although the differences were not significant (Table 1), suggest that the Femfrance and Femspot varieties had higher yields in pounds of fruit and fruit numbers. No appreciable varietal differences were noted in fruit length and fruit weight.

Varietal appearance differences were observed. Femfrance, Femdan, and Femland had fruits with a well-rounded distal portion, while the distal portion of Femspot appeared tapered and pointed. The proximal (stem) ends of Femfrance, Femdan, and Femland were well formed and rounded, while Femspot had a "bottle neck" effect at the stem end.

Fruit stored for 10 days at 50° F. and 90% relative humidity retained firmness and no varietal differences were apparent. Waxing of the fruits to increase their post-harvest life would appear to be beneficial with these cucumbers.

TABLE 1.--Yields of Four Varieties of European Type Greenhouse Cucumbers.

Variety	Yield of U.S. No.1		Fruit Length (In.)	Wt. per Fruit (Oz.)
	No. per Plant	Lb. per Plant		
Femfrance	16.96	14.15	11.56	13.31
Femspot	15.71	13.99	12.67	14.26
Femland	11.05	9.32	11.19	13.37
Femdan	10.84	9.46	12.36	13.89

Greenhouse Vegetable Research--1972. Research Summary 58, Ohio Agricultural Research and Development Center, Wooster, Ohio. April 1972.

7751

FRUIT WAXING TO INCREASE STORAGE LIFE OF EUROPEAN FORCING CUCUMBERS

William L. George, Jr.
Department of Horticulture
Ohio Agricultural Research and Development Center

European forcing cucumbers are potentially a new crop for Ohio greenhouse growers. Fruits produced by these cucumbers are seedless and of high quality. A major problem related to production and marketing is the short storage life of fruits after harvest. The fruits have a thin skin and are usually eaten without peeling. However, the thin, tender skin allows rapid water loss which results in a shriveled or shrunken appearance of the fruit soon after harvest.

Attempts to reduce this water loss using plastic bags or wraps have had limited success. The use of wax coatings has been successful with many vegetables and fruits, including field-grown American cucumbers. These waxes improve fruit appearance as well as increase storage life. This paper reports on the use of wax on fruits of European forcing cucumbers.

In fall of 1971, several European cultivars or hybrids were grown for observation in the Ohio State University Horticulture greenhouses in Columbus. Fruits of several cultivars were sprayed to run-off with a wax emulsion (Prime Fresh 23, S. C. Johnson and Son, Racine, Wis.). The wax was applied full strength and allowed to dry (15 minutes).

Two waxed fruits of each cultivar were compared with two untreated control fruits in two different storage conditions, A and B. Storage A was a cold storage room maintained at 55° F. and high relative humidity (70 to 80%). Storage B was a laboratory room with a controlled temperature (75° F.) and low relative humidity (40 to 50%).

It is evident from the results with three cultivars (Table 1) that a wax coating on the fruits reduced the rate of moisture loss and delayed the appearance of visible fruit deterioration in both storages. The differences noted among cultivars may relate to their skin thickness. This characteristic should be considered in future cultivar trials. As expected, moisture loss was more rapid at 75° F. than at 55° F. The non-waxed fruits of each cultivar at 75° F. were spongy or shriveled after 1 or 2 days. All waxed fruits were evaluated for eating quality after storage and no differences in flavor were noted.

These preliminary results suggest that the storage life of European forcing cucumbers can be extended considerably by using wax coatings and proper storage conditions. It should be pointed out that storage temperature is critical with any cucumber since cucumbers suffer chilling injury at temperatures below 50°F. and this also can result in rapid fruit deterioration.

7752

TABLE 1.--Delayed Fruit Deterioration by Wax Coating European Forcing Cucumbers.

Cultivar	Treatment	Percent Moisture Loss After Storage (Days) 3	6	9	15	21
	Storage A - 55° F., 70 to 80% RH					
Femspot	Wax	0.0	1.8	4.4	7.1	9.7*
	No Wax	2.0	6.1	11.1*	15.1	21.2
La Reine	Wax	1.0	2.0	4.9	7.9	10.9*
	No Wax	1.2	3.6	8.4*	13.2	19.3
Picador	Wax	1.1	3.5	7.6	10.9*	15.2
	No Wax	1.6	4.8*	11.3	16.9	22.6
	Storage B - 75° F., 40 to 50% RH					
Femspot	Wax	3.6	5.8	8.0	13.1*	--
	No Wax	7.0*	11.6	13.9	18.6	--
La Reine	Wax	5.6	8.9*	14.4	16.7	--
	No Wax	9.6*	14.8	20.9	23.5	--
Picador	Wax	8.5	13.2*	17.9	25.5	--
	No Wax	12.8*	19.8	24.4	32.6	--

*Fruits showed visible shriveling or wrinkling.

Greenhouse Vegetable Research--1972. Research Summary 58, Ohio Agricultural Research and Development Center, Wooster, Ohio. April 1972.

7753

Bacillus thuringiensis FORMULATIONS FOR CABBAGE LOOPER CONTROL ON GREENHOUSE LETTUCE

Richard K. Lindquist
Department of Entomology
Ohio Agricultural Research and Development Center

The cabbage looper, *Tricoplusia ni*, is a serious pest of many greenhouse crops, but is especially severe on lettuce.

Bacillus thuringiensis formulations have been used to control cabbage loopers on outdoor crops for the past several years. Although these formulations are effective and apparently present no residue problems, registration on greenhouse crops has not been obtained because of a lack of performance data. Accordingly, an experiment was conducted at Wooster in an effort to obtain some of these data.

Lettuce seedlings (cv. Grand Rapids) were grown in 4-inch diameter plastic pots and were infested by placing squares of paper containing cabbage looper eggs among the plants.

All materials were applied as foliar sprays using a 2-gallon compressed air sprayer. Loopers were approximately 1 week old when applications were made. Formulations used, application rates, and results are shown in Table 1.

Counts of live and dead loopers indicated that the infestations varied considerably among the treatments. Because most dead loopers remained attached to the foliage, control results are given as mean percent mortality of the total number of loopers (alive and dead) recorded from each plant.

Loopers often did not die for several days after treatment, but many of those recorded as alive did not appear to feed actively or show much movement. If a looper moved when prodded with a pencil point, it was recorded as being alive.

Formulations varied in their effectiveness. Biotrol BTB was effective at higher rates, but Biotrol XK and DiPel gave good control at all rates tested. Applications of Biotrol XK and DiPel at 6 lb. per 100 gallons resulted in no plant damage.

These data show that *Bacillus thuringiensis* formulations are effective in killing cabbage loopers under greenhouse conditions and could be valuable materials if registered for such use.

Greenhouse Vegetable Research--1972. Research Summary 58, Ohio Agricultural Research and Development Center, Wooster, Ohio. April 1972.

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TABLE 1.--Percent of Cabbage Loopers Dead 3 and 5 Days After Spray Applications of Bacillus thuringiensis Formulations to Greenhouse Leaf Lettuce.

Material	Rate (Lb. per 100 Gal.)	Mean Percent of Loopers Dead on Indicated Day After Treatment*	
		3	5
Biotrol BTB	1	21.3 (52)	46.8 (40)
Biotrol BTB	2	47.1 (43)	81.3 (38)
Biotrol BTB	4	43.8 (94)	86.4 (77)
Biotrol XK	0.5	58.9 (56)	83.8 (48)
Biotrol XK	1.0	61 (78)	78 (58)
Biotrol XK	2.0	79.7 (56)	87 (45)
DiPel	0.5	93.1 (66)	87.7 (60)
DiPel	1.0	91.4 (51)	100 (52)
DiPel	2.0	100 (59)	100 (53)
Untreated	-	0 (67)	0 (28)

*Means of seven plants. Numbers in parentheses are total number of loopers, both alive and dead, observed on plants.

The State Is the Campus for Agricultural Research and Development

Ohio's major soil types and climatic conditions are represented at the Research Center's 13 locations. Thus, Center scientists can make field tests under conditions similar to those encountered by Ohio farmers.

Research is conducted by 15 departments on more than 6500 acres at Center headquarters in Wooster, nine branches, Green Springs Crops Research Unit, Pomerene Forest Laboratory, and The Ohio State University.

Center Headquarters, Wooster, Wayne County: 1953 acres

Eastern Ohio Resource Development Center, Caldwell, Noble County: 2053 acres

Green Springs Crops Research Unit, Green Springs, Sandusky County: 26 acres

Jackson Branch, Jackson, Jackson County: 344 acres

Mahoning County Farm, Canfield: 275 acres

Muck Crops Branch, Willard, Huron County: 15 acres

North Central Branch, Vickery, Erie County: 335 acres

Northwestern Branch, Hoytville, Wood County: 247 acres

Pomerene Forest, Laboratory, Keene Township, Coshocton County: 227 acres

Southeastern Branch, Carpenter, Meigs County: 330 acres

Southern Branch, Ripley, Brown County: 275 acres

Western Branch, South Charleston, Clark County: 428 acres

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STUDY OF EMPLOYMENT OF WOMEN IN THE FEDERAL GOVERNMENT, 1969.

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ABSTRACT - THIS STUDY PRESENTS STATISTICAL DATA ON FULL-TIME FEDERAL CIVILIAN WHITE-COLLAR EMPLOYMENT OF WOMEN BY AGENCY, GRADE OR SALARY EQUIVALENCY, AND OCCUPATIONAL SERIES. WORLD-WIDE DATA WERE COLLECTED IN 1966 AND 1969 AND COMPARED. SOME GAINS IN NUMBER OF WOMEN EMPLOYED AND EMPLOYMENT LEVEL ARE NOTED. A BRIEF BACKGROUND SUMMARY OF THE EMPLOYMENT OF AMERICAN WOMEN IN PUBLIC SERVICE IS INCLUDED IN THE REPORT. (MF)

SM 62-05

STUDY OF EMPLOYMENT OF WOMEN in the FEDERAL GOVERNMENT

1969

Prepared by

U.S. CIVIL SERVICE COMMISSION
BUREAU OF MANPOWER INFORMATION SYSTEMS

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STUDY OF EMPLOYMENT OF WOMEN in the FEDERAL GOVERNMENT

1969

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BACKGROUND

Chronologically, the employment of American women in public service antedates the United States Government itself. A woman postmistress, appointed in 1773, had been in office 14 years when the Constitution was signed. There are other isolated cases on record of women employed in the postal service in the early years of the Nation, but Government service was almost exclusively a man's world until the middle of the 19th century.

The Treasury Department made the first major breakthrough between 1862 and 1868 by hiring a number of "lady clerks". Prejudice was overcome little by little, not by any theoretical considerations of abstract justice but by the job performance of the women themselves. In 1868 one converted Treasury supervisor voiced the conviction of many, that "female clerks are more attentive, diligent, and efficient than males, and make better clerks".

The Civil Service Act of 1883 marked the real turning point in Government careers for women. Under the merit system, established by that Act, women were permitted and even encouraged to compete in civil service examinations on the same basis as men. The first woman appointed to a civil service position made the highest score on the first civil service examination given in Washington in 1883, and received the second appointment.

Equal pay for women lagged far behind equal opportunity to compete in examinations. In 1864 a maximum salary of $600 a year for female clerks in Government was established by law; male clerks were receiving $1,200 to $1,800. Six years later, in 1870, a new law gave department heads permission to pay equal salaries to women for equal work, but very few of them chose to do so. Equality of the sexes with respect to pay finally became a reality when the Classification Act of 1923 established the present pay system whereby the salary rate for each job is determined solely on the basis of the duties and responsibilities that make up the job. The Federal Government was the first among major employers to put into effect the principle of equal pay for equal work.

The last legal barrier to full equality of opportunity for women in the Federal service was removed in 1962. The 1870 law which gave agency heads authority to appoint women to the higher clerkships at the same salaries as men "in their discretion" was interpreted for many years as legal authority for them to request only women, or only men, in filling positions. For a great many positions, and for almost all positions in the higher grades, the agencies asked for men only.

A 1962 ruling by the Attorney General, who reviewed the law following a request by the President's Commission on the Status of Women, declared the former interpretation unjustified and invalid. Then in 1965, in order to preclude any possibility of reversion to the previous policy, Congress repealed the law itself. Consequently, Federal departments and agencies may no longer specify sex in filling any but a very few, specific positions approved by the Civil Service Commission. With the removal of this barrier, the framework for true equality of men and women, with respect to opportunity for appointment and advancement in the Federal service, was finally achieved.

Executive Order 11375, issued in 1967, reinforced the intent of the Federal service to achieve equal opportunity for all persons by adding sex to existing Executive Order 11246, which had prohibited discrimination in Federal employment because of race, color, religion or national origin. This amendment gave the Federal Women's Program the same emphasis throughout Government as all other elements of the Equal Employment Opportunity Program. It gave clear public notice that the program for women, designated as the Federal Women's Program, is a permanent and integral part of the Government's implementation of the equal opportunity policy enunciated in the Civil Rights Act of 1964.

Primary program efforts have been directed toward three main objectives: (1) creating the legal, regulatory, and administrative framework for achieving equality of opportunity without regard to sex; (2) bringing practice in closer accord with merit principles through the elimination of attitudes, customs, and habits which have previously denied women entry into certain occupations, as well as higher-level positions throughout the career service; and (3) encouraging qualified women to compete in examinations for Federal employment and to participate in training programs leading to advancement.

Executive Order 11478 (signed by President Nixon on August 8, 1969), integrates the Federal Women's Program into the overall Equal Employment Opportunity Program and, further, outlines agency and Civil Service Commission responsibility for program elements. Agency Directors of Equal Employment Opportunity are responsible for the development, administration, and evaluation of the overall Equal Employment Opportunity Program, including the Federal Women's Program. The Civil Service Commission provides guidance and leadership to agencies in developing their programs and prescribes the requirements to promote equal opportunity for all.

In this connection the Civil Service Commission has required that agencies designate Federal Women's Program Coordinators or Chairwomen of Federal Women's Programs Committees to provide advice on the special concerns of women and to insure that agency affirmative action plans are designed to eliminate barriers to the full employment of women at all levels and in all occupations. The major thrust of the EEO Program, revitalized by Executive Order 11478, is upward mobility -- a program designed to move employees from lower level clerical positions into technical and professional positions. This requires the development of career systems, elimination of dead-end jobs, and "bridging" between clerical and professional occupations. It also requires a significant emphasis on training opportunities which will have an impact on many of the one-half million women employees who are GS-6, or equivalent, and below. Training at the higher levels, including the Executive Seminar Centers (GS-13 thru GS-15) and the Federal Executive Institutes (GS-16 thru GS-18) is also being emphasized as a vital component of the Federal Women's Program.

Recruiting and hiring statistics reflect progress. Some of the major nation wide examinations used as avenues to career opportunities indicate that more women are taking advantage of opportunities for entry into executive/management positions.

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The Federal Service Entrance Examination (FSEE) is a major vehicle for intake of college graduates into career trainee positions. An indication of the increased interest in women is: women hired from the FSEE increased from 1,445 in 1963 (18 percent of a total of 8,062 selected) to 5,101 in 1969 (39 percent of a total of 10,056 selected).

In Mid-Level Positions (grades 9 thru 12), approximately 9 percent of the 4,364 hires in 1969 were women. This percentage of appointments compares to the 10 percent of women eligibles on these registers.

At the Senior-Level (grades 13 thru 15) in Fiscal Year 1969 there was a total of 820 appointments, of which 64 or about 8 percent were women, as compared to 4 percent of women eligibles on the register.

A profile of women in the Federal white-collar workforce indicates that women are continuing to achieve occasional breakthroughs outside the traditional "women's fields" and into higher level positions. An indication of the progress is shown in the comparison of 1966 and 1969 full-time white-collar employment by General Schedule and equivalent grades in the following table:

FULL-TIME WHITE-COLLAR EMPLOYMENT - GENERAL SCHEDULE AND EQUIVALENT GRADES

	October 31, 1969				October 31, 1966			
Grade Groups	Total Employment	Number of Women	Percent, Women in Grade Group	Percent, Total Women Employed	Total Employment	Number of Women	Percent, Women in Grade Group	Percent, Total Women Employed
1 - 6	1,116,766	517,607	46.3	77.8	1,064,920	492,989	46.3	79.9
7 - 12	682,214	138,065	20.2	20.8	578,218	109,086	18.9	17.7
13 - 15	174,212	6,896	4.0	1.0	138,595	5,045	3.6	0.8
16 and above*	10,198	173	1.7	0.03	9,656	161	1.7	0.02
Ungraded a/	6,402	2,553	39.9	0.4	45,673	9,939	21.8	1.6
Total	1,989,792	665,294	33.4	100.0	1,837,062	617,220	33.6	100.0

* Includes employees whose annual salary rates are above the General Schedule (e.g., Executive Pay Act or Public Law type positions).

a/ For the most part, "ungraded" are support staff to the Federal judges and courts throughout the United States; however, the 1966 figure includes 4th class postmasters and rural carriers of the Post Office Department, most of which would have equated to the 1-6 grade grouping.

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HIGHLIGHTS

- Although the number of full-time white-collar women showed a gain of over 48,000, the total 665,294 represents a slight decrease (percentagewise) to total white-collar employment (down from 33.6 percent in October 1966 to 33.4 in October 1969).

- Women in grades 1 thru 6 or the equivalent increased by 25,000 (5.0 percent) to 517,607, which is comparable to the percentage increase of the overall population at these grades (4.9 percent).

- In grades 7 thru 12, women number 138,065 or 20.2 percent of all employees in this group. These grades showed a gain of 18.0 percent in total employees and 26.6 in the number of women since 1966.

- The largest percentage increase for women (36.7) occurred at the 13 thru 15 level which was up from 5,045 in 1966 to 6,896 in 1969. The number of women employed at this level, however, still represents only one percent of the total women employed in full-time white-collar positions as compared to 12.6 percent for men in the same category.

- Only two occupational groups showed a higher median grade for women than for men: The Medical group - 7 for women and 6 for men; and the Miscellaneous group (positions which are complex or unique) - 6 for women and 5 for men. The same median grade was reported in the Library and Archives group for both men and women (7).

- Although there was a 2.3 percent loss (7,537) in the General Administrative, Clerical, and Office Services occupational group, it is still predominately comprised of women - 315,038 out of the total 450,363. Of that 315,000, slightly more than 87 percent are in the 1 thru 6 grade level. The median grade was 4 for women and 9 for men.

- Women comprised over 50 percent of reported employment in three other groups: Library and Archives (64.7 percent); Medical, Hospital, Dental, and Public Health (54.4 percent); and Personnel Management (53.9 percent).

- The median grade of 11 in the Copyright, Patent, and Trademark and Veterinary Medical Science groups was the highest of all the occupational groups for women. Low proportions of women were reported in both groups (7.3 and 1.3 percent, respectively). The number of women in the Copyright group has remained relatively constant since 1966 (120 to 128 in 1969) but the number of women veterinarians has almost doubled since 1966 (16 in 1966 and 30 in 1969).

- Army and Air Force National Guard Technicians are included for the first time in employment totals. They were converted to Federal civilian employee status in January 1969 by authority of Public Law 90-486. Of the total 17,645 Air Force technicians, 8,928 were white-collar (907 women). Army reported 11,934 white-collar of the total 23,929 full-time technicians. No women technicians were reported by Army.

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STUDY OF EMPLOYMENT OF WOMEN IN THE FEDERAL GOVERNMENT

1969

INTRODUCTION

This study presents statistical information on full-time Federal civilian white-collar employment. 1969 data are compared with that collected in 1966. Both surveys, conducted by the Civil Service Commission, provided for submission by the Federal agencies of comprehensive reports showing full-time employment by agency, grade or salary equivalency, and occupational series as of October 31.

COVERAGE

The data presented in this study are representative of full-time white-collar government employment (General Schedule Classification and other non-wage systems) worldwide. Excluded are employees of the Board of Governors of the Federal Reserve System, members and employees of the Congress, employees of the Central Intelligence Agency and the National Security Agency, and foreign nationals employed overseas. In 1969, as in 1966, data were collected for four major geographic areas only. They are: (1) the Washington, D. C. Metropolitan Area1/; (2) United States (i.e., the 50 states) excluding the Washington, D. C., Metropolitan Area; (3) Territories of the United States; and (4) Foreign Countries.

PRESENTATION AND UTILIZATION OF DATA

Throughout this publication, occupational groups and occupations within groups are those provided for in the Handbook of Occupational Groups and Series of Classes, published by the Civil Service Commission. The exception to this coverage is the Postal Operations Group, encompassed within the single agency Postal Field Service system, which is provided for in the Personnel Handbook, Series P-1, published by the Post Office Department.

The grade distribution data shown in Tables B, C, and D, represent "grades or levels" of the various pay systems considered equivalent to specific General Schedule grades. For those positions not under the General Schedule (GS) pay system, grade equivalency was derived by comparing the GS salary rates with the corresponding salary rates in other pay systems.

Data for employees whose annual salary rates are above the General Schedule (e.g., Executive Pay Act, and some Public Law type positions) are identified in the tables as "ABOVE 18". Employees for whom no grade or salary was

1/ The Washington, D. C., Metropolitan Area includes: the District of Columbia; Montgomery and Prince Georges counties, Maryland; the cities of Alexandria, Fairfax, and Falls Church, and the counties of Arlington, Fairfax, Loudoun, and Prince William, Virginia. Loudoun and Prince William counties were included as of July 1967.

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reported are identified as "UNGRADED". For the most part these are in the Judicial Branch, representing support staff to the Federal judges and courts throughout the United States. In 1966, however, 4th class postmasters and rural carriers were also reported ungraded. All "grades or levels" are listed even though there may be no employment in some instances. Annual salary rates paid under the General Schedule for 1969 and 1966 are shown in the salary table at the end of this publication.

Utilizing the previously described grade equivalencies, occupations within the various pay systems have been classified according to three major categories. These categories, presented in Tables E and F, are based on the level of work performed and are defined as follows:

Category III - Positions in occupations (primarily professional, technical, or administrative at "grade or level" 5 and above) requiring at the entry level:

(a) baccalaureate or higher education; or

(b) equivalent professional, technical, or administrative experience.

Category II - Positions requiring specialized education or experience:

(a) technician positions primarily at "grade or level" 4 and above requiring either specialized experience or specialized education above the high school level; or

(b) clerical, aid, or support positions above the entry levels requiring specialized experience or education.

Category I - Positions requiring minimal specialized education, experience, or skill:

(a) primarily entry level clerical, aid, and support positions "grade or level" 3 and below; or

(b) entry level Postal Field Service positions "grade or level" 5 and below.

Being of a widely varied nature, positions in the general series (GS-301, 501, 1001, 1701, 2001, and 2101) are assigned to the above categories on the following basis:

"grade or level" 9 and above - Category III
"grade or level" 4 through 8 - Category II
"grade or level" 3 and below - Category I

The percent of women in both columns, "Employment 31 October 1969" and "Employment 31 October 1966", represent the percentage of women with respect to total employment for each of those years (i.e., the number of women divided by the total employment for that year). With the exception of Table F,

where zeros are shown, both the "Number" and "%" columns will be blank if there were no women reported.

The "Percent Change" columns reflect increases or decreases in employment for "TOTAL" and "WOMEN" from 1966 to 1969. In both cases, the base for comparisons with 1969 is the 1966 data. The percent change is computed by taking the difference between employment in 1966 and that shown in the corresponding column for 1969 and dividing by the 1966 figures. If the employment in 1969 is larger than that shown for 1966, the result will be positive and represent the percent of increase. On the other hand, if the employment in 1969 is less than that shown in the corresponding column in 1966, the result will be negative and represent the percent of decrease. A minus sign will precede the percentage when a decrease is represented. An asterisk (*) is used in either or both columns, as appropriate, when, for a particular grade or occupation there is no employment in 1966, or the number is so minute in comparison to that reported in 1969 so that the "Percent Change" is difficult to interpret. All percentages have been rounded to the nearest tenth of a percent.

Tables C and H present a comparison of employment by grade and occupational group in 1966 with that reported in 1969 within agencies. A number of executive branch agencies, each having an especially small total employment, were consolidated and are titled "OTHER AGENCIES" for use in these two tables. For the most part, these are agencies that were terminated prior to October 31, 1969, or newly established since October 31, 1966, or had a total employment in 1966 of 25 or less. These agencies, each with their total employment and the number of women, for both 1966 and 1969 are identified in Table I at the end of this publication.

A total of 1,989,792 full-time employees were reported by 108 agencies in over 450 white-collar occupations as of October 31, 1969, of which 665,294 or 33.4 percent were women. This compares with a total of 1,837,062 employees reported as of October 31, 1966, of which 617,220 or 33.6 percent were women, thus reflecting a net increase of 152,730 in total full-time white-collar employment (women increased 48,074 or 7.79 percent). The total net increase includes National Guard Technicians who were converted to civilian status in January 1969.

The white-collar employment presented in detail in the tables that follow represents approximately 76 percent of the total full-time Federal workforce and nearly 93 percent of all full-time women employees. The following figures show the total Federal workforce, full-time and part-time:

	1969			1966		
	Total	Men	Women	Total	Men	Women
Full-Time Employment	2,610,128	1,892,579	717,549	2,466,318	1,800,969	665,349
White-Collar	1,989,792	1,324,498	665,294	1,837,062	1,219,842	617,220
Blue-Collar	620,336	568,081	52,255	629,256	581,127	48,129
Total Full-Time and Part-Time	2,766,992*			2,818,618*		

* Excludes foreign nationals

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FULL-TIME WHITE-COLLAR EMPLOYMENT

BY

AGENCY AND GEOGRAPHIC AREA

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TABLE A

FULL-TIME WHITE COLLAR EMPLOYMENT
BY AGENCY AND GEOGRAPHIC AREA
OCTOBER 31, 1969

AGENCY	D.C. MET AREA			50 STATES A/			TERRITORIES			FOREIGN COUNTRIES		
	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN
ADMIN CONFERENCE OF THE U.S.	7	4	3									
AMER BATTLE MONUMENTS COMM	7	2	5							37	37	
ADVIS COMM ON INTERGOVT RELAT	35	18	17									
ARMS CONTROL & DISARM AGENCY	162	72	90									
ATOMIC ENERGY COMMISSION	2,387	1,427	960	4,655	3,337	1,318	9	6	3	16	11	5
AIR FORCE	6,327	2,829	3,498	149,386	85,377	64,009	1,067	573	494	6,950	2,769	4,181
AGRICULTURE	11,422	6,320	5,102	70,425	55,312	15,113	442	335	107	346	305	41
NAT FOUNDTN ON ARTS & HUMAN	75	21	54									
PRESIDENT'S ADVISORY COUNCIL	24	13	11									
APPALACHIAN REGIONAL COMM	9	5	4									
ARMY	28,125	15,209	12,916	217,935	125,387	92,548	1,271	719	552	14,908	8,100	6,808
COASTAL PLAINS REGIONAL COMM	6	4	2									
BUREAU OF THE BUDGET	509	324	185									
CIVIL AERONAUTICS BOARD	599	353	246	30	28	2						
COMMISSION ON CIVIL RIGHTS	128	50	78	16	8	8						
COUNCIL OF ECONOMIC ADVISERS	46	24	22									
COMMISSION OF FINE ARTS	6	3	3									
COMM ON REF FED CRIMINAL LAWS	8	2	6									
COMMERCE	14,752	8,970	5,782	9,873	7,092	2,781	85	78	7	161	154	7
CIVIL SERVICE COMMISSION	1,975	861	1,114	2,886	1,328	1,558	9	2	7			
NATIONAL COMM ON VIOLENCE	7	2	5									
CANAL ZONE GOVERNMENT							1,553	743	810			
DEFENSE SUPPLY AGENCY	2,231	1,354	877	42,122	24,523	17,599	10	9	1	14	11	3
JUSTICE	10,636	4,941	5,695	23,329	17,206	6,123	222	159	63	178	120	58
LABOR	5,318	2,439	2,879	4,745	3,016	1,729	59	41	18	14	14	
DELAWARE RIVER BASIN COMM	2	1	1									
EXPORT-IMPORT BANK	316	155	161									
EQUAL EMPLOY OPPORTUNITY COMM	247	105	142	309	165	144						
EXECUTIVE MANSION AND GROUNDS	8	5	3									
FED COAL MINE SAFETY BD OF RE	3	1	2									
FEDERAL COMMUNICATIONS COMM	1,080	612	468	384	268	116	6	5	1			
FED DEPOSIT INSURANCE CORP	570	313	257	1,594	1,284	310	1	1				
FEDERAL RADIATION COUNCIL	4	2	2									
FEDERAL HOME LOAN BANK BOARD	425	233	192	772	635	137						
FARM CREDIT ADMINISTRATION	92	53	39	117	80	37						
FED MEDIATN & CONCILATN SERV	68	33	35	366	279	87						
FEDERAL POWER COMMISSION	924	613	311	140	104	36						
FOREIGN CLAIMS SETTLEMT COMM	37	20	17									
FEDERAL TRADE COMMISSION	942	510	432	288	198	90						
ADVISORY COMMISSION ON AN ALL	12	4	8	2	1	1						
FOUR CORNERS REGIONAL COMM	4	3	1	3	2	1						
UPPER GREAT LAKES REG COMM	2	1	1	1	1							
GENERAL SERVICES ADMIN	6,942	4,723	2,219	11,440	6,287	5,153	22	14	8	10	8	2
HEALTH EDUCATION & WELFARE	22,234	10,702	11,532	67,494	25,398	42,096	404	236	168	174	149	25
HOUSING AND URBAN DEVELOPMENT	4,134	1,858	2,276	9,929	6,489	3,440	226	149	77			
U. S. INFORMATION AGENCY	2,988	1,776	1,212	151	100	51				1,216	979	237
INTERSTATE COMMERCE COMM	1,342	776	566	453	295	158						
INDIAN CLAIMS COMMISSION	29	18	11									
INTER-AG COM MEX-AMER AFFAIRS	21	10	11									
INTERIOR	7,796	4,896	2,900	43,534	30,616	12,918	135	113	22	357	314	43
COMM ON INCOME MAINT PROGRAMS	21	6	15									
ATL-PAC INTEROCEAN CANAL COMM	4	2	2									
JUDICIAL BRANCH	844	469	375	5,689	3,413	2,276	54	32	22			
ARCHITECT OF THE CAPITOL	137	95	42									
BOTANIC GARDEN	5	3	2									
LIBRARY OF CONGRESS	3,569	1,681	1,888							16	12	4

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AGENCY	D.C. MET AREA			50 STATES A/			TERRITORIES			FOREIGN COUNTRIES		
	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN
GENERAL ACCOUNTING OFFICE	2,732	1,731	1,001	1,645	1,434	211				92	79	13
GOVERNMENT PRINTING OFFICE	1,422	605	817	57	24	33						
FEDERAL MARITIME COMMISSION	198	119	79	27	20	7						
COUNCIL MARINE RES & ENGR DEV	18	7	11									
NATIONAL AERO & SPACE COUNCIL	22	12	10									
NEW ENGLAND REGIONAL COMMISSI	4	2	2	2	1	1						
NATIONAL SCIENCE FOUNDATION	896	437	459	2	1	1				13	11	2
NAT LABOR RELATIONS BOARD	740	404	336	1,407	855	552	25	13	12			
NATIONAL MEDIATION BOARD	40	26	14	50	10	40						
NAT AERONAUTICS & SPACE ADMIN	5,950	4,528	1,422	22,936	18,638	4,298	2	2		20	19	1
NAT COMM ON PRODUCT SAFETY	29	15	14									
NAT CAPITAL PLANNING COMM	66	37	29									
NATIONAL SECURITY COUNCIL	58	28	30									
NAVY	35,565	21,479	14,086	136,325	80,257	56,068	2,503	1,560	943	2,805	1,372	1,433
NATIONAL WATER COMMISSION	20	11	9									
OFFICE OF EMERGENCY PLANNING	270	161	109	80	49	31						
OTHER DEFENSE ACTIVITIES	4,643	2,920	1,723	5,017	3,483	1,534	2	1	1	255	128	127
OFF OF ECONOMIC OPPORTUNITY	1,281	644	637	929	468	461						
CABINET TASK FORCE ON OIL IMP	9	5	4									
COMM ON OBSCENITY-PORNOGRAPHY	11	5	6									
OFF OF SCIENCE & TECHNOLOGY	49	22	27									
OZARK REGIONAL COMMISSION	3	1	2	2	2							
PANAMA CANAL COMPANY	3	1	2	28	15	13	937	669	268			
COMM ON CONSUMER INTERESTS	20	7	13									
POST OFFICE	17,639	13,066	4,573	604,489	505,321	99,168	2,005	1,831	174	7	4	3
PUBLIC LAND LAW REVIEW COMM	40	26	14									
FED FIELD COM DEV PLAN ALASKA				10	4	6						
RENEGOTIATION BOARD	179	108	71	35	23	12						
AMERICAN REVOLUTION BICENTENN	6	2	4									
RAILROAD RETIREMENT BOARD	10	5	5	1,667	747	920						
SUBVERSIVE ACTIVITIES CONT BD	14	8	6									
SMALL BUSINESS ADMINISTRATION	929	495	434	3,201	1,756	1,445	75	46	29			
SECY OF DEF & JT CHIEFS STAFF	2,151	1,089	1,062	37	27	10				79	51	28
SECURITIES AND EXCHANGE COMM	904	560	344	425	302	123						
U. S. SOLDIERS, HOME	496	322	174									
SMITHSONIAN INSTITUTION	1,661	1,157	504	56	44	12	12	10	2	1	1	
SELECTIVE SERVICE SYSTEM	207	33	174	6,188	325	5,863	143	46	97			
STATE REGULAR	6,213	3,591	2,622	639	337	302				6,451	4,641	1,810
AGCY FOR INTERNATNL DEVELOPMT	3,096	1,595	1,501	69	58	11				4,169	3,399	770
PEACE CORPS	650	264	386	66	44	22	11	5	6	440	398	42
TAX COURT OF THE U S	157	84	73									
U. S. TARIFF COMMISSION	218	123	95	8	6	2						
TRANSPORTATION	8,291	5,565	2,726	45,163	38,848	6,315	730	647	83	306	288	18
OFF SP REP TRADE NEGOTIATIONS	22	8	14									
TREASURY	9,447	5,090	4,357	70,629	39,499	31,130	378	286	92	216	183	33
TENNESSEE VALLEY AUTHORITY	4	2	2	7,354	5,727	1,627				4	4	
US-MEX BORDER DEV-FRIENDSHIP	6	4	2	5	2	3						
VETERANS ADMINISTRATION	4,998	2,723	2,275	109,558	51,394	58,164	596	390	206	26	24	2
WHITE HOUSE CONFERENCE ON FOO	19	3	16									
WHITE HOUSE OFFICE	303	165	138									
WATER RESOURCES COUNCIL	23	14	9	4	4							
PRES COUNCL ON YOUTH OPPORTUN	4	3	1									
TOTALS B/	251,339	144,238	107,101	1,686,178	1,147,954	538,224	12,994	8,721	4,273	39,281	23,585	15,696

	TOTAL	MEN	WOMEN
ALL AREA TOTALS	1,989,792	1,324,498	665,294

A/ EXCLUDES D.C. MET AREA
B/ EXCLUDES FOREIGN NATIONALS OVERSEAS

TABLE A-1

FULL-TIME WHITE COLLAR EMPLOYMENT
BY AGENCY AND GEOGRAPHIC AREA
OCTOBER 31, 1966

AGENCY	D.C. MET AREA			50 STATES A/			TERRITORIES			FOREIGN COUNTRIES		
	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN
AMER BATTLE MONUMENTS COMM	7	3	4							42	41	1
AOVIS COMM ON INTERGOVT RELAT	25	13	12									
ARMS CONTRDL & OISARM AGENCY	165	71	94									
ATOMIC ENERGY COMMISSION	2,137	1,210	927	4,873	3,412	1,461	13	10	3	23	13	10
AIR FORCE	7,570	3,253	4,317	143,807	73,661	70,146	1,762	704	1,058	5,960	2,270	3,690
AGRICULTURE	11,488	6,205	5,283	70,434	54,820	15,614	439	346	93	329	279	50
NAT FOUNDTN ON ARTS & HUMAN	60	20	40									
APPALACHIAN REGIONAL COMM	10	6	4									
ARMY	27,195	13,804	13,391	197,974	106,331	91,643	1,257	557	700	11,923	6,318	5,605
BUREAU OF THE BUDGET	509	324	185									
CIVIL AERONAUTICS BOARD	704	409	295	93	75	18						
COMMISSION ON CIVIL RIGHTS	132	52	80	10	6	4						
COUNCIL OF ECONOMIC ADVISERS	42	22	20									
COMMISSION OF FINE ARTS	6	3	3									
COMMERCE	15,395	9,467	5,928	12,590	9,536	3,054	112	102	10	333	319	14
CIVIL SERVICE COMMISSION	1,848	807	1,041	2,665	1,335	1,330	8	2	6			
CANAL ZONE GOVERNMENT							1,508	760	748			
JUSTICE	9,675	4,264	5,411	21,569	16,016	5,553	209	145	64	172	114	58
LABOR	5,047	2,292	2,755	4,137	2,595	1,542	57	38	19	10	9	1
DELAWARE RIVER BASIN COMM	3	1	2									
EXPORT-IMPORT BANK	288	131	157									
EQUAL EMPLOY OPPORTUNITY COMM	140	61	79	116	78	38						
EXECUTIVE MANSION AND GROUNDS	27	15	12									
FEDERAL AVIATION AGENCY	3,447	2,330	1,117	34,775	30,323	4,452	634	575	59	251	231	20
FED COAL MINE SAFETY BD OF RE	4	1	3									
FEDERAL COMMUNICATIONS COMM	1,033	552	481	408	298	110	5	4	1			
FED DEPOSIT INSURANCE CORP	381	188	193	1,078	872	206	1	1				
FEDERAL RADIATION COUNCIL	4	2	2									
ADVISORY COMM ON FOOD & FIBER	14	7	7									
FEDERAL HOME LOAN BANK BOARD	372	199	173	848	718	130						
FARM CREDIT ADMINISTRATION	95	53	42	118	82	36				1	1	
FED MEDIATN & CONCILATN SERV	71	33	38	370	282	88						
FEDERAL POWER COMMISSION	954	633	321	138	102	36						
FOREIGN CLAIMS SETTLEMT COMM	154	88	66							2	2	
FEDERAL TRADE COMMISSION	849	482	367	252	166	86						
UPPER GREAT LAKES REG COMM	1	1										
GENERAL SERVICES ADMIN	6,378	4,366	2,012	11,139	6,283	4,856	14	12	2	14	11	3
HEALTH EDUCATION & WELFARE	24,598	11,041	13,557	65,254	26,758	38,496	399	222	177	348	300	48
HOUSING AND URBAN DEVELOPMENT	3,642	1,733	1,909	9,956	6,315	3,641	226	154	72	3	3	
U. S. INFORMATION AGENCY	2,858	1,714	1,144	155	103	52				1,355	1,065	290
INTERSTATE COMMERCE COMM	1,516	873	643	800	577	223						
INDIAN CLAIMS COMMISSION	21	14	7									
INTERIOR	7,237	4,422	2,815	43,458	31,159	12,299	111	93	18	419	339	80
ATL-PAC INTEROCEAN CANAL COMM	3	1	2									
JUDICIAL BRANCH	783	369	414	5,098	2,039	3,059	51	40	11			
ARCHITECT OF THE CAPITOL	131	93	38									
BOTANIC GARDEN	5	3	2									
LIBRARY OF CONGRESS	3,212	1,614	1,598							16	10	6
GENERAL ACCOUNTING OFFICE	2,422	1,492	930	1,599	1,403	196				46	42	4
GOVERNMENT PRINTING OFFICE	1,284	601	683	25	10	15						
FEDERAL MARITIME COMMISSION	215	127	88	31	22	9						
COMM ON LABOR-MGMT POLICY	1		1									
COUNCIL MARINE RES & ENGR DEV	5	2	3									
ADVIS COMM ON SELECTIVE SERV	5	3	2									

TABLE A-1

FULL-TIME WHITE COLLAR EMPLOYMENT
BY AGENCY AND GEOGRAPHIC AREA
OCTOBER 31, 1966

AGENCY	D.C. MET AREA			50 STATES A/			TERRITORIES			FOREIGN COUNTRIES		
	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN	TOTAL	MEN	WOMEN
NATIONAL AERD & SPACE COUNCIL	25	13	12									
NAT CAPITAL TRANSP AGENCY	38	28	10	2	2							
NATIONAL SCIENCE FOUNDATION	902	402	500	6	4	2				7	6	1
NAT CAPITAL HOUSING AUTHORITY	194	96	98									
NAT LABOR RELATIONS BOARD	760	419	341	1,459	852	607	32	17	15			
NATIONAL MEDIATION BOARD	37	26	11	60	9	51						
NAT AERONAUTICS & SPACE ADMIN	5,483	3,964	1,519	23,065	17,951	5,114	1	1		21	21	
NAT CAPITAL PLANNING COMM	58	34	24									
NATIONAL SECURITY COUNCIL	38	17	21									
NAVY	28,806	17,079	11,727	113,568	63,198	50,370	1,888	1,169	719	2,018	1,031	987
OFFICE OF EMERGENCY PLANNING	354	208	146									
OTHER DEFENSE ACTIVITIES	6,046	3,590	2,456	46,879	27,091	19,788	6	6		307	139	168
OFF OF ECONOMIC OPPORTUNITY	1,453	665	788	795	374	421						
OFF OF SCIENCE & TECHNOLOGY	38	17	21									
OZARK REGIONAL COMMISSION	3	2	1									
PANAMA CANAL COMPANY	4	1	3	29	16	13	1,071	734	337			
PRES COM EQUAL OPP IN HOUSING	8	3	5									
PRES COMM LAW ENFOR & AO JUST	41	14	27									
COMM ON CONSUMER INTERESTS	18	8	10									
POST OFFICE	14,871	11,970	2,901	534,487	469,559	64,928	1,434	1,281	153			
PRES REVIEW COMM OEV PLAN ALAS	2	1	1									
PUBLIC LAND LAW REVIEW COMM	30	20	10	2	2							
FEO FIELO COM DEV PLAN ALASKA				5	3	2						
RENEGOTIATION BOARD	143	80	63	32	18	14						
RAILROAD RETIREMENT BOARD	9	5	4	1,641	800	841						
SUBVERSIVE ACTIVITIES CONT BO	17	9	8									
SMALL BUSINESS AOMINISTRATION	829	417	412	2,930	1,582	1,408	90	48	42			
SECY OF DEF & JT CHIEFS STAFF	2,293	1,091	1,202	136	87	49	1	1		65	33	32
SECURITIES AND EXCHANGE COMM	837	555	282	478	346	132						
U. S. SOLOIERS' HOME	486	378	108									
ST. LAWRENCE SEAWY OEVELOP CORP				43	21	22						
SMITHSONIAN INSTITUTION	1,473	1,047	426	67	54	13	9	7	2			
CONF ON PROB OF MEX-AMER & PR	1		1									
SELECTIVE SERVICE SYSTEM	210	34	176	6,593	332	6,261	154	46	108			
OEPT OF STATE CONSOLIDATED	10,713	5,796	4,917	769	446	323	36	21	15	11,983	8,911	3,072
TAX COURT OF THE U S	150	74	76									
U. S. TARIFF COMMISSION	260	149	111	8	6	2						
OFF SP REP TRADE NEGOTIATIONS	28	12	16									
TREASURY	10,086	5,211	4,875	70,749	41,111	29,638	379	298	81	243	202	41
TENNESSEE VALLEY AUTHORITY	3		3	6,358	4,924	1,434				4	4	
COMM ON STATUS OF PUERTO RICO	5	2										
VETERANS ADMINISTRATION	5,040	2,828	2,212	108,542	54,352	54,190	473	326	147	32	29	3
WHITE HOUSE OFFICE	249	119	130									
WATER RESOURCES COUNCIL	13	8	5									
TOTALS B/	236,222	131,862	104,360	1,552,533	1,058,517	494,016	12,380	7,720	4,660	35,927	21,743	14,184

	TOTAL	MEN	WOMEN
ALL AREA TOTALS	1,837,062	1,219,842	617,220

A/ EXCLUDES O.C. MET AREA
B/ EXCLUDES FOREIGN NATIONALS OVERSEAS

INDEX

FULL-TIME WHITE-COLLAR EMPLOYMENT

BY

GENERAL SCHEDULE AND EQUIVALENT GRADES

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE 8 BY GENERAL SCHEDULE AND EQUIVALENT GRADES

ALL AGENCIES WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	5,533	3,842	69.4	5,041	3,505	69.5	9.8	9.6
02	25,512	19,500	76.4	55,811	44,900	80.5	- 54.3	- 56.6
03	121,312	95,932	79.1	148,472	111,874	75.4	- 18.3	- 14.2
04	188,134	142,876	75.9	214,936	134,818	62.7	- 12.5	6.0
05	643,013	194,000	30.2	534,561	149,420	28.0	20.3	29.8
06	133,262	61,457	46.1	106,099	48,472	45.7	25.6	26.8
07	150,895	53,979	35.5	132,137	49,159	37.2	14.2	9.0
08	47,862	11,402	23.8	31,252	7,834	25.1	53.1	45.5
09	170,769	42,056	24.6	147,643	29,151	19.7	15.7	44.3
10	25,578	3,560	13.9	21,102	2,643	12.5	21.2	34.7
11	155,386	18,332	11.8	136,868	13,485	9.9	13.5	35.9
12	131,724	9,136	6.9	109,216	6,814	6.2	20.6	34.1
13	98,667	4,290	4.3	78,442	3,155	4.0	25.8	36.0
14	49,127	1,889	3.8	39,741	1,396	3.5	23.6	35.3
15	26,418	717	2.7	20,412	494	2.4	29.4	45.1
16	6,344	115	1.8	6,060	111	1.8	4.7	3.6
17	2,498	37	1.5	2,391	34	1.4	4.5	8.8
18	700	4	.6	622	5	.8	12.5	- 20.0
ABOVE 18	656	17	2.6	583	11	1.9	12.5	54.5
UNGRADED	6,402	2,553	39.9	45,673	9,939	21.8	- 86.0	- 74.3
TOTAL B/	1,989,792	665,294	33.4	1,837,062	617,220	33.6	8.3	7.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

ARCHITECT OF THE CAPITOL — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02				5			-100.0	0.0
03								
04	14	5	35.7	7	3	42.9	100.0	66.7
05	16	10	62.5	19	13	68.4	- 15.8	- 23.1
06	13	6	46.2	14	3	21.4	- 7.1	100.0
07	18	4	22.2	18	4	22.2	0.0	0.0
08	4	3	75.0	6	4	66.7	- 33.3	- 25.0
09	19	10	52.6	19	8	42.1	0.0	25.0
10	3			2			50.0	0.0
11	10	2	20.0	10	1	10.0	0.0	100.0
12	11	2	18.2	6	2	33.3	83.3	0.0
13	12			13			- 7.7	0.0
14	7			2			250.0	0.0
15	2			1			100.0	0.0
16	6			7			- 14.3	0.0
17				1			-100.0	0.0
18								
ABOVE 18	2			1			100.0	0.0
UNGRADED								
TOTAL B/	137	42	30.7	131	38	29.0	4.6	10.5

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

BOTANIC GARDEN — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02								
03								
04	1	1	100.0	1	1	100.0	0.0	0.0
05				1	1	100.0	-100.0	-100.0
06	1	1	100.0				*	*
07								
08								
09				1			-100.0	0.0
10	1						*	0.0
11	1			1			0.0	0.0
12	1			1			0.0	0.0
13								
14								
15								
16								
17								
18								
ABOVE 18								
UNGRADED								
TOTAL B/	5	2	40.0	5	2	40.0	0.0	0.0

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

LIBRARY OF CONGRESS — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	1			4	1	25.0	- 75.0	-100.0
02	89	60	67.4	116	71	61.2	- 23.3	- 15.5
03	260	161	61.9	363	164	45.2	- 28.4	- 1.8
04	442	277	62.7	404	207	51.2	9.4	33.8
05	420	257	61.2	454	303	66.7	- 7.5	- 15.2
06	310	163	52.6	213	128	60.1	45.5	27.3
07	429	254	59.2	386	228	59.1	11.1	11.4
08	75	38	50.7	58	33	56.9	29.3	15.2
09	434	248	57.1	354	196	55.4	22.6	26.5
10	17	9	52.9	30	9	30.0	- 43.3	0.0
11	425	222	52.2	326	144	44.2	30.4	54.2
12	267	111	41.6	215	63	29.3	24.2	76.2
13	180	52	28.9	124	35	28.2	45.2	48.6
14	109	26	23.9	79	13	16.5	38.0	100.0
15	75	9	12.0	61	8	13.1	23.0	12.5
16	25	3	12.0	11			127.3	*
17	18	1	5.6	24	1	4.2	- 25.0	0.0
18	7	1	14.3	5			40.0	*
ABOVE 18	2			1			100.0	0.0
UNGRADED								
TOTAL B/	3,585	1,892	52.8	3,228	1,604	49.7	11.1	18.0

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

GENERAL ACCOUNTING OFFICE — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	14	7	50.0	25	5	20.0	- 44.0	40.0
02	55	47	85.5	69	56	81.2	- 20.3	- 16.1
03	255	205	80.4	285	225	78.9	- 10.5	- 8.9
04	287	233	81.2	279	231	82.8	2.9	.9
05	219	181	82.6	193	165	85.5	13.5	9.7
06	119	110	92.4	108	101	93.5	10.2	8.9
07	305	153	30.3	391	102	26.1	29.2	50.0
08	104	46	44.2	143	64	44.8	- 27.3	- 28.1
09	591	134	22.7	550	115	20.9	7.5	16.5
10	14	5	35.7	32	10	31.3	- 56.3	- 50.0
11	528	78	14.8	629	39	6.2	- 16.1	100.0
12	616	17	2.8	549	10	1.8	12.2	70.0
13	556	5	.9	396	5	1.3	40.4	0.0
14	384	4	1.0	290	1	.3	32.4	300.0
15	156			88	1	1.1	77.3	-100.0
16	44			26			69.2	0.0
17	12			7			71.4	0.0
18	8			4			100.0	0.0
ABOVE 18	2			3			- 33.3	0.0
UNGRADED								
TOTAL B/	4,469	1,225	27.4	4,067	1,130	27.8	9.9	8.4

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES. SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

GOVERNMENT PRINTING OFFICE WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	4	4	100.0	3	1	33.3	33.3	300.0
02	74	62	83.8	93	61	65.6	- 20.4	1.6
03	395	273	69.1	401	216	53.9	- 1.5	26.4
04	334	197	59.0	279	161	57.7	19.7	22.4
05	219	147	67.1	167	120	71.9	31.1	22.5
06	73	46	63.0	67	47	70.1	9.0	- 2.1
07	96	55	57.3	93	51	54.8	3.2	7.8
08	14	11	78.6	7	4	57.1	100.0	175.0
09	65	25	38.5	42	16	38.1	54.8	56.3
10	5	4	80.0	10	3	30.0	- 50.0	33.3
11	56	17	30.4	42	8	19.0	33.3	112.5
12	45	5	11.1	33	5	15.2	36.4	0.0
13	35	1	2.9	20	2	10.0	75.0	- 50.0
14	31	3	9.7	21	2	9.5	47.6	50.0
15	21			16	1	6.3	31.3	-100.0
16	9			10			- 10.0	0.0
17				1			-100.0	0.0
18	1			3			- 66.7	0.0
ABOVE 18	2			1			100.0	0.0
UNGRADED								
TOTAL B/	1,479	850	57.5	1,309	698	53.3	13.0	21.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

JUDICIAL BRANCH — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02	7	6	85.7	2	2	100.0	250.0	200.0
03	8	7	87.5	15	15	100.0	- 46.7	- 53.3
04	15	11	73.3	17	14	82.4	- 11.8	- 21.4
05	29	23	79.3	25	20	80.0	16.0	15.0
06	20	20	100.0	26	25	96.2	- 23.1	- 20.0
07	37	33	89.2	21	15	71.4	76.2	120.0
08	2	2	100.0	6	4	66.7	- 66.7	- 50.0
09	14	9	64.3	15	12	80.0	- 6.7	- 25.0
10	2	1	50.0	2	1	50.0	0.0	0.0
11	9	5	55.6	3	1	33.3	200.0	400.0
12	5	2	40.0	6	3	50.0	- 16.7	- 33.3
13	6	1	16.7	5			20.0	*
14	7			5			40.0	0.0
15	8			4			100.0	0.0
16	1			1			0.0	0.0
17	4			4			0.0	0.0
18	1			1			0.0	0.0
ABOVE 18	10			11			- 9.1	0.0
UNGRADED	6,402	2,553	39.9	5,763	3,372	58.5	11.1	- 24.3
TOTAL B/	6,587	2,673	40.6	5,932	3,484	58.7	11.0	- 23.3

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

WHITE HOUSE OFFICE — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969 TOTAL	WOMEN NUMBER	WOMEN %	EMPLOYMENT 31 OCTOBER 1966 TOTAL	WOMEN NUMBER	WOMEN %	PERCENT CHANGE TOTAL	PERCENT CHANGE WOMEN
01								
02								
03	2			7			- 71.4	0.0
04	9	1	11.1	14	2	14.3	- 35.7	- 50.0
05	23	5	21.7	32	21	65.6	- 28.1	- 76.2
06	27	20	74.1	28	17	60.7	- 3.6	17.6
07	38	24	63.2	32	21	65.6	18.8	14.3
08	27	18	66.7	24	18	75.0	12.5	0.0
09	28	20	71.4	28	20	71.4	0.0	0.0
10	15	11	73.3	13	9	69.2	15.4	22.2
11	23	19	82.6	14	10	71.4	64.3	90.0
12	24	11	45.8	10	8	80.0	140.0	37.5
13	8	3	37.5	8	1	12.5	0.0	200.0
14	18			5	1	20.0	260.0	-100.0
15	14	3	21.4	2	1	50.0	600.0	200.0
16	10			7			42.9	0.0
17	14	3	21.4	9	1	11.1	55.6	200.0
18	1						*	0.0
ABOVE 18	22			16			37.5	0.0
UNGRADED								
TOTAL B/	303	138	45.5	249	130	52.2	21.7	6.2

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

BUREAU OF THE BUDGET — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01				3			-100.0	0.0
02	7	1	14.3	8	1	12.5	- 12.5	0.0
03	2			7	7	100.0	- 71.4	-100.0
04	4	3	75.0	6	4	66.7	- 33.3	- 25.0
05	15	11	73.3	17	14	82.4	- 11.8	- 21.4
06	27	24	88.9	39	36	92.3	- 30.8	- 33.3
07	62	58	93.5	56	51	91.1	10.7	13.7
08	32	32	100.0	24	24	100.0	33.3	33.3
09	97	28	75.7	40	24	60.0	- 7.5	16.7
10	2	1	50.0	2	2	100.0	0.0	- 50.0
11	24	8	33.3	30	3	10.0	- 20.0	166.7
12	97	5	13.5	34	3	8.8	8.8	66.7
13	41	3	7.3	52	7	13.5	- 21.2	- 57.1
14	69	5	7.2	45	4	8.9	53.3	25.0
15	76	4	5.3	71	5	7.0	7.0	- 20.0
16	41	2	4.9	40			2.5	*
17	14			16			- 12.5	0.0
18	14			14			0.0	0.0
ABOVE 18	5			5			0.0	0.0
UNGRADED								
TOTAL B/	509	185	36.3	509	185	36.3	0.0	0.0

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

COUNCIL OF ECONOMIC ADVISERS WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02	1						*	0.0
03	1			1			0.0	0.0
04	2			2	1	50.0	0.0	-100.0
05				2			-100.0	0.0
06	1	1	100.0	3	2	66.7	- 66.7	- 50.0
07	5	3	60.0	7	7	100.0	- 28.6	- 57.1
08	6	6	100.0	3	2	66.7	100.0	200.0
09	7	7	100.0	3	3	100.0	133.3	133.3
10				2	2	100.0	-100.0	-100.0
11	3	3	100.0	2	2	100.0	50.0	50.0
12	2	1	50.0				*	*
13	1			5			- 80.0	0.0
14	2			1			100.0	0.0
15	3			4			- 25.0	0.0
16	4			1	1	100.0	300.0	-100.0
17	4	1	25.0	1			300.0	*
18	1			2			- 50.0	0.0
ABOVE 18	3			3			0.0	0.0
UNGRADED								
TOTAL B/	46	22	47.8	42	20	47.6	9.5	10.0

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

NATIONAL SECURITY COUNCIL — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02								
03	2	1	50.0	1			100.0	*
04	1			1			0.0	0.0
05	5	2	40.0	1			400.0	*
06	2	2	100.0	1	1	100.0	100.0	100.0
07	7	6	85.7	10	7	70.0	- 30.0	- 14.3
08	7	6	85.7	3	3	100.0	133.3	100.0
09	10	9	90.0	8	7	87.5	25.0	28.6
10	1						*	0.0
11	4	3	75.0	2	1	50.0	100.0	200.0
12	2			1			100.0	0.0
13	6	1	16.7	2	2	100.0	200.0	- 50.0
14	2			1			100.0	0.0
15	2			2			0.0	0.0
16	2						*	0.0
17	2			2			0.0	0.0
18	3			2			50.0	0.0
ABOVE 18				1			-100.0	0.0
UNGRADED								
TOTAL B/	58	30	51.7	38	21	55.3	52.6	42.9

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

OFF OF ECONOMIC OPPORTUNITY WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	13	9	69.2	13	5	38.5	0.0	80.0
02	32	27	84.4	41	30	73.2	- 22.0	- 10.0
03	94	82	87.2	120	98	81.7	- 21.7	- 16.3
04	118	101	85.6	187	151	80.7	- 36.9	- 33.1
05	227	196	86.3	351	270	76.9	- 35.3	- 27.4
06	153	137	89.5	157	141	89.8	- 2.5	- 2.8
07	243	171	70.4	262	198	75.6	- 7.3	- 13.6
08	26	24	92.3	25	24	96.0	4.0	0.0
09	180	106	58.9	183	111	60.7	- 1.6	- 4.5
10	2	1	50.0	4	4	100.0	- 50.0	- 75.0
11	189	80	42.3	139	52	37.4	36.0	53.8
12	283	70	24.7	228	59	25.9	24.1	18.6
13	270	54	20.0	211	34	16.1	28.0	58.8
14	216	26	12.0	174	21	12.1	24.1	23.8
15	118	12	10.2	112	10	8.9	5.4	20.0
16	21			12	1	8.3	75.0	-100.0
17	18	2	11.1	15			20.0	*
18	6			9			- 33.3	0.0
ABOVE 18	1			5			- 80.0	0.0
UNGRADED								
TOTAL B/	2,210	1,098	49.7	2,248	1,209	53.8	- 1.7	- 9.2

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

OFFICE OF EMERGENCY PREPARED WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02	2	1	50.0	1			100.0	*
03	9	8	88.9	8	5	62.5	12.5	60.0
04	9	7	77.8	19	17	89.5	- 52.6	- 58.8
05	15	13	86.7	26	20	76.9	- 42.3	- 35.0
06	31	29	93.5	29	26	89.7	6.9	11.5
07	36	28	77.8	31	23	74.2	16.1	21.7
08	13	12	92.3	15	15	100.0	- 13.3	- 20.0
09	24	20	83.3	21	19	90.5	14.3	5.3
10	4	4	100.0	3	3	100.0	33.3	33.3
11	21	11	52.4	19	12	63.2	10.5	- 8.3
12	13	5	38.5	20	2	10.0	- 35.0	150.0
13	25	1	4.0	16	2	12.5	56.3	- 50.0
14	30	1	3.3	43	1	2.3	- 30.2	0.0
15	88			73	1	1.4	20.5	-100.0
16	9			6			50.0	0.0
17	10			12			- 16.7	0.0
18	7			7			0.0	0.0
ABOVE 18	4			5			- 20.0	0.0
UNGRADED								
TOTAL B/	350	140	40.0	354	146	41.2	- 1.1	- 4.1

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7786

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

OFF OF SCIENCE & TECHNOLOGY — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02	1						*	0.0
03								
04	1	1	100.0	1			0.0	*
05	2	1	50.0	2	2	100.0	0.0	- 50.0
06	3	3	100.0	2	2	100.0	50.0	50.0
07	3	3	100.0	6	6	100.0	- 50.0	- 50.0
08	14	14	100.0	7	7	100.0	100.0	100.0
09	4	3	75.0	2	2	100.0	100.0	50.0
10	1	1	100.0	1	1	100.0	0.0	0.0
11				1			-100.0	0.0
12	1	1	100.0	1	1	100.0	0.0	0.0
13								
14				2			-100.0	0.0
15	3						*	0.0
16	2			2			50.0	0.0
17	4			1			300.0	0.0
18	7			8			- 12.5	0.0
ABOVE 18	2			2			0.0	0.0
UNGRADED								
TOTAL B/	49	27	55.1	38	21	55.3	28.9	28.6

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

OFF SP REP TRADE NEGOTIATIONS WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02								
03								
04	1	1	100.0				*	*
05				1	1	100.0	-100.0	-100.0
06				1	1	100.0	-100.0	-100.0
07				1	1	100.0	-100.0	-100.0
08	4	4	100.0	2	2	100.0	100.0	100.0
09	5	5	100.0	7	7	100.0	- 28.6	- 28.6
10								
11	1	1	100.0	3	3	100.0	- 66.7	- 66.7
12	2	2	100.0	1	1	100.0	100.0	100.0
13	1			2			- 50.0	0.0
14	1			2			- 50.0	0.0
15	2	1	50.0				*	*
16	1			2			- 50.0	0.0
17	1			2			- 50.0	0.0
18	1			2			- 50.0	0.0
ABOVE 18	2			2			0.0	0.0
UNGRADED								
TOTAL B/	22	14	63.6	28	16	57.1	- 21.4	- 12.5

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

STATE CONSOLIDATED (INCL. AID & PEACE CORPS) WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	15	10	66.7	15	10	66.7	0.0	0.0
02	136	71	52.2	169	95	56.2	- 19.5	- 25.3
03	237	181	76.4	345	286	82.9	- 31.3	- 36.7
04	592	472	79.7	875	681	77.8	- 32.3	- 30.7
05	963	702	72.9	1,801	1,340	74.4	- 46.5	- 47.6
06	1,562	1,098	70.3	2,021	1,413	69.9	- 22.7	- 22.3
07	2,137	1,400	65.5	2,589	1,474	56.9	- 17.5	- 5.0
08	1,571	939	59.8	1,173	680	58.0	33.9	38.1
09	2,136	974	45.6	2,057	879	42.4	3.8	11.6
10	1,704	398	23.4	41	26	63.4	56.1	430.8
11	431	246	57.1	1,931	490	25.4	- 77.7	- 49.8
12	2,437	383	15.7	2,203	374	17.0	10.6	2.4
13	2,928	343	11.7	2,780	334	12.0	5.3	2.7
14	2,599	173	6.7	2,752	171	6.2	- 5.6	1.2
15	443	36	8.1	439	36	8.2	.9	0.0
16	1,183	37	3.1	1,343	30	2.2	- 11.9	23.3
17	548	5	.9	790	13	1.6	- 30.6	- 61.5
18	10			18	1	5.6	- 44.4	-100.0
ABOVE 18	172	4	2.3	159			8.2	*
UNGRADED								
TOTAL B/	21,804	7,472	34.3	23,501	8,327	35.4	- 7.2	- 10.3

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

TREASURY — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	247	171	69.2	446	335	75.1	- 44.6	- 49.0
02	2,746	2,407	87.7	3,532	3,056	86.5	- 22.3	- 21.2
03	7,804	6,941	88.9	8,321	7,181	86.3	- 6.2	- 3.3
04	8,958	7,788	86.9	9,445	7,957	84.2	- 5.2	- 2.1
05	8,766	6,686	76.3	8,545	6,215	72.7	2.6	7.6
06	4,881	3,828	78.4	4,415	3,406	77.1	10.6	12.4
07	6,906	3,544	51.3	7,785	3,117	40.0	- 11.3	13.7
08	1,089	520	47.8	879	407	46.3	23.9	27.8
09	9,846	2,274	23.1	10,536	1,855	17.6	- 6.5	22.6
10	662	112	16.9	675	140	20.7	- 1.9	- 20.0
11	10,479	818	7.8	10,854	567	5.2	- 3.5	44.3
12	8,378	328	3.9	7,192	252	3.5	16.5	30.2
13	6,126	137	2.2	5,326	100	1.9	15.0	37.0
14	2,349	39	1.7	2,086	23	1.1	12.6	69.6
15	1,047	16	1.5	1,028	19	1.8	1.8	- 15.8
16	228			232	2	.9	- 1.7	-100.0
17	101	2	2.0	97	1	1.0	4.1	100.0
18	40	1	2.5	45	2	4.4	- 11.1	- 50.0
ABOVE 18	19			18			5.6	0.0
UNGRADED								
TOTAL B/	80,670	35,612	44.1	81,457	34,635	42.5	- 1.0	2.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

SECY OF DEF & JT CHIEFS STAFF WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01				1			-100.0	0.0
02	5	3	60.0	11	3	27.3	- 54.5	0.0
03	21	13	61.9	79	59	74.7	- 73.4	- 78.0
04	57	45	78.9	120	106	88.3	- 52.5	- 57.5
05	157	116	73.9	243	200	82.3	- 35.4	- 42.0
06	357	335	93.8	410	391	95.4	- 12.9	- 14.3
07	346	319	92.2	319	294	92.2	8.5	8.5
08	109	107	98.2	85	83	97.6	28.2	28.9
09	112	80	71.4	121	76	62.8	- 7.4	5.3
10	19	17	89.5	12	11	91.7	58.3	54.5
11	72	34	47.2	75	30	40.0	- 4.0	13.3
12	55	13	23.6	66	10	15.2	- 16.7	30.0
13	89	11	12.4	137	11	8.0	- 35.0	0.0
14	175	3	1.7	196	6	3.1	- 10.7	- 50.0
15	442	4	.9	369	3	.8	19.8	33.3
16	112			108			3.7	0.0
17	78			74			5.4	0.0
18	40			45			- 11.1	0.0
ABOVE 18	21			24			- 12.5	0.0
UNGRADED								
TOTAL B/	2,267	1,100	48.5	2,495	1,283	51.4	- 9.1	- 14.3

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES
(INCL. ATL.-PAC. INTEROCEAN
ARMY CANAL STUDY COMM.) WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN		TOTAL	WOMEN
		NUMBER	%		NUMBER	%		
01	190	127	66.8	553	365	66.0	- 65.6	- 65.2
02	5,158	4,191	81.3	15,389	13,148	85.4	- 66.5	- 68.1
03	24,035	20,441	85.0	30,476	25,332	83.1	- 21.1	- 19.3
04	37,830	29,343	77.6	34,028	25,008	73.5	11.2	17.3
05	35,752	24,701	69.1	32,049	21,795	68.0	11.6	13.3
06	19,841	9,427	47.5	14,505	8,560	59.0	36.8	10.1
07	25,635	10,702	41.7	20,345	7,630	37.5	26.0	40.3
08	5,190	1,959	37.7	3,044	1,049	34.5	70.5	86.7
09	27,212	5,946	21.9	22,675	4,423	19.5	20.0	34.4
10	2,758	386	14.0	2,184	324	14.8	26.3	19.1
11	29,188	3,543	12.1	25,208	2,446	9.7	15.8	45.0
12	25,225	1,560	6.2	19,214	928	4.8	31.3	68.1
13	15,671	430	2.7	11,586	282	2.4	35.3	52.5
14	5,975	60	1.0	4,897	47	1.0	22.0	27.7
15	2,206	8	.4	1,855	5	.3	18.9	60.0
16	233			251			- 7.2	0.0
17	105			61			72.1	0.0
18	31	2	6.5	25	1	4.0	24.0	100.0
ABOVE 18	8			7			14.3	0.0
UNGRADED								
TOTAL B/	262,243	112,826	43.0	238,352	111,341	46.7	10.0	1.3

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

NAVY — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	297	196	66.0	318	169	53.1	- 6.6	16.0
02	4,278	3,200	74.8	6,469	5,102	78.9	- 33.9	- 37.3
03	20,571	17,453	84.8	20,488	16,783	81.9	.4	4.0
04	27,370	19,305	70.5	23,780	16,367	68.8	15.1	18.0
05	21,239	14,245	67.1	17,704	11,877	67.1	20.0	19.9
06	7,847	5,131	65.4	6,577	4,391	66.8	19.3	16.9
07	14,097	5,674	40.2	11,276	4,119	36.5	25.0	37.8
08	2,834	864	30.5	1,544	529	34.3	83.5	63.3
09	19,999	3,144	15.7	15,787	2,349	14.9	26.7	33.8
10	2,208	177	8.0	1,230	128	10.4	79.5	38.3
11	20,295	1,867	9.2	15,520	1,223	7.9	30.8	52.7
12	16,745	844	5.0	12,217	498	4.1	37.1	69.5
13	11,917	331	2.8	8,421	187	2.2	41.5	77.0
14	4,821	78	1.6	3,227	64	2.0	49.4	21.9
15	2,192	19	.9	1,335	15	1.1	64.2	26.7
16	310	2	.6	243	1	.4	27.6	100.0
17	132			113	1	.9	16.8	-100.0
18	39			25			56.0	0.0
ABOVE 18	7			6			16.7	0.0
UNGRADED								
TOTAL B/	177,198	72,530	40.9	146,280	63,803	43.6	21.1	13.7

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES. SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C

BY GENERAL SCHEDULE AND EQUIVALENT GRADES

AIR FORCE

WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	245	204	83.3	170	118	69.4	44.1	72.9
02	1,479	1,238	83.7	7,158	6,522	91.1	- 79.3	- 81.0
03	14,936	13,155	88.1	19,686	17,433	88.6	- 24.1	- 24.5
04	23,307	19,771	84.8	26,469	22,054	83.3	- 11.9	- 10.4
05	23,999	17,431	72.6	21,977	15,389	70.0	9.2	13.3
06	9,007	5,747	63.8	6,925	5,288	76.4	30.1	8.7
07	14,925	6,034	40.4	13,115	5,137	39.2	13.8	17.5
08	4,095	916	22.4	1,514	579	38.2	170.5	58.2
09	21,850	4,313	19.7	19,900	3,987	20.0	9.8	8.2
10	1,532	202	13.2	1,013	128	12.6	51.2	57.8
11	19,109	1,971	10.3	16,939	1,662	9.8	12.8	18.6
12	14,771	886	6.0	12,395	694	5.6	19.2	27.7
13	9,601	269	2.8	7,651	189	2.5	25.5	42.3
14	3,370	39	1.2	2,855	27	.9	18.0	44.4
15	1,196	6	.5	1,042	3	.3	14.8	100.0
16	186			185	1	.5	.5	-100.0
17	95			92			3.3	0.0
18	20			8			150.0	0.0
ABOVE 18	7			5			40.0	0.0
UNGRADED								
TOTAL B/	163,730	72,182	44.1	159,099	79,211	49.8	2.9	- 8.9

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES (INCL. DEFENSE SUPPLY AGENCY) WORLDWIDE

OTHER DEFENSE ACTIVITIES

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	109	84	77.1	217	183	84.3	- 49.8	- 54.1
02	842	729	86.6	1,981	1,749	88.3	- 57.5	- 58.3
03	3,365	2,964	88.1	4,868	4,235	87.0	- 30.9	- 30.0
04	7,093	6,103	86.0	6,922	5,922	85.6	2.5	3.1
05	6,265	4,906	78.3	6,280	4,698	74.8	- .2	4.4
06	1,849	1,499	81.1	1,605	1,302	81.1	15.2	15.1
07	4,425	2,140	48.4	4,537	1,759	38.8	- 2.5	21.7
08	478	232	48.5	688	179	26.0	- 30.5	29.6
09	9,085	1,701	18.7	8,812	1,259	14.3	3.1	35.1
10	415	50	12.0	930	46	4.9	- 55.4	8.7
11	9,529	946	9.9	7,697	671	8.7	23.8	41.0
12	5,711	350	6.1	4,612	301	6.5	23.8	16.3
13	3,202	137	4.3	2,467	92	3.7	29.8	48.9
14	1,249	24	1.9	1,057	16	1.5	18.2	50.0
15	586			482			21.6	0.0
16	61			63			- 3.2	0.0
17	21			13			61.5	0.0
18	6			4			50.0	0.0
ABOVE 18	3			3			0.0	0.0
UNGRADED								
TOTAL B/	54,294	21,865	40.3	53,238	22,412	42.1	2.0	- 2.4

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

JUSTICE — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	26	20	76.9	47	23	48.9	- 44.7	- 13.0
02	657	445	67.7	870	586	67.4	- 24.5	- 24.1
03	3,364	2,616	77.8	3,442	2,749	79.9	- 2.3	- 4.8
04	3,339	2,869	85.9	3,217	2,707	84.1	3.8	6.0
05	3,453	2,829	81.9	3,375	2,609	77.3	2.3	8.4
06	2,174	1,417	65.2	1,751	1,100	62.8	24.2	28.8
07	3,483	863	24.8	3,745	642	17.1	- 7.0	34.4
08	2,052	305	14.9	1,728	245	14.2	18.8	24.5
09	2,385	239	10.0	2,348	197	8.4	1.6	21.3
10	1,817	59	3.2	1,441	59	4.1	26.1	0.0
11	2,933	102	3.5	2,304	60	2.6	27.3	70.0
12	2,068	73	3.5	1,222	42	3.4	69.2	73.8
13	4,321	43	1.0	4,326	29	.7	- .1	48.3
14	1,168	38	3.3	1,052	21	2.0	11.0	81.0
15	788	16	2.0	452	12	2.7	74.3	33.3
16	175	2	1.1	178	4	2.2	- 1.7	- 50.0
17	101	2	2.0	76	1	1.3	32.9	100.0
18	96			30			20.0	0.0
ABOVE 18	25	1	4.0	21			19.0	*
UNGRADED								
TOTAL B/	34,365	11,939	34.7	31,625	11,086	35.1	8.7	7.7

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

POST OFFICE — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	3,298	2,363	71.6	1	1	100.0	700.0	200.0
02	843	570	67.6	12	10	83.3	925.0	600.0
03	998	660	66.1	58	30	51.7	620.7	100.0
04	7,329	5,820	79.4	40,757	6,330	15.5	- 82.0	- 8.1
05	481,300	81,393	16.9	379,710	45,843	12.1	26.8	77.5
06	51,955	9,376	18.0	43,236	6,697	15.5	20.2	40.0
07	30,806	2,127	6.9	17,328	1,499	8.7	77.8	41.9
08	19,813	854	4.3	10,798	756	7.0	83.5	13.0
09	13,869	439	3.2	8,371	352	4.2	65.7	24.7
10	4,766	96	2.0	3,983	101	2.5	19.7	5.0
11	2,818	111	3.9	2,378	70	2.9	18.5	58.6
12	3,119	61	2.0	2,639	41	1.6	18.2	48.8
13	2,136	34	1.6	1,490	21	1.4	43.4	61.9
14	551	8	1.5	406	5	1.2	35.7	60.0
15	346	3	.9	244	3	1.2	41.8	0.0
16	140	3	2.1	64	1	1.6	118.8	200.0
17	31			29	1	3.4	6.9	-100.0
18	11			11			0.0	0.0
ABOVE 18	11			10			10.0	0.0
UNGRADED				39,267	6,221	15.8	-100.0	-100.0
TOTAL B/	624,140	103,918	16.6	550,792	67,982	12.3	13.3	52.9

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

INTERIOR (INCL. EXEC. MANSION AND GROUNDS) WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	71	35	49.3	244	44	18.0	- 70.9	- 20.5
02	750	304	40.5	960	374	39.0	- 21.9	- 18.7
03	3,010	2,073	68.9	3,732	2,481	66.5	- 19.3	- 16.4
04	5,352	3,754	70.1	5,629	3,714	66.0	- 4.9	1.1
05	5,798	3,474	59.9	6,684	3,470	51.9	- 13.3	.1
06	2,399	1,440	60.0	1,986	1,155	58.2	20.8	24.7
07	5,210	1,697	32.6	6,153	1,927	31.3	- 15.3	- 11.9
08	584	205	35.1	320	129	40.3	82.5	58.9
09	7,738	1,946	25.1	7,452	1,176	15.8	3.8	65.5
10	378	51	13.5	208	49	23.6	81.7	4.1
11	7,090	514	7.3	6,692	400	6.0	5.1	28.5
12	6,262	242	3.9	5,426	195	3.6	15.4	24.1
13	3,837	98	2.6	3,270	70	2.1	17.3	40.0
14	2,094	36	1.7	1,568	27	1.7	33.5	33.3
15	1,081	16	1.5	732	11	1.5	47.7	45.5
16	142			109	1	.9	30.3	-100.0
17	92	1	1.9	44	1	2.3	18.2	0.0
18	23			23			0.0	0.0
ABOVE 18	19			18			5.6	0.0
UNGRADED								
TOTAL B/	51,830	15,886	30.7	51,252	15,224	29.7	1.1	4.3

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

AGRICULTURE — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	96	55	57.3	108	55	50.9	- 11.1	0.0
02	1,025	511	49.9	1,491	1,085	72.8	- 31.3	- 52.9
03	4,329	3,121	72.1	6,896	4,783	69.4	- 37.2	- 34.7
04	9,259	7,000	75.6	9,949	6,834	68.7	- 6.9	2.4
05	8,962	4,286	47.9	10,800	9,947	96.5	- 17.2	8.6
06	4,389	1,542	35.1	3,946	1,262	32.0	11.2	22.2
07	13,034	1,962	15.1	12,001	1,585	13.2	8.6	23.8
08	1,008	169	16.8	980	138	14.1	2.9	22.5
09	12,636	799	6.3	12,415	625	5.0	1.8	27.3
10	192	25	13.0	122	18	14.8	57.4	38.9
11	11,718	441	3.8	10,364	340	3.3	13.1	29.7
12	7,753	257	3.3	6,654	217	3.3	16.2	18.4
13	4,745	133	2.8	3,972	97	2.4	19.5	37.1
14	2,219	52	2.3	1,911	42	2.2	16.1	23.8
15	1,023	13	1.3	842	12	1.4	21.5	8.3
16	185	2	1.1	149			24.2	*
17	60	1	1.7	48	1	2.1	25.0	0.0
18	25			27			- 7.4	0.0
ABOVE 18	17			15	1	6.7	13.3	-100.0
UNGRADED								
TOTAL B/	82,635	20,369	24.6	82,690	21,060	25.4	- .1	- 3.2

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

COMMERCE — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	108	72	66.7	156	28	17.9	- 30.8	157.1
02	729	535	73.4	928	637	68.6	- 21.4	- 16.0
03	1,591	1,228	80.2	2,172	1,611	74.2	- 29.3	- 23.8
04	1,859	1,459	78.5	2,249	1,633	72.6	- 17.3	- 10.7
05	2,260	1,703	75.4	2,803	1,794	64.0	- 19.4	- 5.1
06	1,336	1,010	75.6	1,565	1,060	67.7	- 14.6	- 4.7
07	1,875	855	45.6	2,664	818	30.7	- 29.6	4.5
08	834	217	26.0	442	169	38.2	88.7	28.4
09	3,206	599	18.7	3,475	527	15.2	- 7.7	13.7
10	451	34	7.5	239	26	10.9	88.7	30.8
11	2,338	346	14.8	2,740	309	11.3	- 14.7	12.0
12	2,578	257	10.0	3,187	202	6.3	- 19.1	27.2
13	2,430	159	6.5	2,803	118	4.2	- 13.3	34.7
14	1,730	75	4.3	1,515	50	3.3	14.2	50.0
15	1,201	25	2.1	1,111	21	1.9	8.1	19.0
16	259	3	1.2	228	3	1.3	13.6	0.0
17	98			100			- 2.0	0.0
18	31			34			- 8.8	0.0
ABOVE 18	17			19			- 10.5	0.0
UNGRADED								
TOTAL B/	24,871	8,577	34.5	28,430	9,006	31.7	- 12.5	- 4.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

LABOR — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	94	51	54.4	22	10	45.5	145.5	+10.0
02	150	125	83.3	165	127	77.0	- 9.1	- 1.6
03	488	401	82.2	654	554	84.7	- 25.4	- 27.6
04	764	658	86.1	906	793	87.5	- 15.7	- 17.0
05	1,323	1,171	88.5	1,408	1,206	85.7	- 6.0	- 2.9
06	622	589	94.7	426	406	95.3	46.0	45.1
07	656	448	68.3	685	407	59.4	- 4.2	10.1
08	74	65	87.8	46	38	82.6	60.9	71.1
09	692	329	52.1	642	238	37.1	- 1.6	38.2
10	24	20	83.3	9	9	100.0	166.7	122.2
11	991	265	26.7	1,253	176	14.0	- 20.9	50.6
12	1,767	210	11.9	1,132	149	13.2	56.1	40.9
13	1,110	155	14.0	978	128	13.1	13.5	21.1
14	918	89	9.7	525	48	9.1	74.9	85.4
15	448	42	9.4	312	20	6.4	43.6	110.0
16	67	6	9.0	45	4	8.9	48.9	50.0
17	28	2	7.1	28	3	10.7	0.0	- 33.3
18	8			5			60.0	0.0
ABOVE 18	12			10	1	10.0	20.0	-100.0
UNGRADED								
TOTAL B/	10,136	4,626	45.6	9,251	4,317	46.7	9.6	7.2

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

HEALTH EDUCATION & WELFARE — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	132	86	65.2	467	368	78.8	- 71.7	- 76.6
02	765	593	77.5	5,286	4,597	87.0	- 85.5	- 87.1
03	8,610	7,490	87.0	12,178	9,928	81.5	- 29.3	- 24.6
04	12,776	10,844	84.9	12,852	10,334	80.4	- .6	4.9
05	10,808	8,744	80.9	13,473	10,553	78.3	- 19.8	- 17.1
06	10,115	8,942	88.4	4,120	3,406	82.7	145.5	162.5
07	6,964	4,888	70.2	6,618	4,022	60.8	5.2	21.5
08	2,509	1,613	64.3	1,801	980	54.4	39.3	64.6
09	9,211	5,036	54.7	8,642	3,930	45.5	6.6	28.1
10	2,942	1,045	35.5	4,482	942	21.0	- 34.4	10.9
11	6,946	1,782	25.7	5,789	1,159	19.9	20.0	54.6
12	6,583	1,048	15.9	5,600	746	13.3	17.6	40.9
13	4,959	875	17.6	3,739	715	19.1	32.6	22.4
14	3,904	613	15.5	3,445	450	13.1	13.1	36.2
15	2,026	180	8.9	1,197	109	9.1	69.3	65.1
16	775	35	4.5	735	42	5.7	5.4	16.7
17	121	5	4.1	99	2	2.0	22.2	150.0
18	71			50	1	2.0	42.0	-100.0
ABOVE 18	29	2	6.9	26	2	7.7	11.5	0.0
UNGRADED								
TOTAL B/	90,306	53,821	59.6	90,599	52,278	57.7	- .3	3.0

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

HOUSING AND URBAN DEVELOPMENT WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	16	11	68.8	11	4	36.4	45.5	175.0
02	142	121	85.2	177	127	71.8	- 19.8	- 4.7
03	701	588	83.9	956	781	81.7	- 26.7	- 24.7
04	1,462	1,307	89.4	1,713	1,568	91.5	- 14.7	- 16.6
05	1,543	1,345	87.2	1,706	1,427	83.6	- 9.6	- 5.7
06	798	705	88.3	563	491	87.2	41.7	43.6
07	878	616	70.2	827	537	64.9	6.2	14.7
08	135	112	83.0	99	70	70.7	36.4	60.0
09	1,283	388	30.2	2,316	296	12.7	- 44.6	32.0
10	43	23	53.5	118	14	11.9	- 63.6	64.3
11	2,656	252	9.5	1,896	149	7.9	40.1	69.1
12	1,885	152	8.1	1,563	90	5.8	20.6	68.9
13	1,407	103	7.3	1,060	44	4.2	32.7	134.1
14	786	46	5.9	489	18	3.7	60.7	155.6
15	448	23	5.1	252	6	2.4	77.8	283.3
16	57			48			18.8	0.0
17	25	1	4.0	16	1	6.3	56.3	0.0
18	6			4			50.0	0.0
ABOVE 18	18			13	1	7.7	38.5	-100.0
UNGRADED								
TOTAL B/	14,289	5,793	40.5	13,827	5,622	40.7	3.3	3.0

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

TRANSPORTATION — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	30	17	56.7					
02	185	137	74.1					
03	1,074	858	79.9					
04	2,677	2,249	84.0					
05	3,241	2,418	74.6					
06	1,687	1,213	71.9					
07	3,299	939	28.5					
08	287	151	52.6					
09	6,366	504	7.7					
10	2,288	78	3.4					
11	10,707	285	2.7					
12	8,432	173	2.1					
13	8,287	84	1.0					
14	3,874	24	.6					
15	1,510	7	.5					
16	184	1	.5					
17	98	1	1.0					
18	41							
ABOVE 18	23	1	4.3					
UNGRADED								
TOTAL B/	54,490	9,142	16.8					

NOTE

THE DEPARTMENT OF TRANSPORTATION WAS ACTIVATED IN APRIL 1967.

EFFECTIVE APRIL 1967 THE FEDERAL AVIATION AGENCY (43,122 EMPLOYEES) AND THE ST. LAWRENCE SEAWAY DEVELOPMENT CORPORATION (155 EMPLOYEES) TRANSFERRED IN THEIR ENTIRETY TO THE DEPARTMENT OF TRANSPORTATION.

IN ADDITION, OPERATING UNITS OF THE FOLLOWING DEPARTMENTS AND AGENCIES (TOTAL OF 12,274 EMPLOYEES) WERE ALSO TRANSFERRED TO THE NEW DEPARTMENT:

DEPARTMENT OF COMMERCE
DEPARTMENT OF THE INTERIOR
DEPARTMENT OF THE TREASURY
CIVIL AERONAUTICS BOARD
INTERSTATE COMMERCE COMMISSION

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

ADVIS COMM ON INTERGOVT RELAT WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02								
03								
04								
05	2	1	50.0	2	1	50.0	0.0	0.0
06	7	6	85.7	6	6	100.0	16.7	0.0
07	7	5	71.4	2	1	50.0	250.0	400.0
08	1	1	100.0	1	1	100.0	0.0	0.0
09	1	1	100.0	1	1	100.0	0.0	0.0
10				1	1	100.0	-100.0	-100.0
11	3	2	66.7	1			200.0	*
12	2	1	50.0	1	1	100.0	100.0	0.0
13	1			1			0.0	0.0
14	1			1			0.0	0.0
15	4			4			0.0	0.0
16	1			1			0.0	0.0
17	3			2			50.0	0.0
18	1			1			0.0	0.0
ABOVE 18	1						*	0.0
UNGRADED								
TOTAL B/	35	17	48.6	25	12	48.0	40.0	41.7

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

AMER BATTLE MONUMENTS COMM WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	1						*	0.0
02				1			-100.0	0.0
03	1						*	0.0
04	1	1	100.0	7	2	28.6	- 85.7	- 50.0
05	1	1	100.0	12			- 91.7	*
06	10	1	10.0	10	2	20.0	0.0	- 50.0
07	9	1	11.1	11	1	9.1	- 18.2	0.0
08	11			3			266.7	0.0
09	7	1	14.3	3			133.3	*
10								
11	1						*	0.0
12				1			-100.0	0.0
13	2			1			100.0	0.0
14								
15								
16								
17								
18								
ABOVE 18								
UNGRADED								
TOTAL B/	44	5	11.4	49	5	10.2	- 10.2	0.0

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7806

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

ARMS CONTROL & DISARM AGENCY — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02	3			1			200.0	0.0
03	6	6	100.0	20	18	90.0	- 70.0	- 66.7
04	9	8	88.9	16	16	100.0	- 43.8	- 50.0
05	22	20	90.9	20	18	90.0	10.0	11.1
06	9	9	100.0	6	6	100.0	50.0	50.0
07	18	16	88.9	13	13	100.0	38.5	23.1
08	3	3	100.0	1	1	100.0	200.0	200.0
09	14	12	85.7	16	12	75.0	- 12.5	0.0
10	4	4	100.0	5	5	100.0	- 20.0	- 20.0
11	6	5	83.3	2	1	50.0	200.0	400.0
12	6	6	100.0	8	2	25.0	- 25.0	200.0
13	9	1	11.1	8	1	12.5	12.5	0.0
14	11			8			37.5	0.0
15	19			21	1	4.8	- 9.5	-100.0
16	5			9			- 44.4	0.0
17	11			3			266.7	0.0
18	3			3			0.0	0.0
ABOVE 18	4			5			- 20.0	0.0
UNGRADED								
TOTAL B/	162	90	55.6	165	94	57.0	- 1.8	- 4.3

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7807

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

ATOMIC ENERGY COMMISSION — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	2	2	100.0	4	3	75.0	- 50.0	- 33.3
02	42	31	73.8	91	66	72.5	- 53.8	- 53.0
03	193	111	83.5	225	184	81.8	- 40.9	- 39.7
04	407	299	73.5	521	391	75.0	- 21.9	- 23.5
05	910	571	62.7	947	587	62.0	- 3.9	- 2.7
06	635	507	79.8	643	483	75.1	- 1.2	5.0
07	466	333	71.5	459	313	68.2	1.5	6.4
08	169	114	67.5	227	86	37.9	- 25.6	32.6
09	411	120	29.2	424	115	27.1	- 3.1	4.9
10	30	10	33.3	37	15	40.5	- 18.9	- 33.3
11	419	74	17.7	430	70	16.3	- 2.6	5.7
12	601	65	10.8	607	49	8.1	- 1.0	32.7
13	845	34	4.0	804	26	3.2	5.1	30.8
14	919	9	1.0	797	6	.8	15.3	50.0
15	654	6	.9	472	7	1.5	38.6	- 14.3
16	246			208			18.3	0.0
17	107			93			15.1	0.0
18	59			54			9.3	0.0
ABOVE 18	12			3			300.0	0.0
UNGRADED								
TOTAL B/	7,067	2,286	32.3	7,046	2,401	34.1	.3	- 4.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C. BY GENERAL SCHEDULE AND EQUIVALENT GRADES

CANAL ZONE GOVERNMENT WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01				10	6	60.0	-100.0	-100.0
02	2	2	100.0				*	*
03	12	12	100.0	36	27	75.0	- 66.7	- 55.6
04	57	50	87.7	50	44	88.0	14.0	13.6
05	128	109	85.2	85	76	89.4	50.6	43.4
06	148	105	72.4	149	129	86.6	- 2.7	- 18.6
07	325	214	65.8	77	65	84.4	322.1	229.2
08	144	46	31.9	230	20	8.7	- 37.4	130.0
09	257	118	45.9	48	18	37.5	438.4	555.6
10	148	60	40.5	22	10	45.5	572.7	500.0
11	199	82	41.2	67	4	6.0	197.0	950.0
12	49	5	10.2	48	1	2.1	2.1	400.0
13	53	4	7.5	32	1	3.1	65.6	300.0
14	20	2	10.0	22	1	4.5	- 9.1	100.0
15	10	1	10.0	3			233.3	*
16				1			-100.0	0.0
17	3						*	0.0
18								
ABOVE 18	1			1			0.0	0.0
UNGRADED				627	346	55.2	-100.0	-100.0
TOTAL B/	1,593	810	52.2	1,508	748	49.6	3.0	8.3

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7809

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

CIVIL AERONAUTICS BOARD — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	1	1	100.0	3	1	33.3	- 66.7	0.0
02	3	2	66.7	9	6	66.7	- 66.7	- 66.7
03	13	11	84.6	21	17	81.0	- 38.1	- 35.3
04	20	16	80.0	25	18	72.0	- 20.0	- 11.1
05	42	31	73.8	81	62	76.5	- 48.1	- 50.0
06	63	53	84.1	69	65	94.2	- 8.7	- 18.5
07	69	45	65.2	66	48	72.7	4.5	- 6.3
08	15	13	86.7	17	16	94.1	- 11.8	- 18.8
09	51	30	58.8	50	30	60.0	2.0	0.0
10	3	2	66.7	4	4	100.0	- 25.0	- 50.0
11	61	22	36.1	69	19	27.5	- 11.6	15.8
12	53	11	20.8	73	14	19.2	- 27.4	- 21.4
13	77	6	7.8	106	7	6.6	- 27.4	- 14.3
14	62	2	3.2	86	3	3.5	- 27.9	- 33.3
15	41	3	7.3	56	3	5.4	- 26.8	0.0
16	36			39			- 7.7	0.0
17	11			14			- 21.4	0.0
18	3			4			- 25.0	0.0
ABOVE 18	5			5			0.0	0.0
UNGRADED								
TOTAL B/	629	248	39.4	797	313	39.3	- 21.1	- 20.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7810

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

CIVIL SERVICE COMMISSION — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	26	23	88.5	23	21	91.3	13.0	9.5
02	256	205	86.9	471	425	90.2	- 49.9	- 51.8
03	711	634	89.2	728	630	86.5	- 2.3	.6
04	698	609	87.2	491	433	88.2	42.2	40.6
05	577	486	84.2	484	375	77.5	19.2	29.6
06	140	124	88.6	76	63	82.9	84.2	96.8
07	280	145	51.8	320	136	42.5	- 12.5	6.6
08	18	15	83.3	8	5	62.5	125.0	200.0
09	350	162	46.3	348	133	38.2	.6	21.8
10	25	16	64.0	18	7	38.9	38.9	128.6
11	773	128	16.6	744	57	7.7	3.9	124.6
12	341	71	20.8	280	48	17.1	21.8	47.9
13	349	44	12.6	267	32	12.0	30.7	37.5
14	171	10	5.8	135	7	5.2	26.7	42.9
15	124	4	3.2	87	4	4.6	42.5	0.0
16	27	2	7.4	28	1	3.6	- 3.6	100.0
17	14	1	7.1	6			133.3	*
18	6			3			100.0	0.0
ABOVE 18	4			4			0.0	0.0
UNGRADED								
TOTAL B/	4,870	2,679	55.0	4,521	2,377	52.6	7.7	12.7

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7811

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

COMMISSION ON CIVIL RIGHTS — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02	1			2	2	100.0	- 50.0	-100.0
03	2	1	50.0	11	5	45.5	- 81.8	- 80.0
04	6	4	66.7	10	9	90.0	- 40.0	- 55.6
05	9	8	88.9	19	18	94.7	- 52.6	- 55.6
06	25	24	96.0	12	12	100.0	108.3	100.0
07	15	14	93.3	9	7	77.8	66.7	100.0
08	1	1	100.0	4	4	100.0	- 75.0	- 75.0
09	11	10	90.9	11	7	63.6	0.0	42.9
10				2	2	100.0	-100.0	-100.0
11	14	11	78.6	16	8	50.0	- 12.5	37.5
12	13	5	38.5	7	2	28.6	85.7	150.0
13	17	3	17.6	14	2	14.3	21.4	50.0
14	13	3	23.1	10	4	40.0	30.0	- 25.0
15	12	2	16.7	9	1	11.1	33.3	100.0
16	2			3	1	33.3	- 33.3	-100.0
17	2			2			0.0	0.0
18	1						*	0.0
ABOVE 18				1			-100.0	0.0
UNGRADED								
TOTAL B/	144	86	59.7	142	84	59.2	1.4	2.4

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7812

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

EQUAL EMPLOY OPPORTUNITY COMM WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	4	4	100.0				*	*
02	12	12	100.0	4	2	50.0	200.0	500.0
03	42	40	95.2	14	11	78.6	200.0	263.6
04	56	53	94.6	24	21	87.5	133.3	152.4
05	52	38	73.1	25	23	92.0	108.0	65.2
06	30	30	100.0	14	13	92.9	114.3	130.8
07	69	27	39.1	18	16	88.9	283.3	68.8
08	5	5	100.0	4	4	100.0	25.0	25.0
09	51	18	35.3	14	8	57.1	264.3	125.0
10								
11	73	20	27.4	28	4	14.3	160.7	400.0
12	46	14	30.4	32	5	15.6	43.8	180.0
13	46	10	21.7	32	3	9.4	43.8	233.3
14	26	5	19.2	17	4	23.5	52.9	25.0
15	25	7	28.0	12	1	8.3	108.3	600.0
16	11	1	9.1	13	1	7.7	- 15.4	0.0
17	3	1	33.3				*	*
18	1			1			0.0	0.0
ABOVE 18	4	1	25.0	4	1	25.0	0.0	0.0
UNGRADED								
TOTAL B/	956	286	51.4	256	117	45.7	117.2	144.4

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7813

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

EXPORT-IMPORT BANK — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	1						*	0.0
02	12	5	41.7	10	9	90.0	20.0	- 44.4
03	12	10	83.3	17	17	100.0	- 29.4	- 41.2
04	14	13	92.9	21	21	100.0	- 33.3	- 38.1
05	54	49	90.7	45	42	93.3	20.0	16.7
06	26	26	100.0	23	21	91.3	13.0	23.8
07	33	21	63.6	22	17	77.3	50.0	23.5
08	6	5	83.3	2	2	100.0	200.0	150.0
09	23	15	65.2	32	21	65.6	- 28.1	- 28.6
10	6	6	100.0	2	2	100.0	200.0	200.0
11	16	5	31.3	21	2	9.5	- 23.8	150.0
12	17	3	17.6	11	2	18.2	54.5	50.0
13	23	1	4.3	18			27.8	*
14	24	2	8.3	19			26.3	*
15	30			26			15.4	0.0
16	9			10			- 10.0	0.0
17	4			3			33.3	0.0
18	1			1			0.0	0.0
ABOVE 18	5			5	1	20.0	0.0	-100.0
UNGRADED								
TOTAL B/	316	161	50.9	288	157	54.5	9.7	2.5

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7814

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

FARM CREDIT ADMINISTRATION — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02				1			-100.0	0.0
03	4	2	50.0	5	5	100.0	- 20.0	- 60.0
04	10	10	100.0	24	23	95.8	- 58.3	- 56.5
05	22	20	90.9	12	10	83.3	83.3	100.0
06	17	15	88.2	21	18	85.7	- 19.0	- 16.7
07	20	16	80.0	14	9	64.3	42.9	77.8
08				4	4	100.0	-100.0	-100.0
09	11	5	45.5	14	5	35.7	- 21.4	0.0
10	1						*	0.0
11	26	5	19.2	25	2	8.0	4.0	150.0
12	22	1	4.5	21	1	4.8	4.8	0.0
13	31	2	6.5	30	1	3.3	3.3	100.0
14	26			25			4.0	0.0
15	10			8			25.0	0.0
16	4			4			0.0	0.0
17	3			2			50.0	0.0
18	1			3			- 66.7	0.0
ABOVE 18	1			1			0.0	0.0
UNGRADED								
TOTAL B/	209	76	36.4	214	78	36.4	- 2.3	- 2.6

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7815

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

FEDERAL COMMUNICATIONS COMM — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	2	2	100.0	3	3	100.0	- 33.3	- 33.3
02	20	17	85.0	34	30	88.2	- 41.2	- 43.3
03	57	46	80.7	80	68	85.0	- 28.8	- 32.4
04	123	105	85.4	97	78	80.4	26.8	34.6
05	168	138	82.1	207	170	82.1	- 18.8	- 18.8
06	108	88	81.5	122	97	79.5	- 11.5	- 9.3
07	152	87	57.2	150	63	42.0	1.3	38.1
08	24	19	79.2	18	15	83.3	33.3	26.7
09	87	25	28.7	105	28	26.7	- 17.1	- 10.7
10	7	1	14.3	9	1	11.1	- 22.2	0.0
11	172	31	18.0	119	22	18.5	44.5	40.9
12	146	12	8.2	123	7	5.7	18.7	71.4
13	144	4	2.8	137	2	1.5	5.1	100.0
14	109	5	4.6	104	3	2.9	4.8	66.7
15	95	4	4.2	83	3	3.6	14.5	33.3
16	32			31	1	3.2	3.2	- 100.0
17	13	1	7.7	13	1	7.7	0.0	0.0
18	4			4			0.0	0.0
ABOVE 18	7			7			0.0	0.0
UNGRADED								
TOTAL B/	1,470	585	39.8	1,446	592	40.9	1.7	- 1.2

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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7816

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

FED DEPOSIT INSURANCE CORP WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	2	1	50.0	2			0.0	*
02	41	31	75.6	21	16	76.2	95.2	93.8
03	98	90	91.8	108	98	90.7	- 9.3	- 8.2
04	145	122	84.1	81	73	90.1	79.0	67.1
05	111	85	76.6	93	83	89.2	19.4	2.4
06	271	79	29.2	132	55	41.7	105.3	43.6
07	308	74	24.0	255	42	16.5	20.8	76.2
08	24	21	87.5	10	8	80.0	140.0	162.5
09	379	41	10.8	189	9	4.8	100.5	355.6
10	7	4	57.1	6	5	83.3	16.7	- 20.0
11	169	9	5.3	191	5	2.6	- 11.5	80.0
12	244	4	1.6	153			59.5	*
13	167	2	1.2	96	1	1.0	74.0	100.0
14	108	1	.9	54	1	1.9	100.0	0.0
15	47	2	4.3	31	3	9.7	51.6	- 33.3
16	26	1	3.8	18			44.4	*
17	6			8			- 25.0	0.0
18	10			10			0.0	0.0
ABOVE 18	2			2			0.0	0.0
UNGRADED								
TOTAL B/	2,165	567	26.2	1,460	399	27.3	48.3	42.1

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7817

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

FEDERAL HOME LOAN BANK BOARD — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	1	1	100.0	2	1	50.0	- 50.0	0.0
02	13	11	84.6	18	14	77.8	- 27.8	- 21.4
03	42	40	95.2	47	42	89.4	- 10.6	- 4.8
04	79	72	91.1	75	68	90.7	5.3	5.9
05	81	71	87.7	61	53	86.9	32.8	34.0
06	48	46	95.8	52	50	96.2	- 7.7	- 8.0
07	46	34	73.9	95	32	33.7	- 51.6	6.3
08	19	17	89.5	15	12	80.0	26.7	41.7
09	104	17	16.3	182	13	7.1	- 42.9	30.8
10	4	4	100.0	4	4	100.0	0.0	0.0
11	229	9	3.9	277	9	3.2	- 17.3	0.0
12	226	4	1.8	146	2	1.4	54.8	100.0
13	169	3	1.8	123	3	2.4	32.5	0.0
14	74			59			25.4	0.0
15	54			50			8.0	0.0
16	6			6			0.0	0.0
17	3			3			0.0	0.0
18	2			2			0.0	0.0
ABOVE 18	3			3			0.0	0.0
UNGRADED								
TOTAL B/	1,197	329	27.5	1,220	303	24.8	- 1.9	8.6

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7818

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

FEDERAL MARITIME COMMISSION — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01				1			-100.0	0.0
02	3	2	66.7	4	3	75.0	- 25.0	- 33.3
03	4	2	50.0	4	2	50.0	0.0	0.0
04	11	6	54.5	17	15	88.2	- 35.3	- 60.0
05	16	15	93.8	22	18	81.8	- 27.3	- 16.7
06	21	19	90.5	15	13	86.7	40.0	46.2
07	20	18	90.0	32	25	78.1	- 37.5	- 28.0
08	8	7	87.5	4	3	75.0	100.0	133.3
09	11	4	36.4	11	5	45.5	0.0	- 20.0
10	4	4	100.0	4	4	100.0	0.0	0.0
11	16	4	25.0	21	5	23.8	- 23.8	- 20.0
12	29	2	6.9	35	1	2.9	- 17.1	100.0
13	21	2	9.5	24	2	8.3	- 12.5	0.0
14	21			13	1	7.7	61.5	-100.0
15	17			12			41.7	0.0
16	16			20			- 20.0	0.0
17	2			3			- 33.3	0.0
18								
ABOVE 18	5	1	20.0	4			25.0	*
UNGRADED								
TOTAL B/	225	86	38.2	246	97	39.4	- 8.5	- 11.3

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7819

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

FED MEDIATN & CONCILATN SERV — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02				3	2	66.7	-100.0	-100.0
03	4	2	50.0	3	2	66.7	33.3	0.0
04	27	24	88.9	36	32	88.9	- 25.0	- 25.0
05	59	55	93.2	56	54	96.4	5.4	1.9
06	15	13	86.7	10	10	100.0	50.0	30.0
07	12	11	91.7	14	12	85.7	- 14.3	- 8.3
08	2	2	100.0				*	*
09	13	8	61.5	15	8	53.3	- 13.3	0.0
10	1						*	0.0
11	7	5	71.4	14	5	35.7	- 50.0	0.0
12	9	1	11.1	32			- 71.9	*
13	84			88			- 4.5	0.0
14	174	1	.6	142	1	.7	22.5	0.0
15	16			16			0.0	0.0
16	8			9			- 11.1	0.0
17	1			1			0.0	0.0
18								
ABOVE 18	2			2			0.0	0.0
UNGRADED								
TOTAL B/	434	122	28.1	441	126	28.6	- 1.6	- 9.2

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7820

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

FEDERAL POWER COMMISSION — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	4	2	50.0	8	1	12.5	- 50.0	100.0
02	13	7	53.8	22	17	77.3	- 40.9	- 58.8
03	20	15	75.0	45	29	64.4	- 55.6	+ 48.3
04	58	45	77.6	86	67	77.9	- 32.6	- 32.8
05	91	63	69.2	130	93	71.5	- 30.0	- 32.3
06	85	78	91.8	63	58	92.1	34.9	34.5
07	92	60	65.2	81	41	50.6	13.6	46.3
08	16	11	68.8	9	9	100.0	77.8	22.2
09	70	28	40.0	72	23	31.9	- 2.8	21.7
10	5	5	100.0	3	3	100.0	66.7	66.7
11	92	17	18.5	116	8	6.9	- 20.7	+ 12.5
12	148	7	4.7	138	3	2.2	7.2	+ 33.3
13	125	6	4.8	110	3	2.7	13.6	+ 100.0
14	116	2	1.7	91	2	2.2	27.5	0.0
15	81	1	1.2	69			17.4	*
16	34			32			6.3	0.0
17	4			6			- 33.3	0.0
18	5			6			- 16.7	0.0
ABOVE 18	5			5			0.0	0.0
UNGRADED								
TOTAL B/	1,064	347	32.6	1,092	357	32.7	- 2.6	- 2.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7821

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

FEDERAL TRADE COMMISSION WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	10	9	90.0	9	2	22.2	11.1	50.0
02	43	33	76.7	29	15	51.7	48.3	120.0
03	76	64	84.2	70	62	88.6	8.6	3.2
04	109	98	89.9	96	83	86.5	13.5	18.1
05	129	120	93.0	113	103	91.2	14.2	16.5
06	62	57	91.9	58	52	89.7	6.9	9.6
07	84	75	89.3	98	69	70.4	- 14.3	8.7
08	13	12	92.3	15	13	86.7	- 13.3	7.7
09	43	14	32.6	59	21	35.6	- 27.1	- 33.3
10	1	1	100.0	1	1	100.0	0.0	0.0
11	153	18	11.8	58	8	13.8	163.8	125.0
12	98	12	12.2	115	11	9.6	- 14.8	9.1
13	98	8	8.2	113	6	5.3	- 13.3	33.3
14	116	3	2.6	91	3	3.3	27.5	0.0
15	158	2	1.3	126	2	1.6	25.4	0.0
16	25	1	4.0	35	1	2.9	- 28.6	0.0
17	5			8			- 37.5	0.0
18	2			2			0.0	0.0
ABOVE 18	5	1	20.0	5	1	20.0	0.0	0.0
UNGRADED								
TOTAL B/	1,290	522	42.4	1,101	453	41.1	11.7	15.2

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7822

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

FOREIGN CLAIMS SETTLEMT COMM WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01				3			-100.0	0.0
02	1			3	3	100.0	- 66.7	-100.0
03				10	10	100.0	-100.0	-100.0
04	2	1	50.0	25	16	64.0	- 92.0	- 93.8
05	2	2	100.0	18	15	83.3	- 88.9	- 86.7
06	8	7	87.5	9	9	100.0	- 11.1	- 22.2
07	2	2	100.0	12	2	16.7	- 83.3	0.0
08				2	2	100.0	-100.0	-100.0
09	3	3	100.0	19	6	31.6	- 84.2	- 50.0
10								
11	2	1	50.0	9	1	11.1	- 77.8	0.0
12				14	1	7.1	-100.0	-100.0
13	4			10			- 60.0	0.0
14	7			15			- 53.3	0.0
15	3	1	33.3	3	1	33.3	0.0	0.0
16	1			1			0.0	0.0
17								
18								
ABOVE 18	2			3			- 33.3	0.0
UNGRADED								
TOTAL B/	37	17	45.9	156	66	42.3	- 76.3	- 74.2

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7523

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

GENERAL SERVICES ADMIN — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	32	16	50.0	20	11	55.0	60.0	45.5
02	322	278	86.3	970	277	28.6	- 66.8	.4
03	2,465	1,350	54.8	2,793	1,373	49.2	- 11.7	- 1.7
04	3,467	1,981	57.1	3,493	2,145	61.4	- .7	- 7.6
05	3,122	1,662	53.2	2,443	1,482	60.7	27.8	12.1
06	924	592	64.1	563	416	73.9	64.1	42.3
07	1,422	713	50.1	1,296	585	45.1	9.7	21.9
08	156	57	36.5	87	37	42.5	79.3	54.1
09	1,293	374	28.9	1,214	283	23.3	6.5	32.2
10	52	2	3.8	38	6	15.8	36.8	- 66.7
11	1,681	205	12.2	1,597	144	9.0	5.3	42.4
12	1,475	98	6.6	1,299	70	5.4	13.5	40.0
13	1,064	38	3.6	945	36	3.8	12.6	5.6
14	554	14	2.5	439	7	1.6	26.2	100.0
15	312	2	.6	277	1	.4	12.6	100.0
16	37			42			- 11.9	0.0
17	23			18			27.8	0.0
18	5			5			0.0	0.0
ABOVE 18	8			6			33.3	0.0
UNGRADED								
TOTAL B/	18,414	7,382	40.1	17,545	6,873	39.2	5.0	7.4

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7524

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

U. S. INFORMATION AGENCY — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	3	1	33.3	5	3	60.0	- 40.0	- 66.7
02	99	70	70.7	64	49	76.6	54.7	42.9
03	123	109	88.6	98	79	80.6	25.5	38.0
04	130	105	80.8	176	132	75.0	- 26.1	- 20.5
05	236	182	77.1	287	229	79.8	- 17.8	- 20.5
06	204	159	77.9	193	164	85.0	5.7	- 3.0
07	307	226	73.6	303	220	72.6	1.3	2.7
08	61	52	85.2	93	53	57.0	- 34.4	- 1.9
09	404	189	46.8	344	160	46.5	17.4	18.1
10	209	47	22.5	62	16	25.8	237.1	193.8
11	333	118	35.4	508	141	27.8	- 34.4	- 16.3
12	495	101	20.4	554	98	17.7	- 10.6	3.1
13	750	92	12.3	740	99	13.4	1.4	- 7.1
14	649	41	6.3	605	37	6.1	7.3	10.8
15	89	1	1.1	88	1	1.1	1.1	0.0
16	203	3	1.5	176	3	1.7	15.3	0.0
17	50	4	8.0	63	2	3.2	- 20.6	100.0
18	6			7			- 14.3	0.0
ABOVE 18	4			2			100.0	0.0
UNGRADED								
TOTAL B/	4,355	1,500	34.4	4,368	1,486	34.0	- .3	.9

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7825

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

INTERSTATE COMMERCE COMM WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	5	2	40.0	7	4	57.1	- 28.6	- 50.0
02	36	20	55.6	69	49	71.0	- 47.8	- 59.2
03	99	82	82.8	162	135	83.3	- 38.9	- 39.3
04	187	149	79.7	249	205	82.3	- 24.9	- 27.3
05	246	220	89.4	274	237	86.5	- 10.2	- 7.2
06	90	81	90.0	87	79	90.8	3.4	2.5
07	85	62	72.9	122	60	49.2	- 30.3	3.3
08	28	19	67.9	66	14	21.2	- 57.6	35.7
09	137	30	21.9	192	33	17.2	- 28.6	- 9.1
10	43	4	9.3	62	18	29.0	- 30.6	- 77.8
11	128	31	24.2	133	18	13.5	- 3.8	72.2
12	283	14	4.9	415	5	1.2	- 31.8	180.0
13	107	3	2.8	138	5	3.8	- 19.5	- 40.0
14	87	2	2.3	101	2	2.0	- 13.9	0.0
15	97	3	3.1	96	1	1.0	1.0	200.0
16	114	1	.9	122	1	.8	- 6.6	0.0
17	10			12			- 16.7	0.0
18	3			3			0.0	0.0
ABOVE 18	10	1	10.0	11			- 9.1	*
UNGRADED								
TOTAL B/	1,795	724	40.3	2,316	866	37.4	- 22.5	- 16.4

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7826

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

NAT AERONAUTICS & SPACE ADMIN — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	11	2	18.2	5	3	60.0	120.0	- 33.3
02	159	134	84.3	402	350	87.1	- 60.4	- 61.7
03	571	419	73.4	1,247	1,034	82.9	- 54.2	- 59.5
04	1,330	1,107	83.2	1,763	1,532	86.9	- 24.6	- 27.7
05	1,939	1,670	86.1	1,966	1,605	81.6	- 1.4	4.0
06	797	726	91.1	790	695	88.0	.9	4.5
07	1,325	594	44.8	1,726	568	32.9	- 23.2	4.6
08	474	99	20.9	186	79	42.5	154.8	25.3
09	2,259	380	16.8	2,343	323	13.8	- 3.6	17.6
10	341	21	6.2	183	13	7.1	86.3	61.5
11	3,442	281	8.2	3,635	215	5.9	- 5.3	30.7
12	4,419	171	3.9	4,237	125	3.0	4.3	36.8
13	5,432	79	1.5	4,614	59	1.3	17.7	33.9
14	3,538	32	.9	3,016	24	.8	17.3	33.3
15	2,165	5	.2	1,789	7	.4	21.0	- 28.6
16	499			470	1	.2	- 6.6	-100.0
17	218	1	.5	152			43.4	*
18	42			39			7.7	0.0
ABOVE 18	7			7			0.0	0.0
UNGRADED								
TOTAL B/	28,908	5,721	19.8	28,570	6,633	23.2	1.2	- 13.7

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7827

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

NAT CAPITAL PLANNING COMM — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02								
03				1	1	100.0	-100.0	-100.0
04	1	1	100.0	1	1	100.0	0.0	0.0
05	17	16	94.1	9	7	77.8	88.9	128.6
06				5	4	80.0	-100.0	-100.0
07	8	5	62.5	7	5	71.4	14.3	0.0
08	2	2	100.0	1	1	100.0	100.0	100.0
09	2			5	3	60.0	- 60.0	-100.0
10	1			1			0.0	0.0
11	6	1	16.7	4	1	25.0	50.0	0.0
12	9	2	22.2	6			50.0	*
13	5	1	20.0	5	1	20.0	0.0	0.0
14	4	1	25.0	7			- 42.9	*
15	8			3			166.7	0.0
16	2			2			0.0	0.0
17	1			1			0.0	0.0
18								
ABOVE 18								
UNGRADED								
TOTAL B/	66	29	43.9	58	24	41.4	13.8	20.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7828

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

NAT FOUNDTN ON ARTS & HUMAN WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02				2	1	50.0	-100.0	-100.0
03	2			2	2	100.0	0.0	-100.0
04	5	5	100.0	2	1	50.0	150.0	400.0
05	5	5	100.0	8	8	100.0	- 37.5	- 37.5
06	4	4	100.0	1	1	100.0	300.0	300.0
07	16	15	93.8	11	11	100.0	45.5	36.4
08	5	5	100.0	1	1	100.0	400.0	400.0
09	5	5	100.0	5	5	100.0	0.0	0.0
10				1	1	100.0	-100.0	-100.0
11	5	4	80.0	4	2	50.0	25.0	100.0
12	2	2	100.0	2	2	100.0	0.0	0.0
13	4	2	50.0	3	3	100.0	33.3	- 33.3
14	8	4	50.0	5	1	20.0	60.0	300.0
15	8	2	25.0	6			33.3	*
16	2			2	1	50.0	0.0	-100.0
17				1			-100.0	0.0
18	2			2			0.0	0.0
ABOVE 18	2	1	50.0	2			0.0	*
UNGRADED								
TOTAL B/	75	56	72.0	60	40	66.7	25.0	35.0

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7829

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

NAT LABOR RELATIONS BOARD — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01				7	4	57.1	-100.0	-100.0
02	17	9	52.9	41	30	73.2	- 58.5	- 70.0
03	64	54	84.4	120	106	88.3	- 46.7	- 49.1
04	193	188	97.4	289	272	94.1	- 33.2	- 30.9
05	311	290	93.2	267	249	93.3	16.5	16.5
06	125	119	95.2	90	85	94.4	38.9	40.0
07	84	66	78.6	151	67	44.4	- 44.4	- 1.5
08	14	13	92.9	13	12	92.3	7.7	8.3
09	76	47	61.8	167	48	28.7	- 54.5	- 2.1
10	7	7	100.0	7	7	100.0	0.0	0.0
11	197	28	14.2	148	17	11.5	33.1	64.7
12	257	31	12.1	234	21	9.0	9.8	47.6
13	337	24	7.1	328	23	7.0	2.7	4.3
14	245	17	6.9	157	17	10.8	56.1	0.0
15	111	4	3.6	93	2	2.2	19.4	100.0
16	123	3	2.4	128	3	2.3	- 3.9	0.0
17	3			3			0.0	0.0
18	2			2			0.0	0.0
ABOVE 18	6			6			0.0	0.0
UNGRADED								
TOTAL B/	2,172	900	41.4	2,251	963	42.8	- 3.5	- 6.5

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7530

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

NATIONAL MEDIATION BOARD WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	2	1	50.0				*	*
02								
03				2	1	50.0	-100.0	-100.0
04	2	1	50.0	4	2	50.0	- 50.0	- 50.0
05	6	5	83.3	5	5	100.0	20.0	0.0
06	3	3	100.0				*	*
07	38	36	94.7	50	47	94.0	- 24.0	- 23.4
08				1	1	100.0	-100.0	-100.0
09	8	6	75.0	6	5	83.3	33.3	20.0
10								
11				2	1	50.0	-100.0	-100.0
12	10	2	20.0	8			25.0	*
13	5			2			150.0	0.0
14	9			10			- 10.0	0.0
15	3			3			0.0	0.0
16								
17	1			1			0.0	0.0
18								
ABOVE 18	3			3			0.0	0.0
UNGRADED								
TOTAL B/	90	54	60.0	97	62	63.9	- 7.2	- 12.9

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7831

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

NATIONAL SCIENCE FOUNDATION — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	1						*	0.0
02	7	5	71.4	14	8	57.1	- 50.0	- 37.5
03	13	12	92.3	30	26	86.7	- 56.7	- 53.8
04	39	33	84.6	71	64	90.1	- 45.1	- 48.4
05	97	89	91.8	118	102	86.4	- 17.8	+ 12.7
06	127	121	95.3	104	102	98.1	22.1	18.6
07	83	71	85.5	96	81	84.4	- 13.5	+ 12.9
08	22	19	86.4	13	12	92.3	69.2	58.3
09	51	37	72.5	56	39	69.6	- 8.9	+ 5.1
10	2	1	50.0	1	1	100.0	100.0	0.0
11	44	23	52.3	49	24	49.0	- 10.2	+ 4.2
12	52	22	42.3	48	17	35.4	8.3	29.4
13	73	13	17.8	69	18	26.1	5.8	- 27.8
14	91	9	9.9	69	5	7.2	31.9	80.0
15	126	7	5.6	109	4	3.7	15.6	75.0
16	51			39			30.8	0.0
17	21			19			10.5	0.0
18	10			8			25.0	0.0
ABOVE 18	1			2			- 50.0	0.0
UNGRADED								
TOTAL B/	911	462	50.7	915	503	55.0	- .4	- 8.2

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

412-285 O - 71 - 6

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

PANAMA CANAL COMPANY — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	2	1	50.0	16	11	68.8	- 87.5	- 90.9
02	4	3	75.0	2			100.0	*
03	30	14	46.7	46	31	67.4	- 34.8	- 54.8
04	87	34	39.1	139	68	48.9	- 37.4	- 50.0
05	114	72	63.2	140	90	64.3	- 18.6	- 20.0
06	72	57	79.2	91	65	71.4	- 20.9	- 12.3
07	97	47	48.5	115	51	44.3	- 15.7	- 7.8
08	41	12	29.3	58	12	20.7	- 29.3	0.0
09	91	25	27.5	105	13	12.4	- 13.3	92.3
10	43	3	7.0	40	3	7.5	7.5	0.0
11	145	10	6.9	145	8	5.5	0.0	25.0
12	138	3	2.2	97			42.3	*
13	58	2	3.4	59	1	1.7	- 1.7	100.0
14	30			28			7.1	0.0
15	8			5			60.0	0.0
16				1			-100.0	0.0
17	6						*	0.0
18				1			-100.0	0.0
ABOVE 18	2						*	0.0
UNGRADED				16			-100.0	0.0
TOTAL B/	968	283	29.2	1,104	353	32.0	- 12.3	- 19.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7833

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

PUBLIC LAND LAW REVIEW COMM WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02								
03	2	1	50.0				*	*
04				2	2	100.0	-100.0	-100.0
05	1						*	0.0
06	3	3	100.0	2	1	50.0	50.0	200.0
07	3	2	66.7				*	*
08				4	4	100.0	-100.0	-100.0
09	4	4	100.0	1			300.0	*
10	2	2	100.0				*	*
11	1			2	2	100.0	- 50.0	-100.0
12	2	2	100.0	3	1	33.3	- 33.3	100.0
13	2			1			100.0	0.0
14	7			7			0.0	0.0
15	4			2			100.0	0.0
16	4			7			- 42.9	0.0
17	3						*	0.0
18	1						*	0.0
ABOVE 18	1			1			0.0	0.0
UNGRADED								
TOTAL B/	40	14	35.0	32	10	31.3	25.0	40.0

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

RAILROAD RETIREMENT BOARD WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	2	2	100.0				*	*
02	91	77	84.6	122	87	71.3	- 25.4	- 11.5
03	177	154	87.0	187	156	83.4	- 5.3	- 1.3
04	195	173	88.7	201	169	84.1	- 3.0	2.6
05	238	200	84.0	210	175	83.3	13.3	14.3
06	40	30	75.0	44	30	68.2	- 9.1	0.0
07	208	127	61.1	156	87	55.8	33.3	46.0
08	58	36	62.1	76	42	55.3	- 23.7	- 14.3
09	95	50	52.6	69	26	37.7	37.7	92.3
10	222	38	17.1	245	39	15.9	- 9.4	- 2.6
11	140	20	14.3	143	19	13.3	- 2.1	5.3
12	108	16	14.8	100	14	14.0	8.0	14.3
13	35	2	5.7	34	1	2.9	2.9	100.0
14	28			23			21.7	0.0
15	28			28			0.0	0.0
16	4			4			0.0	0.0
17	4			4			0.0	0.0
18	1			1			0.0	0.0
ABOVE 18	3			3			0.0	0.0
UNGRADED								
TOTAL B/	1,677	925	55.2	1,650	845	51.2	1.6	9.5

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7535

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

RENEGOTIATION BOARD — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02	7	7	100.0	2	1	50.0	250.0	600.0
03	9	8	88.9	10	6	60.0	- 10.0	33.3
04	16	12	75.0	9	7	77.8	77.8	71.4
05	8	7	87.5	17	16	94.1	- 52.9	- 56.3
06	22	20	90.9	20	19	95.0	10.0	5.3
07	17	15	88.2	15	14	93.3	13.3	7.1
08								
09	12	10	83.3	8	7	87.5	50.0	42.9
10								
11	8	3	37.5	7	6	85.7	14.3	- 50.0
12	3			3			0.0	0.0
13	21			9			133.3	0.0
14	50	1	2.0	34	1	2.9	47.1	0.0
15	28			28			0.0	0.0
16	5			5			0.0	0.0
17	2			2			0.0	0.0
18	1			1			0.0	0.0
ABOVE 18	5			5			0.0	0.0
UNGRADED								
TOTAL B/	214	83	38.8	175	77	44.0	22.3	7.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7836

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

SECURITIES AND EXCHANGE COMM WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01				12	5	41.7	-100.0	-100.0
02	32	24	75.0	23	12	52.2	39.1	100.0
03	70	58	82.9	89	75	84.3	- 21.3	- 22.7
04	86	77	89.5	84	59	70.2	2.4	30.5
05	132	104	78.8	119	88	73.9	10.9	18.2
06	94	80	85.1	95	81	85.3	- 1.1	- 1.2
07	75	41	54.7	90	41	45.6	- 16.7	0.0
08	15	13	86.7	16	11	68.8	- 6.3	18.2
09	45	18	40.0	109	12	11.0	- 58.7	50.0
10	4	4	100.0	4	4	100.0	0.0	0.0
11	146	15	10.3	152	7	4.6	- 3.9	114.3
12	206	16	7.8	167	8	4.8	23.4	100.0
13	199	10	5.0	174	6	3.4	14.4	66.7
14	119	7	5.9	92	5	5.4	29.3	40.0
15	65			53			22.6	0.0
16	26			21			23.8	0.0
17	5			5			0.0	0.0
18	6			5			20.0	0.0
ABOVE 18	4			5			- 20.0	0.0
UNGRADED								
TOTAL B/	1,329	467	35.1	1,315	414	31.5	1.1	12.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7837

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

SELECTIVE SERVICE SYSTEM — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01				1,490	1,456	97.7	-100.0	-100.0
02	905	876	96.8	1,502	1,456	96.9	- 39.7	- 39.8
03	1,616	1,555	96.2	1,404	1,329	94.7	15.1	17.0
04	1,833	1,771	96.6	1,179	1,127	95.6	55.5	57.1
05	964	927	96.2	693	655	94.5	39.1	41.5
06	647	614	94.9	303	280	92.4	113.5	119.3
07	258	217	84.1	182	153	84.1	41.8	41.8
08	139	108	77.7	81	54	66.7	71.6	100.0
09	81	43	53.1	39	21	53.8	107.7	104.8
10	19	12	63.2	12	4	33.3	58.3	200.0
11	11	4	36.4	15	4	26.7	- 26.7	0.0
12	15	2	13.3	17	4	23.5	- 11.8	- 50.0
13	20	4	20.0	14	2	14.3	42.9	100.0
14	11	1	9.1	12			- 8.3	*
15	17			12			41.7	0.0
16	1			1			0.0	0.0
17	1			1			0.0	0.0
18								
ABOVE 18								
UNGRADED								
TOTAL B/	6,538	6,134	93.8	6,957	6,545	94.1	- 6.0	- 6.3

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C BY GENERAL SCHEDULE AND EQUIVALENT GRADES

SMALL BUSINESS ADMINISTRATION WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	4	1	25.0	2	1	50.0	100.0	0.0
02	27	18	66.7	94	83	88.3	- 71.3	- 78.3
03	230	205	89.1	361	315	87.3	- 36.3	- 34.9
04	620	568	91.6	628	585	93.2	- 1.3	- 2.9
05	518	465	89.8	484	431	89.0	7.0	7.9
06	299	284	95.0	178	170	95.5	68.0	67.1
07	173	138	79.8	232	125	53.9	- 25.4	10.4
08	43	39	90.7	31	31	100.0	38.7	25.8
09	175	65	37.1	245	44	18.0	- 28.6	47.7
10	4	1	25.0				*	*
11	473	52	11.0	381	35	9.2	24.1	48.6
12	792	37	4.7	627	23	3.7	26.3	60.9
13	443	19	4.3	366	14	3.8	21.0	35.7
14	229	13	5.7	148	2	1.4	54.7	550.0
15	138	3	2.2	93	3	3.2	48.4	0.0
16	20			21			- 4.8	0.0
17	9			8			12.5	0.0
18	4			6			- 33.3	0.0
ABOVE 18	4			4			0.0	0.0
UNGRADED								
TOTAL B/	4,205	1,908	45.4	3,909	1,862	47.6	7.6	2.5

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7539

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES (INCL. NATL. GALLERY OF ART) WORLDWIDE

SMITHSONIAN INSTITUTION

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01				2	2	100.0	-100.0	-100.0
02	11	8	72.7	19	6	31.6	- 42.1	33.3
03	100	13	13.0	262	23	8.8	- 61.8	- 43.5
04	305	45	14.8	183	61	33.3	66.7	- 26.2
05	203	108	53.2	170	101	59.4	19.4	6.9
06	112	72	64.3	104	64	61.5	7.7	12.5
07	180	79	43.9	183	60	32.8	- 1.6	31.7
08	34	27	79.4	22	18	81.8	54.5	50.0
09	222	73	32.9	161	41	25.5	37.9	78.0
10	4	1	25.0	6	3	50.0	- 33.3	- 66.7
11	149	49	32.9	122	34	27.9	22.1	44.1
12	111	22	19.8	88	12	13.6	26.1	83.3
13	94	10	10.6	98	12	12.2	- 4.1	- 16.7
14	105	7	6.7	54	3	5.6	94.4	133.3
15	68	4	5.9	52	1	1.9	30.8	300.0
16	15			13			15.4	0.0
17	12			7			71.4	0.0
18	2			3			- 33.3	0.0
ABOVE 18	3						*	0.0
UNGRADED								
TOTAL B/	1,730	518	29.9	1,549	441	28.5	11.7	17.5

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7840

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

U. S. SOLDIERS' HOME — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	114	10	8.8	105			8.6	*
02	7	3	42.9	25	8	32.0	- 72.0	- 62.5
03	165	60	36.4	171	36	21.1	- 3.5	66.7
04	61	32	52.5	59	17	28.8	3.4	88.2
05	39	13	33.3	38	13	34.2	2.6	0.0
06	19	9	47.4	28	15	53.6	- 32.1	- 40.0
07	41	33	80.5	17	9	52.9	141.2	266.7
08	5	3	60.0	7	3	42.9	- 28.6	0.0
09	20	9	45.0	13	5	38.5	53.8	80.0
10	4	2	50.0	3	1	33.3	33.3	100.0
11	6			6	1	16.7	0.0	-100.0
12	8			8			0.0	0.0
13	3			2			50.0	0.0
14	1			1			0.0	0.0
15	2			2			0.0	0.0
16	1			1			0.0	0.0
17								
18								
ABOVE 18								
UNGRADED								
TOTAL B/	496	174	35.1	486	108	22.2	2.1	61.1

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7841

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

U. S. TARIFF COMMISSION — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01				1			-100.0	0.0
02				3	2	66.7	-100.0	-100.0
03	3	2	66.7	6	6	100.0	- 50.0	- 66.7
04	6	6	100.0	15	9	60.0	- 60.0	- 33.3
05	19	14	73.7	15	9	60.0	26.7	55.6
06	19	18	94.7	25	24	96.0	- 24.0	- 25.0
07	29	20	69.0	32	27	84.4	- 9.4	- 25.9
08	5	5	100.0	9	9	100.0	- 44.4	- 44.4
09	13	9	69.2	25	14	56.0	- 48.0	- 35.7
10	6	6	100.0	1	1	100.0	500.0	500.0
11	11	5	45.5	26	5	19.2	- 57.7	0.0
12	18	5	27.8	23	3	13.0	- 21.7	66.7
13	46	2	4.3	34	1	2.9	35.3	100.0
14	24	1	4.2	27	1	3.7	- 11.1	0.0
15	16	3	18.8	16	1	6.3	0.0	200.0
16	1			1			0.0	0.0
17	4			4			0.0	0.0
18								
ABOVE 18	6	1	16.7	5	1	20.0	20.0	0.0
UNGRADED								
TOTAL B/	226	97	42.9	268	113	42.2	- 15.7	- 14.2

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7842

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

TAX COURT OF THE U S — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02	4	1	25.0	3			33.3	*
03	3			3			0.0	0.0
04	5	2	40.0	8	5	62.5	- 37.5	- 60.0
05	14	12	85.7	13	11	84.6	7.7	9.1
06	2	2	100.0	5	5	100.0	- 60.0	- 60.0
07	9	8	88.9	12	10	83.3	- 25.0	- 20.0
08	18	15	83.3	18	15	83.3	0.0	0.0
09	31	26	83.9	34	22	64.7	- 8.8	18.2
10	1	1	100.0				*	*
11	11	1	9.1	9	2	22.2	22.2	- 50.0
12	20	1	5.0	8	4	50.0	150.0	- 75.0
13	8	2	25.0	4			100.0	*
14	4			8			- 50.0	0.0
15	2			2			0.0	0.0
16	4			3			33.3	0.0
17								
18								
ABOVE 18	21	2	9.5	20	2	10.0	5.0	0.0
UNGRADED								
TOTAL B/	157	73	46.5	150	76	50.7	4.7	- 3.9

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7843

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

TENNESSEE VALLEY AUTHORITY — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01				63	24	38.1	-100.0	-100.0
02	33	19	57.6				*	*
03	393	258	65.6	508	241	47.4	- 22.6	7.1
04	1,229	674	54.8	28	2	7.1	289.3	600.0
05	697	288	41.3	1,404	658	46.9	- 50.4	- 56.2
06	461	97	21.0	346	62	17.9	33.2	56.5
07	517	105	20.3	407	234	57.5	27.0	- 55.1
08	59	6	10.2	256	87	34.0	- 77.0	- 93.1
09	628	87	13.9	652	71	10.9	- 3.7	22.5
10	615	42	6.8	4			275.0	*
11	719	36	5.0	1,024	46	4.5	- 29.8	- 21.7
12	961	14	1.5	797	10	1.3	20.6	40.0
13	623	2	.3	517	1	.2	20.5	100.0
14	226	1	.4	176			28.4	*
15	138			145			- 4.8	0.0
16	26			27			- 3.7	0.0
17	33			7	1	14.3	371.4	-100.0
18								
ABOVE 18	4			4			0.0	0.0
UNGRADED								
TOTAL B/	7,362	1,629	22.1	6,365	1,437	22.6	15.7	13.4

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7844

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

VETERANS ADMINISTRATION — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	336	244	72.6	390	199	51.0	- 13.8	22.6
02	3,146	2,205	70.1	6,663	4,322	64.9	- 52.8	- 49.0
03	17,830	9,566	53.7	23,183	10,065	43.4	- 23.1	- 5.0
04	25,234	14,745	58.4	22,795	12,637	55.4	10.7	16.7
05	14,585	8,754	60.0	11,036	6,437	58.3	32.2	36.0
06	5,857	3,202	54.7	5,759	3,436	59.7	1.7	- 6.8
07	7,692	4,716	61.3	12,621	9,585	75.9	- 39.1	- 50.8
08	3,197	1,120	35.0	2,720	837	30.8	17.5	33.8
09	13,980	10,559	75.5	7,944	4,508	56.7	76.0	134.2
10	1,476	428	29.0	1,418	345	24.3	4.1	24.1
11	6,744	3,012	44.7	5,822	2,344	40.3	15.8	28.5
12	5,217	1,273	24.4	4,796	1,270	26.5	8.8	.2
13	3,154	386	12.2	2,790	234	8.4	13.0	65.0
14	2,360	224	9.5	2,274	185	8.1	3.8	21.1
15	3,976	204	5.1	3,505	140	4.0	13.4	45.7
16	295	7	2.4	276	5	1.8	6.9	40.0
17	85	2	2.4	85	3	3.5	0.0	- 33.3
18	7			5			40.0	0.0
ABOVE 18	7			5			40.0	0.0
UNGRADED								
TOTAL B/	115,178	60,647	52.7	114,087	56,552	49.6	1.0	7.2

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7845

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE C — BY GENERAL SCHEDULE AND EQUIVALENT GRADES

OTHER AGENCIES — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	1	1	100.0				*	*
02	2	1	50.0	1	1	100.0	100.0	0.0
03	8	6	75.0	10	5	50.0	- 20.0	20.0
04	9	6	66.7	7	6	85.7	28.6	0.0
05	27	18	66.7	15	13	86.7	80.0	38.5
06	17	16	94.1	18	18	100.0	- 5.6	- 11.1
07	46	45	97.8	24	22	91.7	91.7	104.5
08	17	16	94.1	7	6	85.7	142.9	166.7
09	56	49	87.5	22	18	81.8	154.5	172.2
10	11	11	100.0	11	11	100.0	0.0	0.0
11	21	14	66.7	10	6	60.0	110.0	133.3
12	15	9	60.0	7	5	71.4	114.3	80.0
13	20	4	20.0	15	5	33.3	33.3	- 20.0
14	32	7	21.9	28	3	10.7	14.3	133.3
15	58	3	5.2	30			93.3	*
16	9			12			- 25.0	0.0
17	17			13			30.8	0.0
18	14			7			100.0	0.0
ABOVE 18	22	1	4.5	15			46.7	*
UNGRADED								
TOTAL B/	402	207	51.5	252	119	47.2	59.5	73.9

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

MISCELLANEOUS OCCUPATIONS — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	28	1	3.6	64			- 56.3	*
02	150	15	10.0	937	92	9.8	- 84.0	- 83.7
03	2,982	283	9.5	4,483	290	6.5	- 33.5	- 2.4
04	11,203	148	1.3	11,931	158	1.3	- 5.9	- 6.3
05	9,027	283	3.1	5,867	246	4.2	53.9	15.0
06	3,734	168	4.5	3,073	116	3.8	21.5	44.8
07	4,604	320	7.0	4,761	297	6.2	- 3.3	7.7
08	1,757	40	2.3	1,408	24	1.7	24.8	66.7
09	2,236	173	7.7	1,760	119	6.8	27.0	45.4
10	517	11	2.1	436	10	2.3	18.6	10.0
11	1,937	121	6.2	1,762	69	3.9	9.9	75.4
12	1,763	39	2.2	1,349	30	2.2	30.7	30.0
13	824	21	2.5	662	7	1.1	24.5	200.0
14	395	4	1.0	304	2	.7	29.9	100.0
15	144	3	2.1	113			27.4	*
16	52			37	1	2.7	40.5	-100.0
17	10			9			11.1	0.0
18	1						*	0.0
ABOVE 18	1						*	0.0
UNGRADED	34			30			13.3	0.0
TOTAL B/	41,399	1,630	3.9	38,956	1,461	3.8	6.3	11.6

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

SOCIAL SCI PSYCH WELFARE — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	3			1	1	100.0	200.0	-100.0
02	12	8	66.7	2			500.0	*
03	59	33	55.9	35	20	57.1	68.6	65.0
04	152	95	62.5	118	72	61.0	28.8	31.9
05	781	481	61.6	1,431	849	59.3	- 45.4	- 43.3
06	304	223	73.4	237	171	72.2	28.3	30.4
07	2,168	1,170	54.0	2,483	1,043	42.0	- 12.7	12.2
08	805	312	38.8	739	309	41.8	8.9	1.0
09	6,665	3,269	49.0	6,601	2,872	43.5	1.0	13.8
10	1,192	332	27.9	2,571	397	15.4	- 53.6	- 16.4
11	5,022	1,445	28.8	4,487	1,152	25.7	11.9	25.4
12	5,297	710	13.4	4,351	604	13.9	21.7	17.5
13	4,657	526	11.3	3,845	474	12.3	21.1	11.0
14	2,837	262	9.2	2,485	217	8.7	14.2	20.7
15	1,263	103	8.1	985	87	8.8	28.7	18.4
16	648	23	3.5	723	27	3.7	- 10.4	- 14.8
17	311	6	1.9	497	10	2.0	- 37.4	- 40.0
18	28			37	2	5.4	- 24.3	-100.0
ABOVE 18	127	3	2.4	100	1	1.0	27.0	200.0
UNGRADED				1			-100.0	0.0
TOTAL B/	32,335	9,001	27.8	31,729	8,308	26.2	1.9	8.3

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

PERSONNEL MGMT & IND RELAT — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	1			6			- 83.3	0.0
02	33	30	90.9	84	78	92.9	- 60.7	- 61.5
03	1,636	1,469	91.5	1,930	1,692	87.7	- 15.8	- 13.2
04	6,781	6,133	90.4	4,760	4,150	87.2	42.5	47.8
05	6,904	5,477	79.3	6,065	4,634	76.4	13.8	18.2
06	3,534	2,034	57.6	2,422	1,458	60.2	45.9	39.5
07	3,524	2,013	57.1	2,843	1,677	59.0	24.0	20.0
08	503	234	46.5	361	189	52.4	39.3	23.8
09	3,161	1,591	50.3	2,599	1,249	48.1	21.6	27.4
10	430	136	31.6	407	134	32.9	5.7	1.5
11	4,597	1,601	34.8	4,108	1,198	29.2	11.9	33.6
12	4,549	966	21.2	3,806	696	18.3	19.5	38.8
13	3,371	417	12.4	2,643	288	10.9	27.5	44.8
14	1,503	88	5.9	1,123	60	5.3	33.6	46.7
15	560	26	4.6	407	15	3.7	37.6	73.3
16	115	2	1.7	140	1	.7	- 17.9	100.0
17	38	2	5.3	77	1	1.3	- 50.6	100.0
18	6			1			500.0	0.0
ABOVE 18	3			2			50.0	0.0
UNGRADED				1			-100.0	0.0
TOTAL B/	41,216	22,219	53.9	33,785	17,520	51.9	22.0	26.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

GEN ADM CLER AND OFF SER — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	1,937	1,320	69.2	4,108	3,132	76.2	- 53.6	- 57.9
02	20,256	16,567	81.8	44,682	38,512	86.2	- 54.7	- 57.0
03	83,685	74,910	89.4	100,411	89,000	88.6	- 16.7	- 15.9
04	95,869	86,886	90.6	90,590	81,133	89.6	5.8	7.1
05	77,519	64,917	83.7	69,776	57,498	82.4	11.1	12.9
06	41,896	29,889	71.3	28,477	22,804	80.1	47.1	31.1
07	30,793	18,933	61.5	24,965	15,423	61.8	23.3	22.8
08	7,243	4,646	64.1	4,798	3,282	68.4	51.0	41.6
09	21,048	8,287	39.4	16,530	5,994	36.3	27.3	38.3
10	2,824	886	31.4	1,736	532	30.6	62.7	66.5
11	18,238	4,039	22.1	15,260	2,890	18.9	19.5	39.8
12	18,734	2,314	12.4	14,089	1,441	10.2	33.0	60.6
13	14,731	977	6.6	10,444	569	5.4	41.0	71.7
14	8,008	358	4.5	6,092	201	3.3	31.5	78.1
15	4,900	132	2.7	3,732	90	2.4	31.3	46.7
16	1,260	20	1.6	1,280	17	1.3	- 1.6	17.6
17	726	11	1.5	643	12	1.9	12.9	- 8.3
18	271	3	1.1	254	3	1.2	6.7	0.0
ABOVE 18	382	9	2.4	372	7	1.9	2.7	28.6
UNGRADED	73	34	46.6	119	36	30.3	- 38.7	- 5.6
TOTAL B/	450,363	315,038	70.0	438,358	322,576	73.6	2.7	- 2.3

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES. SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

BIOLOGICAL SCIENCES — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	16	12	75.0	38	9	23.7	- 57.9	33.3
02	435	75	17.2	245	111	45.3	78.0	- 32.4
03	1,068	141	13.2	1,692	196	11.6	- 36.9	- 28.1
04	1,935	199	10.4	2,564	239	9.3	- 25.7	- 16.7
05	3,495	358	10.2	5,000	409	8.2	- 30.1	- 12.5
06	2,475	119	4.8	2,231	105	4.7	10.9	13.3
07	5,449	506	9.3	5,764	515	8.9	- 5.5	- 1.7
08	133	32	24.1	99	26	26.3	34.3	23.1
09	7,887	473	6.0	8,080	349	4.3	- 2.4	35.5
10	107	10	9.3	61	9	14.8	75.4	11.1
11	7,795	225	2.9	6,300	223	3.5	23.7	.9
12	4,521	153	3.4	3,979	119	3.0	13.6	28.6
13	2,795	99	3.5	2,330	95	4.1	20.0	4.2
14	1,429	56	3.9	1,122	59	5.3	27.4	- 5.1
15	595	18	3.0	458	15	3.3	30.1	20.0
16	211	4	1.9	136	2	1.5	55.1	100.0
17	69	1	1.4	51			35.3	*
18	25			19			31.6	0.0
ABOVE 18	4						*	0.0
UNGRADED								
TOTAL B/	40,419	2,481	6.1	40,169	2,481	6.2	.6	0.0

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

ACCOUNTING AND BUDGET — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	8	4	50.0	1	1	100.0	700.0	300.0
02	235	199	84.7	551	467	84.8	- 57.4	- 57.4
03	3,642	3,179	87.3	4,710	3,925	83.3	- 22.7	- 19.0
04	14,874	12,661	85.1	15,375	12,821	83.4	- 3.3	- 1.2
05	23,525	17,118	72.8	22,567	15,155	67.2	4.2	13.0
06	10,291	7,400	71.9	8,333	5,961	71.5	23.5	24.1
07	11,424	6,556	57.4	10,967	5,533	50.5	4.2	18.5
08	2,463	1,085	44.1	2,098	841	40.1	17.4	29.0
09	9,544	3,500	36.7	9,319	3,038	32.6	2.4	15.2
10	1,069	233	21.8	841	189	22.5	27.1	23.3
11	12,521	1,699	13.6	13,096	1,213	9.3	- 4.4	40.1
12	10,856	784	7.2	9,233	573	6.2	17.6	36.8
13	8,499	304	3.6	6,915	203	2.9	22.9	49.8
14	3,699	68	1.8	2,958	41	1.4	24.7	65.9
15	1,400	10	.7	1,087	8	.7	28.8	25.0
16	255	3	1.2	228	2	.9	11.8	50.0
17	86			84			2.4	0.0
18	30			26			15.4	0.0
ABOVE 18	8			2			300.0	0.0
UNGRADED	1			47	5	10.6	- 97.9	-100.0
TOTAL B/	114,421	54,803	47.9	108,438	49,976	46.1	5.5	9.7

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D

BY OCCUPATIONAL GROUP

MED HOSP DENT PUB HEALTH

WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	44	33	75.0	333	294	88.3	- 86.8	- 88.8
02	1,786	1,387	77.7	5,344	3,745	70.1	- 66.6	- 63.0
03	14,834	8,041	54.2	19,866	8,441	42.5	- 25.3	- 4.7
04	17,891	8,674	48.5	14,766	5,854	39.6	21.2	48.2
05	8,275	3,884	46.9	6,095	2,961	48.6	35.8	31.2
06	4,279	2,384	55.7	8,409	6,776	80.6	- 49.1	- 64.8
07	9,718	7,957	81.9	12,098	10,481	86.6	- 19.7	- 24.1
08	2,990	1,753	58.6	2,332	961	41.2	28.2	82.4
09	12,354	10,737	86.9	6,123	4,359	71.2	101.8	146.3
10	1,380	589	42.5	1,152	377	32.7	20.3	56.2
11	4,453	2,193	49.3	3,895	1,737	44.6	14.2	26.3
12	3,887	1,111	28.6	3,903	1,137	29.1	- .4	- 2.3
13	1,803	508	28.2	1,670	405	24.3	8.0	25.4
14	2,958	446	15.1	2,930	393	13.4	1.0	13.5
15	4,152	259	6.2	3,643	171	4.7	14.0	51.5
16	811	36	4.4	825	39	4.7	- 1.7	- 7.7
17	152	1	.7	126	2	1.6	20.6	- 50.0
18	50			55			- 9.1	0.0
ABOVE 18	14			15			- 6.7	0.0
UNGRADED	2	2	100.0	31	5	16.1	- 93.5	- 60.0
TOTAL B/	91,836	49,995	54.4	93,611	48,138	51.4	- 1.9	3.9

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

VETERINARY MEDICAL SCIENCE — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1965			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02								
03				1			-100.0	0.0
04								
05								
06								
07	3			5			- 40.0	0.0
08	1			1			0.0	0.0
09	11	1	9.1	27	2	7.4	- 59.3	- 50.0
10								
11	917	20	2.2	1,035	9	.9	- 11.4	122.2
12	788	5	.6	706	3	.4	11.6	66.7
13	390	3	.8	361	2	.6	9.7	50.0
14	184	1	.5	129			42.6	*
15	56			72			- 22.2	0.0
16	10			2			400.0	0.0
17	3						*	0.0
18								
ABOVE 18								
UNGRADED								
TOTAL B/	2,369	30	1.3	2,339	16	.7	1.3	87.5

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D

BY OCCUPATIONAL GROUP

ENGINEERING AND ARCHITECTURE

WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	55	8	14.5	250	3	1.2	- 78.0	166.7
02	669	61	9.1	1,213	95	7.8	- 44.8	- 35.8
03	1,332	105	7.9	2,179	93	4.3	- 38.9	12.9
04	2,145	169	7.9	2,551	161	6.3	- 15.9	5.0
05	3,967	264	6.7	4,813	262	5.4	- 17.6	.8
06	2,552	146	5.7	2,522	144	5.7	1.2	1.4
07	11,153	343	3.1	11,051	337	3.0	.9	1.8
08	2,045	45	2.2	919	11	1.2	122.6	309.1
09	20,660	289	1.4	19,828	223	1.1	4.2	29.6
10	3,293	26	.8	1,305	2	.2	152.3	200.0
11	32,353	161	.5	30,168	179	.6	7.2	- 10.1
12	29,731	154	.5	25,018	101	.4	18.8	52.5
13	23,860	57	.2	19,471	43	.2	22.5	32.6
14	10,933	21	.2	8,837	11	.1	23.7	90.9
15	4,781	5	.1	3,575	6	.2	33.7	- 16.7
16	801			677			18.3	0.0
17	279			222			25.7	0.0
18	44			29			51.7	0.0
ABOVE 18	4			3			33.3	0.0
UNGRADED				4			-100.0	0.0
TOTAL B/	150,656	1,854	1.2	134,635	1,671	1.2	11.9	11.0

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

LEGAL AND KINDRED — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02	4	2	50.0	3	2	66.7	33.3	0.0
03	273	237	86.8	259	182	70.3	5.4	30.2
04	4,249	3,880	91.3	5,238	4,490	85.7	- 18.9	- 13.6
05	4,554	3,743	82.2	6,573	5,435	82.7	- 30.7	- 31.1
06	5,328	4,904	92.0	1,035	835	80.7	414.8	487.3
07	3,054	1,950	63.9	3,254	1,577	48.5	- 6.1	23.7
08	1,388	956	50.6	1,344	577	42.9	40.5	65.7
09	2,613	1,087	41.6	2,915	792	27.2	- 10.4	37.2
10	1,934	627	32.4	1,703	472	27.7	13.6	32.8
11	3,483	630	18.1	2,709	373	13.8	28.6	68.9
12	3,642	354	9.7	3,143	233	7.4	15.9	51.9
13	3,030	197	6.5	2,667	155	5.8	13.6	27.1
14	2,255	141	6.3	2,130	95	4.5	5.9	48.4
15	2,041	66	3.2	1,403	43	3.1	45.5	53.5
16	620	12	1.9	631	8	1.3	- .8	50.0
17	161	5	3.1	139	3	2.2	15.8	66.7
18	52			46			13.0	0.0
ABOVE 18	73	5	6.8	71	3	4.2	2.8	66.7
UNGRADED	6,275	2,506	39.9	5,648	3,324	58.9	11.1	- 24.6
TOTAL B/	45,530	21,302	46.8	40,911	18,599	45.5	11.3	14.5

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D

BY OCCUPATIONAL GROUP

INFORMATION AND ARTS

WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	5	2	40.0	6	3	50.0	- 16.7	- 33.3
02	24	9	37.5	41	10	24.4	- 41.5	- 10.0
03	126	64	50.8	187	104	55.6	- 32.6	- 38.5
04	724	516	71.3	829	543	65.5	- 12.7	- 5.0
05	1,865	1,144	61.3	2,022	1,206	59.6	- 7.8	- 5.1
06	835	523	65.0	668	439	65.7	20.5	19.1
07	2,931	1,141	38.9	2,767	1,075	38.9	5.9	6.1
08	389	70	18.0	368	74	20.1	5.7	- 5.4
09	4,003	1,098	27.4	3,453	946	27.4	15.9	16.1
10	556	93	16.7	376	56	14.9	47.9	66.1
11	3,234	708	21.9	2,911	596	20.5	11.1	18.8
12	2,321	348	15.0	1,998	321	16.1	16.2	8.4
13	1,730	195	11.3	1,536	179	11.7	12.6	8.9
14	1,023	85	8.3	889	63	7.1	15.1	34.9
15	308	11	3.6	258	7	2.7	19.4	57.1
16	215	6	2.8	197	3	1.5	9.1	100.0
17	62	5	8.1	78	3	3.8	- 20.5	66.7
18	11			10			10.0	0.0
ABOVE 18	4						*	0.0
UNGRADED	1			2			- 50.0	0.0
TOTAL B/	20,337	6,018	29.6	18,596	5,628	30.3	9.4	6.9

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

BUSINESS AND INDUSTRY — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1965			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	8			1	1	100.0	700.0	-100.0
02	10	5	50.0	36	26	72.2	- 72.2	- 80.8
03	395	331	83.8	580	495	85.3	- 31.9	- 33.1
04	3,534	3,141	88.9	3,664	3,229	88.1	- 3.5	- 2.7
05	4,910	3,002	61.1	5,376	2,972	55.3	- 8.7	1.0
06	1,329	721	54.3	1,062	605	57.0	25.1	19.2
07	5,763	2,164	37.5	5,742	2,003	34.9	.4	8.0
08	1,025	103	10.0	495	101	20.4	107.1	2.0
09	12,873	2,303	17.9	13,694	1,743	12.7	- 6.0	32.1
10	889	62	7.0	676	52	7.7	31.5	19.2
11	14,632	1,324	9.0	12,364	861	7.0	18.3	53.8
12	10,524	562	5.3	8,317	354	4.3	26.5	58.8
13	5,845	178	3.0	4,800	114	2.4	21.8	56.1
14	2,415	43	1.8	1,976	26	1.3	22.2	65.4
15	978	5	.5	760	3	.4	28.7	66.7
16	123			118	1	.8	4.2	-100.0
17	48	1	2.1	41			17.1	*
18	8			8			0.0	0.0
ABOVE 18	5			2			150.0	0.0
UNGRADED								
TOTAL B/	65,314	13,945	21.4	59,712	12,586	21.1	9.4	10.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

COPY PATENT - TRADE MARK — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02				1			-100.0	0.0
03				8	2	25.0	-100.0	-100.0
04				8	6	75.0	-100.0	-100.0
05	33	5	16.7	47	7	14.9	- 36.2	- 28.6
06	7	2	28.6				*	*
07	136	25	18.4	137	28	20.4	- .7	- 10.7
08								
09	149	27	18.1	162	26	16.0	- 8.0	3.8
10	1			3			- 66.7	0.0
11	173	19	11.2	214	14	6.5	- 20.6	35.7
12	192	16	8.3	243	18	7.4	- 21.0	- 11.1
13	339	19	5.6	381	10	2.6	- 11.0	90.0
14	416	12	2.9	260	6	2.3	60.0	100.0
15	253	2	.8	246	3	1.2	6.9	- 33.3
16	36	1	2.8	26			38.5	*
17	19			17			11.8	0.0
18	3			2			50.0	0.0
ABOVE 18	1						*	0.0
UNGRADED								
TOTAL B/	1,752	128	7.3	1,755	120	6.8	.4	6.7

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

PHYSICAL SCIENCES — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	13	9	50.0	98	6	6.1	- 81.6	50.0
02	182	38	20.9	285	124	43.5	- 36.1	- 69.4
03	356	130	36.5	646	207	32.0	- 44.9	- 37.2
04	561	250	37.8	826	271	32.8	- 20.0	- 7.7
05	1,467	447	30.5	1,936	506	26.1	- 24.2	- 11.7
06	714	195	27.3	703	184	26.2	1.6	6.0
07	3,247	717	22.1	4,252	875	20.5	- 23.8	- 18.1
08	977	106	10.8	406	50	12.3	140.6	112.0
09	6,614	994	15.0	6,567	879	13.4	.7	13.1
10	343	10	2.9	179	10	5.6	91.6	0.0
11	7,571	673	8.9	6,747	433	6.4	12.2	55.4
12	7,249	326	4.5	6,183	249	4.0	17.2	30.9
13	6,798	194	2.9	5,518	140	2.5	23.2	38.6
14	4,147	64	1.5	3,362	52	1.5	23.3	23.1
15	2,632	27	1.0	1,981	16	.8	32.9	68.8
16	758	4	.5	670	4	.6	13.1	0.0
17	373	2	.5	286			30.4	*
18	113			93			26.9	0.0
ABOVE 18	14			9			77.8	0.0
UNGRADED								
TOTAL B/	44,241	4,186	9.5	40,757	4,006	9.8	8.5	4.5

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

LIBRARY AND ARCHIVES — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	18	3	16.7	7			157.1	*
02	64	46	71.9	72	49	68.1	- 11.1	- 6.1
03	536	372	69.4	451	256	56.8	18.8	45.3
04	925	639	69.1	880	575	65.3	5.1	11.1
05	1,285	838	65.2	1,142	806	70.6	12.6	4.0
06	629	431	68.5	321	204	63.6	96.0	111.3
07	1,035	668	64.5	936	640	68.4	10.7	4.4
08	178	122	68.5	153	125	81.7	16.3	- 2.4
09	1,324	976	73.7	1,268	957	75.5	4.4	2.0
10	153	123	80.4	115	89	77.4	33.0	38.2
11	1,090	731	67.1	810	522	64.4	34.6	40.0
12	571	304	53.2	391	205	52.4	46.0	48.3
13	343	142	41.4	237	99	41.8	44.7	43.4
14	180	52	28.9	120	27	22.5	50.0	92.6
15	78	9	11.5	57	5	8.8	36.8	80.0
16	18	1	5.6	14			28.6	*
17	4			10	1	10.0	- 60.0	-100.0
18	5	1	20.0	3			66.7	*
ABOVE 18	4			2			100.0	0.0
UNGRADED	13	11	84.6	13	12	92.3	0.0	- 8.3
TOTAL B/	8,455	5,469	64.7	7,002	4,572	65.3	20.8	19.6

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

MATHEMATICS - STATISTICS — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1965			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01				1	1	100.0	-100.0	-100.0
02	11	10	90.9	71	49	69.0	- 84.5	- 79.6
03	225	174	77.3	620	495	79.8	- 63.7	- 64.8
04	1,224	1,050	85.8	1,733	1,466	84.6	- 29.4	- 28.4
05	1,771	1,436	81.1	2,480	1,936	78.1	- 28.6	- 25.8
06	836	712	85.2	837	697	83.3	- .1	2.2
07	1,650	1,043	63.2	1,775	1,086	61.2	- 7.0	- 4.0
08	225	106	47.1	108	85	78.7	108.3	24.7
09	1,548	713	46.1	1,453	651	44.8	6.5	9.5
10	112	24	21.4	29	12	41.4	286.2	100.0
11	1,543	430	27.9	1,459	442	30.3	5.8	- 2.7
12	1,560	282	18.0	1,414	267	18.9	10.7	5.6
13	1,653	227	13.7	1,301	173	13.3	27.1	31.2
14	1,048	74	7.1	827	59	7.1	26.7	25.4
15	690	25	3.6	495	15	3.0	39.4	66.7
16	152			130	2	1.5	16.9	-100.0
17	58	2	3.4	29	1	3.4	100.0	100.0
18	21			11			90.9	0.0
ABOVE 18				1			-100.0	0.0
UNGRADED								
TOTAL B/	14,333	6,308	44.0	14,774	7,437	50.3	- 3.0	- 15.2

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

EQUIPMENT, FACILITIES & SERV — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	2	2	100.0	17	9	52.9	- 88.2	- 77.8
02	1	1	100.0	2	1	50.0	- 50.0	0.0
03	8	6	75.0	20	11	55.0	- 60.0	- 45.5
04	266	29	10.9	35	2	5.7	660.0	350.0
05	230	28	12.2	247	22	8.9	- 6.9	27.3
06	331	18	5.4	204	6	2.9	62.3	200.0
07	1,336	93	7.0	1,237	84	6.8	8.0	10.7
08	298	7	2.3	237	4	1.7	25.7	75.0
09	6,002	97	1.6	6,352	88	1.4	- 5.5	10.2
10	561	7	1.2	468	18	3.8	19.9	- 61.1
11	5,703	70	1.2	5,236	43	.8	8.9	62.8
12	3,757	14	.4	2,772	12	.4	35.5	16.7
13	1,069	1	.1	843	3	.4	26.8	- 66.7
14	245	2	.8	181	1	.6	35.4	100.0
15	61			49			24.5	0.0
16	6			5			20.0	0.0
17				1			-100.0	0.0
18								
ABOVE 18	2						*	0.0
UNGRADED	1			1			0.0	0.0
TOTAL B/	19,879	375	1.9	17,907	304	1.7	11.0	23.4

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

EDUCATION — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	20	20	100.0	1	1	100.0	900.0	900.0
02	27	23	85.2	8	6	75.0	237.5	283.3
03	429	300	69.9	443	300	67.7	- 3.2	0.0
04	2,004	1,603	80.0	3,660	2,835	77.5	- 45.2	- 43.5
05	4,132	3,294	79.7	3,572	2,304	64.5	15.7	43.0
06	2,487	1,565	62.9	1,328	622	46.8	87.3	151.6
07	3,692	1,262	34.2	3,843	1,117	29.1	- 3.9	13.0
08	1,691	561	33.2	235	83	35.3	619.6	575.9
09	6,576	1,695	25.8	4,563	1,080	23.7	44.1	56.9
10	573	160	27.7	291	49	16.8	98.6	226.5
11	3,413	383	11.2	2,452	243	9.9	39.2	57.6
12	1,866	170	9.1	1,583	128	8.1	17.9	32.8
13	1,246	106	8.5	1,025	89	8.7	21.6	19.1
14	755	93	12.3	682	61	8.9	10.7	52.5
15	307	15	4.9	226	7	3.1	35.8	114.3
16	86	2	2.3	71	3	4.2	21.1	- 33.3
17	22	1	4.5	27	1	3.7	- 18.5	0.0
18	5			8			- 37.5	0.0
ABOVE 18	2			3			- 33.3	0.0
UNGRADED				503	336	66.8	-100.0	-100.0
TOTAL B/	29,338	11,253	38.4	24,524	9,265	37.8	19.6	21.5

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

INVESTIGATION — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01								
02								
03	13	3	30.0	9	1	11.1	11.1	200.0
04	109	39	35.8	81	17	21.0	34.6	129.4
05	1,078	148	13.7	1,475	138	9.4	- 26.9	7.2
06	461	68	14.8	466	52	11.2	- 1.1	30.8
07	5,673	327	5.8	5,233	219	4.2	8.4	49.3
08	1,655	4	.2	1,485	9	.6	11.4	- 55.6
09	7,028	210	3.0	6,783	140	2.1	3.6	50.0
10	1,633	3	.2	1,340	31	2.3	21.6	- 90.3
11	6,133	163	2.7	5,477	72	1.3	11.9	126.4
12	5,191	33	.6	3,435	12	.3	51.1	175.0
13	5,936	4	.1	5,924	2	.0	.3	100.0
14	1,719	2	.1	1,380			24.6	*
15	564			366			54.1	0.0
16	85			96			- 11.5	0.0
17	64			41			56.1	0.0
18	19			19			0.0	0.0
ABOVE 18	6						*	0.0
UNGRADED								
TOTAL B/	37,325	1,004	2.7	33,610	693	2.1	11.1	44.9

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

COMMOD QUAL CONT INSP-GR — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	1						*	0.0
02				11	6	54.5	-100.0	-100.0
03	20	10	50.0	72	26	36.1	- 72.2	- 61.5
04	56	13	23.2	97	16	16.5	- 42.3	- 18.8
05	478	77	16.1	686	60	8.7	- 30.3	28.3
06	337	18	5.3	197	16	8.1	71.1	12.5
07	2,522	347	13.8	1,984	146	7.4	27.1	137.7
08	402	4	1.0	589	28	4.8	- 31.7	- 85.7
09	9,296	162	1.7	8,733	125	1.4	6.4	29.6
10	431	9	2.1	931	10	1.1	- 53.7	- 10.0
11	5,603	39	.7	4,549	22	.5	23.2	77.3
12	2,254	9	.4	1,701	8	.5	32.5	12.5
13	766	3	.4	548	1	.2	39.8	200.0
14	189			157			20.4	0.0
15	37			29			27.6	0.0
16	1			1			0.0	0.0
17								
18								
ABOVE 18								
UNGRADED								
TOTAL B/	22,393	691	3.1	20,285	464	2.3	10.4	48.9

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D BY OCCUPATIONAL GROUP

SUPPLY GROUP WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1965			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	103	66	64.1	108	43	39.8	- 4.6	53.5
02	739	455	61.6	2,140	1,483	69.3	- 65.5	- 69.3
03	7,892	5,151	65.3	8,937	5,622	62.9	- 11.7	- 8.4
04	13,924	9,165	65.8	14,097	9,415	66.8	- 1.2	- 2.7
05	12,944	7,303	56.4	12,071	6,746	55.9	7.2	8.3
06	3,836	1,226	32.0	2,611	922	35.3	46.9	33.0
07	9,226	3,583	38.8	8,697	3,224	37.1	6.1	11.1
08	1,332	195	14.6	1,034	174	16.8	28.8	12.1
09	10,761	3,675	34.2	9,355	2,906	31.1	15.0	26.5
10	665	63	9.5	587	46	7.8	13.3	37.0
11	7,311	1,430	19.6	6,078	1,050	17.3	20.3	36.2
12	4,206	384	9.1	3,404	234	6.9	23.6	64.1
13	2,223	76	3.4	1,717	80	4.7	29.5	- 5.0
14	757	14	1.8	670	19	2.8	13.0	- 26.3
15	229	1	.4	216	3	1.4	6.0	- 66.7
16	21			26			- 19.2	0.0
17	5			5			0.0	0.0
18								
ABOVE 18								
UNGRADED	1			2			- 50.0	0.0
TOTAL B/	76,175	32,787	43.0	71,755	31,967	44.6	6.2	2.6

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D — BY OCCUPATIONAL GROUP

TRANSPORTATION — WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1959			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	1	1	100.0	1	1	100.0	0.0	0.0
02	42	10	23.8	83	44	53.0	- 49.4	- 77.3
03	887	475	53.6	928	514	55.4	- 4.4	- 7.6
04	2,428	1,846	76.0	2,132	1,599	75.0	13.9	15.4
05	2,752	1,961	71.3	2,295	1,617	70.5	19.9	21.3
06	1,339	698	52.1	1,180	559	47.4	13.5	24.9
07	3,293	818	24.8	1,665	585	35.1	97.8	39.8
08	924	228	24.7	2,008	182	9.1	- 54.0	25.3
09	5,730	432	7.5	4,004	364	9.1	43.1	18.7
10	2,748	90	3.3	2,439	72	3.0	12.7	25.0
11	5,674	193	3.4	3,981	117	2.9	42.5	65.0
12	6,100	77	1.3	6,240	50	.8	- 2.2	54.0
13	5,605	29	.5	2,769	20	.7	102.4	45.0
14	1,941	3	.2	1,022	3	.3	89.9	0.0
15	287			183			56.8	0.0
16	17			21	1	4.8	- 19.0	-100.0
17	8			8			0.0	0.0
18	3			1			200.0	0.0
ABOVE 18								
UNGRADED				3			-100.0	0.0
TOTAL B/	39,779	6,861	17.2	30,963	5,728	18.5	28.5	19.8

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE D

BY OCCUPATIONAL GROUP

POSTAL GROUP

WORLDWIDE

GRADE A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
01	3,295	2,361	71.7				*	*
02	831	559	67.3				*	*
03	947	618	65.3	5	2	40.0	840.0	800.0
04	7,208	5,740	79.6	39,031	5,766	14.8	- 81.5	- .5
05	472,022	77,792	16.5	373,025	43,651	11.7	26.5	78.2
06	45,758	8,013	17.5	39,783	5,796	14.6	15.0	38.3
07	28,506	1,643	5.8	15,668	1,194	7.6	81.9	37.6
08	18,937	793	4.2	10,035	699	7.0	88.7	13.4
09	12,686	267	2.1	7,474	249	3.3	69.7	7.2
10	4,159	66	1.6	3,456	76	2.2	20.3	- 13.2
11	1,999	35	1.8	1,770	27	1.5	12.9	29.6
12	2,159	21	1.0	1,958	19	1.0	10.3	10.5
13	1,177	7	.6	835	4	.5	41.0	75.0
14	103			105			- 1.9	0.0
15	85			71			21.1	0.0
16	37	1	2.7	6			516.7	*
17								
18								
ABOVE 18				1			-100.0	0.0
UNGRADED				39,268	6,221	15.8	-100.0	-100.0
TOTAL B/	599,910	97,916	16.3	532,491	63,704	12.0	12.7	53.7

A/ THE GRADES OR LEVELS OF THE VARIOUS PAY SYSTEMS HAVE BEEN CONSIDERED EQUIVALENT TO SPECIFIC GENERAL SCHEDULE GRADES SOLELY ON THE BASIS OF COMPARISON OF SALARY RATES, SPECIFICALLY, IN MOST INSTANCES, BY COMPARING THE 4TH STEP GS RATES WITH COMPARABLE RATES IN OTHER PAY SYSTEMS.

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE-COLLAR EMPLOYMENT

BY

SPECIAL OCCUPATION CATEGORIES

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE E — BY SPECIAL CATEGORIES

ALL AGENCIES — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III	604,797	111,635	18.5	551,637	100,196	18.2	9.6	11.5
CATEGORY II	737,245	354,900	48.1	648,028	309,502	47.8	13.8	14.7
CATEGORY I	647,750	198,759	30.7	637,397	100,136	32.6	1.6	- 4.3
GRAND TOTAL B/	1,989,792	665,294	33.4	1,837,062	617,220	33.6	8.3	7.8

A/ CATEGORIES I, II AND III ARE DEFINED IN THE INTRODUCTION

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE P — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

MISCELLANEOUS OCCUPATIONS — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
CORRECTIONAL INST ADMIN	90	2	2.2	85	3	3.5	5.9	- 33.3
INSTITUTIONAL ADMIN			.0	3		.0	-100.0	.0
INSTITUTIONAL MANAGEMENT			.0	1		.0	-100.0	.0
BOND SALES PROMOTION	236	12	5.1	240	12	5.0	- 1.7	.0
SAFETY MANAGEMENT	1,839	21	1.1	1,646	13	.8	11.7	61.5
URBAN PLANNING	248	16	6.5	175	10	5.7	41.7	60.0
PARK MANAGEMENT			.0	133	6	4.5	-100.0	-100.0
CROP INSURANCE ADM	242	8	3.3	174	1	.6	39.1	700.0
FUNERAL DIRECTING	48	2	4.2	63	1	1.6	- 23.8	100.0
CHAPLAIN	410	7	1.7	383		.0	7.0	*
SECURITY ADMIN	2,723	563	20.7	2,329	511	21.9	16.9	10.2
CATEGORY TOTAL	5,836	631	10.8	5,232	557	10.6	11.5	13.3
CATEGORY II								
TRADES, CRAFTS, AND LABOR	17	2	11.8	15		.0	13.3	*
CORRECTIONAL OFFICER	2,642	132	5.0	2,788	132	4.7	- 5.2	.0
PARK MANAGEMENT	951	24	2.5			.0	*	*
PARK TECHNICIAN	92	11	34.4	757	9	1.2	- 95.8	22.2
CLOTHING DESIGN	43	4	9.3	44	3	6.8	- 2.3	33.3
FINGERPRINT IDENTIFICAT	811	398	49.1	709	295	41.6	14.4	34.9
FIRE PROTECTION & PREVENT	12,041	11	.1	11,161	9	.1	7.9	22.2
U S MARSHAL	844	9	1.1	804	4	.5	5.0	125.0
POLICE	2,787	8	.3	2,548	11	.4	9.4	- 27.3
GUARD	11,902	38	.3	9,226	20	.2	29.0	75.0

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE P — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

MISCELLANEOUS OCCUPATIONS — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
GUIDE	168	28	16.7	218	39	17.9	- 22.9	- 28.2
GENERAL STUDENT TRAINEE	198	39	28.3	16	2	12.5	762.5	850.0
CATEGORY TOTAL	32,376	701	2.2	28,286	524	1.9	14.5	33.8
CATEGORY I								
TRADES, CRAFTS, AND LABOR	1	1	100.0	1		.0	.0	*
PARK TECHNICIAN	6	6	100.0	1		.0	500.0	*
FINGERPRINT IDENTIFICAT	434	249	57.4	490	361	73.7	- 11.4	- 31.0
FIRE PROTECTION - PREVENT	336	2	.6	668	1	.1	- 49.7	100.0
POLICE	24		.0	90	1	1.1	- 73.3	-100.0
GUARD	2,328	26	1.1	4,167	13	.3	- 44.1	100.0
GUIDE	22	11	50.0	10	1	10.0	120.0	.0
GENERAL STUDENT TRAINEE	96	3	8.3	11	3	27.3	227.3	.0
CATEGORY TOTAL	3,187	298	9.4	5,438	380	7.0	- 41.4	- 21.6
OCCUP. GROUP TOTAL	41,399	1,630	3.9	38,956	1,461	3.8	6.3	11.6

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

SOCIAL SCI PSYCH WELFARE WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
CATEGORY III								
SOCIAL SCIENCE	1,534	456	29.7	1,201	310	25.8	27.7	47.1
SOCIAL INSURANCE ADM	8,655	3,694	42.7	9,652	3,253	33.7	- 10.3	13.6
UNEMPLOYMENT INSURANCE	106	14	13.2			.0	*	*
ECONOMISTS	4,358	496	11.4	4,136	489	11.8	5.4	1.4
FOREIGN AFFAIRS	2,596	416	16.0	3,821	589	15.4	- 32.1	- 29.4
INTERNATL RELATIONS	1,532	62	4.0	821	46	5.6	86.6	34.8
INTELLIGENCE	3,415	458	13.4	3,046	473	15.5	12.1	- 3.2
FOREIGN AGRI AFFAIRS	116		.0	110	1	.9	5.5	-100.0
INTERNATIONAL COOPERATION	49	1	2.0	59	7	11.9	- 16.9	- 85.7
MANPOWER RES & ANALYSIS	98	29	29.6	33	9	27.3	197.0	222.2
MANPOWER DEVELOPMENT	663	121	18.3	342	47	13.7	93.9	157.4
GEOGRAPHY	157	29	18.5	150	22	14.7	4.7	31.8
HISTORY	623	123	19.7	529	86	16.3	17.8	43.0
PSYCHOLOGY	2,049	270	13.2	1,879	274	14.6	9.0	- 1.5
SOCIOLOGY	48	11	22.9	22	7	31.8	118.2	57.1
SOCIAL WORK	2,362	1,129	47.8	2,648	1,250	47.2	- 10.8	- 9.7
RECREATION	2,217	718	32.4	2,025	722	35.7	9.5	- .6
GENERAL ANTHROPOLOGY	71	14	19.7	69	12	17.4	2.9	16.7
ARCHEOLOGY	42	2	4.8	53	1	1.9	- 20.8	100.0
CATEGORY TOTAL	30,691	8,043	26.2	30,596	7,598	24.8	.3	5.9
CATEGORY II								
ECONOMICS ASSISTANT	96	60	62.5	114	67	58.8	- 15.8	- 10.4
INTELLIGENCE AID - CLERK	693	512	73.9	639	481	75.3	8.5	6.4

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

SOCIAL SCI PSYCH WELFARE — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
PSYCHOLOGY AID & TECH	208	115	55.3	151	65	43.0	37.7	76.9
SOCIAL SERVICES AID & ASS	95	33	34.7			.0	*	*
SOCIAL SERVICES	394	179	45.4	182	72	39.6	116.5	148.6
RECREATION AID & ASST	87	19	21.8			.0	*	*
SOC SCI STUDENT TRAINEE	1		.0	11	6	54.5	-90.9	-100.0
CATEGORY TOTAL	1,574	918	58.3	1,097	691	63.0	43.5	32.9
CATEGORY I								
ECONOMICS ASSISTANT			.0	3	1	33.3	-100.0	-100.0
INTELLIGENCE AID - CLERK	5	5	100.0	14	11	78.6	-64.3	-54.5
PSYCHOLOGY AID & TECH	1	1	100.0	5	1	20.0	-80.0	.0
SOCIAL SERVICES AID & ASS	30	26	86.7			.0	*	*
RECREATION AID & ASST	30	5	16.7			.0	*	*
SOC SCI STUDENT TRAINEE	5	3	60.0	14	6	42.9	-64.3	-50.0
CATEGORY TOTAL	71	40	56.3	36	19	52.8	97.2	110.5
OCCUP. GROUP TOTAL	32,336	9,001	27.8	31,729	8,308	26.2	1.9	8.3

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

PERSONNEL MGMT & IND RELA — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
PERSONNEL MANAGEMENT	9,251	2,336	25.3	8,795	2,309	26.3	5.2	1.2
MILITARY PERSONNEL MGMT	496	109	22.0			.0	*	*
PERSONNEL STAFFING	3,685	1,723	46.8	3,365	1,622	49.1	11.5	6.2
POSITION CLASSIFICATION	2,475	756	30.5	2,339	678	29.0	5.8	11.5
OCCUPATIONAL ANALYSIS	23	5	21.7	41	7	17.1	- 43.9	- 28.6
SALARY AND WAGE ADMIN	85	28	32.9	79	17	21.5	7.6	64.7
EMPL MGMT RELATNS & COOP	1,426	358	25.1	818	227	27.8	74.3	57.7
EMPLOYEE DEVELOPMENT	2,044	325	15.9	1,738	231	13.3	17.6	40.7
MEDIATION	306	2	.7	312	1	.3	- 1.9	100.0
APPRENTICESHIP & TRAINING	259	4	1.5	294	1	.3	- 11.9	300.0
LABOR MGMT RELATIONS EXAM	324	32	9.9	348	30	8.6	- 6.9	6.7
CONTRACTOR INDUSTRIAL REL	176	4	2.3	148	5	3.4	18.9	- 20.0
CATEGORY TOTAL	20,550	5,682	27.6	18,217	5,128	28.1	12.8	10.8
CATEGORY II								
PERSONNEL CLERICAL & ASST	9,697	7,975	82.2	7,523	6,092	81.0	28.9	30.9
MIL PERSONNEL CLER & TECH	9,332	7,065	73.7	6,057	4,556	75.2	54.1	55.1
CATEGORY TOTAL	19,029	15,040	79.0	13,580	10,648	78.4	40.1	41.2
CATEGORY I								
PERSONNEL CLERICAL & ASST	323	306	94.7	304	278	91.4	6.3	10.1
MIL PERSONNEL CLER & TECH	1,314	1,191	90.6	1,684	1,466	87.1	- 22.0	- 18.8
CATEGORY TOTAL	1,637	1,497	91.4	1,988	1,744	87.7	- 17.7	- 14.2
OCCUP. GROUP TOTAL	41,216	22,219	53.9	33,785	17,520	51.9	22.0	26.8

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

GEN ADM CLER AND OFF SER — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
GENERAL CLERICAL AND ADM	95,130	5,718	16.3	30,727	4,429	14.4	14.3	29.1
DIGITAL COMPUTER SYS ADM	1,339	98	7.3	1,238	101	8.2	8.2	- 3.0
COMPUTER SPECIALIST	18,596	4,044	21.7	12,092	2,436	20.1	53.8	66.0
PROGRAM MANAGEMENT	2,966	68	2.3	2,842	57	2.0	4.4	19.3
ADMIN OFF	9,533	3,059	32.0	9,444	2,809	29.7	.9	8.7
MANAGEMENT ANALYSIS	9,472	1,602	16.9	8,479	1,174	13.8	11.7	36.5
PROGRAM ANALYSIS	7,512	1,472	19.6	2,518	531	21.1	198.3	177.2
ELECT ACCT MACH PROJ PLAN	629	175	27.8	877	282	32.2	- 28.3	- 37.9
COMMUNICATIONS MANAGEMENT	916	94	10.3	298	36	12.1	207.4	161.1
COMMUNICATIONS SPECIALIST	2,593	149	5.9	1,608	94	5.8	57.5	58.5
CATEGORY TOTAL	88,626	16,473	18.6	70,123	11,949	17.0	26.4	37.9
CATEGORY II								
GENERAL CLERICAL AND ADM	76,495	50,420	66.0	55,023	36,649	66.6	38.9	37.6
MESSENGER	84	23	27.4	73	14	19.2	15.1	64.3
INFORMATION RECEPYIONIST	598	522	87.3	541	463	85.6	10.5	12.7
MAIL AND FILE	10,674	6,451	60.4	10,087	5,816	57.7	5.8	10.9
CORRESPONDENCE CLERK	1,443	1,238	85.7	1,569	1,344	85.7	- 7.9	- 7.9
CLERK-STENO AND REPORTER	37,606	37,024	98.5	40,955	40,219	98.2	- 8.2	- 7.9
STENO - TYPING UNIT SUPER	394	364	92.4	388	357	92.0	1.5	2.0
CLERK-DICTAT MACH TRANSC	5,320	5,175	97.3	4,969	4,809	96.8	7.1	7.6
SECRETARY	62,383	61,901	99.2	56,877	56,448	99.2	9.7	9.7
CUCSED MICROPHONE REPORT	291	241	82.8	233	199	85.4	24.9	21.1
CLERK TYPIST	23,302	22,323	95.8	19,298	18,247	94.6	20.7	22.3

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

GEN ADM CLER AND OFF SER — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
COLD-TYPE COMPOSING MACH	437	423	96.8	449	420	93.5	- 2.7	.7
COMPUTER OPERATION	9,021	2,784	30.9	6,033	1,511	25.0	49.5	84.2
COMPUTER AID & TECHNICIAN	3,518	2,270	64.5	840	472	56.2	318.8	380.9
OFF SERV MANAGE AND SUPER	2,879	736	25.6	1,992	691	34.7	44.5	6.5
MANAGEMENT TECHNICIAN	4,021	2,146	53.4	3,928	1,856	47.3	2.4	15.6
OFFICE MACHINE OPERATION	411	114	27.7	258	80	31.0	59.3	42.5
PRINTING CLERICAL	221	170	76.9	204	150	73.5	8.3	13.3
BOOKKEEPING MACH OPER	39	36	92.3	65	63	96.9	- 40.0	- 42.9
CALCULATING MACH OPER	46	41	89.1	38	32	84.2	21.1	28.1
CARD PUNCH OPER	3,690	3,570	98.3	2,879	2,806	97.5	26.1	27.2
CODING	1,684	1,428	84.8	1,318	1,024	77.7	27.8	39.5
ELECT ACCT MACH OPERATION	2,001	1,200	60.0	2,785	1,417	50.9	- 28.2	- 15.3
TELEPHONE OPER	2,380	2,342	98.4	2,263	2,220	98.1	5.2	5.5
TELETYPIST	1,788	1,062	59.4	1,900	1,032	54.3	- 5.9	2.9
CRYPTOGRAPHIC EQUIP OPER	387	113	29.2	689	198	28.7	- 43.8	- 42.9
RACIC OPER	139	8	5.8	135	7	5.2	3.0	14.3
COMM RELAY OPERATION	319	111	34.8	514	155	30.2	- 37.9	- 28.4
GENERAL COMMUNICATIONS	3,993	1,298	32.5	2,397	1,028	42.9	66.6	26.3
COMMUNICATIONS CLERICAL	403	327	81.1	322	260	80.7	25.2	25.8
CATEGORY TOTAL	255,849	205,861	80.5	219,022	179,987	82.2	16.8	14.4
CATEGORY I								
GENERAL CLERICAL AND ADM	17,070	13,426	78.7	18,459	13,620	73.8	- 7.5	- 1.4
MESSENGER	1,492	145	10.1	1,855	134	7.2	- 22.8	8.2
INFORMATION RECEPTIONIST	433	395	91.2	693	571	90.2	- 31.6	- 30.8
MAIL AND FILE	13,859	9,027	65.1	16,574	10,229	61.7	- 16.4	- 11.7

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

GEN ADM CLER AND OFF SER — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CORRESPONDENCE CLERK	305	304	99.7	286	281	98.3	6.6	8.2
CLERK-STENO AND REPORTER	5,680	5,625	99.0	12,301	12,205	99.2	- 53.8	- 53.9
STENO - TYPING UNIT SUPER	2	2	100.0	3	3	100.0	- 33.3	- 33.3
CLERK-DICTAT MACH TRANSC	1,045	1,019	97.5	1,720	1,672	97.2	- 39.2	- 39.1
SECRETARY	140	140	100.0	263	252	95.8	- 46.8	- 44.4
CLOSED MICROPHONE REPORT	1		.0			.0	*	.0
CLERK TYPIST	47,526	45,844	96.5	74,672	71,673	96.0	- 36.4	- 36.0
COLD-TYPE COMPOSING MACH	83	79	95.2	138	133	96.4	- 39.9	- 40.6
COMPUTER OPERATION	390	282	72.3	256	134	52.3	52.3	110.4
COMPUTER AID & TECHNICIAN	214	138	64.5	63	29	46.0	239.7	375.9
MANAGEMENT TECHNICIAN			.0	1	1	100.0	-100.0	-100.0
OFFICE MACHINE OPERATION	1,168	619	53.0	1,450	680	46.9	- 19.4	- 9.0
PRINTING CLERICAL	34	25	73.5	33	25	75.8	3.0	.0
BOOKKEEPING MACH OPER	107	101	94.4	188	173	92.0	- 43.1	- 41.6
CALCULATING MACH OPER	56	53	94.6	187	178	95.2	- 70.1	- 70.2
CARD PUNCH OPER	11,189	10,884	97.3	13,196	12,742	96.6	- 15.2	- 14.6
CODING	484	432	89.3	406	339	83.5	19.2	27.4
ELECT ACCT MACH OPERATION	878	508	57.9	1,627	833	51.2	- 46.0	- 39.0
TELEPHONE OPER	3,481	3,422	98.3	4,450	4,374	98.3	- 21.8	- 21.8
TELETYPIST	132	114	86.4	249	213	85.5	- 47.0	- 46.5
CRYPTOGRAPHIC EQUIP OPER	4	2	50.0	14	7	50.0	- 71.4	- 71.4
RADIO OPER	11	2	18.2	13		.0	- 15.4	*
COMM RELAY OPERATION	16	4	25.0	50	37	74.0	- 68.0	- 89.2
GENERAL COMMUNICATIONS	79	61	77.2	92	79	85.9	- 14.1	- 22.8
COMMUNICATIONS CLERICAL	69	51	73.9	34	29	85.3	102.9	75.9

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

GEN ADM CLER AND OFF SER — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY TOTAL	105,888	92,704	87.5	149,213	130,640	87.6	- 29.0	- 29.0
OCCUP. GROUP TOTAL	450,363	315,038	70.0	438,358	322,576	73.6	2.7	- 2.3

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

BIOLOGICAL SCIENCES — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
CATEGORY III								
GEN BIOLOGICAL SCIENCE	2,593	412	15.9	1,864	369	19.8	39.1	11.7
MICROBIOLOGY	1,497	393	26.3	1,382	375	27.1	8.3	4.8
PHARMACOLOGY	199	32	16.1	194	30	15.5	2.6	6.7
AGRICULTURAL EXTENSION	182	21	11.5	216	23	10.6	- 15.7	- 8.7
ZOOLOGY	135	13	9.6	194	35	18.0	- 30.4	- 62.9
PHYSIOLOGY	325	43	13.2	270	38	14.1	20.4	13.2
ENTOMOLOGY	753	17	2.3	700	13	1.9	7.6	30.8
BOTANY	116	23	19.8	117	26	22.2	- .9	- 11.5
PLANT PATHOLOGY	337	9	2.7	298	8	2.7	13.1	12.5
PLANT PHYSIOLOGY	225	5	2.2	199	2	1.0	13.1	150.0
PL QUARANT - PEST CONT	963	6	.6	976	2	.2	- 1.3	200.0
HORTICULTURE	139	1	.7	144		.0	- 3.5	*
GENETICS	151	7	4.6	140	3	2.1	7.9	133.3
RANGE CONSERVATION	711		.0	858	3	.3	- 17.1	-100.0
SOIL CONSERVATION	4,718	4	.1	4,825		.0	- 2.2	*
FORESTRY	5,961	7	.1	6,094	10	.2	- 2.2	- 30.0
SOIL SCIENCE	1,816	1	.1	1,876	1	.1	- 3.2	.0
AGRONOMY	386	1	.3	379	2	.5	1.8	- 50.0
AGRICULTURAL MANAGEMENT	3,298	5	.2	3,216		.0	2.5	*
GEN FISH-WILDLIFE ADM	114	1	.9	95		.0	20.0	*
FISHERY BIOLOGY	913	9	1.0	799	9	1.1	14.3	.0
WILDLIFE REFUGE MANAGE	345		.0	293		.0	17.7	.0
WILDLIFE BIOLOGY	611	3	.5	533	2	.4	14.6	50.0
HUSBANDRY	121	2	1.7	132	2	1.5	- 8.3	.0

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

BIOLOGICAL SCIENCES — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
HOME ECONOMICS	175	173	98.9	262	259	98.9	- 33.2	- 33.2
CATEGORY TOTAL	26,784	1,188	4.4	26,056	1,212	4.7	2.8	- 2.0
CATEGORY II								
BIOLOGICAL TECHNICIAN	4,126	1,042	25.3	3,814	891	23.4	8.2	16.9
PLANT PEST CONTROL TECH	311	1	.3	304	1	.3	2.3	.0
RANGE TECHNICIAN	174		.0	151		.0	15.2	.0
FOREST & RANGE FIRE CONT	1,428	14	1.0	1,732	38	2.2	- 17.6	- 63.2
SOIL CONSERVATION TECH	2,685		.0	2,812		.0	- 4.5	.0
IRRIGATION SYSTEM OPERAT	282		.0	397	1	.3	- 29.0	-100.0
FORESTRY TECHNICIAN	2,981	8	.3	2,699	10	.4	10.4	- 20.0
FISH HATCHERY MANAGEMENT	117		.0	209		.0	- 44.0	.0
BIOLOG SCI STUDENT TRAIN	12		.0	24	12	50.0	- 50.0	-100.0
CATEGORY TOTAL	12,116	1,065	8.8	12,142	953	7.8	- .2	11.8
CATEGORY I								
BIOLOGICAL TECHNICIAN	408	177	43.4	618	255	41.3	- 34.0	- 30.6
PLANT PEST CONTROL TECH	2		.0			.0	*	.0
RANGE TECHNICIAN	7	1	14.3	24	2	8.3	- 70.8	- 50.0
FOREST & RANGE FIRE CONT	444	23	5.2	730	51	7.0	- 39.2	- 54.9
SOIL CONSERVATION TECH	17		.0	71		.0	- 76.1	.0
IRRIGATION SYSTEM OPERAT	56		.0	82		.0	- 31.7	.0
FORESTRY TECHNICIAN	373	26	4.5	434	3	.7	92.0	766.7
BIOLOG SCI STUDENT TRAIN	12	1	8.3	12	5	41.7	.0	- 80.0
CATEGORY TOTAL	1,519	228	15.0	1,971	316	16.0	- 22.9	- 27.8
OCCUP. GROUP TOTAL	40,419	2,481	6.1	40,169	2,481	6.2	.6	.0

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

ACCOUNTING AND BUDGET — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
CATEGORY III								
GEN ACCOUNT CLER AND ADM	2,543	735	28.9	2,381	614	25.8	6.8	19.7
BUDGET AND ACCOUNTING	706	153	21.7	445	95	21.3	58.7	61.1
FINANCIAL MANAGEMENT	1,196	40	3.3	687	17	2.5	74.1	135.3
ACCOUNTING	20,241	1,409	7.0	19,030	1,190	6.3	6.4	18.4
INTERNAL REVENUE AGENT	12,847	466	3.6	13,233	375	2.8	2.9	24.3
BUDGET ADMIN	7,362	2,678	36.4	6,351	2,089	32.9	15.9	28.2
CATEGORY TOTAL	44,895	5,481	12.2	42,127	4,380	10.4	6.6	25.1
CATEGORY II								
GEN ACCOUNT CLER AND ADM	7,765	6,087	78.4	7,645	5,702	74.6	1.6	6.8
ACCOUNTS MAINTENANCE CLER	10,199	7,709	75.6	10,521	7,426	70.6	- 3.1	3.8
ACCOUNTING TECHNICIAN	13,788	9,697	70.3	12,553	8,896	70.9	9.8	9.0
TAX TECHNICIAN	2,791	1,530	54.8	2,991	1,502	50.2	- 6.7	1.9
CASH PROCESSING	2,211	1,501	67.9	2,308	1,548	67.1	- 4.2	- 3.0
VOUCHER EXAM	5,502	4,418	80.2	5,130	4,011	78.2	7.3	10.0
FISCAL AUDITING	128	43	33.6	167	47	28.1	- 23.4	- 8.5
PAYROLL	4,409	3,612	81.9	4,225	3,363	79.6	4.4	7.4
MILITARY PAY	4,642	3,600	77.6	3,453	2,636	76.3	34.4	36.6
BENEFIT PAYMENT ROLL	274	195	71.2	324	180	55.6	- 15.4	8.3
FINANCIAL INSTITUT EXAM	3,717	157	4.2	2,966	35	1.2	25.3	348.6
TIME AND LEAVE	1,461	248	16.8	1,498	165	11.0	- 2.5	49.1
TAX ACCOUNTING	8,333	6,983	83.8	6,832	5,519	80.8	22.0	26.5
INSURANCE ACCOUNTS	366	169	46.2	437	198	45.3	- 16.2	- 14.6
ACCTG STUDENT TRAINEE	70	6	8.6	26	1	3.8	169.2	500.0

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

ACCOUNTING AND BUDGET — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY TOTAL	65,656	45,949	70.0	61,078	41,229	67.5	7.5	11.4
CATEGORY I								
GEN ACCOUNT CLER AND ADM	399	340	85.2	555	448	80.7	- 28.1	- 24.1
ACCOUNTS MAINTENANCE CLER	977	879	90.0	1,111	964	86.8	- 12.1	- 8.8
CASH PROCESSING	605	527	87.1	467	375	80.3	29.6	40.5
VOUCHER EXAM	301	270	89.7	394	337	85.5	- 23.6	- 19.9
FISCAL AUDITING	2	1	50.0	2	1	50.0	.0	.0
PAYROLL	194	171	88.1	290	266	91.7	- 33.1	- 35.7
MILITARY PAY	557	521	93.5	1,062	939	89.6	- 47.6	- 45.9
BENEFIT PAYMENT ROLL	5	4	80.0	81	58	71.6	- 93.8	- 93.1
BUDGET ADMIN	1		.0			.0	*	.0
TIME AND LEAVE	402	310	77.1	370	200	54.1	8.6	55.0
TAX ACCOUNTING	405	347	85.7	877	765	87.2	- 53.8	- 54.6
INSURANCE ACCOUNTS	2	1	50.0	2	1	50.0	.0	.0
ACCTG STUDENT TRAINEE	20	2	10.0	22		.0	- 9.1	*
CATEGORY TOTAL	3,870	3,373	87.2	5,233	4,367	83.5	- 26.0	- 22.8
OCCUP. GROUP TOTAL	114,421	54,803	47.9	108,438	49,976	46.1	5.5	9.7

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

MED HOSP DENT PUB HEALTH — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
GENERAL HEALTH SCIENCE	433	81	18.7	147	22	15.0	194.6	268.2
MEDICAL OFFICER	9,172	644	7.0	9,689	597	6.2	- 5.3	7.9
NURSE ANESTHETIST	425	362	85.2	348	308	88.5	22.1	17.5
NURSE	22,257	21,617	97.1	22,959	22,367	97.4	- 3.1	- 3.4
PUBLIC HEALTH NURSE	226	222	98.2	153	154	97.5	43.0	44.2
DIETITIAN	988	966	97.8	1,113	1,087	97.7	- 11.2	- 11.1
OCCUPATIONAL THERAPIST	464	403	86.9	546	469	85.9	- 15.0	- 14.1
PHYSICAL THERAPIST	613	327	53.3	703	357	50.8	- 12.8	- 8.4
CORRECTIVE THERAPIST	476	11	2.3	508	8	1.6	- 6.3	37.5
MANUAL ARTS THERAPIST	337	5	1.5	400	4	1.0	- 15.8	25.0
EDUCATIONAL THERAPIST	143	48	33.6	161	53	32.9	- 11.2	- 9.4
MEDICAL TECHNOLOGIST	1,737	1,249	71.9	1,403	1,014	72.3	23.8	23.2
PHARMACIST	1,121	75	6.7	1,144	55	4.8	- 2.0	36.4
OPTOMETRIST	42	2	4.8	47	1	2.1	- 10.6	100.0
SPEECH PATH AND AUDIOLOGY	181	72	39.8	114	37	32.5	58.8	94.6
PODIATRIST	23	1	4.3	24	1	4.2	- 4.2	.0
HOSPITAL ADMIN	348	11	3.2	333	6	1.8	4.5	83.3
PROSTHETIC REPRESENTATIVE	94		.0	89		.0	5.6	.0
DENTAL OFFICER	1,280	6	.5	1,244	2	.2	2.9	200.0
PUB HEALTH PROGRAM SPEC	1,715	161	9.4	1,925	237	12.3	- 10.9	- 32.1
INDUSTRIAL HYGIENE	124	1	.8	89	1	1.1	39.3	.0
FOOD AND DRUG OFFICER	191	4	2.1	192	3	1.6	- .5	33.3
FOOD AND DRUG INSPECT	636	18	2.8	841	18	2.1	- 24.4	.0
CATEGORY TOTAL	43,026	26,286	61.1	44,177	26,801	60.7	- 2.6	- 1.9

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

MED HOSP DENT PUB HEALTH — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
CATEGORY II								
NURSING ASSISTANT	20,369	9,523	46.3	13,875	5,073	36.6	46.2	87.7
MEDICAL AID-STERILE SUPPL	347	160	46.1	3		.0	466.7	*
AUTOPSY ASSISTANT	128	1	.8	107		.0	19.6	*
REHAB THER AS	1,005	128	12.7	984	96	9.8	2.1	33.9
MEDICAL TECHNICIAN	2,449	1,134	46.3	2,809	1,930	47.3	- 12.8	- 14.7
PATHOLOGY TECHNICIAN	340	211	62.1			.0	*	*
MEDICAL RADIOLOGY TECH	1,665	447	26.8	1,596	375	23.4	4.3	19.8
MEDICAL MACHINE TECH	1,038	408	39.3	398	175	44.0	160.8	133.1
MEDICAL TECH ASSISTANT	130		.0	127	3	2.4	2.4	-100.0
PHARMACY ASSISTANT	240	19	7.9	165	10	6.1	45.5	90.0
RESTORATION TECHNICIAN	97	2	5.4	36	2	5.6	2.8	.0
ORTHOTIST AND PROSTHETIST	225	4	1.8	204	4	2.0	10.3	.0
MEDICAL RECORD LIBRARIAN	262	232	88.5	294	229	77.9	- 10.9	1.3
HOSP HOUSEKEEPING MANAGE	345	23	6.9	322	32	9.9	4.0	- 28.1
DENTAL ASSISTANT	1,589	1,482	93.3	1,235	1,133	91.7	28.7	30.8
DENTAL HYGIENE	296	285	96.3	270	256	94.8	9.6	11.3
DENTAL LAB TECHNICIAN	692	36	5.2	652	23	3.5	6.1	56.5
PUB HEALTH DENTAL HYGIENE			.0	2	2	100.0	-100.0	-100.0
HEALTH AID & TECH	813	165	20.3	944	225	23.8	- 13.9	- 26.7
CATEGORY TOTAL	32,160	14,260	44.3	24,023	8,966	37.3	33.9	59.0
CATEGORY I								
NURSE	2	2	100.0			.0	*	*
NURSING ASSISTANT	15,253	8,623	56.6	23,552	11,307	48.0	- 35.3	- 23.7

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

MED HOSP DENT PUB HEALTH — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
MEDICAL AID-STERILE SUPPL	594	316	53.2	1	1	100.0	300.0	300.0
AUTOPSY ASSISTANT	21	1	4.8	37	2	5.4	- 43.2	- 50.0
REHAB THER AS	41	12	29.3	77	19	24.7	- 46.8	- 36.8
MEDICAL TECHNICIAN	90	54	60.0	111	51	45.9	- 18.9	5.9
PATHOLOGY TECHNICIAN	4	3	75.0			.0	*	*
MEDICAL RADIOLOGY TECH	20	4	20.0	35	22	62.9	- 42.9	- 81.8
MEDICAL MACHINE TECH	37	16	43.2	39	21	53.8	- 5.1	- 23.8
PHARMACY ASSISTANT	72	22	30.6	94	12	12.8	- 23.4	83.3
ORTHOTIST AND PROSTHETIST	4	1	25.0	2	1	50.0	100.0	.0
MEDICAL RECORD LIBRARIAN			.0	3	2	66.7	-100.0	-100.0
DENTAL ASSISTANT	257	249	96.9	523	503	96.2	- 50.9	- 50.5
DENTAL LAB TECHNICIAN	2	1	50.0	10	6	60.0	- 80.0	- 83.3
HEALTH AID & TECH	273	145	53.1	927	424	45.7	- 70.6	- 65.8
CATEGORY TOTAL	16,650	9,449	56.8	25,411	12,971	48.7	- 34.5	- 23.6
OCCUP. GROUP TOTAL	91,836	49,995	54.4	93,611	48,138	51.4	- 1.9	3.9

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

VETERINARY MEDICAL SCIENC — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
VETERINARY MED SCIENCE	2,368	30	1.3	2,338	16	.7	1.3	87.5
CATEGORY TOTAL	2,368	30	1.3	2,338	16	.7	1.3	87.5
CATEGORY II								
VETER STUDENT TRAINEE	1		.0	1		.0	.0	.0
CATEGORY TOTAL	1		.0	1		.0	.0	.0
OCCUP. GROUP TOTAL	2,369	30	1.3	2,339	16	.7	1.3	87.5

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

ENGINEERING AND ARCHITECT — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
CATEGORY III								
GENERAL ENGINEERING	13,862	44	.3	11,562	30	.3	19.9	46.7
SAFETY ENGINEERING	504	10	2.0	437	1	.2	15.3	900.0
FIRE PREVENT ENGINEER	83		.0	84		.0	- 1.2	.0
MATERIALS ENGINEERING	861	13	1.5	811	13	1.6	6.2	.0
LANDSCAPE ARCHITECTURE	544	8	1.5	480	8	1.7	13.3	.0
ARCHITECTURE	1,515	43	2.8	1,428	33	2.3	6.1	30.3
CIVIL ENGINEERING	17,412	61	.4	17,562	55	.3	- .9	10.9
SANITARY ENGINEERING	957	4	.4	1,034	2	.2	- 7.4	100.0
MECHANICAL ENGINEERING	10,646	43	.4	9,749	37	.4	9.2	16.2
NUCLEAR ENGINEERING	1,358	4	.3	1,009	2	.2	34.6	100.0
ELECTRICAL ENGINEERING	4,589	14	.3	4,388	13	.3	4.6	7.7
ELECTRONIC ENGINEERING	16,353	64	.4	13,935	58	.4	17.4	10.3
AEROSPACE ENGINEERING	9,673	83	.9	8,898	80	.9	8.7	3.8
NAVAL ARCHITECTURE	1,244	7	.6	1,045	5	.5	19.0	40.0
MINING ENGINEERING	459		.0	434		.0	5.8	.0
PETRC ENGR	240		.0	242	2	.8	- .8	-100.0
AGRICULTURAL ENGINEER	600	2	.3	683	1	.1	- 12.2	100.0
CERAMIC ENGINEERING	36	1	2.8	32		.0	12.5	*
CHEMICAL ENGINEERING	1,390	12	.9	1,326	15	1.1	4.8	- 20.0
WELDING ENGINEERING	92		.0	74	1	1.4	24.3	-100.0
INDUSTRIAL ENGINEERING	2,274	8	.4	2,089	9	.4	8.9	- 11.1
CATEGORY TOTAL	84,692	421	.5	77,302	365	.5	9.6	15.3
CATEGORY II								
ENGINEERING TECHNICIAN	28,257	728	2.6	24,235	562	2.3	16.6	29.5

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE P — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

ENGINEERING AND ARCHITECT — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CONSTRUCTION CONTROL	3,591	2	.1	2,892		.0	24.2	*
SURVEYING TECHNICIAN	2,277	1	.0	2,921	5	.2	- 22.0	- 80.0
ENGINEERING DRAFTING	2,949	382	13.0	3,396	413	12.2	- 13.2	- 7.5
CONSTRUCTION ANALYST	856	4	.5	795		.0	7.7	*
ELECTRONIC TECHNICIAN	22,697	84	.4	18,331	75	.4	23.8	12.0
SHIPBUILDING INSPECTION	23		.0	32		.0	- 28.1	.0
SHIP SURVEYING	140		.0	124		.0	12.9	.0
INDUSTRIAL ENGR TECH	2,703	49	1.8	138	2	1.4	858.7	350.0
ENGR & ARCH STUD TRAINEE	475	9	1.9	828	58	7.0	- 42.6	- 84.5
CATEGORY TOTAL	63,908	1,259	2.0	53,692	1,115	2.1	19.0	12.9
CATEGORY I								
ENGINEERING TECHNICIAN	446	101	22.6	1,027	124	12.1	- 56.6	- 18.5
CONSTRUCTION CONTROL	31		.0	93		.0	- 66.7	.0
SURVEYING TECHNICIAN	771	2	.3	1,307	1	.1	- 41.0	100.0
ENGINEERING DRAFTING	251	50	19.9	474	48	10.1	- 47.0	4.2
ELECTRONIC TECHNICIAN	3		.0	3		.0	.0	.0
INDUSTRIAL ENGR TECH	4	1	25.0			.0	*	*
ENGR & ARCH STUD TRAINEE	550	20	3.6	737	18	2.4	- 25.4	11.1
CATEGORY TOTAL	2,056	174	8.5	3,641	191	5.2	- 43.5	- 8.9
OCCUP. GROUP TOTAL	150,696	1,854	1.2	134,635	1,671	1.2	11.9	11.0

ERIC

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

LEGAL AND KINDRED — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
CATEGORY III								
LAW CLERK	384	35	9.1			.0	*	*
GENERAL ATTORNEY	10,172	634	6.2	9,086	501	5.5	12.0	26.5
ESTATE TAX EXAM	129	2	1.6	819	28	3.4	- 84.2	- 92.9
HEARING EXAM	565	7	1.2	577	7	1.2	- 2.1	.0
DEPORT - EXCLUSION EXAM	31	1	3.2	25		.0	24.0	*
CLERK OF COURT	20	4	20.0	20	7	35.0	.0	- 42.9
LEGAL ASSISTANCE	334	67	20.1	474	83	17.5	- 29.5	- 19.3
ADJUDICATING	122	41	33.6	126	37	29.4	- 3.2	10.8
CONTACT REPRESENTATIVE	1,430	330	23.1	1,285	257	20.0	11.3	28.4
LAND LAW EXAMINING	136	84	61.8	124	74	59.7	9.7	13.5
PASSPORT & VISA EXAMINING	371	167	45.0	107	60	56.1	246.7	178.3
TAX LAW SPECIALIST	497	50	10.1	427	53	12.4	16.4	- 5.7
WORKMENS COMP CLAIMS EX	155	28	20.7	132	24	18.2	2.3	16.7
SOCIAL INSUR CLAIMS EX	7,206	3,669	50.9	6,231	2,700	43.3	15.6	35.9
VETERANS CLAIMS EXAMINING	2,294	429	18.7	2,180	279	12.8	5.2	53.8
CIV SERV RETIREMENT CLS E	136	73	53.7	118	62	52.5	15.3	17.7
CATEGORY TOTAL	23,962	5,621	23.5	21,731	4,172	19.2	10.3	34.7
CATEGORY II								
LEGAL INSTRUMENTS EXAM	2,114	1,680	79.5	2,078	1,581	76.1	1.7	6.3
LEGAL CLERICAL AND ADM	1,475	1,174	79.6	1,275	930	72.9	15.7	26.2
GENERAL CLAIMS EXAMINING	484	308	63.6	503	304	60.4	- 3.8	1.3
LOSS AND DAMAGE CLAIMS EX	97	59	60.8	69	50	72.5	40.6	18.0
UNEMPLOY COMP CLAIMS EXAM	118	83	70.3	128	71	55.5	- 7.8	16.9

ERIC

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

LEGAL AND KINDRED — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
DEPEND AND ESTATES CL EX	141	82	58.2	141	82	58.2	.0	.0
CLAIMS CLERICAL	10,398	9,556	90.1	9,109	7,910	86.8	16.3	20.8
MISC LEGAL & KINDRED			.0	5,626	3,322	59.0	-100.0	-100.0
CATEGORY TOTAL	15,027	12,940	86.1	18,929	14,250	75.3	- 20.6	- 9.2
CATEGORY I								
LEGAL INSTRUMENTS EXAM	11	7	63.6	34	29	85.3	- 67.6	- 75.9
LEGAL CLERICAL AND ADM	98	69	70.4	76	43	56.6	28.9	60.5
GENERAL CLAIMS EXAMINING	1	1	100.0	11	10	90.9	- 90.9	- 90.0
CLAIMS CLERICAL	181	161	89.0	130	95	73.1	39.2	69.5
MISC LEGAL & KINDRED	6,256	2,503	40.0			.0	*	*
CATEGORY TOTAL	6,547	2,741	41.9	251	177	70.5	508.4	448.6
OCCUP. GROUP TOTAL	45,596	21,302	46.8	40,911	18,599	45.5	11.3	14.5

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE P — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

INFORMATION AND ARTS — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
CATEGORY III								
GENERAL ARTS & INFORMATN	521	110	21.1	416	74	17.8	25.2	48.6
MUSEUM CURATOR	165	40	24.2	142	28	19.7	16.2	42.9
FOR LANGUAGE BROADCASTING	166	34	20.5	158	35	22.2	5.1	- 2.9
AUDIO-VISUAL PRODUCTION	819	59	7.2	697	59	8.5	17.5	.0
PUBLIC INFORMATION	2,294	565	24.6	2,077	484	23.3	10.4	16.7
WRITING AND EDITING	1,929	1,070	55.5	1,828	1,053	57.6	5.5	1.6
TECH WRITING AND EDITING	1,812	466	25.7	1,673	405	24.2	8.3	15.1
VISUAL INFORMATION	1,152	202	17.5	833	172	20.6	38.3	17.4
FOREIGN INFORMATION	1,777	202	11.4	1,870	219	11.7	- 5.0	- 7.8
CATEGORY TOTAL	10,635	2,748	25.8	9,694	2,529	26.1	9.7	8.7
CATEGORY II								
GENERAL ARTS & INFORMATN	248	156	62.9	166	95	57.2	49.4	64.2
EXHIBITS SPECIALIST	319	13	4.1	294	14	4.8	8.5	- 7.1
MUSEUM SPEC AND TECH	280	81	28.9	270	62	23.0	3.7	30.6
ILLUSTRATING	2,802	667	23.8	2,568	624	24.3	9.1	6.9
OFFICE DRAFTING	195	82	42.1	227	94	41.4	- 14.1	- 12.8
TRANSLATOR	263	100	38.0	299	118	39.5	- 12.0	- 15.3
CLERK-TRANSLATOR	75	66	88.0	85	80	94.1	- 11.8	- 17.5
INTERPRETER	100	29	29.0	115	42	36.5	- 13.0	- 31.0
MUSICAL TECHNICIAN	6		.0	6		.0	.0	.0
PHOTOGRAPHY	3,396	235	6.9	2,922	219	7.5	16.2	7.3
EDITORIAL ASSISTANCE	1,874	1,770	94.5	1,746	1,645	94.2	7.3	7.6
CATEGORY TOTAL	9,558	3,199	33.5	8,698	2,993	34.4	9.9	6.9

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

INFORMATION AND ARTS — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY I								
GENERAL ARTS & INFORMATN	75	34	45.3	87	33	37.9	- 13.8	3.0
EXHIBITS SPECIALIST			.0	1	1	100.0	-100.0	-100.0
MUSELM SPEC AND TECH	7	3	42.9	8	4	50.0	- 12.5	- 25.0
ILLUSTRATING	1	1	100.0	2	1	50.0	- 50.0	.0
OFFICE DRAFTING	32	7	21.9	53	16	30.2	- 39.6	- 56.3
WRITING AND EDITING	1		.0			.0	*	.0
EDITORIAL ASSISTANCE	28	26	92.9	53	51	96.2	- 47.2	- 49.0
CATEGORY TOTAL	144	71	49.3	204	106	52.0	- 29.4	- 33.0
OCCUP. GROUP TOTAL	20,337	6,018	29.6	18,596	5,628	30.3	9.4	6.9

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

BUSINESS AND INDUSTRY — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
GEN BUSINESS AND INDUSTRY	3,664	440	12.0	2,486	243	9.8	47.4	81.1
CONTRACT AND PROCUREMENT	18,574	4,711	25.4	16,981	4,040	23.8	9.4	16.6
PROPERTY DISPOSAL	1,173	152	13.0	1,234	166	13.5	- 4.9	- 8.4
PURCHASING	164	52	31.7			.0	*	*
PROCUREMENT CLERICAL	15	9	60.0			.0	*	*
PUBLIC UTILIT SPECIALIST	219	35	16.0	236	27	11.4	- 7.2	29.6
TRANSPORTATION INDUSTRY A	178	23	12.9	193	31	16.1	- 7.8	- 25.8
TRADE SPECIALIST	390	63	16.2	379	65	17.2	2.9	- 3.1
AGRICULTURAL PROGRAM SPEC	452	6	1.3			.0	*	*
AGRI MARKETING	550	28	5.1	566	18	3.2	- 2.8	55.6
AGRI MARKET REPORTING	202	2	1.0	207	2	1.0	- 2.4	.0
WAGE AND HOUR LAW ADM	56	10	17.9	48	6	12.5	16.7	66.7
INDUSTRIAL SPECIALIST	5,075	111	2.2	4,590	92	2.0	10.6	20.7
FINANCIAL ANALYSIS	677	42	6.2	740	46	6.2	- 8.5	- 8.7
INSURANCE EXAMINING	50	16	32.0	32	11	34.4	56.3	45.5
LOAN SPECIALIST	2,344	258	11.0	2,399	204	8.5	- 2.3	26.5
INTER REVENUE OFF	5,995	249	4.2	6,199	141	2.3	- 3.3	76.6
REALTY	2,781	280	10.1	2,876	218	7.6	- 3.3	28.4
APPRAISING AND ASSESSING	2,658	32	1.2	2,769	33	1.2	- 4.0	- 3.0
HOUSING MANAGEMENT	714	157	22.0	643	136	24.3	11.0	.6
BUILDING MANAGEMENT	676	10	1.5	603	12	2.0	12.1	- 16.7
CATEGORY TOTAL	46,607	6,686	14.3	43,181	5,511	12.8	7.9	21.3
CATEGORY II								
INDUSTRIAL PROPERTY ADMIN	955	70	7.3	917	55	6.0	4.1	27.3

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

BUSINESS AND INDUSTRY — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	FOR WOMEN		TOTAL	FOR WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
PURCHASING	5,915	4,448	75.2	8,014	6,202	77.4	- 26.2	- 28.3
PROCUREMENT CLERICAL	2,481	2,197	88.6			.0	*	*
COMMISSARY STORE MGMT	935	21	2.2	676	24	3.6	38.3	- 12.5
PRODUCTION CONTROL	8,185	322	3.9	6,314	276	4.4	29.6	16.7
CATEGORY TOTAL	18,471	7,058	38.2	15,921	6,557	41.2	16.0	7.6
CATEGORY I								
PURCHASING			.0	610	518	84.9	-100.0	-100.0
PROCUREMENT CLERICAL	236	201	85.2			.0	*	*
CATEGORY TOTAL	236	201	85.2	610	518	84.9	- 61.3	- 61.2
OCCUP. GROUP TOTAL	65,314	13,945	21.4	59,712	12,586	21.1	9.4	10.8

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

COPY PATENT & TRADE MARK — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
COPYRIGHT EXAM	123	65	52.8	104	60	57.7	18.3	8.3
PATENT ADMIN	67	1	1.5	27	1	3.7	148.1	.0
PATENT ADVISER	206	3	1.5	249	2	.8	-17.3	50.0
PATENT ATTORNEY	123	2	1.6	100	1	1.0	23.0	100.0
PATENT CLASSIFYING	66	6	9.1	70	1	1.4	-5.7	500.0
PATENT EXAM	1,119	41	3.7	1,107	33	3.0	1.1	24.2
PATENT INTERPERENCE EX	9		.0	10		.0	-10.0	.0
DESIGN PATENT EXAM	21	3	14.3	23	3	13.0	-8.7	.0
CATEGORY TOTAL	1,734	121	7.0	1,690	101	6.0	2.6	19.8
CATEGORY II								
PATENT TECHNICIAN	14	6	42.9	17	7	41.2	-17.6	-14.3
TRADE MARK EXAM	14	1	7.1	39	10	25.6	-64.1	-90.0
CATEGORY TOTAL	28	7	25.0	56	17	30.4	-50.0	-58.8
CATEGORY I								
PATENT TECHNICIAN			.0	9	2	22.2	-100.0	-100.0
CATEGORY TOTAL			.0	9	2	22.2	-100.0	-100.0
OCCUP. GROUP TOTAL	1,762	128	7.3	1,755	120	6.8	.4	6.7

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE 8 BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

PHYSICAL SCIENCES WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
GENERAL PHYSICAL SCIENCE	8,562	335	3.9	6,227	125	2.0	37.2	168.0
HEALTH PHYSICS	378	4	1.1	232	2	.9	62.9	100.0
PHYSICS	5,700	159	2.8	5,531	146	2.6	3.1	8.9
GEOPHYSICS	389	5	1.3	353	5	1.4	10.2	.0
HYDROLOGY	1,136	7	.6	548	1	.2	107.3	600.0
CHEMISTRY	8,248	1,249	15.1	8,135	1,252	15.4	1.4	- .2
METALLURGY	627	7	1.1	680	7	1.0	- 7.8	.0
ASTRONOMY - SPACE SCIENCE	124	16	12.9	475	34	7.2	- 73.9	- 52.9
METEOROLOGY	2,364	31	1.3	2,257	42	1.9	4.7	- 26.2
GEOLOGY	1,728	88	5.1	1,949	97	5.0	- 11.3	- 9.3
OCEANOGRAPHY	753	30	4.0	506	24	4.7	48.8	25.0
CARTOGRAPHY	3,082	279	9.1	2,865	252	8.8	7.6	10.7
GEODESY	371	16	4.3	336	17	5.1	10.4	- 5.9
CADASTRAL SURVEYING	196		.0	158		.0	24.1	.0
FOREST PRODUCTS TECHNOL	140	3	2.1	125	3	2.4	12.0	.0
FOOD TECHNOLOGY	118	18	15.3	110	12	10.9	7.3	50.0
TEXTILE TECHNOLOGY	101	10	9.9	94	9	9.6	7.4	11.1
PHOTOGRAPHIC TECHNOLOGY	103		.0	136	1	.7	- 24.3	-100.0
CATEGORY TOTAL	34,100	2,257	6.6	30,717	2,029	6.6	11.0	11.2
CATEGORY II								
PHYSICAL SCIENCE TECH	3,349	648	19.3	3,107	635	20.4	7.8	2.0
METEOROLOGICAL TECHNICIAN	2,560	233	9.1	2,380	227	9.5	7.6	2.6
NAVIGATIONAL INFORMATION	522	32	6.1	486	25	5.1	7.4	28.0

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

PHYSICAL SCIENCES WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CARTOGRAPHIC TECHNICIAN	2,994	801	26.8	2,911	717	24.6	2.9	11.7
GEODETIC TECHNICIAN	127	16	12.6	97	17	17.5	30.9	- 5.9
DOCUMENT ANALYSIS	44	15	34.1	44	11	25.0	.0	36.4
PHYS SCI STUDENT TRAINEE	99	7	7.1	90	8	8.9	10.0	- 12.5
CATEGORY TOTAL	9,695	1,752	18.1	9,115	1,640	18.0	6.4	6.8
CATEGORY I								
PHYSICAL SCIENCE TECH	199	76	38.2	338	129	38.2	- 41.1	- 41.1
METEOROLOGICAL TECHNICIAN	20	4	20.0	10	6	60.0	100.0	- 33.3
CARTOGRAPHIC TECHNICIAN	168	84	56.8	492	195	39.6	- 69.9	- 56.9
GEODETIC TECHNICIAN	3	1	33.3			.0	*	*
PHYS SCI STUDENT TRAINEE	76	12	15.8	85	7	8.2	- 10.6	71.4
CATEGORY TOTAL	446	177	39.7	925	337	36.4	- 51.8	- 47.5
OCCUP. GROUP TOTAL	44,241	4,186	9.5	40,757	4,006	9.8	8.5	4.5

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

LIBRARY AND ARCHIVES — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
LIBRARIAN	3,443	2,425	70.4	3,483	2,485	71.3	- 1.1	- 2.4
TECHNICAL INFORMATION SER	722	312	43.2	204	78	38.2	253.9	300.0
ARCHIVIST	44	16	36.4	318	66	20.8	- 86.2	- 75.8
CATEGORY TOTAL	4,209	2,753	65.4	4,005	2,629	65.6	5.1	4.7
CATEGORY II								
LIBRARY TECHNICIAN	2,823	2,095	74.2	2,093	1,546	73.9	34.9	35.5
ARCHIVES TECHNICIAN	792	189	23.9	374	92	24.6	111.8	105.4
CATEGORY TOTAL	3,615	2,284	63.2	2,467	1,638	66.4	46.5	39.6
CATEGORY I								
LIBRARIAN	4	2	50.0			.0	*	*
LIBRARY TECHNICIAN	466	343	73.6	466	301	64.6	.0	14.0
ARCHIVES TECHNICIAN	161	87	54.0	64	4	6.3	151.6	75.0
CATEGORY TOTAL	631	432	68.5	530	305	57.5	19.1	41.6
OCCUP. GROUP TOTAL	8,455	5,469	64.7	7,002	4,572	65.3	20.8	19.6

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

MATHEMATICS & STATISTICS — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
ACTUARY	87	11	12.6	76	11	14.5	14.5	.0
OPERATIONS RESEARCH	1,645	77	4.7	852	27	3.2	93.1	185.2
MATHEMATICS	3,553	789	22.2	3,591	876	24.4	- 1.1	- 9.9
MATHEMATICAL STATISTICIAN	781	143	18.3	518	78	15.1	50.8	83.3
STATISTICIAN	2,248	456	20.3	2,307	474	20.5	- 2.6	- 3.8
CRYPTOGRAPHY	40	3	7.5	29	6	20.7	37.9	- 50.0
CATEGORY TOTAL	8,354	1,479	17.7	7,373	1,472	20.0	13.3	.5
CATEGORY II								
MATHEMATICS TECHNICIAN	383	272	71.0	425	299	70.4	- 9.9	- 9.0
STATISTICAL ASSISTANT	5,282	4,357	82.5	6,231	5,113	82.1	- 15.2	- 14.8
CRYPTANALYSIS	26		.0	28	3	10.7	- 7.1	-100.0
MATH SCI STUDENT TRAINEE	52	16	30.8	25	5	20.0	108.0	220.0
CATEGORY TOTAL	5,743	4,645	80.9	6,709	5,420	80.8	- 14.4	- 14.3
CATEGORY I								
MATHEMATICS TECHNICIAN	36	23	63.9	119	68	57.1	- 69.7	- 66.2
STATISTICAL ASSISTANT	164	144	87.8	547	467	85.4	- 70.0	- 69.2
MATH SCI STUDENT TRAINEE	36	17	47.2	26	10	38.5	38.5	70.0
CATEGORY TOTAL	236	184	78.0	692	545	78.8	- 65.9	- 66.2
OCCUP. GROUP TOTAL	14,333	6,308	44.0	14,774	7,437	50.3	- 3.0	- 15.2

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

EQUIPMENT, FACILITIES & S — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
FACILITY MANAGEMENT	1,645	10	.6	943	2	.2	74.4	400.0
BLDG GROUNDS TECH MANAGE	487	4	.8	390	2	.5	24.9	100.0
PRINTING MANAGEMENT	1,001	204	20.4	833	165	19.8	20.2	23.6
LAUNDRY AND DRY CLEANING	165	3	1.8	162	5	3.1	1.9	- 40.0
CATEGORY TOTAL	3,298	221	6.7	2,328	174	7.5	41.7	27.0
CATEGORY II								
CEMETERY ADMINISTRATION	144	2	1.4	128	2	1.6	12.5	.0
FACILITY MAINTENANCE	1,750	1	.1	2,651	2	.1	- 34.0	- 50.0
FISHERY METHODS AND EQUIP	18		.0	18		.0	.0	.0
GENERAL HOUSEKEEPING	298	31	10.4	22	2	9.1	254.5	450.0
STEWARD	68	8	11.8	61	10	16.4	11.5	- 20.0
EQUIPMENT SPECIALIST	14,292	103	.7	12,665	94	.7	12.8	9.6
CATEGORY TOTAL	16,570	145	.9	15,545	110	.7	6.6	31.8
CATEGORY I								
PRINTING MANAGEMENT	1		.0			.0	*	.0
GENERAL HOUSEKEEPING	4	4	100.0	23	13	56.5	- 82.6	- 69.2
STEWARD	6	5	83.3	11	7	63.6	- 45.5	- 28.6
CATEGORY TOTAL	11	9	81.8	34	20	58.8	- 67.6	- 55.0
OCCUP. GROUP TOTAL	19,879	375	1.9	17,907	304	1.7	11.0	23.4

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

EDUCATION — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
GENERAL EDUCATION - TRAIN	256	53	20.7	220	35	15.9	16.4	51.4
EDUCAT - VOCAT TRAIN	16,694	8,912	53.6	14,653	7,448	50.8	13.5	19.7
VOCATIONAL REHABILITATION	174	5	2.9	117		.0	48.7	*
EDUCATIONAL RES & PROG	1,003	304	30.3	998	292	29.3	.5	4.1
PUBLIC HEALTH EDUCATOR	52	19	36.5	28	16	57.1	85.7	18.8
CATEGORY TOTAL	18,119	9,293	51.3	16,016	7,791	48.6	13.1	19.3
CATEGORY II								
GENERAL EDUCATION - TRAIN	17	11	64.7	54	36	66.7	- 68.5	- 69.4
EDUCAT & TRAIN TECH	481	220	45.7	19	12	63.2	491.6	733.3
INSTRUCTION	10,279	1,418	13.8	8,057	1,183	14.7	27.6	19.9
CATEGORY TOTAL	10,777	1,649	15.3	8,130	1,231	15.1	32.6	34.0
CATEGORY I								
GENERAL EDUCATION - TRAIN			.0	3	1	33.3	-100.0	-100.0
EDUCAT & TRAIN TECH	162	128	79.0			.0	*	*
INSTRUCTION	280	183	65.4	375	242	64.5	- 25.3	- 24.4
CATEGORY TOTAL	442	311	70.4	378	243	64.3	16.9	28.0
OCCUP. GROUP TOTAL	29,338	11,253	38.4	24,524	9,265	37.8	19.6	21.5

ERIC

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

INVESTIGATION — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
GENERAL INVESTIGATING	2,650	22	.8	2,853	19	.5	- 7.1	69.2
CRIMINAL INVESTIGATING	14,610	14	.1	12,295	15	.1	18.8	- 6.7
SAFE LAW ENFORCEMENT	188		.0	187		.0	.5	.0
WAGE-HOUR LAW ENFORCE	1,202	68	5.7	1,202	91	7.6	.0	- 25.3
AIR SAFETY INVESTIGATING	154	2	1.3	119		.0	29.4	*
AVIATION SAFETY OFFICER	1,972	1	.1	1,550		.0	27.2	*
IMPORT SPECIALIST	1,071	152	14.2			.0	*	*
CUSTOMS APPRAIS AND EXAM	8		.0	741	22	3.0	- 98.9	-100.0
CUSTOMS MARINE OFFICER	142	29	20.4	126	13	10.3	12.7	123.1
CATEGORY TOTAL	21,997	288	1.3	19,073	156	.8	15.3	87.0
CATEGORY II								
IMMIGRATION INSPECTION	1,167	51	4.4	1,186	27	2.3	- 1.6	88.9
SAFETY INSPECT	156	1	.6	153		.0	2.0	*
COAL MINE INSPECT	284		.0	234	1	.4	21.4	-100.0
AGRI COMMOD WAREHSE EXAM	198		.0	220		.0	- 10.0	.0
ALCOHOL & TOB TAX INSPECT	1,061	154	14.5	1,144	156	13.6	- 7.3	- 1.9
PUBLIC HEALTH INSPECT	202	4	2.0	196	1	.5	3.1	300.0
FOOD & DRUG INSPECT TECH	31	3	9.7			.0	*	*
FOOD INSPECT	5,560	198	3.6	4,449	92	2.1	24.5	115.2
PUB HEALTH QUARANT INSP	264	6	2.3	392	10	2.6	- 32.7	- 40.0
CUSTOMS INSPECT	2,958	57	1.9	2,777	42	1.5	6.5	35.7
CUSTOMS ENFORCEMENT OFF	91		.0	62		.0	46.8	.0
CUSTOMS ENTRY & LIQUIDAT	131	29	22.1	516	88	17.1	- 74.6	- 67.0

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

INVESTIGATION — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CUSTOMS WAREHOUSE OFFICER	285	6	2.1	257	2	.8	10.9	200.0
IMMIGRATION PATROL INSP	1,412		.0	1,271		.0	11.1	.0
CUSTOMS AID	642	200	31.2	616	117	19.0	4.2	70.9
ADMEASUREMENT	65		.0	68		.0	- 4.4	.0
MISCELLANEOUS INSPECTION	836	4	.5	995	3	.3	- 16.0	33.3
CATEGORY TOTAL	15,323	713	4.7	14,536	939	3.7	5.4	32.3
CATEGORY I								
FOOD & DRUG INSPECT TECH	1	1	100.0			.0	*	*
CUSTOMS AID	4	2	50.0	1		.0	300.0	*
CATEGORY TOTAL	5	3	60.0	1		.0	400.0	*
OCCUP. GROUP TOTAL	37,325	1,004	2.7	33,610	693	2.1	11.1	44.9

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

COMMOD QUAL CONT INSP-GR WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
GEN COMMOD QUAL CON-INSP	2,269	35	1.5	2,043	57	2.8	11.1	- 38.6
QUAL CONT AND INSP MANAG	2,065	41	2.0	1,776	33	1.9	15.1	24.2
SUBSISTENCE QUAL CON-INSP	124	10	8.1	114	12	10.5	8.8	- 16.7
CL TEX-LEAT QUAL CON-INSP	289	15	5.2	281	15	5.3	2.8	.0
CHEMICAL QUAL CONT - INSP	63		.0	56		.0	12.5	.0
PETRC QUAL CONT AND INSP	226	2	.9	266	2	.8	- 15.0	.0
MATERIALS QUAL CONT-INSP	280		.0	335	1	.3	- 16.4	-100.0
ELEC EQ QUAL CONT - INSP	304	7	2.3	386	10	2.6	- 21.2	- 30.0
ELECTRO EQ QUAL CONT-INSP	3,046	41	1.3	3,047	43	1.4	- .0	- 4.7
MECH EQ QUAL CON AND INSP	2,584	76	2.9	2,381	50	2.1	8.5	52.0
AUTO EQ QUAL CON AND INSP	324	1	.3	317	1	.3	2.2	.0
AIRCRAFT QUAL CON - INSP	2,571	9	.4	1,619	6	.4	58.8	50.0
ORC QUAL CON AND INSP	626	57	9.1	741	76	10.3	- 15.5	- 25.0
AMMO QUAL CONT AND INSP	1,903	267	14.0	1,063	43	4.0	79.0	520.9
MISSILE QUAL CONT - INSP	650	6	.9	912	2	.2	- 28.7	200.0
SHIPBUILDING QUALITY CONT	250	1	.4	71		.0	252.1	*
SPACE SYSTEM QUALITY CONT	1,065	2	.2	998		.0	6.7	*
CALIB-MEAS QUAL CON-INSP	539	10	1.9	491	8	1.6	9.8	25.0
MAT TR PROC QUAL CON-INSP	319	7	2.2	270	5	1.9	18.1	40.0
PRES - PKG QUAL CON-INSP	127	9	7.1	120	11	9.2	5.8	- 18.2
AGRI COMMODITY GRADING	2,767	92	3.3	2,952	88	3.0	- 6.3	4.5
CATEGORY TOTAL	22,371	688	3.1	20,239	463	2.3	10.5	48.6
CATEGORY II								
AGRI COMMODITY AID	21	3	14.3	12		.0	75.0	*

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

COMMOD QUAL CONT INT=GR — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY TOTAL	21	3	14.3	12		.0	75.0	*
CATEGORY I								
AGRI COMMODITY AID	1		.0	34	1	2.9	-97.1	-100.0
CATEGORY TOTAL	1		.0	34	1	2.9	-97.1	-100.0
OCCUP. GROUP TOTAL	22,393	691	3.1	20,285	464	2.3	10.4	48.9

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F. BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

SUPPLY GROUP WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
GENERAL SUPPLY	5,481	899	16.4	5,097	632	12.4	7.5	42.2
SUPPLY PROGRAM MANAGEMENT	5,737	814	14.2	3,995	577	14.4	43.6	41.1
INVENTORY MANAGEMENT	14,455	5,220	36.1	14,491	5,302	36.7	- .2	- 1.5
DIST FACIL & STOR MGMT	1,377	60	4.4	1,116	38	3.4	23.4	57.9
PRESERVATION AND PACKING	738	25	3.4	752	19	2.5	- 1.9	31.6
SUPPLY IDENT SYSTEM	3,792	1,032	27.2	4,027	1,078	26.8	- 5.8	- 4.3
PROPERTY UTILIZATION	354	64	18.1	293	46	15.7	20.8	39.1
CATEGORY TOTAL	31,934	8,114	25.4	29,711	7,692	25.9	7.5	5.5
CATEGORY II								
GENERAL SUPPLY	4,566	1,097	24.1	5,018	1,340	26.7	- 9.4	- 18.1
SUPPLY CLERICAL & TECH	30,372	17,665	58.2	25,318	15,604	61.6	20.0	13.2
SALES STORE CLERICAL	595	242	40.7	531	187	35.2	12.1	29.4
CATEGORY TOTAL	35,513	19,004	53.5	30,867	17,131	55.5	15.1	10.9
CATEGORY I								
GENERAL SUPPLY	22	8	36.4	37	11	29.7	- 40.5	- 27.3
SUPPLY CLERICAL & TECH	6,489	3,829	59.0	8,826	5,294	60.0	- 26.5	- 27.7
SALES STORE CLERICAL	2,217	1,832	82.6	2,314	1,839	79.5	- 4.2	- .4
CATEGORY TOTAL	8,728	5,669	65.0	11,177	7,144	63.9	- 21.9	- 20.6
OCCUP. GROUP TOTAL	76,175	32,787	43.0	71,755	31,967	44.6	6.2	2.6

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

TRANSPORTATION WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
GENERAL TRANSPORTATION	1,113	110	9.9	887	89	10.0	25.5	23.6
TRANS RATE AND TARIFF EX	166	11	6.6	186	12	6.5	- 10.8	- 8.3
HIGHWAY SAFETY MGMT	133		.0			.0	*	.0
TRAFFIC MANAGEMENT	1,847	250	13.5	1,706	202	11.8	8.3	23.8
TRANSPORTATION OPERATIONS	1,559	45	2.9	1,048	37	3.3	48.8	21.6
CATEGORY TOTAL	4,818	416	8.6	3,827	340	8.9	25.9	22.4
CATEGORY II								
GENERAL TRANSPORTATION	1,122	523	46.6	843	389	46.1	33.1	34.4
R R SAFETY & SERVICE INSP	121		.0	137		.0	- 11.7	.0
FREIGHT RATE	2,392	1,253	52.4	2,149	1,135	52.8	11.3	10.4
TRAVEL	1,689	1,415	83.8	1,460	1,200	82.2	15.7	17.9
PASSENGER RATE	37	25	67.6	87	57	65.5	- 57.5	- 56.1
SHIPMENT CLERICAL	2,745	2,149	78.3	2,110	1,595	75.6	30.1	34.7
TRANS LOSS - DAMAGE CL EX	271	159	58.7	223	121	54.3	21.5	31.4
CARGO SCHEDULING	287	116	40.4	301	125	41.5	- 4.7	- 7.2
DISPATCHING	712	56	7.9	563	33	5.9	26.5	69.7
AIR TRAFFIC CONTROL	21,795	259	1.2	16,948	174	1.0	28.6	48.9
MARINE CARGO	298	1	.3	272	1	.4	9.6	.0
AIRCRAFT OPERATION	2,571	4	.2	1,045	2	.2	146.0	100.0
CATEGORY TOTAL	34,040	5,960	17.5	26,138	4,832	18.5	30.2	23.3
CATEGORY I								
GENERAL TRANSPORTATION	18	11	61.1	54	34	63.0	- 66.7	- 67.6
FREIGHT RATE	2	2	100.0	6	5	83.3	- 66.7	- 60.0

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

TRANSPORTATION — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN		TOTAL	WOMEN
		NUMBER	%		NUMBER	%		
TRAVEL	64	56	87.5	89	83	93.3	- 28.1	- 32.5
SHIPMENT CLERICAL	406	312	76.8	454	347	76.4	- 10.6	- 10.1
TRANS LOSS - DAMAGE CL EX	8	6	75.0	11	10	90.9	- 27.3	- 40.0
DISPATCHING	423	98	23.2	384	77	20.1	10.2	27.3
CATEGORY TOTAL	921	485	52.7	998	556	55.7	- 7.7	- 12.8
OCCUP. GROUP TOTAL	39,779	6,861	17.2	30,963	5,728	18.5	28.5	19.8

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

POSTAL GROUP — WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
CATEGORY III								
POSTMASTER 1 2 3 CLASS	23,185	6,476	27.9	24,144	6,914	28.6	- 4.0	- 6.3
POSTAL INSPECTION	2,006	239	11.9	1,740	159	9.1	15.3	50.5
CATEGORY TOTAL	25,191	6,715	26.7	25,884	7,073	27.3	- 2.7	- 5.1
CATEGORY II								
POSTMASTER 4 CLASS OFFICE	7,384	5,033	68.2	8,386	5,629	67.1	- 11.9	- 10.6
POSTAL ADMINISTRATION	15,367	553	3.6	14,344	460	3.2	8.5	20.2
POSTAL COLLECTION & DEL	12,535	80	.6	10,462	25	.2	19.8	220.0
OTHER POSTAL DISTRIBUTION	24,420	2,260	9.3	25,015	345	1.4	- 2.4	555.1
POSTAL WINDOW & REL SERV	16,086	2,440	15.2	16,292	2,498	15.3	- 1.3	- 2.3
POSTAL TRANSPORTATION	1,986	23	1.2	1,805	20	1.1	10.0	15.0
DISTR WINDOW & MISC CLER	651	24	3.7	457	26	5.7	42.5	- 7.7
MAIL CLASSIF & SPEC SERV	1,269	70	5.5	945	27	2.9	34.3	159.3
SCHEMES & SCHEDULES DEVEL	297	5	1.7	278	1	.4	6.8	400.0
CATEGORY TOTAL	80,195	10,488	13.1	77,984	9,031	11.6	2.8	16.1
CATEGORY I								
POSTAL COLLECTION & DEL	190,238	7,334	3.9	162,883	1,325	.8	16.8	453.5
OTHER POSTAL DISTRIBUTION	224,899	57,980	25.5	195,162	34,819	17.8	15.2	64.8
RURAL CARRIERS	30,934	640	2.1	30,881	592	1.9	.2	8.1
DISTR WINDOW & MISC CLER	47,430	15,196	32.0	38,785	10,747	27.7	22.3	41.4
MAIL CLASSIF & SPEC SERV	1,023	163	15.9	912	125	13.5	12.2	32.5
CATEGORY TOTAL	494,524	80,713	16.3	428,623	47,600	11.1	15.4	69.6
OCCUP. GROUP TOTAL	599,910	97,916	16.3	532,491	63,704	12.0	12.7	53.7

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE F — BY SPECIAL CATEGORIES WITHIN OCCUPATIONAL GROUP

WORLDWIDE

CATEGORY A/	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
GRAND TOTAL B/	1,989,792	665,294	33.4	1,837,062	617,220	33.6	8.3	7.8

A/ CATEGORIES I, II AND III ARE DEFINED IN THE INTRODUCTION

B/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE-COLLAR EMPLOYMENT

BY

OCCUPATIONAL GROUP

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE G — BY OCCUPATIONAL GROUP

ALL AGENCIES — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	41,399	1,630	3.9	38,956	1,461	3.8	6.3	11.6
SOC SCI, PSYCH	32,336	9,001	27.8	31,729	8,308	26.2	1.9	8.3
PERS MGMT	41,216	22,219	53.9	33,785	17,520	51.9	22.0	26.8
GEN ADMIN	450,363	315,038	70.0	438,358	322,576	73.6	2.7	- 2.3
BIOL SCIENCES	40,419	2,481	6.1	40,169	2,481	6.2	.6	0.0
ACCT AND BUDGET	114,421	54,803	47.9	108,438	49,976	46.1	5.5	9.7
MED, DENT, PH	91,836	49,995	54.4	93,611	48,138	51.4	- 1.9	3.9
VETERINARY MED	2,369	30	1.3	2,339	16	.7	1.3	87.5
ENG AND ARCH	150,656	1,854	1.2	134,635	1,671	1.2	11.9	11.0
LEGAL AND KINDRED	45,536	21,302	46.8	40,911	18,599	45.5	11.3	14.5
INFO AND ARTS	20,337	6,018	29.6	18,596	5,628	30.3	9.4	6.9
BUS AND INDUSTRY	65,314	13,945	21.4	59,712	12,586	21.1	9.4	10.8
COPYRIGHT, PAT	1,762	128	7.3	1,755	120	6.8	.4	6.7
PHYSICAL SCI	44,241	4,186	9.5	40,757	4,006	9.8	8.5	4.5
LIBR, ARCHIVE	8,455	5,469	64.7	7,002	4,572	65.3	20.8	19.6
MATH AND STAT	14,333	6,308	44.0	14,774	7,437	50.3	- 3.0	- 15.2
EQUIP, FAC, SVC	19,879	375	1.9	17,907	304	1.7	11.0	23.4
EDUCATION	29,338	11,253	38.4	24,524	9,265	37.8	19.6	21.5
INVESTIGATION	37,325	1,004	2.7	33,610	693	2.1	11.1	44.9
COMM QUAL CONT	22,393	691	3.1	20,285	464	2.3	10.4	48.9
SUPPLY	76,175	32,787	43.0	71,755	31,967	44.6	6.2	2.6
TRANSPORTATION	39,779	6,861	17.2	30,963	5,728	18.5	28.5	19.8
POSTAL	599,910	97,916	16.3	532,491	63,704	12.0	12.7	53.7
TOTAL A/	1,989,792	665,294	33.4	1,837,062	617,220	33.6	8.3	7.8

A/ EXCLUDES EMPLOYEES OF CENTRAL INTELLIGENCE AGENCY, NATIONAL SECURITY AGENCY, BOARD OF GOVERNORS OF FEDERAL RESERVE SYSTEM AND FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H

BY OCCUPATIONAL GROUP

AMER BATTLE MONUMENTS COMM

WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH								
PERS MGMT	1			1			0.0	0.0
GEN ADMIN	9	4	44.4	8	4	50.0	12.5	0.0
BIOL SCIENCES								
ACCT AND BUDGET	1	1	100.0	1	1	100.0	0.0	0.0
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH	1						*	0.0
LEGAL AND KINDRED								
INFO AND ARTS								
BUS AND INDUSTRY	1			3			- 66.7	0.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT								
EQUIP, FAC, SVC	30			36			- 16.7	0.0
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	1						*	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/	44	5	11.4	49	5	10.2	- 10.2	0.0

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

ADVIS COMM ON INTERGOVT RELAT — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH								
PERS MGMT								
GEN ADMIN	32	15	46.9	23	11	47.8	39.1	36.4
BIOL SCIENCES								
ACCT AND BUDGET								
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED								
INFO AND ARTS								
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	1	1	100.0	1	1	100.0	0.0	0.0
MATH AND STAT	2	1	50.0	1			100.0	*
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	35	17	48.6	25	12	48.0	40.0	41.7

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H

BY OCCUPATIONAL GROUP

ARMS CONTROL & DISARM AGENCY

WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	1			2			- 50.0	0.0
SOC SCI, PSYCH	31	5	16.1	20	4	20.0	55.0	25.0
PERS MGMT				1			-100.0	0.0
GEN ADMIN	91	77	84.6	109	90	82.6	- 16.5	- 14.4
BIOL SCIENCES								
ACCT AND BUDGET	1						*	0.0
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH	2						*	0.0
LEGAL AND KINDRED	3			7			- 57.1	0.0
INFO AND ARTS	1	1	100.0	1			0.0	*
BUS AND INDUSTRY	4	2	50.0	4			0.0	*
COPYRIGHT, PAT								
PHYSICAL SCI	18			17			5.9	0.0
LIBR, ARCHIVE	6	5	83.3				*	*
MATH AND STAT	4			4			0.0	0.0
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	162	90	55.6	165	94	57.0	- 1.8	- 4.3

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

ATOMIC ENERGY COMMISSION — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	692	18	2.6	753	18	2.4	- 8.1	0.0
SOC SCI, PSYCH	36	4	11.1	40	6	15.0	- 10.0	- 33.3
PERS MGMT	143	43	30.1	132	44	33.3	8.3	- 2.3
GEN ADMIN	2,563	1,855	72.4	2,628	1,939	73.8	- 2.5	- 4.3
BIOL SCIENCES	26			22	4	18.2	18.2	-100.0
ACCT AND BUDGET	672	159	23.7	693	167	24.1	- 3.0	- 4.8
MED, DENT, PH	27	8	29.6	29	10	34.5	- 6.9	- 20.0
VETERINARY MED				1			-100.0	0.0
ENG AND ARCH	1,202	4	.3	997	6	.6	20.6	- 33.3
LEGAL AND KINORED	118	9	7.6	132	12	9.1	- 10.6	- 25.0
INFO AND ARTS	142	44	31.0	139	46	33.1	2.2	- 4.3
BUS AND INDUSTRY	308	33	10.7	290	32	11.0	6.2	3.1
COPYRIGHT, PAT	39			41			- 4.9	0.0
PHYSICAL SCI	603	24	4.0	577	35	6.1	4.5	- 31.4
LIBR, ARCHIVE	73	52	71.2	79	55	69.6	- 7.6	- 5.5
MATH AND STAT	42	13	31.0	36	9	25.0	16.7	44.4
EQUIP, FAC, SVC	20	2	10.0	15			33.3	*
EDUCATION	10	1	10.0	14			- 28.6	*
INVESTIGATION	68	1	1.5	71			- 4.2	*
COMM QUAL CONT	191			221			- 13.6	0.0
SUPPLY	57	3	5.3	99	5	5.1	- 42.4	- 40.0
TRANSPORTATION	35	13	37.1	37	13	35.1	- 5.4	0.0
POSTAL								
TOTAL A/	7,067	2,286	32.3	7,046	2,401	34.1	.3	- 4.8

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H

BY OCCUPATIONAL GROU

AIR FORCE

WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	5,105	88	1.7	5,295	97	1.8	- 3.6	- 9.3
SOC SCI, PSYCH	1,462	382	26.1	1,353	373	27.6	8.1	2.4
PERS MGMT	6,283	3,103	49.4	4,994	2,641	52.9	25.8	17.5
GEN ADMIN	59,164	41,520	70.2	63,008	48,131	76.4	- 6.1	- 13.7
BIOL SCIENCES	182	21	11.5	181	17	9.4	.6	23.5
ACCT AND BUDGET	10,179	6,125	60.2	10,109	6,293	62.3	.7	- 2.7
MED, DENT, PH	2,564	2,183	85.1	2,940	2,515	85.5	- 12.8	- 13.2
VETERINARY MED								
ENG AND ARCH	15,700	169	1.1	13,867	152	1.1	14.9	11.2
LEGAL AND KINDRED	409	178	43.5	387	178	46.0	5.7	0.0
INFO AND ARTS	2,890	852	29.5	2,574	818	31.8	12.3	4.2
BUS AND INDUSTRY	12,219	2,609	21.4	11,126	2,352	21.1	9.8	10.9
COPYRIGHT, PAT	42	1	2.4	33	1	3.0	27.3	0.0
PHYSICAL SCI	4,099	302	7.4	3,727	305	8.2	10.0	- 1.0
LIBR, ARCHIVE	841	640	76.1	641	518	80.8	31.2	23.6
MATH AND STAT	1,563	410	26.2	1,481	600	40.5	5.5	- 31.7
EQUIP, FAC, SVC	4,352	57	1.3	4,044	44	1.1	7.6	29.5
EDUCATION	6,377	2,449	38.4	6,366	2,535	39.8	.2	- 3.4
INVESTIGATION	142	1	.7	140	2	1.4	1.4	- 50.0
COMM QUAL CONT	3,517	44	1.3	3,076	45	1.5	14.3	- 2.2
SUPPLY	21,630	9,672	44.7	20,812	10,316	49.6	3.9	- 6.2
TRANSPORTATION	5,010	1,376	27.5	3,145	1,277	40.6	59.3	7.8
POSTAL								
TOTAL A/	163,730	72,182	44.1	159,099	79,211	49.8	2.9	- 8.9

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

AGRICULTURE — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	360	12	3.3	279	5	1.8	29.0	140.0
SOC SCI, PSYCH	1,169	60	5.1	1,060	62	5.8	10.3	- 3.2
PERS MGMT	1,160	711	61.3	1,021	631	61.8	13.6	12.7
GEN ADMIN	19,752	14,223	72.0	21,724	15,352	70.7	- 9.1	- 7.4
BIOL SCIENCES	28,277	700	2.5	28,671	684	2.4	- 1.4	2.3
ACCT AND BUDGET	3,783	1,816	48.0	3,654	1,718	47.0	3.5	5.7
MED, DENT, PH	69	24	34.8	91	36	39.6	- 24.2	- 33.3
VETERINARY MED	2,191	27	1.2	2,129	13	.6	2.9	107.7
ENG AND ARCH	7,553	98	1.3	7,261	114	1.6	4.0	- 14.0
LEGAL AND KINDRED	575	308	53.6	497	246	49.5	15.7	25.2
INFO AND ARTS	814	252	31.0	817	265	32.4	- .4	- 4.9
BUS AND INDUSTRY	1,983	273	13.8	1,389	165	11.9	42.8	65.5
COPYRIGHT, PAT	8			7			14.3	0.0
PHYSICAL SCI	2,735	516	18.9	2,583	503	19.5	5.9	2.6
LIBR, ARCHIVE	186	117	62.9	162	96	59.3	14.8	21.9
MATH AND STAT	1,377	767	55.7	1,435	799	55.7	- 4.0	- 4.0
EQUIP, FAC, SVC	233	11	4.7	213	10	4.7	9.4	10.0
EDUCATION	343	17	5.0	420	24	5.7	- 18.3	- 29.2
INVESTIGATION	6,650	200	3.0	5,633	93	1.7	18.1	115.1
COMM QUAL CONT	2,818	97	3.4	3,031	91	3.0	- 7.0	6.6
SUPPLY	383	92	24.0	394	88	22.3	- 2.8	4.5
TRANSPORTATION	216	42	19.4	219	45	20.5	- 1.4	- 6.7
POSTAL								
TOTAL A/	82,635	20,363	24.6	82,690	21,040	25.4	- .1	- 3.2

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

NAT FOUNDTN ON ARTS & HUMAN — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH								
PERS MGMT	2	1	50.0				*	*
GEN ADMIN	57	41	71.9	54	39	72.2	5.6	5.1
BIOL SCIENCES								
ACCT AND BUDGET	8	7	87.5	1			700.0	*
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH				1			-100.0	0.0
LEGAL AND KINDRED				1			-100.0	0.0
INFO AND ARTS	3	3	100.0	2	1	50.0	50.0	200.0
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT	1	1	100.0				*	*
EQUIP, FAC, SVC								
EDUCATION	3	1	33.3	1			200.0	*
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	1						*	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/	75	54	72.0	60	40	66.7	25.0	35.0

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7921

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H BY OCCUPATIONAL GROUP
(INCL. ATL.-PAC. INTEROCEAN
ARMY CANAL STUDY COMM.) WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	7,448	248	3.3	7,085	240	3.4	5.1	3.3
SOC SCI, PSYCH	2,687	712	26.5	2,265	654	28.9	18.6	8.9
PERS MGMT	11,450	7,612	66.5	9,168	5,914	64.5	24.9	28.7
GEN ADMIN	93,608	59,802	63.9	88,824	64,345	72.4	5.4	- 7.1
BIOL SCIENCES	1,432	221	15.4	1,464	242	16.5	- 2.2	- 8.7
ACCT AND BUDGET	19,253	12,075	62.7	18,007	11,255	62.5	6.9	7.3
MED, DENT, PH	8,090	6,199	76.6	7,606	5,957	78.3	6.4	4.1
VETERINARY MED	11			10			10.0	0.0
ENG AND ARCH	35,284	532	1.5	33,409	509	1.5	5.6	4.5
LEGAL AND KINDRED	1,306	505	38.7	1,167	404	34.6	11.9	25.0
INFO AND ARTS	5,076	1,457	28.7	4,717	1,403	29.7	7.6	3.8
BUS AND INDUSTRY	12,149	3,556	29.3	10,831	3,185	29.4	12.2	11.6
COPYRIGHT, PAT	77	2	2.6	87	1	1.1	- 11.5	100.0
PHYSICAL SCI	7,651	770	10.1	7,099	767	10.8	7.8	.4
LIBR, ARCHIVE	1,372	1,115	81.3	1,220	1,005	82.4	12.5	10.9
MATH AND STAT	2,703	1,036	38.3	2,913	1,437	49.3	- 7.2	- 27.9
EQUIP, FAC, SVC	6,802	84	1.2	5,778	75	1.3	17.7	12.0
EDUCATION	11,499	4,189	36.4	7,766	2,569	33.1	48.1	63.1
INVESTIGATION	389	2	.5	415	2	.5	- 6.3	0.0
COMM QUAL CONT	3,630	258	7.1	2,380	35	1.5	52.5	637.1
SUPPLY	24,788	10,101	40.7	21,601	9,435	43.7	14.8	7.1
TRANSPORTATION	5,538	2,350	42.4	4,540	1,907	42.0	22.0	23.2
POSTAL								
TOTAL A/	262,243	112,826	43.0	238,352	111,341	46.7	10.0	1.3

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H

BY OCCUPATIONAL GROUP

BUREAU OF THE BUDGET

WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	17	2	11.8	13	1	7.7	30.8	100.0
PERS MGMT	4	2	50.0	4	3	75.0	0.0	- 33.3
GEN ADMIN	247	155	62.8	234	152	65.0	5.6	2.0
BIOL SCIENCES								
ACCT AND BUDGET	184	5	2.7	202	9	4.5	- 8.9	- 44.4
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	15	5	33.3	17	5	29.4	- 11.8	0.0
INFO AND ARTS	1	1	100.0	2	2	100.0	- 50.0	- 50.0
BUS AND INDUSTRY	1	1	100.0	1	1	100.0	0.0	0.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	13	10	76.9	11	10	90.9	18.2	0.0
MATH AND STAT	24	4	16.7	24	2	8.3	0.0	100.0
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	3			1			200.0	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/	509	185	36.3	509	185	36.3	0.0	0.0

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

CIVIL AERONAUTICS BOARD — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	47	4	8.5	21	1	4.8	123.8	300.0
PERS MGMT	5	2	40.0	7	4	57.1	- 28.6	- 50.0
GEN ADMIN	229	177	77.3	293	232	79.2	- 21.8	- 23.7
BIOL SCIENCES								
ACCT AND BUDGET	77	9	11.7	76	17	22.4	1.3	- 47.1
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH				22			-100.0	0.0
LEGAL AND KINDRED	98	14	14.3	92	13	14.1	6.5	7.7
INFO AND ARTS	6	3	50.0	10	3	30.0	- 40.0	0.0
BUS AND INDUSTRY	130	20	15.4	137	22	16.1	- 5.1	- 9.1
COPYRIGHT, PAT								
PHYSICAL SCI				5	1	20.0	-100.0	-100.0
LIBR, ARCHIVE	3	2	66.7	3	1	33.3	0.0	100.0
MATH AND STAT	17	8	47.1	23	11	47.8	- 26.1	- 27.3
EQUIP, FAC, SVC	1	1	100.0	1	1	100.0	0.0	0.0
EDUCATION				1			-100.0	0.0
INVESTIGATION				86			-100.0	0.0
COMM QUAL CONT								
SUPPLY	6	2	33.3	9	2	22.2	- 33.3	0.0
TRANSPORTATION	10	6	60.0	11	5	45.5	- 9.1	20.0
POSTAL								
TOTAL A/	629	248	39.4	797	313	39.3	- 21.1	- 20.8

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7924

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE 4 BY OCCUPATIONAL GROUP

COMMISSION ON CIVIL RIGHTS WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	10	3	30.0	19	10	52.6	- 47.4	- 70.0
PERS MGMT	3	2	66.7	2	2	100.0	50.0	0.0
GEN ADMIN	98	65	66.3	83	60	72.3	18.1	8.3
BIOL SCIENCES								
ACCT AND BUDGET	2	1	50.0	1			100.0	*
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	17	3	17.6	18	2	11.1	- 5.6	50.0
INFO AND ARTS	6	4	66.7	6	3	50.0	0.0	33.3
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	6	6	100.0	5	3	60.0	20.0	100.0
MATH AND STAT	2	2	100.0	2	1	50.0	0.0	100.0
EQUIP, FAC, SVC								
EDUCATION				5	3	60.0	-100.0	-100.0
INVESTIGATION				1			-100.0	0.0
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	144	86	59.7	142	84	59.2	1.4	2.4

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7925

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

COUNCIL OF ECONOMIC ADVISERS — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	18	2	11.1	15			20.0	*
PERS MGMT								
GEN ADMIN	24	16	66.7	23	17	73.9	4.3	- 5.9
BIOL SCIENCES								
ACCT AND BUDGET								
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED								
INFO AND ARTS								
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT	4	4	100.0	4	3	75.0	0.0	33.3
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	46	22	47.8	42	20	47.6	9.5	10.0

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE 4 BY OCCUPATIONAL GROUP

COMMERCE WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	85	2	2.4	102	1	1.0	- 16.7	100.0
SOC SCI, PSYCH	540	144	26.7	539	141	26.2	.2	2.1
PERS MGMT	343	172	50.1	356	171	48.0	- 3.7	.6
GEN ADMIN	8,707	5,901	67.8	9,236	6,264	67.8	- 5.7	- 5.8
BIOL SCIENCES	3	2	66.7	2			50.0	*
ACCT AND BUDGET	770	345	44.8	1,034	385	37.2	- 25.5	- 10.4
MED, DENT, PH	28	18	64.3	31	18	58.1	- 9.7	0.0
VETERINARY MED								
ENG AND ARCH	2,153	9	.4	4,748	37	.8	- 54.7	- 75.7
LEGAL AND KINDRED	384	189	49.2	283	93	32.9	35.7	103.2
INFO AND ARTS	384	143	37.2	379	150	39.6	1.3	- 4.7
BUS AND INDUSTRY	815	137	16.8	977	135	13.8	- 16.6	1.5
COPYRIGHT, PAT	1,317	57	4.3	1,305	55	4.2	.9	3.6
PHYSICAL SCI	6,886	426	6.2	6,836	461	6.7	.7	- 7.6
LIBR, ARCHIVE	192	118	61.5	188	112	59.6	2.1	5.4
MATH AND STAT	1,686	815	48.3	1,817	890	49.0	- 7.2	- 8.4
EQUIP, FAC, SVC	78	13	16.7	135	8	5.9	- 42.2	62.5
EDUCATION	112	3	2.7	112	7	6.3	0.0	- 57.1
INVESTIGATION	30	1	3.3	43	1	2.3	- 30.2	0.0
COMM QUAL CONT	5			8			- 37.5	0.0
SUPPLY	272	58	21.3	240	54	22.5	13.3	7.4
TRANSPORTATION	81	24	29.6	59	23	39.0	37.3	4.3
POSTAL								
TOTAL A/	24,871	8,577	34.5	28,430	9,006	31.7	- 12.5	- 4.8

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

CIVIL SERVICE COMMISSION — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	3			4			- 25.0	0.0
SOC SCI, PSYCH	25	10	40.0	26	12	46.2	- 3.8	- 16.7
PERS MGMT	1,746	866	49.6	1,167	495	42.4	49.6	74.9
GEN ADMIN	1,871	1,517	81.1	1,987	1,639	82.5	- 5.8	- 7.4
BIOL SCIENCES								
ACCT AND BUDGET	227	140	61.7	175	106	60.6	29.7	32.1
MED, DENT, PH	15	4	26.7	20	4	20.0	- 25.0	0.0
VETERINARY MED								
ENG AND ARCH	1						*	0.0
LEGAL AND KINDRED	177	87	49.2	151	71	47.0	17.2	22.5
INFO AND ARTS	23	10	43.5	21	8	38.1	9.5	25.0
BUS AND INDUSTRY	3			3	2	66.7	0.0	-100.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	13	10	76.9	9	9	100.0	44.4	11.1
MATH AND STAT	25	15	60.0	25	14	56.0	0.0	7.1
EQUIP, FAC, SVC	4	1	25.0	5	1	20.0	- 20.0	0.0
EDUCATION	5			9	4	44.4	- 44.4	-100.0
INVESTIGATION	688	9	1.3	875	6	.7	- 21.4	50.0
COMM QUAL CONT								
SUPPLY	43	10	23.3	43	6	14.0	0.0	66.7
TRANSPORTATION	1			1			0.0	0.0
POSTAL								
TOTAL A/	4,870	2,679	55.0	4,521	2,377	52.6	7.7	12.7

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H

BY OCCUPATIONAL GROUP

CANAL ZONE GOVERNMENT

WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	256			269			- 4.8	0.0
SOC SCI, PSYCH	34	24	70.6	22	14	63.6	54.5	71.4
PERS MGMT	4	4	100.0	4	4	100.0	0.0	0.0
GEN ADMIN	159	102	64.2	170	115	67.6	- 6.5	- 11.3
BIOL SCIENCES	1			1			0.0	0.0
ACCT AND BUDGET	45	18	40.0	58	17	29.3	- 22.4	5.9
MED, DENT, PH	353	240	68.0	385	238	61.8	- 8.3	.8
VETERINARY MED	6			6			0.0	0.0
ENG AND ARCH	1			1			0.0	0.0
LEGAL AND KINDRED	7			5			40.0	0.0
INFO AND ARTS	2	2	100.0	2	2	100.0	0.0	0.0
BUS AND INDUSTRY	3	1	33.3	2			50.0	*
COPYRIGHT, PAT								
PHYSICAL SCI				1			-100.0	0.0
LIBR, ARCHIVE	14	13	92.9	16	16	100.0	- 12.5	- 18.8
MATH AND STAT				1	1	100.0	-100.0	-100.0
EQUIP, FAC, SVC								
EDUCATION	612	405	66.2	505	336	66.5	21.2	20.5
INVESTIGATION	53			52			1.9	0.0
COMM QUAL CONT								
SUPPLY	1	1	100.0	7	5	71.4	- 85.7	- 80.0
TRANSPORTATION								
POSTAL	2			1			100.0	0.0
TOTAL A/	1,553	810	52.2	1,508	748	49.6	3.0	8.3

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE 4 BY OCCUPATIONAL GROUP

JUSTICE WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	5,061	795	15.7	5,125	796	15.5	- 1.2	- .1
SOC SCI, PSYCH	315	54	17.1	282	40	14.2	11.7	35.0
PERS MGMT	304	171	56.3	251	138	55.0	21.1	23.9
GEN ADMIN	12,224	9,458	77.4	11,656	9,009	77.3	4.9	5.0
BIOL SCIENCES	20	2	10.0	17	1	5.9	17.6	100.0
ACCT AND BUDGET	558	348	62.4	511	289	56.6	9.2	20.4
MED, DENT, PH	28	23	82.1	30	26	86.7	- 6.7	- 11.5
VETERINARY MED								
ENG AND ARCH	208			188			10.6	0.0
LEGAL AND KINDRED	2,959	783	26.5	2,669	557	20.9	10.9	40.6
INFO AND ARTS	229	71	31.0	200	58	29.0	14.5	22.4
BUS AND INDUSTRY	124	10	8.1	131	12	9.2	- 5.3	- 16.7
COPYRIGHT, PAT	14	1	7.1	18	1	5.6	- 22.2	0.0
PHYSICAL SCI	123	39	31.7	64	31	48.4	92.2	25.8
LIBR, ARCHIVE	35	17	48.6	33	18	54.5	6.1	- 5.6
MATH AND STAT	121	70	57.9	96	51	53.1	26.0	37.3
EQUIP, FAC, SVC	64	2	3.1	63			1.6	*
EDUCATION	227	24	10.6	191	16	8.4	18.8	50.0
INVESTIGATION	11,550	53	.5	9,906	28	.3	16.6	89.3
COMM QUAL CONT	8			6			33.3	0.0
SUPPLY	140	16	11.4	134	13	9.7	4.5	23.1
TRANSPORTATION	53	2	3.8	54	2	3.7	- 1.9	0.0
POSTAL								
TOTAL A/	34,365	11,939	34.7	31,625	11,086	35.1	8.7	7.7

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H

BY OCCUPATIONAL GROUP

LABOR

WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	15			12			25.0	0.0
SOC SCI, PSYCH	1,702	441	25.9	1,388	336	24.2	22.6	31.3
PERS MGMT	877	261	29.8	1,014	275	27.1	- 13.5	- 5.1
GEN ADMIN	4,283	3,037	70.9	3,753	2,836	75.6	14.1	7.1
BIOL SCIENCES								
ACCT AND BUDGET	435	205	47.1	316	127	40.2	37.7	61.4
MED, DENT, PH	12	3	25.0	6	2	33.3	100.0	50.0
VETERINARY MED								
ENG AND ARCH	86	10	11.6	44	1	2.3	95.5	900.0
LEGAL AND KINDRED	380	80	21.1	432	104	24.1	- 12.0	- 23.1
INFO AND ARTS	134	71	53.0	120	73	60.8	11.7	- 2.7
BUS AND INDUSTRY	138	34	24.6	84	23	27.4	64.3	47.8
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	28	21	75.0	19	17	89.5	47.4	23.5
MATH AND STAT	491	345	70.3	578	414	71.6	- 15.1	- 16.7
EQUIP, FAC, SVC	7	4	57.1	4	2	50.0	75.0	100.0
EDUCATION	52	14	26.9	14	2	14.3	271.4	600.0
INVESTIGATION	1,394	70	5.0	1,400	94	6.7	- .4	- 25.5
COMM QUAL CONT								
SUPPLY	62	8	12.9	64	11	17.2	- 3.1	- 27.3
TRANSPORTATION	40	22	55.0	3			233.3	*
POSTAL								
TOTAL A/	10,136	4,626	45.6	9,251	4,317	46.7	9.6	7.2

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

EXPORT-IMPORT BANK — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	31	3	9.7	32	3	9.4	- 3.1	0.0
PERS MGMT	4	3	75.0	3	2	66.7	33.3	50.0
GEN ADMIN	157	120	76.4	144	126	87.5	9.0	- 4.8
BIOL SCIENCES								
ACCT AND BUDGET	47	25	53.2	41	22	53.7	14.6	13.6
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH	8			8			0.0	0.0
LEGAL AND KINDRED	10			10			0.0	0.0
INFO AND ARTS	4	3	75.0	2	1	50.0	100.0	200.0
BUS AND INDUSTRY	53	5	9.4	46	2	4.3	15.2	150.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	2	2	100.0	2	1	50.0	0.0	100.0
MATH AND STAT								
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	316	161	50.9	288	157	54.5	9.7	2.5

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

EQUAL EMPLOY OPPORTUNITY COMM — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	7	5	71.4	2	2	100.0	250.0	150.0
PERS MGMT	9	5	55.6	5	4	80.0	80.0	25.0
GEN ADMIN	492	258	52.4	237	108	45.6	107.6	138.9
BIOL SCIENCES								
ACCT AND BUDGET	5	1	20.0	3			66.7	*
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	34	11	32.4	5	1	20.0	580.0	.0
INFO AND ARTS	4	3	75.0	3	1	33.3	33.3	200.0
BUS AND INDUSTRY	1						*	0.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	2	2	100.0				*	*
MATH AND STAT	2	1	50.0	1	1	100.0	100.0	0.0
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	556	286	51.4	256	117	45.7	117.2	144.4

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

FEDERAL COMMUNICATIONS COMM — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	1			1	1	100.0	0.0	-100.0
SOC SCI, PSYCH	23	9	39.1	8			187.5	*
PERS MGMT	16	9	56.3	13	7	53.8	23.1	28.6
GEN ADMIN	498	377	75.7	536	419	78.2	- 7.1	- 10.0
BIOL SCIENCES								
ACCT AND BUDGET	63	25	39.7	77	24	31.2	- 18.2	4.2
MED, DENT, PH	1	1	100.0	1	1	100.0	0.0	0.0
VETERINARY MED								
ENG AND ARCH	445			446			- .2	0.0
LEGAL AND KINDRED	375	142	37.9	318	119	37.4	17.9	19.3
INFO AND ARTS	15	9	60.0	14	8	57.1	7.1	12.5
BUS AND INDUSTRY	12	1	8.3	12	3	25.0	0.0	- 66.7
COPYRIGHT, PAT								
PHYSICAL SCI				1			-100.0	0.0
LIBR, ARCHIVE	6	5	83.3	5	5	100.0	20.0	0.0
MATH AND STAT	7	7	100.0	5	5	100.0	40.0	40.0
EQUIP, FAC, SVC	2			1			100.0	0.0
EDUCATION								
INVESTIGATION	3			4			- 25.0	0.0
COMM QUAL CONT								
SUPPLY	3			4			- 25.0	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/	1,470	585	39.8	1,446	592	40.9	1.7	- 1.2

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

FED DEPOSIT INSURANCE CORP — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	22	3	13.6	10	2	20.0	120.0	50.0
PERS MGMT	8	4	50.0	8	5	62.5	0.0	- 20.0
GEN ADMIN	535	425	79.4	391	333	85.2	36.8	27.6
BIOL SCIENCES								
ACCT AND BUDGET	1,462	105	7.2	955	41	4.3	53.1	156.1
MED, DENT, PH	1	1	100.0	1	1	100.0	0.0	0.0
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	27	2	7.4	23	2	8.7	17.4	0.0
INFO AND ARTS	5	5	62.5	1			700.0	*
BUS AND INDUSTRY	71	5	7.0	49			44.9	*
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	3	2	66.7	2	2	100.0	50.0	0.0
MATH AND STAT	18	14	77.8	14	13	92.9	28.6	7.7
EQUIP, FAC, SVC	1						*	0.0
EDUCATION	2			1			100.0	0.0
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	7	1	14.3	5			40.0	*
TRANSPORTATION								
POSTAL								
TOTAL A/	2,165	567	26.2	1,460	399	27.3	48.3	42.1

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

FEDERAL HOME LOAN BANK BOARD — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	7	1	14.3	7	1	14.3	0.0	0.0
PERS MGMT	10	5	50.0	9	5	55.6	11.1	0.0
GEN ADMIN	340	276	81.2	315	256	81.3	7.9	7.8
BIOL SCIENCES								
ACCT AND BUDGET	685	32	4.7	757	26	3.4	- 9.5	23.1
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH				1			-100.0	0.0
LEGAL AND KINDRED	35			28	2	7.1	25.0	-100.0
INFO AND ARTS	5	1	20.0	5	1	20.0	0.0	0.0
BUS AND INDUSTRY	104	8	7.7	81	5	6.2	28.4	60.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	1	1	100.0	1	1	100.0	0.0	0.0
MATH AND STAT	10	5	50.0	14	6	42.9	- 28.6	- 16.7
EQUIP, FAC, SVC				1			-100.0	0.0
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY				1			-100.0	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/	1,197	329	27.5	1,220	303	24.8	- 1.9	8.6

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

FARM CREDIT ADMINISTRATION — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	3			3			0.0	0.0
PERS MGMT	2	2	100.0	3	2	66.7	- 33.3	0.0
GEN ADMIN	111	50	45.0	112	52	46.4	- .9	- 3.8
BIOL SCIENCES								
ACCT AND BUDGET	81	22	27.2	82	22	26.8	- 1.2	0.0
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	2			2			0.0	0.0
INFO AND ARTS	3	1	33.3	4	1	25.0	- 25.0	0.0
BUS AND INDUSTRY	4			5			- 20.0	0.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT	2	1	50.0	1	1	100.0	100.0	0.0
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	1			2			- 50.0	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/	209	76	36.4	214	78	36.4	- 2.3	- 2.6

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

FED MEDIATN & CONCILATN SERV — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	1						*	0.0
PERS MGMT	288	4	1.4	292	3	1.0	- 1.4	33.3
GEN ADMIN	127	107	84.3	133	116	87.2	- 4.5	- 7.8
BIOL SCIENCES								
ACCT AND BUDGET	16	11	68.8	12	7	58.3	33.3	57.1
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED				1			-100.0	0.0
INFO AND ARTS	1			1			0.0	0.0
BUS AND INDUSTRY	1			1			0.0	0.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT								
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY				1			-100.0	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/	434	122	28.1	441	126	28.6	- 1.6	- 3.2

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H

BY OCCUPATIONAL GROUP

FEDERAL POWER COMMISSION

WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	41	7	17.1	52	8	15.4	- 21.2	- 12.5
PERS MGMT	12	6	50.0	12	7	58.3	0.0	- 14.3
GEN ADMIN	328	249	75.9	358	268	74.9	- 8.4	- 7.1
BIOL SCIENCES	1			1			0.0	0.0
ACCT AND BUDGET	136	13	9.6	135	13	9.6	.7	0.0
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH	257	1	.4	258	1	.4	- .4	0.0
LEGAL AND KINDRED	120	20	16.7	126	19	15.1	- 4.8	5.3
INFO AND ARTS	8	5	62.5	6	4	66.7	33.3	25.0
BUS AND INDUSTRY	105	31	29.5	73	11	15.1	43.8	181.8
COPYRIGHT, PAT								
PHYSICAL SCI	34	3	8.8	36	2	5.6	- 5.6	50.0
LIBR, ARCHIVE	7	4	57.1	6	4	66.7	16.7	0.0
MATH AND STAT	11	7	63.6	26	19	73.1	- 57.7	- 63.2
EQUIP, FAC, SVC	1						*	0.0
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	2			2			0.0	0.0
TRANSPORTATION	1	1	100.0	1	1	100.0	0.0	0.0
POSTAL								
TOTAL A/	1,064	347	32.6	1,092	357	32.7	- 2.6	- 2.8

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

FOREIGN CLAIMS SETTLEMT COMM — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH								
PERS MGMT				2	2	100.0	-100.0	-100.0
GEN ADMIN	21	14	66.7	77	54	70.1	- 72.7	- 74.1
BIOL SCIENCES								
ACCT AND BUDGET	1			2	1	50.0	- 50.0	-100.0
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	15	3	20.0	72	8	11.1	- 79.2	- 62.5
INFO AND ARTS				1	1	100.0	-100.0	-100.0
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT								
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY				2			-100.0	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/	37	17	45.9	156	66	42.3	- 76.3	- 74.2

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

FEDERAL TRADE COMMISSION — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ----			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	41	6	14.6	44	7	15.9	- 6.8	- 14.3
PERS MGMT	9	6	66.7	8	6	75.0	12.5	0.0
GEN ADMIN	462	408	88.3	409	353	86.3	13.0	15.6
BIOL SCIENCES	1						*	0.0
ACCT AND BUDGET	42	18	42.9	34	11	32.4	23.5	63.6
MED, DENT, PH	5	2	40.0	6	2	33.3	- 16.7	0.0
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	566	43	7.6	509	41	8.1	11.2	4.9
INFO AND ARTS	10	5	50.0	8	3	37.5	25.0	66.7
BUS AND INDUSTRY	6	3	50.0	4	3	75.0	50.0	0.0
COPYRIGHT, PAT								
PHYSICAL SCI	12	5	41.7	7	2	28.6	71.4	150.0
LIBR, ARCHIVE	8	6	75.0	6	5	83.3	33.3	20.0
MATH AND STAT	24	18	75.0	25	18	72.0	- 4.0	0.0
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION	42	2	4.8	37	1	2.7	13.5	100.0
COMM QUAL CONT								
SUPPLY	2			4	1	25.0	- 50.0	-100.0
TRANSPORTATION								
POSTAL								
TOTAL A/	1,230	522	42.4	1,101	453	41.1	11.7	15.2

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

GENERAL SERVICES ADMIN — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
MISC OCCUP	3,125	11	.4	3,141	13	.4	- .5	- 15.4
SOC SCI, PSYCH	12	3	25.0	19	5	26.3	- 36.8	- 40.0
PERS MGMT	395	204	51.6	361	174	48.2	9.4	17.2
GEN ADMIN	6,709	5,000	74.5	6,625	4,955	74.8	1.3	.9
BIOL SCIENCES	3			2			50.0	0.0
ACCT AND BUDGET	471	476	54.6	821	448	54.6	6.1	6.3
MED, DENT, PH	23	23	100.0	21	21	100.0	9.5	9.5
VETERINARY MED								
ENG AND ARCH	996	8	.8	1,063	4	.4	- 6.3	100.0
LEGAL AND KINDRED	145	55	37.9	172	65	37.8	- 15.7	- 15.4
INFO AND ARTS	133	82	61.7	82	45	54.9	62.2	82.2
BUS AND INDUSTRY	2,096	433	20.7	1,991	420	21.1	5.3	3.1
COPYRIGHT, PAT								
PHYSICAL SCI	87	12	13.8	63	4	6.3	38.1	200.0
LIBR, ARCHIVE	911	257	28.2	634	118	18.6	43.7	117.8
MATH AND STAT	21	12	57.1	36	23	63.9	- 41.7	- 47.8
EQUIP, FAC, SVC	103	1	1.0	128	2	1.6	- 19.5	- 50.0
EDUCATION	12	5	41.7	9	2	22.2	33.3	150.0
INVESTIGATION	48	1	2.1	55	1	1.8	- 12.7	0.0
COMM QUAL CONT	314	5	1.6	310	4	1.3	1.3	25.0
SUPPLY	1,801	656	36.4	1,569	487	31.0	14.8	34.7
TRANSPORTATION	609	138	22.7	443	82	18.5	37.5	68.3
POSTAL								
TOTAL A/	18,414	7,382	40.1	17,545	6,873	39.2	5.0	7.4

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

HEALTH EDUCATION & WELFARE — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	390	57	14.6	312	2	.6	25.0	750.0
SOC SCI, PSYCH	9,937	4,175	42.0	10,854	3,767	34.7	- 8.4	10.8
PERS MGMT	1,156	677	58.6	985	605	61.4	17.4	11.9
GEN ADMIN	33,449	25,859	77.3	33,598	26,367	78.5	- .4	- 1.9
BIOL SCIENCES	2,476	818	33.0	2,347	875	37.3	5.5	- 6.5
ACCT AND BUDGET	2,650	1,227	46.3	2,518	1,129	44.8	5.2	8.7
MED, DENT, PH	14,217	5,982	42.1	16,628	7,198	43.3	- 14.5	- 16.9
VETERINARY MED	144	3	2.1	175	3	1.7	- 17.7	0.0
ENG AND ARCH	1,351	15	1.1	1,080	6	.6	25.1	150.0
LEGAL AND KINDRED	16,622	12,290	73.9	14,032	9,717	69.2	18.5	26.5
INFO AND ARTS	961	436	45.4	880	402	45.7	9.2	8.5
BUS AND INDUSTRY	655	258	39.4	436	178	40.8	50.2	44.9
COPYRIGHT, PAT	1			2			- 50.0	0.0
PHYSICAL SCI	2,348	500	21.3	2,731	585	21.4	- 14.0	- 14.5
LIBR, ARCHIVE	423	280	66.2	336	222	66.1	25.9	26.1
MATH AND STAT	1,188	662	55.7	1,117	688	61.6	6.4	- 3.8
EQUIP, FAC, SVC	164	15	9.1	149	21	14.1	10.1	- 28.6
EDUCATION	1,111	352	31.7	1,077	337	31.3	3.2	4.5
INVESTIGATION	445	15	3.4	747	11	1.5	- 40.4	36.4
COMM QUAL CONT	12	2	16.7	12	2	16.7	0.0	0.0
SUPPLY	499	112	22.4	502	103	20.5	- .6	8.7
TRANSPORTATION	107	86	80.4	81	60	74.1	32.1	43.3
POSTAL								
TOTAL A/	90,306	53,821	59.6	90,599	52,278	57.7	- .3	3.0

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

HOUSING AND URBAN DEVELOPMENT — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	125	10	8.0	73	7	9.6	71.2	42.9
SOC SCI, PSYCH	265	80	30.2	232	55	23.7	14.2	45.5
PERS MGMT	193	90	46.6	135	63	46.7	43.0	42.9
GEN ADMIN	6,793	4,632	68.2	5,947	4,295	72.2	14.2	7.8
BIOL SCIENCES				1			-100.0	0.0
ACCT AND BUDGET	1,200	465	38.8	1,473	635	43.1	- 18.5	- 26.8
MED, DENT, PH				4	4	100.0	-100.0	-100.0
VETERINARY MED								
ENG AND ARCH	1,829	9	.5	1,299	2	.2	40.8	350.0
LEGAL AND KINDRED	401	120	29.9	550	241	43.8	- 27.1	- 50.2
INFO AND ARTS	80	37	46.3	89	29	32.6	- 10.1	27.6
BUS AND INDUSTRY	3,146	229	7.3	3,178	191	6.0	- 1.0	19.9
COPYRIGHT, PAT								
PHYSICAL SCI	8			1			700.0	0.0
LIBR, ARCHIVE	31	26	83.9	21	18	85.7	47.6	44.4
MATH AND STAT	116	81	69.8	105	69	65.7	10.5	17.4
EQUIP, FAC, SVC	20	6	30.0	637	3	.5	- 96.9	100.0
EDUCATION				1			-100.0	0.0
INVESTIGATION	37			23			60.9	0.0
COMM QUAL CONT								
SUPPLY	41	5	12.2	54	7	13.0	- 24.1	- 28.6
TRANSPORTATION	4	3	75.0	4	3	75.0	0.0	0.0
POSTAL								
TOTAL A/	14,289	5,793	40.5	13,827	5,622	40.7	3.3	3.0

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

U. S. INFORMATION AGENCY — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	27			25			8.0	0.0
SOC SCI, PSYCH	44	10	22.7	82	17	20.7	- 46.3	- 41.2
PERS MGMT	82	35	42.7	73	36	49.3	12.3	- 2.8
GEN ADMIN	1,093	799	73.1	1,036	758	73.2	5.5	5.4
BIOL SCIENCES								
ACCT AND BUDGET	137	67	48.9	147	79	53.7	- 6.8	- 15.2
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH	98			122	1	.8	- 19.7	-100.0
LEGAL AND KINDRED	7			7			0.0	0.0
INFO AND ARTS	2,645	486	18.4	2,629	469	17.8	.6	3.6
BUS AND INDUSTRY	56	27	48.2	70	37	52.9	- 20.0	- 27.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	58	43	74.1	67	57	85.1	- 13.4	- 24.6
MATH AND STAT				2			-100.0	0.0
EQUIP, FAC, SVC	29	2	6.9	27	1	3.7	7.4	100.0
EDUCATION	29	11	37.9	29	9	31.0	0.0	22.2
INVESTIGATION	11			13			- 15.4	0.0
COMM QUAL CONT								
SUPPLY	20	10	50.0	23	12	52.2	- 13.0	- 16.7
TRANSPORTATION	19	10	52.6	16	10	62.5	18.8	0.0
POSTAL								
TOTAL A/	4,355	1,500	34.4	4,368	1,486	34.0	- .3	.9

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

INTERSTATE COMMERCE COMM — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	15	3	20.0	18	4	22.2	- 16.7	- 25.0
PERS MGMT	14	5	35.7	13	5	38.5	7.7	0.0
GEN ADMIN	708	554	78.2	906	709	78.3	- 21.9	- 21.9
BIOL SCIENCES								
ACCT AND BUDGET	137	37	27.0	123	26	21.1	11.4	42.3
MED, DENT, PH	1	1	100.0	1	1	100.0	0.0	0.0
VETERINARY MED								
ENG AND ARCH	10			20			- 50.0	0.0
LEGAL AND KINDRED	404	65	16.1	414	55	13.3	- 2.4	18.2
INFO AND ARTS	10	7	70.0	6	3	50.0	66.7	133.3
BUS AND INDUSTRY	15	4	26.7	16	6	37.5	- 6.3	- 33.3
COPYRIGHT, PAT								
PHYSICAL SCI				2			-100.0	0.0
LIBR, ARCHIVE	5	3	60.0	4	2	50.0	25.0	50.0
MATH AND STAT	42	26	61.9	49	35	71.4	- 14.3	- 25.7
EQUIP, FAC, SVC				1			-100.0	0.0
EDUCATION								
INVESTIGATION	18			207			- 91.3	0.0
COMM QUAL CONT								
SUPPLY	3			5			- 40.0	0.0
TRANSPORTATION	413	19	4.6	531	20	3.8	- 22.2	- 5.0
POSTAL								
TOTAL A/	1,795	724	40.3	2,316	866	37.4	- 22.5	- 16.4

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

INTERIOR (INCL. EXEC. MANSION AND GROUNDS) — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	1,862	94	5.0	1,699	62	3.6	9.6	51.6
SOC SCI, PSYCH	832	185	22.2	728	114	15.7	14.3	62.3
PERS MGMT	853	458	53.7	750	387	51.6	13.7	18.3
GEN ADMIN	13,441	8,872	66.0	13,870	8,903	64.2	- 3.1	- .3
BIOL SCIENCES	5,772	133	2.3	5,341	145	2.7	8.1	- 8.3
ACCT AND BUDGET	1,725	921	53.4	1,748	945	54.1	- 1.3	- 2.5
MED, DENT, PH	37	23	62.2	69	38	55.1	- 46.4	- 39.5
VETERINARY MED	4			1			300.0	0.0
ENG AND ARCH	10,835	213	2.0	11,881	212	1.8	- 8.8	.5
LEGAL AND KINDRED	729	375	51.4	715	347	48.5	2.0	8.1
INFO AND ARTS	740	282	38.1	645	263	40.8	14.7	7.2
BUS AND INDUSTRY	1,525	271	17.8	1,515	244	16.1	.7	11.1
COPYRIGHT, PAT	9			2			350.0	0.0
PHYSICAL SCI	5,574	512	9.2	5,107	525	10.3	9.1	- 2.5
LIBR, ARCHIVE	196	147	75.0	189	139	73.5	3.7	5.8
MATH AND STAT	396	231	58.3	354	244	68.9	11.9	- 5.3
EQUIP, FAC, SVC	362	6	1.7	374	14	3.7	- 3.2	- 57.1
EDUCATION	5,427	3,012	55.5	4,788	2,508	52.4	13.3	20.1
INVESTIGATION	622	1	.2	576			8.0	*
COMM QUAL CONT	26			48			- 45.8	0.0
SUPPLY	802	136	17.0	758	114	15.0	5.8	19.3
TRANSPORTATION	61	14	23.0	94	20	21.3	- 35.1	- 30.0
POSTAL								
TOTAL A/	51,830	15,886	30.7	51,252	15,224	29.7	1.1	4.3

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

JUDICIAL BRANCH — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	34			29			17.2	0.0
SOC SCI, PSYCH	7	1	14.3	5			40.0	*
PERS MGMT	10	7	70.0	8	6	75.0	25.0	16.7
GEN ADMIN	173	110	63.6	158	103	65.2	9.5	6.8
BIOL SCIENCES								
ACCT AND BUDGET	41	26	63.4	41	27	65.9	0.0	- 3.7
MED, DENT, PH	2	2	100.0	3	3	100.0	- 33.3	- 33.3
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	6,291	2,507	39.9	5,660	3,324	58.7	11.1	- 24.6
INFO AND ARTS	2			2			0.0	0.0
BUS AND INDUSTRY	8	6	75.0	8	6	75.0	0.0	0.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	13	11	84.6	13	12	92.3	0.0	- 8.3
MATH AND STAT	1	1	100.0	1	1	100.0	0.0	0.0
EQUIP, FAC, SVC	1			1			0.0	0.0
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	4	2	50.0	3	2	66.7	33.3	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/	6,587	2,673	40.6	5,932	3,484	58.7	11.0	- 23.3

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

ARCHITECT OF THE CAPITOL — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	1			1			0.0	0.0
PERS MGMT	5	1	20.0	4	1	25.0	25.0	0.0
GEN ADMIN	66	20	30.3	63	21	33.3	4.8	- 4.8
BIOL SCIENCES				1			-100.0	0.0
ACCT AND BUDGET	12	9	75.0	10	7	70.0	20.0	28.6
MED, DENT, PH	18	10	55.6	14	6	42.9	28.6	66.7
VETERINARY MED								
ENG AND ARCH	16			19			- 15.8	0.0
LEGAL AND KINDRED				1			-100.0	0.0
INFO AND ARTS	2			1			100.0	0.0
BUS AND INDUSTRY	12	2	16.7	8	3	37.5	50.0	- 33.3
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT								
EQUIP, FAC, SVC	2			2			0.0	0.0
EDUCATION								
INVESTIGATION	1			2			- 50.0	0.0
COMM QUAL CONT								
SUPPLY	2			5			- 60.0	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/	137	42	30.7	131	38	29.0	4.6	10.5

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

BOTANIC GARDEN — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH								
PERS MGMT								
GEN ADMIN	3	2	66.7	3	2	66.7	0.0	0.0
BIOL SCIENCES	2			2			0.0	0.0
ACCT AND BUDGET								
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED								
INFO AND ARTS								
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT								
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	5	2	40.0	5	2	40.0	0.0	0.0

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

LIBRARY OF CONGRESS — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	49	2	4.1	97			- 49.5	*
SOC SCI, PSYCH	283	104	36.7	286	104	36.4	- 1.0	0.0
PERS MGMT	35	21	60.0	26	14	53.8	34.6	50.0
GEN ADMIN	699	462	66.1	659	416	63.1	6.1	11.1
BIOL SCIENCES	3			4			- 25.0	0.0
ACCT AND BUDGET	108	69	63.9	98	57	58.2	10.2	21.1
MED, DENT, PH	6	6	100.0	5	5	100.0	20.0	20.0
VETERINARY MED								
ENG AND ARCH	13	2	15.4	26	1	3.8	- 50.0	100.0
LEGAL AND KINDRED	38	11	28.9	28	6	21.4	35.7	83.3
INFO AND ARTS	97	58	59.8	108	65	60.2	- 10.2	- 10.8
BUS AND INDUSTRY	4	1	25.0	2	1	50.0	100.0	0.0
COPYRIGHT, PAT	123	65	52.8	104	60	57.7	18.3	8.3
PHYSICAL SCI	38	9	23.7	47	8	17.0	- 19.1	12.5
LIBR, ARCHIVE	2,031	1,057	52.0	1,706	858	50.3	19.1	23.2
MATH AND STAT	5	3	60.0	5	2	40.0	0.0	50.0
EQUIP, FAC, SVC	7	4	57.1	5	1	20.0	40.0	300.0
EDUCATION	21	13	61.9	5	3	60.0	320.0	333.3
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	17	2	11.8	12	1	8.3	41.7	100.0
TRANSPORTATION	8	3	37.5	5	2	40.0	60.0	50.0
POSTAL								
TOTAL A/	3,585	1,992	52.8	3,228	1,604	49.7	11.1	18.0

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

GENERAL ACCOUNTING OFFICE — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	6	2	33.3				*	*
PERS MGMT	34	22	64.7	21	12	57.1	61.9	83.3
GEN ADMIN	1,051	717	68.2	810	653	80.6	29.8	9.8
BIOL SCIENCES								
ACCT AND BUDGET	2,633	238	9.0	2,518	216	8.6	4.6	10.2
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH	10						*	0.0
LEGAL AND KINDRED	223	64	28.7	224	60	26.8	- .4	6.7
INFO AND ARTS	32	28	87.5	34	31	91.2	- 5.9	- 9.7
BUS AND INDUSTRY	3	1	33.3	5	3	60.0	- 40.0	- 66.7
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	9	7	77.8	10	8	80.0	- 10.0	- 12.5
MATH AND STAT	38	12	31.6	2	1	50.0	800.0	100.0
EQUIP, FAC, SVC	3			1			200.0	0.0
EDUCATION								
INVESTIGATION	21			36			- 41.7	0.0
COMM QUAL CONT								
SUPPLY	27	16	59.3	15	4	26.7	80.0	300.0
TRANSPORTATION	379	118	31.1	391	142	36.3	- 3.1	- 16.9
POSTAL								
TOTAL A/	4,469	1,225	27.4	4,067	1,130	27.8	9.9	8.4

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

GOVERNMENT PRINTING OFFICE — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	115			92			25.0	0.0
SOC SCI, PSYCH								
PERS MGMT	45	25	55.6	39	20	51.3	15.4	25.0
GEN ADMIN	749	521	69.6	626	415	66.3	19.6	25.5
BIOL SCIENCES								
ACCT AND BUDGET	268	192	71.6	232	146	62.9	15.5	31.5
MED, DENT, PH	10	9	90.0	11	10	90.9	- 9.1	- 10.0
VETERINARY MED								
ENG AND ARCH	9			6			50.0	0.0
LEGAL AND KINDRED	4	2	50.0	2	1	50.0	100.0	100.0
INFO AND ARTS	16	2	12.5	15	3	20.0	6.7	- 33.3
BUS AND INDUSTRY	47	34	72.3	29	18	62.1	62.1	88.9
COPYRIGHT, PAT								
PHYSICAL SCI	19	1	5.3	18			5.6	*
LIBR, ARCHIVE	21	15	71.4	15	13	86.7	40.0	15.4
MATH AND STAT								
EQUIP, FAC, SVC	73	2	2.7	55	2	3.6	32.7	0.0
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	92	41	44.6	160	65	40.6	- 42.5	- 36.9
TRANSPORTATION	11	6	54.5	9	5	55.6	22.2	20.0
POSTAL								
TOTAL A/	1,479	850	57.5	1,309	698	53.3	13.0	21.8

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

FEDERAL MARITIME COMMISSION — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	6			3			100.0	0.0
PERS MGMT	5	3	60.0	3	2	66.7	66.7	50.0
GEN ADMIN	89	65	73.0	104	76	73.1	- 14.4	- 14.5
BIOL SCIENCES								
ACCT AND BUDGET	13	3	23.1	12	2	16.7	8.3	50.0
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	31	1	3.2	40	1	2.5	- 22.5	0.0
INFO AND ARTS	1	1	100.0	2	1	50.0	- 50.0	0.0
BUS AND INDUSTRY	50	4	8.0	59	10	16.9	- 15.3	- 60.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE				1	1	100.0	-100.0	-100.0
MATH AND STAT	4	4	100.0	3	3	100.0	33.3	33.3
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION	17			17			0.0	0.0
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION	9	5	55.6	2	1	50.0	350.0	400.0
POSTAL								
TOTAL A/	225	86	38.2	246	97	39.4	- 8.5	- 11.3

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE 4 BY OCCUPATIONAL GROUP

NATIONAL SCIENCE FOUNDATION WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	48	13	27.1	44	11	25.0	9.1	18.2
PERS MGMT	10	4	40.0	11	5	45.5	- 9.1	- 20.0
GEN ADMIN	509	377	74.1	490	401	81.8	3.9	- 6.0
BIOL SCIENCES	28	9	32.1	24	8	33.3	16.7	12.5
ACCT AND BUDGET	69	20	29.0	63	18	28.6	9.5	11.1
MED, DENT, PH	2	1	50.0	1	1	100.0	100.0	0.0
VETERINARY MED								
ENG AND ARCH	19			17			11.8	0.0
LEGAL AND KINDRED	5	1	20.0	6			- 16.7	*
INFO AND ARTS	15	5	33.3	15	7	46.7	0.0	- 28.6
BUS AND INDUSTRY	38	6	15.8	38	7	18.4	0.0	- 14.3
COPYRIGHT, PAT								
PHYSICAL SCI	82	3	3.7	81	4	4.9	1.2	- 25.0
LIBR, ARCHIVE	5	3	60.0	33	7	21.2	- 84.8	- 57.1
MATH AND STAT	11	6	54.5	12	5	41.7	- 8.3	20.0
EQUIP, FAC, SVC	3	1	33.3	1	1	100.0	200.0	0.0
EDUCATION	60	11	18.3	67	25	37.3	- 10.4	- 56.0
INVESTIGATION								
COMM QUAL CONT				1			-100.0	0.0
SUPPLY	7	2	28.6	9	1	11.1	- 22.2	100.0
TRANSPORTATION				2	2	100.0	-100.0	-100.0
POSTAL								
TOTAL A/	911	462	50.7	915	503	55.0	- .4	- 8.2

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7955

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

NAT CAPITAL HOUSING AUTHORITY — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH				5	4	80.0	-100.0	-100.0
PERS MGMT				2	2	100.0	-100.0	-100.0
GEN ADMIN				77	61	79.2	-100.0	-100.0
BIOL SCIENCES				1	1	100.0	-100.0	-100.0
ACCT AND BUDGET				10	5	50.0	-100.0	-100.0
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH				15			-100.0	0.0
LEGAL AND KINDRED				2			-100.0	0.0
INFO AND ARTS								
BUS AND INDUSTRY				68	25	36.8	-100.0	-100.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT								
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY				14			-100.0	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/				194	98	50.5	-100.0	-100.0

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

7956

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

NAT LABOR RELATIONS BOARD — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	2	1	50.0	2			0.0	*
SOC SCI, PSYCH	1	1	100.0	1			0.0	*
PERS MGMT	342	47	13.7	361	44	12.2	- 5.3	6.8
GEN ADMIN	794	716	90.2	890	795	89.3	- 10.8	- 9.9
BIOL SCIENCES								
ACCT AND BUDGET	31	19	61.3	29	16	55.2	6.9	18.8
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	965	91	9.4	936	87	9.3	3.1	4.6
INFO AND ARTS	18	12	66.7	13	8	61.5	38.5	50.0
BUS AND INDUSTRY	4	3	75.0	4	3	75.0	0.0	0.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	4	4	100.0	4	4	100.0	0.0	0.0
MATH AND STAT	7	6	85.7	7	5	71.4	0.0	20.0
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	3			3	1	33.3	0.0	-100.0
TRANSPORTATION	1			1			0.0	0.0
POSTAL								
TOTAL A/	2,172	900	41.4	2,251	963	42.8	- 3.5	- 6.5

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

NATIONAL MEDIATION BOARD — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH								
PERS MGMT	20			20			0.0	0.0
GEN ADMIN	70	54	77.1	77	62	80.5	- 9.1	- 12.9
BIOL SCIENCES								
ACCT AND BUDGET								
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED								
INFO AND ARTS								
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT								
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	90	54	60.0	97	62	63.9	- 7.2	- 12.9

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H

BY OCCUPATIONAL GROUP

NAT AERONAUTICS & SPACE ADMIN

WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	195	9	4.6	181	10	5.5	7.7	- 10.0
SOC SCI, PSYCH	33	6	18.2	39	7	17.9	- 15.4	- 14.3
PERS MGMT	372	161	43.3	374	156	41.7	- .5	3.2
GEN ADMIN	5,503	3,794	68.9	6,330	4,612	72.9	- 13.1	- 17.7
BIOL SCIENCES	88	20	22.7	95	29	30.5	- 7.4	- 31.0
ACCT AND BUDGET	803	382	47.6	896	400	44.6	- 10.4	- 4.5
MED, DENT, PH	49	15	30.6	47	16	34.0	4.3	- 6.3
VETERINARY MED	1			1			0.0	0.0
ENG AND ARCH	12,548	135	1.1	11,394	119	1.0	10.1	13.4
LEGAL AND KINDRED	84	16	19.0	84	8	9.5	0.0	100.0
INFO AND ARTS	589	154	26.1	660	165	25.0	- 10.8	- 6.7
BUS AND INDUSTRY	1,534	345	22.5	1,713	334	19.5	- 10.4	3.3
COPYRIGHT, PAT	36			40			- 10.0	0.0
PHYSICAL SCI	5,164	288	5.6	4,179	109	2.6	23.6	164.2
LIBR, ARCHIVE	141	82	58.2	128	77	60.2	10.2	6.5
MATH AND STAT	193	162	83.9	864	392	45.4	- 77.7	- 58.7
EQUIP, FAC, SVC	294	4	1.4	271	3	1.1	8.5	33.3
EDUCATION	23	3	13.0	25	2	8.0	- 8.0	50.0
INVESTIGATION	5			10			- 50.0	0.0
COMM QUAL CONT	708			668			6.0	0.0
SUPPLY	413	90	21.8	432	121	28.0	- 4.4	- 25.6
TRANSPORTATION	132	55	41.7	139	73	52.5	- 5.0	- 24.7
POSTAL								
TOTAL A/	28,908	5,721	19.8	28,570	6,633	23.2	1.2	- 13.7

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

NAT CAPITAL PLANNING COMM — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	17	1	5.9	18	2	11.1	- 5.6	- 50.0
SOC SCI, PSYCH	3	1	33.3	2	1	50.0	50.0	0.0
PERS MGMT				1			-100.0	0.0
GEN ADMIN	20	16	80.0	20	14	70.0	0.0	14.3
BIOL SCIENCES								
ACCT AND BUDGET	1	1	100.0	1	1	100.0	0.0	0.0
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH	10	2	20.0	5	1	20.0	100.0	100.0
LEGAL AND KINDRED	2			2	1	50.0	0.0	-100.0
INFO AND ARTS	6	5	83.3	3	1	33.3	100.0	400.0
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI	5	1	20.0	4	1	25.0	25.0	0.0
LIBR, ARCHIVE	1	1	100.0	1	1	100.0	0.0	0.0
MATH AND STAT	1	1	100.0	1	1	100.0	0.0	0.0
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	66	29	43.9	58	24	41.4	13.8	20.8

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE 4 BY OCCUPATIONAL GROUP

NATIONAL SECURITY COUNCIL WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	17			11	3	27.3	54.5	-100.0
PERS MGMT	1	1	100.0	1	1	100.0	0.0	0.0
GEN ADMIN	40	29	72.5	26	17	65.4	53.8	70.6
BIOL SCIENCES								
ACCT AND BUDGET								
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED								
INFO AND ARTS								
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT								
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	58	30	51.7	38	21	55.3	52.6	42.9

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

NAVY — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	9,338	106	1.1	8,084	74	.9	15.5	43.2
SOC SCI, PSYCH	973	178	18.3	650	139	21.4	49.7	28.1
PERS MGMT	6,092	3,856	63.3	4,733	2,795	59.1	28.7	38.0
GEN ADMIN	55,881	41,727	74.7	47,693	37,061	77.7	17.2	12.6
BIOL SCIENCES	313	59	18.8	286	44	15.4	9.4	34.1
ACCT AND BUDGET	13,492	8,971	66.5	11,568	7,463	64.5	16.6	20.2
MED, DENT, PH	2,792	2,367	84.8	2,120	1,800	84.9	31.7	31.5
VETERINARY MED	2			1			100.0	0.0
ENG AND ARCH	39,803	440	1.1	30,422	356	1.2	30.8	23.6
LEGAL AND KINDRED	418	152	36.4	344	125	36.3	21.5	21.6
INFO AND ARTS	2,854	836	29.3	2,098	682	32.5	36.0	22.6
BUS AND INDUSTRY	8,497	2,132	25.1	6,628	2,071	31.2	28.2	2.9
COPYRIGHT, PAT	92	1	1.1	111	1	.9	- 17.1	0.0
PHYSICAL SCI	6,650	421	6.3	5,613	332	5.9	18.5	26.8
LIBR, ARCHIVE	881	702	79.7	636	534	84.0	38.5	31.5
MATH AND STAT	2,636	775	29.4	2,175	809	37.2	21.2	- 4.2
EQUIP, FAC, SVC	4,454	86	1.9	4,032	82	2.0	10.5	4.9
EDUCATION	2,228	593	26.6	2,070	739	35.7	7.6	- 19.8
INVESTIGATION	922	2	.2	83			10.8	*
COMM QUAL CONT	2,292	17	.7	1,671	8	.5	37.2	112.5
SUPPLY	13,895	7,751	55.8	13,096	7,584	57.9	6.1	2.2
TRANSPORTATION	2,693	1,358	50.4	2,166	1,104	51.0	24.3	23.0
POSTAL								
TOTAL A/	177,198	72,530	40.9	146,280	63,803	43.6	21.1	13.7

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE 4 BY OCCUPATIONAL GROUP

OFFICE OF EMERGENCY PREPARED WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	3	1	33.3	3	1	33.3	0.0	0.0
SOC SCI, PSYCH	12	1	8.3	11			9.1	*
PERS MGMT	4	4	100.0	4	4	100.0	0.0	0.0
GEN ADMIN	263	128	48.7	270	134	49.6	- 2.6	- 4.5
BIOL SCIENCES								
ACCT AND BUDGET	11	1	9.1	15	3	20.0	- 26.7	- 66.7
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH	9			9			0.0	0.0
LEGAL AND KINDRED	4			3			33.3	0.0
INFO AND ARTS	5			5			0.0	0.0
BUS AND INDUSTRY	13	1	7.7	12			8.3	*
COPYRIGHT, PAT								
PHYSICAL SCI	2			3			- 33.3	0.0
LIBR, ARCHIVE	2	2	100.0	2	2	100.0	0.0	0.0
MATH AND STAT	19	1	5.3	12	1	8.3	58.3	0.0
EQUIP, FAC, SVC	1			1			0.0	0.0
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	1			1			0.0	0.0
TRANSPORTATION	1	1	100.0	3	1	33.3	- 66.7	0.0
POSTAL								
TOTAL A/	350	140	40.0	354	146	41.2	- 1.1	- 4.1

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

OTHER DEFENSE ACTIVITIES (INCL. DEFENSE SUPPLY AGENCY) — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	1,081	104	9.6	959	92	9.6	12.7	13.0
SOC SCI, PSYCH	1,536	393	25.6	1,427	427	29.9	7.6	- 8.0
PERS MGMT	845	447	52.9	770	390	50.6	9.7	14.6
GEN ADMIN	16,811	11,580	68.9	17,484	12,756	73.0	- 3.8	- 9.2
BIOL SCIENCES	53	7	13.2	42	10	23.8	26.2	- 30.0
ACCT AND BUDGET	6,509	2,522	38.7	6,277	2,370	37.8	3.7	6.4
MED, DENT, PH VETERINARY MED	67	58	86.6	54	47	87.0	24.1	23.4
ENG AND ARCH	1,359	13	1.0	1,073	13	1.2	26.7	0.0
LEGAL AND KINDRED	143	18	12.6	143	14	9.8	0.0	28.6
INFO AND ARTS	580	178	30.7	596	189	31.7	- 2.7	- 5.8
BUS AND INDUSTRY	7,680	2,253	29.3	7,176	2,130	29.7	7.0	5.8
COPYRIGHT, PAT	1			3			- 66.7	0.0
PHYSICAL SCI	438	62	14.2	409	52	12.7	7.1	19.2
LIBR, ARCHIVE	224	146	65.2	225	171	76.0	- .4	- 14.6
MATH AND STAT	253	122	48.2	293	171	58.4	- 13.7	- 28.7
EQUIP, FAC, SVC	866	14	1.6	822	10	1.2	5.4	40.0
EDUCATION	42	13	31.0	35	7	20.0	20.0	85.7
INVESTIGATION	9			7			28.6	0.0
COMM QUAL CONT	8,550	268	3.1	8,546	279	3.3	.0	- 3.9
SUPPLY	6,155	2,945	47.8	6,029	2,732	45.3	2.1	7.8
TRANSPORTATION	1,091	722	66.2	868	552	63.6	25.7	30.8
POSTAL								
TOTAL A/	54,294	21,865	40.3	53,238	22,412	42.1	2.0	- 2.4

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

OFF OF ECONOMIC OPPORTUNITY — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	1			2			- 50.0	0.0
SOC SCI, PSYCH	51	14	27.5	27	6	22.2	88.9	133.3
PERS MGMT	53	27	50.9	34	14	41.2	55.9	92.9
GEN ADMIN	1,717	956	55.7	1,868	1,095	58.6	- 8.1	- 12.7
BIOL SCIENCES				1	1	100.0	-100.0	-100.0
ACCT AND BUDGET	158	36	22.8	87	26	29.9	81.6	38.5
MED, DENT, PH	11			4	1	25.0	175.0	-100.0
VETERINARY MED								
ENG AND ARCH				5			-100.0	0.0
LEGAL AND KINDRED	55	10	18.2	28	3	10.7	96.4	233.3
INFO AND ARTS	55	23	41.8	47	21	44.7	17.0	9.5
BUS AND INDUSTRY	30	10	33.3	24	5	20.8	25.0	100.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	6	5	83.3	5	4	80.0	20.0	25.0
MATH AND STAT	15	8	53.3	5	2	40.0	200.0	300.0
EQUIP, FAC, SVC				3	1	33.3	-100.0	-100.0
EDUCATION	14	2	14.3	41	7	17.1	- 65.9	- 71.4
INVESTIGATION	19	1	5.3	12			58.3	*
COMM QUAL CONT								
SUPPLY	20	1	5.0	7	1	14.3	185.7	0.0
TRANSPORTATION	5	5	100.0	48	22	45.8	- 89.6	- 77.3
POSTAL								
TOTAL A/	2,210	1,098	49.7	2,248	1,209	53.8	- 1.7	- 9.2

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE 4 BY OCCUPATIONAL GROUP

OFF OF SCIENCE & TECHNOLOGY WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	1						*	0.0
PERS MGMT								
GEN ADMIN	33	25	75.8	26	21	80.8	26.9	19.0
BIOL SCIENCES								
ACCT AND BUDGET	1	1	100.0				*	*
MED, DENT, PH				1			-100.0	0.0
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED								
INFO AND ARTS								
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI	13			11			18.2	0.0
LIBR, ARCHIVE								
MATH AND STAT								
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION	1	1	100.0				*	*
POSTAL								
TOTAL A/	49	27	55.1	38	21	55.3	28.9	28.6

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

PANAMA CANAL COMPANY — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	92			102	3	2.9	- 9.8	-100.0
SOC SCI, PSYCH	2			2			0.0	0.0
PERS MGMT	56	21	37.5	62	22	35.5	- 9.7	- 4.5
GEN ADMIN	235	135	57.4	299	172	57.5	- 21.4	- 21.5
BIOL SCIENCES				1			-100.0	0.0
ACCT AND BUDGET	153	70	45.8	187	90	48.1	- 18.2	- 22.2
MED, DENT, PH VETERINARY MED	2	2	100.0	1	1	100.0	100.0	100.0
ENG AND ARCH	119			119			0.0	0.0
LEGAL AND KINDRED	24	12	50.0	23	10	43.5	4.3	20.0
INFO AND ARTS	25	8	32.0	18	7	38.9	38.9	14.3
BUS AND INDUSTRY	99	23	23.2	94	20	21.3	5.3	15.0
COPYRIGHT, PAT PHYSICAL SCI LIBR, ARCHIVE	15	3	20.0	17	3	17.6	- 11.8	0.0
MATH AND STAT	1	1	100.0	4	4	100.0	- 75.0	- 75.0
EQUIP, FAC, SVC	26	1	3.8	35	5	14.3	- 25.7	- 80.0
EDUCATION	8	1	12.5	7	1	14.3	14.3	0.0
INVESTIGATION	30			31			- 3.2	0.0
COMM QUAL CONT SUPPLY	23	3	13.0	44	10	22.7	- 47.7	- 70.0
TRANSPORTATION	58	3	5.2	58	5	8.6	0.0	- 40.0
POSTAL								
TOTAL A/	968	283	29.2	1,104	353	32.0	- 12.3	- 19.8

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

POST OFFICE — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	1,662	20	1.2	1,167	3	.3	42.4	566.7
SOC SCI, PSYCH	41	5	12.2	23	3	13.0	78.3	66.7
PERS MGMT	3,381	789	23.3	2,437	394	16.2	38.7	100.3
GEN ADMIN	8,734	3,766	43.1	5,682	2,839	50.0	53.7	32.7
BIOL SCIENCES								
ACCT AND BUDGET	5,885	985	16.7	5,719	756	13.2	2.9	30.3
MED, DENT, PH	292	240	82.2	164	131	79.9	78.0	83.2
VETERINARY MED								
ENG AND ARCH	715	6	.8	454	5	1.1	57.5	20.0
LEGAL AND KINDRED	75	7	9.3	51	6	11.8	47.1	16.7
INFO AND ARTS	123	10	8.1	89	8	9.0	38.2	25.0
BUS AND INDUSTRY	464	72	15.5	404	57	14.1	14.9	26.3
COPYRIGHT, PAT								
PHYSICAL SCI	22	1	4.5	20			10.0	*
LIBR, ARCHIVE	10	8	80.0	7	6	85.7	42.9	33.3
MATH AND STAT	56	20	35.7	47	24	51.1	19.1	- 16.7
EQUIP, FAC, SVC	749	6	.8	531			41.1	*
EDUCATION	533	26	4.9	391	20	5.1	36.3	30.0
INVESTIGATION	77	11	14.3	62	12	19.4	24.2	- 8.3
COMM QUAL CONT	19			12			58.3	0.0
SUPPLY	469	27	5.8	357	12	3.4	31.4	125.0
TRANSPORTATION	725	3	.3	690	2	.3	34.1	50.0
POSTAL	599,908	97,916	16.3	532,485	63,704	12.0	12.7	53.7
TOTAL A/	624,140	103,918	16.6	550,792	67,982	12.3	13.3	52.9

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

PUBLIC LAND LAW REVIEW COMM — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH				1			-100.0	0.0
PERS MGMT								
GEN ADMIN	29	13	44.8	17	9	52.9	70.6	44.4
BIOL SCIENCES				1			-100.0	0.0
ACCT AND BUDGET								
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH				1			-100.0	0.0
LEGAL AND KINDRED	8			9			- 11.1	0.0
INFO AND ARTS	2			2			0.0	0.0
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT	1	1	100.0	1	1	100.0	0.0	0.0
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	40	14	35.0	32	10	31.3	25.0	40.0

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

RENEGOTIATION BOARD — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ----		TOTAL	---- WOMEN ----			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	1			1			0.0	0.0
PERS MGMT	1	1	100.0	1	1	100.0	0.0	0.0
GEN ADMIN	112	77	68.8	111	71	64.0	.9	8.5
BIOL SCIENCES								
ACCT AND BUDGET	53	3	5.7	33	4	12.1	60.6	- 25.0
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	9			7			28.6	0.0
INFO AND ARTS								
BUS AND INDUSTRY	37	1	2.7	20	1	5.0	85.0	0.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	1	1	100.0				*	*
MATH AND STAT				1			-100.0	0.0
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY				1			-100.0	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/	214	83	38.8	175	77	44.0	22.3	7.8

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

RAILROAD RETIREMENT BOARD — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	1						*	0.0
PERS MGMT	16	8	50.0	17	7	41.2	- 5.9	14.3
GEN ADMIN	673	449	66.7	681	434	63.7	- 1.2	3.5
BIOL SCIENCES								
ACCT AND BUDGET	58	48	82.8	65	52	80.0	- 10.8	- 7.7
MED, DENT, PH	4	1	25.0	4	1	25.0	0.0	0.0
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	873	392	44.9	822	316	38.4	6.2	24.1
INFO AND ARTS	5	2	40.0	4	1	25.0	25.0	100.0
BUS AND INDUSTRY	2			2			0.0	0.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	5	4	80.0	3	3	100.0	66.7	33.3
MATH AND STAT	36	19	52.8	49	29	59.2	- 26.5	- 34.5
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	4	2	50.0	3	2	66.7	33.3	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/	1,677	925	55.2	1,650	845	51.2	1.6	9.5

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

SMALL BUSINESS ADMINISTRATION — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	13	2	15.4	19	3	15.8	- 31.6	- 33.3
PERS MGMT	60	42	70.0	48	31	64.6	25.0	35.5
GEN ADMIN	1,770	1,367	77.2	1,809	1,507	83.3	- 2.2	- 9.3
BIOL SCIENCES								
ACCT AND BUDGET	460	294	63.9	304	167	54.9	51.3	76.0
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH	40			34			17.6	0.0
LEGAL AND KINDRED	302	120	39.7	274	102	37.2	10.2	17.6
INFO AND ARTS	24	12	50.0	21	7	33.3	14.3	71.4
BUS AND INDUSTRY	1,483	51	3.4	1,370	42	3.1	8.2	21.4
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	13	5	38.5	7	1	14.3	85.7	400.0
MATH AND STAT	16	11	68.8	5			220.0	*
EQUIP, FAC, SVC	2	1	50.0	2	1	50.0	0.0	0.0
EDUCATION	2	1	50.0	1			100.0	*
INVESTIGATION	8			5			60.0	0.0
COMM QUAL CONT								
SUPPLY	12	2	16.7	10	1	10.0	20.0	100.0
TRANSPORTATION								
POSTAL								
TOTAL A/	4,205	1,908	45.4	3,909	1,862	47.6	7.6	2.5

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H

BY OCCUPATIONAL GROUP

SECY OF DEF & JT CHIEFS STAFF

WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	25			21	2	9.5	19.0	-100.0
SOC SCI, PSYCH	85	8	9.4	72	5	6.9	18.1	60.0
PERS MGMT	49	17	34.7	31	14	45.2	58.1	21.4
GEN ADMIN	1,438	1,017	70.7	1,782	1,210	67.9	- 19.3	- 16.0
BIOL SCIENCES								
ACCT AND BUDGET	205	9	4.4	156	11	7.1	31.4	- 18.2
MED, DENT, PH	1			18			- 94.4	0.0
VETERINARY MED								
ENG AND ARCH	93			109			- 14.7	0.0
LEGAL AND KINDRED	42	2	4.8	26			61.5	*
INFO AND ARTS	64	26	40.6	58	23	39.7	10.3	13.0
BUS AND INDUSTRY	56			38			47.4	0.0
COPYRIGHT, PAT				1	1	100.0	-100.0	-100.0
PHYSICAL SCI	61			37	1	2.7	64.9	-100.0
LIBR, ARCHIVE	1	1	100.0				*	*
MATH AND STAT	103	16	15.5	100	14	14.0	3.0	14.3
EQUIP, FAC, SVC				4			-100.0	0.0
EDUCATION	7	1	14.3	5			40.0	*
INVESTIGATION	4						*	0.0
COMM QUAL CONT								
SUPPLY	24	1	4.2	30	1	3.3	- 20.0	0.0
TRANSPORTATION	9	2	22.2	7	1	14.3	28.6	100.0
POSTAL								
TOTAL A/	2,267	1,100	48.5	2,495	1,283	51.4	- 9.1	- 14.3

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

SECURITIES AND EXCHANGE COMM — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER			NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	22	6	27.3	7	1	14.3	214.3	500.0
PERS MGMT	12	6	50.0	10	5	50.0	20.0	20.0
GEN ADMIN	500	370	74.0	506	349	69.0	- 1.2	6.0
BIOL SCIENCES								
ACCT AND BUDGET	86	13	15.1	75	15	20.0	14.7	- 13.3
MED, DENT, PH	1	1	100.0	1	1	100.0	0.0	0.0
VETERINARY MED								
ENG AND ARCH	6			6			0.0	0.0
LEGAL AND KINDRED	429	38	8.9	381	21	5.5	12.6	81.0
INFO AND ARTS	4			6	2	33.3	- 33.3	-100.0
BUS AND INDUSTRY	96	11	11.5	127	9	7.1	- 24.4	22.2
COPYRIGHT, PAT								
PHYSICAL SCI	1			1			0.0	0.0
LIBR, ARCHIVE	6	4	66.7	7	1	14.3	- 14.3	300.0
MATH AND STAT	29	16	55.2	23	9	39.1	26.1	77.8
EQUIP, FAC, SVC	1	1	100.0				*	*
EDUCATION								
INVESTIGATION	132			160			- 17.5	0.0
COMM QUAL CONT								
SUPPLY	4	1	25.0	5	1	20.0	- 20.0	0.0
TRANSPORTATION								
POSTAL								
TOTAL A/	1,329	467	35.1	1,315	414	31.5	1.1	12.8

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

U. S. SOLDIERS' HOME — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	32			69			- 53.6	0.0
SOC SCI, PSYCH	9	5	55.6	9	6	66.7	0.0	- 16.7
PERS MGMT	12	6	50.0	6	3	50.0	100.0	100.0
GEN ADMIN	136	45	33.1	100	38	38.0	36.0	18.4
BIOL SCIENCES	1			1			0.0	0.0
ACCT AND BUDGET	11	9	81.8	12	9	75.0	- 8.3	0.0
MED, DENT, PH	261	96	36.8	257	45	17.5	1.6	113.3
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	1	1	100.0	1	1	100.0	0.0	0.0
INFO AND ARTS	2			2			0.0	0.0
BUS AND INDUSTRY	3	3	100.0	3	3	100.0	0.0	0.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	7	2	28.6	7	2	28.6	0.0	0.0
MATH AND STAT								
EQUIP, FAC, SVC	3			3	1	33.3	0.0	-100.0
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	18	7	38.9	16			12.5	*
TRANSPORTATION								
POSTAL								
TOTAL A/	496	174	35.1	486	108	22.2	2.1	61.1

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

SMITHSONIAN INSTITUTION (INCL. NATL. GALLERY OF ART) — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	430			397			8.3	0.0
SOC SCI, PSYCH	28	7	25.0	30	3	10.0	- 6.7	133.3
PERS MGMT	24	13	54.2	18	10	55.6	33.3	30.0
GEN ADMIN	402	296	73.6	328	264	80.5	22.6	12.1
BIOL SCIENCES	91	7	7.7	83	5	6.0	9.6	40.0
ACCT AND BUDGET	33	16	48.5	33	18	54.5	0.0	- 11.1
MED, DENT, PH	4	4	100.0	5	4	80.0	- 20.0	0.0
VETERINARY MED	2			1			100.0	0.0
ENG AND ARCH	19			15			26.7	0.0
LEGAL AND KINDRED	6	2	33.3	4	1	25.0	50.0	100.0
INFO AND ARTS	480	113	23.5	469	90	19.2	2.3	25.6
BUS AND INDUSTRY	11	4	36.4	5	1	20.0	120.0	300.0
COPYRIGHT, PAT								
PHYSICAL SCI	81	7	8.6	76	7	9.2	6.6	0.0
LIBY, ARCHIVE	56	36	64.3	43	28	65.1	30.2	28.6
MATH AND STAT	2	1	50.0	1	1	100.0	100.0	0.0
EQUIP, FAC, SVC	12	1	8.3	8			50.0	*
EDUCATION	12	3	25.0	1			100.0	*
INVESTIGATION	1			1			0.0	0.0
COMM QUAL CONT								
SUPPLY	26	5	19.2	25	6	24.0	4.0	- 16.7
TRANSPORTATION	10	3	30.0	6	3	50.0	66.7	0.0
POSTAL								
TOTAL A/	1,730	518	29.9	1,549	441	28.5	11.7	17.5

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

SELECTIVE SERVICE SYSTEM — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH				1	1	100.0	-100.0	-100.0
PERS MGMT	62	55	88.7	52	48	92.3	19.2	14.6
GEN ADMIN	6,284	5,954	94.7	6,727	6,380	94.8	- 6.6	- 6.7
BIOL SCIENCES								
ACCT AND BUDGET	108	98	90.7	96	87	90.6	12.5	12.6
MED, DENT, PH	2	1	50.0	2	1	50.0	0.0	0.0
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	8	3	37.5	3	1	33.3	166.7	200.0
INFO AND ARTS	3	2	66.7	3	2	66.7	0.0	0.0
BUS AND INDUSTRY				2	2	100.0	-100.0	-100.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	1	1	100.0	1	1	100.0	0.0	0.0
MATH AND STAT	16	11	68.8	17	14	82.4	- 5.9	- 21.4
EQUIP, FAC, SVC	2			2			0.0	0.0
EDUCATION	1	1	100.0				*	*
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	49	6	12.2	49	6	12.2	0.0	0.0
TRANSPORTATION	2	2	100.0	2	2	100.0	0.0	0.0
POSTAL								
TOTAL A/	6,538	6,134	93.8	6,957	6,545	94.1	- 6.0	- 6.3

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

STATE CONSOLIDATED (INCL. AID & PEACE CORPS) WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	520	10	1.9	430	8	1.9	20.9	25.0
SOC SCI, PSYCH	5,555	624	11.2	6,047	795	13.1	- 8.1	- 21.5
PERS MGMT	687	392	57.1	729	391	53.6	- 5.8	.3
GEN ADMIN	10,525	5,466	51.9	10,894	6,190	56.8	- 3.4	- 11.7
BIOL SCIENCES	303	2	.7	405	11	2.7	- 25.2	- 81.8
ACCT AND BUDGET	1,016	297	29.2	1,058	315	29.8	- 4.0	- 5.7
MED, DENT, PH	370	144	38.9	230	114	49.6	60.9	26.3
VETERINARY MED	4			9			- 55.6	0.0
ENG AND ARCH	481	2	.4	499			- 3.6	*
LEGAL AND KINDRED	537	189	35.2	289	99	34.3	85.8	90.9
INFO AND ARTS	247	95	38.5	309	98	31.7	- 20.1	- 3.1
BUS AND INDUSTRY	385	57	14.8	412	47	11.4	- 6.6	21.3
COPYRIGHT, PAT								
PHYSICAL SCI	46	1	2.2	35	2	5.7	31.4	- 50.0
LIBR, ARCHIVE	39	15	38.5	27	11	40.7	44.4	36.4
MATH AND STAT	69	25	36.2	68	40	58.8	1.5	- 37.5
EQUIP, FAC, SVC	94			66			42.4	0.0
EDUCATION	296	75	25.3	381	98	25.7	- 22.3	- 23.5
INVESTIGATION	124			154			- 19.5	0.0
COMM QUAL CONT								
SUPPLY	314	32	10.2	1,303	66	5.1	- 75.9	- 51.5
TRANSPORTATION	192	46	24.0	151	42	27.8	27.2	9.5
POSTAL				5			-100.0	0.0
TOTAL A/	21,804	7,472	34.3	23,501	8,327	35.4	- 7.2	- 10.3

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

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FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

TAX COURT OF THE U S — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH								
PERS MGMT	1	1	100.0	1	1	100.0	0.0	0.0
GEN ADMIN	56	43	76.8	54	41	75.9	3.7	4.9
BIOL SCIENCES								
ACCT AND BUDGET	3	2	66.7	3	2	66.7	0.0	0.0
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	89	21	23.6	84	24	28.6	6.0	- 12.5
INFO AND ARTS	3	3	100.0	3	3	100.0	0.0	0.0
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	2	1	50.0	3	3	100.0	- 33.3	- 66.7
MATH AND STAT	3	2	66.7	2	2	100.0	50.0	0.0
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	157	73	46.5	150	76	50.7	4.7	- 3.9

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

U. S. TARIFF COMMISSION — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	26	7	26.9	32	5	15.6	- 18.8	40.0
PERS MGMT	5	3	60.0	3	2	66.7	66.7	50.0
GEN ADMIN	64	46	71.9	78	57	73.1	- 17.9	- 19.3
BIOL SCIENCES								
ACCT AND BUDGET	12	3	25.0	15	7	46.7	- 20.0	- 57.1
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	5	1	20.0	8			- 37.5	*
INFO AND ARTS	3	3	100.0	2	2	100.0	50.0	50.0
BUS AND INDUSTRY	76	4	5.3	88	2	2.3	- 13.6	100.0
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE	5	4	80.0	6	5	83.3	- 16.7	- 20.0
MATH AND STAT	36	26	86.7	36	33	91.7	- 16.7	- 21.2
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	226	97	42.9	268	113	42.2	- 15.7	- 14.2

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

TRANSPORTATION — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	378	12	3.2	323	7	2.2	17.0	71.4
SOC SCI, PSYCH	146	23	15.8	42	5	11.9	247.6	360.0
PERS MGMT	797	386	48.4	451	161	35.7	76.7	139.8
GEN ADMIN	10,085	6,672	66.2	6,888	4,452	64.6	46.4	49.9
BIOL SCIENCES	30	7	23.3	30	7	23.3	0.0	0.0
ACCT AND BUDGET	1,752	813	46.4	798	399	50.0	119.5	103.8
MED, DENT, PH	79	32	40.5	70	31	44.3	12.9	3.2
VETERINARY MED	1						*	0.0
ENG AND ARCH	13,673	56	.4	10,108	19	.2	35.3	194.7
LEGAL AND KINDRED	409	151	36.9	173	59	34.1	136.4	155.9
INFO AND ARTS	251	56	22.3	164	33	20.1	53.0	69.7
BUS AND INDUSTRY	850	192	22.6	419	128	30.5	102.9	50.0
COPYRIGHT, PAT	3	1	33.3	1			200.0	*
PHYSICAL SCI	197	20	10.2	91	14	15.4	116.5	42.9
LIBR, ARCHIVE	88	62	70.5	39	25	64.1	125.6	148.0
MATH AND STAT	210	83	39.5	84	30	35.7	150.0	176.7
EQUIP, FAC, SVC	232	6	2.6	184	4	2.2	26.1	50.0
EDUCATION	65	15	23.1	42	4	9.5	54.8	275.0
INVESTIGATION	2,313	24	1.0	1,553			48.9	*
COMM QUAL CONT	182			150			21.3	0.0
SUPPLY	943	246	26.1	653	116	17.8	44.4	112.1
TRANSPORTATION	21,806	285	1.3	16,887	176	1.0	29.1	61.9
POSTAL								
TOTAL A/	54,490	9,142	16.8	39,150	5,670	14.5	39.2	61.2

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE 4 BY OCCUPATIONAL GROUP

OFF SP REP TRADE NEGOTIATIONS WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH	7	2	28.6	6	1	16.7	16.7	100.0
PERS MGMT								
GEN ADMIN	14	12	85.7	19	15	78.9	- 26.3	- 20.0
BIOL SCIENCES								
ACCT AND BUDGET								
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED	1			3			- 66.7	0.0
INFO AND ARTS								
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT								
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	22	14	63.6	28	16	57.1	- 21.4	- 12.5

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H

BY OCCUPATIONAL GROUP

TREASURY

WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	944	25	2.6	944	16	1.7	0.0	56.3
SOC SCI, PSYCH	152	16	10.5	159	21	13.2	- 4.4	- 23.8
PERS MGMT	1,209	640	52.9	1,251	697	55.7	- 3.4	- 8.2
GEN ADMIN	25,615	20,006	78.1	26,288	20,385	77.5	- 2.6	- 1.9
BIOL SCIENCES	20			19			5.3	0.0
ACCT AND BUDGET	30,843	12,971	42.1	30,106	11,646	38.7	2.4	11.4
MED, DENT, PH	33	30	90.9	30	27	90.0	10.0	11.1
VETERINARY MED								
ENG AND ARCH	251			638	4	.6	- 60.7	-100.0
LEGAL AND KINDRED	2,863	620	21.7	2,869	674	23.5	- .2	- 8.0
INFO AND ARTS	132	39	29.5	133	47	35.3	- .8	- 17.0
BUS AND INDUSTRY	6,169	304	4.9	6,526	246	3.8	- 5.5	23.6
COPYRIGHT, PAT								
PHYSICAL SCI	244	25	10.2	273	19	7.0	- 10.6	31.6
LIBR, ARCHIVE	29	22	75.9	19	12	63.2	52.6	83.3
MATH AND STAT	313	207	66.1	382	260	68.1	- 18.1	- 20.4
EQUIP, FAC, SVC	60	14	23.3	99	5	5.1	- 39.4	180.0
EDUCATION	15	2	13.3	15			0.0	*
INVESTIGATION	11,364	610	5.4	11,099	442	4.0	2.4	38.0
COMM QUAL CONT				7			-100.0	0.0
SUPPLY	408	78	19.1	570	124	21.8	- 28.4	- 37.1
TRANSPORTATION	6	3	50.0	30	10	33.3	- 80.0	- 70.0
POSTAL								
TOTAL A/	80,670	35,612	44.1	81,457	34,635	42.5	- 1.0	2.8

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

TENNESSEE VALLEY AUTHORITY — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN		TOTAL	WOMEN			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	330	4	1.2	269			22.7	*
SOC SCI, PSYCH	40	3	7.5	42	4	9.5	- 4.8	- 25.0
PERS MGMT	157	69	43.9	134	51	38.1	17.2	35.3
GEN ADMIN	2,136	1,129	52.9	1,859	1,052	56.6	14.9	7.3
BIOL SCIENCES	146	16	11.0	119	11	9.2	22.7	45.5
ACCT AND BUDGET	327	108	33.0	358	93	26.0	- 8.7	16.1
MED, DENT, PH VETERINARY MED	91	43	47.3	73	38	52.1	24.7	13.2
ENG AND ARCH	2,589	115	4.4	2,370	101	4.3	9.2	13.9
LEGAL AND KINDRED	60	8	13.3	39	2	5.1	53.8	300.0
INFO AND ARTS	56	9	16.1	52	13	25.0	7.7	- 30.8
BUS AND INDUSTRY	113	5	4.4	160			- 29.4	*
COPYRIGHT, PAT PHYSICAL SCI	205	11	5.4	230	13	5.7	- 10.9	- 15.4
LIBR, ARCHIVE	25	22	88.0	18	14	77.8	38.9	57.1
MATH AND STAT	73	40	54.8	47	25	53.2	55.3	60.0
EQUIP, FAC, SVC	649	27	4.2	68			854.4	*
EDUCATION	5			7			- 28.6	0.0
INVESTIGATION								
COMM QUAL CONT	111			132			- 15.9	0.0
SUPPLY	215	19	8.8	329	20	6.1	- 34.7	- 5.0
TRANSPORTATION	34	1	2.9	59			- 42.4	*
POSTAL								
TOTAL A/	7,362	1,629	22.1	6,365	1,437	22.6	15.7	13.4

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H — BY OCCUPATIONAL GROUP

VETERANS ADMINISTRATION — WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP	1,595			1,589	1	.1	.4	-100.0
SOC SCI, PSYCH	3,843	1,240	32.3	3,563	1,114	31.3	7.9	11.3
PERS MGMT	1,435	679	47.3	1,324	578	43.7	8.4	17.5
GEN ADMIN	28,095	20,595	73.3	27,636	19,859	71.9	1.7	3.7
BIOL SCIENCES	1,147	457	39.8	1,004	386	38.4	14.2	18.4
ACCT AND BUDGET	3,806	1,871	49.2	3,790	1,730	45.6	.4	8.2
MED, DENT, PH	62,267	32,198	51.7	62,627	29,783	47.6	- .6	8.1
VETERINARY MED	3			5			- 40.0	0.0
ENG AND ARCH	850	15	1.8	760	6	.8	11.8	150.0
LEGAL AND KINDRED	5,552	1,569	28.3	5,474	1,349	24.6	1.4	16.3
INFO AND ARTS	291	52	17.9	283	49	17.3	2.8	6.1
BUS AND INDUSTRY	1,822	469	25.7	1,811	382	21.1	.6	22.8
COPYRIGHT, PAT								
PHYSICAL SCI	772	224	29.0	750	220	29.3	2.9	1.8
LIBR, ARCHIVE	391	339	86.7	376	333	88.6	4.0	1.8
MATH AND STAT	291	170	58.4	338	204	60.4	- 13.9	- 16.7
EQUIP, FAC, SVC	72	2	2.8	99	6	6.1	- 27.3	- 66.7
EDUCATION	185	10	5.4	122	6	4.9	51.6	66.7
INVESTIGATION	86			94			- 8.5	0.0
COMM QUAL CONT	10			6			66.7	0.0
SUPPLY	2,456	624	25.4	2,236	431	19.3	9.8	44.8
TRANSPORTATION	208	133	63.9	200	115	57.5	4.0	15.7
POSTAL								
TOTAL A/	115,178	60,647	52.7	114,087	56,552	49.6	1.0	7.2

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H

BY OCCUPATIONAL GROUP

WHITE HOUSE OFFICE

WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP								
SOC SCI, PSYCH								
PERS MGMT	3	2	66.7	4	3	75.0	- 25.0	- 33.3
GEN ADMIN	287	129	44.9	236	122	51.7	21.6	5.7
BIOL SCIENCES								
ACCT AND BUDGET	4	2	50.0	4	2	50.0	0.0	0.0
MED, DENT, PH								
VETERINARY MED								
ENG AND ARCH								
LEGAL AND KINDRED								
INFO AND ARTS	4	4	100.0	3	3	100.0	33.3	33.3
BUS AND INDUSTRY								
COPYRIGHT, PAT								
PHYSICAL SCI								
LIBR, ARCHIVE								
MATH AND STAT								
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION								
COMM QUAL CONT								
SUPPLY	5	1	20.0	2			150.0	*
TRANSPORTATION								
POSTAL								
TOTAL A/	303	138	45.5	249	130	52.2	21.7	6.2

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

FULL-TIME WHITE COLLAR EMPLOYMENT

TABLE H

BY OCCUPATIONAL GROUP

OTHER AGENCIES

WORLDWIDE

OCCUPATIONAL GROUP	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	---- WOMEN ---		TOTAL	---- WOMEN ---			
		NUMBER	%		NUMBER	%	TOTAL	WOMEN
MISC OCCUP				1			-100.0	0.0
SOC SCI, PSYCH	13	2	15.4	7			85.7	*
PERS MGMT								
GEN ADMIN	319	187	58.6	183	108	59.0	74.3	73.1
BIOL SCIENCES								
ACCT AND BUDGET	3	2	66.7	3	3	100.0	0.0	- 33.3
MED, DENT, PH	1						*	0.0
VETERINARY MED								
ENG AND ARCH	4			15	1	6.7	- 73.3	-100.0
LEGAL AND KINDRED	40	6	15.0	26	2	7.7	53.8	200.0
INFO AND ARTS	8	6	75.0	10	4	40.0	- 20.0	50.0
BUS AND INDUSTRY				2	1	50.0	-100.0	-100.0
COPYRIGHT, PAT								
PHYSICAL SCI	8			5			60.0	0.0
LIBR, ARCHIVE	2	2	100.0				*	*
MATH AND STAT	2	2	100.0				*	*
EQUIP, FAC, SVC								
EDUCATION								
INVESTIGATION	2						*	0.0
COMM QUAL CONT								
SUPPLY								
TRANSPORTATION								
POSTAL								
TOTAL A/	402	207	51.5	252	119	47.2	59.5	73.9

A/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

TABLE I

FULL-TIME WHITE-COLLAR EMPLOYMENT
BY SELECTED AGENCIES
WORLDWIDE

OTHER AGENCIES

AGENCY	EMPLOYMENT 31 OCTOBER 1969			EMPLOYMENT 31 OCTOBER 1966			PERCENT CHANGE	
	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN NUMBER	WOMEN %	TOTAL	WOMEN
ADMIN CONFERENCE OF THE U.S.	7	3	42.9	ESTABLISHED JANUARY 1968			100.0	100.0
ADVIS COM ALL VOL ARM FORCE	14	9	64.3	ESTABLISHED MARCH 1969			100.0	100.0
ADVISORY COMM ON FOOD & FIBER	TERMINATED OCTOBER 1967			14	7	50.0	-100.0	-100.0
ADVIS COMM ON SELECTIVE SERV	TERMINATED MAY 1967			5	2	40.0	-100.0	-100.0
AMERICAN REVOLUTION BICENT	6	4	66.7	ESTABLISHED JULY 1966			100.0	100.0
APPALACHIAN REGIONAL COMM	9	4	44.4	10	4	40.0	-10.0	-10.0
CAB TASK FORCE ON OIL IMPORT	9	4	40.0	ESTABLISHED MARCH 1969			100.0	100.0
COASTAL PLAINS REGIONAL COMM	6	2	33.3	ESTABLISHED JUNE 1967			100.0	100-0
COMMISSION OF FINE ARTS	6	3	50.0	6	3	50.0	0.0	0.0
COMM ON LABOR MGMT POLICY	INTO COMMERCE DECEMBER 1966			1	1	100.0	-100.0	-100.0
COMM ON REF FED CRIMINAL LAWS	8	6	75.0	ESTABLISHED JUNE 1967			100.0	100.0
COMM ON STATUS OF PUERTO RICO	TERMINATED MARCH 1967			5	3	60.0	-100.0	-100.0
NATIONAL COMM ON VIOLENCE	7	5	71.4	ESTABLISHED JULY 1968			100.0	100.0
DELAWARE RIVER BASIN COMM	2	1	50.0	3	2	66.7	-33.3	-50.0
FED COAL MINE SAFETY BD OF RE	3	2	66.7	4	3	75.0	-25.0	-33.3
FED FIELD COM DEV PLAN ALASKA	10	6	60.0	5	2	40.0	100.0	200.0
FEDERAL RADIATION COUNCIL	4	2	50.0	4	2	50.0	0.0	0.0
FOUR CORNERS REGIONAL COMM	7	2	28.6	ESTABLISHED AUGUST 1967			100.0	100.0
INDIAN CLAIMS COMMISSION	29	11	37.9	21	7	33.3	38.1	57.1
INTER-AG COMM MEX-AMER AFFAIRS A/	21	11	52.4	1	1	100.0	**	**
COMM ON INCOME MAINT PROGRAMS	21	15	71.4	ESTABLISHED JANUARY 1968			100.0	100.0
NATIONAL AERO & SPACE COUNCIL	22	10	45.5	25	12	48.0	-12.0	-16.7
NAT CAPITAL TRANSP AGENCY	TERMINATED SEPTEMBER 1967			40	10	25.0	-100.0	-100.0
COUNCIL MARINE RES & ENGR DEV	18	11	61.1	5	3	60.0	260.0	266.7
NEW ENGLAND REGIONAL COMM	6	3	50.0	ESTABLISHED JANUARY 1967			100.0	100.0
NAT COMM ON PRODUCT SAFETY	29	14	48.3	ESTABLISHED OCTOBER 1968			100.0	100.0
NATIONAL WATER COMMISSION	20	9	45.0	ESTABLISHED SEPTEMBER 1968			100.0	100.0
COMM ON OBSCENITY-PORNOGRAPHY	11	6	54.5	ESTABLISHED AUGUST 1968			100.0	100.0
OZARKS REGIONAL COMMISSION	5	2	40.0	3	1	33.3	66.7	100.0
COMM ON CONSUMER INTERESTS	20	13	65.0	18	10	55.6	11.1	30.0
PRES ADV COUNCIL EXEC ORG	24	11	45.8	ESTABLISHED APRIL 1969			100.0	100.0
PRES COMM LAW ENFOR & ADJUST	TERMINATED JUNE 1967			41	27	65.9	-100.0	-100.0
PRES COM EQUAL OPP IN HOUSING	TERMINATED JUNE 1968			8	5	62.5	-100.0	-100.0
PRES COUNCIL ON YOUTH OPPORT	4	1	25.0	ESTABLISHED MAY 1967			100.0	100.0
PRES REVIEW COM DEV PLAN ALASKA	TERMINATED APRIL 1967			2	1	50.0	-100.0	-100.0
SUBVERSIVE ACTIVITIES CONT BD	14	6	42.9	17	8	47.1	-17.6	-25.0
UPPER GREAT LAKES REG COMM	3	1	33.3	1	-	-	200.0	100.0
U.S.-MEX BORDER DEV-FRIENDSHIP	11	5	45.5	ESTABLISHED MAY 1968			100.0	100.0
WATER RESOURCES COUNCIL	27	9	33.3	13	5	38.5	107.7	80.0
WH CONF FOOD NUTR & HEALTH	19	16	84.2	ESTABLISHED JUNE 1969			100.0	100.0
TOTAL B/	402	207	51.5	252	119	47.2	59.5	73.9

** THE BASE USED TO COMPUTE THE CHANGE WAS SO SMALL THAT THE RESULTANT PERCENTAGE HAS LITTLE OR NO MEANING.
A/ FORMERLY NATIONAL CONFERENCE ON THE PROBLEMS OF MEXICAN-AMERICAN AND PUERTO RICAN COMMUNITIES.
B/ EXCLUDES FOREIGN NATIONALS OVERSEAS.

PAY RATES OF THE GENERAL SCHEDULE AS AMENDED BY FEDERAL SALARY ACT OF 1966 AND EXECUTIVE ORDER 11413 OF JUNE 11, 1968.

(The top line opposite each grade number shows the rates which became effective beginning with the first pay period on or after July 1, 1968. The second line shows the rates which were in effect for the period July 1, 1966 through September 30, 1967.)

GENERAL SCHEDULE-BASIC PER ANNUM RATES

GRADE	1	2	3	4	5	6	7	8	9	10	AMT. OF WITHIN-GRADE INCREASE
1	**$ 3,889** 3,609	**$ 4,019** 3,731	**$ 4,149** 3,853	**$ 4,279** 3,975	**$ 4,408** 4,097	**$ 4,538** 4,219	**$ 4,668** 4,341	**$ 4,798** 4,463	**$ 4,928** 4,585	**$ 5,057** 4,707	**$129-130** 122
2	**4,231** 3,925	**4,372** 4,058	**4,513** 4,191	**4,655** 4,324	**4,796** 4,457	**4,937** 4,590	**5,078** 4,723	**5,219** 4,856	**5,360** 4,989	**5,501** 5,122	**141-142** 133
3	**4,600** 4,269	**4,753** 4,413	**4,907** 4,557	**5,060** 4,701	**5,214** 4,845	**5,367** 4,989	**5,521** 5,133	**5,674** 5,277	**5,828** 5,421	**5,981** 5,565	**153-154** 144
4	**5,145** 4,776	**5,316** 4,936	**5,487** 5,096	**5,658** 5,256	**5,829** 5,416	**6,000** 5,576	**6,171** 5,736	**6,342** 5,896	**6,513** 6,056	**6,684** 6,216	**171** 160
5	**5,732** 5,331	**5,924** 5,507	**6,115** 5,683	**6,307** 5,859	**6,498** 6,035	**6,690** 6,211	**6,881** 6,387	**7,073** 6,563	**7,265** 6,739	**7,456** 6,915	**191-192** 176
6	**6,321** 5,867	**6,532** 6,065	**6,743** 6,263	**6,955** 6,461	**7,166** 6,659	**7,377** 6,857	**7,588** 7,055	**7,799** 7,253	**8,010** 7,451	**8,221** 7,649	**211-212** 198
7	**6,981** 6,451	**7,214** 6,664	**7,447** 6,877	**7,680** 7,090	**7,913** 7,303	**8,146** 7,516	**8,379** 7,729	**8,612** 7,942	**8,845** 8,155	**9,078** 8,368	**233** 213
8	**7,699** 7,068	**7,956** 7,303	**8,213** 7,538	**8,470** 7,773	**8,727** 8,008	**8,984** 8,243	**9,241** 8,478	**9,498** 8,713	**9,755** 8,948	**10,012** 9,183	**257** 235
9	**8,462** 7,696	**8,744** 7,957	**9,026** 8,218	**9,308** 8,479	**9,590** 8,740	**9,872** 9,001	**10,154** 9,262	**10,436** 9,523	**10,718** 9,784	**11,000** 10,045	**282** 261
10	**9,297** 8,421	**9,607** 8,709	**9,917** 8,997	**10,227** 9,285	**10,537** 9,573	**10,847** 9,861	**11,157** 10,149	**11,467** 10,437	**11,777** 10,725	**12,087** 11,013	**310** 288
11	**10,203** 9,221	**10,543** 9,536	**10,883** 9,851	**11,223** 10,166	**11,563** 10,481	**11,903** 10,796	**12,243** 11,111	**12,583** 11,426	**12,923** 11,741	**13,263** 12,056	**340** 315
12	**12,174** 10,927	**12,580** 11,306	**12,986** 11,685	**13,392** 12,064	**13,798** 12,443	**14,204** 12,822	**14,610** 13,201	**15,016** 13,580	**15,422** 13,959	**15,828** 14,338	**406** 379
13	**14,409** 12,873	**14,889** 13,321	**15,369** 13,769	**15,849** 14,217	**16,329** 14,665	**16,809** 15,113	**17,289** 15,561	**17,769** 16,009	**18,249** 16,457	**18,729** 16,905	**480** 448
14	**16,946** 15,106	**17,511** 15,629	**18,076** 16,152	**18,641** 16,675	**19,206** 17,198	**19,771** 17,721	**20,336** 18,244	**20,901** 18,767	**21,466** 19,290	**22,031** 19,813	**565** 523
15	**19,780** 17,550	**20,439** 18,157	**21,098** 18,764	**21,757** 19,371	**22,416** 19,978	**23,075** 20,585	**23,734** 21,192	**24,393** 21,799	**25,052** 22,406	**25,711** 23,013	**659** 607
16	**22,835** 20,075	**23,596** 20,745	**24,357** 21,415	**25,118** 22,085	**25,879** 22,755	**26,640** 23,425	**27,401** 24,095	**28,162*** 24,765	**28,923*** 25,435		**761** 670
17	**26,264** 22,760	**27,139** 23,520	**28,014*** 24,280	**28,889*** 25,040	**29,764*** 25,800						**875** 760
18	**30,239*** 25,890										

*Limited to $28,000 until Level V of the Executive Salary Schedule was adjusted in February, 1969.

7989

PAY RATES OF THE GENERAL SCHEDULE (5 U.S.C. 5332) AS AMENDED BY THE FEDERAL EMPLOYEES SALARY ACT OF 1970 AND EXECUTIVE ORDER 11524, APRIL 15, 1970

(The top line opposite each grade number shows the rates which became effective beginning with the first pay period on or after December 27, 1969. The second line shows the rates which were formerly in effect beginning with the first pay period on or after July 1, 1969.)

GENERAL SCHEDULE - BASIC PER ANNUM RATES

GRADE	1	2	3	4	5	6	7	8	9	10	AMT. OF WITHIN-GRADE INCREASE
1	**$4,125** $3,889	**$4,262** $4,019	**$4,399** $4,149	**$4,536** $4,279	**$4,673** $4,408	**$4,810** $4,538	**$4,947** $4,668	**$5,084** $4,798	**$5,221** $4,928	**$5,358** $5,057	**$ 137** $129-130
2	**4,621** 4,360	**4,775** 4,505	**4,929** 4,650	**5,083** 4,795	**5,237** 4,940	**5,391** 5,085	**5,545** 5,230	**5,699** 5,375	**5,853** 5,520	**6,007** 5,665	**154** 145
3	**5,212** 4,917	**5,386** 5,081	**5,560** 5,245	**5,734** 5,409	**5,908** 5,573	**6,082** 5,737	**6,256** 5,901	**6,430** 6,065	**6,604** 6,229	**6,778** 6,393	**174** 164
4	**5,853** 5,522	**6,048** 5,706	**6,243** 5,890	**6,438** 6,074	**6,633** 6,258	**6,828** 6,442	**7,023** 6,626	**7,218** 6,810	**7,413** 6,994	**7,608** 7,178	**195** 184
5	**6,548** 6,176	**6,766** 6,382	**6,984** 6,588	**7,202** 6,794	**7,420** 7,000	**7,638** 7,206	**7,856** 7,412	**8,074** 7,618	**8,292** 7,824	**8,510** 8,030	**218** 206
6	**7,294** 6,882	**7,537** 7,111	**7,780** 7,340	**8,023** 7,569	**8,266** 7,798	**8,509** 8,027	**8,752** 8,256	**8,995** 8,485	**9,238** 8,714	**9,481** 8,943	**243** 229
7	**8,098** 7,639	**8,368** 7,894	**8,638** 8,149	**8,908** 8,404	**9,178** 8,659	**9,448** 8,914	**9,718** 9,169	**9,988** 9,424	**10,258** 9,679	**10,528** 9,934	**270** 255
8	**8,956** 8,449	**9,255** 8,731	**9,554** 9,013	**9,853** 9,295	**10,152** 9,577	**10,451** 9,859	**10,750** 10,141	**11,049** 10,423	**11,348** 10,705	**11,647** 10,987	**299** 282
9	**9,881** 9,320	**10,210** 9,631	**10,539** 9,942	**10,868** 10,253	**11,197** 10,564	**11,526** 10,875	**11,855** 11,186	**12,184** 11,497	**12,513** 11,808	**12,842** 12,119	**329** 311
10	**10,869** 10,252	**11,231** 10,594	**11,593** 10,936	**11,955** 11,278	**12,317** 11,620	**12,679** 11,962	**13,041** 12,304	**13,403** 12,646	**13,765** 12,988	**14,127** 13,330	**362** 342
11	**11,905** 11,233	**12,302** 11,607	**12,699** 11,981	**13,096** 12,355	**13,493** 12,729	**13,890** 13,103	**14,287** 13,477	**14,684** 13,851	**15,081** 14,225	**15,478** 14,599	**397** 374
12	**14,192** 13,389	**14,665** 13,835	**15,138** 14,281	**15,611** 14,727	**16,084** 15,173	**16,557** 15,619	**17,030** 16,065	**17,503** 16,511	**17,976** 16,957	**18,449** 17,403	**473** 446
13	**16,760** 15,812	**17,319** 16,339	**17,878** 16,866	**18,437** 17,393	**18,996** 17,920	**19,555** 18,447	**20,114** 18,974	**20,673** 19,501	**21,232** 20,028	**21,791** 20,555	**559** 527
14	**19,643** 18,531	**20,298** 19,149	**20,953** 19,767	**21,608** 20,385	**22,263** 21,003	**22,918** 21,621	**23,573** 22,239	**24,228** 22,857	**24,883** 23,475	**25,538** 24,093	**655** 618
15	**22,885** 21,589	**23,648** 22,309	**24,411** 23,029	**25,174** 23,749	**25,937** 24,469	**26,700** 25,189	**27,463** 25,909	**28,226** 26,629	**28,989** 27,349	**29,752** 28,069	**763** 720
16	**26,547** 25,044	**27,432** 25,879	**28,317** 26,714	**29,202** 27,549	**30,087** 28,384	**30,972** 29,219	**31,857** 30,054	**32,742** 30,889	**33,627** 31,724		**885** 835
17	**30,714** 28,976	**31,738** 29,942	**32,762** 30,908	**33,786** 31,874	**34,810** 32,840						**1024** 966
18	**35,505** 33,495										

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*Superintendent of Documents, U. S. Government Printing Office
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THE SIGNIFICANT SIXTIES: A DECADE OF DEVELOPMENT IN VOCATIONAL EDUCATION.

WEST VIRGINIA STATE BOARD OF EDUCATION, CHARLESTON. DIV. OF VOCATIONAL EDUCATION.;WEST VIRGINIA RESEARCH COORDINATING UNIT FOR VOCATIONAL EDUCATION, HUNTINGTON.
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DESCRIPTORS - *VOCATIONAL EDUCATION; *VOCATIONAL DEVELOPMENT; SECONDARY GRADES; POST SECONDARY EDUCATION; CHARTS; ADULT EDUCATION; *STATE PROGRAMS; *PROGRAM DEVELOPMENT; STUDENT ENROLLMENT; EXPENDITURES; VOCATIONAL INTERESTS; *AREA VOCATIONAL SCHOOLS
IDENTIFIERS - *WEST VIRGINIA; 1960'S

ABSTRACT - THIS BOOKLET FOCUSES ON THE MEASURE OF SUCCESS IN WEST VIRGINIA'S VOCATIONAL EDUCATION PROGRAMS FOR SECONDARY, POST-SECONDARY, AND ADULT EDUCATION IN SEVEN MAJOR PROGRAM AREAS DURING THE DECADE OF THE 1960'S. THESE AREAS ARE: (1) VOCATIONAL AGRICULTURE, (2) BUSINESS AND OFFICE EDUCATION, (3) DISTRIBUTIVE EDUCATION, (4) HOME ECONOMICS EDUCATION, (5) HEALTH OCCUPATIONS EDUCATION, (6) VOCATIONAL INDUSTRIAL EDUCATION, AND (7) TECHNICAL EDUCATION. FOR EACH OF THESE AREAS, A PROGRESS CHART IS PRESENTED AND EXPLAINED. THE HISTORICAL BACKGROUND OF VOCATIONAL EDUCATION IN WEST VIRGINIA IS DETAILED, AND A WIDE RANGE OF CHARTS COVER VOCATIONAL EDUCATION ENROLLMENT AND EXPENDITURES IN WEST VIRGINIA FOR THE DECADE. A CHART OF CURRENT VOCATIONAL EDUCATION CURRICULUM OFFERINGS IN WEST VIRGINIA IS INCLUDED, AS WELL AS THE RECOMMENDATIONS OF A STATE LEGISLATIVE STUDY ON THE STATUS OF VOCATIONAL, TECHNICAL, AND ADULT EDUCATION. (AG)

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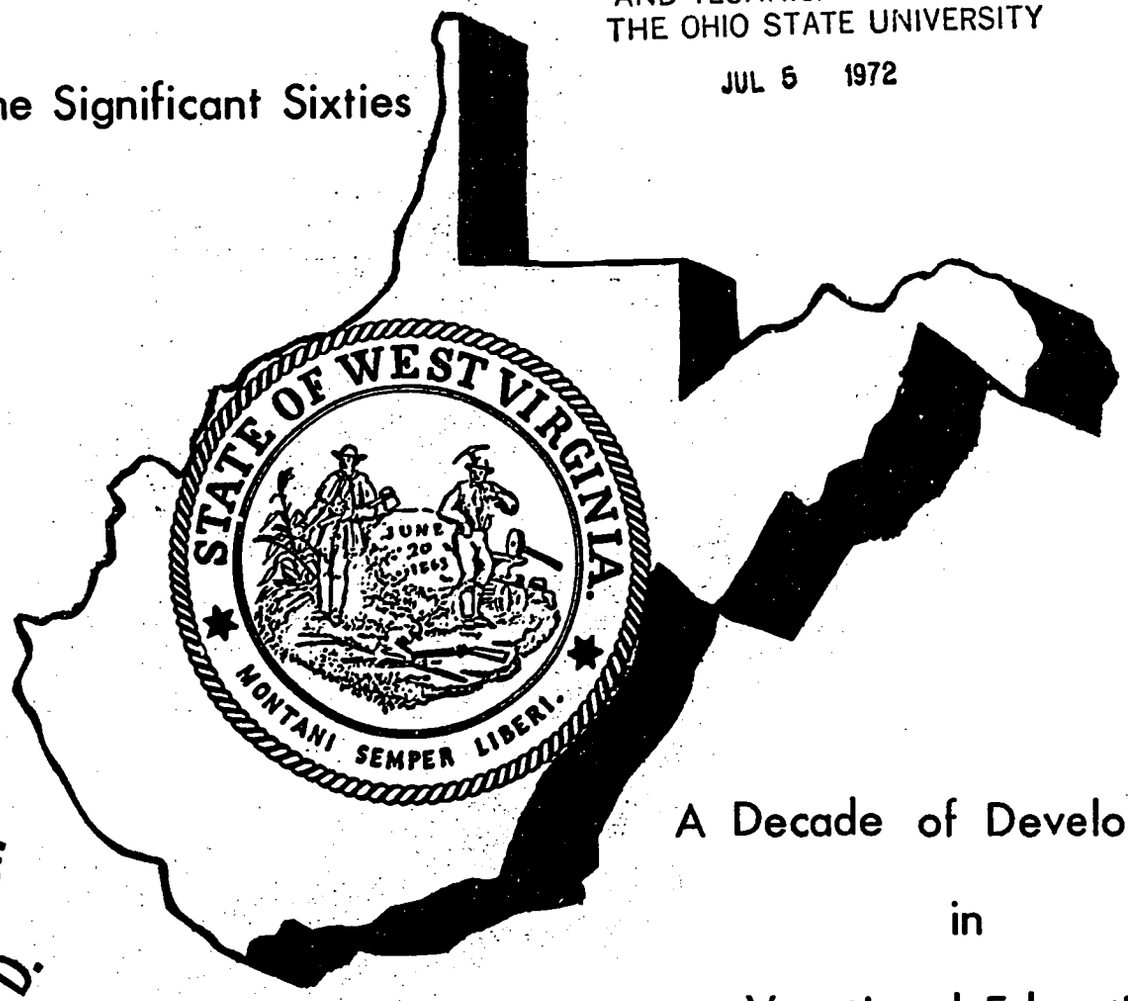
The Significant Sixties



A Decade of Development in Vocational Education

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PREPARED AND PRINTED BY
THE WEST VIRGINIA RESEARCH COORDINATING UNIT FOR VOCATIONAL EDUCATION
MARSHALL UNIVERSITY
HUNTINGTON, WEST VIRGINIA

1. Braxton County High School
   Sutton, West Virginia
   Opened: 1969 Capacity:* 250
   Cost: $1,218,033

2. Brooke County High School
   Wellsburg, West Virginia
   Opened: 1969 Capacity: 400
   Cost: $1,498,412

3. Carver Career and Technical Center
   Malden, West Virginia
   Opened: 1970 Capacity: 500
   Cost: $1,287,839

4. Fayette County Vocational Unit
   Oak Hill, West Virginia
   Remodeled: 1966 Capacity: 40
   Cost: $7,000

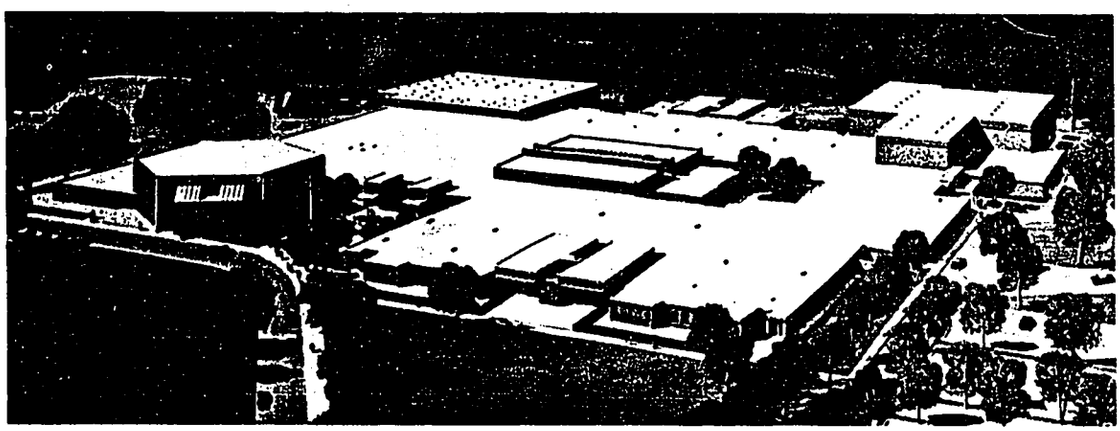
*Number of students who may be accommodated at any one time.

5. Greenbrier East High School
   Fairlea, West Virginia
   Opened: 1968 Capacity: 300
   Cost: $1,378,745

6. Greenbrier West High School
   Charmco, West Virginia
   Opened: 1968 Capacity: 230
   Cost: $913,123

7. Homestead High Vocational Unit
   Dailey, West Virginia
   Remodeled: 1968 Capacity: 90
   Cost: $59,561

8. Cabell County Public Schools Career Center
   Huntington, West Virginia
   Expanded: 1969 Capacity: 130
   Cost: $400,000



BROOKE COUNTY HIGH SCHOOL

8008

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THE SIGNIFICANT SIXTIES:
A DECADE OF DEVELOPMENT IN VOCATIONAL EDUCATION

DR. DANIEL B. TAYLOR
State Superintendent of Schools

FRED W. EBERLE
Assistant State Superintendent of Schools
and State Director of Vocational Education

WEST VIRGINIA BOARD OF EDUCATION
DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL EDUCATION
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1972

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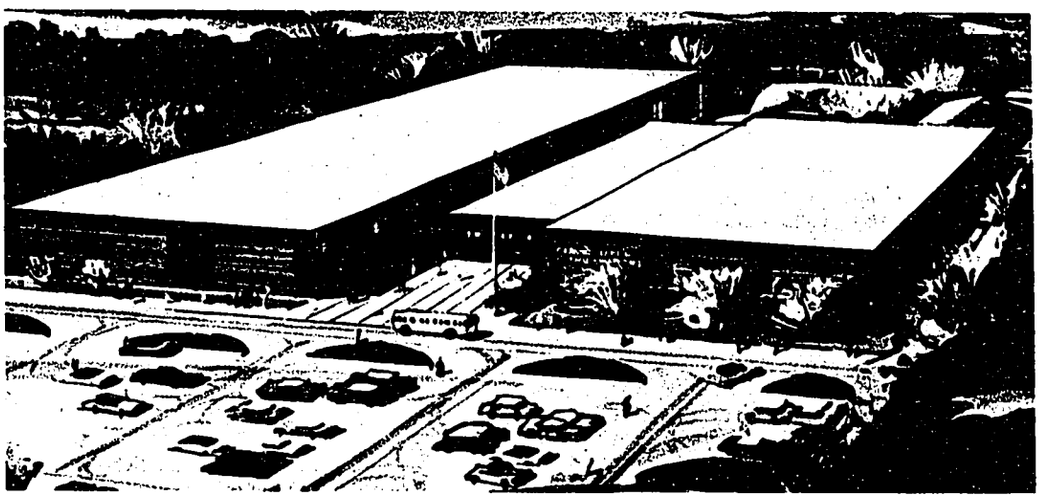

CARVER CAREER AND TECHNICAL EDUCATION CENTER

9. James Rumsey Vocational-Technical Center
   Martinsburg, West Virginia
   Opened: 1970 Capacity: 300
   Cost: $1,566,706

10. John Marshall High School
    Glen Dale, West Virginia
    Opened: 1968 Capacity: 400
    Cost: $1,723,773

11. Marion County Vocational-Technical School
    Fairmont, West Virginia
    Remodeled: 1966 Capacity: 190
    Cost: $122,280

12. Mason County Vocational-Technical Center
    Point Pleasant, West Virginia
    Opened: 1970 Capacity: 300
    Cost $965,233

13. McDowell County Vocational-Technical Center
    Welch, West Virginia
    Opened: 1967 Capacity: 450
    Cost: $1,622,209

14. Mercer County Vocational-Technical Center
    Princeton, West Virginia
    Opened: 1969 Capacity: 500
    Cost: $3,385,588

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Acknowledgements

We are grateful to all the individuals who cooperated in reviewing the necessary materials for this publication. Specifically those people from the Division of Vocational Education, West Virginia Department of Education were Carl Thomas, State Supervisor of Vocational Agriculture; Louis Loudermilk, State Supervisor of Vocational Business and Office Education and Distributive Education; Edna Hall, State Supervisor and Nancy Mathews, Program Specialist of Home Economics; J. J. Townsend, State Supervisor of Vocational Industrial, Technical, and Health Occupational Education; and Clifton Detamore, Program Specialist of Facilities and Property Control.

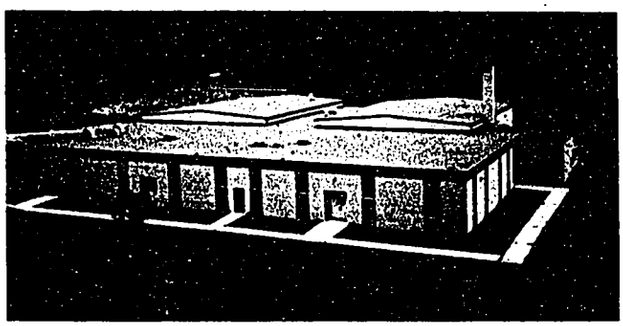
Our special thanks are extended to Ruth Edwards, Program Specialist in Business and Office Education, whose work in preparing the initial draft provided the basis for this publication.

Research Coordinating Unit Staff

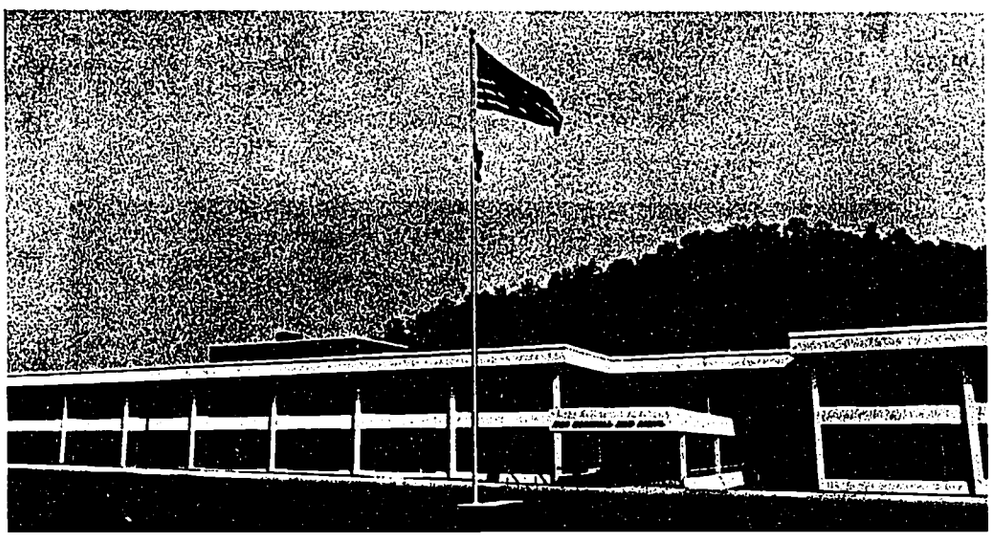
15. Mineral County Vocational-Technical Center
Keyser, West Virginia
Opened: 1967 Capacity: 250
Cost: $1,165,303

16. Mingo County Vocational-Technical School
Pigeon Creek, West Virginia
Opened: 1969 Capacity: 120
Cost: $666,749

17. Monongalia County Vocational Center
Morgantown, West Virginia
Remodeled: 1968 Capacity: 150
Cost: $301,400



MINGO COUNTY VOCATIONAL-TECHNICAL CENTER



JOHN MARSHALL HIGH SCHOOL

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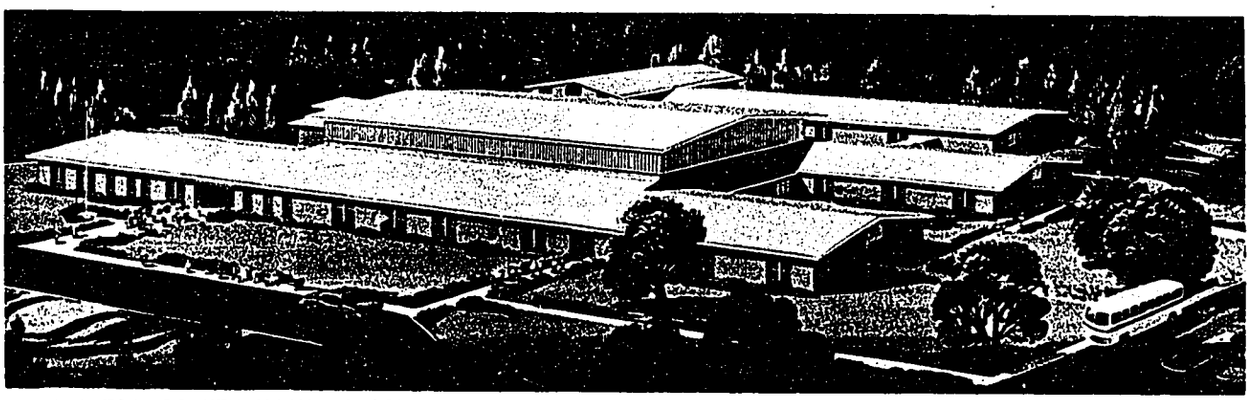
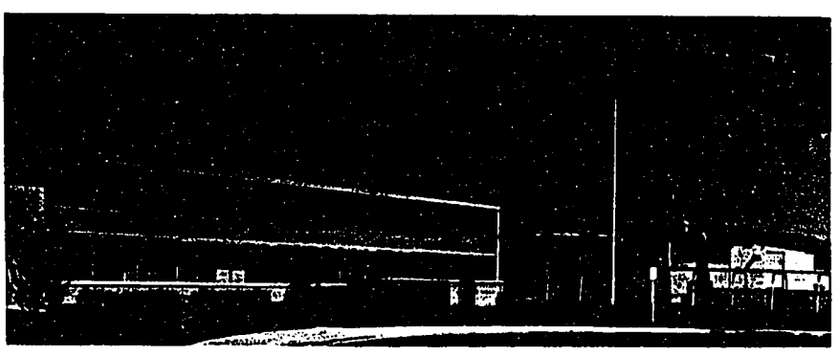


POCAHONTAS COUNTY HIGH SCHOOL

18. Parkersburg South High School
Parkersburg, West Virginia
Opened: 1967 Capacity: 300
Cost: $1,952,948

19. Pocahontas County High School
Dunmore, West Virginia
Opened: 1970 Capacity: 220
Cost: $1,169,053



MINERAL COUNTY VOCATIONAL-TECHNICAL CENTER

8011

INTRODUCTION

Time and work have their measures. People encounter and use time in many ways. Education and work have been accepted by our society as necessities. The time necessary to gain that education has been increasing in accordance with the needs and values attributed to its purpose.

Preparation for work has been accepted as an educational activity. The social and economic changes engendered in a decade has an impact on the consequences of an educational activity such as vocational education.

Vocational educators, trained in the science of analysis, recognized the need for greater accessibility to those activities that would train or retrain people for employment. The passage of the state's training and area vocational school legislation marked the beginning of some promise to the undereducated and unemployed. History may record it as a turning point in vocational education.

The early sixties can be marked as the time of identification of greater need. The previous years of finding and reducing the constraints provoked action. Evidence revealed and brought forth the problems of funding, lack of facilities, and attitudes of indifference toward social and economic responsibility. Readiness for growth became a concern of the vocational education leaders.

Each year of the decade added something to a sequence of purposeful activity. The acceptance of the concept that work is an educative force and the willingness to invest monies in vocational education facilities became an essential element in providing more people with work-oriented educational opportunities. Fulfilling the mission set forth in federal vocational education legislation became more realistic.

Increased accessibility to modern vocational education facilities has enhanced a public understanding of the role of vocational education programs in a total public educational system. However, the continuing change that accompanies the daily activities in the world of work necessitates an increasing attention to human resource development.

The challenge of the seventies lie in the accountability for quality and expanded program opportunities. The existence in West Virginia of some of the nation's best vocational education facilities has reduced a major accessibility problem to a lesser role. The responsibility for operational funding is another area that shall require attention. Dependence on federal monies may cause internal problems not anticipated in current efforts. Recognition of the individual and his work, as evidenced by studies of the unemployed and the changing technological society, should enhance the place of quality vocational education programs.

To those who helped, we are grateful for your belief and support in providing a good effort in making vocational education programs available to more people during the decade of development.

To those serving in the West Virginia Legislature, those State officials who encouraged us, those educators who cooperated in behalf of vocational education, to the members of the State Board of Education, to the State Superintendent of Schools and members of his staff, we who have worked as members of the Division of Vocational Education say thanks.

Fred W. Eberle

4/5

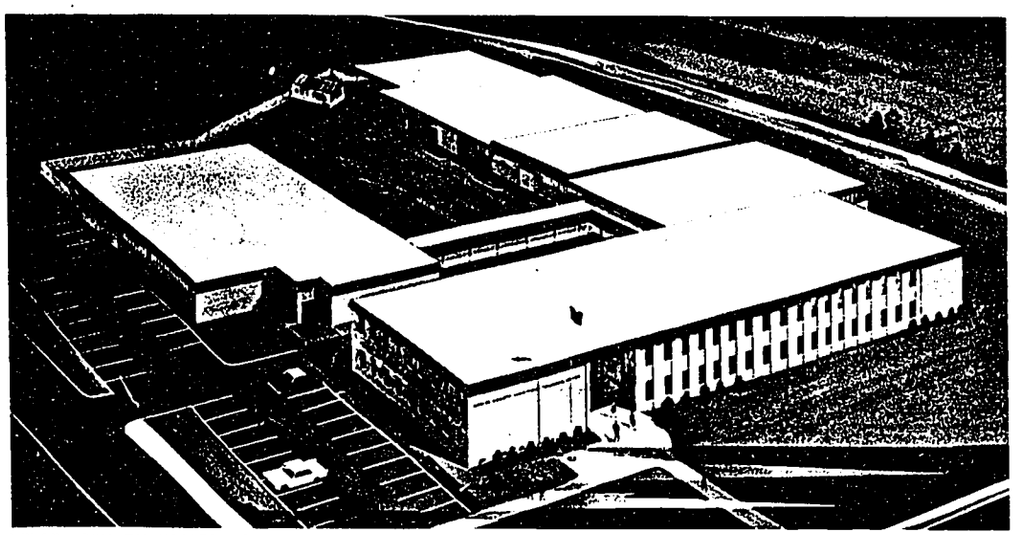
20. Putnam County Vocational Center
Eleanor, West Virginia
Remodeled: 1968 Capacity: 200
Cost: $235,236

21. South Branch Valley Vocational-Technical Center
Petersburg, West Virginia
Opened: 1970 Capacity: 150
Cost: $796,657

22. Tri-County Vocational-Technical Center
Buckhannon, West Virginia
Opened: 1968 Capacity: 120
Cost: $536,217

23. Wayne High School
Wayne, West Virginia
Opened: 1967 Capacity: 250
Cost: $453,789

24. Weirton Vocational School
Weirton, West Virginia
Expanded: 1967 Capacity: 120
Cost: $361,038



MERCER COUNTY VOCATIONAL-TECHNICAL CENTER

HISTORICAL BACKGROUND OF VOCATIONAL EDUCATION IN WEST VIRGINIA

The historical development of vocational education in West Virginia differs very little from that of other states in the nation. The development of trained manpower has existed as an acceptable national public policy for well over a century. The emergence of vocational education is identified with the Morrill Act in 1862 which provided each state with federal land for establishment of at least one institution of higher learning. The Act provided that such institutions were to teach "without excluding other scientific and classical studies...such branches of learning as are related to agriculture and the mechanic arts...in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

Federal policy for providing vocational education programs originated with the Smith-Hughes Act of 1917. This Act provided the foundation for a total program of vocational education beginning at the secondary and extending through the adult level. Provisions for the preparation of vocational teachers were also included in the legislation. The Act specifically earmarked funds for the occupational fields of agriculture, home economics, and industrial education and as accepted by West Virginia, authorized the state to do all things necessary to promote vocational education in agriculture, home economics, trades and industry. In a subsequent act the State Legislature granted the State Board of Education management responsibility for federal vocational educational funds and programs.

In 1936 the George-Deen Act authorized additional funds for vocational education and recognized the occupational fields of distribution and marketing; the George-Barden Act in 1946 provided for increased authorizations for vocational education purposes.

The National Defense Education Act (NDEA) of 1958 provided the first significant addition to the vocational education program since 1917. This federal act provided funds for training persons for employment "as highly skilled technicians in recognized occupations requiring scientific knowledge...in fields necessary for national defense.."

The West Virginia Legislature in 1960 enacted the Area Vocational Program (AVP). The purpose of this legislation was twofold: 1) to provide for the development of training and retraining programs to prepare individuals sixteen years of age or older for employment in recognized occupations, and 2) to authorize the State Board of Education to establish, operate and maintain area vocational schools. This state legislation was followed in 1961 by the enactment of the Federal Area Redevelopment Act, and in 1962 by the Manpower Development and Training Act, both of which were similar in purpose

7999

Vocational Education Program Areas

Vocational Education is an educational activity designed to develop skills, abilities, understandings, attitudes, work habits, and appreciations encompassing knowledge and information needed by workers to enter and make progress in employment on a useful and productive basis. It is an integral part of the total educational program.

The objective of Vocational Education in West Virginia is to apply these concepts in seven major program areas. These areas are vocational agriculture, business and office education, distributive education, health occupations education, home economics education, vocational industrial education, and technical education. Vocational Education programs cover three levels of education: secondary, postsecondary and adult education. The measure of success in achieving this objective during the decade of the 1960's is the focus of this publication.

to West Virginia's Area Vocational Program.

Passage on the federal level of the 1963 Manpower Development and Training Act Amendment of 1963 and the Vocational Education Act of 1963 provided training opportunities at all levels for all occupations except those requiring a baccalaureate degree. Manpower development legislation made occupational programs more accessible to out-of-school youth with special programs for testing, counseling, selection, and referral of youths sixteen years of age and older to institutional training activities.

The Vocational Education Act of 1963 authorized a new permanent program of federal assistance for vocational education. Increased funds made available under the Act were designed to promote expansion of vocational education programs within public education with emphasis upon the development of area vocational schools. The Act provided that vocational education programs be made available for persons in secondary schools, for those out of school who are available for full time study in preparation for entering the labor market, for employed persons in need of additional training or retraining and for persons in all categories having academic, socio-economic, or other handicaps which prevent them from succeeding in regular vocational programs. This legislation represented a change of emphasis from an occupational to a person-oriented approach.

The Vocational Education Act Amendments of 1968 were designed to deal with many of the technological, social, and educational dilemmas facing the nation. Changes in the occupational structure of the work force with fewer low-skill jobs and the need for more highly trained personnel in industry, business, and government indicated a need for education to adjust to these trends. The amendments emphasized the need for making vocational education more relevant with program development more closely attuned to matching individual interests, aptitudes, and needs with occupational and educational requirements.

The target groups of persons to be served remained the same with additional mandated emphasis being placed on the disadvantaged, handicapped, and out-of-school youth who have not yet entered the labor market.

Additional areas of emphasis in the Amendment were provisions for:

a) Research and Training Programs
b) Exemplary Programs
c) Consumer and Homemaking Education
d) Cooperative Vocational Education
e) Work-Study Programs, and
f) Curriculum Development

Provision was made for utilization of national and state advisory councils to advise educators on vocational program administration and for purposes of conducting annual independent evaluations.

VOCATIONAL AGRICULTURE

Vocational Agriculture programs provide instruction concerned with preparing for, or upgrading in, occupations which require knowledge and skills relating to agriculture. Instruction takes the form of courses or units of subject matter organized for carrying on learning experiences relating to the agricultural functions of production, supplies, resources, mechanization, products and processing, ornamental horticulture, forestry, and all related services; and practical work experience supervised by the instructor.

Enrollment in Vocational Agriculture in West Virginia was relatively constant during the 1960's. This, at a time when mechanization and consolidation were generally reducing the number of farmers and farms, was due to a growing realization that agriculture is more than farming, and to the subsequent introduction of programs in off-farm agricultural occupations. Conservation-forestry, ornamental horticulture, agricultural supplies/services, and agricultural mechanics were four programs of this type initiated in West Virginia during this period.

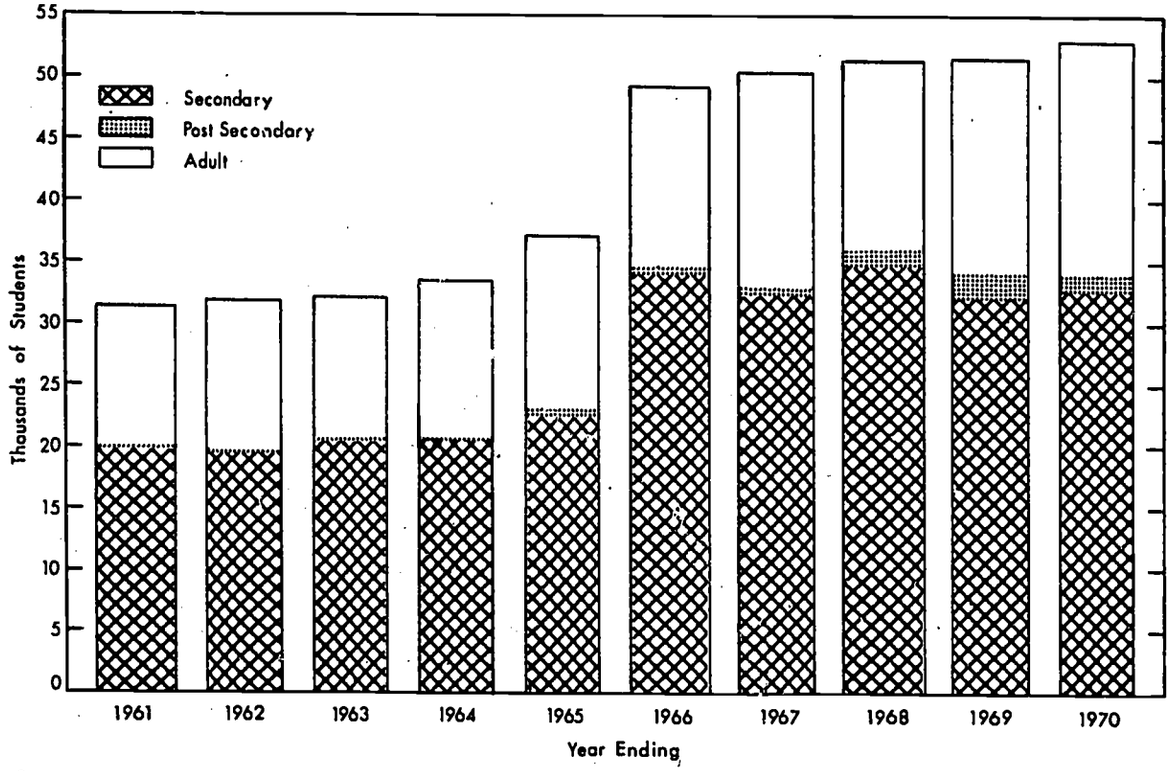
In addition to secondary school programs, which account for nearly 90 per cent of Vocational Agriculture students, adult farmer, young farmer, and adult special agriculture classes have been made available where local need has been determined. A postsecondary forest technology program was initiated at Glenville State College in 1968.

Five thousand students enrolled in Vocational Agriculture in West Virginia represent forty-one of the state's fifty-five counties. Counties not offering agriculture programs are primarily those in urban or industrialized areas.

In addition to instruction and supervised occupational experience designed to improve students' competencies in agricultural occupations, there are available related leadership training activities provided by the youth organization, the Future Farmers of America (FFA). Members participate in activities to improve leadership and character development, sportsmanship, cooperation, community service, thrift, scholarship, improved agriculture, organized recreation, citizenship and patriotism. The FFA organization is a significant, integral part of agricultural education and contributes to the guidance and total general educational development of students.

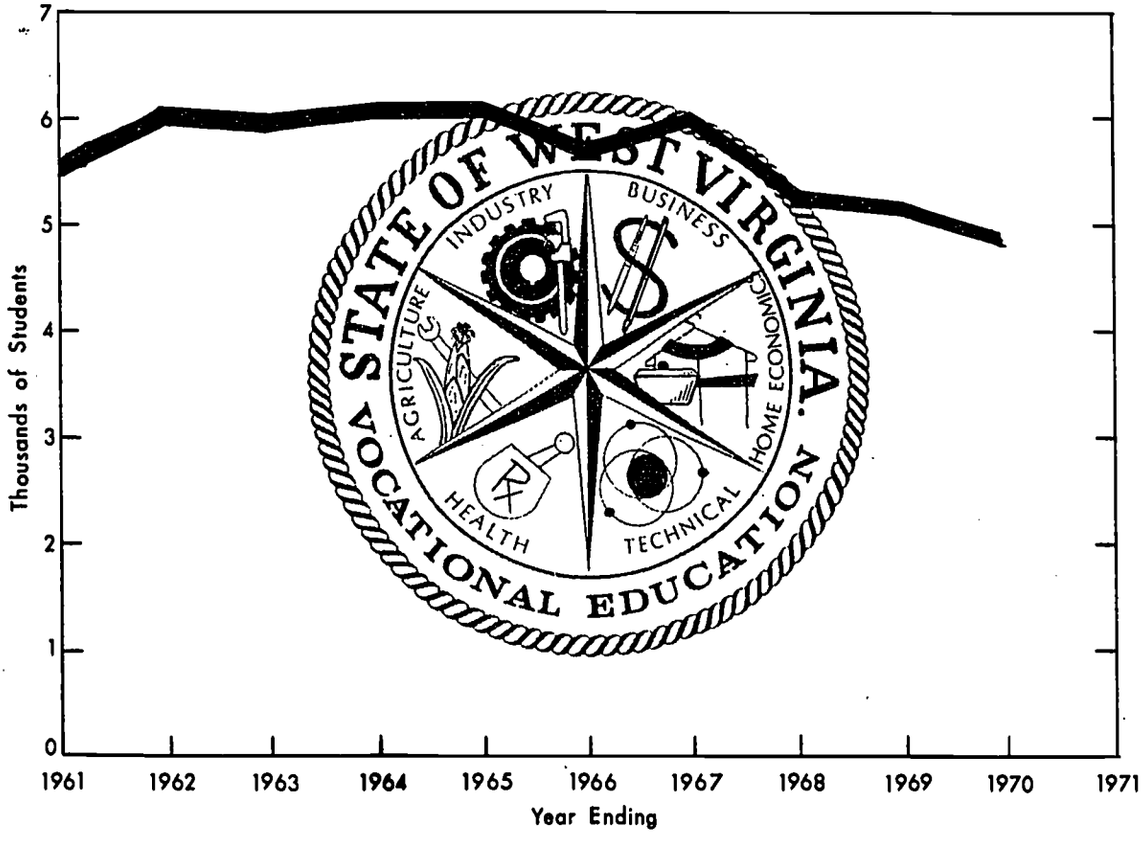
8014

Vocational Education Enrollment, 1961-70



8001

Enrollment in Vocational Agriculture



8015

Vocational Education Enrollment, 1961-70

Program Area and Instructural Level	Enrollment for Year Ending									
	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Vocational Agriculture										
Secondary	4928	5242	5290	5395	5389	5101	5175	4858	4745	4436
Postsecondary	--	--	--	--	--	--	--	--	22	51
Adult	605	667	530	693	678	658	729	390	417	504
Total	5533	5910	5820	6088	6067	5759	5904	5248	5184	4991
Business and Office Education										
Secondary					861	12,974	10,493	12,515	9,246	8,712
Postsecondary					--	--	--	24	47	76
Adult					--	606	2,865	2,437	2,525	2,146
Total					861	13,580	13,358	14,976	11,818	10,934
Distributive Education										
Secondary	250	226	223	231	277	247	274	266	423	615
Adult	1573	1245	1201	796	884	1231	494	297	275	502
Total	1823	1471	1424	1027	1161	1478	768	563	698	1117
Health Occupations Education										
Secondary	--	--	--	--	--	--	--	--	70	104
Postsecondary	187	255	252	294	281	243	307	205	374	421
Adult	320	150	101	21	280	156	155	82	183	392
Total	507	405	353	315	561	399	462	287	627	917
Home Economics Education										
Secondary	10,728	11,314	11,272	11,167	11,777					
Gainful						236	281	428	578	535
Useful						11,241	11,677	11,654	11,124	11,982
Adult	3,415	3,714	3,470	4,746	5,755					
Gainful						228	264	408	345	601
Useful						5,418	5,510	5,141	5,164	6,072
Total	14,143	15,028	14,742	15,913	17,532	17,123	17,734	17,631	17,211	19,190
Vocational Industrial Education										
Secondary	3,688	3,070	3,345	3,499	3,828	3,867	4,137	4,667	5,473	5,882
Postsecondary	--	--	--	--	--	--	11	241	108	63
Adult	5,321	5,672	6,129	6,116	6,021	6,100	6,725	5,855	7,947	8,168
Total	9,009	8,742	9,474	9,615	9,849	9,967	10,873	10,763	13,528	14,113
Technical Education										
Secondary	78	84	190	234	377	368	301	373	492	482
Postsecondary	15	--	--	--	106	273	472	921	1,484	755
Adult	106	72	187	237	259	256	591	652	585	384
Total	199	156	377	471	742	897	1,364	1,946	2,561	1,621
Grand Total Enrollment	31,214	31,712	32,190	33,429	36,773	49,203	50,461	51,414	51,627	52,883

BUSINESS AND OFFICE EDUCATION

Prior to the enactment of the Vocational Education Act of 1963, Business and Office Education were not included among vocational education programs. Curricula in most West Virginia secondary schools prior to 1963 included shorthand, typing and bookkeeping courses which met personal needs, but often failed to prepare students for direct entry into business and office occupations.

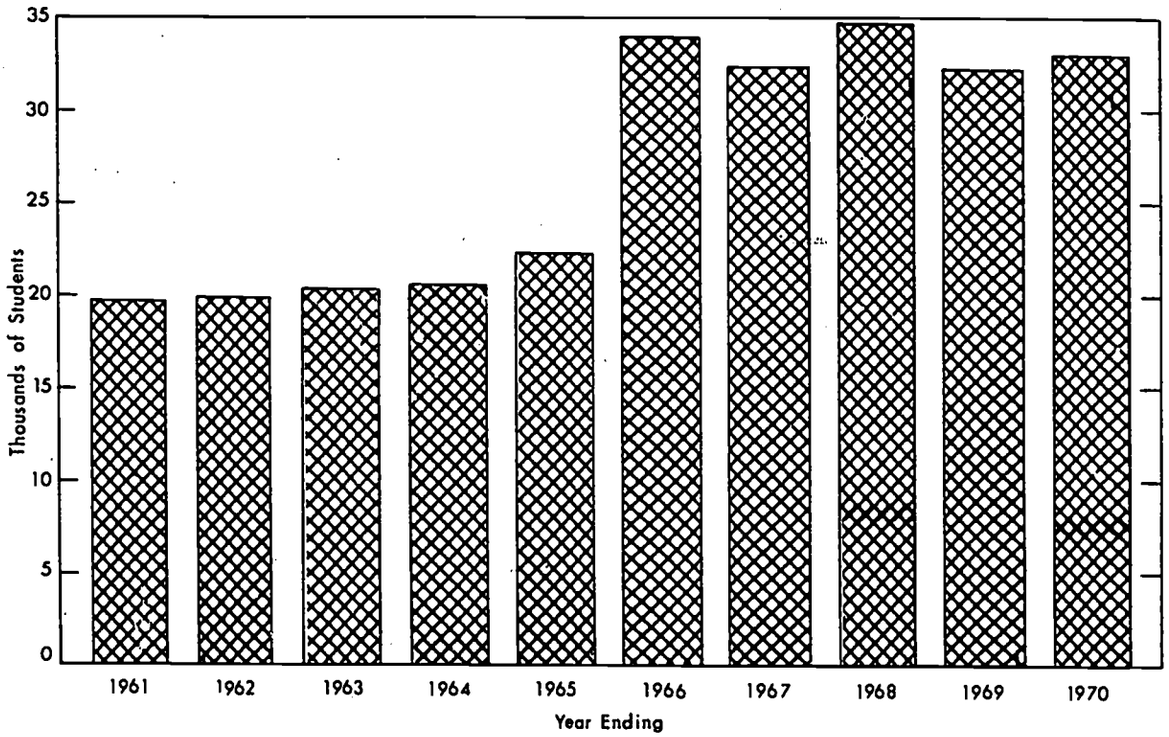
The 1965 West Virginia Plan for Vocational Education for the first time included provisions for Business and Office Education programs to provide opportunities for pupils to prepare for and achieve career objectives in selected occupations dealing with such areas as recording and retrieval of data, supervision and coordination of office activities, communications, and information reporting.

In 1965, a total of eighteen high schools in four counties offered approved Business and Office Education programs. In 1970, eighty-seven schools in forty counties had approved programs in this area of vocational education. In areas unable to equip each high school with the expensive, sophisticated office equipment used in modern business, vocational-technical center facilities have been utilized to provide programs. Students, transported from feeder schools to the centers, have access to training in the many specialized jobs demanded in business and office occupations. Changes in reporting methods resulted in fluctuations in enrollments.

Adult Vocational Business and Office Education classes for persons preparing for employment or wishing to upgrade themselves in office occupations included, in 1970, instruction in federal taxation, office machines, typing shorthand, and bookkeeping.

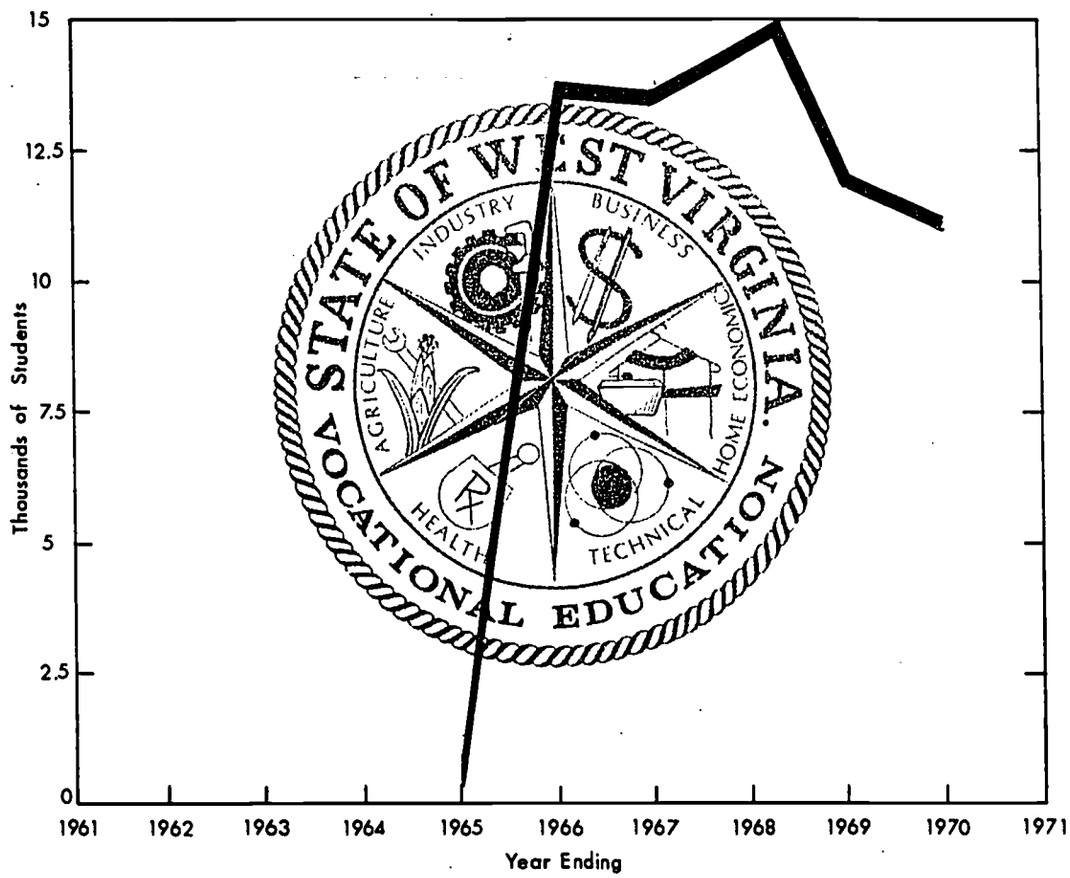
The Future Business Leaders of America (FBLA), which in 1970 numbered 1,386 West Virginians among their members, provides additional opportunities to develop leadership, other necessary qualities and an understanding of the world of work in business.

Secondary Vocational Education Enrollment, 1961-70

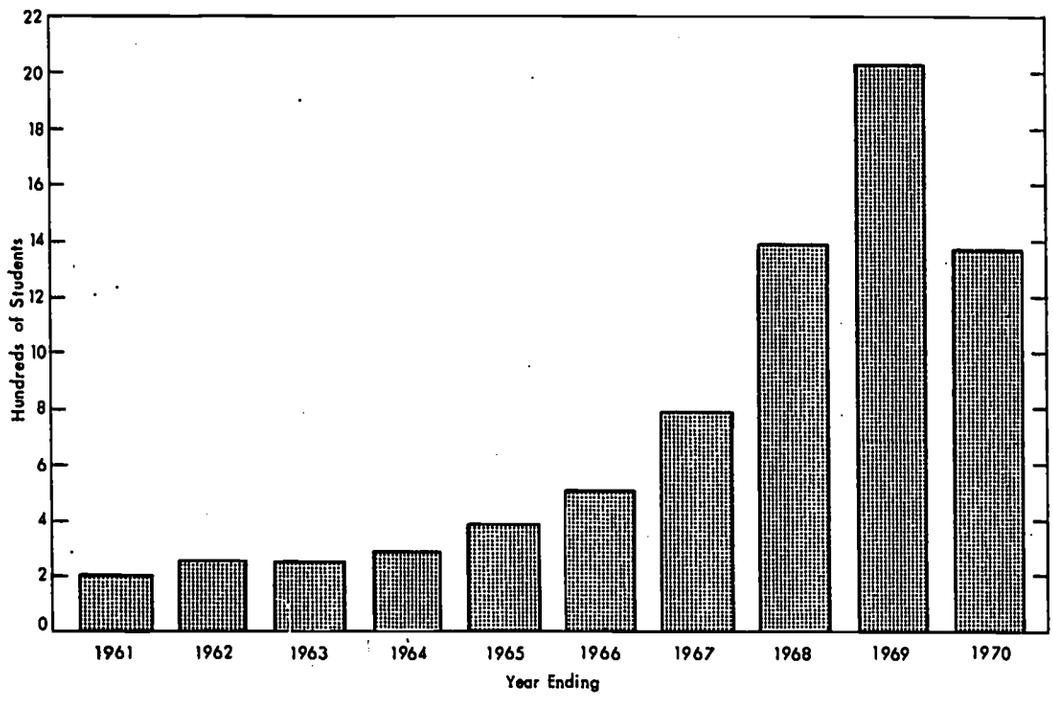


SECONDARY VOCATIONAL EDUCATION students are those enrolled in regular, full-time programs of vocational education on a secondary level, i.e. grades 7-12. As can be seen from the chart, secondary vocational enrollment increased by more than 50% in the Sixties with the major growth occurring at mid-decade, as programs of the 1963 Vocational Education Act began to be fully implemented.

Enrollment in Business and Office Education



Postsecondary Vocational Education Enrollment, 1961-70



POSTSECONDARY VOCATIONAL EDUCATION students are primarily youth or adults who have completed or left high school and who are available for an organized program of study in preparation for entering the labor market. The chart illustrates the dramatic rise of enrollment from the mid-60's to 1969, when the number of students was ten times the enrollment in the early 60's. The apparent loss in enrollment from 1969 to 1970 was primarily a paper loss, caused by a change in the method of numeration. In 1969, postsecondary institutions reported a count of students in each course, resulting in a duplicated count where students were enrolled in more than one course. However, the 1970 postsecondary enrollment reflects total enrollment by program, i.e. an unduplicated count.

DISTRIBUTIVE EDUCATION

Distribution and marketing are the focal points of Distributive Education which is comprised of subject matter and learning experiences related to the performance of activities that direct the flow of goods and services from the producer to the consumer. Sales, purchasing, transportation, storage, promotion, finance, market research, and management are all aspects of Distributive Education as it endeavors to prepare individuals to progress or improve competencies in distributive occupations such as retail and wholesale trade, finance, insurance, real estate, services and service trades, manufacturing, transportation, utilities, and communications.

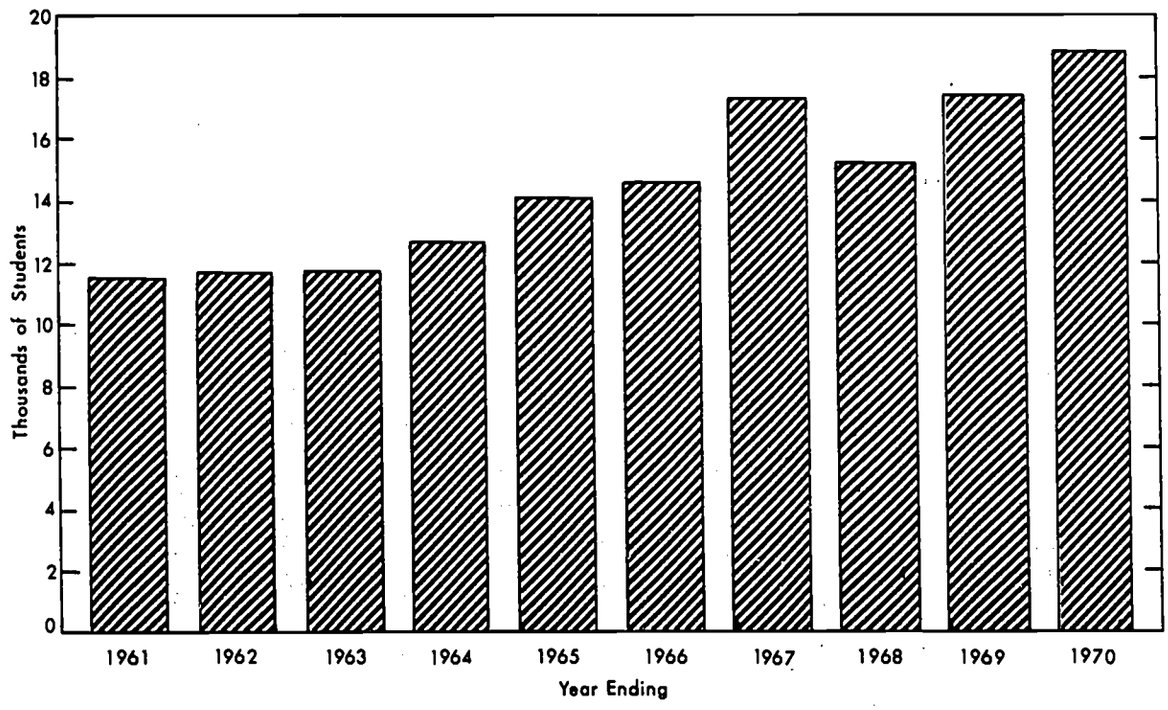
Programs in Distributive Education are offered on two instructional levels -- secondary and adult -- and are structured to meet the requirements for gainful employment and entrepreneurship at specified occupational levels.

Although adult enrollment in Distributive Education decreased during the decade, the number of secondary students in this area has shown a definite growth trend in recent years, as shown in the enrollment chart on page 9. Following eight years without significant changes, secondary enrollment in 1969 increased 59 per cent over the preceding year, and as the decade closed, secondary enrollment in Distributive Education was 146 per cent greater than in 1961. The enrollment chart on the opposite page is a total of both secondary and adult enrollments and, therefore, represents neither instructional level by itself.

Distributive Education Clubs of America (DECA) provide the student with a chance to practice the marketing, merchandising, and management skills, attitudes, and understanding which are emphasized in Distributive Education programs. Through activities designed to increase interest, skill, and knowledge, DECA provides opportunities to develop leadedership qualities, social and civic awareness, and an increased understanding of the world of work in distribution and marketing.

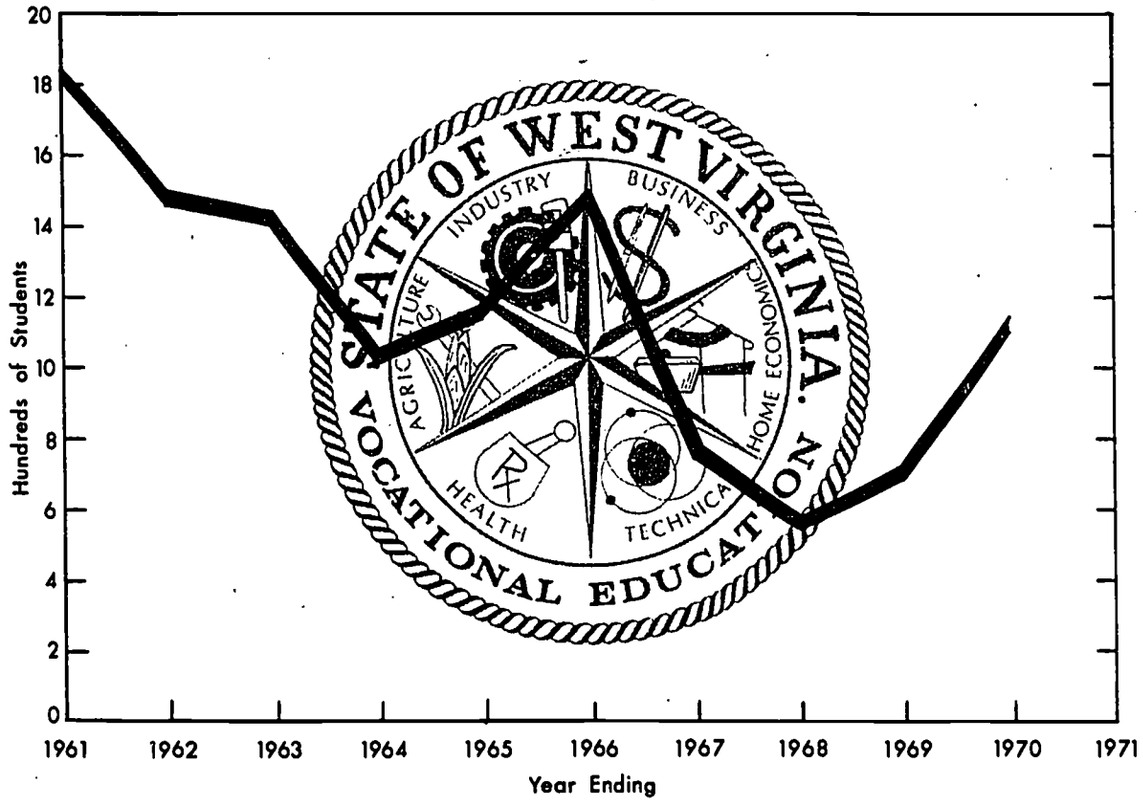
8018

Adult Vocational Education Enrollment, 1961-70

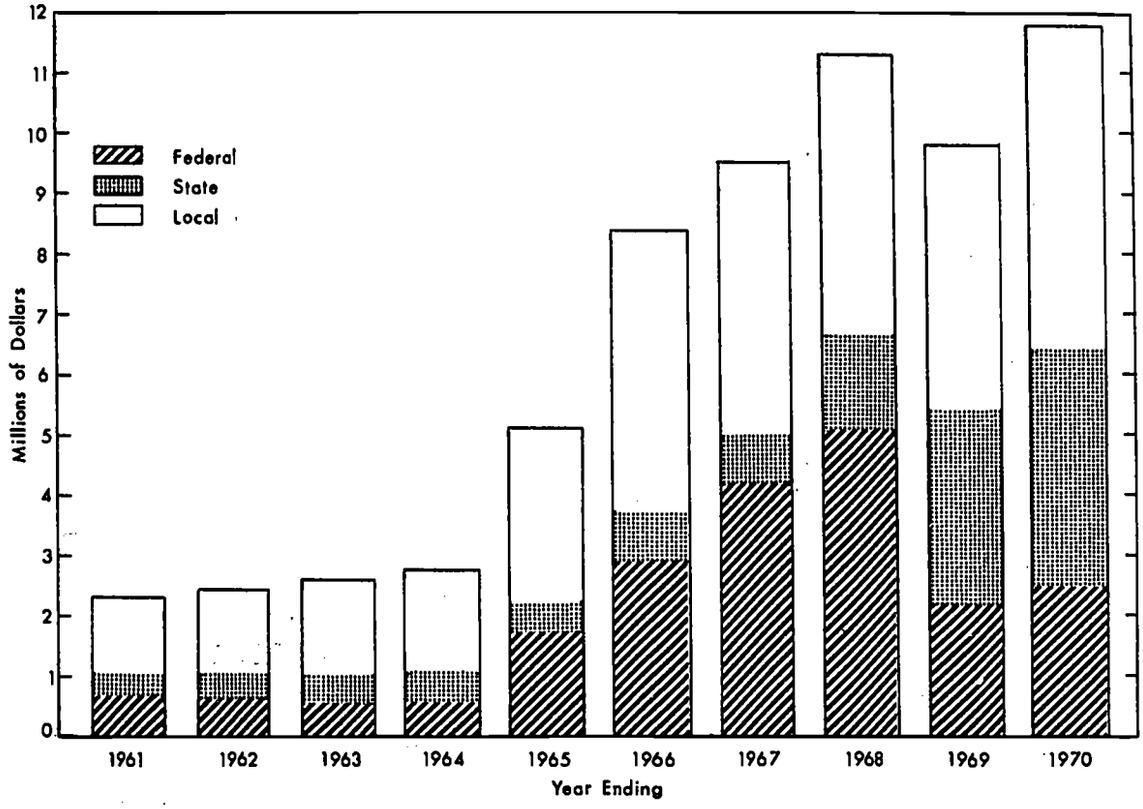


ADULT VOCATIONAL EDUCATION students are those who have already entered the labor market or are unemployed but need retraining in preparing for new occupations, or who need training to be updated or upgraded to achieve stability or advancement in their current employment. As illustrated by the chart, enrollment increased almost 40% from the early 60's to the end of the decade, with a slight decrease in 1968 and 1969.

Enrollment in Distributive Education



Expenditures on Vocational Education, 1961-70



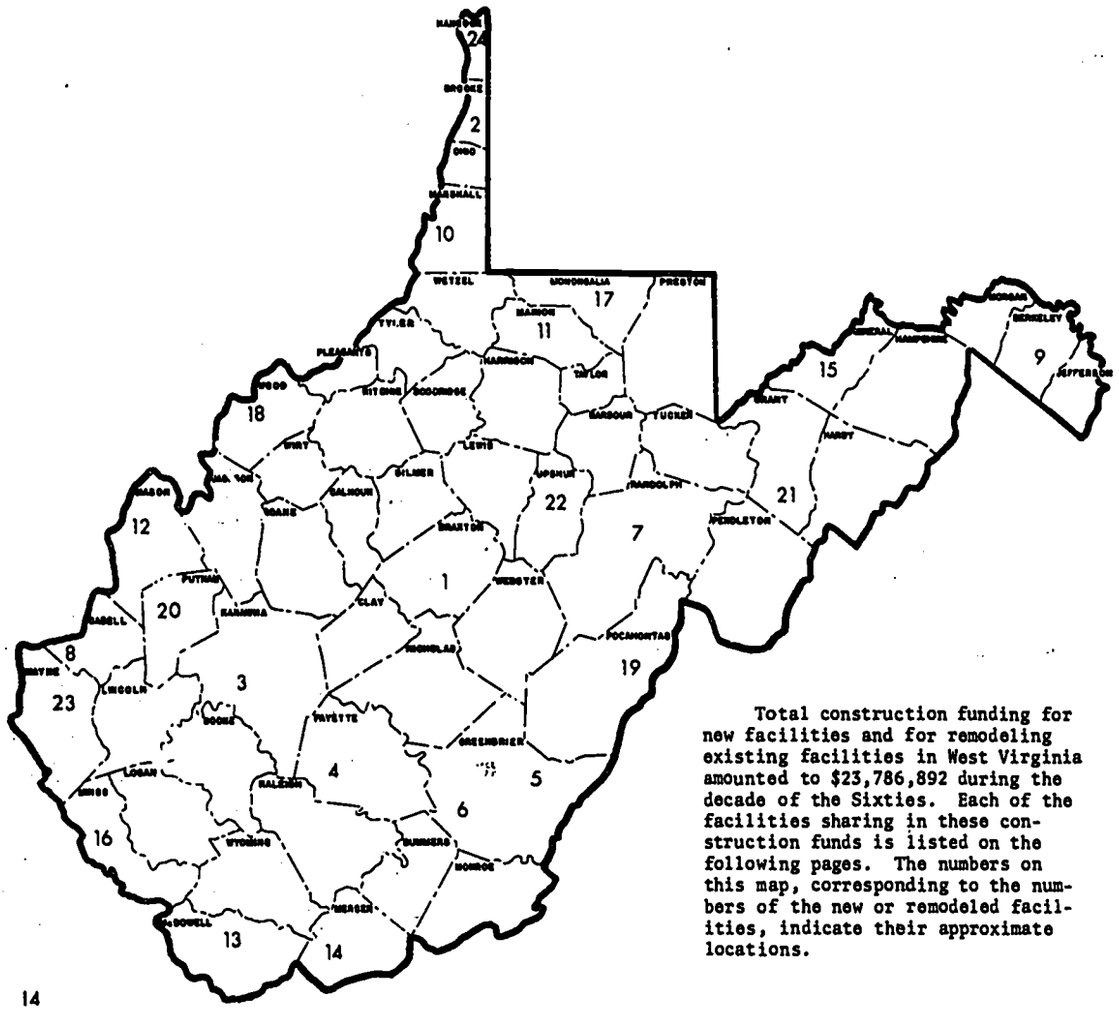
Total expenditures on vocational education in the State of West Virginia amounted to $66,127,189 during the period 1961 to 1970. All levels of government---federal, state and local ---supported these programs. The fiscal support provided by each government level is depicted in the total expenditures chart.

HOME ECONOMICS EDUCATION

Prior to the 1965-66 school year, Home Economics Education programs were classified only by the instructional level (secondary or adult) on which they were taught. Since then, however, Home Economics Education offerings have also been classified as either homemaking (useful) or occupational (gainful). Instruction organized to enable pupils to acquire knowledge and develop understanding, attitudes, and skills relevant to personal, home, and family life is identified as useful home economics or consumer and homemaking education. Instruction which is directed toward preparation for an occupation using the knowledge and skills of home economics is referred to as gainful or occupational home economics.

Considering all students, useful as well as gainful, Home Economics Education has the highest enrollment of any of the seven major program areas. Total enrollment in Home Economics Education increased by some five thousand students from 1960 to 1970. More recent statistics, however, are particularly revealing as they show an increase of 87 per cent in occupational home economics enrollment between 1965 and 1970. Consumer and homemaking education enjoyed a gain of more than fifteen hundred students (nine per cent) in that same five-year period. A total of 205 programs were available throughout West Virginia in 1970; thirty of these programs were in occupational home economics. Ten years earlier, only 130 programs were available.

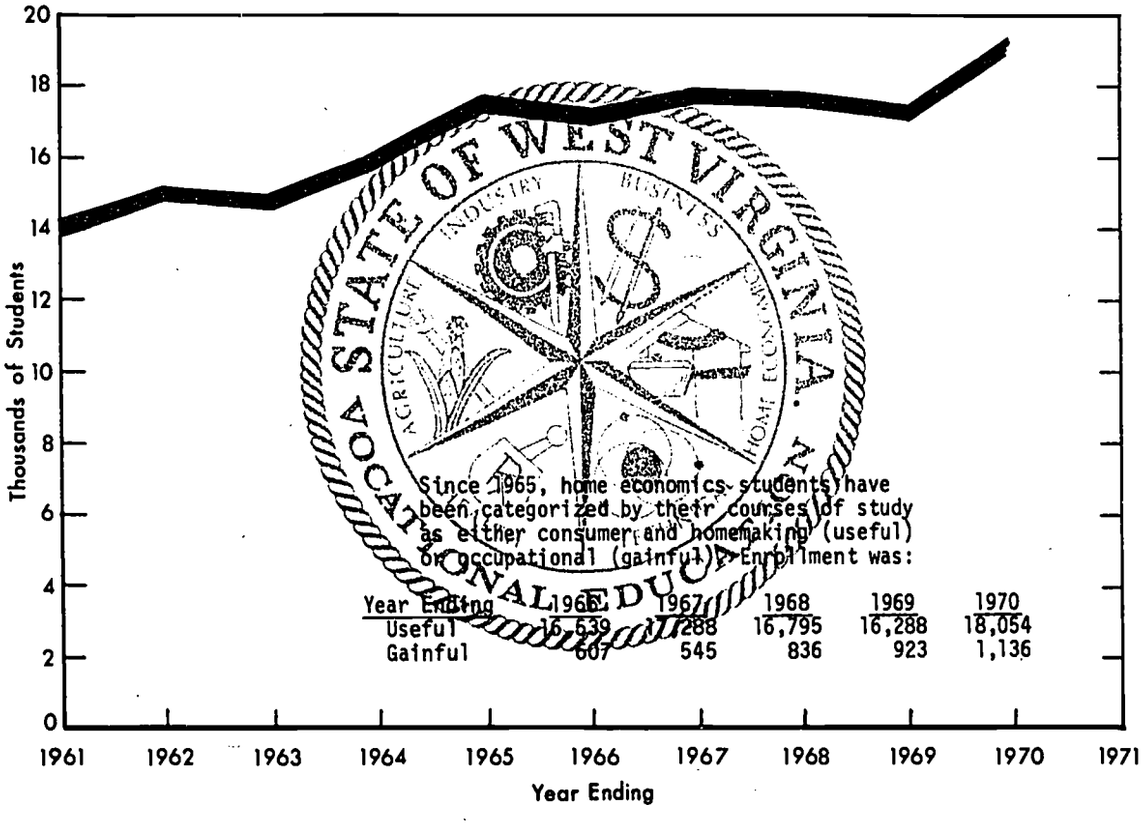
Home Economics Education, too, has a related youth organization with the goal of helping individuals to improve personal, family, and community living. The West Virginia Association of Future Homemakers of America (FHA) had a membership of 4,819 in 131 chapters in 1970. FHA offers opportunities to develop leadership, social and civic awareness, and increased understanding of the world of work in home economics; and it also enables students to engage in activities that extend their interests, skills, and knowledge in the many aspects of home economics.



Total construction funding for new facilities and for remodeling existing facilities in West Virginia amounted to $23,786,892 during the decade of the Sixties. Each of the facilities sharing in these construction funds is listed on the following pages. The numbers on this map, corresponding to the numbers of the new or remodeled facilities, indicate their approximate locations.

8907

Enrollment in Home Economics Education



Since 1965, home economics students have been categorized by their courses of study as either consumer and homemaking (useful) or occupational (gainful). Enrollment was:

Year Ending	1965	1967	1968	1969	1970
Useful	16,539	17,288	16,795	16,288	18,054
Gainful	607	545	836	923	1,136

8021

HEALTH OCCUPATIONS EDUCATION

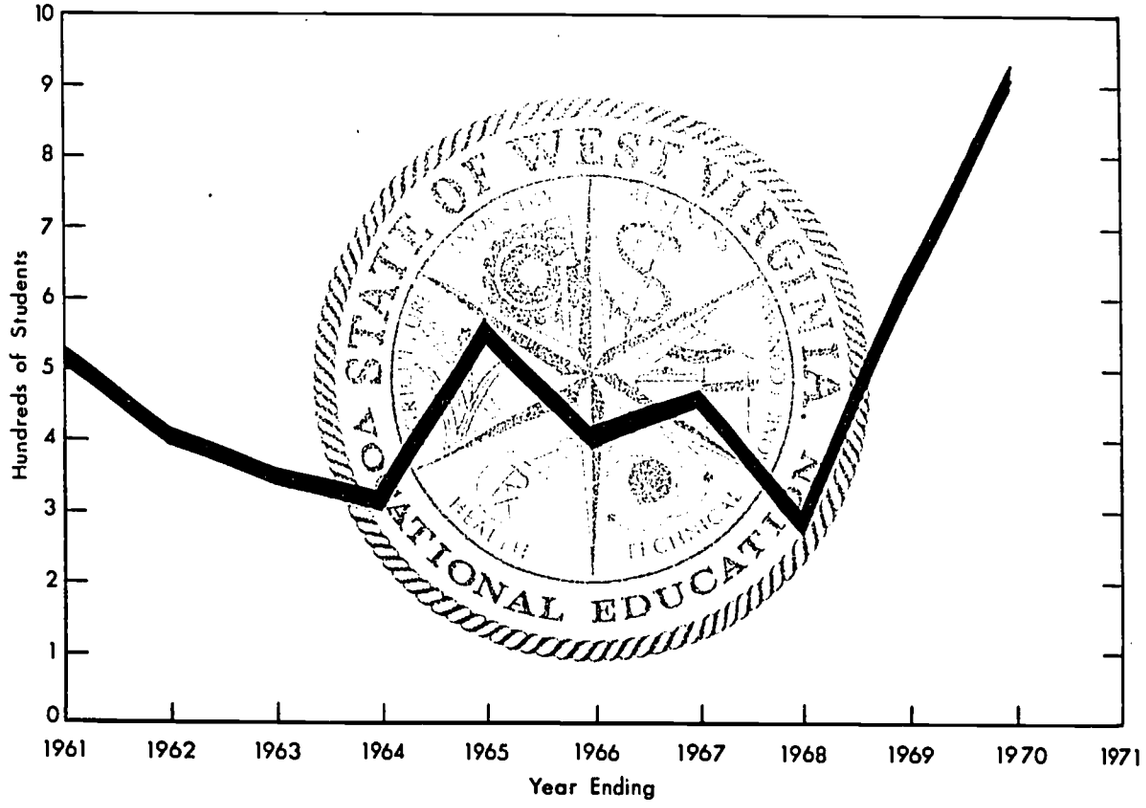
The purpose of Health Occupations Education is to qualify personnel to provide supportive services in working with health service professionals. This is accomplished through instruction organized to prepare persons for occupational objectives concerned with assisting qualified personnel in providing diagnostic, therapeutic, preventive, restorative, and rehabilitative services, including understanding and skills essential to provide care and health services to patients.

In 1970, more than nine hundred persons were enrolled in Health Occupations Education programs in West Virginia. This represented an increase of nearly 80 per cent when compared with the 1961 enrollment. Instruction was provided at the secondary, post-secondary, and adult levels and offered preparation for an expanding list of employment opportunities. Programs offered included those leading to the occupations of practical nurse, nurse (associate degree), nurse aide, and dental assistant. West Virginia licensing provisions, with their minmum-age requirements, preclude practical nursing instruction on the secondary level; however, nurses aide programs were introduced at the secondary level in 1968 and enrollment has increased markedly.

Planned instruction coupled with practical experience in appropriate clinical situations are objectives in programs aimed at occupations which render service directly to patients. For occupations not directly involving patient contact, laboratory experience and/or appropriate work situations supplant the clinical experience phase of instruction.

Employment outlets exist in widely diverse settings including hospitals, clinics, nursing homes, industrial plants and offices, physician and dentist offices, as well as private homes.

Enrollment in Health Occupations Education



8023

VOCATIONAL INDUSTRIAL EDUCATION

Vocational Industrial Education seeks to prepare persons for initial employment or to upgrade or retain jobholders in industrial occupations ranging from power sawing to welding, from carpentry to graphic arts. The occupations with which it deals are skilled or semi-skilled and are concerned with laying out, designing, producing, processing, assembling, testing, maintaining, servicing, or repairing any product or commodity.

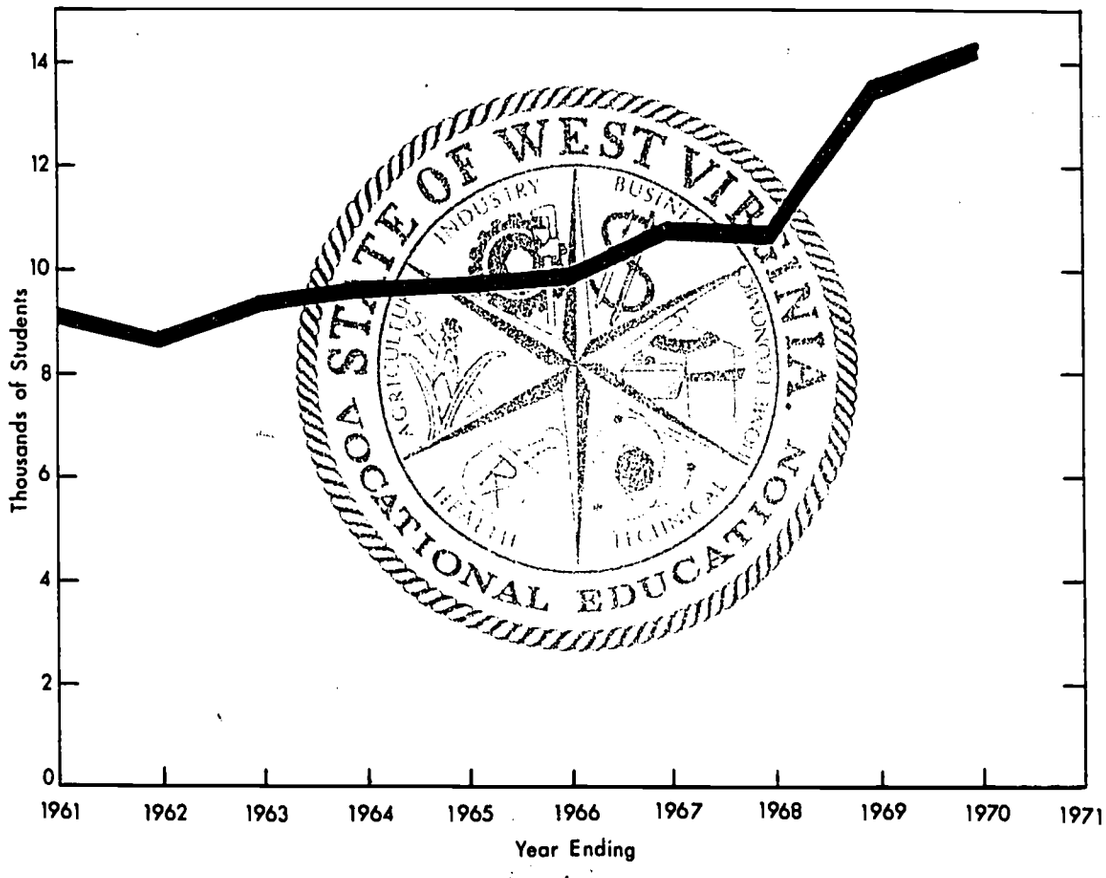
Within each occupational curriculum, students are provided instruction in basic manipulative skills, safety judgement, and related occupational information required to perform successfully in the occupation. Included is instruction for apprentices in apprenticeable occupations or for journeymen already engaged in a trade or industrial occupation. Also included is training for service and certain semi-professional occupations considered to be trade and industrial in nature. Classroom work is coupled with shop or laboratory experience designed to simulate industrial situations. Additionally, activities such as Vocational Industrial Clubs of America (VICA) provide opportunities to develop leadership, civic responsibility, other qualities, and an understanding of the world of work in industrial occupations. In 1970 alone, VICA membership increased by 28 per cent over the preceding year.

West Virginia Vocational Industrial Education programs have been offered primarily to secondary school students and adults. In recent years, however, some trend toward post-secondary programs has developed through the establishment of programs in mine maintenance and television repair.

The number of different occupational offerings has increased in recent years from eighteen to twenty-four. This has been largely the result of the establishment of new area vocational school facilities having the equipment needed for specific programs. Total enrollment also showed a considerable increase (56 per cent) in the ten-year period under consideration.

8024

Enrollment in Vocational Industrial Education



8925

TECHNICAL EDUCATION

Technical Education prepares people for employment opportunities in the employment area between the skilled craftsman and the professional person, and in recent years has had the greatest number of its students concentrated at the postsecondary level. The increasingly technical and specialized nature of the subject matter accounts for this enrollment pattern.

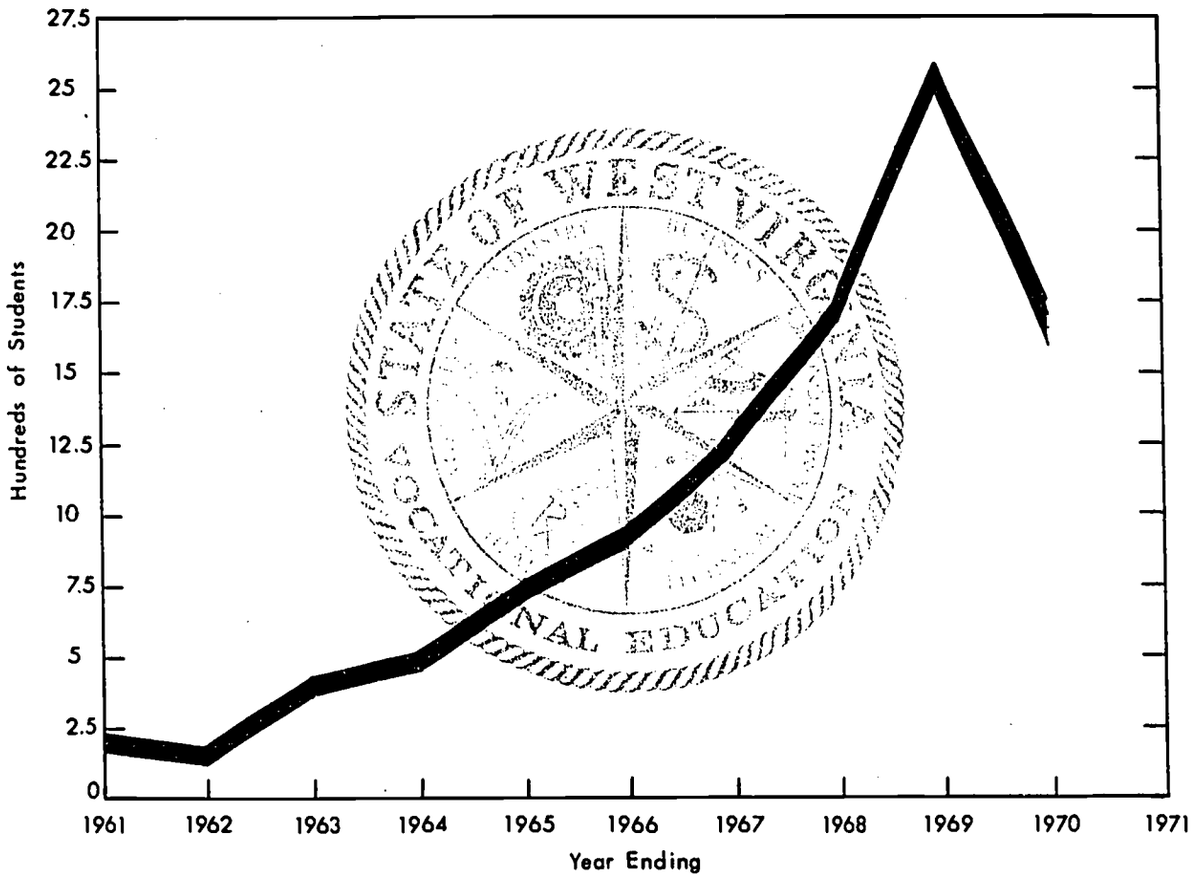
In Technical Education, the program of instruction normally includes the study of the underlying sciences and supporting mathematics inherent in a technology; it also encompasses methods, skills, materials, and processes commonly used and services performed in the technology. It may be considered more demanding than some other vocational areas inasmuch as it requires a planned sequence of study and, in addition to basic communications skills and related general education, an extensive knowledge in the field of specialization being pursued.

To meet the needs of the growing number of postsecondary students in Technical Education, expansion during the 1960's in this program area occurred for the most part in institutions of higher education. The number of colleges and universities offering Technical Education programs grew from a single school in 1965 to include seven schools in 1970. Enrollment figures in postsecondary programs in the years 1965 and 1970 show proportionate one to seven growth, though 1970 figures declined from the two preceding years. Secondary and adult Technical Education enrollment, also exhibited considerable growth during the 1960's though in recent years, the upward trend has shown signs of leveling off.

The Technical Education curricula are structured so as to prepare the graduate to enter a job and be productive with a minimum of additional training. It is also designed to prepare the technician to work in direct support of a professional; to keep abreast of technological advances; and, with a reasonable amount of experience and additional education, to advance into positions of increased responsibility.

Programs include work in the technological aspects of such diverse areas as broadcasting, data processing, electronics, and metallurgy.

Enrollment in Technical Education



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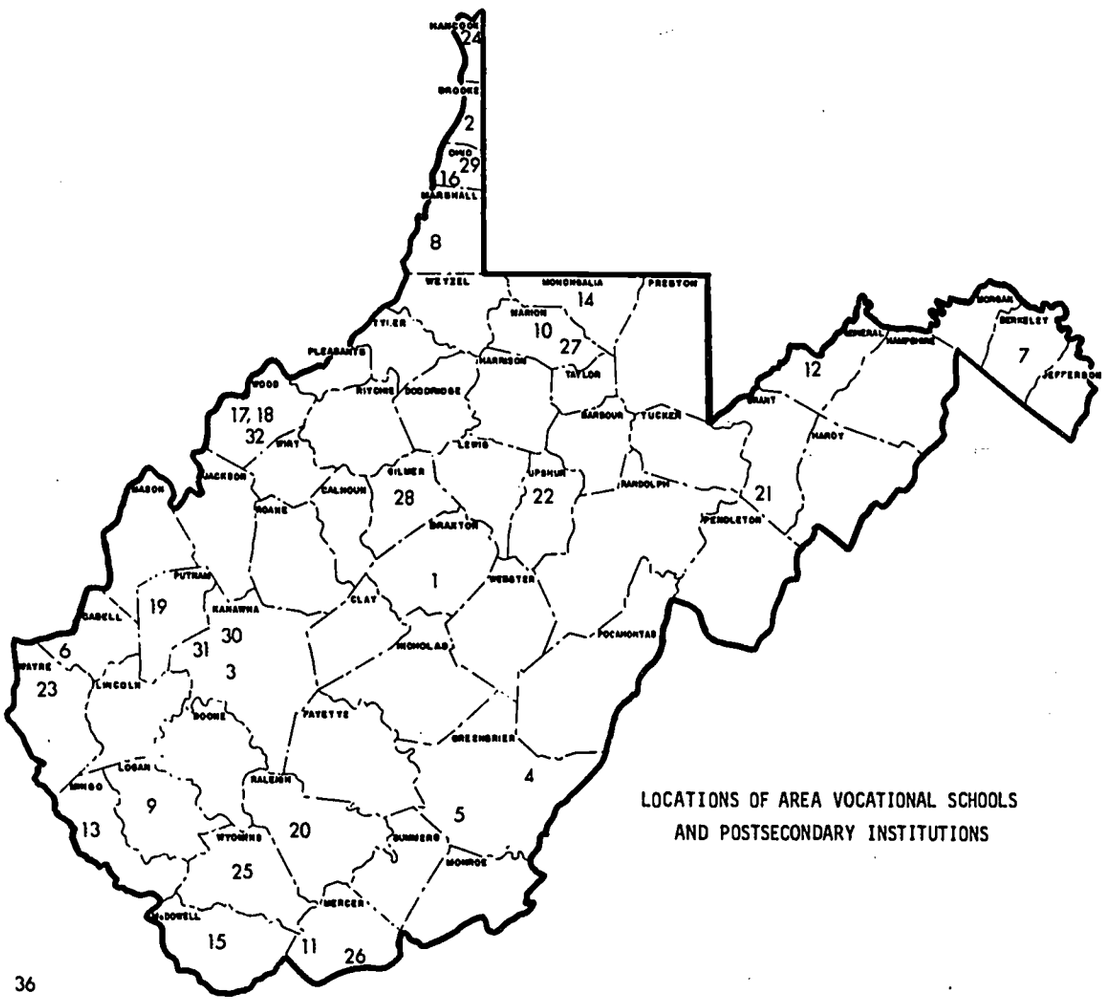

LOCATIONS OF AREA VOCATIONAL SCHOOLS
AND POSTSECONDARY INSTITUTIONS

8028

Vocational Education Curriculum Offerings

| AREA VOCATIONAL SCHOOLS AND POSTSECONDARY INSTITUTIONS
1 = Secondary
2 = Postsecondary
3 = Secondary and Postsecondary | VOCATIONAL AGRICULTURE | | | | | DE | BUSINESS AND OFFICE | | | | | HEALTH | | HOME ECONOMICS | | | | | | | | | | | VOCATIONAL INDUSTRIAL | | | | | | | | | | | | | | | | | | TECHNICAL | | | | | | | | | | | | | | | | | |

LEGISLATIVE STUDY

In 1967, the West Virginia Joint Committee on Government and Finance was directed to study the status of vocational, technical, and adult education and to make recommendations on their findings to the State Legislature. The thrust of the committee study was to be directed at the need for program development in these areas of education; the kinds of programs which would be feasible and advisable; and the ways and means of implementing any recommendations.

Recognizing the value of programs already in progress, the Committee also realized the pressing need to adapt existing programs and introduce new ones to adequately meet the demands imposed by rapidly advancing technology.

The Committee found and recommended that:

1. A new approach to occupational education be found.
2. Meaningful comprehensive general education needs be interwoven into the fabric of occupational education curricula.
3. Occupational education for secondary school age youths be made available in a high school and/or area vocational school; occupational education for the post-high school youths and adults be made available in appropriate institutions.
4. The Division of Vocational Education continue its efforts in curriculum and instructional materials development for occupational education programs.
5. Expansion of facilities may be necessary to provide curricula and materials for the enlarged scope of occupational education envisioned under the Vocational Education Act of 1963.
6. Occupational education programs are needed for secondary school students, for high school graduates, for high school dropouts, and for adults who need occupational updating, upgrading, or retraining.
7. Professional education be designed to discover and develop the educational competencies necessary for a good teacher.
8. Specialized student personnel services be provided in each institution offering occupational education to assure placement, follow-up, and other employment services.
9. Funds for vocational education come from the State Legislature in order to provide for the quantity and quality of programs needed in West Virginia.
10. West Virginia undertake an extensive plan of research and development in the field of occupational education.
11. A strong program of public information is needed immediately which will acquaint all persons in the State with the place and value of vocational education to the State's economy and its society.

These recommendations which touched on areas including programs, curricula, facilities, students, teacher education, research and others addressed the basic needs of vocational, technical and adult education. It was felt, too, that implementation of the recommendations in this study represented a forthright and logical approach to an important educational issue.

If you give a man a fish, he will have a meal.
If you teach him to fish, he will have a living.

If you are thinking a year ahead, sow seed.
If you are thinking ten years ahead, plant a tree.
If you are thinking one hundred years ahead, educate the people.

By sowing seed once, you will harvest once.
By planting a tree, you will harvest tenfold.
By educating the people, you will harvest one hundredfold.

Kuan-tzu
4th to 3rd century B.C.
China

VT 016 780
KENNINGTON, N. CRAIG; KEENE, RICHARD
DIVERSIFIED SATELLITE OCCUPATIONS PROGRAM AND CAREER DEVELOPMENT. INTERIM REPORT, VOLUME III.

UTAH STATE BOARD OF EDUCATION, SALT LAKE CITY. RESEARCH DIV.
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DESCRIPTORS - *DEVELOPMENTAL PROGRAMS; *DROPOUT PROGRAMS; *VOCATIONAL DEVELOPMENT; SECONDARY SCHOOL STUDENTS; POTENTIAL DROPOUTS; DROPOUT PREVENTION; TESTING; PARTICIPANT SATISFACTION; *EMPLOYER ATTITUDES; *STUDENT ATTITUDES; STATISTICAL DATA; DROPOUT EVALUATION

ABSTRACT - A PROJECT WAS DEVELOPED IN THE GRANITE SCHOOL DISTRICT, SALT LAKE CITY, TO HELP SECONDARY SCHOOL DROPOUTS AND POTENTIAL DROPOUTS BY PROVIDING PERSONALIZED INSTRUCTION, VOCATIONAL COUNSELING, AND WORK EXPERIENCE PROGRAMS. DUE TO THE SIZE AND DIVERSITY OF THE SCHOOL DISTRICT, THREE BUILDINGS WERE USED AS SATELLITE SCHOOL CENTERS FOR THE PROGRAM IN ADDITION TO THE JUNIOR AND SENIOR HIGH SCHOOL BUILDINGS. PRETEST AND POSTTEST DATA INDICATED THAT THE PROGRAM WAS OF LIMITED VALUE. NO ACADEMIC GAINS WERE DEMONSTRATED. JUNIOR HIGH SCHOOL STUDENT ATTITUDE TESTS ACTUALLY SHOWED MORE DROPOUT PRONENESS AT THE END OF THE PROGRAM THAN AT THE BEGINNING. HOWEVER, HIGH SCHOOL MALES DID EVIDENCE INCREASED EGO STRENGHT, AND EMPLOYERS RATED STUDENTS AS BEING NORMALLY SATISFACTORY. JOB PLACEMENT AND NORMAL JOB SATISFACTION AND SATISFACTORINESS OF STUDENTS WAS THEREFORE CONSIDERED ENCOURAGING. TEST AND PROGRAM STATISTICAL DATA ARE DETAILED IN THE REPORT. (MF)

VOLUME III

INTERIM REPORT

Project No. VO 61056
Contract Number OEG-0-70-5176 (361)

Diversified Satellite Occupations Program

and

Career Development

Exemplary Project in Vocational Education

Conducted Under

Part D of Public Law 90-576

Dr. N. Craig Kennington
Richard Keene
Utah State Board of Education
Division of Research and Development
1670 University Club Building
Salt Lake City, Utah 84111

VT016780

June 15, 1972

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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The project reported herein was performed pursuant to a contract with the Bureau of Adult, Vocational, and Technical Education, Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

Dr. N. Craig Kennington
Richard Keene
Utah State Board of Education
Division of Research and Development
1670 University Club Building
Salt Lake City, Utah 84111

June 15, 1972

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INTRODUCTION

Granite School District recognized the need to develop alternatives for the student who had left school or would probably leave school before completion because his most pressing needs were not being met by the school. A project utilizing personalized instruction, vocational counseling, and work study or work experience was developed. The project was submitted to the Commissioner for proposed funding under "Part D, P.L. 90-576, 1968 Amendments to Vocational Education Act of 1963." Called Diversified Satellite Occupations Program, the project was funded and activities initiated in the 1970-71 school year. The project was subsequently amended and refunded for the 1971-72 school year.

PROBLEM

Students with many types of deviant behavior find the range of treatment possibilities in the typical school limited. Misunderstood and unwanted they establish habit patterns that lead inevitably to dropping out or being forced to leave school.

Schools are understaffed without either the numbers of specially educated personnel required or the resources necessary to secure the treatment from other institutions for the individuals. Students whose behavior is disruptive to what the schools consider good order are required to leave school while others finding neither help nor satisfaction choose to leave school themselves.

PURPOSE OF THE PROGRAM

The primary purpose of this project was to provide viable alternatives for a student who has dropped out of school or who because of identifiable

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characteristics was predicted to leave school before completion.

OBJECTIVES TO BE ACHIEVED

The original proposal delimited the activities to four main areas of emphasis: occupational guidance, work experience, bilingual instruction, and instruction for handicapped.

Program and instructional level objectives were developed to focus staff activities on the most promising procedures.

Program Objectives

1. Provide a non-threatening, attractive, warm, physical setting in which to carry out the instructional activities.

2. Allow the participant to graduate from high school.

3. Enable the participant to obtain marketable job skills.

4. Provide counseling and therapy necessary for self-understanding, vocational choice, job placement, and social adjustment.

Specific Objectives

1. Identify those students ages 16-18 in Granite District who have left school or those ages 12-18 who have behavior profiles that indicate a high probability of leaving school before completion.

2. Determine the primary factors in each individual's case that could lead to school dropout.

3. Identify, adopt, adapt or develop procedures and materials that will be productive in assisting the individual student in solving problems blocking success in school.

4. Ascertain vocational preference and job fitness information for each participant.

5. Increase counselor/teacher's knowledge of and ability to utilize assessment techniques for ascertaining vocational aptitudes and interest.

6. Identify and develop training stations for a variety of occupational areas in which students will be placed to obtain a specific skill.

7. Place each job-ready student into a work experience or work study program.

8. Place each senior student who successfully completes the project into the appropriate entry level employment.

9. Coordinate the DSOP project with program for youth with handicapping conditions.

10. Provide appropriate vocational training program for all children either in special or regular programs.

PROCEDURES

Selection of Participants

A. Senior High School

Students were selected for the senior high school component on the basis of one or more of the following criteria:

1. The candidate was considered[1] by counselors and/or school psychologists to be an emotionally disadvantaged person.

2. The candidate was a school dropout and did not attend school for at least three months (while school was in session) prior to enrollment in DSOP.

---

[1]This judgment was based primarily on empirical evidence but subjective evidence was also given considerable weight.

3. The candidate was referred by the Juvenile Court Judge, who felt the program was the most appropriate placement to meet the particular needs of the individuals.

4. The candidate requested participation.

5. Parents approved of student's participation in the program.[2]

B. Junior High School

Students were selected for the senior high school component on the basis of one or more of the following criteria:

1. The candidate was considered[3] by counselors and/or school psychologists to be an emotionally disadvantaged person.

2. The candidate was a school dropout and did not attend school for at least three months (while school was in session) prior to enrollment in DSOP.

3. The candidate's past attendance record was an indicator of a negative attitude toward school.

4. The candidate exhibited one or more characteristics of a potential dropout.[4]

5. The candidate desired to pariticipate.

6. Parental approval was required for participation.

C. Elementary School

The elementary school program was an orientation and screening process in which all students in the sixth grade in the target schools participated.

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[2]Requirement.

[3]This judgment was based primarily on empirical evidence (Demos D), but subjective evidence was also given considerable weight.

[4]Utah SEA, Progress Report: Status of Career Development Program (Salt Lake City: Utah State Board of Education, 1972), p. 10.

Staff Review

The project staff interviewed each prospective enrollee and elicited data regarding physical disabilities, special talents, interests, occupational goals (if any), previous work experience, transportation possibilities, learning style and personality description.

Each student's record was reviewed and his highest grades earned during immediate preceding semester recorded and used as an interest indicator. The academic achievement log was used to predict his success probability in vocations utilizing these skills.

The students were given achievement (WRAT), attitude (Demos), levels of anxiety tests (IPAT) to identify weaknesses and strengths. This information was interpreted to each student and his parents for evaluation, self-appraisal and decision making as to possible vocational choices.

Staff Selection

The staff role in the program was very sensitive and conceived to be the primary determinent of a successful program. The functions outlined for staff to accomplish made it apparent that teachers with special qualifications were needed. The administrative staff established the following criteria for selection of teachers to participate in the program.

1. One who understood and knew how to cope with differences stemming from emotional, academic, social, and economic disadvantages.

2. One who was aware of the cultural, value, and personality systems of persons with special needs.

3. Could develop and expand work experience methods in vocational education and on-the-job training.

4. Accepted the concept that special methods and materials are necessary to serve disadvantaged persons.

5. Could observe and participate in social situations of persons with special needs.

6. Could develop and expand innovative programs which are nontraditional in nature to serve disadvantaged individuals.

7. Could explore and determine the availability of public and community resources which serve students with exceptional needs.

8. Could develop appropriate curriculum materials for each student.

9. Offered positive direction, consistency, honest appraisals, encouragement, and empathy.

10. Could evaluate progress towards goals and assess the effectiveness of established program and behavior measurements of individual students.

Central Staff Support

A central office staff was organized to administer, supervise and provide special support services for DSOP. This staff also coordinates some activities and services, hires and trains project staff, prepares reports, provides liaison, assists in participants selection, placement, and follow-up and administers the budget.

Satellite Centers

The physical size and population divergency of Granite School District made it imperative to develop centers accessible to main population centers. The three centers are represented on the map Figure 1 together with the high schools feeding the centers.

The buildings were leased by the district and renovated by the students and/or district maintenance staff to meet the physical requirements of the program. The inability to locate an acceptable building for the EAVC forced

Work study was used in all centers with students spending no more than one-half day at the Center.

PROJECT EVALUATION

Introduction

The evaluation design--techniques and instrumentation--for the DSOP program was selected on basis of appropriateness for measuring changes in the target student. The pre-post test design was used to ascertain educational attitudinal, or emotional changes. Student and employer questionnaires were used to determine respectively the employee's job satisfaction and the employer's satisfaction with the employee. Attendance data and successful school completion (graduation or job in vocation of choice) were also obtained for the high school program. Successful job placement was used as an indicator of adequate entry level skills and the success of the efforts of the staff to provide work experience for the students.

This author was assigned the task of evaluating the project after the data had been collected. Thus, the basis of the remainder of this report is based solely on the information provided in the preceding sections and the results of questionnaire and test data.

Method

Students were pretested near their time of entry into the program and post tested in May, 1972. The period of treatment thus depended upon time of entry. Withdrawals were not post tested. The sample of students tested was a function of administrative procedures and student attendance. It could not be assumed to be either random or unbiased. No control group was designated.

The instruments used were as follows:

Wide Range Achievement Test (WRAT)
- Reading
- Spelling
- Arithmetic

IPAT Anxiety Scale
- Q_2(-): Self-Control
- C^3(-): Ego Strength
- L: Alaxia-Protension
- O: Guilt Proneness
- Q_4: Ergic Tension
- Total Anxiety

Demos D
- "T": Attitudes toward Teachers
- "E": Attitudes toward Education
- "P": Influence by Peers or Parents
- "S": School Behavior

Minnesota Satisfaction Questionnaire (short form)
- Intrinsic Satisfaction
- Extrinsic Satisfaction
- General Satisfaction

Minnesota Satisfactoriness Scales
- Performance
- Conformance
- Dependability
- Personal Adjustment
- General Satisfactoriness

Results

The mean performance on the WRAT, IPAT, and Demos D questionnaires were computed for samples from four populations: junior high school males, junior high school females, high school males, and high school females. Dependent t-ratios were calculated for each subscale and are reported in Tables 1, 2, 3, and 4.

Post test scores on the Minnesota Satisfaction Questionnaires and Minnesota Satisfactoriness Scales were obtained for a sample of the high school students placed on jobs. The satisfaction subscale results were compared with the mean performance of a variety of normed samples, presumably

Table 1

Junior High School Males

Test	Variable	Mean Pre	Mean Post	S.D. Pre	S.D. Post	n	t	p
WRAT	Reading	85.56	86.24	11.14	11.33	25	0.75	n.s.
	Spelling	76.66	76.96	7.73	8.53	25	0.45	n.s.
	Arithmetic	73.76	76.80	6.80	7.41	25	2.51	<.02
IPAT	Q_3(-)	6.30	6.28	1.91	1.70	35	0.06	n.s.
	C(-)	7.30	7.42	2.22	1.93	35	0.26	n.s.
	L	7.10	6.39	1.60	2.19	35	1.96	n.s.
	O	6.00	5.97	1.45	1.76	35	0.09	n.s.
	Q_4	7.48	7.11	1.59	1.77	35	0.81	n.s.
	Total	6.73	6.56	1.24	1.56	35	0.59	n.s.
DEMOS D	Total	73.73	82.26	10.68	13.73	34	3.51	<.01
	"T"	27.63	30.91	4.79	5.86	34	3.26	<.01
	"E"	20.10	22.56	5.03	6.02	34	2.20	<.05
	"P"	13.34	13.91	3.07	3.12	34	0.94	n.s.
	"S"	13.15	14.88	3.07	3.51	34	2.90	<.01

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Table 2

Junior High School Females

Test	Variable	Mean Pre	Mean Post	S.D. Pre	S.D. Post	n	t	p
WRAT	Reading	92.60	92.48	12.06	12.07	23	0.13	n.s.
	Spelling	85.70	84.00	9.64	9.47	23	2.08	n.s.
	Arithmetic	79.67	78.13	10.35	9.63	23	1.37	n.s.
IPAT	Q_3(-)	6.74	6.90	1.67	1.54	30	0.52	n.s.
	C(-)	8.52	8.17	1.77	1.70	30	0.92	n.s.
	L	7.42	6.93	1.82	1.62	30	1.17	n.s.
	O	6.74	6.50	2.44	2.08	30	0.63	n.s.
	Q_4	8.32	8.23	1.54	1.50	30	0.24	n.s.
	Total	7.23	7.00	1.93	1.49	30	0.69	n.s.
DEMOS D	Total	78.23	82.10	14.75	15.63	30	1.39	n.s.
	"T"	28.90	29.60	5.74	6.47	30	0.54	n.s.
	"E"	20.16	22.60	6.08	5.12	30	2.30	$<.05$
	"P"	14.84	15.07	2.42	3.12	30	0.46	n.s.
	"S"	14.32	14.83	3.54	3.79	30	0.78	n.s.

Table 3

High School Males

Test	Variable	Mean Pre	Mean Post	S.D. Pre	S.D. Post	n	t	p
WRAT	Reading	103.28	107.06	21.31	18.08	43	1.98	n.s.
	Spelling	88.55	91.37	15.69	12.68	43	1.69	n.s.
	Arithmetic	87.55	86.41	15.26	11.93	38	0.51	n.s.
IPAT	Q_3(-)	6.25	6.02	1.90	1.74	51	0.90	n.s.
	C(-)	7.75	6.85	1.89	2.13	51	3.50	$<.01$
	L	6.25	6.13	2.09	2.20	51	0.41	n.s.
	O	5.38	5.10	2.24	1.88	51	1.21	n.s.
	Q_4	7.08	6.69	1.86	1.98	51	1.53	n.s.
	Total	6.47	6.12	1.71	1.82	50	1.92	n.s.
DEMOS D	Total	72.96	66.10	12.43	10.33	30	4.20	$<.001$
	"T"	26.69	22.33	5.11	4.28	30	5.20	$<.001$
	"E"	19.92	20.07	5.42	8.03	30	0.10	n.s.
	"P"	13.27	12.23	2.74	2.49	30	2.19	$<.05$
	"S"	13.27	12.90	2.88	2.68	30	0.81	n.s.

Table 4

High School Females

Test	Variable	Mean Pre	Mean Post	S.D. Pre	S.D. Post	n	t	p
WRAT	Reading	110.63	110.13	13.63	12.96	19	0.17	n.s.
	Spelling	97.89	111.71	11.32	61.15	19	1.07	n.s.
	Arithmetic	84.53	84.79	6.32	8.03	19	0.25	n.s.
IPAT	Q_3(-)	6.28	6.04	2.21	2.56	24	0.60	n.s.
	C(-)	7.36	7.83	2.10	2.33	24	1.33	n.s.
	L	6.76	6.00	2.22	2.95	24	1.52	n.s.
	O	6.08	6.25	2.22	2.33	24	0.41	n.s.
	Q_4	7.52	6.96	2.24	2.35	24	1.39	n.s.
	Total	6.40	6.21	2.14	2.62	24	0.57	n.s.
DEMOS D	Total	72.83	63.00	14.64	9.62	13	2.78	$< .02$
	"T"	25.54	19.62	5.52	5.92	13	3.45	$< .01$
	"E"	19.79	18.23	3.84	4.88	13	1.82	n.s.
	"P"	13.46	11.92	3.08	3.15	13	1.30	n.s.
	"S"	12.88	12.00	2.91	2.71	13	1.93	n.s.

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representing the approximate mean of all jobs.[6] The satisfactoriness subscales were compared with published national adult norms.[7]

The results are reported in Tables 5 and 6.

Table 5

Minnesota Satisfaction Questionnaire

	Subjects			National Norms		
	Mean	S. D,	n	Mean	S.D.	n(total)
Intrinsic	43.23	7.52	53	47.18	7.36	1723 in 7 populations
Extrinsic	21.06	6.94	53	19.81	4.83	1723 in 7 populations
General	71.45	12.56	53	74.74	11.84	1723 in 7 populations

Table 6

Minnesota Satisfactioriness Scales

	Subjects			National Norms		
	Mean	S.D.	n	Mean	S.D.	n
Performance	20.72	5.33	25	21.10	5.05	1000
Conformance	16.16	3.69	25	16.12	2.81	1000
Dependability	8.92	2.22	25	9.91	1.82	1000
Personal Adjustment	16.32	4.35	25	16.45	3.23	1000
General	64.08	13.07	25	65.75	10.96	1000

[6] David J. Weiss and Rene V. Dawis, Manual for the Minnesota Satisfaction Questionnaire, Industrial Relations Center Bulletin 45 (Minneapolis: University of Minnesota, 1967).

[7] Dennis L. Gibson and others, Manual for the Minnesota Satisfactoriness Scales, Industrial Relations Center Bulletin 53 (Minneapolis: University of Minnesota, 1970).

Attendance information for the high school subjects are reported in Table 7. This table also indicates the number of program completors, withdrawals, placements, and non-placements. Similar information on the individual centers are included as Appendix A.

Discussion

The difficulty of drawing conclusions from the preceding results should be made explicit. First, with no control data or alternate treatment results available, one must be cautious in interpreting change. Second, since this was a deviant group at the outset and since the selection of the high school subjects was partially dependent on Demos D scores, one would expect statistical regression toward the mean due to unreliability of test scores. Third, a perusal of the IPAT profiles indicated several severely disturbed individuals who would not be expected to remain stable. Regardless of the DSOP program, subjects with very high ergic tension and anxiety would be expected to obtain relief within a few months by one method or another.

Turning now to the high school data, no significant pre-post gains were observed in the three academic areas tested, namely, reading, spelling, and arithmetic. The academic training in reading and arithmetic appears to have been a failure. No significant change in IPAT Anxiety scores were observed except in male ego strength, which appears to have improved by about one-half standard deviation (one sten). This may be a significant and favorable program outcome. Significant changes were found for the high school females in attitude toward teacher and total score. Both of these apparent gains were slightly less than one standard deviation. (Low scores are more desirable.)[8] High school males showed apparent gains

[8]George D. Demos, The Demos D (Dropout) Scale (Los Angeles: Western Psychological Services, 1970).

Table 7

High School Subjects

Grade	12th		11th		10th		Total	
Completors	#	%	#	%	#	%	#	%
Placed	43	93%	77	92%	37	71%	157	86%
Not Placed	3	7%	7	8%	15	29%	25	14%
Total	46		84		52		182	
Withdrawals	#	%	#	%	#	%	#	%
Placed	29	69%	29	56%	28	51%	86	58%
Not Placed	13	31%	23	44%	27	49%	63	42%
Total	42		52		55		149	
Total Center	#	%	#	%	#	%	#	%
Placed	72	82%	106	78%	65	61%	243	73%
Not Placed	16	18%	30	22%	42	39%	88	27%
Total	88		136		107		331	
Totals	#	%	#	%	#	%	#	%
Withdrawals	42	48%	52	38%	55	51%	149	45%
Completors	46	52%	84	62%	52	49%	182	55%
Total	88		136		107		331	

on the total score, teacher, and parent and peers scales. These were less than one standard deviation in magnitude. All of these apparent Demos D effects might be expected as a result of statistical regression rather than treatment.

High school enrollment, placement, and completor data are difficult to evaluate. Overall 73% of the high school subjects were placed on jobs and 45% withdrew from the program. The job satisfaction and satisfactoriness of job-placed subjects was encouraging, but lack of control data should make us chary of interpretation. Tables 5 and 6 indicate that the general job satisfaction of the subjects and satisfactoriness of the employee as judged by the employer are about what is found for the normal adult population. This is an encouraging outcome.

The junior high school test results are dismal. The only significant pre-post academic change was found for males on the arithmetic subtest. This amounted to approximately one-half standard deviation improvement, an unimportant change. No pre-post changes of any magnitude were observed on the IPAT Anxiety Scales. Four Demos D attitude scales showed significant change: school behavior, attitudes toward education, attitudes toward teacher, and total score. All of these apparent changes were upward, indicating more dropout proneness at the conclusion than at the beginning of the program. The magnitude of these apparent changes was about one standard deviation or less.

Except for job placement, satisfaction, and satisfactoriness data, and high school male ego strength, the program appears of limited positive effect.

The job placement and employee satisfactoriness results are encouraging, showing marked positive results in one of the basic success criteria of the program.

CONCLUSION

Two favorable outcomes are evident from the test data: increased ego strength of high school males and normal employee satisfactoriness ratings made by employers. Significant academic gains are absent except for arithmetic gains (about one-half standard deviation) of junior high school males. This same sample shows a marked unfavorable change in Demos D (attitude) scores. Other Demos D score changes are probably attributable to statistical regression toward the mean rather than treatment effects. The overall effectiveness of the project appears to be slight. It may be, however, that some programs in the various centers were most effective but that the group treatment of the data may obscure the positive gains in the individual centers. The program does seem to succeed well in the work experience component of the project.

APPENDIX A

HIGH SCHOOL SUBJECTS

ATTENDENCE

PLACEMENT

COMPLETIONS

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C A V C Center

Grade	12th		11th		10th		Total	
Completors	#	%	#	%	#	%	#	%
Placed	11	92%	17	89%	2	67%	30	88%
Not Placed	1	8%	2	11%	1	33%	4	12%
Total	12		19		3		34	
Withdrawals	#	%	#	%	#	%	#	%
Placed	5	50%	14	61%	5	33%	24	50%
Not Placed	5	50%	9	39%	10	67%	24	50%
Total	10		23		15		48	
Total Center	#	%	#	%	#	%	#	%
Placed	16	72%	31	74%	7	39%	54	66%
Not Placed	6	28%	11	26%	11	61%	28	34%
Total	22		42		18		82	
Totals	#	%	#	%	#	%	#	%
Withdrawals	10	45%	23	55%	15	83%	48	59%
Completors	12	55%	19	45%	3	17%	34	41%
Total	22		42		18		82	

E A V C Center

Grade	12th		11th		10th		Total	
Completors	#	%	#	%	#	%	#	%
Placed	28	97%	36	95%	20	71%	84	88%
Not Placed	1	3%	2	5%	8	29%	11	12%
Total	29		38		28		95	
Withdrawals	#	%	#	%	#	%	#	%
Placed	18	78%	5	38%	5	55%	28	62%
Not Placed	5	22%	8	62%	4	45%	17	38%
Total	23		13		9		45	
Total Center	#	%	#	%	#	%	#	%
Placed	46	88%	41	80%	25	68%	112	80%
Not Placed	6	12%	10	20%	12	32%	28	20%
Total	52		51		37		140	
Totals	#	%	#	%	#	%	#	%
Withdrawals	23	44%	13	25%	9	24%	45	32%
Completors	29	56%	38	75%	28	76%	95	68%
Total	52		51		37		140	

W A V C Center

Grade	12th		11th		10th		Total	
Completors	#	%	#	%	#	%	#	%
Placed	4	80%	24	89%	15	71%	43	81%
Not Placed	1	20%	3	11%	6	29%	10	19%
Total	5		27		21		53	
Withdrawals	#	%	#	%	#	%	#	%
Placed	6	67%	10	63%	18	58%	34	61%
Not Placed	3	33%	6	37%	13	42%	22	39%
Total	9		16		31		56	
Total Center	#	%	#	%	#	%	#	%
Placed	10	71%	34	79%	33	63%	77	71%
Not Placed	4	29%	9	21%	19	37%	32	29%
Total	14		43		52		109	
Totals	#	%	#	%	#	%	#	%
Withdrawals	9	64%	16	37%	31	60%	56	51%
Completors	5	36%	27	63%	21	40%	53	49%
Total	14		43		52		109	

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JACOBSON, ROBERT E.; HODDICK, KENT F.
ADJUSTMENTS BY DAIRY MARKETING COOPERATIVES IN THE NORTH CENTRAL STATES.

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ABSTRACT - IN AN EFFORT TO EXAMINE THE OBJECTIVES AND EXISTING STRUCTURE OF THE MARKETING COOPERATIVES IN THE DAITY INDUSTRY IN THE NORTH CENTRAL REGION AND DETERMINE THE ADJUSTMENTS MADE BY THESE COOPERATIVES AS A RESULT OF MARKETING TECHNOLOGY AND COMPETITIVE FORCES, THIS STUDY WAS CONDUCTED. DATA WERE OBTAINED FROM QUESTIONNAIRES USED IN PERSONAL INTERVIEWS WITH 59 COOPERATIVE MANAGERS IN 9 STATES. A REVIEW OF THE FINDINGS INDICATED THAT: (1) THE GENERALLY ACCEPTED AIMS OF THE DAIRY COOPERATIVES WERE MAINTAINING A CONTINUOUS MARKET FOR MEMBERS' MILK AND STRIVING TO OBTAIN GREATER MARKET POWER AS THEIR SIZE INCREASED, (2) THE MOST CRUCIAL ADJUSTMENT MADE INVOLVED FEDERATION CONCESSIONS, AND (3) THE FACTORS INFLUENCING BARGAINING POWER WERE EXTERNAL AND INTERNAL, AND INVOLVED HAVING LOYAL MEMBERS AS WELL AS FEDERALLY REGULATED LAWS OUTLINING OPERATING RULES. (SN)

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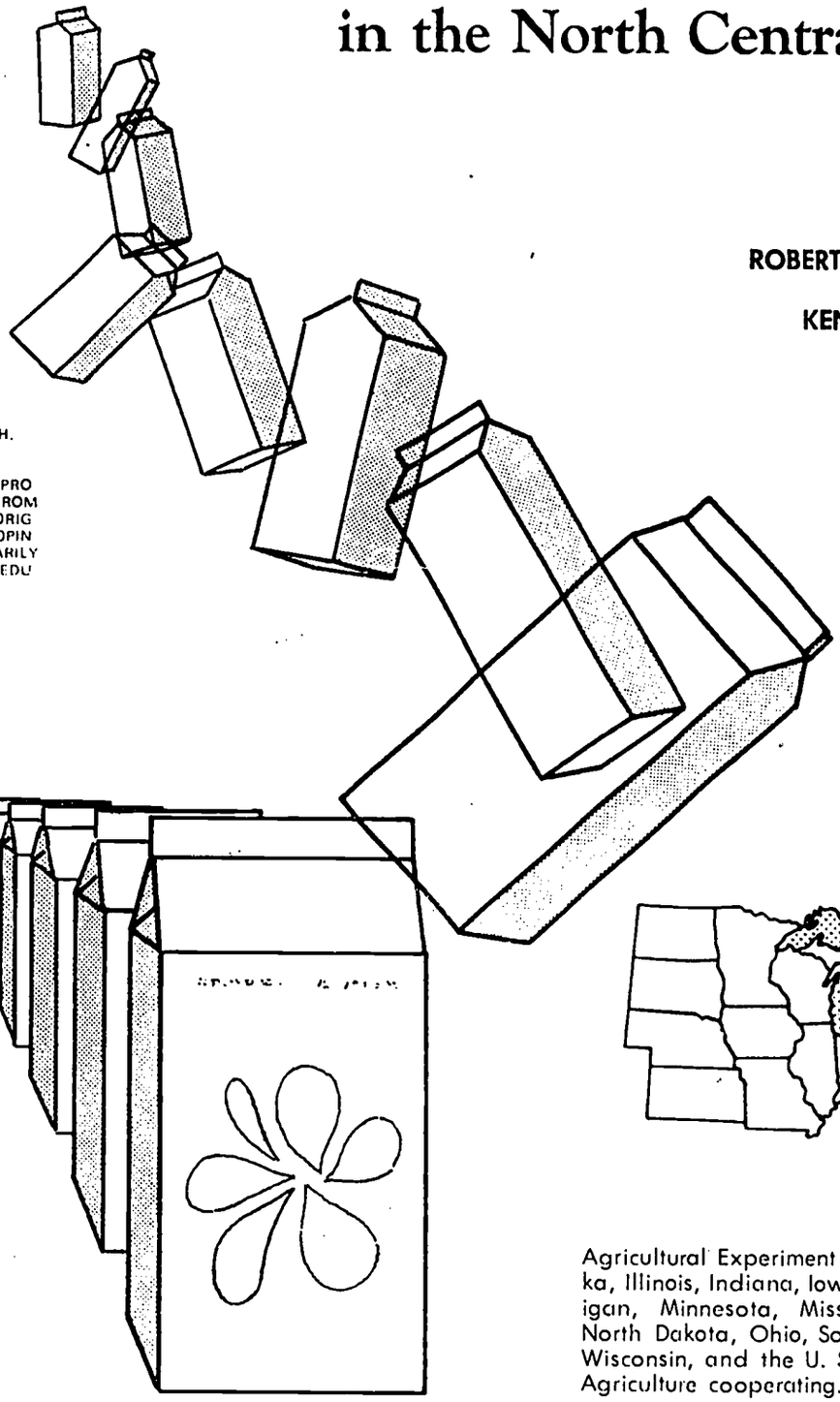

ROBERT E. JACOBSON

KENT F. HODDICK

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FOREWORD

This report is being published as part of the North Central Regional Project NCM-38, Dairy Market Adjustment Problems in the North Central Region. This is a cooperative study involving Agricultural Experiment Stations in the North Central Region and agencies of the U. S. Department of Agriculture.

Representatives from the following states and federal agencies participated in the study.

State Agricultural Experiment Stations

Roland W. Bartlett and James Gruebele---Illinois
Emerson Babb and Paul Farris---Indiana
George W. Ladd---Iowa
Paul L. Kelley, Paul Christ, and Joe W. Koudele---Kansas
John B. Roberts and Robert Beck---Kentucky
Glynn McBride---Michigan
E. Fred Koller---Minnesota
Stephen F. Whitted---Missouri
T. A. Evans---Nebraska
Gordon W. Erlandson---North Dakota
Elmer F. Baumer and Robert E. Jacobson---Ohio
Robert Beck---South Dakota
Hugh L. Cook and Truman F. Graf---Wisconsin

U. S. Department of Agriculture

Alden C. Manchester---Economic Research Service
Roland R. Robinson and Louis M. Smith---Cooperative State Research Service

Administrative Advisors

W. E. Krauss (Until March 1969)---Ohio
Howard W. Ottoson (Since March 1969)---Nebraska

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Adjustments by Dairy Marketing Cooperatives in the North Central States

ROBERT E. JACOBSON and KENT F. HODDICK[1]

INTRODUCTION

The most dramatic change in the dairy industry, particularly in the North Central Region, in recent years has been the explosive growth in size of dairy marketing cooperatives. Merger has been the primary means of achieving this growth. The merger of smaller cooperatives into large regional organizations apparently has been directed at developing more market power.

In part, the adjustments which dairy marketing cooperatives have been making have been in response to changes in other sectors of the milk market. Changes in the structure and operations of fluid milk processor-distributors have been one aspect of this response. The increasing emphasis on food store sales of fluid milk, coupled with the changing structure of the food store industry, has been another aspect of this response. These two sectors are analyzed in companion studies to this report.[2 3]

Basically, the purposes of dairy marketing cooperatives, as directly affected by new marketing technology, have been primary movers in the adjustments of these organizations. The historic isolated marketing concept which led to the organization of many dairy marketing cooperatives has disappeared. Transportation, refrigeration, uniform health regulations, communications, and bulk handling are among the factors which relate directly to operations of cooperatives. Each of these factors has been prominent in the move to expanded marketing areas. As marketing areas have expanded, so have procurement areas. To effectively pursue their marketing and bargaining objectives in this new setting, dairy marketing cooperatives have had to face up to major adjustment decisions. This study is concerned with dimensions of the adjustment decisions made by dairy marketing cooperatives.

[1]Professor and former Graduate Assistant, respectively, Department of Agricultural Economics and Rural Sociology, Ohio Agricultural Research and Development Center and The Ohio State University.

[2]Ladd, George W. and Robert L. Oehrtman. Oct. 1971. Factor Analysis of the Market Structure of the Fluid Milk Bottling Industry in the North Central Region. North Central Regional Research Pub. 210, Iowa State University of Science and Technology, 34 pages.

[3]Fallert, Richard F. Dec. 1971. A Survey of Central Milk Programs in Midwestern Food Chains. North Central Regional Research Pub. 211 and MRR 944, Economic Research Service, U. S. Dept. of Agriculture, 69 pages.

OBJECTIVES

Four basic purposes define the scope and intent of this study. These are:

1. To describe the current situation with respect to structure of dairy marketing cooperatives in the North Central Region.
2. To determine and examine the major objectives of dairy marketing cooperatives.
3. To determine and examine major areas of importance with respect to external and internal factors of bargaining power.
4. To examine and define adjustments which have taken place and to define possible adjustments in the future.

In addition, attention is directed to the changing structures of bottlers and food stores as they affect cooperatives. Finally, the attitudes of dairy cooperatives' management toward processors, unions, and food stores are examined.

CHANGING STRUCTURE OF MILK MARKETING COOPERATIVES

Cooperative marketing activity among milk producers has been and continues to be more important in total dollars than cooperative activity in any other farm enterprise. In the 1968-69 business year, dairy marketing cooperatives in the United States had sales amounting to $4,.42 million, exclusive of inter-cooperative sales.[4] Sales by dairy marketing cooperatives were equivalent to 76 percent of total dairy farmer cash receipts from marketings.

All farm marketing cooperatives in the United States in 1968-69 had net sales totaling more than $13.4 billion. Sales by dairy marketing cooperatives accounted for 34.5 percent of this total. Marketings of grain and soybeans by cooperatives were in second place, substantially behind dairy products, and accounted for 19.8 percent of cooperative marketings.[5] Therefore, the importance of cooperatives in marketing milk and dairy products is obvious.

The past two decades have seen marked changes

[4]Ackley, Richard M. Dec. 1970. Statistics of Farmer Cooperatives, 1968-69. FCS Report 16, Farmer Cooperative Service, U. S. Dept. of Agriculture, p. 15.

[5]Ibid, p. 13.

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TABLE 1.—Dairy Cooperatives in the United States: Number, Membership, and Sales, 1950-1968.*†

Year	Number of Dairy Co-ops	Total Memberships	Net Sales (Millions)
1950-51	1,928	814,000	$1,934
1959-60	1,541	663,000	3,956
1968-69	1,027	413,000	4,642

*Ackley, Richard M. Dec. 1970. Statistics of Former Cooperatives, 1968-69. FCS Report 16, Former Cooperative Service, U. S. Dept. of Agriculture, p. 4.

†Organization and Competition in the Dairy Industry. Tech Study 3, NCFM, June 1966, p. 45.

in the structure of dairy marketing cooperatives. Some of these changes are recorded in Table 1.

Since approximately 70 percent of all dairy marketing cooperatives in the United States are headquartered in the North Central Region, the data in Table 1 provide a fair overview of the changing cooperative structure in both the region and the nation. The number of dairy cooperatives decreased by 46.7 percent in the 1950 to 1968 period, reflecting the reorganizations and mergers going on in the industry. Total membership decreased by 49.3 percent, reflecting the exit from dairy farming. Net sales increased by 143 percent, reflecting both higher prices and a higher proportion of milk and dairy products being sold on a cooperative marketing basis.

While the total dairy marketing cooperative structure is effecting the changes just described, the focal point of major adjustments by milk co-ops in the Midwest is centered in a relatively few organizations. The organization and growth of these few organizations has occurred primarily in the 1965 to 1970 period, and further growth through merger has continued up to the present (1971). The types of cooperatives analyzed in this study, i.e., primarily Grade A milk and Class I market oriented, and the types of cooperatives engaged in this dynamic growth are closely related. The following section describes the more prominent federation and merger activities which have recently occurred in the North Central Region.

Federation Activities

1. Great Lakes-Southern Milk, Inc.: Both federation and merger are dimensions of the growth activity of dairy cooperatives. The initial venture into inter-cooperative pricing and marketing occurred with the federation of five cooperatives in Ohio and Michigan in 1960. This federation has since become Great Lakes-Southern Milk, Inc. At the present time, it has 16 member cooperatives representing 32,000 milk producers. In 1970, Great Lakes-Southern marketed 13.2 billion lb. of milk in an area which included Michigan, Ohio, and most of the Southeastern United States. Great Lakes-Southern has been concerned primarily with establishing Class I premium prices on an aligned basis across the market areas of member cooperatives. The federation has successfully and continuously implemented Class I price premiums from August 1, 1966, to the present time.

2. Associated Dairymen, Inc.: In 1964, a federation of 32 dairy cooperatives, stretching from Wisconsin to Texas, was organized under the name Associated Dairymen, Inc. The basis for federation at that time grew primarily out of the close working relationships which developed as dairy leaders responded to the 1963 U. S. Supreme Court decision on compensatory payments. The federation grew and engaged in various activities, including initial implementation of the Standby Pool in September 1967.

The rapid rate of merger of member cooperatives within Associated Dairymen has led essentially to the eclipse of this federation as such. Two major regional cooperatives have evolved out of the federation. These include Associated Milk Producers, Inc., formed by the merger of 11 cooperatives on November 1, 1969, and Mid-America Dairymen, Inc., formed initially by the merger of three cooperatives in the Kansas City area in early 1967.[6]

Other significant federation activities have been a part of the Midwest dairy industry. Some of these have been recent and have been concerned with pricing in fluid milk markets. Other federation activities have been historic and have included various marketing functions. For example, Land O'Lakes Creameries, Inc. was organized in 1921 as a federated dairy marketing cooperative to market butter. In 1970, Land O'Lakes realized more than $650 million in sales and handled a wide variety of dairy and food products. However, the scope of this study is limited to dairy cooperatives primarily involved in marketing bulk Grade A milk in fluid milk markets.

Merger Activities

In the North Central Region, most of the substantial merger activity in recent years can be described in terms of four organizations. These are Mid-America Dairymen, Inc.; Associated Milk Producers, Inc.; Dairymen, Inc.; and Milk, Inc. There are other major milk marketing cooperatives outside of these four cooperatives, e.g., Michigan Milk Producers Association, but recent growth through merger is identified primarily with the four groups mentioned.

1. Mid-America Dairymen, Inc.: The formation of Mid-America in early 1967 was the first in a series of mergers which has rapidly expanded the base

[6]Dairy Record, June 19, 1968, 69(2):7.

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and membership of this organization. The addition of Producers Creamery (Springfield, Mo.), together with two fluid milk cooperatives in the St. Louis market on July 1, 1968, plus the merging with Central States Dairy Cooperative (Omaha) and Twin Cities Milk Producers Association (St. Paul) in April 1970, represent the major actions in this growth.

As of mid-1971, Mid-America Dairymen, Inc., had grown to 24,000 producer members located in 13 states with marketings of 7.5 billion lb. of milk annually.[7] More than 30 dairy cooperatives (depending on what generation of merged organizations are counted) have been merged into this single marketing association.

2. **Associated Milk Producers, Inc.:** In March 1969, the initial moves toward putting Associated Milk Producers, Inc. together were underway. About a dozen dairy cooperatives were involved in these plans. The scope of the geographic area was emphasized by the fact that the largest two organizations participating were Milk Producers, Inc. of Dallas, Texas (8,000 members) and Pure Milk Association of Chicago (10,800 members). The merger was consummated November 1, 1969, when 11 cooperatives merged into one. In the process of the merger discussions, Mid-America considered but decided against merging with the AMPI groups.

In early 1971, the large Pure Milk Products Cooperative (Wisconsin) merged with AMPI to make Associated Milk Producers, Inc. (with 45,000 members) the largest dairy marketing cooperative in the United States. A significant aspect of the AMPI merger effort of nearly 30 organizations has been the bringing together of fluid milk interests in Texas and Oklahoma with total dairy interests in the upper Midwest. The AMPI organization now markets an estimated 14 billion lb. of milk annually.

3. **Dairymen, Inc.:** Dairymen, Inc. was formed by a consolidation of eight cooperatives on September 1, 1968, with members primarily located in Kentucky, Louisiana, Mississippi, Tennessee, and Virginia. Kyana Milk Producers Association (Louisville), which had been an active member of the Great Lakes Milk Marketing Federation, was one of the merging cooperatives. As a result of the merging of Kyana into Dairymen, Inc., Great Lakes suddenly found itself with a vastly expanded territory. The Great Lakes Milk Marketing Federation therefore changed its name to Great Lakes-Southern Milk, Inc.

Six other cooperatives have merged into Dairymen, Inc. since the initial consolidation. Dairymen, Inc. currently has 11 operating divisions, a total of 10,000 members, and membership from 13 states represented in the organization. Dairymen, Inc. is marketing an estimated 4 billion lb. of milk annually.

4. **Milk, Inc.:** Four of the member cooperatives of Great Lakes-Southern consolidated on January 1, 1970, to become Milk, Inc. The consolidating organizations included Milk Producers Federation (Cleveland); Northwest Cooperative Sales Association (Toledo); Akron Milk Producers Association; and Dairymen's Cooperative Sales Association (Pittsburgh-Charleston). Approximately 7,000 dairy farmers are members of Milk, Inc. and the organization markets close to 3 billion lb. of milk annually. The membership area extends to seven states.

Besides these types of federation-merger activities, other farm organizations have participated in dairy marketing and bargaining efforts in various degrees. For example, the National Farmers Organization, which came into being as a national bargaining group in 1959, is involved in milk bargaining activities. Such nationally based, multi-commodity types of associations of producers are not included in this analysis.

The substantial organizational adjustments which these specific federation and merger activities reflect are the focal point of this study. Many of the 59 cooperatives from which data have been gathered have either recently been involved in a merger or have since been involved in a merger. It is therefore possible to define some of the important parameters of the adjustment decision process.

METHODOLOGY

The data used in this analysis were generated from a questionnaire used in personal interviews with managers of cooperatives. Cooperatives were selected on the basis that the cooperative's major function was that of supplying milk to bottlers. This definition permitted cooperatives which process and package some of their milk to be included in the study. The final eligibility test was that the cooperative have a regular 12-month outlet for fluid milk. Interviews were conducted in 1968-69, even while many of the cooperatives were making major organizational adjustments.

It was intended that the complete population of eligible cooperatives in the North Central Region would be reported in this study. There finally were 59 valid schedules analyzed, and these were recorded in Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin.

The schedule consists of two parts: 1) descriptive information with respect to operations of the cooperatives, and 2) management opinions concerning adjustments affecting cooperatives.

[7] Hoard's Dairyman, Sept. 10, 1970, p. 921; March 25, 1971, p. 345.

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The descriptive information has been developed primarily in two areas of consideration. These include producer-oriented and dealer-oriented services and types of buyers for Class I milk.

The analysis of management opinions is based primarily on mean values and standard deviations obtained for 164 statements presented to the dairy cooperative managers for judgments of importance. The 164 statements represent 11 areas of inquiry. These include:

1. Objectives of cooperatives
2. Internal factors affecting bargaining power
3. External factors affecting bargaining power
4. Factors affecting adjustments by cooperatives
5. Adjustments made by cooperatives
6. Adjustments planned by cooperatives
7. Effects of changes by cooperatives on bottlers
8. Effects of growth and size of food stores on cooperatives
9. Reactions about fluid milk processors
10. Reactions about wholesale milk drivers' unions
11. Reactions about supermarket chains

Each statement was analyzed on the basis of all 59 observations, and was ranked against other statements in that area of inquiry. For example, one statement was presented to the managers in terms of the effect that control of farm-to-plant hauling by the cooperative would have upon bargaining power. This statement was one of 13 included among the internal factors affecting bargaining power. Managers were asked to rate this factor on a minus 99 (harmful) to a plus 99 (beneficial) scale. As a general arbitrary guideline to interpreting scores, responses in the —60 to —99 range were defined as very harmful, while positive scores in the 60 to 99 range were defined as very beneficial. Similarly, scores in the —20 to —60 range were moderately harmful, while positive scores in the 20 to 60 range were moderately beneficial. Scores in the —19 to +19 range, including zero, were defined as having little to no effect. The mean value response to this particular factor was +53, with a standard deviation of 38.

Two-thirds of the responses to each question were within one standard deviation of that question's mean score; one-sixth of the responses were below this range and one-sixth were above. Thus, if the mean score and standard deviation for a question were 53 and 38, the responses from two-thirds of the cooperatives were between 15 (53 minus 38) and 91 (53 plus 38), one-sixth of the responses were below 15, and one-sixth were above 91. These responses were then classified according to various organizational characteristics. Classifications reported in this study include number of members in the cooperative and percentage of Grade A milk in the procurement area marketed through the cooperative.

There are three categories for the size of membership classification. These include: small (0-200 members); medium (201-850 members); and large (851 or more members). Three classes were also defined in terms of the percentage of Grade A milk in the procurement area marketed through the cooperative. These include: low market share (20 percent or less); medium market share (30-59 percent); and high market share (60 percent and more). The 59 cooperatives were subjected to a two-way classification in terms of the size and market share classes. The distribution among classes is shown in Table 2.

Other classifications were considered but were not used. They provided no additional useful information.

In the analysis, emphasis is given to the *all-59 cooperatives'* responses rather than to differences among the nine sub-classes. In testing the hypothesis that means among the sub-classes differed significantly, only 11 of the 132 relevant variables tested on this basis reflected a significant difference. Therefore, means for the all-59 category are emphasized and are interpreted to indicate the overall judgment of cooperative managers toward a given factor. However, the tables present mean responses and standard deviations for the nine sub-classes of cooperatives as well as for all 59 cooperatives.

CHARACTERISTICS AND SERVICES OF DAIRY MARKETING COOPERATIVES

The average number of members in the cooperatives surveyed in this study was 1,231. The range in membership was from less than 200 to more than 13,000. The percent of milk in its procurement area marketed through the cooperative ranged from very small to almost 100 percent. However, on an average basis, only 42 percent of the milk in its procurement area was marketed through the cooperative.

In terms of the volume of milk marketed, the average cooperative grew by 13 percent in the 5 years prior to the interview and currently was marketing 284 million lb. of Grade A milk annually (some of the cooperatives also had substantial marketings of manu-

TABLE 2.—Distribution of Cooperatives According to Market Share and Size of Membership.

Size of Membership	Market Share		
	Low Market Share	Medium Market Share	High Market Share
Small Membership	5	8	4
Medium Membership	5	4	5
Large Membership	10	8	10

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facturing grade milk). With respect to the Grade A volume, an average of 80 percent was sold in bulk to fluid handlers, 16 percent was manufactured as surplus milk in the cooperative's own plant, and 4 percent was diverted as surplus milk to other plants.

Among the responding cooperatives, 23 had no surplus facilities and 36 had some type of surplus handling facilities. Twenty of the 36 cooperatives with facilities had a handling capacity of at least 125 million lb. per year.

Four additional characteristics of these dairy marketing cooperatives are:

1. Twenty-seven of the 59 cooperatives had been involved in a merger during the preceding 5 years. The annual market volume of milk for the merging cooperatives was increased by an average 32 percent as a result of the merger.

2. Forty-one of the cooperatives exacted Class I price premiums which averaged 30.5 cents per cwt. during 1967. Size of premiums among the 41 getting premiums ranged from 7 cents to 50 cents per cwt.

3. The major type of outlet for the dairy cooperatives was "the proprietary processor with more than one milk plant."

4. Only 40 of the 59 cooperatives had some form of contract with their producer-members. Further, only one-third of the dairy cooperatives with membership agreements indicated that they would be willing to enforce the agreement in court if necessary.

With respect to contracts with haulers, only one-third of the surveyed cooperatives had contracts with haulers which included assignment of producers and establishment of rates.

Producer and Dealer Services

The scope of the programs of the dairy cooperatives was gauged in terms of services provided to member producers and services supplied to customer milk dealers. Seventeen producer-oriented services were specified and the cooperatives indicated whether they provided these services. The producer services are ranked in order of frequency in Table 3.

More than two-thirds of the cooperatives reported that they provided 12 of the 17 producer services specified.

Table 4 indicates dealer services provided by the dairy cooperatives. Nine services are specified and these are ranked according to frequency of offering.

In connection with the dealer-oriented services, the cooperatives were asked to estimate the cost milk dealers would incur if they were performing these services themselves. The response of 43 cooperatives indicated that the services they provided had an average cost of 11.6 cents per cwt. The managers of the co-ops also estimated that their average service charge amounted to 10.06 cents per cwt.

TABLE 3.—Percent of 59 Cooperatives with Producer-Oriented Services.

Producer Service	Percent of Co-ops Providing Service
1. Provide market information to members	98
2. Represent in Federal order proceedings	95
3. Check testing and weighing producer milk	90
4. Bargain for super-pool premiums	84
5. Engage in promotional programs in local market	84
6. Deduct from producers for national advertising-promotion	84
7. Conduct quality control education and inspection programs	84
8. Sell farm supplies	81
9. Provide group life or health insurance	76
10. Bargain for service or handling charges	69
11. Directly haul or control hauling in farm to plant assembly	69
12. Help members improve production efficiency	69
13. Finance farm bulk tanks	50
14. Obtain credit for members	33
15. Provide credit for members	28
16. Provide disaster insurance for members	22
17. Operate seasonal pricing plan outside of Federal order	16

OBJECTIVES OF DAIRY MARKETING COOPERATIVES

The initial area of inquiry concerned the priority objectives of the dairy marketing cooperatives. Objectives of dairy co-ops have been identified in other studies.[8] In this analysis, managers of cooperatives were presented 21 factor statements which could possibly be cooperative objectives. The managers were asked to rate the harmful (—99) to beneficial (+99)

[8]Ladd, George W. and Hallberg, M. C. April 1967. Factors Affecting the Bargaining Power of Some Dairy Bargaining Cooperatives. Spec. Report 52, Iowa State University, p. 18.

TABLE 4.—Percent of 59 Cooperatives with Dealer-Oriented Services.

Dealer Service	Percent of Co-ops Providing Service
1. Insure delivery of high quality milk	93
2. Write producer checks	79
3. Deliver or control delivery of milk to bottling plant	74
4. Divert surplus	69
5. Full supply agreement	53
6. Operate supply-equalization plant	52
7. Standardize fat content of milk	28
8. Manufacture ice cream mix	24
9. Package fluid milk products for sale to dealers	19

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TABLE 5.—Objectives of Dairy Cooperatives: Mean Values and Standard Deviations for All 59 Cooperatives and Nine Sub-classes of Cooperatives, Based on Scale of —99 to +99.*

Objective	All 59	Low Share Small Size	Low Share Medium Size	Low Share Large Size	Medium Share Small Size	Medium Share Medium Size	Medium Share Large Size	Large Share Small Size	Large Share Medium Size	Large Share Large Size
1. Negotiating price which will give members the highest net return for milk this year	77 (23)	82 (15)	82 (17)	78 (27)	66 (24)	65 (34)	76 (18)	95 (5)	85 (26)	75 (25)
2. Maintaining a continuous market for members' milk	87 (17)	97 (4)	84 (16)	90 (13)	76 (26)	94 (10)	86 (18)	81 (28)	85 (21)	92 (9)
3. Obtaining largest possible Class I sales	74 (36)	86 (16)	87 (12)	76 (31)	61 (43)	90 (11)	66 (43)	70 (47)	48 (74)	89 (9)
4. Securing as nearly 100 percent control of milk produced in procurement area as possible	61 (46)	42 (35)	38 (80)	67 (41)	39 (72)	43 (39)	72 (39)	56 (39)	74 (19)	90 (13)
5. Increasing the size of the procurement area	23 (46)	38 (79)	30 (37)	37 (36)	— (60)	25 (19)	—4 (46)	44 (33)	6 (13)	37 (42)
6. Obtaining for producers the estimated value of services performed for handlers	55 (34)	68 (39)	56 (35)	64 (30)	42 (34)	60 (36)	50 (41)	69 (46)	47 (41)	51 (29)
7. Maintaining good relations with handlers	76 (24)	88 (13)	74 (26)	77 (21)	77 (27)	85 (10)	59 (29)	93 (7)	65 (41)	79 (20)
8. Improving efficiency in milk procurement and assembly	70 (34)	55 (78)	84 (16)	78 (19)	75 (27)	58 (26)	53 (35)	69 (46)	80 (32)	73 (26)
9. Helping members to adjust to changing conditions	65 (31)	79 (28)	60 (40)	57 (34)	62 (39)	70 (12)	52 (31)	93 (7)	70 (30)	62 (29)
10. Making better market information available to members	71 (29)	70 (37)	56 (29)	68 (28)	75 (35)	75 (19)	51 (32)	93 (7)	76 (33)	84 (12)
11. Securing control of as much milk sold in major market as possible	59 (35)	24 (30)	60 (37)	73 (29)	26 (29)	53 (41)	67 (31)	63 (42)	68 (39)	79 (19)
12. Providing standby manufacturing facilities for market	55 (37)	36 (29)	62 (30)	50 (45)	67 (38)	33 (30)	59 (34)	0 (41)	81 (19)	70 (19)
13. Processing as much milk into manufactured products as possible	—26 (58)	—42 (81)	—34 (53)	—1 (59)	—29 (66)	—45 (41)	—35 (55)	59 (41)	—33 (30)	—51 (47)
14. Manufacturing as much as possible of members' Grade A milk which has to be manufactured	36 (58)	—22 (87)	38 (59)	52 (42)	34 (66)	—20 (54)	54 (34)	19 (89)	61 (44)	54 (43)
15. Reducing intermarket competition among cooperatives	61 (44)	54 (43)	48 (65)	56 (47)	82 (27)	—15 (30)	71 (37)	63 (42)	68 (41)	81 (18)
16. Negotiating intermarket agreements with other cooperatives to maximize prices to farmers	76 (32)	84 (22)	80 (20)	65 (49)	73 (35)	87 (9)	85 (17)	93 (7)	74 (42)	75 (34)
17. Merger or consolidation with other cooperatives as means of increasing farmers' bargaining power	58 (48)	50 (59)	18 (73)	75 (28)	37 (60)	70 (25)	58 (31)	47 (55)	58 (77)	84 (20)
18. Increasing control over hauling in order to strengthen bargaining power	41 (37)	54 (45)	40 (37)	55 (38)	21 (25)	30 (35)	19 (17)	47 (55)	45 (44)	57 (36)
19. Represent producers effectively in Federal order hearings and in legislation	80 (22)	87 (16)	78 (20)	72 (34)	75 (29)	80 (14)	82 (16)	95 (5)	85 (16)	80 (23)
20. Gain prestige as the largest cooperative in the market	15 (47)	—32 (41)	0 (58)	30 (40)	—11 (28)	0 (65)	37 (41)	45 (52)	20 (35)	24 (46)
21. Gain prestige as the sole supplier of major handlers in the area	13 (47)	—18 (49)	—20 (58)	28 (62)	—6 (28)	—10 (20)	38 (40)	23 (45)	24 (43)	26 (40)

*In each case, the mean is the first reported value; the standard deviation is in parentheses directly below the mean.

effect (in a relative sense) that the achievement of each possible objective would have upon the cooperative. The responses both identified and ranked objectives.

Table 5 indicates the means and standard deviations for each objective for all 59 cooperatives. In addition, means and standard deviations for each of the nine sub-classes of cooperatives are reported. The 21 objectives listed in Table 5 are not ranked but are reported in the same order as in the questionnaire.

For all 59 cooperatives together, the objective *maintaining a continuous market for members' milk* recorded the highest mean (+87) and one of the lower standard deviations (±17). On an arbitrary basis, the eight objectives listed in Table 5 having means of 68 or higher are defined as major objectives. These major objectives have the higher mean values and have relatively small standard deviations. A second set of objectives having mean values ranging from 64 to 54 are defined as minor objectives. The remaining possible objectives, all with means of 41 or less and with generally high standard deviations, do not appear to reflect any significant priority as far as managers are concerned.

The eight major objectives do not represent any single thrust on the part of cooperative management. However, five of the eight major objectives, including Nos. 1, 2, 3, 16, and 19 in Table 5, indicate a strong price orientation. Among the minor objectives, four of those seven objectives, including Nos. 4, 11, 15, and 17, also imply a strong price orientation. These observations are not surprising since pricing, whether in an historic marketing sense or in a more recent bargaining sense, is acknowledged to be a basic function of dairy cooperatives.

For the nine sub-classes of cooperatives categorized in Table 5, the data vary so that no single generalization for all 21 objectives taken together is possible. In a number of instances, each size-concentration sub-class of cooperatives reflects some agreement with the other sub-class for a given objective. For example, objective 1, i.e., *negotiating a price which will give members the highest net return for milk this year,* received positive scores ranging from a low mean of 65 for the "medium share-medium size" sub-class to a high mean of 95 for the "large share-small size" sub-class. The range in means among sub-classes for several of the objectives is similar to that of objective 1.

For nine of the objectives, the range in means among sub-classes exceeds 50 points. These include objectives Nos. 4, 11, 12, 13, 14, 15, 17, 20, and 21. A review of these nine objectives indicates that a primary focus of all nine of these objectives is the strength or power position of dairy cooperatives in the market. The range in means suggests some difference in thinking among managers with respect to marketing power objectives.

As the sub-classes moved to increased size and concentration, manager responses generally scored higher for these nine objectives. It is therefore observed that managers of the larger and more concentrated cooperatives appeared more sensitive to the expected effect of achievement of the several market power objectives than the other managers. For example, the average mean of these nine objectives for the "low share-small size" cooperatives was 10.2; the average mean of these nine objectives for the "large share-large size" objectives was 50.7.

BARGAINING POWER OF COOPERATIVES

The major emphasis on bargaining and bargaining power by milk marketing cooperatives in recent years indicates that the various internal and external (to the cooperative) factors affecting bargaining power should be evaluated. In approaching the management of cooperatives on this subject, bargaining power was not defined but was left to their individual interpretations. However, the implicit definition of bargaining power in the interview process was "the degree of influence one party has over another to force . . . concessions, or the ability to effect agreements on one's own terms. . ."[9]

Factors affecting bargaining power were categorized as either internal or external. Internal factors represent those factors which are within the context of the cooperative organization and over which the cooperative can be expected to have a substantial degree of control. External factors are those factors outside of the organization of the cooperative which directly affect the ability of the cooperative to bargain.

Internal Factors Affecting Bargaining Power

Thirteen statements were presented to managers of cooperatives on internal factors affecting bargaining power. For all 59 cooperatives, the statement *having loyal members in the cooperative* easily ranked as the most beneficial factor in the bargaining position of the organization (Table 6). This factor had the highest mean (89) and the lowest standard deviation (14) among the 13 factors. Interestingly enough, the lowest ranking factor (mean = 37) was *the cooperative's being willing to enforce the membership contract in court.* Thus, the highest and lowest ranking internal factors related to member relations. Obviously, the management of cooperatives felt that strong member-cooperative relations were crucial to bargaining power, and that legal recourse in enforcement of membership contracts was not a generally desirable means of enhancing bargaining power.

[9]Ladd, op. cit., p. 5.

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The responses of management to the internal factor statements are reported in Table 6. For all 59 cooperatives, 11 of the 13 factors received considerable support as having a beneficial effect upon bargaining power (means of higher than 60). However, the factor of *control of farm-to-plant hauling by the cooperative,* as well as the contract enforcement factor, reflected a lower estimated effect. An inference could be drawn from these relative responses that management is reluctant to confront membership in some areas of marketing, including assignment and hauling of member milk.

Most of the responses for all 59 cooperatives on the internal factor question also describe the responses among the nine sub-classes. However, three items are notable:

1. The first factor, *having a high percentage of Grade A milk in the procurement area marketed through the cooperative,* received a substantially strong response from those cooperatives with the higher market share. For example, the simple average mean for the three "large share" sub-classes on statement 1 was 7, while this same measure for the "low share" and "medium share" sub-classes was 63 and 67 respectively.

2. For the fifth factor, *the cooperative's being willing to enforce the contract in court,* the "medium share" cooperatives were more reluctant to engage in court action than the "small share" and "large share" sub-classes. This may indicate that cooperatives fitting the "medium share" classification are in a relatively more competitive situation with other cooperatives for members, and therefore are more reluctant to strain member relations.

3. For cooperatives fitting the three "small size" sub-classes, a lower priority was assigned to those factors associated with facilities for handling and processing milk.

External Factors Affecting Bargaining Power

The effect of external factors on bargaining power of cooperatives was measured by advancing 16 state-

TABLE 6.—Internal Factors Affecting Bargaining Power: Means and Standard Deviations for All 59 Cooperatives and Nine Sub-classes of Cooperatives.

Factor	All 59	Low Share Small Size	Low Share Medium Size	Low Share Large Size	Medium Share Small Size	Medium Share Medium Size	Medium Share Large Size	Large Share Small Size	Large Share Medium Size	Large Share Large Size
1. Having a high percentage of Grade A milk in procurement area marketed through cooperative	74 (27)	54 (41)	60 (28)	76 (28)	67 (28)	55 (41)	80 (19)	96 (4)	82 (14)	83 (14)
2. Control of farm-to-plant hauling by the cooperative	53 (38)	68 (24)	24 (33)	55 (40)	51 (43)	45 (52)	38 (30)	64 (35)	82 (20)	55 (45)
3. Having facilities for storing and processing of manufactured milk	62 (37)	30 (30)	60 (31)	80 (24)	57 (41)	35 (30)	64 (42)	23 (61)	92 (20)	79 (16)
4. Having a written, legally enforceable contract with members	66 (33)	64 (35)	62 (48)	62 (29)	45 (41)	82 (17)	56 (34)	62 (43)	87 (17)	82 (23)
5. Being willing to enforce the contract in court	37 (50)	42 (49)	36 (58)	42 (53)	9 (54)	10 (87)	34 (37)	45 (42)	67 (45)	50 (42)
6. A favorable attitude toward the contract by members	72 (32)	68 (35)	42 (39)	75 (24)	55 (41)	85 (5)	73 (36)	95 (5)	87 (12)	76 (32)
7. Having loyal members in the cooperative	89 (14)	97 (4)	80 (21)	89 (15)	87 (15)	83 (5)	97 (4)	97 (5)	91 (10)	85 (18)
8. Having adequate capital and credit available which the co-op may use to build processing or other milk handling facilities	69 (34)	48 (50)	86 (16)	79 (23)	53 (47)	45 (41)	67 (36)	60 (45)	85 (21)	83 (14)
9. Large volume of milk under control of the cooperative	68 (35)	22 (61)	82 (25)	71 (36)	52 (41)	60 (29)	75 (25)	80 (27)	76 (15)	81 (18)
10. Being able to provide handlers with desired services	74 (25)	64 (35)	82 (20)	79 (25)	54 (32)	78 (13)	69 (28)	85 (23)	84 (11)	78 (17)
11. Cooperative has an effective public relations program	70 (26)	84 (11)	64 (32)	65 (31)	70 (29)	73 (15)	59 (25)	80 (27)	74 (37)	77 (23)
12. A good cooperative newsletter for members	69 (26)	52 (29)	66 (35)	67 (29)	67 (32)	75 (10)	63 (25)	85 (17)	70 (20)	77 (23)
13. Good relations with other agricultural bargaining groups or organizations	71 (29)	89 (17)	70 (33)	70 (29)	57 (35)	83 (5)	64 (35)	95 (5)	67 (27)	67 (35)

ments to managers relative to the apparent external considerations in bargaining. The responses are recorded in Table 7 for all 59 cooperatives and for the nine sub-classes of cooperatives.

For all 59 cooperatives, seven of the factors were reported to have beneficial effects upon bargaining while nine factors were reported to be harmful to bargaining. The most beneficial factor was that of *having Federal order regulation* (mean = 74). At the same time, the factor *not having government regulation* had a mean of —46, indicating a strong judgment that the absence of regulation was harmful to the bargaining power of cooperatives. However, a negative response (mean = —6) to the factor *having state milk control* clearly reveals that managers of cooperatives believe that the type of regulation beneficial to their bargaining power is Federal and not state.

Most of the other beneficial factors were associated with the idea of close and formal working relationships with other dairy marketing cooperatives. For example, the factor *having a federation or good working relationship with other fluid milk cooperatives* gained the second highest positive mean (70) among the several factors.

Existence of other source milk and competition from other markets, including substitutes, clearly revealed themselves as the major external limits on bargaining power. The factor *handlers easily able to obtain milk from other sources* recorded the strongest negative mean (—62) for all 59 cooperatives. Three

TABLE 7.—External Factors Affecting Bargaining Power: Means and Standard Deviations for All 59 Cooperatives and Nine Sub-classes of Cooperatives.

Factor	All 59	Low Share Small Size	Low Share Medium Size	Low Share Large Size	Medium Share Small Size	Medium Share Medium Size	Medium Share Large Size	Large Share Small Size	Large Share Medium Size	Large Share Large Size
1. Having Federal order regulation	74 (31)	76 (20)	70 (33)	75 (33)	26 (42)	90 (8)	90 (.9)	85 (23)	84 (16)	83 (17)
2. Having State milk control	—7 (53)	—18 (84)	16 (67)	10 (43)	—35 (55)	—10 (20)	—8 (44)	12 (62)	—26 (67)	—5 (41)
3. Not having government regulation	—46 (51)	—52 (66)	—22 (74)	—48 (50)	—11 (55)	—55 (44)	—70 (38)	—66 (45)	—36 (58)	—61 (29)
4. Large size of milk processing firms	6 (53)	34 (78)	38 (55)	—3 (59)	4 (35)	—20 (28)	—6 (44)	55 (40)	—4 (66)	—10 (46)
5. Large size of food retailers	—24 (50)	—60 (36)	—56 (40)	—32 (47)	—6 (58)	—38 (43)	—25 (48)	26 (63)	—3 (64)	—22 (43)
6. Price advantage of handlers in one market which gives them a competitive advantage in another market	—51 (38)	—52 (37)	—58 (43)	—51 (38)	—49 (31)	—53 (38)	—49 (33)	—75 (28)	—51 (47)	—42 (51)
7. Active competition from handlers in other markets	—23 (48)	—8 (67)	—34 (38)	—47 (45)	—35 (40)	—8 (44)	—17 (41)	—19 (38)	2 (39)	—18 (64)
8. Successful bargaining by cooperatives in other markets in the area	57 (43)	64 (32)	54 (42)	65 (42)	42 (53)	53 (38)	65 (28)	86 (10)	34 (68)	55 (47)
9. Presence of large quantities of manufacturing grade milk in the area	—36 (40)	—50 (22)	—52 (30)	—13 (33)	—49 (37)	—25 (30)	—44 (31)	—83 (23)	0 (43)	—31 (49)
10. Having a federation or other good working relationship with other fluid milk cooperatives	70 (30)	82 (11)	68 (33)	74 (32)	66 (32)	85 (10)	64 (33)	85 (17)	86 (13)	53 (39)
11. Presence of substitutes such as filled and imitation milk	—55 (35)	—68 (36)	—74 (32)	—56 (37)	—70 (35)	—60 (43)	—44 (36)	—71 (25)	—30 (37)	—39 (29)
12. Having good relations with other agricultural bargaining groups or organizations	54 (37)	44 (71)	64 (35)	51 (37)	59 (36)	40 (28)	45 (27)	90 (8)	53 (42)	54 (35)
13. Joint bargaining negotiations among cooperatives in the area or region	69 (33)	82 (17)	60 (42)	75 (32)	59 (39)	80 (16)	67 (33)	70 (47)	71 (41)	65 (33)
14. Joint sales program with other cooperatives in the area or region	56 (37)	52 (29)	44 (45)	67 (37)	54 (44)	70 (20)	58 (35)	45 (52)	49 (46)	56 (38)
15. Large proportion of milk sold through stores	—7 (43)	—4 (46)	—14 (43)	7 (58)	—12 (22)	—10 (20)	—24 (31)	10 (58)	11 (42)	—15 (52)
16. Handlers easily able to obtain milk from other sources	—62 (35)	—76 (22)	—60 (51)	—70 (26)	—53 (37)	—38 (43)	—70 (27)	—74 (23)	—35 (56)	—66 (27)

other closely related factors (Nos. 6, 7, and 9 in Table 7) also recorded strong negative responses.

The factor *presence of substitutes such as filled and imitation milk* was of substantial concern to the managers (mean = —55). Since the questionnaire was taken at a time when filled milk was a significant factor in the market, responses to this statement were influenced by that fact.[10]

The *large size of milk processing firms* (mean = 6) was not particularly bothersome to managers concerning their bargaining position. However, more concern was expressed with the size of food retailers (mean = —24) as compared to milk processing firms. This may be due to the obvious advantages which food chains have in negotiating for milk supplies, and the continuing question of how extensively food retailers are going to integrate into milk processing.

In almost all instances, the means for the 59 cooperatives provided a reasonable picture of the responses for all nine sub-classes. However, there were two exceptions. First, while the *large size of milk processing firms* reflected a low overall concern, management became increasingly sensitive to larger processing firms as a bargaining factor as cooperatives increased in size. Second, the factor *active competition from handlers in other markets* was of greater concern to the sub-classes of cooperatives having lower percentages of Grade A milk in the procurement area marketed through the cooperative. Apparently those cooperatives with higher market shares could be more indifferent to the impact of outside packaged milk as far as their bargaining position was affected.

ADJUSTMENTS BY MILK MARKETING COOPERATIVES

Milk marketing cooperatives have been and are undergoing major organizational and operational adjustments. These adjustment activities are apparently in part a matter of co-op initiative and in part a matter of response to changing market conditions. In this study, three dimensions of the adjustment question are investigated. These include: factors affecting adjustments by cooperatives, adjustments made by the cooperatives, and adjustments planned by the cooperatives.

Factors Affecting Adjustments by Cooperatives

Eighteen factors were presented to managers of cooperatives to ascertain the effect a given factor would have *upon the making of adjustments by cooperatives*. The response of management to these suggested factors is presented in Table 8 for all 59 cooperatives and the nine sub-classes of cooperatives.

For all 59 cooperatives, 10 of the 18 factors showed positive means. The important factors influencing adjustments were the availability of capital and credit to the cooperative. The factor *having a good source of credit available* recorded the highest ranking mean (71), and the factor *having small amount of capital and reserves* recorded the lowest ranking mean (—62).

Other high ranking factors (means of 60 or higher) related to the membership educational program and to having innovative employees, directors, and members.

Size and growth considerations figured as factors in the adjustment process. *Large size of cooperative* was viewed as beneficial (mean = 42) and *small size of cooperative* was viewed as harmful (mean = —32) to the making of adjustments. At the same time, the factor *having growth as an objective* received a positive score (mean = 52). However, the intermediate values of scores for these factors do not imply the higher priority which might have been hypothesized concerning their role in adjustment.

While lack of capital was the first ranking deterrent to adjustment, *loss by the cooperative of Class I sales in regular market* ranked as second (mean = —49). The standard deviation (50) associated with this factor indicates a wide range of opinion about this factor. It seems probable, however, that the risk and uncertainty in shifting Class I markets are prime concerns to many cooperatives.

The only other negative factor with a fairly decisive judgment (mean = —39) was that of *opposition of milk processors and food chains to activities of the cooperative which might compete with theirs*. This factor apparently limits cooperatives somewhat due to a reluctance to implement adjustments which would place them in both a supplying role and a competitive role with the processors and food chains.

Factors related to fear of anti-trust action and relationships or reactions from other cooperatives also received negative scores on the adjustment question, but these concerns were very limited.

Responses for all 59 cooperatives again provided a relatively accurate reflection of responses for the nine sub-classes. However, it is noted that the four factors relating to member education and innovative employees, directors, and members, all of which scored strong positive responses, were scored particularly high by the three sub-classes of large market share cooperatives.

Factors related to size of cooperative suggested only that large sized cooperatives were more prone to believe that small size was an obstacle to adjustment.

[10] Comparable external limits to bargaining power have been reported for the processing tomato industry. See Babb, E. M., S. A. Belden, and C. R. Saathoff. Feb. 1969. An Analysis of Cooperative Bargaining in the Processing Tomato Industry. American Journal of Agricultural Economics, 51(1): 13-25. Bargaining power limits as well as various attitudes on the bargaining issue, similar in findings to this study, are reported in that article.

Neither a growth objective nor fear of anti-trust action showed any notable differences among the several size and concentration sub-classes.

Adjustments Made by Cooperatives

Actual adjustments made by cooperatives within the preceding 5-year period were recorded by presenting 16 possible adjustments to co-op managers. The managers were asked to check whether or not the adjustment had been made and, if made, what effect the adjustment had upon the cooperative. Table 9 indicates the number of co-ops (out of 59) making each adjustment, and the mean scores (harmful to beneficial) of that adjustment for the co-ops making the adjustment.

Among the 59 cooperatives, the numbers making the various specified adjustments ranged from 0 to 33. Since the number of cooperatives making adjustments in each sub-class was therefore very small, no analysis among sub-classes was undertaken. The reported means and standard deviations for a given adjustment are for the combined market share-size sub-classes of cooperatives making the adjustment.

The adjustment receiving the highest mean score (74) was *developed agreement with other cooperatives*

TABLE 8.—Factors Affecting Adjustments by Cooperatives: Means and Standard Deviations for All 59 Cooperatives and Nine Sub-classes of Cooperatives.

Factor	All 59	Low Share Small Size	Low Share Medium Size	Low Share Large Size	Medium Share Small Size	Medium Share Medium Size	Medium Share Large Size	Large Share Small Size	Large Share Medium Size	Large Share Large Size
1. Having large amounts of capital and reserves	68 (37)	40 (74)	70 (33)	78 (27)	61 (44)	80 (16)	56 (38)	97 (5)	62 (39)	75 (26)
2. Having small amounts of capital and reserves	—62 (38)	—52 (74)	—74 (29)	—69 (32)	—63 (40)	—75 (10)	—43 (39)	—95 (5)	—62 (39)	—52 (33)
3. Having good source of credit available	71 (30)	75 (43)	80 (20)	74 (28)	71 (31)	23 (45)	67 (26)	88 (5)	80 (18)	74 (24)
4. Willingness of the organization to risk financial losses	20 (61)	14 (60)	—46 (54)	41 (61)	—6 (62)	40 (37)	37 (30)	66 (45)	—32 (88)	41 (45)
5. Having an effective membership educational program	66 (30)	48 (42)	52 (26)	67 (36)	59 (41)	68 (19)	62 (22)	93 (7)	70 (31)	79 (22)
6. Having innovative directors	62 (42)	60 (47)	58 (55)	43 (62)	46 (44)	78 (13)	44 (36)	95 (5)	84 (18)	83 (21)
7. Having innovative members	61 (40)	58 (47)	58 (55)	42 (62)	58 (37)	70 (12)	41 (33)	95 (5)	80 (18)	75 (21)
8. Having innovative personnel in the cooperatives	69 (40)	78 (18)	62 (54)	54 (59)	46 (43)	85 (6)	62 (52)	95 (5)	89 (11)	84 (19)
9. Opposition of milk processors and food chains to activities of the cooperative which might compete with theirs	—39 (39)	—12 (58)	—32 (43)	—39 (31)	—63 (39)	—15 (10)	—49 (36)	—67 (23)	—34 (51)	—33 (38)
10. Large size of cooperative	47 (37)	20 (32)	60 (24)	53 (40)	34 (38)	40 (37)	45 (35)	45 (52)	38 (44)	71 (27)
11. Small size of cooperative	—32 (45)	—16 (43)	—42 (47)	—45 (56)	—38 (40)	—5 (34)	—49 (37)	8 (54)	—6 (61)	—45 (34)
12. Having growth as an objective of the cooperative	52 (35)	50 (33)	60 (28)	51 (42)	50 (47)	38 (26)	44 (32)	82 (17)	58 (45)	48 (32)
13. Fear of anti-trust action	—17 (30)	—26 (46)	4 (17)	—22 (23)	—16 (28)	5 (10)	—11 (38)	—20 (24)	—28 (41)	—26 (25)
14. Concern about attitude of other cooperatives toward the cooperative's adjustments	—5 (35)	36 (22)	24 (33)	—10 (16)	—18 (16)	18 (24)	—10 (28)	—57 (29)	—10 (47)	—6 (40)
15. Having stiff price competition from other cooperatives	—21 (46)	—12 (52)	16 (59)	—30 (45)	—47 (48)	—13 (25)	—13 (43)	—44 (65)	—1 (19)	—27 (43)
16. Having stiff price competition from proprietary firms	—23 (45)	—24 (46)	20 (51)	—33 (44)	—47 (44)	—20 (16)	—17 (54)	—36 (66)	—1 (19)	—28 (39)
17. Loss by the cooperative of Class I sales in regular market	—49 (50)	—20 (81)	—46 (69)	—66 (28)	—68 (43)	—26 (43)	—49 (38)	—52 (52)	—18 (63)	—55 (50)
18. Sale of milk by the cooperative on outside markets	35 (41)	56 (35)	52 (46)	37 (33)	50 (45)	36 (34)	14 (45)	30 (24)	53 (21)	12 (51)

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TABLE 9.—Adjustments Made by Cooperatives: Number of Cooperatives Making Adjustments and Means and Standard Deviations on Effects of Adjustments.

Adjustment Made	Number of Cooperatives Making Adjustment	Mean	Standard Deviation
1. Better management of milk supply, e.g., obtained control over hauling	18	55	23
2. Obtained control of larger proportion of milk in the supply area	33	56	32
3. Provided more services to handlers, e.g., standardizing milk, paying producers	26	55	38
4. Went into processing but not distribution on custom packaging basis	10	60	36
5. Went into processing but not distribution, with milk sold to distributors	15	65	35
6. Went into both processing and distribution, with home and store delivery	10	70	37
7. Went into both processing and distribution, with home delivery only	11	50	38
8. Went into both processing and distribution, with store delivery only	—	—	—
9. Went into both processing and distribution, with sales through dairy stores or controlled outlets	1	20	—
10. Diversified into non-dairy operations	17	61	35
11. Developed wider markets for milk	30	57	30
12. Merged or consolidated with other cooperatives	27	65	31
13. Federated with other cooperatives	22	69	24
14. Developed sales agreement with other cooperatives to market milk collectively	15	68	29
15. Developed agreement with other cooperatives to respect each other's markets	7	74	32
16. Performed standby functions for the market	8	65	37

TABLE 10.—Adjustments Planned by Cooperatives: Number of Cooperatives Planning Adjustments and Means and Standard Deviations on Expected Effects of Adjustments.

Adjustment Planned	Number of Cooperatives Planning Adjustment	Mean	Standard Deviation
1. Better management of milk supply, e.g., obtained control over hauling	20	49	31
2. Obtained control of larger proportion of milk in the supply area	36	59	30
3. Provided more services to handlers, e.g., standardizing milk, paying producers	26	60	34
4. Went into processing but not distribution on custom packaging basis	13	55	31
5. Went into processing but not distribution, with milk sold to distributors	13	54	33
6. Went into both processing and distribution, with home and store delivery	8	31	64
7. Went into both processing and distribution, with home delivery only	12	50	41
8. Went into both processing and distribution, with store delivery only	0	0	0
9. Went into both processing and distribution, with sales through dairy stores or controlled outlets	1	20	0
10. Diversified into non-dairy operations	19	51	33
11. Developed wider markets for milk	31	53	33
12. Merged or consolidated with other cooperatives	23	53	30
13. Federated with other cooperatives	17	76	26
14. Developed sales agreement with other cooperatives to market milk collectively	14	70	29
15. Developed agreement with other cooperatives to respect each other's markets	7	86	22
16. Performed standby functions for the market	3	86	23

to respect each other's markets. However, only seven cooperatives reported making this adjustment. The crucial questions of federation and merger were scored as quite beneficial. Twenty-seven cooperatives reported merger, with a mean score of 65. Twenty-two cooperatives reported federation, with a mean score of 69.

The several adjustments concerned with processing and distribution by the cooperative generally had beneficial effects for the relatively few cooperatives which had made this kind of an adjustment. In fact, for all 14 adjustments which two or more co-ops had implemented, mean positive scores of 50 or higher were recorded. Since the managers generally were key personnel in making the adjustment decisions, it is not surprising that there was a general endorsement of the effects of the adjustments.

Only five of the specified adjustments were reported by more than 20 of the cooperatives. In addition to the merger and federation adjustments, these included: *obtained control of larger proportion of milk in supply area, provided more services to handlers,* and *developed wider markets for milk.*

These five most frequently mentioned adjustments all relate to the growth and operations of dairy cooperatives in a relatively traditional sense. However, they indicate the emphasis that dairy cooperatives are giving to growth as an essential ingredient to bargaining-marketing effectiveness.

Adjustments Planned by Cooperatives

In this section, the question concerns what adjustments the cooperatives plan to make in the next 5 years and the expected effect of each adjustment. The 16 proposed adjustments are identical to those specified in the previous section on adjustments made. Adjustments are defined as being means of achieving objectives.

Thirty-six cooperatives planned to *obtain control of larger proportion of milk in the supply area.* Managers recording this most frequently checked adjustment gave it a mean score of 59 (quite beneficial). At the other end of the scale, the two adjustments concerned with processing and store delivery only or controlled outlet delivery essentially were not included in cooperative planning.

To a large extent, the number of cooperatives planning to make a given adjustment (Table 10) is similar to the number of cooperatives which have already made that adjustment (Table 9). Mean scores for the expected effects of adjustment also are similar to the mean scores for adjustments already made. The implication is that those cooperatives which have already made a specific adjustment are making plans to go further in implementing that same adjustment. Also implied is that news about successful adjustments spreads and other cooperatives copy the leaders. It is noted in particular that 23 cooperatives are planning merger and 17 are planning federation. It has already been observed that 27 cooperatives had merged and 22 had federated in the previous 5 years. Therefore, no immediate let-up in the rate of such growth actions in the future is evident.

For the series of adjustments concerned with vertical integration (Nos. 4-9) in Tables 9 and 10, the reactions of co-op managers suggest that enthusiasm for the vertical integration option is quite limited. Managers have completely rejected the idea of selling their packaged fluid product only through retail stores or only through their own controlled outlets, both in fact and in plans. However, several of the cooperatives had moved into processing and packaging fluid milk, or were making plans to do so. Their actions and plans in distribution ranged from very limited operations (dock pick-up) to complete doorstep and store delivery. The effects or expected effects of these adjustments were generally favorable, although not markedly so. The responses finally do not provide a clear insight regarding the direction which cooperatives will take on the vertical integration question.

EFFECTS OF CHANGES AMONG BOTTLERS ON COOPERATIVES

Market conduct is generally observed to be a function of market structure. The decrease in number of fluid milk handlers and the concomitant increase in size is believed to be a primary factor in a changed pattern of market conduct by handlers as they interact with their supplying dairy cooperatives. This new behavioral relationship would then have direct effects upon the cooperatives.

The general question of what effects changes in structure of the fluid milk processing industry had on cooperatives was investigated by presenting nine statements to cooperative managers on various phases of their relationships with handlers. Statements were phrased in terms of the effect the decrease in number and increase in size of handlers had upon a given aspect of the handler-cooperative relationship. Responses for all 59 cooperatives and for the nine subclasses of cooperatives on these structure-conduct relationships are reported in Table 11.

The primary factor to evaluate as processor structure concentrates is the effect upon bargaining power of the cooperative in its dealings with handlers. Management of cooperatives felt that there was almost no effect, harmful or beneficial, on their bargaining power due to the increased concentration of handlers (mean = 2). Nor did any of the nine sub-

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classes indicate any real effects. While small cooperatives might have been expected to be more affected by handler concentration, their management did not view things that way.

However, responses to the second factor, *handlers' ability to obtain needed milk from sources other than the cooperatives,* indicated that cooperatives might in fact benefit in a bargaining sense from the increased concentration of handlers. The mean response for all 59 cooperatives for this factor was —25. Apparently co-op managers believe that the increased size of fluid milk processors makes it more difficult for these processors to assure themselves of adequate supplies from outside sources. This factor would then work in favor of the local cooperative in its bargaining efforts. Managers in all nine sub-classes of cooperatives reacted similarly to this statement.

For apparently similar reasons to the previous factor, co-op managers discounted the *ability of handlers to take advantage of mal-alignment of Federal order prices at the expense of the cooperative* (statement No. 3 with a mean of —17). It would seem that the need for a large volume of raw milk at a given plant location makes it difficult for processors to exploit Class I price mal-alignment. This also apparently holds for multi-plant organizations.

Co-op managers indicated that the decreasing number and increasing size of milk dealers were factors in the frequency of price wars and other excessive competition and that, in turn, such excessive competition was harmful to cooperatives. The mean response for this 4th factor was —24. The nature of harmful effects to cooperatives was not determined. However, it is observed that producer groups become sensitive to excessive wholesale-retail competition because of what becomes a survival question for some of the cooperatives' customers. Responses among the nine sub-classes of cooperatives were in general accord with the overall response.

The factor of greatest concern to co-op managers (mean = —27) was No. 5, i.e., *fluctuations in volume of sales by the cooperative as handlers' business is gained or lost.* The increased concentration of milk dealers, together with competition for the large volume food store accounts by these milk dealers, places obvious new burdens on cooperatives as they supply raw milk. In some instances, these problems are limited to the cooperative as it attempts to divert, or acquire,

TABLE 11.—Effects of Changes Among Bottlers on Cooperatives: Mean Values and Standard Deviations for All 59 Cooperatives and Nine Sub-classes of Cooperatives.

Effect of Decrease in Number and Increase in Size of Handlers Upon:	All 59	Low Share Small Size	Low Share Medium Size	Low Share Large Size	Medium Share Small Size	Medium Share Medium Size	Medium Share Large Size	Large Share Small Size	Large Share Medium Size	Large Share Large Size
1. The bargaining power of the cooperative in dealing with handlers it supplies with milk	2 (45)	—12 (67)	—16 (51)	5 (45)	3 (25)	—5 (10)	8 (59)	20 (40)	4 (36)	5 (34)
2. Handlers' ability to obtain needed milk from sources other than the cooperative	—25 (40)	—44 (43)	—24 (43)	—26 (31)	—12 (65)	—25 (39)	—17 (40)	—20 (40)	—14 (19)	—41 (34)
3. Ability of handlers to take advantage of mal-alignment of Federal order prices at the expense of the cooperative	—17 (42)	—20 (35)	—28 (43)	—14 (40)	—15 (63)	0 (28)	11 (38)	—20 (40)	—34 (41)	—34 (35)
4. The frequency of price wars and other excessive competition which indirectly injures producers	—24 (47)	—46 (52)	—16 (59)	—36 (42)	—50 (51)	15 (44)	14 (38)	—23 (45)	—26 (42)	—33 (35)
5. Fluctuations in volume of sales by the cooperative as handlers' business is gained or lost	—27 (36)	—28 (39)	—28 (41)	—24 (34)	—55 (44)	—15 (39)	—29 (36)	— —	—4 (9)	—32 (33)
6. Problems to the cooperative resulting from bad debt losses and failures among handlers	—5 (41)	—8 (11)	—8 (59)	—8 (45)	—26 (42)	—10 (12)	—11 (46)	—5 (73)	—2 (4)	0 (43)
7. Ease with which the cooperative can obtain service charges and premiums	2 (41)	—10 (54)	—28 (41)	9 (40)	—17 (41)	18 (43)	21 (44)	20 (40)	—10 (2)	9 (39)
8. Amount of time the cooperative must spend in maintaining good relations with handlers	11 (31)	12 (39)	0 (37)	8 (24)	—12 (29)	10 (35)	16 (33)	33 (39)	16 (36)	20 (25)
9. Types and varieties of services the cooperative must provide to handlers	7 (37)	6 (68)	8 (33)	4 (30)	—11 (29)	5 (38)	24 (43)	33 (39)	18 (35)	—3 (23)

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bulk milk. In other instances, an entire market's utilization may be substantially affected as Class I sales are displaced by outside sources. In either case, management was seriously concerned with the effects of such fluctuations on the cooperative. This concern was reflected by management in the several subclasses of cooperatives.

Four other factors were advanced to co-op managers to measure their reactions to the effects on cooperatives of the increasing concentration of handlers. These include problems to the cooperatives: *resulting from bad debt losses and failures of handlers; in gaining service charges and premiums; in maintaining good relations with handlers;* and *in having to provide various services to handlers.* None of these factors appeared to generate *harmful* or *beneficial* reactions from managers. Slightly positive means were recorded for the latter three factors, while a mean of —5 was recored for the bad debt-failure factor (Table 11). Again, responses among the various sub-classes of cooperatives were generally consistent with the overall response.

EFFECTS OF GROWTH AND LARGE SIZE OF FOOD RETAILERS ON COOPERATIVES

It is generally observed in the fluid milk industry that a substantial shift in bargaining power has occurred between fluid milk processors and food stores in recent years. De-emphasis on brands, increased sensitivity to price differences, and vertical integration activities have been factors in shifting bargaining power from processors to food stores.[11] Since an estimated 60 percent of the packaged fluid milk in the United States is sold through food stores, most of which are chains or affiliated independents, a part of the impact of this power shift is hypothesized to ex-

[11]Orgonizotion and Competition in the Dairy Industry. Tech Study No. 3, NCFM, June 1966, pp. 120-121.

TABLE 12.—Effects of Growth and Large Size of Food Retailers on Cooperatives: Means and Standard Deviations for All 59 Cooperatives and Nine Sub-classes of Cooperatives.

Effects of Growth and Large Size of Food Chains on This Cooperative as Reflected in:	All 59	Low Share Small Size	Low Share Medium Size	Low Share Large Size	Medium Share Small Size	Medium Share Medium Size	Medium Share Large Size	Large Share Small Size	Large Share Medium Size	Large Share Large Size
1. Acquisition or loss of business in large lots by its handlers as they gain or lose food chain accounts	—31 (36)	—46 (43)	—28 (18)	—29 (36)	—45 (48)	—13 (46)	—41 (36)	—10 (20)	—8 (11)	—37 (32)
2. Changes in area over which the cooperative must deliver milk because of switches in food chain accounts among handlers	—20 (31)	—46 (43)	—26 (26)	—21 (33)	—32 (45)	8 (22)	—8 (18)	— —	—4 (9)	—28 (25)
3. The cooperative's losses from bad debts of processors	—1 (27)	—8 (11)	8 (11)	10 (21)	—27 (41)	—5 (10)	19 (41)	—5 (10)	— —	—6 (16)
4. Extent to which processors bicker with the cooperative over weights and tests	—6 (26)	—16 (26)	0 (14)	—9 (25)	—20 (38)	—15 (19)	15 (35)	— —	—2 (4)	—8 (19)
5. Amount of credit the cooperative must supply to processors	—3 (26)	—22 (39)	4 (9)	—10 (17)	—14 (35)	5 (10)	11 (36)	21 (43)	— —	—7 (8)
6. Influence of merchandising policies of food chains upon rates of milk consumption in the cooperative's market	—7 (25)	—26 (34)	—6 (33)	—2 (15)	—14 (31)	8 (15)	—1 (12)	—20 (40)	—4 (9)	—7 (31)
7. Changes in quantity of milk sold by the cooperative because of the processing of milk by some food chains	—13 (31)	—44 (45)	0 (0)	—11 (33)	—30 (41)	8 (22)	0 (3)	—18 (24)	—6 (9)	—13 (34)
8. Effects of the processing of milk by some food chains upon the bargaining position of the cooperative	—18 (32)	—52 (50)	—28 (27)	—17 (22)	—39 (43)	0 (0)	—15 (35)	—13 (15)	0 (0)	—1 (12)
9. Effects of attitudes of food chains toward cooperatives upon the bargaining position of the cooperative	—13 (30)	—32 (46)	—20 (20)	—18 (39)	—23 (31)	—15 (10)	—1 (26)	—13 (25)	—4 (9)	0 (31)
10. Effects upon the cooperative of sale of private label brands of milk by some food retailers	—19 (30)	—42 (40)	—48 (48)	—16 (27)	—26 (36)	—10 (26)	4 (24)	—13 (25)	—6 (9)	—20 (14)
11. Effects upon potential gains from the cooperatives going into processing and distribution	—10 (30)	0 (57)	—5 (36)	—1 (10)	—20 (32)	—5 (41)	—24 (35)	—10 (20)	—4 (9)	—14 (25)

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tend through the processor and to the dairy cooperative. This question was investigated by presenting 11 statements to co-op managers concerning the effects of growth and large size of food retailers upon the cooperative. Responses to these statements are reported in Table 12.

For all 59 cooperatives, negative means were recorded for each of the 11 statements. This implies immediately that co-op managers generally viewed the growth and large size of food retailers as being detrimental to the cooperative. Co-op managers were particularly concerned with the effects of switches in large volume food store accounts among handlers. Statements 1 and 2, both of which related to this issue, recorded the most negative responses (means of —31 and —20, respectively).

A second factor of concern to co-op managers related to specific market power variables identified with food chains. Vertical integration, private labeling, and attitudes of food chains toward cooperatives were scored as having slightly harmful effects to co-ops. These responses are recorded for statements 7, 8, 9, and 10 in Table 12, with means of —13, —18, —13, and —19, respectively.

Co-op management was relatively indifferent to several statements, although slightly negative means were recorded. The managers did not see harmful or beneficial effects from the changing structure of food retailers in terms of *co-op losses from bad debts of processors, bickering with processors over weights and tests, credit which the co-op supplies processors,* and *effects of food chains' merchandising policies on rate of milk consumption.*

Responses for all 59 cooperatives were, for the most part, similar to responses for the nine sub-classes of cooperatives. However, three items in Table 12 should be noted.

1. For statement 2, the 3 "low-share" sub-classes appeared to be more sensitive than the other sub-classes. This statement, *changes in the area over which the cooperative must deliver milk because of switches in food chain accounts among handlers,* seemed to pose slightly greater problems for the low-share group. Apparently cooperatives with smaller market shares are apt to have greater difficulty in gaining new Class I outlets.

2. The *influence of merchandising policies of food chains upon rates of milk consumption in the cooperative's market* (statement 6) was considered more harmful by the small-size cooperatives than by the other sub-classes. The logic to this reaction is that promotions of milk may cause surges of demand in the market, but this only aggravates procurement problems and may have negative consumption effects over time. Smaller co-ops could be more sensitive to this than other co-ops because they have relatively less flexibility in a supply equalization sense.

3. Statement 7, *changes in quantity of milk sold by the cooperative because of the processing of milk by some food chains,* received more harmful scores by managers of the small cooperatives as compared to the other sub-classes. While vertical integration of food chains affects all cooperatives, smaller co-ops would be particularly affected because they would not be in position to supply the total needs of a large volume plant typical of a food chain's milk plant.

The responses elicited for Table 12 differ from responses for previous tables because a large number of zero responses were recorded. The number of zero responses for the statements ranged from 22 (of 59) for statement 1 to 42 for statement 4. According to the scale used, a zero response was defined as either *no effect* or *no opinion.* Since food retailers are generally connected only indirectly with dairy cooperatives, it is probable that the *no opinion* response was as prominent as the *no effect* response. Co-op managers appeared to be reluctant to express judgments about effects unless they were directly involved in the activity. All of the means presented in Table 12 are weighted substantially by the high frequency of zero responses to the 11 statements.

REACTIONS OF COOPERATIVE MANAGEMENT TOWARD FLUID MILK PROCESSORS

Inquiries were directed to managers of cooperatives to ascertain their reactions about fluid milk processors. Adjustments of cooperatives are reasoned to be partially influenced by relationships with fluid milk processors, and the statements to managers were designed to describe this relationship. Fifteen statements were presented to co-op managers; their responses are reported in Table 13. The statements were presented in terms of the extent of agreement each manager had with a given statement.

For all 59 cooperatives, managers indicated some agreement with 11 of the 15 statements (positive means) and some disagreement with 4 statements (negative means). The two statements recording the highest over-all positive means indicated that a mutually responsible relationship exists between dairy co-ops and fluid milk processors. These statements are: *most milk processors accept cooperatives as legitimate bargaining agencies for producers* (mean = 67); and *most milk processors live up to agreements they make with cooperatives* (mean = 66).

The one other statement receiving a relatively high mean (63) related to the bargaining relationship with processors. There was agreement that *most milk processors are more concerned about buying milk as cheaply as their competitors than about the abso-*

lute level of price they pay. The agreement with this statement, together with agreement with the previous two statements, implies a basic element of stability in processor-cooperative relationships.

Co-op managers did not support the statement that *most milk processors have no concern about the welfare of milk producers* (mean = —14). They also failed to support the statement that *milk processors have too much influence upon Federal order decisions and provisions* (mean = —16). These two disagreement responses and the three agreement responses bracket the range of responses of management.

Two additional important observations are noted in the responses for all 59 cooperatives. First, there was general agreement that processors wanted cooperatives to engage in various market services (statements 5, 6, 9, and 13 in Table 13). Second, co-op managers were generally satisfied with the efficiency of operations of processors in that they saw no super-

TABLE 13.—Reactions of Cooperative Management Toward Fluid Milk Processors: Mean and Standard Deviations for All 59 Cooperatives and Nine Sub-classes of Cooperatives.

Statement	All 59	Low Share Small Size	Low Share Medium Size	Low Share Large Size	Medium Share Small Size	Medium Share Medium Size	Medium Share Large Size	Large Share Small Size	Large Share Medium Size	Large Share Large Size
1. Fluid milk processors often make unreasonable demands on cooperatives	9 (49)	4 (55)	—18 (46)	22 (62)	4 (45)	9 (14)	8 (47)	—22 (78)	36 (40)	17 (43)
2. Most milk processors live up to agreements they make with cooperatives	66 (34)	62 (23)	48 (30)	52 (54)	71 (19)	70 (25)	81 (8)	92 (9)	66 (19)	64 (50)
3. Most milk processors have no concern about the welfare of milk producers	—14 (53)	—30 (57)	—10 (71)	—2 (46)	—9 (72)	—13 (53)	—41 (46)	—18 (52)	20 (43)	—19 (52)
4. Most milk processors have no interest in the success of fluid milk bargaining cooperatives	—1 (57)	—14 (65)	—10 (70)	—12 (48)	8 (83)	6 (11)	—13 (63)	25 (60)	6 (52)	9 (52)
5. Most small milk processors want the cooperative to take over field work and other procurement services	38 (53)	48 (52)	24 (65)	36 (56)	23 (63)	35 (41)	29 (63)	63 (42)	26 (70)	61 (35)
6. Most large milk processors want the cooperative to take over field work and other procurement services	32 (52)	46 (44)	22 (78)	38 (46)	9 (55)	11 (10)	14 (63)	55 (40)	28 (67)	58 (37)
7. Most small processors agree with the cooperative on most major issues	18 (42)	46 (31)	32 (41)	—12 (24)	34 (36)	11 (25)	19 (52)	54 (37)	—4 (47)	13 (47)
8. Most large processors agree with the cooperative on most major issues	7 (45)	32 (28)	0 (51)	4 (37)	29 (49)	—9 (27)	29 (49)	—30 (52)	—14 (46)	—3 (42)
9. Most milk processors want the cooperative to dispose of surplus milk	53 (54)	30 (62)	10 (74)	59 (43)	32 (77)	77 (17)	48 (60)	45 (59)	87 (17)	75 (20)
10. Milk processors have too much influence upon Federal order decisions and provisions	—16 (52)	—12 (77)	—8 (30)	—26 (34)	15 (66)	16 (44)	—54 (38)	11 (60)	—7 (54)	—32 (47)
11. Most milk processors process, package, and distribute milk more efficiently than other marketing agencies could do	38 (43)	38 (67)	24 (22)	16 (47)	63 (43)	54 (34)	41 (30)	53 (38)	46 (36)	26 (50)
12. Most milk processors accept cooperatives as legitimate bargaining agencies for producers	67 (26)	70 (17)	48 (23)	62 (29)	54 (42)	77 (17)	64 (28)	85 (6)	64 (19)	82 (11)
13. Most milk processors resent having full supply contracts with cooperatives	—3 (50)	—20 (66)	36 (36)	—6 (48)	—18 (43)	—4 (46)	—7 (42)	13 (49)	1 (56)	—3 (63)
14. Most milk processors are more concerned about buying milk as cheaply as their competitors than about the absolute level of the price they pay	63 (49)	14 (87)	64 (35)	54 (52)	57 (66)	87 (9)	62 (32)	55 (70)	76 (15)	83 (17)
15. Most milk processors too urgently seek the prestige of obtaining large national and regional supermarket chain accounts	28 (50)	16 (68)	64 (29)	22 (52)	50 (40)	—14 (31)	—10 (52)	73 (22)	28 (40)	34 (44)

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ior alternative to present arrangements (statement 11).

In analyzing the nine sub-classes of cooperatives, only three statements reflected some difference as compared to the reactions for the over-all response. First, the "medium share" cooperatives were less inclined to agree that *most large milk processors want the cooperative to take over field work and other procurement services.* Second, the "small size" cooperatives agreed the most strongly that *most small processors agree with the cooperative on most major issues.* Finally, the "large size" cooperatives were in much stronger disagreement with the statement that *milk processors have too much influence upon Federal order decisions and provisions* than the other sub-classes of cooperatives.

REACTIONS ABOUT WHOLESALE MILK DRIVERS' UNIONS

Managers of dairy cooperatives would be expected to have well-defined reactions toward wholesale milk drivers' unions because of the unions' role in sales and distribution. Drivers' unions are a major institution in the fluid milk industry. About three-fourths of all Class I milk is distributed on a wholesale basis. Therefore, the effects of union contractual arrangements on the fluid milk market would have some impact on the milk marketing cooperative.

Ten statements were presented to co-op managers on their reactions to wholesale milk drivers' unions. The responses (which measure the extent of agreement with the statement) are presented in Table 14. For all 59 cooperatives, the average number of zero (uncertain or no opinion) responses per statement was 17. Only one statement, i.e., *wholesale drivers should be replaced by sub-dealers or vendors,* with 32 zero responses, was substantially affected by the uncertain or no opinion response.

The responses generally indicated some degree of antagonism on the part of co-op managers toward wholesale milk drivers' unions. For example, the four most positive opinions were: *milk drivers unions have no concern about the welfare of milk producers* (+44); *wholesale milk drivers' union contracts are a burden to the fluid milk industry* (+42); *wholesale milk drivers need to be salesmen* (+42); and in disagreement, *wholesale milk drivers' unions readily adapt driver pay plans to changing market situations* (—33).

There was also general agreement (+30) that *wholesale milk drivers' earnings in your market are too high.*

Since there is considerable parallel in the bargain-

TABLE 14.—Reactions of Cooperative Management to Wholesale Milk Drivers' Unions: Means and Standard Deviations for All 59 Cooperatives and Nine Sub-classes of Cooperatives.

Statement	All 59	Low Share Small Size	Low Share Medium Size	Low Share Large Size	Medium Share Small Size	Medium Share Medium Size	Medium Share Large Size	Large Share Small Size	Large Share Medium Size	Large Share Large Size
1. Milk drivers' unions serve a useful purpose	5 (48)	6 (65)	—22 (74)	12 (33)	—21 (45)	13 (10)	—6 (57)	37 (63)	15 (61)	22 (20)
2. Wholesale milk drivers' earnings in your market are too high	30 (44)	60 (31)	36 (41)	32 (23)	24 (62)	34 (42)	54 (32)	2 (68)	35 (48)	6 (45)
3. Wholesale milk drivers should be paid on a commission basis	12 (58)	28 (75)	—4 (59)	4 (55)	31 (61)	6 (50)	—11 (62)	23 (26)	4 (64)	25 (66)
4. Wholesale milk drivers ought to service food store milk cases	4 (53)	14 (55)	16 (55)	—10 (49)	—12 (57)	11 (50)	—8 (41)	45 (52)	—14 (71)	17 (60)
5. Wholesale milk drivers' union contracts are a burden to the fluid milk industry	42 (39)	50 (36)	50 (48)	49 (36)	36 (37)	10 (26)	59 (38)	33 (51)	26 (62)	41 (26)
6. Milk drivers' unions have no concern about the welfare of milk producers	44 (43)	46 (36)	50 (48)	35 (33)	55 (40)	36 (23)	39 (66)	55 (40)	30 (67)	53 (41)
7. Wholesale milk drivers need to be salesmen	42 (56)	82 (15)	18 (47)	14 (60)	60 (46)	45 (59)	34 (55)	95 (5)	41 (76)	33 (66)
8. Wholesale milk drivers' unions readily adapt driver pay plans to changing market situations	—33 (51)	—44 (41)	—14 (52)	—37 (61)	—11 (31)	15 (59)	—65 (33)	—60 (73)	—20 (44)	—40 (52)
9. Full service delivery of milk by wholesale drivers is needed by supermarket chains	—8 (51)	12 (59)	24 (55)	—29 (42)	—20 (42)	0 (33)	—14 (47)	5 (49)	19 (68)	—18 (61)
10. Wholesale drivers should be replaced by sub-dealers or vendors	0 (37)	42 (71)	—12 (52)	—1 (31)	—7 (15)	—5 (10)	11 (28)	—28 (32)	18 (40)	—16 (26)

ing aspirations and types of programs provided by dairy cooperatives and wholesale milk drivers' unions, it would be logical to anticipate an appreciation on the part of each group for the other's position and responsibilities. However, the responses did not support this hypothesis. For all 59 cooperatives, the mean response to the statement *milk drivers' unions serve a useful purpose* was only +5. The only sub-classes of cooperatives having a more favorable reaction to this statement were the three "large market share" groups.

Co-op management was generally indifferent on those statements which were directed to operational arrangements in wholesale milk distribution.

Among the sub-classes of cooperatives, the three small size sub-classes particularly reacted to two related statements. First, they agreed that *wholesale milk drivers should be paid on a commission basis*. Second, they agreed that *wholesale milk drivers need to be salesmen*. It is reasoned from these reactions that managers of small cooperatives are especially concerned with the fluid milk demand-consumption trend and with the idea that wholesale milk drivers are in a position to do something about it.

REACTIONS ABOUT SUPERMARKET CHAINS

In this section, the attitudes of dairy co-op managers toward supermarket chains are analyzed. This contrasts with the earlier discussion (Table 12) in which the effects of growth and large size of food retailers upon the cooperative were evaluated.

Unless a supermarket chain is vertically integrated into fluid milk processing, its relationships with dairy co-ops would only be of an indirect nature. However, the high proportion of fluid milk sold through supermarket chain stores means that the chain is in a strategic position in the market, and that its various actions will affect the cooperative. Therefore, managers of dairy cooperatives should have various insights regarding performances of the market based on their observations of supermarket chain actions.

For all 59 cooperatives, 12 of the 19 statements presented to co-op managers scored positive means (Table 15). The statement with which managers were in the most agreement was *the growth of supermarket chains makes it necessary for co-ops to have more bargaining power* (mean = 70). At the opposite extreme, managers were in greatest disagreement with the statement, *supermarket chains should process their own milk* (mean = —55). Both of these statements reflect aspects of bargaining power and position in the market. Actually, the majority of statements in Table 15 have bargaining power implications, and co-op managers expressed their sharpest agreement or disagreement to these statements. Several of the premises of bargaining power in fluid milk markets were supported, including *supermarket chains have increased the value of processor brands* (mean = —36); *supermarket chains are likely to control the business of processors who sell mainly to them* (mean = 45); *supermarket chains pressure processors to provide private label milk* and *at excessive discounts* (means = 40 and 34); and *supermarket chains are concerned about the welfare of the dairy farmers* (mean = —44).

Managers reflected their greatest degree of uncertainty or no opinion on operational arrangements in fluid milk distribution. For example a mean of —3 was recorded for the statement, *supermarket chains are satisfied with limited service delivery arrangements*. Since these arrangements are external to the cooperative's own program, this type of reaction is expected.

Among the sub-classes, three statements reflect some differences. In regard to the statement *supermarket chains' margins in your market are now too wide,* the three "medium share" sub-classes did not give this statement as strong an endorsement as did the other sub-classes. Second, the statement that *supermarket chains have done a highly effective job of merchandising milk* was objected to particularly by the three "large size" sub-classes. Finally, the three "small size" sub-classes barely agreed with the other sub-classes that *supermarket chain policies in pricing milk to consumers have hurt the fluid milk industry.*

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TABLE 15.—Reactions of Cooperative Management Toward Supermarket Chains: Means and Standard Deviations for All 59 Cooperatives and Nine Sub-classes of Cooperatives.

Statement	All 59	Low Share Small Size	Low Share Medium Size	Low Share Large Size	Medium Share Small Size	Medium Share Medium Size	Medium Share Large Size	Large Share Small Size	Large Share Medium Size	Large Share Large Size
1. Supermarket chains' demands for changes in milk delivery services have been reasonable	—4 (36)	—16 (47)	12 (11)	9 (42)	—12 (37)	—5 (10)	4 (41)	—5 (66)	—10 (22)	—13 (28)
2. Supermarket chains' margins on milk in your market are now too wide	22 (43)	48 (46)	60 (46)	5 (56)	5 (18)	5 (19)	5 (26)	25 (57)	34 (38)	32 (44)
3. Supermarket chains have increased the value of processors' brands	—36 (39)	—48 (50)	—40 (51)	—40 (29)	—29 (48)	—10 (38)	—26 (30)	—48 (37)	—20 (27)	—49 (43)
4. Supermarket chain accounts are too urgently sought after by milk distributors	35 (39)	32 (46)	60 (20)	26 (39)	24 (59)	23 (26)	42 (38)	51 (28)	26 (37)	42 (38)
5. Supermarket chains need more competition in retailing milk	14 (43)	54 (39)	8 (41)	—1 (33)	36 (51)	25 (41)	—6 (33)	9 (70)	3 (45)	14 (36)
6. Supermarket chains are likely to control the business of processors who sell mainly to them	45 (38)	56 (51)	36 (26)	37 (46)	54 (39)	15 (10)	38 (22)	55 (40)	35 (48)	65 (30)
7. Supermarket chains encourage small processors to supply them with milk	—38 (42)	—32 (46)	—20 (40)	—46 (41)	—51 (41)	—20 (33)	—16 (42)	—40 (80)	—50 (32)	—52 (35)
8. Supermarket chains should process their own milk	—55 (44)	—12 (75)	—64 (17)	—62 (42)	—77 (21)	—63 (31)	—59 (45)	—63 (42)	—40 (54)	—46 (43)
9. Supermarket chains pressure milk processors to provide private label milk	40 (47)	36 (49)	20 (73)	32 (39)	40 (58)	63 (21)	56 (27)	61 (41)	—2 (39)	54 (52)
10. Supermarket chains are satisfied with limited service delivery arrangements	—3 (48)	—28 (43)	16 (48)	28 (36)	—30 (39)	10 (50)	1 (49)	35 (83)	—22 (30)	—22 (42)
11. Most supermarket chains have no interest in the welfare of milk processors	24 (47)	62 (41)	20 (58)	6 (46)	26 (47)	18 (29)	44 (34)	—5 (94)	20 (27)	26 (43)
12. Supermarket chains have little to gain by setting up their own processing plants	14 (50)	—12 (52)	40 (51)	8 (53)	16 (47)	5 (10)	10 (32)	15 (85)	25 (61)	16 (58)
13. Supermarket chains have done a highly effective job of merchandising milk	—5 (52)	4 (62)	52 (18)	—11 (46)	—15 (46)	—8 (60)	—29 (39)	38 (67)	2 (78)	—24 (40)
14. Supermarket chains demand excessive discounts on private label brands of milk	34 (41)	52 (50)	32 (33)	46 (38)	39 (39)	15 (30)	19 (40)	16 (77)	32 (36)	39 (39)
15. Supermarket chains now have too much control over the marketing of milk in this market	40 (43)	52 (50)	48 (46)	22 (45)	38 (36)	35 (31)	62 (34)	10 (75)	42 (32)	43 (40)
16. Supermarket chains are concerned about the welfare of dairy farmers	—44 (49)	—52 (57)	—36 (38)	—14 (51)	—54 (65)	—45 (45)	—66 (35)	—61 (58)	—38 (38)	—46 (47)
17. The growth of supermarket chains makes it necessary for co-ops to have more bargaining power	70 (40)	28 (75)	67 (22)	76 (33)	76 (23)	92 (9)	73 (37)	92 (9)	44 (66)	76 (24)
18. Supermarket chain buying policies for milk make it increasingly difficult for cooperatives to obtain superpool premiums	39 (47)	83 (21)	60 (47)	25 (45)	32 (50)	65 (17)	46 (37)	—13 (49)	40 (41)	29 (57)
19. Supermarket chain policies in pricing milk to consumers have hurt the fluid milk industry	29 (50)	8 (80)	52 (36)	21 (42)	9 (62)	30 (48)	44 (35)	0 (64)	44 (60)	45 (35)

SUMMARY AND IMPLICATIONS

Dairy marketing cooperatives have been continuously engaged in a wide range of adjustments in recent years, and the rate of adjustment continues without interruption. Growth through merger has been the most evident measure of the adjustment process. Many factors relate to adjustments, including the objectives of dairy cooperatives, changes across the entire dairy market structure, new marketing technologies, and the relative bargaining position of dairy cooperatives. The purpose of this study is to examine these different factors in the dairy industry in terms of their effects on the adjustment process of dairy cooperatives.

1. The first factor analyzed concerned the objectives of dairy marketing cooperatives. The primary objective cited by co-op management was *maintaining a continuous market for members' milk.* Nine of the 15 highest ranking objectives indicated a definite price orientation. As cooperatives increased in size and concentration, the objectives related to various dimensions of market power were scored higher by the managers.

2. Managers were asked to judge the importance of various factors affecting bargaining power. These factors were broken down in terms of internal (to the cooperative) factors and external factors. Among the internal factors, managers indicated that *having loyal members in the cooperative* was the No. 1 beneficial factor to the organization's bargaining position. From the 13 internal factors specified, the responses indicated that management felt strong member relations were essential to bargaining power, but that management was reluctant to implement any disciplinary activities when producers did not follow the cooperative program.

Among the external factors affecting bargaining power, *having Federal order regulation* ranked as the primary beneficial factor. Other beneficial factors were basically linked to the idea of close and formal working relationships with other milk co-ops. The primary external limits on bargaining power related to other source milk supplies and competition from other markets. Substitutes were also a factor among the limits, particularly because filled milk was of major concern at the time of the survey. The managers did not view the large size of processing firms as an important factor in their bargaining efforts. However, they did express some concern with the harmful effects of large food retailers on the co-ops' bargaining aspirations.

3. Adjustments by milk marketing cooperatives were analyzed in terms of: a) factors affecting adjustments by cooperatives, b) adjustments made by cooperatives, and c) adjustments planned by cooperatives.

Managers categorized the availability of capital and credit, an effective member educational program, innovativeness of personnel, and size and growth considerations as major positive factors affecting adjustments by dairy cooperatives. A number of factors were cited as being harmful to the adjustment process. For the most part, these were the opposites of the positive factors. For example, lack of capital was cited as a major deterrent to adjustment.

The survey was extended to determine which of 16 specified adjustments had actually been made by the cooperatives during the preceding 5-year period, together with the effects of these adjustments. With few exceptions, less than half of the cooperatives surveyed had implemented a given objective. However, those cooperatives making an adjustment generally gave a very beneficial score to the effect of the adjustment. For example, 22 of the 59 cooperatives reported a federation adjustment, with a highly beneficial score (69).

A similar inquiry was made in terms of adjustments planned by cooperatives. The specified adjustments were identical to the "adjustment made" section, and responses in the two sections were fairly closely related. Management particularly wanted to *obtain control of larger proportion of milk in the supply area,* and they anticipated very beneficial effects from this action. Extensive merger and federation activities were in the planning stage. While some vertical or forward integration planning was noted by managers, the available information did not finally permit a conclusion on how far dairy cooperatives might go in this direction.

4. The question of what effect increasing concentration of the fluid milk processing industry has had upon cooperatives was included in the survey. Co-op managers clearly indicated that such concentration had been neither beneficial nor harmful to their bargaining efforts. In fact, managers implied that the large size of processing operations made such operations more dependent on the cooperative for adequate supplies. At the same time, managers were very concerned that the large volume of Class I sales to some customers had elements of instability in that the displacement of a single customer could not only be disruptive to the cooperative but also to the market.

5. The parallel question of what effect the growth and large size of food retailers had upon the cooperative was also raised with managers. The general and widespread reaction of co-op managers was that the growth and large size of food retailers had harmful effects on the cooperative. A major dimen-

sion of this reaction was the switching of large volume food store accounts among handlers. Other expressions of concern related to vertical integration by food chains, private labeling, and the attitudes of food chain management toward cooperatives.

6. In three final areas of inquiry, the attitudes or reactions of cooperative management toward fluid milk processors, wholesale milk drivers' unions, and supermarket chains were investigated. It was reasoned that the adjustments of cooperatives would be at least partly affected by the relationship or attitude of management toward these institutions.

a. With respect to milk processors, the dairy co-op managers expressed a basic positive attitude toward them and affirmed a constructive working relationship in inter-organization business activities. The managers also expressed the view that processors, in fact, want cooperatives to engage in various market service, procurement, and supply equalization activities.

b. With respect to wholesale milk drivers' unions, the managers of dairy cooperatives reflected a somewhat hostile attitude toward such organizations. The general thrust of the criticism was that wholesale milk drivers' unions were responsible for costs which were too high in the marketing of milk.

c. With respect to supermarket chains, co-op managers expressed a fundamental concern about the increasing relative bargaining power of chains in the market place. The managers were especially sensitive to the consideration that any growth in supermarket chains would have to be matched by growth in the bargaining power of cooperatives.

The implications of this study bear directly on the growth-merger activity occurring among dairy marketing cooperatives. Fundamentally, the viewpoint of management of the cooperatives indicates a continuing emphasis in this direction.

As a starting point, the defined objectives of dairy marketing cooperatives, in the context of a rapidly changing dairy market technology, require growth to be effective in a marketing-bargaining responsibility. Management was explicit in acknowledging this fact as they reviewed the external factors affecting bargaining power. Size and growth factors ranked among the major positive factors affecting adjustments by dairy cooperatives.

Adjustments accomplished and adjustments planned both emphasized control of supplies and merger-federation actions. The one area of potential expanded operations on the part of cooperatives which did not reflect much enthusiasm was that of integrating vertically into fluid milk processing-distribution. At the same time, the co-op managers were very concerned about the market power which food chains, vertically integrated or otherwise, had achieved.

While a number of the cooperatives surveyed were not contemplating any major organizational adjustments, the cooperatives which were engaging in such plans extended to all size and market share categories. It is apparent that, in the view of the decision makers in management, cooperatives will expand in size and operations as a matter of effectiveness. At the same time, a priority concern with member loyalty and strong member relations suggests a caution which will be evident in all growth actions.

The growth-merger activity will have direct effects on other sectors of the industry. In particular, these other sectors will include the non-member producer, the so-called "maverick" cooperative, the milk processor-distributor, and the food chains. Finally, in a public policy sense, government agencies will be alerted to the applications of market power accompanying the growth-merger actions of dairy cooperatives which are occurring and which will continue to occur.

VT 016 787
BUS FACTS: A PICTURE OF THE INTERCITY BUS INDUSTRY.

NATIONAL ASSOCIATION OF MOTOR BUS OWNERS, WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 69 35P.36TH EDITION

DESCRIPTORS - FEDERAL LEGISLATION; *SERVICE VEHICLES; *VEHICULAR TRAFFIC; *TRAFFIC SAFETY; MOTOR VEHICLES; ACCIDENT PREVENTION; TABLES (DATA); *BUS TRANSPORTATION; COURT LITIGATION; NATIONAL ORGANIZATIONS; WAGES; OCCUPATIONAL INFORMATION

ABSTRACT - THE NATIONAL ASSOCIATION OF MOTOR BUS OWNERS (NAMBO) IS THE NATIONAL TRADE ASSOCIATION FOR THE INTERCITY MOTOR BUS INDUSTRY, AND ITS MEMBERS INCLUDE GREYHOUND LINES, ALL COMPANIES AFFILIATED WITH THE NATIONAL TRAILWAYS BUS SYSTEM, AND MORE THAN 400 OTHER CARRIERS NOT AFFILIATED WITH EITHER SYSTEM. THIS PUBLICATION PRESENTS A REVIEW OF STATISTICS AND OTHER INFORMATION DERIVED BY NAMBO'S RESEARCH DEPARTMENT FROM REPORTS BY CLASS I MOTOR CARRIERS OF PASSENGERS OPERATING PRIMARILY IN INTERCITY SERVICE. TOPICS COVER: (1) HIGHLIGHTS OF 1969, (2) FINANCIAL RESULTS, INCLUDING REVENUE AND INCOME, EXPENSES, AND TAXES, (3) TRENDS IN TRAFFIC AND SERVICE, (4) EMPLOYEES AND THEIR COMPENSATION, (5) INTERCITY BUS SAFETY RECORD, (6) FEDERAL LEGISLATION, (7) TRANSPORTATION PROMOTION AND RESEARCH ACTIVITIES, (8) ADMINISTRATIVE AND JUDICIAL PROCEEDINGS, AND (9) SAFETY PROCEEDINGS, INCLUDING MOTOR CARRIER AND VEHICLE SAFETY. SEVERAL TABLES OF STATISTICAL DATA ARE APPENDED. (SB)

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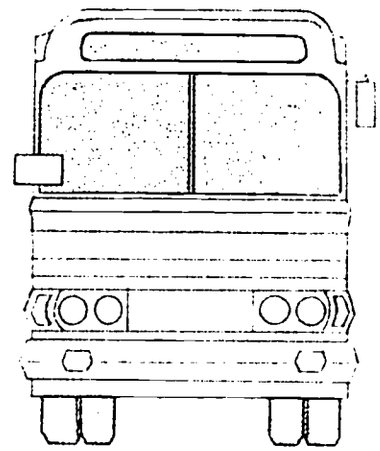
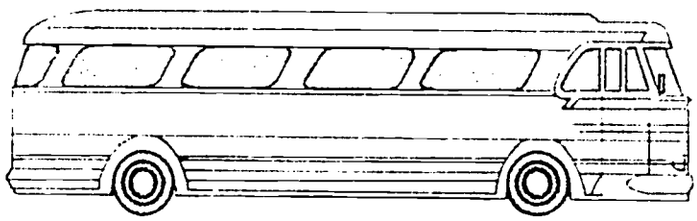
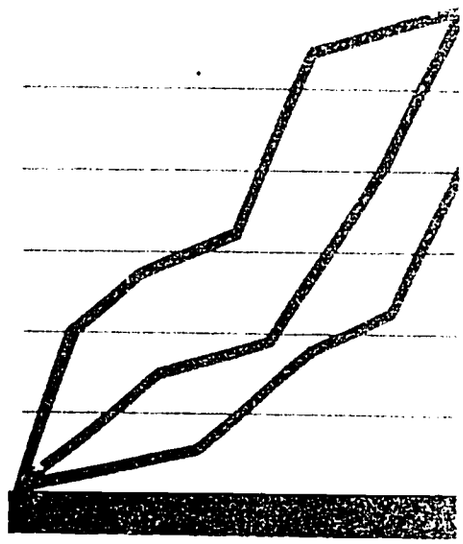
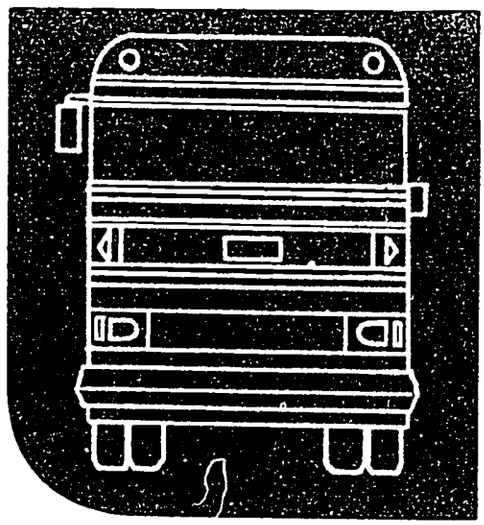


Bus Facts

36th EDITION 1969







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UPI-106

(HIGHWAYS)

WASHINGTON--TRANSPORTATION EXPERTS TESTIFIED TODAY AMERICANS ARE GETTING WIDER AS WELL AS TALLER. AND BUSES SHOULD BE ALLOWED TO RECOGNIZE THIS FACT.

THEY URGED A HOUSE PUBLIC WORKS SUBCOMMITTEE TO APPROVE A BILL THAT WOULD PERMIT STATES TO INCREASE THE PRESENT 96-INCH MAXIMUM WIDTH OF BUSES ON THE INTERSTATE SYSTEM TO 102 INCHES. THE LEGISLATION ALSO WOULD LIBERALIZE SIZE AND WEIGHT LIMITATIONS FOR BOTH TRUCKS AND BUSES.

THE SUBCOMMITTEE LAST YEAR APPROVED A SENATE-PASSED MEASURE TO AUTHORIZE SUCH CHANGES, BUT THE HOUSE NEVER ACTED.

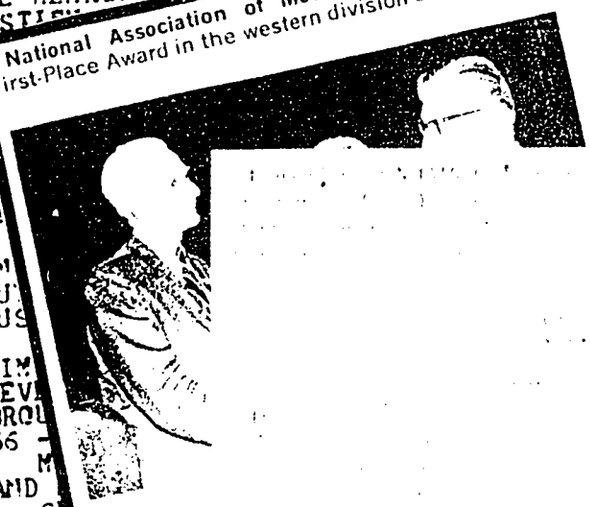
CHAIRMAN JOHN C. KLUCZYNSKI, DILL.,

CHAIRMAN JOHN C. KLUCZ

THE HEARINGS

TESTI

National Association of Motor Bus Owners—The First-Place Award in the western division of the annual



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HOLIDAYS: MONDAY HOLIDAY PLAN BOOSTED IN STATES BY VARIOUS TRANSPORTATION GROUPS

The transportation industry generally is supporting state legislation paralleling the Monday Holiday Act signed last June to take effect in 1971. Both the National Association of Motor Bus Owners and the Air Transport Association are backing the bills under consideration or enacted in 44 state legislators.

Charles A. Webb, president of NAMBO, noted that holiday statutes

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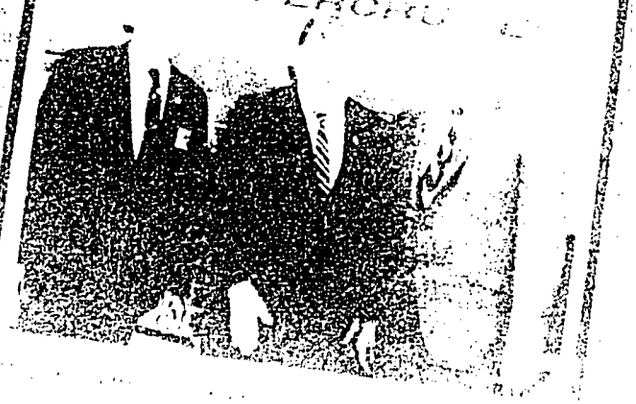
Traffic Report

Coordinated Air, Motor Passenger

National Association of Motor Bus Owners—U.S. Senator Jennings Randolph (center) and Walter



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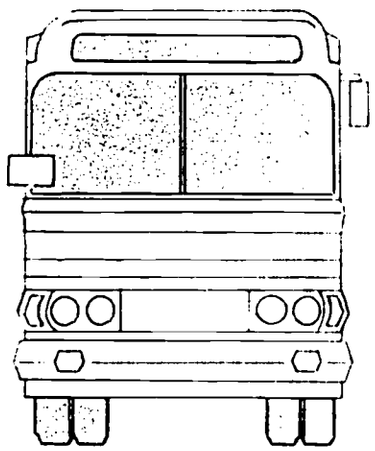
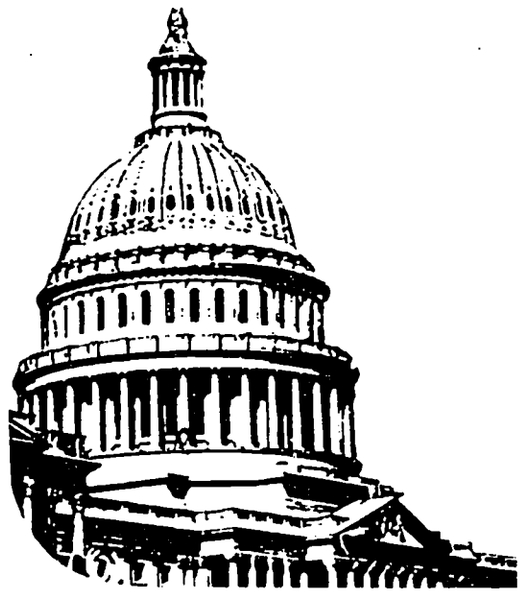
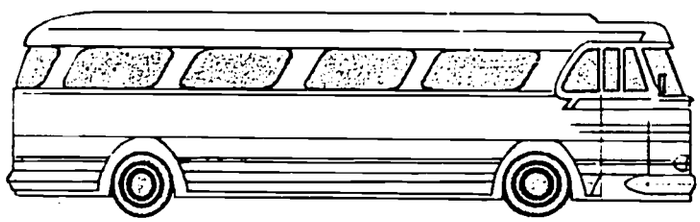


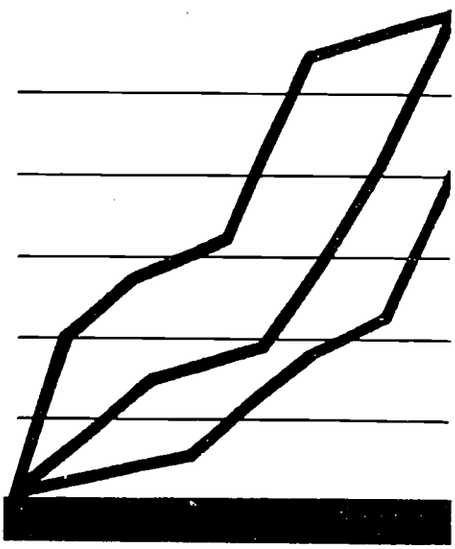


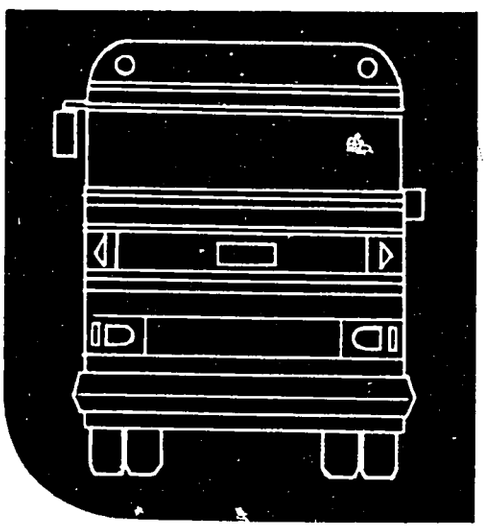
Bus Facts

36th EDITION / 1969

A Picture of the Intercity Bus Industry







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National Association of Motor Bus Owners 1025 Connecticut Avenue Washington, D.C. 20036

DISCOVER AMERICA
BY BUS

This is NAMBO

NAMBO is the national trade association for the intercity motor bus industry. Its members include Greyhound Lines, all companies affiliated with the National Trailways Bus System and more than 400 other carriers not affiliated with either system. Collectively, these carriers provide more than 90 percent of the intercity bus transportation in the U.S. In addition, NAMBO has numerous associate member companies engaged in the manufacture of buses, bus tires, bus seats and other bus equipment, parts and accessories.

Safety is perhaps the No. 1 area of emphasis to NAMBO and the bus industry. To that end, NAMBO has three very active, important standing committees—Vehicle Safety Standards Committee, chaired by J. G. Stieber, vice president–engineering of Greyhound Lines, Chicago; Safety Committee, headed by Burkett A. Rennolds, executive vice president of Continental Trailways Lines–East, Dallas, and Tire Committee, headed by J. J. Hunter, field operations manager for the Goodyear Tire & Rubber Co. Highway Transportation Department, Akron, Ohio. Safety activities are reported in NAMBO's monthly "Bus Safety Developments in Washington" newsletter. Published in 1969 and available to the public is a pamphlet pointing out the bus industry's excellent safety record, "Bus Safety Is No Accident."

Another pamphlet published in 1969 is "Two's a Crowd," which summarizes why the industry needs permission to operate buses six inches wider than at present. This is also available on request.

Among its major activities in 1969, NAMBO, along with several other national organizations, was instrumental in getting the legislatures of 40 states to enact their companion statutes to the federal Uniform Monday Holiday Act, which goes into effect in 1971. The acts will provide for permanent observance of Washington's Birthday on the third Monday every February, Memorial Day the last Monday in May, Columbus Day the second Monday in October and Veterans' Day the fourth Monday in October.

NAMBO's professional staff is headed by the following:

•**President, Charles A. Webb.** Formerly a member of the Interstate Commerce Commission, 1958-67. Designated "Man of the Year in Transportation, 1967," by the Delta Nu Alpha National Transportation Fraternity.

•**Director of Government and Public Affairs, Stanley Hamilton.** First director of publications staff of the Department of Transportation, 1967. Associate editor of *Traffic World*, 1957-67.

•**Director of Legislative Affairs, James T. Corcoran.** Congressional liaison officer for the ICC, 1965-68. White House staff assistant, 1961-62.

•**Director of Research, Frederick H. Mueller.** With NAMBO since 1946, becoming director in 1966. Formerly assistant director of research and labor contract analysis.

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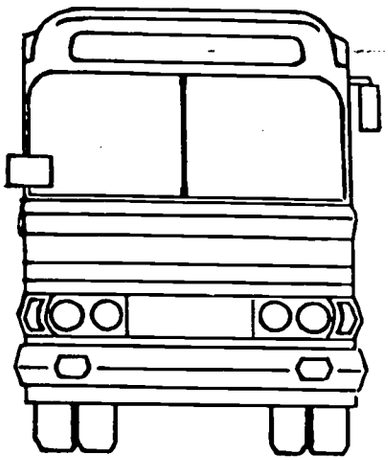

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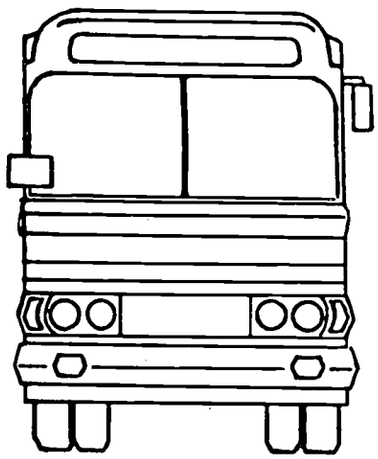
TRANSPORTATION PROMOTION AND RESEARCH ACTIVITIES



Exclusive Bus Lanes

The first extensive test of the feasibility of setting aside highway lanes exclusively for bus use was initiated in September under Department of Transportation auspices. Two lanes of Interstate Highway 95 leading northbound for about four miles into Washington, D. C., from suburban Virginia were reserved for buses in the morning rush hours. The Department reported that the experiment, still continuing into 1970, was highly successful, saving more than 2,000 bus riders 10 to 15 minutes a day under the time for automobile commuters on the same highway.

New Bus Fuel Systems

The intercity bus industry took the initiative in 1969—without government subsidy—to experiment with new fuel and engine systems to do its part in the antipollution effort, even though the diesel bus engine emits far fewer air pollutants than an automobile.

The big breakthrough came when the two largest bus systems—Greyhound and Trailways—began testing turbine-powered buses. The turbine lacks odor or smoke and has a low noise level. It should also prove more economical than the diesel. Engineers predict that since a turbine engine has fewer parts and never requires an oil change, it should run more than a million miles before needing overhaul—double the service of diesel engines. Although the price of a turbine initially could conceivably run 25 percent higher than a diesel, fuel and maintenance economy could equalize costs in the long run.

In related developments in 1969, the Department of Transportation provided funds for testing steam-powered and external combustion local buses. A $450,000 grant went to San Francisco Municipal Railroad to construct and operate four steam-driven buses. Secretary of Transportation John A. Volpe commented that "it represents a significant first step toward reducing air pollution." And $309,789 was granted to the city of Dallas for development and testing of an external combustion gas engine using freon gas.

High-Speed Rail Transportation

After months of delay, the government-aided Metroliner passenger service began in January on a limited basis between New York and Washington, D. C. However, the full two-year actual demonstration project was not officially started because all the equipment had not been delivered to the Penn Central Railroad. Another problem was frequent breakdown of the equipment.

In April, a similar experiment was begun between New York and Boston with TurboTrains operated also by the Penn Central over its New Haven line. Secretary Volpe set the tone at the inaugural when he stated that "if they don't make them wait an hour for a ticket, it will be successful."

In connection with the Metroliner service, the DOT's Office of High-Speed Ground Transportation held a series of talks with the railroad, local officials and bus lines looking toward complementary feeder bus service connecting with the train at the Lanham, Md., suburban station outside Washington. Two bus companies reached agreement with DOT to provide the service from as far away as 25 miles to the new suburban terminal.

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Introduction

Except as otherwise noted, statistics in this review are those reported to the Interstate Commerce Commission (ICC) by Class I motor carriers of passengers operating primarily in intercity service.

Data for the Class I carriers for 1969, as well as for 1968 under the new Class I grouping noted below, are derived from tabulations of carrier reports by NAMBO's Research Department, with estimates for the fourth quarter of 1969. Data for prior years are derived from Part 7 of the Commission's annual publication, *Transport Statistics in the United States*, and the predecessor publication, *Statistics of Class I Motor Carriers*, with estimates to cover certain minor gaps for the earlier years.

A Class I motor carrier of passengers is defined by the Commission (effective January 1, 1969) as having average annual gross operating revenues of $1,000,000 or more. In 1969, some 75 such companies operated principally in intercity service. These Class I carriers account for approximately 86 percent of the total operating revenues of all intercity motor carriers of passengers in interstate commerce. (From 1950 through 1968, the revenue test for Class I carriers was $200,000, there being 173 such companies in 1968.)

Prior to 1969, Class II and III intercity motor carriers of passengers reporting to the ICC numbered somewhat more than 500. Some 600 companies are now grouped in these classifications, including the nearly 100 removed from Class I in 1969. These 600 companies account for more than $100 million in annual operating revenues, carry somewhat fewer than 100 million passengers a year, and employ nearly 10,000 persons. Passengers riding regular intercity schedules of these carriers travel about 1.2 billion passenger-miles annually (a passenger-mile being one person carried one mile).

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New Transportation Policy

Shortly after taking office, President Nixon directed a study of a proposal to establish a National Commission on Transportation Needs and Policy, looking toward, as the President put it, "what this country is going to be like 10 years from now and 20 years from now." At the President's direction, the Department of Transportation turned itself to the task of drafting a new national transportation policy. Secretary Volpe indicated the enormity of the task, stating in a speech in mid-year: "It won't be easy. Not by a long shot, which is one reason why I have told the President we'll probably need close to a year to come up with a policy paper rather than the six months he talked about initially."

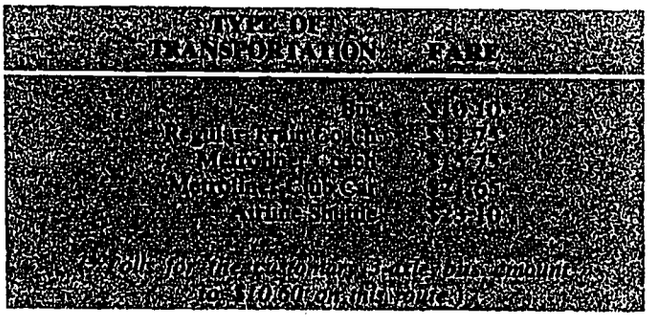
Tracked Air Cushion Vehicle

Work is being conducted under Department of Transportation research contracts to design and construct a prototype air cushion vehicle capable of operating between 250 and 300 miles an hour. The timetable calls for testing to begin early in 1972.

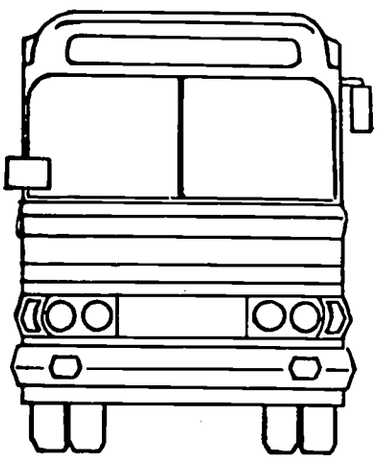
Federal Highway System

As 1969 ended, 29,638 miles of the projected 42,500-mile Interstate Highway System were completed and open to passenger and commercial traffic. Most of the mileage was built or improved under the federal-aid interstate program (90 percent federal, 10 percent state) begun in 1956. All federal funds come from federal excise taxes levied on bus companies and other highway users and channeled through the Highway Trust Fund. Approximately $38.8 billion has been put into the program since 1956.

A COMPARISON, NEW YORK-WASHINGTON FARES
(As of December 31, 1969)



HIGHLIGHTS OF 1969



A Good Year

By most yardsticks, 1969 was a good year for the intercity bus industry, although there were some disappointments and disquieting portents on the horizon.

The bus companies as a group maintained their recent trend of slightly increasing revenue and net income, mainly as a result of continuing substantial gains in popular charter service and package express volume. But caught in the vise of rampant inflation, on one hand, and increasing subsidized competition, on the other, the bus companies were forced—like other carriers—to raise fares somewhat.

In all, nearly 400 million persons took intercity bus trips during the year, well over double the number flown by the domestic airlines. Bus passenger-miles totaled 24.9 billion.

As pointed out elsewhere in this publication, the forward-looking bus industry moved into important new areas of research and technology and continued to build and modernize passenger and express terminals, to improve even more the performance and safety features of its buses and to expand express and charter tour service—in sum, to better serve the public.

Still better service for the public would have been the result had it not been for the industry's biggest disappointment of the year. That was the failure again of Congress to enact legislation permitting the states to increase from 96 to 102 inches the width of buses allowed to use the Interstate Highway System within their borders. Efforts will continue, however, to make available to travelers this more comfortable and even-safer bus.

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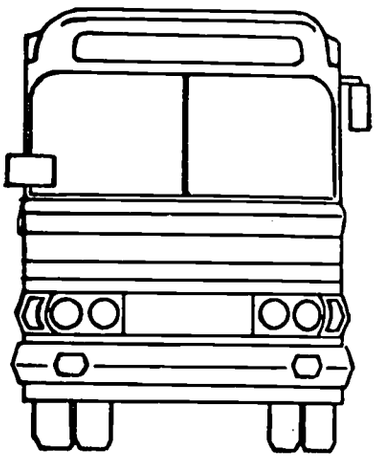
ADMINISTRATIVE AND JUDICIAL PROCEEDINGS



Economic Regulatory Proceedings

NAMBO, its operator members and the National Bus Traffic Association (NBTA) participated in a number of proceedings in 1969 before the ICC and other regulatory agencies. The most important proceedings on economic regulation are summarized below.

NATION-WIDE BUS FARE INCREASE—1969 (I. & S. Dkt. No. M-23042)

A general increase in interstate passenger fares to become effective April 15, 1969, was suspended by the Board of Suspension. In vacating the order of suspension, the Commission, division 2, placed the proposed increased fares under investigation. Carriers were required to submit data on actual and projected revenues and expenses, revenue required to attract equity capital, and carrier-affiliate financial and operating relationships and transactions. A special procedure was ordered to expedite the case but no party sought to cross-examine the carriers' witnesses. By the time the record was closed, all protests to the increased fares had been withdrawn. The bus industry's need for the proposed fare increase was summarized as follows in the verified statement of P. J. Campbell, chairman of the NBTA:

> "If our industry is to continue to provide adequate and improved service, as the basic mode of ground transportation upon which the traveling public depends for its day-to-day intercity transportation, we must have the relief we seek by this general fare increase. Assuming a 10 percent fare increase, this would mean that the bus fare of $2.50 between two points would be increased to $2.75. That increase of 25 cents does not mean much to the passenger, but when multiplied by the total number of passengers moving between those two points, it can mean the difference between profit and loss to the carrier, or the continuance or discontinuance of the service to the public."

MOTOR SERVICE ON INTERSTATE HIGHWAYS—PASSENGERS (Ex Parte No. MC-65)

On November 14, 1969, the Commission served its report (110 MCC 514) adopting rules on the use of the Interstate Highway System by certificated regular-route motor carriers of passengers. At the same time, the Commission revised its *Deviation Rules, 1957*, under which most regular-route carriers had been operating over the Interstate System and other superhighways.

The basic purpose of Ex Parte No. MC-65 was to consider rules under which regular-route passenger carriers could obtain permanent authority to operate over the new superhighways rather than using them as uncertificated alternate routes under a somewhat transitory set of deviation rules. As recommended by the bus

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And the Future . . .

The future appears excellent in broad terms of steady growth, technological advances, breakthroughs in equipment and service, construction of modern new terminals, and such meritorious government steps as the setting aside of more highway lanes for exclusive use by buses and encouragement of intermodal cooperation and coordination.

General problems that can be foreseen include the unsettled condition of the economy, worsening automobile congestion, repeal in 1969 of the 7 percent investment tax credit, the possibility of increased user charges, additional instances of unfair taxation and restrictions imposed by state and local jurisdictions, equipment cost increases due to unwarranted regulation and some instances of overreaction by officials to a "consumer crusade" careless of facts, contemptuous of expert opinion and based on a conspiritorial theory of government and the economy.

Perhaps most disturbing in the long run is the trend to subsidization of competing forms of transportation. These subsidies to competitors of intercity bus operators must either be minimal or be replaced by promotional policies designed to encourage travel on all public modes of transportation. As the railroads in densely populated areas and the airlines generally utilize advanced technology to improve their service, the need for bus companies to be able to remove statutory roadblocks to the modernization and improvement of their equipment becomes ever more pressing. The 102-inch-wide bus is the best answer today.

Another problem area is the indirect subsidization of bus charter service through grants from the Department of Transportation's Urban Mass Transportation Administration. Some publicly owned applicants for capital grants or loans for bus service either openly or covertly seek funds for over-the-road charter buses, grants for which are specifically prohibited by Section 12(c)(5) of the Urban Mass Transportation Act of 1964. DOT does not knowingly approve such grants, but in giving grants for transit buses is in effect subsidizing competition with private bus operators since government-financed equipment releases other funds for the improvement of charter operations.

An example of unfair restrictions placed on bus operations is an ordinance adopted in 1969 by the Atlantic City, N.J., city commission restricting the movement of charter buses there during the vacation season and imposing an entrance fee of $18 per charter bus, in addition to parking fees. Another is restrictions on summer charter bus operations by the New York State Thruway Authority on grounds of overcrowding. Here, though, reversing its previous summer ban on use of service areas by charter buses, the Authority in 1969 did provide a temporary charter bus stop at the Newburgh interchange able to handle about 50 buses and 2,000 persons at a time.

industry, the Commission established a simplified case-by-case certification procedure. Recognizing the need to preserve "the delicate balance existing in the vigorously competitive motor bus industry," the Commission concluded it would be unwise to authorize passenger carrier operations over superhighways under a general rule of construction similar to that adopted for regular-route motor common carriers of property.

As urged by NAMBO and NBTA, the superhighway rules provide for the issuance of certificates of public convenience and necessity where the use of superhighway routes "will not materially change the competitive situation between such carrier and any other carrier or carriers." Proof that the distance over the proposed superhighway route is not less than 90 percent of the distance over the carrier's authorized regular service route will constitute prima facie evidence that no material change in the competitive situation will result. Rules adopted by the Commission for the certification of through-bus operations over superhighways were also in accord with those recommended by the industry.

Because of its heavy operating authority caseload, the Commission refused to authorize issuance of "grandfather" certificates covering the superhighway operations of passenger carriers under effective deviation notices. The Commission apparently rejected the bus industry's position that ability to perform proposed operations under the *Revised Deviation Rules* should not automatically preclude issuance of a certificate under the new *Superhighway Rules*. Despite some uncertainty as to the interpretation of the new rules, no petition for reconsideration of the Commission's report was filed. The Commission was advised that motor carriers of passengers, on the basis of experience in operating under the new rules, would be better able to determine what modification of the rules, if any, might be necessary or desirable.

PASSENGER TRANSPORTATION IN SPECIAL OPERATIONS (Ex Parte MC-29 (Sub-No. 1))

OPERATIONS OF BROKERS OF PASSENGER TRANSPORTATION (Ex Parte MC-29 (Sub-No. 2))

In the Sub-No. 1 proceeding, the bus industry proposed regulations to define the scope and type of services that may be performed under certificates authorizing the transportation of passengers in special operations. In Sub-No. 2, the industry proposed regulations defining the terms, restrictions and conditions appearing in licenses issued to brokers of passenger service. In both proceedings, examiners recommended against adoption of interpretative rules and regulations. NAMBO and NBTA filed exceptions to the examiners' reports in 1968. No action in either proceeding was taken by the Commission in 1969.

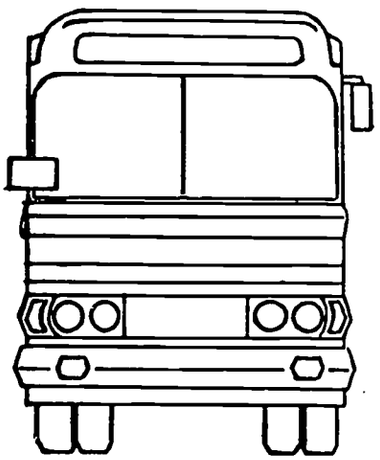
VEHICLES EMPLOYED SOLELY IN TRANSPORTING SCHOOL CHILDREN AND TEACHERS (Ex Parte No. MC-78)

On October 13, 1969, the Commission issued a notice of proposed rulemaking to consider the desirability of adopting rules interpreting the exemption from economic regulation provided by Section 203(b)(1) of the Interstate Commerce Act. That section exempts from economic regulation "motor vehicles employed solely in transporting school children and teachers to and from school." NAMBO will participate in the proceeding with a view toward obtaining an interpretation consistent with the intent of Congress and with the interest of the general public in maintaining a strong system of regulated motor bus transportation.

HUDSON TRANSIT LINES, INC. v. UNITED STATES (C.A. Nos. 880-69 et al. (D.N.J.))

This court proceeding is an appeal from the report of the Commission, division 1, in *Monarch Associates, Inc., Common Carrier Application*, 107 MCC 277 (1968). In that report, applicant was authorized to engage in commuter operations by leasing vehicles to car-pool groups, with each group providing its own driver by rotating the driving among the riders. In a petition for reconsideration which was denied, NAMBO and 12 regular-route passenger carriers contended that applicant had failed to demonstrate its willingness and ability to comply with the Motor Carrier Safety Regulations. NAMBO is participating as an intervenor in the above-entitled court proceeding to set aside the Commission's grant of authority to Monarch Associates.

FINANCIAL RESULTS



Revenue and Income

Gross operating revenues of Class I intercity bus companies showed an increase in 1969 that was somewhat greater than in either of the two preceding years. A small increase in net operating revenue was also experienced in 1969.

Operating revenues totaled an estimated $674 million in 1969, an increase of about 5.2 percent over 1968 among companies grouped in Class I under the definition effective January 1, 1969. The 98 companies reclassified as Class II carriers had revenues for 1968 totaling $54.3 million.

Operating expenses totaled an estimated $589.5 million in 1969, or 4.7 percent more than during the preceding year (among carriers in Class I under the new definition). Expenses accounted for 87.5 percent of revenues as compared with 87.9 percent in 1968.

Net operating revenue, an estimated $84.2 million, was up 8.6 percent over 1968 and represented 12.5 percent of operating revenues as compared with 12.1 percent in 1968 for carriers in Class I under the new definition. This improvement in the proportion of revenue remaining after payment of operating expenses, however, was insufficient to restore it to the levels of most years between 1958 and 1966 despite the fact that the companies remaining in Class I under the 1969 definition typically have somewhat lower operating ratios than the smaller carriers removed from Class I.

Nonoperating income was less than in 1968, although substantially larger than in preceding years. As a result, net income, both before and after income taxes, continued at about the same level as in 1968. Net income after taxes totaled an estimated $58.1 million.

Passenger fares on regular-route services provide by far the largest proportion of total revenues. However, revenues derived from charter and special services and from the transportation of package express continue to grow in relative importance.

Fare-receipts from passengers on regular intercity schedules totaled an estimated $481 million in 1969. Fares on local and suburban routes served by the intercity carriers provided another $15 million. The $496 million combined total represented an increase of about 3.7 percent over the corresponding $478 million in 1968 among companies in Class I under the revised definition effective in 1969. These receipts accounted for about 73.6 percent of total revenues in 1969, as compared with 74.6 percent in 1968.

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D. C. TRANSIT SYSTEM, INC. v. WASHINGTON METROPOLITAN AREA TRANSIT COMMISSION (No. 22904 (C.A.D.C.))

On December 9, 1969, the U.S. Court of Appeals for the District of Columbia affirmed the decision of the Washington Metropolitan Area Transit Commission holding that the commission lacks jurisdiction to regulate the operation of chartered bus tours originating and terminating outside of the Washington, D. C., metropolitan area. The court's decision sustains the position taken by NAMBO as an intervenor in the proceeding.

REGULATIONS GOVERNING FEES FOR SERVICES PERFORMED IN CONNECTION WITH LICENSING AND RELATED ACTIVITIES (Ex Parte No. 246)

On May 20, 1969, the Commission instituted this proceeding to increase fees and charges for the purpose of offsetting rising administrative costs in the processing of petitions and applications before the Commission. In a joint statement filed by NAMBO and NBTA, the industry objected to the proposed charge of 50 cents per tariff page on the ground that such a fee would be exacted for compliance with a requirement of law and, therefore, would not be a proper charge. No objection was made to other fees and charges proposed by the Commission for services prompted by the voluntary action of carriers. In other words, the bus industry position was that the filing of tariffs with the Commission does not result in special benefits to the carriers above and beyond those which accrue to the public.

CLASSIFICATION OF MOTOR CARRIERS OF PASSENGERS

Effective January 1, 1969, the revenue classification of motor carriers of passengers was revised. The classification established new limits for accounting and reporting purposes of $1,000,000 or more average annual gross operating revenues for Class I carriers, the prior revenue test for Class I carriers having been $200,000 or more. As a result of this change, 176 motor carriers of passengers were taken out of the Class I category and thus relieved from compliance with the Commission's uniform system of accounts and the filing of quarterly financial reports. In addition, these carriers were relieved from the necessity of completing the 52-page Annual Report Form D. In its 83rd Annual Report to Congress, the Commission reported that the new reporting requirements for passenger carriers had resulted in 1,400 fewer copies of quarterly reports and 16,000 fewer pages of annual financial and statistical data.

STANDBY YOUTH FARES—"YOUNG ADULT" FARES (CAB Dkt. No. 18936)

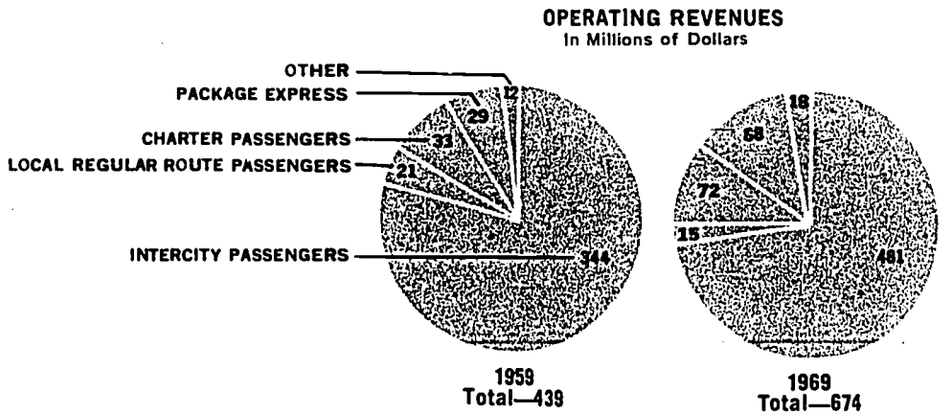
In this proceeding, the Civil Aeronautics Board decided that airline youth fares and young adult fares are not unjustly discriminatory, as found by a CAB examiner, but remanded the proceeding for further hearings to determine whether these promotional fares are just and reasonable.

Subsequently, the Board included within the scope of the investigation two other promotional fares—the airlines' family fare plans and their Discover America Fares. The interests of the bus industry have been represented throughout these proceedings by the National Trailways Bus System and several of its members. NAMBO filed a petition to intervene in the further proceedings which was granted early in 1970.

AT&T TELPAK SHARING AND RATE INCREASE CASES (FCC Dkt. Nos. 17457 and 18128)

Throughout 1969, NAMBO participated actively in proceedings before the Federal Communications Commission in opposition to elimination of the sharing provisions of the TELPAK offering and in opposition to TELPAK rate increases. No final decision in these proceedings had been reached by the end of the year.

ERIC



Charter and special service operations provided $72.4 million in revenue in 1969, an increase of 8.7 percent over the preceding year. Such revenue in 1969 represented about 10.8 percent of total revenues, compared with 10.4 percent in 1968 among carriers remaining in Class I. Smaller intercity bus companies typically operate greater proportions of their total services in charter and special service than Class I carriers. In 1968, for example, companies no longer in Class I under the 1969 definition derived 42.2 percent of their revenue from charter and special service and only 47.5 percent from regular-route passenger fares.

Revenues from package express service climbed to an estimated $88.3 million in 1969, 10.5 percent over 1968. Revenue from this source represented a little over 13 percent of all operating revenues in 1969, compared with 12.5 percent in 1968 among carriers remaining in Class I. Package express service provided 7.2 percent of the 1968 revenues of the carriers removed from Class I in 1969.

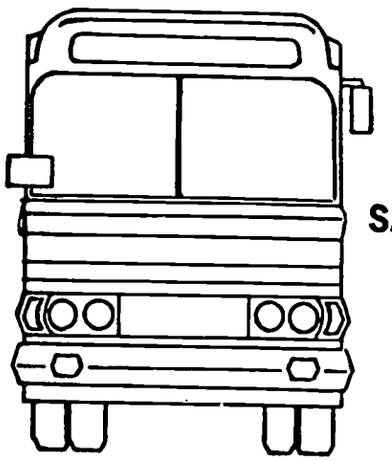
Growth in both charter and special service and transportation of package express has been substantial in most recent years. Since 1959, revenue from package express service has increased from 6.5 percent to 13 percent of total revenues.

Fare revenue in regular-route intercity service averaged an estimated 3.34 cents per passenger-mile in 1969, compared with 3.18 the preceding year. This increase of approximately 5 percent resulted from somewhat higher fares, principally a 10 percent increase in interstate fares that became effective on many lines April 15. The revenue increase was slightly less than the rise in the cost-of-living (5.4 percent as measured by the Consumer Price Index) and was well under the increase in the average per-mile cost of bus operation (6.3 percent, as noted below).

During the decade between 1959 and 1969, average revenue per passenger-mile has increased roughly 29 percent. The same period saw a rise in operating expenses, as an average per bus-mile, of more than 40 percent. The result has been a narrowing in the margin between revenues and expenses.

Over-all operating revenue averaged an estimated 77.5 cents per bus-mile in 1969, up about 6.7 percent from the preceding year among carriers continuing in Class I. The increase in unit expense, as noted below, was almost as sharp (6.3 percent), but the difference was sufficient to provide the small improvement in the operating ratio noted earlier (to 87.5 in 1969 from 87.9 in 1968 among carriers retained in Class I).

During the years between 1959 and 1968, revenue per mile rose about 31 percent at the same time that expenses per mile were up 34 percent. The result was a deterioration in the operating ratio—from 86.6 in 1959 to 88.3 in 1968. The slight improvement in 1969 was insufficient to reduce the ratio to a level generally regarded as adequate to attract equity capital.



SAFETY PROCEEDINGS

Motor Carrier Safety

The Department of Transportation is charged with the administration of two major safety programs that directly affect the intercity motor bus industry. Responsibility for motor carrier safety has been delegated to DOT's Bureau of Motor Carrier Safety. Authority over motor carrier safety matters was transferred from the ICC to DOT on April 1, 1967, and is derived, in the main, from Part II of the Interstate Commerce Act.

Responsibility for motor vehicle safety has been delegated to DOT's National Highway Safety Bureau. That authority is derived from the National Motor Vehicle and Traffic Safety Act of 1966. Safety standards issued under the authority of that act have been made applicable only to newly manufactured vehicles. The responsibility for complying with federal motor vehicle safety standards is primarily that of manufacturers of motor vehicles and motor vehicle equipment. However, bus operators may be vitally affected by such standards.

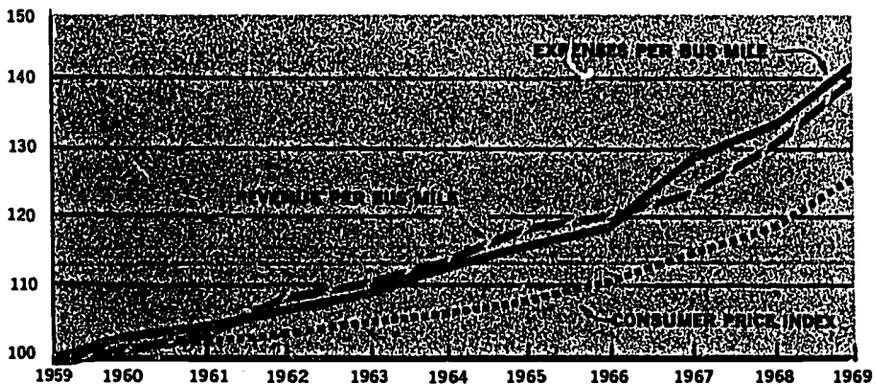
The intercity bus industry participated in 1969 in numerous proceedings before the two Bureaus involving motor carrier safety or motor vehicle safety. Some of the major proceedings are summarized below.

SEAT BELTS IN BUSES (Ex Parte No. MC-69 and Dkt. No. MC-11, Notice No. 69-12)

The proceeding docketed as No. MC-11 proposes amendments to the Motor Carrier Safety Regulations that would require seat belts to be installed at the driver's seat position in both new buses and buses in use. Buses that operate exclusively within commercial zones would be exempted from the driver's seat belt requirement.

The notice of the proposed amendments contained the following language of justification: "Ensuring that the driver will remain in his seat during evasive maneuvers and crash situations should decrease the possibility of injury to passengers in commercial vehicles and to other users of the highways." NAMBO agreed with that conclusion and pointed out that "the bus companies will, of course, make every reasonable effort to educate their drivers to the benefits and

TRENDS IN OPERATING REVENUES AND EXPENSES
INDEX 1958 = 100



Expenses

Expense categories involving large proportions of labor or labor-related cost registered the greatest increases in 1969.

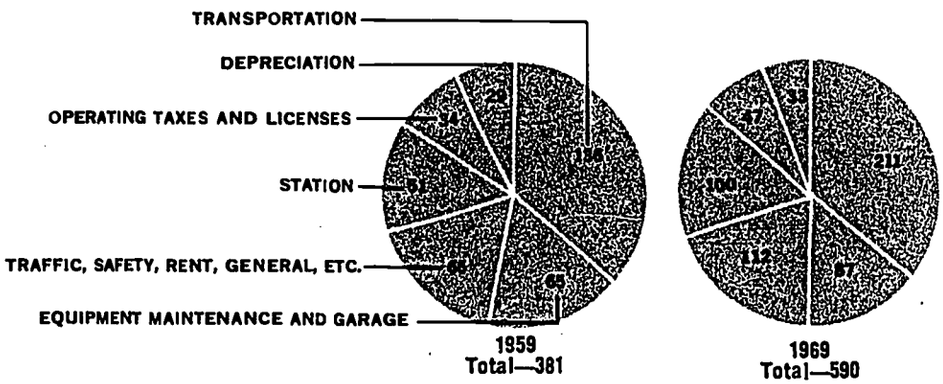
Equipment maintenance and garage expense rose 6.8 percent, to an estimated $86.6 million in 1969. Wages of mechanics, servicemen and other maintenance jobs typically account for more than half of the total expense in this category. Station expense, of which wages and commissions typically constitute 85 percent or more, rose 6.5 percent, to $100 million in 1969.

Transportation expense, of which more than three-fourths goes for wages of drivers and other transportation employees, was up 4.2 percent, to $211 million. Wages paid to drivers rose an estimated 3.5 percent between 1968 and 1969, totaling a little over $159 million in the latter year. Nondriver costs in the transportation category rose somewhat more rapidly (6.5 percent) and totaled $52 million in 1969. Administrative and general expense, which includes the steadily expanding employee welfare costs ($26 million, or 42.3 percent of the total in 1968), rose an estimated 10 percent, to nearly $61 million in 1969. Depreciation expense decreased 8 percent—to $33.3 million in 1969—thus reversing by an almost equivalent amount an increase for this category that occurred in 1968.

Operating expenses averaged an estimated 67.8 cents per bus-mile in 1969, or 6.3 percent greater than in the preceding year and more than 40 percent greater than in 1959.

Employee compensation averaged about 33.1 cents per mile in 1969, up about 6.4 percent over 1968 and more than 40 percent greater than in 1959. Including

OPERATING EXPENSES
In Millions of Dollars



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advantages of using their seat belts and to ensure that they do indeed make proper use of thir belts at all times." NAMBO asked that bus companies be given at least 24 months to install the belts after issuance of the final regulation, which had not been published when the year ended.

In the notice announcing the driver's seat belt proposal, reference was made to Ex Parte No. MC-69, a proceeding instituted on June 1, 1966, to consider the desirability of requiring seat belts for all the seating positions in buses. The notice concluded: "Responses to Ex Parte No. MC-69, as well as other available data in this area, have been carefully studied. Because of certain operational problems, the structural limitations of existing buses, and studies currently being made by the National Highway Safety Bureau relating to safety performance requirements of buses to be built in the future, the Administrator does not at this time propose to require installation of seat belt assemblies and anchorages for passenger seats in intercity buses." In its response to the notice, NAMBO urged that Ex Parte No. MC-69 be discontinued on the ground that the record would not support a finding that safety would be enhanced by the installation of seat belts for bus passenger seats.

QUALIFICATIONS OF DRIVERS (Dkt. No. MC-7; Notice No. 69-9)

This rulemaking proceeding, instituted on June 2, 1969, involves a comprehensive revision of Part 391 of the Motor Carrier Safety Regulations. The proposed regulations call for (1) more thorough investigation of the employment record of prospective drivers and testing of their knowledge and driving ability; (2) a substantial tightening of minimum physical qualifications; (3) an annual review of each driver's record and more frequent physical re-examinations, and (4) disqualification of drivers convicted of serious offenses involving a motor vehicle or alcohol or drugs. In general, NAMBO favored the more stringent requirements but pointed out that some of the proposals were unduly severe for drivers or carriers.

REGROOVED TIRES (Dkt. No. MC-5)

Amendments to section 393.75 of the Motor Carrier Safety Regulations were adopted providing for a minimum tread groove pattern depth of 4/32 of an inch for front tires, a minimum depth of 2/32 of an inch for other tires, and a prohibition against the use of regrooved tires on the front wheels of buses. These amendments were consistent with tire maintenance practices followed for many years by the intercity bus industry.

PUBLIC AVAILABILITY OF ACCIDENT REPORTS (Dkt. No. MC-6)

On January 17, 1969, a rule was issued to revoke section 394.1 of the Motor Carrier Safety Regulations. That section had provided that motor carrier accident reports were not available for public inspection. NAMBO had opposed indiscriminate public disclosure of motor carrier accident reports on the ground that plaintiffs' attorneys could use such reports to the carriers' disadvantage in private litigation. NAMBO also pointed out that maintaining the confidential status of accident reports would encourage full and frank discussion of all information concerning accidents involving motor carriers. Despite the opposition of the motor carrier industry, the Federal Highway Administrator ruled that all motor carrier accident reports filed after March 31, 1969, would be available to the public.

OTHER MOTOR CARRIER SAFETY PROCEEDINGS

NAMBO also participated in a number of other proceedings before the Bureau of Motor Carrier Safety. Statements were filed in Docket No. MC-10 in which consideration will be given to amending the Motor Carrier Safety Regulations to require a specified performance capability of commercial vehicles, including buses, on ascending grades. In a proceeding docketed as No. MC-8, consideration is being given to the establishment of more stringent requirements for the braking performance of buses. In Docket No. MC-18, consideration is being given to the establishment of new or revised specifications for the fuel systems of buses. In all of the proceedings mentioned, the proposed regulations, if adopted, would apply to buses in use regardless of the date of manufacture.

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fringe items, labor costs for 1969 averaged 38.6 cents per mile, nearly 50 percent greater than in 1959. By comparison, the cost of living as measured by the Consumer Price Index of the U. S. Bureau of Labor Statistics rose 26 percent over the same 10-year period.

Nonlabor expenses (excluding fringe labor costs as well as payrolls) averaged 29.2 cents per mile in 1969, roughly 6 percent above 1968 and one-third higher than in 1959.

Depreciation expense averaged 3.8 cents per mile in 1969, down from the corresponding average of 4.1 cents in 1968 but up from 3.6 cents in 1959.

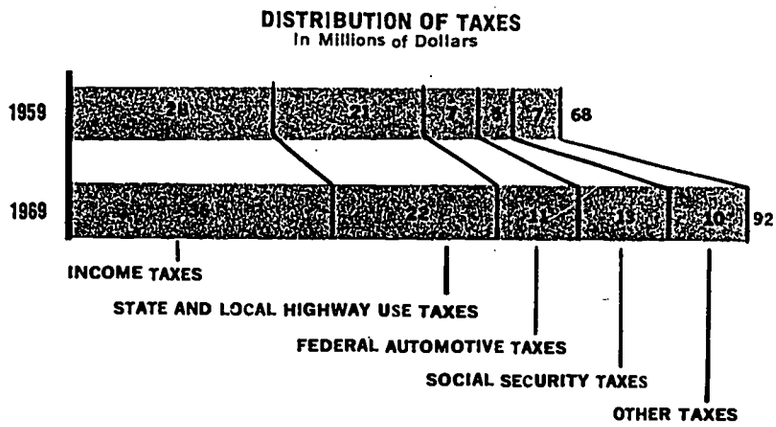
Federal automotive taxes (exclusive of the 10 percent excise tax on new buses) and state and local highway-use taxes (including tolls) averaged 3.5 cents per bus-mile in 1969. Much of the remaining nonlabor expense—21.9 cents per bus-mile in 1969 as compared with 14.9 cents a decade earlier—was for motor fuel, replacement parts for buses, other materials and supplies, insurance, advertising, and commissions to agents at small terminals.

Taxes

The Class I carriers paid an estimated $92 million in taxes of all kinds in 1969, up 3.6 percent from the preceding year. Of this total, income taxes paid to all levels of government accounted for a little over $36 million, up 1.4 percent from 1968 and representing nearly 40 percent of the total tax bill. Federal income taxes alone amounted to $34.3 million of that total. About 90 percent of the income taxes paid in 1969 was attributable to operating revenues and 10 percent to nonoperating income.

Other major items for bus operators were federal, state and local taxes assessed for use of the highways. Such levies totaled an estimated $33 million, up 3.4 percent from 1968, and represented in 1969 a cost of approximately 3.8 cents for each bus-mile operated as compared with 3.6 cents in 1968. State and local highway-use taxes totaled $22.6 million, representing 24.5 percent of the 1969 tax bill and costing 2.6 cents per bus-mile. Such taxes include vehicle registration fees, motor fuel levies, mileage and weight taxes, and tolls for the use of highways, bridges, tunnels and ferries. Federal automotive taxes, including levies on fuel and oil, vehicle weight, tires, new buses, and parts and accessories, totaled $10.6 million, or 11.5 percent of the tax bill and 1.2 cents per bus-mile.

A constantly increasing tax cost is that levied on employers for Social Security benefits. In 1969, such taxes cost the bus companies about $13 million, or more than 23 percent of all taxes other than those on income. In 1959, by comparison, such levies on the Class I carriers amounted to just $5 million.



Motor Vehicle Safety

REGROOVED TIRE REGULATIONS

Effective April 1, 1969, the Federal Highway Administration issued regulations on the conditions under which regrooved tires may be sold, offered for sale, introduced for sale or delivered for introduction in interstate commerce. The bus industry objected to one section of the regulations requiring cord material below the grooves to be covered by tread material at least 3/32 of an inch. The industry also questioned DOT's power to apply the regulations to operators of motor vehicles who regroove tires for use on their own vehicles. NAMBO, joined by the American Trucking Associations and American Transit Association, appealed from the action of the Federal Highway Administrator to the U.S. District Court for the District of Columbia. Argument on our motion for summary judgment is expected to be held in early 1970.

WINDSHIELD RETENTION (Dkt. No. 69-29)

In this proposed rulemaking before the National Highway Safety Bureau, consideration is being given to extending to buses the standard on windshield retention now applicable to passenger cars. The bus industry is opposed to any requirement for solidly mounted windshields because the safety of bus occupants would be seriously compromised. Since the windshield opening is one of the best routes of escape and evacuation, the windshield on buses should be easy to dislodge.

SEAT BELT INSTALLATIONS (Dkt. No. 2-13)

In this notice of proposed rulemaking, consideration is being given to requiring the installation of seat belts at the driver's seating position in buses. The proposed regulation, if adopted, would apply to buses manufactured in the future but would not apply to buses now in use. The bus industry will not oppose reasonable requirements for the installation of seat belts at the driver's seat position.

CONSUMER INFORMATION REGULATIONS (Dkt. No. 28)

In Docket No. 28 and various sub-docket numbers, consideration is being given to consumer information regulations under which bus manufacturers would be required to provide detailed information to purchasers regarding the braking performance, illumination capabilities, driver field of view, acceleration and passing ability, steering ratio characteristics, and flammability of materials in bus interiors. In these proceedings, NAMBO explained to the National Highway Safety Bureau that all the information in question was readily available to prospective purchasers of buses and that the proposed consumer information regulations would unduly burden manufacturers by requiring publication of voluminous data that would not be used.

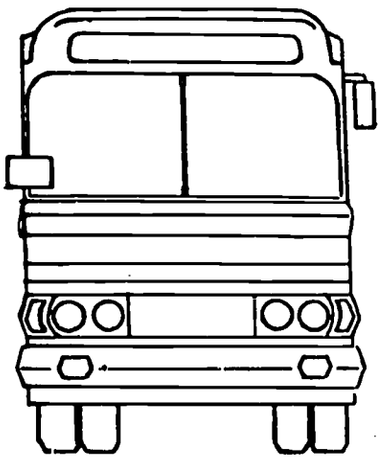
INFLATABLE OCCUPANT RESTRAINT SYSTEMS (Dkt. No. 69-7; Notice No. 1)

This advance notice of proposed rulemaking is to consider whether manufacturers should be required to equip new buses and other new motor vehicles with so-called inflatable air bags for the protection of passengers involved in collisions. While agreeing that the intent of the suggestion is laudable, NAMBO took this position in its statement: "In the absence of adequate research and testing, we are naturally concerned about the possibility of inadvertent detonation of the air bags; failure of the bags to inflate; the effect, in buses, on passengers who happen not to be seated when the bags detonate; servicing of the air bags and their equipment; the adequacy of the air bags in the case of multiple impacts in the same accident; the noise level, and the cost, among other things."

OTHER PROPOSED MOTOR VEHICLE SAFETY STANDARDS

During 1969 the bus industry was represented through NAMBO in numerous proceedings proposing new or amended motor vehicle safety standards. On pages 25 through 27 is a list of Federal Motor Vehicle Safety Standards presently applicable to buses, together with a list of proposed Motor Vehicle Safety Standards. All the standards proposed under the authority of the National Motor Vehicle and Traffic Safety Act of 1966 would apply to buses manufactured after a specified date but not to buses currently in use.

TRENDS IN TRAFFIC AND SERVICE



Travel volume in regular-route service continued the decline that began in 1967 after an almost steady increase during the preceding six years. At the same time, travel in charter and special service continued the steady increase of most recent years. A further increase in the steadily rising volume of package express transportation service is indicated in trends for revenues noted above.

Passenger-miles of travel on regular scheduled intercity routes of the Class I carriers totaled an estimated 14.4 billion in 1969, or about 1.2 percent less than in 1968 among carriers continuing in the Class I group under the revised 1969 definition. From 1961 through 1966, passenger-miles rose about 26 percent, totaling 16.5 billion in 1966 vs. 13.1 billion in 1960. In the succeeding years, 1967 through 1969, this total decreased about 8 percent if distortion due to reduction of the number of carriers in Class I in 1969 is removed.

The number of passengers carried in regular-route intercity service decreased about 5.5 percent in 1969, substantially more than the decline in passenger-miles noted. This difference reflects an increase in the average length of passenger trips, a decline in short-distance travel on congested local highways, and less duplication of passenger count reports because of increased use of through-bus service.

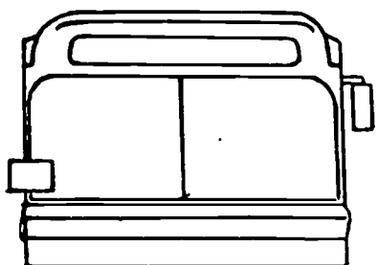
Travel in charter and special service was up nearly 6 percent in 1969 in terms of bus-miles, or more than double the corresponding rise in 1968 when charter traffic was adversely affected by civil disturbances. The increase for 1969, however, failed to match the increases that occurred in a number of preceding years. Between 1959 and 1967, bus-miles of charter and special service increased at an annual rate of more than 10 percent.

Bus-miles operated in all services declined about 1.4 percent in 1969—the result of a decline of roughly 2.3 percent in bus-miles run in regular-route service. As already noted, miles of charter and special service rose nearly 6 percent.

As noted in connection with revenues, operations of the smaller carriers tend to be concentrated heavily in charter and special service. Among carriers removed from Class I under the revenue test effective in 1969, more than 36 percent of total bus-miles operated in 1968 were run in charter and special service as compared with 11.3 percent among companies remaining in Class I.

8098

APPENDIX TABLES



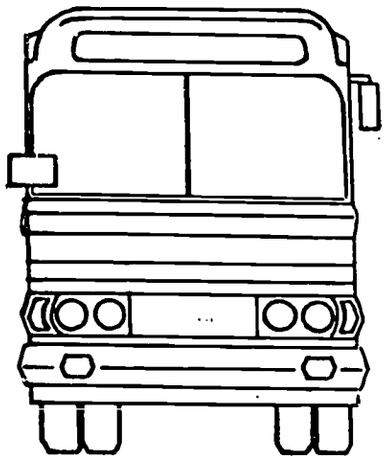
FEDERAL MOTOR VEHICLE SAFETY STANDARDS APPLICABLE TO BUSES

December 31, 1969

NUMBER	SUBJECT	EFFECTIVE DATE
102	Transmission Shift Lever Sequence, Starter Interlock and Transmission Braking Effect	Jan. 1, 1968
103	Windshield Defrosting and Defogging Systems	Jan. 1, 1969
104	Windshield Wiping and Washing Systems	Jan. 1, 1969
107	Reflecting Surfaces	Jan. 1, 1968
108	Lamps, Reflective Devices and Associated Equipment	Jan. 1, 1968 & Jan. 1, 1969
112	Headlamp Concealment Devices	Jan. 1, 1969
113	Hood Latch Systems	Jan. 1, 1969
205	Glazing Materials	Jan. 1, 1968
209	Seat Belt Assemblies (installation of seat belts on buses not required)	March 1, 1967
Part 369	Regrooved Tires*	April 1, 1969

Standards Adopted

8112



EMPLOYEES AND THEIR COMPENSATION

Labor costs continued to escalate despite declining totals for employment and bus-miles. Payrolls totaled an estimated $287.3 million in 1969, or 4.5 percent greater than in 1968 among carriers retained in the Class I category under the 1969 test. Payrolls represented a slightly smaller proportion of expenses in 1969 (48.8 percent) than in 1968 (48.9 percent).

Fringe labor cost items such as Social Security taxes and employee welfare benefits paid by employers, workmen's compensation, and miscellaneous employee expenses rose from $44.6 million in 1968 to approximately $48 million in 1969. Including such additional items, labor costs represented nearly 57 percent of operating expenses in 1969.

Approximately 33,300 employees constituted the work force of the Class I carriers in 1969, down 1 percent from the preceding year among carriers continuing in Class I under the 1969 definition. Not included in this total are the numerous commission agents and their employees, who sell bus tickets and provide station services in small communities and at crossroads terminals throughout the country. Between 1965 and 1968, employment of the Class I carriers ranged between 35,300 and 37,700, but the reduction in the number of Class I carriers in 1969 cut the total employment figure for this segment of the industry by nearly 4,000.

About 15,700 drivers were employed in 1969, about 300 fewer than in 1968. They represented a little over 47 percent of total employment in 1969. There has been a steady decline during most recent years, prior to 1969, in the number of nondriver personnel relative to drivers, a trend that reflects continuing efforts for greater efficiency in nonoperating departments—to a degree not possible for actual vehicle operation.

The average driver drove 55,300 bus-miles in 1969, relatively unchanged from a year earlier, for carriers continuing in Class I under the 1969 definition. However, the corresponding average for all carriers in Class I in 1968 was lower (52,800 miles) since the smaller companies no longer in Class I under the 1969 definition reported bus-miles for 1968 averaging only 38,000 per driver. Such companies operate typically in short-haul service in which there is less opportunity for high driver utilization.

The average employee earned $8,640 in 1969, or 5.4 percent more than in 1968, among companies remaining in Class I. Drivers averaged $10,130, up 5.2 percent. Lower average employee earnings typical of smaller carriers were reflected in the over-all averages for the Class I segment of the industry in 1968 ($9,032 for drivers and $7,917 for all employees). These earnings averages include fringe wage payments such as those for vacations, sick leave and wage guarantees, but they exclude the additional fringes noted above.

8099

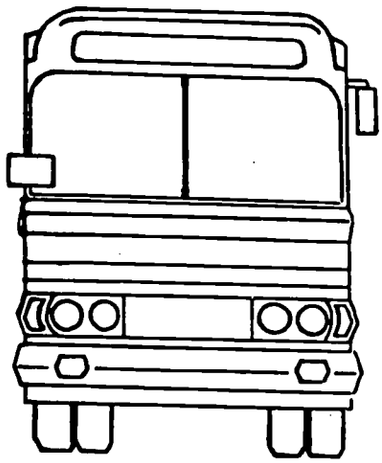
PROPOSED FEDERAL MOTOR VEHICLE SAFETY STANDARDS APPLICABLE TO BUSES

December 31, 1969

Proposed Standards

NUMBER	SUBJECT	STATUS
1-2	Service Brake, Emergency Brake and Parking Brake Systems	ANPR
1-4	Brake Linings	ANPR
1-5	Brake Hoses	ANPR
1-6	Tires (performance requirements)	ANPR
1-7	Tire Traction	ANPR
1-8	Retreaded Tires	ANPR
1-9	Bumper Height	ANPR
1-10	Bumper Effectiveness	ANPR
1-11	Rear Underride Guard	ANPR
1-13	Windshield Defrosting	ANPR
1-15	Rearview Mirrors	ANPR
1-18	Control Location and Identification	ANPR*
1-19	Maximum Speed Control	ANPR
2-4	Impact Protection for Driver From Steering Control System	ANPR
2-5	Exterior Protrusions	NPR
2-6	Intrusion (Limitation of amount of exterior impact)	ANPR
2-7	Energy Absorption	ANPR
2-10	Emergency Exits	ANPR
2-11	Passenger Seats (performance requirements)	ANPR
2-12	Anchorage of Seats	ANPR*
2-13	Seat Belt Installations	ANPR*
2-14	Seat Belt Assembly Anchorages	ANPR*
3-2	Fuel Tanks, Fuel Tank Filler Pipes and Fuel Tank Connections	ANPR
3-3	Fire-Retardant Materials for Interiors	ANPR*
4-1	Radiator Caps	ANPR*
4-2	Warning Devices for Stopped Vehicles	ANPR*
4-4	Odometers	ANPR
Dkt. No. 29	Forward-Facing Windows	NPR
Dkt. No. 37	Standards for Vehicles in Use	Request for Comments
MC-7	Driver Qualifications	NPR
MC-8	Brake Performance	ANPR
MC-11	Driver Seat Belts	NPR

INTERCITY BUS SAFETY RECORD



Recent trends continue to demonstrate that intercity bus passengers are far safer than automobile riders and generally at least as safe as those riding the railroads or domestic airlines.

During the three-year period, 1966-68 (the most recent for which comprehensive data are available), accidents involving intercity operations of Class I bus companies resulted in a total of 67 fatalities to passengers, or 0.11 deaths per 100,000,000 passenger-miles traveled by passengers on these buses.

During the same years, more than 106,000 automobile passengers died in accidents, according to *Accident Facts*, published by the National Safety Council. Railroad accidents resulted in 53 passenger deaths during the corresponding period, while airline accidents caused 543 fatalities to passengers. The fatality rate in automobiles was 2.4 per 100,000,000 passenger miles, or nearly 22 times the rate for intercity buses. The railroad rate was 0.12, the airline 0.24.

In only two of the 13 years (1956-68) for which data are available have the Class I carriers had a passenger fatality rate greater than 0.16, and in eight of those years the rate was 0.11 or less.

This record is remarkable in view of the continually increasing exposure to accidents with mounting traffic on the highways. Furthermore, buses are required to operate scheduled service under practically all conditions of weather and road.

Reports issued by the Bureau of Motor Carrier Safety of the Federal Highway Administration show 31 bus passenger fatalities in 1968 in accidents involving buses of Class I companies. Nineteen occurred in one accident, a head-on collision with a passenger car that was traveling at high speed on the wrong side of an interstate highway.

In addition to the 31 passenger fatalities, there were three to bus drivers, 70 to persons riding other vehicles and 16 to pedestrians and other persons, or a total of 121, including one that presumably resulted from an accident not involving moving vehicles. Despite the one major accident, the year 1968, the most recent one for which comprehensive data are available, saw fewer fatalities from accidents involving buses of the Class I carriers than did any of the years 1964 through 1966. In 1967, a total of 92 fatalities resulted from such accidents. The corresponding fatality rate for 1968 was 9.93 for 100 million vehicle (bus)-miles, compared with 8.15 in 1967 and 10.79, 13.32 and 11.82 for 1966, 1965 and 1964, respectively. These rates refer, of course, to all deaths resulting from the accidents, not just those among bus passengers. Furthermore, unlike the rates per passenger-mile noted above, they fail to reflect the large comparative volume of passenger travel on buses.

8100

NUMBER	SUBJECT	STATUS
MC-12	Loading of Vehicles	NPR
MC-14	Emergency Equipment	NPR
MC-15	Height of Reflectors	NPR
69-2	Uphill Performance	ANPR
69-3	Uphill Performance	ANPR
69-7	Air Bags	ANPR
69-11b	Power-Operated Windows	ANPR
69-14	Horns	ANPR
69-18	Lamps, Reflecting Devices and Associated Equipment	ANPR
69-19	Lamps, Reflecting Devices and Associated Equipment	ANPR
69-20	Accelerator Control	ANPR
69-21	Seat Belt Buckles	ANPR
69-22	Seat Belt Assemblies	ANPR
69-26	Fixed Collision Barrier	NPR
69-29	Windshield Retention	ANPR
69-31	Defect Reports	NPR

Proposed Standards

ANPR—Advanced Notice of Proposed Rulemaking, in which a standard is suggested in general terms to elicit comments prior to initiation of formal rulemaking proceeding.

NPR—Proposed final standard published in the *Federal Register* as a notice of Proposed Rulemaking.

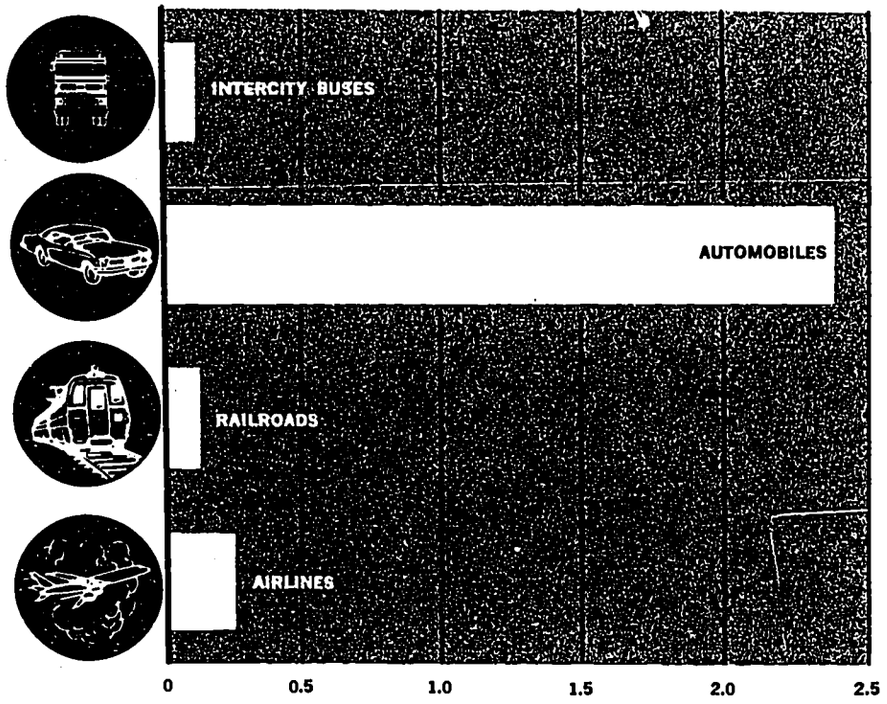
* —Pending at the end of 1969 was a motion by NAMBO, in the U. S. District of Columbia, for summary judgment to overturn this regulation (Civil Action No. 488-69).

8114

In total, 1,828 accidents were reported by the Class I carriers in 1968. They involved, in addition to the fatalities noted above, 3,465 nonfatal injuries (2,110 among bus passengers) and $3.1 million in property damage. (All accidents resulting in fatalities and injuries are reported but only such others as involve property damage of $250 or more.) The 1,828 accidents resulted in an accident rate of 1.50 per million vehicle-miles for that year, relatively unchanged from the two preceding years but down from 1.66 in 1965 and 1.94 in 1964.

PASSENGER ACCIDENT FATALITY RATES 1966-1968

Number of Fatalities Per 100,000,000 Passenger Miles



INTERCITY BUS INDUSTRY IN THE UNITED STATES

Including Operations of Class I, II, and III Carriers
Reporting to the Interstate Commerce Commission and
Intrastate Carriers

	1960	1965	1966	1967	1968	1969
Number of Operating Companies	1,150	1,100	1,050	1,050	1,050	1,050
Number of Buses	20,974	20,600	21,500	21,900	22,100	22,500
Miles of Highway Served	265,000	263,000	264,000	263,000	264,000	266,000
Number of Employees	45,000	45,000	46,200	47,200	47,300	47,800
Total Bus Miles (millions)	1,092	1,157	1,200	1,205	1,190	1,193
Revenue Passengers (millions)	366	378	402	400	398	399
Revenue Passenger Miles (millions)	19,300	23,800	24,600	24,900	24,500	24,900
Operating Revenues of Carriers ($ millions)	556.2	700.5	740.0	767.8	797.6	840.8
Operating Expenses ($ millions)	494.8	599.7	637.5	682.0	708.7	744.9
Net Operating Revenues or Income Taxes ($ millions)	61.4	100.8	102.5	85.8	88.9	95.9
Taxes Assignable to Operations ($ millions)[3]	52.6	58.5	64.4	66.5	67.4	70.8

[1] Includes duplication between carriers.

[2] Operating companies only.

[3] Excludes income taxes.

Source: Compiled by NAMBO from Interstate Commerce Commission data (including published materials and reports filed by individual carriers), supplemented by estimates to cover unavailable segments and by the Motor Carrier Survey in the 1963 Census of Transportation.

SCOPE OF CLASS I INTERCITY BUS OPERATIONS

	1939	1950	1959	1966	1967	1968	1968(A)[1]	1969[2]
Number of Companies	165	194	143	166	177	173	75	75
Route Miles Served (thousands)	180	228	214	218	215	217	191	192
Buses[3]	7,263	14,208	10,763	11,749	12,307	12,300	9,980	10,000
Net Value of Property Owned ($ millions)[4]	46.4	148.8	198.4	295.0	313.1	316.1	291.0	NA

[1] Representing only carriers classified as Class I under test effective January 1, 1969; figures from NAMBO tabulations.

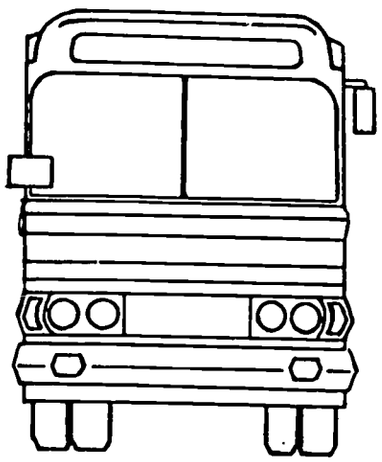
[2] Estimated.

[3] Statement No. A-750 or No. Q-750 of ICC; includes duplications.

[4] "Net carrier operating property," representing depreciated value of buses, land, buildings and equipment required for bus operations.

NA - Information not available.

FEDERAL LEGISLATION 1969



The first session of the 91st Congress produced little transportation legislation, and no legislation specifically related to intercity bus transportation. However, various committees of Congress held hearings on bills in which the industry has a vital interest. Among the bills receiving active committee consideration was H.R. 11619, a bill to increase from 96 to 102 inches the maximum width of buses permitted to use the Interstate System. That bill and other legislative proposals affecting the bus industry are summarized below.

Increase in Maximum Width of Buses

Hearings were concluded before the Roads Subcommittee of the House Committee on Public Works on the bus width bill (H.R. 11619) and on H.R. 11870, a bill to liberalize size and weight limitations for both buses and trucks. The latter bill was reported to the full committee without recommendation. Witnesses for the bus industry urged approval of H.R. 11619 so that wider, safer and more comfortable buses could be used on the Interstate System, subject to the approval of the states involved. Buses not exceeding 102 inches in width can now be operated lawfully on the Interstate System and other federal-aid highways in nine states; on federal-aid highways, other than the Interstate System, in seven states, and in local and suburban operations in a large majority of the states. In addition, 10 states have passed laws permitting 102-inch-wide buses to be used on their portion of the Interstate System at such time as Congress permits such operations.

Presidential Designation of ICC Chairman

Congress acquiesced in Reorganization Plan No. 1 of 1969 under which the President, effective January 1, 1970, is empowered to designate the chairman of the ICC. In the past, the Commission has elected its chairman for a one-year term, by custom rotating the office to the senior commissioner in point of service who had not previously served as chairman. NAMBO supported the reorganization plan in the belief that greater continuity of leadership would benefit the Commission.

Tax Reform Act of 1969
(Public Law 91-172)

The Tax Reform Act was signed into law by the President on December 30, 1969, culminating months of hearings and debates. Efforts by transportation industries, including the intercity bus industry, to retain the 7 percent tax credit for business investment were unsuccessful. Repeal of the investment tax credit became effective April 19, 1969 (two days before the President's proposal for repeal), with provisions maintaining it in force where there were binding contracts for facilities entered into prior to April 19, 1969.

8102

INCOME AND EXPENSES — CLASS I CARRIERS

(Millions of Dollars)

CONOENSEO INCOME ACCOUNT

	1939	1950	1959	1966	1967	1968	1968(A)[1]	1969[2]
Operating revenues	123.7	367.1	439.1	644.3	669.6	694.6	640.3	673.7
Operating expenses	105.3	331.7	380.2	550.1	591.3	613.3	562.8	589.5
Net operating revenues	18.4	35.3	58.9	94.2	78.3	81.3	77.5	84.2
Net income before income taxes	23.2	34.3	57.0	92.1	82.7	97.4	94.2	94.2
Net income	19.3	18.0	28.7	54.4	52.0	60.9	58.6	58.1

OPERATING REVENUES

	1939	1950	1959	1966	1967	1968	1968(A)[1]	1969[2]
Total	123.7	367.1	439.1	644.3	669.6	694.6	640.3	673.7
Passenger revenue								
Intercity regular route	113.9	321.4	344.0	477.8	479.6	488.9	463.7	480.9
Local regular route	1.3	17.6	21.4	12.5	14.2	15.0	14.4	15.0
Charter and special service	4.2	12.4	32.6	72.4	85.0	89.5	66.6	72.4
Package express revenue	1.9	7.8	28.6	64.6	71.8	83.8	79.9	88.3
Mail revenue	0.2	0.8	2.4	1.2	2.9	2.9	2.8	3.0
Station revenue	1.0	4.4	6.8	9.1	10.5	9.1	8.8	9.6
Other revenue	1.2	2.7	3.3	6.7	5.6	5.4	4.1	4.5

OPERATING EXPENSES

	1939	1950	1959	1966	1967	1968	1968(A)[1]	1969[2]
Total	105.3	331.7	380.2	550.1	591.3	613.3	562.8	589.5
Operation and maintenance - Total	77.9	268.6	313.0	456.7	496.2	512.6	472.2	498.1
Equipment maintenance and servicing	18.2	67.5	64.7	82.6	90.1	89.4	81.1	86.6
Transportation	31.4	111.1	135.5	202.8	216.1	221.4	202.6	211.1
Station	9.8	37.4	51.2	85.2	91.6	97.6	93.9	100.0
Traffic, solicitation and advertising	5.0	11.4	14.3	18.9	19.8	20.4	19.2	19.1
Insurance and safety	5.6	14.7	15.4	19.5	22.5	22.7	20.2	20.6
Administrative and general	7.9	26.5	31.9	47.7	56.1	61.1	55.2	60.7
Depreciation and amortization	10.9	28.5	28.8	36.7	37.4	40.5	36.2	33.3
Operating taxes and licenses[3]	12.7	30.2	33.6	45.4	47.0	48.1	44.5	46.7
Operations rents, net	3.8	4.4	4.8	11.3	10.7	12.1	9.9	11.4

[1] Representing only carriers classified as Class I under test effective January 1, 1969; figures from NAMBO tabulations.

[2] Estimated.

[3] Excluding tolls and federal excise taxes on purchase of new buses and parts and accessories.

Allowance of Attorney's Fees

Pending at year's end before the Senate was legislation (S. 1653) that would provide for an allowance of reasonable attorney's fees to plaintiffs prevailing in loss or damage actions brought against carriers under section 20(11) of the Interstate Commerce Act. NAMBO sought four amendments to the bill to provide: (1) That the allowance of attorney's fees be made a matter of judicial discretion; (2) that no such fees be allowed unless claims had been filed with the carrier and not paid within 90 days; (3) that no fees be allowed unless the judgment rendered in the plaintiff's favor exceeded the amount offered in settlement by the carrier prior to institution of the suit, and (4) that no attorney's fee be allowed in excess of the amount of the judgment obtained. In reporting the bill out, the Senate Commerce Committee accepted the first two amendments.

Transportation of Mail by Bus

Extensive postal reform would be provided by various pending bills. The bus industry's primary interest in such legislation is in retaining the right it now has to enter into contracts with the Postmaster General for the transportation of mail. That position was accepted by the House Post Office and Civil Service Committee in its consideration of one of the postal reform bills (H.R. 4).

State Withholding Tax Requirements
(S. 2044)

Section 2 of this bill would exempt from withholding for tax purposes under the laws of any state or subdivision thereof, other than the state of the employee's residence, wages paid to any employee "who performs his regularly assigned duties as such an employee on a motor vehicle in more than one state." Section 2 of the bill further provides that no carrier subject to the provisions of Part II of the Interstate Commerce Act shall file an information return with respect to such wages with any state or subdivision thereof other than the state or subdivision thereof in which the employee resides. The bus industry favors the bill and plans to present testimony at hearings scheduled in 1970 by the Senate Commerce Committee.

Discriminatory Property Assessments

This bill (S. 2289) would make it unlawful for a state or subdivision thereof to assess property owned or used by interstate carriers at a rate higher than other property in the taxing district. NAMBO supported the measure, pointing out that while the bus industry had not been adversely affected by discriminatory state and local property tax assessments, such discrimination is not equitable or justifiable.

Urban Mass Transportation

The Senate Banking and Currency Committee reported out on December 12 a bill (S. 3154) to provide long-term financing for urban mass transportation. As reported, the bill provided that $3.1 billion could be obligated in the initial year of an expanded 12-year mass transit program. It would continue the requirement that only a public body or group, not a privately owned carrier, could apply for federal assistance. Final passage of the legislation appears likely in 1970.

Subsidization of Intercity Rail Passenger Service

Both the Senate Commerce Committee and the House Interstate and Foreign Commerce Committee held hearings on bills to subsidize intercity railroad passenger train service and on related proposals. Testimony on behalf of the intercity bus industry was presented to both committees. NAMBO recognized that the railroads should not be required to perform a public service over a long period and at a substantial loss without being reimbursed. NAMBO urged, however, that the railroads be permitted to discontinue intercity passenger trains that are so lightly patronized that they cannot be deemed essential. Instead of the federal government providing direct operating subsidies, which could exceed $100 million a year, bus operators should be permitted to handle the available traffic. Most of the remaining intercity passenger trains transport the equivalent of one, two, or three busloads of people a day. Bus operators are willing and able to handle this additional traffic and can do so at a profit.

PASSENGER TRAFFIC AND VEHICLE-MILES

Class I Carriers

(All figures in millions)

	1939	1950	1959	1966	1967	1968	1968(A)[1]	1969[2]
REVENUE PASSENGER-MILES TRAVELED IN REGULAR-ROUTE INTERCITY SERVICE	7,295	17,030	13,273	16,521	16,087	15,370	14,570	14,400
PASSENGERS CARRIED								
Total number	157	421	251	229	231	230	186	178
Regular-route intercity service	137	330	172	176	172	168	146	138
Local and suburban service	17	82	63	25	27	30	24	22
Charter and special service	3	9	16	28	32	32	16	18
VEHICLE-MILES OPERATED								
Total	529.2	1,012.3	810.5	988.3	997.3	977.3	881.8	869.3
Regular-route intercity service	509.6	936.5	710.1	849.5	842.8	818.9	761.0	743.5
Local and suburban service	6.3	44.2	37.6	20.9	22.1	22.8	19.9	19.0
Charter and special service	12.9	30.5	60.8	115.8	131.2	134.3	99.9	105.8
Nonpassenger service	0.4	1.3	2.0	2.1	1.2	1.2	1.0	1.0

[1] Representing only carriers classified as Class I under the test effective January 1, 1969; figures from NAMBO tabulations.

[2] Estimated.

TAXES — CLASS I CARRIERS

(Millions of Dollars)

	1950	1959	1966	1967	1968	1968(A)[1]	1969[2]
Total	49.5	67.5	93.6	88.3	94.3	88.9	92.1
STATE AND LOCAL HIGHWAY-USER TAXES							
Total	21.7	20.7	24.0	24.0	23.9	21.9	22.6
Motor fuel and oil	9.1	8.9	10.2	10.2	10.0	9.1	9.5
Vehicle license and registration fees	10.6	7.7	7.6	7.6	7.6	7.0	7.1
Highway, bridge, tunnel, and ferry tolls	2.0	4.1	6.2	6.2	6.3	5.8	6.0
FEDERAL AUTOMOTIVE TAXES							
Total	3.3	7.0	12.1	12.5	11.3	10.2	10.6
Motor fuel and oil	1.8	4.7	6.2	6.4	6.2	5.7	5.7
Vehicle licenses and registration fees	—	0.3	0.8	0.9	0.9	0.8	0.9
Excises on tires, tubes, vehicles and parts[2]	1.5	2.0	5.1	5.2	4.2	3.7	4.0
SOCIAL SECURITY TAXES							
Total	3.3	5.0	11.4	12.2	13.0	12.0	13.0
Federal	2.1	4.0	9.5	10.6	11.8	10.9	11.9
State	1.2	1.0	1.9	1.6	1.2	1.1	1.1
OTHER OPERATING TAXES							
Total	4.9	6.5	8.4	8.9	9.6	9.2	9.8
Real estate and personal property	2.8	4.4	5.3	5.9	6.2	6.0	6.4
Other state	1.7	1.7	2.6	2.4	2.8	2.6	2.8
Other federal	0.4	0.4	0.5	0.6	0.6	0.6	0.6
INCOME TAXES							
Total	16.3	28.3	37.7	30.7	36.5	35.6	36.1
Federal	15.6	27.2	35.5	29.0	34.6	33.8	34.3
State	0.7	1.1	2.2	1.7	1.9	1.8	1.8

[1] Representing only carriers classified as Class I under test effective January 1, 1969; figures from NAMBO tabulations.

[2] 1969 figures estimated: federal excise taxes estimated in part.

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EMPLOYEES AND THEIR COMPENSATION

Class I Carriers

	1939	1950	1959	1966	1967	1968	1968(A)[1]	1969[2]
ALL EMPLOYEES								
Average number	22,659	42,290	33,454	36,489	37,675	37,487	33,520	33,250
Payroll ($ millions)	37.0	146.6	183.8	268.9	287.3	296.8	274.9	287.3
Average annual earnings	$1,634	$3,466	$5,493	$7,370	$7,625	$7,917	$8,200	$8,640
DRIVERS								
Average number	10,293	19,175	16,054	18,159	18,741	18,480	15,970	15,700
Payroll ($ millions)	18.3	74.1	98.7	152.2	162.0	166.9	153.8	159.1
Average annual earnings	$1,777	$3,865	$6,148	$8,384	$8,642	$9,032	$9,629	$10,130

[1] Representing only carriers classified as Class I under test effective January 1, 1969; figures from NAMBO tabulations.

[2] Estimated.

REVENUE AVERAGES

Class I Carriers

	1939	1950	1959	1966	1967	1968	1968(A)[1]	1969[2]
REVENUES PER BUS-MILE (cents)								
All operating revenues	23.4	36.3	54.2	65.2	67.1	71.1	72.6	77.5
Regular-route intercity service[3]	22.4	34.3	48.4	56.2	56.9	59.7	60.9	64.7
Charter and special service[3]	32.6	41.3	53.6	62.5	64.8	66.6	66.7	68.4
REVENUE PER PASSENGER-MILE (cents)								
(regular-route intercity service)	1.56	1.89	2.59	2.89	2.98	3.18	3.18	3.34
PERCENT OF TOTAL OPERATING REVENUES								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Passenger revenue								
Intercity regular route	92.1	87.5	78.4	74.2	71.6	70.4	72.4	71.4
Local regular route	1.1	4.8	4.9	2.0	2.1	2.2	2.2	2.2
Charter and special service	3.4	3.4	7.4	11.2	12.7	12.9	10.4	10.8
Package express revenue	1.5	2.1	6.5	10.0	10.7	12.0	12.5	13.1
Station revenue	0.8	1.2	1.5	1.4	1.6	1.3	1.4	1.4
Other revenue	1.1	1.0	1.3	1.2	1.3	1.2	1.1	1.1

[1] Representing only carriers classified as Class I under test effective January 1, 1969; figures from NAMBO tabulations.

[2] Estimated.

[3] Per mile operated in such service.

EXPENSE AND LABOR COST AVERAGES

Class I Carriers

	1939	1950	1959	1966	1967	1968	1968 (A)[1]	1969[2]
AVERAGE PER EMPLOYEE								
[illegible]	19.9	30.1	46.9	55.7	60.5	62.8	63.8	67.8
Payroll	7.0	13.3	22.7	27.2	29.4	30.4	31.1	33.1
Fringe [illegible]	0.5	1.0	2.4	3.8	4.6	4.9	5.1	5.5
Non[illegible]	12.4	15.8	21.8	24.7	26.5	27.5	27.6	29.2
PERCENT OF TOTAL OPERATING EXPENSES								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Payroll	35.2	44.2	48.3	48.9	48.6	48.4	48.9	48.8
Fringe [illegible]	2.4	3.4	5.1	6.7	7.6	7.7	7.9	8.1
Non[illegible]	62.4	52.4	46.6	44.4	43.8	43.9	43.2	43.1
OPERATING EXPENSES AS PERCENT OF REVENUES[3]	85.1	90.4	86.6	85.4	88.3	88.3	87.9	87.5

[1] Representing only carriers classified as Class I under test effective January 1, 1969; figures from NAMBO tabulations.

[2] Estimated.

[3] Operating ratio.

ACCIDENT DEATH RATES IN PASSENGER TRANSPORTATION*

Passenger Fatalities Per 100,000,000 Passenger Miles**

Domestic Operations

	Intercity Buses	Automobiles	Railroads	Airlines
	Three-Year Average Rates			
[illegible]	0.09	2.5	0.18	0.38
[illegible]	0.12	2.4	0.13	0.43
[illegible]	0.10	2.3	0.16	0.73
[illegible]	0.09	2.2	0.10	0.69
[illegible]	0.08	2.2	0.13	0.57
[illegible]	0.14	2.2	0.10	0.27
[illegible]	0.14	2.3	0.09	0.16
[illegible]	0.18	2.4	0.06	0.23
[illegible]	0.13	2.4	0.09	0.20
[illegible]	0.14	2.4	0.10	0.25
[illegible]	0.11	2.4	0.12	0.24
	Annual Rates In Recent Years			
[illegible]	0.06	2.5	0.16	0.09
[illegible]	0.11	2.4	0.09	0.29
[illegible]	0.16	2.4	0.10	0.30

*The following qualifications apply: Buses include only intercity operations (regular route and charter) of all Class I bus carriers reporting to the ICC and the Bureau of Motor Carrier Safety of the Federal Highway Administration, automobiles include taxis, railroads include only "railroad passenger trains," and airlines include only scheduled air transport planes.

**Excluding drivers or operating crews, except in the case of automobiles.

Source: ACCIDENT FACTS, National Safety Council, Chicago, except rates for intercity buses, which are derived by NAMBO from ICC and Bureau of Motor Carrier Safety data.

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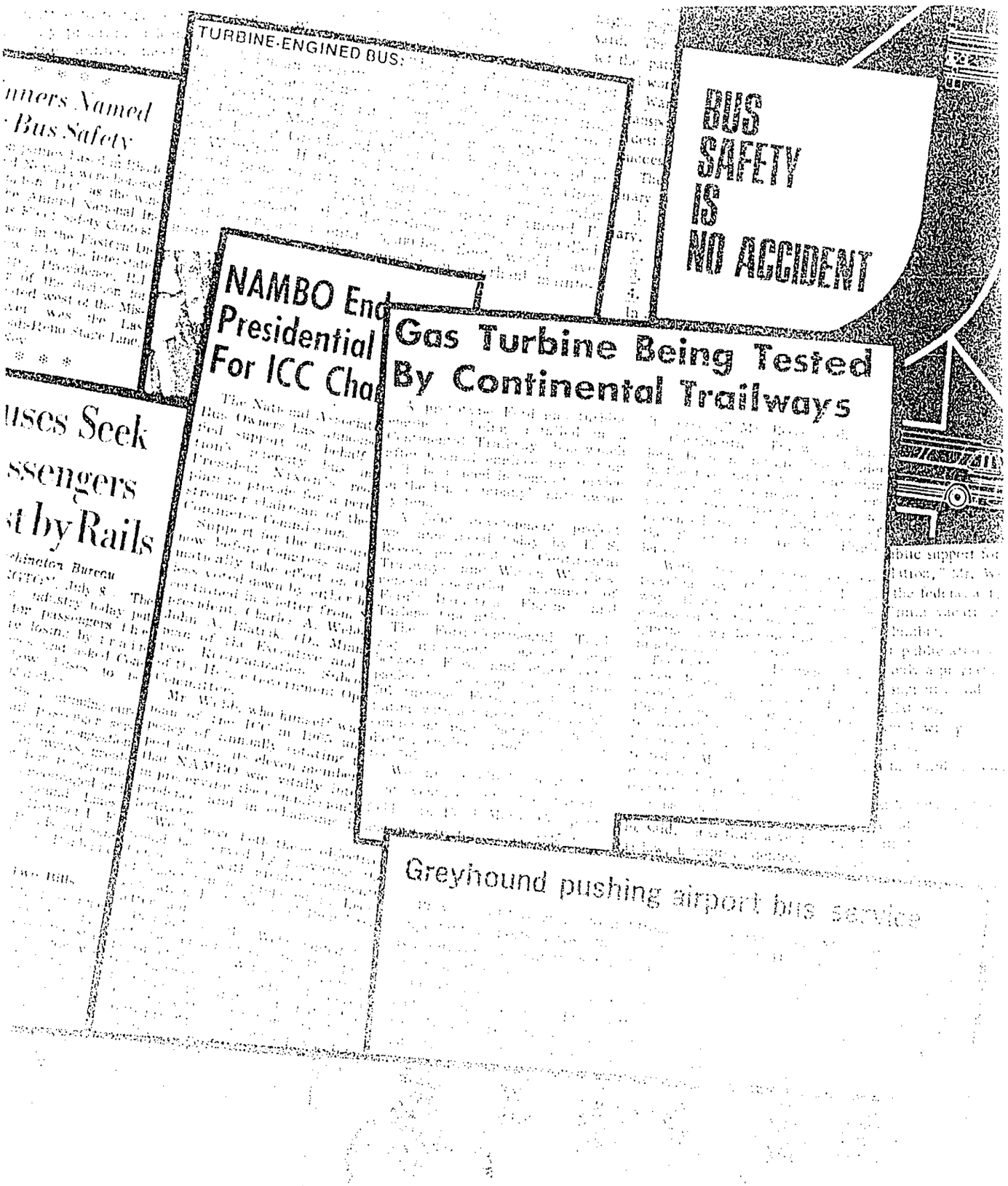
TURBINE-ENGINED BUS:
BUS
SAFETY
IS
NO ACCIDENT
Gas Turbine Being Tested
By Continental Trailways
Greyhound pushing airport bus service

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MCELROY, ROBERT C.
THE HIRED FARM WORKING FORCE OF 1971: A STATISTICAL REPORT.

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DESCRIPTORS - *LABOR FORCE; FARM LABOR; TABLES (DATA); *AGRICULTURAL LABORERS; MIGRANT WORKERS; EMPLOYMENT; *FARM LABOR SUPPLY; *WAGES; STATISTICAL ANALYSIS

ABSTRACT - THIS REPORT PRESENTS INFORMATION ON THE SIZE AND COMPOSITION OF THE 1971 HIRED FARM WORKING FORCE (HFWF) AND ON THE EMPLOYMENT AND CASH EARNINGS FROM FARM AND NONFARM WAGE WORK OBTAINED DURING THE YEAR. BRIEF HIGHLIGHTS POINT UP SOME OF THE MOST PERTINENT FACTS FROM THE DETAILED DATA IN THE STATISTICAL TABLES. THE DATA WERE OBTAINED FROM THE ANNUAL SURVEY CONDUCTED FOR THE ECONOMIC RESEARCH SERVICE BY THE BUREAU OF THE CENSUS AS A SUPPLEMENTARY PART OF THE REGULAR CURRENT POPULATION SURVEY MADE IN DECEMBER 1971. AMONG THE FINDINGS ARE: (1) THE HIRED FARM WORKING FORCE OF 1971 (HFWF) CONSISTED OF ABOUT 2.6 MILLION PERSONS 14 YEARS OF AGE AND OVER WHO DID SOME FARMWORK FOR CASH WAGES DURING THE YEAR, (2) MEMBERS OF THE 1971 HFWF WERE MOSTLY YOUNG (MEDIAN AGE 22), WHITE (78 PERCENT), MALE (76 PERCENT), PERSONS LIVING IN NONFARM PLACES (73 PERCENT), (3) ONLY 19 PERCENT WERE ENGAGED CHIEFLY IN FARM WAGE WORK, (4) ABOUT 58 PERCENT (PRIMARILY HOUSEWIVES AND STUDENTS) WERE NOT IN THE LABOR FORCE MOST OF THE YEAR, AND (5) ABOUT 172,000, OR 7 PERCENT OF THE TOTAL, WERE DOMESTIC MIGRATORY WORKERS. (AUTHOR/JS)

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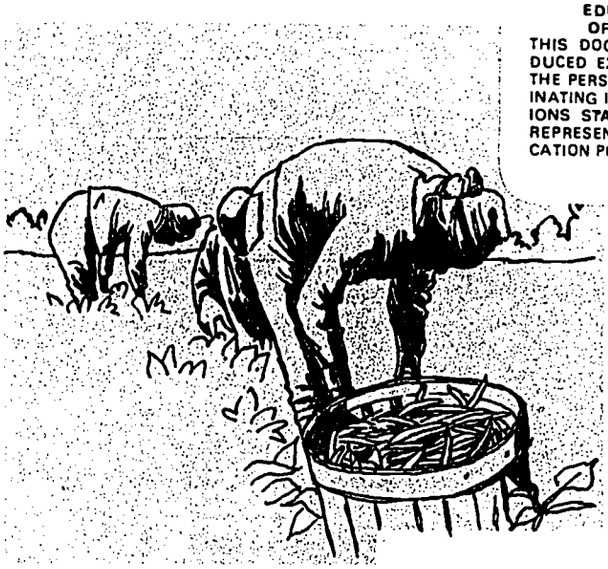
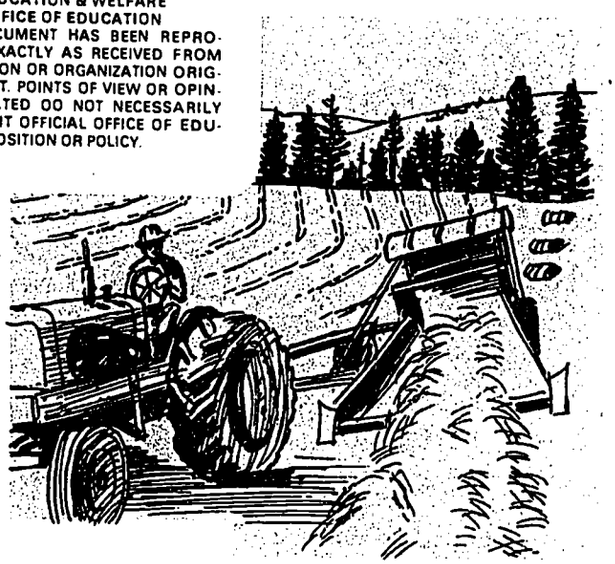
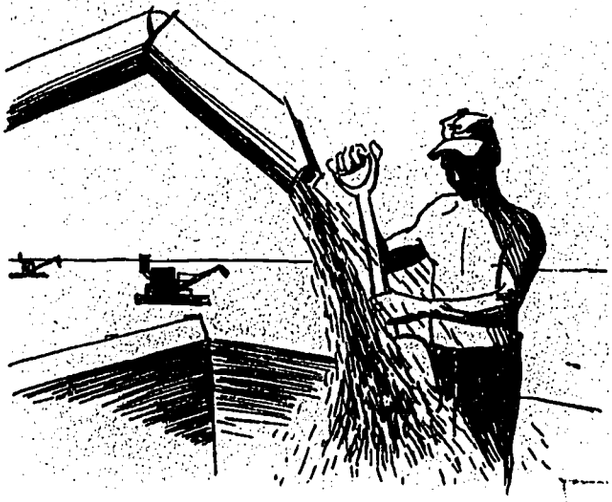


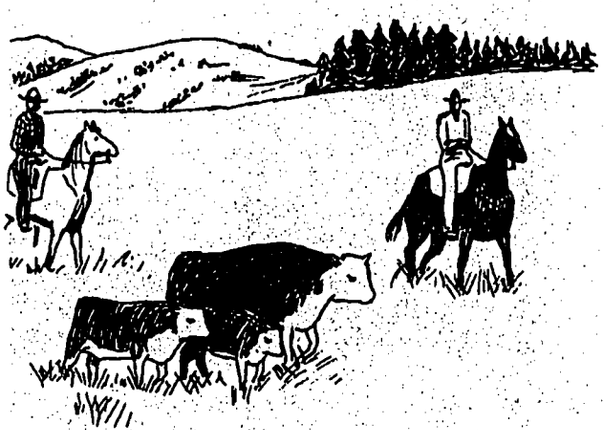


The Hired Farm Working Force of 1971

a statistical report

Economic Research Service
U.S. Department of Agriculture
Agricultural Economic Report No. 222





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ABSTRACT

The Hired Farm Working Force of 1971 (HFWF) consisted of about 2.6 million persons 14 years of age and over who did some farmwork for cash wages during the year. This slight increase, 4 percent, from the 2.5 million in 1970 reversed the declining trend in process since 1967.

Members of the 1971 HFWF were mostly young (median age 22), white (78 percent), male (76 percent), persons living in nonfarm places (73 percent). They earned an average of $882 in cash wages, or $11.60 a day for 76 days of farm wagework.

Only 19 percent were engaged chiefly in farm wagework. Of these, 285,000 were year-round workers, who were the most fully employed and highest paid, averaging 317 days of farm wagework and earning $3,799.

About 58 percent (primarily housewives and students) were not in the labor force most of the year.

About 172,000, or 7 percent of the total, were domestic migratory workers. This was a drop of 12 percent from 196,000 in 1970 and a continuation of the 4-year declining trend in migrant numbers, while the remainder of the hired farmworkers reversed the downward trend and increased by 4 percent.

Keywords: hired farmworkers, farm labor, casual workers, noncasual workers, migratory workers, seasonal workers, regular workers, year-round workers, nonfarm work, wages, employment, earnings.

This report is the latest in the ERS series relating to persons who do work on farms for cash wages. Marvin M. Thompson and B. Gregory Russell of the Demographic Surveys Division, Bureau of the Census, cooperated in planning the survey, and supervised field operations and the tabulation of data. Carrie Coffield, Manpower Group, ERS, assisted in preparation of the statistical tables.

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Washington, D. C. 20250

March 1972

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Economic Research Service
Economic Development Division

E R R A T A

THE HIRED FARM WORKING FORCE OF 1971 -- a statistical report,
U.S. Dept. Agr., Agr. Econ. Rpt. No. 222,
March 1972

The following changes should be entered in the above report:

Page 15 -- Column 6, Farm Wages earned per year, for Selected characteristics: White, change 882 to 921; Negro and other races, change 921 to 739; Male, change 739 to 1,055.

Page 19 -- Column 8, Nonfarm Days worked, for Selected characteristics: Region, Migratory Status, and Color -- South, Nonmigratory, Negro and other races, change 32 to 22.

Page 28 -- 3rd paragraph should be replaced with the following:

Table 7 of this report shows that average annual earnings at farm wagework for migratory farm wage-workers are $987. Table 17 shows the standard error of $987 on a base of 172,000 workers to be approximately $126. Consequently, chances are 68 out of 100 that the estimated $987 would be within $126 of a complete census figure, and chances are 95 out of 100 that the estimate would be within $252 of a census figure, i.e., this 95 percent confidence interval would be from $735 to $1,239.

THE HIRED FARM WORKING FORCE OF 1971

-- A Statistical Report --

by

Robert C. McElroy, Manpower Group
Economic Development Division
Economic Research Service

INTRODUCTION

This report presents information on the size and composition of the 1971 hired farm working force (HFWF) and on the employment and cash earnings from farm and nonfarm wagework obtained during the year. Brief highlights point up some of the most pertinent facts from the detailed data in the statistical tables. The data were obtained from the annual survey conducted for the Economic Research Service by the Bureau of the Census as a supplementary part of the regular Current Population Survey made in December 1971.

Estimates in this report are based on sample data; thus, they are subject to sampling variability. They may differ somewhat from the results that would have been obtained from another sample, or from a complete census using the same schedules, instructions, and interviewers. The survey coverage and reliability of the estimates are discussed in appendix A. Definitions or explanations of terms used in this report are given in appendix B.

SIZE OF THE 1971 HIRED FARM WORKING FORCE (table 1)

About 2.6 million different persons did some work on farms for cash wages or salary in 1971. (Excluded are persons not in the civilian noninstitutional population 14 years old and over at the time of the survey.) This represents an increase of about 4.0 percent from the estimated 2.5 million hired farmworkers in 1970 and reverses the decline in farm wageworkers which has been in process since 1967.

Casual workers (those who did less than 25 days of farm wagework) numbered about 1.2 million, about 100,000 more than in 1970. Noncasual workers (those who did 25 days or more of farm wagework) numbered around 1.4 million, about 35,000 less than in 1970.

RECENT TRENDS IN NUMBERS OF HIRED FARMWORKERS (tables 2-3)

Because of the sampling variability, averages based on data for several years probably reflect better than yearly estimates the recent trends in the total number of hired farmworkers and in important segments within the group.[1/] Thus, using averages for the 3-year periods 1966-68 and 1969-71, it can be seen that:

-- The total number of different persons doing hired farmwork in the course of a year declined about 13.2 percent.

-- The number of workers doing between 75 and 249 days of hired farmwork declined about 22.3 percent.

-- Workers doing less than 75 days of work declined about 9.6 percent, and workers who did 250 or more days of work declined by about 18.2 percent.

-- Total man-days of farm wagework declined about 17.7 percent.

COMPOSITION AND RESIDENCE OF THE 1971 HIRED FARM WORKING FORCE (table 4)

The 1971 HFWF was similar in composition to that of the previous year. Among these workers in 1971:

-- 76 percent were male, the same percentage as in 1970.

-- 78 percent were white, the same as in 1970.

-- Only 19 percent, 3 percent less than in 1970, were engaged chiefly in farm wagework.

-- 58 percent, 2 percent more than in 1970 (primarily housewives and students), were not in the labor force most of the year.

-- The median age was 22 years, compared to 23 years in 1970.

-- 34 percent, 1 percent more than in 1970, were young people 14-17 years of age; almost four-fifths (79 percent, 1 percent more than in 1970) of these youths were boys.

-- About 7 percent did some farm wagework outside their home counties. These, considered domestic migratory workers, were a lesser proportion than the 8 percent of the total they comprised in 1970.

-- 73 percent, the same proportion as in 1970, lived in nonfarm places at the time of the survey, although some of them lived on farms at some time during the year. Figure 1 shows the contrast between the current situation and that in the late forties with respect to residence.

1/ See appendix A for a discussion of the sample and reliability of estimates.

--44 percent lived in the South and 9 percent in the Northeastern States, 25 percent were in the North Central States, and 22 percent were in the West. Compared with 1970, these proportions represented no change in the South, a 2-percent increase in the North Central, and a 1-percent decrease in each of the other two regions.

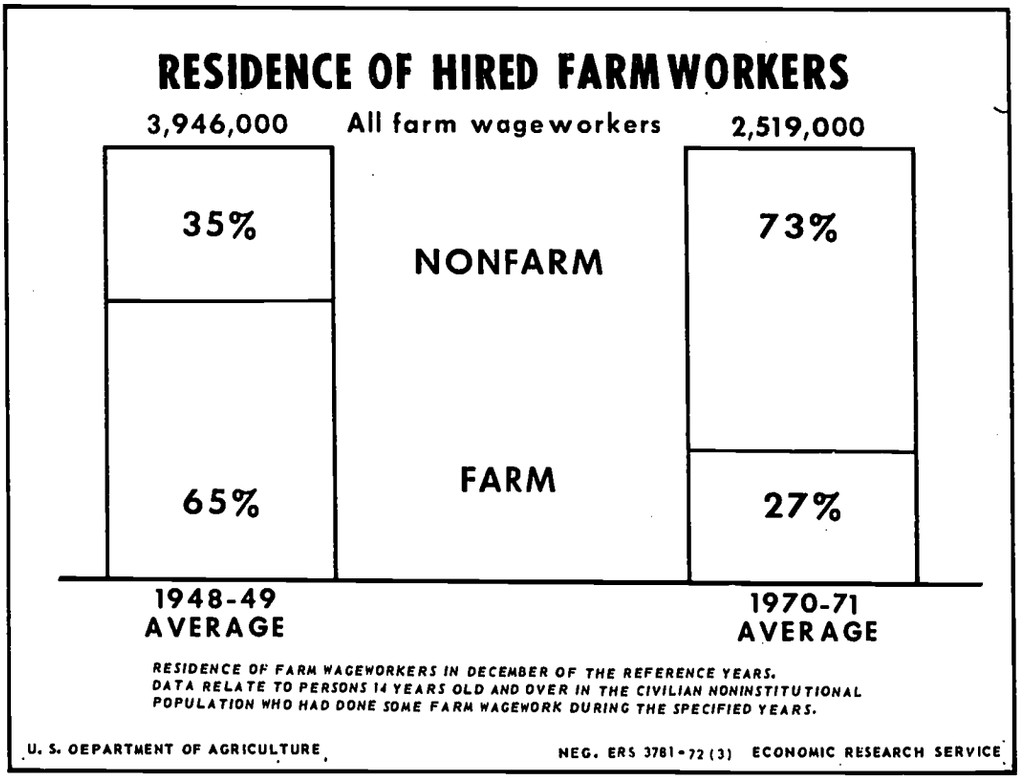

Figure 1

MAN-DAYS OF FARM WAGEWORK DONE BY SELECTED GROUPS
(table 5)

Workers included in the survey did about 195 million may-days of work on farms in 1971 -- about one-fourth of the total number of days of labor on farms.

--The percentage of total man-days of work done by white workers and by Negro and other workers was about equal to the proportion each group represented of the HFWF. Similarly, the percentage done by migratory workers about equaled the proportion they represented of the work force.

-- The regular and year-round workers, who comprised about one-fifth (19.5 percent) of the 1971 HFWF, did slightly over two-thirds (68 percent) of the total man-days of farm wagework (fig. 2). This was just slightly above the 66 percent they accounted for in 1970.

-- Averages for the 3-year periods 1966-68 and 1969-71 indicate that the number of full-time workers declined about 18.2 percent, and the total number of man-days of hired farmwork they did, declined about 16.7 percent. During these same periods, workers doing 75-249 days of work declined about 22.3 percent, and their man-days of work declined about 21.5 percent (tables 2 and 3).

-- Workers who did less than 75 days of farm wagework comprised around 69.5 percent of the total HFWF in both 3-year periods but did only about one-fifth of the man-days of work.

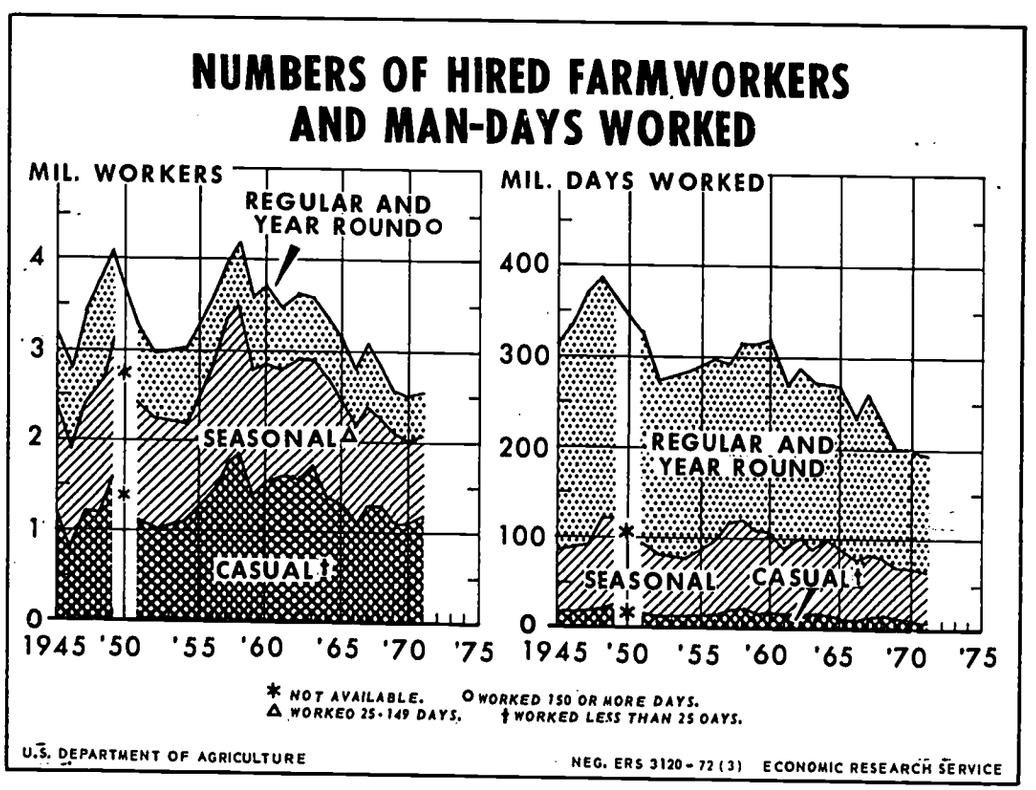

Figure 2

AVERAGE NUMBER OF DAYS OF FARM WAGEWORK AND RELATED EARNINGS (tables 6-10)

As a group, hired farmworkers earned about $11.60 a day in cash wages from their farm wagework in 1971. For an average of 76 days of such work, they earned $882. (Throughout this report, daily and yearly earnings refer only to the cash wages received by workers and do not include the value of perquisites or fringe benefits furnished by the employer.)

Yearly earnings from farm wagework in 1971 changed slightly from 1970 in all regions, declining in the Northeast and North Central and increasing in the West and Southern regions. The $0.70 increase in daily wages in the South was more than offset by the decrease of 5 percent in the number of days worked. The lower yearly earnings from farm wagework in the Northeast and North Central resulted from a decrease in both the number of days worked (13 and 19 percent respectively) and daily wages ($0.65 and $0.05); the opposite occurred in the West with higher yearly earnings resulting from an increase in both the number of days (22 percent of such work) and daily wages ($0.40).

Care should be exercised in interpreting year-to-year changes in these averages, however, because of sampling variability. Appendix A contains estimates of the standard errors of various types of averages.

Great variation among major groups in the average number of days of employment and related daily and yearly earnings from farm wagework continues to be a major feature of the HFWF. In 1971, 1.2 million casuals averaged 9 days of work and earned an average of $9.90 a day from farmwork.

-- Male casual workers averaged $9.90 a day and females $8.80.

-- Nonmigratory casuals averaged $9.75 a day; migratory casuals $10.40 a day.

In 1971, 1.4 million noncasual workers averaged 135 days and earned $1,576. Many of the noncasual workers are not in the labor force or they do work other than farm wagework most of the year. Figure 3 shows that there has been a slight change since 1960 in the proportions of those groups of non-casuals whose chief activity is farm wagework, unemployed, and not in the labor force a major part of the year. Among the noncasuals:

-- 0.9 million seasonals averaged 59 days of work and earned $612 from farm wagework.

-- 0.2 million regulars averaged 198 days and earned $2,496.

-- 0.3 million year-round workers averaged 317 days and earned $3,799.

-- Whites averaged 141 days at $12.10 a day, earning $1,706 in cash wages.

-- Negroes and members of other races averaged 115 days at $10.20 a day, earning $1,172.

-- Domestic migratory workers averaged 111 days at $12.65 a day, earning $1,407.

-- Workers in the West received the highest daily wage, $15.00; those in the North Central States received the lowest, $9.55.

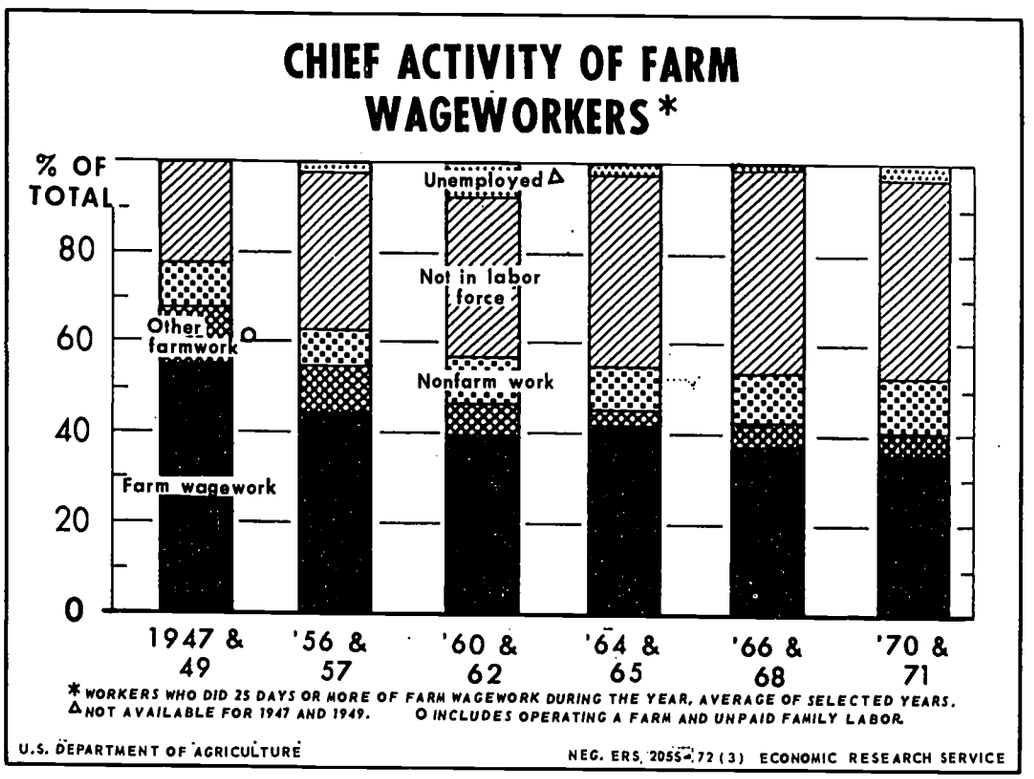

Figure 3

AVERAGE EMPLOYMENT AND EARNINGS OF WORKERS WHO DID FARM WAGEWORK ONLY AND THOSE WHO DID FARM AND NONFARM WAGEWORK (tables 11 and 12)

In 1971, nearly 1.6 million persons, 134,000 more than 1970, did farm wagework only (FWO workers), and 933,000, about 72,000 less than 1970, were employed at both farm and nonfarm wagework (FNF workers).

-- FWO workers were employed an average of 94 days at farm wagework and earned $1,095.

-- FNF workers did an average of 111 days of nonfarm wagework and 46 days of farm wagework, from which, on the average, they earned a total of $2,420.

-- FWO workers earned about $11.65 a day from farm wagework; FNF workers averaged about $11.15 a day.

-- FNF workers earned about $17.20 a day from nonfarm wagework.

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Table 1.--Number of persons who did any farm wagework during the year, by sex, 1945-71 1/

Year	All farm wageworkers			Workers who did 25 days or more of farm wagework during the year (noncasual workers)			Workers who did less than 25 days of farm wagework during the year (casual workers)		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
1945	3,212	2,375	837	1,965	1,576	389	1,247	799	448
1946	2,770	2,120	650	1,953	1,584	369	817	536	281
1947	3,394	2,587	807	2,215	1,864	351	1,179	723	456
1948	3,752	2,820	932	2,502	2,036	466	1,250	784	466
1949	4,140	3,021	1,119	2,510	2,001	509	1,630	1,020	610
1950	4,342	3,221	1,121	---	---	---	---	---	---
1951	3,274	2,392	882	2,156	1,718	438	1,118	674	444
1952	2,980	2,218	762	1,972	1,558	414	1,008	660	348
1954	3,009	2,237	772	1,908	1,544	364	1,101	693	408
1956	3,575	2,525	1,050	2,078	1,553	525	1,497	972	525
1957	3,962	2,765	1,197	2,200	1,673	527	1,762	1,092	670
1958	4,212	2,987	1,225	2,319	1,788	531	1,893	1,199	694
1959	3,577	2,570	1,007	2,166	1,690	476	1,412	880	531
1960	3,693	2,664	1,029	2,162	1,698	463	1,531	966	566
1961	3,488	2,445	1,043	1,889	1,468	421	1,600	978	622
1962	3,622	2,551	1,071	2,067	1,576	492	1,555	976	579
1963	3,597	2,615	983	1,862	1,480	382	1,735	1,135	601
1964	3,370	2,398	972	2,001	1,487	514	1,369	911	458
1965	3,128	2,205	923	1,864	1,407	457	1,264	797	466
1966	2,763	2,051	712	1,634	1,295	339	1,130	756	374
1967	3,078	2,261	817	1,740	1,358	381	1,338	903	435
1968	2,919	2,111	808	1,620	1,256	364	1,299	855	444
1969	2,571	1,907	665	1,466	1,158	307	1,106	748	357
1970	2,488	1,889	599	1,394	1,142	252	1,093	747	346
1971	2,550	1,944	606	1,359	1,121	238	1,191	823	368

Numbers of workers for 1959 and succeeding years are rounded to the nearest thousand without being adjusted to group totals.

1/ No survey conducted in 1953 and 1955.

Table 2.--Distribution of persons who did any farm wagework during the year, by duration of farm wagework, averages 1966-68 and 1969-71

Year	Total workers	Duration of farm wagework			
		Less than 75 days	75 - 149 days	150 - 249 days	250 days and over
	Thou.	Thou.	Thou.	Thou.	Thou.
Average:					
1966-68	2,920	1,984	325	248	363
1969-71	2,536	1,793	255	191	297
Percentage change	-13.2	-9.6	-21.5	-23.0	-18.2
	Pct.	Pct.	Pct.	Pct.	Pct.
Average:					
1966-68	100	68	11	9	12
1969-71	100	71	10	7	12

Numbers of workers are rounded to the nearest thousand without being adjusted to group totals.

Table 3.--Distribution of man-days of farm wagework, for workers, by duration of farm wagework, averages 1966-68 and 1969-71

Year	Total man-days of farm wagework	Duration of farm wagework			
		Less than 75 days	75 - 149 days	150 - 249 days	250 days and over
	Mil.	Mil.	Mil.	Mil.	Mil.
Average:					
1966-68	243	45	34	49	114
1969-71	200	40	27	38	95
Percentage change	-17.7	-11.1	-20.6	-22.4	-16.7
	Pct.	Pct.	Pct.	Pct.	Pct.
Average:					
1966-68	100	19	14	20	47
1969-71	100	20	14	19	47

Numbers of days are rounded to the nearest million without being adjusted to group totals.

Table 4.--Distribution of farm wageworkers, by selected characteristics, 1971

Selected characteristics	Number of workers			Percentage distribution		
	Total	Male	Female	Total	Male	Female
	Thou.	Thou.	Thou.	Pct.	Pct.	Pct.
ALL WORKERS, 1971	2,550	1,944	606	100	100	100
COLOR						
White	2,002	1,622	379	78	83	63
Negro and other races	549	321	227	22	17	37
CHIEF ACTIVITY						
Farmwork	611	573	38	24	29	6
Farm wagework	484	455	30	19	23	5
Without nonfarm work	394	368	26	15	19	4
With nonfarm work	90	86	4	4	4	1
Other farmwork 1/	127	119	8	5	6	1
Nonfarm work	396	343	54	16	18	9
Unemployed	43	39	4	2	2	1
Not in labor force	1,500	989	511	58	51	84
Keeping house	303	9	294	12	2/	48
Attending school	1,063	850	213	41	44	35
Other	133	130	4	5	7	1
RESIDENCE AND AGE						
All workers	2,550	1,944	606	100	100	100
14-17 years	838	666	171	34	35	29
18-24	619	491	129	24	25	21
25-34	334	241	93	13	12	15
35-44	224	152	72	9	8	12
45-54	214	139	75	8	7	12
55-64	208	162	47	8	8	8
65 and over	113	92	20	4	5	3
Farm Residence	689	562	127	100	100	100
14-17 years	168	141	27	25	25	21
18-24	154	125	29	22	22	23
25-34	96	76	20	14	14	16
35-44	71	58	13	10	10	10
45-54	74	56	18	11	10	14
55-64	89	74	14	13	13	11
65 and over	38	31	6	5	6	5
Nonfarm Residence	1,861	1,382	479	100	100	100
14-17 years	670	526	144	36	39	30
18-24	465	366	100	25	26	21
25-34	238	165	73	13	12	15
35-44	153	94	60	8	7	12
45-54	140	83	57	8	6	12
55-64	120	88	32	6	6	7
65 and over	75	61	14	4	4	3
MIGRATORY STATUS AND AGE						
Migratory	172	142	30	100	100	3/
14-17 years	47	39	8	27	27	---
18-24	63	53	10	37	38	---
25-34	17	16	2	10	11	---
35-44	19	15	4	11	10	---
45-54	12	7	4	7	5	---
55-64	11	11	0	6	8	---
65 and over	4	1	2	2	1	---
Nonmigratory	2,378	1,802	576	100	100	100
14-17 years	791	627	163	33	35	28
18-24	556	437	119	23	24	21
25-34	317	226	91	13	13	16
35-44	205	137	68	9	8	12
45-54	203	132	71	9	7	12
55-64	198	151	47	8	8	8
65 and over	109	91	18	5	5	3

See footnotes at end of table.

Table 4.--Distribution of farm wageworkers, by selected characteristics, 1971--Continued

Selected characteristics	Number of workers			Percentage distribution		
	Total	Male	Female	Total	Male	Female
	Thou.	Thou.	Thou.	Pct.	Pct.	Pct.
REGION	2,550	1,944	606	100	100	100
Northeast	239	184	55	9	9	9
North Central	650	572	78	25	29	13
South	1,091	756	335	44	40	55
West	571	432	139	22	22	23
WORKERS WHO DID 25 DAYS OR MORE OF FARM WAGEWORK						
MIGRATORY STATUS AND AGE						
All workers	1,359	1,121	238	100	100	100
14-17 years	317	269	48	23	24	20
18-24	342	288	54	24	26	22
25-34	215	177	38	16	16	16
35-44	158	116	42	12	10	18
45-54	132	97	35	10	9	15
55-64	135	118	17	10	11	7
65 and over	61	56	5	4	5	2
Migratory	117	95	22	100	100	3/
14-17 years	27	22	6	23	23	---
18-24	40	33	7	34	35	---
25-34	13	13	0	11	13	---
35-44	16	13	3	14	14	---
45-54	10	6	4	9	6	---
55-64	7	7	0	6	8	---
65 and over	4	1	2	3	1	---
Nonmigratory	1,243	1,026	216	100	100	100
14-17 years	290	248	42	23	24	19
18-24	302	255	47	25	25	23
25-34	202	164	38	16	16	17
35-44	142	103	40	11	10	18
45-54	122	91	31	10	9	14
55-64	128	111	17	10	11	8
65 and over	57	55	3	5	5	1
TOTAL FARM WAGES EARNED	1,359	1,121	238	100	100	100
Under $100	38	19	19	3	2	8
100-199	90	61	30	7	5	13
200-399	247	176	71	18	16	29
400-599	183	143	40	13	13	16
600-999	206	178	28	15	16	12
1,000-1,999	216	181	35	16	16	15
2,000 and over	379	363	16	28	32	7
TOTAL FARM AND NONFARM WAGES EARNED	1,359	1,121	238	100	100	100
Under $100	23	15	7	2	1	3
100-199	70	43	28	5	4	12
200-399	183	127	56	13	11	23
400-599	130	95	36	10	8	15
600-999	181	142	40	13	13	17
1,000-1,399	98	76	22	7	7	9
1,400-1,999	119	96	23	9	9	10
2,000 and over	554	528	26	41	47	11

See footnotes at end of table.

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Table 4.-- Distribution of farm wageworkers, by selected characteristics, 1971--Continued

Selected characteristics	Number of workers			Percentage distribution		
	Total	Male	Female	Total	Male	Female
	Thou.	Thou.	Thou.	Pct.	Pct.	Pct.
WORKERS WHO DID LESS THAN 25 DAYS OF FARM WAGE-WORK						
MIGRATORY STATUS AND AGE						
All workers	1,191	823	368	100	100	100
14-17 years	521	397	124	44	49	34
18-24	278	203	75	23	25	20
25-34	119	64	55	10	8	15
35-44	66	36	30	6	4	8
45-54	82	43	40	7	5	11
55-64	74	44	30	6	5	8
65 and over	52	36	15	4	4	4
Migratory	55	47	8	100	3/	3/
14-17 years	20	17	2	36	---	---
18-24	23	20	3	41	---	---
25-34	4	3	2	8	---	---
35-44	3	1	1	5	---	---
45-54	1	1	0	3	---	---
55-64	4	4	0	7	---	---
65 and over	0	0	0	0	---	---
Nonmigratory	1,136	776	360	100	100	100
14-17 years	501	380	121	44	49	34
18-24	254	182	72	22	24	20
25-34	115	61	53	10	8	15
35-44	63	35	29	6	4	8
45-54	81	41	40	7	5	11
55-64	70	40	30	6	5	8
65 and over	52	36	15	5	5	4

Numbers of workers are rounded to the nearest thousand without being adjusted to group totals.
1/ Includes operating a farm and unpaid family labor.
2/ Less than 0.5 percent.
3/ Percentages not shown where base is less that 50,000 persons.

Table 5.--Distribution of farm wageworkers, and man-days of farm wagework, by selected characteristics, 1971

Selected characteristics	Number of workers			Man-days of farm wagework		
	Total	Male	Female	Total	Male	Female
	Thou.	Thou.	Thou.	Mil.	Mil.	Mil.
ALL WORKERS, 1971	2,550	1,944	606	195	173	23
COLOR						
White	2,002	1,622	379	155	139	16
Negro and other races	549	321	227	41	34	7
MIGRATORY STATUS						
Migratory	172	142	30	14	12	2
Nonmigratory	2,378	1,802	576	182	161	21
DURATION OF FARM WAGEWORK						
Less than 25 days	1,191	823	368	11	8	4
25-74	648	482	166	28	21	7
75-149	213	165	48	23	18	5
150-249	213	205	8	42	41	2
250 and over	285	269	16	91	86	5
ALL WORKERS, 1971	100	100	100	100	100	100
COLOR						
White	78	83	63	79	81	69
Negro and other races	22	17	37	21	19	31
MIGRATORY STATUS						
Migratory	7	7	5	7	7	9
Nonmigratory	93	93	95	93	93	91
DURATION OF FARM WAGEWORK						
Less than 25 days	48	42	61	6	4	17
25-74	25	25	27	15	12	30
75-149	8	8	8	12	10	23
150-249	8	11	1	22	24	7
250 and over	11	14	3	45	50	23

Numbers of workers are rounded to the nearest thousand, and numbers of man-days are rounded to the nearest million without being adjusted to group totals.

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Table 6.--Distribution of farm wageworkers, by selected characteristics and duration of farm wagework, 1971

Selected characteristics	Number of farm wageworkers						Percentage distribution					
		Number working						Percentage working				
	Total workers	Less than 25 days	25-74 days	75-149 days	150-249 days	250 days and over	Total workers	Less than 25 days	25-74 days	75-149 days	150-249 days	250 days and over
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
ALL WORKERS, 1971	2,550	1,191	648	213	213	285	100	48	25	8	8	11
COLOR												
White	2,002	973	462	174	154	239	100	48	23	9	8	12
Negro and other races	549	218	186	39	59	47	100	40	34	7	11	8
SEX AND AGE												
Both sexes												
14-17 years	838	521	239	45	11	21	100	62	29	5	1	3
18-24	619	278	192	55	44	50	100	45	31	9	7	8
25-34	334	119	71	36	62	45	100	35	21	11	19	14
35-44	224	66	51	29	25	54	100	29	23	13	11	24
45-54	214	82	41	11	38	41	100	39	19	5	18	19
55-64	208	74	31	26	26	52	100	35	15	13	12	25
65 and over	113	52	23	9	7	22	100	46	20	8	6	20
Males	1,944	823	482	165	205	269	100	42	25	8	11	14
14-17 years	666	397	198	40	11	20	100	59	30	6	2	3
18-24	491	203	154	46	43	46	100	42	31	9	9	9
25-34	241	64	47	28	60	42	100	26	20	12	24	18
35-44	152	36	26	15	25	50	100	24	17	10	16	33
45-54	139	43	16	8	34	38	100	30	12	6	24	28
55-64	162	44	21	21	26	50	100	27	13	13	16	31
65 and over	92	36	20	7	7	22	100	39	21	8	7	24
Females	606	368	166	48	8	16	100	61	27	8	1	3
14-17	171	124	41	5	0	1	100	72	24	3	0	1
18-24	129	75	39	10	1	4	100	58	30	8	1	3
25-34	93	55	24	8	3	3	100	59	26	9	3	3
35-44	72	30	25	13	0	4	100	42	34	18	0	6
45-54	75	40	25	4	4	3	100	54	33	5	5	3
55-64	47	30	10	5	0	1	1/	---	--	--	---	---
65 and over	20	15	3	2	0	0	1/	---	--	--	---	---
RESIDENCE												
Farm	689	234	145	74	82	155	100	34	21	11	12	22
Nonfarm	1,861	957	503	139	131	130	100	52	27	7	7	7
MIGRATORY STATUS												
Migratory	172	55	57	35	12	12	100	32	34	20	7	7
Nonmigratory	2,378	1,136	591	178	201	273	100	49	25	7	8	11
REGION												
Northeast	239	120	61	14	14	31	100	50	25	6	6	13
North Central	650	358	140	48	40	64	100	55	22	7	6	10
South	1,091	482	303	86	101	118	100	44	28	8	9	11
West	571	231	145	64	58	73	100	41	25	11	10	13

Numbers of workers are rounded to the nearest thousand without being adjusted to group totals.
1/ Percentages not shown where base is less than 50,000 persons.

Table 7.--Average number of days worked and wages earned at farm and nonfarm wagework, for all farm wageworkers, by selected characteristics, 1971

Selected characteristics	Number of workers	Farm and nonfarm			Farm			Nonfarm		
		Days worked	Wages earned		Days worked	Wages earned		Days worked	Wages earned	
			Per year	Per day 1/		Per year	Per day 1/		Per year	Per day 1/
	Thou.	No.	Dol.	Dol.	No.	Dol.	Dol.	No.	Dol.	Dol.
ALL WORKERS, 1971	2,550	117	1,580	13.50	76	882	11.60	40	698	17.45
COLOR AND SEX										
White	2,002	123	1,732	14.10	77	882	11.95	45	811	18.00
Negro and other races	549	96	1,024	10.65	74	921	10.00	22	285	12.95
Male	1,944	135	1,900	14.05	88	739	12.00	46	844	18.35
White	1,622	136	1,986	14.60	85	1,047	12.30	51	939	18.40
Negro and other races	321	131	1,462	11.15	104	1,095	10.50	26	366	14.05
Female	606	58	555	9.55	37	325	8.80	21	229	10.90
White	379	65	644	9.90	41	380	9.25	24	263	10.95
Negro and other races	227	48	406	8.45	31	234	7.55	17	171	10.05
CHIEF ACTIVITY										
Farmwork	611	218	2,881	13.20	205	2,664	13.00	13	216	16.60
Farm wagework	484	244	3,209	13.15	232	3,003	12.95	12	205	17.10
Without nonfarm work	394	244	3,156	12.95	244	3,156	12.95	---	---	---
With nonfarm work	90	245	3,443	14.05	180	2,335	12.95	65	1,107	17.05
Other farmwork 2/	127	116	1,623	14.00	100	1,364	13.65	16	259	16.20
Nonfarm work 3/	396	206	3,853	18.70	38	447	11.75	168	3,406	20.25
Unemployed	43	---	---	---	---	---	---	---	---	---
Not in labor force	1,500	53	456	8.60	35	285	8.15	18	171	9.50
Keeping house	303	41	394	9.60	32	305	9.55	9	89	9.90
Attending school	1,063	55	444	8.05	35	265	7.55	20	178	8.90
Other	133	62	696	11.20	38	394	10.35	24	301	12.55
RESIDENCE, SEX, AND DURATION OF FARM WAGEWORK										
All workers										
Less than 25 days	1,191	59	930	15.75	9	89	9.90	49	840	17.15
25-74	648	87	1,236	14.20	43	442	10.25	43	794	18.45
75-149	213	152	1,850	12.15	106	1,131	10.65	45	719	15.95
150-249	213	222	2,879	12.95	198	2,496	12.60	23	382	16.60
250 and over	285	324	3,903	12.05	317	3,799	12.00	6	103	17.15
Farm residence	689	142	1,585	11.15	120	1,277	10.65	22	307	13.95
Less than 25 days	234	39	490	12.55	9	91	10.10	30	398	13.25
25-74	145	73	807	11.05	44	391	8.90	29	415	14.30
75-149	74	128	1,409	11.00	106	1,047	9.85	22	361	16.40
150-249	82	216	2,376	11.00	197	2,103	10.65	19	273	14.35
250 and over	155	330	3,627	11.00	324	3,564	11.00	5	63	12.60
Nonfarm residence	1,861	108	1,578	14.60	60	735	12.25	47	842	17.90
Less than 25 days	957	64	1,037	16.20	9	88	9.75	54	948	17.55
25-74	503	91	1,360	14.95	43	456	10.60	47	903	19.20
75-149	139	164	2,083	12.70	106	1,175	11.10	58	907	15.65
150-249	131	225	3,194	14.20	199	2,743	13.80	26	451	17.35
250 and over	130	317	4,232	13.35	309	4,080	13.20	7	152	21.70
Males	823	71	1,200	16.90	9	89	9.90	62	1,111	17.90
Less than 25 days	482	95	1,467	15.45	44	480	10.90	50	987	19.75
25-74	165	162	1,983	12.25	106	1,117	10.55	55	865	15.70
75-149	205	222	2,874	12.95	198	2,479	12.50	24	394	16.40
150-249	269	323	4,018	12.45	317	3,916	12.35	5	102	20.40
250 and over										
Females	368	33	325	9.85	10	88	8.80	22	236	10.70
Less than 25 days	166	65	565	8.70	41	332	8.10	23	232	10.10
25-74	72	174	1,701	9.75	163	1,519	9.30	11	182	16.55
75 and over										

See footnotes at end of table.

Table 7.--Average number of days worked and wages earned at farm and nonfarm wagework, for all farm wageworkers, by selected characteristics, 1971--Continued

Selected characteristics	Number of workers	Farm and nonfarm: Days worked	Farm and nonfarm: Wages earned: Per year	Farm and nonfarm: Wages earned: Per day 1/	Farm: Days worked	Farm: Wages earned: Per year	Farm: Wages earned: Per day 1/	Nonfarm: Days worked	Nonfarm: Wages earned: Per year	Nonfarm: Wages earned: Per day 1/
	Thou.	No.	Dol.	Dol.	No.	Dol.	Dol.	No.	Dol.	Dol.
MIGRATORY STATUS AND DURATION OF FARM WAGEWORK										
Migratory	172	118	1,630	13.80	79	987	12.50	39	642	16.45
Less than 25 days	55	67	1,208	18.00	10	104	10.40	57	1,104	19.35
25-74	57	90	1,195	13.25	46	577	12.55	43	617	14.35
75-149 3/	35	---	---	---	---	---	---	---	---	---
150 and over 3/	24	---	---	---	---	---	---	---	---	---
Nonmigratory	2,378	117	1,576	13.45	76	874	11.50	41	702	17.10
Less than 25 days	1,136	59	916	15.50	9	88	9.75	49	827	16.85
25-74	591	87	1,240	14.25	43	429	9.95	43	811	18.85
75-149	178	154	1,924	12.50	104	1,119	10.75	49	804	16.40
150-249	201	222	2,838	12.80	198	2,446	12.35	24	391	16.30
250 and over	273	324	3,893	12.00	317	3,788	11.95	6	104	17.35
REGION AND COLOR										
Northeast	239	109	1,418	13.00	75	778	10.35	34	640	18.80
White	228	112	1,462	13.05	76	792	10.40	35	670	19.15
Negro and other races 3/	11	---	---	---	---	---	---	---	---	---
North Central	650	116	1,547	13.35	65	624	9.60	51	922	18.05
White	635	117	1,561	13.35	65	630	9.70	51	930	18.25
Negro and other races	15	---	---	---	---	---	---	---	---	---
South	1,091	112	1,375	12.25	77	837	10.85	35	537	15.35
White	603	126	1,708	13.55	81	973	12.00	44	735	16.70
Negro and other races 3/	487	95	962	10.10	72	668	9.25	23	293	12.75
West	571	131	2,077	15.85	88	1,304	14.80	42	772	18.40
White	535	130	2,077	15.95	86	1,262	14.65	44	814	18.50
Negro and other races 3/	35	---	---	---	---	---	---	---	---	---
REGION, MIGRATORY STATUS, AND COLOR										
All workers										
Migratory										
White	157	120	1,712	14.25	80	1,042	13.00	40	669	16.70
Negro and other races 3/	15	---	---	---	---	---	---	---	---	---
Nonmigratory										
White	1,845	123	1,734	14.10	77	911	11.85	46	823	17.90
Negro and other races	533	97	1,031	10.60	74	747	10.10	22	283	12.85
South										
Migratory	56	138	1,587	11.50	105	1,208	11.50	33	379	11.50
White	44	145	1,750	12.05	110	1,380	12.55	34	369	10.85
Negro and other races 3/	12	---	---	---	---	---	---	---	---	---
Nonmigratory	1,034	111	1,363	12.25	76	817	10.75	35	546	15.60
White	559	124	1,705	13.75	79	940	11.90	45	764	17.00
Negro and other races	476	95	962	10.10	72	671	9.30	23	290	12.60
West										
Migratory	82	115	1,823	15.85	64	867	13.55	50	955	19.10
White	78	118	1,898	16.10	66	906	13.70	51	991	19.45
Negro and other races 3/	4	---	---	---	---	---	---	---	---	---
Nonmigratory	489	133	2,120	15.95	92	1,377	14.95	41	742	18.10
White	457	133	2,107	15.85	89	1,323	14.85	43	784	18.25
Negro and other races 3/	31	---	---	---	---	---	---	---	---	---

Numbers of workers are rounded to the nearest thousand without being adjusted to group totals.

1/ Rounded to the nearest 5 cents.

2/ Includes operating a farm and unpaid family labor.

3/ Averages not shown where base is less than 50,000 persons.

Table 8.--Distribution of farm wageworkers, by selected characteristics and average daily earnings at farm wagework, 1971

Selected characteristics	Number of workers	Average daily earnings from farm wagework								Median daily earnings 1/
		Total	Less than $3.00	$3.00-4.99	$5.00-6.99	$7.00-8.99	$9.00-10.99	$11.00-12.99	$13.00 and over	
	Thou.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Dol.
ALL WORKERS, 1971	2,550	100	6	9	15	15	18	11	26	9.50
COLOR AND SEX										
White	2,002	100	7	9	14	13	17	11	29	9.95
Negro and other races	549	100	5	8	22	23	20	10	12	8.30
Male	1,944	100	6	8	14	14	17	12	29	10.00
White	1,622	100	7	8	13	12	17	11	32	10.20
Negro and other races	321	100	2	5	20	22	21	12	18	9.10
Female	606	100	8	12	19	19	18	8	16	8.10
White	379	100	7	12	16	16	17	9	23	8.90
Negro and other races	227	100	10	12	25	24	18	7	4	7.25
AGE, MIGRATORY STATUS, AND SEX										
14-19 years	1,133	100	9	12	19	17	19	10	14	8.15
Migratory	73	100	11	3	18	7	17	14	30	10.30
Nonmigratory	1,060	100	9	13	19	18	18	10	13	8.05
20 years and over	1,418	100	4	6	13	13	17	11	36	10.65
Migratory	99	100	5	1	10	8	28	6	42	10.80
Male	82	100	2	2	8	5	27	7	49	12.75
Female	18	2/	---	---	---	---	---	---	---	---
Nonmigratory	1,318	100	4	6	13	14	16	12	36	10.60
Male	966	100	3	5	11	12	16	12	41	11.50
Female	352	100	7	9	19	19	17	10	19	8.60
DURATION OF FARM WAGEWORK										
Less than 25 days	1,191	100	7	11	16	17	19	10	20	8.85
25-74	648	100	5	7	18	17	20	10	23	9.30
75-149	213	100	5	9	13	12	21	9	31	10.00
150-249	213	100	5	2	13	9	9	17	45	12.40
250-299	86	100	6	5	9	8	11	11	50	12.90
300 and over	199	100	9	9	10	8	13	11	40	11.05
REGION AND SEX										
Northeast	239	100	10	10	13	10	22	11	24	9.65
Male	184	100	12	11	12	11	21	12	21	9.35
Female	55	100	3	5	14	10	26	11	31	10.45
North Central	650	100	7	11	15	14	16	14	23	9.35
Male	572	100	7	11	15	14	15	14	24	9.40
Female	78	100	5	13	18	13	26	18	7	8.95
South	1,091	100	6	8	18	21	20	9	18	8.70
Male	756	100	4	5	16	20	22	11	22	9.45
Female	335	100	9	14	23	26	15	6	7	7.30
West	571	100	6	6	11	6	13	9	49	12.70
Male	432	100	6	6	10	4	12	10	52	13.10
Female	139	100	8	9	14	10	16	7	36	10.05

Numbers of workers are rounded to the nearest thousand without being adjusted to group totals.

1/ Rounded to the nearest 5 cents.

2/ Percentages not shown where base is less than 50,000 persons.

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Table 9.--Average number of days worked and wages earned at farm and nonfarm wagework, for persons who did 25 days or more of farm wagework, by selected characteristics, 1971

Selected characteristics	Number of workers	Farm and nonfarm: Days worked	Farm and nonfarm: Wages earned: Per year	Farm and nonfarm: Wages earned: Per day 1/	Farm: Days worked	Farm: Wages earned: Per year	Farm: Wages earned: Per day 1/	Nonfarm: Days worked	Nonfarm: Wages earned: Per year	Nonfarm: Wages earned: Per day 1/
	Thou.	No.	Dol.	Dol.	No.	Dol.	Dol.	No.	Dol.	Dol.
WORKERS WHO DID 25 DAYS OR MORE OF FARM WAGEWORK, 1971	1,359	168	2,150	12.80	135	1,576	11.65	33	573	17.35
COLOR AND SEX										
White	1,029	178	2,375	13.35	141	1,706	12.10	36	668	18.55
Negro and other races	331	136	1,448	10.65	115	1,172	10.20	21	276	13.15
Male	1,121	183	2,413	13.20	147	1,764	12.00	35	648	18.50
White	893	187	2,557	13.65	148	1,829	12.35	39	727	18.65
Negro and other races	228	166	1,849	11.15	143	1,510	10.55	22	339	15.40
Female	238	98	909	9.25	78	692	8.85	20	217	10.85
White	135	119	1,176	9.90	96	897	9.35	22	279	12.70
Negro and other races	103	71	558	7.85	54	422	7.80	17	136	8.00
SEX AND AGE										
Both sexes										
14-17 years	317	86	594	6.90	75	537	7.15	10	57	5.70
18-24	342	159	2,019	12.70	112	1,237	11.05	46	781	16.95
25-34	215	217	3,241	14.95	159	2,029	12.75	58	1,212	20.90
35-44	158	210	3,179	15.15	167	2,429	14.55	43	749	17.40
45-54	132	207	2,954	14.25	182	2,413	13.25	24	541	22.55
55-64	135	211	2,777	13.15	193	2,490	12.90	17	286	16.80
65 and over	61	184	1,324	7.20	174	1,245	7.15	10	78	7.80
Males										
14-17 years	269	91	615	6.75	78	549	7.05	12	66	5.50
18-24	288	173	2,264	13.10	119	1,361	11.45	53	903	17.05
25-34	177	238	3,721	15.65	174	2,315	13.30	63	1,405	22.30
35-44	116	239	3,766	15.75	197	2,963	15.05	42	803	19.10
45-54	97	242	3,640	15.05	216	2,971	13.75	26	669	25.75
55-64	118	228	3,055	13.40	208	2,732	13.15	19	323	17.00
65 and over	56	189	1,416	7.50	181	1,338	7.40	7	77	11.00
CHIEF ACTIVITY										
Farmwork	542	241	3,170	13.15	229	2,987	13.05	11	183	16.65
Farm wagework	473	249	3,257	13.10	237	3,071	12.95	11	186	16.90
Without nonfarm work	387	248	3,209	12.95	248	3,209	12.95	---	---	---
With nonfarm work	86	252	3,474	13.80	188	2,447	13.00	63	1,027	16.30
Other farmwork 2/	69	190	2,572	13.55	177	2,406	13.60	13	165	12.70
Nonfarm work	178	231	3,959	17.15	74	864	11.65	157	3,095	19.70
Unemployed 3/	25	---	---	---	---	---	---	---	---	---
Not in labor force	615	87	751	8.65	71	577	8.10	15	173	11.55
Keeping house	128	73	709	9.70	63	607	9.65	10	102	10.20
Attending school	426	89	723	8.10	73	540	7.40	15	182	12.15
Other	61	100	1,028	10.30	74	768	10.35	25	259	10.35
REGION AND COLOR										
Northeast	119	174	1,960	11.25	140	1,451	10.35	34	508	14.95
White	111	182	2,067	11.35	145	1,518	10.45	36	548	15.20
Negro and other races 3/	9	---	---	---	---	---	---	---	---	---
North Central	292	176	2,043	11.60	134	1,279	9.55	42	764	18.20
White	286	177	2,060	11.65	134	1,286	9.60	42	774	18.40
Negro and other races 3/	5	---	---	---	---	---	---	---	---	---

See footnotes at end of table.

Table 9.--Average number of days worked and wages earned at farm and nonfarm wagework, for persons who did 25 days or more of farm wagework, by selected characteristics, 1971--Continued

Selected characteristics	Number of workers	Farm and nonfarm			Farm			Nonfarm		
		Days worked	Wages earned		Days worked	Wages earned		Days worked	Wages earned	
			Per year	Per day 1/		Per year	Per day 1/		Per year	Per day 1/
	Thou.	No.	Dol.	Dol.	No.	Dol.	Dol.	No.	Dol.	Dol.
REGION AND COLOR--Continued										
South	608	161	1,928	12.00	131	1,443	11.00	29	484	16.70
White	312	186	2,474	13.30	150	1,818	12.10	36	656	18.20
Negro and other races	297	134	1,353	10.10	111	1.049	9.45	22	303	13.75
West	340	172	2,704	15.70	141	2,113	15.00	31	590	19.05
White	320	170	2,668	15.70	138	2,040	14.80	32	627	19.60
Negro and other races 3/	20	---	---	---	---	---	---	---	---	---
REGION, MIGRATORY STATUS, AND COLOR										
All workers										
Migratory	117	142	1,830	12.90	111	1,407	12.65	30	423	14.10
White	110	141	1,888	13.40	110	1,441	13.10	31	447	14.40
Negro and other races 3/	7	---	---	---	---	---	---	---	---	---
Nonmigratory	1,243	170	2,180	12.80	137	1,592	11.60	33	587	17.80
White	919	183	2,433	13.30	145	1,738	12.00	37	695	18.80
Negro and other races	324	136	1,460	10.75	115	1,178	10.25	20	281	14.05
South										
Migratory 3/	42	---	---	---	---	---	---	---	---	---
White 3/	36	---	---	---	---	---	---	---	---	---
Negro and other races 3/	6	---	---	---	---	---	---	---	---	---
Nonmigratory	566	160	1,930	12.05	131	1.433	10.95	29	497	17.15
White	276	188	2,529	13.45	152	1,834	12.05	36	694	19.25
Negro and other races	290	133	1,361	10.25	111	1,051	9.45	32	309	14.05
West										
Migratory 3/	49	---	---	---	---	---	---	---	---	---
Nonmigratory	291	178	2,836	15.95	148	2,241	15.15	30	595	19.85
NONMIGRATORY WORKERS, SEX, AND COLOR										
Nonmigratory										
Male	1,026	186	2,450	13.15	150	1,783	11.90	36	666	18.50
White	803	192	2,613	13.60	152	1,857	12.20	40	755	18.85
Negro and other races	223	166	1,863	11.20	143	1,516	10.60	23	346	15.05
Female	216	96	898	9.35	77	686	8.90	18	211	11.70
White	116	120	1,186	9.90	99	909	9.20	20	276	13.80
Negro and other races	101	69	565	8.20	53	429	8.10	15	135	9.00
HOUSEHOLD STATUS AND MIGRATORY STATUS										
Household heads	649	227	3,307	14.55	179	2,383	13.30	47	923	19.65
Migratory	47	---	---	---	---	---	---	---	---	---
Nonmigratory	602	229	3,329	14.55	181	2,393	13.20	47	936	19.90
Other household members	710	114	1,093	9.60	94	839	8.90	19	253	13.30
Migratory	70	100	1,036	10.35	81	836	10.30	19	200	10.50
Nonmigratory	640	116	1,099	9.45	96	840	8.75	19	259	13.65

Numbers of workers are rounded to the nearest thousand without being adjusted to group totals.
1/ Rounded to the nearest 5 cents.
2/ Includes operating a farm and unpaid family labor.
3/ Averages not shown where base is less than 50,000 persons.

Table 10.--Average number of days worked and wages earned at farm and nonfarm wagework, for persons who did less than 25 days of farm wagework, by selected characteristics, 1971

Selected characteristics	Number of workers	Farm and nonfarm			Farm			Nonfarm		
		Days worked	Wages earned		Days worked	Wages earned		Days worked	Wages earned	
			Per year	Per day 1/		Per year	Per day 1/		Per year	Per day
	Thou.	No.	Dol.	Dol.	No.	Dol.	Dol.	No.	Dol.	Dol.
WORKERS WHO DID LESS THAN 25 DAYS OF FARM WAGEWORK, 1971	1,191	59	930	15.75	9	89	9.90	49	840	17.15
SEX AND AGE										
Both sexes	521	26	168	6.45	9	76	8.45	16	92	5.75
14-17 years	278	87	1,256	14.45	9	95	10.55	77	1,161	15.05
18-24	119	120	2,495	20.80	10	116	11.60	110	2,379	21.60
25-34	66	109	2,122	19.45	8	93	11.60	100	2,029	20.30
35-44	82	77	1,866	24.25	8	98	12.25	68	1,767	26.00
45-54	74	47	896	19.05	10	109	10.90	37	786	21.25
55-64	52	28	271	9.65	7	75	10.70	20	195	9.75
65 and over	823	71	1,200	16.90	9	89	9.90	62	1,111	17.90
Males	397	28	182	6.50	9	73	8.10	18	109	6.05
14-17 years	203	99	1,498	15.15	8	94	11.75	90	1,404	15.60
18-24	64	179	4,044	22.60	9	120	13.35	169	3,923	23.20
25-34	36	---	---	---	---	---	---	---	---	---
35-44 2/	123	75	1,791	23.90	8	111	13.85	67	1,679	25.05
45 and over	368	33	325	9.85	10	88	8.80	22	236	10.70
Females	124	20	124	6.20	11	86	7.80	9	37	4.10
14-17 years	75	53	601	11.35	10	97	9.70	42	503	11.95
18-24	55	52	684	13.15	11	111	10.10	40	572	14.30
25-34	30	---	---	---	---	---	---	---	---	---
35-44 2/	85	24	160	6.65	9	76	8.45	15	84	5.60
45 and over										
CHIEF ACTIVITY										
Farm wagework and other farmwork 3/	69	31	598	19.30	9	117	13.00	22	480	21.80
Nonfarm work	218	186	3,767	20.25	8	107	13.35	177	3,659	20.65
Unemployed 2/	18	---	---	---	---	---	---	---	---	---
Not in labor force	885	30	252	8.40	9	82	9.10	20	169	8.45
Keeping house	176	18	166	9.20	9	85	9.45	8	80	10.00
Attending school	637	33	257	7.80	10	82	8.20	23	175	7.60
Other	73	30	418	13.95	7	80	11.40	23	337	14.65
MIGRATORY STATUS										
Migratory	55	67	1,208	18.00	10	104	10.40	57	1,104	19.35
Nonmigratory	1,136	59	916	15.50	9	88	9.75	49	827	16.85
HOUSEHOLD STATUS AND MIGRATORY STATUS										
Household heads	314	116	2,403	20.70	8	101	12.60	107	2,301	21.50
Migratory 2/	13	---	---	---	---	---	---	---	---	---
Nonmigratory	301	115	2,384	20.75	8	102	12.75	107	2,282	21.30
Other household members	877	39	403	10.35	9	85	9.45	29	318	10.95
Migratory 2/	43	---	---	---	---	---	---	---	---	---
Nonmigratory	834	38	386	10.15	9	83	9.20	28	302	10.80

Numbers of workers are rounded to the nearest thousand without being adjusted to group totals.

1/ Rounded to the nearest 5 cents.

2/ Averages not shown where base is less than 50,000 persons.

3/ Includes operating a farm and unpaid family labor.

Table 11.--Percentage of workers who did farm and nonfarm wagework, and average number of days worked and wages earned, for workers who did farm wagework only, by selected characteristics, 1971

Selected characteristics	Farm wageworkers		Workers who did farm wagework only			
	Number of workers	Percentage who also did some nonfarm wagework	Number of workers	Farm wages earned: Days worked	Farm wages earned: Per year	Farm wages earned: Per day 1/
	Thou.	Pct.	Thou.	No.	Dol.	Dol.
ALL WORKERS, 1971	2,550	37	1,617	94	1,095	11.65
COLOR AND SEX						
White	2,002	40	1,210	97	1,181	12.15
Negro and other races	549	26	407	84	838	9.95
Male	1,944	40	1,171	114	1,371	12.00
White	1,622	42	939	112	1,392	12.40
Negro and other races	321	28	232	124	1,286	10.35
Female	606	27	446	39	369	9.45
White	379	29	270	44	448	10.20
Negro and other races	227	23	175	31	246	7.95
CHIEF ACTIVITY						
Farmwork	611	19	495	217	2,836	13.05
Farm wagework	484	19	394	244	3,156	12.95
Without nonfarm work	394	---	394	244	3,156	12.95
With nonfarm work	90	100	---	---	---	---
Other farmwork 2/	127	20	101	114	1,584	13.90
Nonfarm work	396	94	3/25	---	---	---
Unemployed	43	70	3/13	---	---	---
Not in labor force	1,500	28	1,084	38	313	8.25
Keeping house	303	20	244	33	324	9.80
Attending school	1,063	30	743	39	293	7.50
Other	133	28	97	43	443	10.30
DURATION OF FARM WAGEWORK						
Less than 25 days	1,191	42	688	10	85	8.50
25 days and over	1,359	32	929	156	1,843	11.80
RESIDENCE						
Farm	689	22	540	132	1,417	10.75
Nonfarm	1,861	42	1,077	75	933	12.45
MIGRATORY STATUS						
Migratory	172	47	91	96	1,323	13.80
Nonmigratory	2,378	36	1,527	94	1,081	11.50
REGION AND DURATION OF FARM WAGEWORK						
Northeast	239	35	156	83	877	10.55
Less than 25 days	120	35	77	9	90	10.00
25-149	75	38	3/47	---	---	---
150 and over	45	29	3/31	---	---	---
North Central	650	41	380	84	788	9.40
Less than 25 days	358	45	196	10	95	9.50
25-149	188	47	99	58	501	8.65
150 and over	104	17	86	284	2,706	9.50
South	1,091	34	718	93	1,032	11.10
Less than 25 days	482	39	295	9	69	7.65
25-149	389	40	234	60	540	8.90
150 and over	219	14	189	265	3,145	11.90
West	571	36	363	109	1,633	15.00
Less than 25 days	231	48	120	10	102	10.20
25-149	209	36	133	64	854	13.40
150 and over	131	16	110	273	4,240	15.55

Numbers of workers are rounded to the nearest thousand without being adjusted to group totals.

1/ Rounded to the nearest 5 cents.

2/ Includes operating a farm and unpaid family labor.

3/ Averages not shown where base is less than 50,000 persons.

Table 12.--Average number of days worked and wages earned at farm and nonfarm wagework, for farm wage-workers who also did some nonfarm wagework, by selected characteristics, 1971

Selected characteristics	Number of workers	Farm and nonfarm			Farm			Nonfarm		
		Days worked	Wages earned		Days worked	Wages earned		Days worked	Wages earned	
			Per year	Per day 1/		Per year	Per day 1/		Per year	Per day 1/
	Thou.	No.	Dol.	Dol.	No.	Dol.	Dol.	No.	Dol.	Dol.
WORKERS WHO ALSO DID SOME NONFARM WAGEWORK, 1971	933	158	2,420	15.30	46	512	11.15	111	1,908	17.20
COLOR AND SEX										
White	792	162	2,574	15.90	46	523	11.35	116	2,050	17.65
Negro and other races	141	133	1,561	11.75	45	450	10.00	88	1.110	12.60
Male	772	167	2,701	16.15	49	576	11.75	118	2,125	18.00
White	683	170	2,804	16.50	48	573	11.95	121	2,230	18.40
Negro and other races	89	149	1,918	12.85	54	600	11.10	95	1,317	13.85
Female	161	112	1,071	9.55	30	205	6.85	81	865	10.65
White	109	116	1,130	9.75	31	211	6.80	84	918	10.90
Negro and other races	52	105	946	9.00	29	193	6.65	76	752	9.90
CHIEF ACTIVITY										
Farmwork	116	219	3,074	14.05	150	1,928	12.85	68	1,145	16.85
Farm wagework	90	245	3,443	14.05	180	2,335	12.95	65	1,107	17.05
Other farmwork 2/ 3/	26	---	---	---	---	---	---	---	---	---
Nonfarm work	371	215	4,059	18.85	35	421	12.00	179	3,637	20.30
Unemployed 3/	30	---	---	---	---	---	---	---	---	---
Not in labor force	416	92	829	9.00	26	210	8.05	66	618	9.35
Keeping house	59	73	682	9.35	26	225	8.65	47	457	9.70
Attending school	320	93	795	8.55	26	201	7.75	67	593	8.85
Other 3/	37	---	---	---	---	---	---	---	---	---
DURATION OF WAGEWORK										
Farm	933	158	2,420	15.30	46	512	11.15	111	1,908	17.20
Less than 25 days	503	127	2,086	16.40	8	94	11.75	118	1,991	16.85
25-74	268	149	2,409	16.15	43	490	11.40	105	1,919	18.25
75-149	80	223	2,945	13.20	101	1,039	10.30	121	1,906	15.75
150-249	59	278	3,924	14.10	193	2,551	13.20	84	1,372	16.35
250 and over 3/	22	---	---	---	---	---	---	---	---	---
Nonfarm	933	158	2,420	15.30	46	512	11.15	111	1,908	17.20
Less than 25 days	183	59	655	11.10	48	523	10.90	11	131	11.90
25-74	247	96	1,067	11.10	50	561	11.20	46	506	11.00
75-149	174	157	2,052	13.05	56	560	10.00	100	1,491	14.90
150-249	212	236	3,928	16.65	41	507	12.35	194	3,420	17.60
250 and over	117	303	5,868	19.35	27	330	12.20	276	5,537	20.05
Farm and nonfarm	933	158	2,420	15.30	46	512	11.15	111	1,908	17.20
Less than 25 days	69	15	159	10.60	7	80	11.40	8	79	9.85
25-74	212	50	466	9.30	17	173	10.15	32	293	9.15
75-149	210	105	1,292	12.30	33	357	10.80	72	935	13.00
150-249	204	204	3,236	15.85	53	603	11.35	150	2,633	17.55
250 and over	238	303	5,124	16.90	88	1,002	11.40	214	4,122	19.25
RESIDENCE										
Farm	149	180	2,191	12.15	77	767	9.95	103	1,423	13.80
Nonfarm	784	153	2,464	16.10	40	464	11.60	113	2,000	17.70
MIGRATORY STATUS										
Migratory	81	142	1,971	13.90	59	614	10.40	82	1,357	16.55
Nonmigratory	852	159	2,463	15.50	44	502	11.40	114	1,960	17.20
REGION										
Northeast	83	158	2,424	15.35	59	592	10.05	98	1,832	18.70
North Central	270	162	2,618	16.15	38	394	10.35	123	2,224	18.10
South	373	149	2,034	13.65	46	460	10.00	103	1,574	15.30
West	207	168	2,856	17.00	50	728	14.55	118	2,127	18.00

Numbers of workers are rounded to the nearest thousand without being adjusted to group totals.
1/ Rounded to the nearest 5 cents.
2/ Includes operating a farm and unpaid family labor.
3/ Averages not shown where base is less than 50,000 persons.

Table 13.--Distribution of workers who did farm wagework only and workers who did both farm and nonfarm wagework, by selected characteristics, 1971

Selected characteristics	Workers who did farm wagework only		Workers who did both farm and nonfarm wagework					
	Farm		Farm and nonfarm		Farm		Nonfarm	
	Male	Female	Male	Female	Male	Female	Male	Female
	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.	Thou.
ALL WORKERS, 1971	1,171	446	772	161	772	161	772	161
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Total	100	100	100	100	100	100	100	100
NUMBER OF DAYS WORKED								
Less than 25 days	36	59	7	12	51	63	17	31
25-74	22	27	20	35	29	29	27	27
75-149	8	9	22	23	9	5	18	19
150-249	13	2	22	22	8	1	24	20
250 and over	21	3	29	8	3	2	14	3
DAILY EARNINGS								
Less than $3.00	7	7	6	10	4	9	9	10
$3.00-4.99	8	13	10	13	7	9	7	19
$5.00-6.99	15	20	7	14	12	18	8	11
$7.00-8.99	14	19	9	15	13	19	7	4
$9.00-10.99	17	16	14	19	18	24	11	20
$11.00-12.99	11	9	10	10	13	5	8	16
$13.00 and over	28	16	44	19	33	16	50	20
ANNUAL EARNINGS								
Less than $100	25	41	4	4	34	49	13	21
$100-199	11	21	6	10	13	15	22	35
$200-499	17	21	14	26	22	28	15	17
$500-999	11	6	15	29	14	6	16	15
$1,000-2,999	18	9	26	25	12	2	8	6
$3,000-4,999	11	2	15	3	4	---	11	3
$5,000-7,499	5	---	12	2	1	---	9	3
$7,500-9,999	1	---	6	1	---	---	4	---
$10,000 and over	1	---	---	---	---	---	2	---

APPENDIX A

SOURCE AND RELIABILITY OF THE ESTIMATES

Source of data.--The estimates in this report are based on data obtained in December 1971 through supplementary questions in the Current Population Survey of the Bureau of the Census. The sample is spread over 449 areas comprising 863 counties and independent cities, with coverage in each of the 50 States and the District of Columbia. Approximately 50,000 occupied households are designated for interview each month. Of this number, 2,250 occupied units, on the average, are visited but interviews are not obtained because the occupants are not found at home after repeated calls or are unavailable for some other reason. In addition to the 50,000 there are also about 8,500 sample units in an average month which are visited but are found to be vacant or otherwise not to be interviewed.

The estimates in this report concern persons 14 years of age or older who did farm wagework in 1971. This data was compiled from supplementary questions to the Current Population Survey asked only if a person 14 years of age or older had performed farmwork for wages or salary during 1971. These questions concerned number of days of farm wagework, farm wages, migratory status, nonfarm wagework and nonfarm wages, chief activity in 1971, residence, and other matters. Not included in this report are hired farmworkers who died, who entered the Armed Forces, or who were removed from the civilian noninstitutional population for other reasons prior to the survey. Also not included are foreign nationals who did farm wagework in this country and returned to their homes before the survey. The number of foreign nationals admitted declined sharply after the termination of Public Law 78 in December 1964, and in 1971 totaled only 13,684. 1/ The total number of persons excluded from this report probably does not exceed 400,000.

The estimating procedure used in this survey involved the inflation of the weighted sample results to give independent estimates of the civilian noninstitutional population of the United States by age, color and sex. These independent estimates were based on statistics from the 1960 Census of Population; statistics of births, deaths, immigration and emigration; and statistics on the strength of the Armed Forces.

Reliability of the estimates.--Since the estimates are based on a sample, they may differ somewhat from figures obtained if a complete census had been taken using the same schedules, instructions, and enumerators. As in any survey work, the results are subject to errors of response and reporting as well as being subject to sampling variability.

The standard error is primarily a measure of sampling variability, that is, of the variations that occur by chance because a sample rather than the whole of the population is surveyed. As calculated for this report, the

1/ Farm Labor Developments, Manpower Administration, Dept. of Labor.

standard error also partially measures the effect of response and enumeration errors but does not measure any systematic biases in the data. The chances are about 68 out of 100 that an estimate from the sample would differ from a complete census figure by less than the standard error. The chances are about 95 out of 100 that the difference would be less than twice the standard error.

The figures presented in tables 14-18 are approximations to the standard errors of various estimates shown in this report. In order to derive standard errors that would be applicable to a wide variety of items and could be prepared at a moderate cost, a number of approximations were required. As a result, the tables of standard errors provide an indication of the order of magnitude of the standard errors rather than the precise standard error for any specific item.

Table 14.--Standard errors for estimated numbers of persons who did farm wagework

(68 chances out of 100)

Size of estimate	Standard error
25,000	9,000
50,000	12,000
100,000	18,000
250,000	29,000
500,000	42,000
1,000,000	65,000
2,500,000	121,000

Estimated percentages and estimated averages are computed by using sample data for both numerator and denominator. The reliability of these estimates depends both upon the size of the estimate and the size of the totals upon which the estimates are based. Estimated percentages are relatively more reliable than the corresponding estimates of the numerators of the percentages, particularly if the percentages are 50 percent or more. Table 15 contains the standard errors of estimated percentages. Averages are subject to large sampling variability since the sample estimate of an average is affected by extreme estimates. If sensitive indicators are needed, other types of statistics, such as medians, should be considered. Tables 16, 17, and 18 contain the standard errors of estimated averages.

Table 15.--Standard errors of percentages of persons who did farm wagework

(68 chances out of 100)

Estimated percentage	Base of percentage in thousands						
	25	50	100	250	500	1,000	2,500
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
2 or 98	4.9	3.5	2.4	1.5	1.1	0.8	0.5
5 or 95	7.6	5.4	3.8	2.4	1.7	1.2	0.8
10 or 90	10.5	7.4	5.2	3.3	2.3	1.7	1.0
15 or 85	12.5	8.8	6.2	3.9	2.8	2.0	1.2
20 or 80	14.0	9.9	7.0	4.4	3.1	2.2	1.4
25 or 75	15.1	10.7	7.6	4.8	3.4	2.4	1.5
35 or 65	16.6	11.8	8.3	5.3	3.7	2.6	1.7
50	17.4	12.3	8.9	5.5	3.9	2.8	1.7

Table 16.--Standard errors of average number of days of farm wagework

(68 chances out of 100)

Average number of days of farm wagework per year per person	Base of average in thousands Number of farm wageworkers					
	50	100	250	500	1,000	2,500
10	1.2	1.0	0.7	0.5	0.4	0.3
25	3.5	3.1	2.2	1.5	1.3	0.9
50	10.2	7.2	5.7	4.0	3.4	2.3
100	19.2	13.6	9.6	6.8	5.0	3.3
150	19.7	14.0	9.5	6.8	3.6	2.4
200	15.5	11.0	7.0	5.0	3.0	2.0
250	11.3	8.0	5.0	3.5	1.3	0.9

Note: Table 16 pertains to averages computed from distributions allowed to vary over the entire range of days worked. Standard errors for truncated distributions (e.g., workers with less than 25 days of farm wagework) are somewhat smaller.

Table 17.--Standard errors of average annual earnings from farm wagework

(68 chances out of 100)

Average earnings from farm wagework per year per person	Base of average in thousands Number of farm wageworkers					
	50	100	250	500	1,000	2,500
$ 150	31	22	14	10	9	6
250	58	41	26	19	16	11
500	118	84	53	41	35	23
750	178	126	80	64	54	36
1,000	219	155	98	85	68	45
2,000	314	223	141	132	96	64
3,000	331	235	149	138	99	66

Table 18.--Standard errors of average daily earnings from farm wagework

(68 chances out of 100)

Average earnings from farm wagework per day per person	Base of average in thousands Number of farm wageworkers					
	50	100	250	500	1,000	2,500
$ 5.00	.60	.42	.27	.19	.14	.09
7.00	1.13	.81	.51	.36	.26	.17
9.00	1.46	1.04	.66	.50	.35	.23
11.00	1.52	1.08	.68	.53	.43	.28
13.00	1.54	1.09	.69	.55	.47	.31
15.00	1.57	1.11	.71	.56	.50	.33

Illustration of the use of the tables of standard errors.--Table 4 of this report shows that 172,000 persons were migratory farm wageworkers. Table 14 shows the standard error on an estimate of this size to be approximately 23,000. The chances are 68 out of 100 that the estimate would have shown a figure differing from a complete census by less than 23,000. The chances are 95 out of 100 that the estimate would have shown a figure differing from a complete census by less than 46,000.

Of these 172,000 migratory farm wageworkers, 56,000 or 33 percent are from the Southern Region. Table 15 shows the standard error of 33 percent on a base of 172,000 to be approximately 6.8 percent. Consequently, chances are 68 out of 100 that the estimated 33 percent would be within 6.8 percent of a complete census figure, and changes are 95 out of 100 that the estimate would be within 13.6 percent of a census figure, i.e., this 95 percent confidence interval would be from 19.4 to 46.6 percent.

Table 7 of this report shows that average annual earnings at farm wage-work for migratory farm wageworkers are $987. Table 17 shows the standard error of chances are 68 out of 100 that the estimated $987 would be within $126 of a complete census figure, and chances are 95 out of 100 that the estimate would be within $252 of a census figure, i.e., this 95 percent confidence interval would be from $735 to $1,239.

APPENDIX B

DEFINITIONS AND EXPLANATIONS

Farm wageworkers.--Persons 14 years old and over in the civilian noninstitutional population of the United States at the time of the survey who did any farmwork for cash wages or salary at any time in the year, even if only for 1 day.

Farmwork for cash wages or salary consists of the following: (1) Work done on any farm for cash wages in connection with the production, harvesting, threshing, preparation for market, or delivery to market of agricultural products; (2) work done off the farm for a farmer by his hired farmworker, such as trips to town to buy feed, seeds, or fertilizer, or to handle other matters involved in running the farm business; (3) repairs of farm buildings, machinery, etc., performed by a farm wageworker when done along with the type of work specified in (1) and (2) above; and (4) managing a farm enterprise for cash salary. Not included as farmwork for cash wages or salary are (1) work performed by farm operators on their own farms, or "exchange" work between farmers; (2) work done exclusively for "pay in kind"; (3) work done without pay on a family farm by a member of the farm operator's family (a small regular cash allowance is not considered as farm wages); and (4) nonfarm work performed on a farm, such as the building of a farm structure, the drilling of a well, the hauling of agricultural products to market by commercial truckers, or domestic service in the home of a farmer; and (5) custom work such as spraying, threshing, combining, etc., when a person is paid a combined rate for the use of his equipment and labor.

Casual workers.--Persons who did less than 25 days of farm wagework.

Noncasual workers.--Persons who did 25 days or more of farm wagework. Noncasual workers include:

Seasonal workers.--Persons who did 25-149 days of farm wagework.

Regular workers.--Persons who did 150-249 days of farm wagework.

Year-round workers.--Persons who did 250 days or more of farm wagework.

(The use here of the terms "seasonal" and "regular" differs from that in the Census of Agriculture, where "seasonal workers" refers to persons employed on one farm for less than 150 days during the year, and "regular workers" to those employed on one farm for 150 days or more during the year.)

Age.--The age classification is based on the age of the person at his last birthday.

Color.--The term "color" refers to the division of the population into two groups -- white and Negro and other races (including such groups as Indians, Japanese, and Chinese).

Chief activity.--Information on the chief activity of farm wageworkers during the year was derived from the question, "What was . . . doing most of 1971--working, keeping house, going to school, or something else?" If "working" was reported as the chief activity, the kind of work the person was doing most of the year was determined. Farm wagework was reported if the person spent most of his working time doing farm wagework. Operating a farm was reported if a person spent most of his working time operating his own farm (as a tenant, owner, or sharecropper). Nonfarm work was reported if a person spent most of his working time in his own business or profession, worked without pay in a family business, or worked for pay (or pay in kind) in any nonfarm activity, such as manufacturing, trade, construction, domestic service, etc. If the person did not report "working" as his chief activity, information was obtained on what he was doing most of the year. Looking for work (unemployed was reported for a person who spent most of his time without employment, but was actively looking for a job. Keeping house was reported for persons who spent most of their time doing their own housework. Going to school was reported for persons who spent most of their time during the year going to school. The category "other" was reported for persons who spent most of their time at some activity other than those named above.

Residence.--Residence is determined on the basis of the classification of the place in which the worker lived at the time of the survey. In the Current Population Survey, farm wageworkers were classified as living on farms (farm residents) if they lived in rural territory on places of 10 or more acres of land, and if as much as $50 worth of agricultural products were sold from the place in the reporting year. Also included are those who lived on places of less than 10 acres if as much as $250 worth of agricultural products were sold from the place in the reporting year. Nonfarm-resident workers lived in urban

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places, rural towns or villages, or in the open country on places that did not meet the criteria for farm classification.

Migratory status.--Migratory workers are those who (a) left their homes temporarily overnight to do farm wagework in a different county within the same State or in a different State with expectation of eventually returning home, or (b) had no usual place of residence, and did farm wagework in two or more counties during the year. Nonmigratory workers are those (a) who did all their farm wagework for the year in the same county in which they lived, (b) who made a permanent move from one county to another during the year and performed farm wagework in both counties, or (c) who commuted daily across the county or State line to do farm wagework and returned home each night.

Region.--The States included in each of the four regions are as follows: Northeast--Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, New Jersey; North Central--Ohio, Indiana, Illinois, Wisconsin, Michigan, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas; South--Maryland, Delaware, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas; and West--Montana, Wyoming, Idaho, Colorado, New Mexico, Utah, Arizona, Nevada, Washington, Oregon, California, Hawaii, Alaska.

Days of farm or nonfarm wagework.--Days on which any farm or nonfarm wagework was reported. The work may have been for all or only part of a day.

Earnings from farm or nonfarm work.--Total cash wages or salary received for farmwork or for nonfarm work. Estimates of earnings do not include the value of perquisites received in connection with farmwork nor the value of fringe benefits received in connection with nonfarm work.

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INJURY RATES BY INDUSTRY, 1970.

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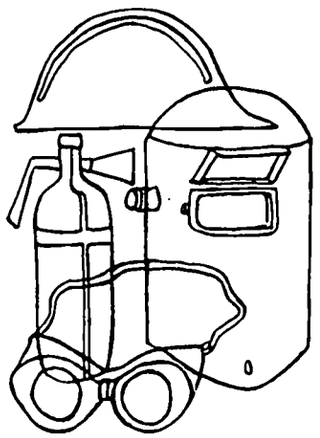
ABSTRACT - THIS REPORT TABULATES WORK-INJURY RATES FOR APPROXIMATELY 460 MANUFACTURING AND 170 NON-MANUFACTURING INDUSTRIES IN 1970. DISABLING WORK INJURIES IN MANUFACTURING AFFECTED SLIGHTLY MORE THAN THREE EMPLOYEES OF EVERY 100, THE HIGHEST RATE SINCE 1951. THE INJURY-SEVERITY RATE (THE NUMBER OF DAYS OF DISABILITY) ALSO INCREASED, WITH THE LUMBER AND WOOD PRODUCTS INDUSTRY HAVING THE HIGHEST SEVERITY RATE, AS IT DID IN 1969. AS IN ALL YEARS IN THE PAST DECADE THE HIGHEST WORK-INJURY RATE WAS IN COAL MINING, THE SECOND HIGHEST IN CONTRACT CONSTRUCTION. IN CONSTRUCTION INDUSTRIES THE SEVERITY RATE WAS NEARLY THREE TIMES AS HIGH AS IN MANUFACTURING. THE WORK-INJURY RATES IN THIS REPORT ARE BASED ON THE AMERICAN NATIONAL STANDARDS INSTITUTE Z16.1 STANDARD. BEGINNING WITH THE 1971 SURVEY, EMPLOYERS WILL BE REQUIRED TO KEEP RECORDS ACCORDING TO THE SYSTEM ESTABLISHED UNDER THE WILLIAMS-STEIGER OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970. THE NEW RECORDKEEPING DEFINITIONS WILL PROVIDE A MORE COMPREHENSIVE MEASURE OF WORK INJURIES AND ILLNESSES, COVERING MANY LESS SEVERE THAN WERE PREVIOUSLY REPORTED. (MF)



Injury Rates By Industry, 1970

BLS Report 406
U.S. DEPARTMENT OF LABOR
Bureau of Labor Statistics

1972

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The work-injury rates in this report are based on the American National Standards Institute's (ANSI) Z16.1 standard and not on the recordkeeping system established under the Williams-Steiger Occupational Safety and Health Act of 1970. This will be the last report providing rates for approximately 460 manufacturing and 170 nonmanufacturing industries under the ANSI standard. However, for 1971 work-injury rates will be available for manufacturing and contract construction at the division levels only. Comparable data for 1958-69 appear in the Handbook of Labor Statistics, 1971.

Beginning with the period July to December 1971, and annually thereafter, rates will be available based on the new recordkeeping definitions established under the Occupational Safety and Health Act.

VT016789

Work-Injury Experience in 1970

The rate of disabling work injuries in manufacturing industries continued to rise in 1970 to 15.2 per million employee-hours worked, up from 14.8 in 1969. On the average, slightly over 3 employees of every 100 in manufacturing industries were injured during 1970. This 1970 rate was the highest since 1951, when the rate was 15.5. During the period 1951-60, the rate of work injuries in general had declined; however, beginning with 1961, when a rate of 11.8 was recorded, the rate has been moving upward.

Among major industry groups (2-digit SIC) in manufacturing the rates for 11 of the 21 were higher in 1970 than in 1969. Substantially higher rates were reported in two of these groups, ordnance and tobacco. Nine industries, on the other hand, had lower rates-lumber, furniture, primary metal, machinery, transportation equipment, instruments, and miscellaneous manufacturing industries in durable good goods manufacturing and textile mill products and paper in nondurable goods manufacturing. The rate for the apparel group remained unchanged.

Among the 137 manufacturing industry groups (3-digit SIC) for which injury-frequency rates are published, 16 recorded an injury rate of at least twice the manufacturing rate of 15.2. These industry groups and their corresponding injury-frequency rates are shown in the following table. In 1969, the injury-frequency for all but two of these industry groups-beverages, and miscellaneous petroleum and coal products-had exceeded twice the manufacturing rate in that year.

Injury-frequency rates in selected manufacturing industries, 1970

SIC	Industry group	Injury-frequency rate
201	Meat products	43.1
241	Logging camps, and logging contractors	42.4
311	Leather tanning and finishing	38.5
327	Concrete, gypsum, and plaster products	36.8
242	Sawmills and planing mills	35.5
336	Nonferrous foundries	34.8
299	Miscellaneous petroleum and coal products	33.9
249	Miscellaneous wood products	33.4
332	Iron and steel foundries	33.3
379	Miscellaneous transportation equipment	33.3
339	Miscellaneous primary metal products	32.9
244	Wooden containers	32.4
347	Metal services, n.e.c.	32.0
328	Cut stone and stone products	31.7
208	Beverages	30.7
325	Structural clay products	30.5

The injury-severity rate, or the number of days of disability per million employee-hours worked, increased in manufacturing industries from 730 days in 1969 to 759 in 1970. Among the major industry groups, manufacturers of apparel and other textile products recorded the lowest rate, 207 days. As in 1969, the lumber and wood products industry had the highest severity rate of 2,891, an increase of 296 days, or more than 11 percent, over the rate for the previous year.

Contract construction work injuries occurred at a frequency of 28.0 per million employee-hours worked, unchanged from the 1969 rate. On the average, nearly 6 employees of every 100 in construction industries were injured in 1970. The severity rate in construction industries for 1970 was 2,100, a decrease of 54 days or 2.5 percent from 1969. This level of severity was nearly three times as high as that for manufacturing.

For the mineral industries data indicate an increase in injury-frequency rates for nearly all major mining groups for 1970. The one exception, coal mining, recorded a slight decrease for 1970 as a result of a drop in the injury-frequency rate for anthracite mining. Coal mining, however, continues to experience an injury-frequency rate nearly three times that of manufacturing and nearly two times that for construction. The injury-severity rate for coal mining increased by 639 days, or nearly 9 percent, in 1970.

In wholesale and retail trade, the injury-frequency rate for 1970 declined slightly to 11.3 from 11.6 in 1969. The severity rate, on the other hand, increased by 14 days to 452, approximately 3 percent above the 1969 rate.

For some State and local government activities, frequency rates were among the highest recorded in the 1970 survey. Refuse collection and disposal injuries rose from 48.3 per million employee-hours worked in 1969 to 63.9 in 1970, a 32 percent increase. Police departments had a rate of 45.6, up from 42.3 in 1969. Fire protection, and highway and street departments recorded decreases in 1970 to 41.7 and 35.6 from 48.8 and 40.4 respectively, in 1969.

For the Federal Government, the injury-frequency rate declined slightly in 1970 to 6.6, from 6.7 in 1969; this rate has continued to move downward from the 7.1 recorded in 1967.

Occupational Safety and Health Act of 1970

The Williams-Steiger Occupational Safety and Health Act of 1970 requires the Secretary of Labor, in consultation with the Secretary of Health, Education, and Welfare, to develop and maintain effective programs of collection, compilation, and analysis of statistics on occupational injuries and illnesses. The Secretary of Labor has

delegated to the Bureau of Labor Statistics the statistical responsibility under the act, including that of conducting an annual national survey of occupational injuries and illnesses in cooperation with State agencies.

Recordkeeping regulations issued on July 2, 1971, and modified on January 18, 1972, require all employers subject to the act to maintain records of recordable occupational injuries and illnesses occurring on or after July 1, 1971. The new recordkeeping definitions cover all injuries which result in death, or actual loss of time from work, or which require medical treatment other than first aid. The new recordkeeping definitions were developed to provide a more comprehensive measure of work injuries and illnesses, and cover many injuries of a less serious nature than had been reported previously. Also covered are injuries of a less severe nature resulting in unconsciousness, restriction of work or motion, transfer to another job, or medical treatment, beyond first aid. Under the ANSI Z16.1 definition, work injuries have been expressed as the number of disabling injuries per million employee-hours worked, and have included only those injuries resulting in death, permanent impairment, or inability to perform any regularly established job for one or more shifts.

Also, the new recordkeeping regulations require the recording separately of occupational illnesses including skin diseases and disorders, dust diseases of the lungs, respiratory conditions due to toxic agents, poisoning, and disorders due to physical agents and repeated trauma. These were not reported separately under the Z16.1 standard.

Although all employers subject to the act must keep records, reporting will be limited to a sample of employers. The Department of Labor issued regulations on February 2, 1972 specifying that on receipt of an Occupational Injuries and Illnesses Survey Form (OSHA No. 103), an employer shall complete and return the report form promptly. Nearly 60,000 employers were mailed reporting forms covering their experience in the last 6 months of 1971. The sample for this period was designed to produce injury and illness incidence rates at most of the 2-digit Standard Industrial Classification (SIC) industry levels for the country as a whole. The survey covers all non-farm industries except government, most of mining, and the self-employed. Beginning with the 1972 survey, collection will be on a calendar year basis. In 1972, the total national sample will be expanded to approximately 200,000 reporting units to provide data at the 4-digit SIC industry level in manufacturing and the 3-digit level in nonmanufacturing. This survey will be conducted by BLS in cooperation with State statistical agencies operating under statistical grants set forth in the Occupational Safety and Health Act.

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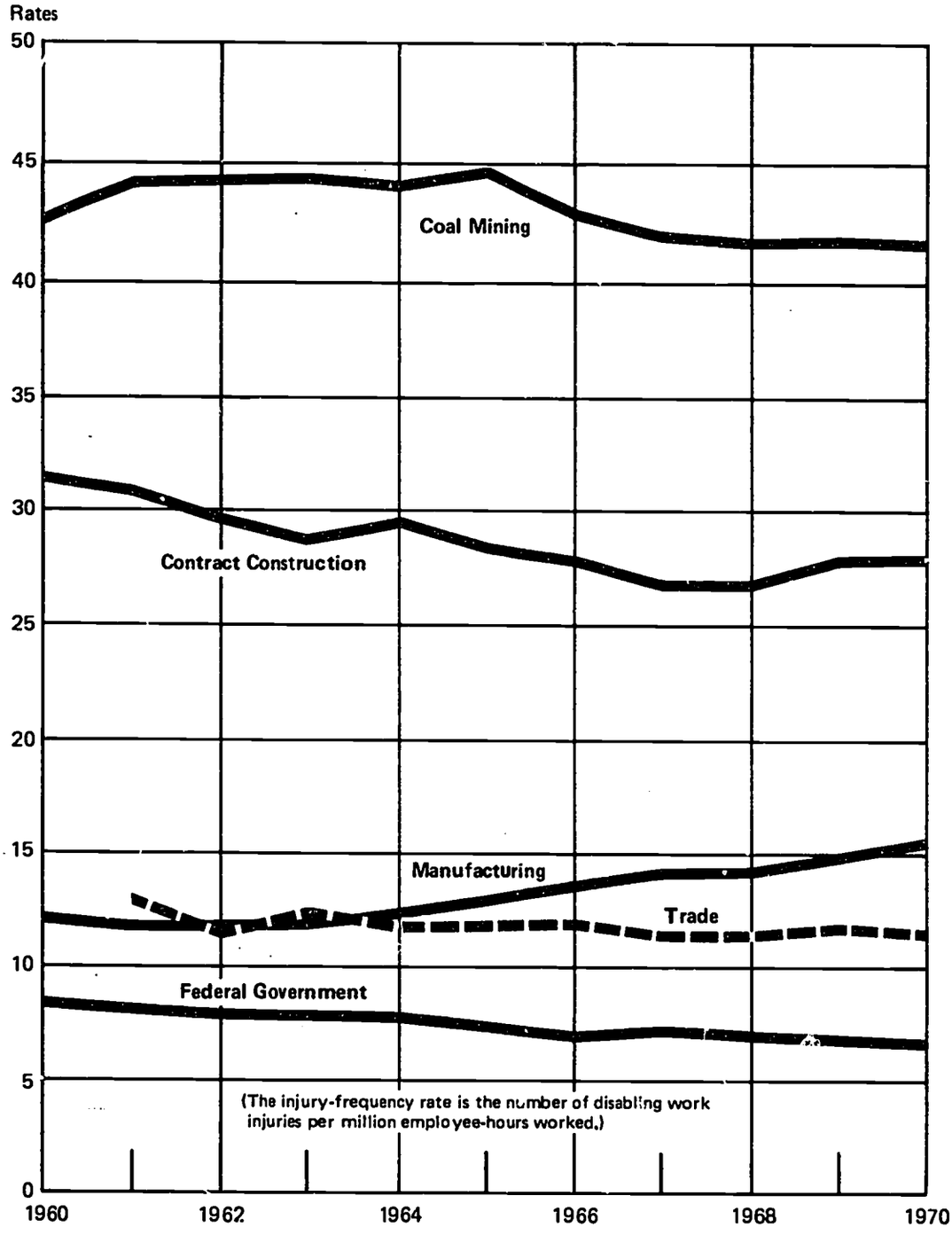
The rates to be developed under the new definitions will be called "incidence rates" and will be expressed as the number of cases (deaths, injuries, or illnesses) per 100 full-time employees. Publication of the data will be included as part of the Secretary of Labor's report to Congress and issued as BLS reports. A news release is scheduled for late 1972.

In addition to the 6-month survey for 1971, BLS is conducting a "crossover-target industry" survey. Approximately 14,500 employers received the reporting form. This survey is designed to compare data reported under the ANSI Z16.1 standard with data reported under the new recordkeeping definitions. The "crossover-target industry" survey also will help evaluate the effects of the Labor Department's standards and enforcement activities in four of the target industries selected as having the highest accident rates over the years: roofing and sheet metal (SIC 176); meat products (SIC 201); lumber and wood products (SIC 24); and miscellaneous transportation equipment (SIC 379). For purposes of this survey, data on establishments in the fifth target industry, marine cargo handling (SIC 4463), will be used from the 1971 quarterly survey covering employment subject to the Longshoremen's and Harbor Workers' Compensation Act.

WORK INJURY—FREQUENCY RATES 1960—70
Selected Industry Divisions and Groups



U.S. Department of Labor, Bureau of Labor Statistics.

Table 1A. Work-injury rates by industry, 1970 and comparable injury-frequency rates for 1969

Industry 1/	SIC code 2/	Injury-frequency rates		Injury-severity rate	Average days charged per injury			Percent of disabling injuries resulting in--		
		1970	1969		Permanent partial	Temporary total	All disabling injuries	Death	Permanent impairment	Temporary total disability
MANUFACTURING										
MANUFACTURING, TOTAL		15.2	14.8	759	427	18	50	.2	4.4	95.4
ORDNANCE AND ACCESSORIES	19	9.8	5.9	284	242	14	29	.1	5.1	94.9
GUNS, HOWITZERS AND MORTERS	191	3.4	2.2	-	-	-	-	-	-	-
AMMUNITION, EXCEPT FOR SMALL ARMS	192	9.3	-	210	224	10	23	.1	3.5	96.4
SMALL ARMS	195	12.4	13.0	456	581	24	37	-	2.4	97.6
SMALL ARMS AMMUNITION	196	2.4	1.7	-	-	-	-	-	-	-
FOOD AND KINDRED PRODUCTS	20	28.8	27.3	1,156	452	15	40	.2	3.0	96.8
MEAT PRODUCTS	201	43.1	40.4	1,262	392	12	29	.1	2.7	97.2
MEAT PACKING PLANTS	2011	46.9	39.1	1,194	339	12	25	.1	3.0	97.0
SAUSAGES AND OTHER PREPARED MEATS	2013	38.2	35.8	864	366	12	23	.1	2.0	97.9
POULTRY DRESSING PLANTS	2015	38.9	45.9	1,631	549	12	42	.2	2.6	97.2
DAIRY PRODUCTS	202	25.1	24.2	1,208	587	17	48	.3	2.3	97.5
CHEESE, NATURAL AND PROCESSED	2022	24.8	23.3	1,158	560	18	47	.2	3.4	96.4
CONDENSED AND EVAPORATED MILK	2023	20.1	24.8	-	-	-	-	-	-	-
ICE CREAM AND FROZEN DESSERTS	2024	21.9	15.9	-	-	-	-	-	-	-
FLUID MILK	2026	25.7	25.4	1,298	619	17	50	.3	1.9	97.7
CANNED, CURED, AND FROZEN FOODS	203	25.7	25.2	1,026	473	17	40	.1	3.9	94.0
CANNED AND CURED SEA FOODS	2031	41.9	41.6	-	-	-	-	-	-	-
CANNED SPECIALTIES	2032	13.9	14.3	602	318	16	43	.2	5.4	94.4
CANNED FRUITS AND VEGETABLES	2033	23.2	21.8	999	462	18	43	.2	3.6	96.3
DEHYDRATED FOOD PRODUCTS	2034	28.4	-	-	-	-	-	-	-	-
PICKLES, SAUCES, AND SALAD DRESSINGS	2035	27.6	26.0	-	-	-	-	-	-	-
FRESH OR FROZEN PACKAGED FISH	2036	46.3	41.2	950	531	11	21	-	1.8	98.2
FROZEN FRUITS AND VEGETABLES	2037	24.9	29.6	1,487	537	17	60	-	7.3	92.7
GRAIN MILL PRODUCTS	204	21.8	23.0	1,241	451	15	57	.4	4.5	95.2
FLOUR AND OTHER GRAIN MILL PRODUCTS	2041	26.0	26.6	1,629	572	17	63	.4	3.9	95.7
PREPARED FEEDS FOR ANIMALS AND FOWLS	2042	25.0	25.5	1,392	450	12	56	.4	4.1	95.5
CEREAL PREPARATIONS	2043	8.8	6.8	283	121	26	32	-	6.5	93.5
WET CORN MILLING	2046	10.5	12.0	-	-	-	-	-	-	-
BAKERY PRODUCTS	205	22.6	21.1	793	345	17	35	.1	3.0	96.9
BREAD, CAKE, AND RELATED PRODUCTS	2051	23.3	22.2	824	397	16	35	.2	2.5	97.3
COOKIES AND CRACKERS	2052	18.1	14.6	596	189	21	33	-	7.1	93.1
SUGAR	206	25.9	26.5	1,991	707	19	77	.6	3.0	96.4
RAW CANE SUGAR	2061	14.2	-	-	-	-	-	-	-	-
CANE SUGAR REFINING	2062	13.2	13.2	-	-	-	-	-	-	-
BEET SUGAR	2063	42.3	37.6	-	-	-	-	-	-	-
CONFECTIONERY AND RELATED PRODUCTS	207	21.4	22.2	679	349	16	32	-	4.6	95.4
CONFECTIONERY PRODUCTS	2071	23.4	24.4	635	436	16	27	-	2.7	97.3
CHOCOLATE AND COCOA PRODUCTS	2072	13.2	11.8	-	-	-	-	-	-	-
CHEWING GUM	2073	12.5	-	-	-	-	-	-	-	-
BEVERAGES	208	30.7	27.2	1,105	481	13	36	.2	2.0	97.8
MALT LIQUORS	2082	19.2	19.2	1,025	342	22	54	.3	4.1	95.6
WINES, BRANDY, AND BRANDY SPIRITS	2084	29.8	22.2	-	-	-	-	-	-	-
DISTILLED LIQUOR, EXCEPT BRANDY	2085	13.2	11.1	-	-	-	-	-	-	-
BOTTLED AND CANNED SOFT DRINKS	2086	38.1	35.2	975	526	11	26	.1	1.7	98.2
MISCELLANEOUS FOODS AND KINDRED PRODUCTS	209	27.8	25.3	1,790	564	16	64	.5	3.5	96.0
COTTONSEED OIL MILLS	2091	35.7	-	-	-	-	-	-	-	-
ROASTED COFFEE	2095	12.3	15.2	-	-	-	-	-	-	-
SHORTENING AND COOKING OILS	2096	16.3	11.4	-	-	-	-	-	-	-
MACARONI AND SPAGHETTI	2098	39.5	31.1	-	-	-	-	-	-	-
FOOD PREPARATIONS, N.E.C.	2099	21.2	23.8	1,068	492	13	50	.4	3.2	96.4
TOBACCO MANUFACTURES	21	11.9	8.8	332	268	18	28	-	4.2	95.8
CIGARETTES	211	8.3	6.0	-	-	-	-	-	-	-

See footnotes at end of table. Technical notes follow table 1C.

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Table 1A. Work-injury rates by industry, 1970 and comparable injury-frequency rates for 1969--Continued

Industry 1/	SIC code 2/	Injury-frequency rates		Injury-severity rate	Average days charged per injury			Percent of disabling injuries resulting in--		
		1970	1969		Permanent partial	Temporary total	All disabling injuries	Death	Permanent impairment	Temporary total disability
TEXTILE MILL PRODUCTS	22	10.4	10.7	579	447	21	56	.1	6.0	93.9
WEAVING MILLS, COTTON	221	6.3	6.0	423	329	29	67	.1	11.5	88.4
WEAVING MILLS, SYNTHETICS	222	8.3	9.7	696	378	21	84	.2	9.6	90.1
WEAVING AND FINISHING MILLS, WOOL	223	14.3	19.0	1,047	767	20	73	.3	4.6	95.0
NARROW FABRIC MILLS	224	10.0	10.6	-	-	-	-	-	-	-
KNITTING MILLS	225	9.4	8.1	319	520	16	34	.1	2.7	97.2
WOMEN'S HOSIERY, EXCEPT SOCKS	2251	5.5	5.7	-	-	-	-	-	-	-
HOSIERY, N.E.C.	2252	7.6	8.0	-	-	-	-	-	-	-
KNIT OUTERWEAR MILLS	2253	8.3	7.0	-	-	-	-	-	-	-
KNIT UNDERWEAR MILLS	2254	9.9	9.1	-	-	-	-	-	-	-
KNIT FABRIC MILLS	2256	18.9	-	-	-	-	-	-	-	-
KNITTING MILLS, N.E.C.	2259	12.2	6.5	-	-	-	-	-	-	-
TEXTILE FINISHING, EXCEPT WOOL	226	14.8	19.4	639	426	21	43	.1	4.4	95.5
FINISHING PLANTS, COTTON	2261	13.1	12.2	716	451	23	55	.1	5.4	94.5
FINISHING PLANTS, SYNTHETICS	2262	18.9	29.6	-	-	-	-	-	-	-
FINISHING PLANTS, N.E.C.	2269	13.4	19.6	-	-	-	-	-	-	-
FLOOR COVERING MILLS	227	13.3	11.8	876	590	22	66	.1	6.5	93.4
WOVEN CARPETS AND RUGS	2271	12.0	12.2	-	-	-	-	-	-	-
TUFTED CARPETS AND RUGS	2272	14.4	11.4	1,011	632	19	70	.2	6.5	93.3
YARN AND THREAD MILLS	228	11.2	10.1	630	387	23	56	.2	6.4	93.5
YARN MILLS, EXCEPT WOOL	2281	9.2	8.4	523	398	22	57	-	9.3	90.7
WOOL YARN MILLS	2283	14.2	14.3	-	-	-	-	-	-	-
THREAD MILLS	2284	12.2	18.1	-	-	-	-	-	-	-
MISCELLANEOUS TEXTILE GOODS	229	17.7	18.6	1,180	608	21	67	.1	5.4	94.5
FELT GOODS, N.E.C.	2291	32.3	27.2	-	-	-	-	-	-	-
COATED FABRICS, NOT RUBBERIZED	2295	18.3	15.4	-	-	-	-	-	-	-
TIRE CORD AND FABRIC	2296	4.6	3.8	-	-	-	-	-	-	-
CORDAGE AND TWINE	2298	21.8	21.4	-	-	-	-	-	-	-
TEXTILE GOODS, N.E.C.	2299	14.8	-	-	-	-	-	-	-	-
APPAREL AND OTHER TEXTILE PRODUCTS	23	7.7	7.7	207	537	14	27	-	2.0	98.0
MEN'S AND BOYS' SUITS AND COATS	231	8.7	9.5	185	438	17	21	-	1.1	98.9
MEN'S AND BOYS' FURNISHINGS	232	10.0	8.7	285	586	13	28	-	2.3	97.7
MEN'S AND BOYS' SHIRTS AND NIGHTWEAR	2321	7.3	6.0	172	390	13	24	-	2.8	97.2
MEN'S AND BOYS' UNDERWEAR	2322	6.1	6.7	-	-	-	-	-	-	-
MEN'S AND BOYS' SEPARATE TROUSERS	2327	13.2	9.3	379	844	9	29	-	2.3	97.7
MEN'S AND BOYS' WORK CLOTHING	2328	12.5	13.2	267	460	13	21	-	1.8	98.2
MEN'S AND BOYS' CLOTHING, N.E.C.	2329	9.3	7.4	-	-	-	-	-	-	-
WOMEN'S AND MISSES' OUTERWEAR	233	4.4	4.7	104	865	15	24	-	1.0	99.0
WOMEN'S AND MISSES' BLOUSES AND WAISTS	2331	2.7	3.2	-	-	-	-	-	-	-
WOMEN'S AND MISSES' DRESSES	2335	4.1	4.0	-	-	-	-	-	-	-
WOMEN'S AND MISSES' SUITS AND COATS	2337	4.7	5.7	-	-	-	-	-	-	-
WOMEN'S AND MISSES' OUTERWEAR, N.E.C.	2339	5.6	6.4	-	-	-	-	-	-	-
WOMEN'S AND CHILDREN'S UNDERGARMENTS	234	5.8	5.1	316	877	14	54	.2	2.4	97.5
WOMEN'S AND CHILDREN'S UNDERWEAR	2341	5.9	4.8	-	-	-	-	-	-	-
CORSETS AND ALLIED GARMENTS	2342	5.7	5.9	-	-	-	-	-	-	-
HATS, CAPS, AND MILLINERY	235	12.7	8.3	-	-	-	-	-	-	-
HATS AND CAPS, EXCEPT MILLINERY	2352	21.1	13.2	-	-	-	-	-	-	-
CHILDREN'S OUTERWEAR	236	6.2	7.2	-	-	-	-	-	-	-
CHILDREN'S DRESSES AND BLOUSES	2361	6.3	6.5	-	-	-	-	-	-	-
CHILDREN'S OUTERWEAR, N.E.C.	2369	5.5	8.4	-	-	-	-	-	-	-
MISCELLANEOUS APPAREL AND ACCESSORIES	238	9.2	8.4	137	530	11	15	-	.7	99.3
FABRIC DRESS AND WORK GLOVES	2381	6.3	8.9	-	-	-	-	-	-	-
ROBES AND DRESSING GOWNS	2384	5.9	7.9	-	-	-	-	-	-	-
APPAREL BELTS	2387	12.3	-	-	-	-	-	-	-	-
APPAREL AND ACCESSORIES, N.E.C.	2389	11.3	5.8	-	-	-	-	-	-	-
MISCELLANEOUS FABRICATED TEXTILE PRODUCTS	239	10.8	12.8	285	316	17	26	-	3.3	96.7
HOUSEFURNISHINGS, N.E.C.	2392	12.6	13.9	-	-	-	-	-	-	-
TEXTILE BAGS	2393	17.4	12.2	-	-	-	-	-	-	-
CANVAS PRODUCTS	2394	23.1	-	-	-	-	-	-	-	-
AUTOMOTIVE AND APPAREL TRIMMINGS	2396	6.6	5.1	-	-	-	-	-	-	-
FABRICATED TEXTILE PRODUCTS, N.E.C.	2399	11.2	11.4	-	-	-	-	-	-	-

See footnotes at end of table. Technical notes follow table 1C.

Table 1A. Work-injury rates by industry, 1970 and comparable injury-frequency rates for 1969--Continued

Industry 1/	SIC code 2/	Injury-frequency rates		Injury-severity rate	Average days charged per injury			Percent of disabling injuries resulting in--		
		1970	1969		Permanent partial	Temporary total	All disabling injuries	Death	Permanent impairment	Temporary total disability
LUMBER AND WOOD PRODUCTS	24	34.1	34.6	2,891	626	20	85	.5	5.1	94.3
LOGGING CAMPS, AND LOGGING CONTRACTORS	241	42.4	38.4	6,157	1,077	33	145	1.0	4.9	94.1
SAWMILLS AND PLANING MILLS	242	35.5	35.7	3,478	612	20	98	.7	5.5	93.8
SAWMILLS AND PLANING MILLS, GENERAL	2421	35.1	33.8	3,663	655	20	105	.8	5.2	94.0
HARDWOOD DIMENSION AND FLOORING	2426	38.7	45.1	2,698	541	19	70	.4	5.6	94.1
MILLWORK, PLYWOOD AND RELATED PRODUCTS	243	29.5	30.7	1,398	553	14	47	.1	4.6	95.2
MILLWORK	2431	28.4	28.5	965	422	15	34	-	4.6	95.4
VENEER AND PLYWOOD	2432	27.2	30.7	1,726	653	15	64	.2	4.7	95.1
PREFABRICATED WOOD STRUCTURES	2433	41.1	38.7	1,689	619	12	41	-	4.8	95.2
WOODEN CONTAINERS	244	32.4	31.9	2,608	321	15	80	.7	7.6	91.7
NAILED WOODEN BOXES AND SHOOK	2441	31.8	35.4	-	-	-	-	-	-	-
MISCELLANEOUS WOOD PRODUCTS	249	33.4	37.1	1,610	450	17	48	.2	4.4	95.4
WOOD PRESERVING	2491	32.0	31.5	-	-	-	-	-	-	-
WOOD PRODUCTS, N.E.C.	2499	33.7	38.1	1,344	446	16	40	.1	4.6	95.3
FURNITURE AND FIXTURES	25	22.0	23.2	909	392	15	41	-	5.8	94.1
HOUSEHOLD FURNITURE	251	22.0	23.2	960	402	15	44	-	6.3	93.7
WOOD HOUSEHOLD FURNITURE	2511	18.7	22.6	897	363	17	48	-	7.6	92.4
UPHOLSTERED HOUSEHOLD FURNITURE	2512	21.8	21.4	834	352	14	38	-	5.6	94.4
METAL HOUSEHOLD FURNITURE	2514	37.6	29.3	1,313	480	9	35	-	5.5	94.5
MATTRESSES AND BEDSPRINGS	2515	22.7	24.3	1,218	620	18	54	-	4.5	95.5
OFFICE FURNITURE	252	20.3	24.4	886	523	19	44	-	4.9	95.1
WOOD OFFICE FURNITURE	2521	26.5	30.4	-	-	-	-	-	-	-
METAL OFFICE FURNITURE	2522	18.2	22.3	743	420	19	41	-	5.5	94.5
PUBLIC BUILDING FURNITURE	253	23.9	22.0	-	-	-	-	-	-	-
PARTITIONS AND FIXTURES	254	24.7	25.6	779	284	15	32	-	6.1	93.9
WOOD PARTITIONS AND FIXTURES	2541	22.4	24.0	-	-	-	-	-	-	-
METAL PARTITIONS AND FIXTURES	2542	27.6	27.7	1,037	330	14	38	-	7.5	92.5
MISCELLANEOUS FURNITURE AND FIXTURES	259	16.4	16.8	-	-	-	-	-	-	-
VENETIAN BLINDS AND SHADES	2591	12.1	13.0	-	-	-	-	-	-	-
PAPER AND ALLIED PRODUCTS	26	13.9	16.2	937	413	22	67	.4	5.9	93.8
PULP MILLS	261	8.2	8.8	-	-	-	-	-	-	-
PAPER MILLS, EXCEPT BUILDING PAPER	262	7.8	9.0	727	396	30	93	.7	5.4	93.9
PAPERBOARD MILLS	263	15.7	16.9	1,145	517	24	73	.5	4.1	95.5
MISCELLANEOUS CONVERTED PAPER PRODUCTS	264	17.7	21.5	911	370	18	51	.2	5.5	94.3
PAPER COATING AND GLAZING	2641	17.7	23.0	-	-	-	-	-	-	-
ENVELOPES	2642	21.8	21.3	568	372	13	26	-	3.6	96.4
BAGS, EXCEPT TEXTILE BAGS	2643	12.4	15.5	1,134	441	18	91	.8	6.4	92.9
DIE CUT PAPER AND BOARD	2645	20.4	19.8	-	-	-	-	-	-	-
PRESSED AND MOLDED PULP GOODS	2646	25.7	18.6	-	-	-	-	-	-	-
CONVERTED PAPER PRODUCTS, N.E.C.	2649	16.4	19.4	673	405	20	41	-	5.4	94.6
PAPERBOARD CONTAINERS AND BOXES	265	16.9	18.9	1,031	433	19	61	.2	6.8	93.1
FOLDING PAPERBOARD BOXES	2651	17.0	19.5	739	316	17	46	.1	7.2	92.7
SET-UP PAPERBOARD BOXES	2652	25.4	18.6	-	-	-	-	-	-	-
CORRUGATED AND SOLID FIBER BOXES	2653	18.7	22.4	1,259	483	22	67	.3	5.9	94.0
SANITARY FOOD CONTAINERS	2654	10.5	11.5	-	-	-	-	-	-	-
FIBER CANS, DRUMS, AND RELATED MATERIAL	2655	8.0	11.1	-	-	-	-	-	-	-
BUILDING PAPER AND BOARD MILLS	266	10.3	11.5	-	-	-	-	-	-	-
PRINTING AND PUBLISHING	27	11.7	11.4	411	354	15	35	.1	3.5	96.4
NEWSPAPERS	271	12.0	11.2	555	380	19	46	.2	3.6	96.2
PERIODICALS	272	6.8	7.8	-	-	-	-	-	-	-
BOOKS	273	9.6	9.9	309	423	19	32	-	3.3	96.7
BOOK PUBLISHING	2731	6.6	8.2	-	-	-	-	-	-	-
BOOK PRINTING	2732	12.9	11.8	-	-	-	-	-	-	-

See footnotes at end of table. Technical notes follow table 1C.

Table 1A. Work-injury rates by industry, 1970 and comparable injury-frequency rates for 1969--Continued

Industry 1/	SIC code 2/	Injury-frequency rates		Injury-severity rate	Average days charged per injury			Percent of disabling injuries resulting in--		
		1970	1969		Permanent partial	Temporary total	All disabling injuries	Death	Permanent impairment	Temporary total disability
PRINTING AND PUBLISHING--CONTD										
MISCELLANEOUS PUBLISHING	274	6.6	7.4	-	-	-	-	-	-	-
COMMERCIAL PRINTING	275	13.4	13.4	377	342	13	28	.1	3.2	96.7
COMMERCIAL PRINTING, EX LITHOGRAPHIC	2751	12.5	12.8	404	350	14	32	.1	3.1	96.7
COMMERCIAL PRINTING, LITHOGRAPHIC	2752	14.8	14.5	347	369	12	23	-	3.2	96.8
ENGRAVING AND PLATE PRINTING	2753	14.9	15.3	-	-	-	-	-	-	-
MANIFOLD BUSINESS FORMS	276	13.2	13.6	-	-	-	-	-	-	-
GREETING CARD PUBLISHING	277	9.5	8.4	140	203	10	15	-	2.3	97.7
BLANKBOOKS AND BOOKBINDING	278	16.4	15.6	542	309	11	33	.2	3.9	96.0
BLANKBOOKS AND LOOSELEAF BINDERS	2782	14.2	17.1	-	-	-	-	-	-	-
BOOKBINDING AND RELATED WORK	2789	18.1	14.2	-	-	-	-	-	-	-
PRINTING TRADE SERVICES	279	5.7	4.4	-	-	-	-	-	-	-
TYPESETTING	2791	5.2	4.1	-	-	-	-	-	-	-
CHEMICALS AND ALLIED PRODUCTS	28	8.5	8.1	562	459	18	66	.5	3.7	95.7
INDUSTRIAL CHEMICALS	281	6.0	5.7	567	467	23	95	.8	5.1	94.1
ALKALIES AND CHLORINE	2812	5.1	6.2	-	-	-	-	-	-	-
INDUSTRIAL GASES	2813	7.0	4.8	275	464	24	39	-	3.5	96.5
CYCLIC INTERMEDIATES AND CRUDES	2815	10.2	7.1	652	537	17	64	.6	2.0	97.4
INORGANIC PIGMENTS	2816	8.9	10.3	-	-	-	-	-	-	-
INDUSTRIAL ORGANIC CHEMICALS, N.E.C.	2818	4.3	4.9	334	496	17	78	.7	4.0	95.3
INDUSTRIAL INORGANIC CHEMICALS, N.E.C.	2819	6.4	5.7	866	469	27	136	1.2	8.5	90.3
PLASTICS MATERIALS AND SYNTHETICS	282	2.8	3.1	251	291	29	91	.6	8.9	90.4
PLASTICS MATERIALS AND RESINS	2821	4.5	5.0	277	259	22	62	.4	5.7	93.9
CELLULOSIC MAN-MADE FIBERS	2823	1.8	2.2	-	-	-	-	-	-	-
ORGANIC FIBERS, NONCELLULOSIC	2824	.8	1.2	-	-	-	-	-	-	-
DRUGS	283	9.5	7.7	190	131	14	20	.1	1.6	98.4
BIOLOGICAL PRODUCTS	2831	5.1	5.7	-	-	-	-	-	-	-
MEDICINALS AND BOTANICALS	2833	8.5	5.5	-	-	-	-	-	-	-
PHARMACEUTICAL PREPARATIONS	2834	10.2	8.4	208	152	13	20	.1	1.3	98.6
SOAP, CLEANERS, AND TOILET GOODS	284	15.1	12.4	449	450	15	30	.1	2.5	97.4
SOAP AND OTHER DETERGENTS	2841	13.6	8.8	-	-	-	-	-	-	-
POLISHES AND SANITATION GOODS	2842	11.3	12.4	-	-	-	-	-	-	-
TOILET PREPARATIONS	2844	15.7	14.1	412	212	15	26	.1	1.8	98.0
PAINTS AND ALLIED PRODUCTS	285	13.6	13.8	559	513	15	41	.3	1.6	98.1
GUM AND WOOD CHEMICALS	286	9.3	-	-	-	-	-	-	-	-
AGRICULTURAL CHEMICALS	287	11.9	12.6	1,777	555	21	149	1.1	7.0	91.9
FERTILIZERS	2871	8.9	10.9	-	-	-	-	-	-	-
AGRICULTURAL CHEMICALS, N.E.C.	2879	12.0	12.8	-	-	-	-	-	-	-
MISCELLANEOUS CHEMICAL PRODUCTS	289	13.4	-	1,094	687	17	81	.7	3.3	96.0
ADHESIVES AND GELATIN	2891	24.9	-	-	-	-	-	-	-	-
EXPLOSIVES	2892	1.4	2.4	-	-	-	-	-	-	-
PRINTING INK	2893	17.2	-	-	-	-	-	-	-	-
CHEMICAL PREPARATIONS, N.E.C.	2899	16.9	19.2	-	-	-	-	-	-	-
PETROLEUM AND COAL PRODUCTS	29	11.3	10.8	1,116	797	21	99	.9	2.2	96.9
PETROLEUM REFINING (3)	291	6.3	6.5	1,034	493	31	164	2.0	2.7	95.3
PAVING AND ROOFING MATERIALS	295	23.0	-	1,540	1,319	16	67	.3	2.0	97.7
PAVING MIXTURES AND BLOCKS	2951	24.9	-	-	-	-	-	-	-	-
ASPHALT FELTS AND COATINGS	2952	22.0	20.4	-	-	-	-	-	-	-
MISCELLANEOUS PETROLEUM AND COAL PRODUCTS	299	33.9	27.6	-	-	-	-	-	-	-
LUBRICATING OILS AND GREASES	2992	34.1	24.9	-	-	-	-	-	-	-
RUBBER AND PLASTICS PRODUCTS, N.E.C.	30	18.6	17.7	795	473	19	43	-	4.5	95.4
TIRES AND INNER TUBES	301	13.9	9.1	645	639	25	46	-	3.5	96.5
RUBBER FOOTWEAR	302	10.1	15.6	-	-	-	-	-	-	-
FABRICATED RUBBER PRODUCTS, N.E.C.	306	19.1	18.4	823	435	21	43	-	4.2	95.7
MISCELLANEOUS PLASTICS PRODUCTS	307	20.8	21.3	866	462	17	42	.1	4.9	95.0

See footnotes at end of table. Technical notes follow table 1C.

Table 1A. Work-injury rates by industry, 1970 and comparable injury-frequency rates for 1969--Continued

Industry 1/	SIC code 2/	Injury-frequency rates		Injury-severity rate	Average days charged per injury			Percent of disabling injuries resulting in--		
		1970	1969		Permanent partial	Temporary total	All disabling injuries	Death	Permanent impairment	Temporary total disability
LEATHER AND LEATHER PRODUCTS	31	15.2	15.1	534	402	16	35	.1	3.5	96.4
LEATHER TANNING AND FINISHING	311	38.5	40.9	1,913	611	18	50	.3	2.5	97.2
INDUSTRIAL LEATHER BELTING	312	9.7	10.0	-	-	-	-	-	-	-
FOOTWEAR CUT STOCK	313	24.1	31.0	-	-	-	-	-	-	-
FOOTWEAR, EXCEPT RUBBER	314	13.0	12.0	336	270	16	26	-	3.0	96.9
SHOES, EXCEPT RUBBER	3141	12.6	11.8	331	260	16	26	-	3.0	97.0
HOUSE SLIPPERS	3142	18.8	15.3	-	-	-	-	-	-	-
LEATHER GLOVES AND MITTENS	315	7.7	6.7	-	-	-	-	-	-	-
LUGGAGE	316	11.8	13.9	-	-	-	-	-	-	-
HANDBAGS AND PERSONAL LEATHER GOODS	317	11.8	12.7	-	-	-	-	-	-	-
WOMEN'S HANDBAGS AND PURSES	3171	10.9	12.5	-	-	-	-	-	-	-
PERSONAL LEATHER GOODS	3172	13.4	13.3	-	-	-	-	-	-	-
STONE, CLAY, AND GLASS PRODUCTS	32	23.8	22.4	1,540	578	20	65	.4	3.3	96.2
FLAT GLASS	321	7.9	8.5	389	765	26	49	-	3.1	96.9
GLASS AND GLASSWARE, PRESSED OR BLOWN	322	14.3	11.7	611	374	20	43	.2	3.4	96.4
GLASS CONTAINERS	3221	16.1	11.6	740	257	21	46	.3	3.8	95.9
PRESSED AND BLOWN GLASS, N.E.C.	3229	11.8	11.9	429	691	18	36	-	2.7	97.3
PRODUCTS OF PURCHASED GLASS	323	16.5	10.3	591	501	18	36	-	3.7	96.3
CEMENT, HYDRAULIC 3/	324	6.8	6.2	-	-	-	-	-	-	-
STRUCTURAL CLAY PRODUCTS	325	30.5	31.8	1,500	490	17	49	.2	3.3	96.6
BRICK AND STRUCTURAL CLAY TILE	3251	38.5	37.7	1,716	538	14	45	.2	3.2	96.5
CERAMIC WALL AND FLOOR TILE	3253	17.4	21.7	-	-	-	-	-	-	-
CLAY REFRACTORIES	3255	25.9	28.1	-	-	-	-	-	-	-
STRUCTURAL CLAY PRODUCTS, N.E.C.	3259	29.3	31.5	1,662	519	22	57	.3	3.5	96.2
POTTERY AND RELATED PRODUCTS	326	25.7	25.8	1,630	438	16	63	.4	3.7	95.8
VITREOUS PLUMBING FIXTURES	3261	31.6	32.2	-	-	-	-	-	-	-
VITREOUS CHINA FOOD UTENSILS	3262	31.1	25.8	548	226	15	18	-	1.4	98.6
FINE EARTHENWARE FOOD UTENSILS	3263	32.0	35.3	-	-	-	-	-	-	-
PORCELAIN ELECTRICAL SUPPLIES	3264	18.3	21.4	-	-	-	-	-	-	-
POTTERY PRODUCTS, N.E.C.	3269	21.2	18.7	-	-	-	-	-	-	-
CONCRETE, GYPSUM, AND PLASTER PRODUCTS	327	36.8	32.9	2,843	724	19	77	.6	3.0	96.3
CONCRETE BLOCK AND BRICK	3271	35.8	35.4	3,179	563	22	89	.7	4.9	94.4
CONCRETE PRODUCTS, N.E.C.	3272	49.5	44.1	3,096	647	17	63	.5	2.2	97.3
READY-MIXED CONCRETE	3273	34.1	27.8	2,866	883	19	84	.6	3.3	96.0
GYPSUM PRODUCTS	3275	5.4	8.5	-	-	-	-	-	-	-
CUT STONE AND STONE PRODUCTS	328	31.7	35.4	-	-	-	-	-	-	-
MISCELLANEOUS NONMETALLIC MINERAL PRODUCTS	329	15.9	17.4	922	549	25	58	.2	3.7	96.1
ABRASIVE PRODUCTS	3291	20.3	17.9	-	-	-	-	-	-	-
ASBESTOS PRODUCTS	3292	13.8	-	-	-	-	-	-	-	-
GASKETS AND INSULATIONS	3293	14.1	20.9	-	-	-	-	-	-	-
MINERALS, GROUND OR TREATED	3295	22.3	22.7	-	-	-	-	-	-	-
MINERAL WOOL	3296	11.1	10.3	-	-	-	-	-	-	-
NONCLAY REFRACTORIES	3297	15.8	22.9	-	-	-	-	-	-	-
PRIMARY METAL INDUSTRIES	33	16.9	17.1	1,128	393	23	67	.4	4.5	95.1
BLAST FURNACE AND BASIC STEEL PRODUCTS	331	6.5	7.3	940	473	33	145	1.4	6.6	92.0
BLAST FURNACES AND STEEL MILLS	3312	4.0	4.1	841	538	45	213	2.1	8.0	89.8
ELECTROMETALLURGICAL PRODUCTS	3313	16.5	-	-	-	-	-	-	-	-
STEEL WIRE AND RELATED PRODUCTS	3315	30.3	36.4	1,364	414	21	45	.2	3.8	96.1
COLD FINISHING OF STEEL SHAPES	3316	25.0	30.8	1,048	219	21	42	.2	5.5	94.3
STEEL PIPE AND TUBES	3317	22.5	26.9	1,272	383	20	57	.2	7.6	92.3
IRON AND STEEL FOUNDRIES	332	33.3	29.7	1,439	332	20	43	.2	3.6	96.2
GRAY IRON FOUNDRIES	3321	35.9	28.7	1,639	385	19	46	.2	3.0	96.8
MALLEABLE IRON FOUNDRIES	3322	29.6	30.1	1,131	425	21	38	.1	2.8	97.3
STEEL FOUNDRIES	3323	28.8	32.0	1,100	240	23	38	-	5.7	94.3

See footnotes at end of table. Technical notes follow table 1C.

Table 1A. Work-injury rates by industry, 1970 and comparable injury-frequency rates for 1969--Continued

Industry 1/	SIC code 2/	Injury-frequency rates		Injury-severity rate	Average days charged per injury			Percent of disabling injuries resulting in--		
		1970	1969		Permanent partial	Temporary total	All disabling injuries	Death	Permanent impairment	Temporary total disability
PRIMARY METAL INDUSTRIES--CONTD										
PRIMARY NONFERROUS METALS 3/	333	12.3	12.6	1,036	-	53	84	.5	-	99.5
PRIMARY COPPER 3/	3331	17.5	15.3	2,109	-	67	120	.9	-	99.1
PRIMARY ALUMINUM 3/	3334	6.6	7.5	-	-	-	-	-	-	-
NONFERROUS ROLLING AND DRAWING	335	17.2	19.5	903	329	22	52	.1	6.4	93.4
COPPER ROLLING AND DRAWING	3351	14.3	14.9	823	230	28	57	.1	10.8	89.1
ALUMINUM ROLLING AND DRAWING	3352	20.0	26.2	-	-	-	-	-	-	-
NONFERROUS ROLLING AND DRAWING, N.E.C.	3356	14.3	15.3	-	-	-	-	-	-	-
NONFERROUS WIRE DRAWING AND INSULATING	3357	17.4	17.5	1,027	387	22	59	-	8.2	91.8
NONFERROUS FOUNDRIES	336	34.8	32.4	1,170	390	19	34	-	3.3	96.7
ALUMINUM CASTINGS	3361	29.6	32.6	1,010	431	19	34	-	3.7	96.3
BRASS, BRONZE, AND COPPER CASTINGS	3362	40.5	31.5	1,506	446	16	37	.2	2.7	97.1
MISCELLANEOUS PRIMARY METAL PRODUCTS	339	32.9	30.8	2,445	516	17	74	.5	4.0	95.4
IRON AND STEEL FORGINGS	3391	31.4	31.0	2,111	514	20	67	.3	3.9	95.8
PRIMARY METAL PRODUCTS, N.E.C.	3399	36.8	32.2	-	-	-	-	-	-	-
FABRICATED METAL PRODUCTS	34	22.4	22.2	1,003	422	16	45	.1	4.8	95.0
METAL CANS	341	9.5	7.6	550	261	26	58	.1	10.1	89.7
CUTLERY, HAND TOOLS, AND HARDWARE	342	18.9	17.6	630	310	16	33	.1	4.9	95.1
CUTLERY	3421	15.6	21.2	622	370	15	40	.3	2.8	97.0
HAND AND EDGE TOOLS, N.E.C.	3423	24.9	23.7	876	332	16	35	-	6.1	93.9
HAND SAWS AND SAW BLADES	3425	21.0	16.2	-	-	-	-	-	-	-
HARDWARE, N.E.C.	3429	16.3	14.4	520	281	16	32	.1	4.6	95.3
PLUMBING AND HEATING, EXCEPT ELECTRIC	343	21.7	22.1	1,319	518	18	61	.2	5.7	94.1
METAL SANITARY WARE	3431	34.8	23.7	-	-	-	-	-	-	-
PLUMBING FITTINGS AND BRASS GOODS	3432	20.8	23.5	984	413	18	47	-	5.1	95.0
HEATING EQUIPMENT, EXCEPT ELECTRIC	3433	18.4	20.9	1,180	606	17	64	.2	5.8	94.0
FABRICATED STRUCTURAL METAL PRODUCTS	344	29.0	30.0	1,367	466	16	47	.2	4.2	95.6
FABRICATED STRUCTURAL STEEL	3441	36.4	36.6	2,217	511	17	61	.4	3.5	96.0
METAL DOORS, SASH, AND TRIM	3442	29.2	23.7	725	352	11	25	-	4.2	95.8
FABRICATED PLATE WORK (BOILER SHOPS)	3443	21.2	26.0	962	439	19	45	.2	3.9	95.9
SHEET METAL WORK	3444	28.2	29.6	1,248	461	14	44	.1	5.9	94.0
ARCHITECTURAL METAL WORK	3446	32.3	32.4	1,424	254	14	44	.4	3.6	96.1
MISCELLANEOUS METAL WORK	3449	33.1	34.1	-	-	-	-	-	-	-
SCREW MACHINE PRODUCTS, BOLTS, ETC.	345	20.7	18.5	868	419	18	42	.1	5.1	94.9
SCREW MACHINE PRODUCTS	3451	19.5	17.6	671	467	15	34	.2	2.3	97.5
BOLTS, NUTS, RIVETS, AND WASHERS	3452	21.7	19.3	1,030	408	20	48	-	7.1	92.9
METAL STAMPINGS	346	12.4	12.9	827	419	19	67	.2	7.8	91.9
METAL SERVICES, N.E.C.	347	32.0	29.7	904	512	12	28	.1	2.0	97.9
PLATING AND POLISHING	3471	35.9	30.0	1,077	500	12	30	.1	2.0	97.8
METAL COATING AND ALLIED SERVICES	3479	23.7	28.9	-	-	-	-	-	-	-
MISCELLANEOUS FABRICATED WIRE PRODUCTS	348	28.1	26.2	980	451	15	35	-	4.5	95.5
MISCELLANEOUS FABRICATED METAL PRODUCTS	349	21.9	23.8	835	352	16	38	.1	5.2	94.7
METAL BARRELS, DRUMS, AND PAILS	3491	29.7	22.7	-	-	-	-	-	-	-
VALVES AND PIPE FITTINGS	3494	20.3	21.4	685	300	10	34	-	5.5	94.5
COLLAPSIBLE TUBES	3496	7.9	-	310	160	18	39	-	15.3	84.5
FABRICATED PIPE AND FITTINGS	3498	25.7	26.4	837	356	17	33	-	4.5	95.5
FABRICATED METAL PRODUCTS, N.E.C.	3499	17.7	23.2	-	-	-	-	-	-	-
MACHINERY, EXCEPT ELECTRICAL	35	14.0	14.1	583	340	18	42	.1	5.1	94.5
ENGINES AND TURBINES	351	6.9	9.8	293	252	23	43	-	8.6	91.4
INTERNAL COMBUSTION ENGINES, N.E.C.	3519	8.4	-	362	264	22	43	-	8.9	91.1
FARM MACHINERY	352	12.3	11.4	734	303	18	60	.3	9.3	90.4
CONSTRUCTION AND RELATED MACHINERY	353	20.6	19.7	902	390	17	44	.1	4.0	94.6
CONSTRUCTION MACHINERY	3531	16.4	18.0	675	343	17	41	.2	4.5	95.4
MINING MACHINERY	3532	27.5	32.5	1,056	384	15	38	.3	1.3	98.4
OIL FIELD MACHINERY	3533	21.1	18.2	1,417	416	16	67	.1	6.4	93.5
ELEVATORS AND MOVING STAIRWAYS	3534	35.4	33.9	1,078	195	14	30	-	2.7	84.7
CONVEYORS AND CONVEYING EQUIPMENT	3535	30.0	-	1,228	563	15	41	.2	3.0	96.9
HOISTS, CRANES, AND MONORAILS	3536	16.7	13.8	596	573	22	30	-	1.5	98.5
INDUSTRIAL TRUCKS AND TRACTORS	3537	17.7	15.1	-	-	-	-	-	-	-

See footnotes at end of table. Technical notes follow table 1C.

Table 1A. Work-injury rates by industry, 1970 and comparable injury-frequency rates for 1969--Continued

Industry 1/	SIC code 2/	Injury-frequency rates		Injury-severity rate	Average days charged per injury			Percent of disabling injuries resulting in--		
		1970	1969		Permanent partial	Temporary total	All disabling injuries	Death	Permanent impairment	Temporary total disability
MACHINERY, EXCEPT ELECTRICAL--CONTO										
METAL WORKING MACHINERY	354	14.6	13.9	572	377	17	39	.1	4.2	95.7
MACHINE TOOLS, METAL CUTTING TYPES	3541	10.6	11.5	527	302	19	50	.2	6.3	93.5
MACHINE TOOLS, METAL FORMING TYPES	3542	20.6	21.4	1,181	238	19	57	.5	4.4	95.1
SPECIAL DIES, TOOLS, JIGS AND FIXTURES	3544	16.5	13.6	581	468	14	35	-	4.6	95.4
MACHINE TOOL ACCESSORIES	3545	12.8	14.2	-	-	-	-	-	-	-
METALWORKING MACHINERY, N.E.C.	3548	13.8	13.2	547	368	20	40	.2	2.7	97.1
SPECIAL INDUSTRY MACHINERY	355	16.7	17.8	695	324	18	42	.1	4.6	95.2
FOOD PRODUCTS MACHINERY	3551	17.4	19.0	470	394	15	27	-	3.1	96.9
TEXTILE MACHINERY	3552	15.3	17.3	759	278	27	50	-	9.1	90.9
WOODWORKING MACHINERY	3553	22.5	16.2	-	-	-	-	-	-	-
PAPER INDUSTRIES MACHINERY	3554	18.9	17.1	1,044	197	21	55	.4	5.0	94.5
PRINTING TRADES MACHINERY	3555	13.5	17.9	-	-	-	-	-	-	-
SPECIAL INDUSTRY MACHINERY, N.E.C.	3559	16.9	17.5	781	371	15	46	.3	4.2	95.6
GENERAL INDUSTRIAL MACHINERY	356	14.2	14.3	610	283	18	43	.1	6.9	93.0
PUMPS AND COMPRESSORS	3561	14.7	16.0	719	213	16	49	.2	9.5	90.2
BALL AND ROLLER BEARINGS	3562	7.3	6.5	356	266	29	49	-	8.1	91.9
BLOWERS AND FANS	3564	18.5	13.5	711	359	16	38	-	6.6	93.4
INDUSTRIAL PATTERNS	3565	9.7	15.7	-	-	-	-	-	-	-
POWER TRANSMISSION EQUIPMENT	3566	14.4	14.6	603	330	17	42	.1	5.3	94.6
INDUSTRIAL FURNACES AND OVENS	3567	16.4	-	-	-	-	-	-	-	-
GENERAL INDUSTRIAL MACHINERY, N.E.C.	3569	20.5	21.4	546	257	17	27	-	4.2	95.8
OFFICE AND COMPUTING MACHINES	357	3.5	3.3	120	436	18	34	-	3.9	96.1
ELECTRONIC COMPUTING EQUIPMENT	3573	2.7	1.9	-	-	-	-	-	-	-
CALCULATING AND ACCOUNTING MACHINES	3574	2.3	3.1	-	-	-	-	-	-	-
SCALES AND BALANCES	3576	15.3	16.7	-	-	-	-	-	-	-
OFFICE MACHINES, N.E.C.	3579	8.3	7.8	-	-	-	-	-	-	-
SERVICE INDUSTRY MACHINES	358	19.6	16.4	796	407	20	41	-	4.7	95.2
COMMERCIAL LAUNDRY EQUIPMENT	3582	16.2	23.6	-	-	-	-	-	-	-
REFRIGERATION MACHINERY	3585	19.5	15.7	856	493	20	44	.1	4.4	95.5
MEASURING AND DISPENSING PUMPS	3586	17.1	11.1	-	-	-	-	-	-	-
SERVICE INDUSTRY MACHINES, N.E.C.	3589	20.4	18.8	-	-	-	-	-	-	-
MISCELLANEOUS MACHINERY, EXCEPT ELECTRICAL	359	15.5	17.2	556	315	18	36	-	5.0	95.0
LECTRICAL EQUIPMENT AND SUPPLIES	36	8.1	7.6	333	366	16	41	.1	5.4	94.5
ELECTRIC TEST AND DISTRIBUTING EQUIPMENT	361	8.4	8.2	369	335	16	44	.3	3.7	96.0
ELECTRIC MEASURING INSTRUMENTS	3611	6.8	7.8	-	-	-	-	-	-	-
TRANSFORMERS	3612	10.3	10.3	-	-	-	-	-	-	-
SWITCHGEAR AND SWITCHBOARD APPARATUS	3613	8.3	7.1	-	-	-	-	-	-	-
ELECTRICAL INDUSTRIAL APPARATUS	362	9.7	9.3	457	303	21	47	.1	6.6	93.3
MOTORS AND GENERATORS	3621	11.2	9.4	556	348	21	50	.1	7.6	92.3
INDUSTRIAL CONTROLS	3622	5.9	8.1	-	-	-	-	-	-	-
WELDING APPARATUS	3623	8.7	11.8	-	-	-	-	-	-	-
CARBON AND GRAPHITE PRODUCTS	3624	15.4	14.0	-	-	-	-	-	-	-
HOUSEHOLD APPLIANCES	363	10.6	10.3	482	421	17	45	-	6.5	93.4
HOUSEHOLD COOKING EQUIPMENT	3631	15.3	14.0	-	-	-	-	-	-	-
HOUSEHOLD REFRIGERATORS AND FREEZERS	3632	5.4	5.7	325	350	28	60	-	10.2	89.8
HOUSEHOLD LAUNDRY EQUIPMENT	3633	8.6	8.0	564	515	13	66	.3	6.8	92.9
ELECTRIC HOUSEWARES AND FANS	3634	12.2	10.4	-	-	-	-	-	-	-
HOUSEHOLD VACUUM CLEANERS	3635	15.4	15.4	-	-	-	-	-	-	-
SEWING MACHINES	3636	9.5	6.1	-	-	-	-	-	-	-
ELECTRIC LIGHTING AND WIRING EQUIPMENT	364	15.8	13.7	632	345	13	40	.1	6.0	93.8
ELECTRIC LAMPS	3641	6.4	4.2	-	-	-	-	-	-	-
LIGHTING FIXTURES	3642	23.7	18.7	1,320	426	9	56	.3	7.5	92.3
CURRENT-CARRYING WIRING DEVICES	3643	11.3	12.0	277	189	15	24	-	5.5	94.5
NONCURRENT-CARRYING WIRING DEVICES	3644	22.0	18.5	-	-	-	-	-	-	-
RADIO AND TV RECEIVING EQUIPMENT	365	8.1	7.7	-	-	-	-	-	-	-
RADIO AND TV RECEIVING SETS	3651	6.0	5.3	-	-	-	-	-	-	-
COMMUNICATION EQUIPMENT	366	2.9	2.8	131	385	17	46	-	7.1	92.8
TELEPHONE AND TELEGRAPH APPARATUS	3661	2.2	2.5	-	-	-	-	-	-	-
RADIO AND TV COMMUNICATION EQUIPMENT	3662	3.3	2.9	96	322	15	29	.1	3.1	96.9

See footnotes at end of table. Technical notes follow table 1C.

Table 1A. Work-injury rates by industry, 1970 and comparable injury-frequency rates for 1969--Continued

Industry 1/	SIC code 2/	Injury-frequency rates		Injury-severity rate	Average days charged per injury			Percent of disabling injuries resulting in--		
		1970	1969		Permanent partial	Temporary total	All disabling injuries	Death	Permanent impairment	Temporary total disability
ELECTRICAL EQUIPMENT AND SUPPLIES--CONTD										
ELECTRONIC COMPONENTS AND ACCESSORIES	367	7.2	7.8	232	389	14	32	-	4.4	95.6
CATHODE RAY PICTURE TUBES	3672	5.2	7.4	-	-	-	-	-	-	-
ELECTRON TUBES, TRANSMITTING	3673	7.9	6.0	-	-	-	-	-	-	-
SEMICONDUCTORS	3674	2.5	3.7	-	-	-	-	-	-	-
ELECTRONIC COMPONENTS, N.E.C.	3679	9.6	9.8	266	398	13	28	-	3.9	96.1
MISC. ELECTRICAL EQUIPMENT AND SUPPLIES	369	8.6	10.5	340	337	19	39	.1	4.4	95.5
STORAGE BATTERIES	3691	26.7	27.1	-	-	-	-	-	-	-
PRIMARY BATTERIES, DRY AND WET	3692	6.4	5.2	-	-	-	-	-	-	-
X-RAY APPARATUS AND TUBES	3693	3.4	2.9	-	-	-	-	-	-	-
ENGINE ELECTRICAL EQUIPMENT	3694	3.2	7.1	280	288	27	87	.6	8.9	90.5
ELECTRICAL EQUIPMENT, N.E.C.	3699	8.1	6.8	-	-	-	-	-	-	-
TRANSPORTATION EQUIPMENT	37	7.9	8.0	488	373	21	62	.4	5.3	94.4
MOTOR VEHICLES AND EQUIPMENT	371	5.3	6.1	309	317	21	58	.3	7.2	92.5
MOTOR VEHICLES	3711	2.0	2.2	162	296	30	81	.4	9.3	90.3
PASSENGER CAR BODIES	3712	.8	.6	55	363	37	66	-	8.7	91.3
TRUCK AND BUS BODIES	3713	23.4	40.7	1,024	524	13	44	.1	4.5	95.4
MOTOR VEHICLE PARTS AND ACCESSORIES	3714	5.9	6.0	331	249	21	56	.3	8.8	90.9
TRUCK TRAILERS	3715	24.3	27.0	1,484	525	19	61	.4	3.8	95.8
AIRCRAFT AND PARTS	372	4.5	4.3	277	338	21	62	.4	4.3	95.2
AIRCRAFT	3721	3.8	3.7	299	374	21	78	.7	4.2	95.1
AIRCRAFT ENGINES AND ENGINE PARTS	3722	4.8	5.1	215	287	23	45	.2	4.6	95.3
AIRCRAFT PROPELLERS AND PARTS	3723	9.6	9.3	546	150	17	57	.6	.6	98.7
AIRCRAFT EQUIPMENT, N.E.C.	3729	5.6	4.9	277	333	20	50	.3	4.7	95.1
SHIP AND BOAT BUILDING AND REPAIRING	373	18.5	18.8	1,348	418	29	73	.5	3.7	95.8
SHIP BUILDING AND REPAIRING	3731	14.1	13.8	1,451	405	37	103	.8	4.5	94.7
BOAT BUILDING AND REPAIRING	3732	35.2	34.8	958	455	17	27	-	2.4	97.6
RAILROAD EQUIPMENT	374	16.6	12.1	1,503	467	26	91	.7	5.4	94.0
LOCOMOTIVES AND PARTS	3741	1.4	1.8	-	-	-	-	-	-	-
RAILROAD AND STREET CARS	3742	24.4	17.4	2,190	443	25	90	.7	5.3	94.0
MOTORCYCLES, BICYCLES, AND PARTS	375	12.5	15.2	-	-	-	-	-	-	-
MISCELLANEOUS TRANSPORTATION EQUIPMENT	379	33.3	39.9	1,559	529	13	47	.2	4.4	95.4
TRAILER COACHES	3791	34.9	39.5	1,710	559	13	49	.2	4.2	95.6
INSTRUMENTS AND RELATED PRODUCTS	38	7.9	8.2	270	291	18	34	-	6.1	93.9
ENGINEERING AND SCIENTIFIC INSTRUMENTS	381	5.8	6.4	-	-	-	-	-	-	-
MECHANICAL MEASURING AND CONTROL DEVICES	382	9.0	11.0	332	301	21	37	-	5.6	94.5
MECHANICAL MEASURING DEVICES	3821	9.3	10.2	233	212	18	25	-	3.6	96.4
AUTOMATIC TEMPERATURE CONTROLS	3822	8.6	12.3	516	368	28	50	-	9.4	90.6
MEDICAL INSTRUMENTS AND SUPPLIES	384	10.7	9.8	352	424	17	33	-	4.0	96.0
SURGICAL AND MEDICAL INSTRUMENTS	3841	8.6	10.8	-	-	-	-	-	-	-
SURGICAL APPLIANCES AND SUPPLIES	3842	11.0	7.6	-	-	-	-	-	-	-
DENTAL EQUIPMENT AND SUPPLIES	3843	14.0	15.1	-	-	-	-	-	-	-
OPHTHALMIC GOODS	385	4.9	6.3	-	-	-	-	-	-	-
PHOTOGRAPHIC EQUIPMENT AND SUPPLIES	386	7.0	6.4	249	185	17	35	-	10.9	89.1
WATCHES, CLOCKS, AND WATCHCASES	387	7.7	9.1	-	-	-	-	-	-	-
WATCHES AND CLOCKS	3871	7.3	8.6	-	-	-	-	-	-	-
MISCELLANEOUS MANUFACTURING INDUSTRIES	39	15.8	16.4	561	373	16	36	-	5.0	95.0
JEWELRY, SILVERWARE, AND PLATED WARE	391	8.6	9.8	251	194	18	29	-	6.4	93.6
JEWELRY, PRECIOUS METAL	3911	7.2	8.6	-	-	-	-	-	-	-
SILVERWARE AND PLATED WARE	3914	11.5	9.8	-	-	-	-	-	-	-
MUSICAL INSTRUMENTS AND PARTS	393	17.0	19.5	-	-	-	-	-	-	-
TOYS AND SPORTING GOODS	394	18.6	20.0	708	392	17	38	-	5.7	94.3
GAMES AND TOYS	3941	19.7	20.4	769	419	20	39	-	4.8	95.2
DOLLS	3942	11.0	11.0	-	-	-	-	-	-	-
SPORTING AND ATHLETIC GOODS, N.E.C.	3949	19.2	21.8	586	290	15	30	-	5.7	94.3

See footnotes at end of table. Technical notes follow table 1C.

Table 1A. Work-injury rates by industry, 1970 and comparable injury-frequency rates for 1969--Continued

Industry 1/	SIC code 2/	Injury-frequency rates		Injury-severity rate	Average days charged per injury			Percent of disabling injuries resulting in--		
		1970	1969		Permanent partial	Temporary total	All disabling injuries	Death	Permanent impairment	Temporary total disability
MISCELLANEOUS MANUFACTURING INDUSTRIES--CONTD										
PENS, PENCILS, OFFICE AND ART SUPPLIES	395	15.1	13.8	449	504	14	30	-	3.3	96.7
PENS AND MECHANICAL PENCILS	3951	9.3	-	-	-	-	-	-	-	-
LEAD PENCILS AND ART GOODS	3952	15.9	23.8	-	-	-	-	-	-	-
COSTUME JEWELRY AND NOTIONS	396	13.9	12.8	528	381	14	38	.1	4.9	95.0
COSTUME JEWELRY	3961	11.8	-	-	-	-	-	-	-	-
BUTTONS	3963	25.6	23.4	-	-	-	-	-	-	-
NEEDLES, PINS, AND FASTENERS	3964	11.9	11.8	-	-	-	-	-	-	-
MISCELLANEOUS MANUFACTURES	399	17.1	17.3	625	388	17	37	-	4.8	95.2
BROOMS AND BRUSHES	3991	18.9	19.0	-	-	-	-	-	-	-
SIGNS AND ADVERTISING DISPLAYS	3993	18.4	16.4	-	-	-	-	-	-	-
MORTICIANS' GOODS	3994	18.4	26.2	-	-	-	-	-	-	-
HARD SURFACE FLOOR COVERINGS	3996	14.5	13.5	1,128	692	29	78	-	7.4	92.6
MANUFACTURES, N.E.C.	3999	15.3	15.3	-	-	-	-	-	-	-
NONMANUFACTURING										
CONTRACT CONSTRUCTION										
CONTRACT CONSTRUCTION, TOTAL	-	28.0	28.0	2,100	613	17	75	.7	2.6	96.7
GENERAL BUILDING CONTRACTORS	15	26.5	29.0	1,749	621	17	66	.5	2.5	96.9
HEAVY CONSTRUCTION CONTRACTORS	16	32.7	27.4	3,616	644	19	111	1.1	3.0	95.9
HIGHWAY AND STREET CONSTRUCTION	161	28.9	28.3	3,607	729	18	125	1.4	2.4	96.1
HEAVY CONSTRUCTION, N.E.C.	162	35.7	26.7	3,624	605	19	102	.9	3.4	95.7
SPECIAL TRADE CONTRACTORS	17	26.8	27.7	1,604	586	16	60	.5	2.4	97.1
PLUMBING, HEATING, AIR CONDITIONING	171	25.9	23.7	1,174	521	13	45	.3	2.7	97.0
PAINTING, PAPER HANGING, DECORATING	172	19.1	18.9	-	-	-	-	-	-	-
ELECTRICAL WORK	173	23.5	22.2	1,253	917	13	53	.4	1.2	98.3
MASONRY, STONEWORK, AND PLASTERING	174	30.8	30.2	1,403	450	15	46	.3	2.3	97.4
CARPENTERING AND FLOORING	175	23.8	32.9	-	-	-	-	-	-	-
ROOFING AND SHEET METAL WORK	176	43.0	45.3	2,218	605	16	52	.3	2.6	97.2
CONCRETE WORK	177	27.8	-	-	-	-	-	-	-	-
MISCELLANEOUS SPECIAL TRADE CONTRACTORS	179	25.6	29.8	2,604	600	18	102	1.1	2.1	96.8
TRANSPORTATION, COMMUNICATION, ELECTRIC, GAS, AND SANITARY SERVICES										
LOCAL AND INTERURBAN PASSENGER TRANSIT	41	23.9	18.4	1,000	646	16	42	.2	1.6	98.1
LOCAL AND SUBURBAN TRANSPORTATION	411	19.9	20.2	1,230	743	19	62	.3	2.6	97.1
SCHOOL BUSSES	415	3.4	6.5	-	-	-	-	-	-	-
TRUCKING AND WAREHOUSING	42	35.3	36.4	2,311	586	17	66	.6	1.9	97.5
TRUCKING, LOCAL AND LONG DISTANCE	421	35.6	-	2,335	611	17	66	.6	1.8	97.6
PUBLIC WAREHOUSING	422	31.1	28.9	2,069	402	17	67	.6	3.4	96.0
COMMUNICATION	48	2.5	2.0	235	368	27	93	.6	9.7	89.7
TELEPHONE COMMUNICATION	481	2.5	1.9	226	362	27	92	.6	10.0	89.5
RADIO AND TELEVISION BROADCASTING	483	4.1	3.0	-	-	-	-	-	-	-
ELECTRIC, GAS, AND SANITARY SERVICES	49	6.6	6.3	813	671	23	122	1.1	3.9	95.1
ELECTRIC COMPANIES AND SYSTEMS	491	6.1	5.7	966	748	24	158	1.4	6.1	92.5
GAS COMPANIES AND SYSTEMS	492	7.5	6.7	534	599	18	72	.6	2.1	97.3
COMBINATION COMPANIES AND SYSTEMS	493	5.3	5.4	822	474	30	151	1.7	3.1	95.2

See footnotes at end of table. Technical notes follow table 1C.

Table 1A. Work-injury rates by industry, 1970 and comparable injury-frequency rates for 1969--Continued

Industry 1/	SIC code 2/	Injury-frequency rates		Injury-severity rate	Average days charged per injury			Percent of disabling injuries resulting in--		
		1970	1969		Permanent partial	Temporary total	All disabling injuries	Death	Permanent impairment	Temporary total disability
WHOLESALE AND RETAIL TRADE										
WHOLESALE AND RETAIL TRADE, TOTAL	—	11.3	11.6	452	545	14	40	.2	2.1	97.7
WHOLESALE TRADE	50	13.1	14.3	639	508	15	49	.4	2.3	97.4
MOTOR VEHICLES AND AUTOMOTIVE EQUIPMENT	501	8.4	7.4	407	572	14	49	.3	2.5	97.2
DRUGS, CHEMICALS, AND ALLIED PRODUCTS	502	11.1	10.0	-	-	-	-	-	-	-
GROCERIES AND RELATED PRODUCTS	504	23.0	23.1	735	535	13	32	.2	1.7	98.1
ELECTRICAL GOODS	506	7.5	8.3	-	-	-	-	-	-	-
HARDWARE, PLUMBING AND HEATING EQUIPMENT	507	12.6	13.2	-	-	-	-	-	-	-
MACHINERY, EQUIPMENT, AND SUPPLIES	508	9.5	10.7	540	328	15	57	.5	2.6	97.0
MISCELLANEOUS WHOLESALERS	509	14.6	17.6	955	599	17	65	.5	2.7	96.8
BUILDING MATERIALS AND FARM EQUIPMENT	52	18.6	18.7	923	398	16	49	.3	2.9	96.8
LUMBER AND OTHER BUILDING MATERIALS	521	24.1	22.9	960	315	15	40	.2	3.3	96.6
HARDWARE AND FARM EQUIPMENT	525	15.3	16.2	-	-	-	-	-	-	-
RETAIL GENERAL MERCHANDISE	53	8.0	8.4	205	442	14	26	.1	1.5	98.4
DEPARTMENT STORES	531	8.7	9.7	234	395	14	27	.1	1.4	98.5
MAIL ORDER HOUSES	532	10.6	10.5	-	-	-	-	-	-	-
VARIETY STORES	533	5.3	3.8	-	-	-	-	-	-	-
MERCHANDISING MACHINE OPERATORS	534	3.8	-	-	-	-	-	-	-	-
MISCELLANEOUS GENERAL MERCHANDISE STORES	539	6.1	5.8	-	-	-	-	-	-	-
FOOD STORES	54	16.4	13.3	407	458	11	25	.1	2.4	97.5
GROCERY STORES	541	17.4	13.6	369	474	10	21	-	2.3	97.7
RETAIL BAKERIES	546	7.3	7.9	-	-	-	-	-	-	-
AUTOMOTIVE DEALERS AND SERVICE STATIONS	55	13.3	13.2	460	563	13	35	.2	1.6	98.2
NEW AND USED CAR DEALERS	551	13.4	13.0	389	510	12	29	.2	1.4	98.5
TIRE, BATTERY, AND ACCESSORY DEALERS	553	22.0	23.3	418	1,609	10	19	-	.6	99.4
GASOLINE SERVICE STATIONS	554	11.0	10.3	-	-	-	-	-	-	-
APPAREL AND ACCESSORY STORES	56	2.6	2.8	-	-	-	-	-	-	-
MEN'S AND BOYS' CLOTHING AND FURNISHINGS	561	3.3	3.4	-	-	-	-	-	-	-
WOMEN'S READY-TO-WEAR STORES	562	2.9	2.7	-	-	-	-	-	-	-
FAMILY CLOTHING STORES	565	2.4	2.5	-	-	-	-	-	-	-
FURNITURE AND HOME FURNISHINGS STORES	57	9.6	10.9	481	555	16	50	.2	2.7	97.1
FURNITURE AND HOME FURNISHINGS	571	10.8	12.7	-	-	-	-	-	-	-
EATING AND DRINKING PLACES	58	8.9	9.7	297	751	32	33	.2	1.2	98.6
MISCELLANEOUS RETAIL STORES	59	7.4	8.2	487	996	14	66	.4	2.9	96.7
DRUG STORES AND PROPRIETARY STORES	591	1.5	4.2	-	-	-	-	-	-	-
FARM AND GARDEN SUPPLY STORES	596	18.5	16.4	-	-	-	-	-	-	-
FUEL AND ICE DEALERS	598	22.4	19.9	575	775	11	26	-	1.9	98.1
RETAIL STORES, N.E.C.	599	5.1	5.2	-	-	-	-	-	-	-
FINANCE, INSURANCE, AND REAL ESTATE										
BANKING	60	2.4	2.1	88	396	13	37	.2	3.1	96.7
CREDIT AGENCIES OTHER THAN BANKS	61	.9	1.0	-	-	-	-	-	-	-
SECURITY, COMMODITY BROKERS AND SERVICES	62	.4	.7	-	-	-	-	-	-	-
INSURANCE CARRIERS	63	2.6	2.1	137	468	25	53	.3	1.6	98.1
INSURANCE AGENTS, BROKERS AND SERVICE	64	.9	1.4	-	-	-	-	-	-	-
REAL ESTATE	65	11.4	10.3	341	645	15	30	-	2.4	97.6
SERVICES										
HOTELS AND OTHER LODGING PLACES	70	11.5	11.4	397	701	13	35	.2	1.2	98.6
HOTELS, TOURIST COURTS, AND MOTELS	701	11.7	10.9	369	701	14	31	.2	1.2	98.6
PERSONAL SERVICES	72	7.3	9.8	276	436	15	35	.2	2.5	97.3
LAUNDRIES AND DRY CLEANING PLANTS	721	9.6	11.6	343	438	15	36	.2	2.5	97.3
BEAUTY SHOPS	723	.9	1.3	-	-	-	-	-	-	-

See footnotes at end of table. Technical notes follow table 1C.

Table 1A. Work-injury rates by industry, 1970 and comparable injury-frequency rates for 1969--Continued

Industry 1/	SIC code 2/	Injury-frequency rates		Injury-severity rate	Average days charged per injury			Percent of disabling injuries resulting in--		
		1970	1969		Permanent partial	Temporary total	All disabling injuries	Death	Permanent impairment	Temporary total disability
SERVICES--CONTD										
MISCELLANEOUS BUSINESS SERVICES	73	6.0	6.5	310	474	16	51	.5	1.9	97.7
ADVERTISING	731	9.4	9.4	-	-	-	-	-	-	-
SERVICES TO BUILDINGS	734	10.0	10.9	-	-	-	-	-	-	-
MISCELLANEOUS BUSINESS SERVICES	739	4.7	5.6	230	500	14	49	.4	2.4	97.2
AUTO REPAIR, SERVICES, AND GARAGES	75	14.3	15.9	427	390	13	30	.1	2.3	97.6
AUTOMOBILE REPAIR SHOPS	753	18.2	20.2	665	432	14	37	.2	2.8	97.0
MISCELLANEOUS REPAIR SERVICES	76	15.4	15.1	633	628	15	41	.2	2.5	97.3
MISCELLANEOUS REPAIR SHOPS	769	19.2	22.1	-	-	-	-	-	-	-
MOTION PICTURES	78	4.6	6.0	-	-	-	-	-	-	-
MOTION PICTURE THEATERS	783	3.3	3.1	-	-	-	-	-	-	-
AMUSEMENT AND RECREATION SERVICES, N.E.C.	79	9.5	10.4	415	393	17	44	.4	1.6	98.1
MISC. AMUSEMENT, RECREATION SERVICES	794	10.9	11.0	496	433	17	45	.4	1.5	98.1
MEDICAL AND OTHER HEALTH SERVICES	80	9.3	9.5	264	678	15	28	-	1.7	98.2
OFFICES OF PHYSICIANS AND SURGEONS	801	.8	2.0	-	-	-	-	-	-	-
HOSPITALS	806	10.0	9.9	262	641	15	26	-	1.6	98.3
HEALTH AND ALLIED SERVICES, N.E.C.	809	9.3	10.1	401	887	16	43	.1	2.3	97.6
LEGAL SERVICES	81	.7	.8	-	-	-	-	-	-	-
EDUCATIONAL SERVICES	82	6.7	7.3	385	748	15	57	.4	2.2	97.4
ELEMENTARY AND SECONDARY SCHOOLS	821	7.1	7.5	-	-	-	-	-	-	-
COLLEGES AND UNIVERSITIES	822	7.1	7.4	287	639	17	40	.3	1.2	98.5
NONPROFIT MEMBERSHIP ORGANIZATIONS	86	6.6	6.6	461	482	25	70	.5	3.2	96.3
LABOR ORGANIZATIONS	863	5.5	6.1	-	-	-	-	-	-	-
CIVIC AND SOCIAL ASSOCIATIONS	864	7.7	5.5	-	-	-	-	-	-	-
NONPROFIT MEMBER ORGANIZATIONS, N.E.C.	869	5.8	-	-	-	-	-	-	-	-
MISCELLANEOUS SERVICES	89	3.2	4.0	148	270	10	46	.5	1.4	98.0
ENGINEERING AND ARCHITECTURAL SERVICES	891	4.9	4.7	-	-	-	-	-	-	-
ACCOUNTING, AUDITING, AND BOOKKEEPING	893	.8	1.2	-	-	-	-	-	-	-
GOVERNMENT										
STATE GOVERNMENT										
HOSPITALS	9280P	21.4	16.0	636	843	17	30	-	1.5	98.5
INSTITUTIONS OF HIGHER EDUCATION	9282P	7.4	6.2	308	665	15	42	.3	.8	98.9
OTHER STATE GOVERNMENT	9290P	10.4	-	910	646	14	88	.8	2.0	97.2
LOCAL GOVERNMENT										
TRANSIT SYSTEMS	9341P	22.0	-	853	557	25	39	.2	.5	99.3
ELECTRIC SYSTEMS	9349P	17.2	17.8	1,391	1,171	20	81	.7	1.3	98.0
GAS SYSTEMS	9349P	14.1	11.0	-	-	-	-	-	-	-
WATER SUPPLY SYSTEMS	9349P	24.9	20.1	1,583	771	16	63	.5	1.5	98.1
REFUSE COLLECTION AND DISPOSAL	9349P	63.9	48.3	2,598	793	14	41	.3	1.1	98.6
OTHER UTILITIES (AND COMBINATION UTILITIES)	934P	23.0	-	-	-	-	-	-	-	-
HOSPITALS	9380P	13.0	12.2	400	670	16	31	.1	1.7	98.3
ELEMENTARY AND SECONDARY SCHOOLS	9382P	9.3	7.5	300	564	13	32	.2	1.4	98.4
POLICE	9390P	45.6	42.3	2,521	797	12	55	.5	1.3	98.1
FIRE PROTECTION	9390P	41.7	48.8	4,349	1,275	22	104	.6	3.1	96.3
HIGHWAYS AND STREETS	9390P	35.6	40.4	2,369	338	14	67	.8	1.3	97.9

Footnotes (Technical notes follow table 1C.)

1/ Industry group totals (2- and 3-digit code numbers) are weighted and include data for industries not shown separately. (See technical notes.)

2/ Standard Industrial Classification Manual, 1967 Edition. The letter "P" in the code number indicates that the industry group is only a part of the total industry as defined.

3/ Compiled by the Bureau of Mines, U.S. Department of the Interior.

Dashes indicate that no data were reported, or that data do not meet publication criteria.

n.e.c. Not Elsewhere Classified.

Table 18. Work-injury rates by mineral industry, 1970 and comparable injury-frequency rates for 1969 1/

Mineral industry 2/	Injury-frequency rates		Injury-severity rate	Average days charged per injury			Percent of disabling injuries resulting in--		
	1970 3/	1969		Permanent partial	Temporary total	All disabling injuries	Death	Permanent impairment	Temporary total disability
Mining									
Coal mining and preparation	41.6	41.7	7,792	-	-	187	2.4	-	-
Bituminous coal	41.5	41.4	7,956	-	-	192	2.5	-	-
Anthracite	45.4	48.7	4,005	-	-	88	1.3	-	-
Metal mining and milling	23.7	22.0	3,238	-	-	137	1.5	-	-
Copper	18.8	15.2	2,278	-	-	121	1.2	-	-
Gold-Silver	45.2	42.2	7,583	-	-	168	2.1	-	-
Iron	15.2	13.0	2,156	-	-	142	1.7	-	-
Lead-zinc	56.8	55.2	6,980	-	-	123	1.4	-	-
Uranium	21.4	26.8	5,014	-	-	234	3.2	-	-
Miscellaneous metals	19.1	19.4	2,482	-	-	130	1.3	-	-
Nonmetal mining and milling	24.1	22.3	2,624	-	-	109	1.1	-	-
Clay-shale	28.5	27.3	1,946	-	-	68	.6	-	-
Gypsum	6.6	8.0	2,358	-	-	513	7.4	-	-
Phosphate rock	5.2	8.3	2,021	-	-	389	5.7	-	-
Potash	30.5	25.5	3,286	-	-	108	1.1	-	-
Sal;	27.1	29.9	3,228	-	-	119	1.7	-	-
Sulphur	11.4	16.3	270	-	-	24	-	-	-
Miscellaneous nonmetals	29.5	21.2	3,969	-	-	135	1.0	-	-
Sand and gravel	19.5	19.4	2,651	-	-	136	1.4	-	-
Stone quarrying and milling	18.3	17.1	2,123	-	-	116	1.2	-	-
Cement	6.6	6.0	842	-	-	128	1.0	-	-
Granite	24.5	24.2	2,878	-	-	117	1.2	-	-
Lime	18.8	18.0	857	-	-	46	.3	-	-
Limestone	23.2	20.9	3,082	-	-	133	1.4	-	-
Marble	26.2	29.1	1,328	-	-	51	-	-	-
Sandstone	29.7	23.2	3,414	-	-	115	1.4	-	-
Slate	19.4	29.5	5,012	-	-	258	2.2	-	-
Traprock	26.3	23.5	2,591	-	-	99	1.2	-	-
Miscellaneous stones	21.1	23.7	2,142	-	-	102	1.2	-	-
Oil and natural gas	10.4	9.7	1,281	-	-	123	1.3	-	-

1/ Compiled by the Bureau of Mines, U.S. Department of the Interior. See Mineral Industry Surveys, Injury Experience and Worktime in the Mineral Industries, 1969-70.

2/ Industry classifications are not strictly comparable to Standard Industrial Classification Manual.

3/ For all industries except oil and natural gas, the 1970 data are preliminary and subject to change.

Technical notes follow table 1C.

Dashes indicate that no data were reported.

Table 1C. Work-injury rates by Federal agency, 1970 and comparable injury-frequency rates for 1969[1/]

Federal agency	Injury-frequency rates		Injury-severity rate	Average days charged per injury			Percent of disabling injuries resulting in--		
	1970	1969		Permanent partial	Temporary total	All disabling injuries	Death	Permanent impairment	Temporary total disability
Federal Government	6.6	6.7	554	-	-	84	.6	-	-
Department of State	1.7	2.2	-	-	-	-	14.4	-	-
Department of Treasury	3.0	3.7	-	-	-	-	1.0	-	-
Department of the Army	3.4	3.6	-	-	-	-	1.3	-	-
Department of the Navy	3.7	3.7	-	-	-	-	1.3	-	-
Department of the Air Force	4.7	5.0	-	-	-	-	.5	-	-
Post Office Department	14.1	15.0	-	-	-	-	.1	-	-
Department of Justice	4.0	4.5	-	-	-	-	1.2	-	-
Department of the Interior	7.6	7.6	-	-	-	-	1.5	-	-
Department of Agriculture	6.[illegible]	6.9	-	-	-	-	1.8	-	-
Department of Commerce	6.7	3.4	-	-	-	-	.4	-	-
Department of Labor	2.1	2.5	-	-	-	-	6.4	-	-
Department of Health, Education, and Welfare	3.3	3.6	-	-	-	-	.5	-	-
Department of Housing and Urban Development	2.2	2.7	-	-	-	-	1.4	-	-
Department of Transportation	4.5	4.5	-	-	-	-	1.0	-	-
Atomic Energy Commission	1.7	2.2	-	-	-	-	15.4	-	-
General Services Administration	6.4	5.7	-	-	-	-	.2	-	-
Government Printing Office	5.5	5.4	-	-	-	-	-	-	-
National Aeronautics and Space Administration	1.8	1.5	-	-	-	-	.9	-	-
Selective Service System	1.6	1.8	-	-	-	-	-	-	-
Tennessee Valley Authority	6.7	6.5	-	-	-	-	2.2	-	-
Veterans Administration	6.0	6.1	-	-	-	-	.6	-	-

1/ Compiled by the Branch of BEC Statistical Operations, Employment Standards Administration, U.S. Department of Labor. Military personnel not included.

Dashes indicate that no data were reported.

Technical notes for tables 1A, 1B, and 1C

These data were compiled according to the Standard Method of Recording and Measuring Work Injury Experience, approved by the United States of America Standards Institute, now the American National Standards Institute, in 1967.

The injuries and injury rates shown in these tabulations include all classes of disabling work injuries. A work injury is one which arises out of and in the course of employment. A disabling work injury is a work injury which results in death, permanent impairment, or temporary-total disability. The term "injury" includes occupational diseases. Injury rates are based on all disabling work injuries known to have occurred during the year. These include all such cases reported within 20 days after the end of the year.

Any death resulting from a work injury which occurred during the report year is counted, regardless of the length of time intervening between injury and death.

A permanent disability is any injury other than death which results in the loss or complete loss of use of any member or part of a member of the body, or any permanent impairment of functions of the body or part thereof. However, the following are not classed as permanent disabilities: (a) Repaired inguinal hernia; (b) loss of fingernails or toenails, or tips of fingers or toes not involving bones; (c) loss of teeth; (d) disfigurement; (e) strains or sprains which do not cause permanent limitation of motion; and (f) simple fractures of fingers and toes; also such other fractures that do not result in permanent disabilites.

A temporary-total disability is any work injury which does not result in death or permanent disability, but which does result in one or more days of disability. A day of disability is any day on which an employee is unable, because of injury, to perform effectively throughout a full shift, the essential functions of a regularly established job which is open and available to him. The day of injury and the day on which the employee is able to return to full-time employment are not counted as days of disability, but all intervening calendar days -- including nonworkdays -- are counted.

Injuries which require only first-aid or medical treatment are not included in the computation of injury rates. Absence from work for a part of a day for treatment is not considered "disabling" provided that the time required to obtain treatment does not, on any workday, prevent the worker from performing effectively the essential functions of his job assignment on that day, and that the treatment is professionally administered and constitutes more than simple rest.

Inguinal hernias are considered as work injuries if precipitated by impact, sudden effort, or severe strain; there was a clear record of an accident or incident, such as a slip, trip, fall, sudden effort, or overexertion; and at the time of the accident or incident the pain was so severe in the hernial region that the injured worker was forced to stop work long enough to draw the attention of his foreman or fellow worker, or the attention of a physician was secured within 12 hours. Likewise, back injuries or strains are considered as work injuries only if there was a clear record of an accident, such

as a slip, trip, fall, sudden effort, or blow on the back; or the employee was engaged in work which, in the opinion of the physician authorized by the employer to treat the case, produced a physical condition resulting from overexertion.

The injury-frequency rate is the number of disabling work injuries per million employee-hours of exposure.

The severity rate is the number of days of disability resulting from disabling work injuries per million employee-hours of exposure.

The average days charged per injury includes scheduled charges for deaths and permanent impairments plus the number of full calendar days during which the injured persons were not able to work because of temporary-total disabilities. This sum is divided by the number of disabling injuries.

Weighting: Injury rates for the 2- and 3-digit industry groups, except for Mining and Federal Government groups (where complete or nearly complete coverage gives the same effect), were computed from the rates of component individual industries by applying weights based on estimated total employment in each industry. In some nonmanufacturing divisions data were not available for all industries; therefore, the division averages were not computed. Adjustments were not made for the tendency of both the sampling plan and patterns of response to include higher representation of large than of small establishments in the sample. Since large establishments tend to have lower injury frequency and severity rates than smaller ones, the published rates are more likely to be minimums than maximums.

Classes of employees: All classes of employees (production, operating, and related workers; construction workers; sales, service, delivery, technical, professional, office, administrative, clerical and all other personnel) were included in the computation of these injury rates. Self-employed persons, however, were not included.

Rates compiled by the Bureau of Mines, U.S. Department of the Interior, include workers engaged in production, development, maintenance, and repair work, and supervisory and technical personnel at the operations; however, these data exclude central office personnel, except for the oil and natural gas industries.

The 1970 survey included reports from more than 50,000 manufacturing establishments, employing over 9,402,000 workers, or about 49 percent of all employees in manufacturing. In the selected nonmanufacturing industries (other than Mining and Federal Government) data were received from over 102,000 reporting units, employing approximately 4,765,000 workers.

The 1969 survey included reports from more than 49,000 manufacturing establishments, employing over 9,722,000 workers, or about 48 percent of all employees in manufacturing. In the selected nonmanufacturing industries (other than Mining and Federal Government) data were received from over 92,700 reporting units, employing nearly 5,573,000 workers.

Data for mining industries are from Mineral Industry Surveys of the Bureau of Mines, U.S. Department of the Interior. All establishments are included except for oil and gas in which coverage, particularly of small establishments, is not complete. Data for the Federal Government were based on injuries reported to the Bureau of Employees' Compensation, U.S. Department of Labor, and represent all Federal civilian employees.

State Rates of Work-Injury Frequency and Severity

Rates on the following pages have been extracted from publications of State agencies conducting work-injury surveys jointly with BLS. The same employer reports are used for national and State rates, but State rates are compiled in the State agencies.

Dashes indicate that rates are unavailable, either because of insufficient data, or because the State does not survey the industry. Because of a shortage of funds, several States included only a limited number of industries.

Several States do not cover very small establishments. Arkansas, Iowa, and Maine omit establishments that have fewer than four employees; Alabama, Connecticut (some nonmanufacturing industries), Florida, and South Carolina those that have fewer than five; and Georgia, those that have fewer than eight. New Jersey, on the other hand, omits establishments that have fewer than two employees in construction industries and fewer than four in all other industries.

The rates for Connecticut, Georgia, Iowa, Maine, New Jersey, and South Carolina are unweighted, but nearly complete coverage in most industries had the same effect as weighting. In other States which conduct work-injury surveys jointly with BLS, the rates for 2-digit, or major industry groups, are weighted by employment for component 3- or 4-digit industries.

Data for four States--Arizona, Idaho, Indiana, and Pennsylvania--were not available for inclusion in this report.

Industry code identifications refer to the 1967 edition of the Standard Industrial Classification Manual, which was used to classify establishment reports.

State Agencies Cooperating in the Joint Work-Injury Survey

Alabama
Department of Industrial Relations
Division of Research and Statistics
Industrial Relations Building
Montgomery, Alabama 36104

Arizona
Industrial Commission
2933 North Central Avenue
Post Office Box 7575
Phoenix, Arizona 85012

Arkansas
Department of Labor
Capitol Hill Building
Little Rock, Arkansas 72201

Connecticut
Labor Department
Research and Information Department
200 Folly Brook Boulevard
Wethersfield, Connecticut 06109

Florida
Department of Commerce
Division of Labor and Employment Opportunities
Workmen's Compensation Bureau
Caldwell Building
Tallahassee, Florida 32304

Georgia
Department of Labor
State Labor Building
Atlanta, Georgia 30334

Idaho
Industrial Accident Board
317 Maine Street
Boise, Idaho 83702

Indiana
Division of Labor
Department of Statistics
1013 State Office Building
100 North Senate Avenue
Indianapolis, Indiana 46204

Iowa
Bureau of Labor
Research and Statistics Division
East 7th and Court
Des Moines, Iowa 50319

Maine
Department of Labor and Industry
Division of Research and Statistics
State Office Building
Augusta, Maine 04330

Michigan
Department of Labor
300 East Michigan Avenue
Lansing, Michigan 48913

New Jersey
Department of Labor and Industry
Division of Planning and Research
Labor and Industry Building
Trenton, New Jersey 08625

New York
Department of Labor
Division of Research and Statistics
80 Centre Street
New York, New York 10013

Pennsylvania
Department of Labor and Industry
Bureau of Research and Statistics
1418 Labor and Industry Building
Harrisburg, Pennsylvania 17120

South Carolina
Department of Labor
Division of Safety
Post Office Box 11329
Columbia, South Carolina 29211

Virginia
Department of Labor and Industry
Post Office Box 1814
Ninth Street Office Building
Richmond, Virginia 23214

Wisconsin
Department of Industry, Labor, and Human Relations
Statistical Division
Post Office Box 2209
Madison, Wisconsin 53701

Wyoming
Department of Labor and Statistics
304 Capitol Building
Cheyenne, Wyoming 82001

Table 7. Work-injury Frequency and Severity Rates in Manufacturing and Nonmanufacturing Industries, Selected States, 1969-70

Industry Classification	SIC code	Alabama				Arkansas				Connecticut				Florida			
		Frequency rate		Severity rate		Frequency rate		Severity rate		Frequency rate		Severity rate		Frequency rate		Severity rate	
		1970	1969	1970	1969	1970	1969	1970	1969	1970	1969	1970	1969	1970	1969	1970	1969
MANUFACTURING																	
All Manufacturing		17.8	14.8	1,238	1,200	25.5	25.5	2,108	1,845	12.8	12.2	456	404	18.4	19.3	961	1,342
Ordnance and accessories	19	-	27.2	-	472	-	-	-	-	7.5	7.6	297	121	1.5	2.2	38	352
Food and kindred products	20	27.1	27.6	1,215	1,536	40.4	34.3	3,284	2,234	25.8	27.1	668	664	33.5	35.9	1,549	1,908
Tobacco manufactures	21	4.9	-	139	-	-	-	-	-	12.7	14.2	376	92	22.4	22.6	450	530
Textile mill products	22	7.6	7.5	489	641	15.4	11.7	941	434	22.2	22.9	1,507	660	21.9	12.5	290	98
Apparel and other textile products	23	10.7	7.9	311	140	7.0	8.5	283	217	6.8	7.8	124	98	5.6	4.0	173	48
Lumber and wood products	24	37.6	34.4	4,444	3,331	37.7	43.3	4,446	4,520	34.9	32.9	926	2,376	31.4	42.6	2,495	2,793
Furniture and fixtures	25	12.4	23.6	1,181	797	25.7	29.6	1,943	2,009	20.2	26.8	771	373	18.2	21.9	801	1,732
Paper and allied products	26	8.4	9.1	524	1,705	15.7	19.0	1,750	1,823	21.1	21.2	1,022	1,340	16.2	12.2	1,406	889
Printing and publishing	27	16.5	7.6	442	103	7.9	15.5	833	343	10.5	11.3	193	207	11.5	12.3	434	594
Chemicals and allied products	28	7.5	9.1	722	531	19.9	21.4	2,600	2,270	7.8	10.3	203	359	10.2	9.4	778	794
Petroleum and coal products	29	13.8	14.7	416	587	25.6	13.6	5,576	608	27.6	34.5	190	546	16.9	14.4	2,384	819
Rubber and plastics products, n.e.c.	30	34.5	4.1	975	323	40.2	40.7	4,383	1,590	17.8	13.3	490	630	17.1	29.0	1,073	2,315
Leather and leather products	31	-	-	-	-	16.2	11.5	715	447	17.8	14.0	210	251	7.9	5.6	243	88
Stone, clay, and glass products	32	29.2	21.9	1,620	2,146	21.8	26.0	3,532	2,880	27.9	28.1	883	972	27.2	28.3	2,209	4,445
Primary metal industries	33	13.5	14.2	1,232	1,833	26.2	45.9	1,131	789	26.0	25.5	1,178	1,321	41.9	56.2	1,354	2,611
Fabricated metal products	34	34.0	39.8	1,840	2,173	49.6	34.0	1,844	3,457	16.8	15.7	583	511	26.6	28.9	1,635	2,102
Machinery, except electrical	35	35.4	26.7	1,661	1,491	18.3	14.7	1,291	533	10.4	10.2	301	354	16.0	16.0	481	837
Electrical equipment and supplies	36	9.1	10.0	657	757	16.0	13.8	831	1,172	10.8	10.1	287	282	11.7	7.6	421	153
Transportation equipment	37	19.7	19.5	2,361	1,754	36.3	24.0	1,483	1,074	6.6	6.1	261	150	16.8	21.1	560	1,960
Instruments and related products	38	5.1	-	48	-	-	-	-	-	7.9	9.1	234	187	5.9	11.4	106	344
Miscellaneous manufacturing industries	39	15.3	9.1	1,476	451	1/14.4	1/15.6	1/611	1/656	11.9	9.2	607	173	11.5	15.6	752	1,120
NONMANUFACTURING																	
General building contractors	15	23.0	-	1,767	-	-	-	-	-	34.8	30.9	1,507	1,249	34.6	33.1	2,536	2,798
Heavy construction contractors	16	30.0	-	2,915	-	-	-	-	-	28.9	28.4	2,634	3,268	36.1	36.5	4,504	3,938
Special trade contractors	17	27.9	-	3,171	-	-	-	-	-	29.5	32.1	857	2,436	31.4	33.7	2,648	3,485
Local and interurban passenger transit	41	-	-	-	-	-	-	-	-	19.0	18.7	892	1,185	20.0	19.2	776	2,386
Trucking and warehousing	42	27.9	30.2	1,392	3,229	-	-	-	-	45.0	44.8	1,111	1,311	29.6	33.5	2,389	3,524
Water transportation	44	-	40.9	-	4,475	-	-	-	-	17.4	30.6	296	1,139	-	-	-	-
Electric, gas, and sanitary services	49	5.7	4.6	953	633	-	-	-	-	11.0	12.2	1,173	1,941	17.4	11.2	2,554	1,592
Wholesale trade	50	13.4	22.8	1,220	882	-	-	-	-	15.8	16.9	419	333	18.5	18.9	1,084	872
Building materials and farm equipment	52	17.6	41.9	1,838	525	-	-	-	-	26.7	25.4	586	1,434	20.1	27.7	696	1,078
Retail general merchandise	53	5.6	-	119	-	-	-	-	-	9.9	11.6	141	119	7.8	8.3	392	216
Food stores	54	9.2	-	219	-	-	-	-	-	20.4	22.5	415	268	12.0	13.2	784	903
Automotive dealers and service stations	55	9.8	11.0	265	883	-	-	-	-	16.1	17.9	782	474	15.6	15.6	435	628
Apparel and accessory stores	56	.6	-	1	-	-	-	-	-	1.6	1.6	44	25	4.2	2.9	141	18
Furniture and home furnishings stores	57	7.6	-	143	-	-	-	-	-	14.2	12.7	266	146	12.5	13.3	525	643
Eating and drinking places	58	6.2	-	559	-	-	-	-	-	8.9	8.9	64	103	12.0	11.7	672	265
Miscellaneous retail stores	59	4.7	-	396	-	-	-	-	-	10.0	10.6	145	140	7.6	7.5	1,003	336
Hotels and other lodging places	70	5.1	-	95	-	-	-	-	-	6.0	4.0	95	33	9.3	13.8	727	1,193
Personal services	72	3.9	8.0	69	47	-	-	-	-	5.2	8.9	70	210	7.0	7.7	401	252
Miscellaneous business services	73	8.6	-	197	-	-	-	-	-	6.3	8.5	208	119	9.5	7.0	1,032	882
Auto repair, services, and garages	75	12.4	17.2	727	182	-	-	-	-	10.3	13.6	138	353	15.2	14.1	410	2,597
Miscellaneous repair services	76	-	-	-	-	-	-	-	-	16.9	13.0	325	134	13.4	16.6	622	2,451

See footnotes at end of table.

Table 2. Work-Injury Frequency and Severity Rates in Manufacturing and Nonmanufacturing Industries, Selected States, 1969-70--Continued

Industry Classification	SIC code	Georgia				Iowa				Maine			
		Frequency rate		Severity rate		Frequency rate		Severity rate		Frequency rate		Severity rate	
		1970	1969	1970	1969	1970	1969	1970	1969	1970	1969	1970	1969
MANUFACTURING													
All Manufacturing		18.0	19.5	1,120	1,472	23.1	19.0	691	700	21.7	21.6	980	1,064
Ordnance and accessories	19	18.7	6.8	503	493	-	-	-	-	-	-	-	-
Food and kindred products	20	23.0	28.6	1,745	2,663	39.8	24.2	840	1,191	27.8	28.9	824	573
Tobacco manufactures	21	-	-	-	-	-	-	-	-	-	-	-	-
Textile mill products	22	15.8	18.6	1,221	1,011	-	-	-	-	19.2	22.1	1,001	1,033
Apparel and other textile products	23	10.3	7.4	299	203	16.3	29.1	169	406	8.2	7.9	309	130
Lumber and wood products	24	34.3	28.8	2,157	3,422	31.5	34.2	940	1,775	58.3	56.5	3,430	3,574
Furniture and fixtures	25	18.7	21.1	335	1,392	15.6	19.1	304	498	36.3	27.3	694	633
Paper and allied products	26	10.9	19.5	2,204	2,646	17.9	19.7	3,505	521	10.0	10.3	820	1,057
Printing and publishing	27	9.5	8.4	223	170	7.4	8.3	526	196	4.7	6.1	63	125
Chemicals and allied products	28	11.8	18.0	932	1,637	7.4	9.6	195	235	22.6	19.7	423	174
Petroleum and coal products	29	7.9	4.8	175	144	-	-	-	-	-	-	-	-
Rubber and plastics products, n.e.c.	30	23.0	21.5	1,235	332	19.5	26.9	1,394	504	18.2	24.0	984	4,560
Leather and leather products	31	16.3	8.2	293	101	-	-	-	-	16.8	17.0	411	336
Stone, clay, and glass products	32	28.3	32.2	2,293	5,997	32.3	30.8	1,260	1,787	26.1	28.9	558	699
Primary metal industries	33	21.3	17.9	629	1,059	54.7	45.2	1,577	2,356	28.1	21.8	968	699
Fabricated metal products	34	46.4	43.8	1,604	3,569	38.7	46.1	781	860	27.4	26.9	1,403	499
Machinery, except electrical	35	18.6	24.7	463	1,436	15.3	13.9	617	520	19.9	17.0	789	342
Electrical equipment and supplies	36	15.6	7.4	3,222	608	9.1	7.3	256	146	5.4	6.0	139	189
Transportation equipment	37	23.1	24.9	2,269	1,099	20.6	38.4	549	542	17.8	13.8	418	807
Instruments and related products	38	5.6	0.0	117	0	7.1	19.6	258	2,018	-	-	-	-
Miscellaneous manufacturing industries	39	8.6	8.5	422	1,476	22.0	20.3	343	338	18.5	11.6	277	207
NONMANUFACTURING													
General building contracts	15	20.7	22.2	1,091	958	31.5	32.6	2,019	2,539	27.0	41.1	1,671	2,236
Heavy construction contractors	16	28.1	22.1	4,515	3,704	30.7	34.6	4,250	3,960	42.8	33.9	9,136	2,161
Special trade contractors	17	24.5	20.9	1,856	1,641	25.8	23.0	1,993	939	24.4	21.3	893	619
Local and interurban passenger transit	41	-	-	-	-	-	-	-	-	8.4	7.6	616	155
Trucking and warehousing	42	-	-	-	-	-	-	-	-	27.8	28.5	1,977	713
Water transportation	44	-	-	-	-	-	-	-	-	52.1	31.2	11,716	1,260
Electric, gas, and sanitary services	49	-	-	-	-	-	-	-	-	7.8	11.4	80	1,328
Wholesale trade	50	-	-	-	-	-	-	-	-	13.2	13.3	1,242	559
Building materials and farm equipment	52	-	-	-	-	-	-	-	-	20.8	21.5	547	1,985
Retail general merchandise	53	-	-	-	-	-	-	-	-	6.9	4.5	134	70
Food stores	54	-	-	-	-	-	-	-	-	14.2	9.7	368	216
Automotive dealers and service stations	55	-	-	-	-	-	-	-	-	14.6	14.4	244	318
Apparel and accessory stores	56	-	-	-	-	-	-	-	-	1.2	1.0	11	15
Furniture and home furnishings stores	57	-	-	-	-	-	-	-	-	18.0	16.0	606	414
Eating and drinking places	58	-	-	-	-	-	-	-	-	6.0	8.1	128	57
Miscellaneous retail stores	59	-	-	-	-	-	-	-	-	12.7	9.0	354	230
Hotels and other lodging places	70	-	-	-	-	6.1	-	70	-	6.5	10.3	76	109
Personal services	72	-	-	-	-	2.5	-	100	-	5.7	5.1	103	126
Miscellaneous business services	73	-	-	-	-	4.3	-	407	-	8.2	8.7	2,820	3,107
Auto repair, services, and garages	75	-	-	-	-	11.3	-	234	-	19.4	19.2	240	495
Miscellaneous repair services	76	-	-	-	-	14.2	-	190	-	3.6	24.7	4	226

See footnotes at end of table.

Table 2. Work-Injury Frequency and Severity Rates in Manufacturing and Nonmanufacturing Industries, Selected States, 1969-70--Continued

Industry Classification	SIC code	Michigan				New Jersey				New York			
		Frequency rate		Severity rate		Frequency rate		Severity rate		Frequency rate		Severity rate	
		1970	1969	1970	1969	1970	1969	1970	1969	1970	1969	1970	1969
MANUFACTURING													
All Manufacturing		10.6	11.4	610	470	16.4	14.2	614	684	13.9	13.4	572	548
Ordnance and accessories	19	-	-	-	-	-	-	-	-	8.9	8.3	218	329
Food and kindred products	20	23.9	21.0	1,067	493	25.2	28.3	959	1,017	30.5	26.1	1,058	1,038
Tobacco manufactures	21	-	-	-	-	-	-	-	-	-	-	-	-
Textile mill products	22	7.5	25.2	159	1,247	20.1	26.9	510	627	13.4	13.8	838	466
Apparel and other textile products	23	4.8	6.0	43	213	9.2	9.9	185	159	4.7	4.9	134	136
Lumber and wood products	24	42.5	47.1	3,000	1,101	33.2	38.6	632	1,412	31.8	32.8	1,780	2,610
Furniture and fixtures	25	16.5	20.4	490	1,029	27.8	25.4	1,125	1,096	21.0	21.8	664	832
Paper and allied products	26	14.0	15.3	632	593	23.4	23.8	1,489	1,387	20.5	20.9	1,049	917
Printing and publishing	27	11.3	8.4	360	206	11.0	13.0	381	350	10.6	11.8	507	444
Chemicals and allied products	28	5.6	5.8	588	385	13.1	10.6	386	755	12.3	11.4	411	603
Petroleum and coal products	29	4.2	10.0	380	272	13.1	8.8	441	1,102	13.4	15.1	1,082	602
Rubber and plastics products, n.e.c.	30	29.5	21.0	779	819	22.1	20.4	1,015	701	26.6	25.4	1,121	961
Leather and leather products	31	25.3	39.3	623	1,982	19.4	18.4	521	656	12.8	11.3	567	408
Stone, clay, and glass products	32	18.7	20.4	1,740	717	28.9	26.0	751	1,571	19.2	19.3	1,089	1,474
Primary metal industries	33	17.8	21.8	1,109	874	24.9	25.2	1,704	1,576	23.0	21.0	1,038	1,028
Fabricated metal products	34	16.6	19.1	894	848	19.0	14.4	655	810	24.9	25.2	1,077	955
Machinery, except electrical	35	15.0	14.2	714	529	20.0	15.5	634	584	12.0	11.1	488	501
Electrical equipment and supplies	36	7.7	12.2	608	403	7.3	5.6	203	268	7.6	8.1	275	212
Transportation equipment	37	3.5	3.7	296	216	8.8	8.6	451	549	11.6	9.1	306	350
Instruments and related products	38	7.3	5.5	242	102	11.4	6.5	261	167	8.0	7.8	273	231
Miscellaneous manufacturing industries	39	2/13.2	2/15.0	2/138	2/479	20.8	22.5	588	734	13.2	14.1	569	426
NONMANUFACTURING													
General building contractors	15	-	-	-	-	29.9	33.1	1,341	2,215	-	-	-	-
Heavy construction contractors	16	-	-	-	-	31.7	46.3	2,166	1,421	-	-	-	-
Special trade contractors	17	-	-	-	-	35.6	36.8	1,792	2,924	-	-	-	-
Local and interurban passenger transit	41	-	-	-	-	23.9	24.5	1,045	1,182	-	-	-	-
Trucking and warehousing	42	-	-	-	-	46.0	47.3	1,737	3,519	-	-	-	-
Water transportation	44	-	-	-	-	40.8	41.3	7,025	3,339	-	-	-	-
Electric, gas, and sanitary services	49	-	-	-	-	10.9	10.9	689	578	-	-	-	-
Wholesale trade	50	-	-	-	-	19.1	13.9	582	382	-	-	-	-
Building materials and farm equipment	52	-	-	-	-	20.0	20.2	2,673	574	-	-	-	-
Retail general merchandise	53	-	-	-	-	10.2	14.5	681	759	-	-	-	-
Food stores	54	-	-	-	-	26.3	23.2	435	440	-	-	-	-
Automotive dealers and service stations	55	-	-	-	-	24.3	19.4	205	207	-	-	-	-
Apparel and accessory stores	56	-	-	-	-	13.1	8.2	476	219	-	-	-	-
Furniture and home furnishings stores	57	-	-	-	-	18.2	7.9	3,045	186	-	-	-	-
Eating and drinking places	58	-	-	-	-	14.5	19.2	913	264	-	-	-	-
Miscellaneous retail stores	59	-	-	-	-	17.1	20.5	179	315	-	-	-	-
Hotels and other lodging places	70	-	-	-	-	36.3	9.8	216	2,245	-	-	-	-
Personal services	72	-	-	-	-	7.1	26.1	143	281	-	-	-	-
Miscellaneous business services	73	-	-	-	-	3.5	3.7	131	95	-	-	-	-
Auto repair, services, and garages	75	-	-	-	-	26.9	19.2	4,030	897	-	-	-	-
Miscellaneous repair services	76	-	-	-	-	34.1	1.7	412	41	-	-	-	-

See footnotes at end of table.

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Table 2. Work-Injury Frequency and Severity Rates in Manufacturing and Nonmanufacturing Industries, Selected States, 1969-70--Continued

Industry Classification	SIC code	South Carolina				Virginia				Wisconsin				Wyoming			
		Frequency rate		Severity rate		Frequency rate		Severity rate		Frequency rate		Severity rate		Frequency rate		Severity rate	
		1970	1969	1970	1969	1970	1969	1970	1969	1970	1969	1970	1969	1970	1969	1970	1969
MANUFACTURING																	
All Manufacturing		7.7	7.5	-	-	13.7	12.8	798	793	19.5	20.9	736	839	34.5	30.6	2,892	2,295
Ordnance and accessories	19	-	-	-	-	-	-	-	-	13.5	33.8	295	870	-	-	-	-
Food and kindred products	20	19.2	18.2	-	-	25.4	22.8	886	1,400	28.1	28.8	943	1,196	26.0	37.5	281	179
Tobacco manufactures	21	-	-	-	-	6.5	7.2	274	194	-	-	-	-	-	-	-	-
Textile mill products	22	4.4	3.7	-	-	7.4	6.7	394	386	17.3	17.8	331	332	-	-	-	-
Apparel and other textile products	23	5.7	6.4	-	-	8.4	7.2	292	136	9.0	13.4	187	170	-	-	-	-
Lumber and wood products	24	28.8	26.1	-	-	38.8	37.2	2,704	3,745	41.1	39.6	1,542	1,454	123.8	84.5	14,946	11,702
Furniture and fixtures	25	29.3	9.9	-	-	13.8	15.1	604	782	28.5	30.5	1,221	836	-	-	-	-
Paper and allied products	26	5.1	4.4	-	-	8.6	10.8	676	405	10.8	11.3	723	709	-	-	-	-
Printing and publishing	27	8.8	7.4	-	-	9.5	8.5	161	273	10.9	10.8	358	376	-	-	-	-
Chemicals and allied products	28	2.2	2.5	-	-	2.9	3.1	808	412	9.2	7.7	592	450	-	-	-	-
Petroleum and coal products	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber and plastics products, n.e.c.	30	8.5	12.5	-	-	17.5	11.3	969	1,153	18.6	17.6	590	466	-	-	-	-
Leather and leather products	31	-	-	-	-	11.2	12.3	1,059	526	10.5	23.0	725	867	-	-	-	-
Stone, clay, and glass products	32	17.2	20.8	-	-	31.9	28.2	2,715	1,267	33.4	32.5	2,708	3,098	29.7	20.2	396	290
Primary metal industries	33	30.5	13.6	-	-	21.2	17.5	781	1,541	43.7	45.4	1,154	1,385	-	-	-	-
Fabricated metal products	34	19.2	17.0	-	-	29.9	25.0	1,441	869	25.9	31.0	1,037	929	-	-	-	-
Machinery, except electrical	35	8.8	15.7	-	-	16.6	17.8	359	558	15.8	17.6	605	786	-	-	-	-
Electrical equipment and supplies	36	7.3	7.7	-	-	4.6	4.7	228	236	12.4	11.7	391	499	-	-	-	-
Transportation equipment	37	27.7	22.1	-	-	9.9	10.7	952	546	11.2	15.7	486	815	-	-	-	-
Instruments and related products	38	5.6	8.6	-	-	6.5	4.3	97	69	12.7	12.9	441	426	-	-	-	-
Miscellaneous manufacturing industries	39	17.9	8.5	-	-	1/9.5	1/8.8	1/272	1/218	24.2	16.3	309	402	-	-	-	-
NONMANUFACTURING																	
General building contractors	15	16.6	18.2	-	-	21.9	26.9	2,358	2,286	37.1	38.2	1,175	2,298	12.9	24.4	264	674
Heavy construction contractors	16	20.7	21.3	-	-	25.9	28.2	3,434	3,894	38.8	34.8	2,982	4,644	41.4	37.3	9,471	10,014
Special trade contractors	17	24.4	27.2	-	-	20.4	22.5	1,444	2,524	31.0	31.1	1,537	2,331	25.8	25.8	2,917	907
Local and interurban passenger transit	41	-	-	-	-	-	-	-	-	16.0	12.2	2,098	355	-	-	-	-
Trucking and warehousing	42	-	-	-	-	-	-	-	-	35.3	33.6	1,798	1,972	-	-	-	-
Water transportation	44	-	-	-	-	-	-	-	-	82.9	109.4	7,766	9,241	-	-	-	-
Electric, gas, and sanitary services	49	-	-	-	-	-	-	-	-	8.1	8.8	1,282	1,129	-	-	-	-
Wholesale trade	50	-	-	-	-	17.3	16.2	683	538	14.0	13.4	560	505	6.6	15.8	3,318	249
Building materials and farm equipment	52	-	-	-	-	18.7	23.9	933	519	17.7	18.7	726	1,148	12.8	15.0	68	593
Retail general merchandise	53	-	-	-	-	9.2	8.1	154	410	10.2	11.6	119	220	2.4	3.2	14	5
Food stores	54	-	-	-	-	10.4	10.6	187	202	11.7	17.2	389	350	10.9	8.1	96	62
Automotive dealers and service stations	55	-	-	-	-	14.3	-	524	-	12.3	12.1	689	446	9.1	10.7	130	232
Apparel and accessory stores	56	-	-	-	-	-	-	-	-	1.3	2.1	626	65	-	-	-	-
Furniture and home furnishings stores	57	-	-	-	-	-	-	-	-	9.8	8.7	1,115	1,198	-	-	-	-
Eating and drinking places	58	-	-	-	-	13.4	8.7	72	164	8.0	8.2	334	117	5.3	5.4	167	196
Miscellaneous retail stores	59	-	-	-	-	6.2	7.0	668	167	9.9	9.3	597	505	3.0	9.6	34	248
Hotels and other lodging places	70	-	-	-	-	-	9.0	-	483	15.6	10.1	847	829	19.0	20.6	3,385	81
Personal services	72	-	-	-	-	7.0	2.8	211	59	6.0	8.0	92	683	5.2	7.6	32	7
Miscellaneous business services	73	-	-	-	-	6.2	-	670	-	10.1	9.3	718	1,129	-	-	-	-
Auto repair, services, and garages	75	-	-	-	-	-	-	-	-	12.8	18.3	292	831	-	-	-	-
Miscellaneous repair services	76	-	-	-	-	-	-	-	-	21.4	14.9	557	184	-	-	-	-

1/ Includes ordnance and accessories, and instruments and related products.

2/ Includes ordnance and accessories, and tobacco manufactures.

3/ Includes ordnance and accessories.

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VT 016 790
AN INSTITUTE FOR IMPLEMENTING AN INSTRUCTIONAL PROGRAM FOR DATA-PROCESSING PERSONNEL IN STATE AND AREA VOCATIONAL-TECHNICAL SCHOOLS.

GEORGIA UNIV., ATHENS. DIV. OF VOCATIONAL EDUCATION.
GEORGIA STATE DEPT. OF EDUCATION, ATLANTA.;OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
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IDENTIFIERS - *GEORGIA

ABSTRACT - THIS DOCUMENT REPORTS A 3-WEEK DATA PROCESSING INSTITUTE HELD AT THE MACON AREA VOCATIONAL-TECHNICAL SCHOOL FROM JUNE 14 THROUGH JULY 2, 1971. THE MAJOR OBJECTIVE OF THE INSTITUTE WAS TO ALLEVIATE A SHORTAGE OF PERSONNEL IN SCHOOL DATA PROCESSING PROGRAMS THROUGH THE TRAINING OF TEACHERS. ANOTHER OVERALL OBJECTIVE WAS TO GIVE PARTICIPANTS SUBSTANTIVE TRAINING IN BUSINESS DATA PROCESSING APPLICATIONS IN ORDER TO TRAIN STUDENTS FOR THE DATA PROCESSING JOBS IN GEORGIA. THE INSTRUCTOR TRAINING PROGRAM UTILIZED THE COMBINED RESOURCES AND FACILITIES OF A UNIVERSITY, VOCATIONAL SCHOOLS, THE STATE, AND SPECIALISTS FROM BUSINESS AND INDUSTRY. SPECIFIC OBJECTIVES OF THE INSTITUTE WERE TO HAVE THE PARTICIPANTS BECOME FAMILIAR WITH ELECTRONIC DATA PROCESSING AND TO BE ABLE TO PREPARE FLOW CHARTS AND WRITE COMPUTER PROGRAMS. PRETESTS, POSTTESTS, AND EVALUATIVE INSTRUMENTS ADMINISTERED TO PARTICIPANTS INDICATED THAT THESE OBJECTIVES WERE ACCOMPLISHED. INCLUDED IN THE REPORT ARE PROGRAM MATERIALS FROM THE INSTITUTE AND THE TEST AND EVALUATIVE FORMS EMPLOYED. (MF)

R. D. AN INSTITUTE FOR IMPLEMENTING
AN INSTRUCTIONAL PROGRAM FOR
DATA PROCESSING PERSONNEL IN STATE AND AREA
VOCATIONAL-TECHNICAL SCHOOLS

SUB-PROJECT IV

Grant No. 504 Project No. 5204

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AN INSTITUTE FOR IMPLEMENTING AN INSTRUCTIONAL PROGRAM FOR DATA PROCESSING PERSONNEL IN STATE AND AREA VOCATIONAL-TECHNICAL SCHOOLS

SUB-PROJECT IV

John M. Sheppard, Jr.
Project Director
Division of Vocational Education
College of Education
University of Georgia
Athens, Georgia

In Cooperation with
Division of Vocational Education
State Department of Education
Atlanta, Georgia

and

U. S. Department of Health, Education, and Welfare
Office of Education
Bureau of Educational Personnel Development

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AN INSTITUTE FOR IMPLEMENTING AN INSTRUCTIONAL PROGRAM FOR DATA PROCESSING PERSONNEL IN STATE AND AREA VOCATIONAL-TECHNICAL SCHOOLS

I. PLANNING

This report covers a three-week Institute held at the Macon Area Vocational-Technical School, Macon, Georgia, from June 14 through July 2, 1971, for the purpose of training instructors. Eight-hour sessions were held each day for the three-week period. The objectives of the course were achieved through varied class activities including lectures, demonstrations, application or case problems, slides, films, filmstrips, group and committee activities, and actual work on equipment.

A major overall objective of the Data Processing Institute conducted by The University of Georgia was to alleviate a shortage of personnel in both existing and developing area school data processing programs through the initial training of teachers. The program was unique in that it drew upon the combined resources and facilities of a state university vocational teacher education program; area vocational-technical school network; state department of education; and data processing specialists from business, education, and industry in a cooperative effort to provide technical and practical knowledges and skills in the training of data processing instructors. These combined facilities

and faculties provided a depth of instruction not available through any single source.

Another overall objective of this Institute was to give participants substantive training in business data processing applications used in business and industry in Georgia. Georgia has approximately 500 computer installations now in operation with approximately 120 to begin operation this year. This year's enrollment in the area vocational-technical data processing programs is expected to exceed 1250. This expansion requires the preparation of qualified instructors for day and evening data processing programs in order to adequately train these students for the data processing jobs in Georgia.

The use of a computer in one of the area schools and the use of a terminal in the training center provided the opportunity for the application of technical and practical knowledges and skills in data processing.

Three consultants, who are presently data processing instructors, assisted in providing the training. In addition to their teaching experience, each has had practical work experience in one or more computer installations. Other consultants included representatives from National Cash Register Company; UNIVAC, a Division of The Sperry Rand Corporation; and Southern Bell Telephone and Telegraph Company.

Four planning sessions were held to make complete preparations for the Institute. The initial session was in January at the Macon Area Vocational-Technical School. Early in February, a second session was held to plan the dissemination of information concerning the Institute. This included the plans for the preparation and mailing of a brochure to potential participants. Attending the first session were the Director of the project, Assistant Director of the project, State Supervisor of Area School Programs, consultants to work with the project, and the Director of the school where the Institute was held. The same people attended the second session with the exception of the Director of the area vocational-technical school.

The third planning session was held in April involving the State Supervisor of Area School Programs and the Project Director to select the participants for the Institute.

A fouth planning session was held in May with the State Director of Leadership Services, Chairman of the Vocational Division of the sponsoring institution, State Supervisor of Area School Programs, Director of the project, and Assistant Director of the project. This was one of the most valuable planning sessions since it provided an opportunity to review previous plans and to review the objectives, purpose or function of the advisory committee, and the evaluation system.

One of the most important planning sessions held in May was that with the Advisory Committee. The Advisory Committee was composed of a technical school director, teacher educator, a person from business and industry, a person from a computer hardware company, and a person from the state department of education. The project director and consultants also attended this session. Three recommendations were made in the session. One recommendation was that the wording in the objectives be changed to more realistically reflect the anticipated outcomes of the Institute. A second recommendation was that a follow-up study be conducted to determine the degree to which participants are using the skills acquired in the Institute. A third recommendation was that an additional institute be conducted to provide an opportunity for training in methods of teaching data processing and the application of data processing principles.

The first recommendation was followed and plans are being made to implement the other recommendations.

II. PARTICIPANTS

Participation in the Institute was open to 30 persons with no more than five quarter hours of preparation in data processing. Priority was given to those teachers assigned as data processing instructors in the State and area vocational-technical schools.

Each participant had to hold a bachelor's degree in business education, distributive education, trade and industrial education, mathematics, or business administration. Individuals not holding a bachelor's degree were required to show experience in business data processing and be currently teaching data processing in a post-secondary vocational school on a temporary basis.

In addition to these requirements, each participant had to be able to operate the key-punch machine.

There were 21 participants in the Institute, twelve females and nine males. Thirty-five applications were received, and all thirty-five applicants met the criteria for selection and were accepted; however, only twenty-one were able to attend the Institute. Fourteen participants accepted but did not attend because of personal reasons. Eleven of the participants were from the state area vocational-technical schools and ten were from state vocational school programs. Fifteen represented post-secondary school programs while six represented secondary school programs.

The State Supervisor of Business and Office Education, Area Schools Program, and the Project Director cooperatively selected the participants in the Institute. Applicants were considered without regard to color, creed, race, or sex. Each person was required to submit an application for admission to the Institute, accompanied by a recommendation from the director of his local school.

III. OPERATION

Minor revisions were made in the objectives as a result of recommendations from the Advisory Committee. Objective "a" was changed from "To become thoroughly familiar. . ." to "To become familiar. . ."; objective "b" from "To develop skill. . ." to "To become familiar. . ."; objective "c" from "To gain skill in. . ." to "To gain ability to work. . .," "octal" changed to "hexadecimal," and "and other numbering systems" was taken out; objective "d" from "assembly" to "generator"; objective "f" from "To develop skill. . ." to "To become familiar. . ."; and, objective "g" from "To develop skill in. . ." to "To become familiar with. . . ."

The objectives (anticipated outcomes) of the Institute as modified were:

As a result of this program each student will be able:

a. To become familiar with electronic data processing systems and their uses for problem solving. The student will be expected to demonstrate this competency by describing computer components and peripheral equipment in relation to services to be provided to users.

b. To become familiar with diagramming and flow charting business problems. Students will be expected to demonstrate skill by flow charting assigned programming problems, both individually and as group assignments.

c. To gain ability to work with binary and hexadecimal

numbering systems utilized in varying computers. This skill will be demonstrated by converting decimal code to binary code and hexadecimal code as well as adding and subtracting binarily.

d. To write a program in a generator language. The student will demonstrate this skill by writing a business problem and testing its effectiveness on the computer.

e. To write a program in a compiler language (COBOL). The student will demonstrate this skill by writing a business problem and testing its effectiveness on the computer.

f. To become familiar with basic business systems design and modification of the system to accommodate new or additional hardware or adding new functions to an already existing system. The student will demonstrate this skill by identifying ways of modifying a system to accommodate new or additional hardware or adding new functions to an existing system.

g. To become familiar with data processing principles as applied to educational applications; such as grade reporting, testing, scheduling, etc. The student will demonstrate this skill by writing a problem involving educational applications and testing its effectiveness on the computer.

On the first day of the Institute, students were given

an overview of the three-week's work. Each student was given a schedule for the entire program and a copy of the objectives; these were reviewed and discussed with them. Also, on the first day, students were given the Electronic Data Processing Programmers' Test E51, aptitude test. This test was not administered to eliminate anyone from the Institute, but to predict his aptitude for data processing.

The director and consultants constructed an objective form pre/post achievement test which was administered on the first day in order to determine the existing data processing knowledge of each student. The average score on the pre-test was 33.52 per cent. The post-test, administered on the last day of the Institute, gave an average score of 61.21 per cent. The post-test shows an increase of 83 per cent achievement over the pre-test.

Three evaluative instruments were administered to each student. One instrument made it possible for each student to evaluate the materials, methods, and activities used to achieve each objective as that objective was completed. A second instrument made it possible for each student to evaluate his own contribution to the Institute, and a third instrument made it possible for each student to evaluate the Institute as a whole. Each instrument indicated the Institute was a rewarding success.

Specially prepared handouts were used to assist in

instruction and the achieving of objectives. In addition to the handouts, each student was provided three texts to be used for instruction and reference purposes. These books were Flowcharting by Farina, Computer Data Processing and RPG Programming by Gildersleeve, and COBOL Programming by Stern and Stern.

IV. FINAL STATEMENT

To show the achievement of the objective "To become familiar with electronic data processing systems and their uses for problem solving," students described computer components and peripheral equipment in relation to services provided to users. Students were able to do this after lectures, demonstrations, slides, chalkboard, and handouts were used by computer company representatives for instructional purposes.

Each student prepared three flow charts individually and two flow charts as group work to show they had achieved the objective, "To become familiar with diagramming and flow charting business problems." This was achieved by starting with simple problems in flow charting and working together into more technical problems.

Converting decimal code to binary code and hexadecimal code and adding and subtracting binarily was also achieved by each student. Much group practice and individual work

were used following the lecture-demonstration sessions to achieve this objective. Students performed problems involving these conversions.

Each student was expected to write at least one business problem and test its effectiveness on the computer to achieve the objective, "To write a program in a generator type language." Each student wrote at least two programs and some wrote four programs. This was done following lecture-demonstrations and the use of the chalkboard and transparencies as instructional media.

Students demonstrated their ability to write a business problem and test its effectiveness on the computer to achieve the objective, "To write a program in a compiler language (COBOL)." Each student wrote and tested at least one problem and some wrote and tested two problems. Lecture-demonstrations, group work, transparencies, chalkboard, handouts, and slides were instructional techniques used to achieve this objective.

Instructional materials and methods used to achieve the objective, "To become familiar with basic business systems design and modification of the stystem to accommodate new or additional hardware or adding new functions to an already existing system," were lecture-demonstrations, chalkboard, films, transparencies, and specially prepared handouts. Students identified ways of modifying a system to accommodate new or additional hardware and ways of adding

new functions to an existing system.

"To become familiar with data processing principles as applied to educational applications; such as grade reporting, testing, scheduling, etc.," materials and methods used were transparencies, chalkboard, slides, lecture-demonstrations, and group work. Each student wrote a program involving educational principles and tested its effectiveness on the computer.

By writing a program in a generator language, a compiler language, and a program involving educational applications and testing their effectiveness on the computer, students were provided experiences in debugging.

It is felt that no discrepancies existed between anticipated and actual outcomes of the Institute.

Plans are being made for a followup evaluation to be done in the spring, 1972. This followup will be done through a questionnaire to determine the extent to which the knowledge and skills gained through the Institute are being used. It will also help determine the weaknesses in the training program.

It is felt that the success of this Institute was due to adequate planning involving all personnel working with the Institute in any way including Project Director, Assistan Project Director, State Supervisor of Area Schools Program, Chairman of State Leadership Services, Chairman of

Vocational Division of sponsoring university, Advisory Committee, consultants, and representatives of computer hardware companies.

The location and facilities must also be taken into consideration since they are important factors in a program of this type. The location and facilities of this Institute were quite adequate and conveniently situated.

Subsequent institutes could be improved by increasing the training period to four or six weeks. This would allow more laboratory time and more group and committee work time.

The persons working with the Institute from the sponsoring university expresses its appreciation to the Division of Vocational Education, State Department of Education, and to the U. S. Office of Education, Bureau of Educational Personnel Development, for the financial assistance provided. It is felt that this project achieved its objectives, and the way it was administered was most adequate and successful.

APPENDICES

8200

Summer Institute

BUSINESS DATA PROCESSING

for the training
of
Data Processing Instructors
June 14 - July 2, 1971

Macon Area Vocational-Technical School
940 Forsyth Street
Macon, Georgia

Sponsored by:

Division of Vocational Education
State Department of Education
Atlanta, Georgia

and

Division of Vocational Education
Business Education Department
University of Georgia
Athens, Georgia

COURSE CONTENT
(Outline of Program)

FIRST WEEK

Welcome to Institute - Mr. George Mulling
Institute Orientation
Aptitude Test and Pre-Achievement Testing on Data Processing
Data Processing Occupations and Job Skills Needed by Business
Data Processing Cycle
Methods of Processing Data
Need for Improved Data Processing Systems
Evaluation of Data Processing Devices
Types of Computers, and the Capabilities, Limitations, Functions, Components, and Operations of Digital Computers.
Data Transmission
Flowcharting: Basic concepts and definitions, Types of Flowcharts, Flowcharting Symbols, Conventions, and Standards, Designing a Run (Modular Concept), Mainline Conventions and Components, Practice Problems

SECOND WEEK

Report Program Generator (RPG); Characters: Definitions of Terms, Literals, Control Card, File Description, Indicators, Input Specifications, Calculation Specifications, Output Format Specifications, File Extension Specifications

THIRD WEEK

COBOL: Introduction to COBOL Programming, Data Organization, Identification Division, Environment Division, Data Division, Procedure Division, Input/Output Statements, Arithmetic Statements, Conditional Statements, Working-Storage Section, Printed Output Editing, Perform Statement, COBOL Compilation Process, Problem Compilations, Test Data Preparation, Program Testing
Post-Achievement Testing
Concluding Statements - Mr. Al Jones

COMPLETE AND RETURN TO: Mr. John M. Sheppard, Jr., Project Director
Data Processing Institute
Business Education Department
University of Georgia
Athens, Georgia 30601

I am interested in the Data Processing Institute to be held in Macon, Georgia, June 14 - July 2, 1971. Please send me an application form.

NAME _____

STREET ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

SCHOOL _____

SCHOOL ADDRESS _____

8201

OBJECTIVES

The primary objectives of the Institute are:

1. To alleviate a shortage of personnel in both existing and developing data processing programs through the initial training of teachers.
2. To meet the needs of participants in the substantive areas of business data processing applications used in business and industry in Georgia.

SPECIFIC OBJECTIVES

As a result of this program each student will be expected:

1. To develop skill in diagramming and flowcharting business problems.
2. To gain skill in working with binary and octal numbering systems and other numbering systems utlized in varying computers.
3. To write a program in a generator type language.
4. To write a program in a compiler type language (COBOL).
5. To develop skill in basic business systems design and modification of the system to accommodate new and additional hardware or adding new functions to already existing systems.
6. To become thoroughly familiar with data processing systems and their uses for problem solving.
7. To develop skill in data processing principles as applied to educational applications; such as grade reporting, testing, scheduling, etc.

CREDIT

Ten quarter hours of graduate or undergraduate credit may be earned.

ELIGIBILITY

Participants must (1) hold a bachelor's degree in business education, distributive education, trade and industrial education, business administration, or mathematics; be currently teaching (or planning to teach in the immediate future) data processing in a secondary or post-secondary school; and have no more than five hours credit in business data processing, or (2) have less than a bachelor's degree with non-collegiate training and/or experience in business data processing in a post-secondary vocational school on a temporary basis.

Each participant must know how to keypunch or must become familiar with the keypunch machine before June 14.

Participants must be eligible for admission to The University of Georgia, undergraduate or Graduate School, and must provide transcripts of all college work and results of the Graduate Record Examination or National Teachers Examination as appropriate to support his application for admission at least thirty days prior to June 14. If a person desires to have his credit transferred to another college or university, he should clear all questions, such as acceptance of this work, through that institution.

The State Supervisor of Business and Office Education, Area Schools Program, and the project director will cooperatively select the applicants to participate in the institute.

Each applicant will be requested to submit (1) an application for admission to the Institute, accompanied by (2) a recommendation from his school superintendent or his director of the area or state vocational-technical school.

TUITION AND HOUSING

Students will pay the regular University of Georgia tuition fees, which will be approximately $130. Books will be provided by the Institute. Living accommodations may be secured at the Dempsey Motor Hotel, 387 Third Street, Macon, Georgia, 31201 for $23.50 per week for a single room or $35.00 per week for double occupancy. Eating facilities are available at the hotel or nearby; also, eating facilities are available near the school.

SCHEDULE

Students will attend class, lectures, committee work, discussions, and work time on equipment eight hours daily.

Class hours each day will be:

9:00 - 12:00	Class
12:00 - 1:00	Lunch
1:00 - 5:00	Class

A morning and afternoon break will be given.

Outside study and work will be required of each participant as necessary.

Saturdays and Sundays will be free.

STIPEND

Participants will receive a stipend of $50 per week or a total of $150 to be paid at the completion of the Institute.

APPLICATION PROCEDURES

Qualified applicants will be considered in order of application received. Address your request for an application form to:

Mr. John M. Sheppard, Jr., Project Director
Business Education Department
324 Baldwin Hall
University of Georgia
Athens, Georgia 30601

8202

The application shall set forth:

1. Vital data (Name, address, age, etc.)
2. Present teaching assignment (subjects, location)
3. Educational and employment history
4. Reason for participation in this Institute

Division of Vocational Education
Business Education Department
University of Georgia, Athens, Georgia
and
Division of Vocational Education
State Department of Education
Atlanta, Georgia

This application is for consideration of acceptance for Business Data Processing Institute, June 14 - July 2, 1971, Macon, Georgia, and for a stipend of $150.
Date _____

I. Personal Information

1. Full Name: Mr.____ Mrs.____ Miss____ _____
(Last name) (First name) (Middle name)

2. Present Position: _____

3. How long have you hold your present position? _____

4. Courses you presently teach _____

5. Home Address _____
(Number) (Street) (City) (State) (Zip) (Phone)

6. School _____
(Name) (Address) (Zip) (Phone)

7. Name of immediate superior, director, principal, etc.
_____

8. Date of Birth _____ 9. Married or Single _____
(Month) (Day) (Year)

8203

II. Education

1. List in chronological order the high schools, colleges, institutes, evening and extension work.

School	From	To	Credit Earned	Diploma-Degree	Date
Institutes:					
College or University:					
Graduate Work:					
High Schools:					

2. List any course work in data processing.

Institution or Organization	Course	Credit	Date	Grade

3. List any course work you have had in accounting.

Institution	Course	Credit	Date	Grade

4. How long have you taught data processing?_____

5. How long have you taught accounting?_____

6. Total years of teaching experience. _____

7. Academic Specialization:

A. Undergraduate: Major field of special study_____
Minor field of special study_____

B. Graduate: Major field of special study_____
Minor field of special study_____

8. Teaching Certificate held:

Type	State	Period of Validity

III. Experience

1. Teaching or Supervisory Experience:

Name	Institutions Location	Type	Title of Position, subjects taught, or duties performed	Date

2. Non-Academic or Business:

Business	Location	Type	Duties Performed	Date

3. Present Employment: (Describe duties of present position or courses taught.)

_____

_____

_____

IV. Evidence of Scholarship

1. List names, titles and addresses of three individuals from whom letters of recommendation could be requested regarding your professional qualifications.

Name	Title	Address
A.		
B.		
C.		

2. A. Now enrolled in degree program. YES___ NO___
   If yes, _____
   (Institution) (Level of program) (Major Field)

   B. Do you plan to enroll for Undergraduate or Graduate Credit?
   UNDERGRADUATE___ GRADUATE___

   C. Have you applied for admission to the University of Georgia?
   YES___ NO___

3. Additional information: (Explain why you wish to enroll in this Institute.)

I certify that all the answers I have given in this application are complete and accurate to the best of my knowledge.

Date_____ Name_____

RETURN APPLICATION BY MARCH 15, 1971 TO:

Mr. Wiley Simpson
State Supervisor
Business and Office Education
Area School Programs
State Department of Education
State Office Building
Atlanta, Georgia 30334

OR

Mr. John M. Sheppard, Jr.
College of Education
Business Education Department
324 Baldwin Hall
University of Georgia
Athens, Georgia 30601

DATA PROCESSING INSTITUTE

June 14 - July 2

Title of Institute: AN INSTITUTE FOR IMPLEMENTING AN INSTRUCTIONAL PROGRAM FOR DATA PROCESSING PERSONNEL IN STATE AND AREA VOCATIONAL-TECHNICAL SCHOOLS

Grant No: 504

Project No: 5204

Project Director: John M. Sheppard, Jr.

Institution: University of Georgia

Date	Topics
Monday June 14	Registration Welcome to Institute Institute Orientation
Tuesday June 15	Aptitude Test Pre-Test on Data Processing Data Processing Occupations and Job Skills Needed by Business Data Processing Cycle Methods of Processing Data Need for Improved Data Processing Systems Evaluation of Data Processing Devices
Wednesday June 16	Types of Computers and the Capabilities, Limitations, Functions, Components, and Operations of Digital Computers
Thursday June 17	Data Transmission Flowcharting
Friday June 18	Flowcharting

Monday June 21	Report Program Generator 1. Introduction and Data Processing Numbering System 2. Printer Spacing Chart 3. Card Lay-Out 4. File Description
Tuesday June 22	Report Program Generator 1. Indicators 2. Input Specifications 3. Calculation Specifications
Wednesday June 23	Report Program Generator 1. Calculation Specifications 2. Output Specifications
Thursday June 24	Report Program Generator 1. Tie in of all Coding Forms 2. Application Problem
Friday June 25	Report Program Generator 1. Program Debugging 2. RPG Evaluation Testing
Monday June 28	COBOL 1. Introduction to COBOL Programming 2. Data Organization 3. Identification Division 4. Environment Division
Tuesday June 29	COBOL 1. Data Division 2. Procedure Division 3. Input/Output Statements 4. Arithmetic Statements
Wednesday June 30	COBOL 1. Conditional Statements 2. Working-Storage Section 3. Printing Output Editing 4. Perform Statement

Thursday
July 1

COBOL

1. COBOL Compilation Process
2. Problem Exercise Assignment
3. Problem Compilations
4. Test Data Preparation
5. Program Testing

Friday
July 2

COBOL

1. Problem Compilations
2. Program Testing

Post-Testing on Data Processing Achievement

Examination

Concluding Statement

DATA PROCESSING INSTITUTE

EVALUATION

Your thoughtful opinion of the Institute will help us to improve it the next time. Answer each question by circling the number that best described your opinion. We welcome comments.

0. Excellent; very much; very helpful.
1. Good; much; helpful.
2. Average; some; interesting
3. Fair; a little; endurable.
4. Poor; none; boring.
5. Does not apply.

SESSION OR ACTIVITY	SCALE	COMMENTS
1. Orientation	0 1 2 3 4 5	
2. Aptitude Test	0 1 2 3 4 5	
3. Pre-Test (Achievement)	0 1 2 3 4 5	
4. Data Processing Occupations and Job Skills Needed by Business	0 1 2 3 4 5	
5. Data Processing Cycle	0 1 2 3 4 5	
6. Methods of Processing Data	0 1 2 3 4 5	
7. Need for Improved Data Processing Systems	0 1 2 3 4 5	
8. Evaluation of Data Processing Devices	0 1 2 3 4 5	
9. Types of Computers and the Capabilities, Limitations, Functions, Components, and Operations of Digital Computers	0 1 2 3 4 5	
10. Data Transmission	0 1 2 3 4 5	
11. Flowcharting	0 1 2 3 4 5	
12. Flowcharting Problem	0 1 2 3 4 5	
13. Report Program Generator		
a. Introduction	0 1 2 3 4 5	
b. Printer Spacing Chart	0 1 2 3 4 5	
c. Card Lay-Out	0 1 2 3 4 5	

8210

SESSION OR ACTIVITY	SCALE	COMMENTS
d. File Description	0 1 2 3 4 5	
e. Indicators	0 1 2 3 4 5	
f. Input Specification	0 1 2 3 4 5	
g. Calculation Specifications	0 1 2 3 4 5	
h. Output Specifications	0 1 2 3 4 5	
i. Tie in of all Coding Forms	0 1 2 3 4 5	
j. Flowcharting Application Problem	0 1 2 3 4 5	
k. Program Debugging	0 1 2 3 4 5	
l. RPG Evaluation Testing	0 1 2 3 4 5	
14. COBOL		
a. Introduction to COBOL	0 1 2 3 4 5	
b. Data Organization	0 1 2 3 4 5	
c. Identification Division	0 1 2 3 4 5	
d. Environment Division	0 1 2 3 4 5	
e. Data Division	0 1 2 3 4 5	
f. Procedure Division	0 1 2 3 4 5	
g. Input/Output Statements	0 1 2 3 4 5	
h. Arithmetic Statements	0 1 2 3 4 5	
i. Conditional Statements	0 1 2 3 4 5	
j. Working-Storage Statement	0 1 2 3 4 5	
k. Perform Statement	0 1 2 3 4 5	
l. COBOL Compilation Process	0 1 2 3 4 5	
m. Program Compilation	0 1 2 3 4 5	
n. Program Testing	0 1 2 3 4 5	
o. Post-Test (Achievement)	0 1 2 3 4 5	
15. Materials		
a. Textbooks	0 1 2 3 4 5	
b. Handouts	0 1 2 3 4 5	

SELF EVALUATION

DATA PROCESSING INSTITUTE

1971

Name

You know more about how much you learn and the use you are making of what you learn than anyone else. This evaluation sheet has been prepared to help you to systematically and periodically evaluate your increase of progress in learning.

Rate yourself on each item. Think through your progress and conscientiously rate yourself. Use this scale.

0. Excellent; very much progress
1. Good; much progress
2. Average; some progress
3. Fair; a little progress
4. Poor; no progress
5. Does not apply

	June 13	June 25	July 2
I. Acquiring Information			
1. Read text before lectures			
2. Comprehension of subject matter			
3. Obtaining ideas and insights from discussion			
4. Securing clarification of information through informal conversion			
5. Using information in solving case problems			
6. Conferring with or questioning consultants			
II. Organizing Material			
1. Taking organized notes			
2. Identifying concepts			
3. Keeping a helpful bibliography			
4. Evaluating visual aids			
III. Cooperating and helping others			
1. Asking thoughtful questions			

8212

2. "Carrying your share" in group work

3. Listening thoughtfully

4. Contributing thoughtfully to discussion

June 18	June 25	July 2

I. DIRECTIONS: On the line at the left of each item write the number that best expresses your judgment. If you have comments to make about any of the items, state them immediately after the item.

___ 1. Did the teacher seem to know his field?
1. Poorly informed 2. Moderately well informed 3. Well informed

___ 2. Were the materials for the course well organized?
1. Poorly organized 2. At times well organized 3. Well organized

___ 3. Were the materials presented in an interesting manner?
1. Monotonus 2. Moderately interesting 3. Very interesting

___ 4. Did you clearly understand the assignments?
1. No 2. Sometimes 3. Yes

___ 5. Did the illustrations and explanations serve to clarify the material of the course?
1. No 2. Sometimes 3. Yes

___ 6. Have you been helped to develop or maintain interest in the field?
1. No 2. To some extent 3. Yes

___ 7. Was the class held within the set time limits?
1. No 2. Sometimes 3. Yes

___ 8. Were the objectives of the course clearly defined?
1. No 2. Moderately 3. Yes

___ 9. Did the assignments help you to attain the objectives of the course?
1. No 2. Sometimes 3. Yes

___ 10. Were students encouraged, so far as the nature of the course permits, to express themselves in class?
1. No 2. Sometimes 3. Yes

___ 11. Were the blackboard and other visual aids used to the extent the course permits?
1. No 2. Minimum use 3. Yes

___ 12. Were assignments reasonable in length and difficulty?
1. No 2. Sometimes 3. Yes

___ 13. Were examinations devised so as to test your grasp of principles as well as of details?
1. No 2. Sometimes 3. Yes

___ 14. Did the tests cover the assigned work of the course?
1. No 2. Sometimes 3. Yes

___ 15. Did you consider this course valuable?
1. No 2. Moderately 3. Yes

___ 16. Would you recommend this course to another student who plans to take it?
1. No 2. Indifferent 3. Yes

8214

II. DIRECTIONS: On the line at the left of each item write the number that best expresses your judgment. If you have comments to make about any of the items, state them immediately after the item.

____ 1. Length of course: 1. Too short 2. About right 3. Too long

____ 2. Number of topics on course: 1. Too few 2. About right 3. Too many

____ 3. Length of each session: 1. Too short 2. About right 3. Too long

____ 4. Course agenda plan: Organization of topics discussed: 1. Appropriate 2. Not appropriate

____ 5. Number of pupils enrolled was: 1. Too few 2. About right 3. Too large

____ 6. Coffee break period was: 1. Too short 2. About right 3. Too long

____ 7. Course achieved its purpose: In part 1. Yes 2. No

____ 8. Should the course be continued?: 1. Yes 2. No

9. What topics do you feel should be included in the next course?

10. For whom should the next course be planned?

11. Would you prefer a six-week ( ), ten-week ( ), or a concentrated one-week ( ) session?

Some other plan? _____

III. Your thoughtful evaluation of the Data Processing sequence will help us to improve the course the next time it is taught. Please comment regarding your impression of the course. (Use back of sheet if necessary)

8215

Pre/Post Achievement Test
Data Processing

1. Preparing a flow chart to map the means of solving a problem is part of:
   a. buffering.
   b. compiling.
   c. programming.
   d. coding.
   e. none of the above.

2. Final conversion of a program into computer language is called:
   a. compiling.
   b. coding.
   c. programming.
   d. buffering.
   e. analyzing.

3. A graphic description of the overall requirements of an application and how data are expected to pass from one stage to another is referred to as a:
   a. computer program.
   b. file sheet.
   c. report format sheet.
   d. systems flow chart.
   e. memory map.

4. A common error made by programmers in the problem definition stage is:
   a. failure to allow for all possible exceptions.
   b. preparing a flow chart in detail.
   c. writing instructions before a flow chart is debugged.
   d. ignoring the need for a detailed flow chart.
   e. none of the above.

5. A special form used by a programmer to determine the format of a printed output is called a(n):
   a. printout format form.
   b. file sheet.
   c. report format sheet.
   d. output memory map.
   e. none of the above.

6. The two most descriptive methods used by a programmer to record the processing sequence of an operation are:
   a. decision tables and COBOL programming sheets.
   b. programming flow charts and systems flow charts.
   c. systems flow charts and FORTRAN oriented charts.
   d. programming flow charts and decision tables.
   e. systems flow charts and block diagrams.

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7. A chart showing the detailed steps performed in processing a given block is called a:
   a. block diagram.
   b. flow diagram.
   c. decision table.
   d. source program list.
   e. none of the above.

8. A computer oriented language generally used in programming scientific applications is called:
   a. COBOL.
   b. ALGOL.
   c. FORTRAN.
   d. GOTRAN.
   e. none of the above

9. Compiling refers to:
   a. preparation of a machine language program from a program written in another programming language.
   b. conversion of a flow chart into a computer language.
   c. source program listing.
   d. stacking all the necessary instructions into the card hopper.
   e. none of the above.

10. "Listing" a program refers to:
   a. printing its instructions in alphabetic order.
   b. giving each instruction a location number in storage.
   c. showing what has been punched in a deck of program cards.
   d. preparation of a source program for a compiling routine.
   e. none of the above.

11. The primary function of a computer program is to:
   a. speed up the listing routine.
   b. activate the input/output buffers of the computer.
   c. redefine the details shown in a source program.
   d. convert a programmer's punched instructions to machine language instructions.
   e. none of the above.

12. Computer programming requires that:
   a. a programmer understands the problem to be programmed.
   b. a programmer is skilled in operating the keypunch.
   c. all instructions be initially written in machine language.
   d. symbolic language be used where possible.
   e. all of the above.

13. On an exam, the answers you give to the questions are regarded by your instructor as:
   a. input/output.
   b. input.
   c. output.
   d. processing.
   e. none of the above.

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14. The two basic steps in the preparation of a program are:
    a. coding and debugging.
    b. block diagramming and coding.
    c. block diagramming and debugging.
    d. converting and compiling.
    e. coding and compiling.

15. A block diagram:
    a. is a graphic representation of steps to be taken by the computer.
    b. aids the programmer in organizing the problem to be solved.
    c. usually includes input, processing, and output steps.
    d. precedes compiling.
    e. all of the above.

16. An operation code:
    a. is the first character of an instruction.
    b. indicates the type of operation to be performed.
    c. must be available in each instruction.
    d. all of the above.
    e. none of the above.

17. Problem definition involves:
    a. clearing central processing unit storage of any data.
    b. predetermination of the type of information needed.
    c. preparing a block diagram.
    d. setting up the coding technique to be used.
    e. none of the above.

18. Data organization usually begins with:
    a. devising a procedure for converting input data into meaningful results.
    b. preparing a detailed block diagram.
    c. writing out a program for the application under consideration.
    d. all of the above.
    e. none of the above.

19. A graphic representation of steps to be processed is called:
    a. a block diagram.
    b. a loop.
    c. a decision routine.
    d. branching.
    e. none of the above.

20. A direction of flow symbol is used to:
    a. show a flow of ideas between processing symbols.
    b. show the direction of flow of a branching step.
    c. connect any two decision symbols.
    d. connect any two symbols of a block diagram.
    e. none of the above.

21. The instruction "move employee number and name to print" is represented symbolically by:
    a. input.
    b. logic.
    c. processing.
    d. output.
    e. none of the above.

22. The instruction "Is it the last card?" is represented symbolically by:
    a. input.
    b. processing.
    c. logic.
    d. output.
    e. none of the above.

23. The instruction "branch back to read" is represented symbolically by:
    a. input.
    b. processing.
    c. logic.
    d. output.
    e. none of the above.

24. The debugging stage:
    a. follows the coding stage.
    b. occurs during the testing stage.
    c. is required during the coding stage.
    d. takes place as each major step in writing the program is completed.
    e. none of the above.

25. Debugging is considered effective in eliminating:
    a. clerical errors.
    b. logical errors.
    c. computer errors.
    d. routine instructions.
    e. none of the above.

26. The testing stage involves:
    a. rewriting the last stage of a program.
    b. final debugging of the last stages of a program.
    c. checking on the accuracy of the coding technique used.
    d. checking on the accuracy of input data before processing takes place.
    e. none of the above.

27. A subroutine:
    a. can be written separately from the main program.
    b. can consist of as many as several hundred instructions.
    c. can be initiated from more than one particular place in the main program.
    d. all of the above.
    e. none of the above.

28. A repetitive operation within a program is called:
    a. compiling.
    b. subroutine
    c. looping
    d. condition entry.
    e. action entry.

29. An open ended rectangle with a broken line represents what symbol?
    a. document.
    b. display.
    c. punched paper tape.
    d. annotation.
    e. off-line storage.

30. A flowline symbol:
    a. requires an arrowhead near the junction point.
    b. indicates the sequence of operations in a program.
    c. is used to form junctions which define logical relationships.
    d. a and b only.
    e. b and c only.

31. A symbol representing an I/O function using magnetic tape or magnetic disk is called:
    a. magnetic tape symbol.
    b. magnetic disk symbol
    c. on-line storage symbol.
    d. off-line storage symbol.
    e. none of the above.

32. An off-line operation performed on equipment not under the direct control of the CPU is represented by what symbol?
    a. Predefined process
    b. Auxiliary operation
    c. Specialized notation
    d. Off-line storage
    e. None of the above

33. A program division that describes the operation to be performed is referred to as:
    a. Identification Division.
    b. Environment Division.
    c. Data Division.
    d. File In Division.
    e. none of the above.

34. In COBOL, a program as prepared by a programmer is called:
    a. object program.
    b. source program.
    c. assembly program.
    d. compiler program.
    e. processor program.

35. One of the following remains unchanged during a COBOL program:
    a. data name.
    b. condition.
    c. literal.
    d. value.
    e. CONSTANT.

36. A name may not exceed:
    a. 8 characters.
    b. 18 characters.
    c. 20 characters.
    d. 30 characters.
    e. 31 characters.

37. A logical operator used in single conditional statements is:
    a. OR.
    b. NOR .
    c. NOT.
    d. AND.
    e. none of the above.

38. A relational operator is represented by:
    a. **
    b. #
    c. =
    d. OR
    e. none of the above.

39. The verb used to initiate the processing of a given file is:
    a. READ.
    b. COMPUTE.
    c. PERFORM.
    d. OPEN.
    e. READ-IN.

40. Conditions that compare specific data with zero are:
    a. data names.
    b. special class names.
    c. sign conditions.
    d. simple conditional names.
    e. compound conditions.

41. If 84231 is assumed to be a name, it would fall under:
    a. Procedure names.
    b. Environment names.
    c. Special names.
    d. Condition names.
    e. none of the above.

42. The size and class of the item PICTURE IS 9(7) X (13) is:
    a. 13 alphanumeric characters.
    b. 7 numeric characters.
    c. 20 alphanumeric characters.
    d. 29 numeric characters, including 13 special characters.
    e. 76 alphanumeric characters.

43. In COBOL, divisions, sections, or paragraphs must be preceded by a:
    a. header.
    b. paragraph name.
    c. reserved name.
    d. a and b only.
    e. b and c only.

44. A header:
    a. is a single reserved word.
    b. is a combination of reserved words.
    c. is user defined words.
    d. must terminate with a period.
    e. all of the above.

45. The firts three columns of a COBOL coding sheet are reserved for a:
    a. 3 digit line number.
    b. 3 digit page number.
    c. 2 digit page number and 1 digit line number.
    d. 1 digit page number and 2 digit line number.
    e. none of the above.

46. The second line number of a COBOL coding sheet is printed as:
    a. 2
    b. 02
    c. 020
    d. 0020
    e. 0200

47. 002120 in columns 1-6 of a COBOL coding sheet means:
    a. page 21, line 20.
    b. page 2, line 120.
    c. page 2, line 12.
    d. page 02, line 1, character 20.
    e. none of the above.

48. In a COBOL coding sheet, when a sentence requires two lines, a dash is placed in:
    a. column 7 of the second line.
    b. column 8 of the first line.
    c. column 7 of the first and second line.
    d. column 8 of the second line.
    e. column 73 of the second line.

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49. Column 12 of a COBOL coding sheet is the beginning of:
    a. margin A.
    b. margin B.
    c. a COBOL paragraph.
    d. a and b only.
    e. b and c only.

50. The sequence of the four COBOL divisions is:
    a. Data, Identification, Procedure, and Environment.
    b. Identification, Data, Environment, and Procedure.
    c. Identification, Environment, Data, and Procedure.
    d. Environment, Identification, Procedure, and Data.
    e. Procedure, Environment, Identification, and Data.

51. The Identification Division specifies:
    a. name of the programmer.
    b. title of the COBOL program.
    c. compiler listing of the COBOL program.
    d. all of the above.
    e. none of the above.

52. The configuration and input/output sections are a part of the:
    a. Identification Division.
    b. Environment Division.
    c. Procedure Division.
    d. Data Division.
    e. Special names Division.

53. The two paragraph headers, SOURCE COMPUTER
    OBJECT COMPUTER are:
    a. optional, depending on the type of computer used.
    b. required in the configuration section of the program.
    c. each header is followed by the name of the computer used.
    d. b and c only.
    e. none of the above.

54. The optional sections of the Data Division are:
    a. file, report, and working storage.
    b. report, configuration, and working storage.
    c. configuration, file, and report.
    d. working storage, configuration, and file.
    e. none of the above.

55. The beginning of the file description is indicated by:
    a. FD in column 11.
    b. FD in column 8.
    c. FD in column 7.
    d. FD in column 12.
    e. none of the above.

56. A record description entry:
    a. describes the contents of a particular record.
    b. specifies each data field in the record.
    c. may consist of various levels.
    d. all of the above.
    e. none of the above.

57. Regarding record description entries, the word FILLER is used instead of a data name if the item being described:
    a. is not a required part of the program.
    b. occupies more than one line.
    c. is larger than 18 characters.
    d. has no assigned name.
    e. none of the above.

58. The picture clause PICTURE IS A(4):
    a. indicates a 4 position alphabetic field.
    b. indicates an unsigned 4 position alphabetic field.
    c. describes the content of an alphabetic or a numeric data field.
    d. is synonymous with the word FILLER.
    e. none of the above.

59. When the character Z is used in a picture clause:
    a. it causes a low order zero to be suppressed.
    b. it reserves an alphabetic letter for later use.
    c. a high order (leftmost) zero is suppressed.
    d. any of the above, depending on the number of characters in the field.
    e. none of the above.

60. The picture clause PICTURE IS 99V99 fits:
    a. 99.921
    b. 99.99
    c. 99V999
    d. 10000
    e. 9999

61. The types of data items used in the working storage section are:
    a. independent and file data items.
    b. file, record, and grouped data items.
    c. record, configuration, and independent data items.
    d. grouped and independent data items.
    e. none of the above.

62. The value clause is used in the working storage section to:
    a. specify the initial value of a data item.
    b. handle out-of-sequence values added to the program.
    c. specify the total value of a data item.
    d. define the length of a FILLER.
    e. tell the computer that the next statement is a part of a new COBOL Division.

63. The division that defines the operations that handle the processing of data is called the:
    a. Data Division.
    b. Procedure Division.
    c. Processing Division.
    d. Working storage Division.
    e. Computer oriented Division.

64. A compiler directing statement:
    a. gives the computer no alternative course of action.
    b. initiates specified action everytime a defined condition is met.
    c. is signified by the verb DISPLAY.
    d. causes specific action during compilation.
    e. none of the above.

65. Which of the following verbs represents or goes with an imperative statement?
    a. MOVE
    b. DISPLAY
    c. GO TO
    d. All of the above
    e. None of the above

66. The statement MOVE INVOICE-NBR TO SAVE-INVOICE-NBR is an example of a(n):
    a. conditional statement.
    b. computer directing statement.
    c. imperative statement.
    d. configuration statement.
    e. special data name statement.

67. The GO TO statement may be shown in an imperative statement, provided it appears:
    a. as the last statement in a sequence of imperative statements.
    b. as the only statement in a sequence of imperative statements.
    c. once at the beginning and at the end of a sequence of imperative statements.
    d. a and b only.
    e. none of the above.

68. An example of a statement that causes a temporary halt of the program is:
    a. HALT PAUSE.
    b. STOP RUN.
    c. STOP 'ERROR'.
    d. PAUSE.
    e. PAUSE RUN

69. An example of the result of a ROUNDED option is:
    a. 64.856 rounded yields 64.9.
    b. 64.247 rounded yields 64.2.
    c. 64.247 rounded yields 64.25.
    d. a and c only.
    e. a and b only.

70. The statement DIVIDE A INTO B GIVING C ROUNDED;ON SIZE ERROR GO TO ROUTINE 5 is an example of a:
    a. imperative statement.
    b. arithmetic statement.
    c. ROUNDED option statement.
    d. SIZE ERROR option statement.
    e. none of the above.

71. The type of option used to allow spacing the on-line printer the desired number of lines is called:
    a. WRITE option.
    b. PRINT option.
    c. ADVANCING option.
    d. MOVE option.
    e. SKIP option.

72. The statement capable of performing vertical positioning of the page is called:
    a. WRITE statement.
    b. MOVE statement.
    c. SKIP statement.
    d. imperative statement.
    e. none of the above.

73. Periods used in a COBOL program must be followed by a:
    a. another sentence.
    b. paragraph name.
    c. slash.
    d. space.
    e. none of the above.

74. A data name may not exceed _____ characters:
    a. 15.
    b. 10.
    c. 6.
    d. 31.
    e. none of the above.

75. An unsigned numeric literal is treated as:
    a. data.
    b. numbers.
    c. positive.
    d. negative.
    e. none of the above.

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76. The matching record indicator turns on when:
    a. two records have matching fields.
    b. two records do not have matching fields.

77. RPG can use date from input files that contain:
    a. only punched card records.
    b. only tape records.
    c. only disk records.
    d. any combination of card, tape and disk records.

78. The search argument field is entered on the calculation sheet as:
    a. Factor 1.
    b. Factor 2.
    c. The result field.

79. The File Description sheet is used to:
    a. describe input and output files.
    b. describe printed lines on a report.
    c. describe arithmetic operations on input files.

80. Comments may be coded on any specifications form if:
    a. column 7 and 8 are blank.
    b. an asterisk is entered in column 7.
    c. the letter C is entered in column 7.

81. You are given the formula: NET=GROSS - PACK. The field that should be used as Factor 2 is:
    a. NET
    b. GROSS
    c. PACK

82. For a certain job, the average cost (AC) is found by dividing the total cost (TC) by the number of units (UNITS). The field that must never be zero in value is:
    a. AC
    b. TC
    c. UNITS

83. If a report is to include page numbers, you must plan to include the field called PAGE which is:
    a. 3 positions long.
    b. 4 positions long.
    c. 5 positions long.
    d. any number of positions long.

84. Which of the following file names is not coded correctly?
    a. TRANSFIL
    b. INCOME
    c. %RA
    d. TEL5

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85. For a certain job, one total field is defined as being 9 positions long with 2 decimals. Which edit word should be used for this field?
    a. bb,bb0.bb&*
    b. bbb,bbb,bb0
    c. b,bbb,bb0.bb&CR
    d. bbb,bbb.bb

86. If a constant is coded on the Output-Format sheet:
    a. a single quote mark must appear as the 1st entry.
    b. a field name must be included with the constant.
    c. it must be part of a heading line.
    d. it must contain letters only.

87. The File Extension form is used to:
    a. describe tables, chaining or record address files.
    b. describe printed reports.
    c. describe only secondary files.

88. For every printed line described on the Output-Format sheet, an entry must be made for:
    a. The file name.
    b. either spacing or skipping.
    c. at least 1 field.
    d. resetting a total field.

89. When entries are made on the Input sheet:
    a. numeric fields must be defined before alphameric fields.
    b. only the fields that will be used need to be defined.
    c. all the fields in every record type need to be defined.
    d. at least 1 control level must be assigned for each file.

90. In a certain problem, the calculations include this statement: "Compute the value of PROD and round the answer to 3 decimal places." Which entry below is not needed on the Calculation sheet?
    a. PROD as the Result Field.
    b. H in the half adjust column.
    c. a 3 for the decimal positions.
    d. the operation code DIV.

91. The records in an ordered record sequence must:
    a. have an alphabetic sequence code.
    b. contain at least 1 optional record.
    c. each have a file name.
    d. be described in the order that they shall be processed.

92. The channel that is punched to show when page overflow shall occur is:
    a. channel 1.
    b. channel 4.
    c. channel 12.
    d. channel 10.

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93. For a certain job, all records are to be counted:
    a. RPG counts records automatically.
    b. you must count the records using Calculation form entries.
    c. this operation cannot be done using RPG.
    d. you must count the records using File Extension form entries.

94. Indicators that are specified on the Output-Format sheet may be assigned on the:
    a. Calculation form.
    b. Output-Format form.
    c. File Extension form.

95. On a certain job, a number of detail calculations and a number of total calculations are specified, the calculations entries must be made so that:
    a. the Total Time calculations are written first.
    b. the Detail Time calculations are written first.
    c. Detail and Total Time calculations entries are mixed.

96. When two or three files are defined as Input files:
    a. all files must be specified as secondary.
    b. all files must be specified as primary.
    c. one must be primary and the other(s) secondary.
    d. the primary file must be in punched cards.

97. When the operation LOKUP is specified:
    a. the arguments must be in either ascending or descending sequence.
    b. at least 1 resulting indicator must be specified.
    c. the functions must be numeric values.
    d. resulting indicators are not specified.

98. Which of the following disk files cannot be processed randomly?
    a. A sequential file
    b. An indexed-sequential file
    c. A direct file

99. The operation "Move Remainder" is used:
    a. following a subtraction operation.
    b. after a result has been half adjusted.
    c. following a multiplication operation.
    d. following a division operation.

100. One of the following is not a general indicator:
    a. 01
    b. 99
    c. 1P
    d. 64

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HOPKINS, CHARLES O.; RITTER, KENNETH L.
A DESCRIPTIVE STUDY OF OKLAHOMA'S VOCATIONAL AND TECHNICAL EDUCATION LOCAL ADVISORY COMMITTEES.

OKLAHOMA STATE DEPT. OF VOCATIONAL AND TECHNICAL EDUCATION, STILLWATER. DIV. OF RESEARCH, PLANNING, AND EVALUATION.;OKLAHOMA VOCATIONAL RESEARCH COORDINATING UNIT, STILLWATER.
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ABSTRACT - THIS STUDY WAS AN ATTEMPT TO ANALYZE DESCRIPTIVELY THE FUNCTIONS AND USAGE OF THE LOCAL ADVISORY COMMITTEES BY THE STATE'S VOCATIONAL AND TECHNICAL EDUCATION TEACHERS. THE SAMPLE WAS COMPOSED OF ALL VOCATIONAL AND TECHNICAL EDUCATION INSTRUCTORS WITHIN THE PUBLIC SCHOOL SYSTEM. RESPONSE FROM 55.5 PERCENT OF THE TEACHERS RECEIVING QUESTIONNAIRES INDICATED THAT NEARLY 2/3 OF THEM DO NOT HAVE THE ASSISTANCE OF AN ADVISORY COMMITTEE IN PROGRAM PLANNING AND THOSE HAVING ACCESS TO LOCAL COMMITTEES FEEL THAT THEY HAVE BENEFITED FROM THE EXPERTISE RECIEVED. APPENDIXES CONTAIN THE SAMPLE QUESTIONNAIRE AND THE RESPONSES RECEIVED. (SN)

REPORT OF RESEARCH IN VOCATIONAL TECHNICAL EDUCATION

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A DESCRIPTIVE STUDY OF OKLAHOMA'S VOCATIONAL AND TECHNICAL EDUCATION LOCAL ADVISORY COMMITTEES

Project Report #17

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A DESCRIPTIVE STUDY OF OKLAHOMA'S VOCATIONAL AND TECHNICAL EDUCATION LOCAL ADVISORY COMMITTEES

By
Charles O. Hopkins
Kenneth L. Ritter

Division of Research, Planning, and Evaluation
Oklahoma State Department of Vocational and Technical Education
Stillwater, Oklahoma

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The Problem

Introduction

Vocational and technical education has long had the responsibility of developing and utilizing a continuous relationship with the employment sector of our economy. Advisory committees at the national, state, and local level have often been used as a means for achieving this relationship. The work accomplished by these advisory committees has generally been accepted as beneficial to both parties.

The Need

Due to publicity, the functions of the National and State Advisory Committees for Vocational and Technical Education are better known than those on the local level. Oklahoma, like other states, does not know the extent of usage and the functions being carried on by the local advisory committees in the state. When viewing Oklahoma's local advisory committees as a group, it becomes difficult to determine specific characteristics related to their functions and committee meetings. In general, there is a lack of information concerning Oklahoma's local advisory committees. Questions such as the following are difficult to answer.

1. How do vocational and technical teachers utilize their local advisory committees?
2. How many advisory committees are there at the local level?
3. What are the sizes of the local advisory committees and how often do they meet?

The Purpose

It is the purpose of this study to descriptively analyze the functions and usage of the local advisory committees by Oklahoma's vocational and technical education teachers. In order to accomplish this purpose, the three following determinations will be made.

1. Determine how many of Oklahoma's teachers in the various vocational and technical program areas have local advisory committees.

2. Determine in what areas local advisory committees have been beneficial to those Oklahoma vocational and technical education teachers.

3. Determine some specific characteristics of the local advisory committees that Oklahoma's vocational and technical education teachers are using.

The Procedure

Population

The population for this study consisted of all the vocational and technical education teachers who conduct programs under the supervision of the Oklahoma State Department of Vocational and Technical Education. In terms of types of program areas this involved 387 agriculture teachers, 402 home economics teachers, 397 trade and industrial teachers, 182 technical education teachers, 126 health occupations teachers, 81 business and office teachers, and 61 distributive education teachers. Thus, the total population is 1,636 vocational and technical education teachers.

Methodology

The questionnaire for this study was developed by and for the use of the Division of Research, Planning, and Evaluation, Oklahoma State Department of Vocational and Technical Education. A sample of the "refold and return" questionnaire is presented in Appendix A. Names of the teachers in the population were provided by the Computer Data Center, Capitol Building Complex, Oklahoma City, Oklahoma, and by the different divisions of the Oklahoma State Department of Vocational and Technical Education. The questionnaires were mailed out March 4 and 5, 1971; and due to time and money limitations, no follow-up letter was sent to increase the returns.

Limitations and Assumption

The results of this study are based on the assumption that the 55.5 percent of the vocational and technical teachers who responded to the questionnaire are representative of all the teachers in the population. Because some of the returns in the various program areas are greater than others, (e.g., business and office had a 80.2 percent return while

agriculture had only a 47.3 percent return) the probability of one program area having a better representation of their programs than another depends upon which area had the largest percent of questionnaires returned.

Results And Findings

The analysis of the study is an examination from Table I of each of the seven program areas (agriculture, home economics, trade and industrial, technical education, health occupations, business and office, and distributive education) and all program areas as a group.

Agriculture

Of the 387 questionnaires sent to agriculture teachers, 47.3 percent or 183 were returned. From those returned, 13.7 percent of the teachers stated they had a local advisory committee to assist them in the operation of their programs. A typical local advisory committee for agriculture possessed the following characteristics.

1. Was beneficial to the teacher in...
    a. formulating program objectives.
    b. selection of equipment.
    c. construction of facilities.
2. Generally had informal meetings.
3. Usually had five or more members.

Home Economics

Of the 402 questionnaires sent to home economics teachers, 60.9 percent or 245 were returned. Considering the teachers that returned questionnaires, 34.3 percent had a local advisory committee to assist them in the operation of their programs. A typical local advisory committee for home economics possessed the following characteristics.

1. Was beneficial to the teacher in...
    a. formulating objectives.
    b. developing units of instruction.
    c. other areas (Appendix B).
2. Generally had informal committee meetings less than two times a year.
3. Usually had more than two committee members, but less than six.

TABLE I

RESULTS FROM ADVISORY COMMITTEE QUESTIONNAIRE[1]

QUESTIONS	AGRICULTURE (N=387)	HOME ECONOMICS (N=402)	TRADE & INDUSTRIAL (N=397)	TECHNICAL EDUCATION (N=182)	HEALTH OCCUPATIONS (N=126)	BUSINESS & OFFICE (N=81)	DISTRIBUTIVE EDUCATION (N=61)	TOTAL[2] (N=1636)
1. Do you have a formal advisory committee which is selected to assist in the operation of your program?								
Total Number Returned	183	245	206	88	59	65	38	908
Total Percent Returned	(47.3)	(60.9)	(51.9)	(48.4)	(46.8)	(80.2)	(62.3)	(55.5)
Number YES	25	84	95	40	35	32	15	336
Percent YES	(13.7)	(34.3)	(46.1)	(45.5)	(59.3)	(49.3)	(39.5)	(37.0)
Projected YES	53	138	183	83	74	40	24	605
Number NO	158	161	111	48	24	33	23	572
Percent NO	(86.3)	(65.7)	(53.9)	(54.5)	(40.7)	(50.8)	(60.5)	(63.0)
Projected NO	334	264	214	99	52	41	37	1031

[1]Percents for question one were rounded to the nearest tenth of a percent. Percents for questions two, three, and four are rounded to the nearest percent.

[2]Added in with the seven program areas to make the total are 12 questionnaires with no names, 1 miscellaneous questionnaire, and 11 CVE and CVET questionnaires.

TABLE I Continued

2. In what areas has this advisory committee been beneficial in planning your programs?								
Formulating program objective								
Number	23	52	46	34	15	19	10	208
Percent	(92)	(62)	(48)	(85)	(43)	(59)	(67)	(62)
Developing units of instruction								
Number	7	37	17	17	8	4	2	94
Percent	(28)	(44)	(18)	(43)	(23)	(13)	(13)	(28)
No substantial help								
Number	0	6	11	4	4	2	0	27
Percent	(0)	(7)	(12)	(10)	(11)	(6)	(0)	(8)
Selection of equipment								
Number	13	11	22	14	10	10	1	83
Percent	(52)	(13)	(23)	(35)	(29)	(32)	(7)	(25)
Employment of students								
Number	8	7	54	27	17	18	10	147
Percent	(32)	(8)	(57)	(68)	(49)	(56)	(67)	(44)
Construction of facilities								
Number	13	4	7	4	4	1	0	34
Percent	(52)	(5)	(7)	(10)	(11)	(3)	(0)	(10)
Other (Appendix B)								
Number	2	26	20	2	15	7	7	79
Percent	(8)	(31)	(21)	(5)	(43)	(22)	(40)	(24)

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TABLE I Continued

3. How often does the advisory committee meet?								
No formal meetings								
Number	12	38	34	10	6	11	7	122
Percent	(48)	(45)	(36)	(25)	(17)	(34)	(47)	(36)
1 to 2 times a year								
Number	6	38	46	21	17	18	4	155
Percent	(24)	(45)	(48)	(53)	(49)	(56)	(27)	(46)
3 to 6 times a year								
Number	5	6	12	3	8	1	3	38
Percent	(20)	(7)	(13)	(8)	(23)	(3)	(20)	(11)
7 or more times a year								
Number	2	1	5	5	4	0	0	18
Percent	(8)	(1)	(5)	(13)	(11)	(0)	(0)	(5)

0540 8940

TABLE I Continued

4. The advisory committee consists of how many members?								
2 members or less								
Number	2	2	3	0	0	2	1	10
Percent	(8)	(2)	(3)	(0)	(0)	(6)	(7)	(3)
3 members								
Number	4	26	18	1	2	5	4	61
Percent	(16)	(31)	(19)	(3)	(6)	(16)	(27)	(18)
4 members								
Number	2	20	12	6	2	5	1	50
Percent	(8)	(24)	(13)	(15)	(6)	(16)	(7)	(15)
5 members								
Number	8	20	16	3	4	3	1	58
Percent	(38)	(24)	(17)	(8)	(11)	(9)	(7)	(17)
6 members or more								
Number	9	15	43	30	27	15	7	150
Percent	(36)	(18)	(45)	(75)	(77)	(47)	(47)	(45)

Trade and Industrial

A total of 397 questionnaires were sent to trade and industrial teachers, and 51.9 percent or 206 of the teachers returned them. Of those questionnaires returned, 46.1 percent of the teachers said they had a local advisory committee. A typical trade and industrial advisory committee possessed the following characteristics.

1. Was beneficial to the teacher in...
   a. formulating objectives.
   b. employment of students.
   c. 12 percent of returns showed no substantial help.
2. Generally meet two or less times a year or had no formal meetings.
3. The committees for the most part had six or more members.

Technical Education

There were 182 questionnaires sent out to technical education teachers and 48.4 percent or 88 were returned. Of those questionnaires returned, 45.5 percent of the teachers stated they had a local advisory committee. A typical technical education advisory committee possessed the following characteristics.

1. Was beneficial to the teacher in...
   a. formulating program objectives.
   b. developing units of instruction.
   c. selection of equipment.
   d. employment of students.
2. They generally met two or less times a year.
3. Usually consisted of six or more members.

Health Occupations

Of the 126 questionnaires sent to health occupations teachers, 46.8 percent or 59 were returned. The returned questionnaires indicated that 59.3 percent of the health occupations teachers had a local advisory committee to assist them in the operation of their programs. A typical health occupations local advisory committee possessed the following characteristics.

1. Was beneficial to the teacher in...

a. formulating objectives.
b. employment of students.
c. other areas (Appendix B).

2. Generally had formal meetings less than six times a year.

3. Usually the committee consisted of six or more people.

Business and Office

There were 81 questionnaires sent out to business and office teachers and 80.2 percent or 65 were returned. On those questionnaires returned, 49.2 percent of the teachers stated they had a local advisory committee. A typical business and office local advisory committee possessed the following characteristics.

1. Was beneficial to the teacher in...

   a. formulating program objectives.
   b. selection of equipment.
   c. employment of students.

2. Meetings were generally formal and met one to two times a year.

3. Usually the committee consisted of three or more members.

Distributive Education

There were 61 questionnaires sent out to distributive education teachers and 62.2 percent or 38 were returned. From those questionnaires returned, 39.5 percent of the distributive education teachers stated they had a local advisory committee. A typical distributive education local advisory committee possessed the following characteristics.

1. Was beneficial to the teacher in...

   a. formulating program objectives.
   b. employment of students.
   c. other areas (Appendix B).

2. Generally had informal meetings less than three times a year.

3. The committee usually consisted of six or more persons.

All Program Areas

Of the 1,636 vocational and technical education teachers considered in this study, 55.5 percent or 908 returned their questionnaires. The program area with the highest

percent of returns (80.2) was business and office. The lowest percent return (46.8) was in health occupations. From the returned questionnaires, a projected 605 of Oklahoma's 1,636 vocational and technical teachers have local advisory committees.

From Table I, it can be seen that the two most common areas that vocational and technical teachers feel that their local advisory committees have been beneficial are: (1) formulating program objectives and (2) employment of students. In three of the program areas (trade and industrial, technical education, and health occupations) 10 percent or more of the teachers thought that their advisory committees were of no substantial help.

Generally speaking, the local advisory committees that assist Oklahoma's vocational and technical education teachers informally or formally meet less than three times a year and consist of six or more members.

Conclusions

The conclusions of this study are drawn from the three parts of the purpose of this study and the data presented in Table I.

1. Determine how many of Oklahoma's teachers in the various vocational and technical areas have a local advisory committee.

   Conclusion: Nearly two-thirds of Oklahoma's vocational teachers do not have the assistance of a local advisory committee to assist them in the operation of their programs.

2. Determine in what areas local advisory committees have been beneficial to Oklahoma's vocational and technical education teachers.

   Conclusion: Of those Oklahoma vocational and technical education teachers that have a local advisory committee, nearly 9 out of 10 of them feel that the committee has been beneficial in planning their programs.

3. Determine some specific characteristics of the local advisory committees that Oklahoma's vocational and technical education teachers are using.

   Conclusion: The local advisory committees that assist Oklahoma's vocational and technical education teachers generally meet either once or twice a year or hold no formal meeting and the number of committee members varies by and within program areas.

APPENDIX A

March 4, 1971

Dear Teacher,

Your assistance is needed to give the State Department of Vocational and Technical Education a better picture of the effectiveness and usage of advisory committees by vocational and technical teachers. So that the State Department and you can better serve the students and the public, we are asking each teacher to answer, refold, and return the questions below.

Thank you for your time and assistance,

Votech

P. S. A prompt return would be appreciated.

PLEASE CHECK, FOLD, STAPLE, AND RETURN

1. Do you have a formal advisory committee which is selected to assist in the operation of your program?

   YES — If YES, answer the questions below.

   NO — If NO, no further information is needed. Just return this to us.

2. In what areas has this advisory committee been beneficial in planning your programs? (Answer one or more of the following.)

Formulating program objectives	Selection of equipment
Developing units of instruction	Employment of students
No substantial help	Construction of facilities
Other_____	

3. How often does the advisory committee meet?

No formal meeting	3 to 6 times a year
1 to 2 times a year	7 or more times a year

4. The advisory committee consists of how many members?

Two or less	Four
Three	Five
	Six or more

(TO MAIL--FOLD THREE WAYS AND STAPLE MAKING SURE THAT YOUR ADDRESS IS FOLDED TO THE INSIDE AND OUR ADDRESS IS FOLDED TO THE OUTSIDE AS THE RETURN ADDRESS.)

APPENDIX B

WRITTEN COMPLETIONS

QUESTION 2-c
(other)

AGRICULTURE

1. Approval program of work
2. Banquet and booster club

HOME ECONOMICS

1. Advice on adult classes and class field trips
2. Organizing adult classes and extracurricula activities
3. FHA help
4. Resource persons
5. Community advertisers
6. Planning FHA activities and projects
7. Approval of students for off-campus placement
8. Planning and recruiting adult classes
9. List of names to organize YHO
10. Policies for Home Economics classes
11. Long-range plans
12. Providing training experience in schools and day care centers for aids
13. Recruiting groups
14. Developing curricula for three new programs
15. Calling members

TRADE AND INDUSTRIAL

1. Better relations between private schools and public relations with private salon owners
2. Furnishing equipment and advising on repair
3. Advanced training

4. Getting acquainted with program
5. Offering new and additional methods for various skill training
6. Public relations
7. Program support
8. Help with state VICA contests
9. Selling
10. Common goals in other programs in state
11. Advice and ideas
12. Public relations with civic organizations
13. These men are the apprentice committee of the B.M.P.I.U. which makes us inter-unional
14. Poor attendance
15. Guides in areas of instruction
16. Keeping us informed of trends in the field
17. Special adult programs
18. Field trips, teaching aids, and nice group of men
19. Too soon to know--not as yet
20. Updating training needs

TECHNICAL

1. Supply qualified instructors, additional courses, and for grading
2. On-the-job training

HEALTH

1. Clinical practice schedules (summer)
2. Financial support
3. Loaning books
4. Publicity, student financial aid, securing free teaching material

5. Student counseling
6. Student loans, recruitment
7. Interpreting program to community
8. Recruitment, public relations, decision making for difficult situations
9. Informing public, advising on medical problems concerning students
10. We have just begun our committee and have had one meeting
11. Lecturers

BUSINESS AND OFFICE

1. Publicity
2. Public relations
3. Selling COE and FBLA
4. New equipment
5. Suggesting courses
6. Not active (2)

DISTRIBUTIVE

1. Class speakers and suggestions
2. Curriculum suggestions and supplying related course material
3. Information source
4. Curriculum development
5. Reorganizing but will help as checked
6. Our advisory committee has just been formed and has not yet met
7. Has worked in all areas--mainly by craft or occupational areas

OTHER

1. Reinforcement of my own policies

VT 016 795
LYONS, THOMAS F.; DICKINSON, TERRY L.
A COMPARISON OF PERCIEVED AND COMPUTED CHANGE MEASURES OVER A THREE-YEAR PERIOD.

IOWA STATE UNIV. OF SCIENCE AND TECHNOLOGY, AMES. INDUSTRIAL RELATIONS CENTER.
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ABSTRACT - THIS PAPER ANALYZES THE ACCURACY OF RETROSPECTIVE PERCEPTIONS OF CHANGE OVER A 3-YEAR PERIOD IN MEASURES OF JOB SATISFACTION, COMMUNICATION, AND COORDINATION. COMPARISONS ARE MADE WITH COMPUTED CHANGES DERIVED FROM MEASUREMENTS TAKEN BEFORE AND AFTER AN INTERVENTION. LONGITUDINAL DATA GATHERED FROM A LARGE COMMUNITY GENERAL HOSPITAL WERE ASSESSED USING CORRELATIONAL AND CONTINGENCY ANALYSES. IT WAS CONCLUDED THAT RETROSPECTIVE REPORTS OF CHANGE ARE NOT MERELY REFLECTIONS OF FINAL STATUS BUT TO SOME EXTENT DO MEASURE BEFORE-AFTER CHANGE. HOWEVER, RETROSPECTIVE MEASURES ARE NOT ACCURATE ENOUGH TO BE CONSIDERED AS SUBSTITUTES FOR BEFORE-AFTER CHANGE MEASURES. (AUTHOR/MF)

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Working Paper 72-08

A Comparison of Perceived and Computed Change Measures Over a Three-Year Period

by

Thomas F. Lyons

and

Terry L. Dickinson

Thomas F. Lyons, Ph.D.
Department of Psychology
Case Western University

Terry L. Dickinson, Ph.D.
Department of Psychology
Iowa State University
and Faculty Associate,
Industrial Relations Center

Abstract

Longitudinal data were gathered for a three-year period and used to assess the validity of retrospective reports of changes in job satisfaction, communication, and coordination. These data were collected from a large community-general hospital (over 400 beds) in which intervention occurred. The data were assessed using correlational and contingency analyses. Retrospective reports of change in job satisfaction and, to some extent, in communication were statistically related to before-after change. In an attempt to improve the accuracy of the retrospective measures, several moderators were investigated; years in the hospital was found to differentiate those accurately classified by the job satisfaction measure. It was concluded that retrospective reports of change are not merely reflections of final status but to some extent do measure before-after change. However, it was noted that retrospective measures are not presently accurate enough to be considered as substitutes for before-after change measures.

A COMPARISON OF PERCEIVED AND COMPUTED CHANGE MEASURES OVER A THREE-YEAR PERIOD[1]

Thomas F. Lyons[2]
Case Western Reserve University

Terry L. Dickinson
Iowa State University

Retrospective questions concerning changes in attitudes and personal data have been used in organizational and personnel research as substitutes for before-after change measures, usually with explicit caveats by the authors about the validity of the perceived change measures (Baumgartel, 1954; Hardin, 1960a & 1960b; Mann & Hoffman, 1960; Morgan, 1937; Saleh & Otis, 1964; Stouffer, Lumsdaine, Lumsdaine, Williams, Smith, Janis, Star, & Cottrell, 1949; and Whyte, 1951).

The procedure of individually checking the accuracy of the change reports against factual data is desirable when possible. This is usually no problem with personal data (e.g., Creamer & Coulton, 1949; Hardin & Hershey, 1960; Keating, Paterson, & Stone, 1950; Heneman, Fox, & Yoder, 1950; and Myers & MacLaurin, 1943). However, there are few opportunities to check the accuracy of attitudinal data. Many times the researcher becomes aware of organizational change only after the change has taken place or after news of a proposed change is already common knowledge. Other times, there is insufficient lead time to develop and administer the relevant measures.

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Two studies previously attempted to identify and match actual with perceived change responses for attitudinal data. Fink (1960), in a study of change in religious attitudes of college students over a two-year period, found that the perceived change measure was a good indicator of the direction of before-after change. However, for those that did not change over the two years, the perceived change measure tended to indicate change. Fink (1960) suggested this might be due to insufficient range of response categories (only two) or insufficient range of subject matter to reflect before-after change.

Hardin (1965), studying changes in job satisfaction from the beginning to the end of a six-month period (before and after a technological change), found a significant correlation between the computed and perceived change measures ($r=.28$, $p<.01$). Regression analyses revealed this correlation was due to the strong relationship of perceived change with final satisfaction rather than with before-after change. Hardin (1965) concluded that the quasi-longitudinal design using retrospective questions is a very weak substitute for a genuine longitudinal design to study change.

This paper analyzes the accuracy of retrospective perceptions of change for a three-year period in measures of (1) job satisfaction, (2) communication, and (3) coordination. Comparisons are made with computed changes derived from measurements taken before and after an intervention.

Method

The Site and the Respondents

Mailed questionnaires were completed by registered nurses in a large (over 400 beds) community-general hospital during the last quarter of 1965.[3] Response rate was 84%. A second questionnaire was mailed during the winter of 1968-69. Response rate was 80%. Each time all respondents were identified for follow-up by coded questionnaires and were assured of the confidentiality of their responses. There were 102 nurses who answered both the first and the second questionnaires. Of these, 90 responded to all of the items used in this analysis while 12 had some missing data. These 12 were eliminated from the analysis.

Intervention

During the spring and fall of 1966, the survey results were presented sequentially to one group consisting of the hospital and nursing administrators and supervisory nurses, one of head nurses, and seven of staff nurses. All data-feedback groups were homogeneous in level but heterogeneous in shift and work location. There were 50 meetings in which the survey data were presented and discussed; suggestions for the solutions of problems were encouraged. Following these interventions, staff nurse turnover rate decreased and stabilized at approximately one-half of its previous rate in this hospital while the rate for seven other hospitals in the same area remained unchanged.

The Measures

In both questionnaires the respondents were asked the following questions:

(A) Considering your job as a whole, how well do you like it?

(1) I don't like my job at all

(2) Don't like it too well

(3) Like some things about it, dislike others

(4) Like it fairly well

(5) I like my job very much

(B) When decisions that affect your work are made, on the whole, how adequately are such decisions explained to you?

(1) Inadequately

(2) Somewhat inadequately

(3) Fairly adequately

(4) Very adequately

(5) Completely adequately

(C) To what extent are the various interrelated things and activities well-timed in the everyday routine of the hospital?

(1) They are rather poorly timed

(2) They are not so well-timed

(3) They are fairly well-timed

(4) They are well-timed

(5) All related things and activities in the everyday routine are perfectly well-timed

In addition, in the second questionnaire, after a question asking if the respondent were working in that particular hospital during the fall of 1965, these retrospective questions were asked:

(A) Considering everything, would you say you are now more satisfied or less satisfied with your job than you were three years ago?

(1) Much less satisfied now with my job than three years ago

(2) Less satisfied now

(3) No more, no less satisfied

(4) More satisfied now

(5) Much more satisfied now than three years ago with my job

(B) Do you feel that decisions affecting your job are more adequately explained to you now than three years ago?

(1) Decisions are explained much less adequately than before

(2) Less adequately

(3) No more, no less adequately

(4) More adequately

(5) Much more adequately than three years ago

(C) Do you feel that the various interrelated activities in the everyday routine of the hospital are better or more poorly timed now than three years ago?

(1) The various activities are much more poorly timed now than three years ago

(2) More poorly timed now

(3) No better, no worse

(4) Better timed now

(5) Much better timed now

A measure of computed change for each of the sets of items was formed by subtracting the first questionnaire response value from the second.

Any individual that gave extreme responses to an item in both questionnaires was eliminated from analysis. This was to remove spurious attenuation of computed and perceived change relationships due to the bounded scales. For example, if a respondent were completely satisfied or dissatisfied before the intervention, there was no way for her to express an increase in satisfaction or dissatisfaction, respectively, after the intervention. Table 1 presents a summary of the respondents eliminated along with their perceived change responses.

Insert Table 1 about here

Results

For each of the three content areas correlations among the measures of perceived change, computed change, initial status (before intervention), and final status (after intervention) are presented in Table 2. Contingency groupings of the perceived change and computed change measures when each respondent was coded as decreased, no change, or increased on each change measure are presented in Tables 3, 4, and 5.

Job Satisfaction

Differences in perceived change in job satisfaction were significantly and positively correlated with differences in computed change (see Table 2).

Insert Table 2 about here

This correlation was not due to the perceived change measure being related only to final status as the low correlation between the status measures indicates. In fact, comparison of the status measures' absolute correlations with perceived change reveals that initial status contributed most to the perceived and computed change correlation. Inspection of the means and variances of the status measures explicated these perceived change and status correlations. No mean change was evident (t=0.24; df=46), whereas a t test for correlated variances indicated that the variability of actual job satisfaction was significantly greater for the initial measurement as compared to the final measurement (t=2.42; df=45; $p<.05$). Thus, those respondents who were satisfied before the intervention, perceived themselves to have become less satisfied, whereas those respondents who were dissatisfied, perceived themselves to have become more satisfied.

Contingency grouping of the two change measures of satisfaction when coded decreased, no change, and increased (see Table 3), revealed that of 47 persons, 43% were classified alike, 8% were classified as changed in opposite directions, and the remaining 49% were classified as changed by one measure and not changed by the other.

Insert Table 3 about here

Respondents that actually increased in job satisfaction were most accurately classified by the perceived change measure. Of the 16 increasing in job satisfaction over the three-year period, 75% perceived this change. Those respondents that actually decreased or remained unchanged were poorly classified. Of those that decreased,

only 33% accurately perceived the decrease; of the nonchangers, only 19% were accurate. Notably, 69% of the nonchangers tended to perceive an increase in satisfaction. A variance test for the homogeneity of proportions (Snedecor & Cochran, 1967; p. 241) indicated these accuracy values differed significantly for the three, computed-change classifications ($\underline{X}^2$=11.12; $\underline{df}$=2; $\underline{p}$<.005).

Job Communication

A significant and positive relation was also obtained between perceived and computed change in communication as shown in Table 2. This correlation, however, merely reflects the strong relation between perceived change and final status. This interpretation is confirmed by the small correlations that initial status has with the final status and perceived change measures.

A contingency grouping of the change measures of job communication (see Table 4) revealed a pattern similar to that for satisfaction. Of the 85 persons, 46% were classified alike, 7% were classified in opposite directions, and 47% were classified as changed on one measure but not on the other.

Insert Table 4 about here

As with the satisfaction grouping, the accuracy of the perceived change measure in classifying computed change was heterogeneous ($\underline{X}^2$=14.61; $\underline{df}$=2; $\underline{p}$<.001). In contrast to the satisfaction grouping, however, the most accurately classified were the actual nonchangers. Of these 30 persons, 70% perceived themselves as not changing over

the three-year period. Of the 32 respondents who had a computed increase in their ratings of communication, 44% perceived the increase. The perceived change measure was again a poor indicator of actual decrease; only 17% accurately perceived the decrease.

Job Coordination

Perceived change in job coordination was not related to the status measures or computed change, as shown in Table 2. The significant correlation between the status measures suggests that change in job coordination was minimal.

Contingency grouping of the change measures of job coordination revealed that despite "minimal change," the retrospective measure was similar to previous measures in identifying initial and final status differences (see Table 5).

Insert Table 5 about here

Of the 88 persons, 41% were classified alike, and 8% were classified as changed in opposite directions. In contrast to the previous groupings, however, the computed change categories were poorly classified by the perceived change measure. Of those that increased, 50% perceived the change, and of those that did not change, 47% perceived no change. Only 22% of the respondents that decreased over the time period perceived the decrease. These proportions tended to be heterogeneous ($\underline{X}^2=5.02$; $\underline{df}=2$; $\underline{p}<.10$).

Moderators

Given the modest levels of accuracy of recall attained by the total sample of respondents, we wondered whether there were other organizational, social, or individual variables which might identify accurate and inaccurate respondents. Such moderator variables would allow the selection of "marker individuals" to reflect before-after change using perceived change measures.

Measures of three such possible variables were available and chosen to examine: hierarchical level in the organization, length of time worked in the hospital, and the individual respondent's need for clarity about her job (Lyons, 1971). Briefly, and without further discussion of the rationales for investigation, staff nurses did not differ from head nurses or supervisory nurses in the accuracy of their recall. Also, nurses with differing levels of need for clarity did not differ in accuracy.

Length of time working in the hospital was chosen for competing reasons. On the one hand, those nurses who had been working for a larger period of time in the hospital might be expected to provide more confident and valid assessments of the organizational functioning of the hospital than those nurses who were new to the organization. On the other hand, impressions of initial experiences on a job might be easier to recall accurately than those that occur after acclimation to the job and the organizational routines; and so, we might expect that those respondents asked to recall their feelings and opinions three years before, when they were relatively new to the job, could do so more accurately than those for whom that specific time was not distinctive or well anchored temporally.

Number of years working in the hospital successfully moderated the accuracy of perceived change in job satisfaction but not in communication or coordination. The more recently employed the respondent was at the first time period, the more accurate was the perception of change in job satisfaction at the second time period. The point biseral correlation between years with the hospital and accuracy (similar classification on the two trichotomized change measures) was $r=-.385$ ($p<.01$), while its correlations with perceived change ($r=.08$) and computed change ($r=-.09$) were near zero. Those individuals who had worked two years or less at the initial measurement ($N=20$) were identified as "accurates." For these respondents the correlation between the two change measures was .70; 65% were classified alike, 10% as changed in opposite directions, and the remaining 25% as changed by one measure and not by the other.

Discussion

When correlations between perceived and computed change measures were examined, perceived job satisfaction was most suitable as a substitute for the before-after change measure. Unlike Hardin's (1963) finding, this correlation was not simply due to its relation with final status. Rather, the perceived job satisfaction measure reflected a significant reduction in the variability of job satisfaction from initial to final status. On the other hand, the perceived measures of communication and coordination were not suitable as indicators of before-after change. While perceived communication was significantly correlated with computed change, this was due to final status and did not reflect before-after change.

A second method of assessing the present data involved classifying respondents on each of the perceived and computed change measures as decreased, no change, or increased. The results obtained by this method in this study and from the Hardin (1965) and Fink (1960) studies are quite similar in that approximately 40% of the respondents were classified alike on each measure, 5% to 13% as changing in opposite directions on the two measures, and the remaining respondents as changing on one measure but not on the other. However, to conclude from these similarities that the perceived change measure is completely inaccurate as an indicator of before-after change is not correct. A comparison of the perceived change measures for the three studies is made in Table 6.

Insert Table 6 about here

As shown, the job satisfaction and communication measures for the present study correctly classified large percentages of those respondents that actually increased or did not change, respectively. Moreover, these accuracy percentages were heterogeneous and could not be attributed to sampling as with Hardin's ($\underline{X}^2$=0.81; $\underline{df}$=2) and Fink's ($\underline{X}^2$=2.54; $\underline{df}$=2) data.

The use of moderators to increase the validity of perceived change measures appears promising. The present data indicate that moderators may be available to increase the accuracy of perceived change measures. Nevertheless, several cautions are appropriate. First, the statistical reliability of the moderator, years in the hospital, is unknown. Sufficient data were not available to either cross-validate

or compare with a "control" hospital. Several investigators have noted the importance of cross-validation in moderator research (e.g., Banas & Moore, 1969; Zedeck, 1971). Second, the difficulties in the a priori specification of moderators has to be recognized. This is especially true for longitudinal data where long time periods elapse before data evaluation. Moreover, even after identification it is still necessary to ascertain whether the moderators are situation-specific (Ghiselli, 1963) or transsituational (Bana, 1964).

Finally, although the present study does not support Hardin's finding that perceived change measures merely reflect final or present status, it does support his conclusion that perceived change is not an adequate substitute for before-after change. Unless statistically reliable moderators or some other means for increasing accuracy are developed, retrospective measures should not be considered sufficiently accurate indicators of before-after change. Despite the greater cost and difficulty the genuine longitudinal design should be used rather than the quasi-longitudinal design.

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ERIC

Footnotes

[1]The authors wish to thank the Industrial Relations Center, Iowa State University for the support it provided.

The authors acknowledge the helpful comments provided by Raymond M. Mendel.

[2]Requests for reprints should be sent to Thomas F. Lyons, Ph.D., Department of Psychology, Case Western University, Cleveland, Ohio 44106.

[3]The data reported here are part of a larger study of hospital functioning and nursing turnover. See Lyons (1968) for a more detailed description.

ERIC

Table 1

Summary of Those Respondents Eliminated From Analysis and Their Perceived Change Responses for the Job Satisfaction, Communication, and Coordination Items

	Number Eliminated	Extreme		Perceived Change				
		Low	High	LL	L	N	M	MM
JS	43	0	43	0	5	19	15	4
CM	5	5	0	0	0	4	0	1
CO	2	2	0	0	0	2	0	0

Note.--Abbreviations: JS = job satisfaction, CM = communication, CO = coordination, LL = much less, L = less, N = no more, M = more, MM = much more.

Table 2

Correlations Among the Perceived Change, Computed Change, Initial Status, and Final Status, Measures of Job Satisfaction, Communication, and Coordination

	JS (N=47)			CM (N=85)			CO (N=88)		
	PC	CC	IS	PC	CC	IS	PC	CC	IS
CC	.411**			.248*			.121		
IS	-.369*	-.805**		-.079	-.702**		-.075	-.588**	
FS	.176	.558**	.044	.248*	.552**	.207	.068	.598**	.297**

Note.--Abbreviations: PC = perceived change, CC = computed change, IS = initial status, FS = final status, JS = job satisfaction, CM = communication, CO = coordination.

* = $p < .05$.

** = $p < .01$.

Table 3

Contingency Coding of Respondents According to Computed and Perceived Change in Job Satisfaction

Perceived Change	Computed Change			
	Decreased	No Change	Increased	Total
Decreased	5	2	0	7
No Change	6	3	4	13
Increased	4	11	12	27
Total	15	16	16	47

Note.--$\underline{X}^2 = 10.883$, $\underline{df} = 4$, $\underline{p} < .05$.

Table 4

Contingency Coding of Respondents According to Computed and Perceived Change in Communication

Perceived Change	Computed Change			
	Decreased	No Change	Increased	Total
Decreased	4	3	0	7
No Change	13	21	18	52
Increased	6	6	14	26
Total	23	30	32	85

Note.--$\underline{X}^2 = 8.76$, $\underline{df} = 4$, $\underline{p} < .10$.

Table 5

Contingency Coding of Respondents According to Computed and Perceived Change in Coordination

Perceived Change	Computed Change			
	Decreased	No Change	Increased	Total
Decreased	5	2	1	8
No Change	12	23	7	42
Increased	6	24	8	38
Total	23	49	16	88

Note.--$\underline{X}^2 = 7.78$, $\underline{df} = 4$, $\underline{p} < .10$.

Table 6

Summary of the Percents Accuracy of the Perceived Change Measures in Three Studies

Computed Change	Lyons & Dickinson JS	CM	CO	Hardin	Fink
Decreased	33%	17%	22%	33%	32%
No Change	19%	70%	47%	40%	41%
Increased	75%	44%	50%	38%	40%

Note.--Abbreviations: JS = job satisfaction, CM = communication, CO = coordination.

VT 016 798
WYOMING ANNUAL DESCRIPTIVE, FISCAL, AND STATISTICAL REPORT OF OCCUPATIONAL EDUCATION, 1970-1971.

WYOMING STATE DEPT. OF EDUCATION, CHEYENNE
OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - 72 46P.

DESCRIPTORS - ANNUAL REPORTS; *VOCATIONAL EDUCATION; *STATE PROGRAMS; *PROGRAM DESCRIPTIONS; STUDENT CENTERED CURRICULUM; *COOPERATIVE PROGRAMS; *POST SECONDARY EDUCATION; ADULT EDUCATION; VOCATIONAL DEVELOPMENT; VOCATIONAL RETRAINING; SUPPLEMENTARY EDUCATION
IDENTIFIERS - *WYOMING

ABSTRACT - THIS DOCUMENT CONTAINS THE DESCRIPTIVE, FISCAL, AND STATISTICAL PORTIONS OF WYOMING'S ANNUAL REPORT FOR OCCUPATIONAL EDUCATION FOR THE 1971 FISCAL YEAR. OCCUPATIONAL EDUCATION PROGRAMS IN WYOMING ARE STUDENT-CENTERED RATHER THAN SUBJECT-CENTERED AND ARE ORGANIZED ACCORDING TO EXISTING LABOR MARKET OPPORTUNITIES. THE COMMUNITY COLLEGE SYSTEM, WHICH INCLUDES MANPOWER PROGRAMS, CONTINUED TO EXPAND ITS WIDE ARRAY OF OCCUPATIONAL PREPARATORY AND SUPPLEMENTARY EDUCATIONAL SERVICES. A TOTAL OF 31 OCCUPATIONAL PROGRAMS RECEIVED ATTENTION DURING THE YEAR, WITH 12 NEW PROGRAMS BEING INITIATED. THE NEW PROGRAMS INCLUDED SERVICES FOR THE DISADVANTAGED AND ADDITIONAL POST-SECONDARY PROGRAMS, NEARLY HALF OF THESE IN THE PARAPROFESSIONAL EDUCATION AREA. GREATEST PROGRAM GROWTH WAS IN THE DEVELOPMENT OF COOPERATIVE PROGRAMS AT BOTH THE SECONDARY AND POST-SECONDARY LEVELS. PROGRAM DESCRIPTIONS AND STATISTICS ARE DETAILED IN THE REPORT. (MF)

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WYOMING

ANNUAL DESCRIPTIVE

FISCAL, AND STATISTICAL REPORT

OF

OCCUPATIONAL EDUCATION

1970 - 1971

Wyoming Department of Education

Dr. Robert Schrader, State Superintendent

Cheyenne, Wyoming 82001

ED 067938

THE STATE OF WYOMING
DEPARTMENT OF EDUCATION
CAPITOL BUILDING
CHEYENNE, WYOMING 82001

ROBERT G. SCHRADER
STATE SUPERINTENDENT

February 1, 1972

Mr. LeRoy Swenson
Director
Adult, Vocational & Library Programs
U.S. Office of Education/DHEW
Federal Building
Denver, Colorado

Dear Mr. Swenson:

I am submitting, herewith, the required copies of Wyoming's Annual Report for Occupational Education for the fiscal year ending June 30, 1971. This document contains the descriptive portion, fiscal and statistical data of the annual report, which describes program developments and accomplishments.

The objectives of the program for the fiscal year reported were met to a fairly high degree; however, all existing needs were not met, which indicates that continued expansion is necessary. It is my opinion that this report for the fiscal year 1970-71 is evidence of marked progress in all areas of this significant segment of education in Wyoming.

Sincerely,

Fred P. Black

Fred P. Black, Ph.D.
State Coordinator
Occupational Education

FPB:jsr

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Form OE 3140

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
OFFICE OF EDUCATION
Washington, D. C. 20202

DESCRIPTIVE REPORT OF PROGRAM ACTIVITIES FOR OCCUPATIONAL EDUCATION

State of Wyoming, for Fiscal Year Ending June 30, 1971

Introduction:

This descriptive report of program activities for occupational education in Wyoming for the fiscal year which ended June 30, 1971 has been prepared following the outline provided by the U.S. Office of Education, OE Form 3140, dated June, 1971. Effort has been made to describe the program so as to comply with the outline and at the same time to provide as accurately as possible a picture of activities.

Occupational education programs in Wyoming are student-centered programs rather than subject-centered programs. Present programming is organized and approved on the basis of labor market opportunities which exist in the State, the region, and ultimately across the country. The rapidly expanding community college system which includes expanded manpower programs continues to expand services to the increasing numbers of people. Combined, these institutions offer a wide array of occupational preparatory and supplemental experiences to the people of our State. Forty-one public school districts, seven community colleges, and two State institutions and the University of Wyoming participated in the federal funds received from the State of Wyoming during the fiscal year 1971. In view of the State's goals and priorities, as well as the objectives stated in the Parts II and III of our FY 1971 State Plan, the degree to which accomplishment and achievement have been expected will be reviewed in the in the following narrative.

The Annual Program Plan anticipated the initiation of 19 new occupational programs as identified in the State Plan. Expectations that 8 secondary, 6 post-secondary and no additional adult programs would be developed during the year. Wyoming surpassed this goal by 12 new programs for a total of 31 programs during fiscal year 1971. Greatest program growth is reflected by the development of the cooperative occupational education programs at both the secondary and post-secondary level. Most all of the cooperative occupational programs developed were of a diversified occupations nature.

Programs implemented to serve largely disadvantaged persons accounted for two of the newly developed special programs. These include one special summer workshop program as an additional base on which Wyoming can expand program emphasis to serve these special groups of individuals. There were six newly initiated post-secondary programs in the State with nearly half of those developed in the para-professional education area.

As a result of the significant activity in the establishment of new programs, together with the expansion and modification of existing programs, a record number of students were served under the provisions of the total program concept including federal, State and local effort. It is evident that the major recipients of occupational education services have been those enrolled in grades seven through twelve. However, it is also important to note that the post-secondary programs have expanded tremendously to serve a greater number of students, also. Significant, too, are the program services which provided preparatory and supplemental occupational experiences to the adult populous in Wyoming. Four additional adult programs were added during the year.

The development of the post-secondary programs which serve as school facilities for occupational education received an increased thrust. Cooperative occupational education programming at the post-secondary level to-

gether with regular ongoing programs during the year are now beginning to formulate a base of post-secondary education in the State to meet articulated needs of public secondary programs. Approximately 47 schools and institutions utilizing Part B funds and operating ongoing occupational education programs were located in portions of the State which have been so-called depressed areas.

The financial reimbursement policy for public schools and community colleges has continued as originally planned.

An integral part of the occupational education program in Wyoming has been the continued emphasis on teacher education. As the emphasis for occupational education over the State has increased, University of Wyoming with its involvement in programs of teacher education has increased. In Fiscal 1971, University of Wyoming offered programs of pre-service and in-service nature to better prepare Wyoming's occupational education teachers.

PROGRAM DEVELOPMENT AND ACCOMPLISHMENTS

Regular Programs -- Part B of the Act

I. Accomplishments by Categories of Persons Served

The Vocational Education Amendments of 1968 provide for programs of vocational education designed to serve secondary students, post-secondary students, adults, disadvantaged persons, and handicapped persons. The accomplishments for each of the five categories of persons served as set forth in 2.12 of Part III of the Annual Program Plan are described below:

a. Secondary Students

At the time of the development of the Long Range Program Plan and the Annual Program Plan for the fiscal year, 1971, 22 percent of all secondary school students were enrolled in occupational education. This represented the percentage of students who were attending programs designed specifically to prepare persons for employment. An objective for fiscal year 1971 was established to increase enrollment of those persons attending grades 9 through 12. The occupational enrollment increased 9.6 percent from the previous fiscal year.

The total expenditure for secondary programs amounted to $2,976,936, of this amount $606,269 were federal funds and $2,307,567 came from State and local sources. A significant point in this regard is that the federal dollars do, in effect, generate considerable state and local dollars expended for vocational education.

All local educational agencies planned and implemented programs in accordance with local plan forms provided for implementation of the 1968 Amendments. Considerable progress was made toward more effective program planning. Included in the local effort of planning secondary

programs was the emphasis upon investigating the opportunities for further education beyond the secondary level and providing some articulation with institutions offering such programs. Other agencies and individuals including employers, employees, the employment service, and others were utilized in developing local plans.

All secondary schools in Wyoming are comprehensive high schools. The average occupational student is enrolled in occupational programs approximately 50 percent of his school day. The typical secondary program consists of a six-period day of which the occupational student is involved in on the average of three classes per day.

Extensive use of the community as an outside resource is being programmed into the occupational program. Work-experience and community faculty are two examples of outside resources which are presently being developed in 46 of 74 secondary schools.

b. Post-secondary Students

A total of 1,436 persons were enrolled in post-secondary programs in the seven community colleges of Wyoming. This enrollment was a 12.4 percent increase over the previous fiscal year. The 1970 figures indicated an enrollment of 1,292 students. The average occupational student was involved in occupational classes approximately 72.3 percent of his school time.

Work-experience programs were in operation at six of the seven community colleges indicating an effective use of community and employer resources.

c. Adults

The Annual Program Plan anticipated that 413 adults would be served. The actual number of adults in occupational programs was 962 or an increase of over 100 percent of the anticipated number to be served.

One notable gain was that four new adult programs were added during the year.

A total of 665 persons were trained for preparatory occupations while 134 apprenticeship persons and 163 supplementary persons were trained by adult program funds. A total of $208,068 were expended of which $36,563 were federal monies and $171,505 were State and local funds.

d. Disadvantaged Persons

An important part of the state-wide effort to adequately meet the occupation education needs of disadvantaged persons was initiated immediately at the beginning of the fiscal year covered by this report. While occupational education was already serving many persons considered to be disadvantaged, special effort was made to implement the provisions of the Vocational Education Amendments of 1968 and to identify and adequately serve this group. An analysis of the accomplishments of the objective set forth reveals a number of interesting developments.

There were fewer specific areas of economic depression and high unemployment in Wyoming during 1971 than in 1970. The major concentrations of economically depressed still are found in the larger communities and a few remote counties. Enlarging of farms and the decreased size of farm families have caused most of the counties to lose population in every census for the past few decades. Secondary occupational education programs offer the best hope for organizing occupational instruction to meet the needs of these individuals for employment into which they will go.

The State Plan objectives (Part III) specified that 494 disadvantaged persons would be served through occupational programs during the year. An unduplicated count of 578 disadvantaged persons were enrolled in

occupational programs especially modified to suit the needs of this group.

The State staff is aware that the needs of these special groups of people have not been fully met. State personnel are planning and working to increase the numbers of programs in supportive services to more than merely meet these needs.

A total of $236,098 were spent on disadvantaged program during fiscal year 1971. Of these dollars, $121,572 were federal funds which included the $35,398 of the 102 b. set-aside funds. State and local disadvantaged resources amounted to $114,526.

e. Handicapped Persons

Considerable progress was made during the year in the establishment of programs to serve handicapped persons. There were a number of problems that had to be overcome in the initiating of these special types of programs. In the first place, it was not considered to be in the best interest of students to attempt to recruit and enroll them in regular programs without developing special techniques, providing special equipment, and giving special attention to individualized instruction. Consequently, a number of conferences were conducted throughout the year with consultants from the University of Wyoming, the Department of Vocational Rehabilitation, the Division of Exceptional Children and others from across the State who were already involved in assisting handicapped students. The handicapped regulation of P.L. 90-576 require that ten percent of the Part B allocation be expended for handicapped students. Nearly 3,400 handicapped persons are identified in Wyoming and are presently being served in ongoing occupational programs. These handicapped include trainably mentally retarded, educable mentally

retarded, hard of hearing, deaf, speech impaired, visually impaired, emotionally disturbed, crippled, and those with learning disabilities. However, the ten percent set-aside monies served 282 students in specific programs. These programs were specifically directed at the educable mentally retarded student. A total of $117,824 were expended for handicapped students, of which $58,912 was federal and $58,912 was State and local monies.

2. Accomplishments in Terms of Geographical Distribution of Allocation of Funds

The geographical distribution of Wyoming's allocations of fund for categories of persons specified (secondary, post-secondary, adult, disadvantaged, handicapped) was state-wide -- with no exceptions. There is, by necessity and fact, an extremely wide geographic dispersement of Wyoming's secondary, post-secondary, and adult occupational education programs. It is necessary, therefore, to consider the entire geographic area of Wyoming from border to border as permissible space for allocation of funds to local educational entities for programming purposes.

The method of reimbursement for Part B occupational education instruction includes a minimum grant based on the State Foundation formula and a non-uniform reimbursement formula. Foundation grants representing a minimum reimbursement were issued to public secondary schools conducting occupational education programs to serve groups of people. Additional support for each school conducting occupational programs was accomplished by applying the non-uniform reimbursement formula to Fiscal 1971 funds. The formula requires a composite score for each school based on a rating of the following factors:

1. manpower needs and opportunities;
2. occupational education needs;
3. relative ability to pay; and
4. excess costs.

5. Other Accomplishments

a. Programs under Contract

It was stated in Part III of the State Plan for occupational education that no allocation of funds was made for occupational instruction under contract. The State Board provided for the instruction that was given in occupational education through public local education agencies and community colleges.

b. Occupational Guidance and Counseling

The following activities for fiscal year 1971 provided a variety of occupational guidance programs which involved all levels of public education as well as other governmental agencies in cooperative efforts.

(1) Occupational Education Workshop

Approximately 15 counselors interested in the occupational aspects of guidance were involved in a week-long workshop. The program included a micro-fiche demonstration, discussion of federal legislation, tours of occupational education facilities, presentations by community colleges describing their occupational offerings, presentations by representatives of the U.S. Department of Labor and the Wyoming Employment Security Commission, the State Section of Occupational Education and others. An attempt was made to continue to offer as wide a variety in programming as possible.

(2) Occupational Information Equipment

In an effort to keep up-to-date on the latest developments in occupational choice at the local, regional, and national levels, 84 schools around the State were equipped with a micro-fiche reader and the necessary materials to make the

program meaningful. Similar projects have been developed in surrounding states. By taking advantage of this Foundational data and equipment, Wyoming schools have available materials on approximately 480 jobs that are found in Wyoming. Also, materials were developed so that educable mentally retarded students would have information relating to 80 jobs available to them.

(3) Arrangements were made with a major publishing company to secure from them at no cost a complete library of their sound filmstrips concerning all aspects of guidance and counseling. There are approximately seventy filmstrips of which 30 are devoted to some aspect of occupational guidance. In addition to the filmstrips, 40 occupational interview tapes were also included in what the publishing house calls a "permanent consignment". These tapes and filmstrips were supplied to local schools on a loan basis.

(4) During the fiscal year 1971, Occupational Education Division through the guidance department of the State Department of Education continued the visitation program and attempted to improve quantity and quality of occupational guidance in the State of Wyoming.

c. Construction of Area Schools

No programs or construction of area schools were undertaken during fiscal 1971.

d. Ancillary Services and Activities

(1) Administration and Supervision

Section 2.4i of Part III of the Wyoming State Plan identified the administration and supervision activities of occupational education. During the past fiscal year, $347,303.00 was expended for these purposes. State Department of Education personnel have assumed a statewide administrative and supervisory consultative responsibility for occupational programs and service activities. The Department of Education, Division of Occupational Education, has adopted a policy for local administrative and supervisory personnel consistent with Section 1.32, Part I of the State Plan. The local administrative positions of director or supervisor are approved for a particular school setting based on such factors as the breadth and depth of occupational offerings and the number and types of population groups to be served. Using this base, these administrative positions are approved for individual schools where the situation would require a director or supervisor to exercise the responsibility for the promotion, general direction, coordination, and administration of local programs of occupational education.

In all instances, Wyoming has made provision for administration and supervision of occupational education programs at all levels of instruction at the State and local levels.

(2) Teacher Education

Total funds expended for teacher education at the University of Wyoming amounted to $165,661.00. The University provided pre-service education to 274 occupational students and in-service education to 129 students during fiscal year 1971.

(3) Research and Demonstration Projects

A description of activities, including objectives accomplished insofar as reseach and demonstration projects are concerned, will be found in another part of this report, Special Programs, Part C of the Act.

(4) Curriculum Development

Although no funds were allocated for specific curriculum development activities, numerous materials were developed by the individual occupational consultants. Specific accomplishments include the following:

(a) World of Work Attitudes for Kindergarten through Grade 6.

(b) An Agri-Business Curriculum for Wyoming Secondary Schools.

(c) A Handbook for Cooperative Education

(d) A Systematic Instructional System for Developing Learning Activity Packages for Continuous Progress and Individualized Instruction.

(e) Career Orientation: Wyoming Occupational Resource Kit

SPECIAL PROGRAMS

Part C of the Act

Since only a very limited amount of funds were available for the Research Coordinating Unit, ongoing research, training, and pilot programs for the fiscal year covered in this report, few accomplishments were made. Realization of limited funds was reflected in the development of the Annual Program Plan. A total of $32,536 was allocated for this Part. The stated objective was to maintain the Research Coordinating Unit within the limited resources.

In general, the activities of the Research Coordinating Unit was focused upon the collection, analysis, and dissemination of information on research results which might be appropriate to occupational education personnel at local and state levels.

Two significant studies directed toward disadvantaged students were funded and completed during fiscal 1971. A drop-out student follow-up study at Western Wyoming college was initiated. The drop-out study provided relevant data which resulted in a second study aimed at developing curriculum materials for disadvantaged and potential drop-outs. As a result of these two efforts, Western Wyoming Community College established a remedial learning laboratory.

Part D of the Act (Exemplary Programs)

The State's objectives for exemplary programs sought to familiarize elementary and secondary students with the broad range of occupations for which skills are required along with the prerequisites for careers and such occupations. An additional objective was to implement projects designed to integrate basic education and skill development for segments of the population previously being neglected. There were five exemplary projects approved to meet these objectives.

1. A Comprehensive Occupational Education Model Program for Rural Schools.

The project funded at Huntley, Wyoming is intended to expand the rural educational opportunities for students of rural geographic areas in the State of Wyoming. Primary emphasis of this project was to provide for total program beginning in kindergarten and running through the twelfth year of school and based on the cluster concept-utilizing a cosmetology program approved by the State Board of Cosmetology to begin the initial stimulation of a secondary occupational skill development project.

2. The Wyoming Model for a Comprehensive Occupational Education Program, K-14.

A major portion of the State's share of Part D was allocated in conjunction with the Part D. Commissioners share of funds for the project which proved to demonstrate a comprehensive occupational education model system of education in the State of Wyoming, K-14. This program was allocated from the State level to be demonstrated at Riverton where public schools and Central Wyoming College cooperated with each other to demonstrate an interdisciplinary and integrated articulated approach to occupational education emphasizing elementary attitude development, junior high school career orientation, career exploration, senior high school career skill program development and post-secondary career job entry program development culminating with job placement activity.

3. Development of Career Attitudes for Elementary Students.

An exemplary elementary program at Rawlins, Wyoming, provides

for the early development of attitudes. Extensive use of learning activity packages is being stressed. Staff development activities along with a resource center for occupational attitude materials are the focus of the project.

4. Career Orientation for Junior High School Students.

   A career orientation program at McCormick Junior High School, Cheyenne, Wyoming, provided necessary career information for their students who are approaching the secondary school and provided possible occupational choices.

5. Attitude Building for the World of Work.

   The Rock Springs, Wyoming elementary schools developed an attitude program to improve and upgrade the "World of Work" Concept. Emphasis was placed on the importance of World of Work concepts in all aspects of the elementary curriculum.

6. The effect of the exemplary programs will not be felt for a number of years to come. Much of the efforts of the exemplary projects during Fiscal 1971 were spent in curriculum materials and staff development. However, much progress was made in there two major components and marked success in all projects will be evidenced during Fiscal 1972.

Part E of the Act (Residential "Vocational" Education Schools)

Wyoming did not receive an allocation of federal funds for the construction of residential "vocational" education schools. As a result, no construction was initiated.

Part F of the Act (Consumer and Homemaking Education Programs)

Wyoming utilized its share of Part F for Consumer and Homemaking Education programs to expand and improve the opportunity and quality of programming for residents of the State. Consumer and homemaking education programs have been expanded as well as strengthened to serve an increased number of

secondary, post-secondary, and adult persons together with persons in depressed areas and those with special handicaps. Much of the State's allocation was utilized on an individual school basis across the State to support the in-service educational activities of a professional development nature so as to indirectly focus on larger numbers of students in order to gain the greatest economic benefit from the funds expended.

The Federal allocation for Part F was $37,612 while the state and local resources amounted to $588,013. A total of 6,080 students were enrolled under consumer and homemaking programs during Fiscal 1971.

State staff emphasized statistics on women and girls in the labor force and the opportunity for employment in home economics and related skills. Ways to prepare students for the dual role of homemaker, wage earner, were explored in more interesting and practical approach to teaching for economic competency were suggested. Teachers were encouraged to make family contacts and to work with local agencies in determining the social and cultural needs of learners.

Part G of the Act

Wyoming's cooperative education program efforts expanded rapidly during Fiscal 1971. The program expanded from four to twenty-two programs. A total of $714,150 was expended for these programs and for State administration.

Although only 240 students were served by Part G, the cooperative education concept is tremendously successful in the small rural schools.

The second annual fall in-service education workshop for teacher-coordinators was held with over fifty teachers and administrators participating.

Diversified cooperative occupational education programs were funded at six of the seven community colleges. These include Casper College, Laramie County Community College, Central Wyoming College, Western Wyoming Community College, Eastern Wyoming College, and Northwest Community College.

Part H of the Act

A total of 42 students were served with work-study funds. A close monitoring of these project funds revealed, in nearly all cases, the monies were expended wisely in that they prevented the students from dropping out of their school programs. Fiscal Year 1971 allocation to Wyoming for Part H was $9,593 of which only $7,428 was spent.

Other Information

1. Highlights of Exceptional or Model Programs.

Rawlins High School, Rawlins - The cooperative occupational education program of Rawlins School District Three was the winner of a merit award for Region VIII. The program utilized a cluster, career ladder approach that allowed students to build skills along the ladder within major occupational clusters. A distributive education cluster formed the basis for development of others. The electronic-electrical occupations cluster offered nine courses that prepared students for 26 individual occupations. The automotive-transportation service and repair cluster offered four courses leading 17 individual occupations; the office occupations cluster provided 13 courses resulting in entry-level employment for 17 jobs. The program also initiated clusters recently in graphic communications and health occupations ans was moving toward instilling "attitudes toward the world of work development in the elementary program and provided an articulated K-12." A random survey of seniors in the 1970 class showed that 98 percent of them had taken or were taking at least one occupational course. All eighth grade boys and girls were enrolled in industrial education and home economics courses as well. Some 22 firms participated in the part-time work aspects of the program this year.

Laramie Senior High School, Laramie - Director of Occupational Education has been instrumental in the development of the State's most unique and comprehensive cooperative occupational education approach to public secondary education. Under the Director's leadership, a cluster of distributive occupations has now been expanded; the total program includes a diversified occupation approach to many clusters within a community. The community also houses the University of Wyoming. The success of this program appears to be unequaled in other parts of the State in terms of the methodology of cooperative occupational education and receptiveness on the part of the community.

Cody Junior High School, Cody- The Junior High principal has been instrumental in the development of a pre-cooperative occupational education exploration component as part of a total comprehensive occupational education program which will articulate eventually with a secondary program and on into a community college setting located some fifteen to twenty miles apart. The program in Cody Junior High provides an occupational cluster exploration approach with on-the-job observation as part of a cooperative endeavor between a 110 man community resource faculty, which is utilized both in the class and on the job in terms of providing assistance to students.

2. Occupational Youth Organizations

   a. The Wyoming Association of Future Farmers of America continues to provide excellent leadership activities which enrich the occupational agriculture program. The FFA like other occupational youth organizations has been the out-

standing feature of the program which has "sold the public on the value of occupational programs."

b. The Wyoming State Chapter of the Future Business Leaders of America has been organized. A variety of activities at the State level promote FBLA. This was the second year for the State Department of Education to have personnel to assist in leadership development. Students, advisors, and Department personnel planned the State FBLA Leadership Conference during their annual meeting.

c. The State utilizes the services of the State Supervisor of Distributive Education as DECA advisor. Teacher educators at the University of Wyoming assist both DECA and FBLA in promotion of these youth activities. Promotion of local, State and national activities are an integral part of the instructional program and youth activities associated with DECA and FBLA. The State advisor assisted many local chapters in organization and operational procedures. Both State and national leadership activities are participated in by DECA students and teachers throughout the year.

d. The importance of a well managed youth organization as a means of developing leadership is well recognized by students and teachers alike. The leadership program in the Future Homemakers of America, begins with "leadership." The Wyoming FHA association is firmly stressing the importance of making the youth organizations an integral aspect for the educational experience. The program of work which is devised by the youth includes a listing of experiences which may be carried out in the classroom and helps to achieve the

specific objectives of the club.

c. Organizational efforts were begun during Fiscal 1971 to establish VICA. Six schools indicated an interest to establish this youth organization. The State charter is presently being written, and a total program of activities is planned for Fiscal 1972.

3. Unmet Needs

While no formal research has been conducted that would indicate findings of occupational education not being adequately provided for, a review of Table I of the Annual Program Plan in terms of the projected labor demands for fiscal year 1970 through 1974 and in terms of the occupational education and other sectors output in most occupational categories, the present program output is at least fifty percent below the level of what it should be. This is particularly true with respect to the field of distribution and marketing, office occupations, and trade and industrial education.

The area of health occupations continues to be one in which considerable unmet demands are realized each year while continued expansions must be made if adequate health care services are provided.

The rural schools in Wyoming do not always meet national criteria for disadvantaged. It is necessary to provide greater occupational services to children and adults even though they may be isolated.

Records reveal that more and more students each year are graduating and/or leaving the secondary schools having received occupational education at the secondary level and enrolling in post-secondary programs. More information is needed relative to the quality of instruction received at the secondary level, the relationship between the programs at the secondary and the post-secondary level, and the development of quality programs at the post-secondary level which will take advantage of and

build upon the base at the secondary level. The need or improved articulation vertically and horizontally between institutions is becoming quite critical and has important implications insofar as occupational education which is not being adequately provided is concerned, but which is desperately needed.

It is quite significant to point out that for each federal dollar expended in the State of Wyoming for occupational education more than four dollars of State and local funds are generated. How long this generation of state and local dollars can be maintained remains to be seen. However, with full funding of the Vocational Education Amendments of 1968 authorizations considerable advancements can be made toward meeting unmet needs in the fields mentioned above.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

FINANCIAL STATEMENT AND ADJUSTMENTS OF FEDERAL FUNDS FOR VOCATIONAL EDUCATION

(Vocational Education Amendments of 1968, P.L. 90-576)

READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING THIS FORM

O.M.B. NO. 51-R0941
APPROVAL EXPIRES: 3/31/73

STATE/OUTLYING AREA: WYOMING

FISCAL YEAR ENDING: June 30, 1971

REPORT DUE: October 1, 1971

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SECTION I – CURRENT YEAR FINANCIAL STATEMENT OF FEDERAL FUNDS

PROGRAM (a)	UNOBLIGATED FEDERAL ALLOTMENTS BROUGHT FORWARD FROM PREVIOUS FY (b)	CURRENT YEAR FEDERAL ALLOTMENT (c)	TRANSFERS IN, FEDERAL ALLOTMENT (d)	FEDERAL FUNDS AVAILABLE FOR EXPENDITURE (e)	FEDERAL FUNDS EXPENDED DURING YEAR: PREVIOUS FY FUNDS (f)	FEDERAL FUNDS EXPENDED DURING YEAR: CURRENT FY FUNDS (g)	UNOBLIGATED CURRENT YEAR FEDERAL ALLOTMENTS CARRIED FORWARD TO NEXT YEAR (h)
1. VOCATIONAL EDUCATION ACT OF 1963 AS AMENDED TOTAL	$ -0-	$ 1,002,967	$ -0-	$ 1,002,967	$ -0-	$ 980,917	$ 22,050
2. PART A SECTION 102(b) DISADVANTAGED		35,398		35,398		35,398	-0-
3. PART B SECTION 102(a) STATE PROGRAMS		569,704		569,704		556,719	12,985
a. POSTSECONDARY					( )	(142,979)	
b. DISADVANTAGED					( )	(85,174)	
c. HANDICAPPED					( )	(58,912)	
4. PART C RESEARCH (State)		31,650		31,650		24,750	6,900
5. PART D EXEMPLARY (State)		104,860		104,860		104,860	-0-
6. PART F CONSUMER AND HOMEMAKING		37,612		37,612		37,612	-0-
a. DEPRESSED AREAS					( )	(17,918)	
7. PART G COOPERATIVE		214,150		214,150		214,150	-0-
8. PART H WORK-STUDY		9,593		9,593		7,428	2,165

SECTION II – ADJUSTMENTS TO PRIOR YEAR EXPENDITURE REPORTS

FISCAL YEAR	COMMON ACCOUNT NUMBER	FEDERAL EXPENDITURES PREVIOUSLY REPORTED	INCREASE (+) OR DECREASE (-)	FEDERAL EXPENDITURES AS REVISED
1. 19				
2. 19				
3. 19				
4. 19				

The expenditures of Federal funds reported above have been in accordance with the provisions of the Federal Vocational Education Acts, the policies approved thereunder and the State plan. An exact copy of the complete report has been filed with permanent records of the State Board for Vocation Education.

SIGNATURE (State Agency Fiscal Officer)	TITLE	DATE
[signature]	Assistant Superintendent for Business and Finance	2-3-72
SIGNATURE OF EXECUTIVE OFFICER (State Board for Vocational Education) [signature]	State Superintendent of Public Instruction	DATE OF CERTIFICATION 2-3-72

OE FORM 3129, 5-71 REPLACES OE FORM 3129, 6-70, WHICH IS OBSOLETE

EXPENDITURES FOR VOCATIONAL EDUCATION
BY SOURCE, PURPOSE, AND LEVEL

INSTRUCTIONS ON REVERSE BEFORE COMPLETING THIS FORM

STATE OUTLYING AREA: WYOMING

FISCAL YEAR ENDING: June 30, 1971

DATE PREPARED: January, 1972

REPORT DUE: October 1, 1971

PROGRAM (a)	TOTAL FEDERAL (Total Dollars) (b)	TOTAL STATE/LOCAL (Total Dollars) (c)	SECONDARY (In Thousands) FEDERAL (d)	SECONDARY (In Thousands) STATE/LOCAL (e)	POSTSECONDARY (In Thousands) FEDERAL (f)	POSTSECONDARY (In Thousands) STATE/LOCAL (g)	ADULT (In Thousands) FEDERAL (h)	ADULT (In Thousands) STATE/LOCAL (i)
1. TOTAL, ALL PARTS	980,917	3,774,202	506,269	2370,567	338,085	1232,130	36,563	171,505
2. PART A 102(b) - DISADVANTAGED	35,398	20,902	35,398	20,902				
3. PART B 102(a) - STATE PROGRAMS TOTAL	556,719	3,079,820	315,721	1728,577	207,115	1186,930	33,883	164,313
4. (1) SECONDARY	239,771	1,675,049	239,771	1675,049				
5. (2) POSTSECONDARY	142,979	1,116,911			142,979	1116,911		
6. (3) ADULT	28,883	135,324					28,883	135,324
7. (4)(a) DISADVANTAGED	86,174	93,624	27,998	4,847	53,176	59,788	5,000	28,989
8. (b) HANDICAPPED	58,912	58,912	47,952	48,681	10,960	10,231		
9. (5) CONSTRUCTION								
10. (6) GUIDANCE AND COUNSELING	(3,796)	( )	( )	( )	(3,796)	( )	( )	( )
11. (7) CONTRACTED INSTRUCTION	( )	( )	( )	( )	( )	( )	( )	( )
12. (8) ANCILLARY SERVICES	(174,443)	(172,860)	143,377)	(158,620	(27,183)	(12,460	(3,883)	(1,780
13. PART C - RESEARCH (State) TOTAL	24,750	7,786	12,500	4,460	9,750	2,434	2,500	892
14. (1) RESEARCH COORDINATION UNIT	20,000	7,136						
15. (2) GRANTS: NEW PROJECTS (No.)	4,750	650						
16. (3) CONT. PROJECTS (No.)								
17. PART D - EXEMPLARY (State) TOTAL	104,860	--	104,860					
18. (1) DISADVANTAGED	(35,574)	(--)						
19. (2) HANDICAPPED	( )	( )						
20. (3) NEW PROJECTS (No. 6)	104,850	--						
21. (4) CONTINUING PROJECTS (No.)								
22. PART F - CONSUMER AND HOMEMAKING TOTAL	37,612	588,013	23,946	562,245	13,486	19,468	180	6,300
23. (1) DEPRESSED AREAS	(17,918)	(344,896)	10,450)	(325,320	(7,288)	(13,270)	(180)	(6,300)
24. (2) DISADVANTAGED	(11,268)	(66,436)	(3,800	(46,866	(7,288)	(13,270)	(180)	(6,300)
25. (3) HANDICAPPED	( )	( )	( )	( )	( )	( )	( )	( )
26. PART G - COOPERATIVE TOTAL	214,150	73,722	107,440	50,916	106,710	22,806		
27. (1) EMPLOYER REIMBURSEMENT	( )	( )	( )	( )	( )	( )		
28. (2) DISADVANTAGED	(21,500)	( )	21,500)	( )	( )	( )		
29. (3) HANDICAPPED	(33,476)	(11,575)	33,476)	(11,575)	( )	( )		
30. PART H - WORK STUDY TOTAL	7,428	3,959	6,404	3,467	1,024	492		
31. (1) ADMINISTRATION								
32. (2) STUDENT COMPENSATION	7,428	3,959	6,404	3,467	1,024	492		
33. (a) DISADVANTAGED	(5,369)	(3,115)	(5,369)	(3,115)	( )	( )		
34. (b) HANDICAPPED	(1,035)	(352)	(1,035)	(352)	( )	( )		

OE FORM 5131, 6/71 REPLACES OE FORM 5131, 6/70, WHICH IS OBSOLETE

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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

TOTAL EXPENDITURES FOR VOCATIONAL EDUCATION BY OBJECT, PURPOSE, AND LOCATION

(Vocational Education Amendments of 1968, P.L. 90-576)

READ INSTRUCTIONS BEFORE COMPLETING THIS FORM

O.M.B. NO. 51-R0341
APPROVAL EXPIRES: 3/31/73

STATE/OUTLYING AREA	DATE PREPARED
WYOMING	January, 1972
FISCAL YEAR ENDING	**REPORT DUE**
June 30, 1971	October 1, 1971

SECTION I – EXPENDITURES BY TYPE OF POSTSECONDARY INSTITUTION

TYPE OF INSTITUTION (a)	TOTAL (b)	FEDERAL (c)	STATE AND LOCAL (d)
1. TOTAL	1,523,533	321,113	1,202,420
2. COMMUNITY COLLEGES	1,436,836	266,690	1,170,146
3. TECHNICAL INSTITUTES			
4. VOCATIONAL TECHNICAL, OTHER	86,697	54,423	32,274

SECTION II – EXPENDITURES BY LOCATION

EXPENDITURES BY LOCATION (a)	TOTAL (b)	FEDERAL (c)	STATE AND LOCAL (d)	ECONOMICALLY DEPRESSED AREAS	
				FEDERAL (e)	STATE & LOCAL (f)
1. TOTAL *(Sum of lines 2 and 4)*	4,755,119	980,917	3,774,202	110,232	906,040
2. SMSA					
3. CENTRAL CITY					
4. NON-SMSA	4,755,119	980,917	3,774,202	110,232	906,040

SECTION III – EXPENDITURES BY LEGISLATIVE PURPOSE

LEGISLATIVE PURPOSES (a)	INSTRUCTIONAL COSTS				ANCILLARY SERVICES			
	INSTRUCTIONAL SALARIES (b)	INSTRUCTIONAL EQUIPMENT (c)	OTHER INSTRUCTIONAL COSTS (d)	GUIDANCE AND COUNSELING (e)	ADMINISTRATION, SUPERVISION, AND EVALUATION (f)	TEACHER EDUCATION (g)	RESEARCH AND DEMONSTRATION (h)	CURRICULUM DEVELOPMENT (i)
1. PART A 102(b) DISADVANTAGED	21,600	25,000	9,700					
2. PART B 102(a) STATE PROGRAMS TOTAL	2225,378	270,558	501,168	3,796	469,978	165,661		
3. SECONDARY	1124,594	164,850	162,624		297,091	165,661		
4. POSTSECONDARY	804,164	74,312	249,072	3,796	128,546			
5. ADULT	97,988	7,545	53,011		5,663			
6. DISADVANTAGED	118,373	15,334	22,211		23,880			
7. HANDICAPPED	80,259	8,517	14,250		14,798			
8. PART C – RESEARCH RCU			5,976		21,160			
9. GRANTS								5400
10. PART D – EXEMPLARY	36,378	11,119	54,213		3,150			
11. PART F – CONSUMER AND HOMEMAKING TOTAL	573,776	21,032	22,464		8,353			
12. DEPRESSED AREAS	334,489	11,707	8,265		8,353			
13. PART G – COOPERATIVE	235,995	8,680	36,941		6,256			

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OE FORM 3132, 5/71 REPLACES OE FORM 3132, 6/70, WHICH IS OBSOLETE

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

NUMBER OF TEACHERS, STATUS OF TEACHER TRAINING, AND LOCAL ADMINISTRATIVE STAFF IN VOCATIONAL EDUCATION

(Vocational Education Amendments of 1968, P.L. 90-576)

READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING THIS FORM

O.M.B. NO. 51-R0941
APPROVAL EXPIRES: 3'31 73

STATE/OUTLYING AREA: Wyoming

DATE PREPARED: February 1, 1972

FISCAL YEAR ENDING: June 30, 1971

REPORT DUE: October 1, 1971

8366

SECTION I – NUMBER OF TEACHERS AND STATUS OF TEACHING TRAINING

VOCATIONAL PROGRAMS (a)	TOTAL UNDUPLICATED (b)	NUMBER OF TEACHERS									NUMBER OF ENROLLEES IN TEACHER TRAINING		NUMBER COMPLETING STATE PLAN REQUIREMENT	
		SECONDARY			POSTSECONDARY			ADULT						
		FULL-TIME (c)	PART-TIME (d)	TEACHER AIDES (e)	FULL-TIME (f)	PART-TIME (g)	TEACHER AIDES (h)	FULL-TIME (i)	PART-TIME (j)	TEACHER AIDES (k)	PRE-SERVICE (l)	IN-SERVICE (m)	PRE-SERVICE (n)	IN-SERVICE (o)
1. TOTAL UNDUPLICATED	601	337	136		113	15			31		274	129	74	37
2. EXEMPLARY, PART D	55	30	25											
3. GROUP GUIDANCE *(Prevocational)*														
4. PRE-POSTSECONDARY														
5. REMEDIAL														
6. COOPERATIVE, PART G	20	9	1		6	4					60	11	22	11
7. DISADVANTAGED	19	11	5			3								
8. HANDICAPPED	16	9	7											
9. AGRICULTURE	44	41	3						11		33	26	8	7
10. DISTRIBUTION	21	18	2		1						15	9	4	2
11. HEALTH	18	2	3		8	5						1		
12. CONSUMER AND HOMEMAKING	128	85	38		2	3			3		27	20	12	4
13. OCCUPATIONAL PREPARATION HOME ECONOMICS	1		1											
14. OFFICE	210	114	45		51						139	47	28	10
15. TECHNICAL	37				37				17					
16. TRADES & INDUSTRY	13	7	6									15		3
17. OTHER *(Specify)*	19	11			8									

SECTION II – LOCAL ADMINISTRATIVE PERSONNEL

1. TOTAL, UNDUPLICATED	142	42	67		9	12			12
2. DIRECTOR	30	4	7		5	2			12
3. SUPERVISOR	40	15	18		3	4			
4. GUIDANCE	72	23	42		1	6			
5. OTHER									

OE FORM 3135, 5-71

REPLACES OE FORM 3135, 5-70, WHICH IS OBSOLETE

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS
(Vocational Education Amendments of 1968, P.L. 90-576)

READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING THIS FORM

O.M.B. NO. 51-R-71
APPROVAL EXPIRES: 3/31/73

STATE/OUTLYING AREA	DATE PREPARED
Wyoming	2/1/72
FISCAL YEAR ENDING	**REPORT DUE**
June 30, 1971	October 1, 1971

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SECTION I – ACTUAL ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS

PROGRAM CODE (a)	PROGRAM TITLE (a)	TOTAL FEMALE (b)	TOTAL MALE (c)	NUMBER DISADVANTAGED (d)	NUMBER HANDICAPPED (e)	SECONDARY BELOW GRADE 9 (i)	SECONDARY GRADES 9 – 12 (g)	POST-SECONDARY (h)	ADULT PREPARATORY (i)	ADULT SUPPLEMENTAL (j)	ADULT APPRENTICESHIP (k)	COOPERATIVE PART B (l)	COOPERATIVE PART G (m)
	GRAND TOTAL *(Unduplicated)*	11,527	4,984	578	282	2,262	11,851	1,436	665	163	134	738	240
01.0000	TOTAL AGRICULTURE	6	1,931	11	3		1,690	84		163			34
01.0100	AGRIC PROD	6	1,707	11	3		1,653	47		13			34
01.0200	AGRIC SUP/SERV		18				14	4					
01.0300	AGRIC MECH		155				23	17		115			
01.0400	AGRIC PRODUCTS												
01.0500	ORNAMENTAL HORT												
01.0600	AGRIC RESOURCES												
01.0700	FORESTRY												
01.9900	OTHER: Animal Science		51					16		35			
04.0000	TOTAL DISTRIBUTION	430	372	24	47		738	64				738	64
04.0100	ADVERTISING SERV	12	5				9	8				9	8
04.0200	APPAREL & ACCES	18	3				16	5				16	5
04.0300	AUTOMOTIVE		7				7					7	
04.0400	FINANCE & CREDIT	9	1				10					10	
04.0500	FLORISTRY	16					16					16	
04.0600	FOOD DISTRIBUTION		2				2					2	
04.0700	FOOD SERVICES	43	21				64					64	
04.0800	GEN MERCHANDISE	283	264	24	47		513	34				513	34
04.0900	HOME BLDG		15				15					15	
04.1000	HOME FURNISHINGS	3	5				8					8	
04.1100	HOTEL & LODGING	16	3				8	11				8	11
04.1200	INDUSTRIAL MARKEYING												
04.1300	INSURANCE	8	1				4	5				4	5
04.1400	INTERNATIONAL TRADE												
04.1500	PERSONAL SERVICES												
04.1600	PETROLEUM		23				23					23	
04.1700	REAL ESTATE							1					1

* Use for new and emerging occupations and cluster programs.

OE FORM 5103, 5-71

REPLACES OE FORM 5103, 5-70, WHICH IS OBSOLETE

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS, Section I - Act of Each Quarter in Vocational Education Programs (Continued)

STATE OR LOCAL AREA	TOTAL		NUMBER		SECONDARY			ADULT			COOPERATIVE	
PROGRAM CODE (a) TITLE	FEMALE (b)	MALE (c)	DISADVANTAGED (d)	HANDICAPPED (e)	BELOW GRADE 9 (f)	GRADES 9 – 12 (g)	POST SECONDARY (h)	PREPARATORY (i)	SUPPLEMENTAL (j)	APPRENTICESHIP (k)	PART B (l)	PART G (m)
04.1900 RECREATION & TOURISM	22	15				37					37	
04.1903 TRANSPORTATION		6				6					6	
04.1999 OTHER*												
07.0000 TOTAL HEALTH	178		51			18	128	32				
07.0101 DENTAL ASSISTANT	6						6					
07.0102 DENT HYGIENISTS (Assoc)	17						17					
07.0103 DENT LAB TECH												
07.0202 MED LAB ASSISTING												
07.0299 OTHER MED LAB TECHNOL												
07.0301 NURSE, ASSO DEGREE	63						63					
07.0302 PRACTICAL (Voc) NURSE	59		30				42	17				
07.0303 NURSES ASSIST (Aide)	33		21			18		15				
07.0400 OCCUPATIONAL THERAPY												
07.0500 PHYSICAL THERAPY												
07.0601 RADIOLOGIC TECHNOLOGY												
07.0700 ENVIRONMENTAL HEALTH												
07.0800 MENTAL HEALTH TECHNOL												
07.0900 INHALATION THERAPY TECH												
07.0904 MEDICAL ASSISTANT												
07.0905 HEALTH AIDE												
07.0999 OTHER*												
09.0100 TOTAL CONSUMER & HMKG	5,941	139	122	52	2,262	3,737	54	27				
09.0101 CHILD DEVELOPMENT												
09.0103 CLOTHING & TEXTILES	43	2	10				18	27				
09.0104 CONSUMER EDUCATION	1,094	63	23	4		1,121	36					
09.0105 FAMILY RELATIONS												
09.0106 FOOD & NUTRITION												
09.0107 HOME MANAGEMENT												
09.0108 HOUSING & HOME FURN												
09.0199 OTHER*												
Comp. Homemaking	4,721	51	88	35	2,262	2,510						
10.0000 TOTAL OCCUP PREP												
10.0101 AGRIC & RUR OP CHILDREN												

OE FORM 5100, 1/71 REPLACES OE FORM 5100, 6/70, WHICH IS OBSOLETE

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STATE/OUTLYING AREA	TOTAL		NUMBER		SECONDARY			ADULT			COOPERATIVE	
PROGRAM CODE (a) TITLE	FEMALE (b)	MALE (c)	DISADVANTAGED (d)	HANDICAPPED (e)	BELOW GRADE 9 (f)	GRADES 9 – 12 (g)	POST SECONDARY (h)	PREPARATORY (i)	SUPPLEMENTAL (j)	APPRENTICESHIP (k)	PART B (l)	PART G (m)
17.0501 CLOTHING, MGT, PROD & SERVICES												
17.0503 FOOD MGT, PROD & SERV	83	23	1	13		106						
17.0504 HOME FURNISHING, EQUIPMENT AND SERVICES												
17.0505 INST. & HOME MGT & SUPPORTING SERVICES												
17.0599 OTHER*												
17.0600 GENERAL OFFICE	4,937	959	115	56		4743	707	446				109
17.0601 ACCOUNT MG & COMPUTING	476	608		3		968	37	79				
17.0602 BUS DATA PROCESSING SYS	288	16					240	64				3
17.0603 FILING, OFFICE MACH	454	32	37	17		515	57	114				33
17.0604 INFORMATION GROUP												
17.0605 MAT MGT SUPR, TRANS, ETC												
17.0606 TRNG, TRS, & RELATED												
17.0607 LEGAL SECY, & RELATED	1,303	41	26	4		984	262	98				38
17.0608 SUPV & ADMIN MGT	31	44	2				40	35				
17.0609 TYPING & RELATED OCCUP	1,918	86	46	31		1,978		56				35
17.0699 OTHER*	457	132	4	1		498	71					
17.0700 TECHNICAL	26	194	3				197	23				
17.0701 AERONAUTICAL TECHNOL												
17.0702 ARCHIT TECHNOL												
17.0703 AUTOMOTIVE TECHNOL												
17.0704 CHEMICAL TECHNOL		16					16					
17.0705 CIVIL TECHNOL		8	3				8					
17.0706 ELEC TECHNOL												
17.0707 ELECTRONICS TECHNOL	5	63					68					
17.0708 ELECTRO-MECH TECHNOL												
17.0709 ENVIRONMENTAL CONTROL TECHNOL	8	28					36					
17.0710 INDUS TECHNOL												
17.0711 MFG TECHNOL												
17.0712 MINING TECHNOL												
17.0713 PETRO TECHNOL												

OE Form 8309, 5/71

REPLACES OE FORM 8138, 6/70, WHICH IS OBSOLETE

8309

PROGRAM CODE (a) TITLE	TOTAL		MINORITY		SECONDARY			ADULT			COOPERATIVE	
	FEMALE (b)	MALE (c)	DISADVANTAGED (d)	HANDICAPPED (e)	BELOW GRADE 9 (f)	GRADES 9 - 12 (g)	POST SECONDARY (h)	PREPARATORY (i)	SUPPLEMENTAL (j)	APPRENTICESHIP (k)	PART B (l)	PART G (m)
[illegible]												
[illegible]												
[illegible]												
[illegible]												
[illegible]												
[illegible] POLICE SCIENCE		51					28	23				
[illegible]												
[illegible]												
[illegible] OTHER Library	11	2					13					
4.100 (Engineering)	2	26					28					
7.0000 TOTAL TRADES & INDUSTRY	9	1,389	252	124		925	202	137		134		33
17.0100 AIR CONDITIONING												
[illegible]												
17.0301 BODY & FENDER		47					32	15				
17.0302 MECHANICS, AUTO	3	517	121	84		399	63	58				
[illegible]												
[illegible]												
[illegible]												
[illegible]												
[illegible]												
[illegible]												
[illegible]												
[illegible]												
17.0501 CARPENTRY		193	25	4		193						2
17.0502 ELECTRICITY		106	30	7		81		15		10		21
[illegible]		2				2						
[illegible]		3				3						
[illegible]		132					8			124		
[illegible]												
[illegible]												
[illegible]	5	120	26	10		50	38	37				3
[illegible]		16				16						
[illegible]		18					11	7				
[illegible]												
[illegible]												
[illegible]	1	9	4	4			10					
[illegible]												

OE FORM 5131, 5/71

REPLACES OE FORM 5130, 6/70, WHICH IS OBSOLETE

	217	46	15		181	31	5				4
[illegible]											
[illegible]											
[illegible]											
[illegible]											
[illegible]											
[illegible]											
[illegible]											
[illegible]											
17.0000 OTHER PUBLIC SERV	9					9					3
[illegible]											
17.0000 REFRIGERATION											
[illegible]											
[illegible]											
17.0000 STATIONARY ENERGY SOURCES OCCUPATION											
[illegible]											
17.0000 LEATHER WORKING											
17.0000 UPHOLSTERING											
17.0000 WOODWORKING OCCUP											
17.0000 OTHER*											
99.0000 TOTAL SPECIAL PROGRAMS											
99.0100 GROUP GUIDANCE *(Prevocational)*											
99.0200 PREPOSTSECONDARY											
99.0300 REMEDIAL											
[illegible] OTHER N.E.C.											

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS (Con't)	STATE/OUTLYING AREA: Wyoming	FISCAL YEAR: 1971

SECTION II - ESTIMATED ENROLLMENT BY PROGRAM

ITEM (a)	TOTAL (b)	SECONDARY (c)	POSTSECONDARY (d)	ADULT (e)
1. GRAND TOTAL, UNDUPLICATED (same as line 1, Sec. 1)	16,511	14,113	1,436	962
2. PART 102(b) - DISADVANTAGED	59	59	0	0
3. PART B - STATE PROGRAMS TOTAL	10,090	7,860	1,295	935
4. (1) DISADVANTAGED	(331)	(248)	(50)	(33)
5. (2) HANDICAPPED	(193)	(144)	(32)	(17)
6. PART F - CONSUMER AND HOMEMAKING TOTAL	6,080	5,999	54	27
7. (1) DEPRESSED AREAS	( )	( )	( )	( )
8. (2) DISADVANTAGED	(113)	(104)	(6)	(3)
9. (3) HANDICAPPED	(52)	(49)	(2)	(1)
10. PART G - COOPERATIVE TOTAL	240	163	77	
11. (1) DISADVANTAGED	(64)	(63)	(1)	
12. (2) HANDICAPPED	(37)	(37)	( )	
13. PART H - WORK STUDY TOTAL	42	32	10	
14. (1) DISADVANTAGED	(11)	(8)	(3)	
15. (2) HANDICAPPED	( )	( )	( )	

SECTION III - ESTIMATED ENROLLMENT BY RACIAL/ETHNIC GROUP

1. REGULAR	TOTAL	15,651	13,401	1,342	908
2. (1) AMERICAN INDIAN		195	160	30	5
3. (2) NEGRO		54	25	15	14
4. (3) ORIENTAL		2,186	1,840	215	131
5. (4) SPANISH SURNAMED AMERICAN		13,216	11,376	1,082	758
6. (5) OTHER		578	482	60	36
7. DISADVANTAGED	TOTAL	30	24	4	2
8. (1) AMERICAN INDIAN		8	6	1	1
9. (2) NEGRO					
10. (3) ORIENTAL		85	73	9	3
11. (4) SPANISH SURNAMED AMERICAN		455	379	46	30
12. (5) OTHER		282	230	34	18
13. HANDICAPPED	TOTAL	12	8	3	1
14. (1) AMERICAN INDIAN					
15. (2) NEGRO					
16. (3) ORIENTAL		32	27	3	2
17. (4) SPANISH SURNAMED AMERICAN		238	195	28	15
18. (5) OTHER					

SECTION IV - ESTIMATED ENROLLMENT BY GEOGRAPHIC LOCATION

1. REGULAR	TOTAL	15,651	13,401	1,342	908
2. (1) SMSA					
3. CENTRAL CITY					
4. (2) NON-SMSA		15,651	13,401	1,342	908
5. DISADVANTAGED	TOTAL	578	482	60	36
6. (1) SMSA					
7. CENTRAL CITY					
8. (2) NON-SMSA		578	482	60	36
9. HANDICAPPED	TOTAL	282	230	34	18
10. (1) SMSA					
11. CENTRAL CITY					
12. (2) NON-SMSA		282	230	34	18

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

O.M.B. NO. 51-R0841
APPROVAL EXPIRES: 3/31/73

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS
(Vocational Education Amendments of 1968, P.L. 90-576)

STATE/OUTLYING AREA	DATE PREPARED
Wyoming	2/24/72
FISCAL YEAR ENDING	**REPORT DUE**
June 30, 1971	December 31, 1971

THIS IS A REPORT OF VOCATIONAL EDUCATION PROGRAM COMPLETIONS AT THE FOLLOWING LEVEL (Check one)

☒ SECONDARY ☐ POSTSECONDARY ☐ ADULT (PREP.)

READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING THIS FORM

SIGNATURE OF STATE DIRECTOR OF VOCATIONAL EDUCATION

8313

STATE/OUTLYING AREA: Wyoming — PROGRAM CODE (a) / TITLE	COMPLETIONS (b)	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS (c)	STATUS UNKNOWN (d)	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT (e)	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL (f)	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT (g)	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD (h)	NUMBER KNOWN TO BE UNEMPLOYED (i)
1. GRAND TOTAL *(Unduplicated)*	2399	47	171	1478	1195	797	644	153
2. DISADVANTAGED	(312)	(6)	(22)	(187)	(137)	(109)	(88)	(21)
3. HANDICAPPED	(43)	(6)	(3)	(30)	(16)	(16)	(11)	(5)
4. OCCUPATIONAL & SPECIAL PROGRAMS								
01.0000 TOTAL AGRICULTURE	339	7	0	211	185	135	135	0
01.0100 AGRICULTURAL PRODUCTION	298	6	0	184	164	120	120	0
01.0200 AGRIC SUP/SERV	3	0	0	2	1	1	1	0
01.0300 AGRIC MECH	27	1	0	18	15	10	10	0
01.0400 AGRIC PRODUCTS								
01.0500 ORNAMENTAL HORT								
01.0600 AGRIC RESOURCES								
01.0700 FORESTRY								
01.0900 OTHER* Animal Science	11	0	0	7	5	4	4	0
14.0000 TOTAL DISTRIBUTION	208	6	12	104	72	98	86	12
14.0100 ADVERTISING SERVICES	2	0	0	1	0	1	1	0
14.0200 APPAREL & ACCESSORIES	6	0	1	3	2	2	2	0
14.0300 AUTOMOTIVE	2	0	0	1	0	1	1	0
14.0400 FINANCE & CREDIT	4	0	1	1	1	2	1	1
14.0500 FLORISTRY	5	0	0	3	1	2	1	1
14.0600 FOOD DISTRIBUTION	1	0	0	1	0	0	0	0
14.0700 FOOD SERVICES	8	1	1	5	3	3	3	0
14.0800 GENERAL MERCHANDISE	148	3	8	67	57	76	70	6
14.0900 HARDWARE, BUILDING MATERIALS	5	0	0	3	1	2	1	1
14.1000 HOME FURNISHINGS	2	0	0	1	0	1	1	0

Please refer to title and rationale occupations and cluster programs.

REPLACES OE FORM 3124, 6-70, WHICH IS OBSOLETE

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS (Con't)

☒ SECONDARY ☐ POSTSECONDARY ☐ ADULT (PREP.)

STATE/OUTLYING AREA: Wyoming

Q344

PROGRAM CODE	PROGRAM TITLE	COMPLETIONS	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS	STATUS UNKNOWN	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD	NUMBER KNOWN TO BE UNEMPLOYED
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
04.1100	HOTEL & LODGING	2	0	0	2	1	0	0	0
04.1200	INDUSTRIAL MARKETING								
04.1700	INSURANCE	2	0	0	1	1	1	1	0
[illegible]	INTERNATIONAL TRADE								
[illegible]	PERSONAL SERVICES		0						
04.1900	PETROLEUM	8	1	0	5	2	4	2	2
04.1700	REAL ESTATE								
04.1800	RECREATION & TOURISM	11	1	1	8	3	3	2	1
04.1900	TRANSPORTATION	2	0	0	2	0	0	0	0
04.9900	OTHER *								
[illegible]	TOTAL HEALTH	5	0	0	1	1	4	4	0
[illegible]	DENTAL ASSISTANT								
[illegible]	DENTAL HYGIENIST5 (Assoc)								
[illegible]	DENTAL LABORATORY TECH								
[illegible]	MEDICAL LAB ASSISTING								
[illegible]	OTHER MED LAB TECHNOL								
[illegible]	NURSE, ASSOCIATE DEGREE								
[illegible]	PRACTICAL (Voc) NURSE								
[illegible]	NURSES' ASSIST (Aide)	5	0	0	1	1	4	4	0
[illegible]	OCCUPATIONAL THERAPY								
[illegible]	PHYSICAL THERAPY								
[illegible]	RADIOLOGIC TECHNOLOGY								
[illegible]	ENVIRONMENTAL HEALTH								
[illegible]	MENTAL HEALTH TECH								
[illegible]	INHALATION THERAPY TECH								
[illegible]	MEDICAL ASSISTANT								
[illegible]	HEALTH AIDE								
[illegible]	OTHER*								
[illegible]	TOTAL OCCUP PREP, H.EC.	28	1	1	4	3	24	21	3
[illegible]	CARE & GUID OF CHILDREN								

OE FORM 3159, 5/71

REPLACES OE FORM 3139, 6/70, WHICH IS OBSOLETE

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS *(Con't)*

☒ SECONDARY ☐ POSTSECONDARY ☐ ADULT *(PREP.)*

STATE/OUTLYING AREA: Wyoming

PROGRAM CODE	PROGRAM TITLE (a)	COMPLETIONS (b)	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS (c)	STATUS UNKNOWN (d)	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT (e)	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL (f)	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT (g)	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD (h)	NUMBER KNOWN TO BE UNEMPLOYED (i)
0[illegible]07	CLOTHING MGT, PROD, & SERV								
0[illegible]01	FOOD MGT, PROD, & SERV	28	1	1	4	3	24	21	3
0[illegible]05	HOME FURN, EQUIP & SERV								
0[illegible]09	OTHER HOME MGT & SUPPORT SERV								
0[illegible]99	OTHER								
1[illegible]00	TOTAL OFFICE	1621	20	92	1126	937	423	318	105
1[illegible]05	ACCOUNTING & COMPUTING	326	2	18	225	188	85	67	18
1[illegible]10	BUS. DATA PROCESSING SYST								
1[illegible]15	FILING, OFFICE MACHINES	115	0	7	79	66	29	21	8
1[illegible]20	INFO COMMUNIC OCCUP								
1[illegible]25	MTLS SUPPORT, TRANS, ETC.								
1[illegible]30	PERS, TRG, & RELATED								
1[illegible]35	STENOR, SECY, & RELATED	341	4	19	236	196	90	75	15
1[illegible]40	SUPV & ADMIN MGT								
1[illegible]45	TYPING & RELATED OCCUP	676	13	39	473	393	177	119	58
1[illegible]99	OTHER	163	1	9	113	94	42	36	6
1[illegible]00	TOTAL TECHNICAL	00	00	00	00	00	00	00	00
1[illegible]01	AERONAUTICAL TECHNOL								
1[illegible]03	ARCHITECTUAL TECHNOL								
1[illegible]04	AUTOMOTIVE TECHNOL								
1[illegible]05	CHEMICAL TECHNOL								
1[illegible]07	CIVIL TECHNOLOGY								
1[illegible]09	ELECTRICAL TECHNOL								
1[illegible]10	ELECTRONICS TECHNOL								
1[illegible]11	ELECTRO-MECHANICAL TECHNOL								
1[illegible]15	ENVIRONMENTAL CONTROL TECHNOL								
1[illegible]17	INDUSTRIAL TECHNOLOGY								
1[illegible]19	INSTRUMENTATION TECHNOL								
1[illegible]21	MECHANICAL TECHNOLOGY								
1[illegible]25	PETROLEUM TECHNOLOGY								

FORM 3139, 3/71

REPLACES OE FORM 3139, 6/70, WHICH IS OBSOLETE

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS (Con't)

☒ SECONDARY ☐ POSTSECONDARY ☐ ADULT (PREP.)

STATE/OUTLYING AREA: Wyoming

8316

PROGRAM CODE	PROGRAM TITLE	COMPLETIONS	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS	STATUS UNKNOWN	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD	NUMBER KNOWN TO BE UNEMPLOYED
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
[illegible]0177	SCIENTIFIC DATA PROCES								
[illegible]0601	COMMERCIAL PILOT TRG								
[illegible]0302	FIRE & SAFETY TECHNOL								
[illegible]1603	FORESTRY TECHNOLOGY								
[illegible]2004	OCEANOGRAPHIC TECHNOL								
[illegible]0305	POLICE SCIENCE								
[illegible]1501	AIR POLLUTION TECHNOL								
[illegible]	WATER & WASTE WATER TECHNOL								
[illegible]9900	OTHER*								
[illegible]0000	TOTAL TRADES & INDUSTRY	246	14	69	62	21	129	93	36
[illegible]0501	AIR CONDITIONING								
[illegible]0200	APPLIANCE REPAIR								
[illegible]0401	BODY & FENDER								
[illegible]0100	MECHANICS, AUTO	105	6	31	27	11	53	36	17
[illegible]0199	OTHER AUTOMOTIVE								
[illegible]0700	AVIATION OCCUPATIONS								
[illegible]0500	BLUEPRINT READING								
[illegible]1400	BUSINESS MACHINE MAINT								
[illegible]0700	COMMERCIAL ART OCCUP								
[illegible]0800	COMMERCIAL FISHERY OCCUP								
[illegible]0800	COMMERCIAL PHOTOGRAPHY OCCUP								
[illegible]1001	CARPENTRY	53	2	14	13	2	28	21	7
[illegible]1002	ELECTRICITY	22	1	6	5	1	12	10	2
[illegible]1004	MASONRY	1	0	0	0	0	1	1	0
[illegible]1007	PLUMBING & PIPEFITTING	1	0	0	1	0	0	0	0
[illegible]1099	OTHER CONSTR & MAINT								
[illegible]1401	CUSTODIAL SERVICES								
[illegible]1402	DIESEL MECHANIC								
[illegible]	DRAFTING OCCUPATIONS	11	2	3	3	2	7	6	1
[illegible]	ELECTRICAL OCCUPATIONS	5	0	1	1	0	3	3	0
[illegible]	ELECTRONIC OCCUPATIONS								
[illegible]	EQUIPMENT SERV								

OE-FORM 3159, 6/71

REPLACES OE FORM 3159, 6/70, WHICH IS OBSOLETE

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS (Con't)

☒ SECONDARY ☐ POSTSECONDARY ☐ ADULT (PREP.)

STATE/OUTLYING AREA: Wyoming

0317

PROGRAM CODE	PROGRAM TITLE (a)	COMPLETIONS (b)	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS (c)	STATUS UNKNOWN (d)	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT (e)	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL (f)	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT (g)	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD (h)	NUMBER KNOWN TO BE UNEMPLOYED (i)
17.1700	FOREMANSHIP, SUPERVISION, & MGT DEVELOPMENT								
17.1800	GRAPHIC ARTS OCCUPATIONS								
17.1900	INDUSTRIAL ATOMIC ENERGY								
17.2100	INSTR MAINT & REPAIR								
17.2200	MARITIME OCCUPATIONS								
17.2300	METALWORKING OCCUPATIONS	48	3	14	12	5	25	16	9
17.2400	METALLURGY OCCUPATIONS								
17.2600	BARBERING								
17.2601	COSMETOLOGY								
17.2699	OTHER PERSONAL SERV								
17.2700	PLASTICS OCCUPATIONS								
17.2800	FIREMAN TRAINING								
17.2802	LAW ENFORCEMENT TRAINING								
17.2899	OTHER PUBLIC SERV								
17.2900	QUANTITY FOOD OCCUPATIONS								
17.3000	REFIGERATION								
17.3100	SMALL ENGINE REPAIR								
17.3200	STATIONARY ENERGY SOURCES OCCUPATIONS								
17.3300	TEXTILE PROD & FABRICATION								
17.3400	LEATHER WORKING								
17.3500	UPHOLSTERING								
17.3600	WOODWORKING OCCUPATION								
17.3900	OTHER*								
17.9999	OTHER N.E.C.								

* FORM 3139, 5/71

REPLACES OE FORM 3139, 6/70, WHICH IS OBSOLETE

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

O.M.B. NO. 51-R0341
APPROVAL EXPIRES: 3/31/73

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS

(Vocational Education Amendments of 1968, P.L. 90-576)

STATE/OUTLYING AREA	DATE PREPARED
Wyoming	2/24/72
FISCAL YEAR ENDING	REPORT DUE
June 30, 19 71	December 31, 1971

THIS IS A REPORT OF VOCATIONAL EDUCATION PROGRAM COMPLETIONS AT THE FOLLOWING LEVEL *(Check one)*

☐ SECONDARY ☒ POSTSECONDARY ☐ ADULT *(PREP.)*

READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING THIS FORM

SIGNATURE OF STATE DIRECTOR OF VOCATIONAL EDUCATION

8318

STATE/OUTLYING AREA: Wyoming

PROGRAM CODE	PROGRAM TITLE (a)	COMPLETIONS (b)	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS (c)	STATUS UNKNOWN (d)	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT (e)	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL (f)	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT (g)	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD (h)	NUMBER KNOWN TO BE UNEMPLOYED (i)
1.	GRAND TOTAL *(Unduplicated)*	677	20	66	178	116	453	392	61
2.	DISADVANTAGED	(54)	(1)	(5)	(14)	(9)	(36)	(31)	(5)
3.	HANDICAPPED	(17)	(1)	(2)	(4)	(3)	(12)	(10)	(2)
4.	OCCUPATIONAL & SPECIAL PROGRAMS								
01.0100	TOTAL AGRICULTURE	56	2	0	17	12	41	41	0
01.0199	AGRICULTURAL PRODUCTION	31	1	0	10	8	22	22	0
01.0200	AGRIC SUP/SERV	3	0	0	1	1	2	2	0
01.0300	AGRIC MECH	11	1	0	3	1	9	9	0
01.0400	AGRIC PRODUCTS								
01.0500	ORNAMENTAL HORT								
01.0600	AGRIC RESOURCES								
01.0700	FORESTRY								
01.0900	OTHER Animal Science	11	0	0	3	2	8	8	0
04.0000	TOTAL DISTRIBUTION	56	2	2	11	8	45	41	4
04.0100	ADVERTISING SERVICES	8	0	0	1	1	7	6	1
04.0200	APPAREL & ACCESSORIES	4	0	0	1	1	3	3	0
04.0300	AUTOMOTIVE								
04.0400	FINANCE & CREDIT								
04.0500	FLORISTRY								
04.0600	FOOD DISTRIBUTION								
04.0700	FOOD SERVICES								
04.0800	GENERAL MERCHANDISE	29	2	1	6	5	24	22	2
04.0900	HARDWARE, BUILDING MATERIALS								
04.1000	HOME FURNISHINGS								

(Use additional sheets if necessary to report occupations and cluster programs.)

ELECTRONIC, 5-71

REPLACES OE FORM 2130, 6-70, WHICH IS OBSOLETE

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS (Con't)

☐ SECONDARY ☐ POSTSECONDARY ☐ ADULT (PREP.)

STATE/OUTLYING AREA: Wyoming

8319 PROGRAM CODE / TITLE (a)	COMPLETIONS (b)	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS (c)	STATUS UNKNOWN (d)	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT (e)	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL (f)	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT (g)	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD (h)	NUMBER KNOWN TO BE UNEMPLOYED (i)
[illegible] HOTEL & LODGING	9	0	1	2	1	6	5	1
[illegible] INDUSTRIAL MARKETING								
[illegible] INSURANCE	5	0	0	1	0	4	4	0
[illegible] INTERNATIONAL TRADE								
[illegible] PERSONAL SERVICES								
[illegible] PETROLEUM								
[illegible] REAL ESTATE	1	0	0	0	0	1	1	0
[illegible] RECREATION & TOURISM								
[illegible] TRANSPORTATION								
[illegible] OTHER*								
[illegible] TOTAL HEALTH	63	1	2	7	3	55	48	7
[illegible] DENTAL ASSISTANT	3	0	0	1	0	2	2	0
[illegible] DENTAL HYGIENISTS (Assoc)	9	0	0	1	0	8	7	1
[illegible] DENTAL LABORATORY TECH								
[illegible] MEDICAL LAB ASSISTING								
[illegible] OTHER MED LAB TECHNCL								
[illegible] NURSE, ASSOCIATE DEGREE	31	0	1	3	2	27	24	3
[illegible] PRACTICAL (Voc) NURSE	20	1	1	2	1	18	15	3
[illegible] NURSES' ASSIST (Aide)								
[illegible] OCCUPATIONAL THERAPY								
[illegible] PHYSICAL THERAPY								
[illegible] RADIOLOGIC TECHNOLOGY								
[illegible] ENVIRONMENTAL HEALTH								
[illegible] MENTAL HEALTH TECH								
[illegible] INHALATION THERAPY TECH								
[illegible] MEDICAL ASSISTANT								
[illegible] HEALTH AIDE								
[illegible] OTHER*								
[illegible] TOTAL OCCUP PREP, H.EC.	00	00	00	00	00	00	00	00
[illegible] CARE & GUID OF CHILDREN								

REPLACES OE FORM 3139, 6/70, WHICH IS OBSOLETE

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS (Con't)

☐ SECONDARY ☒ POSTSECONDARY ☐ ADULT (PREP.)

STATE/OUTLYING AREA: Wyoming

8340

PROGRAM CODE	PROGRAM TITLE	COMPLETIONS	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS	STATUS UNKNOWN	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD	NUMBER KNOWN TO BE UNEMPLOYED
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
[illegible]	CLOTHING MGT, PROD, & SERV								
[illegible]	FOOD MGT, PROD, & SERV								
[illegible]	HOME FURN, EQUIP & SERV								
[illegible]	INST & HOME MGT & SUPPORT SERV								
[illegible]	OTHER*								
[illegible]	TOTAL OFFICE	226	3	16	73	61	140	118	22
[illegible]	ACCOUNTING & COMPUTING	12	0	1	4	4	7	6	1
[illegible]	BUS. DATA PROCESSING SYST	77	1	5	25	21	48	43	5
[illegible]	FILING, OFFICE MACHINES	18	0	1	6	5	11	10	1
[illegible]	INFO COMMUNIC OCCUP								
[illegible]	MTLS SUPPORT, TRANS, ETC.								
[illegible]	PERS, TRG, & RELATED								
[illegible]	STENOG, SECY, & RELATED	83	2	6	27	21	52	42	10
[illegible]	SUPV & ADMIN MGT	13	0	1	4	4	8	7	1
[illegible]	TYPING & RELATED OCCUP								
[illegible]	OTHER*	23	0	2	7	6	14	10	4
[illegible]	TOTAL TECHNICAL	102	2	4	36	24	64	59	5
[illegible]	AERONAUTICAL TECHNOL								
[illegible]	ARCHITECTUAL TECHNOL								
[illegible]	AUTOMOTIVE TECHNOL								
[illegible]	CHEMICAL TECHNOL	8		1	1	1	6	6	0
[illegible]	CIVIL TECHNOLOGY	4		0	0	0	4	4	0
[illegible]	ELECTRICAL TECHNOL								
[illegible]	ELECTRONICS TECHNOL	35	1	2	15	10	19	18	1
[illegible]	ELECTRO-MECHANICAL TECHNOL								
[illegible]	ENVIRONMENTAL CONTROL TECHNOL	18	1	0	7	5	12	10	2
[illegible]	INDUSTRIAL TECHNOLOGY								
[illegible]	INSTRUMENTATION TECHNOL								
[illegible]	MECHANICAL TECHNOLOGY								
[illegible]	METALLURGICAL TECHNOLOGY								

OE FORM 3133, 5/71

REPLACES OE FORM 3133, 6/70, WHICH IS OBSOLETE

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS (Con't)

☐ SECONDARY ☑ POSTSECONDARY ☐ ADULT (PREP.)

STATE/OUTLYING AREA: Wyoming

8321

PROGRAM CODE	PROGRAM TITLE (a)	COMPLETIONS (b)	LEFT PRIOR TO NORMAL COMPLETION-TIME WITH MARKETABLE SKILLS (c)	STATUS UNKNOWN (d)	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT (e)	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL (f)	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT (g)	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD (h)	NUMBER KNOWN TO BE UNEMPLOYED (i)
16.0917	SCIENTIFIC DATA PROCES								
16.0901	COMMERCIAL PILOT TRG								
[illegible]	FIRE & SAFETY TECHNOL								
[illegible]	FORESTRY TECHNOLOGY								
[illegible]	OCEANOGRAPHIC TECHNOL								
[illegible]	POLICE SCIENCE	15	0	0	4	1	11	11	0
[illegible]	AIR POLLUTION TECHNOL								
[illegible]	W & WASTE WATER TECHNOL								
[illegible]	OTHER Library	7	0	0	1	1	6	4	2
16.1000 (Engineering)		15	0	1	8	6	6	6	0
[illegible]	TOTAL TRADES & INDUSTRY	174	10	42	34	8	108	85	23
[illegible]	AIR CONDITIONING								
[illegible]	APPLIANCE REPAIR								
[illegible]	BODY & FENDER	27	2	7	5	1	17	14	3
[illegible]	MECHANICS, AUTO	51	6	13	11	2	33	26	7
[illegible]	OTHER AUTOMOTIVE								
[illegible]	AVIATION OCCUPATIONS								
[illegible]	BLUEPRINT READING								
[illegible]	BUSINESS MACHINE MAINT								
[illegible]	COMMERCIAL ART OCCUP								
[illegible]	COMMERCIAL FISHERY OCCUP								
[illegible]	COMMERCIAL PHOTOGRAPHY OCCUP								
[illegible]	CARPENTRY								
[illegible]	ELECTRICITY								
[illegible]	MASONRY								
[illegible]	PLUMBING & PIPEFITTING								
[illegible]	OTHER CONSTR & MAINT	7	0	1	1	0	5	3	2
[illegible]	CUSTODIAL SERVICES								
[illegible]	DIESEL MECHANIC								
[illegible]	DRAFTING OCCUPATIONS	34	1	8	7	3	20	16	4
[illegible]	ELECTRICAL OCCUPATIONS								
[illegible]	ELECTRONIC OCCUPATIONS	12	0	3	2	1	7	5	2
[illegible]	FABRIC MAINT SERV								

FORM 3139, 5/71

REPLACES OE FORM 3139, 6/70, WHICH IS OBSOLETE.

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS *(Con't)*

☐ SECONDARY ☒ POSTSECONDARY ☐ ADULT *(PREP.)*

STATE/OUTLYING AREA: Wyoming

PROGRAM CODE	PROGRAM TITLE (a)	COMPLETIONS (b)	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS (c)	STATUS UNKNOWN (d)	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT (e)	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL (f)	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT (g)	NUMBER KNOWN TO HAVE SEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD (h)	NUMBER KNOWN TO BE UNEMPLOYED (i)
8322									
17.1700	FOREMANSHIP, SUPERVISION, & MGT DEVELOPMENT								
17.1900	GRAPHIC ARTS OCCUPATIONS	9	0	2	2	0	5	4	1
17.2[illegible]	INDUSTRIAL ATOMIC ENERGY								
17.2100	INSTR MAINT & REPAIR								
17.2300	MARITIME OCCUPATIONS								
17.2500	METALWORKING OCCUPATIONS	27	1	6	5	1	17	14	3
17.2600	METALLURGY OCCUPATIONS								
17.2601	BARBERING								
17.2602	COSMETOLOGY								
17.2699	OTHER PERSONAL SERV								
17.2700	PLASTICS OCCUPATIONS								
17.2801	FIREMAN TRAINING								
17.2802	LAW ENFORCEMENT TRAINING								
17.2899	OTHER PUBLIC SERV								
17.3[illegible]	QUANTITY FOOD OCCUPATIONS	7	0	2	1	0	4	3	1
17.3[illegible]	REFRIGERATION								
17.3[illegible]	SMALL ENGINE REPAIR								
17.3[illegible]	STATIONARY ENERGY SOURCES OCCUPATIONS								
17.3900	TEXTILE PROD & FABRICATION								
17.3[illegible]	LEATHER WORKING								
17.3[illegible]	UPHOLSTERING								
17.3[illegible]	WOODWORKING OCCUPATION								
17.3[illegible]	OTHER								
17.9400	OTHER N.E.C.								

FORM 3139, 8/71

REPLACES PE FORM 3139, 6/70, WHICH IS OBSOLETE

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

O.M.B. NO. 51-R0841
APPROVAL EXPIRES: 3/31/73

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS

(Vocational Education Amendments of 1968, P.L. 90-576)

STATE/OUTLYING AREA	DATE PREPARED
Wyoming	2/28/72
FISCAL YEAR ENDING	**REPORT DUE**
June 30, 1971	December 31, 1971

THIS IS A REPORT OF VOCATIONAL EDUCATION PROGRAM COMPLETIONS AT THE FOLLOWING LEVEL *(Check one)*

☐ SECONDARY ☐ POSTSECONDARY ☒ ADULT *(PREP.)*

READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING THIS FORM

SIGNATURE OF STATE DIRECTOR OF VOCATIONAL EDUCATION

8323

STATE/OUTLYING AREA — PROGRAM CODE / TITLE (a)	COMPLETIONS (b)	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS (c)	STATUS UNKNOWN (d)	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT (e)	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL (f)	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT (g)	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD (h)	NUMBER KNOWN TO BE UNEMPLOYED (i)
1. GRAND TOTAL *(Unduplicated)*	527	24	33	36	14	482	433	49
2. DISADVANTAGED	(28)	(1)	(2)	(1)	(0)	(26)	(23)	(3)
3. HANDICAPPED	(13)	(1)	(1)	(1)	(0)	(12)	(10)	(2)
4. OCCUPATIONAL & SPECIAL PROGRAMS								
01.0000 RURAL AGRICULTURE	00	00	00	00	00	00	00	00
01.0100 AGRICULTURAL PRODUCTION								
01.0200 AGRIC SUP/SERV								
01.0300 AGRIC MECH								
01.0400 AGRIC PRODUCTS								
01.0500 ORNAMENTAL HORT								
01.0600 AGRIC RESOURCES								
01.0700 FORESTRY								
01.9900 OTHER								
04.0000 TOTAL DISTRIBUTION	00	00	00	00	00	00	00	00
04.0100 ADVERTISING SERVICES								
04.0200 APPAREL & ACCESSORIES								
04.0300 AUTOMOTIVE								
04.0400 BANK & CREDIT								
04.0500 FLORISTRY								
04.0600 FOOD DISTRIBUTION								
04.0700 FOOD SERVICES								
04.0800 GENERAL MERCHANDISE								
04.0900 GENERAL BUILDING MATERIALS								
04.1000 INSTITUTIONAL								

Use additional sheets if necessary to report all occupational and cluster programs.

REPLACES OE FORM 3139, 6/70, WHICH IS OBSOLETE

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS *(Con't)*

☐ SECONDARY ☐ POSTSECONDARY ☒ ADULT *(PREP.)*

STATE/OUTLYING AREA: Wyoming

8324

PROGRAM CODE / TITLE (a)	COMPLETIONS (b)	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS (c)	STATUS UNKNOWN (d)	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT (e)	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL (f)	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT (g)	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD (h)	NUMBER KNOWN TO BE UNEMPLOYED (i)
04.1100 HOTEL & LODGING								
04.1200 INDUSTRIAL MARKETING								
04.1300 INSURANCE								
04.1400 INTERNATIONAL TRADE								
04.1500 PERSONAL SERVICES								
04.1600 PETROLEUM								
04.1700 REAL ESTATE								
04.1800 RECREATION & TOURISM								
04.1900 TRANSPORTATION								
04.9900 OTHER*								
07.0000 TOTAL HEALTH	27	1	3	4	1	21	17	4
07.0101 DENTAL ASSISTANT								
07.0102 DENTAL HYGIENISTS (Asso)								
07.0103 DENTAL LABORATORY TECH								
07.0201 MEDICAL LAB ASSISTING								
07.0299 OTHER MED LAB TECHNOL								
07.0401 NURSE, ASSOCIATE DEGREE								
07.0402 PRACTICAL (Voc) NURSE	15	0	1	2	0	12	10	2
07.0499 NURSES' ASSIST (Aide)	12	1	2	2	1	9	7	2
07.0501 OCCUPATIONAL THERAPY								
07.0502 PHYSICAL THERAPY								
07.0601 RADIOLOGIC TECHNOLOGY								
07.0700 ENVIRONMENTAL HEALTH								
07.0800 MENTAL HEALTH TECH								
07.0915 INHALATION THERAPY TECH								
07.0916 MEDICAL ASSISTANT								
07.0917 HEALTH AIDE								
07.0999 OTHER*								
17.0000 TOTAL OCCUP PREP, H.ED.	00	00	00	00	00	00	00	00
[illegible] NUMBER OF CHILDREN								

OE FORM 3133, 9/71

REPLACES OE FORM 3133, 6/70, WHICH IS OBSOLETE

...LACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS (Con't)

☐ SECONDARY ☐ POSTSECONDARY ☒ ADULT (PREP.)

STATE/OUTLYING AREA: Wyoming

8325

PROGRAM CODE (a)	PROGRAM TITLE	COMPLETIONS (b)	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS (c)	STATUS UNKNOWN (d)	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT (e)	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL (f)	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT (g)	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD (h)	NUMBER KNOWN TO BE UNEMPLOYED (i)
[illegible]	CLOTHING MGT, PROD, & SERV								
[illegible]	FOOD MGT, PROD, & SERV								
[illegible]	HOME FURN, EQUIP & SERV								
[illegible]	INST & HOME MGT & SUPPORT SERV								
[illegible]	OTHER								
[illegible]0000	TOTAL OFFICE	361	18	21	24	9	334	297	37
[illegible]0100	ACCOUNTING & COMPUTING	66	1	2	4	2	61	56	5
[illegible]0200	BUS, DATA PROCESSING SYST	54	0	3	5	3	46	44	2
[illegible]0300	FILING, OFFICE MACHINES	91	6	8	3	0	86	74	12
[illegible]0400	INFO COMMUNIC OCCUP								
[illegible]0500	MTLS SUPPORT, TRANS, ETC.								
[illegible]0600	PERS, TRG, & RELATED								
[illegible]0700	STENOG, SECY, & RELATED	76	7	3	6	1	74	64	10
[illegible]0800	SUPV & ADMIN MGT	30	0	1	5	3	24	23	1
[illegible]0900	TYPING & RELATED OCCUP	44	4	4	1	0	43	36	7
[illegible]9900	OTHER								
[illegible]0000	TOTAL TECHNICAL	23	0	0	4	3	19	18	1
15.0101	AERONAUTICAL TECHNOL								
[illegible].0103	ARCHITECTUAL TECHNOL								
15.0104	AUTOMOTIVE TECHNOL								
[illegible].0105	CHEMICAL TECHNOL								
15.0106	CIVIL TECHNOLOGY								
15.0107	ELECTRICAL TECHNOL								
[illegible].0108	ELECTRONICS TECHNOL								
[illegible].0109	ELECTRO-MECHANICAL TECHNOL								
[illegible].0110	ENVIRONMENTAL CONTROL TECHNOL								
[illegible].0111	INDUSTRIAL TECHNOLOGY								
[illegible].0112	INSTRUMENTATION TECHNOL								
[illegible].0113	MECHANICAL TECHNOLOGY								
[illegible].0114	METALLURGICAL TECHNOLOGY								

OE FORM 3139, 5/71

REPLACES OE FORM 3139, 6/70, WHICH IS OBSOLETE

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS (Con't)

☐ SECONDARY ☐ POSTSECONDARY ☒ ADULT (PREP.)

STATE/OUTLYING AREA: Wyoming

8326

PROGRAM CODE TITLE (a)	COMPLETIONS (b)	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS (c)	STATUS UNKNOWN (d)	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT (e)	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL (f)	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT (g)	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD (h)	NUMBER KNOWN TO BE UNEMPLOYED (i)
[illegible] 0117 SCIENTIFIC DATA PROCES								
[illegible].0601 COMMERCIAL PILOT TRG								
[illegible]2 FIRE & SAFETY TECHNOL								
[illegible]3 FORESTRY TECHNOLOGY								
[illegible]4 OCEANOGRAPHIC TECHNOL								
[illegible]5 POLICE SCIENCE	23	0	0	2	1	19	18	1
[illegible]1 AIR POLLUTION TECHNOL								
[illegible] & WASTE WATER TECHNOL								
[illegible]99 OTHER*								
[illegible]0 TOTAL TRADES & INDUSTRY	116	5	9	4	1	108	101	7
[illegible]0 AIR CONDITIONING								
[illegible]0 APPLIANCE REPAIR								
[illegible]1 BODY & FENDER	13	0	2	1	0	10	9	1
[illegible]2 MECHANICS, AUTO	48	3	4	2	0	45	42	3
[illegible]4 OTHER AUTOMOTIVE								
[illegible]0 AVIATION OCCUPATIONS								
[illegible]0 BLUEPRINT READING								
[illegible]0 BUSINESS MACHINE MAINT								
[illegible]0 COMMERCIAL ART OCCUP								
[illegible]0 COMMERCIAL FISHERY OCCUP								
[illegible]0 COMMERCIAL PHOTOGRAPHY OCCUP								
[illegible]1 CARPENTRY								
[illegible]0 ELECTRICITY	13	0	0	1	1	12	11	1
[illegible]4 MASONRY								
[illegible]7 PLUMBING & PIPEFITTING								
[illegible]9 OTHER CONSTR & MAINT								
[illegible]0 CUSTODIAL SERVICES								
[illegible]1 DIESEL MECHANIC								
[illegible]0 DRAFTING OCCUPATIONS	32	2	2	0	0	32	30	2
[illegible] ELECTRICAL OCCUPATIONS								
[illegible] ELECTRONIC OCCUPATIONS**	6	0	0	0	0	6	6	0
[illegible] AIRC MAINT SERV								

[illegible] 3133, 5/71

REPLACES OE FORM 3133, 6/70, WHICH IS OBSOLETE

PLACEMENT OF PROGRAM COMPLETIONS IN VOCATIONAL EDUCATION PROGRAMS (Con't)

☐ SECONDARY ☐ POSTSECONDARY ☒ ADULT (PREP.)

STATE/OUTLYING AREA: ~~Wyoming~~ 8327

PROGRAM CODE	PROGRAM TITLE	COMPLETIONS	LEFT PRIOR TO NORMAL COMPLETION TIME WITH MARKETABLE SKILLS	STATUS UNKNOWN	NUMBER KNOWN TO BE NOT AVAILABLE FOR PLACEMENT	NUMBER KNOWN TO BE CONTINUING EDUCATION AT HIGHER LEVEL	NUMBER KNOWN TO HAVE BEEN AVAILABLE FOR PLACEMENT	NUMBER KNOWN TO HAVE BEEN EMPLOYED FULL-TIME IN FIELD TRAINED OR RELATED FIELD	NUMBER KNOWN TO BE UNEMPLOYED
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
[illegible]1700	FOREMANSHIP, SUPERVISION, & MGT DEVELOPMENT								
[illegible]1810	GRAPHIC ARTS OCCUPATIONS								
[illegible]2030	INDUSTRIAL ATOMIC ENERGY								
[illegible]2100	INSTRUMENT & REPAIR								
[illegible]2300	MAINTENANCE OCCUPATIONS								
[illegible]2400	METALWORKING OCCUPATIONS	4	0	1	0	0	3	3	0
[illegible]2410	METALLURGY OCCUPATIONS								
[illegible]3010	BARBERING								
[illegible]3020	COSMETOLOGY								
[illegible]3090	OTHER PERSONAL SERV								
[illegible]3120	PLASTICS OCCUPATIONS								
[illegible]3210	FIREMAN TRAINING								
[illegible]3220	LAW ENFORCEMENT TRAINING								
[illegible]3290	OTHER PUBLIC SERV								
[illegible]3310	QUANTITY FOOD OCCUPATIONS								
[illegible]3410	REFRIGERATION								
[illegible]3420	SMALL ENGINE REPAIR								
[illegible]3430	STATIONARY ENERGY SOURCES OCCUPATIONS								
[illegible]3500	TEXTILE PROD & FABRICATION								
[illegible]	LEATHER WORKING								
[illegible]3510	UPHOLSTERING								
[illegible]3560	WOODWORKING OCCUPATION								
[illegible]	OTHER								
[illegible]	OTHER N.E.C.								

PLEASE BE SURE THIS FORM HAS BEEN COMPLETE

VT 016 800
ROBBINS, JERRY H.
SENAI: BRAZIL'S ANSWER TO VOCATIONAL EDUCATION.

MISSISSIPPI UNIV., UNIVERSITY. DEPT. OF EDUCATIONAL ADMINISTRATION AND FOUNDATIONS OF EDUCATION.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 11P.

DESCRIPTORS - *VOCATIONAL EDUCATION; *VOCATIONAL DEVELOPMENT; TRAINING OBJECTIVES; APPRENTICESHIPS; *INDUSTRIAL TRAINING; *TRADE AND INDUSTRIAL EDUCATION; HUMAN RESOURCES; ADULT EDUCATION; PROFESSIONAL CONTINUING EDUCATION; *FOREIGN COUNTRIES
IDENTIFIERS - *BRAZIL; SENAI; SERVICO NATIONAL DE APRENDIZAGEM INDUSTRIAL

ABSTRACT - THIS REPORT, WRITTEN BY THE CHAIRMAN OF THE DEPARTMENT OF EDUCATIONAL ADMINISTRATION AND FOUNDATIONS OF EDUCATION AT THE UNIVERSITY OF MISSISSIPPI, DISCUSSES THE STRUCTURE, EDUCATIONAL OBJECTIVES, AND INDUSTRIAL SUPPORT OF THE SENAI IN BRAZIL, THE "SERVICO NATIONAL DE APRENDIZAGEM INDUSTRIAL." THIS TRAINING PROGRAM, OPERATED BY AND FOR BRAZILIAN INDUSTRY, IS ESTABLISHED BY LAW, USES A GOVERNMENTAL AGENCY TO COLLECT ITS FUNDS, AND COOPERATES CLOSELY WITH NATIONAL AND REGIONAL MINISTRIES. SENAI FOCUSES ON APPRENTICESHIPS FOR YOUTH, JOB TRAINING FOR ADULTS, UPGRADING COURSES FOR SUPERVISORS, TRAINING OF TECHNICIANS, AND PROFESSIONAL INSERVICE COURSES. SIMILAR INSTITUTIONS HAVE BEEN DEVELOPED IN OTHER LATIN AMERICAN COUNTRIES. SENAI HAS EXPANDED FROM ITS ORIGINAL TRAINING FUNCTIONS TO BECOME A VAST NETWORK FOR PROMOTING HUMAN RESOURCES REQUIRED BY THE INDUSTRIAL NEEDS OF BRAZIL. (AG)

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Voc. Tech.

SENAI: BRAZIL'S ANSWER TO VOCATIONAL EDUCATION

BY

Jerry W. Robbins, Ed.D., Chairman
Department of Educational Administration and
Foundations of Education

The University of Mississippi

Much of the vocational education in Brazil is accomplished through a structure known as SENAI--the "Servico National de Aprendizagem Industrial." Although the structure is established by law, uses a governmental agency to collect its funds, and co-operates closely with national and regional ministries, it is essentially a training program operated by and for the industry of the country.

Although the antecedents of SENAI date from 1924, it came into official being with the Decree-Law #4048 of January, 1942.[1] Roberto Mange, Euvaldo Lodi, and Roberto Simonsen, prominent public figures in Brazil in the 1930's and the 1940's, were the leaders in the movement to create SENAI.[2] From the beginning, SENAI has been an entreprenurial institution supported, governed, and managed by the National Confederation and State Federations of Industries.

Initially, SENAI undertook to train apprentices and to upgrade adults, but it has gradually become a vast network for

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[1] Italo Bologna, Formacao Profissional na Industria O SENAI (n.p.: Ministro da Educacao e Cultura, 1969), pp. 24-26.

[2] Ibid., pp. 24, 27-28.

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the training and promotion of human resources required by the industrial needs of the country.

At the present time, SENAI is concerned with apprenticeships for youth; intensive training of adults; upgrading courses for supervisors (including foremen and other technical and administrative personnel); training of middle-level technicians and technical assistants and courses for managers, technicians, and teachers in charge of professional training.[3]

The main objectives of SENAI at the present time are four:

1. To develop apprenticeship courses, making use of the institution's own schools or in cooperation with industrial enterprises.

2. To develop adult training for employed people or for employment applicants.

3. To develop special courses and technological surveys and research according to industry's needs. Courses for the development of technicians and technical helpers are involved in this item.

4. To grant scholarships aiming at the training of SENAI's technical staff, instructors, teachers, and industry's technical people.[4]

SENAI has been a pioneer, in Latin America at least, in

1. Trade classification and appraisal of manpower needs in industry.

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[3]Departamento Nacional do SENAI, The "Servicio Nacional de Aprendizagem Industrial" In Brazil (n.p.: SENAI, n.d.), p. 1.

[4]Maurilio Leite de Araujo Filho, "SENAI System." (n.p.: Departamento Nacional SENAI, 1971). p. 1. (Mimeographed.)

2. Programs and methods in apprenticeship, professional training and manpower development; introduction of the concept of "integral education."

3. Elaboration of instruction sheets for workshop jobs, technical manuals, learning material for related courses, and others.

4. Methods for evaluating course performance and professional efficiency.

5. Selection and guidance of industrial personnel.

6. Training of teaching, technical, and administrative personnel in the field of vocational education.[5]

SENAI has had an influence over much of Latin America in vocational education, for similar institutions have been developed in several other countries.[6] Some of these, such as those in Columbia and Venezuela, were initially developed with the direct

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[5]Departmento Nacional do SENAI, op.cit., p. 9.

[6]These include the Universidad del Trabajo (UTU) in Uraguay (1942), Servicio Nacional de Aprendisaje (SENA) in Columbia (1957), Instituto Nacional de Cooperacion Educativa (INCE) in Venezuela (1959), Consejo Nacional de Educación Técnica (CONET) in Argentina (1959), Servico Nacional de Aprendisaje y Trabajo Industrial (SENATI) in Peru (1961), Instituto para la Formación y Aprovechiamento de Recursos Humanos (IFARHU) in Panama (1965), Instituto Nacional de Aprendisaje (INA) in Costa Rica (1965), Servicio Nacional de Adestramiento Rápido de la Mano de Obra en al Indústria (ARMO) in Mexico (1965), Servicio Ecuatoriano de Capacitación Profesional (SECAP) in Ecuador (1966), Instituto Nacional de Capacitación Profesional (INACAP) in Chile (1966), and Centro Nacional de Desarrollo Adiestramento y Productividad (CENDAP) in Guatemala (1969). Source: Maurilio Leite de Araujo Filho, Empresa e Formacao Profissional. (n.p.: Departamento Nacional SENAI, n.d.), p. 10.

participation of personnel from SENAI.

As provided by law,[7] all Brazilian industry contributes one percent of the monthly payroll for SENAI maintenance (known as the "ordinary contribution"). All industrial enterprises in the country employing more than 500 persons must contribute 0.2 percent of the monthly payroll in addition (known as the "additional contribution"). The "ordinary contribution" is collected by the Instituto Nacional de Previdencia Social (INPS), the Brazilian Social Security System, to which SENAI pays a one percent commission for collecting. The funds are then forwarded to SENAI's National Department and deposited in the Bank of Brazil. The "additional contribution" is collected directly by SENAI Regional Departments and transferred to the National Department.

The "ordinary contribution" is distributed as follows:

85 percent reverts to the Brazilian state where the collection was made.

5 percent is allocated to the maintenance of the SENAI National Department.

4 percent is used to supplement the cost of operation of SENAI schools where local contributions are insufficient.

4 percent is used to supplement the cost of training activities in the North and Northeast Regions of the country.

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[7]Decree-Law #6246 of March 5, 1944, according to Bologna, op. cit., p. 49, but Act 4048 of January 22, 1948, according to de Arauho Filho, op. cit., p. 7.

2 percent is used to support the National Confederation of Industry.

The "additional contribution" is distributed as follows:

60 percent is used to support SENAI Technical Schools and for extra support of Special Training Centers.

10 percent is used to provide support to special training programs (both within the country and overseas) for technical people engaged in industrial work.

15 percent is used to prepare and print teaching aids, booklets, manuals, books, etc.

15 percent is used to supply scholarships for students in technical courses at the SENAI Technical Schools.[8]

In 1970 these funds amounted to $24,143,748.90 from the "ordinary contribution" and $2,071,977.00 from the "additional contribution."[9]

In lieu of making either an "ordinary contribution" or an "additional contribution," a Brazilian industry may operate its own training program, provided that its application to do so is approved by either the Regional or National Department of SENAI or both. Such application will be approved only if the industry (A) has in operation prior to the application an Apprenticeship School or a Manpower Training Center, equipped with shops, laboratories, and classrooms, according to SENAI standards; (B) has a training commission with one SENAI representative

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[8]de Arauho Filho, op. cit., pp. 7-8.

[9]Ibid., p. 8, as corrected by a supplementary sheet.

as a member; and (C) (if applying for use of the "additional contribution") has a Technical School or Training Center for medium-level technicians and an upgrading program for higher level personnel. Thirty-eight enterprises are directly operating their own training programs under these provisions, in all cases investing more than the amount due SENAI.[10]

At the national level, policy is formulated by a National Council, chaired by the President of the National Confederation of Industry, and consisting of one representative from the Ministry of Education and Culture, one representative from the Ministry of Labor and Social Security, the nineteen chairmen of the regional councils, and the Director of SENAI's National Department.

The organization of the National Department, in addition to the Director and his deputy, includes a legal office, a public relations office, and divisions for education, training, accounting, collection of funds, internal administration, and cooperation with industrial enterprises.

At the national level, SENAI participates in a number of cooperative activities with other agencies. With the Ministry of Education and Culture, SENAI has agreements for the expansion of intensive labor training programs and for systematic cooperation in other aspects of industrial education. It cooperates

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[10]Ibid., pp. 9-10.

with the National Labor Department in the study of legal measures and in the implementation of professional qualification plans for industry. Special programs are underway in cooperation with three regional development agencies, the SUDENE (the Northeastern region), SUDAM (the Amazon region), and SUDESUL (the southern region). Among other governmental agencies, there is cooperation with the armed forces and CIME (the Intergovernmental Committee on European Migration). Switzerland (watchmaking), Spain (Manpower Training Centers), Japan (textiles), France (electric power), and the U.S. Agency for Internation Development (financial assistance, especially for the northeast) have assisted the activities of SENAI. SENAI is also associated with the programs of the International Labor Office, the Inter-American Center for Research and Documentation of Vocational Training, and the Inter-American Development Bank.[11]

Each region has a governing council, chaired by the President of the Federation of Industries, and consisting of one representative from the Ministry of Education and Culture, one representative from the Ministry of Labor and Social Security, three to five members from the Federation of Industries, and the regional SENAI Director. The staff of the Regional Department is organized in a manner similar to that of the National

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[11] Departamento Nacional do SENAI, op. cit., p. 6, and Italo Bologna, SENAI Relatorio 1970 (Rio de Janeiro: Divisão de Relacões Públicas, 1971), pp. 6-8.

Department, except that the regional organization operates various schools and training units.

SENAI operated in 1970 120 schools and 100 centers within industrial plants, a total of 220 vocational and special training centers. Over one-fourth of these were in the Sao Paulo region. The 120 schools included eleven Technical Schools (3 Metalurgy Schools, 2 Textile Schools, and one each for ceramics, graphic arts, leather processing, mechanics, and aircraft maintenance).

In addition to the three-four year programs of the Technical Schools, SENAI operates a number of other training programs. The largest of these, in terms of enrollments, is the adult training program. This program of specialization and upgrading is conducted either at an industrial training center or in day and night classes at SENAI schools.

The second largest program is that of apprenticeships. An Industry Apprentice is a young worker (14-18 years of age) who is taught a trade during his work period either at an industry school or in a SENAI school. He is paid one-half of the local minimum wage during the training period. If space is available, and upon passing the entrance test, additional youth over fourteen, known as Industrial Work Aspirants, may be trained in a SENAI school.

Other training activities of SENAI include short courses for technical attendants, 6-12 month courses for prospective

foremen, managerial training, and teacher training.

Enrollments in SENAI programs in 1970 were:

Apprenticeships	40,704
Adult training and specialization	72,366
Technical courses	4,436
Intensive training: SENAI & Ministry of Education	25,607
Cooperative program: SENAI & Ministry of Labor	13,325
Foremen training	1,818
Supervisor training	26,728
Apprentices in industry	50,000 (est.)
Upgrading and specialization in industry	63,163[12]

Certificates, diplomas, and trade cards issued in 1970 were:

Apprenticeships	9,406
Training and upgrading	90,181
Technicians	266[13]

Between 1942 and 1970, almost two million persons, mostly males, received training under the auspices of SENAI, with almost half a million certificates of training, trade cards, and diplomas issued. These were distributed as follows:

Courses for Apprentices		
Enrollment		615,954
Certificates and trade cards	134,076	
Training, upgrading or specialization programs		
Enrollment		409,366
Certificates	335,780	

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[12]Bologna, SENAI Relatorio 1970, p. 55.

[13]Ibid.

Technical courses		
Enrollment		10,677
Diplomas	1,676	
In-plant apprenticeships for minors		585,000
In-plant training for adults		330,363
Teachers and technical personnel from SENAI and industrial plants trained or given up-grading courses		
Within the country		1,165
Abroad		532
Totals:	471,532	1,953,057[14]

SENAI's apprenticeship program incorporates a great deal of "fundamental education" as well as technical training. For entry into the apprenticeship program, a student must have completed primary education (4 years). At the present, SENAI is attempting to incorporate into the apprenticeship program academic skills comparable to those in the second four-year period of "fundamental education." Major emphasis is placed on the Portuguese language arts, mathematics, and science, and the instruction is highly individualized and competency-based. Extensive use is made of single-concept worksheets, on which information is presented and which call for conducting certain

[14] Ibid., p. 18.

laboratory exercises, answering questions, solving problems, or performing drills. Instructors apparently spend the bulk of their time working with students individually, and students move at their own rates through a series of worksheets, mastering each concept before moving on to the next.

If a student enters an apprenticeship program with four years of "fundamental education," his apprenticeship program may consist of 3,600 hours in 4-5 semesters, or 2,800 hours in 5-6 semesters, or 2,800 hours in four 9-month years, depending on the region of the country and the nature of the apprenticeship. If he enters with five years of "fundamental education" the apprenticeship will consist of 2,200-2,800 hours; with six years, 1,800-2,400 hours; with seven years, 1,600-2,000 hours; and with eight years, 1,200-1,400 hours.[15]

The need for skilled workers is permeating all Brazilian education, for, according to the Education Law #5692 of August 11, 1971, during the eight years of primary education the student must receive not only academic education but also "Technological Preparation."[16] SENAI, because of its extensive and successful experience, is expecting to participate widely in this movement.

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[15]de Arauho Filho, op. cit., pp. 10, 12.

[16]Ibid., p. 11.

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STULL, EDWIN, AND OTHERS
APPLICATION DATA AS PREDICTORS OF SUCCESS IN CLERICAL FIELDS. A FEASIBILITY STUDY.

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ABSTRACT - A SAMPLE OF THE APPLICATION DATA, TRANSCRIPTS, AND TEST DATA OF 235 CLERICAL AND SECRETARIAL EMPLOYEES, TAKEN FROM THE SAMPLE FROM THE POPULATION OF CIVIL SERVICE EMPLOYEE FOLDERS OF MINNESOTA, WERE CODED FOR COMPUTER ANALYSIS. TO ESTABLISH "LONG SERVICE," "MANY PROMOTIONS," AND "FREQUENT PROMOTIONS" AS CRITERIA OF SUCCESS IN CLERICAL OCCUPATIONS, CORRELATIONS BETWEEN THE ENTRY DATA AND EACH OF THE PREDICTOR VARIABLES WERE OBTAINED. APPLICATION DATA CONCERNING THE 30 MOST SUCCESSFUL AND THE 30 LEAST SUCCESSFUL IN EACH CRITERION WERE BROKEN DOWN BY PATTERN ANALYSIS AND SCORING PROGRAM INTO 2,3, OR 4 PART CLASSIFICATIONS AND EXAMINED TO SEE IF THEY WERE CAPABLE OF PREDICTING THE CRITERION. ALTHOUGH THIS PILOT STUDY DID NOT PRODUCE LEVELS OF SIGNIFICANCE SUFFICIENT FOR MAKING DECISIONS AFFECTING INDIVIDUALS, THE EXPERIMENTERS FEEL THAT A COMPLETED STUDY WOULD BENEFIT COUNSELING AND EMPLOYMENT PERSONNEL IN SELECTING CLERICAL AND SECRETARIAL TRAINEES AND EMPLOYEES. A WIDE RANGE OF TABLES PRESENTS THE DATA. (AG)

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APPLICATION DATA
AS
PREDICTORS OF SUCCESS
IN
CLERICAL FIELDS

STULL, NELSON, RICHTER

VT009134

SUMMARY

A sample of the application data, transcripts, and test data of 235 clerical and secretarial employees was taken from the sample from the population of Civil Service Employee folders of the State of Minnesota were coded for computer analysis.

The application data, transcript data and civil service test data in these folders was accumulated, along with measure of length of service and promotional information. The latter information was used to establish three criteria of success: Long service, Many promotions, and frequent promotions. The data was coded, and correlations between the entry data and each of the criteria of success were obtained. A second set of analyses were made by selecting about 30 of the most successful and 30 of the least successful in each criterion, and then breaking the application data into dichotomous, trichotomous, or quartotomous classifications, and examining each classification to see if it was capable of predicting the criterion. This was accomplished by using a pattern analysis and scoring program.

Evidence of many correlation relationships was found. Many patterns permitting decisive predictions were identified. Some variables showed great promise of identifying successful employees. Others were found to contribute little information to such predictions. But since this was a pilot study, the number of cases was small, data sampling techniques were being perfected and levels of significance were not

generally sufficient for decisions that are life-shaping for many individuals.

The experimenters feel that a completed study, however, would enable counseling and employment personnel to select clerical and secretarial trainees and employees with benefit to both employers and to the more content employees.

APPLICATION DATA AS PREDICTORS OF SUCCESS IN CLERICAL FIELDS

A Feasibility Study

Prepared Under a Grant From

DIVISION OF VOCATIONAL-TECHNICAL EDUCATION

R. VAN TRIES, DIRECTOR

by

Edwin Stull
Assistant Principal

Gerhard Nelson
Curriculum Coordinator

Dr. George Richter
Technical Division Manager

of

TECHNICAL VOCATIONAL INSTITUTE
ST. PAUL, MINNESOTA

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INTRODUCTION

Who Should Prepare For Employment in the Clerical Vocations - The massive movement today for career education from the cradle to the grave has been triggered in a large part by inappropriateness of vocational choice. For many years the reason given with most frequency for terminating the St. Paul Area Technical Vocational Institute has been "Vocational Goal Uncertain Or Changed". A follow-up study of 683 St. Paul Area Technical Vocational Institute graduates revealed that 271 were satisfied with their trade, 98 would have selected another trade or vocational area and 85 would liked to have had exploratory courses in several vocations. These facts plead for further solutions to the problems of selecting an appropriate career pattern.

This study, "Application Data As Predictors Of Success In Clerical Fields", has a threefold objective:

Objective One - To assist students, who are interested in the clerical occupations, to make appropriate vocational choices.

Objective Two - To assist schools, agencies and individuals who work with others in the vocational decision making process.

Objective Three - To aid employment officers when hiring in the business-clerical areas.

This study, "Application Data As Predictors Of Success In Clerical Fields", is unique in that it attempts for the first time to analyze and make recommendations in terms of the above objectives for the practical use of the information contained in approximately 22,000 cumulative personnel folders held by the Minnesota Department of Civil Service Personnel.

LITERATURE DEALING WITH CLERICAL AND SECRETARIAL SUCCESS

Several studies over the last several years examined the characteristics of successful office employees. Cook and Shapiro (1968) collected data from a group of Michigan Bell Telephone Company office employees. They explain the basis for success ratings in some detail, using supervisors ratings, salary and position as indicators of success.

They report that age and marital status are not correlated to success, while the level of education is. They suggest that while not having any business, typing or shorthand courses leads to poor success ratings, the number of business courses, typing courses and shorthand courses was not critical. Success was not related to IQ, but to ratings such as accurate typist, good at written or oral communications, or good at shorthand. These ratings were positively correlated with success. Also, tests such as the Thurston typing test given at the time of employment and even current typing tests were not generally indicative of success as a secretary.

Rothwell and Baker (1970) sent a questionaire to 300 stenographic and secretarial graduates from Alabama. The criteria of success were the Minnesota Satisfactoriness Scales, a series of 28

rating items created by Dennis Givson. Scores from the National Business Entrance Stenographic Test (NBES) and from 16 P.F. Personality tests were used as independent variables. The investigators found the strongest positive correlations between the "tender minded" personality score and success, the second greatest was with high "shy" scores.

Rothwell and Baker found the following correlations between variables and the success criterion:

Amount of shorthand instruction	- .18
Amount of typing instruction	- .09
Length of the post-secondary business program	- .09
Kind of school - vocational-junior college	- .13
White vs Black School (Black was superior)	- .13
IQ	- .22

The critical value for the correlation was ± .19, so only the last item was significant.

In establishing a multiple correlation predictive formula, the weight given to the National Business Entrance Secretarial test was 4.9, while the amount of shorthand was 4.4. The weight for graduating from a junior college was 3.1, while the coefficient for the length of the secondary school program was -2.2. No report was given on the success of this formula in making predictions of success.

Lloyd (1970) made a study of the causes of physical and emotional problems encountered by older women returning to secretarial employment after a prolonged absence. Certain

characteristics may be used in screening applicants, but the thrust of this study is towards preventing the occurence of the problems through suitable supervisory techniques. Typical problems were the need to update skills and the need to ease family obligations.

Montgomery (1969) analyzed the contribution of such activities as full time educational and full time work, activities to the passing of a Professional Certification Examination for secretaries. He correlated the activities with 225 certified and 165 non-certified secretaries. His results did not reach significance, but did provide some information on one phase of successful pursuit of the secretarial field.

None of these studies correlate the data available at the time of application with measures of success. Some of the items the researchers analyze are items that would be on the applications or transcripts of applicants. Some of the examinations used might provide greater predictive power than present civil service tests. This feasibility study is making an approach different in objective from other works. It is appropriate in the empiracle tradition of first investigations into the applied problems of educational and employment counseling.

FEASIBILITY STUDY

The present study is only a feasibility study. At its inception it was not known whether useful information could be garnered

from the mass of data in the files of the Minnesota Department of Civil Service. The problem confronting the researchers involved selecting and codifying the data, and then finding means to sift and organize it so as to reveal such relationships as did exist. For this reasons, the number of cases is small, and the findings are expressed at probability limits that allow considerable doubt. Since some very useful relationships have been uncovered, it is intended that the main study will contain sufficient cases to confirm the results to a level of probability whereby people responsible for selecting employees or trainees in these areas can justifiably use the results for acceptance or rejection of applicants.

THE POPULATION

Under the careful supervision of Minnesota Civil Service Personnel, namely, James Fritze, Assistant Supervisor; Cal Herbert, Office Manager; and Howard Frank, Office Manager; the names of all employees who were hired in three employment periods: 1950-53, 1957-60, and 1964-67 were given to the researchers. The categories: Clerk I, Clerk II, Clerk Typist I, Clerk Typist II, Senior Clerk Typist, Intermediate Clerk Steno, Senior Steno, Senior Clerk Steno, Clerk Steno and Executive I, who were hired in three periods: 1950-53, 1957-60, and 1964-67, were given to the researchers and used as the parent population of this study.

THE RANDOM SAMPLE

A computer listing of all the file accounts in the above

mentioned categories was obtained. The list was numbered. Using the Rand series of random numbers, a random sample of numbers was obtained in each area. They were listed and the civil service department was requested to send the files of the cases on the list.

The files of those who had left employ were not available, having been transferred to the vault for permanent storage. As will be described later, a special selection of these people was obtained through the special efforts of the civil service department.

THE DATA

The application forms and records of the employees were examined to identify the characteristics from the application blanks that might identify good employees. An exhaustive list, based on the form rather tha- the responses, was made. At a conference of the investigators, each characteristic was discussed for two qualities: (1) was it clearly definable and capable of being coded. (2) did it hold any remote chance of becoming an indentifying characteristic, indicating good and poor employees on an empirical basis.

When the 57 data items were defined, the investigators worked through many applications, classifying applicant responses into the data variables. Details of the classification were worked out. Then the process was turned over to clerical help, 235 cases were processed.

CRITERIA DATA

As the identifying data were established, consideration was given to those characteristics that could be used to identify good from poor employees. Information about pay raises was collected, and then not used, since routine cost-of-living raises were easily confused with changes in grade and promotions. Letters of recommendation from supervisors were considered, but were infrequent. Most severe was the fact that only the files of present employees had been given to the investigators. It was then that the additional fifty files of workers who had quit or been dismissed were given to us. Some of these files were workers of great merit, having retired from long and useful service. Many were short term employees who had left for other jobs. Some were those who had been asked to leave. This rounding out of the population enabled the investigator to define three criterion measures:

1.) THE LENGTH OF SERVICE

The length of service was measured in years. Those who were still on probation were assigned a value of zero. The longest time of service was 44 years, while the mean value was just over one year. When the middle range was eliminated, all those who had worked for seven years or more were classified as long term employees (32 cases) while those who had left after working less than one year were classified as poor employees (32 cases).

The experimenters recognize a possible shift in the

characteristics of the two populations associated with the lag between the completion of applications for the long term and short term employees. Considerable shift in social styles in a period of seven years could result in circumstantial findings.

2.) NUMBER OF PROMOTIONS

The number of promotions ranged from one case of six promotions to three cases in which no data was available (possible temporary employees). Those who were on probation were given a rating of one, (75 cases). At the time probation was completed, the rating of two was assigned (100 cases) and the number of promotions was counted from beyond that point. The distribution mean was about 1.5.

When the dichotomous classification of promotable and non-promotable employees was made, all those having been promoted, that is those with scores of three and above were selected. Then those having extremely long periods of service were eliminated until 30 cases with 3 to 15 years of service remained. It was assumed that those of extremely long service and but one promotion did not represent employees that are promotable in the usual sense.

From the one-hundred cases who had only gotten off probation, 28 cases were selected who had 3 to 15 years of experience. These people made up the non-promotable set.

3.) THE FREQUENCY OF PROMOTION:

A special formula was devised to give scores proportional to an employee's frequency of promotion.

$$F = P + \sum_{i=1}^{n} \frac{1}{t_i}$$

where p = 1 if on probation is completed.
= .01 if on probation.

t_i = no. of years since the previous promotion.

i...n - the number of promotions.

The scores of this statistic ranged from 8.58 to 0.00 for those cases in which no data was available. (Temporary employees?) The mean of the distribution was 1.41 - skewed to the low end as a result of the many cases still on probation or not promoted.

When these scores were classified into the group most frequently promoted as opposed to the group that was least promoted, scores above 2.03 were classified as frequently promoted (29 cases) while those below 1.25 were classified as slow promoters. However, of the 109 cases below 1.25, the short term employees were removed, until only 31 cases remained. These were used as criterion groups in the pattern analysis.

THE ANALYSIS:

Descriptive Statistics:

The UMST 600 DESCRIPTIVE STATISTICS program was used to give the mean, standard deviation and distribution of each statistic.

THE CORRELATION ANALYSIS

The data sets were not complete. In many cases, the original data was not complete in the files. In the cases of certain employees, school transcripts were un-obtainable. The computer programs for calculating multiple regressions were not capable of handling missing data. The difficulty of hand-selecting those cases with complete data over several fields was large, and subject to great clerical error. Since a computer program was available that would make allowance for missing data, the correlations were calculated for all variables, and the number of cases on which each correlation was based was included.

Variables with high positive or negative correlations are judged to be of interest in an extended study. Certain variables can be neglected on the basis of low correlations. If the correlation with any of the three criterion scores is large, then the variable may well be worth additional study.

It should be pointed out that a record was kept of applicant participation in specified activities. For example, an applicant participating as a volunteer in church related activities was catagorized by a "1", while those not participating were either assigned a "zero" or the entry was left blank (which the computer read as a zero). A set of scores of zero and one will give a correlation of zero. The data must be examined by another method.

A second difficulty can arise with correlations. If a statistic should have a character such that low socres on the statistic are related to success, medium scores to non-success, and high scores to success, the correlation would be approximately zero. In those cases where there seemed a possibility of such a relationship, in preference to using a non-linear regression analysis (with its associated problems with missing data) a further analysis by levels was deemed appropriate at an exploratory level.

THE PATTERN ANALYSIS

The criterion scores were broken into groups as described above. The center portion of each set was discarded. The high scoring group was retained and given a score of one. The low scoring portion was given a score of zero. The predictive, or independent variables were also catagorized into dichotomous, trichotomous or quartotomous sets.

Dichotomous sets were those which catagorized as either zero - (those with a "0" or "no response" as the score) - or a one (those with a score of one or more). All seven such independent variables were considered as predictors of the criterion variables. They were examined for the best predictors, first one at a time and then taken two at a time. Separate analyses were made for each criterion variable.

Interesting results were obtained when strong differences showed for a particular characteristics, e.g., when examining

church activities as a predictor of long service, it was found that while few reported any church activities, of those six who did, five were in the short length-of-service group.

TRICHOTOMOUS AND QUARTONOMOUS

Trichotomous sets were those of variables that could be broken naturally into three catagories. Usually these were 0 for non-respondents, 1 for low scoring respondents and 2 for high scoring respondents. In describing each variable the cut-off points delineating these catagories is given.

Quartonomous sets of variables includes those that could naturally be broken into non-respondents, low, medium and high scoring groups. In the description of each of these variables, the cut-off points for the catagories are given.

PROBABILITIES:

The UMST 640 Pattern Analysis and Scoring Program was intended to predict the criterion variable. However, here it was simply used to sort out the good employees and the poor employees in each variable. Assuming that since number of good and poor employees is roughly equal, the same numbers of good and poor employees in any catagory is expected. When, however, the number of good employees are much larger than the number of poor, the catagory may then be said to be a predictor of good employees.

Table ____ gives the numbers of events associated with particular probability levels when the expectation of either of two events in the binomical distribution is .50. On this

basis, unexpected distributions can be identified. Admittedly, the number of cases is frequently small, but from the viewpoint of a pilot study, they indicate areas that are ripe for further investigation. The cited probability levels indicate the likelihood that the statement is true, rather than the likelihood of finding the particular attribute in the applicant.

INTERPRETATION:

It is intended to find information that will allow the interviewer of a prospective employee to say, "if this person has such and such a characteristic, there is a strong probability that he will be a good/poor quality of employee, with respect to his length of service (or whatever)".

When two variables are involved in a relationship, it may be possible to say with greater surety, "If this person has such a characteristic on his application blank, and in addition, he also has this other characteristic. Then it is very probable that he will be a good/poor quality of employee, with respect to this characteristic." This last statement then shows that the "modifying" effect of certain variables may strengthen the predictive ability.

In interpreting the modifiers, the computer programs are used in this pilot study do not permit predictions made by a dichotomous variable to be modified by a tri- or quartotomous variable, or vice-versa. The program can be used so as to allow these interactions, and in the final study, should be so used.

THE FINDINGS

Each variable is reported independently. The general Form of the report will give:

1. The description of the variable and how data was classified and coded.
2. A set of summary statistics: mean, extremes, etc.
3. Correlations with each of the three criterion variables.
4. A description of the classifications used in setting up the pattern analysis.
5. A description of relationships found in the pattern analysis.
6. A recommendation regarding further study on the variable.

Each variable is discussed in context of a pattern analysis summary sheet.

LIST VARIABLE 1 Classification

This entry was only an assigned number for the particular job classification of the employee. The numbers in each classification are given blow.

CODE	CLASSIFICATION	NUMBER OF CASES
0	Executive I	1
1	Clerk I	68
2	Clerk II	7
3	Clerk Typist I	49
4	Clerk Typist II	2
5	Clerk Typist Senior	333
6	Intermediate Clerk Steno	9
7	Senior Steno	25
8	Senior Clerk Steno	9
9	Clerk Steno	62
	TOTAL	235

8361

The concentrations in specific categories reflect an attempt to obtain usable number of cases at various levels.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV 1 Variable No	LV 2 Descriptive Title
	Business Grade Average

RECOMMENDATION FOR FUTURE STUDY: Include in further study.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V2:15	0 0	0	12 P<.01
2. V2:15	0 1	0	7 P<.01
3. V2:15	2 3	5	0 P<.05
4. V2:15	0 3	17	3 P<.01
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V2:27	2 3	8	2 P<17
2. V2:27	0 3	7	2 P<17
3.	2 0	0	4 P<17
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V2	0	9	17
2. V2	1	9	3 P<17
3. V2:37	0 3	1	9 P<01
4.	2 2	5	1 17
5.			

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

Variable No _____ Descriptive Title _____

RECOMMENDATION FOR FUTURE STUDY: _____

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V2:52	0 0	7	15 P<17
2.	1 0	7	2 P<17
3.			
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1.			
2.			
3.			
4.			
5.			

DESCRIPTIVE DATA COMPARED WITH CRITERIA FOR SUCCESS

The first groups of variables pertain to information gathered from the high school transcript. The variable lists of transcript information are compared with three criteria for successful employment:

1. Length of service
2. Number of promotions
3. Frequency of promotions

Transcript data pertaining to grade averages were recorded to the nearest tenth and numerical values were assigned as follows:

"A" = 5 "B" = 4 "C" = 3 "D" = 2 "Pass" = 1 "No Credit" = 0

Variable List Two - Business grade average for all high school business courses other than typing (125 cases). The scores were distributed with a mean of 3.635 and a standard deviation of .736. There were distinct nodal points at the "B" and "C" grade level.

The business grade average did not correlate with length of time spent in employment of civil service or with number of promotions achieved. The -.15 correlation of business grade average with frequency of promotion indicates that employees with high business grade averages probably were promoted less frequently.

The breakdown for a quartotomous analysis was "0" if there was no grade obtained, "1" for all cases between 2.0 and 3.2, "2" for cases between 3.2 and 4.2, and "3" for all cases above 4.2.

A quartotomous analysis comparing "length of service" with "business grade average" only revealed no predictive relationships. If there

is no business grade record, and the age when applying is very young, there is a strong likelihood that the term of employment will be short ($p<.01$). Applicants with a C average in business courses and applying at an older age will probably have a long span of service ($p<.05$). Applicants with no business classes, and older when applying will stay for a long term of employment ($p<.01$).

When the number of promotions was the dependent variable, the business grade average alone did not enable one to predict promotions. But when a person with a C business grade average came from a job whose duties were similar to the one they were applying for, the likelihood of promotion was good, ($p<.17$). If the applicants record contained no business grades, but they came from a job with similar duties to the one they were applying for, they were likely to be promoted ($p<17$). If they had average grades in business, but their previous job experience was very unlike the job they were applying for, the likelihood of few promotions was great ($p<.17$).

The business grade average was a predictor of the frequency of promotion. Those who had no grade record were promoted at a slow rate ($p<17$). Those who had low business grades were promoted at a good rate ($p<.17$), but similar statements cannot be made for those with high or medium business grade averages. When "no business grades" was combined with experience at a job with similar duties, rapid promotion was not likely ($p<.01$). On the other hand, when the applicant had average business grades and the previous job was somewhat related to the job, the applicant was promoted ($p<.17$).

It was also found that if the applicant had grades in business averaging to a "C" and also gave no information about the age of their youngest child. The applicant could expect frequent promotions. However, if the applicant gave no information about business grades and also no information about the age of the youngest child, the applicant would be promoted but slowly.

Recommendation

No business grades may well be indicative of no interest in, or even antipathy to clerical type jobs. No data on the youngest child may well indicate callow youth in the applicant. When the applicant comes from a similar job, it may imply a good attitude towards the work, that may result in promotions over a long period of time.

Most of the relationships lack strong evidence. The main study should include this variable in order to demonstrate the real existence of the characteristics noted.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV 2	LV 3
Variable No	Descriptive Title
	Number of Business Courses

RECOMMENDATION FOR FUTURE STUDY: Retain for further study.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V3	2	7	2 P<17
2. V3:15	0 0	0	10 P< 1
3.	0 1	0	6 P< 5
4.	2 3	6	0 P< 5
5.	0 3	16	3 P< 1
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1.			
2.			
3.			
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V3	0	9	17 P<17
2. V3	2	12	5 P<17
3. V3:52	2 0	10	3 P< 5
4.			
5.			

LENGTH OF SERVICE RELATED TO NUMBER OF BUSINESS COURSES

Persons having two business courses, no more or less, will tend to stay ($p<17$). The relationship between number of business courses and age when applying was very important. With no business courses and hired under age 24 90 out of 100 will have a short span of service. With no business courses and hired before age 24 the expectation is for short service ($p<.05$).

Those who have two business courses and are hired after age 45 will have long service 80 out of 100 times. Those with no business courses and hired after age 46 will stay over a long period of time ($p<.01$).

NUMBER OF PROMOTIONS RELATED TO NUMBER OF BUSINESS COURSES

No significant findings.

FREQUENCY OF PROMOTIONS RELATIVE TO NUMBER OF BUSINESS COURSES

Those with no business courses will not be promoted rapidly ($p<.17$). Those with two business courses will have frequent promotion ($p<17$).

Persons hired with two business courses and no record of children will have frequent promotions ($p<.05$).

Variable List Three - Number of business courses taken in high school other than typing (127 cases). The number of business courses taken were distributed with a mean of 2.740 and a standard deviation of 1.230. None of the correlations

with criteria for successful employment were significant. The fact that 66% of the students took from one to three business subjects apparently prepared the students for entry jobs in the clerical vocations, but have no predictive value in terms of:

1. Length of Service.
2. Number of Promotions.
3. Frequency of Promotions.

RECOMMENDATION

The number of business courses seems to be able to predict good or poor employees. It would be well to examine additional cases in order to confirm these characteristics.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV 3 Variable No	LV 4	TYPING GRADES Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Include in further study.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V4			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1.			
2.			
3.			
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V4	0	9	18 P<17
2. V4	2	11	3 P< 5
3.	2 2	5	1 P<17
4.	0 1	3	9 P<17
5.	3 1	6	2 P<17

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV	
3	4
Variable No	Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: _____

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Frequency of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V4 :41	0 3	1	6 P<17
2.			
3.			
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V4 :21	3 3	2	7 P<17
2.	0 3	2	7 P<17
3.	3 1	5	1 P<17
4. V 4:26	3 3	1	6 P<17
5.	0 3	2	6 P<17
	2 1	7	0 P< 1

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV 3 4

Variable No _____ Descriptive Title _____

RECOMMENDATION FOR FUTURE STUDY: _____

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1.			
2.			
3.			
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V 4:6	0 0	6	15 P< 5
2. V 4:27	2 2	5	1 P<17
3.	3 3	2	6 P<17
4.	0 3	1	9 P< 1
5. V 4:15	0 3	1	11 P< 1
6.	3 3	1	6 P<17

Variable List Four - Grade average for high school typing courses (135 cases). The scores were distributed with a mean of 3.451 and standard deviation .934.

There were distinct nodal points at "C" grade level, 47 cases, at "B" grade level, 33 cases and "A" grade level, 17 cases. High typing grades in high school do not appear to be related to length of time employed in civil service or too frequent of promotions. There was a correlation of .12 with number of promotions which is not significant. No doubt the typing skill attained in high school will enable the applicant to take the civil service typing test and enter employment; however, the typing grade attained in high school does not linearly correlate with length of service, number of promotions, or frequency of promotions.

When the grades were broken into quartonomous groups for the purpose of pattern analysis, those having no grades were assigned the score of "0". Those with an average between .01 and 3.0 were assigned the value "1", those with grades between 3.0 and 4.0 were assigned a value of "2" and all those above 4.0 (or B) were assigned the value of "3".

The quartotomous analyses with length of service and number of promotions both showed no relationships. The quartotomous analysis with the frequency of promotion criteria showed that those with no typing grades were among those that were infrequently promoted ($p<17$). Those with medium and high typing grades

were frequently promoted ($p<.05$). However, many modifiers assisted the typing grade average in predicting the frequency of promotion. When the applicant was married and received grades between C and B in typing, he was promoted with good frequency ($p<.17$). When the applicant was single and had no record of typing grades, she was infrequently promoted ($p<.17$). When the applicant had high typing grades and was single, she was very likely to be promoted frequently ($p<.17$).

It also appeared that the combination of no typing scores and no high school rank grade (this implies no high school transcript) predicted infrequent promotions, ($p<.05$).

If the interviewer finds no typing scores given on the transcript and finds that the applicants previous job was strongly related to the work applied for, the likelihood is for infrequent promotions ($p<.01$). If the typing scores were high and the previous job was closely related, the probability still favors infrequent promotions ($p<.17$) but if the applicant gives evidence of typing grades in the C to B range, and the last previous work experience is only moderately related to the job applied for, the probability of promotion is quite good ($p<.17$).

When no typing average is available and the applicant is over age 46, the applicant will spend a long time in the first job before being promoted ($p<.01$). If the applicant has good typing scores in high school, and applies between the ages of 24 and 45, the expectation is again for infrequent promotions ($p<.17$).

If the applicant has no typing grades and a high score in the civil service typing test, or comes from a rural school, or comes from a rural job, the likelihood in all three cases is for infrequent promotions ($p<.17$). If the applicant comes with high high school typing grades and comes from a rural area, or the last job was in a rural area the likelihood is for infrequent promotions ($p<.17$). However, frequent promotions may be expected for those applicants with high high school typing grades and coming from a city ($p<.17$) or with medium typing grades and coming from an urban job, ($p<.01$).

RECOMMENDATION

Interviewers are frequently anxious to select candidates who will fill one position for a long time. The typing grade average contributes strongly to the prediction of frequency of promotions. It may be used largely to modify other characteristics. The validity of using it as a predictor is not firmly established and so additional study is recommended.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV 4	LV 5	English Grade Average
Variable No		Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Include in further study.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns		Prob. for Long Service	Prob. for Short Service
1. V5:15	0	0	0	10 P< 1
2.	0	1	1	5 P<17
3.	2	3	5	0 P< 5
4.	0	3	15	3 P< 5
5.				
6.				
7.				
8.				
9.				

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns		Prob. for Many Promotes	Prob. for Few Promotes
1. V5	3		11	4 P<17
2. V5:27	3	3	9	2 P< 5
3. V5:27	0	2	2	9 P< 5
4.	0	3	7	2 P<17
5.				

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns		Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V5	0		8	18 P<17
2. V5:9	2	0	5	1 P<17
3. V5:19	0	2	2	8 P<17
4.	3	1	9	3 P<17
5.	3	2	1	6 P<17

LENGTH OF SERVICE CRITERION RELATED TO ENGLISH GRADE AVERAGE

When compared in a quartotomous pattern analysis, the English Grade Average was important when combined with the age of the applicant. When no English Grade Average was available and the applicant gave no information about her age, or the applicant was between ages 16 and 24, the likelihood was of short service ($p<.01$, $p<.17$ respectively). However, even though no English Grade Average was available, and the applicant was over age 46, the probability was for long service ($p<.05$). When the English grade average was between C and B, and the applicant was over age 46, the likelihood of long service was also great ($p<.05$). The age seems almost to be more important as a determining factor than the English grade.

ENGLISH GRADE AVERAGE AS A PREDICTOR OF THE NUMBER OF PROMOTIONS

Applicants with high English grades are promoted many times ($p<.17$). When the applicant has a high English grade supplemented with experience of a job closely related to the work being applied for, promotions will be many ($p<.05$). Many promotions will be the reward to those who report no English grades but come from a job closely related to the one applied for ($p<.17$). But where the previous job was only slightly related to the work applied for, and no data is available about the English grade average, the applicant will not be promoted ($p<.05$).

ENGLISH GRADE AVERAGE AS A PREDICTOR OF THE FREQUENCY OF PROMOTION

When the applicants' record indicates no English grades, the likelihood is for infrequent promotions. When this is supported

by special vocational education, the likelihood still favors infrequent promotions. Those who have excellent English grades and only a high school diploma are likely to be frequently promoted, and those with excellent English grades, but with some special vocational or extension education are apt to be infrequently promoted. The probability associated with all of these statements is p .17.

Variable List Five - Grade average for all high school English courses (130 cases). The scores were distributed with a mean of 3.413 and a standard deviation of .871. There were distinct nodal points at the "C" grade level, 51 cases, and "B" grade level, 47 cases.

Grade averages for high school English courses did not correlate significantly with criteria for successful employment:

1. Length of Service.
2. Number of Promotions.
3. Frequency of Promotions.

For the purpose of quartotomous pattern analysis, those having no grade were given the score of "0", those with English grade averages between .01 and 3.0 were given the score of "1", those with English averages between 3.0 and 4.0 (C through B) were given the score of "2", and those with grades above B were given the score of "3".

RECOMMENDATION

The English Grade Average statistic does provide positive information about the promotability of applicants. It also suggests that people with Vocational backgrounds are apt to remain long periods of time in the jobs for which they have been trained. The probability levels of these statements are not sufficient for stringent application of the rules, and for that reason, it would be wise to include this variable in additional study.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV 5 6	High School Rank
Variable No	Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: _____

Length of Service Criterian

Variable Combinations	Quartotomous Patterns		Prob. for Long Service	Prob. for Short Service
1. V6:15	0	0	0	11 P<1
2. V6:15	0	1	0	6 P<17
3.	0	3	19	3 P<1
4.				
5.				
6.				
7.				
8.				
9.				

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns		Prob. for Many Promotes	Prob. for Few Promotes
1. V6	2		5	11 P<17
2.	3		8	2 P<17
3. V6:45	0	1	0	6 P<17
4.	0	3	10	4 P<17
5.				

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns		Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V6:27	2	2	5	1 P<17
2.	3	2	5	1 P<17
3.				
4.				
5.				

List Variable Six

The applicants high school rank was taken directly from the transcript and expressed as a percentile rank. Those with rank 1 were the superior students, those with ranks near 100 were of low ability. Information was available for 132 of the 234 cases included in the study. The mean high school rank was 54.8. The highest HSR was 2, while the lowest was 99. The distribution was nearly rectangular.

In the correlation analyses with the number of promotions criterion, the correlation was .27, suggesting that those in the lower part of the class were promoted. The correlation with the frequency of promotions criterion was .12. The correlation with length of service was negligable.

For the quartotomous analysis, those not reporting any high school rank were assigned into category "0", those with high school ranks below 28 were placed in group "1", those with ranks between 28 and 71 were in group "2", and those with scores above 71 were in group "3".

LENGTH OF SERVICE CRITERION

Those persons giving no information about either their age or their high school rank when applying were likely to give short service (p .01). Those with no high school rank and applying at a young age (16 through 18) were also likely to give short service (p.<.17).

However, those giving no high school rank and applying at ages such as 46 or older were very likely to give long service (p.<.01).

NUMBER OF PROMOTIONS CRITERION

Applicants applying with high school ranks between 28 and 72 were not promoted,whereas those with high school ranks below 72 were promoted. When no high school rank was available, those with a total civil service score below 30 were not promoted, made with a .17 probability level.

FREQUENCY OF PROMOTION CRITERION

Those applicants having high school ranks between 28 and 100, and also having had a previous job of moderatley similar job duties were promoted frequently (p.<.17).

RECOMMENDATION

The high school rank, alone, or with other modifying characteristics taken into comsideration, seems to be a possible predictor of success in these careers. Therefore it should be retained for further study in hopes of increasing the surety of the predictions.

Variable List Six

High school rank expressed in percentiles (132 cases). The ranks were distributed with a meare percentile rank of 54.787 and a standard deviation of 26.525. The range from one to 99 was evenly distributed throughout; the highest frequency, seven, occurred at the 56 percentile level. Correlation of high school rank with length of service and frequency of promotion was insignificant. However, a positive correlation of .27 with numbers of promotions indicates a trace of relationship. The researchers noted that the higher ranking employees did not tend to stay long. It could be the the civil service employment was only temporary until more lucrative employment was available. Another supposition might be that these people were under employed, became bored with their woik and left. Perhaps combinations of analyses with other variables will reveal some enlightening information.

Variable List Seven

Minnesota Scholastic Aptitude Test scores expressed in percentiles (73 cases). The scores were distributed with a meare of 40.06 and a standard deviation of 29.09. The MSAT scores did not correlate with length of service or number of promotions. A negative correlation of .17 with frequency of promotions indicates a converse relationship. The scores were evenly distributed from 2 to 97 without any points of high frequency. It appears the MSAT is of no value in predicting whether an applicant will be a satisfactory employee in terms of correlations with the criterice "Length of Service", "Number of Promotions" and "Frequency of Promotions".

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV 6	LV 7	Minnesota School Aptitude Test
Variable No		Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: This statistic may be of use in further study.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V7	Non-significant		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V7:41	0 0	5	10 < 17
2.	0 3	9	2 < 5
3.			
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V7	1	5	1 < 17
2.			
3.			
4.			
5.			

List Variable Seven

When the MSAT scores were divided for the quartotomous analysis, those with no score were assigned the value "0", those with scores below 16, the value "1", those between 17 and 63 the value "2", and those with scores above 64 the value "3". Using these categories were used in a pattern analysis to determine predictors of long service no significant predictors were found. However, when no data was available on the MSAT and also no score was available on the civil service typing test, the employed applicant might expect no promotions ($p<.17$). If the applicant had no MSAT score and had a high score on the typing test, then the applicant might expect many promotions when employed ($p<.05$). It also appeared that scores in the MSAT below 17 predicted frequent promotions ($p<.17$).

RECOMMENDATION

The Minnesota Scolastic Aptitude Test has a slight ability to predict the character and number of promotions. On this basis, it might be suitable to retain it for further study.

TRICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Trichotomous Pattern - "2" refers to high score - "1" refers to low score - "0" no information

FINDINGS:

8 — Variable No

TEACHER RECOMMENDATIONS — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: _____

Length of Service Criterian

Variable Combinations	Trichotomous Patterns		Cases for Long Service	Cases for Short Service	Probability
1. V8:20	0	2	10	5	P<.17
2. V8:17	0	1	1	5	P<.17
3.					
4.					
5.					
6.					
7.					
8.					
9.					

Number of Promotions Criterian

Variable Combinations	Trichotomous Patterns		Cases for Many Promotes	Cases for Few Promotes	Probability
1. V8:37	0	2	10	2	P<.05
2.					
3.					
4.					
5.					

Frequency of Promotion Criterian

Variable Combinations	Trichotomous Patterns		Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1. V8:24	0	1	1	6	P<.17
2.					
3.					
4.					
5.					

Variable List Eight

Teacher recommendations were expressed to the nearest tenth according to the following scale: "5" strong, "4" good, "3" fair, "1" negative (42 cases). The ratings were distributed with a mean of 3.378 and a standard deviation of 1.068. The correlations of teacher rating with frequency of promotion was insignificant. There was a negative correlation of .21 with length of service and a negative .19 with the number of promotions, implying that the better recommended student was neither promotable, for of long service. There was a distinct bimodal situation in the distribution curve with nodes at the "4" good level and "3" fair level.

The teachers recommendation did not serve to predict length of service, number of promotions nor frequency of promotion when subjected to a trichotomous pattern analysis, despite the existence of the correlations mentioned aboce.

However, when coupled with other variables, it served to modify patterns. In the case of a long elapsed time since completing education the lack of teachers recommendation predicted long service, at a ratio of 20 to 11. When an applicant indicated a large number of jobs, no teacher recommendation indicated long service at a probability of .17 when the applicant was a male without a teachers recommendation, a prediction of short service is probable at the .17 probability level.

When the applicant has a high written civil service score modified by a lack of a teachers recommendation, a prediction of many promotions may be made at a probability level of less than .05.

When the applicant indicates a short period of unemployment, modified by a lack of a teachers recommendation, a prediction can be made of infrequent promotions at a probability level of less than .17.

Commentary: The teachers recommendation has so little value as a predictor of success that the question might well be eliminated from the application blank. The lack of data in the several modifying situations occurs because there were only 11 cases of teachers recommendations in the roughly sixty cases involved in the pattern analysis.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV	
7	9
Variable No	Intelligence Test Scores (Descriptive Title)

RECOMMENDATION FOR FUTURE STUDY: Included in further study.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V9	0	24	11 < 17
2.	1	2	13 < 5
3. V9:15	0 1	1	6 < 17
4.	0 3	20	3 < 1
5.	1 0	0	11 < 1
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1.			
2. None significant			
3.			
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V5:9	0 0	6	14 < 5
2. V5:9	2 0	5	0 < 5
3.			
4.			
5.			

Variable List Nine

Intelligence Test Score (109 cases).

The scores were distributed with a mear intelligence quotient of 106.614. They ranged from 81 to 129. There was one modal point - 14 applicants with an intelligence quotient reading of 102.

There was no significant correlation between intelligence quotient andthe criteria for success "Length of Service", "Number of Promotions" and "Frequency of Promotions". It appears Intelligence Quotient has no predictive value and therefore could just as well be eliminated from the cumulative record.

When a quartotonomous analysis of the IQ scores was made, these having no scores (or scores below 70) were classified as zero, those between 70 and 101 as 1, those between 102 and 109 as "2", and those above 110 as "3". In the quartotomous analysis it was shown that those having no score might well be expected to give long service ($p<.17$), while those in the lower classification (scores between 70 and 101) showed a stronger probability (p .05) favoring short service. Such predictions might be reinforced by modifiers, such as when no score is associated with a young age at the time of application (between 16 and 23) the likelihood of short service again is $p<.17$. When the applicant is over age 46, however, the likelihood of long service is very great ($p<.01$). It also appears that when the applicant is between IQ 70 and 101 (the lower group) and gives no age when applying, that the likelihood of short service becomes great ($p<.01$).

The quartonomous pattern analysis revealed no relationship between the number of promotions and the IQ score.

The frequency of promotion could be predicted when those giving no IQ score also gave no English grade average. The characteristics favored infrequent promotions with a .05 probability level. It also appeared that if the applicant had grade averages in English between a C and a B coupled with no IQ data, the applicant would probably have a frequent promotion ($p<.05$).

RECOMMENDATION

Include in further study so as to confirm the predicting abilities indicated above.

TRICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Trichotomous Pattern - "2" refers to high score - "1" refers to low score - "0" no information

FINDINGS:

10 — Variable No

Differential Aptitude Test Score-Mathematics — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Omit from further study since so few applicants records report this statistic.

Length of Service Criterian

Variable Combinations	Trichotomous Patterns		Cases for Long Service	Cases for Short Service	Probability
1. V10:20	0	0	5	14	P<.05
2. V10:20	0	2	22	10	P<.17
3.					
4.					
5.					
6.					
7.					
8.					
9.					

Number of Promotions Criterian

Variable Combinations	Trichotomous Patterns		Cases for Many Promotes	Cases for Few Promotes	Probabilitv
1. V10:37	0	2	12	2	P<.01
2. V10:22	0	2	8	7	
3.					
4.					
5.					

Frequency of Promotion Criterian

Variable Combinations	Trichotomous Patterns		Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1. V10:20	0	2	10	17	P<.17
2.					
3.					
4.					
5.					

Variable List Ten

The Differential Aptitude Test Battery - Mathematics section percentile test scores were recorded (8) cases. The scores were distributed with a mean percentile of 46.50 and a standard deviation of 31.024. Negative correlations of .38 with length of service and .40 with number of promotions appear to be significant.

A trichotomous analysis comparing "length of service" with "DAT mathematics score" and "elapse of time from completing education to application" revealed that employees with no information in either category were short time employees by a ratio of 5 to 14. However, employees with no information on "DAT math score" and an "elapse of four years or more from time of completing education to application" were long time employees by a ratio of 20 to 11.

A trichotomous analysis comparing "number of promotions" with "DAT math score" and "written civil service test scores" revealed that applicants with no math score data and high written civil service test score (18 or more) received numerous promotions by a ratio 12 to 2. (Probability of this happening by chance is once in 100).

The Differential Aptitude test score in mathematics did not appear alone in any of the trichotomous pattern's therefore, no statement can be made regarding its significance other than in terms of the absence of the score. The recommendation

to discontinue further study of this score is based on the small number of cases in which it is available, and that it makes no positive appearances even as a modifier.

TRICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Trichotomous Pattern - "2" refers to high score - "1" refers to low score - "0" no information

FINDINGS:

11 — Variable No

DIFFERENTIAL APTITUDE TEST SCORE-CLERICAL SECTION — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Findings do not support further study.

Length of Service Criterian

Variable Combinations	Trichotomous Patterns		Cases for Long Service	Cases for Short Service	Probability
1. V11:20	0	0	5	14	P<.05
2. V11:20	0	2	22	10	
3.					
4.					
5.					
6.					
7.					
8.					
9.					

Number of Promotions Criterian

Variable Combinations	Trichotomous Patterns		Cases for Many Promotes	Cases for Few Promotes	Probability
1. V11:22	0	0	1	8	P<.05
2. V11:22	0	1	20	13	
3.					
4.					
5.					

Frequency of Promotion Criterian

Variable Combinations	Trichotomous Patterns		Cases for Frequent Promotes	Cases for Infrequent Promctes	Probability
1. V11:20	0	0	17	5	P<.05
2. V11:20	0	2	10	17	
3.					
4.					
5.					

VARIABLE LIST ELEVEN

The Differential Aptitude Test Battery, Clerical Section, the percentile test scores were available for six cases in a sample of 235 applicants. The scores were distributed with a mean of 65.666 and a standard deviation of 22.786. Negative correlations of .27 with number of promotions and .71 with frequency of promotion may appear significant with further analysis.

The Differential Aptitude test score in clerical aptitude did not appear alone in any of the trichotomous patterns; therefore, no statement can be made regarding its significance other than in terms of absence of the score.

A lack of information on the clerical DAT score, combined with no information on the amount of ellapsed time since completing education is predictive of short service ($p<.05$). On the other hand, a long period of time since completing schooling modified by no data on the DAT-Clerical may be predictive of long service.

A trichotomous analysis comparing "number of promotions with "DAT Clerical test scores" and "number of previous jobs held" revealed that employees with no information in either category received few promotions by a ratio of 8 to 1. However, those having no information on the "DAT Clerical" and had held "one previous job" received more frequent promotions by a ratio of 20 to 13.

VARIABLE LIST ELEVEN CONT'D

No information on either the DAT Clerical test, or on the elapsed time since completing education is predictive of frequent promotions ($p < .05$). However, it is possible that an elapsed time since completing education may be modified by the absence of a Clerical DAT score to predict infrequent promotions at a 17/10 ratio.

Commentary: Since there were only six cases of scores on the DAT Clerical and since all the pattern analysis scores were of the negative variety, the DAT Clerical does not appear to offer very much potential information. For that reason, it should be dropped from further investigation.

OK

TRICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Trichotomous Pattern - "2" refers to high score - "1" refers to low score - "0" no information

FINDINGS:

12 — Variable No

Differential Aptitude Test Score-Verbal Section — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Findings do not support further study because of lack of data on transcripts.

Length of Service Criterian

Variable Combinations	Trichotomous Patterns		Cases for Long Service	Cases for Short Service	Probability
1. V12:20	0	2	23	11	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					

Number of Promotions Criterian

Variable Combinations	Trichotomous Patterns		Cases for Many Promotes	Cases for Few Promotes	Probability
1. V12:37	0	2	12	2	P<.01
2.					
3.					
4.					
5.					

Frequency of Promotion Criterian

Variable Combinations	Trichotomous Patterns		Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1. V12:20	0	0	15	7	<.17
2. V12:20	0	2	10	17	
3.					
4.					
5.					

VARIABLE LIST TWELVE

The differential aptitude test battery - verbal section percentile test scores were recorded (6 cases). The scores were distributed with a mean score of 48.333 and a standard deviation of 28.033. There was a positive correlation of .42 with number of promotions which indicates that people with higher verbal ratings get a higher number of promotions.

The Differential Aptitude Test score in verbal aptitude did not appear in any of the trichotomous patterns; therefore, no statement can be made regarding its significance other than in terms of absence of the score.

A trichotomous analysis comparing "number of promotions" with "DAT verbal test score" and "written civil service test score" indicates employees with no information on the "DAT verbal test score" and high scores (81 or more) on the "written civil service test score" received high number of promotions.

Variable List 13 - The number of activities participated in during the last four years of secondary school.

Only ten of the 235 cases sampled yielded data for this classification. The information was obtained from the transcript, and the smallest number of activities recorded was two, while the greatest was 30. The mean value was 9.8 among the ten respondents. The correlation with length of employment was negligable, with number of promotions was .11, and with the rate of promotion was -.14. The data was not investigated in the pattern analysis simply because so few cases reported activites. These investigators recommend dropping it from study.

Variable List 14 - The year of application

On the application the date of the application was basic information. 229 of the 235 applications gave this date. They were distributed from 1939 to 1971, with a strong skewing to the recent end of the distribution. That is, three people applied in 1939, twenty-five in 1971 and approximately fourty-percent of the people applied in 1968 or later. The mean date was 1965.8 and the standard deviation was 6.17 years. Since the selection of the subjects for study was based on a random sampling of 22,000 employees, the data implies the majority of state civil service clerical workers are not long term employees.

When correlated with length of service, a -.73 was found (those with the smallest date of application had the longest employment, naturally), and when correlated with the number of promotions, a -.65 was found. The correlation with the frequency of promotion

criterion was only -.16.

The statistic is not one to use as a criterion for selecting employees. It might however, be used to show a changing character in employees over a period of time, and so might well continue to be included with further data.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Explanation:

Variables - Variables "V" referred to by number - descriptive titles - see appendix

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Probability Table - See appendix

LV 8	LV 15	Age When Applying
Variable No		Descriptive Title

Recommendation: Retain in further study to confirm its predictive power.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns		Prob. for Long Service	Prob. for Short Service
1. V:15	0		0	13 < 1
2.	1		1	10 < 1
3.	3		24	3 < 1
4. V15:19	0	0	0	13 < 1
5.	1	1	1	8 < 5
6.	3	1	12	3 < 5
7.	3	2	12	0 < 1
8. V15:45	0	0	0	13 < 1
9.	1	1	0	7 < 1

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns		Prob. for Many Promotes	Prob. for Few Promotes
1. V:15	1		4	9 < 17
2. V15:27	3	3	10	2 < 25
3.	1	0	0	6 < 5
4.				
5.				

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns		Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V:15	1		11	5 < 17
2.	3		5	14 < 5
3. V15:27	3	3	2	9 < 5
4. V4:15	0	3	1	11 < 1
5. V15:25	3	3	3	9 < 17
	2	1	5	0 < 5

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV 8 Variable No	LV 15	Age When Applying (Continued) Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: _____

Length of Service Criterian

Variable Combinations	Quartotomous Patterns		Prob. for Long Service	Prob. for Short Service
1.	3	3	13	0 < 1
2. V15:27	0	0	0	13 < 1
3.	3	3	13	2 < 1
4.	3	2	9	1 < 1
5. V15:41	0	0	0	13 < 1
6.	3	0	9	1 < 1
7.	3	2	7	0 < 5
8. V15:16	0	0	0	13 < 1
9.	1	1	1	8 < 5
	3	1	11	0 < 1

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns		Prob. for Many Promotes	Prob. for Few Promotes
1.	3	2	10	1 < 1
2. V15:27	0	0	0	13 < 1
3.	3	3	15	2 < 1
4. V15:26	0	0	0	13 < 1
5.	1	1	1	6 < 17
	3	3	9	1 < 1

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns		Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1.	3	1	13	2 < 1
2. V15:23	0	0	0	13 < 1
3.	1	1	1	8 < 5
4.	3	1	20	3 < 1
5. V15:52	0	0	0	7 < 1
	3	0	22	1 < 1

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV 8 15	Age When Applying (Continued)
Variable No	Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: _____

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1.	0 3	0	6 < 5
2.	1 0	1	9 < 1
3. V15:47	0 0	0	13 < 1
4.	3 0	14	1 < 1
5.	1 0	1	6 < 5
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1.			
2.			
3.			
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1.			
2.			
3.			
4.			
5.			

Variable List Fifteen

A record of the employee's age at the time of application is basic descriptive data (.231 cases). The mean age at time of application was 33.31 years with a standard deviation of 14.6 years. Forty-four percent of the applicants ranged from 18 to age 23. The balance was quite evenly distributed with the exception of one node at age 55 with eleven applicants. The maximum age was 69.

A pattern analysis was applied to determine if particular age brackets at the time of application tend to make better employees in terms of the criteria length of service, number of promotions and frequency of promotions. The age when applying was broken into quartotomous categories of "0" for those giving no data, "1" for those applying between ages 16 through 24, "2" for those applying between ages 25 and 46, and "3" to those applying at age 47 and older.

LENGTH OF SERVICE CRITERION

The pattern analysis identified those giving no data about their age as being short term employees. Those employed at ages 16 through 24 were also short term employees. But those applicants at age 47 and above were usually long term employees. This data is supported when modified by information of the applicants highest degree in education. When no information on either the degree or the age when applying is available, the likelihood is strong for short service. The probability of all these statements is .01. When the age at the time of application is between 16 through 24 and the applicant has a high school diploma, short service may be expected ($p<.05$). But when the applicant is mature, either with only a high school diploma or with some post-high school vocational work, the likelihood is for long service, with probability of .05 and .01 respectively.

Another statistic that modified the basic age when applying statistic was the total civil service score. When no data was available on either measure, or when a young applicant achieved a low total score, the expectation was of short service, However, those applicants of mature age with good civil service total scores were also those who gave long service. It also appears that if the applicant indicated no age and no previous job duty on their application, the term of employment would be short. And if the applicant gave no information on the age when applying and also did not take the civil service typing test, or if the applicant omitted both age and marital status, or omitted both age of the youngest child or omitted both age

and length of the last job, or omitted the age and location of the last job, any of these combinations made the likelihood of short service great. All these statements can be made at a .01 probability level.

On the other hand, when a mature applicant indicated previous jobs of a clerical or steno type, then long service could be expected. (Both probabilities are .01). The quartotomous analysis also showed that young applicants with short service in their previous job became short term employees ($p<.05$), but mature applicants coming from a short term previous job became long term employees ($p<.01$). The location of the previous work has a modifying factor, for young applicants coming from an urban job were short term employees ($p<.17$), while mature applicants from urban or rural locations were long term employees ($p<.01$).

Civil service scores were important modifiers, as noted for the total civil service score above, but in addition, those applicants of mature age scoring low, or with no civil service typing score were apt to be long term employees. ($p<.01$, .05 respectively) The shorthand test also acted to modify the age when applying for while young applicants with no shorthand test scores were short term employees ($p<.01$) and mature applicants without the shorthand scores were long term employees ($p<.05$).

Marital status modified the prediction: young applicants that were single were short term employees ($p<.05$), while mature applicants, single or married were long term employees ($p<.01$).

It also appeared that applicants omitting their age, but indicating a mature youngest child were short term employees ($p<.05$). So were those of young age with no children ($p<.01$). But mature applicants omitting the age of their youngest child were exceptionally prone to become long time employees ($p<.01$).

Age when applying as a predictor of the number of promotions. Although the more mature applicant has less time to be promoted, it was the young applicants that showed up as a low-promotion group ($p<.17$). When an applicant was young and gave no information on their previous job duty, the likelihood of promotion was small ($p<.05$). But the mature applicant whose last job was of stenographic level was a prime candidate for promotions. (p .05).

Age when applying as a predictor of the time rate of promotion.

Young applicants were among those rapidly promoted ($p<.17$). Mature applicants were slow promoters ($p<.05$). When previous job duties were of a stenographic character, the rate of promotion was also slow ($p<.05$). If the previous job was strongly related to the job applied for, the rate of promotion was slow for these mature applicants ($p<.05$). When the mature applicant had no typing grades, promotion was slow. But when an applicant in the age 25-46 age bracket came from a job that was little related to the one applied for, she was soon promoted ($p<.05$).

RECOMMENDATION: This variable shows great promise as a predictor. The significance of its predicting power is explained in the section following this which shows the interviewer how this data

might be used. By all means, additional study should be made to firm up the certitude of predictions based on this variable.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV 9	LV 16	Marital Status
Variable No		Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Include in further study so as to confirm the probabilities.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V:16	0	0	13 < 1
2.	2	15	6 < 5
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V:16	2	15	9 < 17
2. V16:27	1 3	9	2 < 5
3.	2 0	0	5 < 5
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. None significant.			
2.			
3.			
4.			
5.			

Variable List Sixteen

A record of the employee's marital status at the time of application is basic descriptive data (228 cases). One hundred eleven were single, ninety-three were married, thirteen were widowed, eight were divorced and three were separated.

The fact that 111 of the applicants were single corresponds with the statistic that 102 of the applicants were 23 years of age or less at the time of application. Also ninety of them had made application in the last three years - 1969 (54 applicants) 1970 (11 applicants) and 1971 (25 applicants).

There were 117 applicants who were married or had been married. There were only thirty-seven applications during the prime child bearing ages of 24 to 34 years. Approximately eighty of the married applicants made application after they became thirty-four years of age.

The marital status scores were divided into four categories for a quartotomous analysis. Those giving no information received a zero. Those listing single were assigned a "1", those listing married were assigned a "2", and those listing other entires were assigned a "3".

When the independent variable was the length of service, then those giving no information were employed only a short time. ($p<.01$). Those listing the category "married" were commonly long term employees ($p<.05$).

When the number of promotions was the criterion, then the married applicant was usually promoted (p .17). It was also possible to say that when married applicants gave no information on their previous job duties, it was not likely that they would be promoted (p .05). On the other hand, when an applicant who was single indicated a classification of better than manual or semi-skilled duties in their previous job, it was likely that they would be promoted (p .05).

No relationship was found in the pattern analysis with frequency of promotion as the criterion variable.

Recommendation

Additional study might give greater certitude to the predicting powers indicated above.

TRICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Trichotomous Pattern - "2" refers to high score - "1" refers to low score - "0" no information

FINDINGS:

17 — Variable No

Sex Identification Data — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Preliminary findings support further study.

Length of Service Criterian

Variable Combinations	Trichotomous Patterns	Cases for Long Service	Cases for Short Service	Probability
1. V17	1	1	5	P<.17
2. V17	2	31	24	
3. V17:20	2 2	22	9	
4. V17:20	1 2	1	2	
5.				
6.				
7.				
8.				
9.				

Number of Promotions Criterian

Variable Combinations	Trichotomous Patterns	Cases for Many Promotes	Cases for Few Promotes	Probability
1. V17	1	0	2	
2. V17	2	30	26	
3. V17:37	2 2	12	1	P<.01
4. V17:37	1 2	0	1	
5. V17:22	2 0	1	7	P<.05
V17:22	1 0	0	1	

Frequency of Promotion Criterian

Variable Combinations	Trichotomous Patterns	Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1. V17	1	0	3	
2. V17	2	28	28	
3.				
4.				
5.				

Variable List Seventeen

A record of the employee's sex is basic descriptive data (232 cases). There were 218 female applicants and 14 male applicants.

The correlation between sex and length of service was negligable. The correlation with number of promotions was .14 and that with the drequency of promotion was .16. This suggests that female employees are certainly more promotable than the males.

A trichotomcus analysis comparing "length of service" with the sex variable indicated the male applicants were more apt to have short term of service by a ratio of 5 to 1. The female applicants were evenly divided by ratio of 31 to 24 in favor of long service. A trichotomous analysis comparing length of service with "sex variable" and "lapse of time from completion of education to application" indicated that females with elapse of four years or more from time of completing education to time of application provied to be long time employees by a ratio of 22 to 9.

A trichotomous comparison of "number of promotions" with "sex variable" and "number of previous jobs held revealed that female employees with no previous job experience received fewer promotions by a ratio of 1 to 7. The prediction for males with the same variable combination would be inconclusive with only one case appearing. A trichotomous comparison of "number of

promotions" with "sex variable" and "written civil service test scores" revealed that female employees with high test scores receive maximum number of promotions by a ratio of 12 to 1. The prediction for males with the same variable combination would be inconclusive with only one case appearing.

In the trichotomy for frequency of promotion the female population was evenly divided with 28 promoting frequently and 28 promoting infrequently. The three listed in the male category promoted infrequently.

Variable List Eighteen - Highest Educational Grade Level Attained by the Applicant

As the applicant list the highest grade achieved, it was converted into numbers where high school graduation was given a 12, the bacalaureate degree a 16 and so on. The final distribution ranged from 9th for three applicants, to 16 for eight applicants. Eight of the 235 had not completed high school. 74 had some post-high education but had not a B.A. degree. The mean value was 12.5 and the standard deviation was 1.09 years.

The correlations with all three criteria were effectively zero. The investigators did not pursue a pattern analysis on this data, but instead performed such an analysis on the highest degree data of Varuable list 19. The latter had the advantage of distinguishing vocational and collegiate post-high school work.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV 10	LV 19	Degree
Variable No		Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: _____

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V:19	0	0	14<1
2.	2	15	1<1
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V:19	2	11	6 < 17
2.			
3.			
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V:19	2	4	14 < 5
2.			
3.			
4.			
5.			

Variable List Nineteen

A record of the applicant's educational progress in terms of diploma or degree attained at time of application was as follows:

1. High school diploma including G.E.D. -156 cases
2. Special vocational education including diploma, certificate or extension - 54 cases
3. Degree, college, university, etc. - 11 cases

There were 225 cases reported with no information for 4 cases.

The correlation with both length of service and number of promotions was approximately zero. The frequency of promotion correlation was -.14, suggesting that the higher degreed employees were slow to be promoted.

For the quartotomous analysis, those giving no information about their level of education were classified into the "0" group. Those having a high school degree into the "1" group, those having special vocational education in the "2" group, and those holding college degrees in group "3".

When the criterion variable was the length of service, those applicants giving no information were short term employees ($p<.01$). Those indicating vocational backgrounds were usually long term employees ($p<.01$).

When the criterion variable was the number of promotions, those applicants indicating vocational level backgrounds received many promotions ($p<.17$). However, the vocational applicants did not receive frequent promotions ($p<.05$).

The variable might well be included in further study so as to make sure of the predicting power of the applicants degree status.

TRICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Explanation:

Variables - Variables "V" referred to by number - descriptive titles - see appendix

Trichotomous Pattern - "2" refers to high score - "1" refers to low score - "0" no information

Probability Table - See appendix

20	Elapse of Time From Date of Completing Education of Application to Date
Variable No	Descriptive Title

Recommendation: Elapse of time from date of completing education to to date of application - "0" same year, "1" one year lapse, "2" two years lapse - etc.

Length of Service Criterian

Variable Combinations	Trichotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V20	0	5	14 P<.05
2. V20	2	23	11
3. V20:37	1 1	1	6 P<.17
4. V20:37	2 1	15	6 P<.05
5. V20:22	2 2	11	4 P<.17
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Trichotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V20:37	2 2	6	2 P<.17
2. V20:22	0 0	1	7 P<.05
3. V20:33	2 2	5	1 P<.17
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Trichotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V20	0	15	7 P<.17
2. V20	2	10	17
3. V20:33	0 0	14	3 P<.01
4. V20:33	1 0	1	3 P<.17
5. V20:22	2 2	1	7 P<.05

Variable List Twenty

Elapse of time from date of completing education to the date of application (228 cases). There were 94 applicants with less than 1 years lapse of time from completion of education to date of application. Twenty-two percent of the applicants had completed their education seven years or more previous to making application. The lapse of time in years was distributed with a mean of 3.35 years and a standard deviation of 3.568 years.

The correlation with the length of service criterion was .11, with the number of promotions criterion was .16, but the correlation with the frequency of promotion statistic was negligable. This suggests that when applicants apply some time after completing schooling, they are apt to remain longer with the state, and are more likely to be promoted.

When classifying elapsed time scores for the trichotomous pattern analysis, those having no score were assigned the value "0", while those with less than four years of elapsed time were given the value "1" . All those with four years or more were assigned the value "2".

A trichotomous analysis comparing "length of service" with "elapse of time" indicated that employees having no information on the variable "elapse of time" were short term employees with a ratio of 5 long service and 14 short service.

When predicting long service, the combination of short lapse

of time and low civil service test scores foretells short service. However, a long elapsed time and low civil service test score predicts long service (p .05).

A trichotomous analysis comparing "length of service" with elapse of time" and "number of previous jobs" revealed that there were those with a long elapse of time (4 years or more) and at least one previous job tended to be long term employees by a ratio of 12 to 7. If the number of previous jobs increased to 4 or more the chances for long term employment were still better the ratio being 11 to 4.

A trichotomous analysis predicting "number of promotions" from "elapse of time from completion of education to date of application" and Written Civil Service Test score indicates that applicants with an "elapse of time" (4 years or more) and a high "Written test Score" received a greater number of promotions with a ratio of 6 to 2.

A trichotomous analysis predicting "number of promotions" from "elapse of time" and "number of activities participated in" indicated that employees with "elapse of time (4 years or more) from completion of education" and "participation: in 2 or more activities" received a greater number of promotions with a ratio of 5 to 1.

Further analysis comparing "number of promotions" with "Elapse of time" and "number of previous jobs" reveals low number of

promotions for employees who had no information for either variable ($p<.05$).

A trichotomous analysis predicting "frequency of promotion", from "elapse of time from completion of education to application" indicates applicants without information in the "elapse of time" category were promoted less frequently by a ratio of 15 to 7.

"Frequency of promotion" compared with "elapse of time" and "participation in activities" indicated that employees with no information in either category were promoted frequently by a ratio of 14 to 3, resulting in a probability of less than .01. Using the same variables "elapse of time" and participation in activities, applicants with one year's lapse of time and no information on participation in activities were promoted infrequently by a ratio of 1 to 5.

"Frequency of promotion" compared with "elapse of time" and "number of previous jobs" indicated that applicants who had waited 4 years or more, before applying and who had 4 or more previous jobs were promoted infrequently by a ratio of 1 to 7.

Commentary: A long elapsed time after completing the education seems to be a predictor of stable service in one job. It also appears that frequent promotions come to thos who apply shortly after schooling, although the more mature, steady person can expect promotions during the career.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV	
11	21
Variable No	Descriptive Title

School Locus

RECOMMENDATION FOR FUTURE STUDY: Because of reasonable results, may be omitted from further study.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V:21	0	0	13 < 1
2.	3	15	7 < 17
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V:21	3	17	
2.			
3.			
4. Not significant			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. Not significant			
2.			
3.			
4.			
5.			

Variable List Twenty-One

A record of the type of school community which the applicant last attended revealed the following information:

1. Urban - 106 cases
2. Suburban - 26 cases
3. Rural or out-state - 97 cases

There were a total of 229 applicants reporting information on location of last school attended. It is interesting to note that the selection of applicants from the urban areas (46%) and the rural areas (42%) are about the same; whereas, the applicants selected from the suburban are far less (12%). The correlations with length of service and with number and frequency of promotion were negligable.

For purposes of the quartotomous analysis, the school location was assigned the value "0" if no response was given. "1" if from an urban school, "2" if from a suburban school, and "3" if from a rural or out-state school.

When the criterion was the length of service, those giving no information were commonly short term employees ($p<.01$). Those applicants from out-state schools were likely to give long service ($p<.17$). It should be remembered that data from employees in state jobs in small towns were included in the sampled population.

TRICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Trichotomous Pattern - "2" refers to high score - "1" refers to low score - "0" no information

FINDINGS:

22 — Variable No

Number of Jobs Held Previous To Application With State — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Findings support further study. The number of jobs variable predicts well alone and in combination. Interesting questions might be what happens to employees with high test score and why infrequent promotion.

Length of Service Criterian

Variable Combinations	Trichotomous Patterns		Cases for Long Service	Cases for Short Service	Probability
1. V22	0		2	6	P<.17
2. V22	1		19	21	
3. V22	2		11	5	P<.17
4. V22:37	2	1	6	1	P<.17
5. V22:37	2	2	5	4	
6.					
7.					
8.					
9.					

Number of Promotions Criterian

Variable Combinations	Trichotomous Patterns		Cases for Many Promotes	Cases for Few Promotes	Probability
1. V22	0		1	8	P<.05
2. V22	1		20	13	
3. V22	2		9	7	
4. V22:37	1	2	6	1	P<.17
5. V22:37	2	2	5	1	P<.17
V22:37	2	1	4	6	P<.17

Frequency of Promotion Criterian

Variable Combinations	Trichotomous Patterns		Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1. V22	0		5	5	
2. V22	1		22	19	
3. V22	2		2	7	P<.17
4. V22:24	1	1	1	6	P<.17
5.					

Variable List Twenty-Two

Number of jobs held previous to applying for State Civil Service (229 responses). The report on the variable "number of previous jobs" ranges from 38 applicants reporting no previous job to 3 reporting of previous jobs. Seventy-seven percent of the applicants had held from one to four jobs previous to application with the state. The mean number of previous jobs was 2.161 with a standard deviation of 1.562 jobs.

The correlation with length of service was .17, with number of promotions was .20 and with frequency of promotion was approximately zero. This says that those having had more jobs are more apt to stay and more apt to be promoted. The Trichotomous analysis seeks to distinguish characteristic of specific groups within this statistic: those having no previous jobs are group "0" those with one to three previous jobs as group "1", and those having had four or more as group "2".

A trichotomous analysis comparing "length of employment" with "number of previous jobs" indicated applicants without previous employment were short term employees by a ratio of 2 to 6. A trichotomous analysis comparing "length of service" with "number of previous jobs" indicated that applicants having had four or more previous jobs were candidates for long service with a ratio of 11 to 5. Applicants with four or more previous jobs and low written test scores were long time employees with a ratio of 6 to 1. By contrast, the combination of "four or more previous jobs

with "high written test scores" resulted in about a fifty-fifty chance for long service ratio 5 to 4.

A trichotomous analysis comparing "number of promotions" with "number of previous jobs" indicated that those having had no previous employment received few promotions, actual ratio 1 to 8.

A trichotomous analysis predicting "number of promotions" from "number of previous jobs" and "written civil service test scores" indicated that applicants having had one previous job and high written test scores received a high number of promotions by a ratio of 6 to 1. Applicants having had four or more previous jobs and high written test scores received a high number of promotions actual ratio 5 to 1.

A trichotomous analysis comparing "frequency of promotions" with "number of previous jobs" reveals that those with four or more previous jobs were promoted infrequently by a ratio of 2 to 7.

Further analysis comparing "frequency of promotion" with "number of previous jobs and "previous periods of unemployment" revealed that employees with little previous employment and little unemployment were promoted infrequently ratio 1 to 6. Apparently are applicant with four or more previous jobs is a good candidate for long service. Likewise the employee having remained in service a long time will have received the maximum number of promotions; however, the limited number of promotions

possible in the civil service structure spread out over a long period of time results in an infrequent rate of promotion. This statistic should be given further study to confirm these characteristics.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

Variable No	Descriptive Title
12 LV 23	Long Last Job

RECOMMENDATION FOR FUTURE STUDY: Retain for further study.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V23	0	2	15 < 1
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V23	0	1	8 < 5
2.	2	6	1 < 17
3. V23:41	1 2	8	3 < 17
4.	1 3	9	3 < 17
5.	1 0	4	11 < 17

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. Not significant			
2.			
3.			
4.			
5.			

Variable List Twenty-Three

A record of longest period of previous employment with a particular employer before taking a job with Minnesota State Civil Service. There were 38 applicants who had had no previous experience and 19 applicants who had had ninety-nine months of previous experience (all persons with more experience were assigned the value 99 for data processing reasons). These were the only two distinctive nodes in the whole distribution. The periods of previous employment were distributed with a mean of 27.94 months and a standard deviation of 31.05 months with a total of two hundred twenty-five cases recorded.

The correlation with length of service was .15, with the number of promotions was .20, but with the frequency of promotion was .00. This suggests that those with long service stayed and were promoted, but sufficient numbers of persons reporting to the state with little work experience were promoted with fair rapidity so as to cause the zero correlation with frequency of promotion.

For purposes of the quartotomous pattern analysis, those applicants giving no information about the length of their last job (including those who had never worked) were assigned the value "0". Those having had one to four months of experience were given the value "1", and those with five to 38 months the value "2". Those individuals with more than 38 months were given the value "3".

Those indicating no experience were commonly short term employees ($p<.01$). They also obtained few promotions ($p<.05$). It also appeared that those who had between five and 38 months of experience were likely to receive many promotions ($p<.17$). However, those indicating short terms of employment at previous jobs and also giving medium and high scores (78 and above) in their civil service typing tests received many promotions. On the other hand, those having had short term jobs at other locations and having no typing test score did receive many promotions. ($p<.17$).

No significant relationship was found between the frequency of promotion and the length of the last job.

Recommendation

So that the relationship between the length of the last job and the typing scores might be confirmed, it is recommended that further study of the variable be made.

TRICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Trichotomous Pattern - "2" refers to high score - "1" refers to low score - "0" no information

FINDINGS:

24 — Variable No

Record of Longest Time of Unemployment — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Correlation findings support further study.

Length of Service Criterian

Variable Combinations	Trichotomous Patterns	Cases for Long Service	Cases for Short Service	Probability
1. no significant relationship				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				

Number of Promotions Criterian

Variable Combinations	Trichotomous Patterns	Cases for Many Promotes	Cases for Few Promotes	Probability
1. V24:37	0 2	11	2	P<.05
2.				
3.				
4.				
5.				

Frequency of Promotion Criterian

Variable Combinations	Trichotomous Patterns	Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1. V24	1	1	7	P<.05
2. V24:33	1 0	1	5	P<.17
3. V24:37	1 1	1	6	P<.17
4.				
5.				

Variable List Twenty-Four

A record of the longest period of unemployment previous to time of application (227 cases). One hundred eighty-six applications showed no previous unemployment. Eleven applicants reported 20 months of previous unemployment. The balance of the cases were distributed throughout with a maximum period of 99 months.

The mean time of unemployment was 1.898 months with a standard deviation of 8.586 months. When correlated with length of service, the value of .22 was obtained. With the number of promotions, the correlation was .21, but with the frequency of promotion, the correlation was negligable. The two correlations imply that applicants experiencing a long period of unemployment stay enthusiastically with their new job and are promoted as a result of their attitude. This appears to be a very generalized type of thing, for no subgroup was identified in the trichotomous analysis as being especially associated with this attribute.

A trichotomous analysis of "length of service" with "previous unemployment" and "written civil service test scores" indicated that applicants with short terms of unemployment and a low written test score tended to be long time employees by a ratio of 4 to 1.

A trichotomous analysis of "number of promotions" with "period of previous unemployment" and "written civil service test score"

indicated that no previous unemployment along with high written test scores result in a high number of promotions ratio 11 to 2.

A trichotomous analysis comparing "frequency of promotions" with "period of previous unemployment" revealed that applicants with one month of previous unemployment receive infrequent promotions by a ratio of 1 to 7.

Further comparisons with "previous unemployment" and "written civil service test scores" revealed that employees with less than 6 months of previous unemployment and low written test scores (10 to 80) promoted infrequently by a ratio of 1 to 6. Those employees with 1 to 6 months of unemployment and no indicated participation in activities were promoted less frequently with a ratio of 1 to 5.

Commentary: No unemployment tends to predict a promotable person. However, coupled with few activities or with a low Civil Service Test score, it tends to predict long waits for those promotions.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

13 LV 25	Previous Job Related
Variable No	Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Include in further study for its modifying influence on other variables.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V25	0	2	15 < 1
2.	3	18	6 < 1
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V25	0	1	8 < 5
2.	3	20	9 < 5
3. V25:45	3 3	10	3 < 5
4. V25:27	0 2	0	7 < 1
5. V25:27	3 3	18	4 < 1
	0 0	1	8 < 5

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1.			
2. not significant			
3.			
4.			
5.			

Variable List Twenty-Five

Relationship of previous employment to present civil service job classification was recorded as follows:

"1" = not related - 23 cases

"2" = slight relationship - 26 cases

"3" = part-time relationship - 21 cases

"4" = strong relationship different vocational field - 33 cases

"5" = strong relationship similar vocational field - 88 cases

Although the degree of relationship is subjective and the product of the judgment of the researchers.

Correlation of this previous employment relationship statistic with the length of service criterion was .19, while its correlation with the number of promotions was .24. The correlation with the frequency of promotion was negligable. This implies that employees whose previous job was closely related to their present work did remain at their new job and eventually were promoted as a result of demonstrated competency.

When the data on the applications was broken into four categories for a quartotomous analysis, those giving no information were assigned the value "0", those indicating low relatedness the value "1", those with moderate relationship the value "2", and those indicating a strong relationship the value "3".

When the degree of relationship was used as a predictor of the length of service, those with no information on their applications were normally short term employees ($p<.01$). Those

indicating a high degree of relatedness were normally long term employees ($p<.01$).

The same groups predict similarly, but only at the .05 probability level, when predicting the number of promotions they will receive. The predictions can be modified by the effect of their total civil service test score. Those with no data on the relatedness of their previous job, but obtaining an average civil service total score were almost invariable not promoted ($p<.01$). However, those who can from a highly related job, and then received a high civil service test score were promoted many times ($p<.05$).

Previous job duty teamed with the length of the previous job to predict the number of promotions. When no data was given about the relatedness of the previous job, and no data was available about the level of work on the previous job, the employee was not promoted ($p<.05$). However, when the previous job duty was of a highly skilled sort and was related to the position applied for, the applicant received amny promotions.

No relationship was indicated when predicting the frequency of these promotions.

Recommendation

The relatedness of the previous job is a useful predictor of satisfaction and promotability in the new job. Additional study would probably confirm these findings. This variable might be contrasted with other predictors to build up a composite predictor system.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV	
14	26
Variable No	Descriptive Title

Last Job (Location)

RECOMMENDATION FOR FUTURE STUDY: Retain for further study.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V26	0	2	15 < 1
2.	3	11	5 < 17
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V26	0	1	8 < 5
2. V26:27	3	12	5 < 17
3. V26:27	0 0	1	8 < 5
4.	1 2	3	11 < 5
5.	1 3	10	2 < 5

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V26	3	6	13<17
2.			
3.			
4.			
5.			

Variable List Twenty-Six

A record of the type of community in which the last previous employment was located was classified as follows:

"1" = Urban -108

"2" = Suburban - 14

"3" = Rural (Out-state) - 69

There was a total of 191 applicants reporting the location of previous employment. As might be expected the largest proportion (56 percent-plus) were employed in the urban areas where most of the employment opportunities are located. The number coming from the rural areas (36 percent) is substantial and points up another problem - the migration of employees from the rural to the urban areas.

The correlations of this statistic with the criteria, length of-service and number of promotions, were negligable. The correlation with frequency of promotion was -.10, suggesting that applicants with urban experience are more promotable.

For the quartotomous analysis, those making no response to this item were given a score of "0", those listing urban, a score of "1". Those listing suburban, as score of "2" and those listing rural or out-state, a score of "3". When length of service was the criterion variable, those giving no information on their applications were associated with short terms of service ($p < .01$), while those listing out-state or rural often had long terms of service ($p < .17$).

When the number of promotions was considered, those giving no data on their last job location were rarely promoted ($p<.05$) while those from out-state were often promoted ($p<.17$). These relationships were modified by the level of the previous job. When no data was available on the previous job (quite possibly because the applicant had not previously worked) there was a definite lack of promotions ($p<.05$). And when the suburban location of the previous job was coupled with a moderate skill level in the previous job, few promotions occurred. However, a person whose previous job had been suburban, and whose previous job was of high skill level, there was good likelihood of promotion ($p<.05$).

A rural job reported on the application tended to predict frequent promotions ($p<.17$).

Recommendation

The probabilities are, for the most part, no completely conclusive, and so additional study should be made. The rural-urban classification might be examined as a modifier of other characteristics.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV	
15	27
Variable No	Job Duty (Descriptive Title)

RECOMMENDATION FOR FUTURE STUDY: Include in further study.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V27	0	2	15 < 1
2.	2	13	7 < 17
3.	3	15	5 < 5
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V:27	0	1	8 < 5
2.	3	18	5 < 5
3. V27:41	2 0	3	10 < 5
4. V27:45	3 3	10	2 < 5
5.	0 2	0	7 < 1
	2 1	1	7 < 5

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V27	3	6	15 < 17
2.			
3.			
4.			
5.			

Variable List Twenty-Seven

The researchers classified the job duties of the previous employment situations as follows:

"1" Manual

"2" Semi-Skilled, factor

"3" Skilled-trade, technical

"4" Sales clerk, cashier, etc.

"5" Clerical-filing typing, etc.

"6" Reception Clerk Combination

"7" Stenographer

"8" Accountant

"9" Professional

The two modal points in the total of 191 cases recorded were clerical with 61 cases and stenographer with 51 cases. One can hypothesize that many of the older females who take employment after raising their families were in the stenographic.

A value of .15 was found for the correlation of this statistic with the length of service criterion. .26 was the correlation with the number of promotions, but the correlation with the frequency of promotion criterion was negligable. This suggest that applicants coming from skilled jobs stay longer, and most assuredly will eventually be promoted.

The original job duty classification was restructured into those not responding as "0", those in manual and semi-skilled factory and technical work as "1', those in Sales, Clerical or receptionist duties in group "2" and those in steno, accountant and professional

categories as "3". When subjected to a quartotomous pattern analysis with length of service as the criterion variable, it was found that those who were non-respondents were short term employees ($p<.01$) those in category "2" and those in category "3" were long term employees, with probability levels on these statements at .17 and .05 respectively.

When the number of promotions was the criterion, non-respondents were rarely promoted ($p<.05$) and those in category "3" received many promotions ($p<.05$). These effects were modified so that when an applicant indicated no job duty classification and then received a median Total Civil Service score, the employee received few promotions ($p<.01$). If the applicant fell into category "2" and obtained a low civil service total score, this also indicated that promotions would be rare ($p<.05$). However, if category "3" was assigned in the job duty classification combined with a high civil service total score, then the employee might expect many promotions ($p<.05$).

Applicants in category "2" who also recorded no typing test scores were usually not promoted ($p<.05$). The group "3" people were not only promoted alot, but their rate of promotion was slow ($p<.17$)

Recommendation

Job duty on the previous job seems to be an important predictor of success. It should be included in further study.

DICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" are referred to by number

Dichotomous Pattern - "1" refers to one or more - "0" no information

Findings

28 — Variable No

Volunteer Church Related Activities — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Findings support further study - appears to have value in predicting short service and may provide clues for increasing civil service holding power.

Length of Service Criterian

Variable Combinations	Dichotomous Patterns		Cases for Long Service	Cases for Short Service	Probability
1. V28	1		1	5	P<.17
2. V28:35	0	1	0	5	P<.05
3. V28:35	1	0	1	5	P<.17
4. V28:36	0	1	0	5	P<.05
5. V28:36	1	0	1	5	P<.17
6. V28:30	1	0	1	5	P<.17
7. V28:31	1	0	0	5	P<.05
8.					
9.					

Number of Promotions Criterian

Variable Combinations	Dichotomous Patterns	Cases for Many Promotes	Cases for Few Promotes	Probability
1.				
2. No significant pattern				
3.				
4.				
5.				

Frequency of Promotion Criterian

Variable Combinations	Dichotomous Patterns	Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1. no significant pattern				
2.				
3.				
4.				
5.				

Variable List Twenty-Eight

Volunteer activities of applicants included church work. In the original sample of 235 applicants twenty-eight listed a church related activity.

A dichotomous analysis comparing "length of service" with "participation in church related activities" reveals that participation in church related activities does not contribute to length of service. Actually the probabilities are five out of six for short service. It is of interest to note that participants in church related activities listed no previous employment problems, nor did they participate in volunteer or community service activities.

Further analyses comparing number of promotions with "participation in church related activities" revealed that four out of every five participants received promotions.

"Participation in church related activities" was not related to frequency of promotion.

With reference to the data introduced the writer might speculate that civil service positions did not hold the interest of the outgoing type of people that participate in church related activities. They apparently were able to get the job and hold it long enough to receive numerous promotions, but didn't stay long enough to be catagorized as long term employees.

DICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlate with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" are referred to by number

Dichotomous Pattern - "1" refers to one or more - "0" no information

Findings

29 — Variable No

Participation in Organizations-Graternal, Business, ~~Professional~~ — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Include in further study, may be a modifier of other criteria.

Length of Service Criterian

Variable Combinations	Dichotomous Patterns	Cases for Long Service	Cases for Short Service	Probability
1. V29:35	0 1	0	4	P< .17
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				

Number of Promotions Criterian

Variable Combinations	Dichotomous Patterns	Cases for Many Promotes	Cases for Few Promotes	Probability
1. V29:32	0 1	6	1	P< .17
2.				
3.				
4.				
5.				

Frequency of Promotion Criterian

Variable Combinations	Dichotomous Patterns	Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1. V29:31	0 1	4	4	
2.				
3.				
4.				
5.				

Variable List Twenty-Nine

Activities of applicants included work in organizations such as fraternal, business and professional organizations. In the original sample of 235 applicants eight listed activity in fraternal or business organizations. Dichotomous analyses comparing "length of service", "number of promotions", and "frequency of promotions" with "participation in fraternal business or professional organizations" revealed only modifying influence in modifying variable 35 for long service, variable 32 for numerous promotions, and variable 31 for frequent promotions. In conjunction with these other kinds of information, this data may help identify specific applicant characteristics.

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DICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" are referred to by number

Dichotomous Pattern - "1" refers to one or more - "0" no information

Findings

30 — Variable No

Volunteer Youth Service Work, Scouts, YMCA, Centers — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Findings do not support further study - there are interesting combinations but variables 35, 36 and 32 stand on their own merits.

Length of Service Criterian

Variable Combinations	Dichotomous Patterns	Cases for Long Service	Cases for Short Service	Probability
1. V30	1	1	3	
2. V30:35	0 1	0	5	P < .05
3. V30:36	0 1	0	5	P < .05
4.				
5.				
6.				
7.				
8.				
9.				

Number of Promotions Criterian

Variable Combinations	Dichotomous Patterns	Cases for Many Promotes	Cases for Few Promotes	Probability
1. V30	1	4	1	
2. V30:32	0 1	5	1	P < .17
3.				
4.				
5.				

Frequency of Promotion Criterian

Variable Combinations	Dichotomous Patterns	Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1. V30:32	0 1	1	5	P < .17
2. V30:31	0 1	4	1	
3. V30:31	1 0	2	4	
4.				
5.				

Variable List Thirty

Volunteer activities of applicants who worked in youth organizations such as YMCA, Scouts, Youth Centers, etc. were recorded as follows: In the original sample of 235 applicants twenty-five listed youth service related activities.

A dichotomous analysis comparing "participation in youth service" with "length of service" revealed that only four applicants appeared in this category and did not show any meaningful predicition pattern. It is significant to note that five applicants who did not participate in youth activities were involved in previous employment problems and were prone for short service.

"Participants in youth activities" were inclined to receive "numerous promotions" by a ratio of 4 to 1. Also, a combination of no "participation in youth activities" along with "participation in hobbies" indicated a tendency for numerous promotions by a ratio of 5 to 1.

Six applicants appeared in the dichotomous analysis comparing "participation in youth service activities" with "frequency of promotion" with no significant prediction pattern for frequency of promotion. It is interesting to note that further dichotomous analyses comparing "non-participants in youth service activities" in combination with "participation in hobbies" revealed in frequent promotions by a ratio of 1 to 5. However, the combination of "non-participation in youth service activities" with participation in "community service activities" revealed frequent promotions by a ratio of 4 to 1.

DICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" are referred to by number

Dichotomous Pattern - "1" refers to one or more - "0" no information

Findings

31 — Variable No

Volunteer Community Service-United Fund, Hospitals, C.S. Comm. — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Findings support further study from special interest angle, participants promote rapidly but do not stay long in service. Why?

Length of Service Criterian

Variable Combinations	Dichotomous Patterns		Cases for Long Service	Cases for Short Service	Probability
1. V31:36	0	1	0	4	P<.17
2. V31:35	0	1	0	4	P<.17
3.					
4.					
5.					
6.					
7.					
8.					
9.					

Number of Promotions Criterian

Variable Combinations	Dichotomous Patterns	Cases for Many Promotes	Cases for Few Promotes	Probability
1. None of significance				
2.				
3.				
4.				
5.				

Frequency of Promotion Criterian

Variable Combinations	Dichotomous Patterns		Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1. V31:32	0	1	1	5	P<.17
2.					
3.					
4.					
5.					

Variable List Thirty-One

When an applicant listed a organization such as United Fund, Hospital service, School Aid, Urban League, and such activities, it was placed in this category. Twenty-seven applicants listed one such activity; two listed two.

The correlation of this statistic with length of service was .09. A correlation of -.14 was obtained with the number of promotions, and -.28 with the time to promote criterion. Apparentntly those involved in such activities are not intent on promoting themselves in their careers.

When a dichotomous analysis was performed, seven of these people appeared in the length of service population. Those listing no volunteer service but indicating existence of a job problem were not long term employees. In this capacity, the Volunteer Community Service acted only as a modifier.

No relationships were established influencing the number of promotions, but it was learned that those having hobbies and not involved in volunteer work were usually not rapidly promoted. In both of-these contexts, the Volunteer Service variable acts as a modifier, and is useful only by its absence.

The presence of the variable does suggest that the person will not be one of the notoriously short term, non-promotable, nor slow promotable employees. Its presence does not necessarily indicate long service, etc. It is an essentially neutral variable. Just as a note of caution, there was some tendency

for those involved in community service to be promoted rapdily. This was not at a significant level, but so that data on this characteristic might be collected, it might be well to include this variable in further study.

DICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" are referred to by number

Dichotomous Pattern - "1" refers to one or more - "0" no information

Findings

32 — Variable No

Active Pursuit of Hobbies — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Findings support further study. Participants receive numerous promotions at infrequent intervals which is impossible without long service, small number of cases (2) for long service not enough to be conclusive.

Length of Service Criterian

Variable Combinations	Dichotomous Patterns		Cases for Long Service	Cases for Short Service	Probability
1. V32:36	0	1	0	5	P<.05
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					

Number of Promotions Criterian

Variable Combinations	Dichotomous Patterns		Cases for Many Promotes	Cases for Few Promotes	Probability
1. V:32	1		6	1	P<.17
2. V32:35	1	0	6	1	P<.17
3. V32:36	1	0	6	1	P<.17
4.					
5.					

Frequency of Promotion Criterian

Variable Combinations	Dichotomous Patterns	Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1. V32	1	1	5	P<.17
2.				
3.				
4.				
5.				

Variable List Thirty-Two

A record was made of the applicant's participation in hobbies (25 cases). The correlation with length of service was negligable. With number of promotions it was -.10, but the time-to-promote criterion it was .20, suggesting that people with hobbies, if they are to be promoted, will be promoted quickly.

In the original sample of 235 applicants twenty-five listed participation in hobbies. Only two persons appeared in the dichotomous analysis comparing "length of service" with "participation in hobbies" which was not enough to indicate a trend. It is of interest to note that five applicants who did not have hobbies listed previous employment problems and were probable candidates for short service.

An analysis comparing "number of promotions" with "participation in hobbies" does predict multiple promotions with the probability of six out of seven receiving multiple promotions. These people did not list previous job problems.

Six of the people in the frequency of promotability category listed hobbies. However, five of the six people were only slowly promotable. These people did not list volunteer work in youth activities or community service. Only one of them listed previous job problems. The data appears contradictory, but does suggest that applicants having hobbies cannot be

predicted with respect to length of service, in general are not promotable; however, if they are promotable, they will promote rapidly. This characteristic might well be investigated further.

TRICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Trichotomous Pattern - "2" refers to high score - "1" refers to low score - "0" no information

FINDINGS:

33 — Variable No

Number of Activities Participated In — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Further study indicated. The activities variable seems to have some predictive value in combination with other variables.

Length of Service Criterian

Variable Combinations	Trichotomous Patterns	Cases for Long Service	Cases for Short Service	Probability
1. No significant combinations.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				

Number of Promotions Criterian

Variable Combinations	Trichotomous Patterns	Cases for Many Promotes	Cases for Few Promotes	Probability
1. V33	2	6	1	P<.17
2. V33:37	2 1	5	1	P<.17
3. V20:33	2 2	5	1	P<.17
4.				
5.				

Frequency of Promotion Criterian

Variable Combinations	Trichotomous Patterns	Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1.				
2. None				
3.				
4.				
5.				

Variable List Thirty-Three

A record of the number of activities participated in (71 responses). Forty-three applicants reported one activity and twenty reported 2 activities. The number of activities were distributed with a mean of 1.549 activities and a standard deviation .818.

The correlations with the length of service and number of promotions criteria were negligable. The correlation with the frequency of promotions was a -.12, suggesting that if the applicant was more involved with activites, his chances for frequent promotions was less.

A trichotomous analysis comparing "number of promotions" with "number of activities" indicates that employees who participated in two or more activities received increased number of promotions by a ratio of 6 to 1. A trichotomous analysis predictory "number of promotions" from the "number of activities" and "written civil service test score" revealed that employees who participated in two or more activities and received low written test scores received increased number of promotions by a ratio of 5 to 1.

An applicant listing two or more activities and indicating a long lapse of time since completing education is apt to obtain many promotions ($p < .17$). The number of activities was not a predictor of long service nor of the frequency of promotion.

Commentary: The activities listing is of value in combination with other variables in predicting the number of promotions an

applicant might expect. For this reason it should be included in any further study.

Variable List Thirty-Four - Officer Status

This data was collected to report any officer status in the various organizations indicated on the application blank, such as secretary, treasurer, president, chairman, or whatever. The data collectors assigned values on a scale of zero for none, to 9 for a high ranking officer. Only seven of the 235 subjects reported data of this kind. The reported values were 1: four cases, 2: one case, and 3: two cases. Although the correlation of these scores with length of service was 67, with number of promotions was zero, and with frequency of promotions was .24, investigation of the variable was not pursued. So few cases do not make a very promising statistic, although when screening applicants, these people are probably good employees.

DICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" are referred to by number

Dichotomous Pattern - "1" refers to one or more - "0" no information

Findings

35 — Variable No

Applicants with Record of Previous Employment Problems — Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Additional cases may increase the number of cases involved in this statistic to allow some conclusions to be drawn. Present data suggests these people are short term employees.

Length of Service Criterian

Variable Combinations	Dichotomous Patterns	Cases for Long Service	Cases for Short Service	Probability
1. V35	1	0	5	P<.05
2. V28:35	0 1	0	5	P<.05
3. V30:35	0 1	0	5	P<.05
4. V31;35	0 1	0	4	P<.17
5. V29:35	0 1	0	4	P<.17
6.				
7.				
8.				
9.				

Number of Promotions Criterian

Variable Combinations	Dichotomous Patterns	Cases for Many Promotes	Cases for Few Promotes	Probability
1. no significant combinations				
2.				
3.				
4.				
5.				

Frequency of Promotion Criterian

Variable Combinations	Dichotomous Patterns	Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1. no significant combinations				
2.				
3.				
4.				
5.				

Variable List Thirty-Five

The following values were assigned for these reported kinds of problems with the following number of cases in each category:

1.	Discharged from job	- 9
2.	Physical Handicap	- 2
3.	Mental Illness	- 1
4.	Drinking	- 0
5.	Arrested	- 0
6.	Convicted	- 0
7.	Driver record	- 2
		14

Negligable correlations were found with length of service and number of promotions, but a correlation of 2.8 was obtained with the frequency of promotion. Such a statistic is of little meaning, considering the data is not alligned along a continuum. No further analysis of the data was made. The statistic might well be carried into a more extensive study in hopes that as more data was collected, conclusions about the wisdom of hiring people in each category might be made.

Five applicants having had previous employment problems were listed in the length of service category. A dichotomous analysis comparing "length of service" with "involvement in previous employment problems" indicated that all five had short terms of service. Observe that this only means that none had long terms of service and five had notably short terms. For an applicant to have job problems on his application does require that he has had previous jobs thus reducing his opportunity for long service with the state. Those having had job problems and short service did not list church activities, youth service activities, community service activities or organizational affiliations.

Only two were listed in the "number of promotions category" allowing no conclusions to be drawn. Four were on the "frequency of promotion list" with three receiving infrequent promotions and one frequent promotion which is not conclusive.

DICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" are referred to by number

Dichotomous Pattern - "1" refers to one or more - "0" no information

Findings

36	Applicants Listing More Than One Employment
Variable No	Descriptive Title Problem

RECOMMENDATION FOR FUTURE STUDY: Findings support further study in same proportions as for variable number 35.

Length of Service Criterian

Variable Combinations	Dichotomous Patterns	Cases for Long Service	Cases for Short Service	Probability
1. V36	1	0	5	P<.05
2. V28:36	0 1	0	5	P<.05
3. V30:36	0 1	0	5	P<.05
4. V31:36	0 1	0	4	P<.17
5. V32:36	0 1	0	5	P<.05
6.				
7.				
8.				
9.				

Number of Promotions Criterian

Variable Combinations	Dichotomous Patterns	Cases for Many Promotes	Cases for Few Promotes	Probability
1.				
2.				
3.				
4.				
5.				

Frequency of Promotion Criterian

Variable Combinations	Dichotomous Patterns	Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
1.				
2.				
3.				
4.				
5.				

Variable List Thirty-Six

A record was made of applicants listing more than one previous employment problem. Five of the fourteen applicants listing employment problems had multiple problems.

The data on the analyses for people having had multiple employment problems was almost identifical to those listed in variable list thirty-five.

TRICHOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Trichotomous Pattern - "2" refers to high score - "1" refers to low score - "0" no information

FINDINGS:

37	Civil Service Written Test Score
Variable No	Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Further study definitely needed. The written test score combined with other variables is a strong predictor.

Length of Service Criterian

Variable Combinations	Trichotomous Patterns	Cases for Long Service	Cases for Short Service	Probability
1. V20:37	1 1	1	6	P<.17
2. V22:37	2 1	6	1	P<.17
3.				
4.				
5.				
6.				
7.				
8.				
9.				

Number of Promotions Criterian

Variable Combinations	Trichotomous Patterns	Cases for Many Promotes	Cases for Few Promotes	Probability
1. V37	2	12	2	P<.01
2. V33:37	2 1	5	1	P<.17
3. V22:37	1 2	6	1	P<.17
4. V22:37	2 2	5	1	P<.17
5. V17:37	2 2	12	1	P<.17

Frequency of Promotions Criterian

Variable Combinations	Trichotomous Patterns	Cases for Frequent Promotes	Cases for Infrequent Promotes	Probability
6. V24:37	0 2	11	2	P<.05
7. V10:37	0 2	12	2	P<.01
8. V20:37	2 2	6	2	P<.17
9. V 8:37	0 2	10	2	P<.05
10. V12:37	0 2	12	2	P<.01
11. V11:37	0 2	12	2	P<.01

VARIABLE LIST THIRTY-SEVEN

A record of scores obtained on the written civil service test given to all applicants who expect to enter clerical vocations (223 cases). The scores ranged from a low of 54 to high of 98. Forty-eight percent of the scores were clustered in the score range of 69 to 76. The scores were distributed with a mean of 74.156 and a standard deviation of 7.357.

The common correlation computations make no significant predictions for success with either of the criteria "length of service", or "frequency of promotions". However, high Civil Service written test scores are a predictor of many promotions, with a probability value of less than .01.

When low Civil Service written test scores are found in conjunction with short elapsed time since completing education, a prediction can be made favoring short service. When low Civil Service written test scores are found in conjunction with a large number of previous jobs, then a prediction of long service may be made. Both of these predictions can be made at a less than .17 probability level.

A prediction of many promotions may be made if high Civil Service written test score is accompanied by any of the following modifying conditions:

a. a large number of previous jobs ($p<.17$)
b. only a few previous jobs ($p<.17$)
c. a female applicant ($p<.01$)

On the other hand, a low Civil Service Written Test Score will predict many promotions when accompanied by a large list of activities at the time of application ($p<.17$).

Many modifying factors, when accompanying a high Civil Service written test score, allow prediction of frequent promotions:

a. no information about the time of unemployment-Mathematical ($p<.05$)
b. no information about the DAT-test ($p<.01$)
c. a long lapse of time from the education ($p<.17$)
d. no teachers recommendation available ($p<.05$)
e. no DAT-Verbal scores available ($p<.01$)
f. no DAT-Clerical scores available ($p<.01$)

Commentary: On the basis of the above results, continued study of the Civil Service written test scores are necessary. Several modifiers are of a "no data" variety, and might well be dropped from the study, but others will remain to indicate combinations of information on the applications that will lead to sound predictions of applicant success.

Variable List Thirty-Eight - Experience Allowance

This data was taken from the Civil Service Test Data. No data was obtained in any of the 235 cases studied.

Variable List Thirty-Nine - Training Allowance

Write it out.

Variable List Forty - Oral Test Score

Write it out.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV 16 11	Typing Test
Variable No	Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: Retain in further study.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V:41	2	10	2 < 5
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V:41	0	6	14 P < 5
2.	2	11	4 < 17
3. V41:45	0 1	1	7 < 5
4.	0 2	1	6 < 17
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V41:	1	9	4 < 17
2.			
3.			
4.			
5.			

Variable List Forty-One

The numerical result of all typing test scores administered by the State Civil Service were recorded (129 cases). The scores were distributed with a mean of 79.7 and a standard deviation of 12.03. Ninety-five or 73 percent of the cases fell within the range of numerical score 70 to 85. Although the correlations with "length of service", was .10, number of promotions", was .12, and "frequency of promotion", was .14, they were not significant.

The civil service typing test scores were broken into those with no scores as group "0", those with scores less than 78 as group "1", those with scores between 78 and 83 inclusive as group "2", and those with scores above 84 as group "3".

The quartotomous analysis found that those in the middle group (2) usually stayed for long service. ($p < .05$). They were also promoted ($p < .17$). On the other hand, those with no typing score were not promoted ($p < .05$) and those with low typing scores were infrequently promoted ($p < .17$).

When no score on the typing test was available and yet the total civil service test scores were either in a low or medium category, the applicant was not promoted ($p < .17$)

Recommendation

Further study might reveal these same and additional relationships at stronger levels.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV	
17	42
Variable No	Descriptive Title: Shorthand Test

RECOMMENDATION FOR FUTURE STUDY: Include in further study to check the results given below.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V:42	None significant		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1.	None significant		
2.			
3.			
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. V:42	1	7	2 < 17
2.	2	1	7 < 5
3.			
4.			
5.			

Variable List Forty-Two

The numerical scores for the test in shorthand administered by State Civil Service were recorded (83 cases). The scores were distributed with a mean of 86.86 and a standard deviation of 16.23. The distribution was scewed somewhat toward the higher range with 34 applicants scoring 95 to 99 in the test. There were no significant correlations with the criteria for success; the only value of any interest obtained was the correlation of -.12 with the rate of promotion criterion, suggesting that those with high typing scores are promoted less rapidly. This may be in direct contradicition of the Peter Principle.

While the quartotomous analysis showed no predicting ability for length of service of for number of promotions, the lower group, having scores below 85 received some frequent promotions ($p<.17$). Those in the middle group, having scores between 86 and 95 were infrequently promoted ($p<.05$).

Recommendations

Further study is needed to check the validity of the above findings.

Variable List Forty-Three - Performance Test Score

This data was taken directly off the applications, giving the test scores that were obtained during the interview period. Four applicants took performance tests, with scores ranging from 71 to 83. The scores correlated at a -.57 with length of service, -.45 with the number of promotions and at .76 with the frequency of promotions. Due to the small number of cases, no pattern analysis was made. The data might well continue to be collected if the study is continued, for the high correlations might indicate valid data exists in this area.

Variable List Forty-Four - Length of Service Allowance

This score was also obtained from the civil service records. Thirteen cases were found in the sample of 235, with values from 2 to 99. The mean was 30 and the standard deviation was 31. The correlations with length of service, number of promotions and frequency of promotion were respectively .39, .12, and .33. Again, due to the small number of cases, a pattern analysis was not made. But the variable seems worthy of further study, in hopes that more positive identification of its value might be obtained.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

Variable No	Descriptive Title
18 LV 45	Total Score

RECOMMENDATION FOR FUTURE STUDY: Include in further study to verify these findings.

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V:45	0	2	13 < 1
2.	3	16	6 < 5
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1. V45	1	2	9 < 5
2.	3	17	6 < 1
3. V45:52	3 0	16	5 < 1
4.	2 0	6	11 < 17
5.	1 0	1	8 < 5

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1. None significant			
2.			
3.			
4.			
5.			

Variable List Forty-Five

The total scores which combine the Civil Service Written Test with the Civil Service Typing test were recorded for 211 applicants. The total scores were distributed with a mean of 76.63 and a standard deviation of 7.48. One hundred five of the applicants received scores ranging from 70 to 78. Some questions might be raised as to why the concentrated cluster in such a short range. It tends to suggest the tests or the averaging process need to be studied. The correlations with the criteria for success were .22 with length of service, and .29 with the number of promotions. The correlation with frequency of promotions was negligable.

The total scores were broken into those who listed no total score, a lower group with scores below 30, a middle group with scores between 74 and 79 and a high group with scores above 80.

The quartotomous analysis showed that those who accrue no total score are usually short term employees, ($p<.01$) while those with high scores are often long term employees ($p<.05$).

The low scoring group normally receive few promotions ($p<.05$) while the high scoring group receive many promotions ($p<.01$). These results are modified if the applicant gives no data on the age of the youngest child. With a high total score and no child data, the applicant is apt to be much promoted ($p<.05$) but with medium or low total scores and no child data, the applicant is unlikely to be promoted ($p<.05$).

No relationship was found with the frequency of promotion criterion.

Recommendation

The variable should be retained so that the trends found can be verified.

Variable List Forty-Six - Veterans Preference

Five applicants each received five points on their veterans preference. Correlations cannot be calculated on such data, and since the number of cases was so small, a pattern analysis was not made either. Since little can be done about this variable at the time of hiring, it is recommended that it be dropped from further analysis.

Variable List Forty-Seven - Total Test Score Including Veterans Preference

This data was taken directly from the civil service files. Only in six cases was it included in the applicants records, and so because of such small amounts of data, it is recommended that it be dropped from the analysis.

But for the record, it correlated at .46 with length of service, at .53 with number of promotions and at .27 with frequency of promotion, suggesting that it was one of the best predictors of successful service.

Variable List Forty-Eight - Job Locations Acceptable

If the applicant checked urban, suburban or out-state locations as preferred, it was to be noted. No data was obtained on this statistic.

Variable List Forty-Nine - Number of job locations acceptable

The applicant may have checked more than one of the above. However, in this case also, no data was collected.

Variable List Fifty - Number of children in the Applicants Family

This data was coded directly, except that those having more than nine children were assigned the value "9". Forty-nine applicants responded, indicating a maximum of seven children. The mean value was 2.7 and the standard deviation was 1.65. The distribution correlated at a -.33 with length of service, and at -.33 with the number of promotions. The correlation with frequency of promotion was negligable.

One can only conclude that many children is not a good recommendation for a stable employee. The variable was not analyzed by a pattern analysis, but might well be when more cases are accumulated. Such an analysis might profit by removing those with one child into a special group.

Variable List Fifty-One - Age of the Eldest Child

The variable ranged from age one to age 22, with a total of 46 cases reporting. The mean was 13.9 with a standard deviation of 5.7 years. The correlations with length of service and number of promotions was negligable, but was .26 with the frequency of promotion. No pattern analysis was made, again for lack of sufficient numbers of data. It is not expected that this variable will contribute greatly, however, and the experimenters suggest that it be dropped from further study.

QUARTOTOMOUS COMBINATION ANALYSIS TABLE

The tables below are designed to show how a particular variable correlates with the criteria (1) Length of Service, (2) Number of Promotions and (3) Frequency of Promotions while in combination with other variables.

Variables - Variables "V" referred to by number

Quartotomous Pattern - "3" refers to high score - "2" refers to average score - "1" refers to low score - "0" no information

Findings:

LV 19 52	Age Youngest Child
Variable No	Descriptive Title

RECOMMENDATION FOR FUTURE STUDY: _____

Length of Service Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Long Service	Prob. for Short Service
1. V	3	2	8 < 17
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			

Number of Promotions Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Many Promotes	Prob. for Few Promotes
1.			
2. None			
3.			
4.			
5.			

Frequency of Promotion Criterian

Variable Combinations	Quartotomous Patterns	Prob. for Frequent Promotes	Prob. for Infrequent Promotes
1.			
2. None			
3.			
4.			
5.			

Variable List Fifty-Two

The age of the youngest child was recorded. Forty-six of the applicants supplied the ages for their youngest child. The ages were distributed with a mean age of 9.34 years and a standard deviation of 5.83 years. The correlation with length of service was .22, with number of promotions was .17 with frequency of promotion was .13.

The age of the youngest child was classified four way: If no data was given, the assigned group was "0". If the youngest child was under six, then group "1" was assigned. Those with children between ages 6 and twelve were categorized into group "2", and group "3" included all those with youngest child older than 12.

It was found that those having older children were more apt to give short service ($p<.17$). No relationship was found predicting promotability.

Recommendation

Include in further study to verify the rather surprising finding.

Variable List Fifty-Three - Second Civil Service Test: Total Score

This data, taken from the applications, ranged from 99 to 42 with 80 applicants supplying data. The mean value was 81.3 and the standard deviation was 13.7. The correlation with length of service was .16, with number of promotions was .34, and with frequency of promotions was .01. The .34 value is understandable, for this score is the classifying variable for giving promotions. A pattern analysis of this score was not made. The low correlations suggest that in the main study, such an analysis would be useful in detecting a possible non-linear correlation.

Variable List Fifty-Four - Test Number

Each of the tests of item 53 might have been a specialized test. This was coded into the analysis, as:

1. Senior Accounting Clerk
2. Senior Clerk Steno
3. Intermediate Clerk Steno
4. Executive One
5. Administrative Secretary
6. Senior Steno
7. Intermediate Clerk Typist
8. Senior Clerk Typist
9. MTSC Operator
10. Clerk II
11. Internal Aide
12. Senior Clerk
13. Clerk III

This data should not have been used for any purpose but to identify the kind of test alluded to the data in item 54. Since such diverse tests were used, it gives some of the reason for not analyzing item 53 in detail.

The following three tables are provided to aid the reader in finding all entries related to any particular variable investigated in this preliminary study.

INDEX OF ALL INTER-RELATIONSHIPS

AMONG

PREDICTORS OF LONG SERVICE

V2:15 0 - 0
0 - 1
2 - 3
0 - 3

V3 2
V3:15 0 - 1
0 - 0
2 - 3
0 - 3

V4

V5:15 0 - 0
0 - 1
2 - 3
0 - 3

V6:15 0 - 0
0 - 1
0 - 3

V7

V8:22 0 - 2
V8:17 0 - 1

V9 1
0
V9:15 0 - 1
0 - 3
1 - 0

V10:20 0 - 0
0 - 2

V11:20 0 - 0
0 - 2

V12:20 0 - 2

V13

V14

V15 0
1
3
V15:2 0 - 0
1 - 0
3 - 2
3 - 0
V15:3 0 - 0
1 - 0
3 - 2
3 - 0
V15:4
V15:5 0 - 0
1 - 0
3 - 2
3 - 0
V15:7
V15:8
V15:9 1 - 0
3 - 0
0 - 1
V15:10
V15:11
V15:12
V15:16 0 - 0
1 - 1
3 - 1
3 - 2
V15:19 0 - 0
1 - 1
3 - 1
3 - 2
V15:23 0 - 0
1 - 1
3 - 1
V15:25 3 - 3
2 - 1
0 - 0
V15:27 0 - 0
3 - 3
3 - 2
1 - 0

V15:41 0 - 0
3 - 0
3 - 2
V15:42 0 - 0
3 - 0
1 - 0
V15:45 0 - 0
1 - 1
3 - 3
V15:52 0 - 0
3 - 0
0 - 3
1 - 0

V16 0
2
V16:15 0 - 0
1 - 1
1 - 3
2 - 3

V17 1
V17:20 2 - 2
V17:8 1 - 0

V19 0
2
V19:15 0 - 0
1 - 1
1 - 3
2 - 3

V20 0
2
V20:10 0 - 0
2 - 0
V20:11 0 - 0
2 - 0
V20:12 2 - 0
V20:17 2 - 2
V20:37 1 - 1
2 - 1
V20:22 2 - 2
V20:33 0 - 1

PREDICTORS OF LONG SERVICE (cont'd)

V21	0		V35	1	
	3		V35:28	1	- 0
			V35:30	1	- 0
V22	0		V35:31	1	- 0
	2		V35:29	1	- 0
V22:20	2	- 2			
V22:8	2	- 0	V36	1	
			V36:28	1	- 0
V23	0		V36:30	1	- 0
V23:15	0	- 0	V36:31	1	- 0
	1	- 1	V36:32	1	- 0
	1	- 3			
V24			V37:20	1	- 1
			V37:22	1	- 2
V25	0			2	- 2
	3				
V25:15	3	- 3	V41	2	
	1	- 2	V41	0	- 0
	0	- 0		0	- 3
				2	- 3
V26	0				
	3		V42		
			V42:15	0	- 0
V27	0			0	- 3
	2			0	- 1
	3				
V27:15	0	- 0	V45	0	
	3	- 3		3	
	2	- 3	V45:15	0	- 0
	0	- 1		1	- 1
				3	- 3
V28	1				
V28:30	1	- 0	V	3	
V28:31	1	- 0			
V28:35	0	- 1	V52:15	0	- 0
	1	- 0		0	- 3
V28:36	1	- 0		3	- 0
	0	- 1		0	- 1
V29:35	0	- 1			
V30	1				
V30:35	0	- 1			
V30:36	0	- 1			
V30:28	0	- 1			
V31:35	0	- 1			
V31:36	0	- 1			
V31:28	0	- 1			
V32:36	0	- 1			

INDEX OF ALL INTER-RELATIONSHIPS

AMONG

NUMBER OF PROMOTIONS

V2:27 2 - 3
0 - 3
2 - 0
V2:52 0 - 0
1 - 0

V3:41 0 - 3

V4

V5 3
V5:27 3 - 3
0 - 2
0 - 3

V6 2
3
V6:45 0 - 1
0 - 3

V7:41 0 - 0
0 - 3

V8:37 0 - 2

V9

V10:22 0 - 2
V10:37 0 - 2

V11:22 0 - 0
0 - 1
V11:37 0 - 2

V12:37 0 - 2

V13

V14

V15 1
V15:27 3 - 3
1 - 0

V16 2
V16:27 1 - 3
2 - 0

V17 1
2
V17:22 2 - 0
1 - 0
V17:37 2 - 2
1 - 2

V18

V19 2

V20:22 0 - 0
V20:33 2 - 2
V20:37 2 - 2

V21 3

V22 0
1
2
V22:10 2 - 0
V22:11 0 - 0
1 - 0
V22:17 0 - 2
0 - 1
V22:20 0 - 0
V22:37 1 - 2
2 - 2
2 - 1

V23 0
2
V23:41 1 - 2
1 - 3
1 - 0

V24:37 0 - 2

V25 0
3
V25:27 0 - 2
3 - 3
0 - 0
V25:45 3 - 3

V26 0
V26:27 3
0 - 0
1 - 2
1 - 3

V27 0
3
V27:2 3 - 2
3 - 0
0 - 2
V27:5 3 - 3
2 - 0
3 - 0
V27:15 3 - 3
0 - 1
V27:16 3 - 1
0 - 2
V27:25 2 - 0
3 - 3
0 - 0
V27:26 0 - 0
2 - 1
3 - 1
V27:41 2 - 0
V27:45 3 - 3
0 - 2
2 - 1

V28

V29:22 0 - 1

V30 1
V30:32 0 - 1

V31

V32 1
V32:29 1 - 0
V32:30 1 - 0
V32:35 1 - 0
V32:36 1 - 0

V33 2
V33:20 2 - 2
V33:37 2 - 1

V34

V35:32 0 - 1

NUMBER OF PROMOTIONS (cont'd)

V36:32	0 - 1		V46		
V37	2		V47		
V37:8	2 - 0				
V37:10	2 - 0		V48		
V37:11	2 - 0				
V37:12	2 - 0		V49		
V37:17	2 - 2				
	2 - 1		V50		
V37:20	2 - 2				
V37:22	2 - 1		V51		
	2 - 2				
	1 - 2		V52:2	0 - 0	
V37:24	2 - 0			0 - 1	
V37:33	1 - 2		V52:45	0 - 3	
				0 - 2	
V38				0 - 1	
V39			V53		
V40			V54		
V41	0				
	2				
V41:3	3 - 0				
V41:7	0 - 0				
	3 - 0				
V41:23	2 - 1				
	3 - 1				
	0 - 1				
V41:27	3 - 3				
	2 - 0				
	1 - 2				
V41:45	0 - 1				
	0 - 2				
V42					
V43					
V44					
V45	1				
	3				
V45:6	1 - 0				
	3 - 0				
V45:25	3 - 3				
V45:41	1 - 0				
	2 - 0				
V45:52	3 - 0				
	2 - 0				
	1 - 0				

INDEX OF ALL INTER-RELATIONSHIPS

AMONG

FREQUENCY OF PROMOTION

V2 0
1
V2:37 0 - 3
2 - 2

V3 0
2
V3:52 2 - 0

V4 0
2
V4 2
V4 2 - 2
0 - 1
3 - 1
V4:6 0 - 0
V4:15 0 - 3
3 - 3
V4:21 3 - 3
0 - 3
3 - 1
V4:26 3 - 3
0 - 3
2 - 1
V4:27 2 - 2
3 - 3
0 - 3
V4:41 0 - 3

V5 0
V5:9 2 - 0
V5:19 0 - 2
3 - 1
3 - 2

V6:4 0 - 0
V6:27 2 - 2
3 - 2

V7 1

V8:24 0 - 1

V9:5 0 - 0
0 - 2

V10:20 0 - 2

V11:20 0 - 0

V12:20 0 - 0
0 - 2

V13

V14

V15 1
3
V15:4 3 - 0
3 - 3
V15:25 3 - 3
2 - 1
V15:27 3 - 3

V16

V17 1
2

V18

V19 2
V19:5 2 - 0
1 - 3
2 - 3

V20 0
2
V20:10 2 - 0
V20:11 0 - 0
2 - 0
V20:12 0 - 0
2 - 0
V20:22 0 - 0
1 - 0
V20:33 0 - 0
1 - 0

V21:4 3 - 3
3 - 0
1 - 3

V23

V24 1
V24:8 1 - 0
V24:22 1 - 1
V24:33 1 - 0
V24:37 1 - 1

V25:15 3 - 3
1 - 2

V26 3
V26:4 3 - 3
3 - 0
1 - 2

V27 3
V27:4 2 - 2
3 - 3
3 - 0
V27:6 2 - 2
2 - 3
V27:15 3 - 3

V28

V29:31 0 - 1

V30:20 0 - 0
V30:31 0 - 1
1 - 0
V30:32 0 - 1

V31:30 1 - 0
0 - 1
V31:32 0 - 1

V32 1
V32:30 0 - 1
V32:31 1 - 0

V33:24 0 - 1

V34

V35

FREQUENCY OF PROMOTION (cont'd)

V36

V37:2 3 - 0
2 - 2
V37:24 1 - 1

V38

V39

V40

V41 1
V41:4 3 - 0

V42 1
2

V43

V44

V45

V46

V47

V48

V49

V50

V51

V52:3 0 - 2

V53

V54

RECOMMENDATION

The data that has thus far been studied gives hope of bringing greater certitude to the screening procedures used in recruiting people for clerical and secretarial training and employment. Although the present level of work does not reach probability levels that are adequate for making such important decisions affecting peoples lives, yet after additional investigation such certitude is to be expected.

Among the direct results of such a study would be the elimination of certain items and the strengthening of others in the application forms for both schools and civil service employment. In addition, interview procedures might be better defined as indicated in the preceding discussion of the effect of one variable as it might be used in the search for a suitable candidate for a particular position.

It is the feeling of these investigators that a powerful new tool has been developed in the pattern analysis, giving greater ability to discern trends involving smaller groups within diverse statistical groups. This tool then when used across all of the variables in a single analysis should make it possible to obtain results for the most important variables that can actually be introduced into prognostic procedures for personnel selection. These investigators believe that such results would well justify the completion of this kind of a research project.

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Application of the Results

The mass of data on each of the variables above must be clarified to show that this information can actually be used by the interviewer. As an example, let us use variable 15, age when applying, assuming that a faithful employee is being sought to hold a post that will take some training. The group wants to avoid the problems of retraining a new person after a short period of time.

On this basis, the interviewer automatically eliminates all applicants that have neglected to state their age. (and failed to state many of the other factors: a well filled application is apparently a first sign of a good employee). He then searches carefully for women applying after age 45. With these people he also looks for the following attributes: high school or vocational training, high civil service total score, average civil service typing test scores (or also, no score and no shorthand test score.)

The interviewer also checks her marital status for single or married, excluding widows, divorcees and those who left it blank. He checks the age of the youngest child, hoping that this data will be left blank.

Then he looks at the previous job: If it was rural or urban, not suburban, if it was closely related to the work applied for, and if the job duty was secretarial or stenographic, then the applicant fits.

The interviewer also checks on the applicants business grade average: no scores or average scores are much preferred to low or high scores. The number of business courses taken should also be none or average. The English grade average should also be average, or no data available. Surprisingly, it would be better if no high school rank data were available, and no IQ data available.

The interviewer should also observe whether the applicant's previous job involved duties similar to those of the proposed job. If so the likelihood that the individual will be promoted out of the job, is increased. It is also more likely that the promotion will be soon. Had the characteristic been only that the previous job was at the stenographic level, then the promotion might have come more slowly. It is worth noting in this regard, that had the previous job been on the clerical level, then the likelihood of retaining the employee at that level would have been maximized.

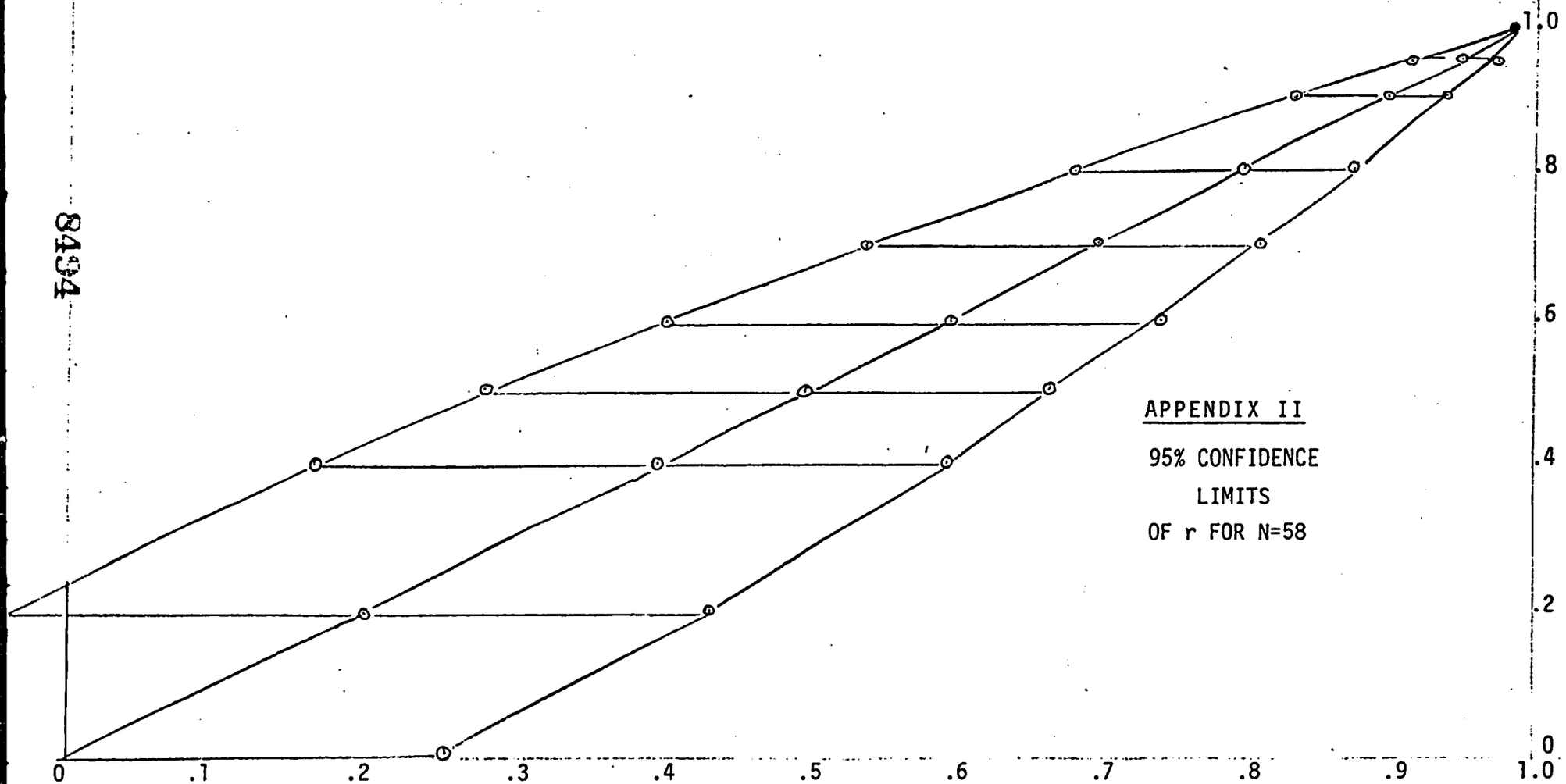
The readers attention must be called to the fact that this is not an exhaustive list, since not all variables were used together in the statistical pattern analysis. The proposed study would include these other variables.

APPENDIX I
BINOMIAL PROBABILITY (p = q = .5)

IF THE TOTAL NUMBER IS	THIS NUMBER OF CASES IS 1%	THIS NUMBER OF CASES IS 5%	THIS NUMBER OF CASES IS 17%
4			0
5		0	-
6		0	1
7	0	-	1
8	0	1	2
9	0	1	2
10	0,1	-	2
11	0,1	2	3
12	0,1	2	3
13	0,1	2,3	4
14	0,2	3	4
15	0-2	3	4,5
16	0-2	3,4	5
17	0-3	4	5,6
18	0-3	4,5	6
19	0-4	5	6
20	0-4	5,6	7

ERIC

8454



APPENDIX II

95% CONFIDENCE LIMITS OF r FOR N=58

VT 016 804
THE TRANSPORTATION OPPORTUNITY PROGRAM, INC. FINAL REPORT (AUGUST 1, 1968-OCTOBER 31, 1969).

TRANSPORTATION OPPORTUNITY PROGRAM, INC., PICO RIVERA, CALIF.
MANPOWER ADMINISTRATION (DOL), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE - ND 94P.

DESCRIPTORS - *VOCATIONAL TRAINING CENTERS; *EMPLOYMENT PROGRAMS; DEMONOSTRATION PROJECTS; DISADVANTAGED GROUPS; MINORITY GROUPS; TRAINEES; *AUTO MECHANICS (OCCUPATION); *JOB TRAINING; *JOB PLACEMENT; VOCATIONAL REHABILITATION; VOCATIONAL COUNSELING; LABOR UNIONS
IDENTIFIERS - LOS ANGELES

ABSTRACT - THE TRANSPORTATION OPPORTUNITY PROGRAM, INC. (TOP) IS A SPECIAL DEMONSTRATION MULTI-OCCUPATIONAL TRAINING CENTER DESIGNED TO TRAIN DISADVANTAGED RECRUITS AS PROFESSIONAL HEAVY-DUTY TRUCK DRIVERS AND AS AUTOMOTIVE SPECIALISTS IN VARIOUS SKILLS. BY PROVIDING REMEDIAL EDUCATION, VOCATIONAL INSTRUCTION, COUNSELING, AND JOB PLACEMENT SERVICES THE CENTER ELEVATES THE EMPLOYABILITY OF INHABITANTS IN DEPRESSED AREAS OF LOS ANGELES. TOP ALSO ARRANGED FOR THE SERVICES OF THE TEAMSTERS JOINT COUNCIL OF SOUTHERN CALIFORNIA TO ASSIST IN FINDING SECURE, HIGH-PAYING JOBS FOR ITS GRADUATES. COUPLED WITH THIS PROGRAM IS AN UPGRADING COMPONENT TO TRAIN MENE CURRENTLY EMPLOYED IN ENTRY-LEVEL JOBS IN THE TRANSPORTATION INDUSTRY FOR HIGHER POSITIONS, THEREBY CREATING OPENINGS FOR NEW GRADUATES TO ENTER THE FIELD. THIS REPORT PRESENTS PROGRAM OESCRIPTIONS AND CUMULATIVE STATISTICS FOR TRAINEES AND GRADUATES, INCLUDING DATA AS TO TYPE OF TRAINING ANO WHETHER OR NOT GRADUATED OR PLACED, ETHNIC ORIGIN, JOB PLACEMENT AND RETENTION, SALARY, EMPLOYMENT STATUS, AND OTHER FACTORS. (MF)

JTPA

SECOND YEAR
FINAL REPORT

8496

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EDUCATION & WELFARE
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TO

THE MANPOWER ADMINISTRATION

U. S. DEPARTMENT OF LABOR

FINAL REPORT -- AUGUST 1, 1968 to OCTOBER 31, 1969

From

THE TRANSPORTATION OPPORTUNITY PROGRAM, INC.
(A Non-Profit Corporation)

7777 Industry Avenue
Pico Rivera, California 90660
PHONE: (213) 723-0771

An Experimental and Demonstration Program

CONTRACT NUMBER: 82-05-69-02

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CONTRACT NUMBER: 82-05-69-02 DATED: OCTOBER 31, 1969

Office of Manpower Policy, Evaluation and Research

United States Department of Labor

It has been the continuing purpose of TOP to develop and demonstrate the feasibility of active, direct participation by a labor organization in a comprehensive manpower program. TOP is elevating the employability of inhabitants of the economically depressed areas of South-Central and East Los Angeles through remedial education and vocational instruction in truck driving and specialized automotive service skills. TOP has also undertaken upgrading-training to enable workers currently employed in entry-level jobs within the transportation industry to progress to higher-level positions.

This report, on a demonstration project, was prepared under a contract with the Manpower Administration, U.S. Department of Labor, under the authority of the Manpower Development and Training Act. Organizations undertaking such projects under government sponsorship are encouraged to express their own judgement freely. Therefore, points of view or opinions stated in this document do not necessarily represent the official position or policy of the Department of Labor.

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INTRODUCTION

The Transportation Opportunity Program, Inc. (TOP) is a special demonstration, multi-occupational training center designed to train "hard-core" recruits as professional heavy-duty truck drivers and as automotive specialists in such skills as brake repair, front-end alignment and tune-up. It provides remedial and basic education, counseling and job placement services, using the services of Teamsters Joint Council #42, of Southern California, to assist in finding secure, high-paying jobs for its graduates.

TOP couples this program with an upgrading component designed to upgrade the skills of men presently employed in the transportation field, thereby building job ladders and creating openings for new men entering the field upon graduation.

TOP is a non-profit educational institution, incorporated by the State of California. The Board of Directors is composed of Teamster officials and community leaders from the Los Angeles area.

This is the final project report under Department of Labor Contract No. 82-05-69-02. Since TOP has been in operation for more than two years, the narrative and statistics will, in some instances, refer to activities and events occurring under a prior Department of Labor Contract, No. 82-05-67-38.

The report is divided into categories based on the operation of the program including major sub-headings for Job Development and Placement, Educational and Supportive Services and New Developments, and is devoted to changes and developments both internal and external to the TOP operation. It should be noted that due to increased emphasis on the upgrading aspects of the Truck Driving Program, a separate sub-section is devoted to discussion of this topic.

After two years of operation, this is TOP.

JOB DEVELOPMENT AND PLACEMENT

August 14, 1967, under initial Department of Labor and Department of Health, Education and Welfare contracts, TOP began training its first class of trainees. The role of the job development and placement staff might best be described as "missionary", in the sense that they were beating the bushes, trying to convert employers in the Southern California freight and automotive industries to more realistic hiring policies. Though the work of evangelism is far from complete, significant conversions have been made.

During the present contract period, TOP has continued to develop and expand working relationships with the employers and to consolidate contacts previously made with the local unions and Joint Council of Teamsters #42.

Many problems were encountered early in the program in gaining acceptance of TOP by Teamsters unions. As the number of TOP graduates in their unions increased, and as it became apparent that TOP people could meet, and in many cases, exceed the standards of the industry, acceptance grew. At present, relations with the entire Joint Council of Teamsters #42 are excellent with the exception of one major freight local. Significant improvement in the attitude of that local has taken place in recent weeks.

In the trucking industry, TOP is now doing business (one or more placements) with one hundred thirty-six firms including most of the major trucking companies in Southern California. This demonstrates the viability of TOP's unique access to the industry through the intimate association of the Teamsters Union with the project. This access has helped the job placement and development personnel to overcome much of the employer reluctance they early had experienced. In the automotive area, the job development section is working closely with and making placements at every major oil company, the major tire and rubber companies, major discount houses and department stores, and new car dealer associations.

AUTOMOTIVE PLACEMENT

TOP has attempted to concentrate in placing automotive trainees with companies covered by union agreements, thereby finding jobs with earnings higher than the average presently paid throughout the industry. However, many automotive firms in Southern California are still unorganized. Therefore, TOP has also negotiated with independent dealers, many of whom have been extremely helpful in offering opportunities to hard-to-place trainees, especially those with physical handicaps, language problems and prison records.

In addition to its association with the Teamsters and with private companies, the job development and placement section has also developed working relationships with the International Association of Machinists, the United Auto Workers and the California State Employment Service, Job Clearing House (a job placement association of major poverty agencies), and other private and community agencies.

The Ford Motor Company is building a new training center one mile from TOP's Pico Rivera facility. Newly developing contacts with Ford Motor dealers promise to create excellent placement opportunities for the automotive graduate through additional training at the Ford Training Center.

The job placement staff has often found itself in the desirable position of having more job openings than graduates to place. The policy has been, of course, to place graduates in those jobs which provide the best earnings and the most promising job ladders. Present placements in automotive seldom pay less than $125.00 a week.

If it is necessary to place a well-qualified graduate in a low paying job, the employer is approached within a few weeks by a job placement specialist in an attempt to negotiate an increase. In several cases the success of this process has resulted in employers establishing higher beginning wages for TOP graduates than for general hires.

Especially in the automotive field, where Teamster ties are not as strong as in truck driving, the initial resistance to TOP graduates causes the job placement specialists to make many calls on the employer before the initial hiring breakthrough. Although this is a time-consuming process, it often results in a cordial relationship between the placement man and the employer. Then, when the first hire is made and the TOP graduate proves to be a satisfactory employee, rapid acceleration of the placement rate can be achieved.

EXAMPLE: After a long series of contacts, Goodyear Rubber Company finally hired its first TOP graduate a few months ago. Within a few days the company was not only calling for additional men, but had recommended TOP graduates to its customers.

Word-of-mouth advertisement among the employers coupled with the excellent and active cooperation of Teamsters Automotive Local 495, are the most important factors aiding automotive job placement.

With the refinements noted, job development and placement personnel have been able to devote more time to working with the trainee throughout the training period and to followup after placement.

The Job Development and Placement Program now has the following components:

TRAINING PERIOD

Orientation
Job Counseling
Total Guidance

POST TRAINING PERIOD

Placement
Follow-Up
Replacement if
Necessary
Follow-Up

During the present contract period a significant trend has been reported by the job development and placement staff in the area of softening employer attitudes toward minorities, "hard-core" and any other labels applied to the previously "unemployable". Perhaps publicity of the minorities' problems has been a contributing factor toward this new willingness to talk about and act upon the problems. In some cases this trend has resulted in automotive employers taking "affirmative action" in dealing with the problems of hiring the hard-core.

An interesting difference between the trucking and automotive industries has emerged. In the automotive industry, lower level management appears to be most aware of social problems and the significant part that the employer can play in their solution. On the other hand, in the trucking industry, middle and upper management appears to be more cognizant of the social problems.

TRUCK DRIVING PLACEMENT

A good example of TOP's increased acceptance in the trucking industry is the recent developments in the truckaway field.

Auto carriers or truckaway operations have been recognized as an industry in the United States since approximately 1936 and in California

since 1945. During the past twenty-four years, the hiring policies of the auto carrier industry have changed very little and have been regarded as traditional, hence, inviolate.

Minority hiring was virtually non-existent in the auto transport industry, particularly in Southern California. The high salaries paid to the drivers of this industry have created a labor market which permits a high degree of selectivity. Therefore, employers have been able to maintain unrealistic pre-employment screening criteria.

In initial meetings between nine major employers in this industry and TOP job placement specialists, there was considerable friction. As presented by the personnel officers, the lack of minority drivers was due to the fact that many well qualified, experienced drivers were anxious to improve their earnings which allowed companies to select the elite driver without changing their standards. Counter arguments were that most minority persons applying could not meet these standards.

An early proposed solution to the industry's equal employment opportunity compliance problems, (and TOP's placement problems) was for Teamster unions and company personnel, working Saturdays and Sundays without pay, to insure adequate training for TOP students. This solution was suggested in part to give the company a look at the students before hiring. Impending model changeover and the resultant job shortage delayed implementation of these plans. In the interim a more direct approach was developed.

On September 16, 1968, a significant meeting took place between representatives from Locals 871, 381, 495, 224, the Auto Transport Committee, Robertson Truck-A-Ways, Insured Transporters, Pacific Motor Trucking Commercial Carriers, Hadley Auto Transport, Kenosha Auto Transport, National Auto Transport and TOP's job development and placement department. After several hours of discussion, the group made the following specific recommendations regarding TOP graduates:

1. Elimination of high school graduation requirements.
2. Partial elimination of pre-employment testing.
3. Age limit reduced from 25 to 23, and extended from 35 to 48.
4. Substitution of TOP training for three to five years experience.
5. Elimination of misdemeanor convictions as a device for screening out applicants.
6. Considerably relaxed hiring of men with felony convictions.

The two restrictions are against men whose driving records include drunk driving or felony reckless driving, either of which guarantees exclusion from this industry.

By September 23, 1968, nine TOP graduates had been hired and another twelve had applications pending in the truckaway industry. In follow-up calls since October 15, 1968, the general attitude of the auto

carriers toward TOP graduates has been satisfactory. Of the initial eleven men placed, one has been laid off due to very poor performance and attendance. At the last follow-up, TOP graduates in the auto carrier industry were earning $250.00 to $325.00 a week.

A TOP graduate in this industry can be assured of making $10,000.00 in the first year of employment even though he is at the bottom of the seniority list. (Basically this is a 10-month-a-year operation.) With a dependable record and increased seniority, he should be able to earn $14,000.00 to $17,000.00 a year plus life insurance, major hospitalization, eye care, dental care, generous vacation schedules and retirement benefits.

Although this breakthrough in the truckaway industry has not resulted in as many job openings for TOP graduates as had been originally hoped, it has provided a significant new opportunity for minority group members, some fifty of whom have been hired for the first time in this well-paid field.

In this, as in other areas, a strong factor contributing to hiring-pattern changes has been the pressure exerted on industry by the Contracts Compliance Office of the U.S. Post Office Department and the Federal Bonding Service. This pressure, coinciding as it does with the availability of TOP minority graduates, represents a happy confluence of events.

GENERAL

Persons whose attitudes have been molded by deprivation and by the development of survival techniques necessary in a ghetto have presented a challenge to the placement staff since the first class graduated. Recently, students with less than optimum physical conditions have become more significant to job development. Early in the program, on an experimental basis, a man classified as totally blind by the State of California, was successfully trained and placed as a brake and front-end mechanic.

More recently, men with serious overweight problems have challenged the placement staff. In one class a man with cerebral palsy was recruited into automotive. The trainee was trained in every phase of automotive service skills which TOP offers and was last reported working in an automotive repair shop in East Los Angeles. Special difficulties encountered in placements of this sort are more than compensated for by the results.

Further improvement of the placement process should grow out of TOP's increased cooperation with employers involved in the evening upgrading program.

JOB RETENTION SURVEY

JOB PLACEMENT SURVEY

September , 1969

Age ___ Ethnic ID: M-A ___ N ___ C ___ Other ___

SECTION A

1. Trainee's Name _____ (First) (Last)

2. Address _____

Phone Number _____ Graduation Date _____ (Mo) (Year)

In

if Automotive _____ or T.D. _____ Non-training related _____

Septem- driving fill out Sec. B; if automotive, Sec. C; if non-training
ll out company name, address, pay, how long, and union ONLY.

ber 1969, TOP _____

SECTION B

conducted a job

if truck driver:

retention survey which _____

was to include all voca- _____

v rate _____ or _____
(per hour) (per month)

tional trainees graduating

__ H.D. ___ Warehouse ___ Fork lift ___

between the dates of August _____

1967, and February 1969. Of ___ Private carrier _____

the 583 graduates included in the tar- ck up and delivery _____

_____ Casual _____

get group, 378 were located and responded al _____ or other

to the questions asked by staff members participat- _____

ing in the survey. While a goal of at least 75% survey completions had been set, the final talley of 65% completions is felt to be a reliable indicator of graduate employment status.

Approximately 230, or 60%, of the trainees included in the survey population were relatively simple to locate. The remaining 148 respondents

were located only with increasing difficulty. In most cases they were employed in good to better than average jobs and had left their ghetto environment for better homes in the peripheral suburban communities of Los Angeles. Noting that the more difficult to locate trainees did not appreciably alter previously established employment percentages, it was decided to discontinue the costly process of tracking down the remaining 35% of the target population.

It is believed that had the survey been continued to include all unlocated graduates, the resultant ratio of employment versus unemployment could only have improved. Therefore, conclusions and employment rations derived from the survey and applied to the total population of graduates are felt to be realistic and perhaps even a bit conservative.*

In order to accomplish the assigned task of completing the job retention survey within the deadlines established, it was necessary to press into service as interviewers most of the manpower, clerical, instructional and administrative staff available, some twenty-three or twenty-four persons.

Aside from the job placement and counseling staff (five persons), nearly all the remaining personnel had very limited experience in the type

*Employment status of un-surveyed graduates stopping by to visit counselors and instructors serve to strengthen this conclusion.

of in-depth interviewing, particularly by phone, necessary to extract successfully the kind of sensitive information being sought.

Ghetto residents, generally, assume a strange voice inquiring about where they are working, hourly pay rates, income tax paid, etc., can only be a bill collector, skip tracer, or somebody trying to "con" them, in a word, it was the man. Even the counselors, fairly well known to most of the trainees, reported they were told quite bluntly in some cases that what was paid on income tax was none of their "god damn" business. Although the name TOP was a magic "open sesame" in the majority of the contacts, it was not able to accomplish the job in every instance.

Consequently, there were some gaps and discrepancies in the collected information that are reflected in the accompanying statistical tables. For instance, non-training related job categories were viewed differently by different interviewers. All the individual survey sheets were reviewed by the supervising counselor before final tabulation and where any doubt or possible difference of opinion existed, the reviewer's judgement was super-imposed so that a consistent standard was used. In all these instances, any dubious interpretation was resolved unfavorably to TOP. In other words, if a trainee had been employed nine months on a particular job, but had been unemployed, say, two weeks at the time of the interview, he was shown as unemployed for purposes of the survey although

the particular interviewer (with built-in bias for TOP) showed the trainee as currently employed. Additionally, because of some differences in interpretation of instructions by interviewers, the total target population for the period August 1967, through February 1969, does not equal exactly the total number of actual graduates for this period of time. Again, in the final review before tabulation, where a dubious contact may have been based on information in the case folder, rather than an actual contact with the trainee or relative, the dubious contact was discarded for the final tabulation, again not statistically in TOP's favor.

TABLE I

ANALYSIS OF TRUCK DRIVING AND AUTOMOTIVE STUDENTS

GRADUATING FROM AUGUST 1967 - FEBRUARY 1969

Target Group	- 583	100%				
Number of Graduates Contacted	- 378	65%	100%			
Number of Respondents Employed	- 309	53%	82%	100%		
Number of Training-Related Jobs	- 226	39%	60%	73%	100%	
Number of Union Members	- 117	20%	31%	38%	52%	100%
Number Belonging to Teamster Unions	- 99	17%	26%	32%	44%	85%

TABLE II

ANALYSIS OF TRUCK DRIVING STUDENTS GRADUATING FROM AUGUST 1967 - FEBRUARY 1969

Target Group -	331	100%				
Number of Graduates Contacted -	209	63%	100%			
Number of Respondents Employed -	189	57%	90%	100%		
Number of Training-Related Jobs -	167	50%	80%	88%	100%	
Number of Union Members -	95	29%	45%	50%	57%	100%
Number Belonging to Teamster Unions -	86	26%	41%	45%	52%	90%

TABLE III

ANALYSIS OF AUTOMOTIVE STUDENTS GRADUATING FROM AUGUST 1967 - FEBRUARY 1969

Target Group -	252	100%				
Number of Graduates Contacted -	169	67%	100%			
Number of Respondents Employed -	120	48%	71%	100%		
Number of Training-Related Jobs -	59	23%	35%	49%	100%	
Number of Union Members -	22	9%	13%	18%	37%	100%
Number Belonging to Teamster Unions -	13	5%	8%	11%	22%	59%

As shown on Table I, overall employment for the survey group equaled 82% of those contacted. In other words, of five hundred eighty-three graduates, four hundred seventy-eight were employed; 73%, or three hundred forty-nine, of the target group were employed in training-related jobs.

Tables II and III show a similar analysis of the two separate vocational areas of training.

Of particular significance is the percentage of employment in both groups even though the truck driving employment status overshadows that of the automotive graduates with a currently employed ratio of 90%. Applied to the total graduate population for the two contract periods, this means that four hundred twenty-seven truck drivers are currently employed as a result of TOP training, earning $3.87 per hour, for an aggregate annual income of $3,304,980.

Table IV indicates that 20% of the truck driving students were on welfare while attending TOP, and 41% of the automotive trainees were on welfare during training. Assuming an average welfare budget of $200.00 per month per family, TOP trainees accounted for an estimated $592,800 in Los Angeles County's annual welfare budget. At the time of the survey, 3% of the truck driving and 9% of the automotive graduates were on welfare. Again assuming an average monthly welfare budget of $200.00

per family, TOP graduates are accounting for an estimated $112,800 of Los Angeles County's welfare budget, which amounts to an annual savings of $480,000 to Los Angeles taxpayers.

TABLE IV

PUBLIC WELFARE STATUS

	TRUCK DRIVING								AUTOMOTIVE							
	On Welfare While at TOP				On Welfare at Time of Survey				On Welfare While at TOP				On Welfare at Time of Survey			
	Yes		No		Yes		No		Yes		No		Yes		No	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Mexican American	14	27	38	73	3	6	50	94	18	45	22	55	5	13	36	87
Negro	13	18	60	82	1	2	63	98	11	43	15	57	2	8	24	92
Caucasian	6	17	30	83	0	0	35	100	1	20	4	80	0	0	5	100
Other	0	0	1	100	0	0	1	100	2	25	6	75	0	0	7	100
Total	33	20	129	80	4	3	149	97	32	41	47	59	7	9	72	91

TABLE V

EFFECTS OF TOP ON THE WELFARE TAX DOLLAR

	% on Welfare While in Training		Total Trained		Total Receiving Welfare at TOP	Estimated Budget per Family		Yearly Budget	Annual Cost to Taxpayers
Truck Driving	20%	of	475	=	95	$200.00	X	12	$228,000
Automotive	41%	of	372	=	152	$200.00	X	12	$364,800
Annual Cost in Tax Dollars									$592,800

	% on Welfare After Survey		Total Trained		Total Rec'g Welfare After Survey	Estimated Budget per Family		Yearly Budget	Annual Cost to Taxpayers
Truck Driving	2.6%	of	475	=	14	$200.00	X	12	$ 33,600
Automotive	8.8%	of	372	=	33	$200.00	X	12	$ 79,200
Annual Cost in Tax Dollars									$112,800

ANNUAL TOTAL SAVINGS IN TAX DOLLARS $480,000

Truck driving graduates are currently making an average of $3.87 per hour for a two-thousand-hour work year; that amounts to $7,740.00. With an estimated four hundred twenty-seven truck driving graduates employed, that amounts to an aggregate income of $3,304,980. Automotive graduates make an average hourly pay of $2.83 an hour. The average yearly salary based on a two-thousand-hour work year comes to $5,660.00. 71% of the total automotive graduates are employed, meaning that two hundred sixty-four TOP automotive trainees are earning an aggregate income of $1,494,240. TOP's graduate population for the two contract periods is therefore earning a combined total of $4,799,220 per year.

Using a conservative estimate of 10% being paid in federal income taxes, it can readily be seen that TOP's graduates for the past two years are contributing approximately $480,000 a year in federal taxes. Combining this figure with the reduction of persons on the public assistance rolls indicates that TOP graduates are contributing nearly $1,000,000 a year to the local and national economy. It should be noted that this does not take into account the impact which these increased earnings have on state and local sales taxes and consumer goods.

TABLE VI

EFFECT OF TOP ON INCOME TAX DOLLARS

	Hourly Pay		Hours per Year		Yearly Salary		Number Employed		Annual Salary
Truck Driving	$3.87	X	2000	=	$7,740.00	X	427	=	$3,304,980
Automotive	$2.83	X	2000	=	$5,660.00	X	264	=	$1,494,240
Combined Annual Income									$4,799,220

APPROXIMATE ANNUAL INCOME TAXES PAID at 10% $ 480,000

TABLE VII

AGE ANALYSIS BY VOCATION AND ETHNIC/RACIAL ORIGIN

	TRUCK DRIVERS				AUTOMOTIVE				COMBINED			
	18-20	21-35	36-50	51 & over	18-20	21-35	36-50	51 & over	18-20	21-35	36-50	51+
Mexican American	0	43	11	0	2	22	7	0	2	65	18	0
Negro	0	56	15	4	0	10	7	1	0	66	22	5
Caucasian	1	29	6	0	0	2	3	0	1	31	9	0
Other	0	1	0	0	0	3	2	0	0	4	2	0
Total	1	129	32	4	2	37	19	1	3	166	51	5

TABLE VIII

	HOURLY PAY RATE													
	$2.00-2.50		2.51-3.00		3.01-3.50		3.51-4.00		4.01-4.50		4.51-5.00		5.01& over	
Truck Driving	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Mexican American	0	0	6	12	5	9	14	28	24	47	1	2	1	2
Negro	0	0	6	7	16	20	15	19	25	32	2	3	15	19
Caucasian	0	0	4	11	4	11	8	22	12	34	0	0	8	22
Other	0	0	0	0	1	100	0	0	0	0	0	0	0	0
Total	0	0	16	10	26	16	37	22	61	30	3	2	24	14
Automotive														
Mexican American	11	36	8	25	8	25	0	0	2	7	2	7	0	0
Negro	3	16	2	11	8	44	2	11	2	11	1	5	0	0
Caucasian	1	20	1	20	1	20	1	20	1	20	0	0	0	0
Other	3	60	1	20	0	0	0	0	0	0	1	20	0	0
Total	18	30	12	20	17	29	3	5	5	9	4	7	0	0
GRAND TOTAL	18	8	28	12	43	19	40	18	66	29	7	3	24	11

TABLE IX

EMPLOYMENT STATUS - TRUCK DRIVER

	Drivers				Training-Related						Non-Training Related		Total	
	Heavy-Duty		Bob Tail		Warehouse		Fork Lift		Other					
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Mexican-American	29	41	19	27	9	13	2	3	2	3	9	13	70	33
Negro	49	51	16	17	12	13	1	1	8	8	10	10	96	45
Caucasian	20	45	14	31	2	4	0	0	6	13	3	7	45	21
Other	1	50	1	50	0	0	0	0	0	0	0	0	2	1
Total	99	47	50	23	23	11	3	1	16	8	22	10	213	100

EMPLOYMENT STATUS - (Continued)

	Not Working or Not Available for Work										Status Unk, Out of Area		Total	
	Unemployed		Military		In Jail		Ill		Deceased					
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Mexican-American	3	50	0	0	1	17	0	0	0	0	2	33	6	30
Negro	5	45	0	0	2	18	2	18	0	0	2	18	11	55
Caucasian	0	0	0	0	0	0	0	0	1	33	2	64	3	15
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	8	40	0	0	3	15	2	10	1	5	6	30	20	100

TABLE X

EMPLOYMENT STATUS - AUTOMOTIVE

	Training-Related										Non-Training Related		Total	
	Tires		Brakes		Front-End		Tune-Up		Other*					
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Mexican-American	8	10	14	18	9	11	4	5	14	18	30	38	79	48
Negro	6	12	8	16	7	14	4	8	9	18	17	32	51	32
Caucasian	2	10	3	15	3	15	3	15	3	15	6	30	20	12
Other	0	0	0	0	0	0	0	0	5	39	8	61	13	8
Total	16	10	25	15	19	12	11	7	31	19	61	37	163	100

*Other includes four persons working in training-related jobs in a supervisory capacity - (2 Mexican-Americans; 1 Caucasian; 1 Other)

EMPLOYMENT STATUS - (Continued)

	Not Working or Not Available for Work										Status Unk. Out of Area		Total	
	Unemployed		Military		In Jail		Ill		Deceased					
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Mexican-American	11	57	2	11	1	5	2	11	1	5	2	11	19	38
Negro	9	41	2	9	2	9	6	27	0	0	3	14	22	44
Caucasian	0	0	1	17	2	33	3	50	0	0	0	0	6	12
Other	2	67	0	0	0	0	0	0	0	0	1	33	3	6
Total	22	44	5	10	5	10	11	22	1	2	6	12	50	100

TABLE XI

TRUCK DRIVING

	EMPLOYED No. of Prior Jobs			Months on Job					UNEMPLOYED Months Unemployed					UIB	
	1-2	3	4 & over	1-3	4-6	7-9	10-12	13+	1-3	4-6	7-9	10-12	13+	YES	NO
Mexican American	19	7	12	16	9	5	9	13	1	1	2	0	0	2	2
Negro	37	7	14	10	16	12	18	18	3	1	0	0	0	1	3
Caucasian	11	7	7	11	7	5	2	9	0	1	0	0	0	1	0
Other	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0

TABLE XII

AUTOMOTIVE

	EMPLOYED No. of Prior Jobs			Months on Job					UNEMPLOYED Months Unemployed					UIB	
	1-2	3	4 & over	1-3	4-6	7-9	10-12	13+	1-3	4-6	7-9	10-12	13+	YES	NO
Mexican American	12	2	1	8	4	4	7	7	4	3	2	1	1	4	7
Negro	11	3	1	4	4	4	2	4	4	4	0	0	1	2	7
Caucasian	4	0	0	1	2	0	0	2	0	0	0	0	0	0	0
Other	2	0	0	5	1	1	0	1	1	0	0	1	0	0	2

Table VII indicates that the preponderance of TOP trainees fell in the age group of twenty-one to thirty-five with an average age of just slightly over twenty-nine years of age. It was noted during the course of the survey that age had very little effect on income per hour with the exception of the small group over age fifty-one. These persons are at some disadvantage because of their age and must usually settle for jobs not paying quite as much as the average.

As shown on Table VIII hourly pay was fairly evenly distributed for each racial/ethnic group with the median for Negroes and Caucasians being slightly higher than for Mexican Americans. It is interesting to note, however, the surprising disparity in the over $5.00 per hour category in the truck driving group.

Tables IX and X show more persons employed than are indicated in Table I. This apparent discrepancy was caused by interviewers placing a person in more than one category if he was doing more than one job for his employer. In most union contracts, a person doing work in more than one occupational category will be paid at the rate of pay designated for the higher skilled occupation.

Job stability as shown in Tables XI and XII was somewhat higher than had been expected with the average trainees having had only one or two jobs prior to the position in which he was occupied at the time of the

survey. In the truck driving category, the Mexican American group showed slightly less time on the job and a slightly longer period of unemployment than either the Negro or Caucasian categories, while in automotive the reverse seems to be true.

In most respects the results of the job retention survey did not come as too great a surprise to staff members involved in the finding of employment for trainees. The survey bears out earlier reports and indicates that graduates have experienced many positive gains as a result of training.

SUCCESS IN PLACEMENT - THE WHY AND HOW

TOP's job development and placement staff was asked to list those elements of the program they considered most significant. The results:

1. Placement activity begins during the first week of training.

2. TOP bends every effort to place each graduate within two weeks of graduation. Often, placement occurs before the normal training is completed if the trainee is judged to be job ready.

3. The job development and placement staff works closely with other sections--teachers and counselors--and has frequent contacts with trainees both in group sessions and through individual contact.

4. Job placement officers sit on the Total Guidance Committee*, which handles serious trainee problems.

5. Job developers consult with teaching staff about suggested changes in the training program. Teachers advise the placement section about trainee capabilities in order to assist in proper job placement.

6. TOP works with employers, encouraging them to lower entry standards for graduates, including pre-entry examinations, high school diplomas, experience requirements and police contacts. The placement record for ex-convicts roughly parallels the placement record as a whole.

*See Counseling Section

7. TOP has developed a case-load approach to follow-up which is expected to decrease the number of job referrals before a trainee finds regular employment.

CONCLUSION

The job development and placement section, as now constituted, provides an on-going support system for every trainee, both during and after training. By continuing to develop this system, the project hopes to improve on its previous placement record, both in placement and job retention.

UPGRADING

TOP's upgrading program has always been successful in improving the earning capacity of its graduates. But its mission was two-fold: to improve the lot of the upgrader and at the same time create an entry job for a daytime student. It became apparent that the second part of the mission was not being fulfilled.

EXAMPLE: A paper-cutter from a large paper company came into the upgrading program, graduated, got a good job as a driver. His earnings were increased from $125.00 a week as a paper-cutter to more than $300.00 a week in the auto hauling industry. But no entry job was created for a new truck driver.

The upgrader was a more attractive new hire because of previous employment histories. Thus the effects of a successful upgrading program were decreased job opportunities for the daytime graduate. Therefore, the thrust of the upgrading program was changed from that of lateral mobility to one of upward mobility.

New criteria for admission were established. Intake for the upgrading program was limited to those employees who had established bidding procedures with their current employers, or to men capable of producing a letter from their employer stating that they would, as a result of training at TOP, be considered for promotion. In this fashion, training slots were provided for men who could be upwardly mobile without losing company seniority and fringe benefits. (Appended are several letters from common carrier employers indicating support and interest in the program.)

This had an added attraction in that men trained under these circumstances would be more apt to remain with their present employers. TOP job placement men could seek the entry-level job for a daytime graduate.

The Department of Labor incorporated this idea in TOP's 1968-1969 contract. Under the new ground rules, the waiting list of over four hundred applicants for upgrader training was reduced to about one hundred. Two hundred thirty-two upgraders were trained with the waiting list remaining at about one hundred men throughout the 1968-1969 contract period.

Operation of the program has uncovered several additional defects.

The men entering the training program came on their own initiative, usually without the knowledge and approval of their employer. In a few cases, the employer was displeased that TOP had upgraded a man whose work record with the company was not considered satisfactory. It was realized that increased employer participation in the upgrading program would be necessary. Several meetings were held with common carrier employers and officials of Joint Council of Teamsters #42 to determine the willingness of both the employer and the unions to develop a more effective upgrading program.

As a result of these meetings, general agreement has been reached on the following points:

1. The company will select the men, thereby sending men whom they wish to upgrade, based on past performance and seniority requirements.

2. Companies are worried about the shortage of qualified men for long-haul operations. This problem is further aggravated by the great numbers of experienced drivers now reaching retirement age. (Forecasts indicate approximately 50% of the current driving force will retire by 1975.)

   This shortage contributes to the increased cost of operation due to payment of overtime. Other factors, of course, such as fringe benefits and cost of equipment operation also contribute to the great amount of overtime worked in the industry, but there is no doubt that a shortage exists. Teamster Local 224 officials estimate that the

shortage is as high as four hundred in Los Angeles and Local 180 estimates that their companies could use two hundred more in sleeper-cab operations. At the present rate of training at TOP, it is doubtful that enough men are being trained to replace the retirees alone.

3. Since the upgrading program includes the fundamentals of preventive maintenance and trouble-shooting for minor breakdowns which occur on the road, the TOP upgrader can save money for his company by anticipating problems, thereby preventing expensive service calls on the road.

4. There is a great need for more education in the business aspects of the trucking industry for all drivers. Understanding the importance of bills of lading, the cost involved in misdelivered freight and other profit-reducing factors should be part of any truck driver training program.

TOP ACHIEVEMENT TESTING

In an effort to ascertain which skills it would be necessary to teach in the "business education" program, TOP administered a series of tests for its upgrading trainees.

The regular daytime program includes classes in basic and remedial education. To determine achievement levels, the Wide-Range Achievement Test is administered. The most recent regular class at intake achieved at 8.3 grades in reading and 5.7 grades in arithmetic. The range was from 1.7 to 12.5 in reading with a median of 8.3 grades.

However, the average for regular graduates at exit has been 9.9 grades in reading and 7.6 grades in arithmetic.

In the chart shown below results of the upgraders tested are compared with the results of the daytime trainees. There is no significant difference in achievement levels between those currently employed in the industry and the daytime trainees.

COMPARATIVE STATISTICS - (Upgraders vs. Day)

	NUMBER TESTED		MEAN		MEDIAN		STANDARD DEVIATION		RANGE	
	*N	*D	*N	*D	*N	*D	*N	*D	*N	*D
Reading Entry	141	264	8.4	8.4	8.4	8.2	3.0	2.7	1.6-13.8	1.8-17
Reading Exit	141	245	8.4	9.9	8.4	10.0	3.0	2.7	1.6-13.8	4.0-17
Arithmetic Entry	141	264	6.5	5.8	6.5	5.3	1.8	1.7	2.9-13.3	1.9-13.5
Arithmetic Exit	141	245	6.5	7.6	6.5	7.9	1.8	2.1	2.9-13.3	3.0-13.5
Age	141	264	29.7	30.8	29	29	5.4	7.8	20-47	20-53

*N - Nights - Upgraders

*D - Days - Regular

SIGNIFICANCE OF TESTING

The test results have helped TOP job development specialists to enhance employment potential of the daytime graduate by showing the minute differences between educational achievement of presently employed and daytime unemployed trainees. (Note 1)

The results point up the need to include "business" education classes in upgrading programs for at least half of the upgraders even though this might require a longer training period.

The test findings offer further proof that the trucking industry is one where the educationally disadvantaged can perform successfully in many capacities. Growth forecasts for the trucking industry during the next ten years coupled with retirement forecasts, indicates it will continue as an excellent source of employment for the disadvantaged. The tested upgraders' average age is thirty, indicating that they have entered the industry during the 1960's for the most part.

Since three of the great problems facing the trucking industry are costs of equipment maintenance, overtime pay and losses resulting from "O. S. and D." (over, short and damaged freight), training schools can contribute to the solution of all these problems by making more drivers available who are skilled in road maintenance, freight handling, and the paper work of the industry.

NOTE 1

Several recently-removed barriers to hiring TOP graduates have little relevance to the man's ability to perform the job for which he has been trained. A high school diploma does not guarantee academic achievement, as the testing program indicates. Pre-employment testing with the Wonderlich and other tests do not test ability to perform, nor recognize motivation and other factors. Prison, jail, and especially arrest records should not be critical factors in barring a man from employment. TOP graduates may have one or many handicaps--lack of education, jail records, language problems or no previous experience, but they have been trained as drivers, a statement that cannot be made by 90% of the truck drivers on the road today.

FOLLOW-UP ON UPGRADERS

Up to the present time, TOP has trained more than three hundred upgraders. In order to determine what percentage have improved earnings as a result of their training, questionnaires were mailed to all upgrading trainees graduating prior to April 30, 1969. This was done in order to allow at least six months to permit time for job bidding procedures. Of one hundred ninety-four questionnaires mailed,

eighty-eight were returned. The returns indicated that 54% have improved their earnings, some by as much as $6,000.00 a year and that 41% have bid for and received better jobs.

The follow-up indicates the trainees felt both teachers and teaching methods were satisfactory, but complained of lack of equipment.

	TOTAL RESPONSE	PERCENT
Present Employment Status (Total Response)	88	100%
Trainee employed same company, same job, same earnings	40	46%
Trainee employed same company, same job, increased earnings	12	13%
Trainee employed same company, better job	28	32%
Trainee employed different company, better job	8	9%

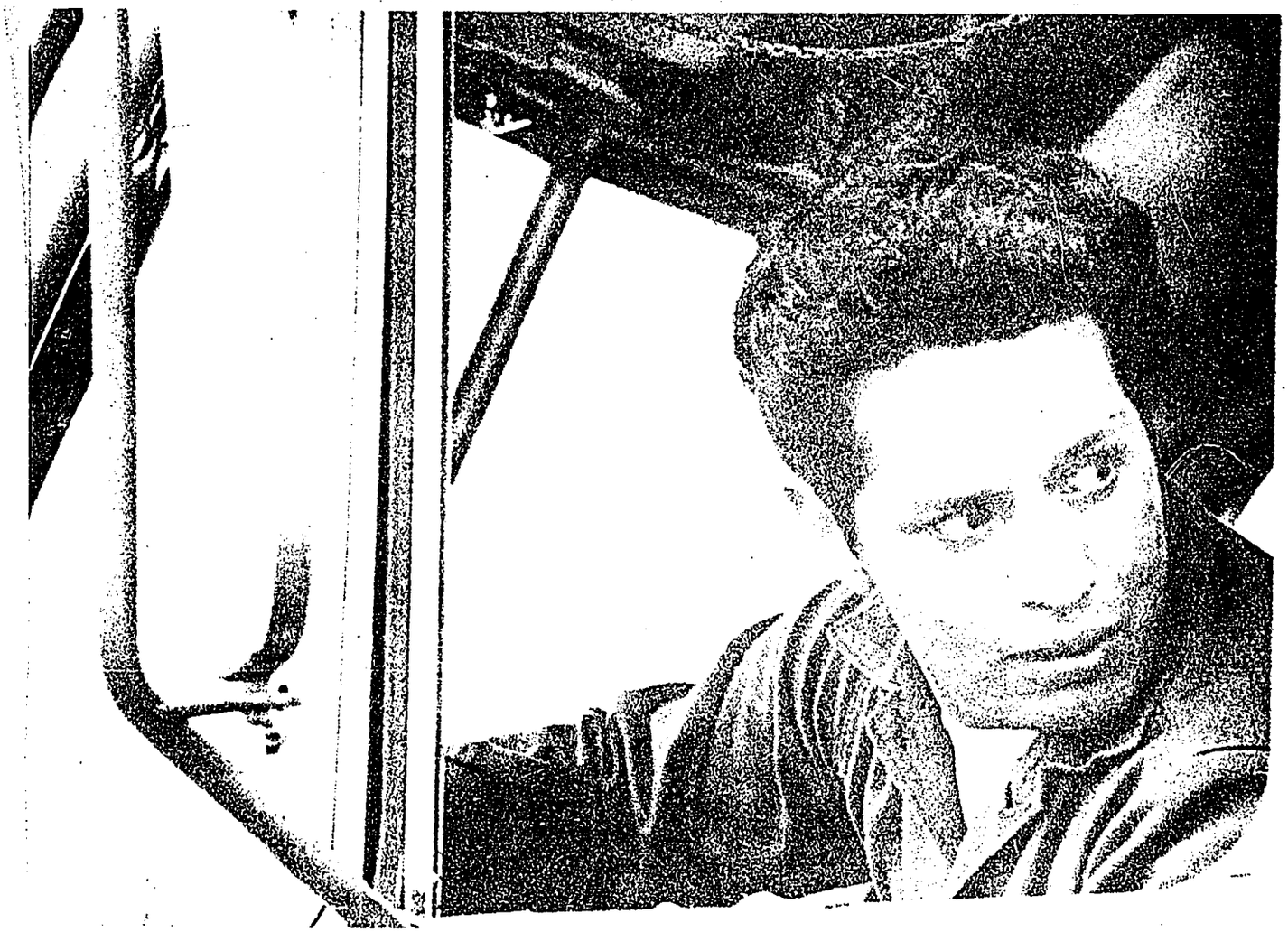
CONCLUSIONS

A high percentage of graduates have earned better jobs as a result of upgrading training, others are waiting for openings so they can bid for better jobs. Some have increased their earnings from overtime due to the ability to drive any type of truck.

Since preliminary test results indicate half the upgraders have reading scores below 8.5 grades and arithmetic scores below 6.7, TOP is now planning a "business education" section as part of the upgrading program.

Through employer approval of men accepted by TOP for upgrading, vacated entry jobs have become more accessible for TOP daytime graduates, and reliable employees, selected by the employer, are getting an opportunity to improve their driving skills and increase their earnings.

The employer benefits from safer, more skilled drivers and lower maintenance costs. Through the "business education" program, TOP hopes to lessen such costs as misdelivered freight and O.S. & D. losses.



PROFESSIONAL HEAVY-DUTY TRUCK DRIVING

The truck driving department of TOP, from August 1, 1968, to end of October 1969, trained two hundred forty-eight trainees, graduating in possession of newly-won Class I California driver's licenses.

Of those graduates, two hundred and six (83%) have become employed and of those employed, 89% (one hundred eighty-three) were placed with employers covered by union contract. Wages earned by graduates range from $2.25 to $4.25 per hour with a mean rate of $3.87 per hour for all graduates placed in employment.

During the present contract period, the truck driving department has dramatically improved the curriculum and methodology of training. This is evidenced by a current dropout rate for truck drivers of less than 6% (14 of 262). This remarkably low dropout rate has been achieved with men meeting all HRD requirements for "hard-core" trainees. Over 30% of truck driving recruits have been penal inmates with over 50% having had either felony or misdemeanor convictions. All recruits were certified by the California State Employment Service as meeting HRD requirements.

Intake standards have been kept as minimal as possible. Each recruit must pass the physical examination required by Interstate Commerce Commission regulations and that required by the California Department of Motor Vehicles. (These two examinations are essentially the same.) The potential trainee must be over twenty-one and have held a valid driver's license for at least one year. HRD qualifications are the only other requirements.

Achievement level testing for placement in an appropriate basic education class is accomplished AFTER the trainee is enrolled. Since the test is used only to ascertain at what level to begin remedial instruction, it can readily be seen that testing is not used as a device to screen out potential trainees.

A profile of the truck driving trainee shows the following:

	AVERAGE	RANGE	%
Math at Entry	5.6	1.9-13	
Reading at Entry	7.3	2.1-17	
Math at Exit	7.7	3 -13	
Reading at Exit	9.8	4 -17	
Head of Household			64
Ex-Convict			31
Previous Convictions (Felony or Misdemeanor)			50.7

TRAINEE MOTIVATION

As TOP completes its second year of operation, some tentative conclusions regarding trainee motivation are possible.

It is known that, to date, motivation efforts have been very successful in the truck driving department. It can, therefore, be deduced that some element, or group of elements, within the truck driving course, is conducive to the elevation of motivation with the student enrolled in truck driving.

It appears that the key element contributing to motivational success is a short-term achievable goal. Example: During the first week of training, trainees receive thorough indoctrination in "rules of the road", i.e., ICC regulations and California Department of MotorVehicles (DMV) requirements for a learning permit. (Since August 1967, nearly

five hundred trainees have successfully taken the DMV written test.) The new trainee, in his first week of training is given a goal--passing DMV's written test for a Class I license and subsequent receipt of a learning permit--is told he will achieve that goal, and in every case has in fact, achieved that goal.

His next short-term goal is learning backing and correct foot and hand coordination in a gas-powered tractor equipped with a 5-speed transmission and a 2-speed axle. Here again the trainee is given a goal, told he will be able to achieve that goal, and finally, does achieve that goal. This succession of obtainable goals continues through short semi's, semi's with 40' trailers, and finally, doubles (a tractor and two trailers). A final goal, road testing by DMV to receive his actual license, is usually achieved during the fifth or sixth week of training, allowing two to three weeks to gain valuable on-the-road experience. In other words, in eight weeks, an inexperienced recruit passes through a succession of short-range obtainable goals, graduates and becomes employed in a job paying an average of $3.87 per hour.

GENERAL

The work knowledge of the truck driving instructional staff is not open to question. The vocational personnel have been recruited from their own particular fields of expertise and can point to long years of

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experience. Successfully placed graduates attest to the knowledge which instructors have been able to impart. This opinion is further strengthened each time employers of TOP graduates request additional men from TOP.

The truck driving department, during the first year of operation, suffered for lack of sufficient rolling stock, which greatly curtailed students' time behind the wheel, (essential to grasping the rudiments of good truck driving). This deficit to the proper operation of the truck driving department was eliminated with the arrival of five new tractors during the present contract. The new equipment increased student "behind-the-wheel" experience from thirteen hours to approximately thirty hours. TOP would like the students to have still more time behind the wheel, but thirty hours is sufficient to insure a Class I license.

It was also found that by routing all truck driving students through a one-week course in heavy-duty servicing, an eleven-point average increase in students' DMV test scores occurred. It has yet to be determined why this is true, but the results have been most gratifying.

AUTOMOTIVE SKILL TRAINING

During the present contract period, TOP has continued the development of the skills "pipeline" approach to automotive training.

Early experience indicated that most hard-core recruits possessed so little knowledge of mechanics that it was necessary to start all trainees in a basic automotive course, where they learn lubrication, nomenclature and basic systems.

Each trainee then advances to tire repair, mounting and balancing, and analysis of tire wear. The schedule of advancement is to brakes and wheel alignment, at which time the trainee has four basic skills.

Upon completion of wheel alignment, the most qualified students are advanced to tune-up and diagnostic lane (advanced tune-up). The rest are graduated and placed in jobs.

The advantage of this procedure is that the program is developed around continued increases in skill level, and each skill prepares a man for entry into a specific area of the automotive service industry. The approach is to develop success patterns in less skilled occupations, advancing the trainees to those skills such as combination brake and front-end men and tune-up men which command higher earnings in the industry.

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This procedure also works as a screening device. Since TOP does not pre-test trainees, either academically or vocationally, trainees are sometimes referred to TOP who find that automotive training is "not their bag". These men will drop out during early phases of training.

TOP has also trained men for automotive service who are legally blind, victims of cerebral palsy, and persons with other physical, mental and emotional handicaps--men who could not be trained under the truck driving program because of the ICC physical examination.

To enroll a man must be eighteen or over with a valid Class III Driver's license. Other than meeting HRD requirements, no other conditions must be met.

During the present contract period, we have graduated one hundred eighty-eight trainees of whom one hundred thirty-seven have been placed in jobs. The average earnings of employed graduates is $2.83 per hour.

TOP has been successful in acquiring excellent training materials from several suppliers, plus the gift of engine mock-ups and materials from Ford Motor Company, which has been most generous.

TRAINEE MOTIVATION

At the initial point of contact, the intake counselor explains the advantages of participating in the training offered by TOP's automotive

department. It has been advantageous to place particular emphasis on the variety, complexity, quantity and quality of equipment used for training in the automotive department. This helps keep the new trainee motivated long enough to appear on the premises to check out the counselor's story.

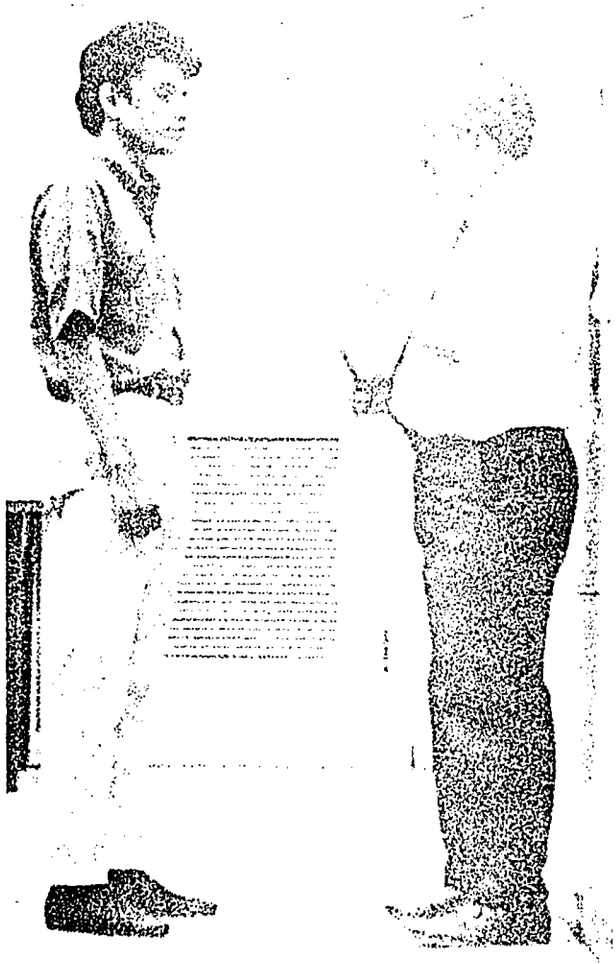
Once on "location", instructors and counselors continue in their efforts to improve the attitude of the trainee toward his new vocation.

Short term achievable goals are more difficult to institute. Many long hours of "skull sessions" have been spent in attempting to find a solution to this dilemma. Licenses for smog control devices, headlight adjusting and other automotive adjustments controlled by the state, have served to fill this need to a certain extent.

COUNSELING

The philosophy of TOP is that nearly all "hard-core" unemployed individuals have the potential to be trained successfully and develop into productive individuals of our society regardless of race, creed, color or previous condition of servitude. The function of the counseling department is simply to support that philosophy by assisting the trainees with those human problems which inevitably accompany him.

This is accomplished through three general functions: Off-site recruitment interviews; on-site supportive counseling, and field counseling.



RECRUITMENT

Consistent with the TOP objective of recruiting not less than eighty-five percent of its trainees from the two major ghetto areas of Los Angeles, TOP has maintained for recruitment purposes a sub-office in the East Los

Angeles Mexican American community, and another in the black ghetto. The training facility itself is located in Pico Rivera, approximately equidistant from these two major recruiting areas.

These sub-offices were established at the outset of TOP on the hypothesis that if the project were to achieve a meaningful program of recruitment including substantial numbers of persons either rejected or bypassed by other available programs, it would be necessary to develop intake procedures both simple and direct, involving a minimum sit-and-wait, come-back-tomorrow, you're-in-the-wrong-office frustration.

The typical hard-core trainee whom TOP wished to enroll is alienated from society, distrustful and suspicious of all authority, and reacts with hostility if his interpretation of the interview experience reinforces the misconceptions and prejudices he himself may bring to the interview. In short, the trainee is a man in search of an identity. It is at this initial face-to-face confrontation that the art, skill and sensitivity of the intake counselor is most needed.

The key function of the counselor at intake is to change a negative syndrome, "trainee-alienation", and all that is encompassed by that phrase, to a more acceptable mode of behavior. The counselor attempts to start this change through creation of a sense of identification, loyalty, and esprit de corps, that eventually comes to mean TOP

in the mind of the trainee. The trainee may be unable to articulate or verbalize his changed feelings, except to perhaps say he was "treated like a man". This new view, however tentative, if successfully established in the initial interview, begins to open the door to the possibility of change for the trainee.

If TOP is successful, it will become the trainees own "outfit" and he will defend it with feeling. In this context it is hardly surprising that in the preponderance of recruitment referrals in the program's second year, a "former trainee" was the source of information about the program.

The number of former trainees who return to visit the school, bringing friends and relatives to introduce to staff members, attests to their feelings of identification with TOP. The foundation for these feelings should begin with the initial intake interview.

ON-SITE COUNSELING

The welding of relationship between counselor and trainee is not intended to create within the trainee a total reliance upon the counselor.

It is expected, however, that strength will be developed rapidly in order that the trainees can, upon completion, begin to adapt to a complicated, affluent society in a productive manner.

Most trainees enter the school with many hangups, with misdemeanors, felonies, traffic tickets, probation, parole, court cases, appeals, transportation problems, dependent hospitalizations, welfare disputes, lawyers, etc.

TOP counselors must be capable of helping in all these areas at least to the point of communication with the involved agencies.

Many trainees approach the counselor with what appears to be a problem to them, but later, through discussion with the counselor, they find that no real problem exists, or at most, it turns out greatly minimized. For example: A traffic ticket is due to be paid on the following day and the trainee has no money. The counselor will provide the trainee with a letter requesting extension which usually is granted. In several instances, as a result of counselor intercession, cases have even been thrown out of court.

The counselor also takes part in the relationship with the trainees and their instructor. TOP students while attending vocational classes are exposed to an industrial attitude of discipline. For many of the trainees this is the first time they have experienced the regimentation which will be expected of them upon employment. This often causes emotional difficulties for the student. The counselor then enters the scene as a safety or relief valve for the upset trainee. Where trainee

grievances appear to have some validity, the counselor will speak with the instructor and trainee in an attempt to arrive at an amicable settlement. In effect, the counselor's role is much the same as that of a shop steward.

TOTAL GUIDANCE

To insure that all its resources are brought to bear upon the problems of trainees, TOP has established a Total Guidance Committee.

Total guidance committee meetings are attended by representatives of vocational and basic education, counseling, job placement and administration. Any staff member who recognizes a problem involving a trainee can bring the problem before the total guidance committee.

The committee has been very successful in bringing problem trainees to the attention of the staff early in the program so that those persons involved with the trainee are aware of the problem and can provide whatever support is necessary to insure the trainee's continuation and progress in the program.

Total guidance committee meetings also serve a useful purpose in being a medium for the interchange of ideas, attitudes and philosophies between instructors, counselors and administration. The committee has served to weld the entire TOP staff into a more cohesive unit whose primary objective is a trained and successfully placed graduate.

FIELD COUNSELING

Field (home) counselor techniques include crisis and emergency coverage. When a trainee, for whatever reason, does not attend school regularly, it is necessary to discover the reason and assist whenever possible. This service often involved intervention with public agencies in the trainee's behalf.

CONCLUSION

TOP trainees, whether black, brown or white, have all evidenced the deep scars of neglect and destitution. The needs are essentially the same, regardless of racial or ethnic origin. TOP counselors must be ever aware of this fact and become involved with <u>every</u> trainee if they are to succeed in overcoming the legacy of personal disabilities resulting from past patterns.

BASIC EDUCATION

The basic education program presently serves as one of the supportive services to the total TOP program. One of its primary functions is to help teach unemployed or underemployed adults the basic rudiments of reading, writing and arithmetic. It also provides English instruction to those who are bi-lingual but have problems communicating in the English language.

To accomplish these goals and objectives, trainees are taught in a pseudo-formal classroom setting with a relatively low (1:10) teacher-trainee ratio. This ratio has been found to be conducive to learning without unreasonable expenditures for teacher personnel.

ENTRY TESTS FOR HOMOGENEOUS GROUPING

It has been found that there is a great range of reading and arithmetic abilities among the TOP trainees. Because of this wide range of abilities, tests will continue to be utilized as a determin-

ing mechanism for homogeneous grouping. In this manner, areas of concentration may be employed for those individuals who need review and/or development of new concepts in the basic skills.

The WRAT (Wide Range Achievement Test) serves as the measuring device for trainee grade placement. TOP found that other types of entry tests previously administered to trainees were too tedious. These tests also tended to build trainee anxieties and fears of the basic education program.

The WRAT can be administered in a relatively short time. Scoring is accomplished almost immediately after the test is completed, and the trainee may be placed in a homogeneous group.

Since the WRAT is a wide-range test, trainees occasionally have been grouped improperly. This has been especially true with that portion of the test that deals with arithmetic. Because of this inadequacy, TOP has devised its own test for this phase of the testing program. The test has proved to be quite accurate in determining where the trainee is in regard to arithmetic skills and concepts.

The same test is administered at exit to determine how much the trainee has achieved during his tenure in the basic education program. It is felt that this is necessary in order to facilitate proper job placement after the trainee completes his skill training at TOP. Since a

minimum of eight weeks elapses between entry and exit, the findings are felt to be valid.

BASIC EDUCATION AND ITS RELATION TO THE TOTAL GUIDANCE PROGRAM

Basic education teachers help form the nucleus of the total guidance program. This is in keeping with the concept that provisions must be made to educate the total trainee. During this process, each individual at TOP who comes in contact with the trainee becomes aware of the trainee's behavior patterns. This "teacher-awareness mechanism" serves to facilitate teacher-counselor verbalization of trainee problems. This tends to assist the staff in recognizing that the trainee with problems is more than just an irritant to instructors; that he is a human being in need of assistance.

CONSUMER EDUCATION

Lessons in consumer education instituted during this contract period continue to have a positive effect. Practical instruction in budgeting, the high price of interest and nutrition have served to increase trainee interest in other areas of basic education. After instituting this program, it was found that student "class cuts" from remedial education diminished by approximately 75%.

The basic consumer education program consists of information concerning:

1. Quality and quantity buying.
2. Credit buying and installment contracts.
3. Loans and types of lending agencies.
4. Consumer frauds and misleading advertisement.
5. Insurance - auto, life, home, accident, etc.
6. Food and nutrition - health and medical care.
7. Family budgeting.
8. Bankruptcies, judgements and garnishments.
9. Consumer guides and reports.

OPERATION

In the period from August 1968, to February 1969, the basic education section consisted of a staff of five; four teachers and a supervisor. The daily schedule was three classes each of two hours duration for each of the four teachers.

From February 1969, to the present, the schedule changed to four classes each of one-and-one-half hour duration. The purpose of the change was to accommodate an increased load in basic education, (partially due to a four-week intake period in the automotive section) and maintain an optimum teacher and trainee ratio for greater individual instruction.

On the second day of each incoming class (twenty trainees have entered automotive training every four weeks; thirty-five trainees have entered truck driving training every eight weeks) a standarized test, the Wide Range Achievement test and a more definitive math test constructed by TOP, are administered.

The tests are scored and evaluated, and the trainees are then assigned to a basic education teacher. Classes are structured so that homogeneous groups are approximated. At the completion of training, the student is given an exit WRAT test. The time spent in training varies according to the vocational section: automotive, from eight to twenty-four weeks; truck driving, eight weeks.

The charts that follow will give a statistical analysis of the results achieved.

CUMULATIVE STATISTICS FOR AUGUST 1, 1968 to OCTOBER 31, 1969

ETHNIC ANALYSIS

	INCLUDING UPGRADERS		EXCLUDING UPGRADERS	
TOTAL TRAINEES ENROLLED	721	100%	496	100%
Mexican American	238	33%	176	36%
Negro	213	30%	190	38%
Caucasian	245	34%	109	22%
Other	25	03%	21	04%
TOTAL TRAINEES GRADUATED	650	100%	433	100%
Mexican American	216	33%	156	36%
Negro	184	28%	162	38%
Caucasian	227	35%	96	22%
Other	23	04%	19	04%
TOTAL TRAINEES NOT COMPLETING TRAINING	71	100%	63	100%
Mexican American	22	31%	20	32%
Negro	29	41%	28	44%
Caucasian	18	25%	13	21%
Other	2	02%	2	03%

	AUTOMOTIVE TRAINEES		TRUCK DRIVER TRAINEES		UPGRADER TRAINEES	
TOTAL TRAINEES ENROLLED	232	100%	264	100%	225	100%
Mexican American	98	42%	78	29%	62	28%
Negro	96	41%	94	36%	23	10%
Caucasian	27	12%	82	31%	136	60%
Other	11	05%	10	04%	4	02%
TOTAL TRAINEES GRADUATED	187	100%	246	100%	217	100%
Mexican American	84	45%	72	29%	60	28%
Negro	71	38%	91	37%	22	10%
Caucasian	21	11%	75	31%	131	60%
Other	11	06%	8	03%	4	02%
TOTAL TRAINEES NOT COMPLETING TRAINING	45	100%	18	100%	8	100%
Mexican American	14	31%	6	33%	3	37%
Negro	25	56%	3	17%	1	13%
Caucasian	6	13%	7	39%	4	50%
Other	0	0%	2	11%	0	0%

AUTOMOTIVE PLACEMENT

*NUMBER OF GRADUATES	187	100%		
NUMBER EMPLOYED	137	73%	100%	Average Hourly Earnings for Automotive $2.83
Mexican American	59	32%	43%	
Negro	55	29%	40%	
Caucasian	16	09%	12%	
Other	7	04%	05%	

TRUCK DRIVING PLACEMENT

NUMBER OF GRADUATES	246	100%		
NUMBER EMPLOYED	206	84%	100%	Average Hourly Earnings for Truck Driving $3.87
Mexican American	56	23%	27%	
Negro	78	32%	38%	
Caucasian	66	27%	32%	
Other	6	03%	03%	

	**TOTAL	PERCENT
Present Employment Status	217	100%
Trainee Employed same company, same job, same earnings	100	46%
Trainee employed same company, same job, increased earnings	28	13%
Trainee employed same company, better job	69	32%
Trainee employed different company, better job	20	9%

*Completing One or More Phases of Training
**Projected Employment Status Based on Upgrading Follow-Up Survey

AUTOMOTIVE SECTION

	NUMBER	MEAN	MEDIAN	S. D.	RANGE
READING ENTRY	232	7. 3	7	3. 2	1. 7-16
READING EXIT	188	8. 5	7. 4	3. 0	3. 9-15. 8
ARITHMETIC ENTRY	232	5. 3	5. 3	1. 7	1. 0-12
ARITHMETIC EXIT	188	6. 8	6. 7	2. 0	4. 0-14. 1
HOURS PRESENT (RAW)	57	39. 4	34	23. 5	2 -112
HOURS PRESENT (Those compl. B. E.)	28	55. 5	57	20. 1	24 -112

TRUCK DRIVING SECTION

	NUMBER	MEAN	MEDIAN	S. D.	RANGE
READING ENTRY	264	8. 4	8. 2	2. 7	1. 8-17
READING EXIT	245	9. 9	10	2. 7	4. 0-17
ARITHMETIC ENTRY	264	5. 8	5. 3	1. 7	1. 9-13. 5
ARITHMETIC EXIT	245	7. 6	7. 9	2. 1	3. 0-13. 5
HOURS PRESENT	74	31	32	8. 1	8. 0-46

NEW DEVELOPMENTS

WORK-FURLOUGH PROGRAM

Shortly after TOP began training, it became obvious that convicts paroled into the community had experienced great difficulty in finding permanent employment. About one-third of the trainees recruited for TOP had served either jail or prison sentences. The employment histories of most ex-convicts reflected periods of unemployment extending as long as two years.

Being aware of an automotive training program at the Chino Institution for Men, a state correctional facility at Chino, California, it was decided an attempt should be made to couple their program with an experimental TOP program for men about to be released from the institution. It was hoped by this method to short-circuit the frustrations of an unsuccessful job experience by placing men fresh from training, and directly from prison, into good paying jobs.

In September 1967, members of the TOP staff visited the Chino facility to discuss the possibilities with correction officials. The original idea was to recruit men who had previously taken Chino's automotive course, bring them to TOP on work release for an eight-week specialized course in brakes and front-end alignment, then seek their release from prison upon placement in jobs.

Unfortunately, a preliminary investigation indicated that this idea was not feasible. Men with less than one year to serve were not admitted into Chino's nine-month program. As a result, many men who had completed Chino's training were often either not eligible for parole or had been transferred to other facilities. Besides, the program was very small, usually limited to eight or ten men every nine months, so it was not possible to couple the training programs.

Instead, TOP decided to recruit a class of eight men with previous automotive experience having four months or less to serve. In the meantime, project administration sought approval from the California State Employment Service to pay training allowances from the Title II funds allocated for the TOP project.

In February 1968, word was received that no funds were available under Section 251 of the MDTA and that regular training allowances could not be used for prisoners. Nevertheless, it was decided to establish the program, provide an 8-passenger carry-all to the prisoners for transportation and provide them with $10.00 per week expense money from the Title I travel allowances account.

In April 1968, TOP counselors interviewed sixteen prisoners of whom eight were selected to begin training on April 29, 1968. The men were assigned to the special barracks which houses men on work-furlough at Chino.

Since a special eight-week course for the prisoners was planned, it was decided to put them in one class under a single instructor. At first, they wore civilian clothes, but before the first week ended, the prisoners requested to wear their prison dungarees. In the process of driving to school, working, living and studying together, the men developed a genuine "esprit de corps", and all men progressed well during the training period.

Of the eight men, four were on RUAP (Release Upon Approved Parole program). Employment was found for these four upon completion of training and they were released within seventy-two hours. Jobs were found for two more men, who then went before the parole board, were placed on RUAP and released. This procedure took about ten days.

Jobs were found for the remaining two men, but the parole board denied their request for RUAP and they were returned to the main cell barracks from the work-furlough residence center. This caused some resentment on the part of the men involved. However, upon completion of sentence, both were placed in jobs.

In an effort to prevent the recurrence of such a situation, TOP counselors met with the chairman of the California Adult Authority and with the chief administrative officers at Chino in order to develop a

more effective means to provide immediate release for all men who successfully completed training and were placed in jobs. After several months had elapsed, the Chino Institution was asked to recruit eight men in the hope that men selected by them would be more apt to be released upon placement in jobs. Unfortunately, experience with the second group closely paralleled that of the first group.

The second group differed from the first in that they were recruited for a sixteen-week program and no previous automotive experience or training was required. The schedule was similar to that of the regular trainees, including the daily two hours of basic education. The educational achievement levels of the second group also coincided with the levels of achievement of regular trainees.

Of the eight men enrolled, one left the school and was later apprehended. Of the remaining seven, two finished their sentences before completion of training, but remained in training under the regular program, then placed in jobs. Two were released with little difficulty. Three, however, faced the same frustrating experience of no release.

Apparently, because of differences between TOP and prison staff, the institution decided not to continue the program. At any rate, several weeks elapsed before the prison agreed to send eight additional trainees.

Training proceeded well, but the last group had been recruited from various institutions and forestry camps and sent to TOP with no idea why they were being sent. Two of them really had no desire to learn automotive skills, and none had received counseling about the program. Nonetheless, the challenge was accepted.

Again TOP experienced difficulty in seeking release to coincide with job placement, and as of this date, no negotiations are in progress for future program.

TRAINING ALLOWANCES

TOP continued to pay $10.00 expenses per week to each inmate, but also attempted to get incentive allowances under Section 251 of the MDTA. Finally, in April 1969, through the assistance of TOP's funding office in the U.S. Department of Labor, working with the California State Employment Service, permission was obtained to establish the Chino program as a TOP sub-project. The Excess Title II training allowances from other sub-projects were transferred to this sub-project to allow payment of incentive allowances of $20.00 per week, plus $5.00 per week travel allowance.

The inmate was allowed $5.00 from the $20.00, plus the $5.00 travel money. The remaining $15.00 per week was placed in a savings

account to be collected upon release. The dependents' allowances were mailed directly to them.

TOOLS

While the first Chino group was in training, TOP's counselors established working relationships with the parole officers who would supervise the trainees upon release. It was learned that through a working relationship with the Department of Vocational Rehabilitation, released prisoners could get sets of tools if they were needed for employment.

All of the Chino men who were placed received tools through DVR.

TERMINAL ISLAND

During the period when the Chino Institution was discussing discontinuance of the program, TOP was approached to establish a similar work-furlough program for the Federal Prison at Terminal Island.

Since Terminal Island had an established work-furlough program, a man could be released in twenty-four hours to take a job upon completion of training, and serve his additional time on work-furlough.

In setting up this program, however, it was decided to take men from Terminal Island into the regular program, and place them in

classes with regular trainees. They were provided with an excess property carry-all and given the same $10.00 per week expense money.

Again, several difficulties developed. The institution sent some men who were released before completion of training. Some left to take jobs, but some continued training. However, the institution desired to keep the number in the program at eight, and they would willy-nilly send another man to replace the released prisoners.

TOP had no control over intake. The men riding together were not at the same point in training, and consequently, TOP's experience with this group was not as effective as with the Chino program.

In addition, TOP and prison officials had never actually reached agreement on who should control the trainees. One day the prison officials walked into the TOP facility and two of the men were out road-testing a car. An instructor was supposed to accompany prisoners, but had failed to do so. Consequently, the Terminal Island officials took the prisoners back to Terminal Island without consulting the TOP administration.

The next day six prisoners were returned to TOP while the two men were kept at the prison. Whereupon TOP sent the other six back and asked for a meeting to determine responsibility. A few meetings were held, but no additional trainees have attended from Terminal Island.

FINDINGS AND CONCLUSIONS

TOP's experience with work-furlough training programs indicates that in states having indeterminate sentences, where there is a split jurisdiction between corrections and adult authority, it is nearly impossible to establish working agreements which will be followed out.

It is believed that the corrections men who worked with TOP were well-motivated and honorable men, but endless meetings and telephone calls and honest attempts to reach meaningful agreements resulted only in disappointment.

As an example, at intake for the last Chino group, it was agreed that TOP would establish a sixteen-week program. At the end of eight weeks, the men would be evaluated and, if performing satisfactorily, would be sent before the parole board with a request that they be placed on RUAP.

Of the eight men, all of whom received favorable reports, not one was placed on RUAP after eight weeks. It is not known where the responsibility lies, but TOP was determined not to enter another work-furlough program without a complete, written agreement involving the training facility, the prison officials and the Adult Authority. Without such a contract, agreements are meaningless.

SMALL BUSINESS LOAN ACTIVITY FOR TOP GRADUATES

Inquiries have been made by three TOP graduates concerning Small Business Administration loans. After assuring each that TOP would help write the proposal, information was provided concerning those individuals, including TOP personnel, who would then offer consultant services. One applicant decided to use his own source of capital to go into business, and one is still collecting the necessary data to accompany the SRA loan application. TOP was instrumental in helping the third person obtain a $10,000.00 loan from SBA.

Staff personnel at TOP have continued to provide consultant services to those who are involved with SBA. It has provided technical skills and services to help the one successful loan applicant defray some of his operating costs by using his truck during the teaching process.

PARTICIPATION OF TOP IN THE EDUCATIONAL OPPORTUNITIES PROGRAM

Eight to ten percent of the student body is usually exempt from taking remedial education. After closely scrutinizing that portion of the TOP trainee body, it was found that some of the students might want to pursue a college education.

It was casually mentioned that there were special programs at colleges and universities for qualifying members of the student body who

TOP achieved best results with prisoners in a single class, with a single instructor, progressing together. It is possible that such a setting reflects the "Hawthorne effect"*, but the Chino prisoners established better rapport with the staff and seemed to progress better than the Terminal Island prisoners. The fact that the Chino men elected to wear prison dungarees while the Terminal Island men generally wore civilian clothes lends weight to this idea.

In one important regard, all prisoners expressed appreciation for the opportunity to attend TOP, and almost universally expressed the idea that TOP had acted as a half-way house before release from prison.

The TOP administration allowed some freedoms. Visitors were allowed under controlled conditions. The men could leave the facility for lunch if accompanied by their instructor. Transportation was provided for job interviews. The men drove their own vehicles to and from the training site each day and provided the fuel from their expense money.

Terminal Island (Federal) prisoners were not eligible for tools from the Department of Vocational Rehabilitation, so arrangements

*See: Fritz J. Roethlisberger and William J. Dickson, Management and the Worker (Cambridge: Harvard University Press, 1939)

wished to obtain college credits. Instructors were told to keep an eye on their students in order that they might be able to make recommendations of students to the special college program.

After the selection and counseling process, three students indicated they would like to participate in the EOP (Educational Opportunity Program). Arrangements were then made for them to take the college-level examinations.

Although each candidate successfully completed the college entrance tests, only one student was chosen for the special college program. The other two were ineligible because they had not completed certain prerequisite courses in high school. They were told by the review officer that if these courses were successfully completed in the very near future, the candidates would receive careful consideration for admittance in the EOP program or be highly recommended for a similar special educational program if their grades indicated they needed special aid.

FIRST AID PROGRAM

It was early recognized that first aid should be a component of the training program for TOP truck drivers. However, no one at TOP was eligible to teach the course. Therefore, the American Red Cross was contacted to conduct a training course for interested individuals who

were made for tool loans from the Jewish Free Loan Society. Not one prisoner has defaulted on his loan.

During the program, one of twenty-four Chino men escaped. Two of sixteen Terminal Island men escaped, and one graduate who was on the job as a work-furloughee also took off. All have been apprehended. A recent follow-up indicates that of the remaining men, all are working save one and none have been returned to prison. However, the one unknown has violated his parole by leaving the state without permission and will probably be returned to prison when apprehended.

TOP's experimental work-furlough program was successful in terms of the thirty-seven prisoners who benefited from the training. The program was discontinued only because of insurmountable inter-agency conflicts. It is the opinion of the TOP staff, however, that similar training programs established in prison, geared to the job market and offered immediately before a man's release would dramatically reduce the recidivism of released convicts.

Such programs will be expensive, but prisons are expensive to maintain and unless repeaters are eliminated, the prison population will increase. Training may not be the answer for every prisoner, but for a man lacking a vendable skill, it's a good place to start.

might serve as first-aid instructors to the training program. The planning and developing of the course has been completed and the course will begin shortly.

"BROADENED HORIZONS" -- EDUCATIONAL ENRICHMENT PROJECT FOR STUDENTS AND FAMILY

Though students receive training at TOP in the vocational skills, it was felt that it might be useful to open educational enrichment avenues. It was hoped that such a project would help provide effective use of leisure time, and that it should also include the family. Numerous contacts were made with various theaters, sports arenas, educational institutions and others who would be interested in participating in the TOP "Broadened Horizons" project. The responses have been extremely positive, and our students and their families have used complimentary tickets amounting to approximately $15,000.00 to attend various events. These events have included tennis, basketball, football, ice-hockey and baseball. Many have attended several plays, the circus and movies. They have also attended the taping of various T.V. shows.

EXPERIMENTAL SOLID WASTE PROGRAM

In early June, 1969, an experimental program to train men as drivers for the Solid Waste Disposal Industry of California was begun. TOP trained two classes of six men each for a period of four weeks, graduating the second group on July 31, 1969.

The graduates from this program were supposedly assured of placement with one of the member firms of the California Solid Waste Disposal Association, a group of forty-three firms.

The association provided the trucks to be used in training, plus a training site at one of the members firms' yard. TOP provided a training and supportive service.

Of the first class of six enrollees, one trainee had irreconciable license problems. Three admitted they entered the program only for training allowances. The remaining two completed training and were placed on jobs. They both terminated a short time later expressing that in their opinion, the work was too hard for the pay received.

It was felt upon investigation, that perhaps the intake counselors had oversold the program. For the second class of six, counselors utilized the services of the California Department of Motor Vehicles to ascertain license problems. A more realistic evaluation of the type of training they would receive was presented to the trainees before accep-

O·N·C
MOTOR FREIGHT SYSTEM
WASHINGTON·OREGON·CALIFORNIA·NEVADA
BRITISH COLUMBIA

LOS ANGELES AREA TERMINAL
4700 EASTERN AVENUE, BELL, CALIFORNIA
MAIL ADDRESS: P.O. BOX 710, BELL, CALIF. 90201

PHONE 685 4700

July 21, 1969

Transportation Opportunity Program
7777 South Industry
Pico Rivera, California

JUL 22 1969

Attention: Mr. Geary

Dear Mr. Geary,

One of our employees Mr. Joe Kaiser, an office worker, would like to advance himself to truck driver. As you know we have no training program and it is financially impossible for him to take training at one of the commercial schools. As you are aware, the rate of pay in the office is much lower than the drivers rate and Mr. Kaisers' responsibilities demand that he make more money. Upon completion of his training as a truck driver he would be in a position to be considered as a driver and would be given consideration for transfer when driver positions are again open. All driver positions are filled at the present time.

Anything you can do for Mr. Kaiser will be appreciated, so thanking you in advance for your consideration to this matter, I remain

Very truly yours,

O.N.C. MOTOR FREIGHT SYSTEM

Alfred G. Jacques

Alfred G. Jacques
Personnel & Safety Supervisor

AGJ:ar

8586

tance. Four of the second group of six men graduated, and of these four, three were successfully employed.

For one reason or another, these three men were either laid off or quit within several weeks. One person quit for medical reasons, and upon release from the hospital, will probably become re-employed in the industry.

Upon evaluation, this pilot program appears to have failed for several reasons. All of the trainees for this program were recruited from the East Los Angeles area. As luck would have it, most job openings occurring within the California Disposal Association were geographically located some twenty to forty-five miles from the trainees' home address. The association members themselves, in most cases, expected too much of the new graduates assuming that four weeks of training would prepare them with the same skills as employees with one or more years' experience in the industry. The employers were not accustomed to working with the hard-core disadvantaged nor to making allowances for people with newly developing working habits.

A final problem meriting attention is the wage structure within the industry which at the present time has many inequities in terms of a standardized salary structure. If the program had been successful and the member firms of the CDA had been able to recognize a potential

YELLOW FREIGHT SYSTEM, INC.
9933 E. Beverly Boulevard, Pico Rivera, California
90660

19 June 1969

TO WHOM IT MAY CONCERN:

This is to certify that Lou Laplante is an employee of Yellow Freight System, Inc., 9933 East Beverly Boulevard, Pico Rivera, California.

He will be available for drivers training in the day time as his work shift is from 12:30 p.m. to 9:00 a.m. each working day.

Very truly yours,

YELLOW FREIGHT SYSTEM, INC.

Milt Huebsch
Dock Supervisor

Milton H. Huebsch

MH/cel

8587

for stabilizing their work force, it had been hoped that an ongoing program would be negotiated perhaps with the California Refuse Removal Council (CRRC).

The CRRC is composed of numerous associations throughout California and it was proposed that a training program be established to train new employees for all Southern California. The training program was to have been funded in part by the CRRC, but in view of the failure of the pilot project and the limited funds with which the CRRC operates, it appears that the program will be dropped.

SIGNAL TRUCKING SERVICE, Ltd.

August 27, 1969

Mr. Steve Stockdale
TRANSPORTATION OPPORTUNITY PROGRAM
7777 Industry Avenue
Pico Rivera, California

Dear Mr. Stockdale:

On behalf of Mr. William E. Chamberlain, who has been with our Company since September 9, 1962 and is applying for admission to TOP, I wish to advise that upon satisfactory completion of the course, Mr. Chamberlain will be given every consideration for any future opening requiring a Class I license.

Very truly yours,

SIGNAL TRUCKING SERVICE, LTD.

J. A. McGlynn
Personnel Manager

JAMCG:ncy

8588

SIGNAL FOR SERVICE

ERIC

STAFF DEVELOPMENT AND COMMUNITY LIAISON

After the Transportation Opportunity Program, Inc. surveyed its staff, it was found that many individuals wanted to upgrade themselves by expanding their educational horizons. (This "self-improvement" awareness might be a residual product of the TOP upgrading program in truck driving.) The survey also indicated that many staffers felt the community should be involved in TOP. After considering the various responses elicited by a questionnaire, a new function was established at TOP -- Staff Development and Community Liaison.

The primary activities:

1. develop staff personnel
2. involve community agencies in TOP

STAFF DEVELOPMENT

Because the staff development and community liaison section was created about the time that TOP employees were being hired for the truck driving "Upgraders' Program", it was felt that this would be an opportune time to begin a program to help develop staff personnel. Therefore, each new instructor was given an intensive week of in-service training which included:

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INDUSTRY-EDUCATION COORDINATOR. PUBLIC POLICY REPORT.

NATIONAL ASSOCIATION OF MANUFACTURERS, NEW YORK, N.Y. EDUCATION DEPT.
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EDUCATION DEPARTMENT, NATIONAL ASSOCIATION OF MANUFACTURERS, 277 PARK AVENUE, NEW YORK, NEW YORK 10017 (NO CHARGE)
PUB DATE - ND 14P.

DESCRIPTORS - *PAMPHLETS; GOVERNMENT ROLE; *COORDINATORS; *EDUCATIONAL COORDINATION; VOCATIONAL DEVELOPMENT; CAREER EDUCATION; *SCHOOL INDUSTRY RELATIONSHIP; PUBLIC POLICY; POLICY FORMATION; ADMINISTRATOR ROLE; *COOPERATIVE PROGRAMS

ABSTRACT - THIS PAMPHLET DISCUSSES THE BENEFITS FROM COOPERATION BETWEEN INDUSTRY AND EDUCATION, THE NECESSITY FOR A NEW APPROACH IN THIS AREA, THE NEW JERSEY INDUSTRY-EDUCATION PROGRAMS, THE FEDERAL ROLE, AND STEPS FOR DUPLICATING AND EXPANDING THE NEW JERSEY EFFORTS. EIGHT GROUPS OF BUSINESSMEN AND EDUCATORS WITH EXTENSIVE EXPERIENCE IN INDUSTRY-EDUCATION PROGRAMS ARE ENUMERATED. THE ROLE OF AN INDUSTRY-EDUCATION COORDINATOR WITHIN THESE PROGRAMS IS STRESSED. (AG)

1. Orientation in TOP history and objectives.

2. Methods of teaching disadvantaged adults.

3. On-the-job training.

ORIENTATION

This period of training took approximately eight hours. Included in the training were:

1. Philosophy of TOP.

    (a) how it started

    (b) who started it

    (c) why TOP was necessary

2. Tour of the TOP facility and introduction to and function of various TOP departments.

3. Correct method of record-keeping and reporting mechanisms.

METHODS OF TEACHING DISADVANTAGED ADULTS

Though the new staff members had an average of twenty years experience in their vocational skills area, none of them had experience in teaching. Therefore, the next two days of in-service training were spent giving instructors an overview of:

1. The psychology of the disadvantaged.

2. Methods of teaching disadvantaged adults.

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REPORT

Industry-Education Coordinator

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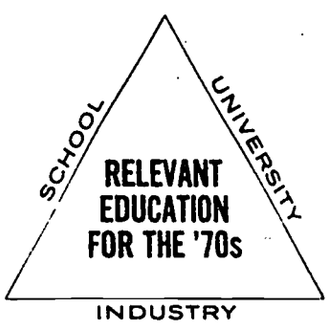

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ON-THE-JOB TRAINING

The next two days were spent giving instructors on-the-job training. It was felt that being involved in the actual educational process would give them an opportunity to adjust to their role as teachers more readily and with less anxiety and frustration.

In later evaluation, those who participated in the in-service training reported that this method of training was extremely beneficial to them.

GED PREPARATION COURSE

In-service training requests were made by staff members who wished to obtain their high school equivalency certificate. UCLA was extended a contract to prepare interested TOP staff members for taking the GED.

A total of twenty-two individuals enrolled for the GED preparation course.

To teach this course, the coordinator from UCLA provided the services of one consultant, one lead instructor and two UCLA graduate students who were conducting studies in the field of adult education. The course itself consisted of sixty hours of instruction.

During the mid-point of the course, the instructors and the course content were evaluated by the TOP participants. It was found that the

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Industry-Education Coordinator

PUBLIC POLICY REPORT

Education Department

National Association of Manufacturers
277 Park Avenue, New York, N.Y. 10017 (212) 826-2100

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TOP participants were ambivalent about the course. Since this was the first purely educational course that most of the employees had participated in for several years (mean of seventeen years) it was extremely difficult to determine if the negative feelings they harbored toward their instructors represented the same teacher-school syndrome felt by our trainees.

Fifty percent of the participants indicated the GED course was a waste of time and money. Later, however, 92% of the participants indicated they would strongly recommend that other teachers in similar training programs take the GED preparation course.

RESULTS OF GED PREPARATION COURSE

Of the 22 participants in the GED prep course, there were seven dropouts. Three were only taking it as a refresher course. One felt the teachers were too dictatorial. One was already taking two courses at an L.A. junior college, and the others (ages 55, 58 and 60) felt they were a little too old but said they would continue studying on their own.

Since many of the TOP participants felt ill at ease in their role as "students" and were having problems with their homework, a TOP tutorial team was formed.

At this time twelve of the participants have taken the official GED test. There were two failures, both in the area of "Language Arts",

*... The Association advocates that a qualified person of appropriate rank be designated at the federal, state and local government education levels, to coordinate and encourage business, industry-education cooperation ...**

INTRODUCTION

Today, the nation's schools are caught in a pincer movement. On one side, taxpayers are pressuring school administrators to prove that the children entrusted to the schools are being effectively and efficiently educated. At the same time, students are loudly demanding courses that they consider relevant to immediate as well as future needs. Satisfying both demands requires utilization of community resources and curricula that are psychologically and educationally sound. All across the country educators are demonstrating a growing desire for increased industry-education cooperation as one means of responding to these pressures.

How can each student be provided with the information and experiences he needs in order to make intelligent decisions about his life's work? The importance of basic education is stressed often, but most educators acknowledge that by itself this will not provide the competencies required for adequate career planning. Educational leaders are beginning to realize more than ever before that if a student is to make meaningful educational or occupational plans, the groundwork needs to be laid at an early stage in his school experience, although the actual choice of a career may be made much later. Industry-education cooperation stimulates students and faculty to become aware of the world of work which many students will enter upon graduation. Closer cooperation between industry and schools will be very

*Quoted from NAM Official Policy Positions.

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which seemed to create problems for all TOP staff members taking GED courses and dropped their average percentile scores at least thirty points.

ADULT EDUCATION COURSE

After TOP staff personnel completed their GED courses, some wished to continue their education on a college level. The Educational Extension Service of UCLA was contacted and plans were developed to teach TOP staff "how to teach most effectively".

After careful curriculum planning, the two courses in adult education were given to our instructors. After evaluation it was found that over 95% of the TOP instructors felt they had derived new methods of classroom presentation from the courses which they could utilize in their classroom situation.

OPERATION "SHARE"

On several occasions it was discovered that during lunch time and after work, spontaneous discussions developed concerning TOP and other agencies and institutions. It was felt by each of these small groups that there should be some way to include others in their discussions. Therefore, the "Share" group was organized.

This group consists of TOP persons who are interested not only in the psychodynamics of people, but the laws that govern them. At

beneficial to schools because it will provide a continuing opportunity for educators to become familiar with the practicalities of the world for which their students are being prepared.

BENEFITS FROM COOPERATION

Schools deserve the help of all citizens, private and corporate, and there are many reasons why businessmen are interested and willing to help. Many industrialists perceive the schools as a major vehicle of social change. They know that the urban areas from which they obtain many of their employees - and which contain large shares of their markets - have problems of unequal employment opportunity, inadequate housing, frequently low-quality education, and strained race relations. If the problems of urban America are to be resolved, concerted action by all sectors of society will be required but in particular business-industry and education will have to work together more than at present.

Industry is interested in cooperating with schools because the social and material well-being of the nation depends in large part upon citizens who understand the strengths and weaknesses of the American private enterprise system and upon citizens who in their role as employees will assist industry in making its optimum contribution to society. Business firms desire the opportunity to cooperate in educational activity because they consider their work with schools as one means of discharging a community public service responsibility.

Many industrialists are manifesting an increased interest in the process of education at all levels, since business and industry ultimately will employ many of the nation's young whether or not they are adequately prepared for employment. In addition, businessmen believe that industry

this time, though the group is still in its embryonic state, there has been a definite trend to equate that which is happening to the people of the world with the role of TOP and how its staff and trainees function in it.

It is felt that because each person must read the various articles to be discussed, it has increased their ability for reading and has drawn out individuals who usually do not verbalize their thoughts and opinions. In effect, each participating member is actively involved in actually creating his own in-service training mechanism which will make for better human relations at TOP.

offers young people interesting, dignified and worthwhile career opportunities. Businessmen want to help students take advantage of these opportunities for the mutual benefit of all parties.

Another reason supporting a role for business in education is that business firms are substantial financial contributors to school systems. Expenditures for public elementary and secondary schools for 1970 were approximately $40 billion. About forty-one cents of every local and state tax dollar is spent on education, and it is estimated that business and industry pay at least 40% of the real property taxes. Property taxes tend to be a significant cost of doing business, and businessmen are interested in getting the best possible return on their education tax dollars.

At the same time, cooperative efforts provide businessmen with the opportunity to insure that today's students - tomorrow's business leaders - will be equal to the task. This goal can be furthered by helping students develop an appreciation of citizenship responsibilities and a competency in the management of their personal affairs. Each contributes to the economic well-being of society.

The diverse and varied volunteer services provided by industry to some schools demonstrate industry's capability to enrich curricula and relate the classroom to the world of work. The use of industrial resources enables teachers to provide students with knowledge and skills not normally available in the classroom. This means that increased cooperation between industrialists and educators offers great benefit for school children. When educators welcome and guide industry participation, students, teachers and communities benefit.

USE OF OTHER COMMUNITY MANPOWER RESOURCES AND SERVICES

NEIGHBORHOOD YOUTH CORPS (NYC)

Many staff members felt their time could be utilized more effectively if they did not have to perform tasks that required a minimum amount of technical skill. Realizing that this condition existed, contacts were made with the NYC office and an order was placed for the services of NYC workers.

PROBLEMS

During a one-month period there was a turnover of 90% of our NYC personnel. This constant personnel flow was beginning to create problems for TOP personnel who had pledged to engage the NYC workers in, 1) meaningful tasks; 2) provide on-the-job training; and, 3) allotting them time to practice their new job assignment.

It was felt by some that the NYC workers were "clannish". They usually knew one another and recognized each others' problems long before their immediate supervisors were cognizant that a problem existed. (Their problems were usually centered around transportation and problems with the court.)

NEW APPROACH NEEDED

The problem of communication between industry and education has become more complex as knowledge and population explosions have occurred. There are almost 20,000 local school districts in the nation, 2,000,000 classroom teachers and 46,000,000 million school children. Present methods of communicating between business-industry and students and teachers should, and can, be strengthened. Present approaches to utilizing industry resources in the school system can be, and must be, improved.

Why doesn't industry-education cooperation mushroom all across the country in a concerted effort to demonstrate one approach for dealing with educational and manpower training problems? Obviously, there is some continued suspicion of business motives on the part of some educators. But a more significant deterrent is the present unorganized approach to industry-education cooperation. Industry involvement in education tends to be overly localized and not coordinated with the efforts of other businesses either locally or nationally. Present programs or offers of aid and cooperation are frequently developed between one business firm and a single school and often with a single department or teacher. Under these circumstances, many teachers in the same school system are unaware of industry aids being used in their own city.

It is true that past involvement of industry in education was usually initiated by industry. The efforts of educators and their organizations to involve business resources in the improvement of school programs can best be described as minimal. The climate is now favorable for a new rapport between industry and education. Evidence of this is suggested by the developing relationship between a community school and an individual firm where the firm "adopts" the school.

To have the NYC workers retain their feeling of belonging, it was decided that weekly meetings would be held with them as a group. (It was also decided that they would participate in their immediate supervisor's regular unit meetings.)

The transportation problem was solved by using the car pool or buddy system.

The problems they had with the courts were a little more difficult. The TOP counselors have been successful in establishing and maintaining a rapport with the courts in regard to TOP trainees. However, it was found that on several occasions when TOP interceded for the NYC workers, it did not prove successful. Though the courts were lenient with the NYC workers they demanded that the NYC workers change certain of their behavior patterns. In numerous instances, the NYC workers did not perform according to the agreement they made with the court.

PRESENT STATUS

Therefore TOP has decided, at least for the present time, not to continue its relationship with NYC. The task of continually training new recruits proved more time consuming and costly than had been originally estimated.

Further, a New York school principal recently said to a corporation chairman, "We have the kids. You have the jobs. We must work together to close the gap."

The lack of intensive leadership in this area at the national and state education levels is probably the major reason why so much industry-education cooperation is initiated by industry. A commitment by education officials is needed to encourage school people to make effective utilization of millions of dollars of facilities, equipment, materials and talent that are available from business and industry.

The problem is: How can cooperative efforts be developed by more business firms and be expanded to benefit more schools in each state? The solution lies in establishing a permanent identifiable communication link between industry and the schools. A communications focal point in each school system is required if industry-education cooperation is to achieve its full potential. This communication center also can be the coordinating mechanism within the school system to promote and encourage the utilization of education resources available from industry.

The appointment of an industry-education coordinator should be of vital concern and interest to both businessmen and educators in all states, for it has many mutual benefits. In the past several years, industry and education have established a variety of cooperative relationships. Today, the problems pressing education, industry and the nation require a new alignment - new procedures - between industry and schools. Businessmen want a closer working relationship with the schools. They are willing to devote time and talent in working cooperatively with administrators, teachers and students. Far-sighted businessmen and educators have already resolved the questions of motives and confidence. They have moved to the pragmatic question of how business can help more effectively. A coordinator of industry-education

cooperation in each state is the first step in achieving a full potential of cooperation.

IT WORKS

New Jersey is the only state to recognize fully the need for encouraging and coordinating industry-education cooperation. In September of 1956, the New Jersey State Commissioner of Education invited representatives of industry to meet with school officials to discuss the problems of science and mathematics instruction. This meeting resulted in the formation of a Committee on School-Industry Cooperation.

Three subcommittees were formed to study (1) improvement in curriculum, (2) improvement of teaching, and (3) programs industry could develop to strengthen school programs. The work of each subcommittee was impressive but one recommendation was more outstanding than all the others. The recommendation was to employ, at the State Department of Education level, a Coordinator of School-Industry Cooperation to encourage and direct the growth of a statewide program. The office of the Coordinator was to become a "clearinghouse of information" on the industrial resources which were available to meet specific educational needs of particular school systems. This recommendation, with the full support of the New Jersey business community, became a reality.

Dr. Richard B. Scheetz, Coordinator of School-Industry Cooperation, New Jersey State Department of Education, has a unique responsibility. When the position was first created in 1958, it was principally concerned with science and mathematics programs. Since 1961, all curriculum areas at all

grade levels have been included. The overall objective is to improve and upgrade the level of instruction through the effective use of personnel, materials and facilities possessed by business and industry. Special emphasis is placed on the utilization of resources which are up-to-date and not available through other sources.

The Coordinator, School-Industry Cooperation, has provided the necessary communications link to establish more effective dialogue between schools and industry in New Jersey. Business executives and educators have met together frequently to identify mutual problems and seek their solutions. Out of these meetings, mutual respect has developed. Working together, teachers and businessmen have compiled lists of community resources, developed curriculum, initiated economic education programs, created in-service training courses, undertaken job requirement surveys, utilized industrial management procedures to increase school efficiency, and held workshops and conferences on major education-industry topics.

With the help and assistance of the state Coordinator, School-Industry Cooperation, the Central Jersey Industry-Education Council, serving six school districts in and around Woodbridge, New Jersey, has been organized. Local businessmen and local educators, under the leadership provided by professional educators, are working together to solve educational problems.

The Education Committee of the New Jersey Manufacturers Association held its first meeting on December 12, 1969. The New Jersey Coordinator of School-Industry Cooperation, met with this group to advise and suggest areas of interest. One of the Committee's first actions was to endorse and sponsor the adoption of the Technology for Children Project, a three-pronged program. It consists of an

innovative approach to learning technology in the elementary grades, an introduction to vocations for students in junior high school, and the development of Career Resources Centers. This Committee was responsible for the passage of state legislation establishing these pilot projects in three New Jersey cities.

FEDERAL ROLE

Much has been done in New Jersey to bridge the communications gap between industry and education, although much more remains to be done. Industrialists and education officials in other states should utilize the experience of New Jersey to develop meaningful industry-education cooperation. Many areas are yet to be explored. For example, few programs any where have exploited fully the expertise of industry in the areas of systems analysis, management by objectives, accountability, research and technology.

Clearly, the time is appropriate for action and leadership on the national scene. As Samuel Burt and Leon Lessinger point out in their book Volunteer Industry Involvement in Public Education, "Until staff is provided at the national level by the United States Office of Education to encourage, stimulate, promote, and provide technical assistance to state and local educational agencies and officials to become involved in industry-education cooperation relationships, comparatively little will occur . . . However, with national educational leadership directly available from the United States Office of Education, school administrators at all levels could be expected to become much more amenable than at present to considering ways and means to involve and utilize resources in their school programs." The challenge to federal

education officials is quite clear. The necessary action required is just as clear.

THE NEXT STEP

Concerned businessmen and educators in other states should get together to duplicate and expand the New Jersey experience. Every member of the business community has the responsibility to encourage increased industry-education cooperation.

One way to begin is to invite a small group of business associates to meet together to share concerns about better cooperation between education and industry. In some localities, this could be held in cooperation with an existing industry organization. Next, the chief state school officer should be invited to meet with a group of businessmen to share his views. Tell him that industry in your state wants closer cooperation with education so that each may understand better the other's problems and contribute jointly to their solutions. Further, explain that industry wants, and education needs, a person in a position as Coordinator of Industry-Education Cooperation at the state level. Ask how the industrial community can help bring this about.

There are several established groups of businessmen and educators who have much experience with industry-education programs. These groups are willing to share their experience with others. These groups include:

1. The National Association for Industry-Education Cooperation, Rye, New York.

2. The Arizona Business Industry-Education Council, Phoenix, Arizona.

3. The Mid-Hudson Career Development and Information Center, Poughkeepsie, New York.

4. The New York Regional Council for Industry-Education Cooperation, New York, New York.

5. The Niagara Falls Industry-Education Council, Niagara Falls, New York.

6. The Northern California Industry-Education Council, San Francisco, California.

7. The Southern California Industry-Education Council, Los Angeles, California.

8. The Washington Industry-Education Council, Washington, D.C.

Additional information on each can be obtained by contacting the NAM Education Department.

This Association urges its members to work toward the appointment of a Coordinator, Industry-Education Cooperation, in the U.S. Office of Education, and a Coordinator of Industry-Education Cooperation in the State Department of Education of each state. It is possible to envision State, Regional and Local Industry-Education Councils all working together to give active leadership and support to quality educational programs through closer ties between industry and education.

Your support and involvement will mean better quality education.

EDUCATION DEPARTMENT PUBLICATIONS

PUBLIC POLICY REPORTS

Industry-Education Coordinator
Secondary Vocational Education
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DIV. OF VOCATIONAL-TECHNICAL EDUCATION.
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DESCRIPTORS - *STATE PROGRAMS; *VOCATIONAL EDUCATION; ANNUAL REPORTS; *VOCATIONAL SCHOOLS; VOCATIONAL TRAINING CENTERS; POST SECONDARY EDUCATION; *PROGRAM EVALUATION; *COST EFFECTIVENESS; PROGRAMS; PROGRAM PLANNING; STUDENT DEVELOPMENT; DEVELOPMENTAL PROGRAMS
IDENTIFIERS - *VERMONT; RESEARCH PROJECTS

ABSTRACT - TO SATISFY FEDERAL REQUIREMENTS AND JUSTIFY THE RECEIPT OF FUNDS BY VOCATIONAL PROGRAMS, THIS LONG-RANGE PLAN WAS SUBMITTED BY VERMONT FOR REVIEW. TO THE COMMISSIONER. THE REPORT DESCRIBES REGULAR AND SPECIAL PROGRAMS OR ACTIVITIES IN THE STATE NOW IN PROGRESS OR PLANNED FOR THE FUTURE WITH GENERAL AND SPECIFIC OBJECTIVES INDICATED AS WELL AS THE ENROLLMENT STATUS AND COST OF OPERATION. TO AID IN THE EVALUATIVE PROCESS, ACCOMPLISHED AND UNACCOMPLISHED GOALS ARE INCLUDED. THESE SERVE AS A BASE FOR REVISING FUTURE STATE PLANS. AN OVERVIEW OF THE ENROLLMENT BY INSTITUTION AND PROGRAM TYPE IS PROVIDED IN THE APPENDIX. (SN)

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Vermont State Department of Education
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State Office Building
Montpelier

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INTRODUCTION

Public Law 90-576 better known as The 1968 Amendments of the Vocational Education Act of 1963 requires that any state desiring to receive the amount for which it is eligible for any fiscal year pursuant to this Title shall submit a State Plan at such time, in such detail, and containing such information as the Commissioner deems necessary, which meets the requirements set forth in this title. The Commissioner shall approve a Plan submitted by a State if he determines that the Plan submitted for this year....sets forth a long range program plan..... (but not more than five years or less than three years).....sets forth an annual program.....indicate how and to what extent, such programs, services, and activities will carry out the program objectives set forth in the long-range program plan...." In order for this Plan to be of any value it must provide, in a systematic manner, for the educational opportunity that young people should have. The program objectives should act as the stepping stones to meeting the long range goals.

Evaluation must be a part of the total operation in order that administrators, teachers, parents and students can determine whether the objectives and goals are being obtained or whether they should be altered. The opportunity to record this evaluation comes in the descriptive portion of the Annual Federal Report.

The descriptive report should be considered as a record of events of the past year, bad as well as good. It should indicate whether, and how well, educators and students have accomplished the goals and objectives set forth in the State Plan for Vocational Education and other planning documents. The descriptive report should analyze and evaluate the programs and activities of the past year and during the process set forth the reasons why the objectives were or were not reached. This should then be the base for revising plans for the future, next school year or several years hence.

1.0 REGULAR PROGRAMS

Refer to Section 5.0, Part II, and Section 2.12, Part III of State Plan. This covers Part B programs.

1.1 Persons to be Served:

1.11 Secondary:

1.11-1 Enrollments:

A. The instructions for Section II, Table I (O.E. 3138) indicates (or implies) that the total in line one can be reached by adding lines 2,3,6,10 and 13. This is not possible since students shown in lines 10 and 13 may be a part of the enrollment in line 3 and in certain cases students in line 6 could be counted in line 3.

B. The objective of enrolling 29.5% of the secondary students (grades 9-12) was not met. The enrollment of 9,601 students shown on O.E. Form 3138 is 29.3% of the secondary enrollments (32,743). The 4,484 Consumer and Homemaking Enrollments represents only 52 of the 62 programs. The enrollments in the additional ten programs would bring the percentage higher than that of the objective.

We do not know how many graduates (1971) continued their education (since the follow-up of graduates form is not ready). 20.3% of the 1970 graduates continued their education. This is higher than the 13.7% we projected.

C. An analysis of the Local Reports of Program Activities from the area vocational education centers (full or partial operation) finds the following:

1. Barre
   a. 684 students (9-12) enrolled - an increase
   b. 83 shared time - a drop
   c. Counselors do not include vocational programs in recommendations to students

2. Bennington
   a. 341 students (9-12) enrolled
   b. 32 shared-time
   c. Students scheduled into vocational education program before scheduled for others
   d. Some students take two vocational education programs, example electronics & drafting, office occupations and restaurant practice.
   e. Schedule adapted for sending schools
   f. Actual output of graduates less than programmed because:
      (1) many students did not complete program
      (2) some not enrolled until senior year
      (3) many students took more than one course (only counted once)
   g. Trend is for increased enrollments because:
      (1) orientation back at 7th grade (instead of 10th).
      (2) working closely with industrial arts
      (3) 10th graders get personal orientation for 4 days
      (4) orientation to industry and P.T.A.

3. Brattleboro
   a. 272 students (9-12) enrolled
   b. 23 shared-time
   c. served nearly 50% of junior-senior students at Brattleboro

4. Burlington
   a. 792 students (9-12) enrolled
   b. some students enrolled in several different courses
   c. 102 shared-time students (Sept. 1970) - 87 completed. This is down from 161 students the year before because the center at Essex Junction opened.
   d. Served students (11 & 12):
      Burlington - 44.0%
      Hinesburg - 5.1%
      Milton - 7.8%
      So. Burl. - 5.3%
      It is pretty evident that the sending schools are not using the area vocational centers as much as they should be (See Section 1.62-2 (I4)
5. Essex Junction
   a. 35% of students were from sending schools
   b. 85% of students were disadvantaged and 6% handicapped
   c. heaviest concentration of disadvantaged students in agriculture, child care, quantity foods, health, auto mechanics, electrical occupation and building trades, in that order.
   d. disadvantaged students integrated into regular classes and received individual instruction.
   e. enrollment 53% greater than anticipated
   f. agriculture enrolled more rural area students
   g. T & I, child care, and health enrolled more urban and suburban school students
   h. goodly number of students found to be academically disadvantaged (weak in verbal and math skills)
6. Hyde Park
   a. 150 out of 188 junior and senior from Lamoille Union served by center. This means that 74% of seniors enrolled in vocational education
   b. 41% of seniors plan to continue their education
   c. 61 students from sending schools. This means 17% of students from area (356) are taking vocational education courses. Low because:
      (1) all sending school operate business education programs
      (2) some students don't want to leave security of home school
7. Newport
   a. 481 students (9-12) enrolled - out of 1250
   b. 24 shared-time students - out of 226 juniors & seniors (10.6%)
      (1) Lake Region has business education and agriculture programs (18 and 24 students respectively).
8. St. Albans
   a. Total number of student served in area (including orientation in other schools) - 438
   b. 320 students served at the center
   c. 205 juniors and seniors
      (1) 140 from St. Albans
      (2) 65 from sending schools
   d. Senior students
      (1) 15% from sending schools (at center)
      (2) 16% from St. Albans
      (3) 1% at Union #7 in agriculture program
   e. School Board and Director feel that 60% of students should be served
   f. Students:

Planned	Actual	Program
30	40	Ag
15	27	DE

Planned	Actual	Program
20	7	Wage Earning
60	53	Auto Mech
44	34	Electricity
38	32	Machine Shop

9. St. Johnsbury
   a. 26 shared-time students
   b. losing students to other centers as they open
   c. Enrollments up and indications are for increased enrollments
   d. Enrollments in T & I and health doubled.
10. Springfield
   a. serving 415 students (10-12) out of 710. This is 58% of students
   b. from sending schools
      (1) 2 full time
      (2) 4 part time

1.11-2 Placement

We do not know what % of available students (1971) found employment. In 1970 84.9% of those available for work found employment. It is expected that the picture was about the same in 1971--because of an unimproved economic situation.

1.11-3 Programs

A. Essex Junction A.V.C.

The Essex Junction Center started operation in September. This provided additional opportunities (in addition to the Burlington Area Vocational Center) for students in the Chittenden County Area. An agreement was reached between the two centers to have prime responsibility to the following sending schools:

Essex Junction	Burlington
Essex Jct. H.S.	Burlington H.S.
Mt. Mansfield UHS	Champlain Valley UHS
Winooski H.S.	Milton H.S.
Rice (residency in Essex area)	So. Burlington H.S.
	Rice H.S.

A student may enroll in the center not normally serving his school in order to receive training in a vocational program not offered by the center serving his high school. Programs offered at Essex Junction were:

Agriculture Production	Automotive Mechanics
Forestry, Conservation	Construction Trades
Distributive Education	Electrical Occupations
Nurse's Assistant	Electronics
Child Care	Drafting
Accounting	Quantity Foods
Graphic Communications	Diversified Occupations (Level IV, M.R.
Secretarial	
Typing	

B. St. Johnsbury A.V.C.

New program were started at the St. Johnsbury Center as facilities became available through the year. Not all labs were completely ready by the end of the school year. The new programs that were started are as follows:

Distributive Education	Accounting
Nurse's Aide	Secretarial
Auto Body Repair	Typing

Facilities are available for the following new programs:

Home Economics - Wage Earning	Diesel & Small Engine Mechanics
Diversified Occupations	Electronics
Quantity Foods	Welding

C. Time spent in Vocational Education:

The school day ranged from the equivalent of 12 modules to 20 modules (some retained "periods"). The agriculture and trade and industry programs tended to operate for longer periods of time, 40-50% vs. 25% of the day for other programs.

D. 28 programs at Burlington

E. Coop B:

Four schools (Springfield, Burlington, St. Johnsbury, White River) continue to carry on coop capabilities in certain trade areas. In each instance coop is a planned part of the curriculum and students are placed in jobs depending on ability and readiness. The machine coop at Springfield suffered as a result of economic and labor problems during the entire year. Occupational areas involving coop are automotive industry, quantity foods, machine trades, maintenance custodial and electrical occupations. Under certain circumstances, students have received partial credit of coop time toward an apprenticeship.

F. Service Areas:

1. Agriculture
   a. Accomplishments:

Twenty two schools employing thirty-one teachers offered programs in the various Agricultural Education courses during the year. The trend continues towards multi-teacher departments. Such departments provide an opportunity for teachers to specialize and in most cases better utilization of space and equipment. In one teacher departments either the shop or classroom is being used at the same time.

The recommended course set-up for Vermont High Schools includes Agriculture Orientation for 9th graders, and Agricultural Science for 10th graders, and 11th and 12th grade students pursue courses in either Farm Production and Management; Horticulture; Agriculture Supplies and Service; Agriculture Machinery Sales and Service or Forestry, Conservation and Outdoor Recreation. Some difficulty is being experienced in getting schools to offer the preparatory courses for 9th and 10th graders. These courses provide basic instruction needed for 11th and 12th grade students specializing in one of the five course offerings listed above. Occasionally, some students coming from feeder schools to an area center have had the preparatory courses and some have not. This presents a problem.

One solution may be to have all preparatory courses taught by staff members from area schools.

The preparatory courses for 9th and 10th grades are one period in length. There is considerable variation in length of class time for the specialized courses. It varies from one period per day to two and one-half hours. The longer class sessions include time for laboratory experiences.

Training for farming receives the most attention, but enrollment in courses leading to employment in the off-farm occupation is increasing.

Several areas in the state are not adequately served. These include Washington County; Windsor County; Rutland County and Northern Bennington County. An area school will be operating at White River Junction in September 1971 which will help the situation in Windsor County. An area school being planned by the Rutland City School district will also serve Rutland County in two or three years.

b. Successes

1. One additional area center, Essex Junction, that opened in September 1970 provided instruction in Agricultural Education for Chittenden County
2. Because of increased enrollments it was necessary to employ an extra teacher after school started at Bellows Free Academy, St. Albans and North Country Union High School, Newport.
3. Trend towards multi-teacher department.
4. Large percent of teachers participating in in-service program. This included graduate study and one-day workshops. Day long workshops were conducted on the following topics:
   (a) Soil Judging
   (b) Raising Dairy Beef
   (c) Small engines
5. The exemplary program at Bellows Free Academy, St. Albans (see below).
6. The 16% membership increase in the Vermont Association of FFA.
7. Active State Advisory Committee for Vocational Education in Agriculture.
8. Joint activities with other vocational youth groups.
9. State FFA activities.
10. Active Vermont Agricultural Teachers' Association.
11. Excellent cooperation received from other agricultural agencies including the Extension service.
12. Funds provided FFA by Vermont FFA Foundation, Inc.
13. Revised Course of Study for Horticulture.

1. Securing adequate financing for adult programs.
2. Lack of time to work with directors, principals and teachers at local level.
3. To provide programs in all the Area Vocational Centers.
4. Lack of 100% of school participation in the State FFA Awards' Program.
5. Not enough certified teachers graduating from University of Vermont.
6. No post secondary programs in Agricultural Education, below associate degree.
7. Subject matter materials for teachers.

2. Distributive Education

DE coordinators continue to tailor their programs to the known needs of their pupils. Although the DE pupils make up a small proportion of the total vocational enrollment, they are extremely active in school and community and are part of, first, a general program (needed by all who would work in the distributive field), and second, a "tailored" practical experience phase (usually during the senior year). The nature of the state programs is such that it is recommended that reporting be limited to OE Code Number 04.0000.

3. Health Occupations

There were four Vermont Area Vocational Centers which maintained a program in Health Occupations. Student enrollment for the four programs was fifty (50). These students will be prepared for entry-level positions in health careers within a health agency. Health Occupations is a two-year course offered in the junior and senior years. Students from these programs took part in the VICA 1971 competitive activities of which the Health Occupations contest was a part. These students were also active in the Annual Vermont Vocational Association Conference in 1970.

4. Occupational Home Economics

a. There were: four child care aide programs at Burlington, Lamoille, Bennington, and Essex Junction

one food management, production and services at Bradford

two diversified programs -

one which is primarily cooperative education at St. Albans

the other is primarily for slow learners at Rutland

one clothing production at Bennington

1.11-3

b. This is a part-time responsibility and as a result has received inadequate attention.

c. Much time has been devoted to efforts to coordinate early childhood services in the state. Since Vermont is a FAP pilot state, the consultant participated in meetings to coordinate child care services aide training. There hasn't been much follow through on the part of FAP and OEO and as result there have been no coordinated activities other than an exchange of information. There is now some committement from the FAP planning unit.

I have attended several local 4-C committee meetings. I have no input on the state level other than through another education department member.

There had been some effort by OEO and meetings with OEO (who is under contract to license child care centers) to license our laboratory schools under their day care licensing procedures. This is no longer being pursued. The child care services teachers and the state consultant are developing their own, more workable, guidelines.

d. The consultant has participated in several local advisory committee meetings regarding program development and laboratory school operation.

e. Miss Bertha King, USOE Program Officer, visited occupational home economics programs at Burlington High School and Essex Junction Educational Center.

5. Office Occupations

Office occupations programs usually provide shorthand, typing, bookkeeping, and clerical practice, supposedly designed to turn out office workers of "some kind". The present programs are traditional-- not unlike programs throughout the country--and show little response to the world of work, which is an unknown quantity to most teachers and administrators.

a. Some successful modifications, of the office education program are:
    1) Visual communications, a program that has attracted many girls and has the support of the school and community where offered.
    2) Multiple options for secretarial pupils (in a few schools) that allow a pupil to take ABC shorthand, symbolic shorthand, or machine transcription.

b. Some reasons the office education programs are "traditional":
    1) Opportunities for practical experience are limited because of community size or school disinterest.
    2) Courses are inflexible and are offered because they've always been offered.

1.11-3

3) Individualization of instruction is a topic of conversation, but not action.
4) Failure to accept the challenges of educating the handicapped.

c. LEA efforts to improve office education center on new and better equipment to teach yesterday's courses--thereby preparing today's pupils for tomorrow's world of work in an unrealistic situation.

d. Too much of office education is tied to the tried, successful programs of the past. Office education will change, but change will be gradual.

6. Trades and Industry

a. New Programs

1) Ten (10) new programs in three (3) Area Vocational Centers became operational this year (Essex Junction, St. Johnsbury, Burlington).

(a) All of these programs were identified in the FY 1971 Vermont State Plan for Vocational-Technical Education

2) One hundred twenty students were projected as being served by the new programs. Local Annual Reports indicate that these projections were low and that actual average enrollments far exceeded anticipations. (Essex Junction - 184; Burlington - 48; and St. Johnsbury - 67).

3) New courses offered: Appliance Repair, Automotive Industry, Body and Fender (the first program of this kind in the State), Service Station Attendant (one of a cluster developed at Burlington High School), Construction and Maintenance, Electrical Trades, Advanced Drafting, Machine Technology, Machine Operator and Quantity Foods.

b. Cluster Concept

1) The implementation of the occupational cluster concept in certain occupational fields was evidenced by changes in Burlington (machine technology), St. Johnsbury (automotive industry and advanced drafting), Mt. Anthony (restaurant practice) and Barre (stone trades and monumental drafting).

2) Several new programs being planned for implementation in new Area Vocational Centers will utilize this concept (automotive industry, construction and maintenance, quantity foods, electrical occupations and maintenance custodial).

1.11-3

1.11-3
1.11-4
1.11-5

c. Cross-Service Activities

Four schools, Mt. Anthony, North Country, Spaulding and Brattleboro, have involved several service areas in cross-curriculum activities. The major emphasis has eminated from the construction trades, where a complete house is constructed. The drafting program has prepared working drawings, the office occupations classes have kept accounts, the home economics classes have planned the decorating, the DE classes have planned the advertising and sales promotion and the construction trades classes have constructed the facility. In two instances, the horticulture classes have landscaped the premises.

Modest efforts involving quantity foods and home economics classes have combined efforts to put on meals and banquets for special local occasions.

1.11-4 Drop-outs

A. Drop-out rate at Lamoille Union dropped from 5% to 2%. Full credit is not given to vocational education but some of it has to be given to more individual attention to each student.

B. During a discussion with the Director at Bennington, it was learned that quite often many of the drop-outs return to school. In one year fifty students returned. This means that the drop-out figures have to be analyzed carefully.

1.11-5 Funding

A. A check of OE Form 3131 will show that the local and state governments expended $10 for every $1 of federal money. The majority of this ($6,952,280) was state funds for construction. If the construction money is subtracted there would be a ratio of 2.3 to 1, state/local to federal monies for program operation.

1.12 POST-SECONDARY

See Section 5.2, Part II, and Section 2.12-2, Part III, of the State Plan.

1.12-1 General

Parts a, b, c and d of Section 5.2, Part II, of the State Plan include Vermont Technical College. It has been decided that Vermont Technical College will not be included in our figures and planning any more since we have no responsibility for the program and do not provide funds for its operation.

If we were to report a figure for parts a and b, it would have no meaning because the number of enrollments is so small compared to the population (18-21) and the schools of practical nursing can not enroll many more students under present conditions.

1.12-2 Co-op Machinist

After a further review of this program (in Springfield) it was decided that it fell into the category of an adult program instead of a bona fide post-secondary program. Therefore, it was funded and administered as an adult program (see section 1.13).

1.12-3 Licensed Practical Nurse

A. New Program
There was strong support statewide to provide financial assistance for the remaining private school of practical nursing - Putnam Memorial School of Practical Nursing, Bennington. The 1971 legislature appropriated money to support the school in FY1972.

B. On-Going Programs
1. The 173 enrollments shown in OE Form 3138 included MDTA students (29).

2. Student placement was excellent. Even though the economic picture was poor and unemployment was high - 141 of the 143 students who completed the program with skills were able to find employment (this included 10 who left prior to graduation with nurse aide skills). The 141 represents a 98.6% placement.

3. The 143 completions, mentioned above, were that low for several reasons:
   a. wrong career choice, transfer to other program
   b. scholastic difficulties
   c. illness

4. Both Thompson School for Practical Nurses and Fanny Allen Memorial School of Practical Nursing were fully approved by the VT Board of Nurses and fully accredited by the National Association for Practical Nurse Education & Service, Inc. (NAPNES).

5. A major problem existed at Thompson School since the position of a full-time director was not filled. The acting director also taught part time. This did not give her the opportunity to provide the necessary leadership in implementing changes in teaching methods and other needed activities.

6. Innovative methods of teaching used in the past year:
   a. Fanny Allen:
   started preparation of materials for independent study for the beginning and advanced students. A large number of procedure oriented film strips are available. Faculty members will develop and record their own script to accompany the films. In some courses, such as: anatomy and physiology and nutrition, they are developing transparancies to be used with a taped script. The audio visual aid and independent study room is open and available to the student around the clock. Certain hours of the day will be covered by an instructor in order to assist students with questions and specific problems. These innovations will make our program more flexible and adaptable to the individual student.

   b. Thompson:
   none

7. Projects involving the Advisory Committee and any other committee serving the school.
   a. Fanny Allen:
   The Board of Trustees of the Fanny Allen Memorial School met three times in the past year. At the second meeting they reviewed the resolutions of National Association for Practical Nurse Education and Services 1970 Convention. The outcome was a series of resolutions made by the Board signed by the members and send to legislators of the State and Nation. At the September meeting, the Board reviewed the budget and the accountant's incomplete report. (Due to circumstances beyond control, the accountant did not complete the report. Another accountant has been hired. The work is complete and ready for review.) The Board has suggested that a cost analysis be done. The staff is in the process of getting estimates for the analysis.

   The Advisory Committee met as scheduled, four times in the past year. The Committee was concerned when the inservice program had to be dropped because of the increase in tuition rates at St. Michael's College. An increase of twenty-five dollars per credit was more than the faculty members felt they could afford. The Chairman of the Advisory Committee is searching for funds in order to enable the faculty to continue taking the planned education courses. They would like to offer an amount in the form of a scholarship to assist with ongoing education for faculty members. Individual members of the Committee have made contributions of a television set, magazine subscriptions, and games for the dormitories.

The Admissions Committee met twelve times during the year. This Committee is structured of three faculty members and five guidance counselors.

b. Thompson:
none

8. Projects of the faculty committees, faculty inservice.
   a. Fanny Allen:
   The faculty met each month with the exception of June and August. Typical topics at the monthly faculty meetings are as follows: reports of members who have attended special workshops, methods of teaching, student progress, developing specific guide lines and behavioral objectives for a specific experience. We have developed a list of functions we feel are appropriate for the practical nurse as a member of the team in the coronary care unit..

   b. Thompson:
   none

1.12-4 Agriculture

No program for grades 13 and 14 below the associate degree level are being offered in Agricultural Education at the present time. The primary reason is the lack of funds and facilities. Consideration is being given to one or more programs in Agricultural Mechanics at one of the Area Vocational Schools. Such a program could use facilities late in the day and early evening.

1.12-5 Community College Commission

A. The Governor's Executive Order No. 27 (August, 1970) created the Regional Community College Commission. The purpose of the commission is to over-see the pre=planning phrase of the OEO grant to establish a demonstration model.

B. The commission set objectives for itself and hypotheses to be tested. The commission felt that early indicators pointed to some success. For more detail see the report prepared for the public hearing before the Higher Education Sub-Committee of the Joint Senate-House Committee on Education (September 2, 1971).

C. Although some "vocational education" courses were offered by the Commission there is still no involvement of the Division of Voc-Tech Ed. or the Area Vocational Centers. What the future holds is still unknown.

1.12-6 Funding

A. Of the $259,562 expended for post-secondary education (line 5, OE Form 3131), $207,192 ($113,036 federal, $94,156 state) was expended to support the programs at the schools of practical nursing.

B. The remainder went to teacher education (see Section 1.63.5).

1.13 Adult

See Section 5.4, Part II, and Section 2.12-3, Part III of the State Plan

The Assistant State Director coordinated these activities.

1.13-1 Enrollments

There was no change in adult vocational enrollments (apprenticeship not included) over last year. (3 less) The figure represents 1.2% of the population (20-64). Only Burlington reported that enrollments "held up". The Local Annual Reports blamed the economic situation for the lack of growth in enrollments.

The objective of operating 170 courses was not reached. It was missed by 38. However, more than that were offered. The economic situation was the main reason for the lower number of courses operating.

The completion rate was down to 70.0%. This means we did not reach the objective of having 73.3% of the enrollees complete training.

1.13-2 Regular Courses

Only eight of the Area Vocational Centers offered adult courses during the year (Brattleboro and Rutland included - and they are Centers not in full operation).

The length of courses ranged between 20 and 90 clock hours. However, the majority of courses operated 30 clock hours per semester.

To date only one Center has offered a program in adult education- that is, a planned sequence of courses in a given service area to lead an individual to vocational proficiency. This is the welding program at Burlington and it is a certified program. Other than that all that is done is to offer courses upon request.

Courses were offered in all service areas (some limited) except Home Economics-Wage Earning. Fireman Training is included in the T&I area. Consumer & Homemaking, Office Occupations and Trade and Industry courses proved to be the most popular.

Only one course in the health area was conducted. Two classes were held for Food Service Supervisors in cooperation with the Vermont Dietetic Association. One class was held in the northern area, and one class was held in the southern area. Forty-nine persons from hospitals and nursing homes enrolled in these classes. The purpose of the course is to upgrade food service workers from such positions as tray girls to Food Service Supervisors. This is done by offering studies in Basic Foods and Nutrition, followed by classes in Institutional Management.

Two adult teachers of agriculture were employed full-time at Bellows Free Academy in St. Albans (45 students) and at North Country Union High School, Newport (80 students). Besides holding classes in various locations in the area served, these teachers spent a good deal of their time working with the individual farmer on his farm. This provided individualized instruction.

The regular teacher of Vocational Agriculture conducted evening classes in seven other schools.

To date, most adult courses have dealt with farming. It is hoped that courses can be started for the various off-farm occupations.

Salaries of instructors were reimbursed 100% but this figure is being reduced to 50% for the 1971-72 school year. It is anticipated that fewer programs will be in operation in the future because of the lower reimbursement rate.

A check of the Local Annual Reports of Program Activities notes a few items that stand out from the norm:

1. Rutland:

    a. Senior citizens enroll tuition free
    b. MDTA students can enroll in courses at reduced tuition
    c. Courses are scheduled in various parts of the community to:

        1) relieve transportation problems
        2) relieve congestion at high school
        3) make better use of community resources.

2. Newport

    a. Course in French for business people to better serve French speaking customers.

3. Burlington and Hyde Park

    a. People enrolling from areas outside the normal service area (for adults).

4. Burlington

    a. Program in welding. Sequence of courses from basic skills through inert gas welding. Students have gotten related employment because of the program.

During the last semester of the year, $5,000 of State non-matching funds was set aside from adult vocational education funds to run pilot courses specifically for the disadvantaged/handicapped. Criteria was established for the courses (Appendix) and proposals were encouraged. The people to be served had to meet the definitions for disadvantaged or handicapped as stated in the federal law. The local school districts were encouraged to seek the cooperation of other agencies in providing the needed services. Eight of the nine proposals were funded. All of the proposals were for the disadvantaged.

Several things became evident as a result of these courses:

1. Care needs to be taken in structuring the courses so that they meet the specific needs of this group.
2. It is not easy to get the disadvantaged to enroll and attend. Assistance is needed from other agencies for continual contact and encouragement.
3. Transportation is a serious problem-- particularly in rural areas or where students must travel some distance.
4. Local school personnel will have to expand a great deal of energy and time and work hard at gaining the necessary expertise in order to work effectively with this group.

The following courses were operated:

1. Farm Machinery Repair and Maintenance - Enosburg - ABD-71-1

   The major thrust of this course was the teaching of welding skills. It enrolled nine low income farmers. The enrollees were identified by the Extension Service, UVM.

   Fourteen day-time sessions were held of four hours each.

   Four of the students purchased welders and began to repair their equipment as a result of this course.

   The award for this course was $492.00.

2. Clothing Construction and Maintenance - Brattleboro - ABD-71-2

   This course was run as a homemaking program in the area of clothing construction and maintenance for disadvantaged adults, as identified by OEO guidelines through Headstart and Follow Through Programs.

   Eight persons were enrolled for 15 - 3 hr. sessions.

   The primary purpose of this course was to give to disadvantaged adults the information and skills necessary to enhance their judgement in purchasing as well as repairing articles of clothing. A secondary outcome was to increase conservation of clothing through better use and re-use of clothing items.

   The students felt that the objectives of the course were met adequately. The expenditure for this course was as follows:

Award	Expended	Balance
$390.00	$ 284.04	$105.96

1.13-3

3. Home Life Improvement - Bellows Falls - ABD-71-3

Course was run as a follow-up of a Title I survey. The survey pointed up the need for classes for certain skills, both men and women, in the areas of consumer education, homemaking, and home improvement.

The course was well publicized, making use of the local news media, legal office for the poor, Family Guidance Services, and word of mouth.

The enrollment consisted of 9 women and one man.

The course included sewing, planning and preparing lunches for the meetings, and comparative shopping for both food and materials.

Award	Expended	Balance
$401.76	$401.76	0

4. Consumer Education - Waterbury - ABD-71-4

This program was initiated in order to bring consumer information to disadvantaged adults that they might be able to more intelligently compare values, understand labeling practices, credit buying, banking and insurance practices, and purchasing used merchandise.

The program was originally scheduled to run for ten weeks, two hours per week. But as is so often the case in programs for the disadvantaged, attendance is irregular at best, and eventually the students dwindled to only a few. In addition, the instructor became ill so the program was terminated after five (5) meetings.

The six (6) persons who did attend expressed satisfaction with the course and claimed to have been helped.

Award	Expended	Balance
$190.00	$114.36	$ 75.64

5. Sewing/Consumer Education - Rutland - ABD-71-5

The objective of this course was to have the students be able to make or alter garments for family use in addition to being able to properly select, purchase and maintain patterns, fabrics, machines and other clothing products. Consumer Education was an integral part of the course.

Three greatest achievements:

a. learning how to get more for their money
b. learning how to read, understand and follow pattern instructions
c. the feeling of success in completing a garment (or two) that is both well-made and nice looking.

1.13-3

Fifteen students enrolled but 10 of the women from outlying towns had problems getting to class when the women who transported them had an accident. However, eleven of the group completed the course satisfactorily.

The award for this project was $480.00.

6. Basic Auto Mechanics - Rutland - ABD-71-6

The objective of this course was to give the students the ability to provide basic maintenance repair work on all types of automotive vehicles thus providing them with skills for employment in service stations, as a used-car renovator or a new-car "get ready man".

The Office of Economic Opportunity provided the names of fourteen people for the course but only 4 students enrolled. Efforts to get the remaining people to attend failed and the course was cancelled after five sessions. Transportation was a big factor for the poor attendance. The two-night a week schedule may have also compounded the problem.

Award	Expended	Balance
$580.00	$ 217.34	$ 362.66

7. Personal Income Tax Workshop for Personnel Working With The Socially and Economically Disadvantaged - Castleton State College - ABD-71-8

This program was run ten (10 weeks, three (3) hours per week during the Spring Term at Castleton State College. The purpose of the program was to train individuals working with socially and culturally disadvantaged adults in an intensive personal income tax workshop.

The participants involved in the workshop represented two distinct areas of assistance to the disadvantaged; namely, the Rutland Senior Citizens Center and the Bennington-Rutland Opportunity Council.

All of the enrollees are engaged in service to the disadvantaged and are utilizing the training received in the course.

There were 12 persons enrolled, ten women and two men. All of the enrollees completed the course.

Award	Expended	Balance
$ 409.00	$ 341.63	$ 67.37

8. Vocational Education Courses for the Disadvantaged - Burlington High School - ABD-71-9

This program was written as an attempt to serve expressed needs of disadvantaged adults and out-of-school youth. The intent was to provide scholarships for the enrollees in order that they might enroll in courses of their choice. Contact was established through OEO, NYC, VISTA, and other persons involved with these people.

The program was run in two parts, the first being tied to the scholarship concept. It was not successful due to the enrollment of persons in the program who were not at a proper level for the courses being offered. A great deal of preliminary work such as counseling and basic skills preparation needs to be done with such groups.

The second part of the program started off well with 14 students being enrolled via referrals from the Champlain Valley Transportation Company and NYC in an auto mechanic training project. However, before the course ended, the enrollment had dropped to 3. This happened because quite a few of the students moved from the area and other lost interest.

Award	Expended	Balance
$1,000.00	$706.34	$293.66

1.13-4 Policy Bulletin

The staff spent a good deal of time during staff meetings and in committee meetings during the past year discussing adult vocational education and preparing new policy guidelines. The result was a Policy Bulletin (Appendix B) and related forms. The new guidelines emphasize:

a. service to the disadvantaged/handicapped
b. addition of a summer session
c. preparation of instructional behavioral objectives
d. evaluation.

1.13-5 Funding

Only state non-matching funds were used for these courses.

Several pilot projects for the disadvantaged/handicapped were 100% funded (see Section 1.13-3).

1.14 Disadvantaged

1.14
1.14-1
1.14-2

See Section 5.4, Part II, and Section 2.12-4, Part III of the State Plan.

The area of highest unemployment continued to be in Franklin County which maintained its economic assistance designation (within the Economic Development District).

See Section 1.21 for further information.

1.14-1 Enrollments

A. The disadvantaged students, by necessity, were integrated into regular classes. There never were enough enrollments in any one occupation in any one school to operate one section for them.

B. OE Form 3138 shows that 2,800 disadvantaged were served during the past year instead of the 2,979 that were projected. The majority of these enrollments were in the Economic Development Area.

We know (from Table II, Section II) that 59 adults were served in the pilot programs and another 79 were enrolled in courses offered in the depressed areas. We don't know how many were enrolled in regular programs.

C. There were 104 secondary students enrolled in Work-study (see Section 2.6).

D. Co-op work experience programs served 137 disadvantaged students. This is only about half of the projected 264. Again it is still the problem of local emphasis on serving this group. Attitudes and understanding are changing and enrollment should increase.

1.14-2 A. An exemplary program on individualized instructional units was funded at the end of the fiscal year for operation in FY 1972. The project will put together packages of slides or film strips and taped instructions which will be oriented to a single unit activity. The student will be able to use the package by himself and proceed at his own rate of learning. The disadvantaged student should benefit from this kind of instruction.

B. See Section 1.13-3 for adult programs.

C. The Weeks School, Vergennes, operated by the Vermont Department of Corrections operated an Agricultural Education Program. The teacher utilized the school farm, the greenhouse and woodlands on the property. Several students in the program were placed in the community on jobs for work experience. The population of the Weeks School is constantly changing making it difficult for students to complete a planned training program.

D. There were only three Home Ec-Wage Earning programs located in the disadvantaged area: in Bradford, Lamoille and St. Albans.

E. Local administrators seem to be getting a better understanding of what constitutes a disadvantaged person. They also are showing awareness as to the methods and expertise that will have to be brought to bare to serve this group of people.

F. The remedial program, Occupational Work Experience, at Barre, was continued and was successful. A similar program was instituted at Otter Valley Union High School in Brandon. Other schools have indicated interest in similar types of programs.

See Section 2.6 for the Work-Study Report.

The Department of Corrections continued to show no interest in joint training programs.

1.14-3 Funding

The majority of these funds were expended in the Economic Development Area.

1.15 Handicapped

1.15
1.15-1
1.15-2

Relates to Section 5.5, Part II, and Section 2.12-5. Part III, of the State Plan.

The agriculture consultant coordinated these activities with the consultant in Special Education as an added assignment.

1.15-1 Enrollments

A. The enrollments by handicap were as follows:

Educable mentally retarded	- 141
Trainable " "	- 15
Deaf	- 11
Total	167

B. This does not reach the 220 we projected in Table 3, Part II, of the State Plan.

C. There were 11 reported enrollments in Co-op programs.

D. The Division of Special Educational and Pupil Personnel Services feels that further progress was made during the year in providing vocational training for the mentally retarded in that: 1. mentally retarded students were able to function in vocational programs with "the regular kids" and 2. mentally retarded students were able to work in an integrated situation and become functional members of the school community. The placement picture was not as good as in past years because of the poor employment situation.

1.15-2 Programs

Programs were not started in every Area Vocational Center as had been hoped.

A. Educable Mentally Retarded

The main objective of this program is to prepare students to become well adjusted self-supporting members of their communities, through a persisting life situation, multisensory approach to learning.

The program is divided into the following 3 phases:

Phase I is an evaluation or exploratory activity in which a thorough assessment of the students' abilities and interests is made. Special laboratory facilities are available which hands-on experiences are used to assess student interest and evaluate skills. Laboratory areas include electricity, plumbing, woodworking, power mechanics, graphic arts, metal-working, building and grounds maintenance, home kitchen, commercial cooking, personal grooming, commercial sewing, domestic sewing, nursing, office occupations, child care center, and a home living area. This phase lasts for at least one year.

1.15-2

Phase II is a pre-vocational activity. Students are given intensive preparation in areas in which they have the greatest chance for success. They are prepared for entry into the regular on-going vocational programs offered in the schools.

Phase III is the work-experience phase. The students who are able to be integrated into the regular vocational programs are placed in work-experience situations through the existing vocational education procedures. However, students who have little chance of succeeding in the regular program are placed and supervised by the special education instructor. In the latter case the instructor matches a student with an appropriate job in the community, provides intensive training in the laboratory (based upon a task analysis of the job) to prepare the student for the job, and places and supervises the student in the work experience situation. Follow-up activities are to be provided after the student has been placed on a job.

Close coordination between special education and vocational education personnel is built into the three phases of this program. Students, 15-20 years of age, are participating.

B. Trainable Mentally Retarded Work Activities Center

A number of trainable mentally retarded young adults in the state are no longer able to benefit from the school system's special education classes and are sitting home with no opportunity for further productive skill development. The Work Activities Center allows these people to have increased learning opportunities by providing a variety of activities designed to apply their present knowledge in a functional way and to help motivate them to learn and to work with their peers, the ultimate goal being employment on a job or in a sheltered workshop.

Activities include skill tests designed to establish competency levels in sorting, shaping, discriminating colors, sizes and weights, and assembling and packaging. Additional activities are being employed by the instructor to maintain and continue existing academic skills whenever possible. These activities include instruction in basic skill work in counting, reading and lettering. Attempts are also being made to help the enrollees to understand basic elements involved in keeping time, figuring wages and appreciating the value of money earned, as well as learning good work habits and acceptable employer-employee relations.

The instructor gives each student an evaluation each month on his progress. Then, when a student starts a particular pre-skill exercise and/or simulated product, he will be evaluated on a time trial basis giving the instructor a baseline for following evaluations. After a period of from one to three weeks, the student is evaluated again to compare improvement on the task involved. Finally, a check list is provided on the amount of time the student spends on a particular task.

One program operated all year in Burlington and one started in Newport during January.

1.15-2

C. Deaf

The Austine School for the Deaf of Brattleboro and the Brattleboro Area Vocational Center are cooperating to provide vocational education for hearing handicapped students. The students take part in pre-vocational programs at the School for the Deaf and are evaluated in different vocational areas to determine their interests and ability. Those who are found to be interested in a vocational program and have a good chance of success are worked into the vocational program at the Area Vocational Center.

The Area Vocational Center has a staff member who is a counselor consultant to the school staff in the area of deaf education. He is responsible for seeing that the students are not missing any part of the program because of their handicap. He translates important lectures and directions to the deaf students in sign language and helps teachers prepare for the students.

It is felt that since the world of work is in the "hearing world", the deaf students will be better equipped to enter it if they receive vocational education in a "hearing" program.

D. General Information

1. The following table shows where the programs were operated

School	Program	Teacher Equivalent EMR	TMR	Deaf
Brattleboro High and Austine	EMR, Deaf	--	--	1
Burlington High	EMR, TMR	0.33	2	--
Essex Jct Ed Ctr	EMR	1	--	--
Lamoille UHS	EMR	1	--	--
Mt Anthony UHS	EMR	0.33	--	--
No Country UHS	EMR, TMR	1	2	--
Rutland High	EMR	1	--	--
Spaulding High	EMR	2	--	--

Some of the students in these programs had multiple handicaps. The Division of Special Educational and Pupil Personnel Services spent time in assessing the situation. No additional action was taken during the year.

2. Four of the seven fully operational Area Vocational Centers had special facilities for the handicapped.

3. It is evident from OE Form 3138 that handicapped students were enrolled in a wide variety of vocational programs.

4. A new diversified home economics-wage earning program was designed primarily for handicapped students at Rutland High School.

1.15-2

5. There wasn't much cooperative activities with the Department of Vocational Rehabilitation. There needs to be follow-up on past discussions.

6. Mt. Anthony Union High School, Bennington, has provided a course in Ornamental Horticulture for the mentally retarded. From 5-10 students are enrolled each year. They are provided experiences in lawn maintenance, greenhouse operation, care of flower and shrubs and the operation and maintenance of power equipment common to the horticultural occupations.

7. Some selected success indicators in the area of office occupations

   a. The preparation of suitable teacher-pupil materials during two summer workshops for special education teachers.

   b. The preparation and distribution of pupil materials for three areas: a. filing, b. calculating, c. typing.

   c. More than thirty teachers have been prepared to teach the three areas of office education.

   d. An awareness of the need to prepare the special pupil for regular classes when possible; otherwise, special programs for special cases are the order.

8. The Division for the Blind, Department of Social Welfare was not contacted this past year because of time constraints.

E. Education of Industrial Foremen in Training Patients More Effectively - Waterbury State Hospital (BH-70-6)

A special project was funded and operated at the state hospital for the emotionally ill (FY 1970 funds):

1. Objective

   To improve the communication skills of foremen, work supervisors and tradesmen (at the hospital) so that they in turn can train patients in various occupational skills (on-the-job). Trained patients can be released more quickly since they can support themselves once they have returned to their community.

2. Process

   Train three groups of 6-10 employees each. They will spend the following time in training:

   a. 1 hour per day for 2 weeks
   b. 1 hour per week for 6 weeks
   c. 1 hour, twice a month for 10 months.

3. Results

   A. The employees felt they had benefited very much from the course and found it easier to transfer their skill knowledge to the trainees. Thirty-nine employees (of 42 enrolled) completed the course.

   B. Problem areas uncovered

      1. Employees had to know (a) more about the patient and his needs and (b) his work schedule.
      2. Difficult to find trainees because a large number released after proposal approved and new therapeutic programs were instituted.
      3. Difficult, in some cases, to convince patient to stay in training.
      4. Had to provide patient with congenial work assignments.
      5. Need to develop a rating sheet to check patient's progress.
      6. Need to get work supervisors and clinical treatment team to coordinate patient's schedule.

4. The project will not be refunded for FY 1972 because it is expected that all of the handicap set aside will be needed for secondary programs - which have priority.

1.15-3 Funding

A. OE Form 3129 shows that $71,261 Federal dollars were expended on the handicapped. $3,905 were carried forward. This is 10% of the expenditure in line 3, column g. No local funds were expended on these programs. The Division of Special Educational and Pupil Personnel Services provided the remainder of the funds.

B. The $71,261 was expended as follows:

1. Diversified Occupations Barre, Essex Jct., Hyde Park, Newport	$17,229
2. Work Activity Centers Burlington, Newport	$32,382
3. Vocational Program for Deaf Brattleboro	$12,900
4. Equipment, Diversified Occupations Rutland	$ 8,750

C. The equipment money shown in line 7, column c was expended at Burlington, Newport and Rutland. The expenditures in Burlington and Newport were part of their budget and, therefore, are a part of the figure in item B2.

1.2 Areas To Be Served

1.2
1.21
1.22
1.23

Section 2.1, Part II, and Section 2.13, Part III, of the State Plan relate to this part.

As is noted in Section 1.52, Construction of ten of the Area Vocational Centers was completed by the end of the fiscal year with two more nearing completion. This will bring to twelve the number of Centers in operation. The thirteenth one is under construction.

1.21 Economically Depressed and High Unemployment Areas

Franklin County continued its designation as an Economic Development Area. The voters of St. Albans City and St. Albans Town voted a third time not to accept State funds for the construction of the Area Vocational Center. County school administrators came together to discuss the situation. The group decided to form a committee of school board members from the county to study the alternatives and recommend a course of action. No recommendation had been made by the end of the year.

The business district in Swanton (that had been destroyed by fire on January 28, 1970) was rebuilt returning that part of the economy of the area to normal.

An out-of-state individual purchased the old Central Vermont Railway buildings and set up a production line to make prefabricated houses. Training was provided with MDTA funds. Sixty eight adults were involved.

One pilot course for disadvantaged adults (marginal farmers) was operated in Enosburg Falls (see Section 1.13).

1.22 Areas of High Youth Unemployment and School Dropouts

There were no known areas of high youth unemployment in the state.

1.23 Areas of High Population Density

The Burlington-Essex Junction area fits this description the closest. The Area Vocational Center in Essex Junction started operation in September, 1970. This Center was built to meet the needs of the larger youth population. Other than that, the area received similar treatment as did other areas of the state that lie outside the Economic Development District.

1.3 Vocational Instruction Under Contract 1.3

This relates to Section 2.15, Part III, of the State Plan.

No vocational education was provided under contract to public or private institutions during the past year.

1.4 Vocational Guidance and Counseling Programs

Section 2.2, Part III, State Plan

1.41 Operation

Vocational guidance coordinators were employed on a full time basis, meeting the job description in the State Plan in seven of the designated fifteen Centers. In four of the Centers they functiond in a part-time program and the remaining four Centers had no designated personnel to perform the area service function.

The change in emphasis from the pre-vocational programs to occupational orientation has been slow in arriving, perhaps due to a lack of knowledge of area responsibilities on the part of personnel involved.

Increased funding for the position of Vocational Guidance Coordinator may help to alleviate this problem by allowing him to provide added services to this area.

The Northern New England Curriculum Project was funded (after an outside evaluation) to continue for another year with the addition of one more pilot school in each state, plans for each state to assume the project at the end of the funded year, and a shift from pilot schools to exemplary schools in order to provide working models that others could emulate.

Personnel from exemplary projects were utilized to bring their experiences to the vocational guidance coordinators, particularly at the joint meetings with the local directors. Through these programs, at least three vocational guidance coordinators have assumed leadership in promoting Career Education concepts into their area responsibilities.

The State Advisory Council's Annual Report (Appendix C), among others made the following recommendations:

1. The State Department of Education should develop a clear and concise position relative to guidance services
2. Guidance counselors should act as vocational guidance counselors
3. Guidance counselors should have greater awareness of vocational and technical education programs and careers
4. The Area Vocational Guidance Coordinator should be allowed to serve his guidance coordinating function for the area served by the Area Vocational Center.

1.42 Funding

OE Form 3131 (line 10) does not show any expenditures of monies for these services. The funds are included in the figure for secondary programs - line 4. Guidance monies could not be "pulled out" because the people involved in the programs were included in the total teacher equivalents. These equivalents were put into the reimbursement formula for calculating the first (40%) reimbursement (see State Plan, Section 3.27, Part I).

1.5 Construction of Area Vocational Centers 1.5
1.51
Relates to Section 2.3, Part III of the State Plan 1.52

The Assistant State Director coordinated activities in this area.

1.51 Starts

The Center at Essex Junction started operation in September, 1970. This brought the number of operational Centers to seven.

Construction started on the following Centers during the year:

August 3, 1970	Addison County Area Vocational Center Middlebury
March 3, 1971	Brattleboro Union High School Brattleboro

The local voters in Rutland voted $990,000 in March, 1971 for the Area Vocational Center. The local staff started immediately to work to prepare materials for the educational specifications. An architect was hired before the end of the fiscal year. The school district got approval from the State Board of Education to build the Center on a site several miles from the present high school with the understanding that a new high school will be built on the same site in the near future.

For the situation in Franklin County, see Section 1.21 (paragraph 1).

1.52 Completions

Construction was completed on the following Centers during the fiscal year:

June	Streeter Vocational Center St. Johnsbury
June	OxBow Union High School Bradford
June	Randolph Union High School Randolph

The Center at White River Junction ran into delays during construction and will not be ready until some time in late fall. The Center at Middlebury will be completed by September.

Completion of the Middlebury and White River Junction facilities will bring the number of operation Centers to twelve.

1.53 Special Facility Features

1.53
1.54
1.55

Each of these Centers have facilities for the handicapped. Although initially these facilities were planned for the Level IV, mentally retarded, there is no reason why persons with other handicaps cannot be served-- as long as alterations are made in program or equipment. These facilities include a boys' lab and a girls' lab and one or two classrooms. The labs are set up to provide a diversified program - home economics - wage earning, office occupations - arts and crafts - health and trade and industry. Training other service areas is offered in other labs of the Center.

Several of these new Centers have learning resource Centers. These were allowed and encouraged in order to implement the use of individualized learning packages-- such as hardwares and softwares in cubicles. Several Centers plan to use their own version of the self-paced materials developed at Piedmont Community College, Charlotte, North Carolina.

The newest Centers have greenhouses in order that horticulture may be added to the program offerings. Also, these Centers were designed with flexibility in mind, i.e. large spaces divided by moveable walls of various kinds.

Also, these Centers were designed to allow for future expansion should it be needed.

1.54 Equipment

A lot of time was spent by both local and state staffs in developing equipment lists and then bidding and purchasing the equipment.

The one criticism that can be leveled against Distributive Education programs is that equipment, in most cases, is selected because of convenience and not educational need.

New Office Occupations programs reflect the convenient approach to office education. For example:

1. Written equipment replacement guidelines are not available.
2. Maintenance allowances are meager.
3. Equipment purchases reflect fad and available funds rather than hard data based on business trends. NOTE: Rubber-stamp approval by the advisory committees merely provides a basis for the purchase of equipment that can be totally unsuited for educational purposes. The committees should be involved at the planning stage.

1.55 Funding

The $37,444 of Federal funds shown in OE Form 3131 (Line 9, Column b) were carried over and were expended to complete an older project.

1.55 The $6,952,280 in the same form (Line 9, Column C) were state funds that were expended on those Centers that were in various stages of construction and start or completion of equipment purchase. In addition, general state construction aid (30%) is used for construction and funds available to the Division of Special Educational and Pupil Personnel Services are used to pay 75% of the costs of construction of facilities for the handicapped. 1.55

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1.6 Ancillary Services

1.61 Administration

This section relates to Section 2.41, Part II of the State Plan.

1.61-1 Special activities

A. Management by objectives

The staff put together goals and objectives for the Division for the year and established some ways and means to reach them (see appendix). They were reviewed periodically throughout the year.

B. Tri-State Staff Meeting

The staffs from Maine, New Hampshire and Vermont held the second annual conference. A great deal of discussion was held on areas of concern, ways of cooperating with each other and coordinating joint activities. A specific outcome was the Tri-State Curriculum Project (see Section 1.64-3).

C. Public Information

Coordination of this activity was assigned to the MDT Consultant.

1. TV Clips

With the instigation of the New England Resource Center for Occupational Education and the National Advisory Council for Vocational-Technical Education, two sets of one minute and thirty second 16mm colored clips were prepared for secondary vocational programs and one set for Vermont Technical College. Funds came from the State Advisory Council for Vocational-Technical Education, NERCOE and state businesses and industry.

2. "Across the Fence" TV Program

The Extension Service at UVM has a daily program at 1:00 p.m. Once a month the program featured a vocational program from one of the Area Vocational Centers.

3. There was an increase in the number of news releases concerning vocational-technical education.

1.61-1

4. The State Advisory Council for Vocational-Technical Education held eight public hearings and provided funds to Area Vocational Centers to promote vocational-technical education (not coordinated by Department of Education personnel). 1.61-1 1.61-2

D. The staff discussed and revised the policies for adult vocational education (see Section 1.13-4 and appendix).

1.61-2 Program Related Activities

A. Various staff members worked with the staff at the Essex Junction Center during the year to provide direction and help with program implementation.

B. Staff members helped the Division of Special Educational and Pupil Personnel Services staff and the VOTEX Department, University of Vermont, by teaching during a summer workshop for teachers who would be working with the mentally retarded.

C. Several staff members (other than the teacher educator) assisted the VOTEX Department, University of Vermont, with its Transition into Teaching program.

D. Work continued with the various Area Vocational Centers in developing equipment lists and programs.

E. After the Rutland voters approved (in March) the construction of the Area Vocational Center, staff assisted the local staff to develop educational specifications.

F. The Health Consultant supervised the two programs for training practical nurses.

G. Several staff members acted as state advisors to the youth groups.

1. In conjunction with this they conducted a leadership conference for state and local club officers.

H. Staff worked with their State Advisory Committees:

1. The Agriculture committee was strong and active.
2. The Consumer and Homemaking committee got a fresh start.
3. The Health committee met several times.
4. The rest were somewhat in limbo.

I. Emphasis was placed on use of local craft committees. Some gains were made in this area.

J. The Home Economics and Agriculture staff members, the State Director and Assistant Director held coordinating meetings with the Extension Service, University of Vermont, staff:

1.61-2

1. Fall and Spring between the two state staffs
2. Bennington (January) and Newport (May) between the state staffs and local staffs. These meetings were called to start cooperative activities at the local level.

1.61-2
1.61-3

K. Most members of the staff attended the Tri-State Curriculum Project workshop to become familiar with what the project is trying to accomplish and to start working relationships with the teachers.

1.61-3 Other

In addition, members of the staff were involved, in varying degrees, in the following activities:

A. Monthly meetings were held with the Area Directors of vocational education and the vocational guidance coordinators.

B. Attended monthly meetings and public hearings of the State Advisory Council for Vocational-Technical Education.

C. Participated im state, regional and national seminars and workshops relating to vocational education. These experiences were shared with the rest of the staff by reports and presentations at staff meetings.

D. Served on advisory groups such as Health Careers Council State CAMPS Committee, Arts and Crafts Council, Health Occupations Advisory Committee, Teacher Education Advisory Committee, etc.

E. Two members served on the Board of Directors of the Tri-State Curriculum Project.

F. Two members served on the Advisory Committee on Vocational-Technical Education to the New England Regional Commission.

G. Two members wrote the fiscal year State Plan for Vocational-Technical Education.

H. Three members were involved in a series of eight training seminars on future cognition and planning.

I. Took college courses either for advance college degrees or professional improvement.

J. See program sections for additional assignments of staff.

A. Home Economics-Wage Earning consultant:

1. Made more than 20 school visits to occupational home economics programs
2. Conducted an occupational home economics teachers meeting to exhange ideas.
3. Regularly participated on the Williamstown Task Force developing an educational program and facility in conjunction with the community.
4. Was involved in the Department management improvement activities.
5. Developed and carried out the State VICA Child Care Services contest.

B. Office Occupations consultant:

1. Continued to assist Castleton State College in the development of its in-service program.

C. Assistant State Director:

1. Served on the Board of Governors of the New England Resource Center for Occupational Education.
2. Traveled to Central Piedmont Community College, Charlotte, North Carolina, with three Area Directors to see the self-paced (individualized) programming in operation. This started development of similar activities in the Area Vocational Centers in Vermont.

D. Health Occupations consultant:

1. Visited the Allied Health Sciences classroom at UVM to see individualized instruction in actual process.
2. Assisted in setting up facility at Missisquoi Valley Union High School for MDT nurse aide program.
3. Priorities established and long range plans formulated for the practical nursing schools.
4. Visited Vermont Medical Center, Burlington, with consultant in Special Education to discuss a cooperative work experience program, availability of positions and job placements for special education students in health occupations.
5. Developed a "Policy Manual Guide" for personnel in practical nursing programs.
6. Prepared the budget for the schools of practical nursing.

1.62 Evaluation

See Section 2.42, Part III, of the State Plan

The state consultant for Home Economics-Wage Earning has part-time responsibility for coordinating evaluation activities.

1.62-1 General

A. The Vocational-Technical Division and the local directors of Vocational Education decided not to develop any new evaluation procedures without first backing up and developing behavioral objectives. A series of statewide workshops to develop behavioral objectives, written in performance terms, were discussed and scheduled. These workshops are to involve all teachers of vocational education.

B. Local Education Agencies used the guidelines developed in FY 1970 to prepare local evaluations of programs and from that their Annual Report of Program Activities.

C. The Center at the Essex Junction Educational Center asked the sending schools to evaluate it in terms of:

administration	orientation
scheduling	selection of students
communications	program development and modification

The evaluation showed a need for improvement in:

parental orientation
dissemination of written materials.

D. The format of the Annual Report of Program Activities was revised (Appendix E).

E. Evaluation was a priority for exemplary programs. A two-day workshop was held to develop an evaluation scheme for each exemplary project during FY 1972. Teams of teachers, teacher educators, and state department personnel visited the programs for evaluation purposes (see Section 2.22-K).

F. A staff member of the VOTEX Department, College of Agriculture, University of Vermont, conducted a research project to develop a model for graduate follow-up (see Section 2.12).

H. Other

1. The consultant responsible for evaluation

   a. attended a three week workshop on evaluation of educational programs.
   b. participated in the evaluation of a Title III project.

c. attended a colloquy on accountability in education.
d. met with the executive director of the State Advisory Council and a member of the Governor's Committee on Children and Youth regarding evaluation.

1.62-1

2. The evaluation report for Co-op G is included in the Co-op report.

3. The use of Craft Committees to evaluate local trade and industrial programs was expanded and started by some Centers.

4. The Trade and Industrial teacher educator re-evaluated his teacher education courses and those in the VOTEX program at UVM.

5. The consultant responsible for disadvantaged programs visited three disadvantaged programs with one of the regional program officers for evaluation purposes.

6. An evaluation form (Appendix F) is sent to all agricultural education teachers. It is filled out with the local advisory committee and returned to the state office. The agriculture consultant then discusses it with the teacher during his school visit.

7. Consumer and homemaking teachers submitted annual reports indicating the degree of achievement of their objectives.

I. The State Advisory Council for Vocational Education

1. Submitted its first annual report to the State Board of Education (Appendix C).

2. Visited Centers and sending schools to talk with students and staffs.

3. Held public hearings around the state.

4. Conducted mail surveys:

a. concerning the activities of the Administrative Advisory Committees (Appendix)
b. attendance of students from sending high schools in the Area Vocational Centers (Appendix).

1.62-2 Funding

The money expended on evaluation per se can not be broken out because of the way OE Form 3132 is constructed. It is included in lines 3, 10 and 11 of Column f.

1.63 Teacher Training

This section relates to Section 2.43, Part III, of the State Plan.

1.63-1 Division Activities

A. The teacher educator of trade and industrial education has become an adjunct staff member of the University of Vermont, Vocational-Technical and Extension Education (VOTEX). A curriculum has been developed for trade and industrial vocational education teachers on a pre-service and in-service basis. An additional teacher educator was appointed to the staff of the University VOTEX program. Combined State staff and the University staff now consists of three personnel.

B. The availability of the in-service teacher education program at U V M is providing a tremendous lift to motivating professional growth among T & I teachers. Personal interest and attitudes affecting T & I education statewide has noticably changed.

C. The courses that are offered through the University of Vermont are provided for all vocational teachers. A total of one hundred and twelve (112) teachers participated in these courses. An unduplicated count is sixty-one (61) teachers which indicates that fifty-one (51) completed two or more courses.

D. A seminar was arranged by the teacher educator of trade and industry for teachers of building trades. This was a four day session, in June, on Maintenance of Woodworking Machines. A commercial company provided the instructor. Sixteen building trades instructors participated.

E. Ten in-service workshops for Distributive Education coordinators were held:

1. Subjects dealt with: curriculum, youth leadership, public relations, preparation of recorded and written news releases, parliamentary procedures, state and national DECA planning and participation.

2. Projections for future activities were part of each meeting.

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F. Sectional meetings (8) were held throughout the state for office education teachers:

1. Topic-- preparing the local plan for office education.
2. Attendance-- approximately one hundred.
3. Results
   a. A large number of local plans for office education was submitted.
   b. Behavioral objectives were explained to a majority of the state's office educators, the first time for most of them.

G. A State Plan for Education Profession Development (EPDA) as a supplement to the State Plan for Vocational Education was written and submitted to the Regional Office (USOE) for approval. An EPDA advisory group has been formed. It is made up of members of the State Advisory Council on Vocational-Technical Education

H. Health Occupations

1. Joint faculty meeting, October 8, 1970, on "Individualized Instruction", and "The Nurse-The Teacher" (25 present).

2. Seminar for Educators in Health Occupations: Trends in Health Occupations, Behavioral Objectives, Evaluation of Student Achievement, May 25-26 (35 present)

I. Co op Workshop -- One of the two planned workshops has been held; the other will be reported in another fiscal year. There were thirty coordinators in attendance.

1.63-2 Vocational, Technical and Extension Education Department, College of Agriculture and Home Economics, University of Vermont

I. Program Enrollment Summary

A. Number of Students

1. Undergraduate programs

a.	Agricultural Education	-- 10	
* b.	Industrial Education	-- 11	
c.	Other	-- 4	25

2. Graduate programs

a.	Master Arts in Teaching	-- 9	
b.	Master of Education	-- 8	
c.	Master Extension Education	-- 10	
d.	Fifth-Year Certificate in Education	-- 2	29

* Includes full-time teachers pursuing B.S. on a part-time basis

Enrollment Summary

A. Pre-Service (duplicated count)

1. Total Enrollment, all courses		81
2. Total Enrollment, Conferences and Workshops		24
	Total	105

B. In-Service (Duplicated count)

1. Total Enrollment, all courses		237
2. Total Enrollment, Conferences and Workshops		75
	Total	312

C. Unduplicated Count Enrollment

1. Pre-service courses	-- 43		
2. Pre-service conferences, etc.	-- 20		
		Total	63
3. In-service courses	-- 94		
4. In-service conferences, etc.	-- 25		
		Total	119

Courses, Conferences, Workshops, Etc.

A. Courses

1. Summer 1970

	Description	Staff	No. of Students
S295 *	Special Topics: Independent Study	Fuller/Kelly	5
S295	Special Topics: Practicum in Industry for Vocational Personnel	Fuller (Kelly/Ross)	17
S295	Special Topics: Teaching Diversified Occupations	Fuller/ Halloran	18
S296	Special Topics: Laboratory in Teaching Diversified Occupations	Fuller/ Halloran	18
			58

* Approximately 251 visits to teachers at their school or technical training station were conducted by department staff members.

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2. Fall 1970

	Description	Staff	No. of Students
* 150	Technical Internship	Ross	1
152	Introduction	Fuller/ Osborn	14
*E154	Teaching Internship	Ross (Kisko, Kelly, Fuller)	22
* 155	Teaching Practicum	Fuller	4
197	Special Problems	Fuller	2
251	Methods	Fuller	6
E251	Methods	Ross	21
E251	Methods	Kisko	12
253	Teaching Adults	Kelly	26
274	Technical Reporting	Malone	11
295	Special Topics: Independent Study	Fuller	2
E295	Special Topics: New and Returning Teachers	Fuller (Kelly, Osborn, Brown)	14
E295	Special Topics: Practices and Procedures for Industrial Arts	Leavitt	10
301	Research	Fuller	2
			147

3. Spring 1971

102	Extension Methods	Kelly	12
104	Leadership Preparation	Fuller	8
* 150	Technical Internship	Ross	1
* 154	(Teaching Internship Cont'd)		22
* 155	Teaching Practicum	Ross/Fuller	2
E158	Evaluating Achievement	Ross	7
E159	Course Development	Kisko	21
198	Special Problems	Ross/Fuller/Kelly	4
A198	Special Problems	Fuller	2
232	Seminar	Fuller	2
*E295	(New Teachers--Cont'd)		14
296	Special Topics: Independent Study	Fuller	2
A296	Special Topics: Independent Study	Fuller	7
			104

4. Summer 1971

E295	Special Topics: Diversified Occupations for Vocational Teachers	Fuller/ Halloran	9
	Total Enrollment, all courses		318

* Approximately 251 visits to teachers at their school or technical training station were conducted by department staff members.

B. Graduation Summary 1.63-2

1. Undergraduate degree

a. Agricultural Education	-- 4	
b. Industrial Education	-- 1	5

2. Graduate degrees

a. Master Arts in Teaching	-- 3	
b. Master of Education	-- 2	
c. Master Extension Education	-- 4	9

3. Employment of graduates

a. Education	-- 8	
b. Extension	-- 1	
c. Other	-- 5	14

II. Courses, Conferences, Workshops Enrollment Summary (Includes duplicate count)

A. Courses

1. Number of courses taught	32
2. Total enrollment all courses	318

B. Workshops and Conferences Sponsored

1. Number	7
2. Total enrollment	99

C. Total number enrolled all courses, conferences and workshops 417

D. Approximate number of instructional visits to individual teachers in their schools 251

NOTE: See Attachment A & B for further breakdown into pre-service and in-service activities, unduplicated counts, and a list of courses taught.

III. Conferences and Workshops Sponsored

A. Sponsored with Animal Science Department, a one-day workshop on "Raising Beef" for Teachers of Agriculture 15

B. Sponsored with Agricultural Engineering, a one-day workshop on "Little Engine Maintenance and Repair" for Teachers of Agriculture 10

C. Sponsored one-day workshop exemplary program proposal writing 15

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D. Sponsored two-day workshop on exemplary program proposal writing 15

E. Sponsored two-day workshop for Teachers of Diversified Occupations 15

F. Conducted two 2-hour seminars at V.T.C. for prospective teachers 20

G. Conducted field trip to Area Vocational Center (N.C.U.H.S.) for V.T.C. students 4

Approximate number participating in workshops, conferences, seminars = 99

IV. Selected Activities of Faculty

A. Special Projects Conducted

1. "A Program to Motivate Postsecondary Students Enrolled at V.T.C. to Enter the Profession of Teaching Agriculture or Trade and Industrial Education", funded thru S.D.E. (Director: Fuller)

2. "Inservice Workshops to Train Vocational Educational Personnel to Plan and Develop Effective Exemplary Programs ...", funded thru S.D.E. (Director: Fuller)

3. "Summer Institute for Teachers of Secondary Level Mentally Retarded Pupils", funded thru S.D.E. (Directors: Fuller and Halloran)

4. "Inservice Training Program for Guidance Counselors", funded thru S.D.E. (Director: Fuller)

5. "Professional Development Fellowships in Vocational and Technical Education", funded through U.V.M. (Director: Fuller)

6. "Summer Work Study Program" for one student at North Country Union High School, funded thru U.V.M. (Director: Fuller)

B. Research Effort

1. State 143: "Relationships of Academic Success and Characteristics of Students Graduating from the College of Agriculture and Home Economics", funded thru Experiment Station. (Director: Fuller)(Terminated)

2. State 148: "Vermont Manpower Needs and Entry Job Requirements for Selected Occupational Clusters", funded thru Experiment Station. (Directors: Kelly and Ross)

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3. "A Model for Collecting and Analyzing Follow-up Data on Graduates and Dropouts of Vocational Education in Vermont", funded thru S.D.E. (Director: Fuller)

C. Publications and Writings

The faculty compiled the following list of publications:

1. Vocational Education--What Employers Are Saying, Departmental publication
2. Three issues of VOTEX NEWSLETTER
3. 46 book reviews edited and/or written, and published in Agricultural Education
4. Guest editorial in Agricultural Education
5. Eleven: Professional Pages" in VATA Journal
6. Twelve "Instructional Materials Pages" in VATA Journal
7. Eight Lesson Plans for Agricultural Education, Departmental publication

D. Other

A number of materials were prepared by students, edited by faculty and duplicated for distribution. These included task analysis materials and laboratory exercises.

V. Selected Professional Activities

A. Meetings participated in by faculty:

1. Monthly meetings of Vermont Association of Teachers of Agriculture (V.A.T.A.)
2. State Agricultural Education Citizen's Advisory Committee meetings
3. Vocational Directors meetings
4. Vermont Vocational Association summer professional improvement conference
5. V.A.T.A. Tri-State summer professional improvement conference
6. Regional U.S.O.E. meetings and clinics
7. Tri-State vocational education meetings
8. Regional and National professional association meetings
9. S D E Division of Vocational-Technical Education staff meetings

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B. Staff held membership in 10 major State and National committees and offices in national professional societies including:

1. Book Review Editor, Agricultural Education
2. Regional Editor, AATEA Journal
3. Vice President, American Association of Teacher Educators in Agriculture (AATEA)
4. AATEA National Advisory Committee for Future Farmers of America
5. American Vocational Association Presidential Nominating Committee
6. American Vocational Association Professional Personnel Recruitment Committee
7. State EPDA Advisory Committee
8. State Exemplary Program Committee

C. The faculty represented the department thru membership in the following professional societies and organizations

1. American Vocational Association
2. American Association of Teacher Educators in Agriculture
3. Vermont Vocational Association
4. Vermont Association of Teachers of Agriculture

D. Membership on College and University Committees includes:

1. College Studies Committee
2. College Recreation Resource Management Program Committee
3. University Teacher Education Committee
4. State Vocational Education and Extension Service Committee
5. College Teacher Education Coordinating Committee

VI. Staff

A. Resident

1. Fuller, Gerald R.	1.0	full-time equivalent
2. Ross, Raymond J.	1.0	full-time equivalent
3. Kelly, William H.	.25	full-time equivalent
4. Malone, Patricia (Mrs.)	.30	full-time equivalent

B. Adjunct

1. Kisko, Joseph	.25	full-time equivalent
2. Leavitt, David	.125	full-time equivalent
Total	2.925	full-time equivalent

Unduplicated count of persons served, by teaching field:

I. Pre-service activities	
A. Courses	
1. Agricultural Education	10
2. Industrial Education	11
3. Other	33
B. Other	
VTC (Seminars)	20
Sub-total	74
II. In-service activities	
A. Courses	
1. Agricultural Education	12
2. Trade and Industrial Education	38
3. Health Occupations Education	3
4. Home Economics Education	4
5. Business Education	3
6. Diversified Occupations Education	12
7. Guidance	4
8. Industrial Arts Education	9
9. Persons Exploring Vocational Education as a Career	7
10. Other	2
B. Workshops and Conferences	
1. Dairy Beef Training Session	5
2. Little Engine Training Session	5
3. Proposal Writing Workshop	10
4. Proposal Writing Workshop	5
Sub-total	119
III. Total number different individuals served	193

1.63-3 Home Economics Education Department, College of Agriculture and Home Economics, University of Vermont

A. The Home Economics Education Program incorporates the experience, knowledge and skill learned through areas of study in the home economics department into a program of teacher education. The objectives of the teacher education program are to assist students in the development of competencies needed by a beginning teacher of home economics. Upon completion of this professional program the prospective teacher should be able to:

1. Integrate the philosophies of home economics and education with knowledge of contemporary society formulating professional beliefs.

2. Communicate and use an educational philosophy in making decisions as a home economics teacher.

3. Assume responsibilities appropriate to the professional role.

4. Integrate a code of ethics into the professional role.

5. Identify education trends and implications that have relevance for the home economics program.

6. Utilize information about the learners, their homes, the community, and the larger society in planning home economics programs.

7. Plan home economics programs which will contribute to the total educational goals.

8. Select and direct learning experiences appropriate to the achievement of objectives and the development of generalizations.

9. Select and utilize a variety of methods and resources to achieve specified behavioral outcomes.

10. Establish and maintain a classroom climate which facilitates learning in home economics.

B. Personnel

1. Faculty and Staff

Two teacher educators carry out the home economics education program. One is employed for 9 months, and one is for 11 months. This year we have been fortunate to have a graduate assistant helping with certain aspects of the program. A Work Study student for the department has assisted with many routine and creative activities in the program when she could give time to the program.

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2. Students

Sixty undergraduate students were enrolled in home economics education. There were ten graduate students in home economics education. Two of these completed their Master of Arts in Teaching degree.

3. Teachers

In-service

From 25-30 individual contacts have been made with in-service teachers. This was done through school visits and conferences.

C. Teaching

Eight courses were taught by the two teacher educators during the year. Assistance was given through team-teaching in three other courses. A total number of approximately sixty-five students enrolled in the full-time courses and thirty in the three courses where assistance was given.

D. Itinerant Teacher Education

1. Twelve student teachers each received three full day's visit.
2. Each of nine students in the Teaching Adults Course were visited twice during their teaching experience.
3. Approximately 20 additional visits were made to teachers in-service. This included first year teachers.
4. Six students worked with the Vocational Rehabilitation Center in Waterbury and were supervised through six visits.
5. The courses in Occupational Education, Home Economics in the Middle School, and Communication Methods required about 15 visits when the students were teaching in the field. These activities accounted for much of the travel expenses.

E. Counselling

There are 60 home economics education majors, most of whose programs are guided by the teacher educators. This requires three or four conferences during the year for program planning, personal problems.

F. Other Activities

Teacher educators have engaged in other activities that help to promote vocational education, give assistance to other groups and to become better informed of areas in which vocational education can assist. This past year teacher educators:

1. Have been members of the State FHA Advisory Board and have attended both state and district meetings. One teacher educator accompanied girls to the Eastern States Exposition to man an FHA exhibit.

2. Have assisted in planning the program for the Annual State Vocational Education Conference.

3. Have been members of the Vermont Home Economics Teachers' Association and attended executive board sessions.

4. Have been members of the Home Economics Department committees:
   - Advisor to Student Home Economics Association
   - Curriculum Committee
   - Advisor to Pi Phi
   - Advisory Committee
   - High School Day Committee
   - Treasurer to Omicron Nu

5. Member of the Teacher Education Coordinating Committee and assisting in Staff Development Centers.

6. Members of the Executive Board of Vermont Home Economics Association.

Salaries account for 75% of the budget. Travel of the teacher educators consume about 13% of the budget. This leaves 12% for operating expenses to include all communications of telephone and postage; supplies and equipment; teaching materials for curriculum development. This does not give too great an opportunity to expand.

1.63-4 Business and Office Occupations Education Department, Castleton State College

On June 30, 1970 a memorandum of agreement was executed between the Vermont State Board of Education and Castleton State College for the cooperative support and direction of a professional teacher-educator in business and office occupations for the 1970-71 (FY 1971) academic year. Mr. Charles J. Piazza was appointed an Assistant Professor of Business Teacher-Education and served in the position of "business teacher-educator" for FY 1971.

A. In-Service Activities

1. During FY 1971 a number of in-service activities were made possible by the support of the Vocational-Technical Division of the Vermont State Department of Education and Castleton State College.

2. Professor Piazza has completed and forwarded to Mr. Cola Watson, Director, Vocational-Technical Division, Vermont State Department of Education, a rough draft of approximately 200 pages of a proposed curriculum guide in the area of business and office occupations for business educators in the State of Vermont. It is anticipated that further support for FY 1972 will allow this document to be put in final form for publication and distribution to the business education teachers of Vermont.

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3. Professor Piazza served as a recorder during the 1970 annual meeting of The New England Business Educators Association at Nashua, New Hampshire.

4. On March 22, 1971 Dr. John Bremer visited Castleton State College. Dr. Bremer is an internationally known educator who wrote The Parkway Program: an experimental school without walls. This lecture and seminar presentation was attended by business teachers from the State of Vermont as well as business teacher-education students from Castleton State College.

5. On April 23, 1971, a group of business teachers and business teacher-education students took a field trip to the University of Massachusetts, Amherst, Massachusetts and Hampshire College, Hadley, Massachusetts. Hampshire College has received international recognition as a leader in alternative approaches to collegiate education.

6. On April 30, 1971, a workshop was organized on Typewriting, The Diatype Pacer and Analyzer, and Alphabetic Shorthand which was attended by business teachers as well as business teacher-education students.

7. On November 18, 1970 Professor Piazza spoke on business and office occupations teacher training at the "Office Opportunities in Vermont" conference held in Hardwick, Vt.

8. During the fall and spring semesters, a number of courses were taught during the evening hours that were intended to provide Educational Opportunities for adults in education and other fields. The following courses were offered on an in-service basis. Business 110: Introduction to Accounting I, Business 111: Introduction to Accounting II and Business 229: Principles of Business Education.

9. Professor Piazza served as a liaison between the Vocational-Technical Division of the Vermont State Department of Education and Castleton State College.

1.63-4

B. Pre-Service Activities

1. During FY 1971 Professor Piazza taught the following courses as part of the business teacher-education program at Castleton State College. Business 229: Principles of Business Education, Business 250: Teaching BusinessEducation in The Secondary School, and Education 248: Directed Student Teaching (Secondary). Because there were forty-two seniors in the business teacher-education program during FY 1971 it was necessary to teach multiple sections of each course.

2. Professor Piazza served as a member of various Castleton State College committees and coordinated various professional education activities with The Education Department at Castleton State College.

TABLE 1

Course Offerings

Business Teacher Educator
Castleton State College

1970 - 1971

In-Service	Enrollment	Total Credit Hours
Business 110	30	90
Business 111	21	63
Business 229	9	27
Pre-Service		
Business 229	8	24
Business 250	38	114
Education 248	42	378
	148	696

TABLE II

1.63-4

Student Teacher Supervision

Business Teacher Educator
Castleton State College
1970 - 1971

Student Teacher	Location of Professional Experience
Allard, James	Otter Valley Union - Brandon, Vermont
Anglin, David	Brattleboro High - Brattleboro, Vermont
Beach, John	Glens Falls High - Glens Falls, New York
Bently, June	Mt. Anthony High - Bennington, Vermont
Bianchine, Terry	Ticonderoga High - Ticonderoga, New York
Bourgeois, Ernest	Esse x Junction High - Essex Jct., Vermont
Bushey, Margaret	Mt. Abraham High - Bristol, Vermont
Candlish, Richard	Black River High - Ludlow, Vermont
Chaloux, Bruce	Fair Haven Union High - Fair Haven, Vermont
Dillon, Gary	Hudson Falls High - Hudson Falls, Vermont
Diskin, Mary	Ticonderoga High - Ticonderoga, New York
Ferrante, Catherine	Middlebury Union High - Middlebury, Vermont
Fish, Rosa Lee	Rutland High - Rutland, Vermont
Flemming, Patricia	Burr & Burton High - Manchester, Vermont
Florucci, Alan	Spaulding High - Barre, Vermont
Franzoni, Robert	Woodstock Union High - Woodstock, Vermont
Gilbert, Michael	Spaulding High - Barre, Vermont
Jones, Albert	Green Mt. Union - Chester, Vermont
Keilty, Michele	Cabot High - Cabot, Vermont
Lawrence, Preston	Essex Junction High - Essex, Vermont
Lewis, Fred	Hartford High - White River Jct., Vermont
Lloyd, Richard	Arlington High - Arlington, Vermont
Locke, Stephen	Lamoille Union High - Hyde Park, Vermont
Loomis, Robert	Springfield High - Springfield, Vermont
Mageean, Gary	Enosburg High - Enosburg, Vermont
Melander, John	Middlebury Union High - Middlebury, Vermont
McCarthy, Margaret	Glens Falls High - Glens Falls, New York
Miner, Brenda	Champlain Valley Union - Hinesburg, Vermont
Morgan, Bernard	Burr & Burton High - Manchester, Vermont
Philips, Dale	Proctor High - Proctor, Vermont
Pinard, Bernard	Windsor High - Windsor, Vermont
Prevost, Gerald	Middlebury Union High - Middlebury, Vermont
Rosa, Cyrus	Blue Mt. Regional High - Wells River, Vermont
Ross, Tim	Proctor High - Proctor, Vermont
Satterlee, Bruce	Hartford High - White River Jct., Vermont
Sinos, Harry	West Rutland High - West Rutland, Vermont
Stokowski, Anthony	Argyle Central High - Argyle, New York
Storobridge, Donna	Mt. Anthony High - Bennington, Vermont
Tanner, John	Salem High - Salem, New York
Thomas, Raymond	Montpelier High - Montpelier, Vermont
Young, Bruce	Poultney High - Poultney, Vermont
Young, John	Whitehall High - Whitehall, New York

A. It should be noted that the instructions call for reporting these funds in a different line than that used in the State Plan budget (Part III). In that budget the funds are shown under ancillary services. In OE Form 3131 these funds are reported in line 5 (post secondary).

The $52,370 that the Division granted for partial costs of teacher education (for Part B programs) went to the University of Vermont for the VOTEX staff (College of Agriculture) and the teacher educator for Home Ec - Wage Earning (College of Home Economics) and to Castleton State College for the office occupations teacher educator's activities (also column g, line 4 of OE Form 3132).

1.64 Curriculum Development

The section relates to Section 2.45 of the State Plan.

The Office Occupations and Distributive Education consultant acted as coordinator for this activity.

1.64-1 Secondary

A. Agriculture

The ornamental horticulture guidelines have been completed and are in use.

B. Consumer and Homemaking Education and Home Economics

If additional work was needed on the guidelines before, the same holds true as nothing has been done during the FY.

C. Health Occupations

1. Promoted the preparation of written guidelines.
2. Mailing service for all interested persons (covers various workshops and seminars).
3. Personal contact to encourage public acceptance of staff and advisory committee curriculum recommendations.
4. "Health Occupations Overview" was prepared and made part of the CORE CURRICULUM GUIDE.
5. Guidelines for program evaluation have been prepared and made part of the CORE CURRICULUM GUIDE.

Summary: The Barre advisory committee has not completed its review and evaluation of the program, and the Barre program has not completed the promised second-year curriculum.

D. Office Education and Distributive Education

1. Guidelines have been prepared for office machine repair and the general office education program.
2. The distributive education curriculum still remains general, although there are pupils that go into specialized areas of distribution (nothing was added to the DE curriculum).
3. Tri-State Curriculum Project: The information gained during this meeting will be used to upgrade in-service office education and distributive education teachers by helping them understand and prepare behavioral objectives as part of an individualized instructional package.
4. The OE service coordinates the flow of printed curriculum information from the source to the possible user.

5. Meetings for office education teachers were held in eight locations; part of each meeting was devoted to curriculum as it is and as it could be.

6. Ten meetings for distributive education coordinators were held; one meeting dealt with curriculum.

E. Trade and Industrial Education

1. Lamoille Union High School and Bennington have completed approximately one-third of the quantity food guidelines; Springfield, Bennington, and Barre will continue working on the guidelines for drafting.

2. Partial report from UVM VOTEX, covering employment needs and opportunities in machine tool industry, will be continued into 1972.

3. The cluster concept was adopted by White River Jct. (power technology and machine tools), and Barre, Lamoille, and Essex Jct. (all in the construction trades).

4. Planning efforts to include the disadvantaged in the cluster concept did not materialize.

5. Guidelines for the handicapped were completed and included in a special education summer workshop.

6. A much-needed effort is under way via the "Tri-State Curriculum Project" (Maine, New Hampshire, Vermont) to unitize certain curriculum (T&I courses offered at each State's pilot school) that when completed will serve as models to other schools. This is vital to trade areas if change is to be effective. The current national emphasis on Career Education will be easier to adapt to if efforts can finalize this approach in a minimum of time. It is planned that eleven trade occupational fields will be supported by unitized curriculum at project conclusion. Providing education and training in a rural climate practically necessitates the individual approach. Vermont's opportunities in trades are more closely associated with the service occupations.

1.64-2 Post-Secondary

A. Revisions of the curriculum in the practical nursing schools have been instituted to allow those entering students who have developed basic skills during enrollment in secondary health occupations programs to move along faster in the LPN program.

B. Curriculum changes made or planned during the past year:

1. Fanny Allen

a. Since two area high schools will graduate their first groups prepared in Health Occupations in June, 1971 and several other high schools in the

1.64-2

the State will adopt this program in the coming year, it is necessary to adapt our curriculum for these young people. We cannot at this time segregate this group from those who have no previous preparation. To date, the schools offering the courses have placed the emphasis on preparing aides. We are working on a written pre-test with emphasis on the principles involved in procedures. Those who pass the written exam will then be given a laboratory situation exam. For those individuals, we hope to have a wide selection of programmed materials for enrichment. We must be prepared to meet this situation by July, 1971.

b. Mrs. Shirley Stockwell was appointed Assistant Director, November 1, 1970. Mrs. Stockwell has begun a project needed for many years. There is a need to standardize our curriculum in all four of the cooperating hospitals. We plan to do this in such a manner that we will be able to move students from one location to the other without interferring with class content.

c. We are planning team teaching. Each instructor is selecting the areas in which she is most proficient. This will also give each individual instructor more preparation time.

d. Behavioral objectives are being written as outlines are revised.

2. Thompson School

a. Pre-Clinical Area

1) More Guest Lecturers in the following areas
   a) Alcoholism
   b) Drugs
   c) Mental Hygiene
   d) First Aid - local Red Cross Chapter
      - demonstration and practice with Rescue Annie

2) Utilizing Inservice Education Facility at Brattleboro Memorial Hospital.

3) Utilization of new Brattleboro Memorial Hospital Medical Library.

4) Utilization of School for International Living Trainees
   R.N.'s
   MD's
   Physical Therapist
   Prosthatist
   Physicist

5) Constant use of Overhead Projector Transparencies prepared by Instructors.

6) Increased Role Playing followed by class discussion.

b. Clinical Area

1) Three day experience in Inhalation Therapy Department
2) Five day experience in Physical Therapy Department
3) One week experience in a geriatric extended care facility
4) More intensive integration of Diet and Drug Therapy in all phases of clinical experience
5) Special emphasis placed upon all aspects of Total Patient Care particularly in the areas of communication skills, rehabilitation and emotional support.
6) Pregraduation seminars held on job opportunities covering a wide area of nursing positions available to the LPN

1.64-3 Tri-State Vocational Curriculum Project

The Tri-State Vocational Curriculum Project is an outgrowth of ideas on individualized instruction discussed at a meeting of occupational educators from Maine, New Hampshire, and Vermont held in North Conway, New Hampshire on November 17-18, 1970. The project was written by the six member Board of Directors with input from teachers and consultants in the three states. The funding for the two year project is being provided by NERCOE (New England Resource Center for Occupational Education).

A. Objectives of the Project

1. The major purpose of the Tri-State Vocational curriculum project is to develop a unitized curriculum of individualized learning units to be implemented in four selected vocational centers in the tri-state area: Lamoille Union High School, Hyde Park, Vermont; Milford Area High School, Milford, New Hampshire; Waterville Regional Vocational Technical Center, Waterville, Maine; and Sanford Regional Vocational Technical Center, Sanford, Maine. These centers provide students with a broader range of occupational objectives.

2. Participants in this project will:

a. Develop or adapt individualized instructional units for the vocational areas offered in their schools.

1. Units will be developed on the basis of task analysis of occupational objectives.
2. Units will be based on performance criteria (Behavioral Objectives and Evaluation).

b. Arrange individual instructional units into sequences based on task analysis of occupation and sequential development of knowledge and skills.

1.64-3

c. Develop operational procedures for administrators guidance personnel, and teachers to facilitate the use of individualized instructional units.

d. Implement the developed unitized curriculum on an experimental basis in their respective schools.

B. Definition

1. Unitized instruction, for the purpose of the Tri-State Curriculum Project, is defined as units of individualized instruction based on behavioral objectives and leading toward the pursuit of a particular occupation or occupational clusters.

2. Individualized instruction is a method of organization and presentation of curriculum material in such a manner that students may engage in a unit of study with the mastery of that unit as a reasonable certainty.

To insure mastery as a reasonable goal, certain essentials must be included in each unit of instruction.

a. The objectives of each unit must be clearly defined in terms of some type of performance which can be duplicated by the student upon completion of the unit.

b. The sequence of the units must be carefully developed so that the learner possesses all the information and skills prerequisite to attempting the unit. (i.e. It would be impossible to complete a unit requiring the use of an oscilloscope without first learning how to use the oscilloscope.)

c. The unit of study must provide resources which will be appropriate to the needs of the learner. This will require a variety of library references, audio and visual materials, programmed learning materials, textbooks, manuals, and any other materials available to provide varied approaches to the desired outcomes. A student need use only these materials which enable him to reach the objective of the unit, but each student having different needs and capabilities must be served by the materials appropriate to him.

d. The unit of instruction must provide for constant internal evaluation and feedback to the student to insure his progress on the proper track and to provide for positive reinforcement. The student must decide when he is ready to be evaluated as to his attainment of the objectives and certified as having mastered them.

e. It is reasonably certain that nearly all students can successfully master curriculum material with appropriate instruction and sufficient time. The time factor will be extremely variable as it depends on a number of factors unique to each learner.

3. The development of curriculum based on occupational goals will require the identification of each occupation and an analysis of the tasks essential to entry level competence. Instructional units will be developed to provide for mastery of the knowledge and skills required to perform each of the identified tasks related to a specific occupation.

   The organization of units into sequences of instruction will be dictated by an analysis of the tasks required of a specific occupational objective. It will require that the tasks required to meet this objective be arranged in sequences to allow the student to progress from basic to more complex units in an orderly development of knowledge and skills.

4. Increased flexibility in the curriculum will be provided by the capability of units of instruction to be combined into sequences leading to occupational objectives not presently available in the conventional curriculum. Occupational objectives available to students may be increased by arrangement of related occupations in a series. Attainment of a specific level of proficiency will serve as a basis for continued training for a higher level of competence, as well as a terminal for entry into an occupation. A second method of increasing the available occupational offering will be by allowing students to enter occupational training for those occupations which have drawn from two or more of the areas offered at present. (i.e. Custodial Building Maintenance requires, among other things, basic knowledge of plumbing and heating, carpentry, and electricity from the area of trades and industry; floor covering and care, and clearning materials, now the concern of home economics; record keeping and inventory control, subjects covered by business and office occupations; and lawn and shrub care in the province of agriculture). Units developed in each of the various areas can be assembled on the basis of task analysis to meet the requirements for training for many occupations without the development of additional units of instruction.

   (See Appendix for initial teacher workshop agenda and its evaluation)

1.64-4 Funding

The $12,574 shown in Section III of OE Form 3132 (column i) were allocated to that staff time (10%) spent on curriculum development.

1.7 State Programs for the Disadvantaged (102 b) 1.7
1.71
See Sections 3.0, Part III, of the State Plan. 1.72

The Assistant State Consultant for Trade and Industry Education acted as the coordinator for this program.

1.71 Evaluation

Programs for the disadvantaged under Section 102 (b) of the Act got underway in September, 1970, utilizing FY 1970 funds. This was due to the late funding of the 1968 Amendments by Congress. Federal monies were not received until the end of the school year 1970, thus making it impossible to utilize these monies during the 1969-70 school year.

However, beginning in September, 1970, 102 (b) programs began to get underway using FY 1970 funds at St. Albans, Montpelier, Newport and Vergennes. There appears, from the Local Reports of Program Activities, that some success was realized in all four programs.

1.72 Projects

The projects funded with FY 1970 funds were as follows:

1. North Country Union High School, Newport
Title: "Reading Project Related to Auto Mechanics"

This project reached 30 auto mechanic students who were tested and found to be below grade level in their reading skills. Preliminary reports indicate definite improvement in reading skills. Further testing is to be done to ascertain success. The classes were held during two modules, two days a week in a reading laboratory. The auto mechanic instructor assisted the reading specialist in preparing material directly related to the automotive field. As the program progressed, more and more students took advantage of the reading laboratory facilities for self-study. Partial success of the program has been the pupils acceptance of its goals. The program is to be continued in the next school year with local funds. Award: $6,923.00

2. Bellows Free Academy, St. Albans, Vermont
Title: "Involving the Disadvantaged in the World of Work"

This project, operated in conjunction with the Neighborhood Youth Corps, reached 26 people and is based on a two-year sequence. These enrollees have been dropouts through lack of motivation. The original program was set up for the building trades areas and, consequently, the enrollees were all male. A planned expansion of the program this school year will include homemaking and other skills as well, utilizing the services of the National Council on Aging.

1.72 The first year of the program shows a 50% success factor based on successful employment. With the addition of the services offered by the NCOA, a success factor of 71% is predicted for the remaining 14 enrollees for an overall factor of 62%. Award: $9,045.00 1.72

3. Montpelier High School, Montpelier
Title: "Montpelier Education Facility"

The idea behind this program is to provide educational-vocational services to high school dropouts and potential dropouts. The personal objectives varied with each individual's background and perception. The services of forty teachers were utilized throughout the year in a wide variety of courses including academic as well as vocational. A total of 26 students - 10 males and 16 females - availed themselves of the Facilities programs. Some of the enrollees work for credit toward high school graduation - others prepare for the GED test. The success factor in this informal situation has been 92%. Twenty-five students have already enrolled for next year.
Award: $9,005.40

4. Weeks School, Vergennes
Title: "Vocational Agriculture Education Program"

This program was set up for juvenile delinquents at the Weeks School. The purposes of the program were two-fold: (1) to initiate self development; (2) to develop leadership. The stress was on involvement in assigned projects in order to accomplish the purposes.

Since the program has only been in operation for seven months, it is impossible at this time to give a complete evaluation, but indications are that some success has been met with, and that an evaluation after one full year of operation should prove this out. Mr. Jesse Taft, Program Officer, Region I, and myself have visited the program and Mr. Taft's report is on file. Twenty-five individuals have participated in the program so far.
Award: $14,717.60

In addition to the above, the following program began after January 1st, using FY 1971 funds:

5. Bellows Falls High School, Bellows Falls
Title: "The Harbor Plan" (for Drifting Students)

This program has been funded with FY 1971 funds for an 18-month period and began in January, 1971. Although it is too early to make a formal evaluation, preliminary indications seem favorable. All of the original enrollees (six boys and one girl) were still in school at year's end. The program is organized around an informal classroom structure. In addition to the shop work, many field trips and informal meetings were held.

1.72 Each student's entire makeup is reviewed, utilizing the services of various agencies such as social and medical. Pupils are selected because of their disturbing influence in the formal classroom. It was, therefore, felt that a less formal atmosphere might help to rehabilitate these individuals.
Award: $23,500.00

1.72
1.73

1.73 Funds

No funds were carried over from last year and this years total allotment of $46,704 was expended during the fiscal year.

2.0 SPECIAL PROGRAMS

2.1 Research - Part C

This section relates to Section 5.61, Part II, and Section 4.0, Part III of the State Plan.

2.11 Research Coordinating Unit

The teacher educator in Trade and Industrial Education devoted a portion of his time to the activities of research coordination.

It was the responsibility of this person to review research proposals. There were very few proposals received. The reasons for this are assumed to be:

1. Lack of interest in research by most people
2. Lack of time by those who might be interested
3. Not enough information sent to the "field".

A problem exists that has to be kept in mind. There is not a great deal of money for this activity. Therefore, pressing for proposals has to be controlled in order not to encourage more enthusiasm and therefore, more proposals than can be funded.

The coordinator acted as liaison for the one project that was funded (see Section 2.12).

Because of the problem of late appropriations usually encountered and the ability to carry one year's funds over to the next fiscal year it was decided to fund projects with the last year's fiscal funds (i.e., FY 1971 projects funded with FY 1970 monies). In this way the research coordinating unit knows how much money it has available to expend on projects in a given year.

The coordinator has participated in a number of seminars, however, this has been held to a minimum because of limited funds.

2.12 Projects

The University of Vermont, Vocational-Technical and Extension Education Department (VOTEX) completed a research project (C-70-1) titled: A Model for Collecting and Analyzing Follow-up Data on Graduates and Dropouts of Vocational Education (Appendix K). The model was field tested in two schools during the spring. This model system will be used to provide important information about trends in patterns of entry and advancement in careers throughout the adult life cycles of pupils. This information will also help in program planning and budget management decisions for local and state education agencies by providing needed information about paths through which pupils enter and advance in career fields. The model will be used in another research project, in FY 1972, to collect data on vocational education completions since 1967.

Section 5.61, Part II, and Section 4.1, Part III, of the State Plan indicate that the top priority was development of a data collection system. No one was interested in submitting a proposal for this so the project above was funded. The second priority item will be conducted in FY 1972. 2.12 2.13

2.13 Funds

Of the FY 1970 funds available for research, $10,120 was obligated for Project C-70-1 (see above) during FY 1970 but not distributed until FY 1971. The remainder was used for the operation of the Research Coordinating Unit

FY 1971 funds were obligated for projects C-71-1 (Career Development Patterns of Vocational Pupils Graduating or Leaving School 1967, 1968, 1969, 1970) ($20,000 federal, $3,858 state) and C-71-2 (The Development of Materials for Recruiting and Screening Prospective Students into Selected Pre-Service Vocational Teacher Education Programs.) ($16,417 federal, $2,479 state) for distribution in FY 1972. The rest of the money was used to operate the Research Coordinating Unit.

2.2 Exemplary Programs (Part D)

See Section 5.62, Part II, and Section 5.0, Part III of the State Plan.

The State Consultant for Home Economics-Wage Earning programs acts as the coordinator of activities dealing with exemplary programs.

2.21 Projects

Section 5.62, Part II, of the State Plan established the following priorities for the year:

1. Implementation of a public service program.
2. A program for potential drop-outs.
3. Occupational Orientation.
4. A program of vocational guidance.
5. A program in agriculture using a core curriculum.

The following projects, some carried-over and some new, were operated to meet the needs:

	Project	School	Target Group	Grade Level	Number Students
1.	World of Work	Windsor	All students	7-8	180
2.	Vocational Agriculture	BFA	All students	11-12	68
3.	Occupational Orientation	BFA	All students	9-10	196
4.	Summer Child Care Aides	Burlington	All students	11-12	9
5.	Potential Drop-Out	Lamoille	Disadvantaged	9-12	8
6.	Summer Building Trades	Lamoille	Disadvantaged	9-12	7
7.	Public Service Occupations (Study)	Division	---	---	--
8.	Vocational Youth Groups Leadership Training	Division	State and Local Officers	8-12	116
9.	Motivate Entrance into T&I Teacher Education	UVM	VTC Graduates	13-14	22
10.	Vocational Guidance (VIEW DECK)		All students	9-12	--
11.	Workshop for Exemplary Program Development	UVM	Project Directors and Staff	---	24

For the past year the greatest portion of time was spent in planning and organization. One of the greatest needs was in evaluation. Visiting teams of state department personnel, teacher educators, and teachers were formed to visit and evaluate each project. The team met with the project director and teachers for a planning session and returned at a later date to evaluate the program. Team visits will be continued.

The consultant who has the part-time responsibility for exemplary programs had fourteen discussions with local school personnel regarding potential exemplary programs. She also made sixteen visits to on-going programs. She also is on the advisory committee for the U.S. Commissioner's exemplary project in Vermont and has attended five meetings.

A. World of Work (D-70-1)

"Objective:

a. Student to know the importance of having a vocation.
b. Student will develop own tentative plan for a vocation.
c. Student will develop confidence in communicating with specialists (tradesmen, business people) thereafter.
d. Student will be able to state the qualifications for and give job descriptions of a high percentage of a great variety of occupations of the Windsor area.

Students were involved in one or more of the following activities:

1. Tradesman worked with students in school.
2. Students worked with tradesman at his job site--singly or in groups.
3. Field trips--hospital, shoe factory, bakery, etc.

Evaluation has been difficult since it is not easy to measure attitude and behavioral changes by testing. Most valid evaluations came from teachers. The coordinator felt that the objectives of the project were reached."

B. Vocational Agriculture (D-70-2)

"Objective One:

To offer Vo-Ag education to any secondary student at the junior or senior year who is interested in employment in vast family of agricultural occupations. This would mean an increase in enrollment over past years.

This objective has been met:
1969-70 48 students
1970-71 68 students
1971-72 (projected) 75 students"

"Objective Two:

To keep the per pupil cost at approximately the same as in the past. To increase service without increased per unit cost.

This objective should be met by the end of exemplary funding:

FY 70-- $12,156 ÷ 48 enrollees = $253/pupil
FY 71-- $22,442 ÷ 68 enrollees = $331/pupil
FY 72-- $31,795 ÷ 75 enrollees = $424/pupil
FY 73-- $28,000 ÷ 85 enrollees = $295/pupil

Estimating an inflation of 5% per year in the economy brings us within our goal."

C. Occupational Orientation (D-70-3)

"The weakest part of the project seems to be the administration and implementation. The classes themselves, the student, the parent and community reaction all seem very favorable. The existing problem is too many subjects for students (especially freshmen) to take. ...make room for this course. ...new instructors in the program each year. This has decreased the continuity....

Support has been gained from guidance personnel that was questionable a year ago.

One crying need is for teachers trained and/or able to teach this type of subject.

The Attitude Scale indicates average change. The two instructors did not get the same degree of results.

Pre-enrollment is down at Missisquoi and BFA, St. Albans. It is up slightly at BFA, Fairfax. This seems to be the result of the instructors not going into the 8th grades to explain the program and the principal at Fairfax supporting the program strongly."

This program was featured on a fifteen minute television show (1:05 p.m. weekdays).

D. Summer Child Care Aides (D-70-5):

Overall objective·

Determine optimum conditons for the operation of a day care center as part of a child care training program.

1. Two students from MR program proved most reliable in attendance (and on time) and calling when ill. They made great improvement in interacting with children.

2. Students improved skills in planning and conducting activities. Improved in working together.

3. Students gained from observing and working with an experienced preschool teacher.

4. Generally the results for preschoolers and high school students indicate a worthwhile program.

5. Changes needed in obtaining preschoolers, paying high school students and their selection and staffing.

6. Recommended changes

   a. Another adult with background in child care to help in the afternoon.
   b. Great deal of student counseling needed. Allow for that time.
   c. High school student selection: more emphasis on their interest in children and obtaining a similar job.
   d. At least five high school students should be paid as assistants so their help can be counted on.

7. Trouble getting preschoolers.

8. Great deal of flexibility needed.

9. Some 2-year olds were fine in the program, others were not ready.

10. Weekly staff meetings necessary.

11. More parent involvement necessary.

E. Potential Drop-out (D-70-6):

Objective:

To assist freshmen and sophomore students, who are identified as potential drop-outs, to improve their language and arithmetical skills by correlating their academic studies with vocational education. Because of student emotional and social adjustment problems a single classroom- single teacher concept was used. This would provide student chance to gain rapport with peers and teacher.

The objective was not met:

1. Self-contained classroom setting accentuated emotional problems. Students resented being isolated from the rest of the student body and friction with the teacher was greater than before.

2. The half day in the vocational lab was not successful. Immaturity, poor work habits and inability to relate to the older students caused an excess of discipline problems.

The program will be altered for next year.

F. Summer Building Trades (D-70-7):

Objective:

To afford freshmen and sophomore students who were potential drop-outs with the opportunity to work on a realistic project (building of a house) for pay (thirty hours per week). Work conditions were to resemble industry as much as possible.

Some students had indicated an interest in building trades and others were only interested in earning money. All seven boys are still enrolled in school and all are enrolled in vocational education. On that basis the program is considered to have been successful.

G. Public Service Occupations (Study) (D-70-8):

The final report of the consultant has not been filed at this time.

H. Vocational Youth Group Leadership Training (D-70-9):

Objective one:

Provide a short, intensive program of instruction in leadership and citizenship development for officers.

The three day conference provided an intensive instructional program in leadership and citizenship development.

Objective two:

Provide an opportunity for youth and their adult leaders to better understand the aims and purposes for the four organizations.

This was accomplished by having representatives of vocational youth organizations working together in planning and carrying out the conference.

Objective three:

Time to be provided for each organization to hold separate planning sessions.

Separate meetings of the four organizations were held. The State officers utilized the time to inform local officers on such matters as program planning, paying State and National dues, reporting news, State and National Convention plans, etc.

Note: See students rating sheet in Appendix.

I. Vocational Guidance - VIEW Deck (D-70-10):

Objective:

To develop a VIEW (Vocational Information for Education and Work) Deck and the in-service training which will allow proper use of the Deck. Procedure assured for upgrading and continuation of new information.

A Deck of 200 statewide occupations prepared. 50 copies of Deck prepared for dissemination. Purchased 9 reader-printers for the Area Vocational Centers that have none. These are to be loaned to sending schools upon request.

J. Motivate Entrance into T&I Teacher Education (D-70-12):

Objective:

To provide information to individual Vermont Technical College students to permit them to make choices about whether to become a teacher of vocational-technical education in terms of their interests and capabilities.

About 22 individuals involved. Two students indicated an interest in entering the VOTEX Education, Industrial Education program after at least two years in industry. Four students transferred to the VOTEX Education, Agricultural Education program in September, 1971. Another student was admitted but did not matriculate.

K. Workshop for Exemplary Program Development (D-70-13):

Objective:

To orient selected administrators and teachers to the guidelines for writing exemplary proposals and to provide minimal assistance in writing a proposal.

The conferees left the workshop feeling that they could write an acceptable proposal. However, the proposals that were received later were weak in plans for continuous evaluation of the programs once they were initiated.

Therefore, a two-day evaluation workshop was conducted in March by consultants from UVM. Projects to be operated in FY 1972 were recommended for funding pending attendance by project directors and teachers, and their completion of a satisfactory evaluation plan at the workshop. State staff and the consultants provided assistance. The same three consultants will be making educational audit visits to each project during the year. (Matthew Cardoza, regional program officer attended.)

2.23 Advisory Committee:

An advisory committee was formed during the year. Representation on the committee was as follows:

Department of Education	High School Principal
Industry	Guidance Director
Local Superintendent	Area Vocational Center Director
Vocational Rehabilitation	Teacher Education

The main purpose of the committee was to review proposals and recommend approval or disapproval. In addition to this activity, the committee set objectives for itself:

1. Publicize to exemplary project priority areas so as to obtain inquiries that will result in funding a minimum of one project in each priority area.

2. Provide consultative services to assist personnel in developing adequate proposals after the prospectus is approved.

3. Identify and assemble an annotated bibliography of related research for each of the priority areas.

4. Disseminate the annotated bibliographies to exemplary project proposal writers, as well as to other interested personnel.

The committee held six meetings during the year.

2.24 Priorities

Priorities have been revised for FY 1972. They are:

1. Projects or programs designed to familiarize elementary school students with characteristics of a wide range of occupational families and the interdependent relationships between workers.

2. Projects or programs designed to provide occupational exploratory experiences for students of sending schools, as well as home-schools, to be familiar with the vocational offerings available at their Area Vocational Center.

3. Projects or programs designed to assist young persons ending their education at or before completion of high school with intensive guidance, counseling, and placement in an initial job or educational program.

4. Projects or programs designed to follow-up on young persons ending their education at or before completion of high school so as to establish a link between a person's education and his job.

2.25 Funding

A. FY 1970 funds were obligated in that fiscal year for distribution during FY 1971.

B. Likewise, FY 1971 funds will be used during the period April 15, 1971 through June 30, 1972 (obligated prior to July 1, 1971).

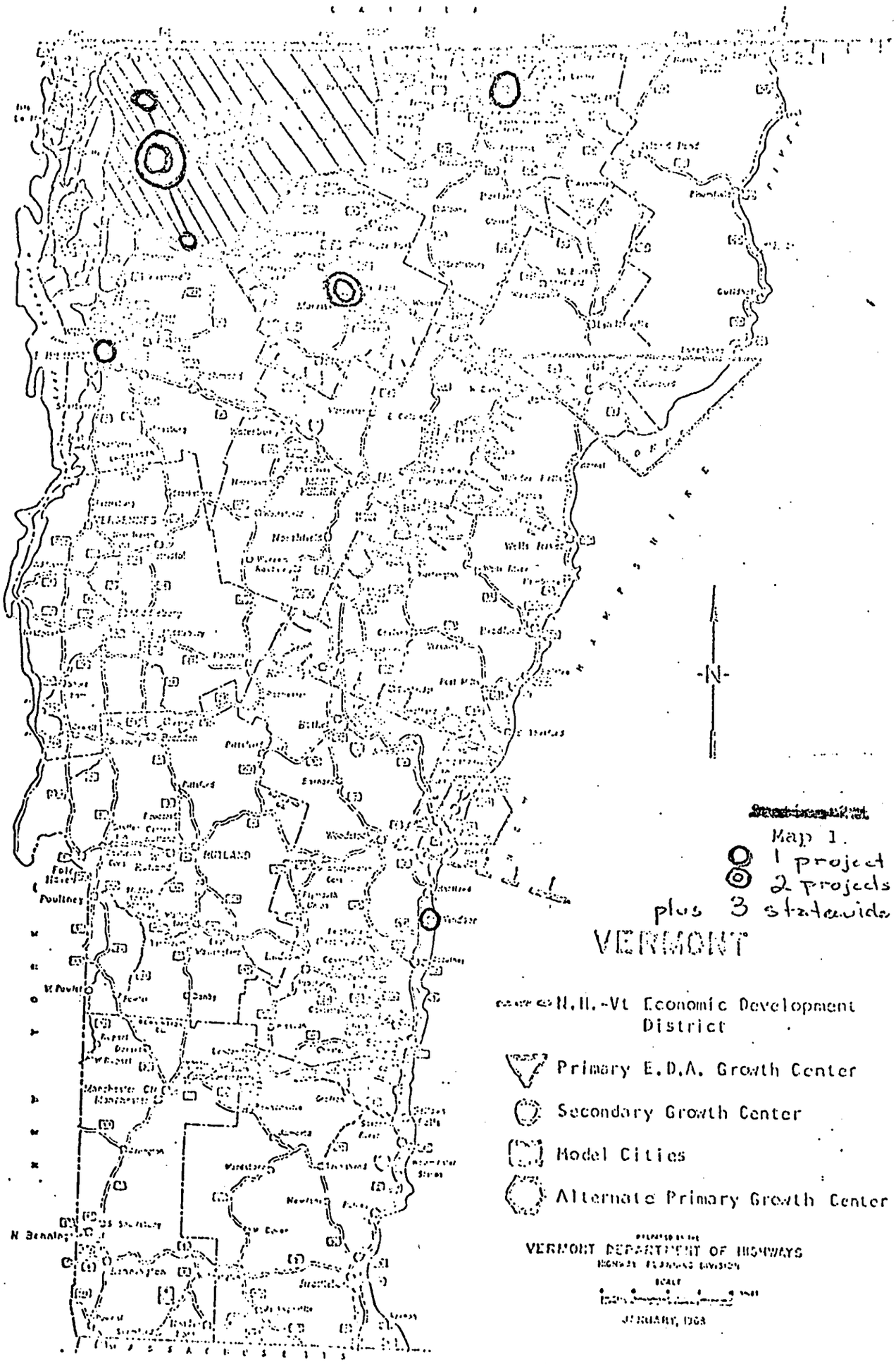
C. Form OE 3131

1. Of the $106,564, $704 was expended on the salary of the State Coordinator and $115.00 for Advisory Committee travel.

2. Included in lines 20 & 21:

a. The numbers of projects include planning grants for proposal preparation. The projects may not have operated or may have been carried over to another fiscal year.

b. The funds shown include the monies granted for planning purposes.


-N-
Map 1.
1 project
2 projects
plus 3 statewide
VERMONT
N.H.-Vt Economic Development District
Primary E.D.A. Growth Center
Secondary Growth Center
Model Cities
Alternate Primary Growth Center
VERMONT DEPARTMENT OF HIGHWAYS
JANUARY, 1968

2.3 Residential Schools (Part E)

This relates to Part E of the 1968 Amendments and Section 5.63, Part II, and Section 6.0, Part III, of the State Plan.

There were no activities related to residential schools during FY 1971.

2.4 Consumer and Homemaking Education (Part F)

See Sections 5.64, Part II, and 7.0, Part III of the State Plan

2.41 Enrollments

A. OE Form 3138

1. This form shows 4,484 student enrollments in grades 9-12. This is in contrast to the 4,700 projected in Table 3, Part II, of the State Plan and the 3,385 enrollment of last year. An analysis will show:

   a. The 4,484 enrollment is for 52 programs (see Section 2.42).
   b. The 3,385 enrollment is for 40 programs.
   c. If we assume that the schools that did not report were small schools and had an average of 30 students (grades 9-12) that would add:

      1) 720 students to item 2, and, therefore, make a total of 4,105.

      2) 300 students to item 1 and, therefore, make a total of 4,784.

   d. Even if we took into account that there may have been duplicate counting, we can show that:

      1) There was an increase in enrollments.

      2) The projected enrollment for the year was "in the ball park".

2. Columns (d) and (e), OE Code 09.0100, show 869 disadvantaged and 39 handicapped students respectively. These students were integrated into regular programs.

3. The adult enrollments seem to be way off the projection- 95 versus the 512 projected. The only explanation available is:

   a. The economic situation decreased the number of courses that operated.
   b. We know of courses that operated but didn't request reimbursement for a portion of the costs. Because of that they did not have to report enrollments.

2.42 Program

A. Sixty-two secondary schools offered Consumer and Homemaking programs.

B. Fifty-two of the programs received federal/state funds.

C. Twenty-two of the funded programs were in the economically depressed area. 2.42 2.43

D. Twenty-seven junior high and middle schools offered Consumer and Homemaking programs (not funded).

E. Each school that requested funds submitted a proposal which included:
- . behavioral objectives for all units
- . ways to improve learning
- . methods of evaluation

F. Nineteen regular adult programs with twelve different teachers were funded. This was down considerably from the thirty-two that were projected. Six of these were in the Economic Development Area (instead of projected 8). See Section 2.41(B) for an explanation.

G. In addition, four programs for disadvantaged adults were conducted. Although attendance was rather unstable, it was felt that the ones who followed through received help in improving their standard of living. (See Section 1.13-3)

H. All programs, secondary, adult, and disadvantaged, emphasized consumer education. During the year, secondary teachers were encouraged to include in their plans for the coming year, semester or mini-courses in consumer education rather than including it only as a part of all units. Several teachers have already offered consumer education courses and found their efforts to be rewarding.

I. School administrators were encouraged to enroll boys, as well as girls, in homemaking classes. We can't compare enrollments with last year because that information wasn't collected (last year).

J. A check of the Local Annual Reports of Program Activities shows that some teachers need additional help in evaluating their programs based on the behavioral objectives they have written for the various units.

2.43 Ancillary

A. A State Consumer and Homemaking Advisory Council was organized with nine members. The Council felt that consumer education should be its main concern for the year. Four meetings will be held each year, or more if needed.

B. Some Consumer and Homemaking teachers organized and worked with a local advisory council to improve public relations, to make more people aware of the students' needs and to receive assistance in adjusting their course offerings.

C. Guidelines for Consumer and Homemaking teachers were not revised as such. Teachers were directed to resource materials. 2.43 2.44

D. Attendance at the workshop sessions of the VVA conference at Castleton and at teacher's convention meetings was very small which points up the fact that these meetings should be closely evaluated and steps should be taken to improve attendance.

2.44 Funding

A. OE Form 3131:

1. It will be noted that more money was expended this year ($755,169) than had been anticipated in the State Plan ($472,588).

   a. This expenditure is for 52 programs instead of the 40 of last year, therefore, the explanation for what appears to be an increase.

   b. The state/local expenditures represents $14 for every $1 of federal money.

2. There are no funds shown in lines 24 and 25 for secondary programs because the students (OE Form 3138 and Section 2.41 (A,2) were integrated into regular classes.

3. The monies in line 23 represent expenditures in the Economic Development Area and the Model City (Winooski).

4. The $1,530 in line 24 for adult vocational education represents the pilot courses mentioned in Section 1.13-3.

5. Included in line 22 is $12,079 to cover the Administration and Supervision of the Consumer and Homemaking education programs.

6. Also included in line 22 is $10,127 which was used at the University of Vermont to help offset the cost of teacher preparation in this area (see Section 1.63-3).

2.5 Cooperative Vocational Education (Part G)

See Sections 5.65, Part II, and 8.0, Part III, of the State Plan.

The State Consultant for Trade and Industrial Education is responsible for coordination and leadership for this program.

2.51 Status of Schools and Programs:

A. Sixteen schools operated approved programs instead of the eighteen projected. Because of previous commitments to on-going programs there was not enough money to fund the other two programs.

1. Five schools originally receiving approval for programs in FY 1970 but that were not implemented because of the late receipt of federal funds became operational

2. Six additional schools received approval to operate programs through the established proposal system and became operational.

3. Directory of schools operating co-op programs included.

B. Twenty Cooperative Vocational Education programs were operational.

1. This is 2 more than the 18 projected.

2. Three schools offered special programs for specifically identified disadvantaged students (Barre, Mt. Anthony, St. Albans).

3. Union High School District #30, serving a large geographical area expanded its effort into two programs serving three schools but retaining a single administrative unit.

C. Two hundred thirty five different employers participated in the co-op program. This is 5 less than projected. The larger companies did not participate as well as anticipated. The economic situation had a great deal to do with it.

D. Two schools (Barre and Lamoille UHS) placed a total of 11 Level IV MR Handicapped students in co-op situations.

E. Seventy one different Career Objectives were pursued by students in a variety of occupational fields.

F. Local Advisory Committees were actively involved with Cooperative Vocational Education program planning, development and evaluation. The impact of the result of evaluation will not be evident until the second year of a program. The greatest concern of committees dealt with the minimum wage requirement. Although they supported the requirement, it was generally felt that the general economic situation would tend to curtail growth of programs.

2.52 Enrollments and Completions

A. Enrollments FY 1971

1. Three hundred fifty one students were receiving valid co-op experiences resulting from planned programs instead of the estimated 433 (Table 3, Section 6.0, State Plan). The economic situation was a big factor in not meeting the goal. This compares to 259 in FY 1970. It represents 6.8% of the vocational education enrollments. The State Plan projects 4.3%. However, that figure was obtained by including homemaking enrollments. If they are deducted, the projected percent would have been 8.2%. We came as close to the objective as we did (statistically) only because the projected enrollment was not reached. (See Section 1.11)

2. Two hundred fifty four co-op students completed their planned training program.

2.53 Program Highlights (as submitted by Coordinators in Annual Report)

A. Students who completed their training and graduated from high school

1. Two schools reported that 17 students were retained as full-time employees. (All cooperating employers understand by agreement that they are not obligated to employ co-op students after program completion)

2. Three (3) schools reported that 19 students who completed co-op programs and graduated would continue their education.

Examples:

a. Nurse aide to enter nursing school
b. Two cooks to enter culinary school
c. Draftsman to enter tech school
d. Five nurse aides to enter practical nursing (all have been accepted)
e. Two clerical co-ops enrolled in business college
f. One radio/TV repairman enrolled in tech school

3. Four schools reported a total of 9 students entered apprenticeship programs (plumber, electrician, auto body, construction trades, drafting in stone trades industry)

2.54 Program Development

A. Co-op Coordinators Workshop

1. A three-day workshop was held at Ten Acres Lodge in Stowe, Vermont on January 12 - 14, 1971
2. Twenty (20) co-op personnel participated. (There was 100% participation from LEA personnel.)
3. The objectives of the workshop were:

   a. To develop a related instruction guide (appendix)
   b. To develop a student training plan guide (appendix)
   c. To develop locally directed program evaluation criteria
   d. To review, identify and develop for continuity, forms necessary to the administration of cooperative vocational education programs at the local level

4. Procedures used to accomplish objectives:

   a. Participants worked in four small groups by individual preference by objective
   b. Small groups were in session daily, morning and afternoon
   c. Evening sessions provided time for summary of day activities and work accomplished resulting in input and reaction from the other groups
   d. All finalized material was typed and reproduced
   e. Each participant received a package of completed material on the final afternoon

5. Evaluation and Use of Material

   a. All material developed is being used by coordinators in their program operation
   b. The material as used will be evaluated for usability and validity
   c. A follow-up workshop was held in August, 1971, to finalize findings and put all material to be retained into final form for inclusion in the Vermont Guide which will be expanded and reprinted during October, 1971.

2.55 State and Local Communications

A. Coordinators and State staff person responsible for CVE meet monthly throughout the school year

1. Planned agenda dealing with pertinent issues and problems encountered at the local level
2. Development and printing of certificates of appreciation, certificates of completion, and decals to be used for PR purposes
3. Discussion and planning for development of appreciation awards banquets for employers and students

2.56 Funds

A. No funds were carried over from FY 1970.

B. No funds were used for salary of state staff.

C. None of these funds were used for unusual student costs.

D. None of these funds were used to pay employers for their additional costs for providing on-the-job training.

E. The $6,876 that was carried over to FY 1972 contained some funds returned from one school district before the end of the year. Also, there was not enough money to start a 100% funded program.

CO-OP DIRECTORY FY 71

LOCATION	SCHOOL	LOCAL DIRECTOR	CO-OP COORDINATOR
Barre	Spaulding HS	Paul Nutter	Frank Lee Eugene Baker Brian Lack
Bellows Falls	Bellows Falls HS		George Clark
Bennington	Mt. Anthony UHS	Robert Houle	Kenneth Tupacz
Bethel	Whitcomb HS		Jules D'Agostino
Bradford	Oxbow High School	Lloyd Horadan	John Thomas Robert Gaylord
Brattleboro	Brattleboro UHS	Edward Perkins	Charles Storms
Duxbury	Harwood UHS		Gary Kingsbury
Hyde Park	Lamoille UHS	Alfred Persico	Robert Hasseltine Theodore Bollman
Lyndon Center	Lyndon Institute		Robert W. Stone
Milton	Milton HS		Andrew Murray Mrs. Ruth Wood
Newport	North Country UHS	Garton Van Tassel	Andrew Major
Richford	Richford-Enosburg HS		David Gates
Rutland	Rutland High School	Henry Doll	
St. Albans	Bellows Free Academy	Herbert Shipman	Judy Booth
Vergennes	Weeks School		Lawrence Myott
Windsor	Windsor HS	John Lynch	Charles Labor

2.6 Workstudy (Part H)

2.6
2.61
2.62

See Sections 5.66, Part II, and 9.0, Part III of the State Plan. The Assistant Consultant, MDTA, is responsible for this activity.

2.61 Enrollments and Number of Schools

Six schools instead of the projected four were involved in the workstudy program.

With the amount of money available, 104 students were served. This represents 1.1% of the 9,601 students enrolled in vocational programs and is double the figure projected in Table 3, Part II, of the State Plan. The percentage served would have been lower (statistically) if the total projected enrollment had been met. The number that could have been served, according to the Area Vocational Centers, was double this figure (see table following). The following table identifies the schools that operated programs.

Confirmed indications reveal that in fiscal year 1972, the number of local education agencies requesting support from Work Study Program will increase to ten in number. There will be a corresponding increase in the number of slots requested.

2.62 Funding

The schools requested $24,218 to operate their programs at an adequate level. However, the $14,515 that was available was divided among the six schools. See the table on the next page for the break down.

In order to serve a larger number of students adequately there will have to be an increase in funds.

For adequate planning at the local level and for program disbursements, federal funding must be realized prior to September 1 of the fiscal year. Inability to provide notification of the grant prior to this induces a hardship upon local school agencies.

State of Vermont employment rates are reflected directly to request for assistance. During times of high unemployment, local education agencies experience increases in requests for funds under Work Study Program.

971

WORK STUDY

$11,612.00 - Federal
$ 2,903.00 - State
$14,515.00 - TOTAL

School Funded	* Total Enrollment (Vocational)	Eligible Students	Slots Requested	Amount Requested	Amount Funded	Actually Enrolled
Spaulding High School Barre, Vermont	488	35	12	3,248.00	2,230.00	12
Burlington High School Burlington, Vermont	675	100	30	4,500.00	2,250.00	6
OxBow Union High School Bradford, Vermont	470	32	23	4,050.00	2,025.00	(23)
Brattleboro Union High School Brattleboro, Vermont	405	30	14	4,320.00	2,160.00	(18)
North Country Union High School Newport, Vermont	481	20	10	4,500.00	2,250.00	18
Rutland High School Rutland, Vermont	520	25	20	3,600.00	3,600.00	27
	3,039	242	109 (full)	24,218.00	14,515.00	104 **

** Regular and Summer programs included.
* Supplied by Area Vocational Center Directors.

8691

3.0 OTHER INFORMATION

3.1 Exceptional and Model Programs

A. The Granite Cutters program at Barre City Regional Vocational-Technical Center, Spaulding High School, Barre, continues to be an exceptional and model program. This program has been combined with the related monumental drafting program to expand instruction from the initial planning and design levels to processes and production of products. Students enrolled in either program are involved in cross-curriculum activities to familiarize each student with the total manufacturing process.

The granite industry and the labor unions have combined efforts with the school to provide this education.

B. The Occupational Work Experience programs at the Barre City Regional Vocational-Technical Center, Barre and Otter Valley Union High School, Brandon, still are model programs. The program is intended to meet the needs of students who may be on the verge of dropping out of high school.

During the freshman and sophomore years the student spends all day in the self-contained classroom and during the junior and senior years he spends half a day in the classroom and the other half on the job. He is supervised by a teacher-coordinator.

Students, in general, are at least one year behind in grade level, two to four years behind their class in reading level.

C. The Adult Farmer program at Bellows Free Academy, St. Albans, and North Country Union High School, Newport can be considered as a model. This is a full-time program. The teacher works with individual farmers on-the-job assisting them with their particular problems. This is followed up with class work during evening group meetings, through the winter.

D. The building trades labs in the newest Area Vocational Centers enhance the cluster concept. The labs have facilities for teaching basic skills in plumbing and heating, carpentry, masonry and residential wiring.

E. Implementation of a statewide program for the educable mentally retarded youth (Level IV) continued during the past year at all operating Area Vocational Centers. This was a cooperative effort with the Division of Special Educational and Pupil Personnel Services. Four of the seven fully operational Centers had special lab facilities. See Section 1.15-2 for program description.

F. It is important to identify the restaurant practice program at Mt. Anthony as a model program. This program combines many features not found in more traditional programs. Coordinated instruction in quantity cooking, baking, waiter and waitress training is provided. During the 11th grade the students learn the basics in all three areas. In the 12th grade each student selects one area for concentration. The dining room next to the kitchen is used as a restaurant. The students spend one day on theory and four in production of food for sale.

The curriculum includes instruction in menu planning, sanitation and personal hygiene, safety, storage and refrigeration, operation of equipment, food preparation, baking and service. The school, businesses in the community and civic groups are cooperatively involved in the program.

G. The design drafting program at Mt. Anthony serves students from several occupational areas by providing instruction in planning, developing and processing prior to fabrication. Inter-related activities provide students with an understanding and involvement of the manufacturing process.

H. The exemplary vocational agriculture program at Bellows Free Academy, St. Albans, is a model program. During the junior year each student takes the core curriculum which relates to all areas of agriculture.

Seniors in the program are placed during the school day for work experience on jobs related to their occupational choice. The program is flexible and geared to fit the needs of the students. They are not paid an hourly wage during school hours.

Examples of student placement were: a girl working as a veterinarian's assistant; another at a welding shop; three on farms; one at a farm machinery dealer; one with an artificial inseminator; and one as a bull-dozer operator.

I. The Distributive Education program at Burlington continues to be a model program. The program is a huge success because of the total involvement of the staff, students and business. Last March the local chapter won its 13th award (in 14 years) as Chapter of the Year.

The characteristics of the program are as follows:

1. There is total individualized instruction - the teacher considers the differences of purpose, plan, background and personality of each student.

2. The students are involved in the planning of lab activities.

3. There is an integration of co-op and lab activities.

4. DECA activities are tied to the lab activities.

5. Service and humanitarian deeds in school and the community are part of projects and lab activities.

6. The program has the respect of business.

7. There is an annual employer-employee banquet.

8. The instructor is dedicated, sincere, humble and very capable.

J. The medical-dental secretary program at the Essex Junction Area Vocational Center provided cross-service activities between the Health and Office Occupations programs.

3.2 Youth Organizations

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3.22
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3.21 Distributive Education Clubs of America (DECA):

The Distributive Education coordinator at Burlington High School acts as the State Advisor.

1. Two hundred students were members of DECA. There were also eleven professional members.

2. State officers attended nine meetings for planning and coordinating State DECA activities. For example:

   A. Public relations - DECA Month.
   B. Vermont Green-Up Day activities.
   C. State Leadership Conference.
   D. Planning for National Conference.

3. Vermont DECA State Leadership Conference held in March in Montpelier.

4. State DECA officers attended the Vermont Vocational Youth Leadership Conference in August at Norwich University.

5. The State President attended the National DECA Leadership Conference.

6. Planned for social activities.

3.22 Future Business Leaders of America (FBLA):

The State Consultant for Office Occupations Education acts as the State Advisor.

1. There were 75 student members of FBLA.

2. There was no chartered state organization.

3. Activities were limited.

3.23 Future Farmers of America (FFA):

The State Consultant for Vocational Education in Agriculture acts as State Advisor. Membership during the year increased from 600 to 697 or about 16%. Teachers of Vocational Agriculture act as local advisors.

Highlights of the year's activities were:

1. Joint Leadership Conference with FHA, VICA and DECA.

2. About 60 attended the National FFA Convention at Kansas City in October.

3. FFA Day at Vermont Farm Show.

4. State Convention and Judging Contest held at the University of Vermont May 20-22. FFA had their State Convention at the same time.

5. Various activities initiated at several fairs and field days.

6. A joint Vocational Youth News Letter was published.

7. Robert Young and Larry Martin received the American Farmer Degree.

8. Steven Glabach received Proficiency Award in Agribusiness for the North Atlantic Region.

9. Several chapters participated in the Building Our American Communities project.

10. Several chapters sent a representative to the Washington Impact Conferences sponsored by the National FFA.

11. National FFA President, Harry Birdwell, and Vice Presidents Charles Postles and George Allan visited several schools in Vermont.

3.24 Future Homemakers of America (FHA):

The State Consultant for Consumer and Homemaking Education acts as the State Advisor.

Vermont's Future Homemakers of America chapters number thirty-one (31) with an enrollment of five hundred eighty-three (583) members.

Highlights of the year's activities were:

1. Eight State Officers and Miss FHA were elected at the annual meeting held in May.

2. This was the first year that a joint meeting was held with FFA. One hundred twenty-two (122) members and thirty-six (36) FHA Advisors and Mothers attended.

3. Northern and Southern District Meetings were held in the fall to orient local officers and to present the Program of Work.

4. Two Mid-Winter Fun Rallies were held with FFA members being invited.

5. Twelve members, one local advisor and the State Advisor attended the National Meeting in New York City.

6. FHA members attended the joint Leadership Conference held in August.

7. Vermont FHA members promoted FHA at Eastern States Exposition in Springfield, Massachusetts. They also participated in the Leadership Conference held at Syracuse, New York.

8. Vermont's Program of Work was built around the theme "Light The Way By Daring To Care".

3.25 Vocational Industrial Clubs of America:

The Assistant State Consultant in Trade and Industrial Education acts as the State Advisor.

The Vermont Association of the Vocational Industrial Clubs of America (VT-VICA) completed its fourth full year of operation on August 31st.

The 1970-71 school year saw an increase to twelve (12) chapters statewide with a corresponding increase in active membership to 356 and professional members to 58.

Vermont still has the only active VICA association in New England. Projections for this year indicate a possible addition of three more chapters bringing all of the Area Centers into the fold.

Highlights of the year's activities were:

1. The 4th Annual State Leadership Conference and Awards Banquet was attended by nearly 300 persons. One of the highlights was the presentation of an official VICA blazer and honorary life membership in the State Association to Governor Deane C. Davis. Twenty-six (26) different competitive activities in which severty-five (75) individuals participated were conducted at the Conference. In addition to this program, 210 VICA students took advantage of the Citizenship-Craftsmanship Recognition program sponsored by the State Association and received their awards at the annual banquet.

2. Nine students representing four Area Vocational Centers attended the 7th Annual National VICA Conference in Indianapolis, Indiana at the end of June. They participated in seven national competitive activities. The highlight of the national conference this year was the election of Mr. Raymond Gratton, of Winooski, Vermont as National Vice President for Region I, which includes all of New England plus New York, New Jersey, Maryland, Delaware and Washington, D. C.

3. During the school year the state director attended the 5th Annual State VICA Director's Workshop in Washington, D. C.

3.3 Concerns, Needs and Problems 3.3
3.31
3.31 Congressional Action Needed 3.32

A. There needs to be full implementation of the funding as spelled out in the 1968 Amendments. It is only this action that will bring about the impact that is needed. An area not now receiving funds, because of the lack thereof, is the public post-secondary two-year programs - such as Vermont Technical College and the health programs at the University of Vermont.

B. The various parts of the Act need to be extended for another two years. Three years is not enough time to gear up, provide impetus and get programs and changes into full swing. Also, it will take a couple of years to see what benefits have accrued to the graduates. The present economic situation is certainly going to make it difficult to evaluate this.

3.32 Congressional, U.S. Office of Education and State Action Needed

A. Guidance services has been "taking it on the chin" recently, indicating that there are widespread concerns. What is needed now is a plan to help the counselors receive the training that is needed. This means money and a concentrated effort to conduct the necessary number of workshops, practicums and actual activities in business and industry.

Pressure still needs to be applied to bring about a change in the methods used in pre-service programs that prepare counselors. Work experience is probably one of the key items that is needed.

At least half of the Area Vocational Centers do not have a Vocational Guidance Coordinator to give direction to the guidance functions between the sending schools and the Center. The superintendents in those districts must still be convinced of the need for the position. An increase to 50% reimbursement on the salary has still not done the trick. The reimbursement should go to 75%. This is more in line with what the person in this position should be doing - serving an area. Because of this the "home" school should not pay the full cost of this position. If the increased funding doesn't make a convincing story then another way to show the importance of the position needs to be found. (Maybe the negative approach of not reimbursing on instructional costs of the Center until adequate staffing is provided might be one answer.)

B. There is still a need for a job survey on a statewide basis. The data is needed to provide the proper kind of training.

The monies in the Act should be appropriated to see that this happens.

C. The drop-out rate still has not shown any decrease. A concentrated effort is needed to find those curricula, programs and methods that will help this group. Someone has suggested that maybe a sum of money should be given to every youth that finds and keeps successful employment over a period of time.

D. Although the situation, relative to public information, improved during the last year there is a need to continue the effort through other means, brochures, newspaper ads, radio, etc. This takes money for staff time and product costs. 3.32 3.33

3.33 U.S. Office of Education and State Action Needed

A. Inter-agency cooperation at the federal, state and local levels hasn't improved much during the past year. There still is the need to work closer together and to cut duplication of effort.

B. The reporting system at the three levels has still not shown the gains toward improvement that are needed. The need for consolidation, coordination of requests (like time of year), reduction in number, etc. still exists.

C. The federal fiscal report (OE 3129, OE 3131) need to be made more simple. The obligation feature causes a great deal of trouble in tracking dollars when programs and money are carried over. (The carry-over feature is good because it allows for flexibility.)

A. Maybe there would be more improvement of local programs (for kids) if an evaluation system was built that stopped the flow of money to a local school district when services to students were not working.

B. Continued emphasis is needed for more cooperation between the schools and business and industry. Some schools need to revamp, reorganize and even start from scratch with their advisory committees. Also, the advisory committees have got to be that - "advisory" and be involved at the beginning of an activity or an evaluation instead of as a rubber stamp.

One suggestion that has been made to correct this situation is to decrease funding (by formula) for lack of advisory committees or their proper use.

C. More has to be done to provide growth for the Administrative Advisory Committees. These committees are crucial to the sending schools since it is the only method they have to provide input for the Center operation.

D. Thought needs to be given to providing increased funds to the first few school districts that implement a grade 1-12 Career Education curriculum. This should stimulate the needed growth in this important area.

E. Although there has been improvement in the understanding of the needs of the disadvantaged and handicapped by the state and local staffs, there is a continued need for them to become even more familiar with those needs and ways to meet them.

F. The problem of how the students in Franklin County are to be served must be resolved during the next year. Each month of delay increases the cost tremendously and keeps this kind of training from a larger number of students.

G. Although the Enosburg/Richford area has a start towards solving the occupational training needs of a larger number of their secondary students (an exemplary project) there are still two areas, Canaan and Manchester, that need help. Planning to meet those needs must become a priority item.

A. The residents in the area of the sending schools (and some in the "home school" area), as well as school staffs are not very familiar or aware of the programs at the Area Vocational Centers. An orientation of school personnel in the elementary and middel (and junior high) schools would do much to lessen the vacuum that currently exists in most parts of the state. A change in teacher attitudes usually brings a change in the student outlook.

B. Expanded use of facilities is needed - particularly in the evening and during the week-end and summer.

C. More has to be done to serve the out-of-school youth and the disadvantaged and handicapped (youth and adults). This group, in most cases, needs special and extra attention. It will take time to break down the barriers that have been erected.

D. More emphasis is needed on the role of the school and its function on providing assistance to a student in finding employment. Also, more has to be done on graduate follow-up so that the school can use him to assist in an evaluation of programs, and thereby, provide direction for change (as it is needed).

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

NUMBER OF TEACHERS, STATUS OF TEACHER TRAINING, AND LOCAL ADMINISTRATIVE STAFF IN VOCATIONAL EDUCATION

(Vocational Education Amendments of 1968, P.L. 90-576)

READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING THIS FORM

O.M.B. NO. 51-R0241
APPROVAL EXPIRES: 3/31/73

STATE/OUTLYING AREA	DATE PREPARED
VERMONT	January 24, 1972
FISCAL YEAR ENDING	REPORT DUE
June 30, 1971	October 1, 1971

8202

SECTION I – NUMBER OF TEACHERS AND STATUS OF TEACHING TRAINING

VOCATIONAL PROGRAMS (a)	TOTAL UNDUPLICATED (b)	NUMBER OF TEACHERS									NUMBER OF ENROLLEES IN TEACHER TRAINING		NUMBER COMPLETING STATE PLAN REQUIREMENT	
		SECONDARY			POSTSECONDARY			ADULT						
		FULL-TIME (c)	PART-TIME (d)	TEACHER AIDES (e)	FULL-TIME (f)	PART-TIME (g)	TEACHER AIDES (h)	FULL-TIME (i)	PART-TIME (j)	TEACHER AIDES (k)	PRE-SERVICE (l)	IN-SERVICE (m)	PRE-SERVICE (n)	IN-SERVICE (o)
1. TOTAL UNDUPLICATED	547	380	75	4	18	1		2	87		260	176	52	28
2. EXEMPLARY, PART D	17	9	8									4		2
3. GROUP GUIDANCE *(Prevocational)*	3	3												
4. PRE-POSTSECONDARY														
5. REMEDIAL	4	4												
6. COOPERATIVE, PART G	18	15	3									3		
7. DISADVANTAGED	61	31	34						6					
8. HANDICAPPED	12	9	3								2	4	1	2
9. AGRICULTURE	31	22	7					2	7		14	21	3	3
10. DISTRIBUTION	18	11							7					
11. HEALTH	25	1	3		18	1			2			2		
12. CONSUMER AND HOMEMAKING	88	58	30	3					11		60	67	12	9
13. OCCUPATIONAL PREPARATION HOME ECONOMICS	6	3	3											
14. OFFICE	201	178	2						21		180	40	35	2
15. TECHNICAL	38								38					
16. TRADE & INDUSTRY	117	71	25	1					24		4	35	1	10
17. OTHER *(Specify)*														

SECTION II – LOCAL ADMINISTRATIVE PERSONNEL

1. TOTAL, UNDUPLICATED	38	19	15						5
2. DIRECTOR	15	13	2						
3. SUPERVISOR	12	1	7						5
4. GUIDANCE	11	5	6						
5. OTHER									

OE FORM 3136, 5-71

REPLACES OE FORM 3136, 6-70, WHICH IS OBSOLETE

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS

(Vocational Education Amendments of 1968, P.L. 90-576)

READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING THIS FORM

O.M.B. NO. 51-R0041
APPROVAL EXPIRES: 3/31/73

STATE/OUTLYING AREA: VERMONT

DATE PREPARED: January 24, 1972

FISCAL YEAR ENDING: June 30, 1971

REPORT DUE: October 1, 1971

8703

SECTION I – ACTUAL ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS

PROGRAM CODE	PROGRAM TITLE	TOTAL		NUMBER		SECONDARY			ADULT			COOPERATIVE	
		FEMALE	MALE	DISADVANTAGED	HANDICAPPED	BELOW GRADE 9	GRADES 9 – 12	POST-SECONDARY	PREPARATORY	SUPPLEMENTAL	APPRENTICESHIP	PART B	PART G
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
	GRAND TOTAL *(Unduplicated)*	7229	6212	2800	167	848	9601	173	635	2006	178	153	351
01.0000	TOTAL AGRICULTURE	28	1276	118	23		1116		16	172		15	27
01.0100	AGRIC PROD	7	458	70	10		327		16	122		7	16
01.0200	AGRIC SUP/SERV		27				27						3
01.0300	AGRIC MECH		29				29						1
01.0400	AGRIC PRODUCTS												
01.0500	ORNAMENTAL HORT.	13	84		7		97						
01.0600	AGRIC RESOURCES												
01.0700	FORESTRY		172	22	6		172					5	4
01.9900	OTHER*	8	503	26	4		461			50			
			3		1		3						
04.0000	TOTAL DISTRIBUTION	237	282	49	5		194		105	220		38	22
04.0100	ADVERTISING SERV												
04.0200	APPAREL & ACCES												
04.0300	AUTOMOTIVE												
04.0400	FINANCE & CREDIT	5	3							8			
04.0500	FLORISTRY												
04.0600	FOOD DISTRIBUTION												
04.0700	FOOD SERVICES												
04.0800	GEN MERCHANDISE												
04.0900	HOME, BLDG	3	5	8			8						
04.1000	HOME FURNISHINGS												
04.1100	HOTEL & LODGING												
04.1200	INDUSTRIAL MARKETING												
04.1300	INSURANCE												
04.1400	INTERNATIONAL TRADE	32	20							52			
04.1500	PERSONAL SERVICES												
04.1600	PETROLEUM												
04.1700	REAL ESTATE	89	156						105	140			

*Codes 01.0000 to 01.9900 for trade and industrial occupations and distributive programs.

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS, Section I - Actual Enrollments in Vocational Education Programs *(Continued)*

STATE/OUTLYING AREA	TOTAL		NUMBER		SECONDARY			ADULT			COOPERATIVE	
PROGRAM CODE (a) TITLE	FEMALE (b)	MALE (c)	DISADVANTAGED (d)	HANDICAPPED (e)	BELOW GRADE 9 (f)	GRADES 9 – 12 (g)	POST SECONDARY (h)	PREPARATORY (i)	SUPPLEMENTAL (j)	APPRENTICESHIP (k)	PART B (l)	PART G (m)
04.1900 RECREATION & TOURISM												
04.1900 TRANSPORTATION												
04.9900 OTHER*												
07.0000 TOTAL HEALTH	247	2	17	1		50	173		26			21
07.0101 DENTAL ASSISTANT												
07.0102 DENT HYGIENISTS (Assoc)												
07.0103 DENT LAB TECH												
07.0203 MED LAB ASSISTING												
07.0253 OTHER MED LAB TECHNOL	26								26			
07.0301 NURSE, ASSC DEGREE												
07.0302 PRACTICAL (Voc) NURSE	171	2					173					
07.0303 NURSES' ASSIST (Aide)	45		17	1		45						21
07.0401 OCCUPATIONAL THERAPY												
07.0402 PHYSICAL THERAPY												
07.0501 RADIOLOGIC TECHNOLOGY												
07.0703 ENVIRONMENTAL HEALTH												
07.0305 MENTAL HEALTH TECHNOL												
07.0503 INHALATION THERAPY TECH												
07.0504 MEDICAL ASSISTANT												
07.0505 HEALTH AIDE												
07.9900 OTHER* HEALTH SERVICES	5					5						
09.0100 TOTAL CONSUMER & HMKG	4970	277	869	39	668	4484		82	13			
09.0102 CHILD DEVELOPMENT												
09.0103 CLOTHING & TEXTILES												
09.0104 CONSUMER EDUCATION												
09.0105 FAMILY RELATIONS												
09.0107 FOOD & NUTRITION												
09.0108 HOME MANAGEMENT												
09.0109 HOUSING & HOME FURN												
09.0199 OTHER*												
09.0200 TOTAL OCCUP PREP	176		92	11		159		2	15		2	25
09.0201 CARE & GUID OF CHILDREN	120		70	11		120					3	25

8704

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS, Section I - Actual Enrollments in Vocational Education Programs *(Continued)*

STATE/OUTLYING AREA	TOTAL		NUMBER		SECONDARY			ADULT			COOPERATIVE	
PROGRAM CODE (a) TITLE	FEMALE (b)	MALE (c)	DISADVANTAGED (d)	HANDICAPPED (e)	BELOW GRADE 9 (f)	GRADES 9 – 12 (g)	POST SECONDARY (h)	PREPARATORY (i)	SUPPLEMENTAL (j)	APPRENTICESHIP (k)	PART B (l)	PART G (m)
09.0202 CLOTHING, MGT, PROD & SERVICES	56		22			39		2	15			
09.0203 FOOD MGT, PROD & SERV												
09.0204 HOME FURNISHING, EQUIPMENT AND SERVICES												
09.0205 INST. & HOME MGT & SUPPORTING SERVICES												
09.0299 OTHER*												
14.0000 TOTAL OFFICE	1101	125	535	5		1005		135	86		60	80
14.0100 ACCOUNTING & COMPUTING	119	39	82			124		13	21		5	8
14.0200 DUP DATA PROCESSING SYS	76	10	46	1		54		16	16			
14.0300 FILING, OFFICE MACH	168	16	84	1		184					19	46
14.0400 INFO COMMUNIC OCCUP	3	5	4			8						
14.0500 MTLS SUPP, TRANS, ETC												
14.0600 RCRD, TRG, & RELATED	3		3			3						
14.0700 STENO, SECY, & RELATED	446	7	212	2		392		39	22		25	26
14.0800 SUPV & ADMIN MGT												
14.0900 TYPING & RELATED OCCUP	272	48	104	1		226		67	27		11	
14.0999 OTHER*	14					14						
									352			
15.0000 TOTAL TECHNICAL		352										
15.0101 AERONAUTICAL TECHNOL												
15.0102 ARCHIT TECHNOL												
15.0104 AUTOMOTIVE TECHNOL												
15.0105 CHEMICAL TECHNOL												
15.0106 CIVIL TECHNOL												
15.0107 ELEC TECHNOL												
15.0108 ELECTRONICS TECHNOL									352			
15.0109 ELECTRO-MECH TECHNOL		352										
15.0110 ENVIRONMENTAL CONTROL TECHNOL												
15.0111 INDUS TECHNOL												
15.0112 INSTR TECHNOL												
15.0113 MECH TECHNOL												
15.0114 METALL TECHNOL												

8705

OE FORM 3139, 6/71

REPLACES OE FORM 3139, 6/70, WHICH IS OBSOLETE

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS. Section I - Actual Enrollments in Vocational Education Programs (Continued)

STATE/OUTLYING AREA	TOTAL		NUMBER		SECONDARY			ADULT			COOPERATIVE	
PROGRAM CODE (a) TITLE	FEMALE (b)	MALE (c)	DISADVANTAGED (d)	HANDICAPPED (e)	BELOW GRADE 9 (f)	GRADES 9 - 12 (g)	POST SECONDARY (h)	PREPARATORY (i)	SUPPLEMENTAL (j)	APPRENTICESHIP (k)	PART B (l)	PART G (m)
16.2117 SCI DATA TECHNOL												
16.0201 COMMERCIAL PILOT TRG												
16.0602 FIRE & SAFETY TECHNOL												
16.0603 FORESTRY TECHNOL												
16.0604 OCEANOGRAPHIC TECHNOL												
16.0605 POLICE SCIENCE												
16.0901 AIR POLLUTION TECHNOL												
16.0902 W & WASTE W TECHNOL												
16.0999 OTHER*												
17.0000 TOTAL TRADES & INDUSTRY	200	3390	618	37		1995		295	1122	178		176
17.0103 AIR CONDITIONING												
17.0309 APPLIANCE REPAIR												
17.0351 BODY & FENDER		37	11			11		18	8			7
17.0352 MECHANICS, AUTO	13	587	176	4		506		41	40	13	20	51
17.0399 OTHER AUTOMOTIVE		12	12	2		12						
17.0499 AVIATION OCCUP												
17.0501 BLUEPRINT READING												
17.0701 BUS MACH MAINT		3				3						3
17.0799 CHL ART OCCUP												
17.0801 CHL FISHERY OCCUP												
17.0899 CHL PHOTOG OCCUP												
17.1001 CARPENTRY	23	387	125	4		310		57	11	32	10	25
17.1002 ELECTRICITY	2	78	8	2		8		10	7	55		4
17.1004 MASONRY		10								10		
17.1007 PLUMB & PIPEFITTING		80						10	2	68		2
17.1099 OTHER CONSTR & MAINT												
17.1103 CUSTODIAL SERV		22	4	5		22						5
17.1201 DIESEL MECH												
17.1301 DRAFTING OCCUP	17	267	63	1		260			24			6
17.1401 ELEC OCCUP		103	3	1		103						
17.1499 ELECTRONIC OCCUP	1	165	19			155			11		3	10
17.1501 FABRIC MAINT SERV												
17.1701 FOREMANSHIP SUPER & MGT DEVEL												
17.1901 GRAPHIC ARTS OCCUP	3	40	5	1		43					3	7
17.1401 PLASTICS FABRICS												

OE FORM 5-72, 5-71

*REPLACES OE FORMS 5128, 6-70, WHICH IS OBSOLETE

9278

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS, Section I - Actual Enrollments in Vocational Education Programs *(Continued)*

STATE/OUTLYING AREA	TOTAL		NUMBER		SECONDARY			ADULT			COOPERATIVE	
PROGRAM CODE (a) TITLE	FEMALE (b)	MALE (c)	DISADVANTAGED (d)	HANDICAPPED (e)	BELOW GRADE 9 (f)	GRADES 9 - 12 (g)	POST SECONDARY (h)	PREPARATORY (i)	SUPPLEMENTAL (j)	APPRENTICESHIP (k)	PART B (l)	PART G (m)
17.2100 INSTR MAINT & REPAIR												
17.2200 MARITIME OCCUP												
17.2300 METALWORKING OCCUP	4	347	121	7		232		80	39		1	8
17.2400 METALL OCCUPATIONS		19				19						1
17.2501 BARBERING												
17.2502 COSMETOLOGY												
17.2599 OTHER PERSONAL SERV												
17.2700 PLASTICS OCCUP		2				2						2
17.2801 FIREMAN TRAINING		980							980			
17.2802 LAW ENFORCEMENT TRG												
17.2899 OTHER PUBLIC SERV												
17.3000 QTY FOOD OCCUP	119	106	40	10		170		55			1	39
17.3300 REFRIGERATION												
17.3400 SMALL ENG REPAIR		75	31			75						1
17.3200 STATIONARY ENERGY SOURCES OCCUPATION												
17.3300 TEXTILE PROD & FAB		1				1						1
17.3400 LEATHER WORKING												
17.3500 UPHOLSTERING												
17.3600 WOODWORKING OCCUP	18	58				52		24				4
17.0900 OTHER*		11				11						
99.0000 TOTAL SPECIAL PROGRAMS	180	299	251	41	180	299						
99.0100 GROUP GUIDANCE *(Prevocational)*	148	228	194	2	180	196						
99.0200 PREPOSTSECONDARY												
99.0300 REMEDIAL	32	71	57	39		103						
99.0400 OTHER N.E.C.												

4748

OE FORM 3130, 5/71 REPLACES OE FORM 3130, 6/70, WHICH IS OBSOLETE

ENROLLMENTS IN VOCATIONAL EDUCATION PROGRAMS (Con't)	STATE OR OUTLYING AREA VERMONT	FISCAL YEAR 1971

SECTION II - ESTIMATED ENROLLMENT BY PROGRAM

ITEM (a)	TOTAL (b)	SECONDARY (c)	POSTSECONDARY (d)	ADULT (e)
1. GRAND TOTAL, UNDUPLICATED (same as line 1, Sec. I)	13441	10449	173	2819
2. PART 102(b) - DISADVANTAGED	114	114		
3. PART B - STATE PROGRAMS TOTAL	8080	5226	173	2681
4. (1) DISADVANTAGED	(2686)	(2643)	( )	(43)
5. (2) HANDICAPPED	(128)	(128)	( )	( )
6. PART F - CONSUMER AND HOMEMAKING TOTAL	5247	5152		95
7. (1) DEPRESSED AREAS	(853)	(774)	( )	(79)
8. (2) DISADVANTAGED	(16)	( )	( )	(16)
9. (3) HANDICAPPED	(39)	(39)	( )	( )
10. PART G - COOPERATIVE TOTAL	(351)	(351)		
11. (1) DISADVANTAGED	(137)	(137)	( )	
12. (2) HANDICAPPED	( )	( )	( )	
13. PART H - WORK STUDY TOTAL	(104)	(104)		
14. (1) DISADVANTAGED	(104)	(104)	( )	
15. (2) HANDICAPPED	( )	( )	( )	

SECTION III - ESTIMATED ENROLLMENT BY RACIAL/ETHNIC GROUP

1. REGULAR	TOTAL	10474	7541	173	2760
2. (1) AMERICAN INDIAN		1	1		
3. (2) NEGRO		5	3		2
4. (3) ORIENTAL		5	1		4
5. (4) SPANISH SURNAMED AMERICAN		6	6		
6. (5) OTHER		10457	7530	173	2754
7. DISADVANTAGED	TOTAL	2800	2741		59
8. (1) AMERICAN INDIAN					
9. (2) NEGRO		6	3		3
10. (3) ORIENTAL					
11. (4) SPANISH SURNAMED AMERICAN					
12. (5) OTHER		2794	2738		56
13. HANDICAPPED	TOTAL	167	167		
14. (1) AMERICAN INDIAN		6	6		
15. (2) NEGRO		1	1		
16. (3) ORIENTAL					
17. (4) SPANISH SURNAMED AMERICAN					
18. (5) OTHER		163	163		

SECTION IV - ESTIMATED ENROLLMENT BY GEOGRAPHIC LOCATION

1. REGULAR	TOTAL	10474	7541	173	2760
2. (1) SMSA					
3. CENTRAL CITY					
4. (2) NON-SMSA		10474	7541	173	2760
5. DISADVANTAGED	TOTAL	2800	2741		59
6. (1) SMSA					
7. CENTRAL CITY					
8. (2) NON-SMSA		2800	2741		59
9. HANDICAPPED	TOTAL	167	167		
10. (1) SMSA					
11. CENTRAL CITY					
12. (2) NON-SMSA		167	167		

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

FINANCIAL STATEMENT AND ADJUSTMENTS OF FEDERAL FUNDS FOR VOCATIONAL EDUCATION

(Vocational Education Amendments of 1968, P.L. 90-576)

READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING THIS FORM

O.M.B. NO. 51-R0841
APPROVAL EXPIRES: 3/31/73

STATE/OUTLYING AREA: VERMONT

FISCAL YEAR ENDING: June 30,71

REPORT DUE: October 1,

8709

SECTION I – CURRENT YEAR FINANCIAL STATEMENT OF FEDERAL FUNDS

PROGRAM (a)	UNOBLIGATED FEDERAL ALLOTMENTS BROUGHT FORWARD FROM PREVIOUS FY (b)	CURRENT YEAR FEDERAL ALLOTMENT (c)	TRANSFERS IN FEDERAL ALLOTMENT (d)	FEDERAL FUNDS AVAILABLE FOR EXPENDITURE (e)	FEDERAL FUNDS EXPENDED DURING YEAR		UNOBLIGATED CURRENT YEAR FEDERAL ALLOTMENTS CARRIED FORWARD TO NEXT YEAR (h)
					PREVIOUS FY FUNDS (f)	CURRENT FY FUNDS (g)	
1. VOCATIONAL EDUCATION ACT OF 1963 AS AMENDED TOTAL	$ 86,198	$ 1,223,832	$ 0	$1,310,030	$ 86,198	$1,210,196	$ 13,636
2. PART A SECTION 102(b) DISADVANTAGED	0	46,704	0	46,704	0	46,704	0
3. PART B SECTION 102(a) STATE PROGRAMS	82,570	751,664	0	834,234	82,570	747,667	3,997
a. POSTSECONDARY					(0)	(126,210)	
b. DISADVANTAGED					(21,711)	(230,420)	
c. HANDICAPPED					(0)	(71,261)	
4. PART C RESEARCH (State)	1,305	41,759	0	43,064	1,305	40,499	1,260
5. PART D EXEMPLARY (State)	2,323	105,744	0	108,067	2,323	104,241	1,503
6. PART F CONSUMER AND HOMEMAKING	0	49,626	0	49,626	0	49,626	0
a. DEPRESSED AREAS					(0)	(22,910)	
7. PART G COOPERATIVE	0	216,723	0	216,723	0	209,847	6,876
8. PART H WORK-STUDY	0	11,612	0	11,612	0	11,612	0

SECTION II – ADJUSTMENTS TO PRIOR YEAR EXPENDITURE REPORTS

FISCAL YEAR	COMMON ACCOUNT NUMBER	FEDERAL EXPENDITURES PREVIOUSLY REPORTED	INCREASE (+) OR DECREASE (-)	FEDERAL EXPENDITURES AS REVISED
1. 19				
2. 19	NONE			
3. 19				
4. 19				

The expenditures of Federal funds reported above have been in accordance with the provisions of the Federal Vocational Education Acts, the policies approved thereunder and the State plan. An exact copy of the complete report has been filed with permanent records of the State Board for Vocation Education.

SIGNATURE (State Agency Fiscal Officer): [signature]

TITLE: Business Manager

DATE: Revised 2/17/72

SIGNATURE OF EXECUTIVE OFFICER (State Board for Vocational Education)

DATE OF CERTIFICATION: 2/17/72

OE FORM 3129, 5-71

REPLACES OE FORM 3129, 6-70, WHICH IS OBSOLETE

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

EXPENDITURES FOR VOCATIONAL EDUCATION BY SOURCE, PURPOSE, AND LEVEL

READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING THIS FORM

O.M.B. NO. 51-R0841, APPROVAL EXPIRES: MAY 31, 1973

STATE/OUTLYING AREA: VERMONT

DATE PREPARED: 2/17/72 - Revised

FISCAL YEAR ENDING: June 30, 71

REPORT DUE: October 1,

PROGRAM (a)	TOTAL FEDERAL (Total Dollars) (b)	TOTAL STATE/LOCAL (Total Dollars) (c)	SECONDARY (In Thousands) FEDERAL (d)	SECONDARY (In Thousands) STATE/LOCAL (e)	POSTSECONDARY (In Thousands) FEDERAL (f)	POSTSECONDARY (In Thousands) STATE/LOCAL (g)	ADULT (In Thousands) FEDERAL (h)	ADULT (In Thousands) STATE/LOCAL (i)
1. TOTAL, ALL PARTS	1,296,394	9,670,368	1171	9424	126	143		104
2. PART A 102(b) - DISADVANTAGED	46,704		47					
3. PART B 102(a) - STATE PROGRAMS TOTAL	830,237	8,953,365	703	8723	126	133		97
4. (1) SECONDARY	343,191	1,358,123	343	1358				
5. (2) POSTSECONDARY	126,210	133,352			126	133		
6. (3) ADULT		96,881						97
7. (4)(a) DISADVANTAGED	252,131	412,729	252	413				
8. (b) HANDICAPPED	71,261		71					
9. (5) CONSTRUCTION	37,444	6,952,280	37	6952				
10. (6) GUIDANCE AND COUNSELING	( )	( )	( )	( )	( )	( )	( )	( )
11. (7) CONTRACTED INSTRUCTION	( )	( )	( )	( )	( )	( )	( )	( )
12. (8) ANCILLARY SERVICES	(72,815)	(226,002)	(60)	(177)	(13)	(39)	( )	(10)
13. PART C - RESEARCH (State) TOTAL	41,804	8,557	42	9				
14. (1) RESEARCH COORDINATION UNIT	2,165	1,762						
15. (2) GRANTS, NEW PROJECTS (No. 2)	36,417	6,437						
16. (3) CONT. PROJECTS (No. 1)	3,222	358						
17. PART D - EXEMPLARY (State) TOTAL	106,564		107					
18. (1) DISADVANTAGED	(86,609)	( )						
19. (2) HANDICAPPED	( )	( )						
20. (3) NEW PROJECTS (No. 6)	17,626							
21. (4) CONTINUING PROJECTS (No. 11)	86,628							
22. PART F - CONSUMER AND HOMEMAKING TOTAL	49,626	705,543	50	689		10		7
23. (1) DEPRESSED AREAS	(22,910)	(224,240)	(23)	(222)	( )	( )	( )	(2)
24. (2) DISADVANTAGED	( )	(1,530)	( )	( )	( )	( )	( )	(2)
25. (3) HANDICAPPED	( )	( )	( )	( )	( )	( )	( )	( )
26. PART G - COOPERATIVE TOTAL	209,847	0	210					
27. (1) EMPLOYER REIMBURSEMENT	( )	( )	( )	( )	( )	( )		
28. (2) DISADVANTAGED	(85,437)	( )	(85)	( )	( )	( )		
29. (3) HANDICAPPED	( )	( )	( )	( )	( )	( )		
30. PART H - WORK STUDY TOTAL	11,612	2,903	12	3				
31. (1) ADMINISTRATION								
32. (2) STUDENT COMPENSATION	11,612	2,903	12	3				
33. (a) DISADVANTAGED	(11,612)	(2,903)	(12)	(3)	( )	( )		
34. (b) HANDICAPPED	( )	( )	( )	( )	( )	( )		

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OE FORM 3131, 5-71 REPLACES OE FORM 3131, 6-70, WHICH IS OBSOLETE

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

TOTAL EXPENDITURES FOR VOCATIONAL EDUCATION BY OBJECT, PURPOSE, AND LOCATION

(Vocational Education Amendments of 1968, P.L. 90-576)

READ INSTRUCTIONS BEFORE COMPLETING THIS FORM

O.M.B. NO. 51-R0841
APPROVAL EXPIRES: 3/31/7

STATE/OUTLYING AREA	DATE PREPARED
VERMONT	2/17/72
FISCAL YEAR ENDING	**REPORT DUE**
June 30, 1971	Oct. 1

SECTION I – EXPENDITURES BY TYPE OF POSTSECONDARY INSTITUTION

TYPE OF INSTITUTION (a)	TOTAL (b)	FEDERAL (c)	STATE AND LOCAL (d)
1. TOTAL	259,562	126,210	133,352
2. COMMUNITY COLLEGES			
3. TECHNICAL INSTITUTES			
4. VOCATIONAL TECHNICAL, OTHER	259,562	126,210	133,352

SECTION II – EXPENDITURES BY LOCATION

EXPENDITURES BY LOCATION (a)	TOTAL (b)	FEDERAL (c)	STATE AND LOCAL (d)	ECONOMICALLY DEPRESSED AREAS	
				FEDERAL (e)	STATE & LOCAL (f)
1. TOTAL *(Sum of lines 2 and 4)*	10,966,762	1,296,394	9,670,368	576,664	641,402
2. SMSA					
3. CENTRAL CITY					
4. NON-SMSA	10,966,762	1,296,394	9,670,368	576,664	641,402

SECTION III – EXPENDITURES BY LEGISLATIVE PURPOSE

LEGISLATIVE PURPOSES (a)	INSTRUCTIONAL COSTS			GUIDANCE AND COUNSELING (e)	ANCILLARY SERVICES			
	INSTRUCTIONAL SALARIES (b)	INSTRUCTIONAL EQUIPMENT (c)	OTHER INSTRUCTIONAL COSTS (d)		ADMINISTRATION, SUPERVISION, AND EVALUATION (f)	TEACHER EDUCATION (g)	RESEARCH AND DEMONSTRATION (h)	CURRICULUM DEVELOPMENT (i)
1. PART A 102(b) DISADVANTAGED	36,127	1,002	9,575					
2. PART B 102(a) STATE PROGRAMS TOTAL	1,864,754	88,112	551,720		224,348	52,370		12,574
3. SECONDARY	967,944	31,567	464,831		224,348			12,574
4. POSTSECONDARY	190,121		17,071			52,370		
5. ADULT	94,144		2,737					
6. DISADVANTAGED	568,341	38,820	57,699					
7. HANDICAPPED	44,204	17,725	9,332					
8. PART C – RESEARCH RCU							3,927	
9. GRANTS							46,434	
10. PART D – EXEMPLARY	79,247		23,288		4,029			
11. PART F – CONSUMER AND HOMEMAKING TOTAL	652,568	29,310	51,085		12,079	10,127		
12. DEPRESSED AREAS	221,175	10,896	15,079					
13. PART G – COOPERATIVE	136,792	20,215	52,840					

OE FORM 3132, 5/71

REPLACES OE FORM 3132, 6/70, WHICH IS OBSOLETE

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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON, D.C. 20202

8712

PROJECT EXPENDITURES FOR VOCATIONAL AREA SCHOOL CONSTRUCTION

(Including residential schools)

VOCATIONAL EDUCATION AMENDMENTS OF 1968, APPALACHIA, AND EDA

(P. L. 90-576)

READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING THIS FORM

O.M.B. NO. 51-R0841
APPROVAL EXPIRES: 3/31/73

STATE/OUTLYING AREA

DATE PREPARED

FISCAL YEAR ENDING: June 30,

REPORT DUE: October 1,

	PROGRAM (a)	FEDERAL EXPENDITURES BY PUBLIC LAW (b)	STATE AND LOCAL EXPENDITURES (c)	NUMBER OF PROJECTS: NEW (d)	NUMBER OF PROJECTS: EXPANSION & REMODELING (e)	ADDITIONAL STUDENT CAPACITY: NEW PROJECTS (f)	ADDITIONAL STUDENT CAPACITY: EXPANSION & REMODELING (g)
1.	TOTAL ALL PROJECTS	VEA 68 37,444	6,952,280	-	2	-	480
2.		211					
3.		214					
4.		EDA					
5.	TOTAL PROJECTS THROUGH ACQUISITION OF EXISTING FACILITY	VEA 63					
6.		211					
7.		214					
8.		EDA					
If Construction Funds from 211, 214 or EDA are shown on Lines 2, 3, 4, 7 or 8 list projects individually below.							
9.		VEA 68					
10.		211					
11.		214					
12.		EDA					
13.		VEA 68					
14.		211					
15.		214					
16.		EDA					
17.		VEA 68					
18.		211					
19.		214					
20.		EDA					
21.		VEA 68					
22.		211					
23.		214					
24.		EDA					
25.		VEA 68					
26.		211					
27.		214					
28.		EDA					

OE FORM 3133, 5-71 REPLACES OE FORM 3133, 6/70, WHICH IS OBSOLETE

VT 016 814
PUERTO RICO VOCATIONAL AND TECHNICAL RESEARCH AND DEVELOPMENT COORDINATING UNIT. ANNUAL REPORT (JULY 1, 1969-JUNE 30, 1970).

PUERTO RICO STATE DEPT. OF EDUCATION, HATO REY. VOCATIONAL AND TECHNICAL RESEARCH AND DEVELOPMENT COORDINATING UNIT.
BUREAU OF ADULT, VOCATIONAL, AND TECHNICAL EDUCATION (DHEW/OE), WASHINGTON D.C.
MF AVAILABLE IN VT-ERIC SET.
PUB DATE = 30JUN70 24P.

DESCRIPTORS - *RESEARCH COORDINATING UNITS; ANNUAL REPORTS; *RESEARCH PROJECTS; *VOCATIONAL EDUCATION; PROGRAM COORDINATION; *PROGRAM DESCRIPTIONS; CURRICULUM DEVELOPMENT; TEACHER EDUCATION; FINANCIAL NEEDS; PERSONNEL NEEDS
IDENTIFIERS - *PUERTO RICO

ABSTRACT - THIS REPORT SUMMARIZES MAJOR ACTIVITIES AND ACCOMPLISHMENTS OF THE PUERTO RICO VOCATIONAL AND TECHNICAL RESEARCH AND DEVELOPMENT COORDINATING UNIT (RCU) IN ITS SECOND YEAR OF OPERATION FROM JULY 1, 1969 THROUGH JUNE 30, 1970. IN ADDITION TO GIVING DIRECTION TO RESEARCH ACTIVITIES, THE RCU WAS RESPONSIBLE FOR COORDINATING THE VARIOUS VOCATIONAL AND TECHNICAL EDUCATION CURRICULUM DEVELOPMENT PROGRAMS AND THE PRESERVICE AND INSERVICE TEACHER TRAINING ACTIVITIES. PREVAILING PROBLEMS CONTINUED TO BE LIMITED PERSONNEL AND LIMITED FUNDS. ONE OF THE MOST URGENT NEEDS IS THE ESTABLISHMENT OF A MANAGEMENT INFORMATION SYSTEM. LONG-RANGE PROGRAM PRIORITIES WILL BE PROMOTED IF APPROPRIATE FUNDS AND RESOURCES ARE MADE AVAILABLE. (MF)

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ANNUAL REPORT

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
OFFICE OF EDUCATION
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PUERTO RICO VOCATIONAL AND TECHNICAL RESEARCH AND DEVELOPMENT COORDINATING UNIT

Dr. María Socorro Lacot
Assistant Secretary
Vocational and Technical Education

Mrs. Ana L. Reyes de Martínez
Director
Puerto Rico Vocational and Technical Research and
Development Coordinating Unit

Commonwealth Board for Vocational and Technical Education
Department of Education
Commonwealth of Puerto Rico

June 30, 1970

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Vocational and Technical Education

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ANNUAL REPORT

PUERTO RICO VOCATIONAL AND TECHNICAL RESEARCH AND DEVELOPMENT COORDINATING UNIT
July 1, 1969 - June 30, 1970

Dr. María Socorro Lacot
Assistant Secretary
Vocational and Technical Education

Mrs. Ana L. Reyes de Martínez
Director
Puerto Rico Vocational and Technical Research and
Development Coordinating Unit

Commonwealth Board for Vocational and Technical Education
Department of Education
Commonwealth of Puerto Rico

June 30, 1970

The research reported herein was performed persuant to a grant under the Vocational Education Act of 1963 and the Vocational Education Amendments of 1968. Contractors undertaking such projects under Government Sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions do not, therefore, necessarily represent official Office of Education position or policy.

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Vocational and Technical Education

COMMONWEALTH BOARD FOR VOCATIONAL AND TECHNICAL EDUCATION

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INTRODUCTION

The new Commonwealth Plan for Vocational Education provided for the continuing operation of the RCU and included provisions for the administration of Commonwealth research programs as authorized under Section 131 (b) of Part C of Public Law 90-576.

This document is an annual report of the Puerto Rico Vocational and Technical Research and Development Coordinating Unit (RCU), under Public Laws 88-210 and 90-576. It summarizes the Unit's activities from July 1, 1969, through June 30, 1970.

The RCU was originally funded under the provisions of Section 4 (c) of Public Law 88-210; Vocational Education Act of 1963, under Grant Number O. E. C. 3-8-080007-0031 (085). The original grant covered only one year from April 1, 1968 through March 31, 1969; however, it was extended at a no cost basis through August 31, 1969. Since July, 1970, the RCU continued functioning under Part B funds for ancillary services as funds under Part C were not available at that time. Only $15,000 were provided under Part C by March, 1970, too late to fund any project during F. Y. 1970. This amount was carried over to F. Y. 1971. Funds from Titles I and III of the Elementary and Secondary Education Act (Public Law 89-10) were used to partially fund two ongoing projects. Limited funds provided for research and research related activities early in the year also limited the provisions of grants and contracts for research and research related activities.

Under the O. E. Grant the RCU had identified areas for vocational and technical education research and research related activities, had encouraged vocational and technical education personnel to consider research and research related activities as an important basis for program planning and implementation and facilities for research and research related activities had been provided.

The RCU contributed to an exchange of information on an interinstitutional and interagency basis, promoted the application of research findings through improved practices, programs and facilities, and stressed inservice activities related to research methods and techniques and development of new programs to meet the new legislation requirements. Information on the new legislation and its implementation was disseminated.

Research and research related activities were coordinated with the various education services at the different educational levels, with special emphasis given to projects aiming at assessing needs, program evaluation, improving instructional materials and curricula, and promoting the professional growth of the teaching personnel at all levels.

The RCU continues to be physically and administratively centered in the Program for Vocational and Technical Education of the Commonwealth Department of Education, as part of the office of the Assistant Secretary for Vocational and Technical Education. Major purposes and objectives originally established continued to give direction to RCU activities and projects during the year.

The purposes of the Puerto Rico RCU are to: identify vocational education research projects; encourage, stimulate and facilitate vocational research and improve research competencies; contribute to effective information exchange on an interinstitutional and interregional basis; and, promote implementation of research findings in improved practices, programs and facilities.

In an effort to accomplish the above purposes, the following objectives were established since the inception of the RCU: (a) develop specific research goals, (b) determine research and related studies, (c) implement studies of local problems, (d) improve research design and statistical techniques, (e) establish and maintain an information center for collection, storage and dissemination of literature related to vocational and technical education, (f) improve coordination of efforts among individuals and institutions as related to vocational research to reduce duplication of efforts, (g) encourage the development and use of improved practices, methods and materials, (h) stimulate communication in vocational education among administrators, researchers and teachers, and (i) develop in-service workshops for research training of vocational educators.

To a certain extent, the above objectives have been given initial attention during this second year of RCU operations. Most urgent problems have been identified and priorities established. However, a general evaluation of RCU functions and activities associated with these functions reveals that for maximizing RCU efforts, a more realistic funding level is needed to provide the personnel and facilities to develop a broadened, expanded and intensified program of research urgently needed to provide a more realistic basis for program planning in all vocational and technical education areas at all levels.

Besides giving direction to research and research related activities, the RCU has been entrusted the responsibility for coordinating with the various vocational education programs curriculum development for vocational and technical education programs, and pre-service and in-service teacher training activities.

PERSONNEL

The RCU functioned during the year with only two regular staff members, the project director and an assistant director, on loan from the Vocational Industrial Education Program, one typist and one stenographer. The rest of the personnel was appointed either under irregular contracts or recruited under part-time contracts, thus resulting in a continuing staffing problem. Summary of staff is appended.

MAJOR ACTIVITIES AND ACCOMPLISHMENTS

The RCU has been concerned with establishing promising directions and systems to accomplish its purposes.

Activities during the year continued to be focused on ongoing studies that had been started the previous year, completing two research projects that had been contracted with outside research centers and which constituted high priority problems for program planning and curriculum development purposes. Six new projects were initiated and a series of in-service training programs developed in coordination with the various Vocational Education Programs.

A. Research and Research Related Activities

Completed Projects

The following projects which were initiated the previous years with funds from other sources were completed and final reports made available by the end of the year.

1. Educational Implications of Present and Prospective Needs for Skilled, Technical and Clerical Personnel in Puerto Rico

   The purpose of this study, which was developed under contract with the Social Sciences Research Center of the University of Puerto Rico, were: (1) to assess on as broad as feasible the essential nature of the present and prospective needs for skilled, non-professional and clerical personnel, (2) to identify areas of current prospective critical shortages, (3) to survey in depth such areas as to uncover the fundamental factors determining such shortages, and (4) to develop indicators on probable training needs to face existing occupational shortages.

   Using secondary data, an analysis of present and prospective trends in the structural outlook of the Island's economy's production output was made, as well as their manpower implications. A survey of present and prospective occupational needs, as seen by the employers, provided relevant data on occupations related to manufacturing,

construction, transportation, communication, trade, banking-finance, service and government. These data included total employment by occupation and anticipated employment through 1975, characteristics of employment by occupation, hiring and training policies, and difficulties faced to recruit qualified personnel for new occupations.

An analysis of job content and hiring requirements of some 25 occupations, useful for development of curriculum for vocational programs was made. Data gathered provided information about existing vocational programs and facilities, and views of school teachers as to the adequacy of such facilities. Copies of the final report were distributed among governmental agencies, the Puerto Rico Advisory Council for Vocational and Technical Education, the Commonwealth Board, universities and selected interested individuals, and the results disseminated through structural conferences with special groups. The results shall be fully analyzed with vocational education personnel and representatives of other agencies at a state conference during fiscal year 1971.

2. Development of a Flexible Curriculum Planning Methodology for Vocational Education Courses

This project was contracted with CONSAD Research Corporation of Pittsburgh, Pennsylvania, and covered four main aspects:
(1) development of a flexible methodology for the preparation of curriculum materials, (2) development of a resource allocation model, (3) in-service training on vocational education curriculum, and (4) development of a system approach to the evaluation of vocational education programs.

One hundred copies of the final report published under the title of Vocational Education and Manpower Training Curriculum Development Project, May 1970, were made available to vocational education personnel in leadership positions and to those engaged in curriculum development materials.

Products of this project included:

- A Manual for Developing Vocational Instruction, March 1970
- A Manual for the Evaluation of Vocational-Technical Education, March 1970
- Teacher's Handbook, A Methodology for Curriculum Development, Electronics, 1969

- Teacher's Handbook, A Methodology for Curriculum Development, Health Occupations, 1969

- Occupational Areas and Divisions - Job Hierarchy Charts for all jobs in the economy, 1969

- Job Corps Curriculum Manual, March 1970

- Manual on Occupational Categories and Jobs, 1969

- Specific learning modules in the areas of: Health Occupations, and Electro Electronics and Home Economics; including Child Care and Vocational Home Economics.

A computer based vocational guidance and information system was developed, which contains an educational data base describing the world of work for one hundred sixty six jobs, specific to Puerto Rico, with 30 variables each; an occupational data base describing all secondary vocational and technical courses available in Puerto Rico, and routines for accessing the data bases and interrelating the data.

Ongoing technical assistance programs were also delineated for vocational programs and Job Corps, April 1970.

Other materials released as background information for project development in Vocational and Technical Education included:

. Discussion Paper; Manpower Requirements in Puerto Rico Related to Planning for Vocational and Technical Training, February 1969.

. Basic Technology

. Basic Technology and Career Guidance Objectives

Major recommendations of this study included a series of activities aiming at the implementation of an Islandwide curriculum development program, the development of a system for vocational education personnel development, the implementation of an evaluation system, and assigning a liaison person between the Vocational and Technical Education Program and the non-education agencies.

3. Survey of drop-outs during 1967-68 from all vocational programs

This project developed as an inhouse activity. It aimed at determining drop-out rate in vocational courses and causes. Results have

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been useful for focusing attention to the solution of main problems which prevent students to remain in school till completion of their respective training programs.

Ongoing Projects

1. Improvement of vocational and technical education curricula in economically depressed areas

This project was initiated in December, 1969, and was partly funded under Title I, of the Elementary and Secondary Education Act. The purpose of this study is to enrich and expand vocational education secondary programs in areas with marked socio-cultural disadvantages to help improve the social and economic status of children in these areas.

The project covers three main phases:

(1) improvement of curriculum materials and teaching aids

(2) improvement of professional competencies of teachers through improved supervision practices and staff training activities.

(3) improvement of instructional equipment and materials in selected schools.

Participating in this project are the following programs: home economics, business and office occupations, distribution and marketing, agriculture, vocational industrial, industrial arts, and guidance.

This project is coordinated at the RCU and specific activities are being developed under the supervision of each vocational area. The first and third phases were initiated in F. Y. 1970 with seven curriculum specialists, one for each curriculum area and a project coordinator. Work started in assessment of needs as basis for specific curriculum work, and developing the needed surveys. Consultation services were provided by members of the Advisory Councils for the vocational programs, of the supervising staff at the central and regional levels, members of the teacher training programs at the institutions of higher learning, people from industry, business and commerce, and RCU personnel.

Major accomplishments during the first six months included informal surveys, interviews, and study of secondary data useful for project implementation and initiating work in curriculum development. Surveys included: assessment of needs and interests of

students and teachers for implementing vocational industrial, home economics and distribution and marketing courses; survey and evaluation of available curriculum and materials in different vocational programs to determine their usefulness with disadvantaged groups; survey on occupational interests of students from disadvantaged neighborhoods, conducted by the representative of the Guidance Program with 542 students, in grades seventh through twelve, in 17 rural and urban schools in 9 school districts representing the six educational regions.

A bibliography on sources of information for the development of vocational education programs for persons with special needs was developed in draft form.

Recommendations were made by each particular area for the purchase of needed equipment and materials for the participating schools and orders for their purchase were processed.

The project will continue during Fiscal Year 1970-71.

2. Follow-up of Graduates and Evaluation of Home Economics Occupational Education Programs, 1964-1968

This project aims at determining out how effective the Home Economics Occupational Education Program has been in achieving its major purpose that of preparing youths and adults for gainful employment. Data for the first phase, a follow-up of graduates, were collected through interviews with former students, tabulated and were in process of analysis when the project was temporarily halted because the person in charge resigned and no replacement was immediately available.

3. Follow-up of Graduates from Vocational and Technical Education Courses, 1968-69

This study aims at determining the present status of graduates from vocational and technical education programs at the secondary and post-high levels. Data were collected, verified and tabulated. Management reports were made with pertinent information on the follow-up of graduates in the formats required by the USOE. Further work includes analysis and interpretation of data.

4. Professional competence and occupational experience of regular vocational and technical personnel in Puerto Rico

This project aims at determining the professional and occupational experience of regular vocational and technical education personnel

as a basis for a proposed teacher training system to meet their needs.

Data were collected and analyzed. A teacher's profile was made for the first evaluation of vocational programs by the Commonwealth Advisory Council. The report of the complete project will be available in Fiscal Year 1971.

5. Inquiry about vocational and technical education offerings in area vocational schools, including origin of enrollment, availability of professional personnel and demands for services, 1969-70

This project aims at determining geographical areas covered by area vocational schools, number of courses and enrollment in regular day courses, available professional personnel and students who could not enroll in vocational courses and reasons for not enrolling, as a basis for determining needs for program expansion. Collected data were in the process of analysis and interpretation at the end of the reporting period.

B. In-service Projects and Activities

1. Major In-service Projects

a. Seminar on vocational and technical education programs and projects for the disadvantaged and the handicapped, November, 1969

This was a two-phase seminar: a) two-day state inter-agency seminar on vocational and technical education programs and projects for the disadvantaged and the handicapped, and six inter-agency regional seminars. The state seminar had 94 persons in attendance; among which were directors of vocational and technical education programs, vocational education regional supervisors, representatives of special education programs, of governmental agencies, of institutions of higher learning and of private industry. Its main purpose were to develop leadership to identify basic problems of the disadvantaged and handicapped and their implications for the development of vocational education programs for such groups, explore ways and means of implementing vocational and technical education programs for the needy and interinstitutional and inter-agency participation in program planning and development. A consultant from the U. S. Office of Education served as

resource person, together with vocational personnel at the central office and representatives of various agencies. The six regional inter-agency seminars had similar purposes. The 486 participants representing the regional and local levels explored ways and means for program planning for disadvantaged and handicapped at these levels.

This project focused attention to priorities established in the Vocational Education Amendments of 1968, and were developed in close coordination with the Special Vocational Education Programs Office, which had been recently organized.

b. Seminar on Educational Research Methods and Research Related Activities, June 8 - July 6, 1970

This project constituted an initial effort toward the preparation of personnel for research and research related activities. It had 20 persons in attendance representing the regional and central education offices. The major purposes of this project were to assist participants in planning and conducting educational research and development projects and programs at the various levels, and improving individual research competency. The seminar was developed through cooperative arrangements with the Puerto Rico Office of New York University and was offered as a regular summer course of the institution under the title Introduction to Educational Research. It covered 30 hours and was conducted by Dr. William C. Payne, Education Dean of said institution. Participants received scholarships to attend the seminar.

c. Seminar on Problems and Practices of Research in Vocational, Industrial and Technical Education

Cooperative arrangements were made with the Vocational Education Department of the New York University for this seminar to be conducted during Fiscal Year 1971 under contract. The project director is Dr. Ralph LoCascio, Acting Head of the Vocational Education Department and formerly director of the New Jersey Research Coordinating Unit.

It covers a two-week workshop on research in vocational education, to be held during July 6-17, 1970, and

four two-day workshops during the school year. Twenty participants were carefully selected to represent the vocational education programs at the central and regional levels, and the Planning and Development Area of the Department of Education.

The summer workshops include two phases. During the first phase (one week) the focus will be on establishing a frame of reference helpful in the administration, conceptualization and conduct of research and development in occupational education. The second phase (one week) will stress a workshop approach to proposal writing in areas of individual interest to participants. Phase III includes further work during the year to aid participants in completing the development of the proposals under the direct assistance of the project director.

d. Demonstration of an Information System for Vocational and Technical Education

Two two-day seminars were conducted as part of the curriculum research project previously described on section A, Completed Projects. The first two sessions included discussions and demonstration of a computer based information system for vocational and technical education, and designing an information system for vocational and technical education. The other two sessions had a workshop approach, for the analysis of a practical design for an information system, computer based occupational education and job data placement banks, and a flexible vocational and technical education methodology.

e. Staff training seminars on flexible methodology for curriculum development

Four staff training seminars, for some 30 and 40 participants each, were co-sponsored as part of the curriculum research project previously mentioned. They aimed at analyzing the increasing role of curriculum in the development of vocational and technical education programs in Puerto Rico, and new techniques in curriculum development.

2. Other In-service Training Activities

The RCU acted as coordinator and clearinghouse between the Vocational and Technical Education Program and the Personnel

Division of the Department of Education for granting scholarships and leaves of absence with pay to vocational personnel to pursue both undergraduate and graduate studies. Also coordinated year and summer in-service training activities. The following in-service training projects were conducted in coordination with the RCU and consultation services were offered for program planning and development included:

a. Seminar on Occupational Educational Programs for the Handicapped, February, 1970

This two-day seminar was sponsored by the Special Vocational Education Programs Office. It had in attendance 50 persons including directors and supervisors of vocational education, representatives of governmental agencies, of institutions of higher learning and of private enterprises. The group explored ways for the implementation of vocational and technical programs for the handicapped, and discussed and analyzed the responsibility of each agency and their participation in the organization, development, and evaluation of occupational education programs for these groups. Representatives from the U. S. Office of Education and the New York Regional Office, together with local personnel, served as consultants and resources for program development.

b. Leadership Seminar on Cooperative Vocational Education

This 120-hour seminar sponsored by the Business Education and Distribution and Marketing Education programs under contract with a private consultant. Covers two phases: a two-week seminar held during the month of June, 1970, during which members of these programs explored ways to implement cooperative education programs under the new federal legislation, and five two-day meetings during Fiscal Year 1971 to continue work initiated in the summer seminar.

c. Seminar on Leadership for Supervising Activities in Office and Business Education

This 120-hour seminar sponsored by the Office and Business Education Program under contract with members of the Business Education Program of the University of Puerto Rico. It covers two phases, a 60-hour summer workshop during which Business Education supervising

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teachers analyzed new trends in the teaching of business education courses, and five two-day seminars during Fiscal Year 1971 to explore ways to improve teachers education activities in Business and Office Education.

d. Seminar on Simulated Office Occupations

This 60-hour seminar was sponsored by the Office and Business Education Program under contract with a private institution. It aimed at the training of twelve business education teachers in the teaching of business and office education courses using simulation, in preparation for the development of a pilot project during Fiscal Year 1971.

These seminars were funded under Part B, Vocational Education Amendments of 1968 with funds for teacher training.

e. Staff Development Seminar for Work Incentive Programs

Consultative services were offered, and time and effort committed to the development of a two-day seminar on educational programs sponsored by the Work Incentive Program for central, regional, and local personnel of the Departments of Labor, Social Services, and Education.

f. National Leadership Development Project

Information released by the U. S. Office of Education about the National Leadership Development Project sponsored under Section 552, Part F, of the Education Professions Development Act was disseminated through radio, television, meetings, and personal contacts. A special committee representing the regular academic programs, the Teacher Training Division of the Department of Education, Vocational Education Programs, the Guidance Program and the RCU, studied the 12 applications received and made the corresponding recommendations. Two grants were awarded two vocational educators to pursue doctoral studies at the University of Connecticut for three years; one represent Distribution and Marketing Education and the other Business and Office Education.

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g. Short Term Multiple Institutes for Professional Personnel in Vocational and Technical Education

Plans were implemented for the participation of seven representatives from Puerto Rico in the ten short term in-service multiple institutes sponsored and coordinated by the College of Education of the Temple University, persuant to a grant with the USOE.

The central focus of the institutes was on the resolution of issues, forces and other constraints in the inner cities of metropolitan areas and regions of high population density which prevent policy makers from realistic vocational education and training programs to meet the full range of needs of people and the demands of the labor market.

Through presentations, discussions, field trips, and study in both small and large groups, the participants had the opportunity to broaden their horizons, to interact and to confer individually with resource personnel and others having similar problems.

C. Curriculum Development

The RCU served as coordinator of curriculum development activities for vocational programs. Consultation services were provided as needed for curriculum development projects undertaken by the different vocational programs and for the related inservice training activities. Several recent books and books translated into Spanish in other countries were previewed to determine their usefulness in our vocational education programs.

Work continued in two major projects which had been initiated in Fiscal Year 1969.

1. Home Economics Occupational Education Curriculum Project

The curriculum project dealing with the preparation of a series of eight curriculum guides for home economics occupational education courses, a bibliography, and a guide on the organization of home economics occupational courses was completed. The curriculum guides for Baby Sitter and Florist initiated at the RCU as part of this project were continued at the Home Economics Education Office when the director of the project was transferred to another position and no replacement was immediately available.

2. Distribution and Marketing Education Curriculum Project

The curriculum project for the preparation of instructional materials for post secondary courses in Distribution and Marketing continued with a part-time consultant with work in curriculum for youth organizations and evaluation and revision of previously published materials.

3. Other activities

The following publications were translated into Spanish, for dissemination purposes:

- A Manual for Developing Vocational Instruction, March 1970, which constituted one of the products of the curriculum research project previously described.

- A Guide for the Development of Curriculum in Vocational and Technical Education, which was developed by the Division of Vocational Education, University of California, June 1969, to serve as a guide for all persons concerned with curriculum development in vocational and technical education.

Both publications are unvaluable sources of reference for developing, implementing, and evaluating curriculum and curriculum materials for vocational education courses.

D. Other Related Activities

1. State Advisory Council Evaluation of Vocational and Technical Education

Data about program inputs and outputs including instructional programs and enrollments, teachers, and schools served were collected and summarized for use by the Puerto Rico Advisory Council in its evaluation of vocational education programs during Fiscal Year 1970 to the National Advisory Council.

2. Revision of Commonwealth Plan for Vocational and Technical Education

RCU staff assisted in the development of the research and curriculum parts of the Commonwealth Plan for Vocational and Technical Education for the implementation of the Vocational Education Amendments of 1968 during 1971-75 and for programs to be developed during 1970-71. Likewise, in the preparation of the Four Year Plan for Vocational and Technical Education to be submitted by the Secretary of Education to the Governor's Office.

3. CAMPS Plan

The RCU was responsible for coordinating the development of CAMPS Plan for Fiscal Year 1971 for vocational and technical education, and preparing the quarterly and annual reports for Fiscal Year 1970.

4. Consultative Services

During the year, staff members provided consultative services regularly to the vocational and technical education programs for the planning and development of staff training activities; planning new programs; preparation of progress and annual reports; data collection on enrollments, teachers, and schools served; development of curriculum materials; and preparation of proposals for different types of projects.

Consultative services were also provided to university level students for the development of research projects as part of degree requirements.

5. Proposals Writing

Proposals were written for the development of two projects, one deals with an evaluation of the vocational industrial education program and the other with a seminar on grantmanship and proposal writing for research and research related activities. The first project was postponed because a shortage in funds, and the second will be conducted during 1970-71.

DISSEMINATION OF INFORMATION

Information was prepared and disseminated regularly about the Vocational Education Amendments of 1968 and vocational education programs, projects, and activities. Conferences, talks, and informal meetings provided opportunities for the dissemination of information. All individual requests for research and research related information, as well as for vocational and technical programs outputs were complied with. Requested information not readily available, but essential for program planning, decision making procedures, and for special presentations, was given continuous priority.

The following major activities were undertaken:

a. RCU Resource Center

The RCU maintains a library of some 2,000 titles on research and research related activities, curriculum materials, manpower studies, occupational data, new programs and projects, and other information of benefit to the vocational and technical education programs in developing of or revision of their courses. This resource center is widely used by vocational and general educators, students from the institutions of higher learning, graduate students, research firm's and government officials. Collections of ERIC materials, RIE, ARM, AIM, and a microfiche reader printer are available.

b. Information and Data Collection

The collection of descriptive and statistical data about vocational and

technical education programs projects and activities was given continued consideration. Data gathering instruments were designed to collect statistical data for the annual evaluation and for the preparation of reports of vocational programs.

Data were collected and analyzed as follows:

- Schools and special vocational education centers where vocational and technical education programs were conducted in 1969-70.
- Instructional programs offered in each school or center by vocational area, target population, and characteristics of enrollees.
- Special vocational education programs.
- Teachers involved in conducting vocational and technical education programs by vocational area, type of group served, and enrollees in pre-service and in-service teacher training activities.

Data collected were useful for preparing regular and special reports requested by the Secretary of Education, the Assistant Secretary for Vocational and Technical Education, the Governor's office, the Commonwealth Planning Board, and other governmental agencies and for preparing annual descriptive and statistical reports of the Commonwealth Education agency to the U. S. Office of Education, for conducting the year evaluation of vocational and technical education programs by the Commonwealth Advisory Council, and for planning and/or conducting research and research related activities.

c. Titles of Materials Released and Number of Copies

1. Abstract of the Vocational Education Amendments of 1968 - 3,000 copies
2. Administration of Vocational Education Programs for the Disadvantaged and Handicapped - 250 copies
3. Cooperative Vocational Education Programs - 250 copies
4. Policies and Procedures for In-service Training Activities - 200 copies
5. The Ohio Center for Vocational and Technical Education - 1,000 copies
6. ERIC and its Services - 1,000 copies
7. Commonwealth Plan for Vocational and Technical Education, Parts I, II, and III - 1,000 copies

8. Annual Report, Vocational and Technical Education 1968-69 - 450 copies each of the English and Spanish reports

9. Puerto Rico Vocational and Technical Research and Development Coordinating Unit Final Report of RCU activities under Grant No. OEG 3-8-80007-0031 (085) Project No. 8-0007 - 150 copies

d. Materials from USOE and Other States

General announcements concerning research and research sponsored conferences, institutes, and seminars involving vocational education personnel were made available to different groups.

PROBLEMS FACED BY THE RCU IN DEVELOPING ITS ANNUAL PROGRAM OF WORK

Normal functions as well as the development of new and ongoing projects were affected by lack of funds and human resources. Budgeted funds from Part B Ancillary Services of the Vocational Education Amendments for Fiscal Year 1970 for RCU operations and project development were reduced mainly due to the fact that the anticipated federal funds were not received until the middle of March 1970. Funds for Fiscal Year 1970 under Part C were not available until such date.

The problems indicated in the final report of RCU operations under Public Law 88-210 still prevail. These are:

1. Lack of vocationally oriented research personnel.

2. Unavailability to obtain the services of regular staff, due mainly to limited numbers of researchers available and low salary scales.

3. Failure to generate funds for research from other sources.

4. Failure to obtain approval of several of the submitted proposals.

Even though a regular position of assistant project director was made available, it could not be covered because the low salary scale is not compatible with the qualifications required for an effective, creative research sub-system. As the positions were approved on transitory basis, a continuing staffing problem was always present.

There is the need for recruiting the services of capable professionals to perform the functions associated with an effective research and development information unit to serve as a resource to assist in the dissemination of information on a

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regular basis. Also needed are resources for collecting, compiling, and analyzing statistical data on a continuous basis, urgently needed for program planning and decision making procedures.

To help solve the problem of lack of personnel an intensive staff training in research and research related activities was planned for the summer months and during Fiscal Year 1971. Projects undertaken are explained earlier in this report.

Because of the lack of research oriented personnel, and limited RCU qualified staff, most of the research and research related activities necessarily have to be developed under contractual basis.

CAPITAL EQUIPMENT ACQUISITIONS

No equipment was purchased during the reporting period. Needed equipment had been purchased during previous year.

FORMS

Several forms have been used by the RCU, designed to secure data of a general nature for statistical reports about vocational and technical education programs and for use in ongoing and new projects. None required clearance from the USOE.

CONCLUSIONS AND RECOMMENDATIONS

Activities of the RCU during the reporting year continued to be developed with limited funds and limited professional resources. Regular staff included the director, and assistant director, one stenographer, and a typist. The other personnel served either in transitory positions or on part-time basis under contracts, thus resulting in interrupted activities.

There is a need for personnel to engage in dissemination activities and in promoting leadership and capabilities for data collection and retrieval at the different levels of the education system. The establishment of a management information system seems to be one of the most urgent problems at present.

The uncertainty of federal funding for the research subsystem possess another problem, as it affects the approval of proposals for the projected studies and the overall RCU functions.

The RCU is expected to make important contributions to vocational education in Puerto Rico as it relates to research, development, information collection, analysis and interpretation, and dissemination of information, and to serve as a

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mechanism for coordination in these areas. However, its functions cannot be adequately performed if funding is uncertain and if personnel is not readily available on a continuing basis.

FUTURE ACTIVITIES

Given the appropriate funds and resources the RCU should be in a position to function adequately and to promote projects and activities in terms of the following Long-Range Program priorities:

1. Establishment of a Management Information System
2. Establishment of a system for professional development of vocational personnel.
3. Assessment of needs and resources for occupational education planning and development.
4. Development and use of curriculum and instructional materials for regular and special programs.
5. Vocational education resources development.
6. Vocational guidance and career choices.
7. Occupational and educational status of vocational education graduates.
8. Evaluation of programs and services.

The research program shall be undertaken as part of RCU operations, and through grants and contracts in close coordination with the various vocational and technical education programs at the central, regional, and local levels. The extent to which the proposed five year plans are implemented will depend upon the availability of funds and personnel for program development.

STAFF SUMMARY

Name	Title or Function	Period Employed	Percent of Time
Mrs. Ana L. Reyes de Martínez	Director	July 1, 1969 June 30, 1970	100%
Mr. Ramón Iglesias Borges	Assistant Director	July 1, 1969 June 30, 1970	100%
Mrs. Reina C. Rodríguez	Researcher	July 1, 1969 June 30, 1970	66%
Mrs. Antonia F. Barkell	Curriculum Specialist	July 1, 1969 June 30, 1970	28%
Mrs. Virginia Antongiorgi	Researcher	January 1, 1970 June 30, 1970	100%
Mrs. Aida Sotomayor	Researcher	January, 1970 June 30, 1970	100%
Mrs. Fe Villafañe	Curriculum Technician	December, 1969 June, 1970	100%
Mrs. Edith Guardiola	Assistant Researcher	July 1, 1969 June 30, 1970	66%
Miss Jennie E. García	Assistant Researcher	July 1, 1969 February 15, 1970	66%
Miss Irma G. Rosa Batista	Statistician	June 1, 1969 July 30, 1970	66%
Miss Magali Haddock	Statistician	July 1, 1969 June 30, 1970	100%
Miss María del Carmen Ruiz	Assistant Researcher	July 1, 1969 June 30, 1970	66%
Mrs. Carmen A. Nieves	Administrative Assistant	July 1, 1969 June 30, 1970	50%
Mrs. María Eugenia Falú	Stenographer	July 1, 1969 June 30, 1970	100%
Miss Angie Pérez	Typist	November 6, 1969 June 30, 1970	100%
Mrs. Angélica Sánchez	Typist	January 15, 1970 May 26, 1970	100%

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HOWALD, J. CARTER; BOGGS, JAMES B.
REFINEMENT AND FURTHER DEVELOPMENT OF ARCHITECTURAL TECHNOLOGY CURRICULA IN TEXAS.

OEL MAR COLL., CORPUS CHRISTI, TEX. DEPT. OF ARCHITECTURAL AND DRAFTING TECHNOLOGY.
TEXAS EDUCATION AGENCY, AUSTIN.
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IDENTIFIERS - *TEXAS; ARCHITECTURAL TECHNOLOGY

ABSTRACT - THIS SPIRAL BOUND NOTEBOOK CONTAINS A STUDY BY TWO MEMBERS OF THE ARCHITECTURAL AND DRAFTING TECHNOLOGY DEPARTMENT AT OEL MAR COLLEGE WHICH COMPARES AND ANALYZES EXISTING PROGRAMS IN ARCHITECTURAL TECHNOLOGY IN ORDER TO DEVELOP A UNIFYING CONCEPT FOR 2-YEAR ARCHITECTURAL TECHNOLOGY CURRICULUMS IN TEXAS AT THE JUNIOR COLLEGE AND COMMUNITY COLLEGE LEVELS. THE ROLE OF THE ARCHITECTURAL TECHNICIAN IS DETAILED, AS WELL AS THE HISTORY OF THESE CURRICULUMS, ACCREDITING PROCEDURES, AND CERTIFICATION PROCEDURES. A QUESTIONNAIRE MAILED TO 2,500 ARCHITECTS LIVING IN TEXAS AND 1,100 LIVING OUTSIDE TEXAS PRODUCED 301 RESPONSES FROM TEXAS ARCHITECTS AND 82 FROM OUTSIDE TEXAS. A SERIES OF RECOMMENDATIONS FOR DEVELOPING CURRICULUMS IS INCLUDED, IN ORDER TO MEET THE NEEDS SHOWN BY BOTH THE QUESTIONNAIRES AND OVER 100 PERSONAL INTERVIEWS. A WIDE RANGE OF VISUAL AIDS ILLUSTRATES THE TEXT. A BIBLIOGRAPHY AND OTHER RESOURCE MATERIALS ARE INCLUDED. (AG)

ARCHITECTURAL TECHNO

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A STUDY BY

J. CARTER HOWALD, AIA, CSI

JAMES B. BOGGS, AIA

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JAMES B. BOGGS, AIA

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REFINEMENT AND FURTHER DEVELOPMENT OF ARCHITECTURAL TECHNOLOGY CURRICULA IN TEXAS

project no. 29067

A research grant supported by the Texas Education Agency and Del Mar College

Co-directors: J. Carter Howald, AIA, CSI
James B. Boggs, AIA

Department of Architectural and Drafting Technology
Del Mar College Corpus Christi, Texas 78404

PREPARED FOR:

Division of Occupational Research and Development
Texas Education Agency Austin, Texas 78701

June, 1972

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Del Mar College

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Corpus Christi Chapter American Institute of Architects
Corpus Christi Chapter Construction Specifications Institute
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Kathy Vickers, Typist
Steve Rodriguez, Layout Assistance
Central Duplication Department Del Mar College

And the 3600 other registered architects in Texas and elsewhere who took their time to talk with us and answer our questions.

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ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

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A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J CARTER HOWALD, AIA, CSI JAMES R BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE CORPUS CHRISTI TEXAS 78404

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PART	TITLE
1	Introduction
2	Objectives and Proceedures
3	The Architectural Technician
4	Questionnaire
5	Curriculum
6	Accrediting Procedures
7	Certification Procedures
8	Summary & Recommendations
9	Appendix
	Bibliography

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ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

PART 1

INTRODUCTION

- BACKGROUND OF DIRECTORS
- HISTORY OF ARCHITECTURAL TECHNOLOGY IN TEXAS
- THE TECHNOLOGIES

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI JAMES D. BOGGS, AIA
DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE CORPUS CHRISTI, TEXAS 78404

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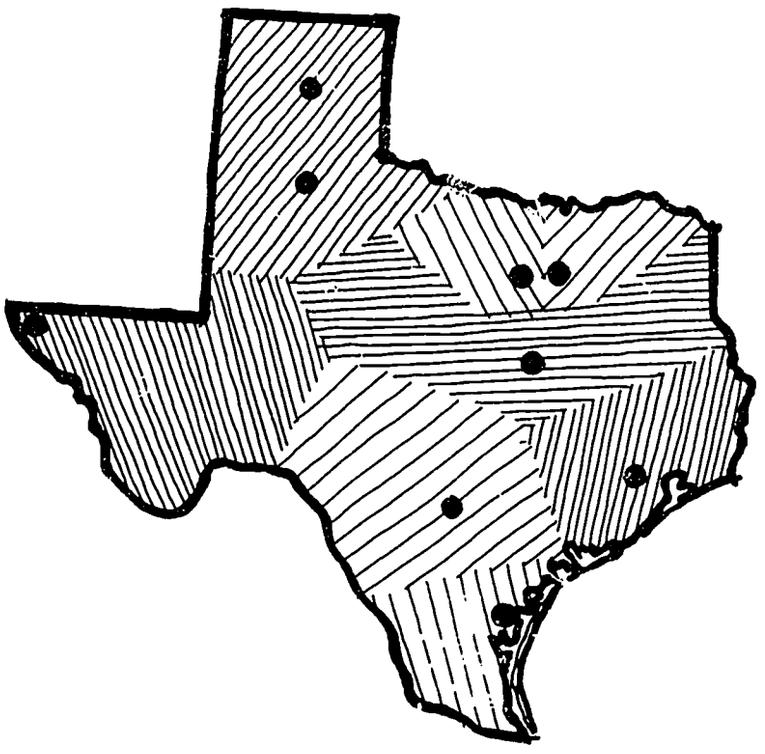
ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT



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Mr. Howald is a registered architect in the state of Texas and is a professional member of the Construction Specifications Institute.

For the past six years, Mr. Howald has been working with various architectural firms in the Corpus Christi area and has been a faculty member of Del Mar College. He was instrumental in the implementation of Del Mar's Architectural Technology Curriculum in 1968. In 1970, he was appointed the first Chairman of the new Department of Architectural and Drafting Technology.

He opened his own architectural practice in February, 1972 and is currently serving as an officer in the Corpus Christi Chapter of the Construction Specifications Institute. His involvement with Del Mar College and his professional experiences with the graduates of Del Mar's Architectural Technology Program have resulted in his interest and participation in this study

J. Carter Howald, A.I.A., C.S.I.
Architect/Assistant Professor

Bachelor of Architecture, 1966
Texas Tech University

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James B. Boggs, A.I.A.
Architect/Instructor

Bachelor of Architecture, 1962
Texas Tech University

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Mr. Boggs holds architectural registration in the state of Texas and is an N.C.A.R.B. certificate holder. He is a corporate member of the American Institute of Architects and is currently an officer in his local chapter. He is actively involved in civic affairs in Corpus Christi and is presently Projects Chairman of the Municiple Arts Commission.

After having worked for various architectural firms in South Texas, he opened his own office for the practice of architecture in January of 1972. His architectural experiences have involved him in works ranging from smallest residential remodeling jobs to the largest of high school and university facilities. Also, during the past six years, he has been actively involved in architectural technology education.

In 1970, he and Mr. Howald were selected to be among the first faculty members of the Architectural and Drafting Technology Department at Del Mar College. This involvement in his profession, community, and education led him to embark upon this study with Mr. Howald.

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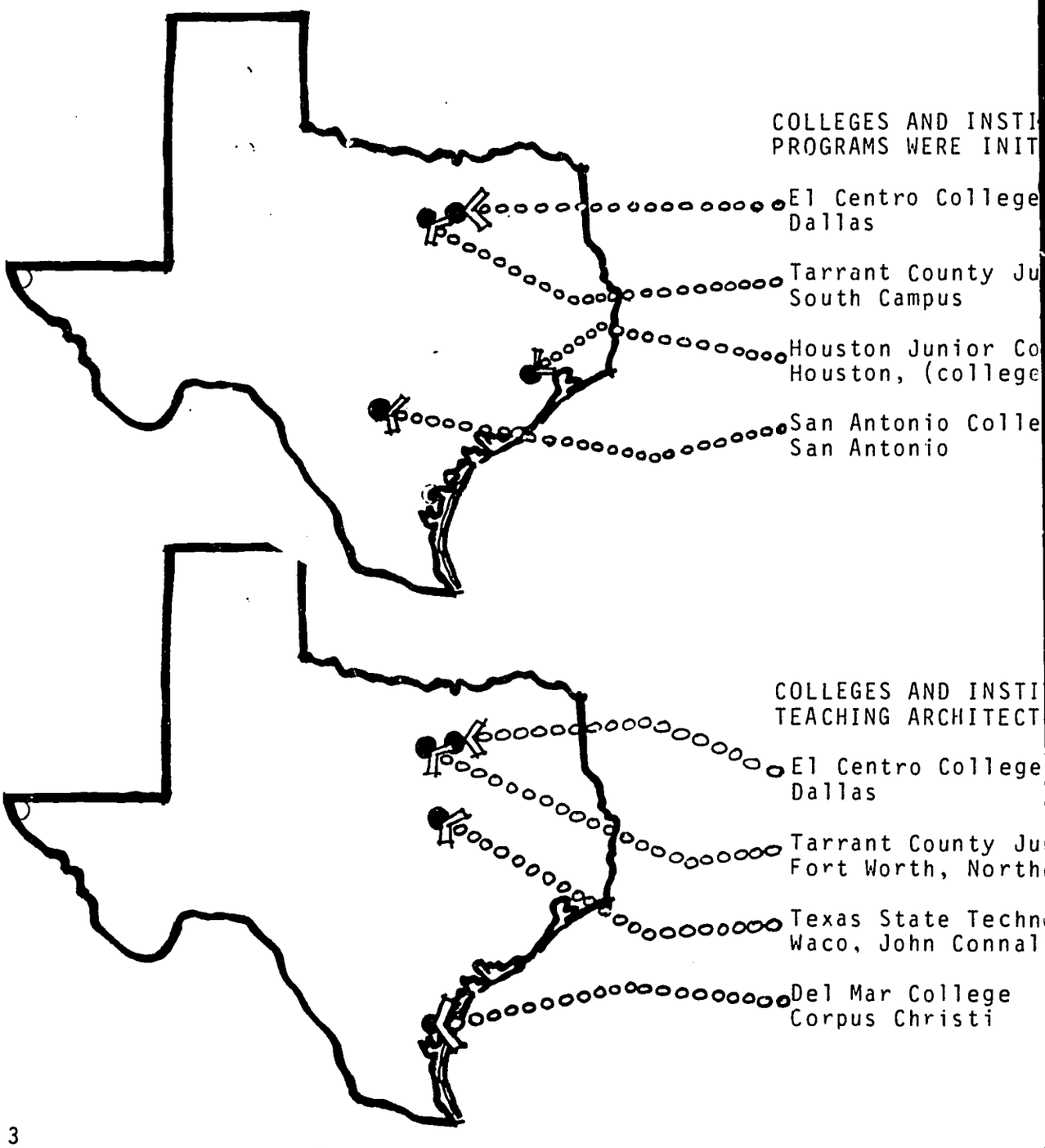
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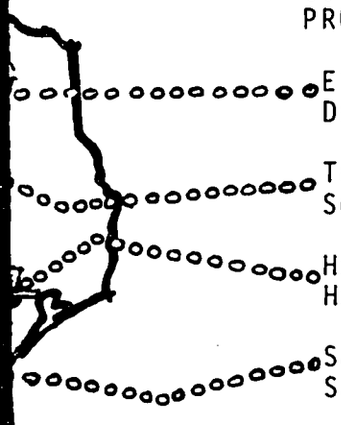

COLLEGES AND INSTITUTIONS WHERE ORIGINAL PROGRAMS WERE INITIATED BY T.S.A. IN 1968

El Centro College
Dallas

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Houston, (college now closed)

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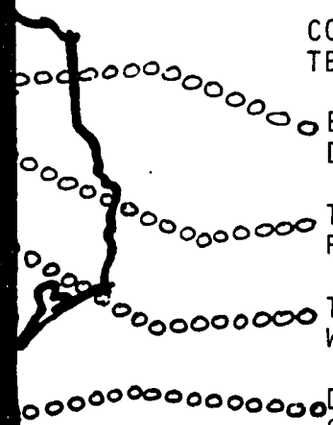

COLLEGES AND INSTITUTIONS PRESENTLY TEACHING ARCHITECTURAL TECHNOLOGY

El Centro College
Dallas

Tarrant County Junior College
Fort Worth, Northeast Campus

Texas State Technological Institute
Waco, John Connally Campus

Del Mar College
Corpus Christi

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HISTORY OF ARCHITECTURAL TECHNOLOGY CURRICULUM DEVELOPMENT IN TEXAS

As the technology of building construction increased over the past ten to twenty years, the architectural profession discovered a certain need within itself. This need was apparent to many practitioners who were aware of the new technological advances as they felt the impact in their practices of the necessity to keep up with these advances while performing the same tasks they had in the past. That impact was the necessity to find and utilize a work force of individuals who were skilled in these technical areas and could perform many of the technical and time consuming tasks and free the principals, the architects, to pursue other important tasks.

In the past, the personnel of the architect's office, given the responsibility of performing these tasks for the architect, consisted primarily of graduates from baccalaureate schools of architecture. After these graduates served a mandatory apprenticeship period toward registration as architects, they either divorced themselves from the firms or moved to the position of associate with similar function as principals. Since the non-college trained draftsmen were not technically oriented to their new tasks, there existed a work force void. Thus was established the need for the paraprofessional, the architectural technician.

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As this need spread throughout the United States, the American Institute of Architects became actively interested. In 1968 the Educational Task Force for Architectural Technician Training of the American Institute of Architects prepared a report entitled, "A Program for architectural Technician's Training." This study was a result of recommendations made by the Educational Research Project for Environmental Studies, sponsored by the American Institute of Architects under a grant to Princeton University. Those findings were presented in preliminary form in 1967. Out of the "Princeton Report" came another equally important study made by the faculty at Texas A&M University, entitled "Architectural Education: 1990." The A&M study established new guidlines for the direction of architectural education at the university level.

Portions of the report, "A Program for Architectural Technician's Training", have been utilized by the Project Directors of this study as well as portions or the basic educational philosophy included within the report. To research the education of architectural technicians and then avoid the positive comments of architects concerned with that education is to research in ignorance.

In 1968, the Texas Society of Architects (the Texas Region of A.I.A.) also recognized this need for the architectural technicians. At that time, the T.S.A.

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appointed a task force to establish pilot programs in architectural technology at several Texas colleges. As a result of their efforts, four pilot programs were established in the state. The locations of those programs are indicated on the map.

Of the four original pilot programs in architectural technology, two are now non-existant and a third one has relocated to another campus. This study has shown current architectural technology programs to be located as indicated on the map.

After study and analysis of the existing programs and how they are serving the need for architectural technicians, a probable growth pattern for future programs was apparent.

This study evolved as a result of the Co-Directors' active involvement with education of architectural technicians at Del Mar College, coupled with their recognition in their own professional practices for the need for competent technical personnel in architecture.

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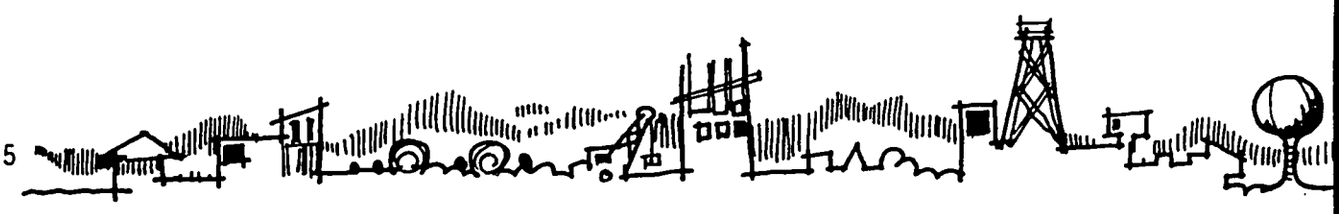

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THE TECHNOLOGIES

Technology serves many areas of society. For purposes of this report, a few of these technologies are listed below.

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.CIVIL TECHNOLOGY
.CONSTRUCTION TECHNOLOGY
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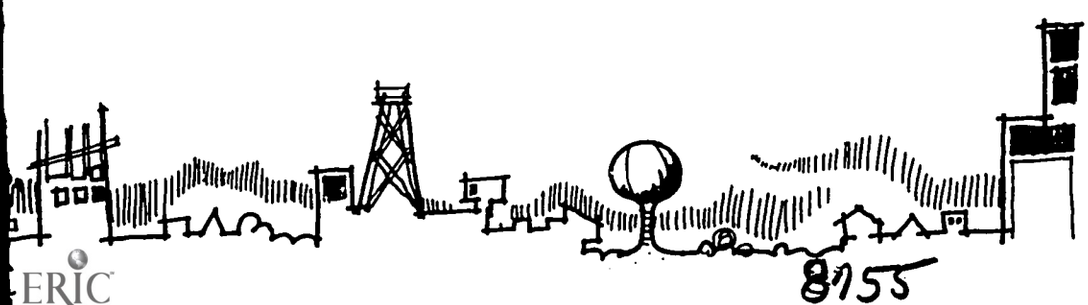
.HEALTH SCIENCES TECHNOLOGY
.INDUSTRIAL ENGINEERING TECHNOLOGY
.INSTRUMENTATION ENGINEERING TECHNOLOGY
.MECHANICAL ENGINEERING TECHNOLOGY

Of the technological fields listed, this study is concerned with only one, architectural technology.

For clarification, the architectural technician is concerned with areas of building which most directly effect the architect. A more complete discussion of the architectural technician is covered in Part 3 of this report.



ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

PART 2

OBJECTIVES AND PROCEDURES

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. HOBBS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

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The primary concern of junior and community colleges is to provide skilled instruction to enable individuals seeking knowledge an opportunity to achieve the maximum development of their abilities.

For some of these individuals, this opportunity includes the attainment of an associate degree. For others, the attainment of a degree is not as critical as the necessity to learn a skill or develop technical knowledge to the point where the individual may desire to become a full time active participant in some working industry or business. These individuals become a valuable asset to any community.

Another type of individual, who perhaps has no desire for a degree but rather a need for additional knowledge, is the already working member in the community. This might include the draftsman searching for a means to increase his job capabilities through attainment of additional technical skills, as well as the university architectural school drop out desiring to add to the limited knowledge he has previously obtained. Whatever type of individual, the junior and community college has an obligation to fulfill the educational needs of these persons. A good architectural technology program does this.

In the last few years, the architectural profession and related construction fields have become aware of the increas-

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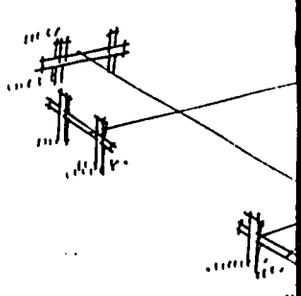

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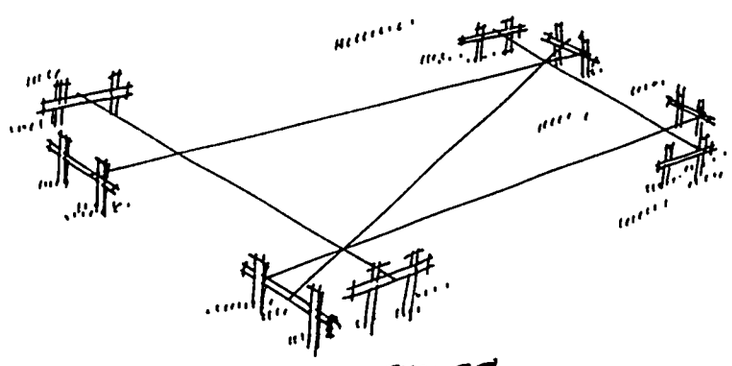
ing need for well trained architectural technicians. This need is further emphasized by the fact that out of every ten graduates of architectural schools, only approximately fifty percent end up in architectural offices. The need for highly skilled paraprofessionals, technicians, in the architectural profession is paramount.

This study attempts to develop a unifying concept for Architectural Technology Curriculums in Texas. For purposes of this report, the terms architectural technician or architectural technology apply to individuals more technically trained than the vocational draftsman, yet with less formal design training than received in baccalaureate degree granting colleges or universities.

Existing schools offering programs in architectural technology will be determined and reported. Curriculums of these schools will be compared and analyzed for the unification concept.

The procedures which the Co-Directors utilized in this study follow.



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PROCEDURE

STEP 1:
The authors attended the spring 1971 meeting of the Southern Region of the National Council of Architectural Registration Boards. This important meeting dealt with the formalizing of a new system for registering architects based upon radical changes that our society has placed upon the architectural profession. Those changes have a direct impact upon the architectural technician.

Those invited to attend this conference were as follows:

A. The Texas Board of Architectural Examiners

B. The Executive Secretary to the T.B.A.E.

C. Chairmen, Texas Schools of Architecture:
   1. University of Houston
   2. Rice University
   3. Texas A&M University
   4. Texas Tech University
   5. The University of Texas, Austin
   6. The University of Texas, Arlington

D. Representatives of Texas Junior and Community College Architectural Technology Programs.

E. The Officers of The National Council of Architectural Regis

F. The Board of Archit of the ten other st ern Region.

STEP 2:
The authors, following results of Step 1, det two-year architectural very important positio architecture. Therefo steps were followed to isting agencies and bo the proper implementat technology programs in as new programs in Tex

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F. The Board of Architectural Examiners of the ten other states in the Southern Region.

STEP 2:
The authors, following an analysis of the results of Step 1, determined that the two-year architectural technician has a very important position to fill in today's architecture. Therefore, the following steps were followed to fully utilize existing agencies and bodies to formulate the proper implementation of architectural technology programs into existing as well as new programs in Texas

A. Visited the following:
   1. San Antonio Junior College, San Antonio
   2. Tarrant County Junior College, Fort Worth, Northeast Campus
   3. El Centro College of the Dallas County Junior College District, Dallas
   4. Texas State Technical Institute, James Connally Campus, Waco

5. Texas State Technical Institute, Rio Grande Campus, Harlingen

These visits were to review the work being done at these institutions in relation to that at Del Mar College. Interviews were conducted with faculty and students to find their directions.

B. Attended regular meetings of the Texas Society of Architects Committee on Technician's Training.

C. Attended regular meetings of the Construction Specification Institute Committee on Technician Training, Corpus Christi Chapter.

D. Worked with the American Institute of Architects headquarters staff to acquire a very broad scope of information on this matter.

E. Worked with an advisory committee as set up to represent all of the above listed groups.

F. Attempted to interview all the heads of university level architecture programs in Texas.

Prior to establishing a procedure to follow, the Co-Directors established nine (9) specific objectives which they felt were necessary to establish the study.

SPECIFIC OBJECTIVES

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SPECIFIC OBJECTIVES

1. To refine Del Mar College's Architectural Technology Curriculum by reviewing other programs which are similar in concept, thereby establishing a working Architectural Technology Curriculum that will be the nucleus of a statewide occupational education plan in architectural technology.

2. To involve the Architectural Advisory Groups in the permanent evaluation and recommendation process of curriculum development, i.e., Texas Society of Architects, National Council of Architectural Registration Boards, American Institute of Architects.

3. To define the needs of architecture and related industries and the means whereby education can fulfill these needs.

4. To establish ways of involving architecture and related industries in the Architectural Technology Curricula so that interaction with students and professionals is implemented.

5. To determine ways to involve professionals in teaching roles in architectural technology programs.

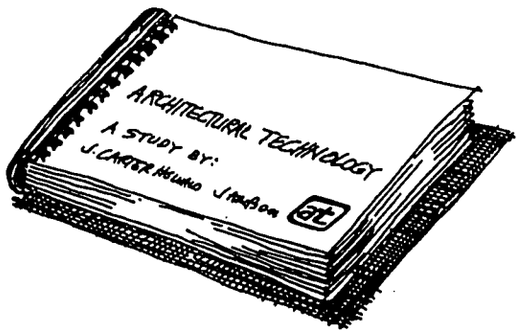
6. To determine ways to strengthen existing programs at other junior and community colleges in Texas in an attempt to establish a uniform level of architectural technology education in Texas.

7. To set up the mechanics for a certified architectural technician's program similar to the present Institute for the Certification of Engineering Technicians, sponsored by the National Society of Professional Engineers.

8. To provide opportunities for the individual desiring to become a qualified architectural technician.

9. To further develop the potential of the academic and socio-economically handicapped student to become an effective member of architectural and related industries.

Upon completion of the study, any data found during the Co-Director's investigation would be utilized to develop a document which will give other schools the necessary data to implement programs of this nature.



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ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

PART 3

THE ARCHITECTURAL TECHNICIAN

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. HOGGS, AIA
DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

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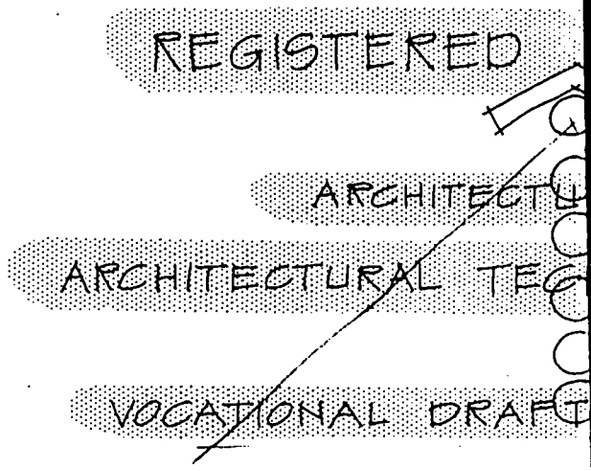
An architectural technician is one who, in support of and under the direction of registered architects, can carry out in a responsible manner either proven techniques, which are common knowledge among those who are technically expert in a particular technology, or those techniques especially prescribed by architects.

Performance as an architectural technician requires the application of principles, methods, and techniques appropriate to the field combined with practical knowledge of construction, application, properties, operation, and limitations of architectural systems along with processes and structures used in developing those architectural systems related to the graphic and technical skills required to convey this knowledge.

Under the professional guidance of an architect, the architectural technician can analyze and solve architectural problems, prepare formal reports, work up cost estimates and perform field inspections. He should also be aware of his design limitations, have knowledge of building codes and zoning requirements, and be able to carry out such functions as drafting, surveying, specification writing, and assigning work to people at a lower skill level. The architectural technician need not have an education equivalent in type, scope, and rigor to that required of an architect. However, he must have a more technical education and experien field than is required draftsmen who often wo ervision.



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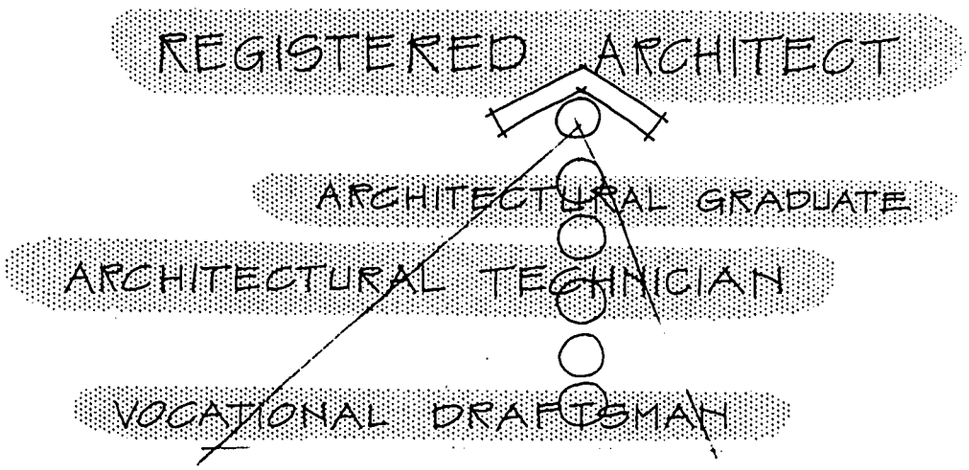
education and experience over a broader field than is required of vocational draftsmen who ofter work under his supervision.



To understand the function of the architectural technician in the profession of architecture, an example of the working levels in practice are outlined below:

A. Registered Architect:
An individual licensed and registered by state examination. Graduated from a University or upper level college with an accredited program in architecture such as those offered at the University of Houston, Texas Tech University, The University of Texas at Austin, Texas A&M University, and Rice University. An internship period of several years prior to the state examination is required. He is responsible for the health, safety and general welfare of the public with respect to all architectural work bearing his seal. He oversees that all personnel are capable of performing all tasks.

B. Architectural Graduate:
An individual not yet registered by state examination. He is a graduate from a University or upper level college with an accredited program as listed above under registered architect. He is highly trained in Design Skills with minimal training in technical aspects of architecture, in some cases he will perform tasks of the architectural technician and vocational draftsman.

C. Architectural Technician:
An individual graduate from a recognized architectural technology program such as those taught at Del Mar College, Corpus Christi; Tarrant
Northesat Campus;
Institute, James
El Centro College
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Christi; Tarrant County Junior College, Northesat Campus; Texas State Technical Institute, James Connally Campus, Waco; El Centro College of the Dallas County community college district. These programs are technical in nature and give the graduate an awareness of the technical aspects of architecture and construction with an understanding and sympathy of the design processes. One year of intership is usually a pre-requisite to an active and viable functioning job in the in the profession. He is responsible to the architect for performing those technical tasks as outlined on the chart "Functions and Performance in the Architectural Office," at the end of this portion of the report. In some cases he will perform the functions of the vocational draftsman.

D. Vocational Draftsman:
An individual skilled in various aspects of drafting relating to architecture. Usually graduates of high school or vocational drafting courses such as those taught at Texas State Technical Institute, Rio Grande Campus, Harlingen; and Lamar University, Beaumont. These programs usually are general in nature with the emphasis placed on the fundamentals of drafting assignments and given by the technician, the architectural graduate, or the registered architect.

The registered architect has the capability of functioning at any of the four classifications listed. In many cases, he will perform the tasks of the architectural technician and the vocational draftsman, as well as the functions of the architectural graduate.

The architectural graduate, being well versed in the design philosophies, is usually given by the registered architect those tasks which directly relate to the functions of design. When not designing, the architectural graduate will function in similarity to the architectural technician. The architectural graduate is a unique person in this picture. Because he is not yet registered, he is not an "architect." By tradition, after a year of internship, he is a "technician." He functions both as an architectural technician and a vocational draftsman, when in reality his actual role is that of transient or "passing through"to registration.

The architectural technician works at his own level and the level of the vocational draftsman regularly. In some instances, depending upon the size of the staff, the architectural technician will perform only technical duties while delegating work to the vocational draftsman. The architectural technician rarely performs the design duties of the architectural graduate.

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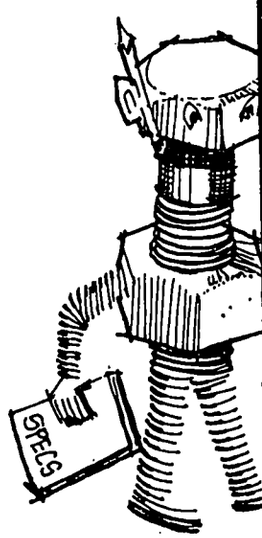
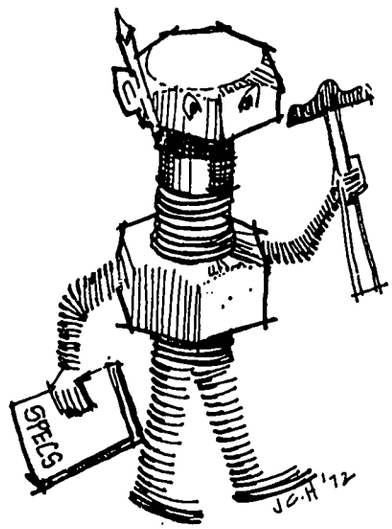


The architectural technician is the "nuts and bolts" man of the team and does not seek registration as an architect.

The vocational draftsman is usually limited in his technical abilities. His value to the team lies in his capabilty to perform basic drafting skills to a high degree of skill. Work given to the vocational draftsman is usually well programmed with a few questions necessary prior to the draftsmans' completion of the assigned task. Rarely does the vocational draftsman operate at the technical level.

THE ARCHITECTURAL TECHNICIAN



.... THE "NUTS AND BOLTS" MAN OF THE TEAM

Upon analyzing the previously listed working levels, the following conclusions can be seen:

1. Generally, in small practices, the registered architect may function at all levels. However, if he employed an architectural technician, he would be free to perform more adequately at his own professional level. Many hours of valuable time would be returned to the architect by the technicians functioning in the routine work areas.

2. In medium size practices (five to ten employees), the registered architect will usually function at the top two levels with architectural graduates performing those tasks of the lower levels. By adding architectural technicians to his staff, the architect can again save valuable man hours of work.

3. In the larger practices (over ten employees), the work levels become more obvious. For efficient operation, the registered architect must function at his own level, the architectural graduate at his level, and finally, the vocational draftsman at the level previously defined for him.

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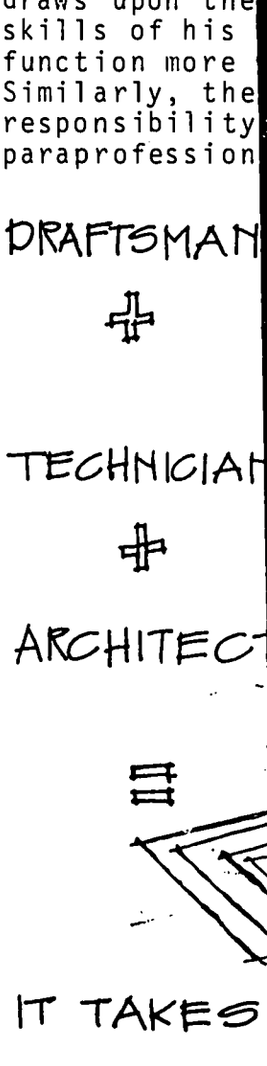

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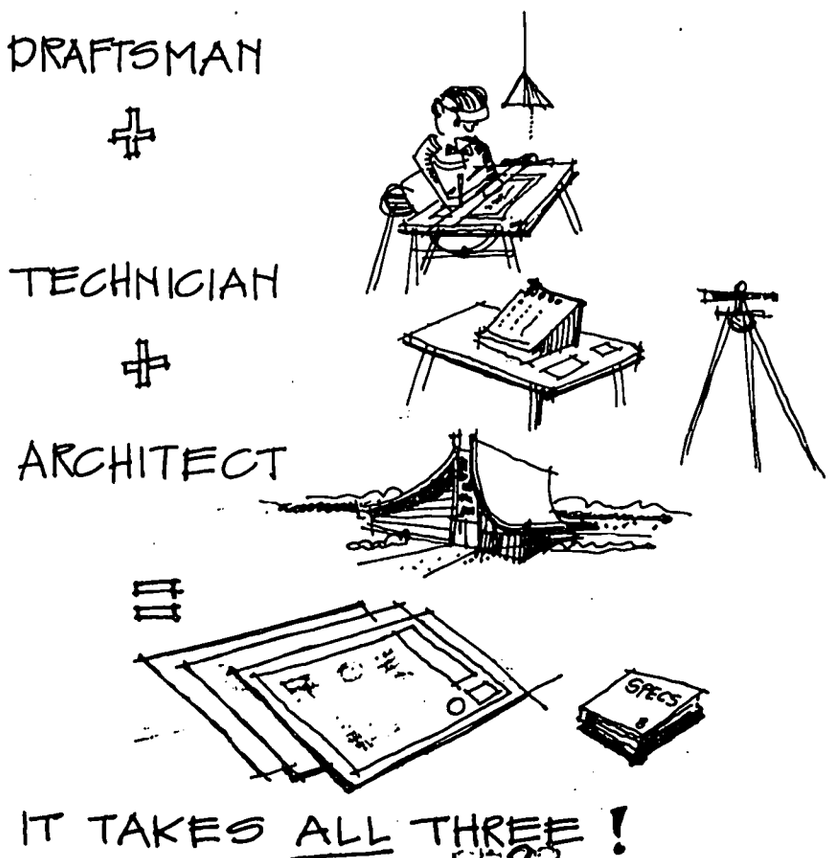
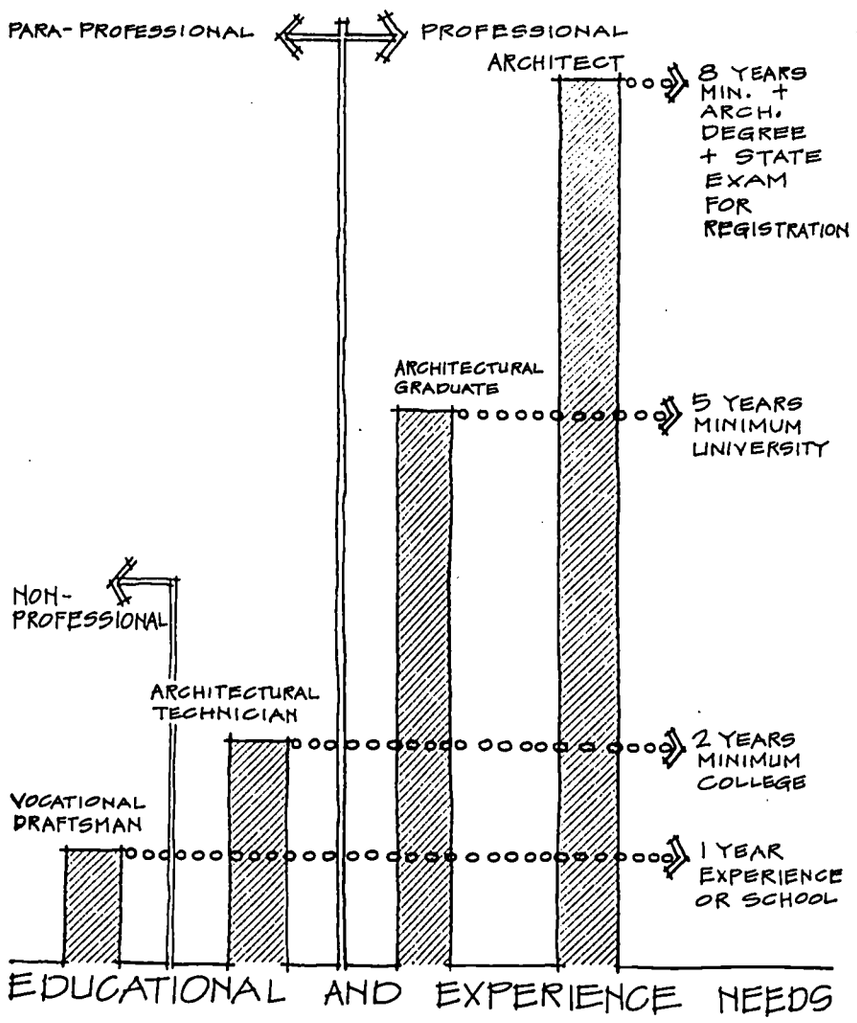
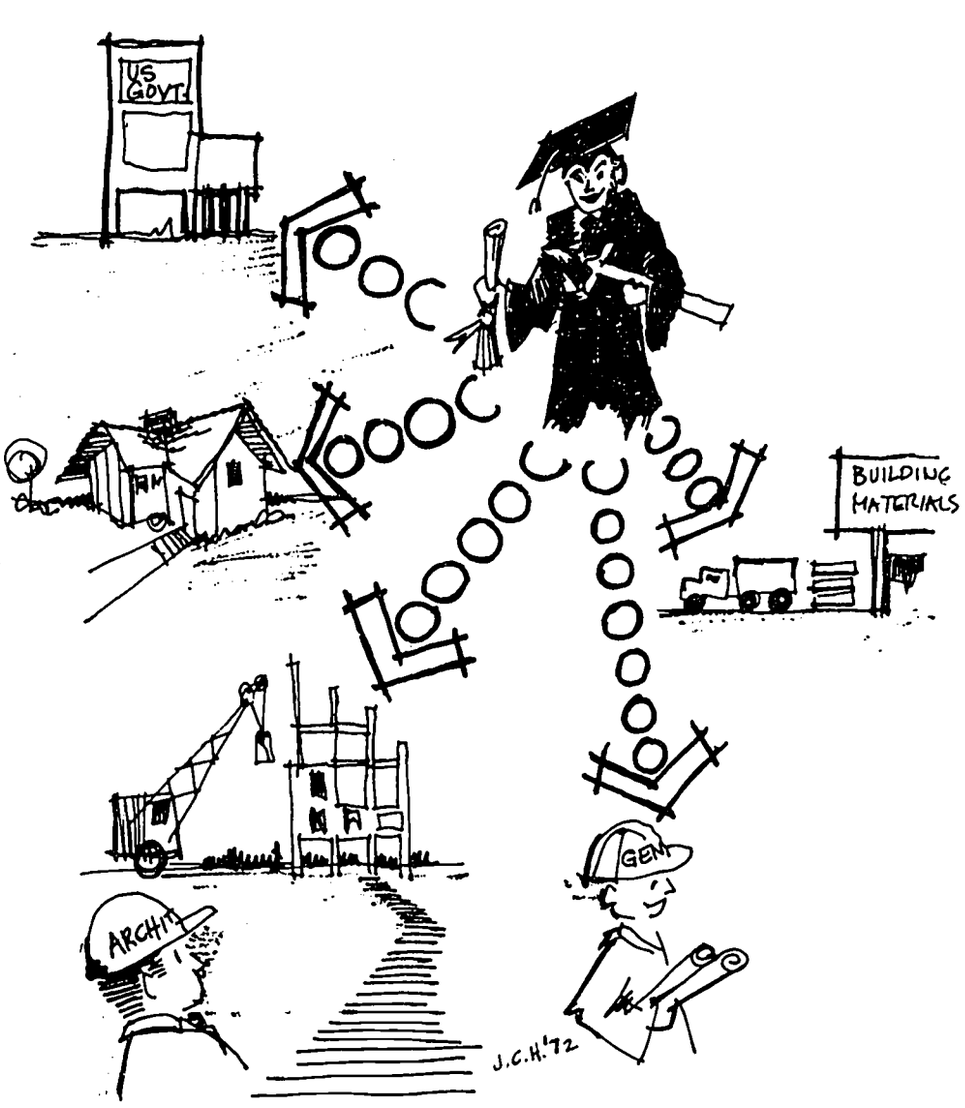
An analogy can be seen when considering the medical profession, wherein the physician performs his duties with assistance from several areas of professionals such as nurses, and paraprofessionals such as anesthetists and x-ray and laboratory technicians. The physician draws upon the fundamental and technical skills of his staff to enable him to function more completely and competently. Similarly, the architect will delegate responsibility to his professionals and paraprofessionals in a like manner.




PARA-PROFESSIONAL
PROFESSIONAL
ARCHITECT
8 YEARS MIN. + ARCH. DEGREE + STATE EXAM FOR REGISTRATION
ARCHITECTURAL GRADUATE
5 YEARS MINIMUM UNIVERSITY
NON-PROFESSIONAL
ARCHITECTURAL TECHNICIAN
2 YEARS MINIMUM COLLEGE
VOCATIONAL DRAFTSMAN
1 YEAR EXPERIENCE OR SCHOOL
EDUCATIONAL AND EXPERIENCE NEEDS



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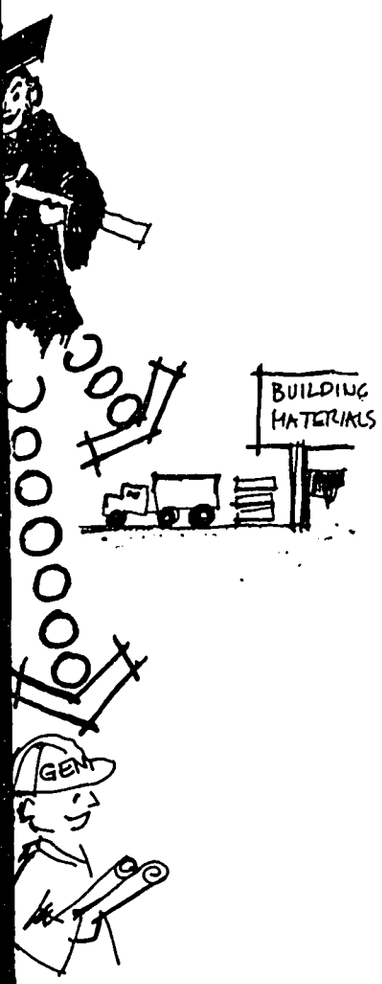


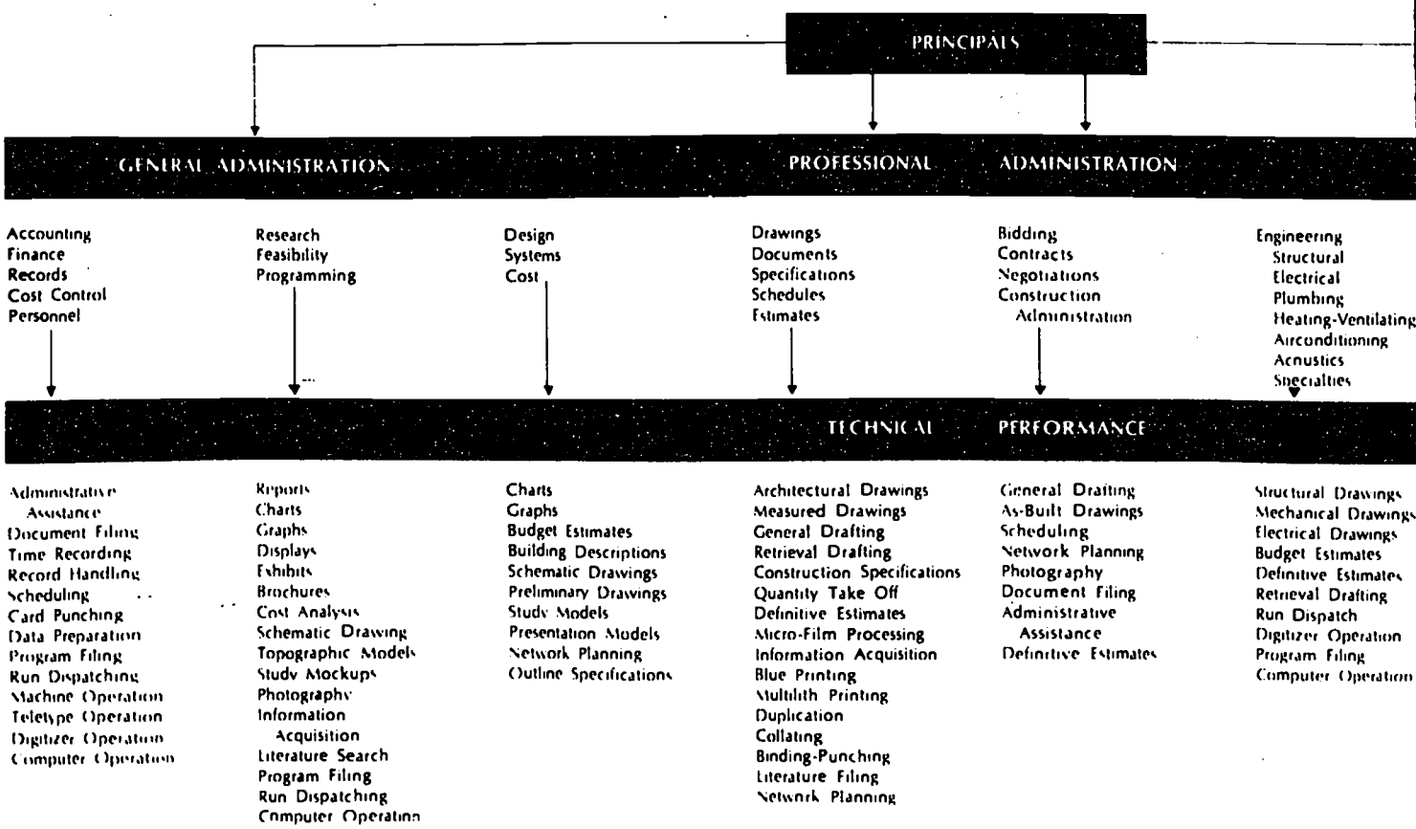
Employment: The technician who receives his degree in Architectural Technology can find employment in the following general businesses or professions:

- .Architects
- .Urban Planners
- .General Contractor
- .Sub Contractor
- .Material Suppliers
- .Builders
- .Other Construction Related Fields
- .Various Governmental Agencies

On the following pages, the specific duties of the architectural technician are further explained by two charts. These charts are from the 1968 A.I.A. publication, "A Program For Training Architectural Technicians."

The first illustrates the definite roles in which the architectural technician can function. The second chart shows the relationships of professionals to paraprofessionals in an architectural office and also details of the areas of technical performance by the architectural technician.

FUNCTIONS & PERFORMANCE IN THE ARCHITECTURAL OFFICE



(From: "A Program For Architectural Technici

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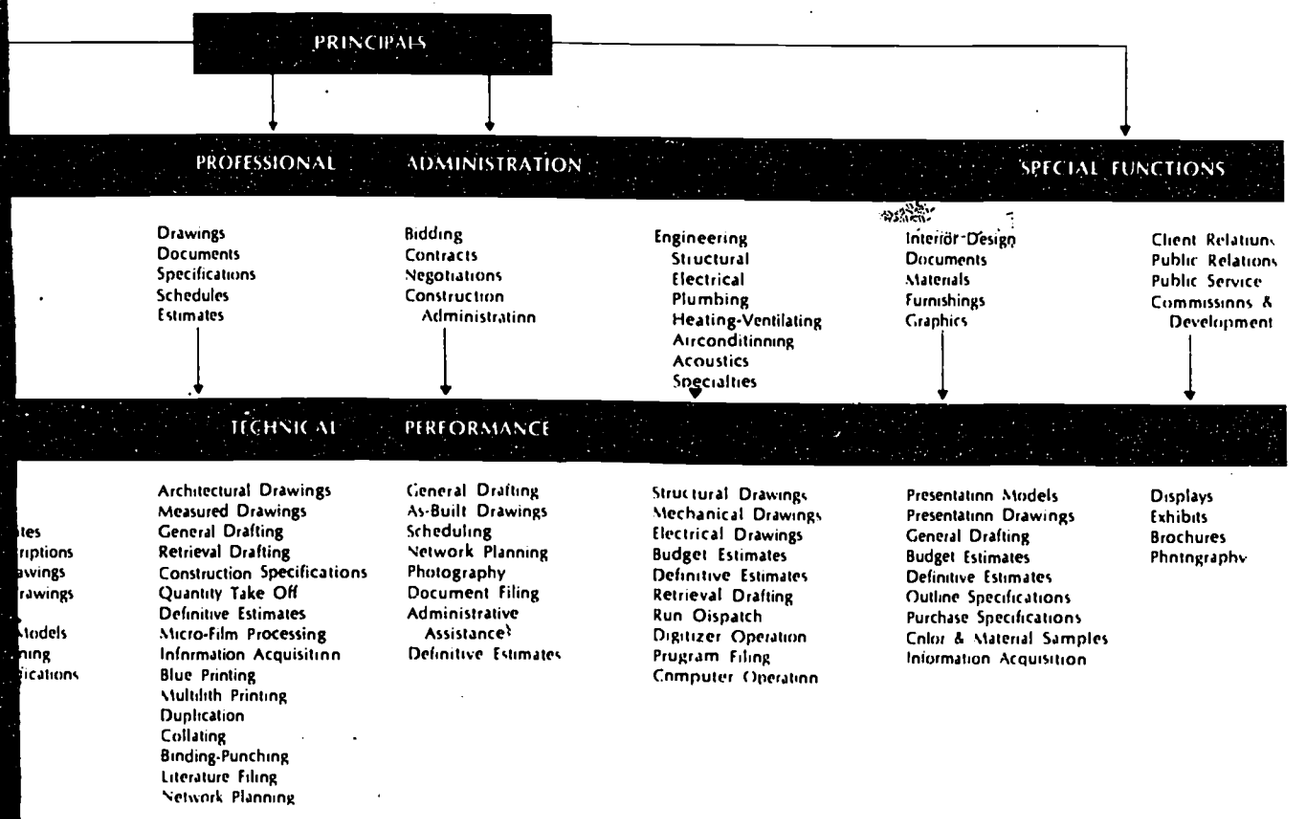

From: "A Program For Architectural Technician's Training," AIA, 1968

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THE ROLES OF THE ARCHITECTURAL TECHNICIAN

(From: "A Program For Architectural Technician's Training," AIA, 1968)

Technician/Drafting
Architectural drawings
Structural drawings
Mechanical and electrical drawings
Measured drawings
As-built drawings
General purpose drafting

Technician/Estimating
Quantity take-off
Budget estimates
Cost analyses
Definitive estimates

Technician/Information
Product literature filing
Technical data acquisition
Library, books, and magazines
Literature search
Samples and materials
Information retrieval

Technician/Graphic Arts
Brochures and proposals
Reports, charts, and graphs
Displays and exhibits
Schematic drawings and diagrams
Preliminary drawings

Technician/Models
Topographic models
Study models and mock-ups
Presentation models

Technician/Specifications
Information acquisition
Outline specifications
Building descriptions
Construction specifications
Purchasing specifications

Technician/Administration
Administrative assistance
Project scheduling
Network planning
Document filing
Time recording

Technician/Data Processing
Card punching
Data preparation and record handling
Computer operation and run dispatching
Teletype operation
Digitizer operation
Program filing

Technician/Reproductions
Blueprinting
Multilith printing
Duplication, binding, and punching
Photographic reproduction
Photography
Microfilm processing
Retrieval drafting

The technician's education should be directed toward the attainment of skills that would qualify him for several specialities. His entry into the profession may be at the most elementary level but, with experience, the competent and motivated will rise to responsible levels and be concerned with special duties.

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ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

PART 4

QUESTIONNAIRE

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE
CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA
DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE CORPUS CHRISTI, TEXAS 78404

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PART 4 QUESTIONNAIRE

A questionnaire was mailed to 2,500 architects living in Texas and to an additional 1,100 who live outside of Texas. Of the 425 returned, 383 were received in time to prepare them for compiling the data. The answers given were placed onto Data Processing cards and then a print out of each defined area was made.

Although 301 questionnaires were returned from Texas architects, it was determined that many of the larger architectural firms collectively answered the questions and returned only one questionnaire for that group. By doing so, a single questionnaire thus represented one architectural firm but spoke for as many as 20 architects. Therefore, it is the consensus of the authors and their resource committee that the returned questionnaires represented from 40% to 60% of the registered architects in Texas.

Those 82 returned from outside Texas represented an interesting cross section of architects removed from Texas but faced with a similar situation elsewhere.

In order to develop a method of comparison, large cities were kept separate from the smaller cities. Cities with programs in architecture were (except Arlington) separated. In some cases, several smaller cities were placed into general areas or regions for ease of reading. The

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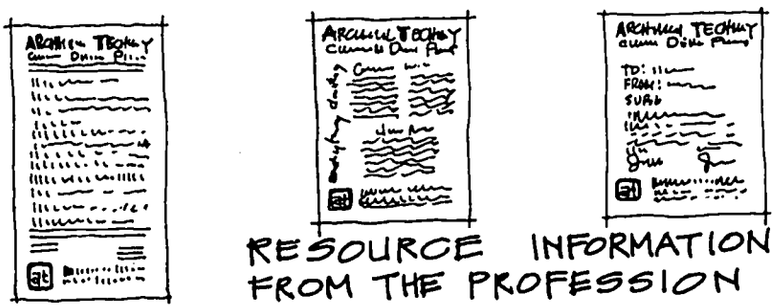
other 49 states were divided into three separate parts geographically and then computed together. Finally, Texas and the other states were computed together.

The questionnaire was deliberately limited to one page in length and each question was carefully selected to find attitudes and needs based on size of firm and size of city.

A copy of the questionnaire, cover letter, and sample of data print out are in the Appendix.

A summary of the questionnaire is found at the end of this part.



The questionnaire was analyzed based upon the following:

AREA	CITIES (STAT
1. Austin	Austin
2. Amarillo	Amarillo
3. Corpus Christi	Corpus Chris
4. Dallas	Dallas
5. Fort Worth	Fort Worth
6. Dallas/Fort Worth Area	Grand Prairi Arlington, C
7. Lubbock	Lubbock
8. Houston	Houston
9. San Antonio	San Antonio
10. East Texas Area	Marshall, Mt Longview, Lu
11. East Central Texas Area	Tyler Waco
12. Southeast Texas Area	Victoria, Po Bay Town, Be
13. West Texas Area	Midland, Ode
14. West Central Texas	Abilene, San
15. Rio Grande Area	Brownsville,
16. South Central Texas	Beeville, Se
17. TEXAS	1 - 16 Toget
18. Eastern States	Mass., Conn. N. Carolina, Tenn., Miss.
19. Central	Wisconsin, M Louisiana, O
20. Western States	California (
21. 18, 19, & 20 Together	All States R
22. 17 & 21 Together	Texas and Al

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yzed based upon the following:

CITIES (STATES) INCLUDED
Austin
Amarillo
Corpus Christi
Dallas
Fort Worth
Grand Prairie, Irving, McKinney, Dennison, Arlington, Cleburn, Gainsville, Witchita Falls
Lubbock
Houston
San Antonio
Marshall, Mt. Pleasant, Commerce, Texarkana, Longview, Lufkin, Palestine
Tyler Waco
Victoria, Port Arthur, Texas City, Pasadena, Bay Town, Beaumont, Bryan, Galveston
Midland, Odessa, El Paso, Big Spring
Abilene, San Angelo
Brownsville, Harlingen, Mission, Laredo
Beeville, Seabrook, San Marcos, Uvalde
1 - 16 Together
Mass., Conn., New York, Wash. DC, Maryland N. Carolina, S. Carolina, Georgia, Florida, Tenn., Miss., Ohio, Ill.
Wisconsin, Minnesota, Missouri, Kansas Louisiana, Oklahoma, Arkansas, New Mexico
California (only state to return questionnaire)
All States Responding
Texas and All States Responding

In order to give the reader a quick reference to the way questions w
of answers is followed by the total Texas respondents (*) which is f
response from the states outside of Texas (**). A summary of the re
follows the last question.

QUESTION NUMBER 1

Are you familiar with the role of the "Architectural Technician"?

(1) YES	(2) NO
*205	*87
** 58	**21

QUESTION NUMBER 2

Are current Architectural Technician graduates in your community ful

(1) YES	(2) NO
*44	*187
**27	** 39

QUESTION NUMBER 3

Do you actively support an Architectural Technology program in your

(1) YES	(2) NO	(3) NO LOCAL GRADUATES TO DRAW FROM	(4) I HA GRADU
*66	*70	*119	
**25	**18	** 26	

ck reference to the way questions were answered, each choice
al Texas respondents (*) which is followed by the total
of Texas (**). A summary of the responses to the questionnaire

the "Architectural Technician"?

ian graduates in your community fulfilling your need if any?

ectural Technology program in your community?

L GRADUATES TO DRAW FROM

*119
** 26

(4) I HAVE NO NEED FOR ARCHITECTURAL GRADUATES

*32
** 6

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QUESTION NUMBER 4

Is the local Architectural and Construction industry involved in an existing program in your community?

(1) YES	(2) NO
*74	*167
**24	** 45

QUESTION NUMBER 5

Would you actively support an Architectural Technology Program in your community?

(1) YES	(2) NO
*227	*37
** 62	** 5

QUESTION NUMBER 6

Would you endorse uniform Architectural Technology Programs throughout Texas modified to your community's specific needs?

(1) YES	(2) NO
*264	*18
** 49	** 2

NOTE: Some respondents struck out "Texas" and entered their own state.

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QUESTION NUMBER 7

Do you feel there is a definite, immediate need for a strong 2-year Ar
Program in Texas Junior and/or Community Colleges?

(1) YES	(2) NO
*253	*31
** 56	** 3

NOTE: Some respondents implied by r
endorse similar programs in t

QUESTION NUMBER 8

Do you feel that the certification by the profession of architectural
professionals" is desirable?

(1) YES	(2) NO
*169	*91
** 52	**18

QUESTION NUMBER 9

What role does the architectural technician play in your office?

(1) MAJOR	(2) MINOR	(3) NONE
*41	*72	*168
**19	**20	** 32

ate need for a strong 2-year Architectural Technology
y Colleges?

Some respondents implied by note that they would endorse similar programs in their states.

he profession of architectural technicians as "para-

cian play in your office?

(3) NONE

*168
** 32

QUESTION NUMBER 10

Size of your office:

(1) 1-5	(2) 6-10	(3) 11-20	(4) 21-50	(5) 51-10
*137	*59	*48	*36	*8
** 21	**19	**18	** 7	**4

QUESTION NUMBER 11

Number of offices operated by your firm in Texas and elsewhere:

(1) ONE	(2) TWO	(3) THREE	(4) FOUR
*237	*35	*4	*6
** 43	** 9	**3	**2

QUESTION NUMBER 12

Which of the following areas do you believe trained technicians would your office: (circle your choices)

	*	**
(1) FIELD INSPECTIONS	140	36
(2) COST ESTIMATIONS	93	25
(3) SPECIFICATION WRITER	76	27
(4) DRAFTSMAN	264	81
(5) CHIEF DRAFTSMAN	50	19
(6) COMPUTER CO-ORDINATOR	16	12
(7) ADMINISTRATIVE ASSISTANT	38	17
(8) SHOP DRAWING	133	47

8789

(3) 11-20	(4) 21-50	(5) 51-100	(6) ABOVE 100
*48	*36	*8	*7
**18	** 7	**4	**7

y your firm in Texas and elsewhere:

(3) THREE	(4) FOUR	(5) FIVE OR MORE
*4	*6	*6
**3	**2	**4

do you believe trained technicians would be of most value to
hoices)

*	**
140	36
93	25
76	27
264	81
50	19
16	12
38	17
133	47

ANT

QUESTION NUMBER 13

NOTE: For further refinement of Architectural Technology Curri
following questions to the best of your ability, based on your
needs.

Design "philosophy" should be included in the architectural tec
level of:

(1) HIGH SKILL	(2) MEDIUM SKILL	(3) MINIMUM SKILL
*31	*136	*98
** 9	** 44	**21

QUESTION NUMBER 14

Drafting skill should be included in the architectural technici
of:

(1) HIGH SKILL	(2) MEDIUM SKILL	(3) MINIMUM SKILL
*232	*51	*4
** 64	**12	**0

QUESTION NUMBER 15

Specifications writing knowledge should be included in the arch
training to the level of:

(1) HIGH KNOWLEDGE	(2) MEDIUM KNOWLEDGE	(3) MINIMUM KNOWL
*67	*152	*61
**22	** 44	**10

efinement of Architectural Technology Curriculums, please answer the
to the best of your ability, based on your present and/or projected

should be included in the architectural technician's training to the

(2) MEDIUM SKILL	(3) MINIMUM SKILL	(4) NO SKILL REQUIRED
*136	*98	*20
** 44	**21	** 1

d be included in the architectural technician's training to the level

(2) MEDIUM SKILL	(3) MINIMUM SKILL	(4) NO SKILL REQUIRED
*51	*4	*0
**12	**0	**0

ng knowledge should be included in the architectural technician's
l of:

E (2) MEDIUM KNOWLEDGE	(3) MINIMUM KNOWLEDGE	(4) NO KNOWLEDGE REQUIRED
*152	*61	*10
** 44	**10	** 1

8792

QUESTION NUMBER 16

Building cost estimating ability should be included in the architectural technician's training to the level of:

(1) HIGH ABILITY	(2) MEDIUM ABILITY	(3) MINIMUM ABILITY	(4) NO ABILITY REQUIRED
*64	*118	*95	*15
**18	** 38	**18	** 4

QUESTION NUMBER 17

Field inspection experience should be included in the architectural technician's training to the level of:

(1) HIGH EXPERIENCE	(2) MEDIUM EXPERIENCE	(3) MINIMUM EXPERIENCE	(4) NO EXPERIENCE REQUIRED
*99	*122	*63	*6
**25	** 35	**15	**1

QUESTION NUMBER 18

Please utilize the space below for listing specific items you feel most important in the training of architectural technicians. (Please use back of sheet for additional comments)

(1) COMMENT	(2) NO COMMENT
*165	*139
** 43	** 39

NOTE: A little less than 60% of the respondents included comments. The comments are included in the Appendix. The overwhelming majority of comments were favorable to the program.

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8793

ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

summary

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J CARTER HOWALD AIA, CSI
JAMES B. BODGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI TEXAS 78404

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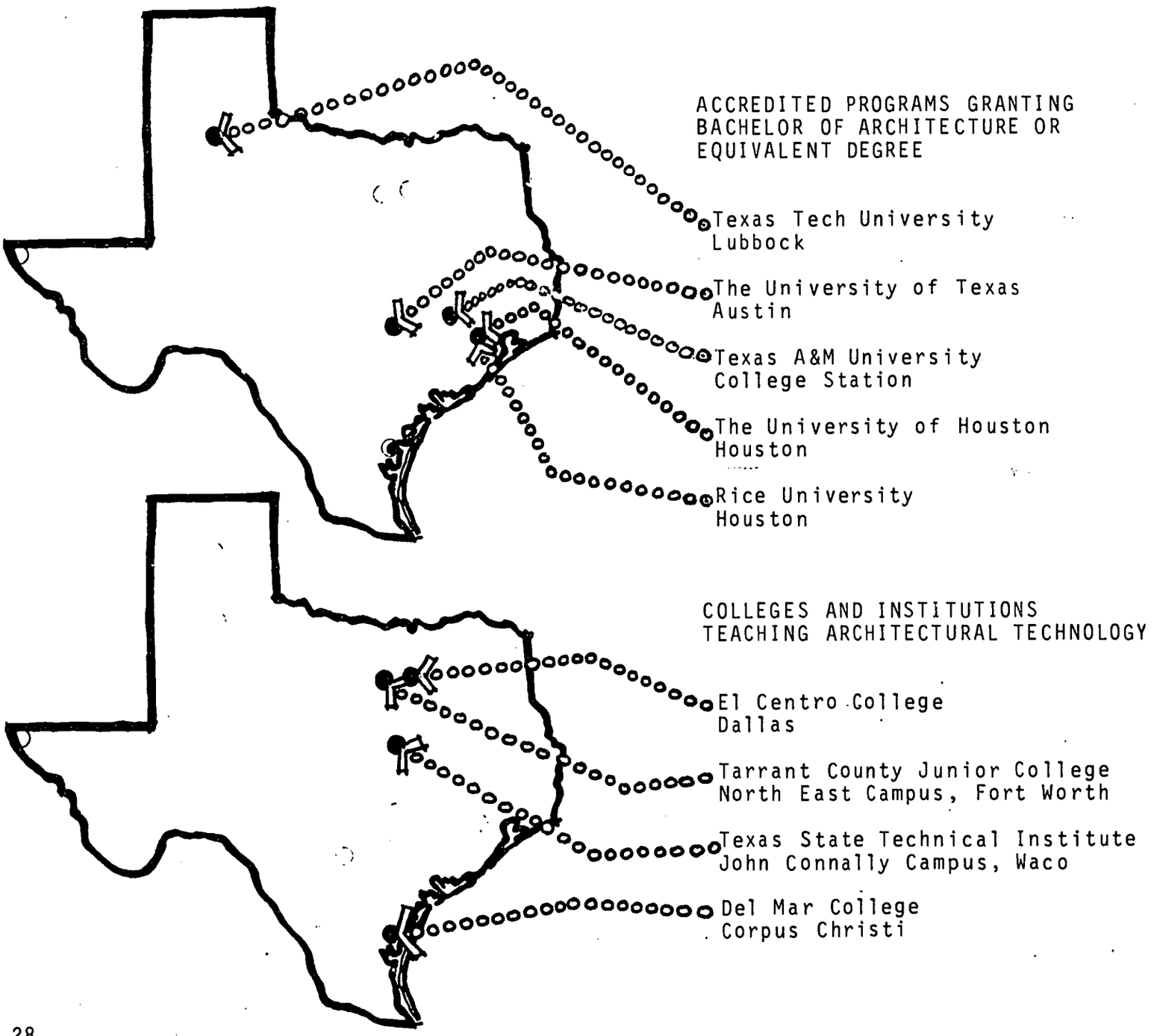
ACCREDITED PROGRAMS GRANTING
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The University of Texas
Austin
Texas A&M University
College Station
The University of Houston
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Rice University
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COLLEGES AND INSTITUTIONS
TEACHING ARCHITECTURAL TECHNOLOGY
El Centro College
Dallas
Tarrant County Junior College
North East Campus, Fort Worth
Texas State Technical Institute
John Connally Campus, Waco
Del Mar College
Corpus Christi

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The following is a summary of the responses to the questionnaire. The discussion generally follows the grouping of the questions as listed prior to this material.

The questions were designed to find the general application of the term architectural technician, areas of Texas where technicians might be used most frequently, size of architectural firms, the areas of practice which the technician is or might be trained for, and recognition of the catagory "paraprofessional."

It is apparent that most architects are familiar with the term architectural technician.

As shown in question #2, about 25% responded that a need is being met, but 75% responding indicated that a need for qualified architectural technicians does exist. This need is especially noted in the areas of Amarillo, El Paso, Odessa, Big Spring, East Central Texas area and East Texas. Except in Dallas, Ft. Worth, Houston and Corpus Christi, where a need is at least in part being met, all other areas indicate a definite need for the technician.

Corpus Christi's response was the highest "yes" because their program is widely accepted and has been functioning for over twelve years. The programs in Dallas and Fort Worth are young, having been in existance approximately five years or less.

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The Waco program is unique as it serves a regional rather than a local market.

During the many interviews held and from comments on questionnaires, it was determined that the technician's need is filled, presently, in Dallas, Fort Worth, Austin, San Antonio, Lubbock, and Houston by the architecture graduates; but a large need has been found in the areas away from the cities cited above.

An example of this need is expressed by the following letter from Mr. George R. Rodgers, A.I.A., of Marshall, Texas.

"I received and have returned your questionnaire concerning the role of the architectural technician in architectural offices. It was a real pleasure to assist you in this area as I feel a tremendous need exists for these people.

I would like to encourage you to continue in your efforts to prepare young people for the production of construction documents in architectural offices. We have tried from time to time to work with students in architectural schools, providing them with summer work and extra work during the school term. In general, this has not been too successful as most of this type student seems to be geared for work other than office production.

If at any time you have a student whom you feel is qualified and who wants to come to this area, I would be very glad

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to interview him."

Question #3 - #8 definitely point out that although a large majority of the respondents are not presently involved in supporting the architectural technician program, they indicate that they would, if given the proper opportunity, support such a program. Again, the areas away from the cities with large populations (shaded grey on map) show the strongest desire to support such programs. Therefore, because of the response to Questions #1 - #8 and interviews held with professionals throughout the state, we find a definite need and desire for architectural technology in Texas.

Certification of architectural technicians, which will be discussed at length, was asked in Question #8. Although there were many expressions against certification, the overwhelming majority of respondents felt that certification is the proper direction. Certification then makes the technician a paraprofessional. To acquire the level of certification, the programs must then become "accredited."

The following comment was received from Mr. Bill Holland, Corpus Christi.

"Providing a technician's license would solve many of the problems of the program."

Certification, therefore, seems desirable and, in the authors' opinion, should be pursued as should accreditation.

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Questions #9, 10, & 11 indicate sizes of firms, number of offices operated in different cities, and give indication as to the size of practices of architects who responded to the questionnaire. The smaller size firms are in the majority, but there are several firms of larger size with multiple offices. In only a very few firms does the technician play a large roll. The technician does, however, play a substantial roll in about 30% of the respondents' offices. It should be noted that in areas outside of Texas, the percent rises sharply to almost 50%. This is due, in part, to the fact that similar programs have been in existance for as long as 20 years in other areas of the United States, especially the East Coast.

Question #12 indicated eight areas which architectural technicians are trained to be able to work into after graduation. It must be understood that, upon graduation, the technician will need several years of field experience to become fully qualified for some of those job catagories. The response confirms that the architects are using or will use the paraprofessional in all of those areas in which technicians are presently being educated.

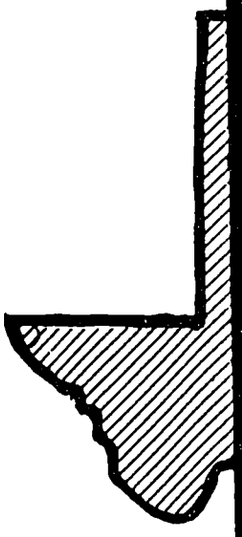
The next group of questions were to find areas of expertise desired by the future employer. The question relating to

"Design philosophy" was clarified by Mr. Ralph Spencer of Austin. Mr. Spencer suggested that the students develop an "understanding of design philosophy." The point being that architectural technicians are not being trained to perform "design" functions, but they must understand the design philosophy of processes in order to make construction documents and allow buildings to be constructed properly. To help in the understanding of design philosophy, the student must be taught architectural history.

The area of developing drafting communication skills evoked the strongest response. An ability to express oneself graphically is imperative and must not be underestimated.

Knowledge of specifications and building construction by on site field inspections is important. Both of these are necessary for the complete training of the technician and must be acquired through the program prior to graduation.

By using the questionnaire as resource information and conducting over 100 personal interviews over the period of this study, the authors were enabled to conduct an objective review of each curriculum as taught at the four colleges and schools now teaching architectural technology. Those curriculums are reviewed in Part Five. The reader should compare the relationship of each curriculum with the answers to the questionnaire.



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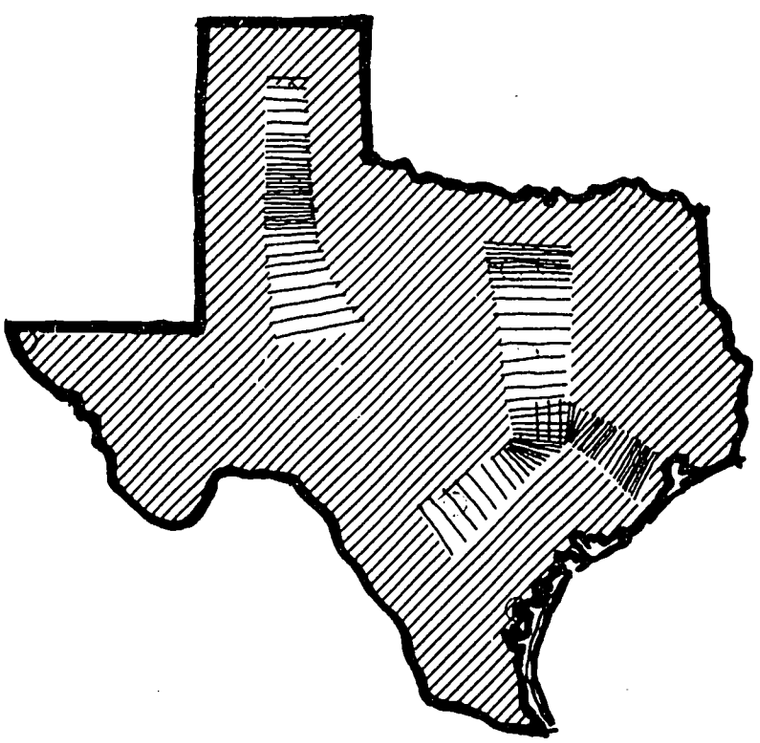

Map showing basic area of Texas in which the architecture graduate fulfills the "technician role."

Areas outside these basic areas indicate a strong need for skilled architectural technicians.

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ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

PART 5

CURRICULUM

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOBOS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

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CURRICULA

Although there are four existing programs in architectural technology in Texas, one would be hard put to identigy the single most successful. The Del Mar College program and Tarrant County Junior College programs have had the widest professional acceptance. The El Centro College program has undergone a reorganizing process and still is to graduate its first students. T.S.T.I. at Waco has had its program for several years, but has lacked professional acceptance primarily because of the regional nature of the institution, i.e., not a concentration of graduates to receive "feed back."

Basically, the technicians training programs are not designed for transfer to the universities. The concept of the program is to provide the student with the skills required to enter the architectural profession and gain immediate employment. For those desiring to become architects, it is recommended they either study pre-architecture or enter idrectly a university of fering a course leading to the architectural degree.

There are certain objectives which this program should achieve. Those primary objectives are:

- .To prepare the student for immediate employment in industry
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- .To offer a curriculum designed to teach principles and their applications at the same time
- .To prepare the student to enter the professional community ith the knowledge to be a responsible employee and citizen.

If these primary objectives are achieved, then the program should be considered successful.

After visiting the various architectural technology programs in Texas and conversing with many progessionals that employ architectural technicians, the authors have reached certain recommendations with respect to architectural technology.

Because each community may differ from one area in the state to another, it would be impractical to set up a rigid curriculum and expect all architectural technology programs in the state to adhere to one curriculum. With this in mind, the authors recommend the following:

1. That the architectural technology programs throughout the state, currently existing and any new programs that may be initiated in the future, follow the guidelines established in the 1968 publication, "A Program for Architectural Technician's Training."

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Portions of that curriculum outline have been included in this section.

2. That all colleges or technical schools which have architectural technology programs be charged with the responsibility of consulting with the architects and the building industry representatives in their communities to evolve curriculums that fulfill the needs of their specific community.

3. That architectural technology programs have one or more registered architects in full-time teaching positions with responsibility for curriculum development.

All of the above items will prove to be effective in intermeshing the needs of the community with the education of architectural technicians to fulfill these needs. These have proved to be effective ways to solve the many problems that currently exist in some of the programs in the state.

The faculty of each of the programs in architectural technology should be expected to call upon the professional architects in their communities in addition to the representatives of the building industry for resource data, guest lecturers, and any additional assistance with their particular programs. This

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study has shown that a major portion of the architects in Texas are extremely interested in architectural technology programs and will, if called upon to do so, render consultant advice with respect to specific curriculums. Del Mar College has been quite successful in obtaining assistance from many local architects and building construction representatives in the development of its curriculum over the years.

THE STUDENT

The most important ingredient in any program is the student. The authors agree with the 1968 A.I.A. report which says in part:

"The successful student in this program must be intelligent and motivated and pocess an inherent mathematical, artistic or manual skill. He will be conscious of both the obligations and the rewards of this career and must be willing to invest in the time, study, and self-development which are required.

The prerequisites for enrollment in the technician's program should be a high school diploma indicating successful completion of the following:

- .Mathematics covering the fields of algebra, plane geometry, and trigonometry
- .English
- .History
- .Physical Science

Qualified students not meeting these pre-

requisites will require developmental instruction in the deficiencies."

THE CURRICULA

An analysis of the existing architectural technology programs in Texas (Del Mar; El Centro; Tarrant County, Northeast Campus; and Texas State Technical Institute, John Connally Campus at Waco) indicates that these programs primarily follow the first sequence of the curricula pattern recommended by the 1968 A.I.A. report, "A Program for Architectural Technicians Training." According to the A.I.A. program, the sequences are as follows:

Sequence 1)	Drafting, Specifications, Estimating
Sequence 2)	Graphic Arts, Models, Reproduction
Sequence 3)	Administration, Data Processing Information

Each sequence is designed to produce a certain type of graduating technician. For example, the first sequence should produce technicians skilled in the areas of drafting, specifications and estimating. The second sequence produces those technicians with expertise in graphics, arts, model making, and reproduction processes. Finally, the third sequence of the recommended curricula pattern should result in technicians trained in administration, data processing techniques, and information retrieval systems. A further

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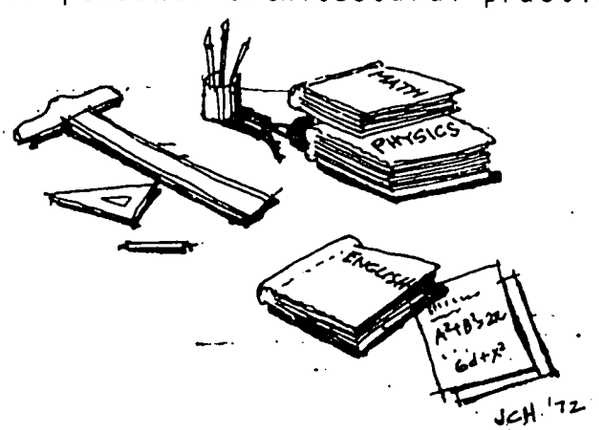
It should be noted that each of the Texas programs have additional courses that vary from the A.I.A. recommended curricula pattern for the number one sequence. These additional courses can usually be found in sequence number two and sequence number three. The changing of courses is a result of each programs' adaptation to its graduates employees' needs as well as the different colleges or technical institutes academic requirements.

The following recommended curriculum is a result of the consensus of the resource committee and the authors' experiences with the education of technicians ir Del Mar College's architectural technology program coupled with their recognition of the educational needs of the technicians in their personal architectural practices.



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RECOMMENDED CURRICULUM FOR ARCHITECTURAL TECHNOLOGY IN TEXAS

This curriculum is based around sequence number one. That sequence seems, at the present time, to be the basic need in Texas. Future curricula for new programs should be evaluated and considered carefully before sequence two or sequence three programs are installed.

FIRST YEAR

	1st Semester	Hrs.	Lec.	Lab
	Architectural Drawing & Sketching	2	0	6
*1	College Algebra/Technical Math	3	3	0
	Materials of Construction	3	2	3
	English Composition	3	3	0
	Introduction to Architecture	2	2	0
	Introduction to Architectural Dft.	3	2	4
	Reproduction Techniques	1	1	0
		17	13	13
	2nd Semester			
	Architectural Drafting II	3	1	6
*1	Trigonometry/Technical Math	3	3	0
	Methods of Construction	2	1	3
	Physics	3	2	3
	Technical Report Writing	3	3	0
*2	Elective I	3	3	0
		17	12	12
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	Elective II	3		
	American Government	3		
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*1 Depending upon institution academic requirements.

*2 Elective from accounting/freehand drawing/introduction to data processing/economics/business law, with department head approval.

*3 Project to receive administrative approval.

SECOND YEAR

3rd Semester	Hrs.	Lec.	Lab
Architectural Drafting III	3	1	6
Strengths of Materials	3	3	0
Surveying	4	3	3
Physics	3	2	3
Mechanical & Electrical Systems	3	2	3
	16	11	15
4th Semester			
Architectural Drafting IV	4	2	6
Codes/Specifications/Contract Documents	3	2	3
Construction Estimating/Field Inspection	4	3	3
Structural Detailing	3	1	6
Computer Applications	2	2	0
*3 Special Projects	1	0	3
	17	10	21
TOTAL	73	52	61

Note: Students should be encouraged to work in profession during semester but work hours should be limited to 20 hours maximum per week.

8810

RECOMMENDED CURRICULUM COMPARISON

	1	2	3	4
FIRST SEMESTER				
ARCH. DWG. & SKETCHING	AT 204	ARCH 125		GAA 124 DDT 1032
ALGEBRA / TECH MATH	MATH 309	MATH 131	PSC 1314	MTH 124
MATERIALS OF CONSTRUCTION	AT 201	ARCH 234		DDT 1213
ENGLISH COMPOSITION	ENG 301A	COM 131	ENGL 1013	TWA 103
INTROD. TO ARCHITECTURE	AT 203	ARCH 138		
INTROD. TO ARCH. DRAFTING		ARCH 132		DDT 1124
REPRODUCTION TECHNIQUES				
SECOND SEMESTER				
ARCH. DRAFTING II	AT 602A		ARC 1353	DDT 1195 DDT 1224
TRIG. / TECH MATH	MATH 304	MATH 132	PSC 1324	
METHODS OF CONSTRUCTION		ARCH 234	ARC 1322	
PHYSICS	PHYS 302	PHYS 131	PSC 2304	
TECH REPORT WRITING	ENG 304	COM 132	ENGL 2083	
ELECTIVE				
SUMMER				
AMERICAN GOVERNMENT	GOV G10A	GS 131 & 132	GOVT 1014	
ELECTIVE				
THIRD SEMESTER				
ARCH. DRAFTING III	AT 602B	ARCH 228	ARC 2333	DDT 2078
STRENGTHS OF MATERIALS	CIVT 310			
SURVEYING	CIVT 418		ETC 1313	CIVT 124
PHYSICS	PHYS 303	PHYS 132		
MECH. & ELEC. SYSTEMS	AT 311	ARCH 235	ARC 2362 ARC 2372	
FOURTH SEMESTER				
ARCH. DRAFTING IV	AT 410	ARCH 229	ARC 2344	DDT 2167 DDT 2279
CODES & SPECS	AT 412		ETC 2382 ARC 2342	DDT 2182
ESTIMATING & FIELD INSP'N	AT 414	ARC 231	ETC 2323 ARC 2342	DDT 2173
STRUCTURAL DETAILING	AT 415	DFT 230	ETC 2313	
COMPUTER APPLICATIONS	AT 210			
SPECIAL PROJECTS			ETC 2391	DDT 2192

1 DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS

2 EL CENTRO COLLEGE
DALLAS, TEXAS

3 TARRANT COUNTY JUNIOR COLLEGE
NORTHEAST CAMPUS, FORT WORTH, TEXAS

4 TEXAS STATE TECHNICAL INSTITUTE
JOHN CONNALLY CAMPUS, WACO, TEXAS

8811

RECOMMENDED CURRICULA SEQUENCES

(From: "A Program For Architectural Technician's Training," AIA, 1968)

1 DRAFTING, SPECIFICATIONS, ESTIMATING SEQUENCE

Understanding

- of the architectural and design professions and other components of the building industry,
- of the design and production process in architecture,
- of basic mathematics and physical factors.

Knowledge

- of building materials, systems, and construction together with the legal and practical standards affecting them.

Skills

- verbal and graphic communication associated with technical drawings and documents.

2 GRAPHIC ARTS, MODELS, REPRODUCTION SEQUENCE:

Understanding

- of the architectural and design professions and other components of the building industry,
- of the design and production process in architecture,
- of basic mathematics.

Knowledge

- of visual and graphic communication and interpretation of technical drawing and instruction.

Skills

- layout and production of two and three dimensional models and charts,
- operation of reproduction techniques.

3 ADMINISTRATION, DATA PROCESSING, INFORMATION SEQUENCE

Understanding

- of the architectural and design professions and business organization and procedure,
- of business and data processing mathematics.

Knowledge

- of the language, programming, and potentials of the computer, data processing, and information systems.

Skills

- operation of machines, computers, and devices in contemporary business and architectural practice.

AUTHOR'S NOTE: Each of the above sequences represents a separate curriculum designed to train technicians for specific areas of responsibility:

(1) WORKING DRAWINGS TECHNICIAN

(2) GRAPHIC ARTS TECHNICIAN

(3) OFFICE MANAGEMENT TECHNICIAN

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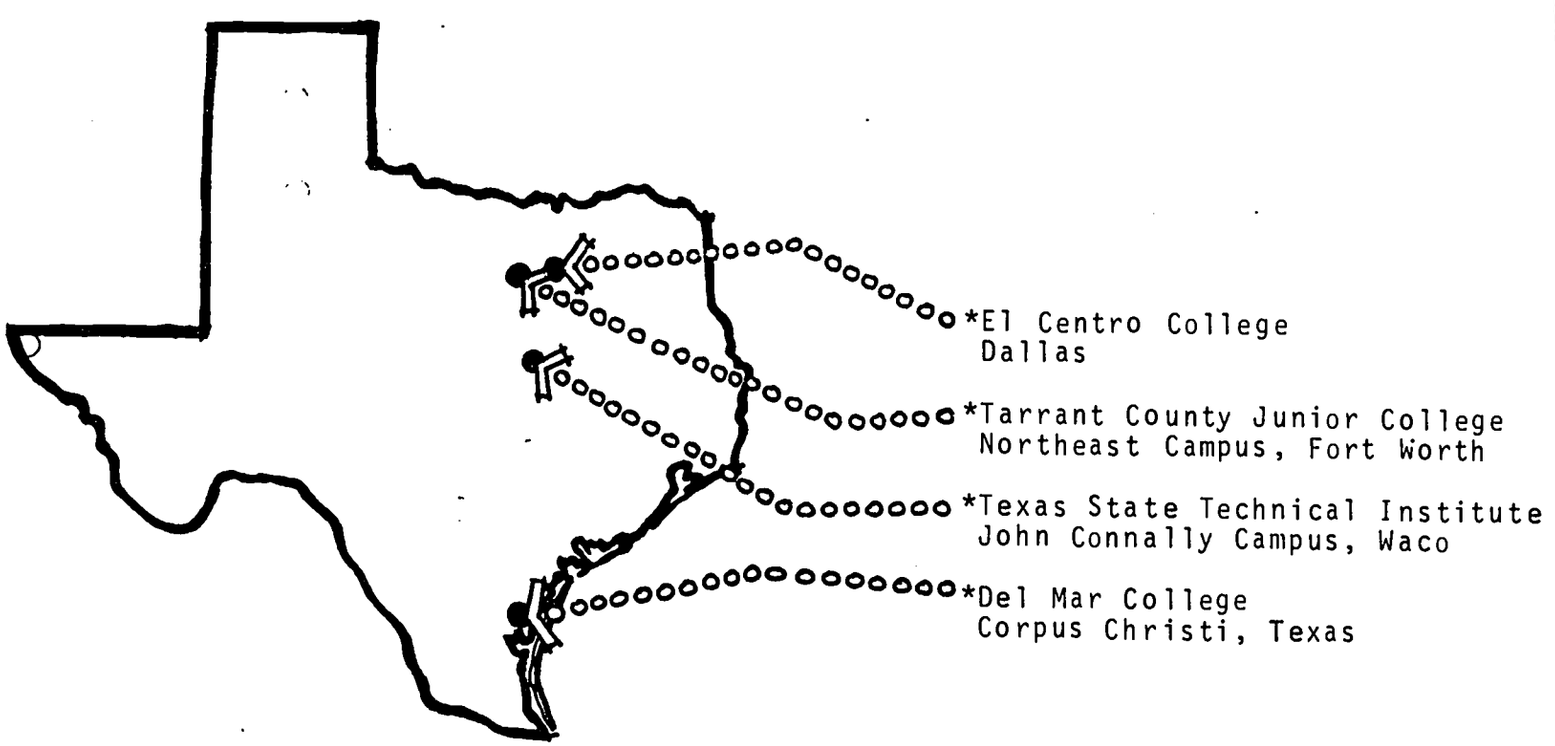
The map below shows the locations of the Texas institutions which have architectural technology curricula. The following pages contain the curricula from each named institution for the readers comparison.

TEXAS CURRICULA



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DEL MAR COLLEGE
Corpus Christi Junior College District
Corpus Christi, Texas

ARCHITECTURAL TECHNOLOGY CURRICULUM

Degree: Associate in Applied Science
Total Hours: 70

FIRST YEAR

Fall

		Hours
A.T. 204	Arch. Drawing & Sketching	2
Dft. 601Qa	Engineering Drafting	3
Math 309	College Algebra	3
A.T. 201	Materials of Construction	2
Eng. 601a	Freshman Reading & Comp.	3
A.T. 203	History of Arch. & Constr.	2
		15

Spring

A.T. 602Qa	Architectural Dft. I	3
Eng. 304	Technical Writing	3
Math 304	Trigonometry	3
Phys.302	Mech. & Heat for Techs.	3
Elective		3
		15

Summer

Govt.610a	American Government	3
Elective		3
		6

SECOND YEAR

Fall

		Hours
A.T. 602Qb	Architectural Dft. II	3
Civ. T 304	Strength of Materials	3
Civ. T 418	Surveying	4
Phys. 303	Sound & Light for Techs.	3
A.T. 311	Mechanical & Elec. Systems	3
		16

Spring

A.T. 410	Advanced Arch. Dft.	4
A.T. 412	Codes, Specfications and Contract Documents	4
A.T. 414	Construction Estimating and Field Inspecting	4
A.T. 415	Structural Detailing	4
A.T. 210	Computer Applications	2
		18

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EL CENTRO COLLEGE
Dallas County Community College District
Dallas, Texas

*ARCHITECTURAL TECHNOLOGY CURRICULUM
Degree: Associate in Applied Science
Total Hours: 61

FIRST YEAR
Fall

		Hours
ARC 130	Introduction to Arch.	3
ARC 132	Architectural Graphics	3
MTH 131	Technical Math	3
SS 131	American Civilization	3
COM 131	Applied Composition & Speech	3
		15

Spring

ARC 139	Intro. to Arch. & Programming	3
ARC 125	Freehand Drawing I	2
CS 10;	Intro. to Computing Science	3
MTH 132	Technical Math	3
SS 132	American Civilization	3
COM 132	Applied Composition & Speech	3
		17

SECOND YEAR
Fall

		Hours
ARC 224	Freehand Drawing II	2
ARC 231	Construction Est. & Field Inspection	3
ARC 234	Building Tech. - MTL's & Methods	3
ARC 228	Technical Communications I	2
PSC 131	Applied Physics	4
		14

Spring

ARC 230	History of Modern Arch.	3
ARC 235	Building Tech - Mech. Equip.	3
ARC 229	Technical Communications II	2
DFT 230	Structural Drafting	3
PSC 132	Applied Physics	4
		15

*El Centro College also offers a pre-architecture (design) program which does not fall under the scope of this study.

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TARRANT COUNTY JUNIOR COLLEGE
Northeast Campus
Ft. Worth, Texas

*ARCHITECTURAL TECHNOLOGY CURRICULUM

Degree: Associate in Applied Science
Total Hours: 73

FIRST YEAR

Fall

		Hours
Eng. 1613	English Composition I	3
PSC 1314	Applied Physics & Math. II	4
EGR 1302	Technical Design Graphics I	2
ETC 1303	Materials	3
GOV 1614	The American Political System	4
ETC 1302	Technical Orientation	2
		18

Spring

Eng. 1623	English Composition II	3
PSC 1324	Applied Physics & Math III	4
EGR 1312	Technical Design Graphics II	2
ARC 1333	Architectural Drafting I	3
ARC 1322	Architectural Methods of Construction	2
Elective		4
		18

SECOND YEAR

Fall

		Hours
ECO 2613	Principles of Economics I	3
PSC 2304	Applied Physics & Math. IV	4
ARC 2333	Architectural Drafting II	3
ETC 2313	Structures	3
ARC 2362	Building Equipment I	2
ETC 1313	Surveying	3
		18

Spring

Eng. 2683	Technical Writing	3
ETC 2391	Seminar	1
ARC 2344	Architectural Drafting III	4
ARC 2372	Building Equipment II	2
ARC 2392	Field Inspection & Codes	2
ETC 2323	Estimating	3
ETC 2382	Specifications & Contracts	2
Elective		2
		19

*TCJC has, in addition, a building construction technology option that provides some further emphasis on construction techniques.

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TEXAS STATE TECHNICAL INSTITUTE
James Connally Campus
Waco, Texas

DRAFTING & DESIGN TECHNOLOGY (Architectural Option)
Degree: Associate in Applied Science
Total Hours: 73

First Quarter

GT 101	Orientation	1	0	1
GT 113	Human Relations	2	3	3
TWG 1F3	Reading Improvement	2	3	3
DDT 1013	Electronic Drafting I	2	3	3
DDT 1026	General Drafting	4	6	6
DDT 1032	Technical Sketching	1	3	2
		12	18	18

Second Quarter

MTH 101	Slide Rule	0	2	1
MTH 124	Applied Algebra	3	2	4
TWG 1C3	Functional Comm Principles	2	3	3
DDT 1114	Intermediate Drafting	3	3	4
DDT 1124	Architectural Drafting	2	6	4
DDT 1133	Illustration Methods & Media	2	3	3
		12	19	19

Third Quarter

CVT 124	Surveying & Measurement I	2	6	4
DDT 1195	Frame Construction... Commercial Bldg	3	6	5
DDT 1203	Model Making	2	3	3
DDT 1213	Mat'ls. of Arch. Constr.	3	0	3
DDT 1224	Architectural Detailing	3	3	4
		13	18	19

Fourth Quarter

CAA 114	Perspective Drawing	3	3	4
DDT 2078	Masonry Construction	4	12	8
DDT 2083	Model Making	2	3	3
Approved Elective		3	0	3
		12	18	18

Fifth Quarter

IMT 114	Basic Photography	2	6	4
DDT 2167	Special Construction	4	9	7
DDT 2173	Field Inspection of Arch. Construction	2	3	3
DDT 2192	Professional Seminar	2	0	2
DDT 2182	Specifications	2	0	2
		12	18	18

Sixth Quarter

FHT 124	Landscape Design I	3	3	4
DDT 2279	Selected Projects	5	12	9
DDT 2283	Professional Practice	3	0	3
DDT 2303	Urban Development	2	3	3
		12	18	18

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DESCRIPTION OF RECOMMENDED CURRICULUM COURSES

The following is a brief description of the courses recommended for the curriculum. Descriptive information must be amplified upon classroom applications and will change as the professional needs change. Only the major courses which apply directly to the program are described herein. Math, English and physics are not described as these are somewhat "standard" courses and are taught at most all institutions.

First Semester

MATERIALS OF CONSTRUCTION
A course in the "fundamental aspects of most of the important materials used in modern construction," and how some of these materials can be used to the best advantage. One hour lecture per week. Three hours lab (3 hrs.credit)

INTRODUCTION TO ARCHITECTURE
This course covers the evolution of building development from primitive to modern, and is concerned with the chronological history of architectural construction. Slide illustrated lectures. Two hours lecture per week. Two semester hours.

INTRODUCTION TO ARCHITECTURAL DRAFTING
Basic fundamentals of architectural and engineering drafting are taught. Emphasis is placed on current drafting techniques, basic elements of drafting and composition are taught. Lettering should be emphasised. One hour lecture, Six hours lab. Three hours credit.

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CTURAL DRAFTING
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REPRODUCTION TECHNIQUES
Lecture/field trip course aimed at introducing student to the various methods of reproduction which he will need to become acquainted with. Among those methods are blueprinting, offset lithography, photography, photostats, photo drafting, sepia, amonia printing and other reproduction techniques. One hour lecture/Field trip per week. One hour credit.

ARCHITECTURAL DRAWING AND SKETCHING
Develops students ability to express himself graphically. A course in architectural drawing and sketching including freehand drawing, prespectives, delineation in pencil, charcoal, colored pencils, flow pens, pen and ink. One hour lecture, five hours laboratory per week. Two semester hours credit.

Second Semester

ARCHITECTURAL DRAFTING II
A course in basic architectural detailing in wood and masonry. Development of plans, wall, window, door sections and other details for small buildings. One hour lecture and six hours laboratory per week. Three semester hours credit.

METHODS OF CONSTRUCTION
A course dealing in the way buildings are assembled. Basic emphasis should be on structural frames of the three basic types of construction (wood, steel, concrete) and more complex systems. One hour lecture, three hours lab per week. Three hours credit.

ELECTIVE I
By department chairman approval. Course should be a "building" course such as freehand drawing, business law, basic accounting, introduction to computers or economics. Three semester hours credit.

Summer Session

ELECTIVE II
By department head approval. Course should be selected by student with area of "specialization" either by continuing elective choice I or broadening course taken in major during first year.

Third Semester

MECHANICAL AND ELECTRICAL SYSTEMS
A general overview of mechanical and electrical systems, equipment, drawings, symbol, and diagrams. Coordination of these systems with other requirements of structural and architectural systems. Field trips should be taken. Two hours lecture/three hours lab (field trip) per week. Three semester hours.

ARCHITECTURAL DRAFTING III
This course applies the principles learned in architectural drafting II. The student is given a series of practical architectural problems which begin with simple frame structure and continue through a complete set of working drawings for a residence. Emphasis is placed upon technique, accuracy and ability to rapidly solve architectural details. One hour lecture, six hours laboratory per week. Three semester hours.

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SURVEYING
A study of the construction, care and use of surveying instruments; theory and practice of chaining, differential and profile leveling traversing; computation of areas and earth work; theory and practice of stadia and its application to topographical surveying; public land surveying; lines and grace; etc. Three hours lecture and three hours laboratory per week. Four semester hours credit.

STRENGTH OF MATERIALS
A study of stresses, thermal and elastic qualities of materials. Stresses and deflection of beams and columns. Three hours lecture per week. Three semester hours.

Fourth Semester

COMPUTER APPLICATIONS IN ARCHITECTURE AND CONSTRUCTION
This course should expose the student to the latest successful applications of data processing, computer graphics, and other advances in technology to archtitcture and construction. The course should deal with the practical application of computers and the techniques the architectural technician is required to understand in order to work with the programmer in implementing these applications.

Areas of study should include simple machine language fundamentals, introductory data processing fundamentals, basic Fortran, Critical Path Method (CPM), PERT, STMOP, STRUDL, introduction to digitizers, use of cathode ray tube and teletype, information retrieval systems, future techniques. Two lecture hours per week. Two semester hours credit.

CODES, SPECIFICATIONS/CONTRACT DOCUMENTS
A study of zoning and building codes and their effect in relation to specifications and drawings. The purpose and writing of specifications should be studied along with legal and practical application to working drawings. Construction documents should be analyzed and studied for the purpose of owner-architect-contractor responsibilities, duties, and mutual protection. Two hours lecture and three hours lab per week. Three semester hours credit.

ARCHITECTURAL DRAFTING IV
A continuation of Architectural Drafting III. Commerical type construction is explored with special emphasis upon development of details. Several buildings should be explored and at least one developed into complete working drawings. Two hours lecture and six hours laboratory per week. Four semester hours credit.

STRUCTURAL DETAILING
The course should study A.I.S.C. specifications and standards, structural theory, and data, designing, and detailing structural members and connections. Design and development of details and specifications should include structural steel, pipe, and reinforced concrete rods. One hour lecture and six hours laboratory per week. Three semester hours credit.

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CONSTRUCTION ESTIMATING AND FIELD INSPECTING
Course should include interpretation of working drawings for project; preparation of material and labor quantity surveys from plans and specifications; approximate and detailed estimate of cost. The student should study materials take-off, labor take-off, sub-contractors' estimates, overhead costs, and bid and contract procedures. Detailed inspection of the construction by comparing the finished work to the specifications should be included by taking field trips. Three hours lecture and three hours laboratory per week. Four semester hours credit.

SPECIAL PROJECTS
A seminar type course designed to encourage the student to study an area of architectural technology of the students own choosing with administrative approval. Three hours laboratory per week. One semester hour credit.

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ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

PART 6

ACCREDITING PROCEDURES

- FACULTY
- SALARY
- FACILITIES

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE
CO-DIRECTORS
J. CARTER NOWALD, AIA, CSI JAMES B. BOGGS, AIA
DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE CORPUS CHRISTI, TEXAS 78404

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PART 6 ACCREDITING PROCEDURES

In order for the existing programs to become acceptable to the architectural profession and other related fiesld, those programs must accredited.

Until June, 1972, there existed several groups under which accrediting could be placed, but at that time the American Institute of Architects, after several years of study and work, announced a workable program for accrediting the various programs in architectural technology. Those approval procedures which have been established should provide architectural technicians who are well qualified, and bring recognition to the technician movement.

The general steps are outlined herein, and it is recommended that they be followed by all institutions. It is further recommended that no new programs be established unless that institution will work toward establishing a program which will be accredited.

The general procedure as recommended by the American Institute of Architects (A.I.A.) is as follows:

- .The institution should apply directly to A.I.A. headquarters for approval of its program
- .The institution will recieve a "Self Study" kit from the A.I.A.
- .The A.I.A. Regional Director, with assistance from the local A.I.A.

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chapter nearest the institution, appoints a "Review Committee"* and indicates which member will serve as chairman.

- After the institution completes the "Self Study" kit, a formal on-site visit shall be arranged
- After the visit, a report is prepared and forwarded to the Regional Director with appropriate recommendation
- Regional Director forwards recommendations to A.I.A. headquarters in Washington, D.C.
- The Institute (A.I.A.) issues letter of approval or disapproval with recommendations for improvements and changes directly to the institution

*The authors and their advisory committee further recommend that the Review Commi - tee should have one faculty member from another institution to serve as a "Generalist" in addition to the Review Committee members recommended by A.I.A.

For a complete copy of the approval procedure for architectural technicians training programs, write to the A.I.A.

It is a recommendation of this study that to have an effective technical program in Texas, then the state should not be flooded with programs across the state. Existing programs should be strengthened and

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new programs established by a need survey in the city or area requested. The need survey should include architects, contractors, builders and suppliers as all of those groups utilize the architectural technician.

In order to establish a thriving program, the educational institution must work with the local professions.

The local operation of each curriculum must be enhanced by an advisory committee composed of professionals, educators, and other interested members of the community

This committee ideally should be composed by the following persons:

- .The academic dean of the institution
- .The chairman or head of the archi-
- .tectural technology program
- .Two architects from the community
- .One or two members from the construction industry
- .One graduate from an accredited architectural technology program
- .Other members as found necessary by the committee or institution

There has been some concern about programs being taught on multi campus of the same institution. It is the recommendation of the authors and their advisory committee that, due to the technical nature of the program, the courses should be taught on the same campus. Therefore, that in cities with several campuses the complete

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program be limited to one campus. Among the reasons for this limitation are:

.Qualified faculty
.Quality facilities
.Resource material
.Communication problems

In addition to cities with mult campus, there are networks of institutions which have multi campuses over the state. Programs at one campus should not automatically be instituted at other campuses until proper faculty and facilities are established and a study for the need in the locality has been made.

Programs should also be designed to work with the community needs, i.e. persons desiring only one or two courses to aid them in their daily work must be allowed to participate, as well as the person seeking to acquire a long range educational goal. Therefore, the entire curriculum should be available to the evening student. Consideration should be given to the alternating of spring daytime courses being taught in the evening during the fall. (and visa-versa.)

The faculty should be headed by a well qualified person, preferably a registered architect, but in no case should the faculty head be less than a graduate architect with three years practical experience. Other faculty members should be selected to fulfill the need at the specific institution. It is recommended

that additional faculty members be of a professional caliber such as civil engineers and mechanical engineers. However, it should be kept in mind that not all educators good practitioners. General drafting courses should be taught by those who are proficient in that field.

The salary paid the head of the program must be commensurate with that which he would receive in his profession. The salary should range from $12,500 to $16,000 per year.

Other faculty members salaries should be appropriate beginning at $9,500 per year and progressing upward based upon professional and teaching experience.

In order for programs to continue to be viable and relate to current professional needs, faculty members must continue professional affiliations and be allowed to provide professional services to those who require such services.

The facilities must be adequate to perform the needs of teaching architectural technology. Bearing in mind that inadequate facilities and inadequate funding only penalize such programs.

Facilities should follow the guidelines already established by good architectural practice. Equipment must be professional in all respects, adequate visual aids, ref-

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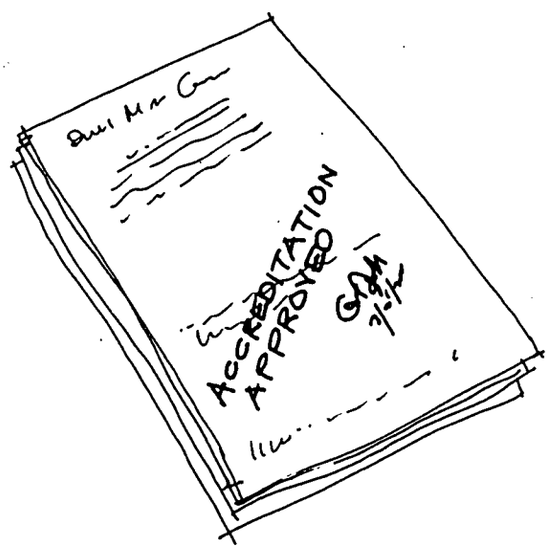
erence date and a library are all important. Good lighting and accessories are critical. Faculty offices should be large as much reference date is dept in them. When establishing facilities, the guidelines set forth in the 1968 AIA report and Gueard's, "A Guide for Planning Drafting and Design Technology Programs" should be studied.



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ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

PART 7

CERTIFICATION PROCEDURES

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

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It has long been recognized that significant advances in architecture are the result of teamwork in which the architects, the engineer, the technician, and the builder are brought together in a productive relationship. Architects have professional and technical societies which provide them opportunities to keep up to date on latest developments and, for their increased competence, to be recognized through suitable membership grades. The practice of architecture as defined by law requires not only a suitable educational background, but also a period of professional experience, the arrainment of which is recognized by the passing of a rigorous examination and becoming a registered architect.

It has been a matter of considerable concern to some architects that there has been no recognized acceptable procedure to provide recognition for architectural technicians. In order to accomplish this recognition, as well as to provide dignified incentives for individual betterment of performance as an important member of the architect/builder team, it is proposed by the authors of this report that the Texas Society of Architects and/or the American Institute of Architects find a satisfactory vehicle which will establish some form of certification for the architectural technician.

This vehicle might take a similar form to that which was established by the

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National Society of Professional Engineers in 1961, at which time they established the Institute for the Certification of Engineering Technicians, which functions under NSPE auspices but concerns itself entirely with technicians who work for and under the direction of engineers.

The theory of "certification" of the graduate architectural technician is a logical step from the accreditation of the various architectural technology programs. Although there are two sides to the discussion of this subject, "pro and con", it is the opinion of the authors that some kind of certification must be achieved.

Reinforcing the authors' opinion, 66% of the respondents to question #8 are in favor of some type of certification. The objections fall into the catagory of:

> Fear of the certified technician becoming a "Junior Architect" and thus misleading the public.

The Texas Society of Architects has a sub-committee now working on certification which, hopefully, would overcome objections against "Junior Architect".

Those in favor of such a certification program see the program as an avenue to

stabilize a very fluid labor field.

By allowing an architectural technician to become certified, a sense of accomplishment can be given an employee.

Joseph M. Snarponis, C.E.T., (Executive Secretary of the Institute for the Certification of Technicians), when asked about "stabilization of quality" answered as follows:

"Stabilization of quality has occurred to a noticeable degree as a result of certification, but the main effect will come when the examination becomes mandatory. Certification has become a career ladder in the technician field."

It is the opinion of the aurhors that the certification program is like the glove which fits the hand, the hand being the accrediting program.

It, therefore, becomes apparent to the authors that the mechanicisms for the certification of technicians might be accomplished by several methods, among them a joint venture between the American Institute of Architects and the National Society of Professional Engineers. By this joint venture, the A.I.A. could utilize the many years of experience which N.S.P.E. has in the field of certifying engineering technicians, as well as teaming up with an agency which has already developed credentials with the various educational agencies in

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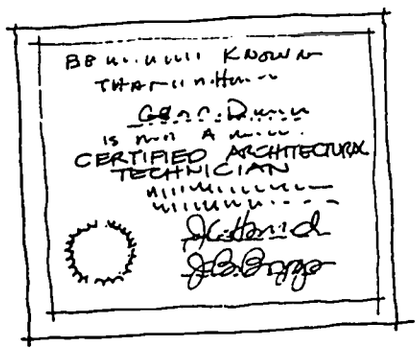
It is strongly felt that certification would be an asset to the architectural technician, and the educational program.

On the next page is a copy of a chart, published by the Engineers Joint Council, concerning wages for engineering technicians. By careful study, it becomes very apparent what happens to those who do not advance to higher skill levels. It also is apparent that those who have bettered themselves have a place for themselves in their chosen field.



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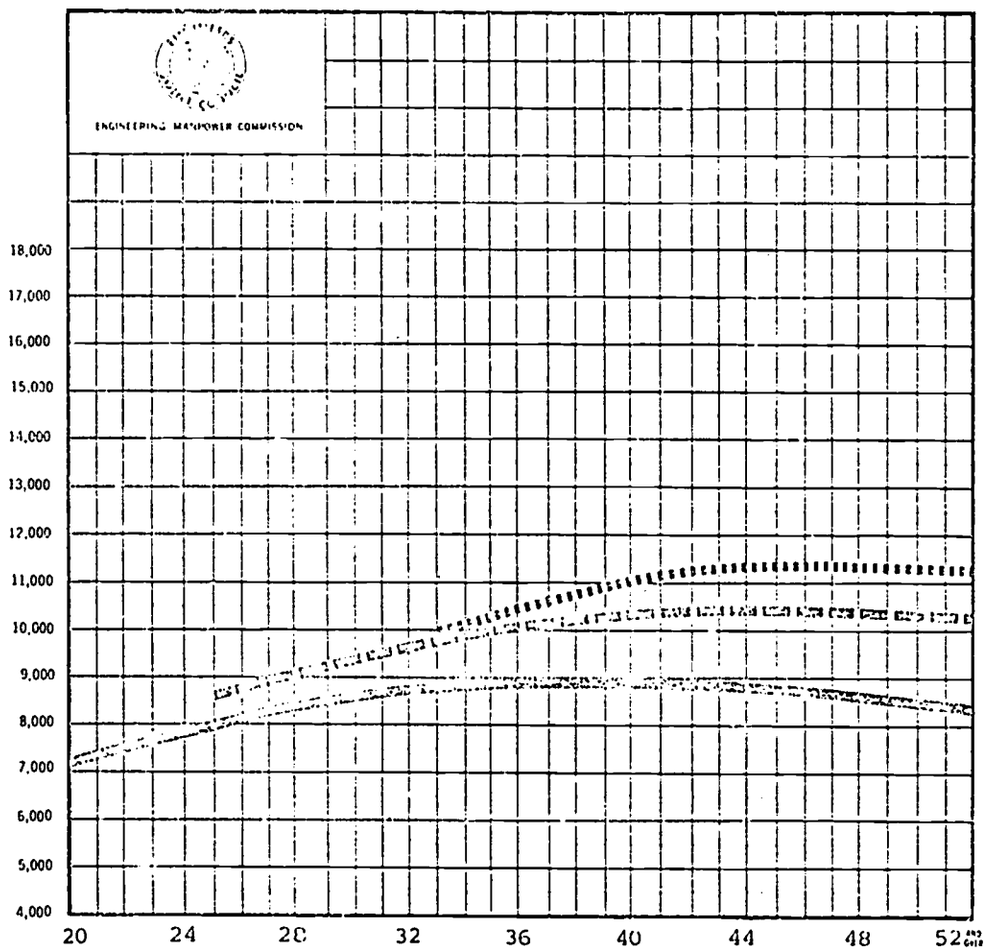
MEDIAN SALARIES OF
CERTIFIED ENGINEERING TECHNICIANS
BY LEVEL OF CERTIFICATION

ALL EMPLOYERS

Annual Salary by Age



JUNIOR TECHNICIANS

TECHNICIANS

SENIOR TECHNICIANS

8836

ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

PART 8

SUMMARY AND RECOMMENDATION

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES G. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

8837

The authors believe that the specific objectives of this study, which were outlined in Part 2, have been achieved. The recommendations which follow are a result of that achievement.

A. The architectural technician is an important member of the architect/construction team and plays an important role regardless which part of the team employs him. He is the "nuts and bolts man of the team." Employment opportunities are multiple and not limited to a narrow area. The architectural technician is a paraprofessional by education.

   Table B from the Texas Employment Commission illustrates the future needs for technicians in Texas to 1975. From this chart and the responses received from the questionnaire, the authors emphasize the need to continue to develop strong architectural technology programs in Texas

B. The recommended curriculum, as outlined in Part 5, should be used as a guide to a successful program for technicians in the American Institute of Architects sequence one program, but not for sequence two and sequence three. The technician who graduates from the recommended curriculum will be trained, basically, in contract document production.

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equence one program, but
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C. Existing programs must receive accreditation from the American Institute of Architects. Any new program must, from the beginning, work toward receiving American Institute of Architects accreditation. To insure that programs become professional, a time limit of three years should be established for new programs to obtain accreditation from the American Institute of Architects.

D. Future programs should be considered. New programs should be considered for the Houston and El Paso areas in the near future, with other areas being considered as need is expressed, Refer to map and discussion,"Future Programs", for details.

E. The faculty must be of professional caliber with salary commensurate with that which a person would receive in his profession, as discussed in Part 6.

F. Physical facilities must be adequate and of good architectural design and should follow the referenced A&M study as well as American Institute of Architects recommendations. See Part 6 for further information.

G. Certification of architectural technology graduates as architectural technicians must be pursued immediately by the American Institute of Architects. See Part 7 for further discussion.

8839

H. To create strong architectural technology programs in Texas, the following areas of activity must be considered:

1. Involve the profession and industry in the program.
   .Local chapter of the American Institute of Architects.
   .Local chapter of Construction Specification Institute
   .Local chapter of Association of General Contractors
   .The use of the above groups in designing courses as well as guest lecturers. Part 6 discusses this area

2. Use of the following teaching methods:
   .Field trips
   .Student group projects
   .The most current visual aids, slides, charts, overhead transparencies, etc.
   .Get students actively involved in curriculum
   .Use of co-op programs

3. The program must encourage the student to:
   .Become actively involved in curriculum development by receiveing "feedback" from them on a regular basis; by use of departmental students as student assistants
   .By encouraging student architecural technology societies
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.By encouraging student chapters of the Construction Specifications Institute
.Encouraging students to work in various professional businesses and related construction industry, up to a maximum period of time each week as set by the department.

I. That an organization of architectural technology faculty be established to gain inter-play of ideas and continuous updating of programs. The first four schools could be:
   .Del Mar College
   .El Centro College
   .Tarrant County Junior College
   .Texas State Technical Institute, Waco

J. That the Texas Society of Architects, through the Texas Architectural Foundation located in Austin, endorse and support the establishment of a scholarship program for each accredited architectural technology program in Texas. It is recommended that the scholarship amount be $500.00 per annum for each accredited program, and that the amount be used as tuition for qualified students majoring in architectural technology.

TABLE B (Continued)

EMPLOYMENT[1/] IN TEXAS BY OCCUPATION
1960, 1968 AND PROJECTIONS TO 1975

Occupation	Annual Average Employment			Av
	1960	1968	1975[2/]	
Technicians, Exc. Medical and Dental	31,870	52,730	66,270	
Draftsmen	10,010	16,150	19,060	
Surveyors	3,350	5,090	6,450	
Air Traffic Controllers	450	490	510	
Radio Operators	1,930	2,540	2,920	
Technicians, Other	16,120	28,460	37,340	

(From: "Texas Employment Outlook to 1975 by Industry and Occupat
Commission, July 1971)

Table B indicates the increasing trend in the average annual employment of technicians in Texas to 1975. Note the figures for drafts-man, surveyors, and other technicians as these are the be classified currently and

8842

TABLE B (Continued)

EMPLOYMENT[1] IN TEXAS BY OCCUPATION
1960, 1968 AND PROJECTIONS TO 1975

	Annual Average Employment			Annual Average Change 1960-1975	Annual Average Change 1968-1975
	1960	1968	1975[2]		
edical					
	31,870	52,730	66,270	2,290	1,930
	10,010	16,150	19,060	600	410
	3,350	5,090	6,450	200	190
llers	450	490	510	0	0
	1,930	2,540	2,920	70	50
	16,120	28,460	37,340	1,410	1,270

yment Outlook to 1975 by Industry and Occupation," Texas Employment July 1971)

ne increasing trend in the oyment of technicians in e the figures for drafts- other technicians as these are the type of persons who might be classified as Architectural Technicians currently and in the future.

8843

The adjacent map points out geographical areas which a more fully developed architectural technology program in Texas could serve. Although the areas may seem large, it must be realized that architectural technology programs, in general, will not survive in rural areas.

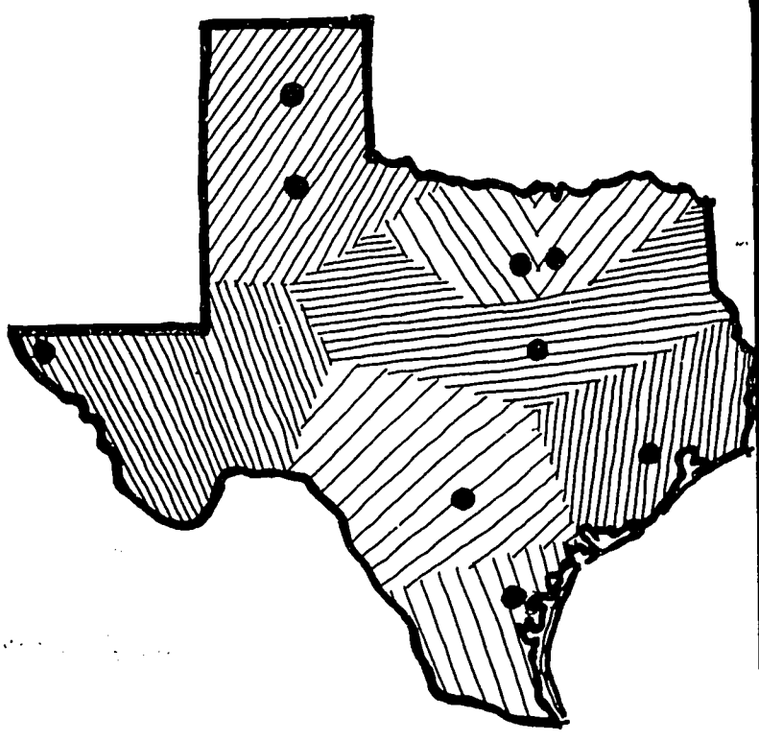
It has been suggested that architectural firms in remote areas could send promising young men to established programs and return them to their practice at the conclusion of their training.

The program at T.S.T.I. in Waco, presently serves a regional area rather than a local market. Furthermore, with other campuses throughout Texas, it would seem that students could be sent from one campus to another campus which does offer a particular program.

Additional programs might be instituted in the future in the following areas:

- .Houston area
- .El Paso area
- .Lubbock/Amarillo area

A program at San Antonio Junior College was dropped in 1972 for lack of professional participation. It is believed that the program was never properly related to the San Antonio professionals.



"FUTURE PROGRAMS"

ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

PART 9

APPENDIX

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES D. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

8845

THE FOLLOWING PAGES CONTAIN SAMPLE COPIES OF:

- .QUESTIONNAIRE COVER LETTER
- .RESOURCE DATA ON QUESTIONNAIRE
- .INFORMATIVE QUESTIONNAIRE
- .DATA PROCESSING PRINT OUT
- .COMPLETED DATA CARD

8846

x

ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

L988

TO: The addressed Architect

FROM: J. Carter Howald, A.I.A., C.S.I.
James B. Boggs, A.I.A.

SUBJECT: Texas Education Agency Architectural Technician Research Project

Enclosed you will find a one-page questionnaire which we are sending to all architects registered in the state of Texas. This questionnaire is to help us in evaluating the role of the Architectural Technician in architectural offices in Texas and elsewhere.

Would you please take the next few moments to review this questionnaire, fill it out today, make any comments you feel are needed on the bottom lines and return it to us. You need not be a Texas resident to complete the questionnaire.

To ease your problem in returning it, we have enclosed a self-addressed and stamped envelope. You may, therefore, fold, insert and mail.

Your cooperation is appreciated.

We welcome your comments and hope by the answers you give and our research into programs now being taught, we will be able to help give you a strong and useful architectural technology program for developing

Enclosed you will find a one-page questionnaire which we are sending to all architects registered in the state of Texas. This questionnaire is to help us in evaluating the role of the Architectural Technician in architectural offices in Texas and elsewhere.

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Your cooperation is appreciated.

We welcome your comments and hope by the answers you give and our research into programs now being taught, we will be able to help give you a strong and useful architectural technology program for developing technicians to staff your offices.

Thank you very much for your time and interest.

J. Carter Howald

J. Carter Howald, A.I.A., C.S.I.

James B. Boggs

James B. Boggs, A.I.A.

84988

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE CORPUS CHRISTI, TEXAS 78404

ERIC

6498

ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

1988

architectural technology

GENERAL INFORMATION

Del Mar College, Corpus Christi, Texas, offers the Associate in Applied Science degree in ARCHITECTURAL TECHNOLOGY at its Technical Institute campus in Corpus Christi. (Airport Road near Morgan)

ARCHITECTURAL TECHNOLOGY: a new field.

The architectural technician is an essential member of the construction team, filling a gap between architect and contractor. His job requires both technical know ledge and skill in using drawing instruments in developing schematics, working drawings, and blueprints, as well as a good knowledge of such things as civil engineering, surveying, acoustics, computer applications, characteristics of building materials, etc.

In the ARCHITECTURAL TECHNOLOGY curriculum there is heavy concentration on the mathematical and scientific approach to the subject matter. For this reason entrance requirements are as outlined below:

1) General Degree Program of Del Mar College (Two years of high school Alg. w/high school diploma);
2) Reasonable degree of mathematics and English proficiency exhibited on aptitude tests.

technology

JOB OPPORTUNITIES...

Graduates of this program can expect to find employment in many areas of the industrial, architectural, and building construction fields. Local firms frequently contact the department seeking part-time employees. These part-time

architectural technology

ARCHITECTURAL TECHNOLOGY: a new field.

The architectural technician is an essential member of the construction team, filling a gap between architect and contractor. His job requires both technical knowledge and skill in using drawing instruments in developing schematics, working drawings, and blueprints, as well as a good knowledge of such things as civil engineering, surveying, acoustics, computer applications, characteristics of building materials, etc.

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2) Reasonable degree of mathematics and English proficiency exhibited on aptitude tests.

architectural technology

JOB OPPORTUNITIES...

Graduates of this program can expect to find employment in many areas of the industrial, architectural, and building construction fields. Local firms frequently contact the department seeking part-time employees. These part-time jobs often lead to permanent full-time positions with the firms upon graduation from Del Mar's ARCHITECTURAL TECHNOLOGY curriculum.

While enrolled, the department officially encourages its students to hold part-time jobs for up to twenty hours per week maximum.

For additional information contact:
J. Carter Howald, Asst. Professor, Architect and Chairman.
James B Boggs, A I.A. Architect / Instructor
Department of Architectural & Drafting Technology
Del Mar College Corpus Christi, Texas 78404

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

INFORMATIVE QUESTIONNAIRE

1588

1. Are you familiar with the role of the "Architectural Technician"?

   (1) YES (2) NO

2. Are current Architectural Technician graduates in your community fulfilling your need, if any?

   (1) YES (2) NO

3. Do you actively support an Architectural Technology program in your community?

   (1) YES (2) NO (3) NO LOCAL GRADUATES TO DRAW FROM (4) I HAVE NO NEED FOR ARCHITECTURAL TECHNOLOGY GRADUATES

4. Is the local Architectural and Construction industry involved in an existing program in your community?

   (1) YES (2) NO

5. Would you actively support an Architectural Technology program in your community?

   (1) YES (2) NO

6. Would you endorse uniform Architectural Technology programs throughout Texas modified to your community's specific needs?

   (1) YES (2) NO

7. Do you feel there is a definite, immediate need for a strong 2-year Architectural Technology Program in Texas Junior and/or Community Colleges?

   (1) YES (2) NO

8. Do you feel that the certification by the profession of architectural technicians as "paraprofessionals" is desirable?

   (1) YES (2) NO

9. What role does the architectural technician play in your office?

   (1) MAJOR (2) MINOR (3) NONE

10. Size of your office:

    (1) 1-5 (2) 6-10 (3)11-20 (4) 21-50 (5) 51-100 (6) ABOVE 100

11. Number of offices operated by your firm in Texas and elsewhere:

    (1) ONE (2) TWO (3) THREE (4) FOUR (5) FIVE OR MORE

12. Which of the following areas do you believe trained technicians would be of most value to your office: (circle your choice)

    (1) FIELD INSPECTIONS
    (2) COST ESTIMATIONS
    (3) SPECIFICATION WRITER
    (4) DRAFTSMAN
    (5) CHIEF DRAFTSMAN
    (6) COMPUTER CO-ORDINATOR
    (7) ADMINISTRATIVE ASSISTANT
    (8) SHOP DRAWING

    NOTE: For further refinement of Architectural Technology Curriculums, please answer the following questions to the best of your ability, based on your present and/or projected needs.

13. Design "philosophy" should be included in the architectural technician's training to the level of:

    (1)HIGH SKILL (2) MEDIUM SKILL (3) MINIMUM SKILL (4) NO SKILL REQUIRED

14. Drafting skill should be included in the architectural technician's training to the level of

    (1) HIGH SKILL (2) MEDIUM SKILL (3) MINIMUM SKILL (4) NO SKILL REQUIRED

10. Size of your office:

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11. Number of offices operated by your firm in Texas and elsewhere:

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14. Drafting skill should be included in the architectural technician's training to the level of

(1) HIGH SKILL (2) MEDIUM SKILL (3) MINIMUM SKILL (4) NO SKILL REQUIRED

15. Specifications writing knowledge should be included in the architectural technician's training to the level of:

(1) HIGH KNOWLEDGE (2)MEDIUM KNOWLEDGE (3) MINIMUM KNOWLEDGE (4) NO KNOWLEDGE REQUIRED

16. Building cost estimating ability should be included in the architectural technician's training to the level of:

(1) HIGH ABILITY (2) MEDIUM ABILITY (3) MINIMUM ABILITY (4) NO ABILITY REQUIRED

17. Field inspection experience should be included in the architectural technician's training to the level of:

(1) HIGH EXPERIENCE (2) MEDIUM EXPERIENCE (3) MINIMUM EXPERIENCE (4) NO EXPERIENCE REQUIRED

18. Please utilize the space below for listing specific items you feel most important in the training of Architectural Technicians (Please use back of sheet for additional comments)

_____

_____

NAME _____ REPRESENTING (FIRM, COMPANY, INDIVIDUAL) _____

DATE _____

_____

_____

_____

Zip Code

8852

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE CORPUS CHRISTI, TEXAS 78404

USA + TEXAS.

31

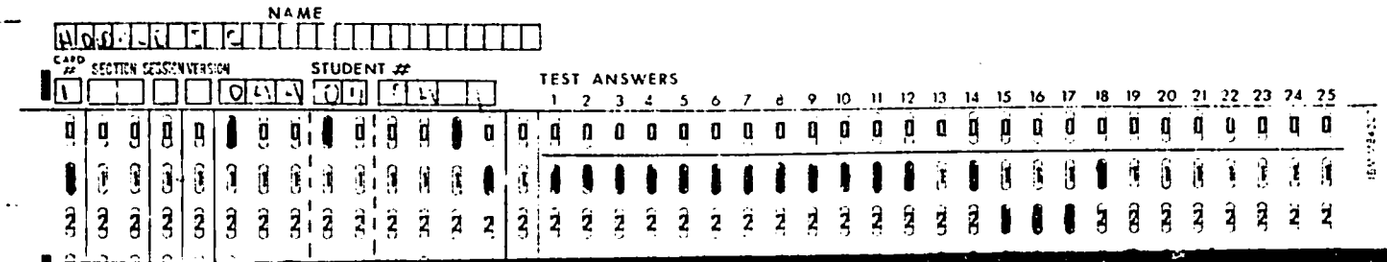
TEST PROFILE

88553

COURSE: SPEC PROJ
TEST NO: 001
AVERAGE GRADE: 45.21 HIGH GRADE: 88.89 LOW GRADE: 0.0
NO. QUES: 18
DATE: 04/10/72
NO. TESTED: 383

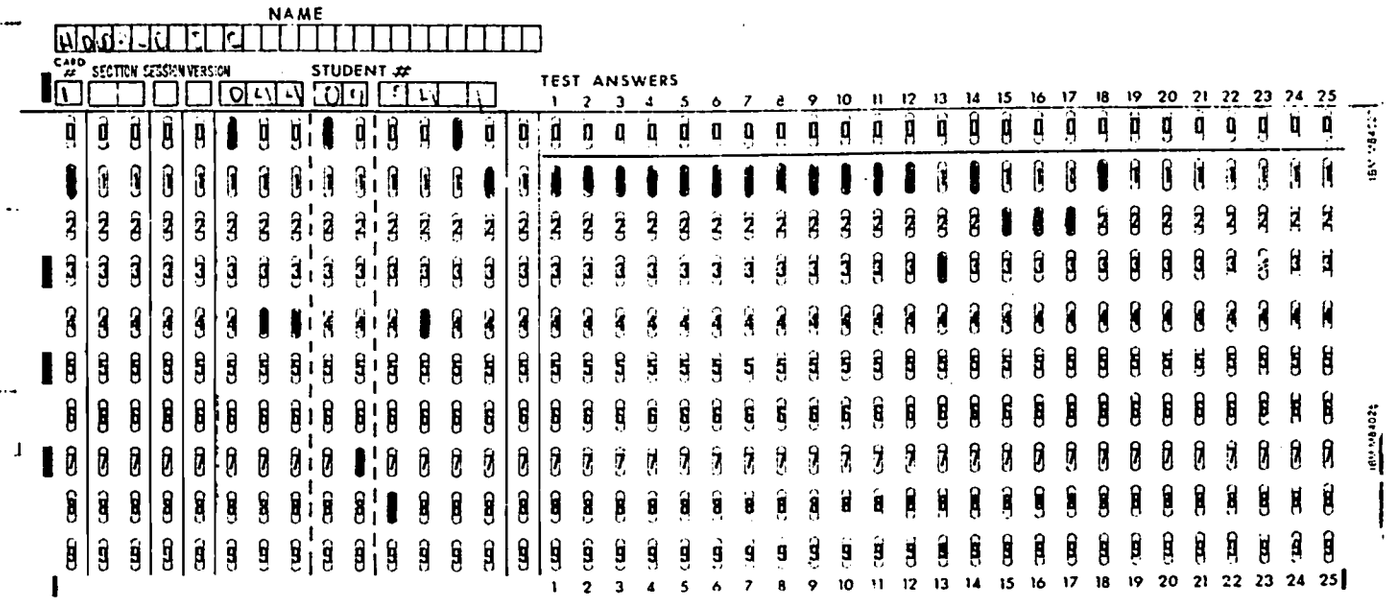
QUES NO.	CORR ANS.	TOTAL WRONG	NO. OF STUDENTS SELECTING EACH CHOICE 1	2	3	4	5	6	7	8	9	0	NO ANS	INVAL ANS
1	1	121	262	111	0	0	0	0	0	0	4	0	6	0
2	1	312	71	226	0	0	0	0	0	0	55	0	31	0
3	1	293	90	87	144	38	0	0	0	0	8	0	16	0
4	1	288	95	211	0	0	0	0	0	0	54	0	23	0
5	1	97	286	42	0	0	0	0	0	0	32	0	23	0
6	1	73	310	20	0	0	0	0	0	0	28	0	25	0
7	1	77	306	34	0	0	0	0	0	0	18	0	24	1
8	1	164	219	109	3	0	0	0	0	0	26	0	26	0
9	1	323	60	92	197	0	0	0	0	0	10	0	24	0
10	1	225	158	77	65	42	12	14	0	0	2	0	13	0
11	1	103	280	44	7	8	10	0	0	0	10	0	24	0
12	4	239	159	33	18	144	3	0	1	2	2	0	20	1
13	1	343	40	180	119	21	1	0	0	0	7	0	15	0
14	1	88	295	64	4	0	0	0	1	0	2	0	17	0
15	1	294	89	195	72	11	0	0	0	0	3	0	13	0
16	1	302	81	155	113	18	0	0	0	0	2	0	14	0
17	1	260	123	157	76	7	0	0	0	0	4	0	16	0
18	1	175	208	164	0	0	0	0	0	0	0	0	11	0

ALL AREAS OF U.S.A. AND TEXAS



7	1	77	306	34	C	0	0	0	0	0	18	0	24	1
8	1	164	219	109	3	0	0	0	0	0	26	0	26	0
9	1	323	60	92	197	0	0	0	0	0	10	0	24	0
10	1	225	158	77	65	42	12	14	0	0	2	0	13	0
11	1	103	280	44	7	8	10	0	0	0	10	0	24	0
12	4	239	159	33	18	144	3	0	1	2	2	0	20	1
13	1	343	40	180	119	21	1	0	0	0	7	0	15	0
14	1	88	295	64	4	0	0	0	1	0	2	0	17	0
15	1	294	89	195	72	11	0	0	0	0	3	0	13	0
16	1	302	81	155	113	18	0	0	0	0	2	0	14	0
17	1	260	123	157	76	7	0	0	0	0	4	0	16	0
18	1	175	208	164	0	0	0	0	0	0	0	0	11	0

ALL AREAS OF U.S.A. AND TEXAS



8854

SAMPLE: DATA PROCESSING PRINT OUT AND COMPLETED CARD

TABULATION OF INDIVIDUAL QUESTION FROM QUESTIONNAIRE

REFER TO PART 4

XX

8855

1. QUESTION NUMBER 1

Are you familiar with the role of the "Architectural Technician"?

(1) YES (2) NO

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	12	5								
2. Amarillo	6	3	3								
*3. Corpus Christi	16	16									
*4. Dallas	58	38	19							1	
*5. Fort Worth	15	13	2								
6. Dallas/Ft. Worth Area	13	11	2								
7. Lubbock	9	7	2								
8. Houston	68	35	22							3	8
9. San Antonio	28	20	8								
10. East Tex. Area	10	8	2								
*11. East Central Tex. Area	6	4	2								
12. Southeast Tex. Area	17	11	6								
13. West Tex. Area	19	13	6								
14. West Central Tex.	8	7	1								
15. Rio Grande Area	9	4	5								
16. South Central Tex.	5	3	2								

RESPONSE ANALYSIS

		Total Responses	1	2	3	4	5	6	7	8	Other Answers	No Answer
1.	Austin	17	12	5								
2.	Amarillo	6	3	3								
*3.	Corpus Christi	16	16									
*4.	Dallas	58	38	19							1	
*5.	Fort Worth	15	13	2								
6.	Dallas/Ft. Worth Area	13	11	2								
7.	Lubbock	9	7	2								
8.	Houston	68	35	22							3	8
9.	San Antonio	28	20	8								
10.	East Tex. Area	10	8	2								
*11.	East Central Tex. Area	6	4	2								
12.	Southeast Tex. Area	17	11	6								
13.	West Tex. Area	19	13	6								
14.	West Central Tex.	8	7	1								
15.	Rio Grande Area	9	4	5								
16.	South Central Tex.	5	3	2								
17.	Texas (1-16 Together)	304	205	87							4	8
18.	Eastern States	28	19	7								2
19.	Central States	41	30	10								1
20.	Western States	13	9	4								
21.	18, 19, & 20 (Together)	82	58	21								3
22.	17 & 21 (Together)	386	263	108							4	11

8857

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA
DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

1. QUESTION NUMBER 2

Are current Architectural Technician graduates in your community fulfilling your need if any?

(1) YES (2) NO

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	2	14							1	
2. Amarillo	6		6								
*3. Corpus Christi	16	12	4								
*4. Dallas	58	7	36							9	6
*5. Fort Worth	15	4	9							1	1
6. Dallas/Ft. Worth Area	13	4	9								
7. Lubbock	9		7							1	1
8. Houston	68	8	39							16	5
9. San Antonio	28	4	19							5	
10. East Tex. Area	10		7							3	
*11. East Central Tex. Area	6		6								
12. Southeast Tex. Area	17	1	8							3	5
13. West Tex. Area	19		14							3	2
14. West Central Tex.	8	1	4							3	
15. Rio Grande Area	9	1	5							3	
16. South Central Tex.	5		3							1	1
17. Texas (1-16 Together)	30	44	187							49	21
18. Eastern States	28	10	13							3	2
19. Central States	41	13	21							2	5
20. Western States	13	4	5							3	1
21. 18, 19, & 20											

	[illegible]	16	12	4									
*4.	Dallas	58	7	36							9	6	
*5.	Fort Worth	15	4	9							1	1	
6.	Dallas/Ft. Worth Area	13	4	9									
7.	Lubbock	9		7							1	1	
8.	Houston	68	8	39							16	5	
9.	San Antonio	28	4	19							5		
10.	East Tex. Area	10		7							3		
*11.	East Central Tex. Area	6		6									
12.	Southeast Tex. Area	17	1	8							3	5	
13.	West Tex. Area	19		14							3	2	
14.	West Central Tex.	8	1	4							3		
15.	Rio Grande Area	9	1	5							3		
16.	South Central Tex.	5		3							1	1	
17.	Texas (1-16 Together)	30	44	187							49	21	
18.	Eastern States	28	10	13							3	2	
19.	Central States	41	13	21							2	5	
20.	Western States	13	4	5							3	1	
21.	18, 19, & 20 (Together)	82	27	39							8	8	
22.	17 & 21 (Together)	383	71	226							57	29	

885-9

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE CORPUS CHRISTI, TEXAS 78404

ERIC

0988

1. QUESTION NUMBER 3

Do you actively support an Architectural Technology program in your community?

(1) YES (2) NO (3) NO LOCAL GRADUATES TO DRAW FROM (4) I HAVE NO NEED FOR ARCHITECTURAL GRADS

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	3	2	10	1						1
2. Amarillo	6		1	4	1						
*3. Corpus Christi	16	14	2								
*4. Dallas	58	13	15	16	11					1	2
*5. Fort Worth	15	9	4		2						
6. Dallas/Ft. Worth Area	13	5	1	4	3						
7. Lubbock	9		2	6							1
8. Houston	68	9	23	22	7					4	3
9. San Antonio	28	4	7	15	1						1
10. East Tex. Area	10	1		8	1						
*11. East Central Tex. Area	6	2	1	1	2						
12. Southeast Tex. Area	17	3	2	7	2					1	2
13. West Tex. Area	19	2	5	12							
14. West Central Tex.	8		2	6							1
15. Rio Grande Area	9	1	2	5							
16. South Central Tex.	5		1	3	1						
17. Texas (1-16 Together)	304	66	70	119	32					6	11

	Total Responses	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	3	2	10	1						1
2. Amarillo	6		1	4	1						
*3. Corpus Christi	16	14	2								
*4. Dallas	58	13	15	16	11					1	2
*5. Fort Worth	15	9	4		2						
6. Dallas/Ft. Worth Area	13	5	1	4	3						
7. Lubbock	9		2	6							1
8. Houston	68	9	23	22	7					4	3
9. San Antonio	28	4	7	15	1						1
10. East Tex. Area	10	1		8	1						
*11. East Central Tex. Area	6	2	1	1	2						
12. Southeast Tex. Area	17	3	2	7	2					1	2
13. West Tex. Area	19	2	5	12							
14. West Central Tex.	8		2	6							
15. Rio Grande Area	9	1	2	5							1
16. South Central Tex.	5		1	3	1						
17. Texas (1-16 Together)	304	66	70	119	32					6	11
18. Eastern States	28	11	7	6	1					1	2
19. Central States	41	11	7	17						1	2
20. Western States	13	3	4	3	2						1
21. 18, 19, & 20 (Together)	82	25	18	26	6					2	5
22. 17 & 21 (Together)	386	91	88	145	38					8	16

886)

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CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE CORPUS CHRISTI, TEXAS 78404

1. QUESTION NUMBER 4

Is the local Architectural and Construction industry involved in an existing program in your community?

(1) YES (2) NO

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	1	13							2	1
2. Amarillo	6	1	5								
*3. Corpus Christi	16	13	2								1
*4. Dallas	58	19	18							20	1
*5. Fort Worth	15	11	3								1
6. Dallas/Ft. Worth Area	13	5	7								1
7. Lubbock	9		9								
8. Houston	68	9	34							17	8
9. San Antonio	28	6	12							8	2
10. East Tex. Area	10		10								
*11. East Central Tex. Area	6	2	4								
12. Southeast Tex. Area	17	1	16								
13. West Tex. Area	19	3	16								
14. West Central Tex.	8	1	7								
15. Rio Grande Area	9	1	7							1	
16. South Central Tex.	5	1	4								
17. Texas (1-16 Together)	304	74	167							48	15
18. Eastern States	28	11	12							2	3

2.	Amarillo	6	1	5								1
*3.	Corpus Christi	16	13	2							20	1
*4.	Dallas	58	19	18								1
*5.	Fort Worth	15	11	3								
6.	Dallas/Ft. Worth Area	13	5	7								1
7.	Lubbock	9		9								
8.	Houston	68	9	34							17	8
9.	San Antonio	28	6	12							8	2
10.	East Tex. Area	10		10								
*11.	East Central Tex. Area	6	2	4								
12.	Southeast Tex. Area	17	1	16								
13.	West Tex. Area	19	3	16								
14.	West Central Tex.	8	1	7							1	
15.	Rio Grande Area	9	1	7								
16.	South Central Tex.	5	1	4								
17.	Texas (1-16 Together)	304	74	167							48	15
18.	Eastern States	28	11	12							2	3
19.	Central States	41	10	25							3	3
20.	Western States	13	3	8							1	1
21.	18, 19, & 20 (Together)	82	24	45							6	7
22.	17 & 21 (Together)	386	98	212							54	22

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CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE CORPUS CHRISTI, TEXAS 78404

8693

ERIC

1. QUESTION NUMBER 5

Would you actively support an Architectural Technology Program in your community?

(1) YES (2) NO

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	14	1							1	1
2. Amarillo	6	6									
*3. Corpus Christi	16	15	1								
*4. Dallas	58	40	9							4	5
*5. Fort Worth	15	11	2							1	1
6. Dallas/Ft. Worth Area	13	10	2								1
7. Lubbock	9	4	2							1	2
8. Houston	68	44	11							10	3
9. San Antonio	28	23	3							2	
10. East Tex. Area	10	9	9								
*11. East Central Tex. Area	6	5	1								
12. Southeast Tex. Area	17	12	2							1	2
13. West Tex. Area	19	18									1
14. West Central Tex.	8	6									
15. Rio Grande Area	9	7								2	
16. South Central Tex.	5	3	2								
17. Texas (1-16 Together)	304	227	37							4	16
18. Eastern States	28	22	2							1	3
19. Central States	41	29	3							6	3

*3.	Corpus Christi	16	15	1								
*4.	Dallas	58	40	9							4	5
*5.	Fort Worth	15	11	2							1	1
6.	Dallas/Ft. Worth Area	13	10	2								1
7.	Lubbock	9	4	2							1	2
8.	Houston	68	44	11							10	3
9.	San Antonio	28	23	3							2	
10.	East Tex. Area	10	9	9								
*11.	East Central Tex. Area	6	5	1								
12.	Southeast Tex. Area	17	12	2							1	2
13.	West Tex. Area	19	18									1
14.	West Central Tex.	8	6									
15.	Rio Grande Area	9	7								2	
16.	South Central Tex.	5	3	2								
17.	Texas (1-16 Together)	304	227	37							4	16
18.	Eastern States	28	22	2							1	3
19.	Central States	41	30	2							6	3
20.	Western States	13	10	1							2	
21.	18, 19, & 20 (Together)	82	62	5							9	6
22.	17 & 21 (Together)	386	289	42							33	22

9865

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CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE CORPUS CHRISTI, TEXAS 78404

ERIC

8676

1. QUESTION NUMBER 6

Would you endorse uniform Architectural Technology programs throughout Texas modified to your community's specific needs?

(1) YES (2) NO

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	16								1	
2. Amarillo	6	6									
*3. Corpus Christi	16	16									
*4. Dallas	58	50	2							5	1
*5. Fort Worth	15	13	1								1
6. Dallas/Ft. Worth Area	13	11	2								
7. Lubbock	9	8	1								
8. Houston	68	50	8							8	2
9. San Antonio	28	25	2							1	
10. East Tex. Area	10	9	1								
*11. East Central Tex. Area	6	6									
12. Southeast Tex. Area	17	15									2
13. West Tex. Area	19	18	1								
14. West Central Tex.	8	8									
15. Rio Grande Area	9	8								1	
16. South Central Tex.	5	5									
17. Texas (1-16 Together)	304	264	18							16	6
18. Eastern States	28	15	2							4	7
19. Central States	41	25								6	10
20. Western States	13	9								2	2
21. 18, 19, & 20											

6.	Dallas/Ft. Worth Area	13	11	2								
7.	Lubbock	9	8	1								
8.	Houston	68	50	8							8	2
9.	San Antonio	28	25	2							1	
10.	East Tex. Area	10	9	1								
*11.	East Central Tex. Area	6	6									
12.	Southeast Tex. Area	17	15									2
13.	West Tex. Area	19	18	1								
14.	West Central Tex.	8	8									
15.	Rio Grande Area	9	8								1	
16.	South Central Tex.	5	5									
17.	Texas (1-16 Together)	304	264	18							16	6
18.	Eastern States	28	15	2							4	7
19.	Central States	41	25								6	10
20.	Western States	13	9								2	2
21.	18, 19, & 20 (Together)	82	49	2							12	19
22.	17 & 21 (Together)	386	313	20							28	25

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CO-DIRECTORS

J. CARTER HOWALD, AIA, CSI

JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY

DEL MAR COLLEGE CORPUS CHRISTI, TEXAS 78404

1. QUESTION NUMBER 7

Do you feel there is a definite, immediate need for a strong 2-year Architectural Technology Program in Texas Junior and/or Community Colleges?

(1) YES (2) NO

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	16	1								
2. Amarillo	6	4	2								
*3. Corpus Christi	16	16									
*4. Dallas	58	47	5							2	4
*5. Fort Worth	15	13	1								1
6. Dallas/Ft. Worth Area	13	11	1							1	
7. Lubbock	9	6	2							1	
8. Houston	68	47	15							4	2
9. San Antonio	28	26	2								
10. East Tex. Area	10	9	1								
*11. East Central Tex. Area	6	5								1	
12. Southeast Tex. Area	17	14	1							1	1
13. West Tex. Area	19	19									

RESPONSE ANALYSIS

		Total Responses	1	2	3	4	5	6	7	8	Other Answers	No Answer
1.	Austin	17	16	1								
2.	Amarillo	6	4	2								
*3.	Corpus Christi	16	16									
*4.	Dallas	58	47	5							2	4
*5.	Fort Worth	15	13	1								1
6.	Dallas/Ft. Worth Area	13	11	1							1	
7.	Lubbock	9	6	2							1	
8.	Houston	68	47	15							4	2
9.	San Antonio	28	26	2								
10.	East Tex. Area	10	9	1								
*11.	East Central Tex. Area	6	5								1	
12.	Southeast Tex. Area	17	14	1							1	1
13.	West Tex. Area	19	19									
14.	West Central Tex.	8	8									
15.	Rio Grande Area	9	8								1	
16.	South Central Tex.	5	4								1	
17.	Texas (1-16 Together)	304	253	31							12	8
18.	Eastern States	28	16								5	7
19.	Central States	41	30	2							2	7
20.	Western States	13	10	1								2
21.	18, 19, & 20 (Together)	82	56	3							7	16
22.	17 & 21 (Together)	386	309	34							19	24

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CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA
DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

1. QUESTION NUMBER 8

8870

Do you feel that the certification by the profession of architectural technicians as "paraprofessionals" is desirable?

(1) YES (2) NO

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	8	8							1	
2. Amarillo	6	1	5								
*3. Corpus Christi	16	14	1							1	
*4. Dallas	58	42	17	1						4	4
*5. Fort Worth	15	6	9								
6. Dallas/Ft. Worth Area	13	11	1								1
7. Lubbock	9	7	1	1							
8. Houston	68	32	23	1						8	4
9. San Antonio	28	19	5							3	1
10. East Tex. Area	10	4	5								1
*11. East Central Tex. Area	6	3	3								
12. Southeast Tex. Area	17	11	3							1	2
13. West Tex. Area	19	8	7							2	2
14. West Central Tex.	8	2	2							2	2
15. Rio Grande Area	9	8								1	
16. South Central Tex.	5	3	1								1
17. Texas (1-16 Together)	304	169	91	3						23	18
18. Eastern States	28	17	6							1	4
19. Central States	41	27	7							3	4
20. Western States	13	8	5								

	Area	13	11	1								1
7.	Lubbock	9	7	1	1							
8.	Houston	68	32	23	1						8	4
9.	San Antonio	28	19	5							3	1
10.	East Tex. Area	10	4	5								1
*11.	East Central Tex. Area	6	3	3								
12.	Southeast Tex. Area	17	11	3							1	2
13.	West Tex. Area	19	8	7							2	2
14.	West Central Tex.	8	2	2							2	2
15.	Rio Grande Area	9	8								1	
16.	South Central Tex.	5	3	1								1
17.	Texas (1-16 Together)	304	169	91	3						23	18
18.	Eastern States	28	17	6							1	4
19.	Central States	41	27	7							3	4
20.	Western States	13	8	5								
21.	18, 19, & 20 (Together)	82	52	18							4	8
22.	17 & 21 (Together)	386	229	109	3						27	26

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CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA
DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

9672

QUESTION NUMBER 9

What role does the architectural technician play in your office?

(1) MAJOR (2) MINOR (3) NONE

RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	2	4	10						1	
2. Amarillo	6	1	1	4							
*3. Corpus Christi	16	8	3	4							1
*4. Dallas	58	6	15	35						1	1
*5. Fort Worth	15	2	6	7							
6. Dallas/Ft. Worth Area	13	1	4	7							1
7. Lubbock	9		1	7							1
8. Houston	68	7	18	36						3	4
9. San Antonio	28	7	7	12						2	
10. East Tex. Area	10	1	2	7							
*11. East Central Tex. Area	6	1	1	4							
12. Southeast Tex. Area	4	2	3	7						1	4
13. West Tex. Area	19	2	4	11						1	1
14. West Central Tex.	8		1	6							1
15. Rio Grande Area	9	1	2	6							
16. South Central Tex.	5			5							
17. Texas (1-16 Together)	304	41	72	168						9	14
18. Eastern States	28	8	6	7						1	6
19. Central States	41	9	9	19							4
20. Western States	13	2	5	6							
21. 18, 19, & 20											

1.	Austin	17	2	4	10						1	
2.	Amarillo	6	1	1	4							
*3.	Corpus Christi	16	8	3	4							1
*4.	Dallas	58	6	15	35						1	1
*5.	Fort Worth	15	2	6	7							
6.	Dallas/Ft. Worth Area	13	1	4	7							1
7.	Lubbock	9		1	7							1
8.	Houston	68	7	18	36						3	4
9.	San Antonio	28	7	7	12						2	
10.	East Tex. Area	10	1	2	7							
*11.	East Central Tex. Area	6	1	1	4							
12.	Southeast Tex. Area	4	2	3	7						1	4
13.	West Tex. Area	19	2	4	11						1	1
14.	West Central Tex.	8		1	6							1
15.	Rio Grande Area	9	1	2	6							
16.	South Central Tex.	5			5							
17.	Texas (1-16 Together)	304	41	72	168						9	14
18.	Eastern States	28	8	6	7						1	6
19.	Central States	41	9	9	19							4
20.	Western States	13	2	5	6							
21.	18, 19, & 20 (Together)	82	19	20	32						1	1
22.	17 & 21 (Together)	386	60	92	200						10	24

8823

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CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

1. QUESTION NUMBER 10

Size of your office :

(1) 1-5 (2) 6-10 (3) 11-20 (4) 21-50 (5) 51-100 (6) ABOVE 100

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	6	2	2	3	2				1	1
2. Amarillo	6	4	2								
*3. Corpus Christi	16	8	6	1							1
*4. Dallas	58	25	6	14	8	3					2
*5. Fort Worth	15	6	3	3	3						
6. Dallas/Ft. Worth Area	13	5	5	2							1
7. Lubbock	9	3	2	2	1						1
8. Houston	68	24	9	11	15	3	6				
9. San Antonio	28	12	9	3	3		1				
10. East Tex. Area	10	7	3								
*11. East Central Tex. Area	6	3	2	1							
12. Southeast Tex. Area	17	10	4		1						2
13. West Tex. Area	19	8	5	5	1						
14. West Central Tex.	8	4	1	3							
15. Rio Grande Area	9	7		1	1						
16. South Central Tex.	5	5									
17. Texas (1-16 Together)	304	137	59	48	36	8	7			1	8
18. Eastern States	28	4	5	5	3	2	4			1	4
19. Central States	41	15	11	8	4	1	1				1
20. Western States	13	2	3	5		1	2				
21. 18, 19, & 20 (Together)	82	21	19	18	7	4	7			1	5

6.	Dallas/Ft. Worth Area	13	5	5	2							1
7.	Lubbock	9	3	2	2	1						1
8.	Houston	68	24	9	11	15	3	6				
9.	San Antonio	28	12	9	3	3		1				
10.	East Tex. Area	10	7	3								
*11.	East Central Tex. Area	6	3	2	1							
12.	Southeast Tex. Area	17	10	4		1						2
13.	West Tex. Area	19	8	5	5	1						
14.	West Central Tex.	8	4	1	3							
15.	Rio Grande Area	9	7		1	1						
16.	South Central Tex.	5	5									
17.	Texas (1-16 Together)	304	137	59	48	36	8	7			1	8
18.	Eastern States	28	4	5	5	3	2	4			1	4
19.	Central States	41	15	11	8	4	1	1				1
20.	Western States	13	2	3	5		1	2				
21.	18, 19, & 20 (Together)	82	21	19	18	7	4	7			1	5
22.	17 & 21 (Together)	386	158	78	66	43	12	14			2	13

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CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

1. QUESTION NUMBER 11

Number of offices operated by your firm in Texas and elsewhere:

(1) ONE (2) TWO (3) THREE (4) FOUR (5) FIVE OR MORE

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	10	2	2						1	2
2. Amarillo	6	6									
*3. Corpus Christi	16	14	1								1
*4. Dallas	58	45	9			1					3
*5. Fort Worth	15	13	2								
6. Dallas/Ft. Worth Area	13	10	2								1
7. Lubbock	9	7	1								1
8. Houston	68	48	11	1	4	4					
9. San Antonio	28	23	3								
10. East Tex. Area	10	9	1								
*11. East Central Tex. Area	6	6									
12. Southeast Tex. Area	17	12	1								4
13. West Tex. Area	19	17	2								
14. West Central Tex.	8	8									
15. Rio Grande Area	9	7	1								1
16. South Central Tex.	5	5									
17. Texas (1-16 Together)	304	239	36	6	4	6				1	12
18. Eastern States	28	14	3	1	2	1				2	5
19. Central States	41	22	4	2						7	6
20. Western States	13	7	2			3					1

RESPONSE ANALYSIS

		Total Resp	1	2	3	4	5	6	7	8	Other Answ	No Answ
1.	Austin	17	10	2	2						1	2
2.	Amarillo	6	6									
*3.	Corpus Christi	16	14	1								1
*4.	Dallas	58	45	9			1					3
*5.	Fort Worth	15	13	2								
6.	Dallas/Ft. Worth Area	13	10	2								1
7.	Lubbock	9	7	1								1
8.	Houston	68	48	11	1	4	4					
9.	San Antonio	28	23	3								
10.	East Tex. Area	10	9	1								
*11.	East Central Tex. Area	6	6									
12.	Southeast Tex. Area	17	12	1								4
13.	West Tex. Area	19	17	2								
14.	West Central Tex.	8	8									
15.	Rio Grande Area	9	7	1								1
16.	South Central Tex.	5	5									
17.	Texas (1-16 Together)	304	239	36	6	4	6				1	12
18.	Eastern States	28	14	3	1	2	1				2	5
19.	Central States	41	22	4	2						7	6
20.	Western States	13	7	2			3					1
21.	18, 19, & 20 (Together)	82	43	9	3	2	4				9	12
22.	17 & 21 (Together)	386	282	45	9	6	10				10	24

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A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

1. QUESTION NUMBER 12

8878

Which of the following areas do you believe trained technicians would be of most value to your office: (circle your choices)

(1) FIELD INSPECTIONS
(2) COST ESTIMATIONS
(3) SPECIFICATION WRITER
(4) DRAFTSMAN
(5) CHIEF DRAFTSMAN
(6) COMPUTER CO-ORDINATOR
(7) ADMINISTRATIVE ASSISTANT
(8) SHOP DRAWING

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	8	3	2	11	2	2	4			1
2. Amarillo	6	3			5	1			2		
*3. Corpus Christi	16	7	7	7	15	9	4	2	7	1	
*4. Dallas	58	34	18	19	51	5	4	6	30	1	5
*5. Fort Worth	15	5	5	4	16			2	7		2
6. Dallas/Ft. Worth Area	13	4	4	1	11	3		2	7		2
7. Lubbock	19	2	3		8	1	1		4		1
8. Houston	68	36	24	23	59	5	2	9	39	2	5
9. San Antonio	28	10	10	9	29	11		3	16	2	1
10. East Tex. Area	10	3	1	1	11	1			1		
*11. East Central Tex. Area	6	1	1	1	7				2		
12. Southeast Tex. Area	17	5	3	3	11	5		1	7		3
13. West Tex. Area	19	6	2	3	16	3	1	2	5		
14. West Central Tex.	8	3	1	1	6	2	1	4			
15. Rio Grande Area	25	4	1	2	7	1		2	1		
16. South Central Tex.		2		1	3	1	1	1	1		
17. Texas (1-16 Together)	304	133	83	77	266	50	16	36	128	6	18

1.	Austin	17	8	3	2	11	2	2	4			1
2.	Amarillo	6	3			5	1			2		
*3.	Corpus Christi	16	7	7	7	15	9	4	2	7	1	
*4.	Dallas	58	34	18	19	51	5	4	6	30	1	5
*5.	Fort Worth	15	5	5	4	16			2	7		2
6.	Dallas/Ft. Worth Area	13	4	4	1	11	3		2	7		2
7.	Lubbock	19	2	3		8	1	1		4		1
8.	Houston	68	36	24	23	59	5	2	9	39	2	5
9.	San Antonio	28	10	10	9	29	11		3	16	2	1
10.	East Tex. Area	10	3	1	1	11	1			1		
*11.	East Central Tex. Area	6	1	1	1	7				2		
12.	Southeast Tex. Area	17	5	3	3	11	5		1	7		3
13.	West Tex. Area	19	6	2	3	16	3	1	2	5		
14.	West Central Tex.	8	3	1	1	6	2	1	4			
15.	Rio Grande Area	25	4	1	2	7	1		2	1		
16.	South Central Tex.		2		1	3	1	1	1	1		
17.	Texas (1-16 Together)	304	133	83	77	266	50	16	36	128	6	18
18.	Eastern States	28	11	9	12	35	10	4	9	15		2
19.	Central States	41	19	12	10	33	7	4	5	26		3
20.	Western States	13	5	4	4	10	2	4	3	6		
21.	18, 19, & 20 (Together)	82	35	25	26	82	19	12	17	47		5
22.	17 & 21 (Together)	386	168	108	103	348	69	28	53	175	6	23

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CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

1. QUESTION NUMBER 13

NOTE: For further refinement of Architectural Technology Curriculums, please answer the following questions to the best of your ability, based on your present and/or projected needs.

Design "philosophy" should be included in the architectural technician's training to the level of:

(1) HIGH SKILL (2) MEDIUM SKILL (3) MINIMUM SKILL (4) NO SKILL REQUIRED

RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	5	7	3						1	1
2. Amarillo	6	2	2	2							
*3. Corpus Christi	16		8	6	2						
*4. Dallas	58	6	28	17	4					1	2
*5. Fort Worth	15	1	5	4	4						1
6. Dallas/Ft. Worth Area	13	1	4	6	1					1	
7. Lubbock	9		6	3							
8. Houston	68	10	30	19	5						4
9. San Antonio	28	3	14	9						1	1
10. East Tex. Area	10		6	2	2						
*11. East Central Tex. Area	6		1	4	1						
12. Southeast Tex. Area	17	1	6	8						1	1
13. West Tex. Area	19	1	5	11	1						1
14. West Central Tex.	8		5	3							
15. Rio Grande Area	9	1	6	2							
16. South Central Tex.	5		4	1							
17. Texas (1-16 Together)	304	31	137	100	20					5	11
18. Eastern States	28	3	12	8	1					1	3
19. Central States	41	5	23	12							1

RESPONSE ANALYSIS

		Total Responses	1	2	3	4	5	6	7	8	Other Answers	No Answer
1.	Austin	17	5	7	3						1	1
2.	Amarillo	6	2	2	2							
*3.	Corpus Christi	16		8	6	2						
*4.	Dallas	58	6	28	17	4					1	2
*5.	Fort Worth	15	1	5	4	4						1
6.	Dallas/Ft. Worth Area	13	1	4	6	1					1	
7.	Lubbock	9		6	3							
8.	Houston	68	10	30	19	5						4
9.	San Antonio	28	3	14	9						1	1
10.	East Tex. Area	10		6	2	2						
*11.	East Central Tex. Area	6		1	4	1						
12.	Southeast Tex. Area	17	1	6	8						1	1
13.	West Tex. Area	19	1	5	11	1						1
14.	West Central Tex.	8		5	3							
15.	Rio Grande Area	9	1	6	2							
16.	South Central Tex.	5		4	1							
17.	Texas (1-16 Together)	304	31	137	100	20					5	11
18.	Eastern States	28	3	12	8	1					1	3
19.	Central States	41	5	23	12							1
20.	Western States	13	1	9	1	1					1	
21.	18, 19, & 20 (Together)	82	9	44	21	1	1				2	4
22.	17 & 21 (Together)	386	40	181	121	21	1				7	15

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CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

1. QUESTION NUMBER 14

2888

Drafting skill should be included in the architectural technician's training to the level of:

(1) HIGH SKILL (2) MEDIUM SKILL (3) MINIMUM SKILL (4) NO SKILL REQUIRED

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	12	5								
2. Amarillo	6	5									1
*3. Corpus Christi	16	15	1								
*4. Dallas	58	43	10	1							4
*5. Fort Worth	15	10	4								1
6. Dallas/Ft. Worth Area	13	10	3								
7. Lubbock	9	8	1								
8. Houston	68	51	12	1							4
9. San Antonio	28	22	4							1	1
10. East Tex. Area	10	9	1								
*11. East Central Tex. Area	6	4	2								
12. Southeast Tex. Area	17	13	1	1						1	1
13. West Tex. Area	19	15	4								
14. West Central Tex.	8	8									
15. Rio Grande Area	9	6	3								
16. South Central Tex.	5	3	1	1							
17. Texas (1-16 Together)	304	234	52	4						2	12
18. Eastern States	28	21	3					1			3
19. Central States	41	32	7								2

1.	Austin	17	12	5									
2.	Amarillo	6	5										1
*3.	Corpus Christi	16	15	1									
4.	Dallas	58	43	10	1								4
*5.	Fort Worth	15	10	4									1
6.	Dallas/Ft. Worth Area	13	10	3									
7.	Lubbock	9	8	1									
8.	Houston	68	51	12	1								4
9.	San Antonio	28	22	4								1	1
10.	East Tex. Area	10	9	1									
*11.	East Central Tex. Area	6	4	2									
12.	Southeast Tex. Area	17	13	1	1							1	1
13.	West Tex. Area	19	15	4									
14.	West Central Tex.	8	8										
15.	Rio Grande Area	9	6	3									
16.	South Central Tex.	5	3	1	1								
17.	Texas (1-16 Together)	304	234	52	4							2	12
18.	Eastern States	28	21	3					1				3
19.	Central States	41	32	7									2
20.	Western States	13	11	2									
21.	18, 19, & 20 (Together)	82	64	12					1				5
22.	17 & 21 (Together)	386	298	64	4				1			2	17

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CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

ERIC

1. QUESTION NUMBER 15

Specifications writing knowledge should be included in the architecutral technician's training to the level of:

(1) HIGH KNOWLEDGE
(2) MEDIUM KNOWLEDGE
(3) MINIMUM KNOWLEDGE
(4) NO KNOWLEDGE REQUIRED

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	3	11	2	1						
2. Amarillo	6	3	1	2							
*3. Corpus Christi	16	2	11	3							
*4. Dallas	58	14	31	9	2						2
*5. Fort Worth	15	4	5	5							1
6. Dallas/Ft. Worth Area	13		8	5							
7. Lubbock	9	0	6	3							
8. Houston	68	23	30	9	2					1	3
9. San Antonio	28	6	15	5						1	1
10. East Tex. Area	10	1	4	4	1						
*11. East Central Tex. Area	6	1	3	1	1						
12. Southeast Tex. Area	17	3	8	2	2					1	1
13. West Tex. Area	19	4	8	6	1						
14. West Central Tex.	8		5	3							
15. Rio Grande Area	9	1	5	3							
16. South Central Tex.	5	2	2	1							
17. Texas (1-16 Together)	304	67	153	63	10					3	8
18. Eastern States	28	7	15	2							4

		Total Responses	1	2	3	4	5	6	7	8	Other Answers	No Answers
1.	Austin	17	3	11	2	1						
2.	Amarillo	6	3	1	2							
*3.	Corpus Christi	16	2	11	3							
*4.	Dallas	58	14	31	9	2						2
*5.	Fort Worth	15	4	5	5							1
6.	Dallas/Ft. Worth Area	13		8	5							
7.	Lubbock	9	0	6	3							
8.	Houston	68	23	30	9	2					1	3
9.	San Antonio	28	6	15	5						1	1
10.	East Tex. Area	10	1	4	4	1						
*11.	East Central Tex. Area	6	1	3	1	1						
12.	Southeast Tex. Area	17	3	8	2	2					1	1
13.	West Tex. Area	19	4	8	6	1						
14.	West Central Tex.	8		5	3							
15.	Rio Grande Area	9	1	5	3							
16.	South Central Tex.	5	2	2	1							
17.	Texas (1-16 Together)	304	67	153	63	10					3	8
18.	Eastern States	28	7	15	2							4
19.	Central States	41	12	20	8							1
20.	Western States	13	3	9		1						5
21.	18, 19, & 20 (Together)	386	89	197	73	11					3	13
22.	17 & 21 (Together)											

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CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA

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DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

1. QUESTION NUMBER 16

Building cost estimating ability should be included in the architectural technician's training to the level of:

(1) HIGH ABILITY
(2) MEDIUM ABILITY
(3) MINIMUM ABILITY
(4) NO ABILITY REQUIRED

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	4	9	3							1
2. Amarillo	6	2	1	2	1						
3. Corpus Christi	16	2	8	5	1						
4. Dallas	58	13	24	16	3						2
5. Fort Worth	15	3	5	6							1
6. Dallas/Ft. Worth Area	13	3		10							
7. Lubbock	9	2	5	2							
8. Houston	68	18	26	18	2						4
9. San Antonio	28	8	11	5	2					1	1
10. East Tex. Area	10		3	7							
*11. East Central Tex. Area	6		4	1	1						
12. Southeast Tex. Area	17	4	8	2	1					1	1
13. West Tex. Area	19	3	5	9	2						
14. West Central Tex.	8		3	4	1						
15. Rio Grande Area	9	1	3	4	1						
16. South Central Tex.	5	1	3	1							
17. Texas (1-16 Together)	304	64	118	95	15					2	10
18. Eastern States	28	6	13	5	1						3
19. Central States	41	9	18	11	2						1
20. Western States	13	3	7	2	1						
21. 18, 19, & 20 (Together)	82	18	38	18	4						4

3.	Corpus Christi	16	2	8	5	1						
4.	Dallas	58	13	24	16	3						2
5.	Fort Worth	15	3	5	6							1
6.	Dallas/Ft. Worth Area	13	3		10							
7.	Lubbock	9	2	5	2							
8.	Houston	68	18	26	18	2						4
9.	San Antonio	28	8	11	5	2					1	1
10.	East Tex. Area	10		3	7							
*11.	East Central Tex. Area	6		4	1	1						
12.	Southeast Tex. Area	17	4	8	2	1					1	1
13.	West Tex. Area	19	3	5	9	2						
14.	West Central Tex.	8		3	4	1						
15.	Rio Grande Area	9	1	3	4	1						
16.	South Central Tex.	5	1	3	1							
17.	Texas (1-16 Together)	304	64	118	95	15					2	10
18.	Eastern States	28	6	13	5	1						3
19.	Central States	41	9	18	11	2						1
20.	Western States	13	3	7	2	1						
21.	18, 19, & 20 (Together)	82	18	38	18	4						4
22.	17 & 21 (Together)	386	82	156	113	19					2	14

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CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA

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DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

86888

1. QUESTION NUMBER 17

Field inspection experience should be included in the architectural technician's training to the level of:

(1) HIGH EXPERIENCE
(2) MEDIUM EXPERIENCE
(3) MINIMUM EXPERIENCE
(4) NO EXPERIENCE REQUIRED

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	7	8	1	1						
2. Amarillo	6	3	2	1							
*3. Corpus Christi	16	3	9	4							
*4. Dallas	58	16	28	10	1						3
*5. Fort Worth	15	2	7	3	2						1
6. Dallas/Ft. Worth Area	13	4	4	5							
7. Lubbock	9	3	3	3							
8. Houston	68	31	22	11						1	3
9. San Antonio	28	6	14	5						1	2
10. East Tex. Area	10	3	3	3	1						
*11. East Central Tex. Area	6	1	3	2							
12. Southeast Tex. Area	17	7	5	3						1	1
13. West Tex. Area	19	6	6	6	1						
14. West Central Tex.	8		5	2							1
15. Rio Grande Area	9	4	2	3							
16. South Central Tex.	5	3	1	1							
17. Texas (1-16 Together)	304	99	122	63	6					3	11

RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	7	8	1	1						
2. Amarillo	6	3	2	1							
*3. Corpus Christi	16	3	9	4							
*4. Dallas	58	16	28	10	1						3
*5. Fort Worth	15	2	7	3	2						1
6. Dallas/Ft. Worth Area	13	4	4	5							
7. Lubbock	9	3	3	3							
8. Houston	68	31	22	11						1	3
9. San Antonio	28	5	14	5						1	2
10. East Tex. Area	10	3	3	3	1						
*11. East Central Tex. Area	6	1	3	2							
12. Southeast Tex. Area	17	7	5	3						1	1
13. West Tex. Area	19	6	6	6	1						
14. West Central Tex.	8		5	2							1
15. Rio Grande Area	9	4	2	3							
16. South Central Tex.	5	3	1	1							
17. Texas (1-16 Together)	304	99	122	63	6					3	11
18. Eastern States	28	8	10	7							3
19. Central States	41	13	19	5	1					1	2
20. Western States	13	4	6	3							
21. 18, 19, & 20 (Together)	82	25	35	15	1					1	5
22. 17 & 21 (Together)	386	124	157	78	7					4	16

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CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

0688

1. QUESTION NUMBER 18

Please utilize the space below for listing specific items you feel are most important in the training of architectural technicians. (Please use back of sheet for additional comments)

(1) COMMENT (2) NO COMMENT

2. RESPONSE ANALYSIS

	Total Response	1	2	3	4	5	6	7	8	Other Answers	No Answer
1. Austin	17	6	11								
2. Amarillo	6	1	5								
*3. Corpus Christi	16	7	9								
*4. Dallas	58	41	17								
*5. Fort Worth	15	5	10								
6. Dallas/Ft. Worth Area	13	5	8								
7. Lubbock	9	8	1								
8. Houston	68	38	30								
9. San Antonio	28	10	18								
10. East Tex. Area	10	5	5								
*11. East Central Tex. Area	6	6									
12. Southeast Tex. Area	17	11	6								
13. West Tex. Area	19	12	7								
14. West Central Tex.	8	6	2								
15. Rio Grande Area	9	2	7								
16. South Central Tex.	5	2	3								
17. Texas (1-16 Together)	304	165	139								
18. Eastern States	28	15	13								

	To Re	1	2	3	4	5	6	7	8	Other Ans	No Ans
1. Austin	17	6	11								
2. Amarillo	6	1	5								
*3. Corpus Christi	16	7	9								
*4. Dallas	58	41	17								
*5. Fort Worth	15	5	10								
6. Dallas/Ft. Worth Area	13	5	8								
7. Lubbock	9	8	1								
8. Houston	68	38	30								
9. San Antonio	28	10	18								
10. East Tex. Area	10	5	5								
*11. East Central Tex. Area	6	6									
12. Southeast Tex. Area	17	11	6								
13. West Tex. Area	19	12	7								
14. West Central Tex.	8	6	2								
15. Rio Grande Area	9	2	7								
16. South Central Tex.	5	2	3								
17. Texas (1-16 Together)	304	165	139								
18. Eastern States	28	15	13								
19. Central States	41	24	17								
20. Western States	13	4	9								
21. 18, 19, & 20 (Together)	82	43	39								
22. 17 & 21 (Together)	386	208	178								

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. ROGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

COMMENTS RECEIVED ON QUESTIONNAIRE

INCLUDED FOR READERS INFORMATION

XXX

8892

8893

Providing a technicians license would solve many of the problems of the program.

Mr. Bill Holland
Corpus Christi, TX

Program must be directed by architecturally oriented people (as teches and not be allowed to become a stepchild of an engineering graphics department in the junior college.

Mr. William D. Jones
San Antonio, TX

Develop motivated, self-starting people. Also work on bridging that gap between "design" and "production".

Mr. Marvin E. Bradshaw
Arlington, TX

I feel there is a real need for these men.

Mr. George R. Rodgers
Marshall, TX

Technicians should fill voids left by Arch. graduates in areas of production and construction.

Mr. Davis B. Gohrnert
Mt. Pleasant, TX

Teach construction document preparation current architectural graduates are ill-prepared to produce contract documents in an office.

Mr. Reuben M. Welsh, Jr.
Laredo, TX

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Laredo, TX

Skilled in the mechanics of building buildings, too few graduate architects have adequate ability in this area.

Good Idea! I would welcome more knowledge of this program, I have not been aware this program was available.

Mr. John B. Montgomery
Houston, TX

An opportunity for a candidate for certification to specialize in one level of achievements.

Mr. W. Douglas Rowell
Houston, TX

No. 2 - Reasonably well - fewer know how to draft well.

Mr. Joseph Sontamaria, A.I.A.
Houston, TX

ERIC

5988 xxx2

While we have no "technicians" as such in our office, we do have men of this ability level in high school graduates, college drop-outs, etc.

Mr. A. G. Eupberg
Houston, TX

In two years, it will not be possible for a technician to be proficient in all skills. I think they should concentrate in one area. For example, if we hired a technician, it would be for his drafting ability. We would expect, after several months of further training in our office, that he could carry on with a minimum of supervision. He should be able to spell correctly, letter neatly , be able to develop details, know how a building goes together, how the defferent trades go about their work, be able to check dimensions, be familiar with different kinds of materials, etc. In other words, the technicians training, in my opinion, should be very practical; I think also that courses should be taught by instructors with practical experience.

Mr. Floyd Marsellos, A.I.A.
Lufkin, TX

Retired from "office of Pierce & Pierce" in 1969. Very little architectural activity since then, with office in home. No salaried employees. Had no contact with "architectural technicians" as basis for worthwhile evaluation. Would think that main justification for program would be when demand for architectural help greatly exceeds supply. Not aware that this is now the case. Now we have too many "PH.D's" for available teaching jobs, too many engineering graduates for number of engineering jobs- - & probably too many regular arch. graduates for now architectural jobs.

Suspect this program is hangover from "Kennedy/Johnson Boom - Inflation" days--when we thought expansion to infinity was in order for U.S.A.

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Suspect this program is hangover from "Kennedy/Johnson Boom - Inflation" days--when we thought expansion to infinity was in order for U.S.A.-- with need to "water down" quality of training to produce large volume of pseudo-trained workers.

Mr. Abel Pierce
Houston, TX

Understanding of design "philosophy".

Mr. Ralph D. Spencer
Austin, TX

Costestimating should include life cycle estimating. Building construction phase should include systems approach. Note: Limited practice @ present.

Mr. William R. Pounders, Jr.
San Antonio, TX

Be able to read drawings, block out perspectives, able to take architect's place during long concrete pour.

Mr. George W. Edwards, A.I.A.
Dallas, TX

88%

ERIC

Very good --- I am glad to see someone is doing something to fill a gap we have needed for a long time.

Mr. Donald Minzenmayer
Houston, TX

The profession of architecture needs skilled draftsmen. Familiar with or equipped to learn to produce contract drawings. Specialized training outside the field of drafting and understanding of what is being drawn and how to communicate to the construction industry maybe should be minimal. Exposure in an architectural office can generally develope these talents if they are present.

Find the prospective student with aptitude and interest. Equip him with skill to earn and be profitable in an office; he can go up from there if he wants it.

Today's 5-year architectural graduate wants to be chief designer and job captain. He needs the 2-year course you propose in addition to the training he has had to qualify. We, as a small firm, need helpers not leaders.

Mr. R. Miller, A.I.A.
Houston, TX

Your program might be more effective if concentrative on producing good draftsman.

Mr. Milton B. McGinty
Houston, TX

Drafting skills make these young people useful in offices. From that point they can develop into other areas depending on their abilities and desires. Exposure to the other areas in school to a minimum degree is advantageous to all concerned.

Mr. Charles H. Kelley
Fort Worth, TX

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Mr. Charles H. Kelley
Fort Worth, TX

Cost accounting, estimating, drafting.

Mr. Albert E. Sheppard
Houston, TX

On the job training in practical applications is a must, since the architectural colleges are not doing this.

Mr. Fred H. Johnson
Fort Worth, TX

Mr. W. W. Chromaster
? 76115

Mr. Philip Carrington
San Antonio, TX

ERIC

8829 xxx4

A. Knowledge of construction
B. Possibly "specialized" education, such as housing & small commercial, etc.

Mr. Richard DeMunbrun, A.I.A.
San Antonio, TX

There is no question that architectural technicians can be of use to the profession. However, this role is now filled by new graduates & by apprenticing architects who, while they are aquiring the technical skills seldom taught in the 5-year or 6-year architectural curriculum, are willing to work for very little. Until the profession is willing to pay a trained technician at the same or higher rates than skilled construction labor, I question the wisdom of encouraging a young person to train for such work.

Mr. Fred M. Turk, A.I.A.
Houston, TX

To develop the required skilled in any of the above catagories a saturated concentrated effort should be given in the specific area & not watered doqn with a bunch of other superfluous subjects.

Mr. A. Tedford Barcloyts
San Antonio, TX

We need help to produce construction documents.

Mr. George E. Day, Jr.
Enid, Oklahoma

Mr. Joe Thomas, Jr.

1. modern, short-cut drafting techniques.
2. how to use building codes
3. what to believe in "Sweets"
4. proper dimensioning habits

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1. modern, short-cut drafting techniques.
2. how to use building codes
3. what to believe in "Sweets"
4. proper dimensioning habits
5. site grading
6. how to keep water out of buildings
7. "look before you leap"- coordinating architectural drawings with the other disciplines --- not just drawing "something".

Jack Solka

Reliability, an understanding of how to coordinate a variety of tasks and research source information are most important. A sound foundation in basic math and general physics is a tremendous asset.

Mr. Eugene F. Rouse
Brownsville, TX

8628

In my opinion, a 2-year course in drafting should put great weight on English, Mathematics, basic science, Engineering and theory of design.

Drafting can be learned in a very short time under actual working conditions. Detailing is a lifetime study and can't be touched in a 2-year course.

Mr. J. Austin Zerkle
San Leandro, California

Practical construction drawings drafting.

Mr. B. Rea Nesmith, A.I.A.
El Paso, TX

1068

Details & methods of construction.

Mr. Charles M. Morton
Austin, TX

We need people who can operate as assistants or right hands, etc. who are trained in construction technique.

Mr. Richard C. Ainslie
Seabrook, TX

Drafting; accuracy!; sympathetic appreciation of design; the realization that these and design together cannot be taught in two years; the order of procedure in the construction process; respect for all technologies involved.

W. P. Cox, F.A.I.A., C.S.I.

We have such a program in Minnesota and have used it successfully.

Mr. S. C. Smiley
Minneapolis, Minn.

1. These curricula should be developed within existing institutions. Credit should by all means be transferable to regular degree programs in a way that minimizes the time penalty incurred by those who happen to take longer to fix their career goals.

2. Formal certification should be couched in terms unmistakably clear with regard to the nature and limitations of the skills so certified.

Mr. A. Carl Preston
Abilene, TX

ERIC

2908 9XXX

That the people entering the program be clearly advised of what type career they are being prepared to function in. There seems to be an inevitable misconception on the part of young people either entering or graduating from courses of this nature, as to what they are expected to do with their education and/or acquired skills. Too many look at this degree as a "get there easy" method for becoming a licensed architect. As a result they become disallusioned after learning the cold hard facts pertaining to the requirements for licensing and usually either drift away from the profession or become lax, unproductive burdens on the payroll.

Mr. John O. Ridgill, Jr.
San Antonio, TX

The patient teaching by experienced architects, who, by their patience can manage to turn out graduates who can quickly find a place for themselves in architectural offices.

Mr. Carroll V. Tanner
Corpus Christi, TX

Constant contact with professional offices during academic year on a programed basis as well as for summer employment.

Mr. James B. Thomas, A.I.A.
Houston, TX

Should be majors and minors, as no one could develope "high skills" in two years in more than one of above subjects.

Mr. George Pierce Jr.
Houston, TX

Please see my heartfelt remarks on the reverse side. I have had both a vocational school & university education & feel the Technician program is important. Universities spend five years educating

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Please see my heartfelt remarks on the reverse side. I have had both a vocational school & university education & feel the Technician program is important. Universities spend five years educating archtiects and in that length of time they do not seem to be able to really give their graduates an anywhere nearly adequate grounding in building materials and the manner in which they are assembled, much less the pitfalls of improper usage of materials. Unfortunately university students are not able to get much real down-to-earth practical experience in the construction trades (which they so dearly need) due to union practices, shortness of summer vacation time, etc.

Call them what you will, "Technicians", "Draftsmen", "Associates" or whatever... if they get a good grounding in materials and methods, and related detailing they will be a blessing to the construction world. A medium knowledge of related fields such as engineering, spec writing, cost estimating, etc. will stand them in good stead as the travel on. Yes, an appreciation of design philosophy will help them to understand the temperment of the architect; it will also help them to understand the importance of an eraser as related to ulcers. We have enough design philosphers who don't understand (Nor don't care to) techniques. If we are to educate technicians, then let them be technicians. There really isn't any social stigma involved in being a technician.

8903

It is only an imaginary thing in some samll minds. Thank you for the opportunity to participate in your survey.

Alfred R. Lea
Houston, TX

90% of the office personel in architectural offices are in the communication business. Working drawing, specs, change & field orders are tools of communications. Design, evacuation, input-more communications. An architect talks with printed media.
In 2 years, all you guys can teach are the most basic fundamentals, so don't clutter their minds with detail. Stick to systems, vocabulary, definitions, general knowledge. Consentrate on graphic ability and temper it with plenty of on site observation or construction. Develop in the student the only unique abilities and architect possesses- the ability to visualize a graphic representation in reality and a sensitivity to convert human need into an envormental unity. (The humanization of the building machine).

Frank Hall
Corpus Christi, TX

We cannot train the "groups" of people in our proffession now-why should we introduce another?

Eugene T. Boerder
Dallas, TX

Technicians should be able to adapt to various management systems, fast tract, etc.

Dale Y. Foster Inc.
Dallas,TX

Tech. should be trained sufficiently to work with a minimum of supervision. As you know, most Texas cities do not require an architectural license to practice. What would discourage the "para professional" from opening another "plan shop". We have too much of that now. Qualified draftsmen & field personnel are needed but it is difficult to keep the technician with minimum professional engineers from calling himself and thinking of himself as a qualified architect.

James E. Wheeler
Dallas, TX

ERIC

My comments seem negative. Our office is staffed with 5-year graduate architects. We have had no problem finding applicants.

Arthur A. Jones
Houston, TX

The effort toward job training while enrolled in school is absolute necessity.

Wm. Carl Summers
Dallas,TX

Actual construction work. Start as laborer-then trade helpers- to see and understand building first hand.

Afton C. Gille
Oklahoma City, OK.

Ability to produce working drawings, i.e. plan, elevations, sections, details, door & window details, coordiante with other disciplines.

William A. Moellendorf
Austin, TX

8905

Drafting skill is of greatest importance.

Thomas Bond
Corpus Christi, TX

Ability to do research in architectural & manufacturer catalogues (i.e. be familiar enough to know where to look).

Johnny W. Cotten
Corpus Christi, TX

Morton L. Levy, Jr.

Clarence F. Johnson

The architectural technology program can do a tremendous job for the factories as representatives. Teach them about materials; their uses; their limits; their costs; their design limits.

DeVerne R. Kittles
San Antonio, TX

We need people that know how to draw a set of plans.

Jerry E. Hill
Lufkin, TX

Fundamentals of a complete set of working drawings.

Ernest C. Wilson
Los Angelos, Calif.

The schools of architecture are turning out enough trained people to satisfy the demands of the profession.

Donald H. Holick, Jr.
Dallas, TX

We do use a lot of Texas Tech Architectural students.

Edward W. Cartwright
Lubbock, TX

All phases of architectural structure & mechanical equipment drafting, detailing of construction documents.

John P. White
Odessa, TX

8906

Field experience in carpentry, masonry, painting & roofing. Great experience in drafting as well as a complete understanding of professional practice of contract documents. No. 8 - Certification would, I think, incline a man to the mainstream of architecture rather than the peripathetic aspects such as design services & lumberyard architecture. Nos. 13, 14 & 15 - State & NCARB registration being what they are, I think this, were it intensive, could help many young folk become registered faster than working, part-time, through college. I also feel such a degree would relieve the architectural office of the necessity of training help. Such training is no longer economically feasable because the trainer has to average his costs but the trainee can, with improvement, demand better pay by moving. I was "raised" in the offices of O'Neil, Ford, & Jerry Rogers with which I could evaluate the worth of my training there. Had I not had such background(at low wages) I could never have been registered.

I think Para-professional architectural training would fill a critical professional need.

Ted Frischmuth
San Antonio, TX

Knowledge of how a building is put together.

John D. Cain
Nashville, Tenn.

6968

xxx10

Try to instill a desire to use their wits and insight once they are in our offices to span the "whole picture". They need to know the burden is theirs. My responses are based on people we employ who have had their drawing at Southern Technical Institute, Marieth, GA. I see how their program relates to yours & to A.I.A. sponsored technician programs. You will want to write them. Keep up the good work.

Joseph N. Boaz, A.I.A.
Atlanta, GA

Schedules and budgeting of projects.

S. Kenneth Johnson, F.A.I.A.

Good attitude, clear thinking, cheerful disposition, the teaching will come. Please send me 2 or 3 good prospects for draftsmen!

James A. Davis
Baytown, TX

I received and have returned your questionnaire concerning the role of the Architectural Technician in architectural offices. It was a real pleasure to assist you in this area as I feel a tremendous need exists for these people.

I would like to encourage you to continue in your efforts to prepare young people for the production of construction documents in architectural offices. We have tried from time to time to work with students in architectural schools, providing them with summer work and extra work during the school term. In general, this has not been too successful as most of this type student seems to geared for work other than office production.

If at any time you have a student whom you feel is qualified and who wants to come to this area, I would be very glad to interview him.

George P. Rodgers

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George R. Rodgers
Marshall, TX

Good going! In 1960 - 1961, when I was teaching at Texas A & M, we (members of the faculty) often groused that so many of the students we had as Freshmen and Sophmores, and who went no further than that level in their architectural education, had no place to turn and no educational recognition.

As a practitioner, it has never made sense to me to staff my office exclusively with architects. I think yourse is filling a clear and urgent need, and I wish you every success.

James C. Walden, A.I.A.
Greenwich, Conn.

One program seems too narrow. Suggest 2nd year of options allowing choices of specialist training.

Charles E. Estes
Houston, TX

Knowledge of materials (stock sizes, etc.). Knowledge of details. General knowledge of working drawings. Today the Architectural colleges are graduating architects that have no working knowledge of working drawing or realistic design. They are dreamers, which is fine as a background, but they cannot find a place in an architect's office to command the salary that 5 years of college should command; consequently they get discouraged and leave the profession for a higher starting salary in a related field.

Richard C. Slavin
San Antonio, TX

8169

Technicians should be able to understand the basic procedures of the building operation. While they cannot be expected to take the financial and legal responsibilities of a professional, there should be sufficient training and exposure to the legal responsibilities that a practicing architect or engineer takes in assuming a commission. The liability in the professions has become an once-riding fact or in the employment of any para-technical person and the courts in recent years have stated irrevocably that a professional has to assume full responsibility for his employees! This is not only true in architecture and engineering but in medicine as well. I would seem that the prime pre-requisite to employing a technician would be his practical outlook at the "nuts and bolts" level and his value to any architectural or engineering firm would be primarily at this level.

Edward J. Halstead
Chicago, Ill.

Checking shop drawings, drafting. We do not have a college teaching Architectural Technology in El Paso.

Mr. James E. Monroe, Jr.
El Paso, TX

THE FOLLOWING ITEMS ARE INCLUDED AS EXAMPLES OF SOME OF THE TYPES OF MATERIALS RECEIVED BY THE AUTHORS AND USED AS RESOURCE DATA.

THE OPINIONS EXPRESSED THEREIN DO NOT NECESSARILY REFLECT THOSE OF THE AUTHORS.

XXXX

8910

GEORGE R. RODGERS, A.I.A. . . . ARCHITECT

403 MARSHALL NATIONAL BANK BLDG • PHONE 938-4343

MARSHALL TEXAS 75670

March 27, 1972

Architectural Technology
Department of Architectural and
Drafting Technology
Del Mar College
Corpus Christi, Texas 78404

Attention: Mr. J. Carter Howald, AIA, CSI
Mr. James B. Boggs, AIA

Gentlemen,

I received and have returned your questionnaire concerning the role of the Architectural Technician in architectural offices. It was a real pleasure to assist you in this area as I feel a tremendous need exists for these people.

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Very truly yours,

George R. Rodgers

GRR/jb

8911

architect
james
c
walden
a i a
203 5317480
box 903
100 putnam green
greenwich conn
06830

8912

April 3, 1972

Mr. James B. Boggs, A. I. A.
Dept. of Architectural & Drafting Technology
Del Mar College
Corpus Christi, Texas 78404

Dear Mr. Boggs:

Good going! In 1960 - 1961, when I was teaching at Texas A & M, we (members of the faculty) often groused that so many of the students we had as Freshmen and Sophmores, and who went no further than that level in their architectural education, had no place to turn and no educational recognition.

As a practitioner, it has never made sense to me to staff my office exclusively with architects. I think your course is filling a clear and urgent need, and I wish you every success.

Very truly yours,

James C. Walden

JAMES C. WALDEN, A. I. A.

Encl.
m/

ERIC

3948

Texas
Society of
Architects
904
Perry-Brooks
Building
Austin
Texas
78701

April 5, 1972

Re: Technician Training
Committee \

Mr. Richard Ferrara
300 N. Central Expressway
Richardson, Texas 75080

Dear Mr. Ferrara:

Don Legge forwarded to me a copy of your letter to him, which was written in response to your receipt of a questionnaire from Del Mar College regarding the Architectural Technology program.

I am very pleased that you are concerned about this program even though your concern may involve some alarm. When one works as long on a program as I have on this one, one would prefer to be met with concerned opposition instead of the apathy that is so prevalent.

I have been involved with this program to a greater or lesser degree for over five years. This is my second term as Chairman of the Committee for TSA.

The basic philosophy that we have adopted in developing these programs is to create a curriculum that would train the technician in the skills of "how the building goes together". It has been our feeling that a well-trained technician would be a most appro-

Committee

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Richardson, Texas 75080

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The basic philosophy that we have adopted in developing these programs is to create a curriculum that would train the technician in the skills of "how the building goes together". It has been our feeling that a well-trained technician would be a most appropriate compliment to the professional designing architect. In the pilot programs that have been started at Del Mar College and at Tarrant County Junior College, we have been extremely careful to avoid teaching, "Design". It was our commitment to the profession when we established these programs that we would not create lumberyard architects. At El Centro College in Dallas I believe that Robert Troy has deviated from this philosophy in that he is attempting to give University parallel courses that would be transferable to the professional degree curriculum of the Universities. The majority of the committee is not in agreement with Mr. Troy's actions.

Preston M. Geren, Jr.
President
Jay W. Barnes
President Elect
Thomas A. Bullock, FAIA
Past President
Charles F. Harper
Vice-President
John M. Olson
Vice President
Benjamin E. Brewer
Vice President
Howard C. Parker
Secretary Treasurer
Daniel Boone, FAIA
Regional Director
Don Edward Legge
Executive Director
Tony Balderrama
ASC/AIA Regional Director

8414

This program is its 4th year at the Northeast Campus of Tarrant County Junior College. Here and at Del Mar College, we are fortunate in having the department run by men who have a degree in architecture and the technical courses are taught by registered architects to a large extent.

We now have five graduates of this program employed with me in the office of Preston M. Geren. Upon graduation, these men were not accomplished architectural draftsmen but they had received enough technical skill and knowledge at the school such that they readily understood the instructions given by a project manager, were thoroughly familiar with the sources of information and quickly developed drafting skills. They knew much more about building construction and developed into dependable draftsmen much quicker than any graduate of a 5 or 6 year professional degree program that I have worked with in the past ten years.

I would welcome a more thorough investigation by you of this program and most of all, I appreciate your concern.

Very truly yours,

T. E. Harden, Jr.
Chairman, Technicians Committee

TEH:jh

cc: Don Legge

8915

Coordinating Board

TEXAS COLLEGE AND UNIVERSITY SYSTEM

P. O. BOX 12788 CAPITOL STATION

AUSTIN, TEXAS 78711

March 24, 1972

Mr. J. Carter Howald, AIA
Chairman, Department of Architectural and
Drafting Technology
Del Mar College
101 Baldwin
Corpus Christi, Texas 78404

Dear Mr. Howald:

I enjoyed the opportunity to speak to the Corpus Christi Chapter, AIA last Tuesday and to discuss your continuing efforts and success in building what I consider to be the strongest architectural technology program in existence among the public two-year colleges in Texas.

Best of luck on the TEA research project which in turn should give your department access to the new federal excess properties program.

By copy of this letter, I am suggesting to Jim Pfluger, editor of the Texas Architect that your AT program at Del Mar be made a feature article in the near future.

Cordially,

Bill Martin

William J. Martin
Director of Facilities Planning

PS: Enclosed is a recent publication by the Texas Employment Commission concerning employment projections by industry and occupation to 1975, which I thought might be of interest.

cc: President Richardson
Jim Pfluger

8916

ERIC

7198

INSTITUTE FOR THE CERTIFICATION OF ENGINEERING TECHNICIANS

sponsored by the National Society of Professional Engineers

2029 K Street, N.W. / Washington, D.C. 20006

202—659-5173

April 17, 1972

James B. Boggs, A.I.A.
Architect/Instructor
Del Mar College
Corpus Christi, TX 78404

Dear Mr. Boggs:

The Board of Trustees has requested that I respond to your letter of March 20, 1972.

Presently, architectural technicians are certified by the Institute. An examination has been developed for this purpose and is mandatory as of January 1, 1973. The objectives expressed by your colleagues parallel the I.C.E.T. program exactly. Enclosed is a brochure that provides detailed information on the I.C.E.T. program and philosophy.

The Board of Trustees makes all proper rules and regulations for the operation of the Institute including but not limited to the following:

1. Establishment of committees; such as the [illegible]

Architect/Instructor
Del Mar College
Corpus Christi, TX 78404

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The Board of Trustees makes all proper rules and regulations for the operation of the Institute including but not limited to the following:

1. Establishment of committees; such as those for examination development, standards studies, certification requirements, etc.

2. Designation of appropriate grades or classes for certification of engineering technicians.

3. Preparation of examinations and designation of evaluation procedures for various grades or classes of certification.

4. Appointment of persons or organizations to administer examinations, either written or oral, and determination of payment for such services.

5. Preparation and issuance of certificates for appropriate grades or classes of engineering technicians.

6. Determination of fees.

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7. Determination of times and places for examinations or interviews.

8. The revocation or suspension of certificates previously issued upon grounds of fraud or misrepresentation by the person certified in his submission of supporting data for consideration in applying for a certificate.

The National Society of Professional Engineers sponsors I.C.E.T. The Board of Directors of N.S.P.E. has final authority over the I.C.E.T. Board of Trustees.

Enclosed is a graph extracted from a fairly recent study of salaries of certified engineering technicians. It is self-explanatory.

Stabilization of quality has occurred to a noticable degree as a result of certification, but the main effect will come when the examination becomes mandatory. Certification has become a career ladder in the technician field.

Enclosed is a copy of a letter and format regarding examination questions. The contribution of your group would be greatly appreciated. While the architectural field is not listed, the examination will undergo review beginning this summer and will be covered in another letter at a later date.

If there are any further questions concerning the Institute and its certification program, please address them to me. Your interest is appreciated, and we look forward to further discussion and cooperation.

Sincerely yours,

Joseph M. Snarponis

Joseph M. Snarponis, C.E.T.
Executive Secretary

JMS/cf

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Coordinating Board

TEXAS COLLEGE AND UNIVERSITY SYSTEM

P. O. BOX 12788 CAPITOL STATION

AUSTIN, TEXAS 78711

March 15, 1971

Mr. William Grobe, Chairman
AIA Commission on Education and Research
Barnes Landes Goodman and Youngblood
259 Hancock Center
Austin, Texas 78751

Dear Bill:

Enclosed is the roster as promised.

Just received a call from Jim Boggs, Architect and Instructor in the recently formed Division of Architecture and Drafting Technology at Del Mar College in Corpus Christi. (They already have 70 students). Del Mar is anxious to adopt a certified Architect's Technician Training Program such as that being discussed by our TSA Committee and I have promised Jim that we would keep him appraised of the progress and recommendations resulting in the work of our Committee. Their curricula was patterned after those adopted by the Institute. Perhaps we could invite Jim and the Department Chairman, Carter Howald, to meet with us in San Antonio or elsewhere later in the year.

Regards

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Regards,

Bill

William J. Martin

cc: Jim Boggs
Don Legge

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MANUEL DEBUSK, CHAIRMAN; NEWTON GRESHAM, VICE-CHAIRMAN; WALTER BASSANO; G. V. BRINDLEY, JR., M.D.; WILL D. DAVIS; O. N. ELLIOTT; JAMES P. HOLLERS, D.D.S.; WALES MADDEN, JR.; WM. HUNTER MCLEAN; L. S. MEADERS; FRED H. MOORE; HARRY PROVENCE; TOM SEALY; WAYNE E. THOMAS; M. HARVEY WEIL; WATSON W. WISE; SAM D. YOUNG, JR.; AND N. S. ZACHRY; SEVINGTON REED, COMMISSIONER.

ORBY G. ROOTS
ARCHITECT
1001 S. Staples Corpus Christi Texas 78404 Area Code 512 882-6862

December 23, 1970

James B. Boggs
718 Robert Drive
Corpus Christi, Texas 78412

Re: Corpus Christi Chapter A.I.A.
Commission on Education and Research

Dear Jim:

I write to express sincere appreciation for the outstanding job you have done for the Chapter in 1970 in your capacity as Chairman of the Commission on Education and Research. Your committee leadership has resulted in a real model program of how a committee can and should function throughout the entire year in setting its meetings from time to time, at appropriate times and appropriate places, with proper regard to the thrust and intent of the problem or goal at hand.

It has seemed to me that a properly functioning committee should take the initial charge, or instruction, given it in the beginning and that this charge should be enlarged or modified in accordance with changing needs or circumstances throughout the year and developed accordingly. This you have done.

The sub-committee on Architectural Technicians Training, headed by Carter Howald, has done well in its function also in keeping the Chapter informed of the important work being done at this level. It seems the importance of this training program to us and to our community and to the individuals in the program has been well recognized by Del Mar in advancing the program to the point of making this curriculum on Technicians Training a completely separate department of Architectural Technology (which, I understand, is now separate from the Department of Engineering Technology).

The major assistance and very timely aid of Carter Howald and his Architectural Technology students in the very early formative stage of the Redevelopment Assistance Center here in Corpus in the immediate aftermath of Hurricane Celis is indeed an item of major note. This early assistance in helping to set up this program (as an aid primarily to the disadvantaged people of our community whose homes and property were severely damaged by the storm) was a great thing for the individuals helped by the service and thereby a real service to our community.

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The handling of the Scholarship Fund and the timely written guidelines developed by you for this program were very much needed and are appreciated.

The sub-committee on Architectural Education, headed by Jim Rome, has also done quite well with its work. The establishment of a pilot program for local seminars on Continuing Education for the Architect will, I believe, prove fruitful. The importance of this Continuing Education thesis is well founded, as evidenced by T.S.A.'s enphasis on the program and this year's resulting major program at S.M.U. as backed by T.S.A. Also, Jim Rome's contribution in providing outstanding graphics for invitations on special functions and programs is recognized as a fine talent and contribution to the Chapter.

Successful committee work demands a great deal of personal time, dedication, and effort, and is, in my opinion, a very real and tangible asset to the profession, to our Chapter, and ultimately to each of us individually.

Also, I extend my personal thanks for making my job as Chapter President this last year easier and more effective through your efforts and those of your sub-committee leaders.

Sincerely,

Orby G. Roots, A.I.A.

cc: Jack Solka, President Corpus Christi Chapter A.I.A.
Mr. Ted Boaz, Dean Del Mar Technical Institute
Carter Howald
Jim Rome

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BURNETT CONSTRUCTION COMPANY

GENERAL BUILDING CONTRACTORS

P. O. BOX 336 PH. 512-882-4214 7501 UP RIVER ROAD

CORPUS CHRISTI, TEXAS 78403

March 17, 1971

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Del Mar College
101 Baldwin
Corpus Christi, Texas

Attention: Mr. Ted Boaz, Dean
Technical Vocation & Special Services

Reference: Architectural and Drafting Technology Program

Dear Sir:

This letter is to advise you that we strongly support your architectural technology program. We have one of your graduates presently working for our firm and he is doing a very satisfactory job.

Your program in the last few years has improved steadily and we are looking forward to continued growth and improvement in the architectural and other related fields.

We will continue to support your programs in any phase of construction related programs.

Very truly yours,

BURNETT CONSTRUCTION COMPANY

By Larry H. Smith
Larry H. Smith
Vice-President

LHS:lt
cc: Mr. Carter Howald

ARCHITECTURAL TECHNOLOGY
CURRICULUM DEVELOPMENT PROJECT

BIBLIOGRAPHY

A RESEARCH GRANT SUPPORTED BY THE TEXAS EDUCATION AGENCY AND DEL MAR COLLEGE

CO-DIRECTORS
J. CARTER HOWALD, AIA, CSI
JAMES B. BOGGS, AIA

DEPARTMENT OF ARCHITECTURAL AND DRAFTING TECHNOLOGY
DEL MAR COLLEGE
CORPUS CHRISTI, TEXAS 78404

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Delgado Junior College; New Orleans, Louisiana
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Lamar University; Beaumont, Texas
Purdue University, School of Technology; Lafayette, Indiana
Tarrant County Junior College, Northeast Campus; Fort Worth, Texas
Texas State Technicial Institute, John Connally Campus; Waco, Texas
Texas State Technicial Institute, Rio Grande Campus; Harlingen, Texas
San Antonio College; San Antonio, Texas
Trinity University; San Antonio, Texas

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VT 017 097
JENKINS, JOHN D.
A "UNIVERSE MODEL" OF OCCUPATIONAL EDUCATION FOR PIKEVILLE, KENTUCKY, IN CONJUNCTION WITH THE PIKEVILLE MODEL CITIES PROGRAM. INTERIM REPORT (JUNE 1, 1971-JUNE 30, 1972).

EASTERN KENTUCKY UNIV., RICHMOND.
BUREAU OF ADULT, VOCATIONAL, AND TECHNICAL EDUCATION (DHEW/OE), WASHINGTON, D.C.
MF AVAILABLE IN VT-ERIC SET.
OEG-0-70-4754
PUB DATE - 15JUN72 59P.

DESCRIPTORS - *CURRICULUM DEVELOPMENT; *CAREER EDUCATION; CAREER PLANNING; *VOCATIONAL DEVELOPMENT; *OCCUPATIONAL GUIDANCE; VOCATIONAL COUNSELING; *GOAL ORIENTATION; ELEMENTARY GRADES; SECONDARY GRADES

ABSTRACT - RECOGNIZING THE NEED FOR INTRODUCTION TO CAREER OPPORTUNITIES AT AN EARLY AGE AND THE NECESSITY OF ESTABLISHING A CONTINUAL INFORMATION TRANSMISSION SYSTEM TO INTENSIFY THE CONCEPT OF CAREER EDUCATION, THIS EXEMPLARY PROJECT WAS INITIATED BY A UNIVERSITY, AN INDEPENDENT SCHOOL DISTRICT, AND A MODEL CITIES AGENCY. INVOLVED IN IT WERE 35 PROFESSIONALS AND 275 STUDENTS FROM THE ELEMENTARY, JUNIOR HIGH, AND SENIOR HIGH LEVELS. TO OBTAIN THE OBJECTIVES SET BY THE PROJECT DESIGN, THE FOLLOWING PROCEDURAL TASKS WERE PERFORMED: (1) A REFINEMENT OF THE ELEMENTARY AWARENESS PROGRAM, (2) THE DEVELOPMENT OF AN OCCUPATIONAL EXPLORATORY PROGRAM AT THE JUNIOR HIGH LEVEL, (3) ESTABLISHMENT OF VOCATIONAL COUNSELING PROGRAMS IN ALL GRADES, (4) EXPANSION OF PLACEMENT SERVICES, AND (5) INCORPORATION OF WORK-STUDY AND VOCATIONAL AGRICULTURE PROGRAMS IN THE HIGH SCHOOL. VIEWED BY THIS INTERIM REPORT AS THE GREATEST SINGLE ACCOMPLISHMENT ACHIEVED. WAS THE CHANGED ATTITUDE OF PERSONNEL INVOLVED IN PROJECT ACTIVITIES. (SN)

ERIC

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
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INTERIM REPORT

Project Number: 0-361-0059

Contract Number: OEG-0-70-4754

A "Universe Model" of Occupational Education for Pikeville, Kentucky, in Conjunction with the Pikeville Model Cities Program

Exemplary Project in Vocational Education
conducted under
Part D of Public Law 90-576

John D. Jenkins

Eastern Kentucky University
Richmond, Kentucky 40475

June 15, 1972

VT 017 097

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INTERIM REPORT

Project Number: 0-361-0059

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The project reported herein was performed pursuant to a contract with the Bureau of Adult, Vocational, and Technical Education, Office of Education, United States Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their judgements in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official Office of Education position or policy.

John D. Jenkins

Eastern Kentucky University
Richmond, Kentucky 40475

June 15, 1972

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SUMMARY OF REPORT

Time Period: June 1, 1971 to June 30, 1972

Goals and Objectives: Listed below are the goals of the project. Specific objectives of the project are included in the appropriate section of the report.

1. To establish curricula in the elementary school on two levels, 1-3 and 4-6, which will employ occupational orientation as the principal vehicle for the teaching of basic education.

2. To establish in the junior high school a curriculum which has as its core a study and exploration of specific occupational families, the career opportunities in these families, the skills needed for job entry into a specific cluster of related occupations, and the paths available for obtaining job entry skills or upgrading skills in chosen careers.

3. To provide guidance, including placement, and educational opportunities for students in grades 1-12 to establish positive relationships between school and the world of work.

4. To provide within the school, grades 9-12, an expanded and improved program of vocational preparation for those youth who plan to terminate their formal schooling at grade 12, to include (a) improvement of the present program to reflect preparation for a cluster of related occupations rather than for specific occupations, (b) the expansion of offerings through incorporation of work-study and cooperative vocational programs, and (c) the development of a program geared specifically to meet the needs of the handicapped.

5. To establish a short term intensified program of vocational preparation for the students who have not previously been enrolled in vocational programs and who have chosen to terminate their formal education before the completion of grade twelve.

Procedures: Project tasks for which major efforts were directed during the 1971-72 school year were (1) continuation and refinement of the elementary school awareness program, (2) development of the junior high school exploration program, (3) development of the guidance program in grades 1-12, (4) continuation of the placement program, (5) initiation of the vocational agriculture program (including building a greenhouse), and (6) starting a cooperative education program in the high school. All of the tasks were completed or partially completed during the year except the establishment of the cooperative education

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program. The project was unable to secure a teacher for the cooperative education program.

The project activities were delayed because the project was not able to identify qualified staff at the beginning of the year. Personnel to assume the new position of secondary career curriculum cooridnator and fill the vacated placement coordinator positions were filled on January 15, 1972.

Continuation of the elementary school program consisted of implementing activities which had been designed during the previous school year and summer. A different procedure was followed, with students, during the 1971-72 school year than during the 1970-71 school year. Representatives were selected from each grade level (1-6). These six people plus the principal, project co-director, resources specialist, media technician, and elementary guidance counselor composed the career curriculum committee. The committee met once a week for about one hour each meeting to discuss activities which had taken place the previous week, and to identify resources needed for the the next week. The grade level representatives were charged with the responsibility of informing the other teachers at their respective grade level. This strategy was adopted as a means of transferring program responsibility from the project staff to the school staff.

Initial activities at the junior high school were supervised by the project director because no staff had been identified for the position of secondary career curriculum coordinator. Teachers were first acquainted with their broad role in the total program. Clusters of occupations were then identified and the teachers were asked to select clusters with which they could feel comfortable and which related to their subject matter areas. The teachers then examined available materials and attempted to identify activities which related to the cluster and their subject matter. When the secondary career curriculum coordinator began work with the teachers, major effort was directed at initiating activities, preparing materials, and lesson plans for their areas. Much of this work consisted of identifying ways to blend the career education activities with the regular curriculum.

A committee, consisting of all people concerned with guidance or guidance related activities in grades 1-12, was established to examine the total guidance programs and develop recommendations for modifications of the program. The intent was to construct a master plan for the total guidance effort in Pikeville with duties identified, timing of activities detailed, and specific responsibilities assigned to the appropriate people. It was recognized early that it would be impossible, with the personnel available, to conduct a complete idealized program of guidance. The intent was to examine the program in detail so priority activities could be identified.

Placement activities were interrupted from July 31, 1971 to January 15, 1972 due to the resignation of the coordinator. The primary activities assumed by the new coordinator were (1) to meet

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with local employers regarding the placement program, (2) to collect data from the students in grades 7-12, (3) to interview and counsel with students regarding employment and career decisions, and (4) to work with teachers to help them understand the function of placement and how they can assist students with career decision making.

The vocational agriculture program was initiated but the cooperative education program was not initiated because of the inavailability of a qualified teacher. The first year activities in the agriculture program focused on building a cadre of students with sufficient backgrounds to pursue a vocational agriculture program during the 1972-73 school year. Because the geographic area prevents the possibility of farming, the program will focus on horticulture and related activities. A greenhouse was constructed for use by the agriculture class in subsequent years.

Results and Accomplishments: In addition to the results and accomplishments mentioned below, it should be recognized that possibly the greatest accomplishment of the project was the changed attitude of the personnel involved in project activities. This group included students, teachers, project staff, administrators, parents and local business people.

Additional attention was given to the elementary school phase of the project. Completion of teaching materials (teacher lesson plans), addition of guidance supplements, revision of activities, and developing procedures for transfer of responsibility to the school for the program were the major concerns with the elementary program. The principal, in cooperation with teacher representatives and the elementary counselor, will assume responsibility for program continuation after the project terminates.

Activities were initiated at the junior high school to include all students in grades seven and eight. Clusters were identified and teachers assumed responsiblity for integrating the career education material into their courses. All junior high school teachers were involved and actively participated in the program. They selected clusters which appeared to relate to their subject matter area and which they felt they could feel comfortable. More emphasis was placed on the process of change than on producing a product.

Since January 15, 1972, when the new placement coordinator was employed, the placement program has progressed quite rapidly. Numerous employers have been personally contacted, data collected from students, and several students have been placed on jobs.

The people involved with guidance in grades 1-12 are attempting to develop a "system" for approaching guidance in Pikeville. It was recognized that the guidance personnel could not accamplish all of the tasks usually relegated to them. This plan will help the guidance staff identify priorities, schedule events, identify competencies of staff, and assign responsiblities.

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Evaluation: The readers should consult the main body of the report to secure information regarding project evaluation. The section of the report, titled "Evaluation" has been prepared by the "third-party" evaluation team directed by Dr. M. Ray Karnes, University of Illinois, Urbana. Two members participated on the evaluation team during both the 1970-71 and 1971-72 school year, which permitted them to make comparisons over the two year period.

Objective data, collected by the project staff, regarding student change and parental information, revealed very little difference. The only item that gave any evidence of change was found from parental responses on a questionnaire. They indicated that their children talked more about project activities this year than last year. During the first year only 4% of the parents indicated that their children talked about project activities at home while 16% responded in the same manner this year.

There is evidence which indicates that it is premature to expect large student behavior changes as measured by instruments currently available. This is especially true if there is to be a cumulative change expected from career education.

Conclusions and Recommendations: The conclusions and recommendations which follow are based on observations by the project staff and relate to the situation in Pikeville. More detail can be found in the main body of the report. The reader can also find additional conclusions and recommendations in the "Evaluation" section of the report.

1. The project in Pikeville has experienced several problems associated with similar projects. They have been identified as (a) input overload, (b) unrealistic goal-setting, (c) lack of process skills, (d) alienation, and (e) linkage failure.

2. Possibly the most realistic evaluation consideration is "project growth" rather than a pre-established condition because of the tremendous variability in local situations.

3. The strategy of phasing the project elements over the entire three-year period instead of attempting to install all elements at the same time appears to have been a positive plan for Pikeville. This situation might be different for other projects and under different conditions.

4. Short term product evaluation might not yield much valuable information during the initial stages of project implementation because the changes seem to occur over long periods of time. It is, however, important that the data are collected so that evaluations can be made over a longer period of time.

5. Several accountability measures need to be examined more carefully and refined so that they are more realistic. Unrealistic goals, that appear to be unattainable, can cause

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unnecessary frustration and reduce motivation. Many times the measures are beyond the control of the teachers or the school. Placement, which appears to be more a function of the "state of the economy," is an example.

6. Teacher education might be as developmental in nature as the programs in career education. Most teachers do not have experiential backgrounds necessary to embark on effective career education. As they gain an understanding, through experiences, they appear to internalize the concepts and move much more rapidly toward effective programming.

7. Because career education programs are directed at what people do, and because teachers usually lack that kind of knowledge, effective programs are heavily dependent on local resources. The availability of such resources could create wide variability among programs.

8. Small schools (less than 2,000 students) face many unique problems related to continuation of career education programs after federal or state funds are withdrawn. While these problems are somewhat different from those faced by larger schools, they are just as difficult to resolve.

9. Projects, directed at specific segments of the school, seem to have influences on other aspects of the school. This may be due to the professional stimulation experienced by the staff.

10. Quantity of communication appears to be a strong contributor to teacher acceptance of change. When the project staff had a very limited time to work with elementary teachers, acceptance to the change was quite low. However, when the staff worked with the junior high school teachers, who had more time available, their acceptance was much better.

11. A "process" approach toward working teachers seems to have some advantages over a "product" approach. The initial work with elementary teachers was directed at the production of a product (teaching materials). It was expected that this procedure would lead the teachers toward project goals. When work began with junior high school teachers, more emphasis was given to the process of change before focusing on the product. Adjustments made by the junior high school teachers seem to be much better than with the elementary teachers.

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INTERIM REPORT

July 1, 1971 to June 30, 1972
(Second Year)

PROBLEM AREA

The broad problem area of the project is to implement career education in the school system in Pikeville in grades 1-12 and post-high school. The plans were to implement the elementary program (grades 1-6) during the 1970-1971 school year, junior high school and elements of the high school (grades 9 & 8) during the 1971-72 school year, and the high and post-high school programs during the 1972-1973 school year. It was expected that efforts with each element would require attention in subsequent years to ensure that progress continues.

More specifically, activities in the junior high school were to be accomplished through the use of the "cluster approach." The U.S. Office of Education suggested 15 clusters which might be considered as a means of organizing content into manageable instructional units and which will also provide a comprehensive coverage of opportunities in the world of work. (U.S. Office of Education). Miller, in a paper describing the "School-Based Comprehensive Career Education Model," identifies 12 clusters (Miller, p. 25). The clusters selected by the project are similar to those of the U.S. Office of Education and Miller but they have been modified to fit the situation in Pikeville. The primary considerations used to determine which clusters would be used were (1) the subject matter areas which closely relate to the clusters, (2) social visibility of the cluster or portions of the cluster*, (3) the teacher's willingness to consider a particular cluster and incorporate it into the curriculum.

In addition to continued development of the elementary school program and the initiation of the junior high school program, it was stated in the original proposal that the project would continue with the placement activities and initiate a cooperative education program at the high school level. A revision of project activities, due to additional resources, permitted the initiation of a vocational agriculture program and the development of a procedure for the early identification of potential drop-out students.

*For example, marine transportation is not emphasized because of the lack of a source for immediate reinforcement. Other forms of transportation such as land and air receive considerable attention in the social studies curriculum.

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The nature of the junior high school program was planned to be exploratory in depth. That is, students were to be provided with programs in which they would have the opportunity to have real or simulated experiences with a wide variety of careers or occupations. This phase of experiences was planned as an extension of the awareness or exposure experiences which the students would have had in the elementary school. Not only are students expected to widen their understanding of careers available to them, they had the opportunity to examine career areas which are of specific interest to them. In addition to the curriculum effort to revise the content offerings available to the students, there will be a major effort to develop experiences which will help the students gain a more accurate wholesome understanding of themselves.

All teachers in grades 1 through 8 are approaching the content in a generalized manner. They are operating on the assumption that students will need the knowledge, skills, and attitudes for successful participation in several life roles. Goldhammer describes five careers which he says "should constitute the framework within which all content of the curriculum is organized." They are:

1. A producer of goods and renderer of services.
2. A member of a family group
3. A participant in the social and political life of society
4. A participant in avocational pursuits
5. A participant in regulatory functions involved in aesthetic, moral, and religious concerns (Goldhammer, 1971)

While there may be some question as to whether the above are "careers," it is apparent that they are life roles which will be of concern to all people. Career education (producer of goods and renderer of services) can and should be a major focus of the curriculum. This approach permits (1) involvement of all of the teachers, (2) the teachers to maintain large portions of their courses, with different emphasis and direction, and (3) permits a variety of life roles with which students can identify.

A major portion of the problem area is the context in which the project is being developed. If one of the roles of career education is to develop "Stable Work Personalities", as discussed by Reinhart, Pikeville is located where models are less identifiable, with a broad range of career options, than in many other regions of the country (Reinhart, pp. 8-11). The community of Pikeville is located in the largest and eastern most county of Kentucky. Pikeville has a population of about 6,000 people, is the

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county seat, is the largest city in the county, and serves as the primary retail center for the county of 60,000 people. It is also the legal and medical center for an area which includes parts of four states and approximately 200,000 people. The county is the largest coal producing county in the United States and mining (and related services) is the greatest economic activity. Education is the second largest employer in the county. The unemployment rate in the county fluctuates between 10% and 14%. This situation has caused a situation in which very few jobs, other than mining and the professions, exist in the area. Pikeville is fortunate to have been designated as one (the smallest) of the "model cities."

The schools in Pike County are organized into the Pikeville Independent School District and Pike County Schools. The project is being conducted in the Pikeville Independent School District which includes the incorporated city limits of Pikeville. An elementary school (1-6), junior high school (7&8), and a high school (9-12) make up the district. There are about 650 students in the elementary school, 225 in the junior high school, and 400 students in the high school. The school is experiencing about a one percent decline in student population each year. In addition to the regular school program, the school is served by an area vocational extension center located about twelve (12) miles from Pikeville. The school has the opportunity to enroll fifteen (15) students in the school which offers four (4) vocational programs. The Pikeville Independent School District is one of these schools in the area that have been certified by the Souther Association of Colleges and Schools.

In the past, a heavy emphasis has been placed on college placement or programs which would help students qualify for college placement. Some probable causes for such emphasis might have originated from (1) the desires of the parents to have their children leave the area to keep them out of the coal mines, (2) the general orientation of the school staff, and (3) the comparative low cost of college preparatory programs when compared to practical and vocational education programs.

Most parents in the area do not want their children to go to work in the coal mines because of the potential hazards and hardships related to the work. It is true that those students that secure a college education do find employment outside the coal business, and in most cases, outside the area. While such a practice has been extremely beneficial to those who complete a college education, it is highly discriminatory against those who are neither interested nor capable of pursuing a college degree. This group, while no specific data are yet available, constitutes a large number of students. In fact, this problem does more than deprive students of meaningful, potentially useful education, it leads them to believe that everyone is capable and should pursue a college education. Further, it contributes to the student reducing his self image and perception of occupations that

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require less than a college degree by suggesting that the only path to economic independence and social acceptability is by securing a college education. The project in no way is directed toward minimizing the importance of a college education as a means of attaining competence for participation in the world of work. In fact, if the program is successful, students will be thoroughtly acquainted with career opportunities resulting from a college education. They will know which career goals have a collegiate degree(s) as prerequisite. The difference will be that students will have objectives for pursuing collegiate programs which are related to life goals rather than merely attending college for prestigious reasons.

The heavy emphasis on preparation for professional occupations is magnified by the low number of role examples available to students. That is, the work situations with which the student can have contact is extremely low and distorted when compared with other areas of the state and nation. As stated above, occupations in the county center around the coal business and its related services (sales, insurance, education, health, etc.) to the people involved in the coal business. The teachers, while sincere and dedicated people, have little to offer in terms of role definition or example. A large percentage of the teachers are women (especially through the eighth grade), most were born, raised, and educated in Pike County, and very few had any occupational experiences other than education. The average age of the teachers exceeds 45 years and the average teaching experiences is about 19 years, which has some distinct advantages and certain disadvantages.

The size of the school system and the relatively low support for schools restricts the resources available for educational programs. Limited size and resources not only restricts the kinds of offerings, but the flexibility of offerings is also reduced. A great portion of the resources available must be spent to provide minimum state and Southern Association certification. This is partly due to the increased administrative cost per student whem compared with larger schools. The results of this situation is the ability to offer the bare minimum academic skill program, which resembles a college preparatory program.

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GOALS AND OBJECTIVES

The goals and objectives, as stated in the original proposal are listed below. These are, in many cases, very broad and it would be extremely difficult, if not impossible to measure all of the objectives with the resources and time available to the project. In the case of the elementary school, these goals and objectives have been revised to make them more measureable in the context of the project.

A. To establish curricula in the elementary school on two levels, 1-3 and 4-6, which will employ occupational orientation as the principal vehicle for the teaching of basic education.

If this goal is realized, the following will be characteristic of the students completing the first six years of formal education:

1. Students will have developed an appreciation for work as a means of self-satisfaction in a full and fruitful life.

2. Students will have developed an understanding of the social and economic importance of a number of easily identifiable occupations and occupational families.

3. Students will attain basic education skills to a degree that is equal to, if not greater than, that which is now possible.

4. Students will have developed a degree of self-realization and awareness that will lead them to seek careers commensurate with their abilities and aptitudes.

5. Students will have developed an understanding of the impact of technology on the world of work and the necessity of developing a career strategy which will enable them to cope with a changing labor market.

B. To establish in the junior high school a curriculum which has as its core a study and exploration of specific occupational families, the career opportunities in these families, the skills needed for job entry into a specific cluster of related occupations, and the paths available for obtaining job entry skills or upgrading skills in chosen careers.

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If this objective is realized, the following outcomes will be characteristic of students completing grade eight:

1. Students will be aware of the occupational opportunities within all the major occupational families, e.g., agriculture, health, technical, service, distribution, business and office, homemaking, and professional.

2. They will be able to plan a strategy for attaining a specific career choice within one of the major occupational families.

3. They will have developed an awareness of self-realization that leads to the selection of an appropriate career with realistic aspiration levels.

4. They will have developed habits and attitudes which are needed for successful and continued employment.

C. To provide guidance and educational opportunities for students in grades 1-12 to establish positive relationships between school and the world of work.

More specifically, this goal may be expressed in terms of the following:

1. To explore occupations whereby elementary school children, 1-6, can see positive relationships between school and the world of work. To begin particularly with grade four and be concerned with concepts of self, work, interest, and skills.

If these objectives are realized the following will be characteristic of students at the completion of the first six years of formal education:

a) Students will have developed positive concepts of self

b) Students will have attained varied and wide interests in the world or work.

c) Students will have developed the ability to make wise decisions and choices regarding occupational goals.

d) Students will have realized opportunities to express and develop goals and aspirations in the world of work.

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e) Students will have been exposed to some of the skills basic to some selected occupations.

f) Students will have been exposed to the fact that skills must be developed commensurate with abilities and interests.

g) Students will have been exposed to occupational information not only in the community but on an international and national basis.

h) Students will have learned some of the skills and the extent of education and preparation required for entry into certain job areas.

i) Students will have had many opportunities to express interests, excercise talents, and explore areas in which interests and talents might be developed.

j) Students will have learned that all workers contribute to the positive over-all welfare of our society.

l) Students will have developed a positive attitude toward work and preparation for work.

2. In grades 7-9 an attempt will be made to instill realistic objectives toward occupational considerations. Counselors and teachers will cooperate to build a more realistic understanding of occupational requirements.

If the goals of this objective are accomplished, the following factors can be observed in students completing grades 7-9.

a) Students will have gained knowledge about occupational and educational opportunities on a variety of levels.

b) Students not finishing high school will be provided information and opportunities to seek other training and/or employment.

c) Students will have gained knowledge of broad fields of work which will assist the individual in making long-range vocational plans.

d) Students, expecially potential dropouts, will be provided opportunities to study intensively a few selected occupations of their choice.

e) Students will have been provided opportunities to explore their abilities, interests, and aptitudes.

f) Students will follow curricula that best satisfy individual needs.

g) Students will be provided, if possible, opportunities to match what they have discovered about themselves with facts discovered about the worker in the occupational areas studied.

3. To establish in vocational guidance, in grades 10-12, opportunity for students to learn more about themselves, ways of working with others, and psychological aspects of jobs as they relate to their own temperaments, personalities, and values.

If these objectives are accomplished, students will exhibit the following characteristics:

a) Students will have become aware of continued change in the world of work.

b) Students will have acquired broad knowledge in major occupational fields.

c) Students will have developed an understanding of the need for continuing education and training in the various career areas.

d) Students will have become acquainted with information concerning schools, colleges, and other training programs.

e) Students will have developed realistic attitudes toward the dignity of all work and workers.

f) Students will have developed a realistic understanding of themselves regarding career decision-making.

g) Students will have acquired information regarding present and future employment trends and opportunities.

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D. To provide within the high school, grades 9-12, an expanded and improved program of vocational preparation for those youth who plan to terminate their formal schooling at grade 12, to include (1) improvement of the present program to reflect preparation for a cluster of related occupations rather than for specific occupations, (2) the expansion of offerings through incorporation of work-study and cooperative vocational programs, and (3) the development of a program geared specifically to meet the needs of the handicapped.

If these objectives are realized, the following will be characteristic of those students completing grade 12:

1. Students will have the background necessary to further their career preparation by attending technical schools, colleges, and other post secondary technical programs, or they will have saleable skills necessary for job entry.

2. Students planning to terminate their education upon graduation from high school will possess the types of skills, attitudes, and work habits necessary for employment in a cluster of closely related occupations.

3. Handicapped students will have attained the basic education and vocational skills that are within their individual capabilities.

E. To establish a short term intensified program of vocational preparation for the students who have not previously been enrolled in vocational programs and who have chosen to terminate their formal education before the completion of grade twelve.

If this objective is realized, the following will be characteristic of the high school dropout:

1. School dropouts will have attained, to a degree, attitudes and habits which are necessary for successful job performance and successful living.

2. To the extent that time will permit, school dropouts will have acquired a degree of specific skills which could qualify them for entrance into a cluster of occupations requiring a relatively low degree of skill.

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PROJECT DESIGN AND PROCEDURES

The project was planned to be a cooperative effort between (1) Eastern Kentucky University (EKU), (2) the Pikeville Independent School District, and (3) the Pikeville Model Cities Agency. This arrangement was viewed as having several advantages to both the Pikeville Independent School District and EKU. The following are among the expected outcomes resulting from the cooperative venture:

1. The school system would have the opportunity to secure assistance with curriculum development from outside with little or no additional expense to the district.

2. The proposed curriculum revision was planned to focus on a weakness, and in some instances a void, in the curriculum available to students in Pikeville.

3. Changes resulting from the project supported the broad objectives of the Model Cities Agency in their effort to stimulate and change the physical, social, psychological, and economic structure of Pikeville and the area.

4. The school system would realize several important economic gains in addition to the support staff of the project. Numerous resources such as books, pamphlets, equipment, etc. will remain in the school after the project has been terminated.

5. By initiating programs such as the vocational agriculture, cooperative education, and health occupations the school system would have an advantage in applying for vocationally reimbursed programs from the state department of education.

6. The program, when implemented, would enhance the status of the district in the area and serve as a model for other schools to examine.

7. Most important, the students leaving the school, would be better able to cope with societal problems than before the program was initiated.

8. Eastern Kentucky University would benefit because of the intellectual growth due to the stimulation of the project.

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Different areas of focus are planned for each of the three (3) years of the project. During the first year of the project (1970-71 school year) the primary emphasis was with the elementary school program and on occupational placement in the secondary school. The elementary program consists of both instructional and guidance elements which lead toward career awareness. The placement program functions in the secondary school deals with part-time placement for in-school youth, terminal placement for students leaving before or at graduation, assisting students in securing post-secondary occupational education, and follow-up of students.

The second year of the project was planned to develop programs in the junior high school and to initiate a cooperative education program in the high school in addition to continuing and improving the elementary school program. This plan was revised to include the introduction of a vocational agriculture program and to examine methods of earlier identification of potential dropouts.

Personnel employed to work specifically with project activities are employed by Eastern Kentucky University. The intent of the project is for the project staff to focus on changing the staff employed by the school so that they will be able to continue the project activities when the funding period terminates. It is expected that the project activities will involve all of the teachers and staff in grades 1-12 of the school system.

The primary function of the project staff is to work with the teachers and staff in the schools to ensure that the programs initiated will continue when the project is over. Many of the project staff that work exclusively with the school staff will not be retained when the funding ends. Those staff members that devote a great deal of their time to work directly with students are expected to be retained by the school system. The intent is to use project funds to initiate the activities so that the programs will be functioning smoothly when the school system or state department assumes responsibility for continuation.

The project staff which was planned for the 1971-72 school year consisted of a project director, project co-director, guidance coordinator, resources specialist (librarian), media technician, elementary counselor, placement coordinator, secondary guidance counselor (junior high school), vocational agriculture teacher, cooperative education teacher, and three secretaries. The majority of the staff were to be located in the two Pikeville offices with only the director, guidance coordinator, and one secretary located at Eastern Kentucky University. The Eastern Kentucky University office has had primary concern for overall direction of the project, securing resources for the project, and administrative responsibilities.

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It was recognized early in the project that a possible separation of committment might exist between the project staff and the school staff. The responsibilities of the staff were new to the school system and, at least in the beginning, vague to some of the school staff. The employing agency was different and misunderstandings such as responsibilities, limitation of authority, and salaries were ambiguous to the teachers. These problems were enlarged because the project was asking the teachers and staff to do work above and beyond their regular load.

Every effort was made to minimize the feeling of separateness and establish a cohesive unit working toward the same goals. Such activities as securing administrative recognition, attempting to involve the school staff in project decision-making, maintaining salaries at the same level as the board of education salary schedule, and attempting to employ local people were used to reduce gap between the school and the project.

In some respects the relationship has some value to the school and to the intent of the legislation. Assuming that the members of the project staff are viewed as outsiders or consultants, changes occurred because of administrative mandate. In addition, by not being employees of the school system, the project has more freedom for innovation than if they were limited by the existing structures, patterns, or historical precedent.

The project director was directly responsible for the overall direction of the project and spent time each week in the community of Pikeville. The project co-director was responsible for overall project coordination in Pikeville when the director was not there and assumed the responsibility for the preparation, initiation, and continuation of the elementary program. Guidance activities were to be coordinated by the guidance coordinator. Curriculum efforts in the junior high and senior high school were to be guided by the secondary career curriculum specialist.

To be consistent with the intent of the legislation, programs which have been planned by the project were done with the intent that they would continue when the project funding terminates on June 30, 1973. Two operational priorities have been adopted to give greater assurance that these programs will be enduring changes within the school. They are:

1. The primary efforts of the project staff have directed toward preparing the school personnel that will remain after the project, so that they will have the expertise to continue the project.

2. No funds will be devoted to programs unless there is some indication that financial resources will be available for the programs at the end of the project.

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Student Population

The student population for the project is located entirely in the Pikeville Independent School District. About 90% of the students are residents of the city of Pikeville and about 10% are tuition students from the county. There are approximately 650 students in the elementary school, 225 in the junior high school, and 400 students in the high school. The school population has been decreasing at an annual rate of about 1%. The figure closely approximates the out-migration figure for Pike County. There is a wide range of socio-economic backgrounds represented in the student body with about 50% of the students coming from families with incomes classified below poverty level.

The elementary school building is located at the edge of town and the junior and senior high school buildings are located within the community. All of the students in the elementary school are transported to and from the school and remain under supervision for the entire day. Only a portion of the junior high and high school students are transported and they have the lunch period free.

School Staff

A total of 35 professionals devoted all, or a substantial portion of their time to activities in the elementary school. These professionals included 23 regular classroom teachers (four teachers at grades 1,2,3, 4, and 6, and three teachers in grade 5), two special education teachers, one art teacher, one music teacher, one physical education teacher, one remedial reading teacher, one librarian, one school nurse, one guidance counselor, one pupil personnel coordinator, and one principal. The art teacher, music teacher, pupil personnel coordinator and nurse spent a portion of this time with duties other than in the elementary school.

There were fourteen (14) teachers directly participating in project activities in the junior high school (7&8). They consisted of none (9) teachers of regular academic subjects (Language Arts, social studies, math, and science) and five (5) teachers of special subjects (industrial arts, home economics, business, physical education, and band). The placement coordinator, student personnel coordinator, and secondary librarian have also cooperated with the establishment of the program in the junior high school. In the high school, the vocational agriculture teacher, home economics teacher, indistrial arts teacher, and secondary guidance counselor have cooperated with the initial establishment of secondary school programs.

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Teacher Education

As previously stated, major efforts were devoted to changing teachers attitudes and behavior so that they would be able to perpetuate the programs at the end of the project. Several conditions prevented the project from being completely successful with this approach. Not all teachers were enthusiastically involved in the elementary school. A review of the conditions which existed during the first year activities suggested that many of the procedures were appropriate to use with the junior high school program and that some new procedures might be required if effective change was to occur in the junior high school.

It was again assumed that the process of "involvement" was required if the staff was to sufficiently internalize the change. A system, similar to that used with the elementary school was established for the junior high school teachers. The teachers participated in a one-week in-service workshop during June, 1971. The workshop focused on "change" as a contemporary element of education. Only during the last two days of the workshop was concern given to how career education might fit into the various content areas. The teachers were then charged with conceptualizing ideas over the remaining summer months. They were also expected to participate in in-service activities during the school year at the rate of $3.50 per hour for forty (4) hours (they understood that forty (40) fours was not enough time to complete the task).

The in-school in-service program had three main purposes. They were to: (1) identify and distribute the responsibility for career clusters to the appropriate subject matter areas, (2) assist the teachers in initiating some preliminary activities, and (3) preparing specific lesson plans relating to their career cluster responsibility. Because the project was unable to secure a person to assume the secondary career curriculum position, the project director conducted these activities until January 15, 1972. This limited progress because the project director was only able to be with the teachers two days each week. The activities have moved much more rapidly since the secondary career curriculum coordinator has been employed and is available on a daily basis. There will also be a follow-up workshop with the junior high school teachers during June, 1972 to permit the teachers the time to refine, revise, and complete the lesson plans.

In an attempt to reduce the division between the project staff and the school staff, a new administrative procedure was established between the project staff and the school administration. The new plan, which would not have been impossible during the first year because of the personnel involved, calls for all activities to be initiated through the building principals. In the cases of day-to-day work with the teachers, the project staff had the

freedom to work with the teachers, but it was agreed that the staff would keep the principals completely informed of the progress. In theory, this procedure appears to be quite an improvement, but in practice, it is time consuming and most of the administration has not had the time to become involved or has remained passive about becoming involved.

Without conclusive and tangible evidence, ther is a very noticable difference in the teacher acceptance of the project in the junior high school than there was in the elementary school. Where there was about 60% acceptance by teachers in the elementary school, there is 90% to 100% teacher acceptance in the junior high school. Not only is there more acceptance, but the junior high school teachers seem to be more enthusiastic than the elementary teachers. Only speculative reasons can be given for the differences. Some of them might be:

1. There were fewer people with which to work in the junior high school than in the elementary school.

2. The junior high teachers had a whole year to anticipate project activities while the elementary teachers were thrust into activities after the school year had started.

3. The junior high school teachers had the advantage of some summer activities which were not available to the elementary teachers.

4. Initial emphasis was placed on starting activities in the classroom, followed by preparation of written plans in the junior high school. The order was in reverse in the elementary school.

5. It was easier to identify times with which to work with teachers in the junior high school than in the elementary.

6. The project staff generally had a better idea of what they were doing the second than the first year.

7. The junior high school teachers may have been more receptive to change than the elementary teachers.

The above statements are made using the teachers collectively as a group. In practice, however, there were many elementary teachers that were as enthusiastic as the junior high teachers. Some elementary teachers, primarily in grades 4,5, and 6, were apathetic toward the concept of career education and/or were not willing to devote the effort to develop a program.

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Placement activities which were initiated during the first year of the project had only limited success. The majority of activity related to part-time employment of in-school students. On July 31, 1971, the placement coordinator resigned and the project was unable to secure a replacement until January 15, 1972. The new placement coordinator is functioning in a similar way, but more comprehensive manner than the former placement coordinator. He is devoting significant amounts of time to the task of helping students, as early as junior high school, attain a better understanding of themselves in relation to careers.

A major concern of the project, which was identified by the third-party evaluation team and the project staff, involves the guidance aspects of career education. Activities for the project were developed by the teachers with primarily a curriculum approach. To ensure that guidance is a major consideration in grades 1-12, a "team approach" has been considered. The team includes the elementary guidance counselor, secondary guidance counselor, pupil personnel director, and nurse. During the initial meetings of the team, the secondary career curriculum coordinator and project director have met with the team. The rationale for the team approach was to collectively identify specific tasks to be performed at all levels and to ensure that the guidance program was articulated. The assumption was made that it would not be feasible to accomplish all of the possible services which could come from an idealized guidance program by using conventional methods. The rationale of the team approach was to develop a complete guidance program which would include several alternatives. After the program had been identified, the team could determine the elements that would have the greatest chance of having an impact on students. The team could then focus on these elements in the guidance program. The result of the team activity will be a detailed plan for the guidance program with each team member knowing precisely what he has to do, when he has to do it, how it should be done, and to whom it was to be done.

Materials

The project is dependent on the identification and use of commercially prepared materials. The project does not have the time, funds, or personnel to develop and test quality materials. In some situations, programs are being planned and materials identified to support the plan. In other cases, materials were identified and a program was build around the materials. In both of these cases, it is often necessary to prepare some materials locally but there has been an attempt to keep this activity to a minimum.

In addition to the conventional learning materials, such as books, kits, tapes, films, and pamphlets, extensive use has been made of community and regional resources. A survey was made to identify people and places in the community that could assist with project activities in the form of classroom resource people, field trips, or as sources for interviews. The community has been extremely cooperative with the schools.

Teachers developed plans which will help them blend the career elements into their regular curriculum and effectively utilize the resources available to them. These plans include objectives, students activities, teaching procedures, integration methods, resources, and evaluation. The plans are meant to be flexible enough to provide for individual differences, yet complete enough for efficient classroom management.

Instruments

Several evaluative materials have been prepared by the project staff or the school system. The two main instruments which have been developed and are being used are the (1) parent questionnaire and (2) elementary evaluation materials. The parent questionnaire was administered to the parents in the elementary school in May, 1971. The results of that administration will be compared with an administration of the questionnaire in April, 1972. Data were collected in December, 1972 using the elementary school questionnaire and those data will be compared with the results of an April, 1972 administration of the instrument.

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PROJECT RESULTS AND ACCOMPLISHMENTS

For the purposes of this report, the results and accomplishments will be enumerated in terms of broad categories. Each of the categories have had varying degrees of success and each is at a different level of implementation. The third-party evaluation report will be able to give more candid and detailed appraisals of the categories listed below.

1. Continuation of the Elementary Instructional Program:

   Additional effort has been devoted to the elementary program to ensure that the program was well under way and to make initial plans for the school system to assume full responsibility for that phase of the program. To accomplish this task, a somewhat different procedure was established in the school. A career education committee was established with a representative from each grade level, the counselor, the principal, the project co-director, media technician, and resources specialist. The principal was the committee chairman and the co-director, media technician, and resources specialist were ex officio members of the committee. The teachers in each grade level met weekly with the committee representative to plan the next week's activities. The committee met the next day to review the previous week's activities, discuss the next week's plans, and identify resources needed to implement the activities. In addition, the teaching plans have been expanded from what had been prepared the previous year.

2. Addition of Guidance Elements to the Elementary Curriculum:

   One of the major recommendations of the third-party evaluation was that more concern be given to the guidance elements of the elementary program. As a result, the elementary guidance counselor has prepared supplements which can be incorporated with the instructional materials. The elementary counselor has worked with the teachers to help them integrate the materials into the units that the teachers have already prepared. When the teaching units are revised, the guidanc elements will be incorporated into the total plans at that time.

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3. Initiation of Junior High School Program:

Preliminary work with junior high school teachers was started during the 1970-71 school year and followed-up with a workshop for junior high school teachers in June, 1971. The teachers were to consider possibilities of career education in their classrooms during the remaining summer months. In August, 1971 a two-day workshop was held to help the teachers clarify some of their ideas and discuss plans for the in-service program for the remainder of the year. The first task which was considered was to identify career clusters that could be examined by the teachers in their various subject matter areas. The teachers then selected clusters with which they felt comfortable and which were appropriate to their subject matter area. At this point, the teachers in cooperation with the resources specialist, were asked to identify materials which would relate to their cluster responsibility. Because the project was unable to secure a competent person to serve as the secondary career curriculum specialist, the project director assumed the responsibility during the early phases of the work with junior high school teachers. After the teachers had accepted their cluster responsibilities, they were asked to consider a format for preparing written lesson plans regarding classroom activities. It was emphasized that it was most important that the teacher "try-out" some activities and the lesson plans could follow or result from the trial experiences. The initial progress, through January 15, 1972 was reduced because the project director was able to devote only two days a week to work with teachers. On January 15, the project was able to identify a secondary career curriculum specialist and the work progressed much more rapidly.

4. Continuation of Placement Activities:

A placement program was established during the first year of the project. The programs were fairly successful in finding jobs for in-school students but had almost no success with placing students leaving school in jobs or assisting students with the identification of post-secondary (non-college) education or training programs. The placement coordinator resigned effective July 31, 1971 and the project was not able to employ a replacement until January 15, 1972. The new placement coordinator is embarking on a more comprehensive approach to placement in which more emphasis will be given to all phases of placement. Special attention will be given to working with students, as early as grades 7 & 8, in groups about the conepts of career planning and decision making.

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5. Team approach to Guidance:

Because it is evident that the guidance resources available to the school system will be minimum when the project terminates, it was decided to explore the use of a team approach to guidance in the district. The team is to consist of all people who have input in providing student services which are guidance in nature. It has been hypothesized that through efficient study, planning, and use of resources that the guidance program can be developed to be of more benefit to all students. It was also recognized that the program could not accomplish all of the things that would be expected of an idealized program. The intent is to determine what could be done and to focus on those elements that have the most potential of benefiting the majority of students. The final result of this effort should be a detailed plan of guidance activities which describe precisely what should happen in the program. Each person involved in the guidance activities will know what is to be done, when it is to be done, how it is to be done, where it is to be done, and to whom it is to be done.

6. Vocational Agriculture Program:

A program addition to the school has been the vocational agriculture program. While the area, because of mountainous terrain, has almost no farming, the area is particularly suited for horticultural activities. The program intent is to prepare students to function in the areas of horticulture, landscaping, land reclamation, and other related fields. The first year of activities in vocational agriculture has been devoted to the development of a cadre of students with backgrounds to pursue more specific activities. A greenhouse has been secured for use in the speciality portion of the program. A classroom will be used for the general introductory courses in junior high school and lower high school. It is expected that this program is one that will be funded by the State Department of Education.

7. Selection of the Project by North Carolina State University:

The Center for Occupational Education, North Carolina State University, selected the project as one of 41 projects to be studies and reviewed for national dissemination. A self-study, submitted to the Center for Occupational Education served as the basis for selecting the project as one of the 41 to be visited by a team. The team visited the project site on March 20 and 21, 1972.

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EVALUATION

The following material has been prepared by the third party evaluation team. The team members consisted of Dr. M. Ray Karnes (team chairman), Dr. James J. Buffer, The Ohio State University, Dr. Mary K. Klaurens, University of Minnesota, and Dr. Jerry Streichler, Bowling Green State University.

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REPORT OF THIRD-PARTY EVALUATION TEAM

"UNIVERSAL MODEL" OF OCCUPATIONAL EDUCATION

Project Number: 0-361-0059
Grant Number: OEG-070-4754 (361)
Project Title: A "Universe Model" of Occupational Education for Pikeville, Kentucky in Conjunction with the Pikeville Model Cities Program

Exemplary Project in Vocational Education
Part D, Public Law 90-576
Eastern Kentucky University
Richmond, Kentucky

June 1, 1972

Evaluation Team Members

M. Ray Karnes, Chairman, University of Illinois, Urbana
James J. Buffer, The Ohio State University, Columbus
Mary K. Klaurens, University of Minnesota, Minneapolis
Jerry Streichler, Bowling Green State University, Ohio

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Introduction

While the task of the Third-Party Team was that of making an assessment of the progress made toward the objectives for the second of the three phases of the "Universe Model," exemplary occupational education program for Pikeville, Kentucky, the members of this team were convinced, during the initial stages of their work, of the importance of taking into account the problems and accomplishments experienced during the first phase. The team also deemed it important that the third phase be anticipated and that, more importantly, consideration be afforded the long-term alternatives and prospects for continuing the best features of this project after special Federal funding terminates at the end of the third year. In other words, the team members approached their task in the context of a long-range enterprise, for their preliminary investigations lead to the assumption that upon termination of special funding, the Pikeville Independent School District will not revert back to the educational program in operation at the time this exemplary project was launched.

One of the reasons that the evaluation team could function in the context of an educational enterprise with long-term implications derives from the relationship of this year's team to that of the previous year. Dr. M. Ray Karnes of the University of Illinois, who served as chairman of the team for Fiscal 1972, is a close associate of Dr. Rupert N. Evans of the same institution who served in that capacity last year. Two members of the current team, Dr. Mary K. Klaurens of the University of Minnesota and Dr. Jerry Streichler of Bowling Green (Ohio) State University, served with Dr. Evans last year and continued as members of the current team. Dr. James J. Buffer of the Ohio State University joined this year's team as its fourth member.

The members of the team, in preparing this report, have chosen not to repeat sections which have been covered quite adequately in numerous documents generated by the Project Staff. While it is of utmost importance that the objectives of the Project be given serious attention and that the socio-economic and educational setting in which this Project operates be taken into account, objectives are clearly set forth and detailed descriptions of Pikeville and Pike County are presented in numerous documents: in the proposals and in preliminary and interim reports. The present report is given over primarily to findings, conclusions and recommendations.

Third-Party Evaluation Procedures

The members of the evaluation team relied heavily on six sources of evidence concerning the progress which has been made thus far in conducting the reference Project in response to its objectives: (1) the numerous and voluminous proposals and reports submitted by the Project Staff, (2) the instructional materials prepared by the Project Staff, (3) the instructional materials prepared by Pikeville teachers with the support of Project Staff members and additional materials and instructional

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aids procured from outside resources, (4) four evaluative reports (one presented by last year's third-party team, one prepared by the Project Staff in the form of a report on the results of the internal assessment as required in the Contract for the Project, and two submitted by the Model Cities staff), (5) observations by the third-party team members of in-school and community activities involving teachers and students, and (6) in-depth interviews with a cross section of Pikeville teachers, administrators and other key faculty and staff members of the Pikeville Schools, Project Staff members, students at all age and grade levels, parents, employers, school board members, the members of the Model Cities Advisory Council, the Mayor and other community leaders.

Well in advance of the time the team made the first trip to Pikeville on March 8-10, 1972, the Project Director forwarded copies of all available reports and instructional materials to members of the visiting team. These materials were very helpful to the team in preparing for the first site visit, as were the additional materials received prior to the second visit on May 17-19, 1972.

Administration and Administrative Support

From several standpoints, major improvements were made in the administration, coordination and overall direction of the Project during Fiscal 1972 to overcome many of the difficulties experienced during Fiscal 1971. Operations during the year just ending were not impeded by the late start of the previous year. At the beginning of Fiscal 1972, a new High School Principal and a new Elementary School Principal reported for duty to provide increased and enthusiastic administrative support for the Project in these two key positions. A very significant indication of the Superintendent's increased interest in the Project is the fact that he is giving attention to the implications of the Project for future staffing and to the formulation of budgetary projections which will enable the Pikeville Independent School District to continue the best features of the Project after special funding is terminated.

Two important Project Staff positions were filled during the latter half of Fiscal 1972: (1) Secondary Curriculum Coordinator, and (2) Placement Coordinator. While these positions were vacant for an extended period of time, the two men who joined the staff have now offset the loss through very productive and effective work.

While various quarterly and interim reports highlight the problems experienced in building effective working relationships and getting the Project Staff and the Pikeville teachers to join in a coordinated, integrated effort to achieve the objectives of the Project, the members of the evaluation team are convinced that a great deal more has been done to build cooperative and harmonious relationships than is reflected in reports submitted by the Project Staff. Perhaps the Project Director and the Co-Director have been overly sensitive about possibilities for conflict. The members of the evaluation team give the people who occupy these two key positions a great deal more credit for generating a climate conducive to cooperative effort than do they give themselves.

As the end of Fiscal 1972 approaches, not only is there much closer integration of the efforts of Project Staff members with the work of Pikeville teachers and administrators, but it is apparent that the launching and conduct of this Project has strengthened communications throughout this School System.

The report resulting from one of the contracts let by the Pikeville Model Cities Agency illustrates in a dramatic way the importance that Agency attaches to career education as a central component in a total effort to enhance the cultural, social, economic, health, educational and environmental dimensions of life in Pikeville and the surrounding area. The report entitled, Pikeville Career Learning Center for Pikeville Independent School System, dated September 9, 1971, sets forth a bold prospectus for a program and facility which, if carried through, would revolutionize education in that region of Appalachia and would surely convert the here-to-fore traditional college preparatory program of Pikeville High School into a completely comprehensive program which would indeed be exemplary. For this development the evaluation team wishes to grant full measure of credit to the foresight, creativity and imaginative leadership skills of the Mayor of Pikeville, the members of the Pikeville Model Cities Agency, the Board of Education, and the administrative officers of the Pikeville School System.

While it is completely unrealistic to assume that the plan presented to the Model Cities Agency and the Pikeville School System by the planning firm (Comprehensive Design Collaborative, Architects, Engineers, Planners) can be financed from local school funds, the members of the team are of the view that this plan, if expanded to provide for a total, comprehensive high school and adult program, would have a great deal of appeal to external funding agencies.

Fiscal Policies and Procedures

There are many indications that funds allocated to this Exemplary Project have been used efficiently. Materials and equipment purchased with Project funds have been carefully selected and they are being used effectively in the program. There is a good balance between materials which have been commercially produced and the ones prepared by Project Staff members and Pikeville teachers. Purchases have been made in line with fiscal policies established by the Board of Education and administrative officers of the Pikeville School System. Project Staff members have been employed in line with local personnel policies, and the salary levels are consistent with the local salary schedule. In general, the Project funds have been expended in much the same manner as they might have been had the entire Pikeville School System enjoyed funding at a satisfactory level and had Pikeville been able to launch this Project without external fiscal support.

Staff and Staff Involvement

The members of the Project Staff are well qualified to perform the professional tasks set forth in the project proposal. While some of

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them may lack the formal preparation and experience which might be desired, this is offset by the fact that all are motivated by a high order of personal and professional commitment to the goals of the project. As a team, they present varied backgrounds. They are a fortunate blend of people from the local community, from the state, and from the neighboring region who bring to the Project not only professional expertise but a strong commitment to the idea of developing an innovative career education program which is relevant and thus responsive to the most compelling socio-economic and broad educational needs of the young people of Appalachia.

From the beginning, the Project budget has provided for some positions which have not been filled. Even so, the members of the evaluation team commends the Project Staff and Pikeville School System leadership for the staff members who have been employed, and concurs in the position that a vacancy here and there is to preferred over the practice of employing any persons who might be attracted to the isolated community of Pikeville on short notice.

Reference has been made to the fact that Project team members have expressed disappointment concerning the extent to which teachers in the Pikeville School System have become involved in the implementation of project goals. Members of the evaluation team do not share that view and assessment. Team members observed too many examples of heavy involvement and genuine commitment on the part of teachers to be other than pleased. To anticipate that all teachers in an isolated community will very quickly forego a traditional approach to education to join forces with a group promoting a strikingly innovative program is to expect a great deal more than is realistic and feasible.

In spite of the late start which meant no time for orientation and preparation prior to the opening of school in Fiscal 1971, more than half of the elementary teachers have become heavily involved in Project activities during the past two years. The junior high school teachers are almost unanimous in their acceptance of and commitment to Project objectives. Increased numbers of high school teachers are examining innovative possibilities which have important implications for dramatic change in emphasis and program at the high school level.

Here are only a few example of acceptance and involvement: (1) a seventh grade teacher of English who exudes enthusiasm as she insists that this year of teaching, her last in a life-time career, has been her most exciting professional experience as a result of her introduction of a career development emphasis in all of her classes to establish the relevance of communication skills in the world of work; (2) a high school biology teacher who alters her instructional program to establish with her students the relevance of their studies to the broad range of careers in health, agricultural, and environmental protection fields; and (3) science and mathematics teachers in the junior and senior high school who are beginning to explore possibilities for teaching in such a way that their respective fields contribute maximally to career development objectives.

Unscheduled visits to a sample of elementary and junior high classes support the contention that the presence of the Project Staff is making

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a significant difference in the total educational enterprise in Pikeville. Involvement of increased numbers of teachers and administrators explains this development.

Since the creation of the Project, the development of instructional materials, techniques, and activities has been the responsibility of the Project Staff, with continued assistance from the teaching personnel in the local schools. Almost all of the instructional materials were created by the teachers. Professional assistance in the location of resource materials, resource personnel, and arrangements for field trips and speakers were provided by the Project Staff (curriculum coordinators for the elementary and secondary schools).

The technique of involving local teaching staff in the design, development, and testing of the instructional materials has helped strengthen acceptance of career education as an integral part of the total school curriculum. Also, this approach has established credibility and value of the learning activities with the teaching and administrative staffs throughout the district.

Based on interviews with selected faculty, it appears safe to assume that much of the instruction that occurred in the school system prior to this Project may be classified as conventional teacher-dominated, and desk-oriented recitation and reading. The major goal of the elementary school appeared to be to teach subject matter and information to prepare youngsters for the junior high school, to prepare junior high school students for their senior high school studies, and senior high school students to become successful college students. It is apparent that the educational technology has greatly changed for the elementary and junior high school teachers, in that instruction is now student-centered, teacher-guided, and activity-oriented. Exciting instructional activities have been generated to teach the subject matter commonly taughts at those grade levels; however, instruction now appears to be more relevant in that students are learning of the application of subject matter and concepts as they relate to themselves, society, and their natural and man-made environs.

During the previous third-party evaluation visit, some dissension was noted among the elementary and secondary school teachers and administrators regarding the implementation of career education. Elementary and junior high school teachers now appear to be very supportive of career education. Hopefully, this same attitude will be shared by the senior high school staff after they have an opportunity to participate in the program during the 1972-73 school year.

The teacher preparation workshops and inservice meetings have apparently been successful in providing motivation and skills necessary to develop and implement career education instruction and activities. However, one apparent weakness, for some staff, is that career education is perceived as being synonymous with occupational information and job preparation. This limited perception tends to restrict the development of a comprehensive and appropriate career education program. Since the Pikeville Project began two years before the concept of career education was receiving national attention, it is understandable why occupational

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orientation is dominant throughout the program. This phenomenon may be responsible for the negative reactions currently expressed by some of the senior high school faculty, who perceive the Project's main purpose as being job-orientation, and in conflict with their perceived role of preparing students for college. This suggests a need for inservice education for the secondary school teachers who will become an integral part of the project during the 1972-73 school year. It is recommended that the Project Staff share with the cooperating teachers some of the literature recently disseminated in professional journals which explains the rationale and purpose for career education. Also, all teachers and administrative staff should be involved in occasional group work sessions with Project Staff where they can learn of new developments in career education and share ideas and information about the exemplary program.

Community Awareness and Involvement

Reference has been made to the central emphasis on education, with special reference to career education, in the plans being formulated by the Model Cities Agency. Mention should be made also of the continuous series of feature articles and pictorial presentations which appear weekly in the local newspaper to keep the public informed about career education developments and activities in the Pikeville Schools. The numerous short and lengthy documentaries on career education which are produced by the local TV station are certainly worthy of notice. There is a planned, on-going public information program, but this effort has not been done justice in the various reports issued by the Project Staff.

Interviews with several lay people in Pikeville indicate that the public information program is becoming effective. However, it is apparent that the direct involvement in career education activities of increased numbers of lay people from a wider range of careers is even more effective in informing the public about innovative career education developments in the Pikeville Schools.

It is in connection with day-to-day instructional activities that the school and the community are being brought together in a way that has made affective utilization of community resources a reality. Especially in the elementary program, and increasingly at the junior high level, planned and coordinated field trips to a wide range of businesses, agencies, and other establishments have become an important means of enlarging the students' store of knowledge about the world of work and developing appreciation of the importance of work to the well-being of all. Regularly, many of the same people with whom students make contact during field trips come to the school and again work with students as they pursue meaningful activities which are prompted by observations and visits to the real world of work.

Curricular Sequence

From a review of instructional materials prepared by teachers and from conferences with teachers, it is clear that concepts are beginning

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to evolve with reference to appropriate emphases and the sequence of activities appropriate at each level:

K-3 Work values and attitudes are incorporated in the social studies at the primary level. The occupations are those which touch the lives of children--parent occupations, community services, and workers in the school.

4-6 Clusters of occupations are integrated with related subject matter--communications cluster with language arts, transportation cluster with social studies, personal services cluster and health occupations with health-science. Other subject matter is related to occupations or the exploration process where teachers can perceive relationships--writing letters to obtain information about careers, math in manufacturing and construction, etc.

7-9 Subject matter skills are related to occupations or a cluster in which the skills are used--math in marketing, distribution and construction; writing skills and communications; history and transportation; English and fine arts; science and environmental control; agriculture and resource conservation.

The structure has evolved from the teachers' perception of the relationship of traditional subject matter and desired basic skills to occupations and career clusters. This seems to work well if the teachers are sold on the career education; however, the quality and quantity of career-related instruction, and the emphasis on particular career related objectives varies with the teacher's perception and acceptance of the career education purpose. The attention given to self-concept clarification and the decision-making process is not clear.

What may be lacking or what is not apparent is an articulated plan which indicates what occupations and activities are explored or experienced at different levels. Some career clusters seems to be given considerable attention, while others are given minimal exposure.

Interviews with students revealed that they are aware of many career opportunities and occupations in their community. The displays and the bulletin boards in the classroom are indicative of attention being given to career orientation. There are records to show that children have been on numerous field trips and have had resource visitors from the community come to the classrooms.

Materials

There are excellent printed materials and audio-visual aids for students and teachers. The materials are listed in bibliographies which are available to the teachers so that the materials can be selected when the teacher is planning instruction. Curriculum guides from other exemplary programs have been gathered and are available to the teachers.

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The Media Specialist has developed a series of slides documenting many of the career-related activities of students. She has also developed slides of work settings in the Pikeville area and prepared a bibliography for teachers to use in planning audio-visual instruction. A manual explaining the use of equipment and assistance from the media specialist have improved the teacher's chances of utilizing audio-visual aids.

Guidance Services

There appears to be a definite improvement in the guidance services now being provided to the children participating in the elementary and junior high school career education programs. The addition of a Placement Counselor has helped fill what was once a significant void in the total guidance program of the Pikeville School System. The guidance services in the secondary school have been limited primarily to the administration of achievement tests and providing college placement information to high school seniors. While these activities are also considered to be valid and a necessary part of career education, it is apparent that the total professional guidance commitment was aimed at careers limited to the professions requiring a collegiate degree. While the school is to be commended for providing such services, it must also assume the responsibility for providing parallel guidance assistance for those students who will find themselves in employment which requires training below that of the baccalaureate degree. This has now been begun by the Placement Counselor, a member of the Project Staff.

During the past three months, the Placement Counselor has contacted over 100 prospective employers and businessmen to explain the rationale of the career education program and the need for the assistance from industry and business to conduct a cooperative program in the school district. He has been successful in placing students in cooperative work-study stations with approximately 20 employers in the relatively short time that he has been a member of the staff.

This added dimension to the guidance and educational program of the school system will provide educational experiences which will contribute to the career development of students that could not have been adequately achieved under former curricular practices. Many of the teachers in the secondary school suggested that some of the students placed in the cooperative work-study program were thought to be potential dropouts and that these types of educational experiences might provide the necessary motivation for them to remain in school and complete their formal education. In addition, student employees will have the opportunity to earn money to supplement their family income while experiencing personal satisfaction and, hopefully, enjoying improved self-image and understanding. It is essential that the school components of work-study be further developed: continued supervision, guidance, instruction by the work-study coordinator, coordination of in-school studies and experiences gained on the job. Although the person currently responsible for this task does not hold a teaching or guidance certificate, he does have a baccalaureate degree in business

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administration and a master's degree in counseling psychology. He is a mature man who is a native of the community and a product of the neighboring school system, and he has much empathy for the students in the Pikeville School System. It is doubtful that his missionary zeal and enthusiasm could be improved by obtaining a teaching credential, although it is understood that this will be necessary for state certification requirements. Therefore, it is recommended that he be encouraged to attend evening or summer classes to complete the necessary certification requirements, and that the school system provide whatever encouragment and assistance necessary to retain this man.

While it is understood by the evaluation team that the senior high school will first begin its formal participation with the Project Staff in the 1972-73 school year, it was felt that a few observations should be made relative to the guidance program at this time. The teachers and administrative staff of the senior high school are rather proud of the fact that 80+ percent of the graduating seniors have made application to a college or university. Unfortunately, no formal process exists to follow up these graduates to determine: (1) if they actually ever enter and begin collegiate training, or (2) how many actually are successful in completing the baccalaureate degree.

Pikeville, like many other school systems, feels a strong commitment to the college bound students and takes pride in announcing that its primary focus has been in preparing youngsters for college. Although 80 percent of its high school graduates have expressed a desire to attend college, this single fact alone in no way should justify the unnecessary stress and limitation placed on college preparatory instruction and guidance. It is imperative, therefore, that immediate steps be taken to determine actual educational and occupational activities and successes of the students once they have graduated. These data would then provide a more accurate picture of the educational patterns and choices of students. It is recommended that the school records of the graduating class of a previous year, such as 1966, be used to conduct a follow-up study as a means of determining the post high school educational and occupational patterns of graduates. The six-year time lapse should allow for career changes and school changes made by some students during their studies and/or military service. This survey could serve as a pilot study for developing instruments and data collection procedures which could become an integral part of the guidance program.

The guidance staff must also be responsible for determining the fate of those students who neglected to complete their high school education in Pikeville. It would be interesting to learn the differences in work and educational patterns of the school dropouts and those who earned their high school diploma.

The group guidance activities in the elementary school appear to be progressing well. It is recommended that group guidance services be continued and further developed to provide a better understanding of "self" as it relates to educational, occupational, and personal aspirations. It is also recommended that similar professional services be extended to the secondary school and made available to all junior and senior high school students on a regularly scheduled basis.

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It is recognized that the single, permanently employed counselor may have some difficulty providing the necessary guidance services suggested in this report (follow-up of students, graduates and drop-outs, supervision of work-study students, etc.) for all students enrolled in the secondary school. Therefore, it is recommended that an additional counselor be employed to assume some of the professional responsibilities. If funds are not available to hire a second, full-time guidance person and also a full-time work-study coordinator, the school system may wish to employ one additional person as a half-time coordinator and half-time guidance counselor, until additional funds are made available. Regardless of what is done, the school system should attempt to obtain monies from the state department to support the work-study and vocational guidance programs and reimburse, in part, the salary of the needed professional staff.

Eastern Kentucky University Involvement

The members of the administration of Eastern Kentucky University are to be commended for the very strong support they have afforded this exciting, exemplary project in Pikeville. One member of the present evaluation team had the good fortune of working with the President, the Vice-President for Research, and the Dean of the College of Applied Arts and Technology at Eastern Kentucky University more than ten years ago. At that time, these gentlemen were very strongly committed to the idea of developing programs in direct response to the most compelling socio-economic problems which beset people in Eastern Kentucky University's service sphere. That these three gentlemen and many other members of the faculty and staff of Eastern would lend their support to this exemplary project comes as no surprise. The Director of the Project, even though based at Richmond, spends most of his time in Pikeville where he and the Co-Director provide very able and imaginative leadership to this project.

Many members of the faculty of Eastern Kentucky University have participated in inservice teacher education programs at Pikeville. While there was little of this during the early months of the Project, faculty members of Eastern were heavily involved in the workshops conducted during the summer of 1971. All indications are that their involvement in the workshops to be conducted here during the summer of 1972 will represent a major input. The involvement of members of the faculty of Eastern Kentucky University will undoubtedly result in significant changes in undergraduate and graduate teacher education in the interest of adding a career education component to the total teacher education effort.

The members of the evaluation team deeply regret that they find it necessary to report that there is very little evidence that the Guidance Counselor based at Richmond has made a significant contribution to this project. Guidance is crucially important in the total career education effort at Pikeville. The Director, the Co-Director, and the other members of the staff at Pikeville have worked long and hard on guidance materials and they have joined forces with the Placement Counselor and the teachers throughout the system to build a career education emphasis

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in the total guidance effort in the school system. An able assist from the Guidance Counselor located at Richmond would have been a welcome addition.

Internal Evaluation

The proposal for this project includes a provision to the effect that there will be careful evaluation of the Project in terms of its stated objectives. The Project Staff members have taken this provision quite seriously from the very beginning, and a major effort has been made to obtain data from elementary school children and their parents with reference to the achievement of Project objectives. However, the members of the evaluation team are not overly impressed by the results achieved by the current approach to internal evaluation. In the first place, not enough time elapsed between the first and second administrations of the student and parent questionnaires. A second difficulty is that some of the instruments were changed prior to administering them a second time, and this tended to make spurious the results obtained when an attempt was made to compare the initial responses with those submitted when the instruments were administered a second time.

In the view of the members of the evaluation team, the day-to-day feedback from students, parents, and teachers was far more important in bringing about improvements in the career education program than will be any improvement which results from the more formal attempt to evaluate the Project. All of the Project Staff members are certainly concerned about the problem of internal evaluation, and they are making a genuine effort to determine what works successfully and what does not. The responses and reactions which come from students, teachers, administrators, parents, and employers as they react in an informal setting will, in the view of the evaluation team, have greater validity and reliability than will the results obtained through instrumentation unless professional assistance can be obtained in designing and administering the instruments.

Recommendations

Many detailed recommendations could be presented, and quite a few were mentioned to members of the Project Staff in Pikeville, but for emphasis the members of the evaluation team present here, for the consideration of all concerned, a limited number of recommendations which are considered to be of crucial importance.

1. Administrative Structure. While the members of the team are aware of the fact that changing the boundaries of the Pikeville Independent School District is not the unilateral prerogative of the Board of Education and the Superintendent, a strong recommendation is presented to the effect that the District be enlarged substantially. To take such action would probably have more important and favorable implications for career education than for any other aspect of the total school program. Pikeville, by itself, has neither the population nor the fiscal base to make completely adequate and total career education development a reality.

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With only 600 students in the junior and senior high school combined, there is a definite limit to what can be done along the lines of increasing career education options maximally and remaining within the range of economic feasibility.

Pikeville is clearly the trade center for that section of Appalachia. It is also the health-medical center which now has facilities to serve people from throughout that region. With the state and interstate network of highways now planned and under construction, Pikeville will serve as the major transportation center in that area. If only a part of the bold plans projected by the Model Cities Agency are eventually implemented, Pikeville will most certainly add to its cultural, health and medical, recreational, transportation and business stature. These high aspirations are commendable, and the members of the evaluation team strongly recommend that bold plans also be projected for education to make the development complete.

2. Future Staffing Pattern. Since the Agriculture Teacher who joined the Project Staff in September 1971 is leaving at the end of the current school year, his successor should be recruited aggressively. It is extremely important that the new person employed have an agricultural background which is in line with the agricultural needs and possibilities in the Pikeville area. It is apparent that knowledges and skills in the areas of floriculture, horticulture, and agri-business should be among his competencies and interests. He should be knowledgeable and skilled in greenhouse operation, both for floral and vegetable production. All specialized career education teachers should be well prepared to promote and conduct cooperative education as a part of their responsibilities, and the Agriculture Teacher is no exception.

With major emphasis to be placed on the further development of career education in the high school during 1973-73, it is strongly recommended that the Cooperative Education Coordinator provided for in the Project budget be employed at an early date. This person will be a key figure in bringing the school and the community together in the interests of enabling young people to pursue their career development aspirations, and this person should be on the job well in advance of the opening of school in the fall.

It is recommended that careful consideration be given the possibility that the roles and functions of the Placement Coordinator may overlap those of the Cooperative Education Coordinator. Unless this potential problem is resolved at an early date, students may not understand why one program requires related study and training when they can get a job without it through the Placement Coordinator. This can also be a source of confusion for employers. All Pikeville teachers, students, and employers should understand clearly that placement is one thing and that obtaining on-the-job training under joint supervision and coordination by the school and employer is a provision which must be met if the young student worker is to advance in a career as rapidly as possible.

3. Adult Education. Serious consideration should be given the educational needs of adults who may wish to enhance their employability

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through attending school on a part-time basis. The whole idea of career education presumes that provisions will be made for continuing education and that educational opportunities should be just as ample and extensive for adults as they are for full-time high school students. From a cursory observation of the community and from the problems brought to light from discussions with adults in the community, the need for expansion of adult education opportunities is apparent. Small business management seminars, merchandising, hospitality and recreation, heavy equipment maintenance, etc., are only a few of the obvious areas in which training opportunities should be made available. Continuing education for out-of-school youth and under-employed adults deserves consideration in a total career education program.

4. Refinement of Instructional Materials and Media. While the instructional materials and media developed thus far are of a quality as high as might be expected in view of the time limitations, it is strongly recommended that during the third year of the Project a major effort be made to revise and amend these materials to put them on a truly professional plane. Much can be accomplished along this line during the coming school year, but to capitalize fully on the materials that have been developed thus far, it will be necessary to employ on a full-time basis, during the summer of 1973, several of the most competent teachers who have been centrally involved in the career education effort in Pikeville.

The Project at Pikeville is one of the very few in the country in which a major effort is being made to build a career education component into the total educational experience from grades K through 12. This particular project is highly successful locally, but if it is to have maximum impact on the education programs elsewhere the materials from it must be of high professional quality and they must be widely disseminated. Not only will these materials be extremely important to other local school systems, but they will be very helpful in developing a career education component in on-going undergraduate and graduate teacher education programs and in the development of inservice programs designed to upgrade experienced teachers.

5. Guidance, Placement, and Follow-up. It is recommended that a comprehensive, coordinated program of guidance, placement, and follow-up be developed and that it be conducted on a continuing basis. Guidance and placement are most certainly essential elements in a career education program. Accurate information concerning what happens to high school graduates and dropouts alike is essential to effective long-range planning for improvements in the total educational enterprise, including career education.

6. Future Funding. The evaluation team recommends to the Superintendent and to the Pikeville School Board that one- and five-year plans for career education be developed and submitted to the Kentucky Division of Vocational and Technical Education along with a request that there be substantial allocations out of Federal and State vocational monies in order that career education in Pikeville may continue to grow and develop after direct Federal funding is terminated. Much of what is going on in Pikeville in the interest of developing career education as a central

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thrust in the entire educational enterprise is clearly in line with the central purposes expressed in current Federal vocational education legislation and in State Plans throughout the country. Our recommendation is that Pikeville school personnel keep the road hot between that community and Frankfurt and that members of the Division of Vocational and Technical Education become involved in the inservice teacher education programs and conferences being conducted in Pikeville.

While it was made clear from the outset that Federal funding for this exemplary project is to terminate at the end of Fiscal 1973, this project has been so successful that, without hesitance, the members of the evaluation team recommend that some special funding be continued in order that the results achieved at Pikeville may have major impact on career education developments elsewhere. Specifically, our recommendation is that funds be made available for the further refinement and wide dissemination of the great array of materials which are coming out of this project and funds also be made available to support inservice teacher education, workshops and seminars which could be conducted quite effectively in Pikeville to the advantage of teachers and leadership personnel from elsewhere.

Concluding Statement

In summary, the third party evaluation team has been more than satisfied with the observations of Project accomplishments and current activities. It is heartening to observe a marked improvement in the teaching behavior and attitude of the participating teachers. Education has become exciting and active for the students and educational staff. Learning-teaching activities have become team efforts involving students, teachers, and parents. The school environment has been expanded to include the community. The staff should be encouraged to continue with their work during this final year of development. It is hoped that these activities will continue even after project funding has terminated and that they will become an integral part of the total educational program.

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CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Most of the following conclusions, implications, and recommendations are made on the basis of staff observations. The report of the third-party evaluation team, contained in an earlier section of this report, will provide the reader with some additional information regarding the progress of the project.

Conclusions

1. The project in Pikeville has experienced several problems often associated with projects. Smith refers to five types related to "linkage problems and temporary systems." They are (1) input overload, (2) unrealistic goal-setting, (3) lack of process skills, (4) alienation, and (5) linkage failure (Smith, pp.3 & 4). While the problems experienced in Pikeville are not precisely the same as those described for the Mesa, Arizona system (school system referred to by Smith), there are some similarities.

   a. The input overload experienced by the project staff includes program conceptualization, teacher training, report writing, extensive correspondence, establishment of communication systems, responding to endless correspondence, attending endless meetings, identifying and securing resources, and monitoring the system being established by the project. Most of these situations are productive in nature and eventually provide evidence of progress. More inhibiting are such situations as frustration due to ambiguity of role and task, difference between staff and teachers regarding speed of change and concept acceptance, and program modification due to factors which are beyond the control of the project. These later conditions are counter-productive.

      The input overload for the teachers is magnified by the fact that they usually have a full load in addition to the establishment of the project activities. Certainly the teachers cannot help but have the feeling that "All those project prople have to do is think about career education," or "If they weren't around, we could have it the way it was before they came around." Until both groups are able

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to understand the role of the others and perceive them as beneficial, the associated problems are counter-productive. It is clear, however, that such massive change could not be expected without support staff provided by the project.

b. The problem of establishing goals was more a function of initial ambiguity of the task than one of being consciously over-confident. That is, many program directions were stated in the abstract without involvement of all concerned during the establishment of project goals. As the programs became reality, it was necessary to modify goals to meet the conditions which existed in the local situation.

c. Blending the new program developments with the old caused some linkage problems. It was found that the only way to solve some of the linkage problems was through confrontation. That is, only after some teachers had initiated activities, and found the linkage to be satisfactory or unsatisfactory, was the problem solved. This problem could be massive and long-range in nature for large school systems.

d. Because of inexperience with such situations, alienation, and ambiguity of task, there was an initial interpersonal processes problem. As role perception, initial frustration, and impact of initial overload were overcome this problem reduced. It is however, a situation for which the project staff must be constantly aware.

2. Local situations have tremendous impact on the progress of such projects. Variability in teacher training, teacher experiential backgrounds, previous school practices and policies, expectations of the community, project staff limitations, local resources, outside resources available to the school, and the state of progress reached by the school. For example. certain schools in the country might have been doing things that would be considered innovative in other places. Because of the differential in "the state of the situation" comparison among projects becomes quite difficult. Probably a greater consideration is growth of the project situation from initiation to termination of federal support.

3. The strategy of phasing the project activities over a period of three years instead of trying to install all elements at the same time appears to have been a positive plan for the

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project in Pikeville. Had the initial resistance encountered with the elementary school been diffused throughout the system, the problem could have been too great to overcome. By phasing the project, it was possible to devote all resources to a portion of the total effort and overcome some of the initial problems. The result was that there was enthusiastic acceptance among the teachers involved in the second phase of the project.

4. Considerable emphasis has been placed on "short-term" product evaluation. While it does seem important to embark on product evaluation early in the project development it is unlikely that profound changes can be expected within the three year period. It is much more reasonable to expect change to occur over a longer period of time after the treatments have been cumulative. Several other factors like inadequate measurement instruments, lack of people with expertise in the area of evaluation, ambiguity of the program during the initial stages of development, and the dynamic state of the program as it progresses from year to year.

5. It would appear that some accountability measures need to be examined and refined so that they are realistic. If unrealistic goals are established, and the people involved in the project view the goals as unreasiltic or unattainable, their drive toward accomplishing them might be less than fully enthusiastic. For example, 100% placement has been established as a primary goal for career education programs. This is certainly an admirable goal and one that almost everyone could agree would be beneficial to our nation. Placement on jobs, however, is more a function of the economy and employment policy that an element of education. It is recognizable that education must help students become employable. But it is unreasonable to expect educators to be held accountable for conditions beyond their control.

6. Teacher education might be as developmental in nature as the programs in career education. Most teachers lack the kinds of experiential backgrounds necessary to embark on career education activities. Only through a series of experiences can the teachers develop the expertise to be insightful participants in career oriented education. The experiences deal with attitude development, value appraisal, reality adjustment, societal (total) awareness, and methodological sophistification. Because most teachers must also be concerned with the immediate problems in their classrooms, this change process usually occurs over a period of time. There is also considerable variability among teachers with respect to the development process.

7. Availability of local resources can be a problem to the full implementation of a career education program. In communities where there is an abundant supply of businesses, industries, and other activities, opportunities for youngsters to view life situations or examples is much greater than in areas where economic activity is extremely restricted. Students are unable to view role models which establish credibility for the educational program. For instance, there might not be much motivation to develop competencies in the machine trades or manufacturing industries if the student cannot see a life application for his efforts. This situation also contributes to the minimal experiential backgrounds of teachers (especially teachers in the academic areas of school).

8. Small school systems (2,000 or less students) face many unique problems related to embarking on programs and continuing activities after supplemental resources are withdrawn. In Pikeville, the problem is magnified because of the very limited financial resources available to the school for operation. Low student enrollment causes the administrative costs per student to be so high that few funds are available for intensive supervision. Also, the funds available for the programs, other than the minimum state requirements, are reduced because of administrative costs, inadequate facilities, and low enrollments. Such a situation creates conditions which are not very flexible in terms of programatic change or adaptability.

9. Related to item 8 above, such projects as the one in Pikeville provide a great amount of professional stimulation to the school staff which was not previously possible. The stimulation causes the staff to consider program modifications which otherwise would never have been discussed. The stimulation also carries over into areas other than those for which the project is directed. Teachers realize, for example, that it is of little value to help children become occupationally aware if they are unable to cope with the basic skills. They realize that there is some relation between basic skill development and life roles and that the life role applicatons serve as the motivator. Professional stimulation sometimes appears to be quite chaotic, especially in the early stages of development. This often causes some communication problems among those involved. But, at least in the Pikeville situation, the confrontations resulting cause the participants to think much deeper about the problems being considered.

10. Communication seems to be the key element to rapid progress of teachers within a project. This conclusion is drawn from

a comparison of the elementary and junior high school experiences. There was much less time with which to work with elementary teachers than junior high school teachers, there were almost twice as many teachers to communicate with in the elementary school, and there were three times as many grade levesl to be concerned with in the elementary school. These conditions could have influenced the relatively positive attitude of the junior high school teachers toward making the necessary changes in their curriculum.

11. A "process" approach to staff development might have several advantages over a "product" approach. When working with elementary teachers, the project staff used a product development strategy. It was hypothesized that teachers could make appropriate changes and gain expertise by developing extensive lesson plans about what they intend to have their children do in the classroom.

    A different approach was used with junior high school teachers. Nearly all of the initial stages of interaction with junior high school teachers was devoted to helping them understand the purpose of career education and how they could contribute to the total program. Only after they had considered several alternatives, did they begin to prepare specific plans.

    Elementary teachers seemed to have more initial resistance to the project activities than the junior high school teachers. The positive attitude with junior high school teachers has appeared to continue, even after they began the tedious work of preparing lesson plans. It is difficult to determine whether the junior high school teachers are more knowledgeable of their role than the elementary school teachers. Accurate comparisons are impossible because of variation in role within the schools, age levels of the students, local conditions which prevailed at the time of program initiation, time available to work with teachers, the personalities of the teachers involved in the change, and nature of the project staff.

Implications

Implications which have been drawn from the previous conclusions have had relevance to the project staff and the school personnel in Pikeville. Numerous conditions, such as the geographic location, financing of the schools, previous local school policy, physical facilities, economin conditions, and background of the project staff have influenced the project

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situation. These conditions must be fully considered before extending the implications beyond Pikeville, Kentucky.

1. Projects should expect and plan for periods of time in which maximum production is not achieved by the project staff. The leadership, however, must also plan for appropriate inputs to keep the staff moving. While many of the initial periods of frustration are due to "input overload" which eventually moves toward project gains, the project should continually be aware of situation which are counter-productive. The counter-productive inhibitors usually seem to center around communication problems.

2. Projects might want to be extremely careful about overpublicizing project goals beyond the project situation until a complete feasibility study is made. That is, it is quite easy to verbalize goals in the interest of establishing project status, but implementation might be much more difficult. Much of the problem can be avoided by stating the firmly established goals and not elaborating beyond those goals. Also, it might be useful to explain that these are goals which the project expects to work toward, but modifications might have to be made. The project, however, must constantly work toward the implementation of programs to achieve the established goals. Established goals should not be modified until exhaustive studies have been made.

3. Linkage of new programs with old can create very difficult problems for projects that are not changing the entire content of a school program. Extensive interaction with teachers is essential to help teachers understand linkage possibilities and to encourage teachers to attempt implementation of activities.

4. Projects must be careful to prevent alienation from the remainder of the school staff. Possibly the most important consideration is to ensure that the remainder of the school is aware of what the project staff is doing, even if it exposes staff role frustration.

5. Because of local variation in certain aspects of a school system, it might be more reasonable to examine "growth" of a situation rather than achievement of a specific standard.

6. Phasing the elements of a project can help to overcome some installation problems. Project resources can be directed at

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a segment of the total program to ensure positive implementation. It is easier to progress with future elements if the initial phase has had success.

7. Projects should establish evaluation programs which can be conducted over long periods of time. The evaluation might yield some valuable short-term information, but it is doubtful that meaningful data will be secured from short-term evaluation.

8. Projects must carefully establish accountability measures. Regardless of where accountability measures are developed, the project should examing them in terms of local situations. Unrealistic accountability measures could reduce the enthusiasm of the staff if the measures appear to be unattainable.

9. Significant project efforts must be directed at staff development. It must be recognized that when new educational efforts are initiated, teacher growth is developmental in nature. The change occurs over a long period of time rather than over a short period of time.

10. Program development in career education, due to the dependence on local resources, might be more a function of the available resources than to some national goal. Projects must constantly search for techniques to expand real and simulated experiences beyond the local conditions.

11. In preparing projects, small school systems should carefully consider their unique problems and limitations. While the problems are often different from larger school systems, the problems are as real and inhibiting.

12. Projects need to develop clear and effective lines of communication among all people involved with project concerns. It would appear that the single most inhibiting element of a project is poor communication.

13. Project staffs should consider strategies which involve extensive emphasis on "process" if they are trying to maintain positive project attitudes. Consideration must also be given to the product as well as the process for change. Projects might also consider varying the emphasis placed on process and product at various times during the project.

14. The problem of input overload might cause more difficulty in smaller school systems than in larger systems because of the

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limited amount of supervisory personnel available in the smaller school system. Many of the initial inputs are the same regardless of the school size but the staff size over which the load is distributed is more limited in the smaller school system.

Recommendations

1. When scheduling project activities, plans should be made for "input-overload." The staff should also take special precautions to prevent situations which result in counter-productive overload.

2. Goal committment must receive constant attention to prevent overextending project capabilities. Projects should establish goals which can be feasibly attained and modified only after extensive staff review has determined that modification is necessary.

3. Project plans should be developed to permit frequent interaction between the teachers and project staff to insure adequate linkage between the old and new programs. Such interaction will also help to reduce alienation problems.

4. Evaluation procedures should be established to measure growth rather than to be compared to a specific standard. This procedure will account for local variation among school systems with respect to starting point. The procedures should be developed to provide data for long range examination of student progress.

5. When planning new projects, consideration should be given to "phasing" or "staging" the various elements of the project so that only portions of the total are implemented at a given time. It is, however, important that consideration be given to the whole program so that the elements will blend together as they are initiated.

6. Substantial portions of project resources (human and financial) should be directed at staff (teacher) development. Plans for staff development should be planned to account for the developmental nature of teacher growth.

7. Projects must solicit the aid of local resources to provide real

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examples for school programs. Effort must also be given to identifying ways to provide realism for economic activity not located in the local area.

8. The development of clear lines of communication should be a primary consideration of all projects.

9. Small school systems, when initiating projects should plan for additional supervisory personnel to assist with the input overload. Plans should also be made to transfer responsibility, assumed by the additional personnel, to the regular school staff when the project terminates.

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